TIP PROJECT: B-4744

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4744	EC-1	

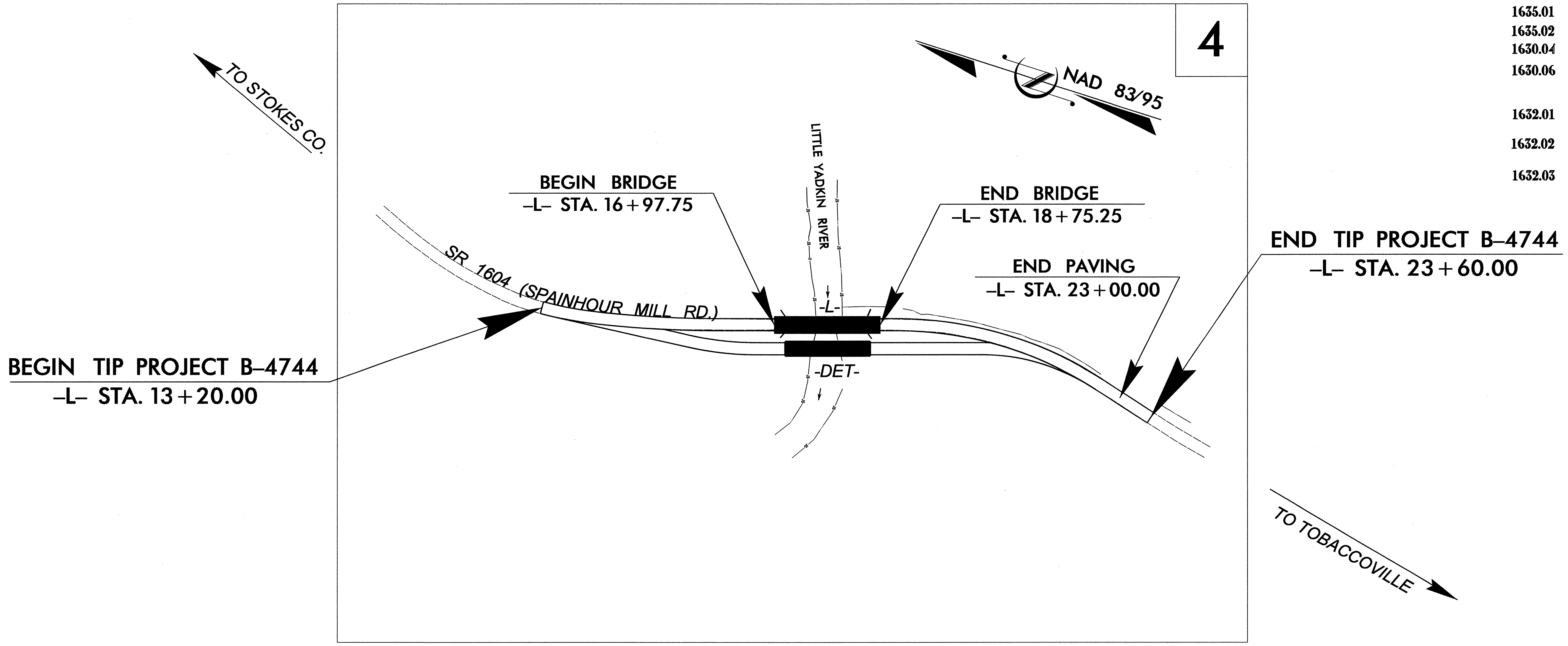
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

FORSYTH COUNTY

LOCATION: BRIDGE #15 OVER LITTLE YADKIN RIVER
ON SR 1604 (SPAINHOUR MILL RD.)
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



EROSION AND SEDIMENT CONTROL MEASURES

Std.#	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	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	EW CFW
	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	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	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

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 revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary Diversion
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.01	Rock Inlet Sediment Trap Type A
1632.02	Rock Inlet Sediment Trap Type B
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1633.02	Temporary Rock Silt Check Type B
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
1640.01	Coir Fiber Baffle
1645.01	Temporary Stream Crossing

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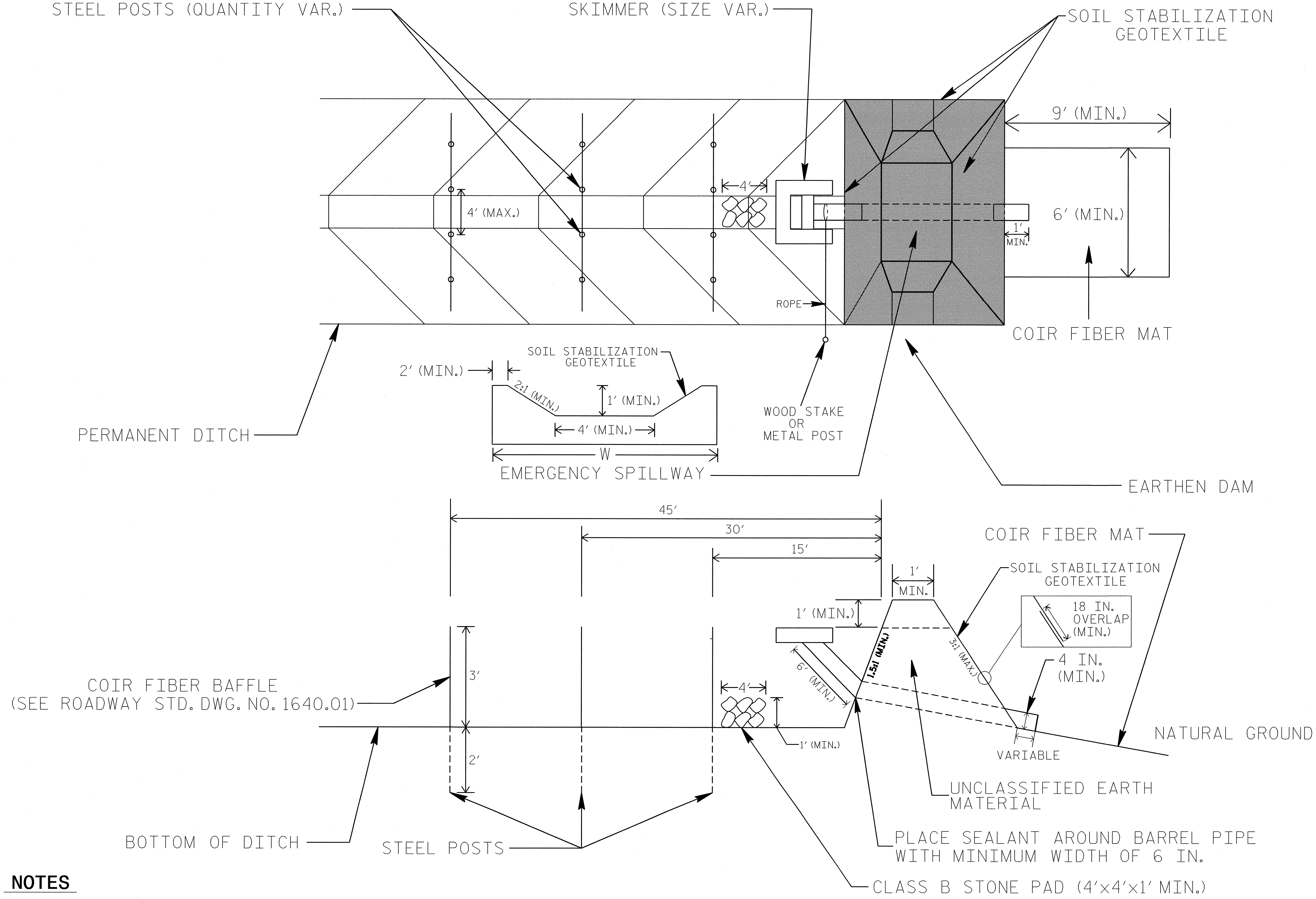
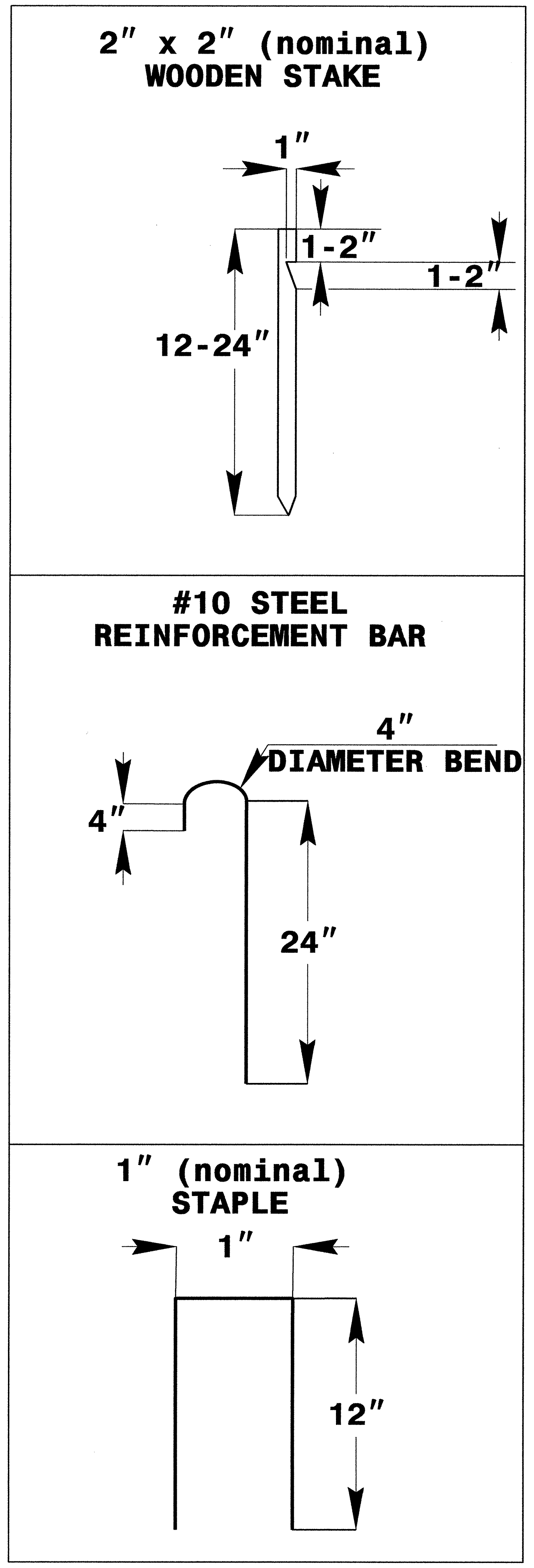
PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EARTHEN DAM WITH SKIMMER





COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. SOIL STABILIZATION GEOTEXTILE FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) 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.

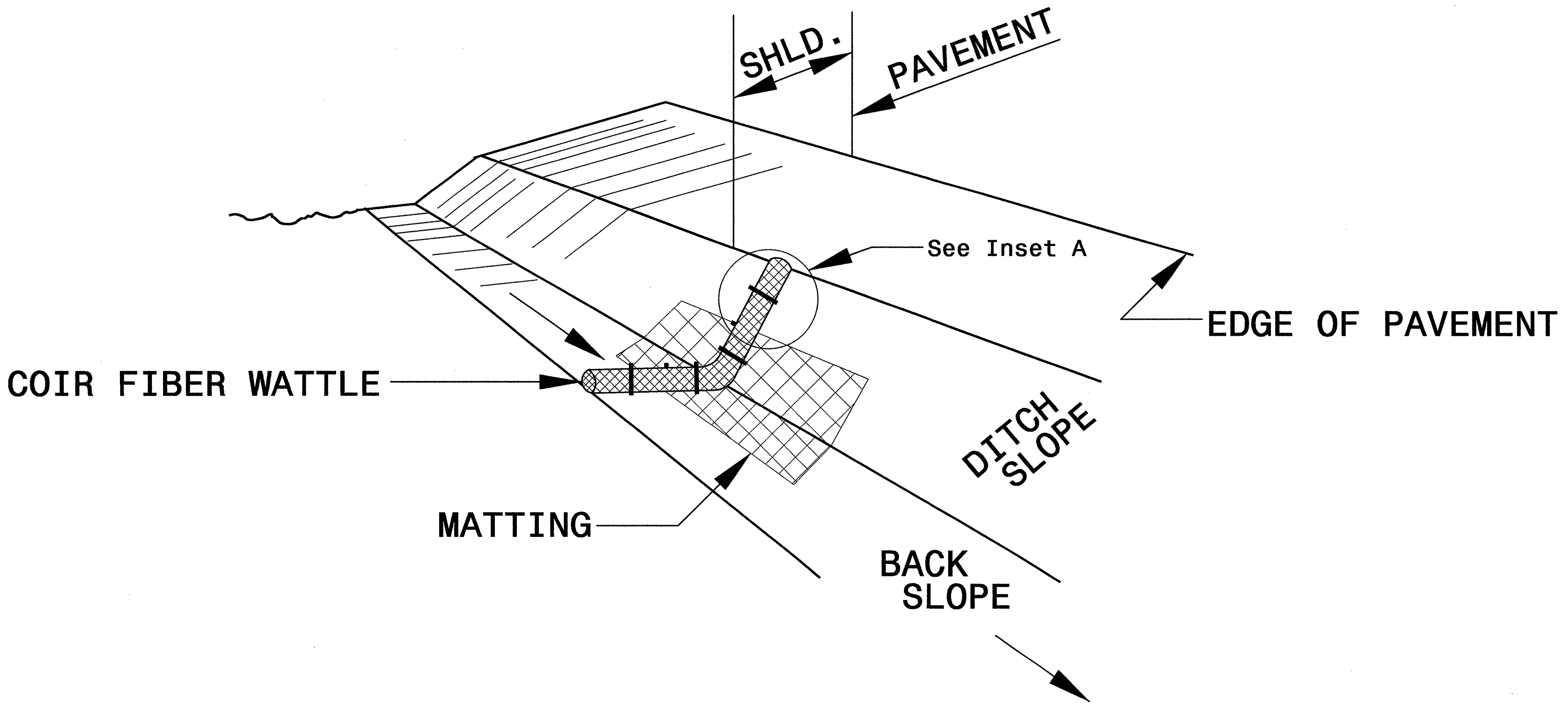
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

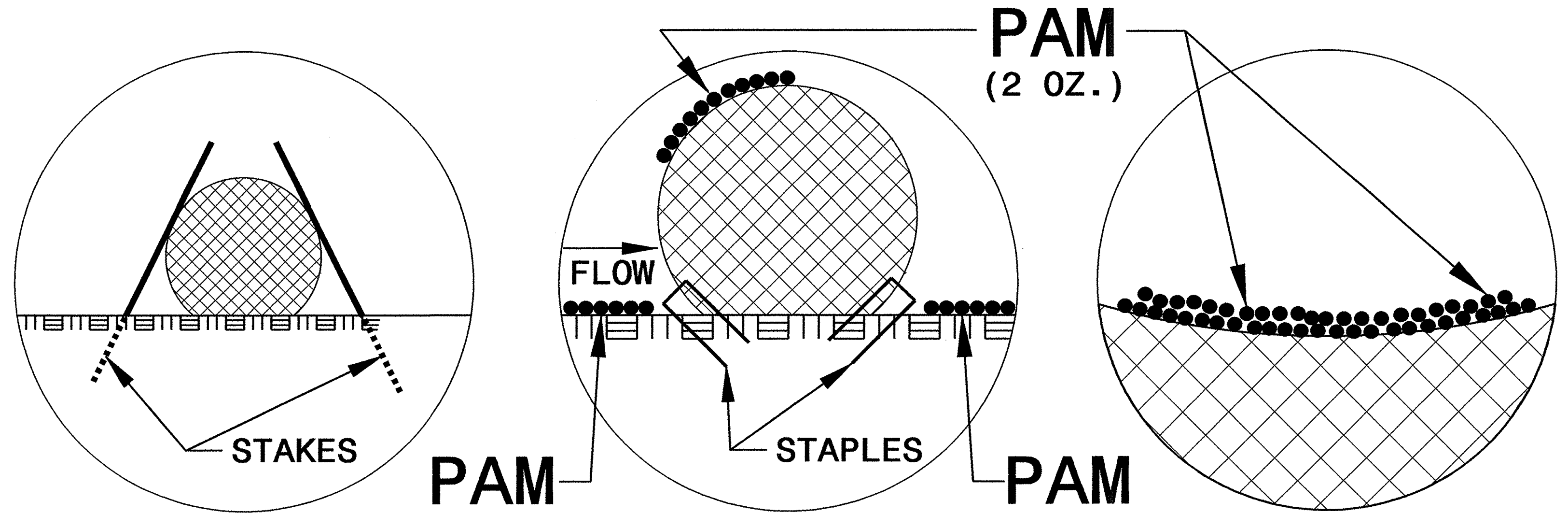
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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.



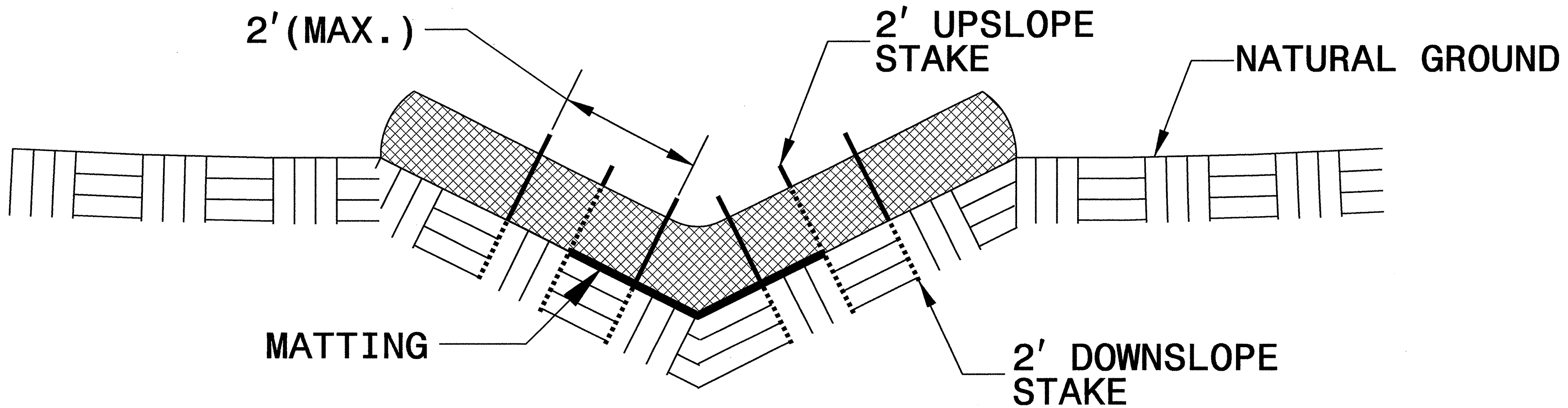
ISOMETRIC VIEW



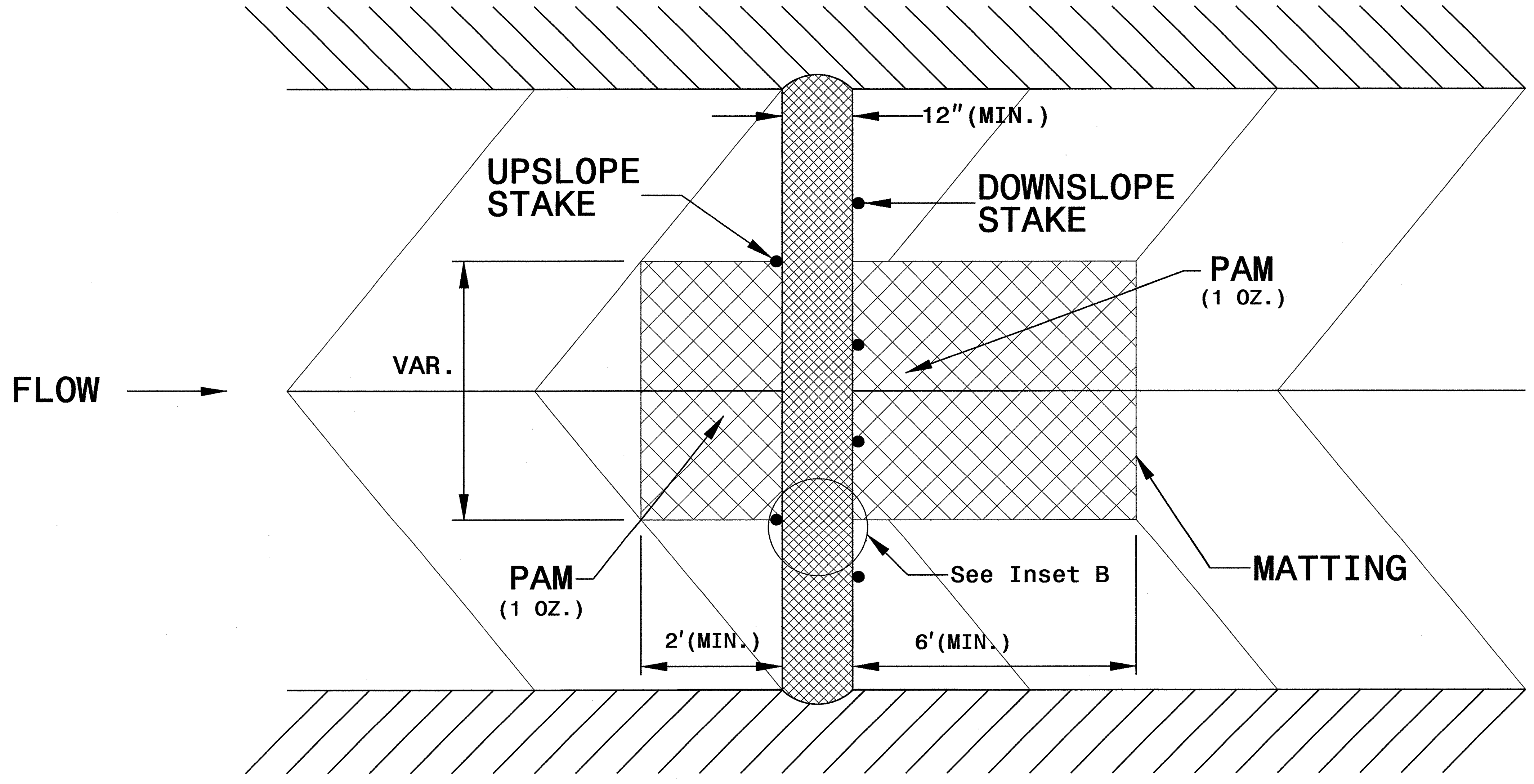
INSET A

INSET B

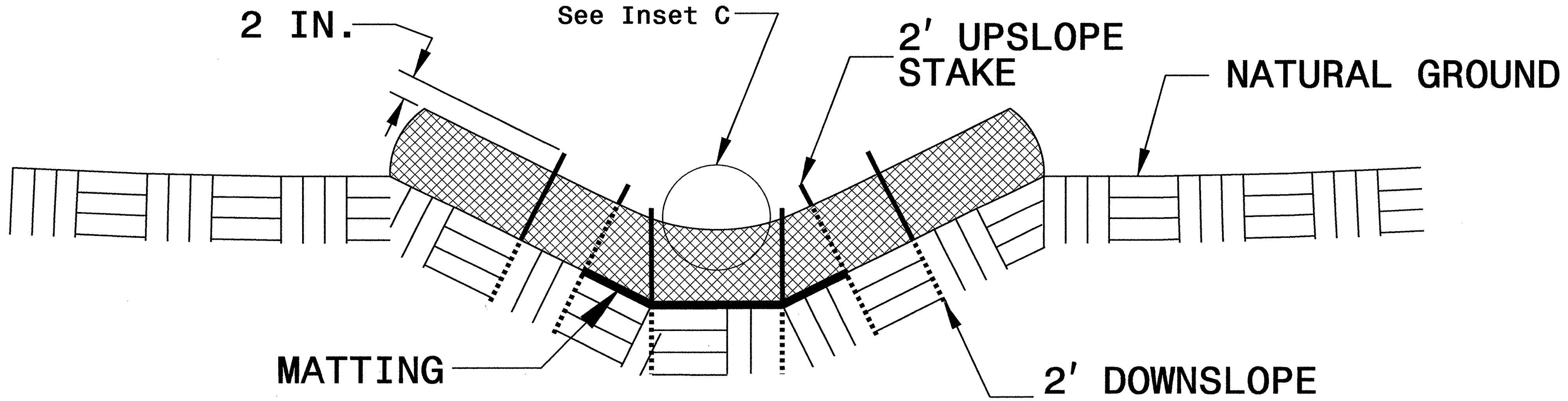
INSET C



CROSS SECTION VEE DITCH



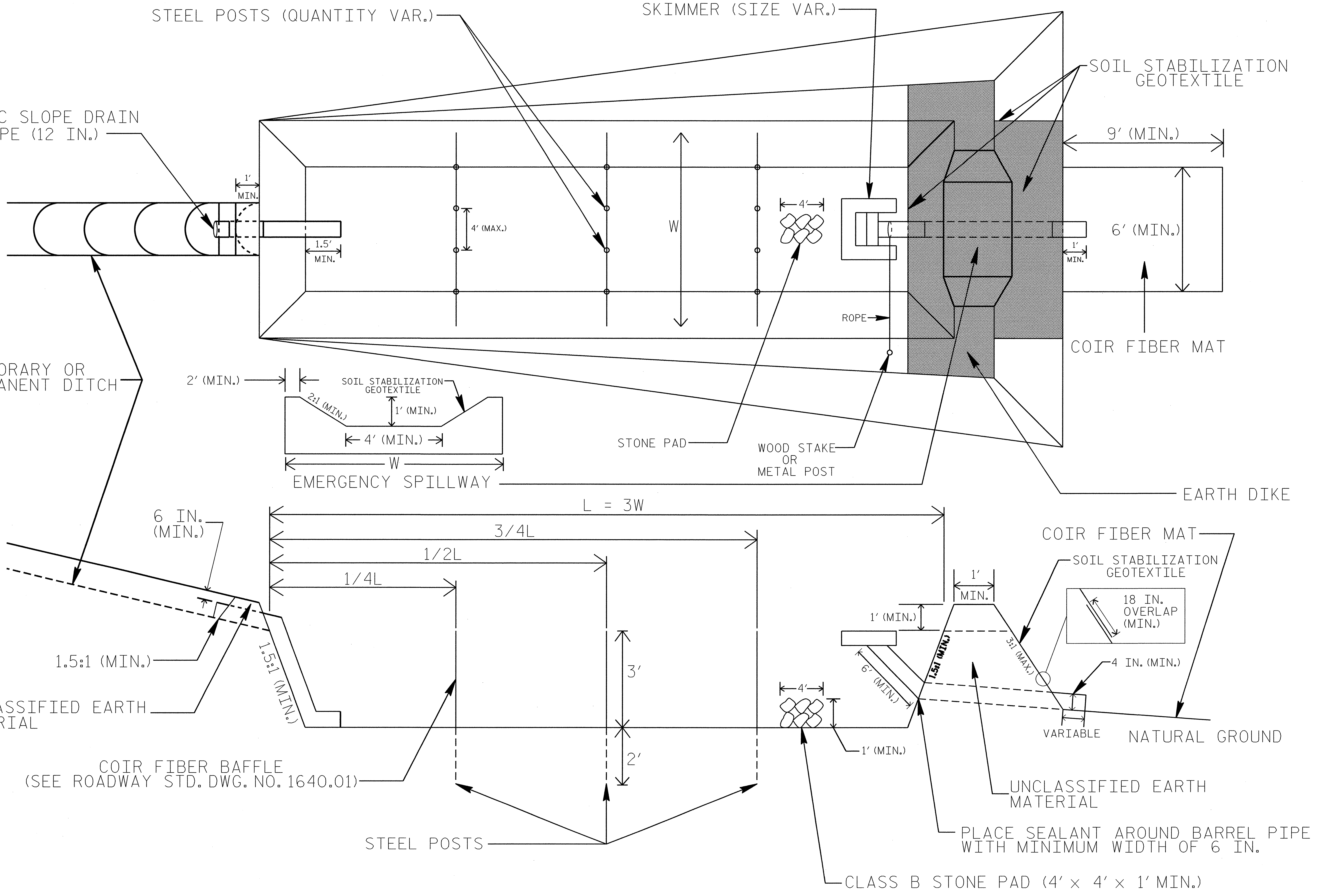
TOP VIEW

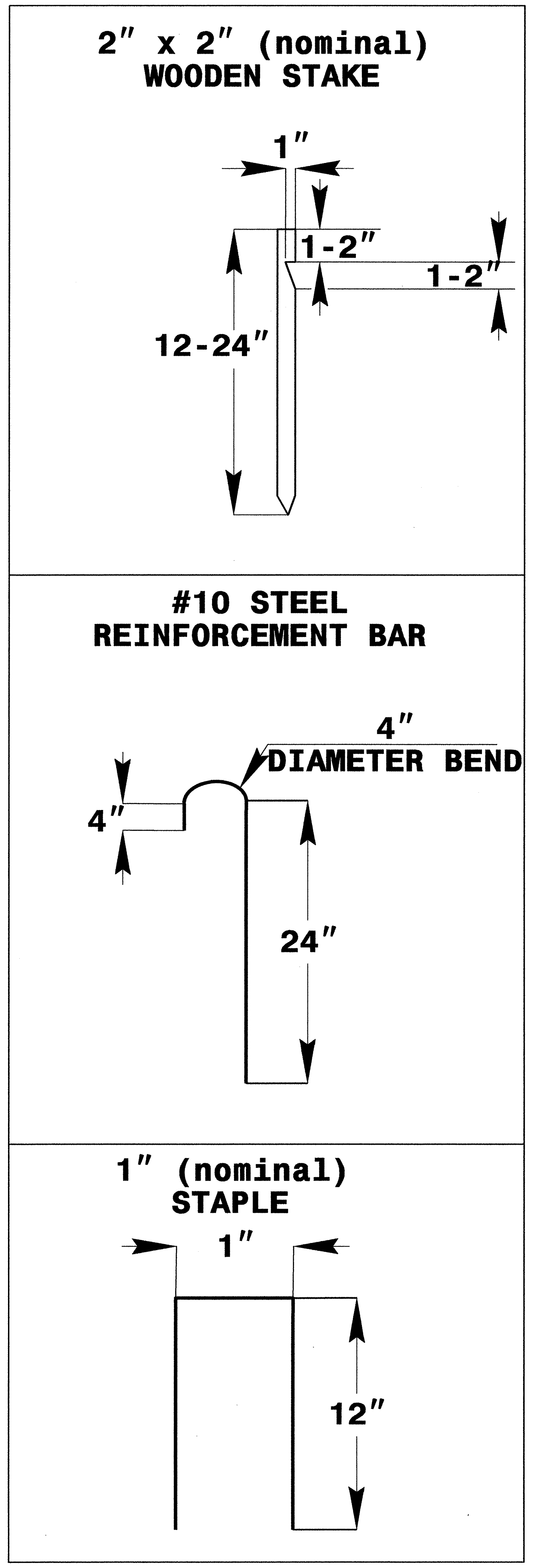


CROSS SECTION TRAPEZOIDAL DITCH

PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE EMERGENCY SPILLWAY WEIR LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	13+25	13+50	LT	10
4	L	13+25	14+75	RT	160
4	L	14+25	16+00	LT	310
4	L	19+75	22+75	LT	420
4	DRV3	10+60	10+80	MED	20
				SUBTOTAL	920
	ADDITIONAL PSRM TO BE INSTALLED				135
				TOTAL	1055
				SAY	1100

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-3A

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

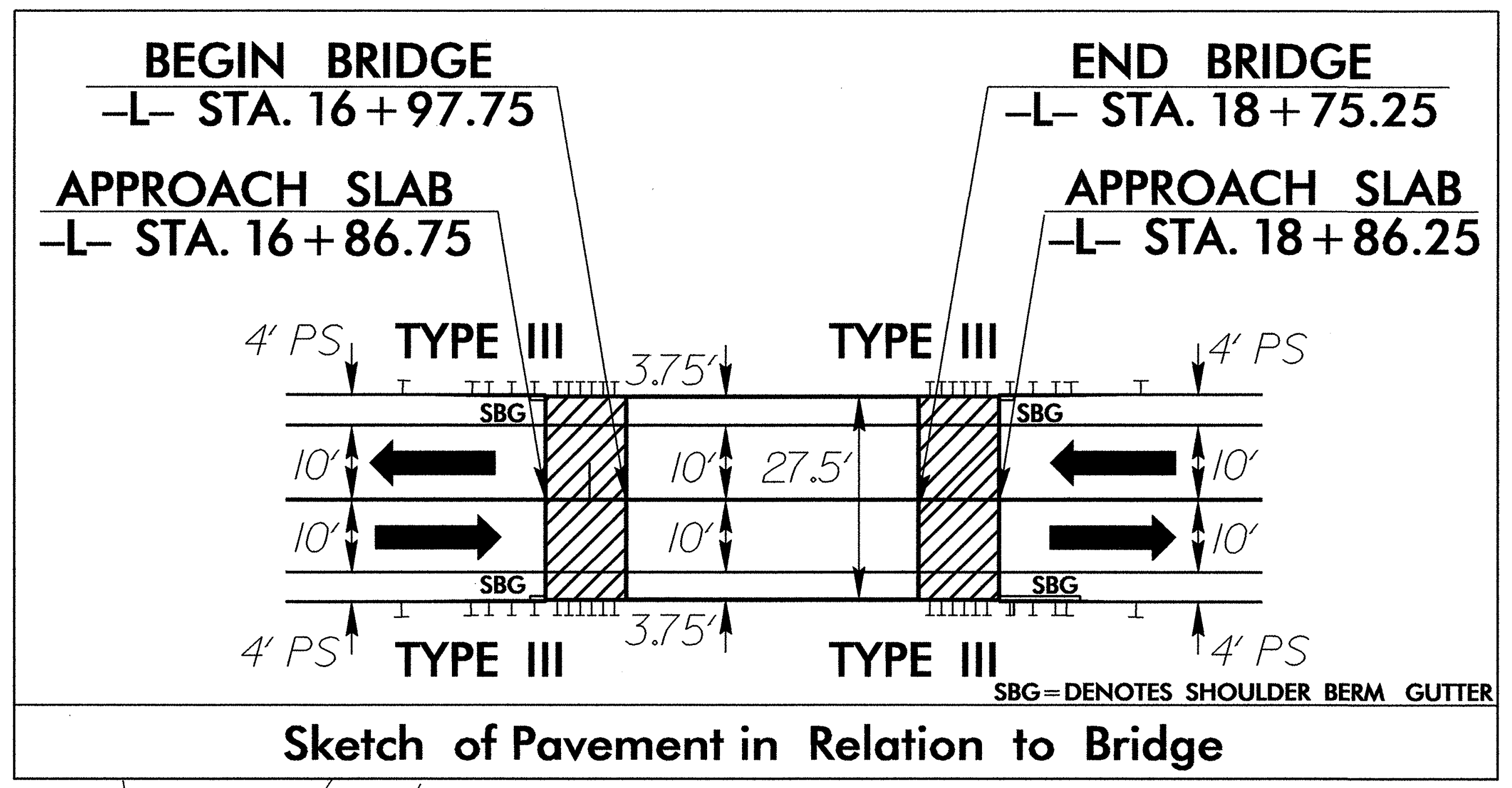
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

8/17/99

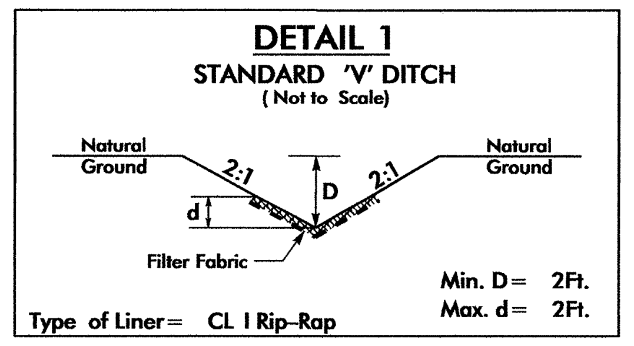
PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Sketch of Pavement in Relation to Bridge

DETAIL 1

STANDARD 'V' DITCH
(Not to Scale)

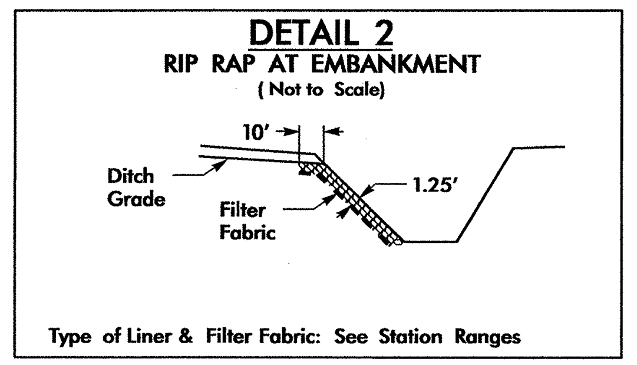


Min. D= 2Ft.
Max. d= 2Ft.
Type of Liner= CL I Rip-Rap

FROM -L- STA. 16+85 TO STA. 17+43 Lt.
FROM -L- STA. 18+31 TO STA. 19+75 Lt.

DETAIL 2

RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner & Filter Fabric: See Station Ranges

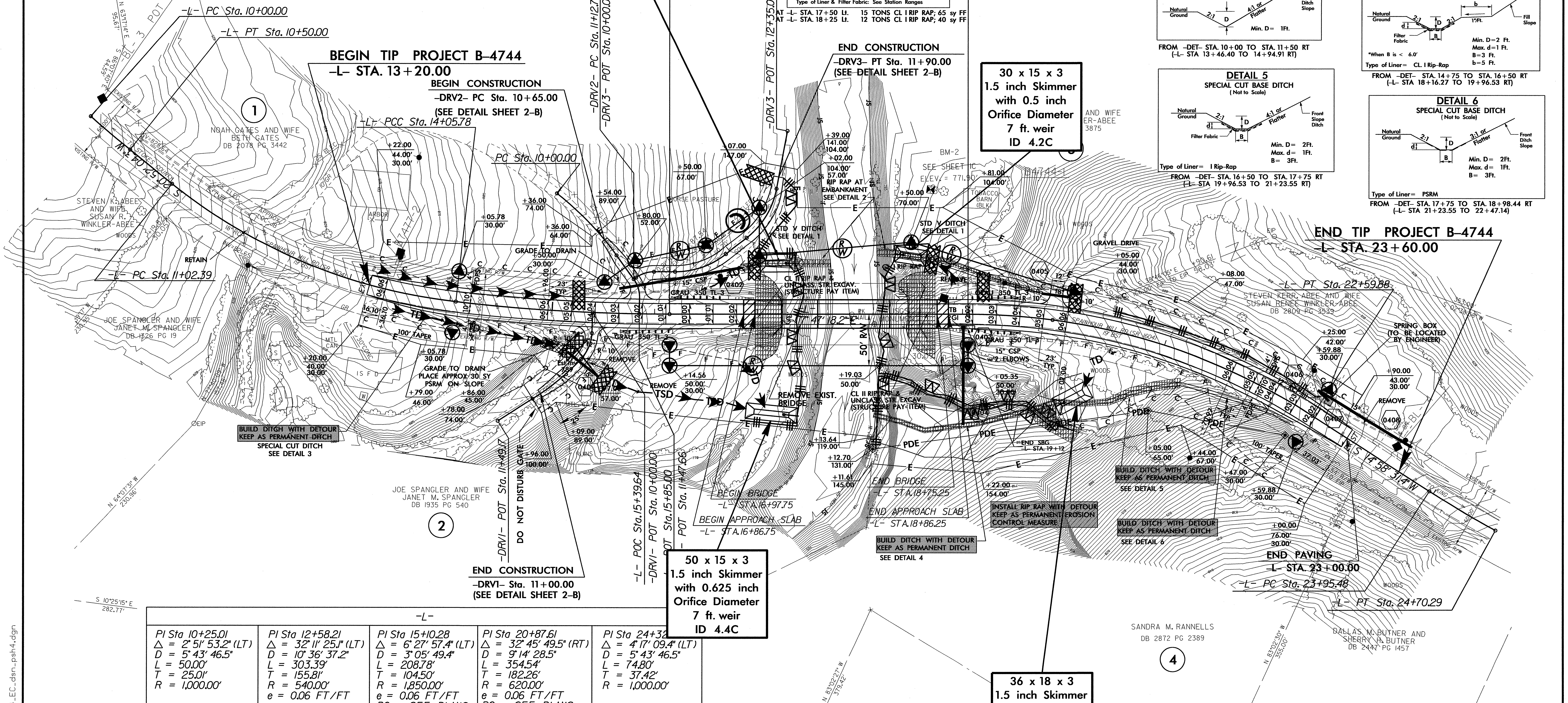
AT -L- STA. 17+50 Lt. 15 TONS CL I RIP RAP; 65 sy FF
AT -L- STA. 18+25 Lt. 12 TONS CL I RIP RAP; 40 sy FF

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

INSTALL DRIVEWAY PIPES DURING CLEARING & GRUBBING PHASE

NOTE: UTILIZE SPECIAL STILLING BASIN AND SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



DETAIL 3

SPECIAL CUT DITCH
(Not to Scale)

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

FROM -DET- STA. 10+00 TO STA. 11+50 RT
(-L- STA 13+46.40 TO 14+94.91 RT)

DETAIL 5

SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground
2:1
d
D
4:1 or Flatter
Front Slope Ditch
Filter Fabric
B
Min. D= 2Ft.
Max. d= 1Ft.
B= 3Ft.
Type of Liner= I Rip-Rap

FROM -DET- STA. 16+50 TO STA. 17+75 RT
(-L- STA 19+96.53 TO 21+23.55 RT)

DETAIL 4

LATERAL BASE DITCH
(Not to Scale)

b
Natural Ground
2:1
d
D
2:1
1"/Ft.
Fill Slope
Filter Fabric
B
Min. D=2 Ft.
Max. d=1 Ft.
B=3 Ft.
b=5 Ft.
*When B is < 6.0'
Type of Liner= CL. I Rip-Rap

FROM -DET- STA. 14+75 TO STA. 16+50 RT
(-L- STA 18+16.27 TO 19+96.53 RT)

DETAIL 6

SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground
2:1
d
D
3:1 or Flatter
Front Ditch Slope
B
Min. D= 2Ft.
Max. d= 1Ft.
B= 3Ft.
Type of Liner= PSRM

FROM -DET- STA. 17+75 TO STA. 18+98.44 RT
(-L- STA 21+23.55 TO 22+47.14)

-L-				
PI Sta 10+25.01 △ = 2° 51' 53.2" (LT) D = 5° 43' 46.5" L = 50.00' T = 25.01' R = 1,000.00'	PI Sta 12+58.21 △ = 32° 11' 25.1" (LT) D = 10° 36' 37.2" L = 303.39' T = 155.81' R = 540.00' e = 0.06 FT/FT	PI Sta 15+10.28 △ = 6° 27' 57.4" (LT) D = 3° 05' 49.4" L = 208.78' T = 104.50' R = 1,850.00' e = 0.06 FT/FT RO = SEE PLANS	PI Sta 20+87.61 △ = 32° 45' 49.5" (RT) D = 9° 14' 28.5" L = 354.54' T = 182.26' R = 620.00' e = 0.06 FT/FT RO = SEE PLANS	PI Sta 24+32 △ = 4° 17' 09.4" (LT) D = 5° 43' 46.5" L = 74.80' T = 37.42' R = 1,000.00'

-DRV1-	-DRV2-	-DRV3-
SEE DETAIL SHEET 2-B FOR -DRV1- CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRV2- CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRV3- CURVE DATA

NOTE:
SEE SHEET NO. 5 FOR -DET- ALIGNMENT
SEE SHEET NO. 6 PROFILES
SEE SHEET NO. 2-B FOR DRIVEWAY DETAILS
SEE SHEET S1 THRU. S- FOR STRUCTURE PLANS

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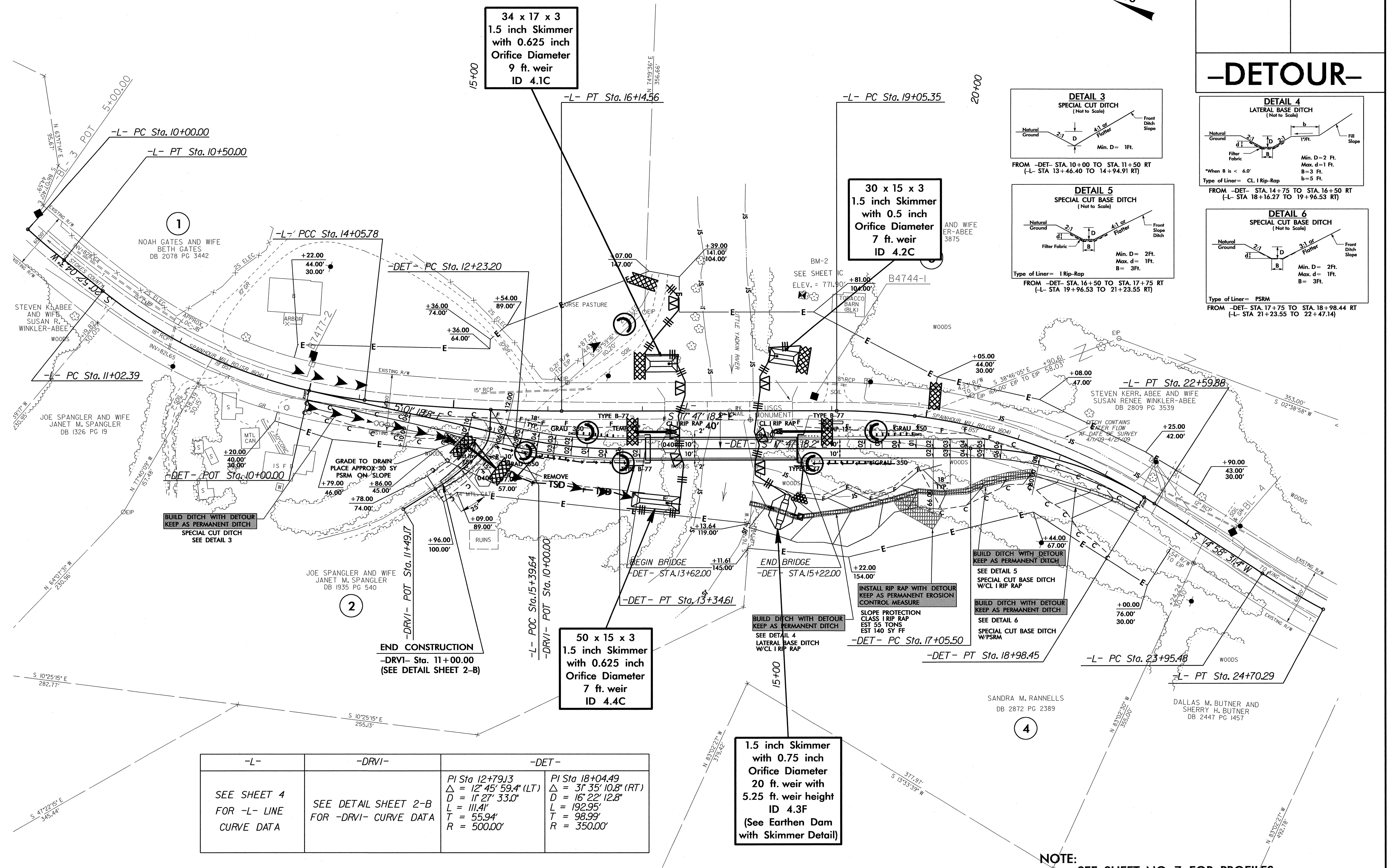
PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

–DETOUR–

NOTE:
UTILIZE SPECIAL STILLING BASIN AND SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.



34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 4.1C

30 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
7 ft. weir
ID 4.2C

50 x 15 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
7 ft. weir
ID 4.4C

1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
20 ft. weir with
5.25 ft. weir height
ID 4.3F
(See Earthen Dam
with Skimmer Detail)

DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)

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

FROM -DET- STA. 10+00 TO STA. 11+50 RT
(-L- STA 13+46.40 TO 14+94.91 RT)

DETAIL 4
LATERAL BASE DITCH
(Not to Scale)

Natural Ground
2:1
d
D
2:1
B
b
1"/Ft.
Fill Slope
Filter Fabric
*When B is < 6.0'
Min. D=2 Ft.
Max. d=1 Ft.
B=3 Ft.
b=5 Ft.
Type of Liner= CL. I Rip-Rap

FROM -DET- STA. 14+75 TO STA. 16+50 RT
(-L- STA 18+16.27 TO 19+96.53 RT)

DETAIL 5
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground
2:1
d
D
4:1 or Flatter
Front Slope Ditch
Filter Fabric
B
Min. D= 2Ft.
Max. d= 1Ft.
B= 3Ft.
Type of Liner= I Rip-Rap

FROM -DET- STA. 16+50 TO STA. 17+75 RT
(-L- STA 19+96.53 TO 21+23.55 RT)

DETAIL 6
SPECIAL CUT BASE DITCH
(Not to Scale)

Natural Ground
2:1
d
D
3:1 or Flatter
Front Ditch Slope
B
Min. D= 2Ft.
Max. d= 1Ft.
B= 3Ft.
Type of Liner= PSRM

FROM -DET- STA. 17+75 TO STA. 18+98.44 RT
(-L- STA 21+23.55 TO 22+47.14)

-L-	-DRV1-	-DET-	
SEE SHEET 4 FOR -L- LINE CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRV1- CURVE DATA	PI Sta 12+79.13 △ = 12° 45′ 59.4″ (LT) D = 11° 27′ 33.0″ L = 111.41′ T = 55.94′ R = 500.00′	PI Sta 18+04.49 △ = 31° 35′ 10.8″ (RT) D = 16° 22′ 12.8″ L = 192.95′ T = 98.99′ R = 350.00′

NOTE:
SEE SHEET NO. 7 FOR PROFILES
SEE SHEET NO. 2-B FOR DRIVEWAY DETAILS
SEE SHEET S1 THRU. S- FOR STRUCTURE PLANS

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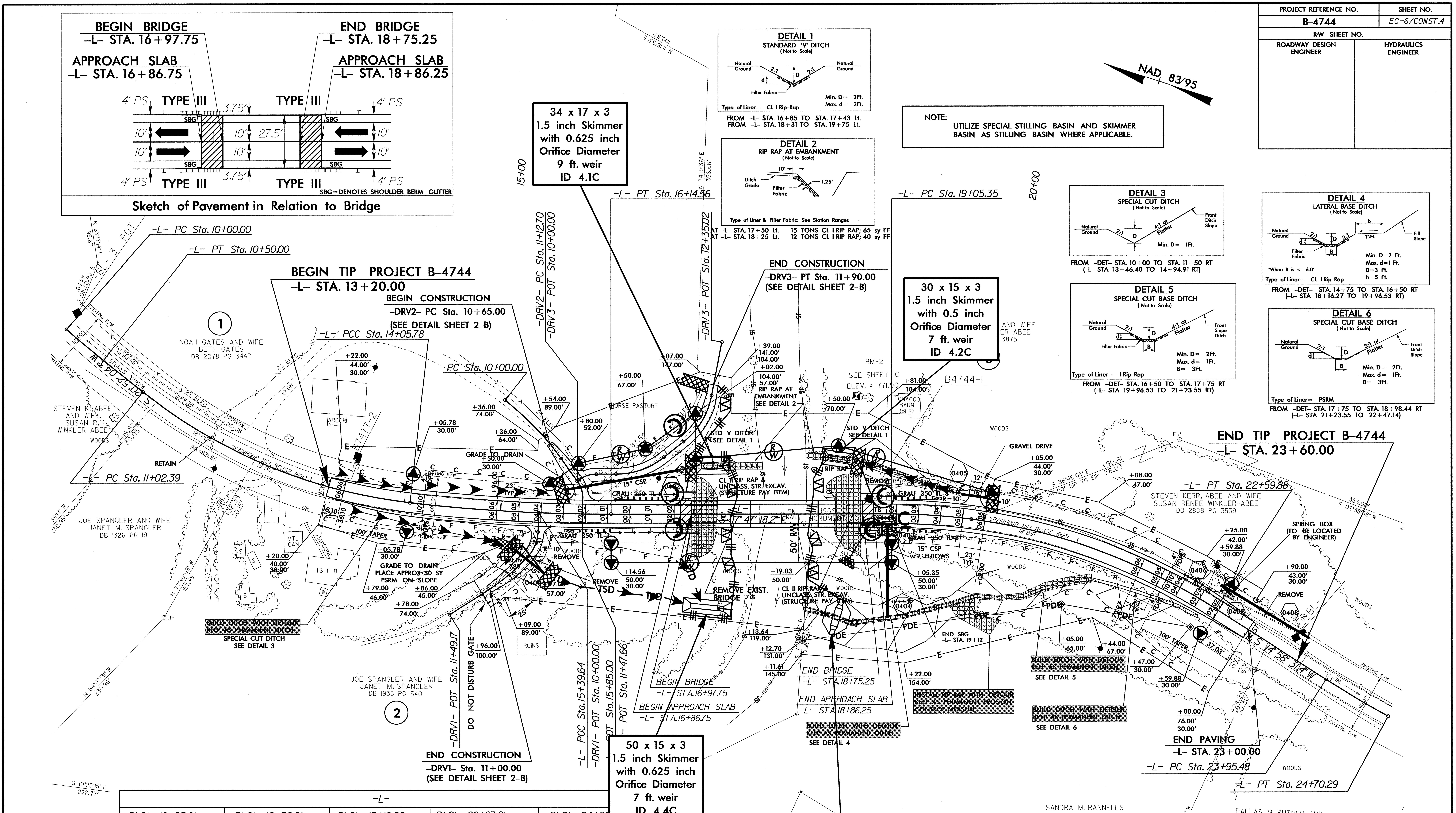
PROJECT REFERENCE NO.	SHEET NO.
B-4744	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

NAD 83/95

NOTE: UTILIZE SPECIAL STILLING BASIN AND SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.



FROM -L- STA. 16+85 TO STA. 17+43 Lt.
FROM -L- STA. 18+31 TO STA. 19+75 Lt.

AT -L- STA. 17+50 Lt. 15 TONS CL I RIP RAP; 65 sy FF
AT -L- STA. 18+25 Lt. 12 TONS CL I RIP RAP; 40 sy FF

FROM -DET- STA. 10+00 TO STA. 11+50 RT
(-L- STA 13+46.40 TO 14+94.91 RT)

FROM -DET- STA. 14+75 TO STA. 16+50 RT
(-L- STA 18+16.27 TO 19+96.53 RT)

FROM -DET- STA. 16+50 TO STA. 17+75 RT
(-L- STA 19+96.53 TO 21+23.55 RT)

FROM -DET- STA. 17+75 TO STA. 18+98.44 RT
(-L- STA 21+23.55 TO 22+47.14)

34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 4.1C

30 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
7 ft. weir
ID 4.2C

50 x 15 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
7 ft. weir
ID 4.4C

1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
20 ft. weir with
5.25 ft. weir height
ID 4.3F
(See Earthen Dam
with Skimmer Detail)

-L-				
PI Sta 10+25.01	PI Sta 12+58.21	PI Sta 15+10.28	PI Sta 20+87.61	PI Sta 24+32.09
Δ = 2° 51' 53.2" (LT)	Δ = 32° 11' 25.1" (LT)	Δ = 6° 27' 57.4" (LT)	Δ = 32° 45' 49.5" (RT)	Δ = 4° 17' 09.4" (LT)
D = 5° 43' 46.5"	D = 10° 36' 37.2"	D = 3° 05' 49.4"	D = 9° 14' 28.5"	D = 5° 43' 46.5"
L = 50.00'	L = 303.39'	L = 208.78'	L = 354.54'	L = 74.80'
T = 25.01'	T = 155.81'	T = 104.50'	T = 182.26'	T = 37.42'
R = 1,000.00'	R = 540.00'	R = 1,850.00'	R = 620.00'	R = 1,000.00'
	e = 0.06 FT/FT	e = 0.06 FT/FT	e = 0.06 FT/FT	
		RO = SEE PLANS	RO = SEE PLANS	

-DRV1-	-DRV2-	-DRV3-
SEE DETAIL SHEET 2-B FOR -DRV1- CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRV2- CURVE DATA	SEE DETAIL SHEET 2-B FOR -DRV3- CURVE DATA

NOTE:
SEE SHEET NO. 5 FOR -DET- ALIGNMENT
SEE SHEET NO. 6 PROFILES
SEE SHEET NO. 2-B FOR DRIVEWAY DETAILS
SEE SHEET S1 THRU. S- FOR STRUCTURE PLANS

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wichandler1 AT RENV247778