

**TIP PROJECT: B-4949**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

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PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**CUMBERLAND COUNTY**

**LOCATION: I-95 BUSINESS & US 301 - REPLACE BRIDGE 61  
OVER CROSS CREEK**

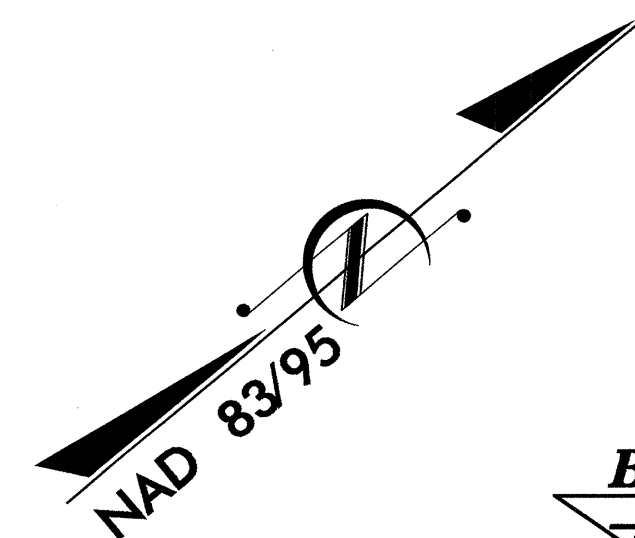
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS  
AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4949	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	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TD
1630.02	Silt Basin Type B	SB
1633.01	Temporary Rock Silt Check Type-A	RS
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	RS
1633.02	Temporary Rock Silt Check Type-B	RS
	Wattle / Coir Fiber Wattle	W
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	W
1634.01	Temporary Rock Sediment Dam Type-A	RD
1634.02	Temporary Rock Sediment Dam Type-B	RD
1635.01	Rock Pipe Inlet Sediment Trap Type-A	RPI
1635.02	Rock Pipe Inlet Sediment Trap Type-B	RPI
1630.04	Stilling Basin	SB
1630.06	Special Stilling Basin	SB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	IB

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



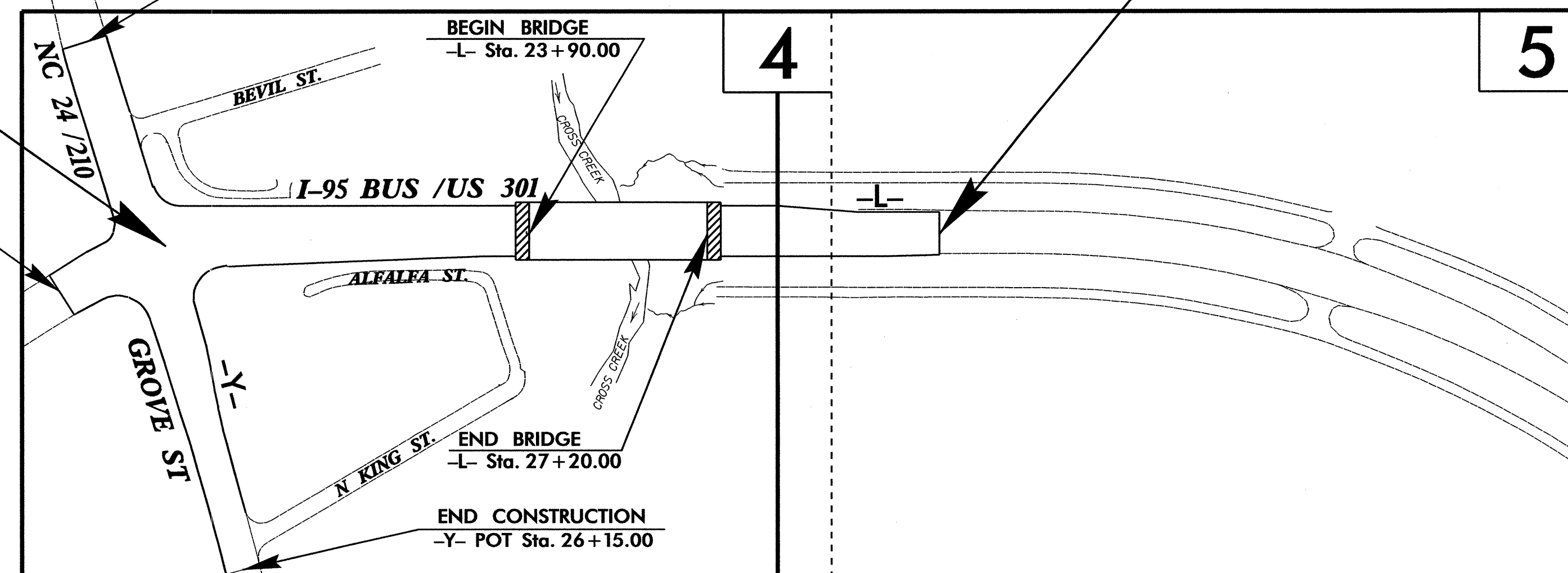
**BEGIN TIP PROJECT B-4949**  
-L- POC STA. 17+15.00

**BEGIN CONSTRUCTION**  
-Y- POT Sta. 15+95.00

**END TIP PROJECT B-4949**  
-L- POT STA. 31+50.00  
**BEGIN TIP PROJECT B-4091**

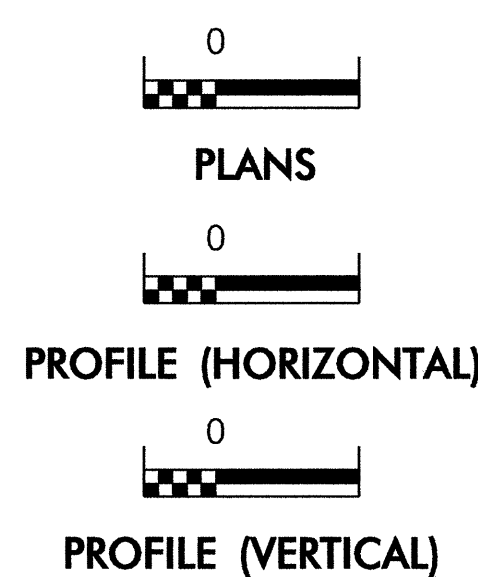
**BEGIN CONSTRUCTION**  
-L- POT Sta. 15+00.00

TO NC 87



TO I-95

**GRAPHIC SCALE**



ROADSIDE ENVIRONMENTAL UNIT  
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY  
WITH THE REGULATIONS SET FORTH BY THE  
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011  
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND  
NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:  
**ROADSIDE ENVIRONMENTAL UNIT**  
1 South Wilmington St.  
Raleigh, NC 27611  
**2012 STANDARD SPECIFICATIONS**

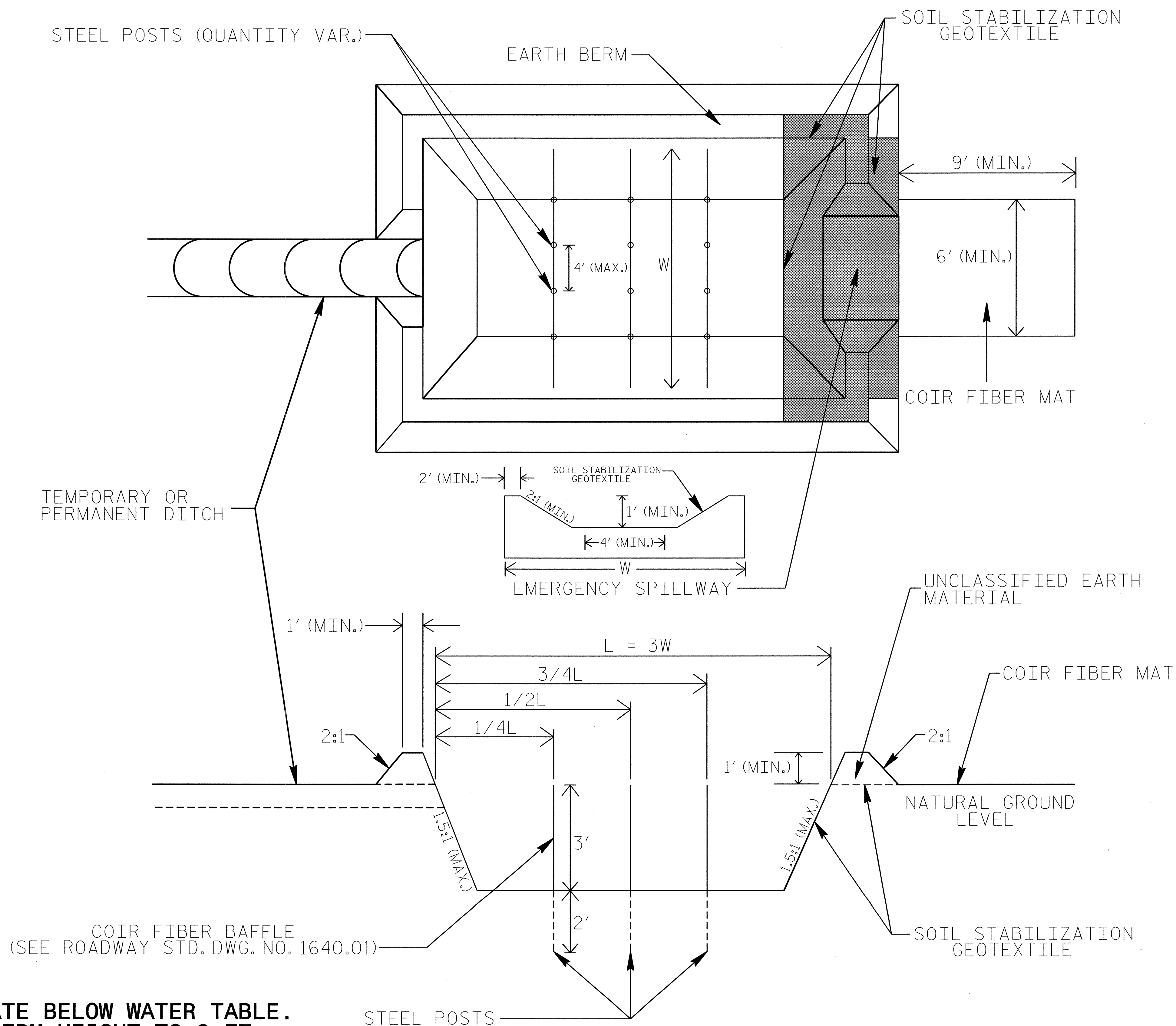
**Roadway Standard Drawings**

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
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	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

# INFILTRATION BASIN WITH BAFFLES DETAIL

PROJECT REFERENCE NO. B-4949	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



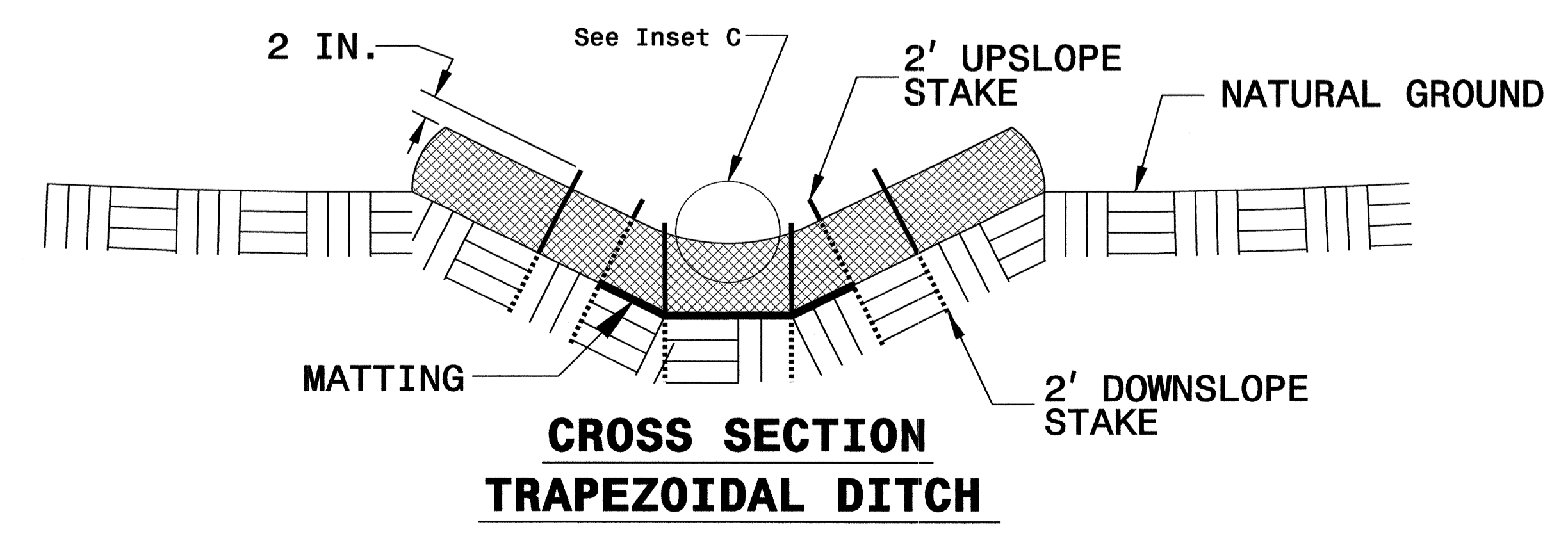
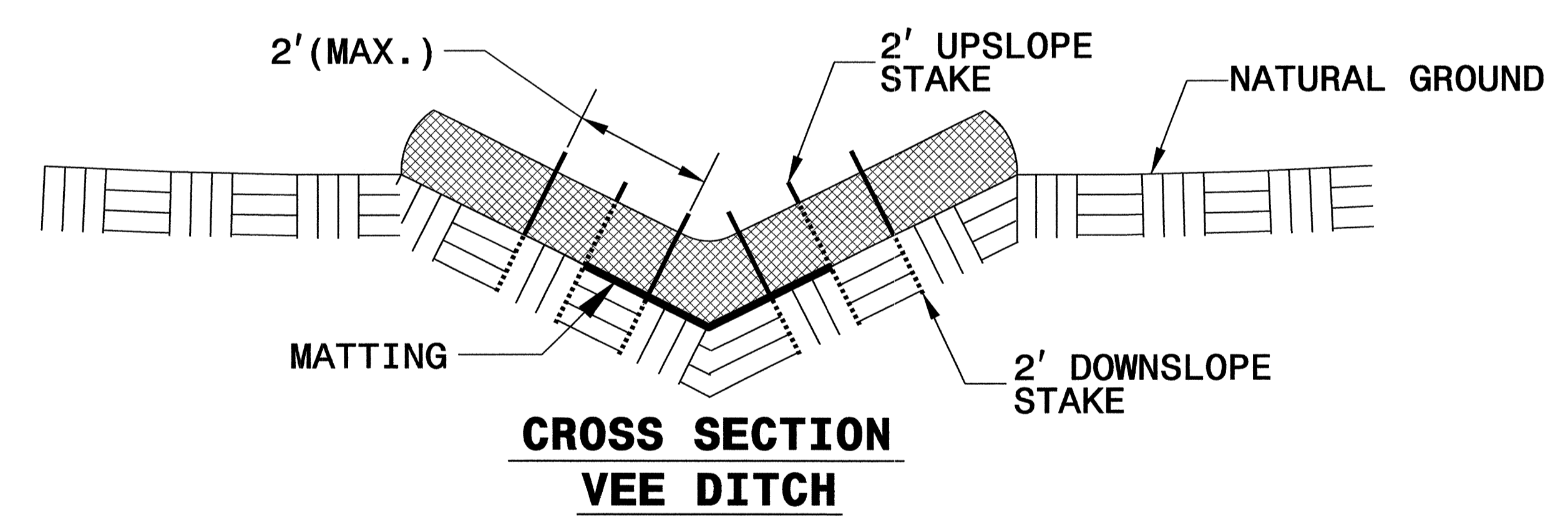
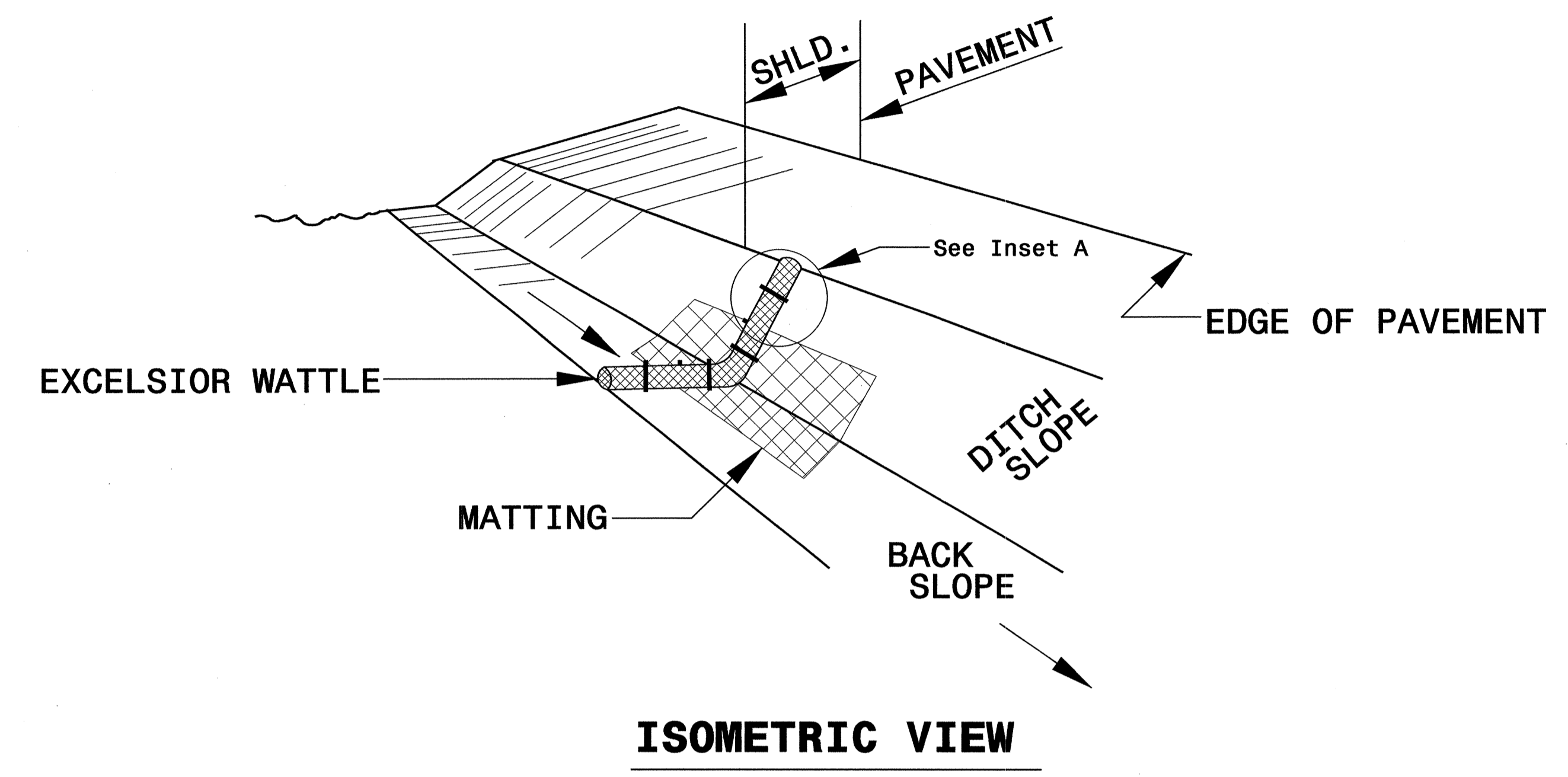
## NOTES

- DO NOT EXCAVATE BELOW WATER TABLE.
- LIMIT EARTH BERM HEIGHT TO 3 FT.
- AVOID COMPACTING BOTTOM OF BASIN.
- FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
- DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.

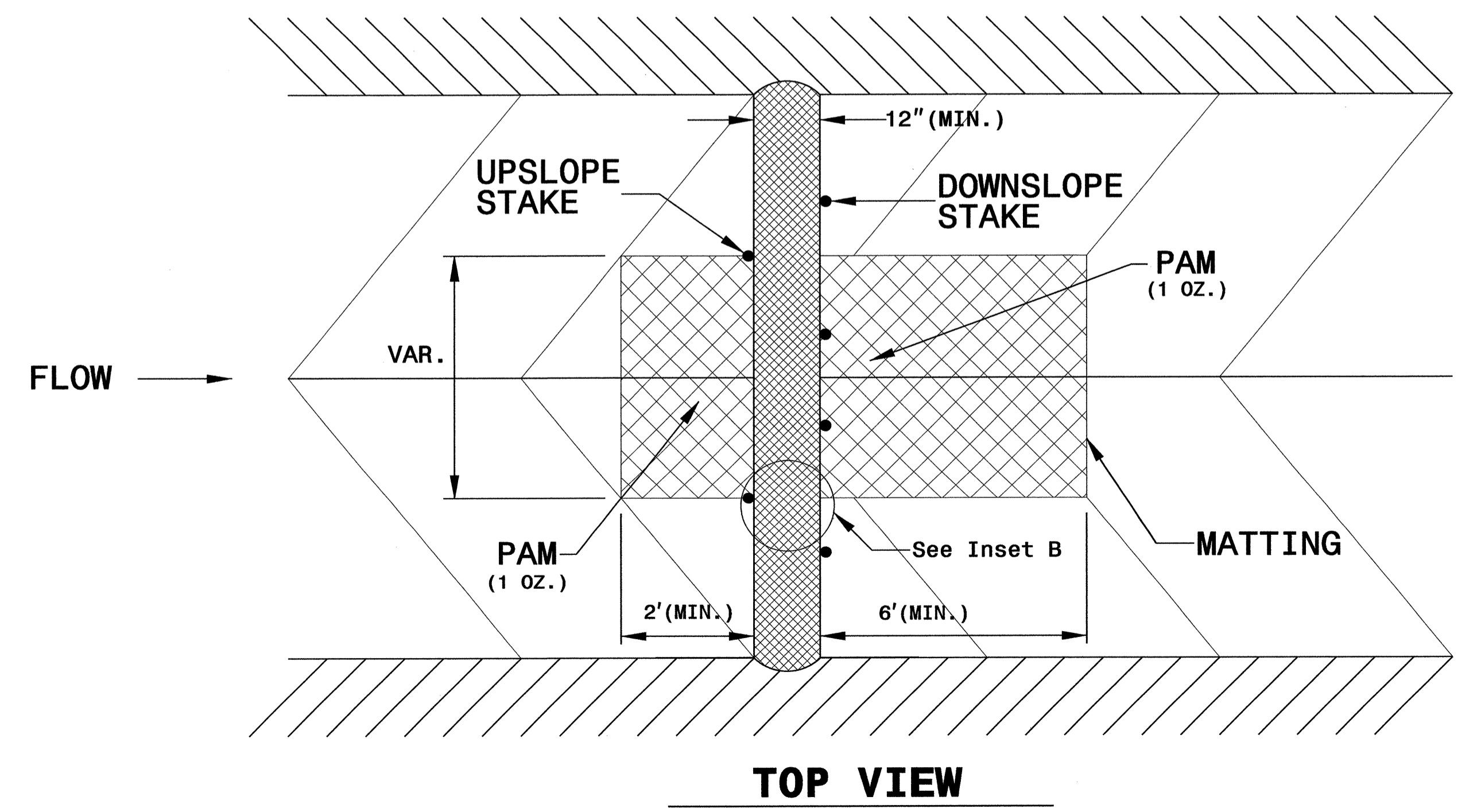
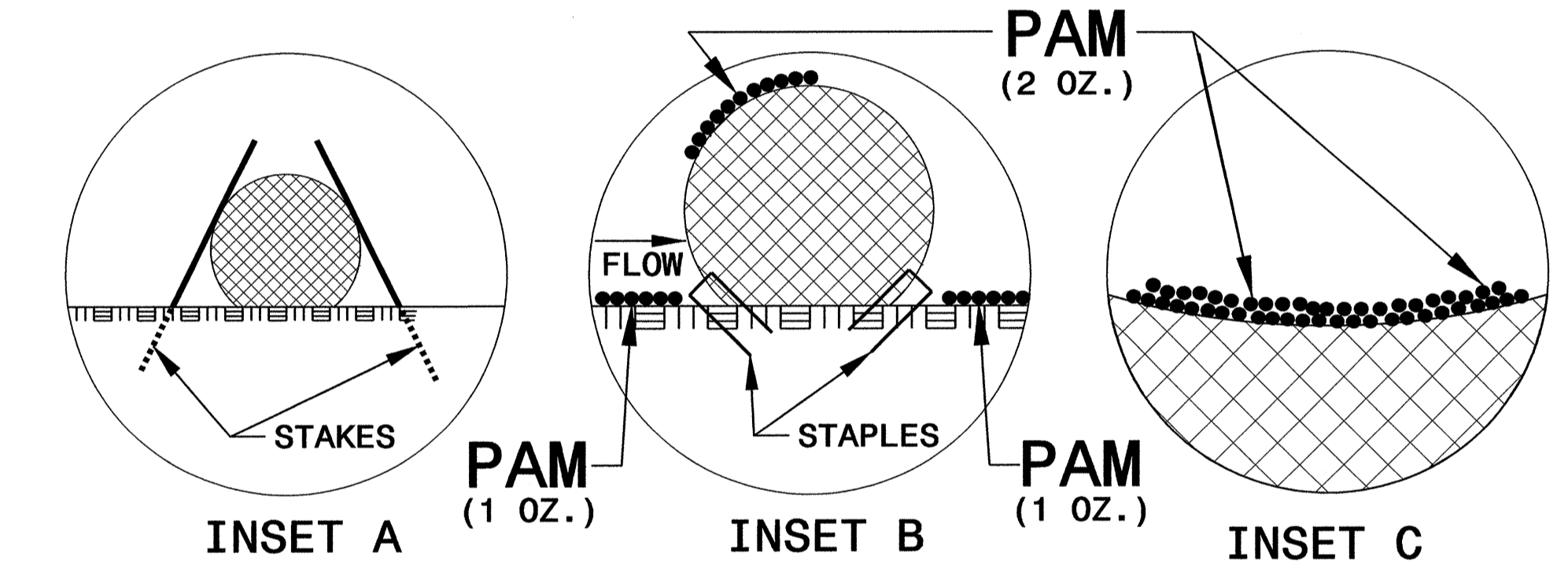
NOT TO SCALE

PROJECT REFERENCE NO. B-4949	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

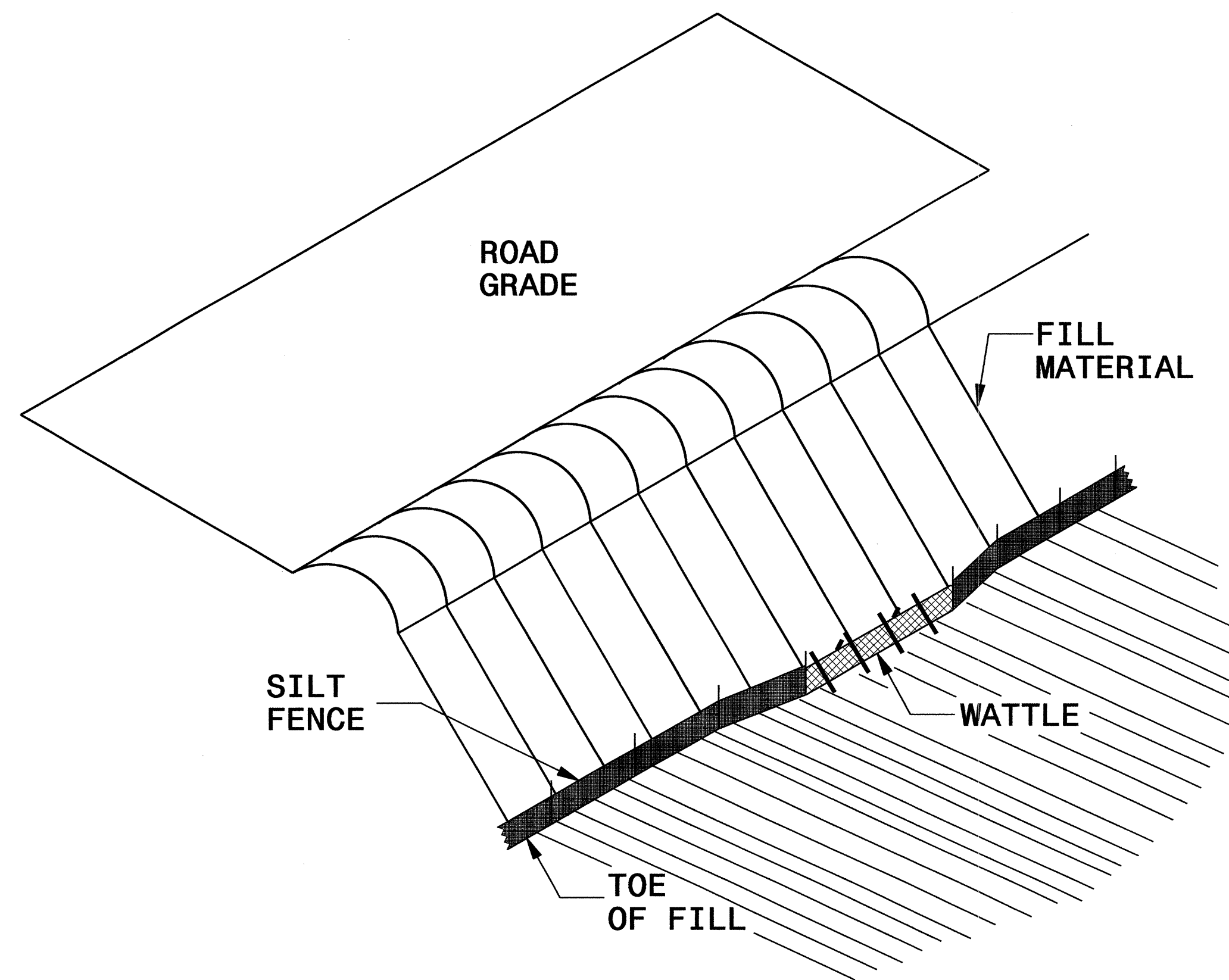


- NOTES:
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
  - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
  - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
  - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
  - PROVIDE STAPLES MADE OF 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 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

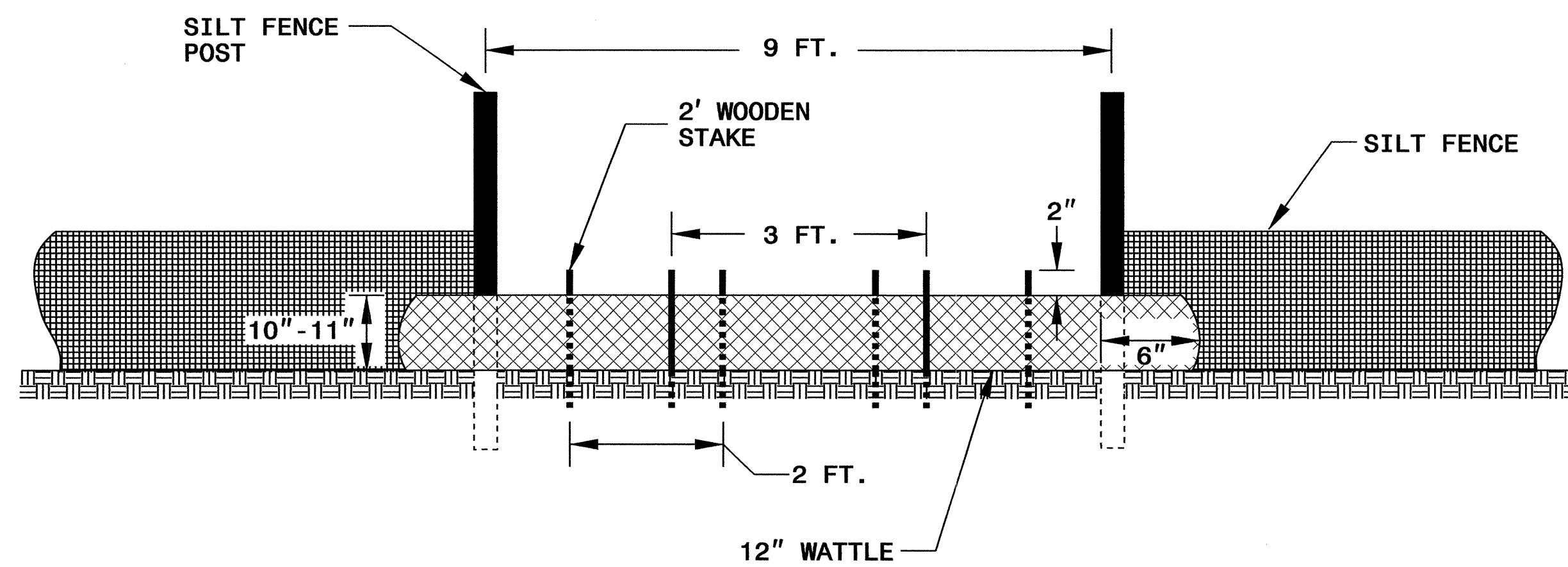


# SILT FENCE WATTLE BREAK DETAIL

PROJECT REFERENCE NO. B-4949	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**ISOMETRIC VIEW**

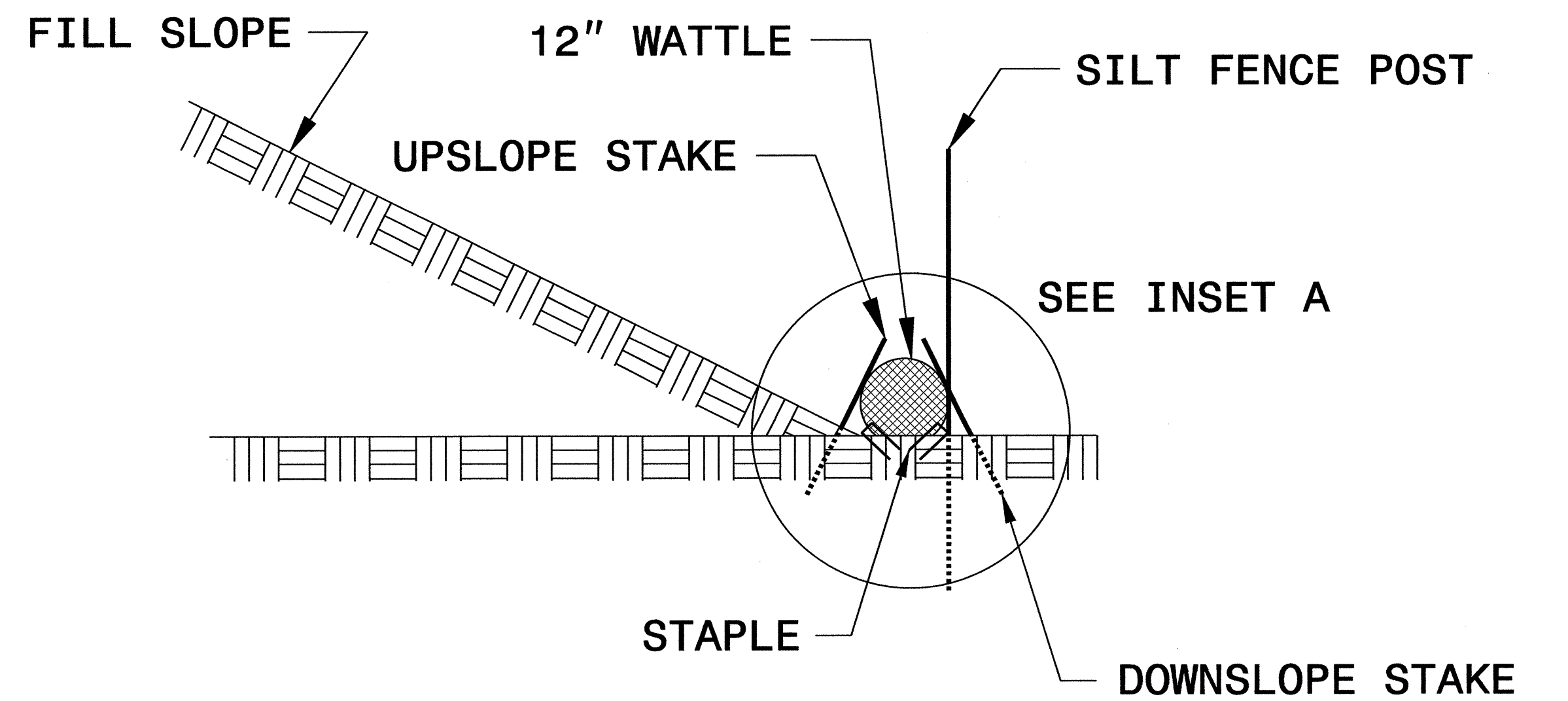
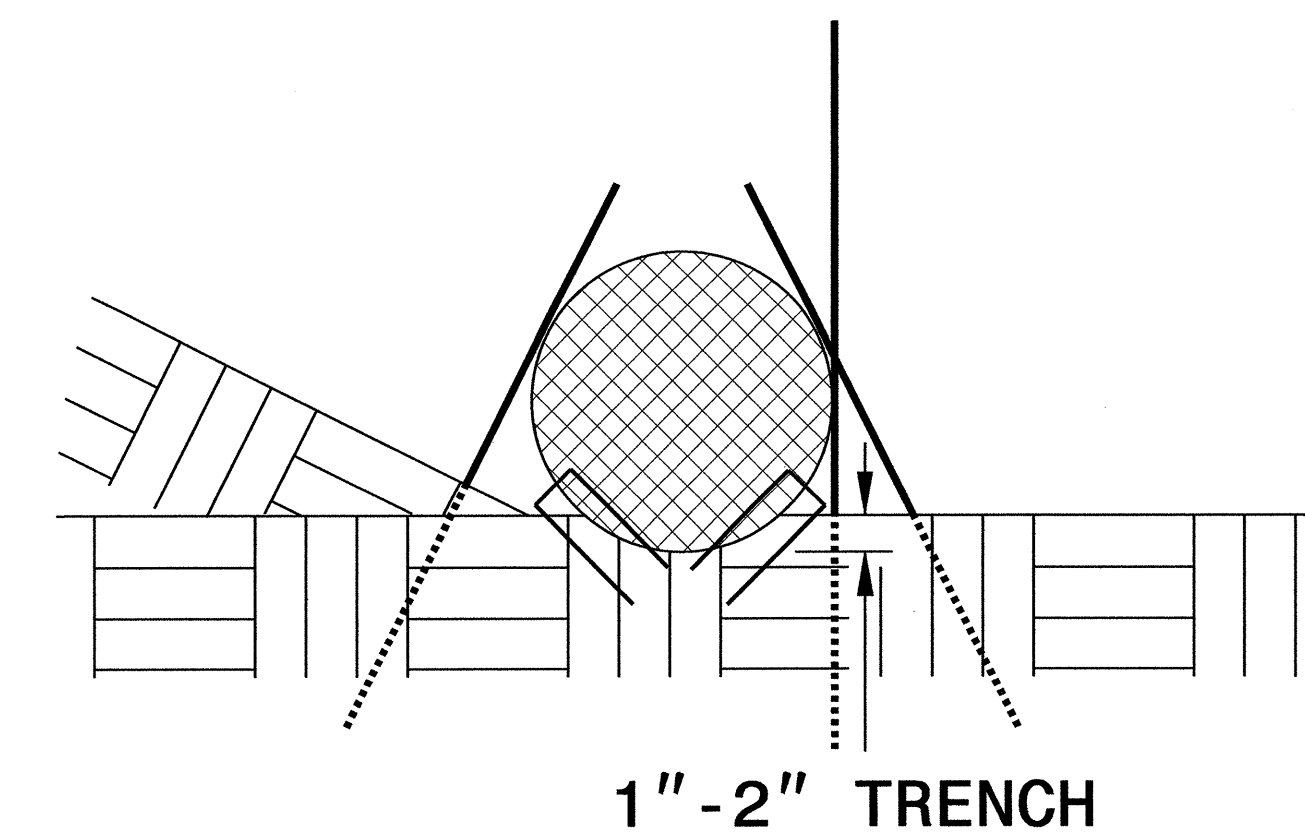


**VIEW FROM SLOPE**

**NOTES:**

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- 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.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

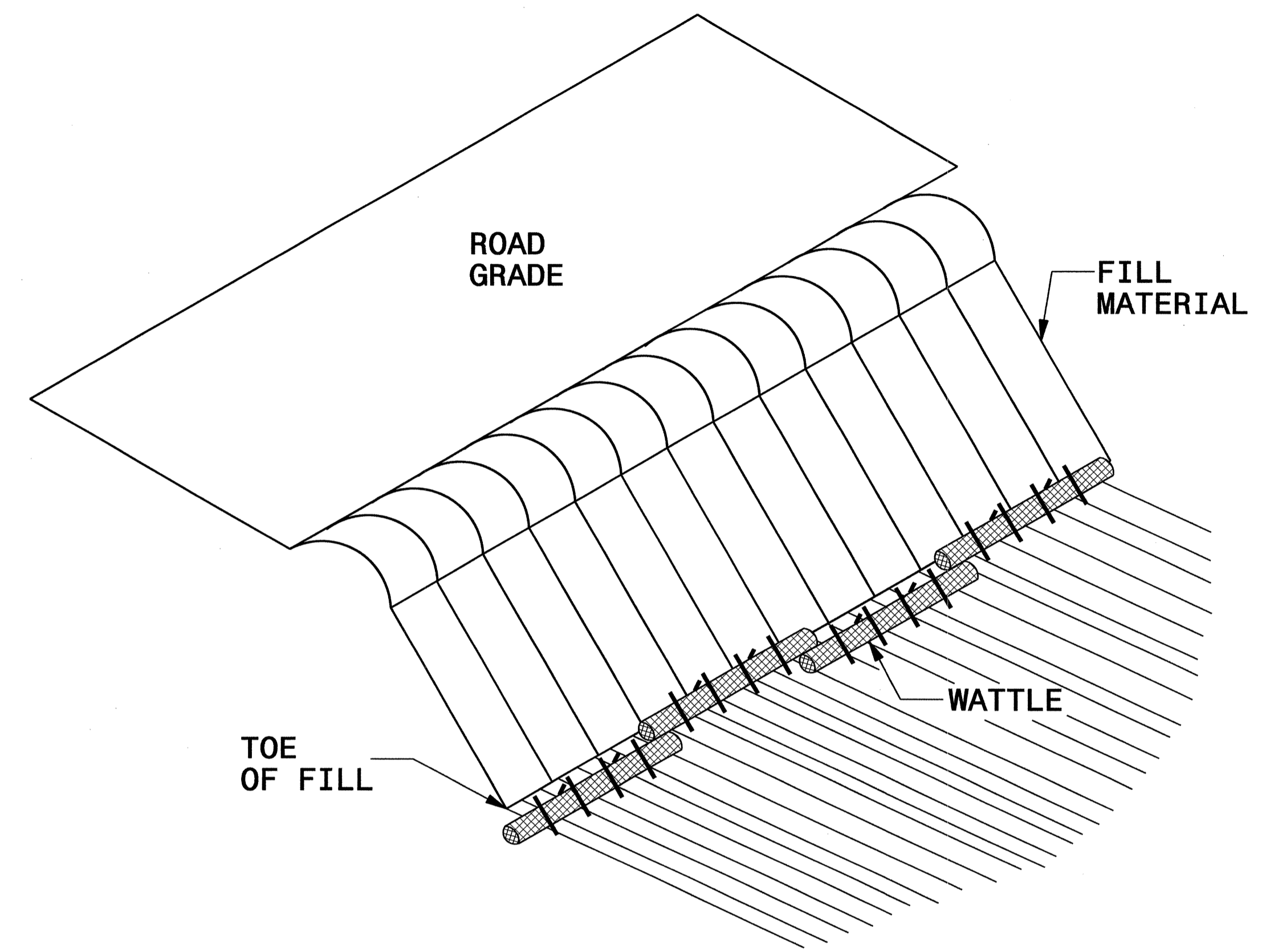
**INSET A**



**SIDE VIEW**

PROJECT REFERENCE NO.		SHEET NO.	
B-4949		EC-2C	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

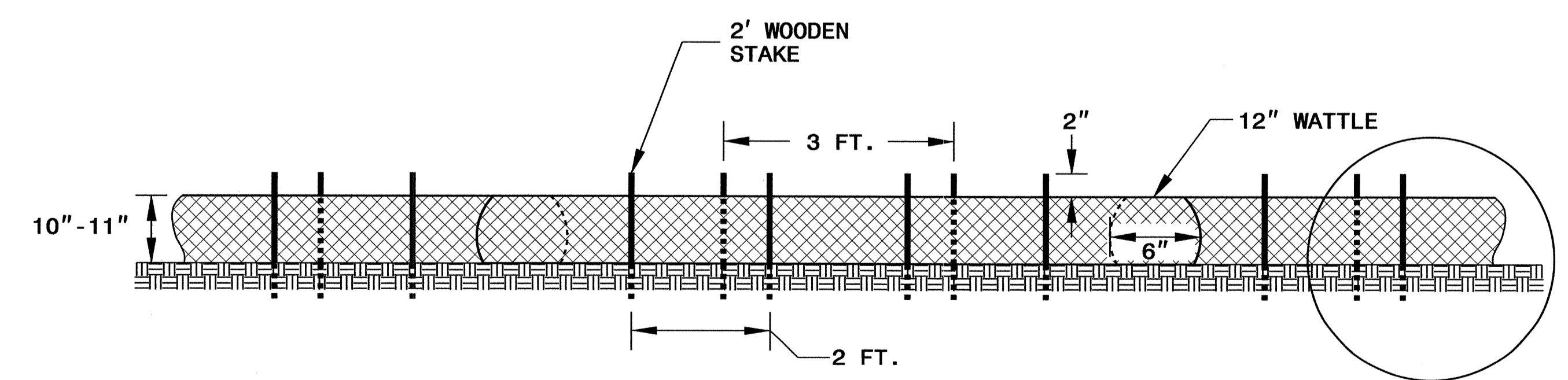
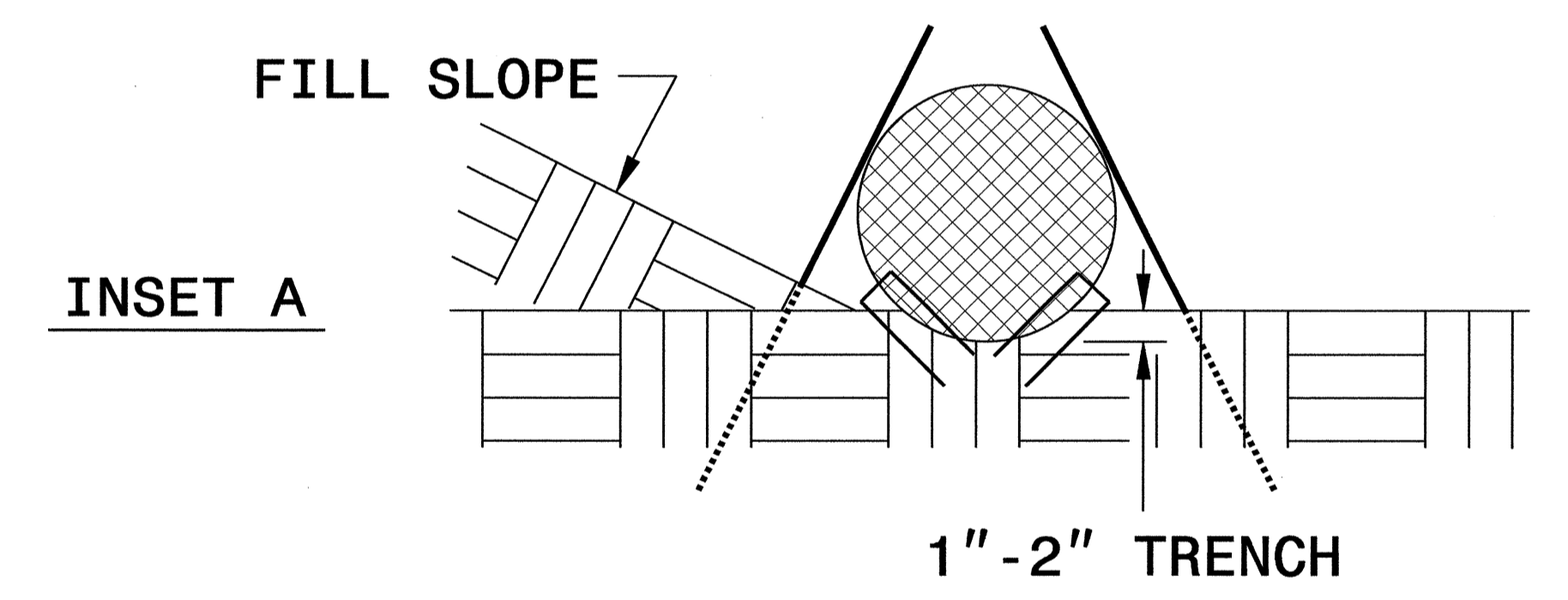
# WATTLE BARRIER DETAIL



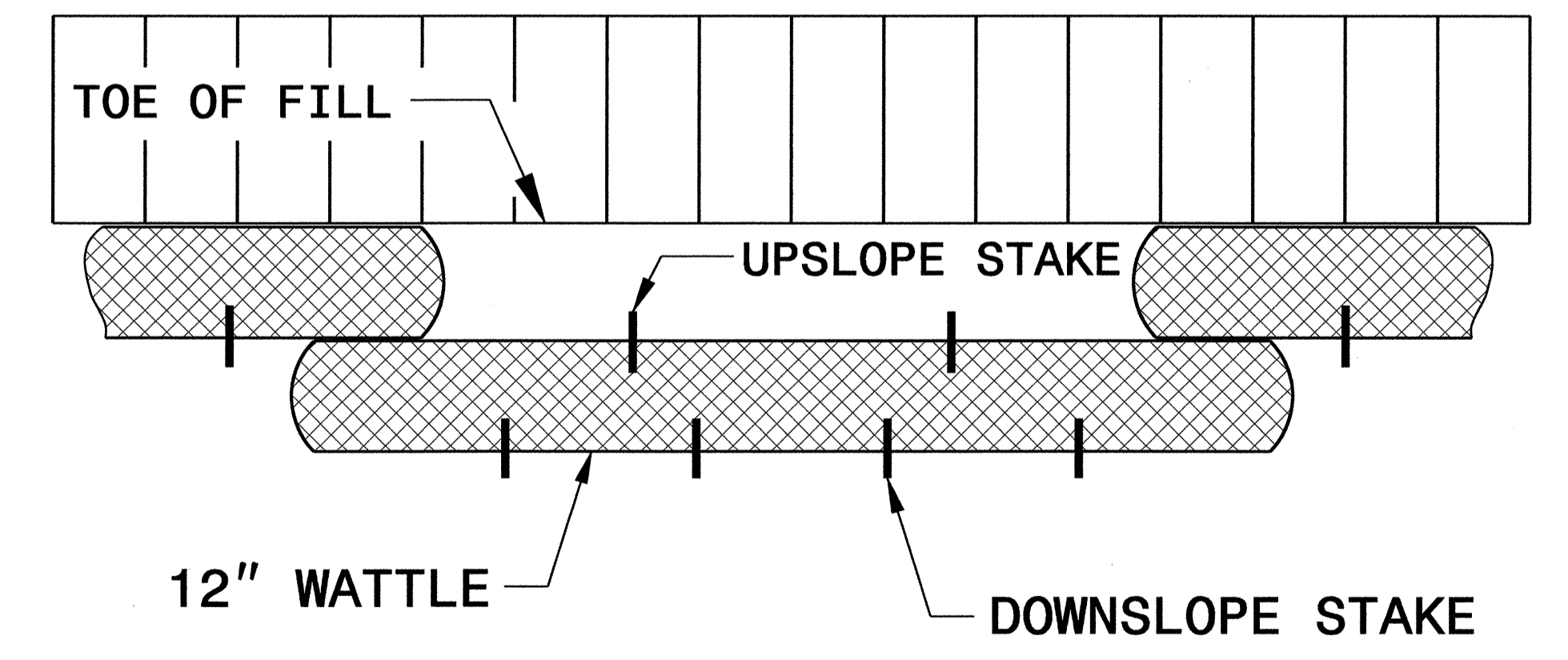
**ISOMETRIC VIEW**

**NOTES:**

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- 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.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.



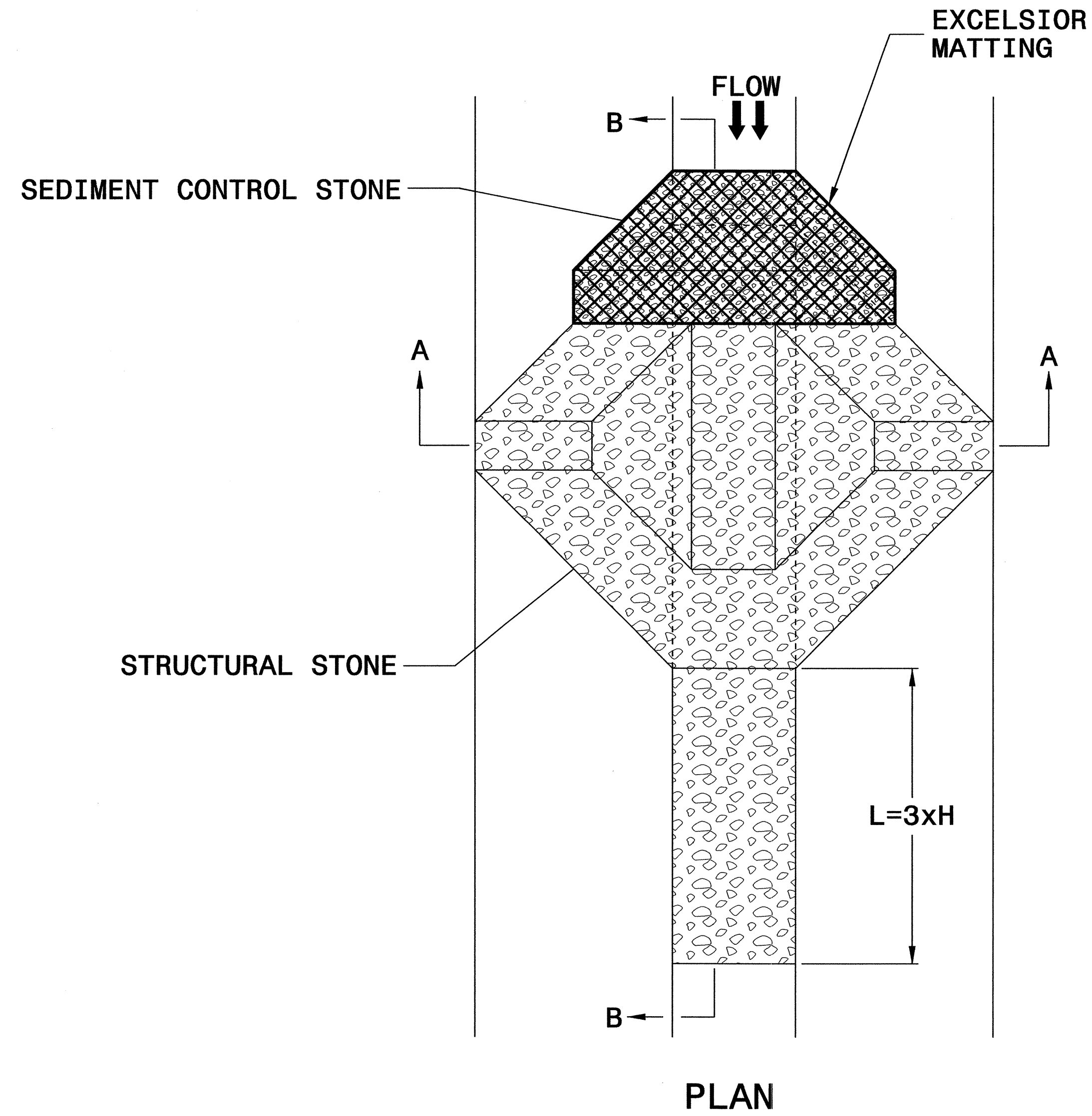
**FRONT VIEW**



**TOP VIEW**

PROJECT REFERENCE NO. B-4949	SHEET NO. EC-2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

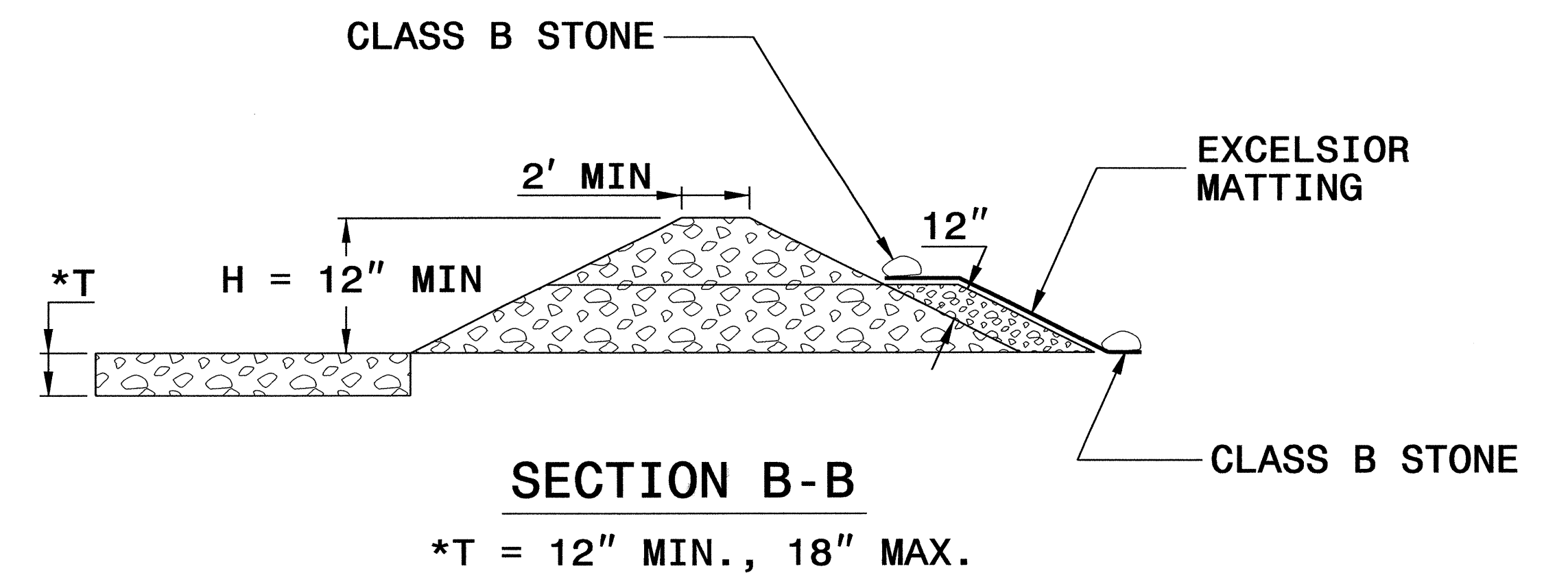
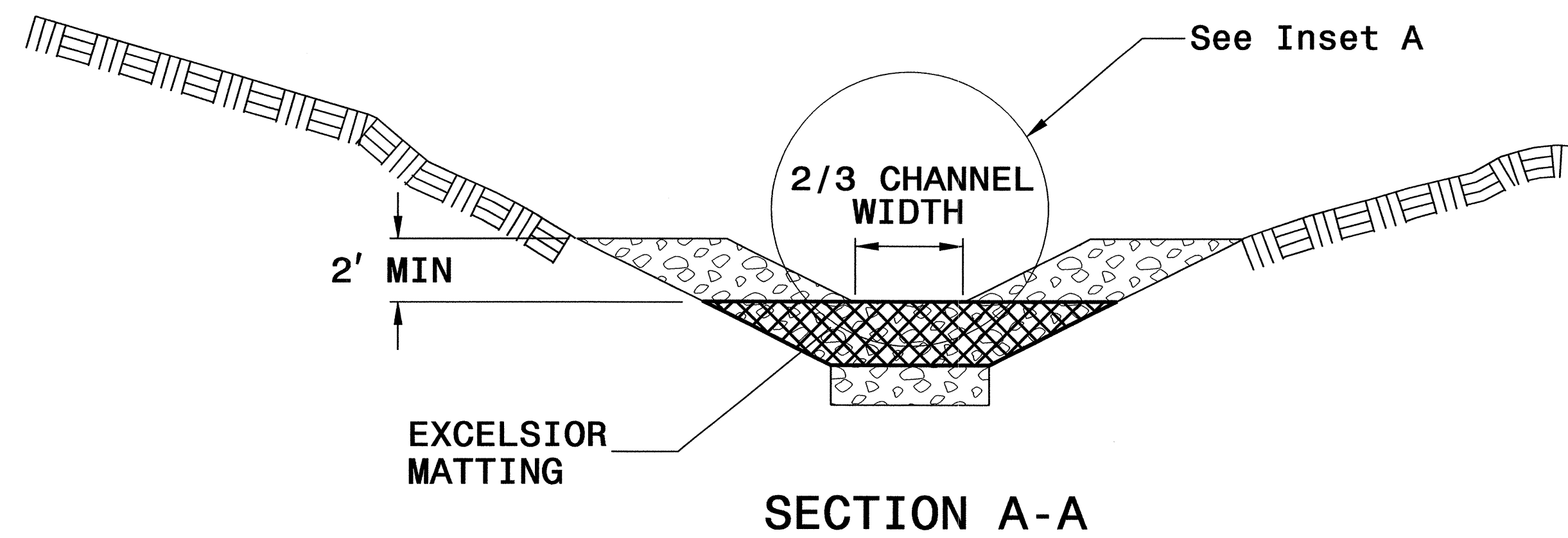
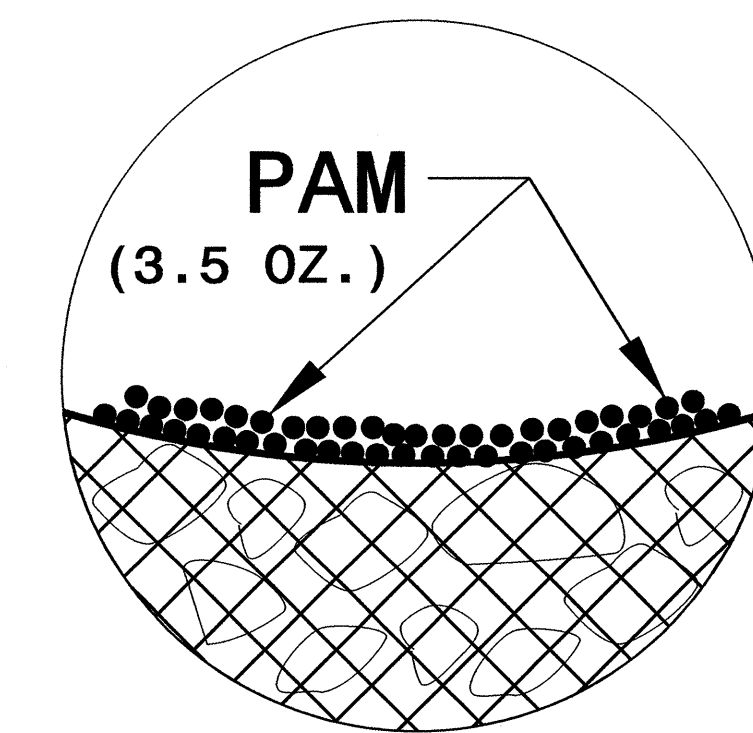


## NOTES

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

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>B-4949</i>	SHEET NO. <i>EC-3</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 10' 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 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

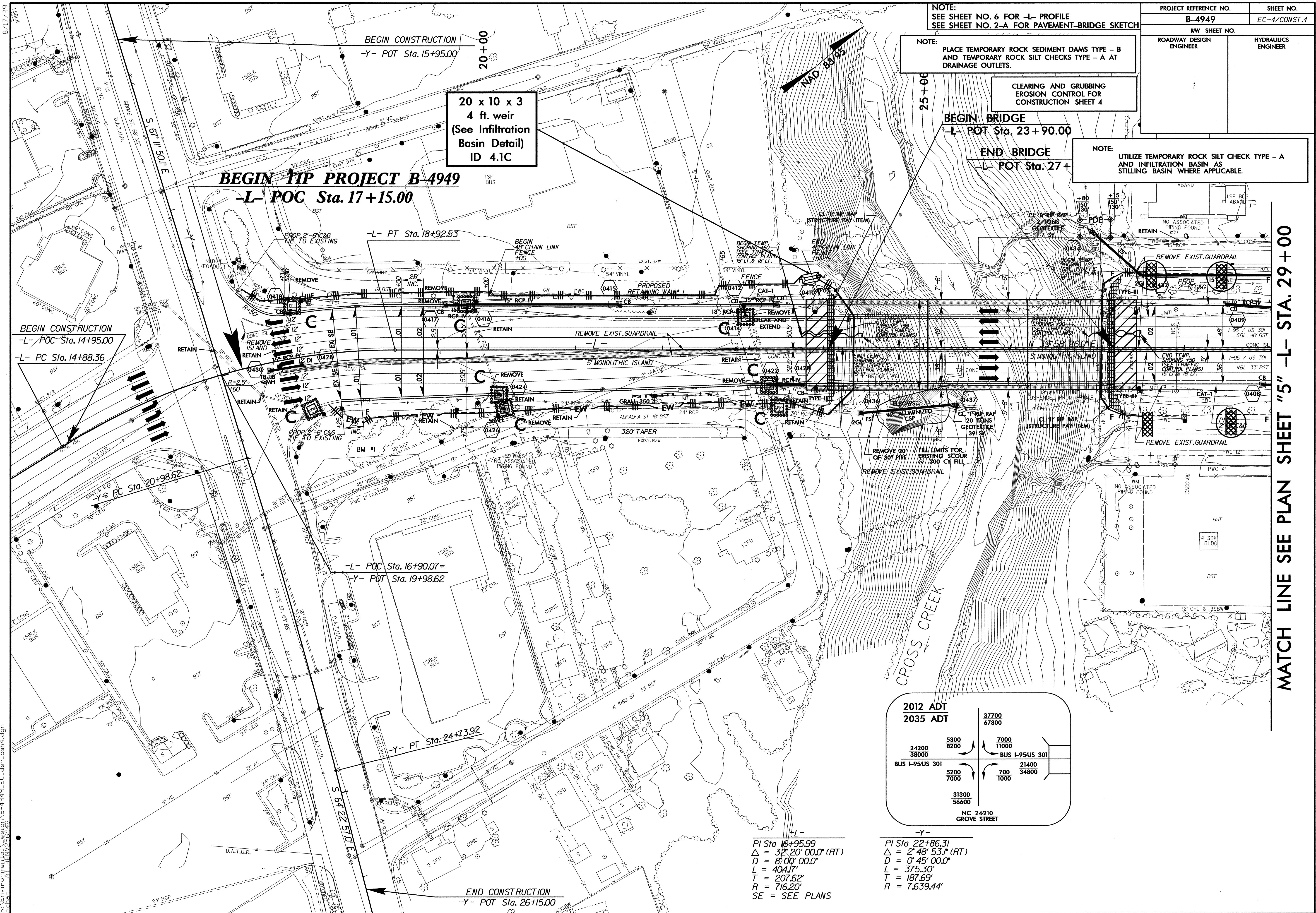
PROJECT REFERENCE NO.	SHEET NO.
B-4949	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:  
SEE SHEET NO. 6 FOR -L- PROFILE  
SEE SHEET NO. 2-A FOR PAVEMENT-BRIDGE SKETCH

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

NOTE:  
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A  
AND INFILTRATION BASIN AS  
STILLING BASIN WHERE APPLICABLE.



MATCH LINE SEE PLAN SHEET "5" -L- STA. 29+00

2012 ADT	37700
2035 ADT	67800
24200 38000	5300 8200
BUS I-95US 301	7000 11000
	BUS I-95US 301
5200 7000	700 1000
	21400 34800
31300 56600	
	NC 24210 GROVE STREET

-L-  
PI Sta 16+95.99  
Δ = 32° 20' 00.0" (RT)  
D = 8' 00' 00.0"  
L = 404.17'  
T = 207.62'  
R = 716.20'  
SE = SEE PLANS

-Y-  
PI Sta 22+86.31  
Δ = 2° 48' 53.1" (RT)  
D = 0' 45' 00.0"  
L = 375.30'  
T = 187.69'  
R = 7,639.44'

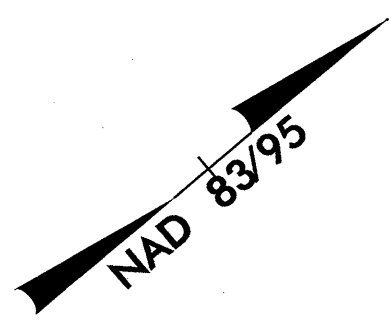
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6/1/REV/255245



PROJECT REFERENCE NO. <b>B-4949</b>	SHEET NO. <i>EC-5/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: SEE SHEET NO. 6 FOR -L- PROFILE

-L-  
 PI Sta 39+231.2  
 $\Delta = 35^{\circ}12'00.0''$  (RT)  
 $D = 3^{\circ}00'00.0''$   
 $L = 1,173.33'$   
 $T = 605.84'$   
 $R = 1,909.86'$



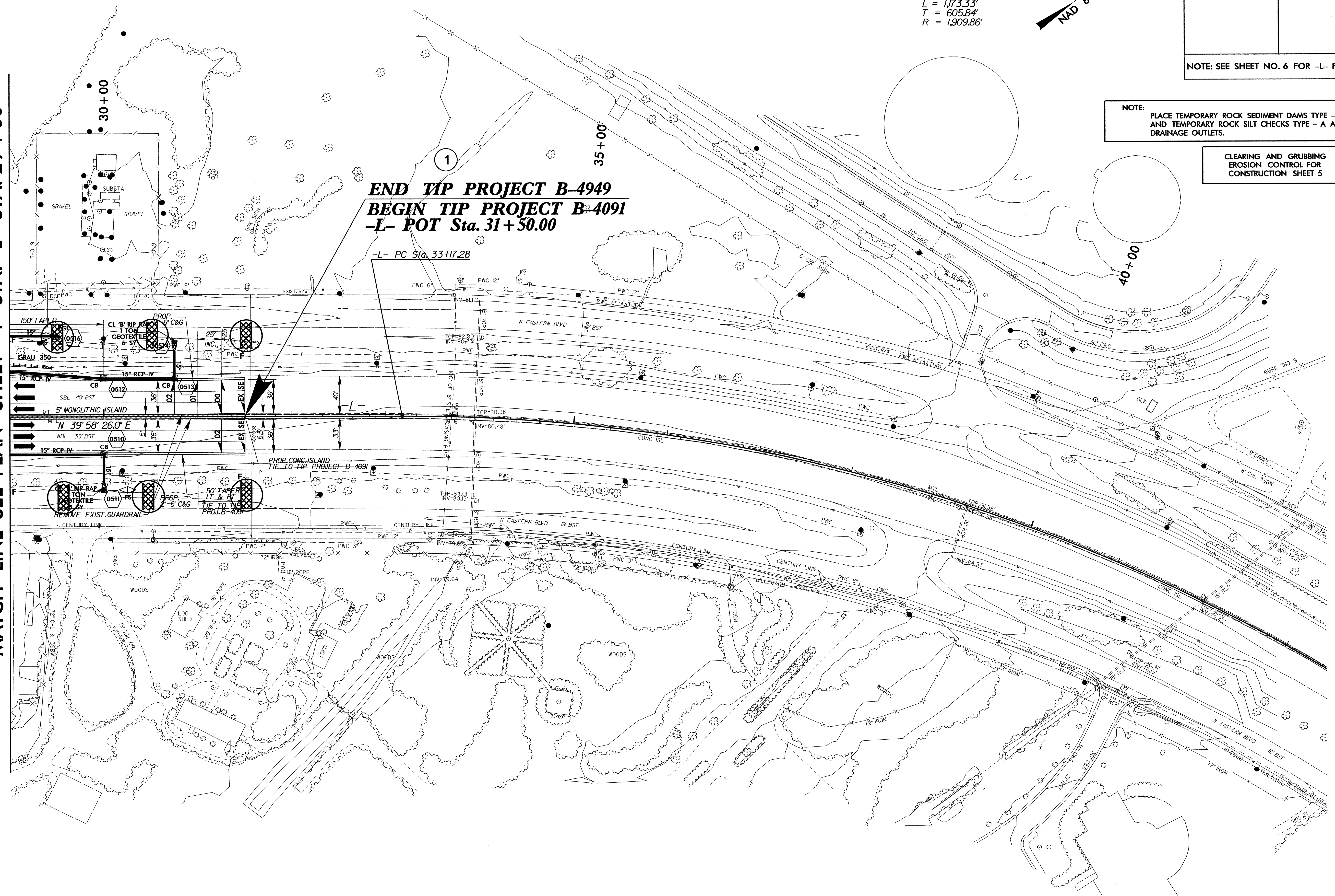
MATCH LINE SEE PLAN SHEET "4" STA. -L- STA. 29+00

**END TIP PROJECT B-4949**  
**BEGIN TIP PROJECT B-4091**  
**-L- POT Sta. 31+50.00**

-L- PC Sta. 33+17.28

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

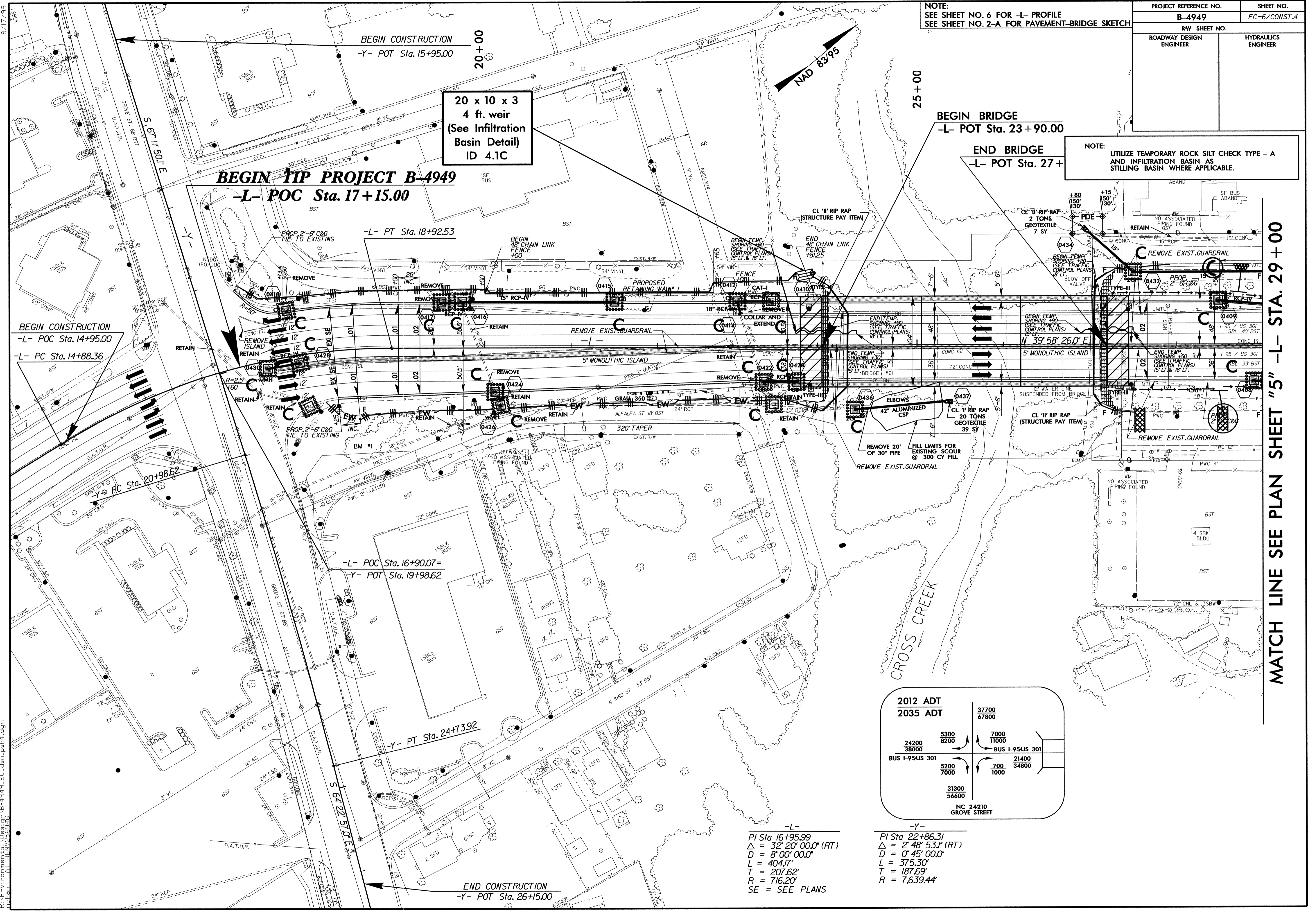
CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 5



PROJECT REFERENCE NO.	SHEET NO.
B-4949	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:  
SEE SHEET NO. 6 FOR -L- PROFILE  
SEE SHEET NO. 2-A FOR PAVEMENT-BRIDGE SKETCH

NOTE:  
UTILIZE TEMPORARY ROCK SILT CHECK TYPE - A  
AND INFILTRATION BASIN AS  
STILLING BASIN WHERE APPLICABLE.



20 x 10 x 3  
4 ft. weir  
(See Infiltration  
Basin Detail)  
ID 4.1C

**BEGIN TIP PROJECT B-4949**  
-L- POC Sta. 17+15.00

**BEGIN BRIDGE**  
-L- POT Sta. 23+90.00

**END BRIDGE**  
-L- POT Sta. 27+00

**BEGIN CONSTRUCTION**  
-L- POC Sta. 14+95.00

-L- PC Sta. 14+88.36

-L- POC Sta. 16+90.07=  
-Y- POT Sta. 19+98.62

-Y- PT Sta. 24+73.92

**END CONSTRUCTION**  
-Y- POT Sta. 26+15.00

2012 ADT	37700
2035 ADT	67800
24200	5300
38600	8200
BUS I-95US 301	7000
	11000
	BUS I-95US 301
5200	700
7000	1000
	21400
	34800
31300	
56600	
NC 24210 GROVE STREET	

-L-  
PI Sta 16+95.99  
Δ = 32' 20" 00.0" (RT)  
D = 8' 00" 00.0"  
L = 404.17'  
T = 207.62'  
R = 716.20'  
SE = SEE PLANS

-Y-  
PI Sta 22+86.31  
Δ = 2' 48' 53.1" (RT)  
D = 0' 45' 00.0"  
L = 375.30'  
T = 187.69'  
R = 7639.44'

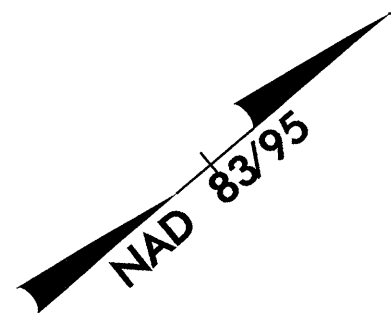
MATCH LINE SEE PLAN SHEET "5" -L- STA. 29+00

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AT REV 25/3/16

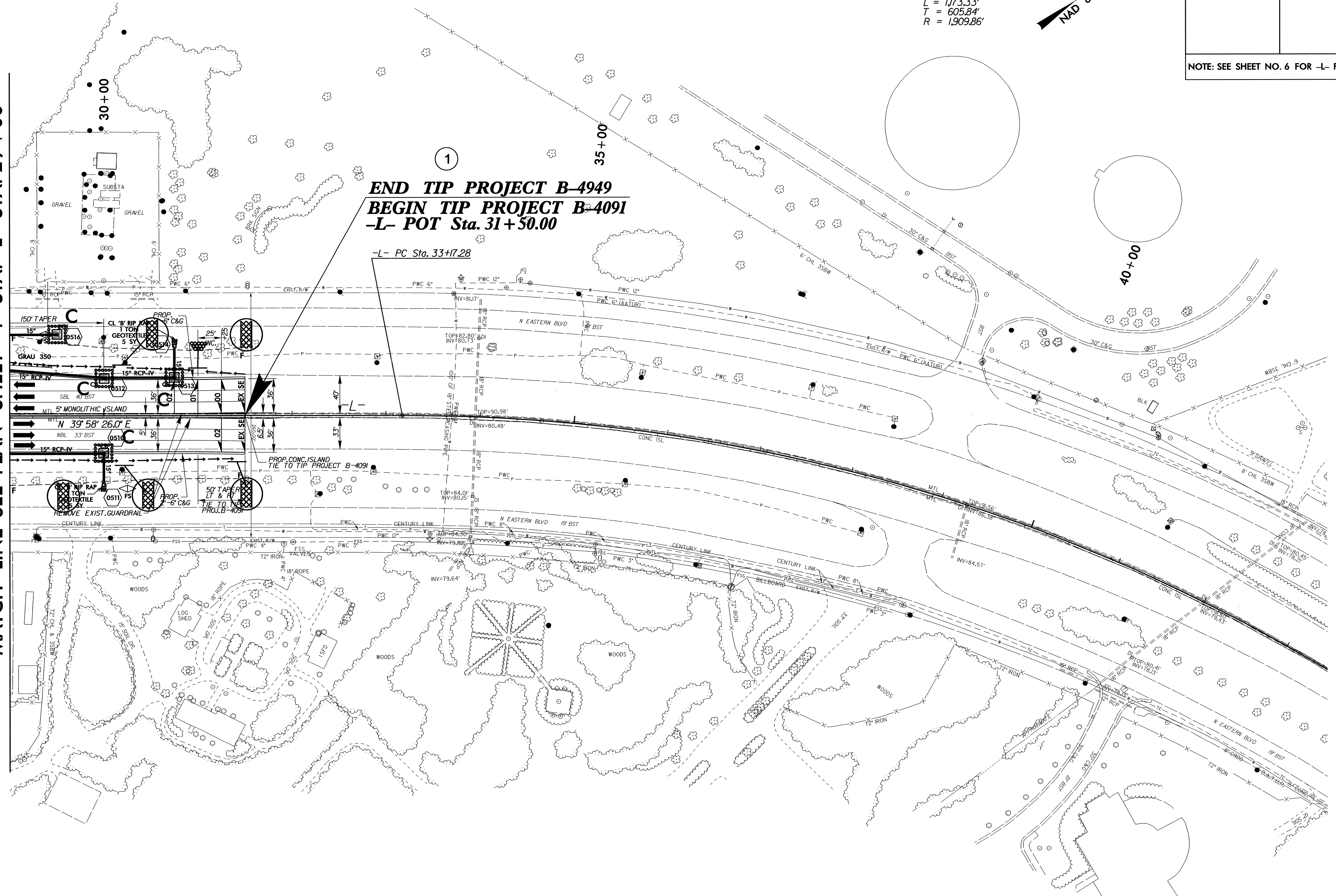
PROJECT REFERENCE NO. <b>B-4949</b>	SHEET NO. <i>EC-7/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: SEE SHEET NO. 6 FOR -L- PROFILE

-L-  
 PI Sta 39+23.12  
 $\Delta = 35^\circ 12' 00.0''$  (RT)  
 $D = 3^\circ 00' 00.0''$   
 $L = 1,173.33'$   
 $T = 605.84'$   
 $R = 1,909.86'$



MATCH LINE SEE PLAN SHEET "4" STA. -L- STA. 29+00



1  
**END TIP PROJECT B-4949**  
**BEGIN TIP PROJECT B-4091**  
**-L- POT Sta. 31+50.00**

-L- PC Sta. 33+17.28