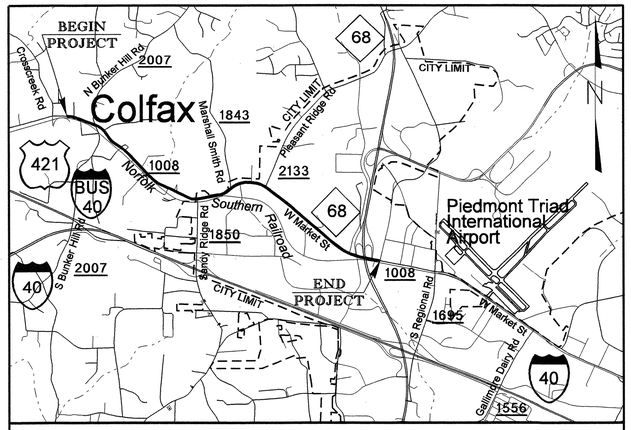
09/08/99

TIP PROJECT: R-2611

CONTRACT: C202648

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2611	1	

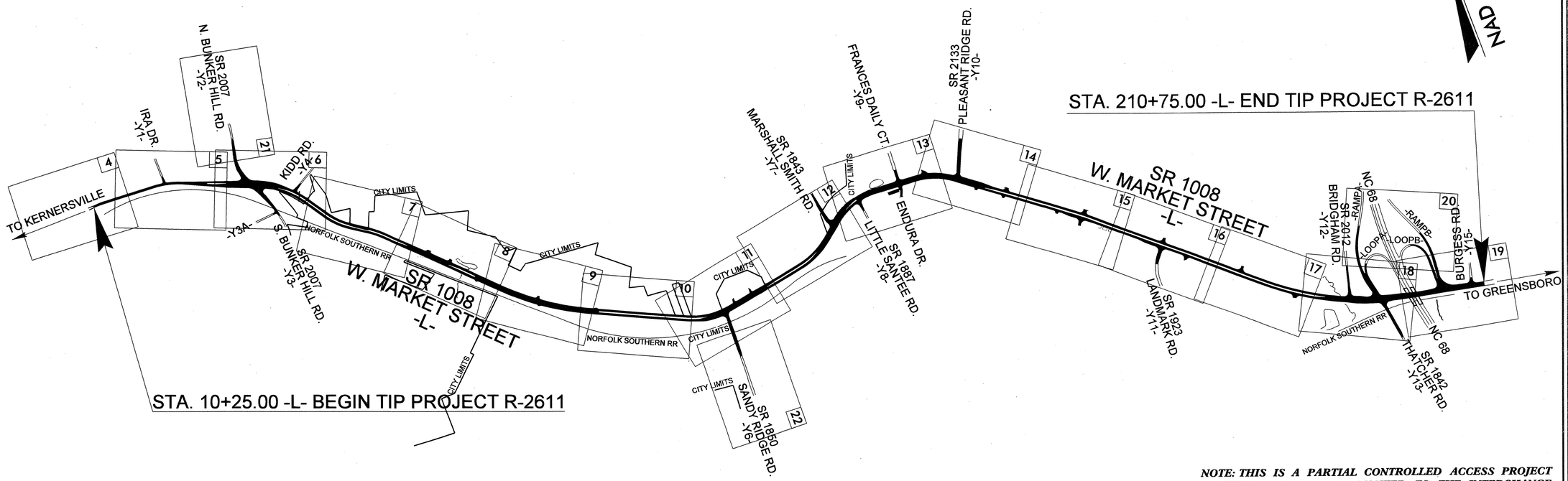
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34482.1.1	STP-1008(9)	PE
34482.2.2	STPDA-1008(19)	R/W & UTIL
34482.3.1	STPDA-1008(22)	CONST

LOCATION: SR 1008 (WEST MARKET STREET) FROM WEST OF SR 2007 (BUNKER HILL RD.) AT COLFAX TO NC 68 IN GREENSBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, RETAINING WALLS, AND SIGNALS

Part 2 of 2

NAD 83/95



NOTE: THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGE

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 2011 = 24,000
ADT 2030 = 29,500
DHV = 9 %
D = 55 %
T = 6 % *
V = 50 MPH
* TTST 2% DUAL 4%
SUB-REGIONAL TIER
RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2611 = 3.797 MILES
TOTAL LENGTH TIP PROJECT R-2611 = 3.797 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 21, 2008

LETTING DATE:
AUGUST 16, 2011

G. E. BREW, PE
PROJECT ENGINEER

WAYNE BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16600 ENGINEER RANDALL C. HENSLEY
R C Hensley 6-27-11
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW
6-24-11
Gregory E. Brew P.E.
SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Art McMillan P.E.
STATE HIGHWAY DESIGN ENGINEER

24-JUN-2011 16:19
r:\roadway\proj\r2611_rdy_tsh.dgn
$$$$USERNAME$$$$

TIP PROJECT: R-2611

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2611	EC-1	

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

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

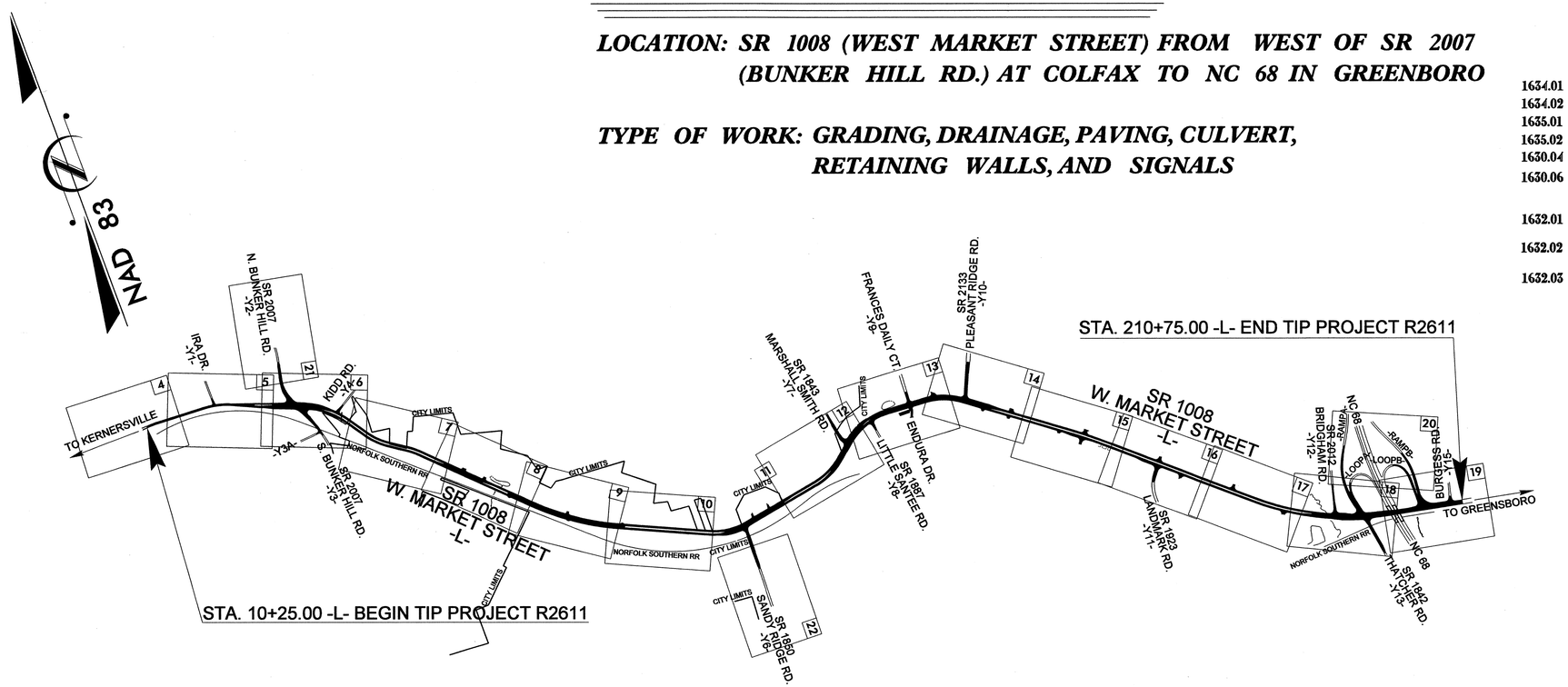
PLAN FOR PROPOSED

HIGHWAY EROSION CONTROL

GUILFORD COUNTY

LOCATION: SR 1008 (WEST MARKET STREET) FROM WEST OF SR 2007 (BUNKER HILL RD.) AT COLFAX TO NC 68 IN GREENBORO

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, RETAINING WALLS, 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	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	Temporary Rock Silt Check Type-B	
	Wattle/Coir Fiber Wattle	
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE

0

PLANS

0

PROFILE (HORIZONTAL)

0

PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2006 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

1605.01	Temporary Silt Fence	1630.06	Special Stilling Basin
1606.01	Special Sediment Control Fence	1632.01	Rock Inlet Sediment Trap Type A
1607.01	Gravel Construction Entrance	1632.03	Rock Inlet Sediment Trap Type C
1622.01	Temporary Berms and Slope Drains	1633.01	Temporary Rock Silt Check Type A
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.05	Temporary Diversion	1635.02	Rock Pipe Inlet Sediment Trap Type B

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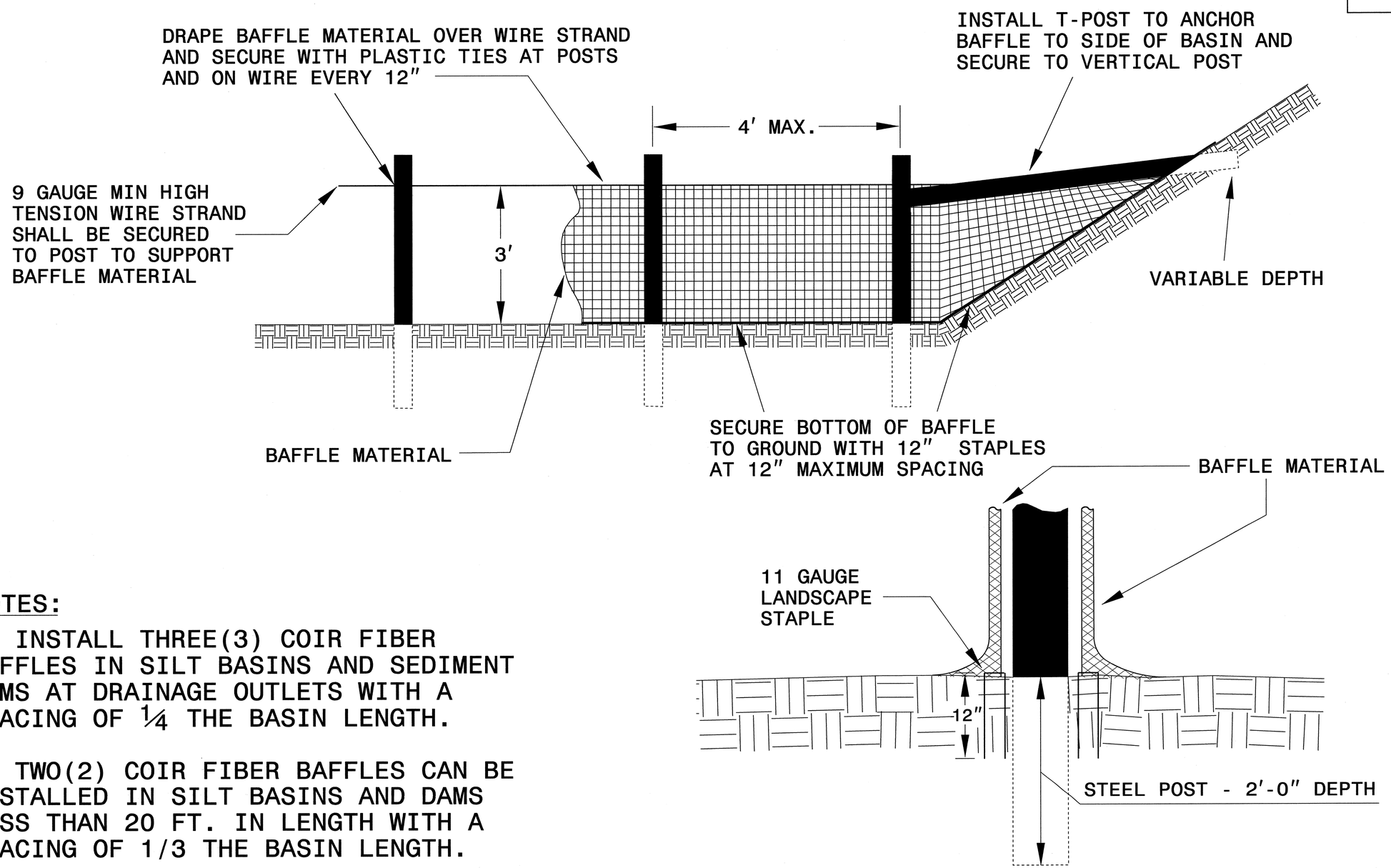
User:(pubworkpr) RENN24226
plotting:(pubworkpr)

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL



NOTES:

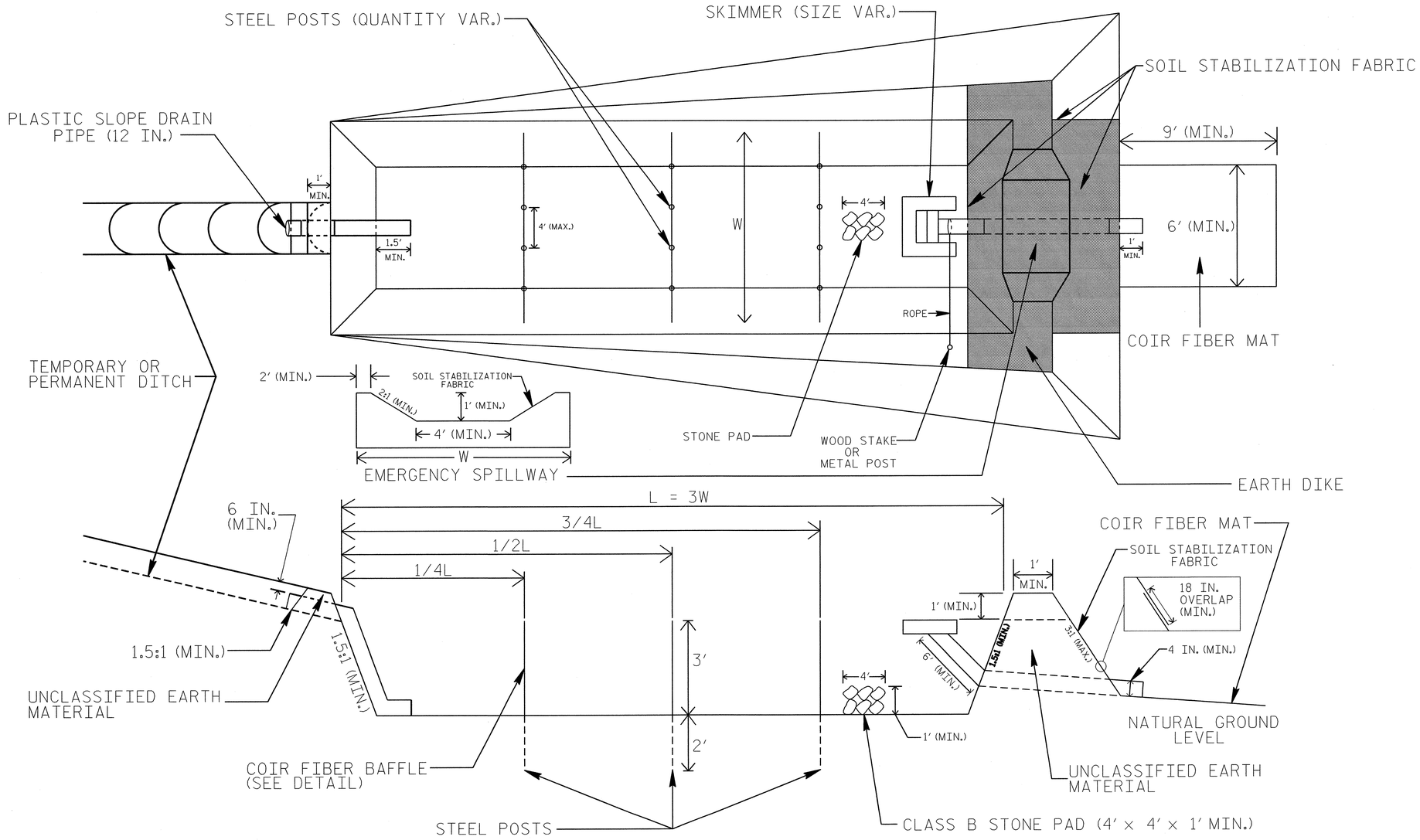
1. INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH.

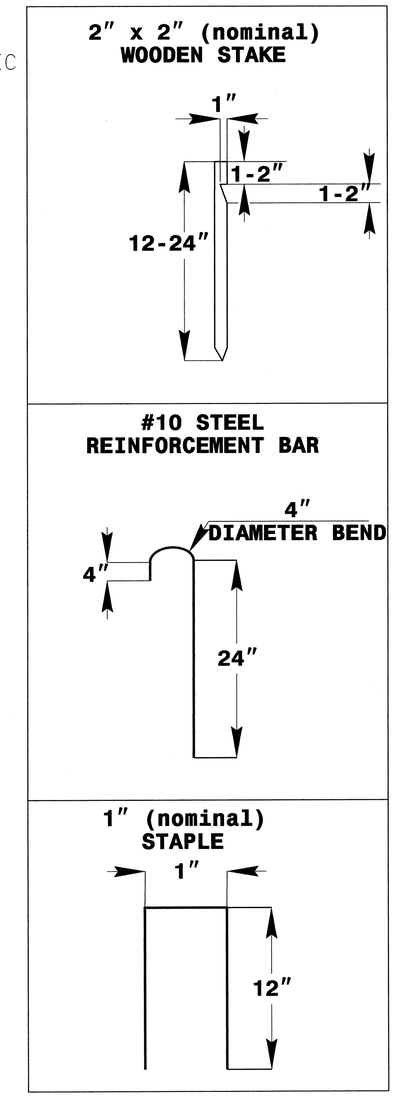
2. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

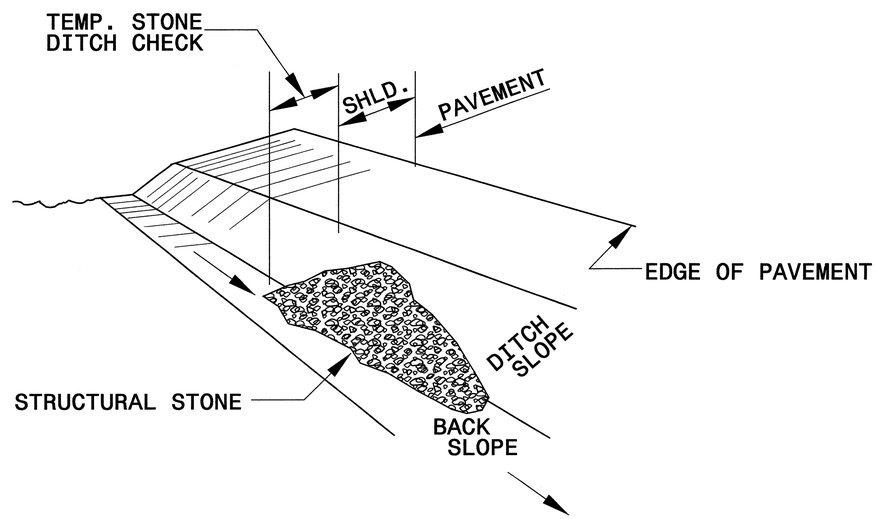
NOTES

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

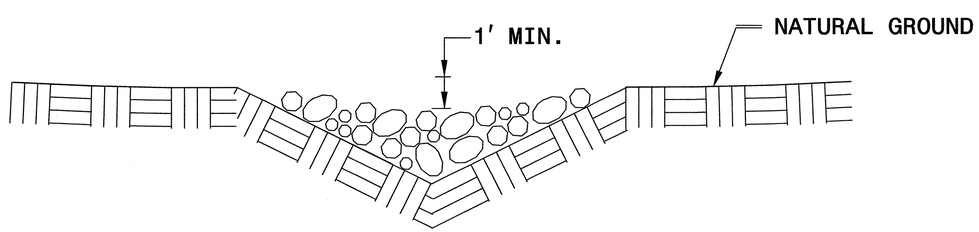


ISOMETRIC VIEW

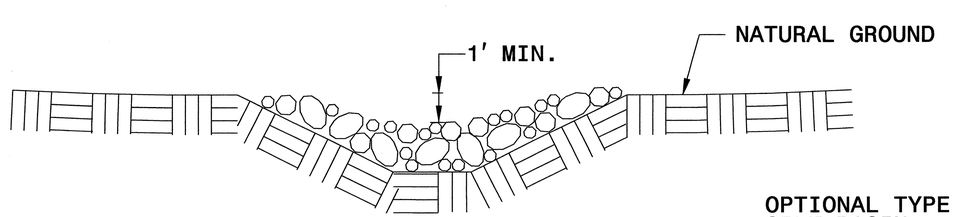
NOTES:

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

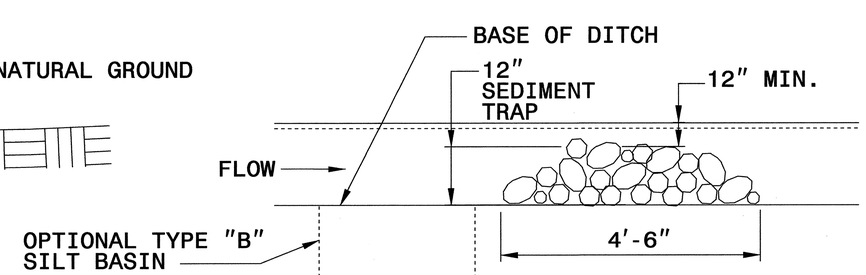
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION
VEE DITCH



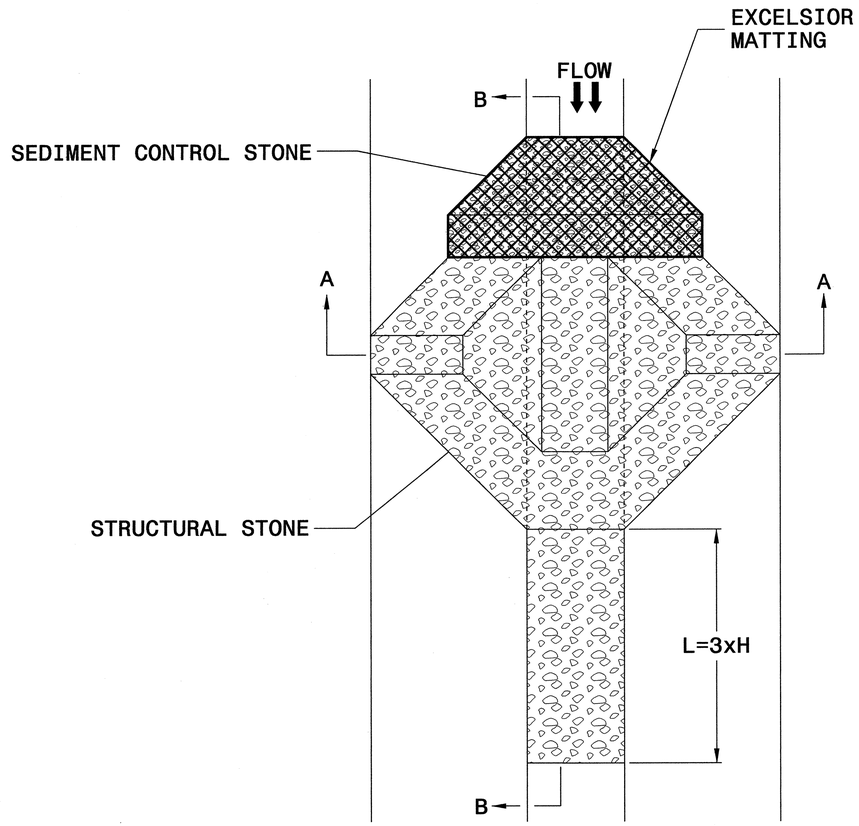
CROSS SECTION
TRAPEZOIDAL DITCH



ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



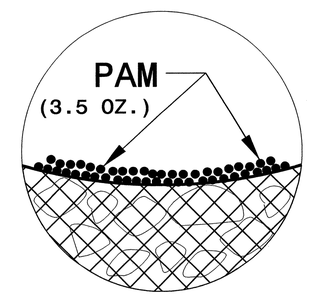
PLAN

NOTES

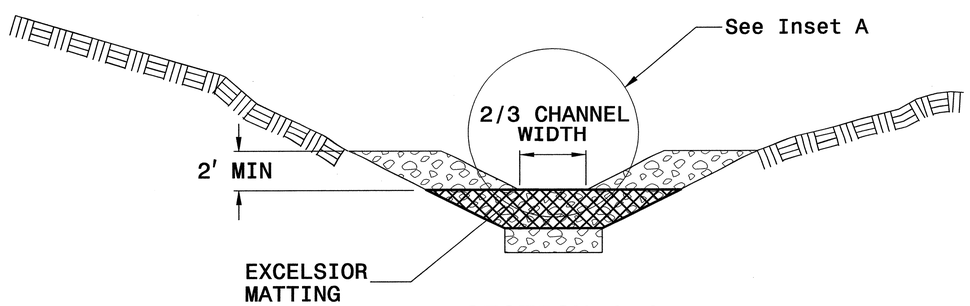
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

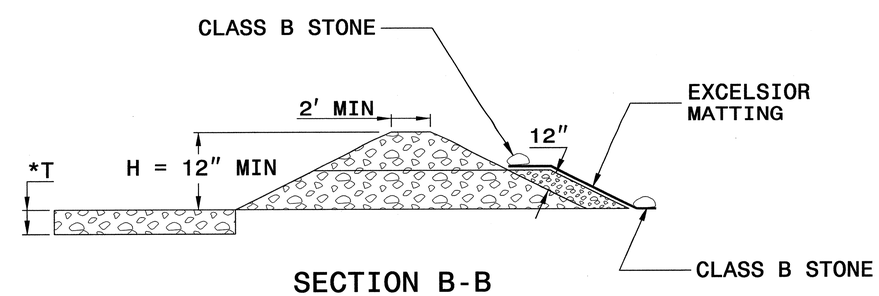
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



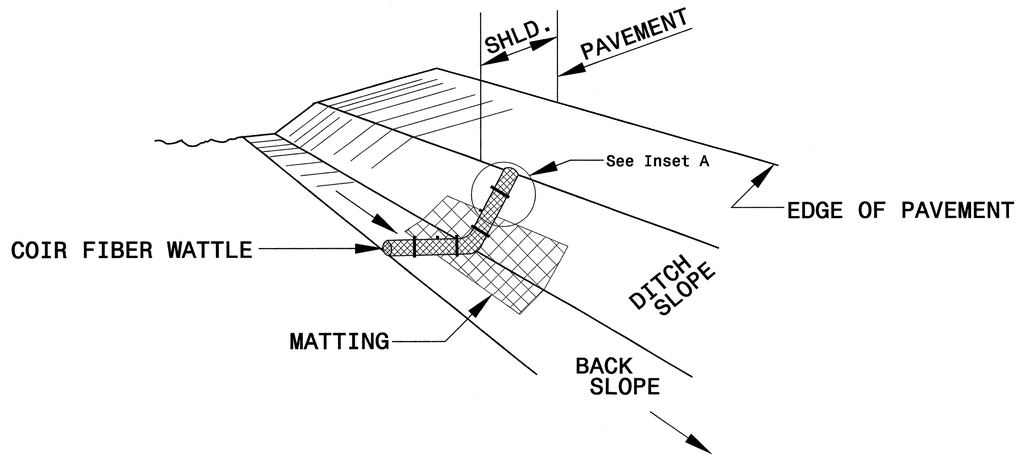
SECTION B-B

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

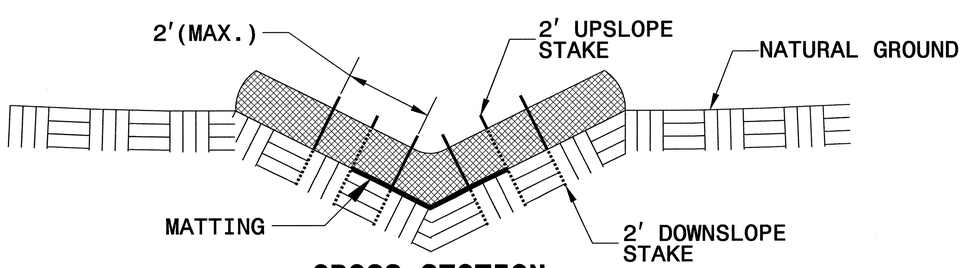
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

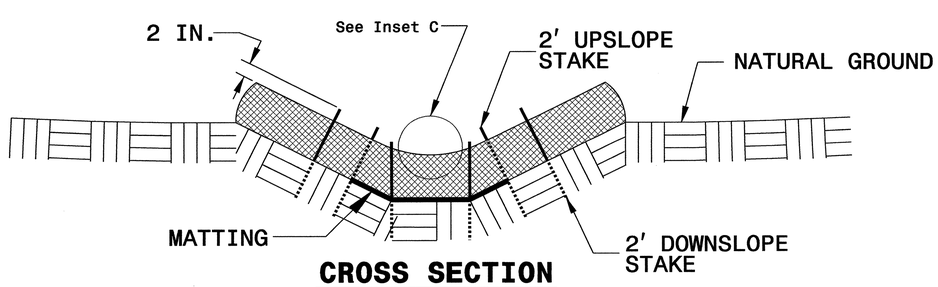
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

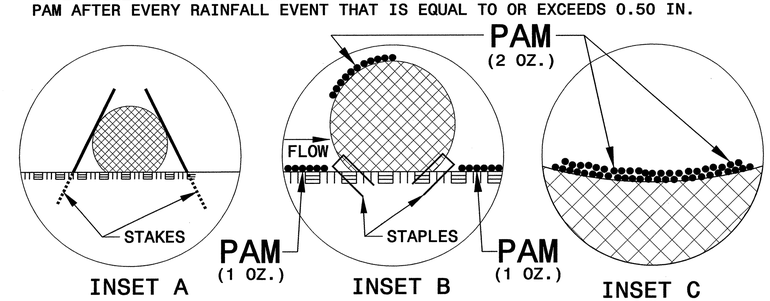
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

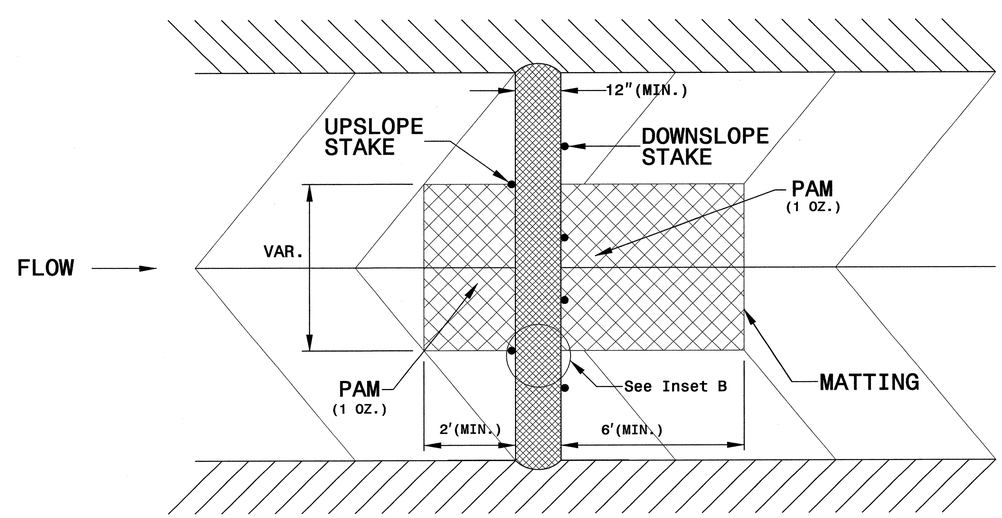
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

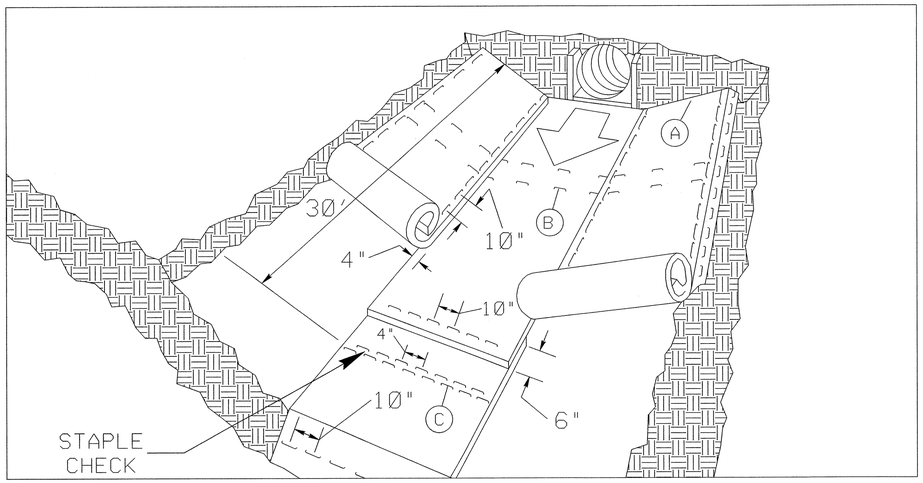




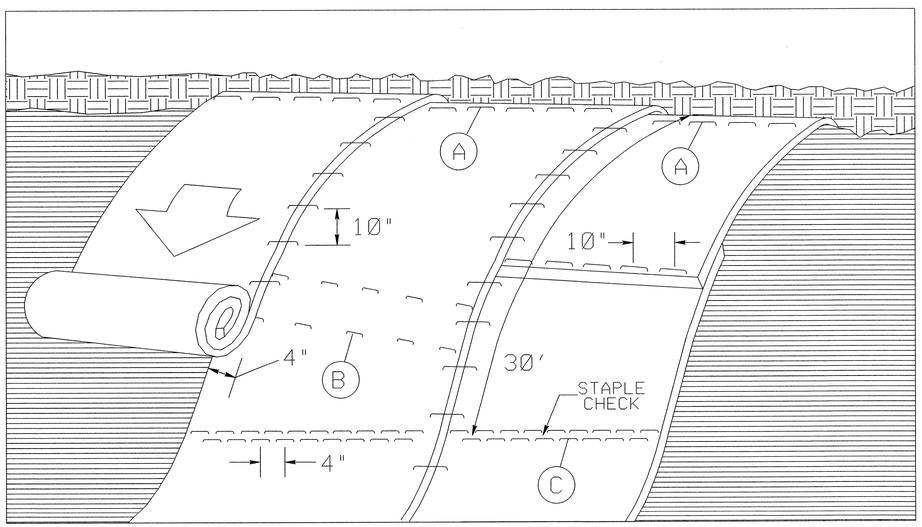
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES



MATTING ON SLOPES

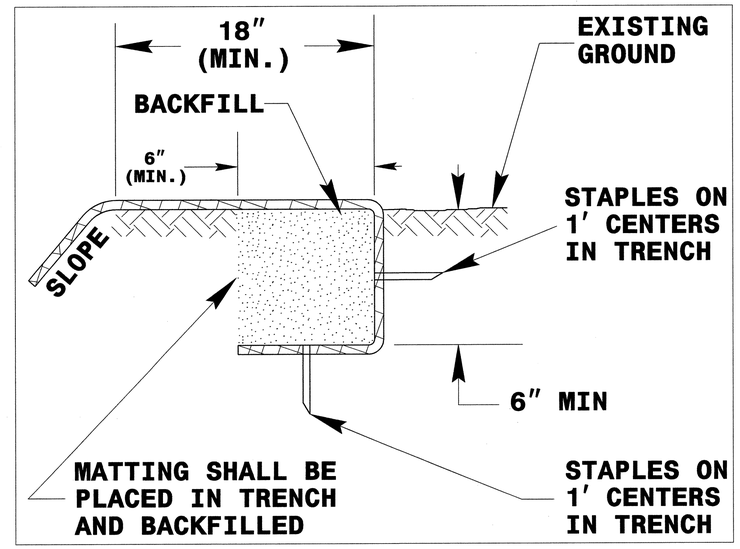


DIAGRAM (A)

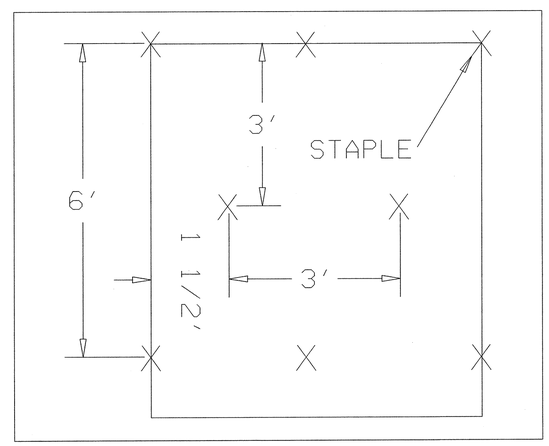


DIAGRAM (B)

STAPLE CHECK PATTERN

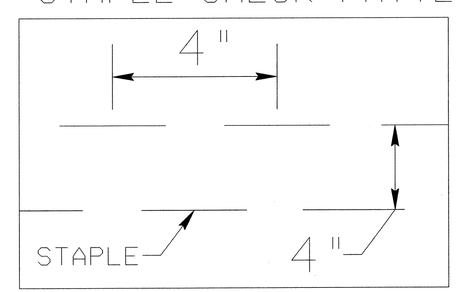


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2611	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	14+50	LT	615
4	L	10+50	15+00	RT	460
5	L	17+50	19+50	LT	135
5	L	17+75	18+75	RT	60
5	L	20+00	22+75	RT	310
5	Y1	12+25	12+75	LT	65
5	Y1	12+25	12+75	RT	65
8	L	61+00	63+00	RT	805
14	L	134+50	136+00	RT	125
14	Y10	14+75	19+50	RT	865
17	L	175+25	181+75	RT	885
18	L	190+50	191+75	RT	370
18	L	198+25	199+50	RT	230
18	Y13	12+25	13+25	LT	155
6	Y3	12+25	13+75	RT	160
6	Y3	12+75	13+50	LT	80
11	Y6	11+75	15+50	LT	1030
11	Y3	15+50	19+50	LT	1100
20	RMP-B	25+50	27+00	RT	615
				SUBTOTAL	8130
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					50515
				TOTAL	58645
				SAY	59000

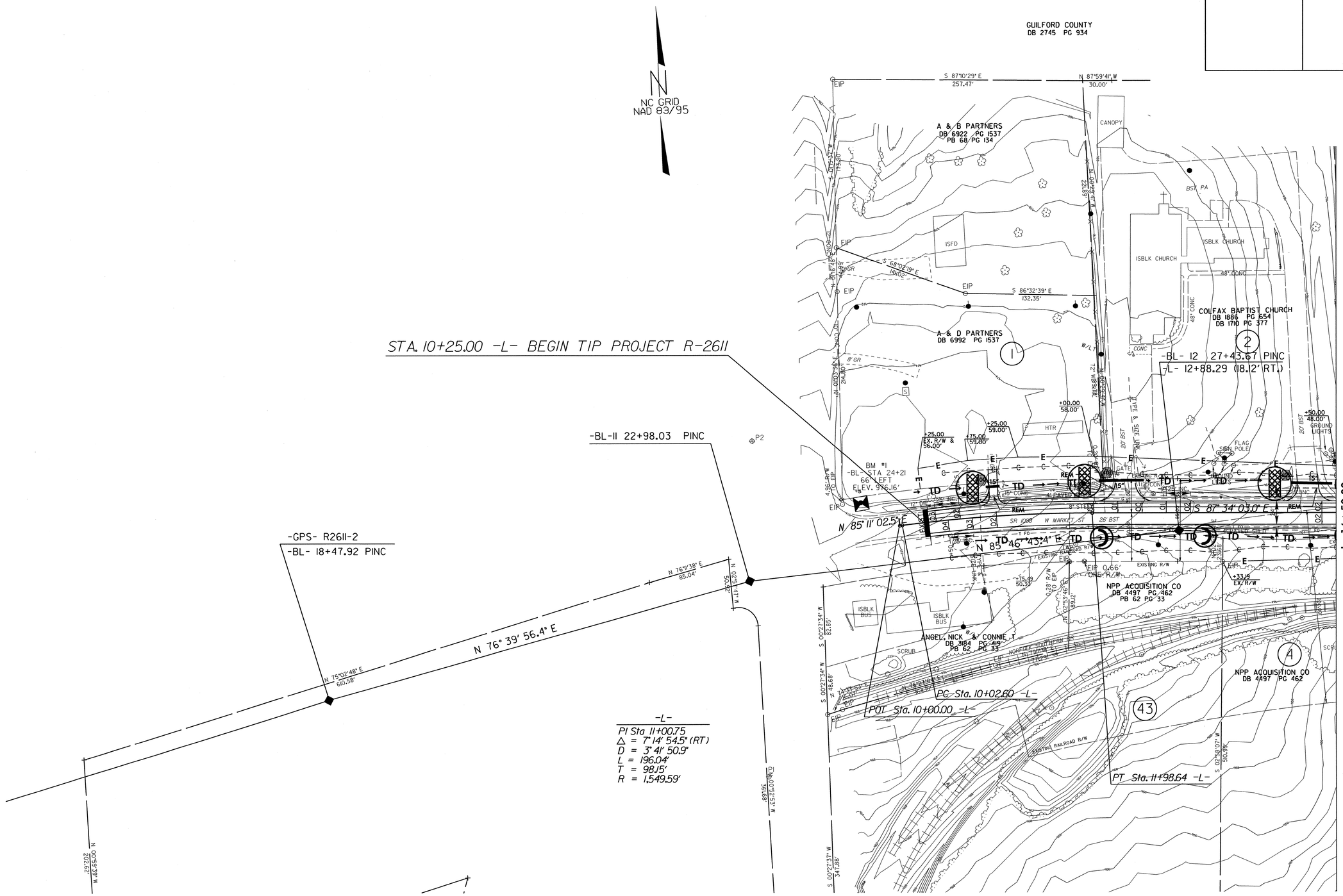
MATTING FOR EROSION CONTROL

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



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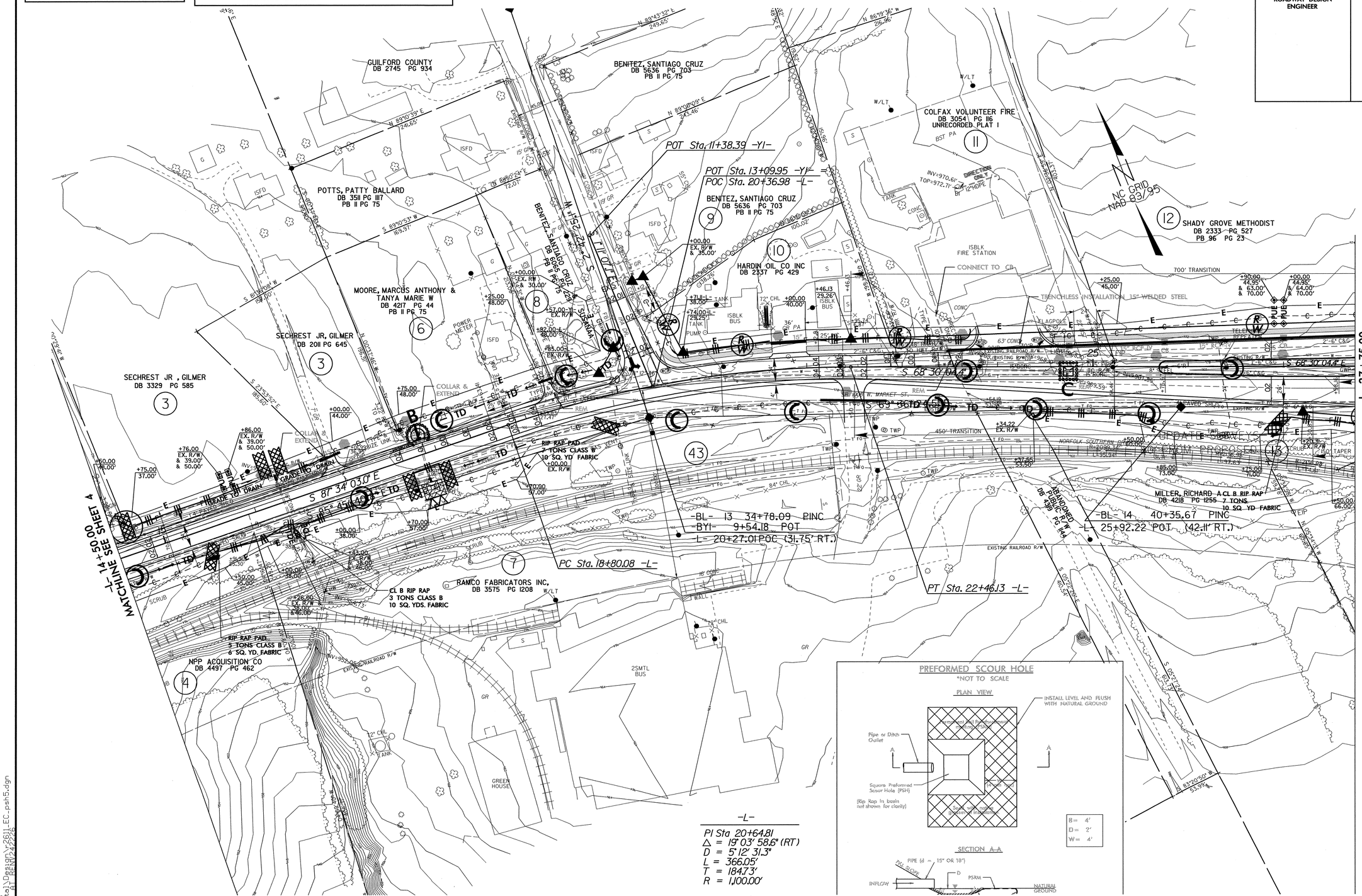
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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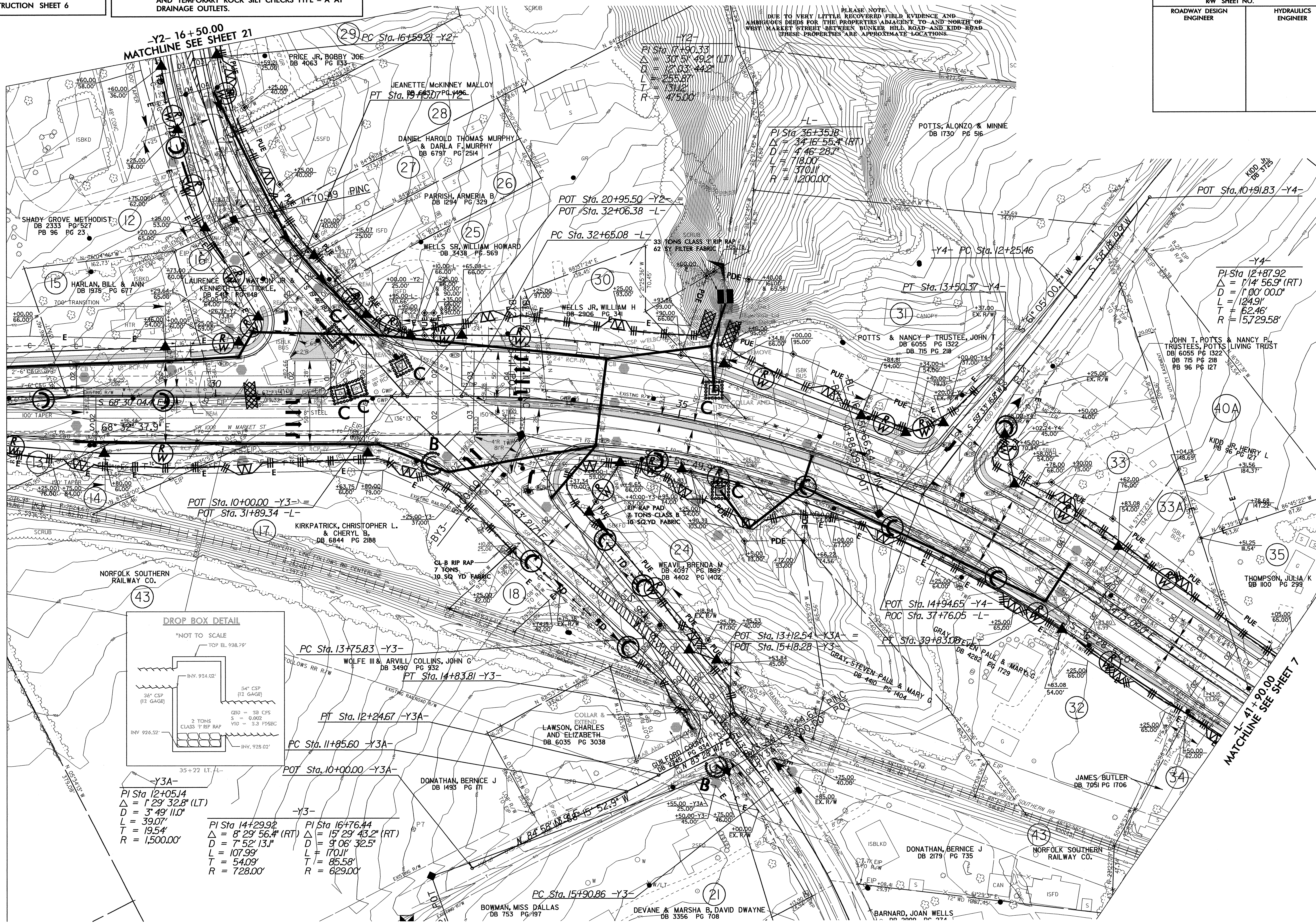
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 6

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-6/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

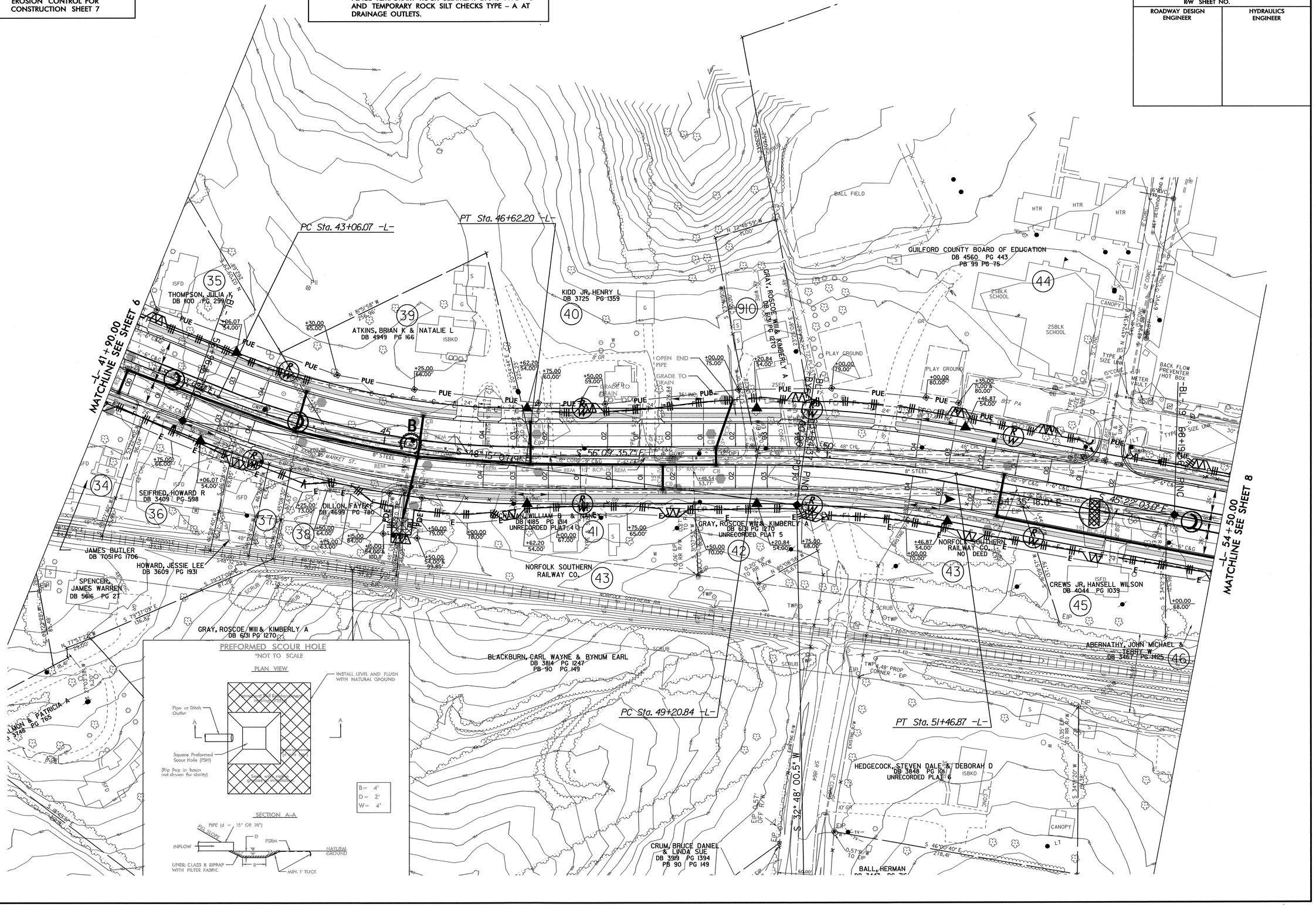


8/17/99

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.

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

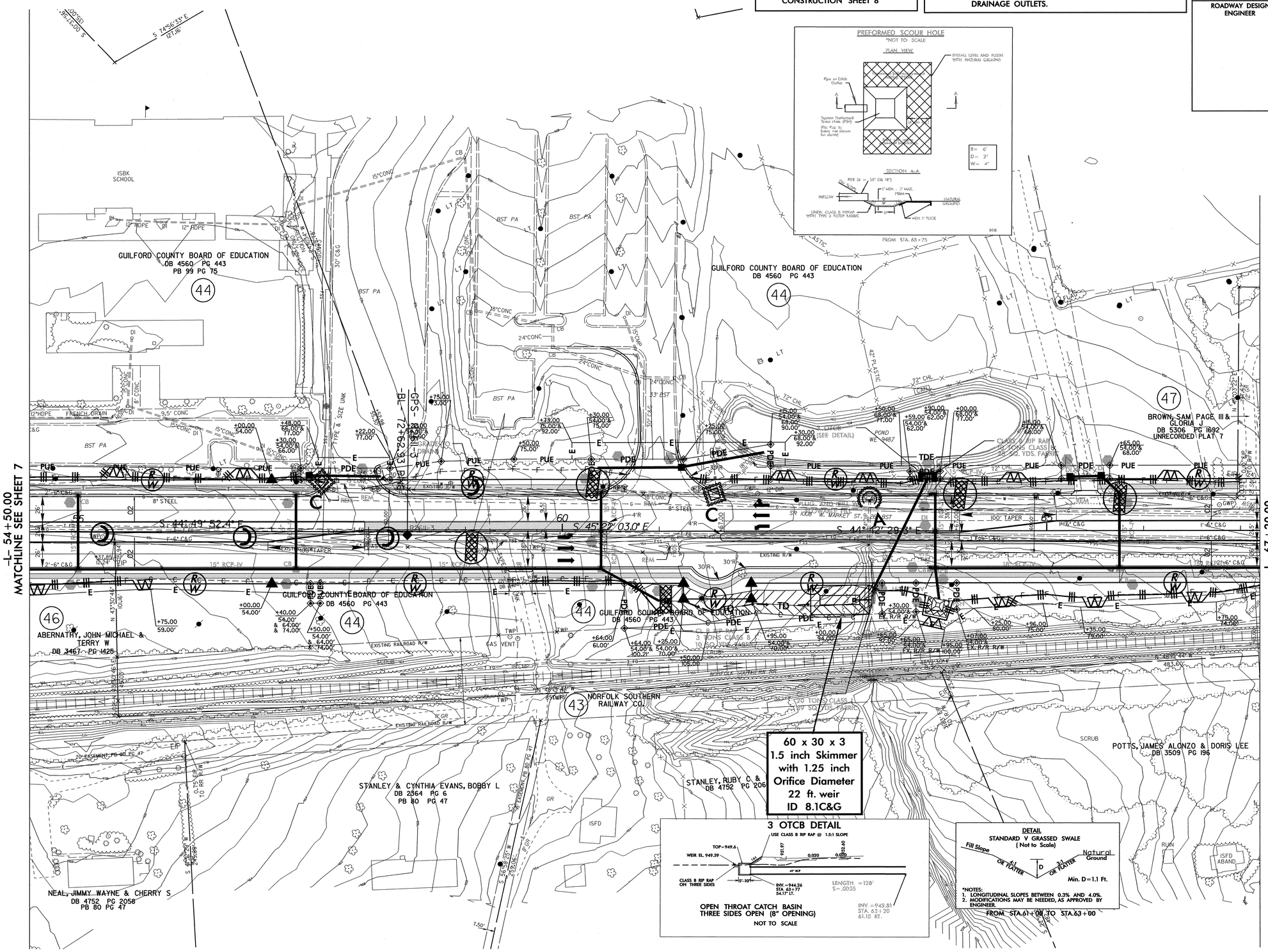


8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-8/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

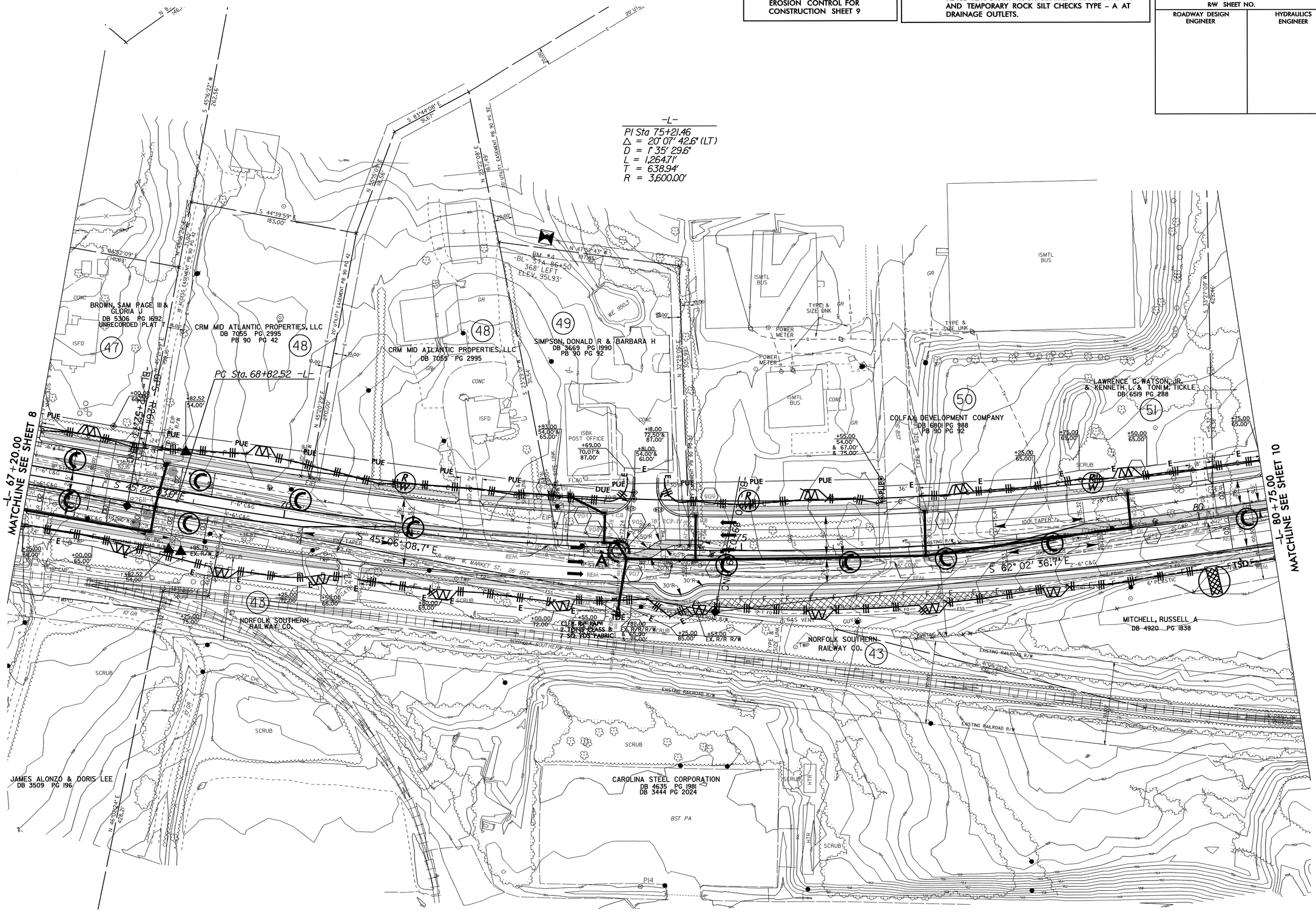


8/17/99

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.

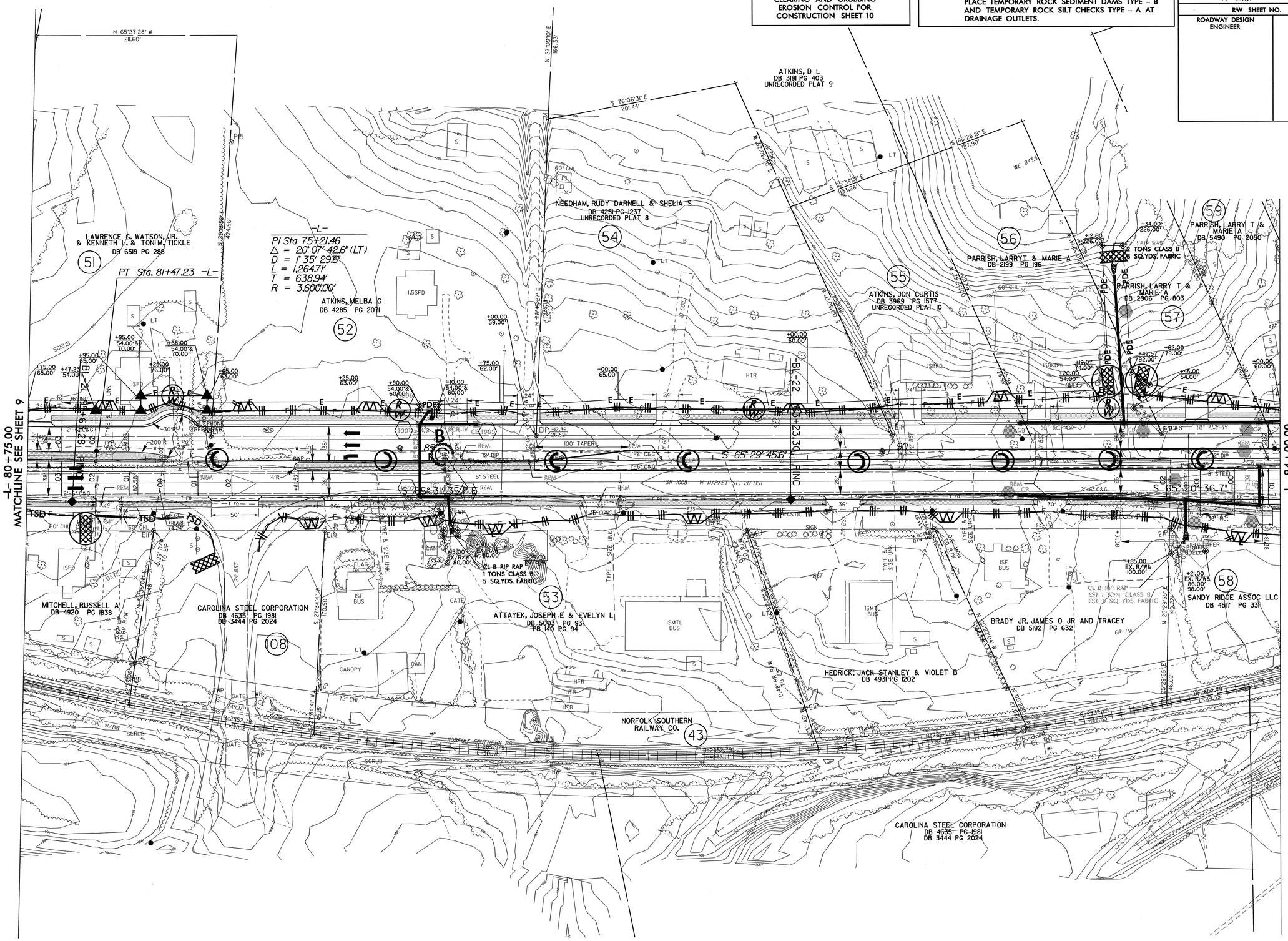
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-9/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-10/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



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olplkington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-11/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 11

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

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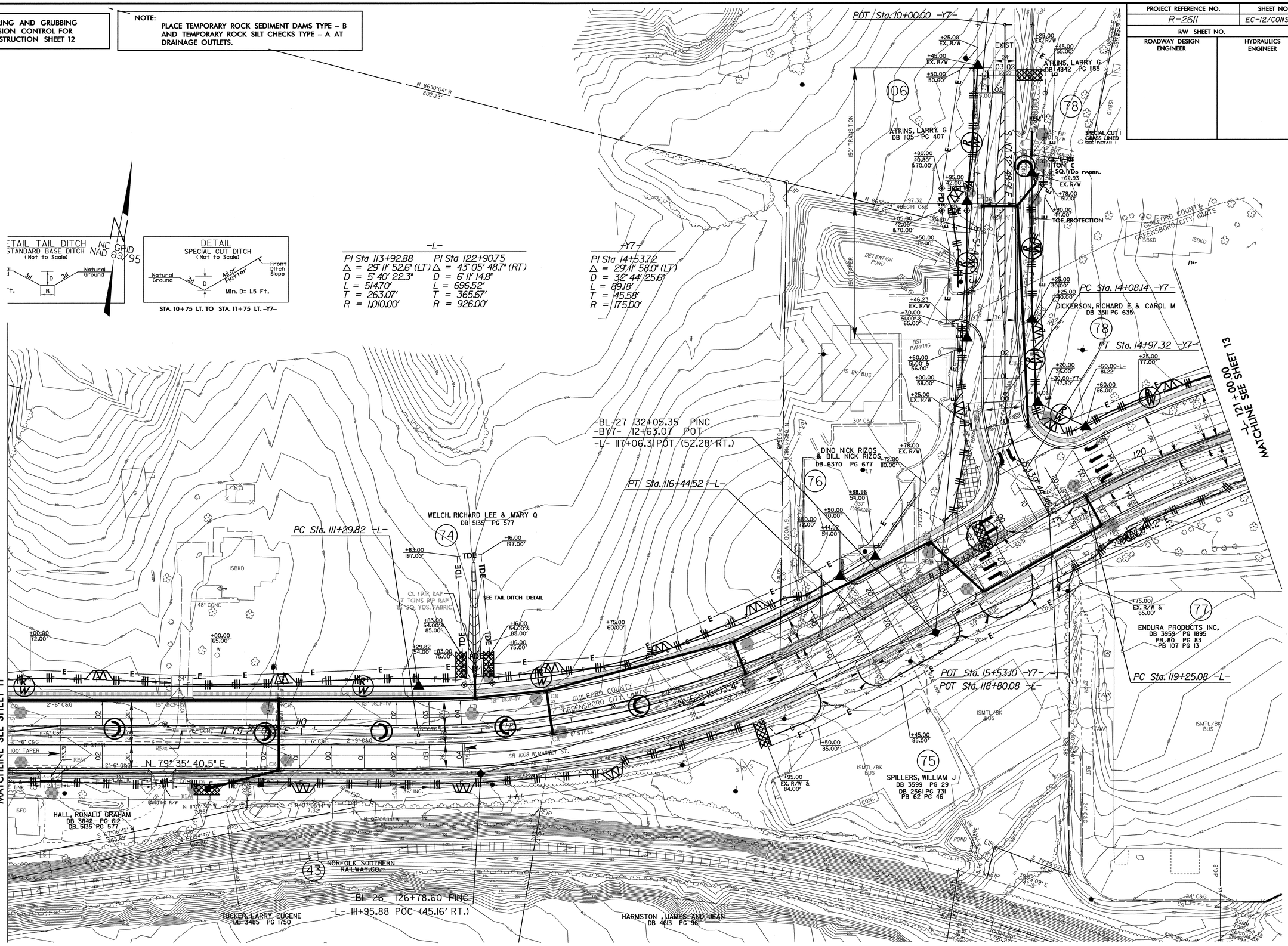
ploblington AT REN242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-12/CONST.12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 12

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



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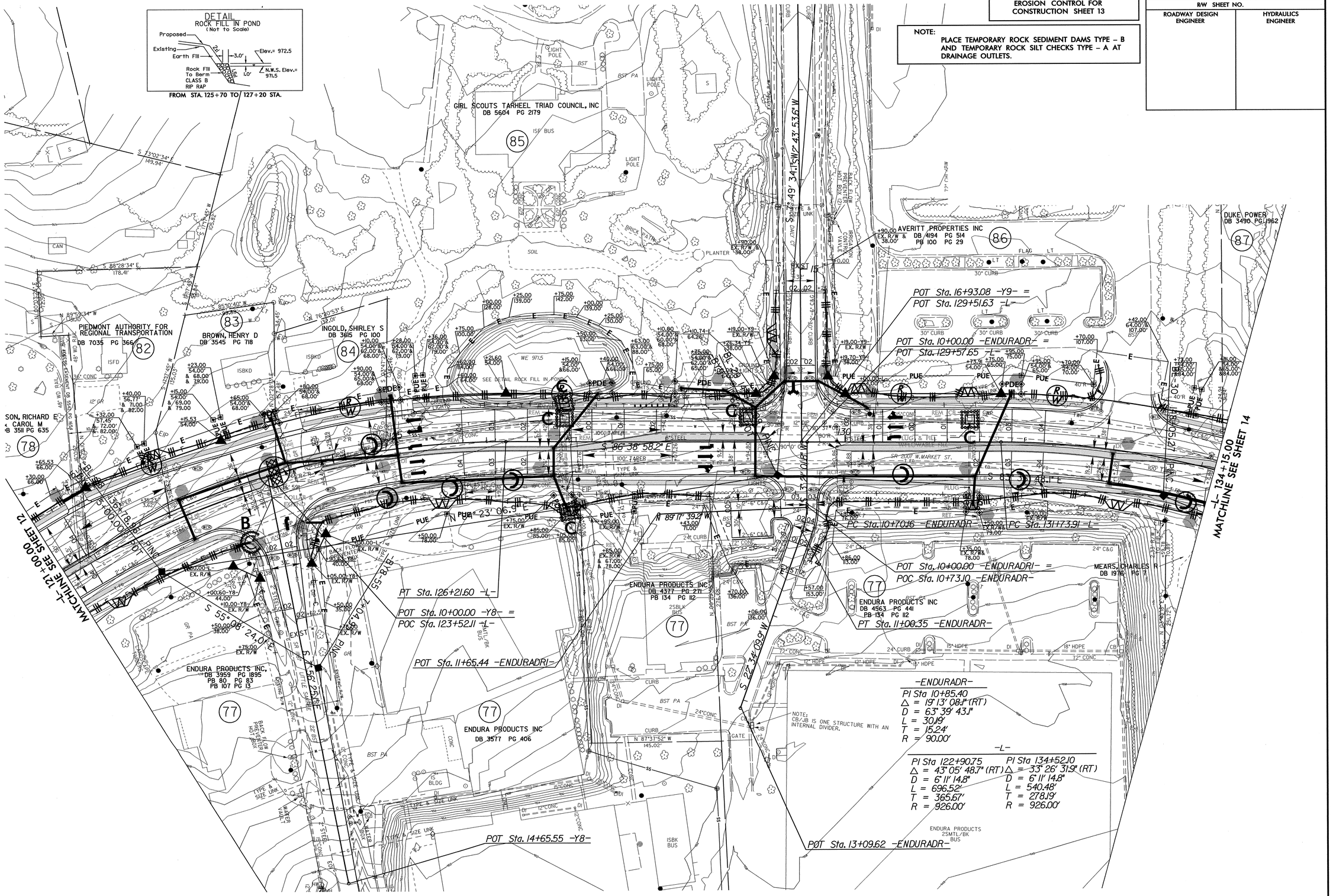
pbolkington AT REN242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-13/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 13

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



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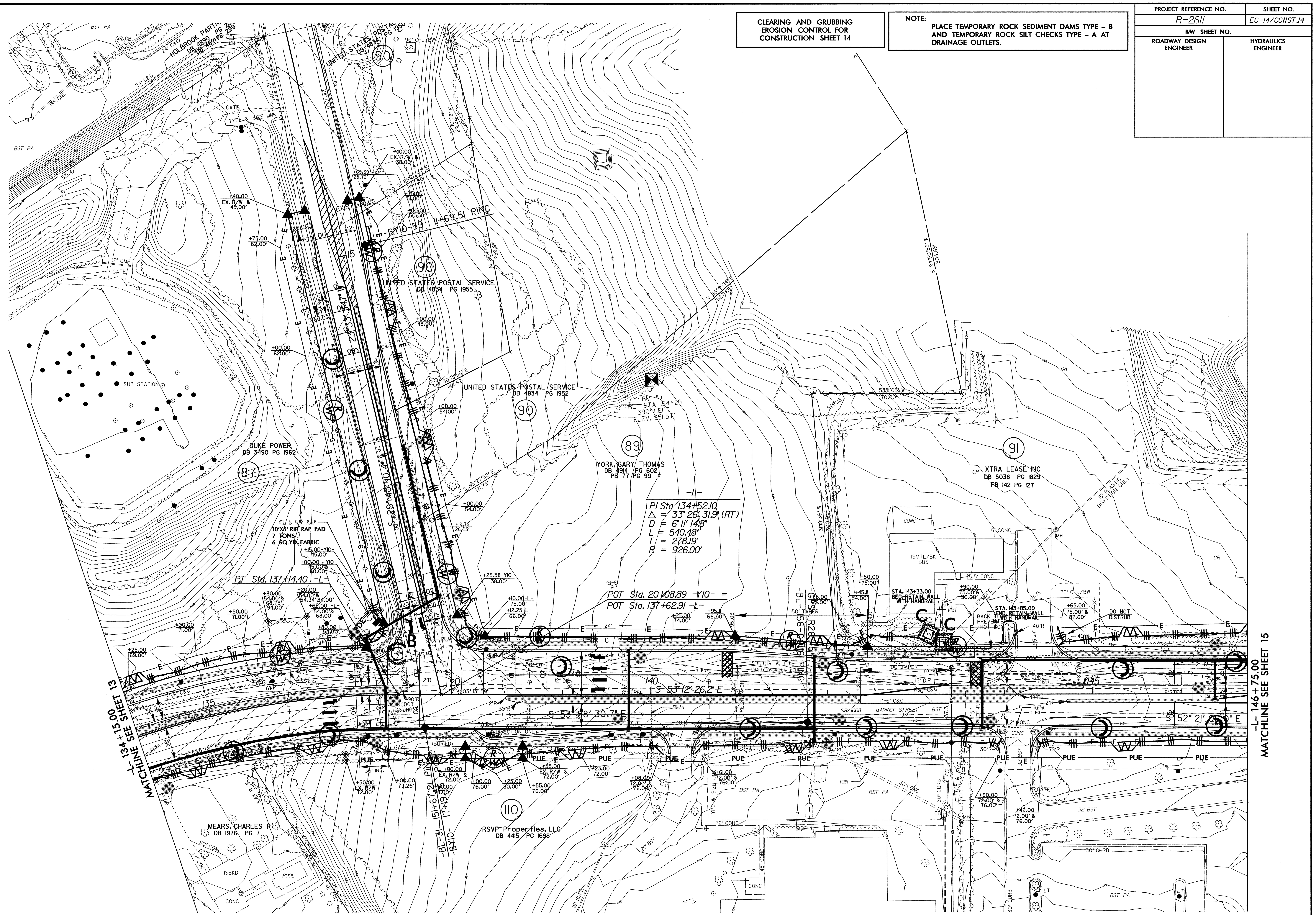
pbolkington AT REN242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-14/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 14

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



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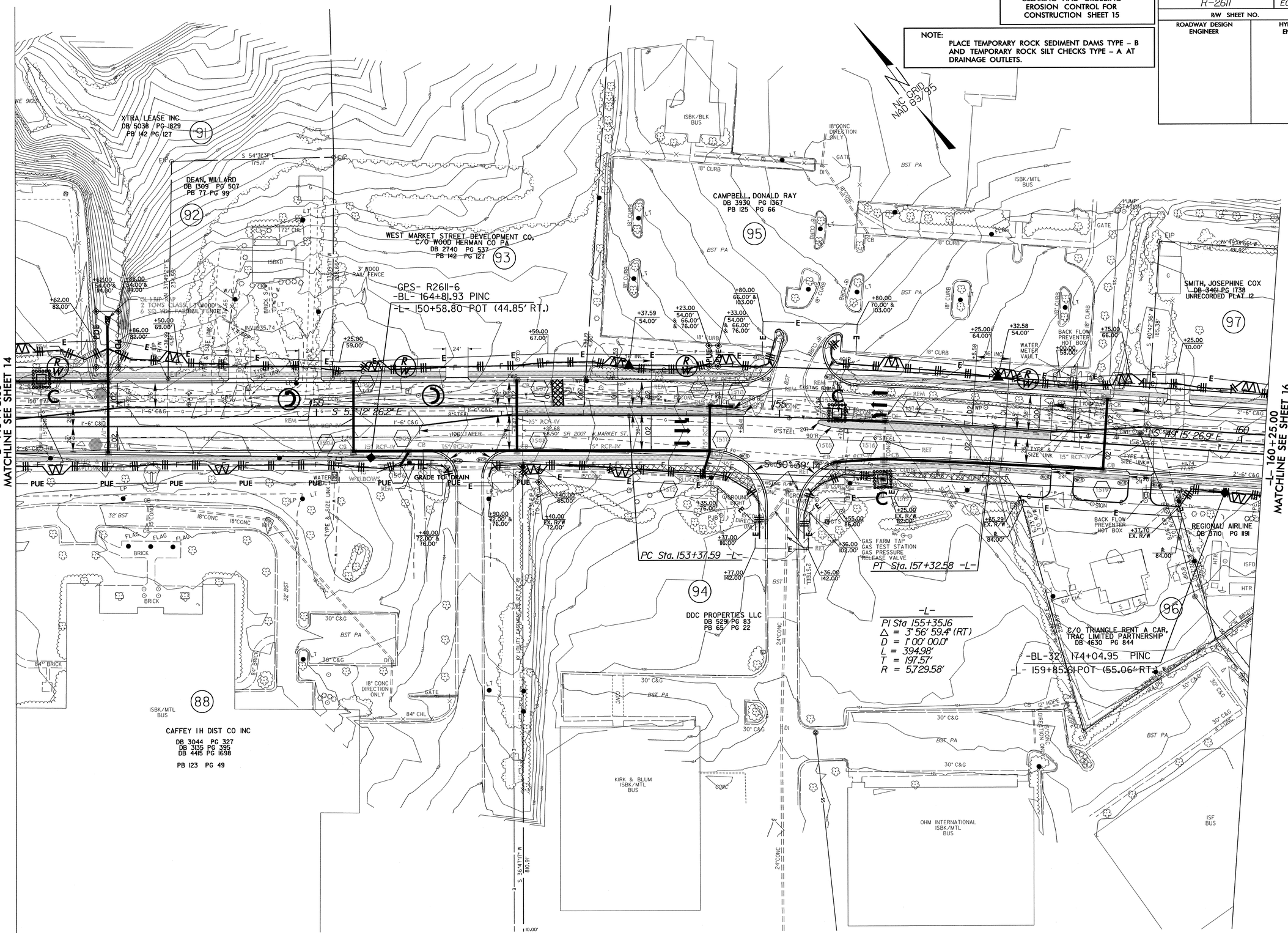
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-15/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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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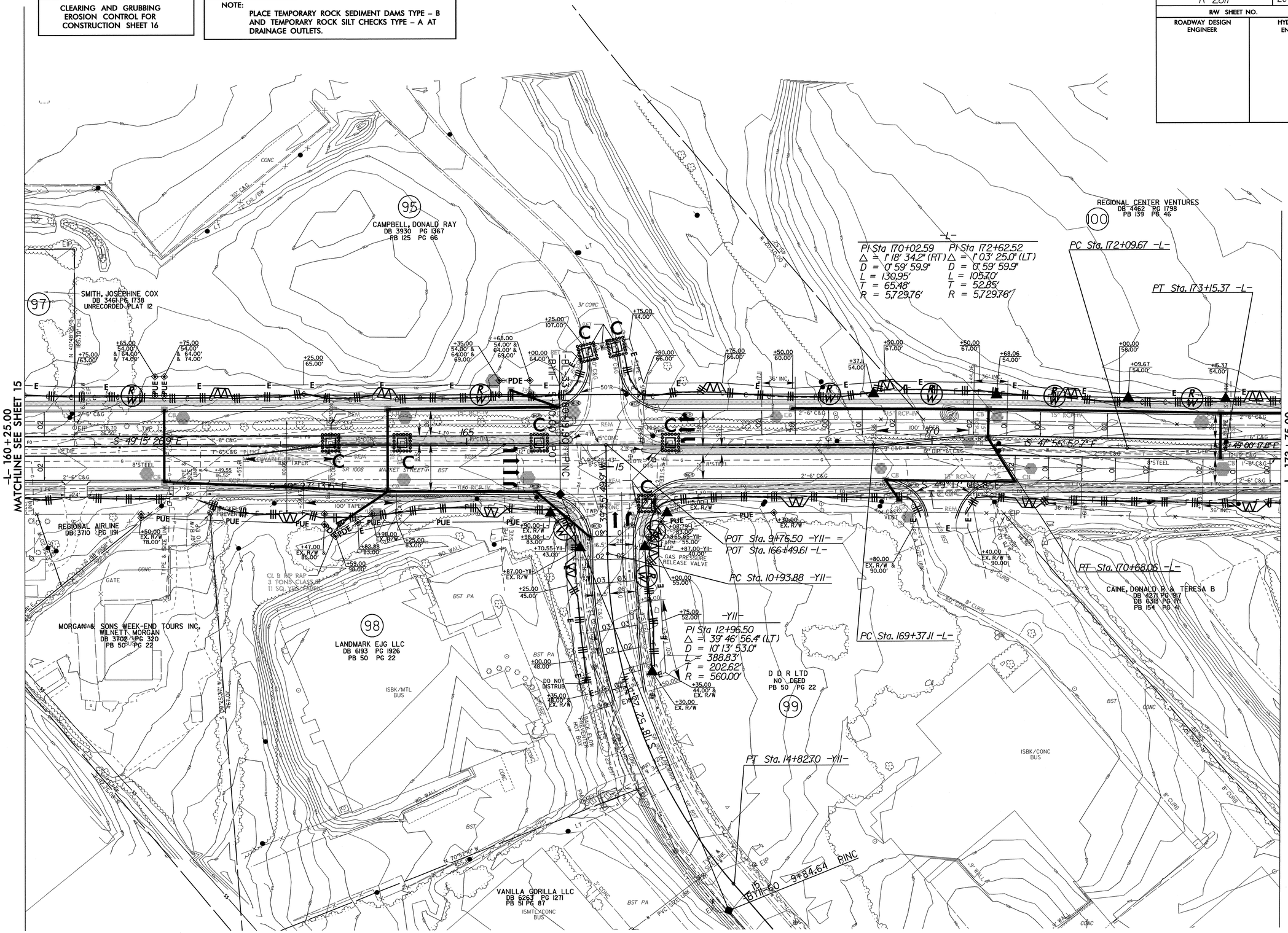
pbolkington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-16/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 16

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



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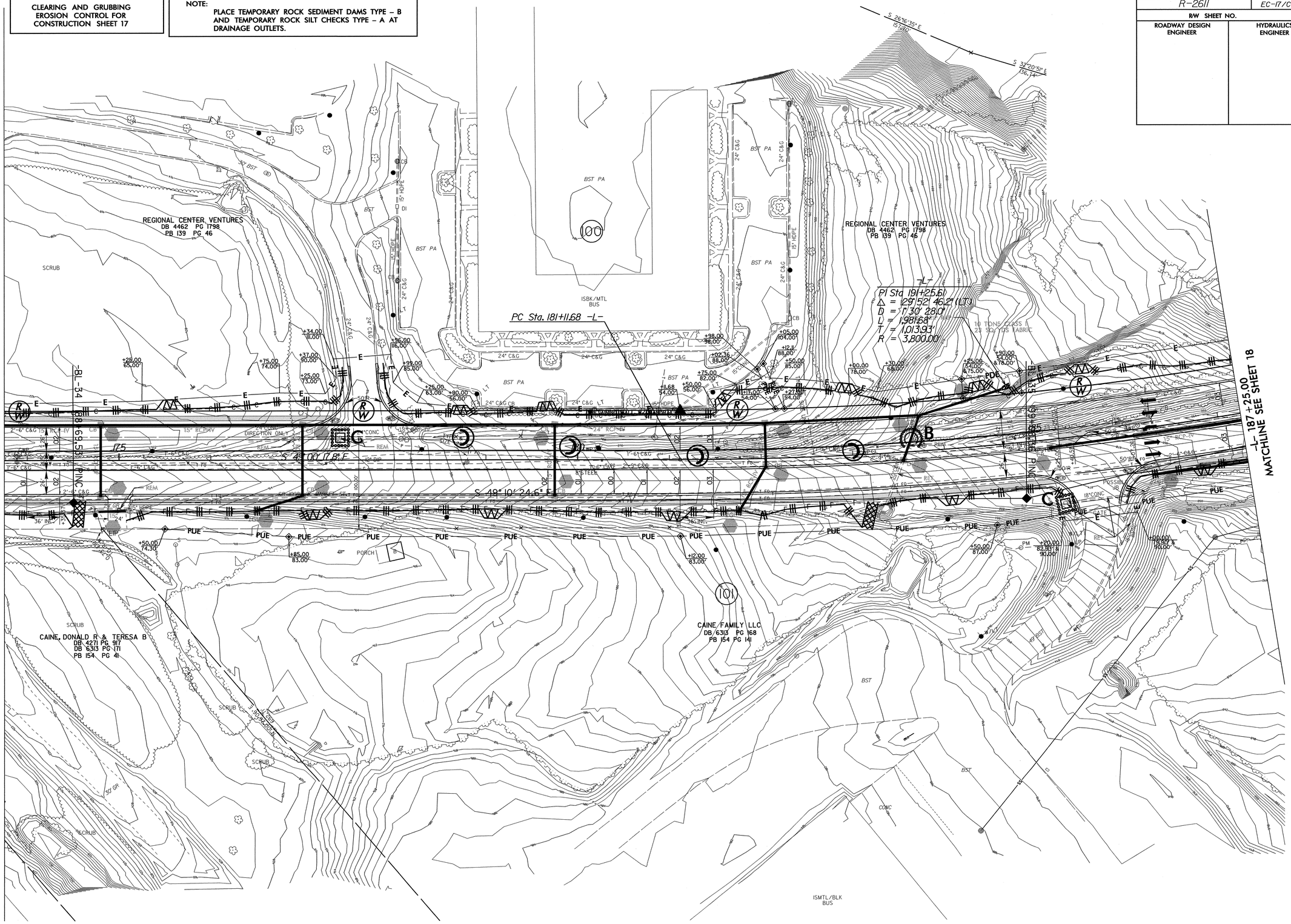
elatkington ATI REV 42226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-17/CONST17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 17

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



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pelkington AT REN242226

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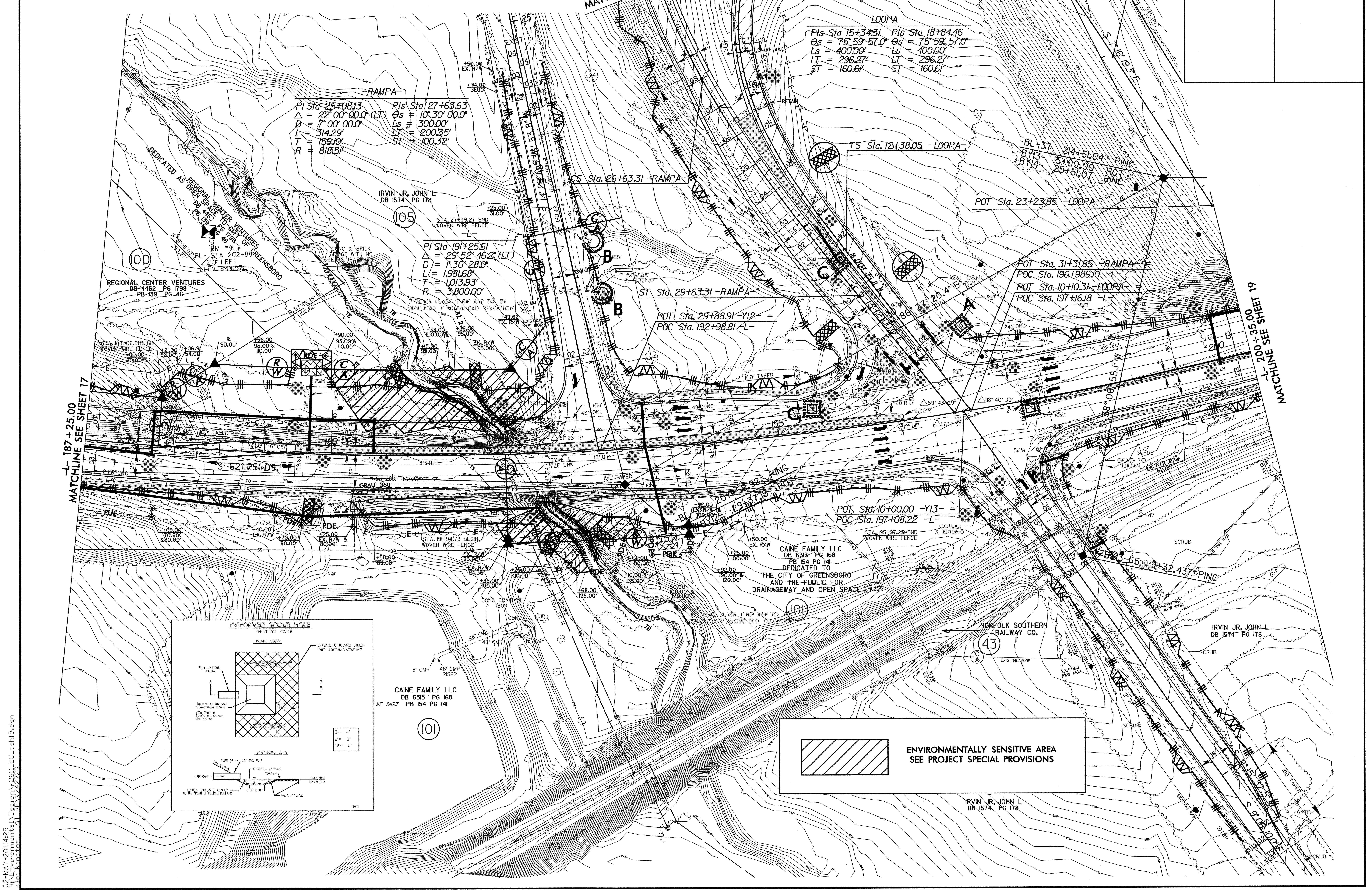
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-18/CONST.18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 18

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



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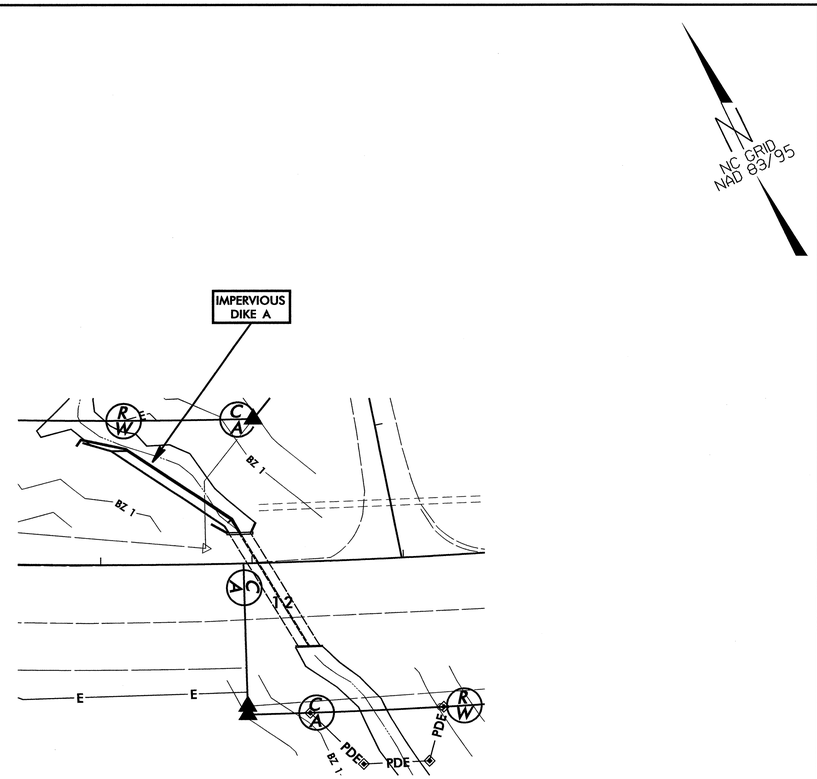
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-19/CONST18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 192+04.20 –L– (SHEET 1 OF 2)

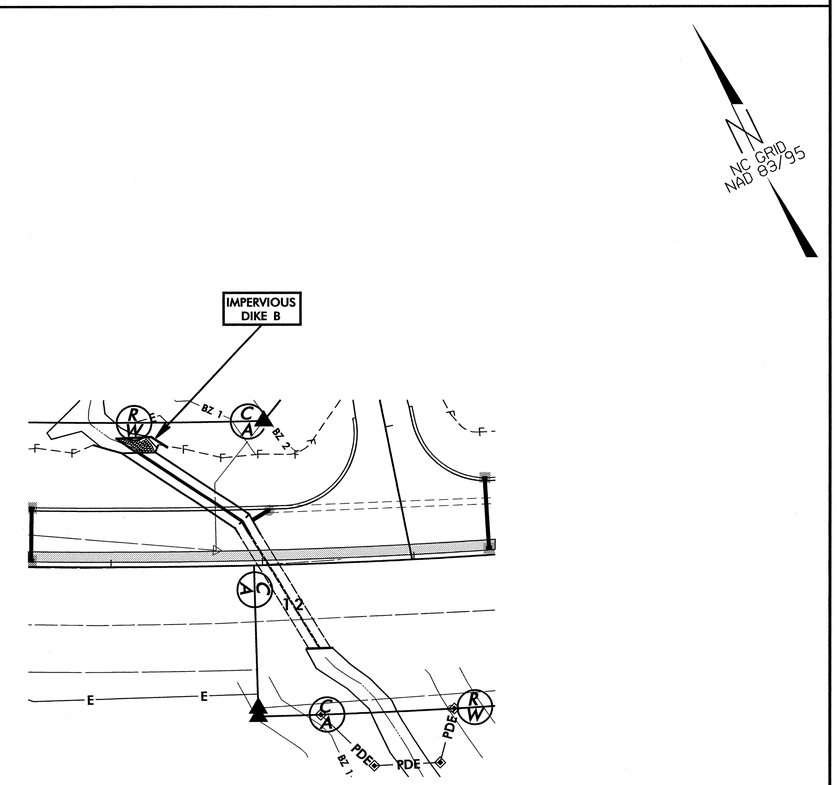
PHASE I

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 UPSTREAM EXTENSION OF BARREL 1 AND ANY NECESSARY UPSTREAM CHANNEL IMPROVEMENTS FOR BARREL 1.
4. REMOVE IMPERVIOUS DIKE A.



PHASE II

5. CONSTRUCT IMPERVIOUS DIKE B, DIVERTING FLOW THROUGH BARREL 1.
6. CONSTRUCT PROPOSED UPSTREAM EXTENSION OF BARREL 2 AND ANY NECESSARY UPSTREAM CHANNEL IMPROVEMENTS FOR BARREL 2.
7. REMOVE IMPERVIOUS DIKE B.
8. CONSTRUCT PROPOSED ROADWAY OVER COMPLETED UPSTREAM CULVERT EXTENSION AND SHIFT TRAFFIC.

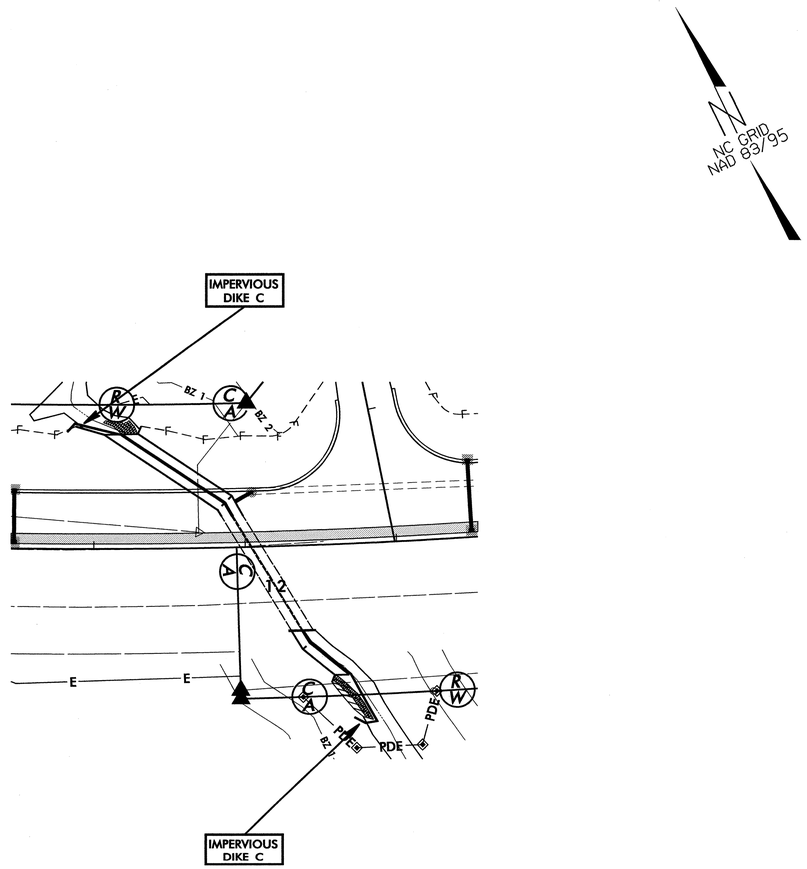


PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-20/CONST J8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 192 + 04.20 –L– (SHEET 2 OF 2)

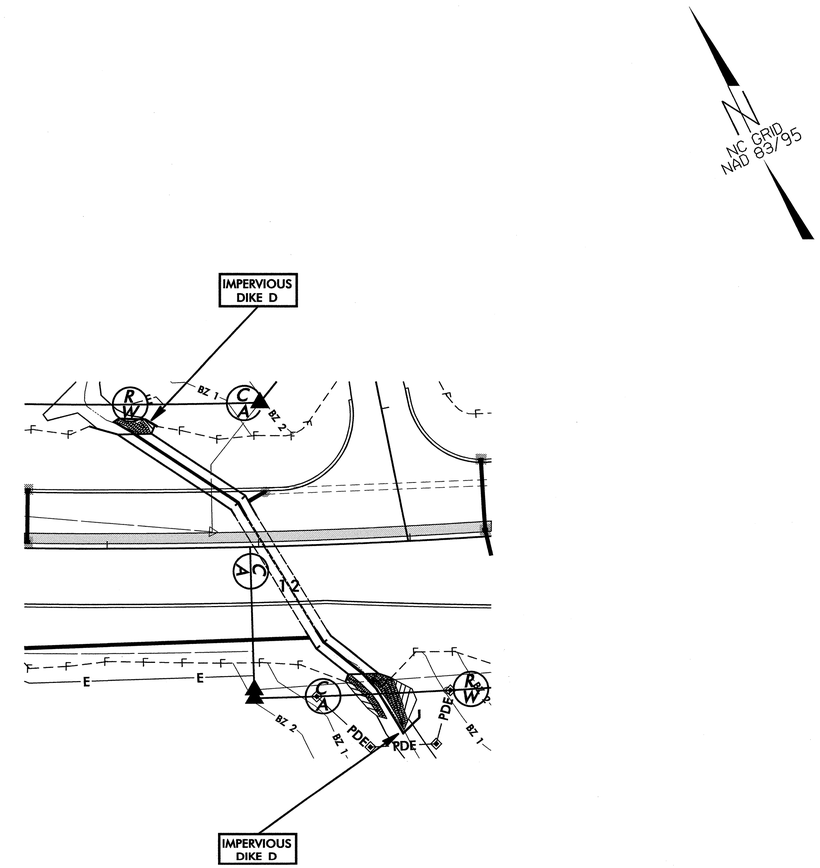
PHASE III

9. CONSTRUCT IMPERVIOUS DIKES C, DIVERTING FLOW THROUGH BARREL 2.
10. CONSTRUCT PROPOSED DOWNSTREAM EXTENSION OF BARREL 1 AND ANY NECESSARY DOWNSTREAM CHANNEL IMPROVEMENTS FOR BARREL 1.
11. REMOVE IMPERVIOUS DIKES C.



PHASE IV

12. CONSTRUCT IMPERVIOUS DIKES D, DIVERTING FLOW THROUGH COMPLETED BARREL 1.
13. CONSTRUCT PROPOSED DOWNSTREAM EXTENSION OF BARREL 2 AND ANY NECESSARY DOWNSTREAM CHANNEL IMPROVEMENTS FOR BARREL 2.
14. REMOVE IMPERVIOUS DIKES D.
15. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S).
16. COMPLETE ROADWAY.

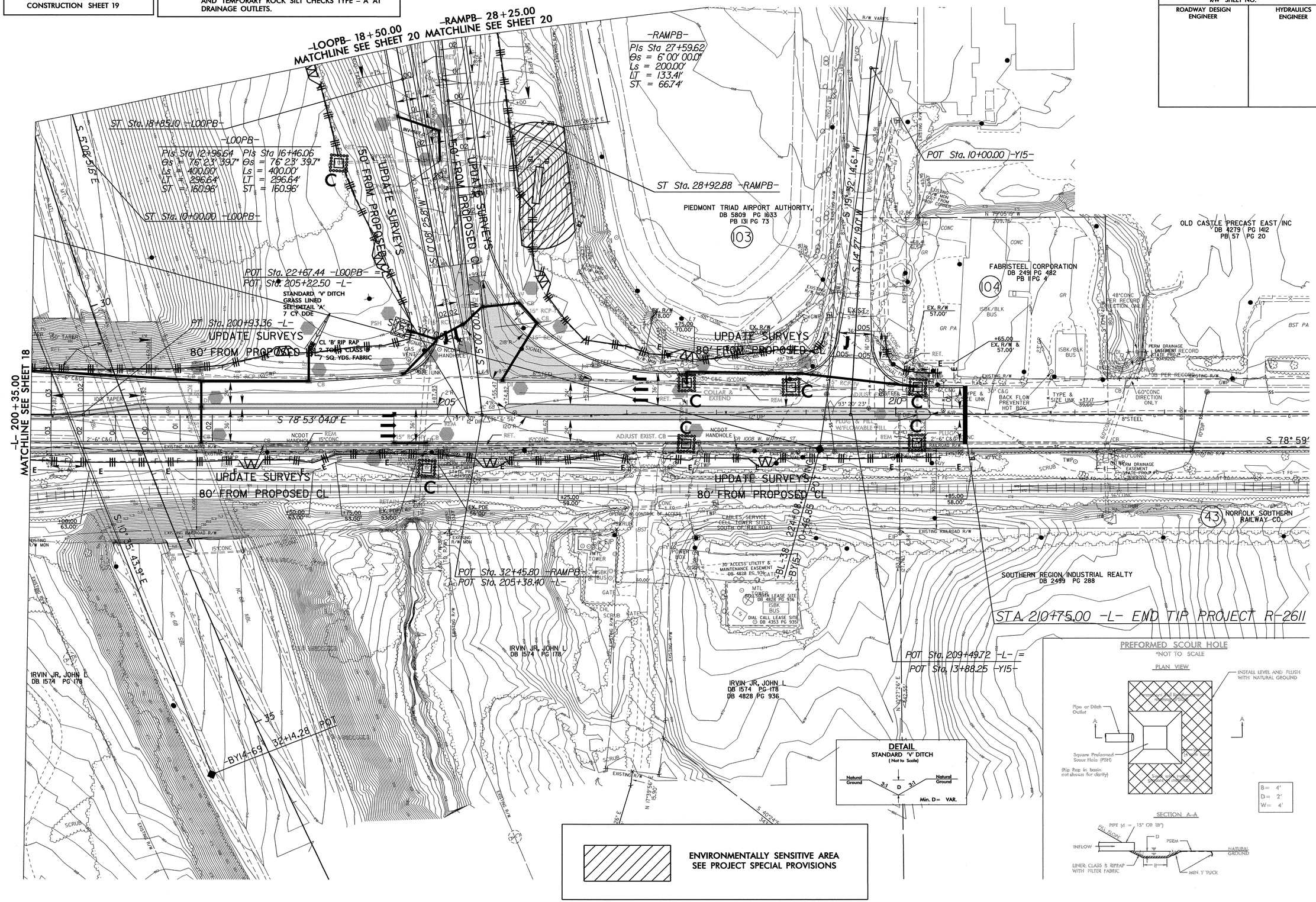


8/17/99

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 19

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-21/CONST19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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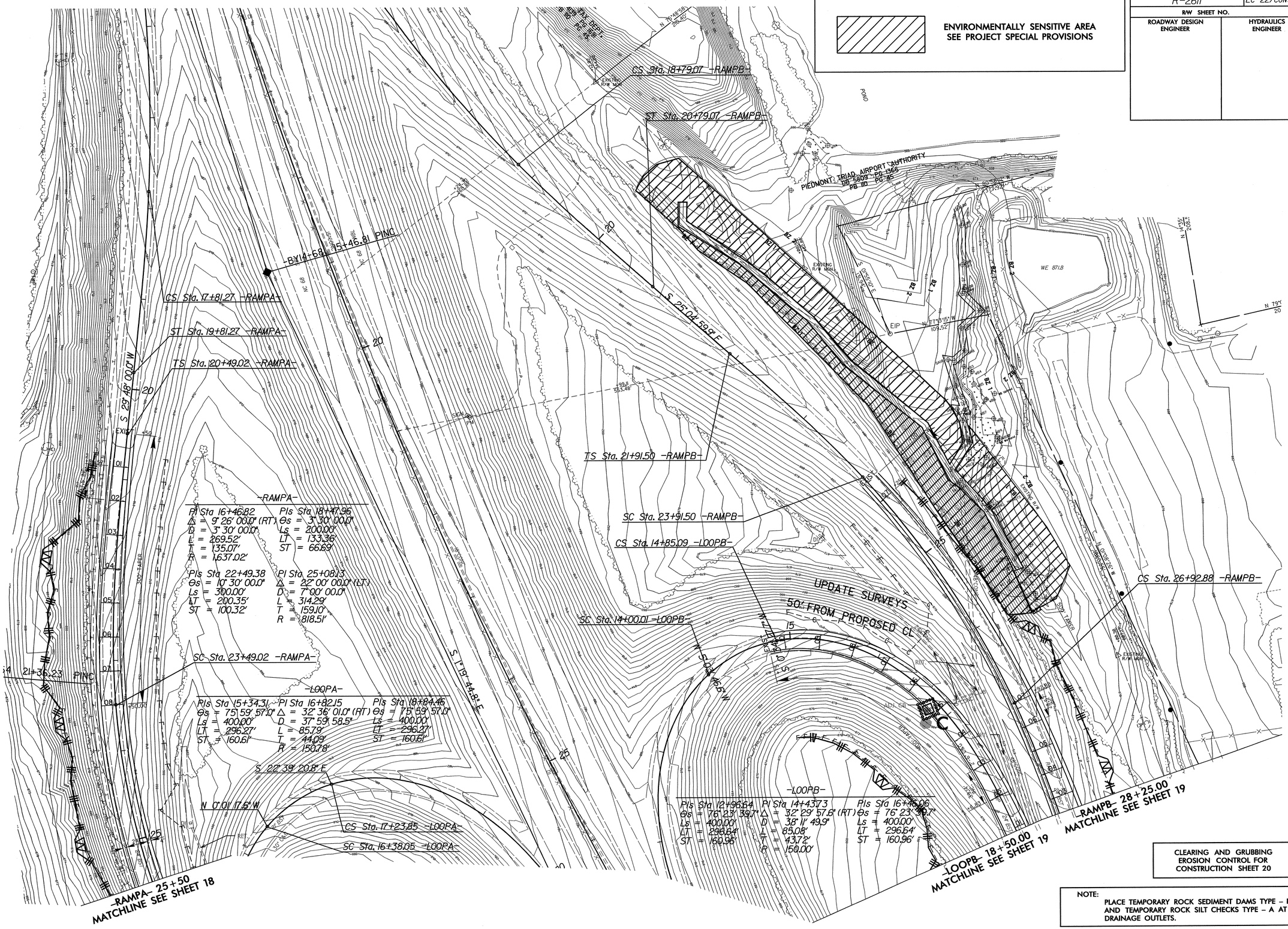
olpilkington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-22/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 20

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

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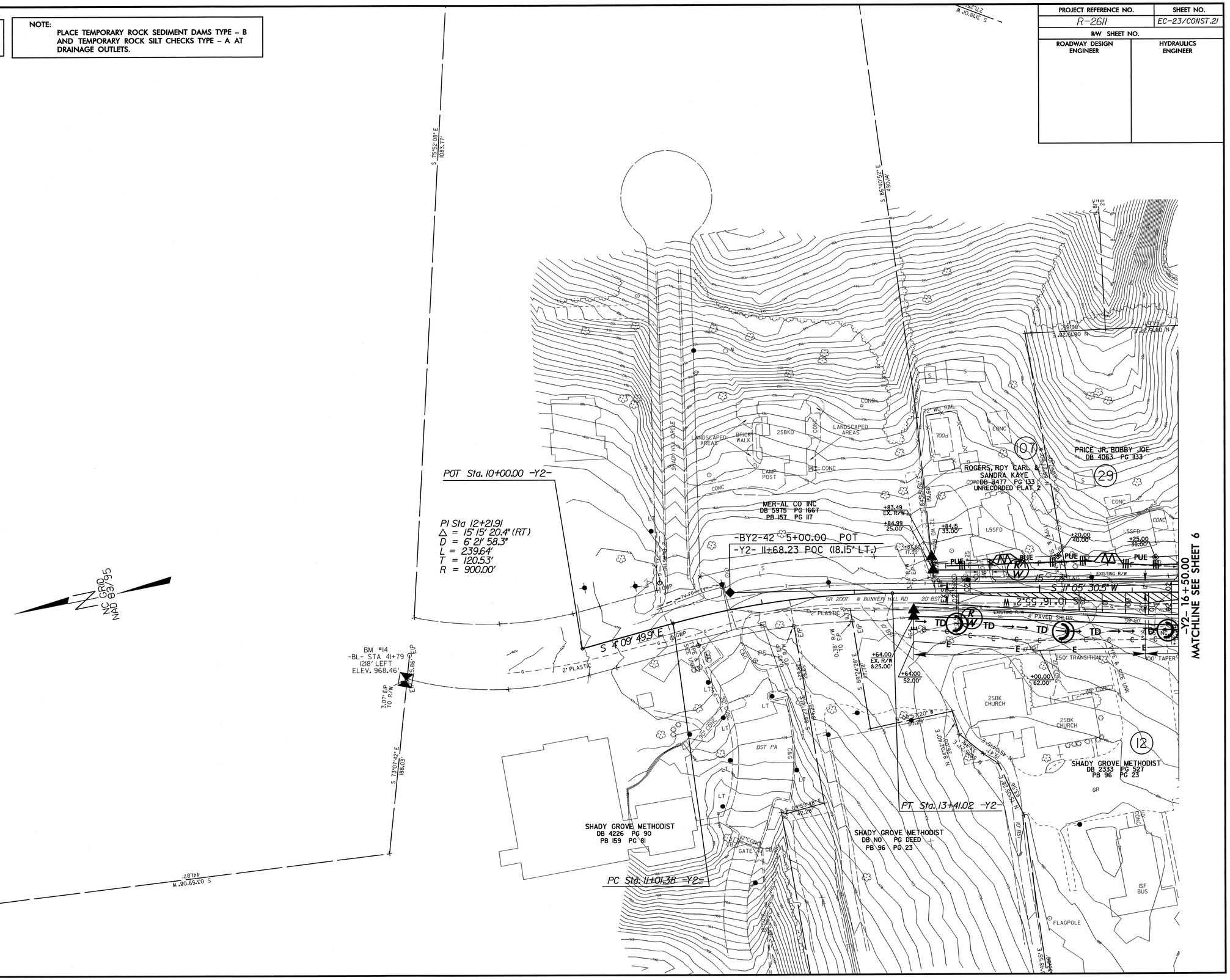
olelkington AT REN242226

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-23/CONST.21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 21

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



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olinkington A1 REN/24x36

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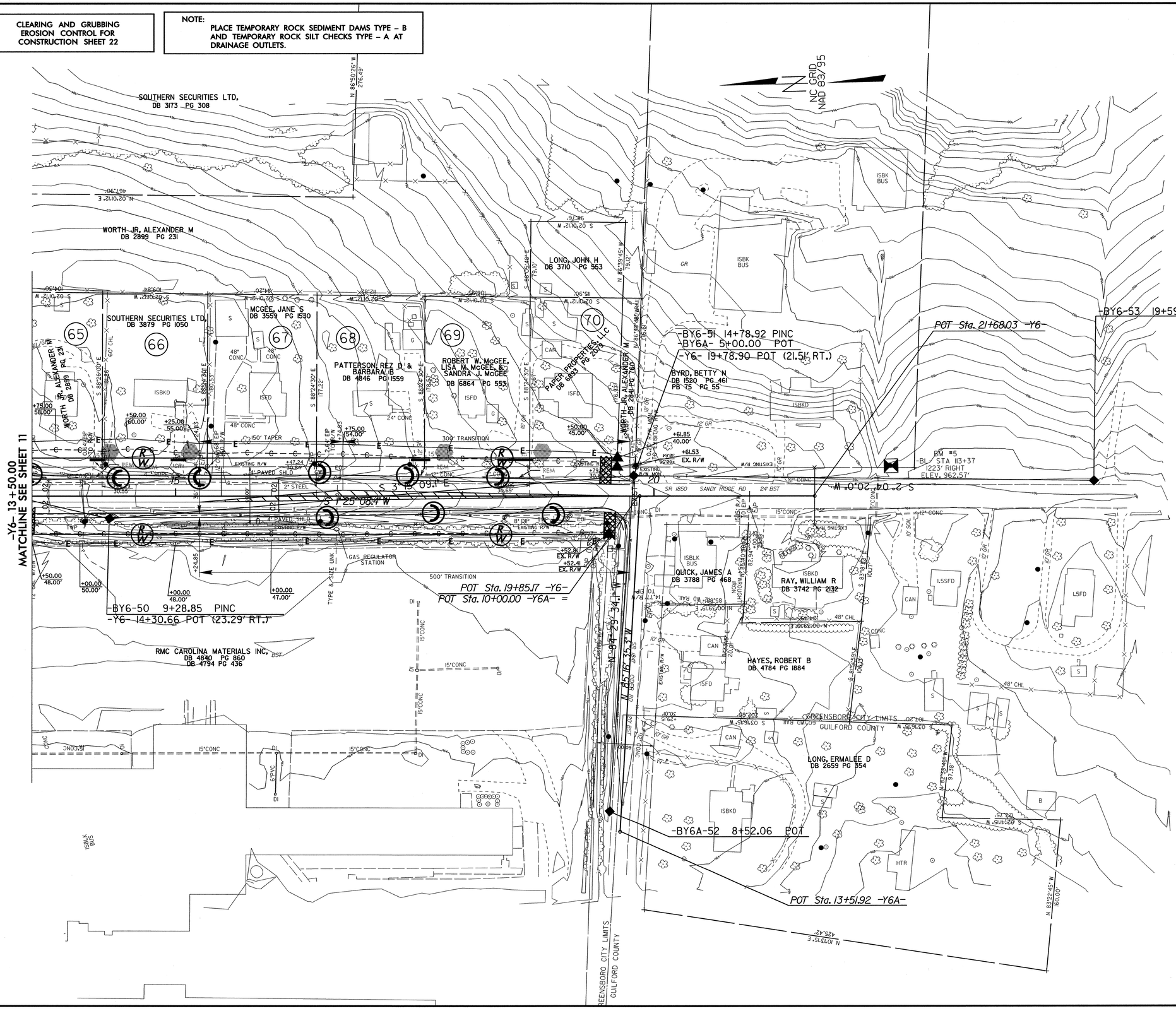
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 22

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

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-24/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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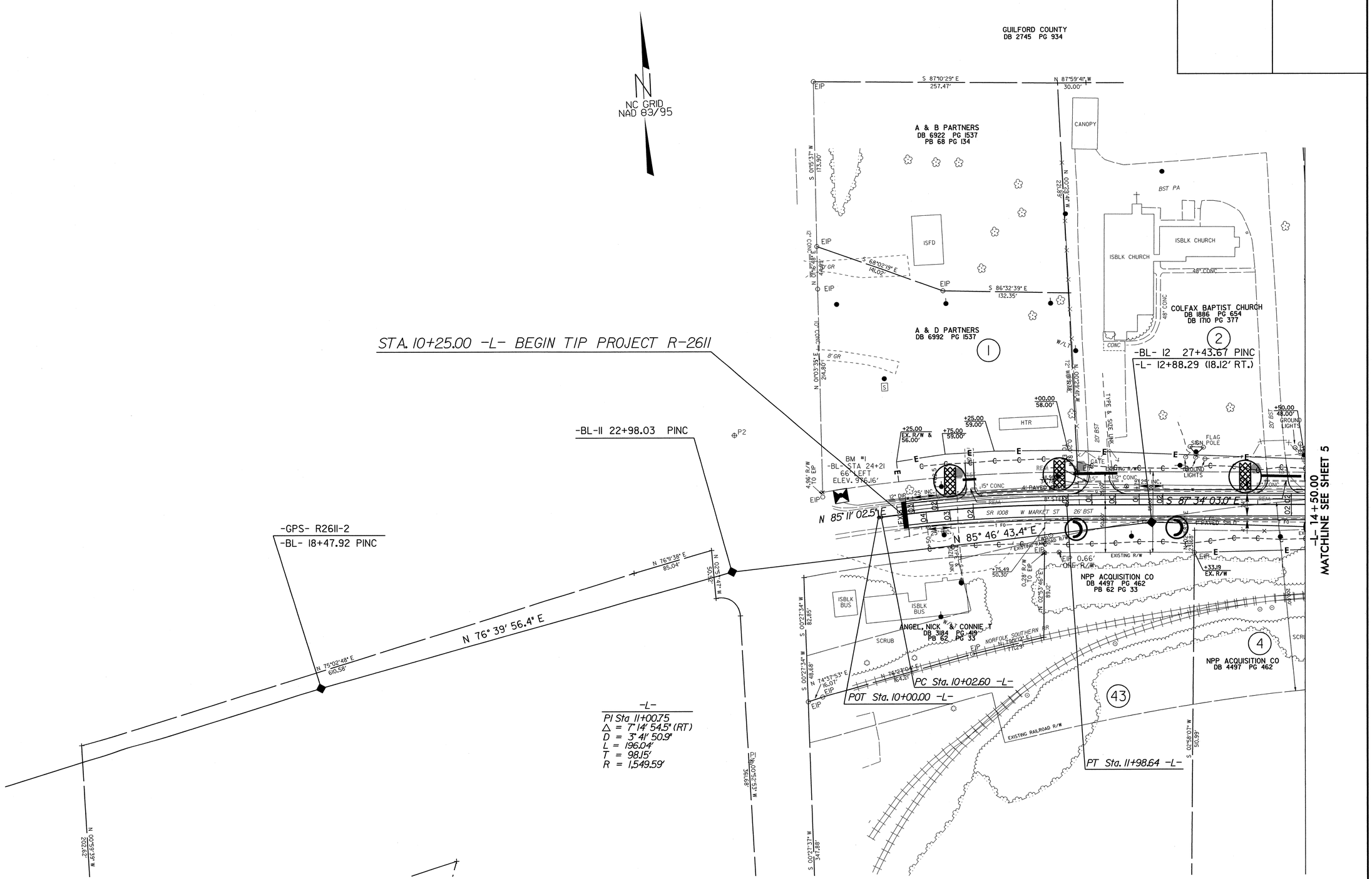
olollkington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-25/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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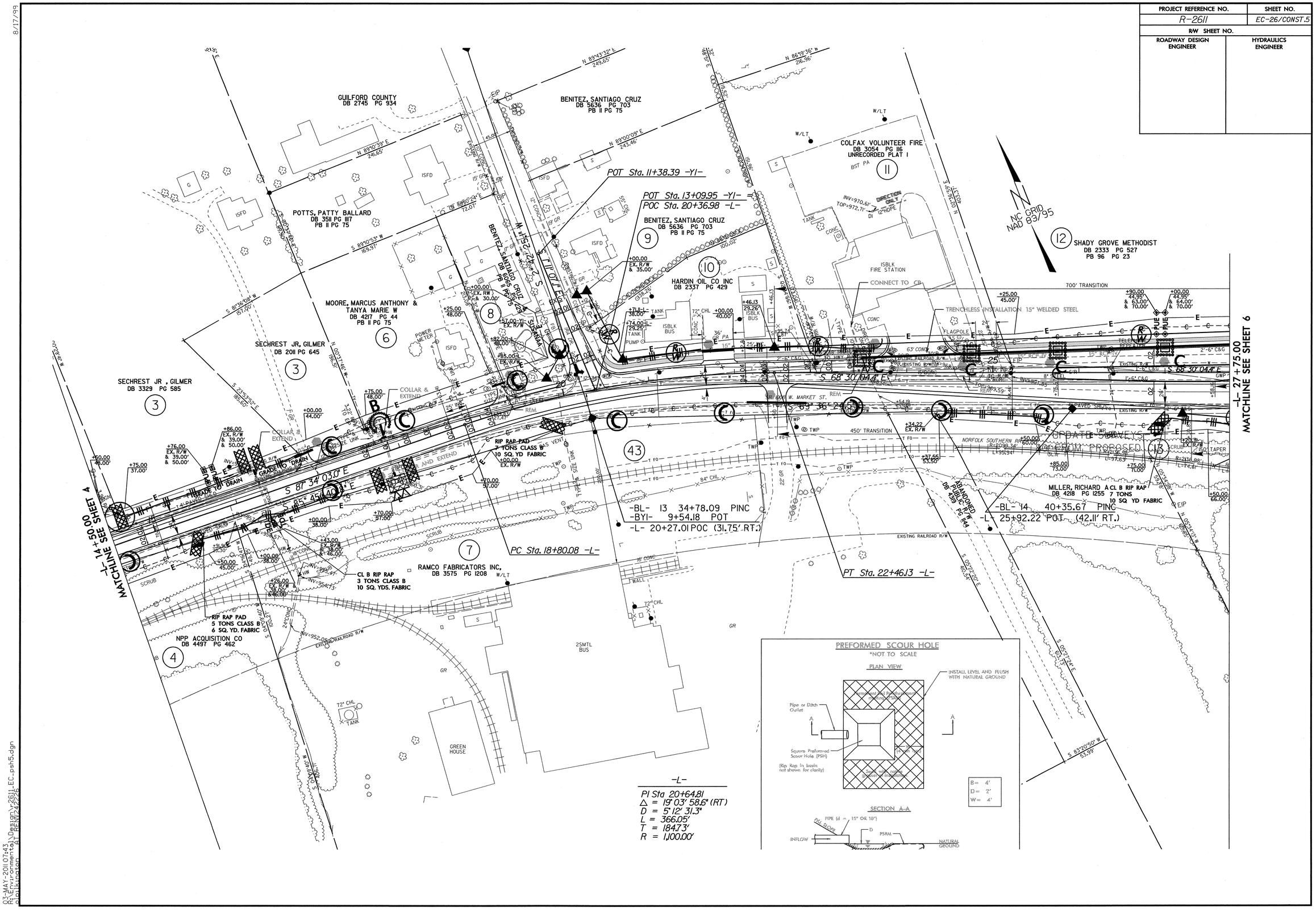
pbolkington AT REN0242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-26/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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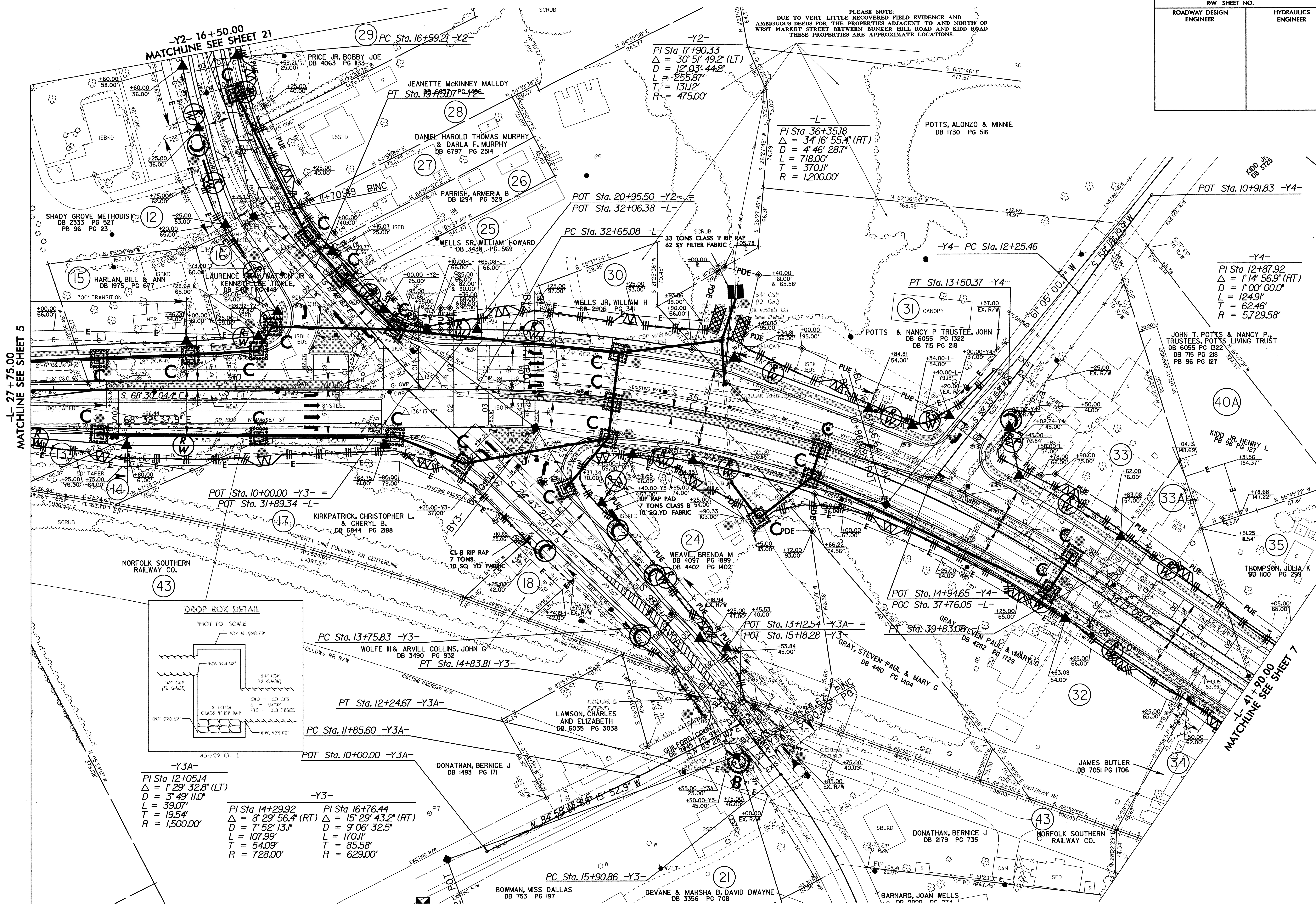
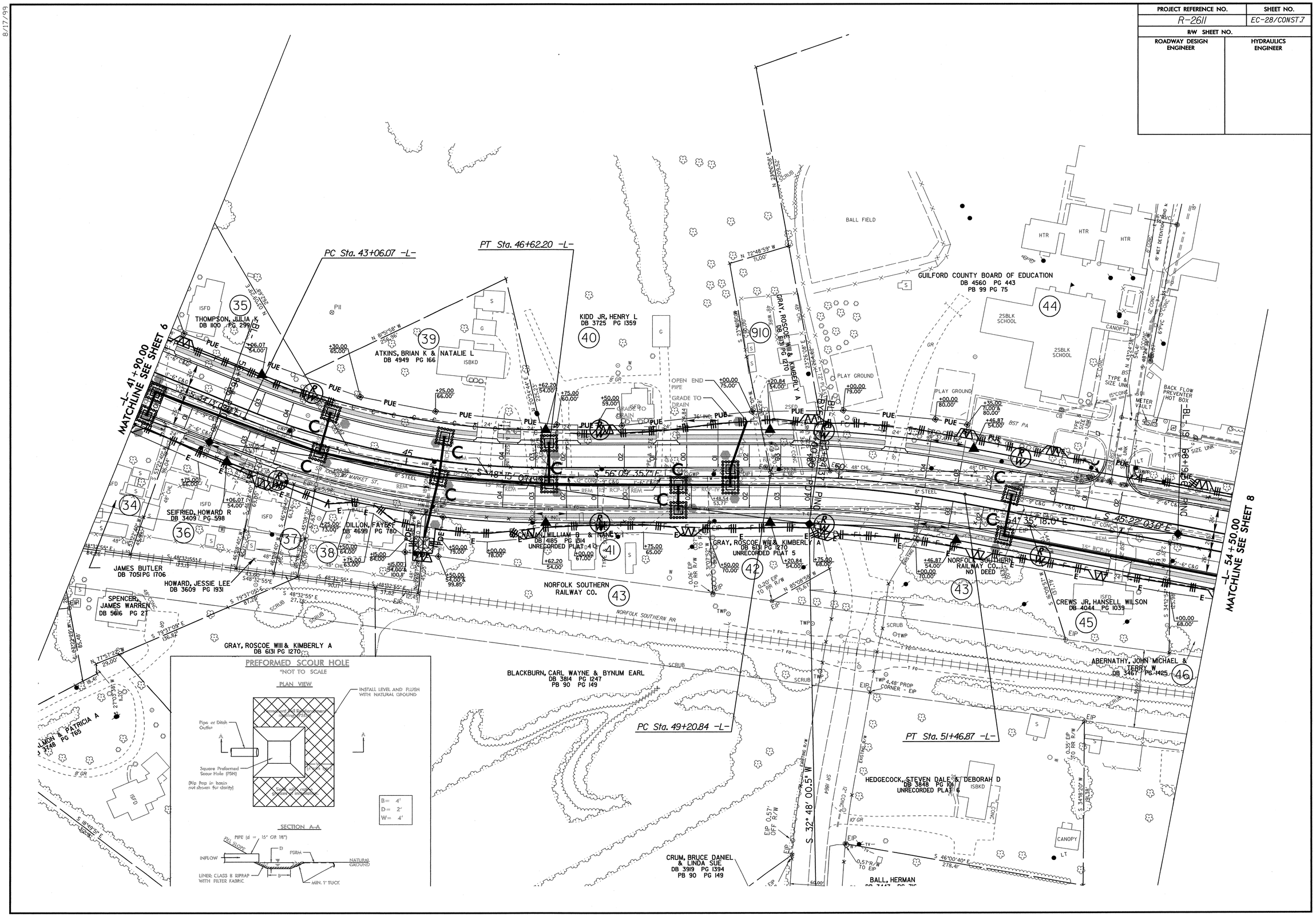
aloikington AT REN242726

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-27/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-28/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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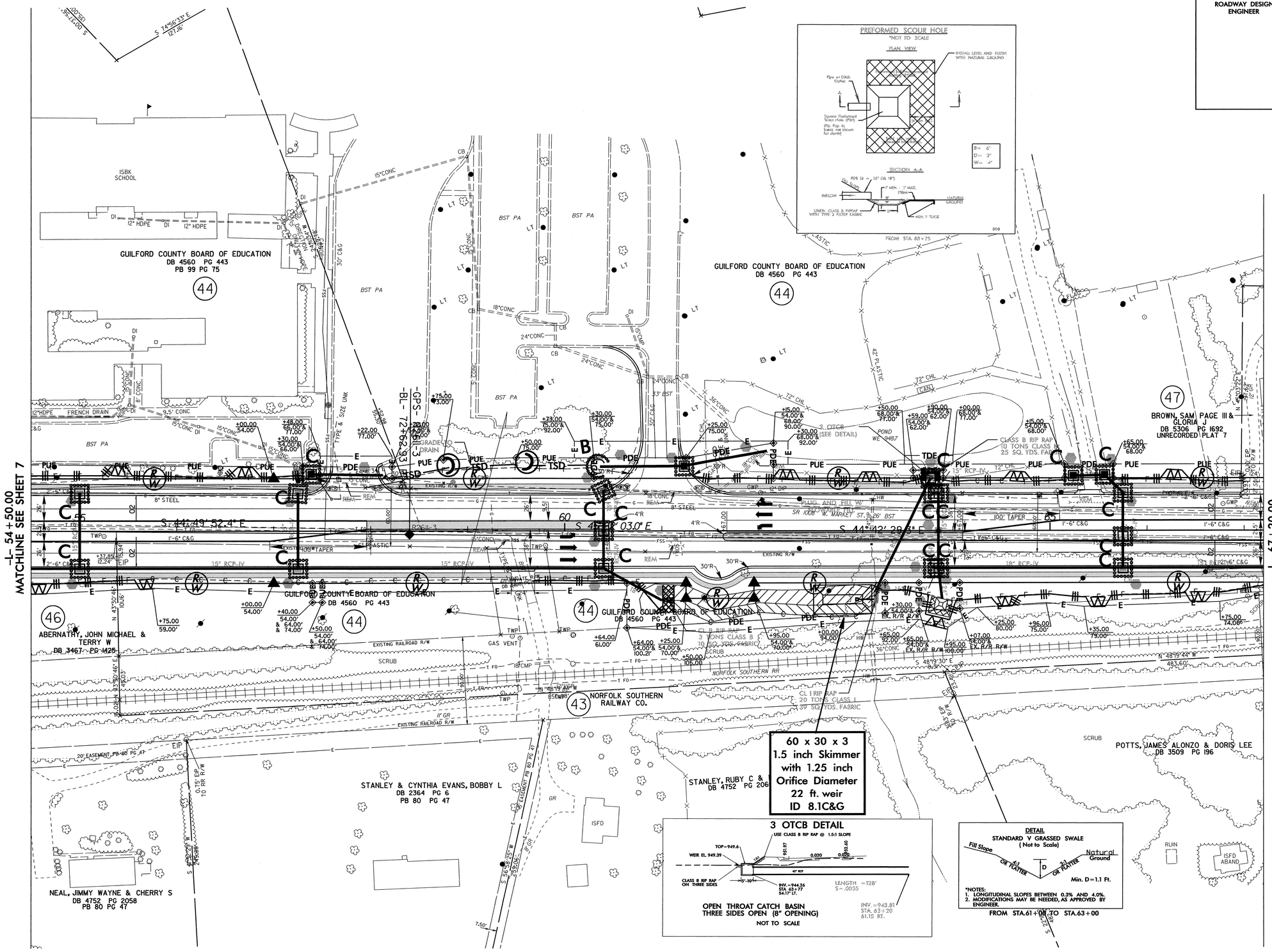
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-29/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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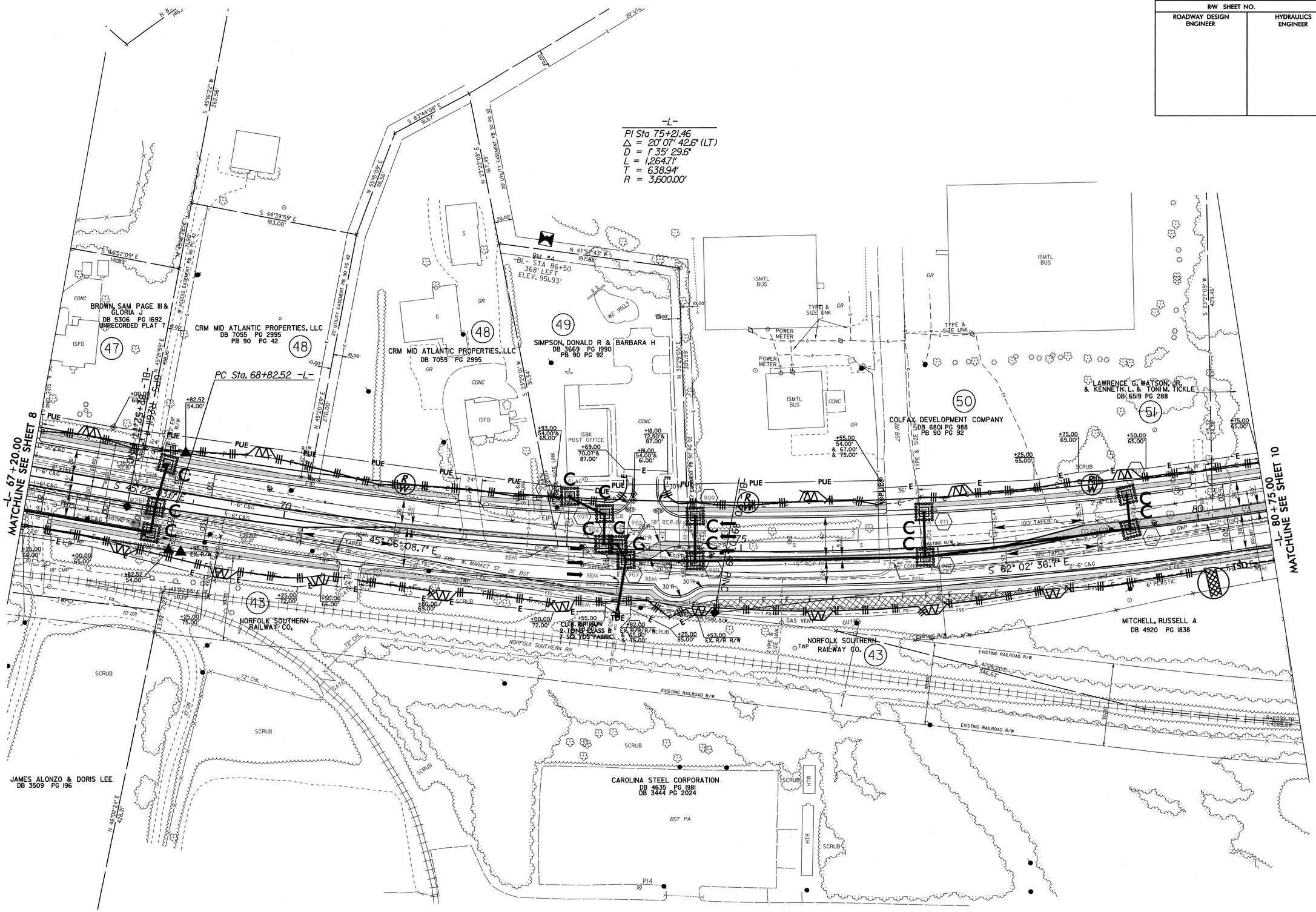
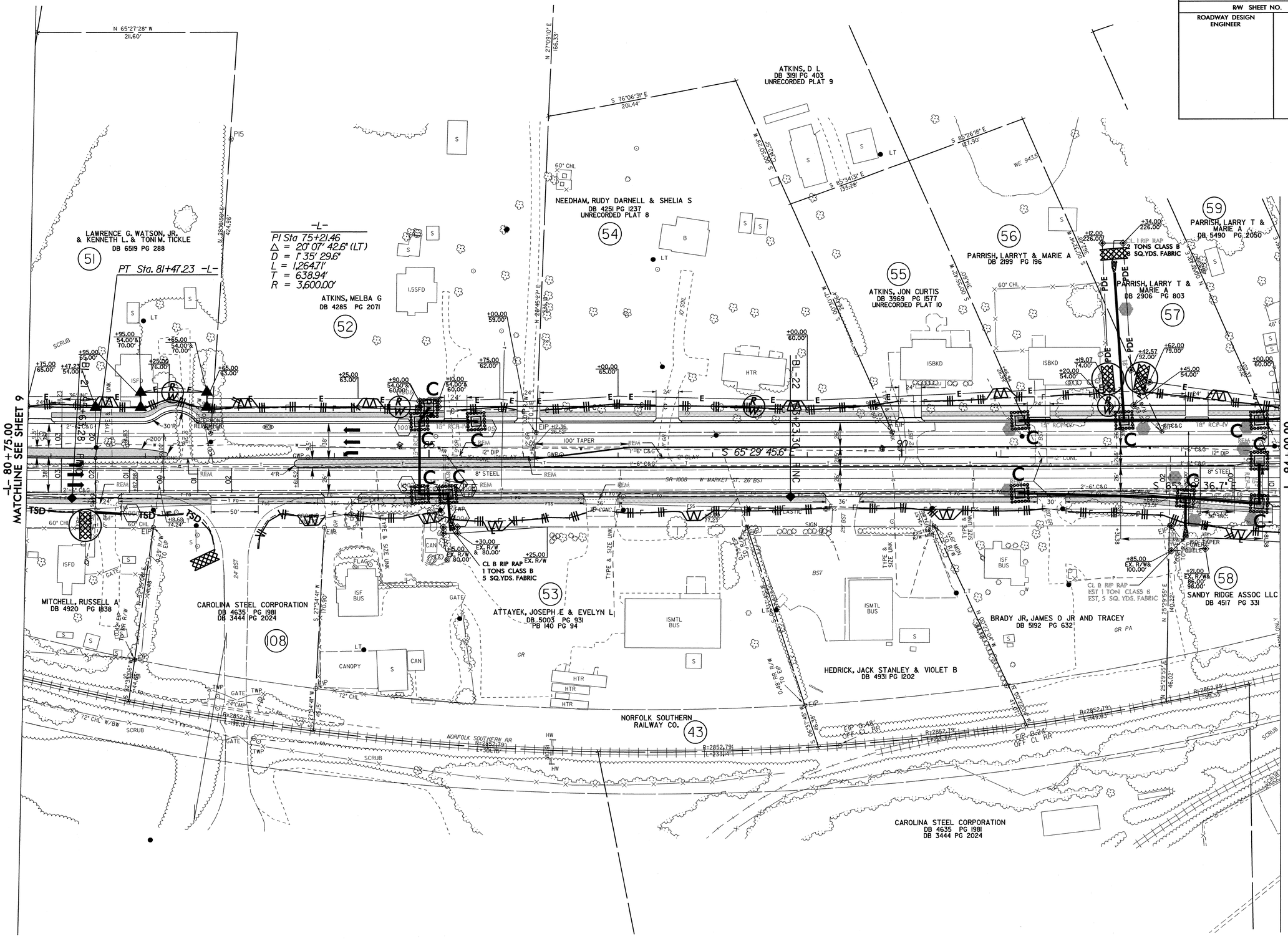
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-30/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-31/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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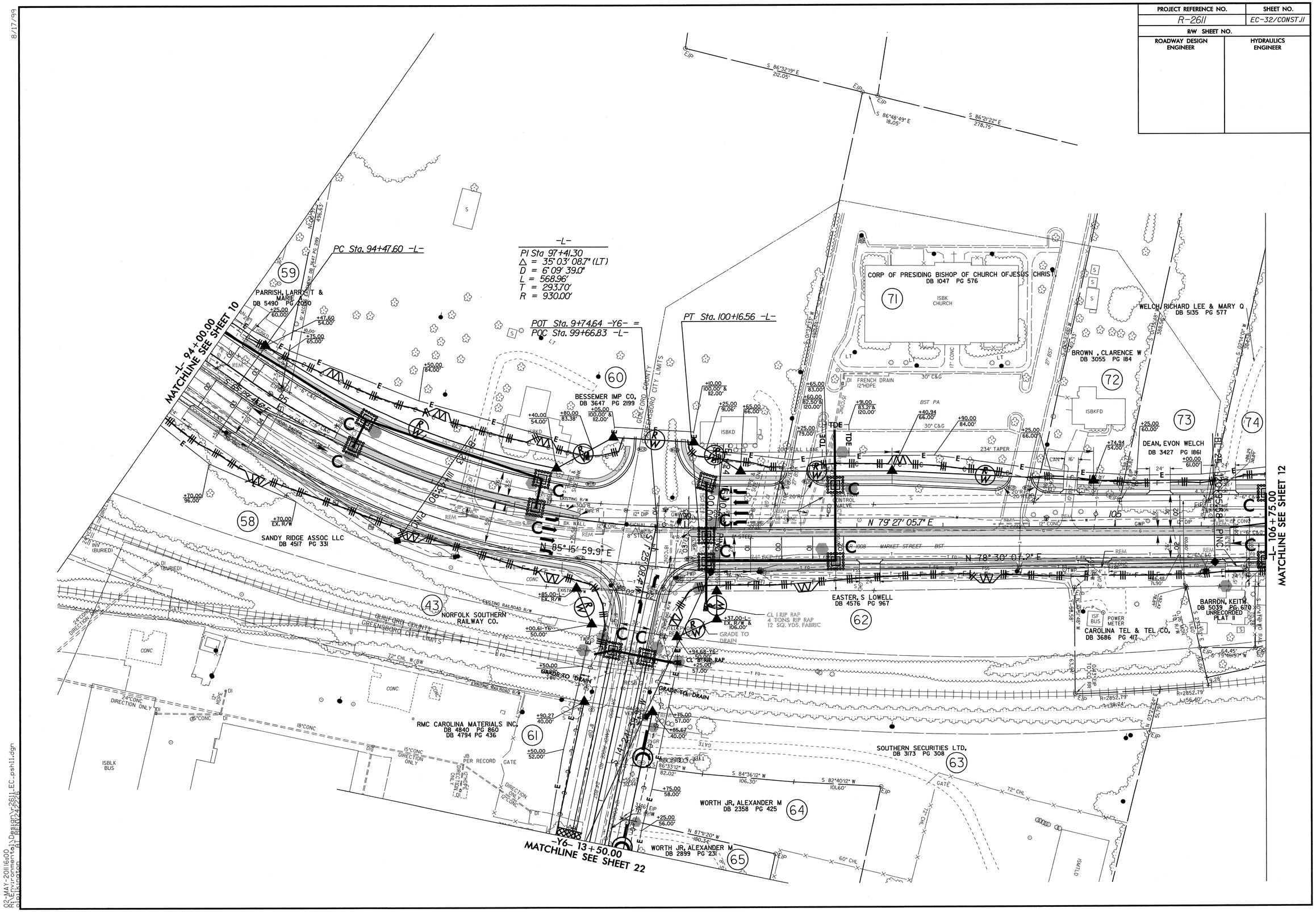
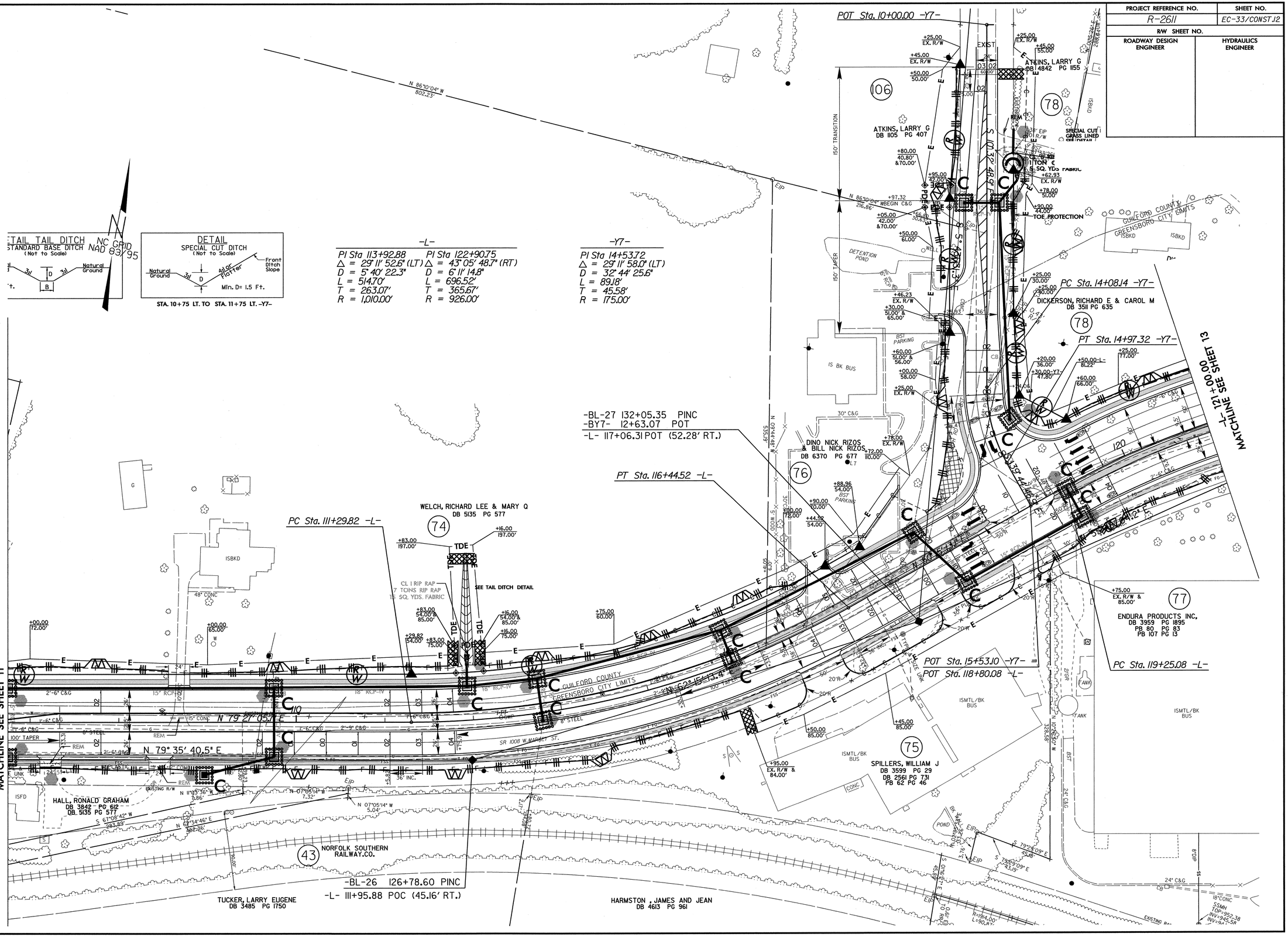
olptkington AT BENW242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-32/CONST.11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-33/CONST12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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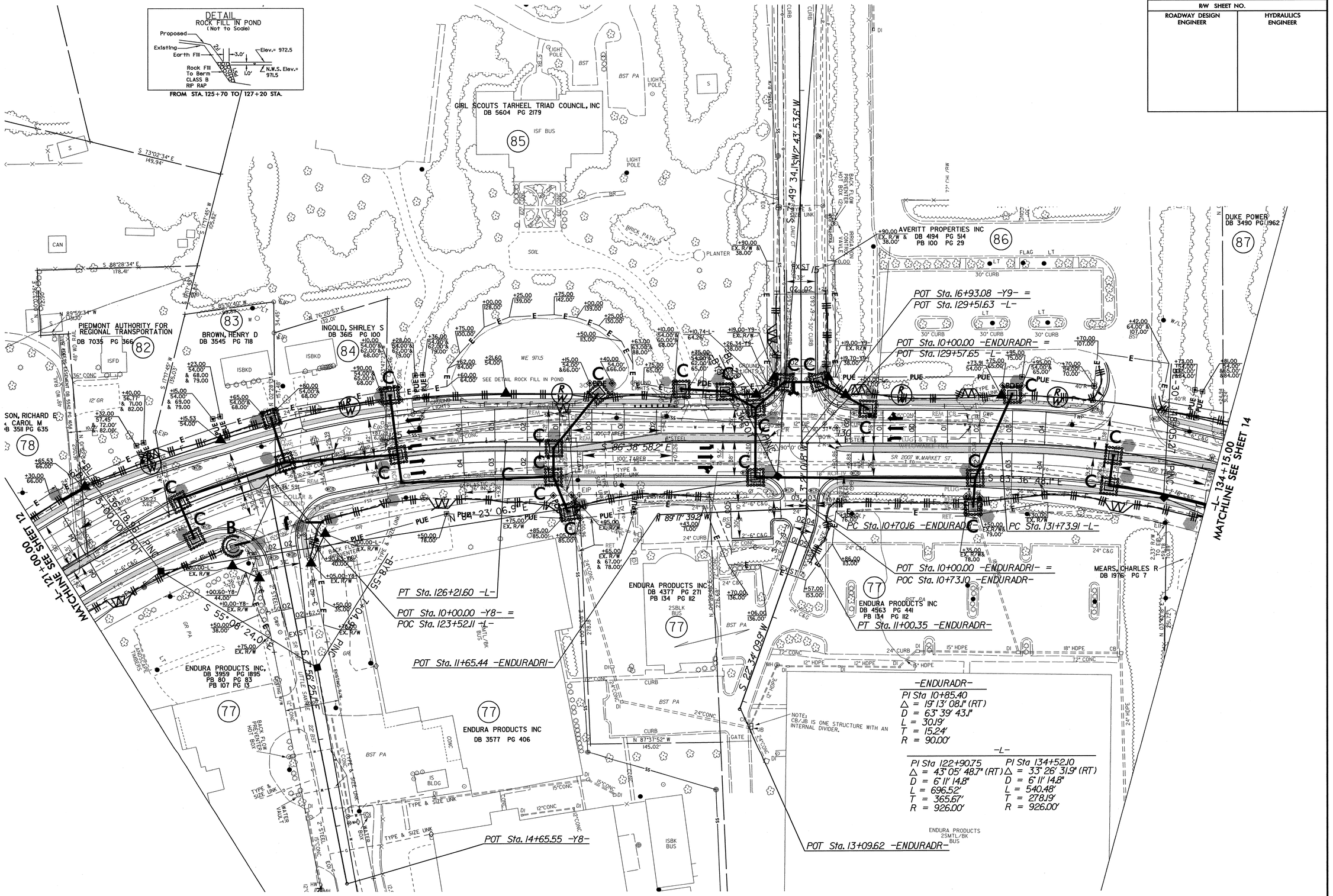
pbolkington AT REN0242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-34/CONST.13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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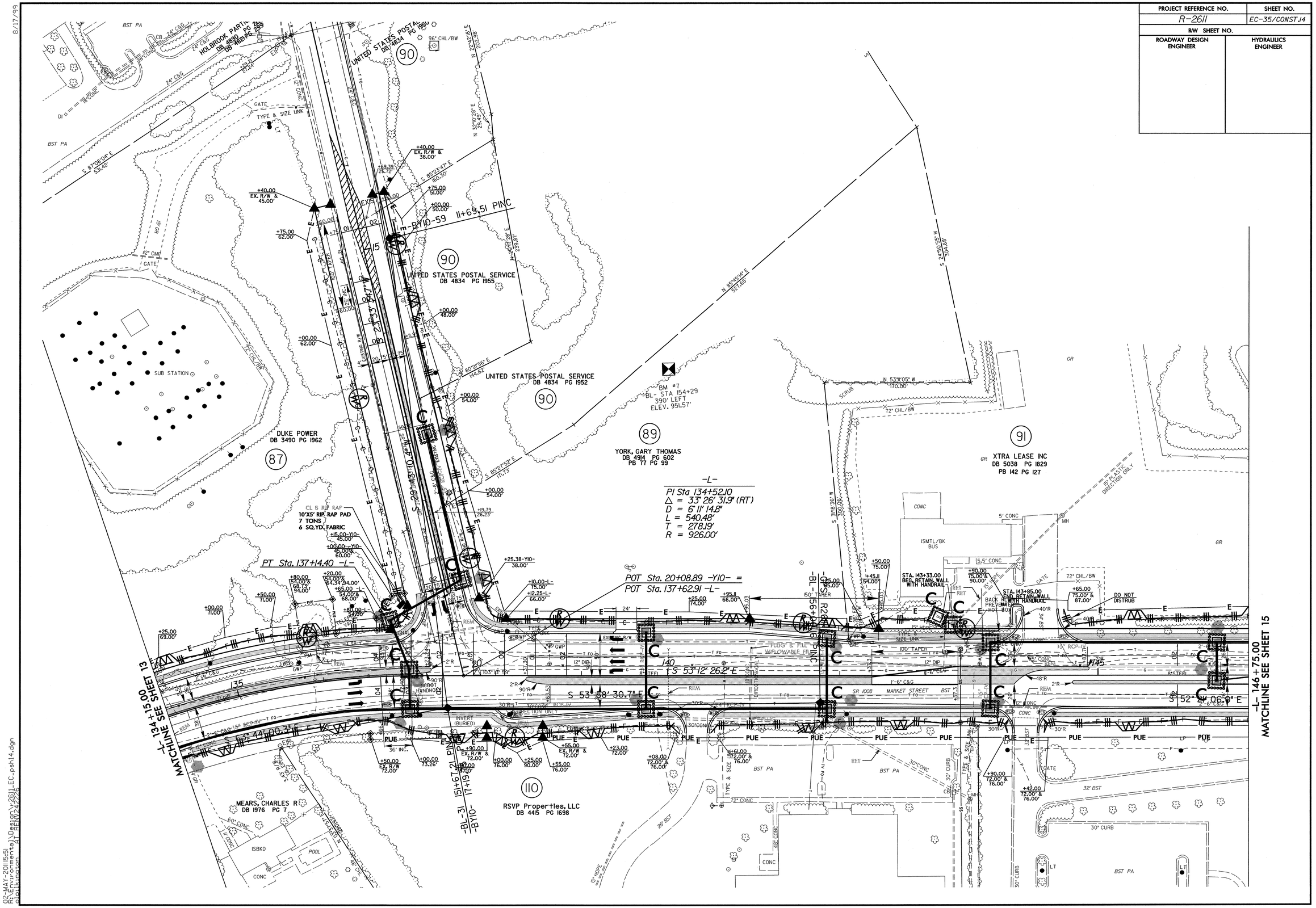
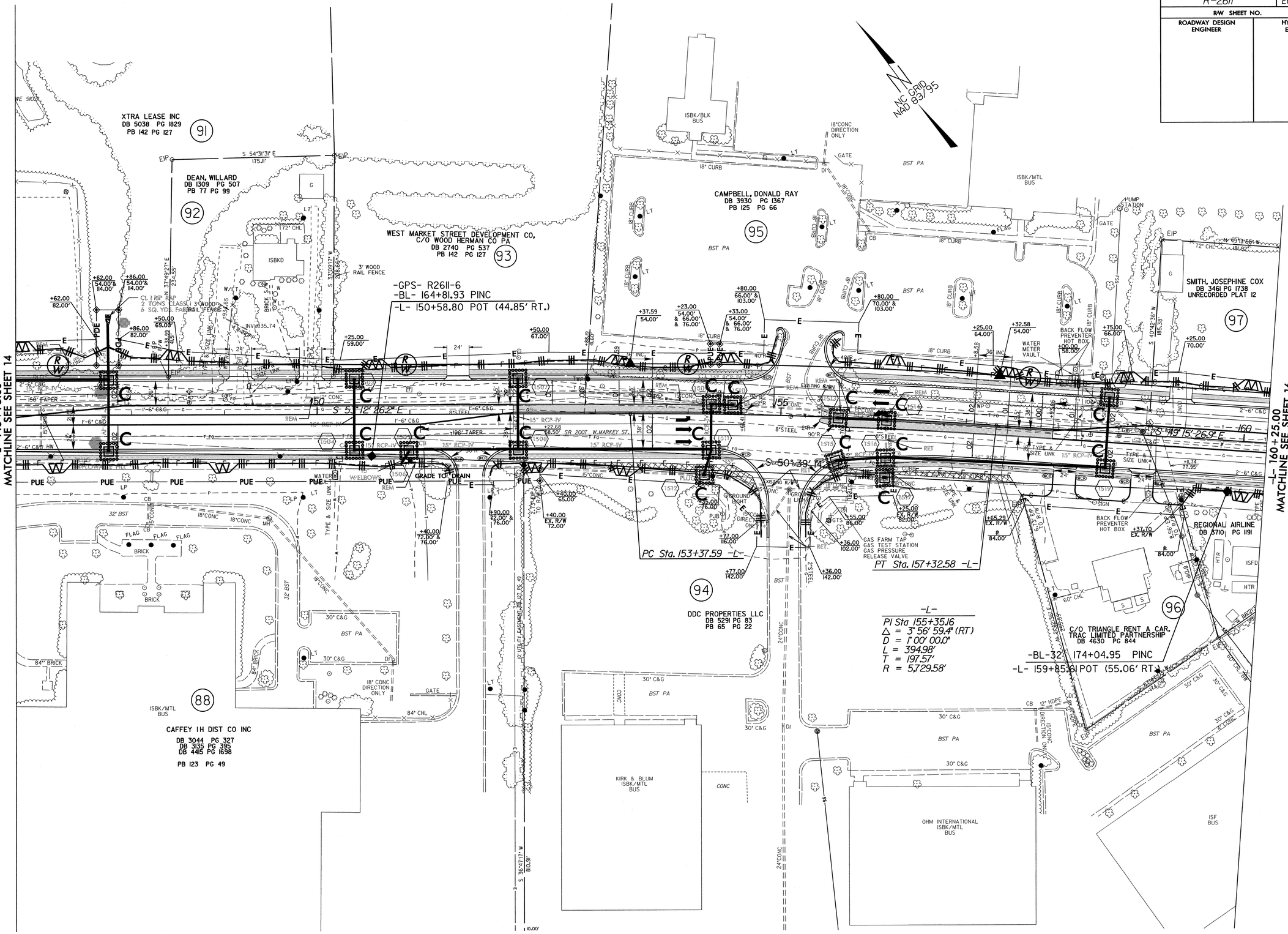
aloikington AT REN/242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-35/CONST.14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-36/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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PROJECT REFERENCE NO.	SHEET NO.
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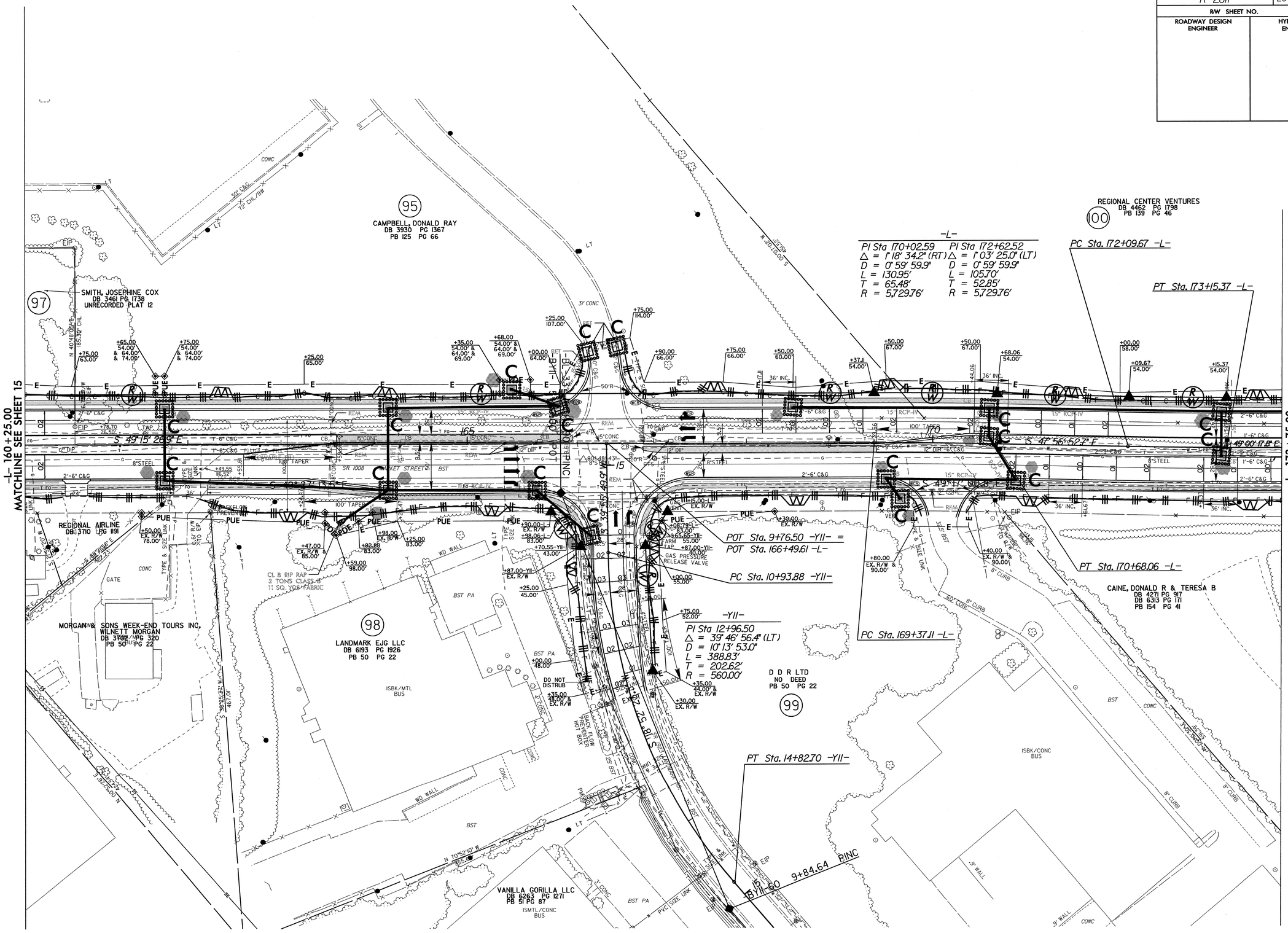
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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PROJECT REFERENCE NO.	SHEET NO.
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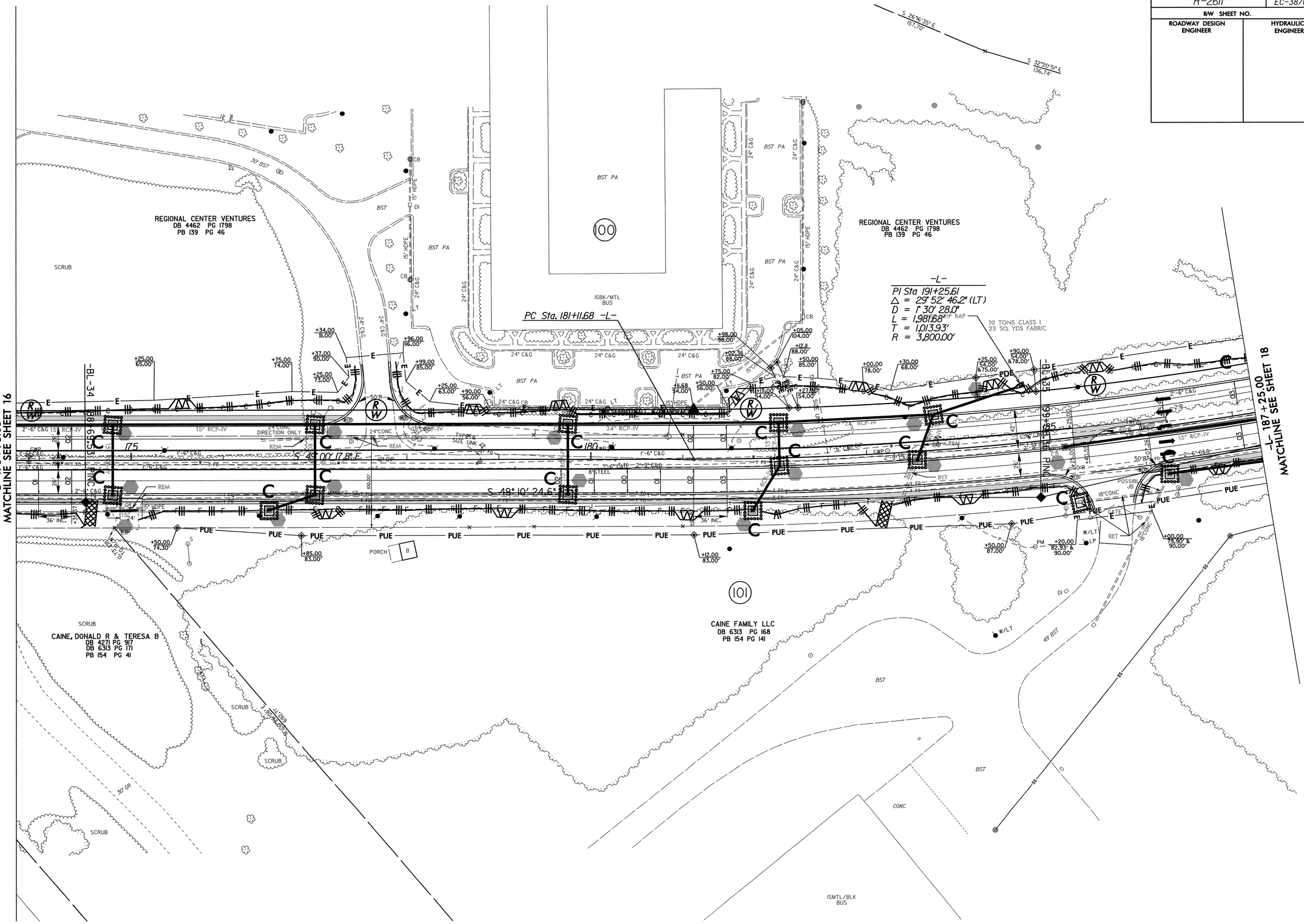
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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olpollkington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
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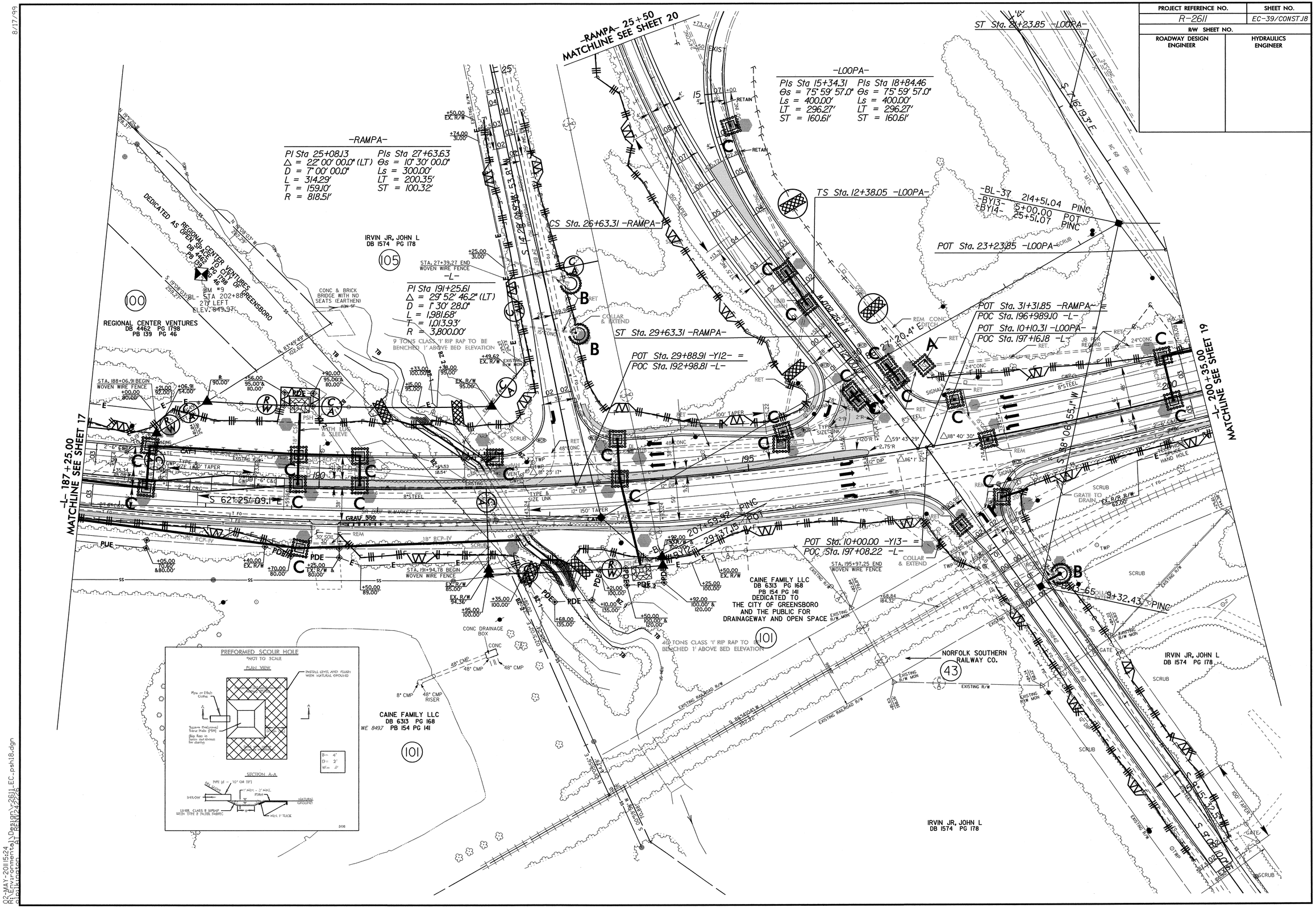
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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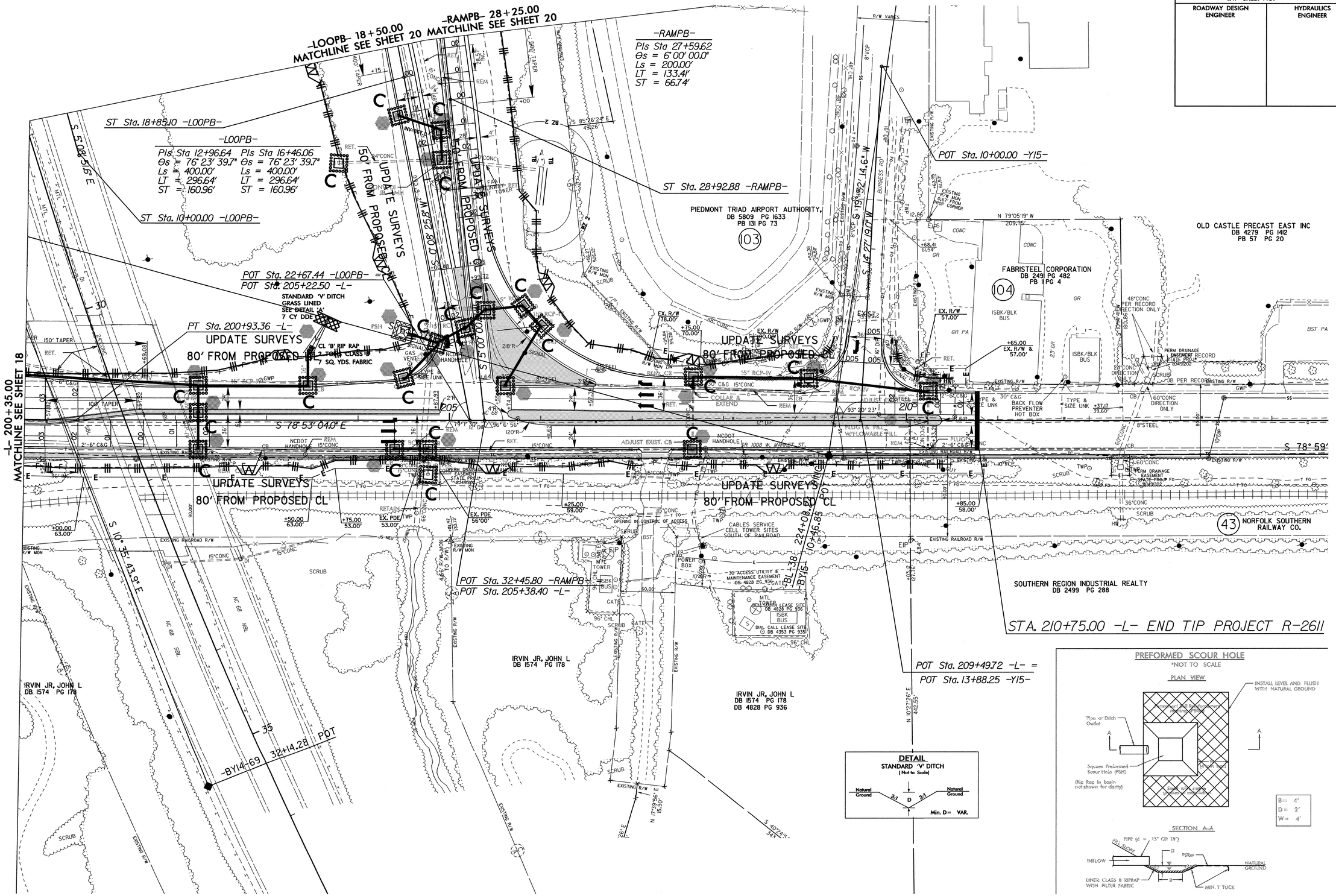
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-40/CONST J9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

8/17/99



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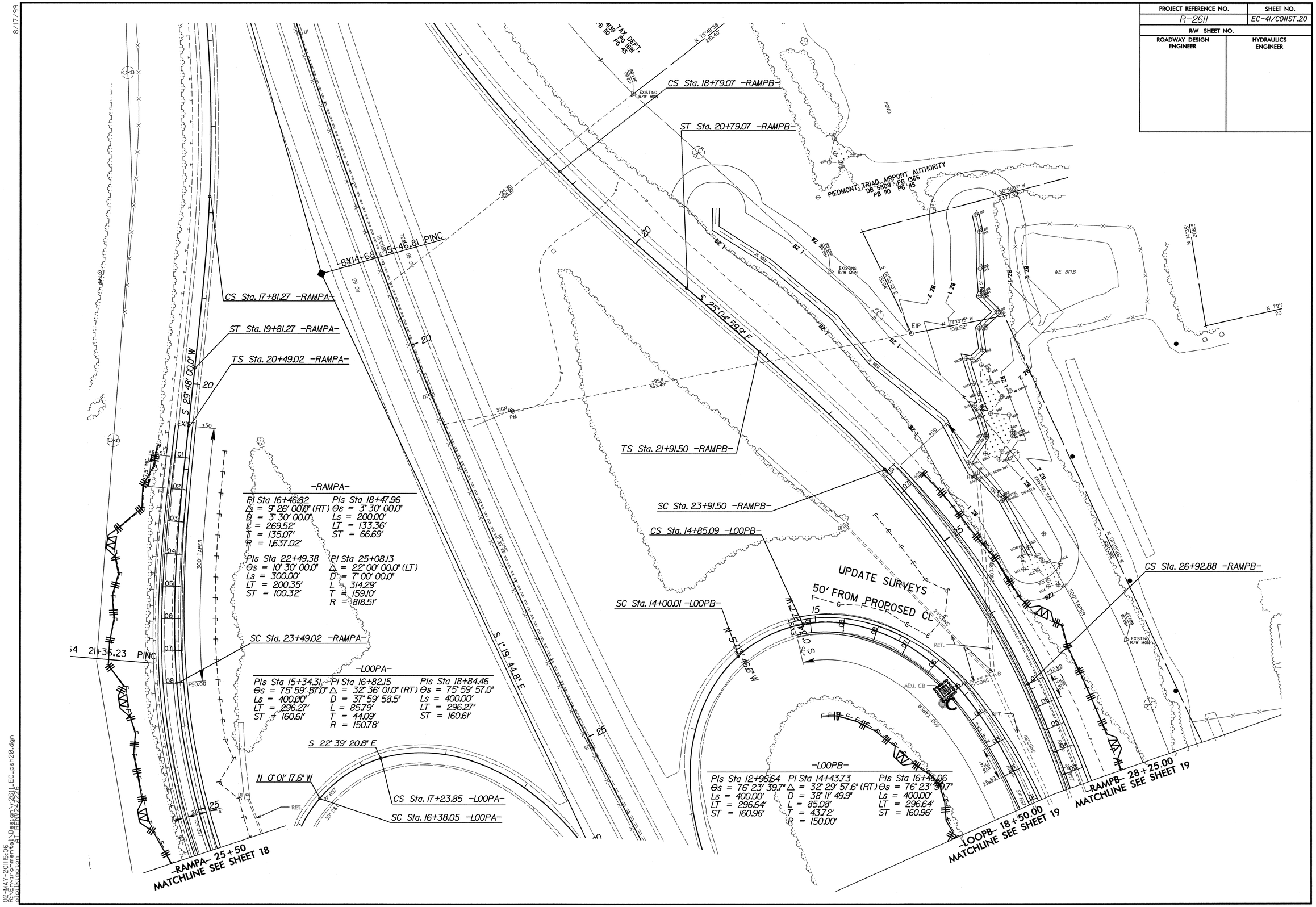
olollington AT REN\242226

PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-41/CONST.20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-RAMPA-

PI Sta 16+46.82	PIs Sta 18+47.96
Δ = 9° 26' 00.0" (RT)	Θs = 3° 30' 00.0"
D = 3° 30' 00.0"	Ls = 200.00'
L = 269.52'	LT = 133.36'
T = 135.07'	ST = 66.69'
R = 1,637.02'	

PIs Sta 22+49.38	PI Sta 25+08.13
Θs = 10° 30' 00.0"	Δ = 22° 00' 00.0" (LT)
Ls = 300.00'	D = 7° 00' 00.0"
LT = 200.35'	L = 314.29'
ST = 100.32'	T = 159.10'
	R = 818.51'

-LOOPA-

PIs Sta 15+34.31	PI Sta 16+82.15	PIs Sta 18+84.46
Θs = 75° 59' 57.0"	Δ = 32° 36' 01.0" (RT)	Θs = 75° 59' 57.0"
Ls = 400.00'	D = 37° 59' 58.5"	Ls = 400.00'
LT = 296.27'	L = 85.79'	LT = 296.27'
ST = 160.61'	T = 44.09'	ST = 160.61'
	R = 150.78'	

-LOOPB-

PIs Sta 12+96.64	PI Sta 14+43.73	PIs Sta 16+45.06
Θs = 76° 23' 39.7"	Δ = 32° 29' 57.6" (RT)	Θs = 76° 23' 39.7"
Ls = 400.00'	D = 38° 11' 49.9"	Ls = 400.00'
LT = 296.64'	L = 85.08'	LT = 296.64'
ST = 160.96'	T = 43.72'	ST = 160.96'
	R = 150.00'	

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PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-42/CONST.21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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02-MAY-2011 5:03
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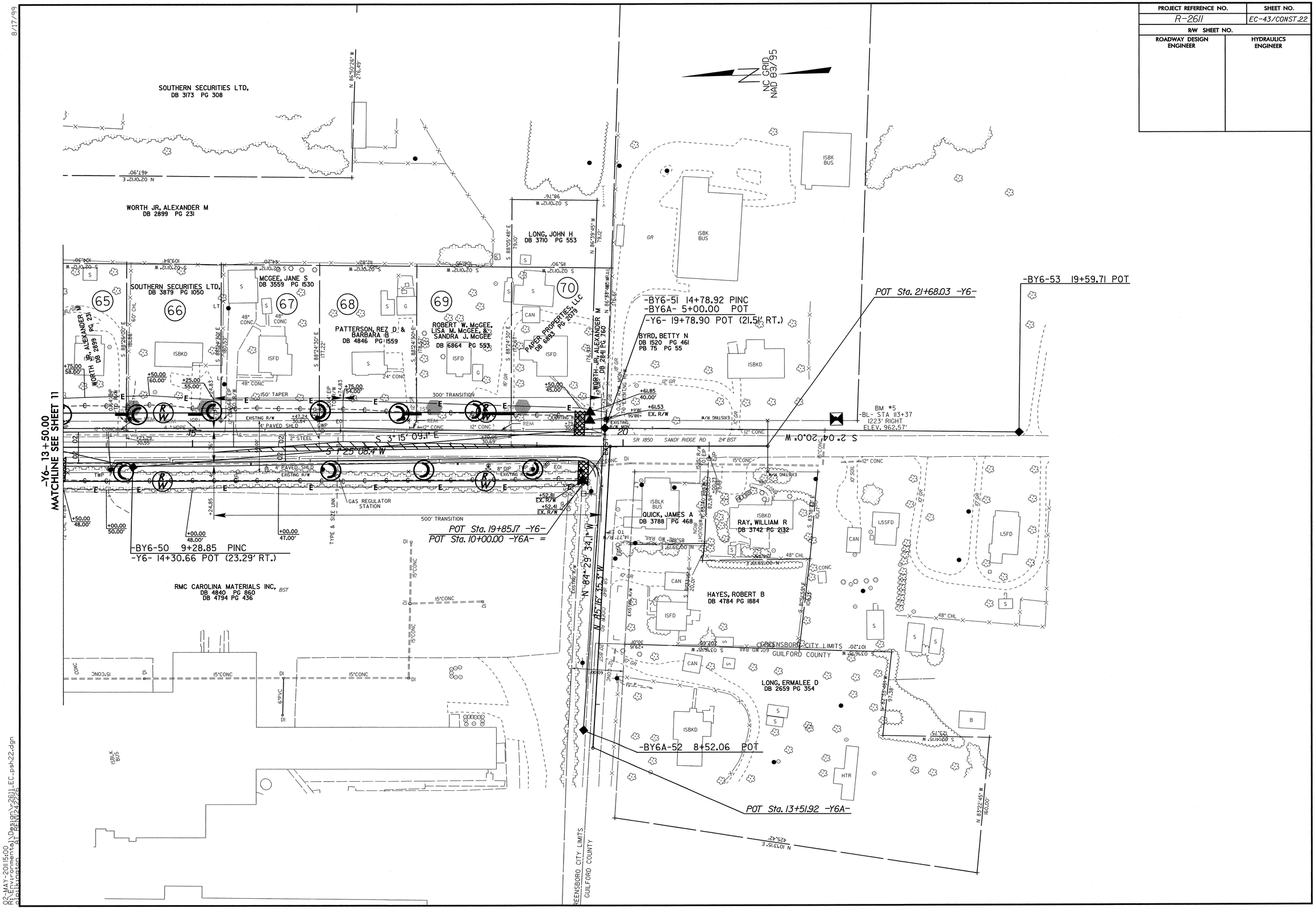
PROJECT REFERENCE NO.	SHEET NO.
R-2611	EC-43/CONST.22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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