TIP PROJECT: U-5536

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5536	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44108.1.2		P.E.
44108.2.1		R/W
44108.2.2		UTIL

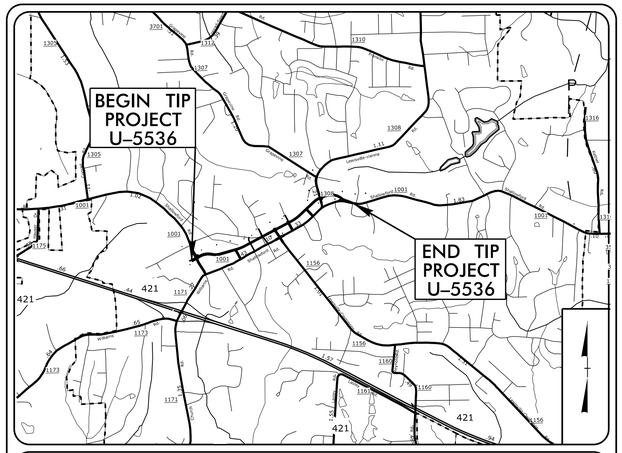
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

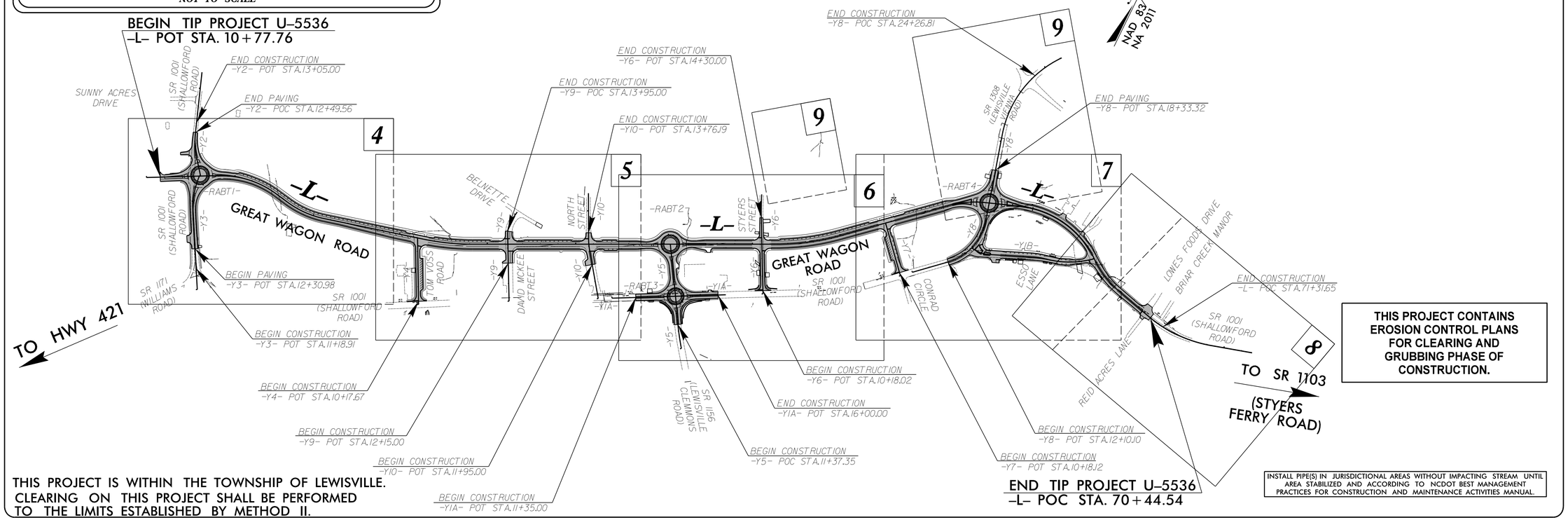
FORSYTH COUNTY

LOCATION: *PROPOSED GREAT WAGON ROAD FROM SR 1001 (SHALLOWFORD ROAD) TO SR 1308 (LEWISVILLE-VIENNA ROAD) IN LEWISVILLE*

TYPE OF WORK: *GRADING, DRAINAGE, AND PAVING*



VICINITY MAP
NOT TO SCALE



THIS PROJECT IS WITHIN THE TOWNSHIP OF LEWISVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

Prepared in the Office of:

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

Designed by:

LINDA JOHNS, PE ***4003***
NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

10/29/2024
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PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-2

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	—EW—EW—EW—
1636.03	Coir Fiber Wattle Barrier	—CFW—CFW—CFW—

10/29/2024
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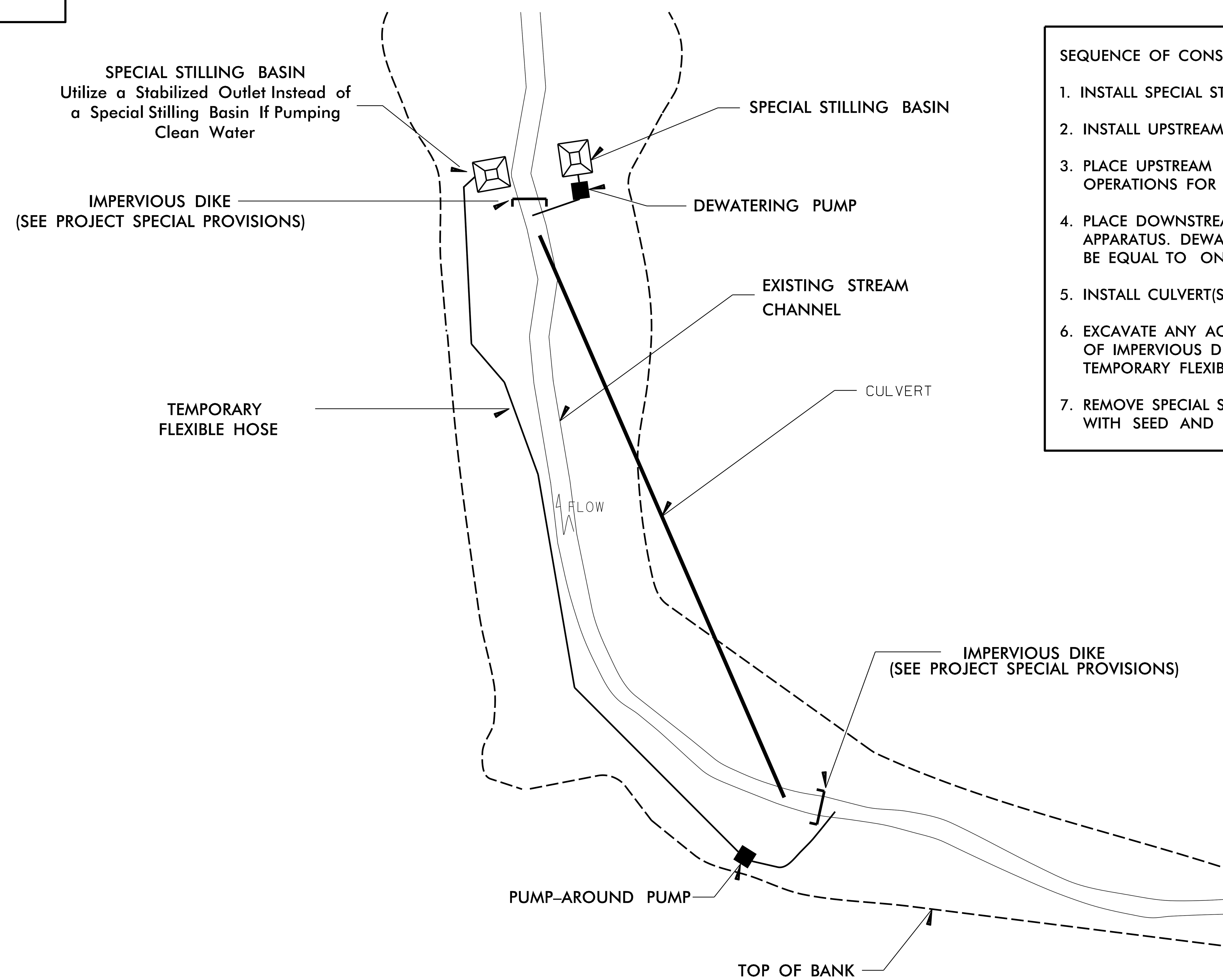
$$USERNAME$$

EXAMPLE OF PUMP–AROUND OPERATION

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size and quantity to dewater the work area and maintain stream bypass flow.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

10/29/2024
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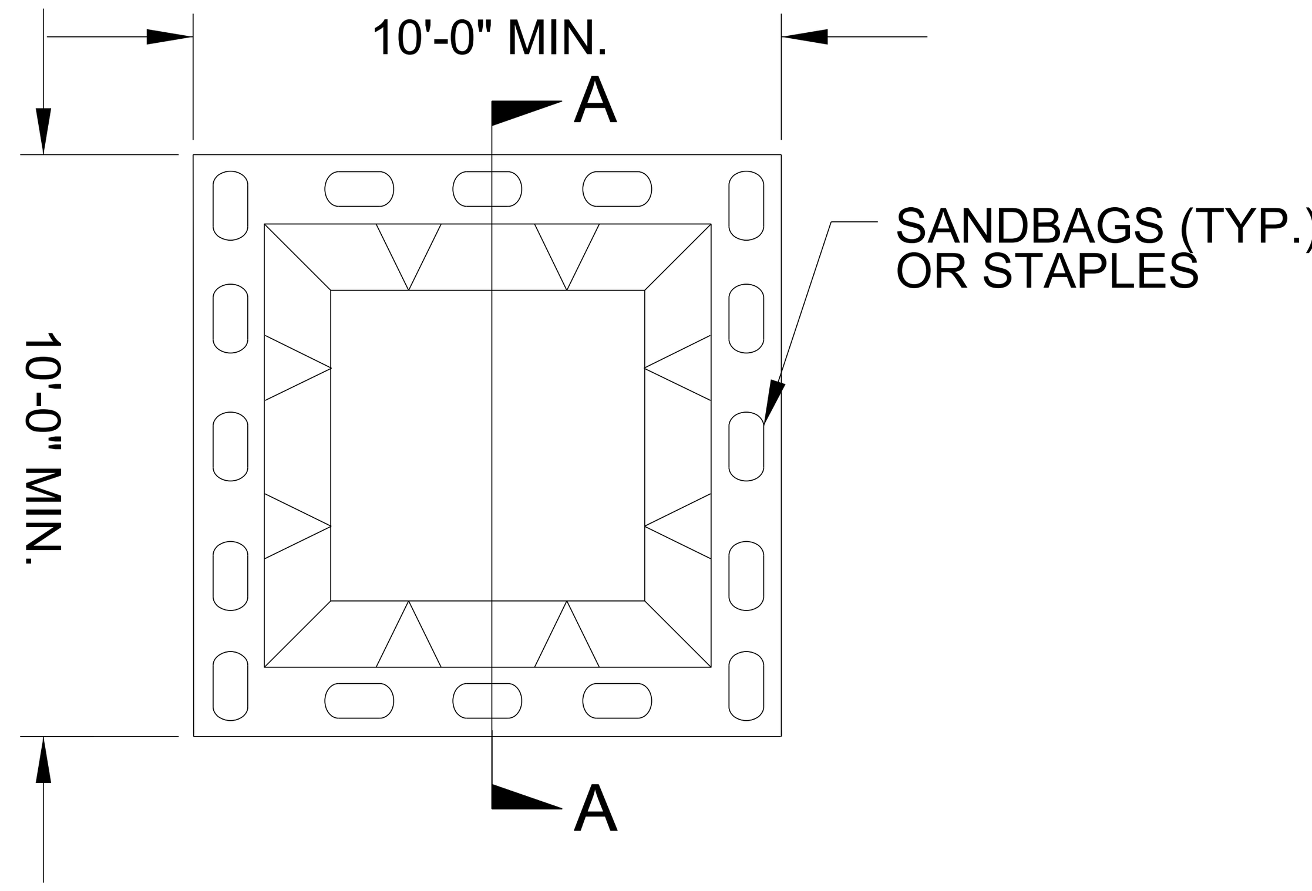
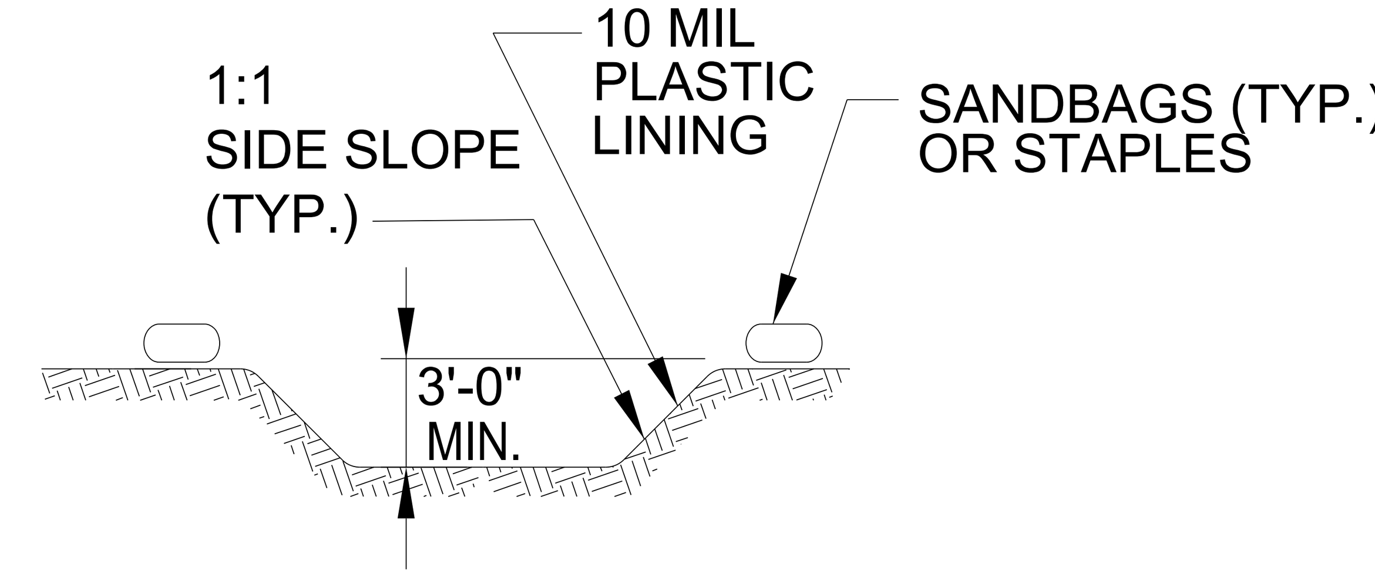
PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-2B

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

CLEARLY MARKED SIGNAGE NOTING DEVICE (18"X24" MIN.)

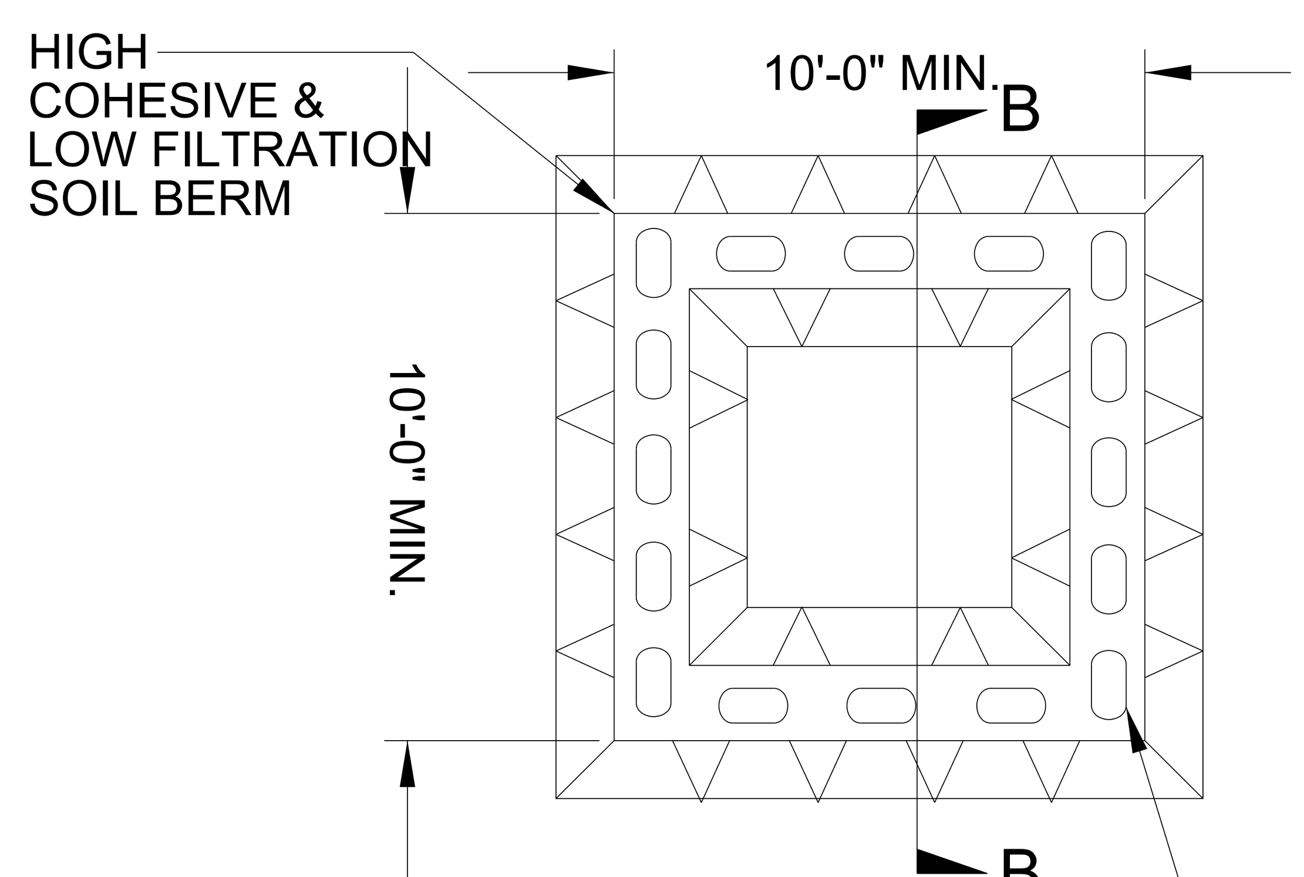
BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE

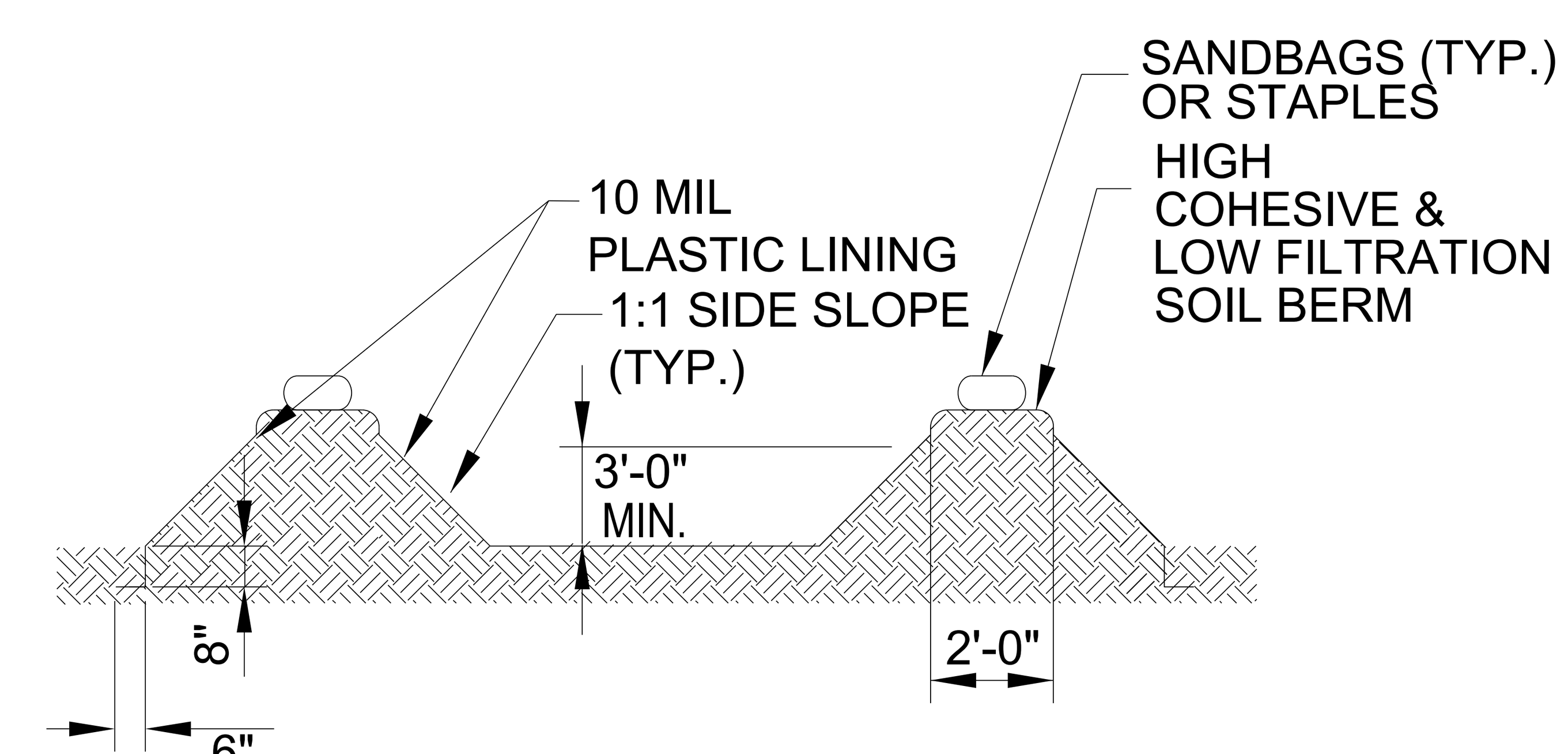
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

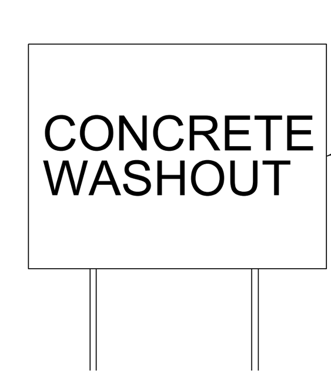
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.



PLAN



SECTION B-B



CLEARLY MARKED SIGNAGE NOTING DEVICE (18"X24" MIN.)

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL (DITCHES)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	Y2	10+88	11+20	LT	25
4	L	16+50	17+60	RT	180
5	L	28+21	28+61	RT	35
5	Y4	10+75	13+32	LT	285
6	L	41+34	44+30	RT	460
6	L	50+50	51+00	RT	75
7	Y7	11+50	12+65	LT	95
8	L	67+50	69+71	RT	360
			SUBTOTAL		1,515

MATTING FOR EROSION CONTROL (SLOPES)

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
6	Y5 TO RABT2 TO L	Y5 14+69	L 42+00	RT	326
6	RABT2 TO L	RABT2 12+88	L 44+50	LT	1,420
6	L	47+50	51+50	LT	1,672
6	L	48+00	50+50	RT	821
7	L	52+00	56+00	LT	2,280
			SUBTOTAL		6,520
		SLOPE MATTING SUBTOTAL			6,520
		DITCH MATTING SUBTOTAL			1,515
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					29,220
			TOTAL		37,255
			SAY		37,255

10/29/2024
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MI ENGINEERING - ljohns

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-3A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

10/29/2024
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MI ENGINEERING - tjohns

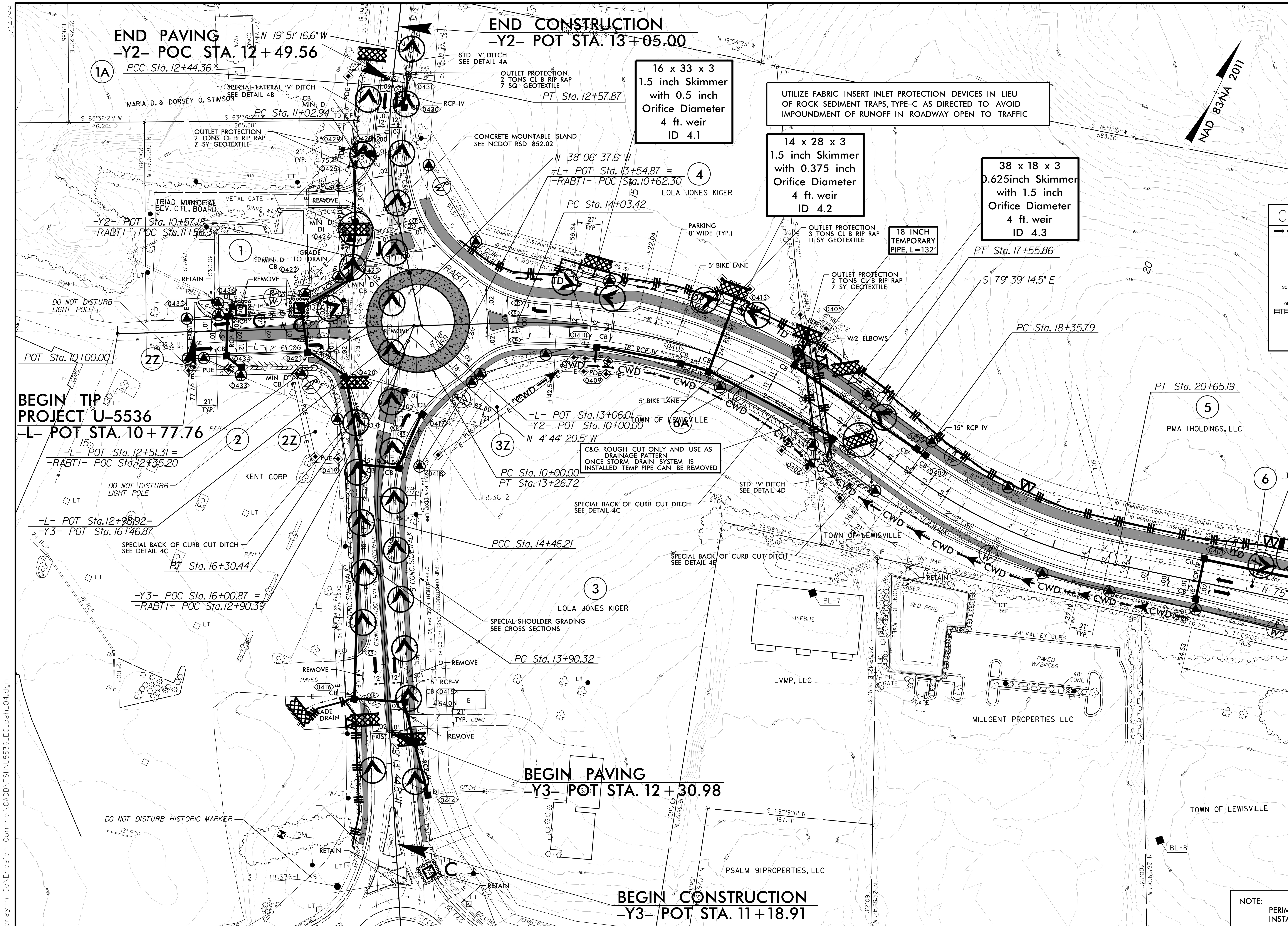
PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-04/CONST.04
R/W SHEET NO.	

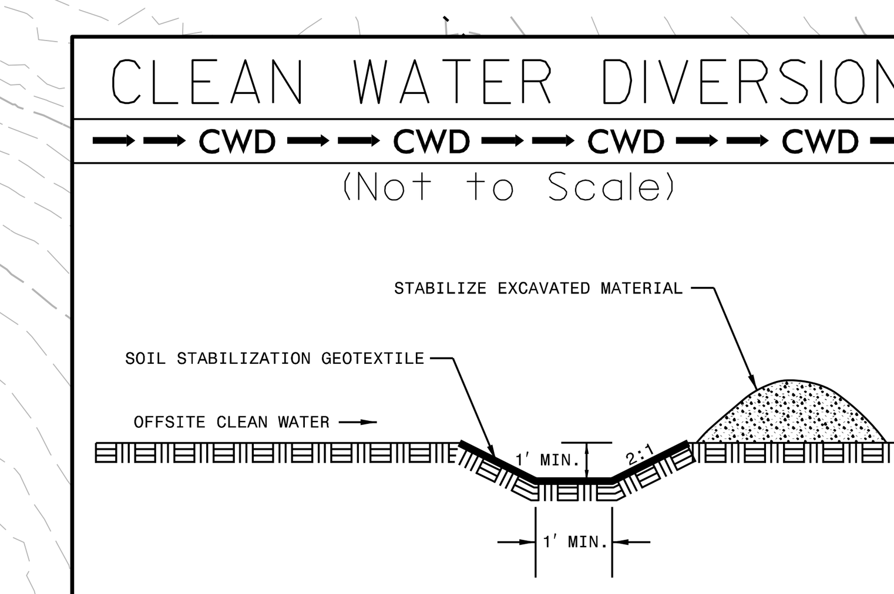
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith — CDM Smith Inc., 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-1255

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671





CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

-L-		-Y2-		-Y3-		-RABT1-
PI Sta 15+86.35	PI Sta 19+52.30	PI Sta 11+74.23	PI Sta 12+51.12	PI Sta 14+18.26	PI Sta 15+39.63	PI Sta 10+00.00
Δ = 37° 53′ 10.4″ (RT)	Δ = 24° 39′ 35.2″ (LT)	Δ = 18° 00′ 21.5″ (RT)	Δ = 0° 14′ 59.4″ (RT)	Δ = 1° 01′ 58.7″ (RT)	Δ = 23° 27′ 25.6″ (RT)	Δ = 359° 59′ 20.3″ (LT)
D = 10° 44′ 58.8″	D = 10° 44′ 58.8″	D = 12° 43′ 56.6″	D = 1° 50′ 53.7″	D = 1° 50′ 53.7″	D = 12° 43′ 56.6″	D = 110° 11′ 03.1″
L = 352.44′	L = 229.40′	L = 141.42′	L = 13.52′	L = 55.89′	L = 184.23′	L = 326.72′
T = 182.93′	T = 116.50′	T = 71.30′	T = 6.76′	T = 27.95′	T = 93.42′	T = 0.00′
R = 533.00′	R = 533.00′	R = 450.00′	R = 3,100.00′	R = 3,100.00′	R = 450.00′	R = 52.00′
e = 0.04	e = 0.04	e = NC	e = EXIST.	e = NC	e = NC	e = NC
RO = 84′	RO = 84′	RO = N/A	RO = N/A	RO = N/A	RO = N/A	RO = N/A
DS = 40 mph	DS = 40 mph	DS = 15 mph	DS = 40 mph	DS = 30 mph	DS = 15 mph	DS = N/A

5/14/99

10/29/2024
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NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

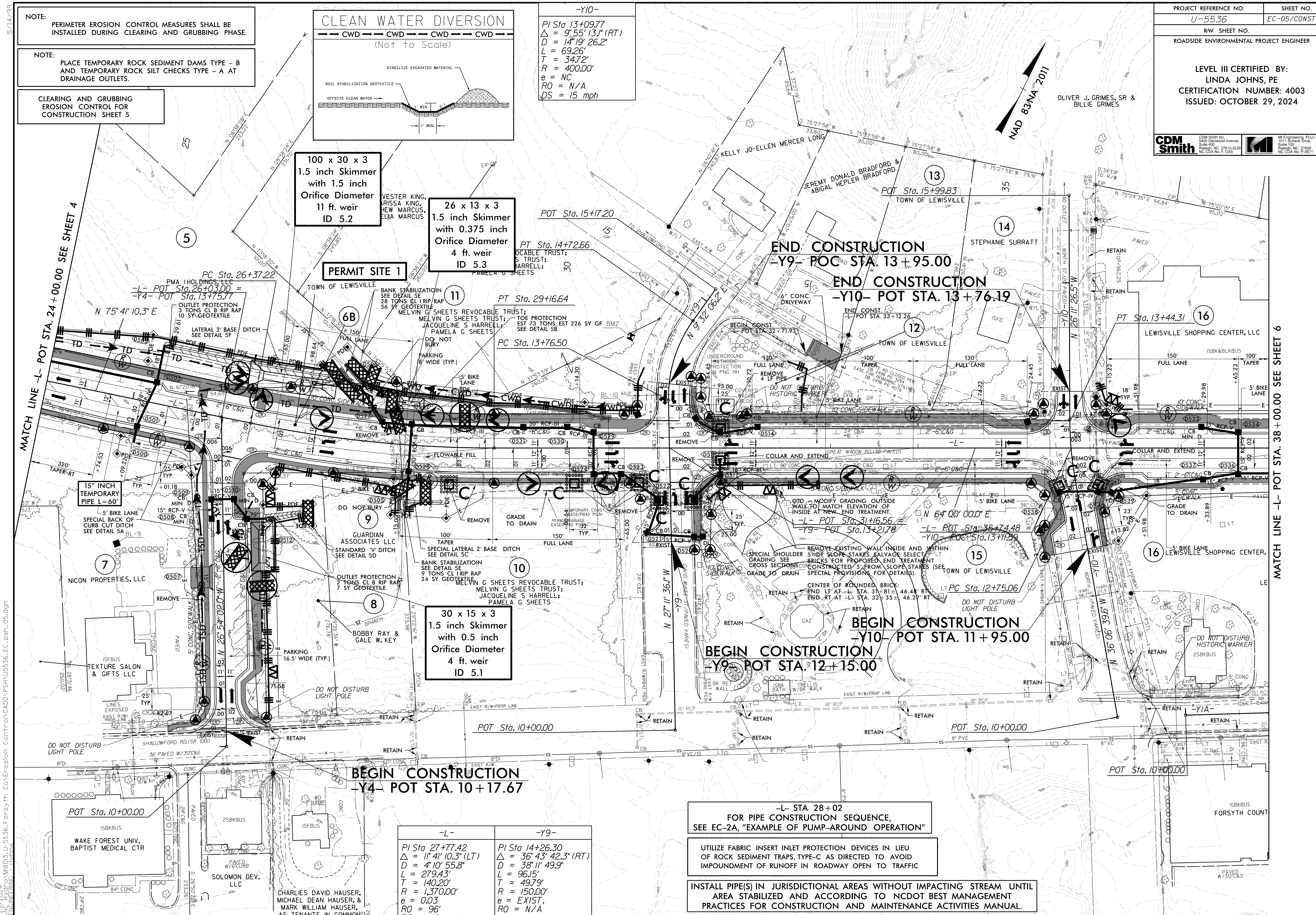
-Y10-
PI Sta 13+09.77
△ = 9° 55' 13.1" (RT)
D = 14° 19' 26.2"
L = 69.26'
T = 34.72'
R = 400.00'
e = NC
RO = N/A
DS = 15 mph

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-05/CONST.05
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith — CDM Smith Inc., 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-1255
MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671



-L-
PI Sta 27+77.42
△ = 11° 41' 10.3" (LT)
D = 4° 10' 55.8"
L = 279.43'
T = 140.20'
R = 1,370.00'
e = 0.03
RO = 96'
DS = 40 mph

-Y9-
PI Sta 14+26.30
△ = 36° 43' 42.3" (RT)
D = 38° 11' 49.9"
L = 96.15'
T = 49.79'
R = 150.00'
e = EXIST.
RO = N/A
DS = 40 mph

-L- STA 28+02
FOR PIPE CONSTRUCTION SEQUENCE,
SEE EC-2A, "EXAMPLE OF PUMP-AROUND OPERATION"

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

10/29/2024
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-L-	-RABT 2-	-RABT 3-	-Y5-	-Y6-
PI Sta 48+17.50	PI Sta 10+00.00	PI Sta 10+00.01	PI Sta 10+85.03	PI Sta 15+01.45
Δ = 15° 22' 36.2" (LT)	Δ = 359° 59' 20.3" (LT)	Δ = 359° 59' 16.1" (LT)	Δ = 6° 29' 20.3" (RT)	Δ = 5° 02' 21.0" (RT)
D = 4° 10' 55.8"	D = 110° 11' 03.1"	D = 121° 54' 21.3"	D = 3° 49' 11.0"	D = 2° 51' 53.2"
L = 367.67'	L = 326.72'	L = 295.30'	L = 169.88'	L = 175.90'
T = 184.95'	T = 0.00'	T = 0.00'	T = 85.03'	T = 88.01'
R = 1,370.00'	R = 52.00'	R = 47.00'	R = 1,500.00'	R = 2,000.00'
e = 0.03	e = NC	e = NC	e = EXIST.	e = EXIST.
RO = 78'	RO = N/A	RO = N/A	RO = N/A	RO = N/A
DS = 40 mph	DS = N/A	DS = N/A	DS = 40 mph	DS = 25 mph

52 x 22 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
4 ft. weir
ID 6.1

103 x 22 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
9 ft. weir
ID 6.2

104 x 25 x 3
1.5 inch Skimmer
with 1.375 inch
Orifice Diameter
10 ft. weir
ID 6.4

15 INCH TEMPORARY PIPE L=95'

24" INCH TEMPORARY PIPE L=90'

15" INCH TEMPORARY PIPE L=30'

24" INCH TEMPORARY PIPE L=40'

END CONSTRUCTION
-Y6- POT STA. 14+30.00

BEGIN CONSTRUCTION
-Y1A- POT STA. 11+35.00

END CONSTRUCTION
-Y1A- POT STA. 16+00.00

BEGIN CONSTRUCTION
-Y5- POC STA. 11+37.35

BEGIN CONSTRUCTION
-Y6- POT STA. 10+18.02

-L- POT STA. 40+35.26 =
-Y5- POT STA. 15+92.77

-L- POT STA. 39+83.26 =
-RABT2- POC STA. 10+71.57

-Y5- POT STA. 15+40.77 =
-RABT2- POC STA. 11+58.45

-Y5- POT STA. 38+00.00 SEE SHEET 5

-L- POT STA. 40+87.26 =
-RABT2- POC STA. 12+34.93

-L- POT STA. 45+53.04 =
-Y6- PI STA. 12+80.68

-Y5- PI STA. 13+44.24 =
-RABT3- POC STA. 11+10.32

-Y1A- POT STA. 13+12.82 =
-RABT3- POC STA. 11+80.01

-Y1A- POT STA. 14+06.82 =
-RABT3- POC STA. 10+32.98

-Y1A- POT STA. 13+59.87 =
-Y5- POT STA. 12+97.08

-Y5- PI STA. 12+50.24 =
-RABT3- POC STA. 12+57.46

MATCH LINE -L- POT STA. 51+50.00 SEE SHEET 7

PC Sta. 10+00.00
PT Sta. 13+26.72

PC Sta. 14+13.44

PT Sta. 50+09.23

PC Sta. 46+32.56

PT Sta. 12+95.30

POT Sta. 16+44.06

POT Sta. 10+00.00

PT Sta. 11+69.88

PC Sta. 10+00.00

LANIER WILLIAMS REAL ESTATE, LLC

LEWISVILLE SHOPPING CENTER, LLC

MARK NORMAN & CATHERINE NORMAN

KATIE MARIE ROBERTS

DORSEY D STIMSON JR

DORSEY D STIMSON, III & MARIA D STIMSON

DAVID GLASGOW

CAROLINA SYSTEM LP

THIRD SQUARE, LLC

HOPE M CROWELL & HOPE M CROWELL

DORSEY D STIMSON JR & CAROLYN S SHORE TRUSTEE OF THE DORSEY D STIMSON TESTAMENTARY TRUST

DORIS B STIMSON

TOWN OF LEWISVILLE

QUALITY OIL COMPANY, LLC

RENAISSANCE PROF. SERVICES, LLC

MANCHEGO PROPERTIES, LLC

NEWSOME KITE INVSTMNTS INC

BURKE ETG LI LLC

JOHN N & CATHERINE WELLS

LEWISVILLE BAPTIST CHURCH

PAUL A BOLLIGER

CNPL LLC

FORSYTH COUNTY

DITCH MATCH LINE
SEE SHEET 9

NAD 83/NA 2011

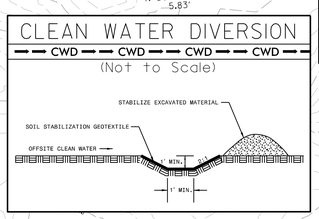
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

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



PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-06/CONST.06
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith Inc
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-1255

MI Engineering, PLLC
1011 Schaub Drive
Suite 100
Raleigh, NC 27606
NC COA No. P-0671

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10/29/2024
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MI ENGINEERING - Johns

5/14/99

INSTALL FILTRATION GEOTEXTILE UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

(2) 35 x 22 x 3 1.5 inch Skimmer with 1.0 inch Orifice Diameter 6 ft. weir ID 7.1

55 x 17 x 3 1.5 inch Skimmer with 0.75 inch Orifice Diameter 4 ft. weir ID 7.2

34 x 17 x 3 1.5 inch Skimmer with 0.625 inch Orifice Diameter 4 ft. weir ID 7.4

30 x 14 x 3 ID 7.3

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

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-07/CONST.07

R/W SHEET NO.

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith Inc, 5400 Glenwood Avenue Suite 400, Raleigh, NC 27612-3228, NC CDA No. F-1255

MI Engineering, PLLC, 1011 Schaub Drive Suite 100, Raleigh, NC 27606, NC CDA No. P-0671

MATCH LINE –Y8– POT STA. 18+50.00 SEE SHEET 9

END PAVING –Y8– POT STA. 18+33.32

PERMIT SITE 2

PERMIT SITE 3

BEGIN CONSTRUCTION –Y7– POT STA. 10+18.12

BEGIN CONSTRUCTION –Y8– POT STA. 12+10.10

MATCH LINE –L– POT STA. 51+50.00 SEE SHEET 6

MATCH LINE –L– POC STA. 67+75.00 SEE SHEET 8

–L– POT Sta. 52+66.40 = –Y7– POT Sta. 13+09.42

–Y8– POT Sta. 16+96.88= –RABT 4– POC Sta. 11+26.61

–L– POT Sta. 58+67.81= –Y8– POT Sta. 16+44.91

PC Sta. 58+41.25

–L– POC Sta. 58+15.47= –RABT 4– POC Sta. 12+13.65

PC Sta. 56+42.20

–L– POT Sta. 59+19.47 = –RABT 4– POC Sta. 10+49.66

PC Sta. 10+00.00

PT Sta. 13+26.72

–Y8– POT Sta. 15+92.89

–RABT 4– POC Sta. 12+90.65

PT Sta. 15+42.34

PC Sta. 13+50.39

PRC Sta. 14+40.88

PRC Sta. 65+85.29

PT Sta. 11+07.82

–YIB– PC Sta. 10+00.00

–Y8– POC Sta. 13+67.81

PC Sta. 10+00.00

POT Sta. 10+00.00

PC Sta. 12+12.35

–L– POC Sta. 65+79.53= –YIB– PT Sta. 17+06.03

BEG. RETAINING WALL #4 W/FENCE –WL4– STA. 10+00.00 –Y8– STA. 15+30.00, 22.60' RT.

END RETAINING WALL #4 W/FENCE –WL4– STA. 11+60.67 –L– STA. 60+10.08, 22.13' RT.

BEG. RETAINING WALL #6 –WL6– STA. 10+00.00 = –Y1B– STA. 11+98.21, 24.00' RT.

END RETAINING WALL #6 –WL6– POT STA. 10+60.00 = –Y1B– STA. 12+44.22, 37.11' RT

–L– STA 54+08 FOR PIPE CONSTRUCTION SEQUENCE, SEE EC-2A, "EXAMPLE OF PUMP-AROUND OPERATION"

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

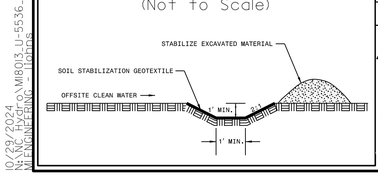
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

CLEAN WATER DIVERSION

CWD CWD CWD CWD CWD

(Not to Scale)



–YIB–

PI Sta 10+55.58	PI Sta 13+95.74	PI Sta 15+76.26
Δ = 34° 19' 16.4" (LT)	Δ = 9° 43' 40.9" (RT)	Δ = 28° 30' 08.8" (LT)
D = 31° 49' 51.6"	D = 10° 44' 58.8"	D = 10° 44' 58.8"
L = 107.82'	L = 90.50'	L = 265.15'
T = 55.58'	T = 45.36'	T = 135.38'
R = 180.00'	R = 533.00'	R = 533.00'
e = NC	e = RC	e = RC
RO = N/A	RO = 36'	RO = 36'
DS = 15 mph	DS = 15 mph	DS = 15 mph

10/29/2024
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MLINGNEERING, LLC

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 8

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE–C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

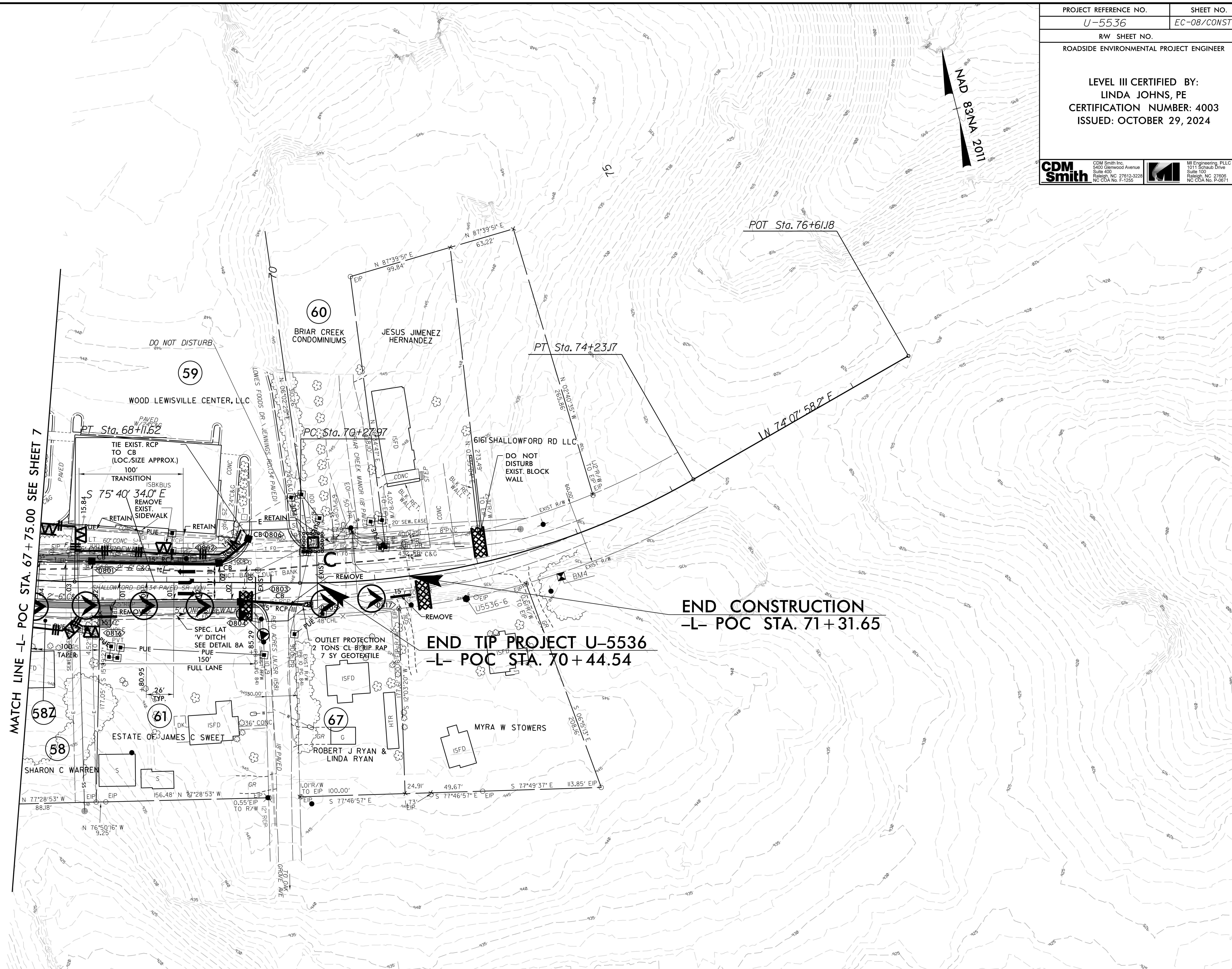
PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-08/CONST.08
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith
CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-1255

MI Engineering, PLLC
1011 Schaub Drive
Suite 100
Raleigh, NC 27606
NC COA No. P-0671



-L-	
PI Sta 67+00.19	PI Sta 72+30.27
Δ = 24° 19' 47.3" (LT)	Δ = 30° 11' 27.7" (LT)
D = 10° 44' 58.8"	D = 7° 38' 22.0"
L = 226.33'	L = 395.20'
T = 114.90'	T = 202.30'
R = 533.00'	R = 750.00'
e = 0.04	e = EXIST.
RO = 104'	RO = N/A
DS = 40 mph	DS = 40 mph

SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 12 FOR -L- PROFILE

5/14/99
10/29/2024
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PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-09/CONST.09
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

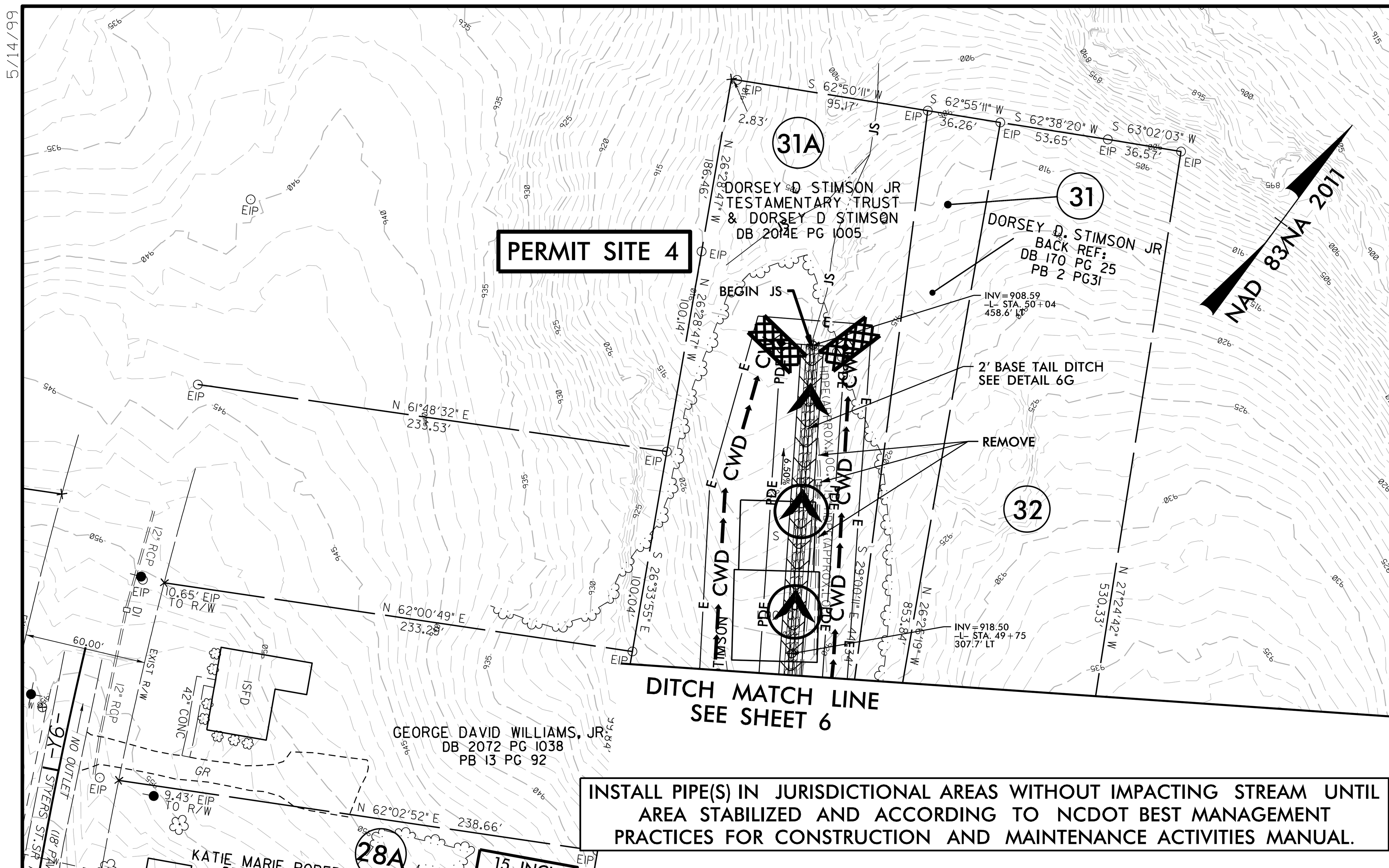
LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith — CDM Smith Inc., 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-1255

MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671

-Y8-

PI Sta 23+47.87
Δ = 54° 07' 05.5" (RT)
D = 9° 32' 57.5"
L = 566.72'
T = 306.50'
R = 600.00'
e = 0.03
RO = 63'
DS = 20 mph



INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

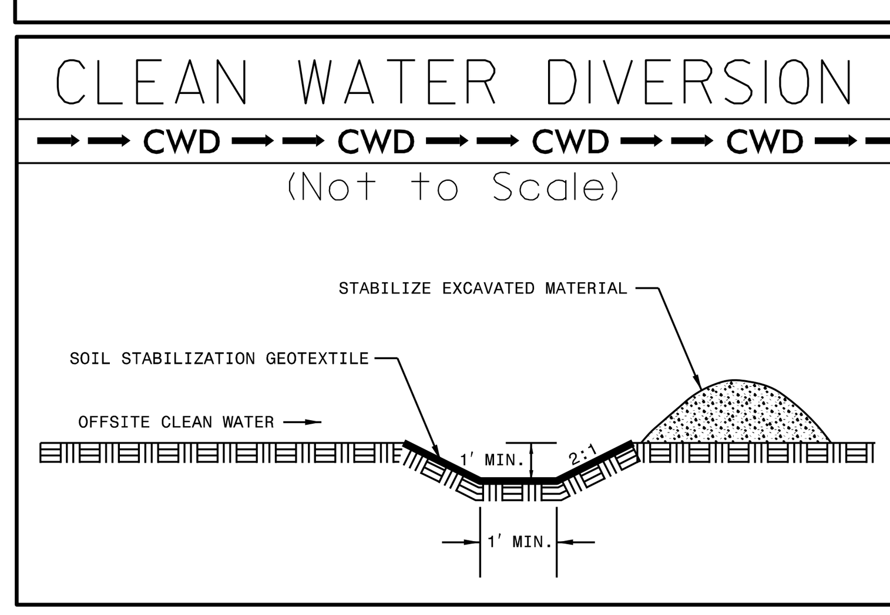
-L- STA 49+38
FOR PIPE CONSTRUCTION SEQUENCE,
SEE EC-2A, "EXAMPLE OF PUMP-AROUND OPERATION"

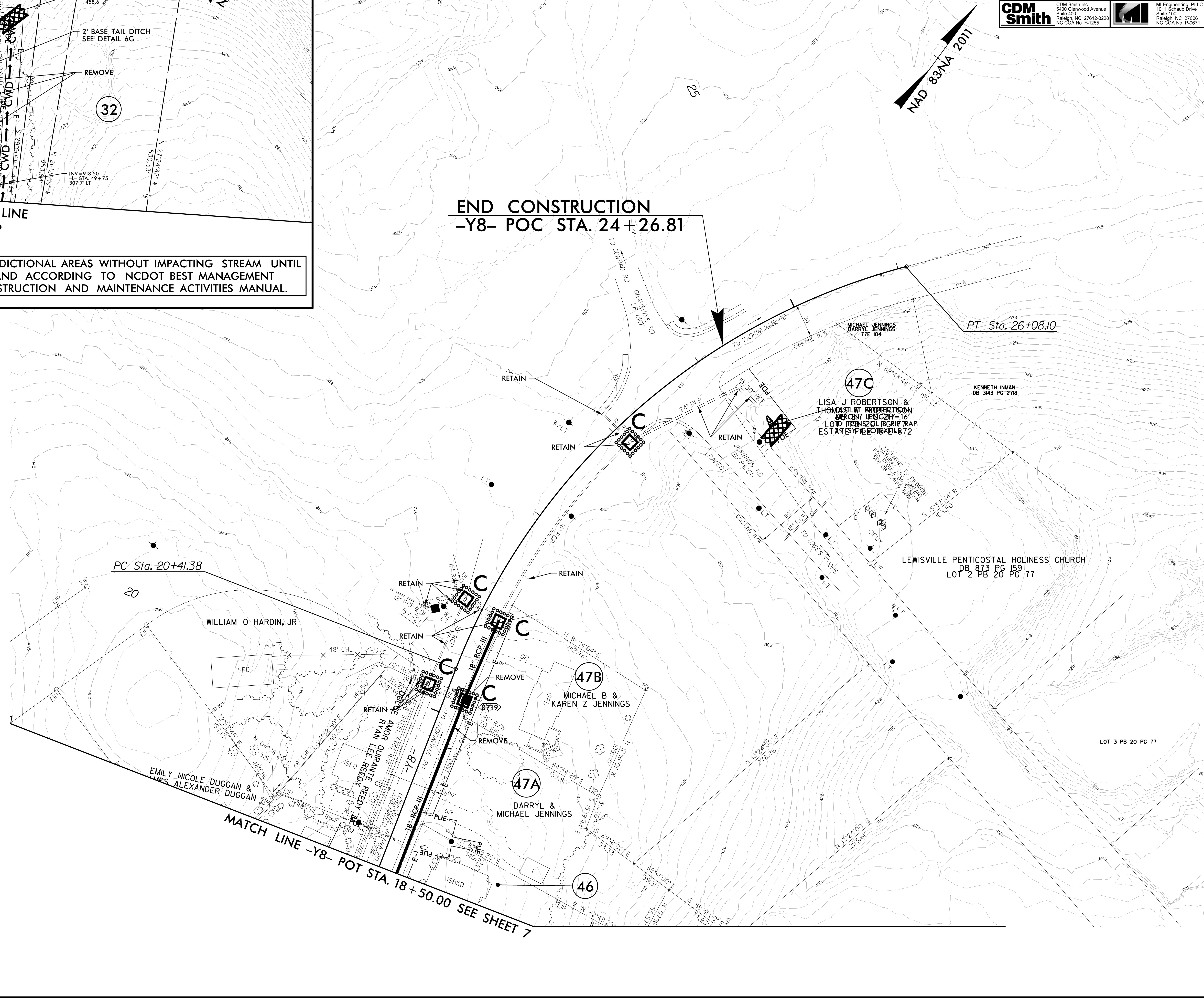
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC





PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-10/CONST.04
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith — CDM Smith Inc. 5400 Glenwood Avenue Suite 400 Raleigh, NC 27612-3228 NC COA No. F-1255

MI Engineering, PLLC 1011 Schaub Drive Suite 100 Raleigh, NC 27606 NC COA No. P-0671

Place Matting for Erosion Control on Slope as Work Allows. Y2 Sta. 10+88 to Sta. 11+20 LT

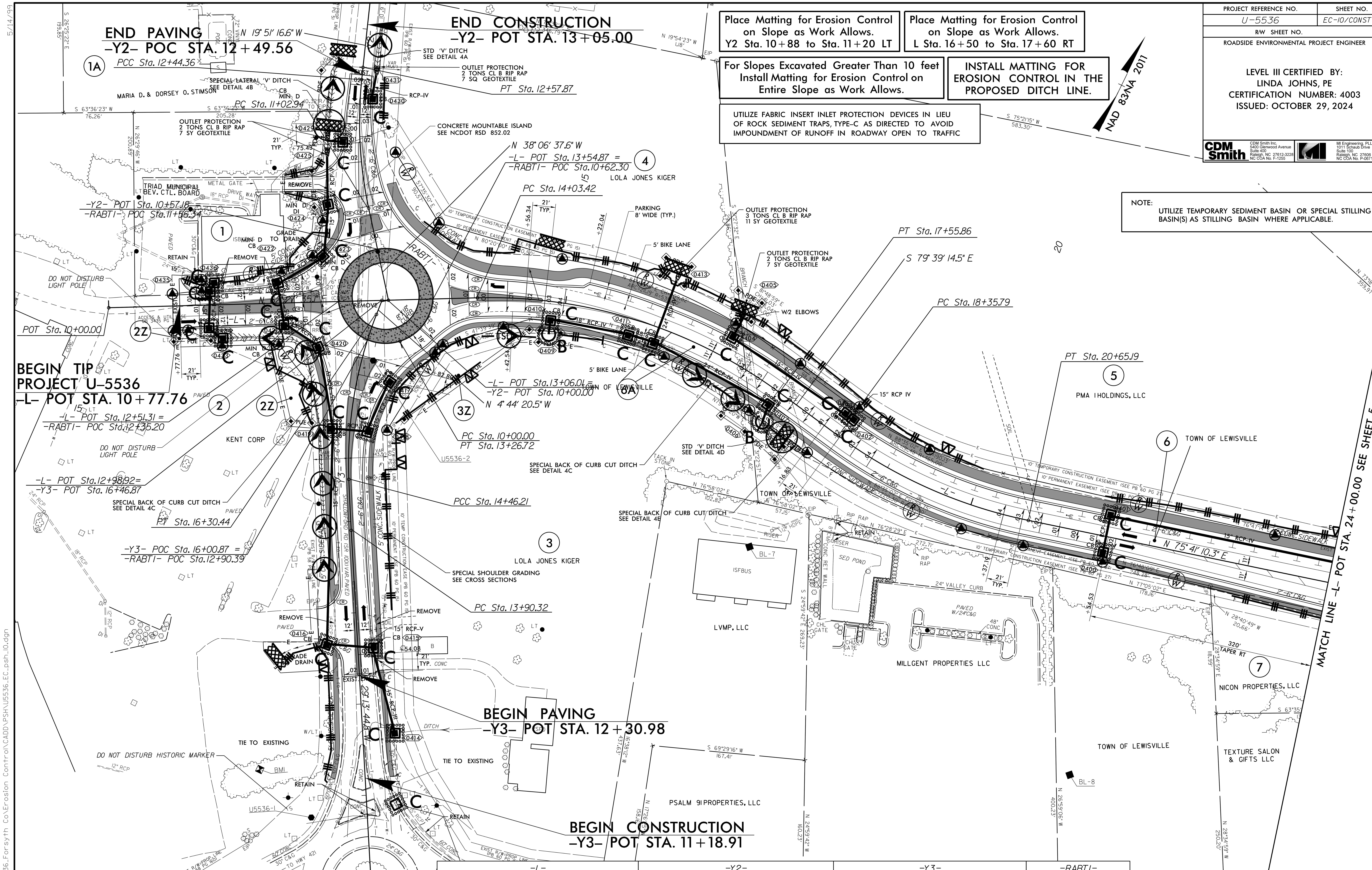
Place Matting for Erosion Control on Slope as Work Allows. L Sta. 16+50 to Sta. 17+60 RT

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.



-L-		-Y2-		-Y3-		-RABT1-
PI Sta 15+86.35	PI Sta 19+52.30	PI Sta 11+74.23	PI Sta 12+51.12	PI Sta 14+18.26	PI Sta 15+39.63	PI Sta 10+00.00
Δ = 37° 53′ 10.4″ (RT)	Δ = 24° 39′ 35.2″ (LT)	Δ = 18° 00′ 21.5″ (RT)	Δ = 0° 14′ 59.4″ (RT)	Δ = 1° 01′ 58.7″ (RT)	Δ = 23° 27′ 25.6″ (RT)	Δ = 359° 59′ 20.3″ (LT)
D = 10° 44′ 58.8″	D = 10° 44′ 58.8″	D = 12° 43′ 56.6″	D = 1° 50′ 53.7″	D = 1° 50′ 53.7″	D = 12° 43′ 56.6″	D = 110° 11′ 03.1″
L = 352.44′	L = 229.40′	L = 141.42′	L = 13.52′	L = 55.89′	L = 184.23′	L = 326.72′
T = 182.93′	T = 116.50′	T = 71.30′	T = 6.76′	T = 27.95′	T = 93.42′	T = 0.00′
R = 533.00′	R = 533.00′	R = 450.00′	R = 3,100.00′	R = 3,100.00′	R = 450.00′	R = 52.00′
e = 0.04	e = 0.04	e = NC	e = EXIST.	e = NC	e = NC	e = NC
RO = 84′	RO = 84′	RO = N/A	RO = N/A	RO = N/A	RO = N/A	RO = N/A
DS = 40 mph	DS = 40 mph	DS = 15 mph	DS = 40 mph	DS = 30 mph	DS = 15 mph	DS = N/A

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ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith Inc., 5400 Glenwood Avenue, Suite 400, Raleigh, NC 27612-3228, NC COA No. F-1255
MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671

Place Matting for Erosion Control on Slope as Work Allows.
L Sta. 28+21 to Sta. 28+61 RT

Place Matting for Erosion Control on Slope as Work Allows.
Y4 Sta. 10+75 to Sta. 13+32 LT

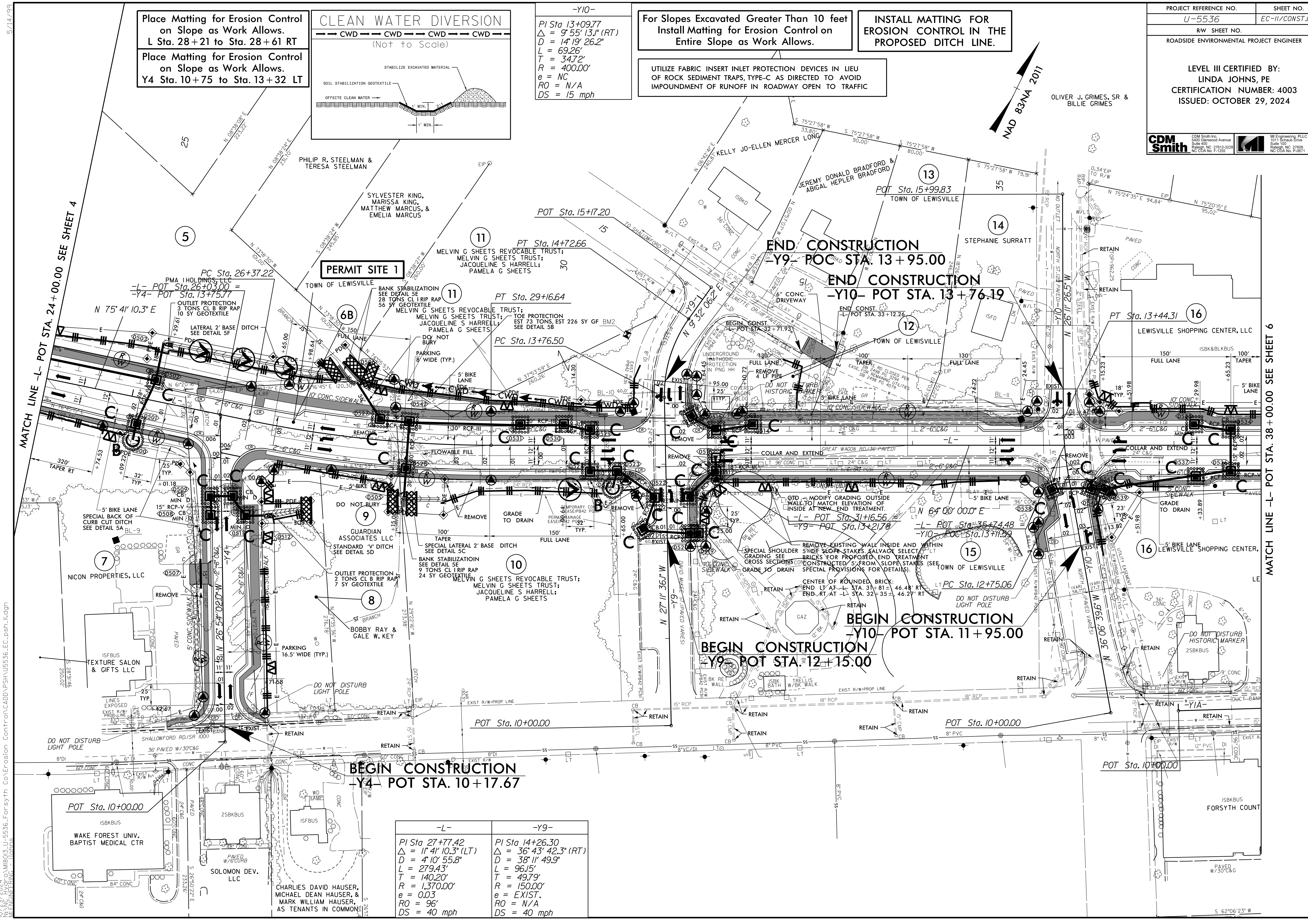
CLEAN WATER DIVERSION
(Not to Scale)

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

-Y10-
PI Sta 13+09.77
Δ = 9° 55' 13.1" (RT)
D = 14° 19' 26.2"
L = 69.26'
T = 34.72'
R = 400.00'
e = NC
RO = N/A
DS = 15 mph



-L-
PI Sta 27+77.42
Δ = 11° 41' 10.3" (LT)
D = 4° 10' 55.8"
L = 279.43'
T = 140.20'
R = 1,370.00'
e = 0.03
RO = 96'
DS = 40 mph

-Y9-
PI Sta 14+26.30
Δ = 36° 43' 42.3" (RT)
D = 38° 11' 49.9"
L = 96.15'
T = 49.79'
R = 150.00'
e = EXIST.
RO = N/A
DS = 40 mph

5/14/99

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

	-L-	-RABT2-	-RABT3-	-Y5-	-Y6-
PI Sta	48+17.50	10+00.00	10+00.01	10+85.03	15+01.45
△ =	15° 22' 36.2" (LT)	359° 59' 20.3" (LT)	359° 59' 16.1" (LT)	6° 29' 20.3" (RT)	5° 02' 21.0" (RT)
D =	4° 10' 55.8"	110° 11' 03.1"	121° 54' 21.3"	3° 49' 11.0"	2° 51' 53.2"
L =	367.67'	326.72'	295.30'	169.88'	175.90'
T =	184.95'	0.00'	0.00'	85.03'	88.01'
R =	1,370.00'	52.00'	47.00'	1,500.00'	2,000.00'
e =	0.03	NC	NC	EXIST.	EXIST.
RO =	78'	N/A	N/A	N/A	N/A
DS =	40 mph	N/A	N/A	40 mph	25 mph

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-12/CONST.06
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
LINDA JOHNS, PE
CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

CDM Smith Inc.
5400 Glenwood Avenue
Suite 400
Raleigh, NC 27612-3228
NC COA No. F-1255

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Suite 100
Raleigh, NC 27606
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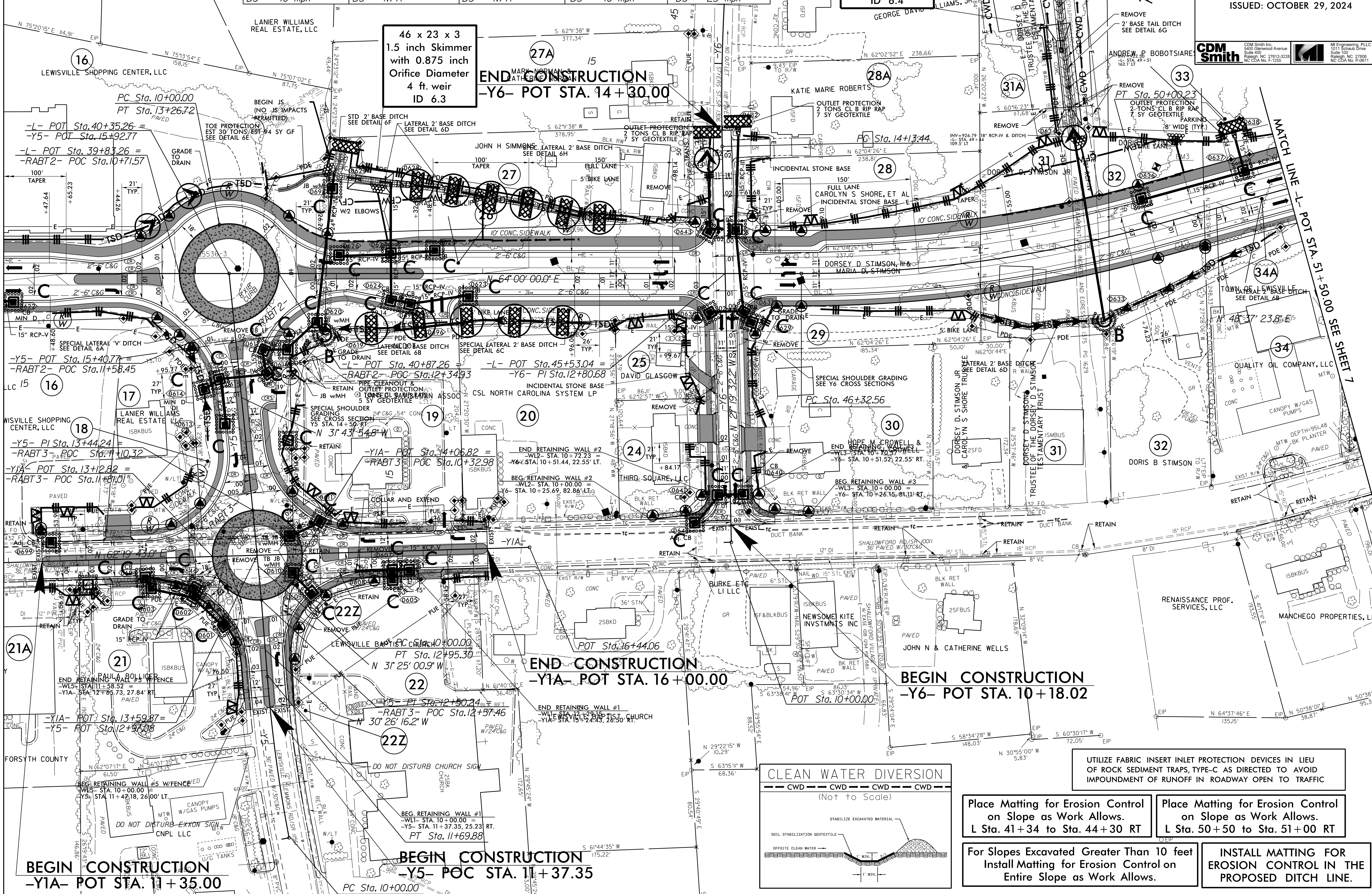

CLEAN WATER DIVERSION
(Not to Scale)

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

Place Matting for Erosion Control on Slope as Work Allows. L Sta. 41+34 to Sta. 44+30 RT

Place Matting for Erosion Control on Slope as Work Allows. L Sta. 50+50 to Sta. 51+00 RT

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

10/29/2024
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MIENGINEERING - ljohns

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-13/CONST.07
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
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CERTIFICATION NUMBER: 4003
ISSUED: OCTOBER 29, 2024

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MI Engineering, PLLC 1011 Schaub Drive Suite 100 Raleigh, NC 27606 NC COA No. P-0671

Place Matting for Erosion Control on Slope as Work Allows. Y7 Sta. 11+50 to Sta. 12+65 LT

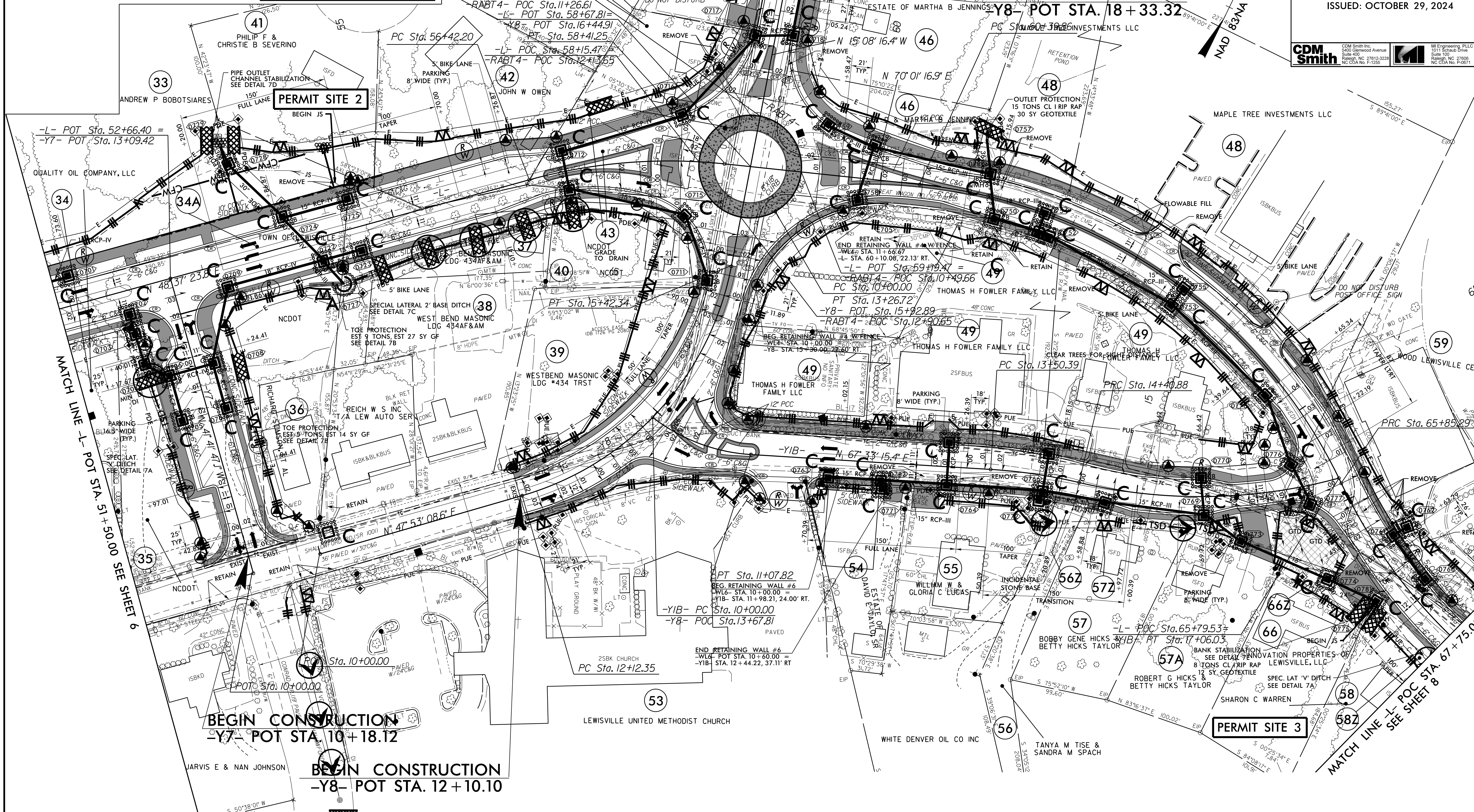
INSTALL FILTRATION GEOTEXTILE UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

NOTE: INSTALL TEMPORARY SLOPE DRAINS TO CONVEY RUNOFF FROM ROAD GRADE INTO PROPOSED DITCHES WITH A SPACING OF 1000 FT. OR AS DIRECTED.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC



-YIB-		
PI Sta 10+55.58	PI Sta 13+95.74	PI Sta 15+76.26
Δ = 34° 19' 16.4" (LT)	Δ = 9° 43' 40.9" (RT)	Δ = 28° 30' 08.8" (LT)
D = 31° 49' 51.6"	D = 10° 44' 58.8"	D = 10° 44' 58.8"
L = 107.82'	L = 90.50'	L = 265.15'
T = 55.58'	T = 45.36'	T = 135.38'
R = 180.00'	R = 533.00'	R = 533.00'
e = NC	e = RC	e = RC
RO = N/A	RO = 36'	RO = 36'
DS = 15 mph	DS = 15 mph	DS = 15 mph

5/14/99

10/29/2024 N:\NC Hydro\MI803_U-5536_Forsyth Co\Erosion Control\CADD\PSH\U5536_EC_psh_13.dgn

Place Matting for Erosion Control on Slope as Work Allows. L Sta. 67+50 to Sta. 69+71 RT

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE–C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-14/CONST.08
R/W SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
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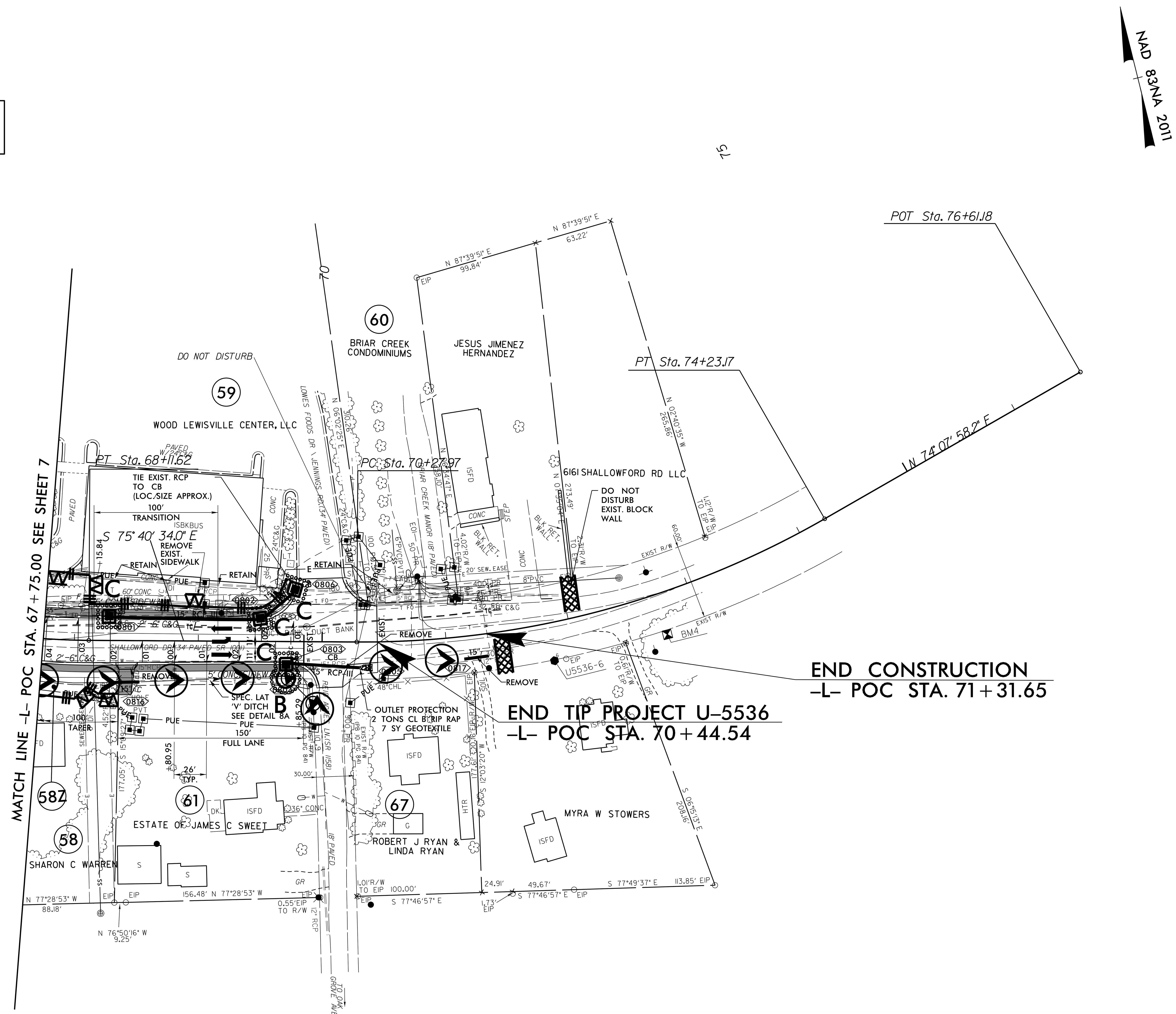
MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671



-L-	
PI Sta 67+00.19	PI Sta 72+30.27
Δ = 24° 19' 47.3" (LT)	Δ = 30° 11' 27.7" (LT)
D = 10° 44' 58.8"	D = 7° 38' 22.0"
L = 226.33'	L = 395.20'
T = 114.90'	T = 202.30'
R = 533.00'	R = 750.00'
e = 0.04	e = EXIST.
RO = 104'	RO = N/A
DS = 40 mph	DS = 40 mph

SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 12 FOR -L- PROFILE

5/14/99
10/29/2024

PROJECT REFERENCE NO.	SHEET NO.
U-5536	EC-15/CONST.09
R/W SHEET NO.	

ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

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CERTIFICATION NUMBER: 4003
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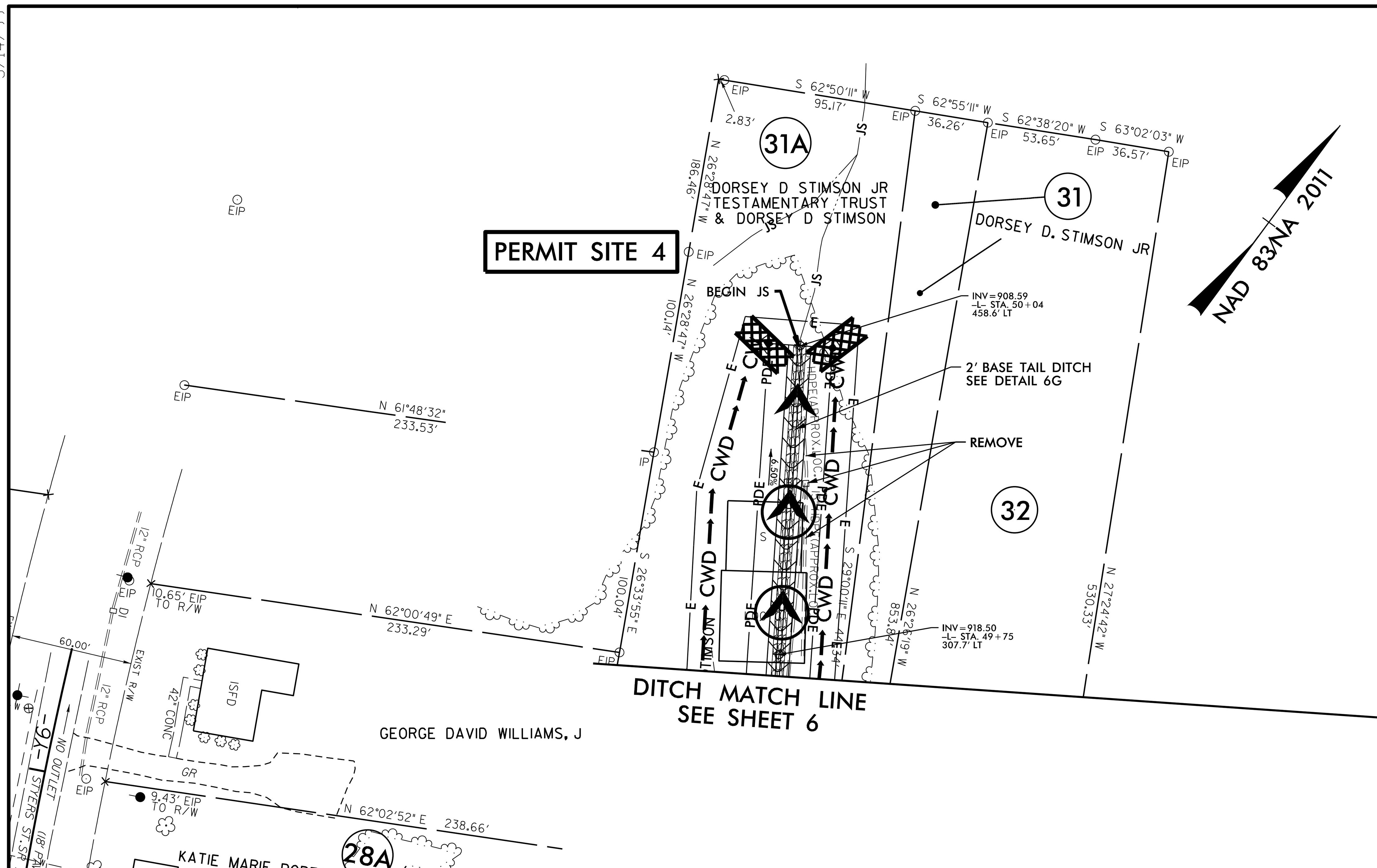
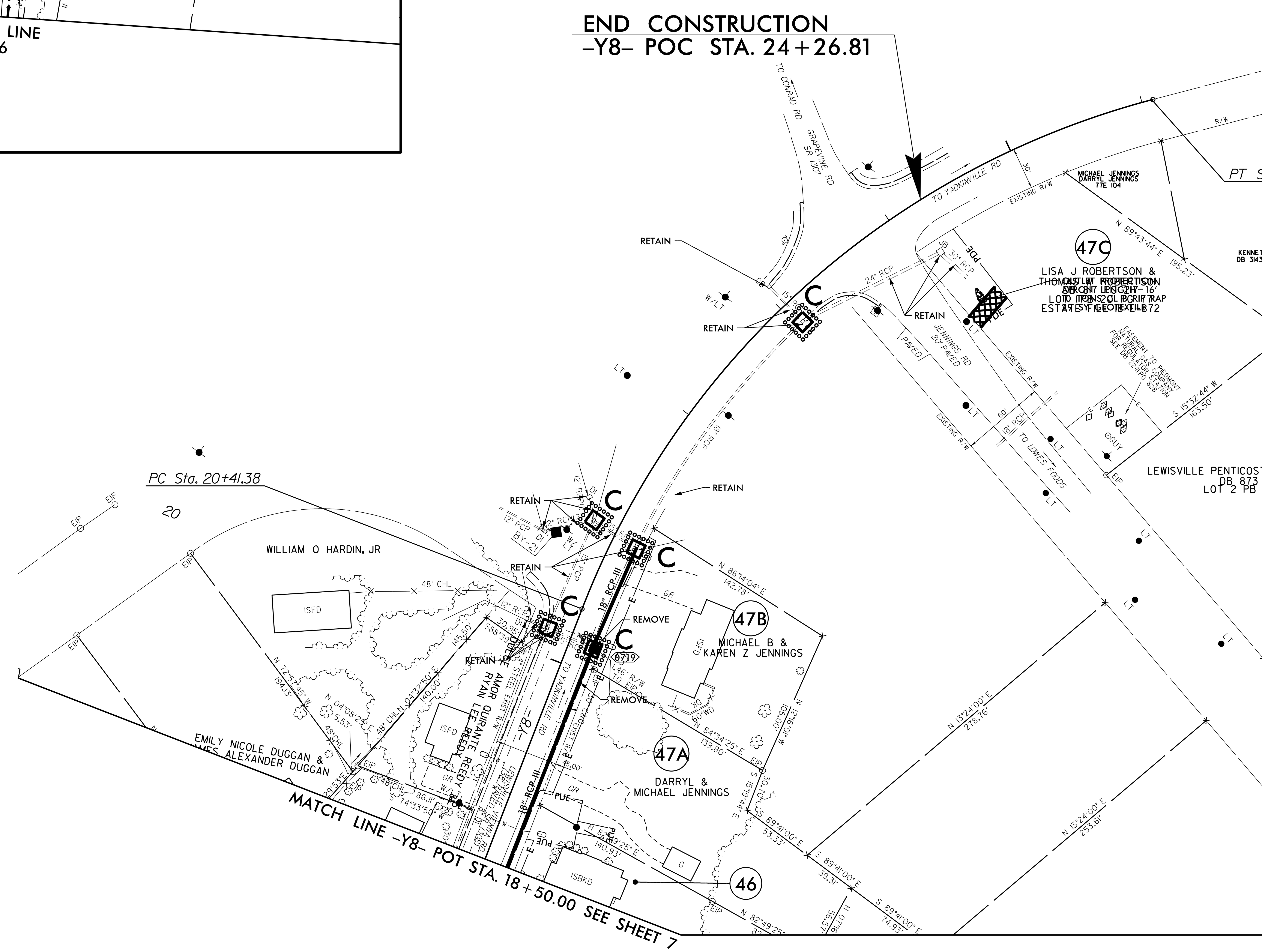
MI Engineering, PLLC, 1011 Schaub Drive, Suite 100, Raleigh, NC 27606, NC COA No. P-0671

-Y8-
PI Sta 23+47.87
Δ = 54° 07' 05.5" (RT)
D = 9° 32' 57.5"
L = 566.72'
T = 306.50'
R = 600.00'
e = 0.03
RO = 63'
DS = 20 mph

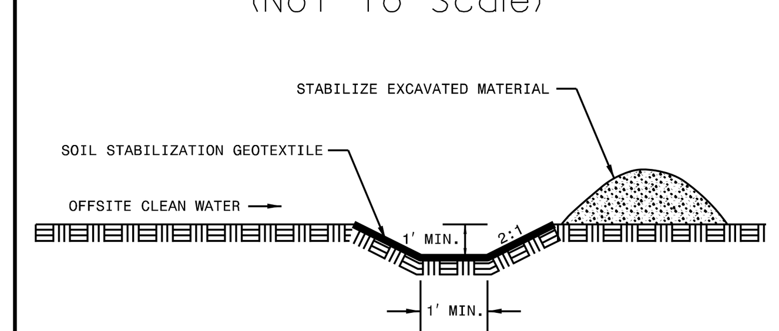




CLEAN WATER DIVERSION

— CWD — CWD — CWD — CWD —

(Not to Scale)



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF ROCK SEDIMENT TRAPS, TYPE-C AS DIRECTED TO AVOID IMPOUNDMENT OF RUNOFF IN ROADWAY OPEN TO TRAFFIC

10/29/2024
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