


TIP PROJECT: R-2414B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CAMDEN COUNTY

LOCATION: US 158 - FROM NORTH OF SR 1257 (HAVENWOOD DRIVE) TO EAST OF NC 34 IN BELCROSS

TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING, CURB & GUTTER, SIGNALS & STRUCTURES



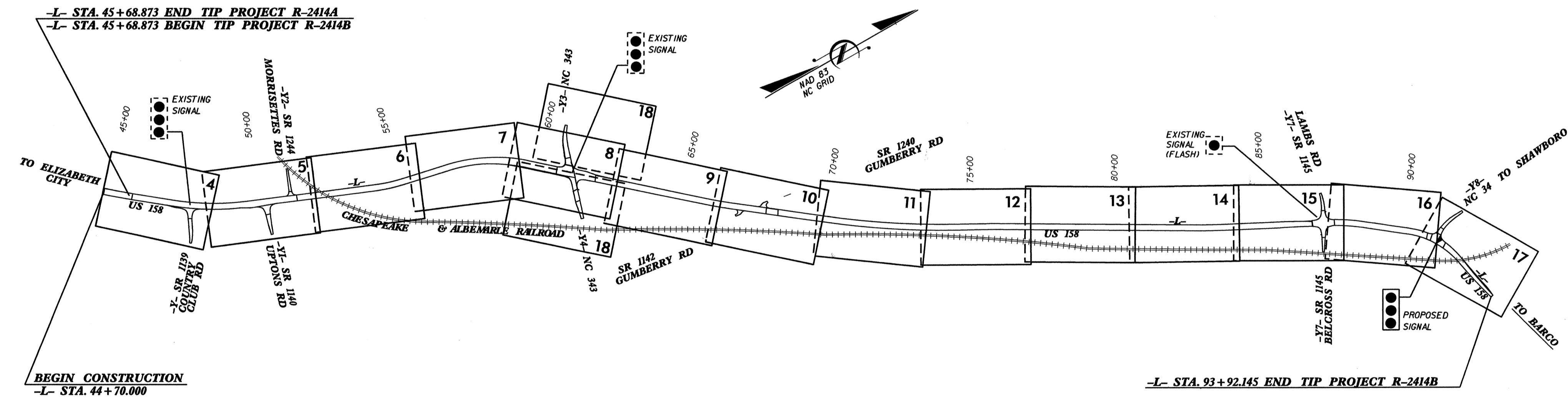
ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2414B	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
	Temporary Silt Fence	
	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
	Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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



GRAPHIC SCALE

0

PLANS

0

PROFILE (HORIZONTAL)

0

PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Prepared in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2006 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway metric standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.05 Temporary Diversion	1635.01 Rock Pipe Inlet Sediment Trap Type A
1632.02 Rock Inlet Sediment Trap Type B	1635.02 Rock Pipe Inlet Sediment Trap Type B
1633.01 Temporary Rock Silt Check Type A	

09-SEP-2006 09:17
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m.angrich AT REN\2414B

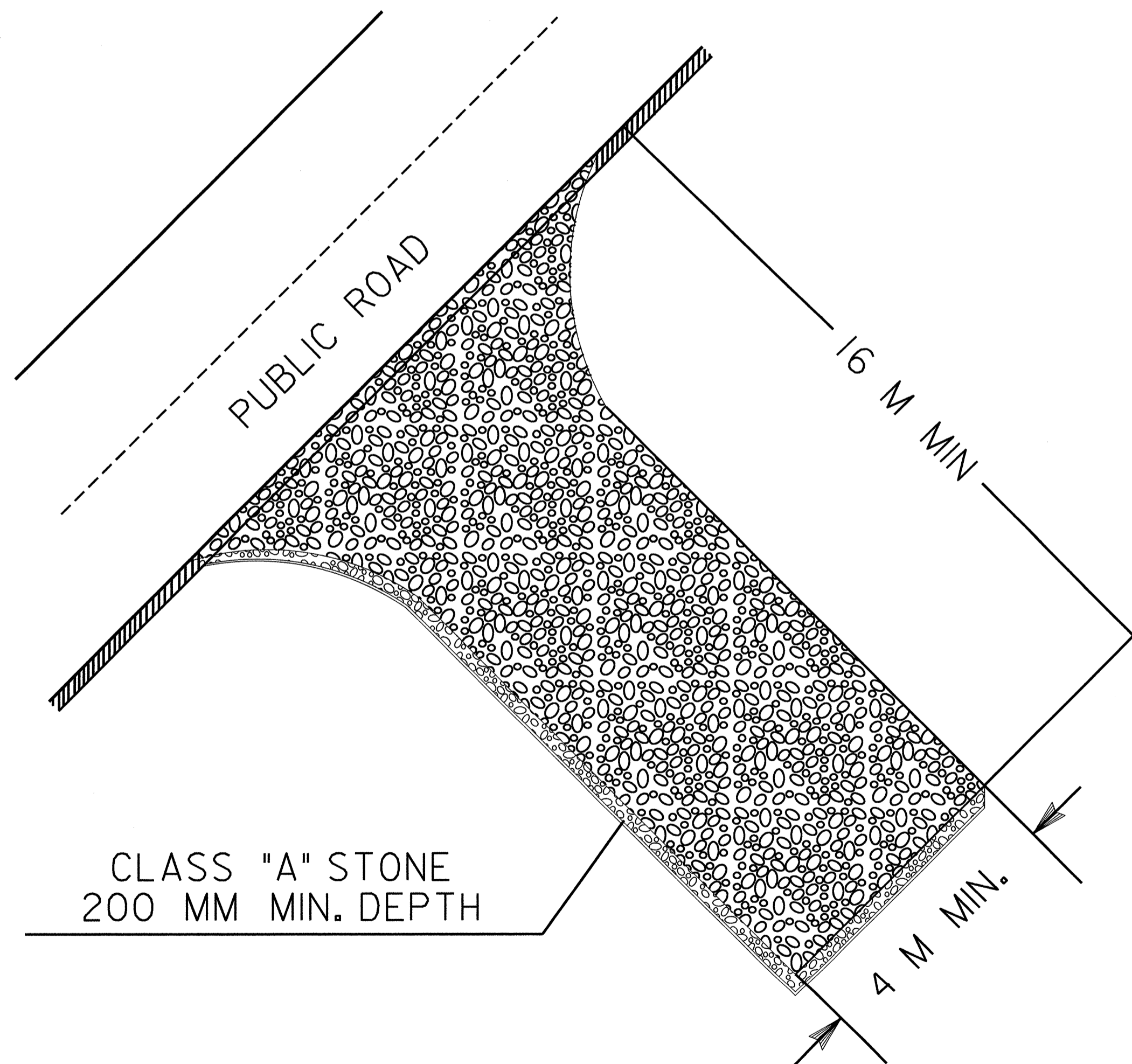


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

NOTES:

1. TURNING RADIUS SUFFICIENT TO ACCOMODATE LARGE TRUCKS SHALL BE PROVIDED.
2. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. GRAVEL CONSTRUCTION ENTRANCE SHALL BE LOCATED AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER

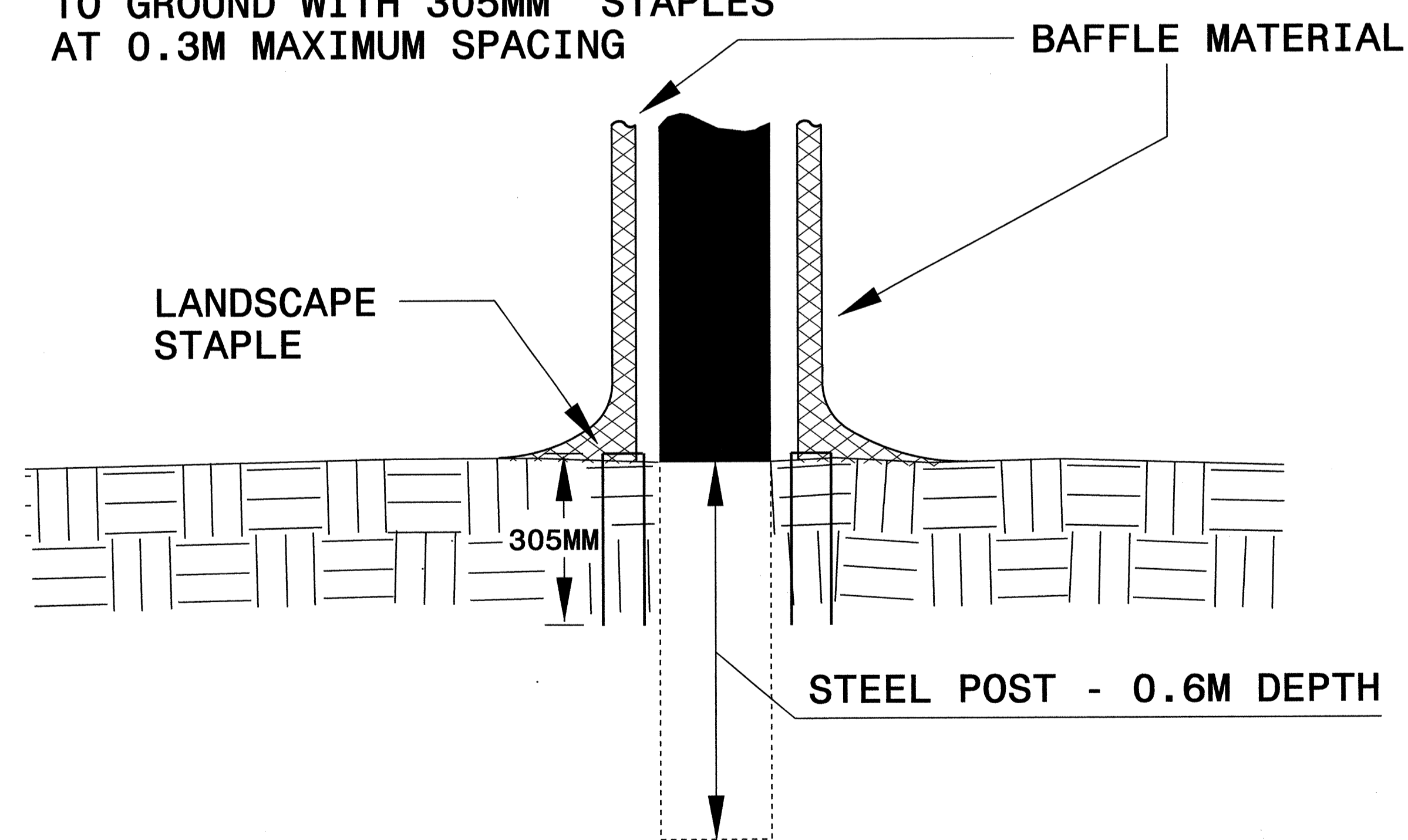
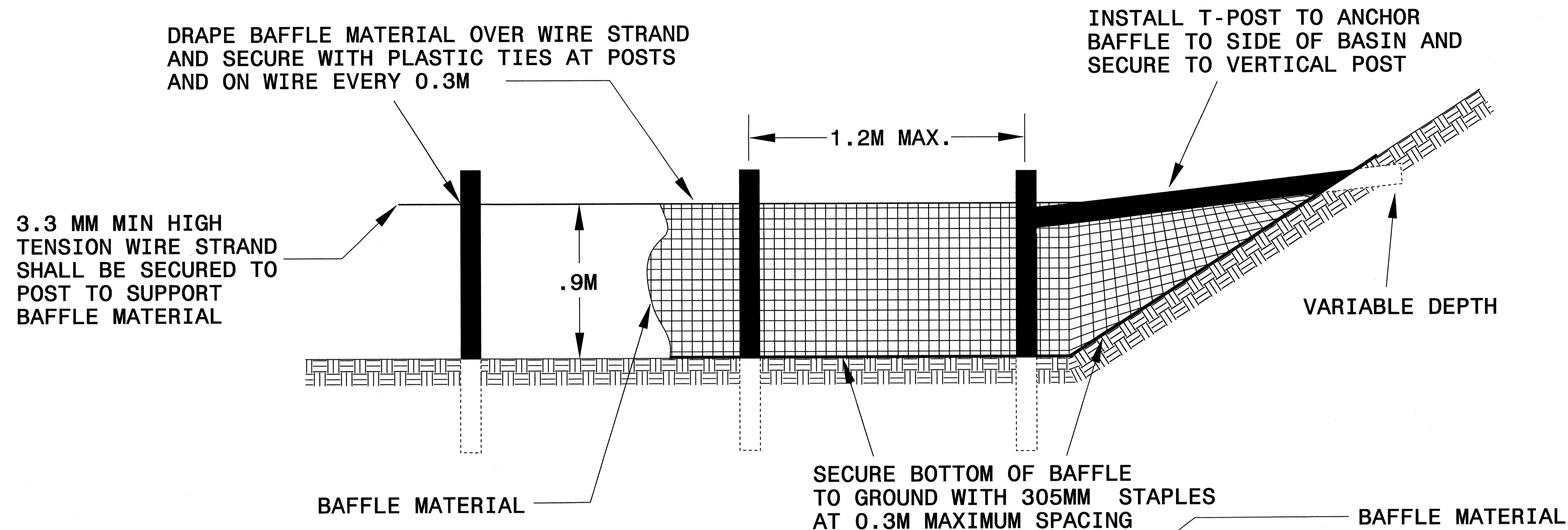


NOTE: FILTER FABRIC TO BE PLACED BENEATH STONE



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL



1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH.

2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 6 M IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

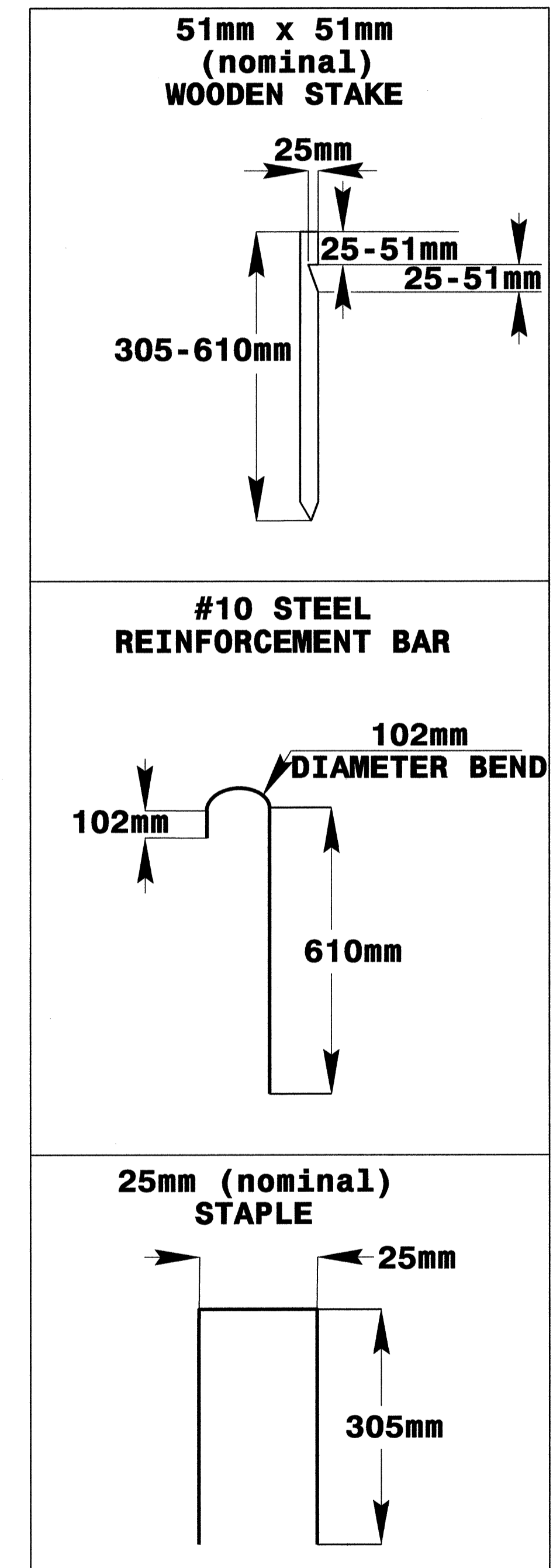
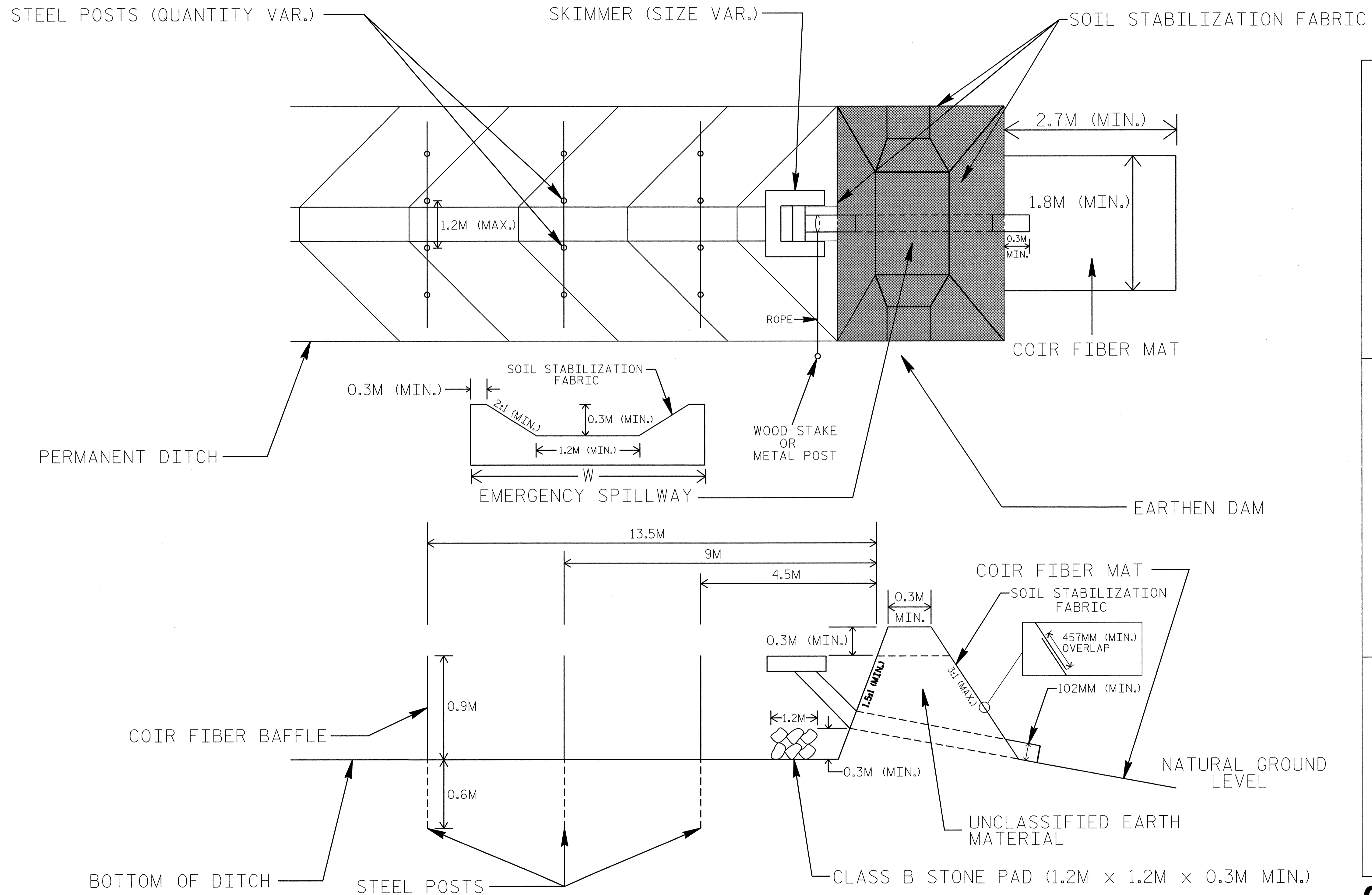
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 305MM LANDSCAPE STAPLES

EARTHEN DAM WITH SKIMMER



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



COIR FIBER MAT ANCHOR OPTIONS

NOTES

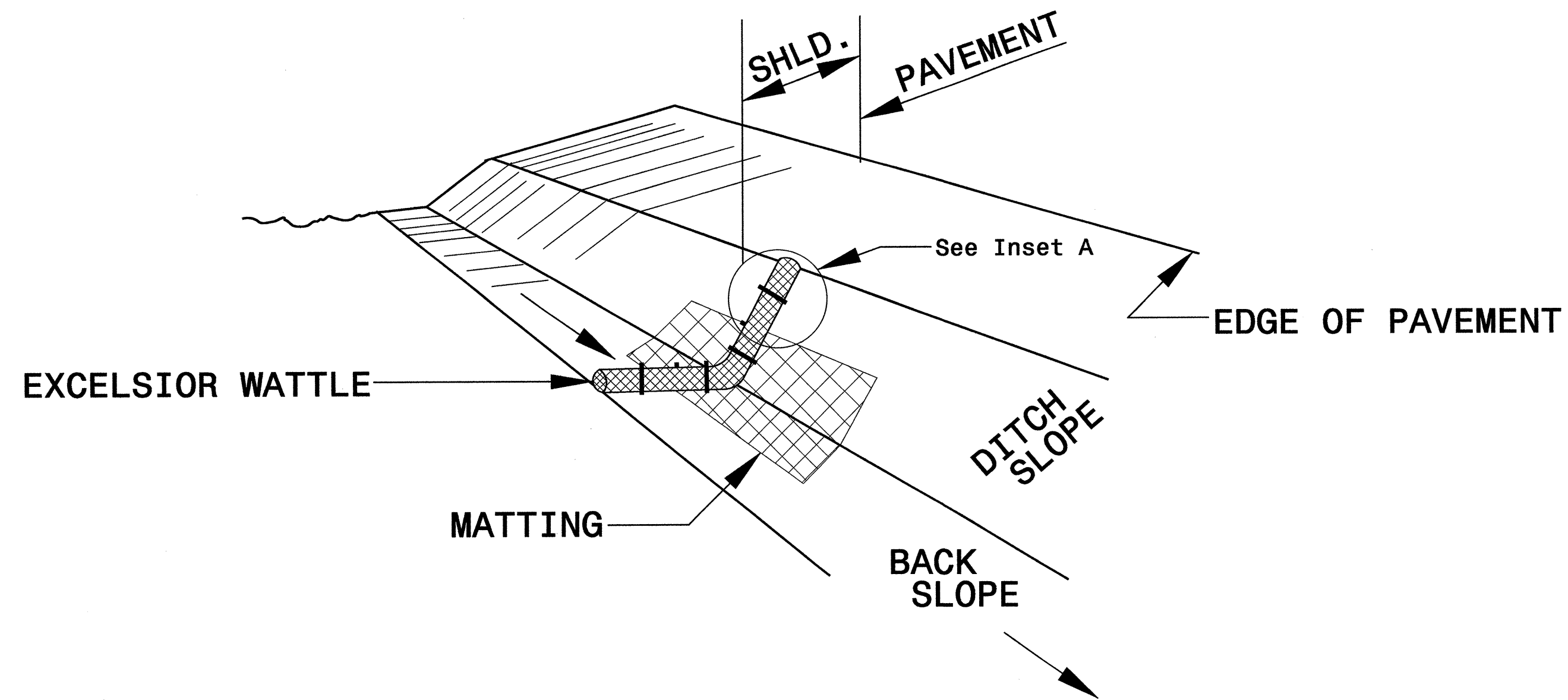
1. LIMIT EARTHEN DAM HEIGHT TO 1.5M.
2. DETERMINE EMERGENCY SPILLWAY LENGTH (M) USING $Q/0.074$, WHERE Q IS FLOW RATE (CMS) INTO BASIN.
3. SOIL STABILIZATION FABRIC FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 457MM AS SHOWN.

NOT TO SCALE

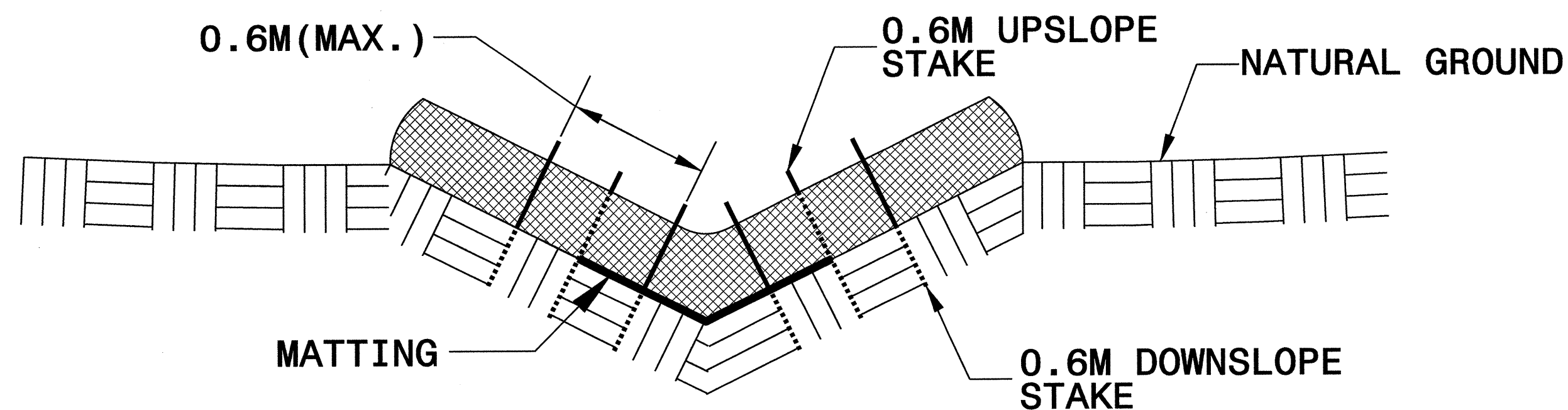
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



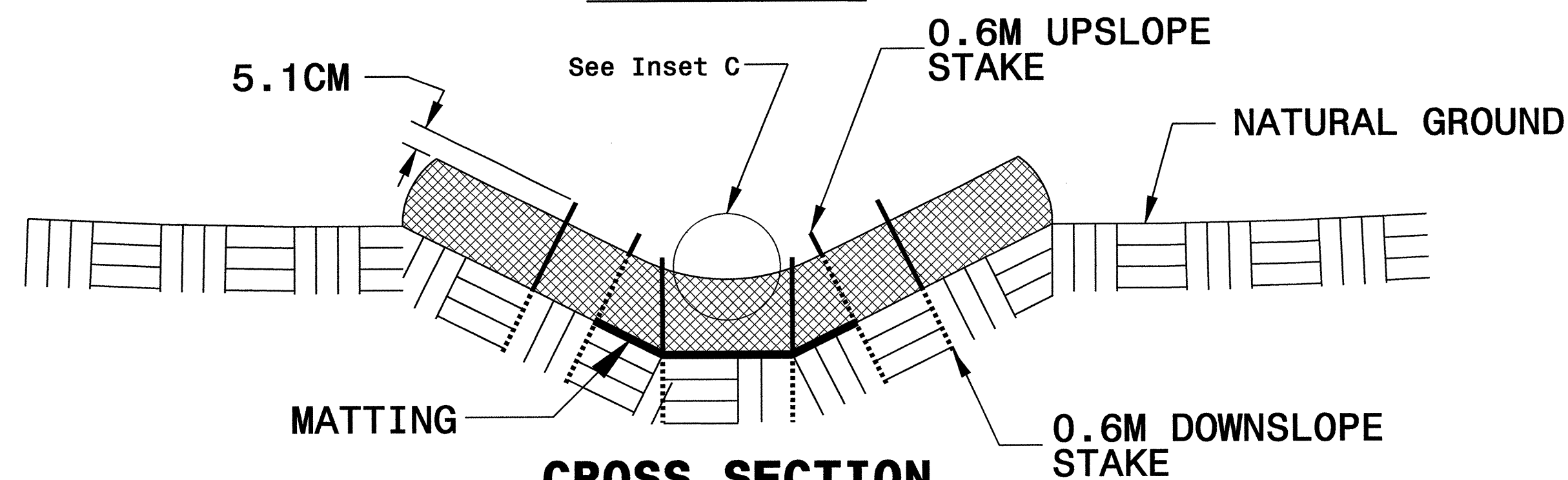
PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 305 MM DIAMETER EXCELSIOR WATTLE.

USE 0.6 M WOODEN STAKES WITH A 5.1 CM BY 5.1 CM NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

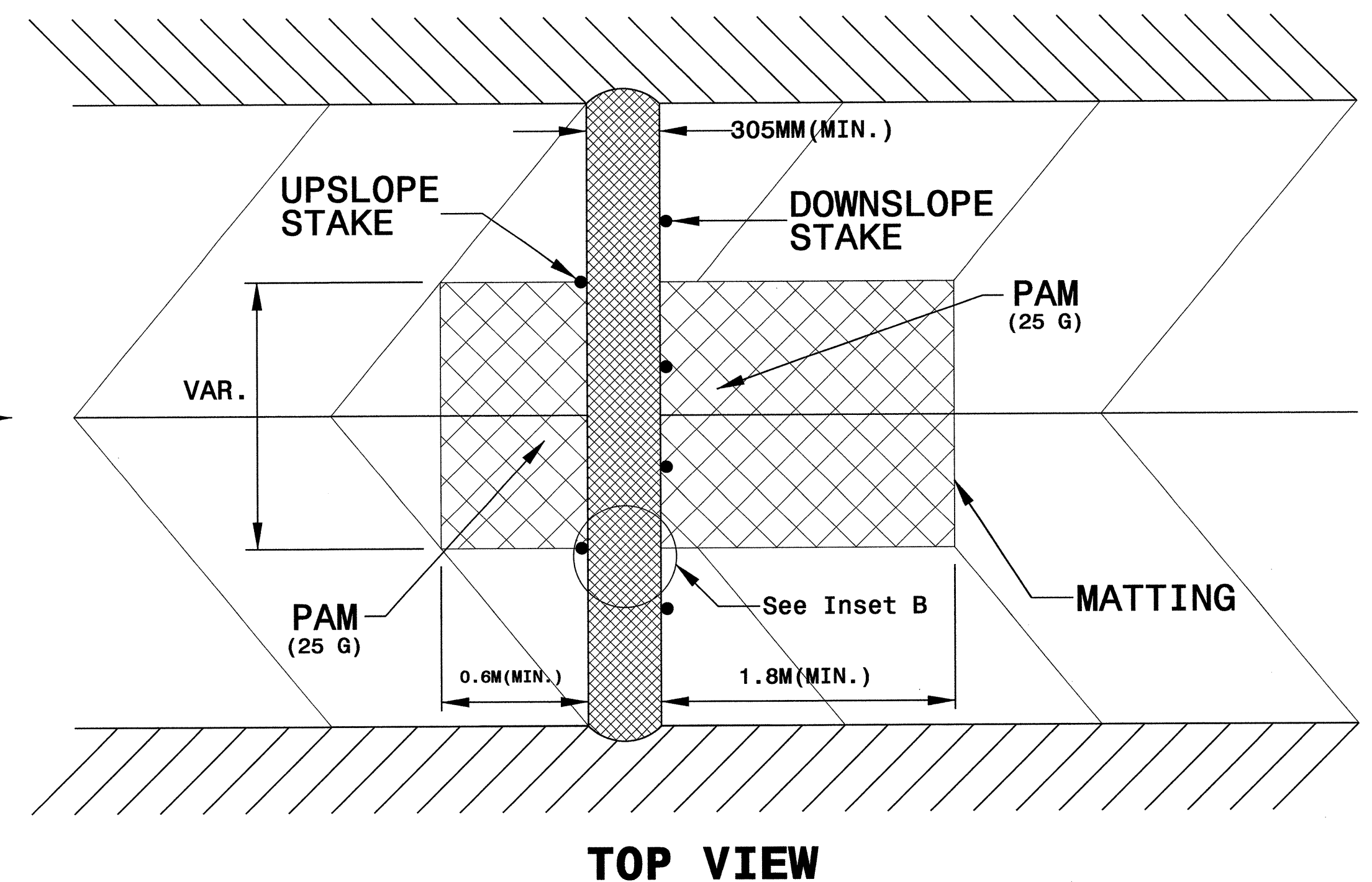
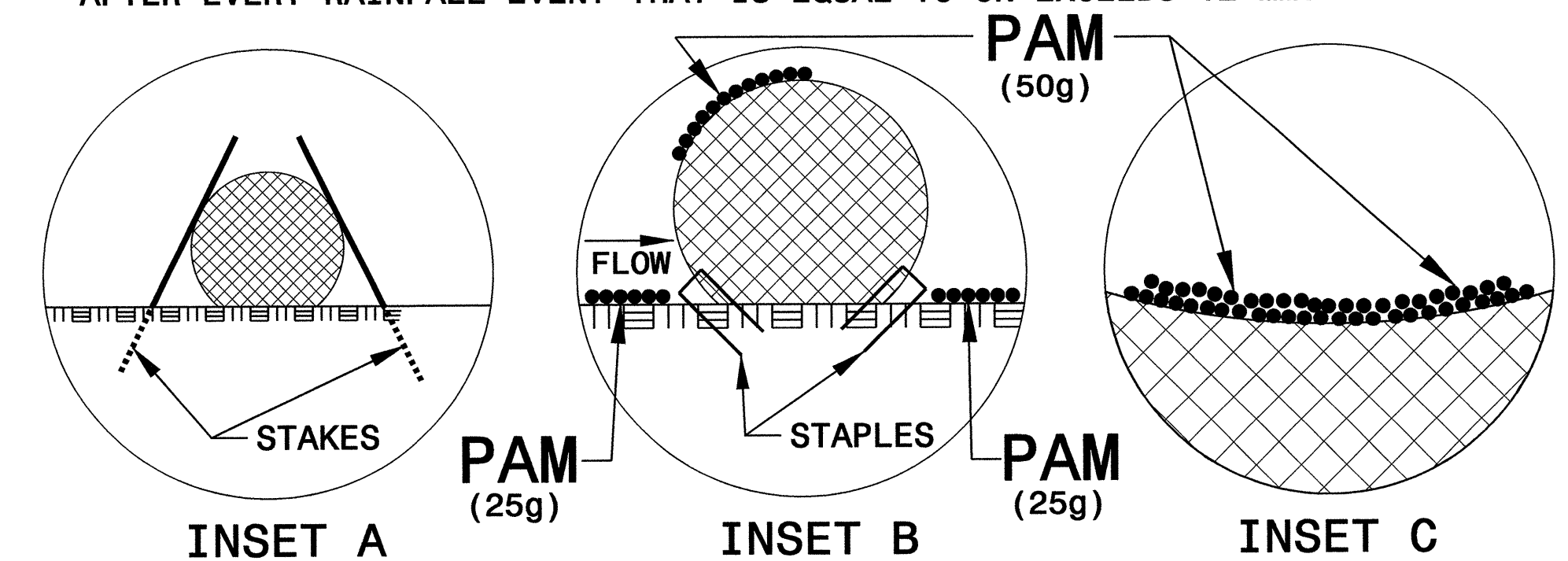
PROVIDE STAPLES MADE OF 3 MM DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 305 MM IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 0.3 LINEAR METER ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 50 GRAMS OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 25 GRAMS ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 12 MM.

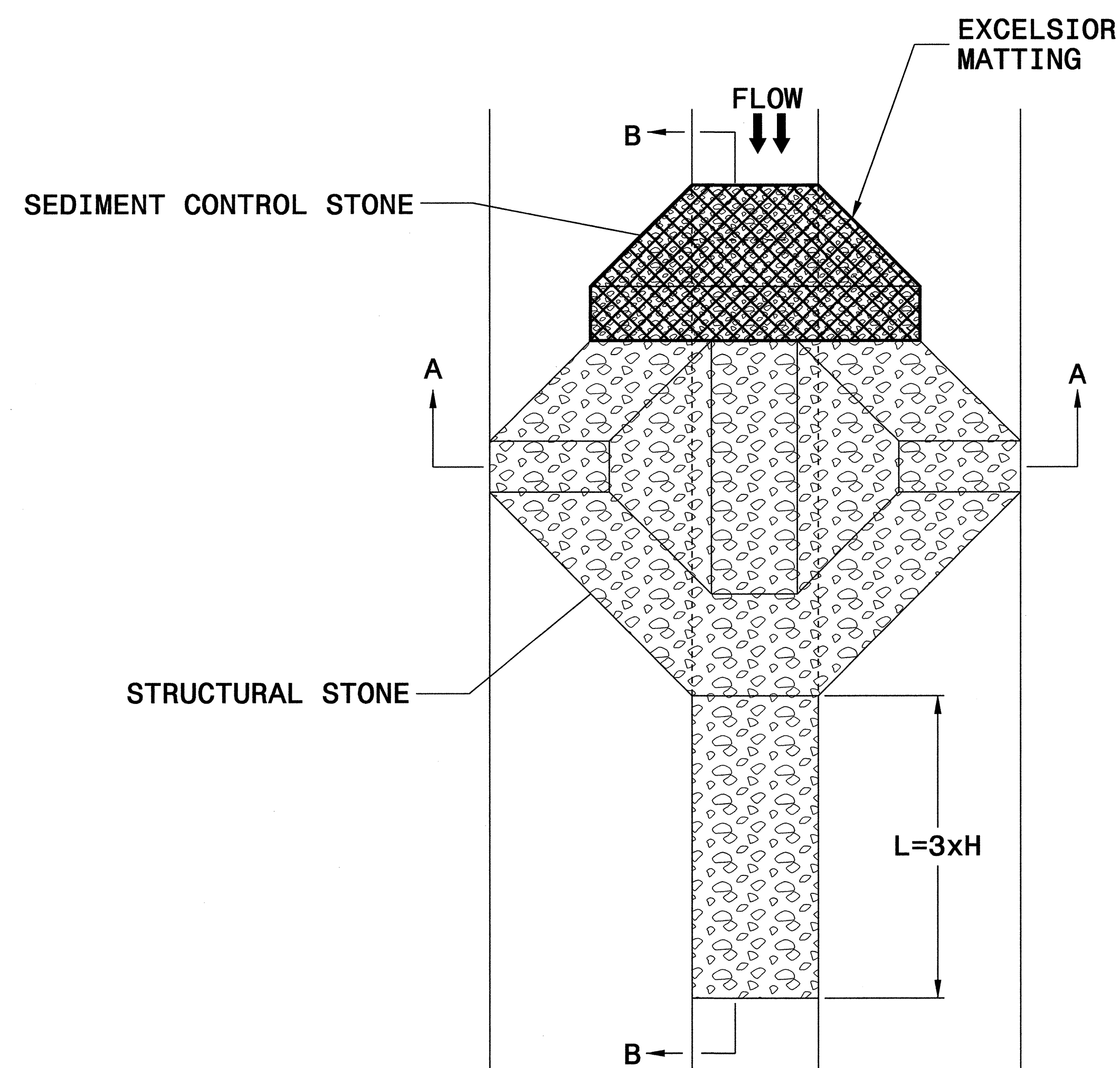


TOP VIEW



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



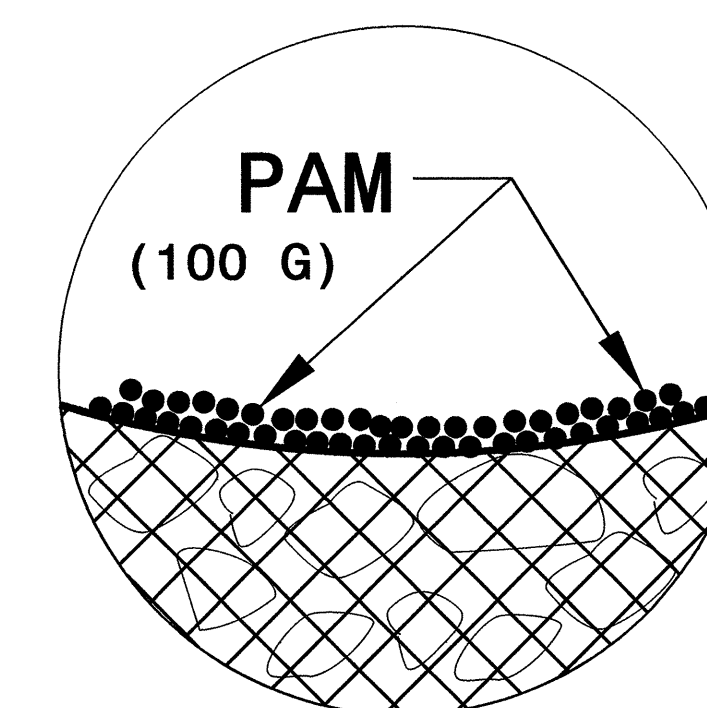
PLAN

NOTES

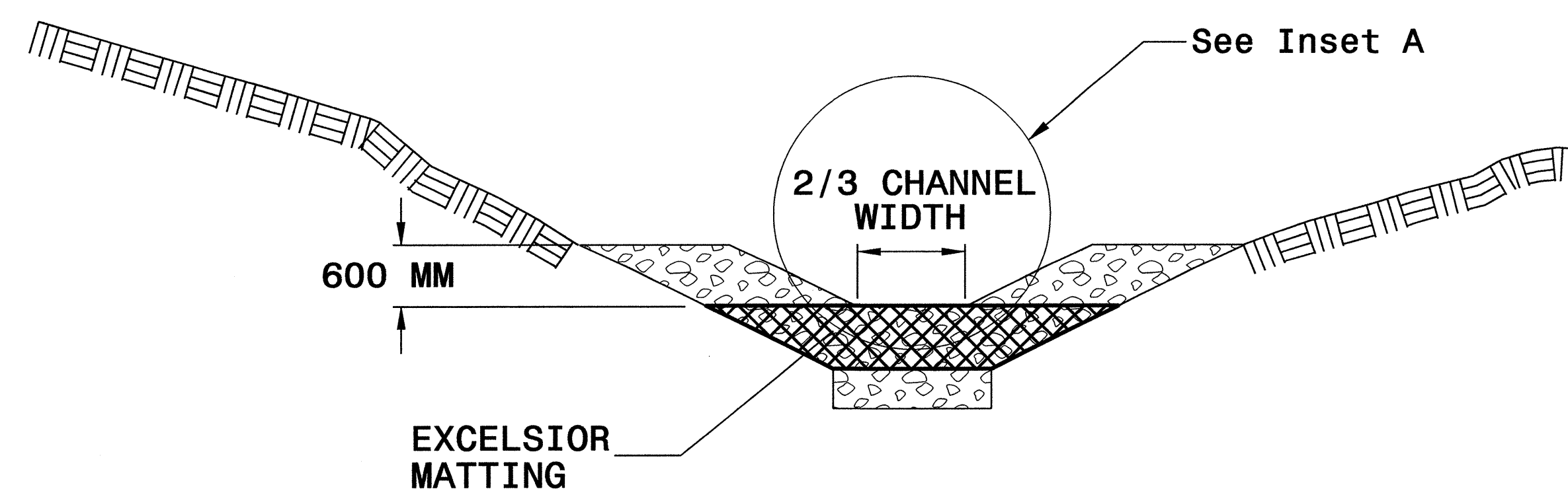
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

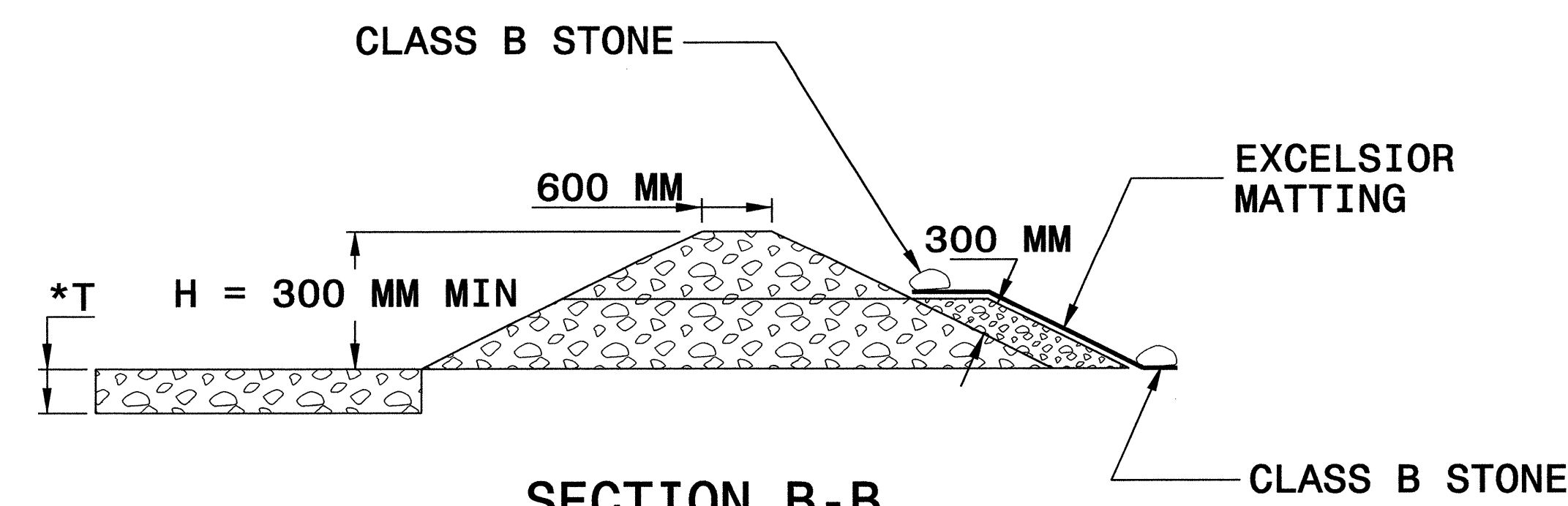
INITIALLY APPLY 100 GRAMS OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 12 MM.



INSET A



SECTION A-A



SECTION B-B

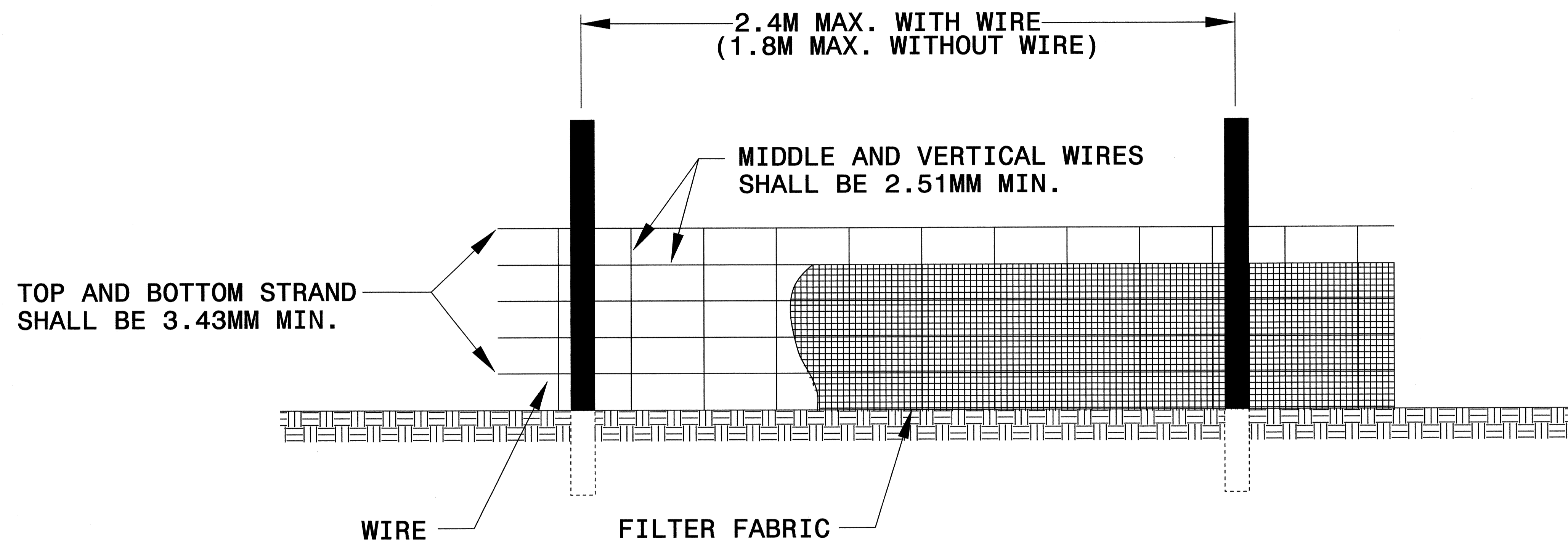
*T = 300 MM MIN., 450 MM MAX.

NOT TO SCALE



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY SILT FENCE DETAIL

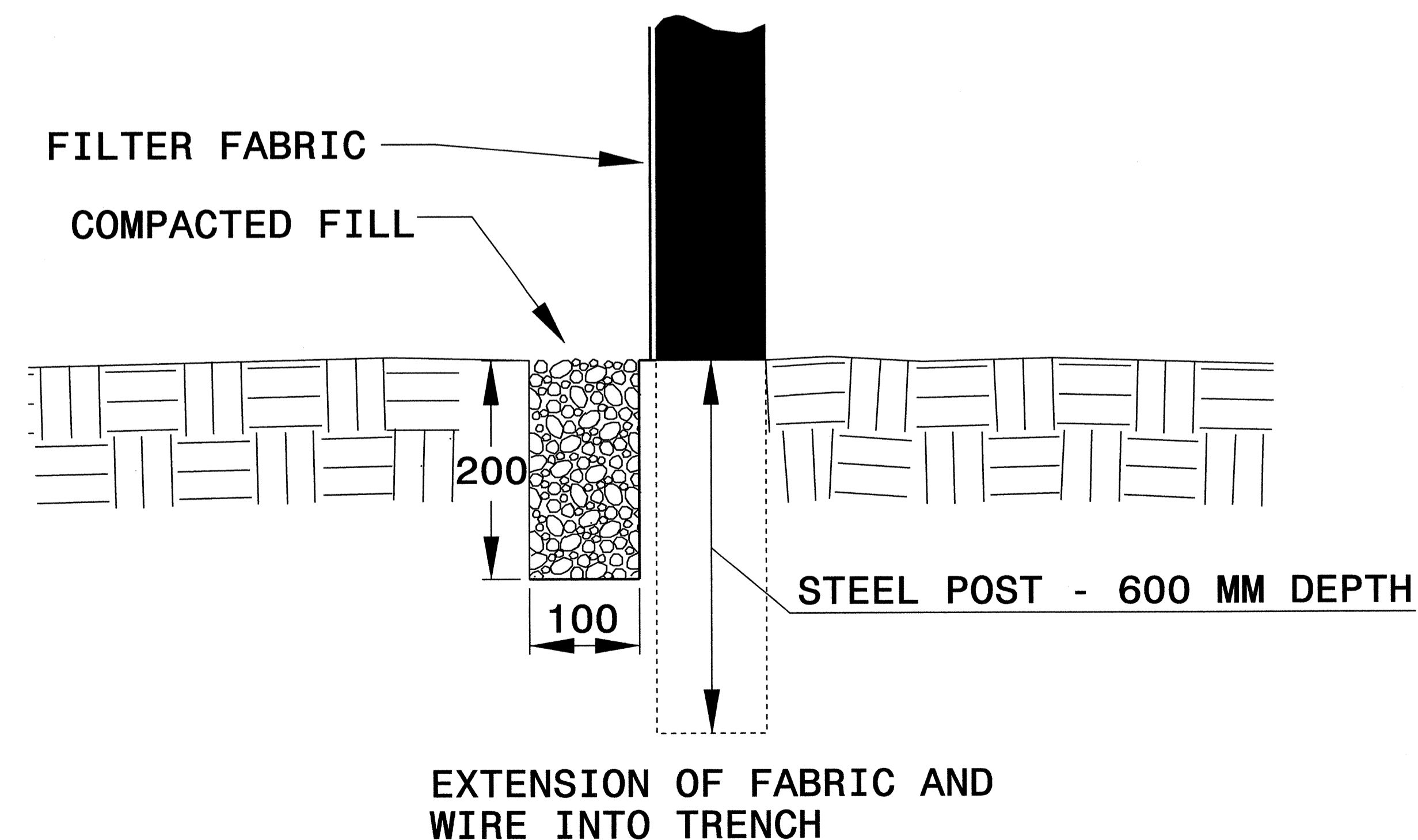


NOTES

USE WIRE A MINIMUM OF 800MM IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 300MM STAY SPACING.

USE FILTER FABRIC A MINIMUM OF 900MM IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.

PROVIDE 1.5M STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE. ANGLE STEEL TYPE.





PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SPECIAL SEDIMENT CONTROL FENCE DETAIL

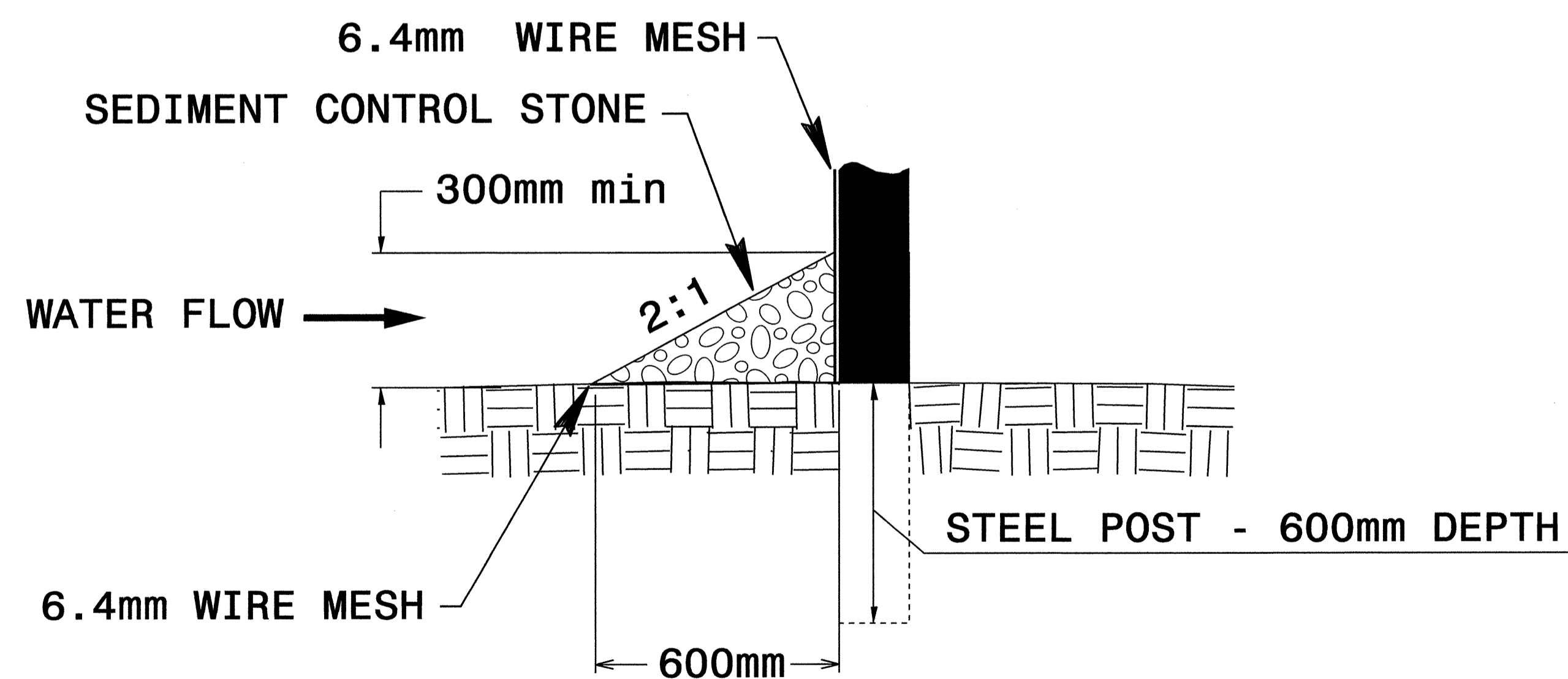
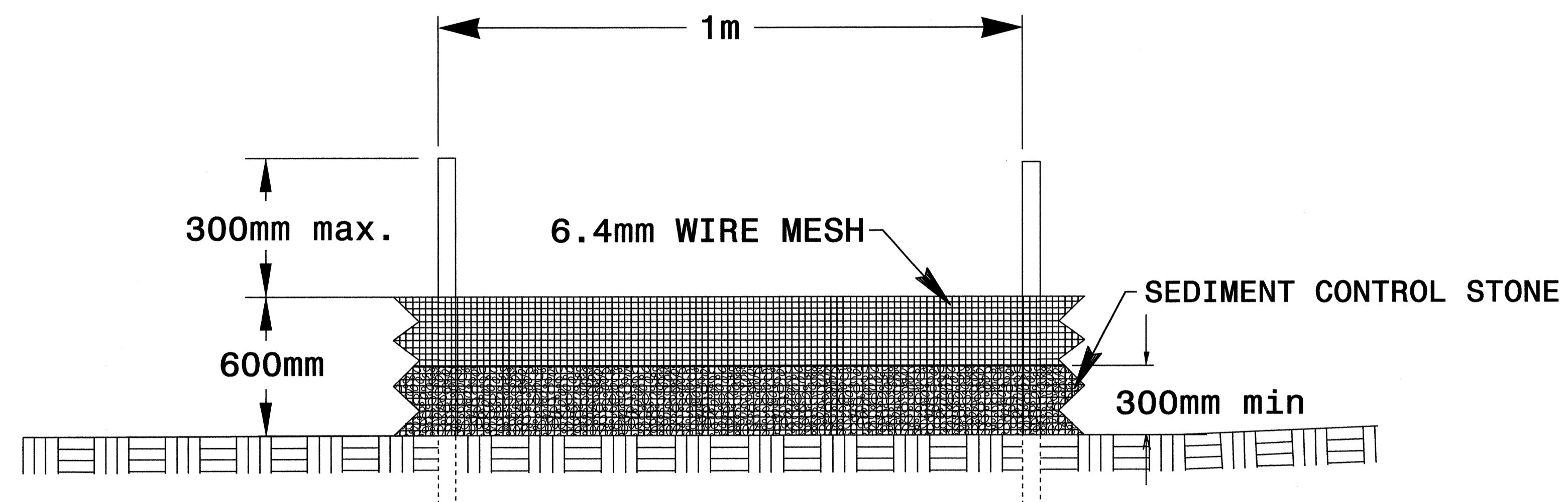
GENERAL NOTES:

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

USE 0.65mm HARDWARE CLOTH WIRE MESH WITH 6.4 mm MESH OPENINGS.

INSTALL 1.5m SELF FASTENER ANGLE STEEL POST 600mm DEEP MINIMUM.

SPACE POST A MAXIMUM OF 1m.





PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STILLING BASIN

GENERAL NOTES:
CONSTRUCT THE COIR FIBER BAFFLES WITH A MATERIAL THAT MEETS THE SPECIFICATIONS OF THE COIR FIBER MAT SPECIAL PROVISION PROVIDED IN THE CONTRACT.

PROVIDE 1.5M STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 0.9M OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE STILLING BASIN WITH 12" STAPLES.

INSTALL THE TOP OF THE COIR FIBER BAFFLE A MINIMUM OF 300MM LOWER THAN THE TOP OF THE STILLING BASIN BERMS.

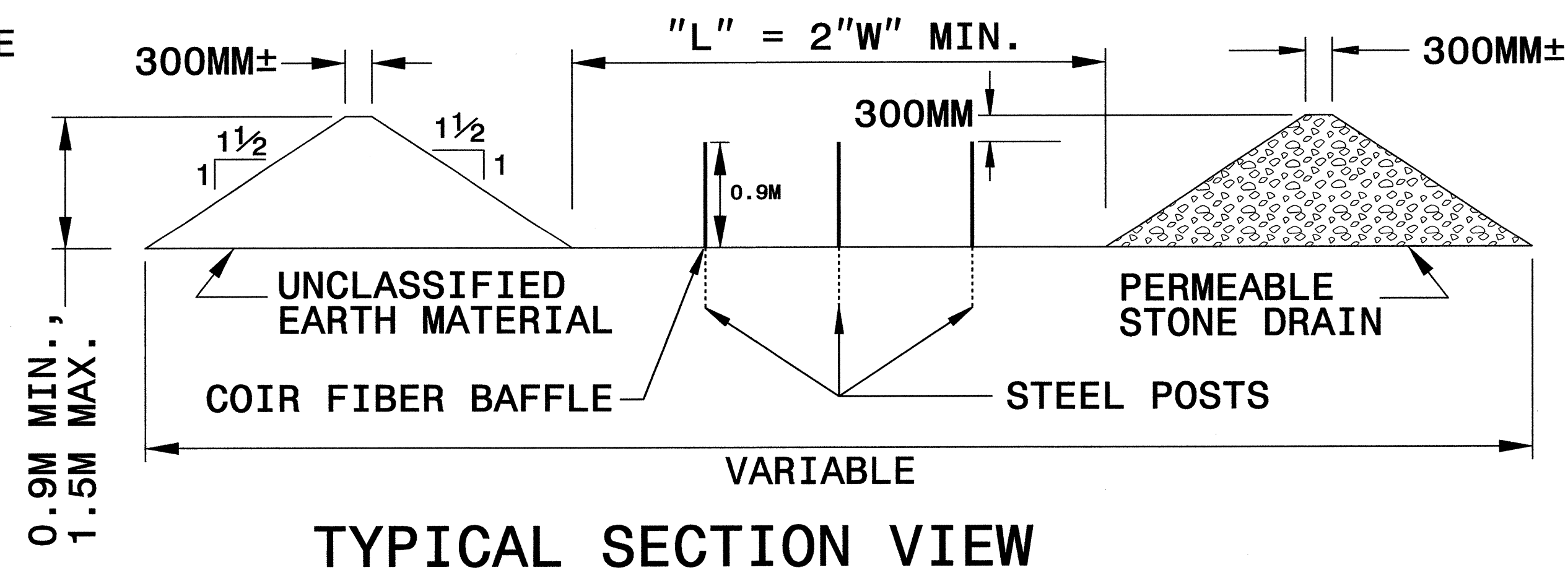
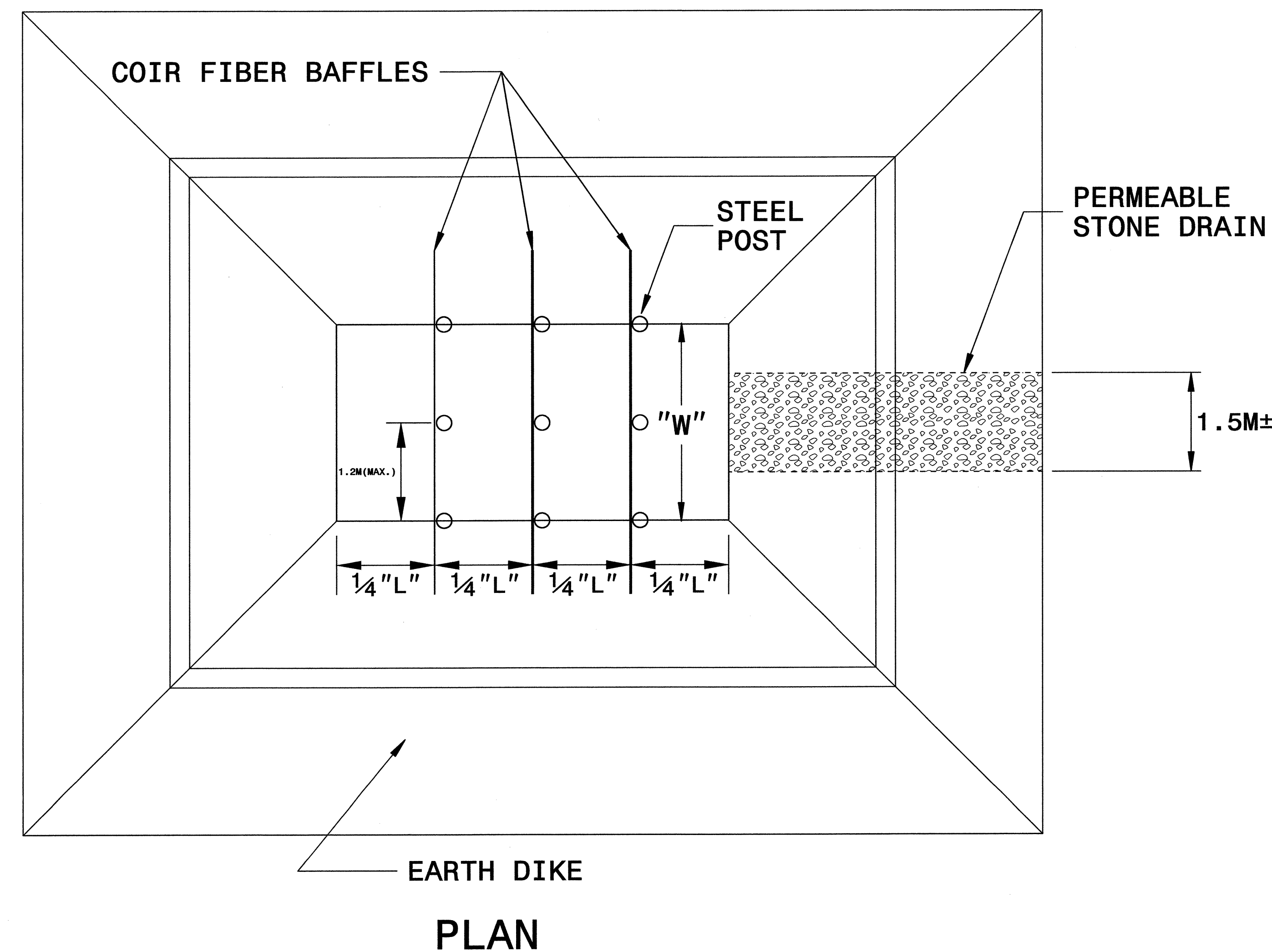
USE THE TYPICAL SECTION SHOWN FOR THE STILLING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A PERMEABLE STONE DRAIN.

DO NOT EXCEED 1.5M IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR STILLING BASINS. ADDITIONAL DEPTHS MAY BE ATTAINED BY EXCAVATING BELOW THE NATURAL GROUND LEVEL.

THE STILLING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

SUBMIT THE SIZE, LOCATION AND PERMEABLE STONE DRAIN MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

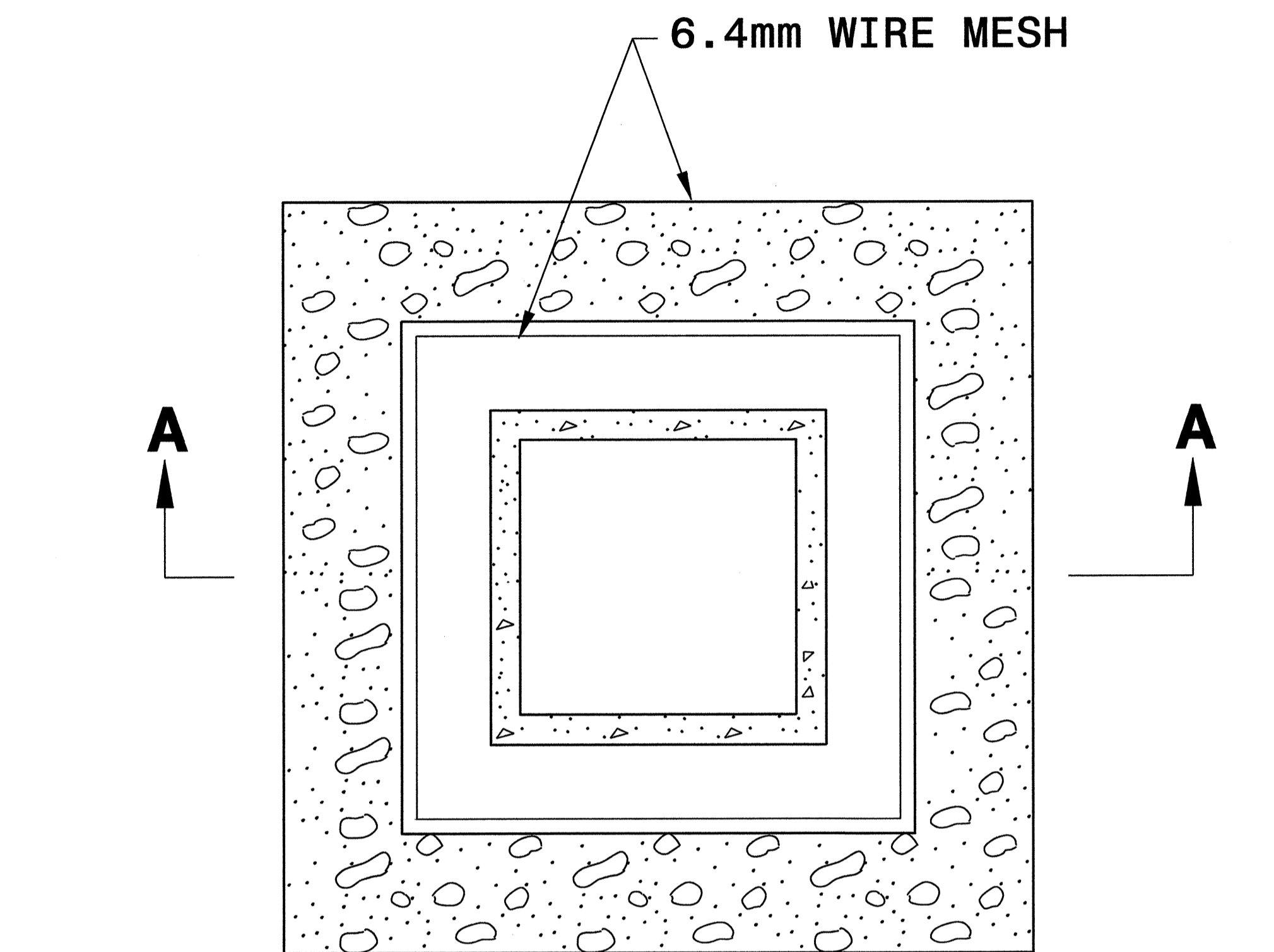
PUMP THE EFFLUENT INTO THE STILLING BASIN TO A MAXIMUM DEPTH OF 0.9 METERS.



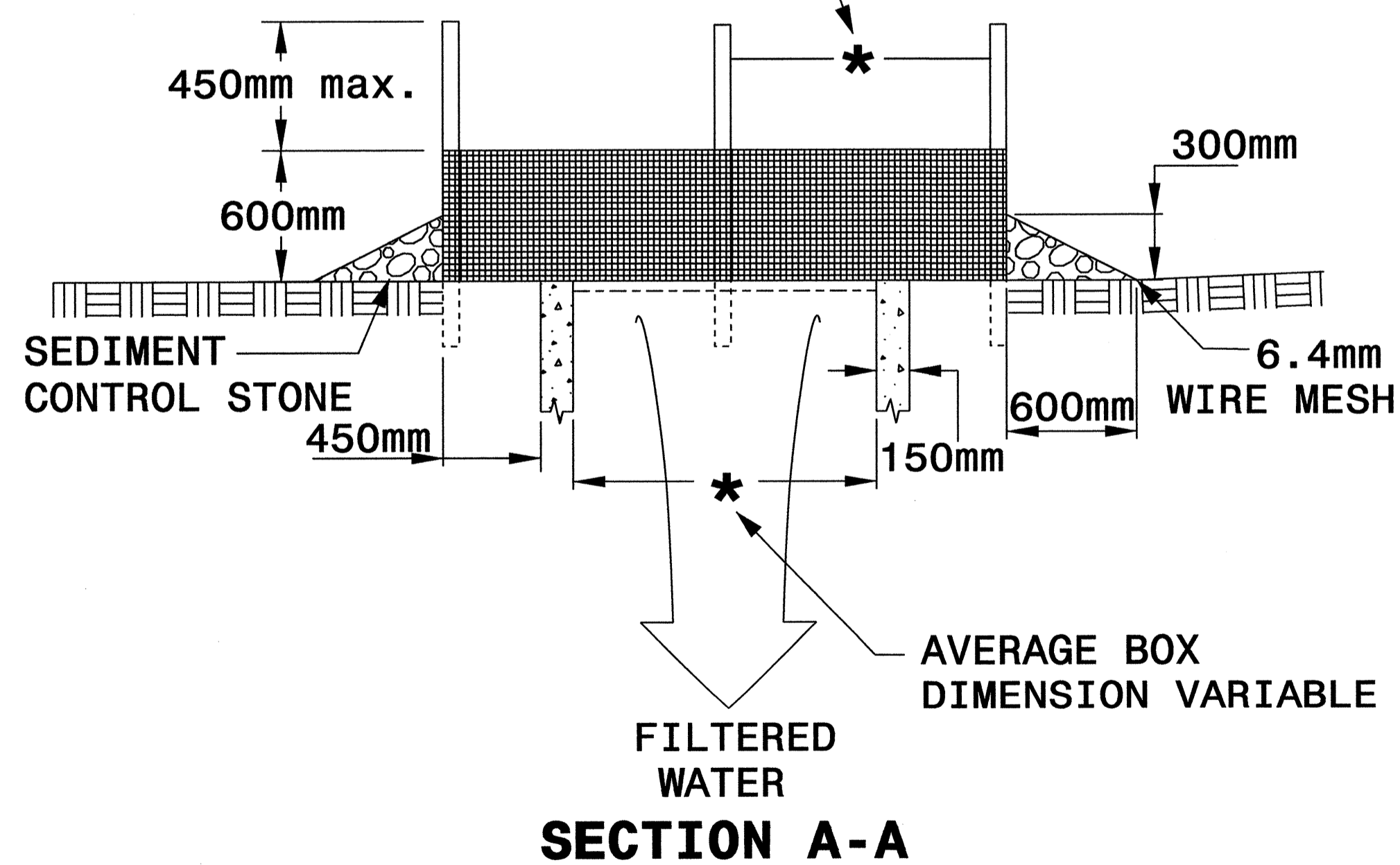


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

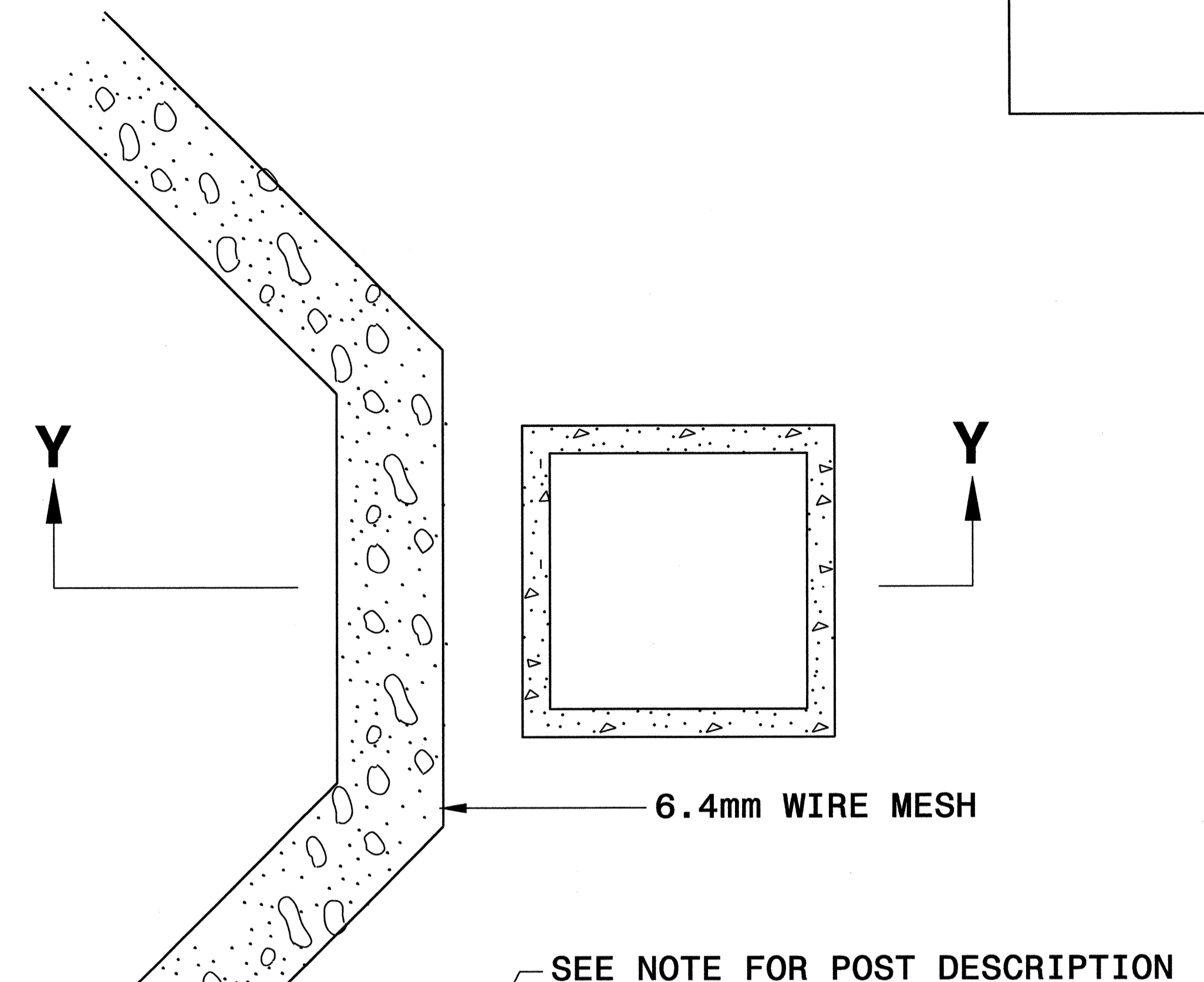
ROCK INLET SEDIMENT TRAP TYPE 'C' DETAIL



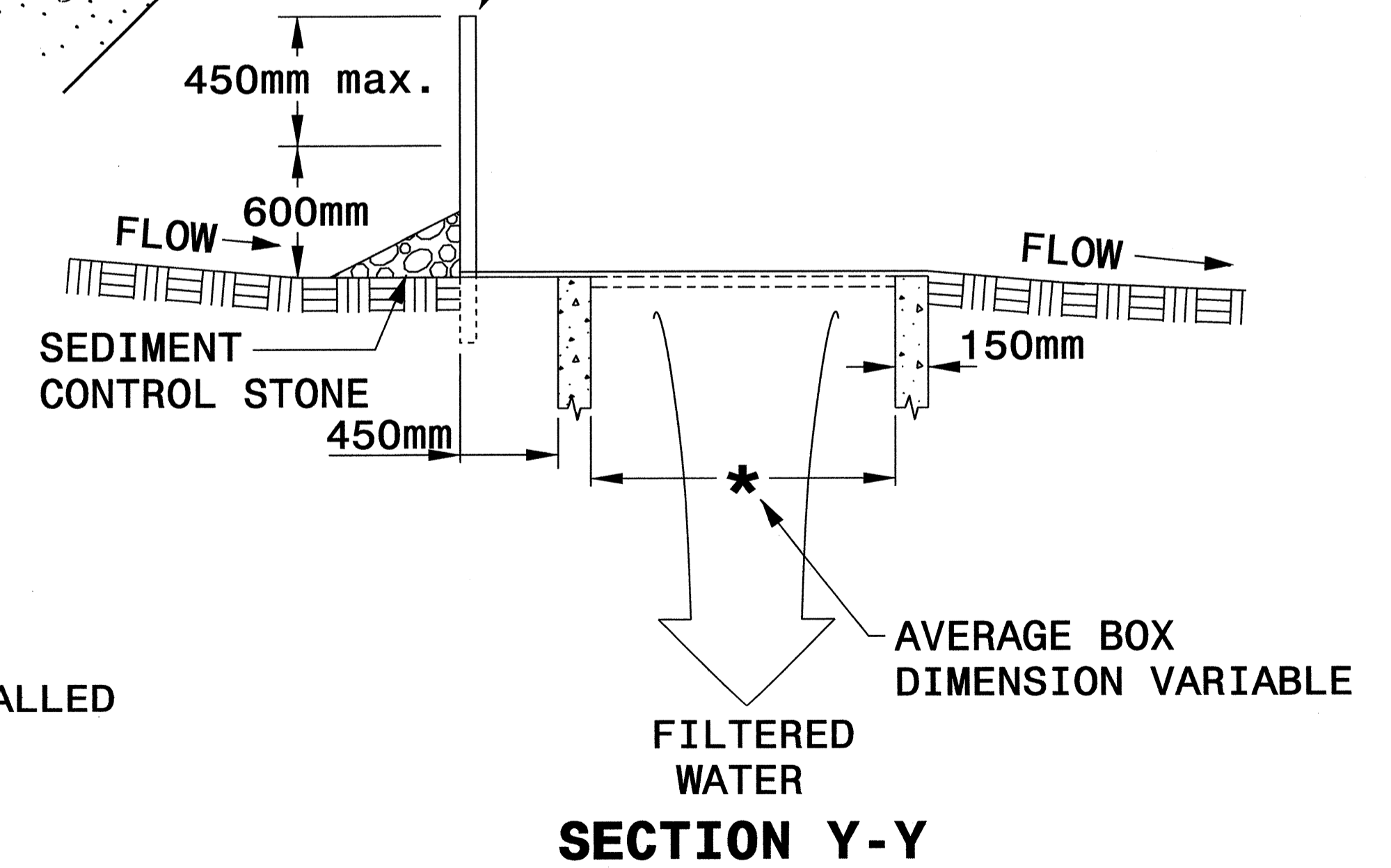
MAXIMUM POST SPACING 1.2m



MULTI-DIRECTIONAL FLOW



SEE NOTE FOR POST DESCRIPTION



SINGLE-DIRECTIONAL FLOW

NOTE
 USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.
 USE HARDWARE CLOTH 0.65mm WIRE MESH WITH 6.4mm MESH OPENINGS.
 PLACE TOP OF WIRE MESH A MINIMUM OF 300mm BELOW THE SHOULDER OR ANY DIVERSION POINT.
 INSTALL WIRE MESH UNDER SEDIMENT CONTROL STONE.
 USE 1.5m STEEL POST, INSTALLED 450mm DEEP MINIMUM, AND OF THE SELF-FASTENER ANGLE STEEL TYPE.
 SPACE POST A MAXIMUM OF 1.2m.

BORROW PIT DEWATERING BASIN DETAIL



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

GENERAL NOTES:

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING $V = 8.0203 * Q * T$, WHERE V IS VOLUME (FT³), Q IS PUMP FLOW RATE (GPM), AND T IS DEWATERING TIME (HR). USE MAXIMUM FLOW RATE OF 1000 GPM AND A MINIMUM DEWATERING TIME OF 2 HOURS.

RISER SHALL BE A NON-PERFORATED, SMOOTH OR CORRUGATED MATERIAL WITH A FLASHBOARD OPTION.

CONSTRUCT THE COIR FIBER BAFFLE WITH A MATERIAL THAT MEETS THE SPECIFICATIONS OF THE COIR FIBER MAT SPECIAL PROVISION PROVIDED IN THE CONTRACT.

PROVIDE 1.5M STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 0.9M OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE BASIN WITH 300mm STAPLES.

INSTALL TYPE 2 FILTER FABRIC ON SIDESLOPES AND BOTTOM OF BASIN AT INLET AS SHOWN IN THE DETAIL.

USE THE TYPICAL SECTION SHOWN FOR THE BORROW PIT DEWATERING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A NON-PERFORATED RISER.

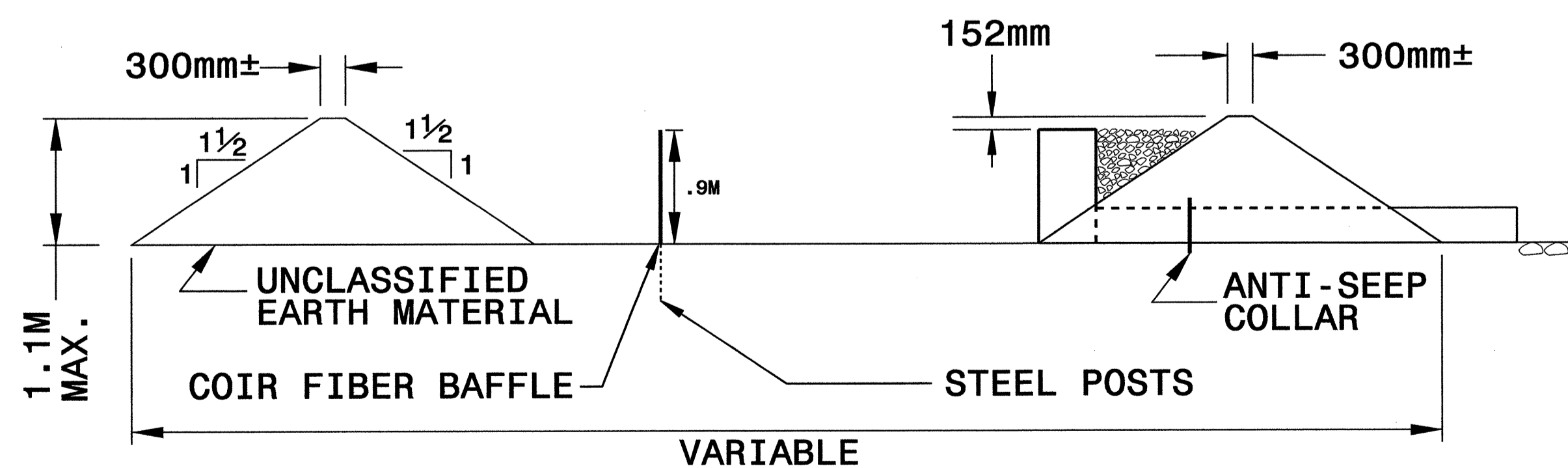
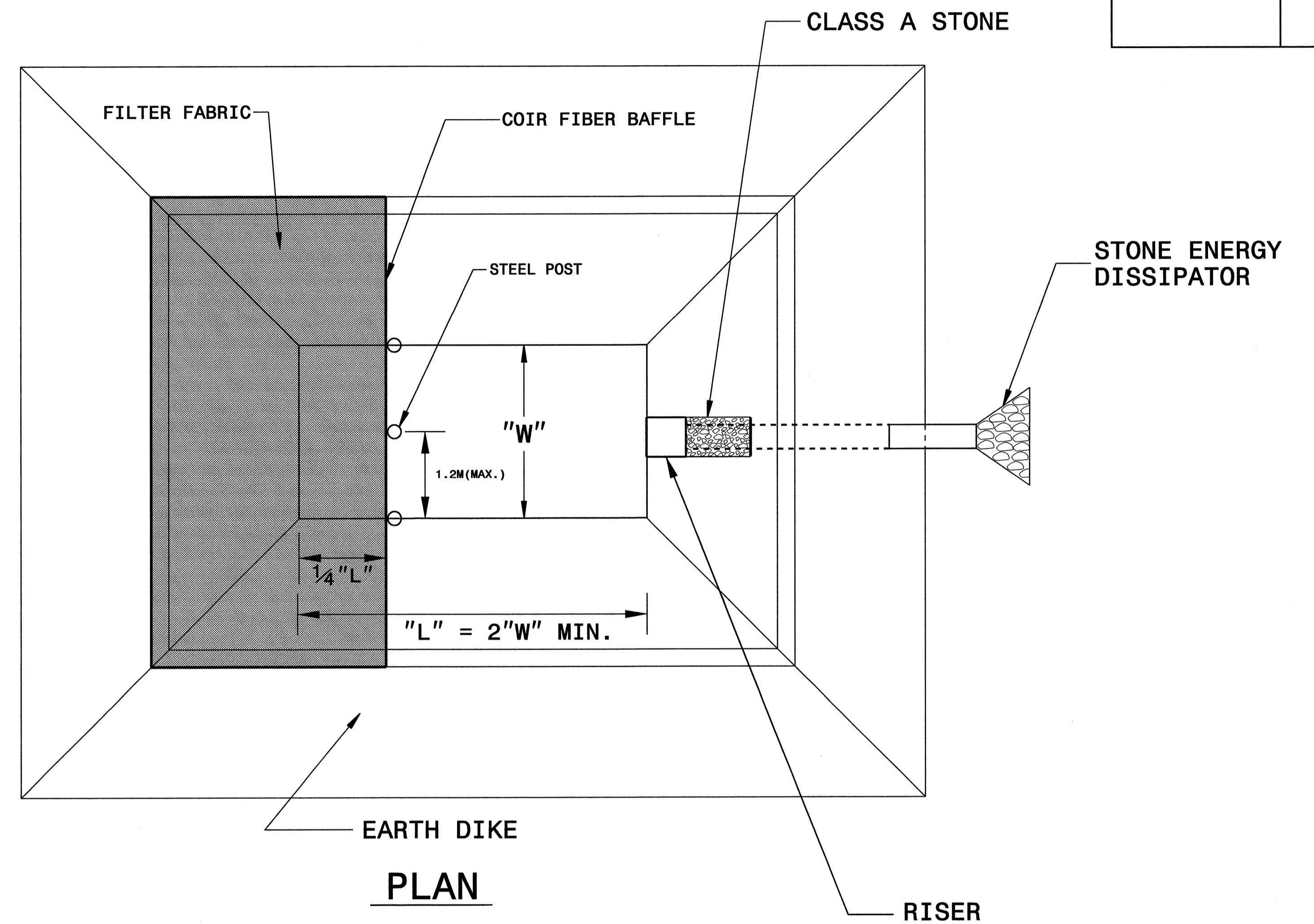
DO NOT EXCEED 1.1M IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

THE BORROW PIT DEWATERING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

SUBMIT THE SIZE, LOCATION AND RISER PIPE MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 152mm BELOW TOP OF EARTH DIKE.

PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



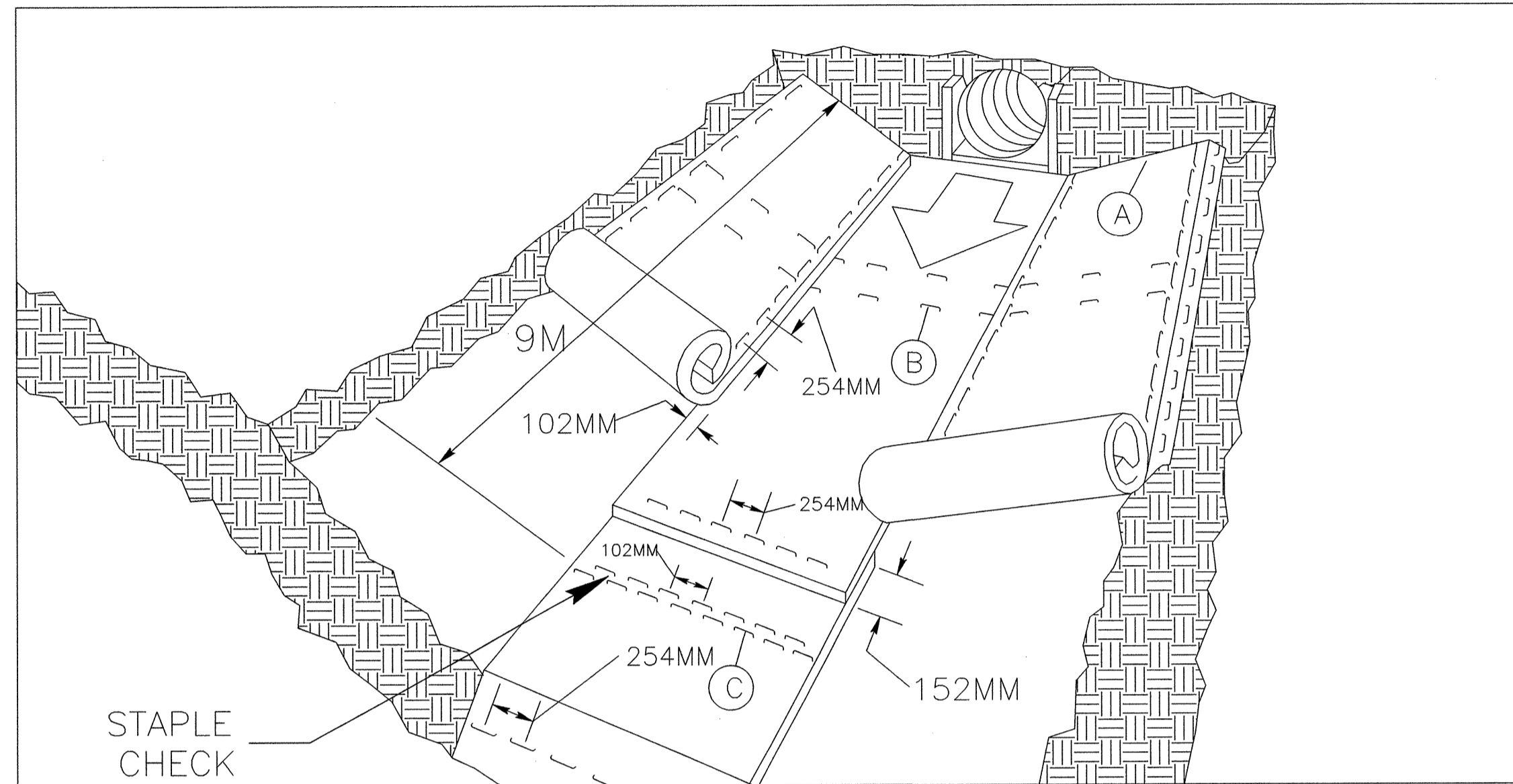
TYPICAL SECTION VIEW

NOT TO SCALE



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-2J
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

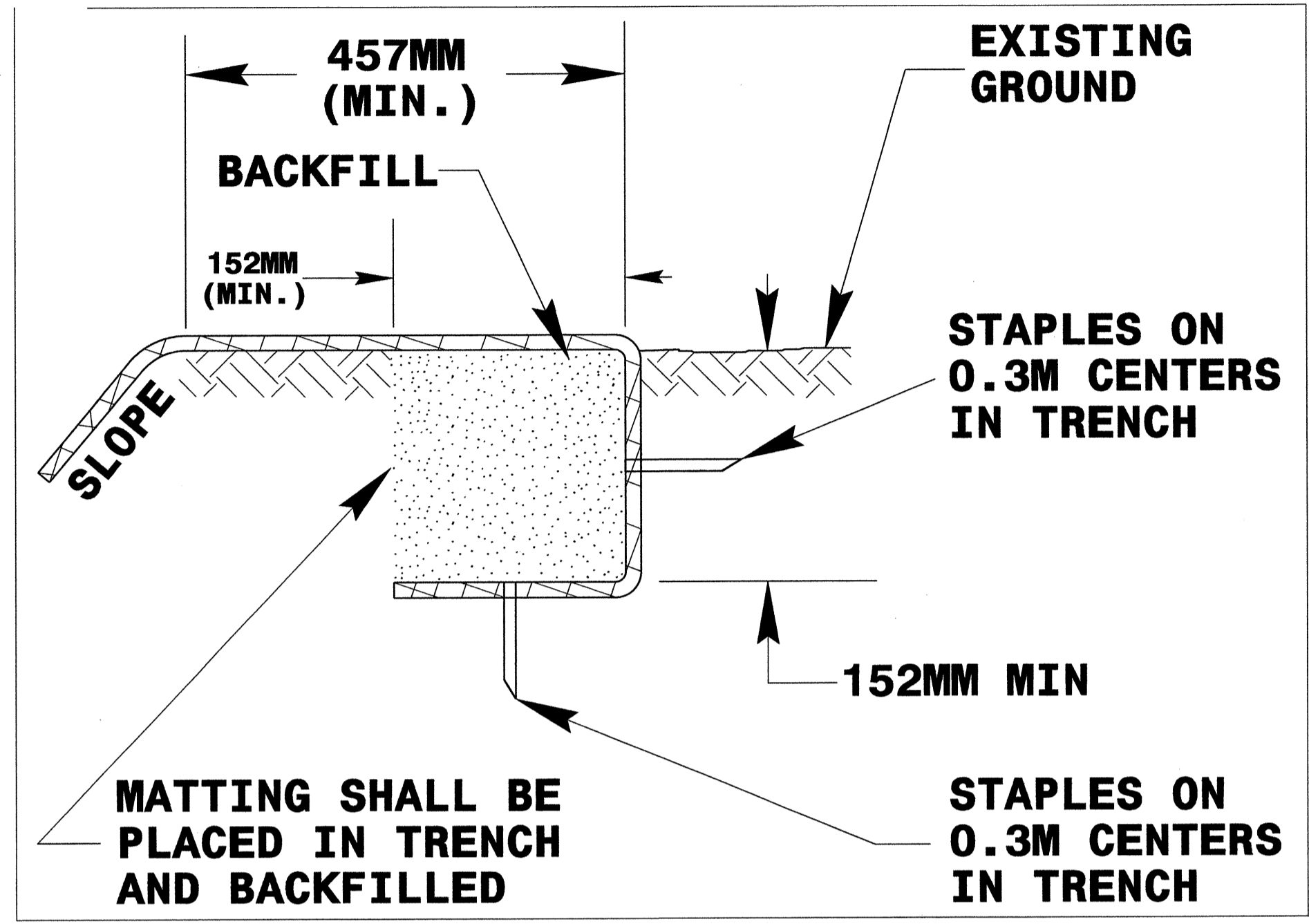
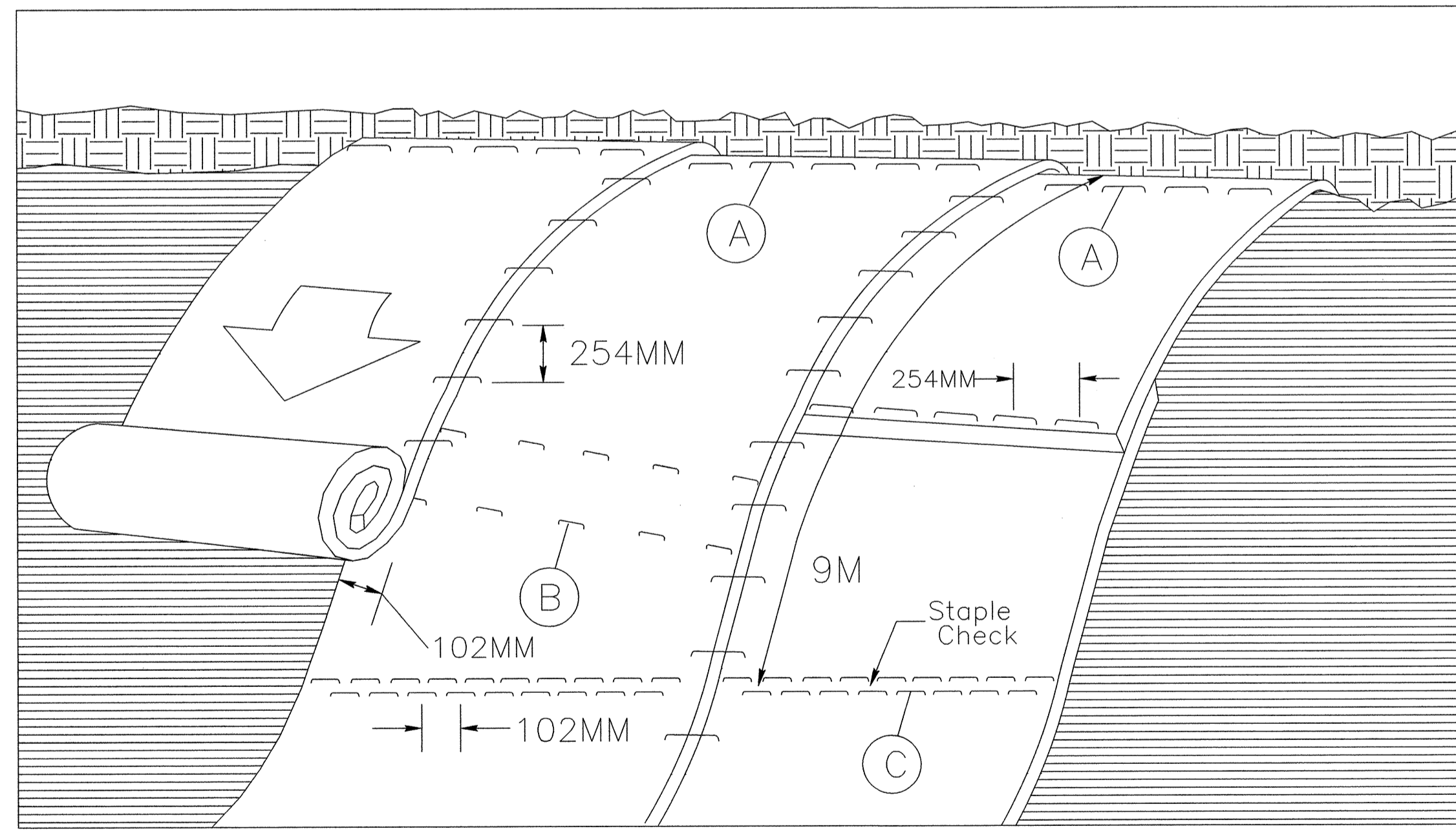


DIAGRAM (A)



MATTING ON SLOPES

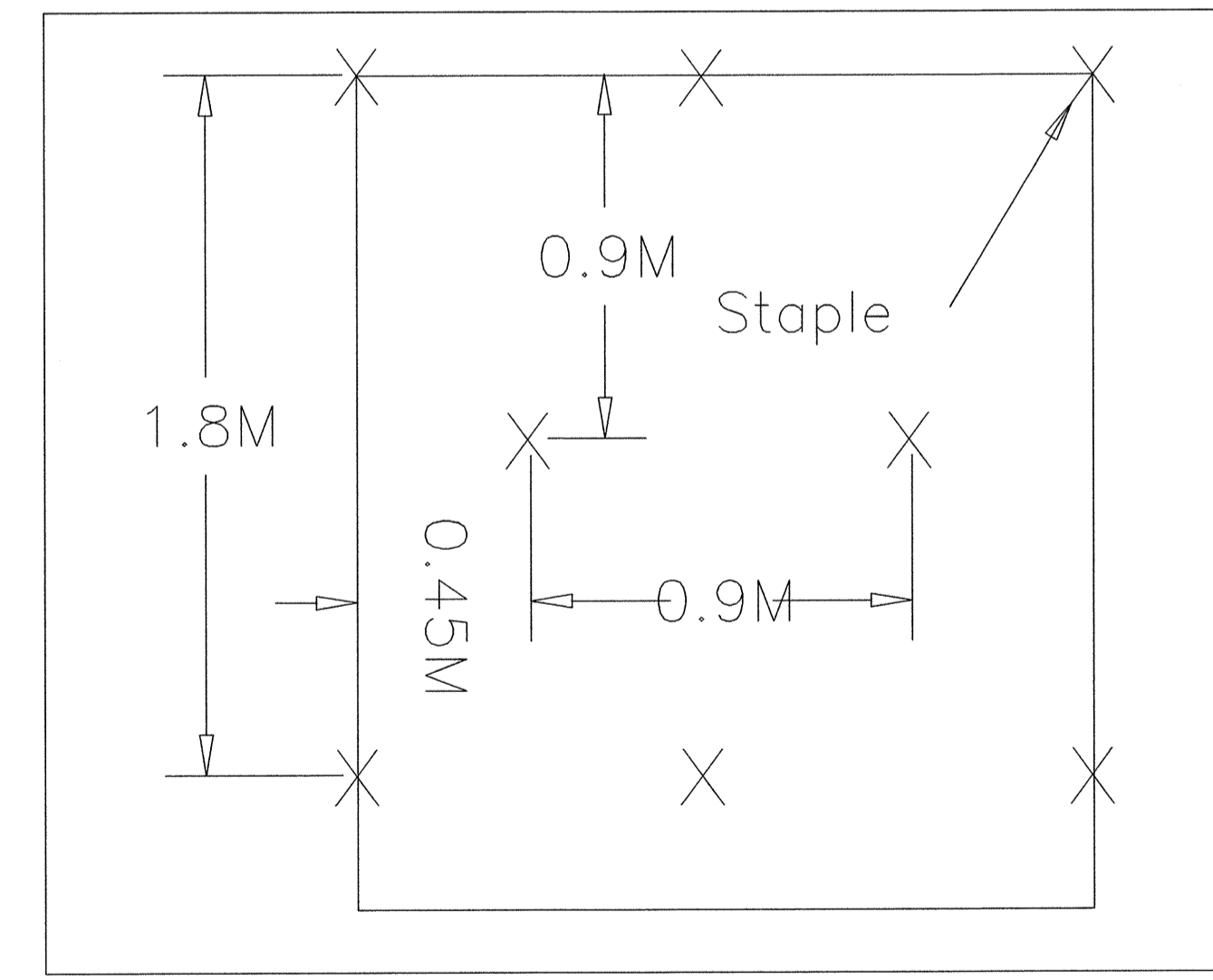


DIAGRAM (B)

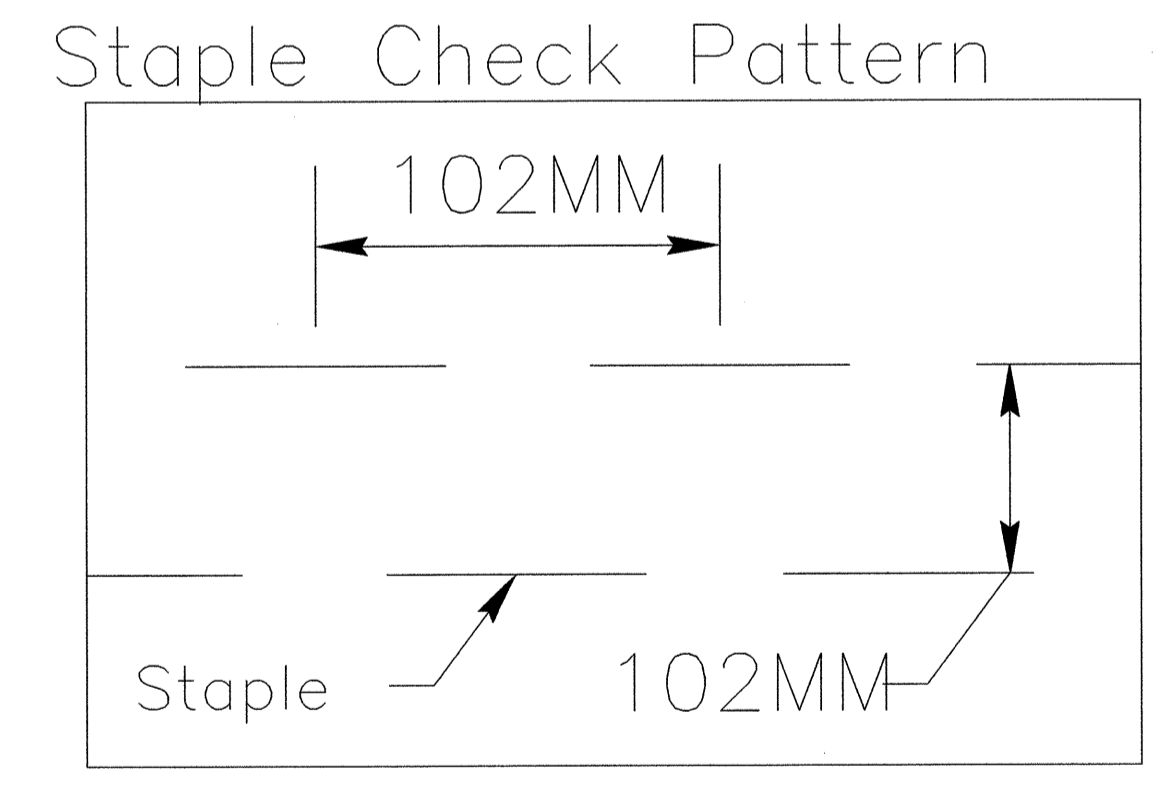


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.
 STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 25MM AND NOT LESS THAN 152MM IN LENGTH.

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



PROJECT REFERENCE NO. <i>R-2414B</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
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 3 M OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 15 M IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

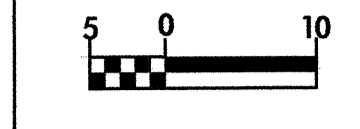
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 mcaughn

**CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4**

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

REVISIONS

PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-4/CONST.4	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.	

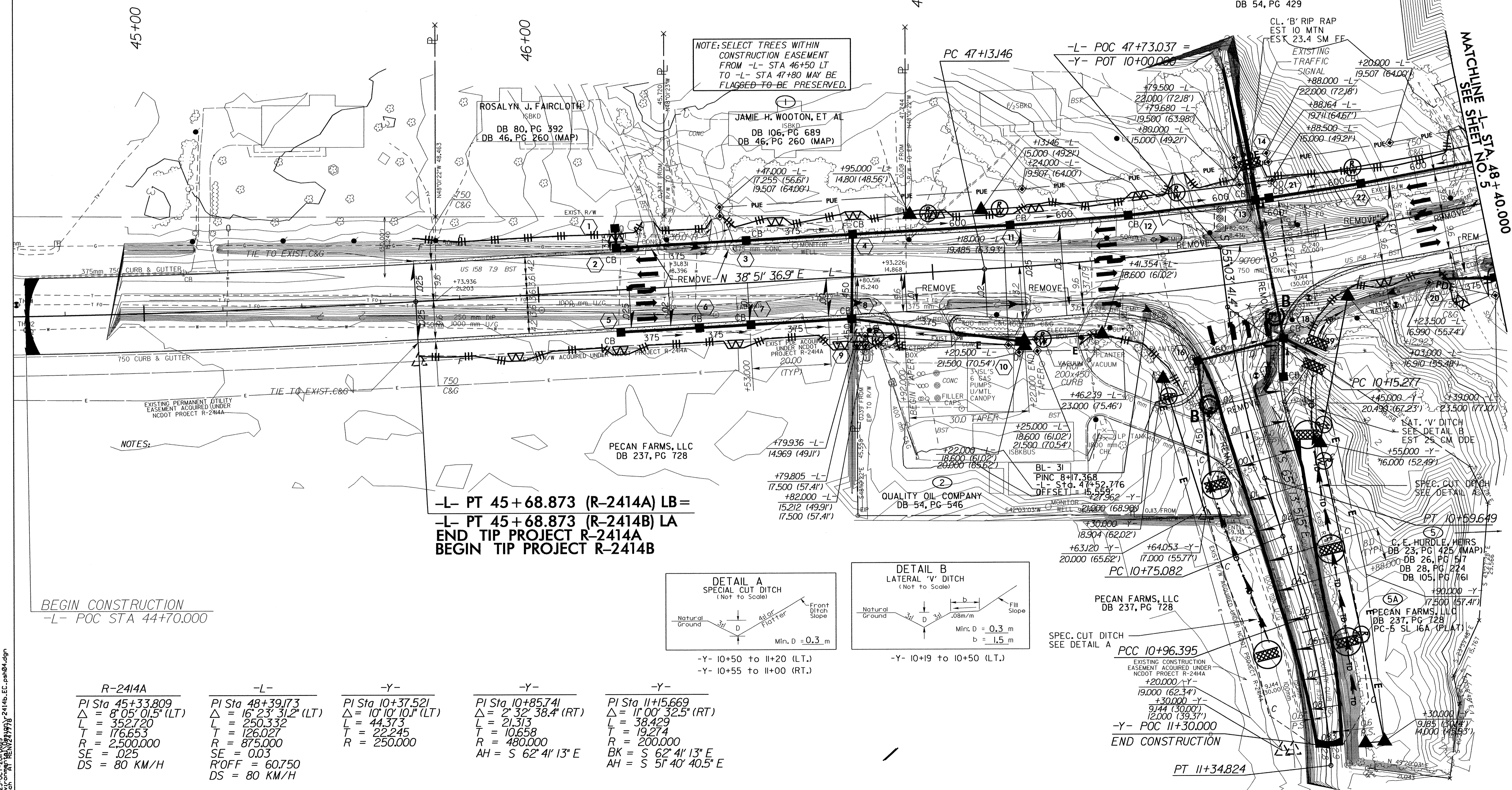


ROBERT F. MASSIELLO, ET UX
DB III, PG 705
DB 46, PG 260 (MAP)

GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

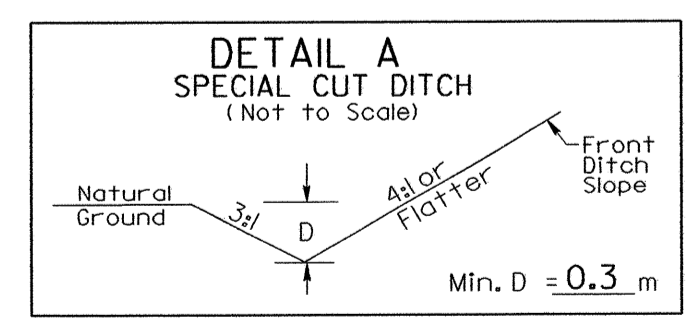
O.C. ABBOTT
DB 54, PG 429

**NOTE: SELECT TREES WITHIN
CONSTRUCTION EASEMENT
FROM -L- STA 46+50 LT
TO -L- STA 47+80 MAY BE
FLAGGED TO BE PRESERVED.**

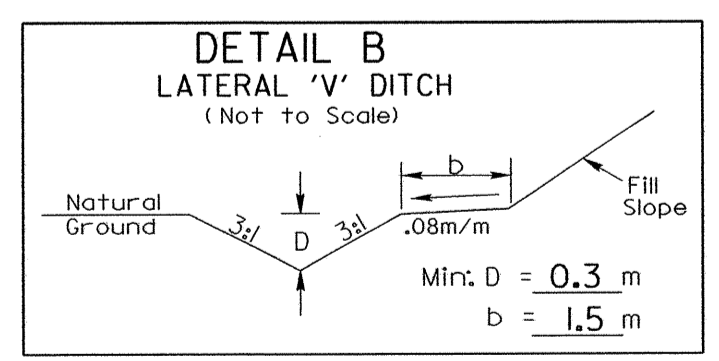


BEGIN CONSTRUCTION
-L- POC STA 44+70.000

**-L- PT 45+68.873 (R-2414A) LB=
-L- PT 45+68.873 (R-2414B) LA
END TIP PROJECT R-2414A
BEGIN TIP PROJECT R-2414B**



-Y- 10+50 to 11+20 (LT.)
-Y- 10+55 to 11+00 (RT.)



-Y- 10+19 to 10+50 (LT.)

R-2414A
PI Sta 45+33.809
Δ = 8° 05' 01.5" (LT)
L = 352.720
T = 176.653
R = 2,500.000
SE = 0.25
DS = 80 KM/H

-L-
PI Sta 48+39.173
Δ = 16° 23' 31.2" (LT)
L = 250.332
T = 126.027
R = 875.000
SE = 0.03
R/OFF = 60.750
DS = 80 KM/H

-Y-
PI Sta 10+37.521
Δ = 10° 10' 10.1" (LT)
L = 44.373
T = 22.245
R = 250.000

-Y-
PI Sta 10+85.741
Δ = 2° 32' 38.4" (RT)
L = 21.313
T = 10.658
R = 480.000
AH = S 62° 41' 13" E

-Y-
PI Sta 11+15.669
Δ = 11° 00' 32.5" (RT)
L = 38.429
T = 19.274
R = 200.000
BK = S 62° 41' 13" E
AH = S 51° 40' 40.5" E

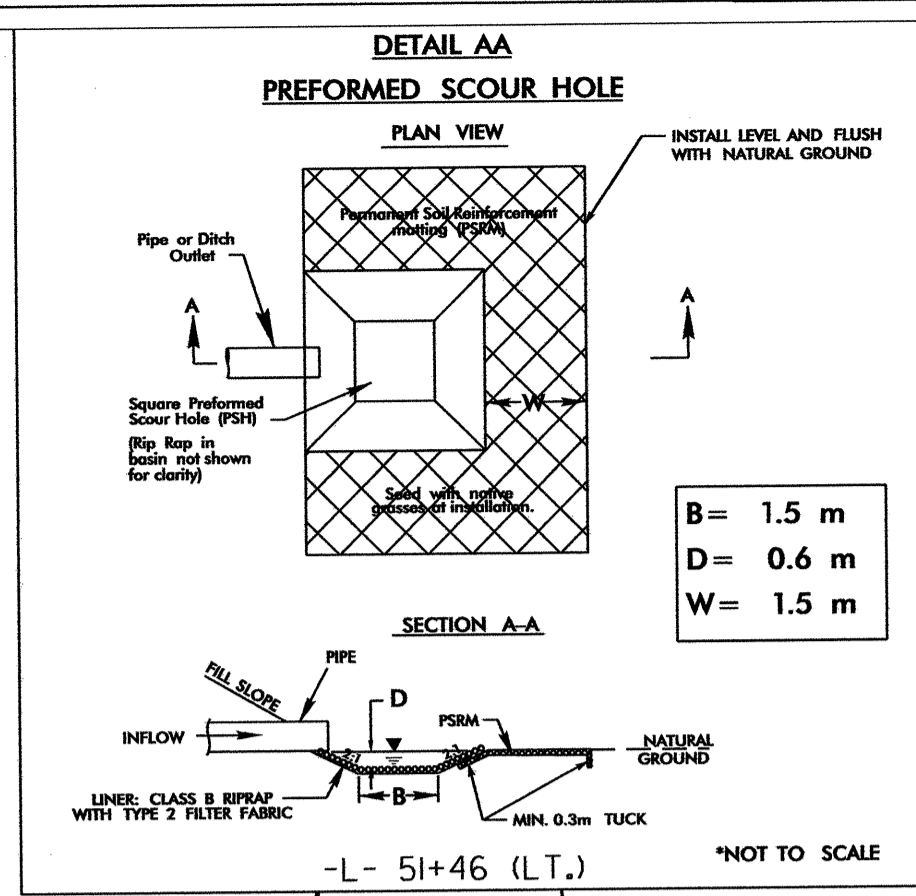
PCC 10+96.395
EXISTING CONSTRUCTION
EASEMENT ACQUIRED UNDER
NCDOT PROJECT R-2414A
+20,000 -Y-
19,000 (62.34)
+30,000 -Y-
9,144 (30.00)
12,000 (39.37)
-Y- POC 11+30.000

PT 11+34.824

**MATCHLINE SHEET NO. 5
STA. 48+40.000**

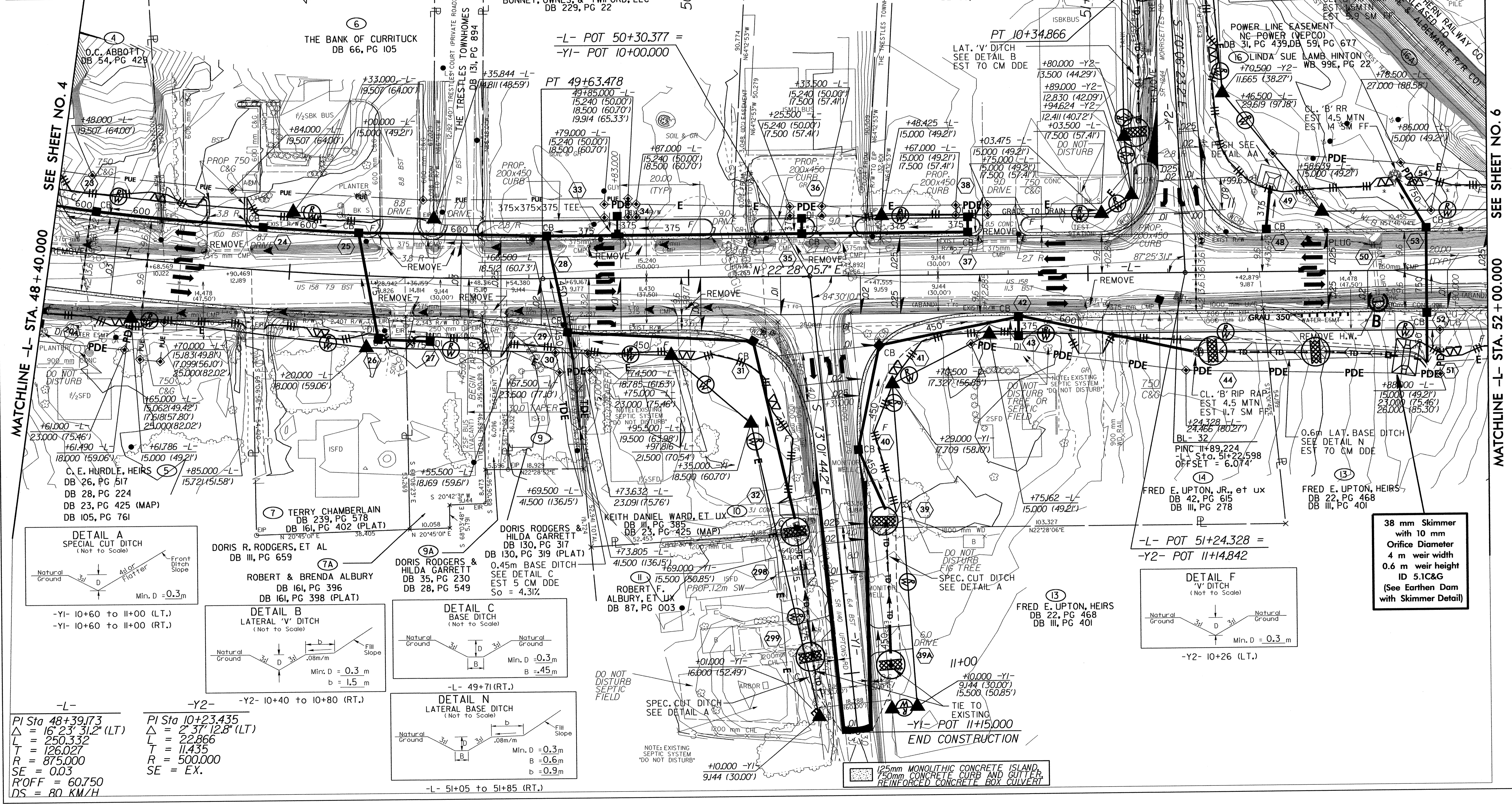
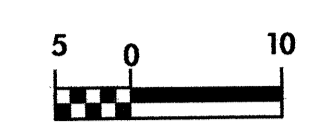
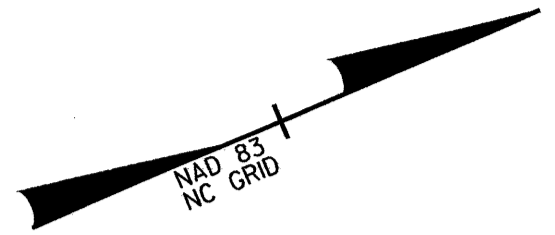


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-5/CONST.5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

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

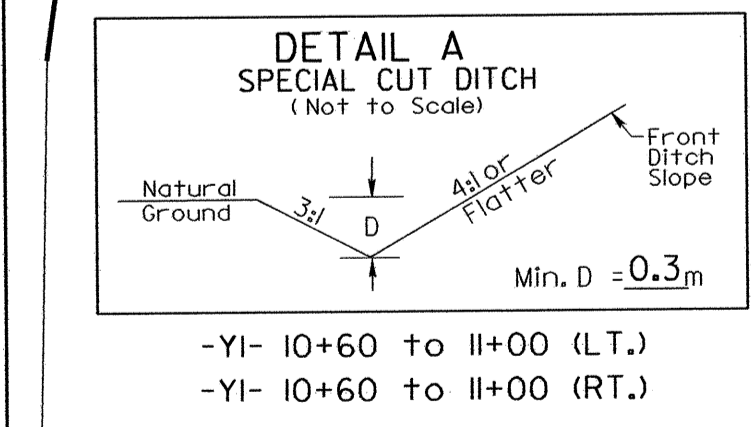


SEE SHEET NO. 4

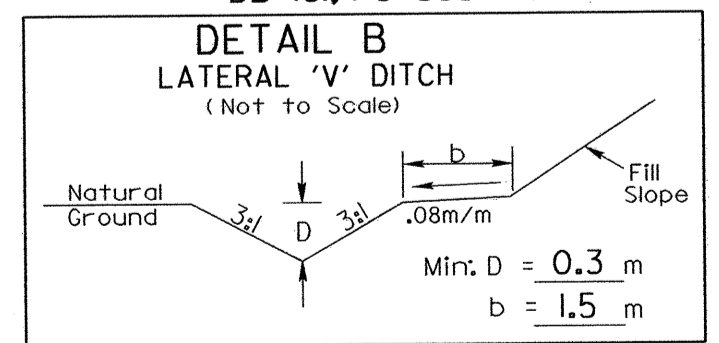
MATCHLINE -L- STA. 48 + 40.000

SEE SHEET NO. 6

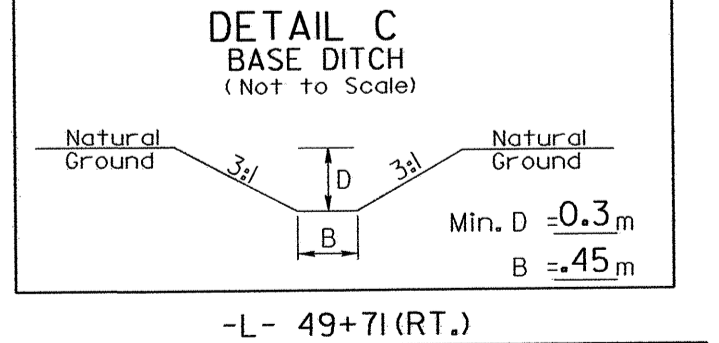
MATCHLINE -L- STA. 52 + 00.000



-Y1- 10+60 to 11+00 (LT.)
-Y1- 10+60 to 11+00 (RT.)



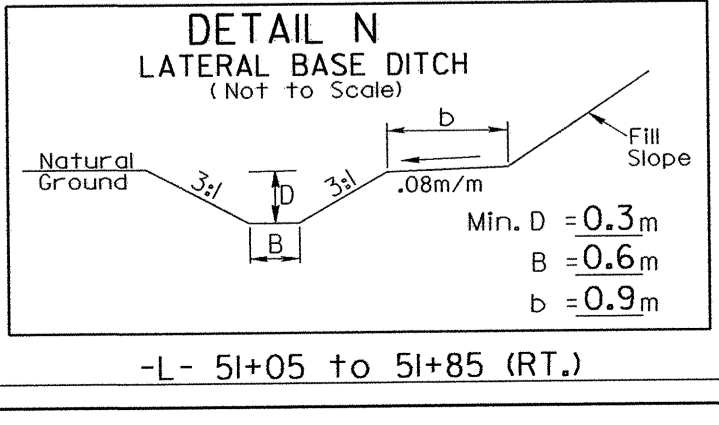
-L- 49+71 (RT.)



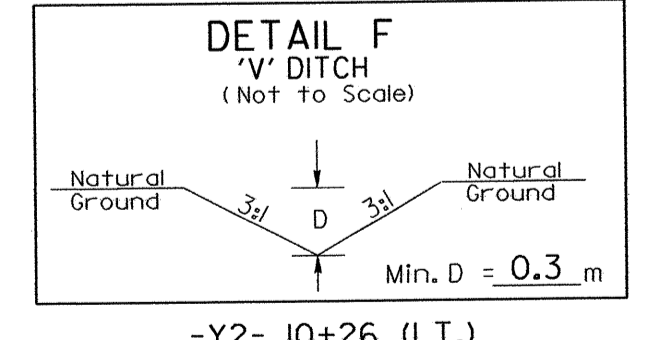
-L- 49+71 (RT.)

-L-
PI Sta 48+39.173
Δ = 16' 23" 31.2" (LT)
L = 250.332
T = 126.027
R = 875.000
SE = 0.03
R/OFF = 60.750
DS = 80 KM/H

-Y2-
PI Sta 10+23.435
Δ = 2' 37" 12.8" (LT)
L = 22.866
T = 11.435
R = 500.000
SE = EX.



-L- 51+05 to 51+85 (RT.)



-Y2- 10+26 (LT.)

38 mm Skimmer with 10 mm Orifice Diameter
4 m weir width
0.6 m weir height
ID 5.1C&G
(See Earthen Dam with Skimmer Detail)

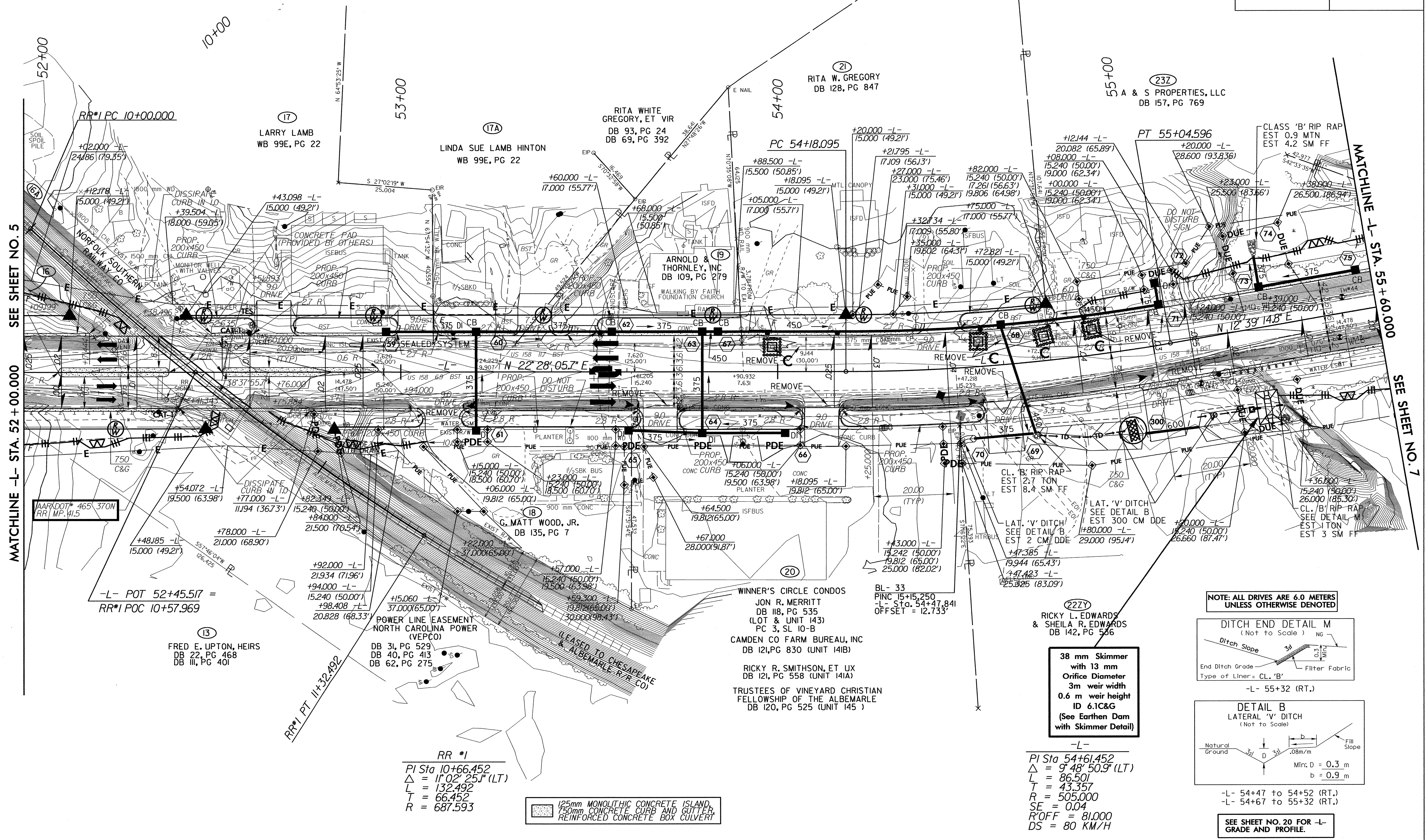
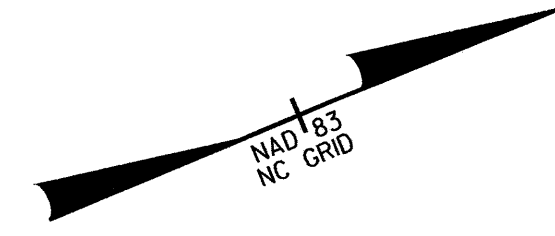
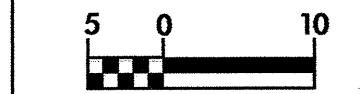
125mm MONOLITHIC CONCRETE ISLAND, 750mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

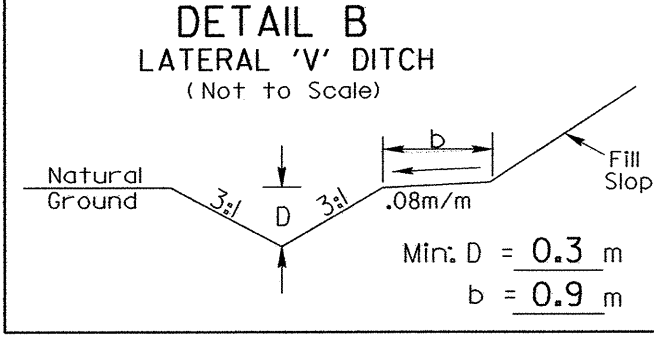
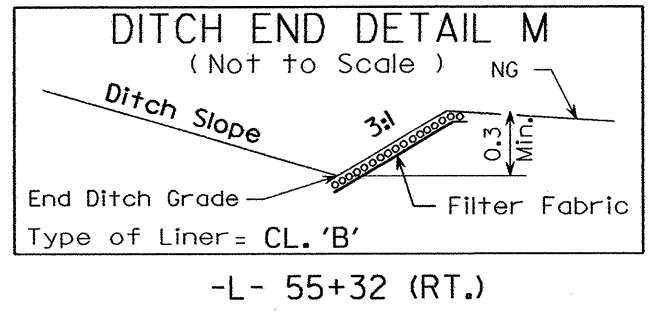
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-6/CONST.6
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
CONST. REV.	
R/W REV.	



NOTE: ALL DRIVES ARE 6.0 METERS
UNLESS OTHERWISE DENOTED



38 mm Skimmer
with 13 mm
Orifice Diameter
3m weir width
0.6 m weir height
ID 6.1C&G
(See Earthen Dam
with Skimmer Detail)

-L-
PI Sta 54+61.452
Δ = 9°48'50.9" (LT)
L = 86.501
T = 43.357
R = 505.000
SE = 0.04
R/OFF = 81.000
DS = 80 KM/H

-L- 54+47 to 54+52 (RT.)
-L- 54+67 to 55+32 (RT.)

SEE SHEET NO. 20 FOR -L-
GRADE AND PROFILE.

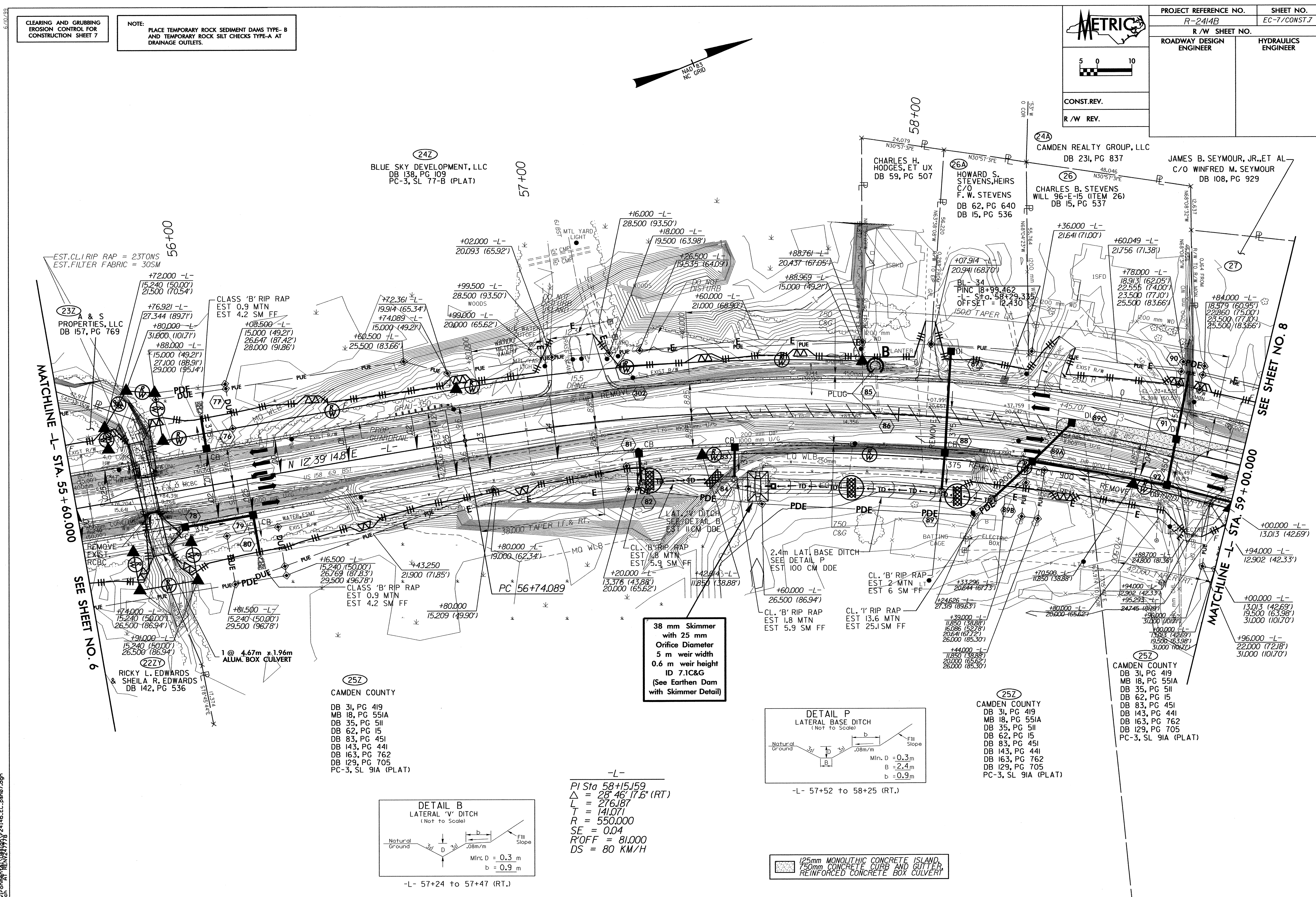
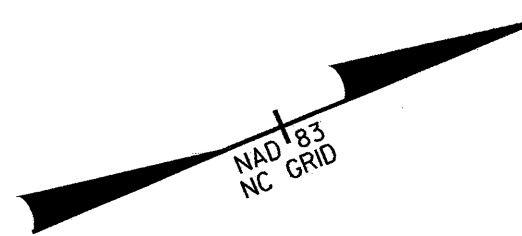
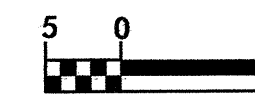
125mm MONOLITHIC CONCRETE ISLAND,
750mm CONCRETE CURB AND GUTTER,
REINFORCED CONCRETE BOX CULVERT

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

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



PROJECT REFERENCE NO.	SHEET NO.
R-2414B	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



MATCHLINE -L- STA. 55 + 60.000
SEE SHEET NO. 6

MATCHLINE -L- STA. 59 + 00.000
SEE SHEET NO. 8

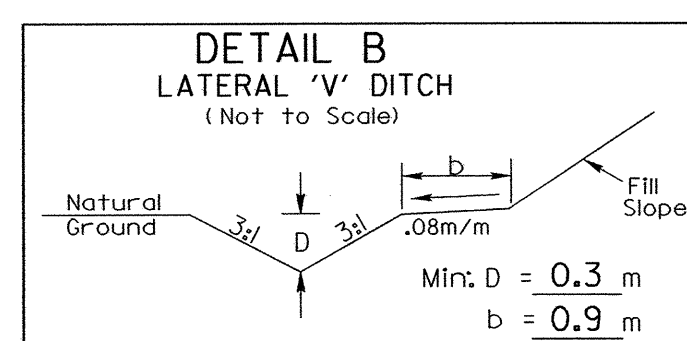
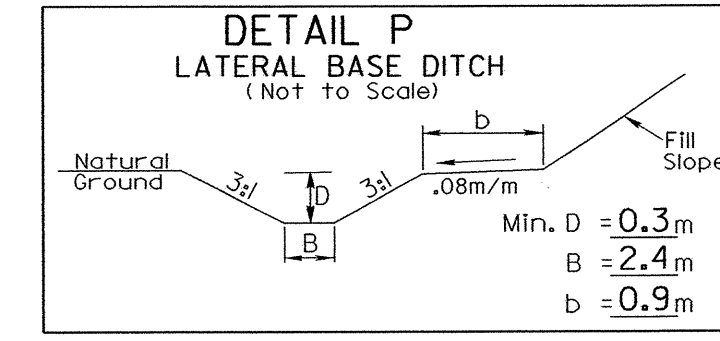
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EST. CL. RIP RAP = 23TONS
EST. FILTER FABRIC = 30SM

CLASS 'B' RIP RAP
EST 0.9 MTN
EST 4.2 SM FF

CLASS 'B' RIP RAP
EST 0.9 MTN
EST 4.2 SM FF

**38 mm Skimmer
with 25 mm
Orifice Diameter
5 m weir width
0.6 m weir height
ID 7.1C&G
(See Earthen Dam
with Skimmer Detail)**



-L-
PI Sta 58+15.59
Δ = 28° 46' 17.6" (RT)
L = 276.187
T = 141.071
R = 550.000
SE = 0.04
R/OFF = 81.000
DS = 80 KM/H

**125mm MONOLITHIC CONCRETE ISLAND,
750mm CONCRETE CURB AND GUTTER,
REINFORCED CONCRETE BOX CULVERT**

25Z
CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

25Z
CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

25Z
CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

23Z
A & S
PROPERTIES, LLC
DB 157, PG 769

22Z
RICKY L. EDWARDS
& SHEILA R. EDWARDS
DB 142, PG 536

24Z
BLUE SKY DEVELOPMENT, LLC
DB 138, PG 109
PC-3, SL 77-B (PLAT)

26A
HOWARD S.
STEVENS, HEIRS
C/O
F. W. STEVENS
DB 62, PG 640
DB 15, PG 536

26
CHARLES B. STEVENS
WILL 96-E-15 (ITEM 26)
DB 15, PG 537

27
JAMES B. SEYMOUR, JR., ET AL
C/O WINFRED M. SEYMOUR
DB 108, PG 929

27
18,579 (60.95')
22,860 (75.00')
23,500 (77.10')
25,500 (83.66')

+00,000 -L-
13,013 (42.69')

+94,000 -L-
12,902 (42.33')

+00,000 -L-
13,013 (42.69')
19,500 (63.98')
31,000 (101.70')

+96,000 -L-
22,000 (72.18')
31,000 (101.70')

+00,000 -L-
13,013 (42.69')
19,500 (63.98')
31,000 (101.70')



PROJECT REFERENCE NO. SHEET NO.

R-2414B EC-8/CONST.7

R/W SHEET NO.

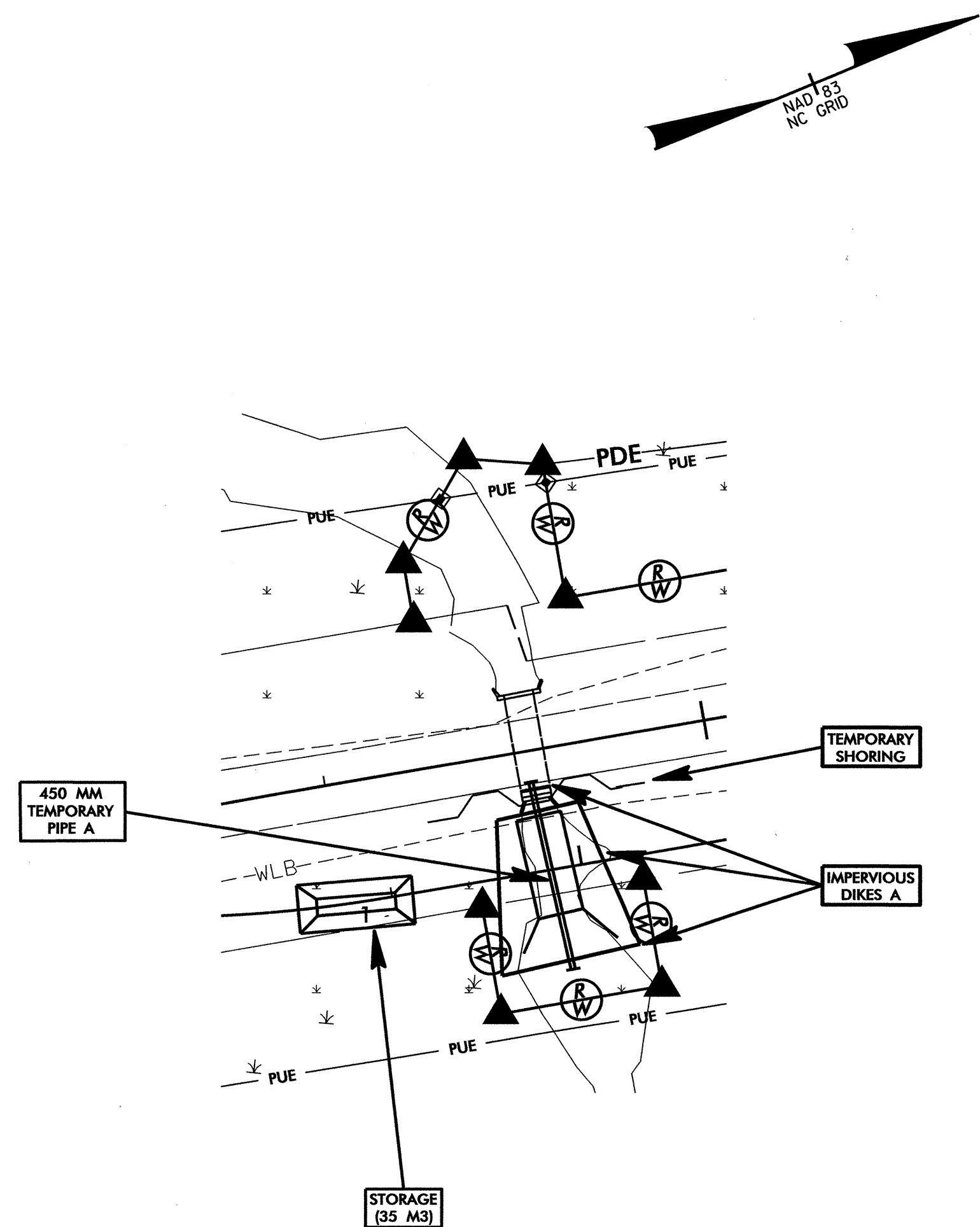
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 55 + 81 -L-

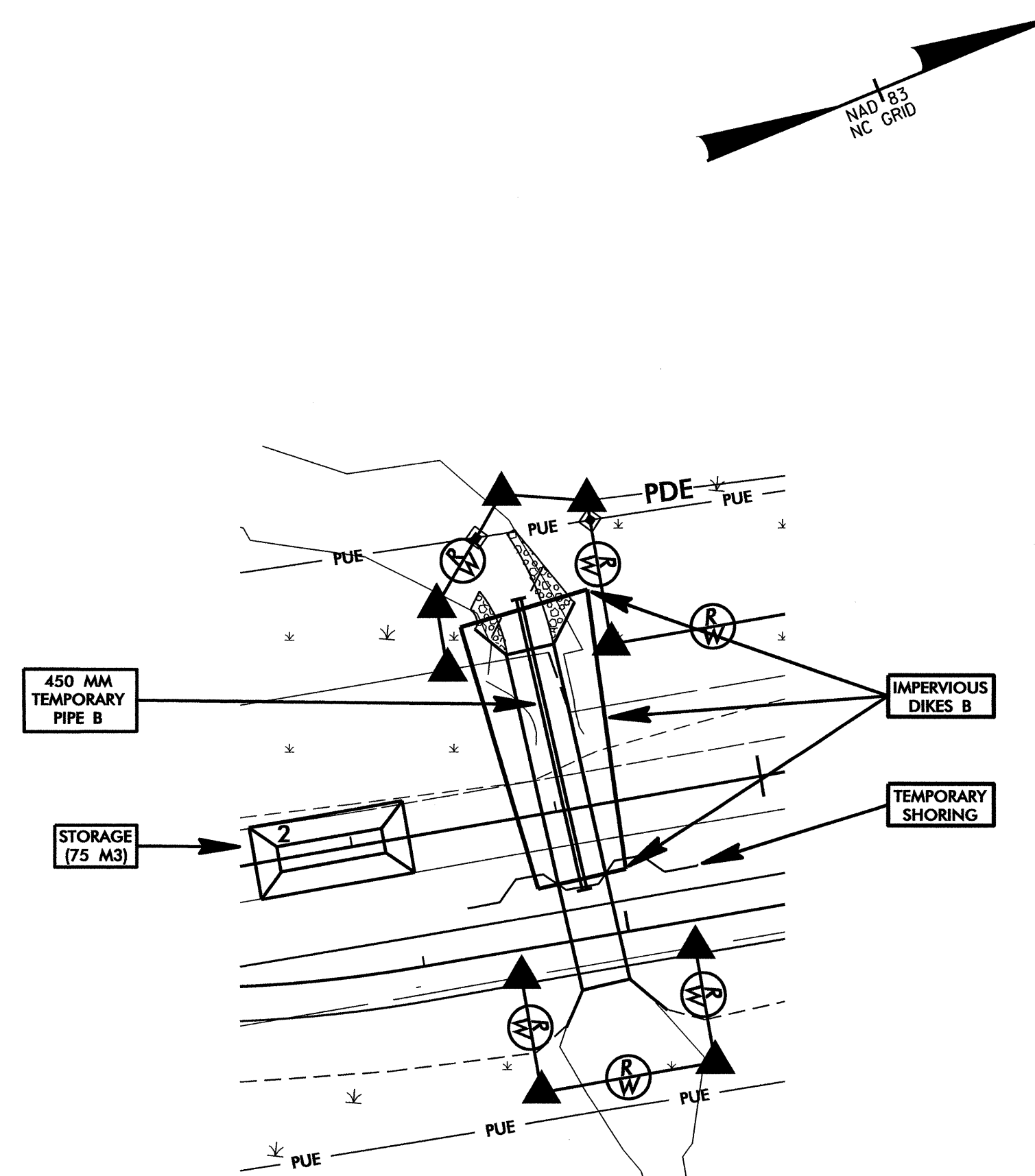
PHASE I

1. CONSTRUCT STILLING BASIN 1 (35 M3).
2. CONSTRUCT IMPERVIOUS DIKES A AND INSTALL 450MM TEMPORARY PIPE A, DIVERTING FLOW.
3. CONSTRUCT APPROXIMATELY 10 METERS OF THE UPSTREAM SECTION OF THE PROPOSED CULVERT.
4. REMOVE IMPERVIOUS DIKES A AND TEMPORARY PIPE A.
5. REMOVE STILLING BASIN 1.



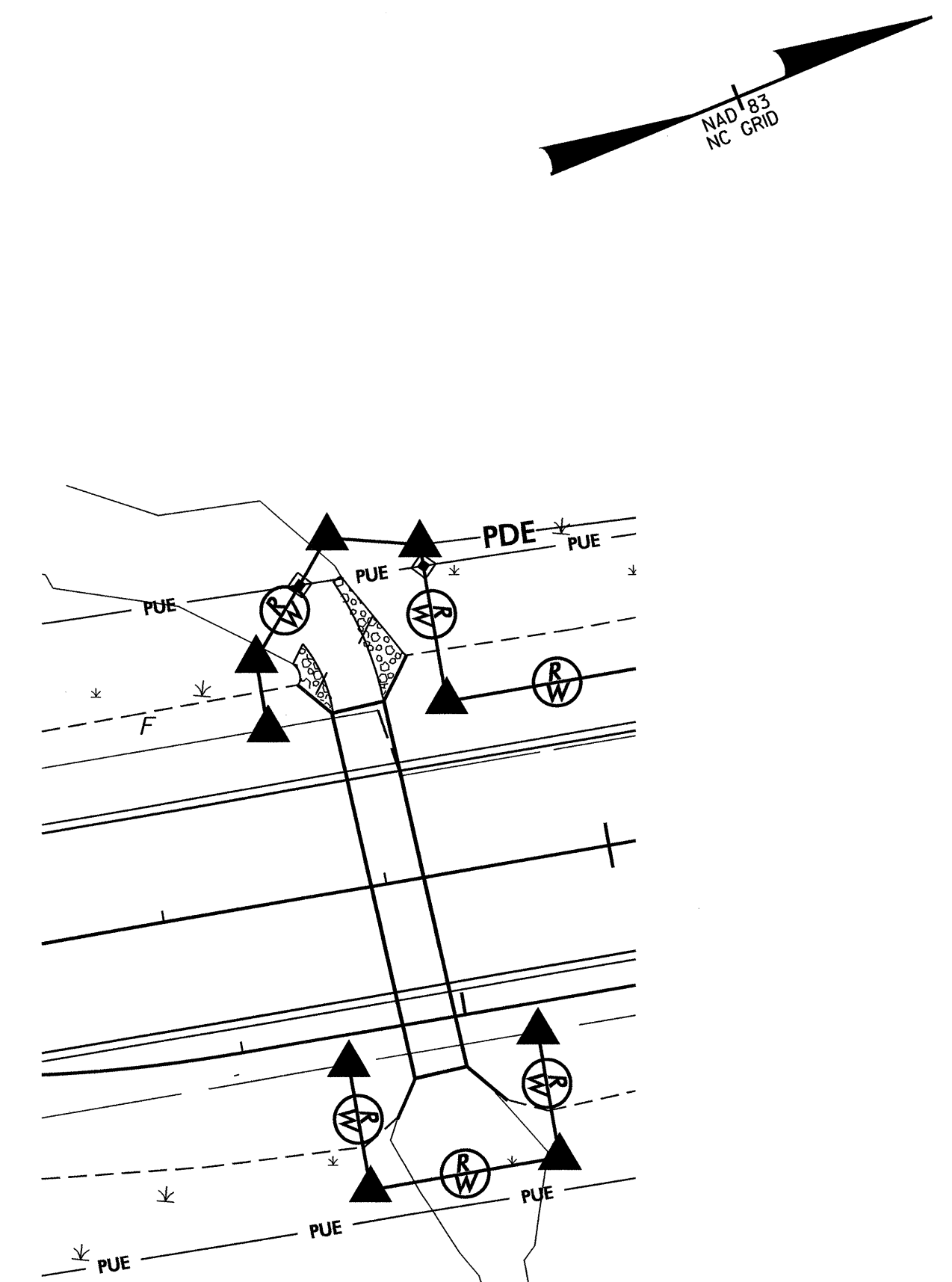
PHASE II

6. CONSTRUCT TEMPORARY DETOUR AND SHIFT TRAFFIC.
7. CONSTRUCT STILLING BASIN 2 (75 M3).
8. REMOVE EXISTING CULVERT.
9. CONSTRUCT IMPERVIOUS DIKES B AND INSTALL 450MM TEMPORARY PIPES B, DIVERTING FLOW.
10. CONSTRUCT REMAINDER OF PROPOSED CULVERT AND ANY NECESSARY UPSTREAM/DOWNSTREAM CHANNEL IMPROVEMENTS.
11. REMOVE IMPERVIOUS DIKES B AND TEMPORARY PIPE B, ALLOWING FLOW THROUGH THE CULVERT.
12. REMOVE STILLING BASIN 2.



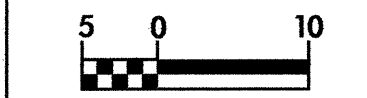
PHASE III

13. CONSTRUCT ROADWAY OVER THE DOWNSTREAM SECTION OF THE CULVERT.
14. REMOVE TEMPORARY DETOUR AND SHIFT TRAFFIC.
15. COMPLETE ROADWAY.



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

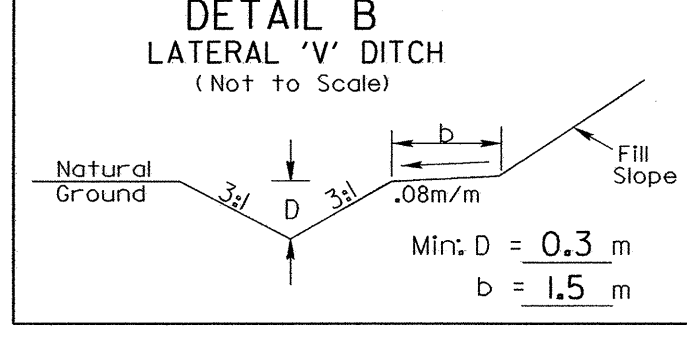
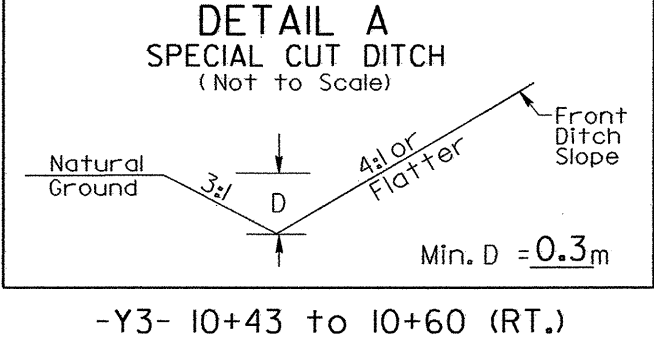
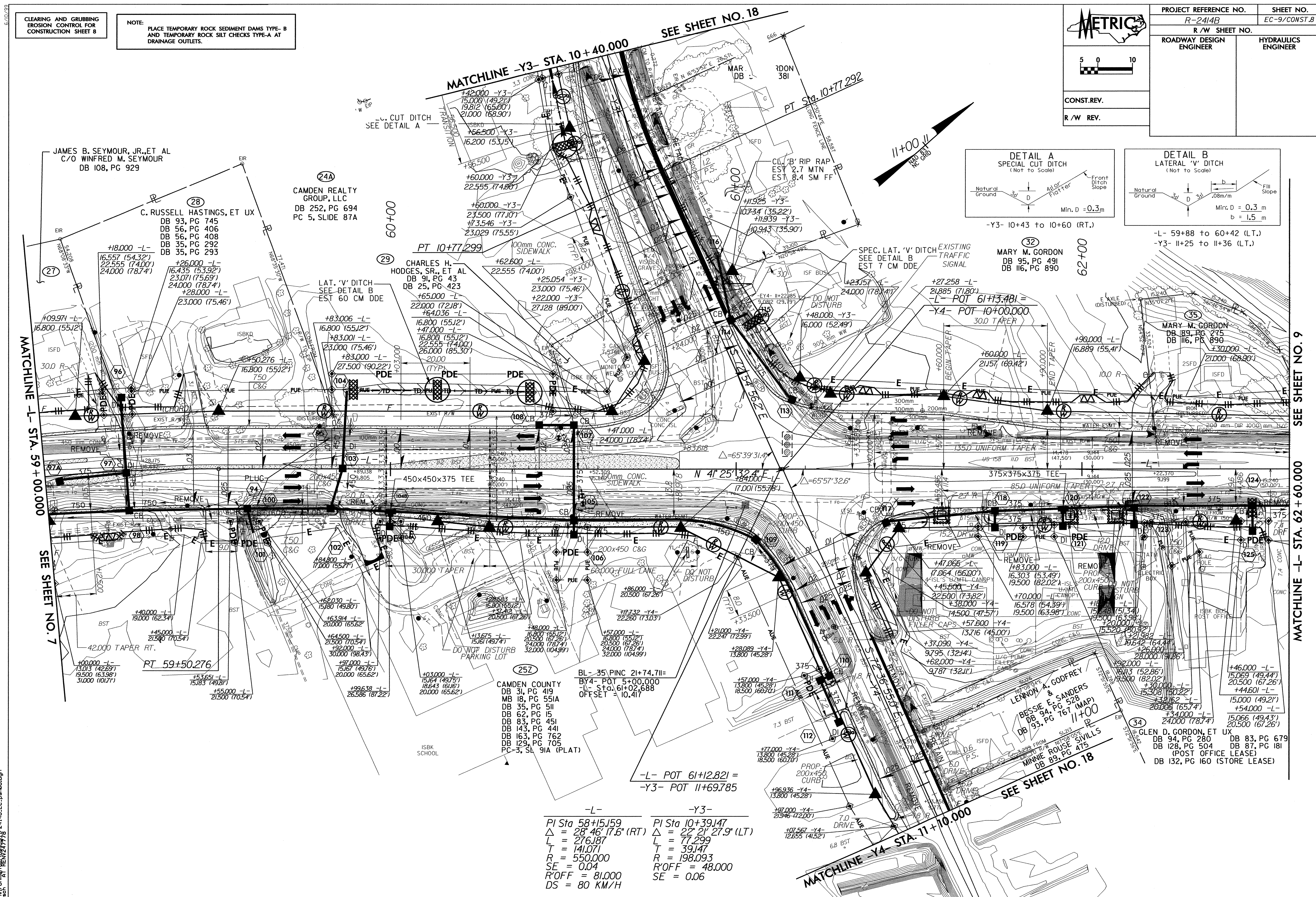
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.



CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-9/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L-	-Y3-
PI Sta 58+15.59	PI Sta 10+39.17
$\Delta = 28' 46" 17.6" (RT)$	$\Delta = 22' 21" 27.9" (LT)$
L = 276.187	L = 77.299
T = 141.071	T = 39.147
R = 550.000	R = 198.093
SE = 0.04	R'OFF = 48.000
DS = 81.000	SE = 0.06
DS = 80 KM/H	

23-OCT-2011 08:35
R:\enviro\comp\2414b\2414b-EC_psh08.dgn


SEE SHEET NO. 9
MATCHLINE -L- STA. 62 + 60.000

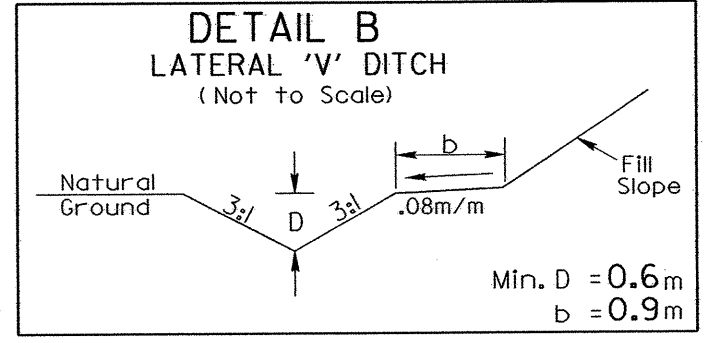
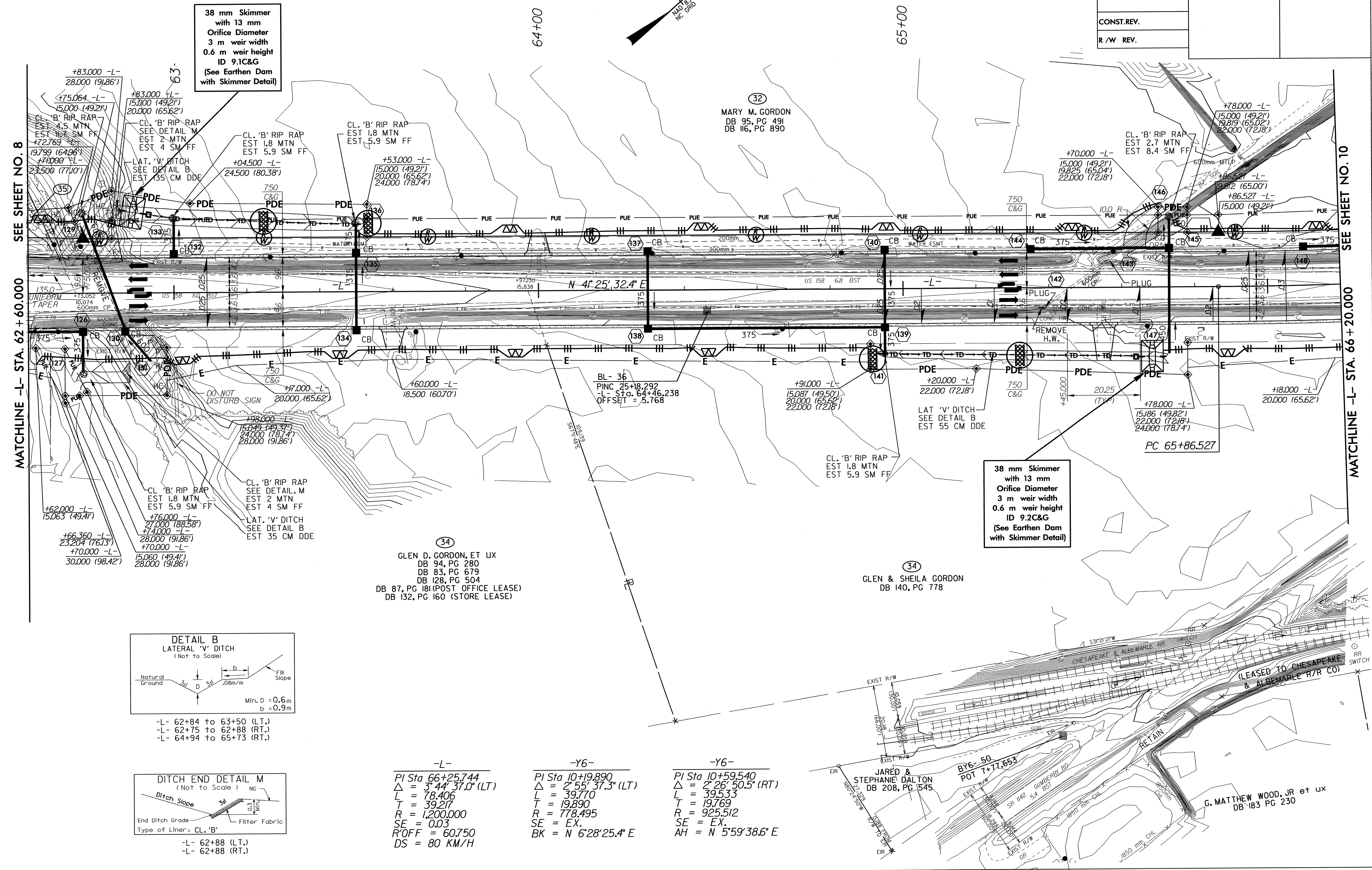
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

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

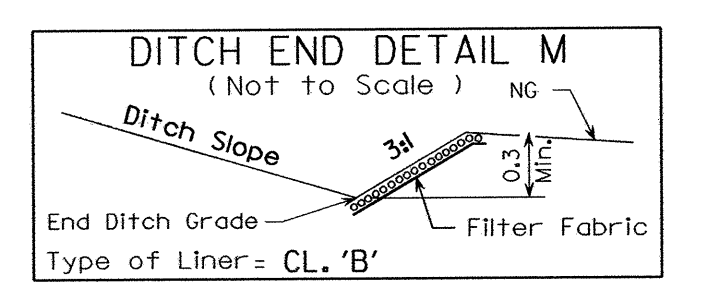
38 mm Skimmer
with 13 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 9.1C&G
(See Earthen Dam
with Skimmer Detail)

38 mm Skimmer
with 13 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 9.2C&G
(See Earthen Dam
with Skimmer Detail)

 5 0 10 CONST. REV. R/W REV.	PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-10/CONST.9
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



- L- 62+84 to 63+50 (LT.)
- L- 62+75 to 62+88 (RT.)
- L- 64+94 to 65+73 (RT.)



- L- 62+88 (LT.)
- L- 62+88 (RT.)

-L-
PI Sta 66+25.744
 $\Delta = 3^{\circ} 44' 37.0''$ (LT.)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
R/OFF = 60.750
DS = 80 KM/H

-Y6-
PI Sta 10+19.890
 $\Delta = 2^{\circ} 55' 37.3''$ (LT.)
L = 39.770
T = 19.890
R = 778.495
SE = EX.
BK = N 6°28'25.4" E

-Y6-
PI Sta 10+59.540
 $\Delta = 2^{\circ} 26' 50.5''$ (RT.)
L = 39.533
T = 19.769
R = 925.512
SE = EX.
AH = N 5°59'38.6" E

6/10/03
 23-OCT-2010 09:17
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 m.d.b.

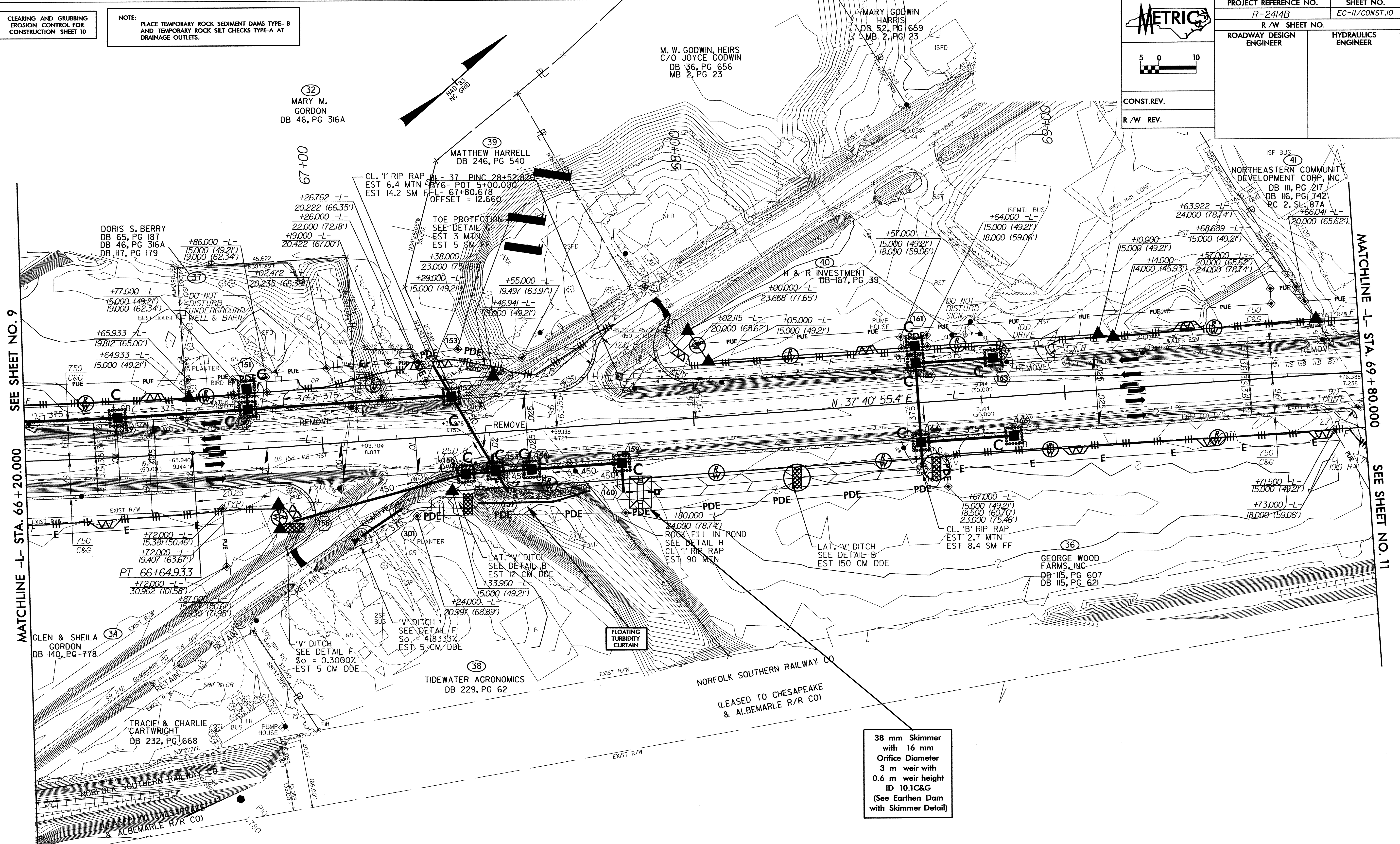
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

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



CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-II/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET NO. 9

MATCHLINE -L- STA. 66 + 20.000

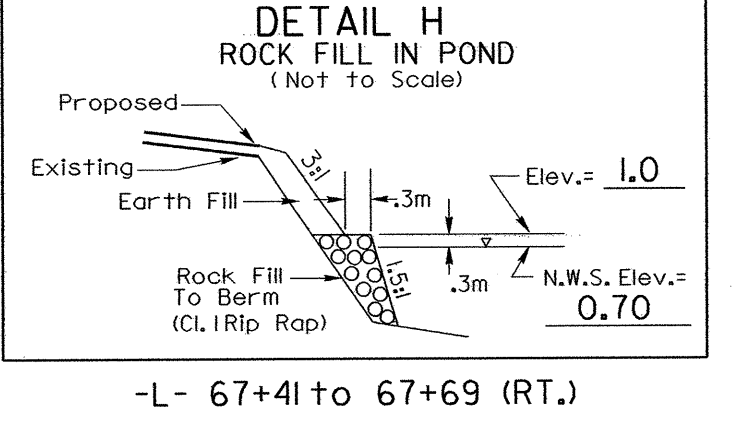
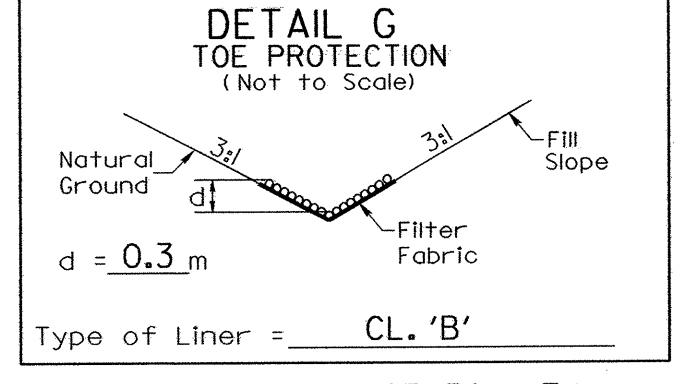
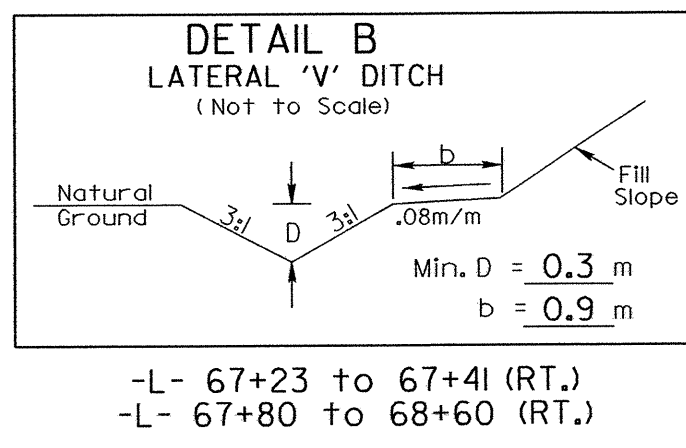
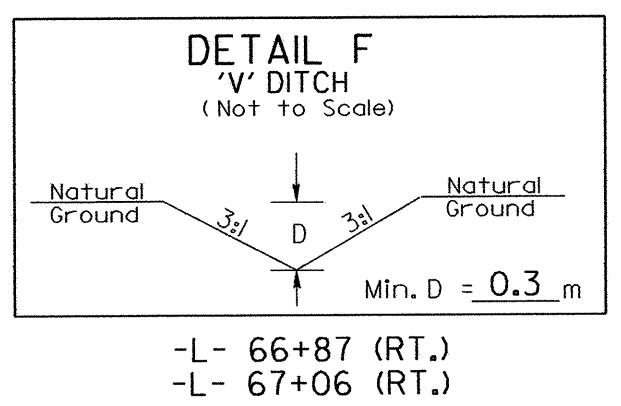
MATCHLINE -L- STA. 69 + 80.000

SEE SHEET NO. 11

-L-
PI Sta 66+25.744
 $\Delta = 3' 44" 37.0" (LT)$
 $L = 78.406$
 $T = 39.217$
 $R = 1,200.000$
 $SE = 0.03$
 $R/OFF = 60.750$
 $DS = 80 KM/H$

(36)
GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

38 mm Skimmer
with 16 mm
Orifice Diameter
3 m weir with
0.6 m weir height
ID 10.1C&G
(See Earthen Dam
with Skimmer Detail)


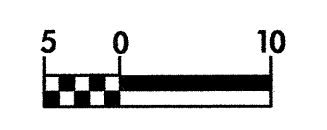


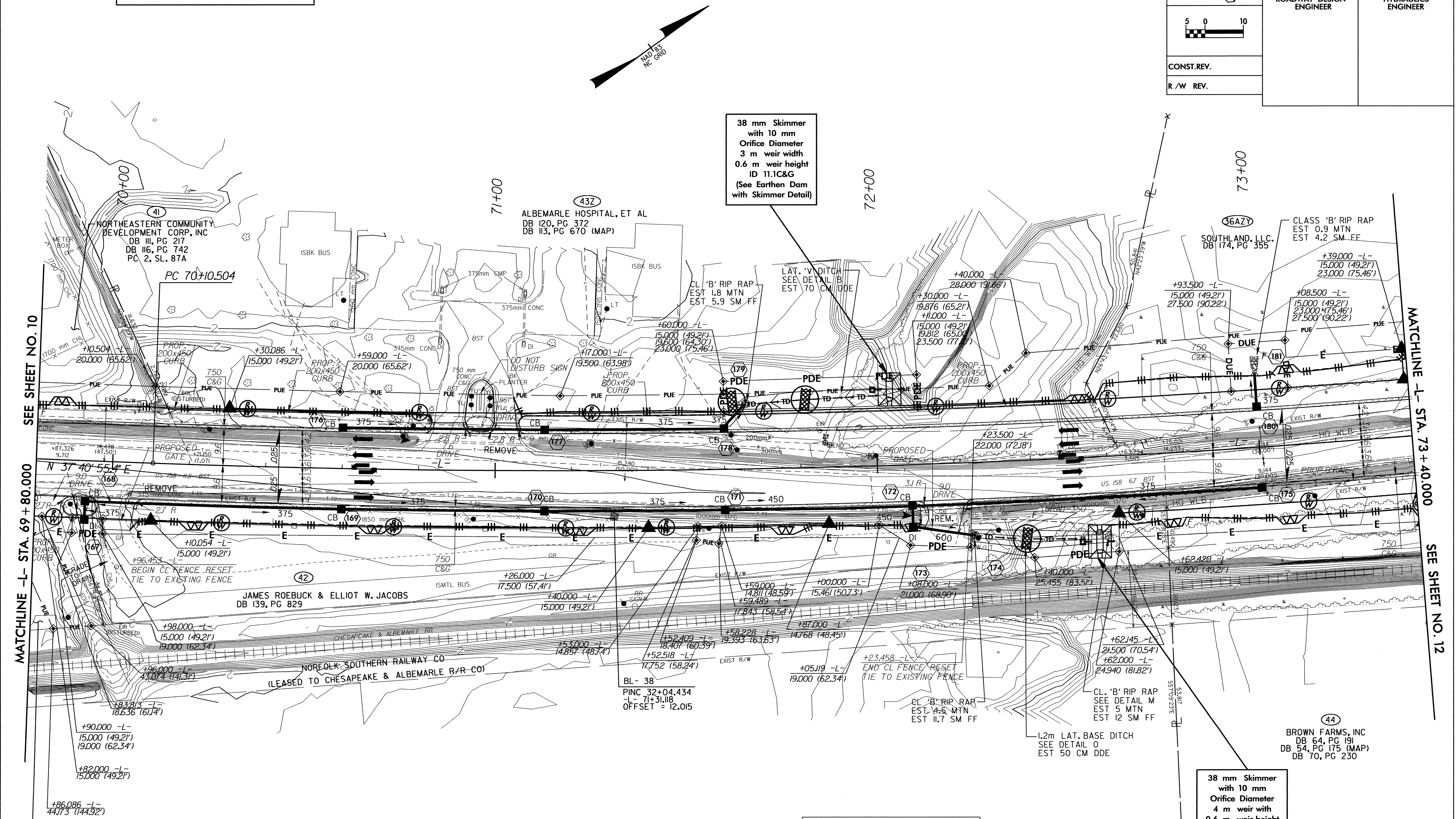
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6.00.083

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 11

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

	PROJECT REFERENCE NO.	SHEET NO.
	R-2414B	EC-12/CONST.II
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.		
R/W REV.		



38 mm Skimmer with 10 mm Orifice Diameter
 3 m weir width
 0.6 m weir height
 ID 11.1C&G
 (See Earthen Dam with Skimmer Detail)

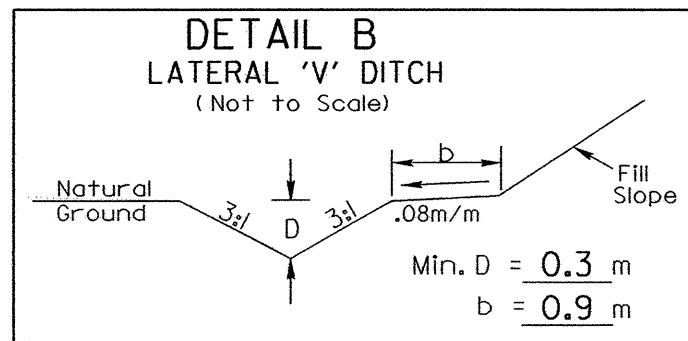
38 mm Skimmer with 10 mm Orifice Diameter
 4 m weir width
 0.6 m weir height
 ID 11.2C&G
 (See Earthen Dam with Skimmer Detail)

SEE SHEET NO. 10

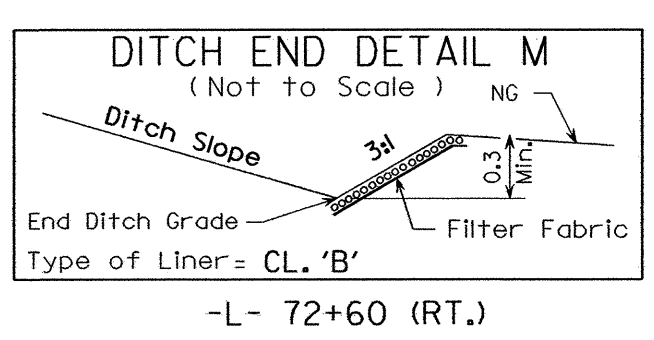
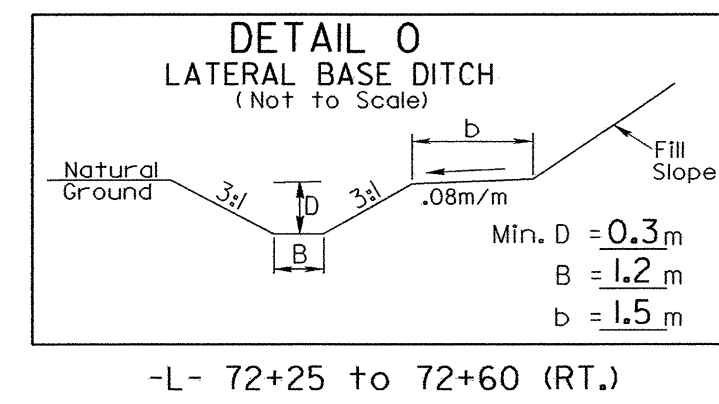
MATCHLINE -L- STA. 69 + 80.000

MATCHLINE -L- STA. 73 + 40.000

SEE SHEET NO. 12

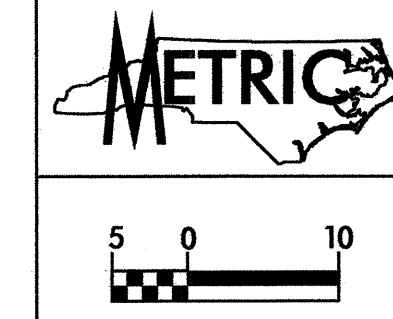


-L-
 PI Sta 72+27.319
 $\Delta = 8' 51'' 20.1''$ (LT.)
 L = 432.766
 T = 216.815
 R = 2,800.000
 SE = NC
 DS = 80 KM/H

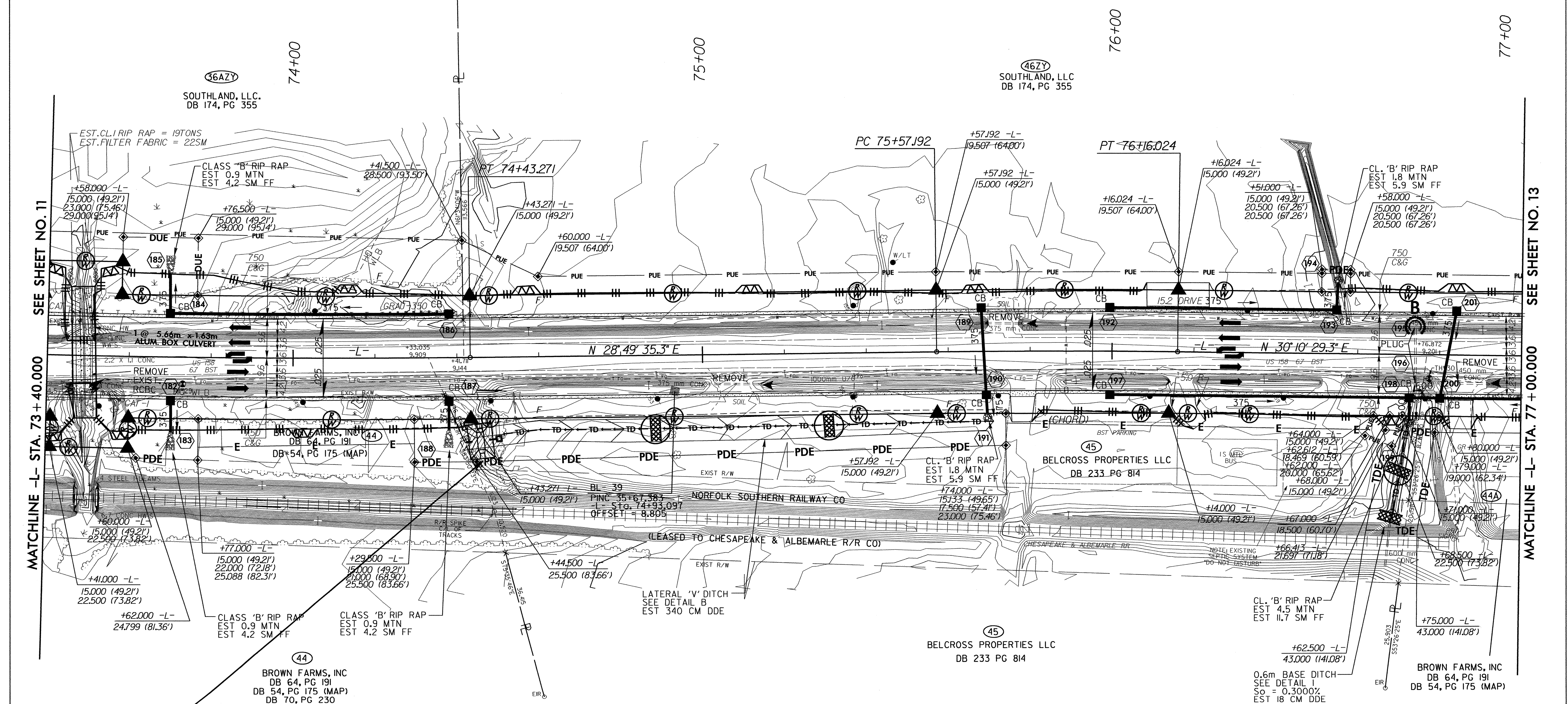


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 12

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



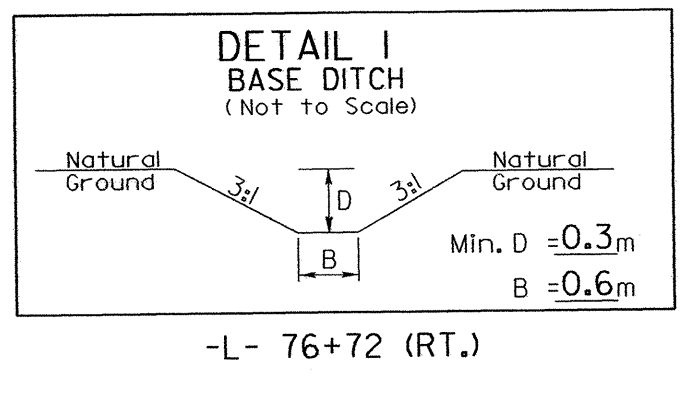
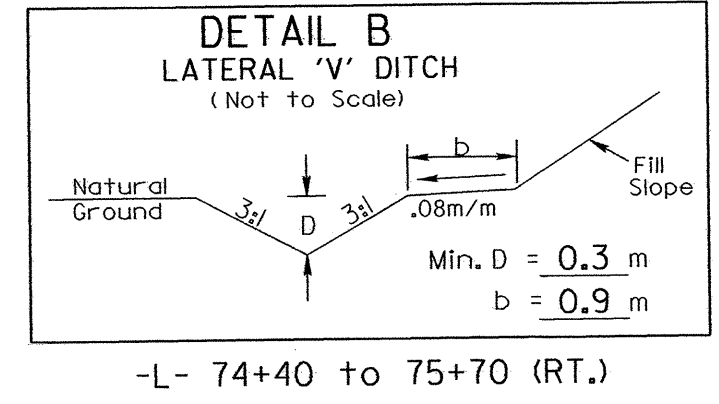
PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-13/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



MATCHLINE -L- STA. 73 + 40.000 SEE SHEET NO. 11

MATCHLINE -L- STA. 77 + 00.000 SEE SHEET NO. 13

38 mm Skimmer
with 19 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 12.1C&G
(See Earthen Dam
with Skimmer Detail)



-L-
PI Sta 72+27.319
 $\Delta = 8^\circ 51' 20.1''$ (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

-L-
PI Sta 75+86.610
 $\Delta = 1^\circ 20' 54.0''$ (RT)
L = 58.832
T = 29.418
R = 2,500.000
SE = NC
DS = 80 KM/H

6/10/23
R:\enviroment\2414B\EC_psh12.dgn
23-OCT-2011 08:03
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PROJECT REFERENCE NO. R-2414B SHEET NO. EC-14/CONST J2

R/W SHEET NO.

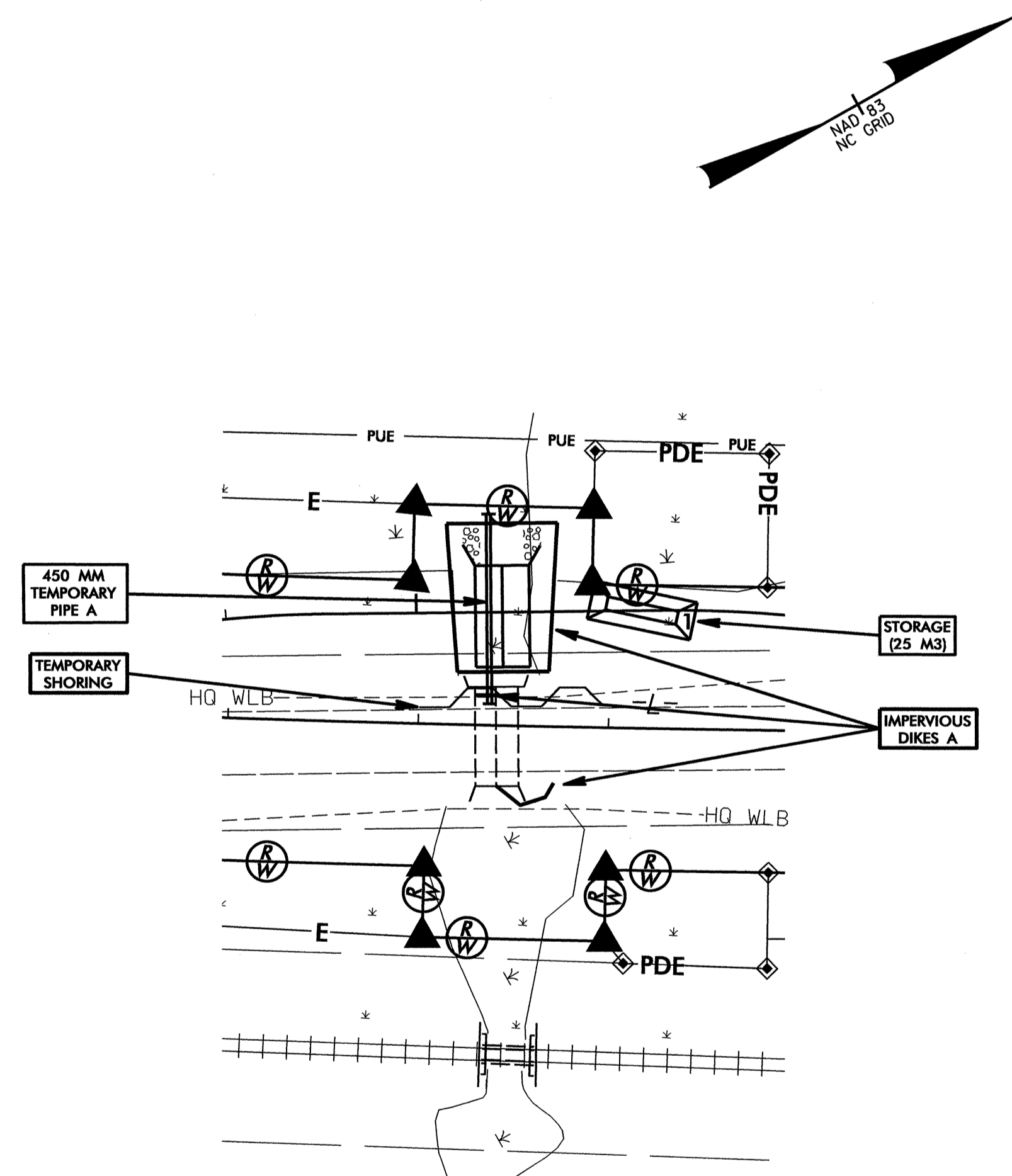
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 73+49 -L-

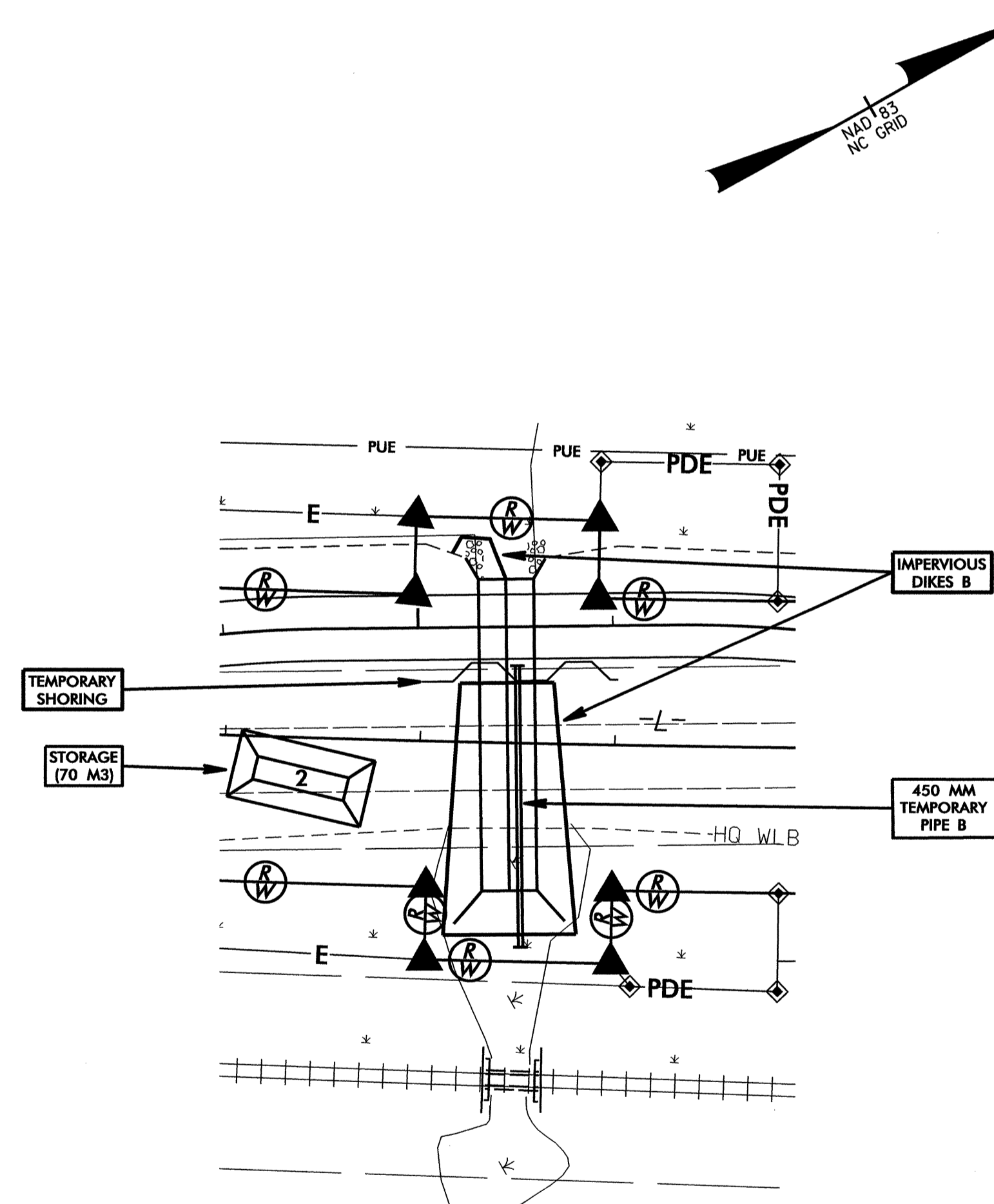
PHASE I

1. CONSTRUCT STILLING BASIN 1 (25 M3).
2. CONSTRUCT IMPERVIOUS DIKES A AND INSTALL 450MM TEMPORARY PIPE A, DIVERTING FLOW.
3. CONSTRUCT APPROXIMATELY 11 METERS OF THE DOWNSTREAM SECTION OF THE PROPOSED CULVERT, AND DOWNSTREAM CHANNEL IMPROVEMENTS.
4. REMOVE IMPERVIOUS DIKES A AND TEMPORARY PIPE A.
5. REMOVE STILLING BASIN 1.



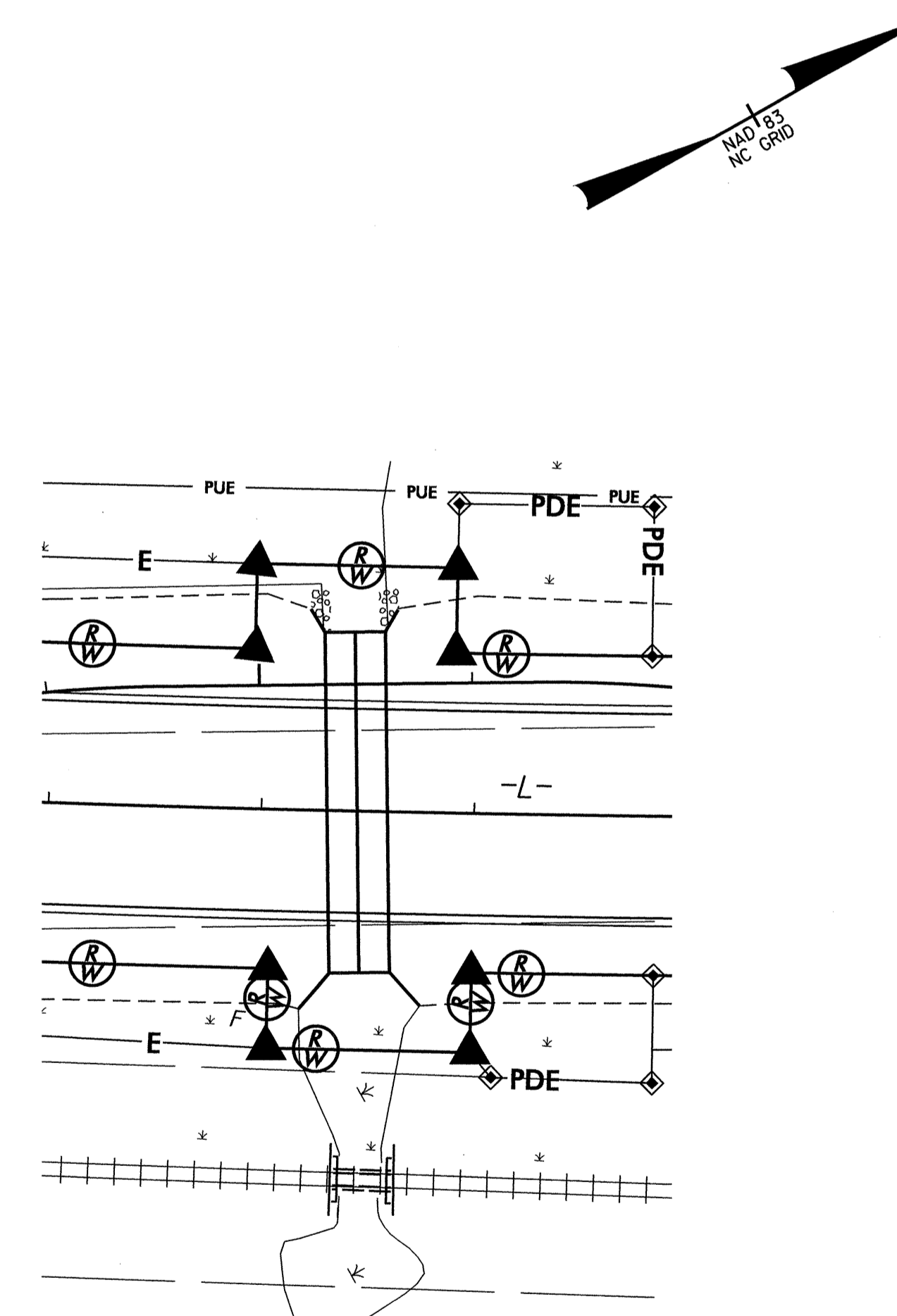
PHASE II

6. CONSTRUCT TEMPORARY DETOUR AND SHIFT TRAFFIC.
7. CONSTRUCT STILLING BASIN 2 (70 M3).
8. REMOVE EXISTING CULVERT.
9. CONSTRUCT IMPERVIOUS DIKES B AND INSTALL 450MM TEMPORARY PIPE B, DIVERTING FLOW.
10. CONSTRUCT REMAINDER OF PROPOSED CULVERT AND ANY NECESSARY UPSTREAM CHANNEL IMPROVEMENTS.
11. REMOVE IMPERVIOUS DIKES B AND TEMPORARY PIPE B, ALLOWING FLOW THROUGH THE CULVERT.
12. REMOVE STILLING BASIN 2.



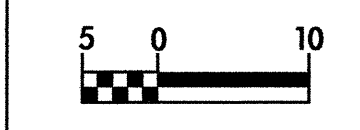
PHASE III

13. CONSTRUCT ROADWAY OVER THE UPSTREAM SECTION OF THE CULVERT.
14. REMOVE TEMPORARY DETOUR AND SHIFT TRAFFIC.
15. COMPLETE ROADWAY.



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13

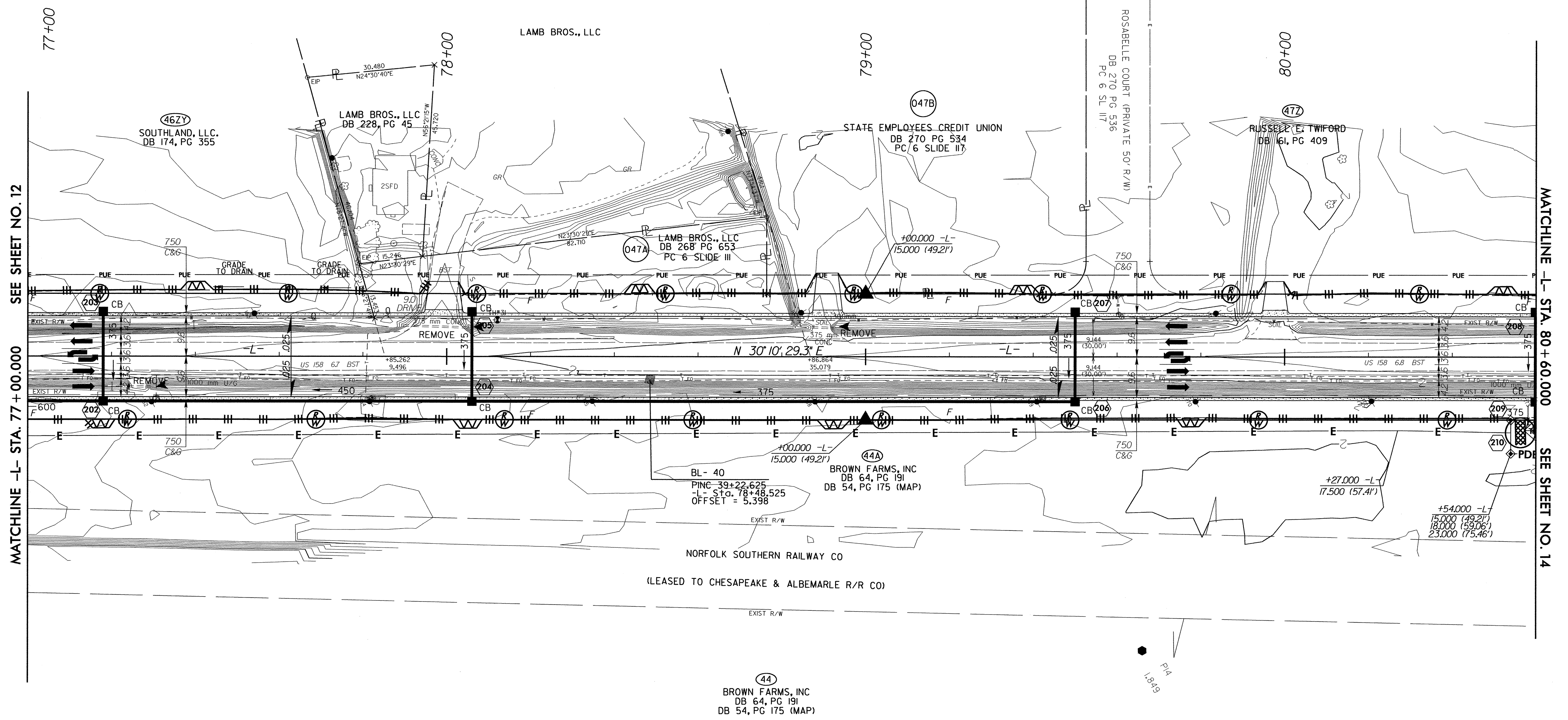
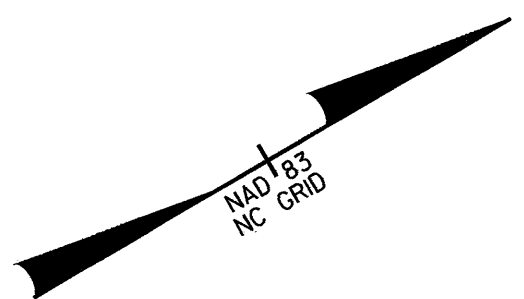
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.



CONST.REV.

R/W REV.

PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-15/CONSTJ3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET NO. 12

MATCHLINE -L- STA. 77 + 00.000

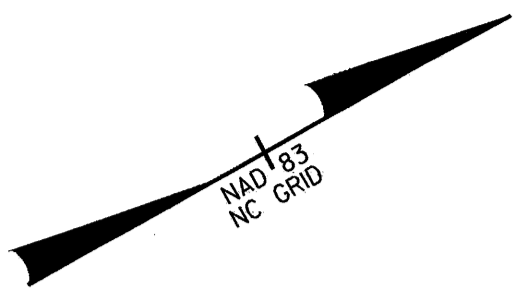
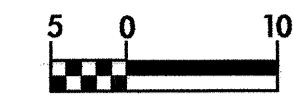
MATCHLINE -L- STA. 80 + 60.000

SEE SHEET NO. 14

23-OCT-2010 09:06
 m:\projects\2414b\ec-15\constj3.dgn



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-16/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	

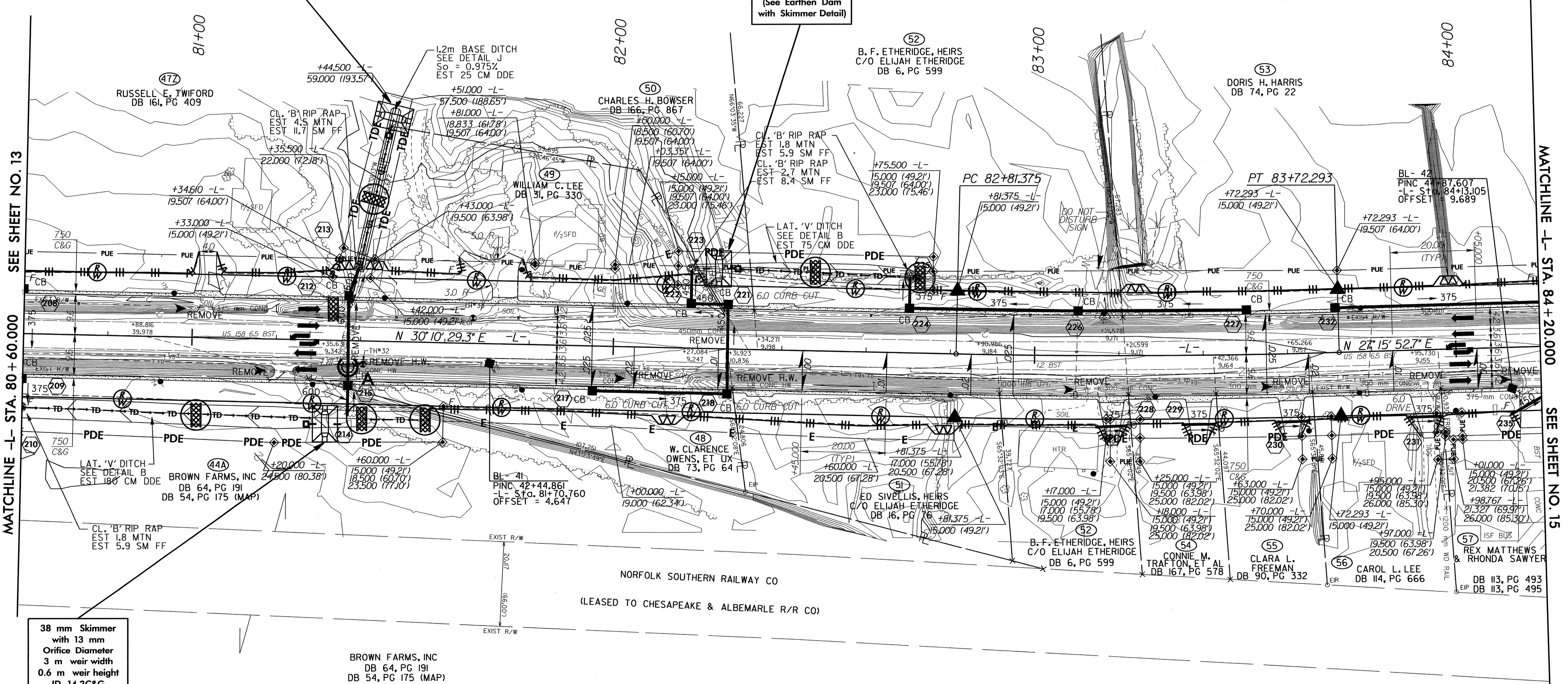


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14

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

38 mm Skimmer
with 10 mm
Orifice Diameter
4 m weir width
0.6 m weir height
ID 14.1C&G
(See Earthen Dam
with Skimmer Detail)

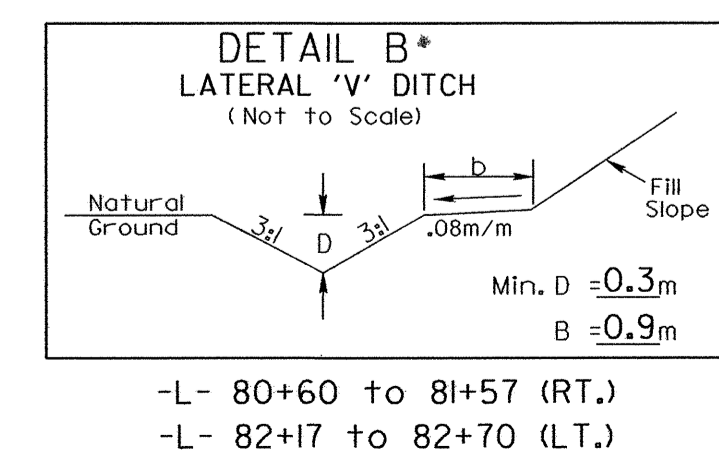
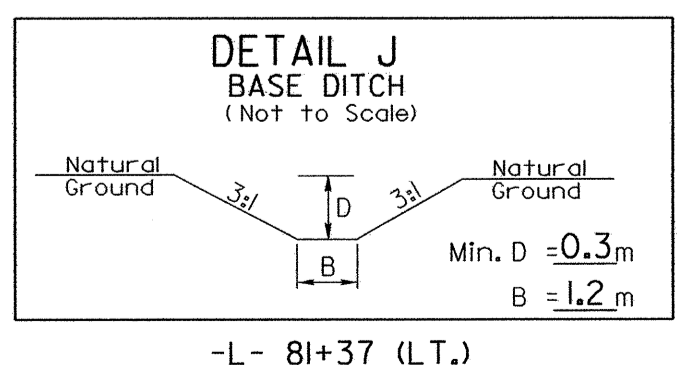
38 mm Skimmer
with 10 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 14.3C&G
(See Earthen Dam
with Skimmer Detail)



SEE SHEET NO. 13
MATCHLINE -L- STA. 80 + 60.000

MATCHLINE -L- STA. 84 + 20.000
SEE SHEET NO. 15

38 mm Skimmer
with 13 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 14.2C&G
(See Earthen Dam
with Skimmer Detail)



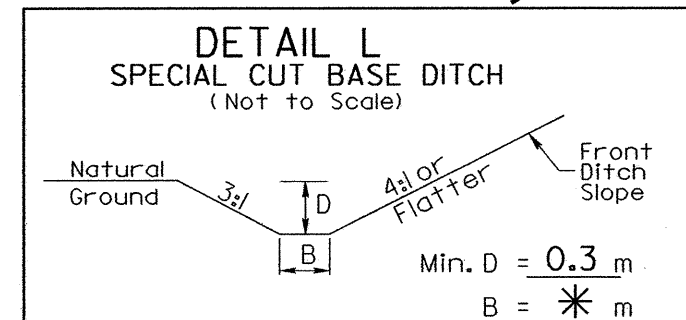
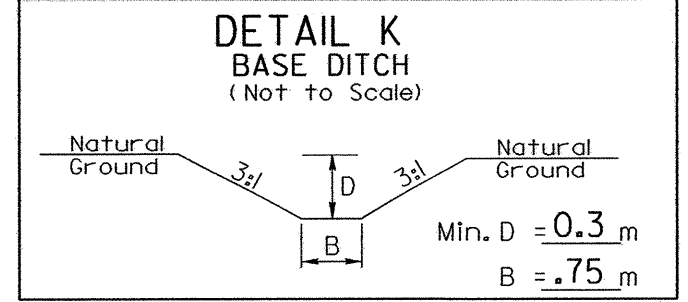
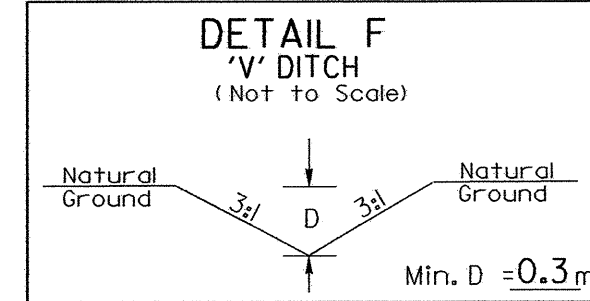
-L-
PI Sta 83+26.844
 $\Delta = 2' 54' 36.6''$ (LT)
L = 90.918
T = 45.469
R = 1,790.000
SE = 0.025
R'OFF = 50.625
DS = 80 KM/H

23-OCT-2010 08:08 R:\E\Projects\2414B\2414B_EC_CONST.14.dgn m:\gibson\at\REV\2414B\2414B_EC_CONST.14.dgn

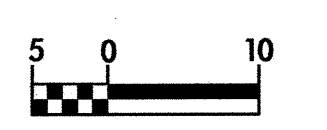
23-OCT-2010 09:43
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2414B-EC.psd
2414B-EC.psd

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 15

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

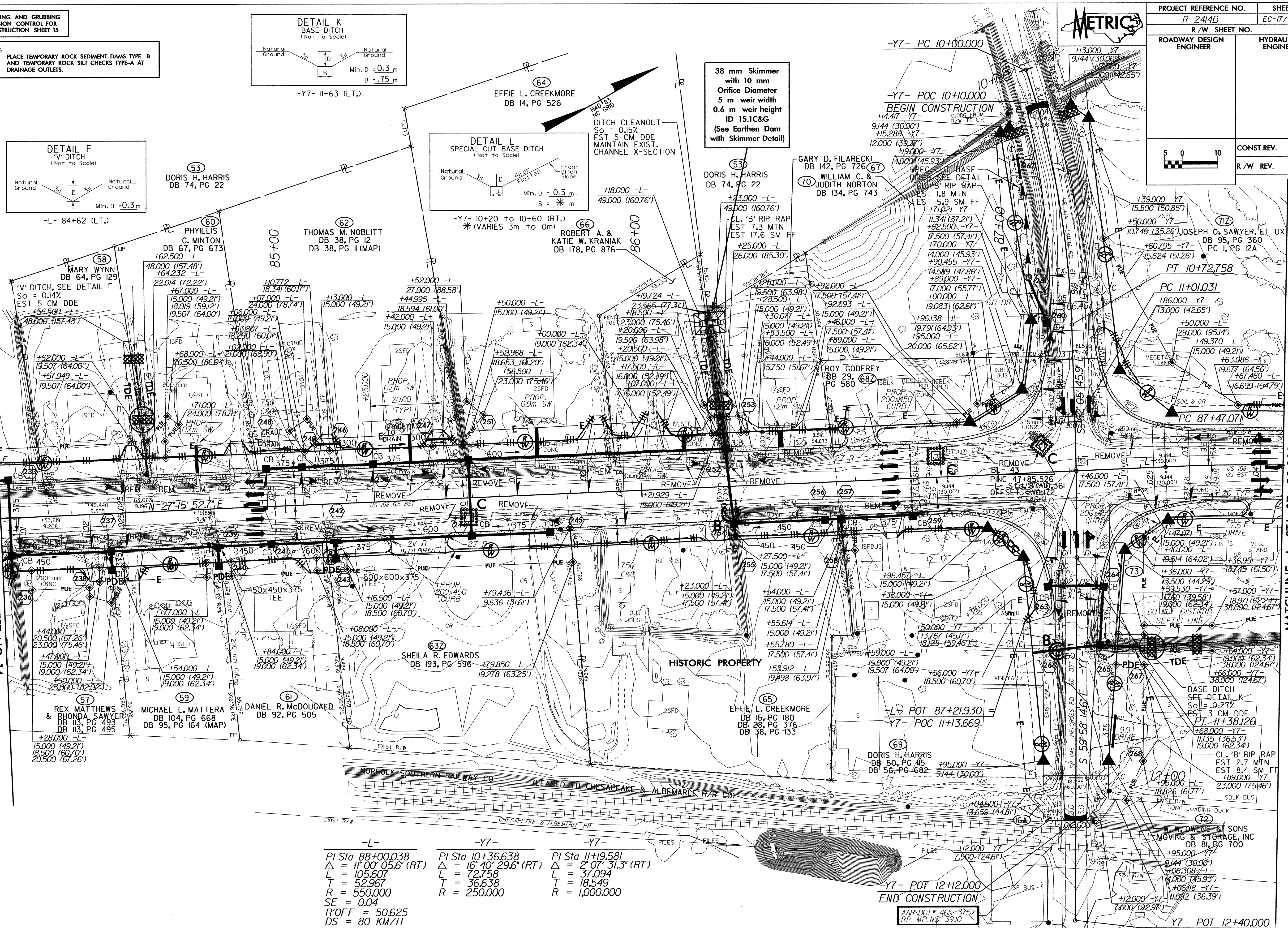


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-17/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	CONST.REV.
	R/W REV.



MATCHLINE -L- STA. 84+20.00
SEE SHEET NO. 14

SEE SHEET NO. 16
MATCHLINE -L- STA. 87+80.00



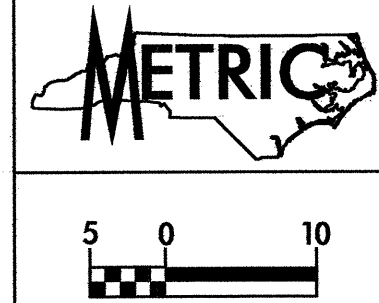
-L-	-Y7-	-Y7-
PI Sta 88+00.038	PI Sta 10+36.638	PI Sta 11+19.581
$\Delta = 11^{\circ}00'05.6"$ (RT)	$\Delta = 16^{\circ}40'29.6"$ (RT)	$\Delta = 2^{\circ}07'31.3"$ (RT)
L = 105.607	L = 72.758	L = 37.094
T = 52.967	T = 36.638	T = 18.549
R = 550.000	R = 250.000	R = 1,000.000
SE = 0.04		
R/OFF = 50.625		
DS = 80 KM/H		

Y7- POT 12+12.000
END CONSTRUCTION

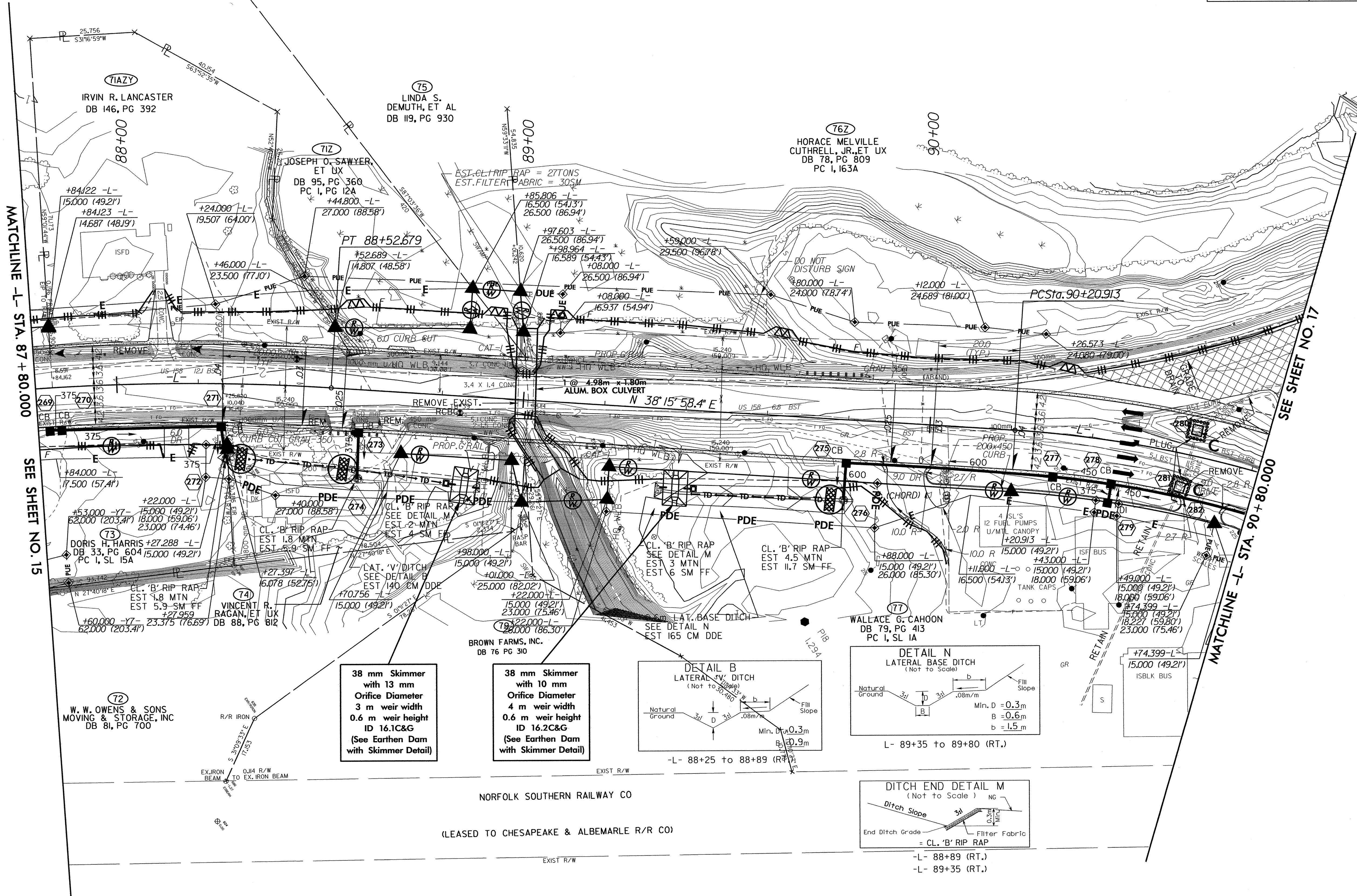
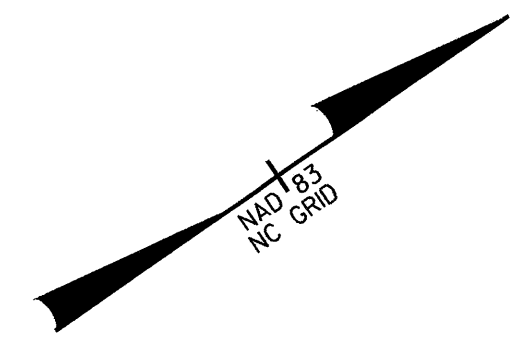
AAPDOT* 465-375X
RR MP.NS-3910

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16

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

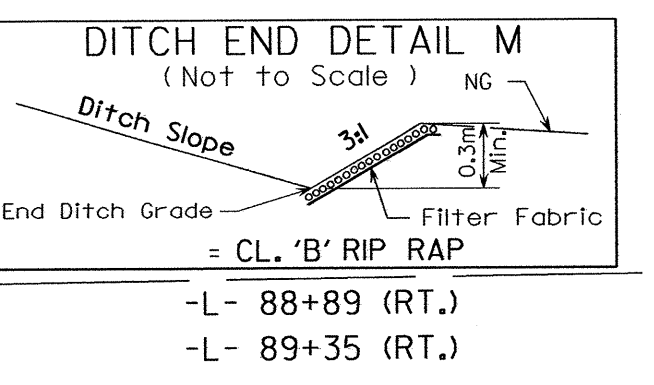
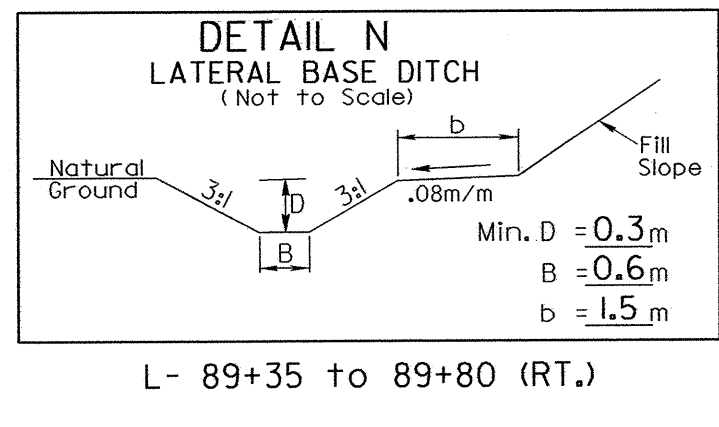
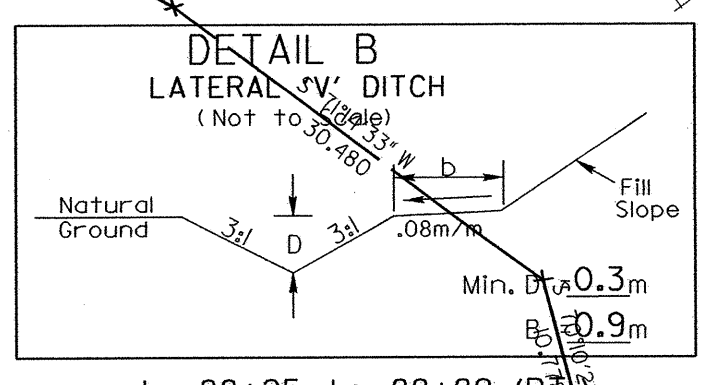


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-18/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



38 mm Skimmer
with 13 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 16.1C&G
(See Earthen Dam
with Skimmer Detail)

38 mm Skimmer
with 10 mm
Orifice Diameter
4 m weir width
0.6 m weir height
ID 16.2C&G
(See Earthen Dam
with Skimmer Detail)



6/10/2013
 RAE: 25-OCT-2011
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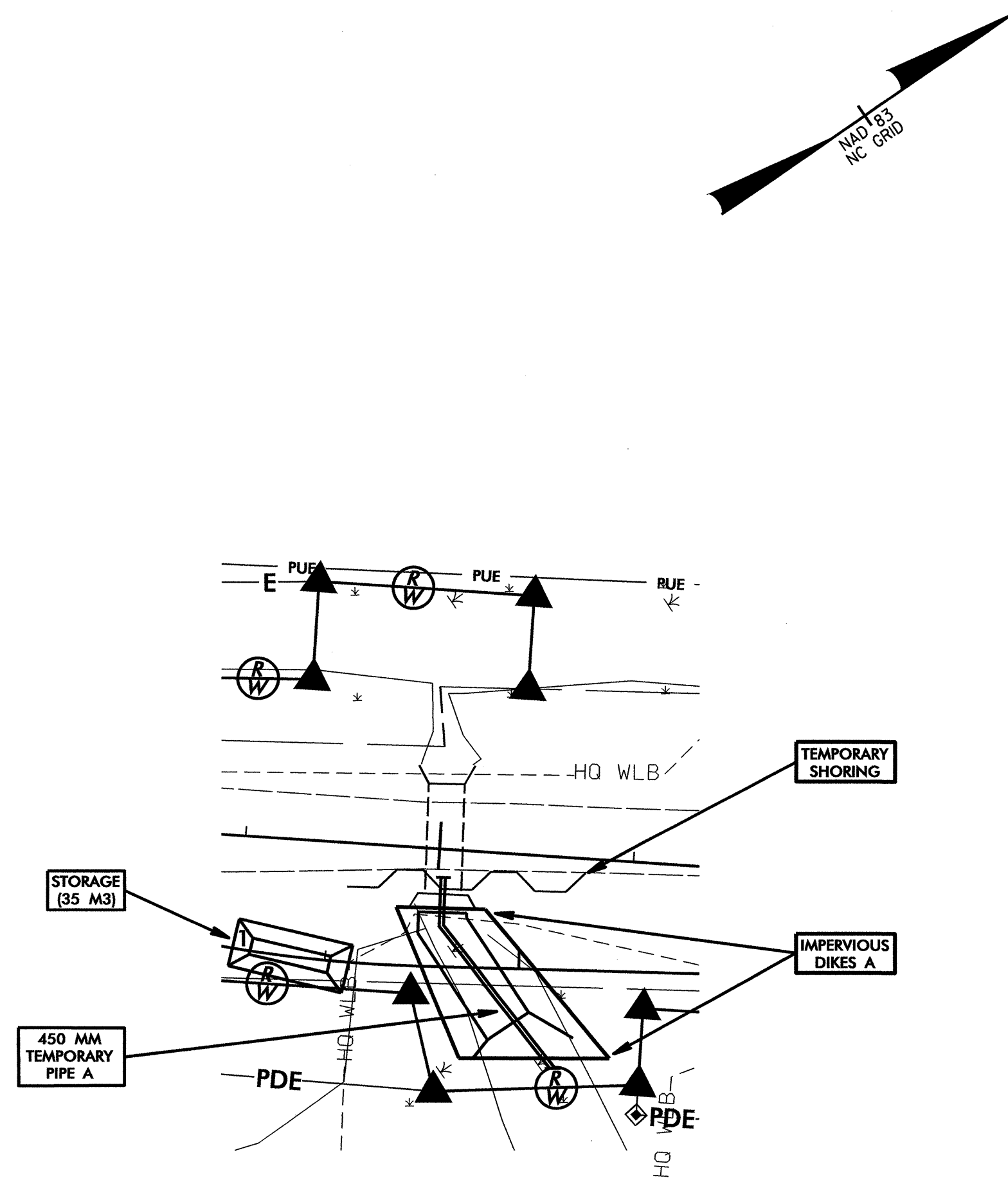


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-19/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 89 + 00.50 -L-

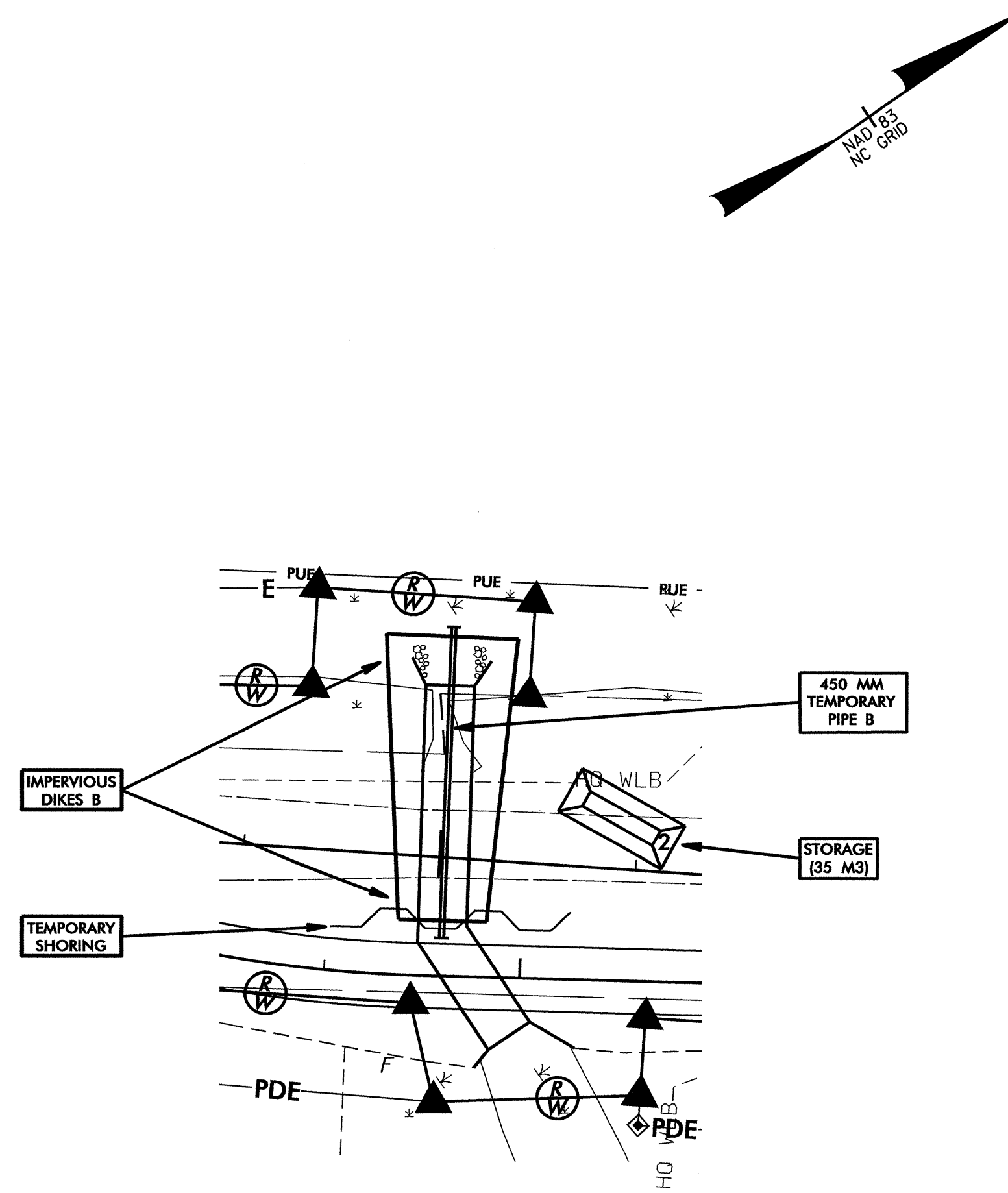
PHASE I

1. CONSTRUCT STILLING BASIN 1 (35 M3).
2. CONSTRUCT IMPERVIOUS DIKES A AND INSTALL 450MM TEMPORARY PIPE A, DIVERTING FLOW.
3. CONSTRUCT APPROXIMATELY 14 METERS OF THE UPSTREAM SECTION OF THE PROPOSED CULVERT.
4. REMOVE IMPERVIOUS DIKES A AND TEMPORARY PIPE A.
5. REMOVE STILLING BASIN 1.



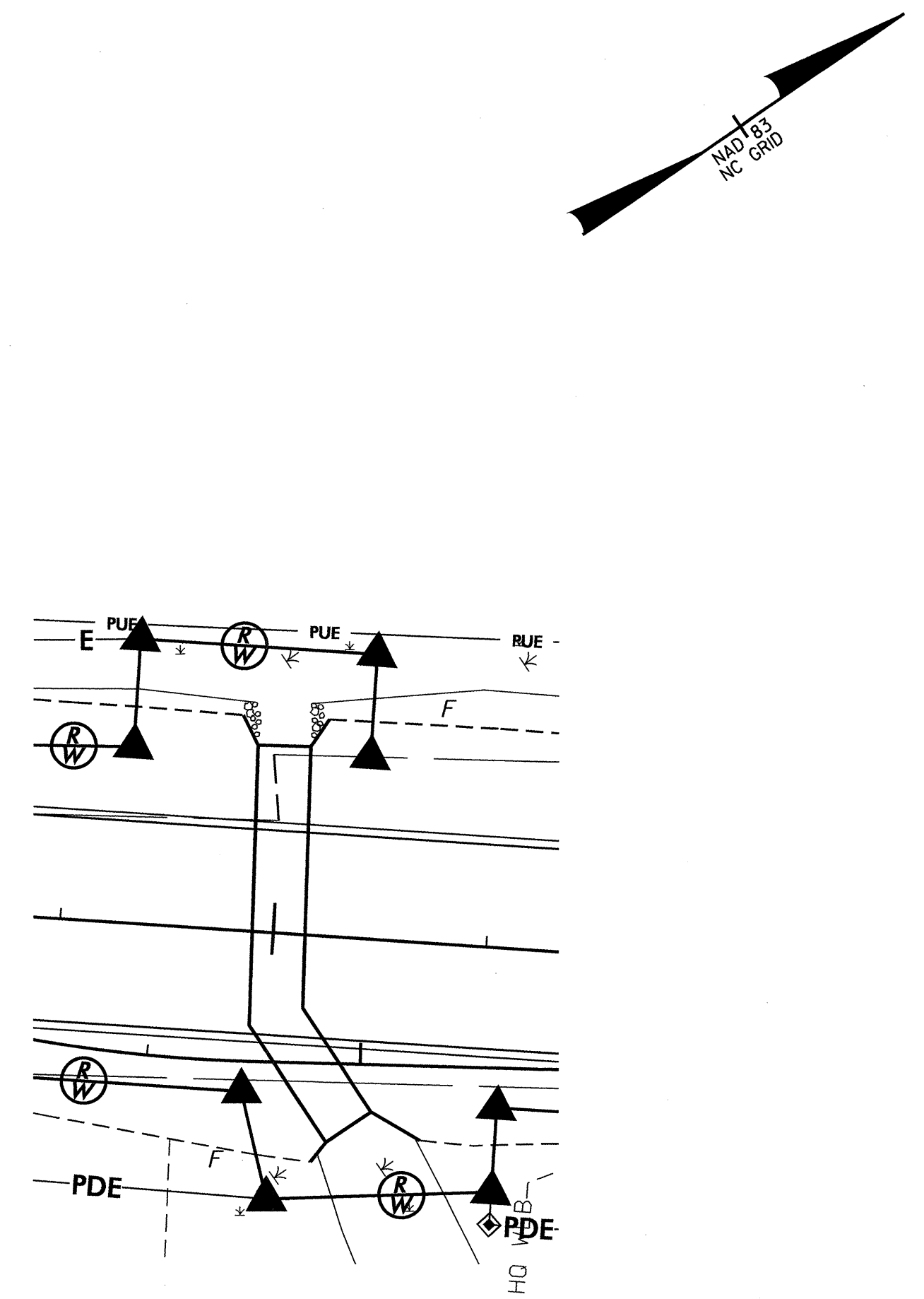
PHASE II

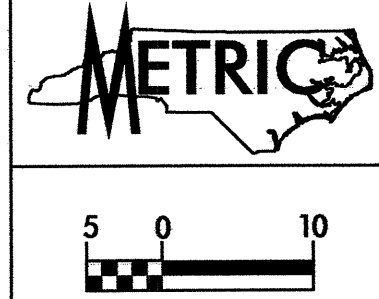
6. CONSTRUCT TEMPORARY DETOUR AND SHIFT TRAFFIC.
7. CONSTRUCT STILLING BASIN 2 (35 M3).
8. REMOVE EXISTING CULVERT.
9. CONSTRUCT IMPERVIOUS DIKES B AND INSTALL 450MM TEMPORARY PIPE B, DIVERTING FLOW.
10. CONSTRUCT REMAINDER OF PROPOSED CULVERT AND ANY NECESSARY UPSTREAM/DOWNSTREAM CHANNEL IMPROVEMENTS.
11. REMOVE IMPERVIOUS DIKES B AND TEMPORARY PIPE B, ALLOWING FLOW THROUGH THE CULVERT.
12. REMOVE STILLING BASIN 2.



PHASE III

13. CONSTRUCT ROADWAY OVER THE DOWNSTREAM SECTION OF THE CULVERT.
14. REMOVE TEMPORARY DETOUR AND SHIFT TRAFFIC.
15. COMPLETE ROADWAY.

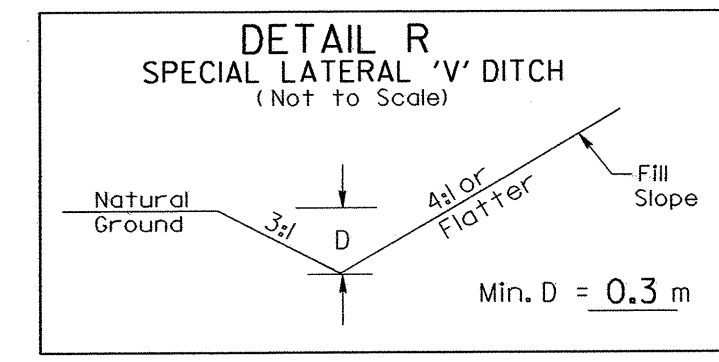
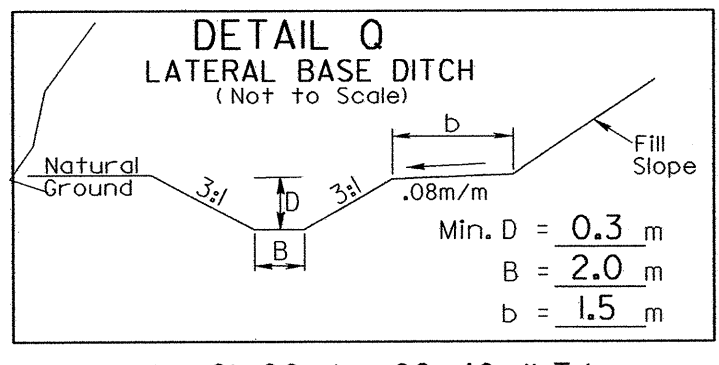




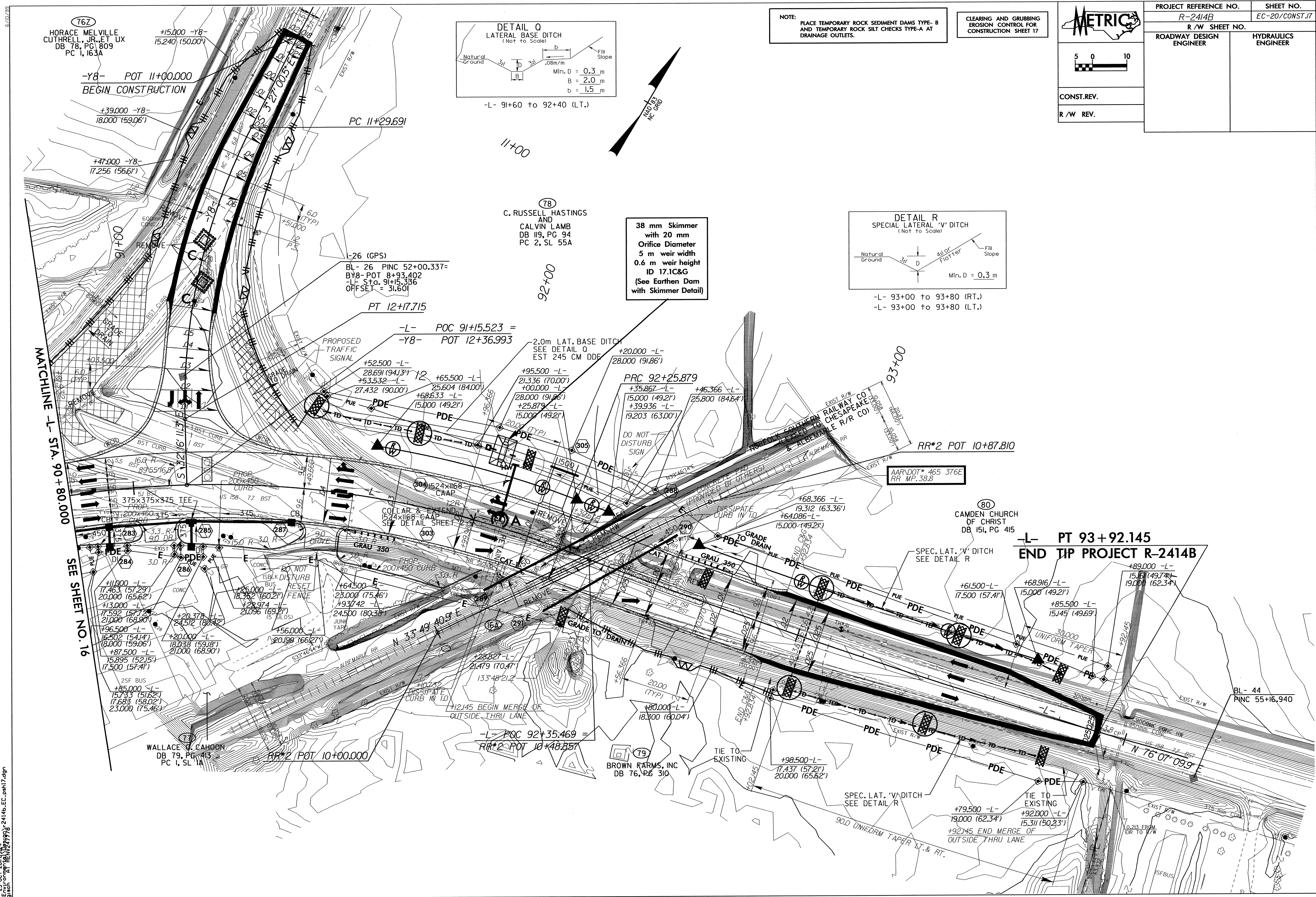
PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-20/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	

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 17



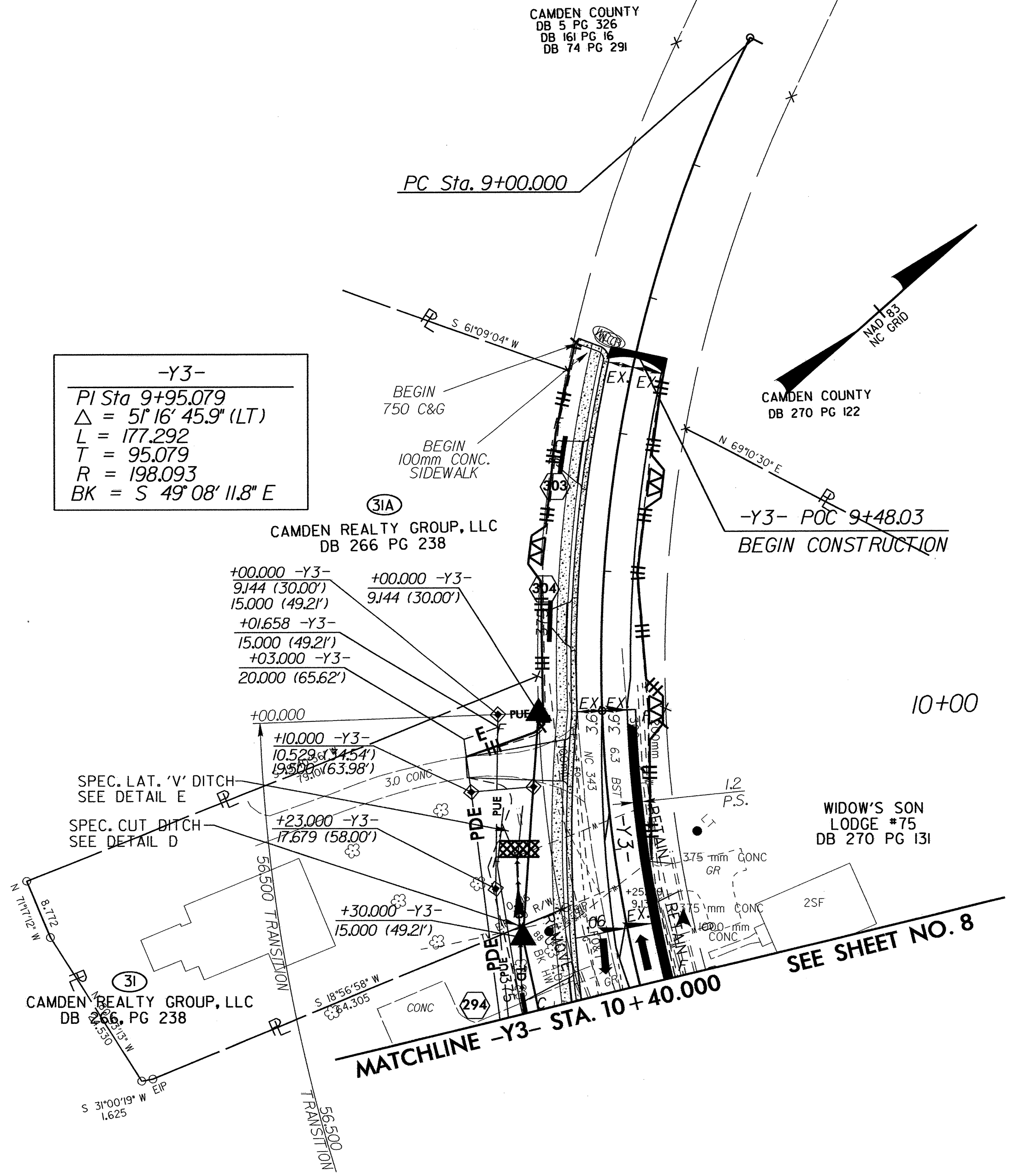
38 mm Skimmer with 20 mm Orifice Diameter
5 m weir width
0.6 m weir height
ID 17.1C&G
(See Earthen Dam with Skimmer Detail)



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CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 18

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



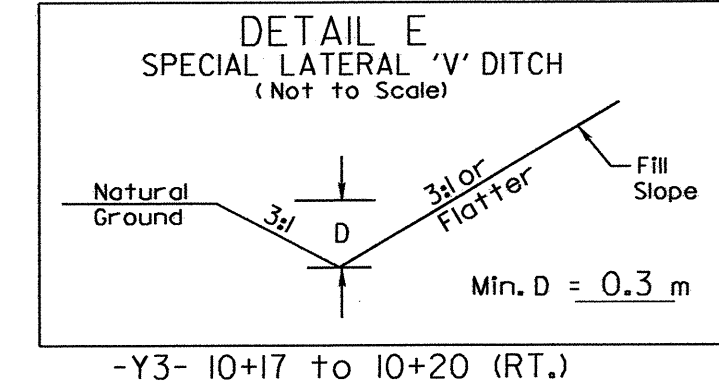
-Y3-
PI Sta 9+95.079
 $\Delta = 51' 16" 45.9" (LT)$
 $L = 177.292$
 $T = 95.079$
 $R = 198.093$
 $BK = S 49' 08" 11.8" E$

+00.000 -Y3- 9.144 (30.00')
15.000 (49.21')
+01.658 -Y3- 15.000 (49.21')
+03.000 -Y3- 20.000 (65.62')

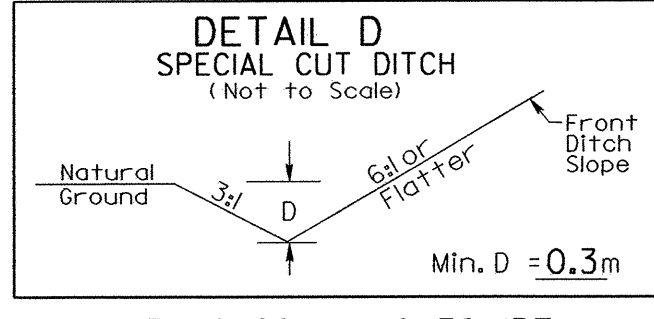
+10.000 -Y3- 10.529 (34.54')
19.500 (63.98')

+23.000 -Y3- 17.679 (58.00')

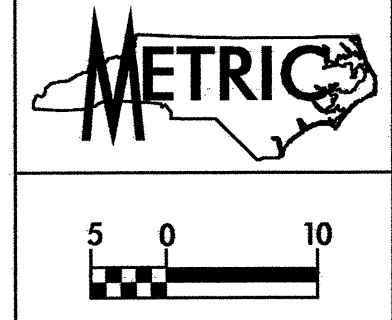
+30.000 -Y3- 15.000 (49.21')



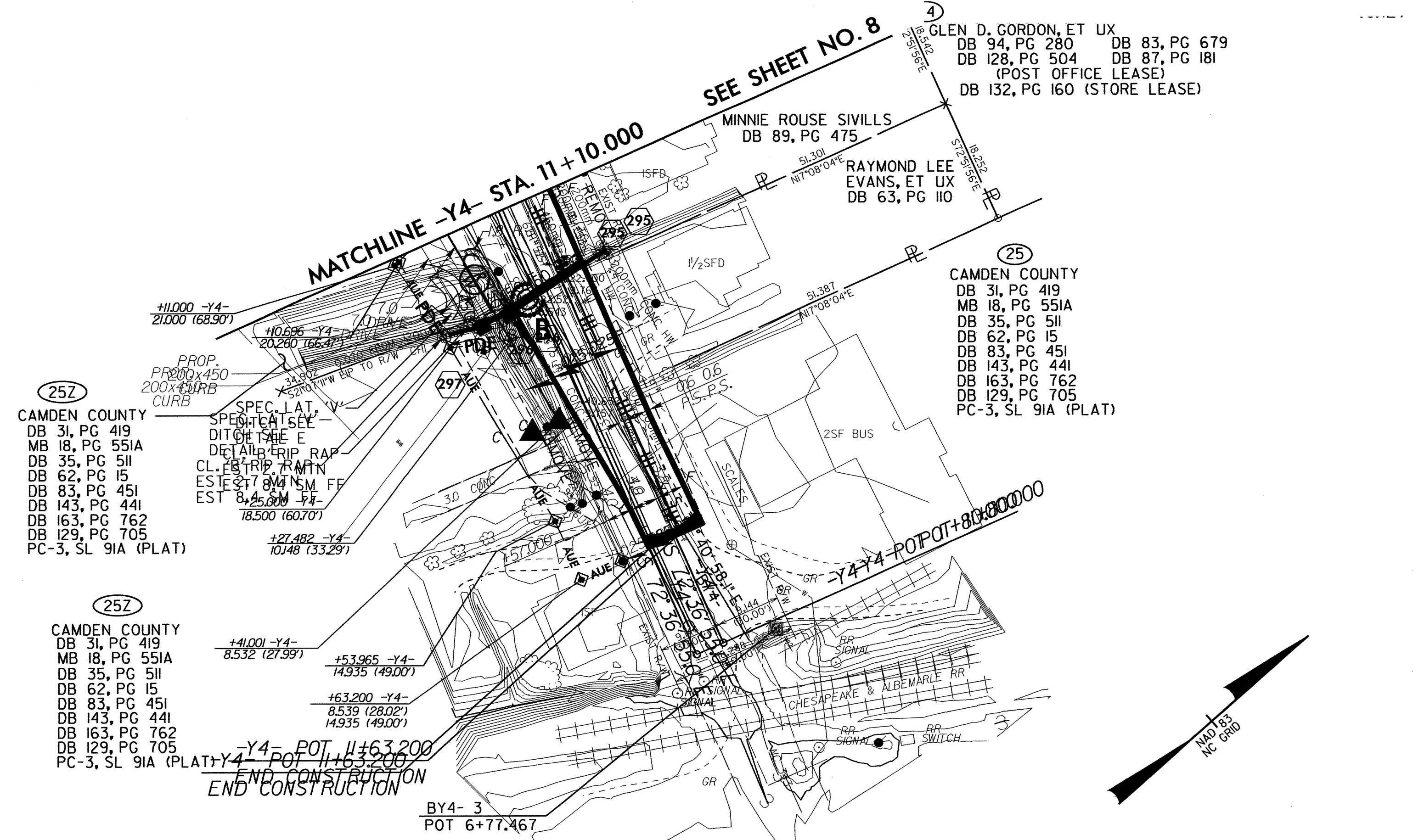
-Y3- 10+17 to 10+20 (RT.)



-Y3- 10+20 to 10+36 (RT.)



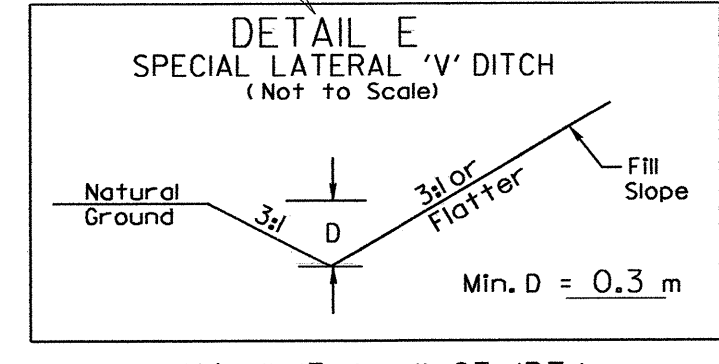
PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-21/CONST.18	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.			
R/W REV.			



CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)



-Y4- 11+13 to 11+23 (RT.)

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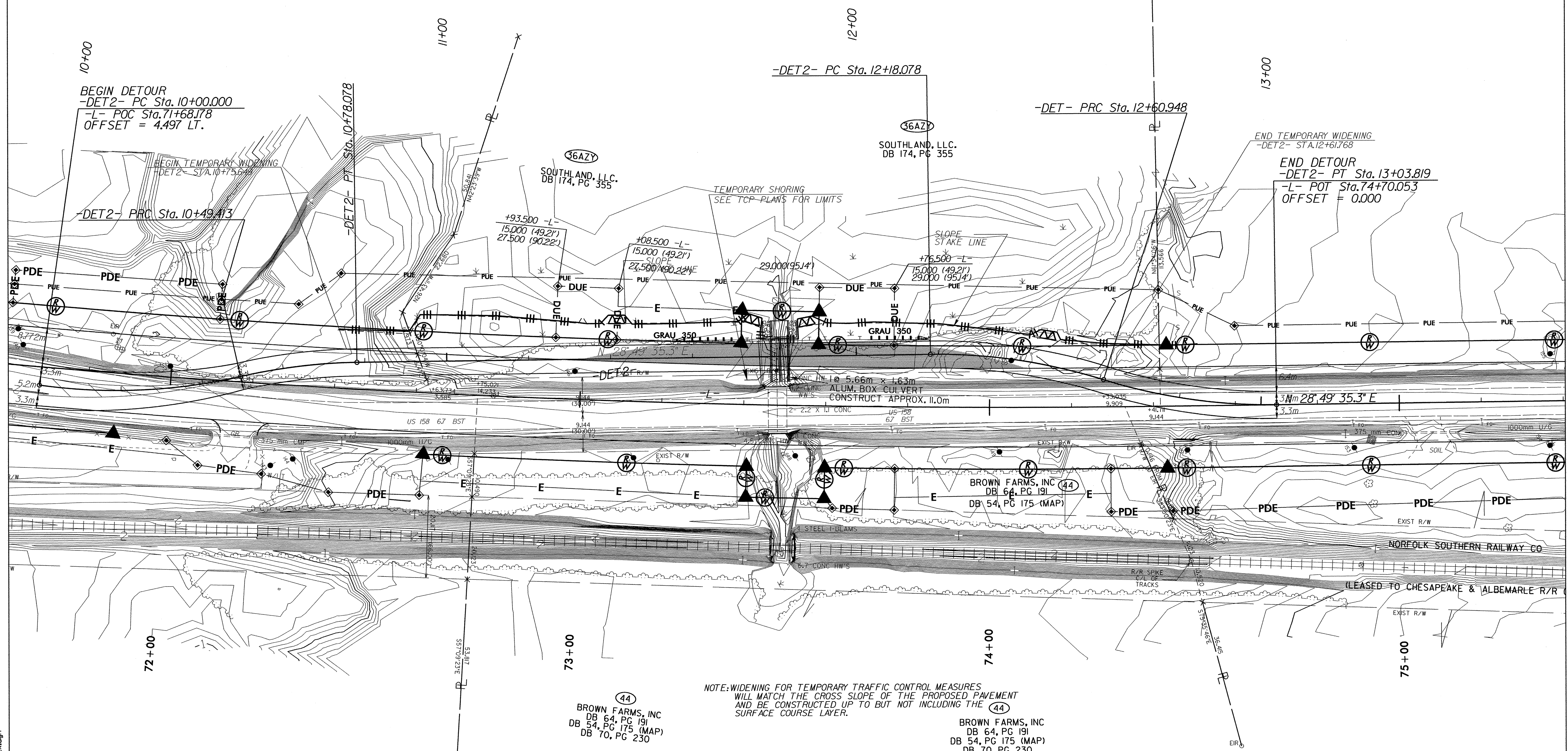
DETOUR -DET2- SHEET

METRIC

5 0 10

CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-23/CONST12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOTE: WIDENING FOR TEMPORARY TRAFFIC CONTROL MEASURES WILL MATCH THE GROSS SLOPE OF THE PROPOSED PAVEMENT AND BE CONSTRUCTED UP TO BUT NOT INCLUDING THE SURFACE COURSE LAYER.

-DET2-

PI Sta 10+24.986 Δ = 20' 58" 17.2" (LT) L = 49.413 T = 24.986 R = 135.000	PI Sta 10+63.799 Δ = 12' 09" 56.8" (RT) L = 28.665 T = 14.387 R = 135.000	PI Sta 12+39.695 Δ = 18' 11" 41.5" (RT) L = 42.871 T = 21.617 R = 135.000	PI Sta 12+82.566 Δ = 18' 11" 41.5" (LT) L = 42.871 T = 21.617 R = 135.000
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LIMITS OF TEMPORARY PAVEMENT FOR CONSTRUCTION OF PROPOSED CULVERTS

DETOUR -DET3- SHEET

METRIX

PROJECT REFERENCE NO. R-2414B SHEET NO. EC-24/CONST.16

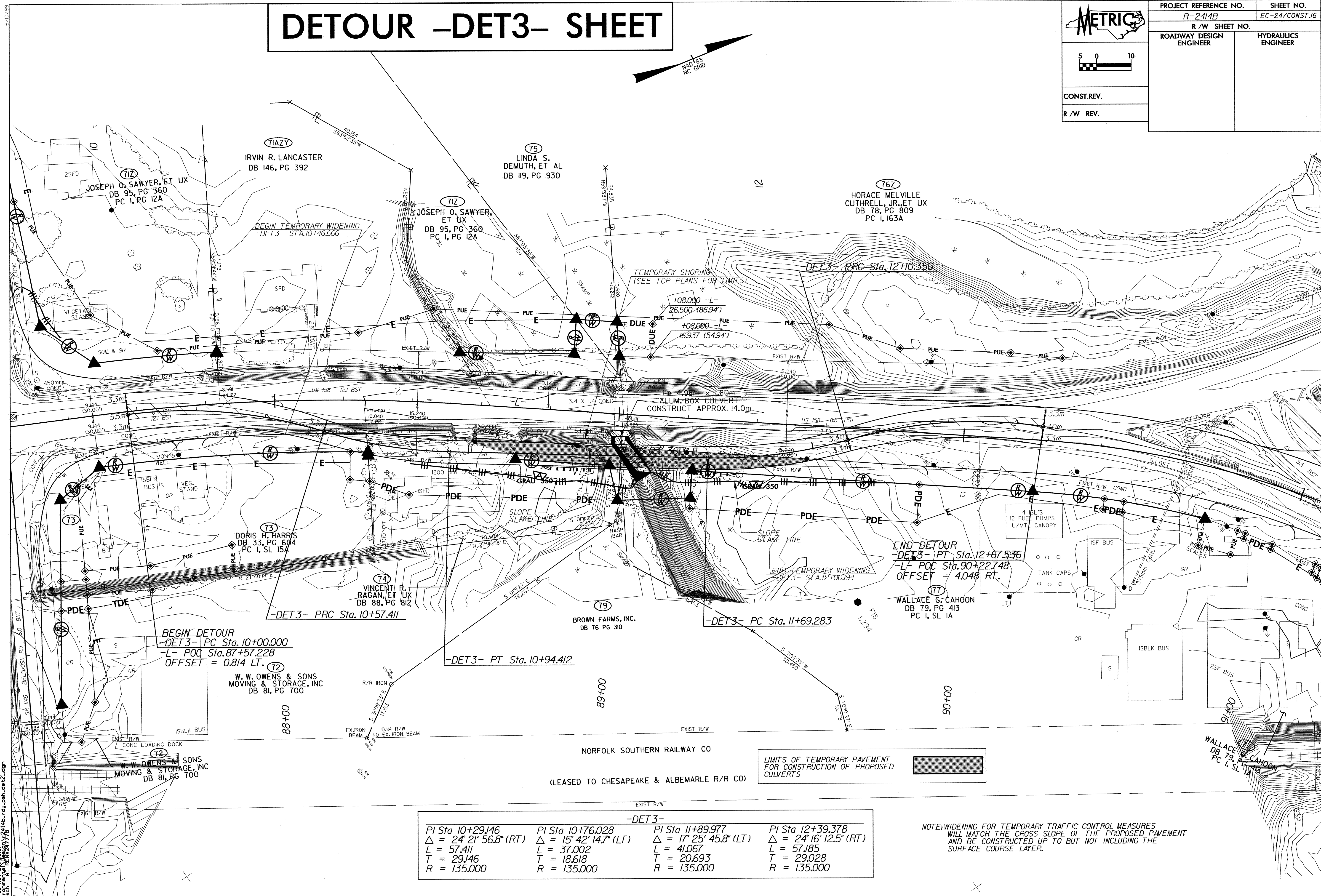
R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

CONST. REV.

R/W REV.

5 0 10



-DET3-

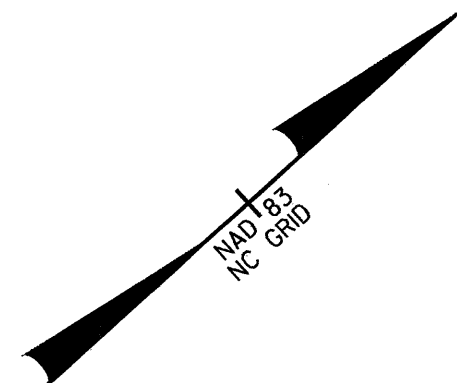
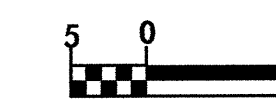
PI Sta 10+29.146	PI Sta 10+76.028	PI Sta 11+89.977	PI Sta 12+39.378
Δ = 24' 21" 56.8" (RT)	Δ = 15' 42" 14.7" (LT)	Δ = 17' 25" 45.8" (LT)	Δ = 24' 16" 12.5" (RT)
L = 57.411	L = 37.002	L = 41.067	L = 57.185
T = 29.146	T = 18.618	T = 20.693	T = 29.028
R = 135.000	R = 135.000	R = 135.000	R = 135.000

NOTE: WIDENING FOR TEMPORARY TRAFFIC CONTROL MEASURES WILL MATCH THE CROSS SLOPE OF THE PROPOSED PAVEMENT AND BE CONSTRUCTED UP TO BUT NOT INCLUDING THE SURFACE COURSE LAYER.

6/10/23
 R:\env\com\at\REV\2414b_rdy_pah_da21.dgn
 mlaughach

REVISIONS

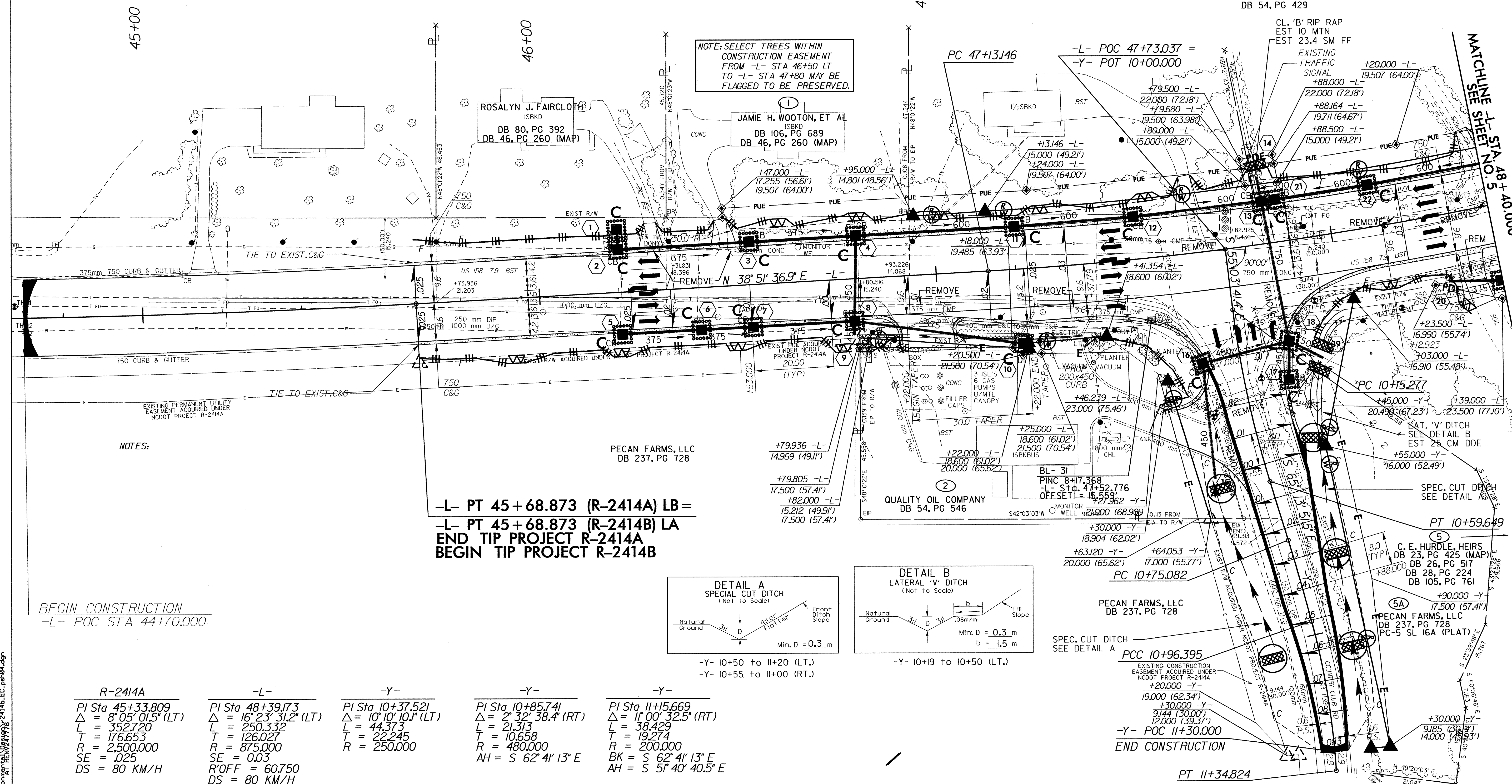
PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-25/CONST.4	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.	



ROBERT F. MASSIELLO, ET UX
DB III, PG 705
DB 46, PG 260 (MAP)

GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

O.C. ABBOTT
DB 54, PG 429



NOTE: SELECT TREES WITHIN CONSTRUCTION EASEMENT FROM -L- STA 46+50 LT TO -L- STA 47+80 MAY BE FLAGGED TO BE PRESERVED.

ROSALYN J. FAIRCLOTH
ISBKD
DB 80, PG 392
DB 46, PG 260 (MAP)

JAMIE H. WOOTON, ET AL
ISBKD
DB 106, PG 689
DB 46, PG 260 (MAP)

PECAN FARMS, LLC
DB 237, PG 728

QUALITY OIL COMPANY
DB 54, PG 546

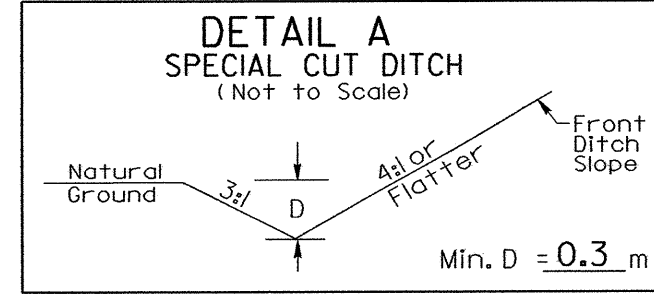
C. E. HURDLE, HEIRS
DB 23, PG 425 (MAP)
DB 26, PG 517
DB 28, PG 224
DB 105, PG 761

NOTES:

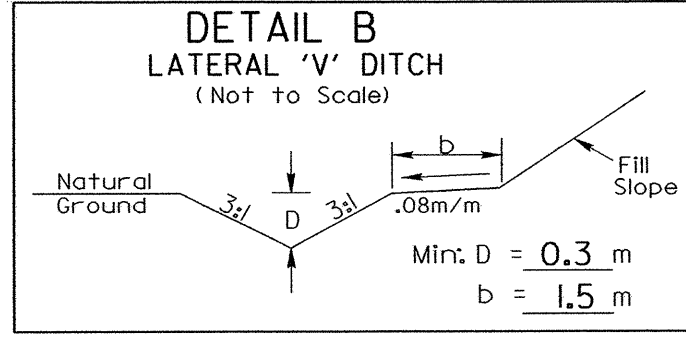
-L- PT 45+68.873 (R-2414A) LB=
-L- PT 45+68.873 (R-2414B) LA
END TIP PROJECT R-2414A
BEGIN TIP PROJECT R-2414B

BEGIN CONSTRUCTION
-L- POC STA 44+70.000

PECAN FARMS, LLC
DB 237, PG 728
SPEC. CUT DITCH
SEE DETAIL A
PCC 10+96.395
EXISTING CONSTRUCTION
EASEMENT ACQUIRED UNDER
NCDOT PROJECT R-2414A
+20.000 -Y-
19.000 (62.34')
+30.000 -Y-
9.144 (30.00')
12.000 (39.37')
-Y- POC 11+30.000
END CONSTRUCTION



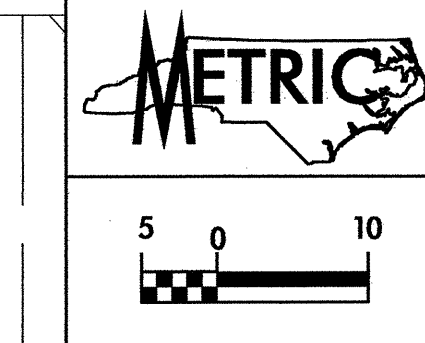
-Y- 10+50 to 10+20 (LT.)
-Y- 10+55 to 10+00 (RT.)



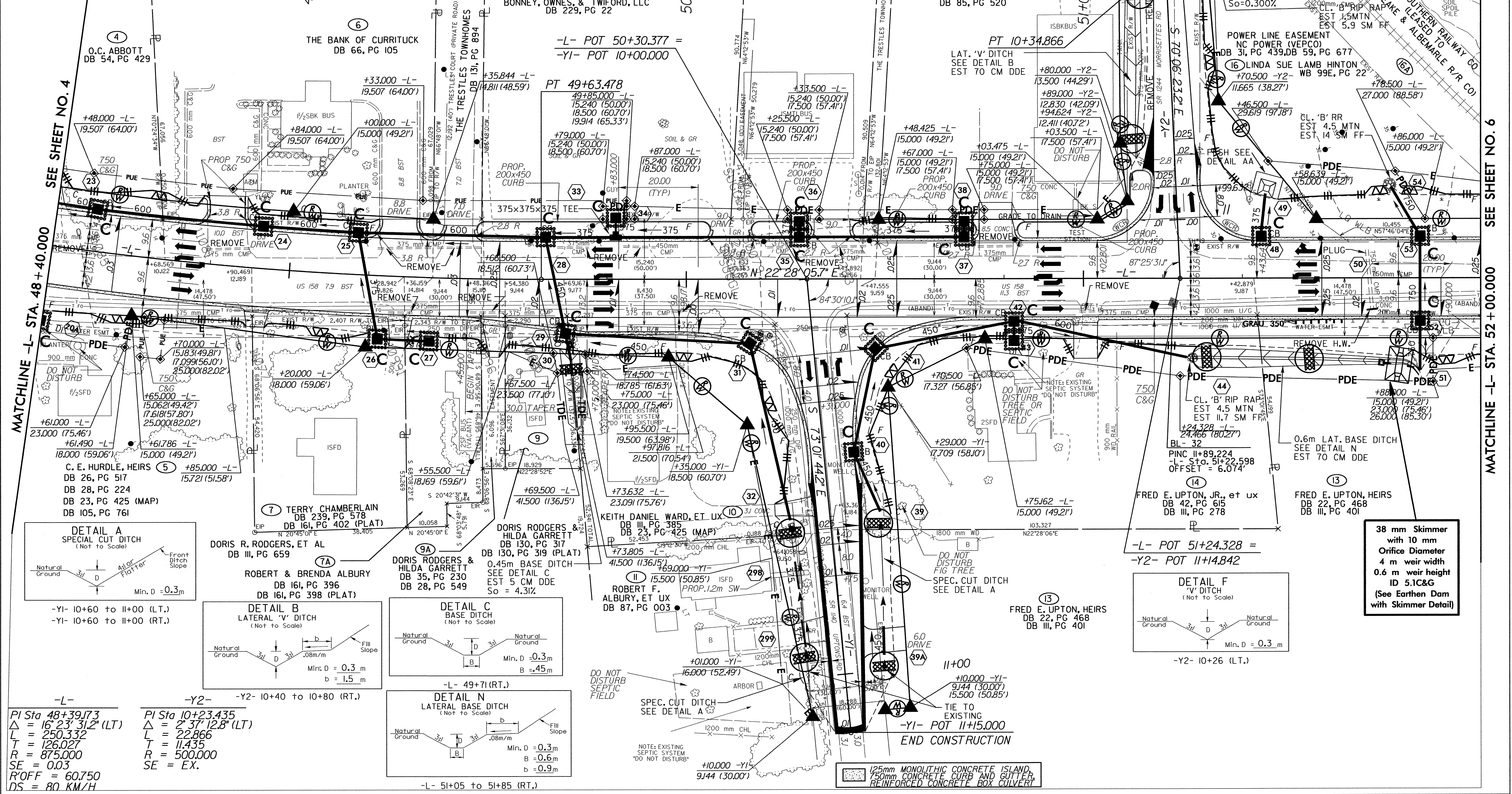
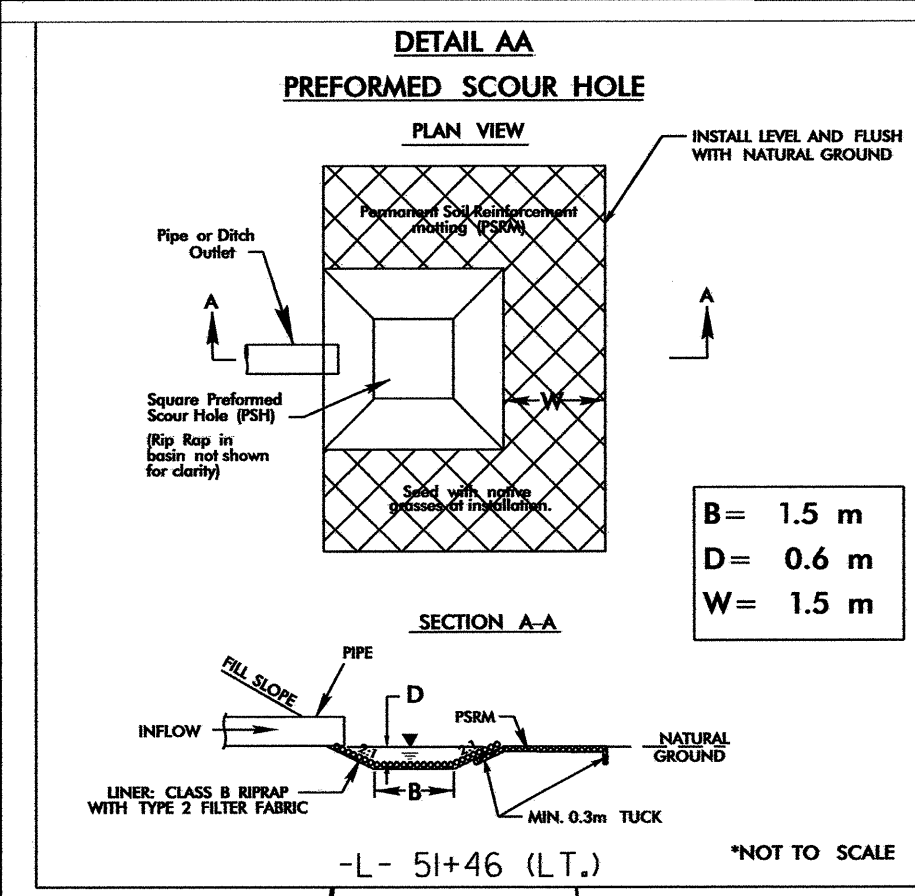
-Y- 10+19 to 10+50 (LT.)

R-2414A	-L-	-Y-	-Y-	-Y-
PI Sta 45+33.809	PI Sta 48+39.173	PI Sta 10+37.521	PI Sta 10+85.741	PI Sta 11+15.669
$\Delta = 8^{\circ} 05' 01.5''$ (LT)	$\Delta = 16^{\circ} 23' 31.2''$ (LT)	$\Delta = 10^{\circ} 10' 10.1''$ (LT)	$\Delta = 2^{\circ} 32' 38.4''$ (RT)	$\Delta = 11^{\circ} 00' 32.5''$ (RT)
L = 352.720	L = 250.332	L = 44.373	L = 21.313	L = 38.429
T = 176.653	T = 126.027	T = 22.245	T = 10.658	T = 19.274
R = 2,500.000	R = 875.000	R = 250.000	R = 480.000	R = 200.000
SE = .025	SE = 0.03		AH = S 62° 41' 13" E	BK = S 62° 41' 13" E
DS = 80 KM/H	R/OFF = 60.750		AH = S 51° 40' 40.5" E	AH = S 51° 40' 40.5" E
	DS = 80 KM/H			

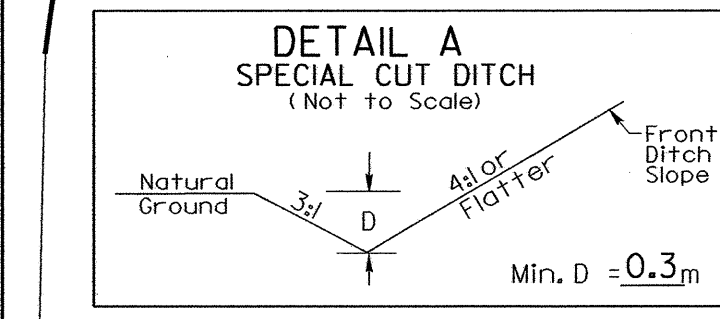
23-ACT-2010820
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 6/10/25



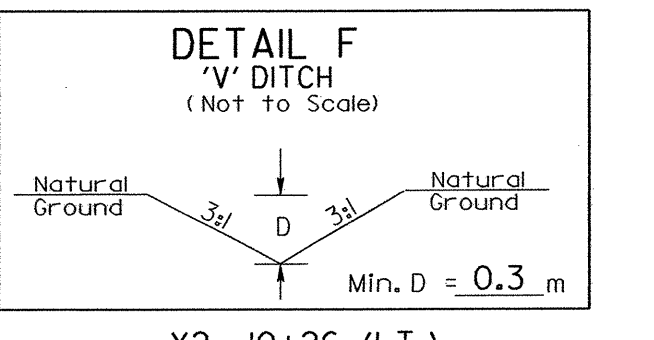
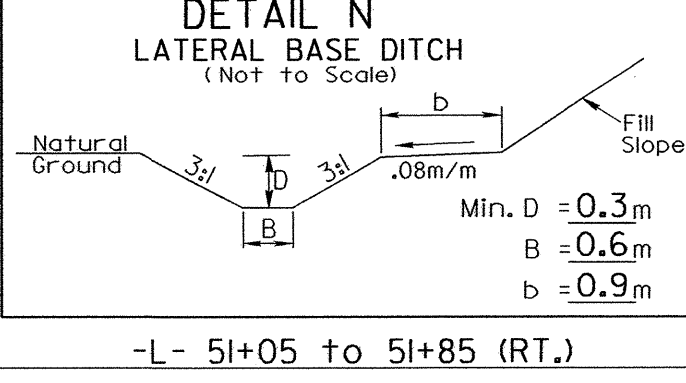
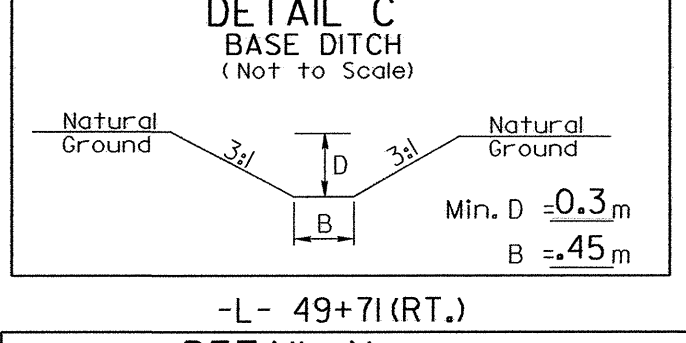
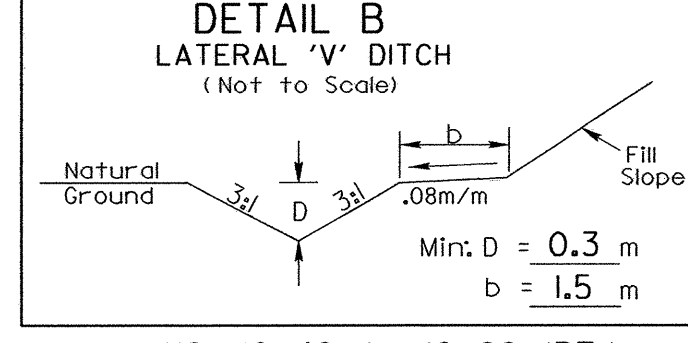
PROJECT REFERENCE NO.	SHEET NO.
R-2414B	EC-26/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L-	-Y2-
PI Sta 48+39.73	PI Sta 10+23.435
$\Delta = 16.23^\circ 31' 2''$ (LT.)	$\Delta = 2^\circ 37' 12.8''$ (LT.)
L = 250.332	L = 22.866
T = 126.027	T = 11.435
R = 875.000	R = 500.000
SE = 0.03	SE = EX.
R'OFF = 60.750	
DS = 80. KM/H	



-Y1- 10+60 to 11+00 (LT.)
 -Y1- 10+60 to 11+00 (RT.)




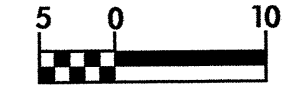
38 mm Skimmer
 with 10 mm
 Orifice Diameter
 4 m weir width
 0.6 m weir height
 ID 5.1C&G
 (See Earthen Dam
 with Skimmer Detail)

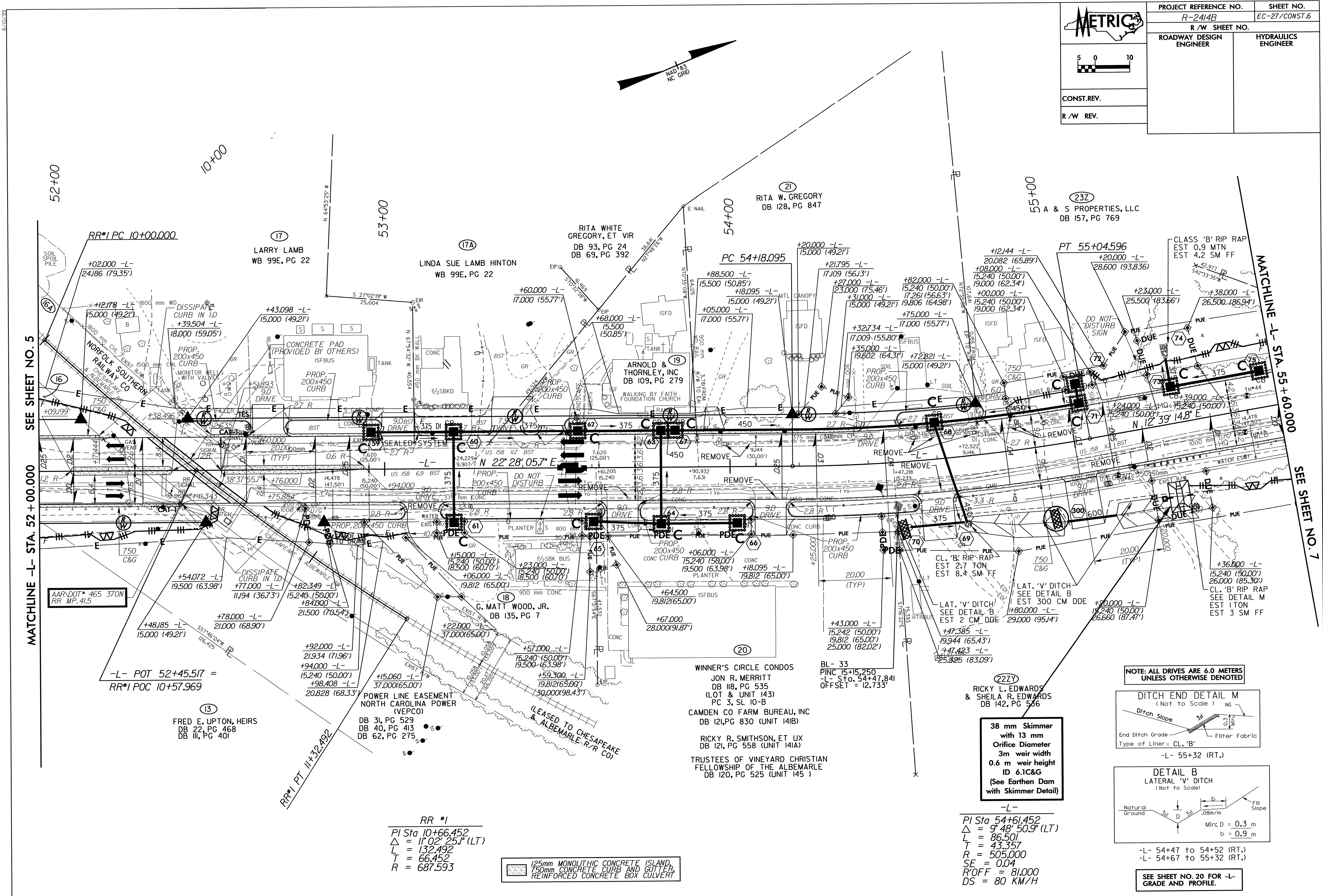
6/10/20

MATCHLINE -L- STA. 48+40.000

MATCHLINE -L- STA. 52+00.000

SEE SHEET NO. 4 (left) / SEE SHEET NO. 6 (right)

	PROJECT REFERENCE NO.	SHEET NO.
	R-2414B	EC-27/CONST.6
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.		
R/W REV.		



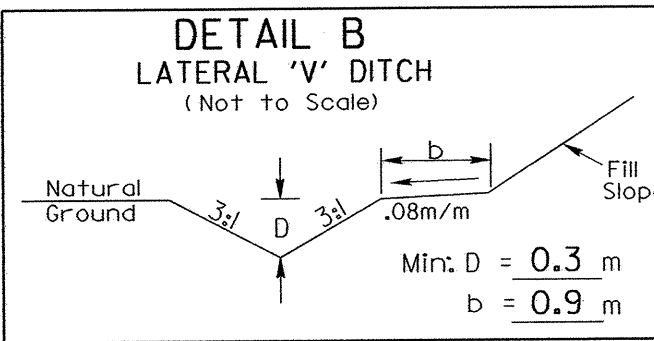
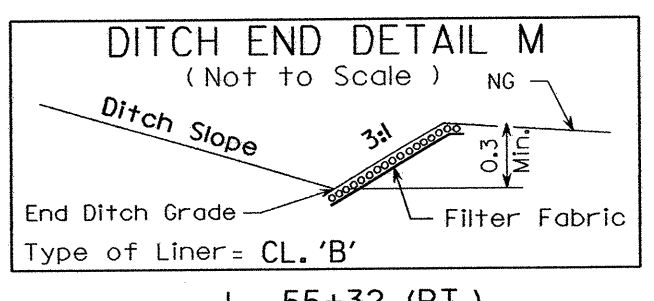
SEE SHEET NO. 5
MATCHLINE -L- STA. 52 + 00.000

MATCHLINE -L- STA. 55 + 60.000
SEE SHEET NO. 7

RR #1
 PI Sta 10+66.452
 $\Delta = 11^{\circ}02'25''$ (LT)
 L = 132.492
 T = 66.452
 R = 687.593

125mm MONOLITHIC CONCRETE ISLAND,
 750mm CONCRETE CURB AND GUTTER,
 REINFORCED CONCRETE BOX CULVERT

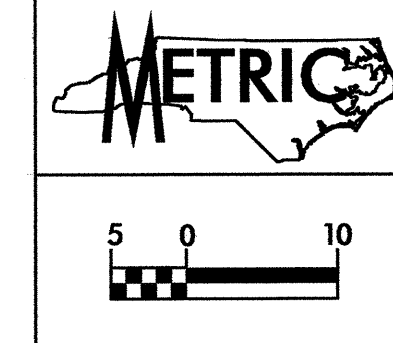
NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED



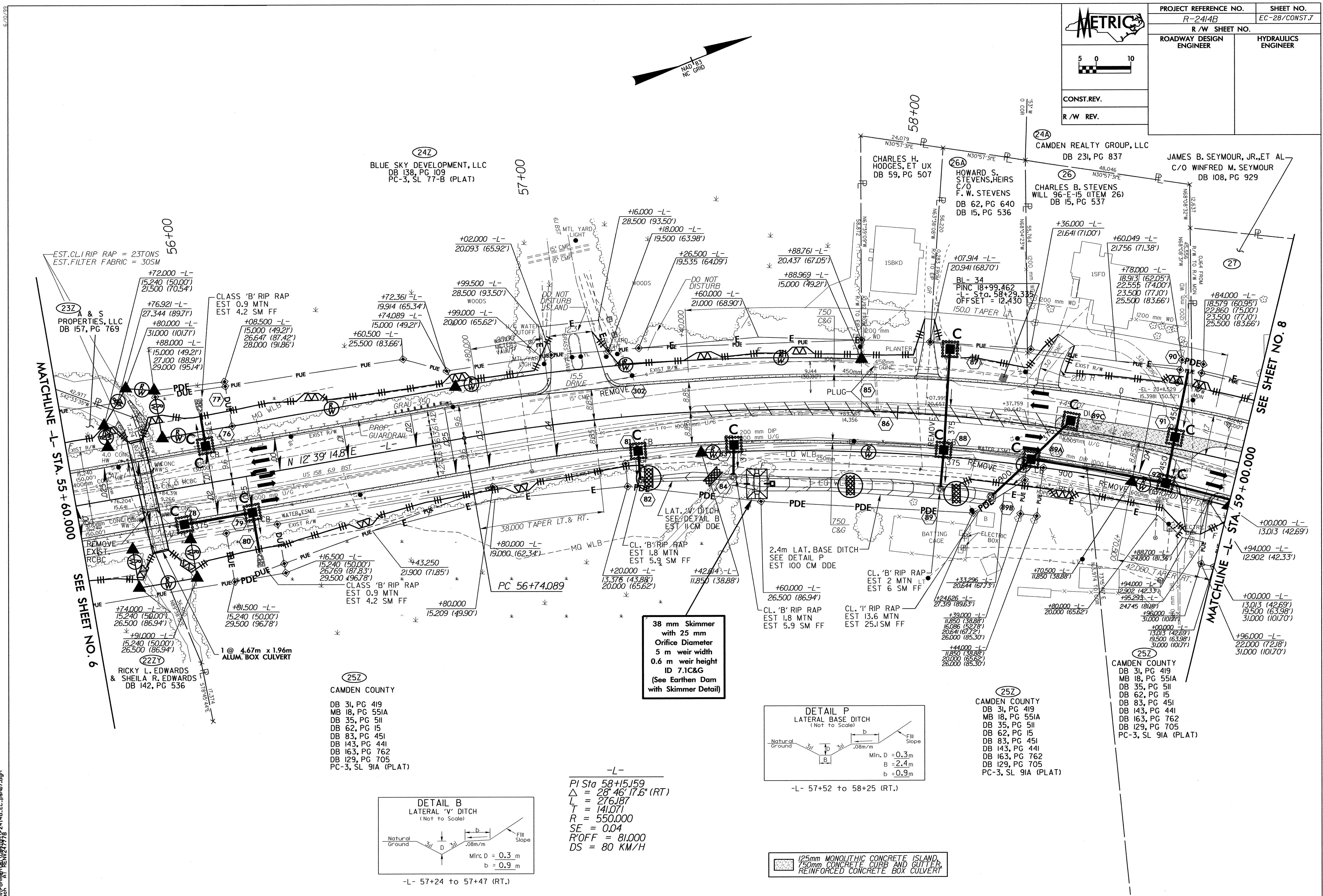
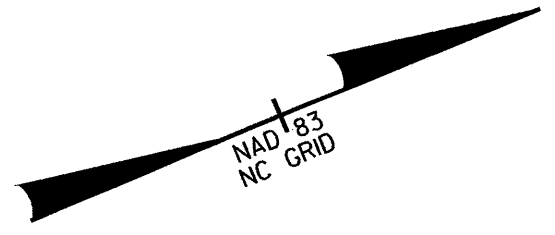
38 mm Skimmer
 with 13 mm
 Orifice Diameter
 3m weir width
 0.6 m weir height
 ID 6.1C&G
 (See Earthen Dam
 with Skimmer Detail)

-L-
 PI Sta 54+61.452
 $\Delta = 9^{\circ}48'50.9''$ (LT)
 L = 86.501
 T = 43.357
 R = 505.000
 SE = 0.04
 R/OFF = 81.000
 DS = 80 KM/H

-L- 54+47 to 54+52 (RT.)
 -L- 54+67 to 55+32 (RT.)
 SEE SHEET NO. 20 FOR -L- GRADE AND PROFILE



PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-28/CONST.7	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.	



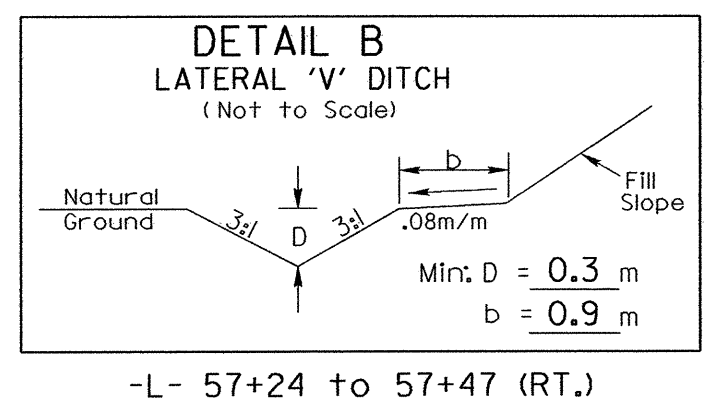
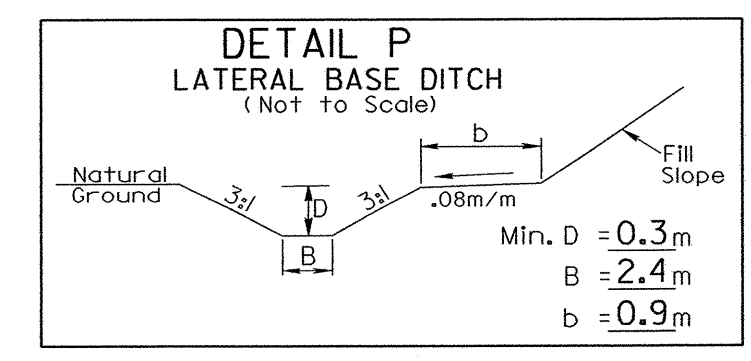
MATCHLINE L- STA. 55 + 60.000
SEE SHEET NO. 6

SEE SHEET NO. 8
MATCHLINE L- STA. 59 + 00.000

252
CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

252
CAMDEN COUNTY
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451
DB 143, PG 441
DB 163, PG 762
DB 129, PG 705
PC-3, SL 91A (PLAT)

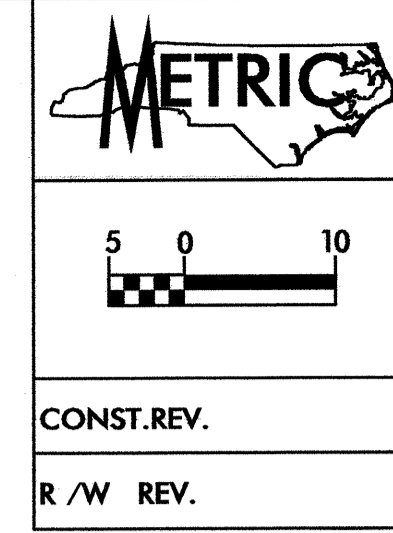
38 mm Skimmer
with 25 mm
Orifice Diameter
5 m weir width
0.6 m weir height
ID 7.1C&G
(See Earthen Dam
with Skimmer Detail)



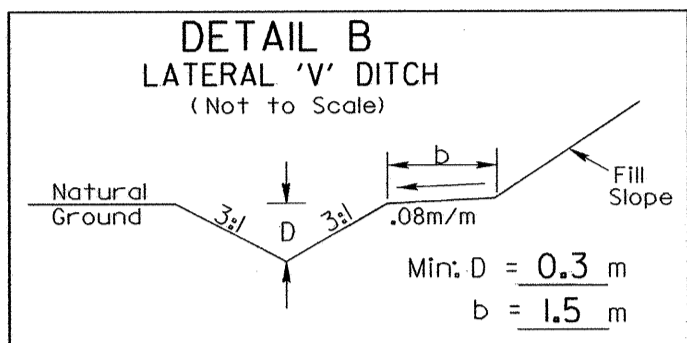
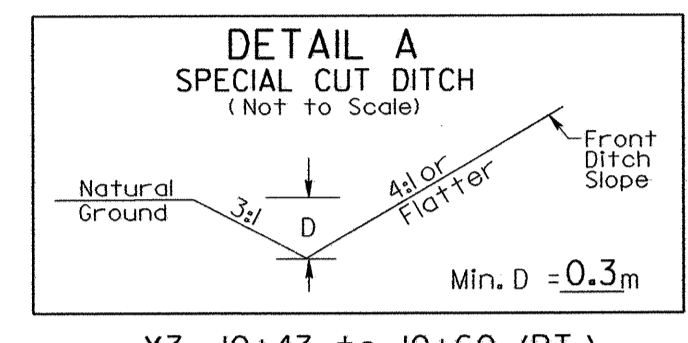
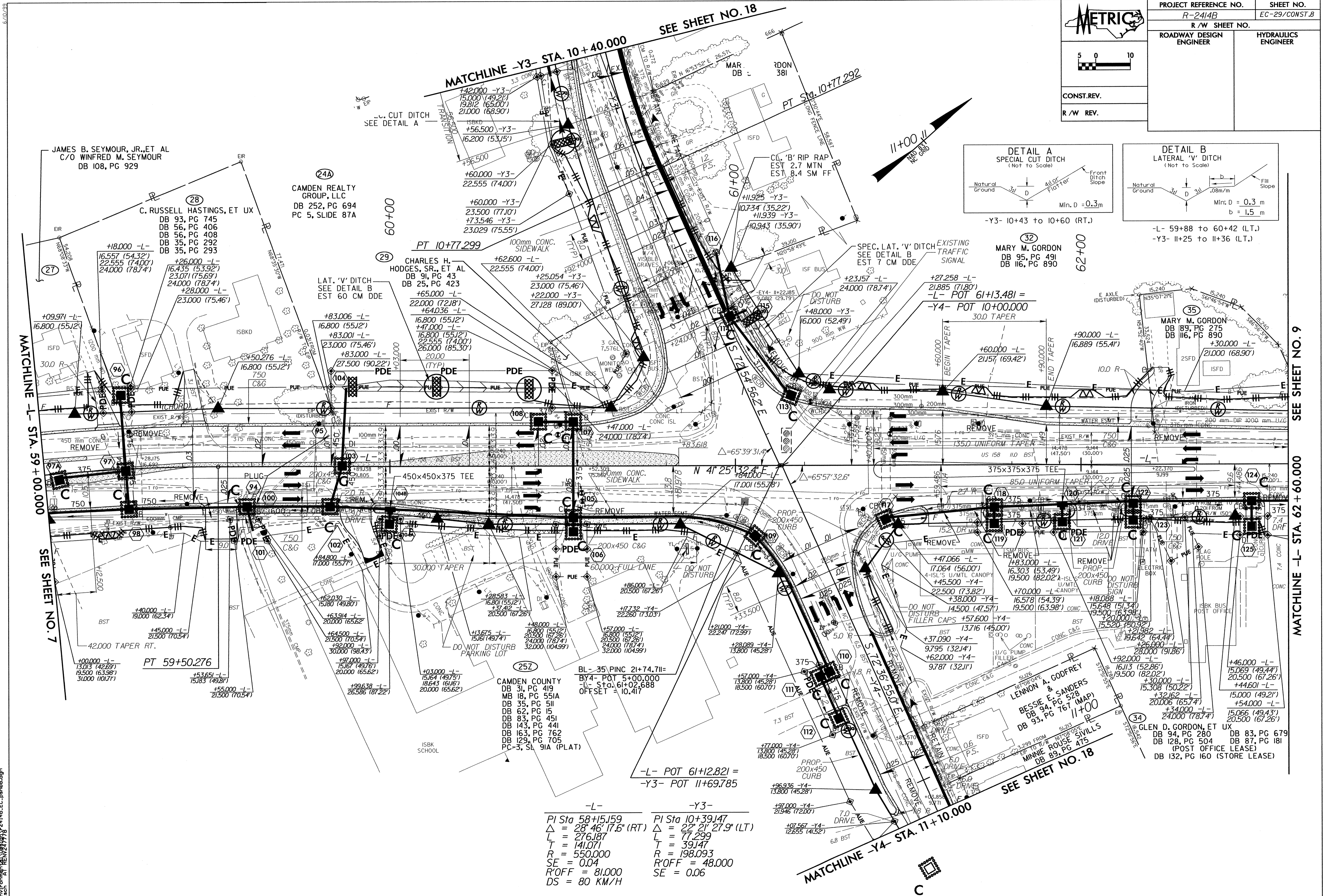
-L-
PI Sta 58+15.159
 $\Delta = 28' 46'' 17.6''$ (RT)
L = 276.187
T = 141.071
R = 550.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

125mm MONOLITHIC CONCRETE ISLAND,
750mm CONCRETE CURB AND GUTTER,
REINFORCED CONCRETE BOX CULVERT

23-OCT-2010 08:33
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PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-29/CONST.B
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.



-Y3- 10+43 to 10+60 (RT.)

-L- 59+88 to 60+42 (LT.)
-Y3- 11+25 to 11+36 (LT.)

-L-	-Y3-
PI Sta 58+15.99	PI Sta 10+39.47
$\Delta = 28' 46'' 17.6''$ (RT)	$\Delta = 22' 21'' 27.9''$ (LT)
L = 276.187	L = 77.299
T = 141.071	T = 39.147
R = 550.000	R = 198.093
SE = 0.04	SE = 0.06
R/OFF = 81.000	
DS = 80 KM/H	

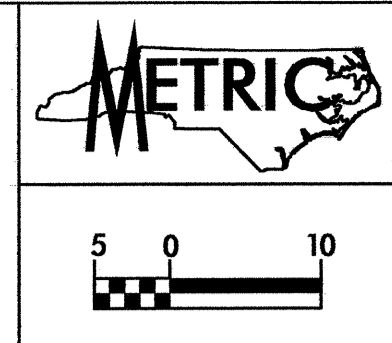
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m\g\l\sh

SEE SHEET NO. 9
MATCHLINE -L- STA. 62 + 60.000

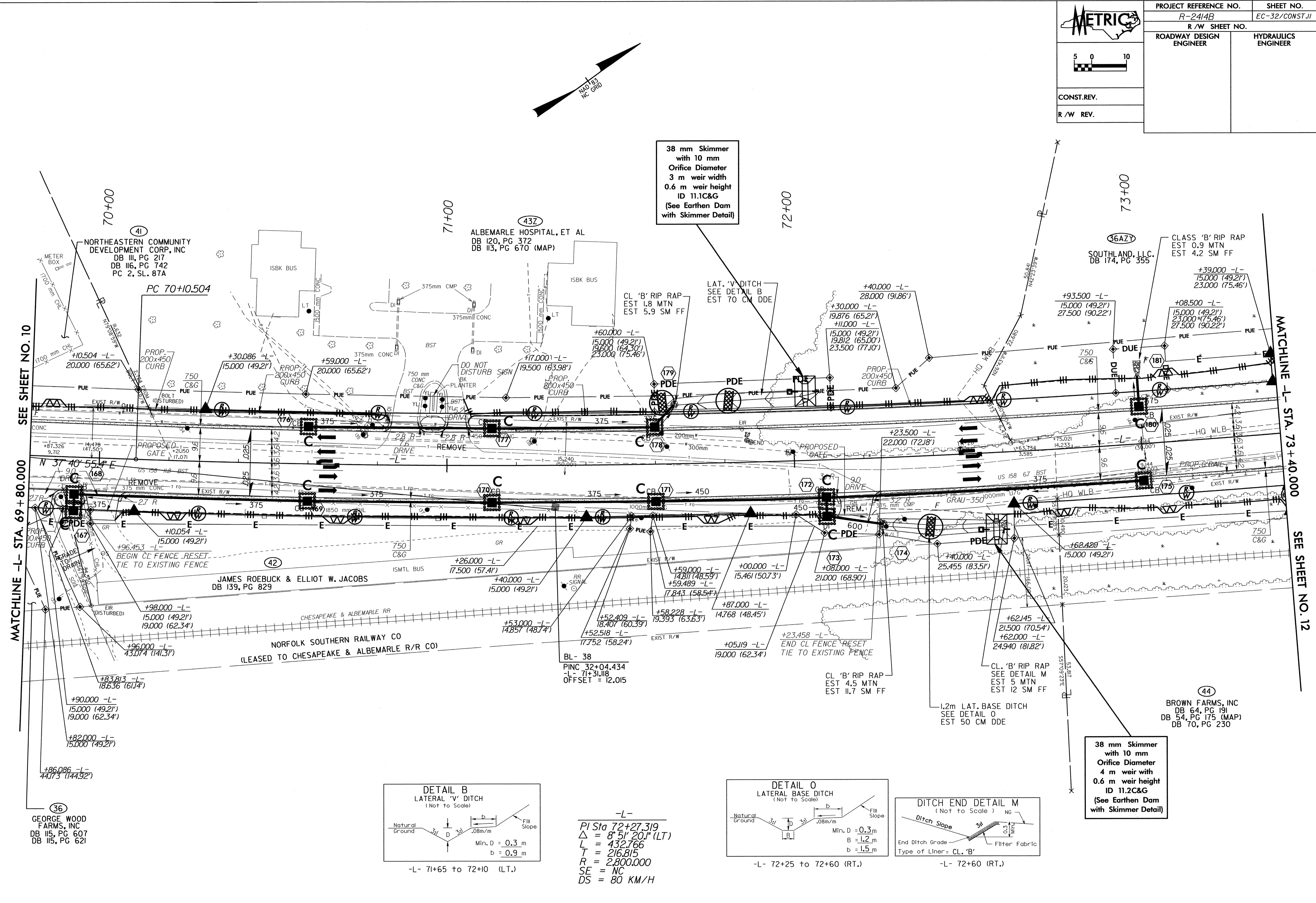
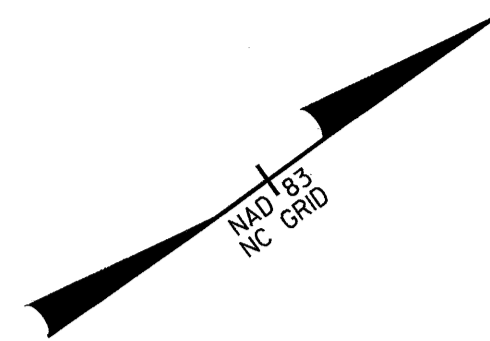
MATCHLINE -L- STA. 59 + 00.000
SEE SHEET NO. 7

SEE SHEET NO. 18
MATCHLINE -Y3- STA. 10+40.000

MATCHLINE -Y4- STA. 11+10.000
SEE SHEET NO. 18

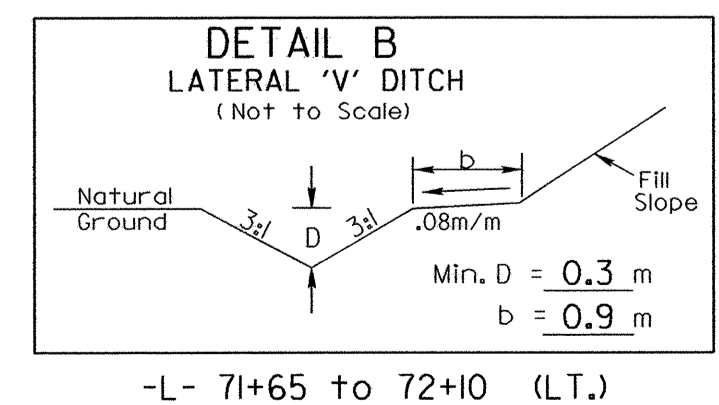


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-32/CONST.II
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	
R/W REV.	

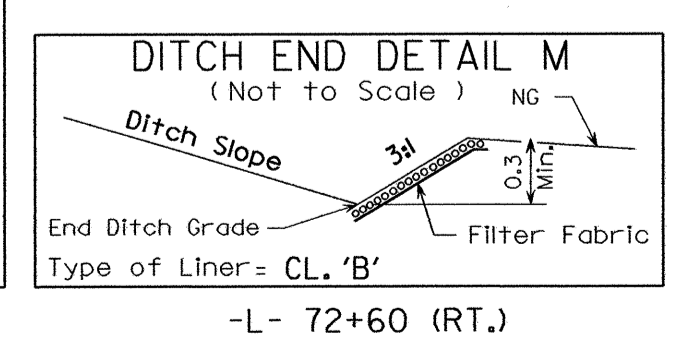
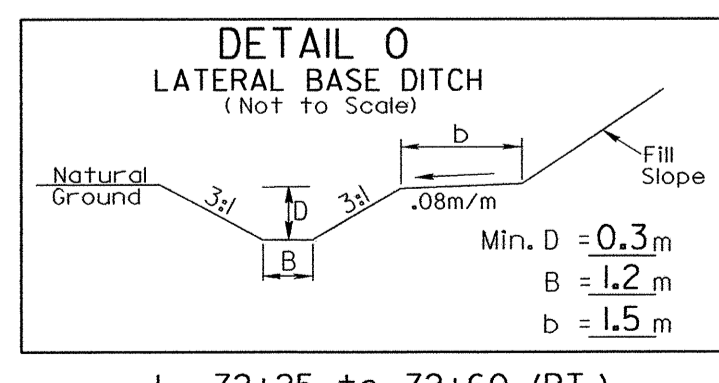


38 mm Skimmer
with 10 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 11.1C&G
(See Earthen Dam
with Skimmer Detail)

38 mm Skimmer
with 10 mm
Orifice Diameter
4 m weir with
0.6 m weir height
ID 11.2C&G
(See Earthen Dam
with Skimmer Detail)

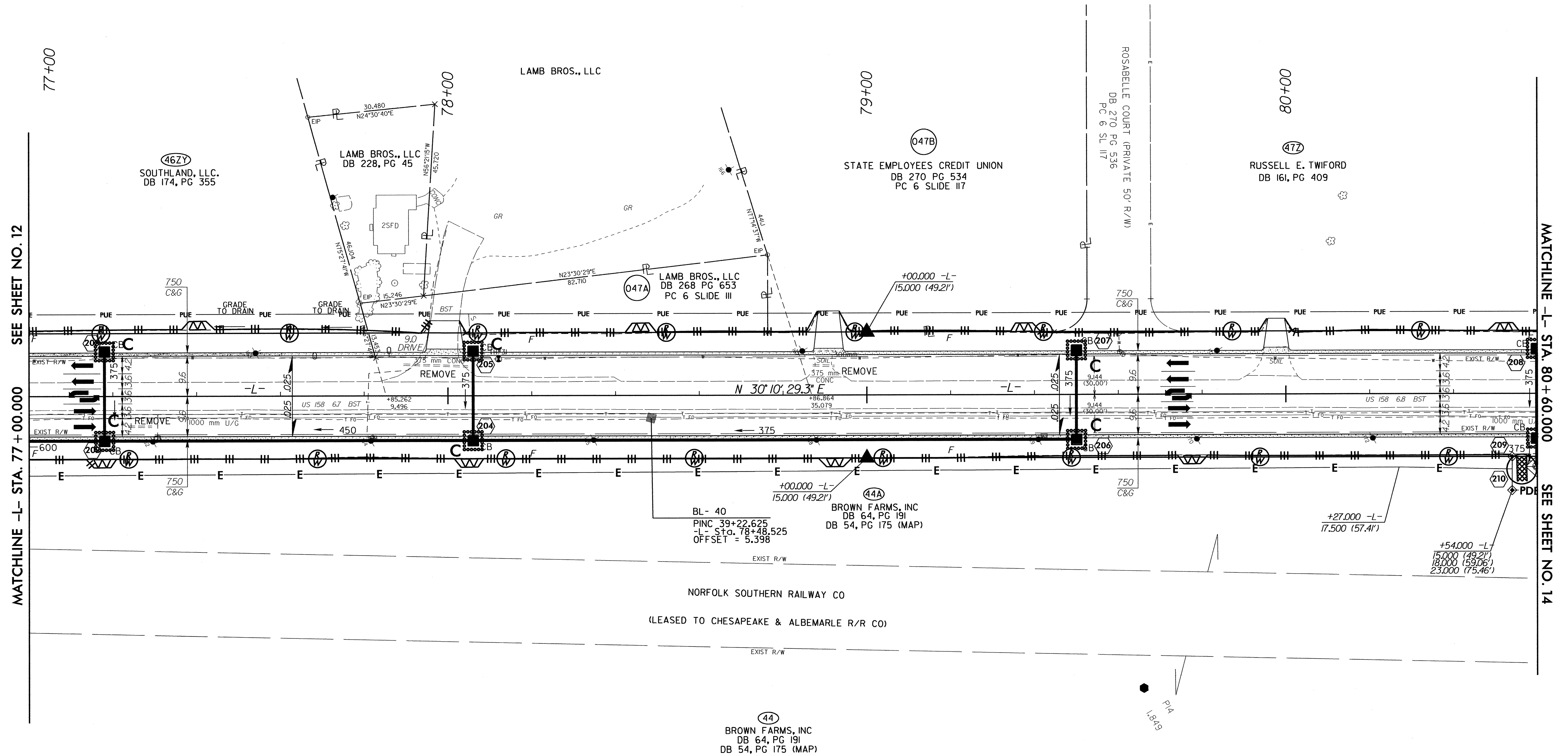
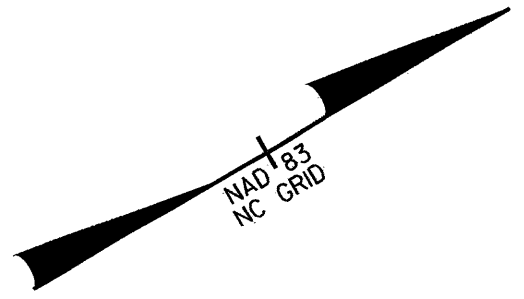


-L-
PI Sta 72+27.319
Δ = 8' 5" 20" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H





PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-34/CONST13
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
CONST. REV.		
R/W REV.		




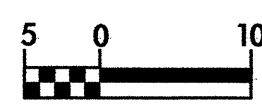
SEE SHEET NO. 12

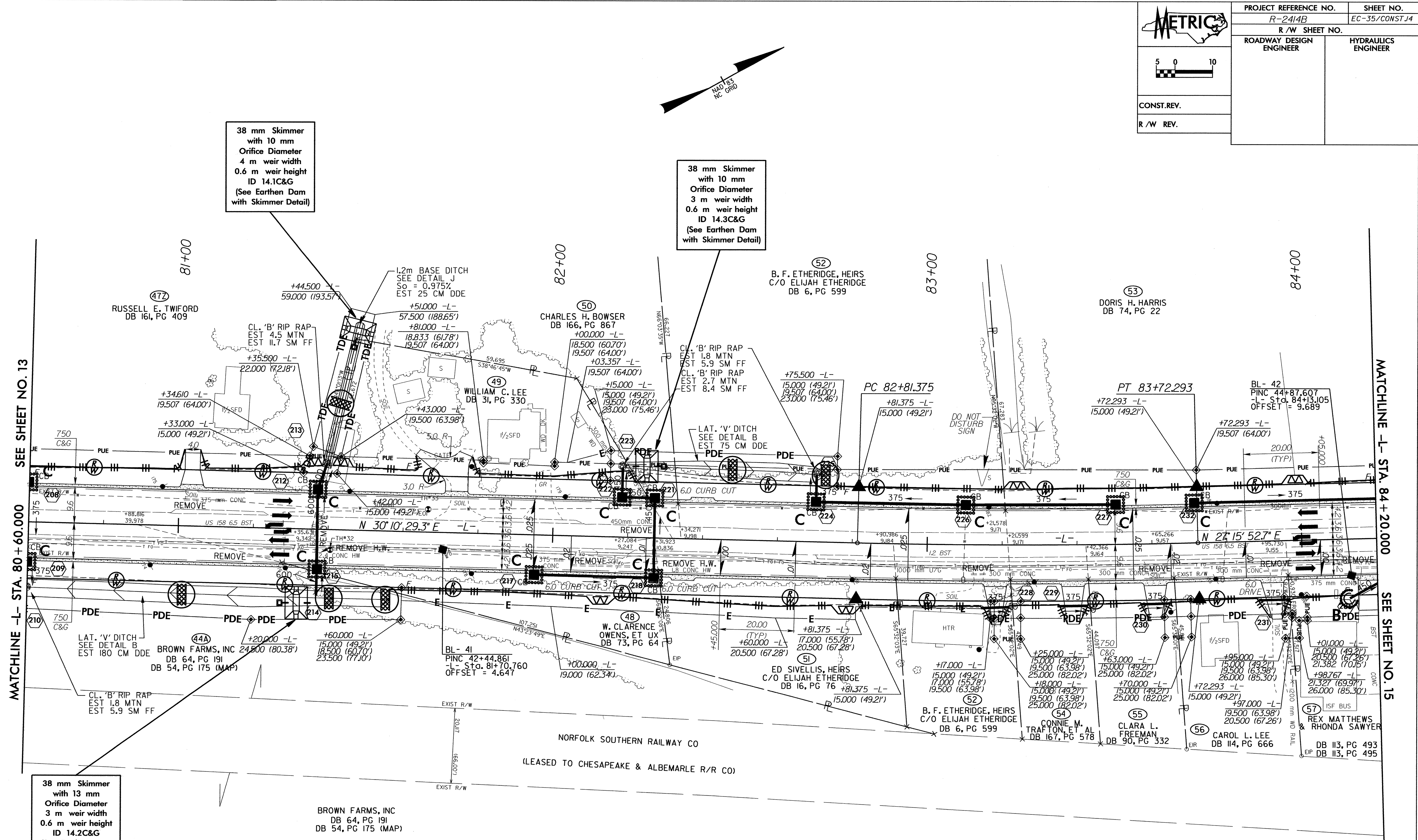
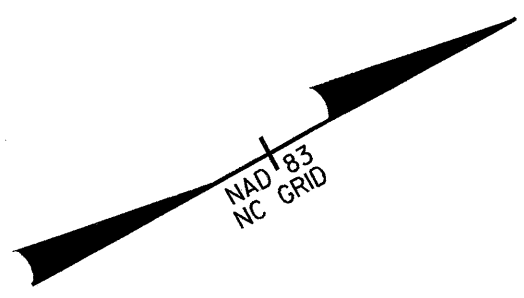
MATCHLINE -L- STA. 77 + 00.000

MATCHLINE -L- STA. 80 + 60.000

SEE SHEET NO. 14

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 m.duglisch

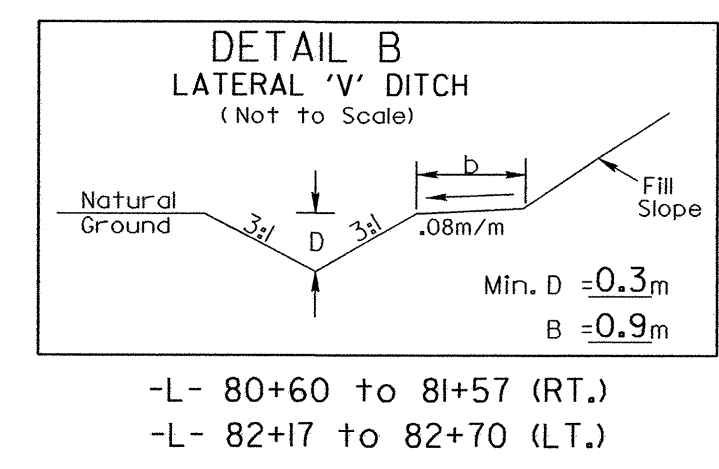
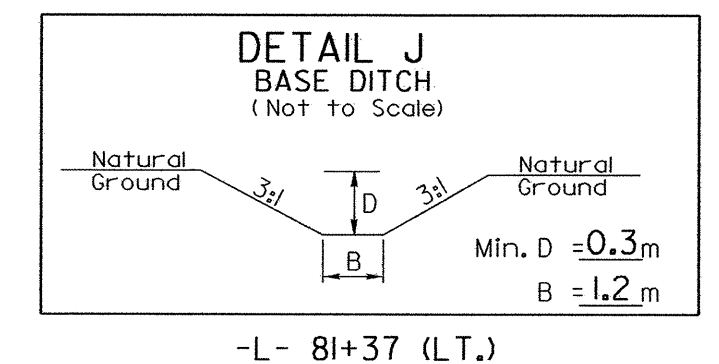
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	R-2414B	EC-35/CONST.14
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.		
R/W REV.		



38 mm Skimmer
with 10 mm
Orifice Diameter
4 m weir width
0.6 m weir height
ID 14.1C&G
(See Earthen Dam
with Skimmer Detail)

38 mm Skimmer
with 10 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 14.3C&G
(See Earthen Dam
with Skimmer Detail)

38 mm Skimmer
with 13 mm
Orifice Diameter
3 m weir width
0.6 m weir height
ID 14.2C&G
(See Earthen Dam
with Skimmer Detail)

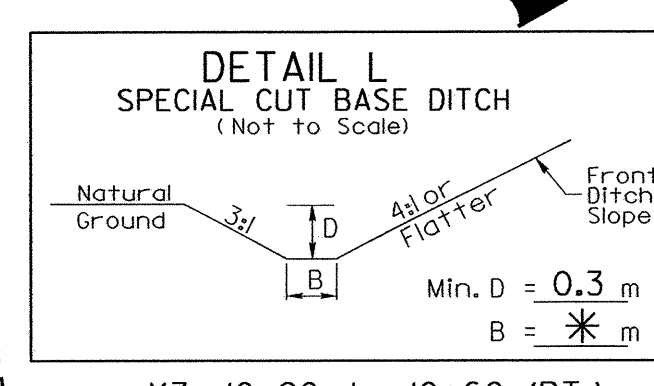
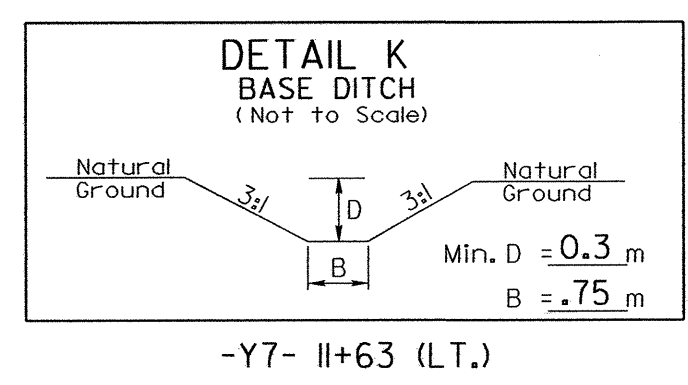
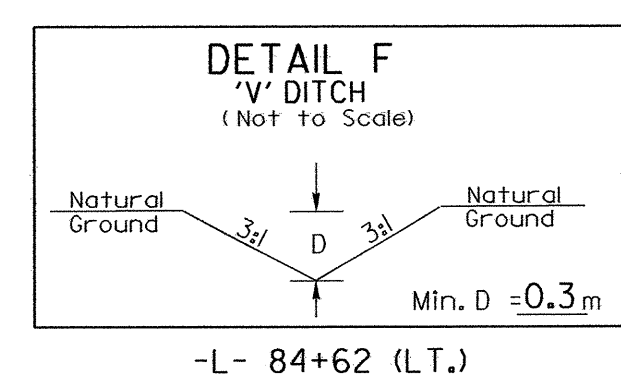


-L-
PI Sta 83+26.844
 $\Delta = 2' 54'' 36.6''$ (LT)
L = 90.918
T = 45.469
R = 1,790.000
SE = 0.025
R'OFF = 50.625
DS = 80 KM/H

23-OCT-2011 09:09
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 m...



PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-36/CONST.15
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
CONST.REV.	
R/W REV.	



38 mm Skimmer
with 10 mm
Orifice Diameter
5 m weir width
0.6 m weir height
ID 15.1C&G
(See Earthen Dam
with Skimmer Detail)

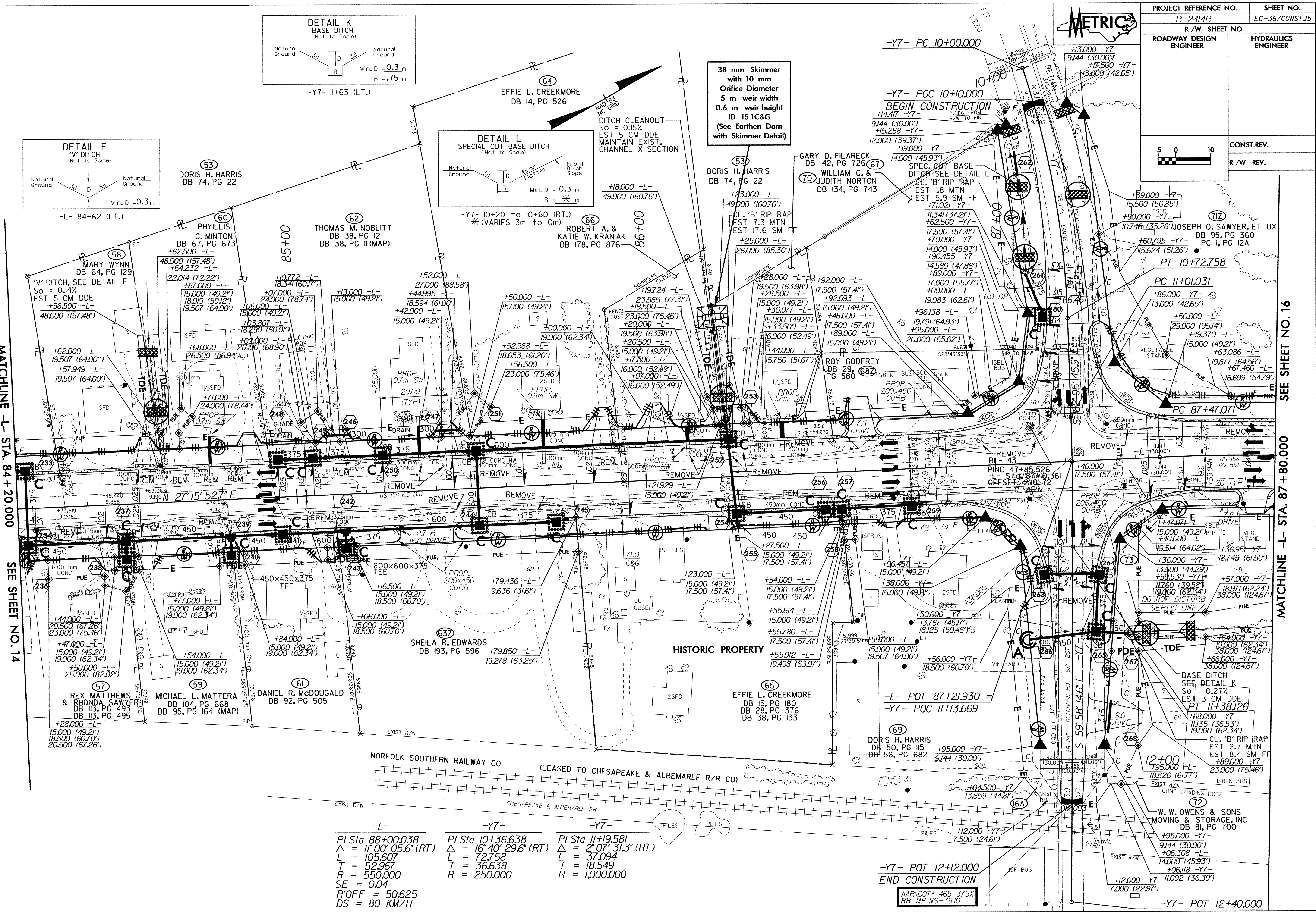
DITCH CLEANOUT
So = 0.15%
EST 5 CM DDE
MAINTAIN EXIST.
CHANNEL X-SECTION

MATCHLINE -L- STA. 84+20.000

SEE SHEET NO. 14

MATCHLINE -L- STA. 87+80.000

SEE SHEET NO. 16



-L-	-Y7-	-Y7-
PI Sta 88+00.038	PI Sta 10+36.638	PI Sta 11+19.581
$\Delta = 11' 00'' 05.6''$ (RT)	$\Delta = 16' 40'' 29.6''$ (RT)	$\Delta = 2' 07'' 31.3''$ (RT)
L = 105.607	L = 72.758	L = 37.094
T = 52.967	T = 36.638	T = 18.549
R = 550.000	R = 250.000	R = 1,000.000
SE = 0.04		
R'OFF = 50.625		
DS = 80 KM/H		

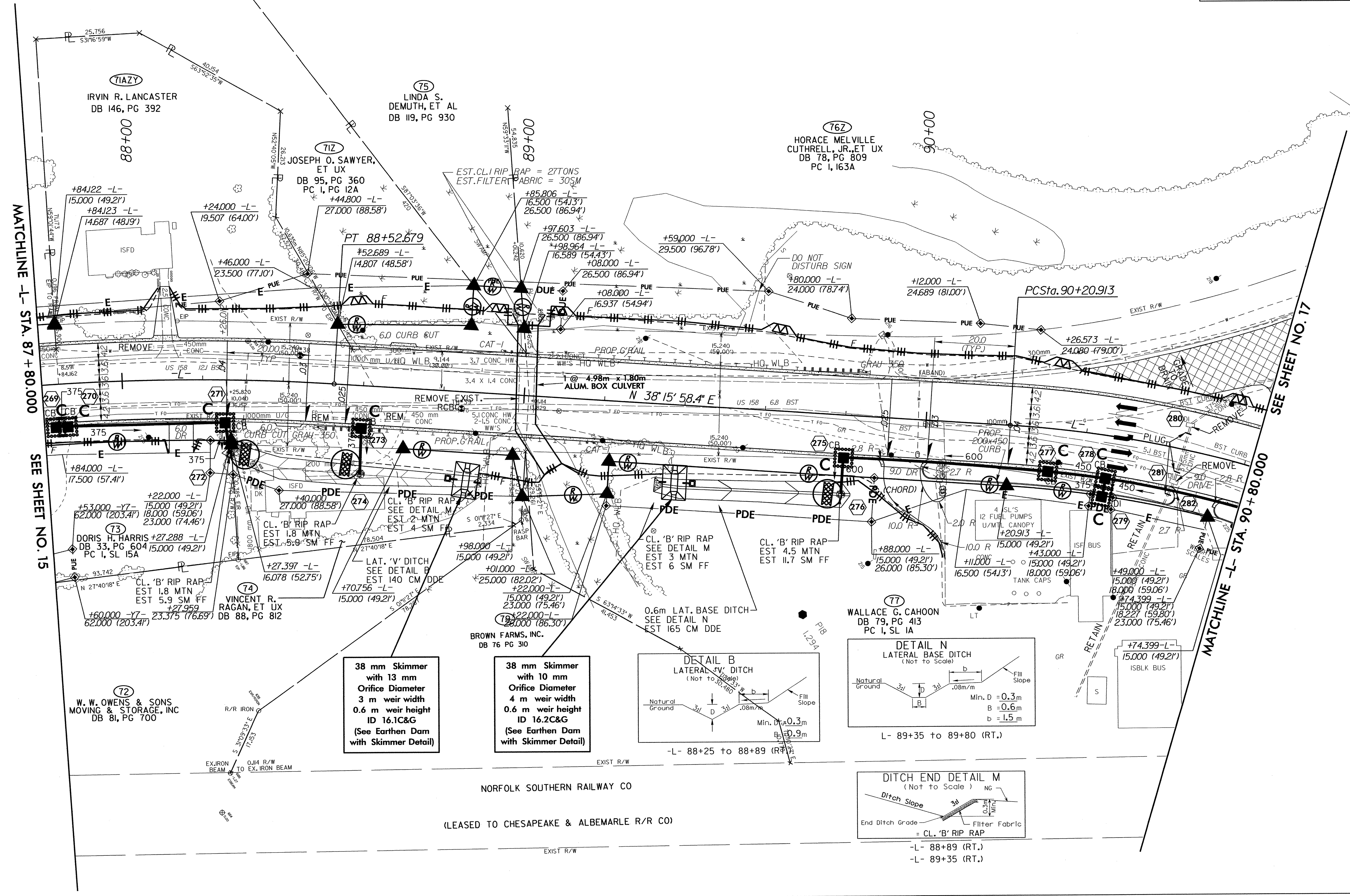
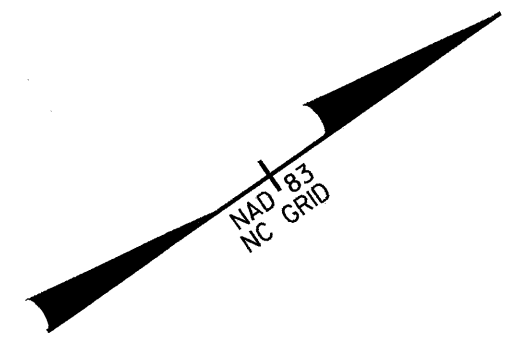
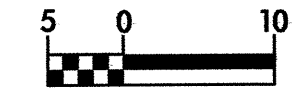
-Y7- POT 12+12.000
END CONSTRUCTION

AAR.DOT 465 375X
RR MF.NS-3910

21-OCT-2011 09:41 R:\Projects\2414B\EC\pnh15.dgn

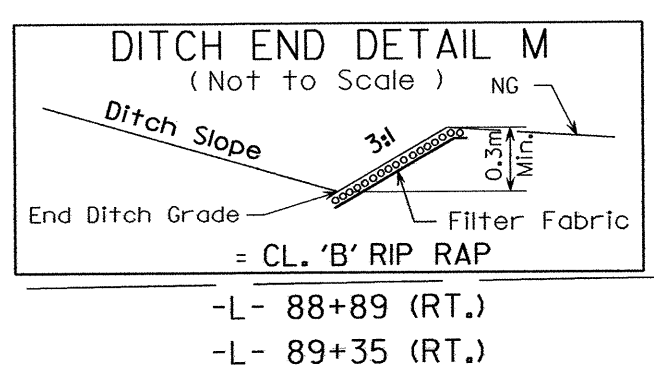
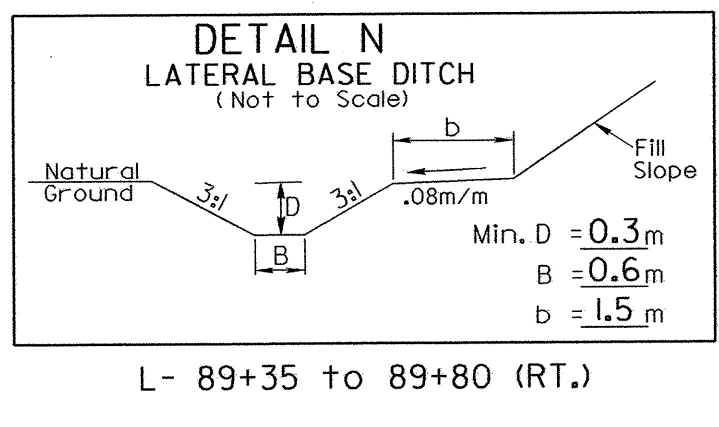
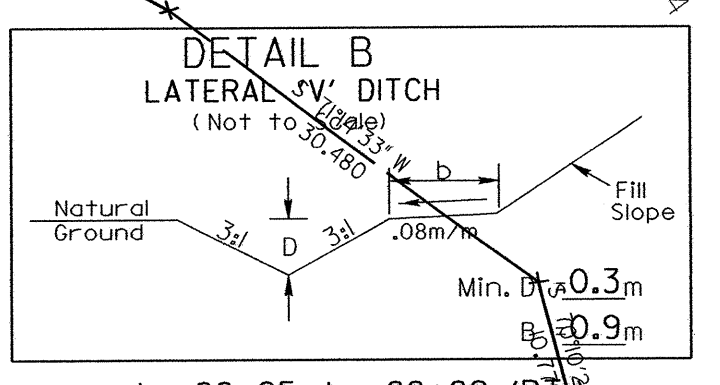


PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-37/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



38 mm Skimmer with 13 mm Orifice Diameter
 3 m weir width
 0.6 m weir height
 ID 16.1C&G
 (See Earthen Dam with Skimmer Detail)

38 mm Skimmer with 10 mm Orifice Diameter
 4 m weir width
 0.6 m weir height
 ID 16.2C&G
 (See Earthen Dam with Skimmer Detail)



23-OCT-2011 12:41 PM
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 6/20/2011

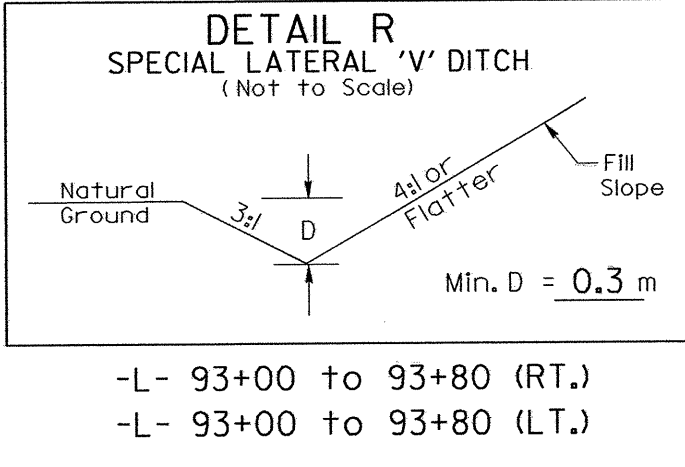
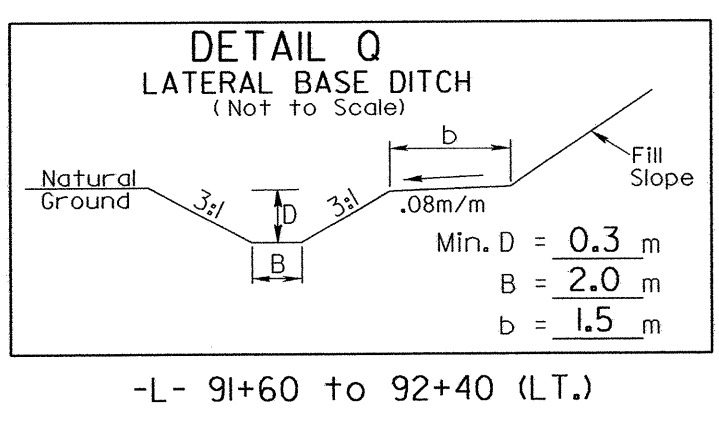
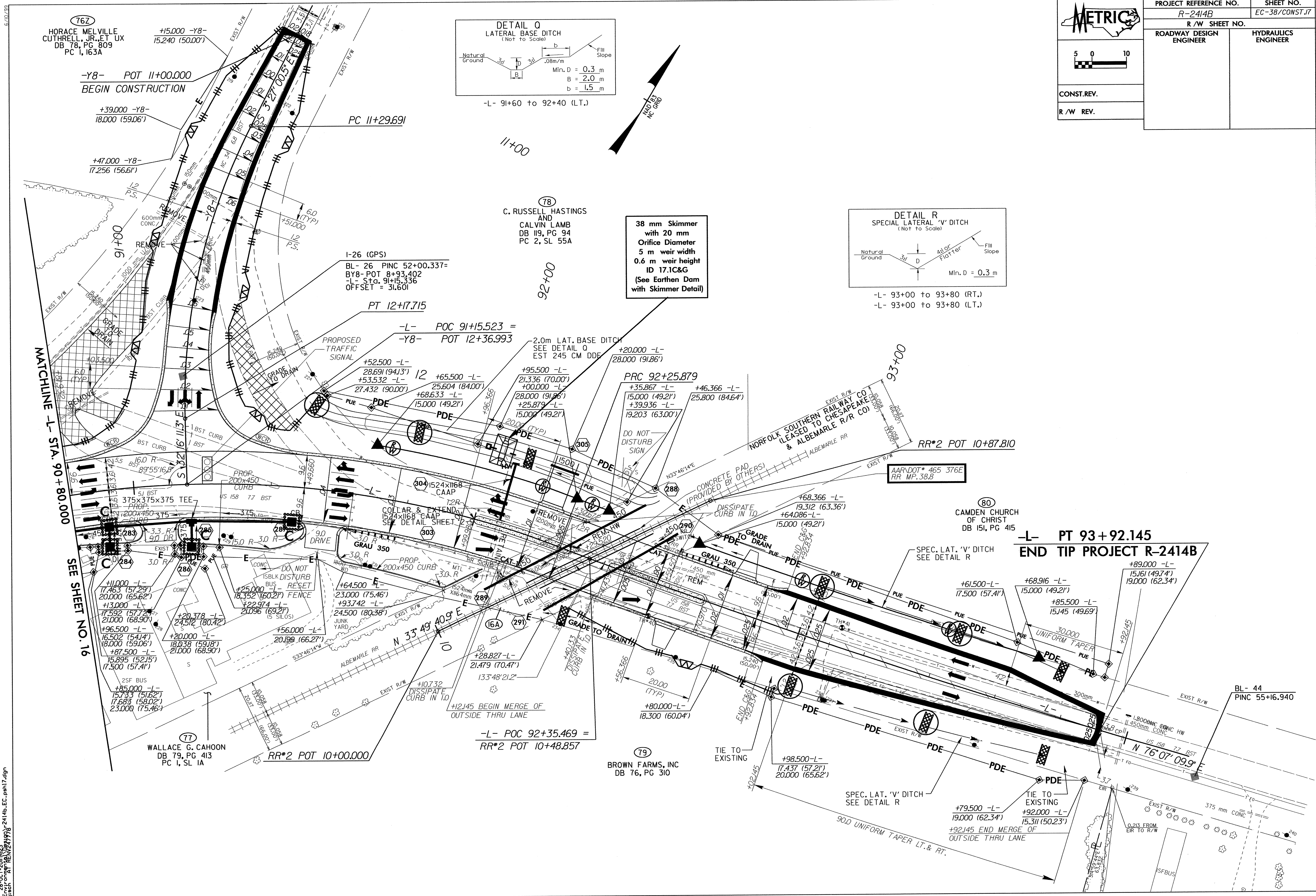
METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO. R-2414B	SHEET NO. EC-38/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



38 mm Skimmer with 20 mm Orifice Diameter
5 m weir width
0.6 m weir height
ID 17.1C&G
(See Earthen Dam with Skimmer Detail)

(76Z)
HORACE MELVILLE
CUTHRELL, JR., ET UX
DB 78, PG 809
PC 1, 163A

(78)
C. RUSSELL HASTINGS
AND
CALVIN LAMB
DB 119, PG 94
PC 2, SL 55A

(80)
CAMDEN CHURCH
OF CHRIST
DB 151, PG 415

(77)
WALLACE G. CAHOON
DB 79, PG 413
PC 1, SL 1A

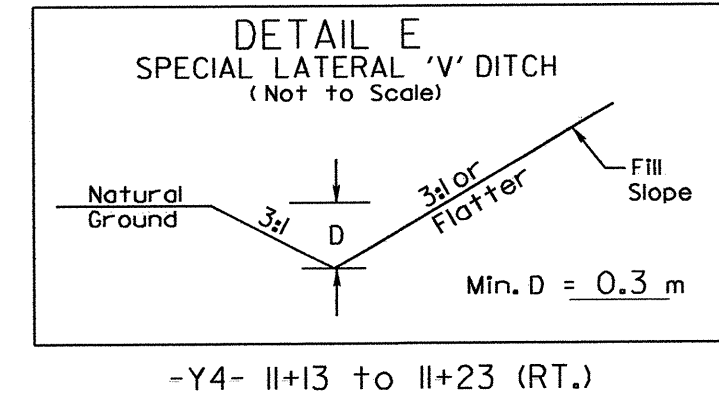
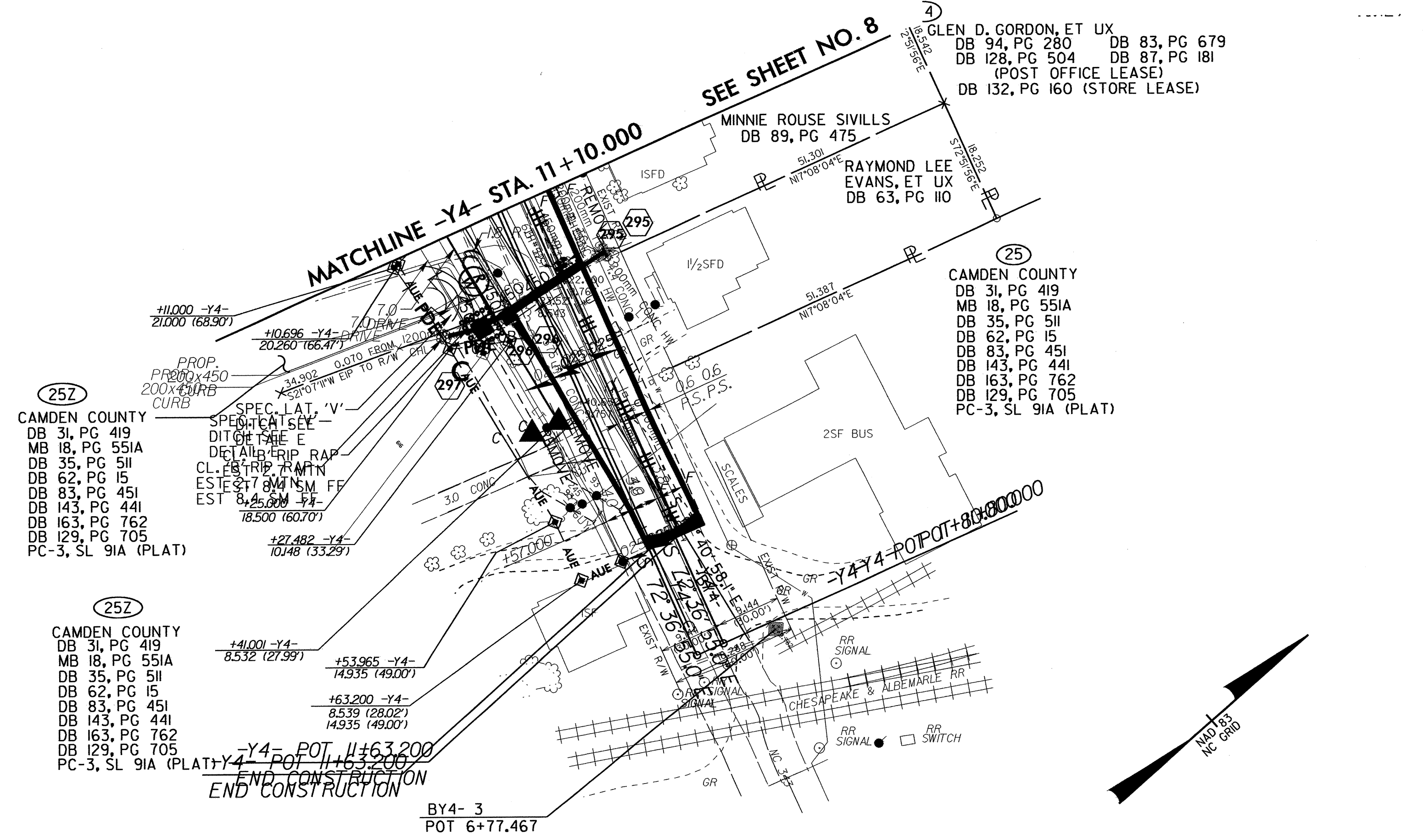
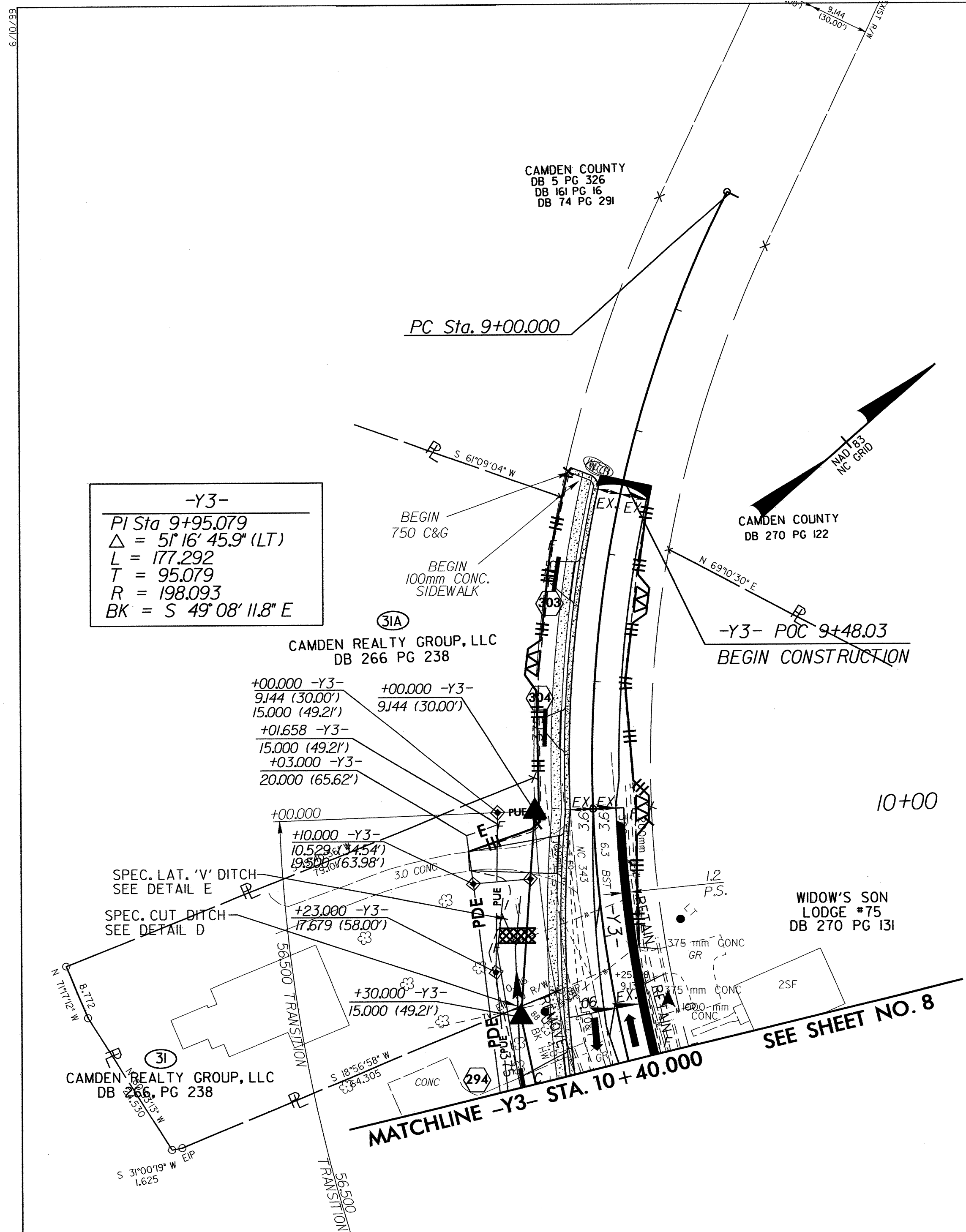
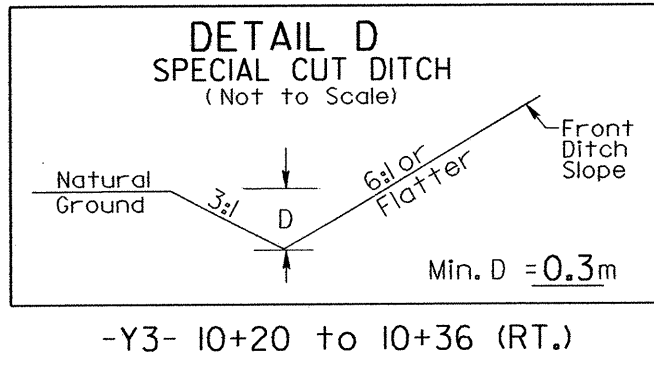
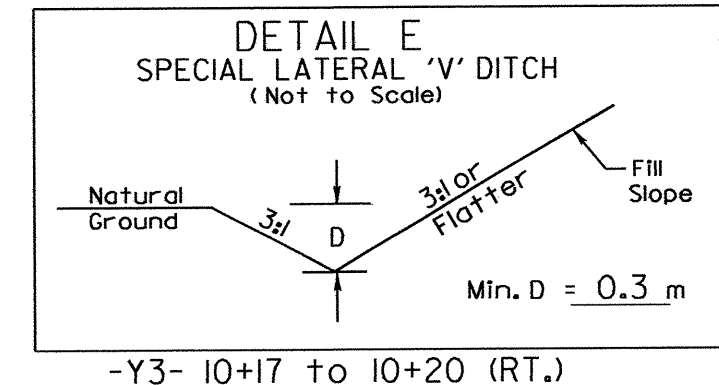
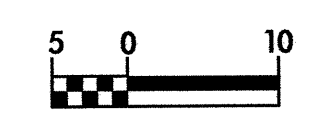
(79)
BROWN FARMS, INC
DB 76, PG 310

BL- 44
PINC 55+16.940

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PROJECT REFERENCE NO. R-2414B		SHEET NO. EC-39/CONST.18	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
CONST. REV.			
R/W REV.			



6/10/09
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