TIP PROJECT: B-4117

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4117	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

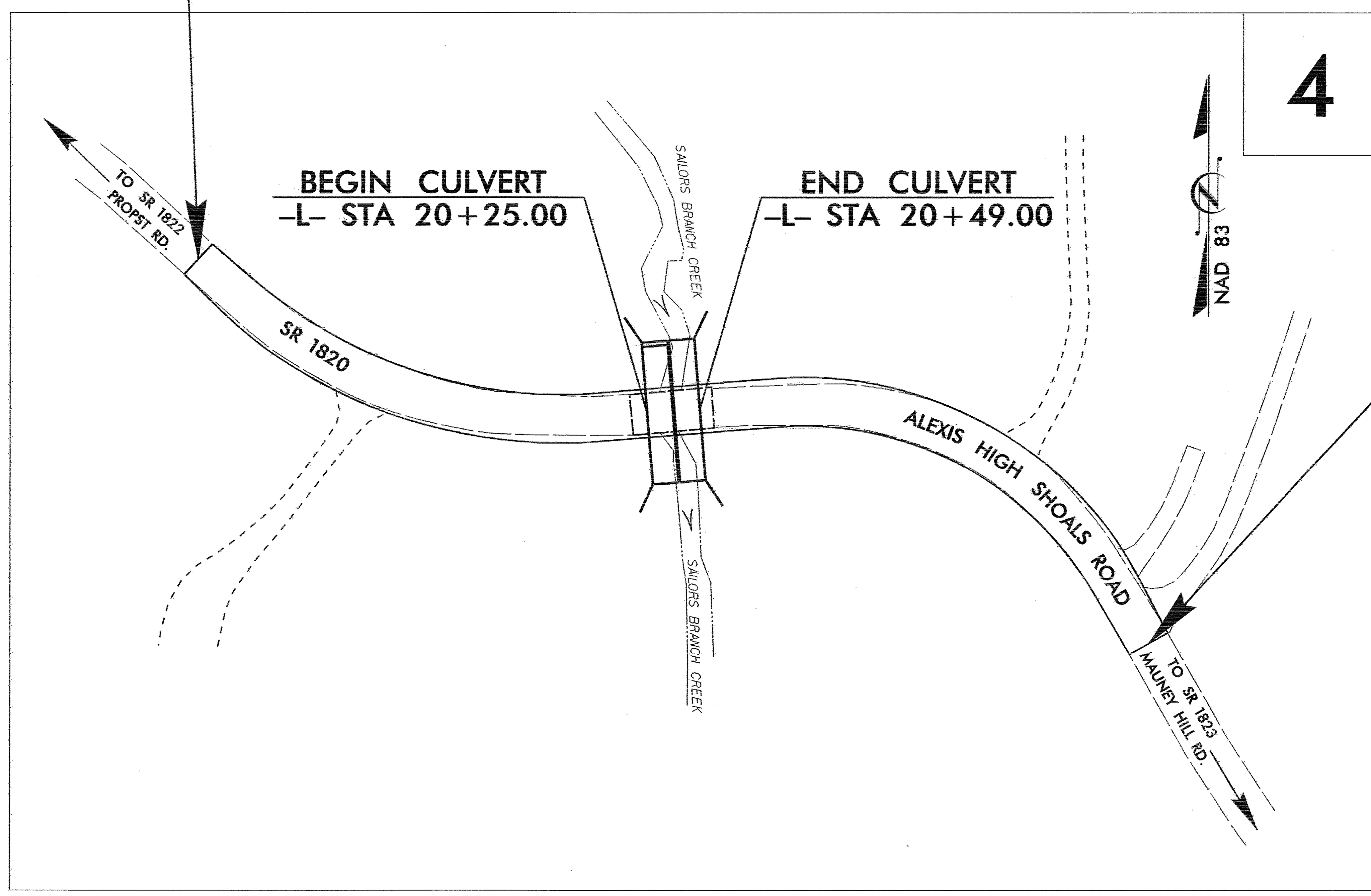
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GASTON COUNTY

LOCATION: BRIDGE No. 173 OVER SAILOR'S BRANCH CREEK ON SR 1820

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

BEGIN TIP PROJECT B-4117
-L- STA. 18+00.00



END TIP PROJECT B-4117
-L- STA. 23+00.00

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	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	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	
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

Prepared in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2006 STANDARD SPECIFICATIONS

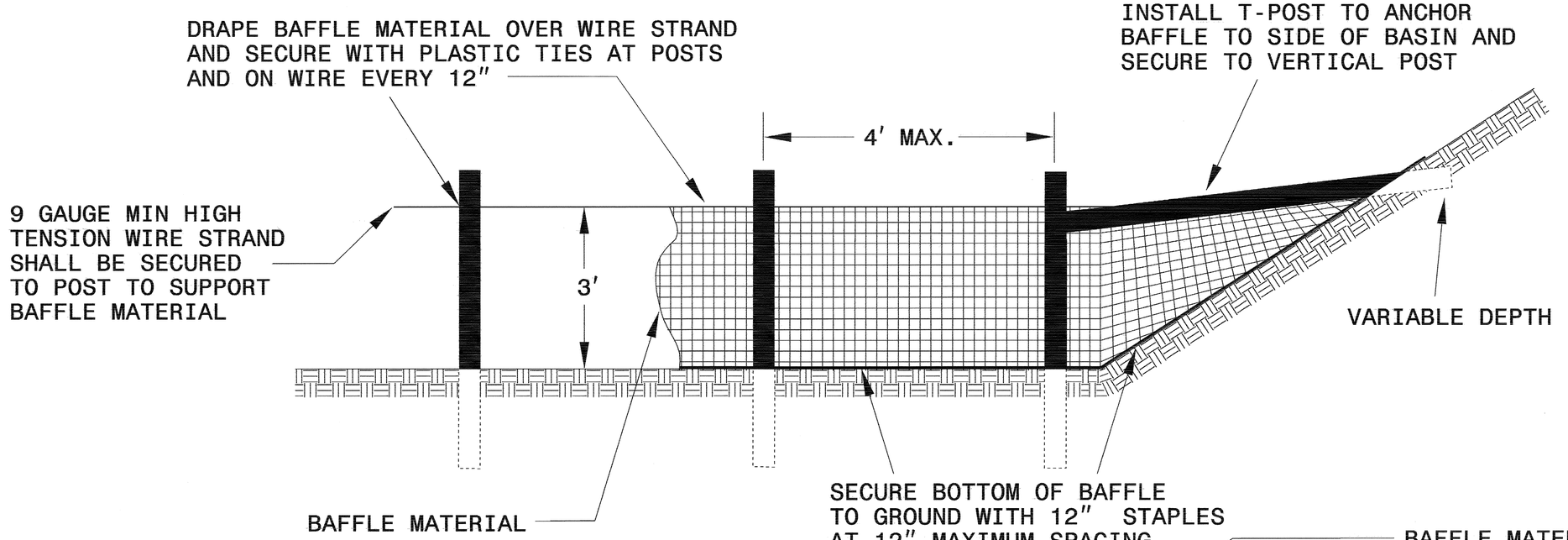
Roadway Standard Drawings

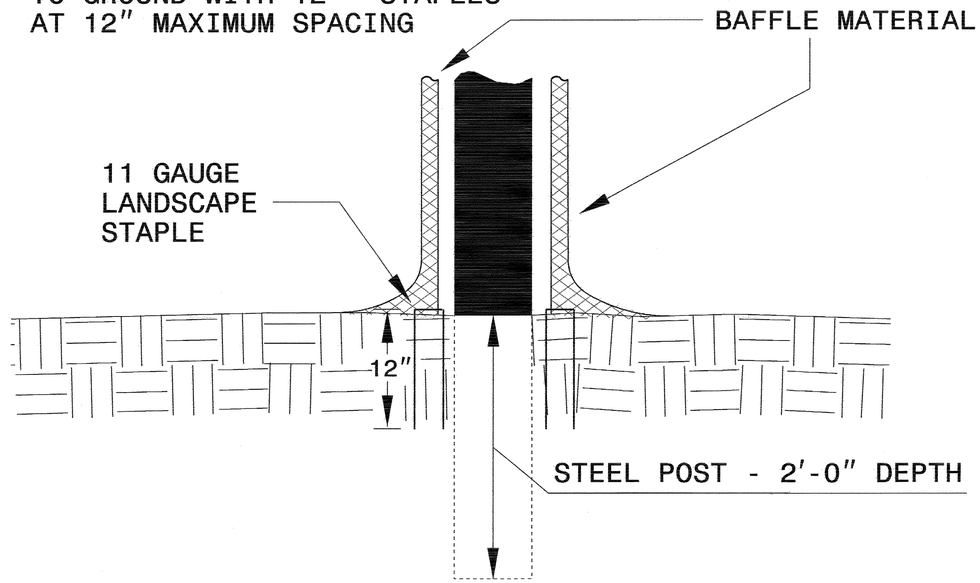
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated July 18, 2006 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01 Temporary Silt Fence
1606.01 Special Sediment Control Fence
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.05 Temporary Diversion
1633.01 Temporary Rock Silt Check Type A

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL





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

NOTES:

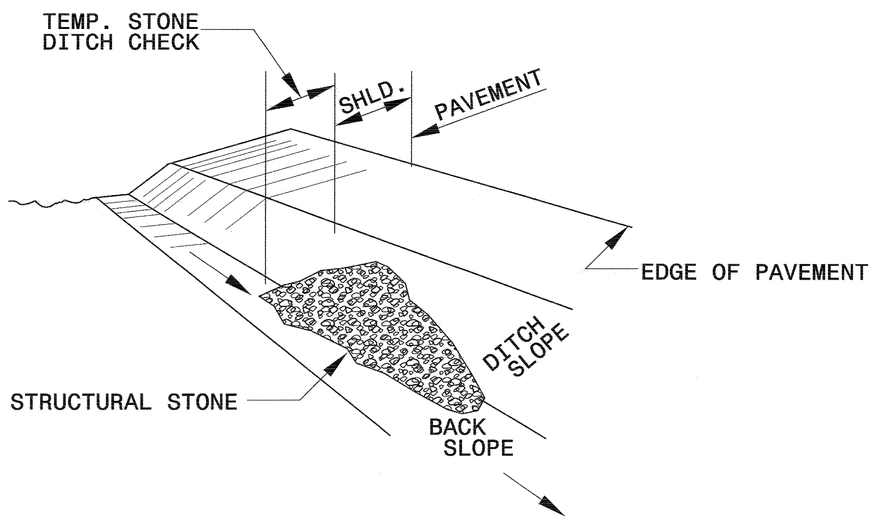
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH.

2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

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

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

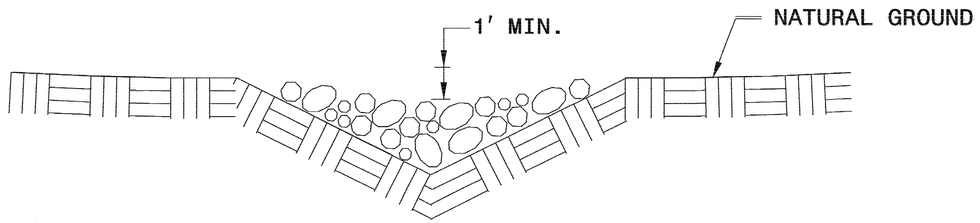


ISOMETRIC VIEW

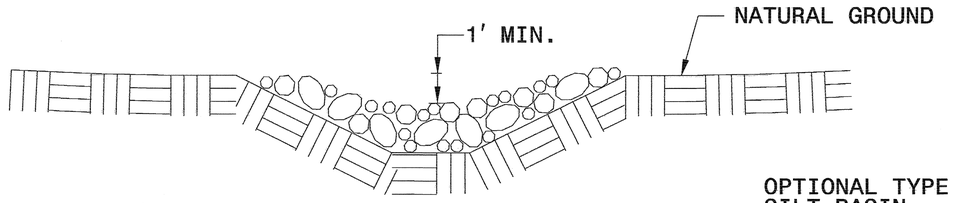
NOTES:

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

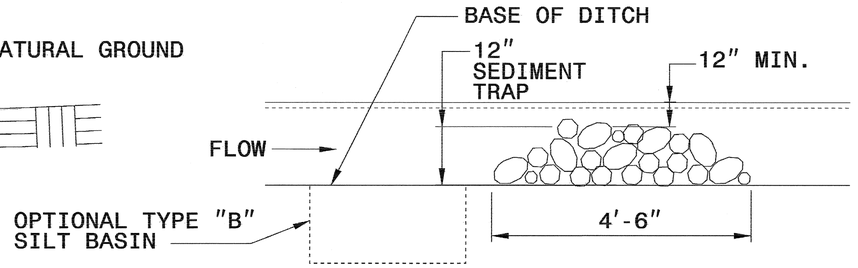
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION VEE DITCH



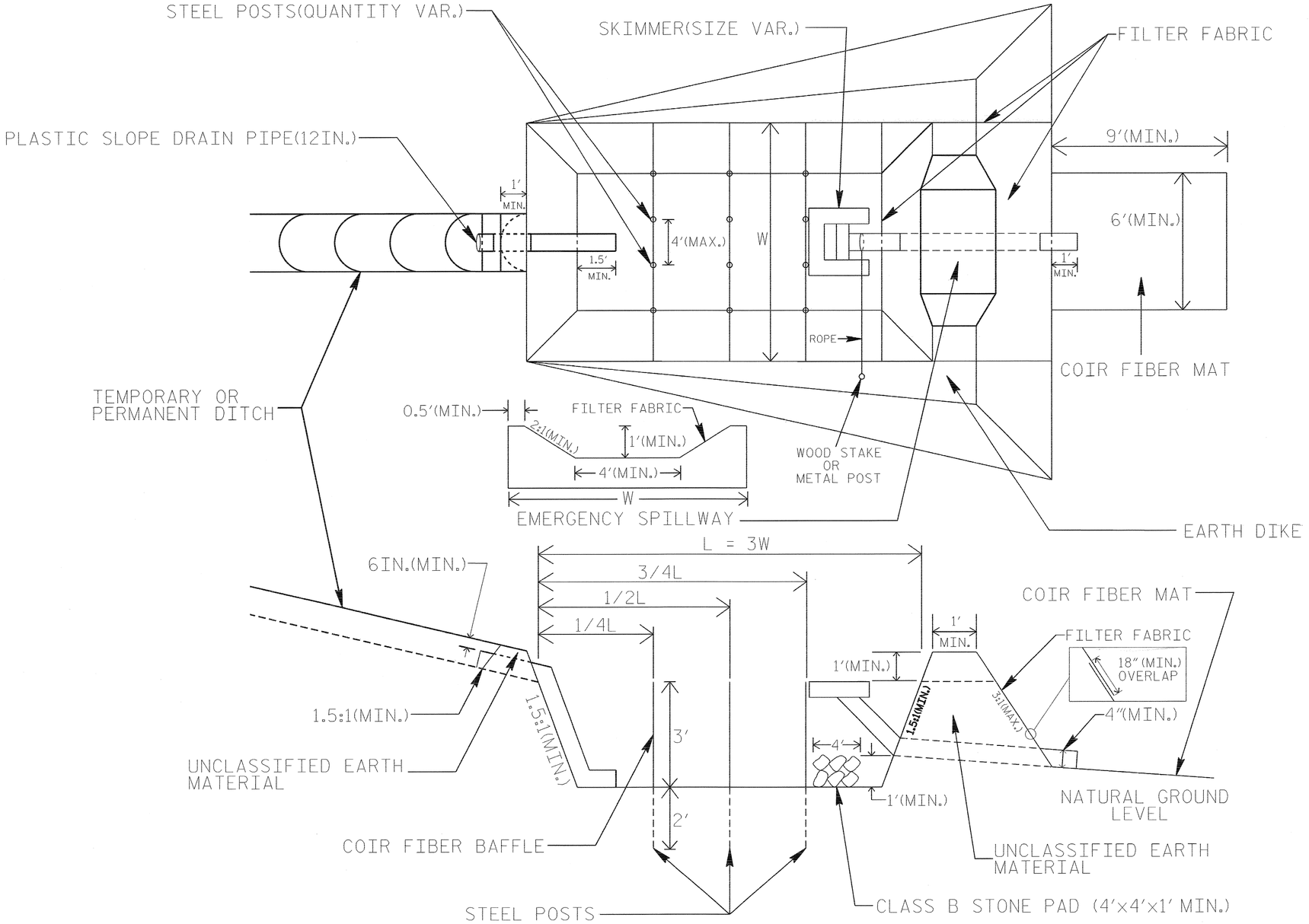
CROSS SECTION TRAPEZOIDAL DITCH



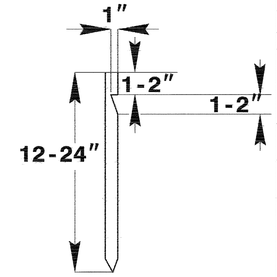
ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

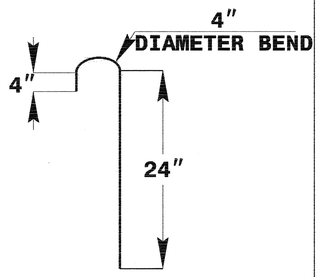
SKIMMER BASIN WITH BAFFLES DETAIL



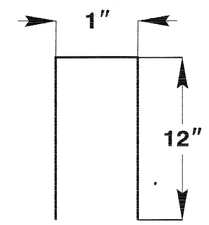
2" x 2" (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1" (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

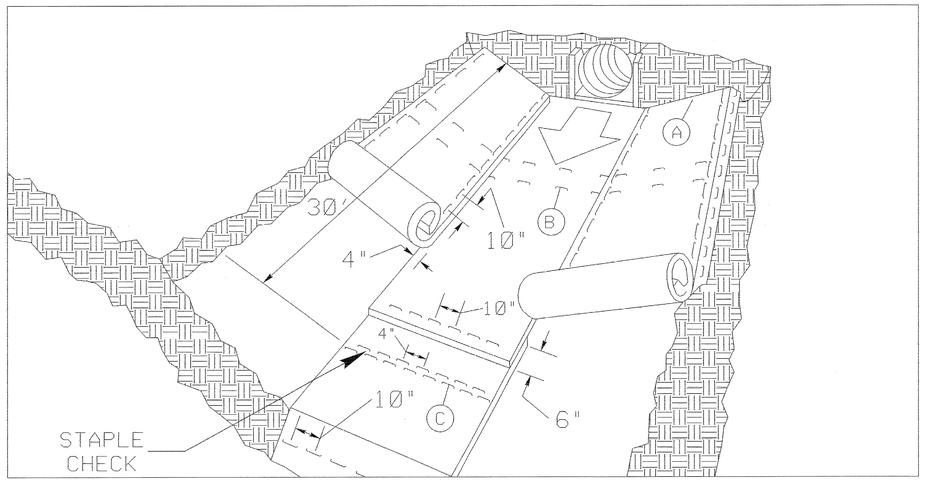
NOTES

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 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 FILTER FABRIC AS DIRECTED.
6. FILTER FABRIC FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18" (MIN.) AS SHOWN.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

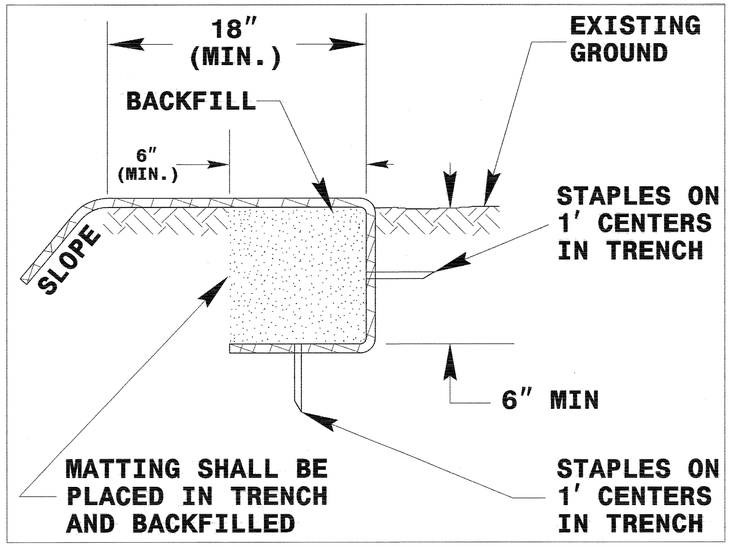
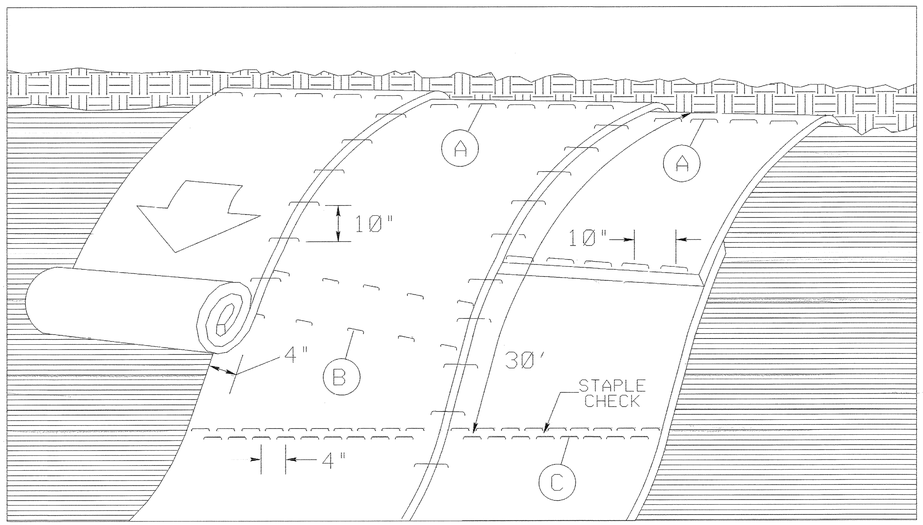


DIAGRAM (A)



MATTING ON SLOPES

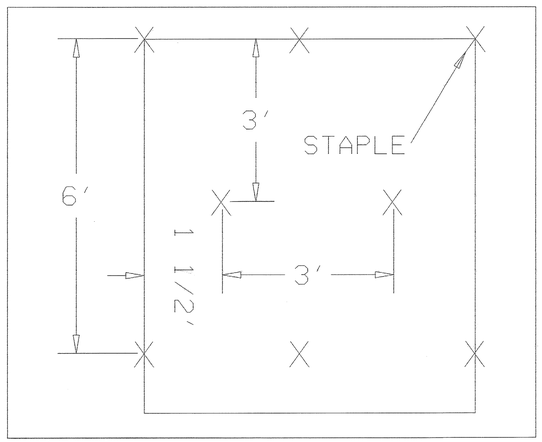


DIAGRAM (B)

STAPLE CHECK PATTERN

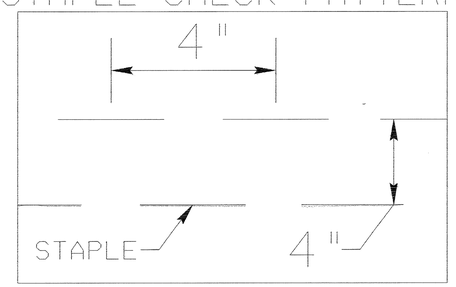


DIAGRAM (C)

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 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

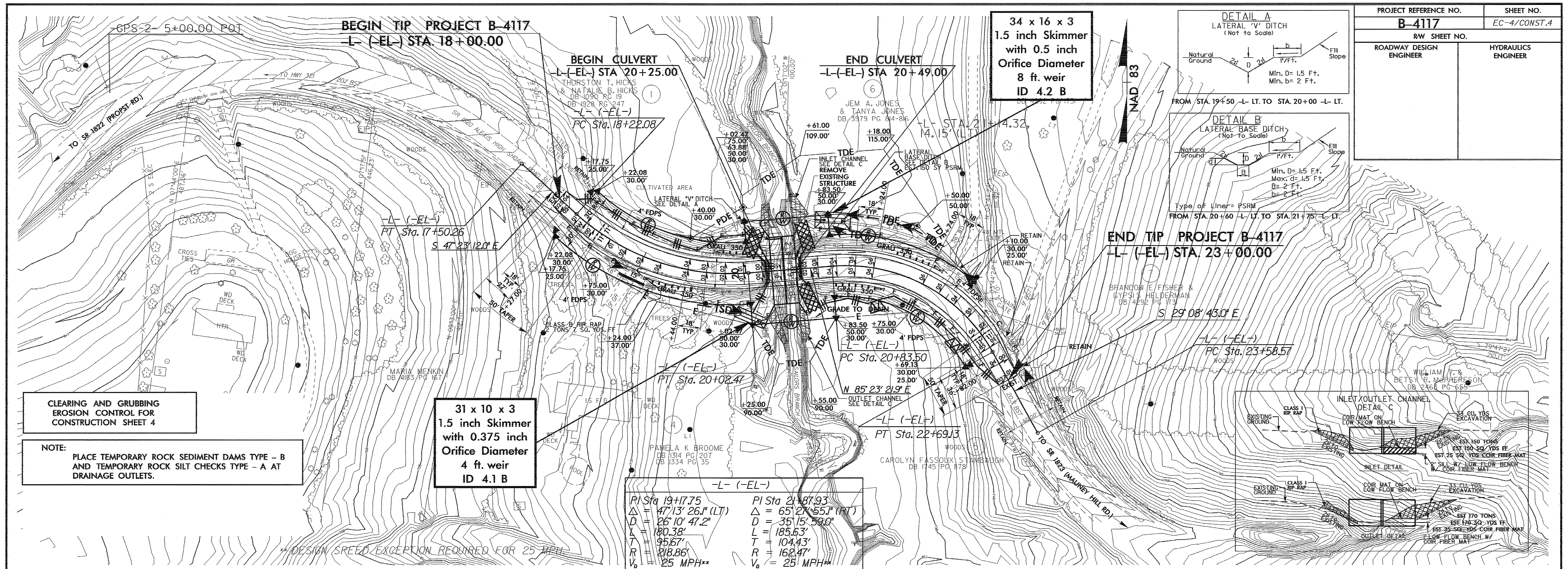
MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	20+60	21+75	LT	115
				SUBTOTAL	115
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					7665
				TOTAL	7780
				SAY	8000

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	19+50	20+00	LT	40
				SUBTOTAL	40
		ADDITIONAL PSRM TO BE INSTALLED			130
				TOTAL	170
				SAY	170

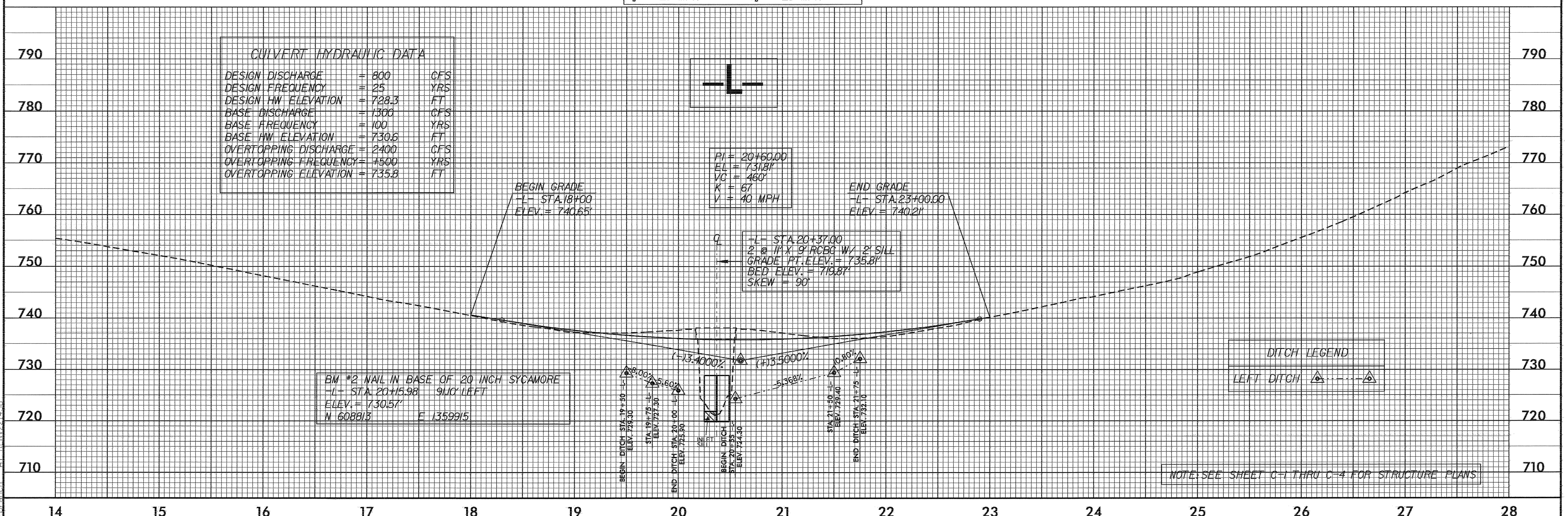
PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BEGIN TIP PROJECT B-4117
-L- (-EL-) STA. 18+00.00
BEGIN CULVERT
-L-(-EL-) STA 20+25.00
END CULVERT
-L-(-EL-) STA 20+49.00
34 x 16 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
8 ft. weir
ID 4.2 B
NAD 83
DETAIL A
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.5 Ft.
Min. b= 2 Ft.
FROM STA. 19+50 -L- LT. TO STA. 20+00 -L- LT.
DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
b= 2 Ft.
Type of Liner= PSRM
FROM STA. 20+60 -L- LT. TO STA. 21+75 -L- LT.
END TIP PROJECT B-4117
-L- (-EL-) STA. 23+00.00
TO SR 1822 (PROPST RD.)
TO SR 1823 (MAUNEY HILL RD.)
-L- (-EL-) PC Sta. 18+22.08
-L- (-EL-) PT Sta. 17+50.26
S 47°23' 12.0" E
-L- (-EL-) PT Sta. 20+02.47
-L- (-EL-) PC Sta. 20+83.50
N 85°23' 21.9" E
-L- (-EL-) PT Sta. 22+69.13
-L- (-EL-) PC Sta. 23+58.57
S 29°08' 43.0" E
-L- STA. 21+14.32, 14.15' (LT)
THURSTON T. HICKS & NATALIE B. HICKS DB 1090 PG 19
JEM A. JONES & TANYA JONES DB 3979 PG 84-86
BRANDON E. FISHER & GYPSIE HELDERMAN DB 4292 PG 113
MARIA MENKIN DB 4183 PG 167
PAMELA K BROOME DB 1314 PG 207 DB 3334 PG 35
CAROLYN FASSOUX STAMBAUGH DB 1745 PG 878
WILLIAM R. & BETSY R. McPHERSON DB 2468 PG 665
INLET/OUTLET CHANNEL DETAIL C
INLET DETAIL
OUTLET DETAIL
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.
31 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.1 B
-L- (-EL-)
PI Sta 19+17.75
Δ = 47°13' 26.1" (LT)
D = 26°10' 47.2"
L = 180.38'
T = 95.67'
R = 218.86'
V = 25 MPH**
PI Sta 21+87.93
Δ = 65°27' 55.1" (RT)
D = 35°15' 59.0"
L = 185.63'
T = 104.43'
R = 162.47'
V = 25 MPH**
**DESIGN SPEED EXCEPTION REQUIRED FOR 25 MPH

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	800	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	728.3	FT
BASE DISCHARGE	=	1300	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	730.6	FT
OVERTOPPING DISCHARGE	=	2400	CFS
OVERTOPPING FREQUENCY	=	+500	YRS
OVERTOPPING ELEVATION	=	735.8	FT



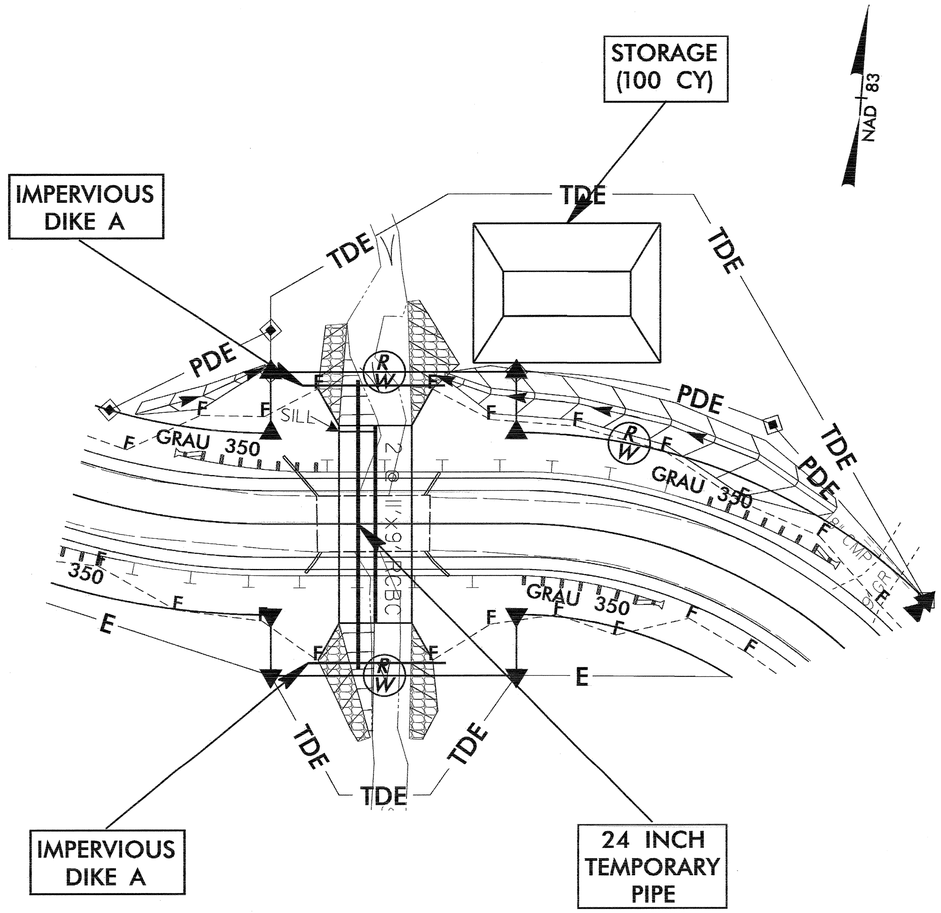
-L-
BEGIN GRADE
-L- STA.18+00
ELEV. = 740.65'
PI = 20+60.00
EL = 731.81'
VC = 460'
K = 67
V = 40 MPH
END GRADE
-L- STA.23+00.00
ELEV. = 740.21'
-L- STA.20+37.00
2 @ 11' X 9' RCBC W/ 2' SILL
GRADE PT. ELEV. = 735.81'
BED ELEV. = 719.87'
SKEW = 90°
(-)3.4000%
(+)3.5000%
BM *2 NAIL IN BASE OF 20 INCH SYCAMORE
-L- STA. 20+15.98 91.10' LEFT
ELEV. = 730.57'
N 608813 E 1359915
DITCH LEGEND
LEFT DITCH
NOTE: SEE SHEET C-1 THRU C-4 FOR STRUCTURE PLANS
790
780
770
760
750
740
730
720
710
14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

CULVERT CONSTRUCTION SEQUENCE STA. 20+37 –L–

PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

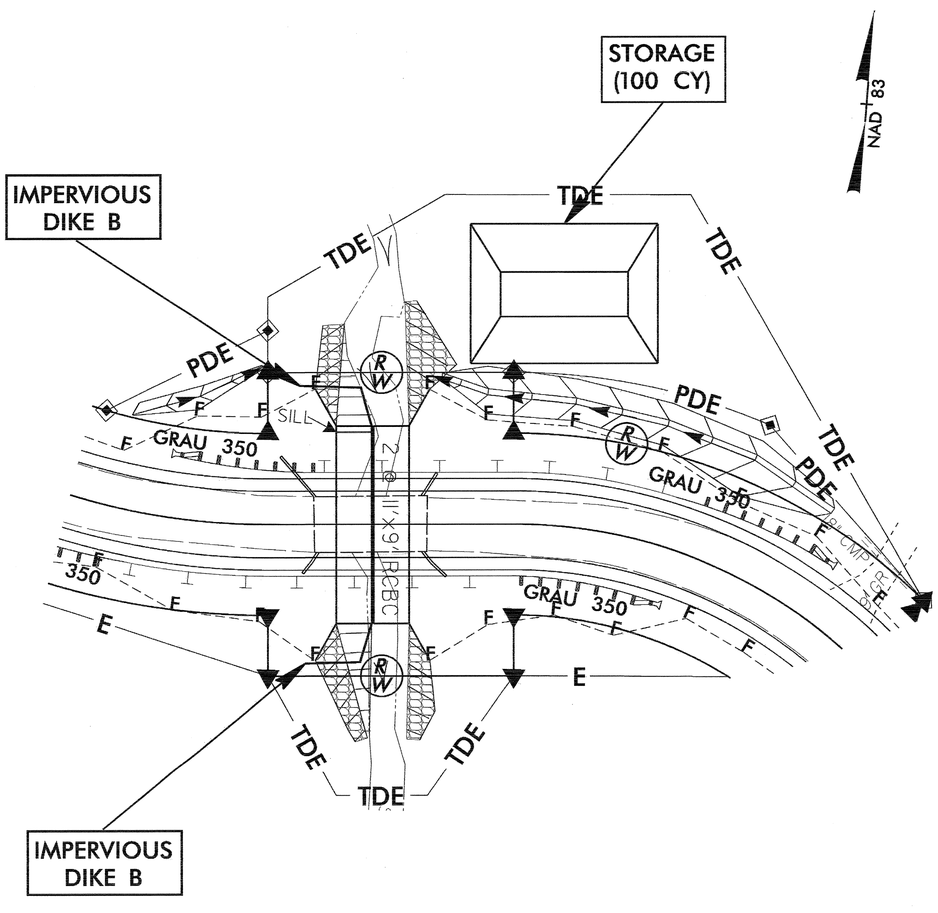
PHASE I

1. CLOSE ROAD AND REMOVE EXISTING BRIDGE.
2. CONSTRUCT STILLING BASIN (100 CY).
3. CONSTRUCT IMPERVIOUS DIKES A AND INSTALL 24 INCH TEMPORARY PIPE, DIVERTING FLOW.
4. CONSTRUCT EAST BARREL OF PROPOSED CULVERT.

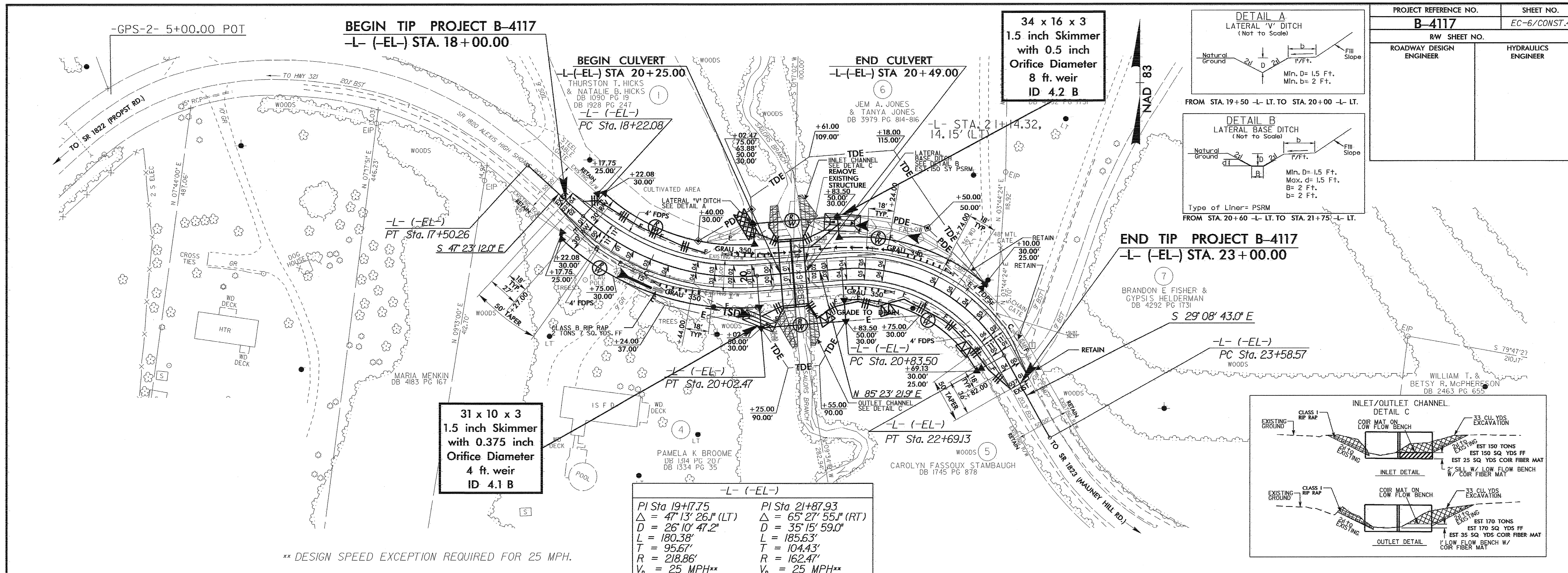


PHASE II

5. REMOVE IMPERVIOUS DIKES A AND 24 INCH TEMPORARY PIPE, AND CONSTRUCT IMPERVIOUS DIKES B, DIVERTING FLOW INTO EAST BARREL OF PROPOSED CULVERT.
6. CONSTRUCT WEST BARREL OF PROPOSED CULVERT.
7. CONSTRUCT ANY NECESSARY UPSTREAM/DOWNSTREAM CHANNEL IMPROVEMENTS.
8. REMOVE IMPERVIOUS DIKES B.
9. REMOVE STILLING BASIN AND COMPLETE ROADWAY.

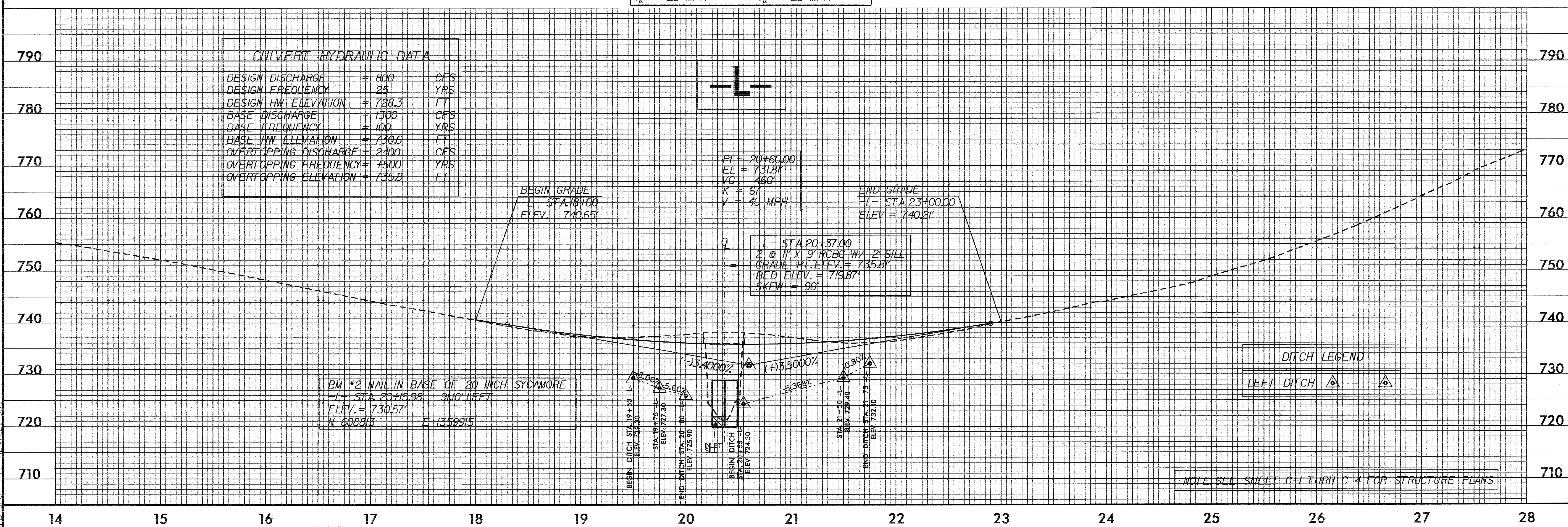


PROJECT REFERENCE NO.	SHEET NO.
B-4117	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L- (-EL-)	
PI Sta 19+17.75	PI Sta 21+87.93
△ = 47° 13' 26.1" (LT)	△ = 65° 27' 55.1" (RT)
D = 26° 10' 47.2"	D = 35° 15' 59.0"
L = 180.38'	L = 185.63'
T = 95.67'	T = 104.43'
R = 218.86'	R = 162.47'
V_D = 25 MPH**	V_D = 25 MPH**

** DESIGN SPEED EXCEPTION REQUIRED FOR 25 MPH.



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	800	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	728.3	FT
BASE DISCHARGE	=	1300	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	730.6	FT
OVERTOPPING DISCHARGE	=	2400	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	735.8	FT

29-JAN-2010 09:57
R:\Environmental\Design\b4117_EC_psh_04.dgn