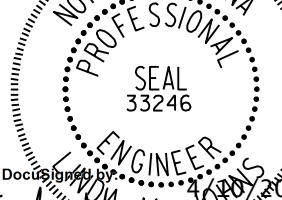
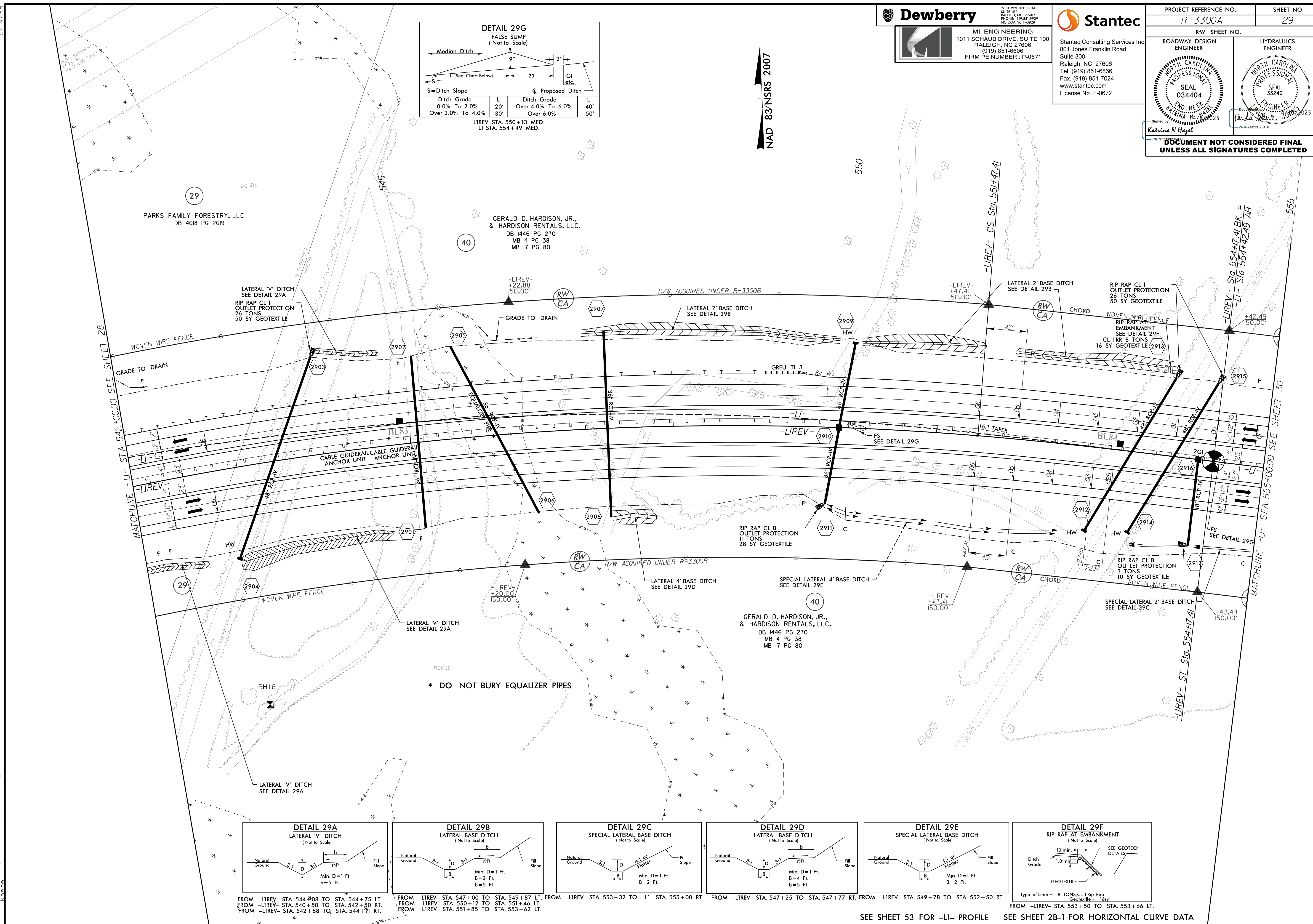


PROJECT REFERENCE NO.	SHEET NO.
R-3300A	29
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
Signed by: Katrina N Hayel	Drawn by: Linda Blum
24AS483B220T046D	

FILED 07/06/2025

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UNLESS ALL SIGNATURES COMPLETED**



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4/8/2025
U:\Roadwork\Projects\NR3300A_rdy_psh_30.dgn

Dewberry

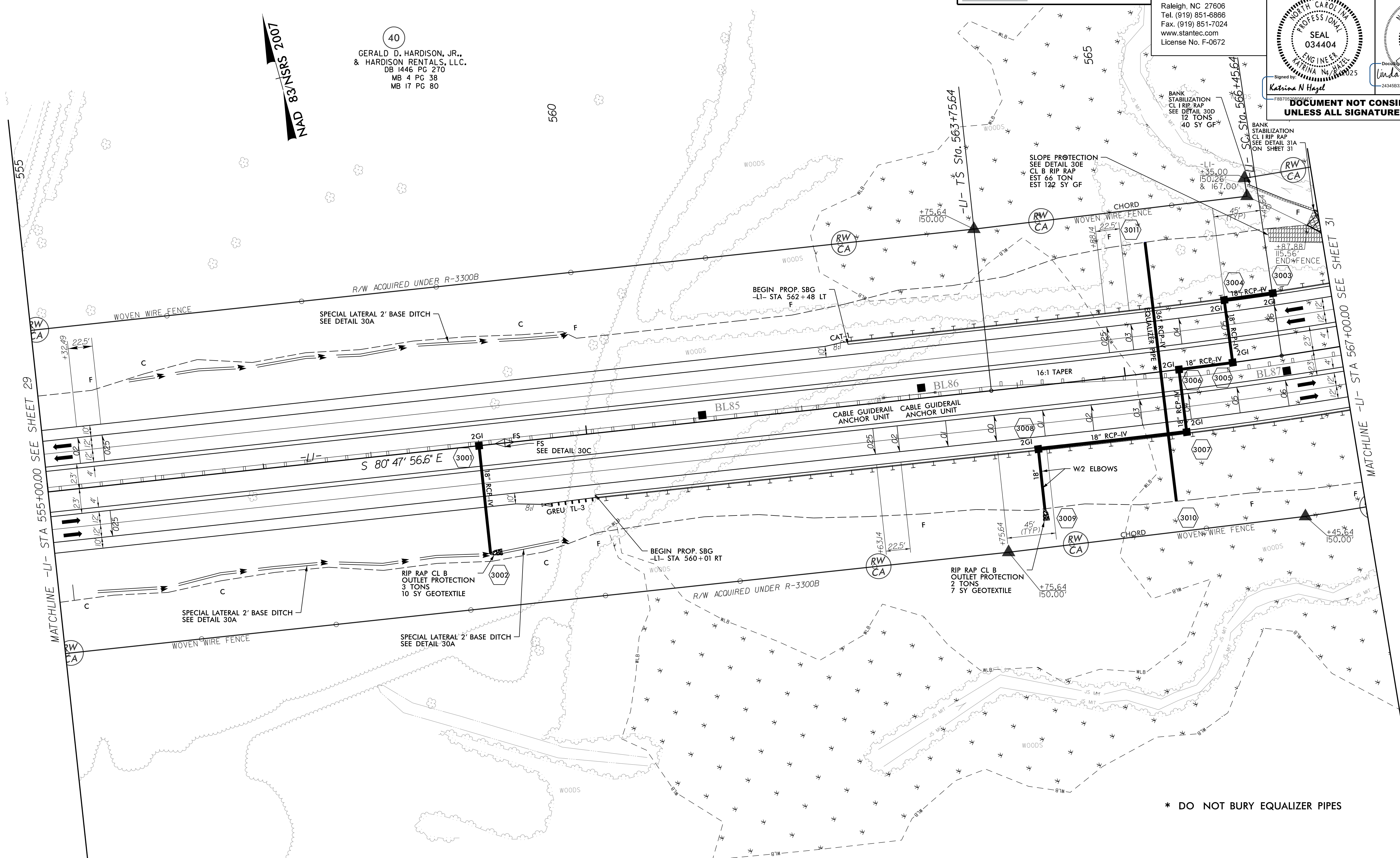


MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

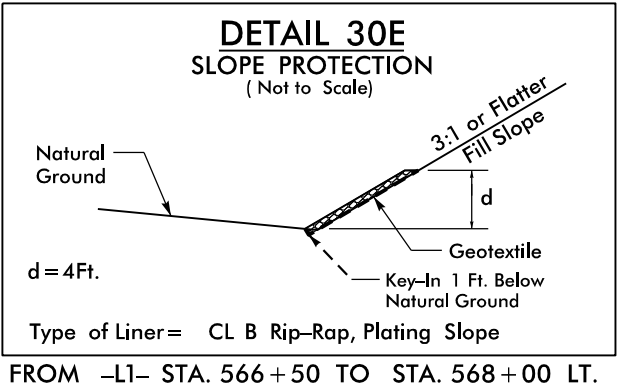
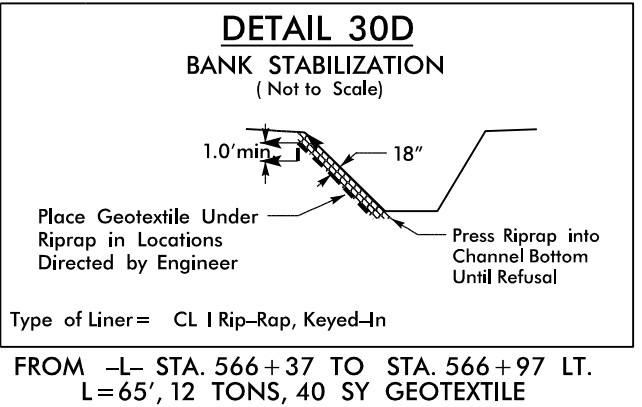
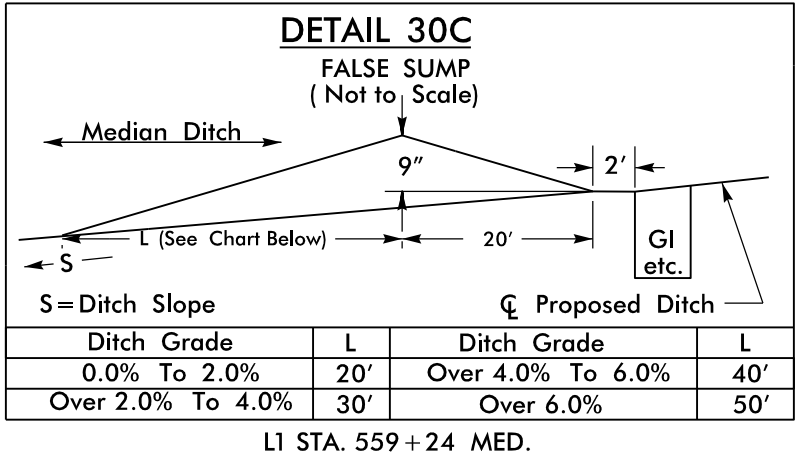
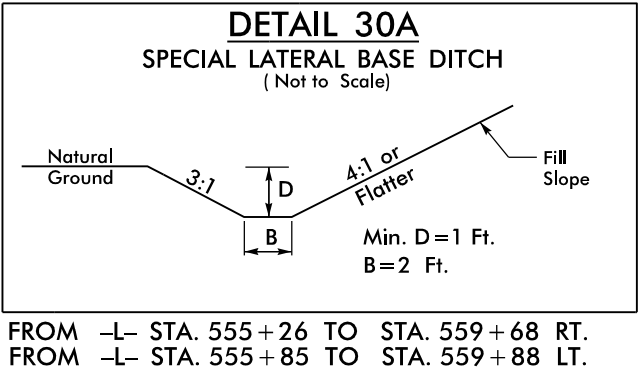
Stantec

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. R-3300A		SHEET NO. 30
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



* DO NOT BURY EQUALIZER PIPES



SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

5/14/99

4/8/2025 UNP000501\NR3300A_rdy.psh.31.dgn

Dewberry



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-0606
FIRM PE NUMBER: P-0671

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PROJECT REFERENCE NO.

R-3300A

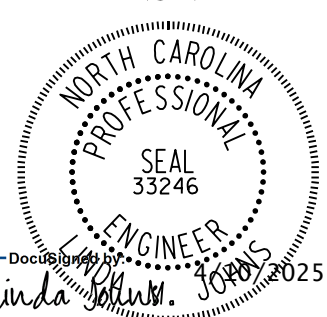
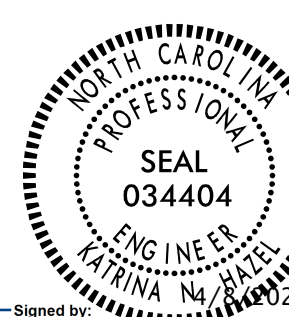
SHEET NO.

31

RW SHEET NO.

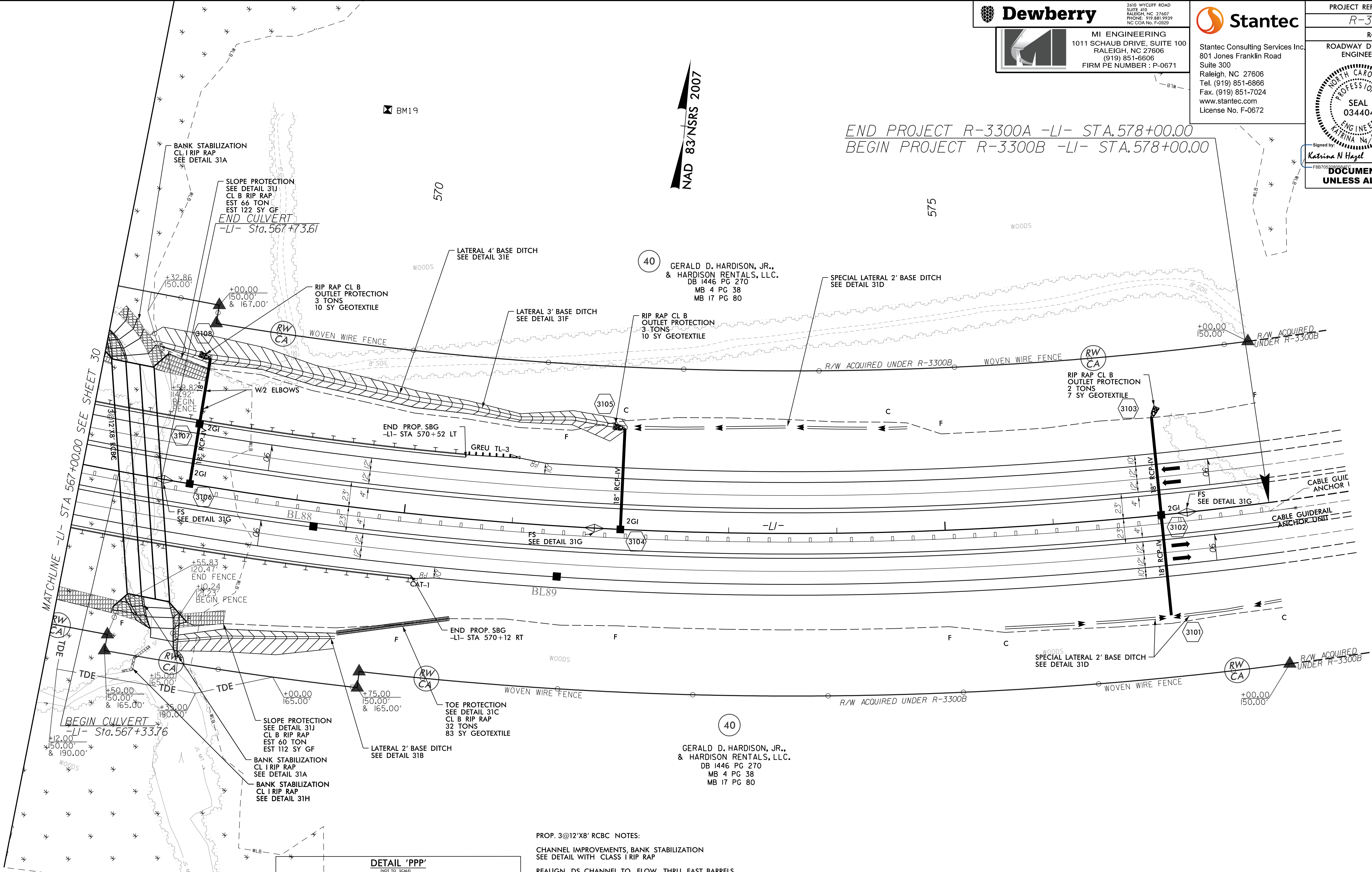
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER



Signed by: **Karina N Hagel**
F8870525

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UNLESS ALL SIGNATURES COMPLETED**



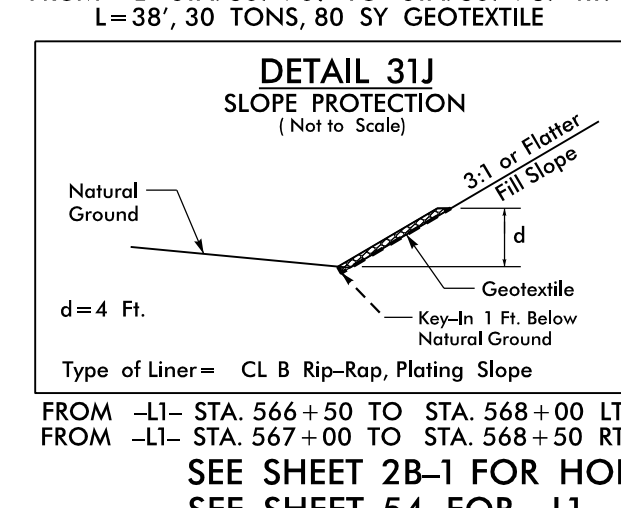
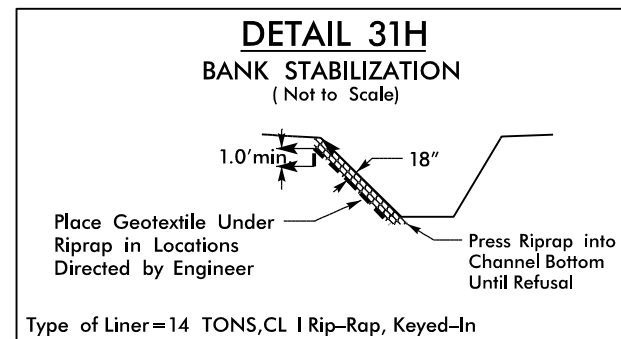
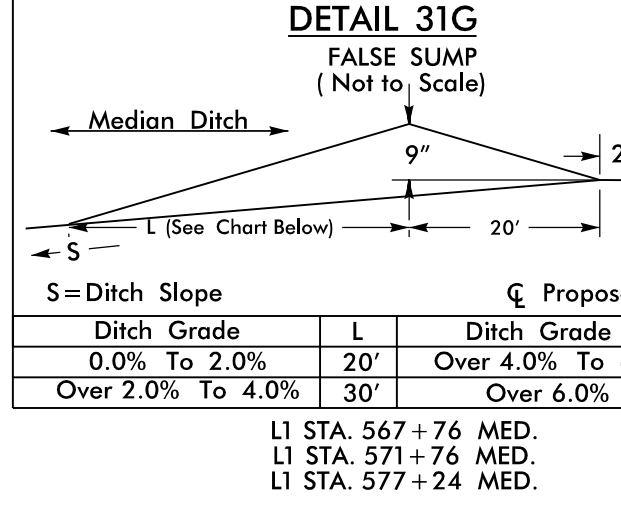
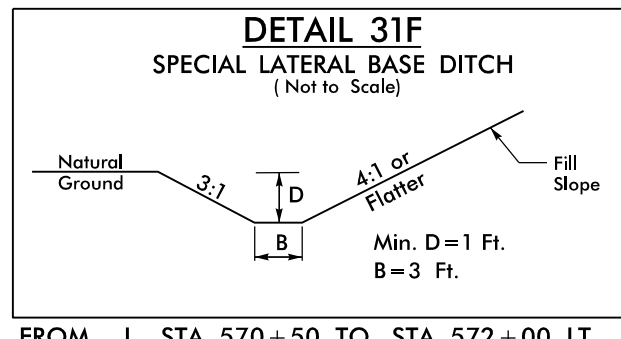
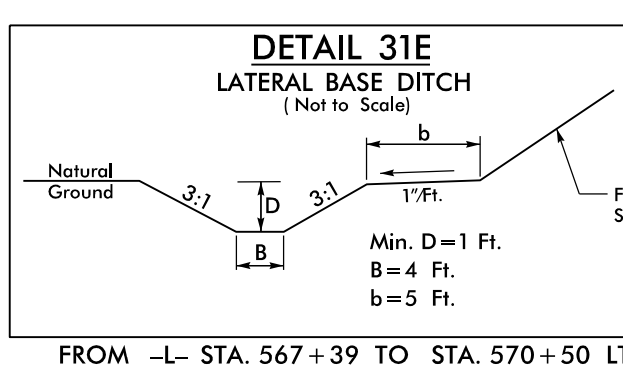
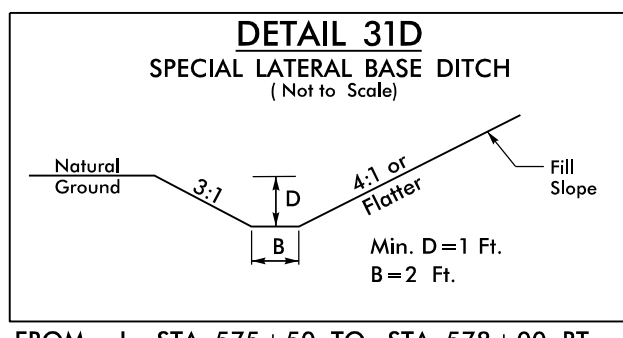
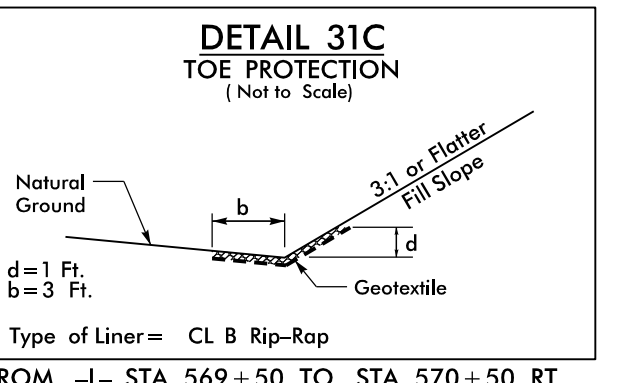
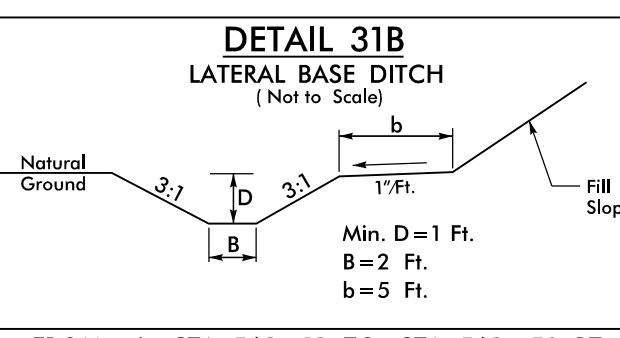
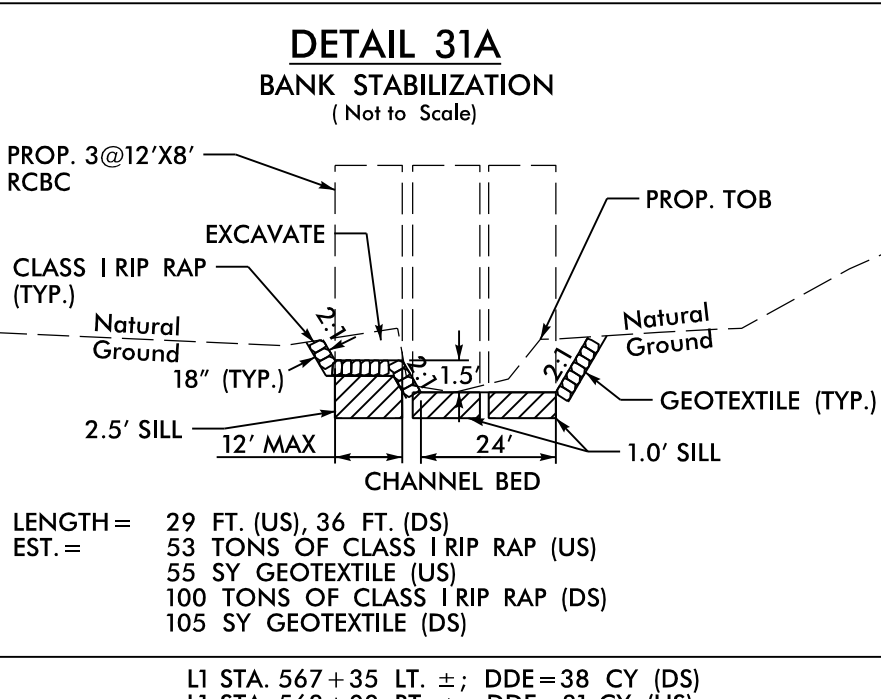
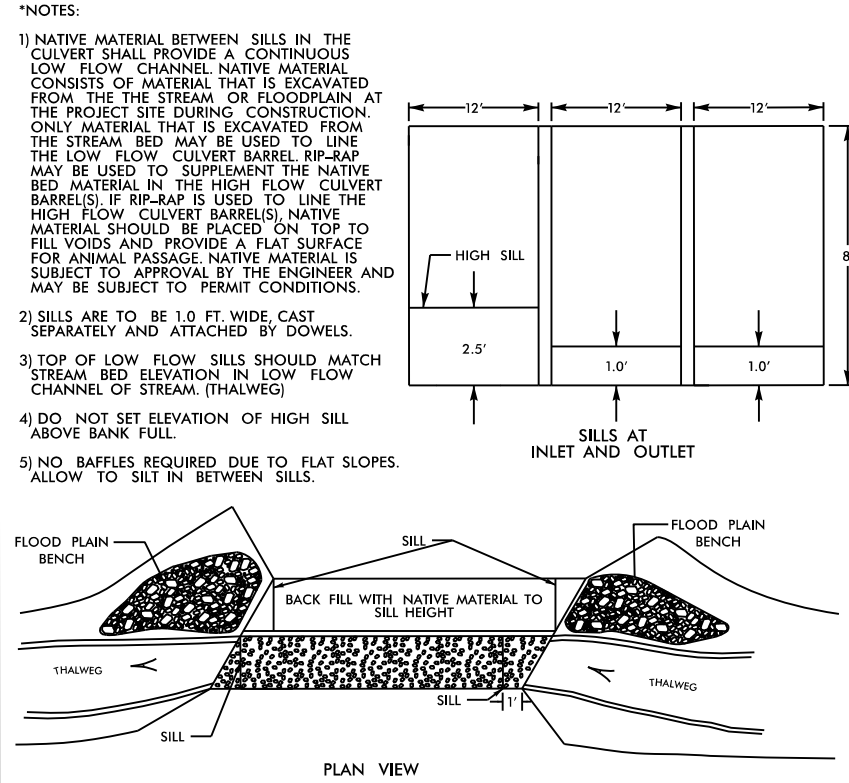
PROP. 3@12'X8' RCBC NOTES:

CHANNEL IMPROVEMENTS, BANK STABILIZATION
SEE DETAIL WITH CLASS I RIP RAP

REALIGN DS CHANNEL TO FLOW THRU EAST BARRELS

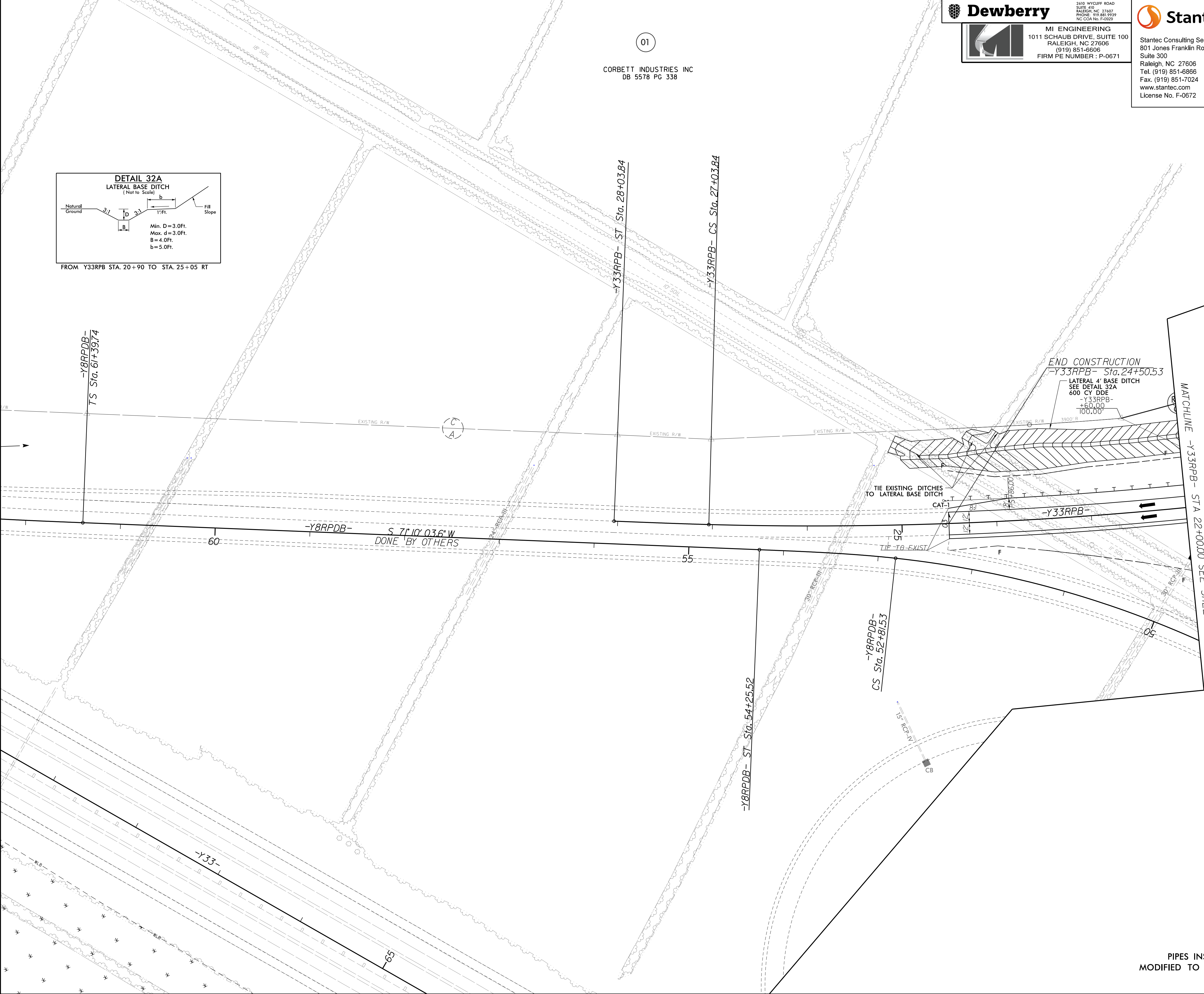
BACKFILL NORMAL FLOW BARREL WITH 1' NATIVE MATERIAL
SEE SKEWED MULTI-BARREL CULVERT LOW FLOW CHANNEL
SILLS AND FLOOD PLAIN BENCH DETAIL 'PPP'

DETAIL 'PPP'
SKEWED MULTI-BARREL CULVERT
LOW FLOW CHANNEL SILLS
AND FLOOD PLAIN BENCH



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4/8/2025
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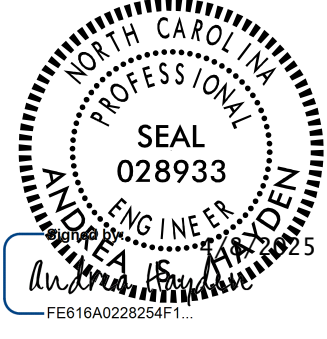


**Dewberry**

**MI ENGINEERING**
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

**Stantec**

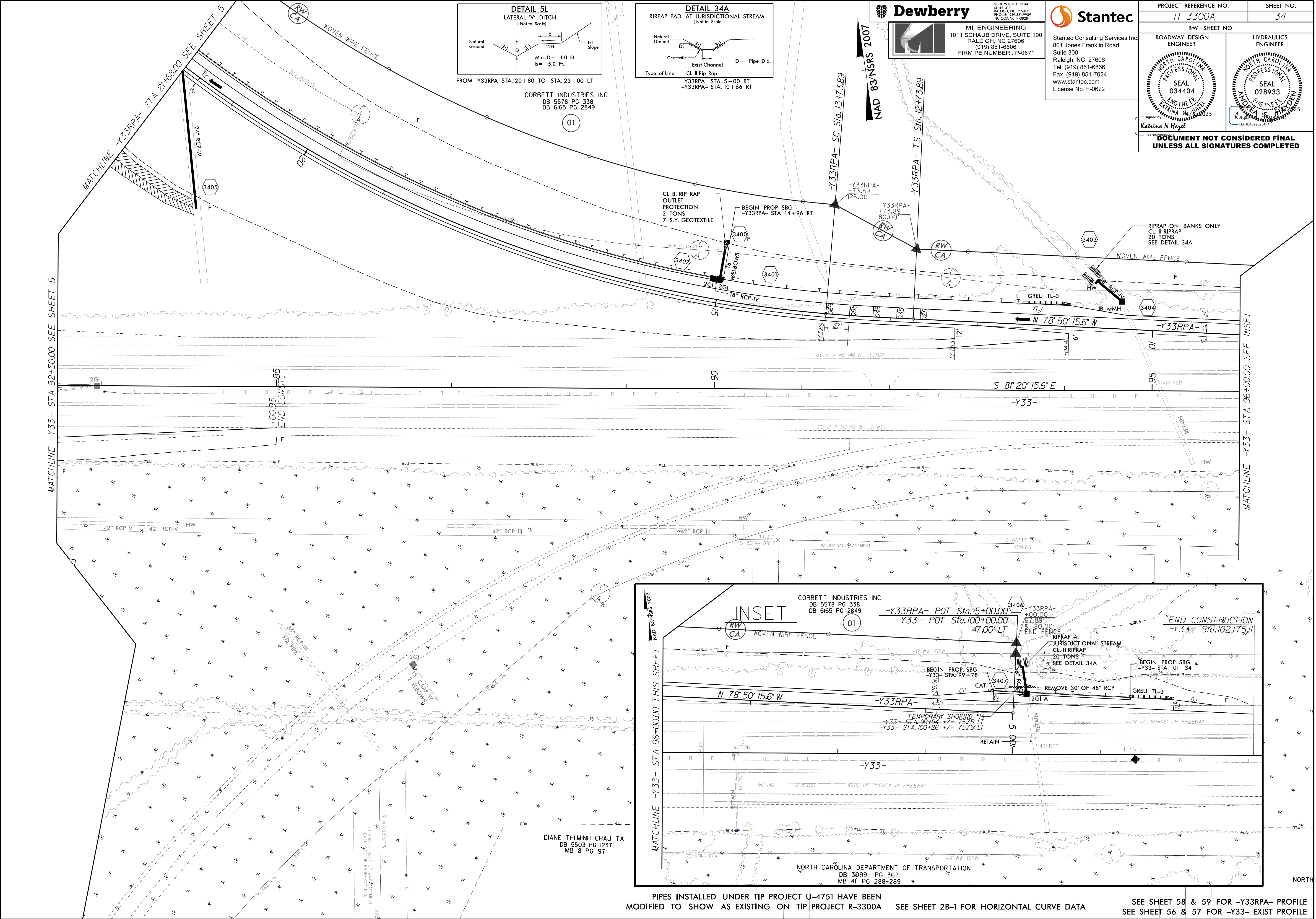
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. R-3300A		SHEET NO. 32
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
Signed by: Karina N Hagel FEB16A0228254F1		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
PIPES INSTALLED UNDER TIP PROJECT U-4751 HAVE BEEN
MODIFIED TO SHOW AS EXISTING ON TIP PROJECT R-3300A
SEE SHEET 60 FOR -Y33RPB- PROFILE

5/14/99

4/8/2025
U:\Roads\Projects\NR3300A_rdy.psh_34.dgn
R-3300A



Dewberry

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

Stantec

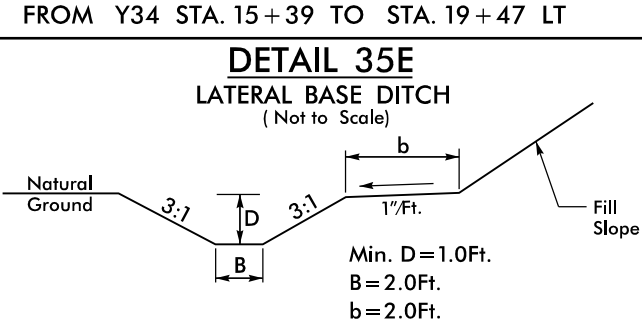
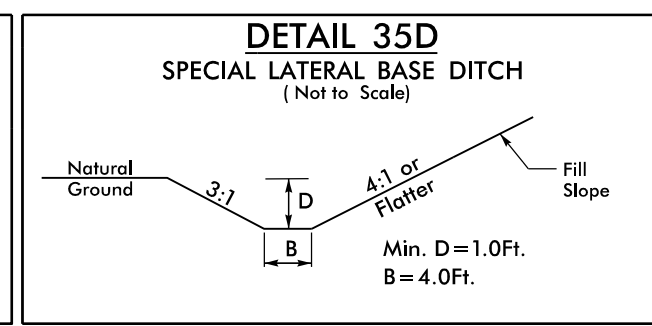
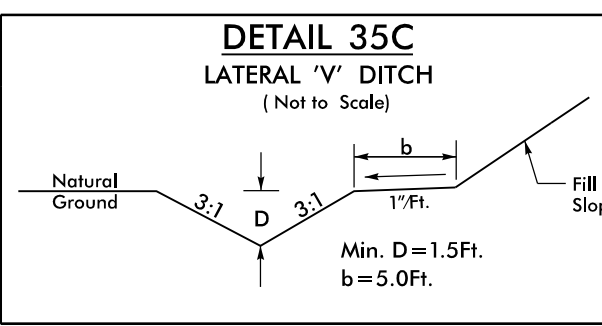
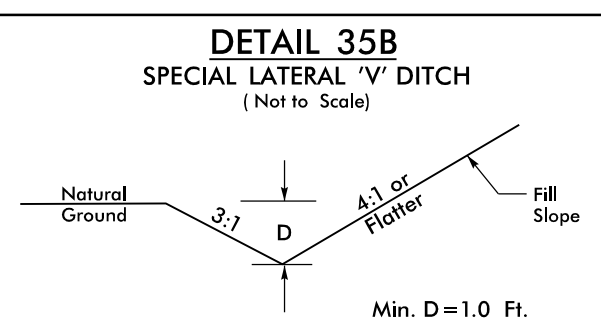
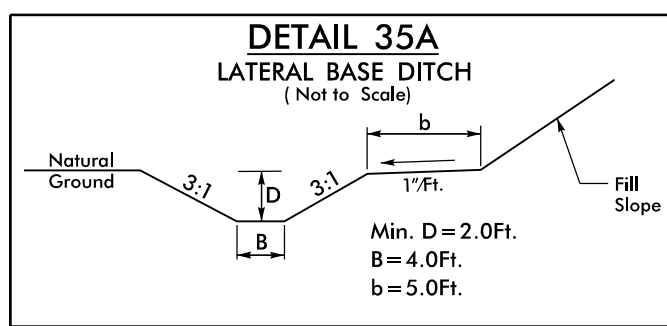
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PROJECT REFERENCE NO.		SHEET NO.	
R-3300A		34	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
Signed by: Karina N Hazel		FEB 16 2025 2:54 PM	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

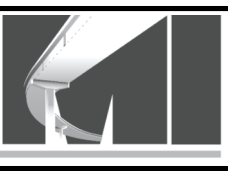
PIPES INSTALLED UNDER TIP PROJECT U-4751 HAVE BEEN
MODIFIED TO SHOW AS EXISTING ON TIP PROJECT R-3300A SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

SEE SHEET 58 & 59 FOR -Y33RPA- PROFILE
SEE SHEET 56 & 57 FOR -Y33- EXIST PROFILE

4/8/2025
U:\Road\Projects\193300A_rdy.psh.35.dgn



LANWILLO DEVELOPMENT CO.
DB 1033 PG 682
MB 45 PG 357
MB 23 PG 51
MB 6 PG 73

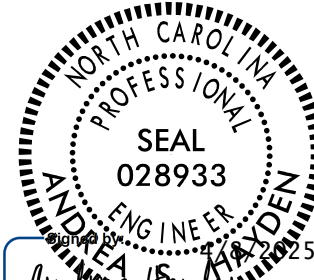


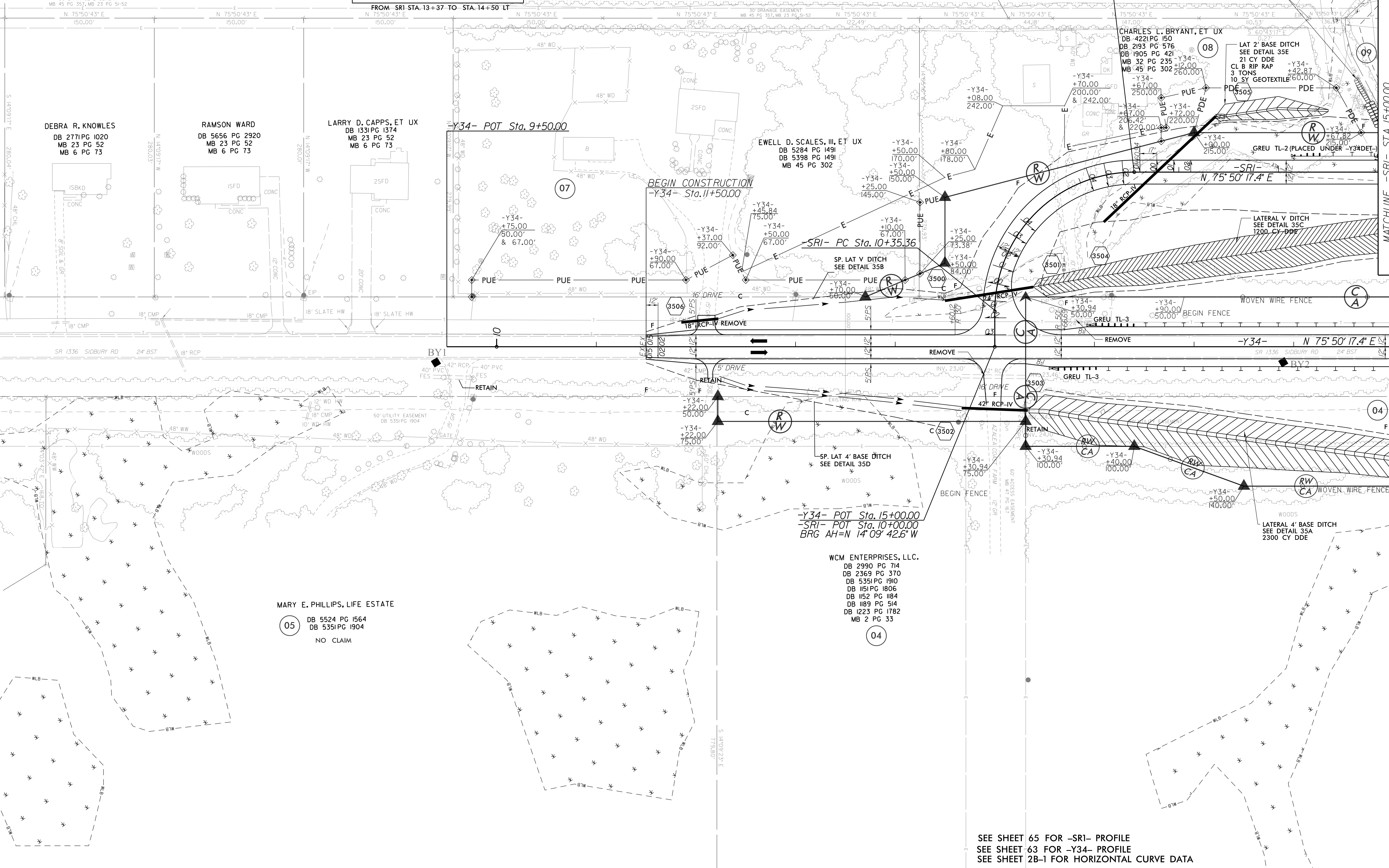
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

DONALD M. WARNICK, ET UX
DB 515 PG 488
MB 45 PG 357



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PROJECT REFERENCE NO.		SHEET NO.	
R-3300A		35	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 028933	
			
Katherine N Hagel			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



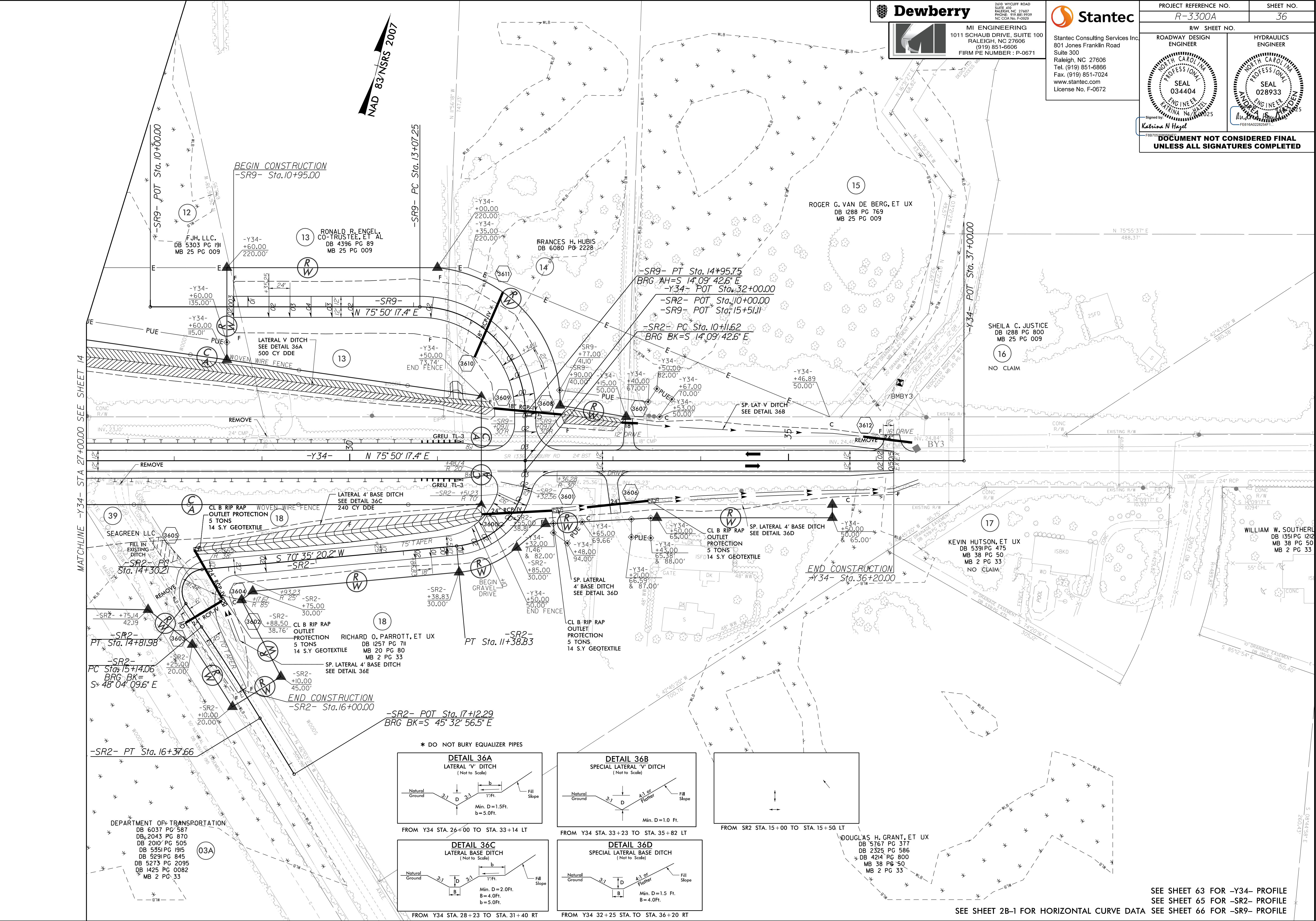
SEE SHEET 65 FOR -SRI- PROFILE
SEE SHEET 63 FOR -Y34- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

MATCHLINE -SRI- STA 15+00.00
SEE SHEET 14

MATCHLINE -Y34- STA 19+00.00
SEE SHEET 14

5/14/99

4/8/2025
U:\Roads\Projects\1933300A_rdy.psh-36.dgn



Dewberry

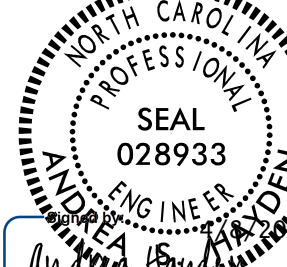


2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

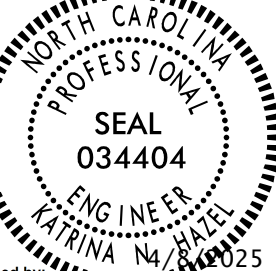
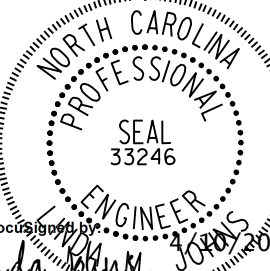
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

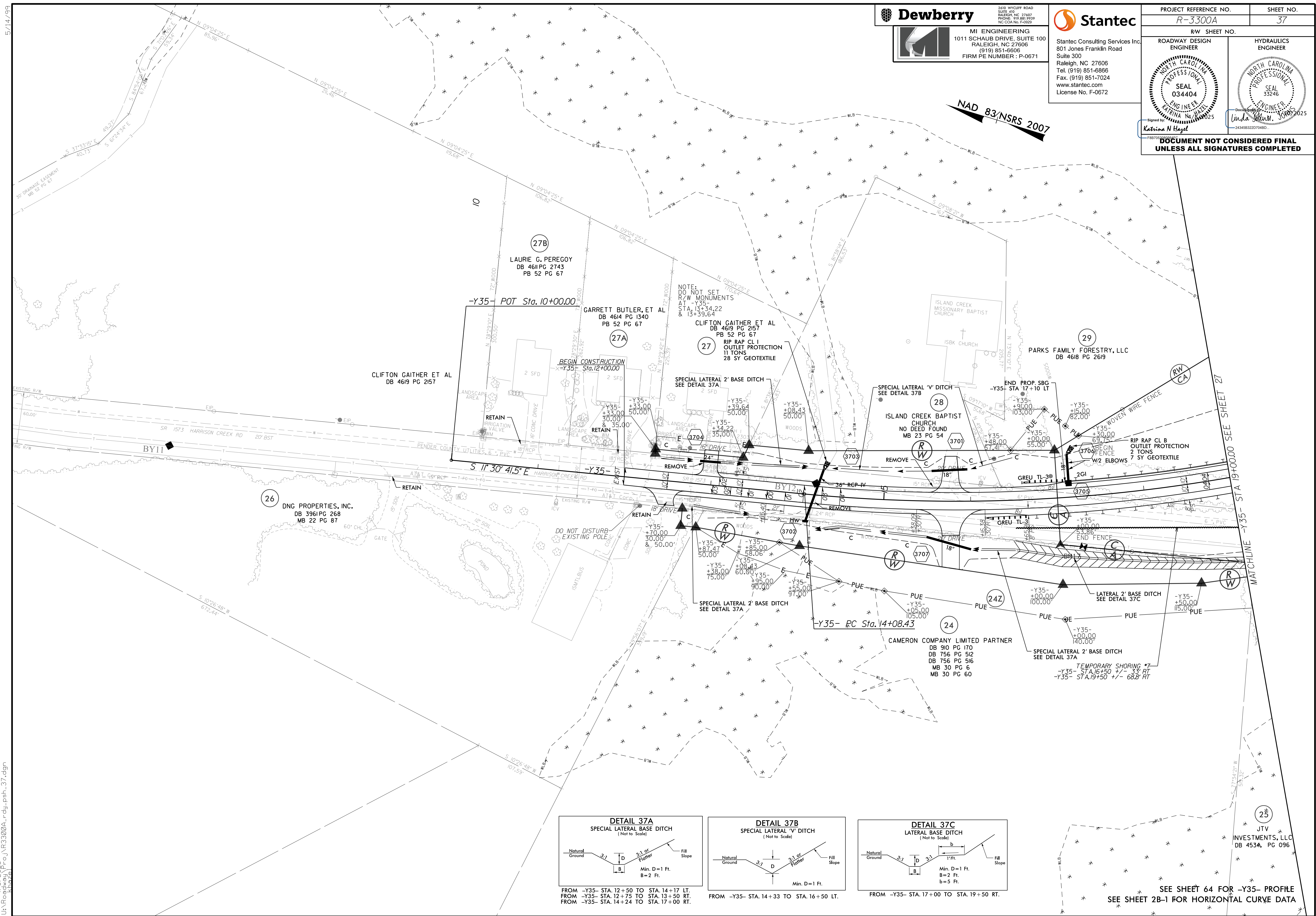
Stantec

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Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.	
R-3300A		36	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
Signed by: <u>Karina N. Hagel</u> FNB0700200			

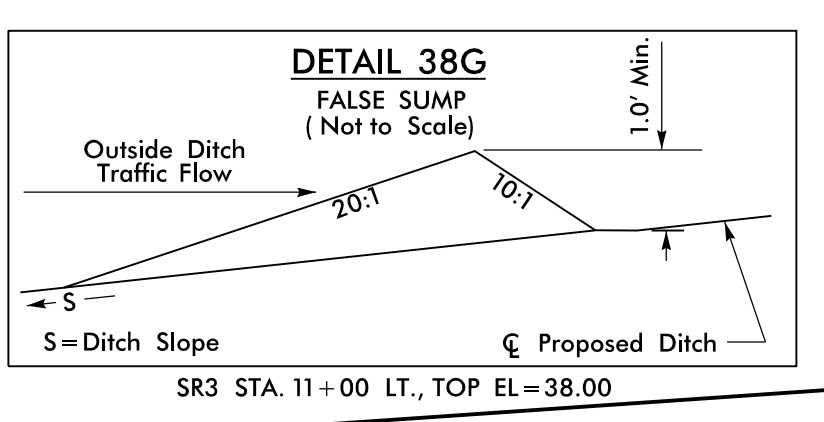
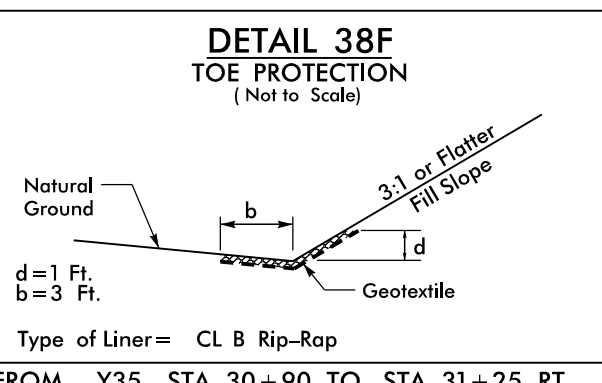
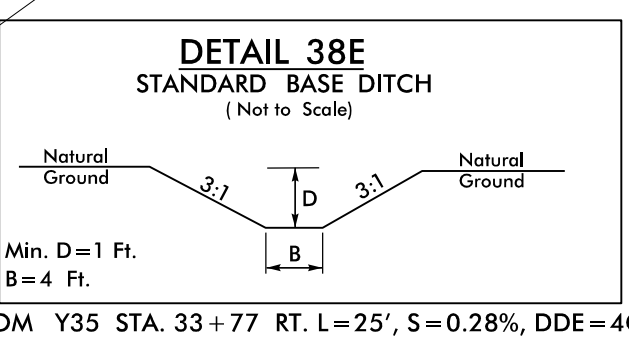
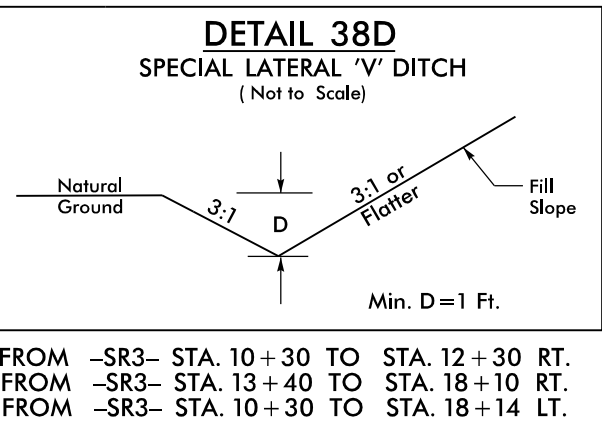
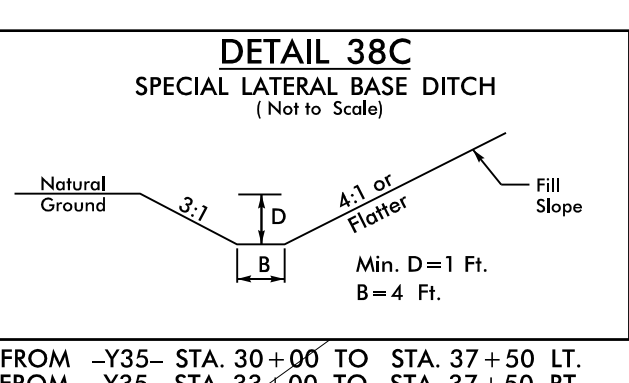
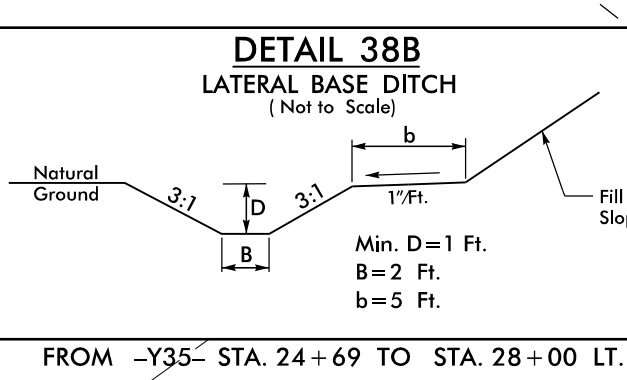
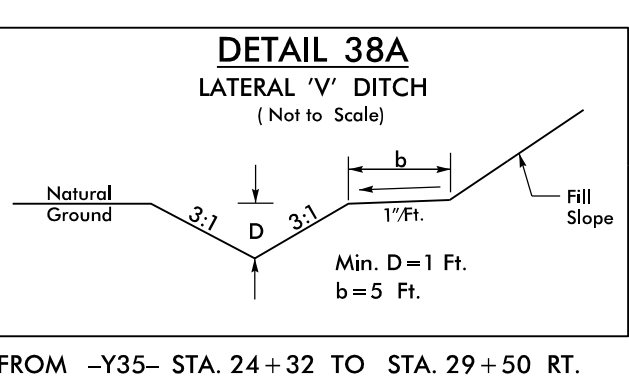
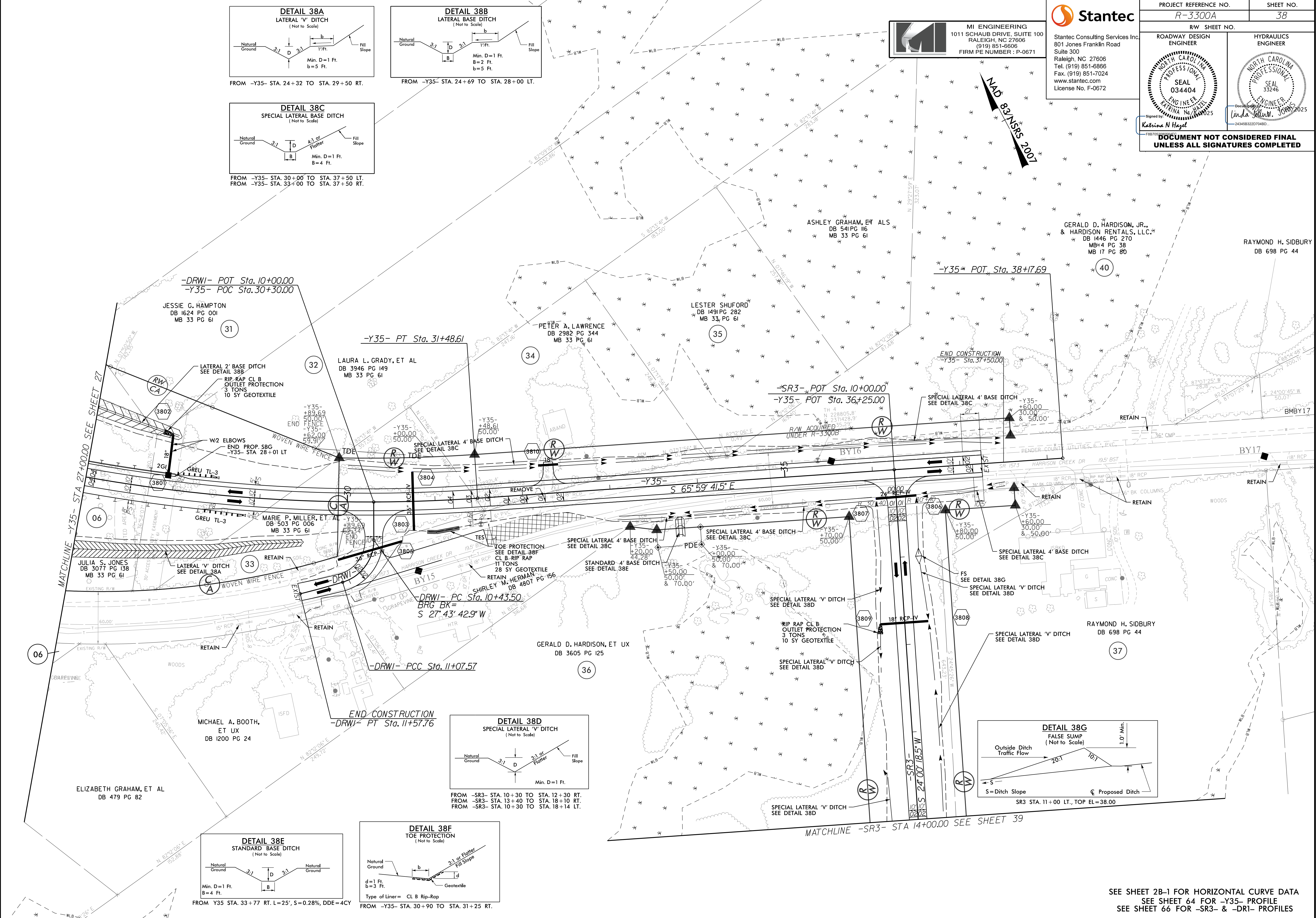
SEE SHEET 63 FOR -Y34- PROFILE
SEE SHEET 65 FOR -SR2- PROFILE
SEE SHEET 66 FOR -SR9- PROFILE

PROJECT REFERENCE NO.		SHEET NO.	
R-3300A		37	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
Signed by: <i>Katrina N Hengel</i>		243458322070480 <i>Linda J. Smith</i>	
F8070-20200606			
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

PROJECT REFERENCE NO. <i>R-3300A</i>		SHEET NO. <i>38</i>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 034404 ENGINEER KARINA N. HAZEL 243458322070480	
Signed by: <i>Katrina N Hazel</i>		DocuSign <i>Linda J. Jones</i> 2025 243458322070480	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 64 FOR -Y35- PROFILE
SEE SHEET 66 FOR -SR3- & -DR1- PROFILES

5/14/99

4/8/2025
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K. Hagel

Dewberry



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.

R-3300A

SHEET NO.

39

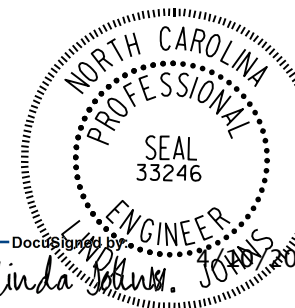
RW SHEET NO.

ROADWAY DESIGN
ENGINEER



Signed by:
KATRINA N. HAGEL

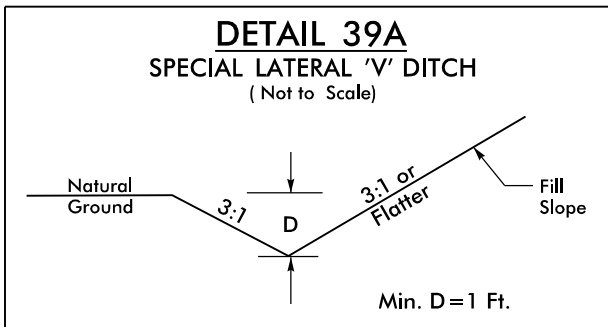
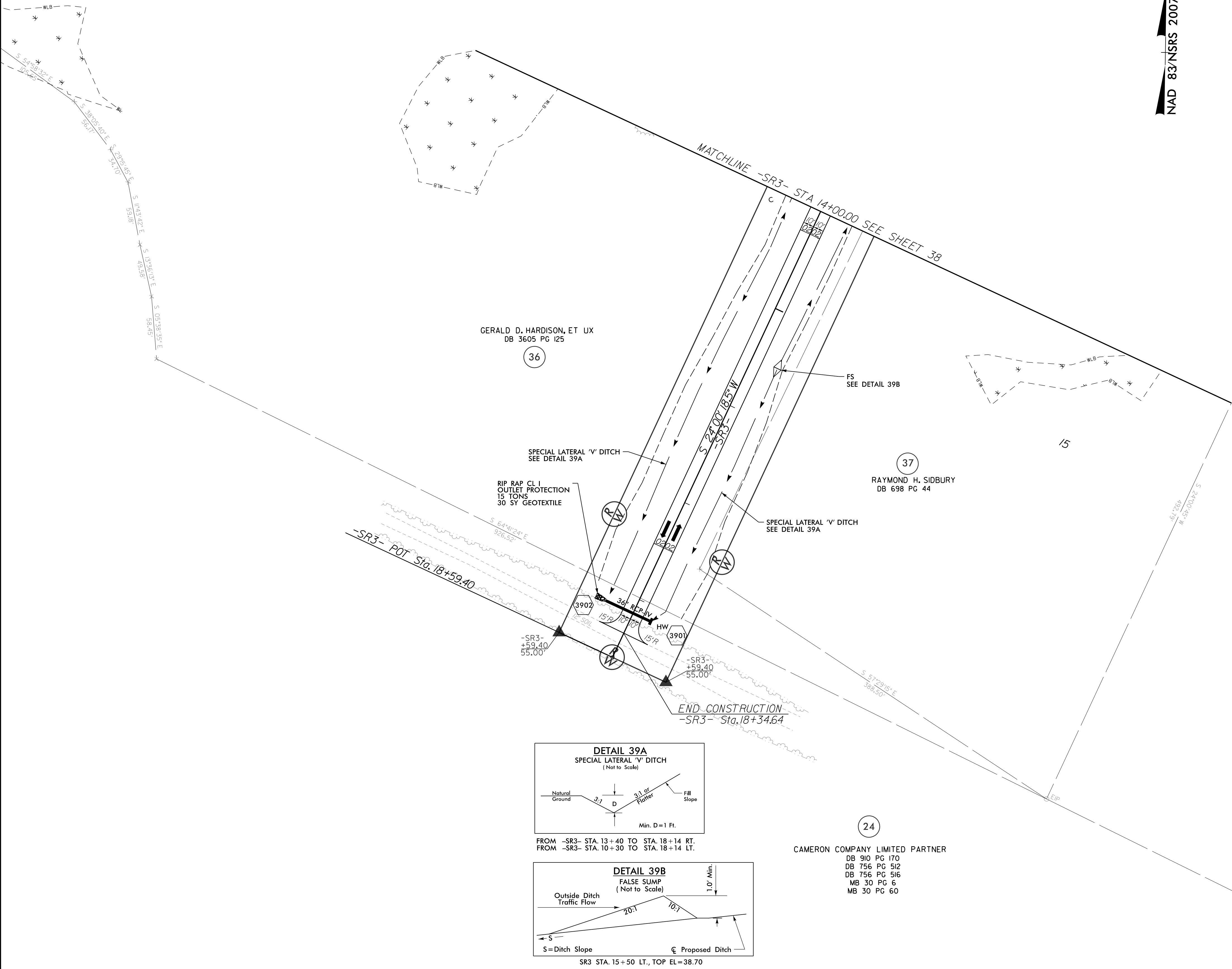
HYDRAULICS
ENGINEER



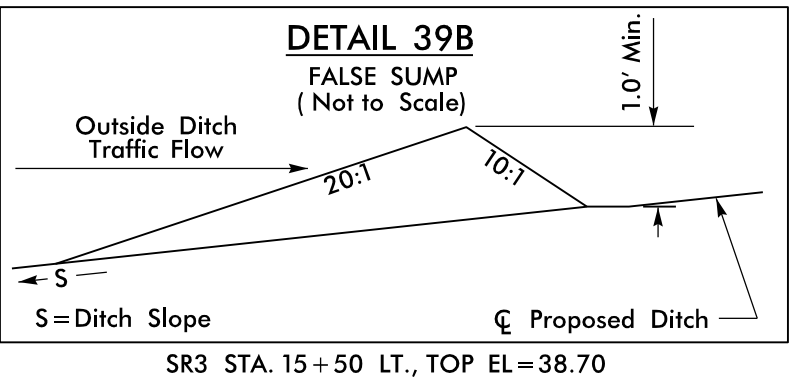
Signed by:
LINDA M. JONES

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

NAD 83/NSRS 2007



FROM -SR3- STA. 13+40 TO STA. 18+14 RT.
FROM -SR3- STA. 10+30 TO STA. 18+14 LT.



CAMERON COMPANY LIMITED PARTNER
DB 910 PG 170
DB 756 PG 512
DB 756 PG 516
MB 30 PG 6
MB 30 PG 60

SEE SHEET 66 FOR -SR3- PROFILE

5/28/99

-L1-

 **Dewberry**



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9739
NC CDA No. F-0629

 **Stantec**

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.

R-3300A

SHEET NO.

40

ROADWAY DESIGN

ENGINEER

SEAL
034404
ENGINEER
STATE OF NORTH CAROLINA
8/2025

HYDRAULICS

ENGINEER

SEAL
028933
ENGINEER
STATE OF NORTH CAROLINA
8/2025

Signed by:

Kathleen W. ...

FOR DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

BM *27
RR SPIKE IN 12" PINE
269.19' LT OF -L- STA 200+00.00
ELEV. 45.66'

END U-4751 -L- STA. 205+85.00
BEGIN R-3300A -L1- STA. 205+85.00
EL. 51.62'

PI = 207+50.00
EL = 52.60'
VC = 330'
K = 255
DS = 70 mph

(+)0.5939% (-)0.7000%
PROPOSED GRADE
EXISTING GROUND

MATCHLINE -L1- STA. 213 + 00.00

200 201 202 203 204 205 206 207 208 209 210 211 212 213

-L1-

BEGIN BRIDGE OVER Y33
-L1- STA. 224+91.50' RT

PI = 215+50.00
EL = 47.00'
VC = 650'
K = 193
DS = 70 mph

(-)0.7008% (+)2.6675%

BEGIN LATERAL 2'
BASE DITCH
-L1- STA. 216+23
ELEV. = 40.00'

END LATERAL 2'
BASE DITCH
-L1- STA. 217+60
ELEV. = 40.50'

EXISTING GROUND

(+)2.6675%

BM *11
RR SPIKE IN 18" PINE
208.40' RT OF -L- STA 224+95.53
ELEV. 43.53'

MATCHLINE -L1- STA. 226 + 00.00

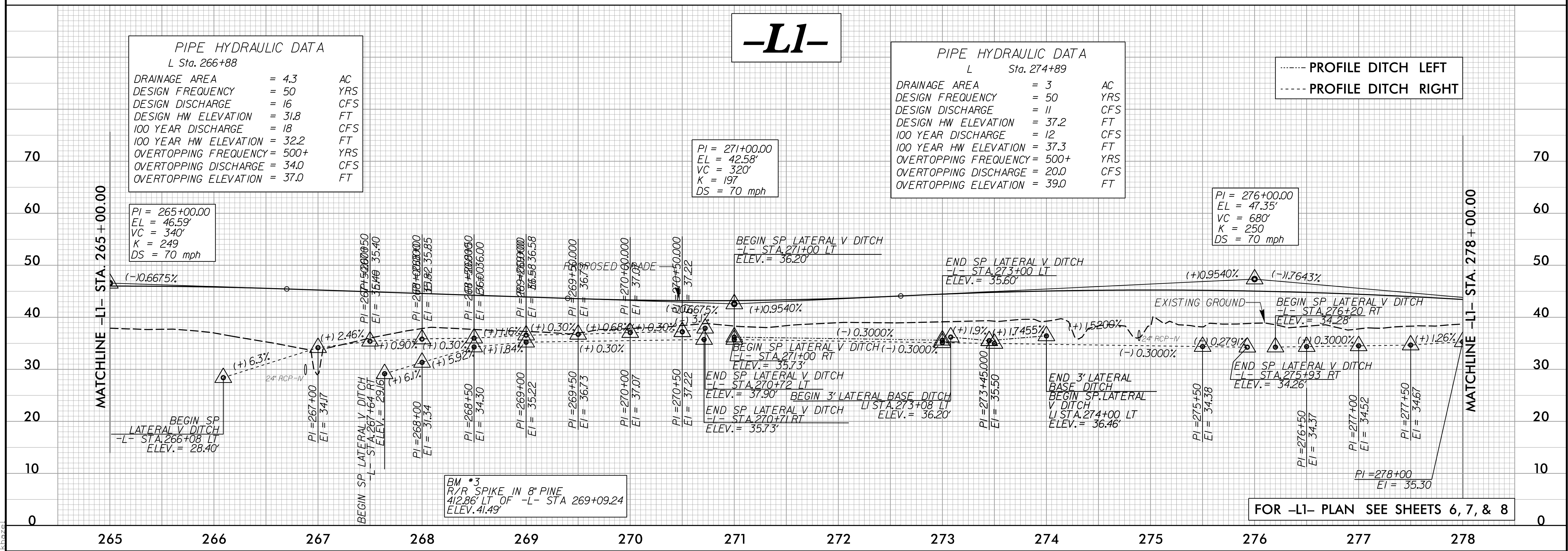
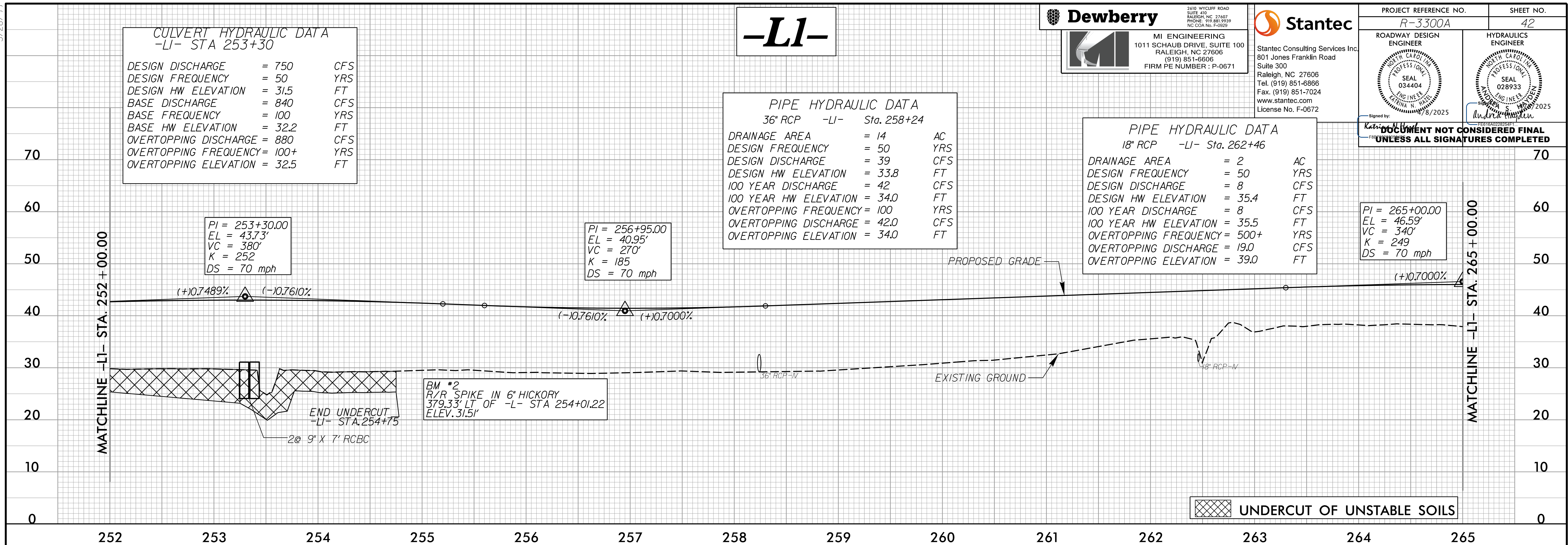
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FOR -L1- PLAN SEE SHEETS 4 & 5

213 214 215 216 217 218 219 220 221 222 223 224 225 226

4/2/2025
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kno







5/28/24

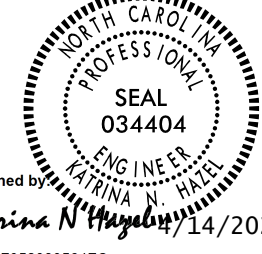
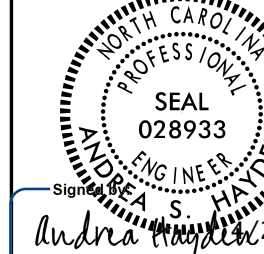
-L1-

**Dewberry**

**MI ENGINEERING**
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

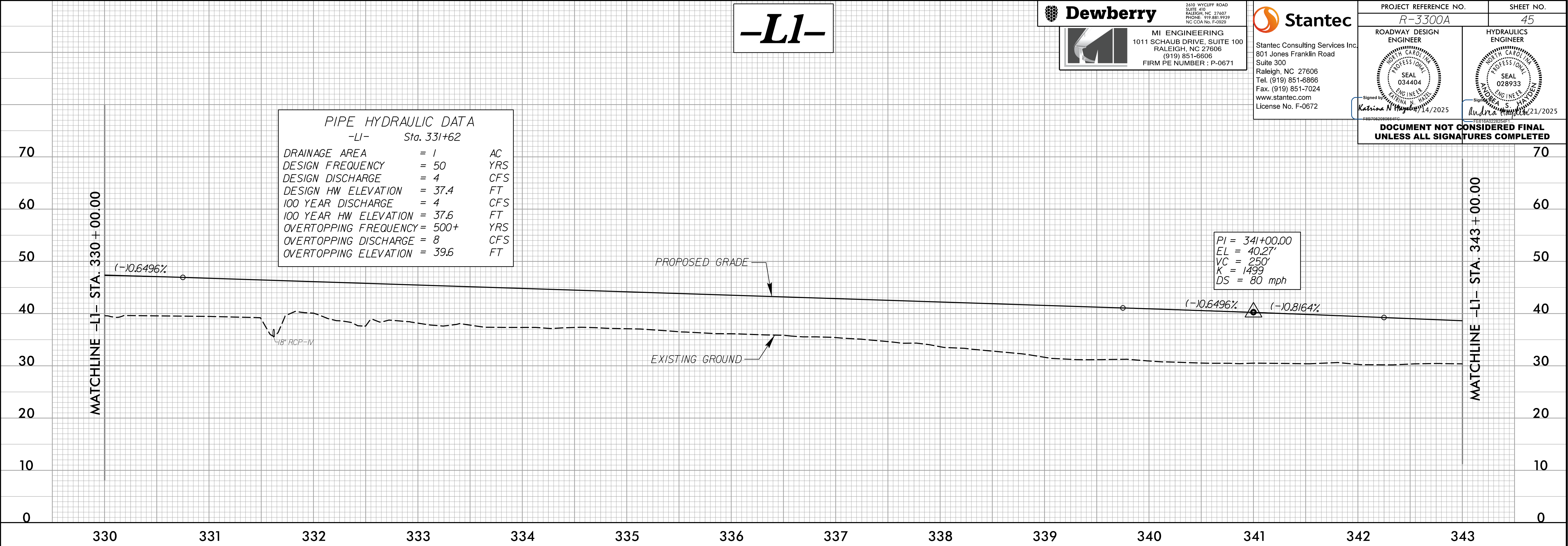
**Stantec**

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.		SHEET NO.
R-3300A		45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PIPE HYDRAULIC DATA		
-L1-	Sta. 331+62	
DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4	CFS
DESIGN HW ELEVATION	= 37.4	FT
100 YEAR DISCHARGE	= 4	CFS
100 YEAR HW ELEVATION	= 37.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 8	CFS
OVERTOPPING ELEVATION	= 39.6	FT

PI = 341+00.00
EL = 40.27'
VC = 250'
K = 1499
DS = 80 mph

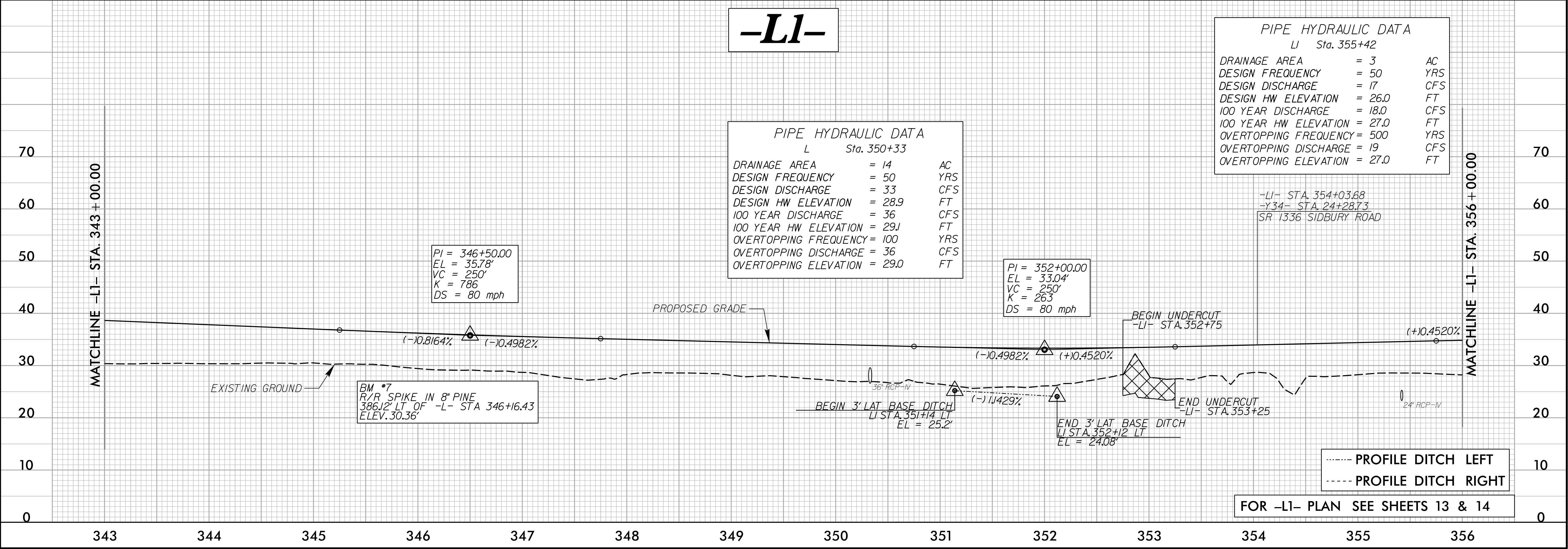


-L1-

PIPE HYDRAULIC DATA		
L1	Sta. 355+42	
DRAINAGE AREA	= 3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 26.0	FT
100 YEAR DISCHARGE	= 18.0	CFS
100 YEAR HW ELEVATION	= 27.0	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 19	CFS
OVERTOPPING ELEVATION	= 27.0	FT

PIPE HYDRAULIC DATA		
L	Sta. 350+33	
DRAINAGE AREA	= 14	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 33	CFS
DESIGN HW ELEVATION	= 28.9	FT
100 YEAR DISCHARGE	= 36	CFS
100 YEAR HW ELEVATION	= 29.1	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 36	CFS
OVERTOPPING ELEVATION	= 29.0	FT

PI = 352+00.00
EL = 33.04'
VC = 250'
K = 263
DS = 80 mph



4/14/2025
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kha

5/28/99

PIPE HYDRAULIC DATA			
2@18" RCP -L- Sta.359+09 & Sta.359+19			
DRAINAGE AREA	= 2.10	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 5	CFS	
DESIGN HW ELEVATION	= 27.41	FT	
100 YEAR DISCHARGE	= 6	CFS	
100 YEAR HW ELEVATION	= 27.45	FT	
OVERTOPPING FREQUENCY	= <10	YRS	
OVERTOPPING DISCHARGE	= <4.2	CFS	
OVERTOPPING ELEVATION	= 27.13	FT	

-L1-

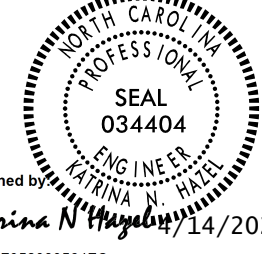


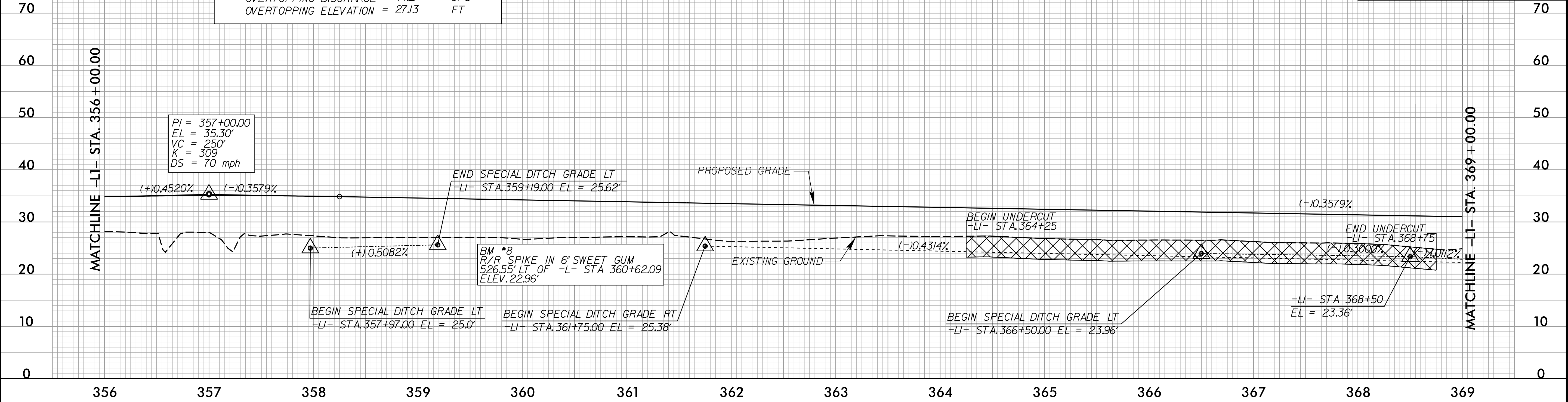
2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.851.9729
NC CDA No. F-0629

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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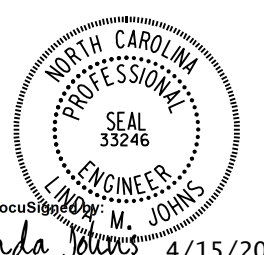
PROJECT REFERENCE NO.		SHEET NO.
R-3300A		46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



-L1-

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HYDRAULICS ENGINEER



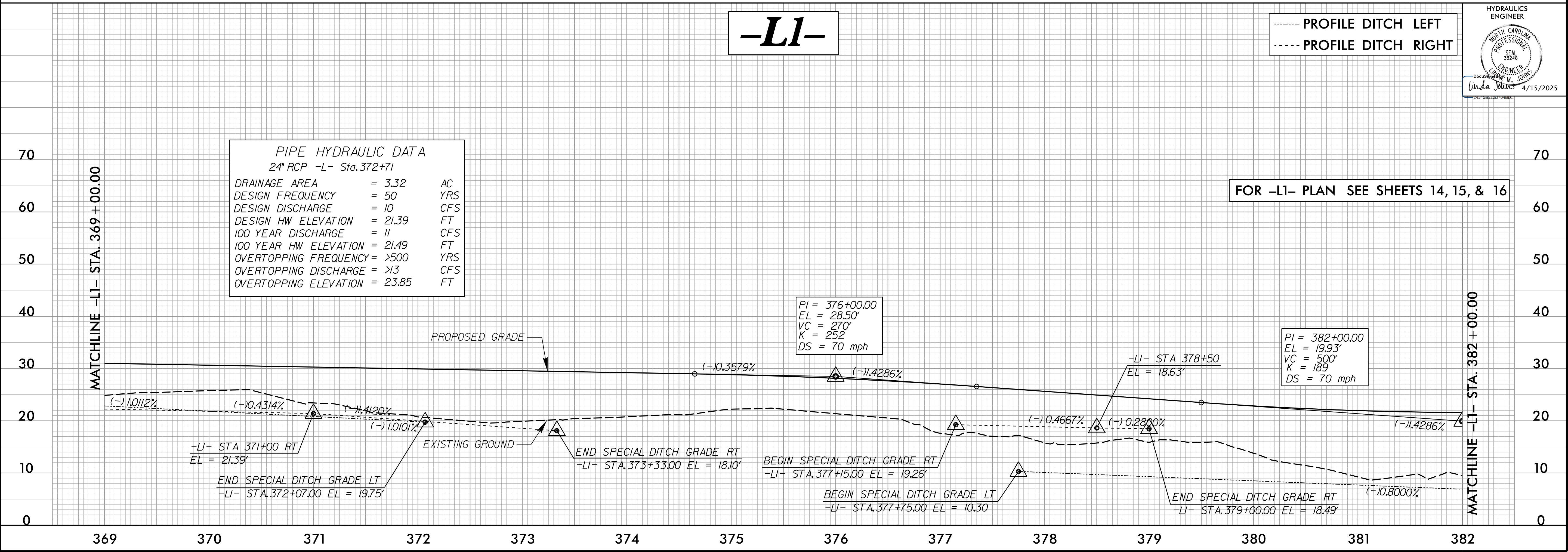
Linda Jones 4/15/2025

FOR -L1- PLAN SEE SHEETS 14, 15, & 16

PIPE HYDRAULIC DATA			
24" RCP -L- Sta.372+71			
DRAINAGE AREA	= 3.32	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 10	CFS	
DESIGN HW ELEVATION	= 21.39	FT	
100 YEAR DISCHARGE	= 11	CFS	
100 YEAR HW ELEVATION	= 21.49	FT	
OVERTOPPING FREQUENCY	= >500	YRS	
OVERTOPPING DISCHARGE	= >13	CFS	
OVERTOPPING ELEVATION	= 23.85	FT	

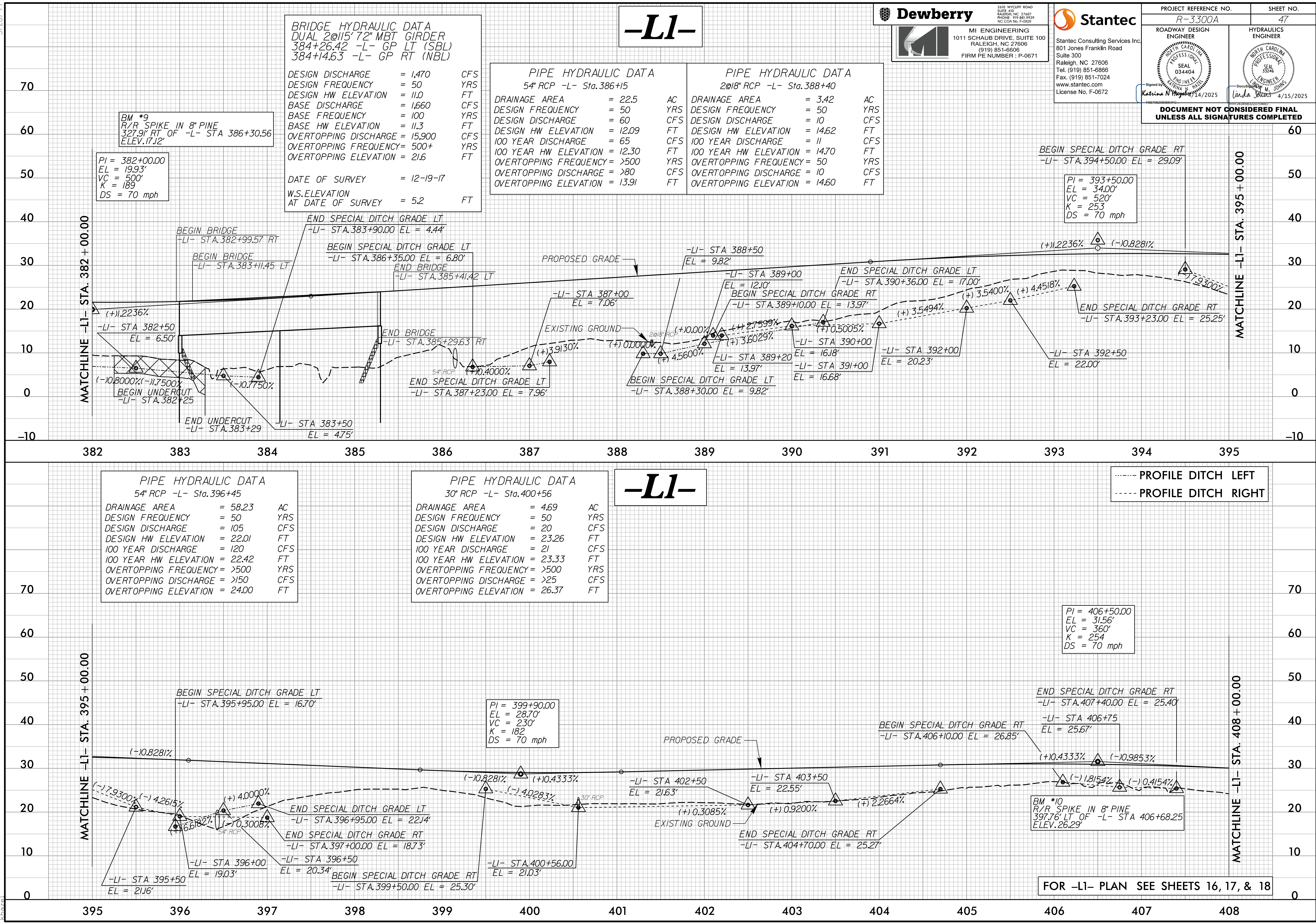
PI = 376+00.00
EL = 28.50'
VC = 270'
K = 252
DS = 70 mph

PI = 382+00.00
EL = 19.93'
VC = 500'
K = 189
DS = 70 mph



4/14/2025
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kna

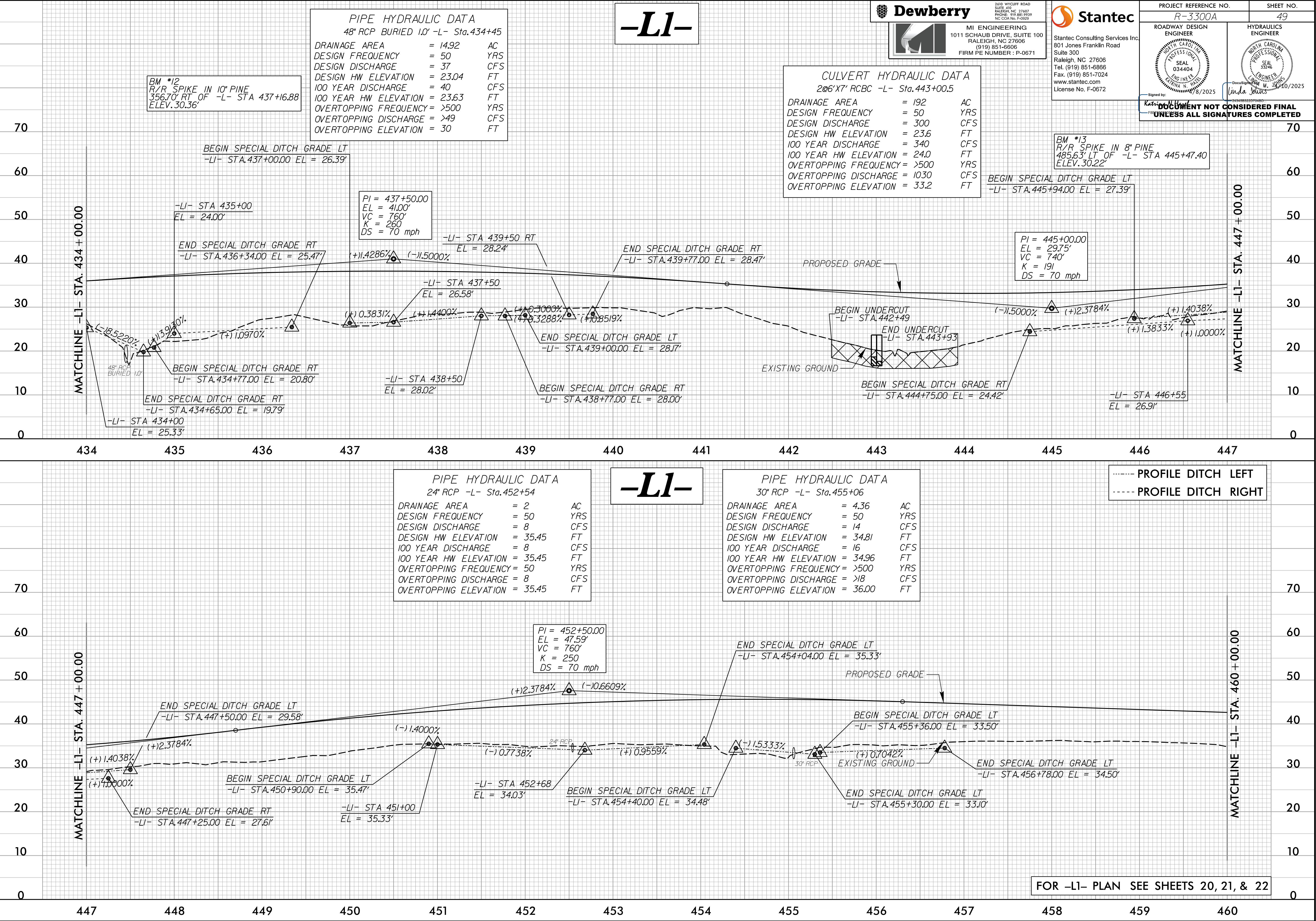
5/28/2025
4/14/2025
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kna





5/28/2025

4/2/2025
L:\Highway\Projects\3300A_Rdy.pfl_49.dgn
knope



Dewberry



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

Stantec

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801 Jones Franklin Road
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Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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PROJECT REFERENCE NO.
R-3300A

SHEET NO.
49

ROADWAY DESIGN
ENGINEER
SEAL
034404
ENGINEER
STATE OF NORTH CAROLINA
8/2025

HYDRAULICS
ENGINEER
SEAL
33546
ENGINEER
STATE OF NORTH CAROLINA
8/2025

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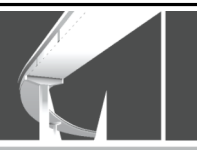
5/28/24

PIPE HYDRAULIC DATA			
18" RCP -L- Sta.489+00			
DRAINAGE AREA	= 0.34	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 1.7	CFS	
DESIGN HW ELEVATION	= 37.47	FT	
100 YEAR DISCHARGE	= 1.9	CFS	
100 YEAR HW ELEVATION	= 37.50	FT	
OVERTOPPING FREQUENCY	= 10	YRS	
OVERTOPPING DISCHARGE	= 1.4	CFS	
OVERTOPPING ELEVATION	= 37.39	FT	

-L1-

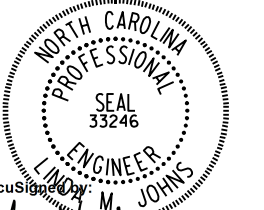
**Dewberry**

2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9729
NC CDA No. F-0629

**MI ENGINEERING**
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

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PROJECT REFERENCE NO.		SHEET NO.
R-3300A		51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
Signed by: Katrina N. Hughes 4/14/2025		DocuSign: Linda Jones 4/15/2025
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

BM *15
R/R SPIKE IN 4" PINE
351.29' RT OF -L- STA 486+16.00
ELEV. 39.33'

PI = 491+75.00
EL = 46.25'
VC = 250'
K = 340
DS = 75 mph

BEGIN UNDERCUT
-LI- STA.492+75
BEGIN SPECIAL DITCH GRADE LT
-LI- STA.494+25.00 EL = 36.75'
BEGIN SPECIAL DITCH GRADE RT
-LI- STA.495+00.00 EL = 36.94'

MATCHLINE -LI- STA. 486 + 00.00

MATCHLINE -LI- STA. 499 + 00.00

486 487 488 489 490 491 492 493 494 495 496 497 498 499

PIPE HYDRAULIC DATA			
60" RCP -L- Sta.500+32			
DRAINAGE AREA	= 13.21	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 34	CFS	
DESIGN HW ELEVATION	= 36.46	FT	
100 YEAR DISCHARGE	= 37	CFS	
100 YEAR HW ELEVATION	= 36.52	FT	
OVERTOPPING FREQUENCY	= >500	YRS	
OVERTOPPING DISCHARGE	= >45	CFS	
OVERTOPPING ELEVATION	= 38.00	FT	

PIPE HYDRAULIC DATA			
60" RCP -L- Sta.500+92			
DRAINAGE AREA	= 19.62	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 31	CFS	
DESIGN HW ELEVATION	= 36.06	FT	
100 YEAR DISCHARGE	= 34	CFS	
100 YEAR HW ELEVATION	= 36.12	FT	
OVERTOPPING FREQUENCY	= >500	YRS	
OVERTOPPING DISCHARGE	= >47	CFS	
OVERTOPPING ELEVATION	= 38.00	FT	

-L1-

PIPE HYDRAULIC DATA			
30" RCP -L- Sta.504+00			
DRAINAGE AREA	= 3.20	AC	
DESIGN FREQUENCY	= 50	YRS	
DESIGN DISCHARGE	= 9.5	CFS	
DESIGN HW ELEVATION	= 35.71	FT	
100 YEAR DISCHARGE	= 10	CFS	
100 YEAR HW ELEVATION	= 35.76	FT	
OVERTOPPING FREQUENCY	= 50	YRS	
OVERTOPPING DISCHARGE	= 9.5	CFS	
OVERTOPPING ELEVATION	= 35.71	FT	

----- PROFILE DITCH LEFT
----- PROFILE DITCH RIGHT

BM *16
R/R SPIKE IN 8" PINE
436.79' LT OF -L- STA 502+29.66
ELEV. 40.55'

-LI- STA. 509+90.00
-LIREV- STA. 509+90.00
ELEV. 43.60'

PI = 511+15.00
EL = 43.99'
VC = 210'
K = 339
DS = 75 mph

MATCHLINE -LI- STA. 499 + 00.00

MATCHLINE -LIREV- STA. 512 + 00.00

499 500 501 502 503 504 505 506 507 508 509 510 511 512

FOR -LI- PLAN SEE SHEETS 24, 25, & 26

4/14/2025
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kha

5/28/24

PIPE HYDRAULIC DATA
24" RCP -LIREV- Sta.514+50

DRAINAGE AREA	= 4.06	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 12.3	CFS
DESIGN HW ELEVATION	= 35.05	FT
100 YEAR DISCHARGE	= 13.3	CFS
100 YEAR HW ELEVATION	= 35.22	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >16	CFS
OVERTOPPING ELEVATION	= 36.44	FT

PIPE HYDRAULIC DATA
36" RCP -LIREV- Sta.521+52

DRAINAGE AREA	= 7.66	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 20	CFS
DESIGN HW ELEVATION	= 32.21	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 32.30	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >17	CFS
OVERTOPPING ELEVATION	= 33.18	FT

-LIREV-

CULVERT HYDRAULIC DATA
2@7'X8' RCBC -LIREV- Sta.523+48.57

DRAINAGE AREA	= 265	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 360	CFS
DESIGN HW ELEVATION	= 33.2	FT
100 YEAR DISCHARGE	= 410	CFS
100 YEAR HW ELEVATION	= 33.6	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= 1100	CFS
OVERTOPPING ELEVATION	= 38.6	FT

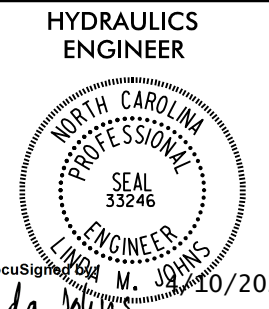
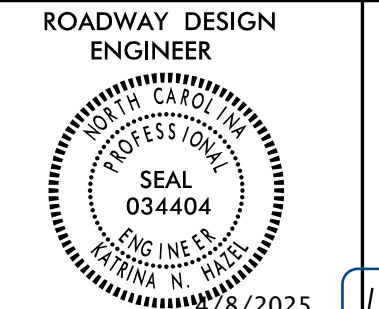
PIPE HYDRAULIC DATA
24" RCP -LIREV- Sta.524+62

DRAINAGE AREA	= 3.46	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 11	CFS
DESIGN HW ELEVATION	= 31.99	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= 31.99	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >12	CFS
OVERTOPPING ELEVATION	= 35.58	FT

-LI- STA. 522+94.58
+Y35- STA. 22+90.50
SR 1573 HARRISON CREEK

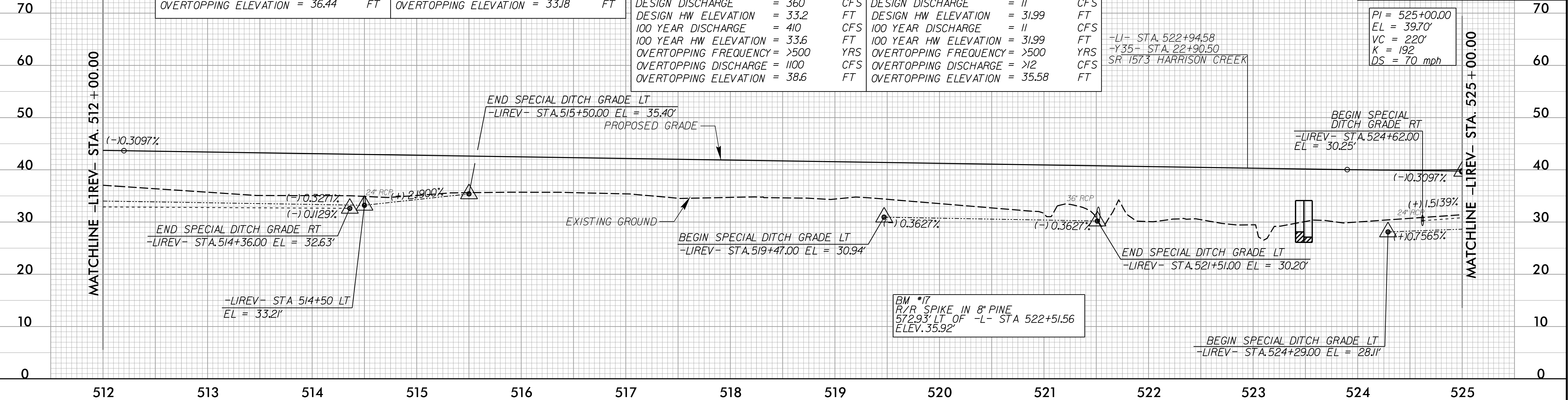
PROJECT REFERENCE NO.
R-3300A

SHEET NO.
52



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PI = 525+00.00
EL = 39.70'
VC = 220'
K = 192
DS = 70 mph



PIPE HYDRAULIC DATA
2@24" RCP -LIREV- Sta.528+47

DRAINAGE AREA	= 3.53	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 15	CFS
DESIGN HW ELEVATION	= 35.86	FT
100 YEAR DISCHARGE	= 16	CFS
100 YEAR HW ELEVATION	= 35.92	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 15	CFS
OVERTOPPING ELEVATION	= 35.86	FT

-LIREV-

PIPE HYDRAULIC DATA
18" RCP -LIREV- Sta.533+14

DRAINAGE AREA	= 1.02	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4J	CFS
DESIGN HW ELEVATION	= 39.28	FT
100 YEAR DISCHARGE	= 4.4	CFS
100 YEAR HW ELEVATION	= 39.34	FT
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING DISCHARGE	= <3.3	CFS
OVERTOPPING ELEVATION	= 38.39	FT

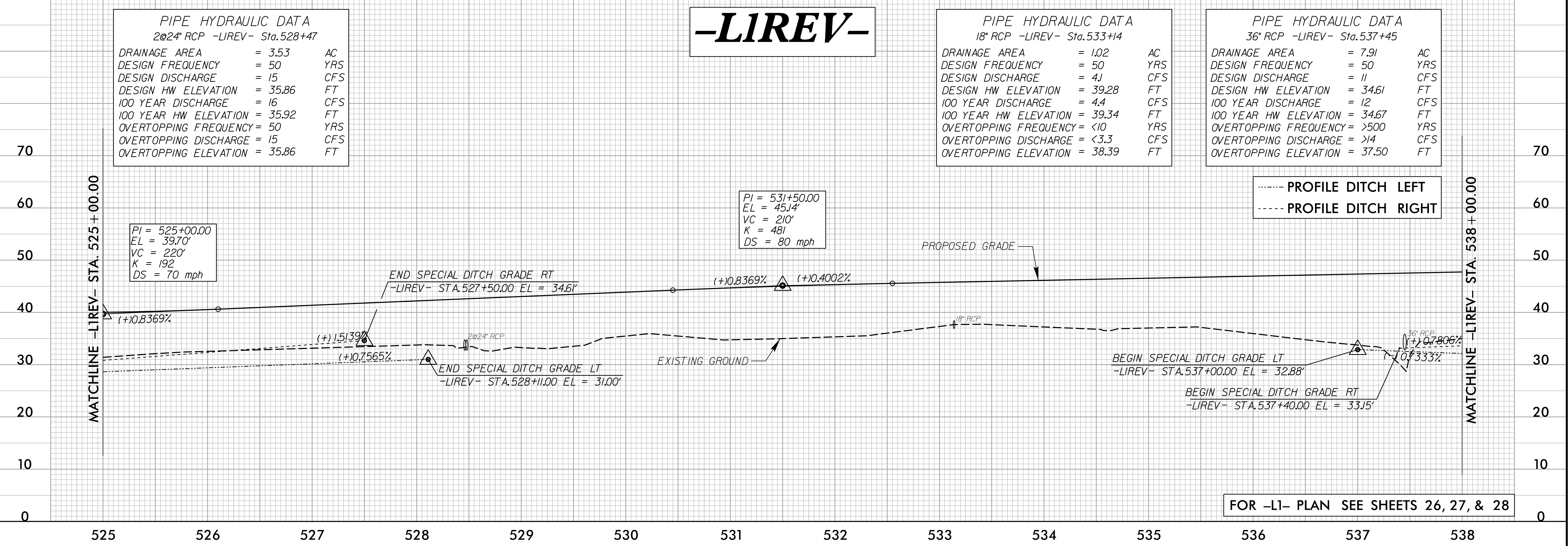
PIPE HYDRAULIC DATA
36" RCP -LIREV- Sta.537+45

DRAINAGE AREA	= 7.91	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 11	CFS
DESIGN HW ELEVATION	= 34.61	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 34.67	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >14	CFS
OVERTOPPING ELEVATION	= 37.50	FT

PI = 525+00.00
EL = 39.70'
VC = 220'
K = 192
DS = 70 mph

PI = 531+50.00
EL = 45.14'
VC = 210'
K = 481
DS = 80 mph

----- PROFILE DITCH LEFT
----- PROFILE DITCH RIGHT



FOR -LI- PLAN SEE SHEETS 26, 27, & 28

4/24/2025
L:\Roadway\Projects\R33000A_Rdy.pf1.52.dgn
knope



5/28/99

-Y33-

**Dewberry**

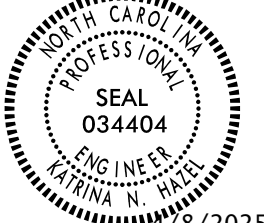
2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9729
NC CDA No. F-0629



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

**Stantec**

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.		SHEET NO.
R-3300A		55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
 SEAL 034404 ENGINEER STATE OF NORTH CAROLINA Signed by: <i>Kenneth L. ...</i> 8/8/2025	 SEAL 028933 ENGINEER STATE OF NORTH CAROLINA Signed by: <i>Andrea ...</i> 8/8/2025	
FOR THIS DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

EXISTING GROUND -
SHOWN FOR INFORMATIONAL PURPOSE ONLY

EXISTING GROUND

MATCHLINE -Y33- STA. 48 + 00.00

-Y33-

EXISTING GROUND -
SHOWN FOR INFORMATIONAL PURPOSE ONLY

EXISTING GROUND

MATCHLINE -Y33- STA. 48 + 00.00

MATCHLINE -Y33- STA. 61 + 00.00

FOR -Y33- PLAN SEE SHEET 5

4/2/2025
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knope

5/28/99

-Y33-

**Dewberry**

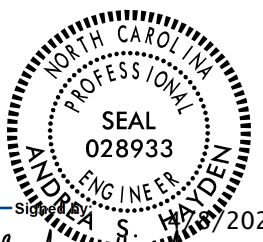
2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9729
NC CDA No. F-0629

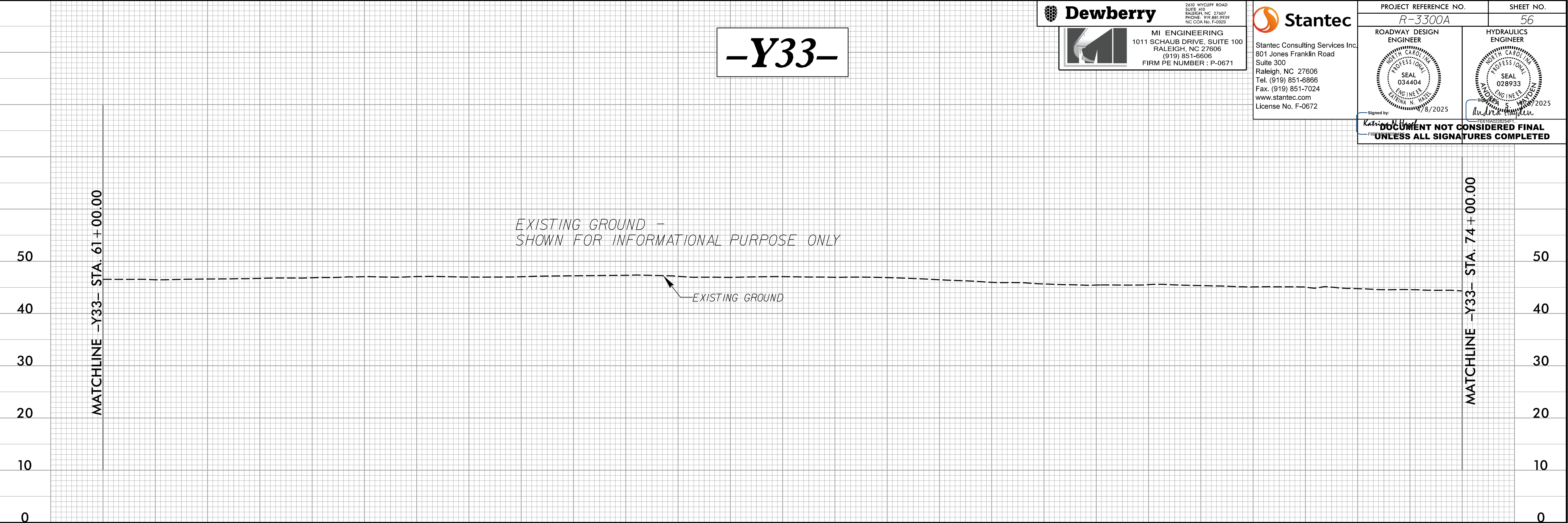


MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

**Stantec**

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Raleigh, NC 27606
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. <i>R-3300A</i>		SHEET NO. <i>56</i>
ROADWAY DESIGN ENGINEER  Signed by: <i>R. J. Kline</i> For: <i>MI ENGINEERING</i> Date: <i>5/28/2025</i>	HYDRAULICS ENGINEER  Signed by: <i>Andrew Hayden</i> For: <i>MI ENGINEERING</i> Date: <i>5/28/2025</i>	
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-Y33-

4/2/2025
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kline

EXISTING GROUND -
SHOWN FOR INFORMATIONAL PURPOSE ONLY

EXISTING GROUND

MATCHLINE -Y33- STA. 74+00.00

MATCHLINE -Y33- STA. 87+00.00

FOR -Y33- PLAN SEE SHEETS 5 & 34

5/28/99

-Y33-

**Dewberry**

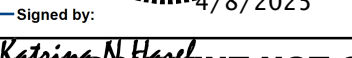
2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9729
NC CDA No. F-0629

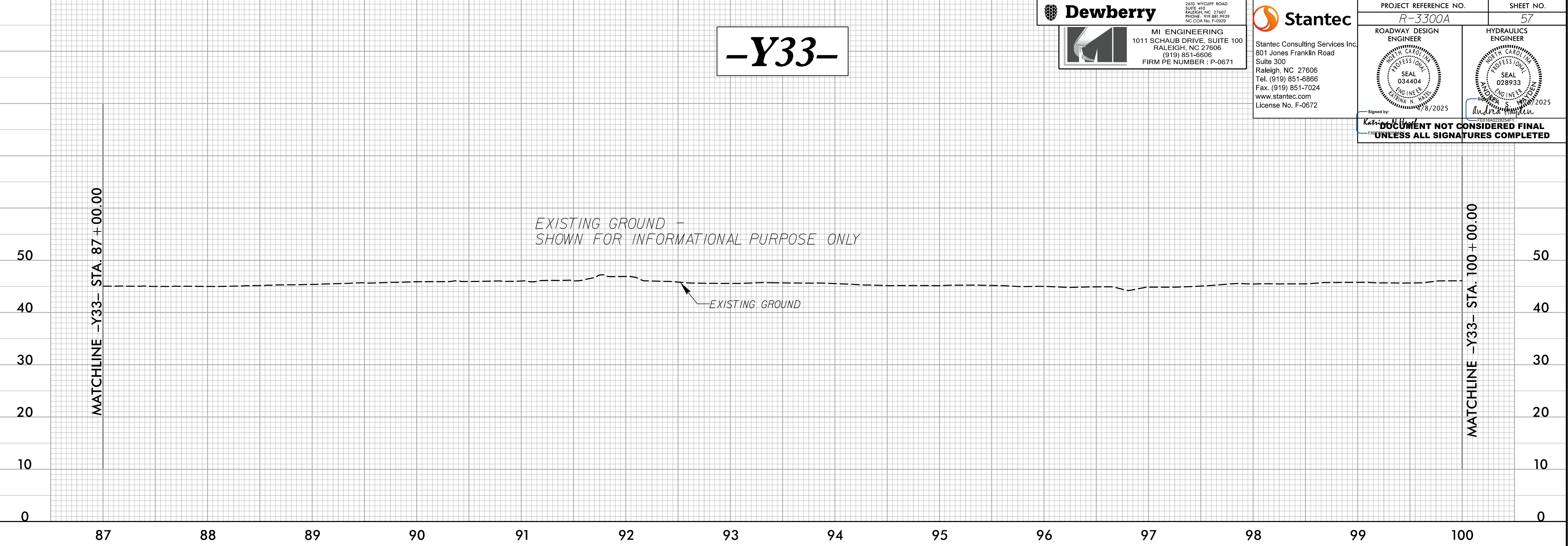
**MI ENGINEERING**

1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

**Stantec**

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PROJECT REFERENCE NO.		SHEET NO.
R-3300A		57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
Signed by:  8/2025		
FOR DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



-Y33-

EXISTING GROUND -
SHOWN FOR INFORMATIONAL PURPOSE ONLY

EXISTING GROUND

MATCHLINE -Y33- STA. 100 + 00.00

FOR -Y33- PLAN SEE SHEETS 34

4/2/2025
U:\Projects\Roadway\Proje\3300A_Rdy.pf1.57.dgn
knope

5/28/24

-Y33RPCA-

Dewberry



2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.881.9729
NC CDA No. F-0629

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671



Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

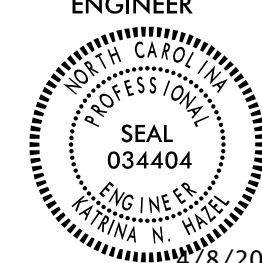
PROJECT REFERENCE NO.

R-3300A

SHEET NO.

61

ROADWAY DESIGN
ENGINEER



Signed by:

Kenneth W. ...

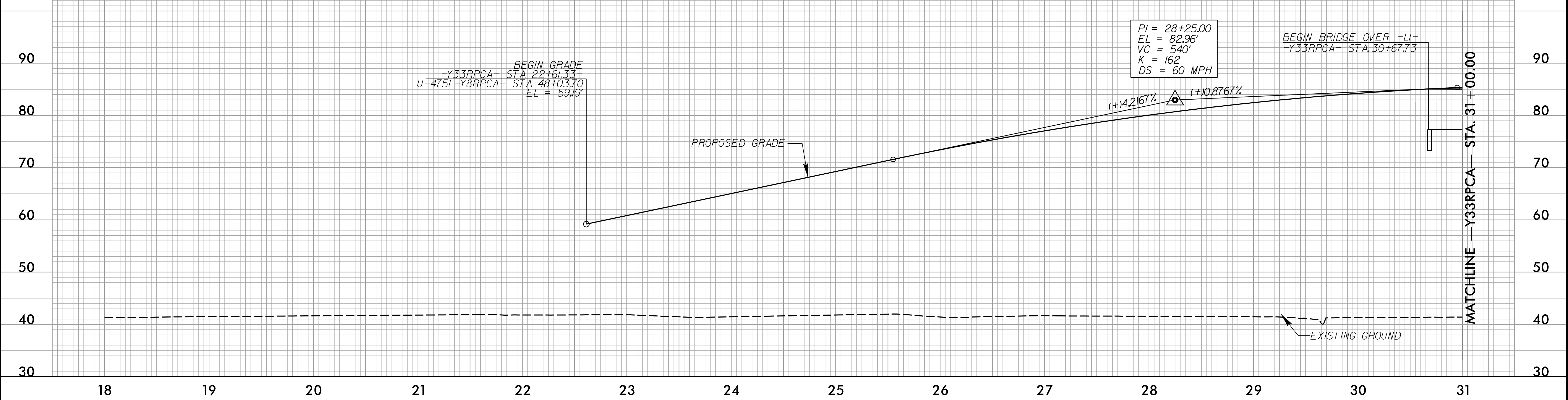
HYDRAULICS
ENGINEER



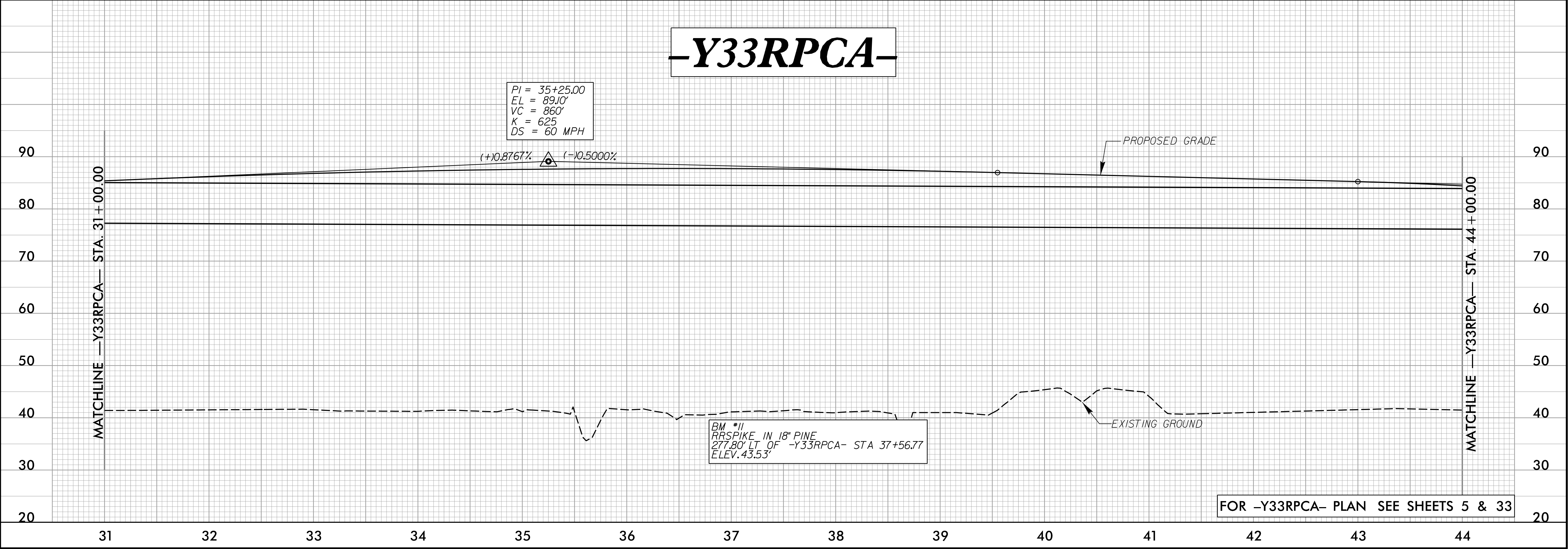
Signed by:

Andrea ...

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UNLESS ALL SIGNATURES COMPLETED**



-Y33RPCA-



5/28/24

-Y34-

**Dewberry**

2610 WYCLIFF ROAD
SUITE 400
RALEIGH, NC 27607
PHONE: 919.851.9739
NC CDA No. F-0629

**MI ENGINEERING**
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

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PROJECT REFERENCE NO. R-3300A		SHEET NO. 63
ROADWAY DESIGN ENGINEER SEAL 034404 Signed by Katharine N. Hughes 14/2025	HYDRAULICS ENGINEER SEAL 028933 Signed by Laura Hughes 21/2025	

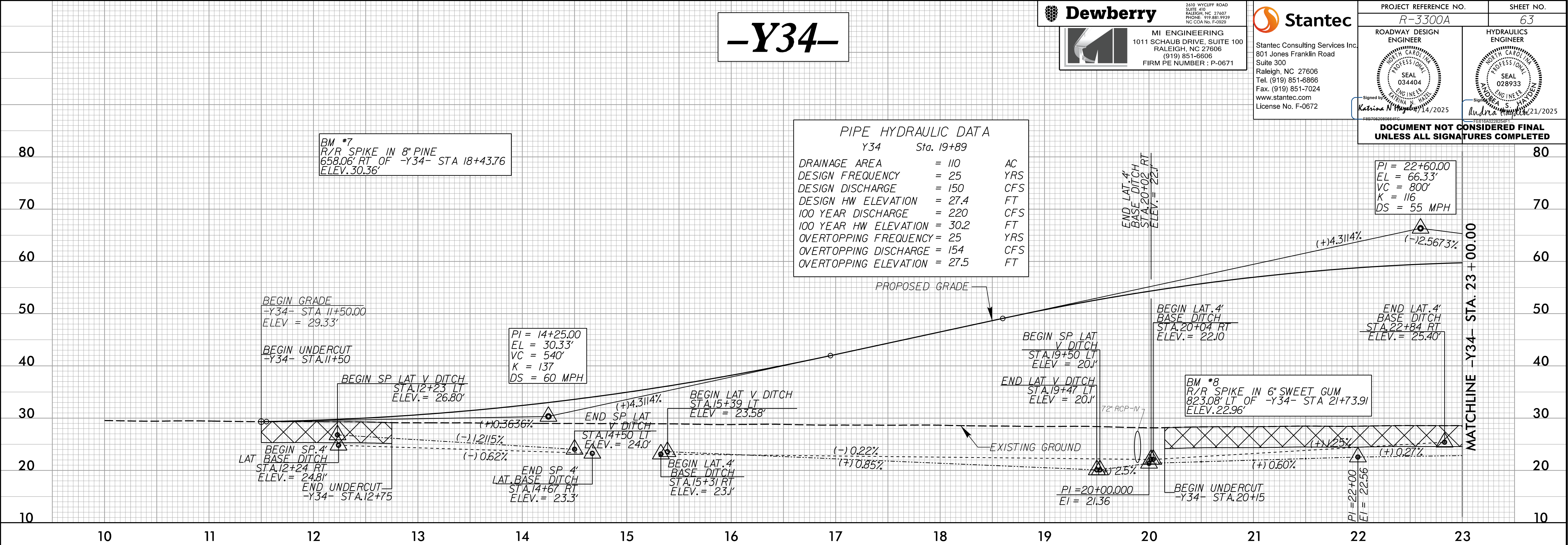
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UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA		
Y34 Sta. 19+89		
DRAINAGE AREA	= 110	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 150	CFS
DESIGN HW ELEVATION	= 27.4	FT
100 YEAR DISCHARGE	= 220	CFS
100 YEAR HW ELEVATION	= 30.2	FT
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING DISCHARGE	= 154	CFS
OVERTOPPING ELEVATION	= 27.5	FT

BM *7
R/R SPIKE IN 8" PINE
658.06' RT OF -Y34- STA 18+43.76
ELEV. 30.36'

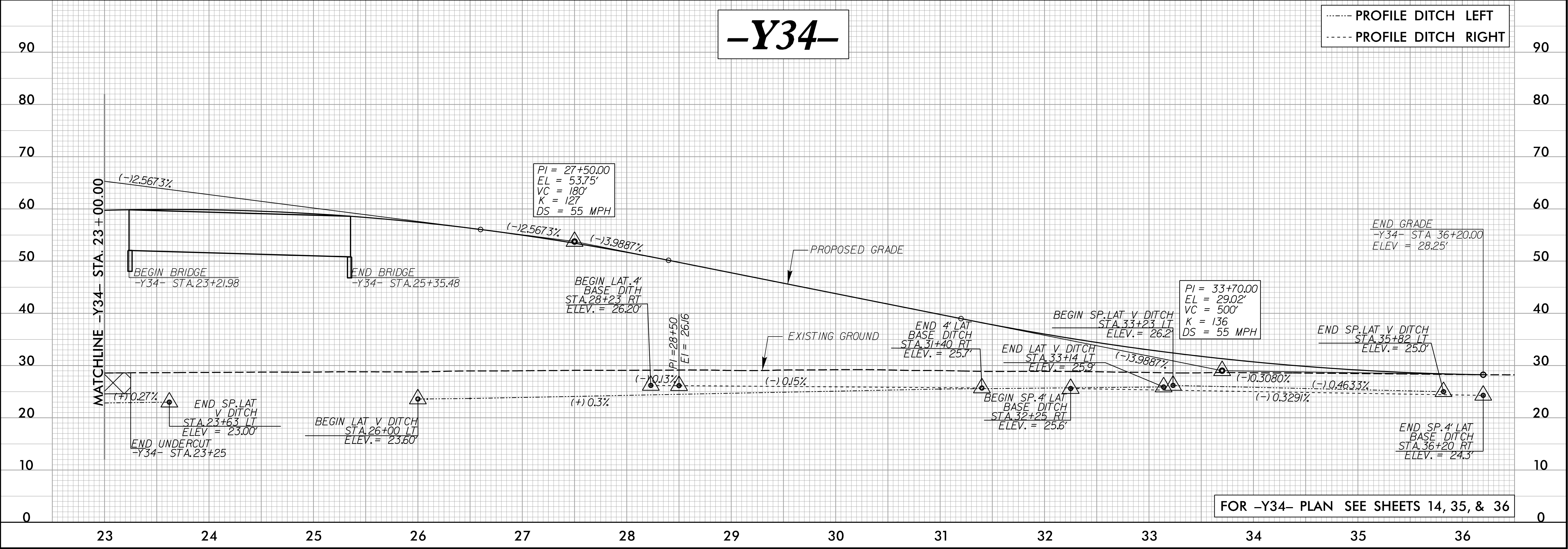
PI = 22+60.00
EL = 66.33'
VC = 800'
K = 116
DS = 55 MPH

BM *8
R/R SPIKE IN 6" SWEET GUM
823.08' LT OF -Y34- STA 21+73.91
ELEV. 22.96'



-Y34-

----- PROFILE DITCH LEFT
----- PROFILE DITCH RIGHT



FOR -Y34- PLAN SEE SHEETS 14, 35, & 36

4/14/2025
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kno

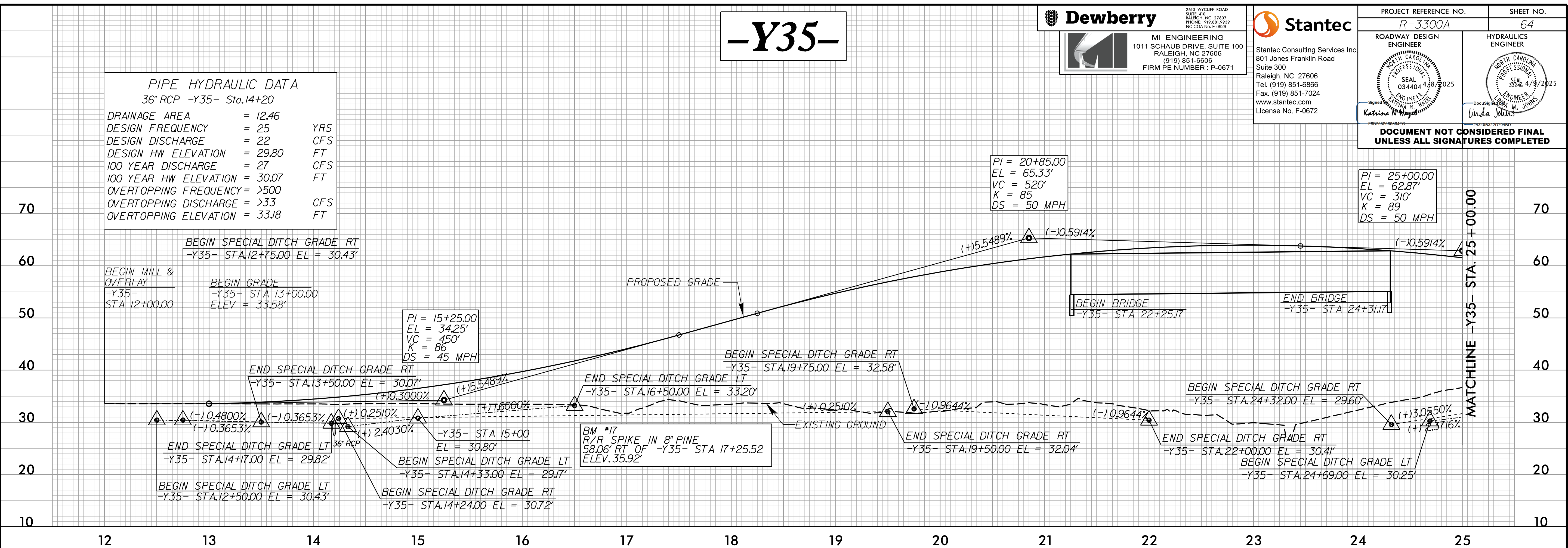
—Y35—

PIPE HYDRAULIC DATA
 36" RCP -Y35- Sta.14+20

DRAINAGE AREA	=	12.46	
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	22	CFS
DESIGN HW ELEVATION	=	29.80	FT
100 YEAR DISCHARGE	=	27	CFS
100 YEAR HW ELEVATION	=	30.07	FT
OVERTOPPING FREQUENCY	=	>500	
OVERTOPPING DISCHARGE	=	>33	CFS
OVERTOPPING ELEVATION	=	33.18	FT

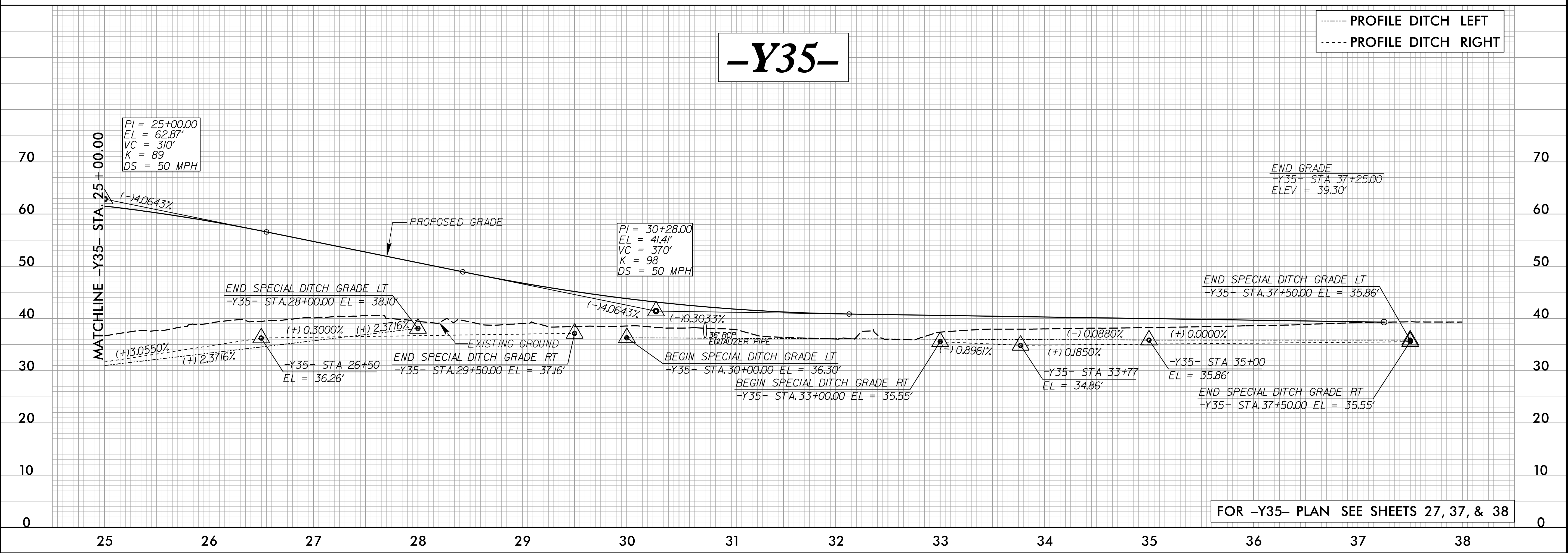
$PI = 20 + 85.00$
 $EL = 65.33'$
 $VC = 520'$
 $K = 85$
 $DS = 50 \text{ MPH}$

$PI = 25+00.00$
 $EL = 62.87'$
 $VC = 310'$
 $K = 89$
 $DS = 50 \text{ MPH}$



–Y35–

----- PROFILE DITCH LEFT
 ----- PROFILE DITCH RIGHT



FOR -Y35- PLAN SEE SHEETS 27, 37, & 38

5/28/24

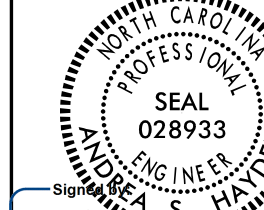
-SR1-

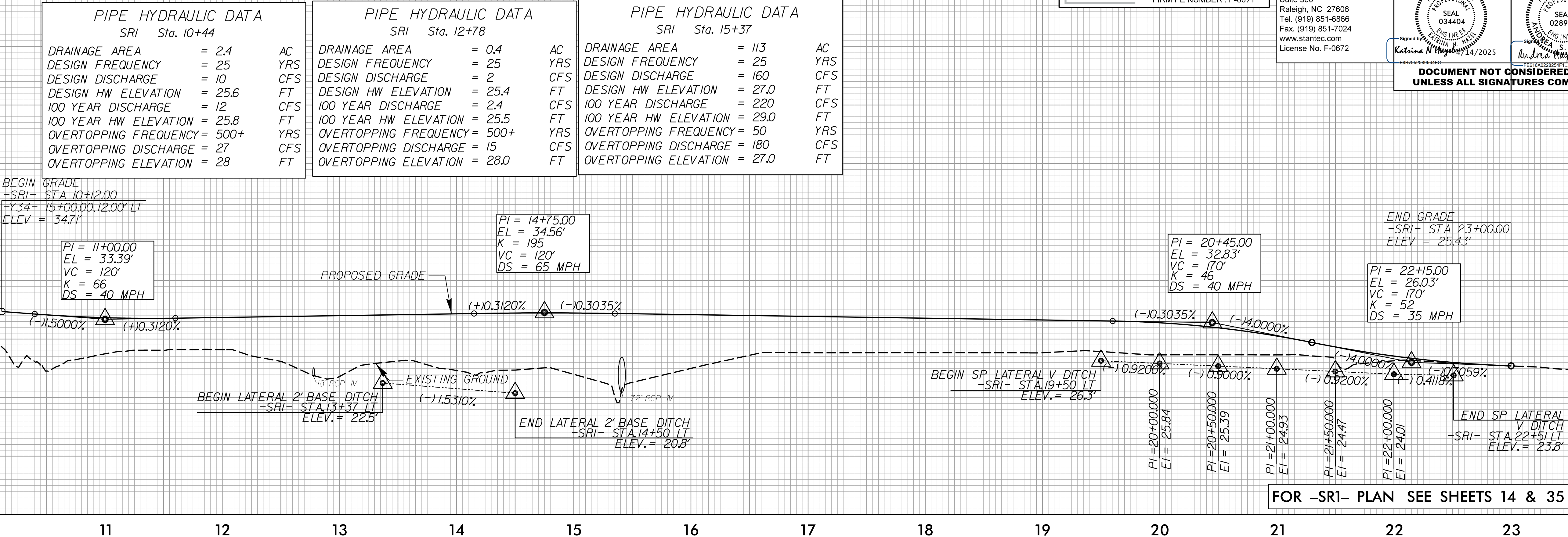
**Dewberry**

**MI ENGINEERING**
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6666
FIRM PE NUMBER: P-0671

**Stantec**

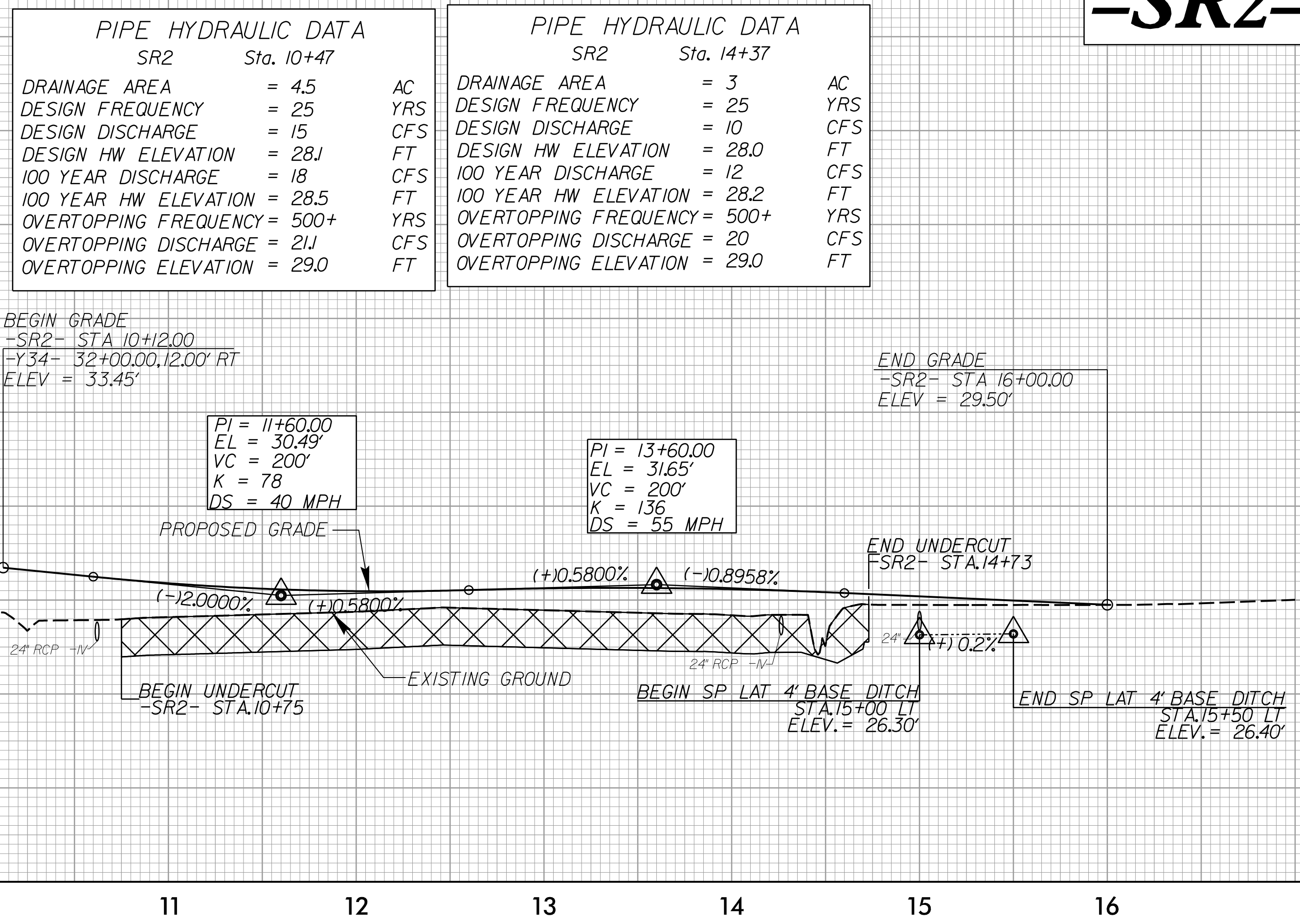
Stantec Consulting Services Inc.
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Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. R-3300A		SHEET NO. 65
ROADWAY DESIGN ENGINEER  Katrina N. Hughes 14/2025	HYDRAULICS ENGINEER  Katrina N. Hughes 21/2025	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



-SR2-

----- PROFILE DITCH LEFT
----- PROFILE DITCH RIGHT



FOR -SR2- PLAN SEE SHEET 36

4/14/2025
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kna

