Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

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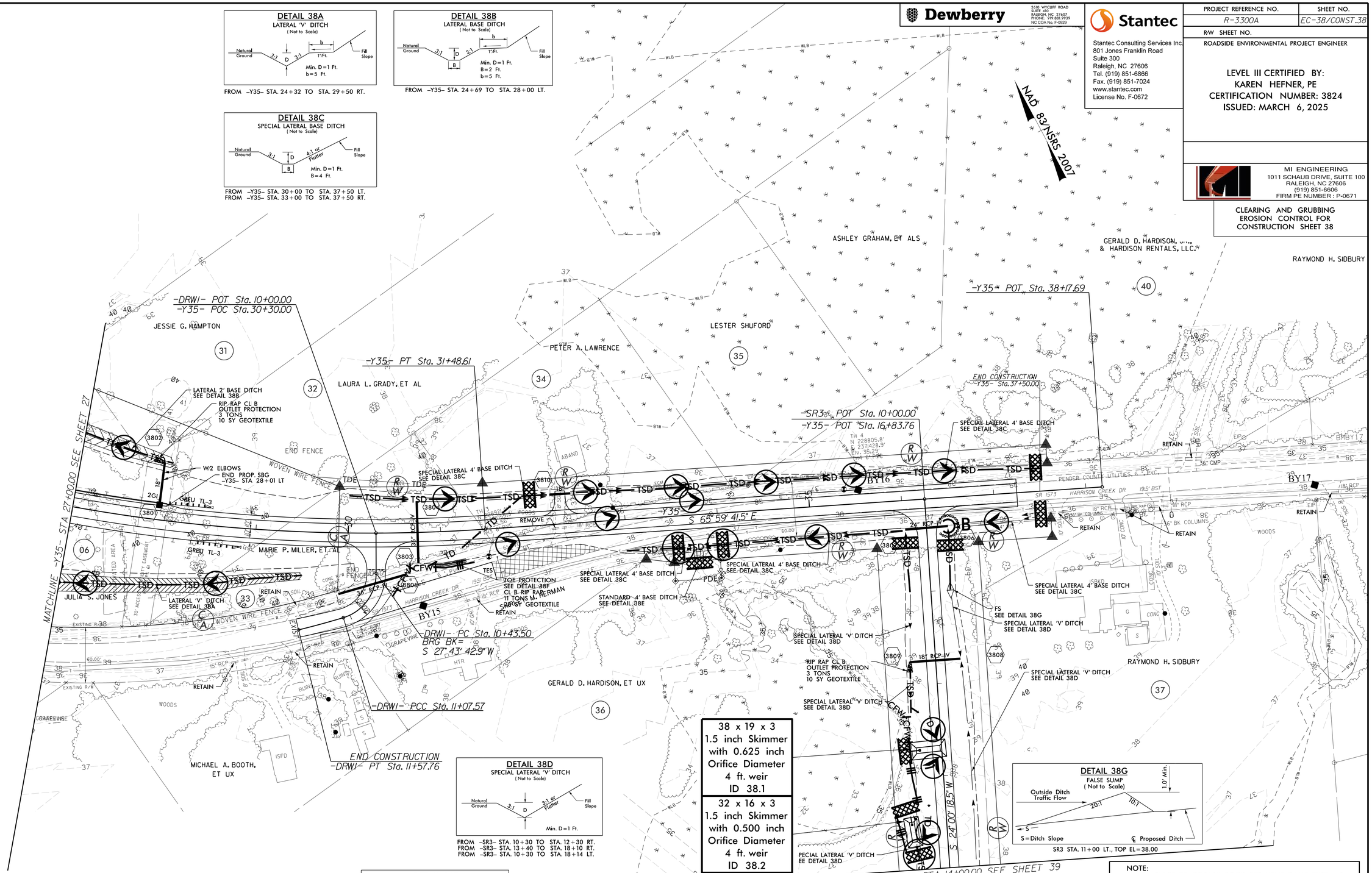
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-38/CONST.38
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 38



DETAIL 38A
LATERAL 'V' DITCH
(Not to Scale)

FROM –Y35– STA. 24+32 TO STA. 29+50 RT.

DETAIL 38B
LATERAL BASE DITCH
(Not to Scale)

FROM –Y35– STA. 24+69 TO STA. 28+00 LT.

DETAIL 38C
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM –Y35– STA. 30+00 TO STA. 37+50 LT.
FROM –Y35– STA. 33+00 TO STA. 37+50 RT.

38 x 19 x 3
1.5 inch Skimmer with 0.625 inch Orifice Diameter 4 ft. weir ID 38.1
32 x 16 x 3
1.5 inch Skimmer with 0.500 inch Orifice Diameter 4 ft. weir ID 38.2

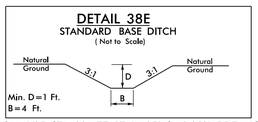
DETAIL 38D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

FROM –SR3– STA. 10+30 TO STA. 12+30 RT.
FROM –SR3– STA. 13+40 TO STA. 18+10 RT.
FROM –SR3– STA. 10+30 TO STA. 18+14 LT.

DETAIL 38G
FALSE SUMP
(Not to Scale)

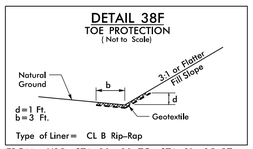
SR3 STA. 11+00 LT., TOP EL=38.00

DETAIL 38E
STANDARD BASE DITCH
(Not to Scale)



FROM Y35 STA. 33+77 RT. L=25', S=0.28%, DDE=4CY

DETAIL 38F
TOE PROTECTION
(Not to Scale)



FROM –Y35– STA. 30+90 TO STA. 31+25 RT.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

SEE SHEET 64 FOR –Y35– PROFILE
SEE SHEET 66 FOR –SR3– & –DR1– PROFILES

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_38_C&G.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-39/CONST.39
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

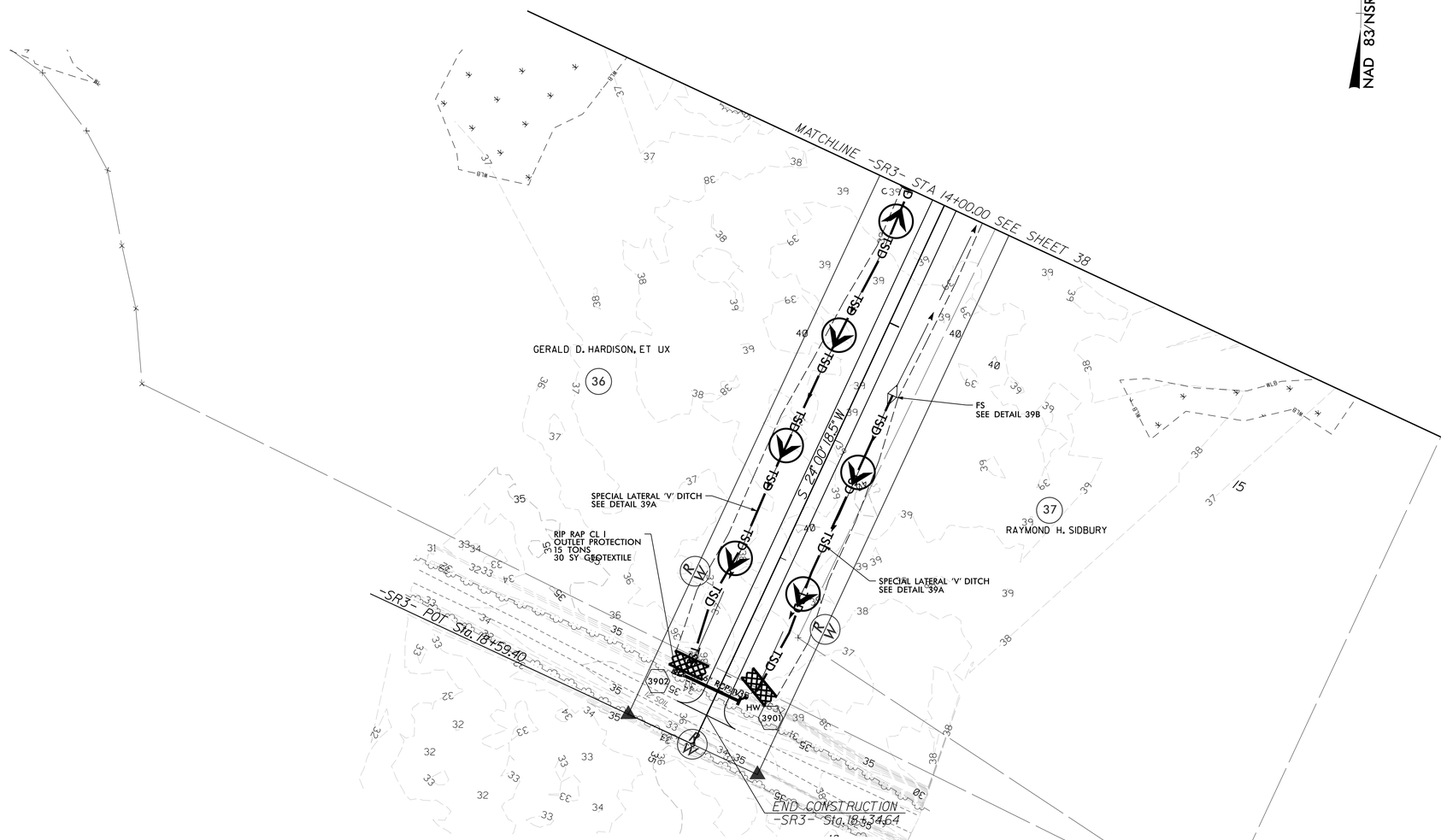
LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

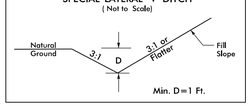
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 39

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

NAD 83/NSRS 2007

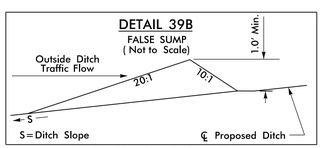


DETAIL 39A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



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

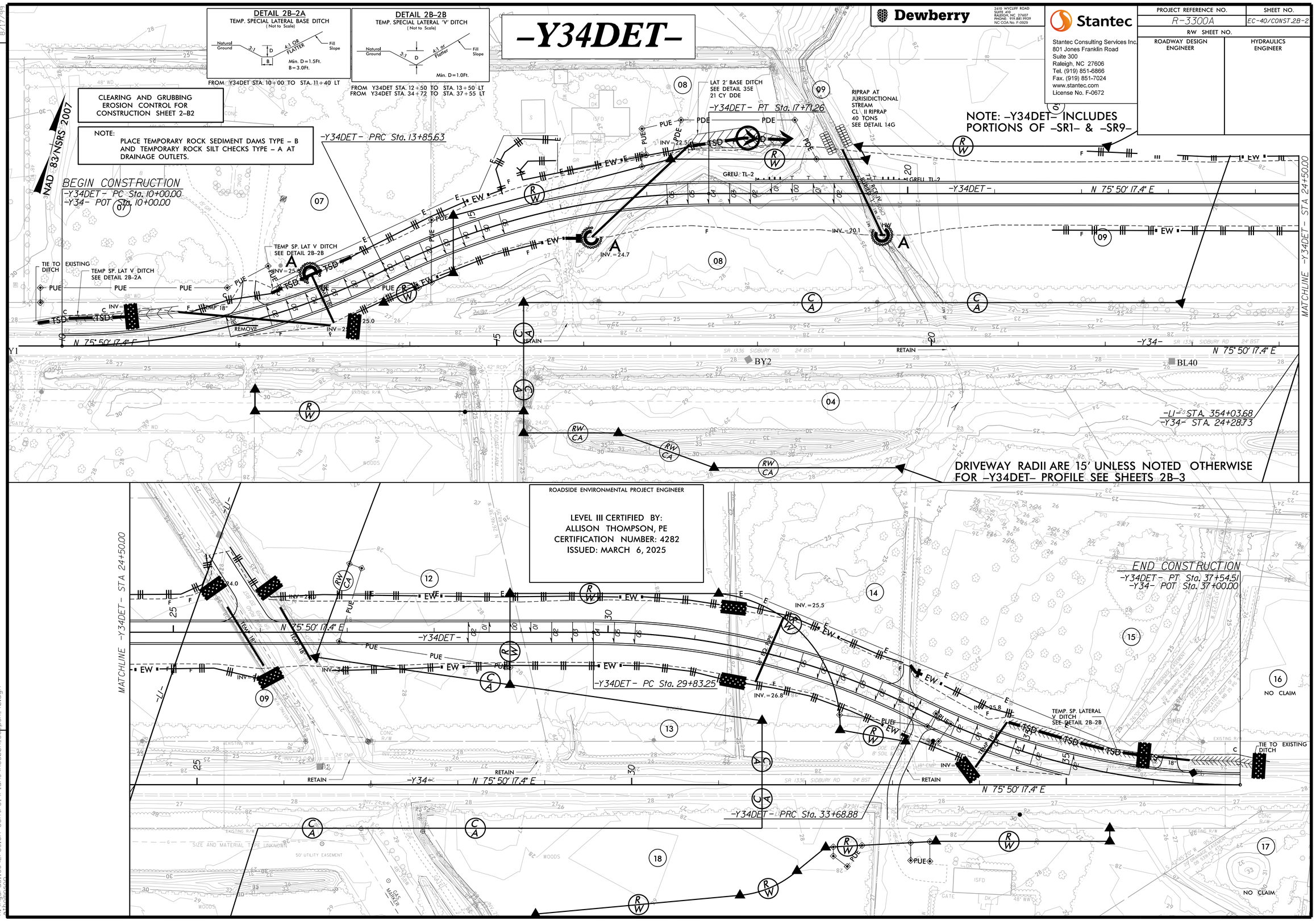
DETAIL 39B
FALSE SUMP
(Not to Scale)



SR3 STA. 15+50 LT., TOP EL=38.70

SEE SHEET 66 FOR –SR3– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_39_C&G.dgn
MI ENGINEERING,RALEIGH,NC


-Y34DET-
DETAIL 2B-2A
TEMP. SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
3:1
D
B
4:1 OR FLATTER
Fill Slope
Min. D=1.5Ft.
B=3.0Ft.
FROM Y34DET STA. 10+00 TO STA. 11+40 LT
DETAIL 2B-2B
TEMP. SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
3:1
D
4:1 or Flatter
Fill Slope
Min. D=1.0Ft.
FROM Y34DET STA. 12+50 TO STA. 13+50 LT
FROM Y34DET STA. 34+72 TO STA. 37+55 LT
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License No. F-0672
PROJECT REFERENCE NO.
R-3300A
SHEET NO.
EC-40/CONST.2B-2
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2-B2
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.
NAD 83/NSRS 2007
BEGIN CONSTRUCTION
-Y34DET- PC Sta. 10+00.00
-Y34- POT Sta. 10+00.00
-Y34DET- PRC Sta. 13+85.63
LAT 2' BASE DITCH
SEE DETAIL 35E
21 CY DDE
-Y34DET- PT Sta. 17+71.26
RIPRAP AT
JURISIDICTIONAL
STREAM
CL II RIPRAP
40 TONS
SEE DETAIL 14G
NOTE: -Y34DET- INCLUDES
PORTIONS OF -SR1- & -SR9-
TEMP SP. LAT V DITCH
SEE DETAIL 2B-2B
TIE TO EXISTING
DITCH
TEMP SP. LAT V DITCH
SEE DETAIL 2B-2A
REMOVE
N 75° 50' 17.4" E
-Y34DET-
-Y34-
RETAIN
SR 1336 SIDBURY RD
BY2
BL40
-L1- STA. 354+03.68
-Y34- STA. 24+28.73
DRIVEWAY RADII ARE 15' UNLESS NOTED OTHERWISE
FOR -Y34DET- PROFILE SEE SHEETS 2B-3
MATCHLINE -Y34DET- STA. 24+50.00
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025
END CONSTRUCTION
-Y34DET- PT Sta. 37+54.51
-Y34- POT Sta. 37+00.00
-Y34DET- PC Sta. 29+83.25
-Y34DET- PRC Sta. 33+68.88
TEMP. SP. LATERAL
V DITCH
SEE DETAIL 2B-2B
TIE TO EXISTING
DITCH
NO CLAIM
REVISIONS
8/17/99
3/5/2025
R:\Hydraulics\Erosion Control\Plans\R3300A_ec_psh_40.dgn

-Y35DET-

-Y35DET-		
PI Sta 16+92.05 △ = 20° 15' 04.2" (RT) D = 15° 26' 37.0" L = 131.13' T = 66.26' R = 371.00' SE = .04 RO = 68	PI Sta 14+14.84 △ = 22° 28' 24.7" (LT) D = 15° 26' 37.0" L = 145.52' T = 73.71' R = 371.00' SE = .04 RO = 68	PI Sta 16+13.58 △ = 7° 44' 14.0" (LT) D = 3° 03' 09.1" L = 253.47' T = 126.93' R = 1,877.00' SE = .04 RO = 68
PI Sta 18+40.24 △ = 9° 46' 56.6" (RT) D = 4° 53' 49.5" L = 199.76' T = 100.12' R = 1,170.00' SE = N/A RO = N/A	PI Sta 20+25.28 △ = 5° 33' 21.9" (LT) D = 3° 15' 19.6" L = 170.67' T = 85.40' R = 1,760.00' SE = N/A RO = N/A	

-Y35-
PI Sta 23+50.61 △ = 54° 29' 00.0" (LT) D = 3° 07' 51.3" L = 1,740.17' T = 942.18' R = 1,830.00' SE = .04 RO = 84

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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC4I/C.2B-4
R/W SHEET NO.	

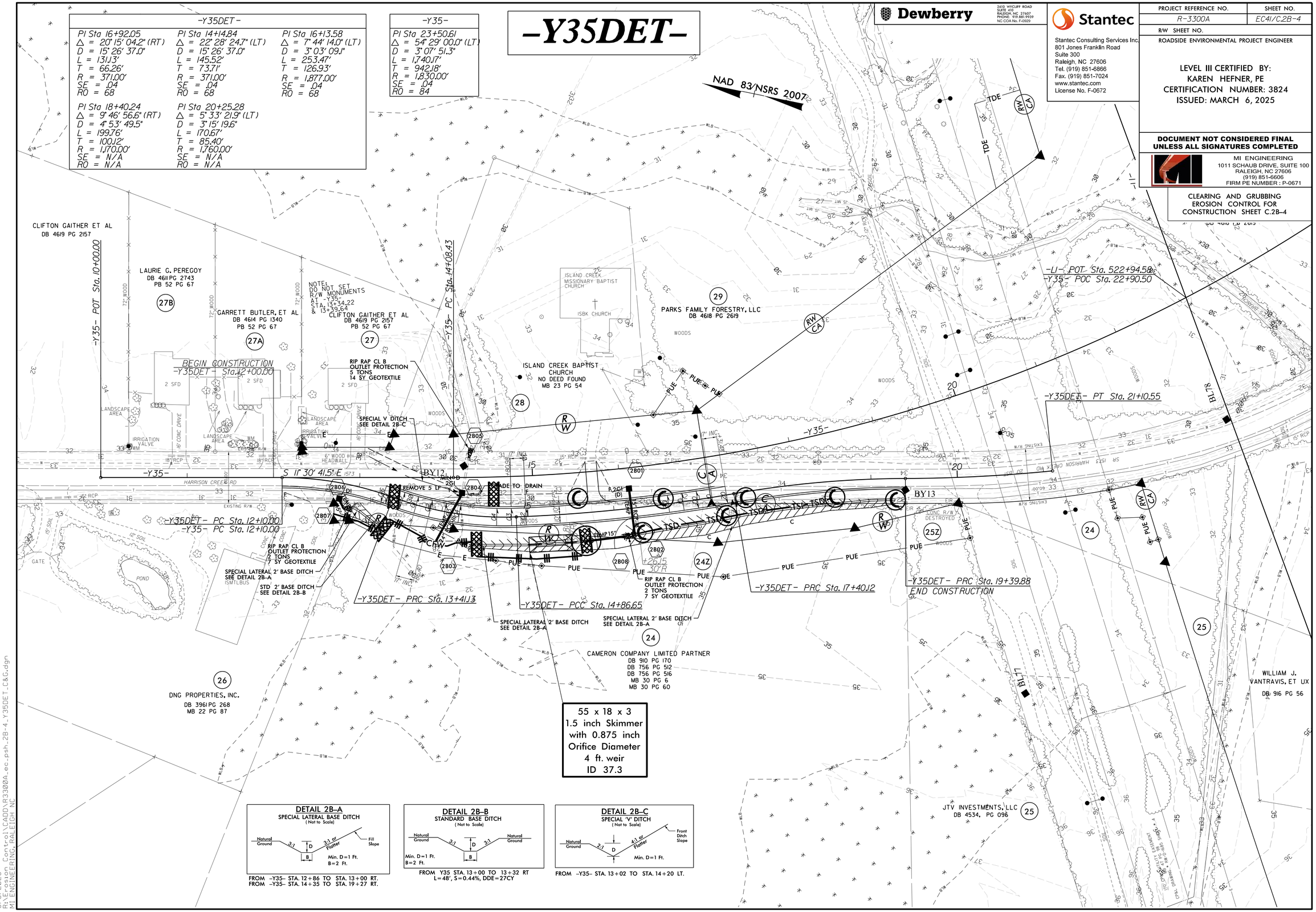
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET C.2B-4



55 x 18 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
4 ft. weir
ID 37.3

DETAIL 2B-A
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM -Y35- STA. 12+86 TO STA. 13+00 RT.
FROM -Y35- STA. 14+35 TO STA. 19+27 RT.

DETAIL 2B-B
STANDARD BASE DITCH
(Not to Scale)

FROM Y35 STA. 13+00 TO 13+32 RT
L=48', S=0.44%, DDE=27CY

DETAIL 2B-C
SPECIAL 'V' DITCH
(Not to Scale)

FROM -Y35- STA. 13+02 TO STA. 14+20 LT.

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_2B-4_Y35DET_C&G.dgn
MI ENGINEERING, RALEIGH NC

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SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

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(919) 851-6606
FIRM PE NUMBER : P-0671

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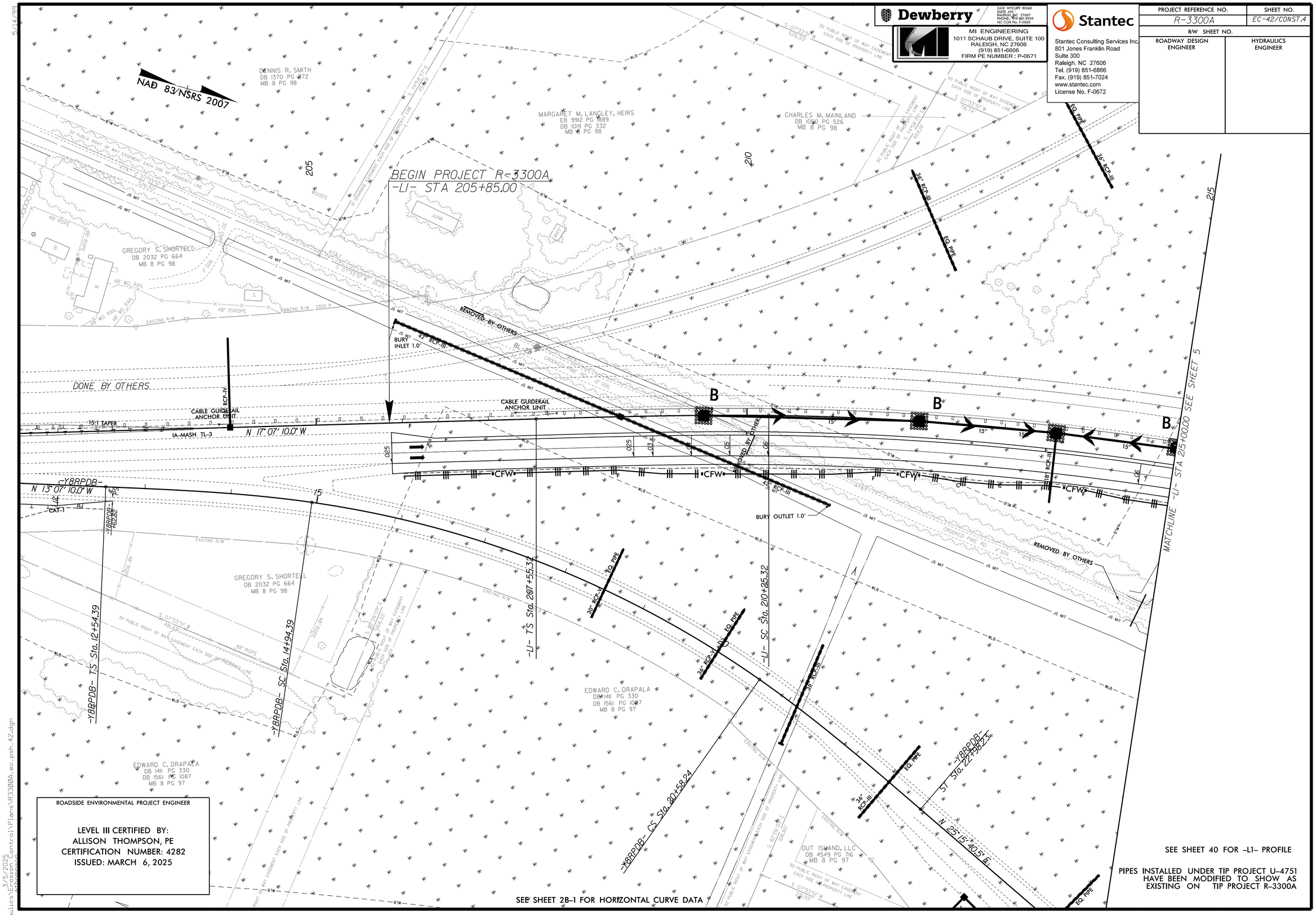
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-42/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

5/14/99

3/5/2025
...ydraulics\Erosion Control\Plans\R3300A_ec_psh_42.dgn

REVISIONS

Dewberry
MI ENGINEERING
10115 SCHNAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6000
FIRM PE NUMBER: F-0907

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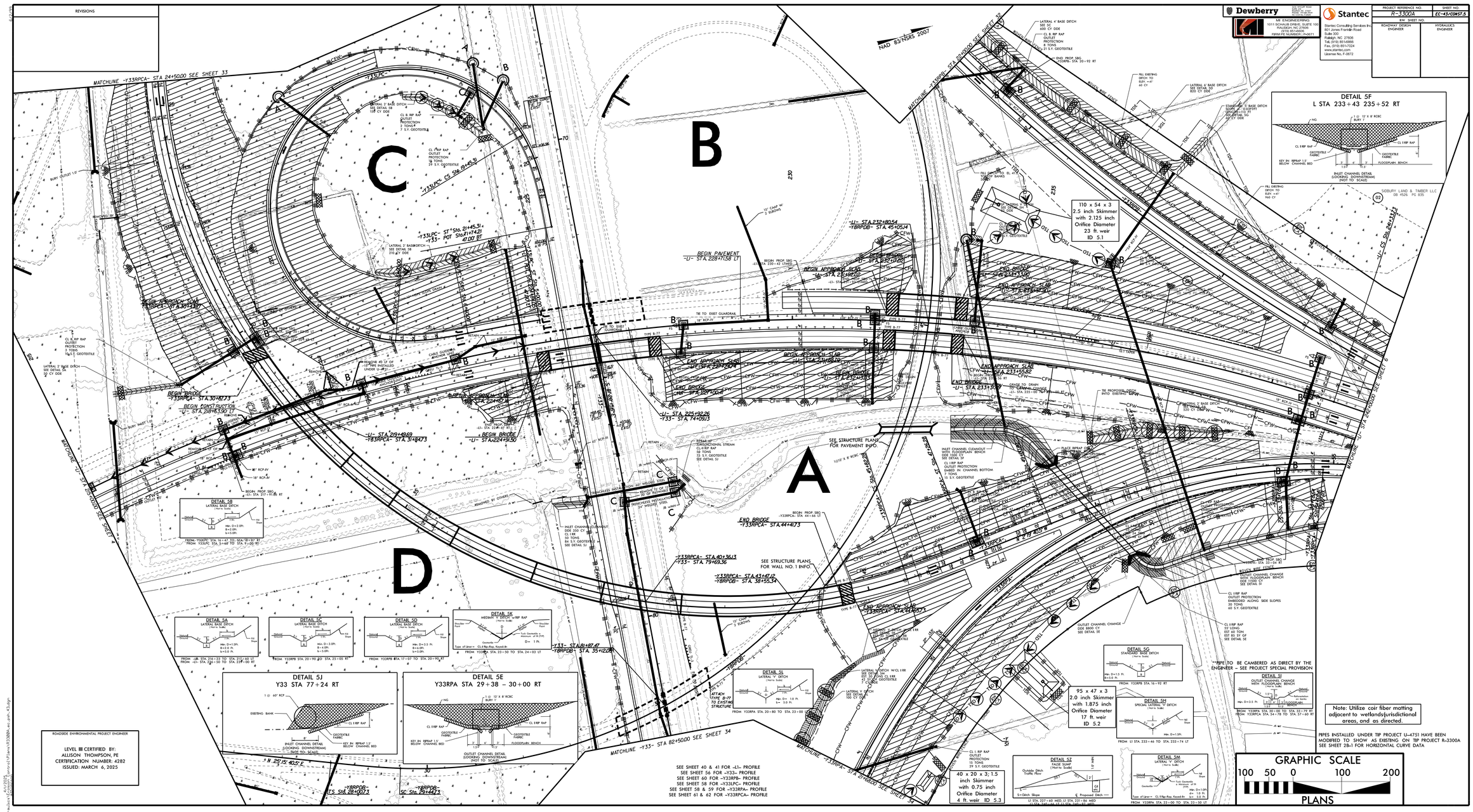
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-43/CONST.5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

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

**PIPE TO BE CAMBERED AS DIRECT BY THE ENGINEER – SEE PROJECT SPECIAL PROVISION

Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

4/11/2025
R:\Highway\Roadway\Roadway Services\11Plans\Y33BRA_ec_pnh_02.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-44/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC COA No. F-0929

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FIRM PE NUMBER : P-0671

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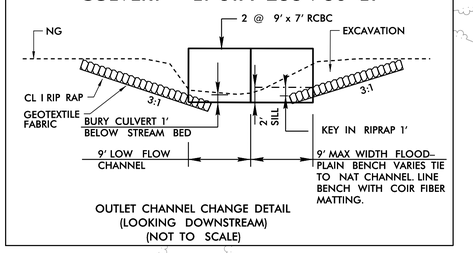
DETAIL 6B
CULVERT – L1 STA 253+30 LT



OUTLET CHANNEL CHANGE DETAIL
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

DETAIL '6E'
(NOT TO SCALE)
SKEWED MULTI- BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN BENCH

*NOTES:

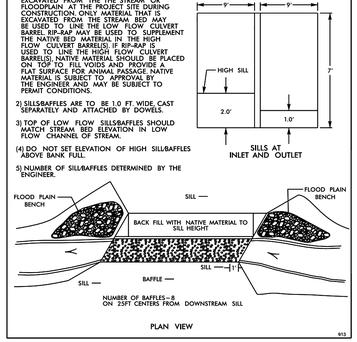
1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A NATURALOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE BED MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S) NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A NATURAL SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL MUST BE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

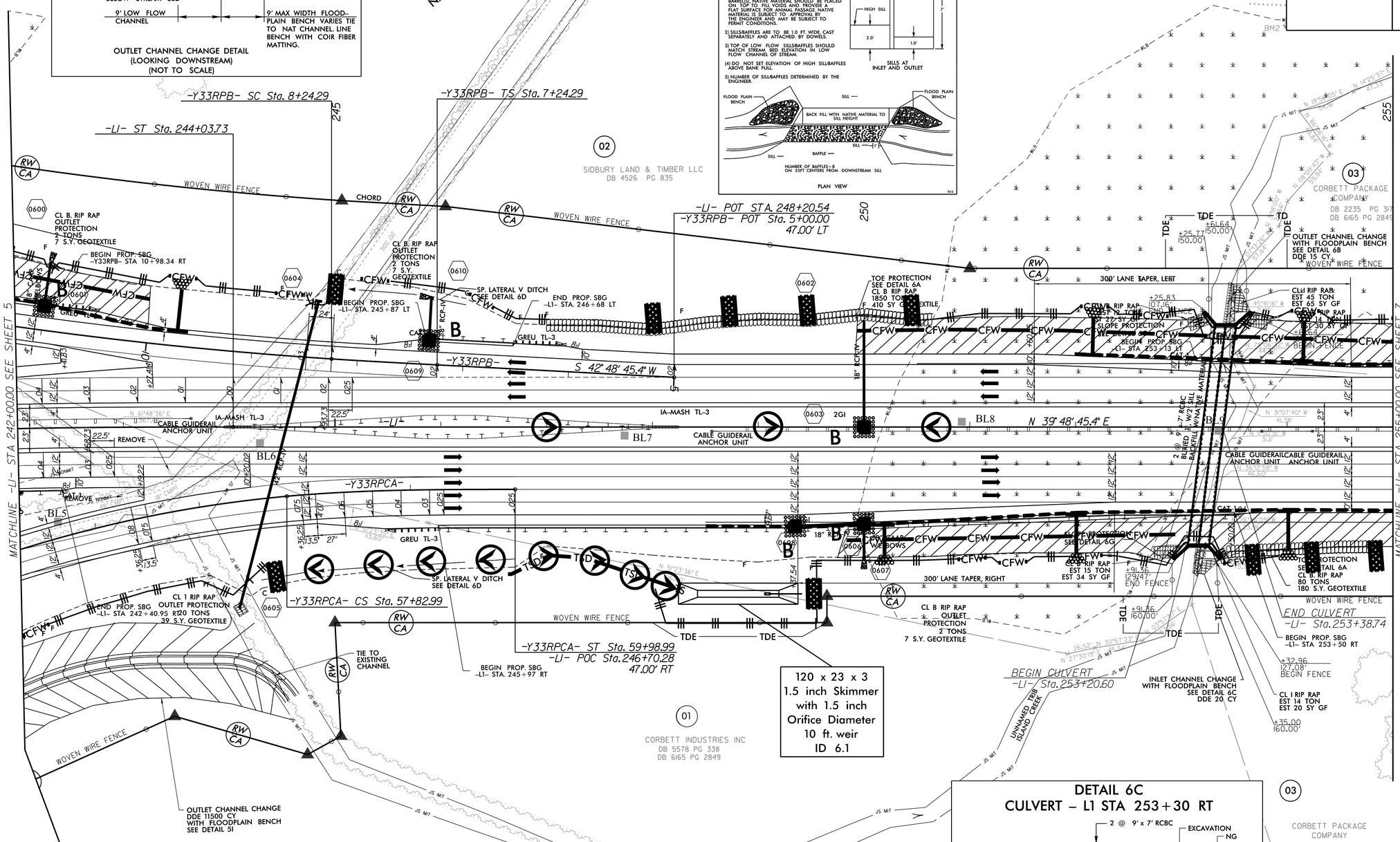
2) SILLS/BAFFLES ARE TO BE 1.0 FT WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM.

(4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.

5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.



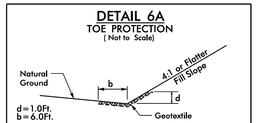


120 x 23 x 3
1.5 inch Skimmer
with 1.5 inch
Orifice Diameter
10 ft. weir
ID 6.1

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

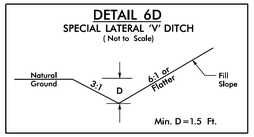
LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

DETAIL 6A
TOE PROTECTION
(Not to Scale)



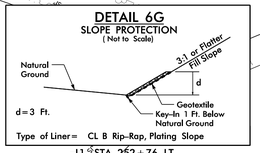
Type of Liner= CL B Rip-Rap
FROM L1 STA. 247+00 TO STA. 250+65 LT
FROM L1 STA. 253+33 TO STA. 254+90 RT

DETAIL 6D
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM Y33RPB STA. 7+00 TO STA. 8+28 RT
FROM Y33RPCA STA. 57+34 TO STA. 59+98 RT

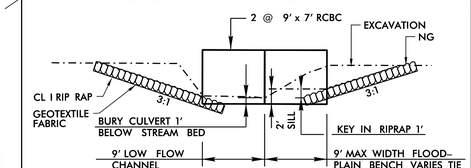
DETAIL 6G
SLOPE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap, Plating Slope
-L1- STA. 252+76 LT
-L1- STA. 253+06 LT
-L1- STA. 253+66 LT

Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

DETAIL 6C
CULVERT – L1 STA 253+30 RT



INLET CHANNEL CHANGE DETAIL
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 41 & 42 FOR -L1- PROFILE
SEE SHEET 60 FOR -Y33RPB- PROFILE
SEE SHEET 62 FOR -Y33RPCA- PROFILE

5/14/99

3/5/2025
...gdr-aulics\Erosion Control\Plans\R3300A_ec_psh_44.dgn

Dewberry
2610 WYCLIFF ROAD
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NC COA No. F-0929

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FIRM PE NUMBER : P-0671

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www.stantec.com
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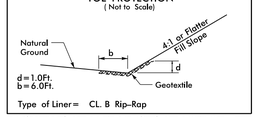
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-45/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/14/99

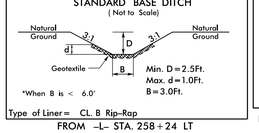
DETAIL 7A
TOE PROTECTION
(Not to Scale)



Type of Liner= CL. B Rip-Rap

FROM L1 STA. 255+70 TO STA. 258+22 RT

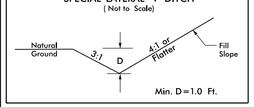
DETAIL 7B
STANDARD BASE DITCH
(Not to Scale)



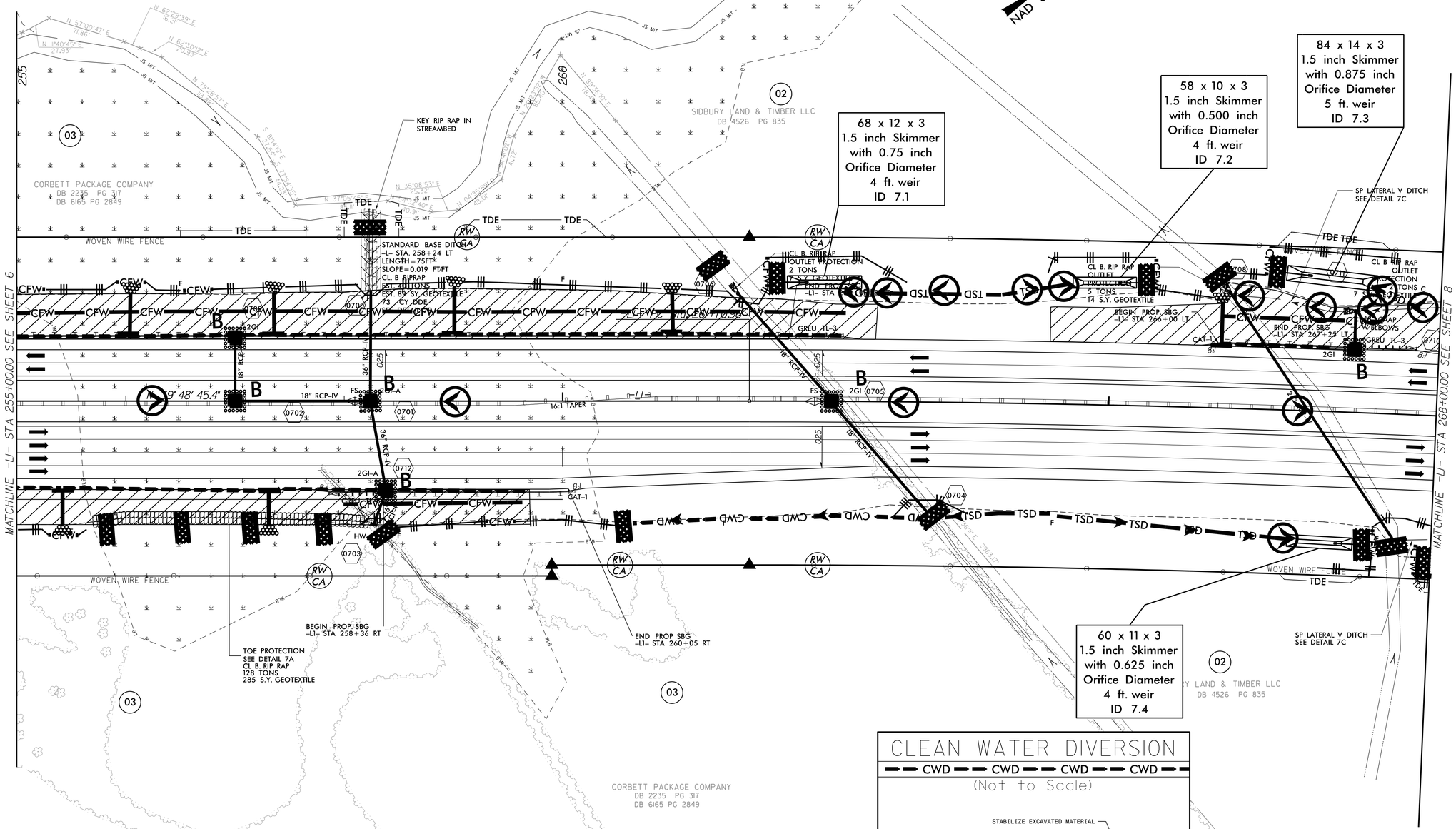
Type of Liner= CL. B Rip-Rap

FROM -L- STA. 258+24 LT

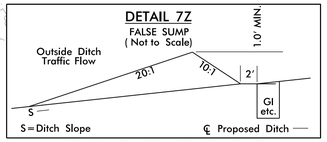
DETAIL 7C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM L1 STA. 266+08 TO STA. 270+72 LT



DETAIL 7Z
FALSE SUMP
(Not to Scale)



L1 STA. 258+09 MED, L1 STA. 262+30 MED

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

SEE SHEET 42 FOR -L1- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

3/5/2025
mthompson
...ydraulics\Erosion Control\Plans\R3300A_ec_psh_45.dgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-46/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

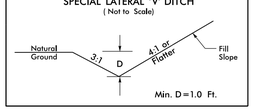
Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

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

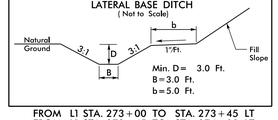
NAD 83/NSRS 2007

DETAIL 8A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



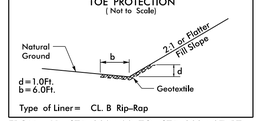
FROM L1 STA. 266+08 TO STA. 270+72 LT
FROM L1 STA. 267+63 TO STA. 270+71 RT
FROM L1 STA. 271+00 TO STA. 275+93 RT
FROM L1 STA. 276+20 TO STA. 278+50 RT
FROM L1 STA. 278+51 TO STA. 280+00 RT
FROM L1 STA. 271+00 TO STA. 273+00 LT
FROM L1 STA. 274+00 TO STA. 275+00 LT

DETAIL 8B
LATERAL BASE DITCH
(Not to Scale)



FROM L1 STA. 273+00 TO STA. 273+45 LT
FROM L1 STA. 273+45 TO STA. 274+00 LT

DETAIL 8C
TOE PROTECTION
(Not to Scale)



Type of Liner= CL. B Rip-Rap
FROM -L1- STA. 280+00 TO STA. 282+87 RT

BM3 ELEVATION = 41.49
N 210250 E 2356127
BL STATION 47+32.00 407 LEFT
R/R SPIKE IN 8" PINE

BM3

270 275 280

02
SIDBURY LAND & TIMBER, LLC
DB 4526 PG 835

-L1- PT Sta. 277+12.33

CL B. RIP RAP
OUTLET
PROTECTION
2 TONS
7 S.Y. GEOTEXTILE

WOVEN WIRE FENCE

RW
CA

TDE

SP LATERAL V DITCH
SEE DETAIL 8A

LATERAL 3' BASE DITCH
SEE DETAIL 8B
60 CY DDE

0800 0802 0801 0803

A

B

18" RCP-IV

24" RCP-IV

2GI

CABLE GUIDERAIL ANCHOR UNIT

CABLE GUIDERAIL ANCHOR UNIT

TSD

025

16:1 TAPER

-L1-

N 45° 49' 13.3" E

MATCHLINE -L1- STA 268+00.00 SEE SHEET 7

MATCHLINE -L1- STA 281+00.00 SEE SHEET 9

CL B. RIP RAP
OUTLET
PROTECTION
5 TONS
14 S.Y. GEOTEXTILE

GREU TL-3

BEGIN PROP. SBG
-L1- STA 279+38.75 RT

CFW

TOE PROTECTION
SEE DETAIL BC
CL B. RIP RAP
120 TONS
265 S.Y. GEOTEXTILE

TRANSITION DITCH BOTTOM
TO GRADE AT TOE PROTECTION

SP LATERAL V DITCH
SEE DETAIL 8A
190 CY DDE

95 x 17 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
6 ft. weir
ID 8.1

SIDBURY LAND & TIMBER, LLC
DB 4526 PG 835
02

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

SEE SHEET 42 & 43 FOR -L1- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

3/5/2025
gd-aulics\Erosion Control\Plans\R3300A_ec_psh_46.dgn

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

DETAIL 9A
TOE PROTECTION
(Not to Scale)

Type of Liner= CL. B Rip-Rap

FROM L1 STA. 282+50 TO STA. 283+47 LT
FROM L1 STA. 284+04 TO STA. 285+58 LT
FROM L1 STA. 283+45 TO STA. 283+82 RT
FROM L1 STA. 280+00 TO STA. 282+87 RT

Dewberry
2610 WYCLIFF ROAD
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PHONE: 919.881.9939
NC COA No. F-0929

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
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FIRM PE NUMBER : P-0671

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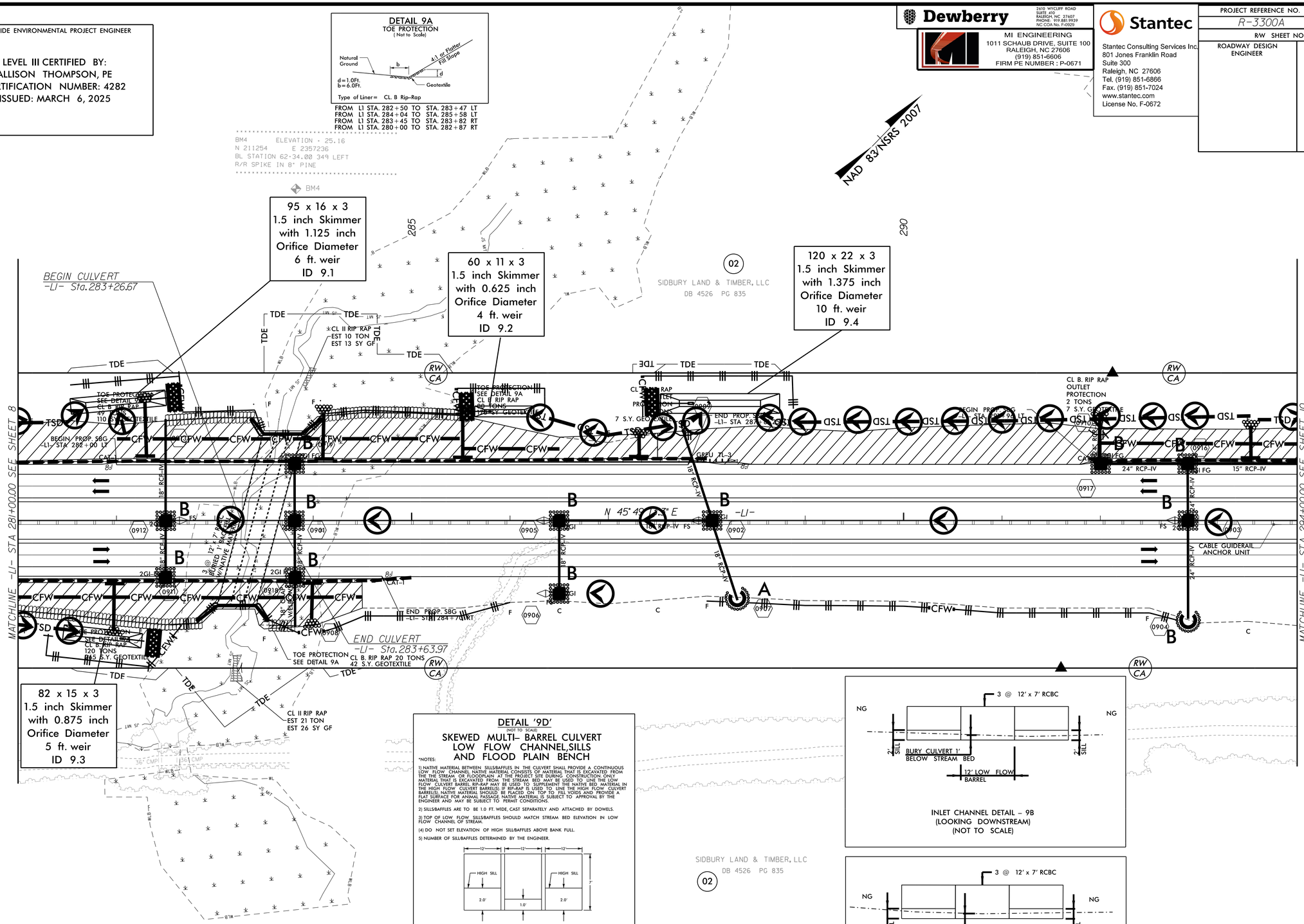
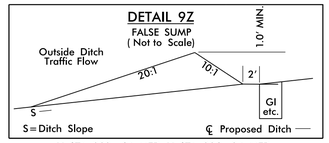
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-47/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



DETAIL 9Z
FALSE SUMP
(Not to Scale)



L1 STA. 282+64 MED, L1 STA. 286+34 MED
L1 STA. 286+36 RT, L1 STA. 292+75 MED

DETAIL '9D'
(NOT TO SCALE)
SKEWED MULTI– BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN BENCH

*NOTES:

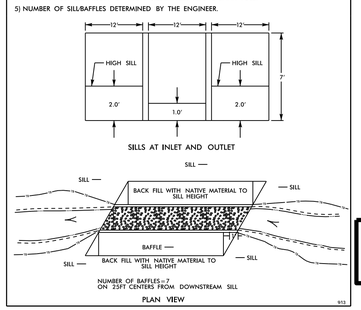
1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE BED MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). RIP-RAP CAN NOT BE USED TO LINE THE HIGH FLOW CULVERT BARREL(S). NATIVE MATERIAL MUST BE PLACED IN LIFTS TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

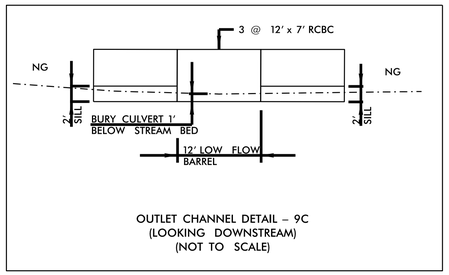
3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM.

(4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.

5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.



INLET CHANNEL DETAIL – 9B
(LOOKING DOWNSTREAM)
(NOT TO SCALE)



OUTLET CHANNEL DETAIL – 9C
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

SEE SHEET 43 FOR –L1– PROFILE

5/14/99
3/5/2025
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ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

DETAIL 10D
SLOPE PROTECTION
(Not to Scale)

Natural Ground — 3:1 or Flatter Fill Slope — d — Geotextile — Key-In 1 Ft. Below Natural Ground

d = 3 Ft.

Type of Liner = CL B Rip-Rap, Plating Slope

–L1– STA. 305+56 RT
–L1– STA. 305+85 LT
–L1– STA. 306+00 RT
–L1– STA. 306+28 LT

NAD 83/NSRS 2007

Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

Dewberry
2610 WYCLIFF ROAD
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NC COA No. F-0929

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

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Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-48/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

22 x 125 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
10 ft. weir
ID 10.1

120 x 22 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
10 ft. weir
ID 10.2

BM5 ELEVATION = 33.10
N 212813 E 2358657
BL STATION 83+94.00 423 LEFT
R/R SPIKE IN 10" PINE

SIDBURY LAND & TIMBER, LLC
DB 4526 PG 835

DEPARTMENT OF TRANSPORTATION
DB 6037 PG 587
DB 2043 PG 870
DB 2010 PG 505
DB 5351 PG 1915
DB 5291 PG 845
DB 5273 PG 2095
DB 1425 PG 0082
MB 2 PG 33

MATCHLINE –L1– STA 294+00.00 SEE SHEET 9

MATCHLINE –L1– STA 307+00.00 SEE SHEET 11

–L1– TS Sta. 297+45.35

–L1– SC Sta. 299+25.35

5' BERM TO TIE TO EXISTING DITCH

WOVEN WIRE FENCE

CHORD

RW CA

TSD

CFW

TDE

15" RCP-IV

CABLE GUIDERAIL ANCHOR UNIT

N 45° 49' 13.3"

16:1 TAPER

2GI RCP-IV

2GI 18" RCP-IV

GREU TL-2

GREU TL-3

FS

CL B RIP RAP OUTLET PROTECTION TONS S.Y. GEOTEXTILE

SLOPE PROTECTION, SEE DETAIL 10D
CL B RR, EST 11 TON, EST 28 SY GF

SP. LATERAL V DITCH SEE DETAIL 10C 96 CY DDE

CL B RIP RAP OUTLET PROTECTION 2 TONS 7 S.Y. GEOTEXTILE

SLOPE PROTECTION SEE DETAIL 10D CL B RR EST 13 TON EST 30 SY GF

CL II RIP RAP 6'W X 20'L EST 7 TON EST 10 SY GF

OUTLET CHANNEL SEE DETAIL 10A DDE 15 CY

CL II RIP RAP 6'W X 40'L EST 34 TON EST 42 SY GF

END FENCE

BEGIN FENCE

CAT-1

1 @ 18" RCP-IV BURIED BELOW BACKFILL W/NATIVE MATERIAL

INLET CHANNEL SEE DETAIL 10B

SLOPE PROTECTION SEE DETAIL 10D CL B RIP RAP EST 14 TON EST 31 SY GF

CL II RIP RAP 6'W X 35'L EST 22 TON EST 27 SY GF

CL II RIP RAP 6'W X 20'L EST 7 TON EST 10 SY GF

CL II RIP RAP 6'W X 20'L EST 12 TON EST 28 SY GF

SP. LATERAL V DITCH SEE DETAIL 10C

SLOPE PROTECTION SEE DETAIL 10D

GRADE TO DRAIN

FILL EXISTING TO ELEV. 42.0'

WOODS

POND

+45.00 150.00'

+55.00 150.00'

+65.00 150.00'

+72.36 97.56'

+32.65 22.5'

+00.35 45'

DETAIL 10Z
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow — 20:1 — 10:1 — 2' — 1.0' MIN. — GI etc. — S — S = Ditch Slope — ℄ Proposed Ditch

L1 STA. 301+67 MED

DETAIL 10A
CULVERT – L1 STA 305+99 LT

1 @ 7' x 5' RCBC — NG — 3:1 — 7' — CL II RIP RAP 6' W X 20' L — GEOTEXTILE FABRIC — BURY CULVERT 1' BELOW STREAM BED

OUTLET CHANNEL DETAIL
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

DETAIL 10B
CULVERT – L1 STA 305+99 RT

1 @ 7' x 5' RCBC — NG — 3:1 — 7' — CL II RIP RAP 6' W X 20' L — GEOTEXTILE FABRIC — BURY CULVERT 1' BELOW STREAM BED

INLET CHANNEL DETAIL
(LOOKING DOWNSTREAM)
(NOT TO SCALE)

DETAIL 10C
SPECIAL LATERAL "V" DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 6:1 or Flatter — Fill Slope

Min. D = 1.5 Ft.

FROM –L1– STA. 306+27 TO STA. 308+50 LT
FROM –L1– STA. 306+00 TO STA. 309+50 RT

SEE SHEET 43 & 44 FOR –L1– PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

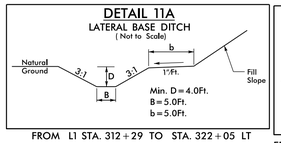
5/14/99

3/5/2025
...ydraulics\Erosion Control\Plans\R3300A_ec_psh_48.dgn

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

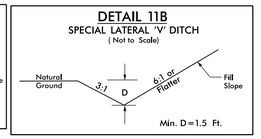
LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

DETAIL 11A
LATERAL BASE DITCH
(Not to Scale)



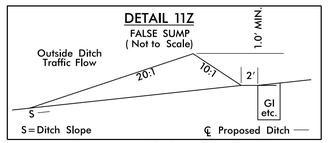
FROM L1 STA. 312+29 TO STA. 322+05 LT

DETAIL 11B
SPECIAL LATERAL "V" DITCH
(Not to Scale)



FROM –L1– STA. 306+27 TO STA. 308+50 LT
FROM –L1– STA. 306+00 TO STA. 309+50 RT

DETAIL 11Z
FALSE SUMP
(Not to Scale)



L1 STA. 309+36 MED, L1 STA. 315+85 MED

**PIPE TO BE CAMBERED AS DIRECT BY THE ENGINEER – SEE PROJECT SPECIAL PROVISION

03A
DEPARTMENT OF TRANSPORTATION
DB 6037 PG 587
DB 2043 PG 870
DB 2010 PG 505
DB 5351 PG 1915
DB 5291 PG 845
DB 5273 PG 2095
DB 1425 PG 0082
MB 2 PG 33

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
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FIRM PE NUMBER : P-0671

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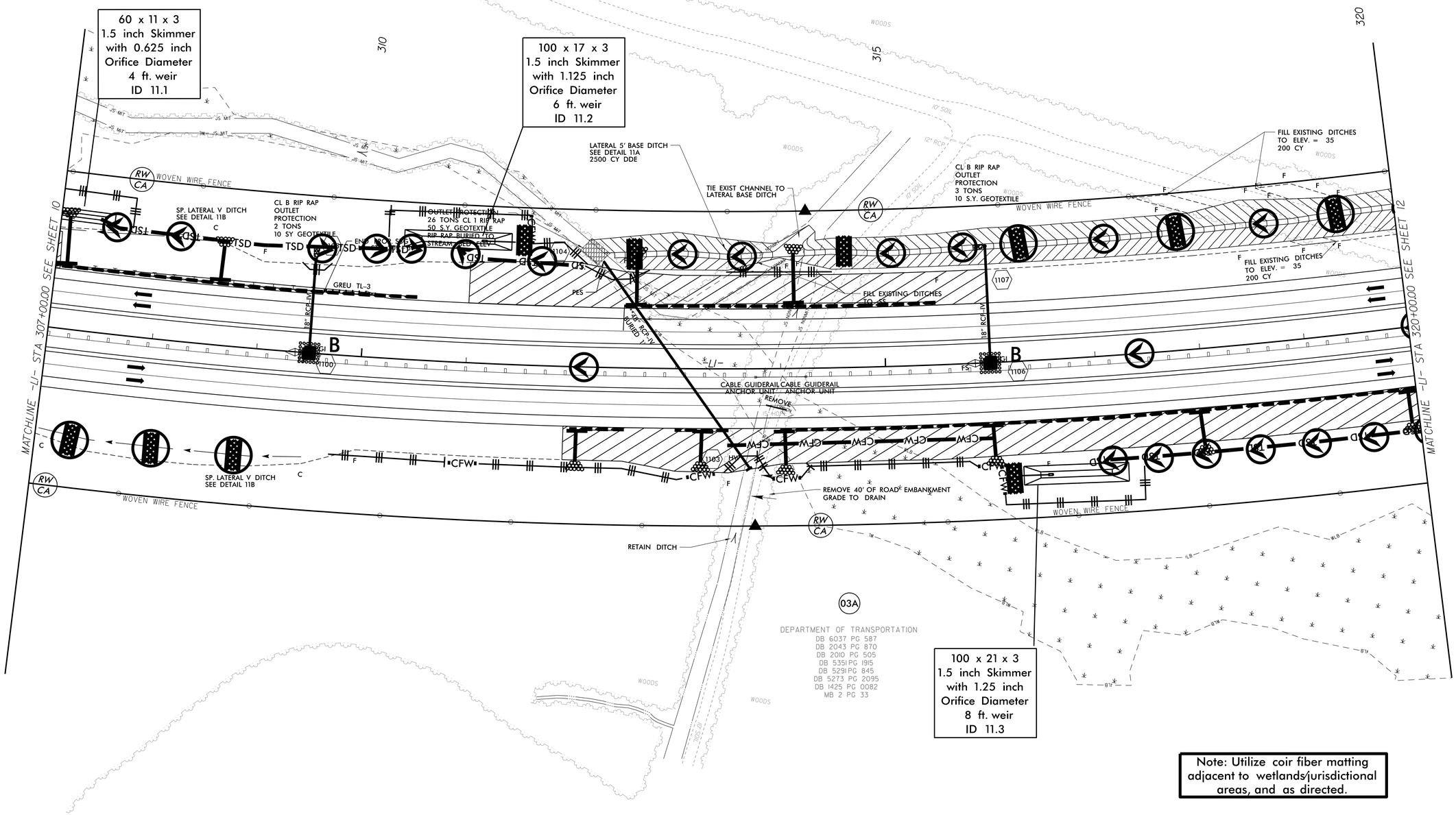
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-49/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007



Note: Utilize coir fiber matting adjacent to wetlands/jurisdictional areas, and as directed.

SEE SHEET 44 FOR –L1– PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

5/14/99

3/5/2025
Hydraulics\Erosion Control\Plans\R3300A_ec_psh_49.dgn

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
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NC COA No. F-0929

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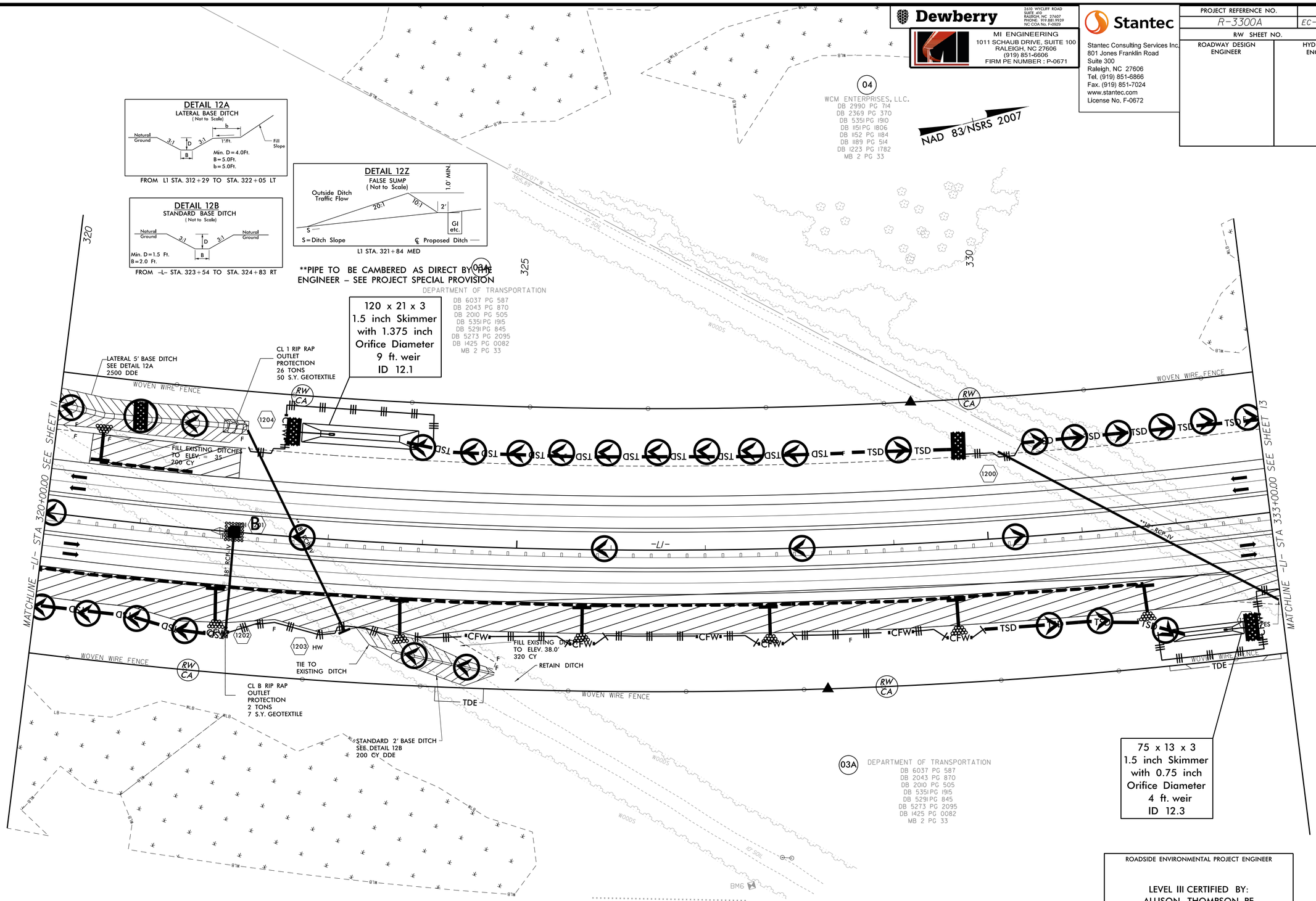
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-50/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/14/99



ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

SEE SHEET 44 & 45 FOR -L1- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

3/5/2025
...ydraulics\Erosion Control\Plans\R3300A_ec_psh_50.dgn

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

Dewberry
2610 WYCLIFF ROAD
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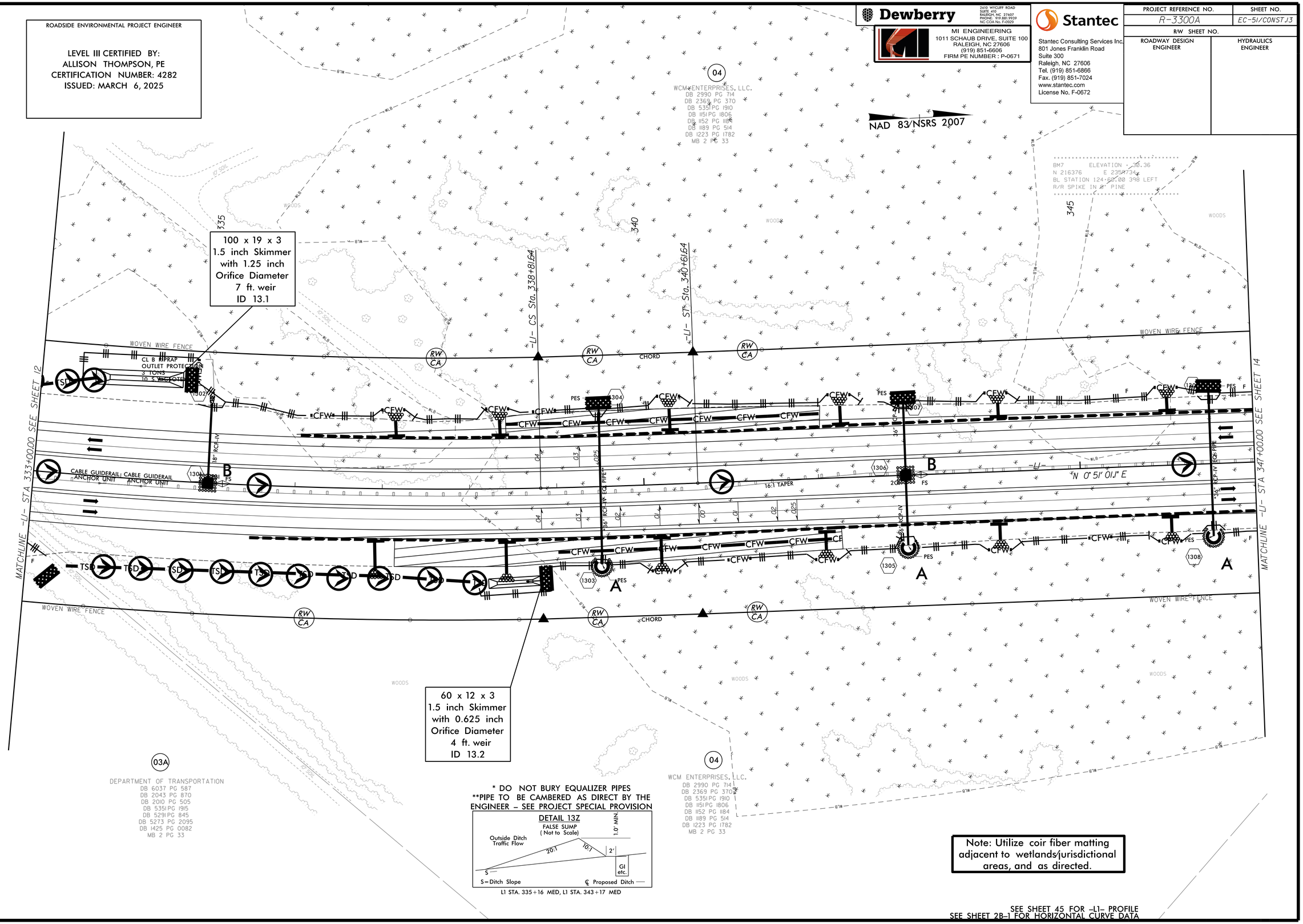
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-51/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET 45 FOR -L1- PROFILE
SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA

5/14/99

3/5/2025
...ydraulics\Erosion Control\Plans\R3300A_ec_psh_51.dgn

DETAIL 14B
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, Natural Ground; B

Min. D = 2.0Ft.
B = 3.0Ft.

FROM L1 STA. 351+14 TO STA. 352+12 LT

DETAIL 14C
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, 1'/Ft., b, Fill Slope; B

Min. D = 2.0Ft.
B = 4.0Ft.
b = 5.0Ft.

FROM Y34 STA. 20+04 TO STA. 22+84 RT

DETAIL 14D
SPECIAL CUT DITCH
(Not to Scale)

Front Ditch Slope, 3:1, D, 3:1, Front Ditch Slope

Min. D = 2.0Ft.

FROM Y34 19+50 STA. TO 23+63 LT

DETAIL 14E
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, 1'/Ft., b, Fill Slope

Min. D = 1.5Ft.
b = 5.0Ft.

FROM Y34 STA. 26+00 TO STA. 33+14 LT

DETAIL 14I
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 6:1 or Flatter, Fill Slope

Min. D = 1.5 Ft.

FROM –SR1– STA. 19+50 TO STA. 22+51 LT

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
ALLISON THOMPSON, PE
CERTIFICATION NUMBER: 4282
ISSUED: MARCH 6, 2025

NAD 83/NSRS 2007

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9929
NC COA No. F-0929

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

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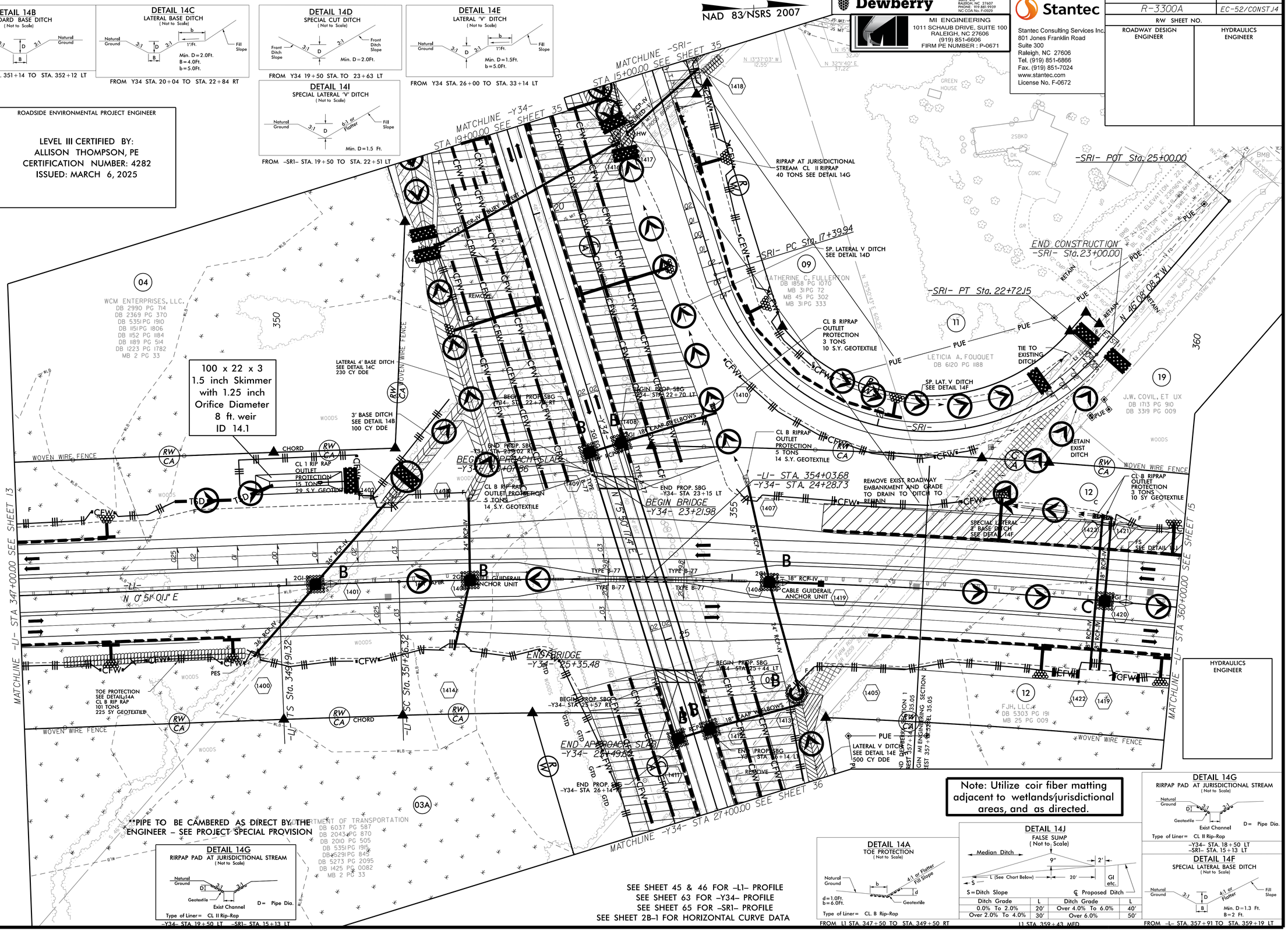
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-52/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

5/14/99 RW REV. FEB 2024: REVISED PUE ON PARCEL 12. –STANTEC



DETAIL 14G
RIRPAP PAD AT JURISDICTIONAL STREAM
(Not to Scale)

Natural Ground, D, 3:1, 3:1, Geotextile, Exist Channel

D = Pipe Dia.

Type of Liner = CL II Rip-Rap

–Y34– STA. 19+50 LT –SR1– STA. 15+13 LT

DETAIL 14A
TOE PROTECTION
(Not to Scale)

Natural Ground, b, 4:1 or Flatter, Fill Slope, d, Geotextile

d = 1.0Ft.
b = 6.0Ft.

Type of Liner = CL. B Rip-Rap

FROM L1 STA. 347+50 TO STA. 349+50 RT

DETAIL 14J
FALSE SUMP
(Not to Scale)

Median Ditch, 9", 2', L (See Chart Below), 20', GI etc., S

S = Ditch Slope ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 359+43 MED.

DETAIL 14G
RIRPAP PAD AT JURISDICTIONAL STREAM
(Not to Scale)

Natural Ground, D, 3:1, 3:1, Geotextile, Exist Channel

D = Pipe Dia.

Type of Liner = CL II Rip-Rap

–Y34– STA. 18+50 LT
–SR1– STA. 15+13 LT

DETAIL 14F
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope, B

Min. D = 1.3 Ft.
B = 2 Ft.

FROM –L– STA. 357+91 TO STA. 359+19 LT

RW REV. 3/5/2025
Hydraulics\Erosion Control\Plans\R3300A_ec_psh_52.dgn

Dewberry
3610 WYCLIFF ROAD
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PHONE: 919.881.9939
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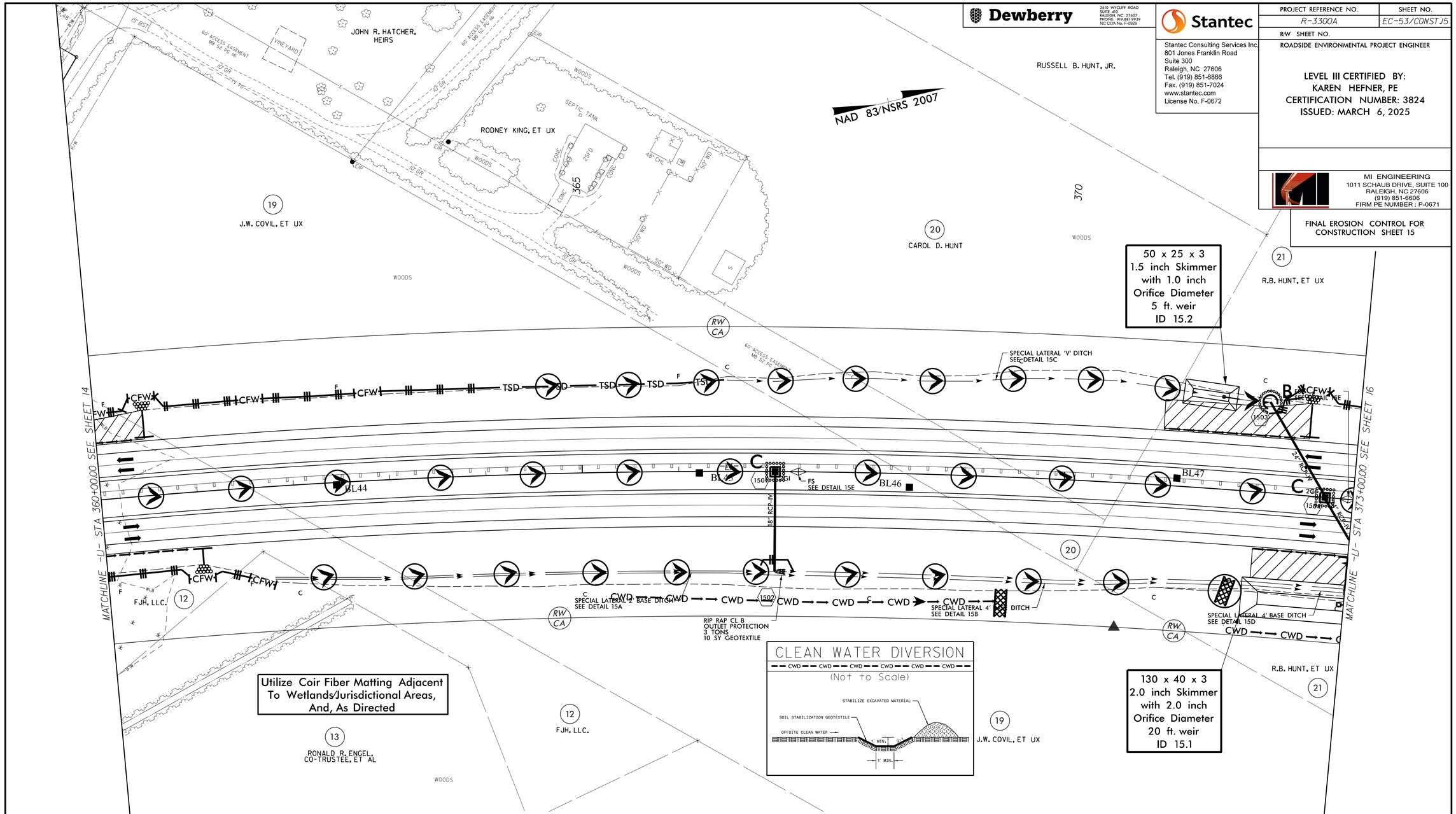
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-53/CONST J5
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

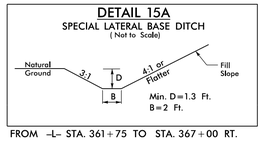
FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 15



CLEAN WATER DIVERSION

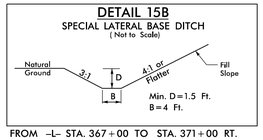
(Not to Scale)

DETAIL 15A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



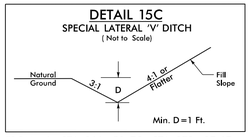
FROM –L– STA. 361+75 TO STA. 367+00 RT.

DETAIL 15B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



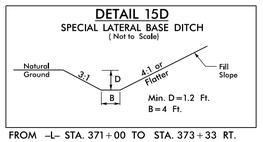
FROM –L– STA. 367+00 TO STA. 371+00 RT.

DETAIL 15C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



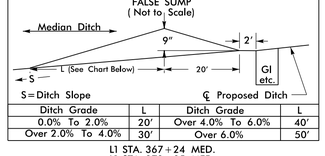
FROM –L– STA. 366+50 TO STA. 372+07 LT.

DETAIL 15D
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 371+00 TO STA. 373+33 RT.

DETAIL 15E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 367+24 MED.
L1 STA. 372+95 MED.

SEE SHEET 46 FOR –L1– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_EC_psh_15_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
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NC COA No. F-0929

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License No. F-0672

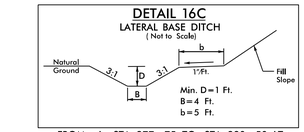
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-54/CONST.16
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

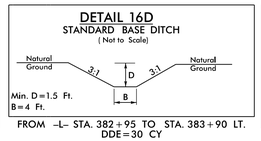
LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

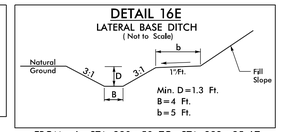
FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 16



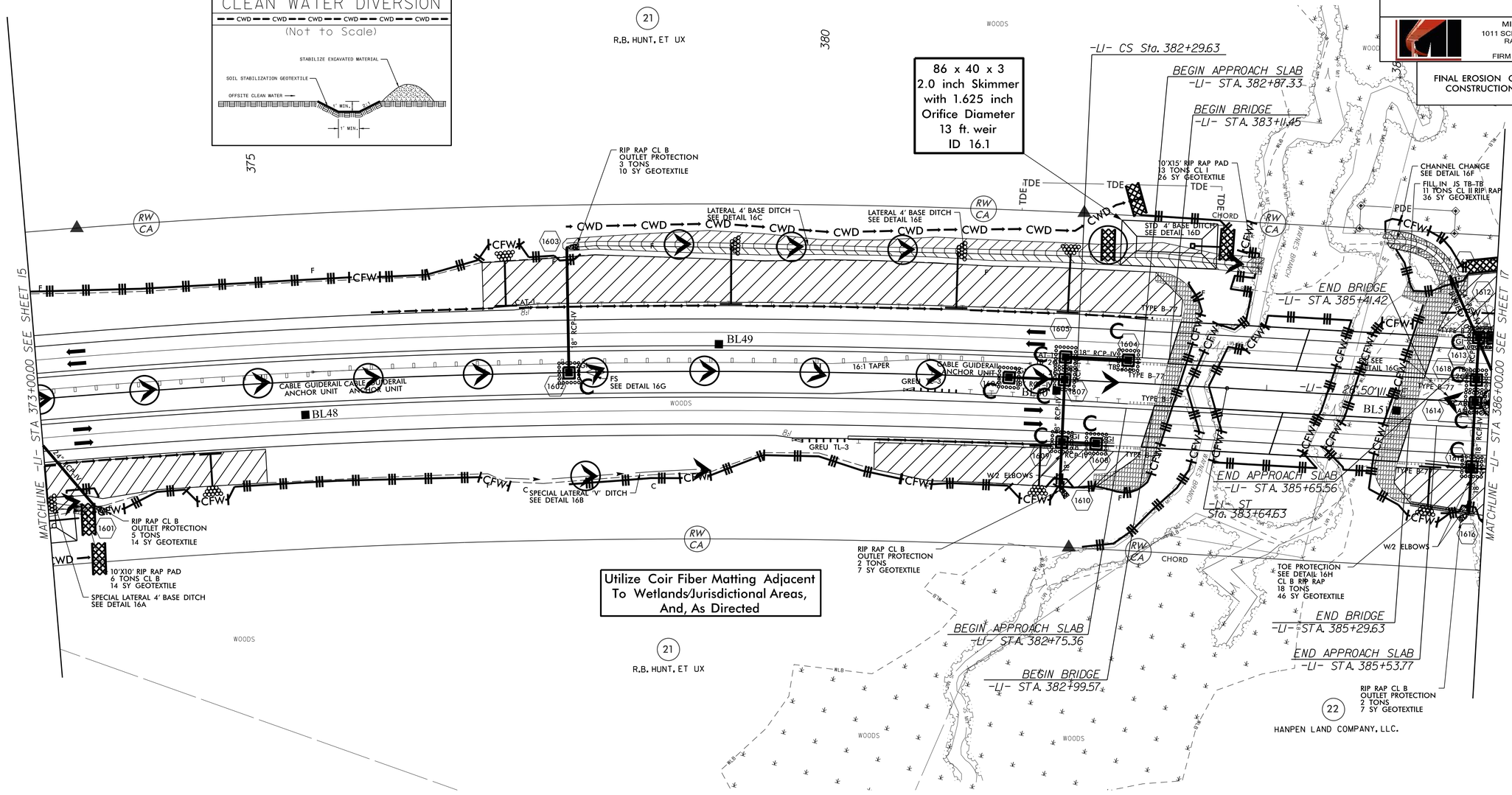
FROM –L– STA. 377+75 TO STA. 380+50 LT.



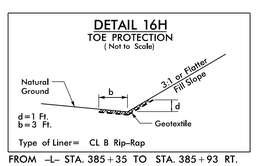
FROM –L– STA. 382+95 TO STA. 383+90 LT.
DDE=30' CY



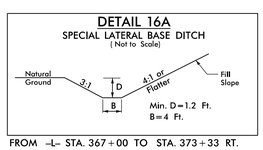
FROM –L– STA. 380+50 TO STA. 382+95 LT.



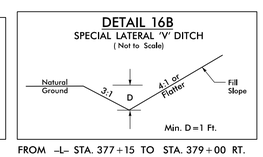
** PIPE TO BE CAMBERED AS DIRECT BY THE ENGINEER – SEE PROJECT SPECIAL PROVISION



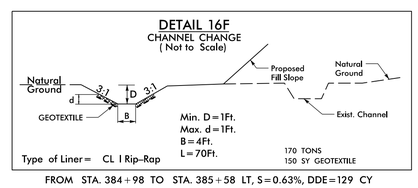
FROM –L– STA. 385+35 TO STA. 385+93 RT.



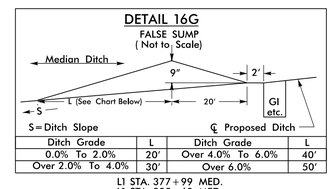
FROM –L– STA. 367+00 TO STA. 373+33 RT.



FROM –L– STA. 377+15 TO STA. 379+00 RT.



FROM STA. 384+98 TO STA. 385+58 LT, S=0.63%, DDE=129 CY



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 377+99 MED.
L1 STA. 385+63 MED.

SEE SHEETS 46 & 47 FOR –L1– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_EC_psh_16_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
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NC COA No. F-0929

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License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-55/CONST.17
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

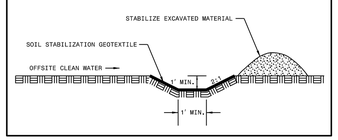
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 17

CLEAN WATER DIVERSION

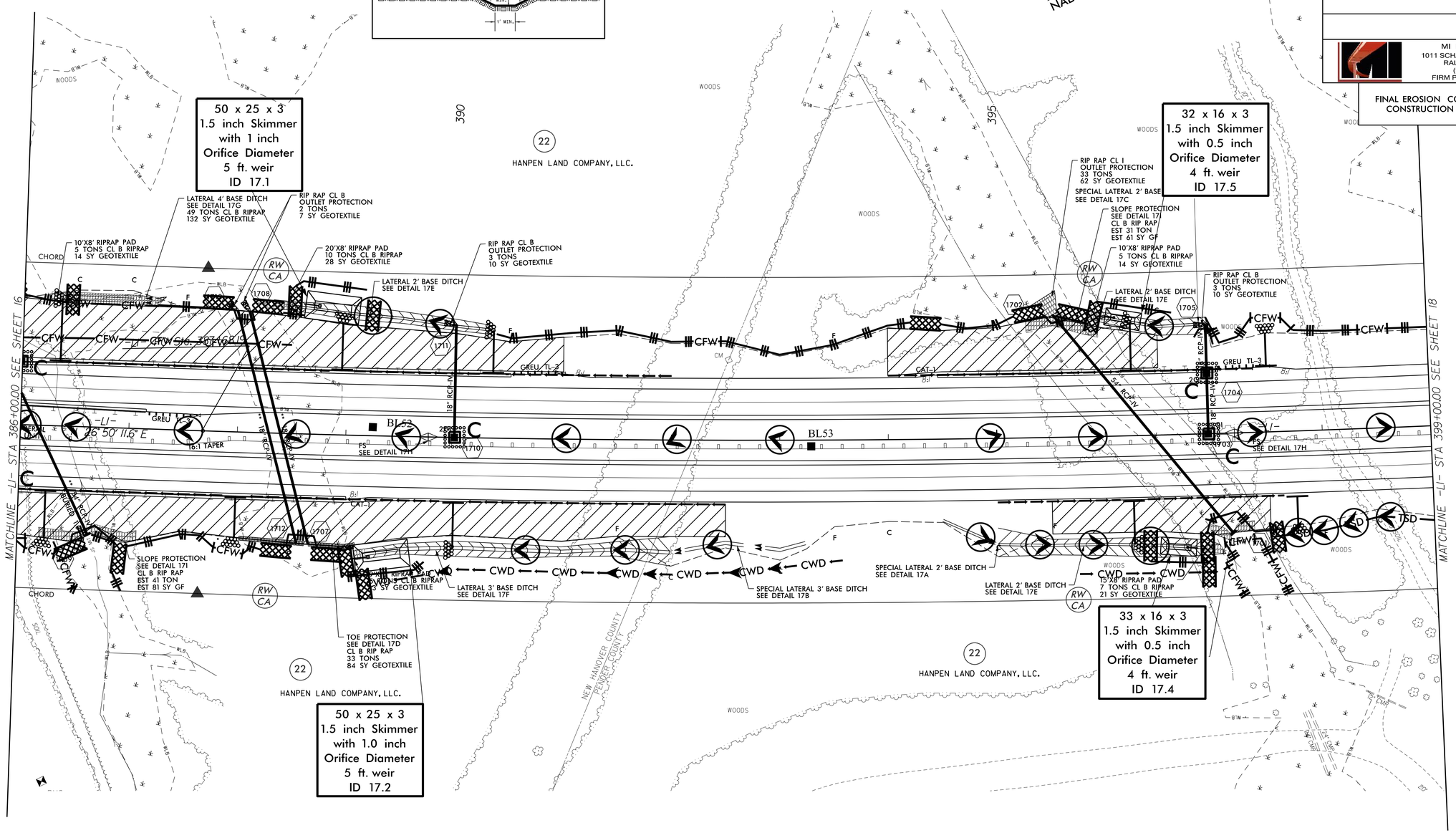
CWD — CWD — CWD — CWD — CWD — CWD

(Not to Scale)



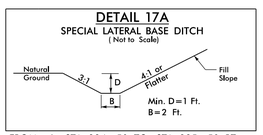
Utilize Coir Fiber Matting Adjacent To Wetlands/Jurisdictional Areas, And, As Directed

NAD 83/NSRS 2007



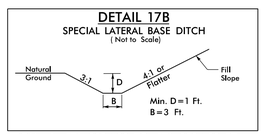
** PIPE TO BE CAMBERED AS DIRECT BY THE ENGINEER – SEE PROJECT SPECIAL PROVISION

DETAIL 17A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



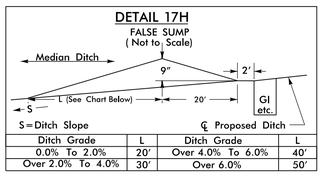
FROM –L– STA. 394+50 TO STA. 395+50 RT

DETAIL 17B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 392+00 TO STA. 393+23 RT.

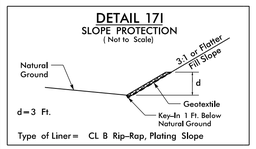
DETAIL 17H
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 389+76 MED.
L1 STA. 397+19 MED.

DETAIL 17I
SLOPE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap, Plating Slope

FROM –L1– STA. 386+20 TO STA. 387+10 RT.
FROM –L1– STA. 395+28 TO STA. 395+95 LT.
FROM –L1– STA. 396+95 TO STA. 397+35 RT.

SEE SHEET 47 FOR –L1– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_17_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
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RALEIGH, NC 27607
PHONE: 919.881.9939
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Stantec Consulting Services Inc.
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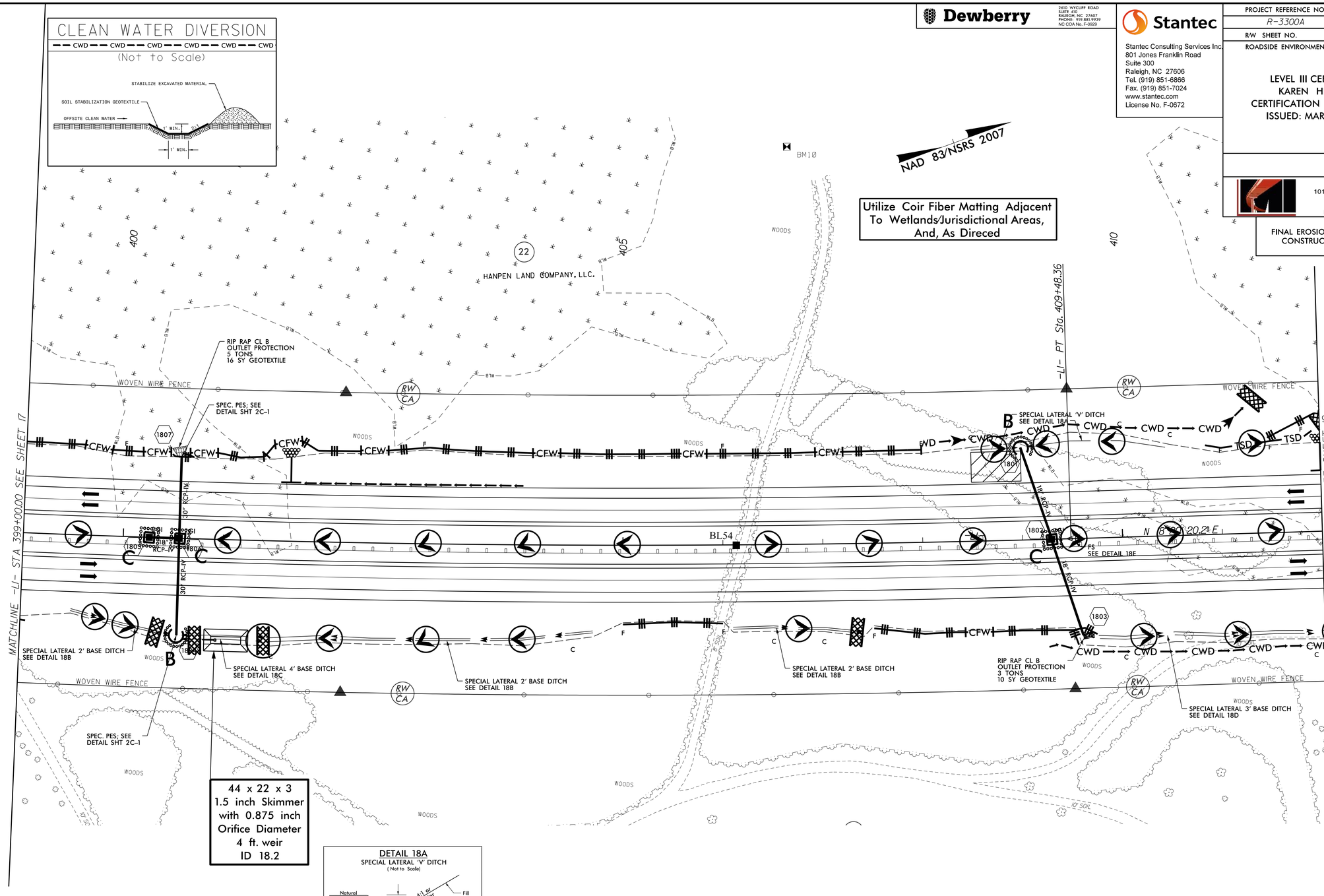
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-56/CONST J8
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

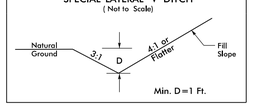
LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 18

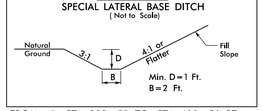


DETAIL 18A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



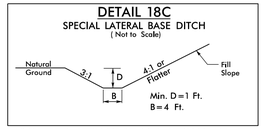
FROM -L- STA. 408+50 TO STA. 410+50 LT

DETAIL 18B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



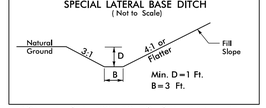
FROM -L- STA. 399+50 TO STA. 400+56 RT
FROM -L- STA. 402+50 TO STA. 404+70 RT
FROM -L- STA. 406+10 TO STA. 407+40 RT

DETAIL 18C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



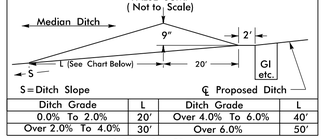
FROM -L- STA. 400+56 TO STA. 402+50 RT

DETAIL 18D
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 409+58 TO STA. 414+15 RT

DETAIL 18E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 409+53 MED.

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_18_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919 881.9939
NC COA No. F-0929

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	EC-57/CONST.19
R/W SHEET NO.	

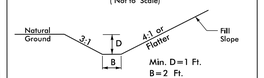
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

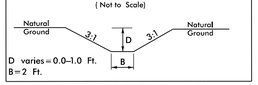
FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 19

DETAIL 19A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



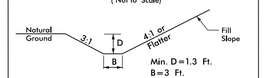
FROM –L– STA. 416+50 TO STA. 419+50 LT

DETAIL 19B
STANDARD BASE DITCH
(Not to Scale)



FROM –L– STA. 416+00 TO STA. 416+50 LT.
L=50', S=0.34%, DDE=15 CY

DETAIL 19C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 409+58 TO STA. 414+15 RT

Utilize Coir Fiber Matting Adjacent To Welands/Jurisdictional Areas, And, As Directed

NAD 83/NSRS 2007

HANPEN LAND COMPANY, LLC.

60 x 30 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
7 ft. weir
ID 19.2

70 x 34 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
9 ft. weir
ID 19.1

SPEC. PES; SEE DETAIL SHT 2C-1

STANDARD 2' BASE DITCH SEE DETAIL 19B

SPECIAL LATERAL 2' BASE DITCH SEE DETAIL 19A

SPECIAL LATERAL 3' BASE DITCH SEE DETAIL 19C

10'X8' RIPRAP PAD
5 TONS CL B RIPRAP
14 SY GEOTEXTILE

RIP RAP CL B OUTLET PROTECTION

BEGIN PROP. SBG –L1– STA 423+01.89 RT

CABLE GUIDERAIL ANCHOR UNIT

MATCHLINE –L1– STA 412+00.00 SEE SHEET 18

MATCHLINE –L1– STA 425+00.00 SEE SHEET 20

–L1– TS Sta. 414+38.47

–L1– SC Sta. 416+18.47

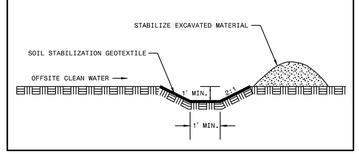
N 18° 20' 20.2" E

* DO NOT BURY EQUALIZER PIPES

CLEAN WATER DIVERSION

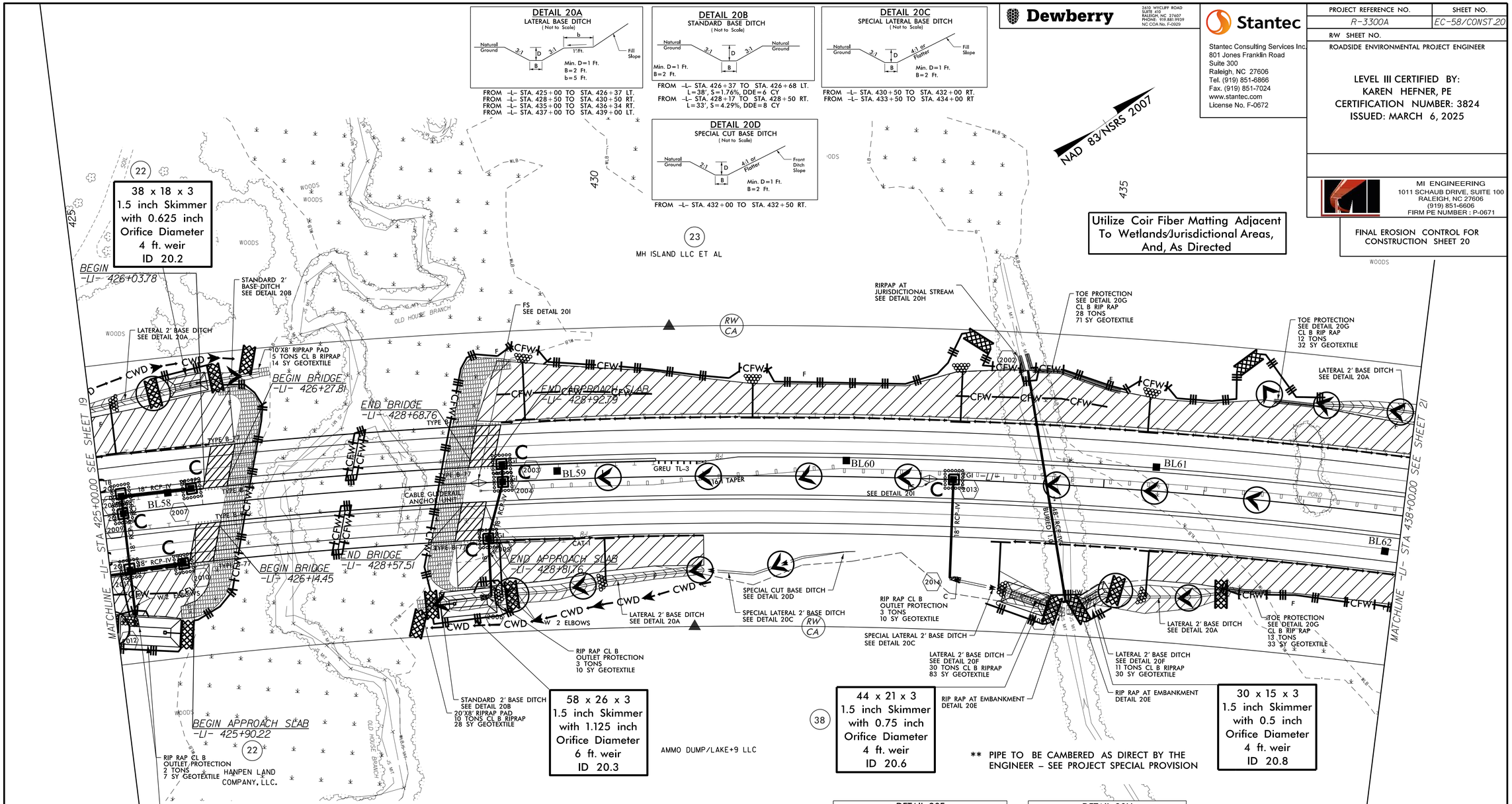
CWD — CWD — CWD — CWD

(Not to Scale)



SEE SHEET 48 FOR –L1– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_19_Final.dgn
MI ENGINEERING, RALEIGH NC



DETAIL 20A
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, b, 1'/Ft., Fill Slope, B
Min. D=1 Ft.
B=2 Ft.
b=5 Ft.

FROM –L– STA. 425+00 TO STA. 426+37 LT.
FROM –L– STA. 428+50 TO STA. 430+50 RT.
FROM –L– STA. 435+00 TO STA. 436+34 RT.
FROM –L– STA. 437+00 TO STA. 439+00 LT.

DETAIL 20B
STANDARD BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, Natural Ground, B
Min. D=1 Ft.
B=2 Ft.

FROM –L– STA. 426+37 TO STA. 426+68 LT.
L=38', S=1.76%, DDE=6 CY
FROM –L– STA. 428+17 TO STA. 428+50 RT.
L=33', S=4.29%, DDE=8 CY

DETAIL 20C
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope, B
Min. D=1 Ft.
B=2 Ft.

FROM –L– STA. 430+50 TO STA. 432+00 RT.
FROM –L– STA. 433+50 TO STA. 434+00 RT

DETAIL 20D
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground, 2:1, D, 4:1 or Flatter, Front Ditch Slope, B
Min. D=1 Ft.
B=2 Ft.

FROM –L– STA. 432+00 TO STA. 432+50 RT.

DETAIL 20E
RIP RAP AT EMBANKMENT
(Not to Scale)

10'min., 1.0'min., Ditch Grade, 12", GEOTEXTILE

Type of Liner= 5 TONS,CL B Rip-Rap
Geotextile= 14sy

FROM –L– STA. 434+55 TO STA. 434+69 RT.
FROM –L– STA. 434+71 TO STA. 434+87 RT.

DETAIL 20F
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, d, D, 3:1, b, 1'/Ft., Fill Slope, GEOTEXTILE, B
Min. D=1 Ft.
Max. d=1 Ft.
B=2 Ft.
b=5 Ft.
*When B is < 6.0'

Type of Liner= B Rip-Rap

FROM –L1– STA. 434+00 TO STA. 434+65 RT.
FROM –L1– STA. 434+77 TO STA. 435+00 RT.

DETAIL 20G
TOE PROTECTION
(Not to Scale)

Natural Ground, b, 3:1 or Flatter Fill Slope, d, Geotextile
d=1 Ft.
b=3 Ft.

Type of Liner= CL B Rip-Rap

FROM –L– STA. 434+19 TO STA. 435+10 LT.
FROM –L– STA. 436+60 TO STA. 437+00 LT.
FROM –L– STA. 436+34 TO STA. 436+76 RT.

DETAIL 20H
RIRPAP AT JURISDICTIONAL STREAM
(Not to Scale)

Natural Ground, 3:1, d, D, 3:1, Natural Ground, Geotextile, B
When B is > 6.0'
Std. No. 876.01
Min. D=2.5 Ft.
Max. d=3 Ft.
B=2 Ft.
L=16 Ft.

Type of Liner=CL I Rip-Rap 26 TONS,505Y GEOTEXTILE

FROM L STA. 434+19 LT.

DETAIL 20I
FALSE SUMP
(Not to Scale)

Median Ditch, 9", 2', S, L (See Chart Below), 20', GI etc., S=Ditch Slope, ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 428+76 MED.
L1 STA. 433+26 MED.

SEE SHEETS 48 & 49 FOR –L1– PROFILE

CLEAN WATER DIVERSION
CWD CWD CWD CWD
(Not to Scale)

STABILIZE EXCAVATED MATERIAL
SOIL STABILIZATION GEOTEXTILE
OFFSITE CLEAN WATER
1' MIN.
1' MIN.

Dewberry
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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-58/CONST.20
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 20

3/6/2025
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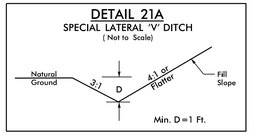
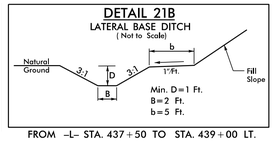
MI ENGINEERING, RALEIGH NC

DETAIL 21A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



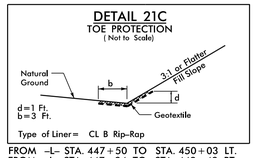
FROM –L– STA. 438+77 TO STA. 439+77 RT.
FROM –L– STA. 445+94 TO STA. 447+50 LT.
FROM –L– STA. 450+90 TO STA. 454+04 LT.
FROM –L– STA. 446+55 TO STA. 447+25 RT.

DETAIL 21B
LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 437+50 TO STA. 439+00 LT.

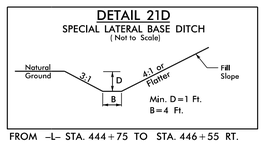
DETAIL 21C
TOE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap

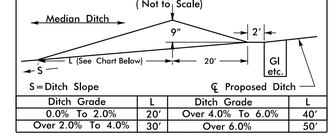
FROM –L– STA. 447+50 TO STA. 450+03 LT.
FROM –L– STA. 447+34 TO STA. 449+43 RT.

DETAIL 21D
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 444+75 TO STA. 446+55 RT.

DETAIL 21E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 439+58 MED.
L1 STA. 449+76 MED.

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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-59/CONST.21
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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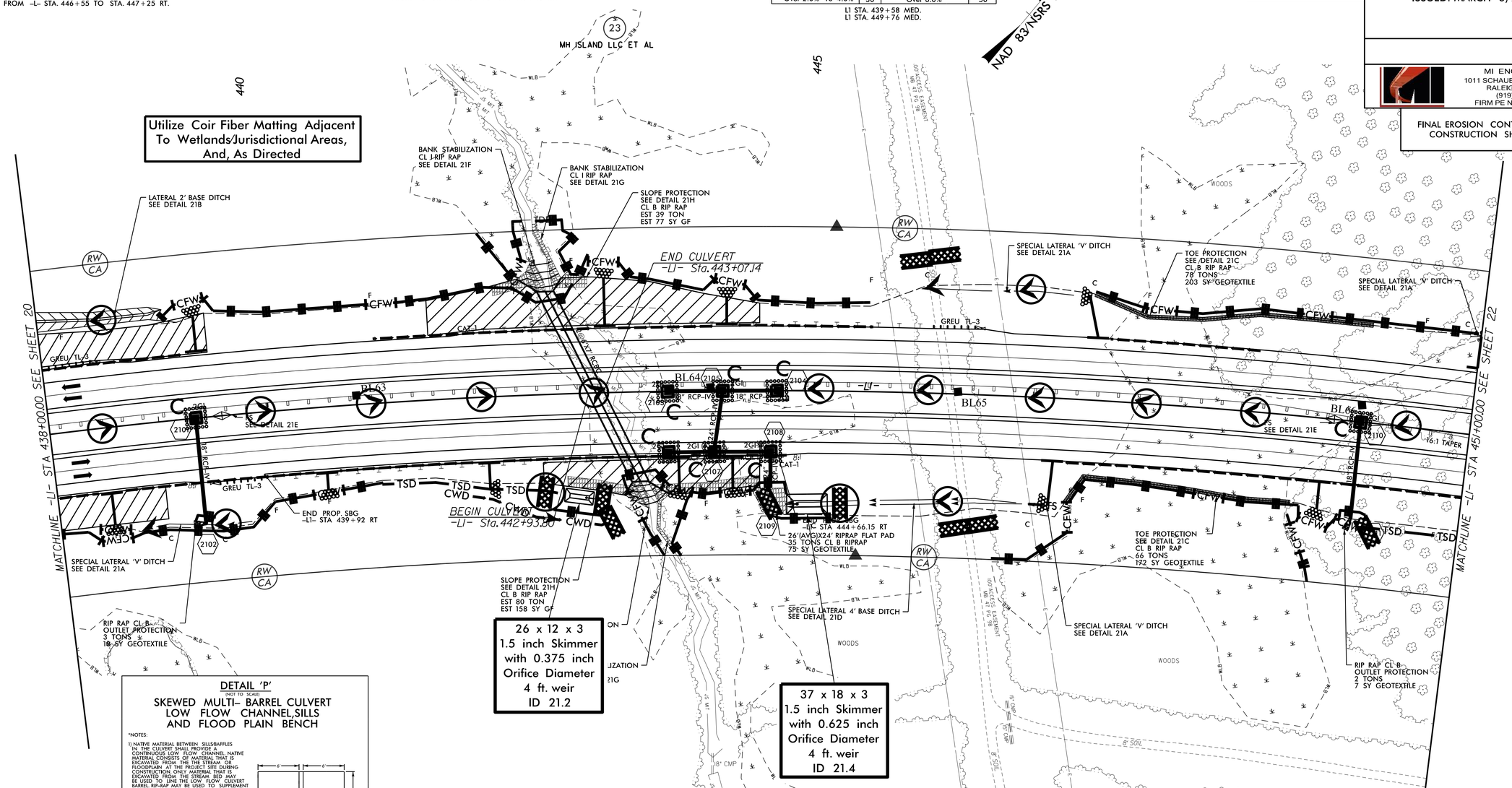
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 21



DETAIL 'P'
(NOT TO SCALE)

SKEWED MULTI– BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN BENCH

*NOTES:

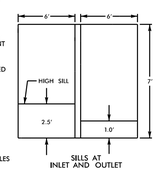
1) NATIVE MATERIAL BETWEEN SILLS&BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE BED MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), THE RIP-RAP SHALL BE PLACED FROM TOP TO TWO WIDTHS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

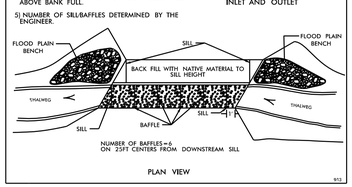
2) SILLS&BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS&BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

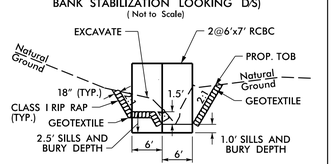
4) DO NOT SET ELEVATION OF HIGH SILLS&BAFFLES ABOVE BANK FULL.

5) NUMBER OF SILL&BAFFLES DETERMINED BY THE ENGINEER.





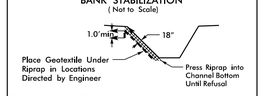
DETAIL 21F
BANK STABILIZATION LOOKING D/S)
(Not to Scale)



LENGTH= 25 FT. (US)
30 FT. (DS)
EST. = 26 TONS OF CLASS I RIP RAP (US)
42 SY GEOTEXTILE (US)
52 TONS OF CLASS I RIP RAP (DS)
58 SY GEOTEXTILE (DS)

L1 STA. 442+50 LT. ±; DDE=20 CY (DS)
L1 STA. 443+50 RT. ±; DDE=17 CY (US)

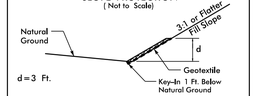
DETAIL 21G
BANK STABILIZATION
(Not to Scale)



Type of Liner=CL I Rip-Rap, Keyed-In

FROM –L– STA. 443+56 TO STA. 443+70 RT.
L=50', 17 TONS CL I RIPRAP
FROM –L– STA. 442+60 TO STA. 442+48 LT.
L=35', TONS CL I RIPRAP

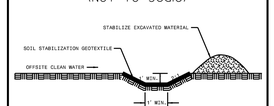
DETAIL 21H
SLOPE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap, Plating Slope

FROM –L1– STA. 442+10 TO STA. 442+95 LT.
FROM –L1– STA. 442+75 TO STA. 444+50 RT.

CLEAN WATER DIVERSION
CWD CWD CWD CWD
(Not to Scale)



SEE SHEET 49 FOR –L1– PROFILE

3/6/2025
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MI ENGINEERING, RALEIGH NC

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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-60/CONST.22
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
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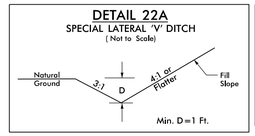
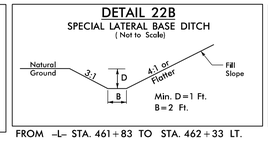
FIRM PE NUMBER : P-0671

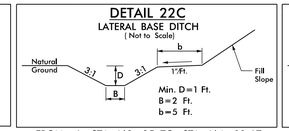
FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 10



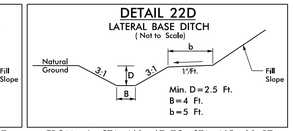
FROM -L- STA. 450+90 TO STA. 454+04 LT.
FROM -L- STA. 454+40 TO STA. 455+30 LT.
FROM -L- STA. 455+36 TO STA. 456+78 LT.



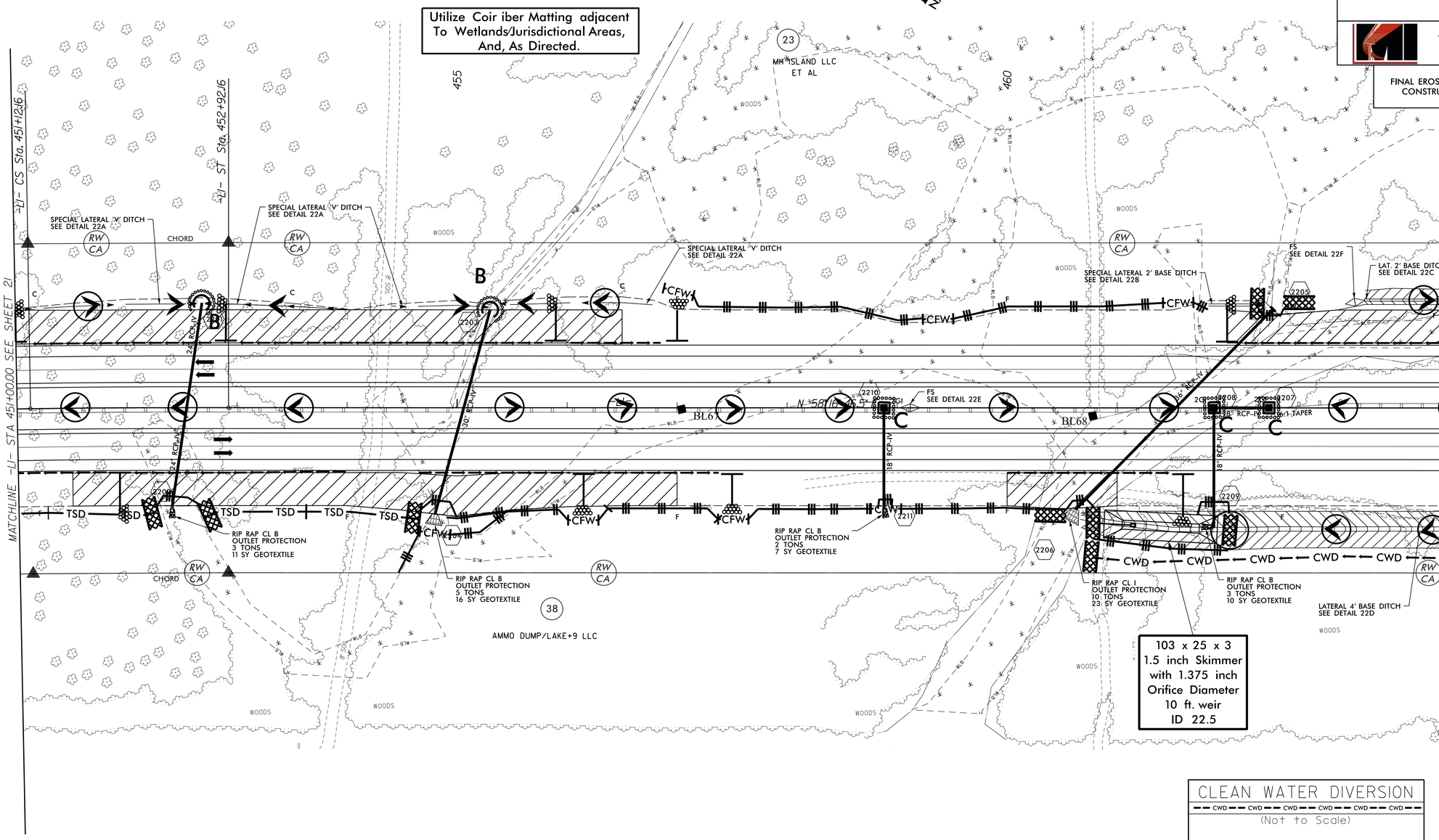
FROM -L- STA. 461+83 TO STA. 462+33 LT.

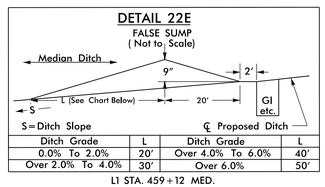


FROM -L- STA. 463+25 TO STA. 464+00 LT.



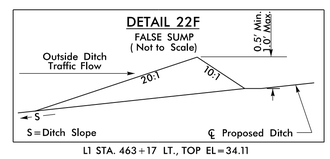
FROM -L- STA. 460+67 TO STA. 465+00 RT.



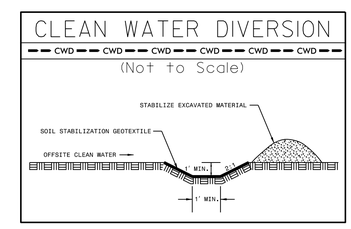


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 459+12 MED.



L1 STA. 463+17 LT., TOP EL=34.11



SEE SHEETS 49 & 50 FOR -L1- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_22_Final.dgn
MI ENGINEERING, RALEIGH NC

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RALEIGH, NC 27607
PHONE: 919 881.9939
NC COA No. F-0929

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

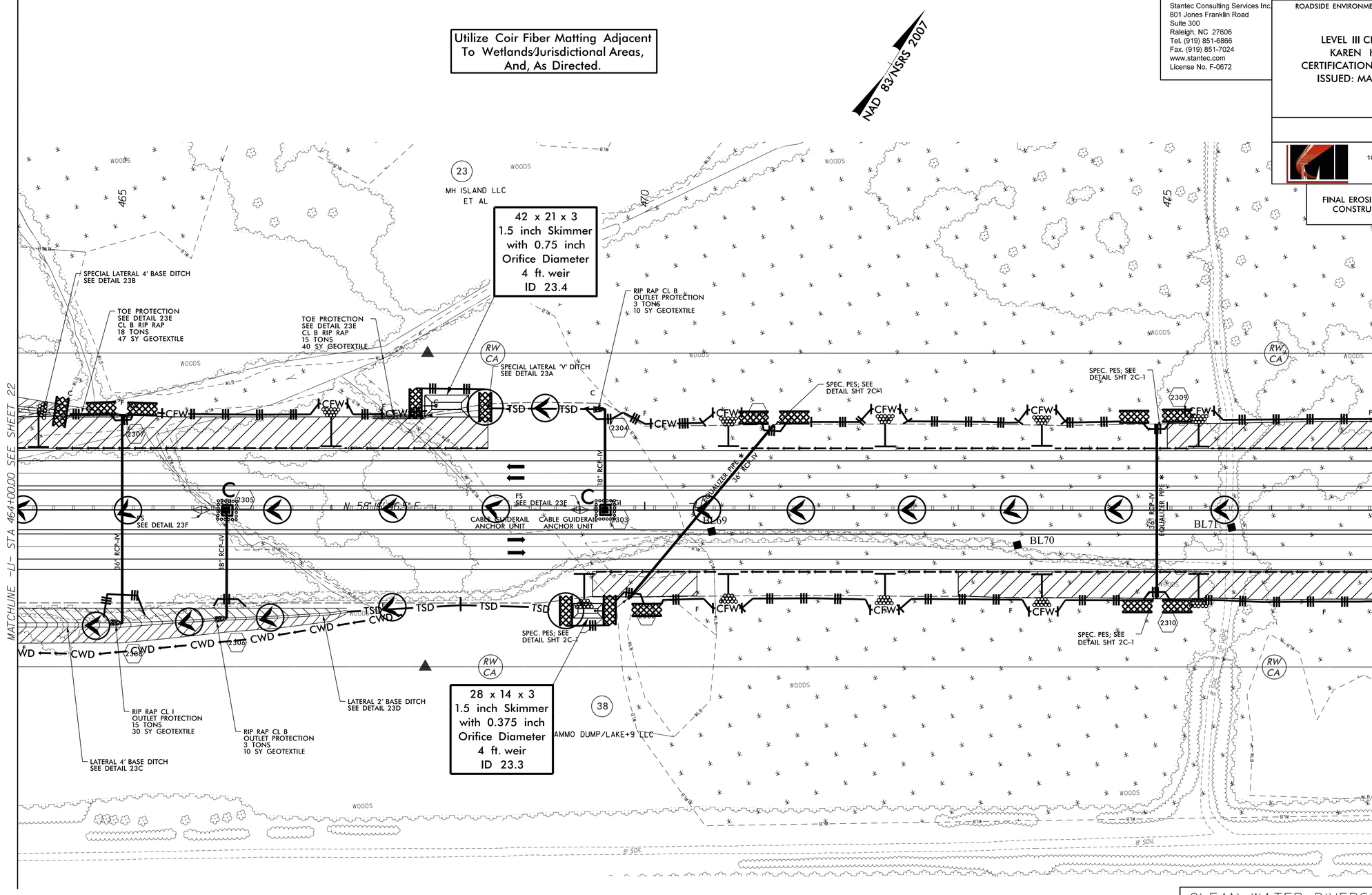
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-6I/CONST.23
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

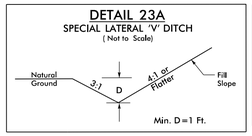
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 23



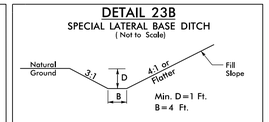
* DO NOT BURY EQUALIZER PIPES

DETAIL 23A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



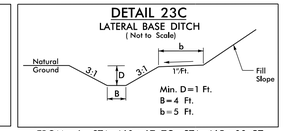
FROM -L- STA. 467+90 TO STA. 469+62 LT.

DETAIL 23B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



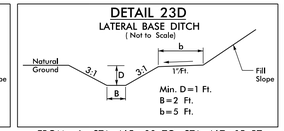
FROM -L- STA. 464+00 TO STA. 464+50 LT.

DETAIL 23C
LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 460+67 TO STA. 465+00 RT.

DETAIL 23D
LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 465+00 TO STA. 467+15 RT.

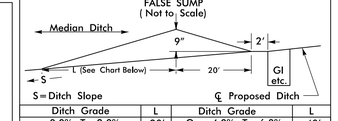
DETAIL 23E
TOE PROTECTION
(Not to Scale)

d=1 Ft.
b=3 Ft.

Type of Liner= CL B Rip-Rap

FROM -L- STA. 464+50 TO STA. 465+10 LT.
FROM -L- STA. 467+40 TO STA. 467+90 LT.

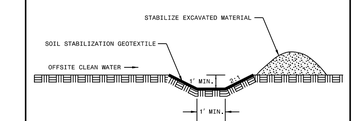
DETAIL 23F
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 465+76 MED.
L1 STA. 469+38 MED.

CLEAN WATER DIVERSION
(Not to Scale)



SEE SHEET 50 FOR -L1- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_23_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
SUITE 410
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PHONE: 919.881.9939
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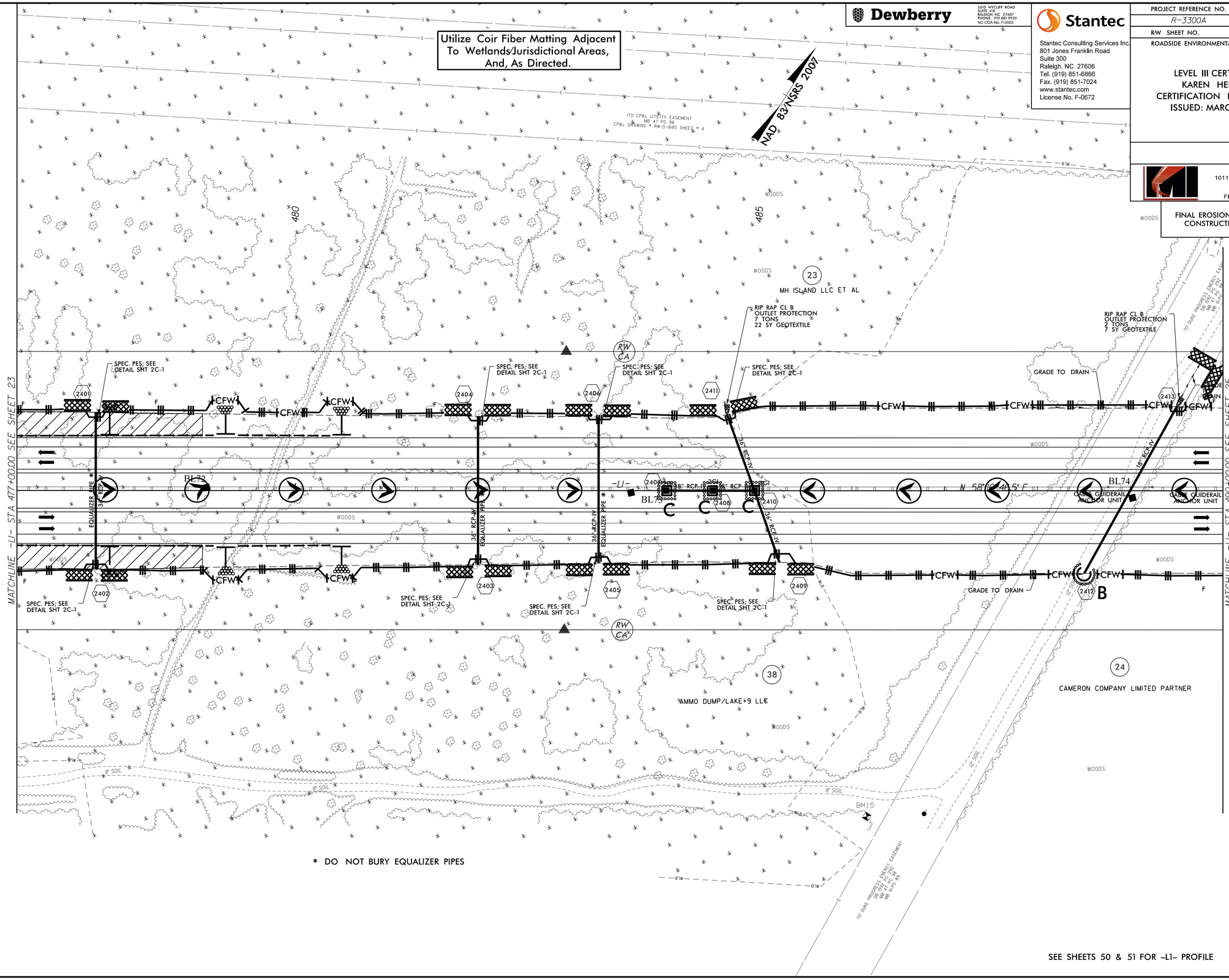
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-62/CONST.24
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 24



* DO NOT BURY EQUALIZER PIPES

SEE SHEETS 50 & 51 FOR -L1- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_24_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919 881.9939
NC COA No. F-0929

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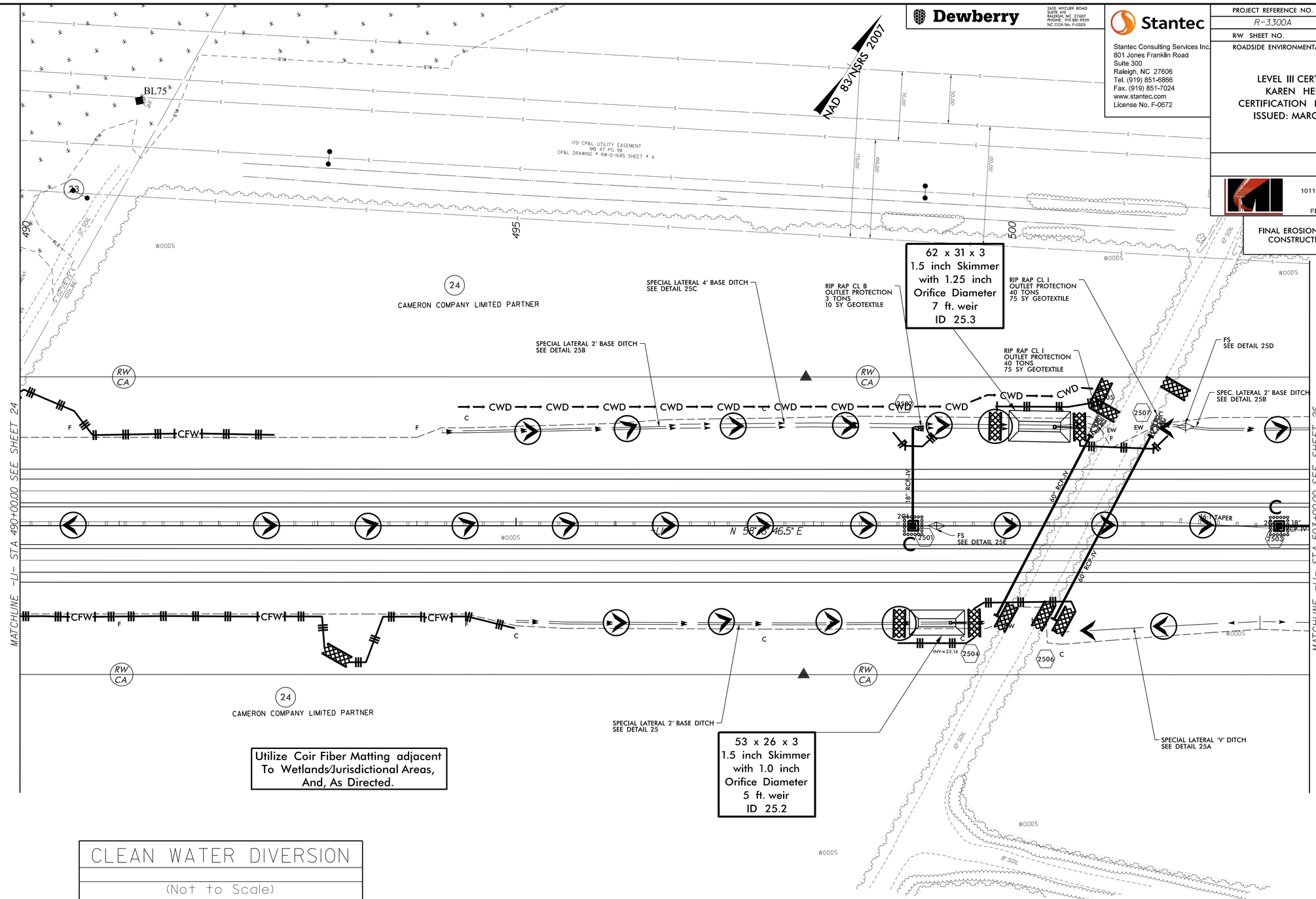
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-63/CONST.25
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

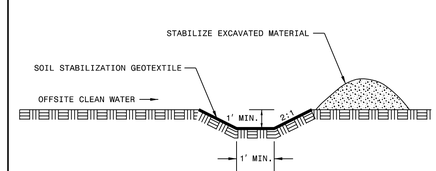
FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 25



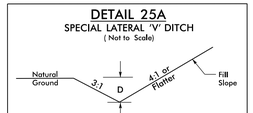
Utilize Coir Fiber Matting adjacent To Wetlands/Jurisdictional Areas, And, As Directed.

CLEAN WATER DIVERSION

(Not to Scale)

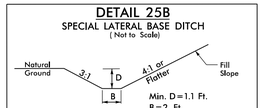


DETAIL 25A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



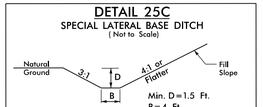
FROM -L- STA. 500+36 TO STA. 504+00 RT.

DETAIL 25B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



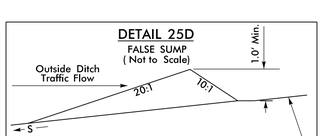
FROM -L- STA. 494+25 TO STA. 496+65 LT.
FROM -L- STA. 495+00 TO STA. 499+78 RT.
FROM -L- STA. 501+48 TO STA. 515+50 LT.

DETAIL 25C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



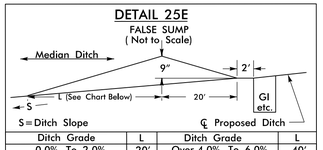
FROM -L- STA. 496+65 TO STA. 500+75 LT.

DETAIL 25D
FALSE SUMP
(Not to Scale)



L1 STA. 501+75 LT., TOP EL=35.71

DETAIL 25E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 499+24 MED.

SEE SHEET 51 FOR -L1- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_25_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
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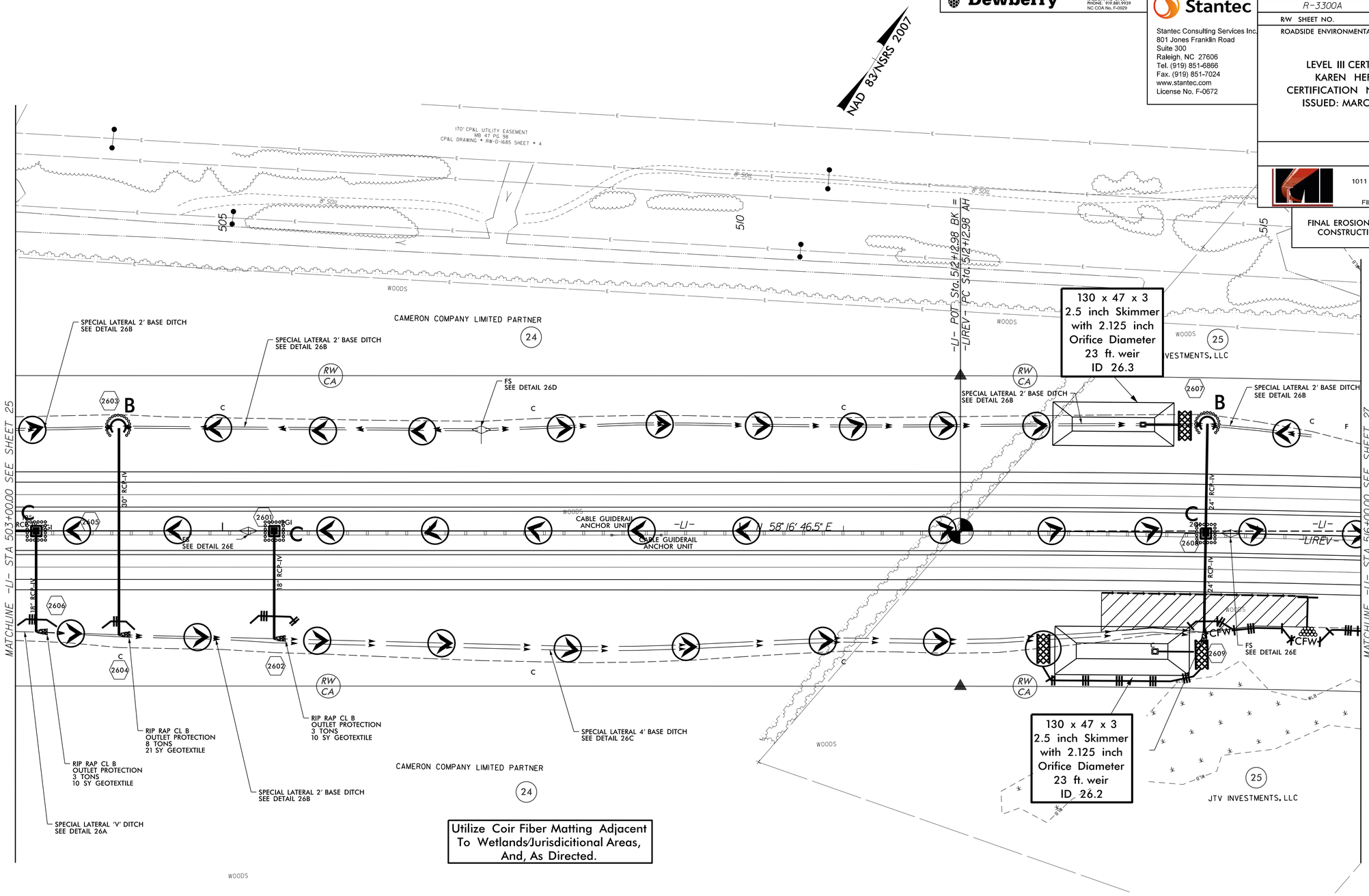
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-64/CONST.26
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

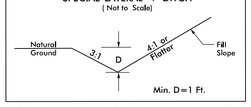
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 26



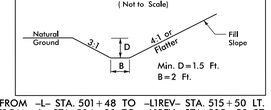
Utilize Coir Fiber Matting Adjacent To Wetlands/Jurisdicitional Areas, And, As Directed.

DETAIL 26A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



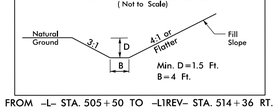
FROM -L- STA. 500+36 TO STA. 504+00 RT.

DETAIL 26B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



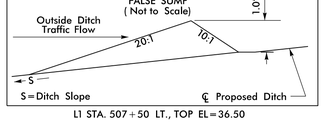
FROM -L- STA. 501+48 TO -L1REV- STA. 515+50 LT.
FROM -L- STA. 504+00 TO -L1REV- STA. 505+50 RT.

DETAIL 26C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



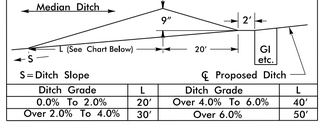
FROM -L- STA. 505+50 TO -L1REV- STA. 514+36 RT.

DETAIL 26D
FALSE SUMP
(Not to Scale)



L1 STA. 507+50 LT., TOP EL=36.50

DETAIL 26E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 505+25 MED.
L1REV STA. 514+74 MED.

SEE SHEETS 51 & 52 FOR -L1- & -L1REV- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_26_Final.dgn
MI ENGINEERING, RALEIGH NC

Dewberry
2610 WYCLIFF ROAD
SUITE 410
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License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-65/CONST.27
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

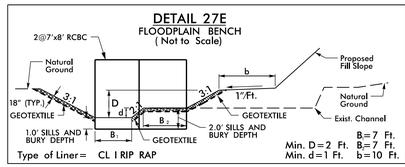
LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 27

NAD 83/NSRS 2007

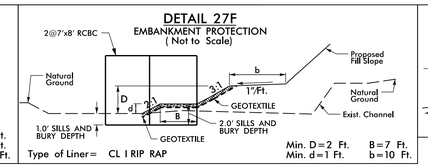
DETAIL 27E
FLOODPLAIN BENCH
(Not to Scale)



Type of Liner= CL I RIP RAP
Min. D=2 Ft. B=7 Ft.
Min. d=1 Ft. b=10 Ft.

FROM –L1REV– STA. 520+34 TO STA. 522+15 RT.,L=203'
DDE=1125 CY, 621 TONS RIP RAP, 1100 SY GEOTEXTILE
FROM –Y35– STA. 20+80 TO STA. 22+71 LT., L=191'
DDE=430 CY, 400 TONS RIP RAP, 700 SY GEOTEXTILE

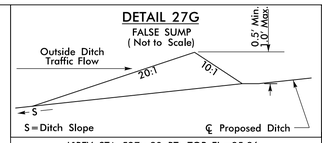
DETAIL 27F
EMBANKMENT PROTECTION
(Not to Scale)



Type of Liner= CL I RIP RAP
Min. D=2 Ft. B=7 Ft.
Min. d=1 Ft. b=10 Ft.

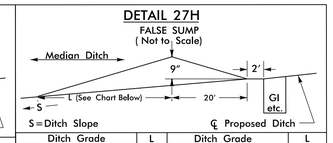
FROM –Y35– STA. 20+25 TO STA. 20+80 LT., L=55'
DDE=20 CY, 52 TONS RIP RAP, 105 SY GEOTEXTILE

DETAIL 27G
FALSE SUMP
(Not to Scale)



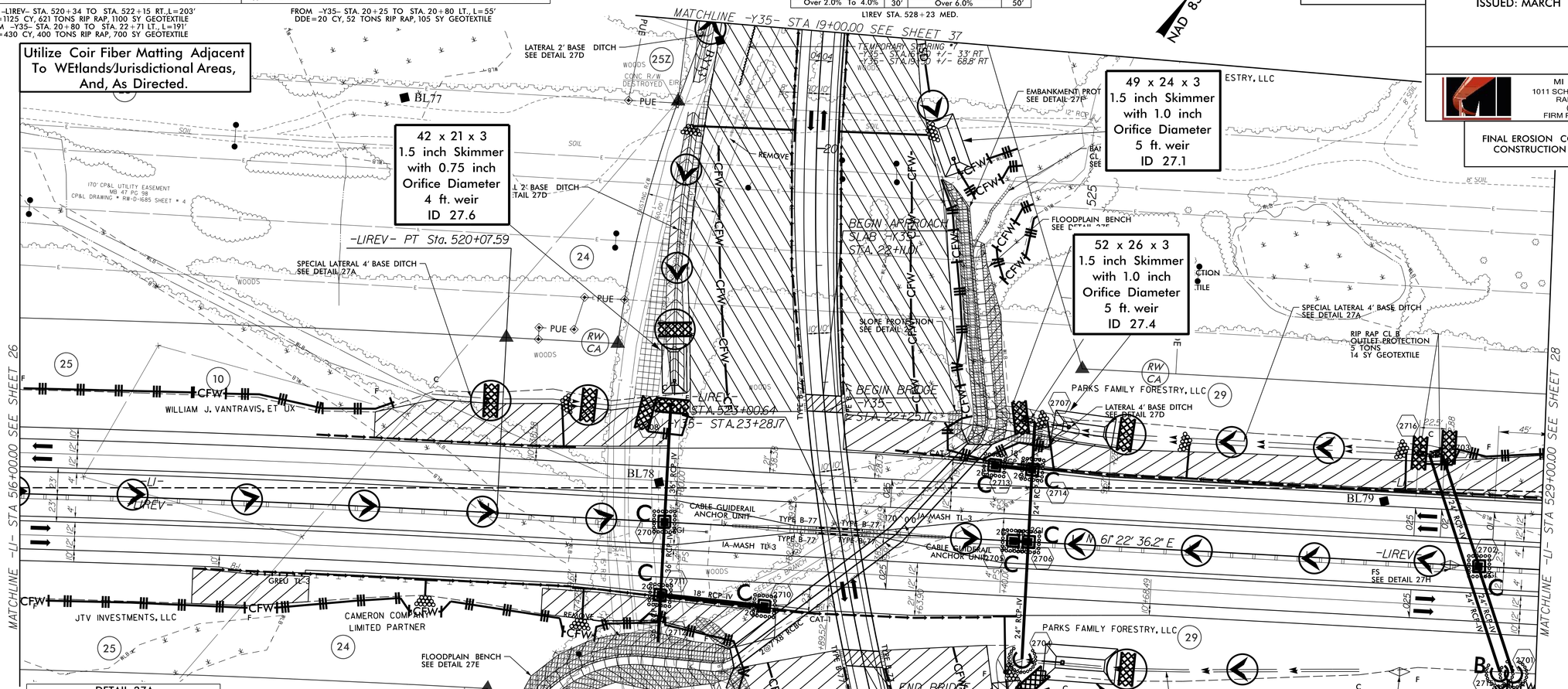
L1REV STA. 527+80 RT., TOP EL=35.86

DETAIL 27H
FALSE SUMP
(Not to Scale)

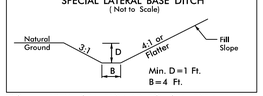


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1REV STA. 528+23 MED.



DETAIL 27A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=4 Ft.

FROM –L1REV– STA. 519+47 TO STA. 521+51 LT
FROM –L1REV– STA. 525+00 TO STA. 528+11 LT

DETAIL 27B
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1 Ft.
B=2 Ft.

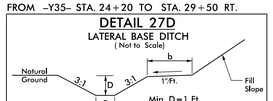
FROM –L1REV– STA. 524+62 TO STA. 527+50 RT

DETAIL 27C
LATERAL 'V' DITCH
(Not to Scale)

Min. D=1 Ft.
b=5 Ft.

FROM –Y35– STA. 24+20 TO STA. 29+50 RT.

DETAIL 27D
LATERAL BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=See below
b=5 Ft.

FROM –L1REV– STA. 524+55 TO STA. 525+00 LT., B=4 Ft.
FROM –Y35– STA. 17+00 TO STA. 19+50 RT., B=2 Ft.
FROM –Y35– STA. 19+75 TO STA. 22+00 RT., B=2 Ft.
FROM –Y35– STA. 24+69 TO STA. 28+00 LT., B=2 Ft.

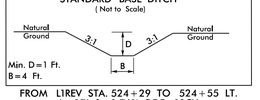
PROP. 2@7'X8' RCBC NOTES:

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

REALIGN US CHANNEL TO FLOW THRU EAST BARREL

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

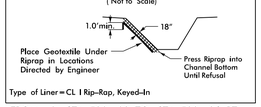
DETAIL 27K
STANDARD BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=4 Ft.

FROM L1REV STA. 524+29 TO 524+55 LT.
L=27', S=0.76%, DDE=18CY

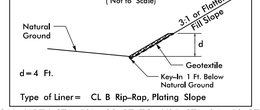
DETAIL 27J
BANK STABILIZATION
(Not to Scale)



Type of Liner=CL I Rip-Rap, Keyed-In

FROM –L– STA. 520+08 TO STA. 520+36 RT.
L=43', 21 TONS, 44 SY GEOTEXTILE
FROM –Y35– STA. 20+28 TO STA. 20+93 LT.
L=68', 33 TONS, 70 SY GEOTEXTILE

DETAIL 27L
SLOPE PROTECTION
(Not to Scale)



d=4 Ft.

Type of Liner= CL B Rip-Rap, Plating Slope

FROM L1REV STA. 521+83 RT. TO Y35 STA. 24+53 RT.
FROM Y35 STA. 22+35 TO L1REV STA. 524+76 LT.

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

NOT TO SCALE

*NOTES:

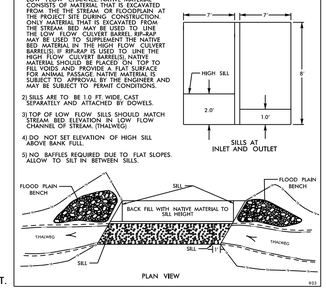
1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL NATIVE MATERIAL SHOULD BE EXCAVATED AND REMOVED FROM THE THE STREAM THAT ACCURS WITHIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE LOW FLOW CULVERT BARREL(S) IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR THE LOW FLOW CHANNEL TO FORM. SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.

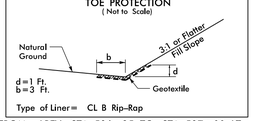
5) NO BAFFLES REQUIRED DUE TO FLAT SLOPES. ALLOW TO SILT IN BETWEEN SILLS.



SEE SHEET 52 FOR –L1REV– PROFILE
SEE SHEET 64 FOR –Y35– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_27_Final.dgn
MI ENGINEERING, RALEIGH NC

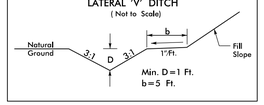
DETAIL 28A
TOE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap

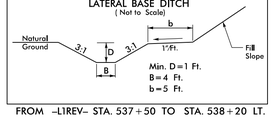
FROM –LREV– STA. 536+25 TO STA. 537+00 LT.

DETAIL 28B
LATERAL 'V' DITCH
(Not to Scale)



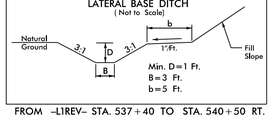
FROM –L1REV– STA. 537+00 TO STA. 537+50 LT.
FROM –L1REV– STA. 540+50 TO STA. 542+50 RT.

DETAIL 28C
LATERAL BASE DITCH
(Not to Scale)



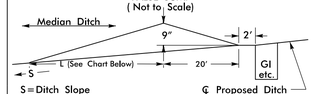
FROM –L1REV– STA. 537+50 TO STA. 538+20 LT.

DETAIL 28D
LATERAL BASE DITCH
(Not to Scale)



FROM –L1REV– STA. 537+40 TO STA. 540+50 RT.

DETAIL 28E
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1REV STA. 532+90 MED.
L1REV STA. 540+26 MED.

NAD 83/NSRS 2007

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2610 WYCLIFF ROAD
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PHONE: 919 881.9939
NC COA No. F-0929

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www.stantec.com
License No. F-0672

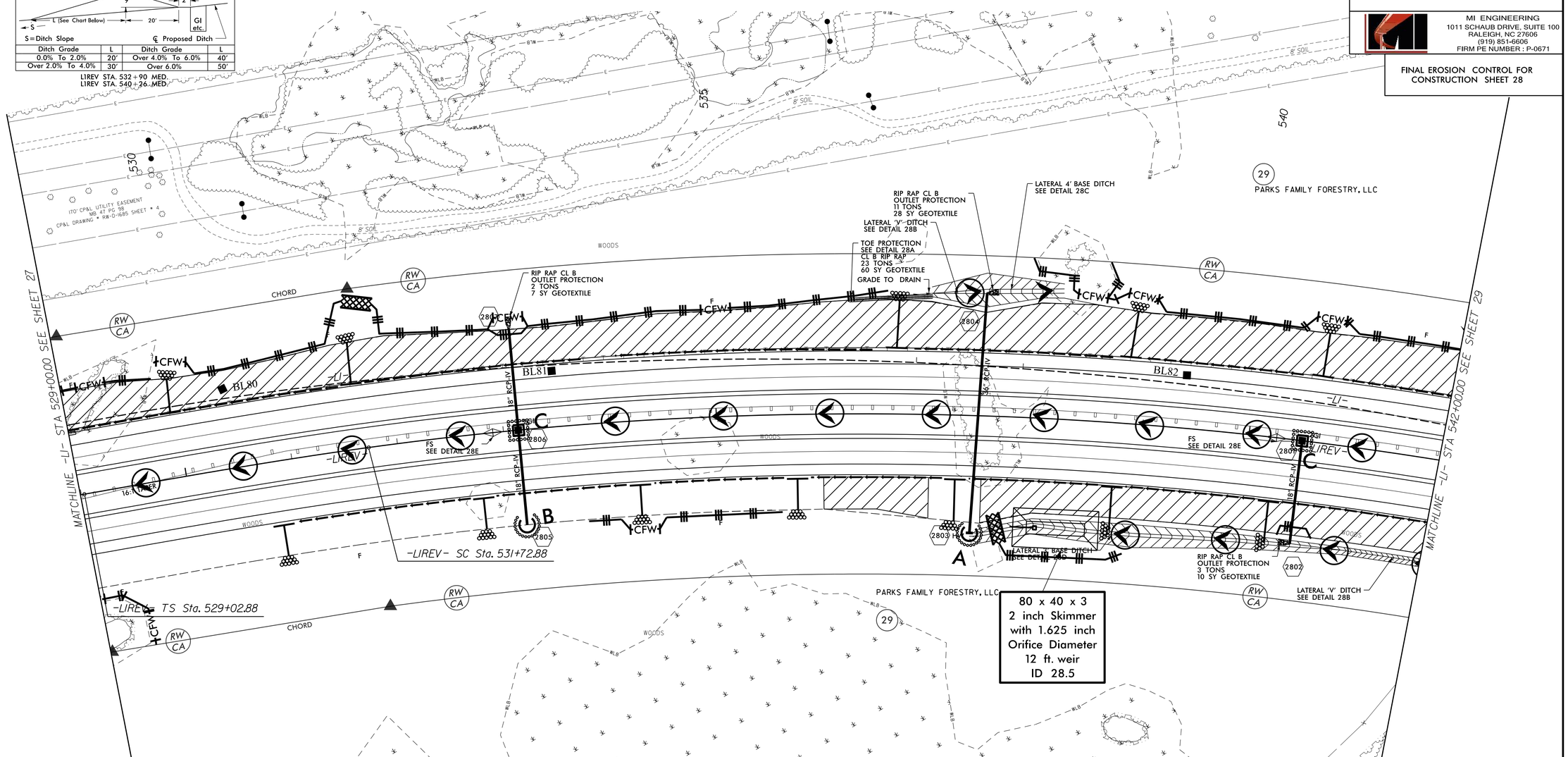
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-66/CONST.28
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 28



Utilize Coir Fiber Matting Adjacent To Wetlands/Jurisdictional Areas, And, As Directed.

SEE SHEETS 52 & 53 FOR –L1– PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_28_Final.dgn
MI ENGINEERING, RALEIGH NC

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www.stantec.com
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PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-67/CONST.29
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

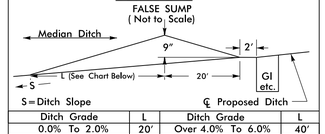
LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

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

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 29

DETAIL 29G

FALSE SUMP
(Not to Scale)



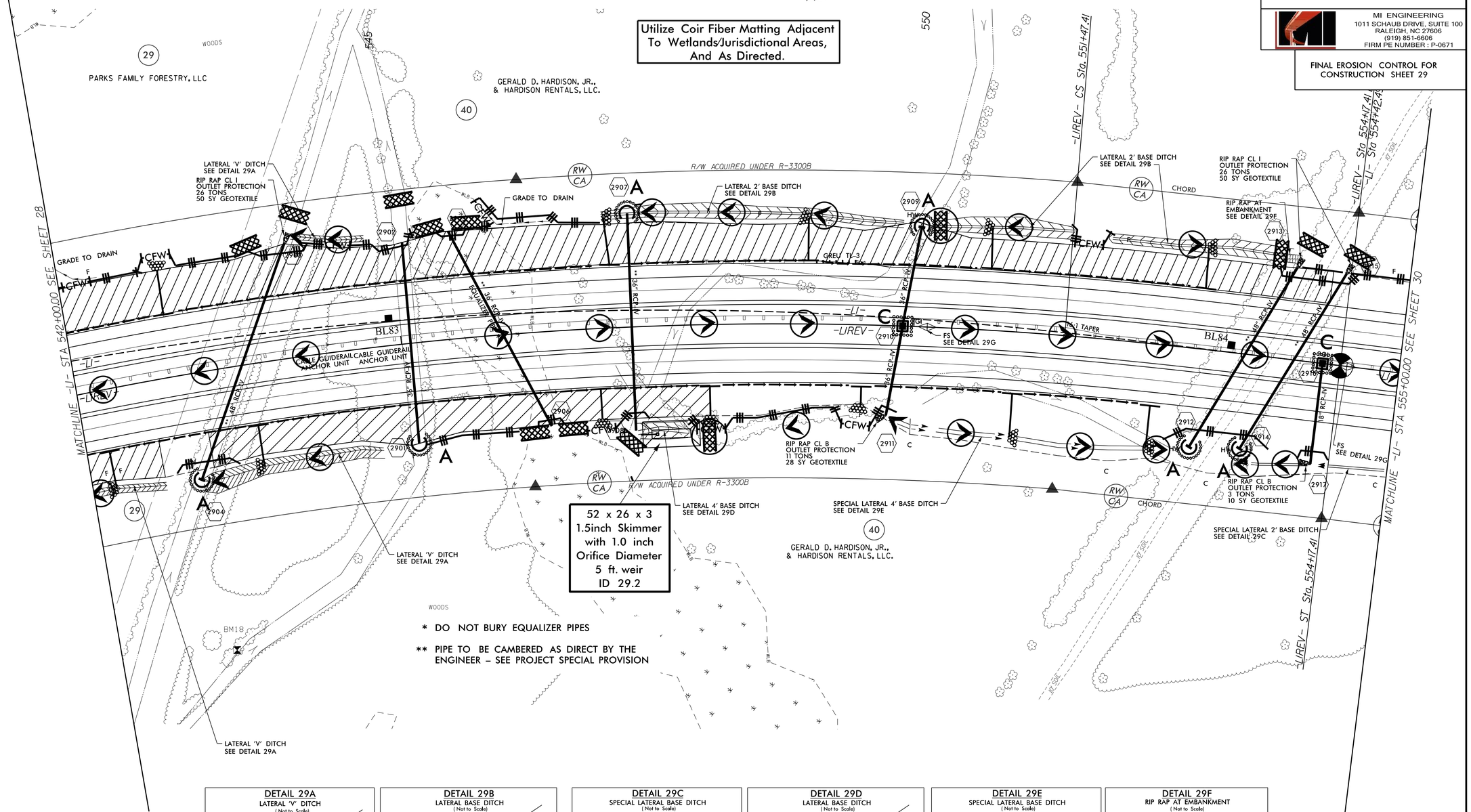
S = Ditch Slope ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

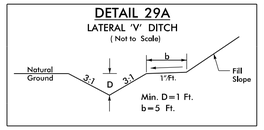
L1REV STA. 550+13 MED.
L1 STA. 554+49 MED.

NAD 83/NSRS 2007

Utilize Coir Fiber Matting Adjacent To Wetlands/Jurisdictional Areas, And As Directed.

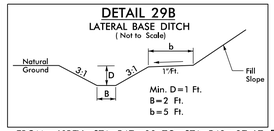


DETAIL 29A
LATERAL 'V' DITCH
(Not to Scale)



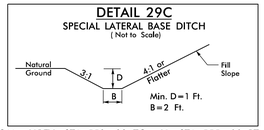
FROM –L1REV– STA. 544+08 TO STA. 544+75 LT.
FROM –L1REV– STA. 540+50 TO STA. 542+50 RT.
FROM –L1REV– STA. 542+88 TO STA. 544+71 RT.

DETAIL 29B
LATERAL BASE DITCH
(Not to Scale)



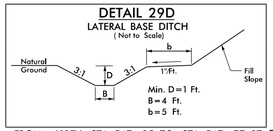
FROM –L1REV– STA. 547+00 TO STA. 549+87 LT.
FROM –L1REV– STA. 550+12 TO STA. 551+46 LT.
FROM –L1REV– STA. 551+85 TO STA. 553+62 LT.

DETAIL 29C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



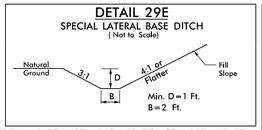
FROM –L1REV– STA. 553+32 TO –L1– STA. 555+00 RT.

DETAIL 29D
LATERAL BASE DITCH
(Not to Scale)



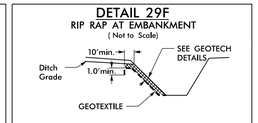
FROM –L1REV– STA. 547+25 TO STA. 547+77 RT.

DETAIL 29E
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L1REV– STA. 549+78 TO STA. 552+50 RT.

DETAIL 29F
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 8 TONS,CL I Rip-Rap
Geotextile = 16sy

FROM –L1REV– STA. 553+50 TO STA. 553+66 LT.

SEE SHEET 53 FOR –L1– PROFILE

3/6/2025
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MI ENGINEERING, RALEIGH NC

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NC COA No. F-0929

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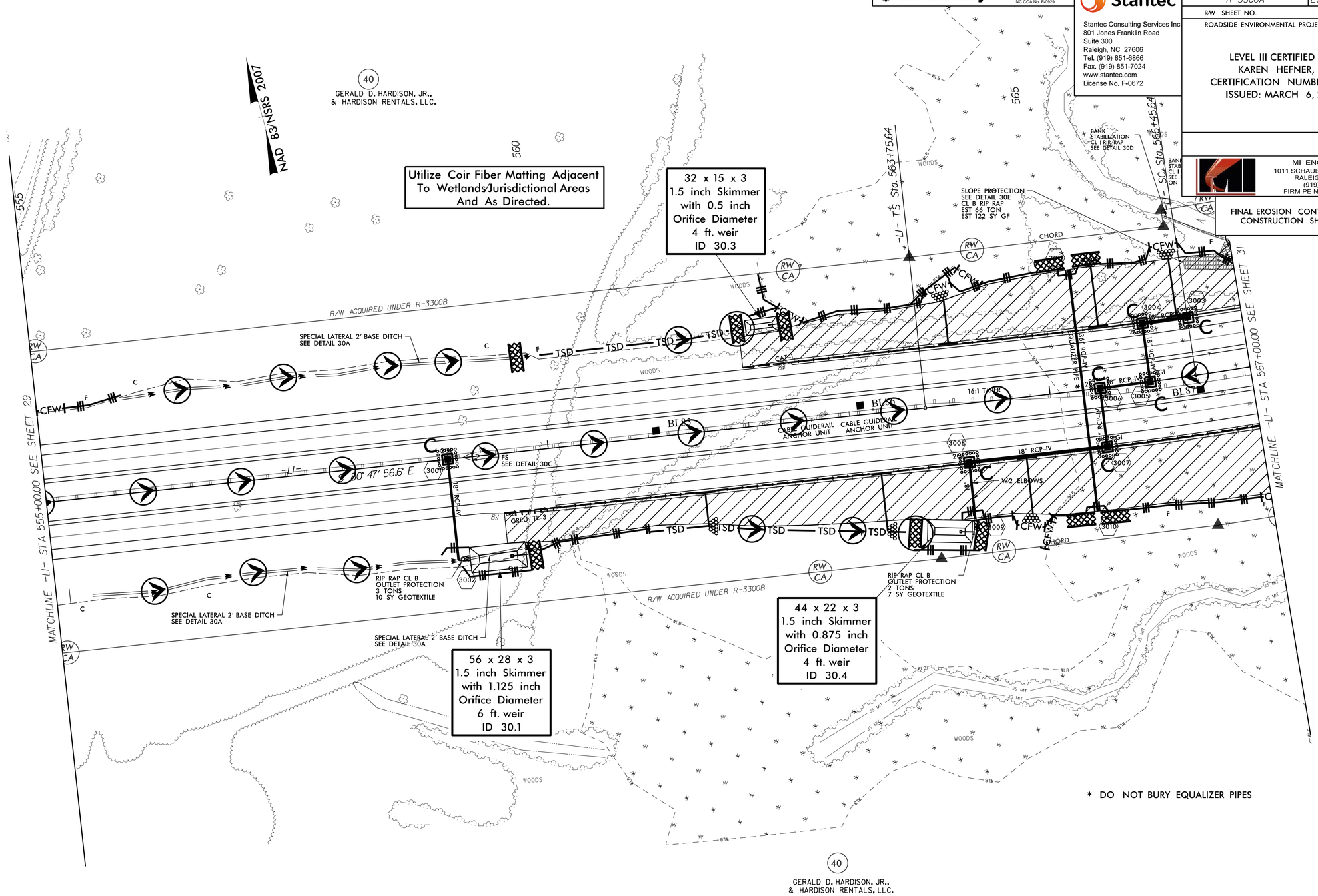
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-68/CONST.30
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

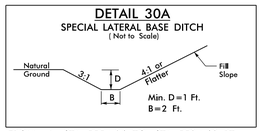
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 30



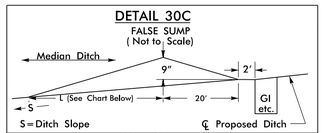
* DO NOT BURY EQUALIZER PIPES

DETAIL 30A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM –L– STA. 555 + 26 TO STA. 559 + 68 RT.
FROM –L– STA. 555 + 85 TO STA. 559 + 88 LT.

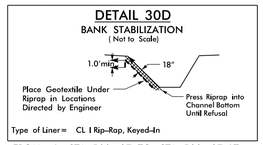
DETAIL 30C
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 559 + 24 MED.

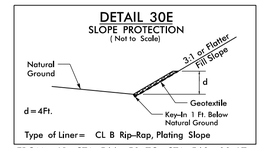
DETAIL 30D
BANK STABILIZATION
(Not to Scale)



Type of Liner = CL I Rip-Rap, Keyed-In

FROM –L– STA. 566 + 37 TO STA. 566 + 97 LT.
L = 65', 12 TONS, 40 SY GEOTEXTILE

DETAIL 30E
SLOPE PROTECTION
(Not to Scale)



Type of Liner = CL B Rip-Rap, Plating Slope

FROM –L1– STA. 566 + 50 TO STA. 568 + 00 LT.

SEE SHEETS 53 & 54 FOR –L1– PROFILE
SEE SHEET 2B–1 FOR HORIZONTAL CURVE DATA

3/6/2025
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MI ENGINEERING, RALEIGH NC

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www.stantec.com
License No. F-0672

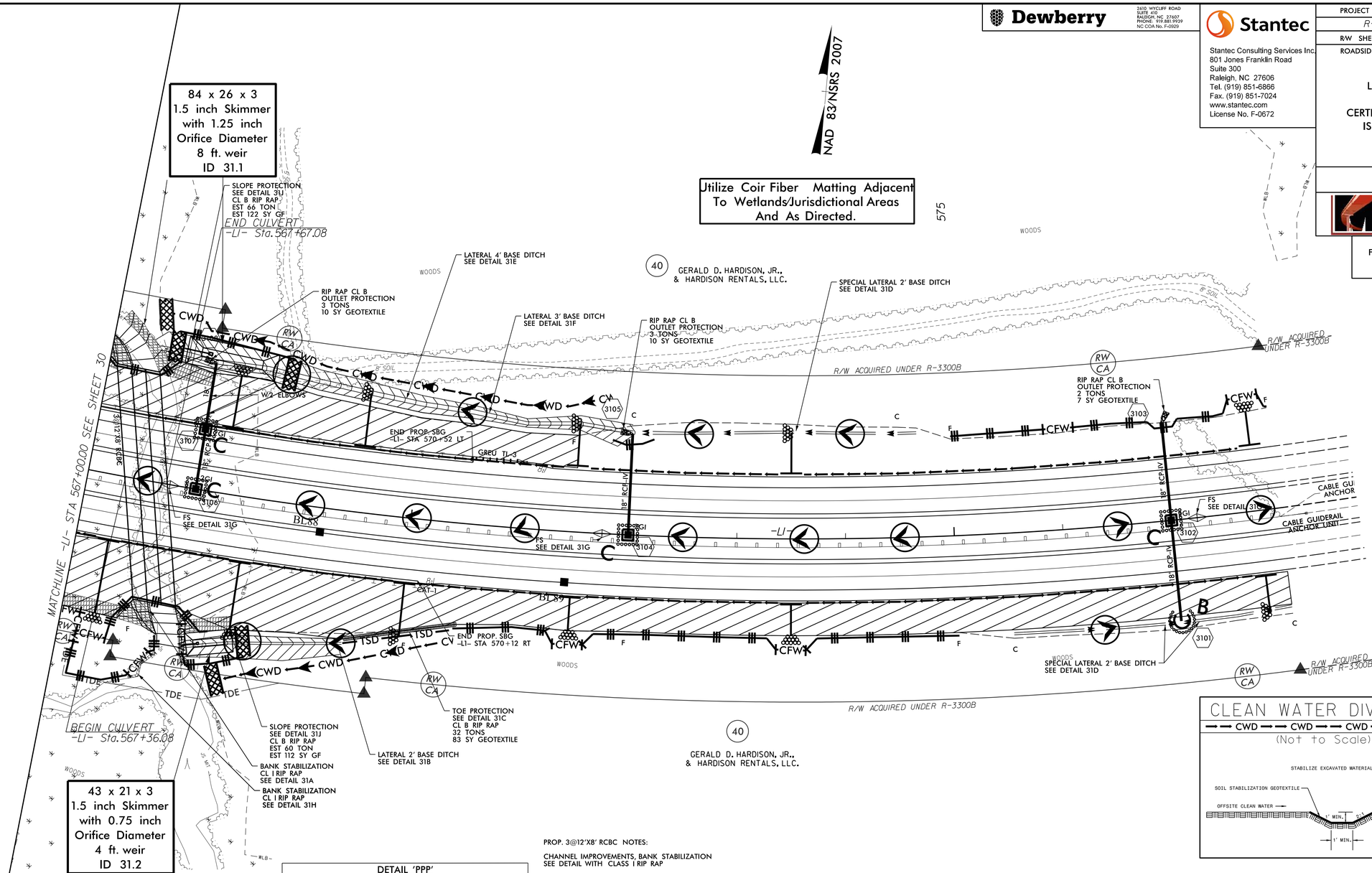
PROJECT REFERENCE NO.	SHEET NO.
R-3300A	EC-69/CONST.31
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
KAREN HEFNER, PE
CERTIFICATION NUMBER: 3824
ISSUED: MARCH 6, 2025

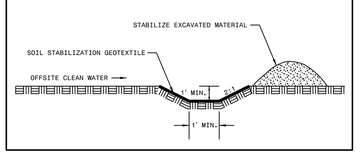
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 31



CLEAN WATER DIVERSION

(Not to Scale)



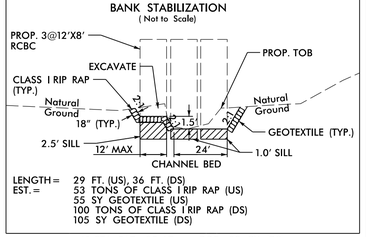
PROP. 3@12'X8' RCBC NOTES:

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 31A
BANK STABILIZATION
(Not to Scale)



LENGTH = 29 FT. (US), 36 FT. (DS)
EST. = 53 TONS OF CLASS I RIP RAP (US)
55 SY GEOTEXTILE (US)
100 TONS OF CLASS I RIP RAP (DS)
105 SY GEOTEXTILE (DS)

L1 STA. 567+35 LT. ±; DDE=38 CY (DS)
L1 STA. 568+00 RT. ±; DDE=31 CY (US)

DETAIL 'PPP'
(NOT TO SCALE)
SKEWED MULTI- BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN BENCH

*NOTES:

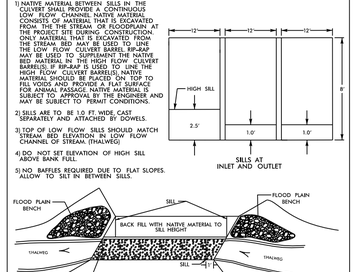
1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE CULVERT LOCATION. THE NATIVE MATERIAL ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE BEDDING MATERIAL IF NEEDED. THE CULVERT BARREL(S) RIP-RAP IS USED ONLY ABOVE HIGH FLOW CULVERT BARREL(S). NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

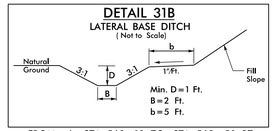
3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.

5) NO BAFFLES REQUIRED DUE TO FLAT SLOPES. ALLOW TO SET IN BETWEEN SILLS.



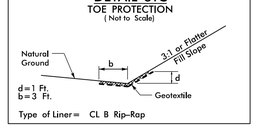
DETAIL 31B
LATERAL BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=2 Ft.
b=5 Ft.

FROM -L- STA. 568+12 TO STA. 569+50 RT.

DETAIL 31C
TOE PROTECTION
(Not to Scale)

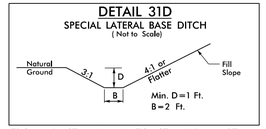


d=1 Ft.
b=3 Ft.

Type of Liner= CL B Rip-Rap

FROM -L- STA. 569+50 TO STA. 570+50 RT.

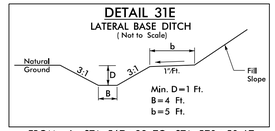
DETAIL 31D
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=2 Ft.

FROM -L- STA. 575+50 TO STA. 578+00 RT.
FROM -L- STA. 572+00 TO STA. 574+68 LT.

DETAIL 31E
LATERAL BASE DITCH
(Not to Scale)



Min. D=1 Ft.
B=4 Ft.
b=5 Ft.

FROM -L- STA. 567+39 TO STA. 570+50 LT.

DETAIL 31F
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1 Ft.
B=3 Ft.

FROM -L- STA. 570+50 TO STA. 572+00 LT.

DETAIL 31G
FALSE SUMP
(Not to Scale)

S=Ditch Slope ℄ Proposed Ditch

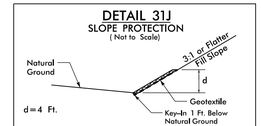
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

L1 STA. 567+76 MED.
L1 STA. 571+76 MED.
L1 STA. 577+24 MED.

DETAIL 31H
BANK STABILIZATION
(Not to Scale)

FROM -L- STA. 567+69 TO STA. 567+87 RT.
L=38', 30 TONS, 80 SY GEOTEXTILE

DETAIL 31J
SLOPE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip-Rap, Plating Slope

FROM -L1- STA. 566+50 TO STA. 568+00 LT.
FROM -L1- STA. 567+00 TO STA. 568+50 RT.

SEE SHEET 54 FOR -L1- PROFILE

3/6/2025
R:\Erosion Control\CADD\R3300A_ec_psh_31_Final.dgn
MI ENGINEERING, RALEIGH NC