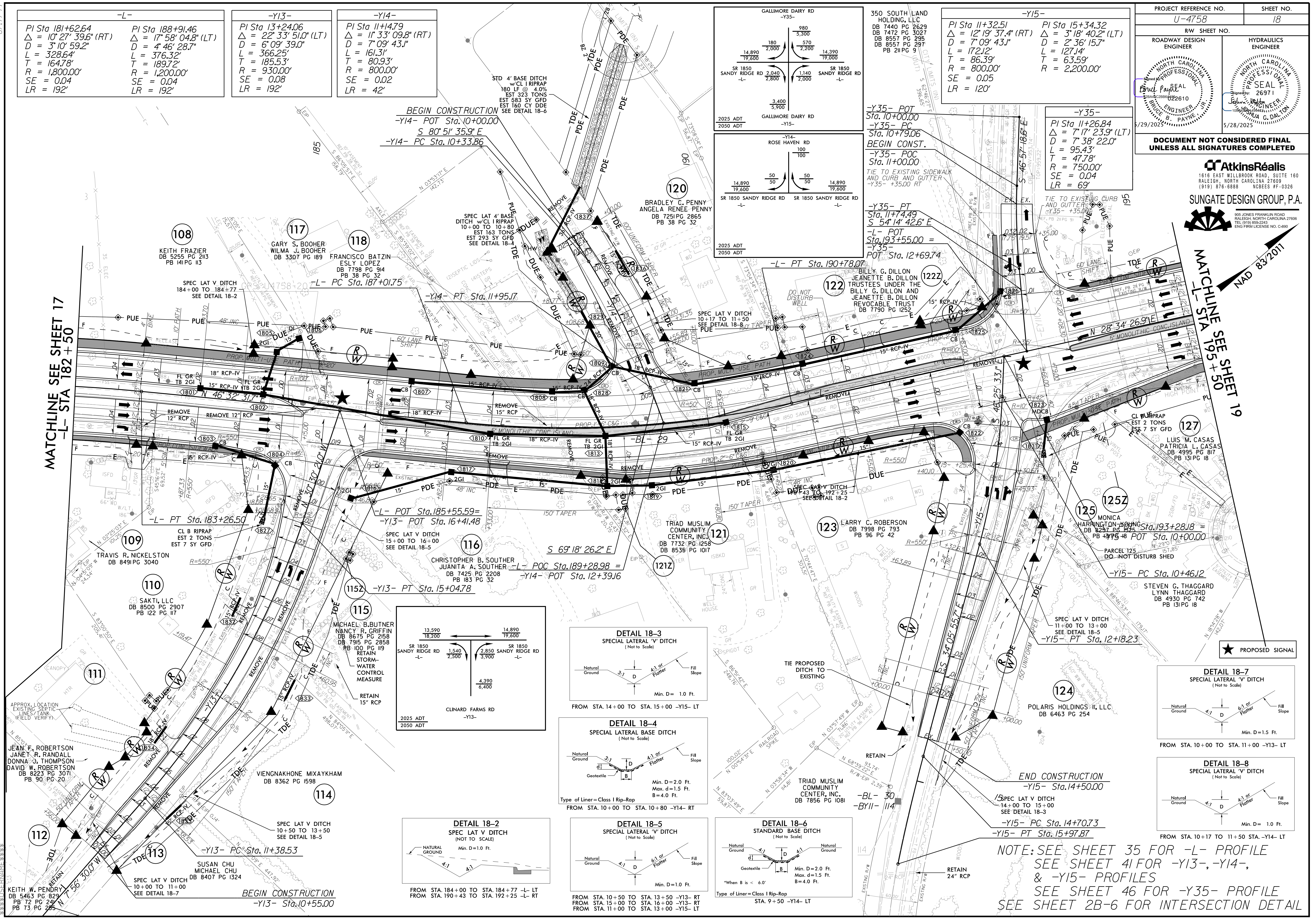
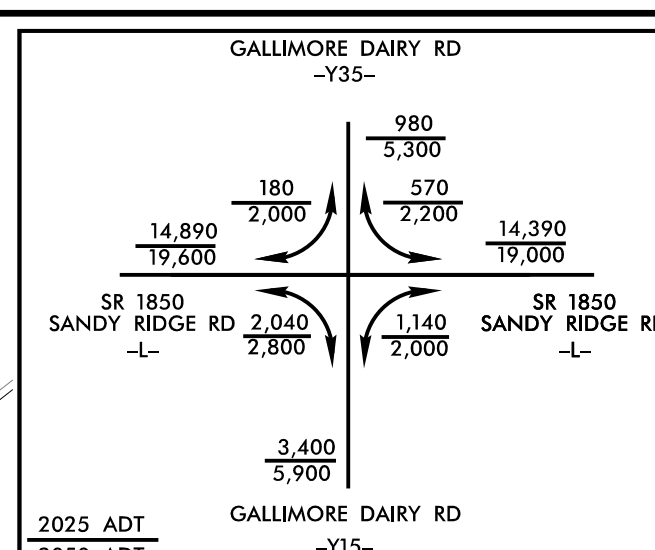




-L-	
PI Sta 181+62.64	PI Sta 188+91.46
$\Delta = 10^{\circ} 27' 39.6''$ (RT)	$\Delta = 17^{\circ} 58' 04.8''$ (LT)
$D = 3^{\circ} 10' 59.2''$	$D = 4^{\circ} 46' 28.7''$
$L = 328.64'$	$L = 376.32'$
$T = 164.78'$	$T = 189.72'$
$R = 1,800.00'$	$R = 1,200.00'$
$SE = 0.04$	$SE = 0.04$
$LR = 192'$	$LR = 192'$

-Y13-	
PI Sta 13+24.06	PI Sta 13+24.06
$\Delta = 22^{\circ} 33' 51.0''$ (LT)	$\Delta = 22^{\circ} 33' 51.0''$ (LT)
$D = 6^{\circ} 09' 39.0''$	$D = 6^{\circ} 09' 39.0''$
$L = 366.25'$	$L = 366.25'$
$T = 185.53'$	$T = 185.53'$
$R = 930.00'$	$R = 930.00'$
$SE = 0.08$	$SE = 0.08$
$LR = 192'$	$LR = 192'$

-Y14-	
PI Sta 11+47.9	PI Sta 11+47.9
$\Delta = 11^{\circ} 33' 09.8''$ (RT)	$\Delta = 11^{\circ} 33' 09.8''$ (RT)
$D = 7^{\circ} 09' 43.1''$	$D = 7^{\circ} 09' 43.1''$
$L = 161.31'$	$L = 161.31'$
$T = 80.93'$	$T = 80.93'$
$R = 800.00'$	$R = 800.00'$
$SE = 0.02$	$SE = 0.02$
$LR = 42'$	$LR = 42'$



-Y15-	
PI Sta 11+32.51	PI Sta 15+34.32
$\Delta = 12^{\circ} 19' 37.4''$ (RT)	$\Delta = 3^{\circ} 18' 40.2''$ (LT)
$D = 7^{\circ} 09' 43.1''$	$D = 2^{\circ} 36' 15.7''$
$L = 172.12'$	$L = 127.14'$
$T = 86.39'$	$T = 63.59'$
$R = 800.00'$	$R = 2,200.00'$
$SE = 0.05$	$SE = 0.05$
$LR = 120'$	$LR = 120'$

PROJECT REFERENCE NO.
U-4758

RW SHEET NO.
18

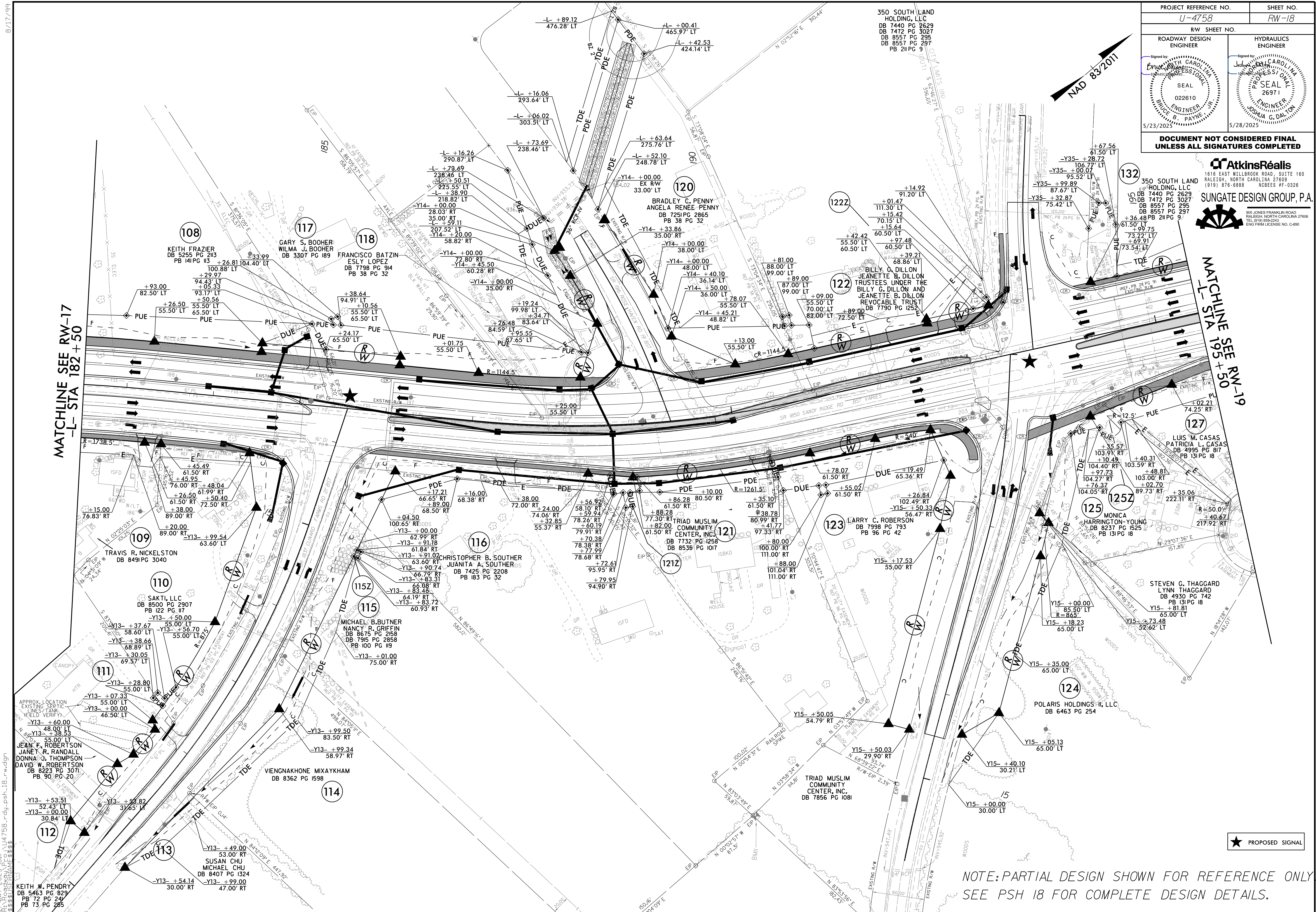
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-8888
NCEES #F-0326

905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 868-2245
ENG FIRM LICENSE NO. C-380



NOTE: PARTIAL DESIGN SHOWN FOR REFERENCE ONLY
SEE PSB 18 FOR COMPLETE DESIGN DETAILS.

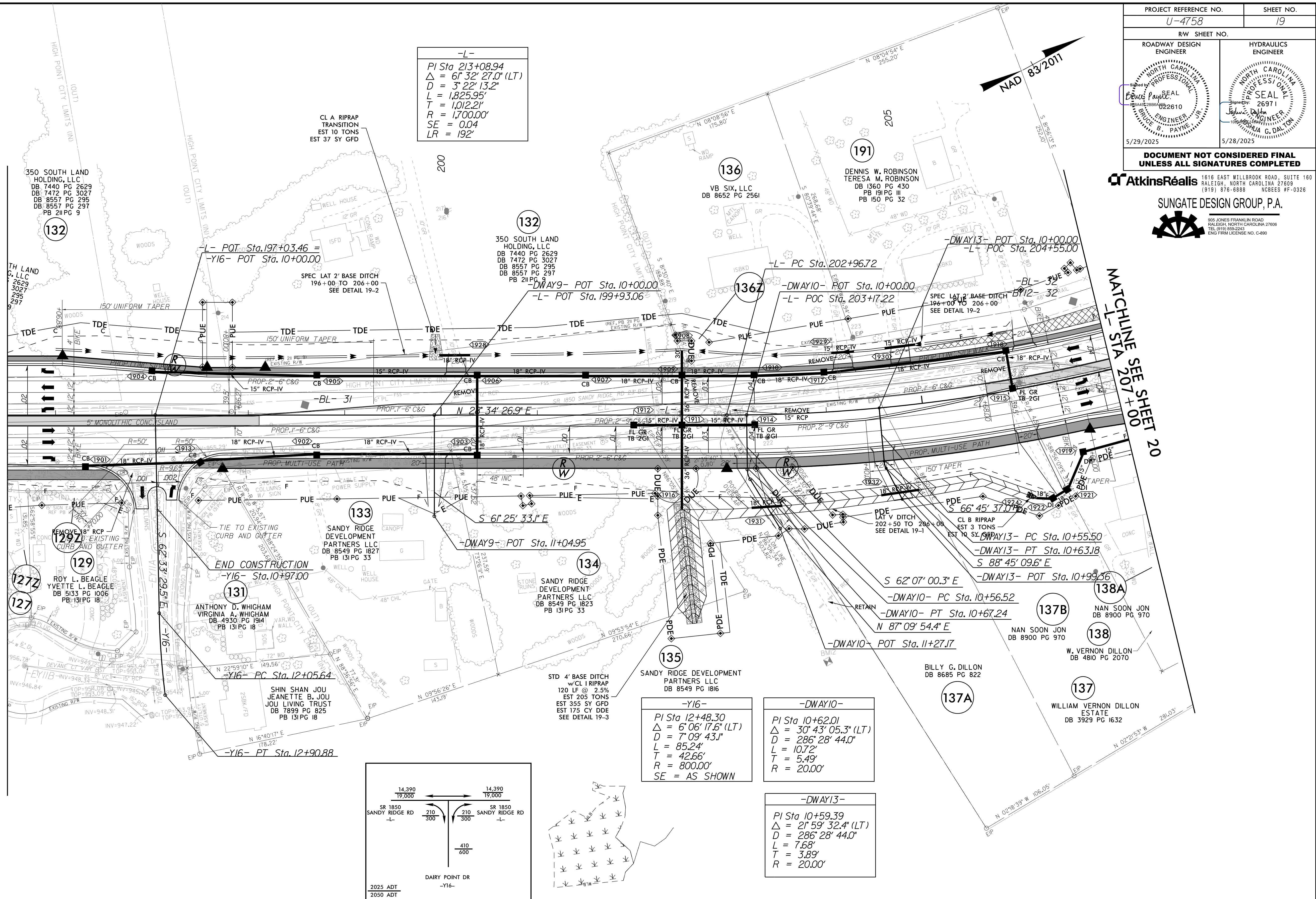
8/17/99

27 MAY 2025 12:00 U:\4758.rdw_psh_13.dgn
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R:\H\ad\psh\4758.rdw_psh_13.dgn

REVISIONS

MATCHLINE SEE SHEET 18
-L- STA 195+50

MATCHLINE SEE SHEET 20
-L- STA 207+00

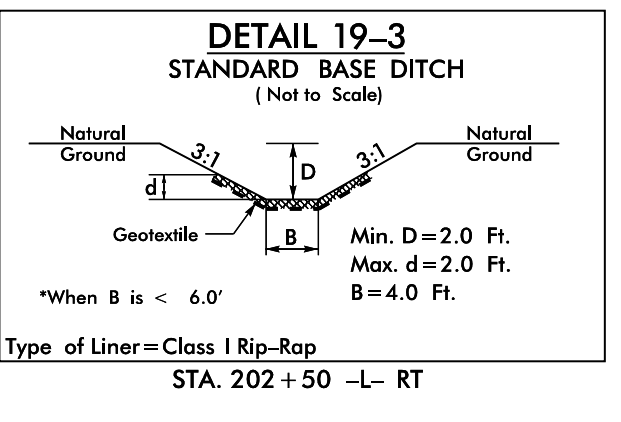
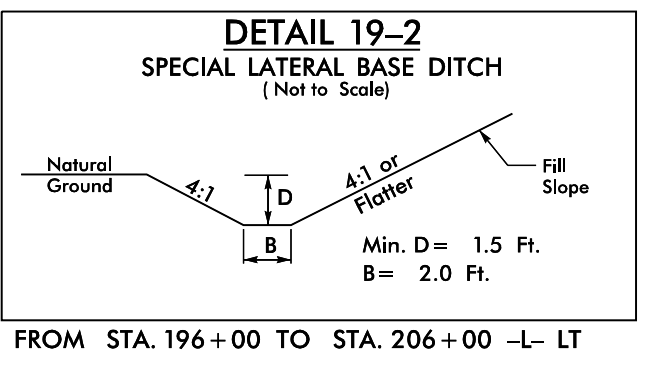
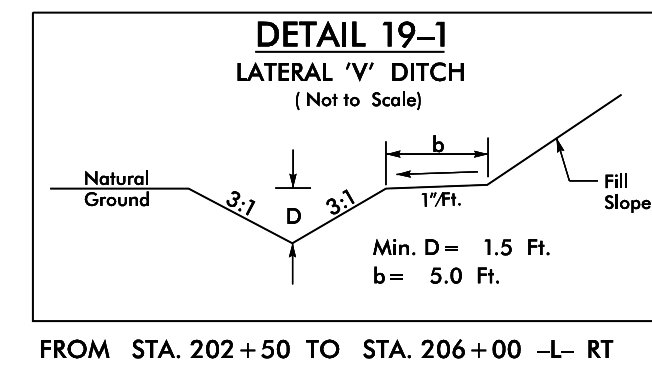
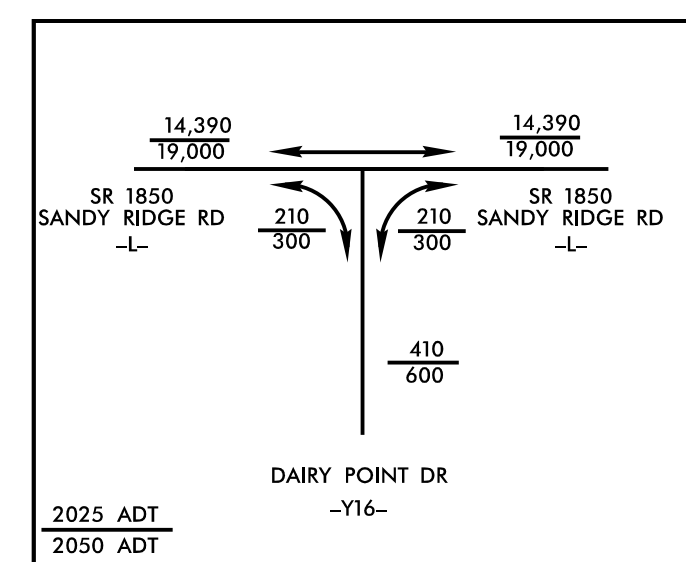


-L-
PI Sta 213+08.94
 $\Delta = 6^\circ 32' 27.0''$ (LT)
D = 3' 22' 13.2"
L = 1,825.95'
T = 1,012.21'
R = 1,700.00'
SE = 0.04
LR = 192'

-Y16-
PI Sta 12+48.30
 $\Delta = 6^\circ 06' 17.6''$ (LT)
D = 7' 09' 43.1"
L = 85.24'
T = 42.66'
R = 800.00'
SE = AS SHOWN

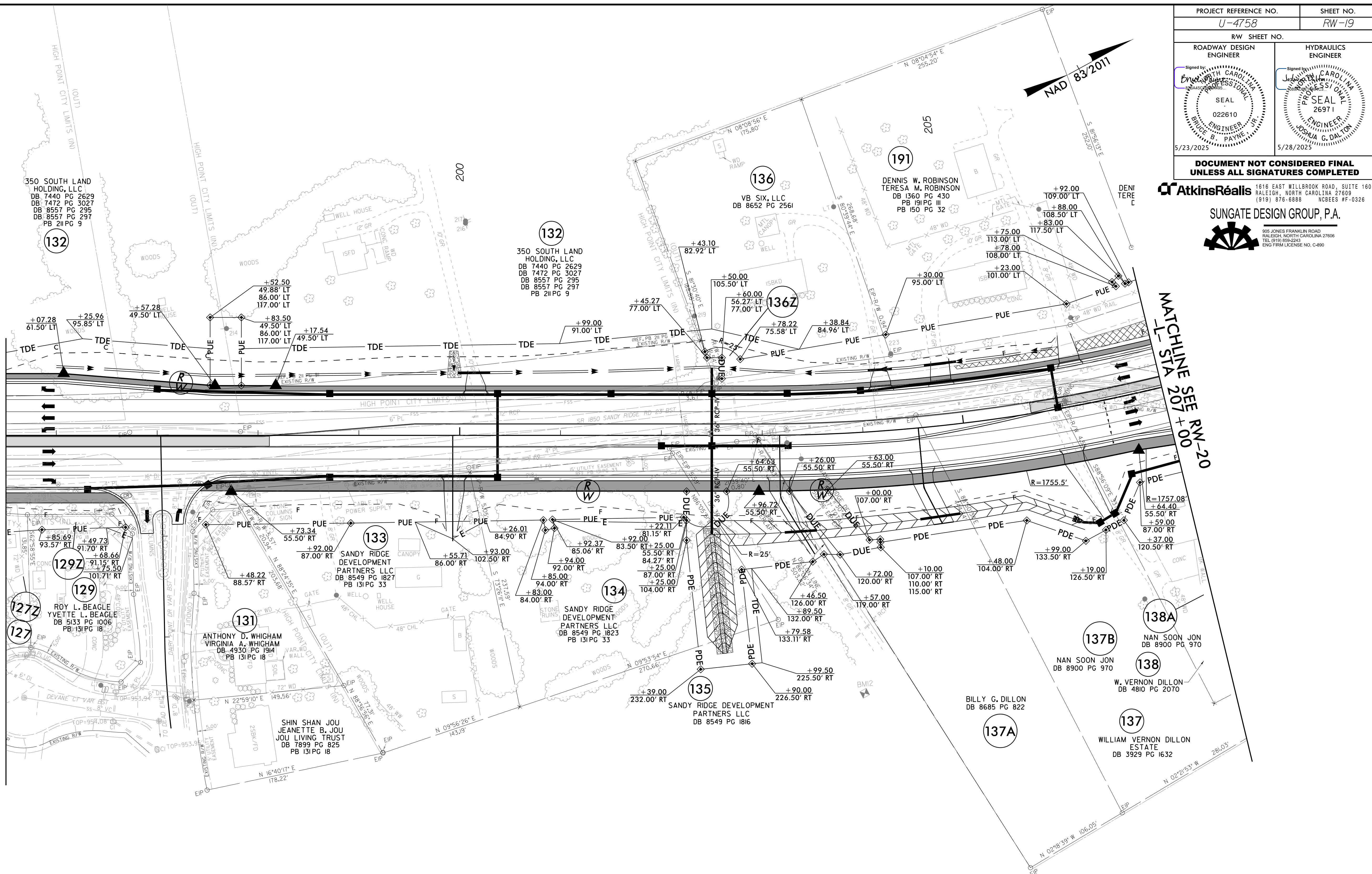
-DWAY10-
PI Sta 10+62.01
 $\Delta = 30^\circ 43' 05.3''$ (LT)
D = 286' 28' 44.0"
L = 10.72'
T = 5.49'
R = 20.00'

-DWAY13-
PI Sta 10+59.39
 $\Delta = 21^\circ 59' 32.4''$ (LT)
D = 286' 28' 44.0"
L = 7.68'
T = 3.89'
R = 20.00'



NOTE: SEE SHEETS 35 & 36 FOR -L- PROFILE
SEE SHEET 41 FOR -Y16- PROFILE
SEE SHEET 45 FOR -DWAY13- PROFILE
SEE SHEET 48 FOR -DWAY9- & -DWAY10- PROFILE

PROJECT REFERENCE NO. U-4758		SHEET NO. 19	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		NORTH CAROLINA PROFESSIONAL SEAL BRUCE B. PAYNE 022610 ENGINEER 5/29/2025	
NORTH CAROLINA PROFESSIONAL SEAL JOSHUA G. DALTON 26971 ENGINEER 5/28/2025		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
AtkinsRéalis		SUNGATE DESIGN GROUP, P.A. 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 878-6888 NCBES #F-0326 905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27608 TEL (919) 888-2443 ENG FIRM LICENSE NO. C-880	



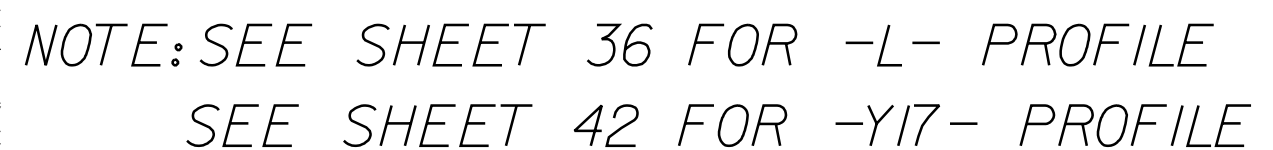
NOTE: PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 19 FOR COMPLETE DESIGN DETAILS.

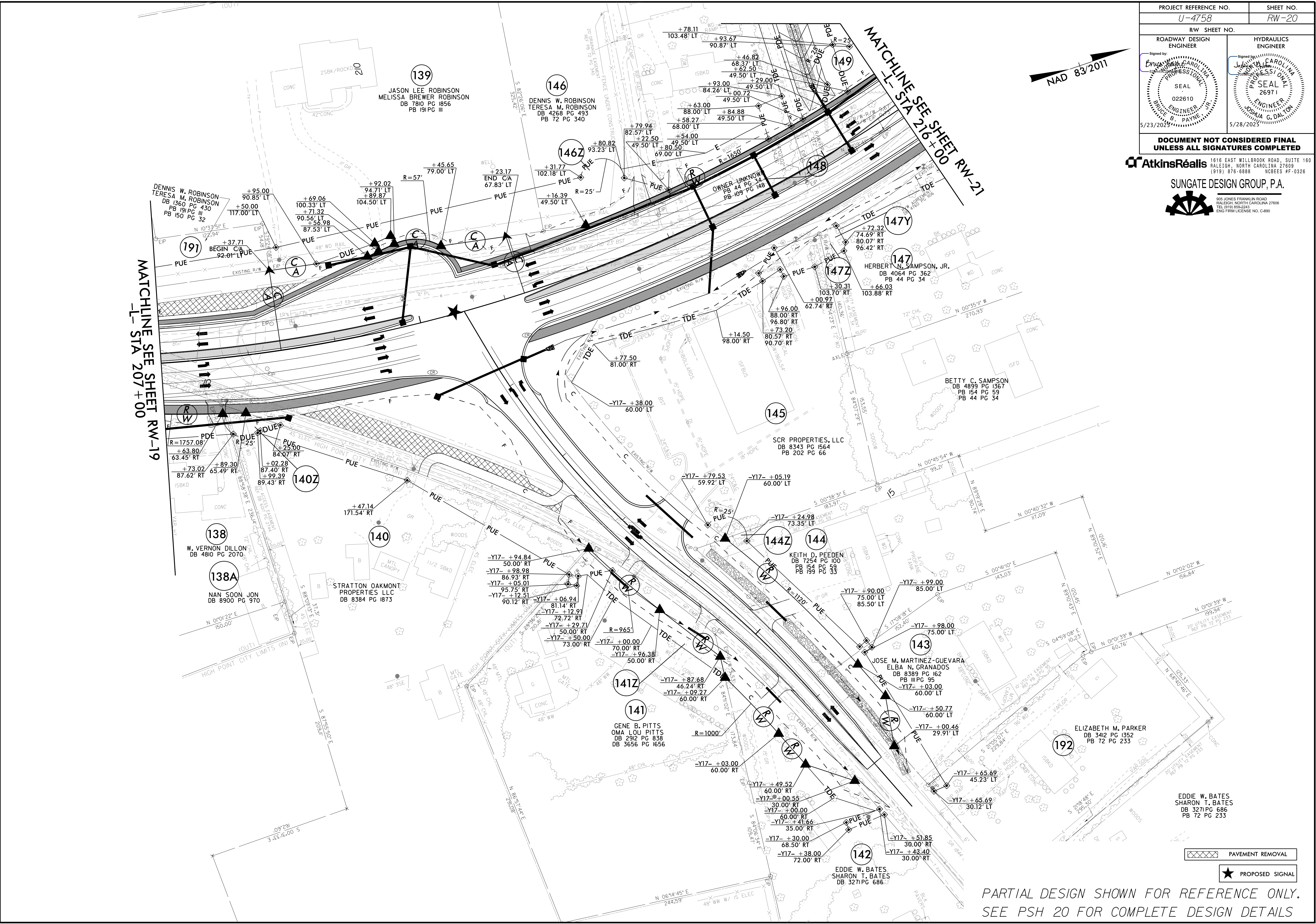
PROJECT REFERENCE NO.	SHEET NO.
U-4758	RW-19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Signed by: <i>Bryan Smith</i> Professional Engineer SEAL 022610 ENGINEER BRUCE B. PAYNE, JR.	Signed by: <i>Joshua G. Dalton</i> Professional Engineer SEAL 26971 ENGINEER JOSHUA G. DALTON
5/23/2025	5/28/2025
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

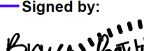
AtkinsRéalis 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCRRES #F-0326

SUNGATE DESIGN GROUP, P.A.







PROJECT REFERENCE NO.		SHEET NO.	
U-4758		RW-20	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by: 		Signed by: 	
			
5/23/2025		5/28/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

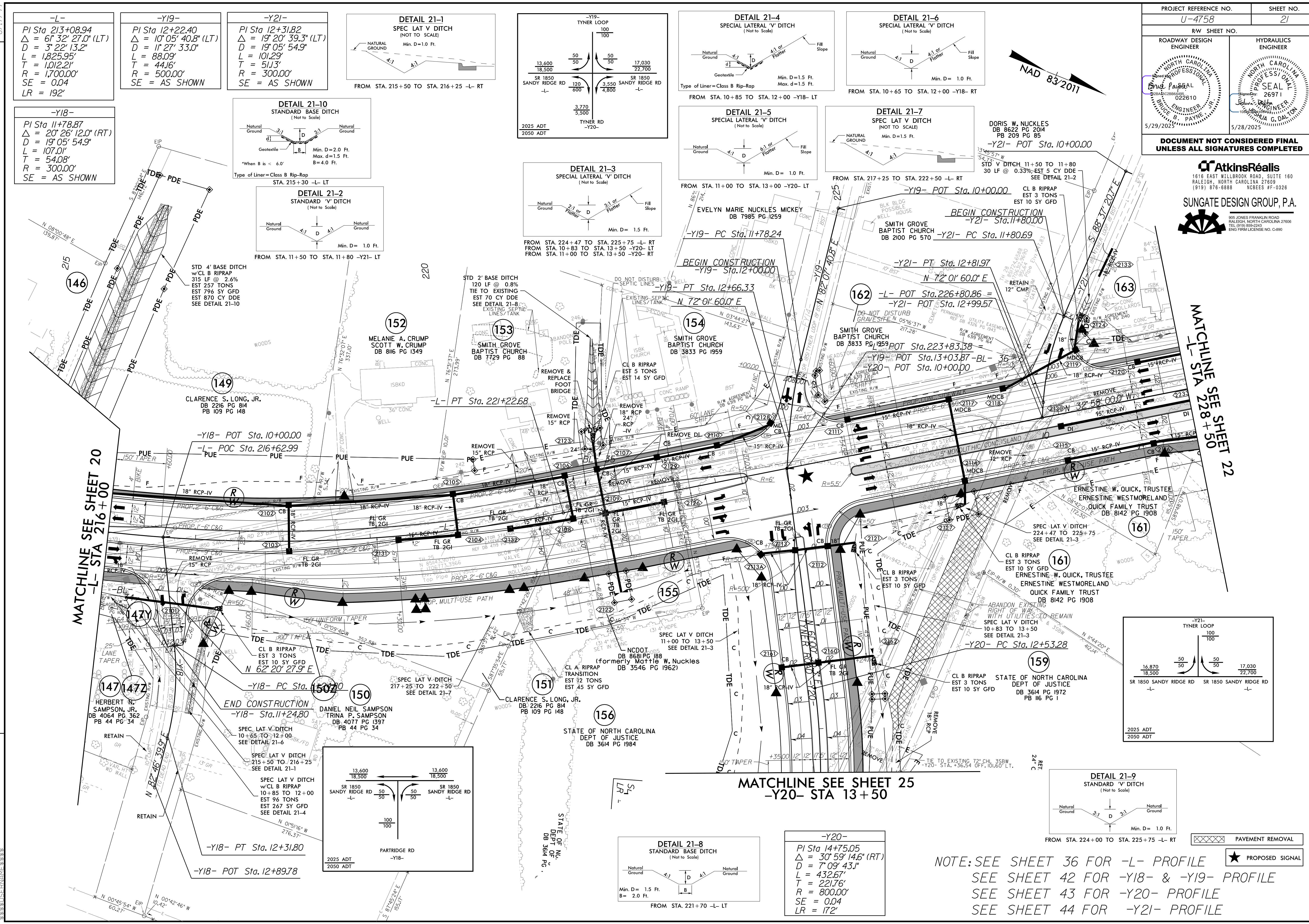
AtkinsRéalis 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCEES #P-0326

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 888-2543
ENG FIRM LICENSE NO. C-880

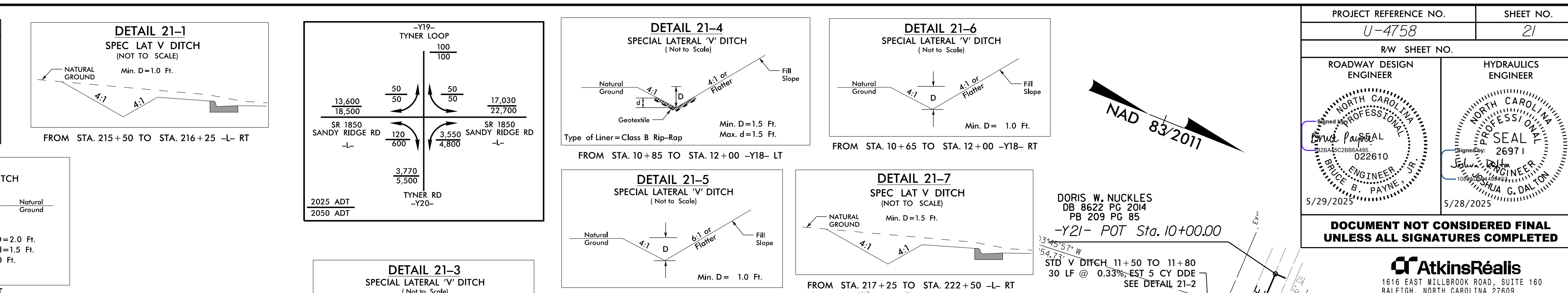
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PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 20 FOR COMPLETE DESIGN DETAILS

8/17/99
27 MAY 2025 12:53
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\$\$\$\$SYTIME\$\$\$\$



-L- PI Sta 213+08.94 Δ = 6° 32' 27.0" (LT) D = 3' 22' 13.2" L = 1,825.95' T = 1,012.21' R = 1,700.00' SE = 0.04 LR = 192'	-Y19- PI Sta 12+22.40 Δ = 10° 05' 40.8" (LT) D = 1' 27' 33.0" L = 88.09' T = 44.16' R = 500.00' SE = AS SHOWN	-Y21- PI Sta 12+31.82 Δ = 19° 05' 54.9" (LT) D = 101.29' T = 51.13' R = 300.00' SE = AS SHOWN
-Y18- PI Sta 11+78.87 Δ = 20° 26' 12.0" (RT) D = 19° 05' 54.9" L = 107.01' T = 54.08' R = 300.00' SE = AS SHOWN		



PROJECT REFERENCE NO. U-4758		SHEET NO. 21	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		NORTH CAROLINA PROFESSIONAL SEAL 26971 BRUCE B. PAYNE, JR. 5/29/2025	
NORTH CAROLINA PROFESSIONAL SEAL 022610 BRUCE B. PAYNE, JR. 5/29/2025		NORTH CAROLINA PROFESSIONAL SEAL 26971 BRUCE B. PAYNE, JR. 5/29/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

AtkinsRealis
1616 EAST WILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888
NCEES #F-0326

SUNGATE DESIGN GROUP, P.A.
809 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 556-2243
ENG FIRM LICENSE NO. C-480

MATCHLINE SEE SHEET 20
-L- STA 216+00

MATCHLINE SEE SHEET 22
-L- STA 228+50

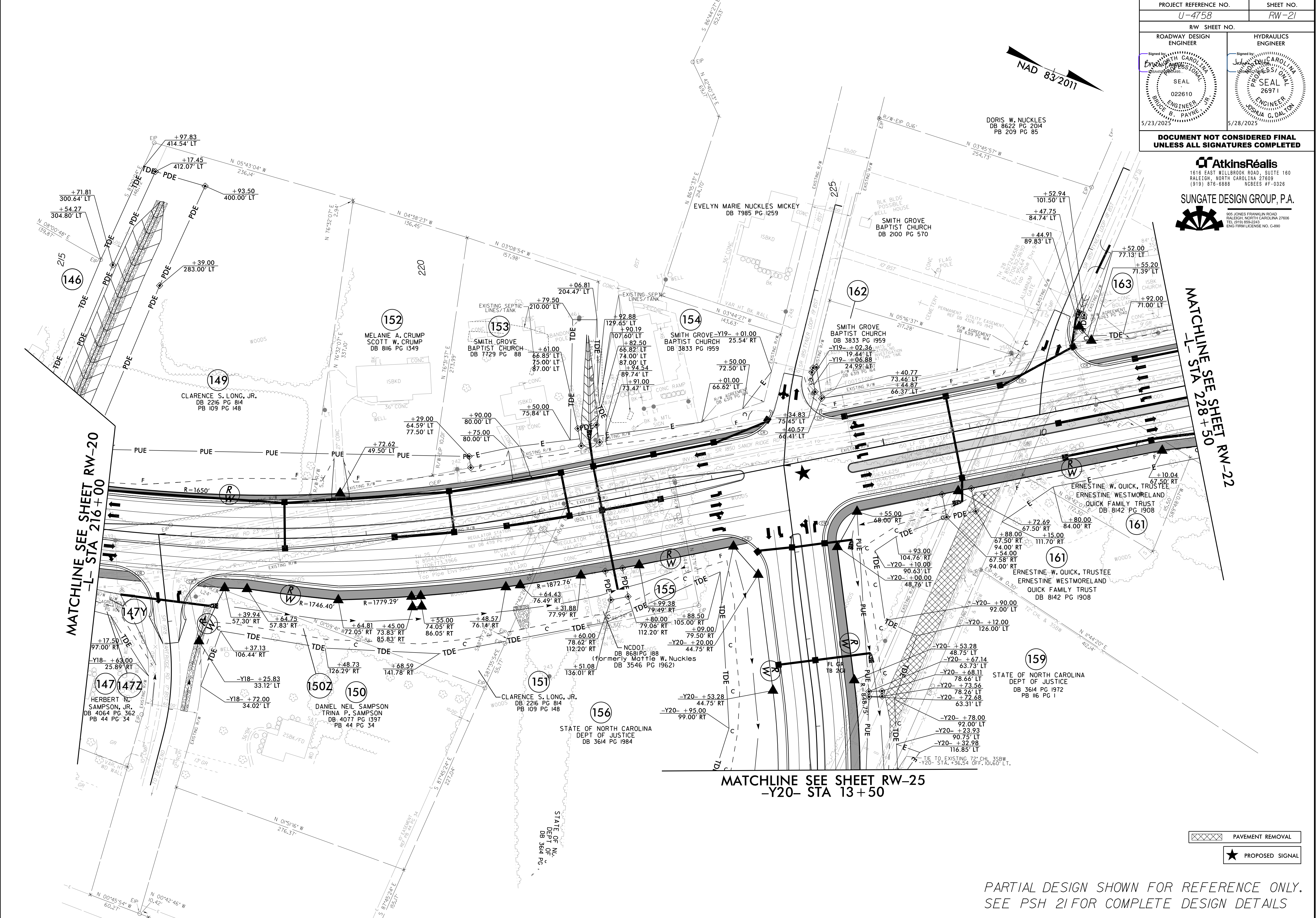
MATCHLINE SEE SHEET 25
-Y20- STA 13+50

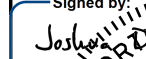
NOTE: SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 42 FOR -Y18- & -Y19- PROFILE
SEE SHEET 43 FOR -Y20- PROFILE
SEE SHEET 44 FOR -Y21- PROFILE

8/17/99

REVISIONS

21 MAY 2025 16:42
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PROJECT REFERENCE NO.		SHEET NO.	
U-4758		RW-21	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by:  BRUCE B. PAYNE 022610 ENGINEER 5/23/2025		Signed by:  JOSHUA C. DALTON 026971 ENGINEER 5/28/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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1616 EAST WILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

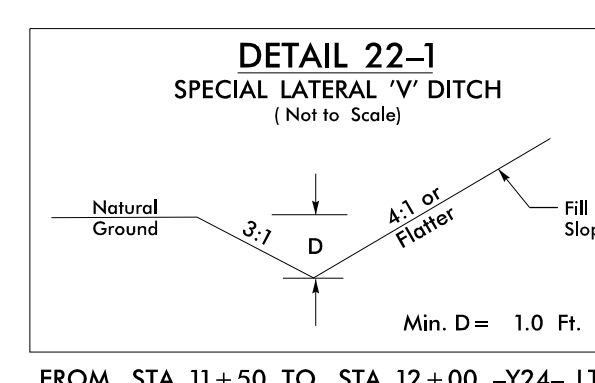
SUNGATE DESIGN GROUP, P.A.
809 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 856-2243
ENG FIRM LICENSE NO. C-4890

XXXXXX PAVEMENT REMOVAL
★ PROPOSED SIGNAL

PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 21 FOR COMPLETE DESIGN DETAILS



MATCHLINE SEE SHEET 21
-L- STA 228+50



NOTE: SEE SHEET 36 & 37 FOR -L- PROFILE
SEE SHEET 37 FOR -LI- PROFILE
SEE SHEET 44 FOR -Y23- & -Y24 PROFILE
SEE SHEET 45 FOR -Y29- PROFILE
SEE SHEET 2B-7 FOR INTERSECTION DETAIL

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AtkinsRealls 1616 EAST WILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SUNGATE DESIGN GROUP, P.A.

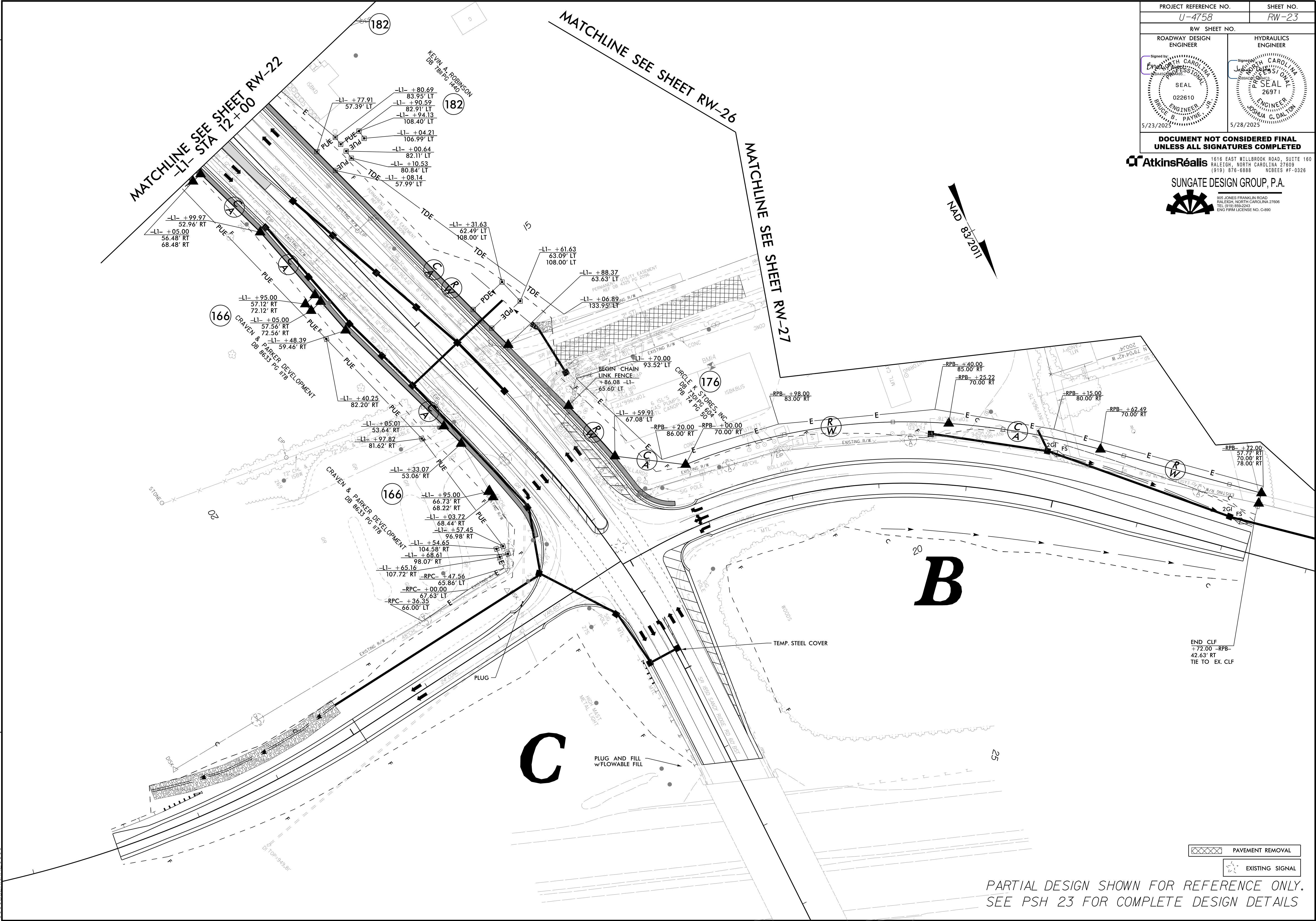
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL: (919) 859-2243
ENG. FIRM LICENSE NO. C-890

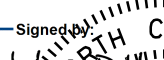


8/17/99

REVISIONS

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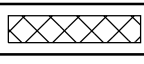
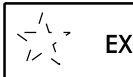
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RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by:  BRUCE S. PAYNE 022610 SEAL ENGINEER 5/23/2025		Signed by:  JOSHUA G. DALTON 26971 SEAL ENGINEER 5/28/2025	



1616 EAST WILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCRES #F-0326



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RALEIGH, NORTH CAROLINA 27606
TEL (919) 858-2243
ENG FIRM LICENSE NO. C-880

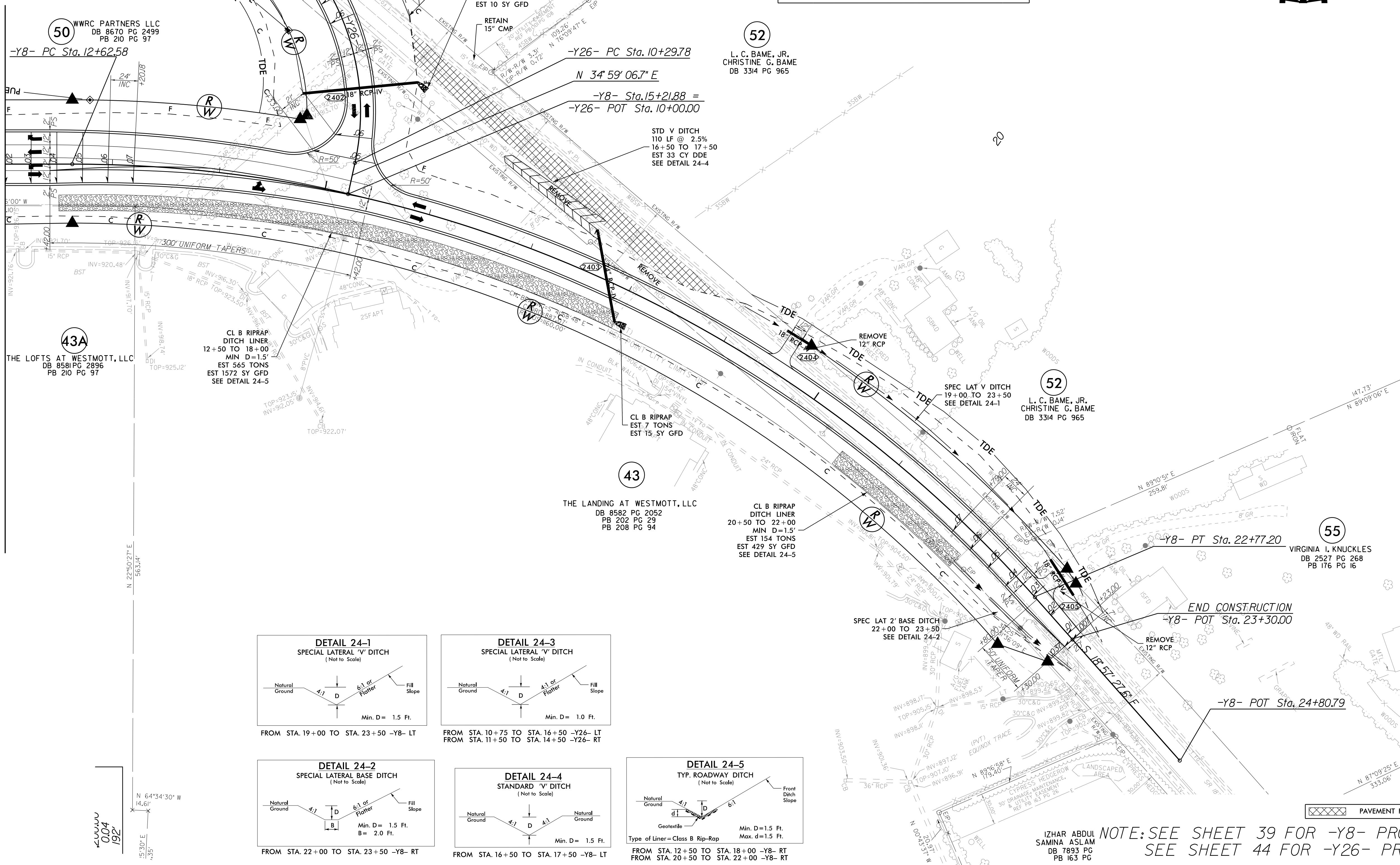
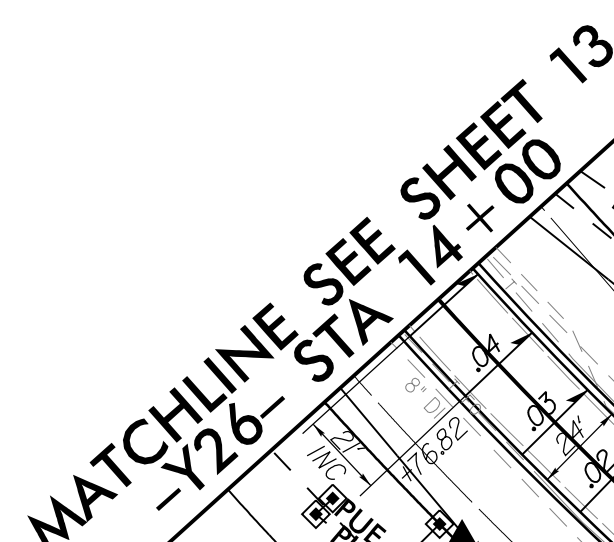
	PAVEMENT REMOVAL
	EXISTING SIGNAL

PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 23 FOR COMPLETE DESIGN DETAILS

 **AtkinsRéalis** 1616 EAST WILLBROOK ROAD, SUITE 100
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

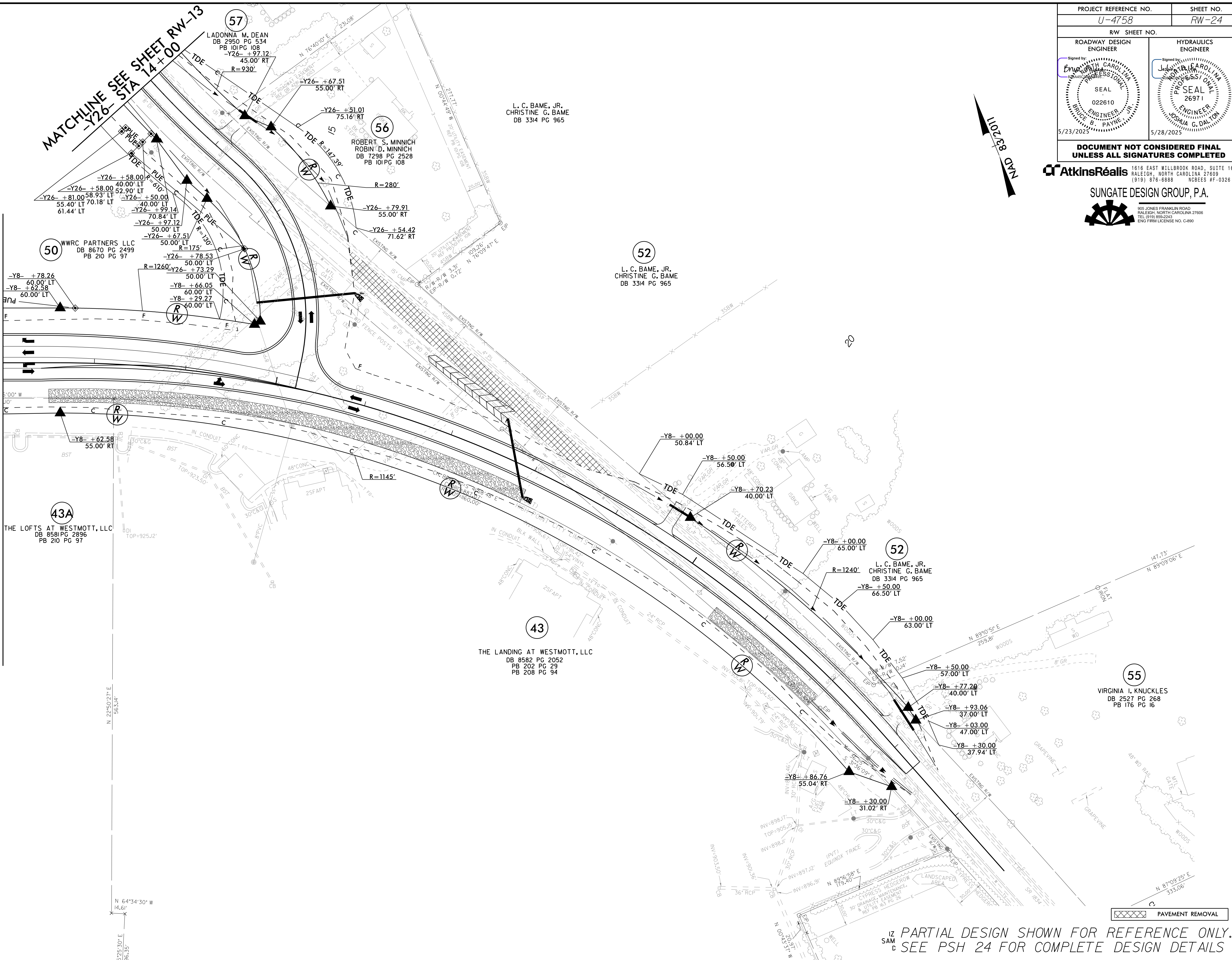
SUNGATE DESIGN GROUP, P.A.

 905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 558-2243
ENG FIRM LICENSE NO. C-8902



IZHAR ABDUL SAMINA ASLAM
DB 7893 PG
PR 163 PG

NOTE: SEE SHEET 39 FOR -Y8- PROFILE
SEE SHEET 44 FOR -Y26- PROFILE



 **AtkinsRéalis** 1616 EAST WILLBROOK ROAD, SUITE 100
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SUNGATE DESIGN GROUP, P.A.

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RALEIGH, NORTH CAROLINA 27606
TEL (919) 558-2245
ENG FIRM LICENSE NO. C-8902

12 PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SAM SEE PSH 24 FOR COMPLETE DESIGN DETAILS
D

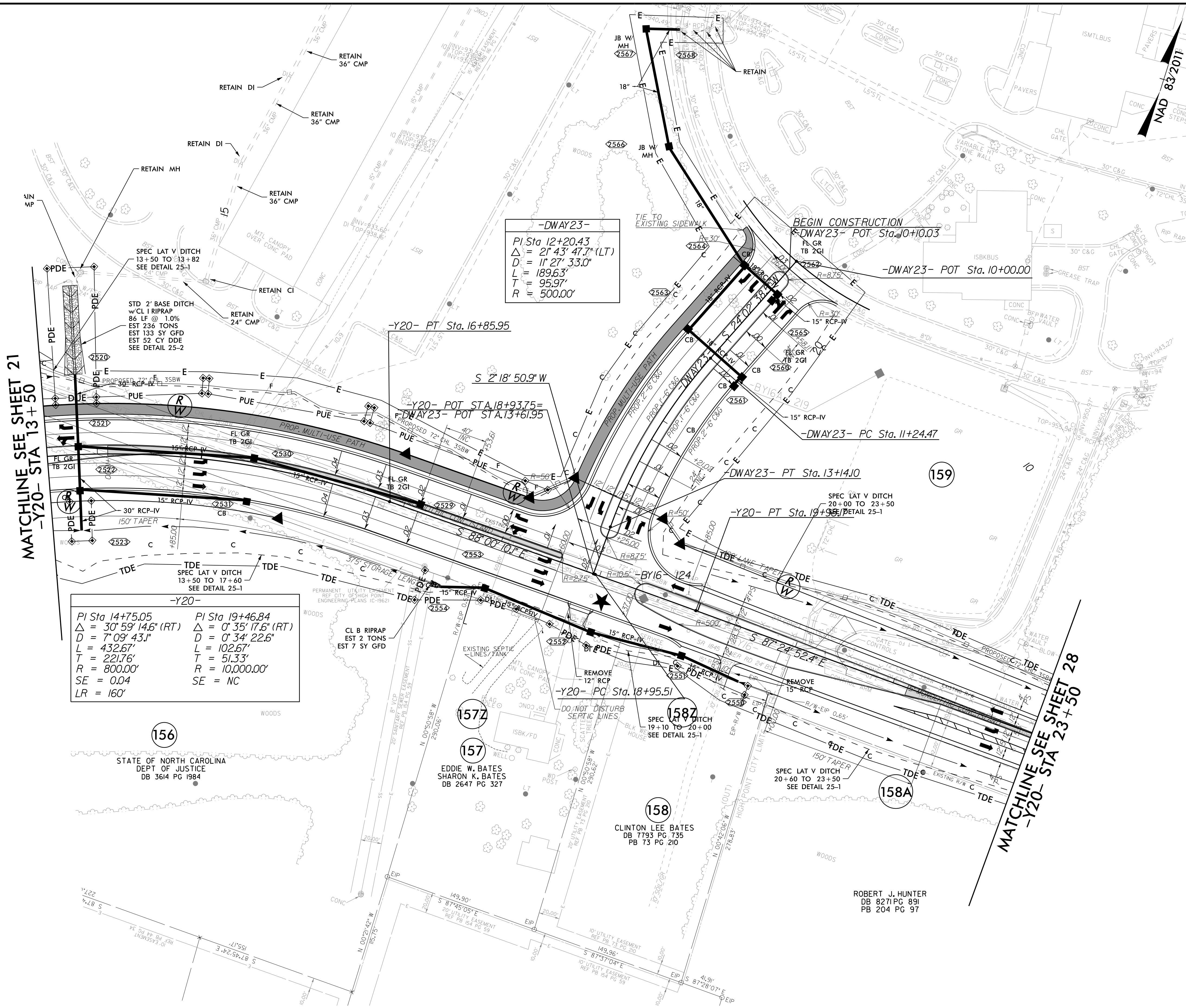
8/17/99

REVISIONS

27 MAY 2025 15:40
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MATCHLINE SEE SHEET 21
-Y20- STA 13+50

MATCHLINE SEE SHEET 28
-Y20- STA 23+50



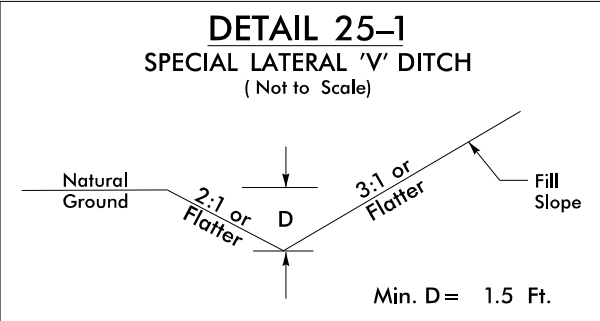
-Y20-	
PI Sta 14+75.05	PI Sta 19+46.84
$\Delta = 30^{\circ} 59' 14.6''$ (RT)	$\Delta = 0^{\circ} 35' 17.6''$ (RT)
$D = 7^{\circ} 09' 43.1''$	$D = 0^{\circ} 34' 22.6''$
$L = 432.67'$	$L = 102.67'$
$T = 221.76'$	$T = 51.33'$
$R = 800.00'$	$R = 10,000.00'$
$SE = 0.04$	$SE = NC$
$LR = 160'$	

-DWAY23-
PI Sta 12+20.43
$\Delta = 2^{\circ} 43' 47.7''$ (LT)
$D = 1^{\circ} 27' 33.0''$
$L = 189.63'$
$T = 95.97'$
$R = 500.00'$

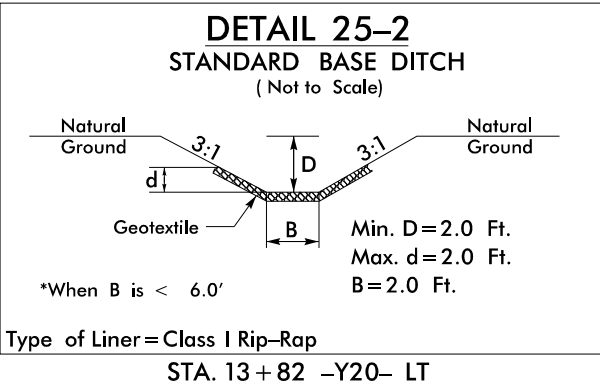
PROJECT REFERENCE NO.		SHEET NO.
U-4758		25
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

AtkinsRéalis 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 878-6888 NCBEES #F-0326

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL: (919) 888-2243
ENG FIRM LICENSE NO. C-880



FROM STA. 13+50 TO STA. 13+82 -Y20- LT
FROM STA. 20+00 TO STA. 23+50 -Y20- LT
FROM STA. 13+50 TO STA. 17+60 -Y20- RT
FROM STA. 19+10 TO STA. 20+00 -Y20- RT
FROM STA. 20+60 TO STA. 23+50 -Y20- RT



*When B is < 6.0'
Type of Liner = Class I Rip-Rap
STA. 13+82 -Y20- LT

PAVEMENT REMOVAL

NOTE: SEE SHEET 43 FOR -Y20- PROFILE
SEE SHEET 49 FOR -DWAY23- PROFILE

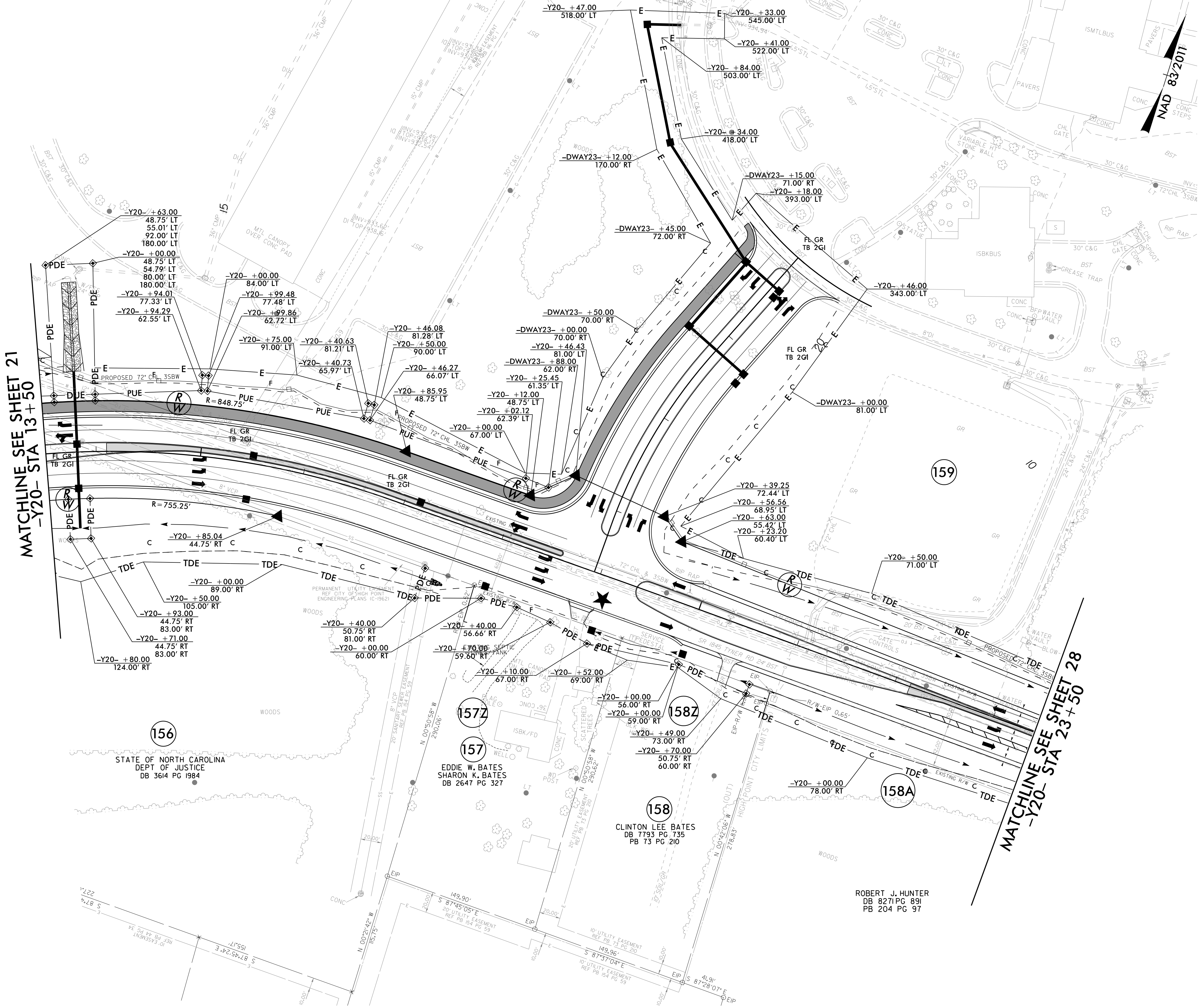
8/17/99

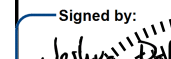
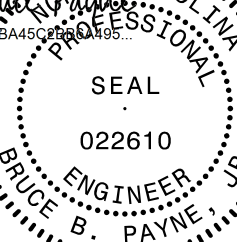
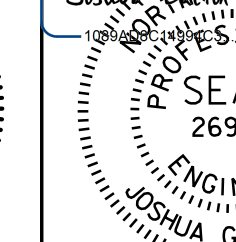
REVISIONS

21 MAY 2025 16:23
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MATCHLINE SEE SHEET 21
-Y20- STA 13+50

MATCHLINE SEE SHEET 28
-Y20- STA 23+50



PROJECT REFERENCE NO.		SHEET NO.	
U-4758		RW-25	
RW SHEET NO.		HYDRAULICS	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by: 		Signed by: 	
			
5/23/2025		5/28/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

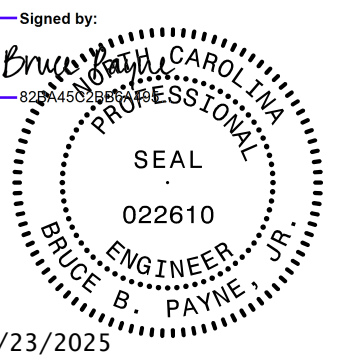
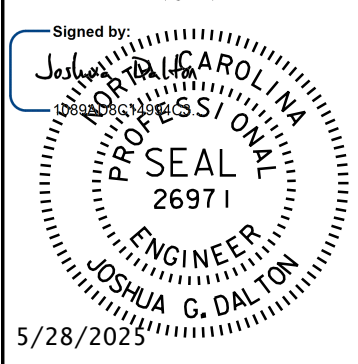
AtkinsRéalis 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 878-6888 NCBEES #P-0326

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 888-2243
ENG FIRM LICENSE NO. C-880

XXXXX PAVEMENT REMOVAL

PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 25 FOR COMPLETE DESIGN DETAILS

8/17/99

PROJECT REFERENCE NO.		SHEET NO.
U-4758		26
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Signed by: 	Signed by: 	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

AtkinsRéalis

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #P-0326

SUNGATE DESIGN GROUP, P.A.

805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 858-2243
ENG FIRM LICENSE NO. C-680

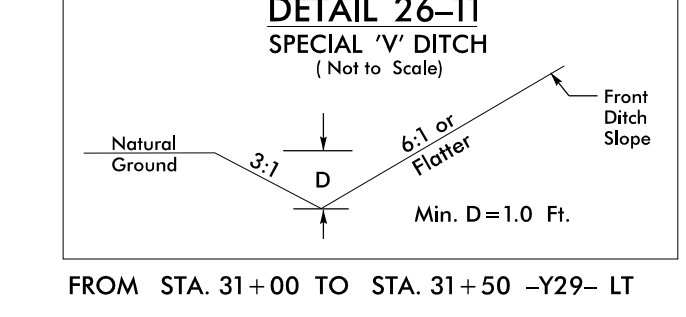
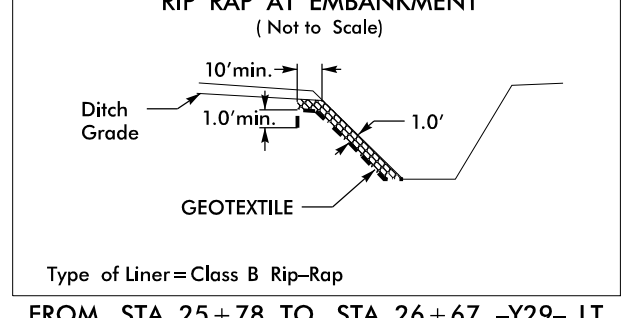
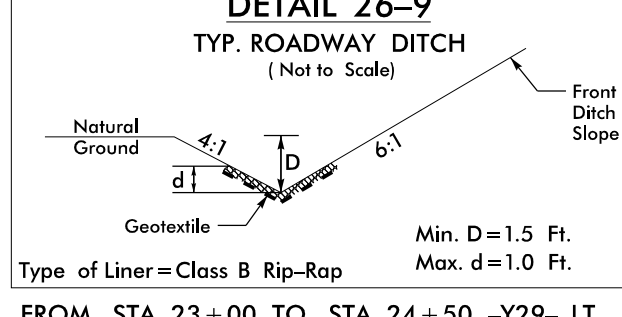
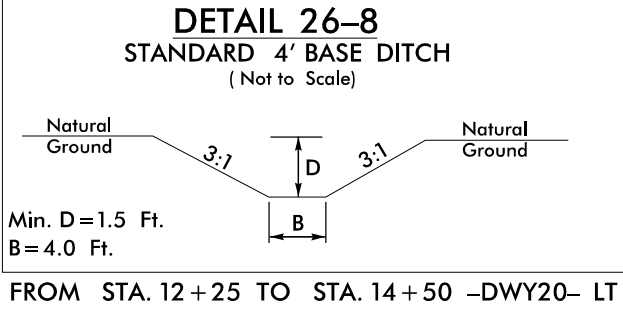
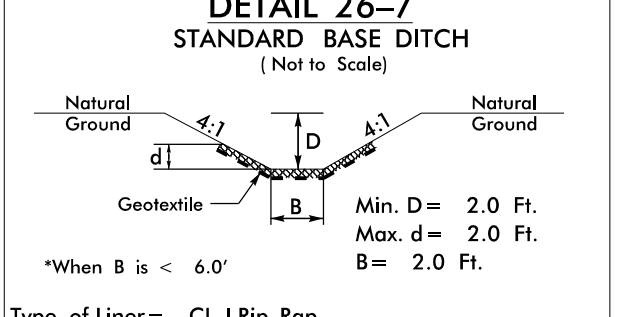
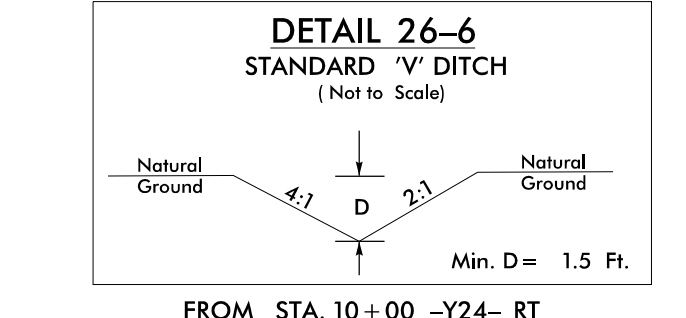
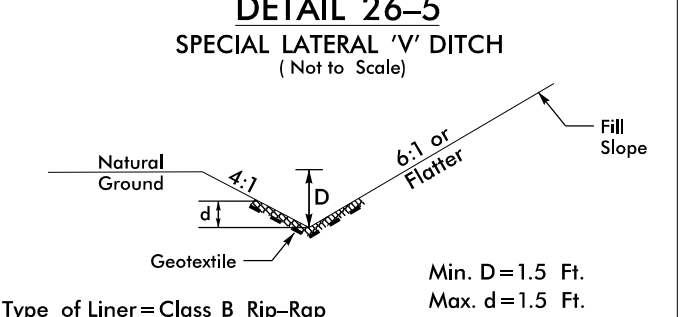
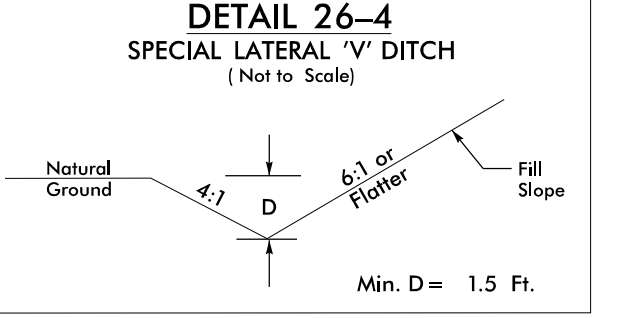
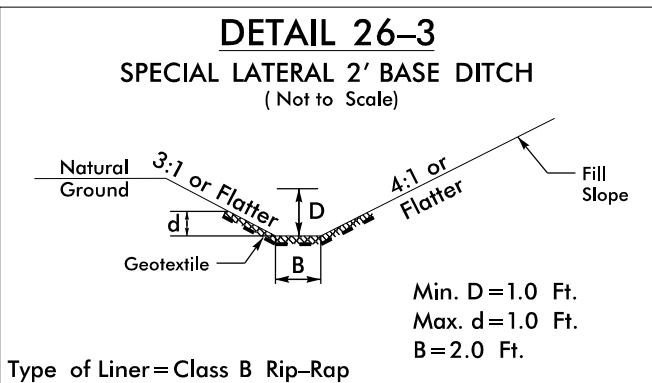
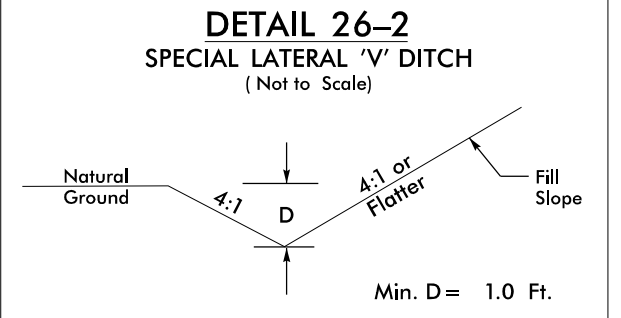
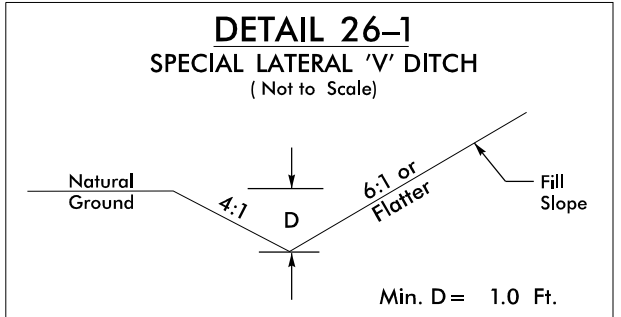
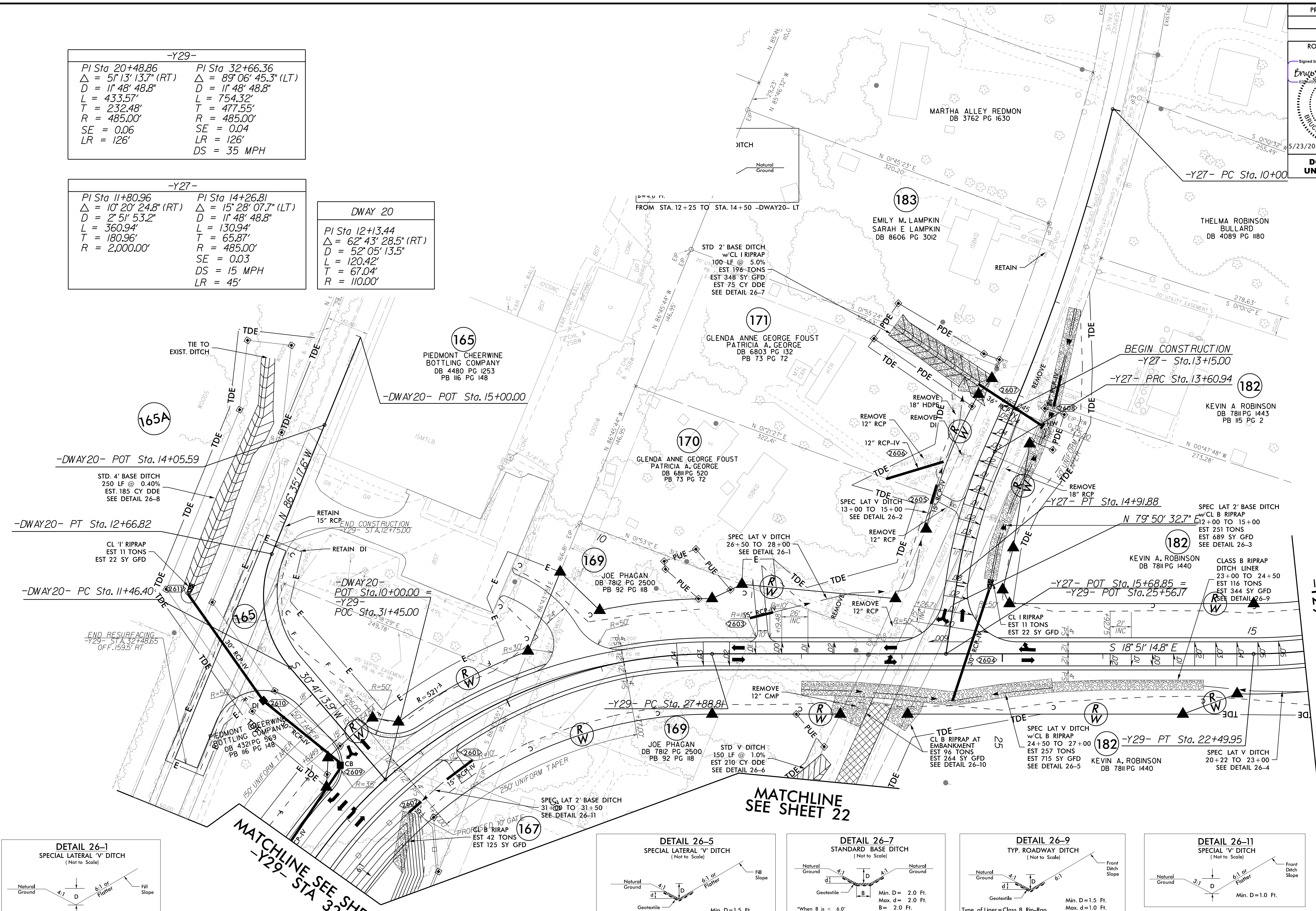


NAD 83/2011

-Y29-	
PI Sta 20+48.86 $\Delta = 51' 13" 13.7"$ (RT) $D = 11' 48" 48.8"$ $L = 433.57'$ $T = 232.48'$ $R = 485.00'$ $SE = 0.06$ $LR = 126'$	PI Sta 32+66.36 $\Delta = 89' 06" 45.3"$ (LT) $D = 11' 48" 48.8"$ $L = 754.32'$ $T = 477.55'$ $R = 485.00'$ $SE = 0.04$ $LR = 126'$ $DS = 35 MPH$

-Y27-	
PI Sta 11+80.96 $\Delta = 10' 20' 24.8"$ (RT) $D = 2' 51' 53.2"$ $L = 360.94'$ $T = 180.96'$ $R = 2,000.00'$	PI Sta 14+26.81 $\Delta = 15' 28' 07.7"$ (LT) $D = 11' 48" 48.8"$ $L = 130.94'$ $T = 65.87'$ $R = 485.00'$ $SE = 0.03$ $DS = 15 MPH$ $LR = 45'$

DWAY 20	
PI Sta 12+13.44 $\Delta = 62' 43' 28.5"$ (RT) $D = 52' 05' 13.5"$ $L = 120.42'$ $T = 67.04'$ $R = 110.00'$	



PAVEMENT REMOVAL

NOTE: SEE SHEET 44 FOR -Y27- PROFILE
SEE SHEET 45 FOR -Y29- PROFILE
SEE SHEET 49 FOR -DWAY20- PROFILE

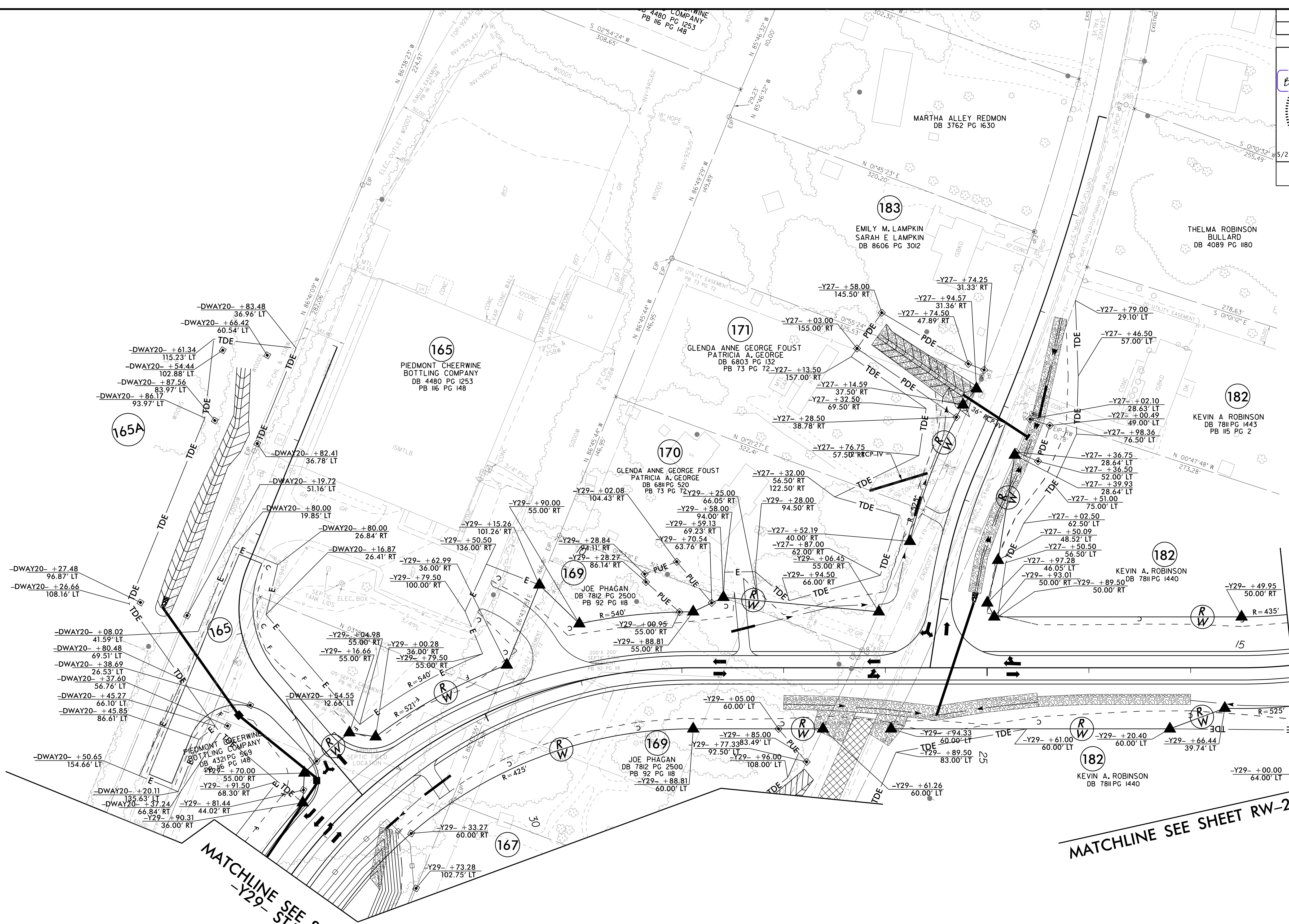
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REVISIONS

8/17/99

REVISIONS

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\$\$\$\$SYSTRAN\$\$\$\$



PROJECT REFERENCE NO. U-4758		SHEET NO. RW-26	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER Signed by: SEAL 022610 ENGINEER, JR. BRUCE B. PAYNE 5/23/2025		HYDRAULICS ENGINEER Signed by: SEAL 26971 ENGINEER JOSHUA G. DALTON 5/28/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #P-0326

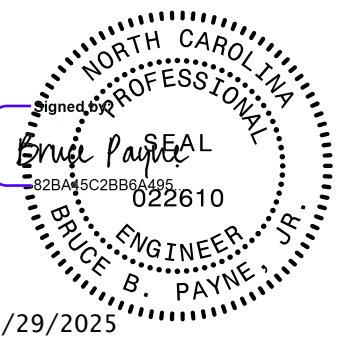
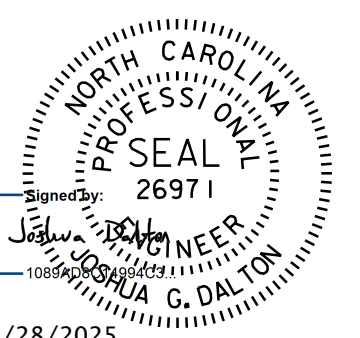
SUNGATE DESIGN GROUP, P.A.
805 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 858-2243
ENG FIRM LICENSE NO. C-680

NAD 83/2011

MATCHLINE SEE SHEET RW-23

PAVEMENT REMOVAL

PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 26 FOR COMPLETE DESIGN DETAILS

PROJECT REFERENCE NO.		SHEET NO.
U-4758		27
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



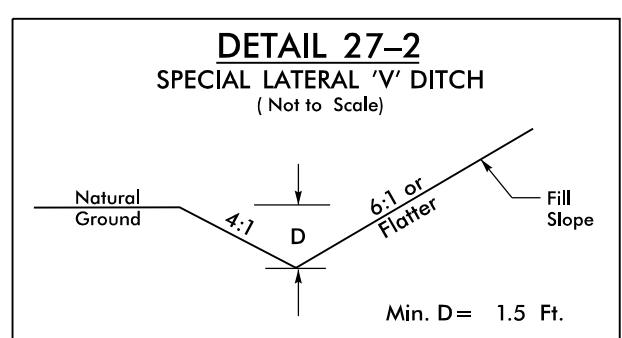
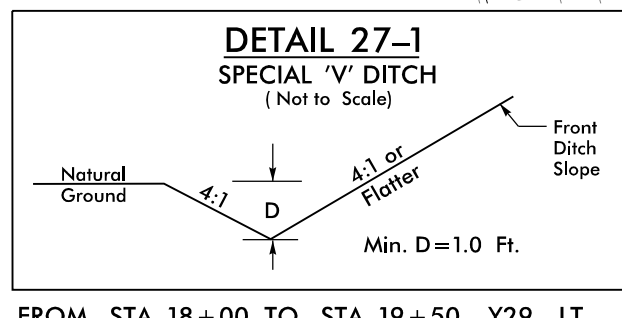
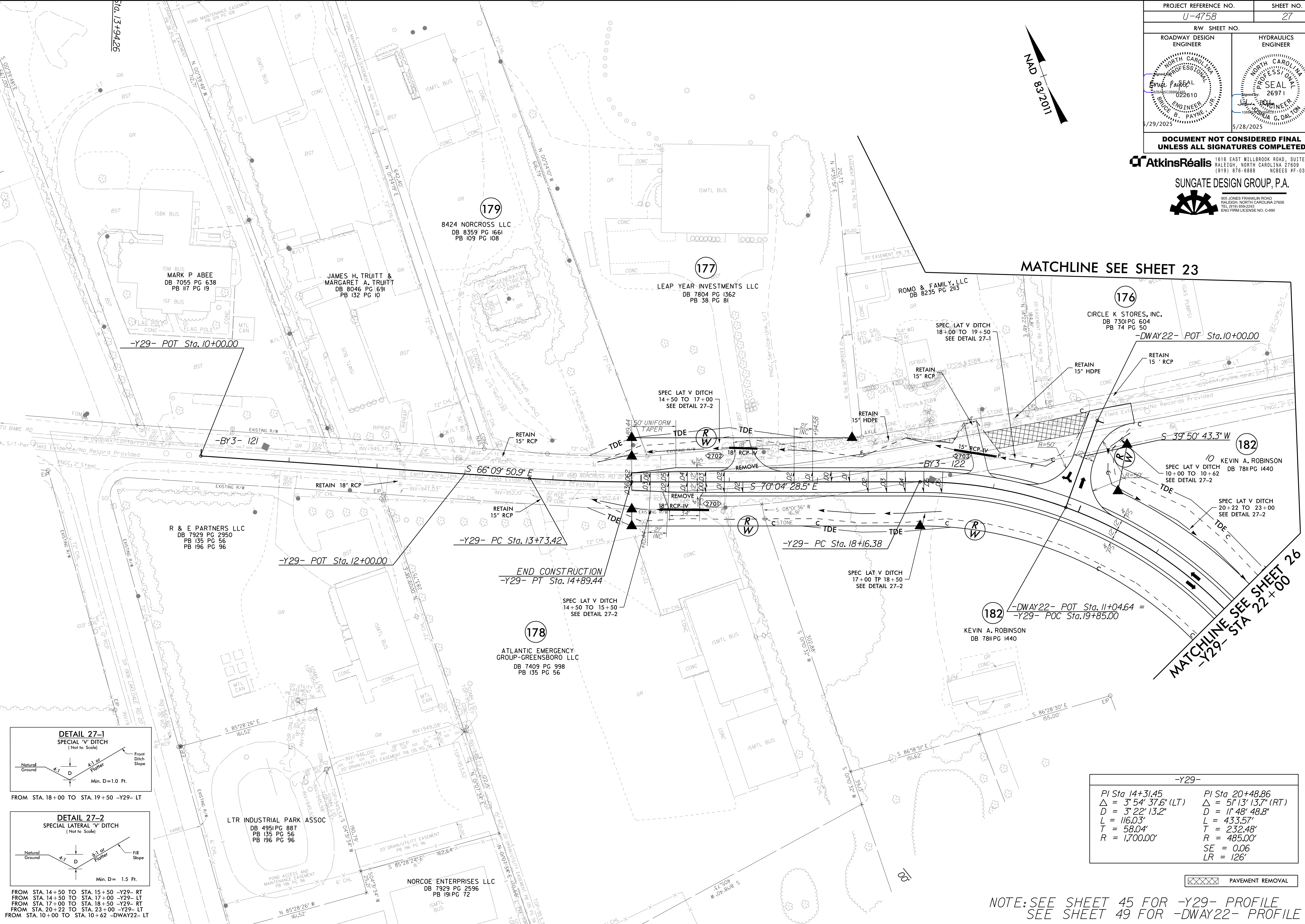
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 976-6888 NCBEES #F-0326



SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 888-2243
ENG FIRM LICENSE NO. C-880

MATCHLINE SEE SHEET 23

MATCHLINE SEE SHEET 26
-Y29- STA 22+00



-Y29-	
PI Sta. 14+31.45	PI Sta. 20+48.86
$\Delta = 3^{\circ} 54' 37.6''$ (LT)	$\Delta = 5^{\circ} 13' 13.7''$ (RT)
$D = 3^{\circ} 22' 13.2''$	$D = 11^{\circ} 48' 48.8''$
$L = 116.03'$	$L = 433.57'$
$T = 58.04'$	$T = 232.48'$
$R = 1,700.00'$	$R = 485.00'$
	$SE = 0.06$
	$LR = 126'$

 PAVEMENT REMOVAL

NOTE: SEE SHEET 45 FOR -Y29- PROFILE
SEE SHEET 49 FOR -DWAY22- PROFILE

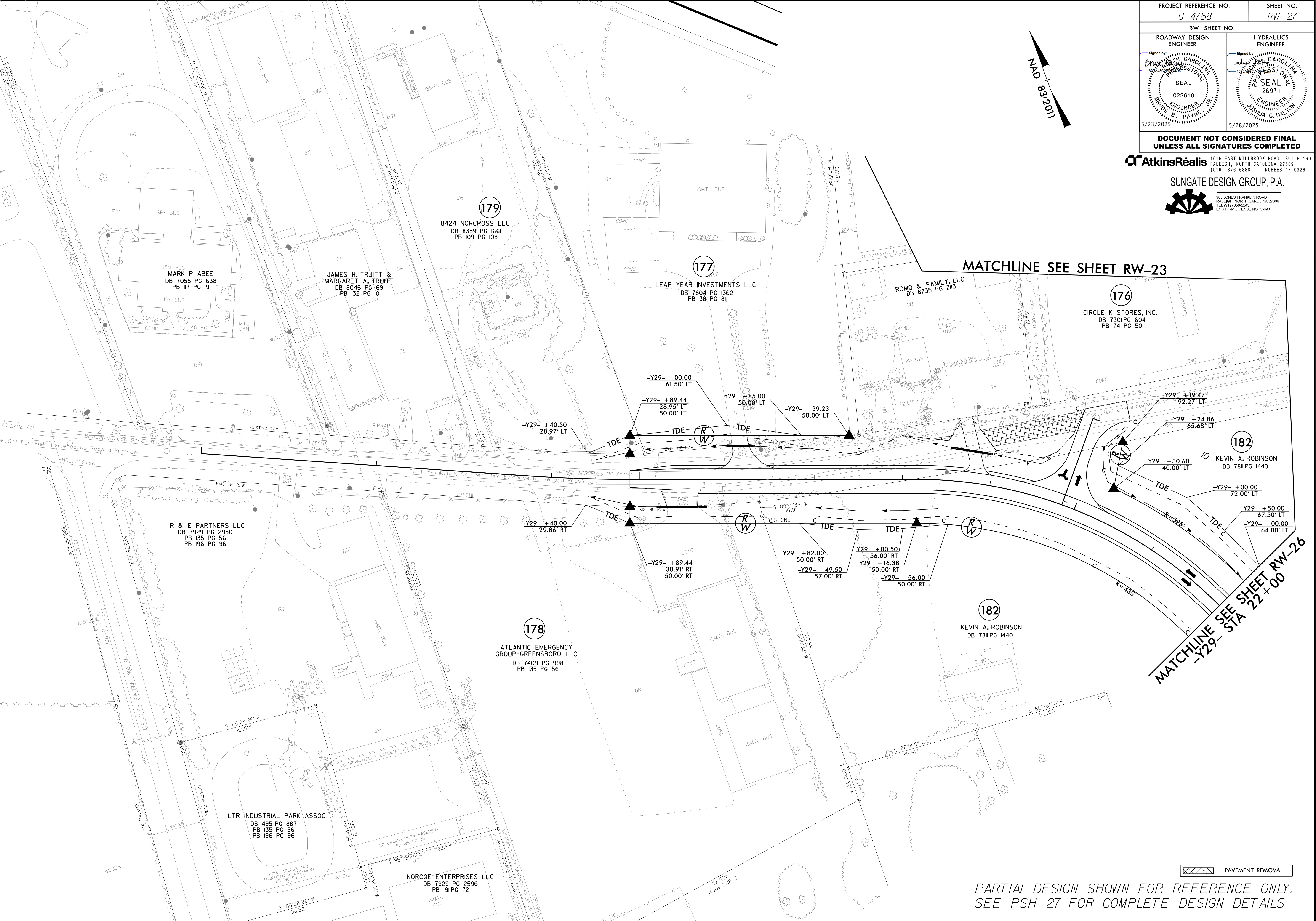
REVISIONS

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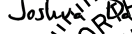
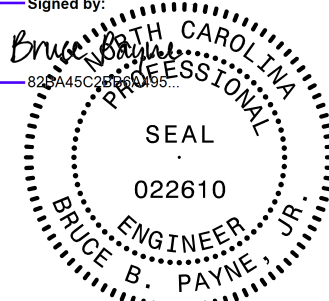
REVISIONS

8/17/99

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PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 27 FOR COMPLETE DESIGN DETAILS

PROJECT REFERENCE NO.		SHEET NO.	
U-4758		RW-27	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by:  BRUCE B. PAYNE, JR.		Signed by:  JOSHUA G. DALTON	
			
5/23/2025		5/28/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

AtkinsRéalis 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 978-6888 NCBEES #P-0326

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL: (919) 888-2243
ENG FIRM LICENSE NO. C-880

PROJECT REFERENCE NO.
U-4758

SHEET NO.
28

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

SEAL

BRUCE B. PAYNE, JR.

5/29/2025

SEAL

JOHN G. DALTON

5/28/2025

DOCUMENT NOT CONSIDERED FINAL

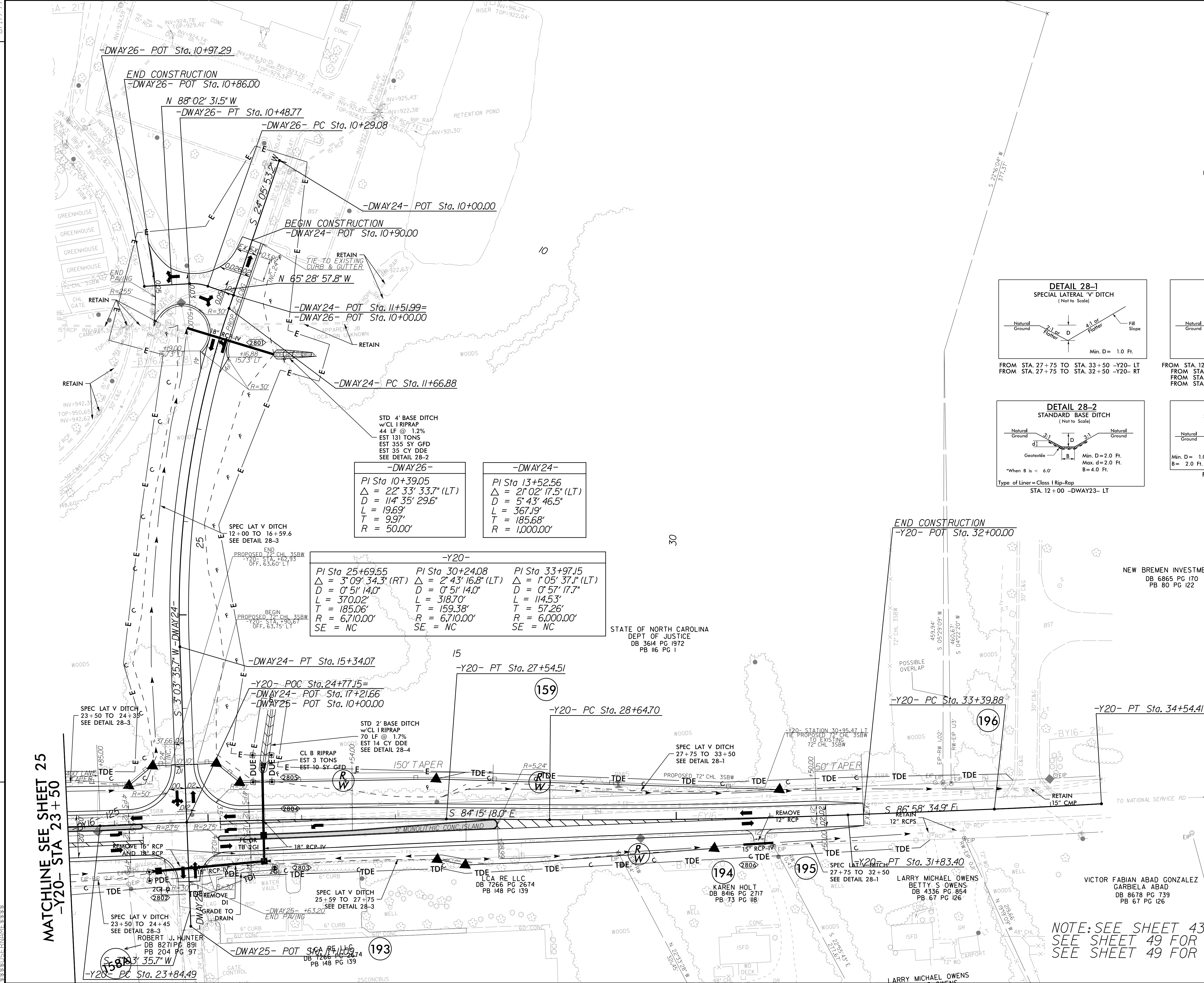
UNLESS ALL SIGNATURES COMPLETED

AtkinsRéalis

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SUNGATE DESIGN GROUP, P.A.

905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 868-2343
ENG FIRM LICENSE NO. C-880



NOTE: SEE SHEET 43 FOR -Y20- PROFILE
SEE SHEET 49 FOR -DWAY24- PROFILE
SEE SHEET 49 FOR -DWAY26- PROFILE

8/17/99

REVISIONS

MATCHLINE SEE SHEET 25
-Y20- STA 23+50

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MATCHLINE SEE SHEET RW-25
-Y20- STA 23+50

NEW BREMEN INVESTMENTS INC
DB 6865 PG 170
PB 80 PG 122

NOTE: PARTIAL DESIGN SHOWN FOR REFERENCE ONLY.
SEE PSH 28 FOR COMPLETE DETAILS.

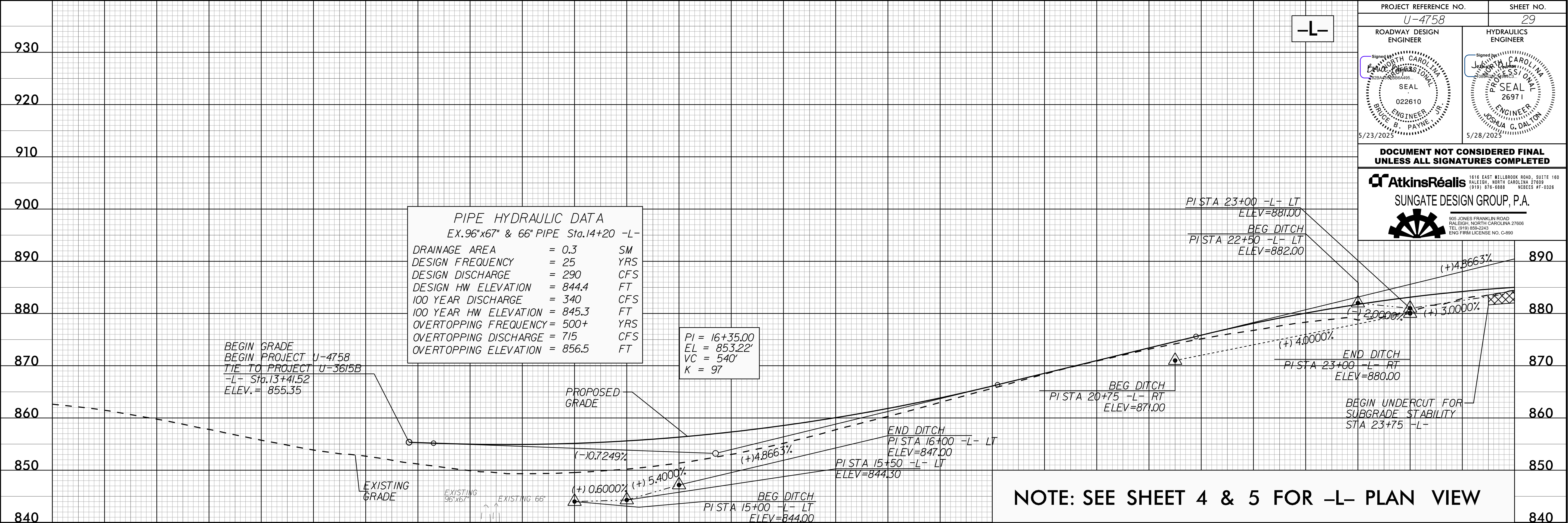
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U-4758		RW-28	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Signed by  BRUCE B. PAYNE PROFESSIONAL SEAL 022610 ENGINEER BRUCE B. PAYNE		Signed by  JOSHUA G. DALTON PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON	
5/23/2025		5/28/2025	
DO NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

 **AtkinsRéalis** 1616 EAST WILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

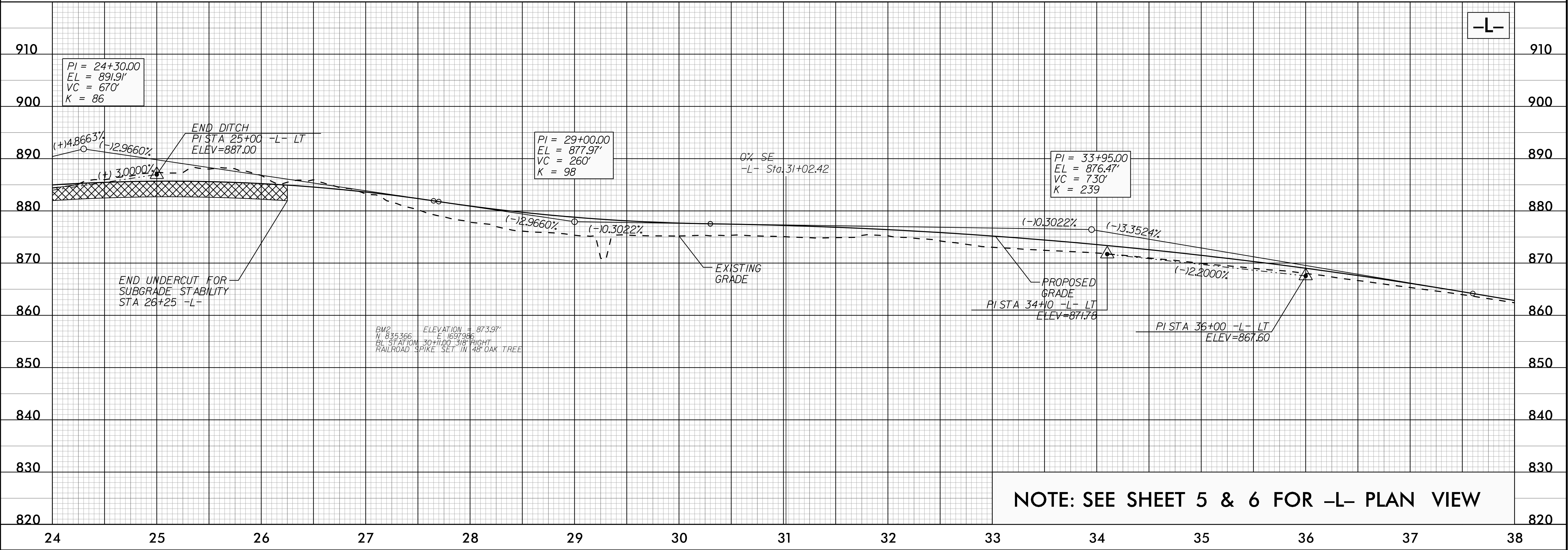
SUNGATE DESIGN GROUP, P.A.

 905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-880

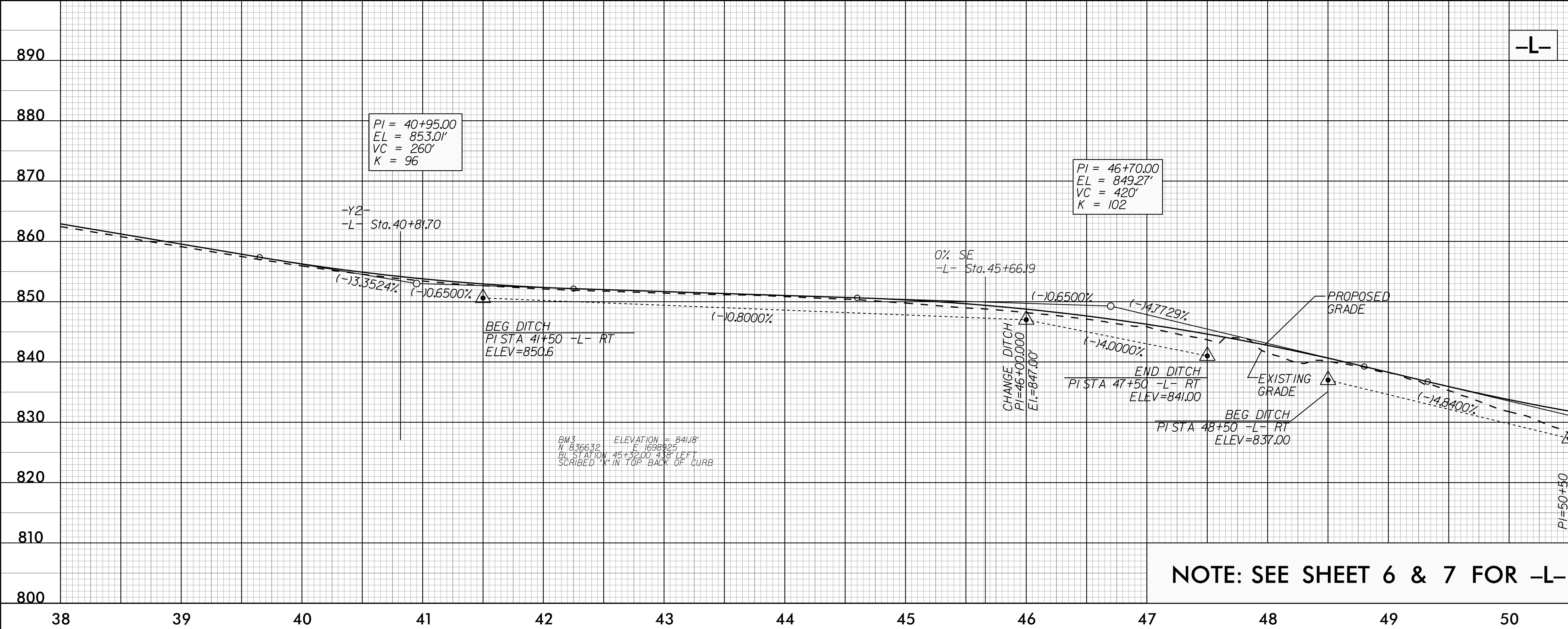
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5/28/2025



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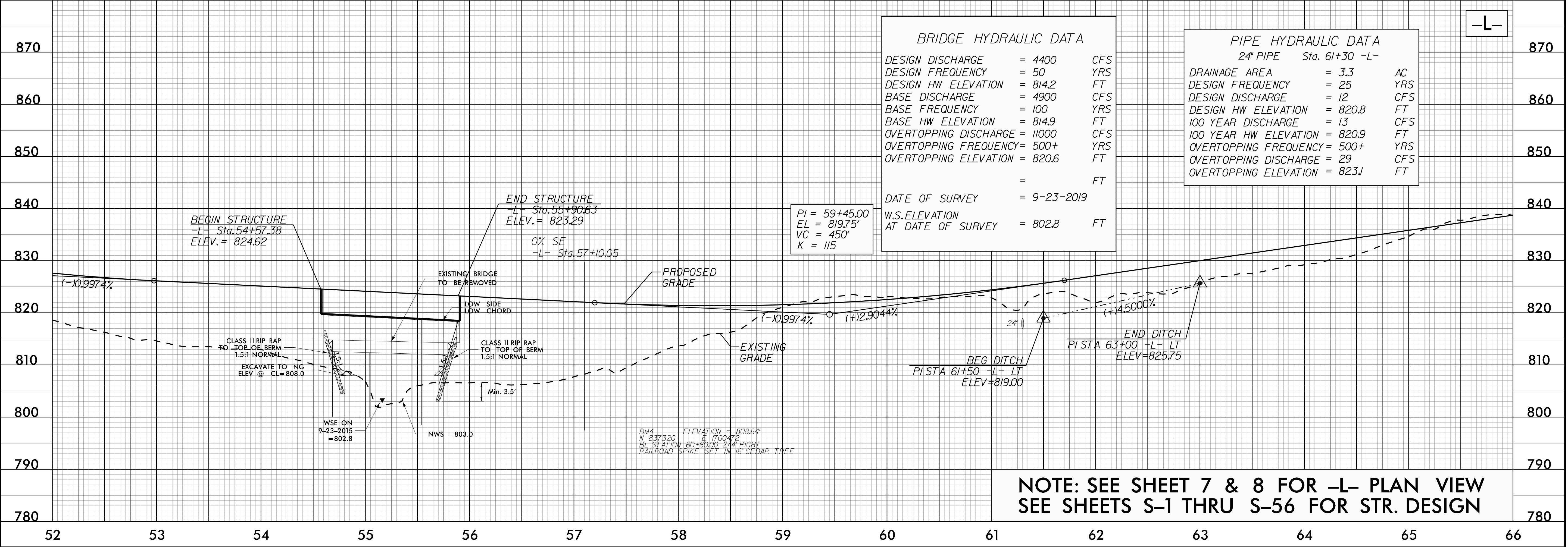
ROADWAY DESIGN ENGINEER
JOHN G. DALTON
SEAL
022610
ENGINEER
B. PAYNE
5/23/2025

HYDRAULICS ENGINEER
JOHN G. DALTON
SEAL
26971
ENGINEER
JOHN G. DALTON
5/28/2025

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

AtkinsRéalis
SUNGATE DESIGN GROUP, P.A.
1616 EAST WILLOWBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27608
(919) 876-8888 NCES #F-0326
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 886-2245 ENG FIRM LICENSE NO. C-890

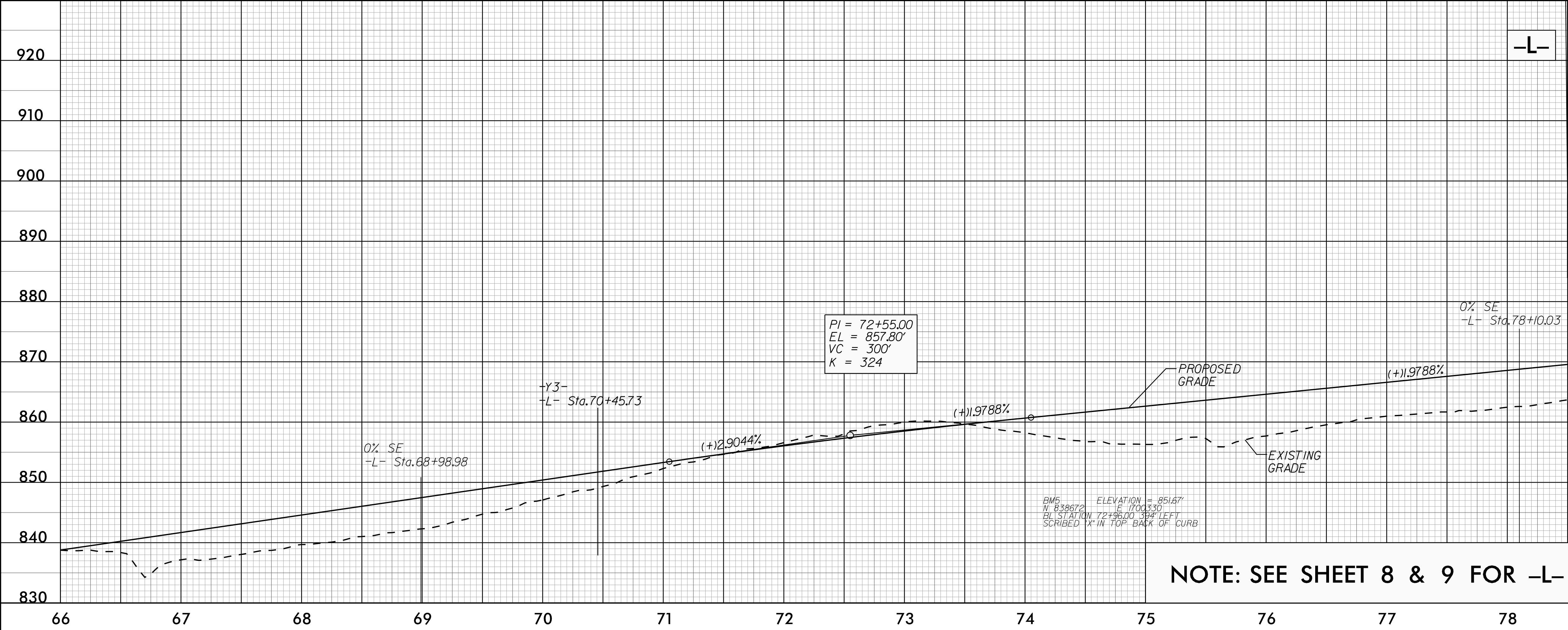
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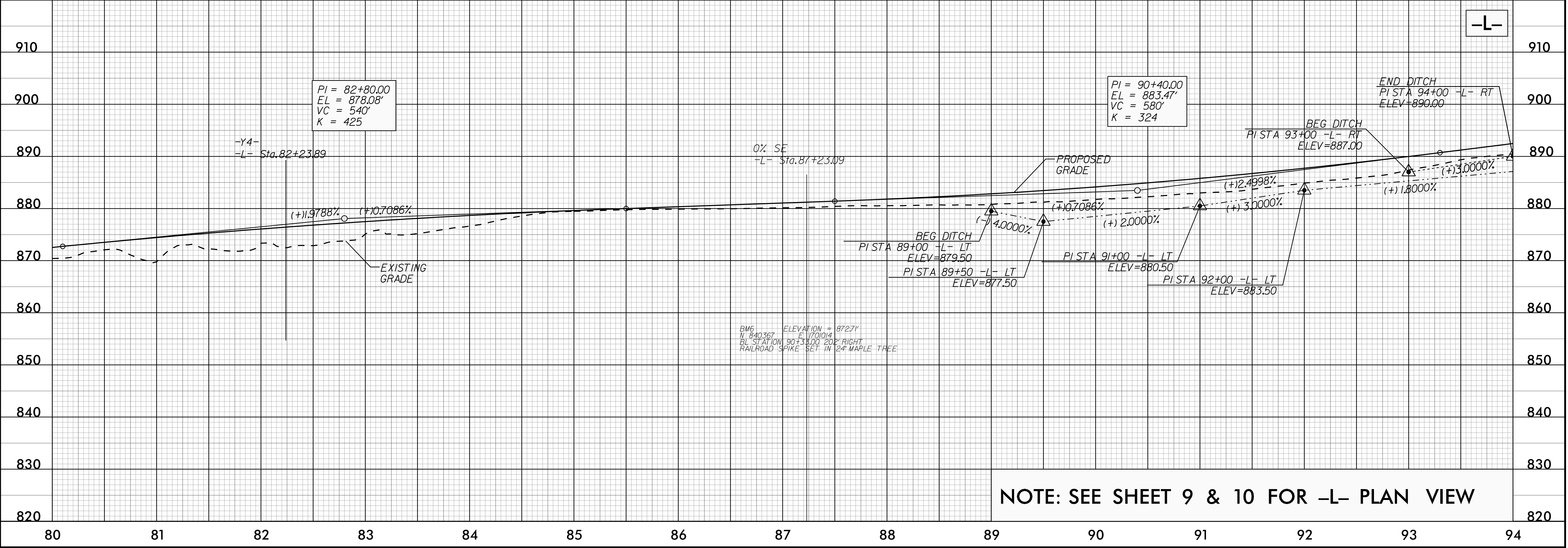
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DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 814.2	FT
BASE DISCHARGE	= 4900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 814.9	FT
OVERTOPPING DISCHARGE	= 11000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 820.6	FT
	=	FT
DATE OF SURVEY	= 9-23-2019	
W.S. ELEVATION		
AT DATE OF SURVEY	= 802.8	FT

PIPE HYDRAULIC DATA		
24" PIPE	Sta. 61+30	-L-
DRAINAGE AREA	= 3.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 12	CFS
DESIGN HW ELEVATION	= 820.8	FT
100 YEAR DISCHARGE	= 13	CFS
100 YEAR HW ELEVATION	= 820.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 29	CFS
OVERTOPPING ELEVATION	= 823.1	FT

5/28/2025

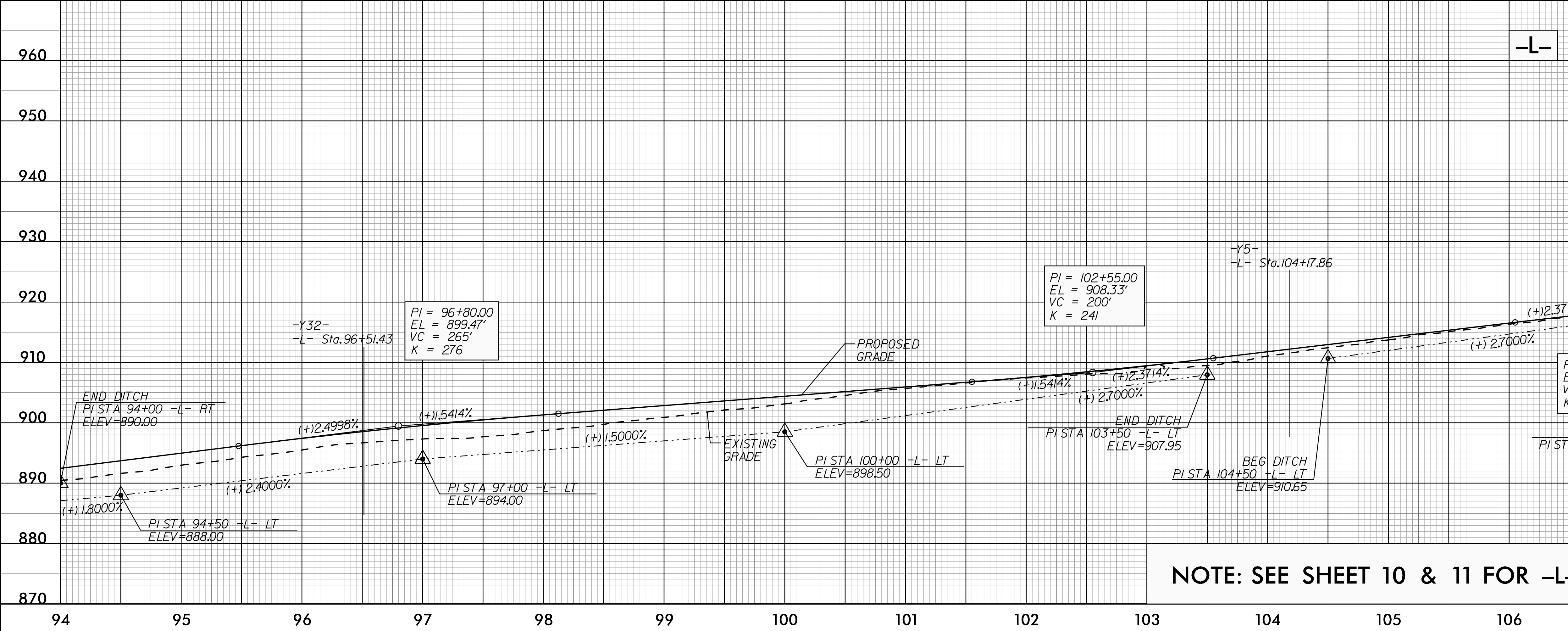


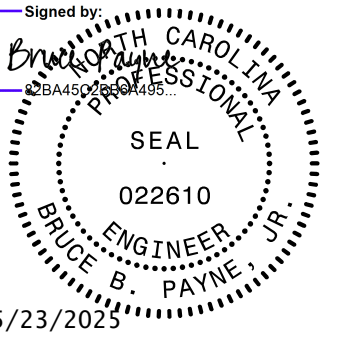
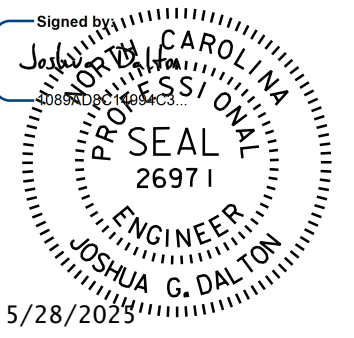
PROJECT REFERENCE NO. U-4758		SHEET NO. 31
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 SUNGATE DESIGN GROUP, P.A. 1616 EAST WILLOWBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-8888 NCBS 07-0326 905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606 TEL (919) 886-2245 ENG FIRM LICENSE NO. C-890		

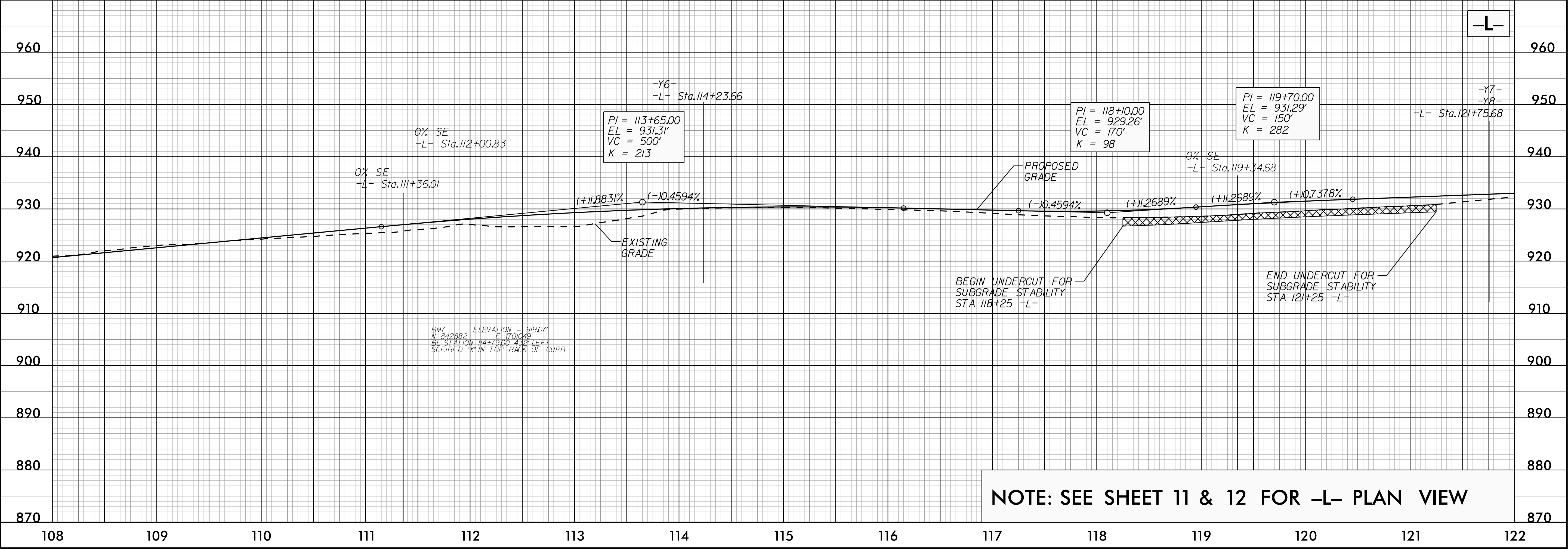


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J.B. PAYNE

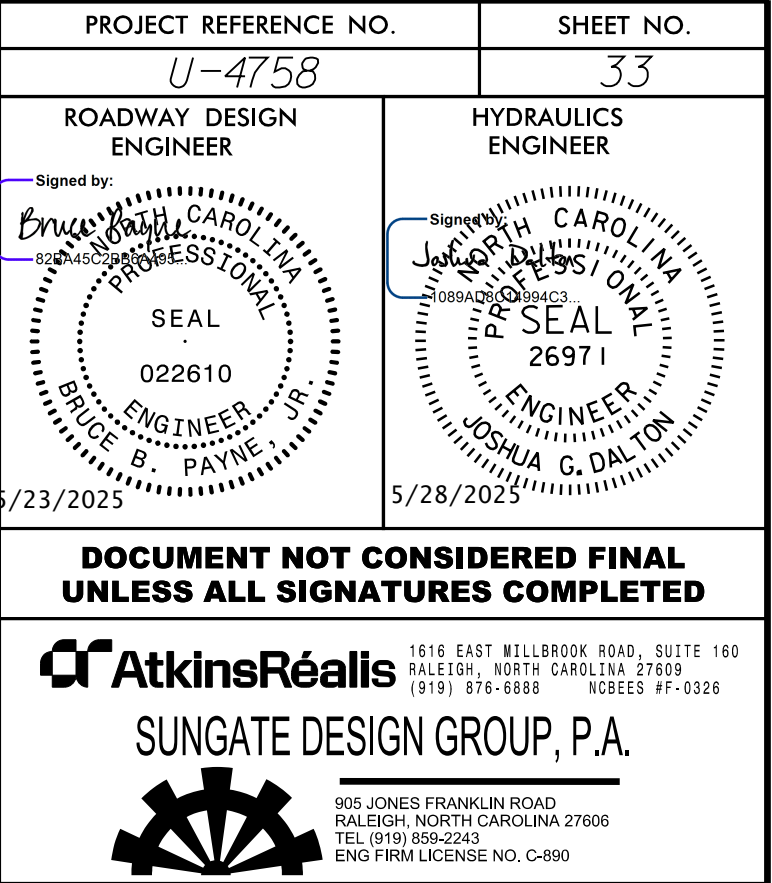
5/28/24



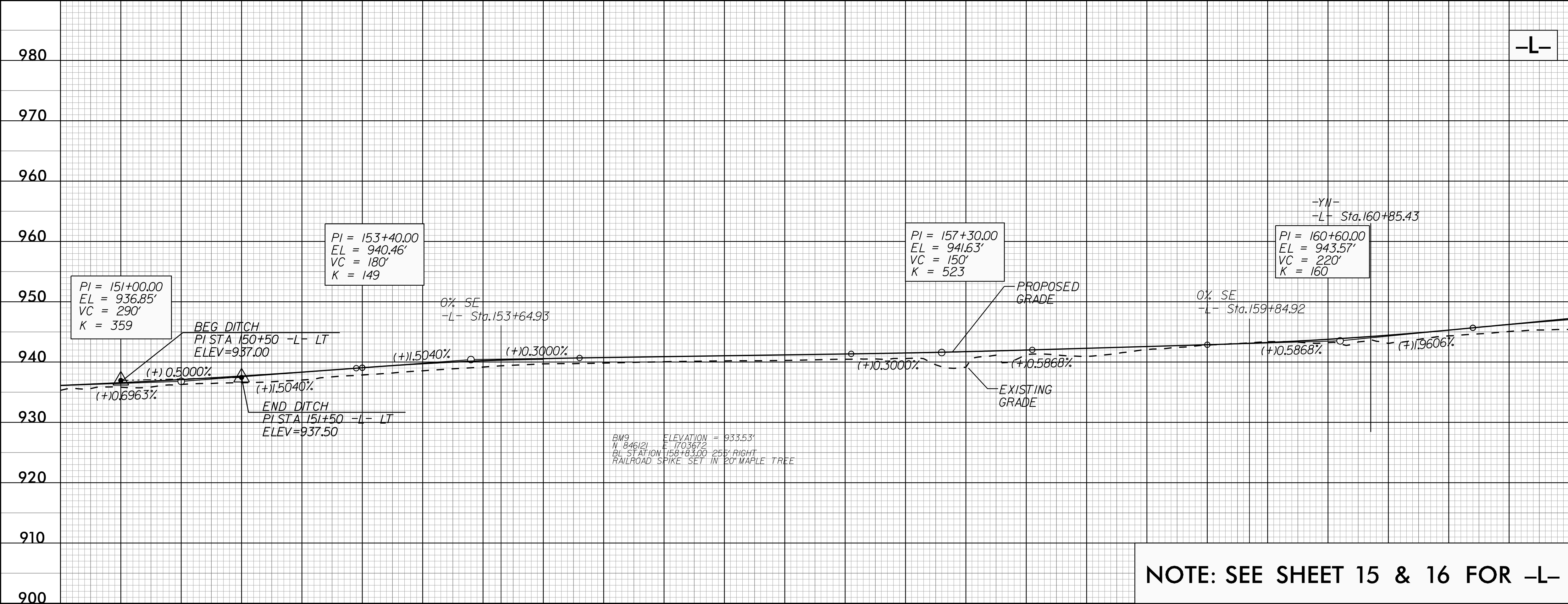
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ROADWAY DESIGN ENGINEER 		HYDRAULICS ENGINEER 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
		1616 EAST WILLOW ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27608 (919) 876-8888 NCES #F-0326	
		905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27608 TEL (919) 886-2245 ENG FIRM LICENSE NO. C-890	



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5/28/24



PROJECT REFERENCE NO.
U-4758

SHEET NO.
34

ROADWAY DESIGN ENGINEER
Enric Papp
NORTH CAROLINA PROFESSIONAL ENGINEER
BRIDGE B. PAYNE
5/29/2025

HYDRAULICS ENGINEER
John Dalton
NORTH CAROLINA PROFESSIONAL ENGINEER
5/28/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

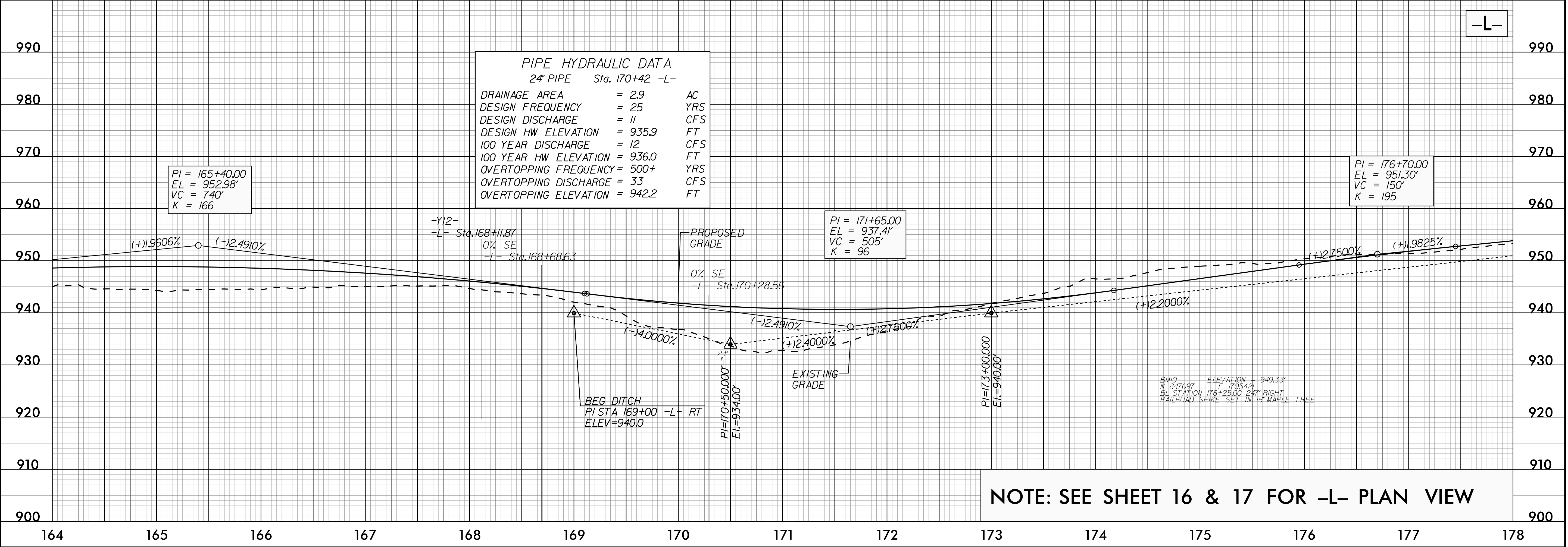
AtkinsRéalis

SUNGATE DESIGN GROUP, P.A.

1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27608
(919) 876-8888 NCES 07-0326

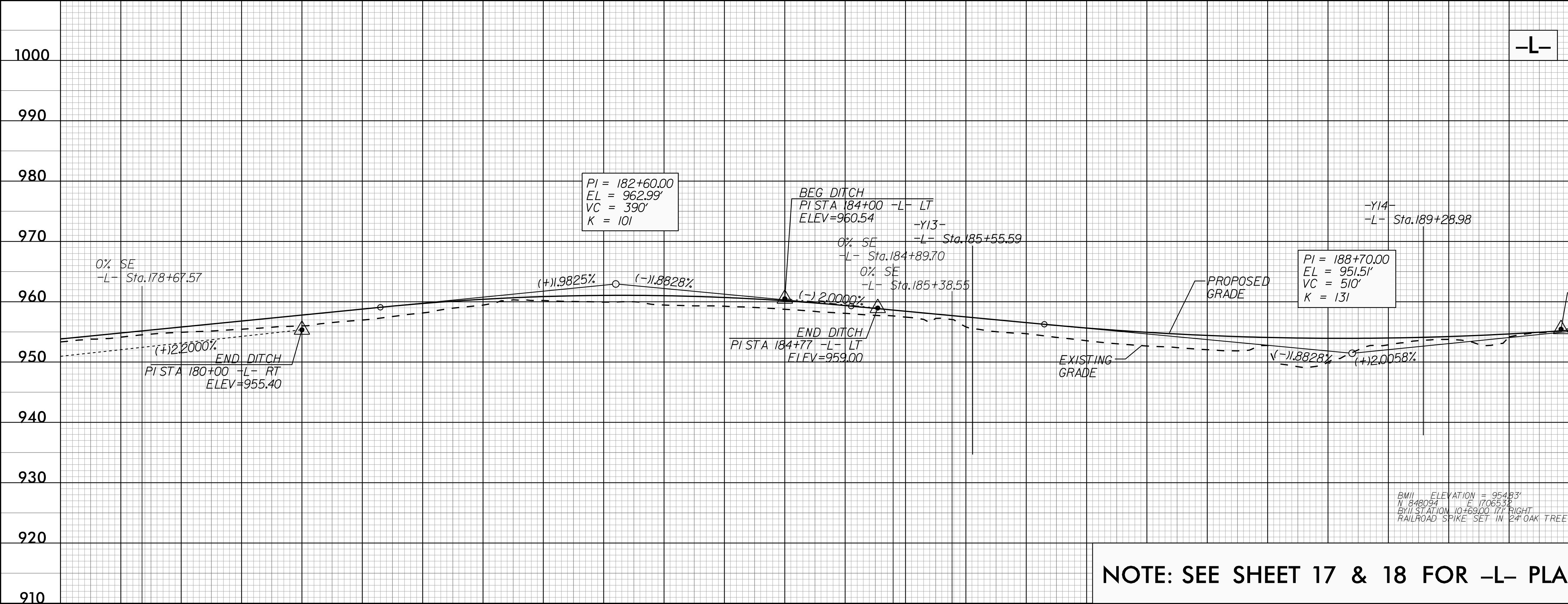
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 856-2245
ENG FIRM LICENSE NO. C-890

P:\23 MAY 2025\230515\40 P\1\4758_rdy.pfl_psh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



PIPE HYDRAULIC DATA		
24" PIPE	Sta. 170+42	-L-
DRAINAGE AREA	= 2.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 11	CFS
DESIGN HW ELEVATION	= 935.9	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 936.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 33	CFS
OVERTOPPING ELEVATION	= 942.2	FT

5/28/24



PROJECT REFERENCE NO.
U-4758

SHEET NO.
35

ROADWAY DESIGN
ENGINEER

ERIC PAGE
022610
5/23/2025

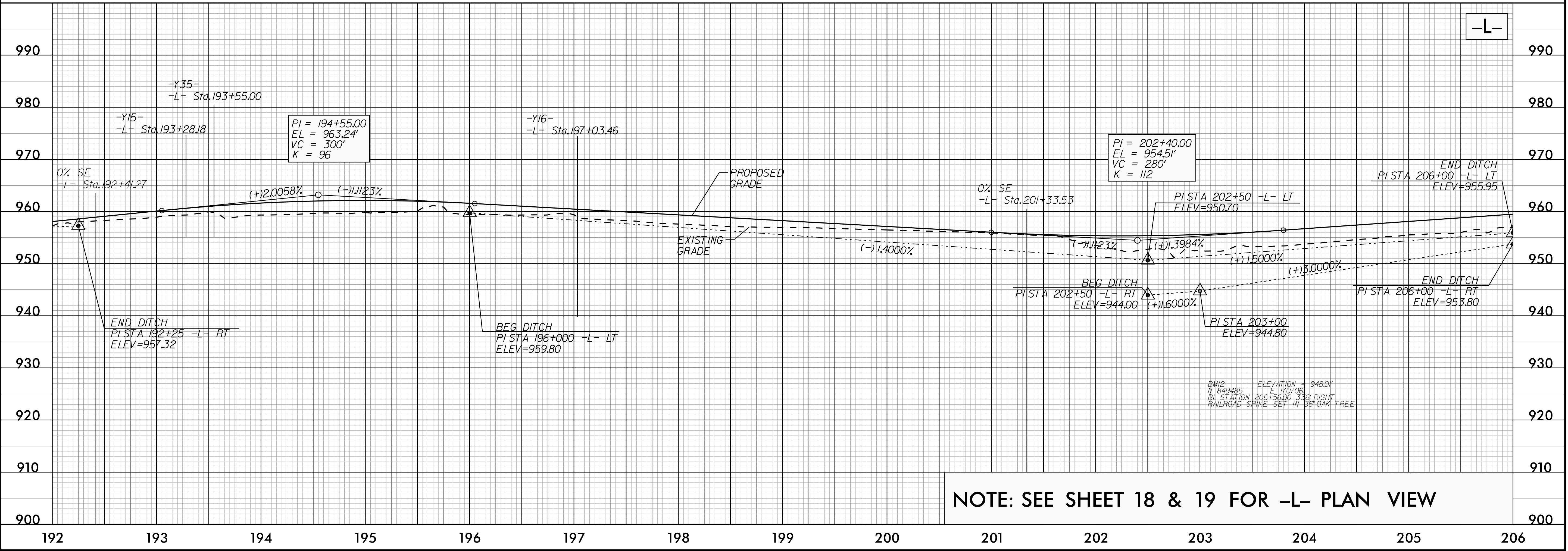
HYDRAULICS
ENGINEER

JOSHUA G. DALTON
26971
5/28/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

AtkinsRéal
SUNGATE DESIGN GROUP, P.A.

1616 EAST WILLOWBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27608
(919) 876-8888 NCES #F-0326
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27608
TEL (919) 856-2245 ENG FIRM LICENSE NO. C-890



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