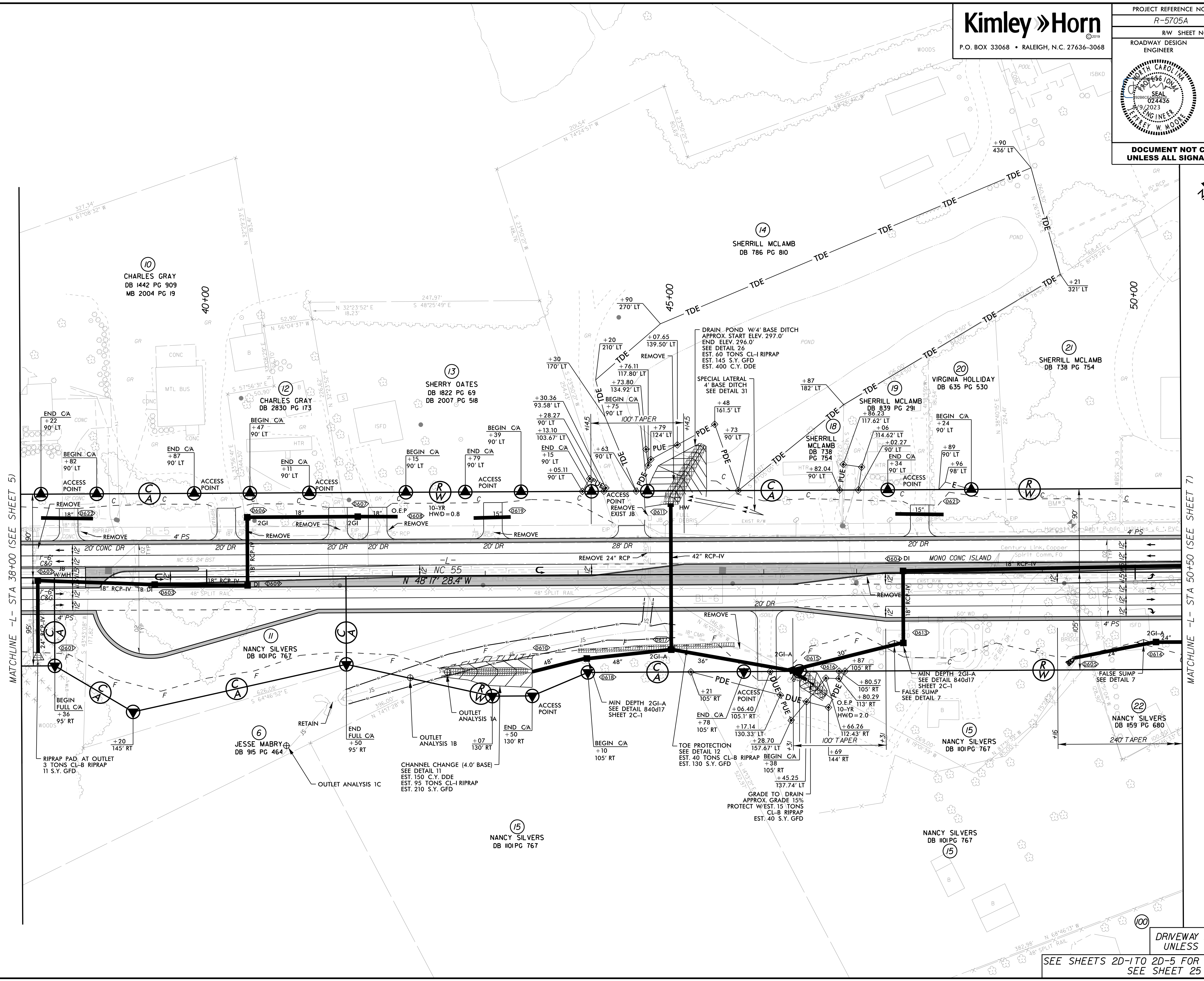


5/14/19

PROJECT REFERENCE NO. R-5705A	SHEET NO. 6
RW SHEET NO. 6 ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



REVISIONS



MATCHLINE -L- STA 38+00 (SEE SHEET 5)

MATCHLINE -L- STA 50+50 (SEE SHEET 7)


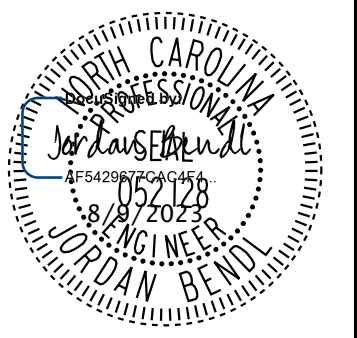
8/8/2023

DRIVEWAY RADII ARE 10 FEET  
UNLESS OTHERWISE NOTED

SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 25 FOR -L- PROFILE



5/14/19

PROJECT REFERENCE NO.	SHEET NO.
R-5705A	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**Kimley-Horn**

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

2022 ADT 2045 ADT	-Y1- SR 1532 (OAK GROVE CHURCH RD)	DHV = 9% DIR = 60% TTST = 1% DUAL = 3%
9300 14100	500 1100	3300 17000
NC 55		NC 55
DHV = 9% DIR = 60% TTST = 2% DUAL = 2%	300 800	1900 1700
		DHV = 9% DIR = 60% TTST = 1% DUAL = 4%
	-Y2- SR 1532 (GUY RD)	
	2300 5900	

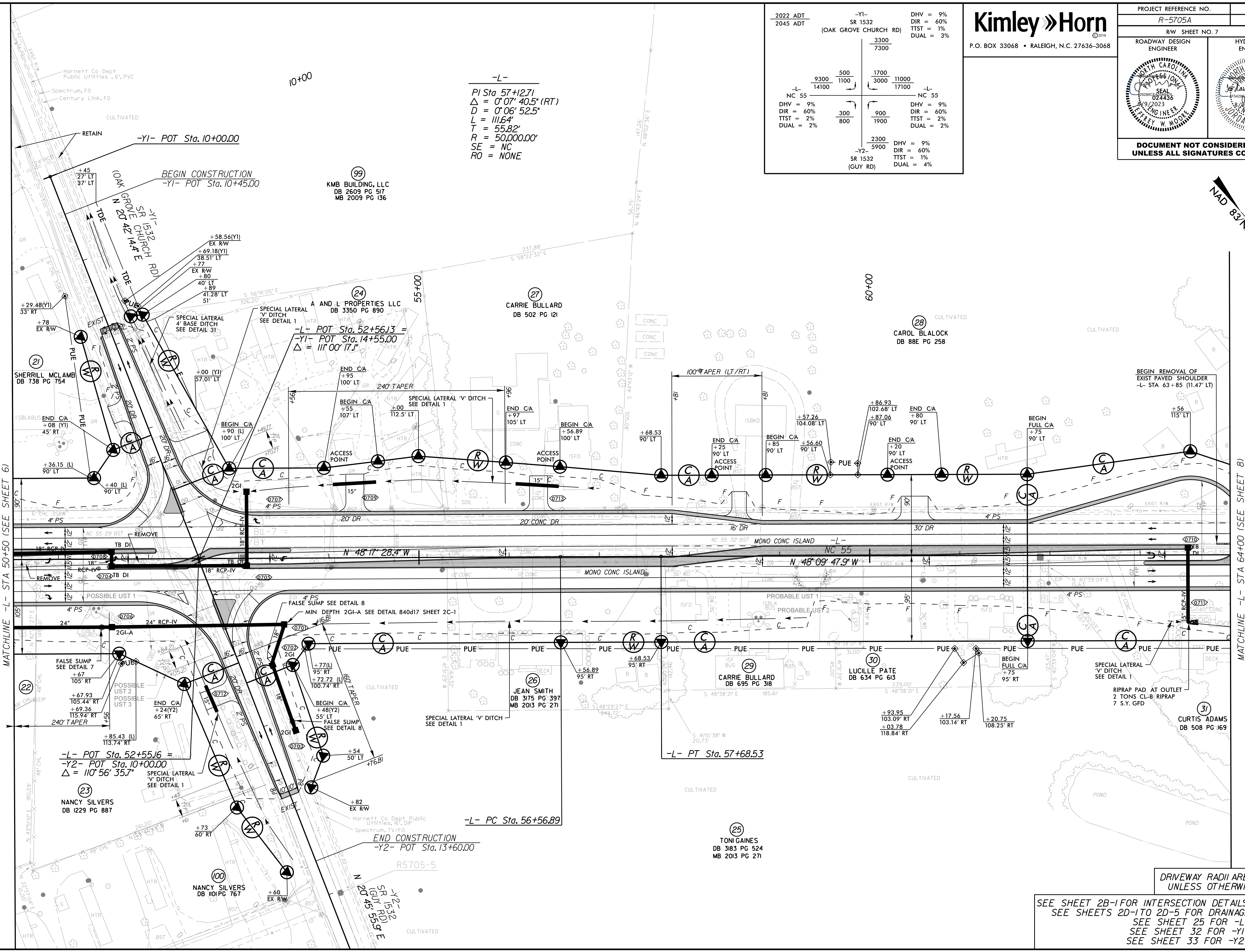
**-L-**  
 PI Sta 57+12.71  
 $\Delta = 0^{\circ} 07' 40.5''$  (RT)  
 $D = 0^{\circ} 06' 52.5''$   
 $L = 111.64'$   
 $T = 55.82'$   
 $R = 50,000.00'$   
 SE = NC  
 RO = NONE



REVISIONS

MATCHLINE -L- STA 50+50 (SEE SHEET 6)

MATCHLINE -L- STA 64+00 (SEE SHEET 8)



**-L- POT Sta. 52+55.16 =**  
**-Y2- POT Sta. 10+00.00**  
 $\Delta = 110^{\circ} 56' 35.7''$

**-L- PT Sta. 57+68.53**

**-L- PC Sta. 56+56.89**

DRIVEWAY RADII ARE 10 FEET  
UNLESS OTHERWISE NOTED

SEE SHEET 2B-1 FOR INTERSECTION DETAILS 3 AND 4  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 25 FOR -L- PROFILE  
 SEE SHEET 32 FOR -Y1- PROFILE  
 SEE SHEET 33 FOR -Y2- PROFILE

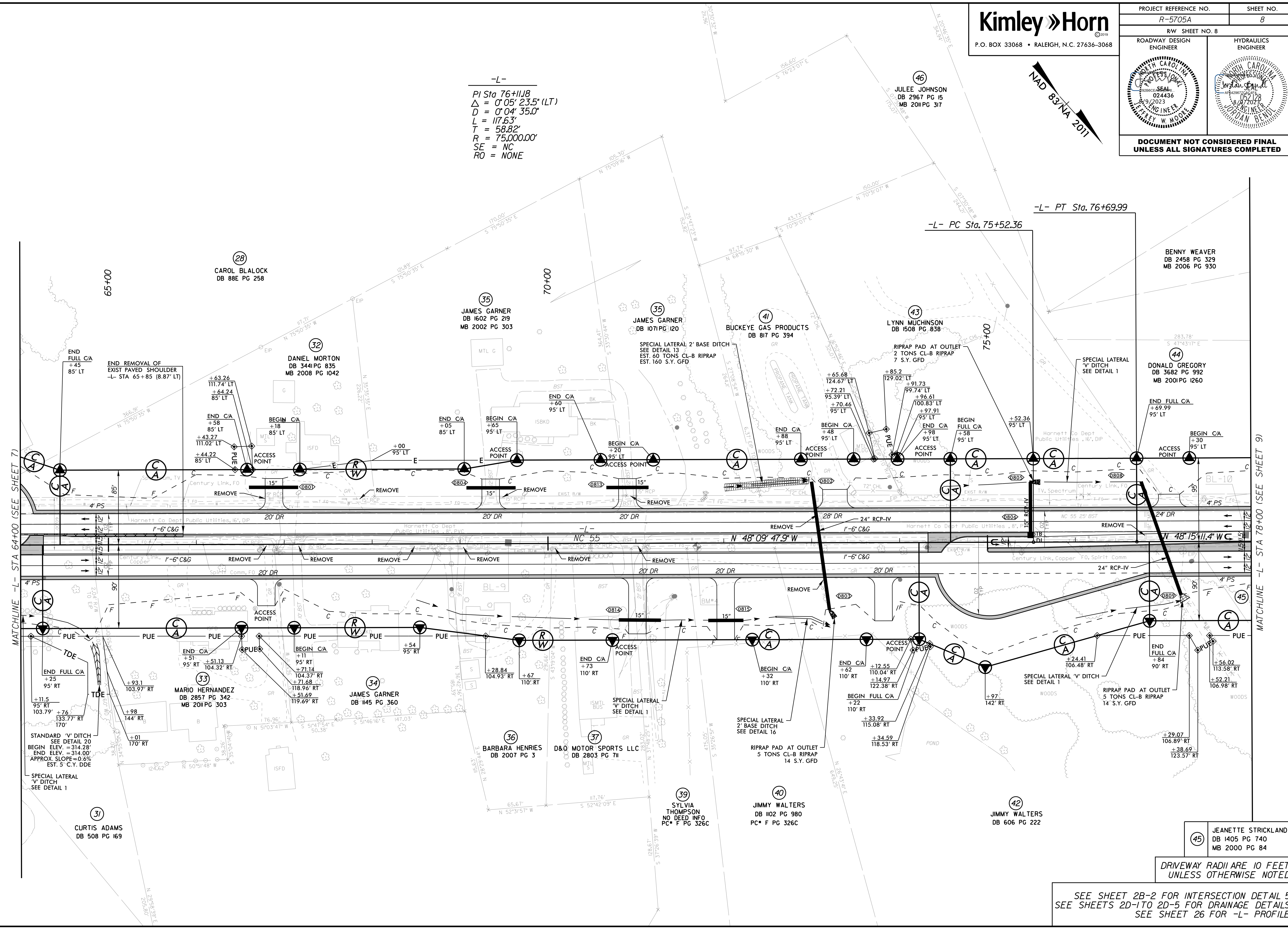
8/8/2023



PROJECT REFERENCE NO. R-5705A	SHEET NO. 8
RW SHEET NO. 8	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



-L-  
 PI Sta 76+11.8  
 $\Delta = 0' 05' 23.5''$  (LT)  
 $D = 0' 04' 35.0''$   
 $L = 117.63'$   
 $T = 58.82'$   
 $R = 75,000.00'$   
 SE = NC  
 RO = NONE



REVISIONS

MATCHLINE -L- STA 64+00 (SEE SHEET 7)

MATCHLINE -L- STA 78+00 (SEE SHEET 9)

STANDARD 'V' DITCH  
 SEE DETAIL 20  
 BEGIN ELEV. = 314.28'  
 END ELEV. = 314.00'  
 APPROX. SLOPE = 0.6%  
 EST. 5' C.Y. DDE

DRIVEWAY RADII ARE 10 FEET  
 UNLESS OTHERWISE NOTED

SEE SHEET 2B-2 FOR INTERSECTION DETAIL 5  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 26 FOR -L- PROFILE

8/8/2023

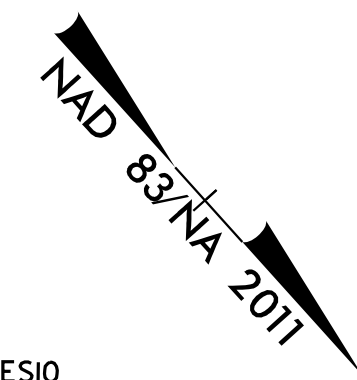


5/14/1999

PROJECT REFERENCE NO. R-5705A	SHEET NO. 9
RW SHEET NO. 9	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

2022 ADT 2045 ADT	-Y3- SR 1538 (MABRY RD)	DHV = 9% DIR = 65% TTST = 1% DUAL = 3%
11000 17100	100 200	500 600
NC 55		11400 17500
DHV = 9% DIR = 60% TTST = 2% DUAL = 2%		DHV = 9% DIR = 60% TTST = 2% DUAL = 2%

-L-  
 PI Sta 119+02.62  
 $\Delta = 47^{\circ} 38' 07.8" (LT)$   
 $D = 0^{\circ} 52' 53.3"$   
 $L = 5,404.08'$   
 $T = 2,869.25'$   
 $R = 6,500.00'$   
 $SE = 0.025$   
 $RO = 150'$

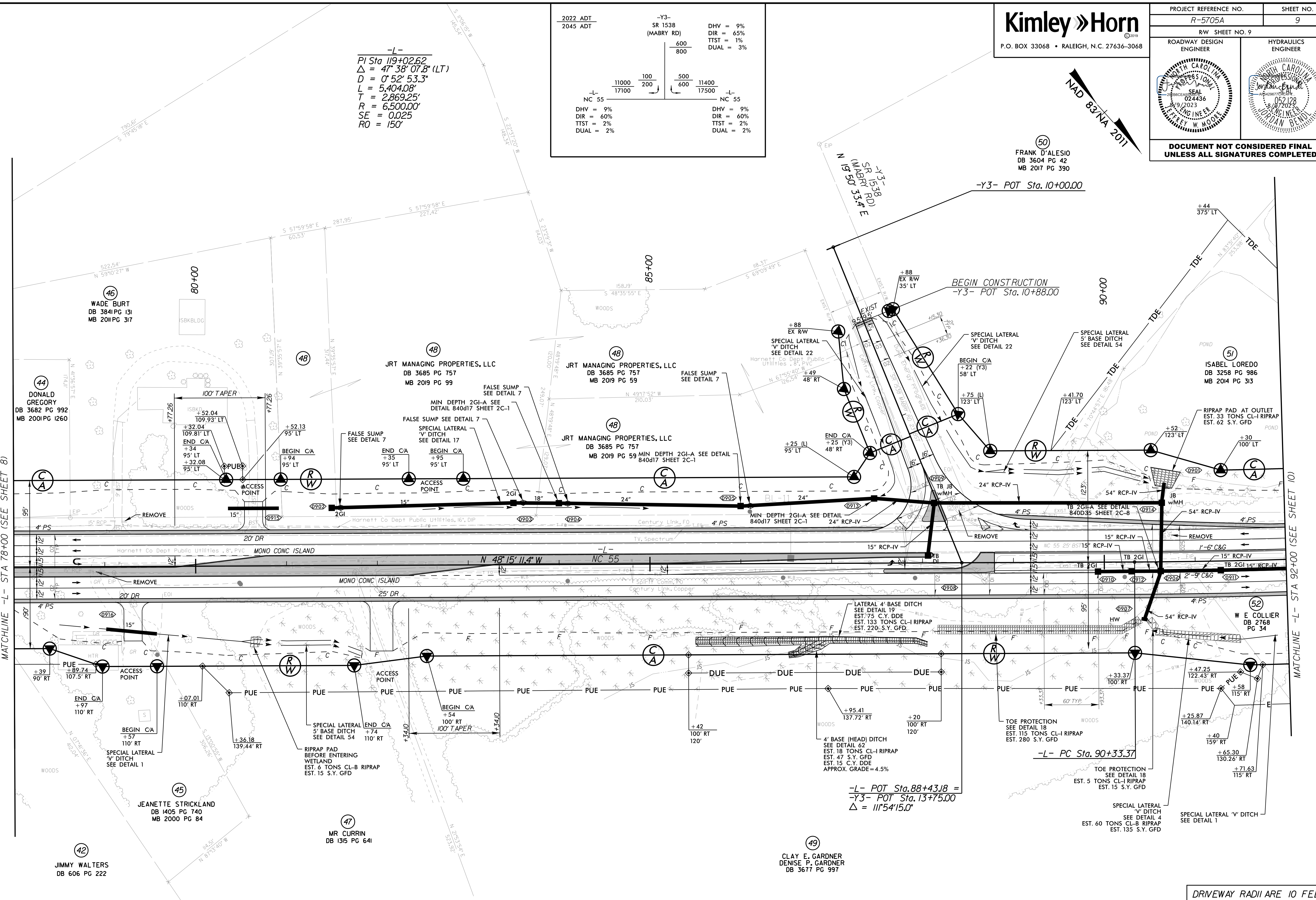


50  
 FRANK D'ALESSIO  
 DB 3604 PG 42  
 MB 2017 PG 390

REVISIONS

MATCHLINE -L- STA 78+00 (SEE SHEET 8)

MATCHLINE -L- STA 92+00 (SEE SHEET 10)



-L- POT Sta. 88+43.18 =  
 -Y3- POT Sta. 13+75.00  
 $\Delta = 111^{\circ} 54' 15.0"$

DRIVEWAY RADII ARE 10 FEET  
 UNLESS OTHERWISE NOTED

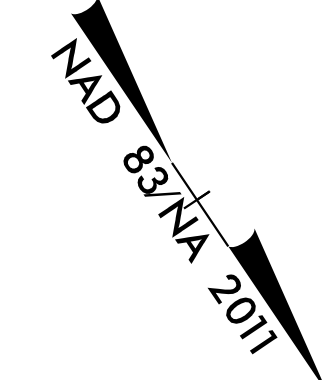
SEE SHEET 2B-2 FOR INTERSECTION DETAIL 6  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 26 FOR -L- PROFILE  
 SEE SHEET 33 FOR -Y3- PROFILE

8/8/2023

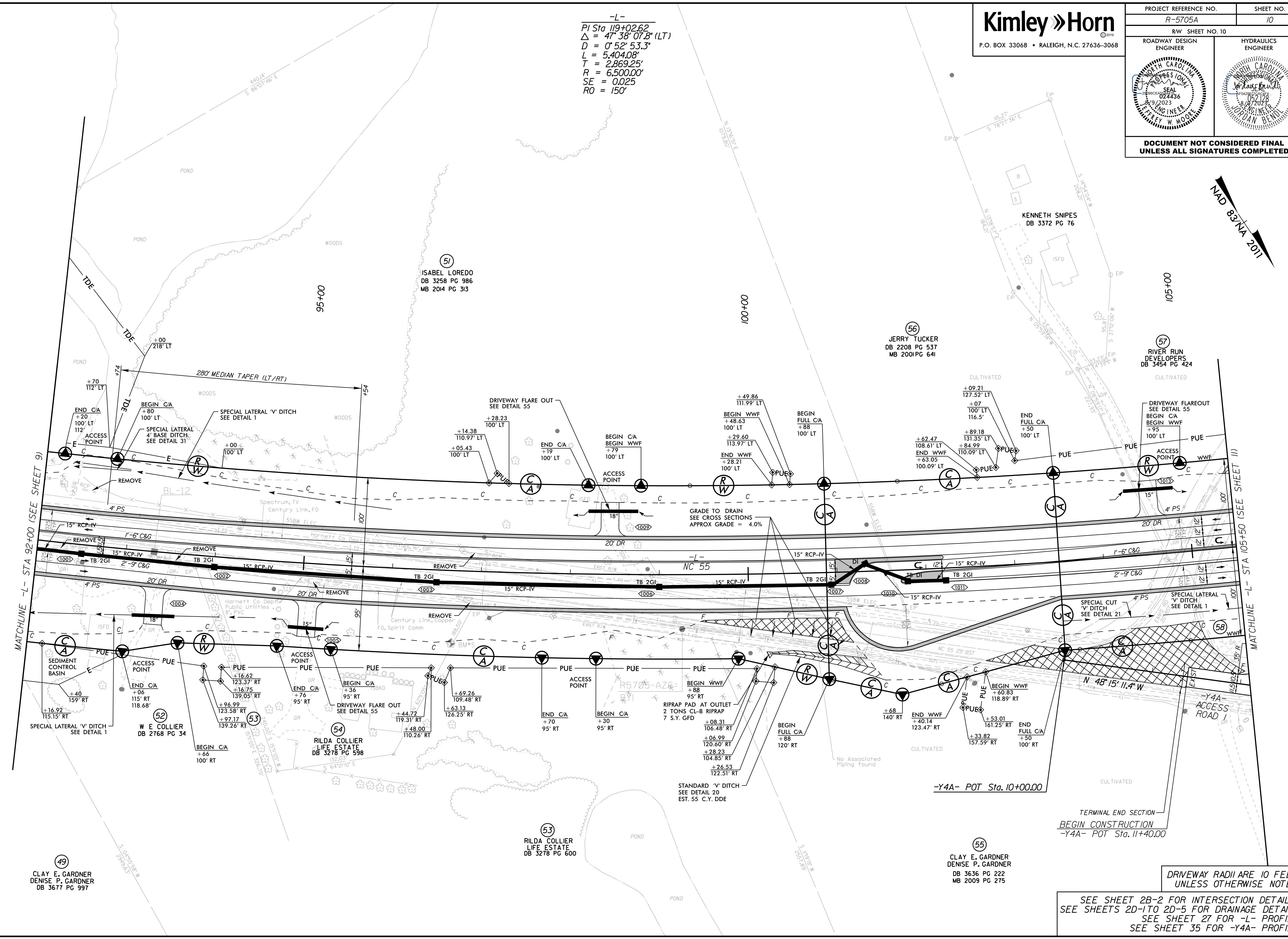


PROJECT REFERENCE NO. R-5705A	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

-L-  
 PI Sta 119+02.62  
 $\Delta = 47^\circ 38' 07.8" (LT)$   
 $D = 0^\circ 52' 53.3"$   
 $L = 5,404.08'$   
 $T = 2,869.25'$   
 $R = 6,500.00'$   
 $SE = 0.025$   
 $RO = 150'$



REVISIONS



49  
 CLAY E. GARDNER  
 DENISE P. GARDNER  
 DB 3677 PG 997

53  
 RILDA COLLIER  
 LIFE ESTATE  
 DB 3278 PG 600

55  
 CLAY E. GARDNER  
 DENISE P. GARDNER  
 DB 3636 PG 222  
 MB 2009 PG 275

DRIVEWAY RADII ARE 10 FEET  
 UNLESS OTHERWISE NOTED

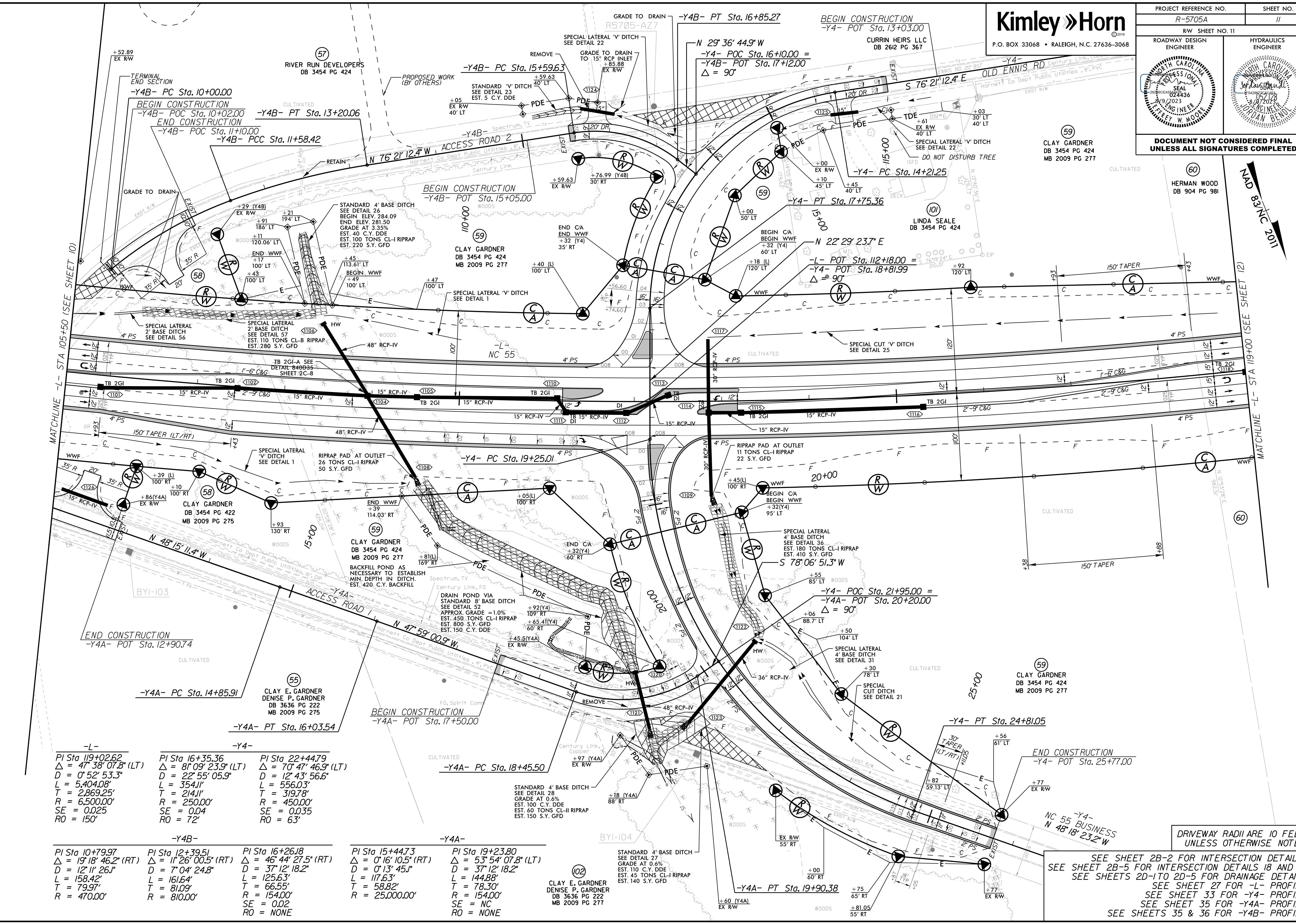
SEE SHEET 2B-2 FOR INTERSECTION DETAIL 7  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 27 FOR -L- PROFILE  
 SEE SHEET 35 FOR -Y4A- PROFILE

8/8/2023

5/14/1999



PROJECT REFERENCE NO. R-5705A	SHEET NO. 11
RW SHEET NO. 11	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



-L-		
PI Sta 119+02.62	PI Sta 16+35.36	PI Sta 22+44.79
$\Delta = 47^\circ 38' 07.8''$ (LT)	$\Delta = 81^\circ 09' 23.9''$ (LT)	$\Delta = 70^\circ 47' 46.9''$ (LT)
D = 0' 52' 53.3"	D = 22' 55' 05.9"	D = 12' 43' 56.6"
L = 5,404.08'	L = 354.11'	L = 556.03'
T = 2,869.25'	T = 214.11'	T = 319.78'
R = 6,500.00'	R = 250.00'	R = 450.00'
SE = 0.025	SE = 0.04	SE = 0.035
RO = 150'	RO = 72'	RO = 63'

-Y4B-		
PI Sta 10+79.97	PI Sta 12+39.51	PI Sta 16+26.18
$\Delta = 19^\circ 18' 46.2''$ (RT)	$\Delta = 11^\circ 26' 00.5''$ (RT)	$\Delta = 46^\circ 44' 27.5''$ (RT)
D = 12' 11' 26.1"	D = 7' 04' 24.8"	D = 37' 12' 18.2"
L = 158.42'	L = 161.64'	L = 125.63'
T = 79.97'	T = 81.09'	T = 66.55'
R = 470.00'	R = 810.00'	R = 154.00'
		SE = 0.02
		RO = NONE

-Y4A-		
PI Sta 15+44.73	PI Sta 19+23.80	PI Sta 19+23.80
$\Delta = 0^\circ 16' 10.5''$ (RT)	$\Delta = 53^\circ 54' 07.8''$ (LT)	$\Delta = 53^\circ 54' 07.8''$ (LT)
D = 0' 13' 45.1"	D = 37' 12' 18.2"	D = 37' 12' 18.2"
L = 117.63'	L = 144.88'	L = 144.88'
T = 58.82'	T = 78.30'	T = 78.30'
R = 25,000.00'	R = 154.00'	R = 154.00'
	SE = NC	SE = NC
	RO = NONE	RO = NONE


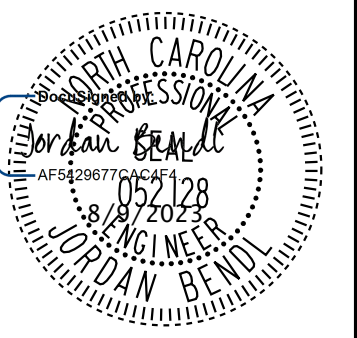
DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

SEE SHEET 2B-2 FOR INTERSECTION DETAIL 8  
 SEE SHEET 2B-5 FOR INTERSECTION DETAILS 18 AND 19  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 27 FOR -L- PROFILE  
 SEE SHEET 33 FOR -Y4A- PROFILE  
 SEE SHEET 35 FOR -Y4B- PROFILE  
 SEE SHEETS 35 & 36 FOR -Y4B- PROFILE

REVISIONS

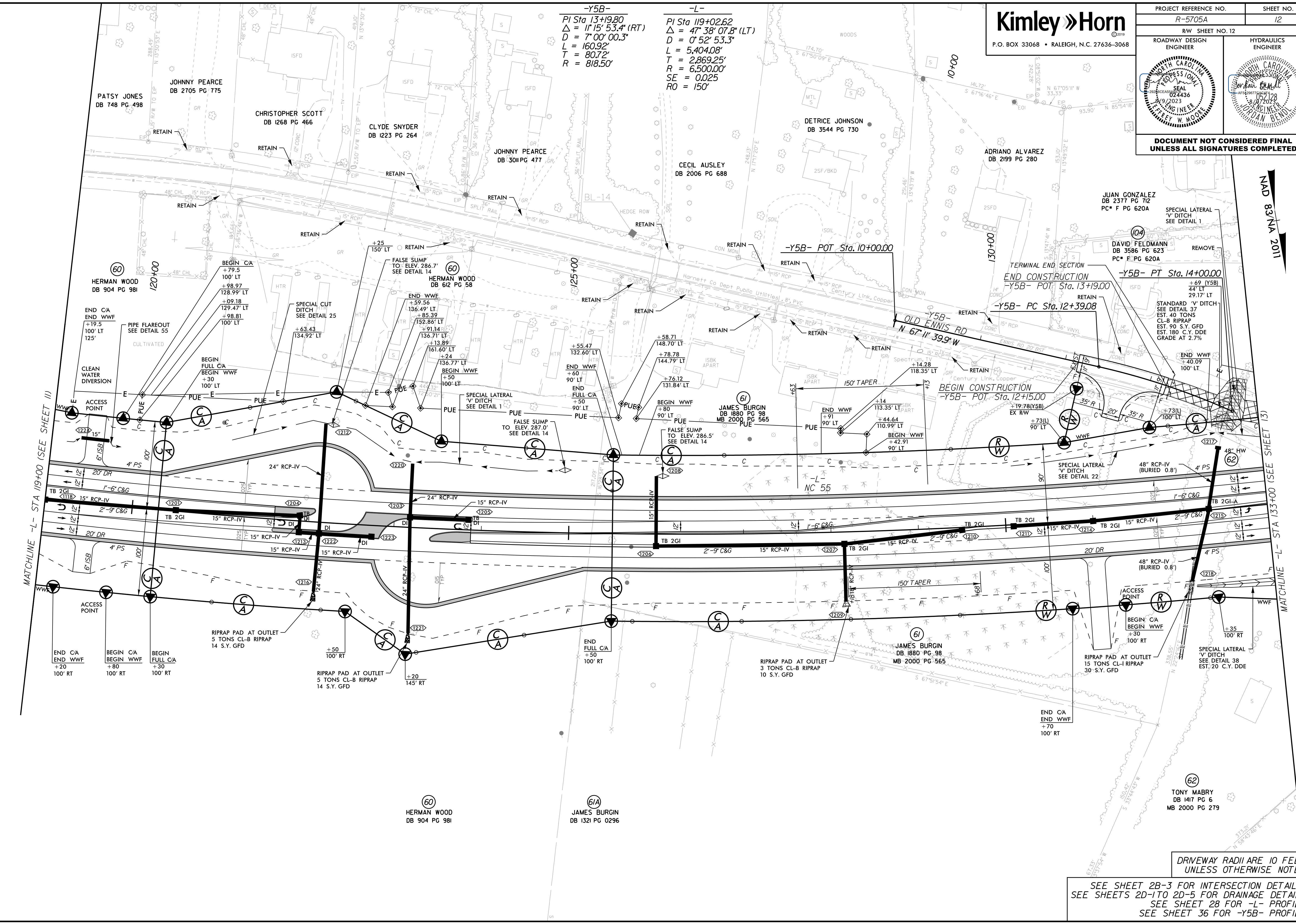
8/18/2023



PROJECT REFERENCE NO. R-5705A	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**-Y5B-**  
 PI Sta 13+19.80  
 $\Delta = 11' 15" 53.4" (RT)$   
 $D = 7' 00" 00.3"$   
 $L = 160.92'$   
 $T = 80.72'$   
 $R = 818.50'$

**-L-**  
 PI Sta 119+02.62  
 $\Delta = 47' 38" 07.8" (LT)$   
 $D = 0' 52" 53.3"$   
 $L = 5,404.08'$   
 $T = 2,869.25'$   
 $R = 6,500.00'$   
 $SE = 0.025$   
 $RO = 150'$



NAD 83/NA 2011

MATCHLINE -L- STA 119+00 (SEE SHEET 11)

MATCHLINE -L- STA 133+00 (SEE SHEET 13)

REVISIONS

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

SEE SHEET 2B-3 FOR INTERSECTION DETAIL 9  
SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 28 FOR -L- PROFILE  
SEE SHEET 36 FOR -Y5B- PROFILE

8/8/2023

END C/A  
END WWF  
+20  
100' RT

BEGIN C/A  
BEGIN WWF  
+80  
100' RT

BEGIN FULL C/A  
+30  
100' RT

RIPRAP PAD AT OUTLET  
5 TONS CL-B RIPRAP  
14 S.Y. GFD

+50  
100' RT

60  
HERMAN WOOD  
DB 904 PG 981

61A  
JAMES BURGIN  
DB 1321 PG 0296

62  
TONY MABRY  
DB 1417 PG 6  
MB 2000 PG 279

60  
HERMAN WOOD  
DB 904 PG 981

60  
HERMAN WOOD  
DB 612 PG 58

61  
JAMES BURGIN  
DB 1880 PG 98  
MB 2000 PG 565

104  
JUAN GONZALEZ  
DB 2377 PG 712  
PC\* F PG 620A

DAVID FELDMANN  
DB 3586 PG 623  
PC\* F PG 620A

ADRIANO ALVAREZ  
DB 2199 PG 280

DETRICE JOHNSON  
DB 3544 PG 730

CECIL AUSLEY  
DB 2006 PG 688

JOHNNY PEARCE  
DB 3011 PG 477

CHRISTOPHER SCOTT  
DB 1268 PG 466

JOHNNY PEARCE  
DB 2705 PG 775

PATSY JONES  
DB 748 PG 498

CLYDE SNYDER  
DB 1223 PG 264

CECIL AUSLEY  
DB 2006 PG 688

ADRIANO ALVAREZ  
DB 2199 PG 280

DETRICE JOHNSON  
DB 3544 PG 730

CECIL AUSLEY  
DB 2006 PG 688

JOHNNY PEARCE  
DB 3011 PG 477

CHRISTOPHER SCOTT  
DB 1268 PG 466

JOHNNY PEARCE  
DB 2705 PG 775

PATSY JONES  
DB 748 PG 498

CLYDE SNYDER  
DB 1223 PG 264

CECIL AUSLEY  
DB 2006 PG 688

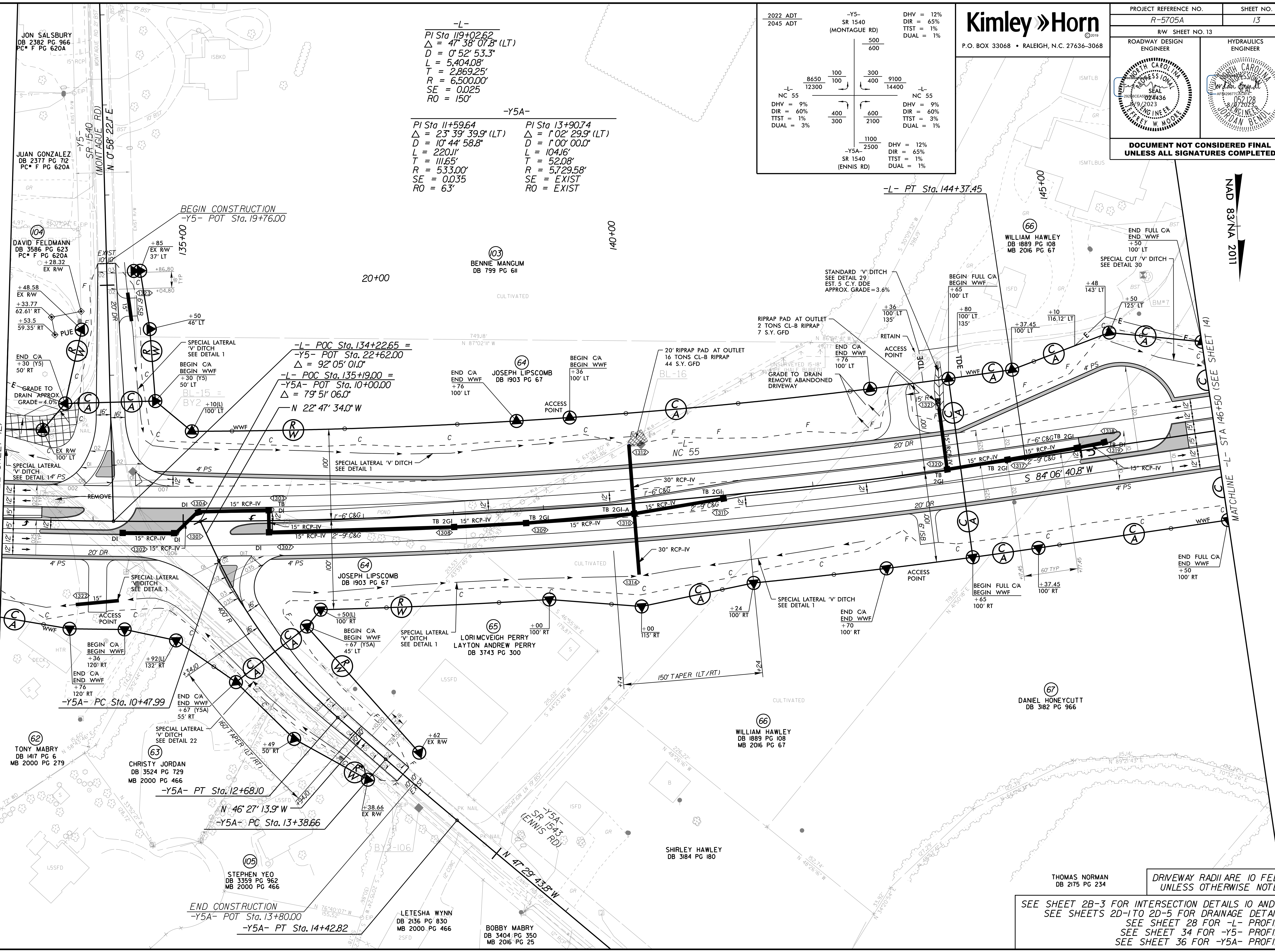
ADRIANO ALVAREZ  
DB 2199 PG 280

DETRICE JOHNSON  
DB 3544 PG 730



5/14/1999

8/8/2023



**-L-**  
 PI Sta 119+02.62  
 $\Delta = 47^{\circ} 38' 07.3''$  (LT)  
 $D = 0^{\circ} 52' 53.3''$   
 $L = 5,404.08'$   
 $T = 2,869.25'$   
 $R = 6,500.00'$   
 $SE = 0.025$   
 $RO = 150'$

**-Y5A-**  
 PI Sta 11+59.64  
 $\Delta = 23^{\circ} 39' 39.9''$  (LT)  
 $D = 10^{\circ} 44' 58.8''$   
 $L = 220.11'$   
 $T = 111.65'$   
 $R = 533.00'$   
 $SE = 0.035$   
 $RO = 63'$

PI Sta 13+90.74  
 $\Delta = 1^{\circ} 02' 29.9''$  (LT)  
 $D = 1^{\circ} 00' 00.0''$   
 $L = 104.16'$   
 $T = 52.08'$   
 $R = 5729.58'$   
 $SE = EXIST$   
 $RO = EXIST$

2022 ADT	-Y5-	DHV = 12%
2045 ADT	SR 1540	DIR = 65%
	(MONTAGUE RD)	TTST = 1%
		DUAL = 1%
	500	
	600	
	100	
	300	
	9100	
	14400	
NC 55		NC 55
8650	100	400
12300	100	600
		2100
		1100
		2500
DHV = 9%		DHV = 12%
DIR = 60%		DIR = 65%
TTST = 1%		TTST = 1%
DUAL = 3%		DUAL = 1%

**Kimley Horn**  
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PROJECT REFERENCE NO. R-5705A	SHEET NO. 13
RW SHEET NO. 13	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA 133+00 (SEE SHEET 12)

MATCHLINE -L- STA 146+50 (SEE SHEET 14)

BEGIN CONSTRUCTION  
 -Y5- POT Sta. 19+76.00

END CONSTRUCTION  
 -Y5A- POT Sta. 13+80.00  
 -Y5A- PT Sta. 14+42.82

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

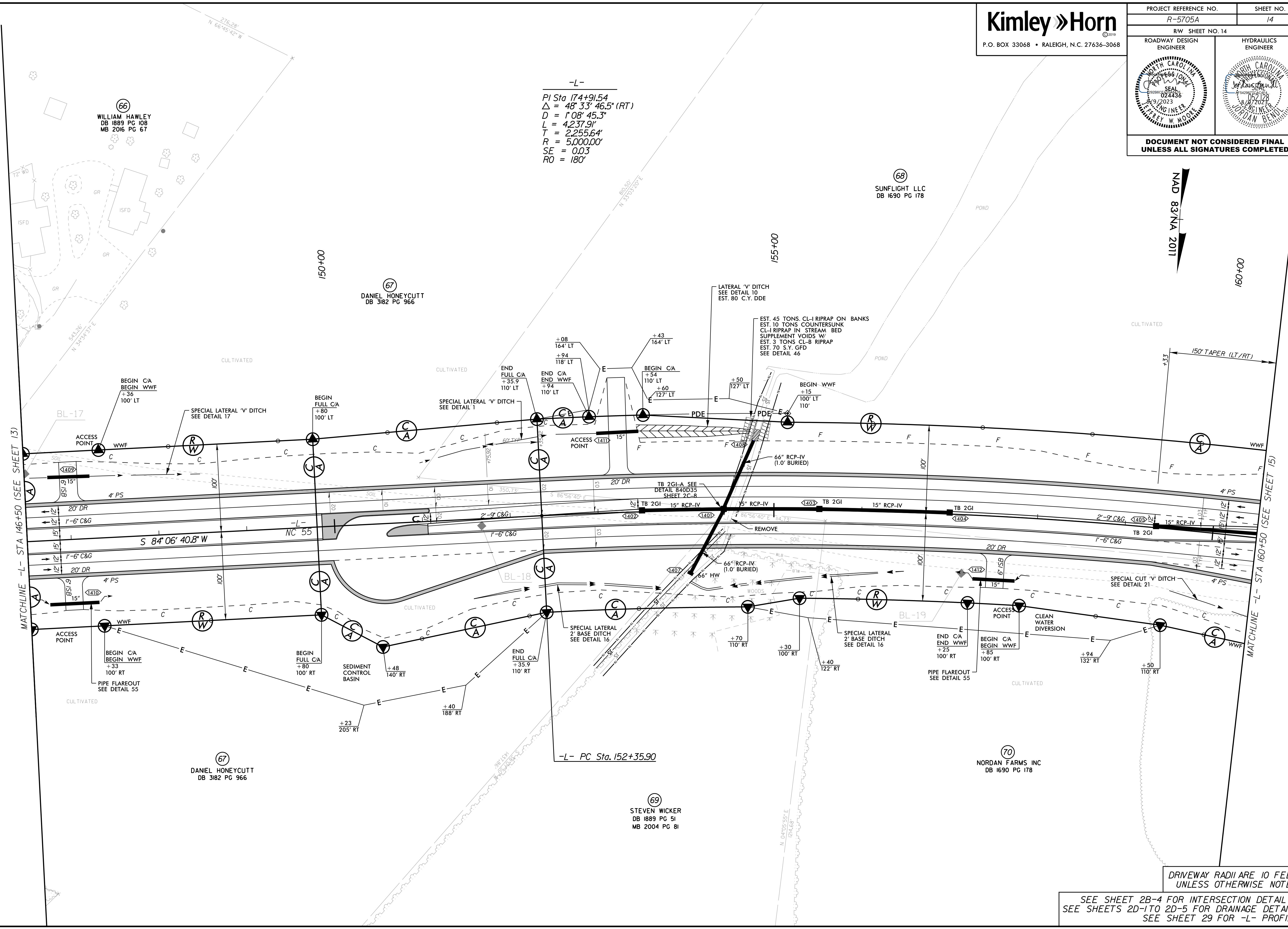
SEE SHEET 2B-3 FOR INTERSECTION DETAILS IO AND II  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 28 FOR -L- PROFILE  
 SEE SHEET 34 FOR -Y5- PROFILE  
 SEE SHEET 36 FOR -Y5A- PROFILE

REVISIONS



PROJECT REFERENCE NO. R-5705A	SHEET NO. 14
RW SHEET NO. 14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

-L-  
 PI Sta 174+91.54  
 $\Delta = 48^{\circ} 33' 46.5''$  (RT)  
 $D = 1^{\circ} 08' 45.3''$   
 $L = 4,237.91'$   
 $T = 2,255.64'$   
 $R = 5,000.00'$   
 $SE = 0.03$   
 $RO = 180'$



REVISIONS  
ROW REV. - 80723 - ADDED TCE AROUND DRIVEWAY AT PARCEL 68. - JWM

NAD 83/NA 2011

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

SEE SHEET 2B-4 FOR INTERSECTION DETAIL 12  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 29 FOR -L- PROFILE

8/8/2023



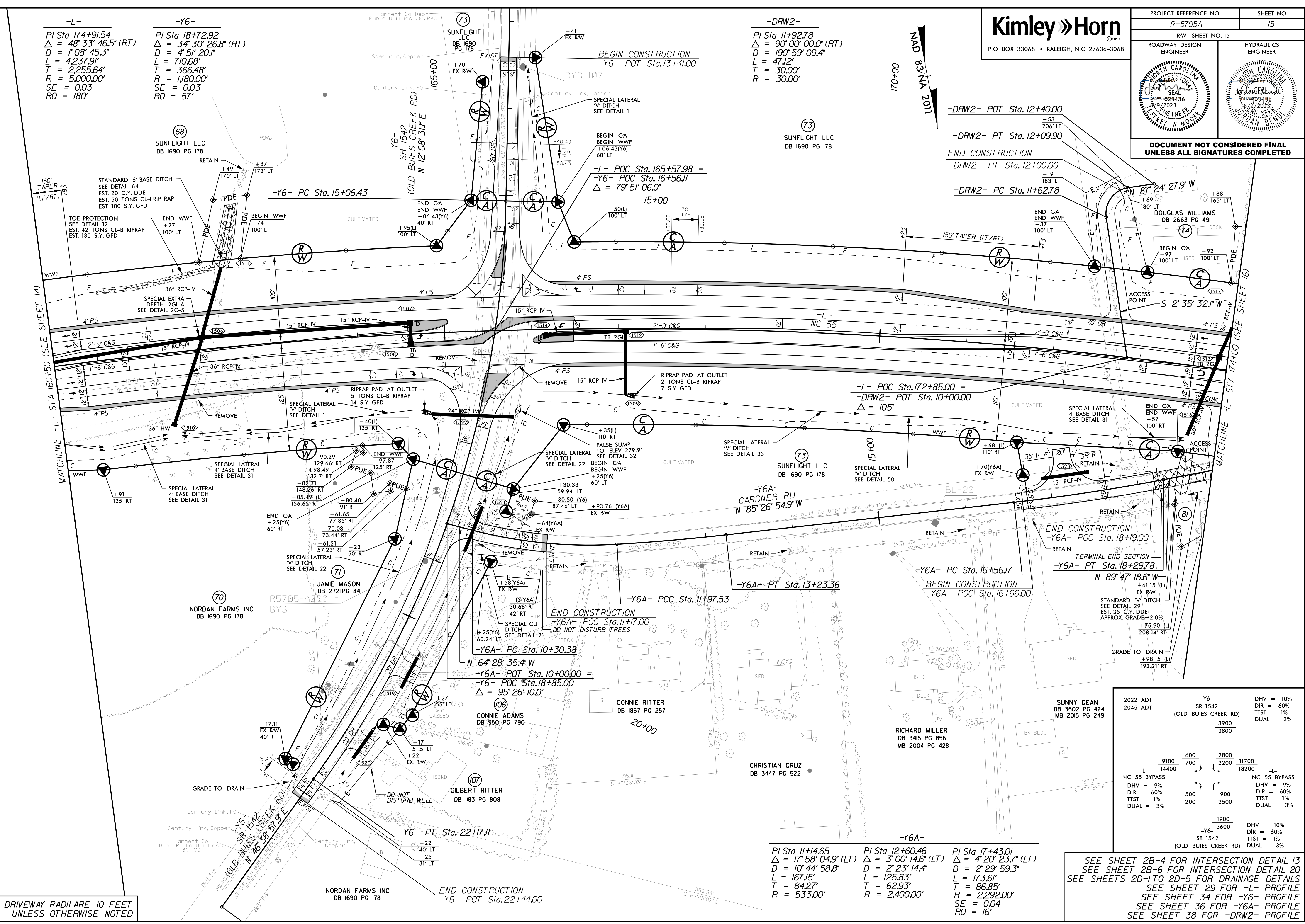
PROJECT REFERENCE NO. R-5705A	SHEET NO. 15
RW SHEET NO. 15 ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**-L-**  
 PI Sta 174+91.54  
 $\Delta = 48^\circ 33' 46.5''$  (RT)  
 D = 1,088' 45.3"  
 L = 4,237.9'  
 T = 2,255.64'  
 R = 5,000.00'  
 SE = 0.03  
 RO = 180'

**-Y6-**  
 PI Sta 18+72.92  
 $\Delta = 34^\circ 30' 26.8''$  (RT)  
 D = 4' 51' 20.1"  
 L = 710.68'  
 T = 366.48'  
 R = 1,180.00'  
 SE = 0.03  
 RO = 57'

**-DRW2-**  
 PI Sta 11+92.78  
 $\Delta = 90^\circ 00' 00.0''$  (RT)  
 D = 190' 59' 09.4"  
 L = 47.12'  
 T = 30.00'  
 R = 30.00'

NAD 83/NA 2011  
 170+00



STANDARD 6" BASE DITCH  
 SEE DETAIL 64  
 EST. 20 C.Y. DDE  
 EST. 50 TONS CL-B RIPRAP  
 EST. 100 S.Y. GFD

TOE PROTECTION  
 SEE DETAIL 12  
 EST. 42 TONS CL-B RIPRAP  
 EST. 130 S.Y. GFD

MATCHLINE -L- STA 160+50 (SEE SHEET 14)

MATCHLINE -L- STA 174+00 (SEE SHEET 16)

REVISIONS

DRIVEWAY RADII ARE 10 FEET  
 UNLESS OTHERWISE NOTED

2022 ADT 2045 ADT	-Y6- SR 1542 (OLD BUIES CREEK RD)	DHV = 10% DIR = 60% TTST = 1% DUAL = 3%
9100 14400	600 700	2800 11700
NC 55 BYPASS		NC 55 BYPASS
DHV = 9% DIR = 60% TTST = 1% DUAL = 3%	500 200	900 2500
		1900 3600
	-Y6- SR 1542 (OLD BUIES CREEK RD)	DHV = 10% DIR = 60% TTST = 1% DUAL = 3%

**-Y6A-**  
 PI Sta 11+46.5  
 $\Delta = 17^\circ 58' 04.9''$  (LT)  
 D = 10' 44' 58.8"  
 L = 167.15'  
 T = 84.27'  
 R = 533.00'

**-Y6A-**  
 PI Sta 12+60.46  
 $\Delta = 3^\circ 00' 14.6''$  (LT)  
 D = 2' 23' 14.4"  
 L = 173.61'  
 T = 62.93'  
 R = 2,400.00'

**-Y6A-**  
 PI Sta 17+43.01  
 $\Delta = 4^\circ 20' 23.7''$  (LT)  
 D = 2' 29' 59.3"  
 L = 173.61'  
 T = 86.85'  
 R = 2,292.00'  
 SE = 0.04  
 RO = 16'

SEE SHEET 2B-4 FOR INTERSECTION DETAIL 13  
 SEE SHEET 2B-6 FOR INTERSECTION DETAIL 20  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 29 FOR -L- PROFILE  
 SEE SHEET 34 FOR -Y6- PROFILE  
 SEE SHEET 36 FOR -Y6A- PROFILE  
 SEE SHEET 38 FOR -DRW2- PROFILE

8/8/2023



PROJECT REFERENCE NO. R-5705A	SHEET NO. 16
RW SHEET NO. 16	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER

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

**-L-**  
 PI Sta 174+91.54  
 $\Delta = 48^{\circ} 33' 46.5''$  (RT)  
 D = 1'08" 45.3"  
 L = 4,237.91'  
 T = 2,255.64'  
 R = 5,000.00'  
 SE = 0.03  
 RO = 180'

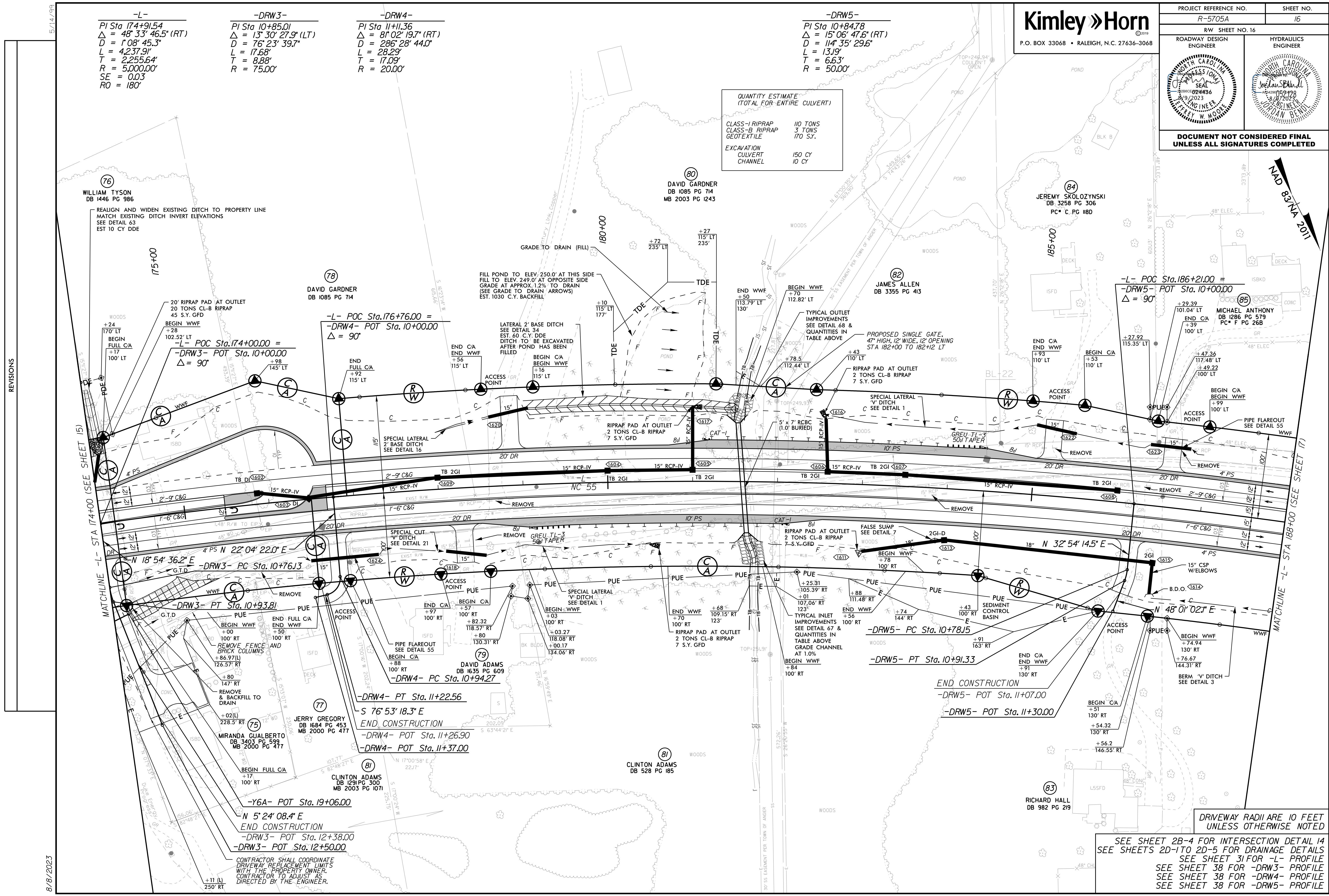
**-DRW3-**  
 PI Sta 10+85.01  
 $\Delta = 13^{\circ} 30' 27.9''$  (LT)  
 D = 76' 23' 39.7"  
 L = 17.68'  
 T = 8.88'  
 R = 75.00'

**-DRW4-**  
 PI Sta 11+11.36  
 $\Delta = 81^{\circ} 02' 19.7''$  (RT)  
 D = 286' 28' 44.0"  
 L = 28.29'  
 T = 17.09'  
 R = 20.00'

**-DRW5-**  
 PI Sta 10+84.78  
 $\Delta = 15^{\circ} 06' 47.6''$  (RT)  
 D = 114' 35' 29.6"  
 L = 13.19'  
 T = 6.63'  
 R = 50.00'

QUANTITY ESTIMATE  
(TOTAL FOR ENTIRE CULVERT)

CLASS-1 RIPRAP	110 TONS
CLASS-B RIPRAP	3 TONS
GEOTEXTILE	170 S.Y.
EXCAVATION	150 CY
CULVERT CHANNEL	10 CY



**-L- POC Sta. 186+21.00 =**  
**-DRW5- POT Sta. 10+00.00**  
 $\Delta = 90^{\circ}$

**-L- POC Sta. 176+76.00 =**  
**-DRW4- POT Sta. 10+00.00**  
 $\Delta = 90^{\circ}$

**-L- POC Sta. 174+00.00 =**  
**-DRW3- POT Sta. 10+00.00**  
 $\Delta = 90^{\circ}$

**-L- POC Sta. 10+76.13 =**  
**-DRW3- PC Sta. 10+76.13**

**-L- POC Sta. 10+93.81 =**  
**-DRW3- PT Sta. 10+93.81**

**-L- POC Sta. 11+22.56 =**  
**-DRW4- PT Sta. 11+22.56**

**-L- POC Sta. 11+26.90 =**  
**-DRW4- POT Sta. 11+26.90**

**-L- POC Sta. 11+37.00 =**  
**-DRW4- POT Sta. 11+37.00**

**-L- POC Sta. 19+06.00 =**  
**-Y6A- POT Sta. 19+06.00**

**-L- POC Sta. 12+38.00 =**  
**-DRW3- POT Sta. 12+38.00**

**-L- POC Sta. 12+50.00 =**  
**-DRW3- POT Sta. 12+50.00**

CONTRACTOR SHALL COORDINATE DRIVEWAY REPLACEMENT LIMITS WITH THE PROPERTY OWNER. CONTRACTOR TO ADJUST AS DIRECTED BY THE ENGINEER.

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

SEE SHEET 2B-4 FOR INTERSECTION DETAIL 14  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 3I FOR -L- PROFILE  
 SEE SHEET 38 FOR -DRW3- PROFILE  
 SEE SHEET 38 FOR -DRW4- PROFILE  
 SEE SHEET 38 FOR -DRW5- PROFILE

REVISIONS

8/8/2023

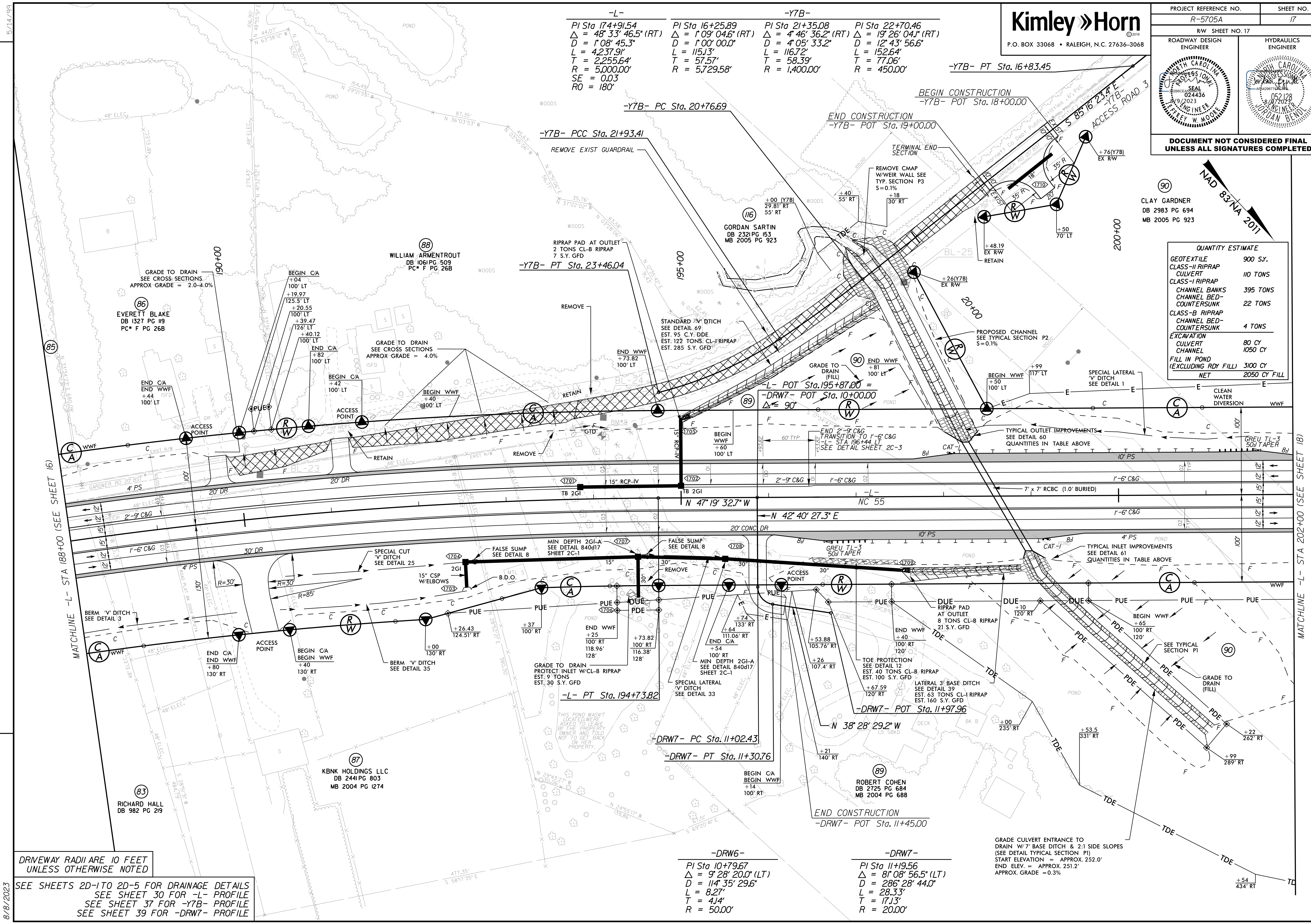


PROJECT REFERENCE NO. R-5705A	SHEET NO. 17
RW SHEET NO. 17	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

<b>-L-</b> PI Sta 17+91.54 Δ = 48° 33' 46.5" (RT) D = 1'08" 45.3" L = 4,237.91' T = 2,255.64' R = 5,000.00' SE = 0.03 RO = 180'	<b>-Y7B-</b> PI Sta 16+25.89 Δ = 1'09" 04.6" (RT) D = 1'00" 00.0" L = 115.13' T = 57.57' R = 5,729.58'	<b>-Y7B-</b> PI Sta 21+35.08 Δ = 4'46" 36.2" (RT) D = 4'05" 33.2" L = 116.72' T = 58.39' R = 1,400.00'	<b>-Y7B-</b> PI Sta 22+70.46 Δ = 19'26" 04.1" (RT) D = 12'43" 56.6" L = 152.64' T = 77.06' R = 450.00'
---	--	--	--

CLAY GARDNER  
DB 2983 PG 694  
MB 2005 PG 923

QUANTITY ESTIMATE	
GEOTEXTILE	900 S.Y.
CLASS-II RIPRAP	110 TONS
CLASS-I RIPRAP	395 TONS
CHANNEL BED-COUNTERSUNK	22 TONS
CLASS-B RIPRAP	4 TONS
CHANNEL BED-COUNTERSUNK	80 CY
EXCAVATION	1050 CY
CULVERT CHANNEL	3100 CY
FILL IN POND (EXCLUDING RDY FILL)	2050 CY FILL
NET	



DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 30 FOR -L- PROFILE  
SEE SHEET 37 FOR -Y7B- PROFILE  
SEE SHEET 39 FOR -DRW7- PROFILE

<b>-DRW6-</b> PI Sta 10+79.67 Δ = 9° 28' 20.0" (LT) D = 114' 35" 29.6" L = 8.27' T = 4.14' R = 50.00'
---

<b>-DRW7-</b> PI Sta 11+19.56 Δ = 81° 08' 56.5" (LT) D = 286' 28" 44.0" L = 28.33' T = 17.13' R = 20.00'
--

GRADE CULVERT ENTRANCE TO DRAIN W/7' BASE DITCH & 2:1 SIDE SLOPES (SEE DETAIL TYPICAL SECTION P1)  
START ELEVATION = APPROX. 252.0'  
END ELEV. = APPROX. 251.2'  
APPROX. GRADE = 0.3%

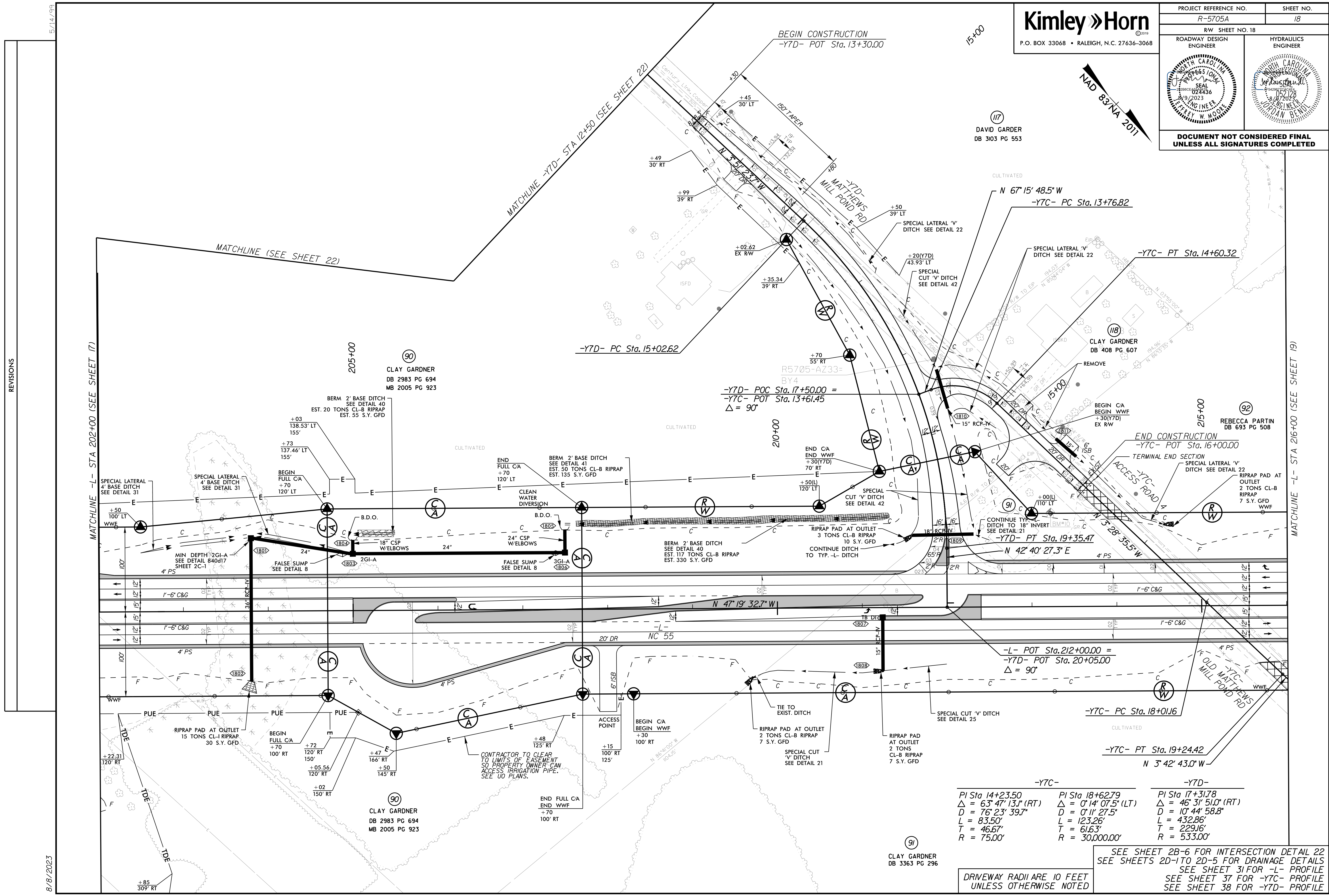
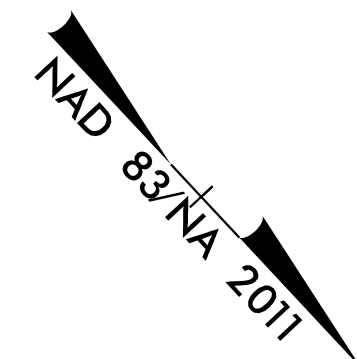
8/8/2023



5/14/1999

PROJECT REFERENCE NO. R-5705A	SHEET NO. 18
RW SHEET NO. 18 ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

DAVID GARDNER  
DB 3103 PG 553



REVISIONS

MATCHLINE -L- STA 202+00 (SEE SHEET 17)

MATCHLINE -YTD- STA 12+50 (SEE SHEET 22)

MATCHLINE -L- STA 216+00 (SEE SHEET 19)

90  
CLAY GARDNER  
DB 2983 PG 694  
MB 2005 PG 923

92  
REBECCA PARTIN  
DB 693 PG 508

-YTC-	-YTD-
PI Sta 14+23.50	PI Sta 17+31.78
$\Delta = 63^{\circ} 47' 13.1''$ (RT)	$\Delta = 46^{\circ} 31' 51.0''$ (RT)
D = 76' 23' 39.7"	D = 10' 44' 58.8"
L = 83.50'	L = 432.86'
T = 46.67'	T = 229.16'
R = 75.00'	R = 533.00'

91  
CLAY GARDNER  
DB 3363 PG 296

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

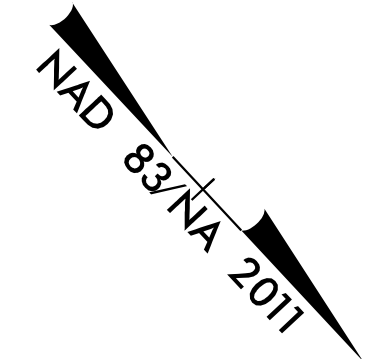
SEE SHEET 28-6 FOR INTERSECTION DETAIL 22  
SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 3I FOR -L- PROFILE  
SEE SHEET 37 FOR -YTC- PROFILE  
SEE SHEET 38 FOR -YTD- PROFILE

8/8/2023

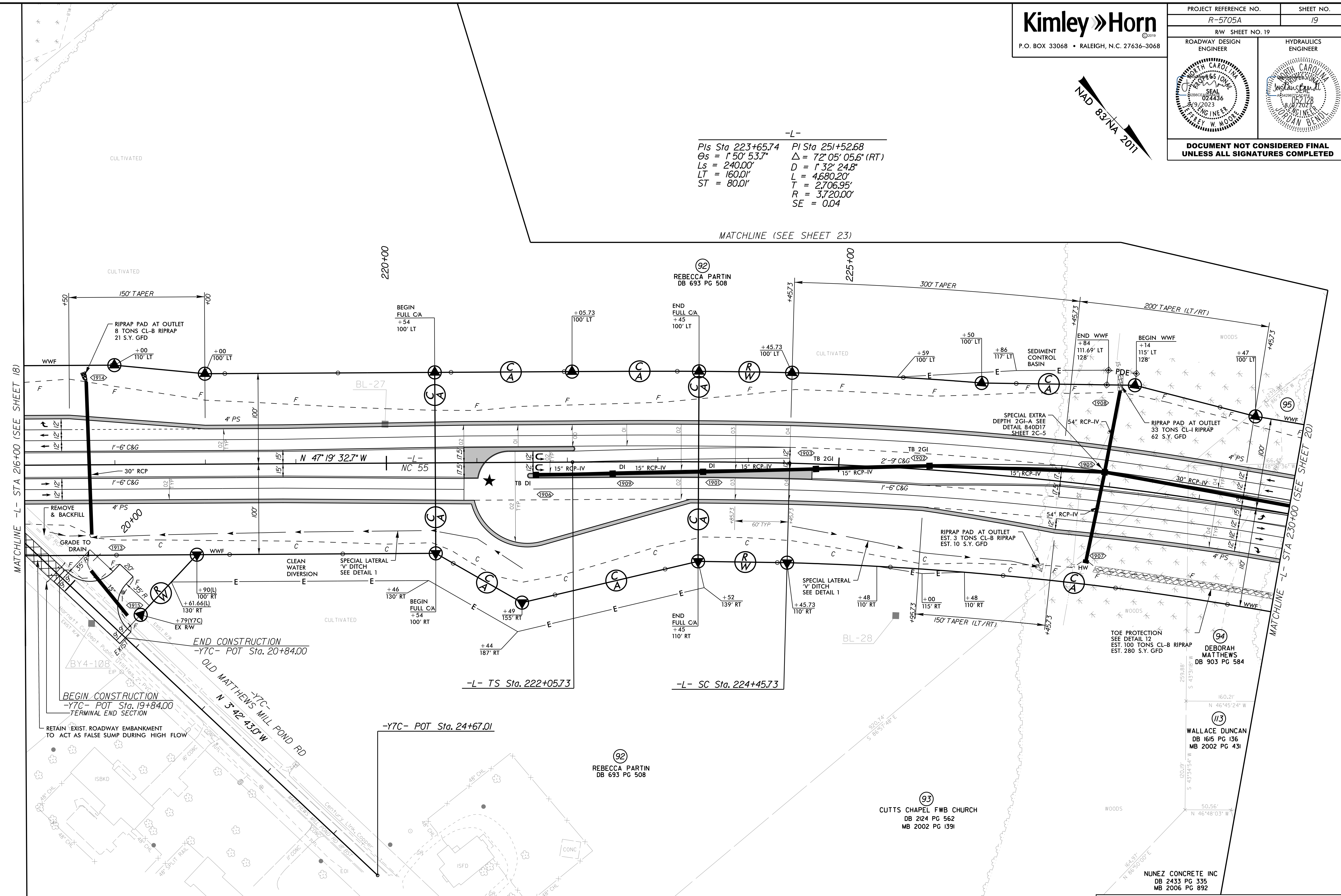


PROJECT REFERENCE NO. R-5705A	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	

-L-  
 Pls Sta 223+65.74 PI Sta 251+52.68  
 $\theta_s = 1^{\circ} 50' 53.7''$   $\Delta = 7^{\circ} 05' 05.6''$  (RT)  
 $L_s = 240.00'$   $D = 1^{\circ} 32' 24.8''$   
 $LT = 160.01'$   $L = 4,680.20'$   
 $ST = 80.01'$   $T = 2,706.95'$   
 $R = 3,720.00'$   
 $SE = 0.04$



MATCHLINE (SEE SHEET 23)



REVISIONS

MATCHLINE -L- STA 216+00 (SEE SHEET 18)

MATCHLINE -L- STA 230+00 (SEE SHEET 20)

END CONSTRUCTION  
-Y7C- POT Sta. 20+84.00

BEGIN CONSTRUCTION  
-Y7C- POT Sta. 19+84.00  
TERMINAL END SECTION

RETAIN EXIST. ROADWAY EMBANKMENT TO ACT AS FALSE SUMP DURING HIGH FLOW

-Y7C- POT Sta. 24+67.01

-L- TS Sta. 222+05.73

-L- SC Sta. 224+45.73

TOE PROTECTION  
SEE DETAIL 12  
EST. 100 TONS CL-B RIPRAP  
EST. 280 S.Y. GFD

DEBORAH MATTHEWS  
DB 903 PG 584

WALLACE DUNCAN  
DB 1615 PG 136  
MB 2002 PG 431

CUTTS CHAPEL FWB CHURCH  
DB 2124 PG 562  
MB 2002 PG 1391

NUNEZ CONCRETE INC  
DB 2433 PG 335  
MB 2006 PG 892

REBECCA PARTIN  
DB 693 PG 508

REBECCA PARTIN  
DB 693 PG 508

★ TRAFFIC SIGNAL  
SEE SHEET 2B-4 FOR INTERSECTION DETAIL 15  
SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 3I FOR -L- PROFILE  
SEE SHEET 3T FOR -Y7C- PROFILE

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED

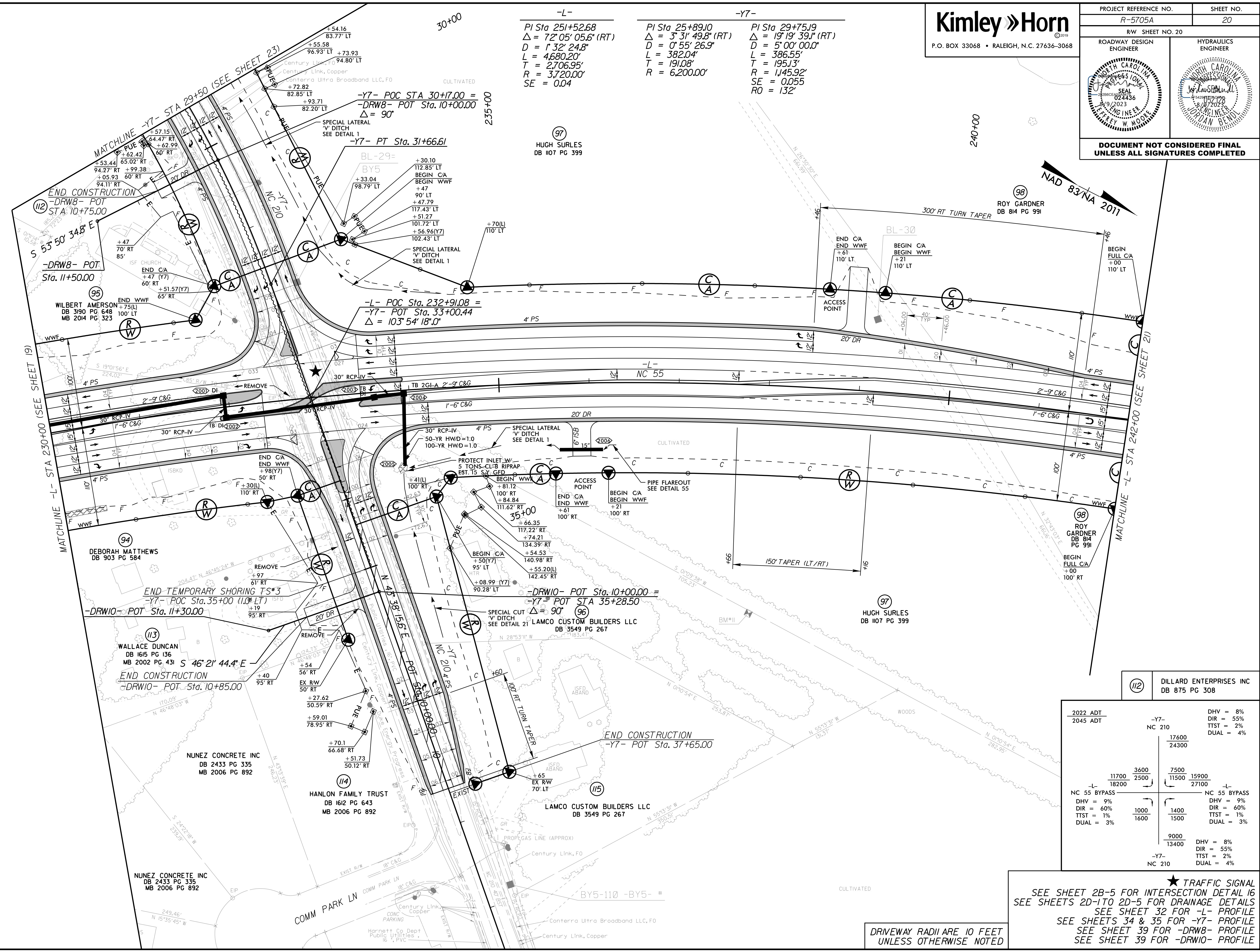
8/8/2023



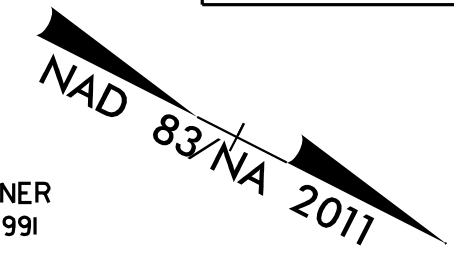
5/14/19

8/8/2023

PROJECT REFERENCE NO. R-5705A	SHEET NO. 20
RW SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



-L-	-Y7-	-Y7-
PI Sta 251+52.68 Δ = 72° 05' 05.6" (RT) D = 1' 32' 24.8" L = 4,680.20' T = 2,706.95' R = 3,720.00' SE = 0.04	PI Sta 25+89.10 Δ = 3° 31' 49.8" (RT) D = 0' 55' 26.9" L = 382.04' T = 191.08' R = 6,200.00'	PI Sta 29+75.19 Δ = 19° 19' 39.1" (RT) D = 5' 00' 00.0" L = 386.55' T = 195.13' R = 1,145.92' SE = 0.055 RO = 132'



REVISIONS

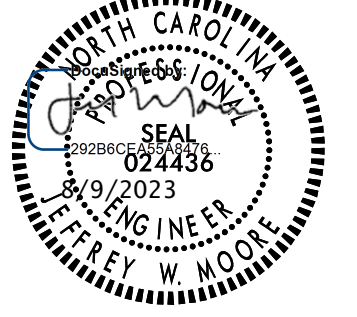
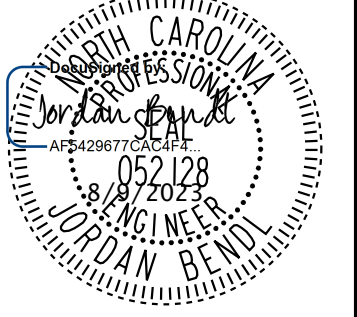
(112) DILLARD ENTERPRISES INC DB 875 PG 308	2022 ADT 2045 ADT	-Y7- NC 210	DHV = 8% DIR = 55% TTST = 2% DUAL = 4%
	17600 24300		
	11700 18200	3600 2500	
NC 55 BYPASS DHV = 9% DIR = 60% TTST = 1% DUAL = 3%	7500 11500	15900 27100	NC 55 BYPASS DHV = 9% DIR = 60% TTST = 1% DUAL = 3%
	9000 13400		DHV = 8% DIR = 55% TTST = 2% DUAL = 4%
		-Y7- NC 210	

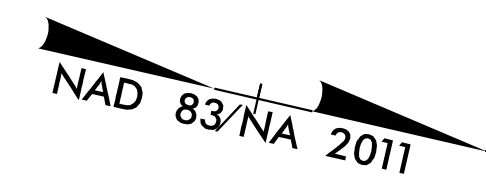
★ TRAFFIC SIGNAL  
SEE SHEET 2B-5 FOR INTERSECTION DETAIL 16  
SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEET 32 FOR -L- PROFILE  
SEE SHEETS 34 & 35 FOR -Y7- PROFILE  
SEE SHEET 39 FOR -DRW8- PROFILE  
SEE SHEET 39 FOR -DRW10- PROFILE

DRIVEWAY RADII ARE 10 FEET UNLESS OTHERWISE NOTED



5/14/99

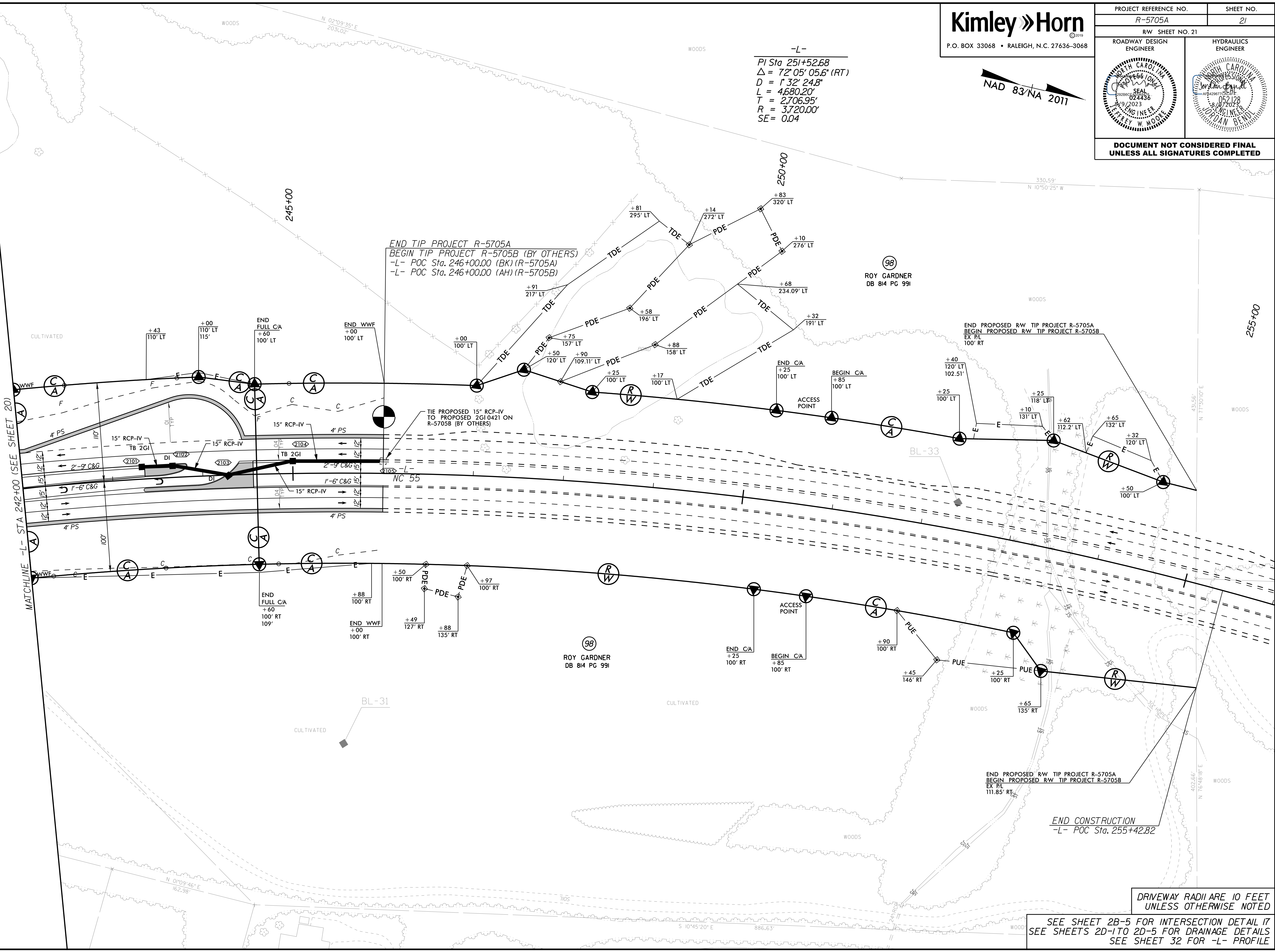
PROJECT REFERENCE NO. R-5705A	SHEET NO. 21
RW SHEET NO. 21	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 JORDAN BENUL PROFESSIONAL ENGINEER 052128 8/27/2023 F. FREY, W. WOODS	 JORDAN BENUL PROFESSIONAL ENGINEER 052128 8/27/2023 F. FREY, W. WOODS
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



-L-  
 PI Sta 251+52.68  
 $\Delta = 72^{\circ} 05' 05.6''$  (RT)  
 D = 1' 32' 24.8"  
 L = 4,680.20'  
 T = 2,706.95'  
 R = 3,720.00'  
 SE = 0.04

REVISIONS

MATCHLINE -L- STA 242+00 (SEE SHEET 20)



8/8/2023

DRIVEWAY RADII ARE 10 FEET  
UNLESS OTHERWISE NOTED

SEE SHEET 2B-5 FOR INTERSECTION DETAIL 17  
 SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
 SEE SHEET 32 FOR -L- PROFILE



5/14/99

PROJECT REFERENCE NO. R-5705A	SHEET NO. 22
RW SHEET NO. 22	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

NAD 83/NA 2011

<b>-Y7D-</b>		<b>-Y7B-</b>	
PI Sta 5+48.66	PI Sta 16+25.89	PI Sta 21+35.08	PI Sta 22+70.46
$\Delta = 2' 28' 38.4" (LT)$	$\Delta = 1' 09' 04.6" (RT)$	$\Delta = 4' 46' 36.2" (RT)$	$\Delta = 19' 26' 04.1" (RT)$
D = 0' 50' 00.0"	D = 1' 00' 00.0"	D = 4' 05' 33.2"	D = 12' 43' 56.6"
L = 297.28'	L = 115.13'	L = 116.72'	L = 152.64'
T = 148.66'	T = 57.57'	T = 58.39'	T = 77.06'
R = 6,875.49'	R = 5,729.58'	R = 1,400.00'	R = 450.00'

REVISIONS

DAVID GARDNER  
 DB 1085 PG 174  
 PC\*1PG 253

117  
 DAVID GARDNER  
 DB 3103 PG 553

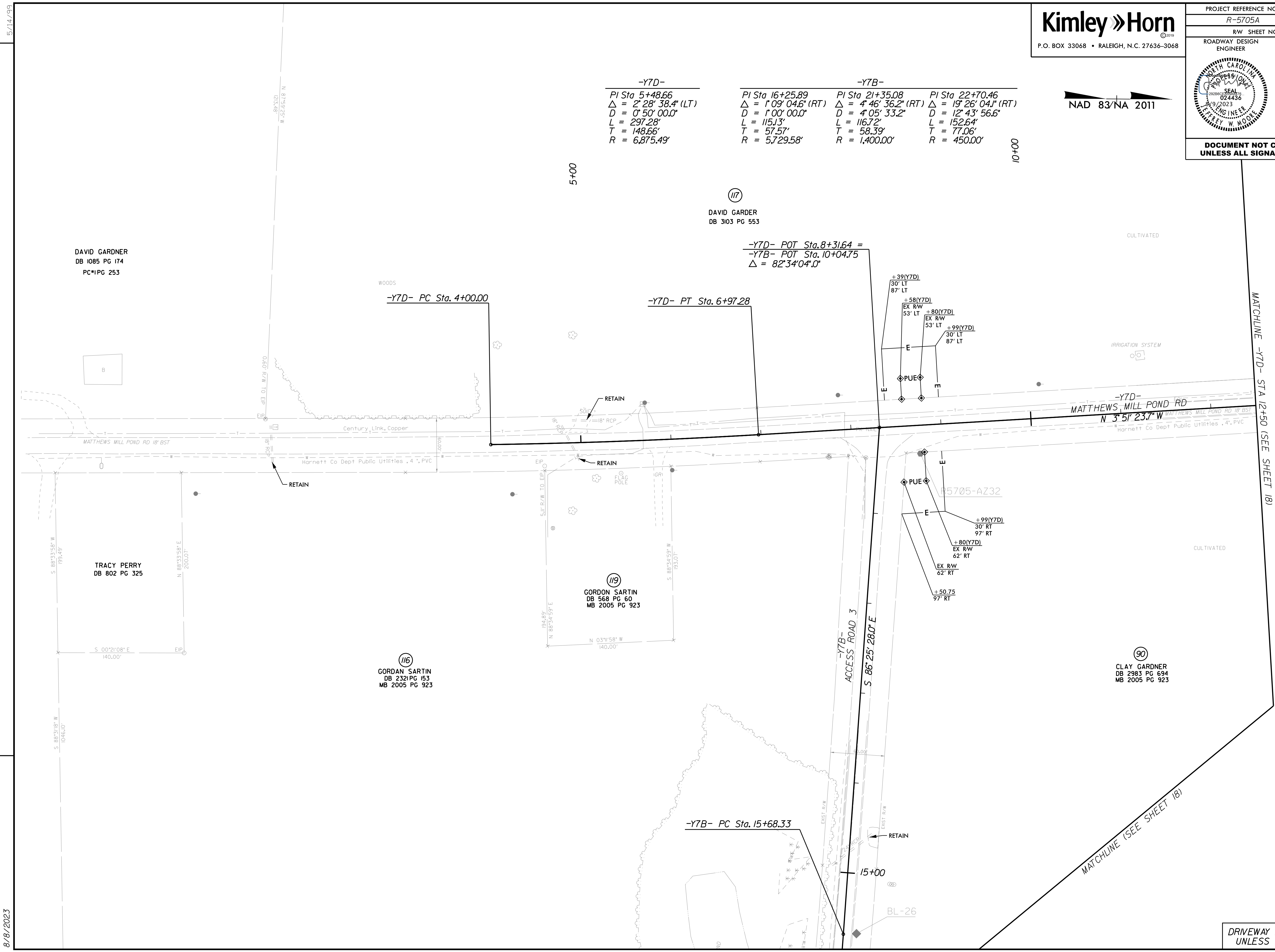
TRACY PERRY  
 DB 802 PG 325

119  
 GORDON SARTIN  
 DB 568 PG 60  
 MB 2005 PG 923

116  
 GORDAN SARTIN  
 DB 232 PG 153  
 MB 2005 PG 923

90  
 CLAY GARDNER  
 DB 2983 PG 694  
 MB 2005 PG 923

8/8/2023



DRIVEWAY RADI ARE 10 FEET UNLESS OTHERWISE NOTED



5/14/19

REVISIONS

8/8/2023

**-Y7-**

PI Sta 25+89.10 Δ = 3° 31' 49.8" (RT) D = 0' 55' 26.9" L = 382.04' T = 191.08' R = 6,200.00'	PI Sta 29+75.19 Δ = 19° 19' 39.1" (RT) D = 5' 00' 00.0" L = 386.55' T = 195.13' R = 1,445.92' SE = 0.055 RO = 132'
---	---

JAMES JOHNSON  
DB 2386 PG 596  
MB 2008 PG 100

**-Y7A-**

PI Sta 47+44.70 Δ = 3° 30' 59.1" (LT) D = 2' 29' 28.0" L = 141.6' T = 70.60' R = 2,300.00'
---

(108)  
NCD CONTRACTING LLC  
DB 3852 PG 423  
PB 2021 PG 563

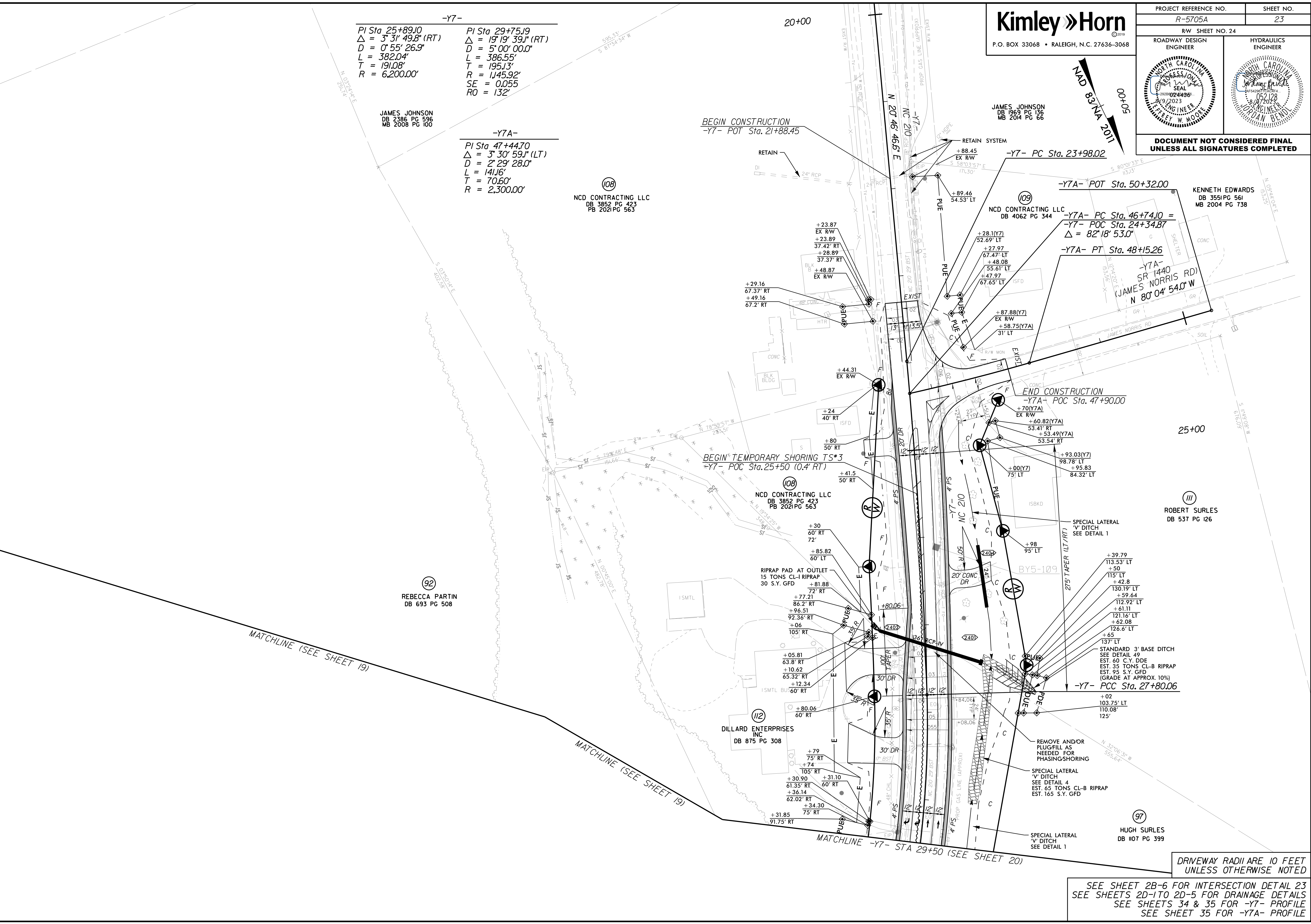
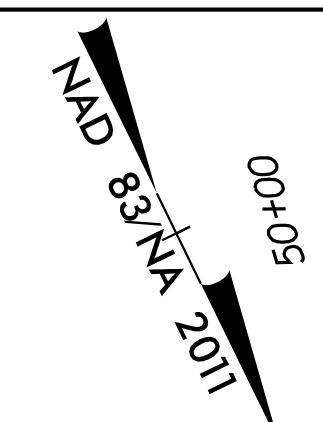
(92)  
REBECCA PARTIN  
DB 693 PG 508

(112)  
DILLARD ENTERPRISES  
INC  
DB 875 PG 308

(97)  
HUGH SURLS  
DB 1107 PG 399

**Kimley » Horn**  
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. R-5705A	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	



DRIVEWAY RADII ARE 10 FEET  
UNLESS OTHERWISE NOTED

SEE SHEET 2B-6 FOR INTERSECTION DETAIL 23  
SEE SHEETS 2D-1 TO 2D-5 FOR DRAINAGE DETAILS  
SEE SHEETS 34 & 35 FOR -Y7- PROFILE  
SEE SHEET 35 FOR -Y7A- PROFILE



5/14/99

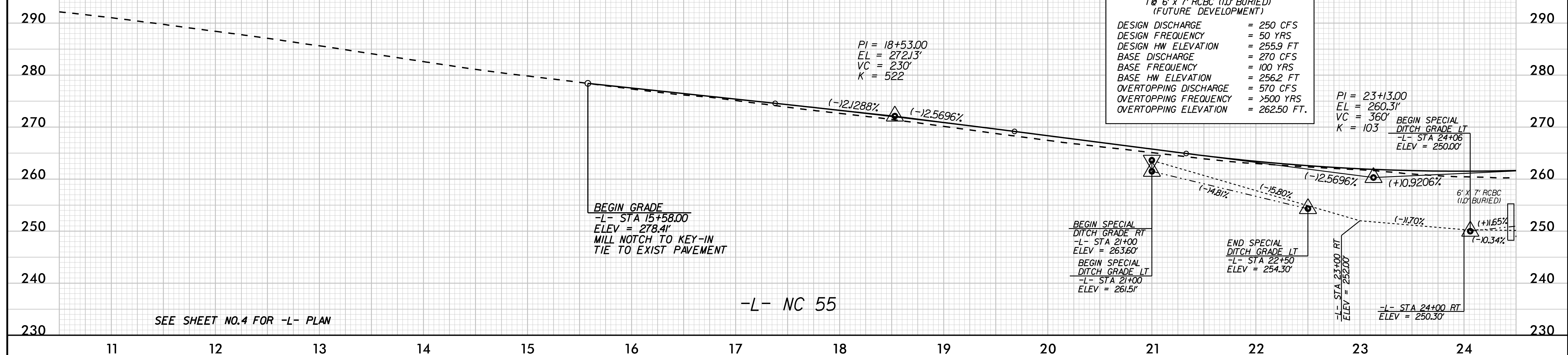
PROJECT REFERENCE NO. R-5705A	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**LEGEND**

DITCH GRADE LT	
DITCH GRADE RT	

**CULVERT HYDRAULIC DATA**  
1 @ 6' x 7' RCBC (1.0' BURIED)  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE	= 250 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 255.9 FT
BASE DISCHARGE	= 270 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 256.2 FT
OVERTOPPING DISCHARGE	= 570 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 262.50 FT.

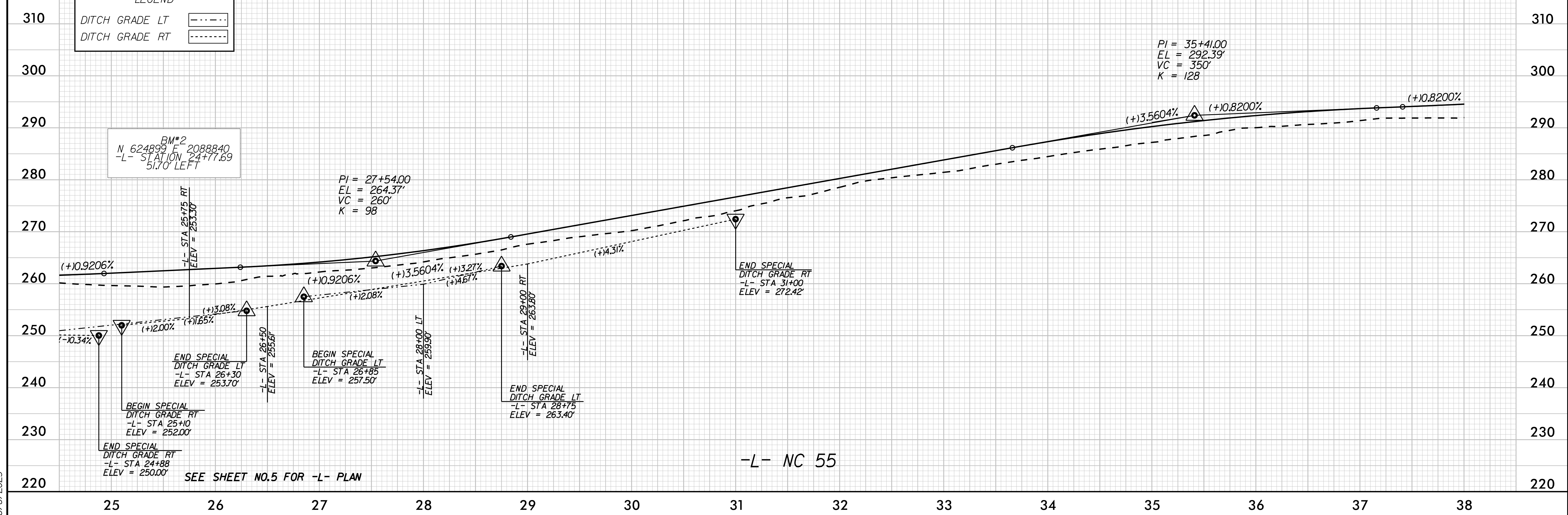


8/8/2023

**LEGEND**

DITCH GRADE LT	
DITCH GRADE RT	

PI = 35+41.00  
EL = 292.39'  
VC = 350'  
K = 128





5/14/1999

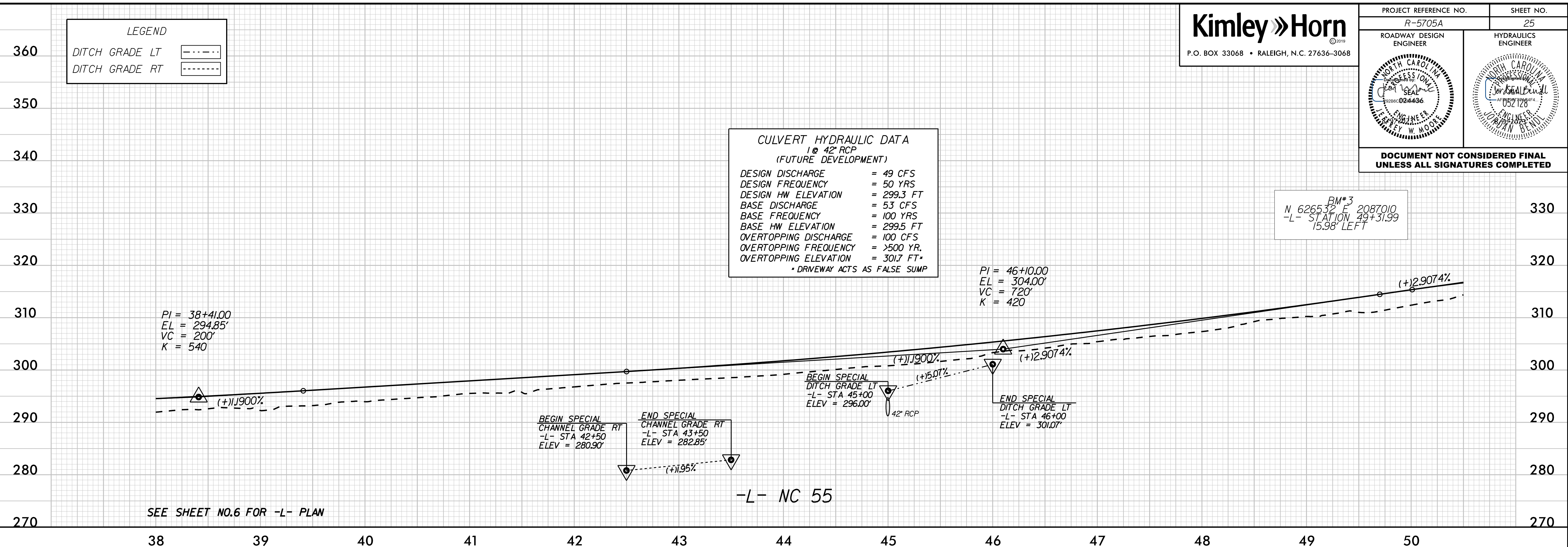
PROJECT REFERENCE NO. R-5705A	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**CULVERT HYDRAULIC DATA**  
1 @ 42" RCP  
(FUTURE DEVELOPMENT)

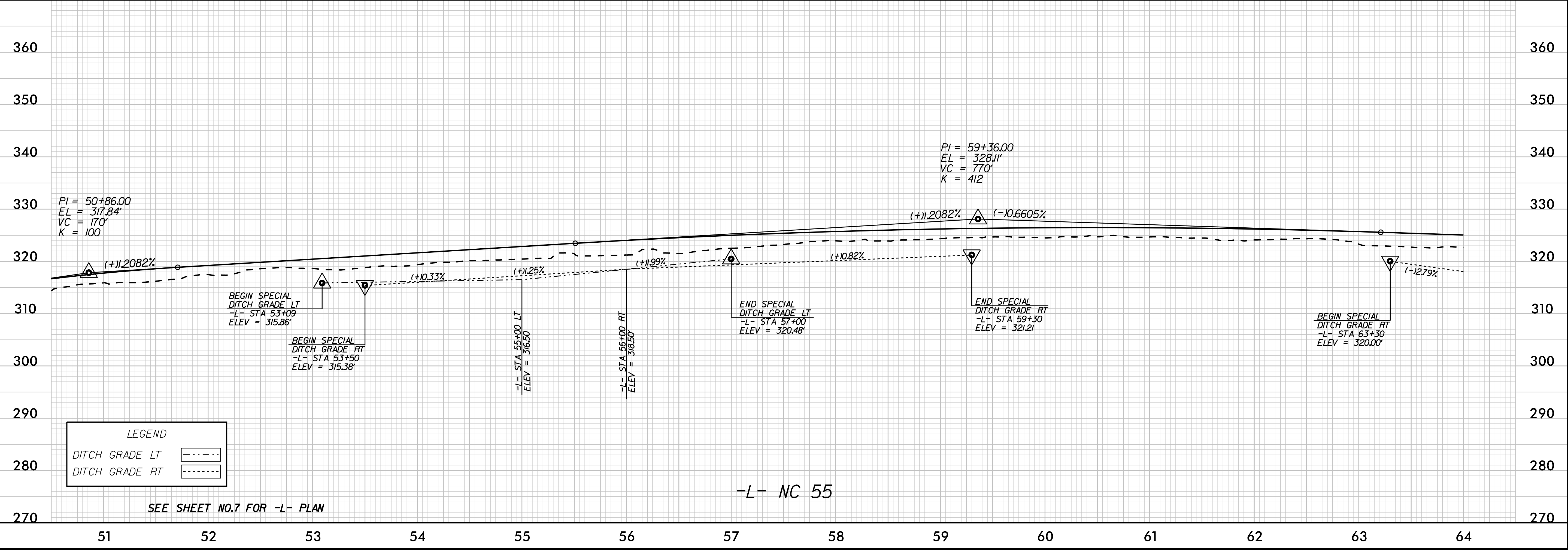
DESIGN DISCHARGE = 49 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 299.3 FT  
BASE DISCHARGE = 53 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 299.5 FT  
OVERTOPPING DISCHARGE = 100 CFS  
OVERTOPPING FREQUENCY = >500 YR.  
OVERTOPPING ELEVATION = 301.7 FT  
\* DRIVEWAY ACTS AS FALSE SUMP

BM#3  
N 626532 E 2087010  
-L- STATION 49+31.99  
15.98' LEFT

**LEGEND**  
DITCH GRADE LT   
DITCH GRADE RT



**LEGEND**  
DITCH GRADE LT   
DITCH GRADE RT





8/8/2023



5/14/1999

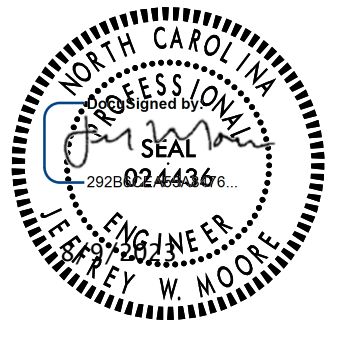

**LEGEND**

DITCH GRADE LT 

DITCH GRADE RT 

**Kimley Horn**

P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO. R-5705A	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

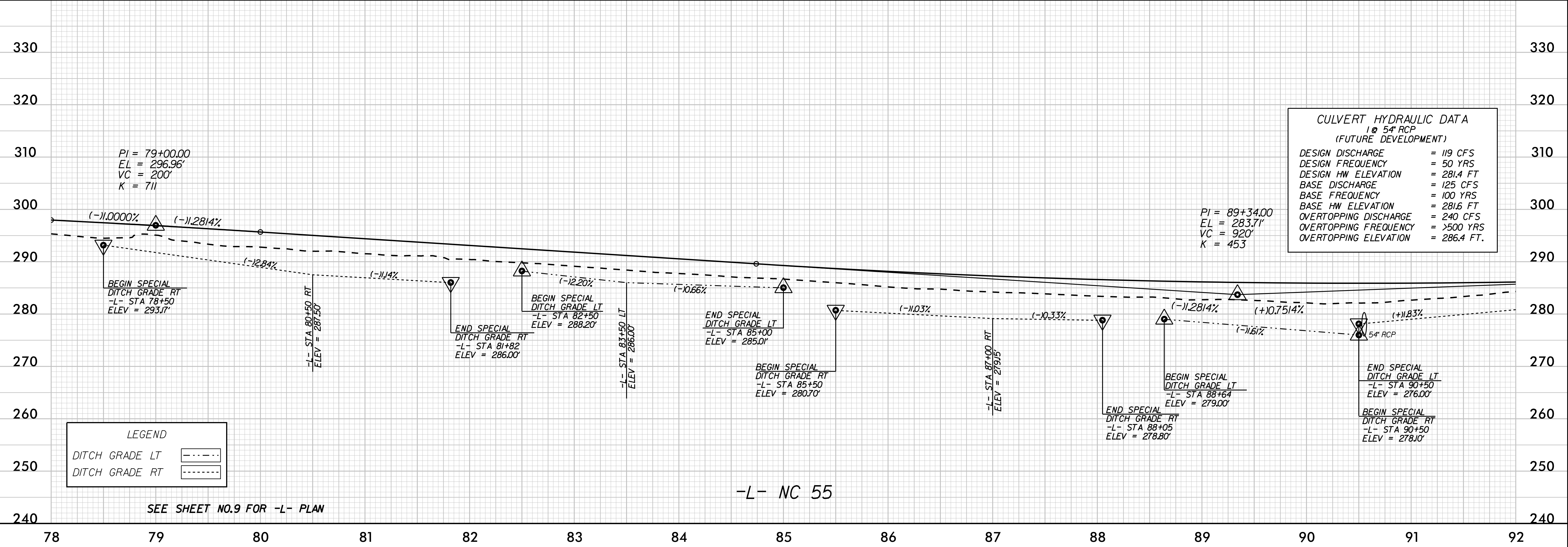
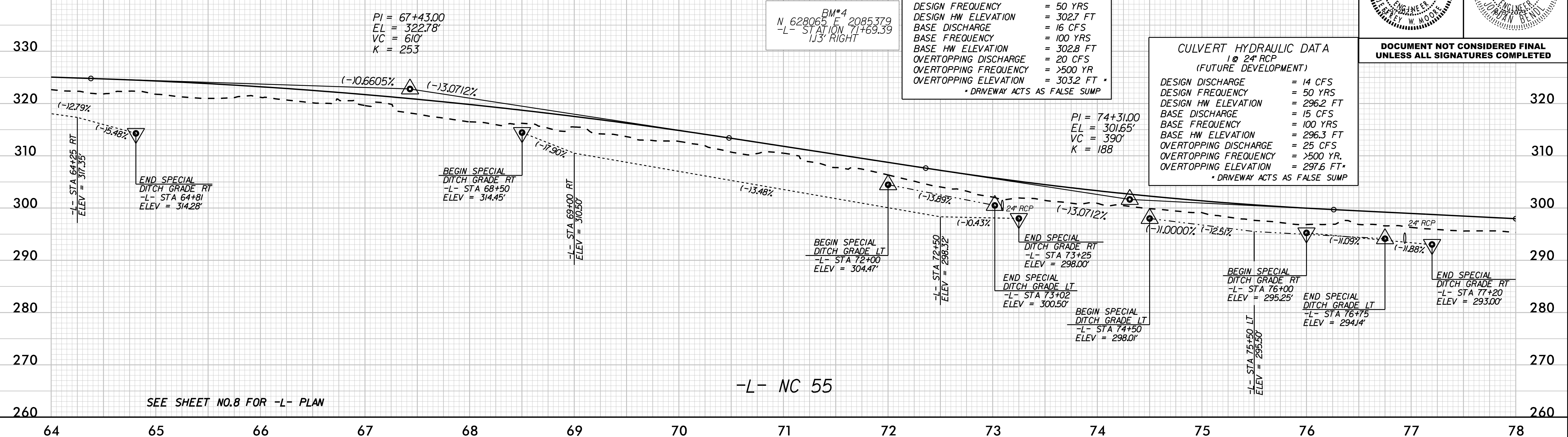
**CULVERT HYDRAULIC DATA**  
1 @ 24" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 15 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 302.7 FT  
BASE DISCHARGE = 16 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 302.8 FT  
OVERTOPPING DISCHARGE = 20 CFS  
OVERTOPPING FREQUENCY = >500 YR  
OVERTOPPING ELEVATION = 303.2 FT  
\* DRIVEWAY ACTS AS FALSE SUMP

**CULVERT HYDRAULIC DATA**  
1 @ 24" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 14 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 296.2 FT  
BASE DISCHARGE = 15 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 296.3 FT  
OVERTOPPING DISCHARGE = 25 CFS  
OVERTOPPING FREQUENCY = >500 YR  
OVERTOPPING ELEVATION = 297.6 FT  
\* DRIVEWAY ACTS AS FALSE SUMP

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

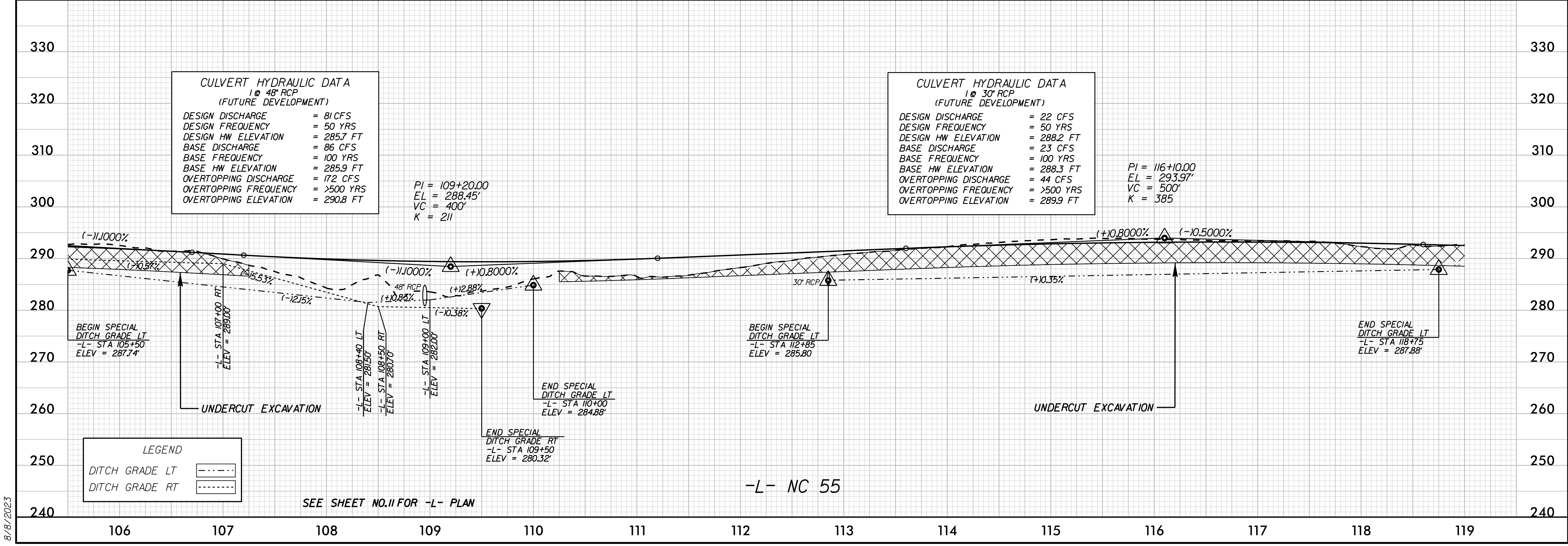
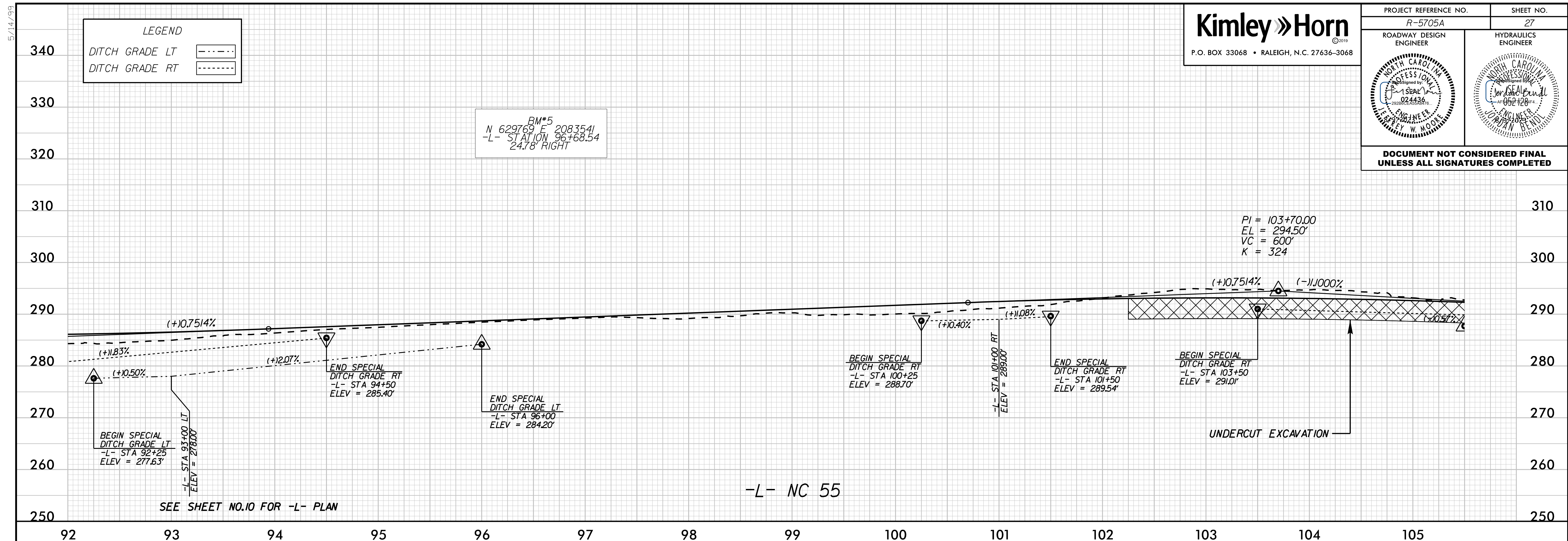


8/8/2023



5/14/99

PROJECT REFERENCE NO. R-5705A	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



8/8/2023



5/14/1999

PROJECT REFERENCE NO. R-5705A	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

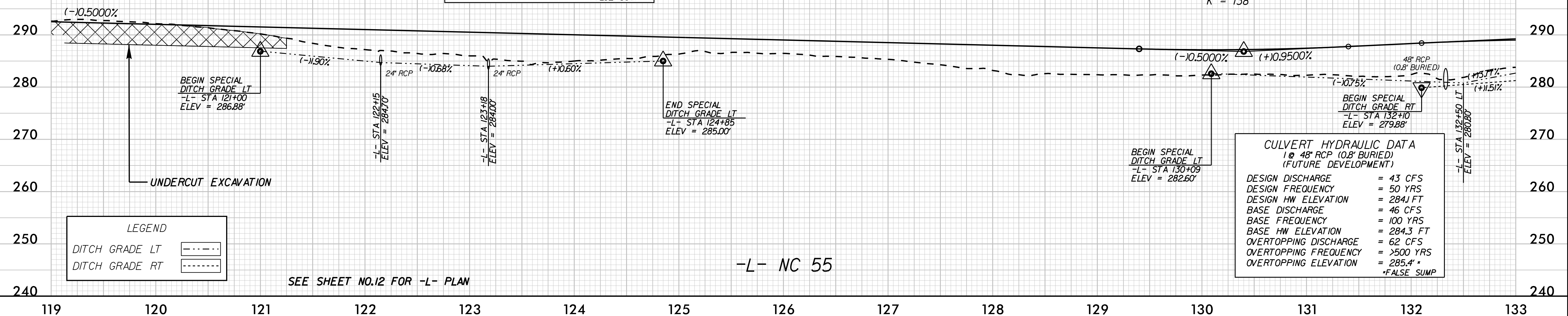
**CULVERT HYDRAULIC DATA**  
1 @ 24" RCP (-L- 122+15)  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE	= 6.8 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 286.05 FT
BASE DISCHARGE	= 7.1 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 286.09 FT
OVERTOPPING DISCHARGE	= 13 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 286.7*
*FALSE SUMP	

**CULVERT HYDRAULIC DATA**  
1 @ 24" RCP (-L- 123+18)  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE	= 10.3 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 285.72 FT
BASE DISCHARGE	= 10.9 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 285.77 FT
OVERTOPPING DISCHARGE	= 19 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 286.7*
*FALSE SUMP	

PI = 130+40.00  
EL = 286.82'  
VC = 200'  
K = 138



**CULVERT HYDRAULIC DATA**  
1 @ 48" RCP (0.8' BURIED)  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE	= 43 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 284.1 FT
BASE DISCHARGE	= 46 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 284.3 FT
OVERTOPPING DISCHARGE	= 62 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 285.4 *
*FALSE SUMP	

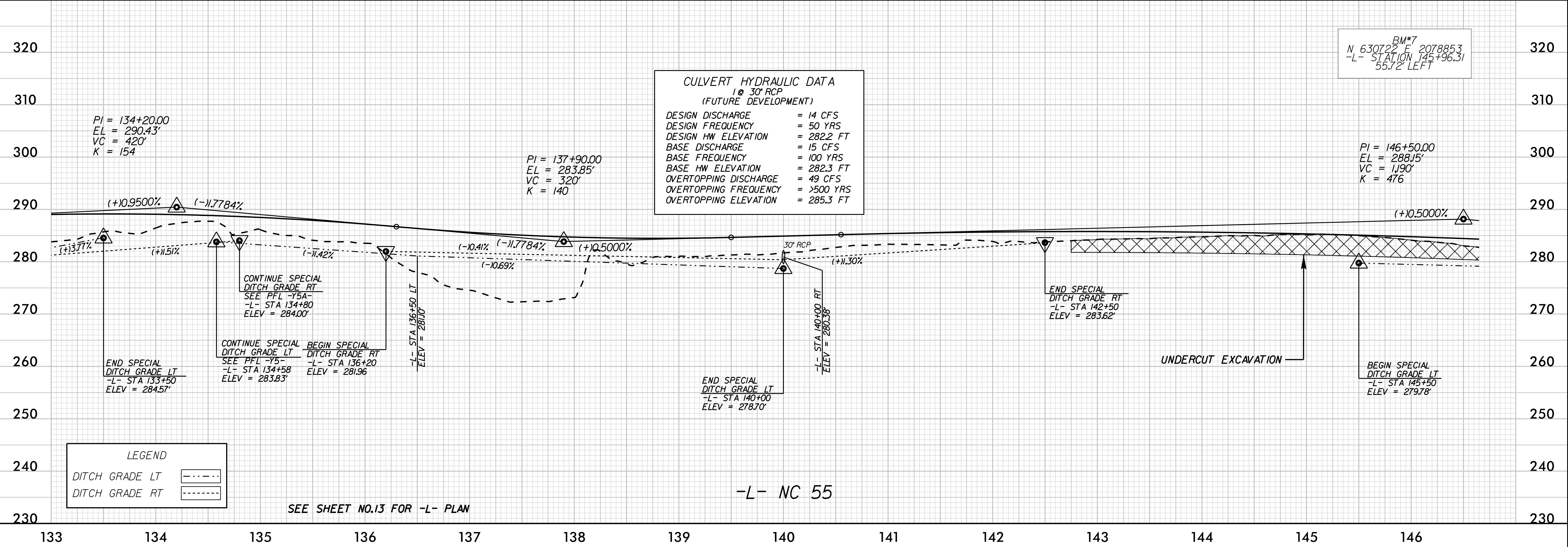
**LEGEND**

DITCH GRADE LT	---
DITCH GRADE RT	----

SEE SHEET NO.12 FOR -L- PLAN

-L- NC 55

8/8/2023



**CULVERT HYDRAULIC DATA**  
1 @ 30" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE	= 14 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 282.2 FT
BASE DISCHARGE	= 15 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 282.3 FT
OVERTOPPING DISCHARGE	= 49 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 285.3 FT

BM#7  
N 6307.22 E 207885.3  
-L- STATION 145+96.31  
55.72' LEFT

PI = 134+20.00  
EL = 290.43'  
VC = 420'  
K = 154

PI = 137+90.00  
EL = 283.85'  
VC = 320'  
K = 140

PI = 146+50.00  
EL = 288.15'  
VC = 1190'  
K = 476

**LEGEND**

DITCH GRADE LT	---
DITCH GRADE RT	----

SEE SHEET NO.13 FOR -L- PLAN

-L- NC 55



5/14/99

PROJECT REFERENCE NO. R-5705A	SHEET NO. 29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

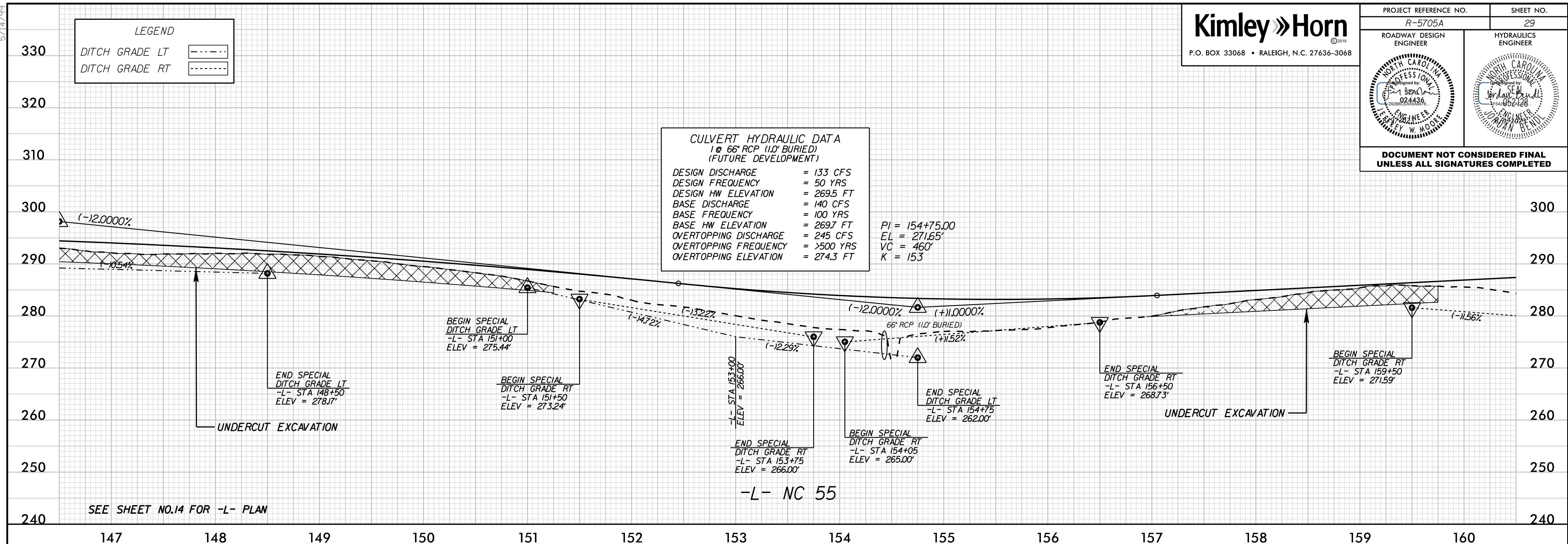
**LEGEND**

DITCH GRADE LT	---
DITCH GRADE RT	----

**CULVERT HYDRAULIC DATA**  
1 @ 66" RCP (10' BURIED)  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 133 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 269.5 FT  
BASE DISCHARGE = 140 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 269.7 FT  
OVERTOPPING DISCHARGE = 245 CFS  
OVERTOPPING FREQUENCY = >500 YRS  
OVERTOPPING ELEVATION = 274.3 FT

PI = 154+75.00  
EL = 271.65'  
VC = 460'  
K = 153



SEE SHEET NO.14 FOR -L- PLAN

-L- NC 55

**CULVERT HYDRAULIC DATA**  
1 @ 36" RCP  
(FUTURE DEVELOPMENT)

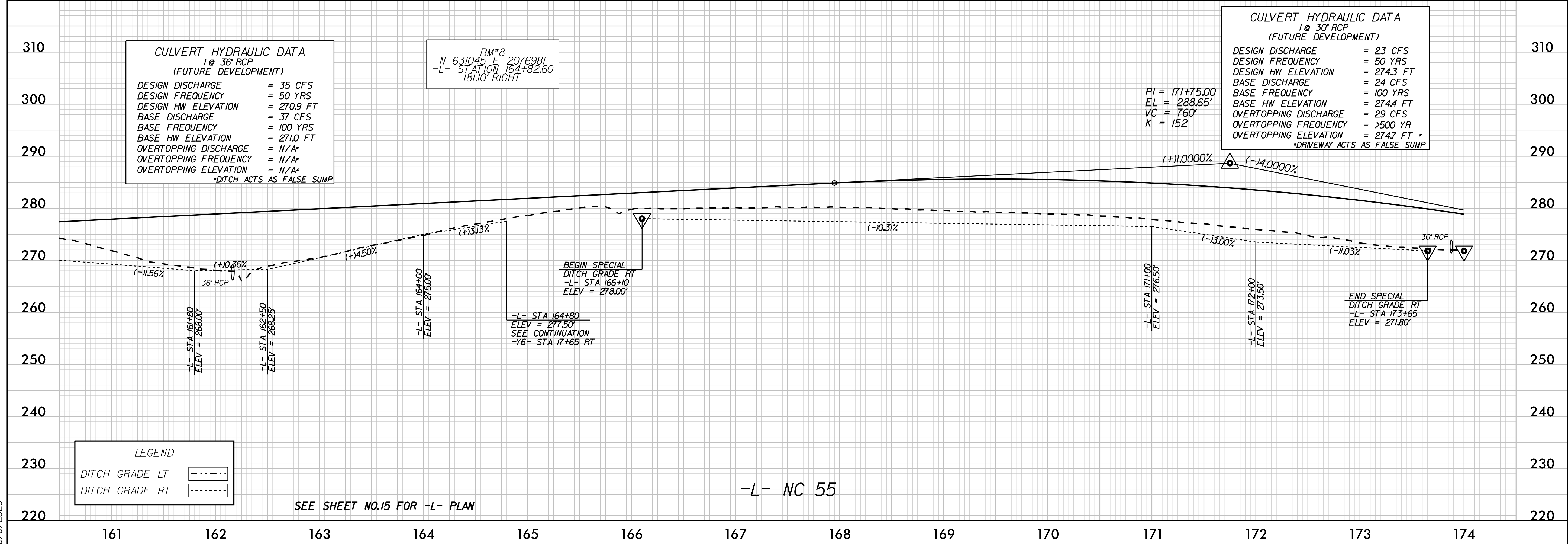
DESIGN DISCHARGE = 35 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 270.9 FT  
BASE DISCHARGE = 37 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 271.0 FT  
OVERTOPPING DISCHARGE = N/A  
OVERTOPPING FREQUENCY = N/A  
OVERTOPPING ELEVATION = N/A  
\*DITCH ACTS AS FALSE SUMP

BM#8  
N 631045 E 2076981  
-L- STATION 164+82.60  
181.0' RIGHT

**CULVERT HYDRAULIC DATA**  
1 @ 30" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 23 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 274.3 FT  
BASE DISCHARGE = 24 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 274.4 FT  
OVERTOPPING DISCHARGE = 29 CFS  
OVERTOPPING FREQUENCY = >500 YR  
OVERTOPPING ELEVATION = 274.7 FT  
\*DRIVEWAY ACTS AS FALSE SUMP

PI = 171+75.00  
EL = 288.65'  
VC = 760'  
K = 152



**LEGEND**

DITCH GRADE LT	---
DITCH GRADE RT	----

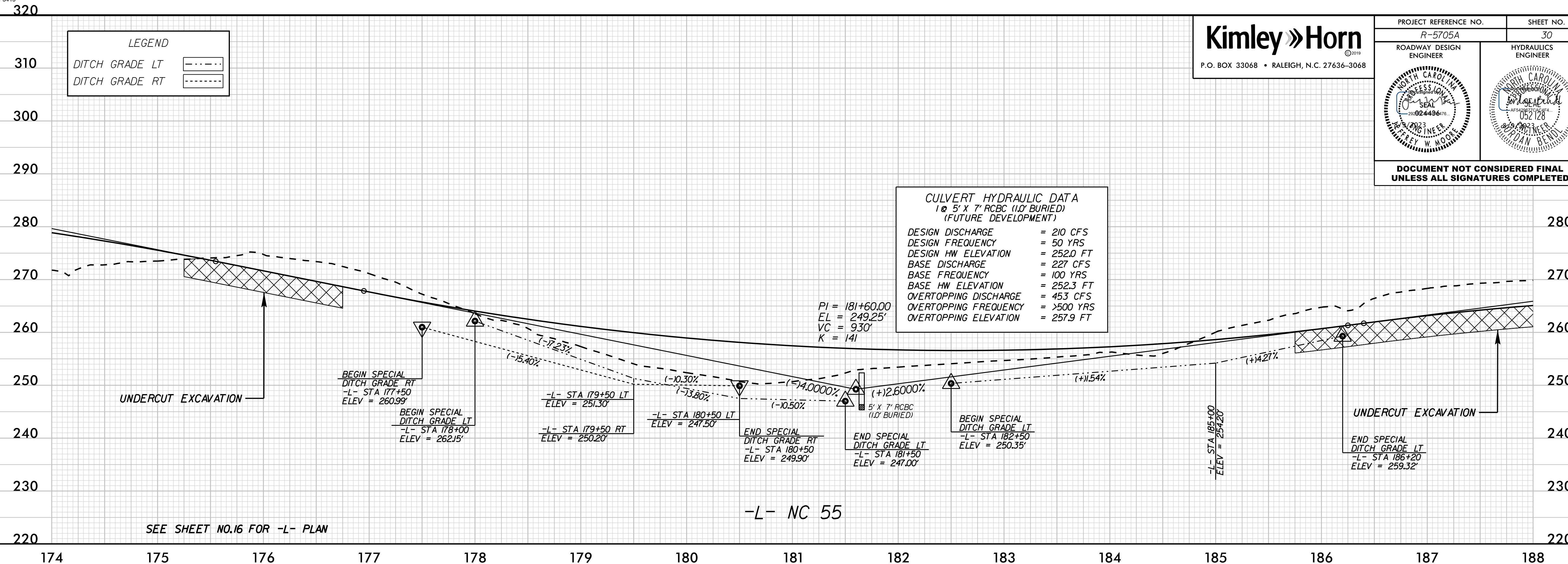
SEE SHEET NO.15 FOR -L- PLAN

-L- NC 55

8/8/2023



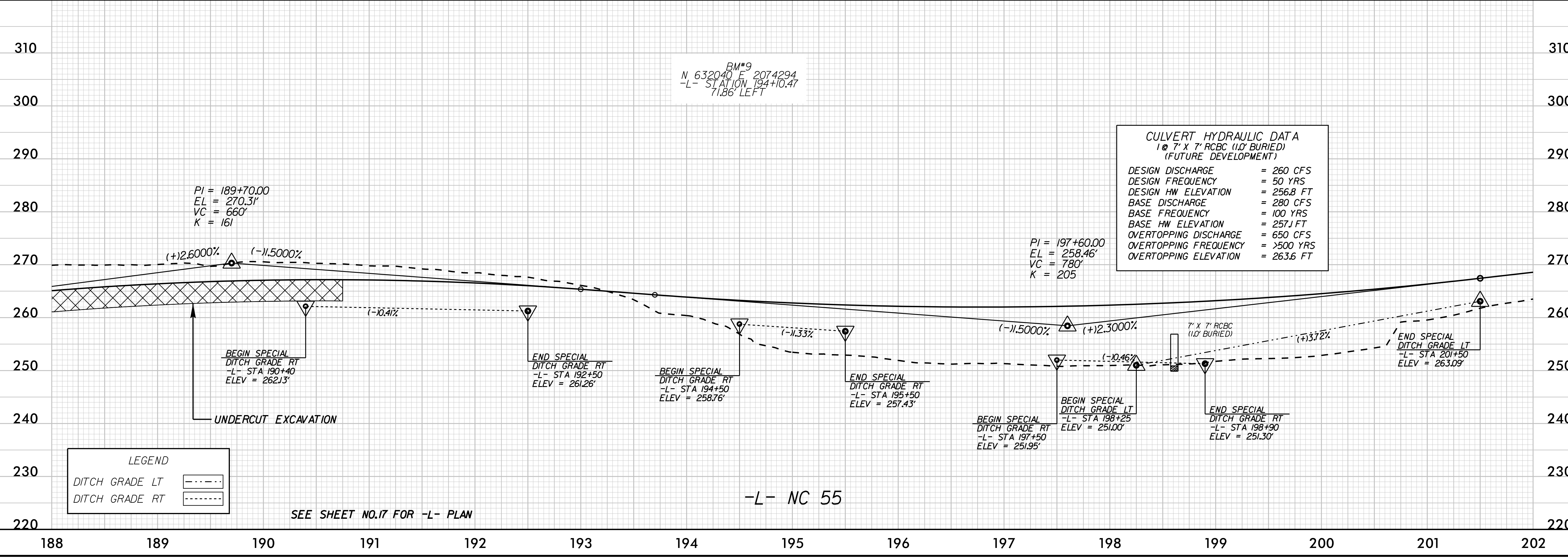
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PROJECT REFERENCE NO. R-5705A	SHEET NO. 30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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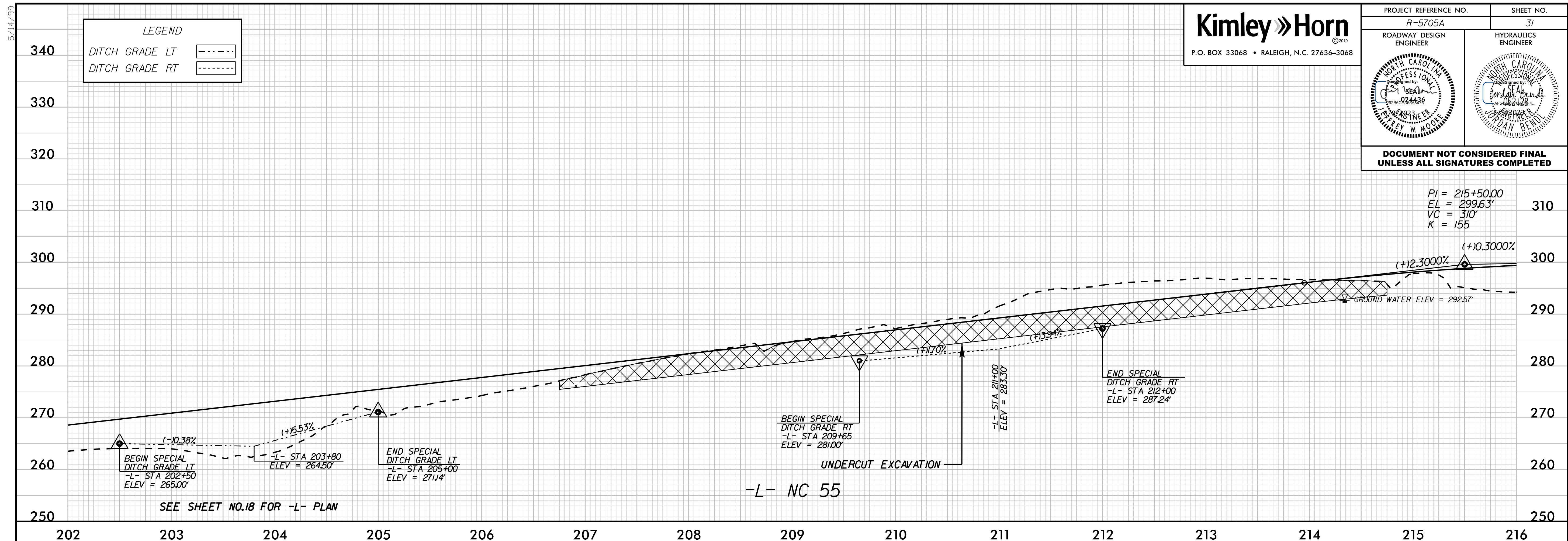
BM#9  
 N 6320.40 E 2074.294  
 -L- STATION 194+10.47  
 1.86' LEFT



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PROJECT REFERENCE NO. R-5705A	SHEET NO. 31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



**LEGEND**

DITCH GRADE LT

DITCH GRADE RT

**CULVERT HYDRAULIC DATA**  
 1 @ 30" RCP-N  
 (FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 22 CFS  
 DESIGN FREQUENCY = 50 YRS  
 DESIGN HW ELEVATION = 296.2 FT  
 BASE DISCHARGE = 23 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 296.3 FT  
 OVERTOPPING DISCHARGE = 32 CFS  
 OVERTOPPING FREQUENCY = >500 YRS  
 OVERTOPPING ELEVATION = 296.9 FT

**CULVERT HYDRAULIC DATA**  
 1 @ 54" RCP-N  
 (FUTURE DEVELOPMENT)

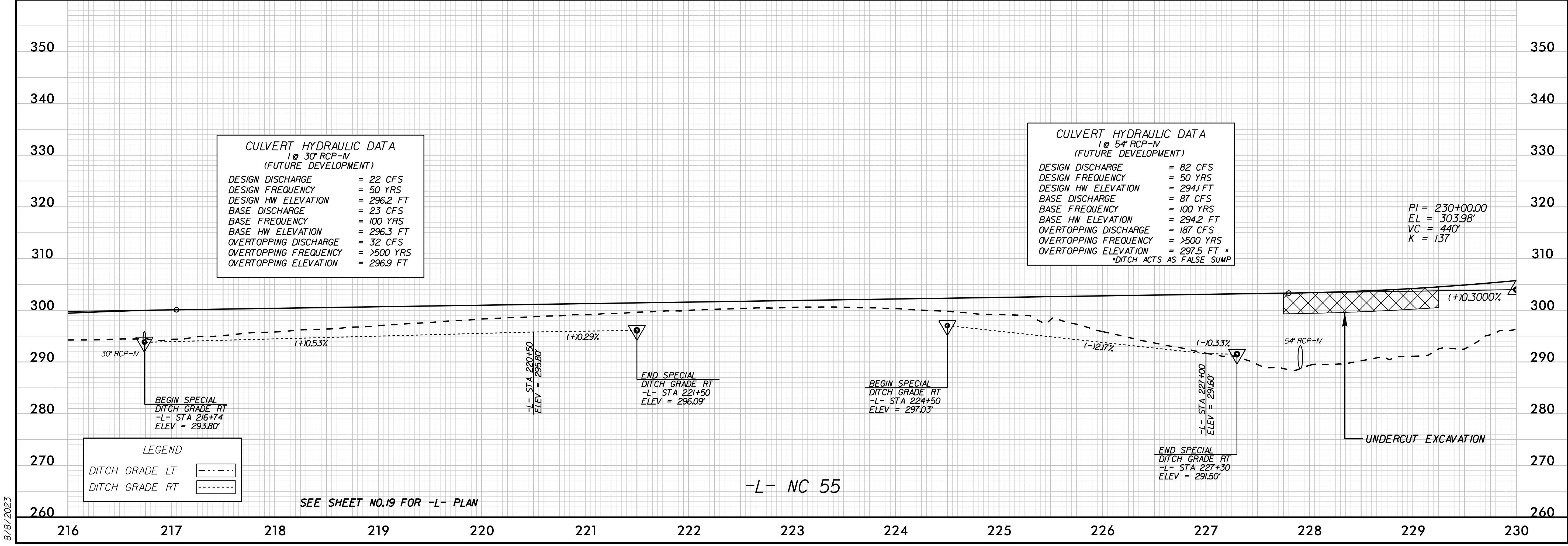
DESIGN DISCHARGE = 82 CFS  
 DESIGN FREQUENCY = 50 YRS  
 DESIGN HW ELEVATION = 294.1 FT  
 BASE DISCHARGE = 87 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 294.2 FT  
 OVERTOPPING DISCHARGE = 187 CFS  
 OVERTOPPING FREQUENCY = >500 YRS  
 OVERTOPPING ELEVATION = 297.5 FT \*  
 \*DITCH ACTS AS FALSE SUMP

PI = 230+00.00  
 EL = 303.98'  
 VC = 440'  
 K = 137

**LEGEND**

DITCH GRADE LT

DITCH GRADE RT



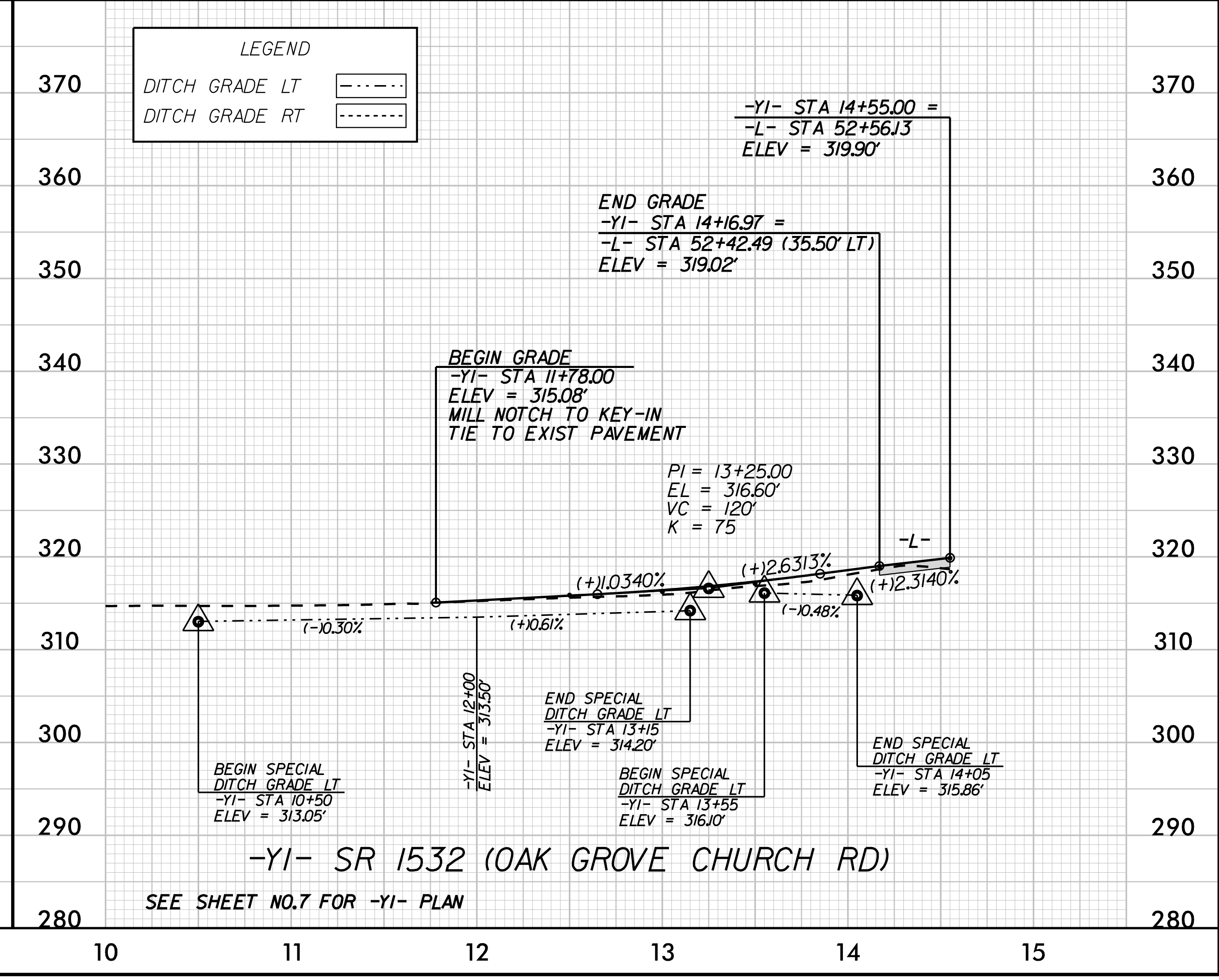
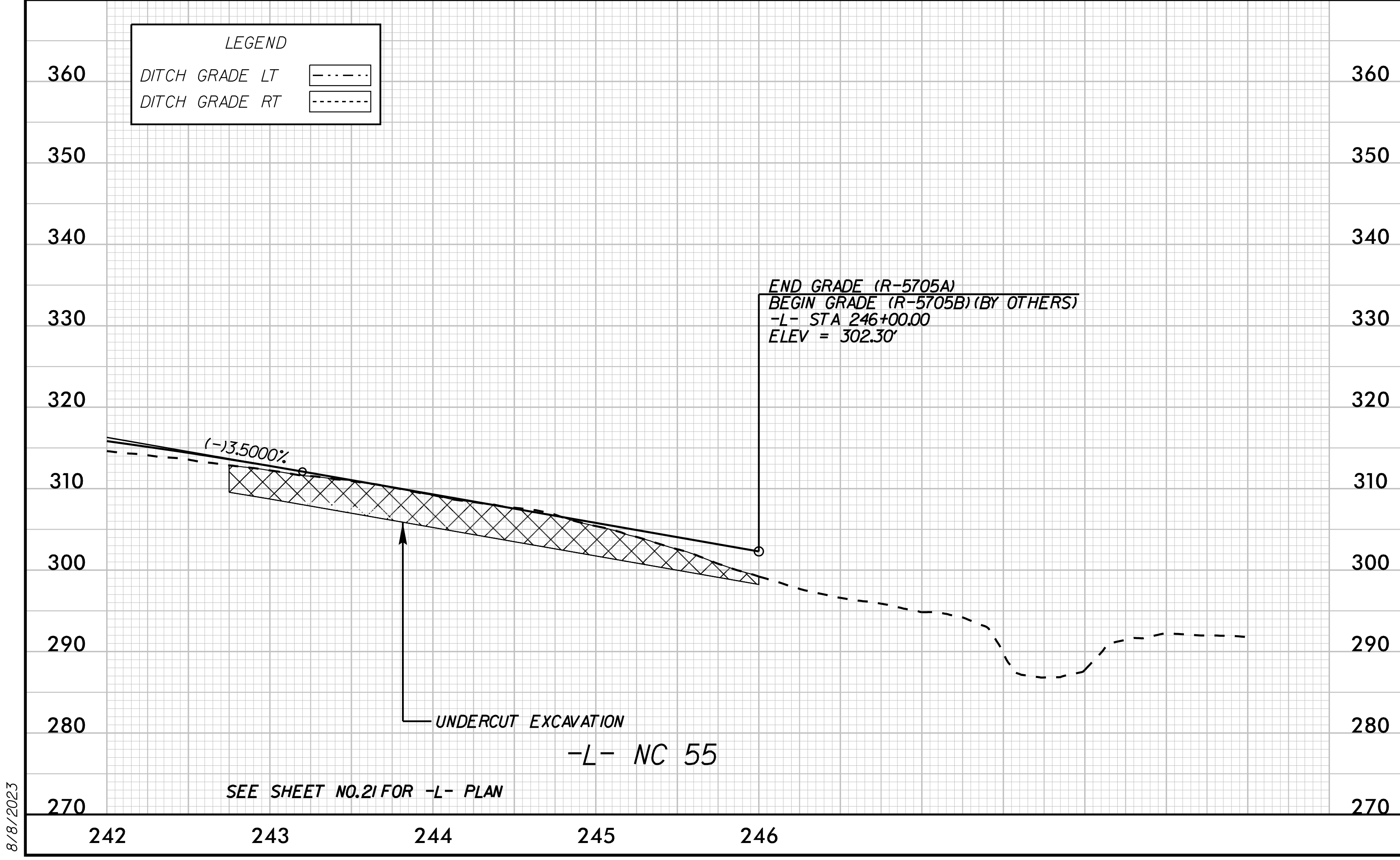
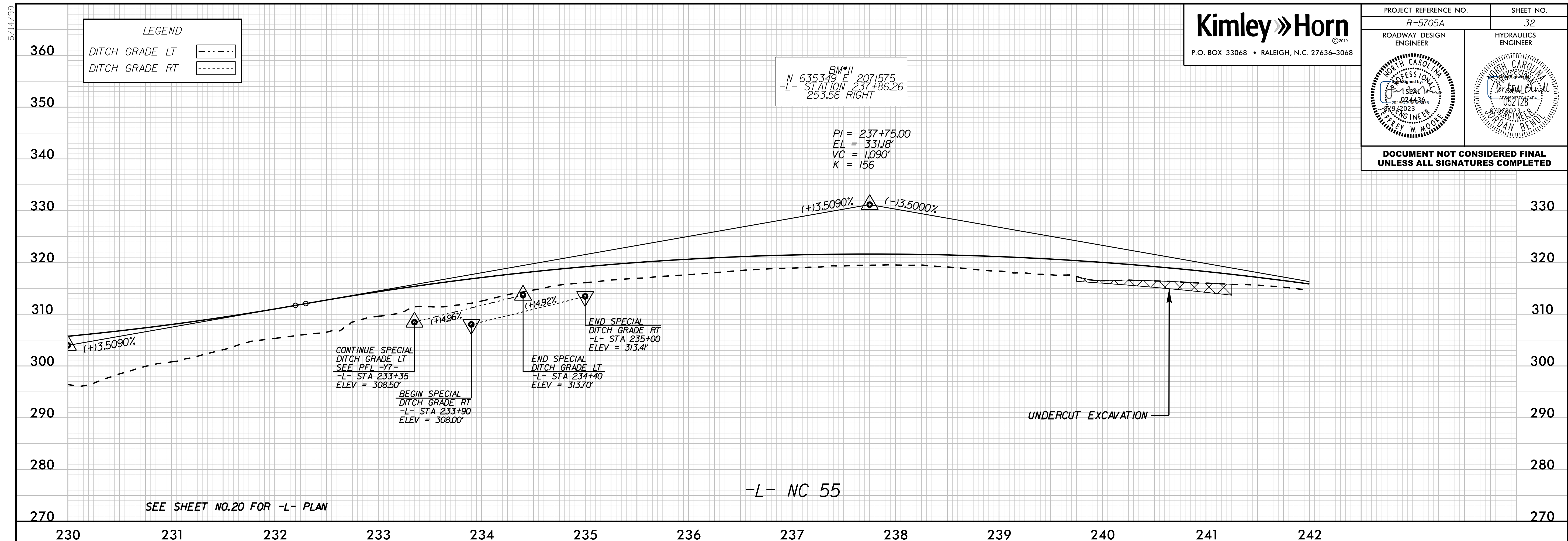
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PROJECT REFERENCE NO. R-5705A	SHEET NO. 32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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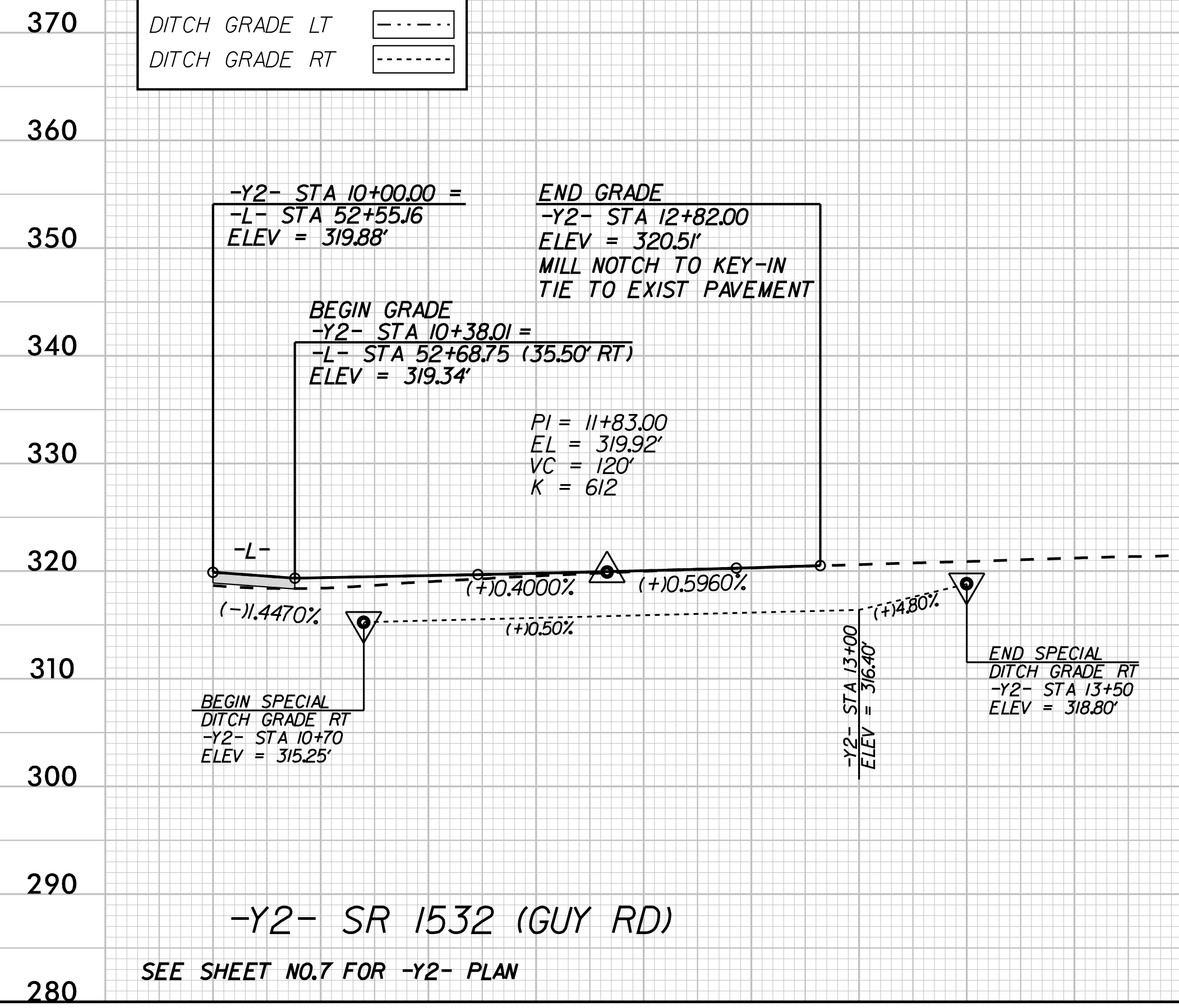


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**LEGEND**

DITCH GRADE LT

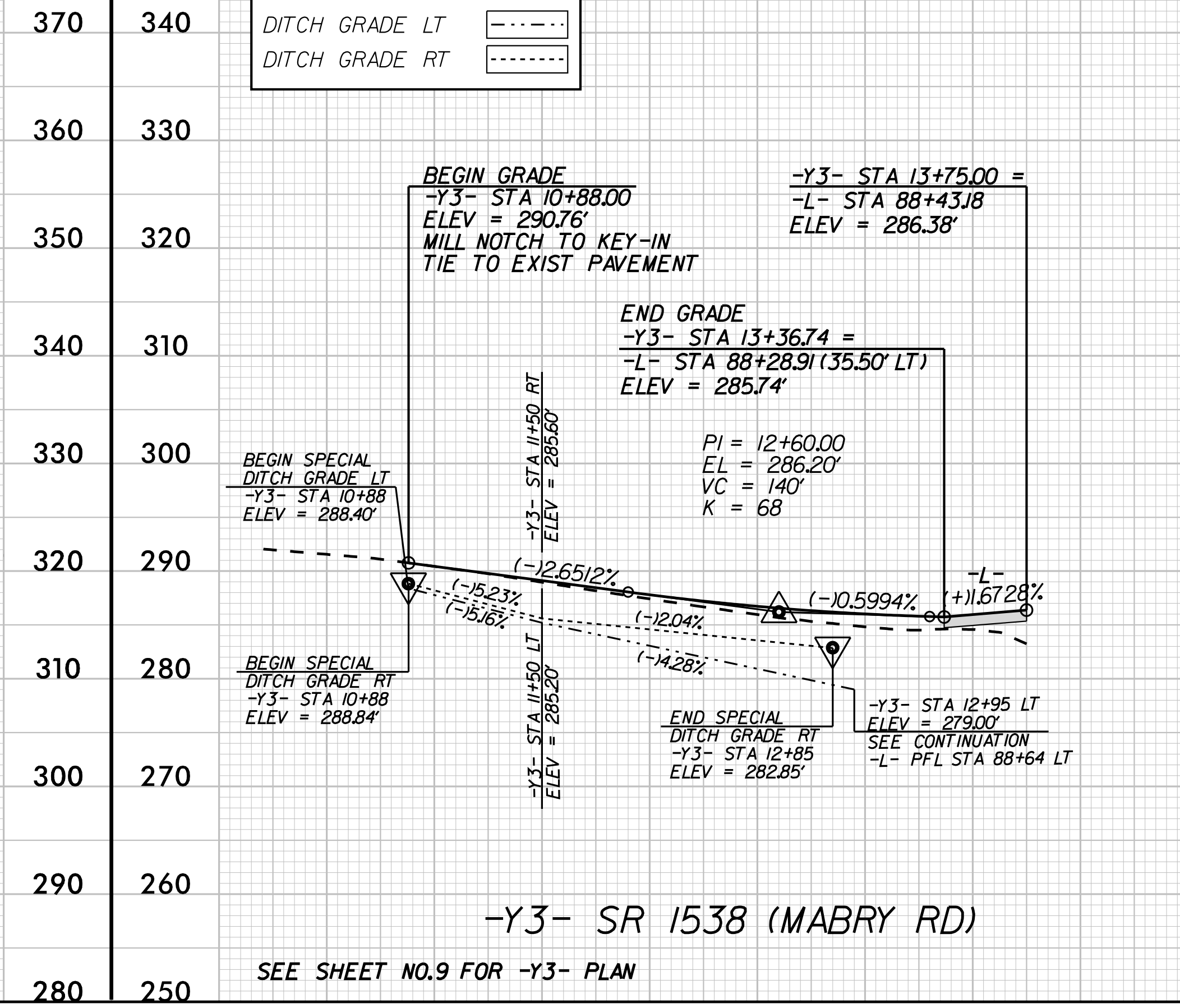
DITCH GRADE RT



**LEGEND**

DITCH GRADE LT

DITCH GRADE RT



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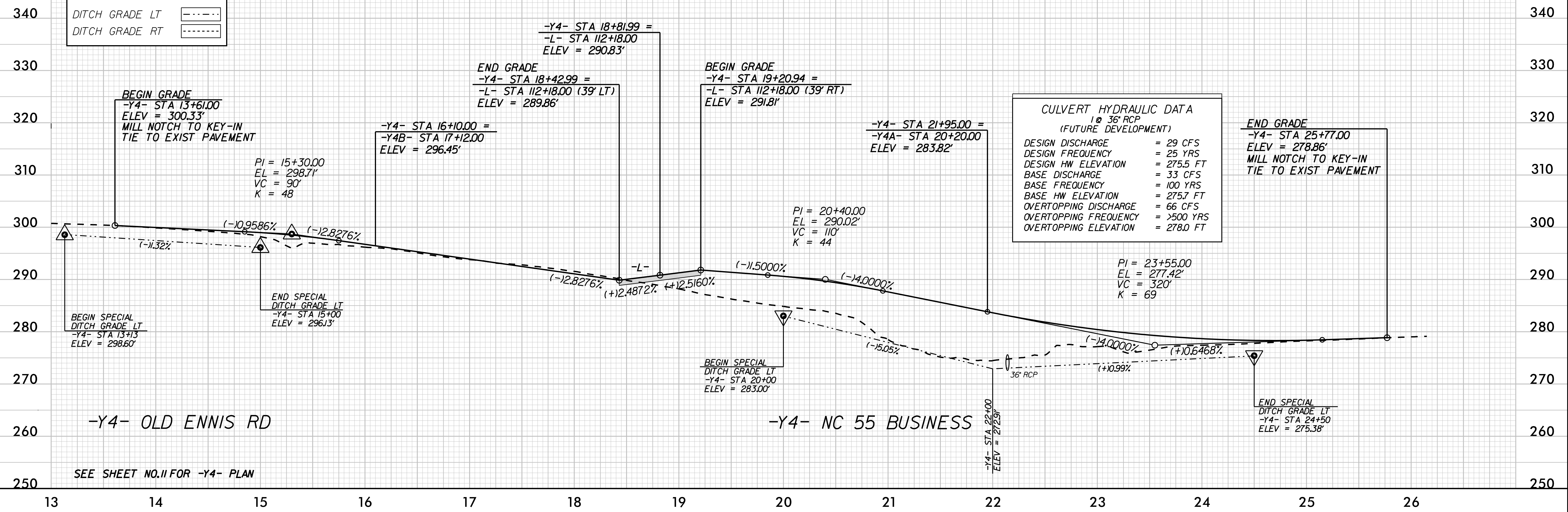
PROJECT REFERENCE NO. R-5705A	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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**LEGEND**

DITCH GRADE LT

DITCH GRADE RT



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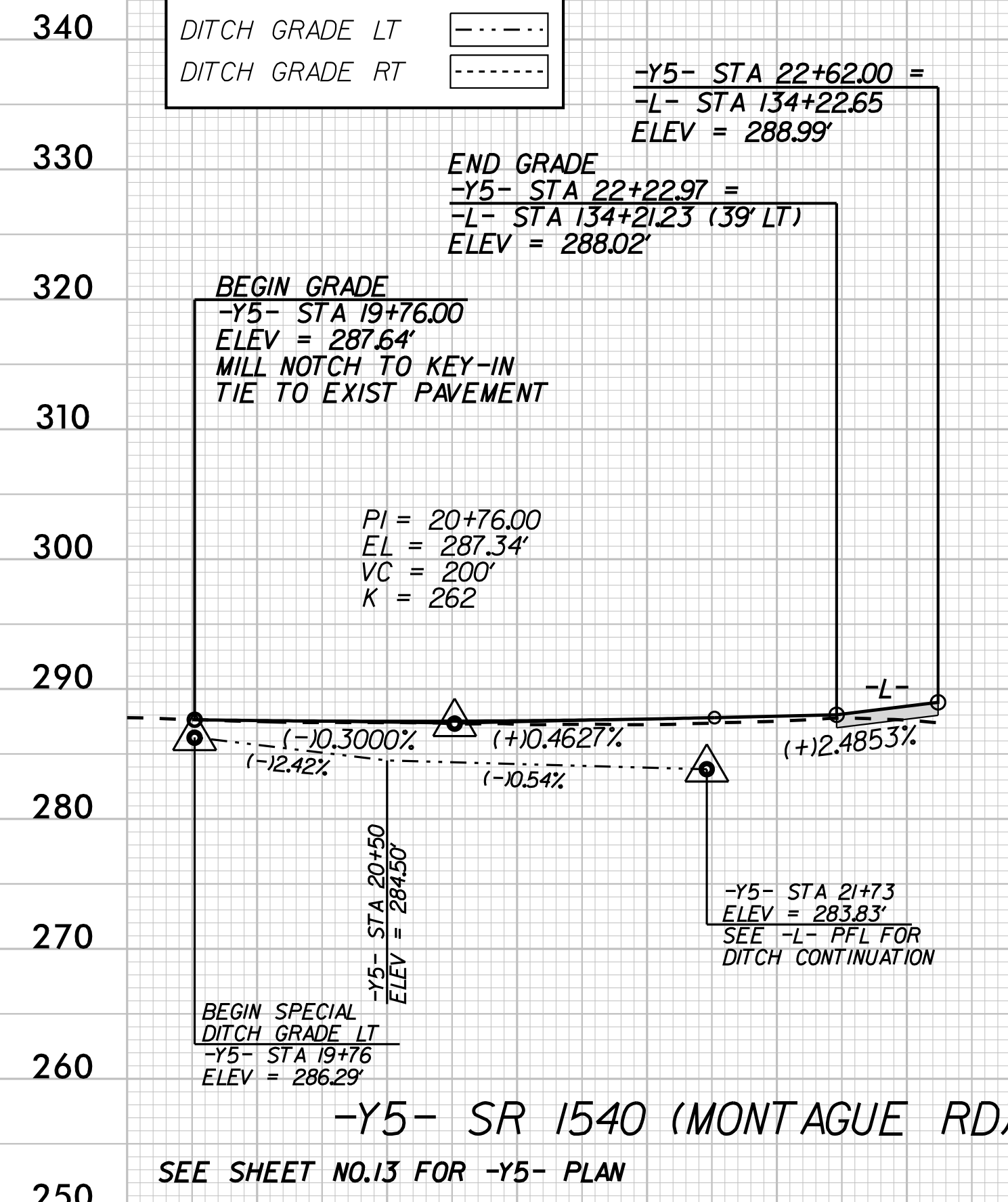


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**LEGEND**

DITCH GRADE LT

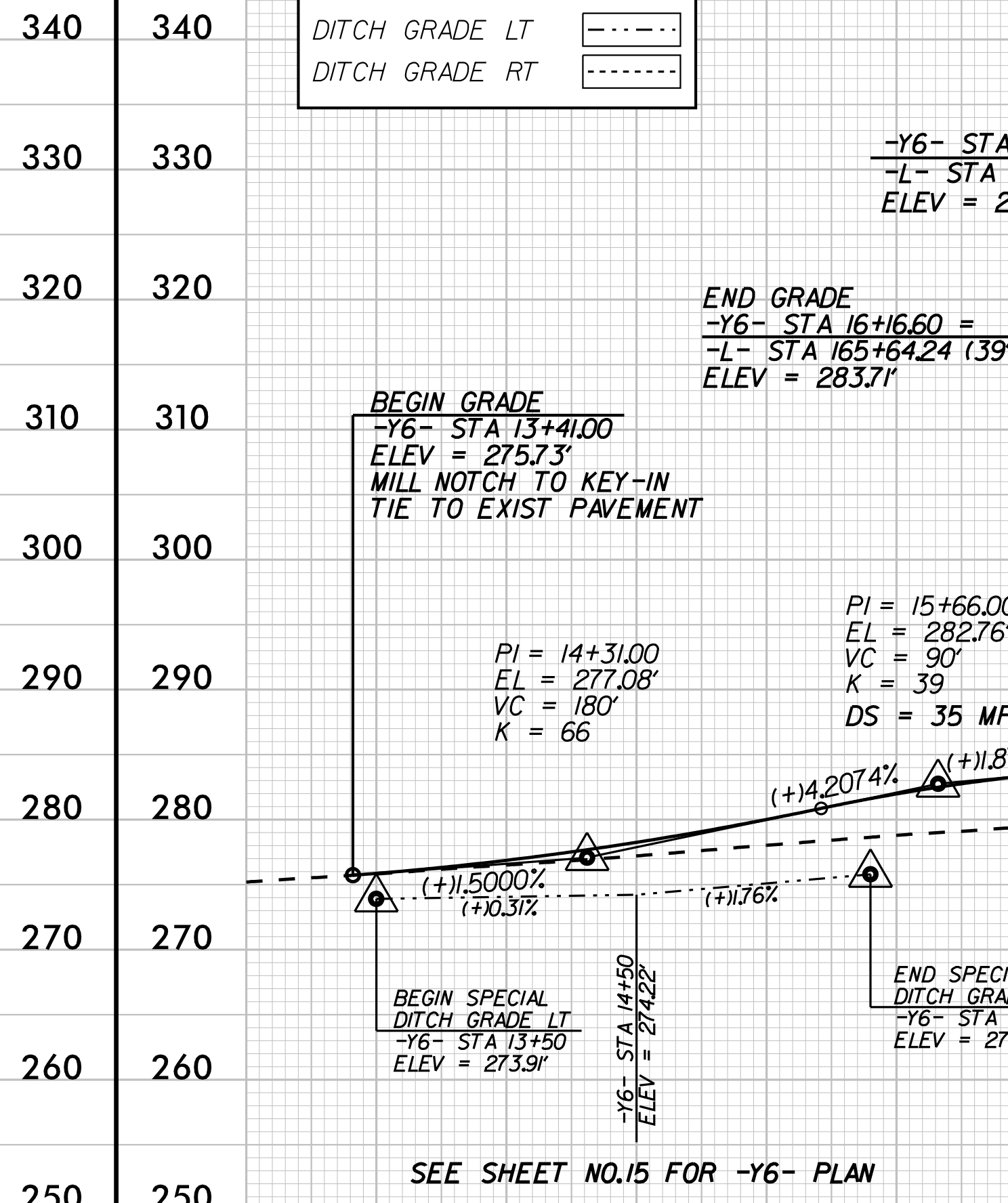
DITCH GRADE RT



**LEGEND**

DITCH GRADE LT

DITCH GRADE RT



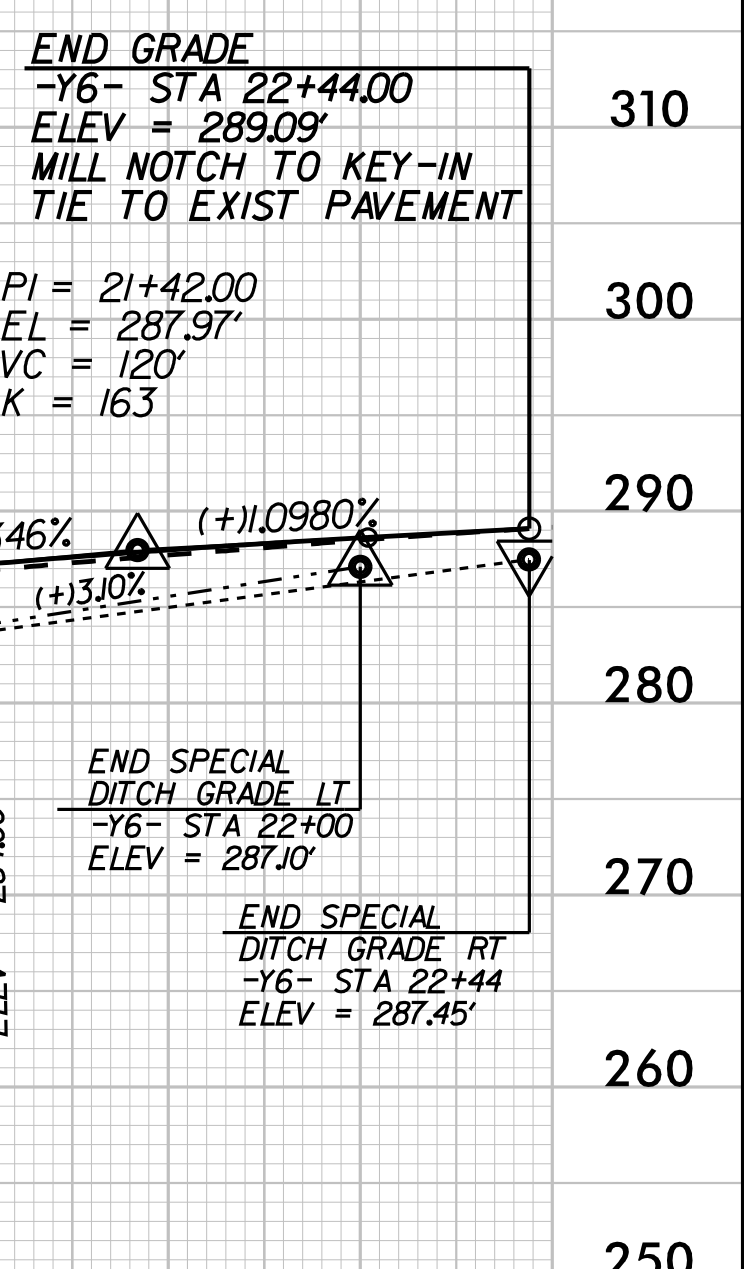
**CULVERT HYDRAULIC DATA**  
1 @ 24" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 8 CFS  
DESIGN FREQUENCY = 25 YRS  
DESIGN HW ELEVATION = 279.4 FT  
BASE DISCHARGE = 10 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 279.6 FT  
OVERTOPPING DISCHARGE = 13 CFS  
OVERTOPPING FREQUENCY = >500 YR  
OVERTOPPING ELEVATION = 279.9 FT  
\*FALSE SUMP

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PROJECT REFERENCE NO. R-5705A	SHEET NO. 34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

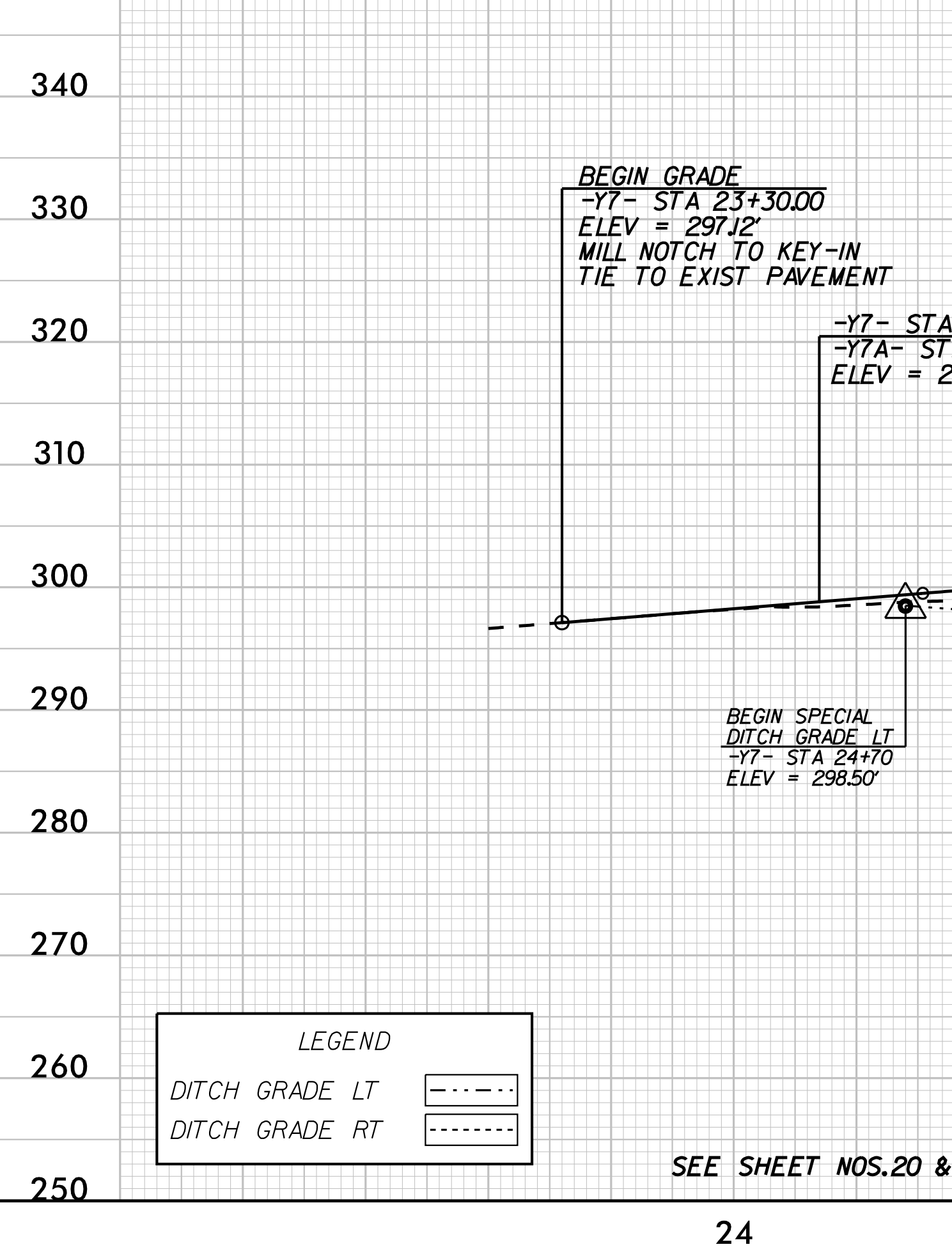
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



**LEGEND**

DITCH GRADE LT

DITCH GRADE RT



**CULVERT HYDRAULIC DATA**  
1 @ 36" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 39 CFS  
DESIGN FREQUENCY = 50 YRS  
DESIGN HW ELEVATION = 297.6 FT  
BASE DISCHARGE = 41 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 297.7 FT  
OVERTOPPING DISCHARGE = 65 CFS  
OVERTOPPING FREQUENCY = >500 YRS  
OVERTOPPING ELEVATION = 299.1 FT

PI = 29+42.00  
EL = 302.68'  
VC = 390'  
K = 98

PI = 32+00.00  
EL = 314.33'  
VC = 120'  
K = 44  
DS = 40 MPH

**BEGIN GRADE**  
-Y7- STA 33+00.44 =  
-L- STA 232+91.08  
ELEV = 314.11'

**BEGIN SPECIAL DITCH GRADE LT**  
-Y7- STA 34+00  
ELEV = 308.00'

-Y7- NC 210

SEE SHEET NOS.20 & 23 FOR -Y7- PLAN

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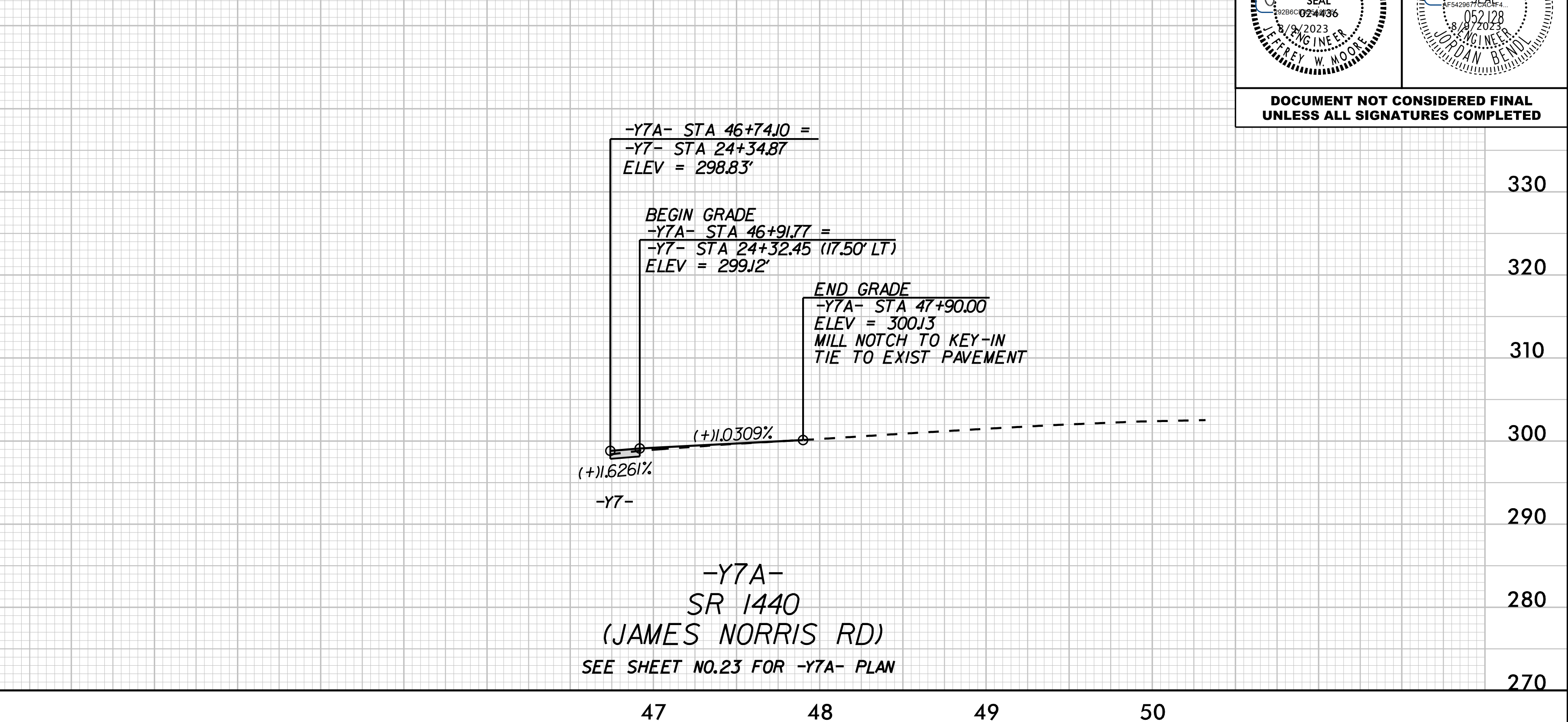
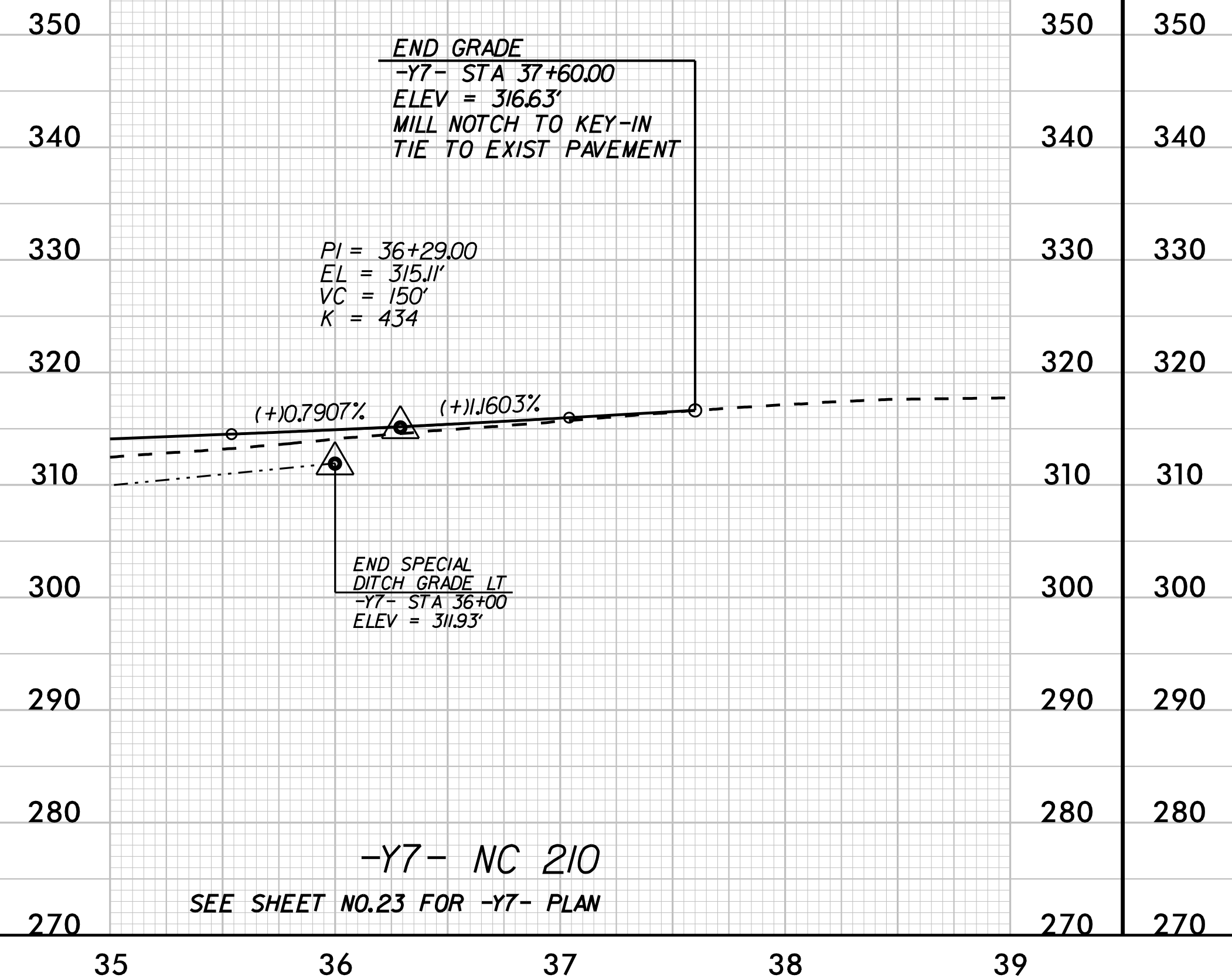
PROJECT REFERENCE NO. R-5705A	SHEET NO. 35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

LEGEND

DITCH GRADE LT	-----
DITCH GRADE RT	-----

LEGEND

DITCH GRADE LT	-----
DITCH GRADE RT	-----

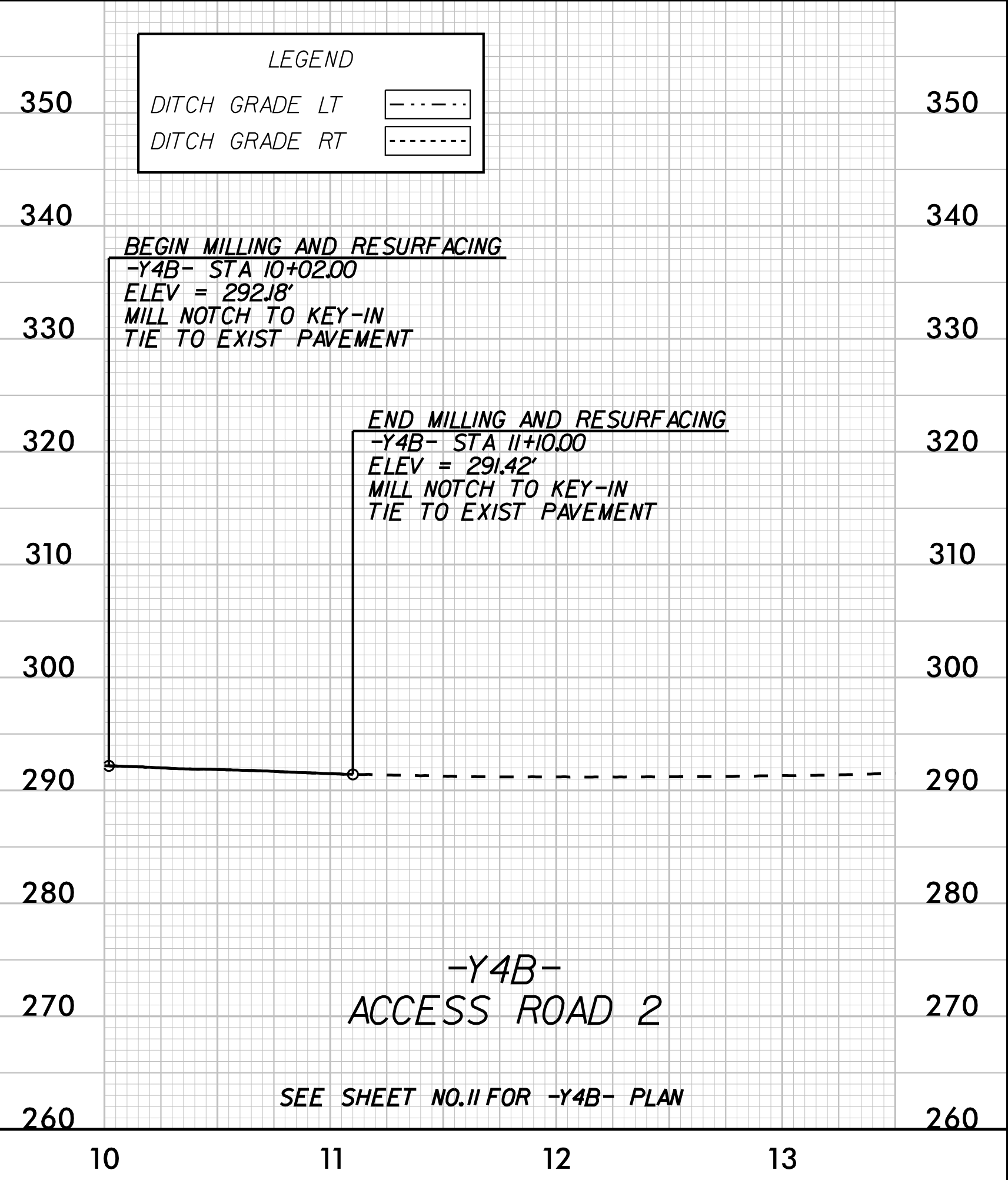
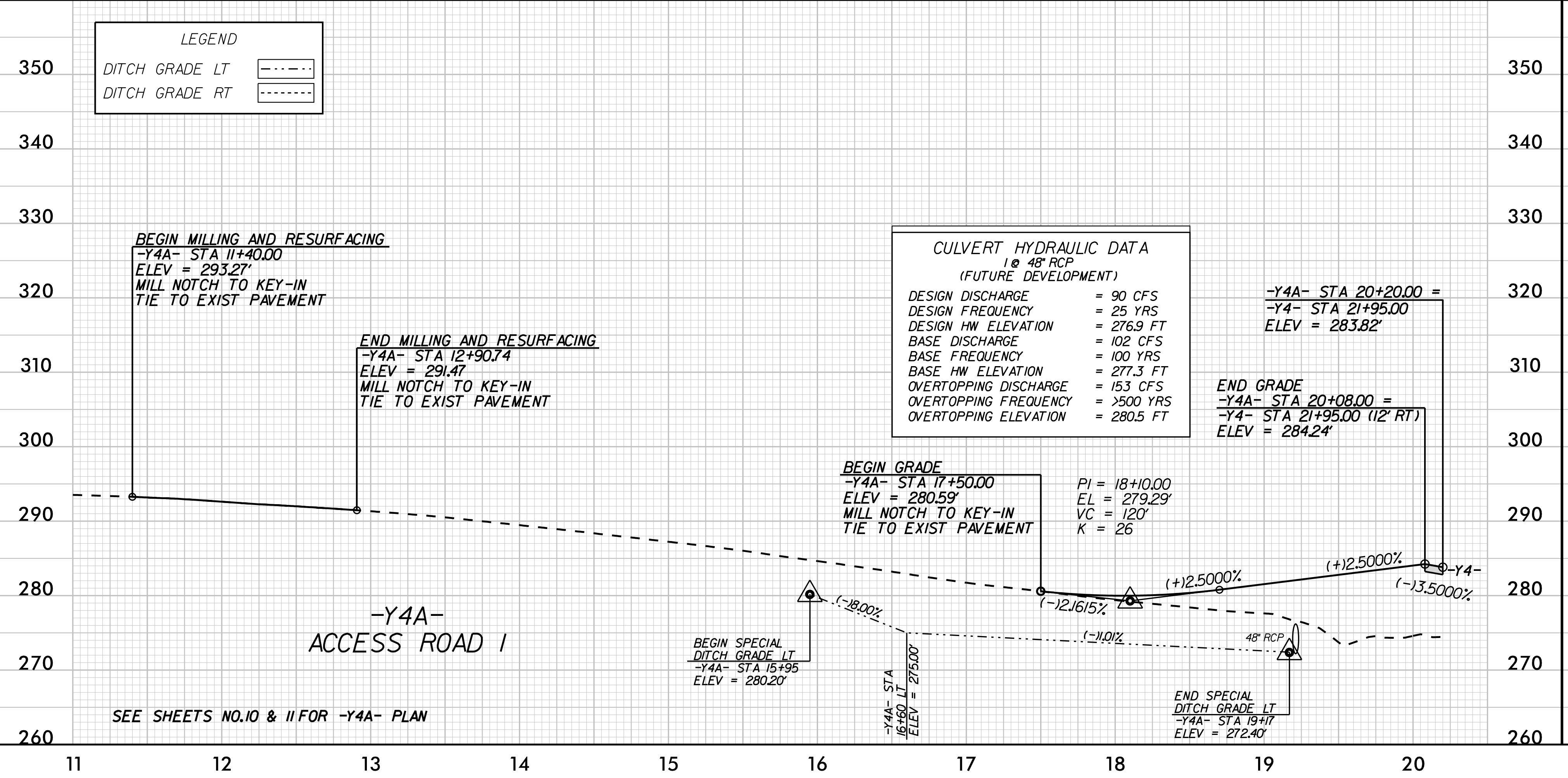


LEGEND

DITCH GRADE LT	-----
DITCH GRADE RT	-----

LEGEND

DITCH GRADE LT	-----
DITCH GRADE RT	-----



8/8/2023



5/14/99

**LEGEND**

DITCH GRADE LT

DITCH GRADE RT

**-Y4B- STA 17+12.00 =**  
**-Y4- STA 16+10.00**  
**ELEV = 296.45'**

**END GRADE**  
**-Y4B- STA 17+00.00 =**  
**-Y4- STA 16+10.00 (12' RT)**  
**ELEV = 296.93'**

**BEGIN GRADE**  
**-Y4B- STA 15+54.00**  
**ELEV = 294.49'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

PI = 16+43.00  
 EL = 295.94'  
 VC = 90'  
 K = 840

**BEGIN SPECIAL**  
**DITCH GRADE LT**  
**-Y4B- STA 15+15.00**  
**ELEV = 292.30'**

**END SPECIAL**  
**DITCH GRADE LT**  
**-Y4B- STA 16+63**  
**ELEV = 294.80'**

**-Y4B- ACCESS ROAD 2**

SEE SHEET NO.11 FOR -Y4B- PLAN

**LEGEND**

DITCH GRADE LT

DITCH GRADE RT

**-Y5A- STA 10+00.00 =**  
**-L- STA 135+19.00**  
**ELEV = 288.27'**

**BEGIN GRADE**  
**-Y5A- STA 10+42.91 =**  
**-L- STA 135+36.85 (39' RT)**  
**ELEV = 289.05'**

PI = 11+24.00  
 EL = 288.78'  
 VC = 120'  
 K = 164

**END GRADE**  
**-Y5A- STA 13+64.00**  
**ELEV = 289.74'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

**BEGIN MILLING AND RESURFACING**  
**-Y5A- STA 10+65**  
**ELEV = 284.00'**  
**SEE CONTINUATION**  
**-L- STA.134+80 RT.**

**-Y5A- STA 11+50**  
**ELEV = 284.40'**

**END SPECIAL**  
**DITCH GRADE RT**  
**-Y5A- STA 13+50**  
**ELEV = 287.75'**

**-Y5A- SR 1543**  
**(ENNIS RD)**

SEE SHEET NO.13 FOR -Y5A- PLAN

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PROJECT REFERENCE NO. R-5705A	SHEET NO. 36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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**LEGEND**

DITCH GRADE LT

DITCH GRADE RT

**BEGIN MILLING AND RESURFACING**  
**-Y5B- STA 12+15.00**  
**ELEV = 287.77'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

**END MILLING AND RESURFACING**  
**-Y5B- STA 13+19.00**  
**ELEV = 287.05'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

**-Y5B- OLD ENNIS RD**

SEE SHEET NO.12 FOR -Y5B- PLAN

**LEGEND**

DITCH GRADE LT

DITCH GRADE RT

**-Y6A- STA 10+00.00 =**  
**-Y6- STA 18+85.00**  
**ELEV = 283.33'**

**BEGIN GRADE**  
**-Y6A- STA 10+12.69 =**  
**-Y6- STA 18+83.91 (12.64' LT)**  
**ELEV = 283.71'**

PI = 10+65.00  
 EL = 285.18'  
 VC = 100'  
 K = 32

**END GRADE**  
**-Y6A- STA 11+17.00**  
**ELEV = 285.02'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

**BEGIN SPECIAL**  
**DITCH GRADE RT**  
**-Y6A- STA 10+30**  
**ELEV = 280.65'**

**END SPECIAL**  
**DITCH GRADE RT**  
**-Y6A- STA 11+00**  
**ELEV = 282.78'**

**-Y6A- GARDNER RD**

SEE SHEET NO.15 FOR -Y6A- PLAN

**BEGIN MILLING AND RESURFACING**  
**-Y6A- STA 16+66.00**  
**ELEV = 277.71'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

**END MILLING AND RESURFACING**  
**-Y6A- STA 18+19.00**  
**ELEV = 275.79'**  
**MILL NOTCH TO KEY-IN**  
**TIE TO EXIST PAVEMENT**

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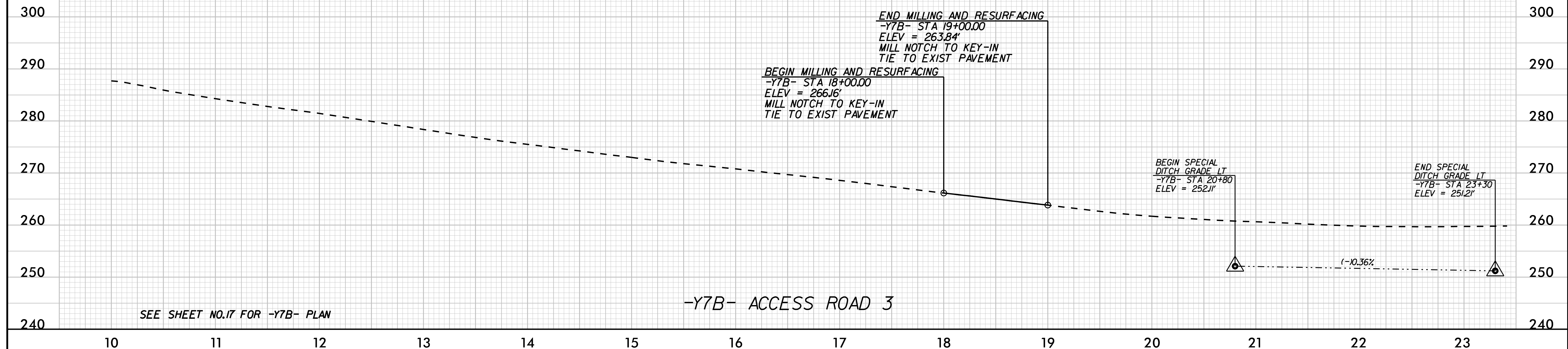
LEGEND

DITCH GRADE LT	---
DITCH GRADE RT	----

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PROJECT REFERENCE NO. R-5705A	SHEET NO. 37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

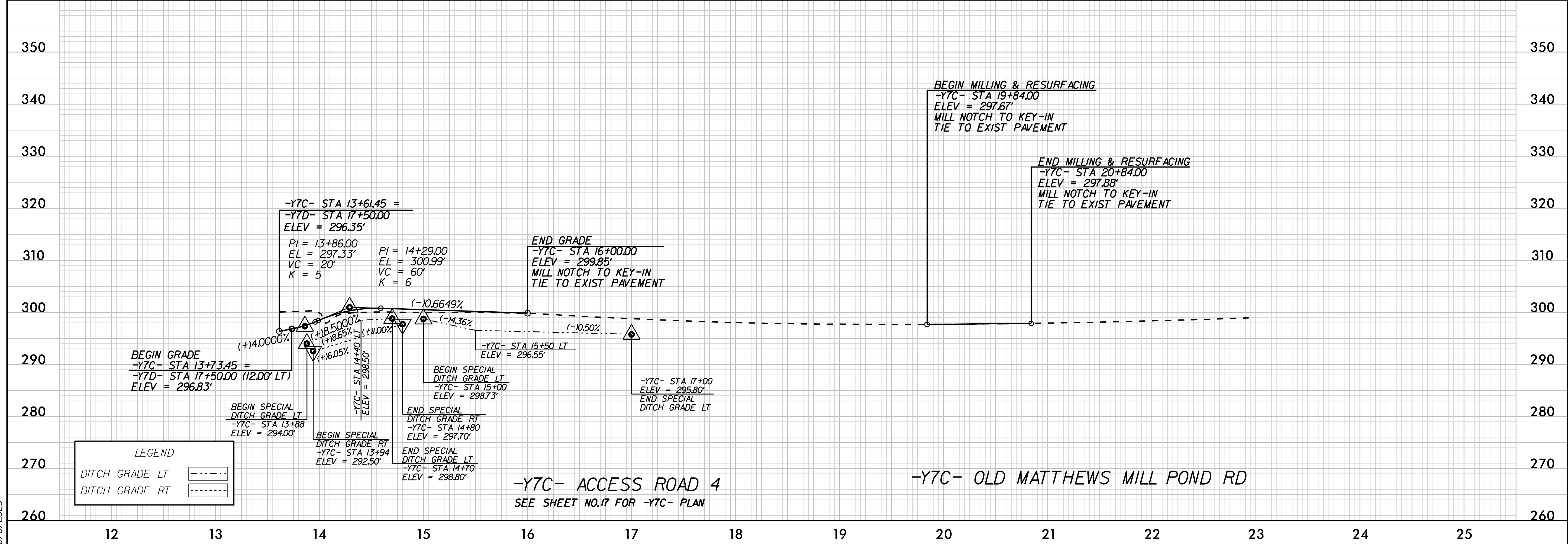
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LEGEND

DITCH GRADE LT	---
DITCH GRADE RT	----





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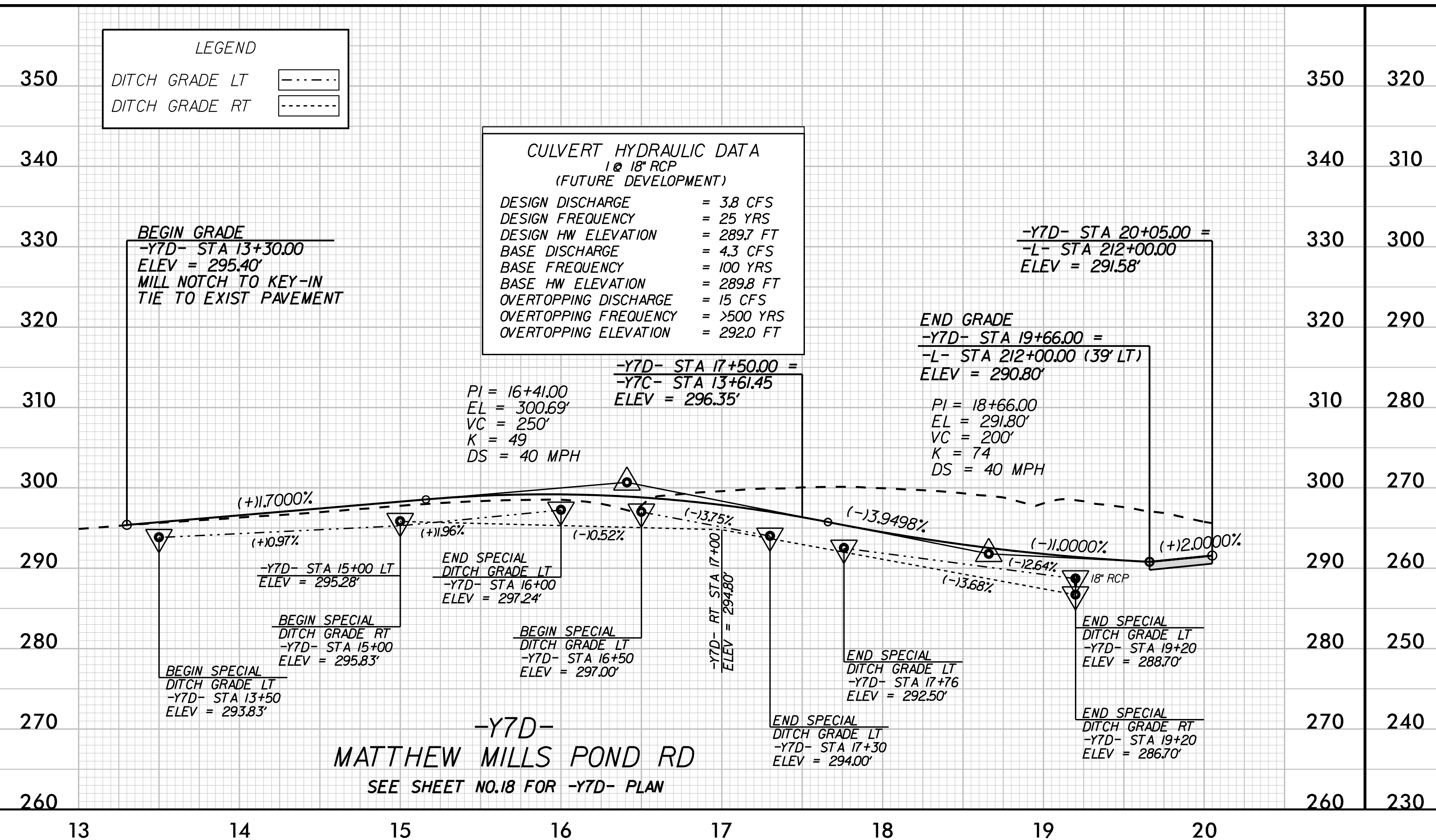
PROJECT REFERENCE NO. R-5705A	SHEET NO. 38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**LEGEND**

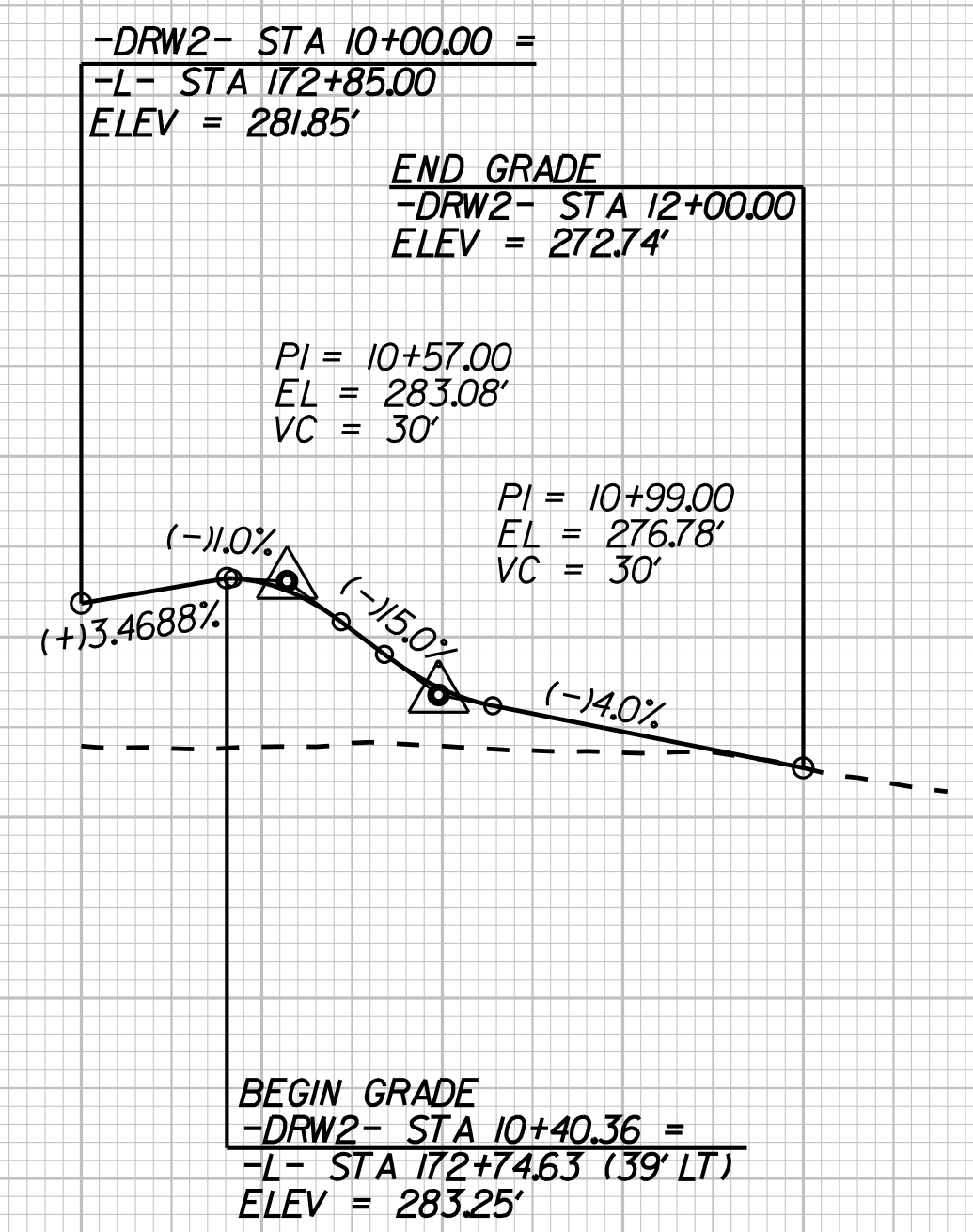
DITCH GRADE LT	
DITCH GRADE RT	

**CULVERT HYDRAULIC DATA**  
1 @ 18" RCP  
(FUTURE DEVELOPMENT)

DESIGN DISCHARGE = 3.8 CFS  
DESIGN FREQUENCY = 25 YRS  
DESIGN HW ELEVATION = 289.7 FT  
BASE DISCHARGE = 4.3 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 289.8 FT  
OVERTOPPING DISCHARGE = 15 CFS  
OVERTOPPING FREQUENCY = >500 YRS  
OVERTOPPING ELEVATION = 292.0 FT



-Y7D-  
**MATTHEW MILLS POND RD**  
SEE SHEET NO.18 FOR -Y7D- PLAN



-DRW2-  
SEE SHEET NO.15 FOR -DRW2- PLAN

**LEGEND**

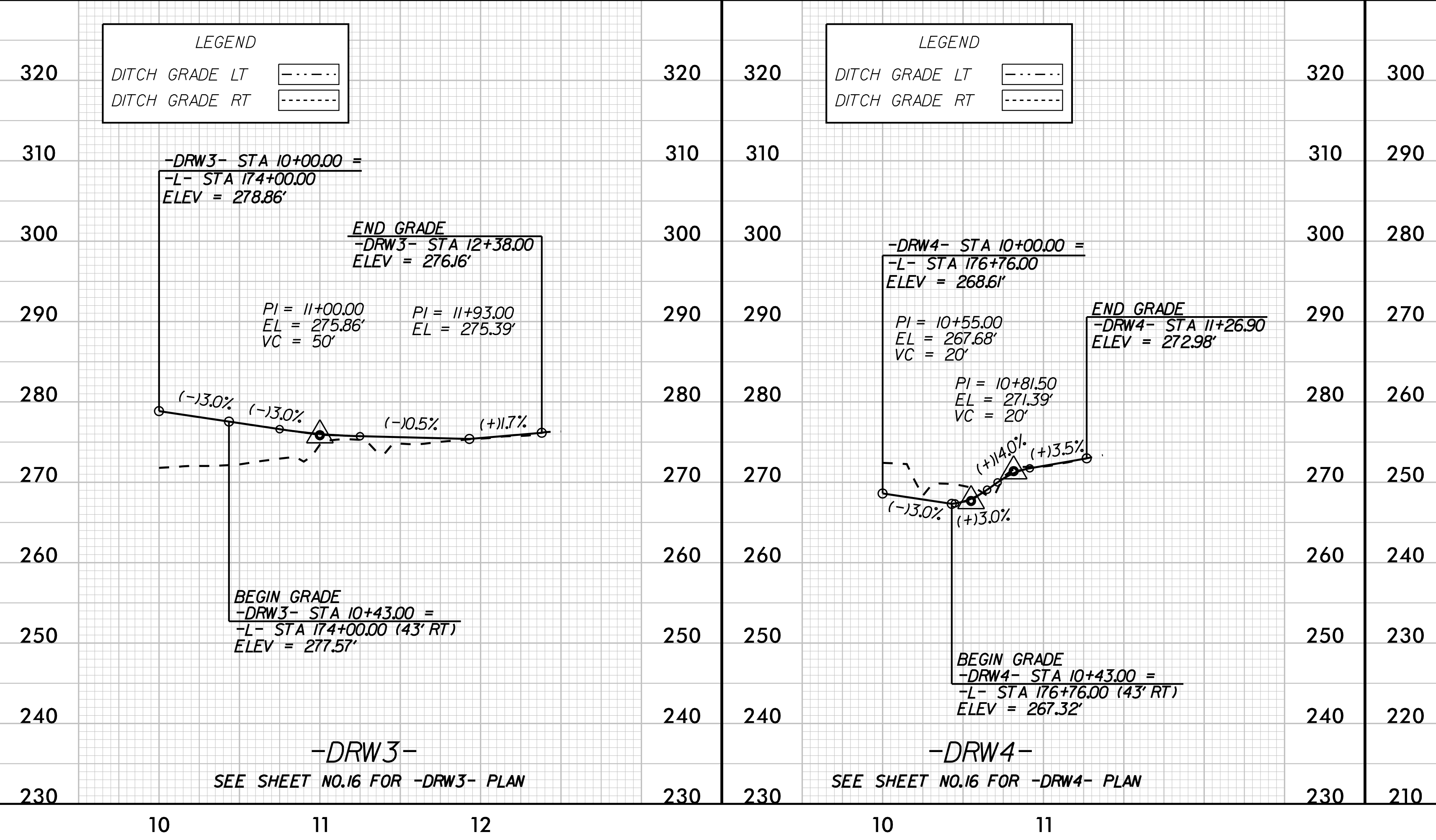
DITCH GRADE LT	
DITCH GRADE RT	

**LEGEND**

DITCH GRADE LT	
DITCH GRADE RT	

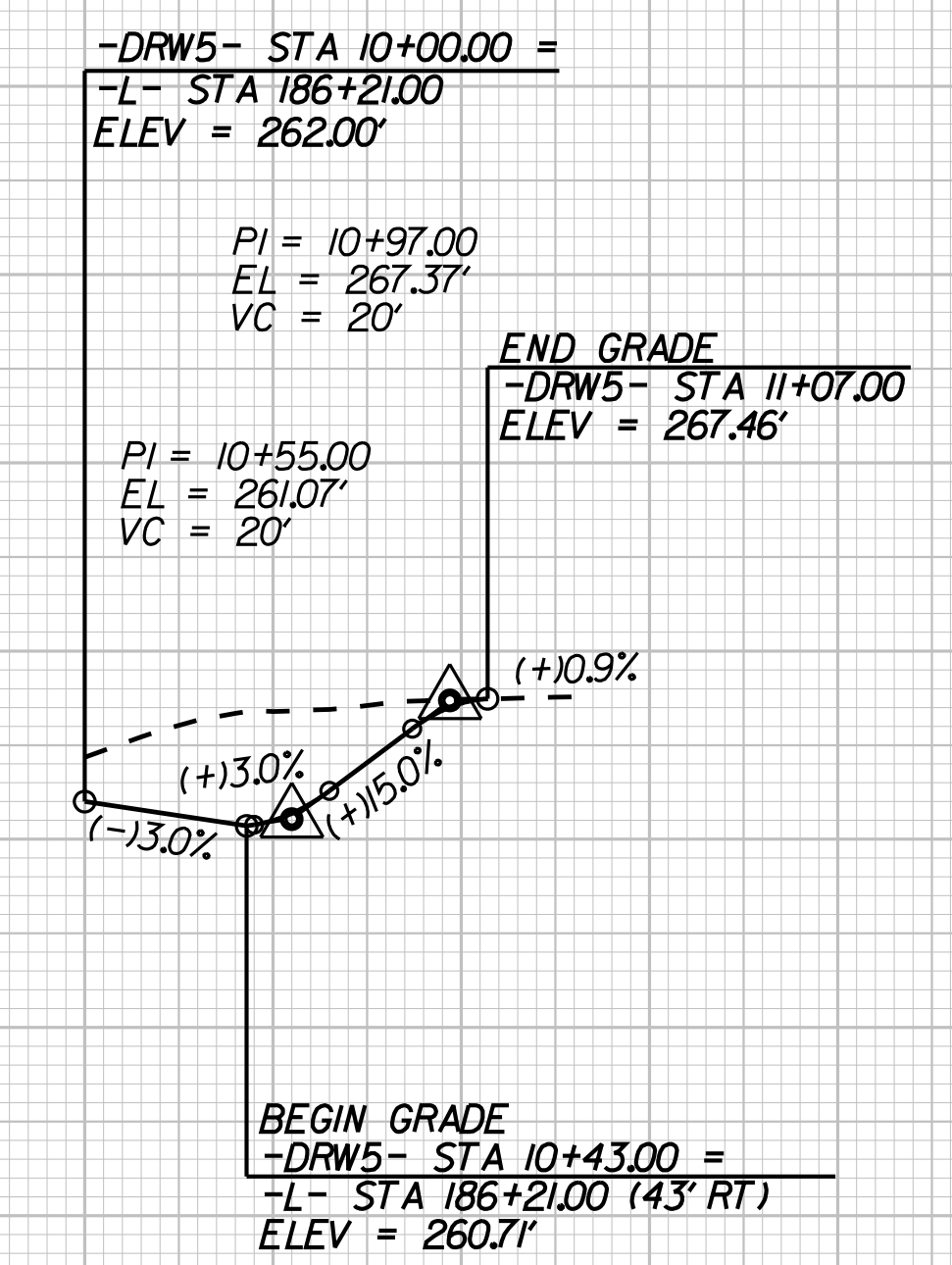
**LEGEND**

DITCH GRADE LT	
DITCH GRADE RT	



-DRW3-  
SEE SHEET NO.16 FOR -DRW3- PLAN

-DRW4-  
SEE SHEET NO.16 FOR -DRW4- PLAN



-DRW5-  
SEE SHEET NO.16 FOR -DRW5- PLAN

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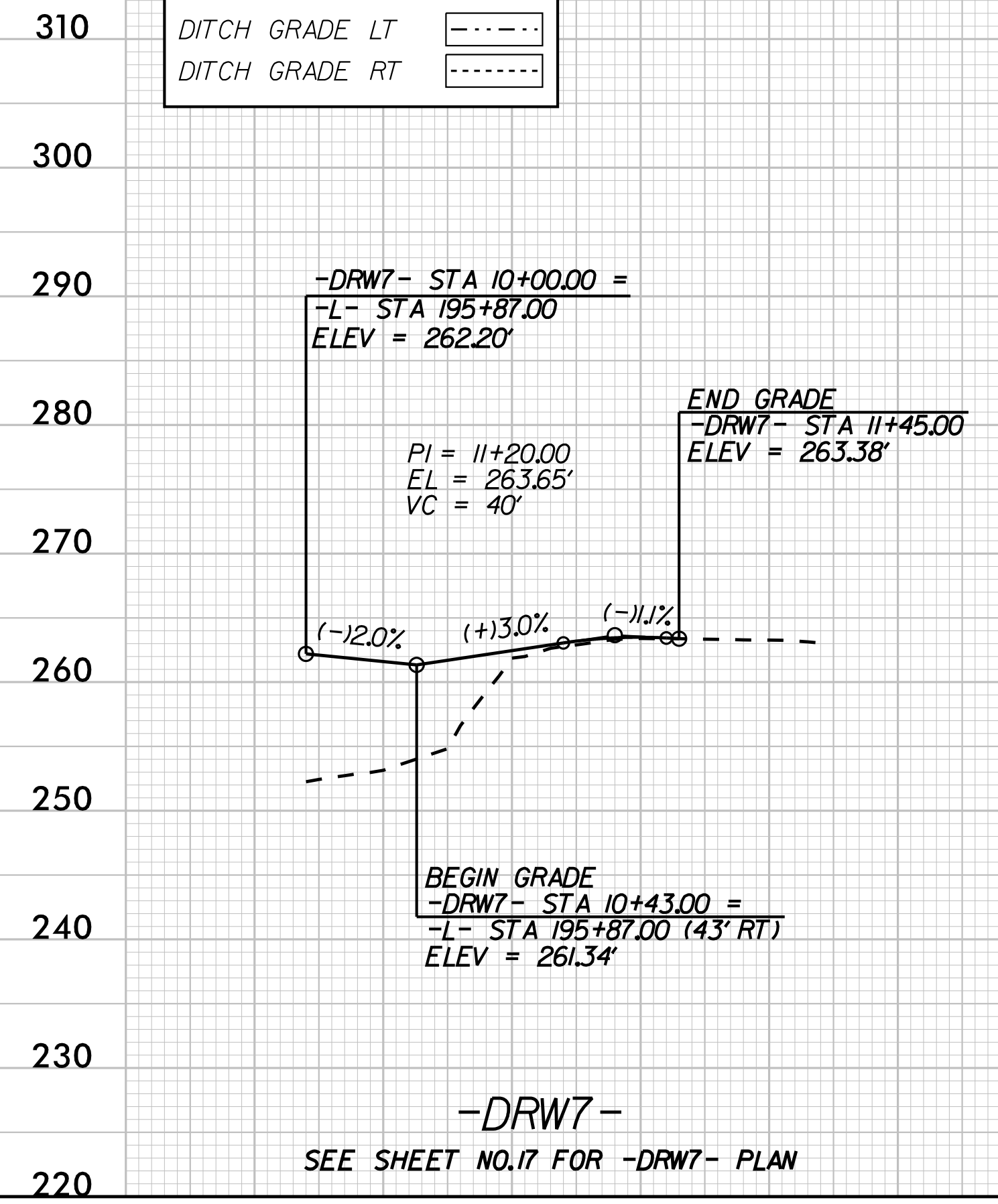


5/14/99

LEGEND

DITCH GRADE LT

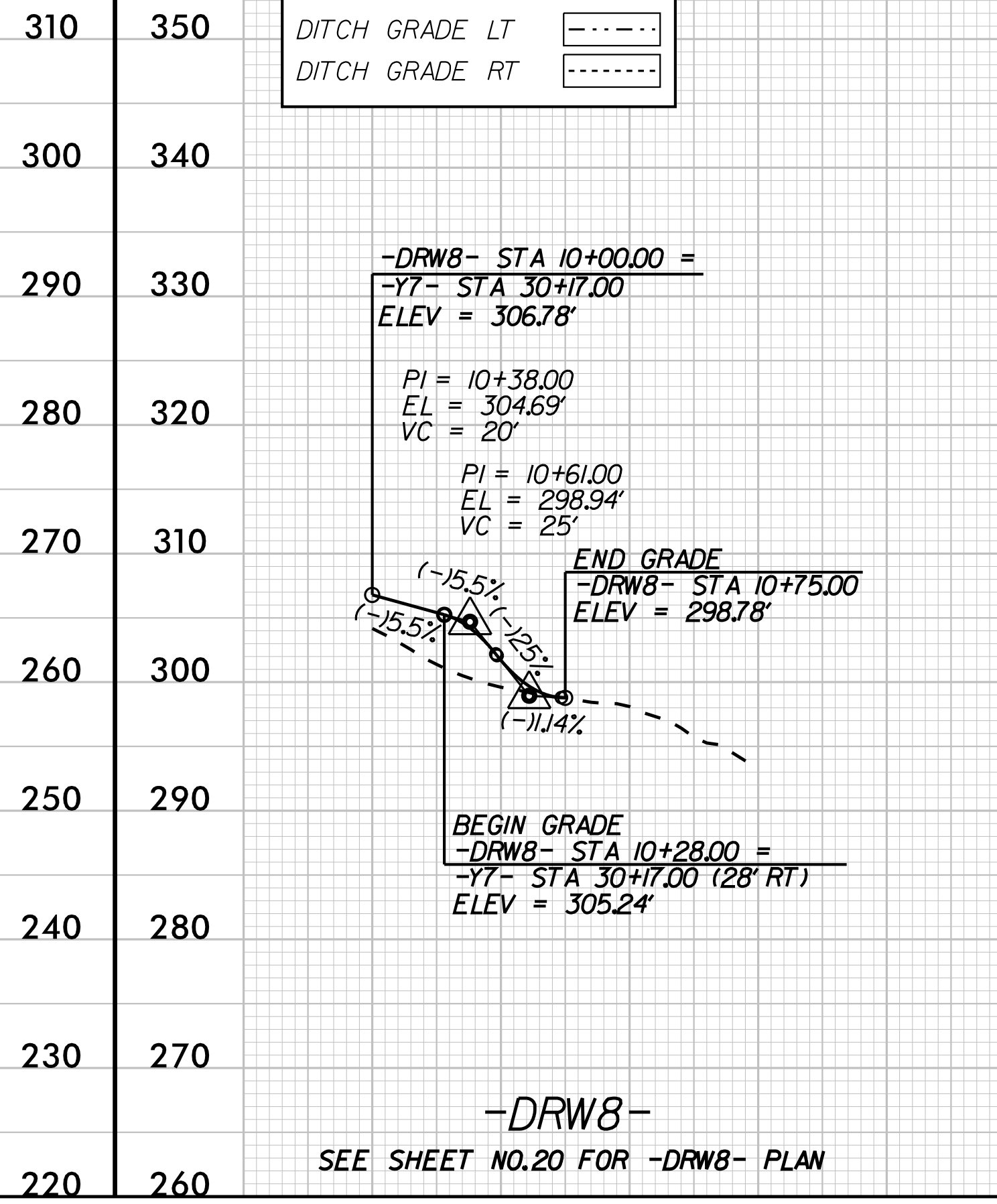
DITCH GRADE RT



LEGEND

DITCH GRADE LT

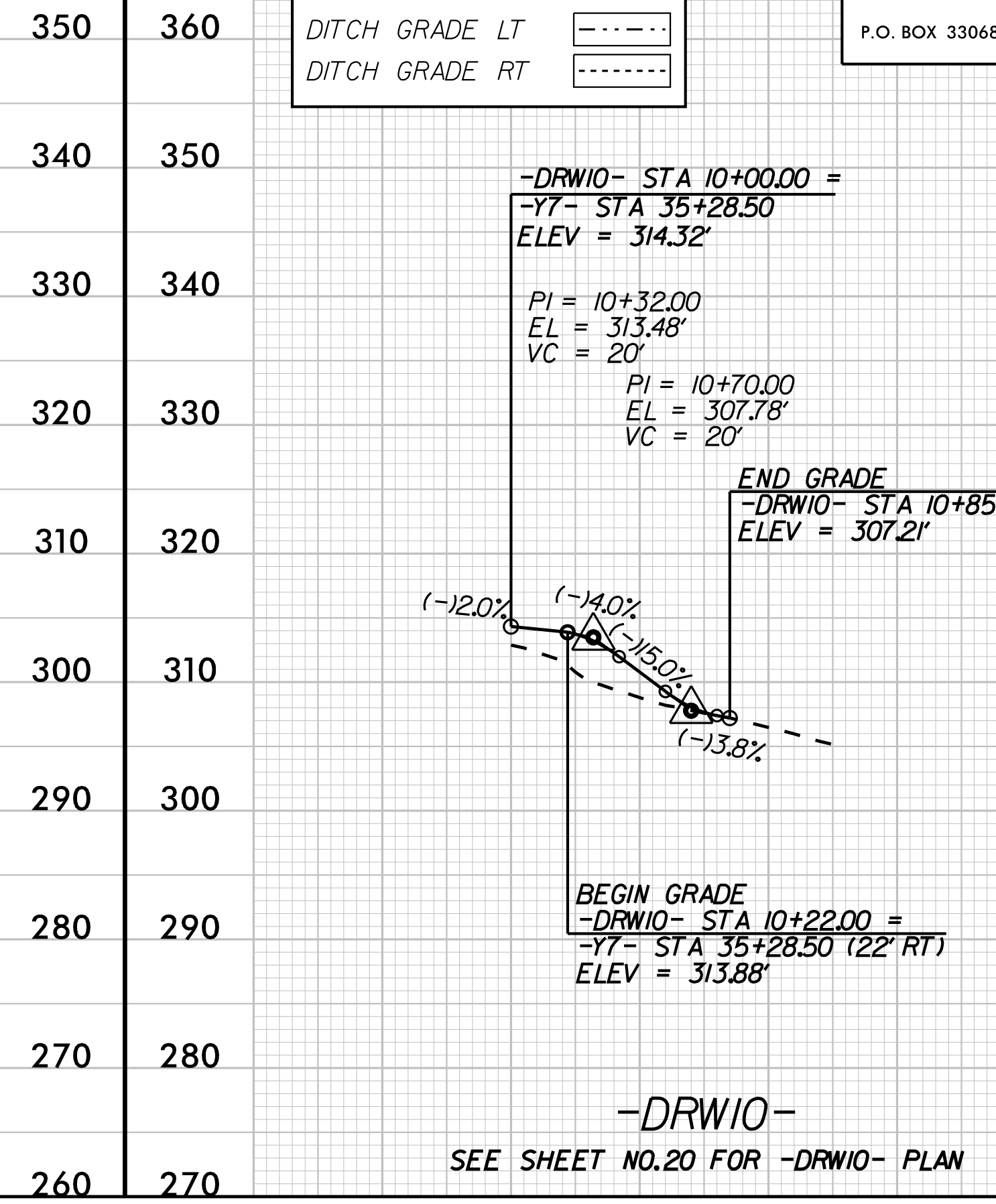
DITCH GRADE RT



LEGEND

DITCH GRADE LT

DITCH GRADE RT



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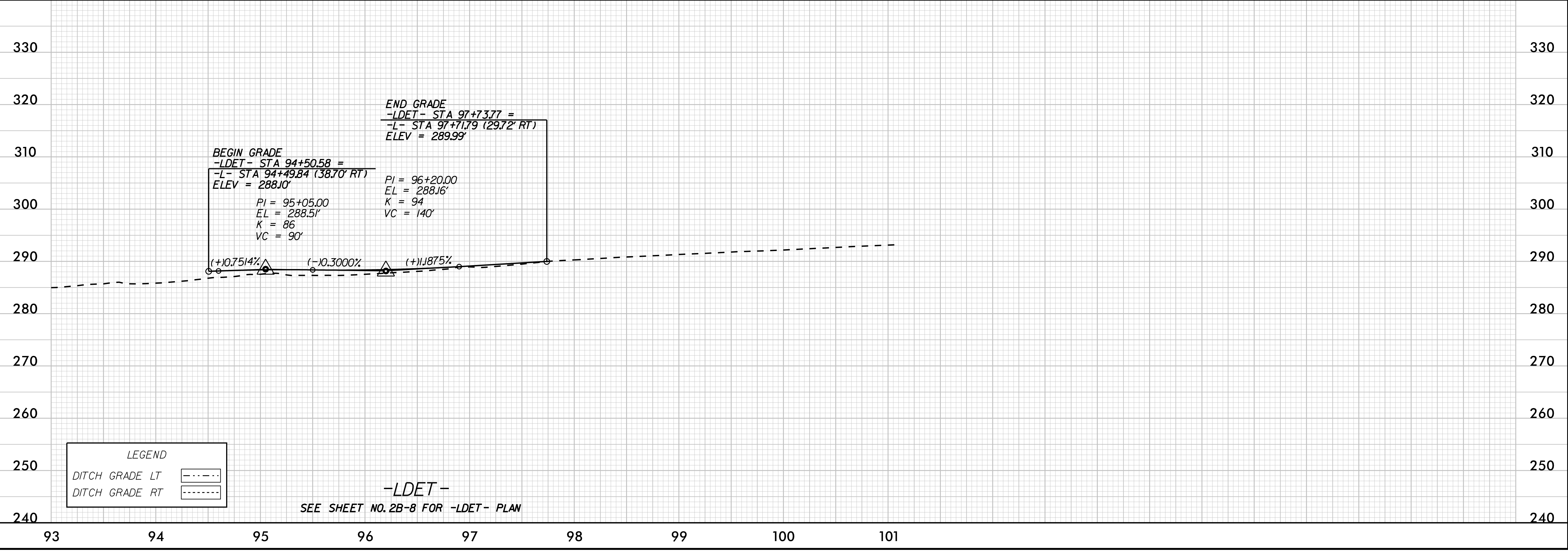
PROJECT REFERENCE NO. R-5705A	SHEET NO. 39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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LEGEND

DITCH GRADE LT

DITCH GRADE RT





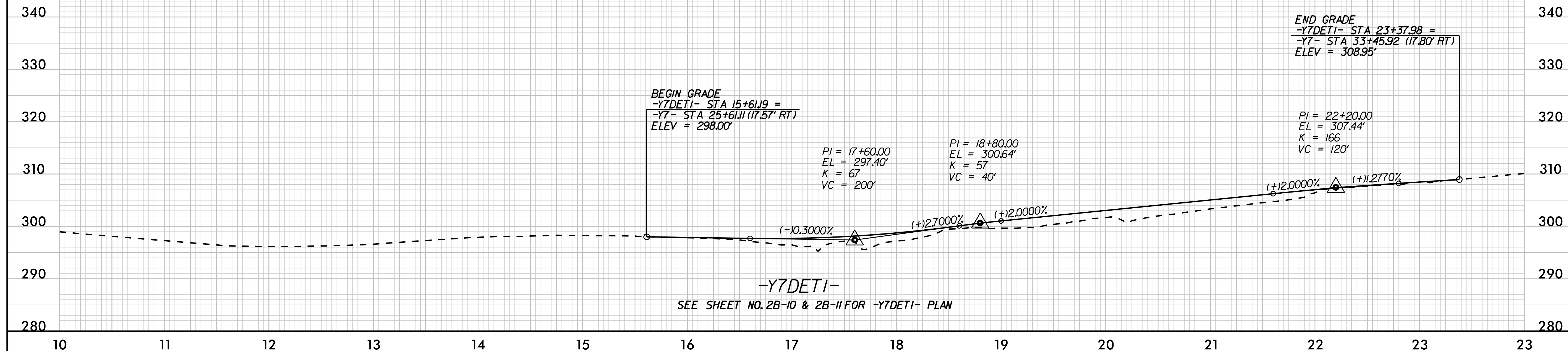
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LEGEND

DITCH GRADE LT	
DITCH GRADE RT	

**Kimley»Horn**  
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PROJECT REFERENCE NO. R-5705A	SHEET NO. 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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