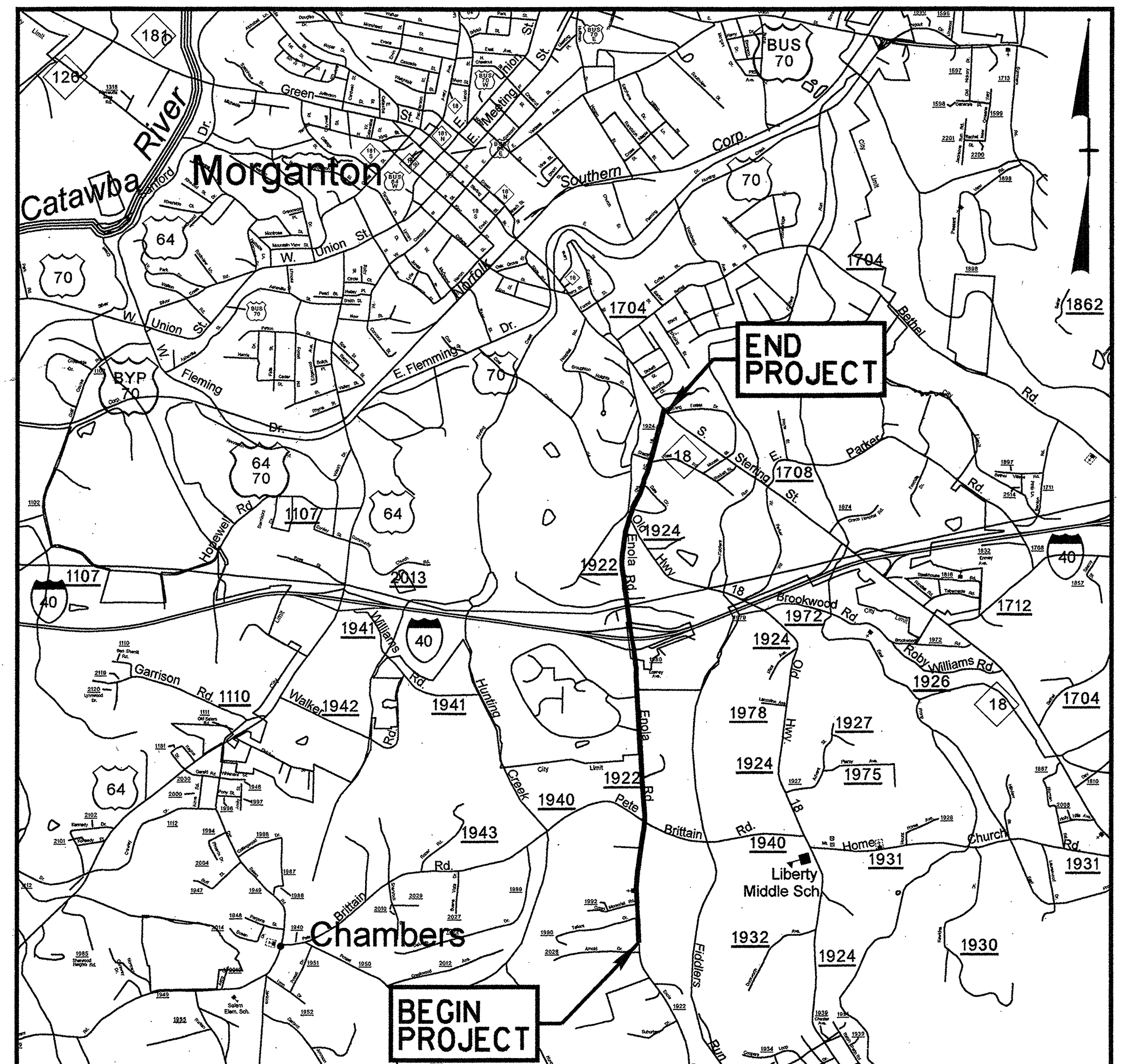
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2551	1	

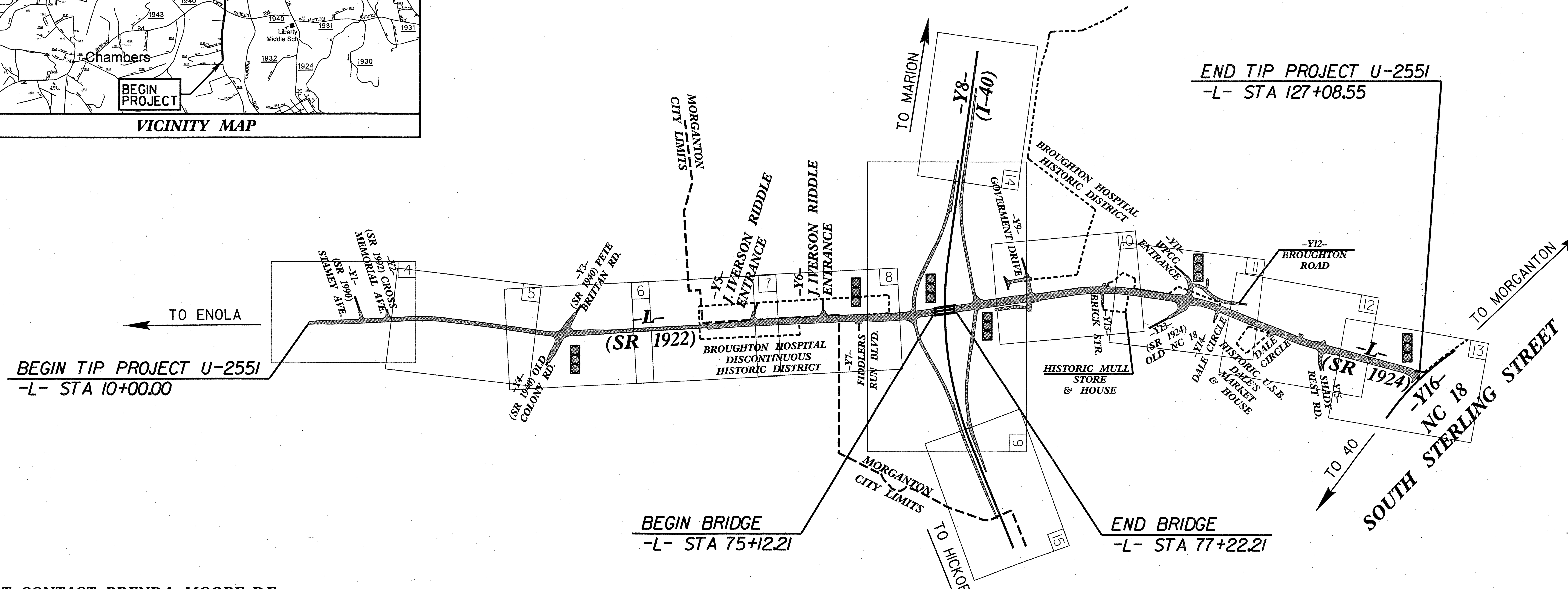
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34832.1.1	STP-1922 (1)	PE
34832.2.2	STP-1922 (1)	ROW, UTIL
34832.3.1	STP-1922 (1)	CONST.

LOCATION: *Morganton – SR 1922 (Enola Rd) /SR 1924 (Old NC 18) from SR 2026 (Arnold Drive) to NC 18 (South Sterling Street)*

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

Part 2 of 2

NAD 83 /86



NCDOT CONTACT: ***BRENDA MOORE, P.E.***
ROADWAY DESIGN – ENGINEERING COORDINATION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 15364
ADT 2032 = 22504
DHV = 9 %
D = 60 %
T = 7 % *
V = 40 MPH
* (TTST 3 / DUAL 4)
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-2551 = 2.178 miles
LENGTH OF STRUCTURE TIP PROJECT U-2551 = 0.040 miles
TOTAL LENGTH TIP PROJECT U-2551 = 2.218 miles

PLANS PREPARED BY:

ARCADIS
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448 NC License No. C-1869

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

FOR THE DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2010

LETTING DATE:
APRIL 17, 2012

STEVE SMALLWOOD, P.E.
PROJECT ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34451 ENGINEER STACEY H. BAILEY
1/31/12 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022037 ENGINEER STEPHEN T. SMALLWOOD
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

TIP PROJECT: U-2551

CONTRACT: C202815

09/08/99

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

51_rdy_tsh.dgn 1/31/2012 7:55:35 AM

TIP PROJECT: U-2551

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2551	EC-1	

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

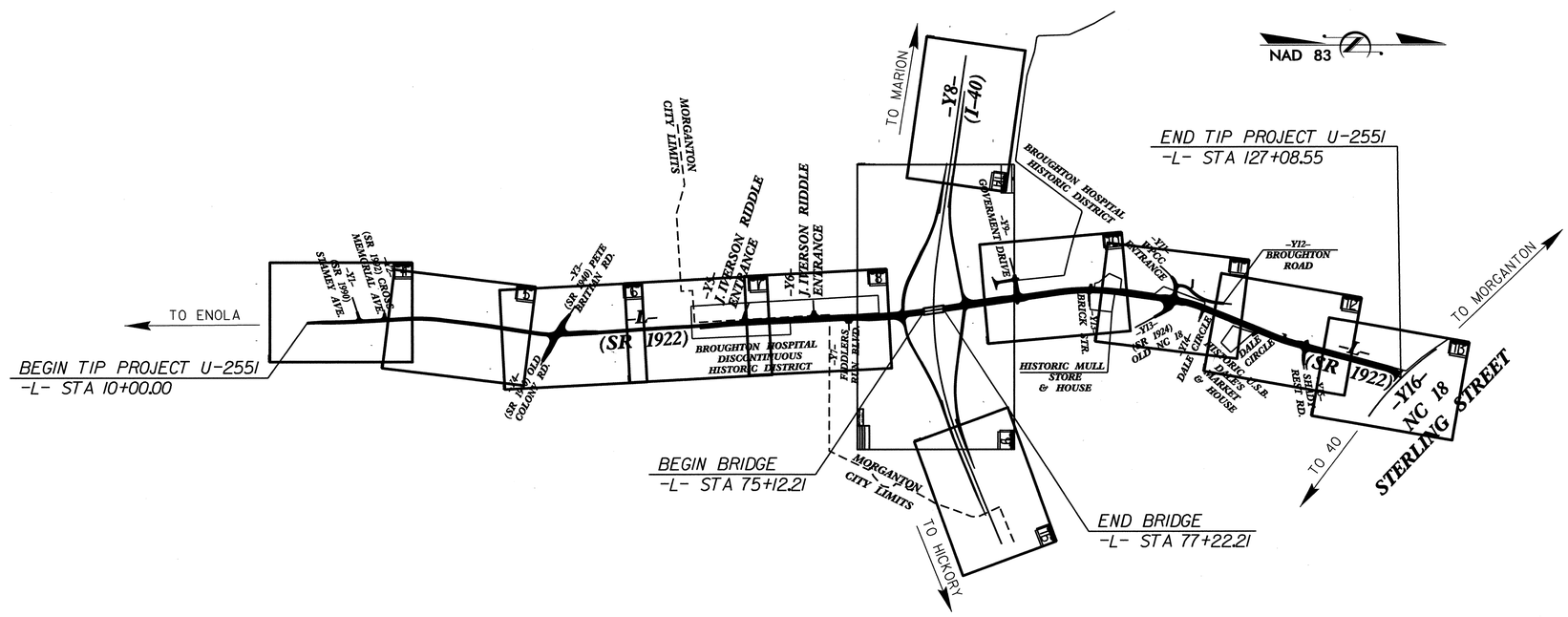
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

BURKE COUNTY

LOCATION: ***Morganton – SR 1922 (Enola Rd) / SR 1924 (Old NC 18) from South of Pete Brittian (SR 1940) Road to NC 18***

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



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	
	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 <u>english</u> 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	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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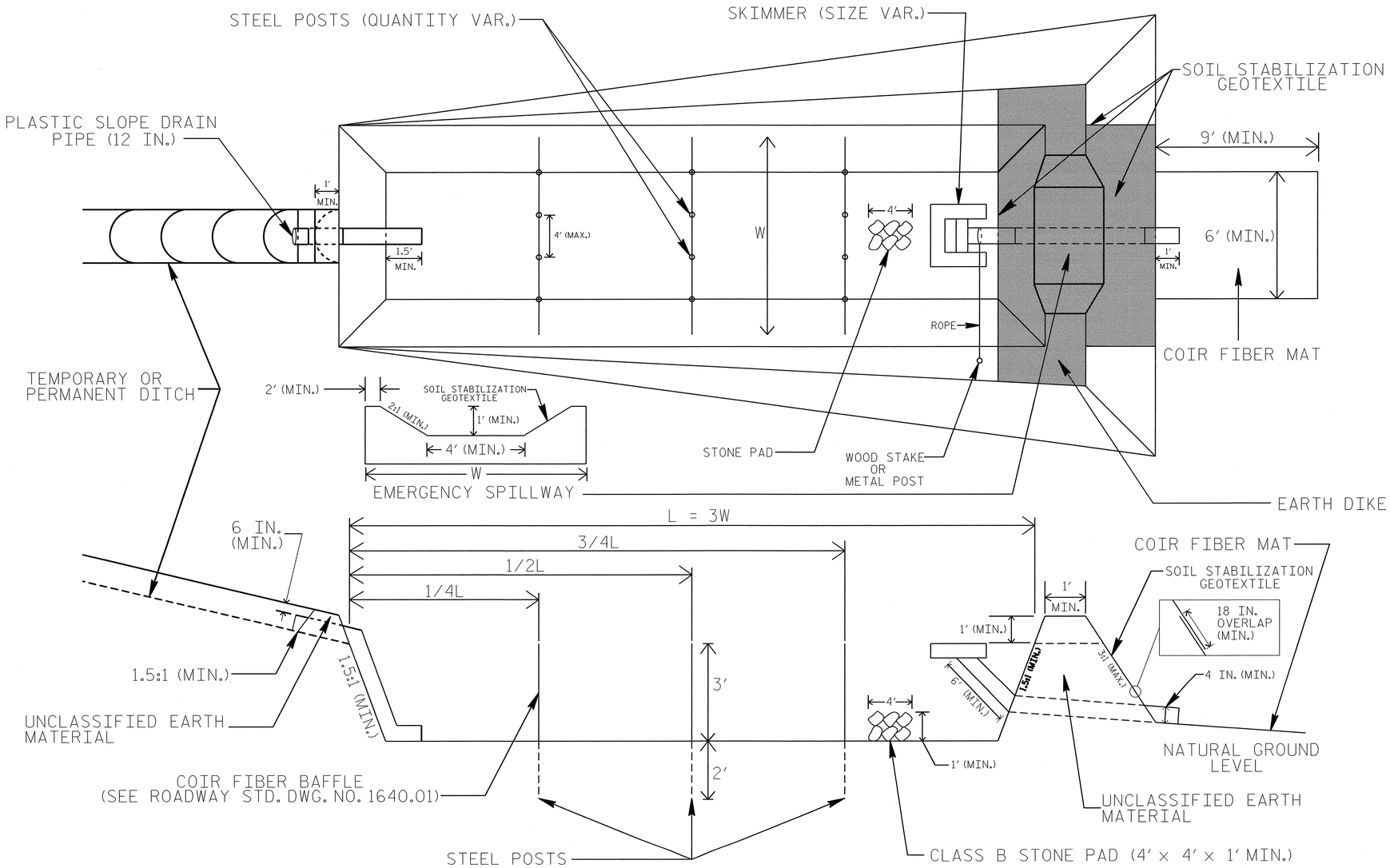
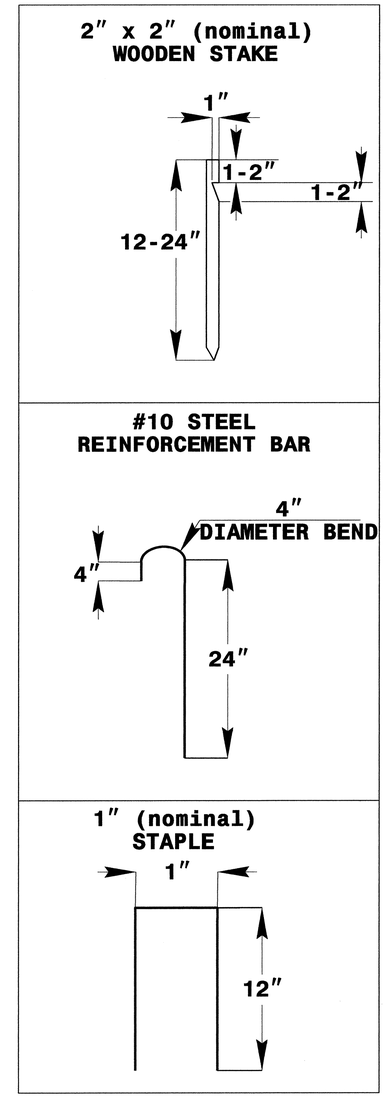
R:\Environmental\Roadside\Projects\u2551_rdy_tsh.dgn
roadway PREPARED BY: MICHAEL BAKER

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

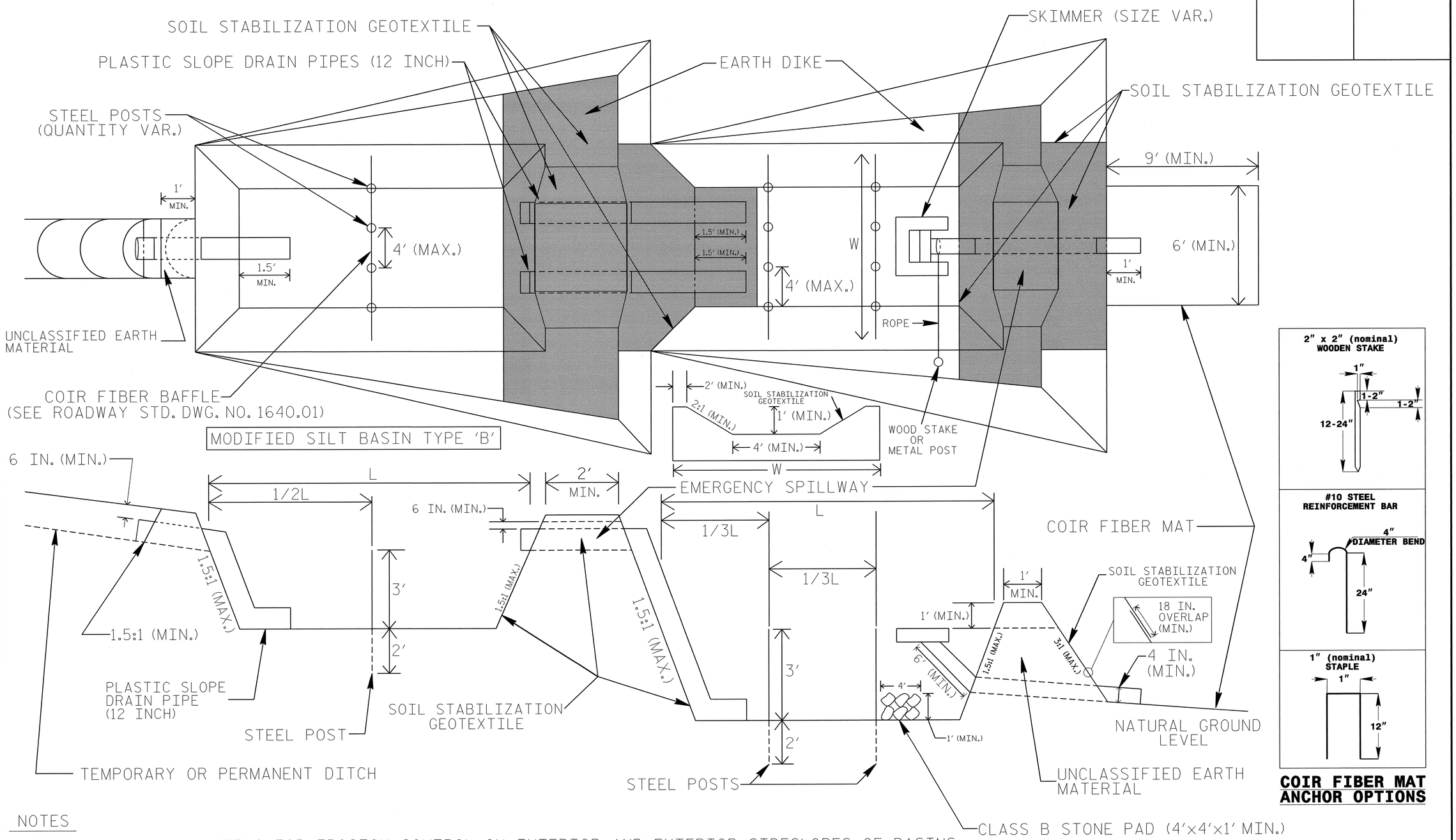
NOTES

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 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 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-2551	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TIERED SKIMMER BASIN DETAIL



COIR FIBER MAT ANCHOR OPTIONS

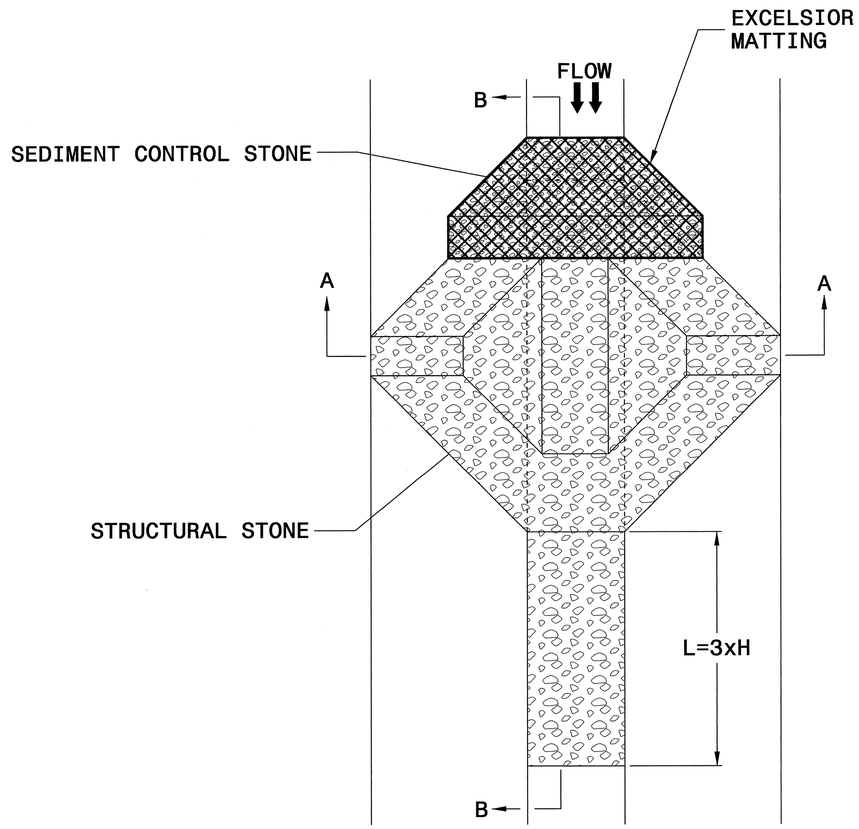
NOTES

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-2551	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



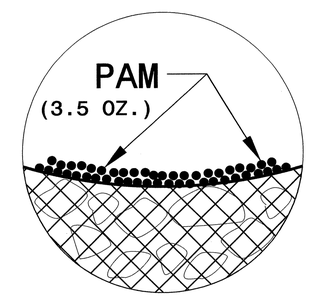
PLAN

NOTES

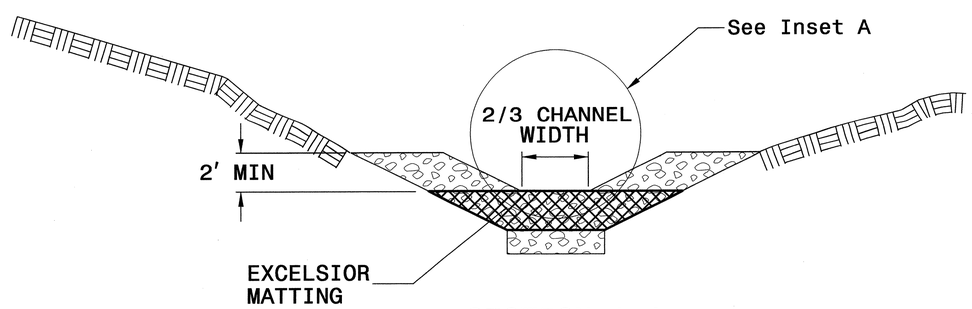
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

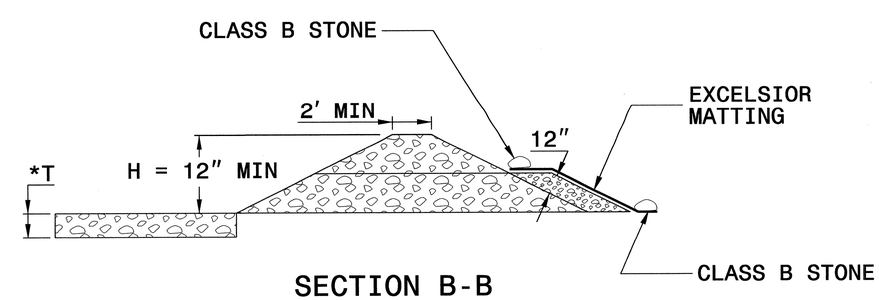
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-2551	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-	10+50	16+00	LT	385
4	-L-	17+00	17+50	LT	70
4	-L-	18+50	22+00	LT	245
5	-L-	24+50	40+50	LT	1120
5	-L-	25+50	35+50	RT	700
6	-Y3-	11+50	13+00	LT	140
7	-L-	51+50	55+50	LT	280
9	-RPC-	15+58	22+70	RT	800
9	-RPD-	10+00	24+60	RT	1955
9	-RPD-	15+00	17+81	LT	380
11	-Y12-	14+30	14+75	RT	45
11	-Y12-	14+75	15+25	RT	35
11	-Y13-	12+50	13+00	LT	35
11	-Y14-	10+50	11+00	RT	50
12	-L-	119+50	125+00	RT	275
12	-Y15-	11+00	11+50	LT	35
13	-L-	123+00	126+00	LT	210
14	-Y8-	14+00	22+00	LT	1075
15	-Y8-	52+50	54+00	LT	140
			SUBTOTAL		7975
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					41930
				TOTAL	49905
				SAY	50000

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+50	17+50	RT	510
6	-Y4-	12+50	13+00	LT	50
9	-RPA-	16+70	23+00	LT	845
9	-RPA-	14+76	23+00	RT	1105
9	-RPB-	12+00	17+95	RT	800
9	-RPB-	15+02	23+77	LT	1175
9	-RPB-	22+42	23+77	RT	185
10	-Y10-	10+50	11+00	RT	50
10	-Y10-	10+50	11+00	LT	50
11	-L-	100+00	101+00	LT	50
11	-Y11-	10+50	12+50	LT	165
12	-Y15-	10+50	11+50	RT	70
			SUBTOTAL		5055
		ADDITIONAL PSRM TO BE INSTALLED			190
				TOTAL	5245
				SAY	5250

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

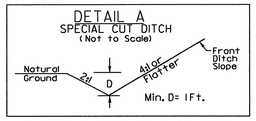
SOIL STABILIZATION TIMEFRAMES

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.

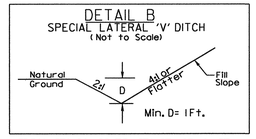
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 4

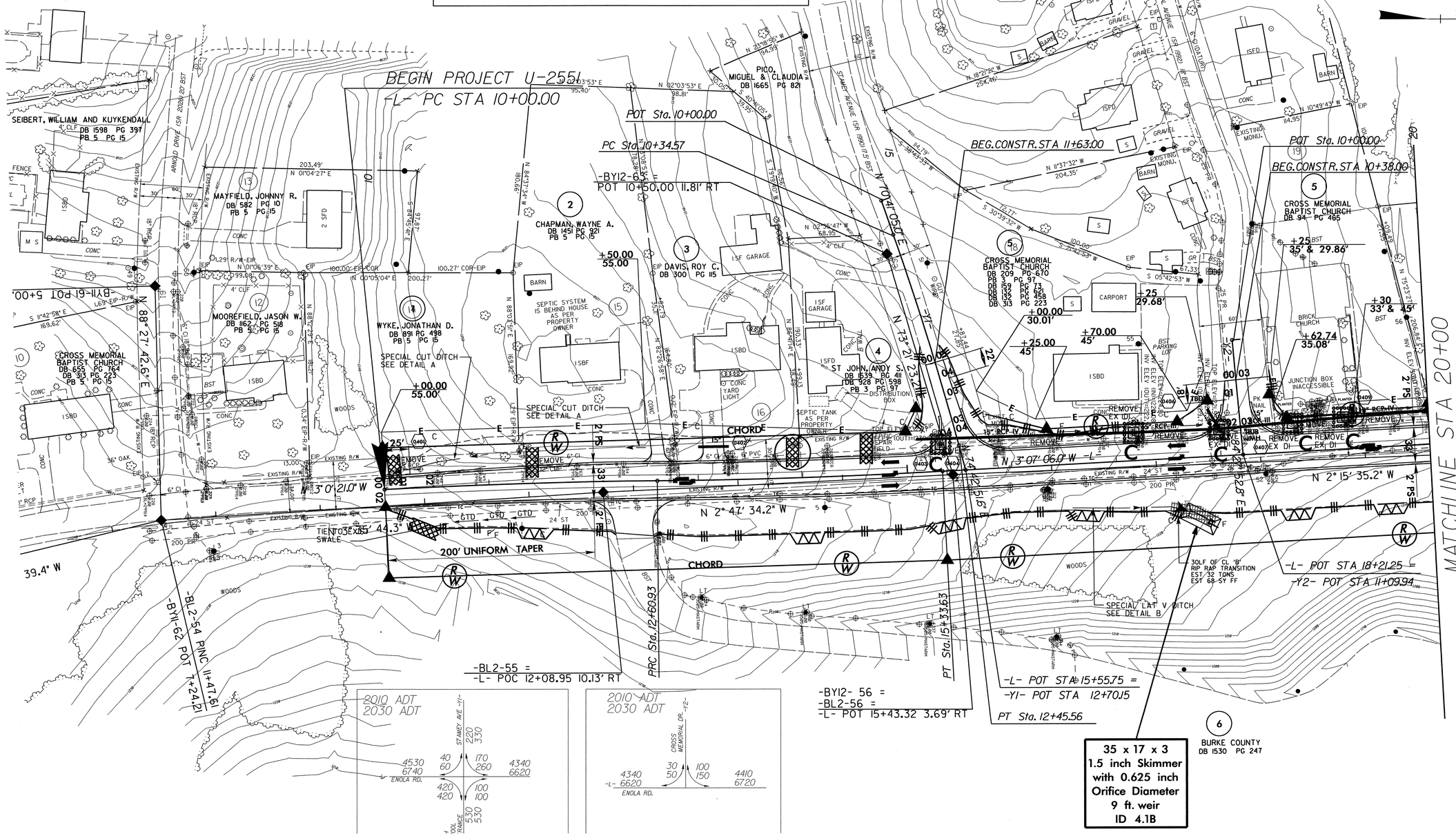


FROM STA. 10+00 TO STA. 11+00 -L- LT
FROM STA. 12+31 TO STA. 12+50 -L- LT



FROM STA. 16+00 TO STA. 17+65 -L- RT

-L-		-Y1-
PI Sta 11+30.48	PI Sta 13+97.30	PI Sta 11+40.11
Δ = 2° 29' 30.0" (RT)	Δ = 2° 36' 15.0" (LT)	Δ = 4° 01' 46.6" (RT)
D = 0° 57' 17.7"	D = 0° 57' 17.7"	D = 1° 54' 35.5"
L = 260.93'	L = 272.71'	L = 210.99'
T = 130.48'	T = 136.38'	T = 105.54'
R = 6,000.00'	R = 6,000.00'	R = 3,000.00'
SE = NC	SE = NC	SE = SEE PLANS
DS = 40 MPH	DS = 40 MPH	DS = 40 MPH



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

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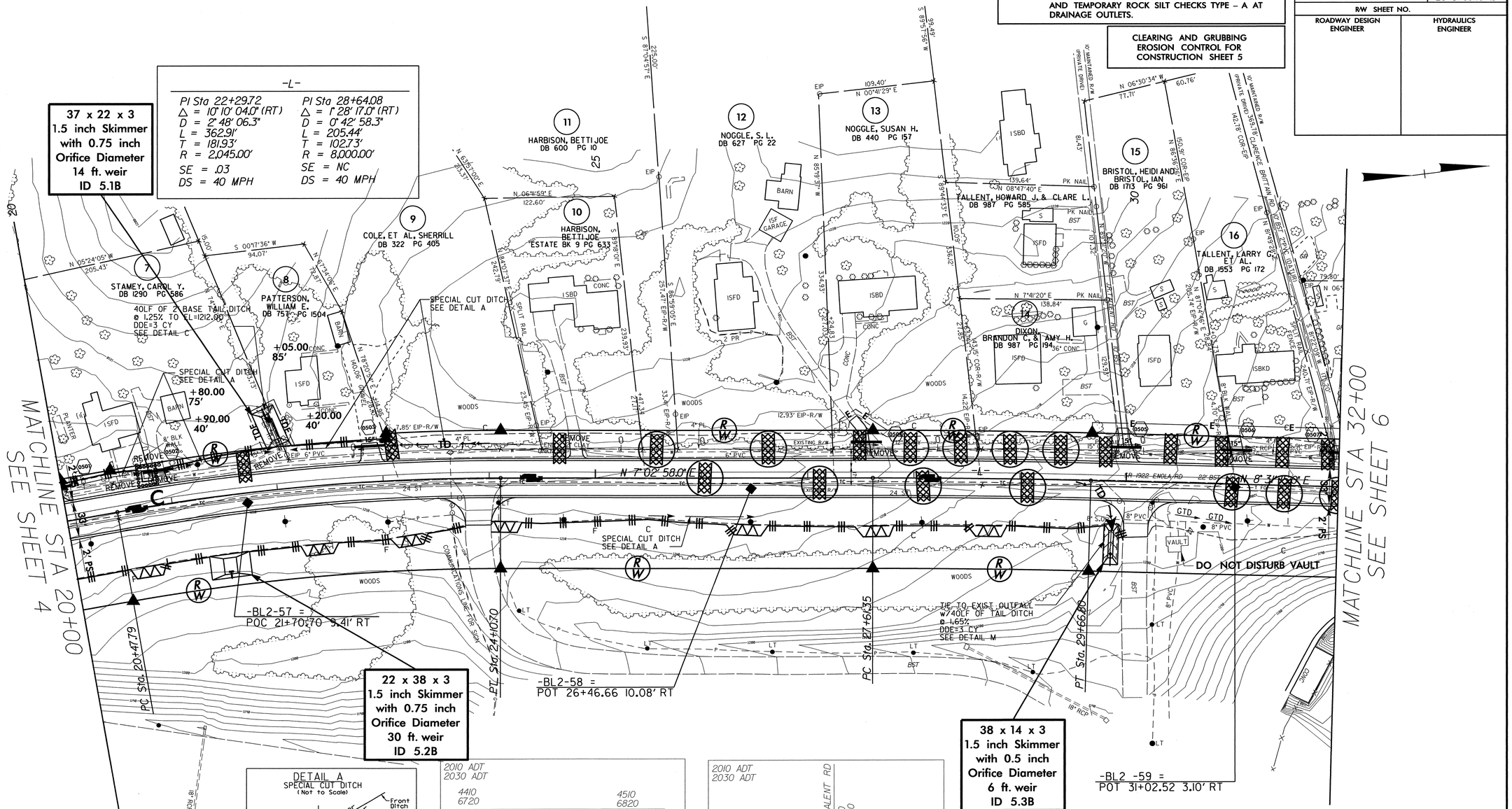
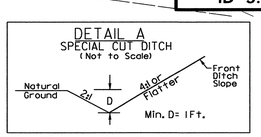
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 5

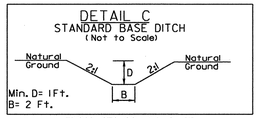


DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



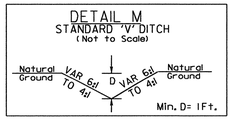
FROM STA. 20+10 TO STA. 20+82 -L- LT
FROM STA. 21+06 TO STA. 24+70 -L- LT
FROM STA. 25+50 TO STA. 26+50 -L- RT

DETAIL C
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 22+07 -L- LT

DETAIL M
STANDARD "V" DITCH
(Not to Scale)



FROM STA. 29+75 -L- RT

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PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-6/CONST.6
R/W 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 6

-L-

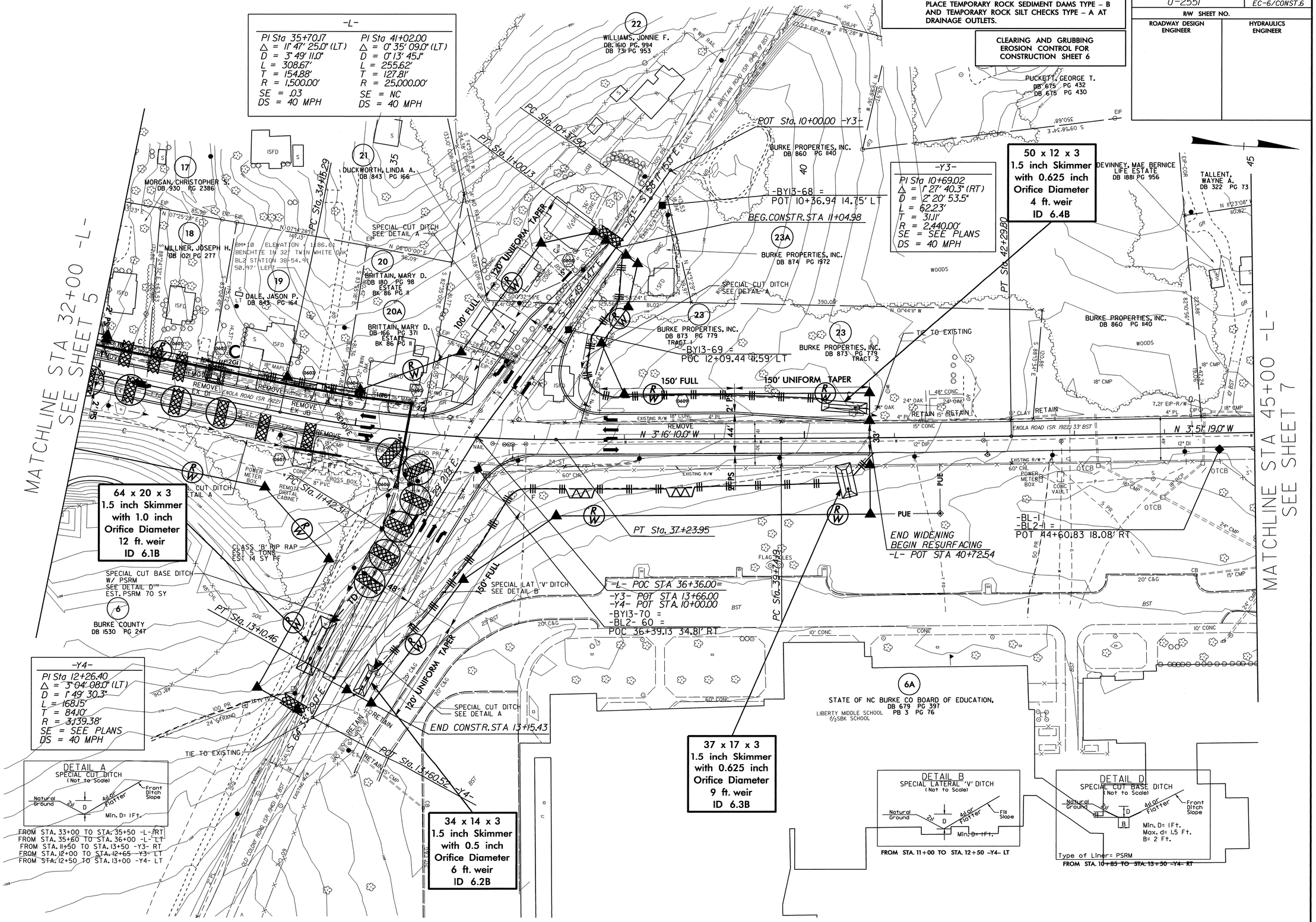
PI Sta 35+70.17	PI Sta 41+02.00
△ = 11° 47' 25.0" (LT)	△ = 0° 35' 09.0" (LT)
D = 3° 49' 11.0"	D = 0° 13' 45.1"
L = 308.67'	L = 255.62'
T = 154.88'	T = 127.81'
R = 1,500.00'	R = 25,000.00'
SE = .03	SE = NC
DS = 40 MPH	DS = 40 MPH

-Y3-

PI Sta 10+69.02
△ = 1° 27' 40.3" (RT)
D = 2° 20' 53.5"
L = 62.23'
T = 31.11'
R = 2,440.00'
SE = SEE PLANS
DS = 40 MPH

-Y4-

PI Sta 12+26.40
△ = 3° 04' 08.0" (LT)
D = 1° 49' 30.3"
L = 168.15'
T = 84.10'
R = 3,139.38'
SE = SEE PLANS
DS = 40 MPH



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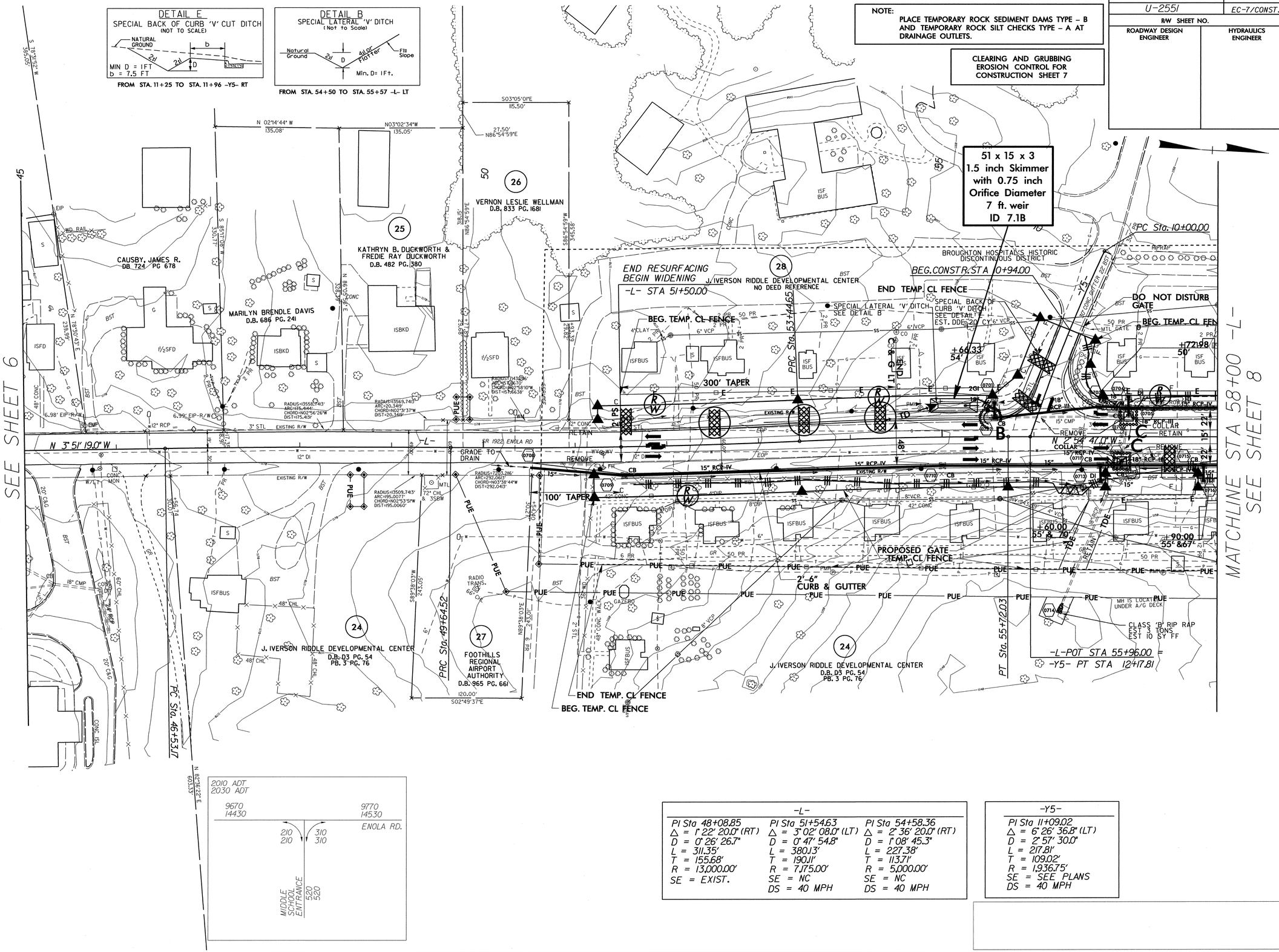
ncpan AT REN\26946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-7/CONST.7
R/W 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-		
PI Sta 48+08.85	PI Sta 51+54.63	PI Sta 54+58.36
△ = 1° 22' 20.0" (RT)	△ = 3° 02' 08.0" (LT)	△ = 2° 36' 20.0" (RT)
D = 0° 26' 26.7"	D = 0° 47' 54.8"	D = 1° 08' 45.3"
L = 311.35'	L = 380.13'	L = 227.38'
T = 155.68'	T = 190.11'	T = 113.71'
R = 13,000.00'	R = 7,175.00'	R = 5,000.00'
SE = EXIST.	SE = NC	SE = NC
	DS = 40 MPH	DS = 40 MPH

-Y5-
PI Sta 11+09.02
△ = 6° 26' 36.8" (LT)
D = 2° 57' 30.0"
L = 217.81'
T = 109.02'
R = 1,936.75'
SE = SEE PLANS
DS = 40 MPH

5/14/99

05-JAN-2012 09:03
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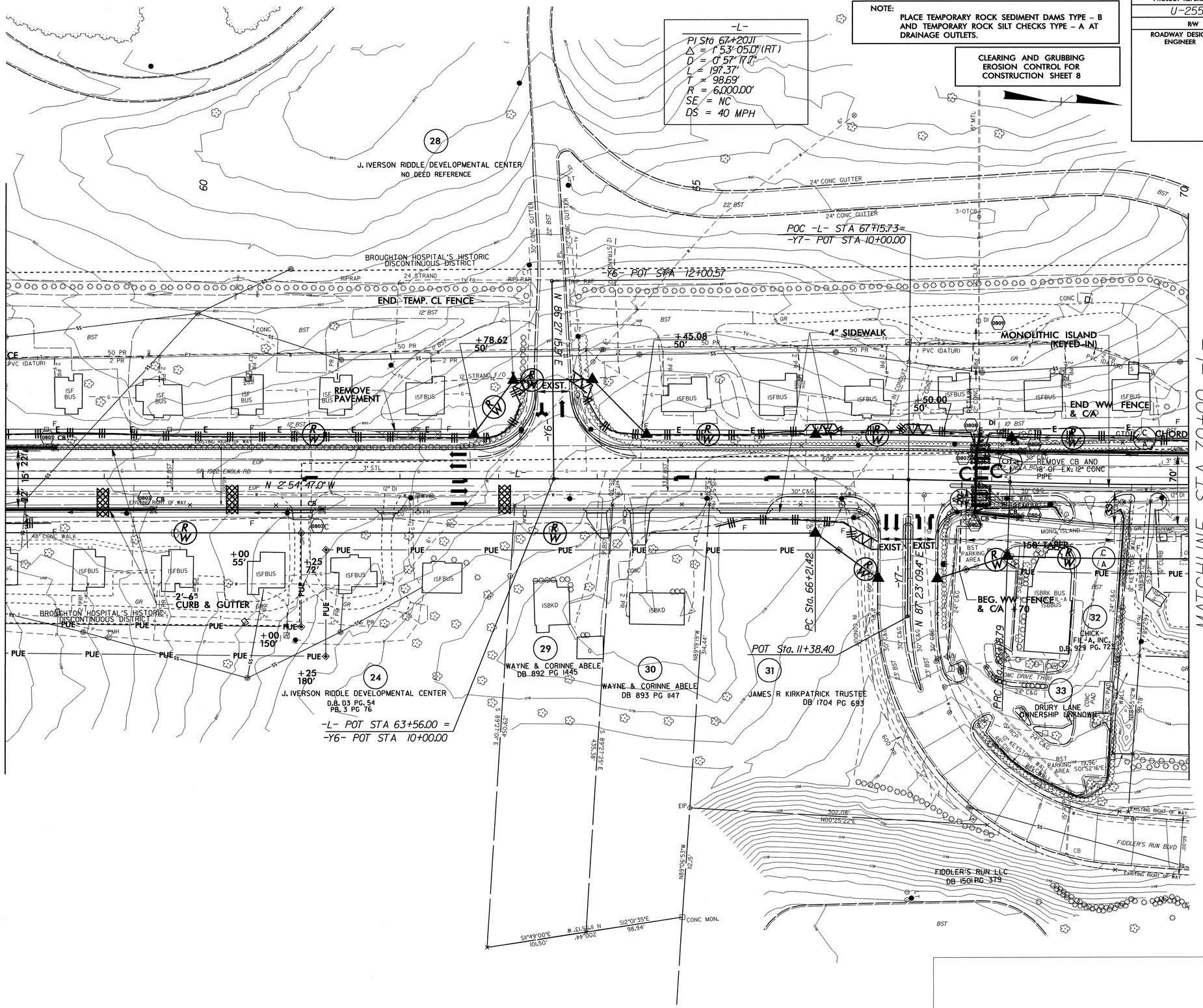
nchap AT RENV256946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-8/CONST.8
R/W 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 8

-L-
PI Sta 67+20.11
Δ = 1° 53' 05.0" (RT)
D = 0° 57' 17.7"
L = 197.37'
T = 98.69'
R = 6,000.00'
SE = NC
DS = 40 MPH



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05-JAN-2012 09:13
nchan AT RENV256946

REVISIONS

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

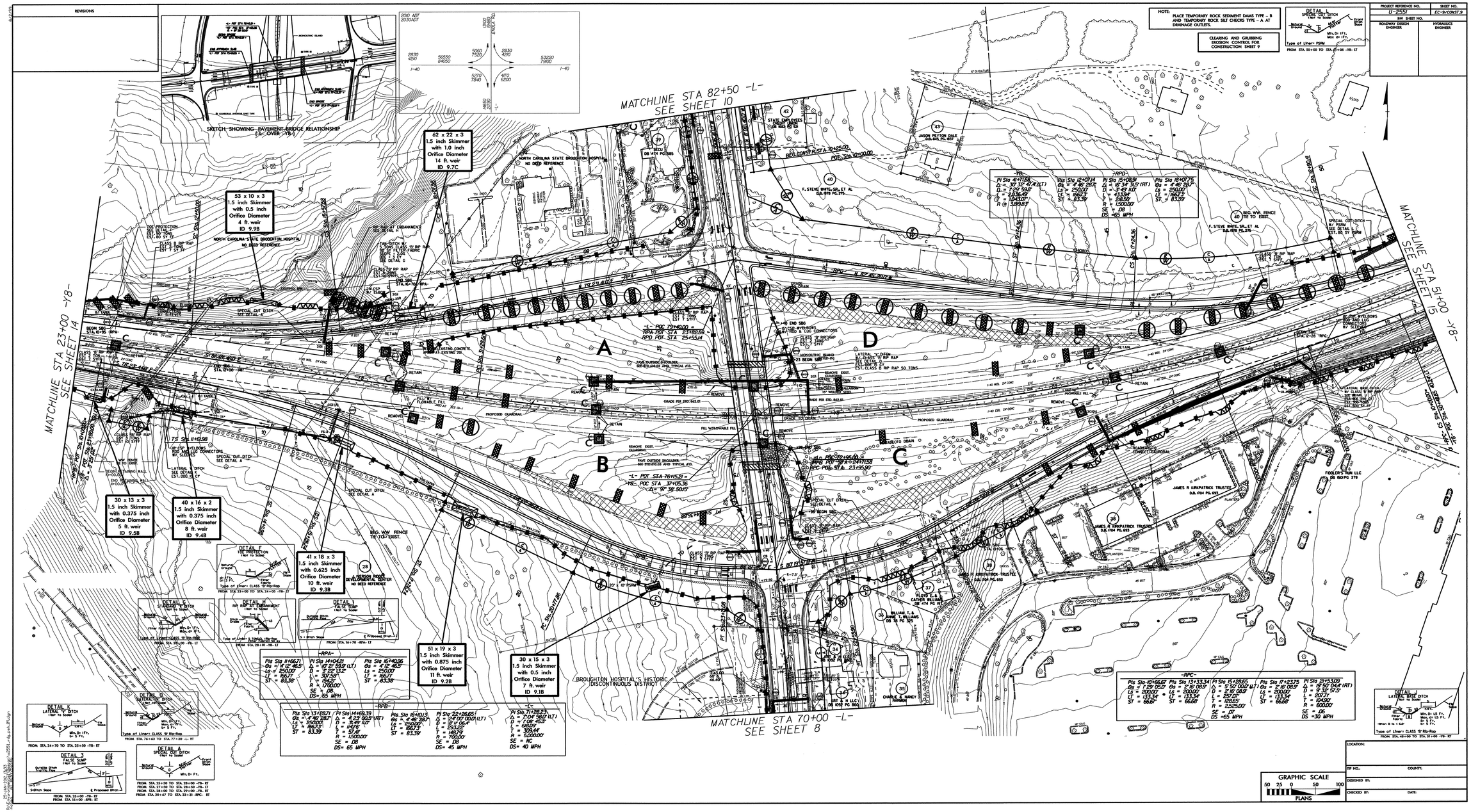
DETAIL L
SPECIAL CUT DITCH
1 Inch = 10 Scale

Type of Liner: PSRM

MIN. Di 1 Ft.
Max. Di 17 Ft.

FROM STA. 50+00 TO STA. 61+06 -YB- LT

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-9/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

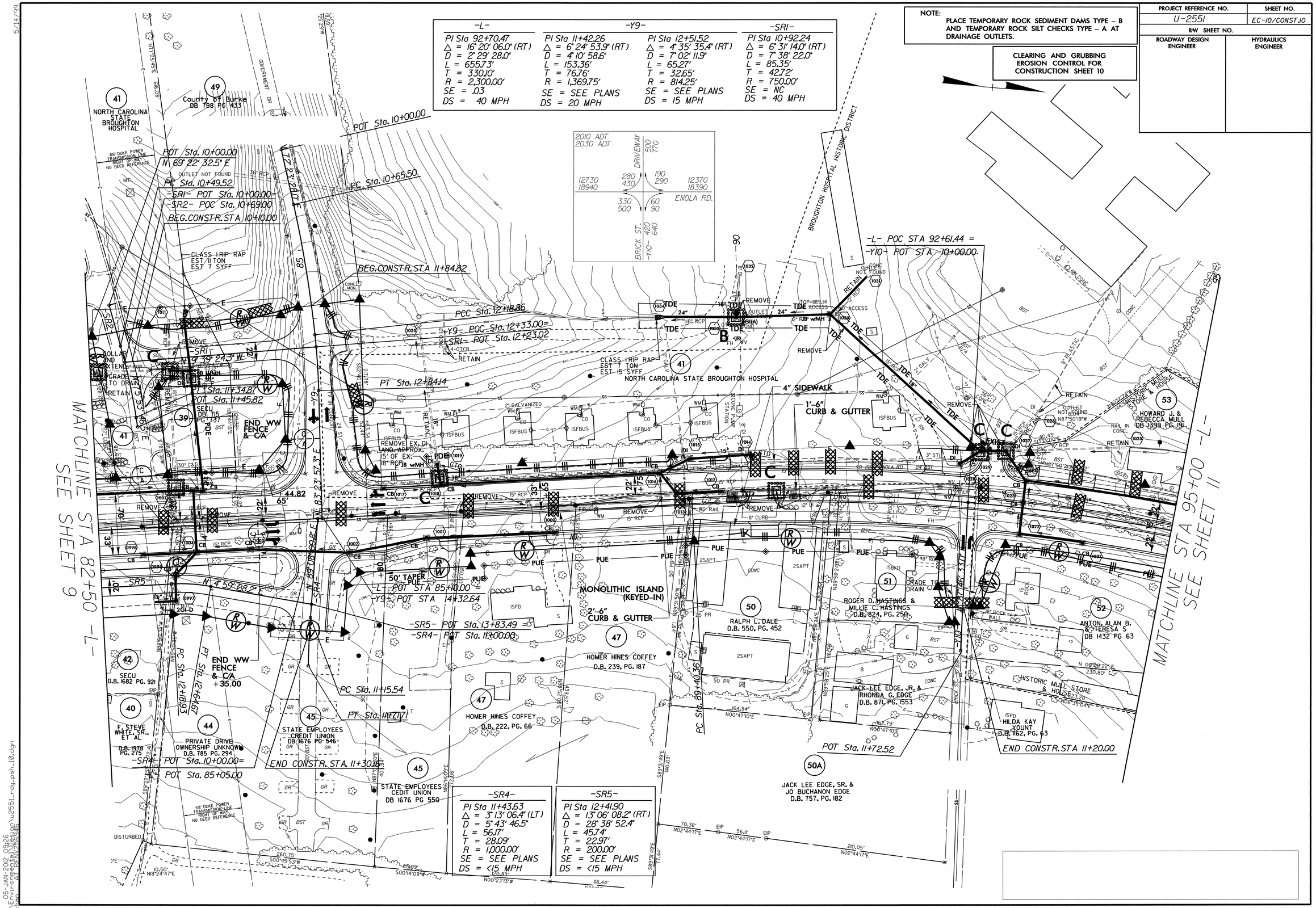
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-10/CONST.10
R/W 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 10

-L-	-Y9-		-SR1-
PI Sta 92+70.47	PI Sta 11+42.26	PI Sta 12+51.52	PI Sta 10+92.24
Δ = 16° 20' 06.0" (RT)	Δ = 6° 24' 53.9" (RT)	Δ = 4° 35' 35.4" (RT)	Δ = 6° 31' 14.0" (RT)
D = 2° 29' 28.0"	D = 4° 10' 58.6"	D = 7° 02' 11.9"	D = 7° 38' 22.0"
L = 655.73'	L = 153.36'	L = 65.27'	L = 85.35'
T = 330.10'	T = 76.76'	T = 32.65'	T = 42.72'
R = 2,300.00'	R = 1,369.75'	R = 814.25'	R = 750.00'
SE = .03	SE = SEE PLANS	SE = SEE PLANS	SE = NC
DS = 40 MPH	DS = 20 MPH	DS = 15 MPH	DS = 40 MPH



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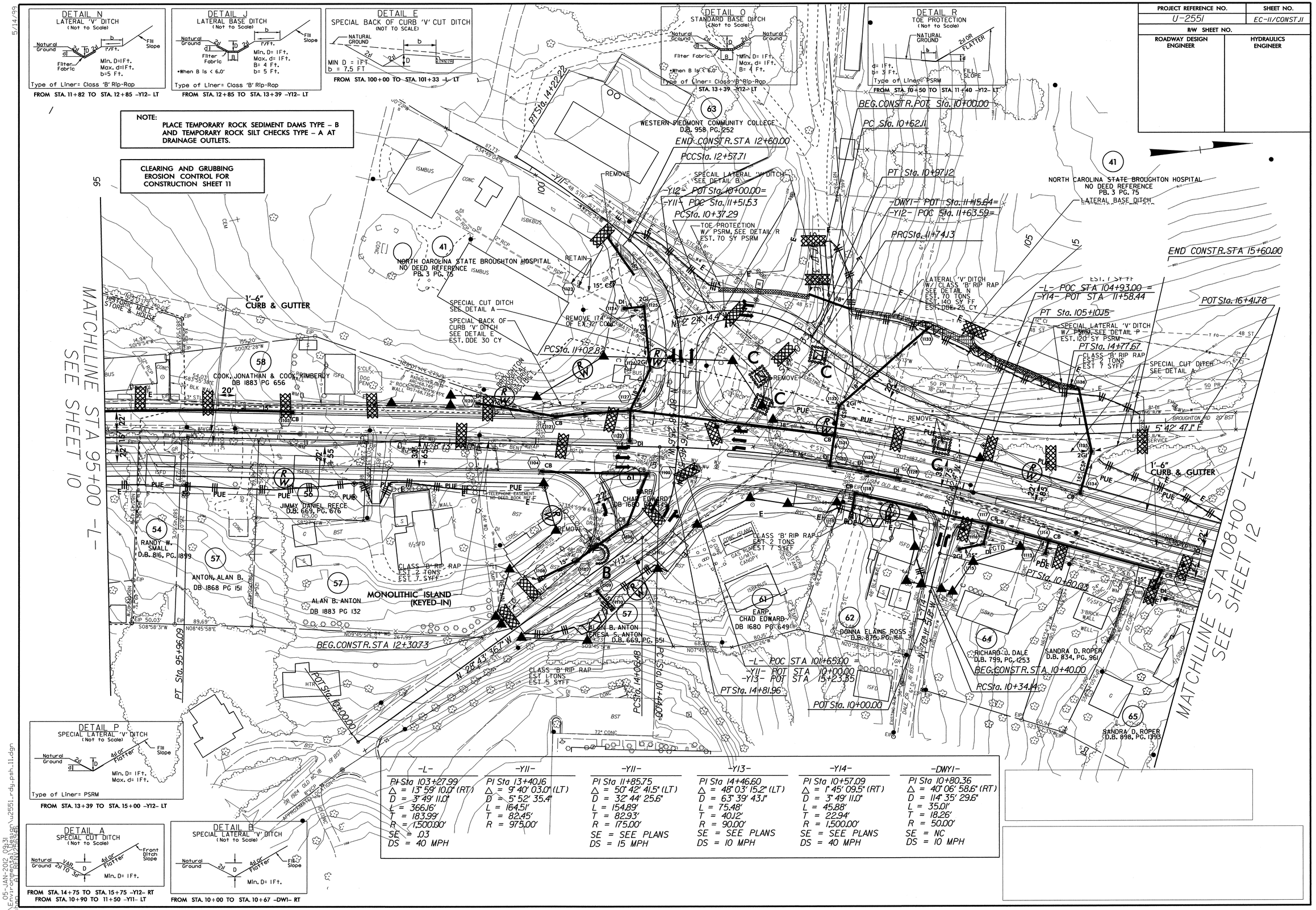
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-11/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/14/99



-L-	-Y11-	-Y11-	-Y13-	-Y14-	-DWY1-
PI Sta 103+27.99	PI Sta 13+40.16	PI Sta 11+85.75	PI Sta 14+46.60	PI Sta 10+57.09	PI Sta 10+80.36
Δ = 13° 59' 10.0" (RT)	Δ = 9° 40' 03.0" (LT)	Δ = 50° 42' 41.5" (LT)	Δ = 48° 03' 15.2" (LT)	Δ = 1° 45' 09.5" (RT)	Δ = 40° 06' 58.6" (RT)
D = 3° 49' 11.0"	D = 5° 52' 35.4"	D = 32° 44' 25.6"	D = 63° 39' 43.1"	D = 3° 49' 11.0"	D = 114° 35' 29.6"
L = 366.16'	L = 164.51'	L = 154.89'	L = 75.48'	L = 45.88'	L = 35.01'
T = 183.99'	T = 82.45'	T = 82.93'	T = 40.12'	T = 22.94'	T = 18.26'
R = 1,500.00'	R = 975.00'	R = 175.00'	R = 90.00'	R = 1,500.00'	R = 50.00'
SE = .03		SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = NC
DS = 40 MPH		DS = 15 MPH	DS = 10 MPH	DS = 40 MPH	DS = 10 MPH

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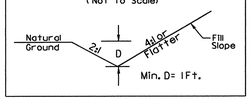
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-12/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

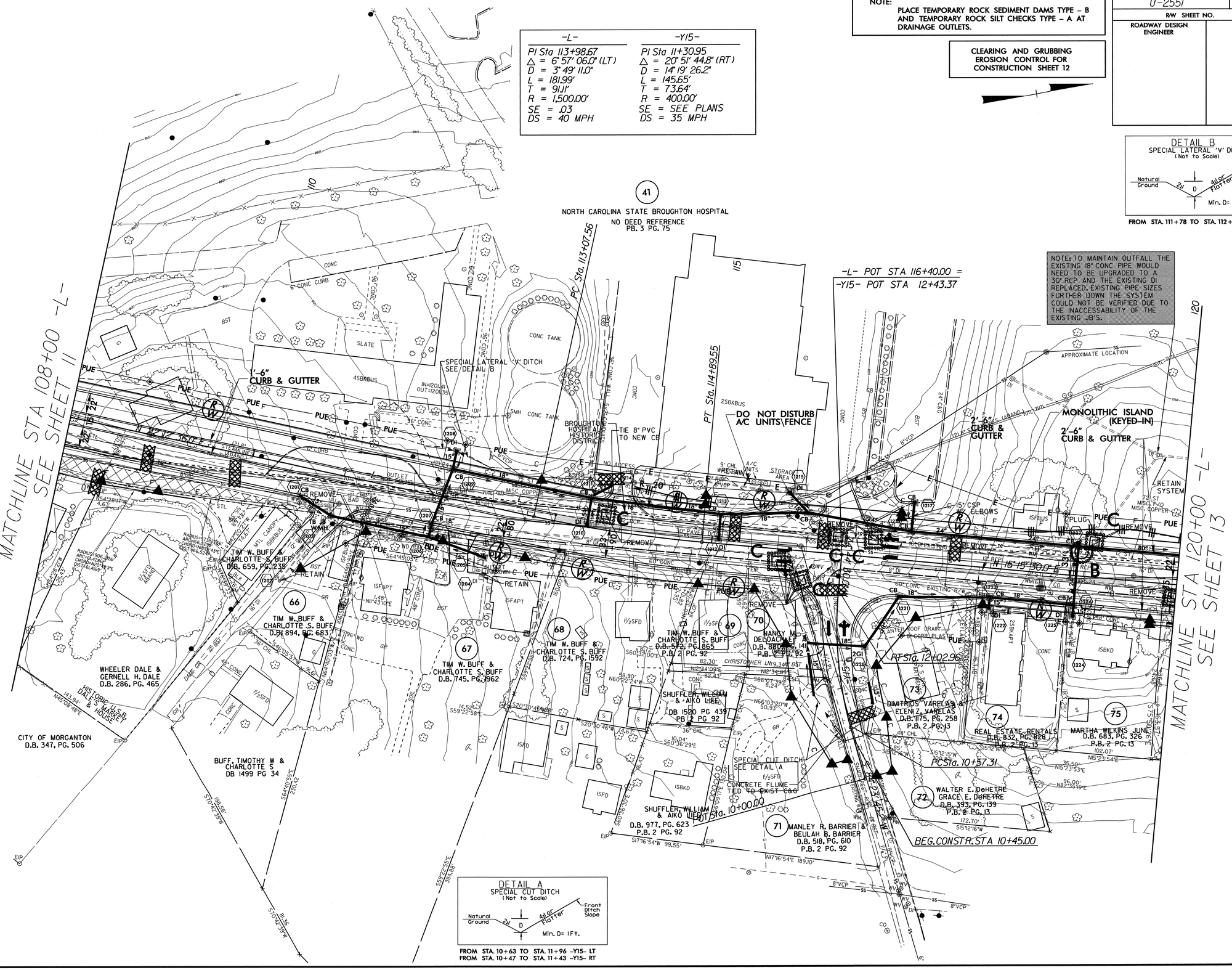
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 12

-L-	-Y15-
PI Sta 113+98.67	PI Sta 11+30.95
△ = 6° 57' 06.0" (LT)	△ = 20° 51' 44.8" (RT)
D = 3° 49' 11.0"	D = 14° 19' 26.2"
L = 181.99'	L = 145.65'
T = 91.11'	T = 73.64'
R = 1,500.00'	R = 400.00'
SE = .03	SE = SEE PLANS
DS = 40 MPH	DS = 35 MPH

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not To Scale)



FROM STA. 111+78 TO STA. 112+50 -L- LT



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mcbon
$$$$ REV:0000

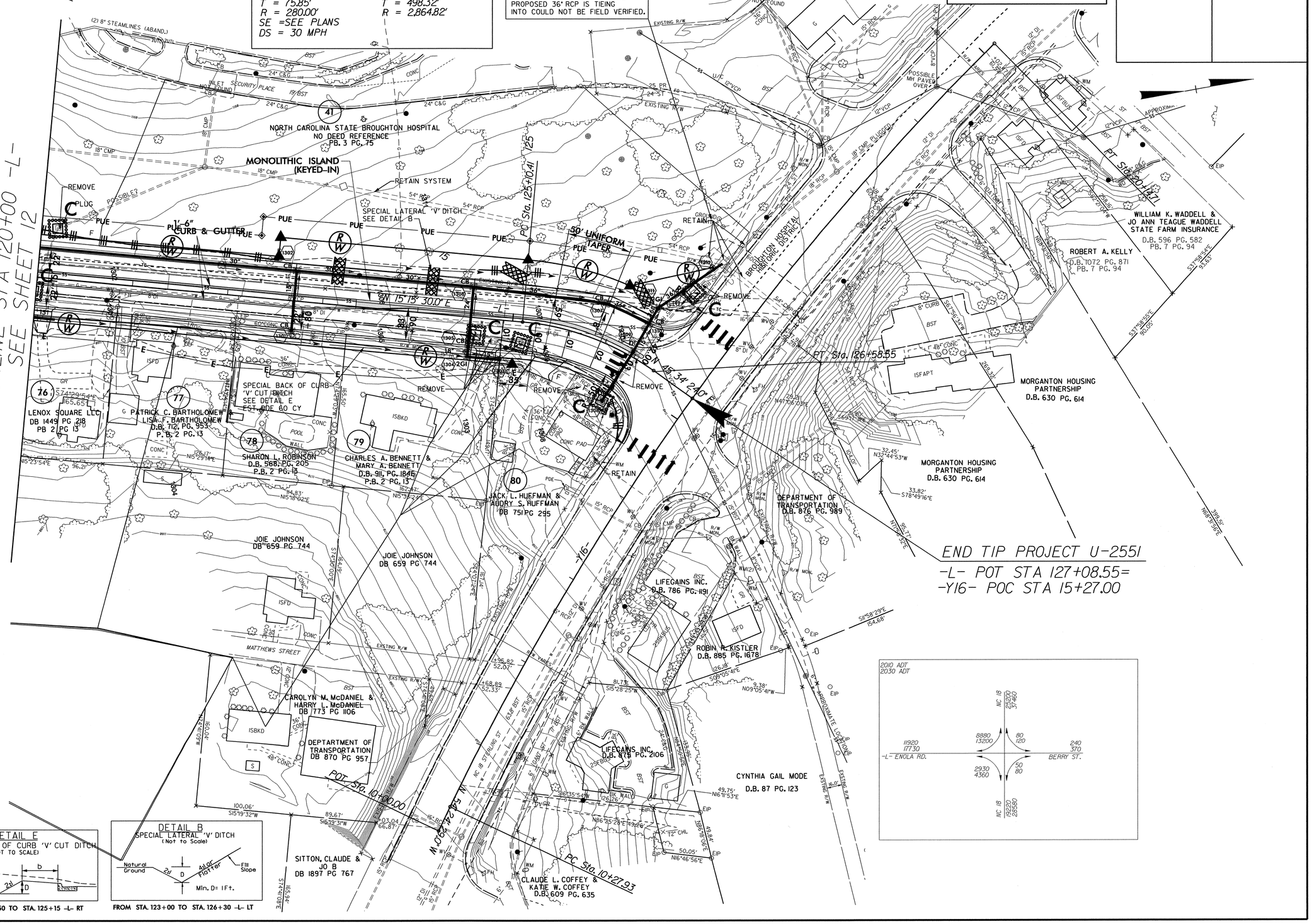
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-13/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

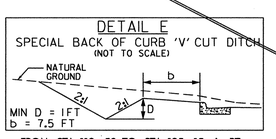
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 13

-L-	-Y16-
PI Sta 125+86.26	PI Sta 15+26.26
△ = 30° 18' 54.0" (RT)	△ = 19° 44' 07.0" (RT)
D = 20° 27' 46.0"	D = 1° 59' 59.9"
L = 148.15'	L = 986.78'
T = 75.85'	T = 498.32'
R = 280.00'	R = 2,864.82'
SE =SEE PLANS	
DS = 30 MPH	

NOTE: THE SIZE AND CONDITION OF THE EXISTING JB THAT THE PROPOSED 36" RCP IS TIEING INTO COULD NOT BE FIELD VERIFIED.





FROM STA. 119+50 TO STA. 125+15 -L- RT

FROM STA. 123+00 TO STA. 126+30 -L- LT

5/14/99

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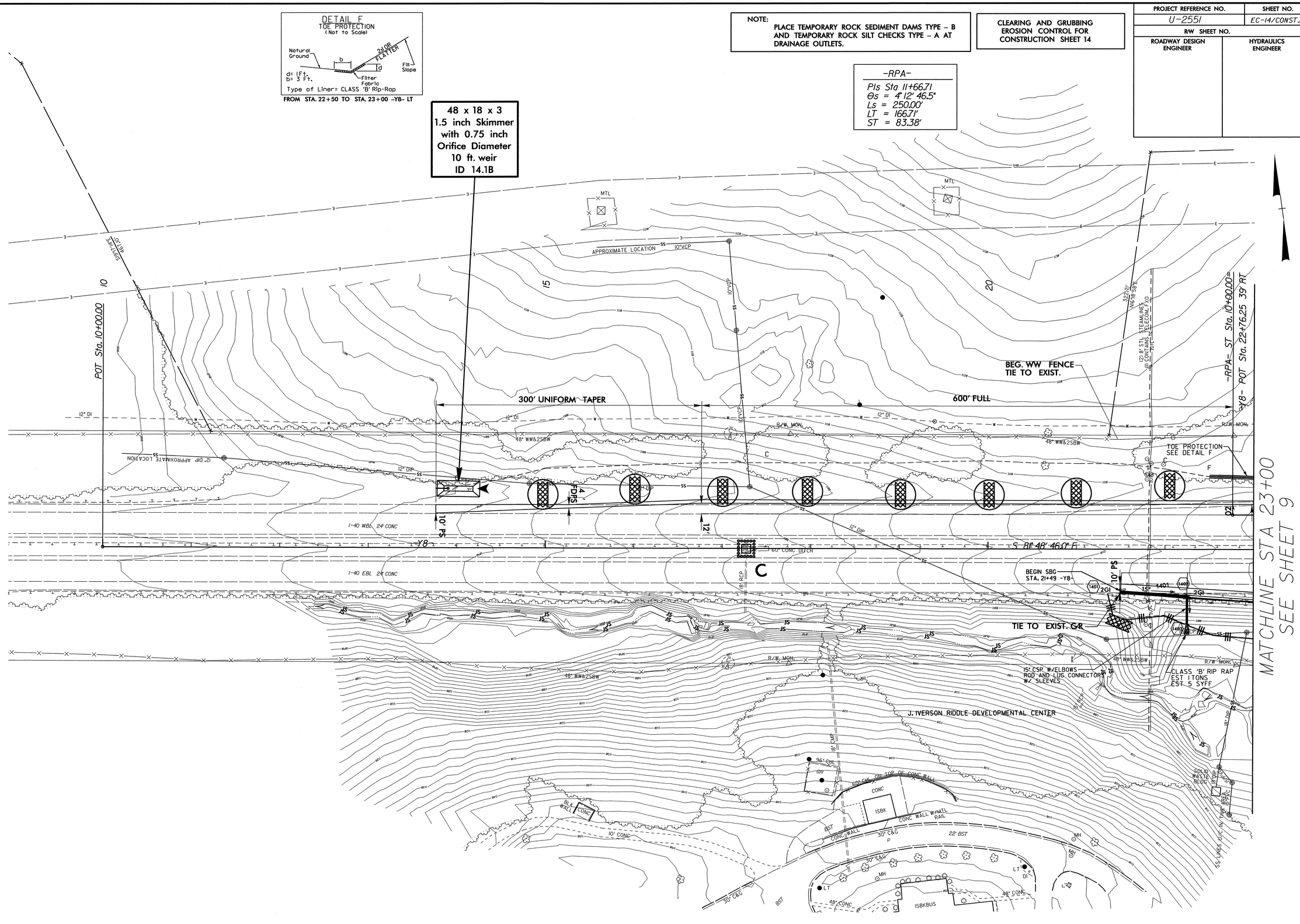
nchan AT RENV256946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-14/CONST.14
R/W 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 14



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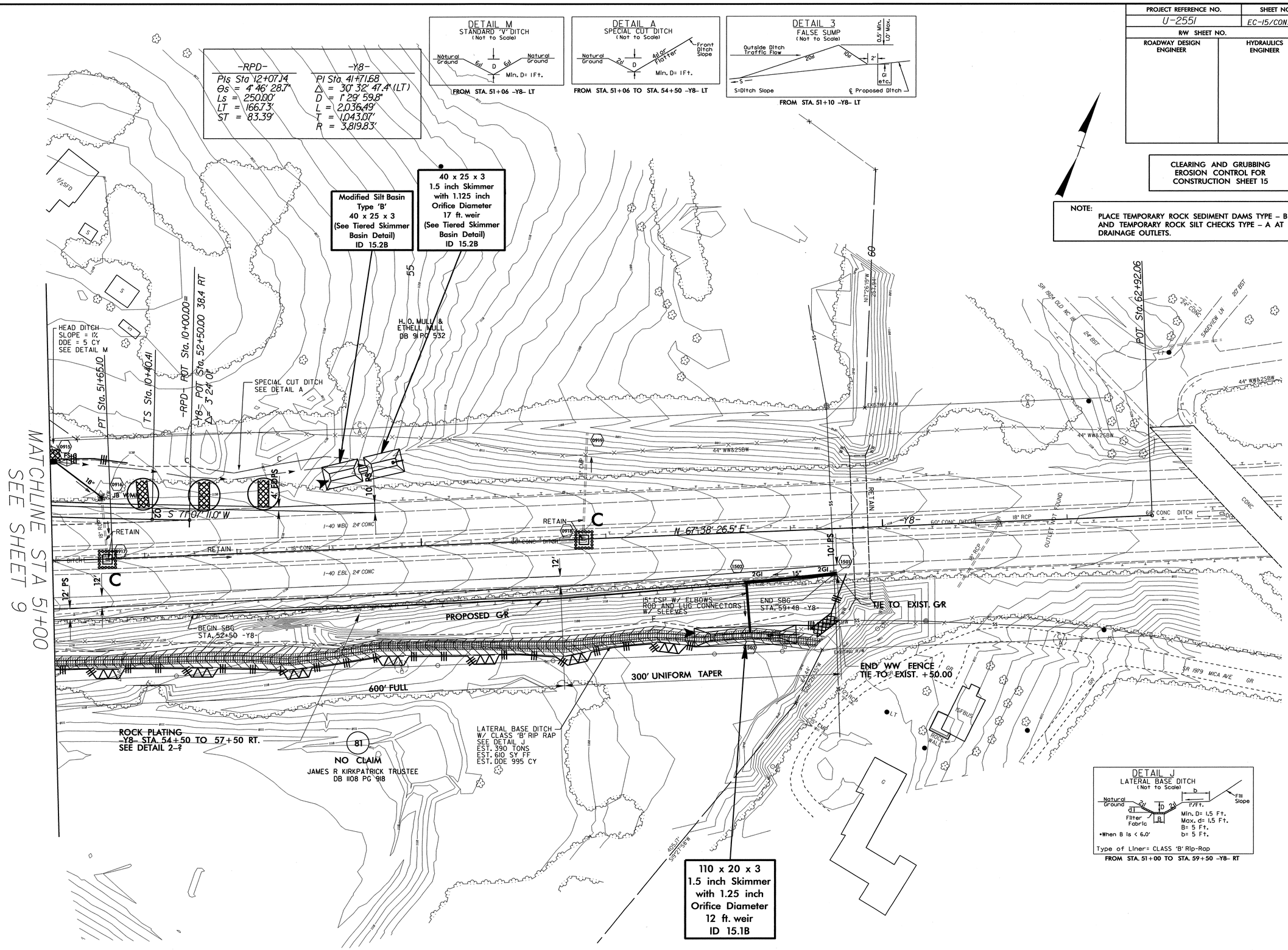
nchan AT REN\256946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-15/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 15

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



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nchan

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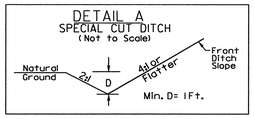
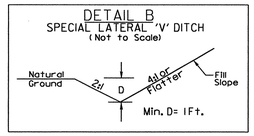
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-16/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

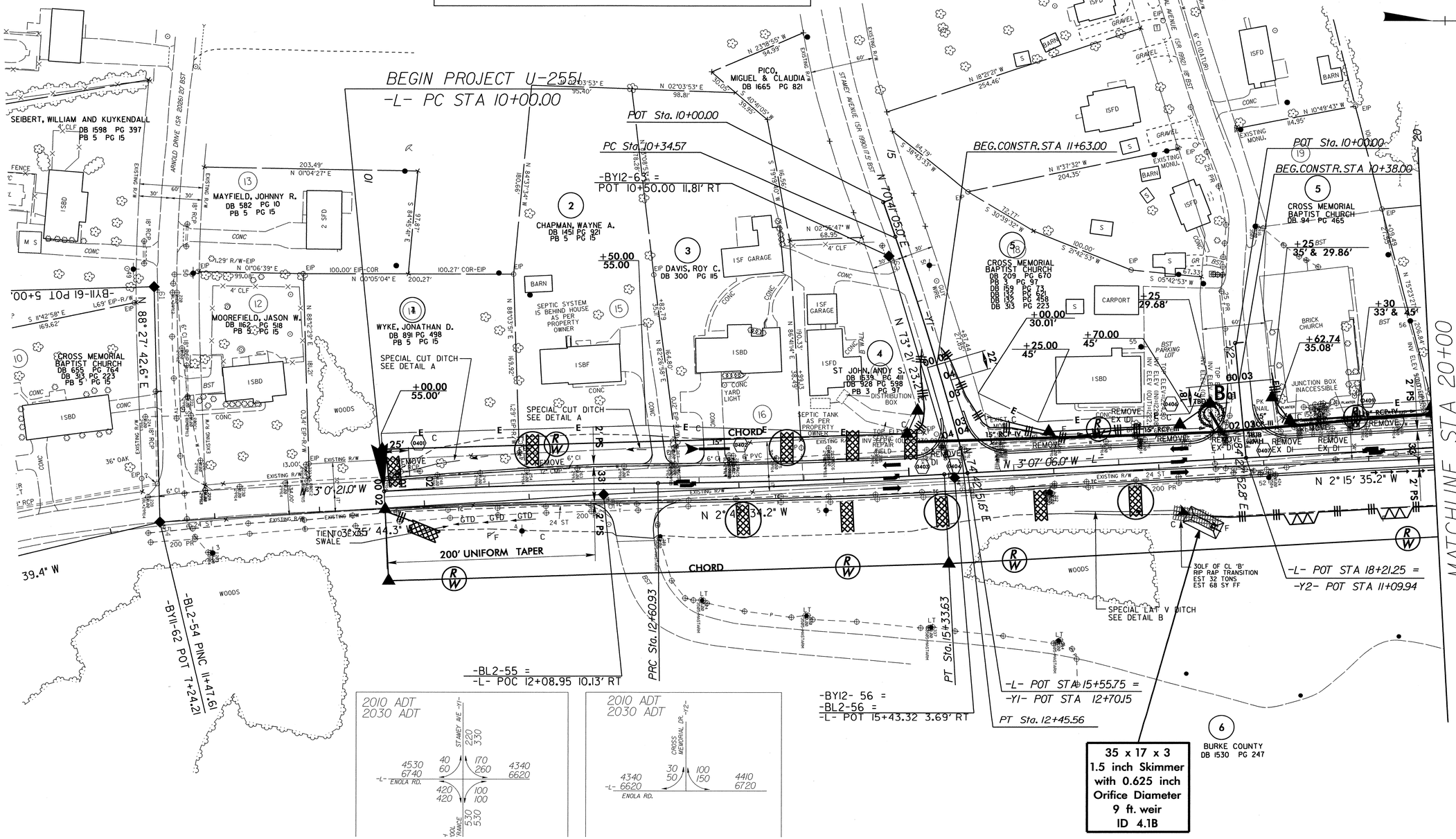


FROM STA. 10+00 TO STA. 11+00 -L- LT
FROM STA. 12+31 TO STA. 12+50 -L- LT



FROM STA. 16+00 TO STA. 17+65 -L- RT

-L-		-Y1-
PI Sta 11+30.48	PI Sta 13+97.30	PI Sta 11+40.11
Δ = 2° 29' 30.0" (RT)	Δ = 2° 36' 15.0" (LT)	Δ = 4° 01' 46.6" (RT)
D = 0° 57' 17.7"	D = 0° 57' 17.7"	D = 1° 54' 35.5"
L = 260.93'	L = 272.71'	L = 210.99'
T = 130.48'	T = 136.38'	T = 105.54'
R = 6,000.00'	R = 6,000.00'	R = 3,000.00'
SE = NC	SE = NC	SE = SEE PLANS
DS = 40 MPH	DS = 40 MPH	DS = 40 MPH



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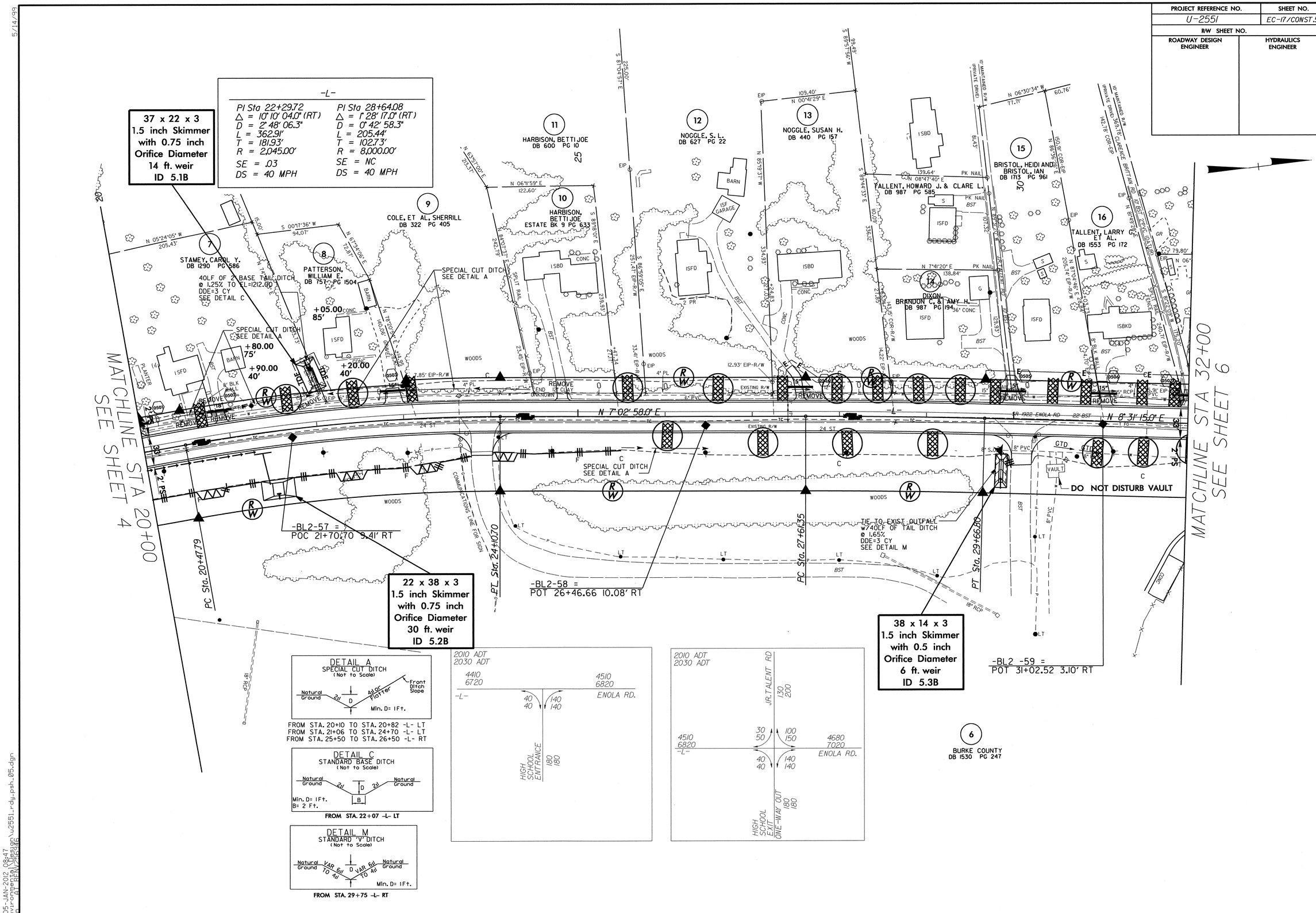
05-JAN-2012 08:44
User: gpatterson
PLOT SCALE: 1:50 scale
PLOT DATE: 05-JAN-2012

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-17/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/14/99

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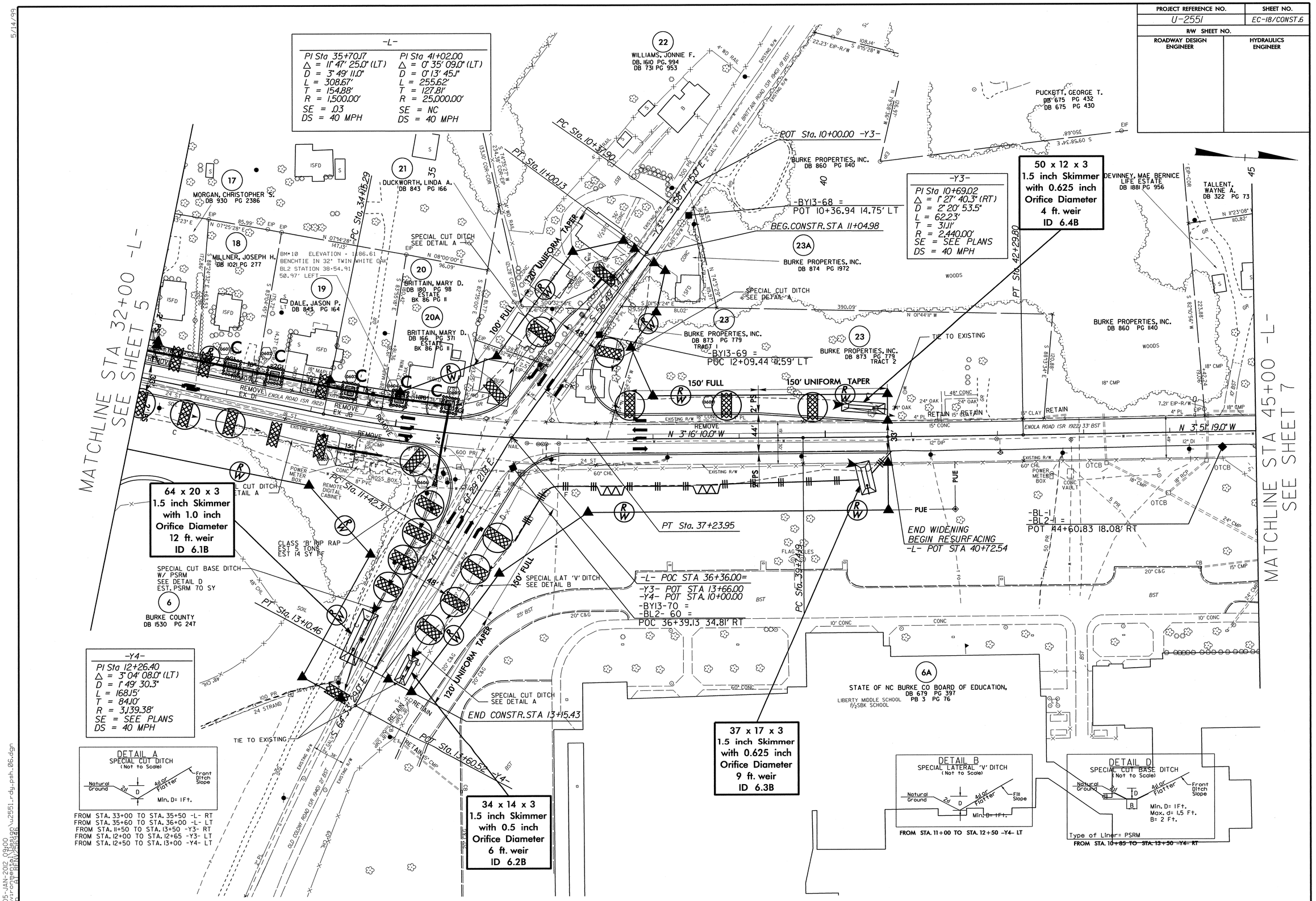
nchan AT_RENV256946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-18/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/14/99

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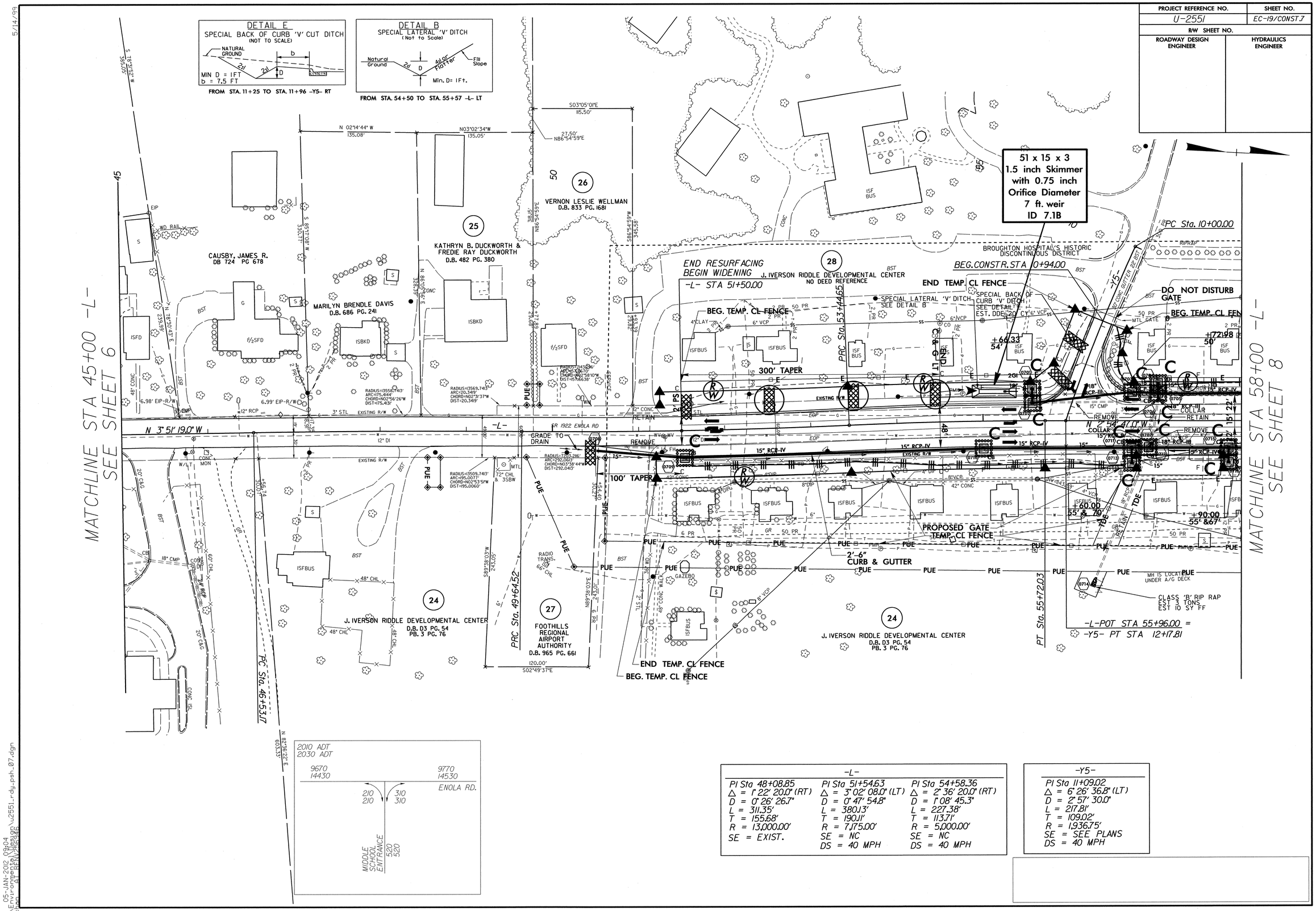
05-JAN-2012 09:00
User: rbenjamin
ATT: REN/26932
mpan

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-19/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L-		
PI Sta 48+08.85	PI Sta 51+54.63	PI Sta 54+58.36
Δ = 1° 22' 20.0" (RT)	Δ = 3° 02' 08.0" (LT)	Δ = 2° 36' 20.0" (RT)
D = 0° 26' 26.7"	D = 0° 47' 54.8"	D = 1° 08' 45.3"
L = 311.35'	L = 380.13'	L = 227.38'
T = 155.68'	T = 190.11'	T = 113.71'
R = 13,000.00'	R = 7,175.00'	R = 5,000.00'
SE = EXIST.	SE = NC	SE = NC
	DS = 40 MPH	DS = 40 MPH

-Y5-
PI Sta 11+09.02
Δ = 6° 26' 36.8" (LT)
D = 2° 57' 30.0"
L = 217.81'
T = 109.02'
R = 1,936.75'
SE = SEE PLANS
DS = 40 MPH

5/14/99

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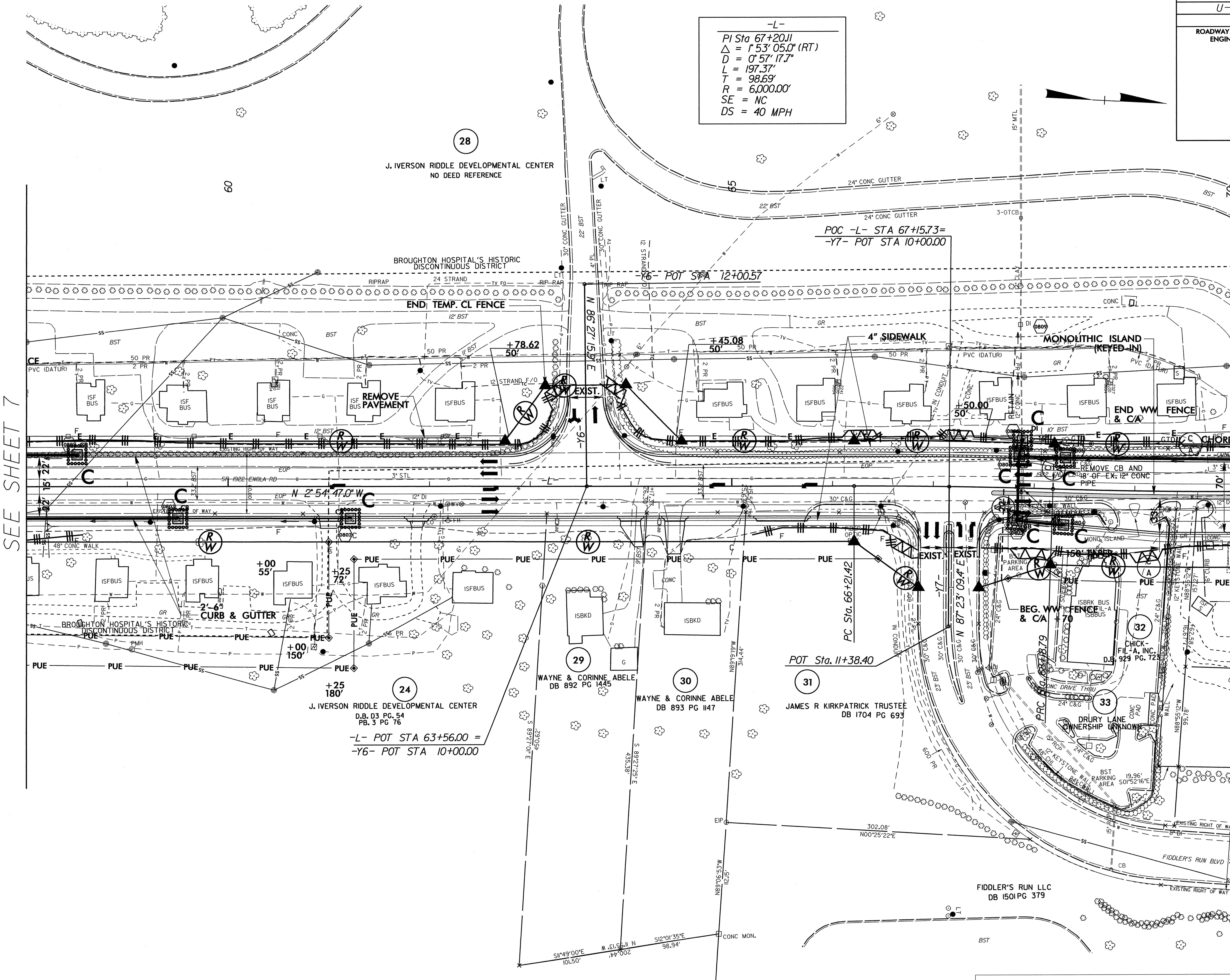
ncpao AT REN\26926

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-20/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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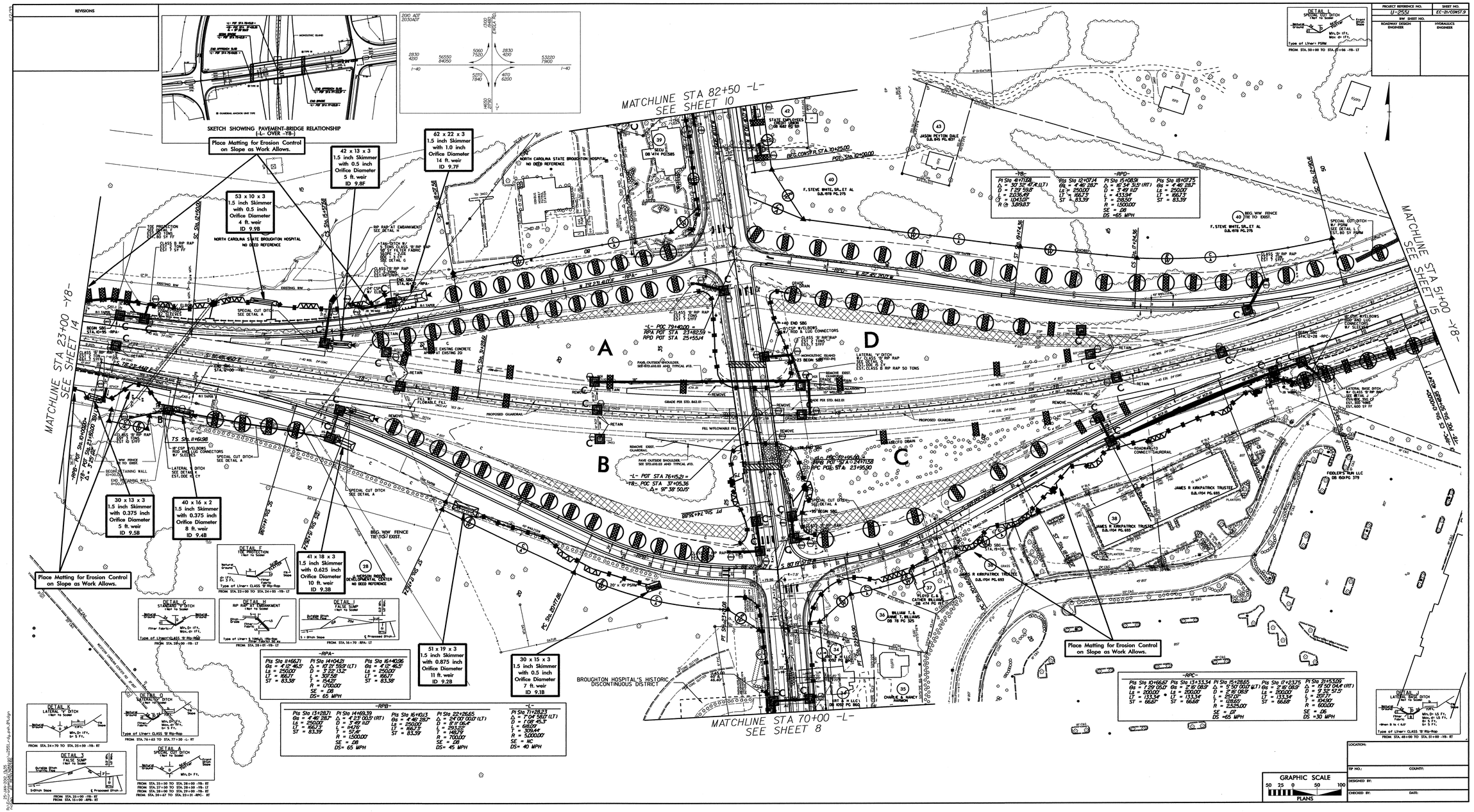
nchan AT BENV25646

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-21/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



Place Matting for Erosion Control on Slope as Work Allows.

53 x 10 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 9.9B

42 x 13 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
5 ft. weir
ID 9.8F

62 x 22 x 3
1.5 inch Skimmer
with 1.0 inch
Orifice Diameter
14 ft. weir
ID 9.7F

30 x 13 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
5 ft. weir
ID 9.5B

40 x 16 x 2
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
8 ft. weir
ID 9.4B

41 x 18 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
10 ft. weir
ID 9.3B

51 x 19 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
11 ft. weir
ID 9.1B

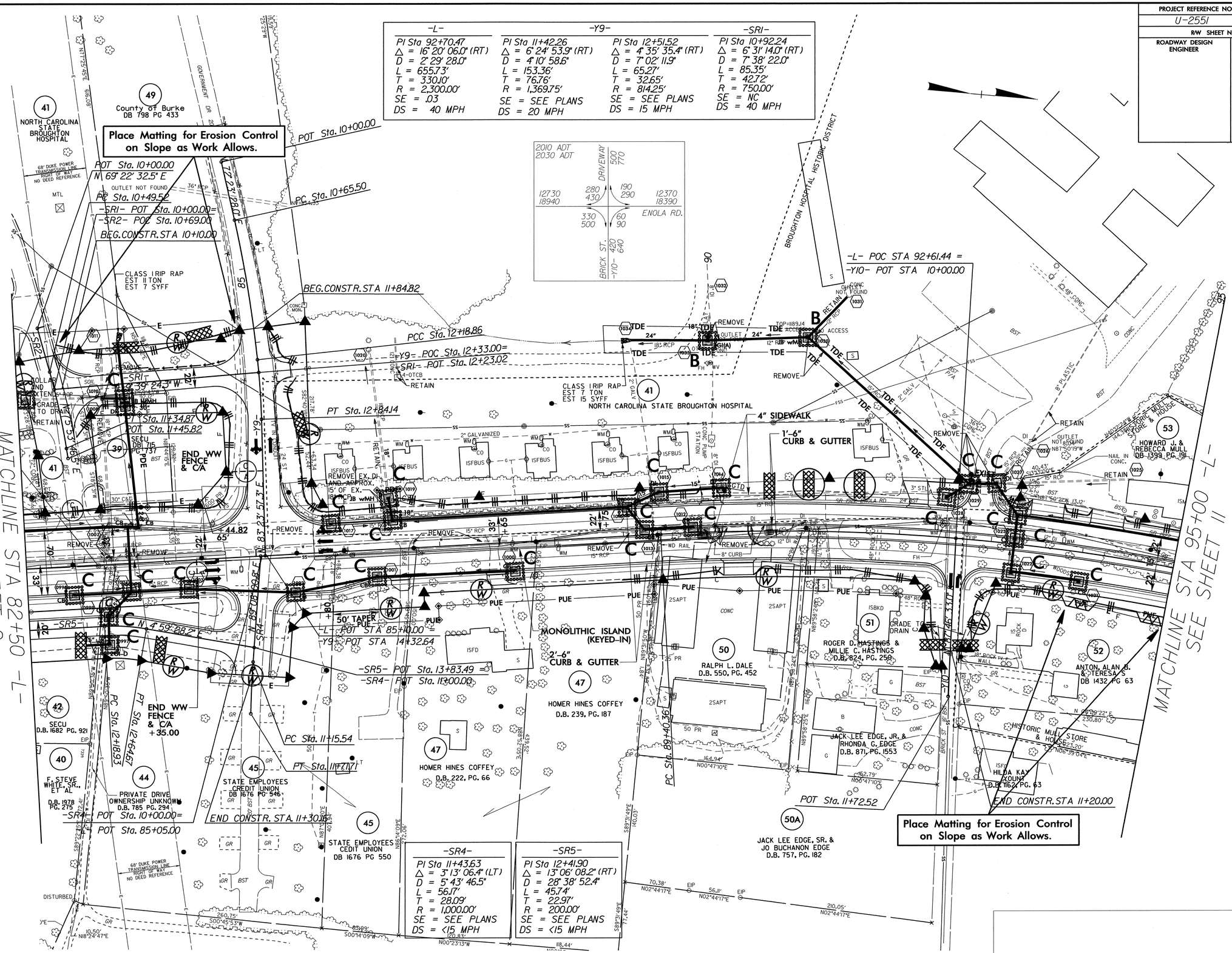
30 x 15 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
7 ft. weir
ID 9.1B

Place Matting for Erosion Control on Slope as Work Allows.

Place Matting for Erosion Control on Slope as Work Allows.

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-22/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-	-Y9-		-SR1-
PI Sta 92+70.47	PI Sta 11+42.26	PI Sta 12+51.52	PI Sta 10+92.24
△ = 16° 20' 06.0" (RT)	△ = 6° 24' 53.9" (RT)	△ = 4° 35' 35.4" (RT)	△ = 6° 31' 14.0" (RT)
D = 2° 29' 28.0"	D = 4° 10' 58.6"	D = 7° 02' 11.9"	D = 7° 38' 22.0"
L = 655.73'	L = 153.36'	L = 65.27'	L = 85.35'
T = 330.10'	T = 76.76'	T = 32.65'	T = 42.72'
R = 2,300.00'	R = 1,369.75'	R = 814.25'	R = 750.00'
SE = .03	SE = SEE PLANS	SE = SEE PLANS	SE = NC
DS = 40 MPH	DS = 20 MPH	DS = 15 MPH	DS = 40 MPH



-SR4-

PI Sta 11+43.63
△ = 3° 13' 06.4" (LT)
D = 5° 43' 46.5"
L = 56.17'
T = 28.09'
R = 1,000.00'
SE = SEE PLANS
DS = <15 MPH

-SR5-

PI Sta 12+41.90
△ = 13° 06' 08.2" (RT)
D = 28° 38' 52.4"
L = 45.74'
T = 22.97'
R = 200.00'
SE = SEE PLANS
DS = <15 MPH

5/14/99

05-JAN-2012 09:27
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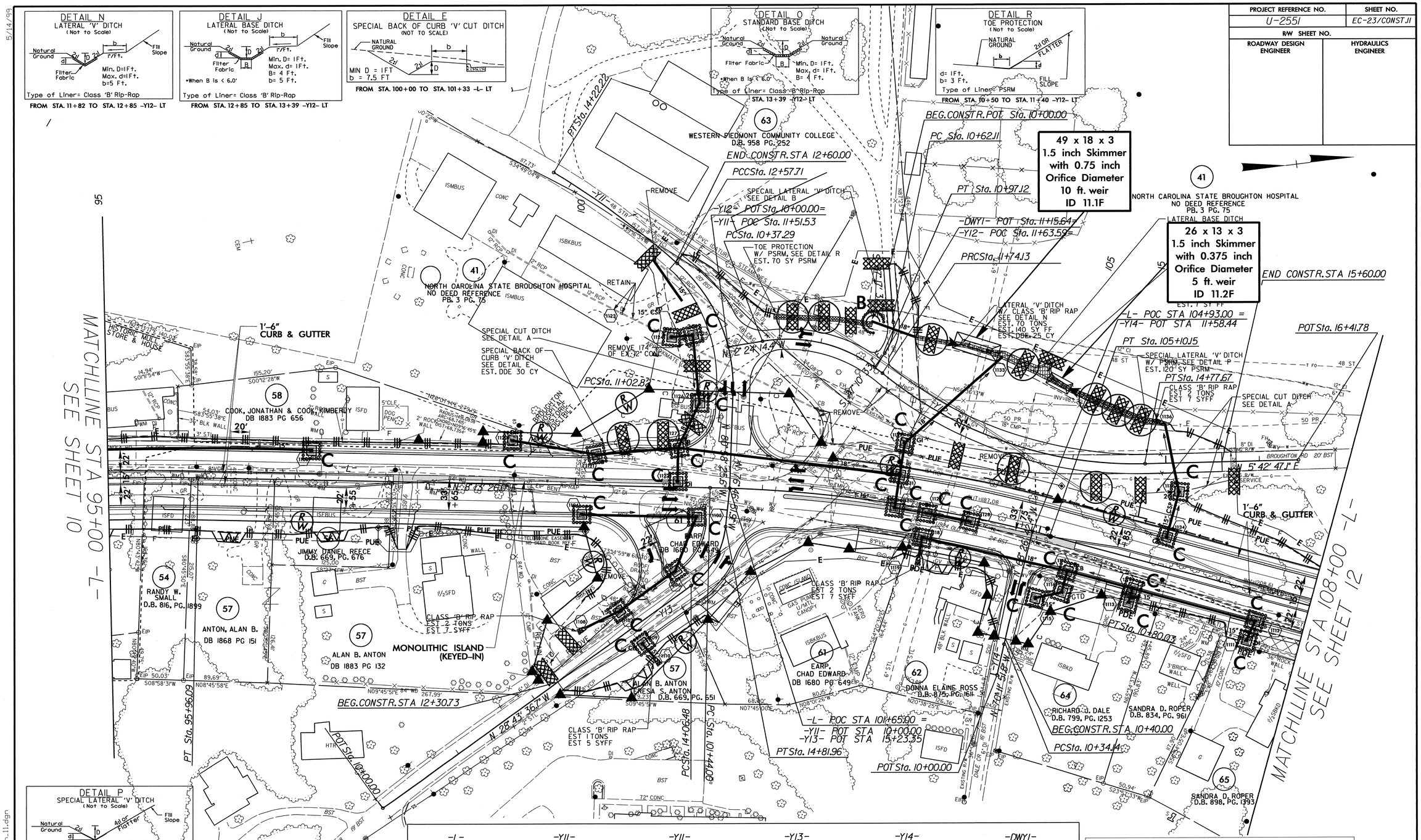
ncpan AT PEN/26.46

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-23/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L-	-Y11-	-Y11-	-Y13-	-Y14-	-DWY1-
PI Sta 103+27.99	PI Sta 13+40.16	PI Sta 11+85.75	PI Sta 14+46.60	PI Sta 10+57.09	PI Sta 10+80.36
Δ = 13° 59' 10.0" (RT)	Δ = 9° 40' 03.0" (LT)	Δ = 50° 42' 41.5" (LT)	Δ = 48° 03' 15.2" (LT)	Δ = 1° 45' 09.5" (RT)	Δ = 40° 06' 58.6" (RT)
D = 3° 49' 11.0"	D = 5° 52' 35.4"	D = 32° 44' 25.6"	D = 63° 39' 43.1"	D = 3° 49' 11.0"	D = 114° 35' 29.6"
L = 366.16'	L = 164.51'	L = 154.89'	L = 75.48'	L = 45.88'	L = 35.01'
T = 183.99'	T = 82.45'	T = 82.93'	T = 40.12'	T = 22.94'	T = 18.26'
R = 1,500.00'	R = 975.00'	R = 175.00'	R = 90.00'	R = 1,500.00'	R = 50.00'
SE = .03		SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = NC
DS = 40 MPH		DS = 15 MPH	DS = 10 MPH	DS = 40 MPH	DS = 10 MPH

5/14/99

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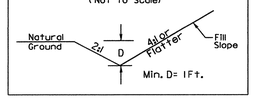
ncpan AT REN\2646R

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-24/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

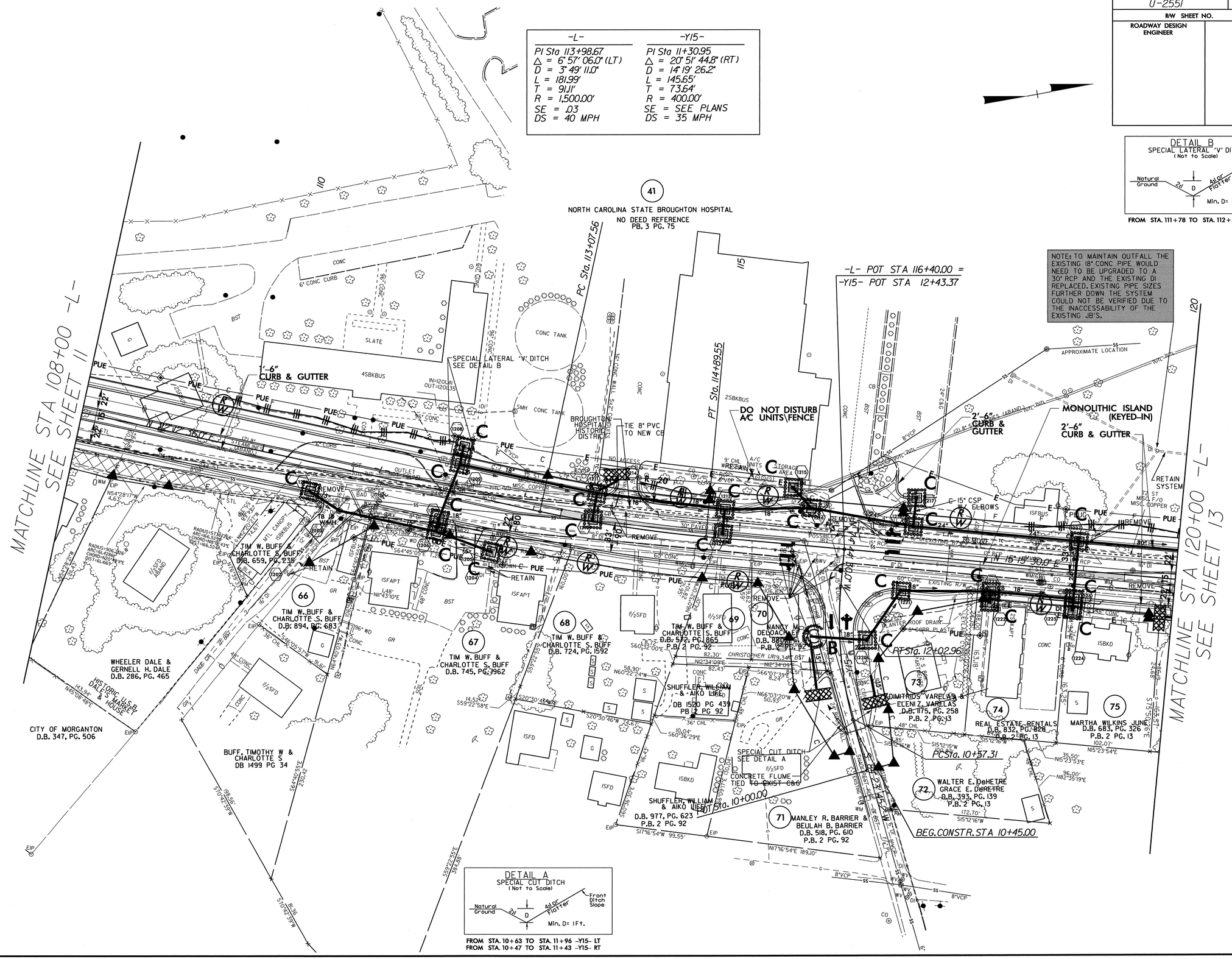
-L-	-Y15-
PI Sta 113+98.67	PI Sta 11+30.95
Δ = 6° 57' 06.0" (LT)	Δ = 20° 51' 44.8" (RT)
D = 3° 49' 11.0"	D = 14° 19' 26.2"
L = 181.99'	L = 145.65'
T = 91.11'	T = 73.64'
R = 1,500.00'	R = 400.00'
SE = .03	SE = SEE PLANS
DS = 40 MPH	DS = 35 MPH

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



FROM STA. 111+78 TO STA. 112+50 -L- LT

NOTE: TO MAINTAIN OUTFALL THE EXISTING 18" CONC PIPE WOULD NEED TO BE UPGRADED TO A 30" RCP AND THE EXISTING DI REPLACED. EXISTING PIPE SIZES FURTHER DOWN THE SYSTEM COULD NOT BE VERIFIED DUE TO THE INACCESSABILITY OF THE EXISTING JB'S.



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 10+63 TO STA. 11+96 -Y15- LT
FROM STA. 10+47 TO STA. 11+43 -Y15- RT

5/14/99

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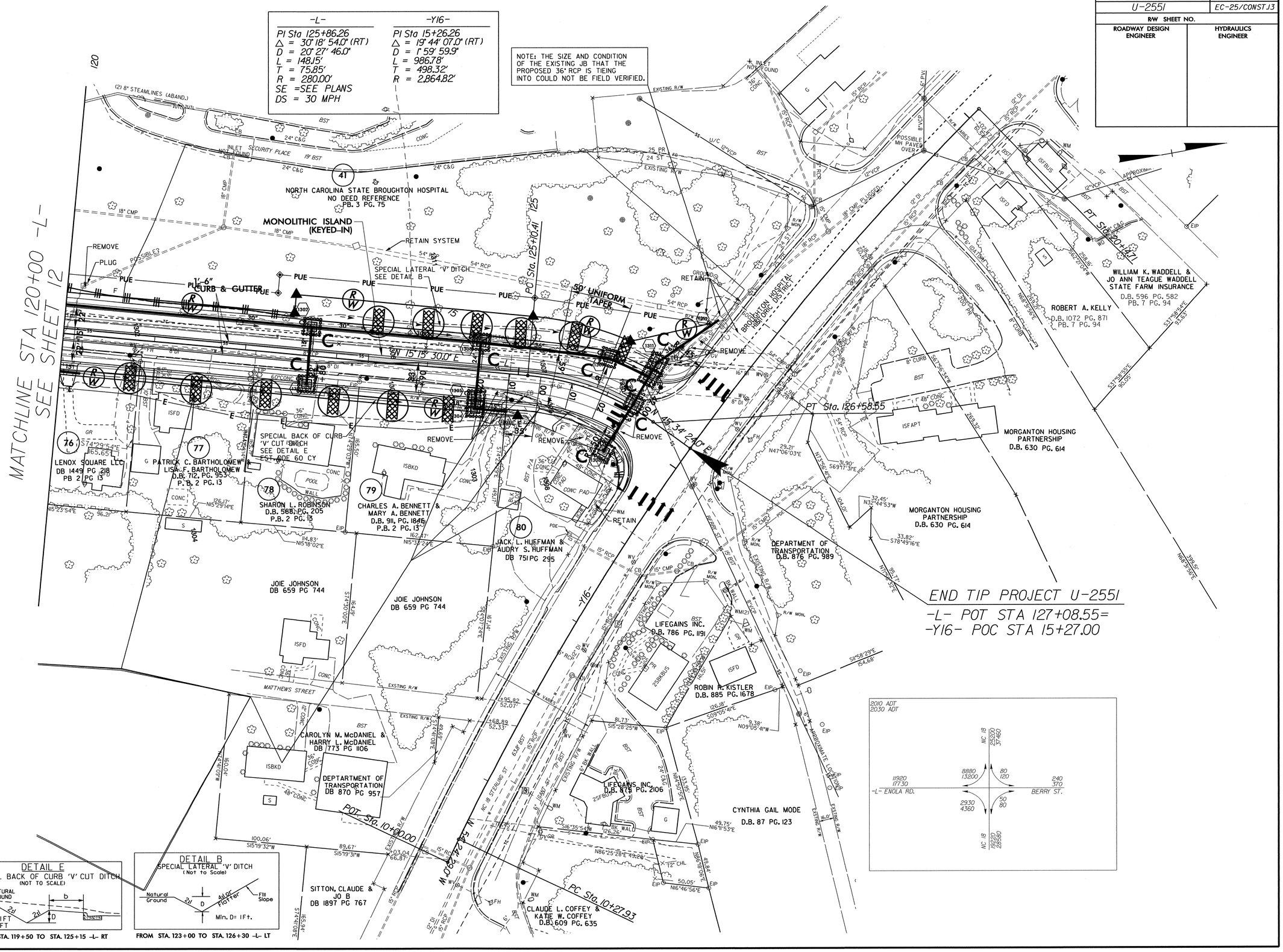
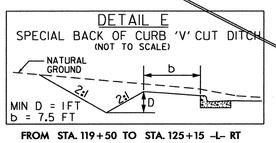
nchan AT RENV256946

PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-25/CONST13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-	-Y16-
PI Sta 125+86.26	PI Sta 15+26.26
Δ = 30° 18' 54.0" (RT)	Δ = 19° 44' 07.0" (RT)
D = 20° 27' 46.0"	D = 1° 59' 59.9"
L = 148.15'	L = 986.78'
T = 75.85'	T = 498.32'
R = 280.00'	R = 2,864.82'
SE = SEE PLANS	
DS = 30 MPH	

NOTE: THE SIZE AND CONDITION OF THE EXISTING JB THAT THE PROPOSED 36" RCP IS TIEING INTO COULD NOT BE FIELD VERIFIED.





FROM STA. 119+50 TO STA. 125+15 -L- RT

FROM STA. 123+00 TO STA. 126+30 -L- LT

5/14/99

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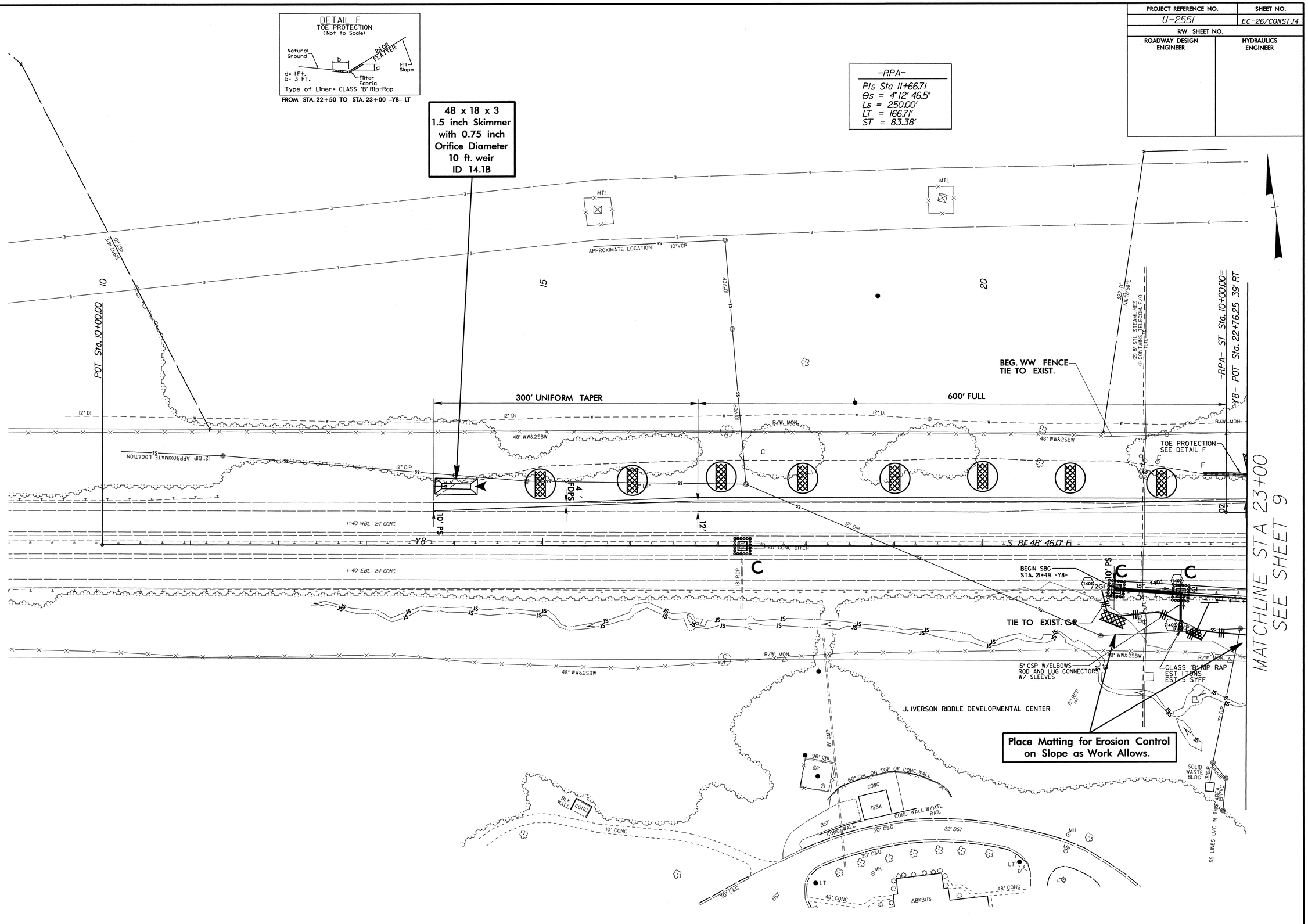
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-26/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



5/14/99

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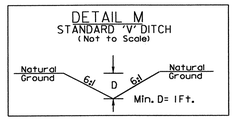
nchap AT REN\256946

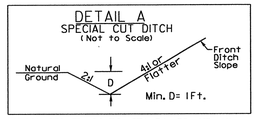
PROJECT REFERENCE NO.	SHEET NO.
U-2551	EC-27/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5/14/99

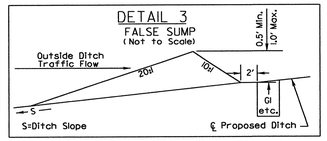
-RPD-	-Y8-
PIs Sta 12+07.14	PI Sta 41+71.68
Θs = 4° 46' 28.7"	Δ = 30° 32' 47.4" (LT)
Ls = 250.00'	D = 1° 29' 59.8"
LT = 166.73'	L = 2,036.49'
ST = 83.39'	T = 1,043.07'
	R = 3,819.83'



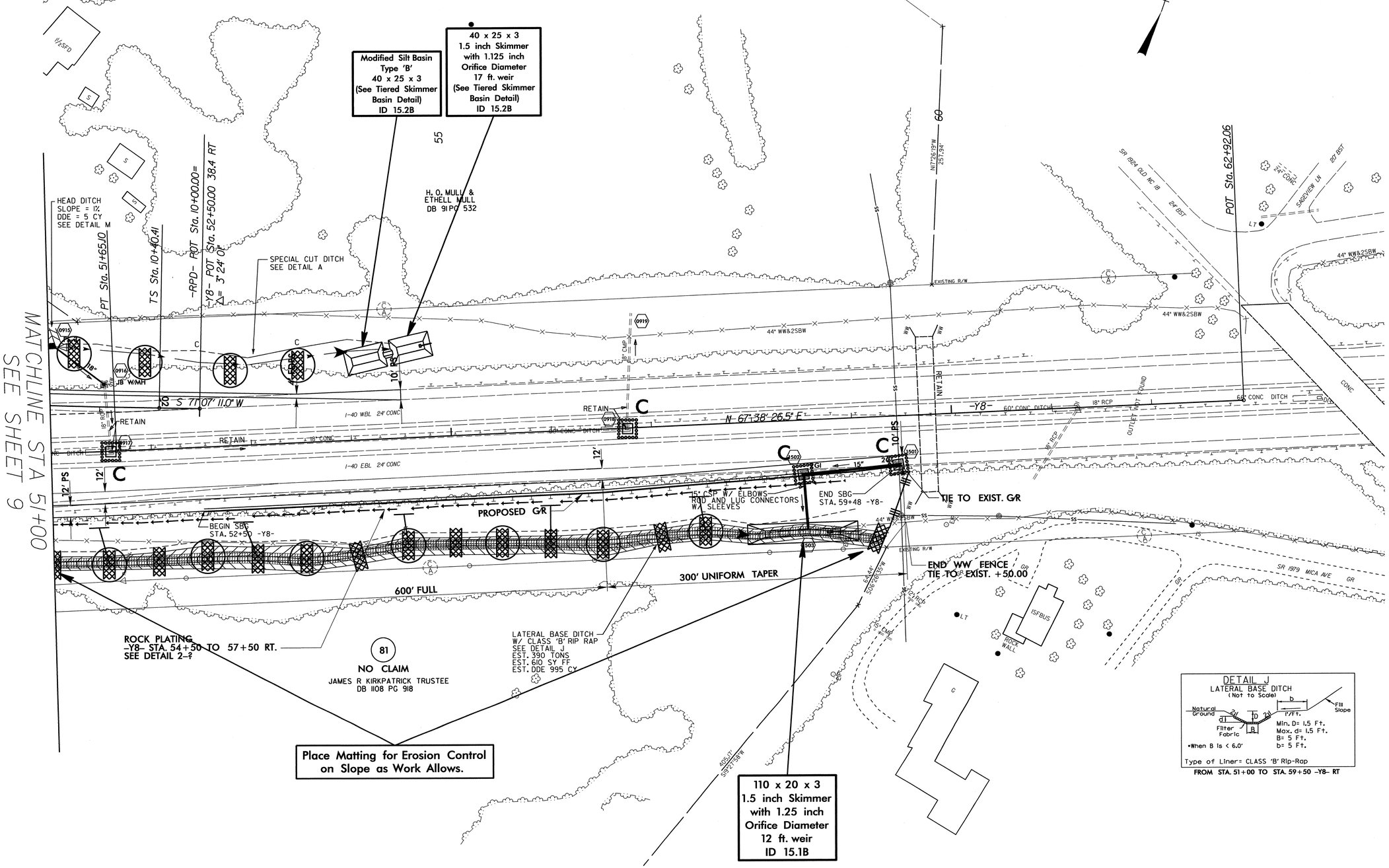
FROM STA. 51+06 -Y8- LT



FROM STA. 51+06 TO STA. 54+50 -Y8- LT



FROM STA. 51+10 -Y8- LT



FROM STA. 51+00 TO STA. 59+50 -Y8- RT

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