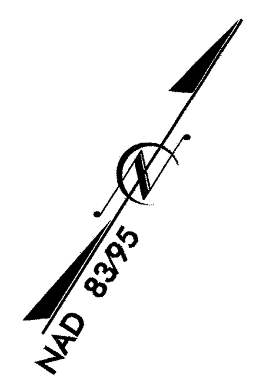
TIP PROJECT: U-4412

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4412	EC-1	

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

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

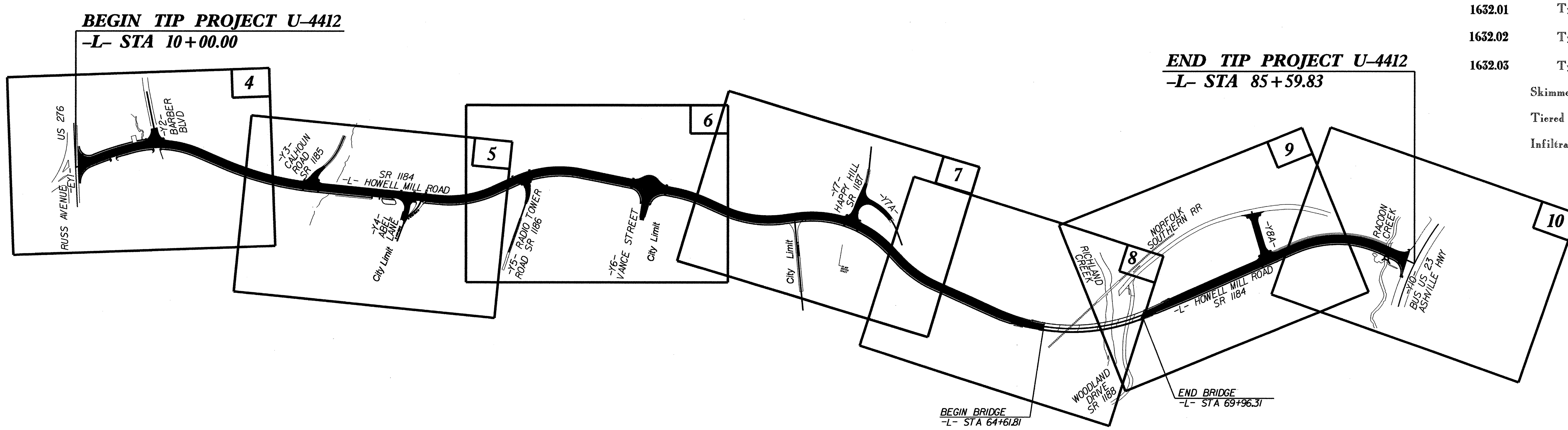


PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

HAYWOOD COUNTY

LOCATION: WAYNESVILLE - SR 1184 (HOWELL MILL ROAD) FROM US 276 (RUSS AVENUE) TO US 23 BUSINESS (ASHEVILLE HWY)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT 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	BW / 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.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

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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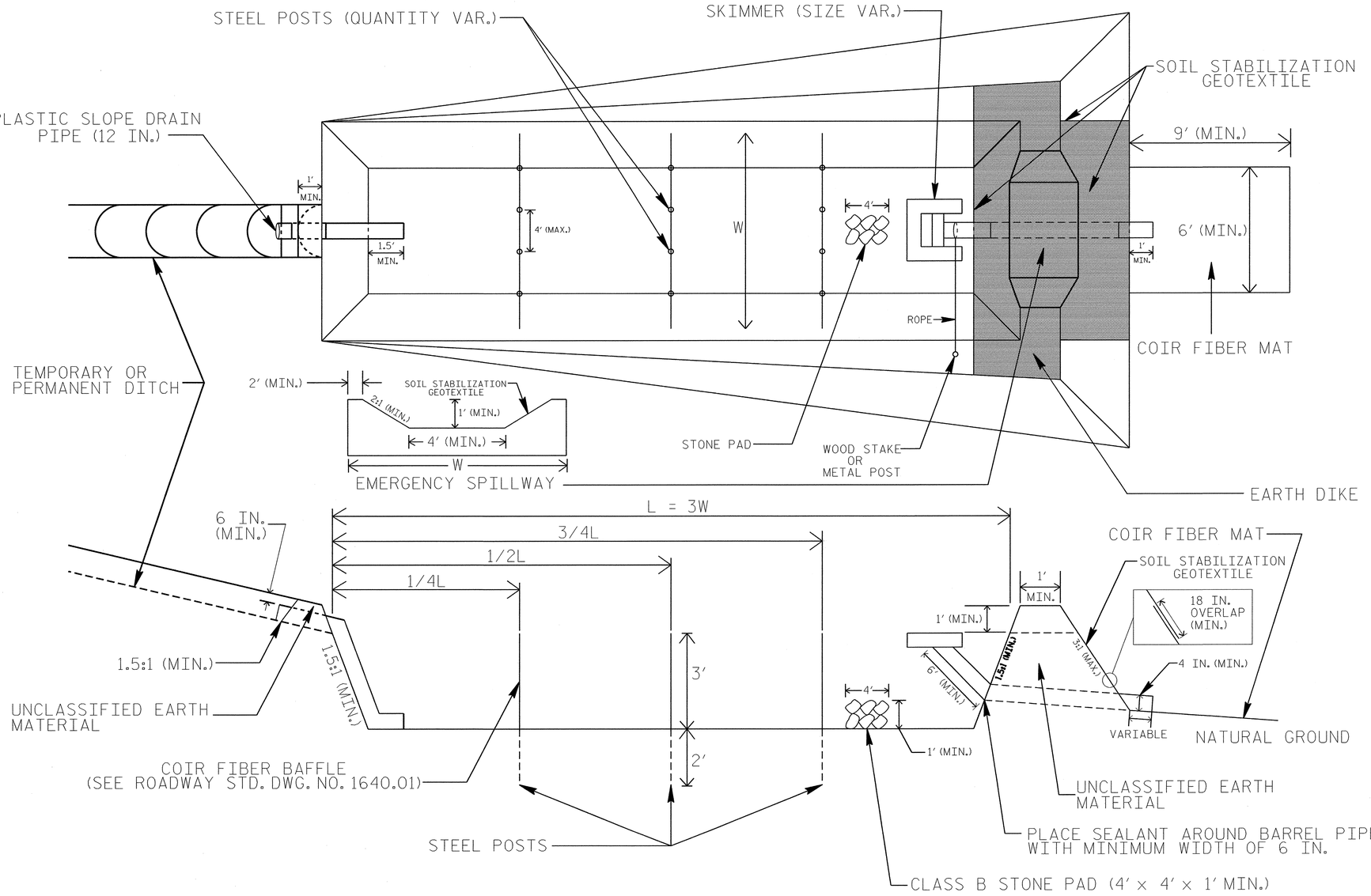
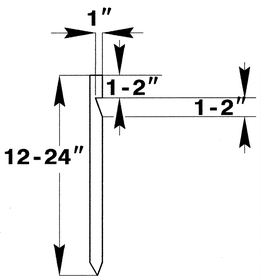
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

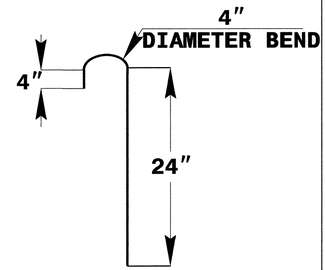
SKIMMER BASIN WITH BAFFLES DETAIL



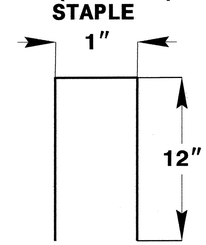
2" x 2" (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1" (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

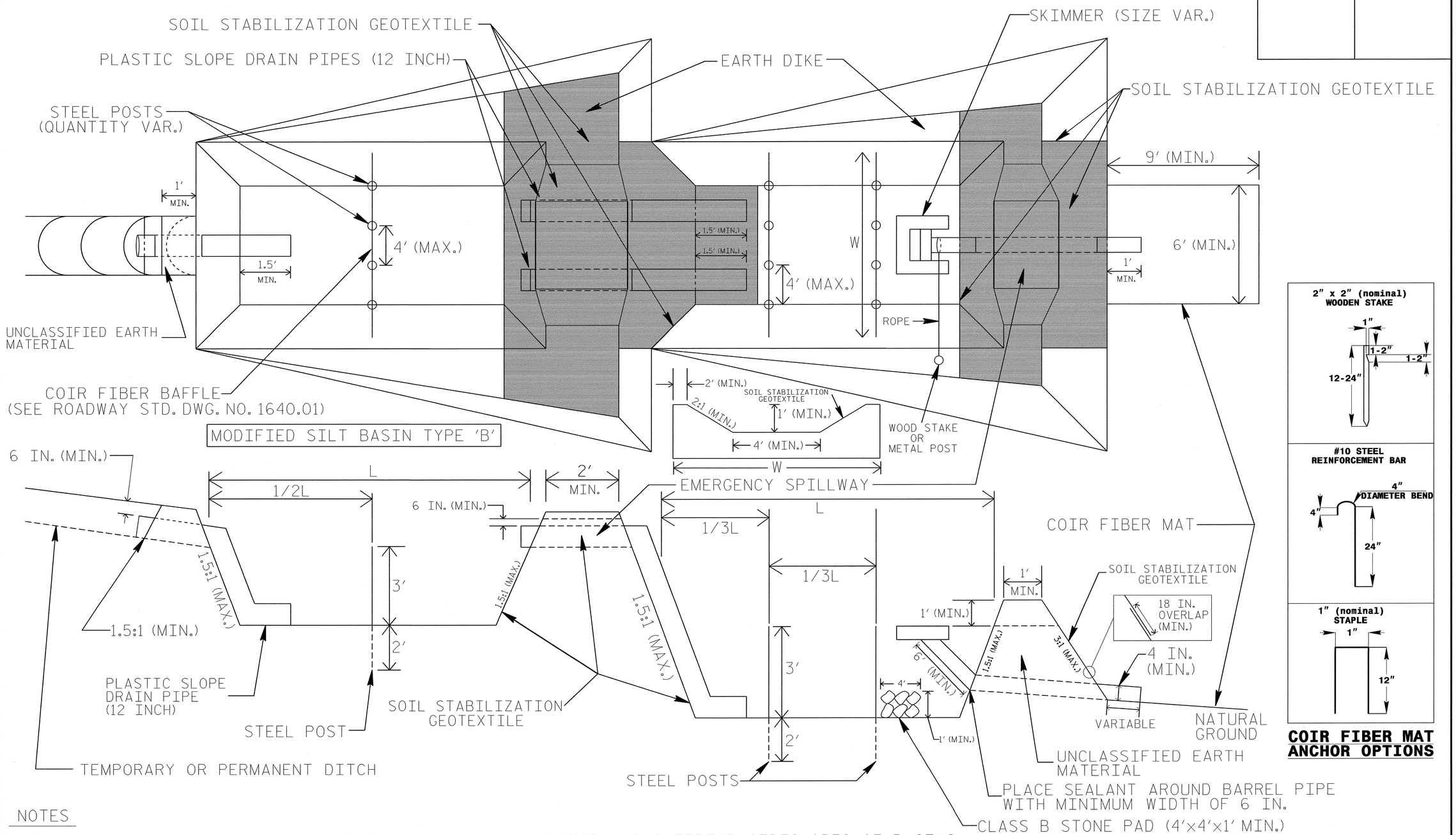
NOTES

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 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.
U-4412	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TIERED SKIMMER BASIN DETAIL



2" x 2" (nominal) WOODEN STAKE

#10 STEEL REINFORCEMENT BAR

1" (nominal) STAPLE

COIR FIBER MAT ANCHOR OPTIONS

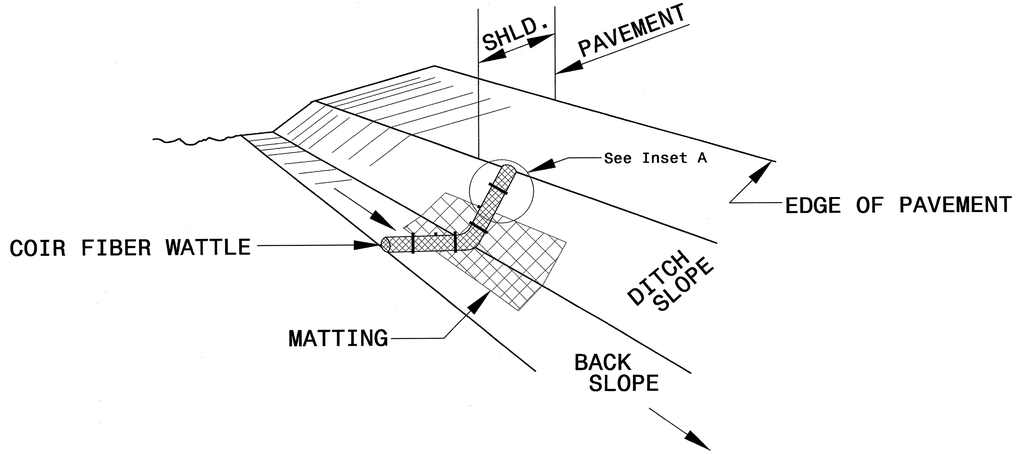
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE EMERGENCY SPILLWAY LENGTHS (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR EMERGENCY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

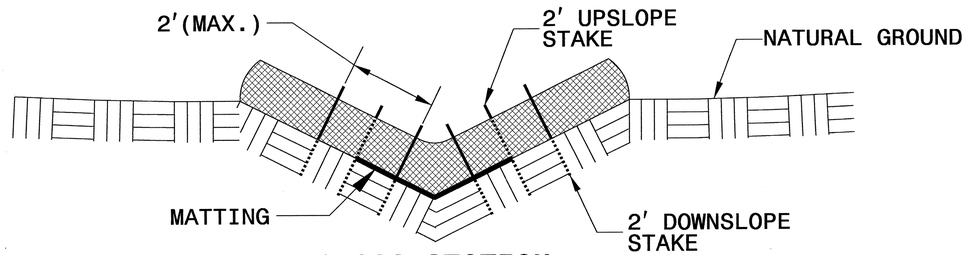
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

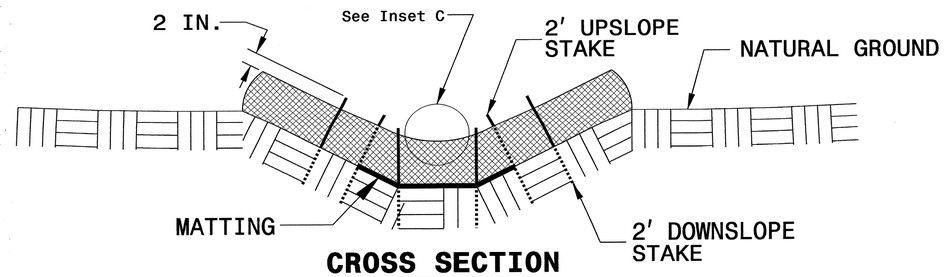
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

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.

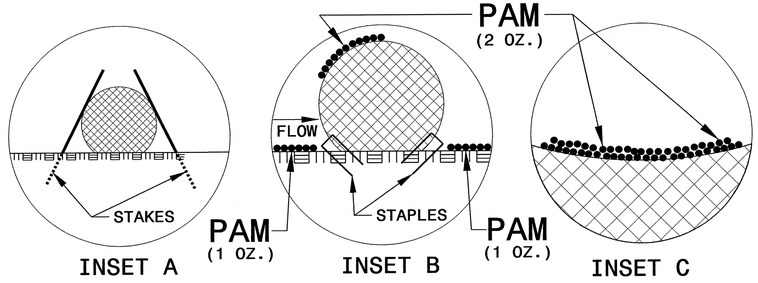
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

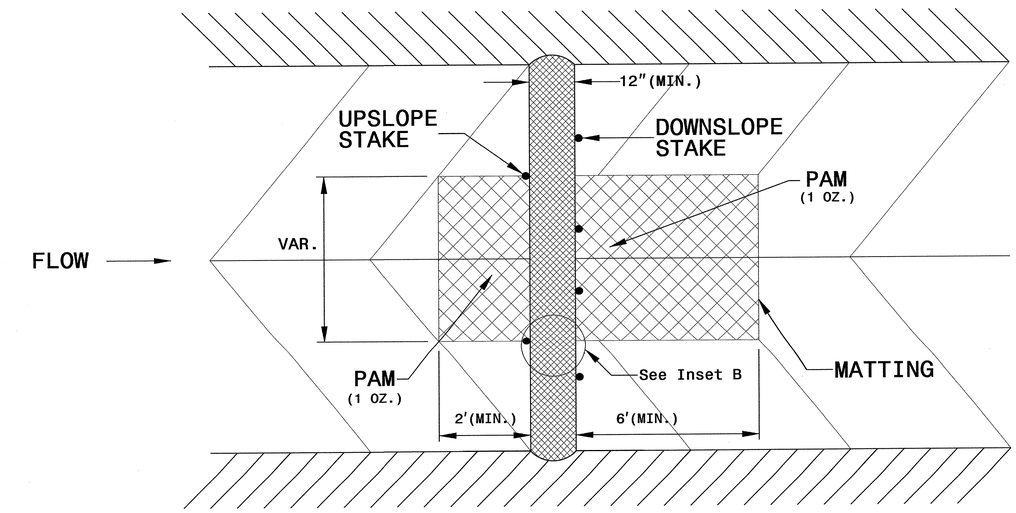
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

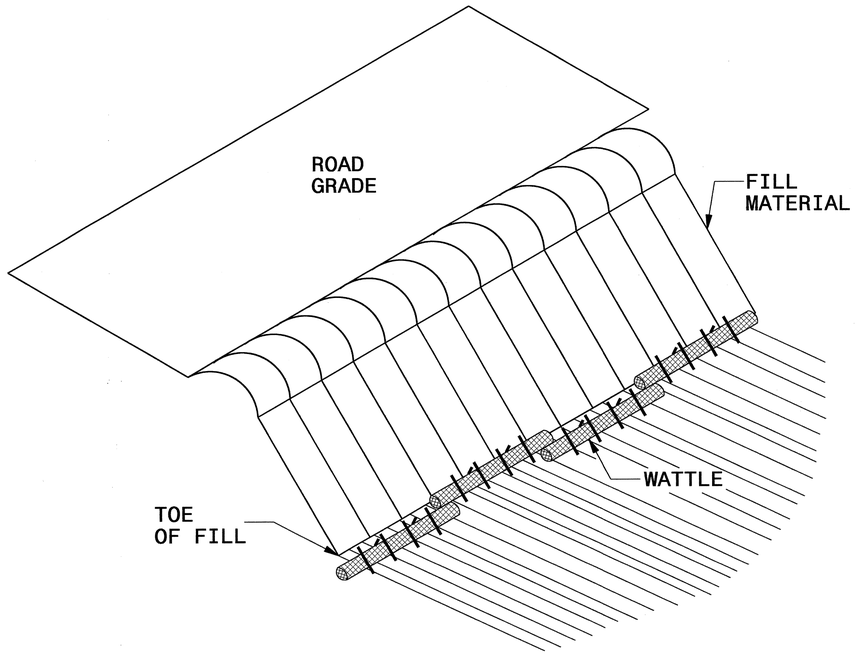




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

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

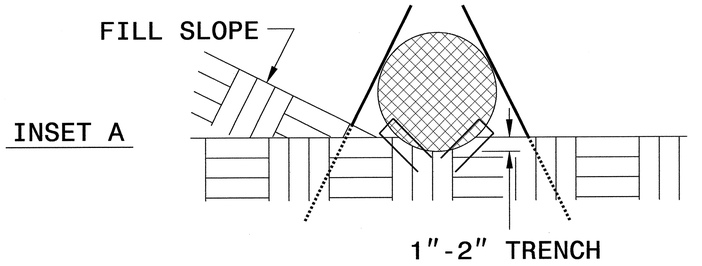
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

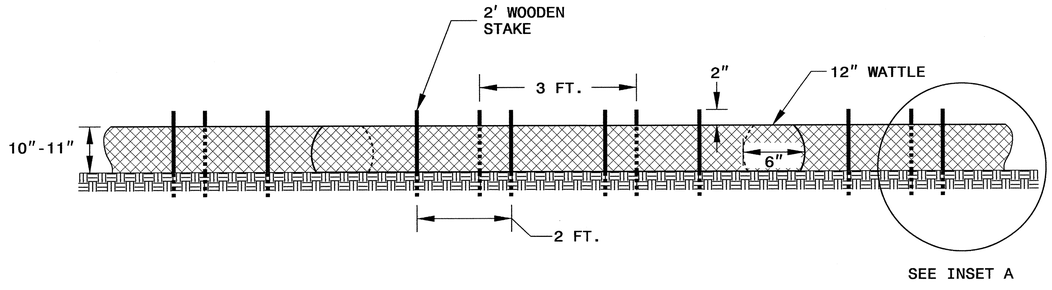
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

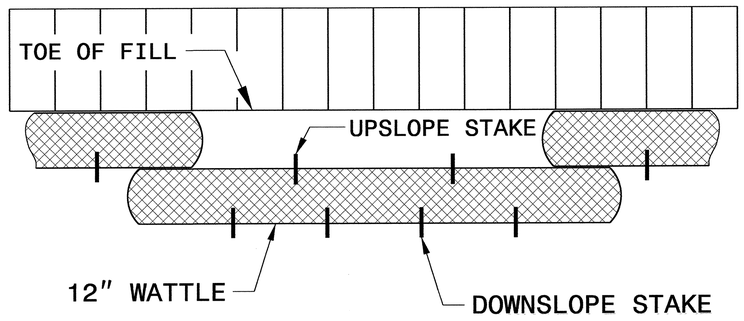
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.





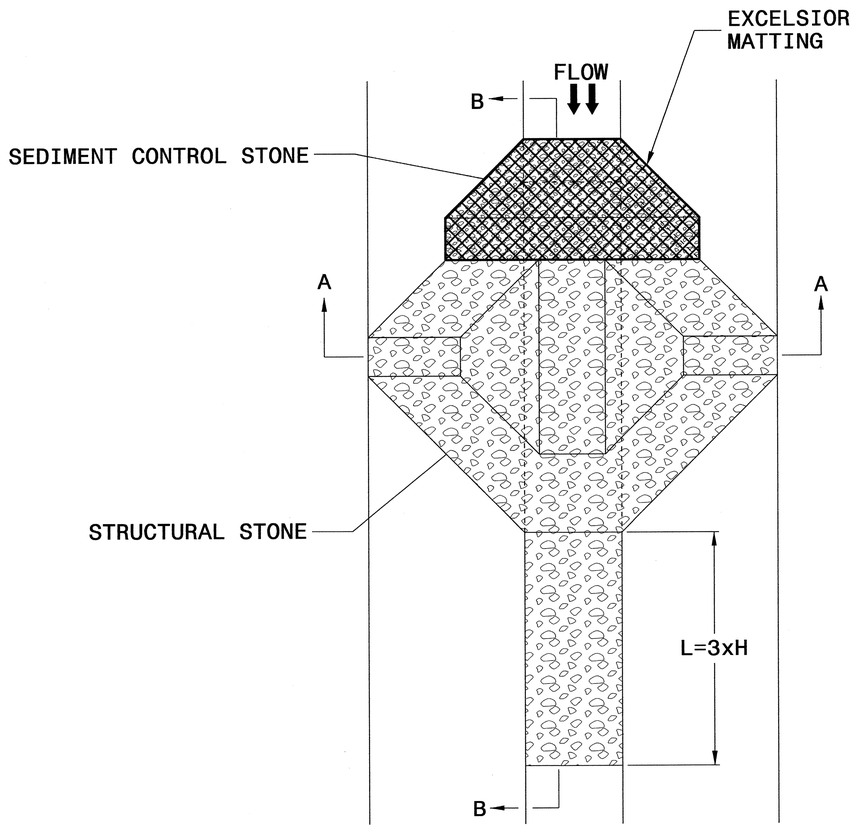
FRONT VIEW



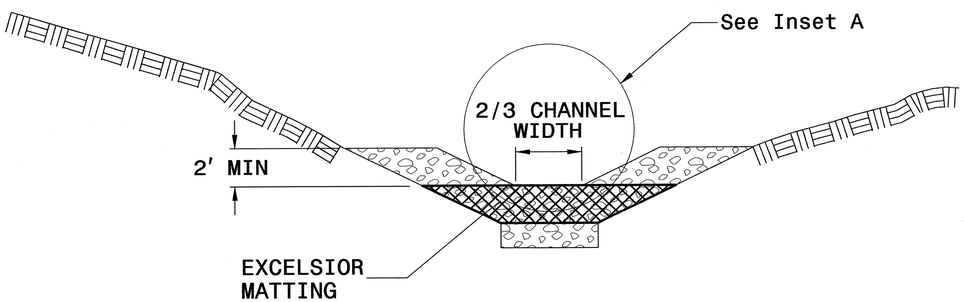
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



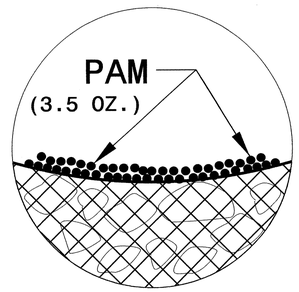
SECTION A-A

NOTES

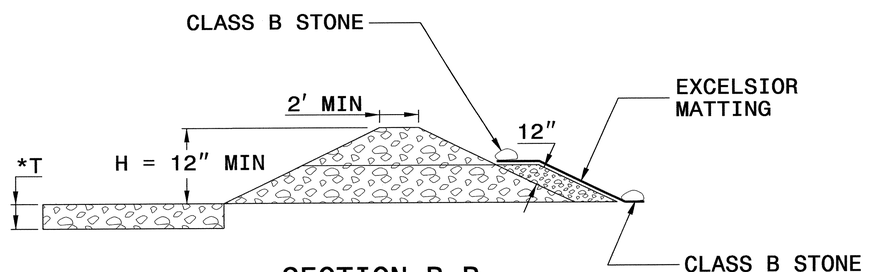
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.



INSET A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-4412	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)
2E	-DET1-	12+00	13+25	LT	90
7	-L-	51+00	52+00	LT	75
7	-Y7-	12+25	12+50	LT	35
7	-Y7A-	10+25	11+75	LT	210
			SUBTOTAL		410
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					60000
				TOTAL	60410
				SAY	60500

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
7	-L-	48+50	50+50	LT	100
			SUBTOTAL		100
		ADDITIONAL PSRM TO BE INSTALLED			645
				TOTAL	745
				SAY	750

PROJECT REFERENCE NO.	SHEET NO.
U-4412	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.

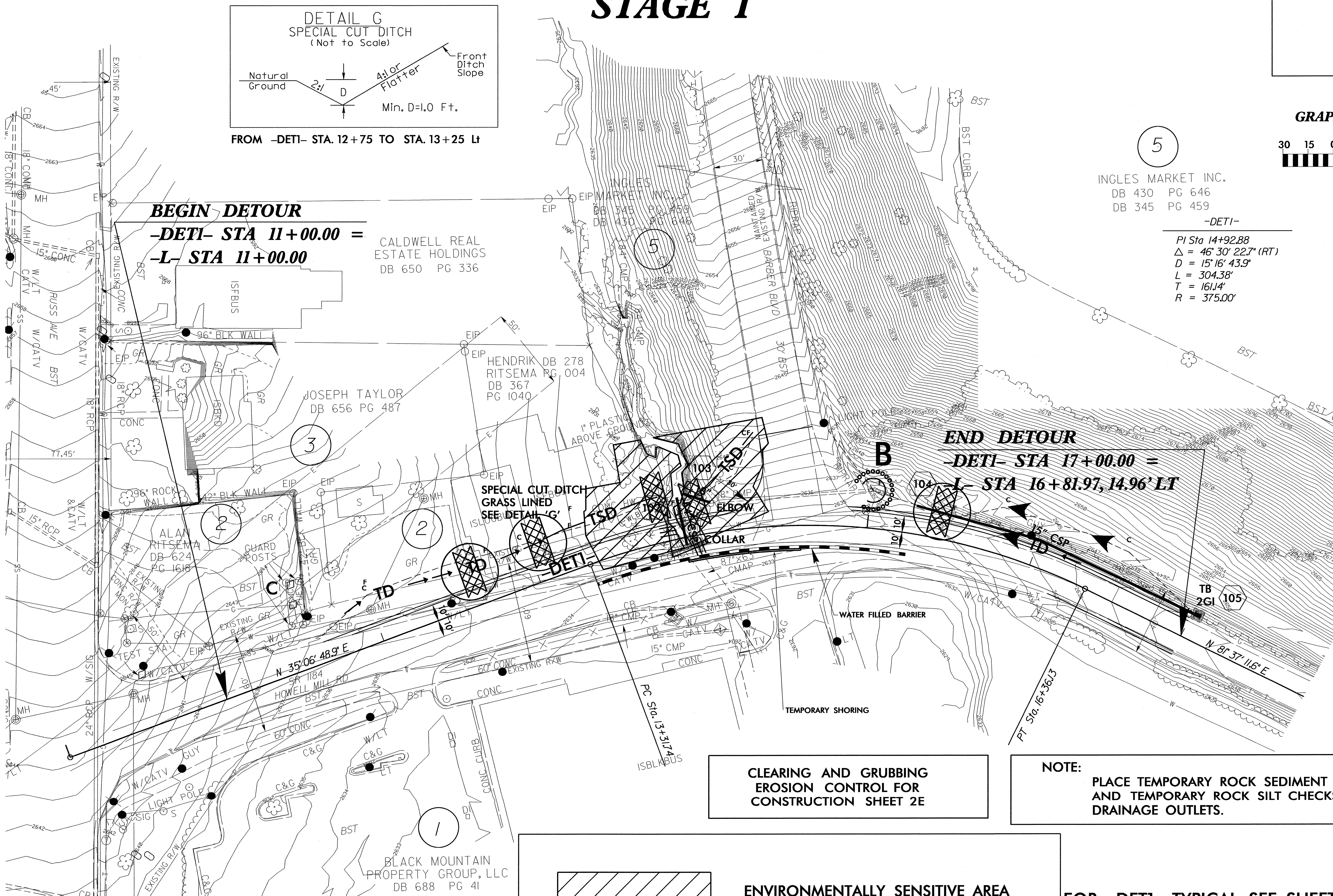
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-4/CONST.2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL OF CULVERT CONSTRUCTION DETOUR
STAGE I

GRAPHIC SCALES

30 15 0 30 60

PLANS



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2E

NOTE:

PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

FOR -DET1- TYPICAL, SEE SHEET 2A
TYPICAL SECTION 4

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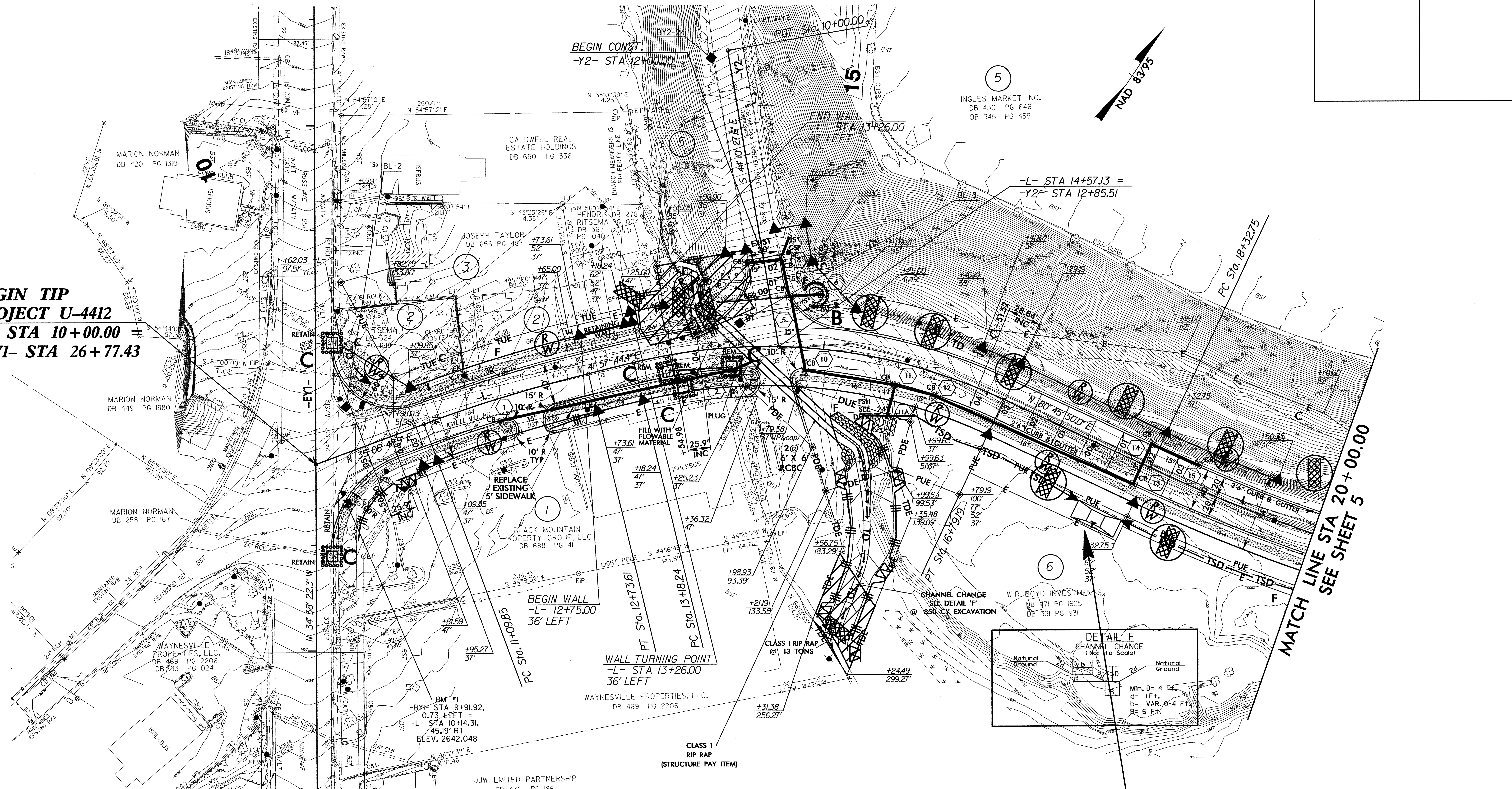
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



18 x 45 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
37 ft. weir
ID 4.1 CG

-L-

PI Sta 11+91.82	PI Sta 15+05.94	PI Sta 20+85.25
Δ = 6° 50' 55.6" (RT)	Δ = 38° 48' 05.5" (RT)	Δ = 17° 30' 18.4" (LT)
D = 4° 10' 55.8"	D = 10° 44' 58.8"	D = 3° 29' 37.1"
L = 163.76'	L = 360.96'	L = 501.06'
T = 81.98'	T = 187.71'	T = 252.49'
R = 1,370.00'	R = 533.00'	R = 1,640.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

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.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

FOR -L- PROFILE, SEE SHEET 11
FOR -Y2- PROFILE, SEE SHEET 15
FOR CULVERT DESIGN, SEE SHEETS C-1 TO C-

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PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

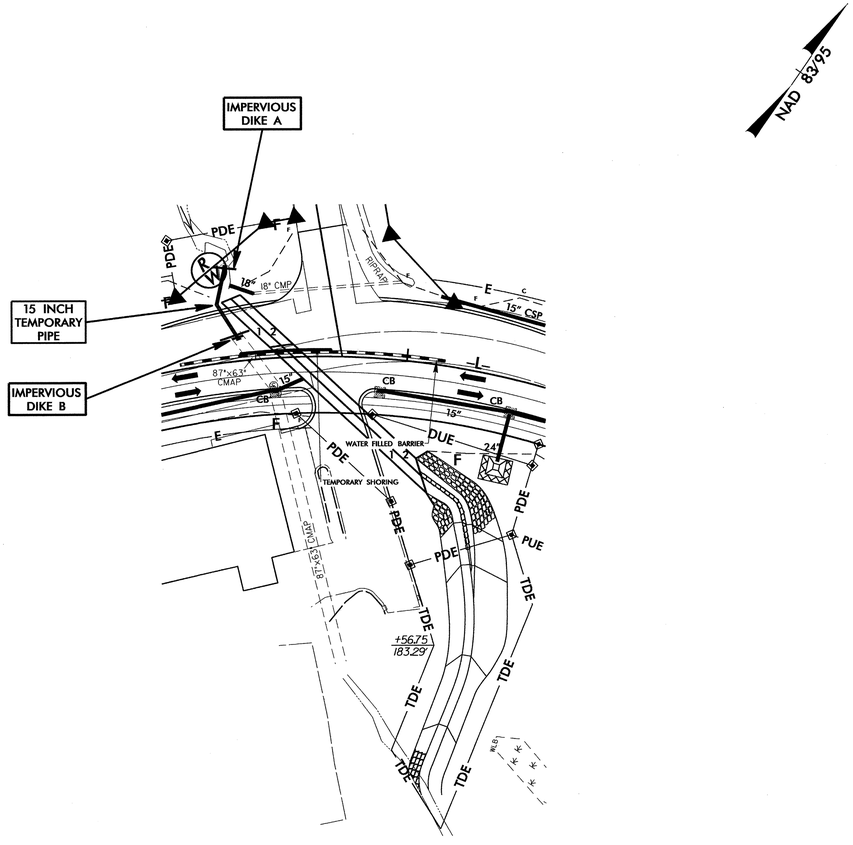
CULVERT CONSTRUCTION SEQUENCE STA. 14+25 –L– (SHEET 1 OF 2)

PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT DETOUR ALIGNMENT AND SHIFT TRAFFIC.
3. CONSTRUCT DOWNSTREAM PORTION OF PROPOSED CULVERT AND PROPOSED CHANNEL CHANGE.

PHASE II

4. CONSTRUCT PROPOSED ROADWAY ALIGNMENT OVER COMPLETED PORTION OF PROPOSED CULVERT, AND SHIFT TRAFFIC.
5. REMOVE TEMPORARY 54" CSP EXTENSION AND COLLAR.
6. CONSTRUCT IMPERVIOUS DIKES A AND B, AND INSTALL 15" TEMPORARY PIPE, DIVERTING FLOW.
7. CONSTRUCT REMAINDER OF PROPOSED CULVERT, EXCEPT FOR THE WING WALLS.
8. REMOVE IMPERVIOUS DIKES A AND B, AND 15" TEMPORARY PIPE.

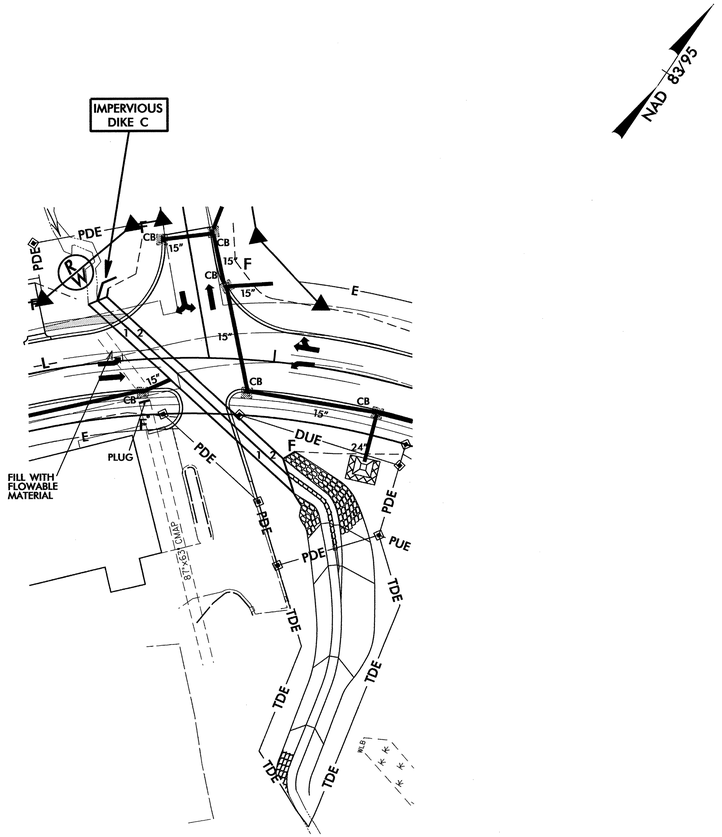


CULVERT CONSTRUCTION SEQUENCE STA. 14+25 –L–
(SHEET 2 OF 2)

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-7/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

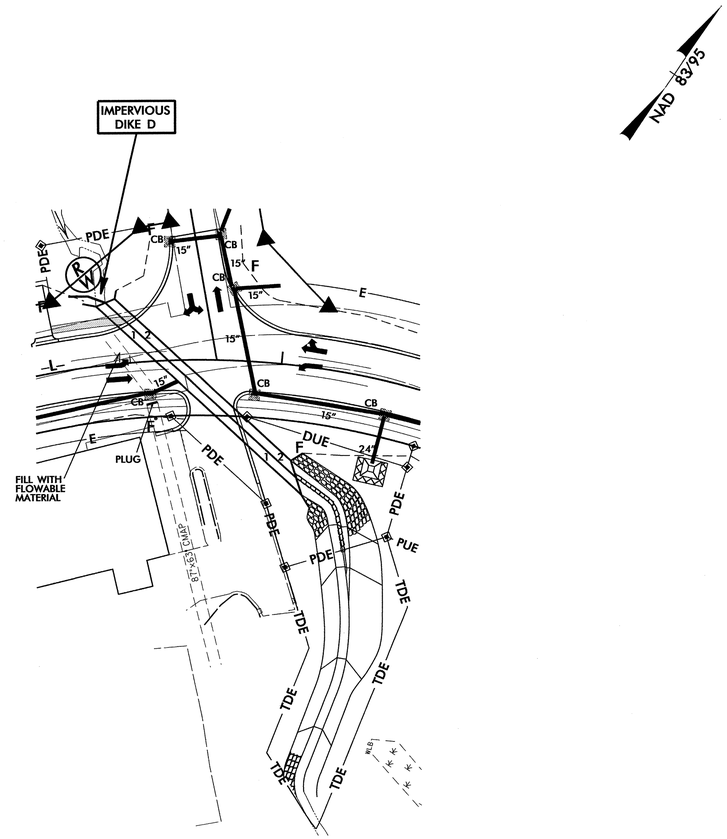
PHASE III

9. CONSTRUCT REMAINDER OF PROPOSED ROADWAY ALIGNMENT.
10. CONSTRUCT IMPERVIOUS DIKE C, DIVERTING FLOW INTO BARREL 1.
11. CONSTRUCT WINGWALL ON BARREL 2.
12. REMOVE IMPERVIOUS DIKE C.



PHASE IV

13. CONSTRUCT IMPERVIOUS DIKE D, DIVERTING FLOW INTO BARREL 2.
14. CONSTRUCT WINGWALL ON BARREL 1.
15. REMOVE IMPERVIOUS DIKE D.
16. COMPLETE ANY NECESSARY UPSTREAM CHANNEL IMPROVEMENTS.
17. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S), AND COMPLETE ROADWAY.

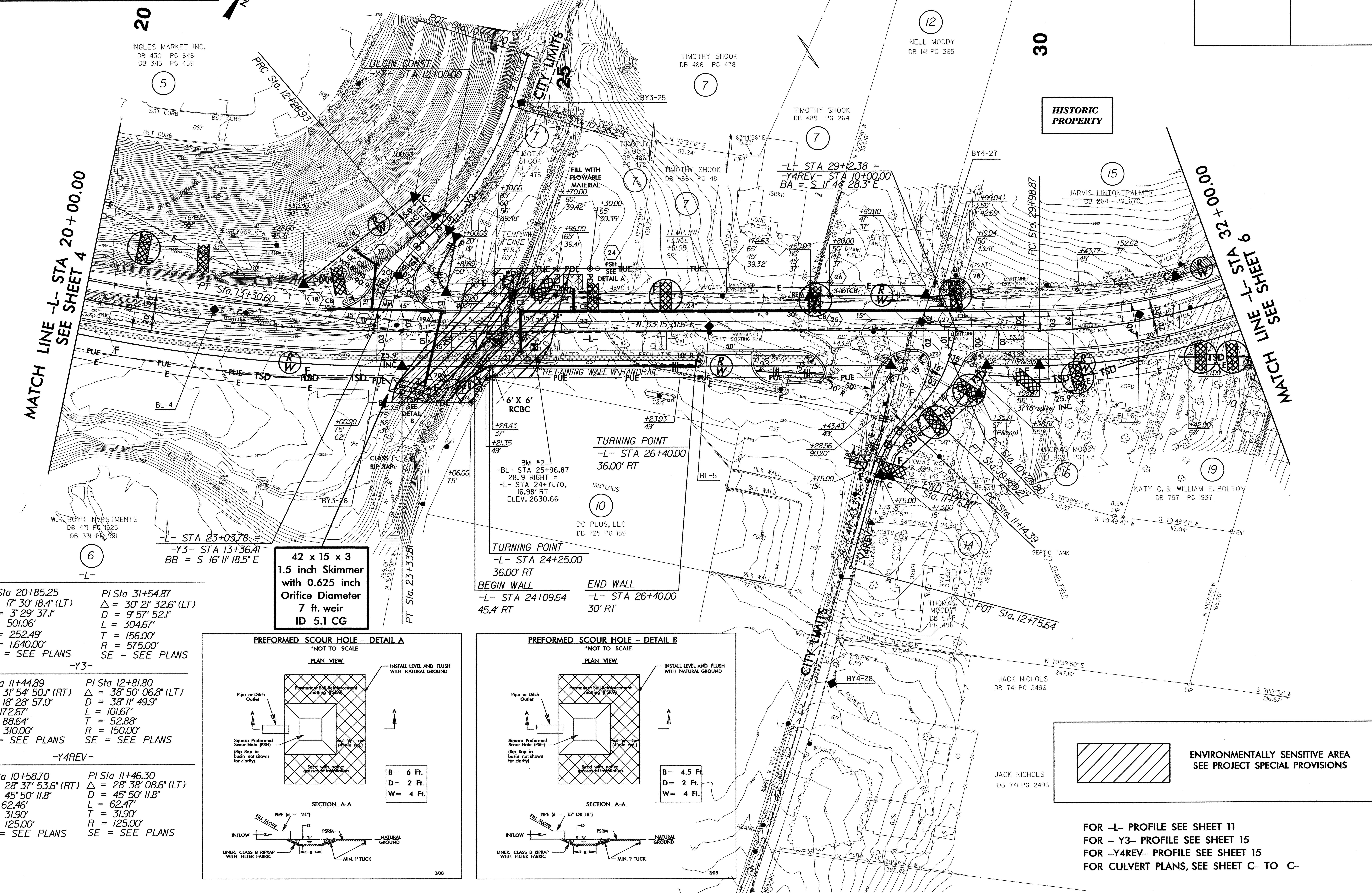


PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-8/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

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



-L-

PI Sta 20+85.25	PI Sta 31+54.87
Δ = 17° 30' 18.4" (LT)	Δ = 30° 21' 32.6" (LT)
D = 3° 29' 37.1"	D = 9° 57' 52.1"
L = 501.06'	L = 304.67'
T = 252.49'	T = 156.00'
R = 1,640.00'	R = 575.00'
SE = SEE PLANS	SE = SEE PLANS

-Y3-

PI Sta 11+44.89	PI Sta 12+81.80
Δ = 31° 54' 50.1" (RT)	Δ = 38° 50' 06.8" (LT)
D = 18° 28' 57.0"	D = 38° 11' 49.9"
L = 172.67'	L = 101.67'
T = 88.64'	T = 52.88'
R = 310.00'	R = 150.00'
SE = SEE PLANS	SE = SEE PLANS

-Y4REV-

PI Sta 10+58.70	PI Sta 11+46.30
Δ = 28° 37' 53.6" (RT)	Δ = 28° 38' 08.6" (LT)
D = 45° 50' 11.8"	D = 45° 50' 11.8"
L = 62.46'	L = 62.47'
T = 31.90'	T = 31.90'
R = 125.00'	R = 125.00'
SE = SEE PLANS	SE = SEE PLANS

PREFORMED SCOUR HOLE – DETAIL A
*NOT TO SCALE

B=	6 Ft.
D=	2 Ft.
W=	4 Ft.

PREFORMED SCOUR HOLE – DETAIL B
*NOT TO SCALE

B=	4.5 Ft.
D=	2 Ft.
W=	4 Ft.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

FOR -L- PROFILE SEE SHEET 11
FOR - Y3- PROFILE SEE SHEET 15
FOR -Y4REV- PROFILE SEE SHEET 15
FOR CULVERT PLANS, SEE SHEET C- TO C-

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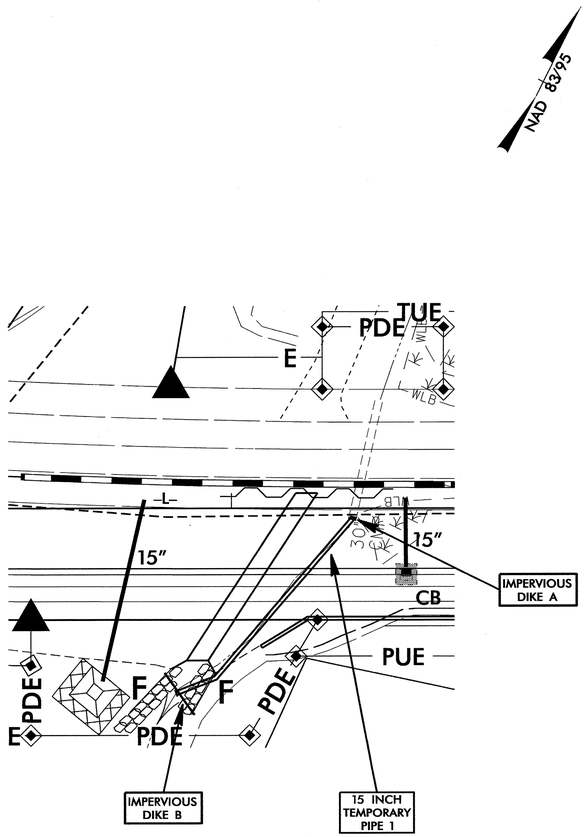
CULVERT CONSTRUCTION SEQUENCE STA. 24+21.5 –L–

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-9/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

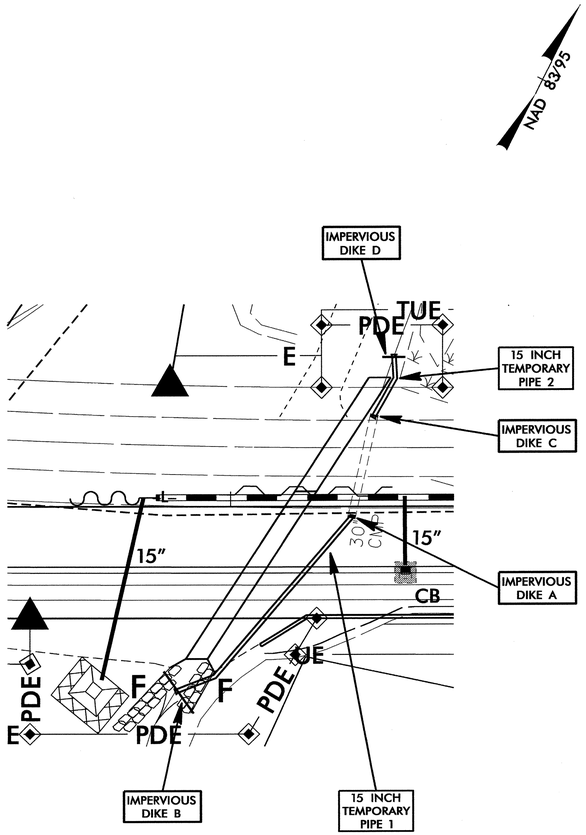
PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT IMPERVIOUS DIKES A AND B, AND INSTALL 15" TEMPORARY PIPE 1, DIVERTING FLOW.
3. CONSTRUCT DOWNSTREAM PORTION OF PROPOSED CULVERT, AND ANY NECESSARY OUTLET CHANNEL IMPROVEMENTS.
4. CONSTRUCT PROPOSED ROADWAY OVER COMPLETED CULVERT SECTION AND SHIFT TRAFFIC.



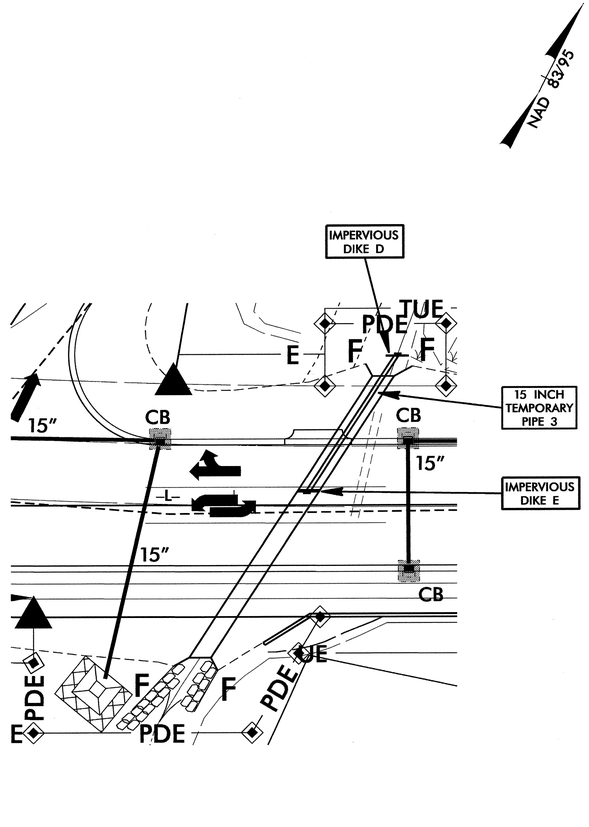
PHASE II

5. CONSTRUCT IMPERVIOUS DIKES C AND D, AND INSTALL 15" TEMPORARY PIPE 2, DIVERTING FLOW.
6. CONSTRUCT REMAINDER OF FLOOR SLAB FOR PROPOSED CULVERT.
7. RETAIN IMPERVIOUS DIKE D. REMOVE IMPERVIOUS DIKES A, B, AND C, AND TEMPORARY PIPES 1 AND 2.

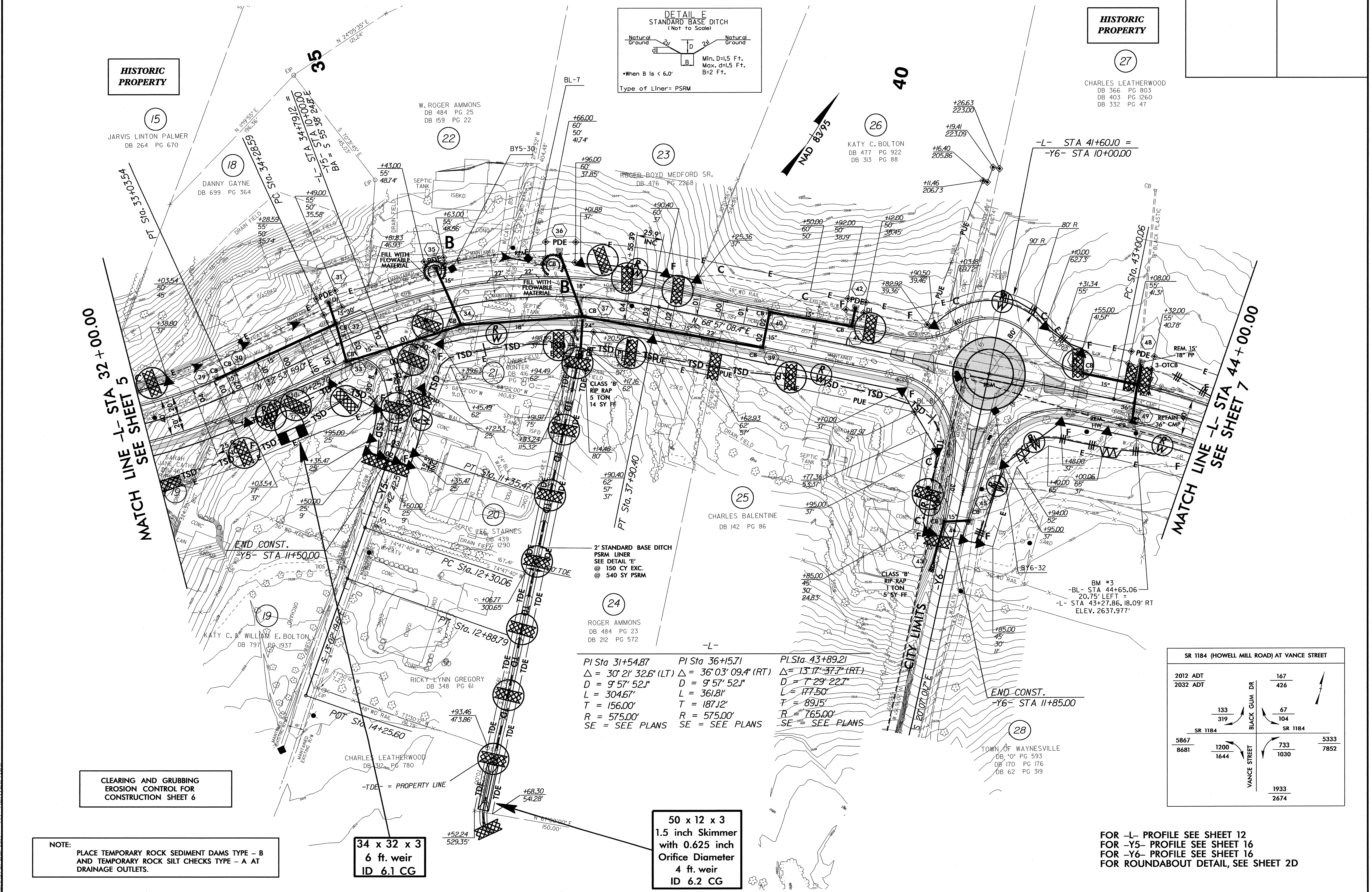


PHASE III

8. CONSTRUCT IMPERVIOUS DIKE E AND INSTALL 15" TEMPORARY PIPE 3, DIVERTING FLOW.
9. CONSTRUCT REMAINDER OF PROPOSED CULVERT, AND ANY NECESSARY INLET CHANNEL IMPROVEMENTS.
10. REMOVE IMPERVIOUS DIKES D AND E, AND 15" TEMPORARY PIPE 3, ALLOWING FLOW THROUGH COMPLETED CULVERT.
11. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S).
12. COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-10/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



HISTORIC PROPERTY
DETAIL E
STANDARD BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2 Ft.
*When B is < 6.0'
Type of Liner: PSRM
HISTORIC PROPERTY
JARVIS LINTON PALMER DB 264 PG 670
DANNY GAYNE DB 699 PG 364
W. ROGER AMMONS DB 484 PG 25 DB 159 PG 22
ROGER BOYD MEDFORD SR. DB 476 PG 2268
KATY C. BOLTON DB 477 PG 922 DB 313 PG 88
CHARLES LEATHERWOOD DB 366 PG 803 DB 403 PG 1260 DB 332 PG 47
NAD 83/95
-L- STA 41+60.10 = -Y6- STA 10+00.00
MATCH LINE -L- STA 32+00.00 SEE SHEET 5
MATCH LINE -L- STA 44+00.00 SEE SHEET 7
FILL WITH FLOWABLE MATERIAL
END CONST. -Y5- STA 11+50.00
2' STANDARD BASE DITCH PSRM LINER SEE DETAIL 'E' @ 150 CY EXC. @ 540 SY PSRM
CLASS 'B' RIP RAP 5 TON 14 SY FF
CLASS 'B' RIP RAP 1 TON 5 SY FF
CHARLES BALENTINE DB 142 PG 86
ROGER AMMONS DB 484 PG 23 DB 212 PG 572
KATY C. & WILLIAM E. BOLTON DB 797 PG 1937
RICKY LYNN GREGORY DB 348 PG 61
CHARLES LEATHERWOOD DB 312 PG 780
TOWN OF WAYNESVILLE DB 'O' PG 593 DB 170 PG 176 DB 62 PG 319
BM #3 -BL- STA 44+65.06 20.75' LEFT = -L- STA 43+27.86, 18.09' RT ELEV. 2637.977'
END CONST. -Y6- STA 11+85.00
CITY LIMITS
-TDE- = PROPERTY LINE
34 x 32 x 3 6 ft. weir ID 6.1 CG
50 x 12 x 3 1.5 inch Skimmer with 0.625 inch Orifice Diameter 4 ft. weir ID 6.2 CG

-L-

PI Sta 31+54.87	PI Sta 36+15.71	PI Sta 43+89.21
Δ = 30° 21' 32.6" (LT)	Δ = 36° 03' 09.4" (RT)	Δ = 13° 17' 37.7" (RT)
D = 9° 57' 52.1"	D = 9° 57' 52.1"	D = 7° 29' 22.7"
L = 304.67'	L = 361.81'	L = 177.50'
T = 156.00'	T = 187.12'	T = 89.15'
R = 575.00'	R = 575.00'	R = 765.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6

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

SR 1184 (HOWELL MILL ROAD) AT VANCE STREET

2012 ADT / 2032 ADT: SR 1184 west 5867/8681, 1200/1644, 133/319; BLACK GUM DR 167/426, 67/104; SR 1184 east 5333/7852, 733/1030; VANCE STREET 1933/2674

FOR -L- PROFILE SEE SHEET 12
FOR -Y5- PROFILE SEE SHEET 16
FOR -Y6- PROFILE SEE SHEET 16
FOR ROUNDABOUT DETAIL, SEE SHEET 2D

8/17/99

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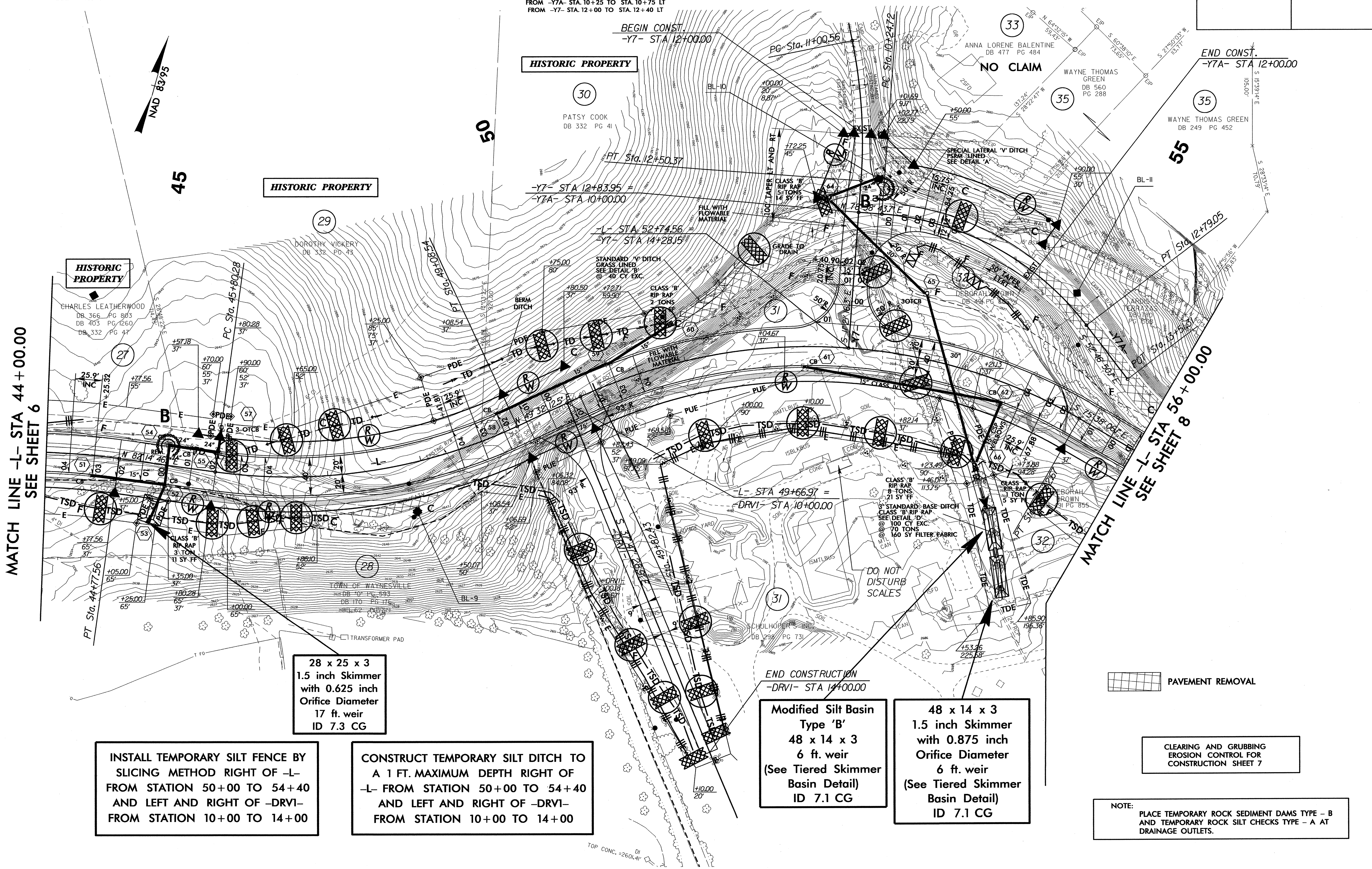
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-11/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

DETAIL D
STANDARD BASE DITCH
(Not to Scale)
Natural Ground — 2d — d — D — 2d — Natural Ground
Filter Fabric — B
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=3.0 Ft.
*When B is < 6.0'
Type of Liner= CLASS 'B' Rip-Rap
DDE = 100 CY

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground — 2d — D — 2d — Natural Ground
Min. D=1.5 Ft.
DDE = 40 CY

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground — 2d — D — 4:1 or Flatter — Fill Slope
Min. D=1.5 Ft.
Max. d=1.5 Ft.
Type of Liner= PSRM
FROM -Y7A- STA. 10+25 TO STA. 10+75 LT
FROM -Y7- STA. 12+00 TO STA. 12+40 LT



28 x 25 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
17 ft. weir
ID 7.3 CG

Modified Silt Basin
Type 'B'
48 x 14 x 3
6 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 7.1 CG

48 x 14 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 7.1 CG

INSTALL TEMPORARY SILT FENCE BY SLICING METHOD RIGHT OF -L- FROM STATION 50+00 TO 54+40 AND LEFT AND RIGHT OF -DRV1- FROM STATION 10+00 TO 14+00

CONSTRUCT TEMPORARY SILT DITCH TO A 1 FT. MAXIMUM DEPTH RIGHT OF -L- FROM STATION 50+00 TO 54+40 AND LEFT AND RIGHT OF -DRV1- FROM STATION 10+00 TO 14+00

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

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

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-12/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

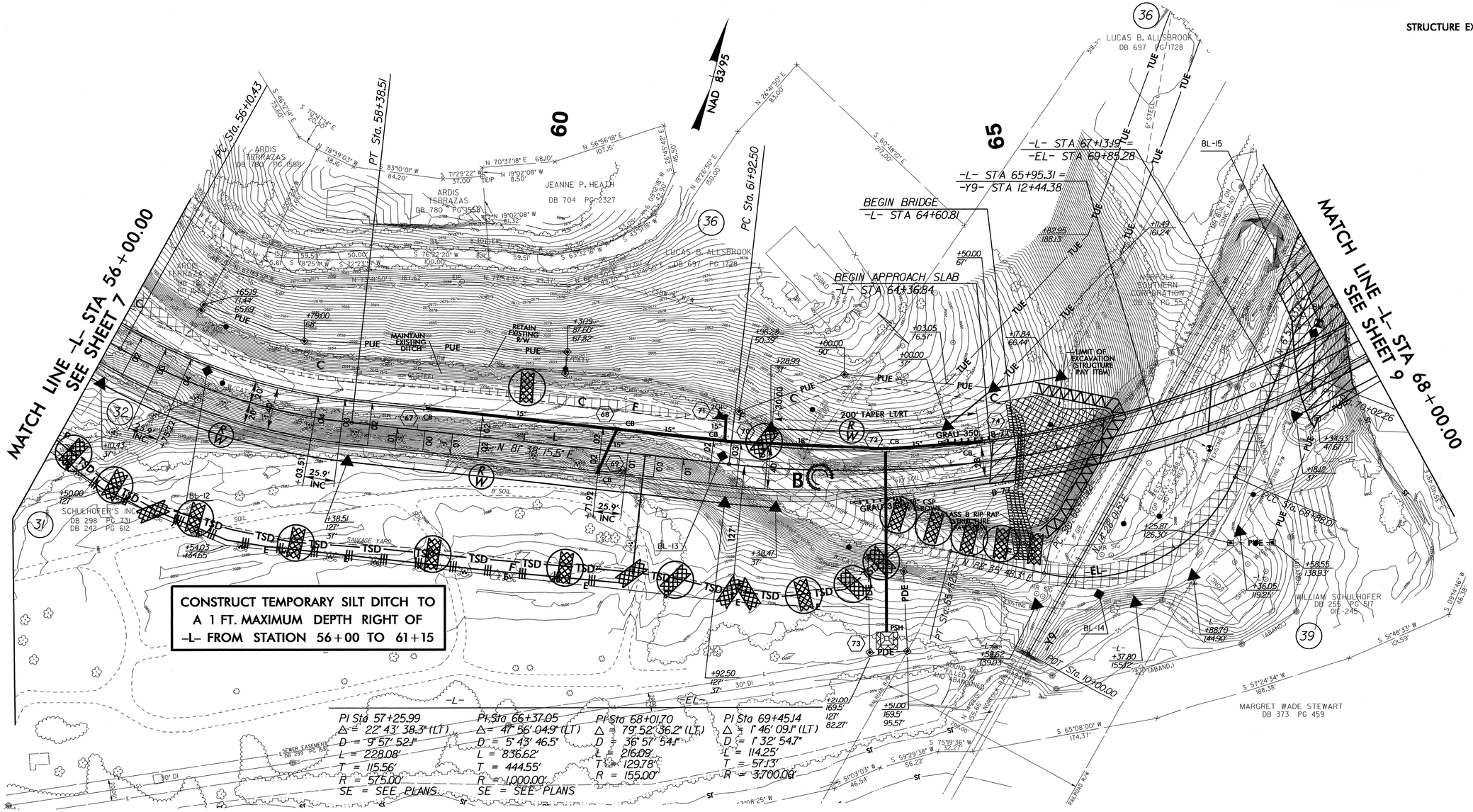
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

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

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

PAVEMENT REMOVAL

STRUCTURE EXCAVATION



–L–			
PI Sta 57+25.99	PI Sta 66+37.05	PI Sta 68+01.70	PI Sta 69+45.14
Δ = 22° 43' 38.3" (LT)	Δ = 41° 56' 04.9" (LT)	Δ = 79° 52' 36.2" (LT)	Δ = 1° 46' 09.1" (LT)
D = 9° 57' 52.1"	D = 5° 43' 46.5"	D = 36° 57' 54.1"	D = 1° 32' 54.7"
L = 228.08'	L = 836.62'	L = 216.09'	L = 114.25'
T = 115.56'	T = 444.55'	T = 129.78'	T = 57.13'
R = 575.00'	R = 1,000.00'	R = 155.00'	R = 3,700.08'
SE = SEE PLANS	SE = SEE PLANS		

INSTALL TEMPORARY SILT FENCE BY SLICING METHOD RIGHT OF –L– FROM STATION 56+00 TO 61+15

FOR –L– PROFILE, SEE SHEET 13
FOR –DRV– PROFILE, SEE SHEET 17
FOR STRUCTURE PLANS, SEE SHEETS S1-S6

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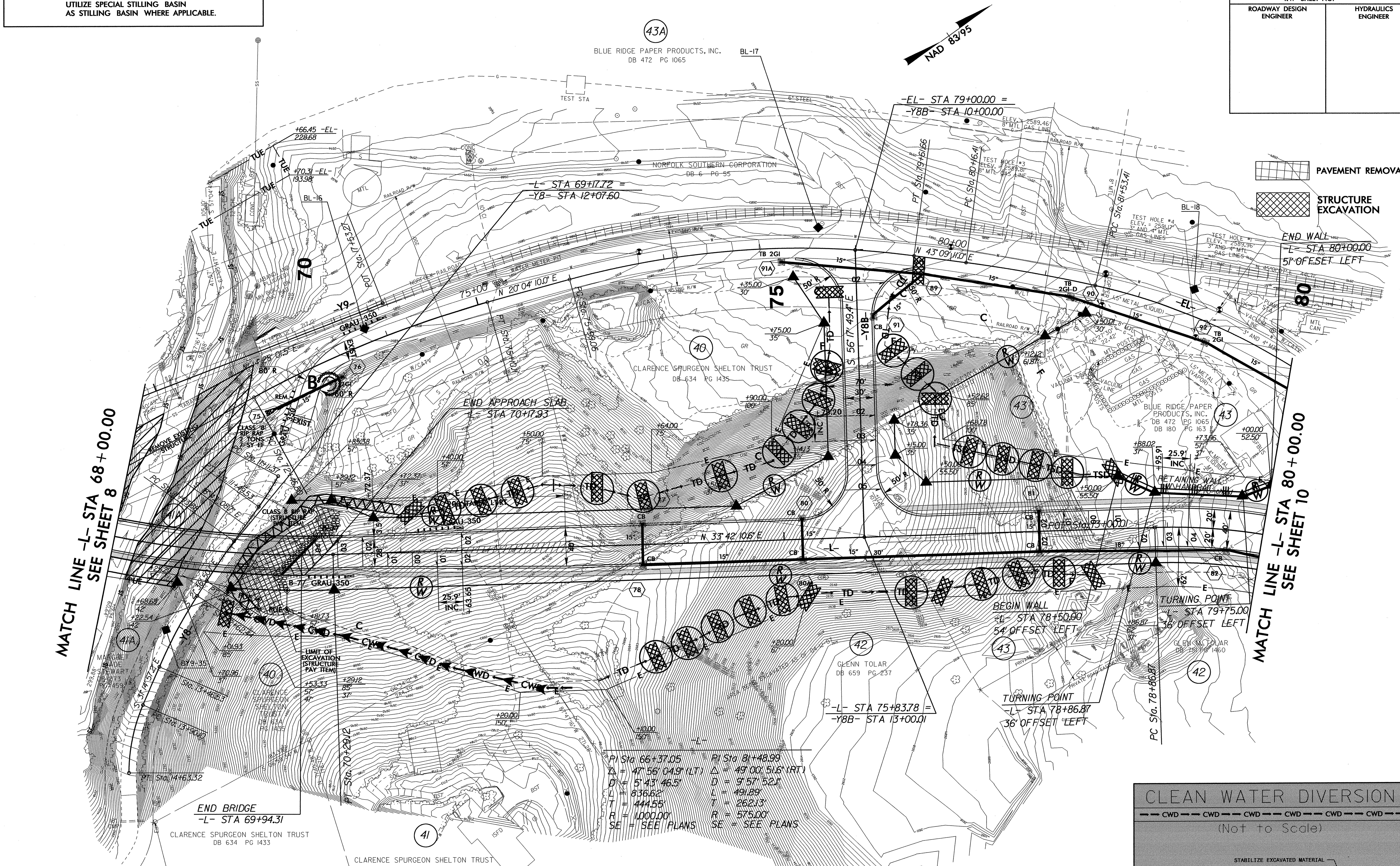
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-13/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

PAVEMENT REMOVAL

STRUCTURE EXCAVATION

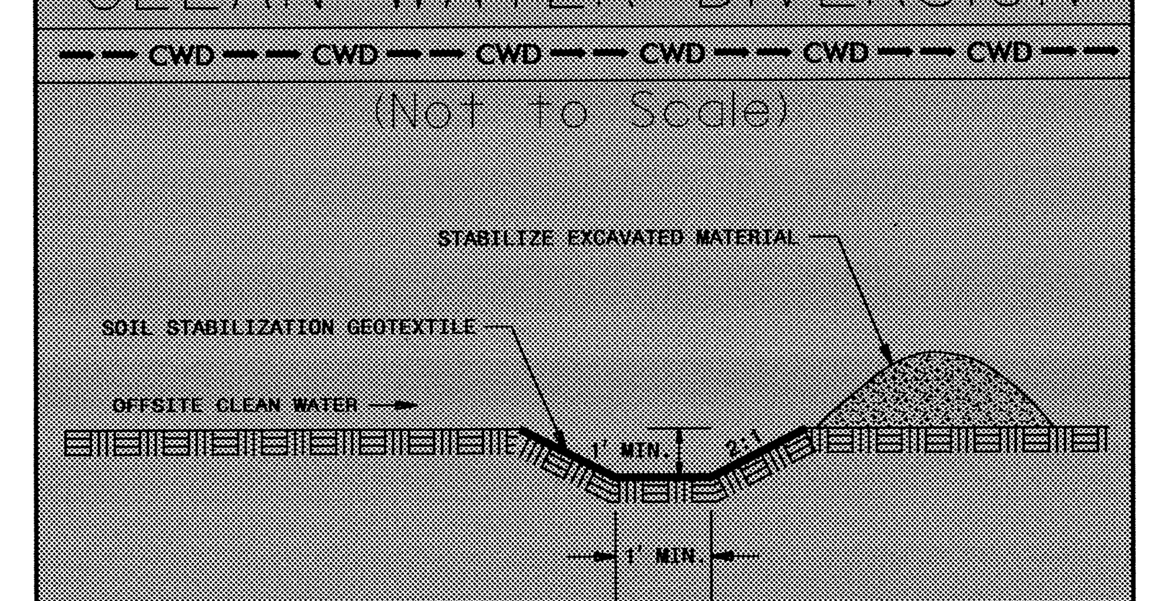


ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9

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

CLEAN WATER DIVERSION



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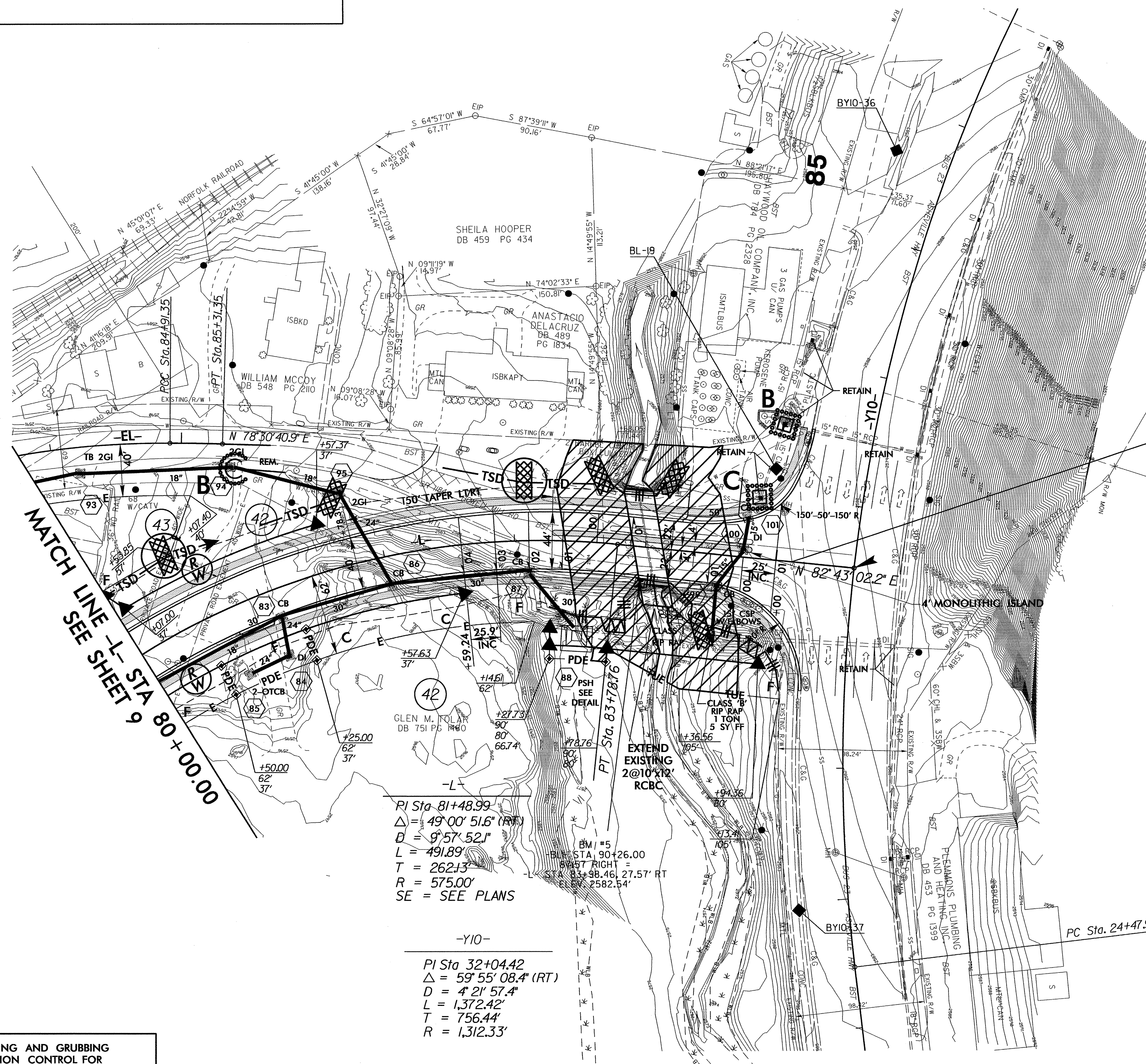
jenniferparrish AT RENY2641G3

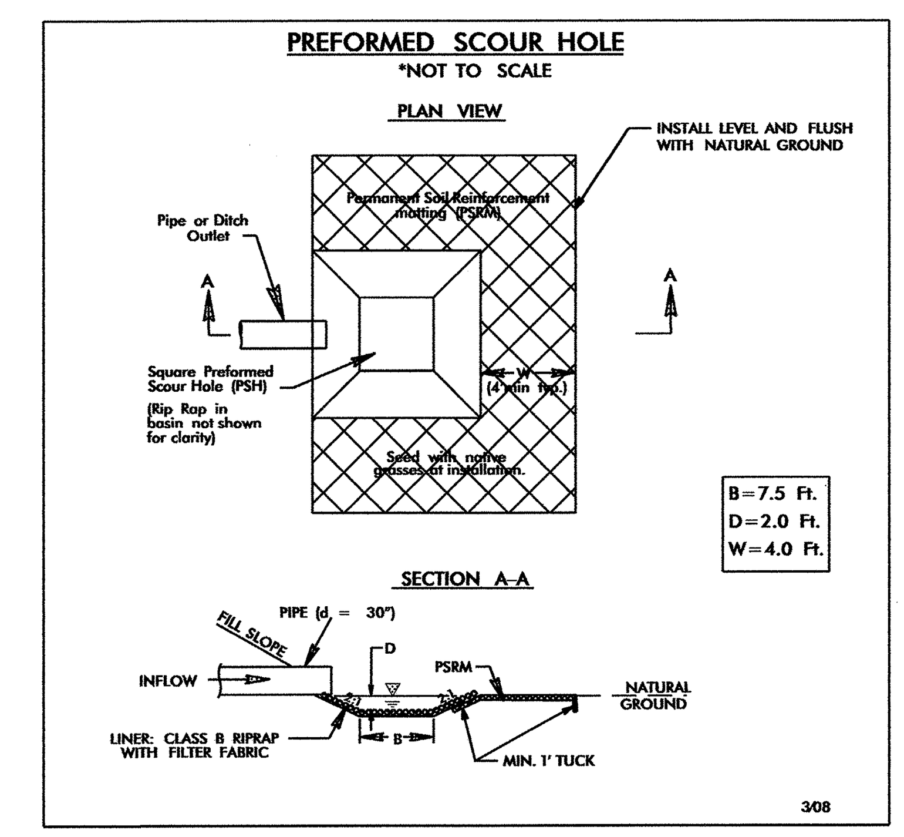
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-14/CONSTJO
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99

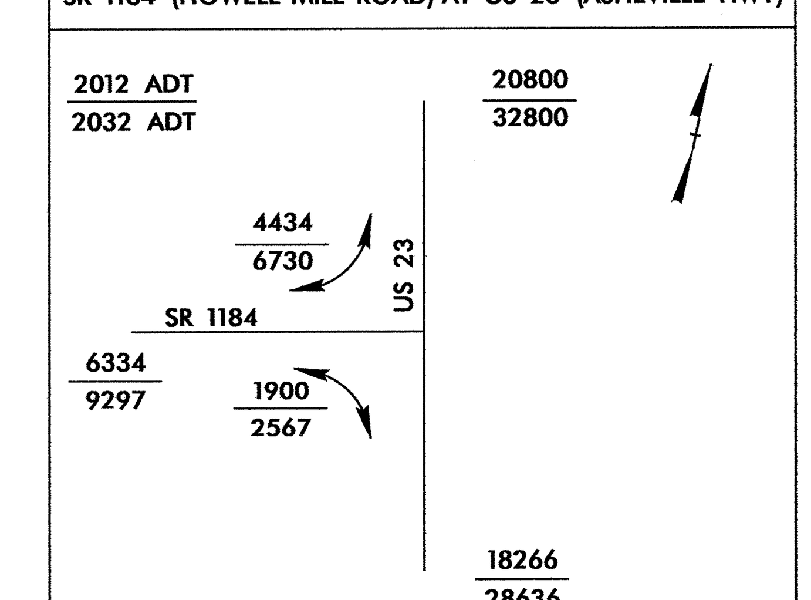
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PAVEMENT REMOVAL





SR 1184 (HOWELL MILL ROAD) AT US 23 (ASHEVILLE HWY)



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

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

FOR -L- PROFILE, SEE SHEET 14 and 15
FOR CULVERT PLANS, SEE C- TO C-

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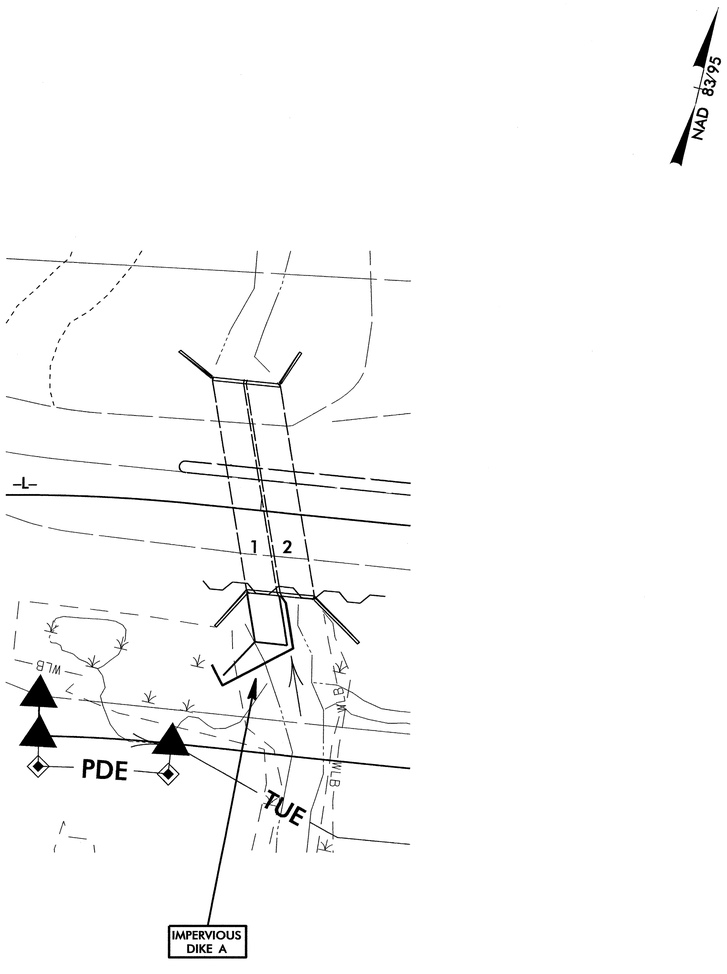
CULVERT CONSTRUCTION SEQUENCE STA. 84+01.6 –L–

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-15/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

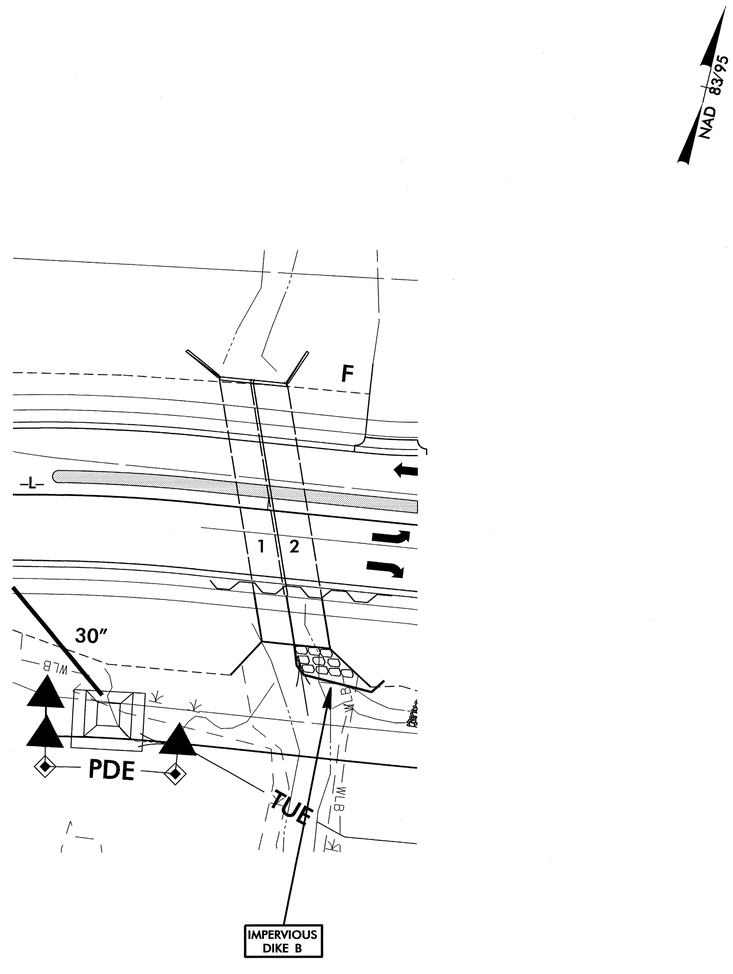
PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT IMPERVIOUS DIKE A, DIVERTING FLOW THROUGH BARREL 2 OF EXISTING CULVERT.
3. CONSTRUCT PROPOSED CULVERT EXTENSION FOR BARREL 1.
4. REMOVE IMPERVIOUS DIKE A.



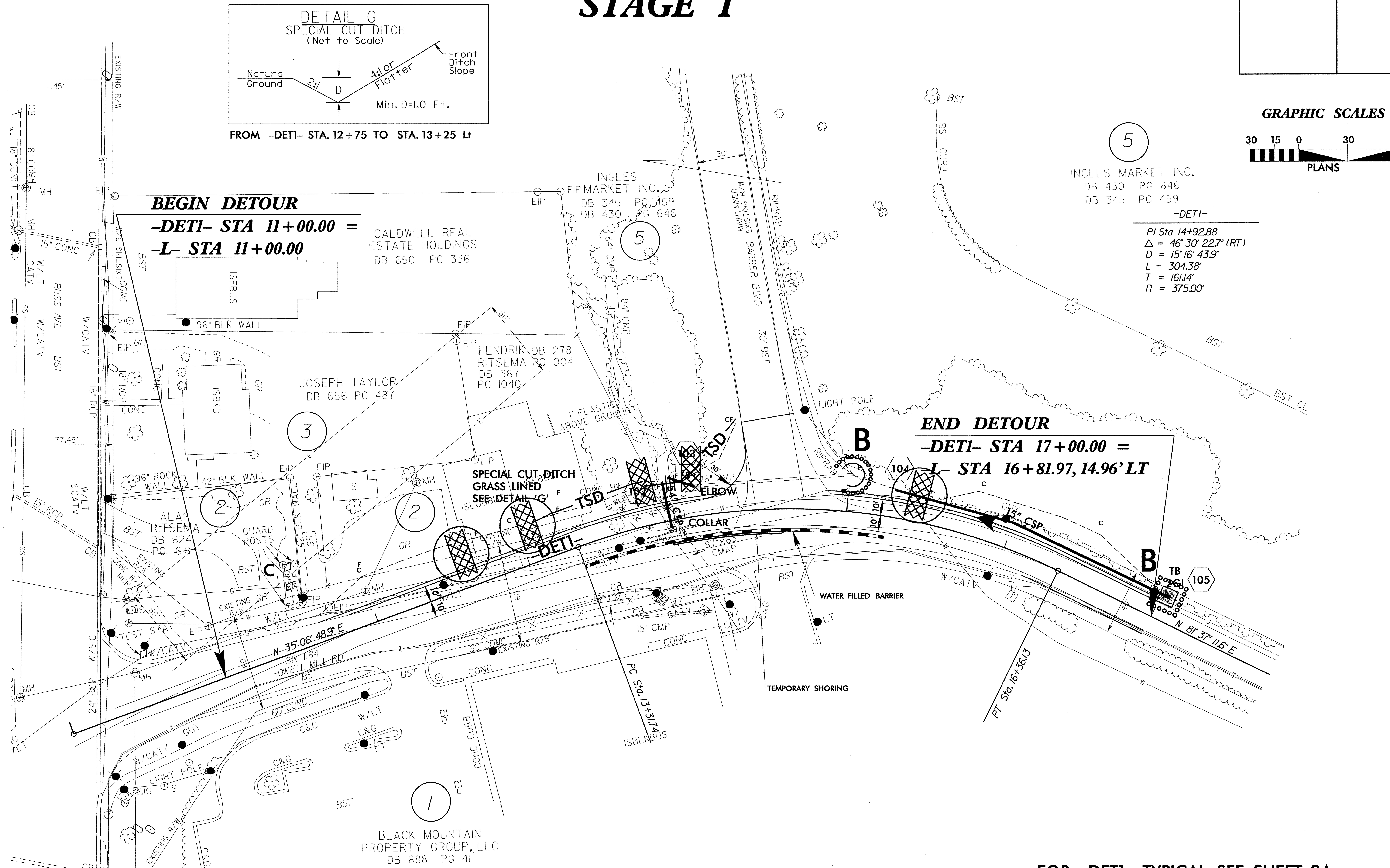
PHASE II

5. CONSTRUCT IMPERVIOUS DIKE B, DIVERTING FLOW THROUGH COMPLETED BARREL 1.
6. CONSTRUCT PROPOSED CULVERT EXTENSION FOR BARREL 2.
7. REMOVE IMPERVIOUS DIKE B.
8. CONSTRUCT ANY NECESSARY CHANNEL IMPROVEMENTS.
9. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S).
10. COMPLETE ROADWAY.



DETAIL OF CULVERT CONSTRUCTION DETOUR
STAGE I

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-16/CONST.2E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



FOR -DET1- TYPICAL, SEE SHEET 2A
TYPICAL SECTION 4

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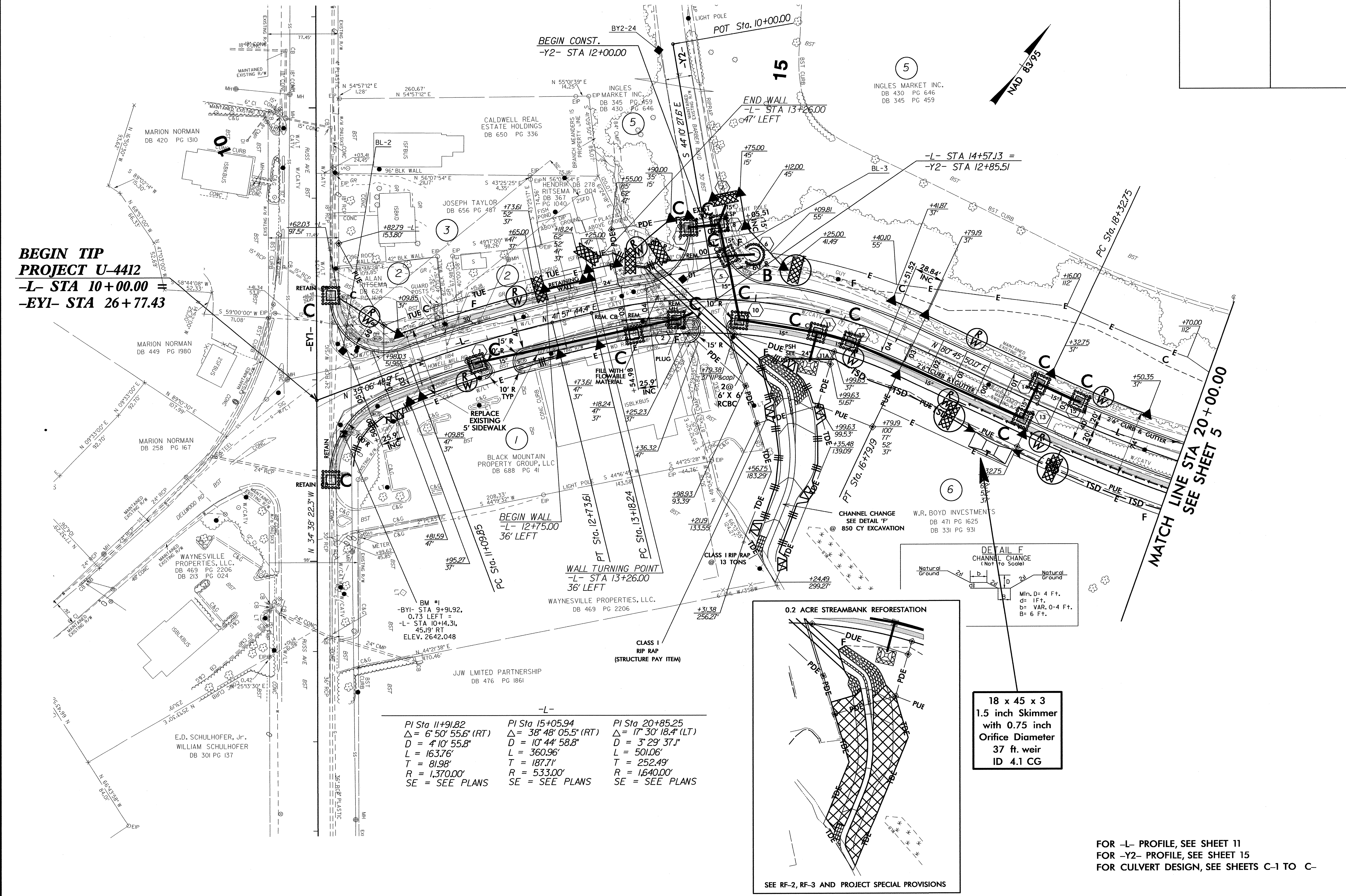
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-17/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



BEGIN TIP
PROJECT U-4412
-L- STA 10+00.00 =
-EY1- STA 26+77.43
BEGIN CONST.
-Y2- STA 12+00.00
POT Sta. 10+00.00
END WALL
-L- STA 13+26.00
47' LEFT
-L- STA 14+57.13 =
-Y2- STA 12+85.51
PC Sta. 18+32.75
NAD 83/95
MATCH LINE STA 20+00.00
SEE SHEET 5
INGLES MARKET INC.
DB 430 PG 646
DB 345 PG 459
CALDWELL REAL ESTATE HOLDINGS
DB 650 PG 336
JOSEPH TAYLOR
DB 656 PG 487
MARION NORMAN
DB 420 PG 1310
MARION NORMAN
DB 449 PG 1980
MARION NORMAN
DB 258 PG 167
BLACK MOUNTAIN PROPERTY GROUP, LLC
DB 688 PG 41
WAYNESVILLE PROPERTIES, LLC.
DB 469 PG 2206
DB 213 PG 024
W.R. BOYD INVESTMENTS
DB 471 PG 1625
DB 331 PG 931
JJW LMITED PARTNERSHIP
DB 476 PG 1861
E.D. SCHULHOFER, Jr.
WILLIAM SCHULHOFER
DB 301 PG 137
REPLACE EXISTING 5' SIDEWALK
FILL WITH FLOWABLE MATERIAL
2@ 6' X 6' RCBC
BEGIN WALL
-L- STA 12+75.00
36' LEFT
WALL TURNING POINT
-L- STA 13+26.00
36' LEFT
PC Sta. 11+09.85
PT Sta. 12+73.61
PC Sta. 13+18.24
PT Sta. 16+79.19
CHANNEL CHANGE
SEE DETAIL 'F'
@ 850 CY EXCAVATION
CLASS I RIP RAP
@ 13 TONS
CLASS I RIP RAP
(STRUCTURE PAY ITEM)
BM #1
-BY1- STA 9+91.92,
0.73 LEFT =
-L- STA 10+14.31,
45.19' RT
ELEV. 2642.048
DETAIL F
CHANNEL CHANGE
(Not to Scale)
Natural Ground
Min. D= 4 Ft.
d= 1Ft.
b= VAR. 0-4 Ft.
B= 6 Ft.
0.2 ACRE STREAMBANK REFORESTATION
SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS
18 x 45 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
37 ft. weir
ID 4.1 CG

-L-

PI Sta 11+91.82	PI Sta 15+05.94	PI Sta 20+85.25
Δ = 6° 50' 55.6" (RT)	Δ = 38° 48' 05.5" (RT)	Δ = 17° 30' 18.4" (LT)
D = 4° 10' 55.8"	D = 10° 44' 58.8"	D = 3° 29' 37.1"
L = 163.76'	L = 360.96'	L = 501.06'
T = 81.98'	T = 187.71'	T = 252.49'
R = 1,370.00'	R = 533.00'	R = 1,640.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

FOR -L- PROFILE, SEE SHEET 11
FOR -Y2- PROFILE, SEE SHEET 15
FOR CULVERT DESIGN, SEE SHEETS C-1 TO C-

8/17/99

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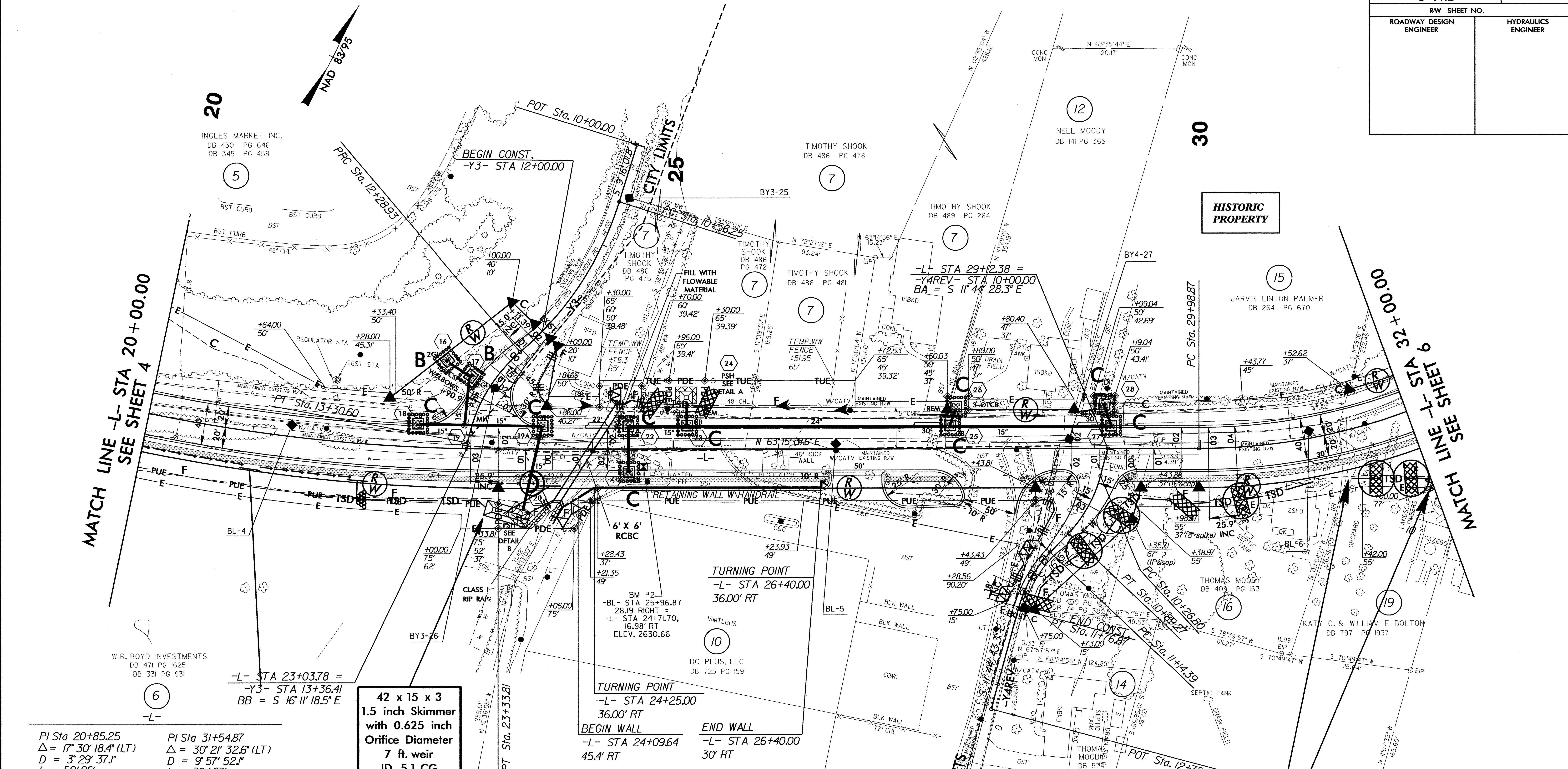
jenniferparrish AT RPNV26403

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-18/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



42 x 15 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
7 ft. weir
ID 5.1 CG

-L-

PI Sta 20+85.25	PI Sta 31+54.87
Δ = 17° 30' 18.4" (LT)	Δ = 30° 21' 32.6" (LT)
D = 3° 29' 37.1"	D = 9° 57' 52.1"
L = 501.06'	L = 304.67'
T = 252.49'	T = 156.00'
R = 1,640.00'	R = 575.00'
SE = SEE PLANS	SE = SEE PLANS

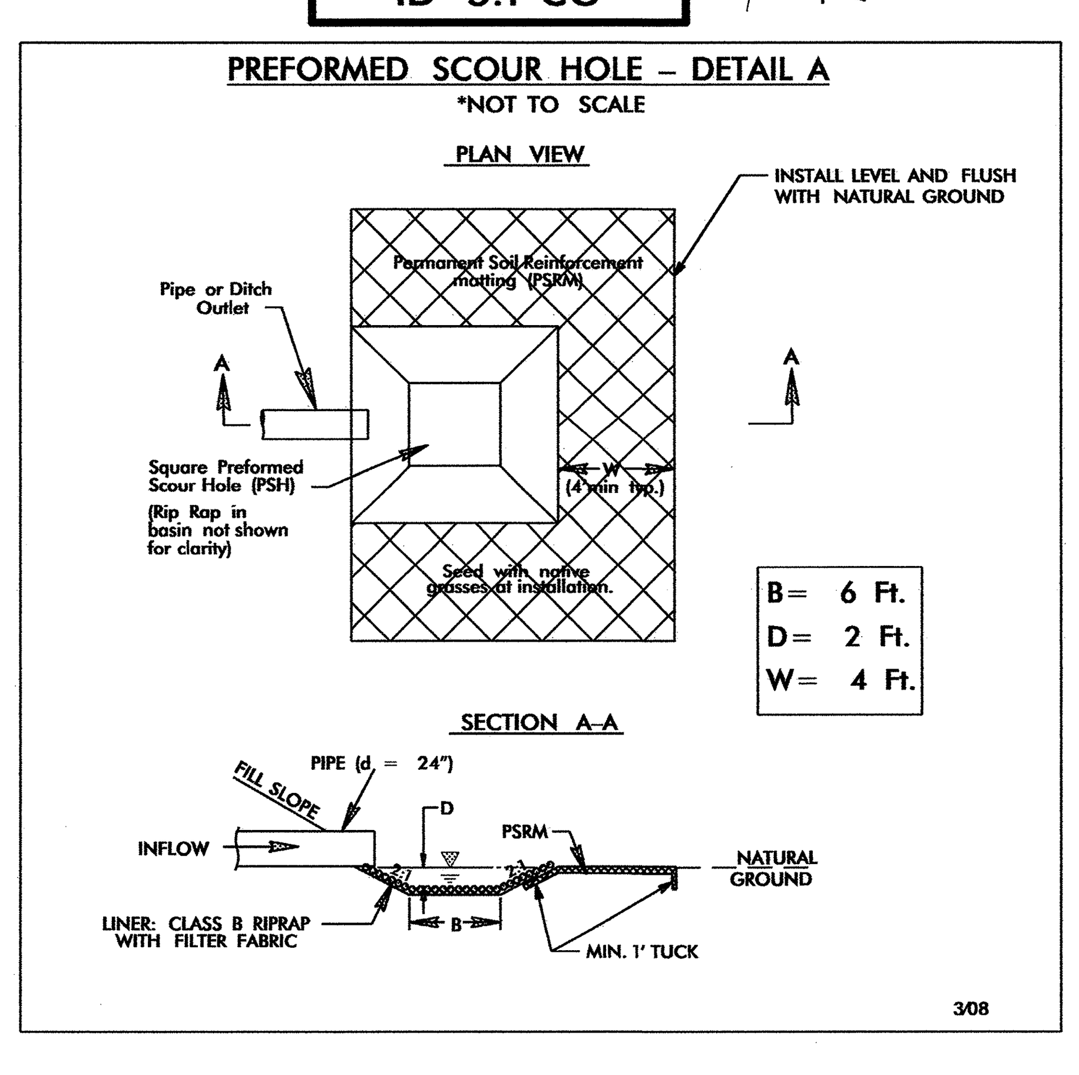
-Y3-

PI Sta 11+44.89	PI Sta 12+81.80
Δ = 31° 54' 50.1" (RT)	Δ = 38° 50' 06.8" (LT)
D = 18° 28' 57.0"	D = 38° 11' 49.9"
L = 172.67'	L = 101.67'
T = 88.64'	T = 52.88'
R = 310.00'	R = 150.00'
SE = SEE PLANS	SE = SEE PLANS

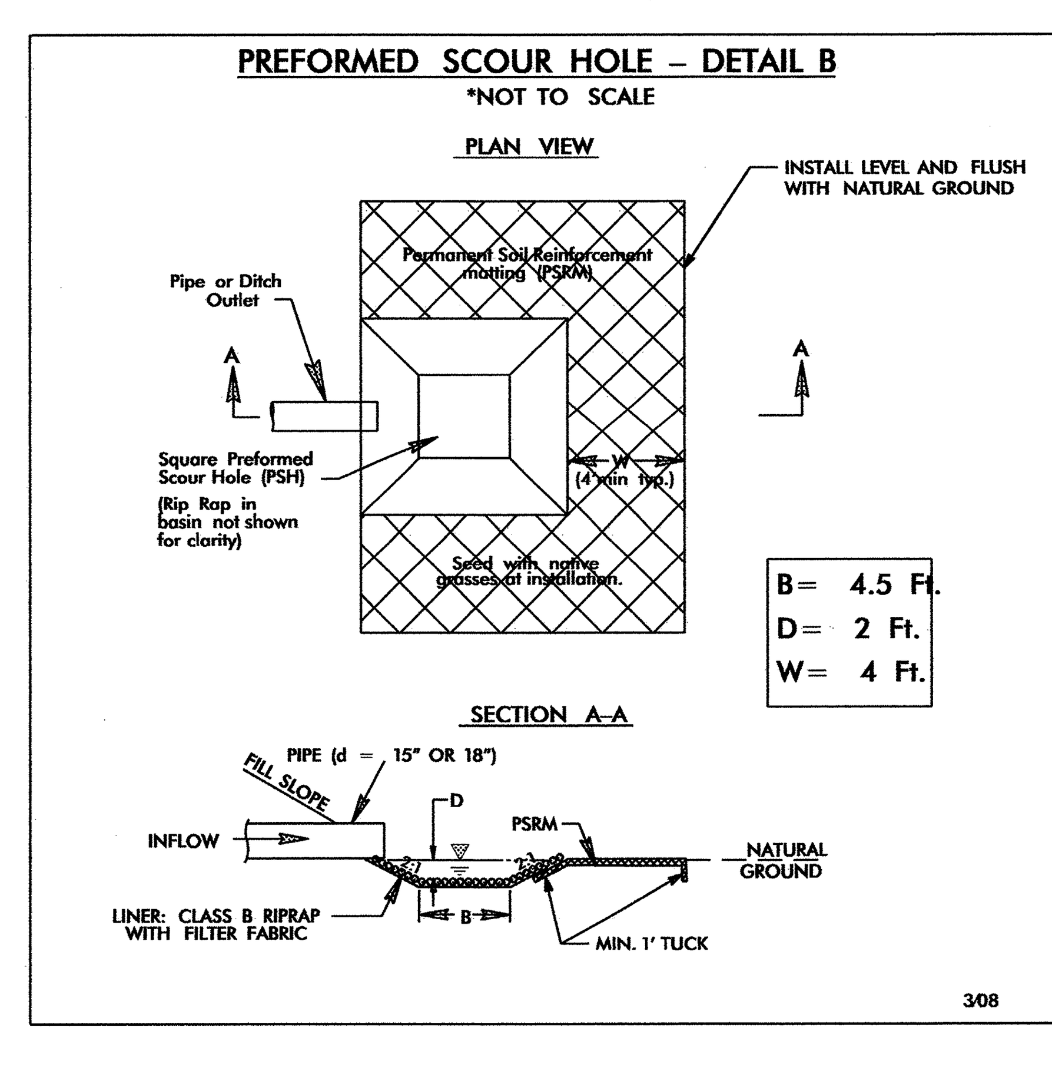
-Y4REV-

PI Sta 10+58.70	PI Sta 11+46.30
Δ = 28° 37' 53.6" (RT)	Δ = 28° 38' 08.6" (LT)
D = 45° 50' 11.8"	D = 45° 50' 11.8"
L = 62.46'	L = 62.47'
T = 31.90'	T = 31.90'
R = 125.00'	R = 125.00'
SE = SEE PLANS	SE = SEE PLANS

PREFORMED SCOUR HOLE – DETAIL A
*NOT TO SCALE



PREFORMED SCOUR HOLE – DETAIL B
*NOT TO SCALE



Place Matting for Erosion Control on Slope as Work Allows.

FOR -L- PROFILE SEE SHEET 11
FOR - Y3- PROFILE SEE SHEET 15
FOR -Y4REV- PROFILE SEE SHEET 15
FOR CULVERT PLANS, SEE SHEET C- TO C-

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PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-19/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HISTORIC PROPERTY

15 JARVIS LINTON PALMER
DB 264 PG 670

18 DANNY GAYNE
DB 699 PG 364

22 W. ROGER AMMONS
DB 484 PG 25
DB 159 PG 22

23 ROGER BOYD MEDFORD SR.
DB 476 PG 2268

26 KATY C. BOLTON
DB 477 PG 922
DB 313 PG 88

HISTORIC PROPERTY

27 CHARLES LEATHERWOOD
DB 366 PG 803
DB 403 PG 1260
DB 332 PG 47

DETAIL E
STANDARD BASE DITCH
(Not to Scale)

Natural Ground — 2d — d — D — B — Natural Ground

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2 Ft.

*When B Is < 6.0'

Type of Liner= PSRM

-L- STA 34+79.12 = -Y5- STA 10+00.08 BA

-L- STA 41+60.10 = -Y6- STA 10+00.00

NAD 83/95

MATCH LINE -L- STA 32+00.00 SEE SHEET 5

MATCH LINE -L- STA 44+00.00 SEE SHEET 7

PC Sta. 10+26.76

PT Sta. 11+35.47

PC Sta. 12+30.06

PT Sta. 12+88.79

POT Sta. 14+25.60

PT Sta. 37+90.40

PC Sta. 43+00.06

END CONST. -Y5- STA 11+50.00

END CONST. -Y6- STA 11+85.00

CITY LIMITS

FILL WITH FLOWABLE MATERIAL

3-OTCB

RETAIN 36" CMP

REM. 15" 18" PP

CLASS 'B' RIP RAP 1 TON 5' SY FF

2' STANDARD BASE DITCH PSRM LINER SEE DETAIL 'E' @ 150 CY EXC. @ 540 SY PSRM

-TDE- = PROPERTY LINE

Place Matting for Erosion Control on Slope as Work Allows.

50 x 12 x 3 1.5 inch Skimmer with 0.625 inch Orifice Diameter 4 ft. weir ID 6.2 CG

BM #3
-BL- STA 44+65.06
20.75' LEFT =
-L- STA 43+27.86, 18.09' RT
ELEV. 2637.977'

PI Sta 31+54.87	PI Sta 36+15.71	PI Sta 43+89.21
△ = 30° 21' 32.6" (LT)	△ = 36° 03' 09.4" (RT)	△ = 13° 17' 37.7" (RT)
D = 9° 57' 52.1"	D = 9° 57' 52.1"	D = 7° 29' 22.7"
L = 304.67'	L = 361.81'	L = 177.50'
T = 156.00'	T = 187.12'	T = 89.15'
R = 575.00'	R = 575.00'	R = 765.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

SR 1184 (HOWELL MILL ROAD) AT VANCE STREET

2012 ADT / 2032 ADT		167 / 426	
133 / 319		67 / 104	
SR 1184	BLACK GUM DR	SR 1184	
5867 / 8681	1200 / 1644	733 / 1030	5333 / 7852
	VANCE STREET	1933 / 2674	

FOR -L- PROFILE SEE SHEET 12
FOR -Y5- PROFILE SEE SHEET 16
FOR -Y6- PROFILE SEE SHEET 16
FOR ROUNDABOUT DETAIL, SEE SHEET 2D

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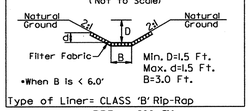
jenniferparrish AT RENV264100

8/17/99

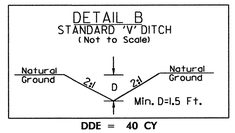
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-20/CONST.7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL D
STANDARD BASE DITCH
(Not to Scale)



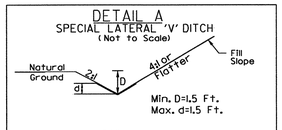
Type of Liner= CLASS 'B' Rip-Rap
DDE = 100 CY

DETAIL B
STANDARD 'V' DITCH
(Not to Scale)



DDE = 40 CY

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM
FROM –Y7A– STA. 10+25 TO STA. 10+75 LT
FROM –Y7– STA. 12+00 TO STA. 12+40 LT

NAD 83/95

MATCH LINE –L– STA 44+00.00
SEE SHEET 6

MATCH LINE –L– STA 56+00.00
SEE SHEET 8

BEGIN CONST.
–Y7– STA 12+00.00

PC Sta. 11+00.56

PC Sta. 10+24.72

END CONST.
–Y7A– STA 12+00.00

PT Sta. 12+50.37

–Y7– STA 12+83.95 =
–Y7A– STA 10+00.00

–L– STA 52+74.56 =
–Y7– STA 14+28.15

PC Sta. 45+80.28

PT Sta. 45+08.49

PT Sta. 44+77.56

PT Sta. 13+79.05

PT Sta. 13+51.51

POT Sta. 13+51.51

–L– STA 49+66.97 =
–DRV1– STA 10+00.00

END CONSTRUCTION
–DRV1– STA 14+00.00

BL-10

BL-11

BL-9

HISTORIC PROPERTY

30
PATSY COOK
DB 332 PG 41

HISTORIC PROPERTY

29
DOROTHY VICKERY
DB 332 PG 43

HISTORIC PROPERTY

CHARLES LEATHERWOOD
DB 366 PG 803
DB 403 PG 1260
DB 332 PG 47

27

28
TOWN OF WAYNESVILLE
DB "O" PG 593
DB 170 PG 176
DB 62 PG 319

31

32
DEBORAH BROWN
DB 491 PG 855

33
ANNA LORENE BALENTINE
DB 477 PG 484
NO CLAIM

35
WAYNE THOMAS GREEN
DB 560 PG 288

35
WAYNE THOMAS GREEN
DB 249 PG 452

JARDIS TERRAZAS
DB 780 PG 1556

SCHULHOFER'S INC.
DB 298 PG 731

HISTORIC PROPERTY

HISTORIC PROPERTY

STANDARD 'V' DITCH GRASS LINED SEE DETAIL 'B' @ 40 CY EXC.

SPECIAL LATERAL 'V' DITCH PSRM LINED SEE DETAIL 'A'

CLASS 'B' RIP RAP 2 TONS 14 SY FF

CLASS 'B' RIP RAP 5 TONS 14 SY FF

CLASS 'B' RIP RAP 3 TON 11 SY FF

CLASS 'B' RIP RAP 8 TONS 21 SY FF

CLASS 'B' RIP RAP 1 TON 5 SY FF

3'STANDARD BASE DITCH CLASS 'B' RIP RAP SEE DETAIL 'D' @ 100 CY EXC. @ 70 TONS @ 160 SY FILTER FABRIC

100' TAPER LT AND RT

FILL WITH FLOWABLE MATERIAL

GRADE TO DRAIN

BERM DITCH

DO NOT DISTURB SCALES

TRANSFORMER PAD

SALVAGE YARD

Place Matting for Erosion Control on Slope as Work Allows.

INSTALL TEMPORARY SILT FENCE BY SLICING METHOD RIGHT OF –L– FROM STATION 50+00 TO 54+40 AND LEFT AND RIGHT OF –DRV1– FROM STATION 10+00 TO 14+00

CONSTRUCT TEMPORARY SILT DITCH TO A 1 FT. MAXIMUM DEPTH RIGHT OF –L– FROM STATION 50+00 TO 54+40 AND LEFT AND RIGHT OF –DRV1– FROM STATION 10+00 TO 14+00

Modified Silt Basin Type 'B' 48 x 14 x 3 6 ft. weir (See Tiered Skimmer Basin Detail) ID 7.1 CG

48 x 14 x 3 1.5 inch Skimmer with 0.875 inch Orifice Diameter 6 ft. weir (See Tiered Skimmer Basin Detail) ID 7.1 CG

Place Matting for Erosion Control on Slope as Work Allows.

PAVEMENT REMOVAL

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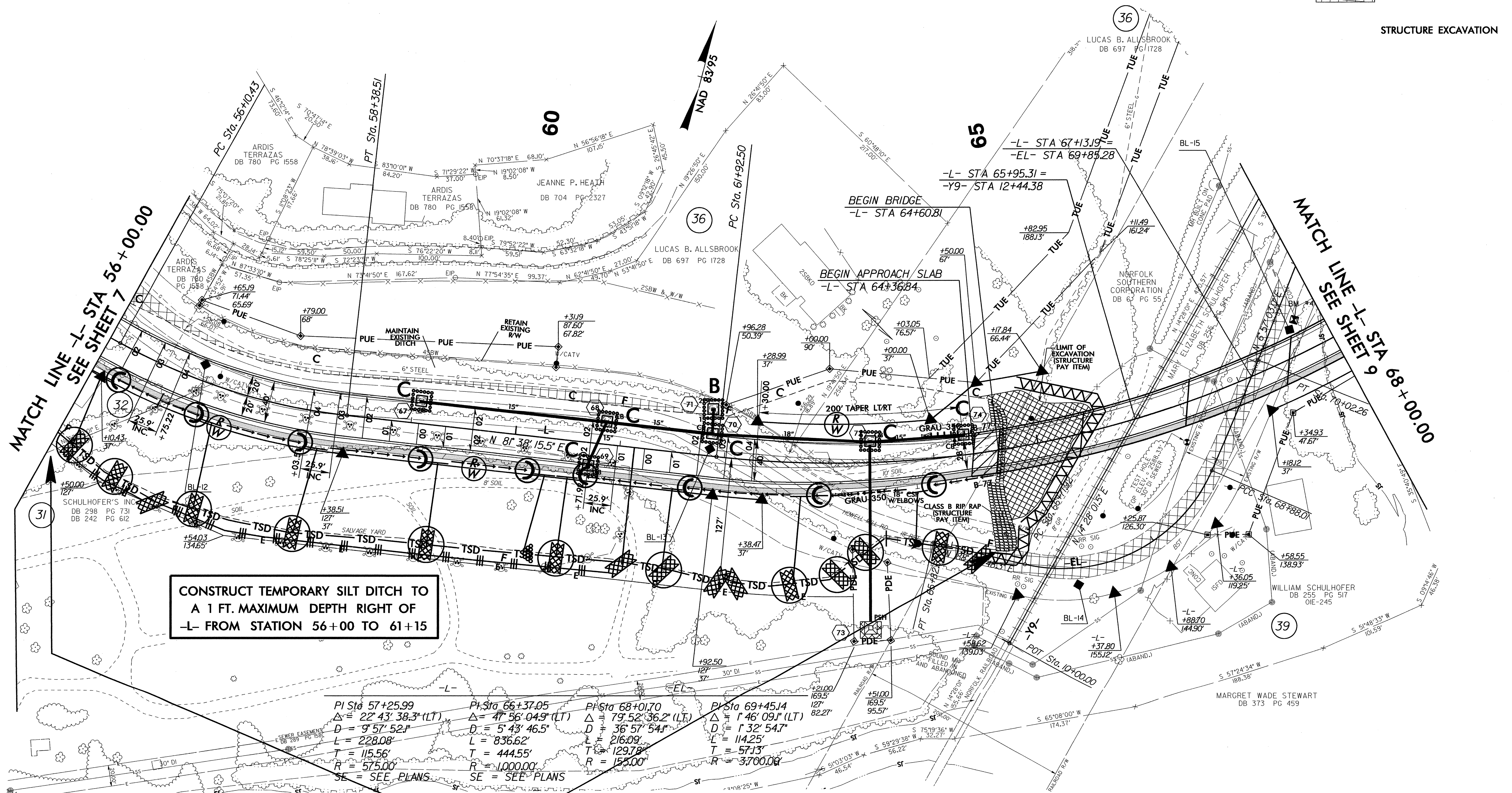
jennifer.parrish AT RENVZ84103

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-21/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

PAVEMENT REMOVAL

STRUCTURE EXCAVATION



CONSTRUCT TEMPORARY SILT DITCH TO A 1 FT. MAXIMUM DEPTH RIGHT OF -L- FROM STATION 56+00 TO 61+15

Place Matting for Erosion Control on Slope as Work Allows.

INSTALL TEMPORARY SILT FENCE BY SLICING METHOD RIGHT OF -L- FROM STATION 56+00 TO 61+15

FOR -L- PROFILE, SEE SHEET 13
FOR -DRV- PROFILE, SEE SHEET 17
FOR STRUCTURE PLANS, SEE SHEETS S1-S

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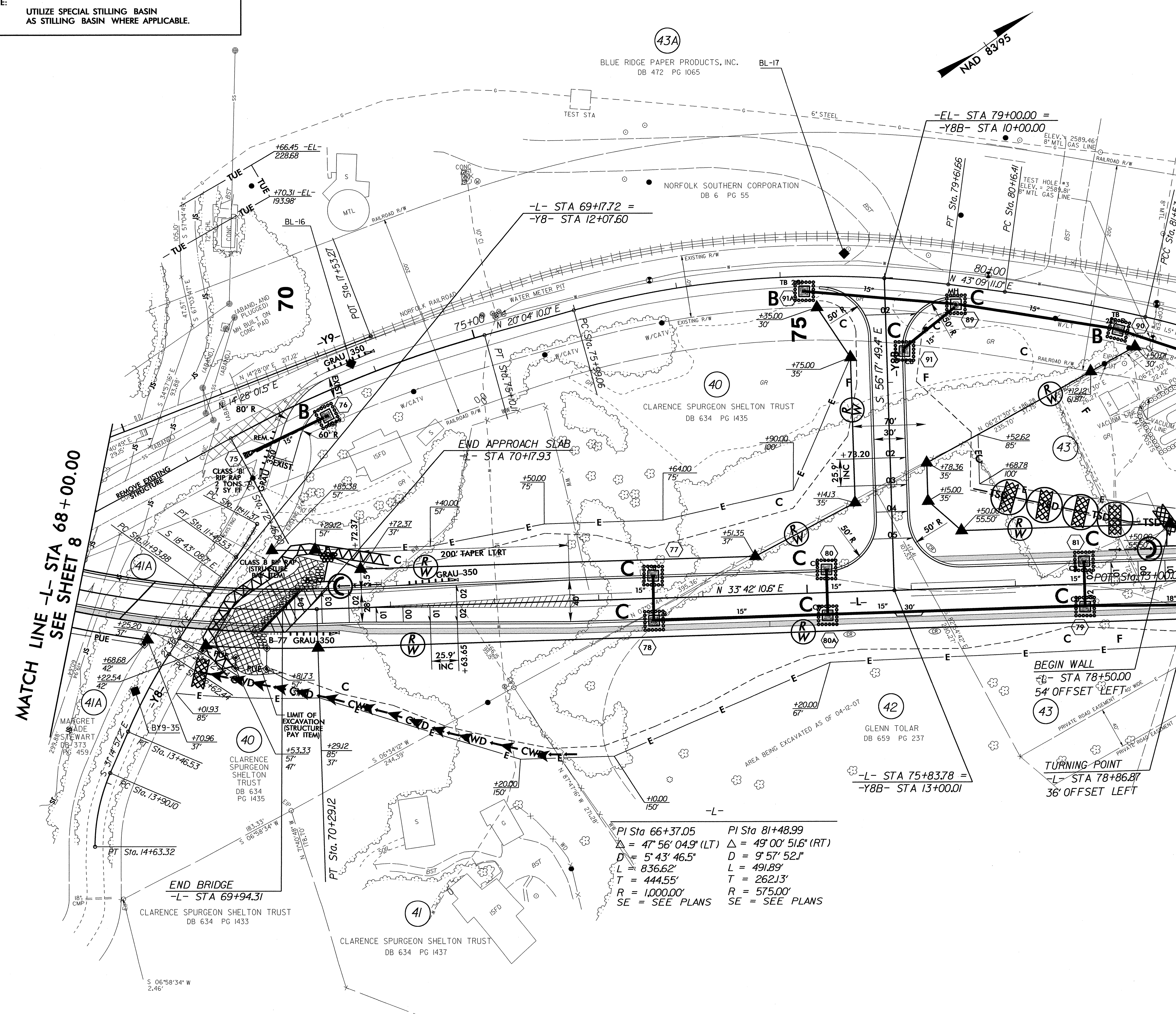
NOTE:
UTILIZE SPECIAL STILLING BASIN
AS STILLING BASIN WHERE APPLICABLE.

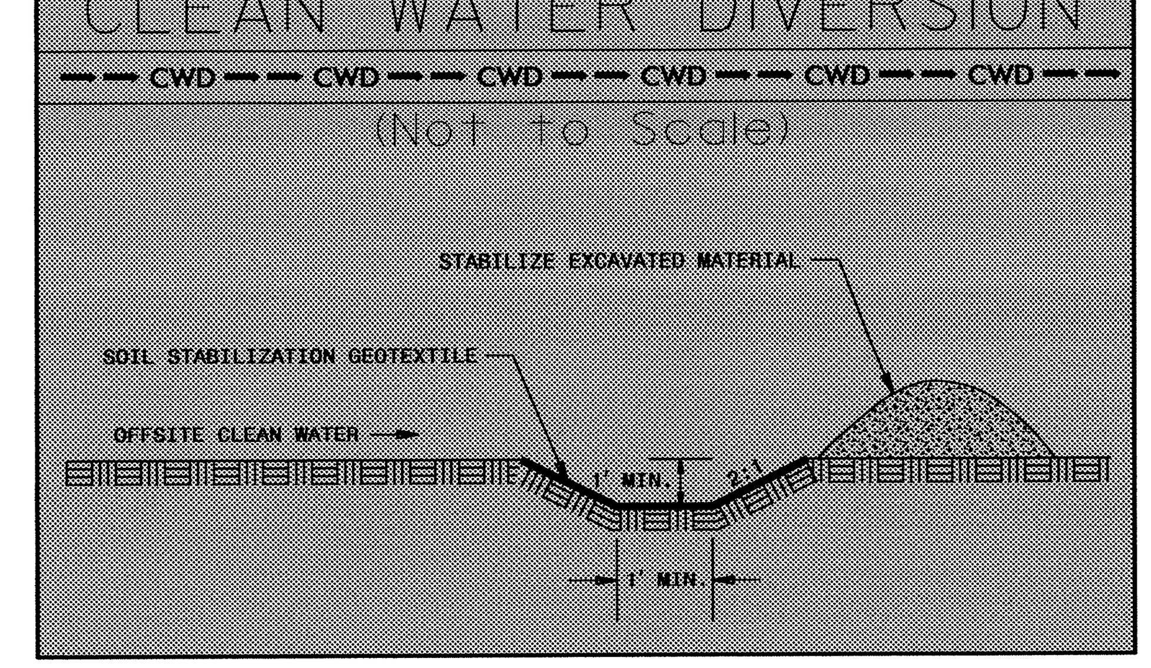
PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-22/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PAVEMENT REMOVAL

STRUCTURE EXCAVATION



CLEAN WATER DIVERSION



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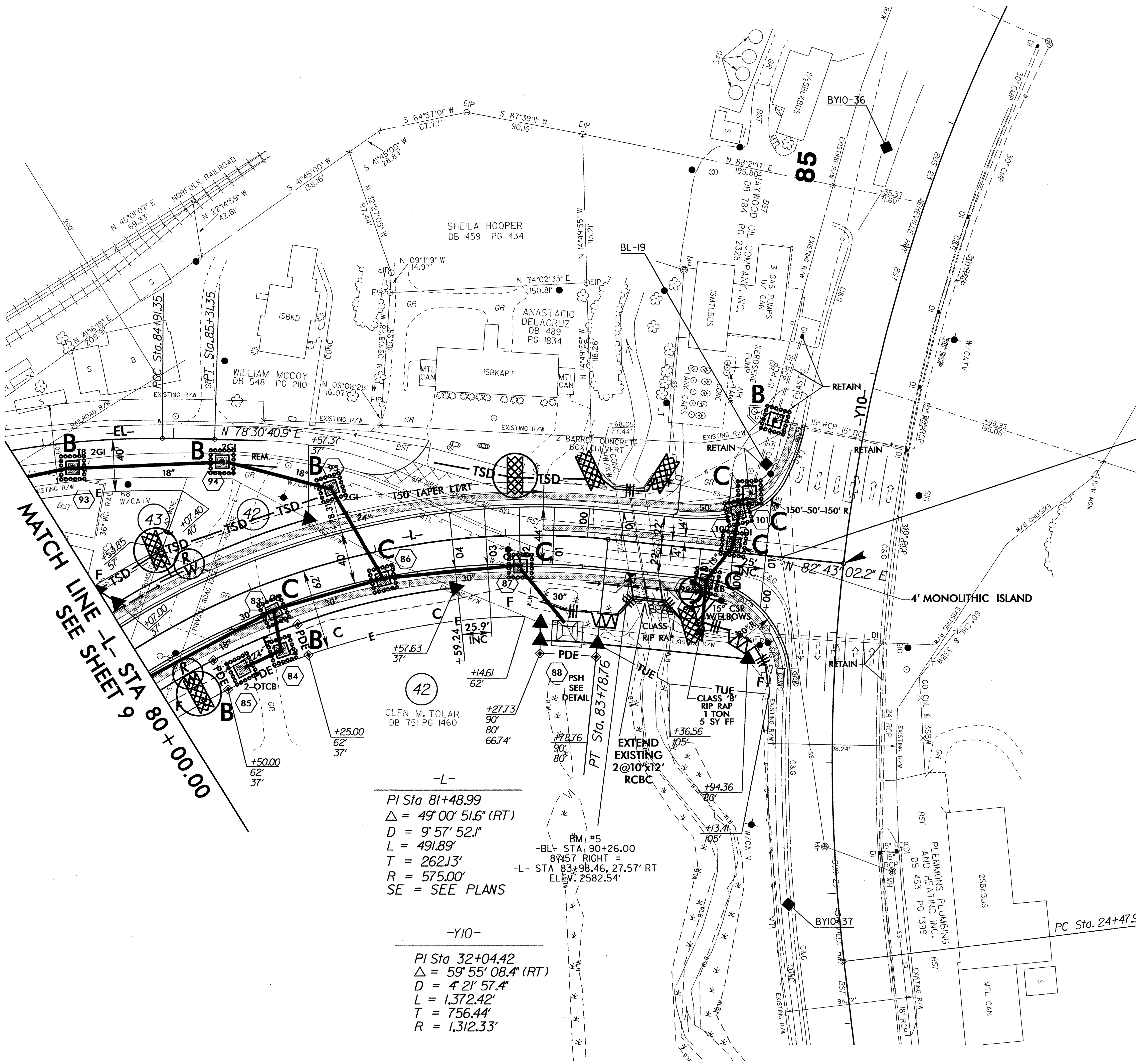
jennifergarish AT RENY264103

PROJECT REFERENCE NO.	SHEET NO.
U-4412	EC-23/CONSTJO
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PAVEMENT REMOVAL



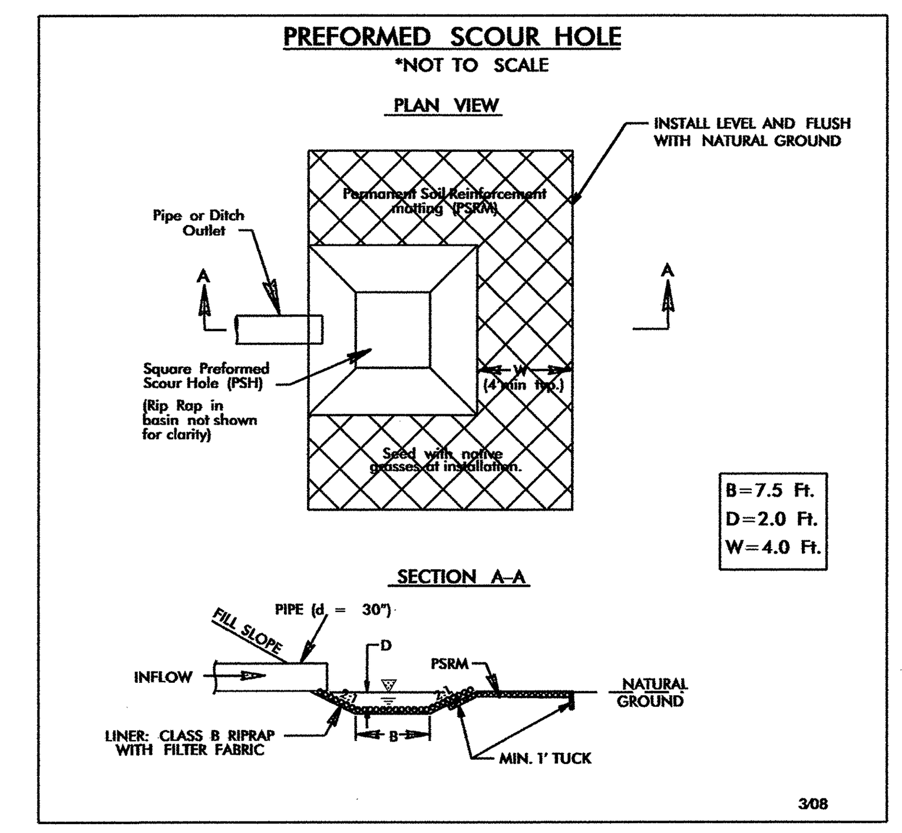
-L-

PI Sta 81+48.99
△ = 49° 00' 51.6" (RT)
D = 9° 57' 52.1"
L = 491.89'
T = 262.13'
R = 575.00'
SE = SEE PLANS

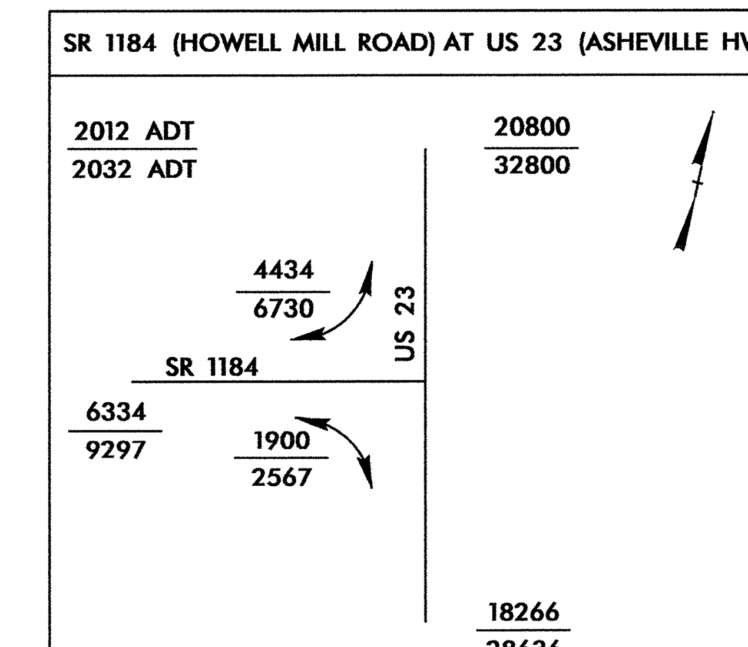
-Y10-

PI Sta 32+04.42
△ = 59° 55' 08.4" (RT)
D = 4° 21' 57.4"
L = 1,372.42'
T = 756.44'
R = 1,312.33'

PREFORMED SCOUR HOLE
*NOT TO SCALE



SR 1184 (HOWELL MILL ROAD) AT US 23 (ASHEVILLE HWY)



FOR -L- PROFILE, SEE SHEET 14 and 15
FOR CULVERT PLANS, SEE C- TO C-

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