

TIP PROJECT: U-4422

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CUMBERLAND COUNTY

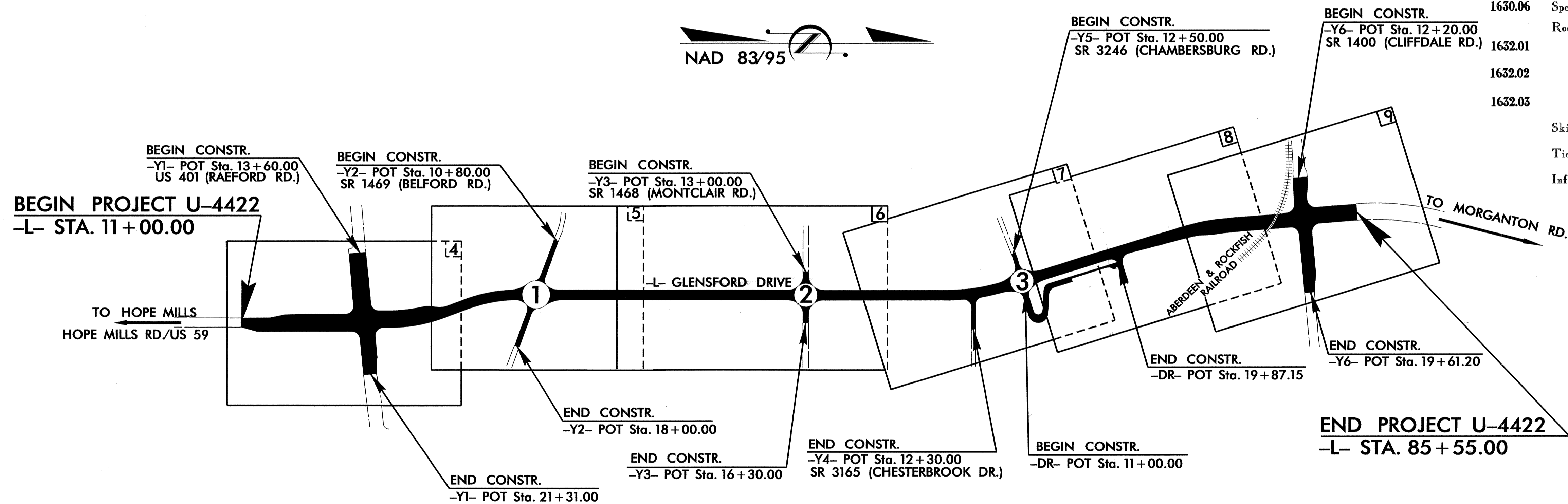
**LOCATION: FAYETTEVILLE - SR 1596 (GLENSFORD DRIVE)
FROM US 401 BUSINESS (RAEFORD ROAD)
TO SR 1400 (CLIFFDALE ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4422	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

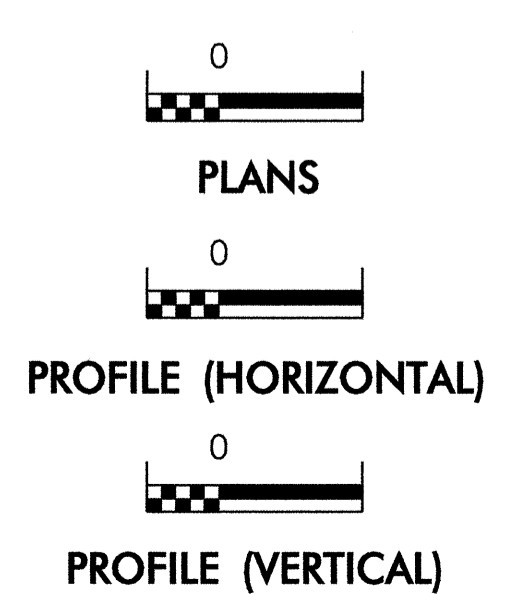
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	--- TD ---
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	--- Z ---
1622.01	Temporary Berms and Slope Drains	--- B ---
1630.02	Silt Basin Type B	--- S ---
1633.01	Temporary Rock Silt Check Type-A	--- R ---
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	--- R ---
1633.02	Temporary Rock Silt Check Type-B	--- R ---
	Wattle / Coir Fiber Wattle	--- W ---
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	--- W ---
1634.01	Temporary Rock Sediment Dam Type-A	--- SD ---
1634.02	Temporary Rock Sediment Dam Type-B	--- SD ---
1635.01	Rock Pipe Inlet Sediment Trap Type-A	--- R ---
1635.02	Rock Pipe Inlet Sediment Trap Type-B	--- R ---
1630.04	Stilling Basin	--- S ---
1630.06	Special Stilling Basin	--- S ---
	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.

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

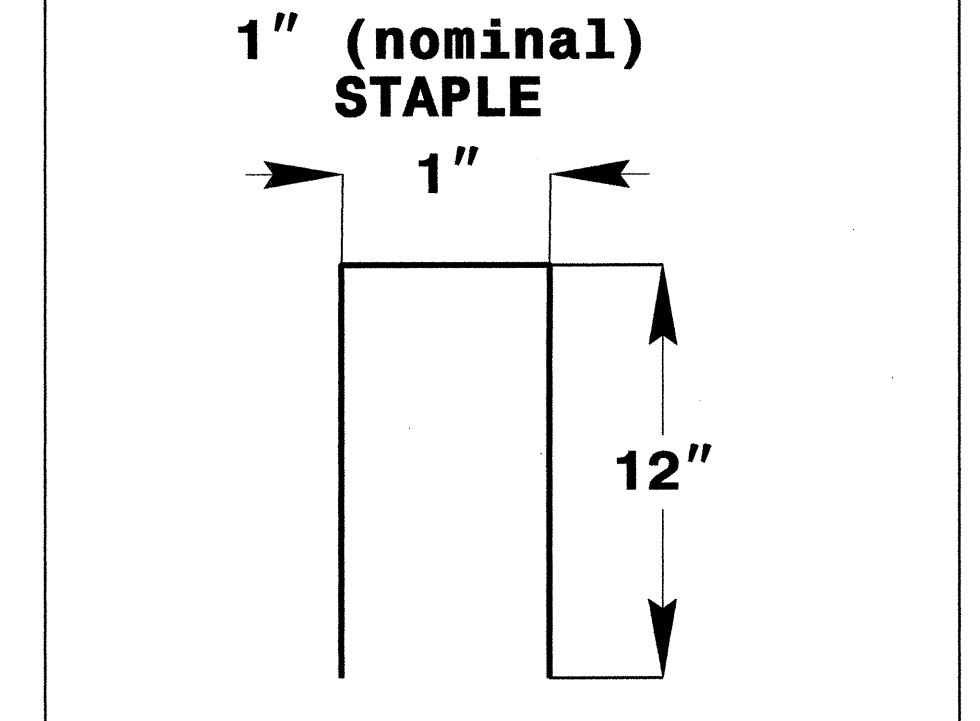
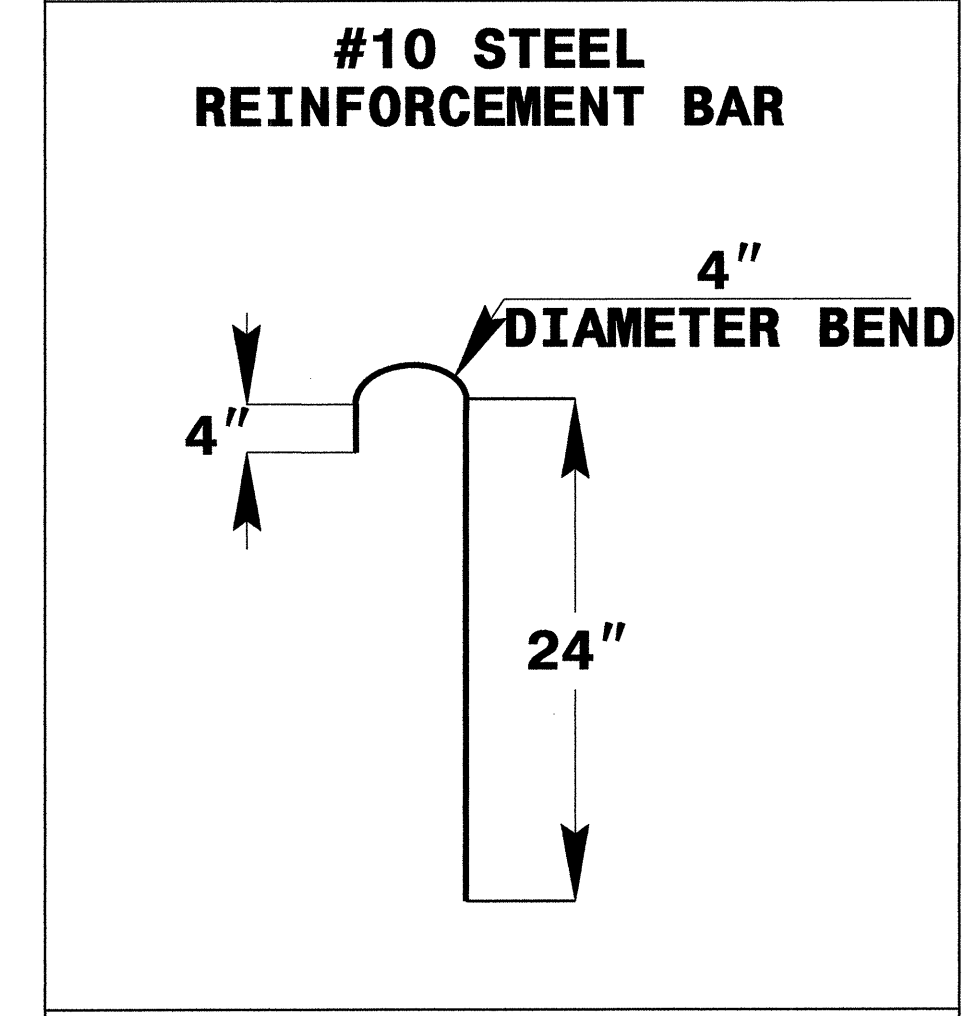
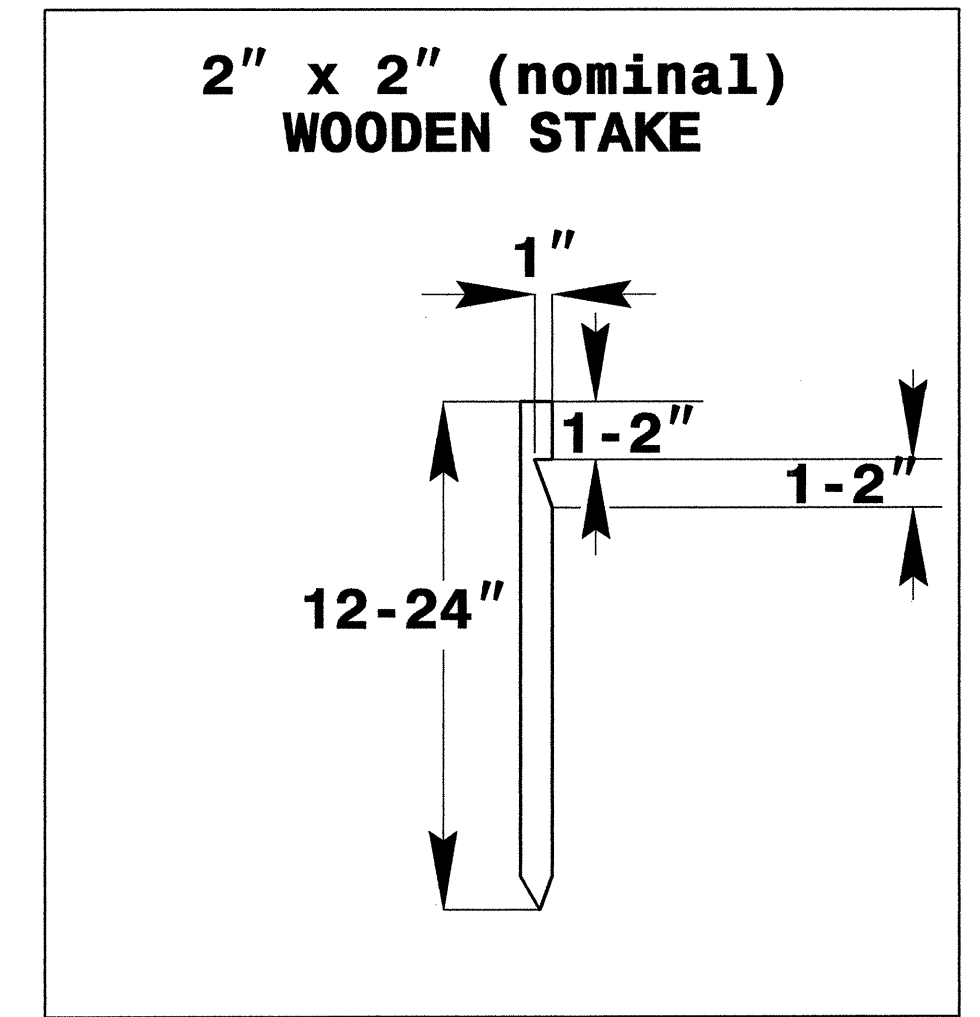
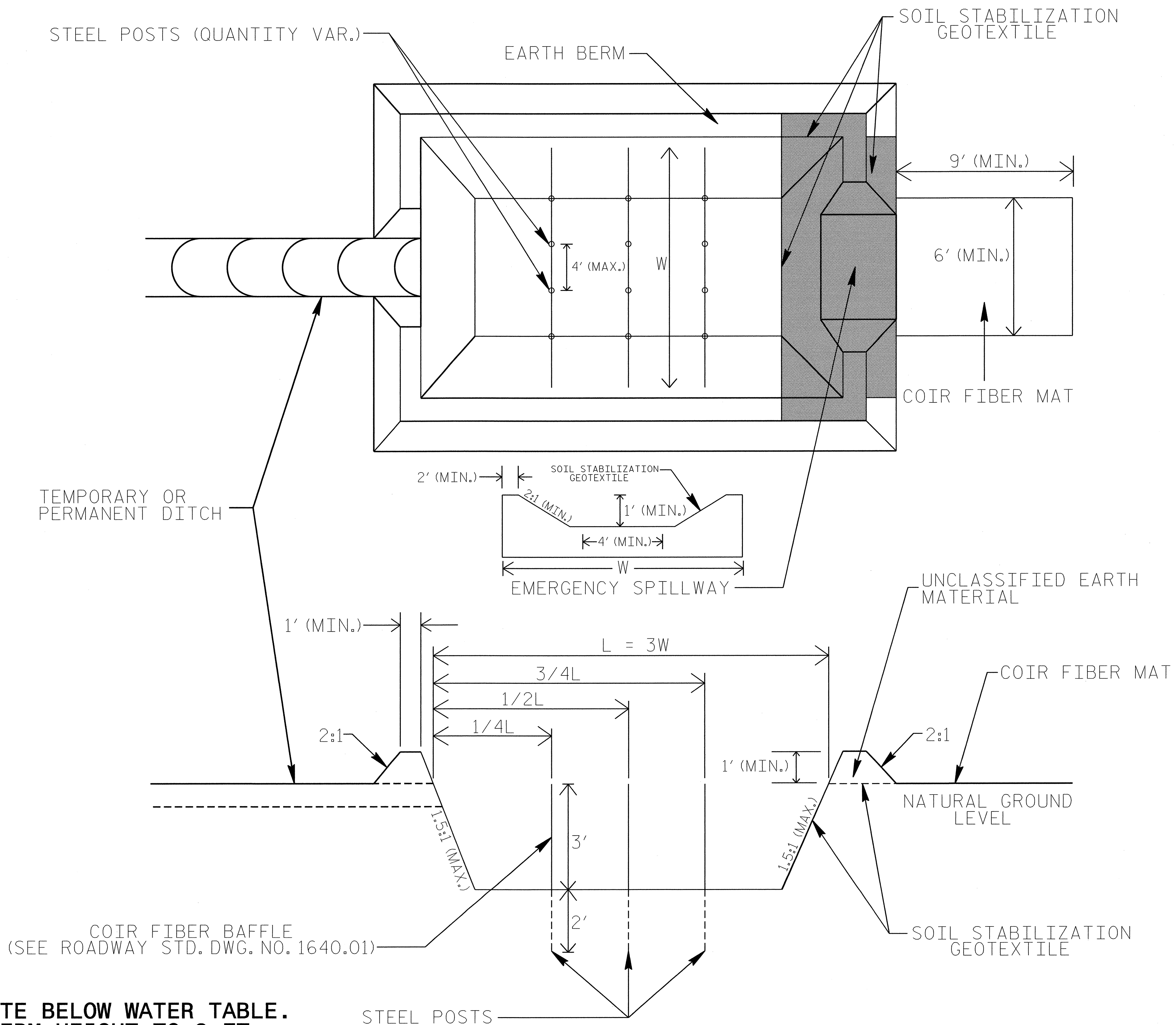
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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	

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INFILTRATION BASIN WITH BAFFLES DETAIL

PROJECT REFERENCE NO. U-4422	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



COIR FIBER MAT ANCHOR OPTIONS

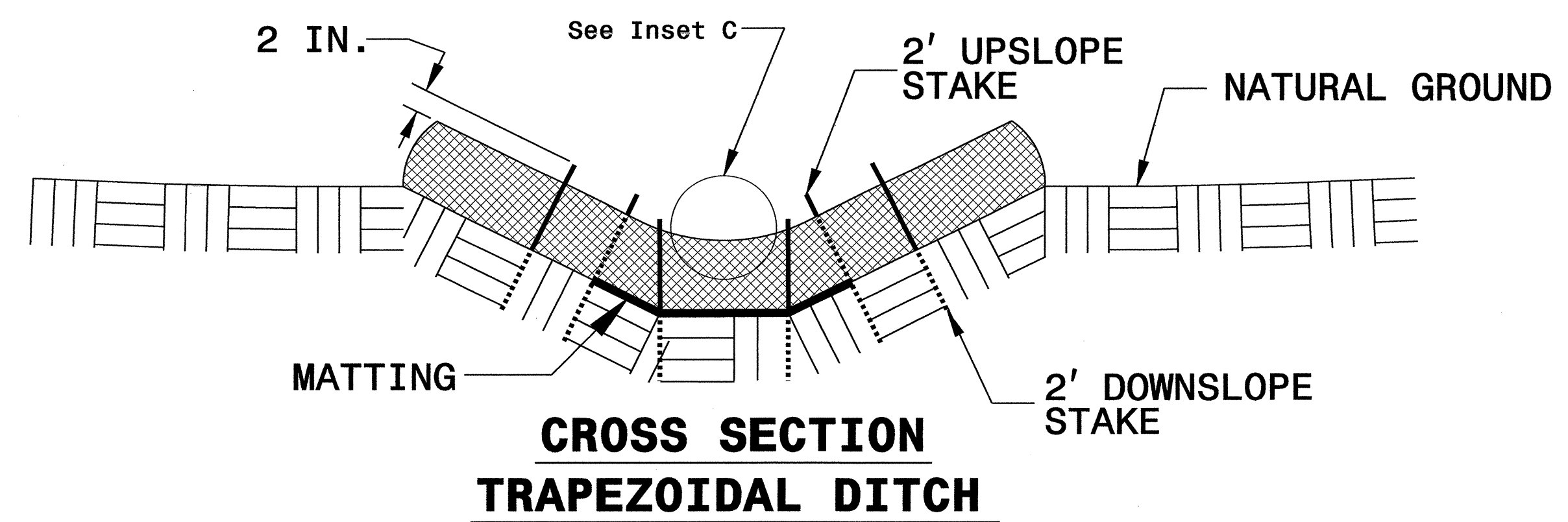
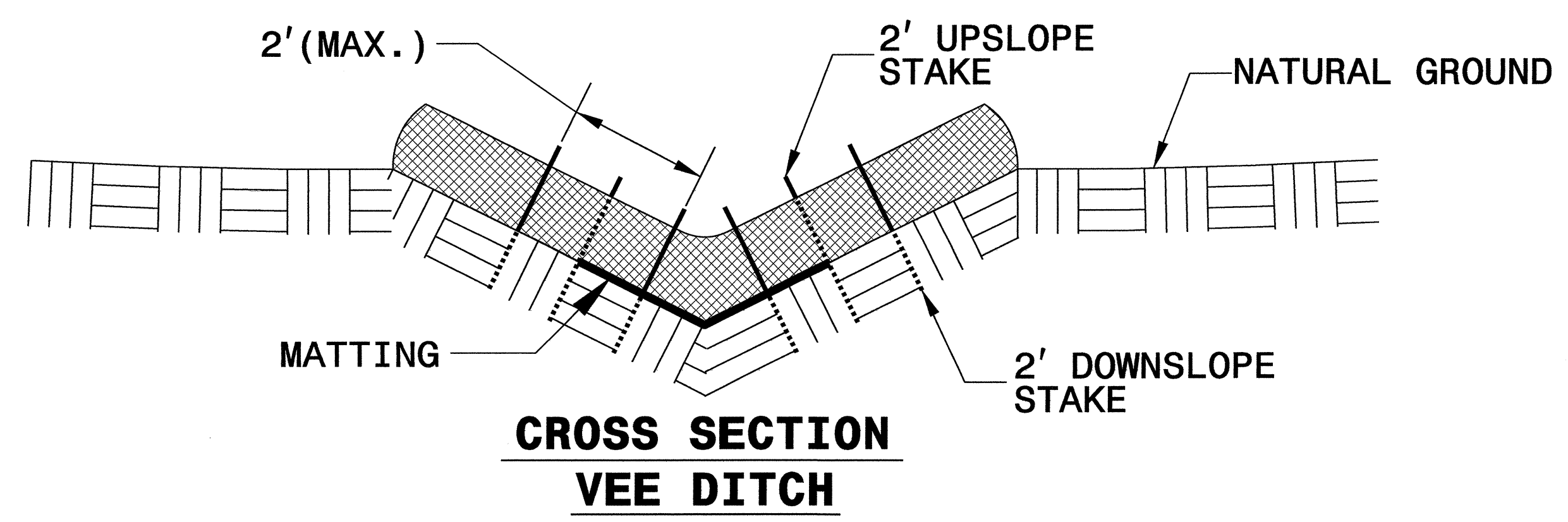
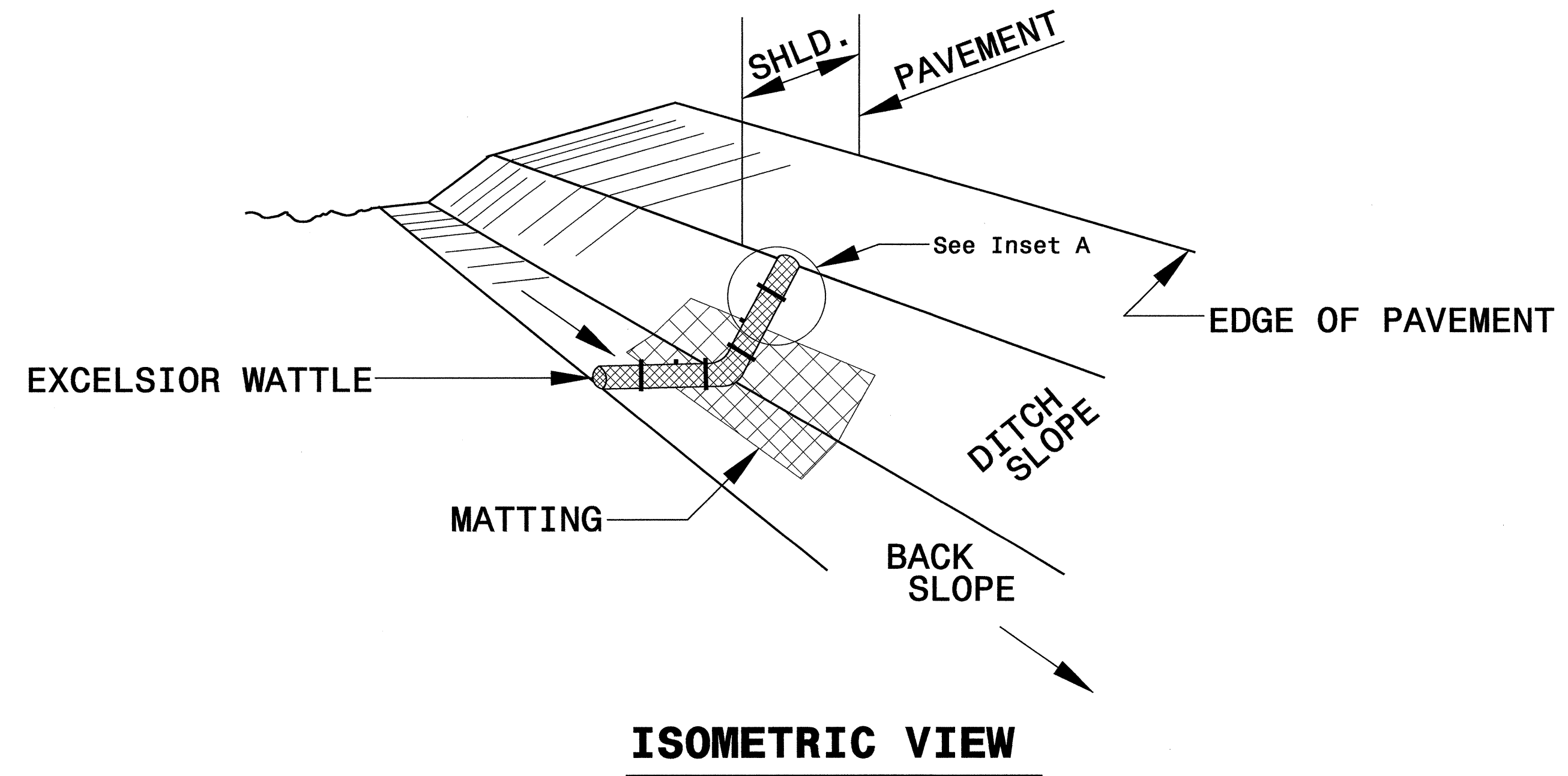
NOTES

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

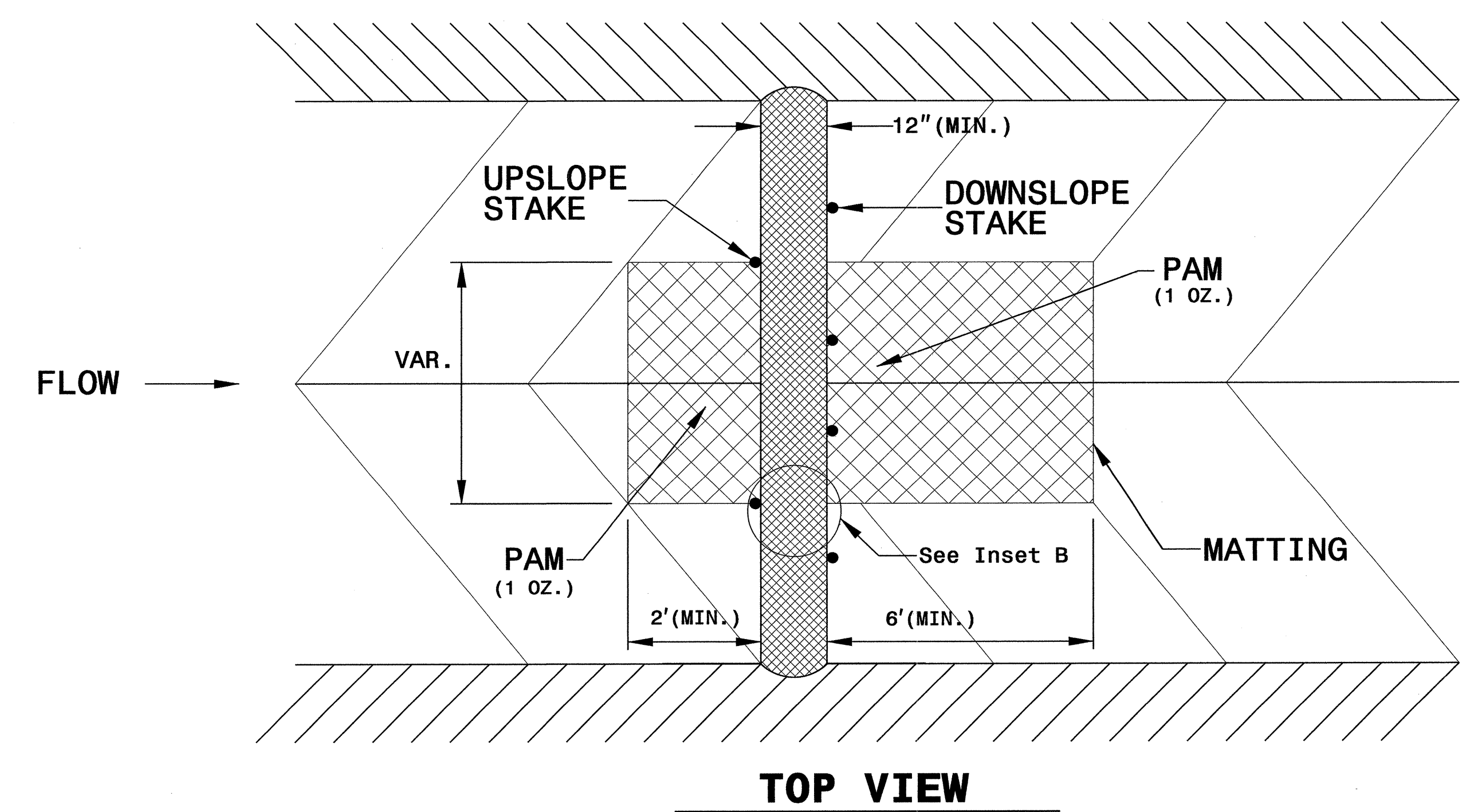
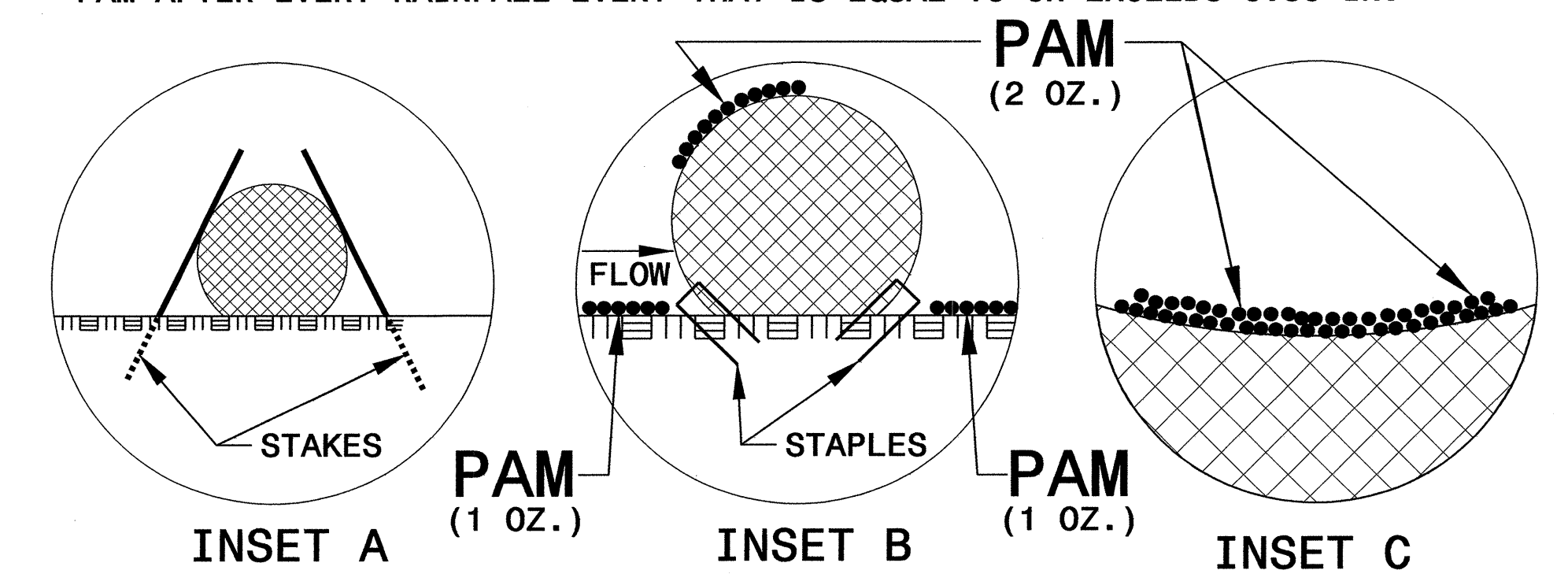
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-4422	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.



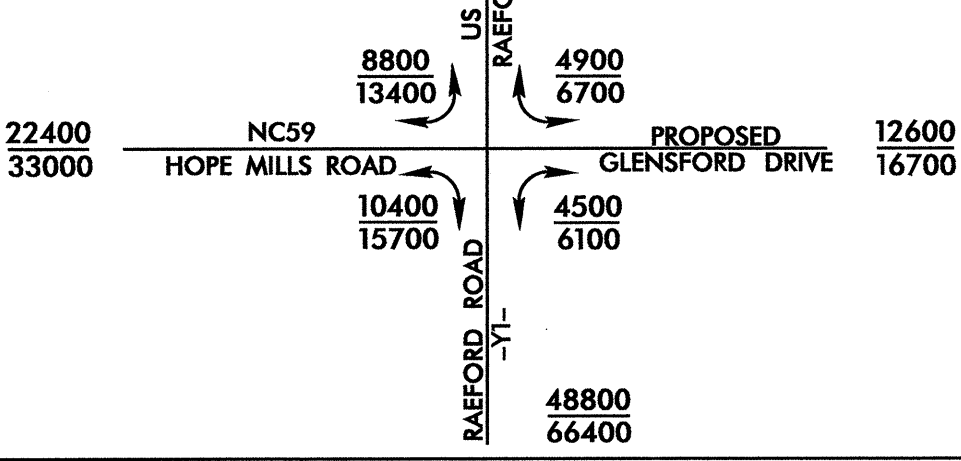
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>U-4422</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.

2012 ADT
2035 ADT



-L-
PI Sta. 23+26.08
 $\Delta = 20^\circ 41' 15.9''$ (LT)
 $D = 5^\circ 43' 46.5''$
 $L = 361.07'$
 $T = 182.52'$
 $R = 1,000.00'$
 $SE = 0.03$
 $INC = 25'$
NAD 83/95

BEGIN CONSTR.
-YI- POT Sta. 13+52.00

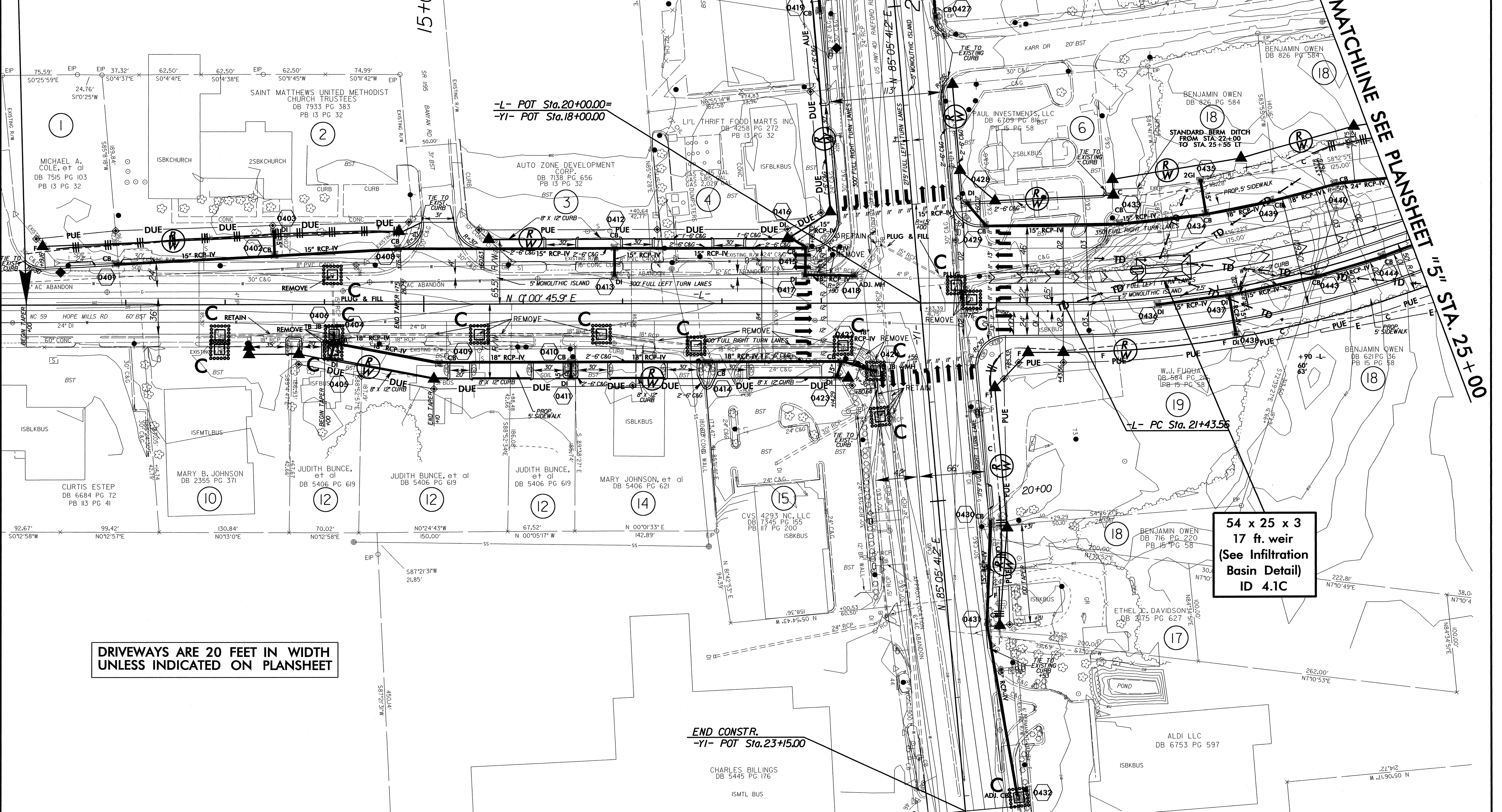
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

PROJECT REFERENCE NO.	SHEET NO.
U-4422	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BEGIN PROJECT U-4422

-L- POT Sta. 11+00.00

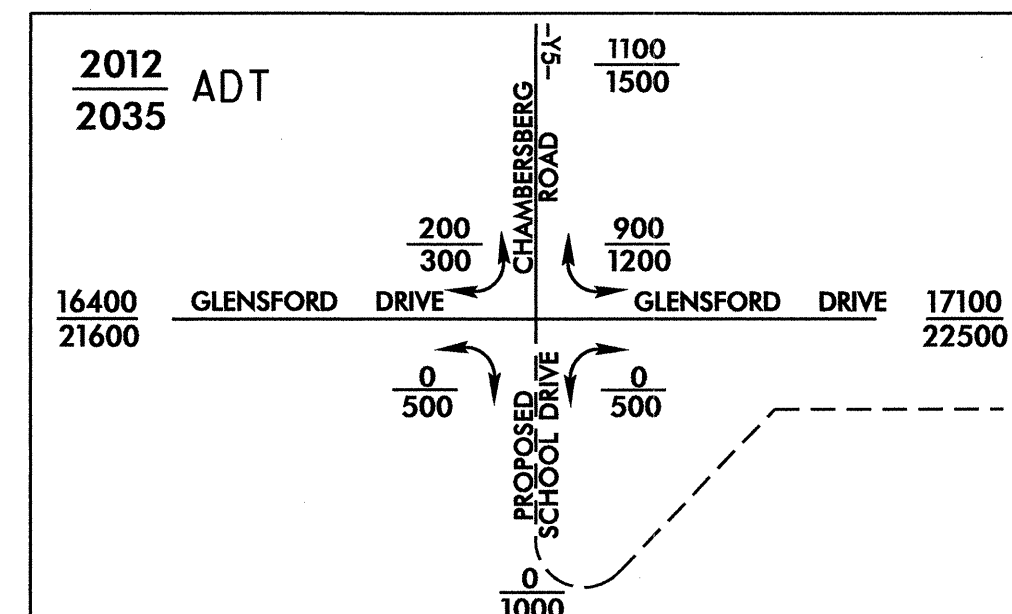


DRIVEWAYS ARE 20 FEET IN WIDTH
UNLESS INDICATED ON PLANSHEET

END CONSTR.
-YI- POT Sta. 23+15.00

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PROJECT REFERENCE NO.	SHEET NO.
U-4422	EC-7/CONST.7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



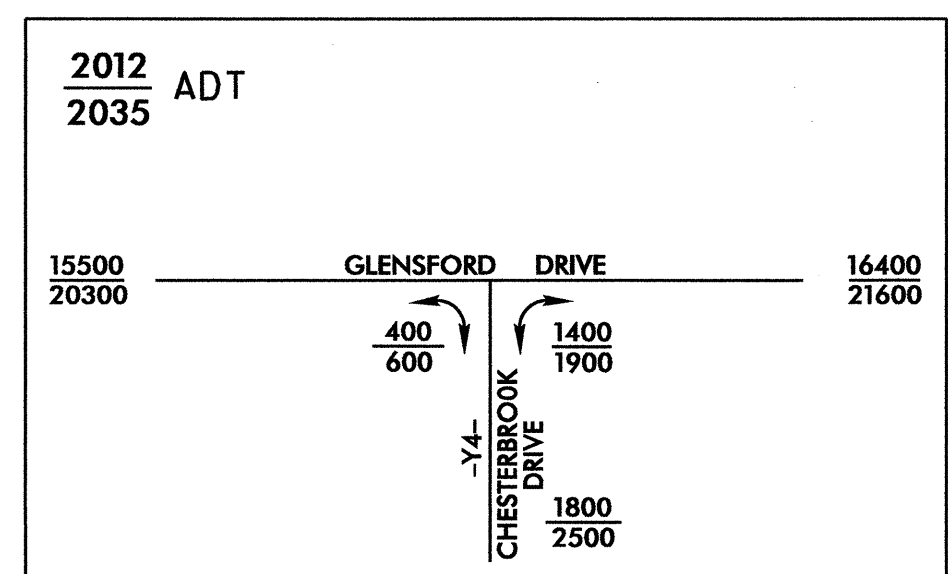
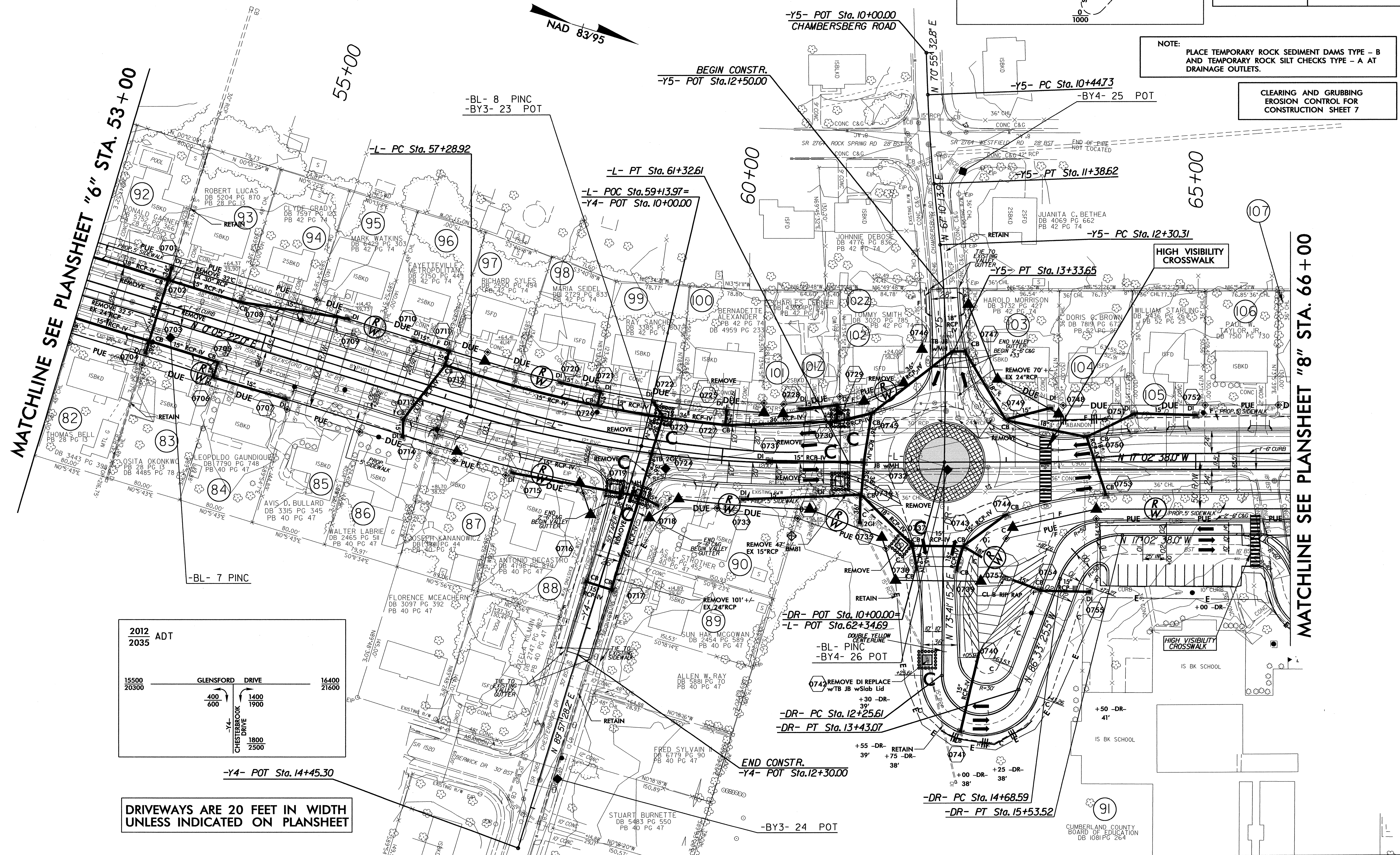
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

-L-	-Y5-	-DR-
PI Sta 59+32.28 Δ = 17° 08' 00.0" (LT) D = 4' 14' 38.9" L = 403.69' T = 203.37' R = 1,350.00' SE = 0.03 INC = 25'	PI Sta 10+91.69 Δ = 3° 45' 18.9" (LT) D = 4' 00' 00.0" L = 93.88' T = 46.96' R = 1,432.39'	PI Sta 12+68.55 Δ = 6° 31' 01.2" (RT) D = 5' 00' 00.0" L = 130.34' T = 65.24' R = 1,445.92' SE = NC
PI Sta 14+66.81 Δ = 160° 14' 40.6" (LT) D = 136° 25' 06.7" L = 117.47' T = 241.20' R = 42.00' SE = NC	PI Sta 15+17.17 Δ = 69° 30' 47.5" (RT) D = 8' 51' 04.0" L = 84.93' T = 48.57' R = 70.00' SE = NC	

MATCHLINE SEE PLANSHEET "6" STA. 53+00

MATCHLINE SEE PLANSHEET "8" STA. 66+00



DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

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AT:REV:26334

CUMBERLAND COUNTY BOARD OF EDUCATION
DB 1081 PG 264

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4422	EC-8/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-DR-
 PI Sta 15+17.77
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 $D = 81' 51" 04.0"$
 $L = 84.93'$
 $T = 48.57'$
 $R = 70.00'$
 $SE = NC$

-DRI-
 PI Sta 10+26.92
 $\Delta = 48^\circ 19' 30.4" (RT)$
 $D = 95' 29' 34.7"$
 $L = 50.61'$
 $T = 26.92'$
 $R = 60.00'$
 $SE = NC$

PI Sta 11+04.52
 $\Delta = 90^\circ 17' 44.1" (RT)$
 $D = 229' 10' 59.2"$
 $L = 39.40'$
 $T = 25.13'$
 $R = 25.00'$
 $SE = NC$

-L-
 PI Sta 74+81.25
 $\Delta = 12^\circ 31' 51.0" (RT)$
 $D = 3' 10' 59.2"$
 $L = 393.67'$
 $T = 197.62'$
 $R = 1,800.00'$
 $SE = NC$

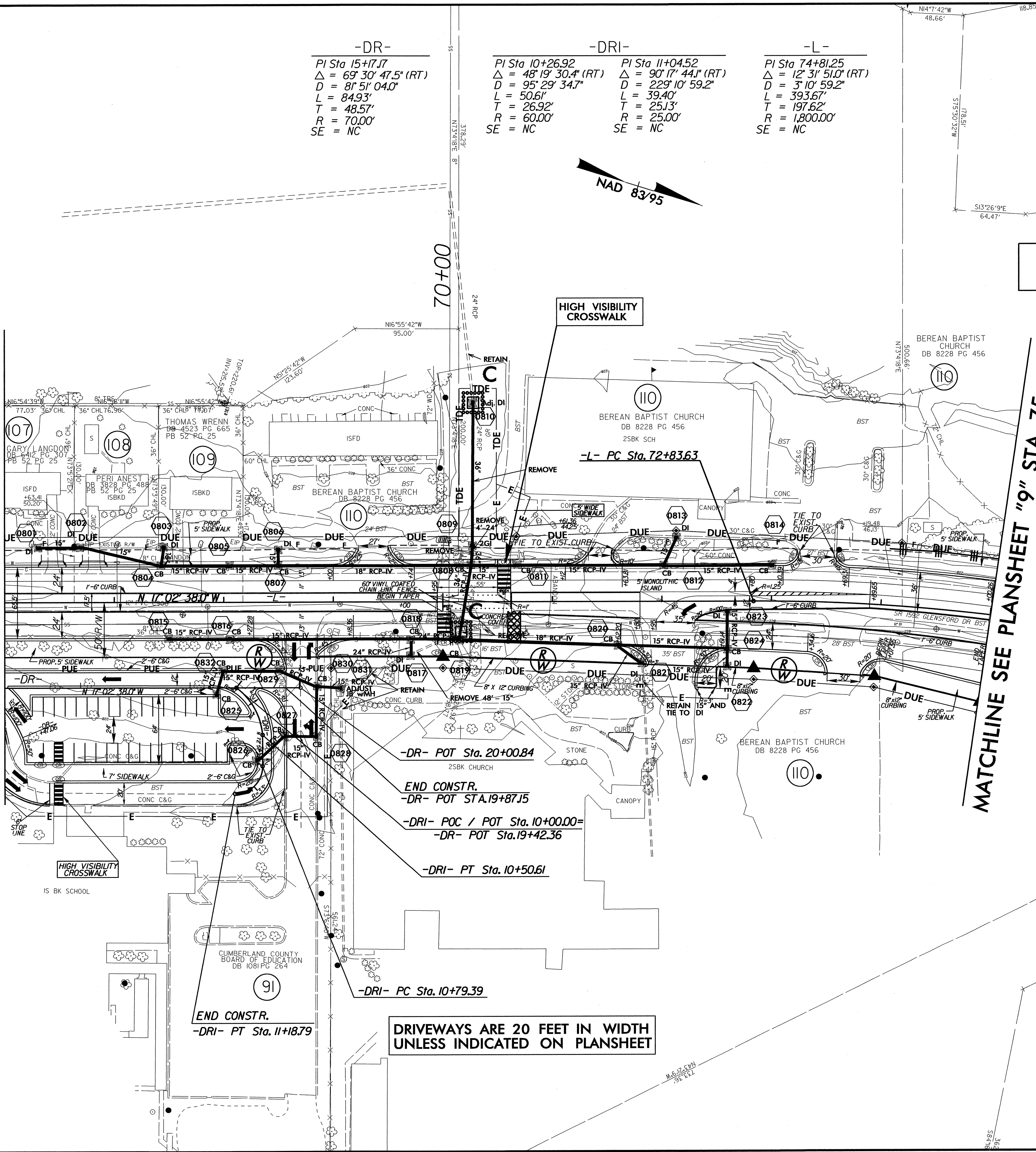
NAD 83/95

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

MATCHLINE SEE PLANSHEET "7" STA. 66+00

MATCHLINE SEE PLANSHEET "9" STA. 75+00



DRIVEWAYS ARE 20 FEET IN WIDTH
 UNLESS INDICATED ON PLANSHEET

14-FEB-2010 10:29
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 AT: BERNARD

PROJECT REFERENCE NO.		SHEET NO.	
U-4422		EC-9/CONST.9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

-Y6- PC Sta. 10+00.00
CLIFFDALE ROAD

-L-
PI Sta 74+81.25
Δ = 12' 31" 51.0" (RT)
D = 3' 10" 59.2"
L = 393.67'
T = 197.62'
R = 1,800.00'
SE = NC

-Y6-
PI Sta 12+42.01
Δ = 2' 25" 11.0" (LT)
D = 0' 30" 00.0"
L = 483.94'
T = 242.01'
R = 11,459.15'

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

MATCHLINE SEE PLANSHEET "8" STA. 75+00

END PROJECT U-4422
-L- POT Sta. 85+55.00

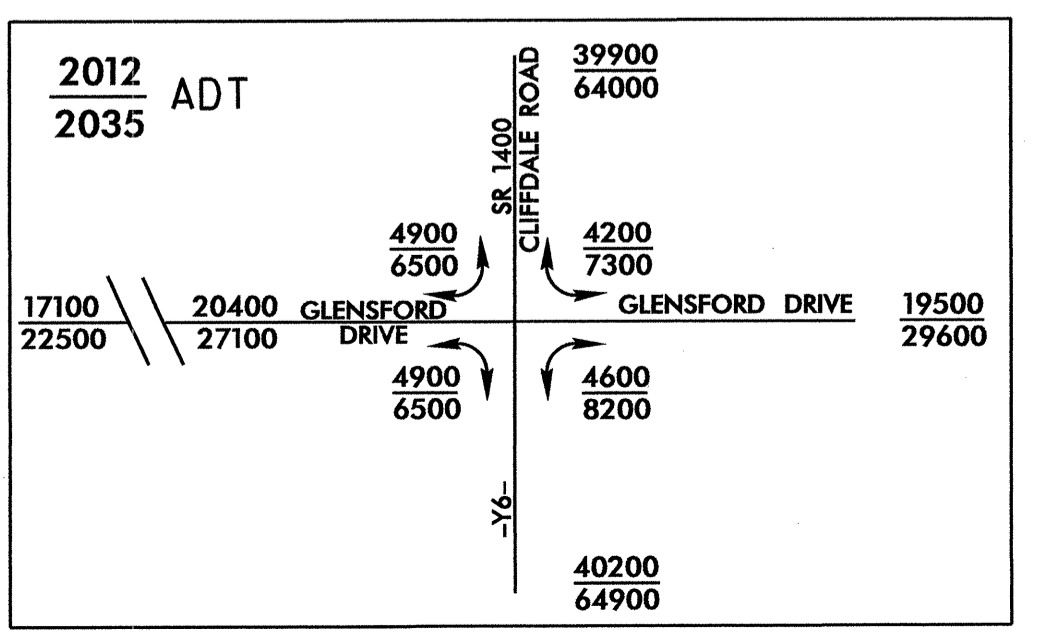
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-L- POT Sta. 87+05.07

-Y6- PT Sta. 14+83.94

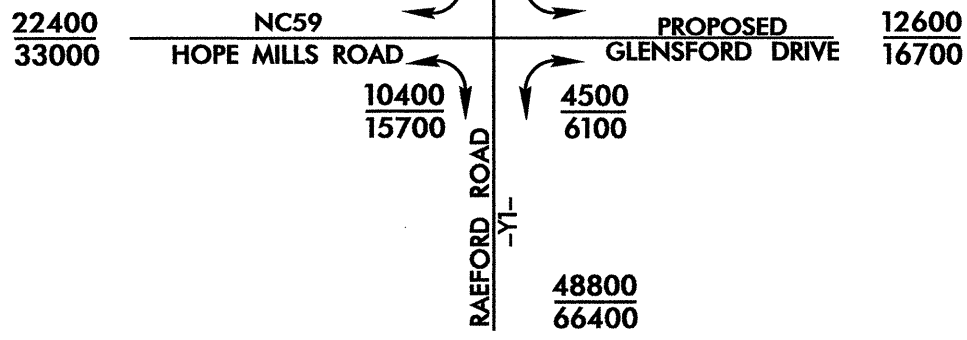
END CONSTR.
-Y6- POT Sta. 19+61.20

DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET



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2012
2035 ADT

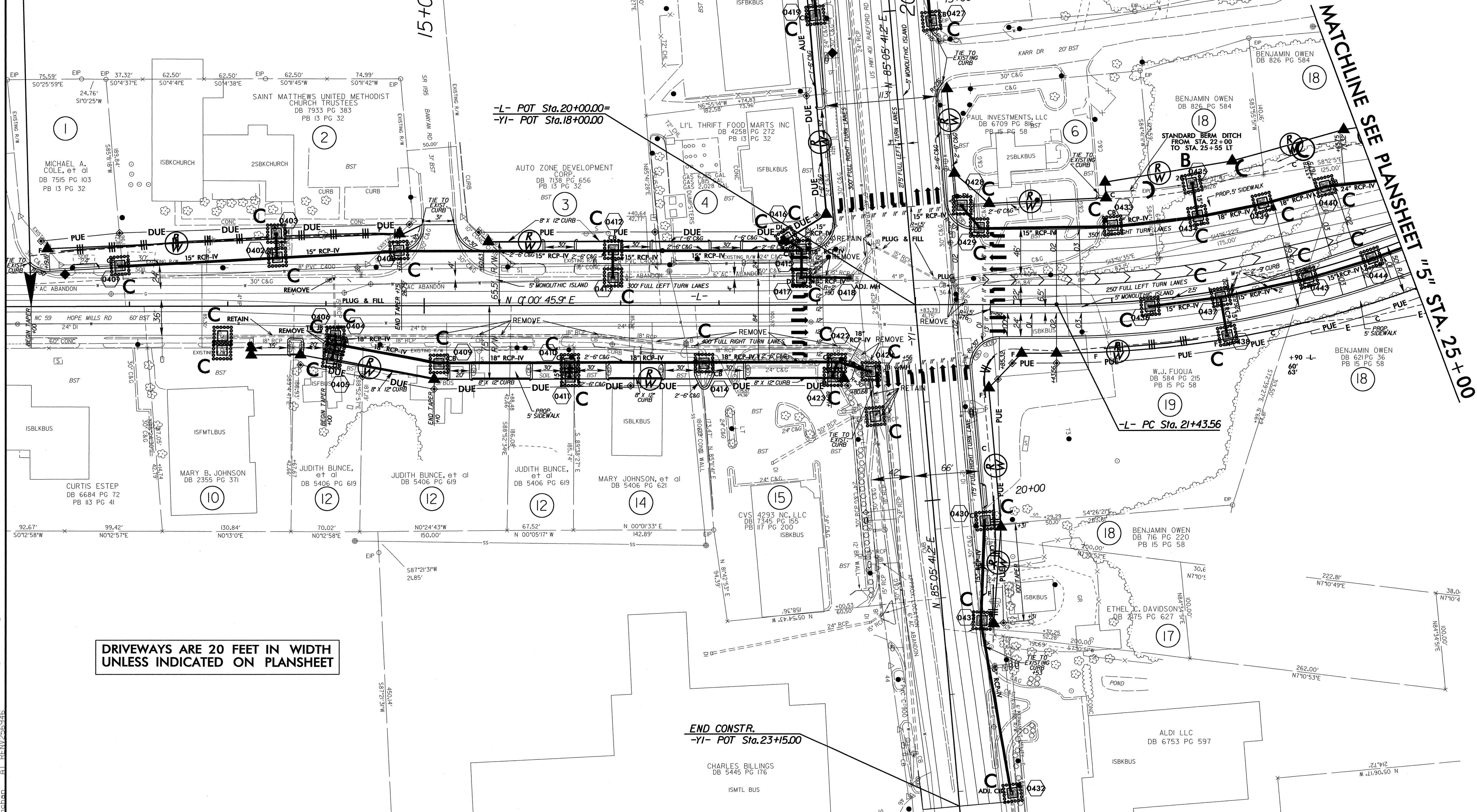


-L-
 PI Sta. 23+26.08
 $\Delta = 20^\circ 41' 15.9''$ (LT)
 $D = 5^\circ 43' 46.5''$
 $L = 361.07'$
 $T = 182.52'$
 $R = 1,000.00'$
 $SE = 0.03$
 $INC = 25'$

BEGIN CONSTR.
 -YI- POT Sta. 13+52.00

PROJECT REFERENCE NO.	SHEET NO.
U-4422	EC-10/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BEGIN PROJECT U-4422
 -L- POT Sta. 11+00.00



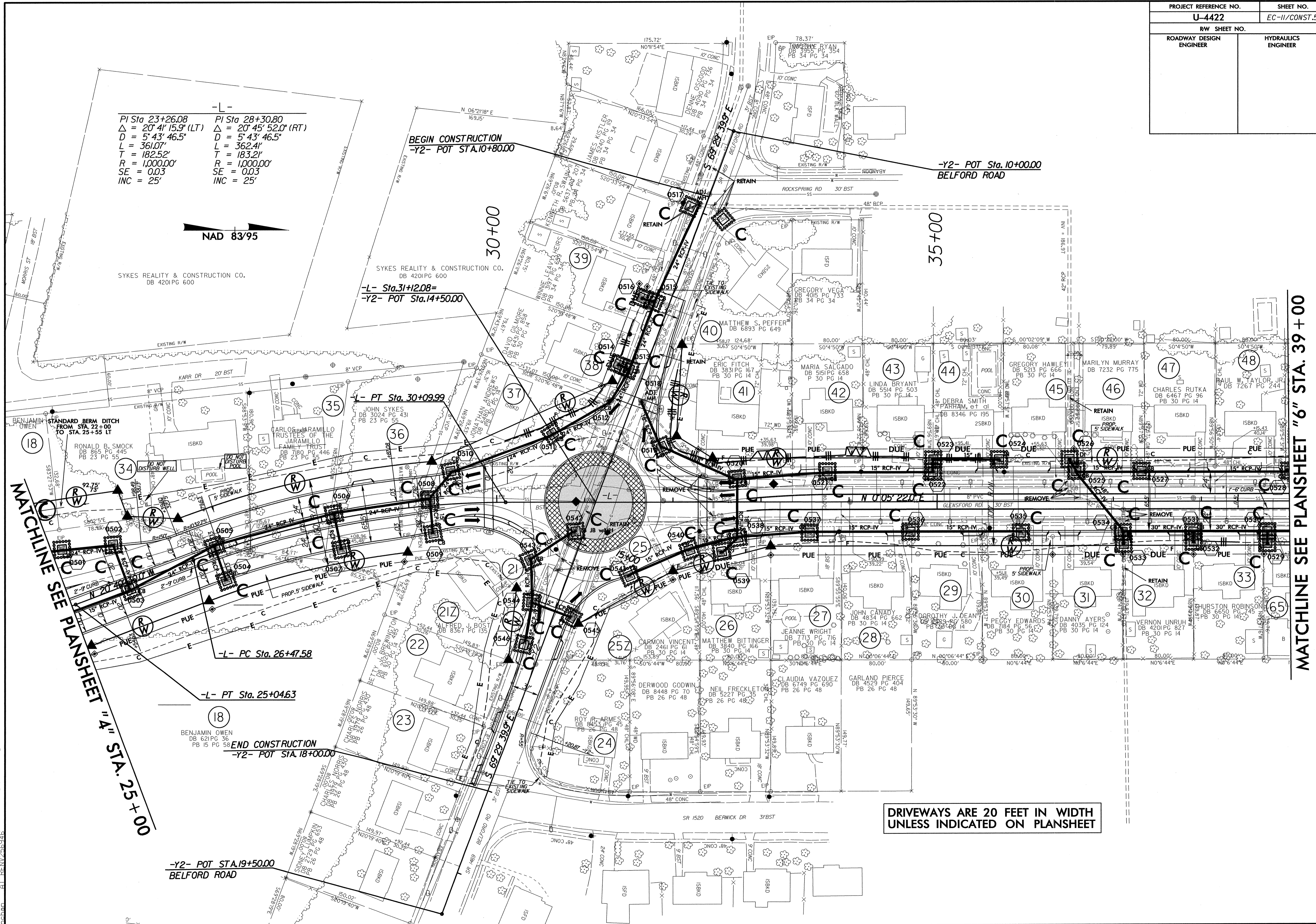
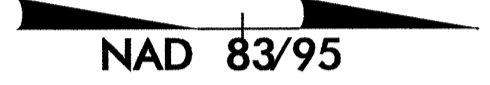
DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

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MATCHLINE SEE PLANSHEET "5" STA. 25+00

PROJECT REFERENCE NO.		SHEET NO.	
U-4422		EC-II/CONST.5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

-L-
 PI Sta 23+26.08 PI Sta 28+30.80
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 $D = 5' 43' 46.5"$ $D = 5' 43' 46.5"$
 $L = 361.07'$ $L = 362.41'$
 $T = 182.52'$ $T = 183.21'$
 $R = 1,000.00'$ $R = 1,000.00'$
 $SE = 0.03$ $SE = 0.03$
 $INC = 25'$ $INC = 25'$



MATCHLINE SEE PLANSHEET "A" STA. 25+00

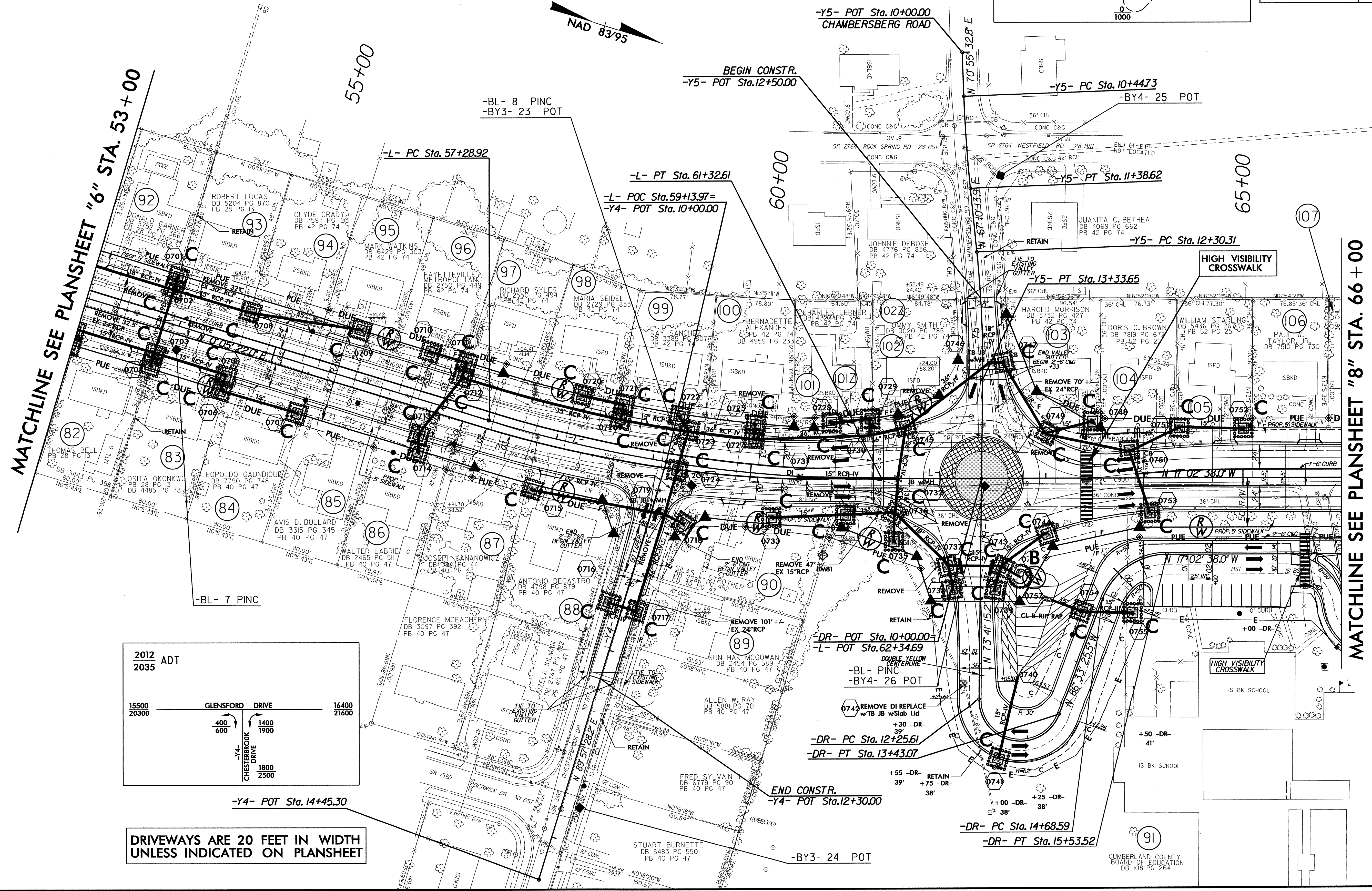
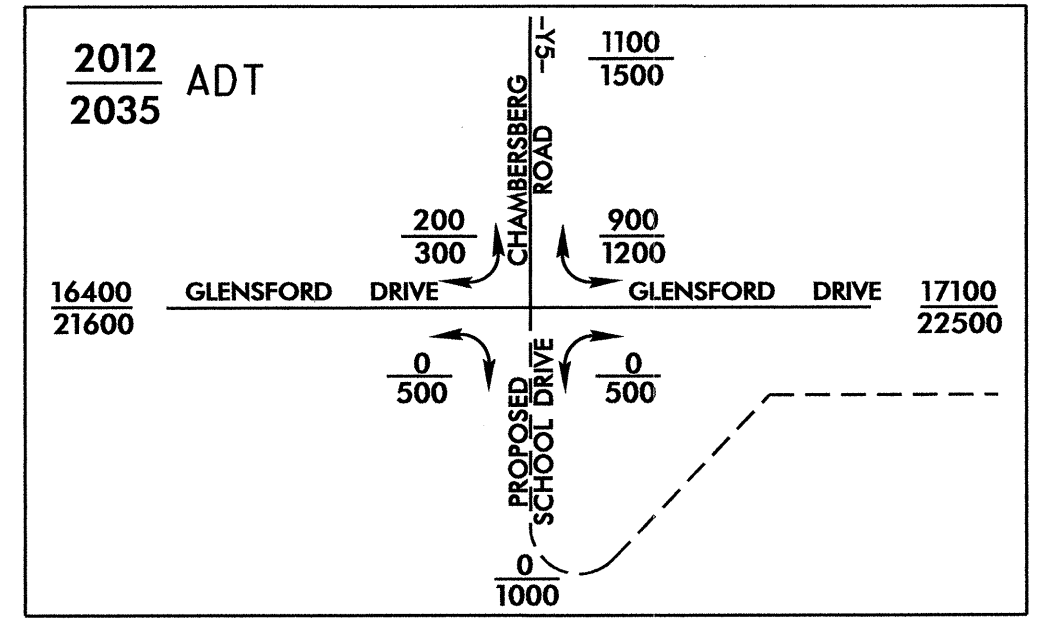
MATCHLINE SEE PLANSHEET "6" STA. 39+00

DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

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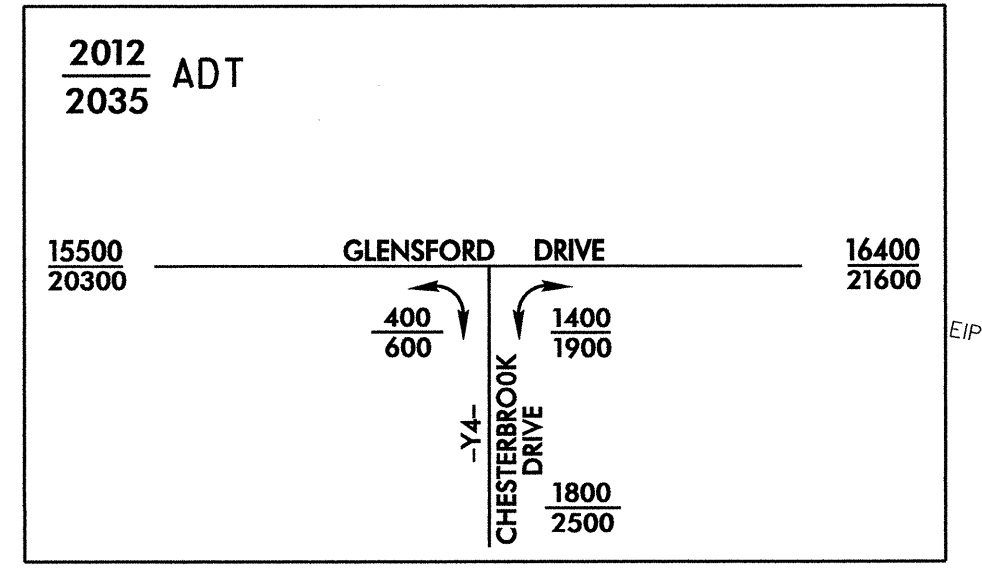
PROJECT REFERENCE NO.		SHEET NO.	
U-4422		EC-13/CONST.7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

-L-	-Y5-	-DR-
PI Sta 59+32.28 Δ = 17° 08' 00.0" (LT) D = 4' 14' 38.9" L = 403.69' T = 203.37' R = 1,350.00' SE = 0.03 INC = 25'	PI Sta 10+91.69 Δ = 3° 45' 18.9" (LT) D = 4' 00' 00.0" L = 93.88' T = 46.96' R = 1,432.39'	PI Sta 12+68.55 Δ = 6° 31' 01.2" (RT) D = 5' 00' 00.0" L = 130.34' T = 65.24' R = 1,459.92' SE = NC
PI Sta 14+66.81 Δ = 160° 14' 40.6" (LT) D = 136° 25' 06.7" L = 117.47' T = 241.20' R = 42.00' SE = NC	PI Sta 15+17.17 Δ = 69° 30' 47.5" (RT) D = 8' 51' 04.0" L = 84.93' T = 48.57' R = 70.00' SE = NC	



MATCHLINE SEE PLANSHEET "6" STA. 53+00

MATCHLINE SEE PLANSHEET "8" STA. 66+00



DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

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8/17/99

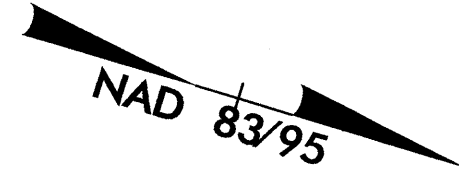
PROJECT REFERENCE NO.		SHEET NO.	
U-4422		EC-14/CONST.8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

-DR-
 PI Sta 15+17.17
 $\Delta = 69^{\circ} 30' 47.5" (RT)$
 $D = 81' 51' 04.0"$
 $L = 84.93'$
 $T = 48.57'$
 $R = 70.00'$
 SE = NC

-DRI-
 PI Sta 10+26.92
 $\Delta = 48^{\circ} 19' 30.4" (RT)$
 $D = 95' 29' 34.7"$
 $L = 50.61'$
 $T = 26.92'$
 $R = 60.00'$
 SE = NC

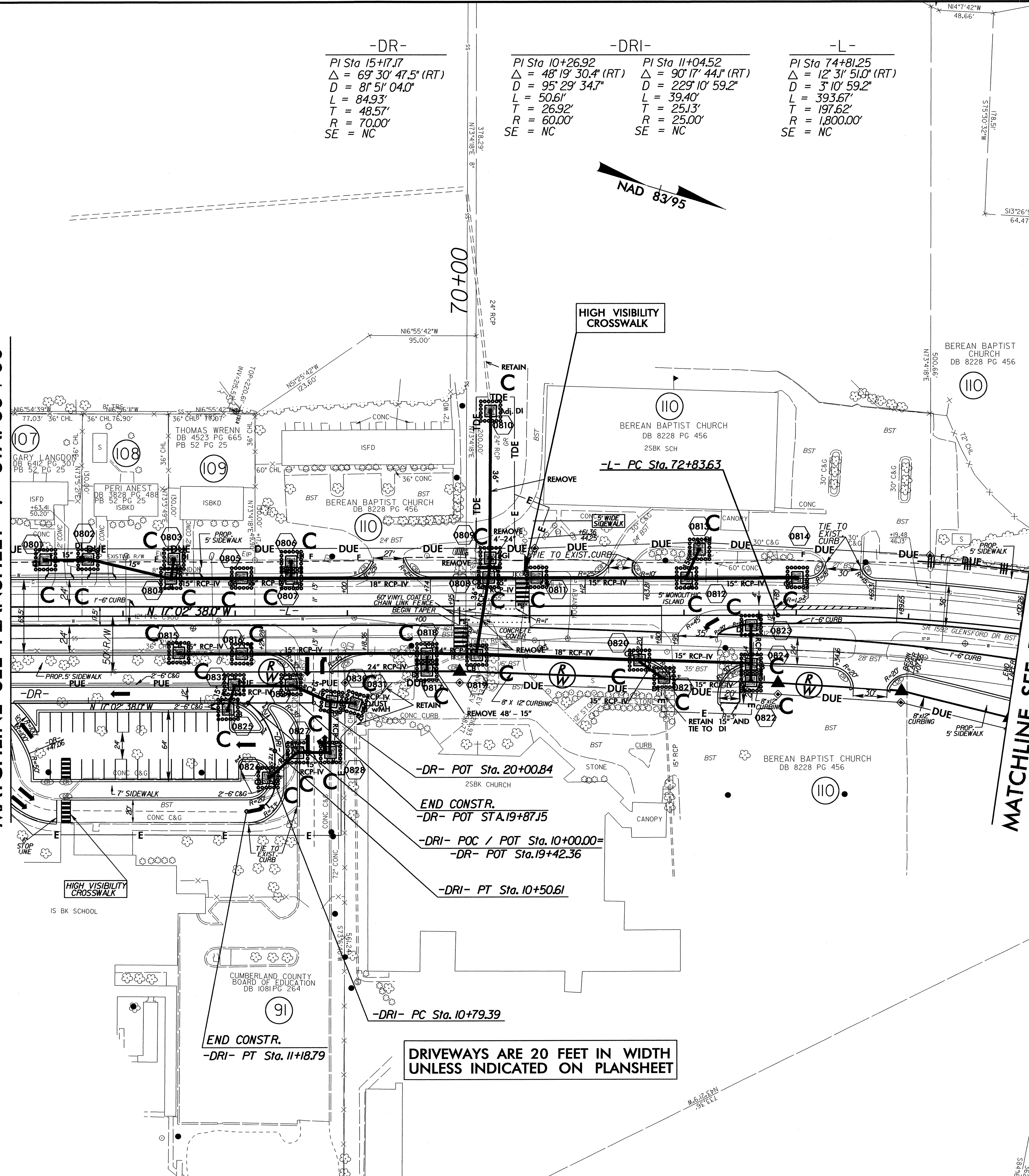
PI Sta 11+04.52
 $\Delta = 90^{\circ} 17' 44.1" (RT)$
 $D = 229' 10' 59.2"$
 $L = 39.40'$
 $T = 25.13'$
 $R = 25.00'$
 SE = NC

-L-
 PI Sta 74+81.25
 $\Delta = 12^{\circ} 31' 51.0" (RT)$
 $D = 3' 10' 59.2"$
 $L = 393.67'$
 $T = 197.62'$
 $R = 1,800.00'$
 SE = NC



MATCHLINE SEE PLANSHEET "7" STA. 66+00

MATCHLINE SEE PLANSHEET "9" STA. 75+00



DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

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 AT: RANV263346
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PROJECT REFERENCE NO.		SHEET NO.	
U-4422		EC-15/CONST.9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

MATCHLINE SEE PLANSHEET "8" STA. 75+00

-Y6- PC Sta. 10+00.00
CLIFFDALE ROAD

-L-
PI Sta 74+81.25
Δ = 12° 31' 51.0" (RT)
D = 3' 10' 59.2"
L = 393.67'
T = 197.62'
R = 1,800.00'
SE = NC

-Y6-
PI Sta 12+42.01
Δ = 2° 25' 11.0" (LT)
D = 0' 30' 00.0"
L = 483.94'
T = 242.01'
R = 11,459.15'

BEGIN CONSTR.
-Y6- POC Sta. 12+20.00

-L- POT Sta. 80+83.25=
-Y6- POC Sta. 14+71.93

END PROJECT U-4422
-L- POT Sta. 85+55.00

-L- PC Sta. 84+35.07

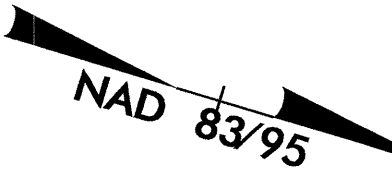
-L- POT Sta. 87+05.07

-Y6- PT Sta. 14+83.94

END CONSTR.
-Y6- POT Sta. 19+61.20

DRIVEWAYS ARE 20 FEET IN WIDTH UNLESS INDICATED ON PLANSHEET

2012 ADT		39900	
2035		64000	
17100	20400	4900	4200
22500	27100	6500	7300
		4900	4600
		6500	8200
			40200
			64900



85+00

I:\FB-2012\10\32\1\Design\U4422-rdy-psh_09.dgn
RAY: rdy
DATE: 10/30/12