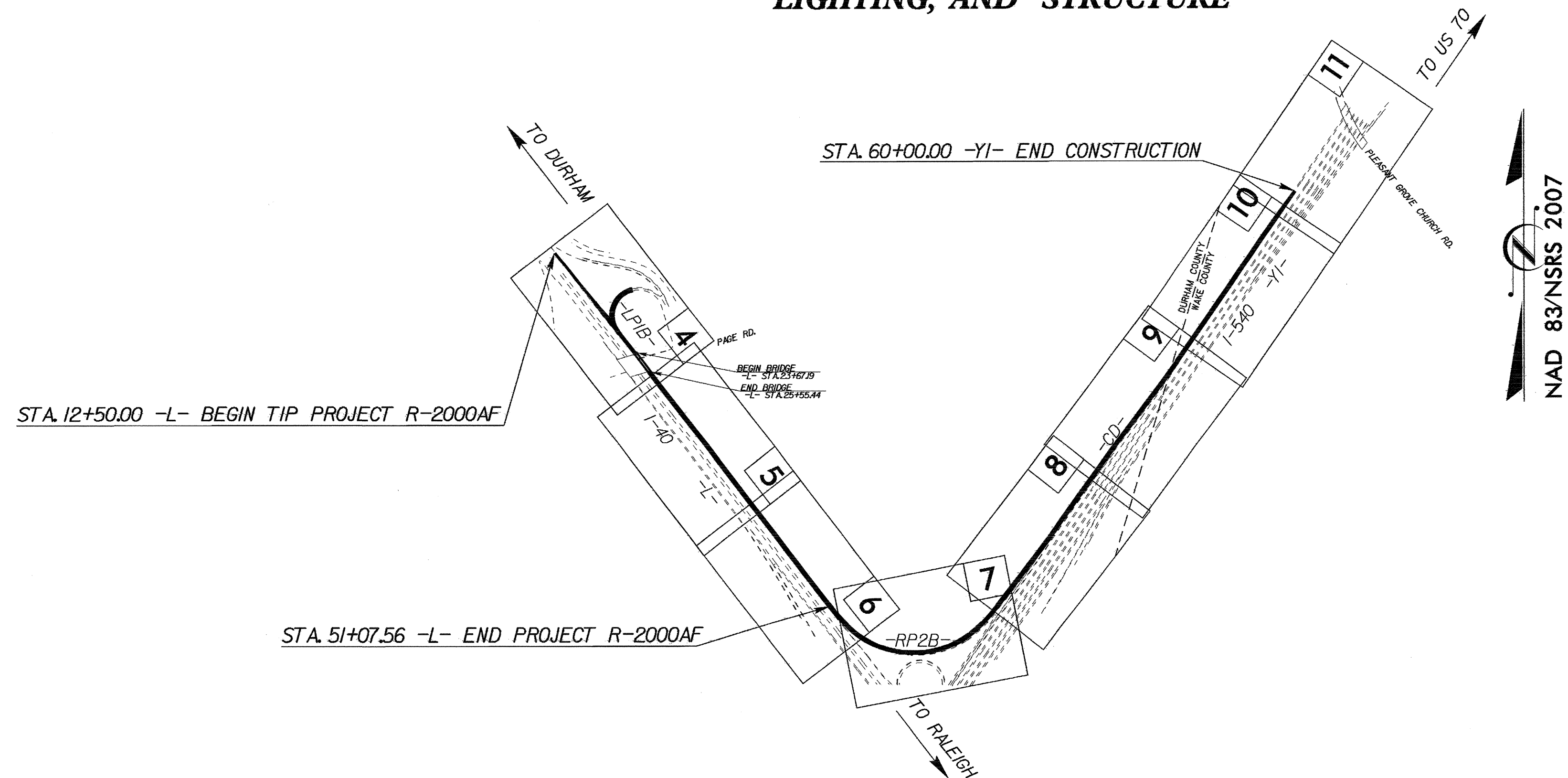


TIP PROJECT: R-2000AF

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 PLAN FOR PROPOSED
 HIGHWAY EROSION CONTROL
WAKE & DURHAM COUNTIES

**LOCATION: NORTHERN WAKE FREEWAY
 INTERCHANGE IMPROVEMENTS AT I-540 AND I-40**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNING,
 LIGHTING, AND STRUCTURE**



| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | R-2000AF | EC-1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| | | | |
| | | | |
| | | | |

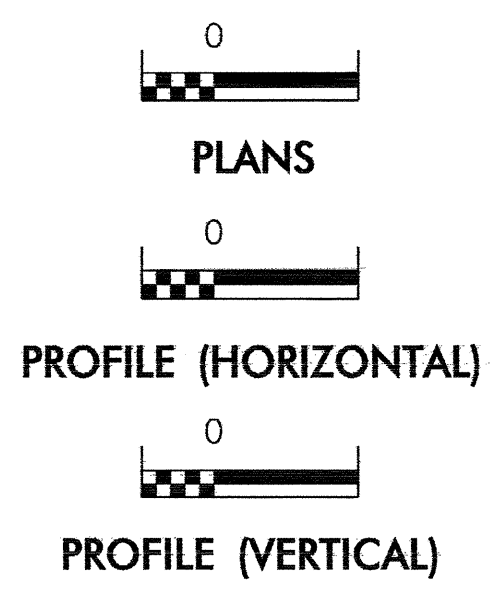
EROSION AND SEDIMENT CONTROL MEASURES

| Std. # | Description | Symbol |
|---------|--|-----------|
| 1630.03 | Temporary Silt Ditch | TD |
| 1630.05 | Temporary Diversion | TD |
| 1605.01 | Temporary Silt Fence | TSF |
| 1606.01 | Special Sediment Control Fence | SSCF |
| 1622.01 | Temporary Berms and Slope Drains | TBSD |
| | Silt Basin Type B | SBTB |
| 1633.01 | Temporary Rock Silt Check Type-A | TRSCA |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | TRSCA-PAM |
| | Temporary Rock Silt Check Type-B | TRSCB |
| | Wattle | W |
| 1634.01 | Temporary Rock Sediment Dam Type-A | TRSDA |
| 1634.02 | Temporary Rock Sediment Dam Type-B | TRSDB |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | RPISA |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B | RPISB |
| 1630.04 | Stilling Basin | SB |
| 1630.06 | Special Stilling Basin | SSB |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A | A |
| 1632.02 | Type B | B |
| 1632.03 | Type C | C |
| | Skimmer Basin | SKB |
| | Tiered Skimmer Basin | TSKB |
| | Infiltration Basin | IB |

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

**THIS PROJECT HAS
 BEEN DESIGNED TO
 SENSITIVE WATERSHED
 STANDARDS.**

GRAPHIC SCALE



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

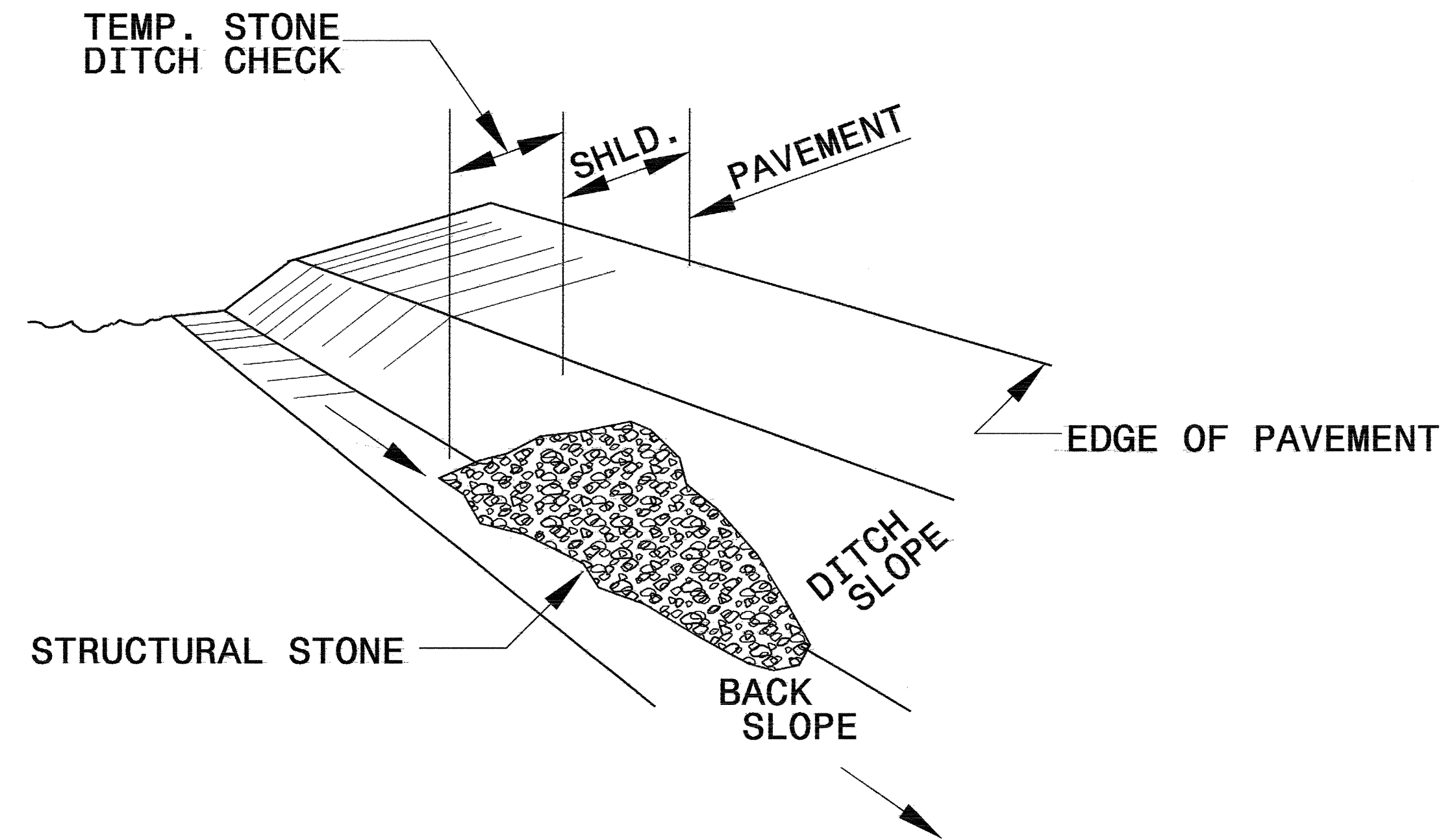
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

| | |
|--|--|
| 1605.01 Temporary Silt Fence | 1632.01 Rock Inlet Sediment Trap Type A |
| 1606.01 Special Sediment Control Fence | 1632.03 Rock Inlet Sediment Trap Type C |
| 1607.01 Gravel Construction Entrance | 1633.01 Temporary Rock Silt Check Type A |
| 1622.01 Temporary Berms and Slope Drains | 1634.02 Temporary Rock Sediment Dam Type B |
| 1630.05 Temporary Diversion | 1635.01 Rock Pipe Inlet Sediment Trap Type A |

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 cad:saah

| | |
|-----------------------------------|---------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-2 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

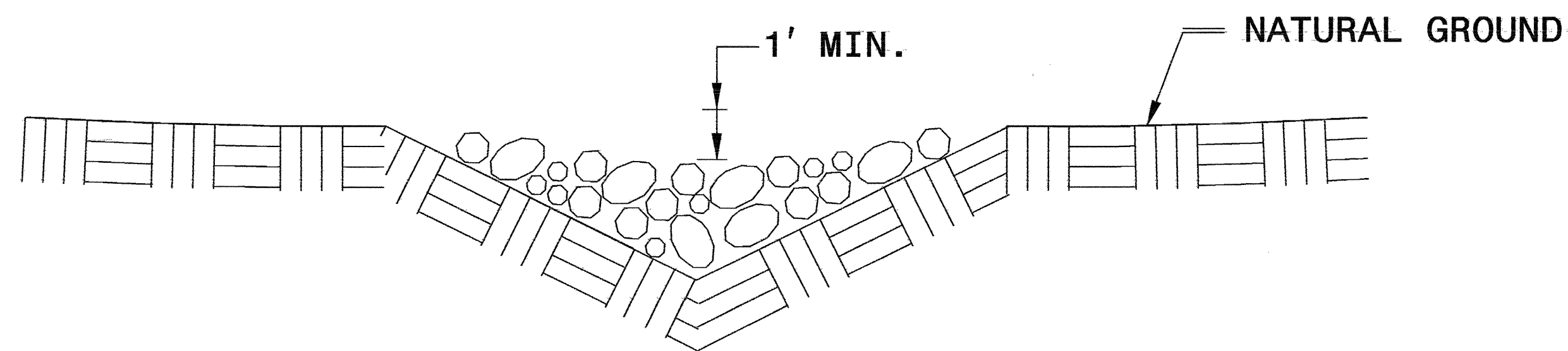


ISOMETRIC VIEW

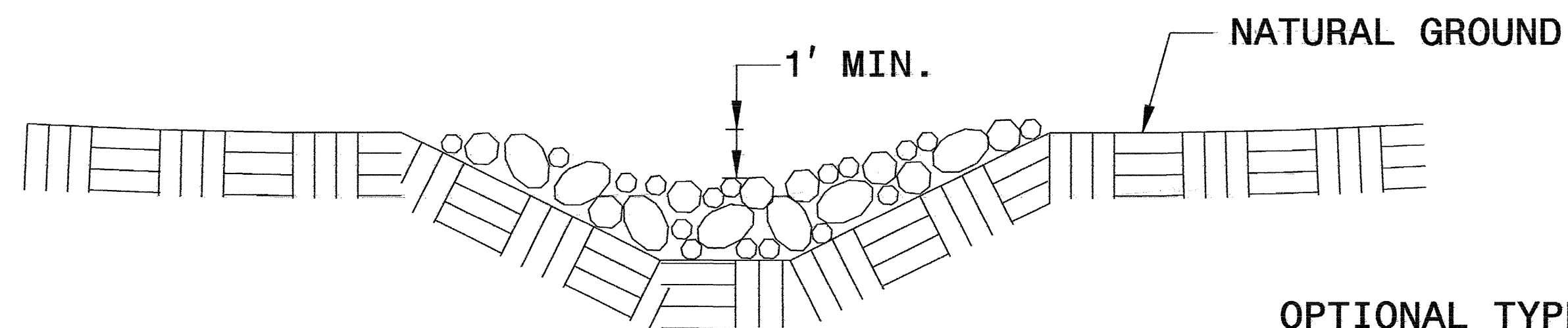
NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

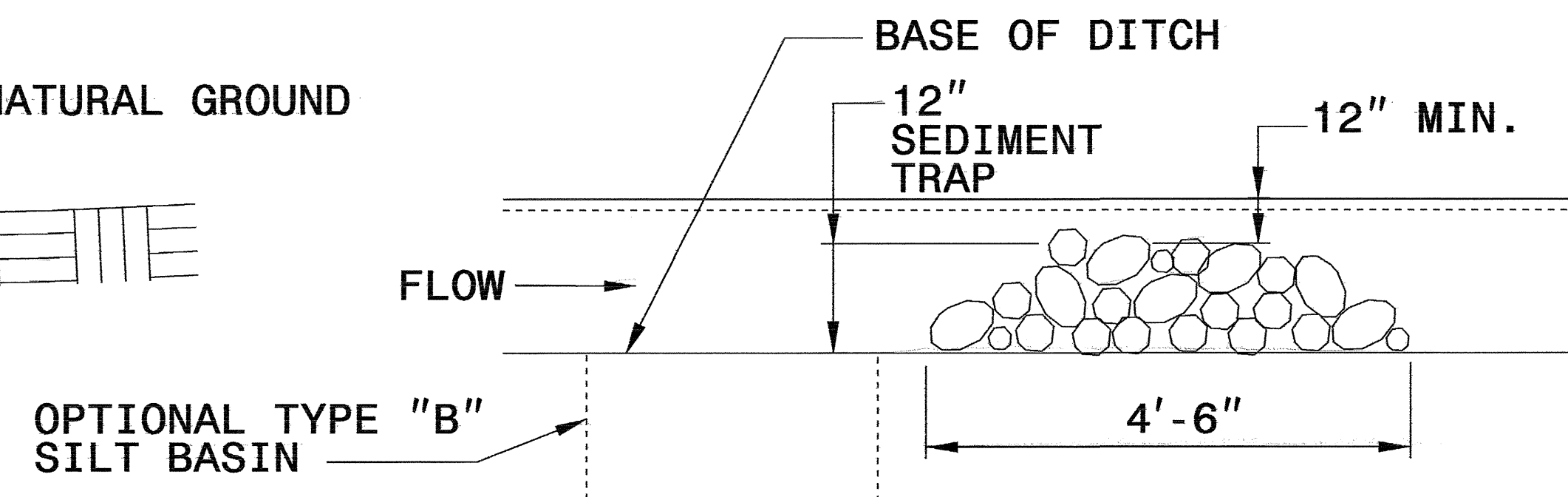
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



**CROSS SECTION
VEE DITCH**



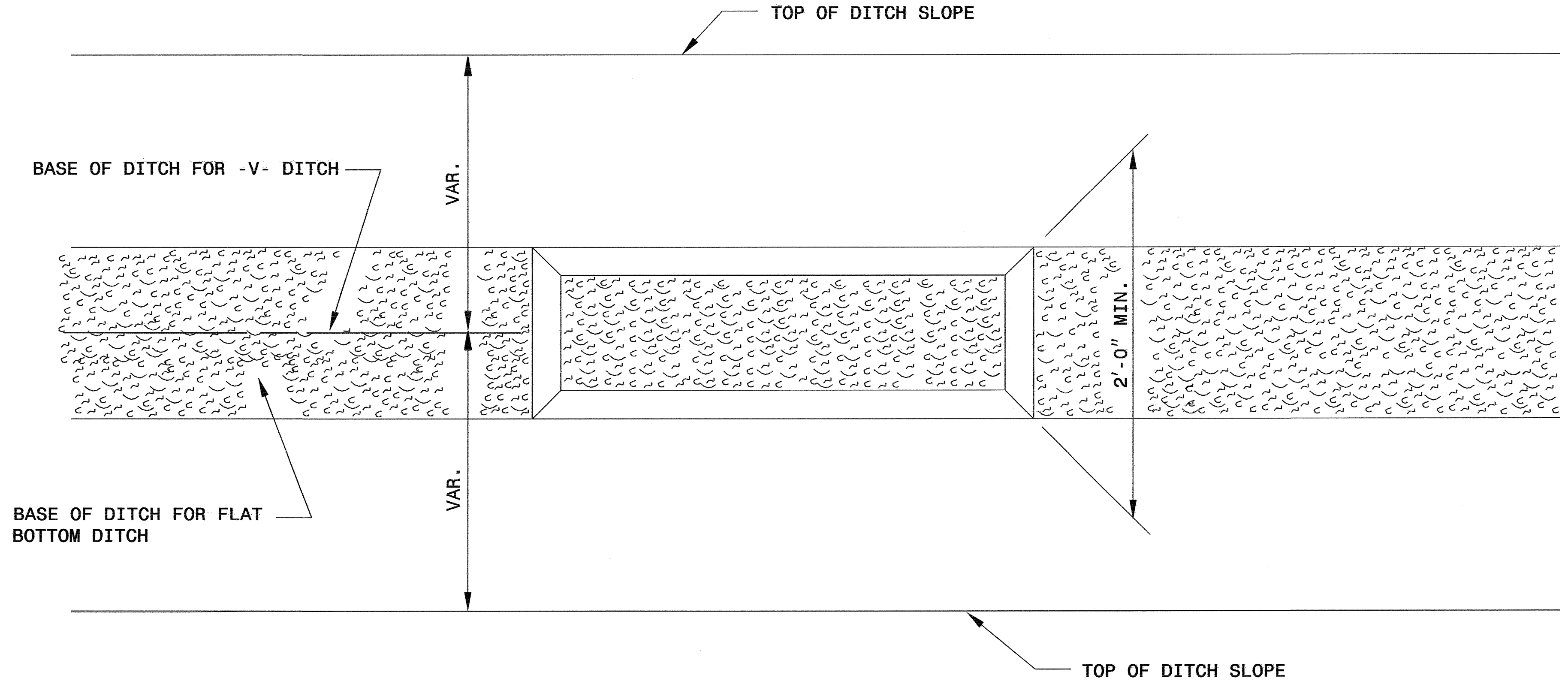
**CROSS SECTION
TRAPEZOIDAL DITCH**



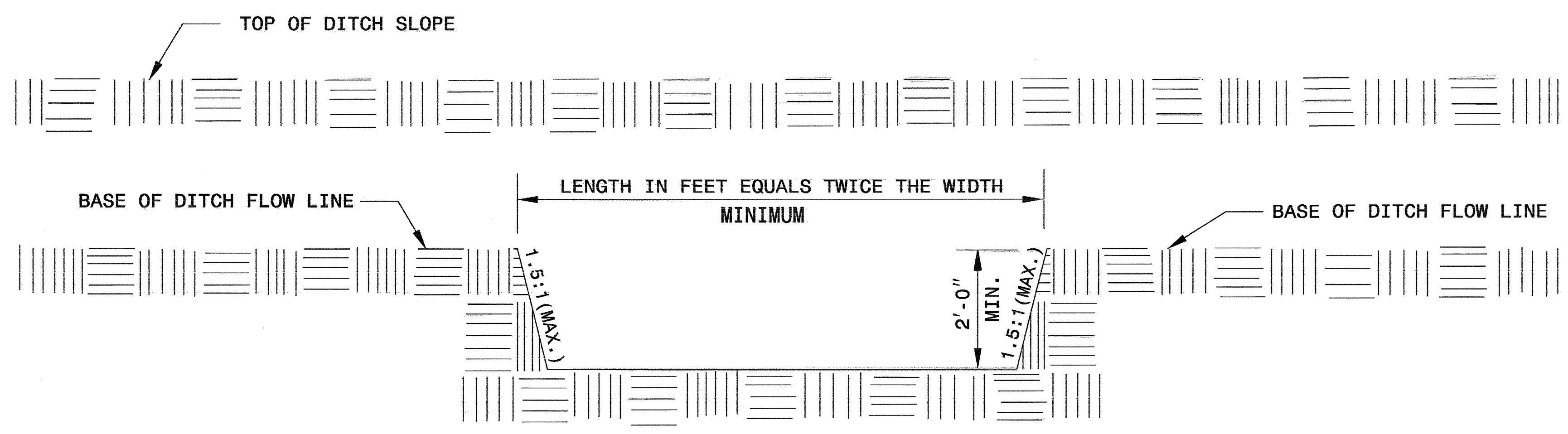
ELEVATION VIEW

| | |
|--|---------------------------|
| PROJECT REFERENCE NO. <i>R-2000AF</i> | SHEET NO. <i>EC-2A</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

SILT BASIN 'B' DETAIL



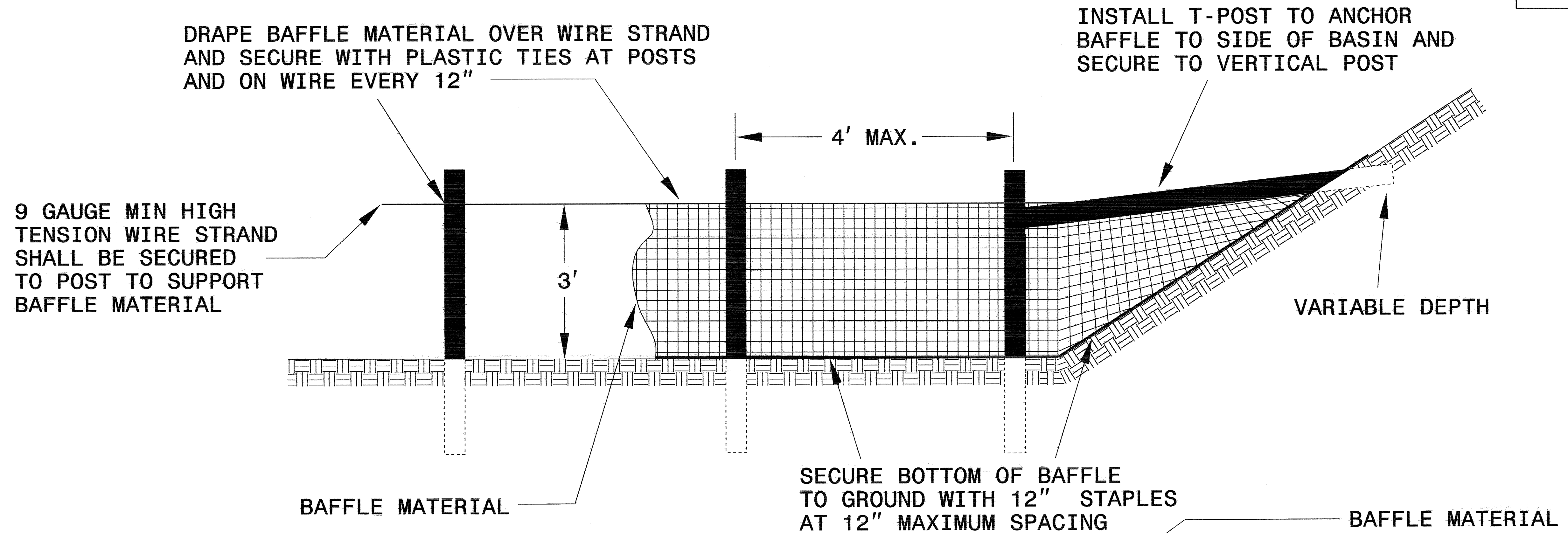
PLAN



ELEVATION

| | |
|-----------------------------------|------------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-2B |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

COIR FIBER BAFFLE DETAIL

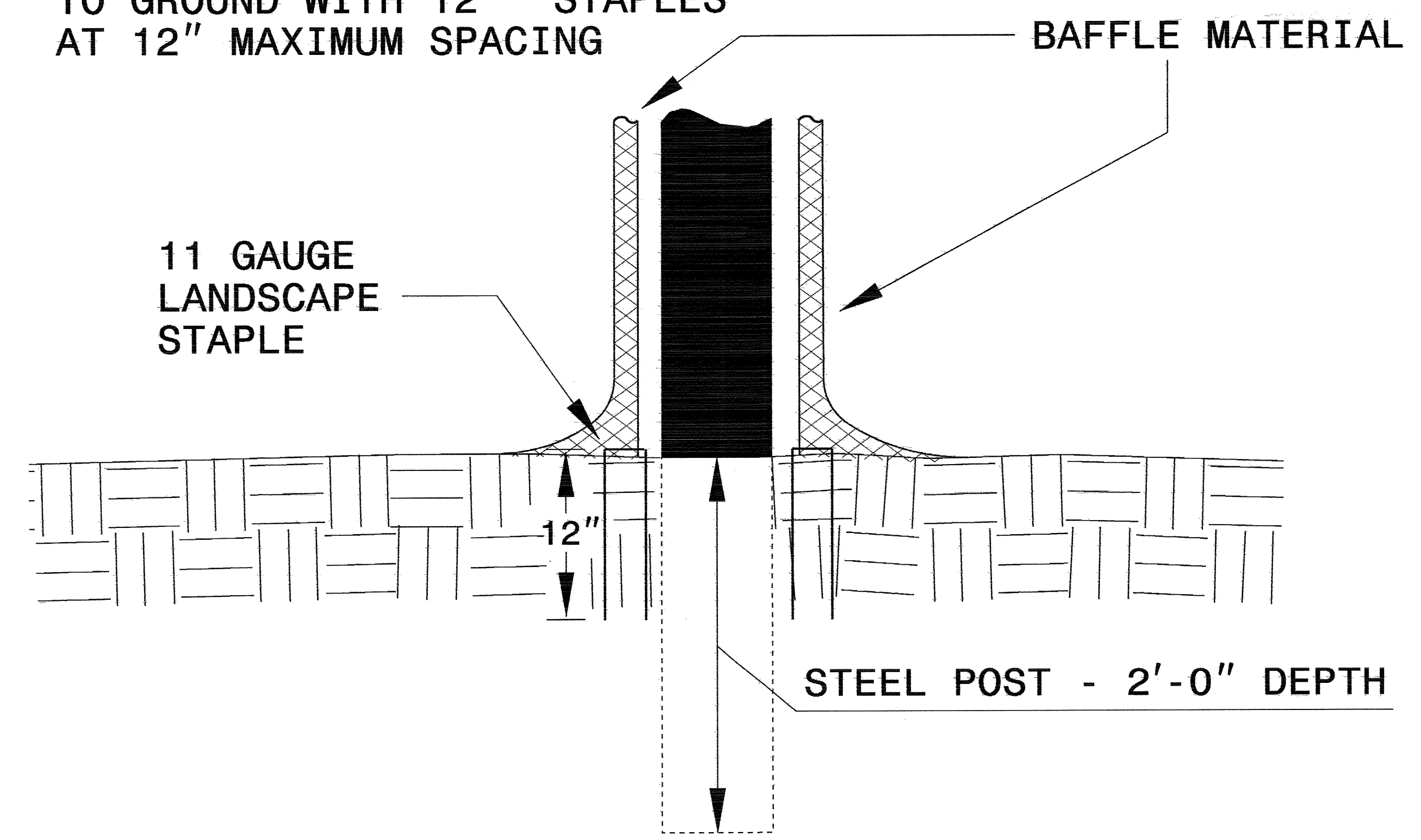


NOTES:

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 20 FT. IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

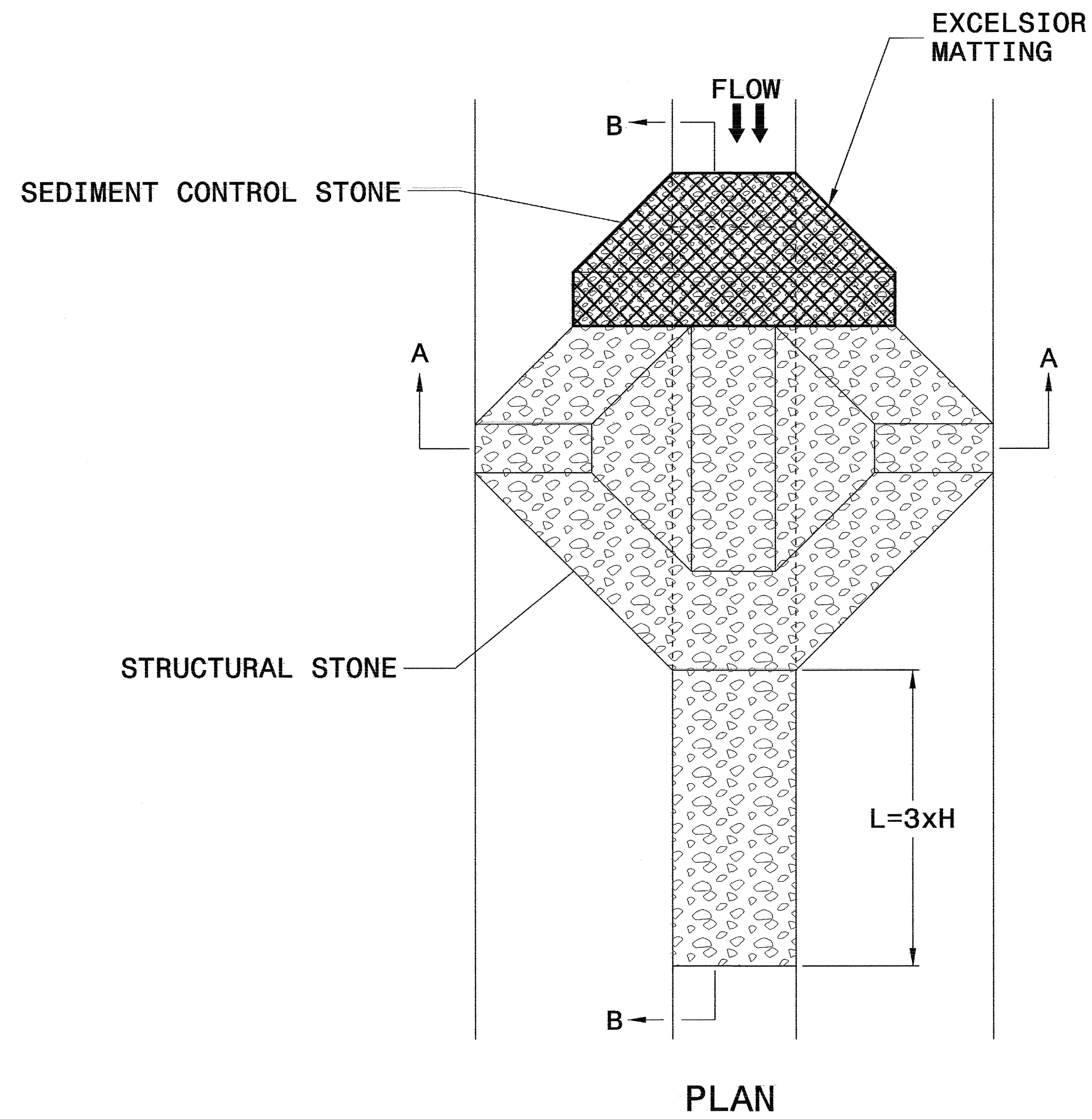
3. TOP HEIGHT OF COIR FIBER BAFFLES SHALL NOT BE BELOW BASE OF EMERGENCY SPILLWAY ELEVATION.



BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

| | |
|-----------------------------------|---------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-2C |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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

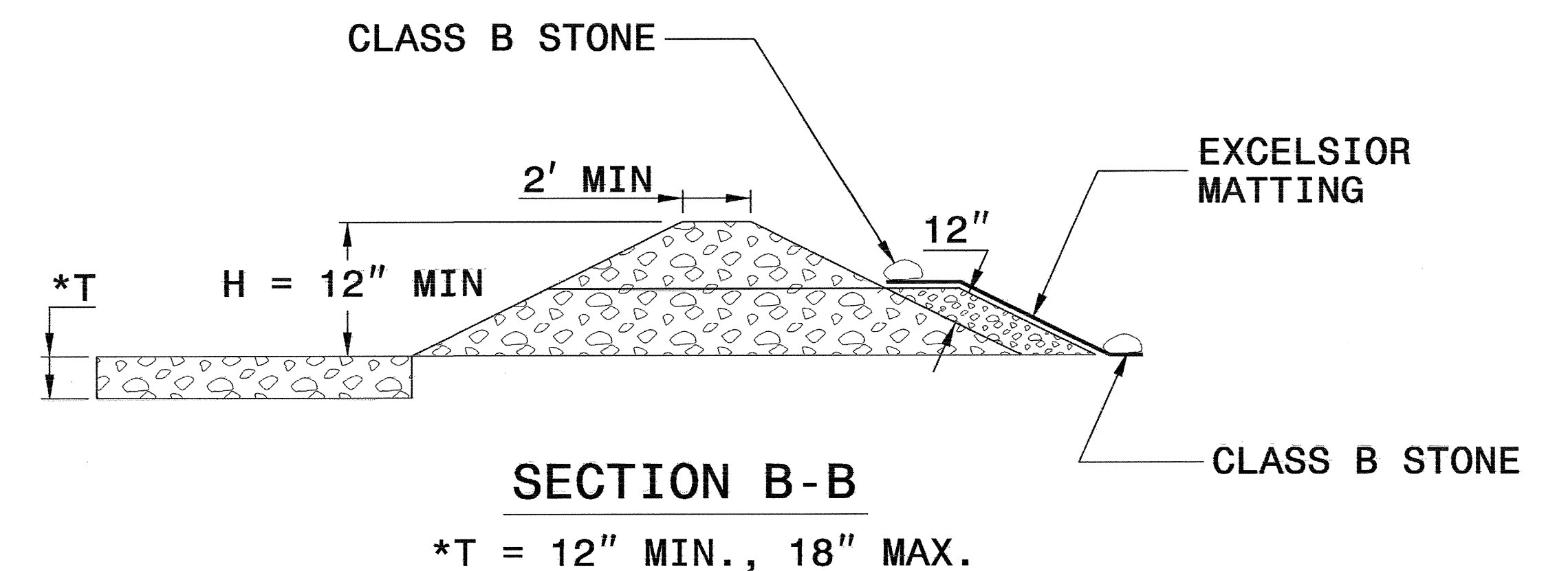
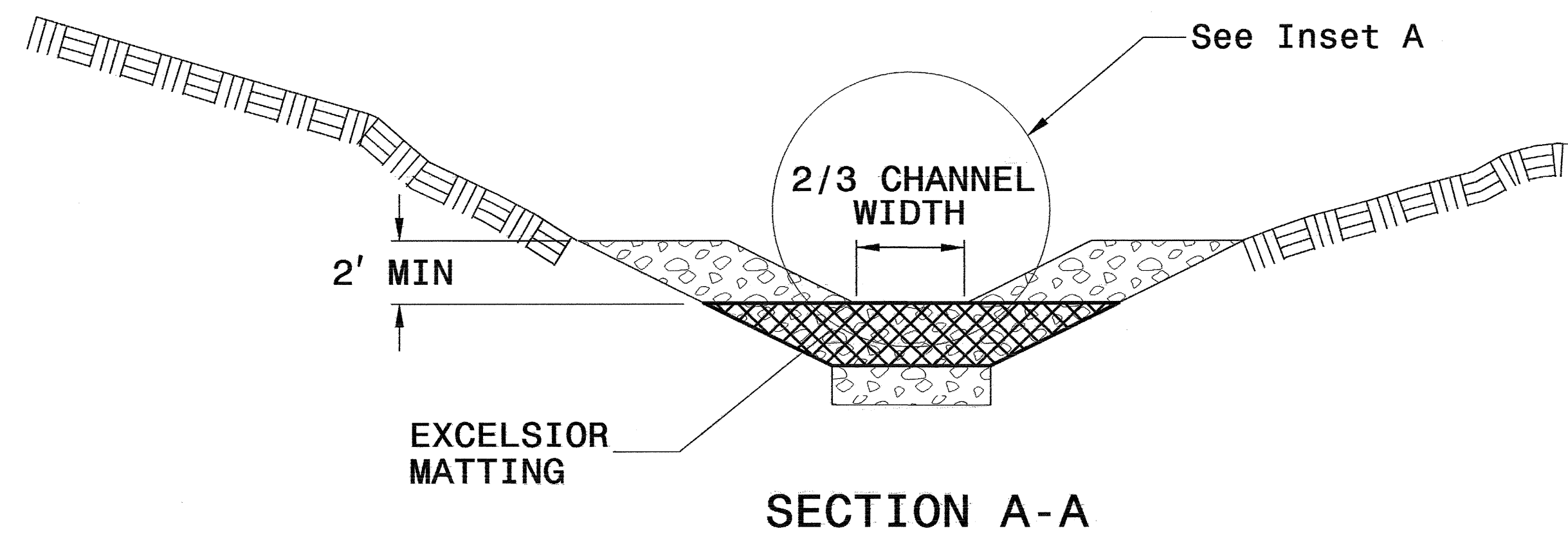
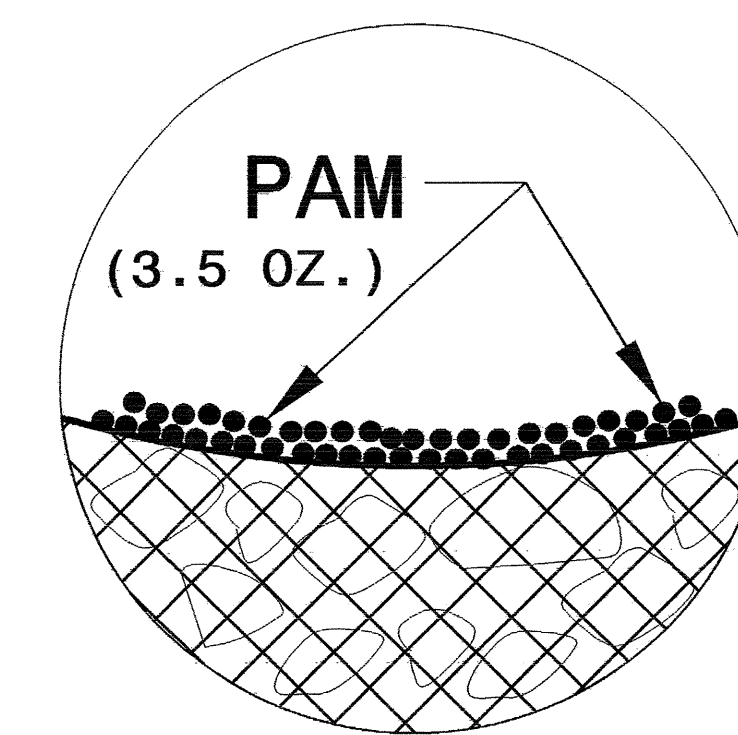


NOTES

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.

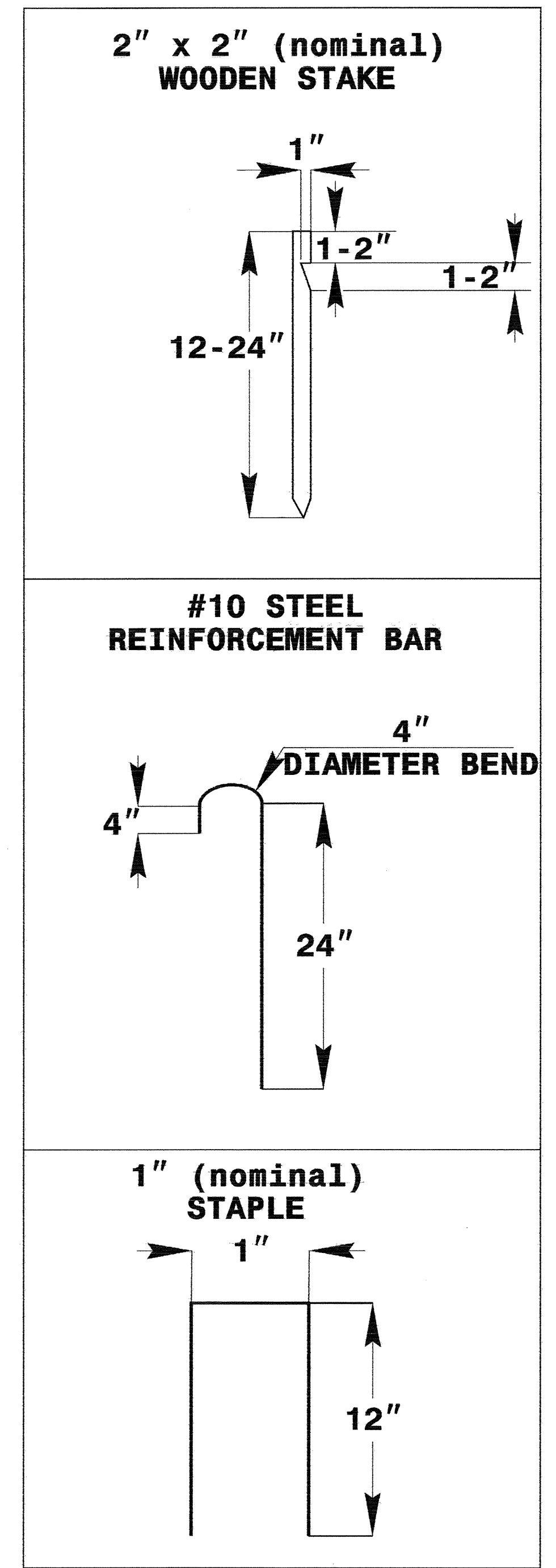
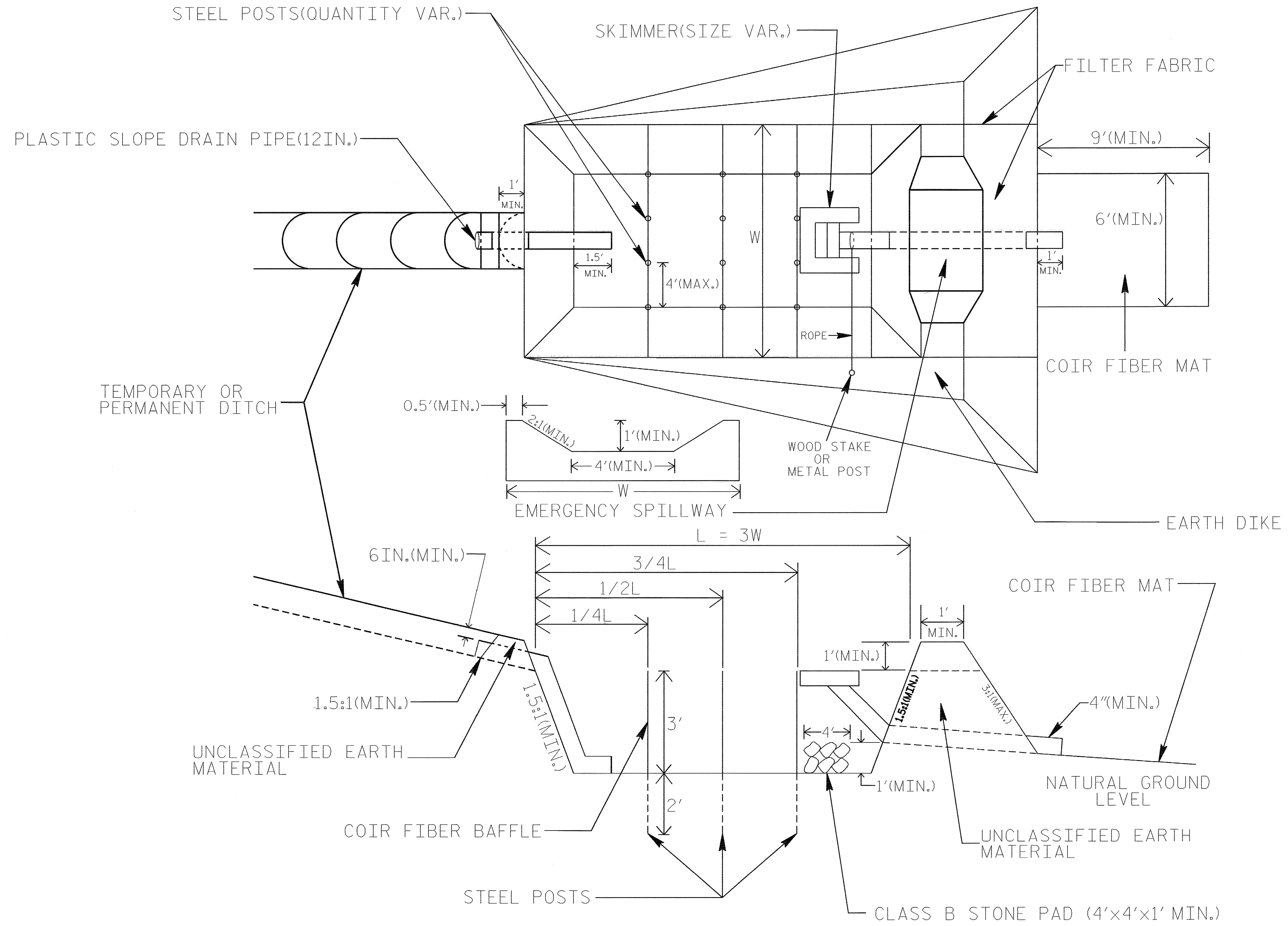
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

SKIMMER BASIN WITH BAFFLES DETAIL

| | |
|-----------------------------------|---------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-2D |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



COIR FIBER MAT ANCHOR OPTIONS

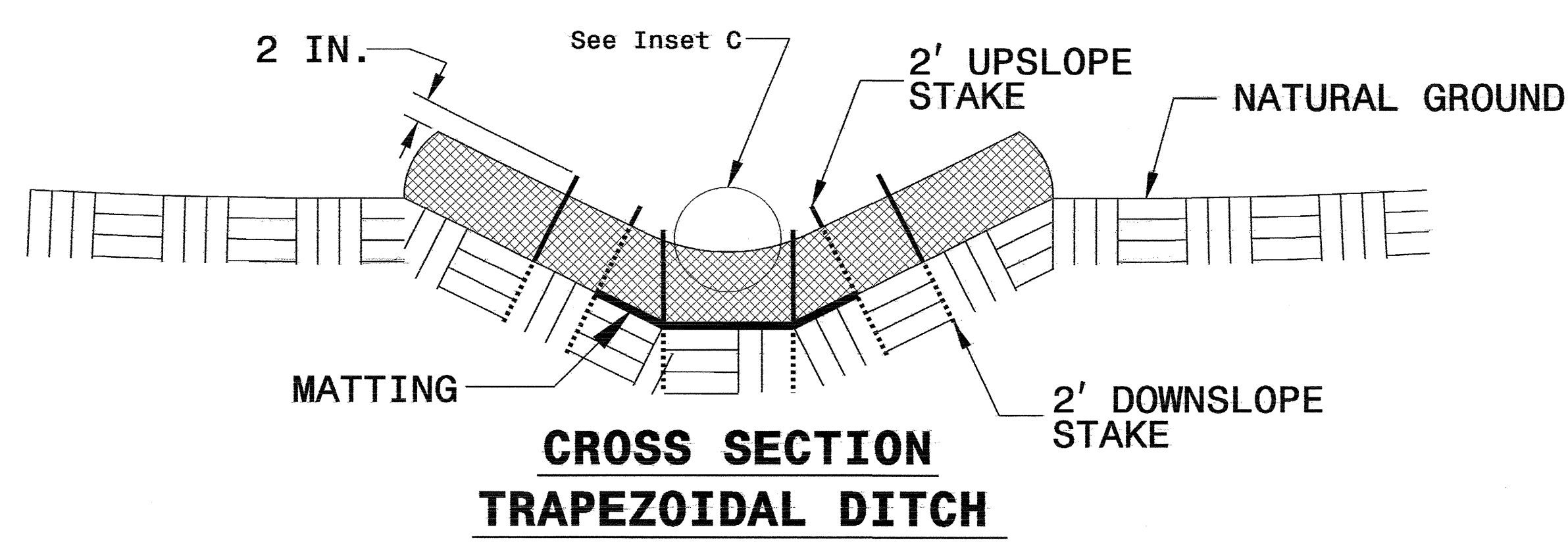
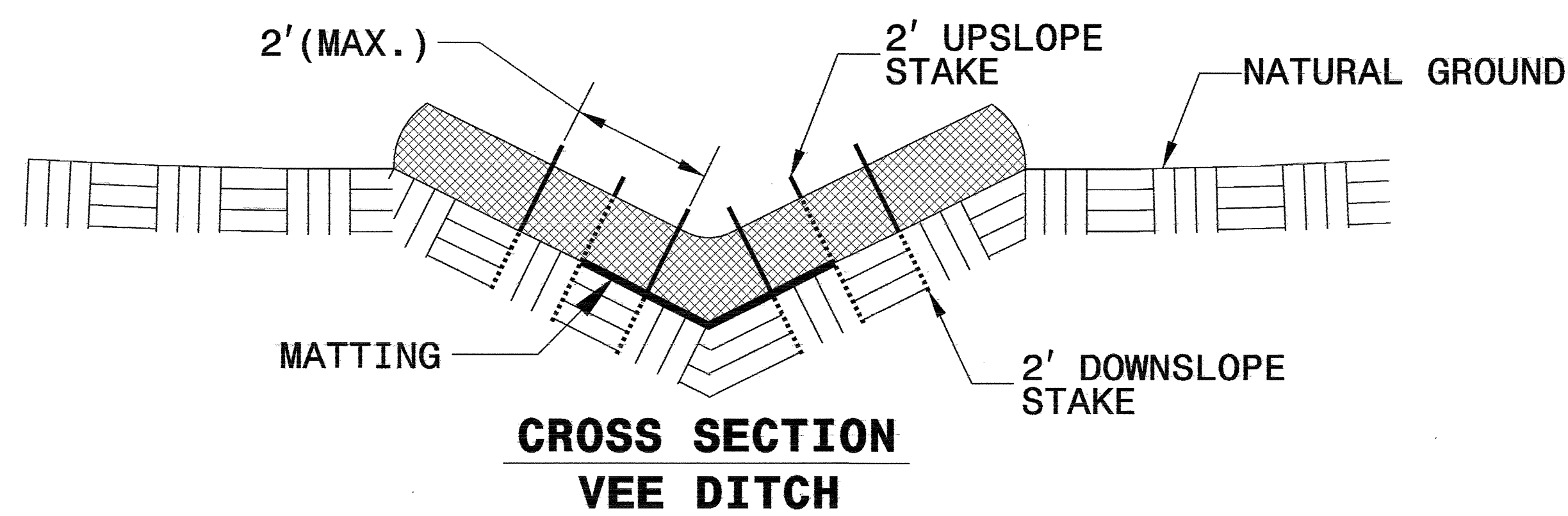
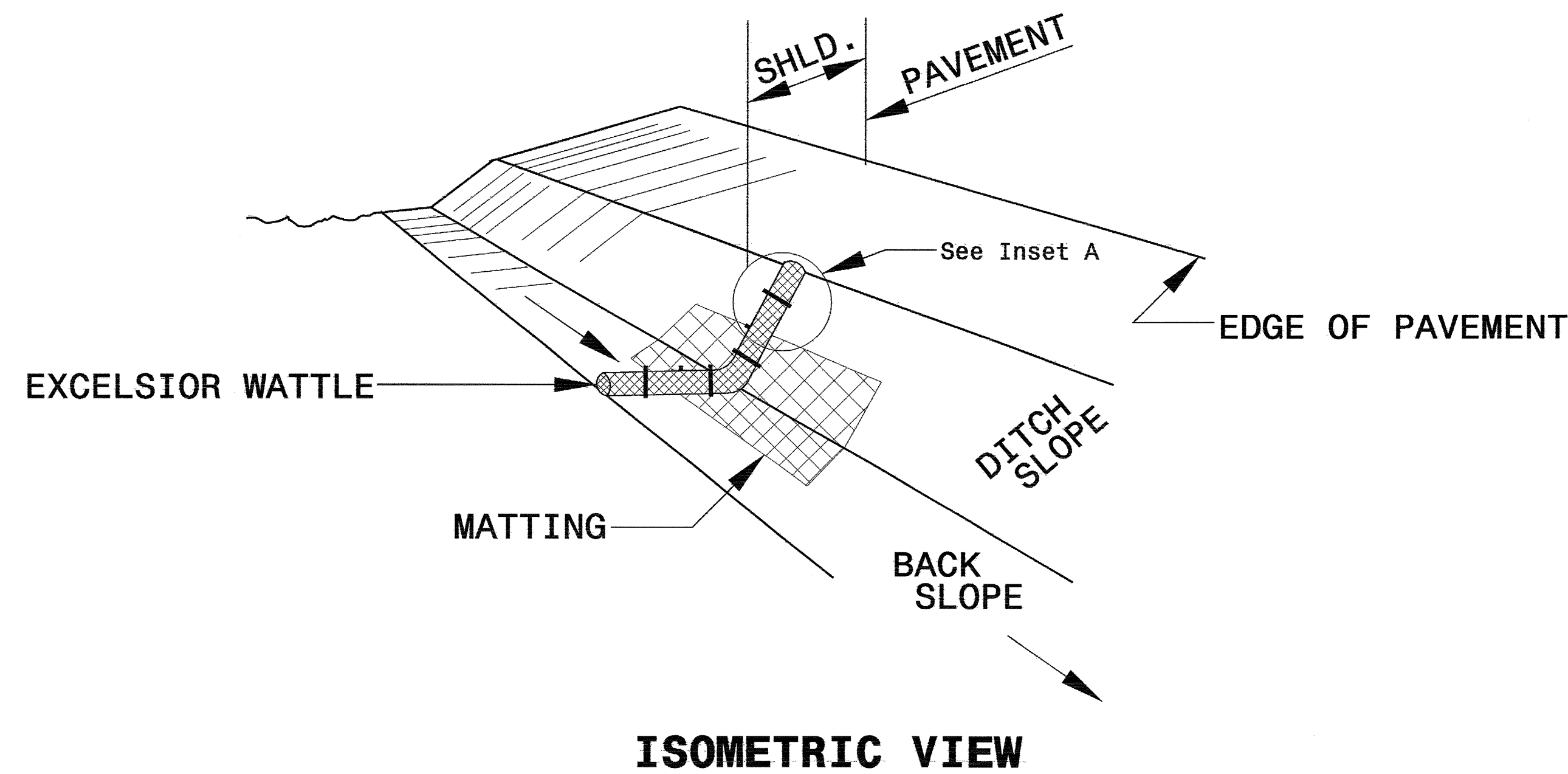
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING $Q/0.8$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.

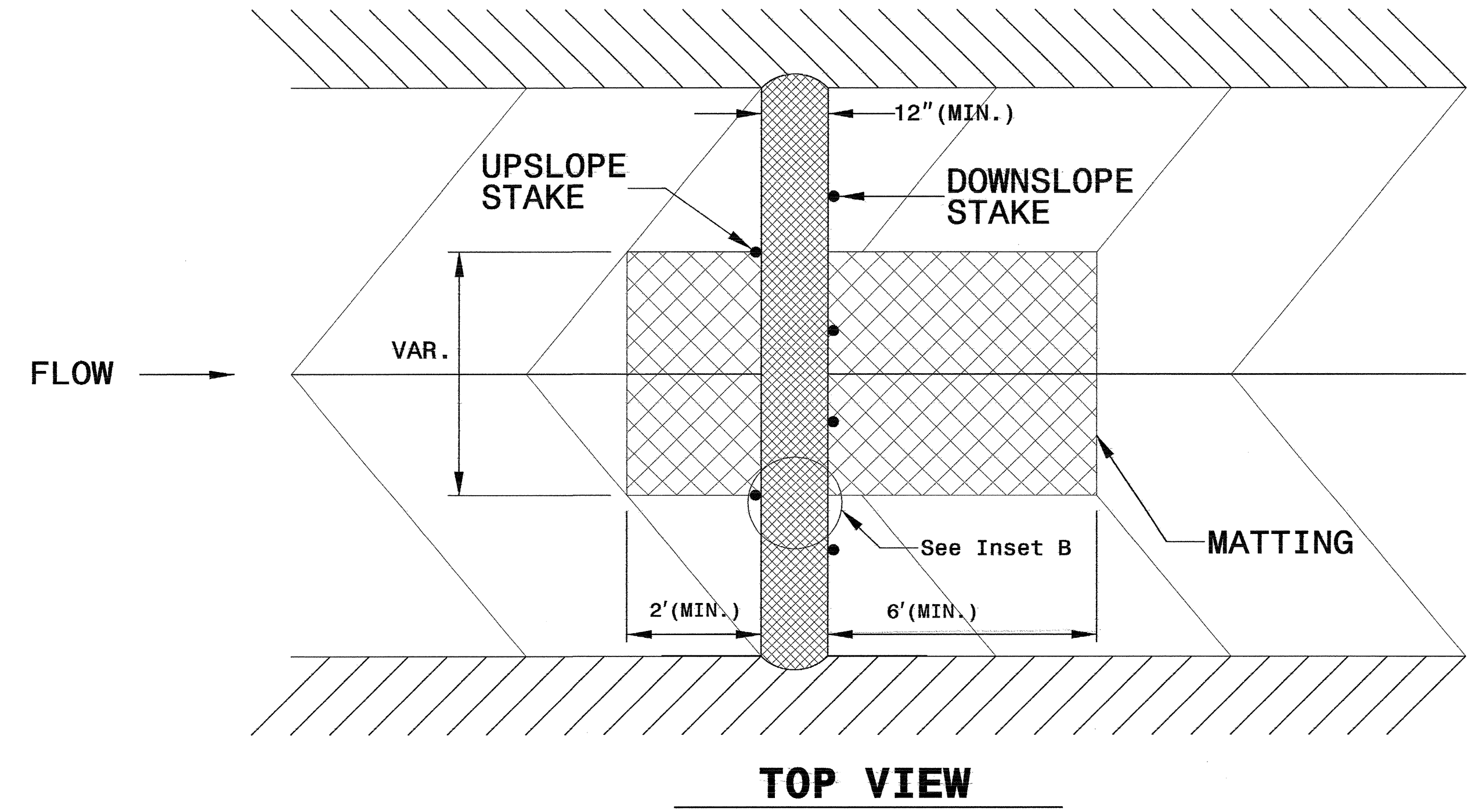
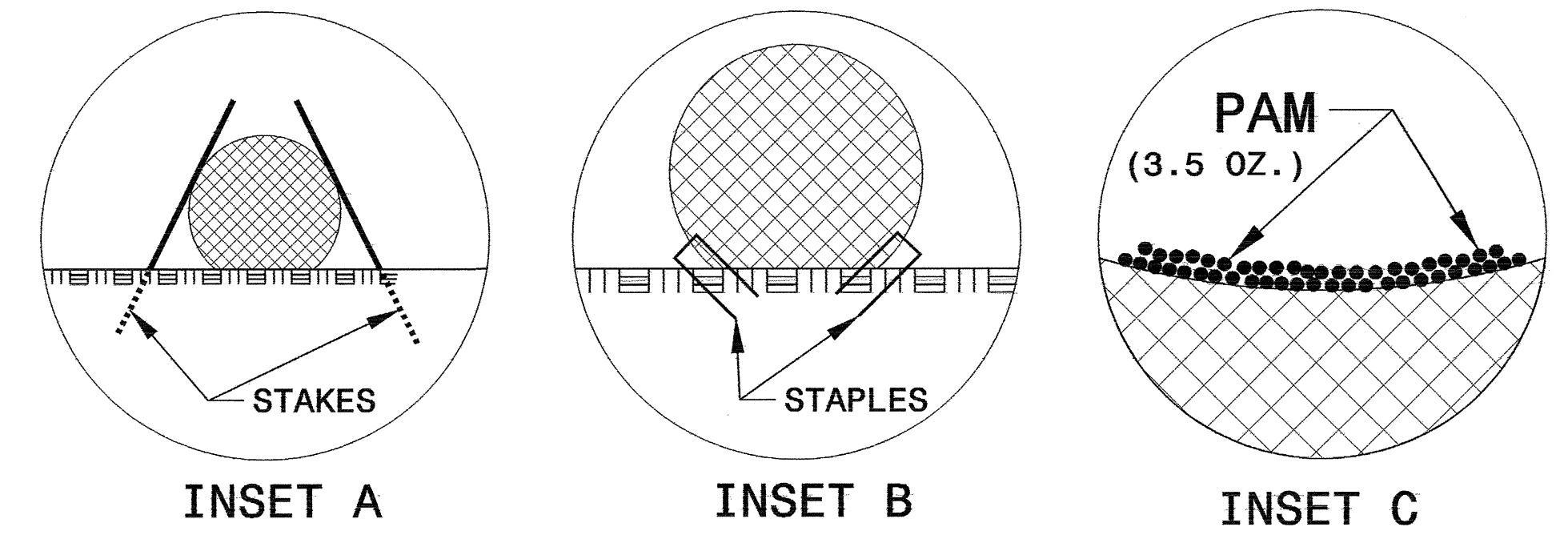
NOT TO SCALE

| | |
|-----------------------------------|---------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-2E |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

WATTLE WITH POLYACRYLAMIDE DETAIL



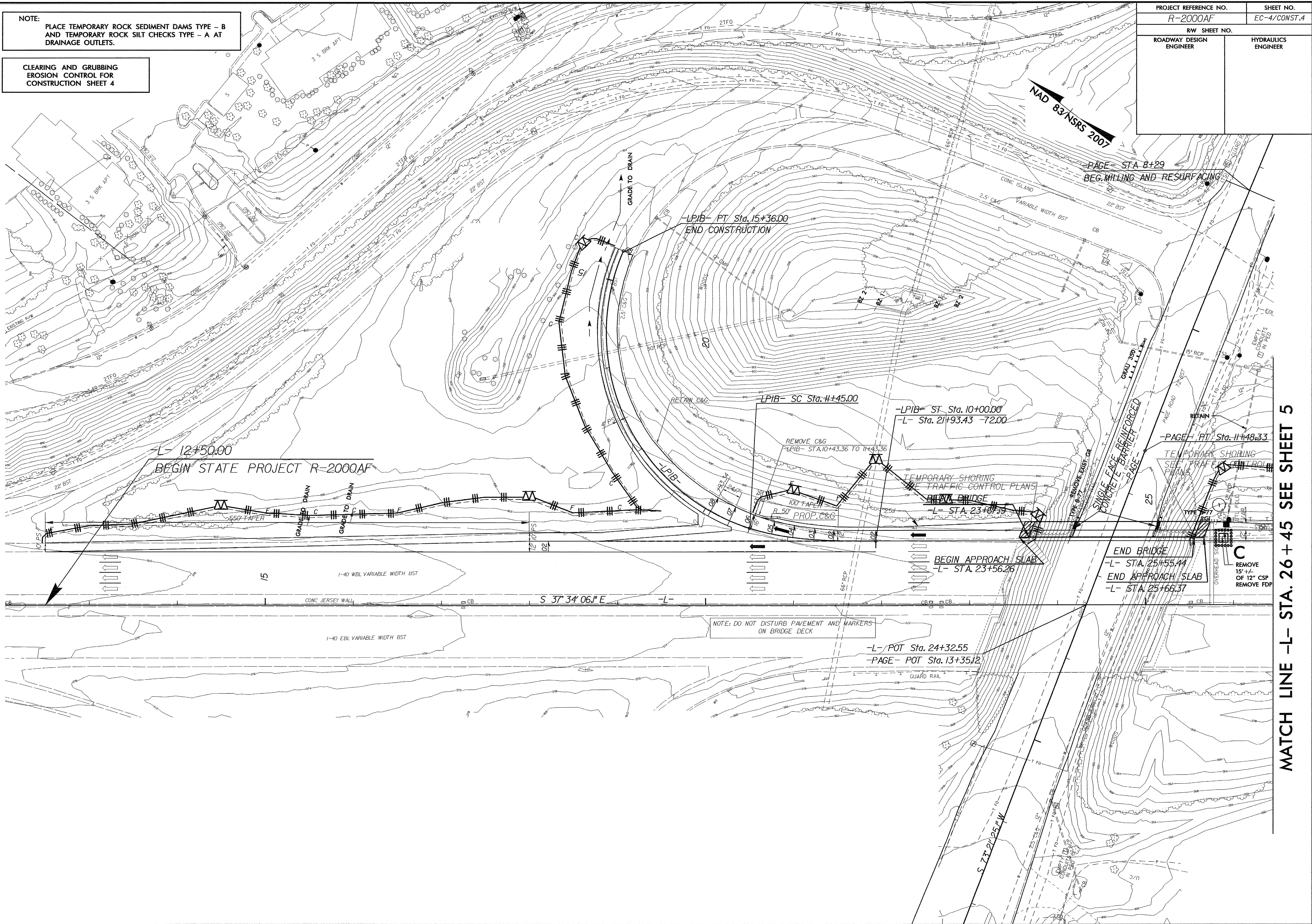
- NOTES:**
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. CROSS SECTION.
 - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT 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 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



| | | | |
|-----------------------------------|--|---------------------------|--|
| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-4/CONST.4 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

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 4



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MATCH LINE -L- STA. 26 + 45 SEE SHEET 5

5/14/09

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

34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 5.1

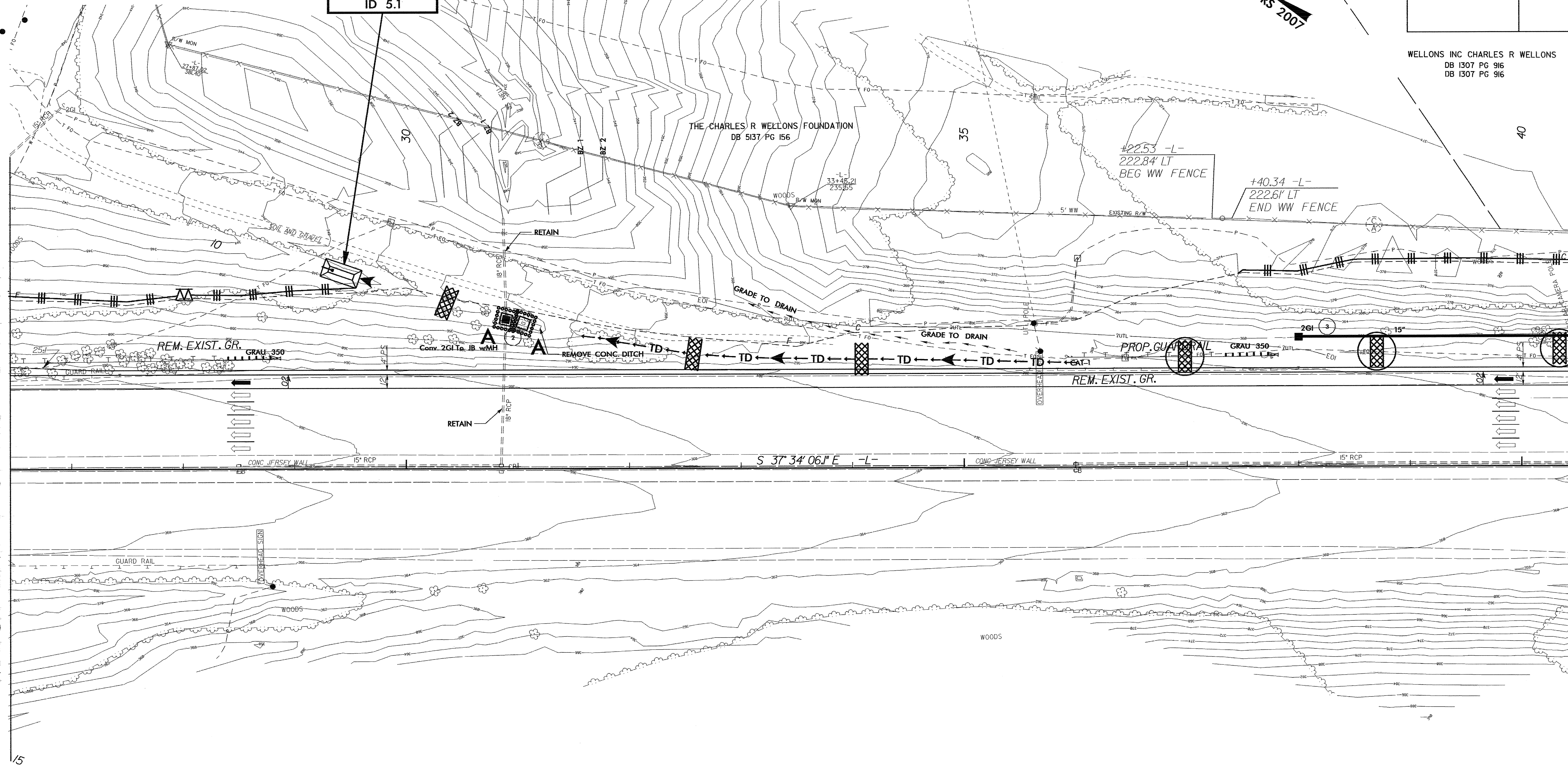
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| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-5/CONST.5 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

WELLONS INC CHARLES R WELLONS
DB 1307 PG 916
DB 1307 PG 916

NAD 83 NSRS 2007

MATCH LINE -L- STA. 26 + 45 SEE SHEET 4

MATCH LINE -L- STA. 40 + 45 SEE SHEET 6



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5/14/09

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 6

| | | | |
|-------------------------|--|---------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-2000AF | | EC-6/CONST.6 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

NAD 83/NRS 2007

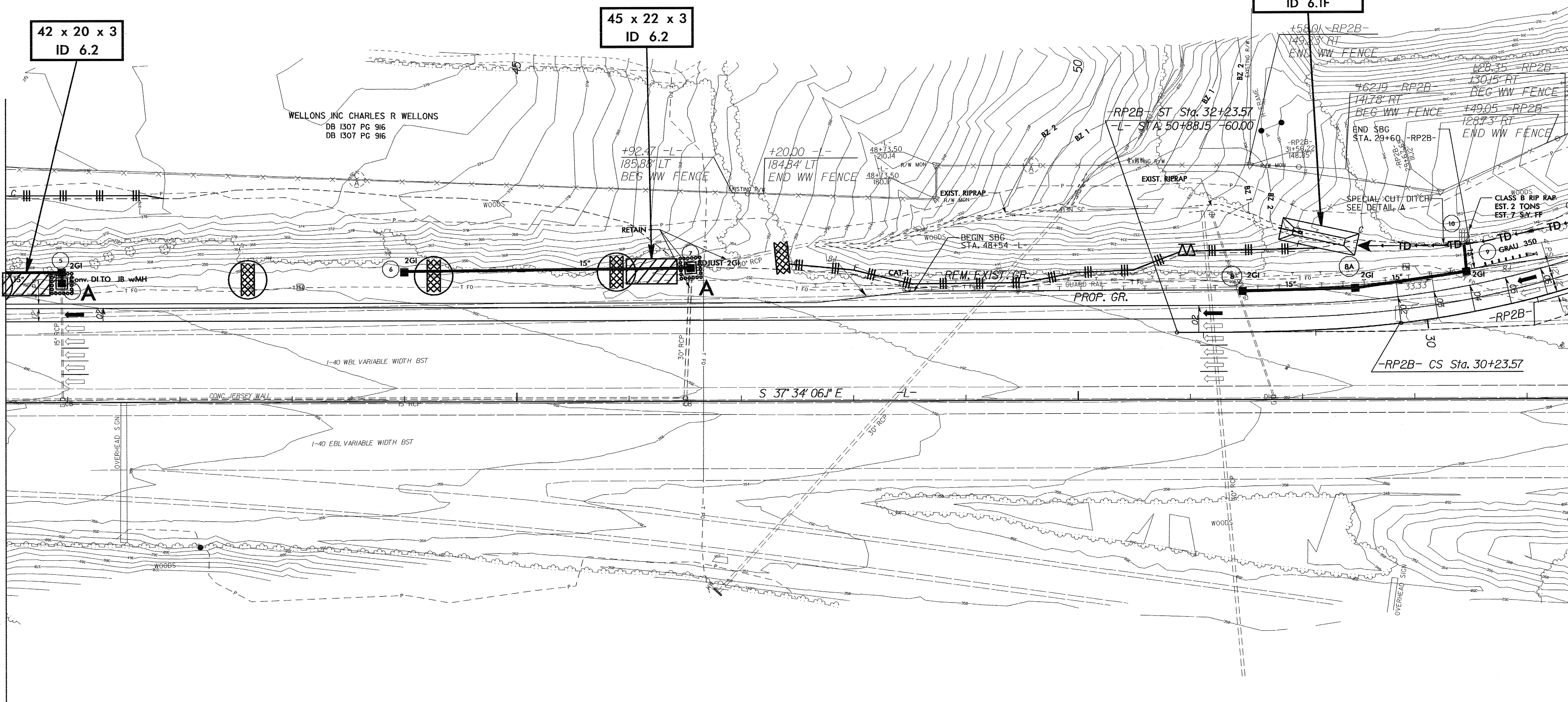
69 x 20 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
12 ft. weir
ID 6.1F

42 x 20 x 3
ID 6.2

45 x 22 x 3
ID 6.2

MATCH LINE -L- STA. 40 + 45 SEE SHEET 5

MATCH LINE -L- STA. 54 + 45 SEE SHEET 7



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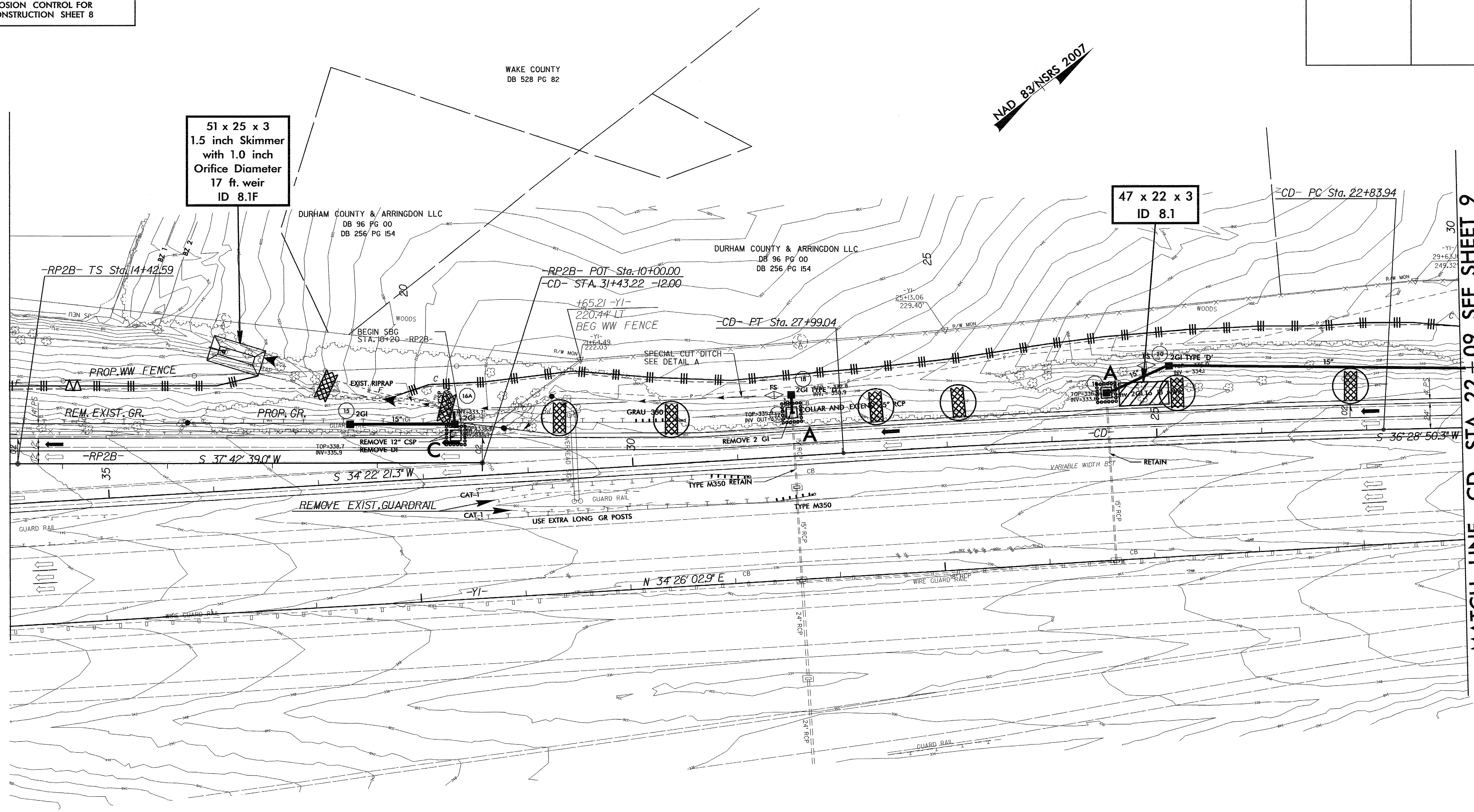
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

| | | | |
|-----------------------------------|--|---------------------------|--|
| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-8/CONST.8 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

MATCH LINE -RP2B- STA. 14 + 50 SEE SHEET 7

MATCH LINE -CD- STA. 22 + 09 SEE SHEET 9



NAD 83/MSRS 2007

WAKE COUNTY
DB 528 PG 82

51 x 25 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
17 ft. weir
ID 8.1F

47 x 22 x 3
ID 8.1

DURHAM COUNTY & ARRINGTON LLC
DB 96 PG 00
DB 256 PG 154

DURHAM COUNTY & ARRINGTON LLC
DB 96 PG 00
DB 256 PG 154

-RP2B- TS Sta. 14+42.59

RP2B- POT Sta. 10+00.00
CD- STA. 31+43.22 -12.00

-CD- PT Sta. 27+99.04

CD- PC Sta. 22+83.94

PROP. WW FENCE

BEGIN SBC
STA. 10+20 -RP2B-

+65.21 -YI-
220.44 LT
BEG WW FENCE

SPECIAL CUT DITCH
SEE DETAIL A

COLLAR AND EXTENSION PCP

REM. EXIST. GR.

PROP. GR.

REMOVE 12" CSP
REMOVE-DI

REMOVE 2 GI

VARIABLE WIDTH BST

RETAIN

-RP2B-
S 37° 42' 39.0" W

S 34° 22' 21.3" W

REMOVE EXIST. GUARDRAIL

CAT. 1

USE EXTRA LONG GR POSTS

TYPE M350

N 34° 26' 02.9" E

WIRE GUARD RAIL

GUARD RAIL

GUARD RAIL

GUARD RAIL

GUARD RAIL

GUARD RAIL

30

29+6.51

249.52

S 36° 28' 50.3" W

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

15'

| | | | |
|-----------------------------------|--|---------------------------|--|
| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-9/CONST.9 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

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

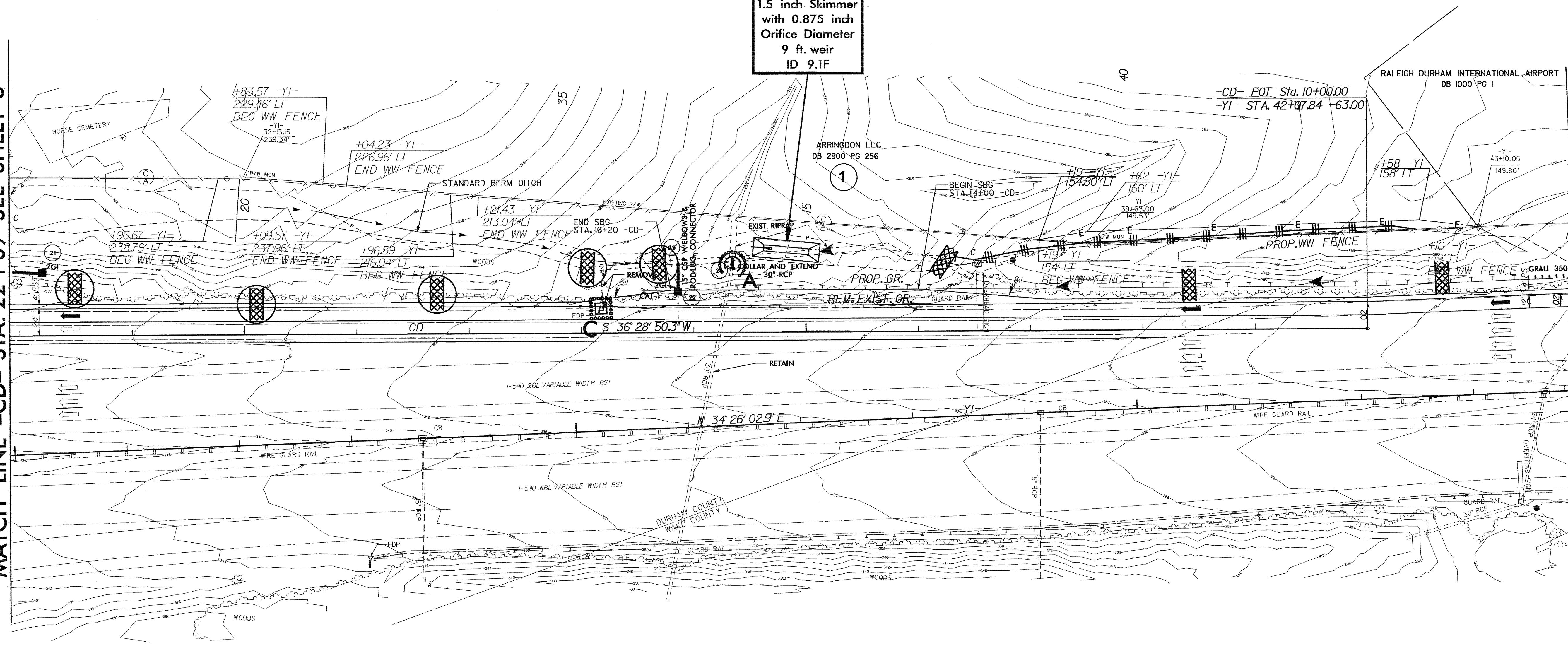
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

59 x 17 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
9 ft. weir
ID 9.1F

NAD 83/MSRS 2007

MATCH LINE -CD- STA. 22 + 09 SEE SHEET 8

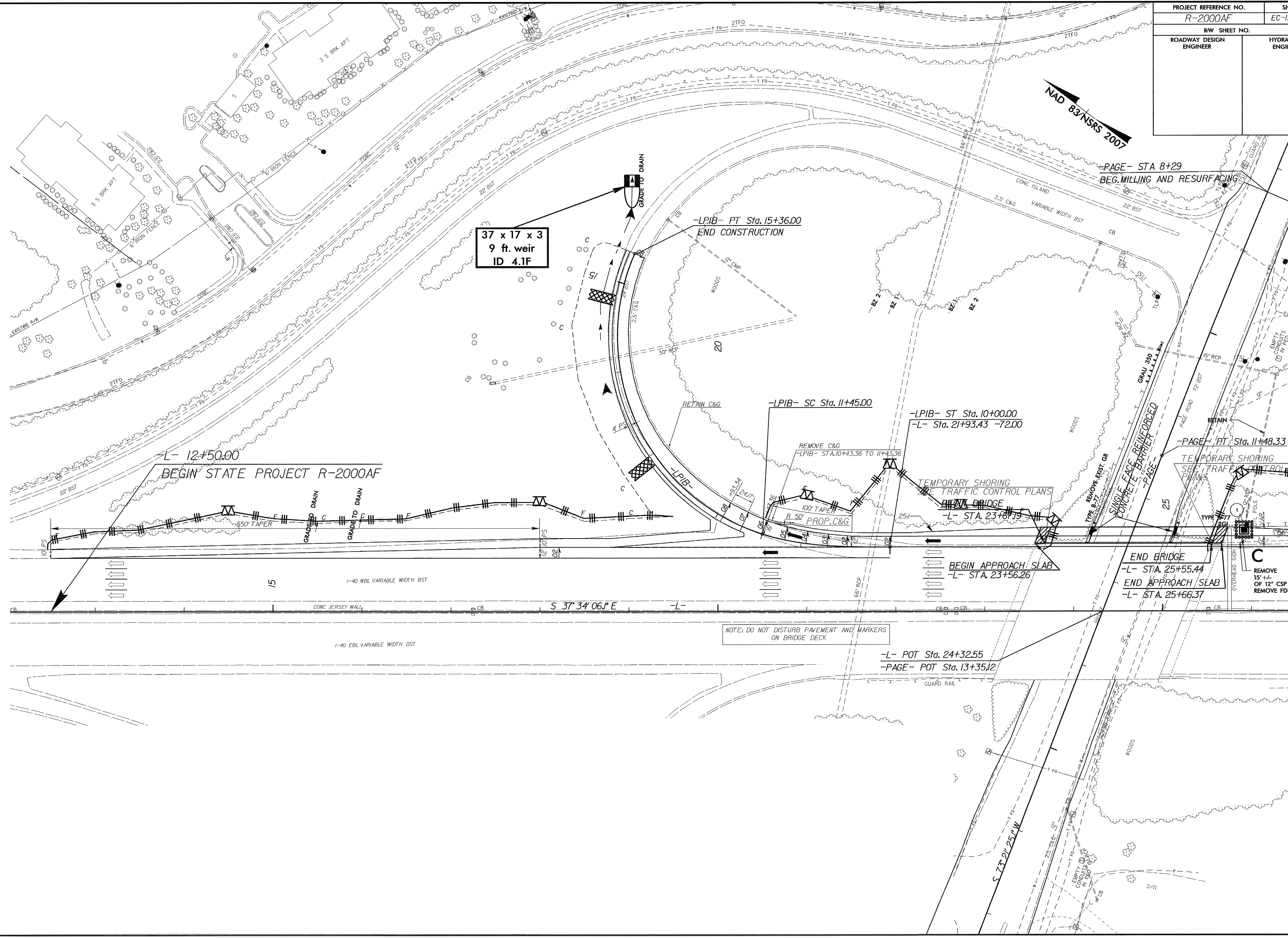
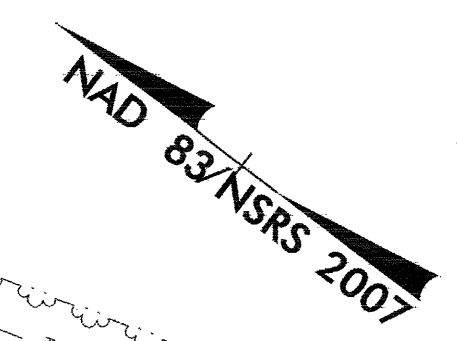
MATCH LINE -Y1- STA. 43 + 94 SEE SHEET 10



5/14/09

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|-----------------------------------|--|----------------------------|--|
| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-12/CONST.4 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |



MATCH LINE -L- STA. 26 + 45 SEE SHEET 5

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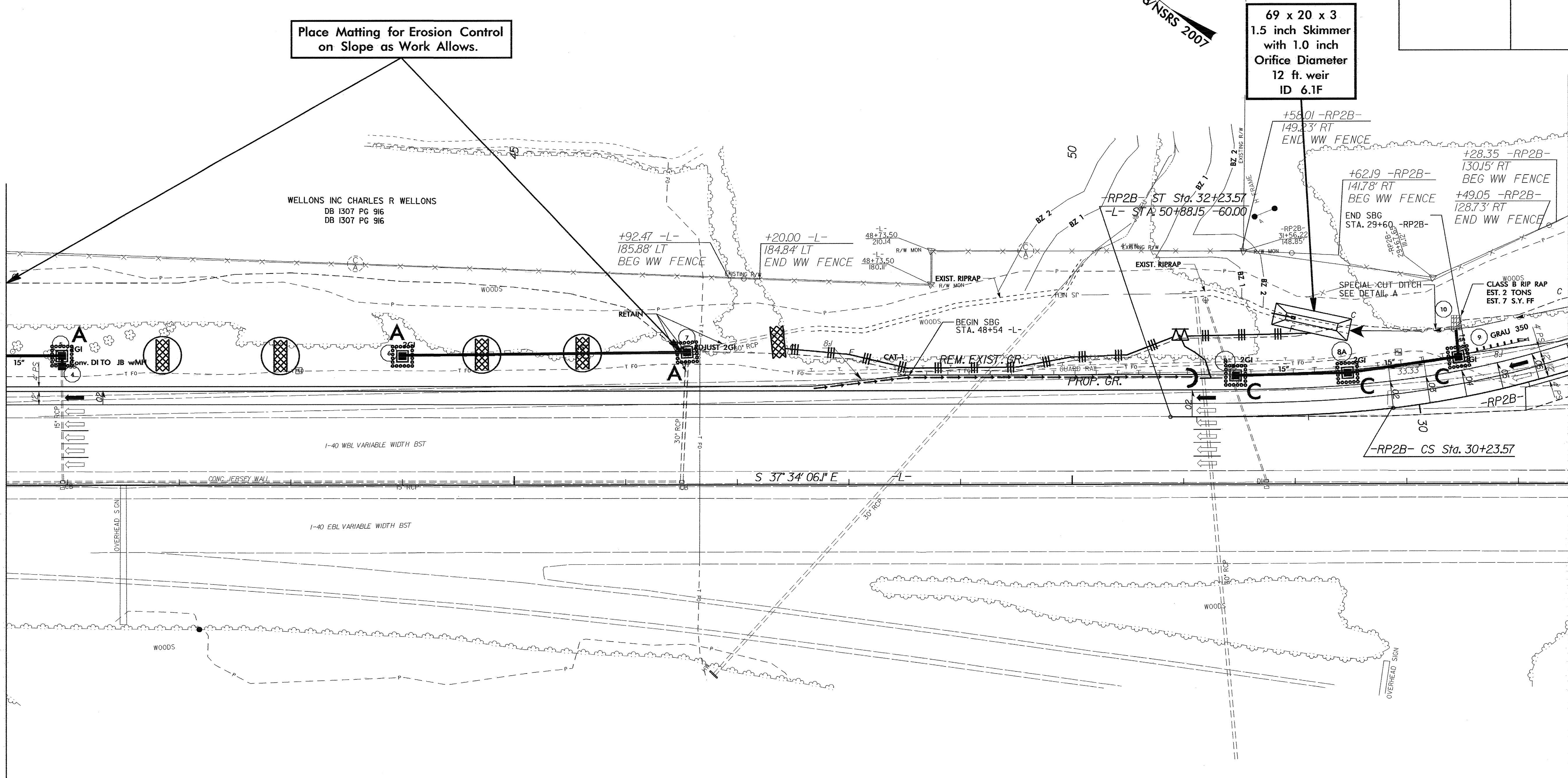
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| | | | |
|-----------------------------------|--|----------------------------|--|
| PROJECT REFERENCE NO. R-2000AF | | SHEET NO. EC-14/CONST.6 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

MATCH LINE -L- STA. 40+45 SEE SHEET 5

MATCH LINE -L- STA. 54+45 SEE SHEET 7

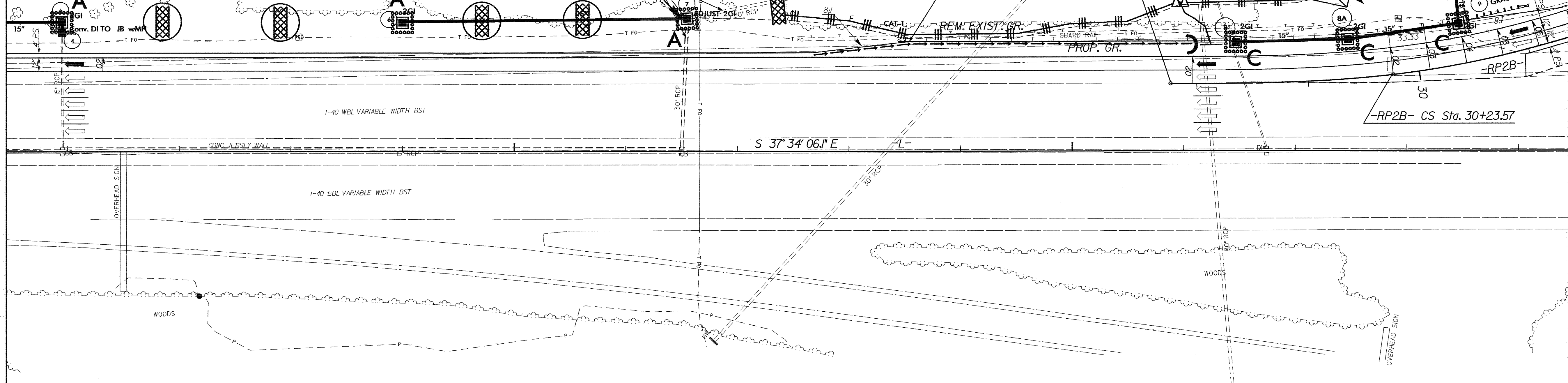


Place Matting for Erosion Control on Slope as Work Allows.

69 x 20 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
12 ft. weir
ID 6.1F

WELLONS INC CHARLES R WELLONS
DB 1307 PG 916
DB 1307 PG 916

NAD 83 NSRS 2007



| | |
|-----------------------------------|----------------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-15/CONST.7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NAD 83/NSRS 2007

WAKE COUNTY
DB 528 PG 82

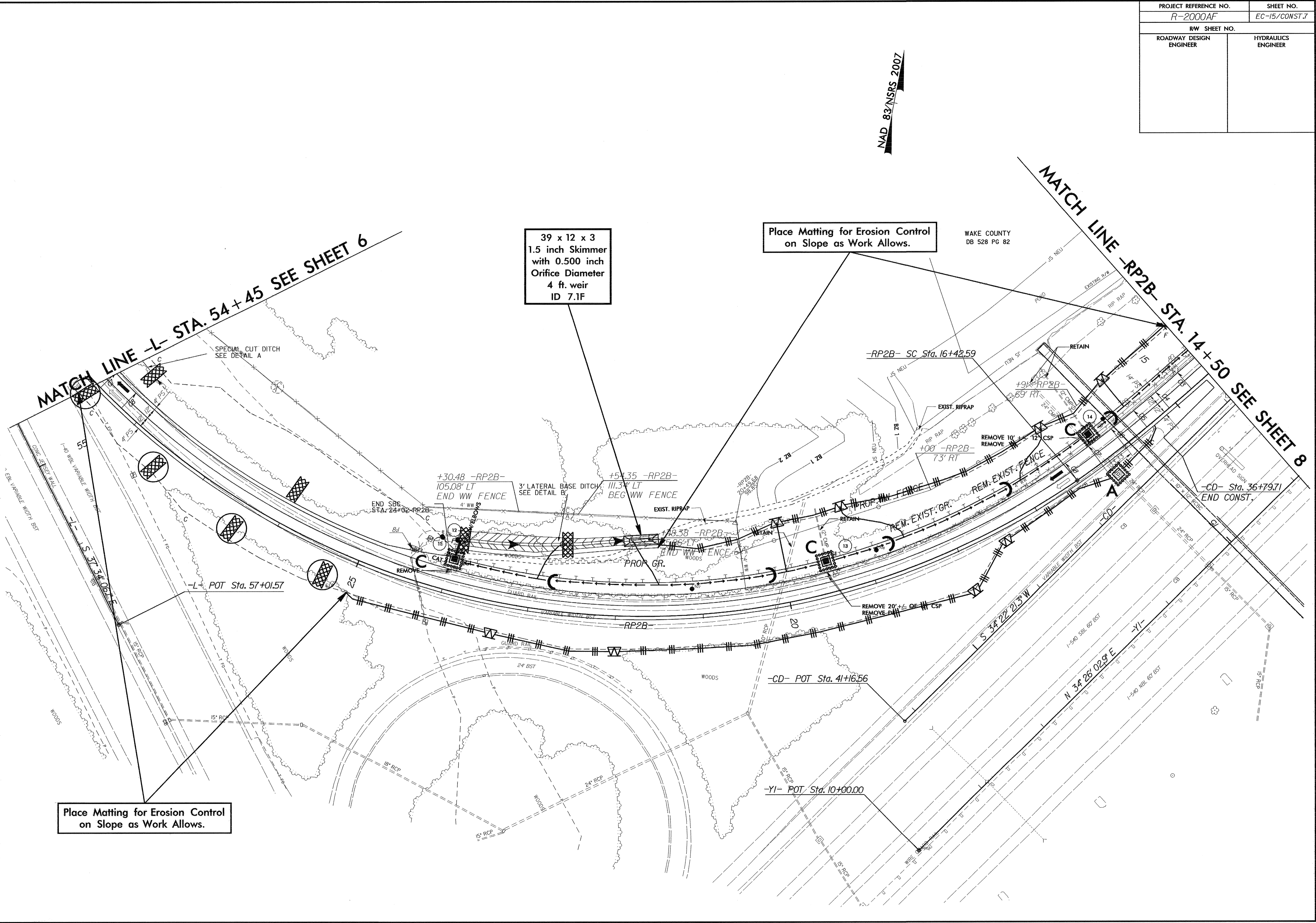
MATCH LINE -L- STA. 54+45 SEE SHEET 6

MATCH LINE -RP2B- STA. 14+50 SEE SHEET 8

39 x 12 x 3
1.5 inch Skimmer
with 0.500 inch
Orifice Diameter
4 ft. weir
ID 7.1F

Place Matting for Erosion Control
on Slope as Work Allows.

Place Matting for Erosion Control
on Slope as Work Allows.



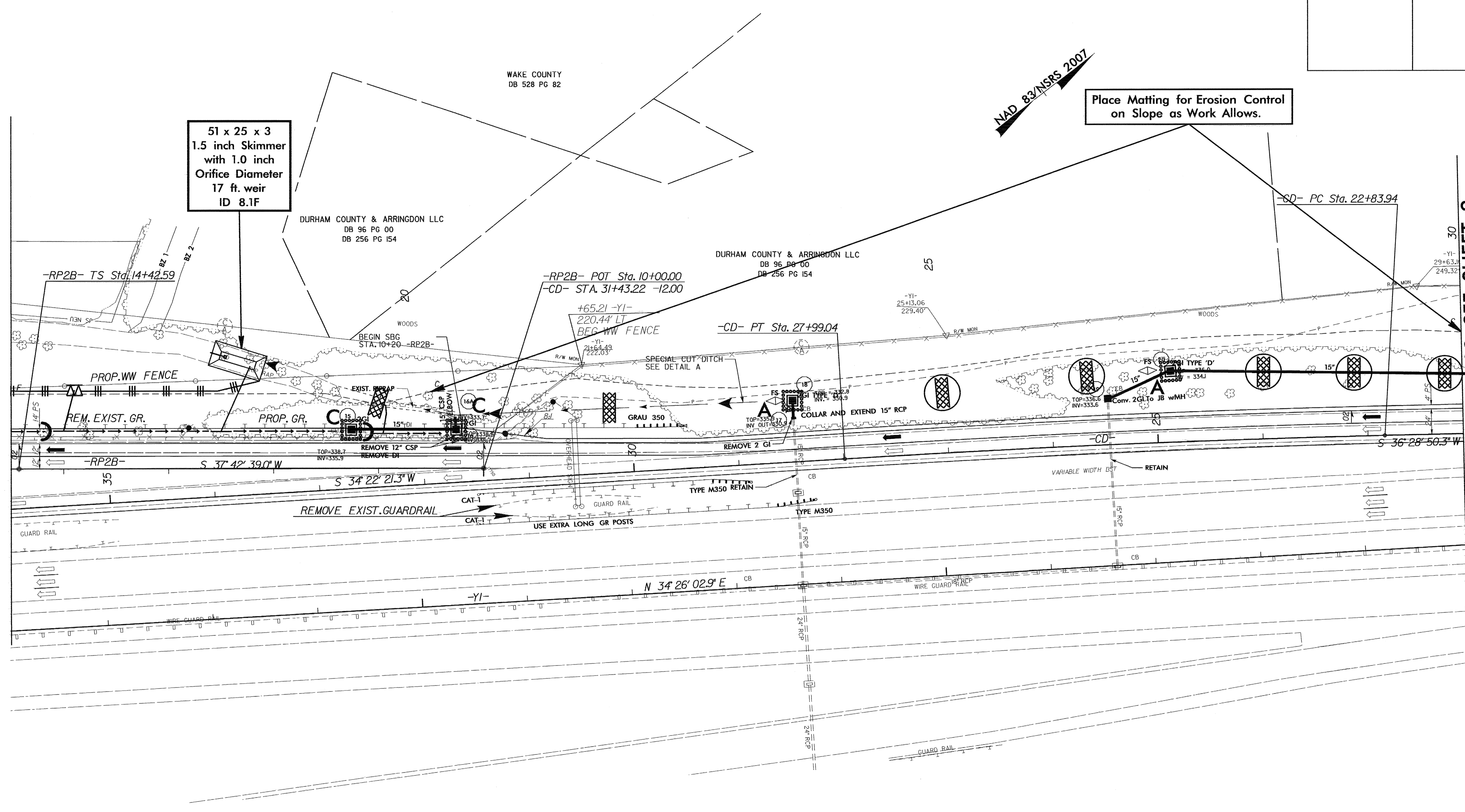
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|-----------------------------------|----------------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-16/CONST.8 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

MATCH LINE -RP2B- STA. 14 + 50 SEE SHEET 7

MATCH LINE -CD- STA. 22 + 09 SEE SHEET 9



51 x 25 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
17 ft. weir
ID 8.1F

Place Matting for Erosion Control
on Slope as Work Allows.

NAD 83/MSRS 2007

WAKE COUNTY
DB 528 PG 82

DURHAM COUNTY & ARRINGTON LLC
DB 96 PG 00
DB 256 PG 154

DURHAM COUNTY & ARRINGTON LLC
DB 96 PG 00
DB 256 PG 154

-RP2B- TS Sta. 14+42.59

-RP2B- POT Sta. 10+00.00
-CD- STA. 31+43.22 -12.00

-CD- PT Sta. 27+99.04

-CD- PC Sta. 22+83.94

PROP. WW FENCE

REM. EXIST. GR.

PROP. GR.

EXIST. IMPRAP

REMOVE 12" CSP
REMOVE DI

GRAU 350

REMOVE 2 GI

TYPE M350 RETAIN

TYPE M350

VARIABLE WIDTH DST
RETAIN

REMOVE EXIST. GUARDRAIL

CAT-1

USE EXTRA LONG GR POSTS

N 34° 26' 02.9" E

WIRE GUARD RAIL

GUARD RAIL

WIRE GUARD RAIL

GUARD RAIL

5/14/99

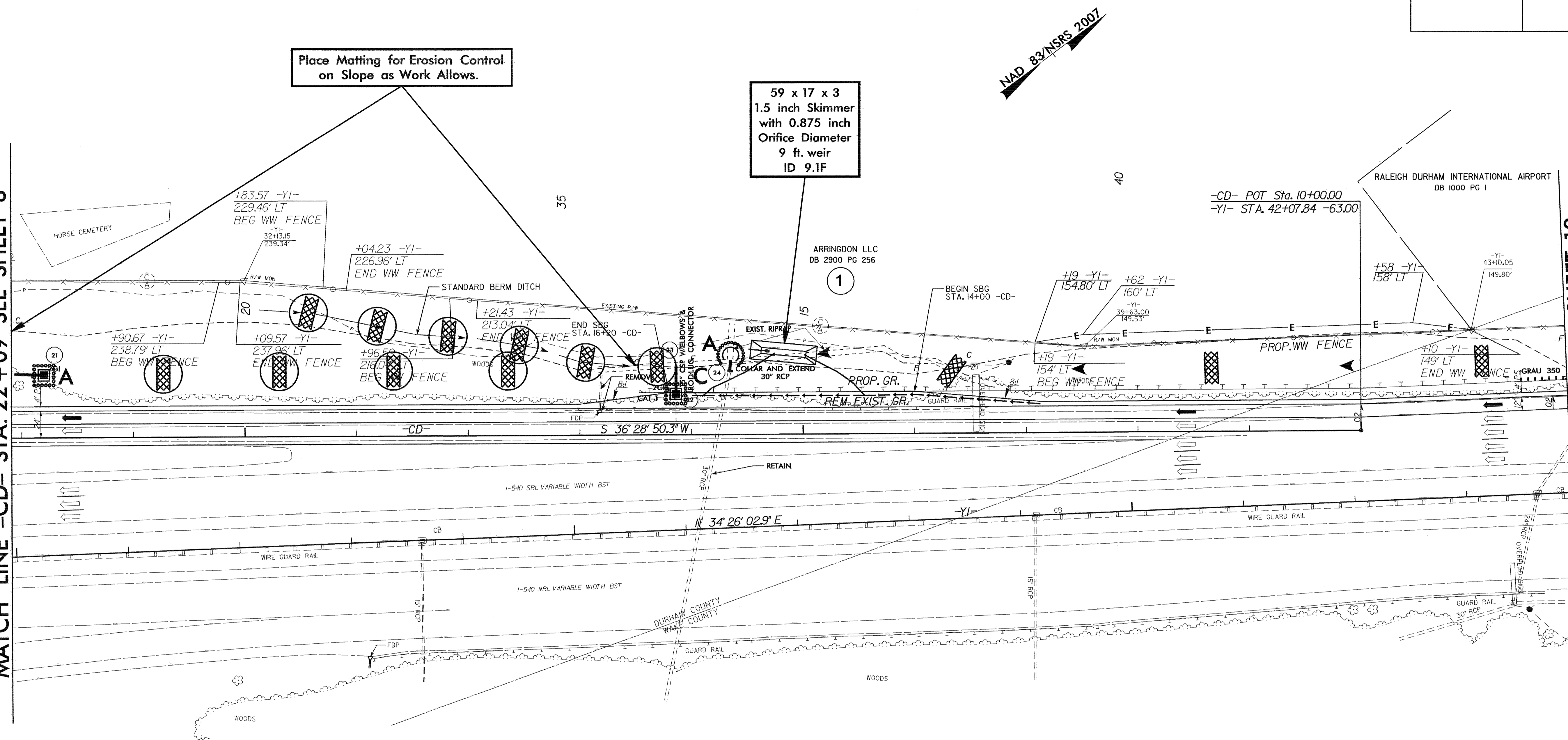
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| | |
|-----------------------------------|----------------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-17/CONST.9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

5/14/99

MATCH LINE -CD- STA. 22 + 09 SEE SHEET 8

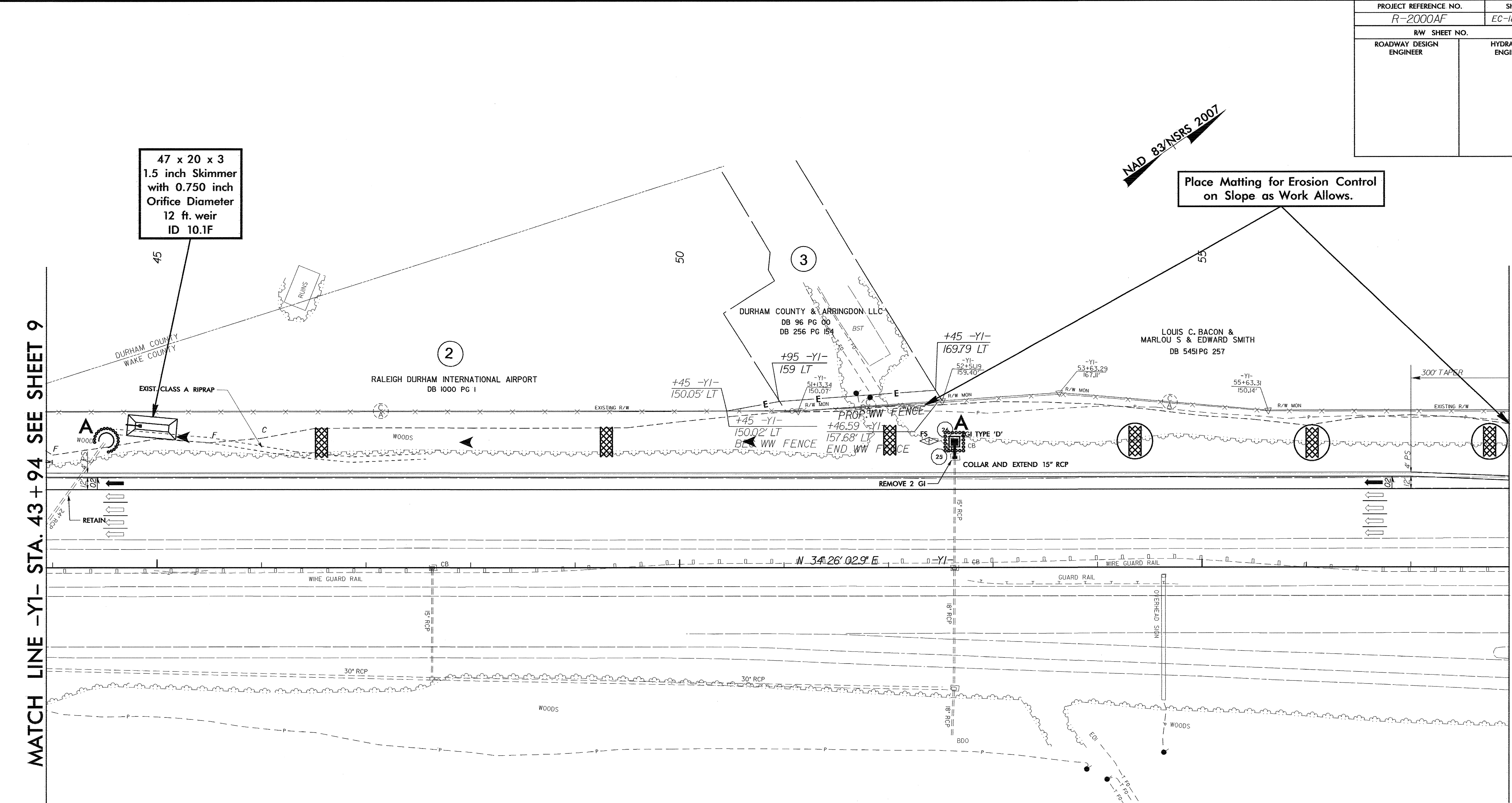
MATCH LINE -Y1- STA. 43 + 94 SEE SHEET 10



NAD 83 NSRS 2007

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| | |
|-----------------------------------|-----------------------------|
| PROJECT REFERENCE NO. R-2000AF | SHEET NO. EC-18/CONST.10 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



47 x 20 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
12 ft. weir
ID 10.1F

Place Matting for Erosion Control
on Slope as Work Allows.

MATCH LINE -Y1- STA. 43 + 94 SEE SHEET 9

MATCH LINE -Y1- STA. 57 + 94 SEE SHEET 11

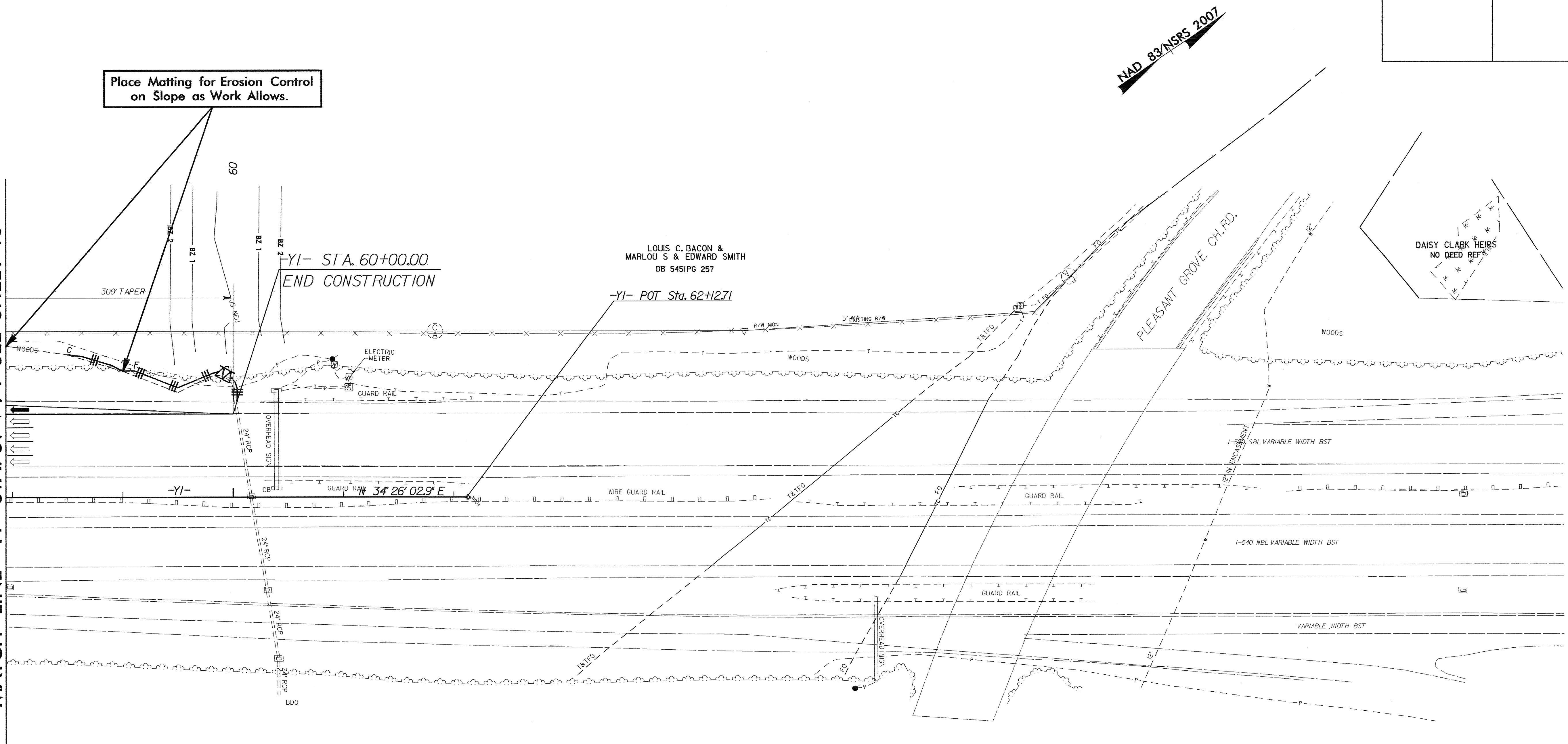
5/14/99

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cdfr\ebacon

| | | | |
|-------------------------|--|---------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| R-2000AF | | EC-19/CONST.II | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

MATCH LINE -Y1- STA. 57+94 SEE SHEET 10

Place Matting for Erosion Control on Slope as Work Allows.



LOUIS C. BACON &
MARLOU S & EDWARD SMITH
DB 5451 PG 257

-Y1- STA. 60+00.00
END CONSTRUCTION

-Y1- POT Sta. 62+12.71

GUARD RAIL N 34° 26' 02.9" E

NAD 83/NSRS 2007

DAISY CLARK HEIGS
NO DEED REFS

PLEASANT GROVE CH. RD.

WOODS

SBL VARIABLE WIDTH BST

I-540 NBL VARIABLE WIDTH BST

VARIABLE WIDTH BST

BDO