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**TIP PROJECT: W-5601EV**

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**COLUMBUS COUNTY**

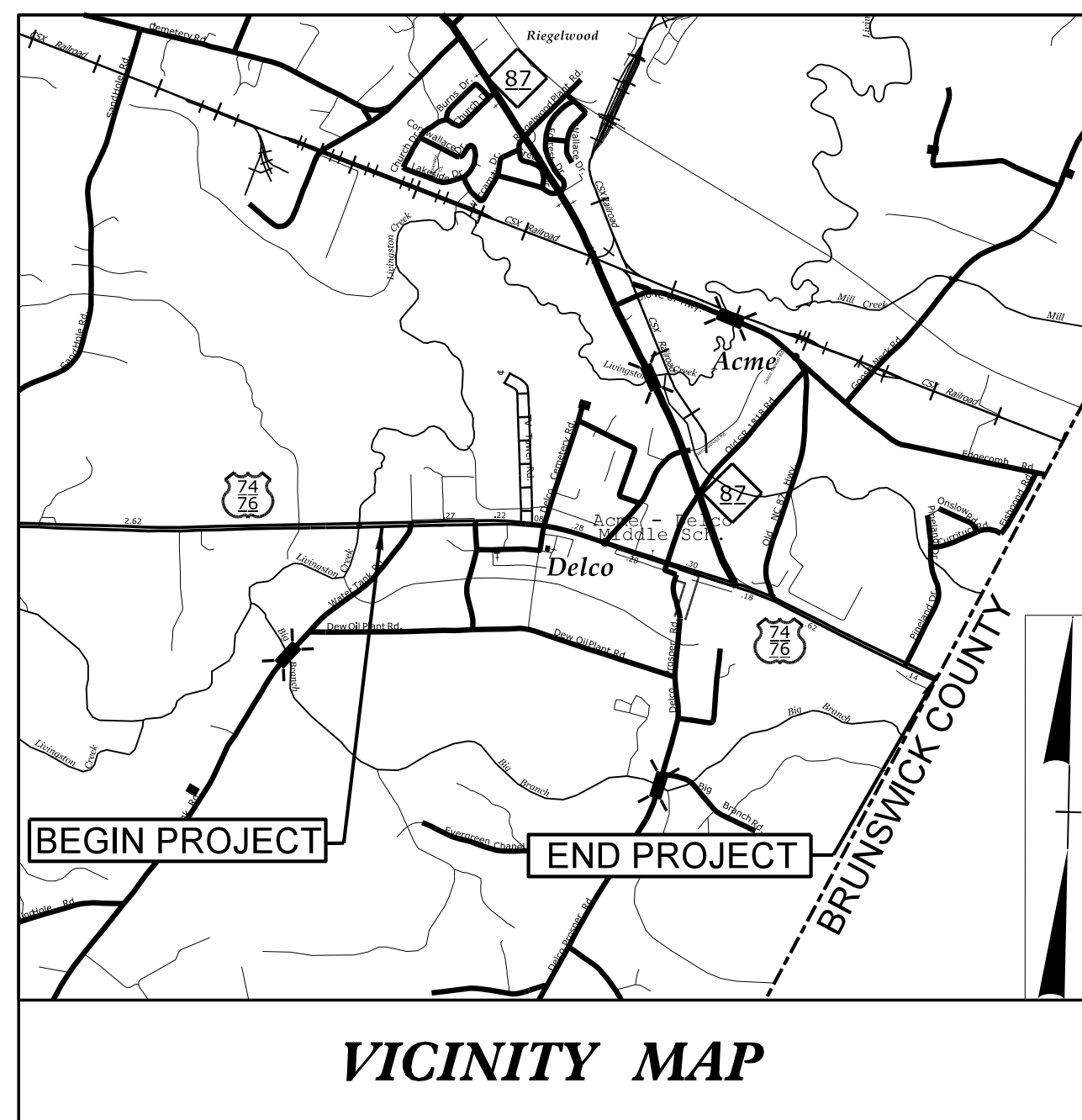
LOCATION: US74 FROM SR 1824 TO BRUNSWICK COUNTY LINE

TYPE OF WORK: GRADING, PAVING, DRAINAGE, PAVEMENT MARKINGS/MARKERS,  
AND SIGNAL



Stantec Consulting Services Inc.  
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License No. F-0672

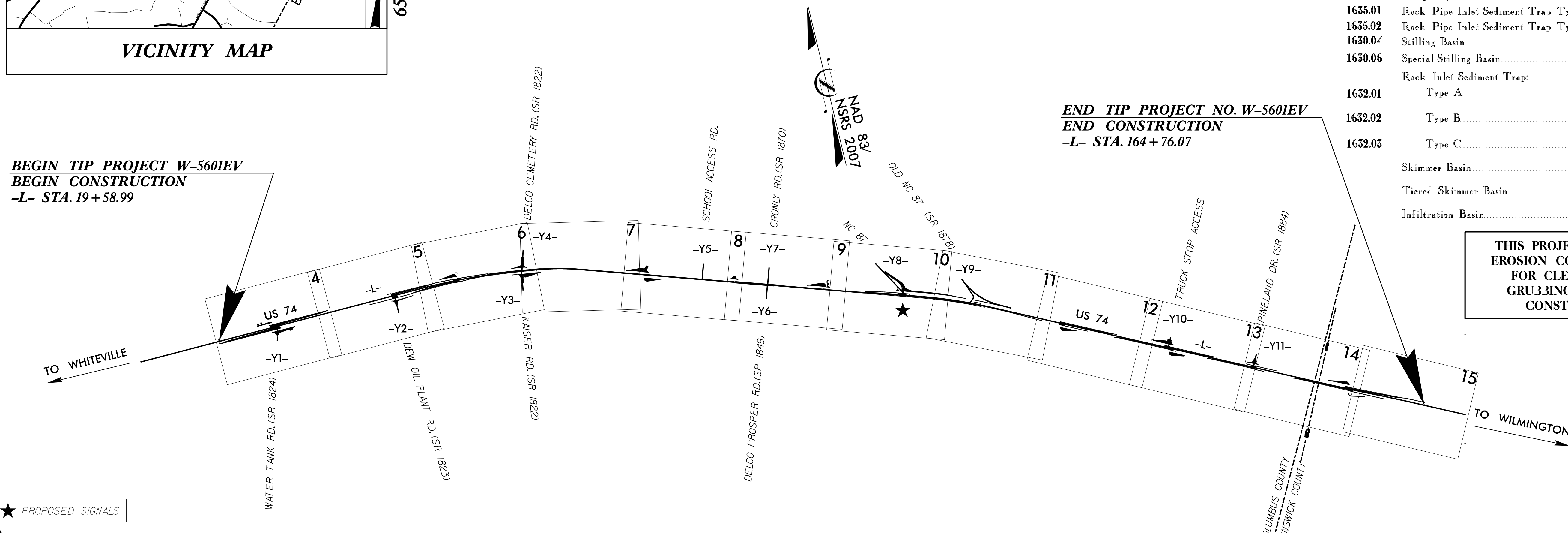
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601EV	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.153	HSIP - 0074 (186)	P.E.	
50138.2.153	NA	RW UTIL.	
50138.3.153	NA	CONST.	



65% PLANS

BEGIN TIP PROJECT W-5601EV  
BEGIN CONSTRUCTION  
-L- STA. 19+58.99

END TIP PROJECT NO. W-5601EV  
END CONSTRUCTION  
-L- STA. 164+76.07

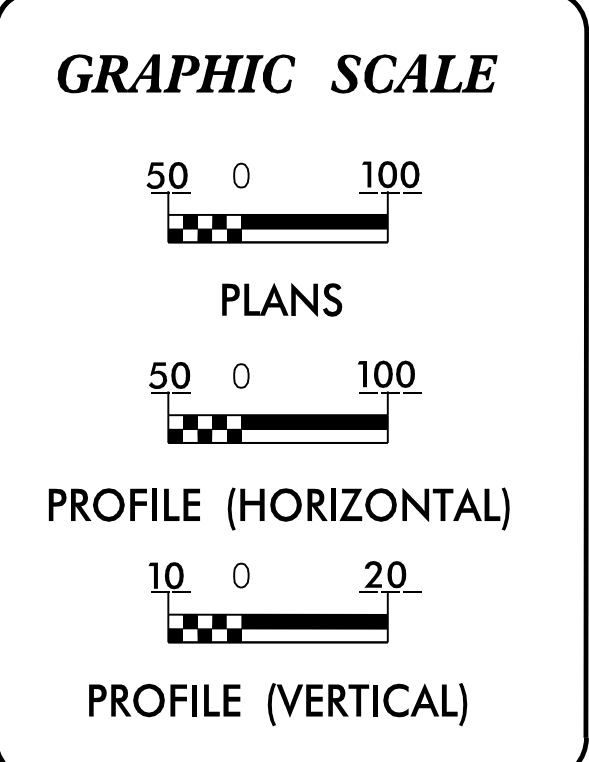


★ PROPOSED SIGNALS

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

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSB
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TBD
1630.02	Silt Basin Type B	SB
1633.01	Temporary Rock Silt Check Type-A	RS
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	RS-PAM
1633.02	Temporary Rock Silt Check Type-B	RS-B
	Wattle / Coir Fiber Wattle	W
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	W-PAM
1634.01	Temporary Rock Sediment Dam Type-A	RD-A
1634.02	Temporary Rock Sediment Dam Type-B	RD-B
1635.01	Rock Pipe Inlet Sediment Trap Type-A	RPIA
1635.02	Rock Pipe Inlet Sediment Trap Type-B	RPIB
1630.04	Stilling Basin	SB
1630.06	Special Stilling Basin	SSB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	TSK
	Infiltration Basin	IB



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES.

Prepared in the Office of:  
**MI ENGINEERING**  
1011 SCHAUB DR, SUITE 100  
RALEIGH, NC 27606

Designed by:  
**KAREN HEFNER, PE** 3428  
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:  
**ROADSIDE ENVIRONMENTAL UNIT**  
1 South Wilmington St.  
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:  
**MARK STALEY, CPESC, CPSWQ**

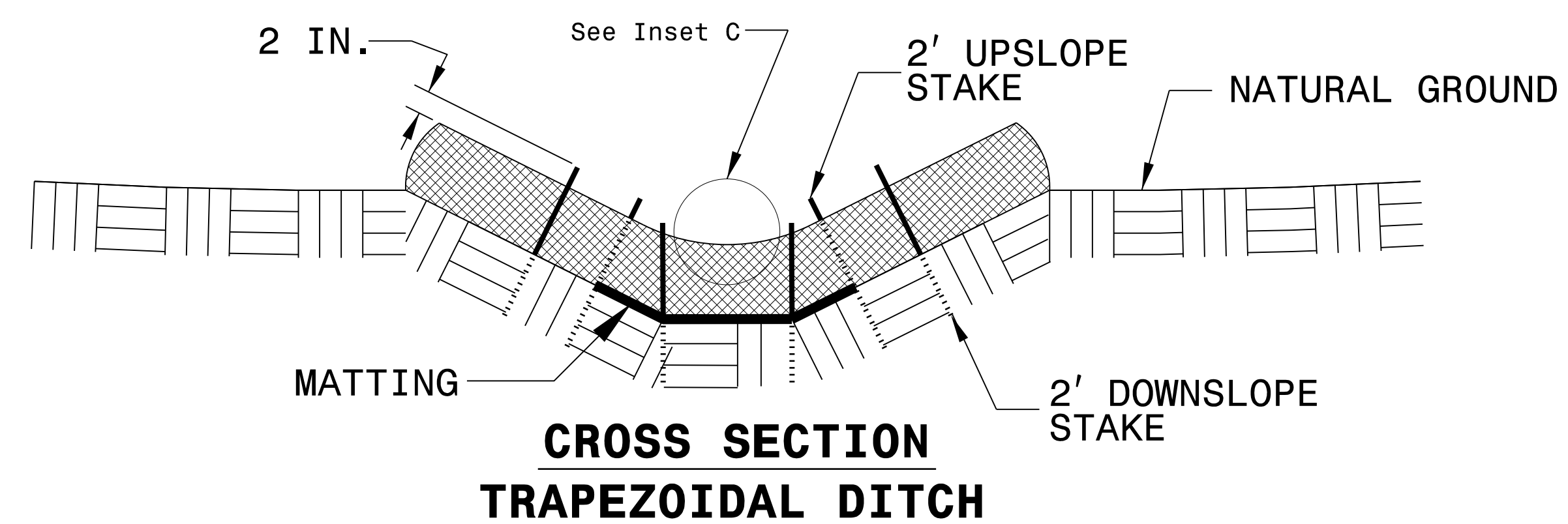
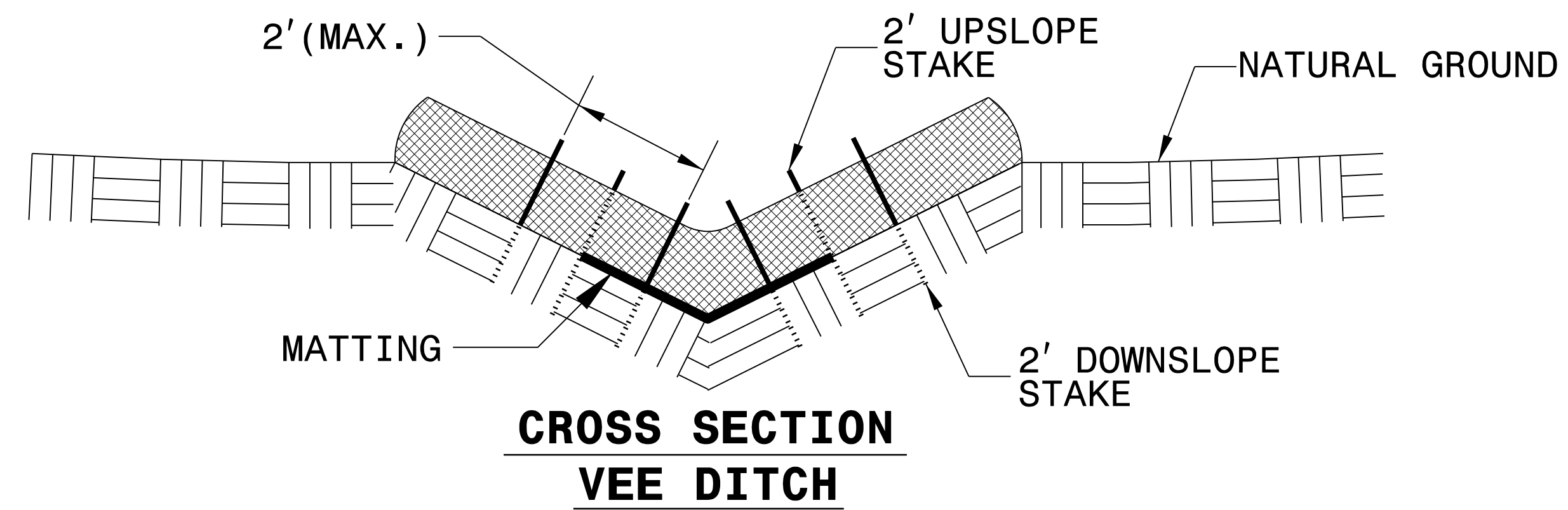
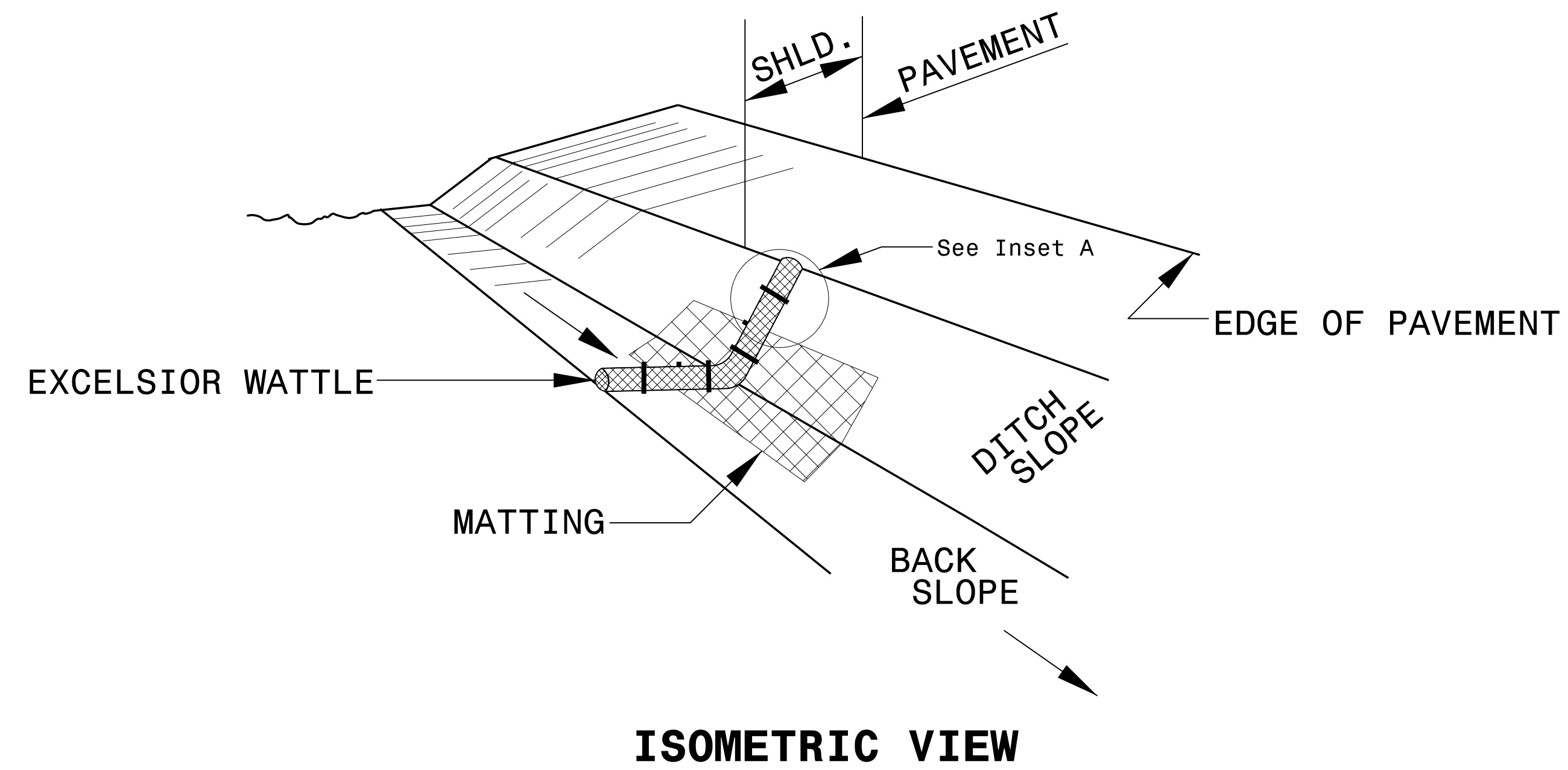
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type A	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 Jaffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

PROJECT REFERENCE NO. W-5601EV	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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

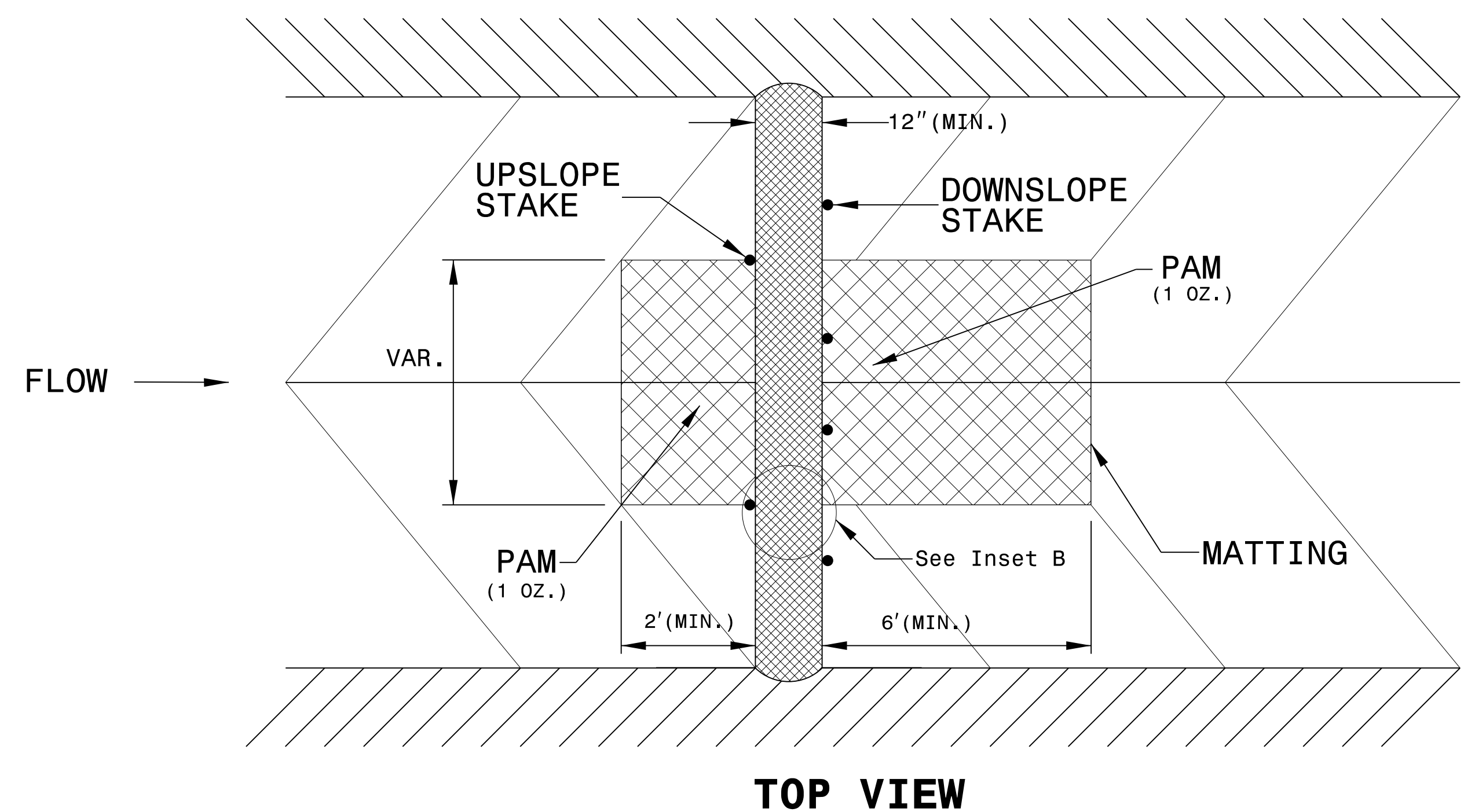
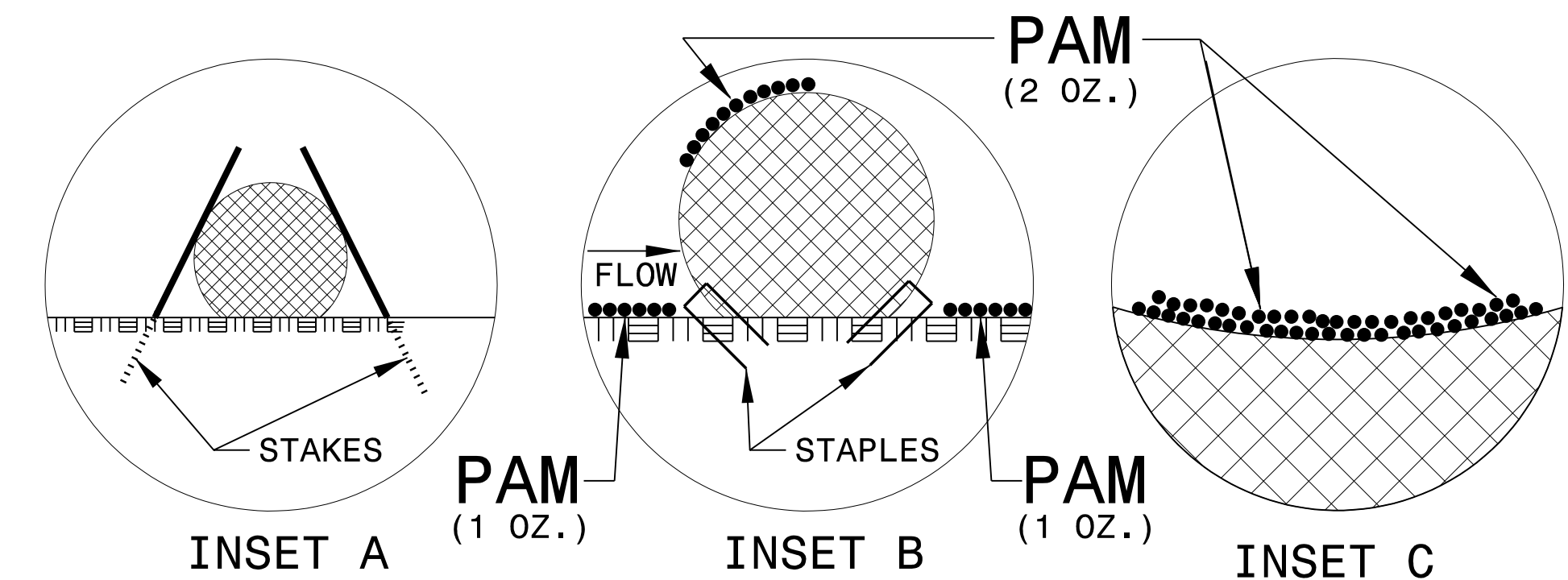
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

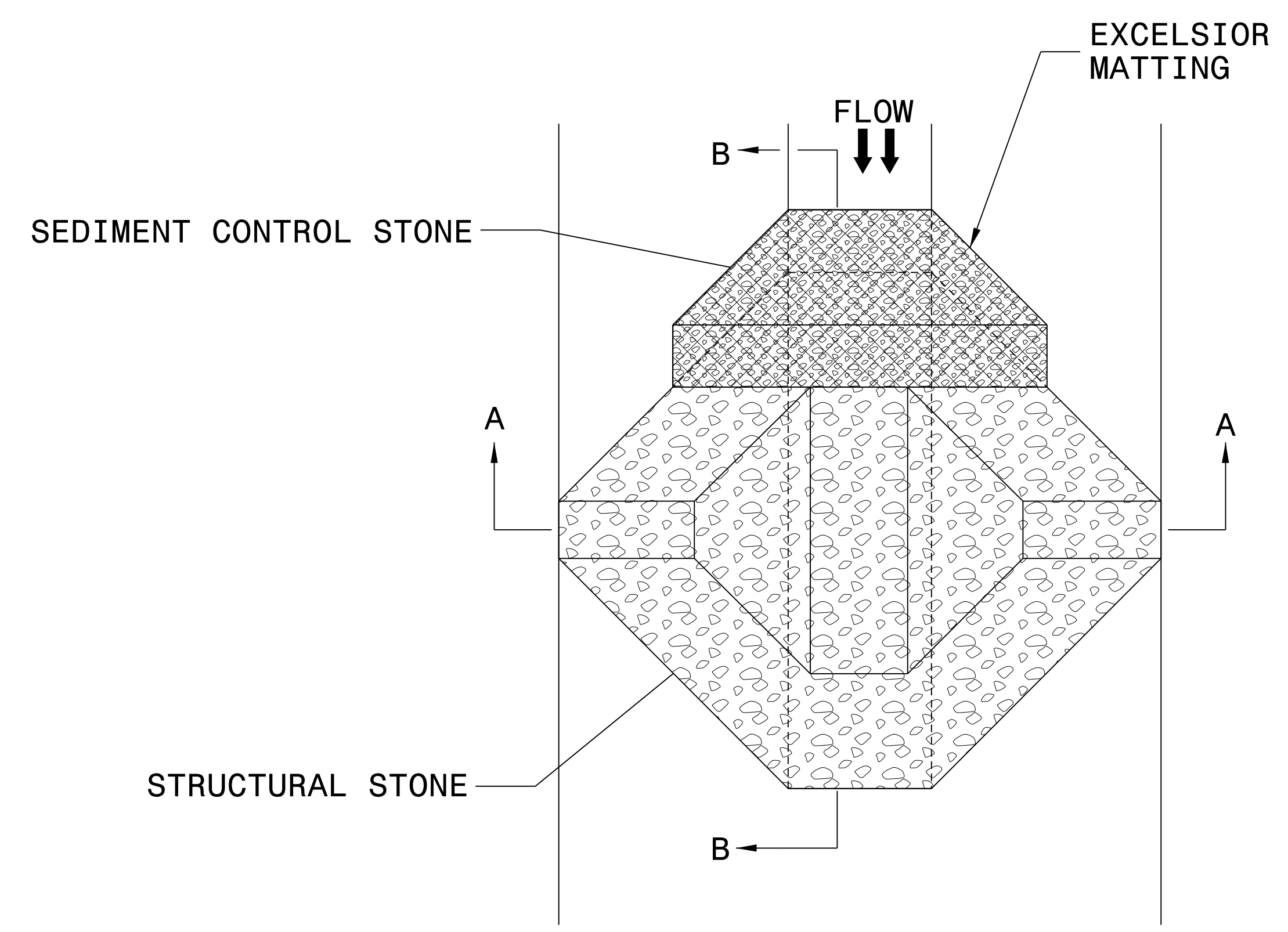
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO. W-5601EV	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

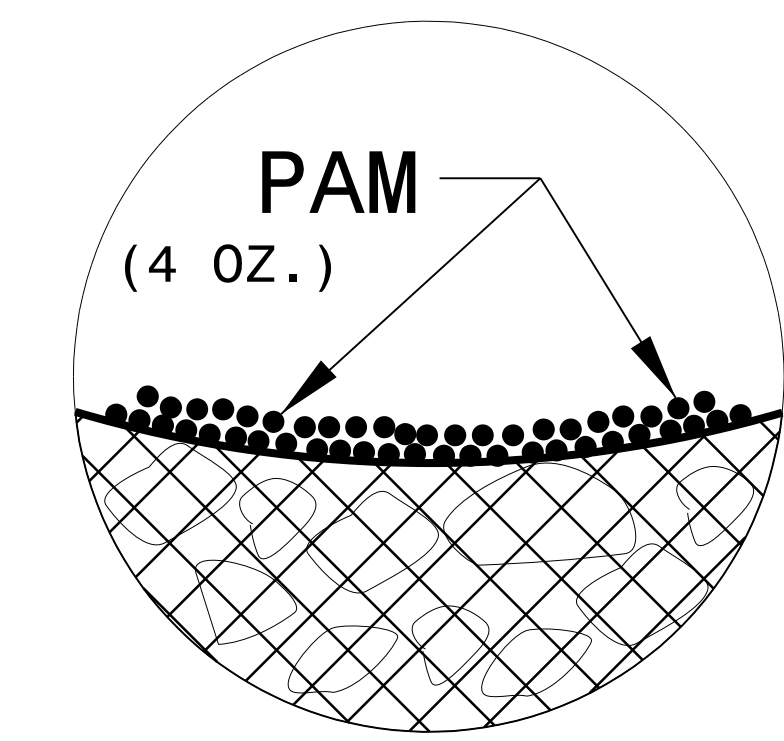
**NOTES:**

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

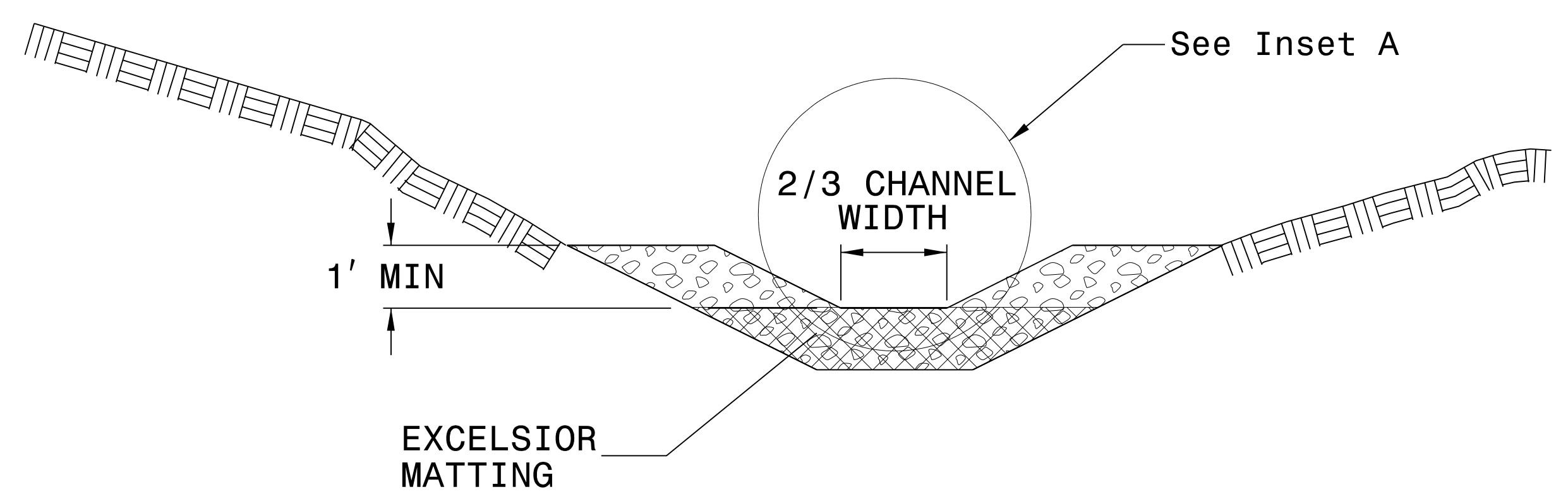
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

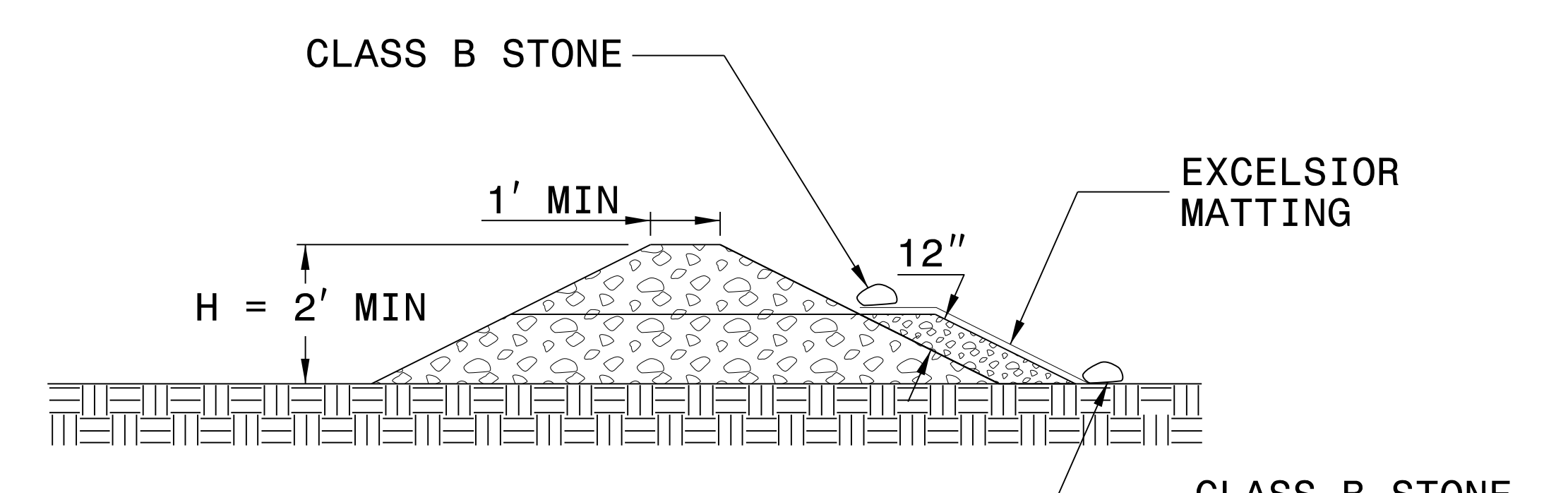
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

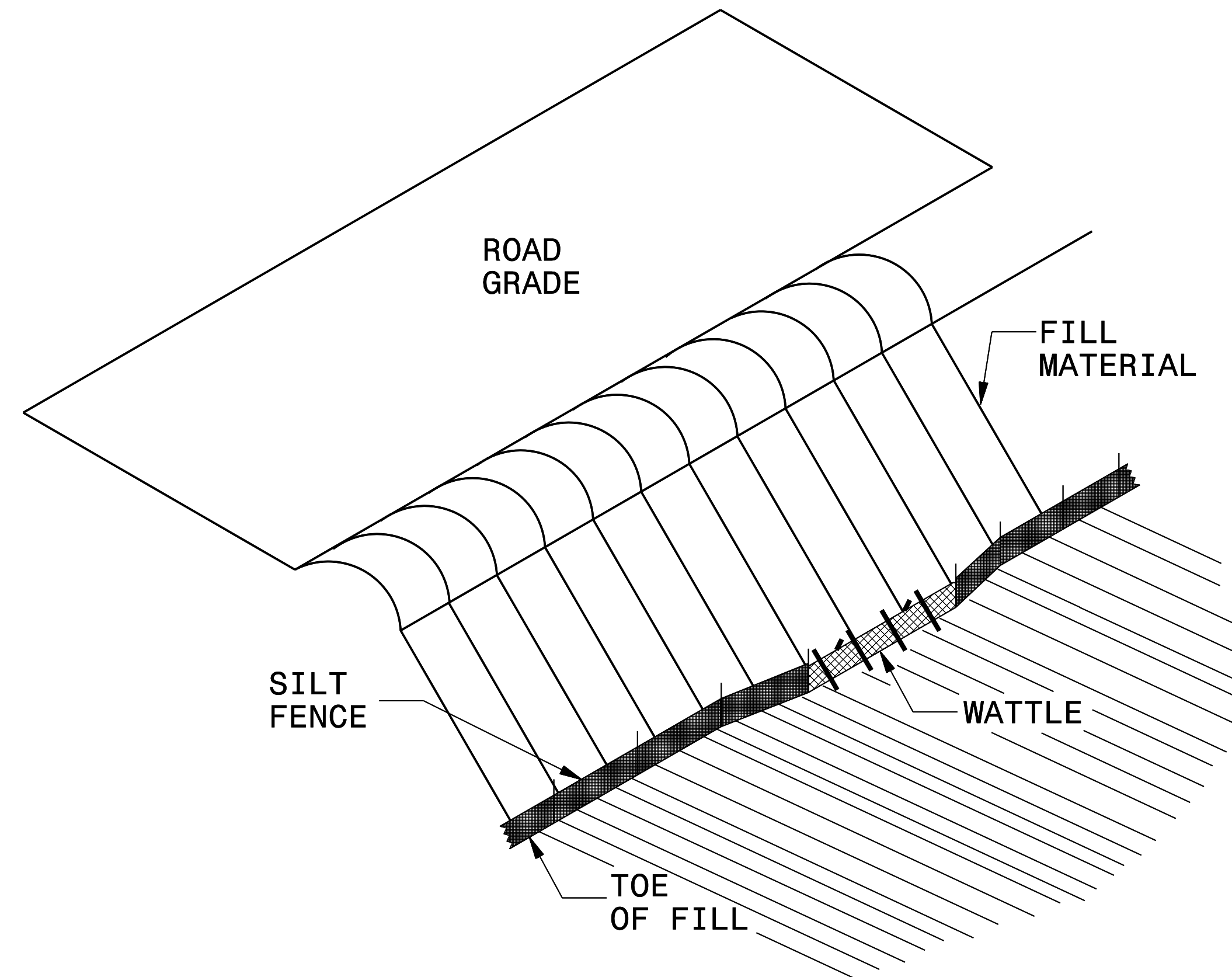


SECTION B-B

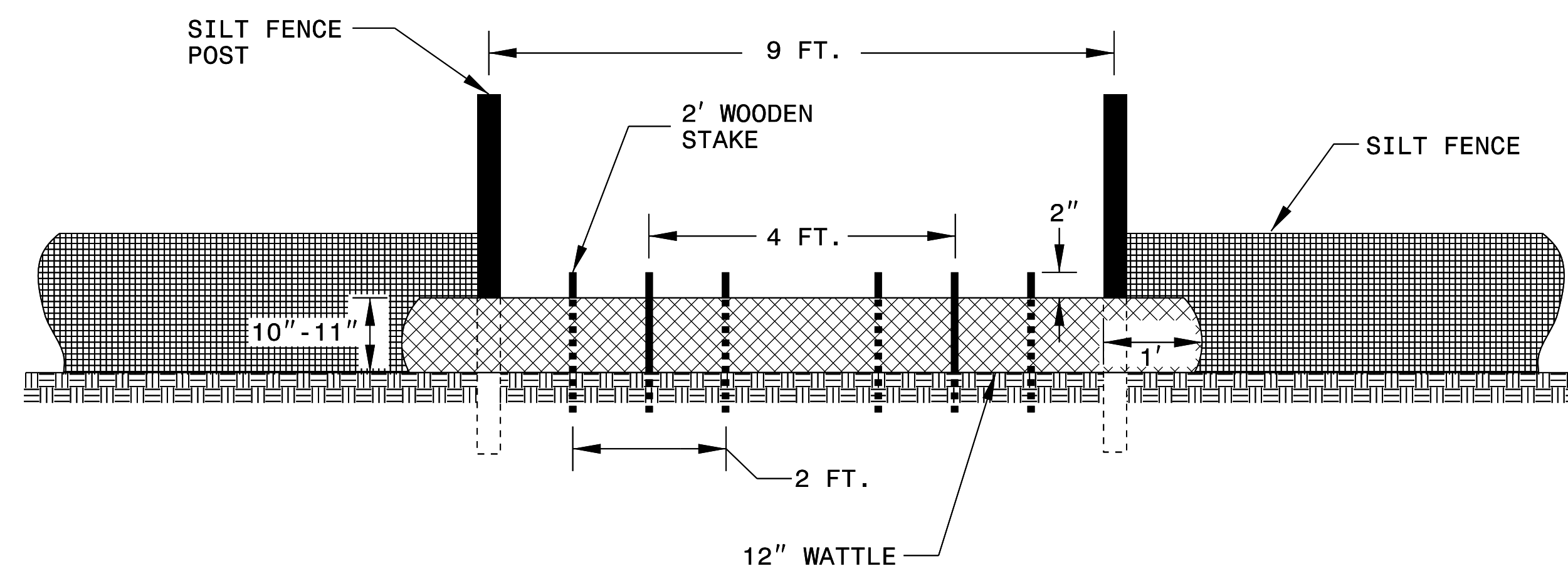
NOT TO SCALE

PROJECT REFERENCE NO. W-5601EV	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SILT FENCE WATTLE BREAK DETAIL



**ISOMETRIC VIEW**

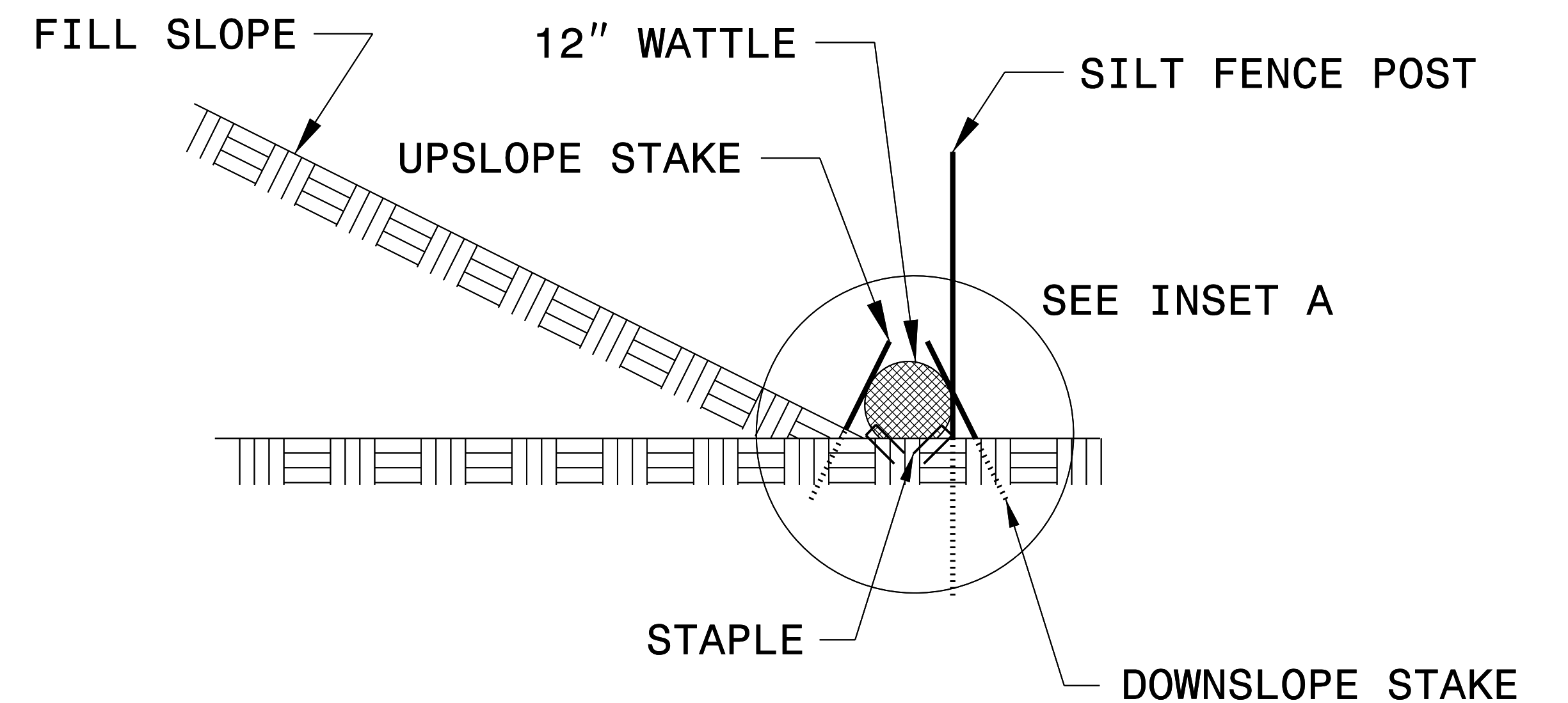
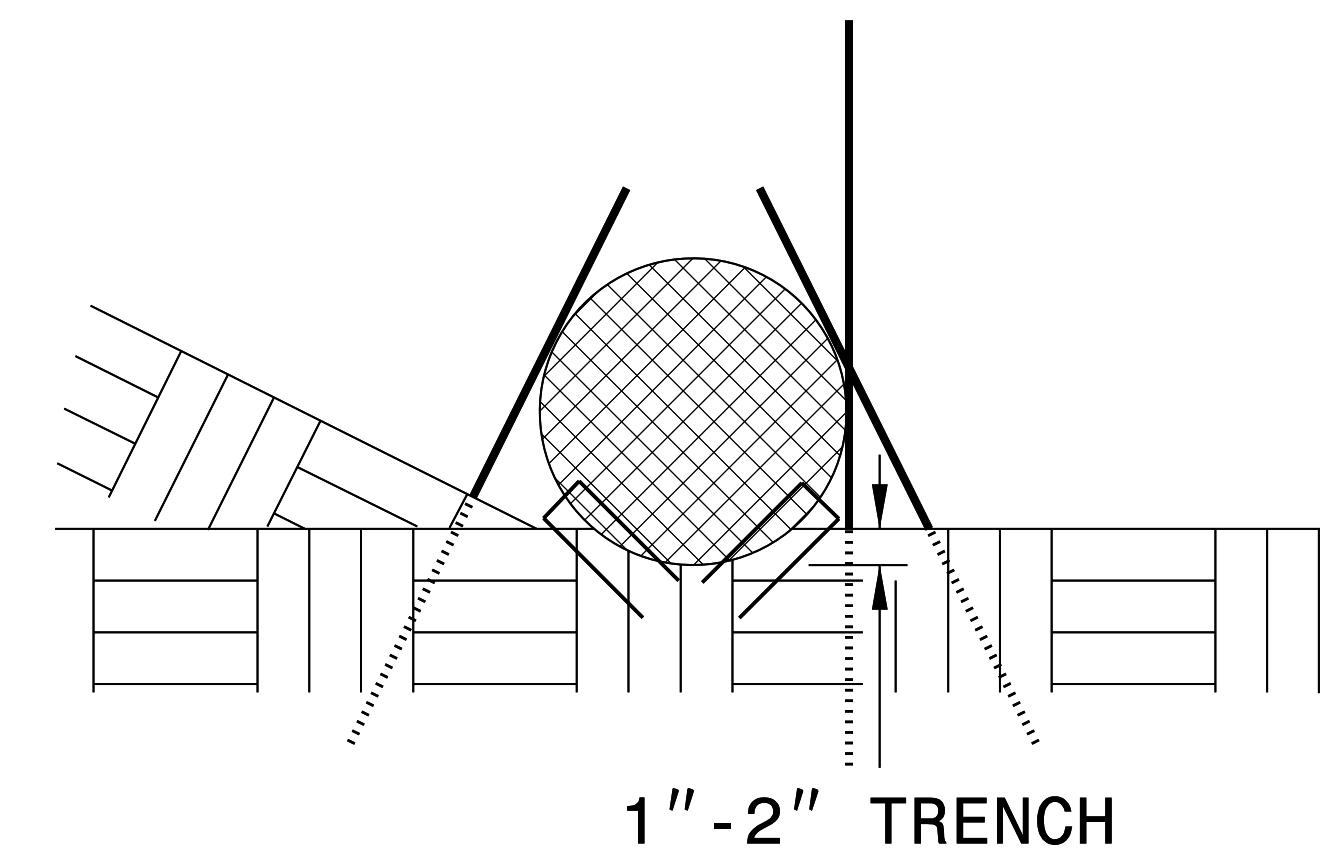


**VIEW FROM SLOPE**

**NOTES:**

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE 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.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**



**SIDE VIEW**



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>W-5601EV</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
W-5601EV	EC-04/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/2007

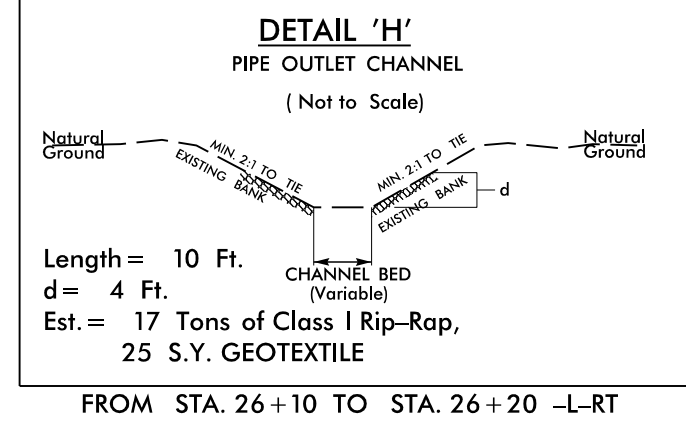
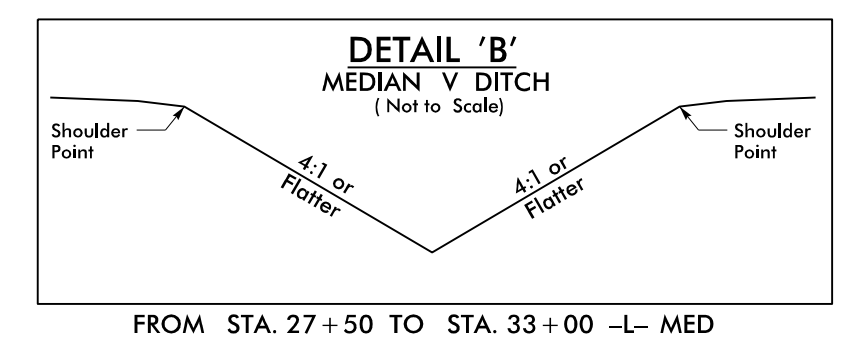
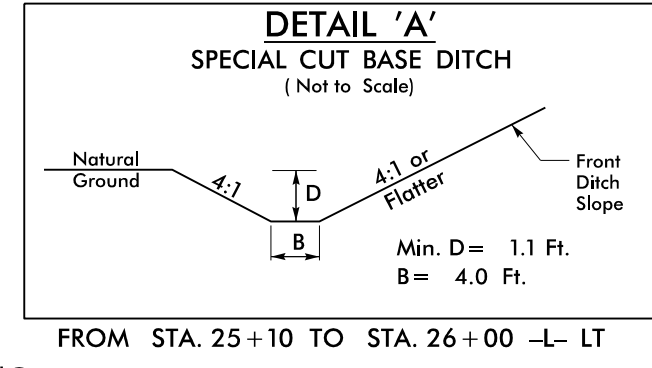
# CLEARING & GRUBBING PLAN

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.

NOTE:  
 PERIMETER EROSION CONTROL MEASURES SHALL BE  
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

**BEGIN TIP PROJECT W-5601EV**  
**-L- POT STA. 19+59.11**

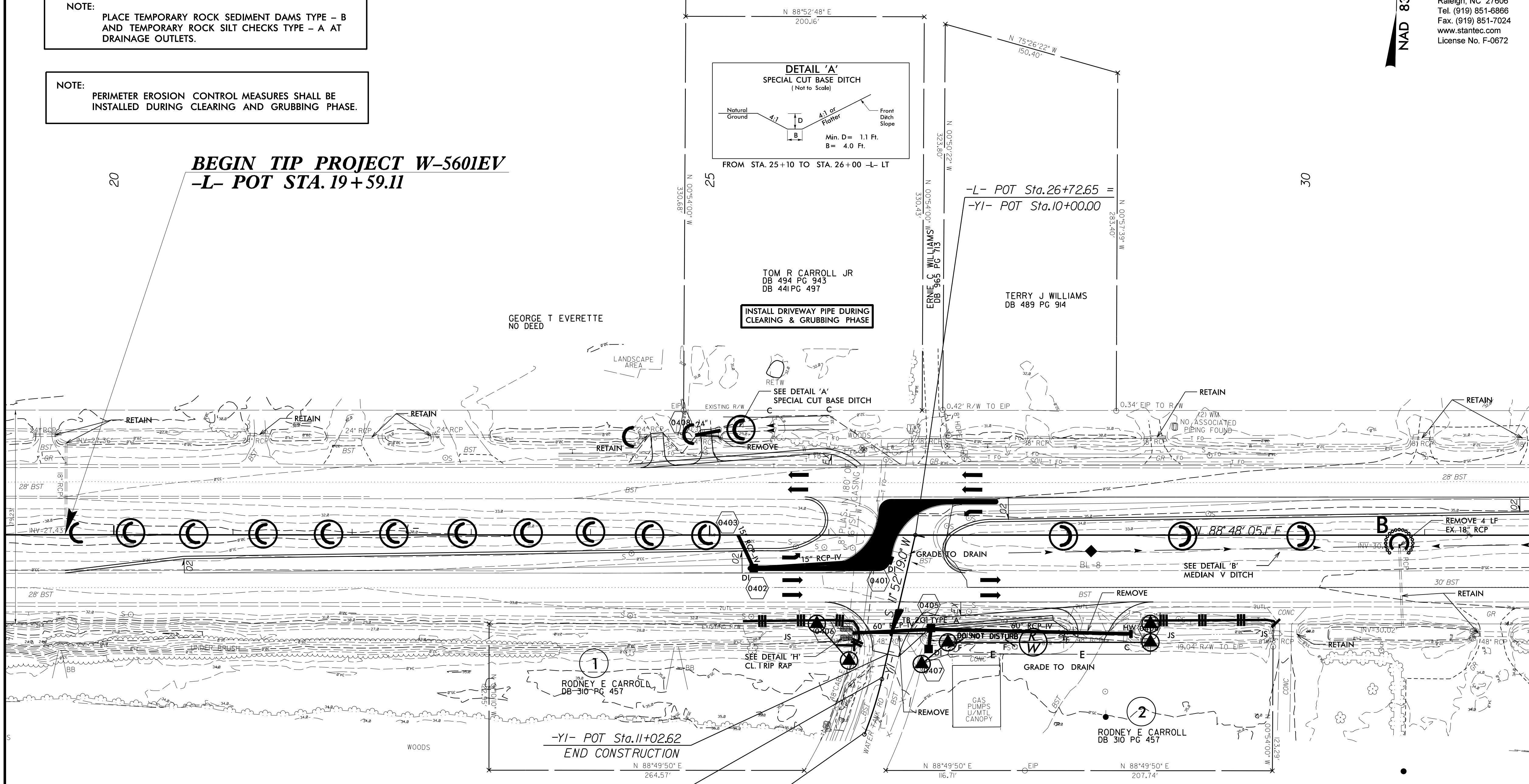


-YI-  
 PI Sta 11+48.49  
 $\Delta = 8^{\circ} 53' 54.0" (RT)$   
 $D = 18^{\circ} 14' 49.4"$   
 $L = 48.77'$   
 $T = 24.43'$   
 $R = 314.00'$

MATCHLINE -L- STA. 32+00.00 SEE SHEET 5

REVISIONS

8/17/99  
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# PIPE CONSTRUCTION SEQUENCE STA. 10+84 -Y1-

## (NTS)

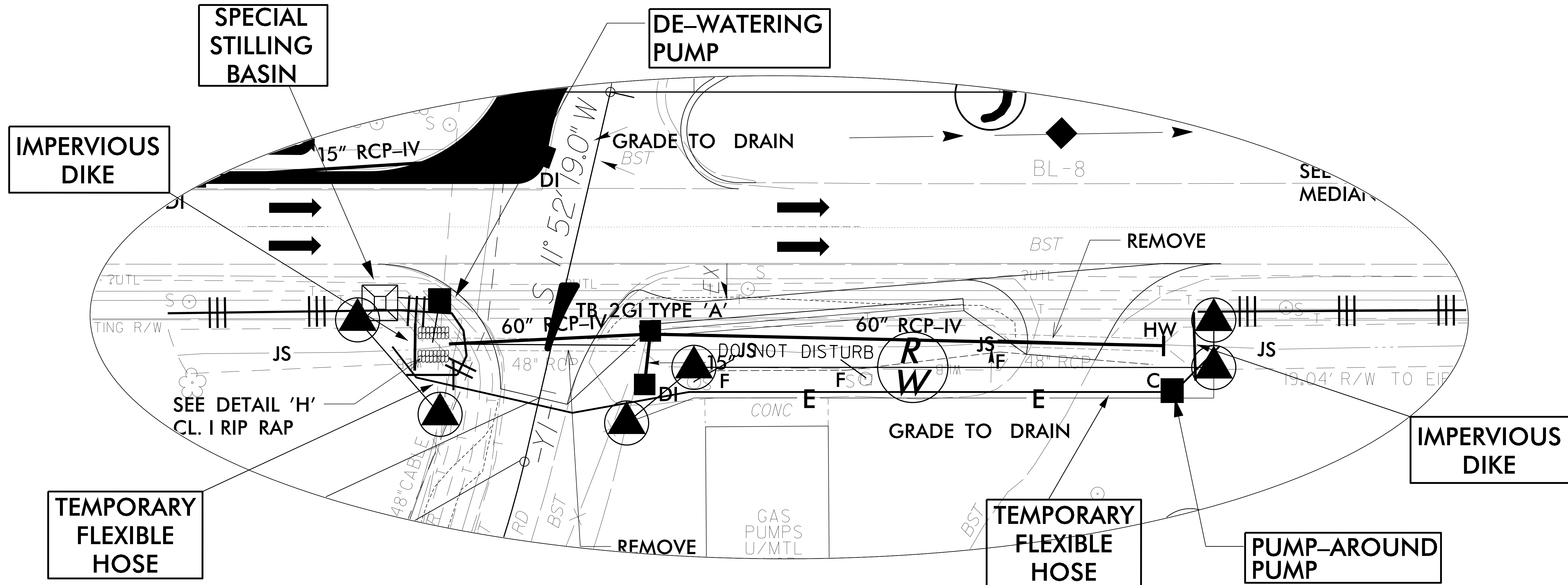
PROJECT REFERENCE NO. W-560/EV	SHEET NO. EC-04A/CONST.04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**NOTES:**

1. PIPE INSTALLATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
3. ALL GRADED AREAS TO BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS, AND HOSES.
5. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO THE STREAM. FRO DEWATERING OF PIPE SITE, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH A STILLING BASIN AND/OR SPECIAL STILLING BASIN.
7. UTILIZE A STABILIZED OUTLET INSTEAD OF A SPECIAL STILLING BASIN IF PUMPING CLEAN WATER.

**SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA:**

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. REMOVE EXISTING 60" CMP AND 48" RCP AND INSTALL PROPOSED DRAINAGE SYSTEM IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST)
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE THE DISTURBED AREA WITH SEED & MULCH.



8/17/99

# CLEARING & GRUBBING PLAN



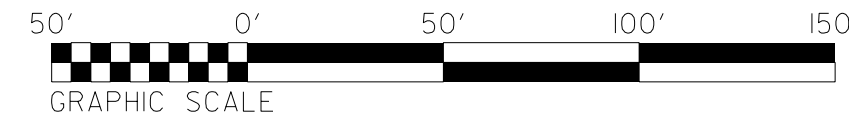
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PROJECT REFERENCE NO. <b>W-5601EV</b>		SHEET NO. <b>EC-05/CONST.05</b>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

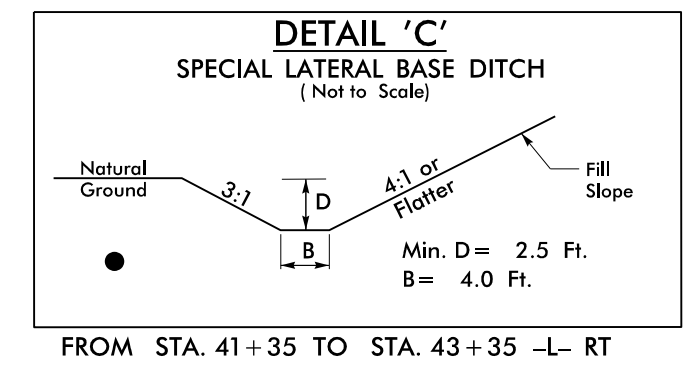
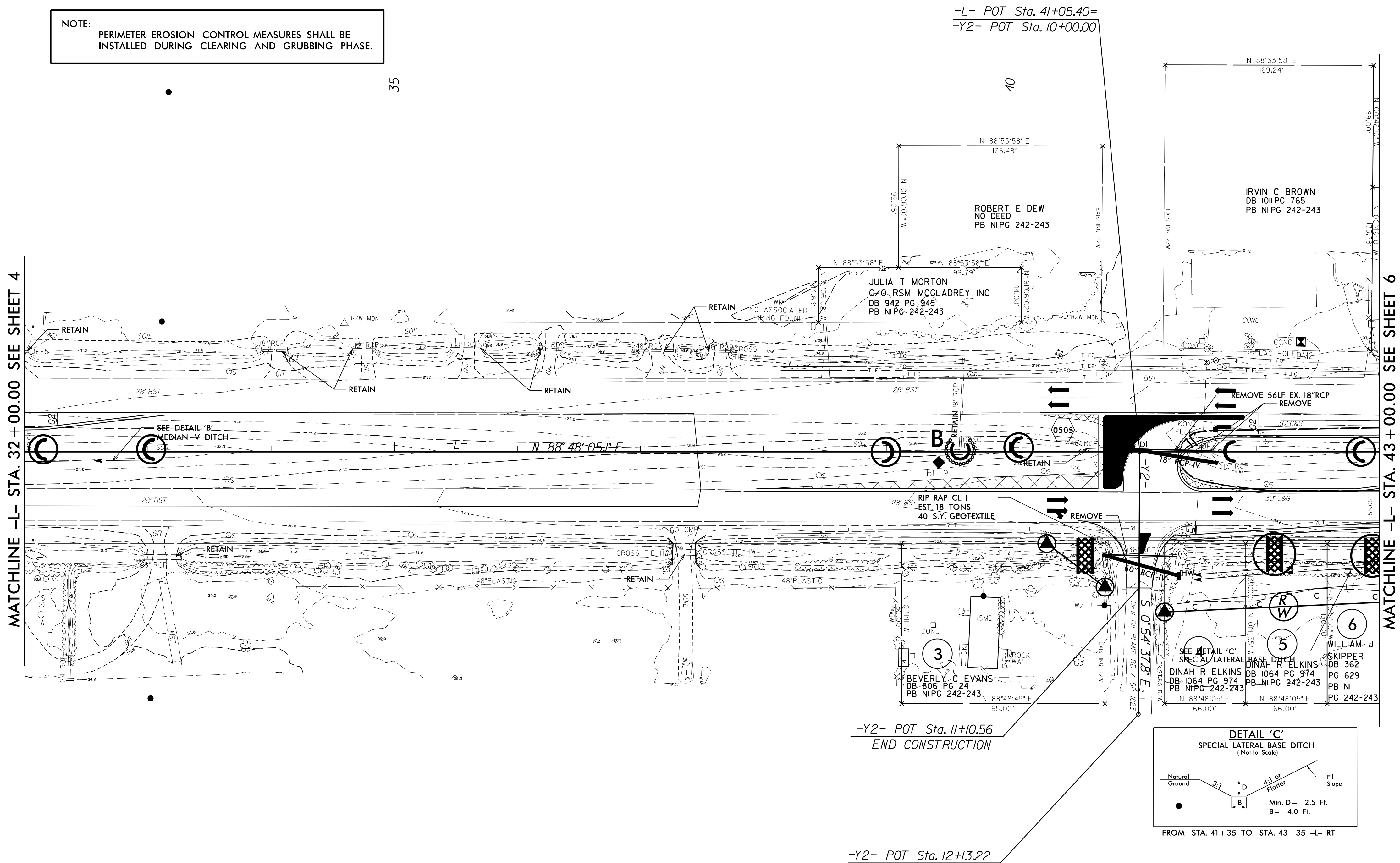
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET\_5\_

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

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.



NAD 83/2007



REVISIONS

SCHEMATIC DEVELOPMENT ON \$\$\$\$\$\$  
REVISIONS \$\$\$\$\$\$

8/17/99

# CLEARING & GRUBBING PLAN

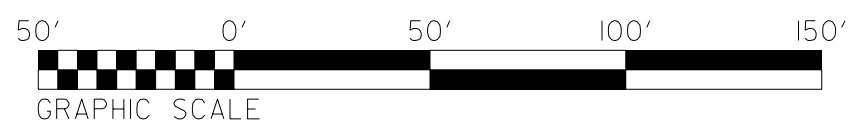
**Stantec**  
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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-06/CONST.06</b>
R/W SHEET NO. <b>ROADWAY DESIGN ENGINEER</b>	HYDRAULICS ENGINEER

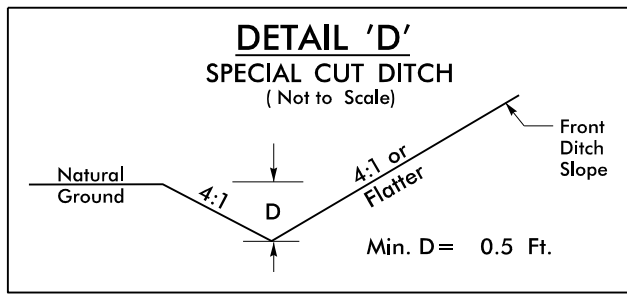
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET \_6\_

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

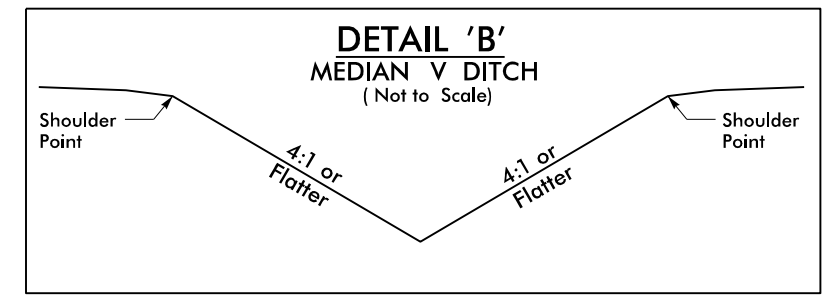
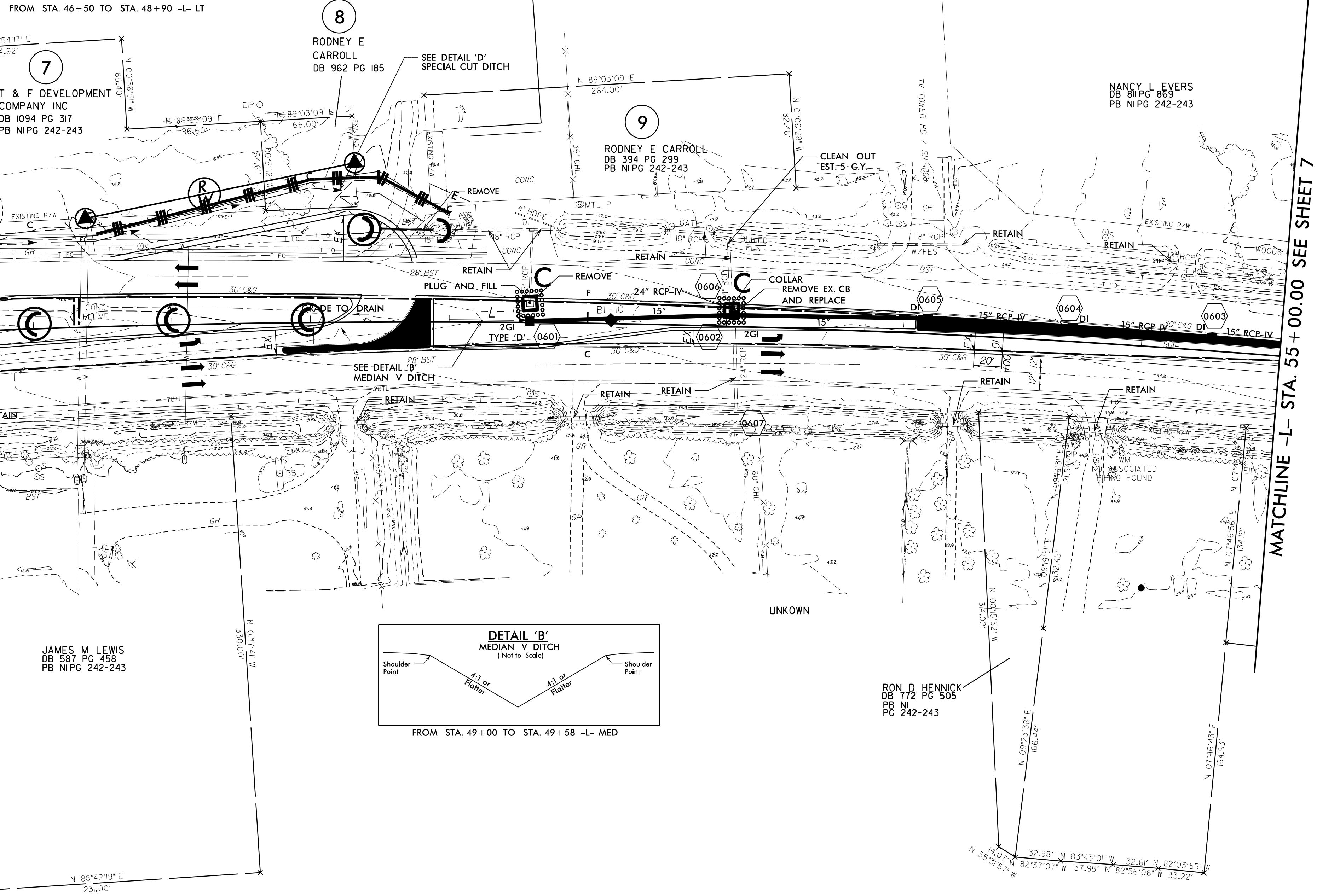
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.



-L-  
 $PI\ Sta\ 50+17.07$   
 $\Delta = 9^\circ 10' 52.2" (RT)$   
 $D = 0' 44' 04.4"$   
 $L = 1,249.88'$   
 $T = 626.28'$   
 $R = 7,800.00'$   
 $e = exist$



FROM STA. 46+50 TO STA. 48+90 -L- LT



FROM STA. 49+00 TO STA. 49+58 -L- MED

REVISIONS

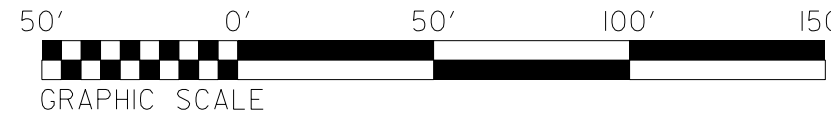
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# CLEARING & GRUBBING PLAN

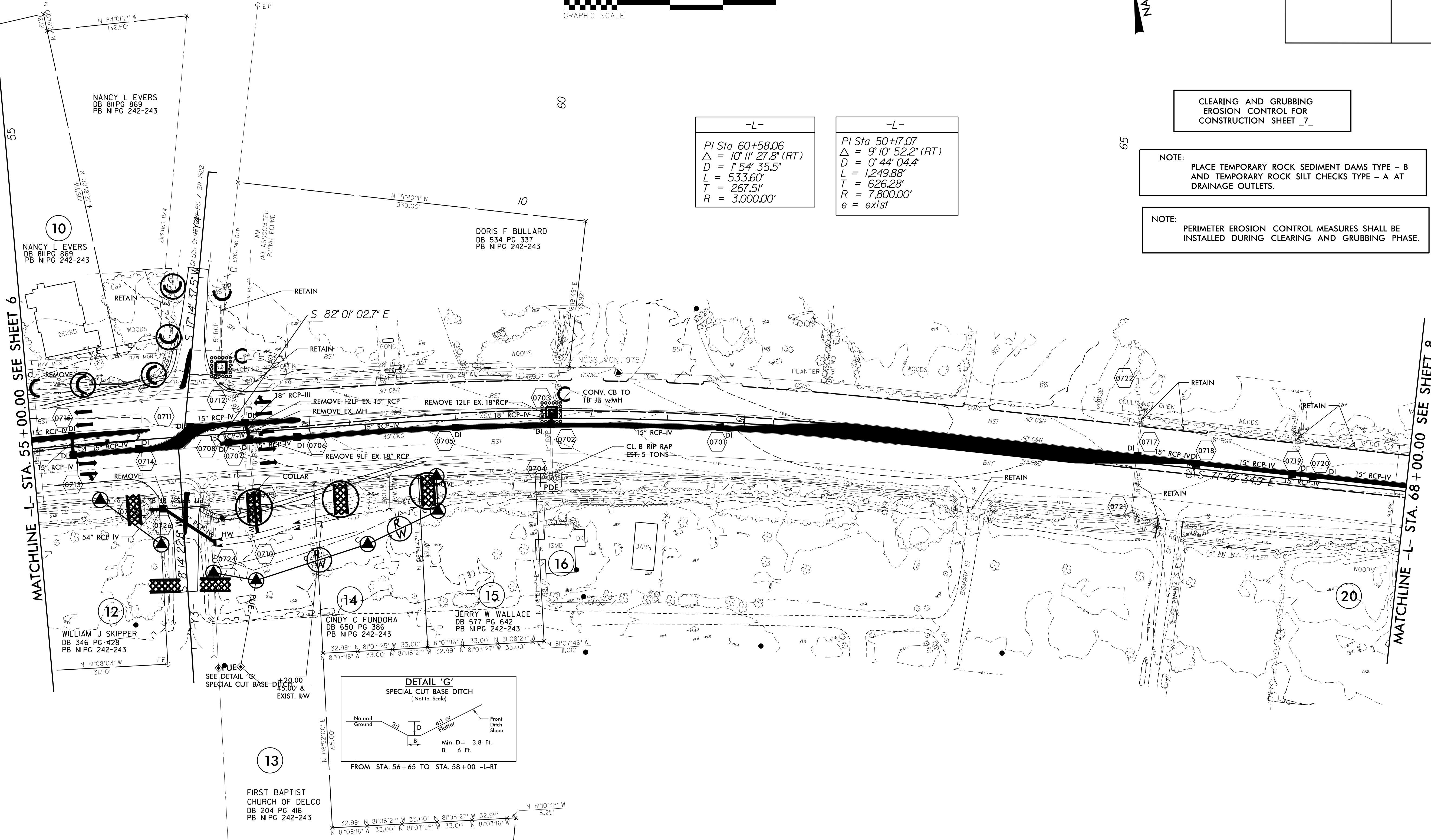
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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-07/CONST.07</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NAD 83/2007



-L-

PI Sta 60+58.06  
Δ = 10° 11' 27.8" (RT)  
D = 1' 54' 35.5"  
L = 533.60'  
T = 267.51'  
R = 3,000.00'

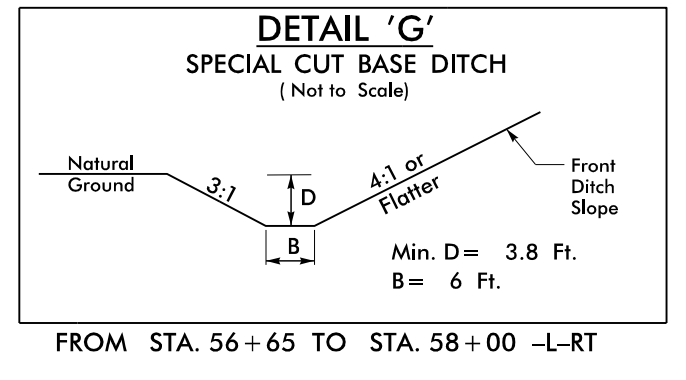
-L-

PI Sta 50+17.07  
Δ = 9° 10' 52.2" (RT)  
D = 0' 44' 04.4"  
L = 1,249.88'  
T = 626.28'  
R = 7,800.00'  
e = exist

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.

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.



13  
FIRST BAPTIST  
CHURCH OF DELCO  
DB 204 PG 416  
PB NIPG 242-243

MATCHLINE -L- STA. 55 + 00.00 SEE SHEET 6

MATCHLINE -L- STA. 68 + 00.00 SEE SHEET 8

REVISIONS

8/17/99

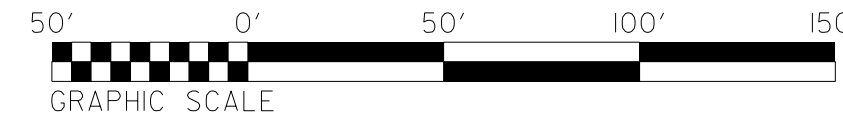
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SECTION: 97  
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SECTION: 99  
SECTION: 100

# CLEARING & GRUBBING PLAN

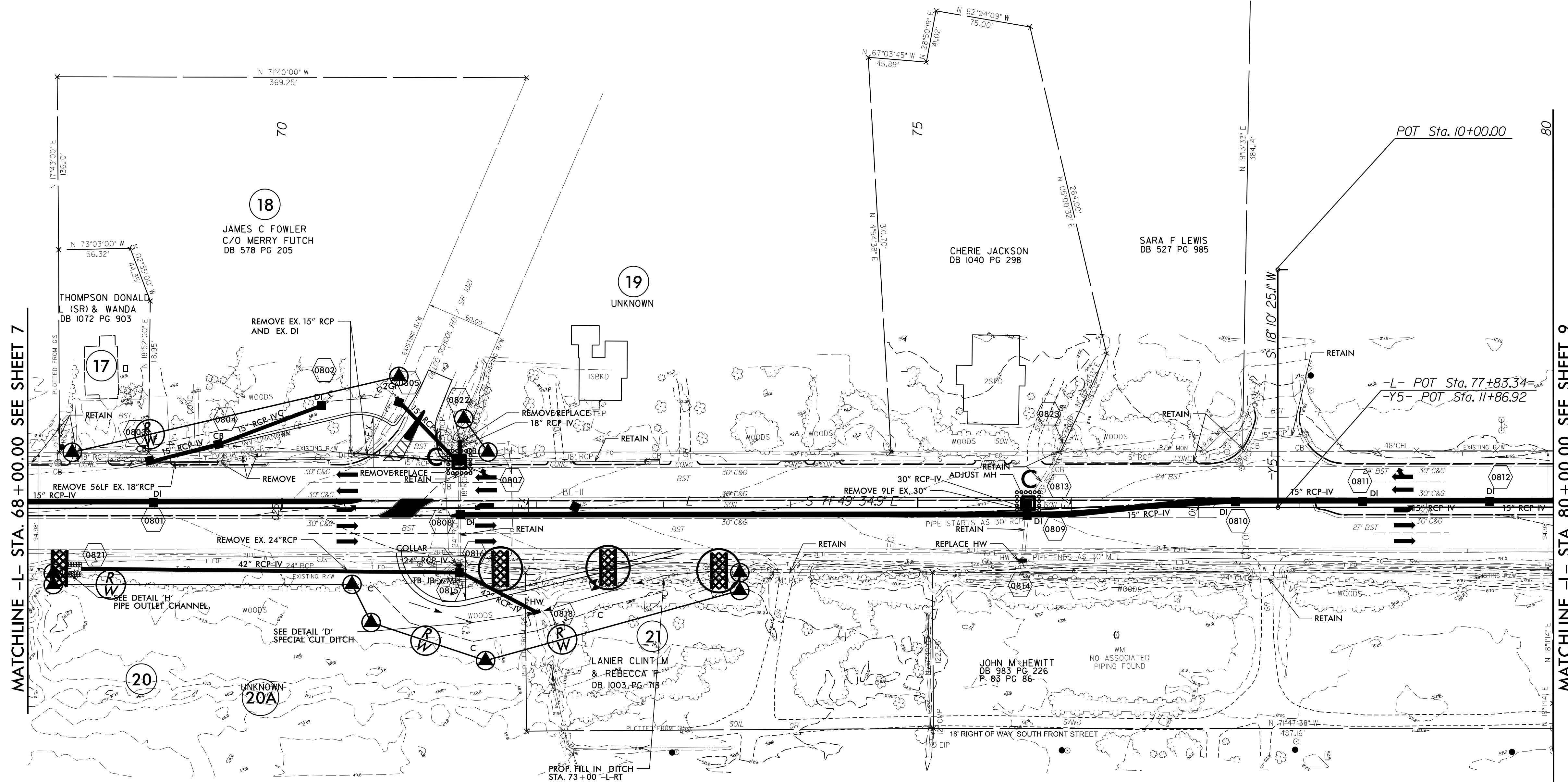


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Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

PROJECT REFERENCE NO. W-5601EV		SHEET NO. EC-08/CONST.08
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

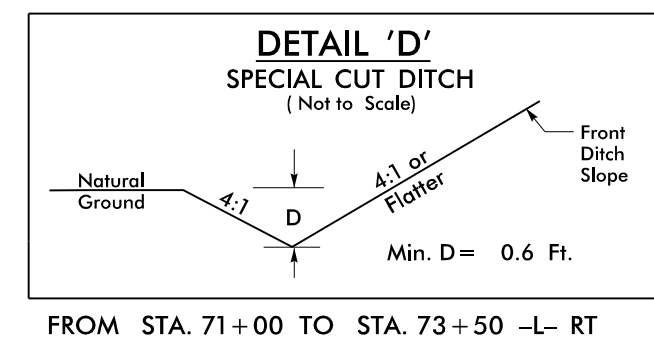
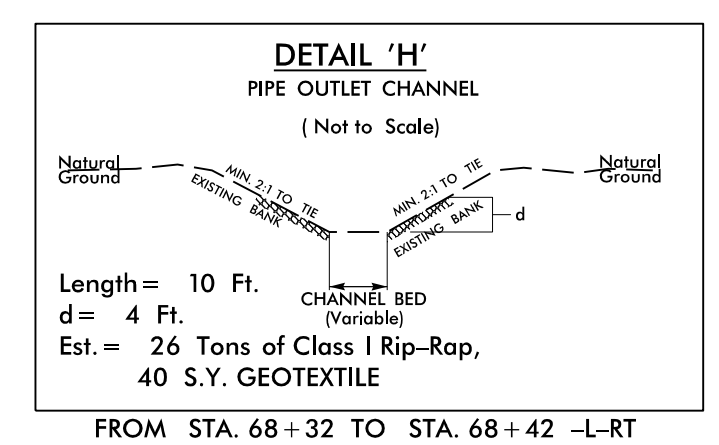


100738 (NAD 83)



MATCHLINE -L- STA. 68+00.00 SEE SHEET 7

MATCHLINE -L- STA. 80+00.00 SEE SHEET 9



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:**  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

REVISIONS

8/17/99

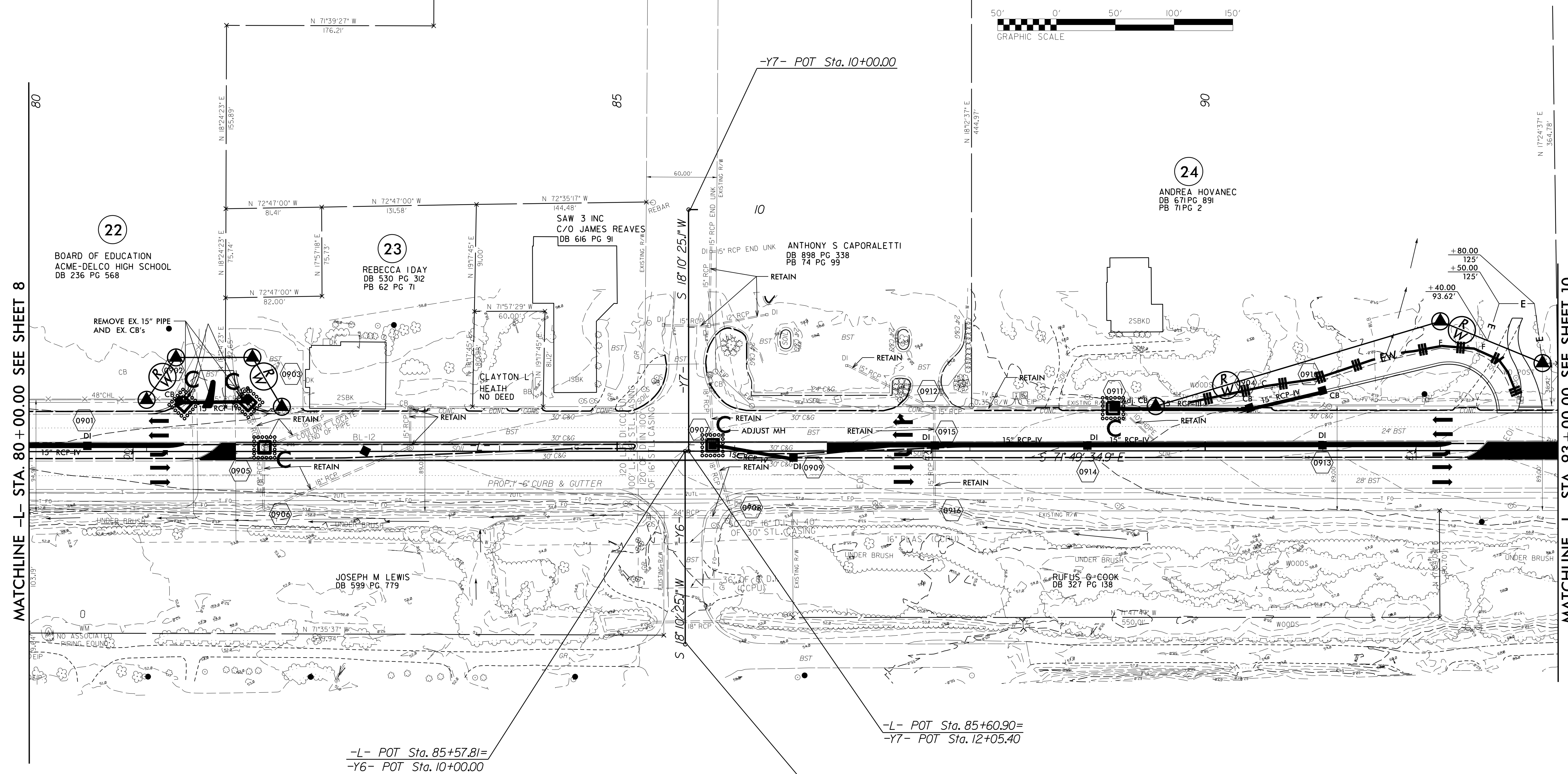
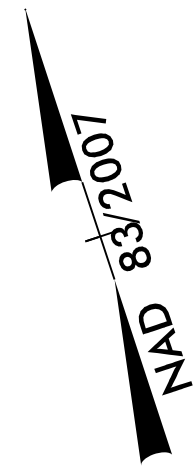
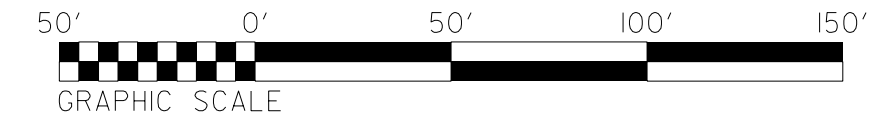
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# CLEARING & GRUBBING PLAN



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License No. F-0672

PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <i>EC-09/CONST.09</i>
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCHLINE -L- STA. 80 + 00.00 SEE SHEET 8

MATCHLINE -L- STA. 93 + 00.00 SEE SHEET 10

-L- POT Sta. 85+57.81=  
-Y6- POT Sta. 10+00.00

-L- POT Sta. 85+60.90=  
-Y7- POT Sta. 12+05.40

-Y6- POT Sta. 11+64.16

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.

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

REVISIONS

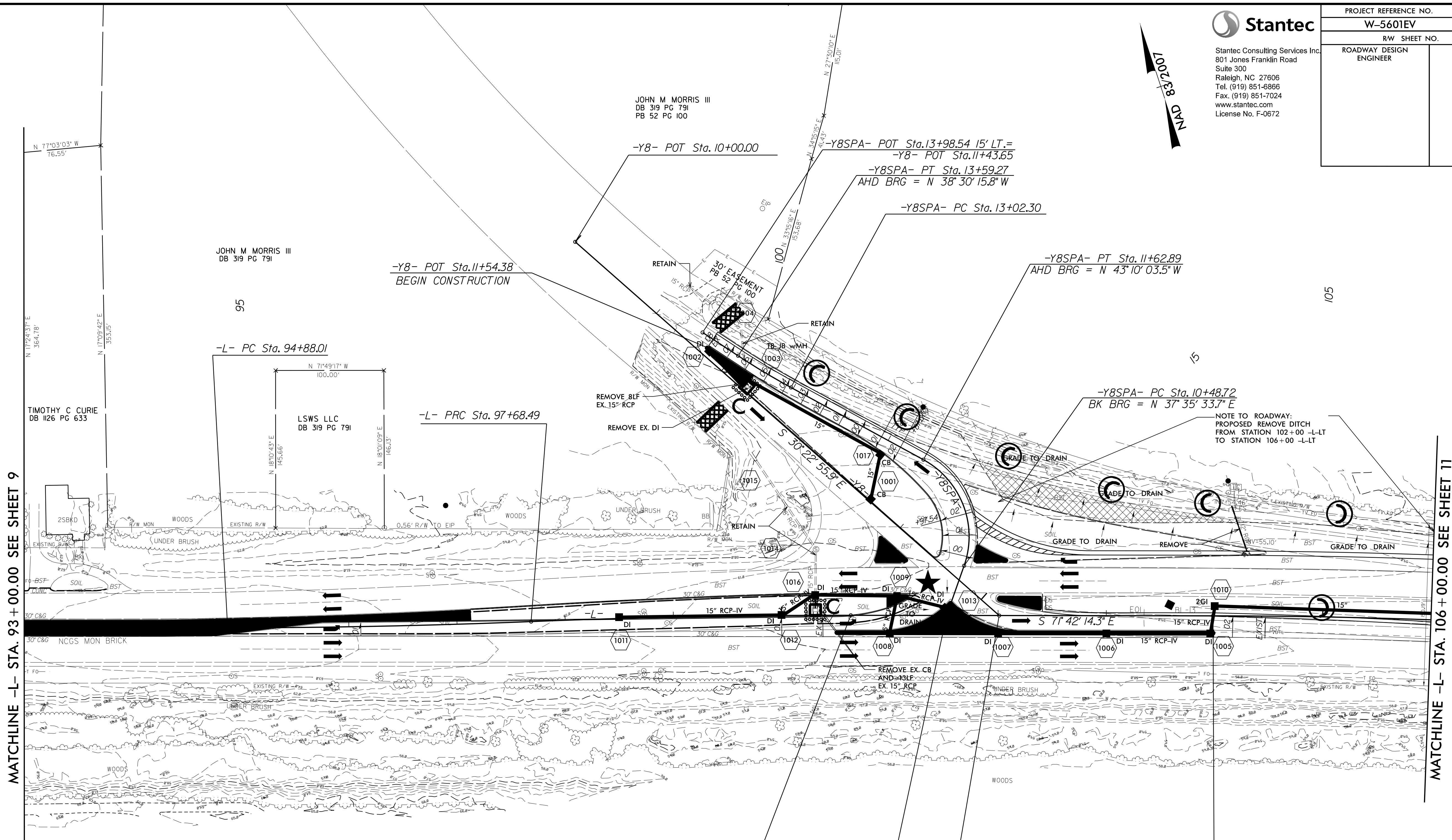
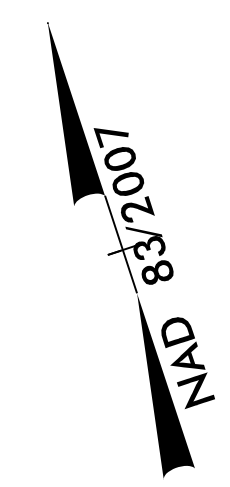
8/17/99

8/17/99

SECTION CUTLINE  
DRAWN BY: JLN  
CHECKED BY: JLN

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PROJECT REFERENCE NO. <b>W-5601EV</b>		SHEET NO. <i>EC-10/CONST.10</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

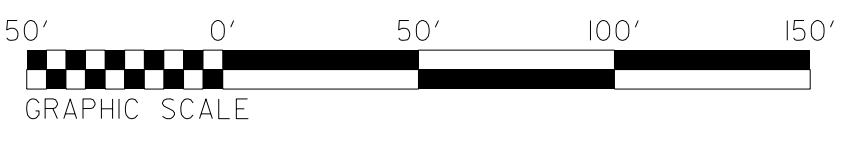


MATCHLINE -L- STA. 93 + 00.00 SEE SHEET 9

MATCHLINE -L- STA. 106 + 00.00 SEE SHEET 11

REVISIONS

★ PROPOSED SIGNAL



# CLEARING & GRUBBING PLAN

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.

NOTE:  
 PERIMETER EROSION CONTROL MEASURES SHALL BE  
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

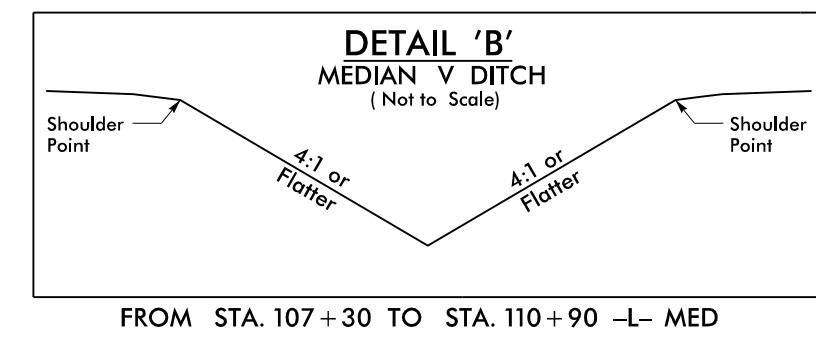
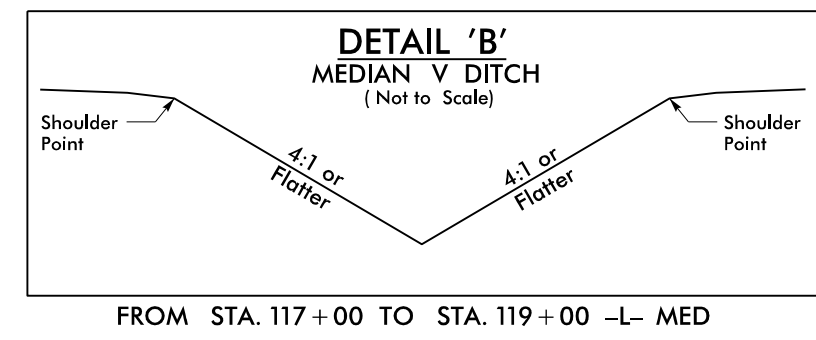
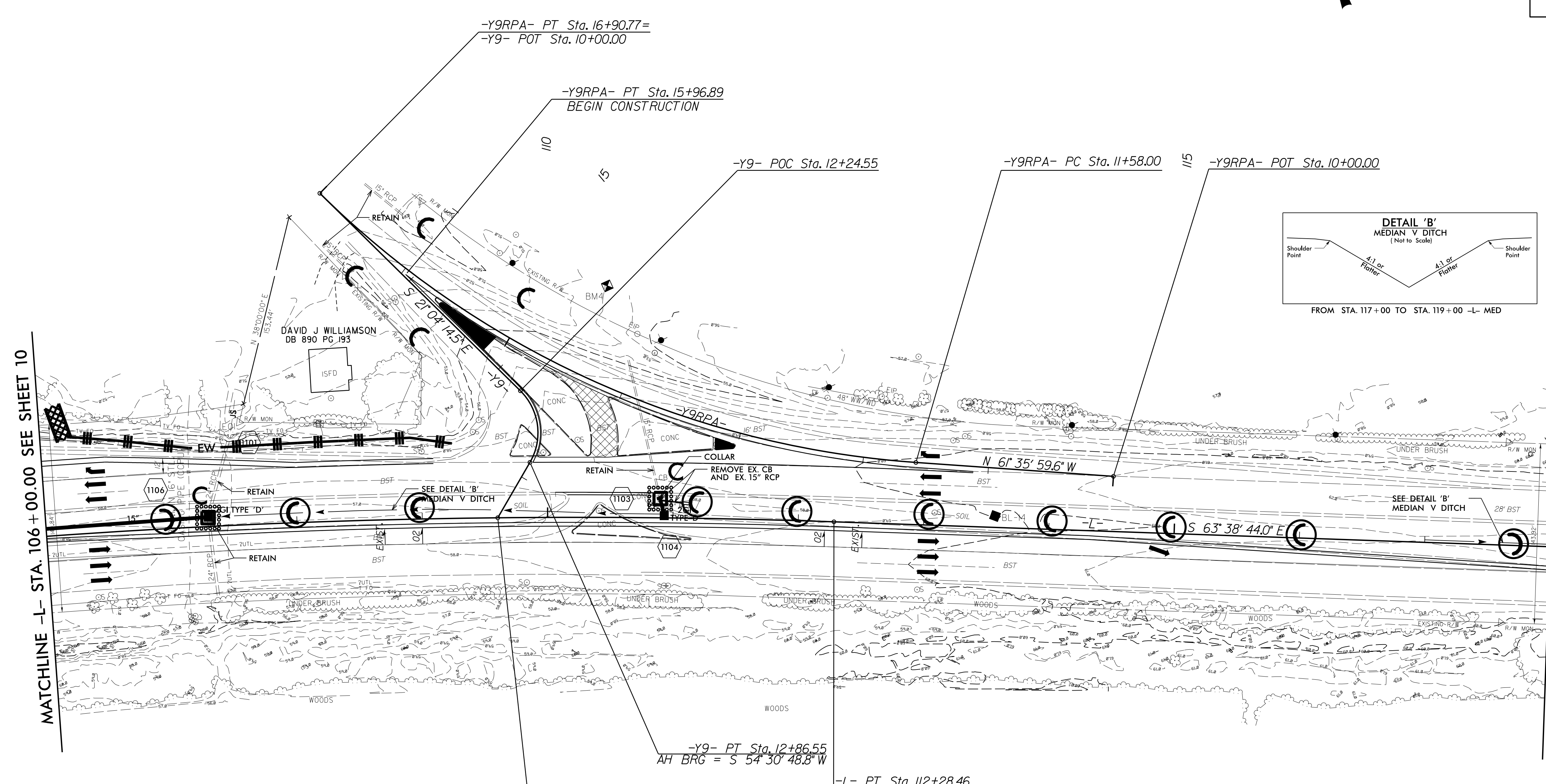
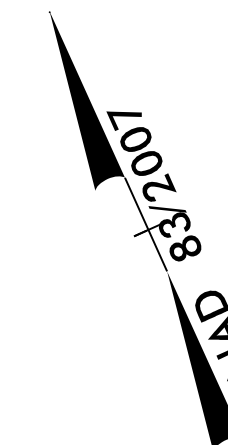
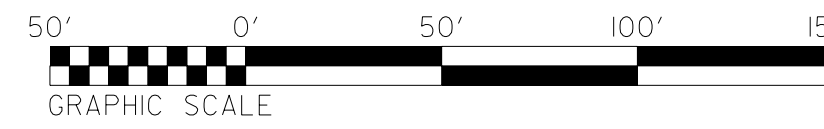
8/17/99

# CLEARING & GRUBBING PLAN



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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <i>EC-II/CONST.II</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

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.

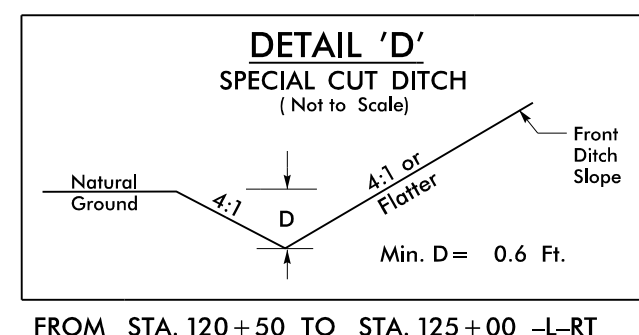
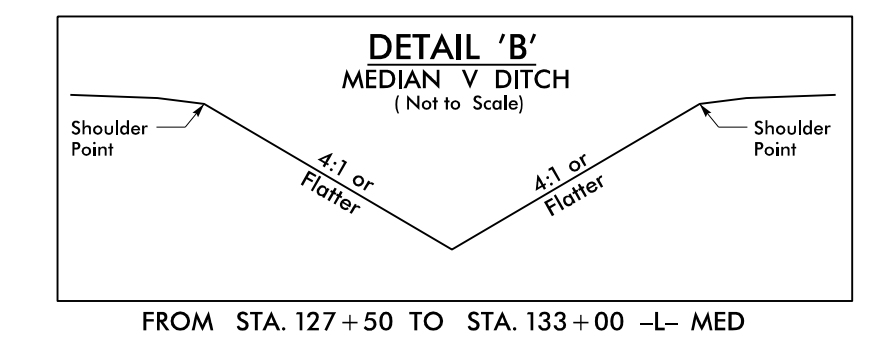
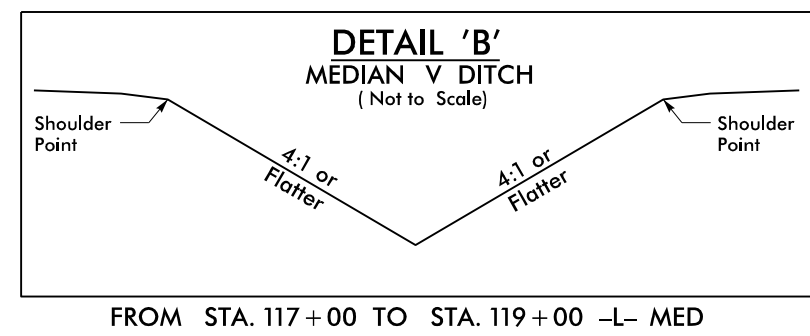
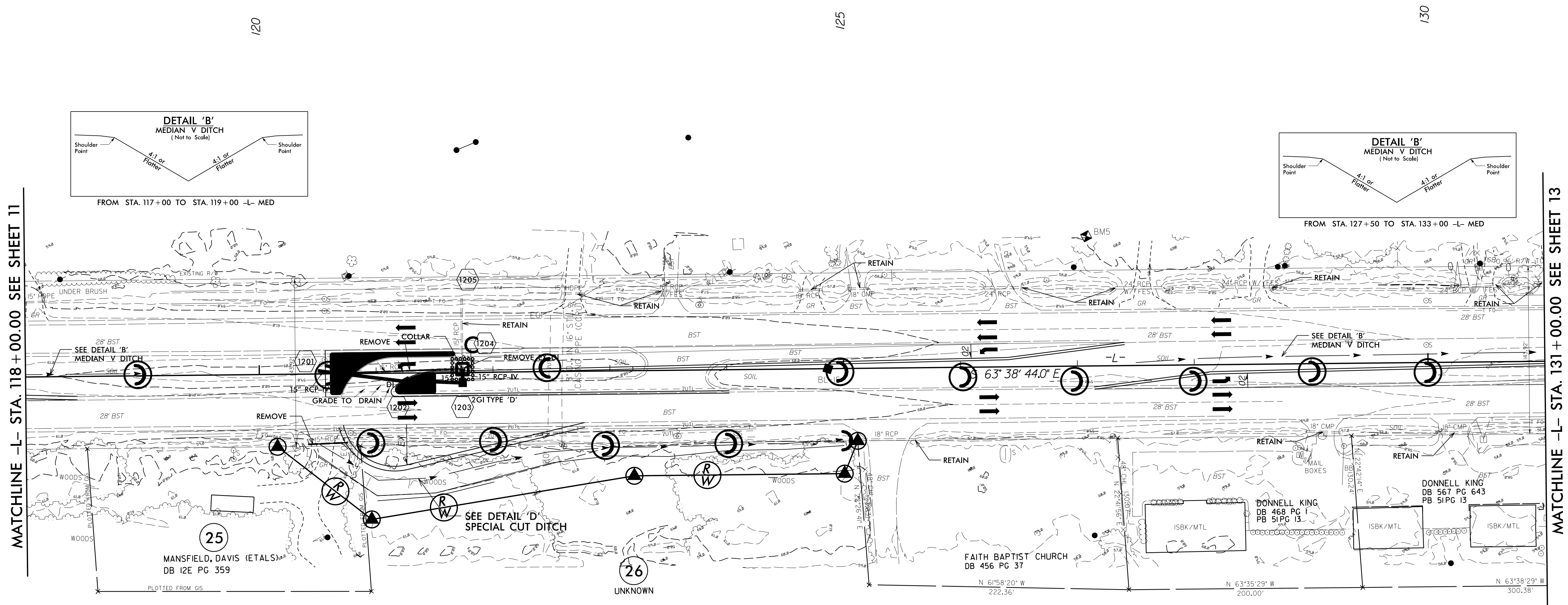
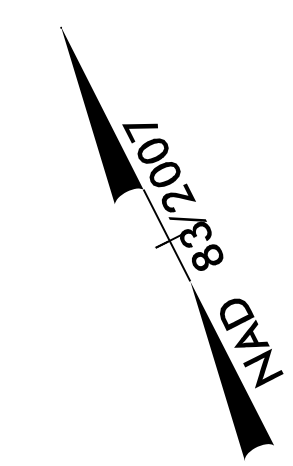
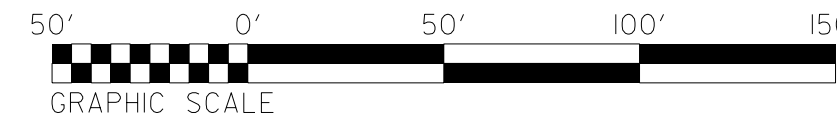
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

DATE PLOTTED: 08/17/99 10:11 AM



# CLEARING & GRUBBING PLAN

PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <i>EC-12/CONST.12</i>
RW 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.

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

REVISIONS

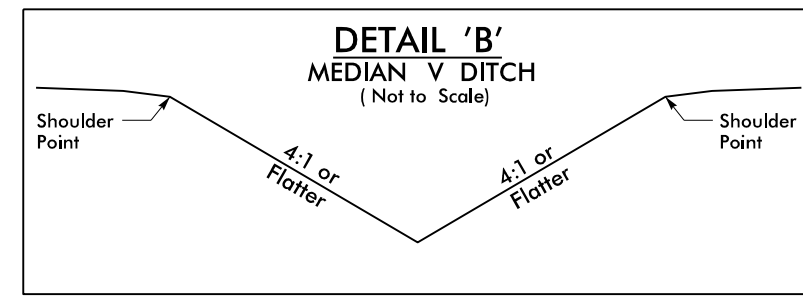
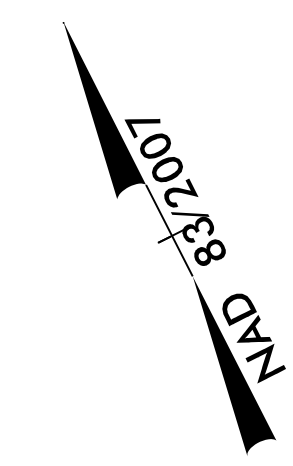
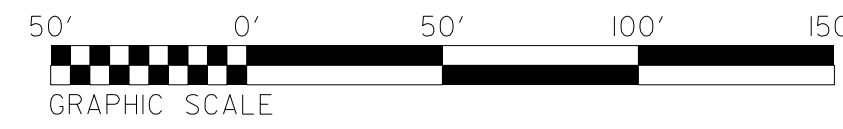
DATE: 8/17/99

# CLEARING & GRUBBING PLAN

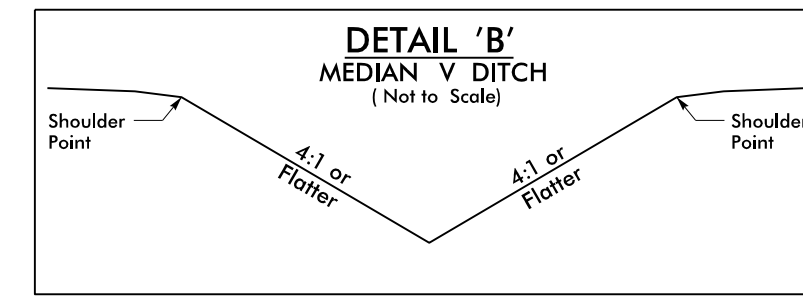


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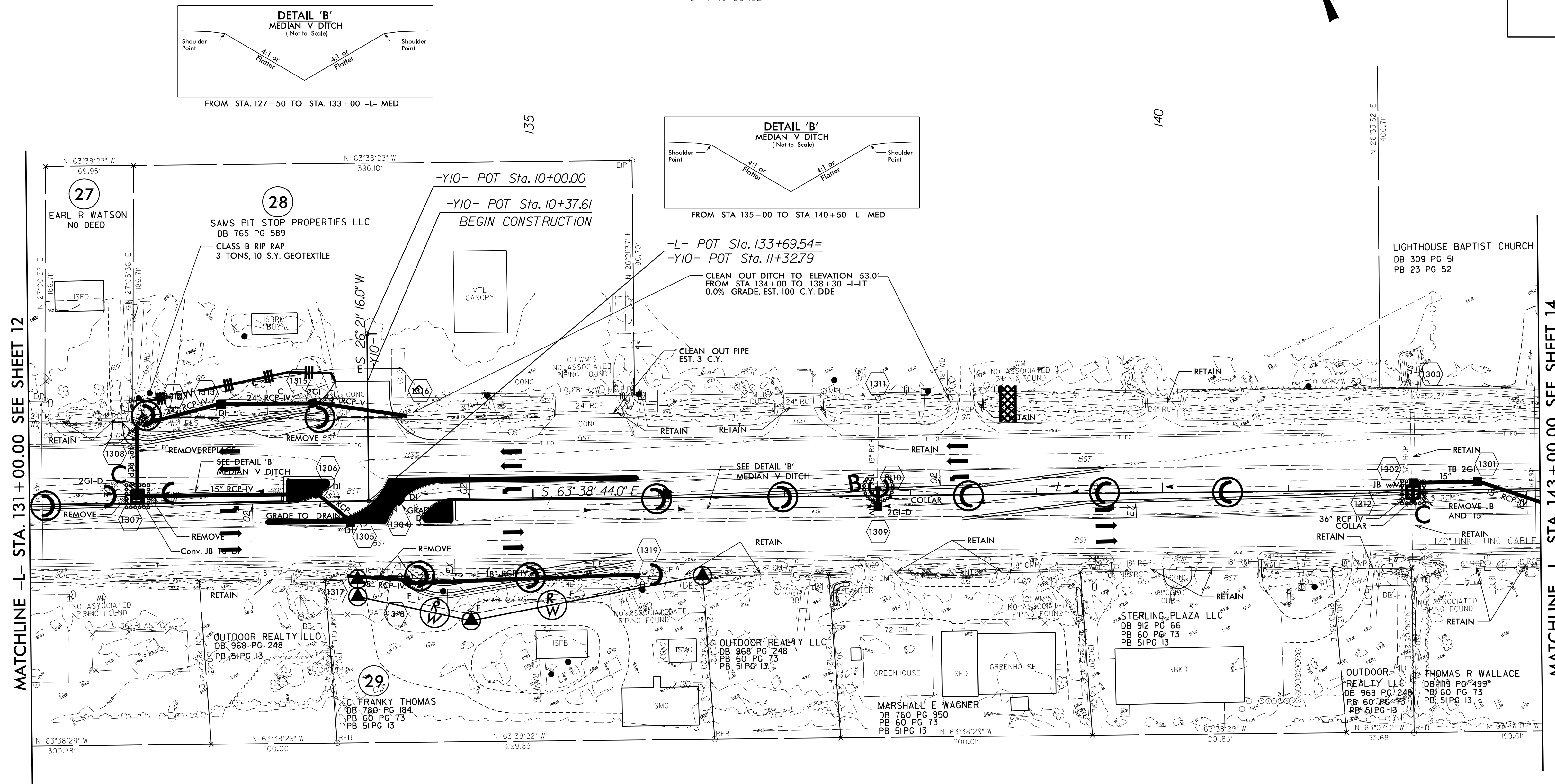
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RW SHEET NO. <b>ROADWAY DESIGN ENGINEER</b>	HYDRAULICS ENGINEER



FROM STA. 127+50 TO STA. 133+00 -L- MED



FROM STA. 135+00 TO STA. 140+50 -L- MED



MATCHLINE -L- STA. 131+00.00 SEE SHEET 12

MATCHLINE -L- STA. 143+00.00 SEE SHEET 14

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.

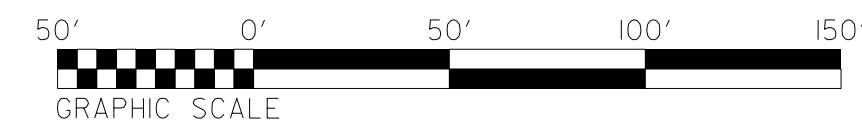
NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

REVISIONS

8/17/99

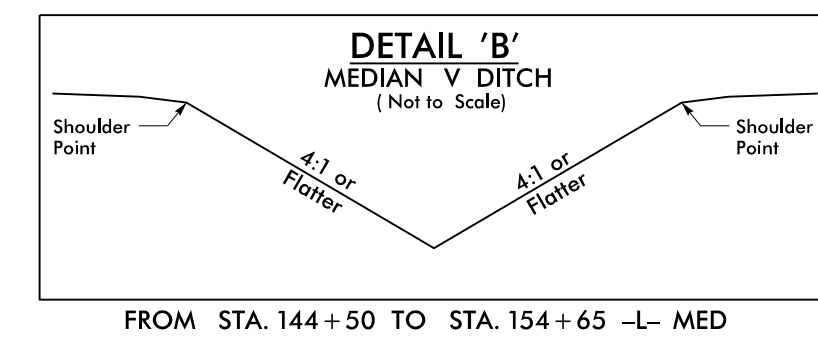
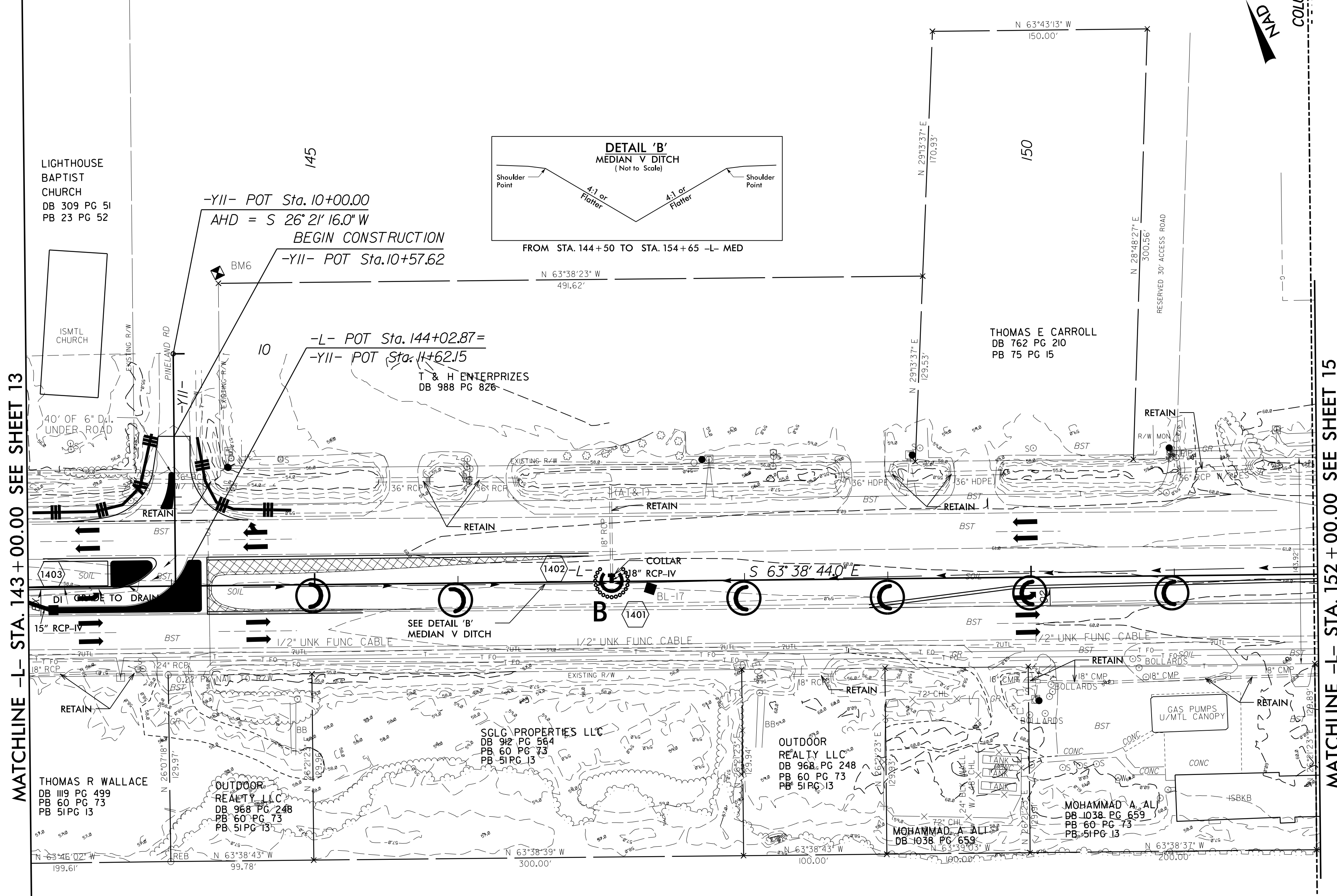
DATE: 8/17/99  
DRAWN BY: JLD  
CHECKED BY: JLD  
APPROVED BY: JLD

# CLEARING & GRUBBING PLAN



PROJECT REFERENCE NO. <b>W-5601EV</b>		SHEET NO. <b>EC-14/CONST J4</b>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

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MATCHLINE -L- STA. 143 + 00.00 SEE SHEET 13

MATCHLINE -L- STA. 152 + 00.00 SEE SHEET 15

REVISIONS

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.

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

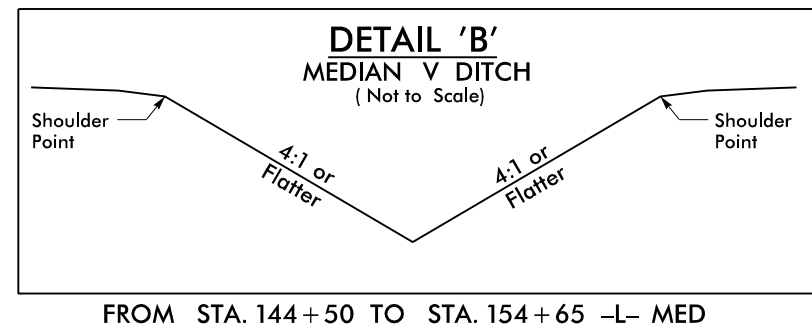
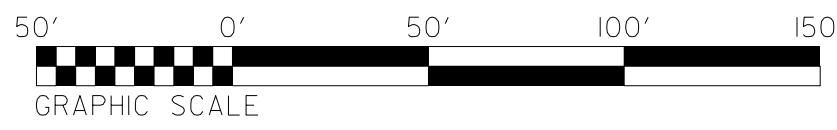
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DATE PLOTTED: 8/17/99  
SCALE: AS SHOWN  
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CHECKED BY: [Illegible]  
APPROVED BY: [Illegible]

# CLEARING & GRUBBING PLAN

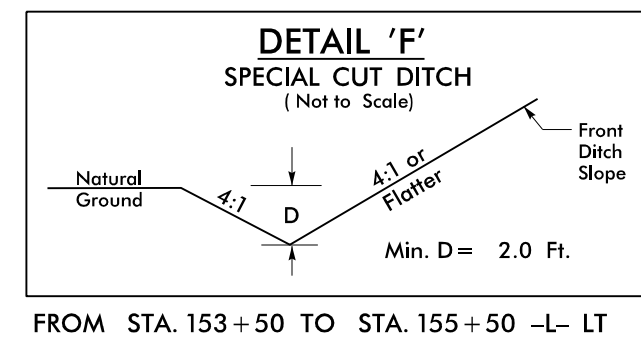
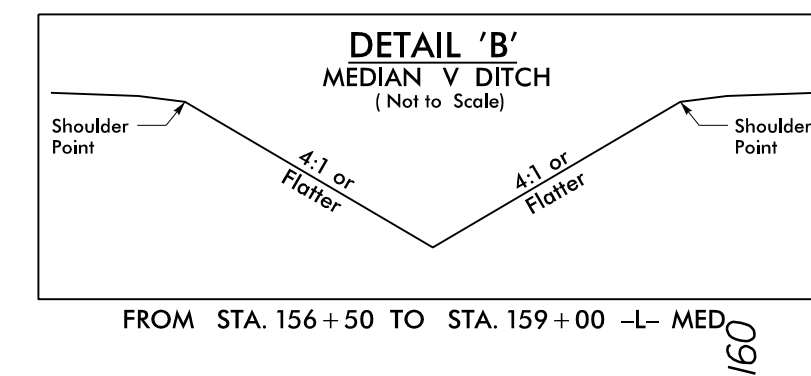


PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-15/CONST.15</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

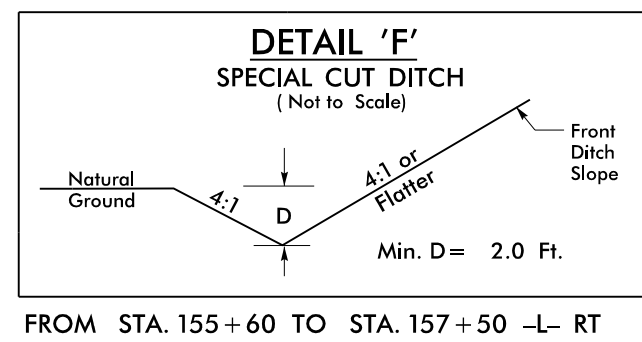
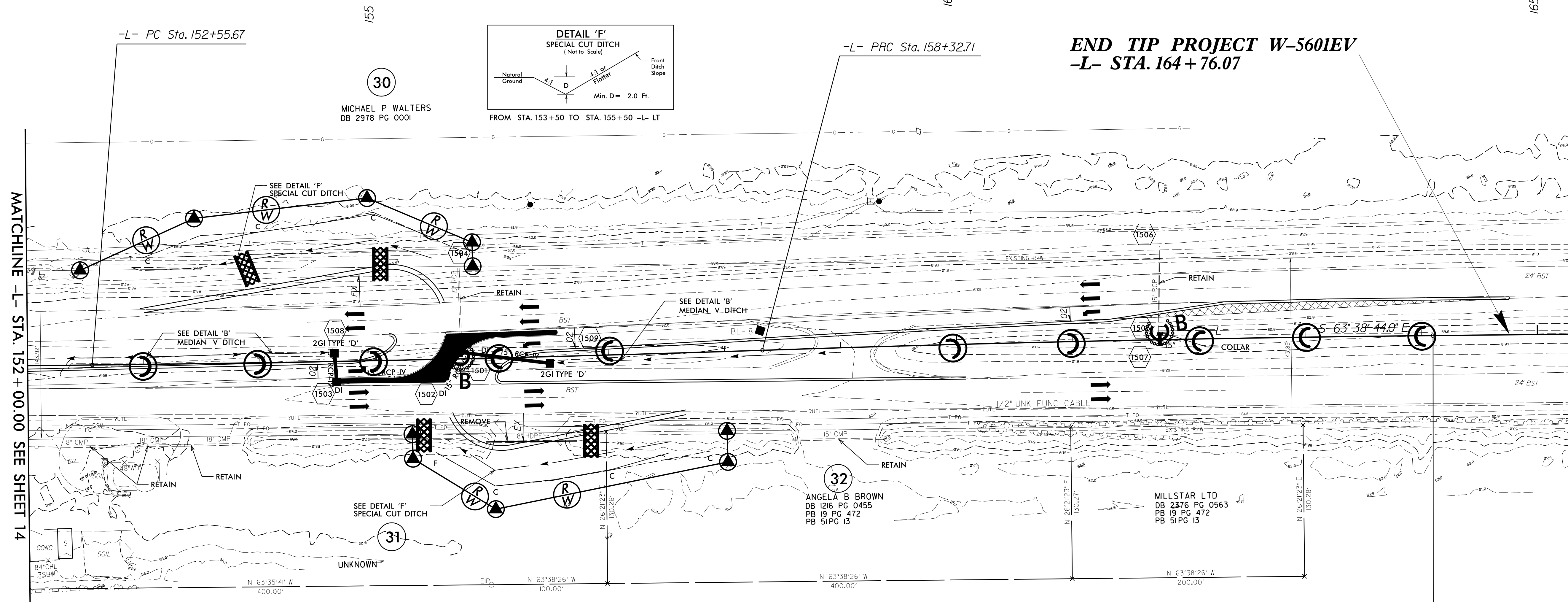
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Raleigh, NC 27606  
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Fax. (919) 851-7024  
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-L-	
PI Sta 155+44.20 Δ = 1'19" 21.0" (LT) D = 0'13" 45.1" L = 577.04' T = 288.54' R = 25,000.00'	PI Sta 161+21.25 Δ = 1'19" 21.0" (RT) D = 0'13" 45.1" L = 577.04' T = 288.54' R = 25,000.00'



**END TIP PROJECT W-5601EV**  
**-L- STA. 164 + 76.07**



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.

NOTE:  
PERIMETER EROSION CONTROL MEASURES SHALL BE  
INSTALLED DURING CLEARING AND GRUBBING PHASE.

REVISIONS

BRUNSWICK COUNTY  
8/17/99  
MATCHLINE -L- STA. 152 + 00.00 SEE SHEET 14  
N 63°35'41" W 400.00'  
N 63°38'26" W 100.00'  
N 63°38'26" W 400.00'  
N 63°38'26" W 200.00'  
N 26°21'23" E 150.28'  
N 26°21'23" E 150.28'  
N 26°21'23" E 150.28'  
N 26°21'23" E 150.28'

# FINAL GRADE PLAN

PROJECT REFERENCE NO.	SHEET NO.
W-5601EV	EC-16/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

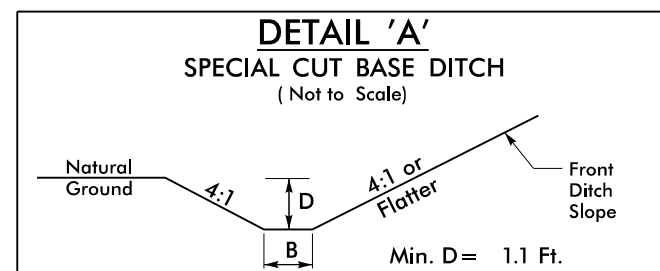


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NAD 83/2007

8/17/99

**BEGIN TIP PROJECT W-5601EV**  
**-L- POT STA. 19+59.11**



FROM STA. 25+10 TO STA. 26+00 -L- LT

-L- POT Sta. 26+72.65 =  
-YI- POT Sta. 10+00.00

TOM R CARROLL JR  
DB 494 PG 943  
DB 441 PG 497

TERRY J WILLIAMS  
DB 489 PG 914

GEORGE T EVERETTE  
NO DEED

LANDSCAPE AREA

SEE DETAIL 'A'  
SPECIAL CUT BASE DITCH

RETAIN

RETAIN

RETAIN

RETAIN

RETAIN

RETAIN

RETAIN

RETAIN

24" RCP

24" RCP

24" RCP

24" RCP

24" RCP

24" RCP

18" RCP

18" RCP

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

INV=27.43

INV=27.36

INV=27.36

INV=27.36

INV=27.36

INV=27.36

INV=30.02

INV=30.02

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

30" BST

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

30" BST

UNDER BRUSH

UNDER BRUSH

WOODS

WOODS

WOODS

WOODS

WOODS

28" BST

28" BST

28" BST

28" BST

28" BST

28" BST

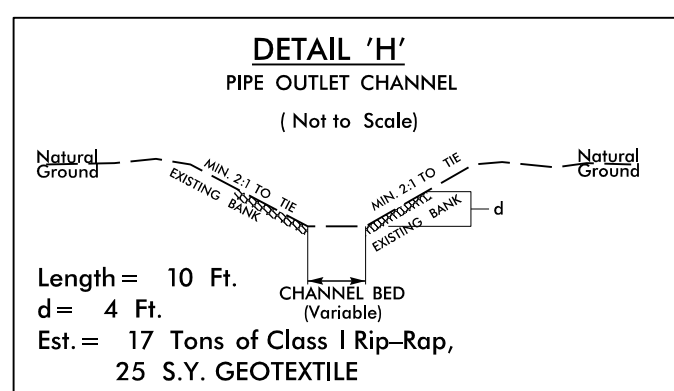
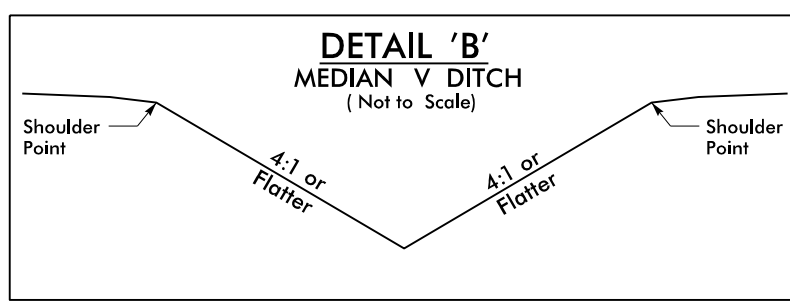
28" BST

RODNEY E CARROLL  
DB 310 PG 457

-YI- POT Sta. 11+02.62  
END CONSTRUCTION

-YI- PC Sta. 11+24.06

-YI- PT Sta. 11+72.83



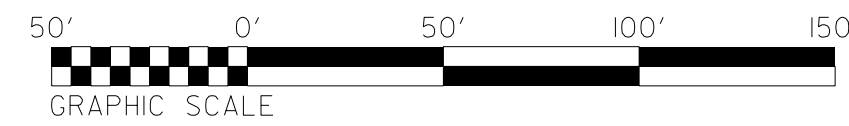
-YI-  
PI Sta 11+48.49  
 $\Delta = 8' 53' 54.0"$  (RT)  
 $D = 18' 14' 49.4"$   
 $L = 48.77'$   
 $T = 24.43'$   
 $R = 314.00'$

MATCHLINE -L- STA. 32+00.00 SEE SHEET 5

REVISIONS

8/17/99

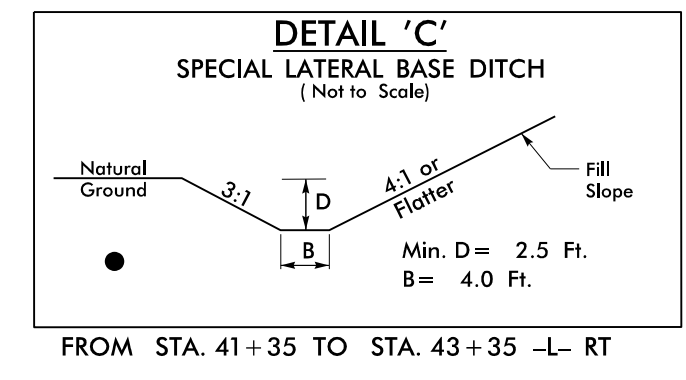
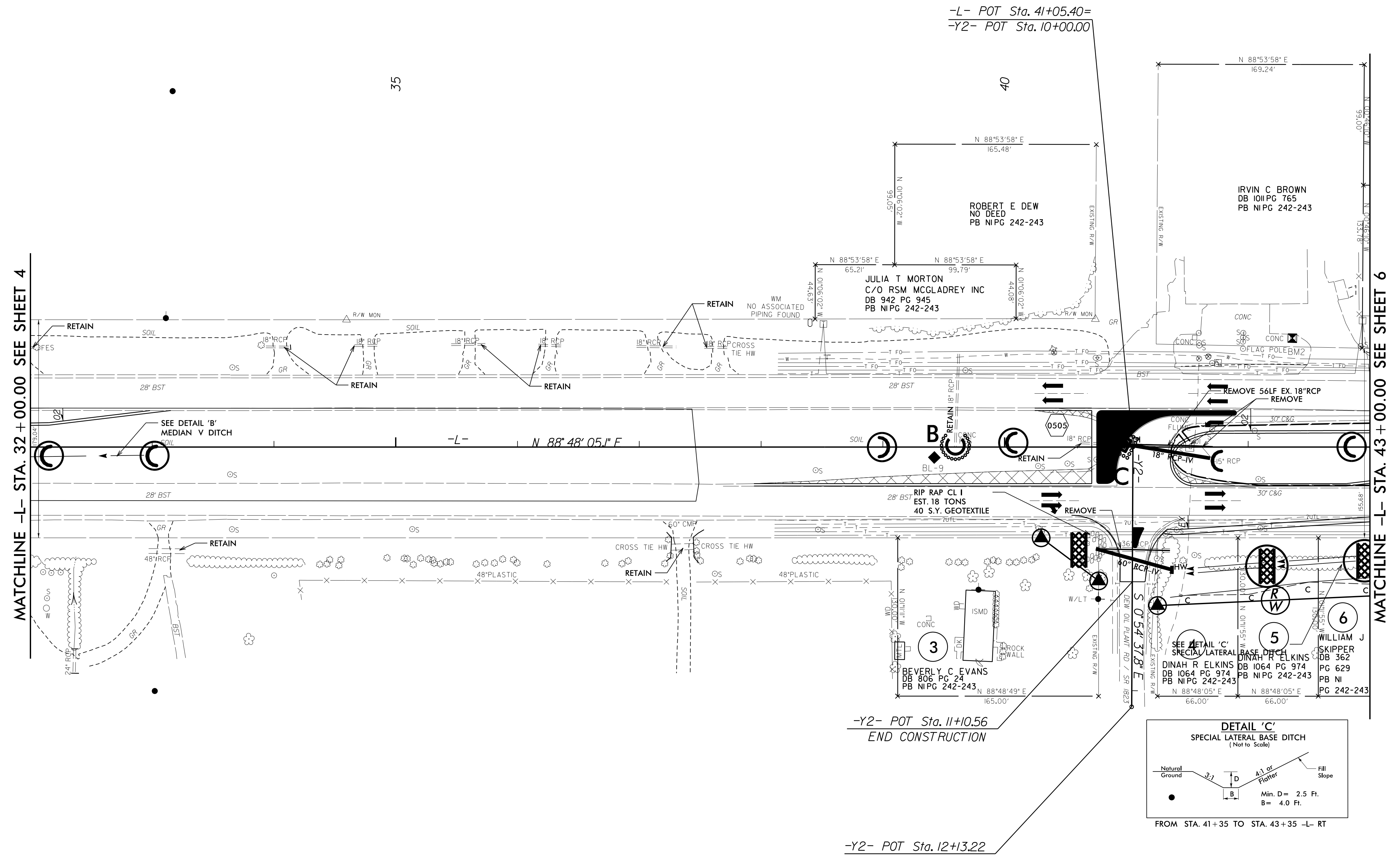
# FINAL GRADE PLAN



NAD 83/2007

**Stantec**  
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
www.stantec.com  
License No. F-0672

PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-17/CONST.05</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

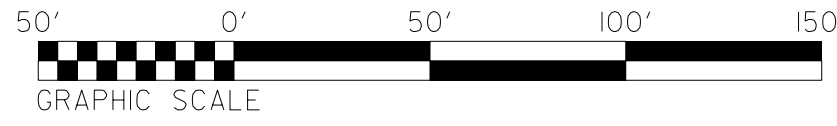
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BY \$\$\$\$\$\$  
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DATE \$\$\$\$\$\$  
BY \$\$\$\$\$\$

# FINAL GRADE PLAN



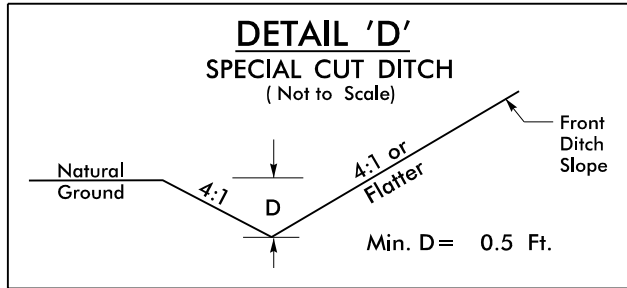
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606  
Tel. (919) 851-6866  
Fax. (919) 851-7024  
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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-18/CONST.06</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

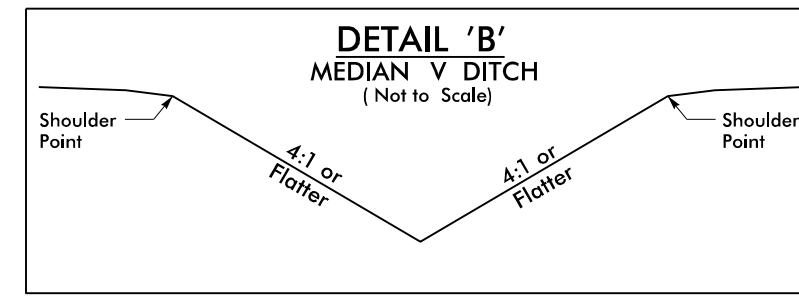


NAD 83/2001

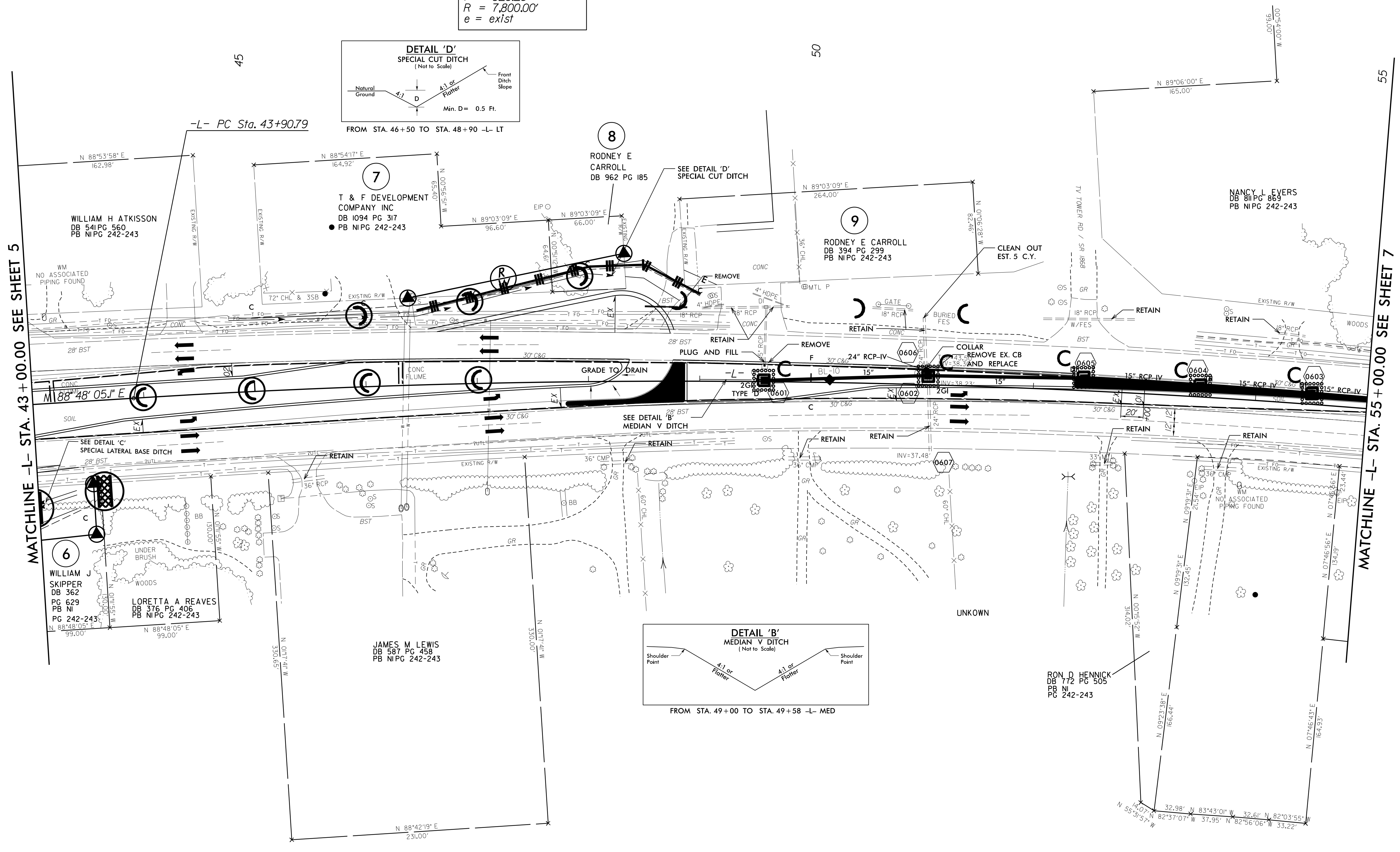
**-L-**  
PI Sta 50+17.07  
 $\Delta = 9' 10'' 52.2''$  (RT)  
 $D = 0' 44'' 04.4''$   
 $L = 1,249.88'$   
 $T = 626.28'$   
 $R = 7,800.00'$   
 $e = \text{exist}$



FROM STA. 46+50 TO STA. 48+90 -L- LT



FROM STA. 49+00 TO STA. 49+58 -L- MED



REVISIONS

8/17/99

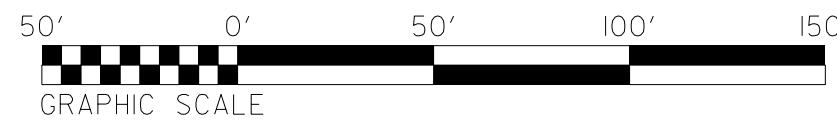
SCHEMATIC DEVELOPMENT  
DESIGN  
CONSTRUCTION

# FINAL GRADE PLAN



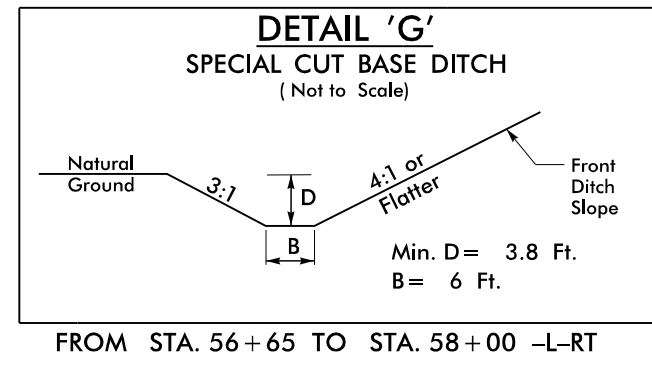
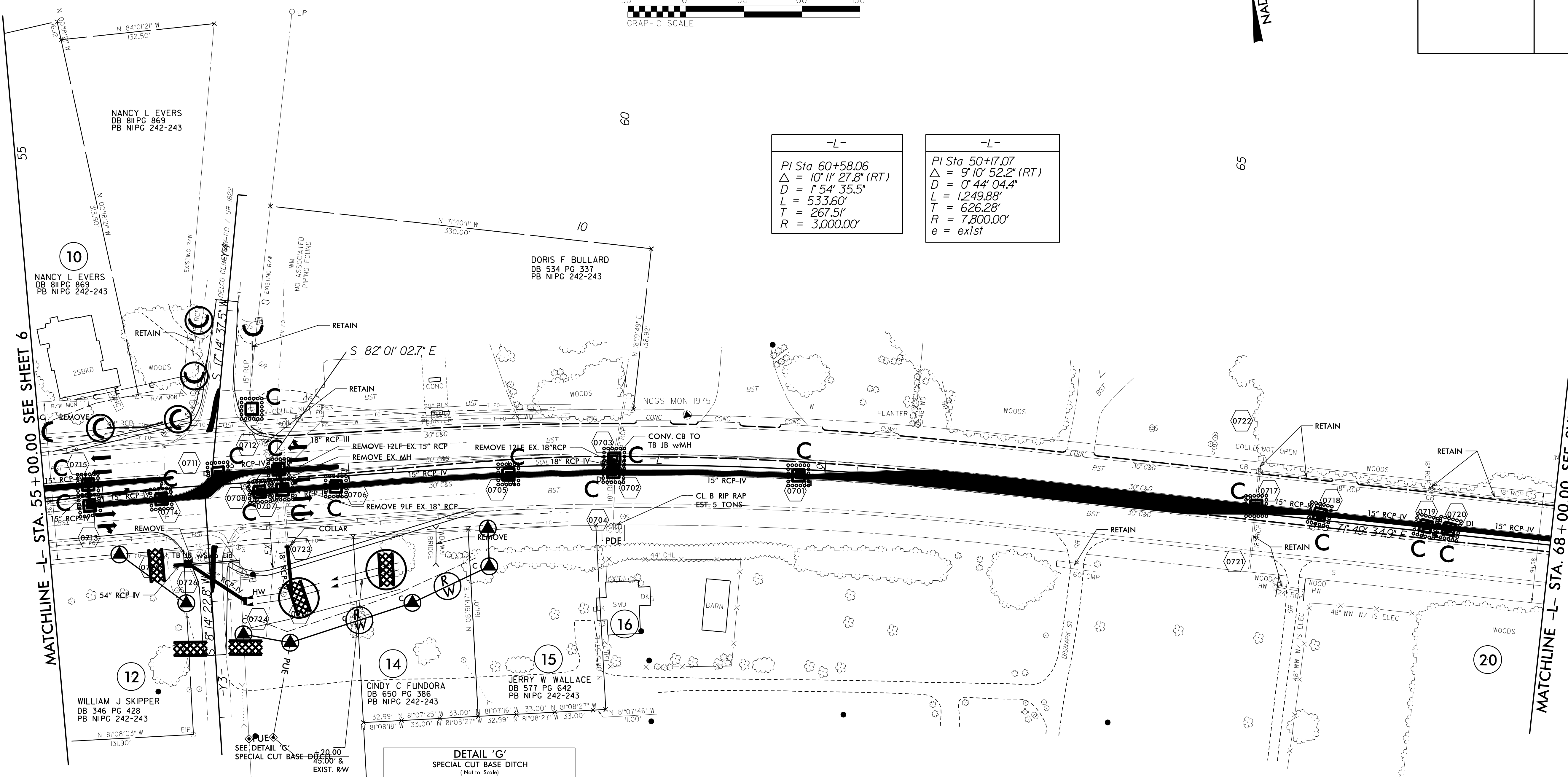
Stantec Consulting Services Inc.  
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Raleigh, NC 27606  
Tel. (919) 851-6866  
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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-19/CONST.07</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NAD 83/2007

-L-	-L-
<i>PI Sta 60+58.06</i> $\Delta = 10^{\circ} 11' 27.8" (RT)$ $D = 1^{\circ} 54' 35.5"$ $L = 533.60'$ $T = 267.51'$ $R = 3,000.00'$	<i>PI Sta 50+17.07</i> $\Delta = 9^{\circ} 10' 52.2" (RT)$ $D = 0^{\circ} 44' 04.4"$ $L = 1,249.88'$ $T = 626.28'$ $R = 7,800.00'$ $e = exist$



MATCHLINE -L- STA. 55 + 00.00 SEE SHEET 6

MATCHLINE -L- STA. 68 + 00.00 SEE SHEET 8

REVISIONS

8/17/99

SECTION 100.00 TO 100.00

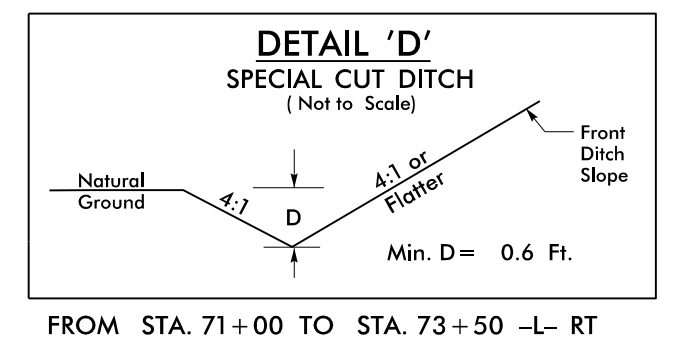
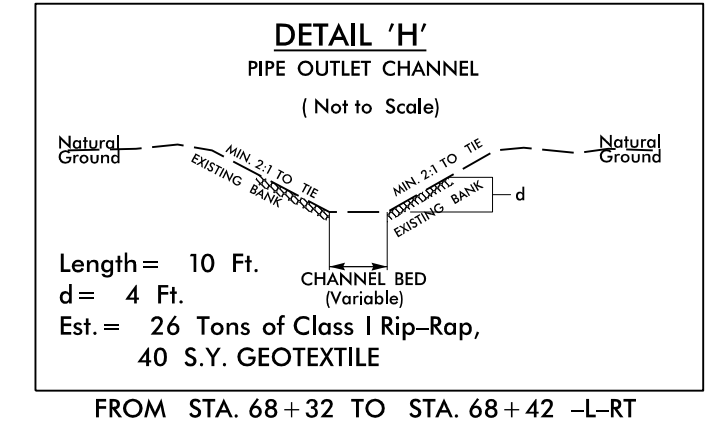
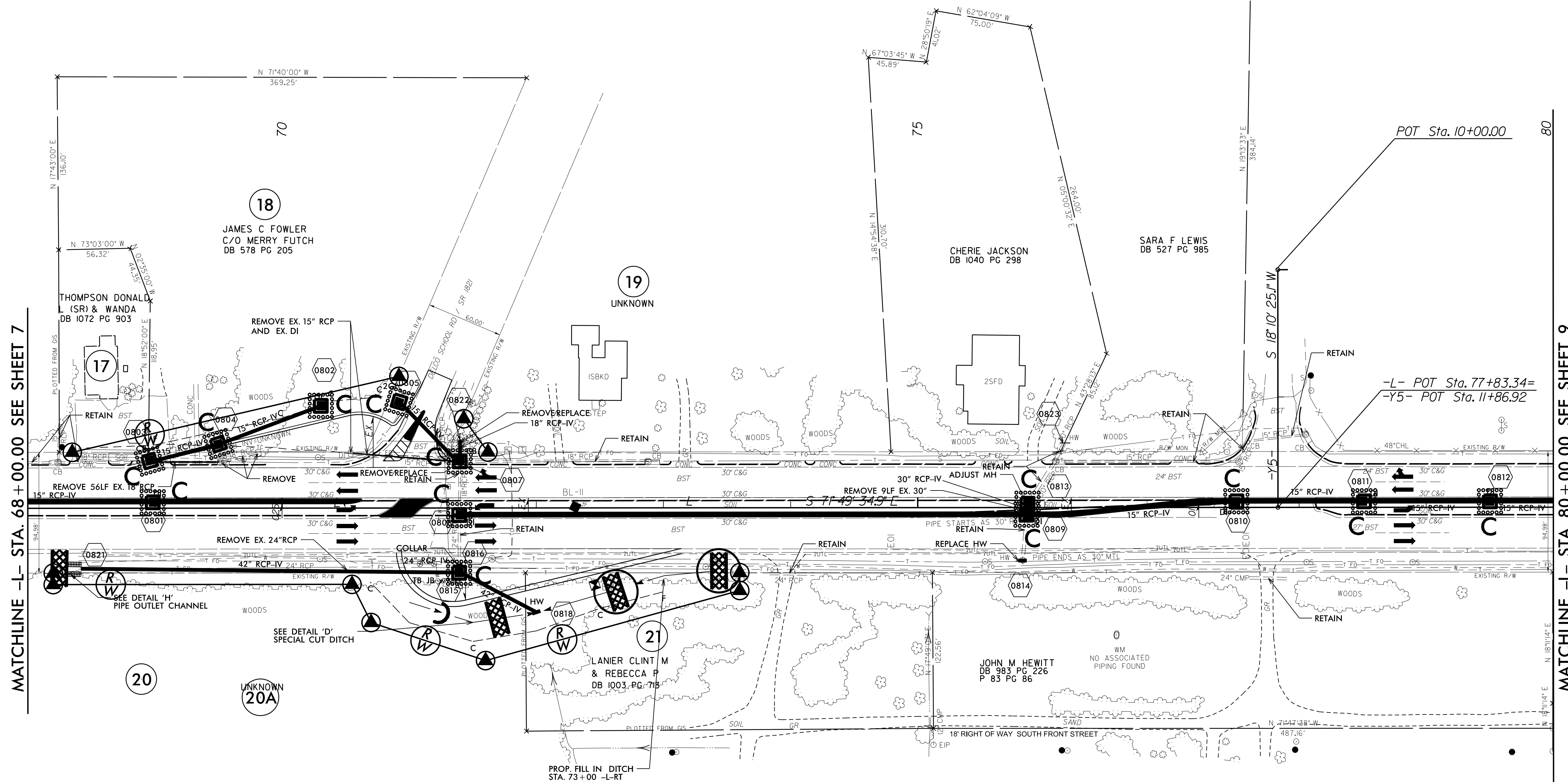
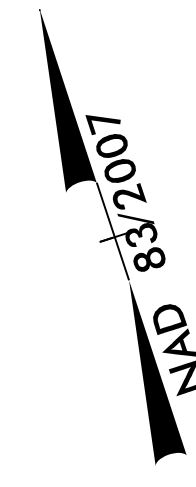
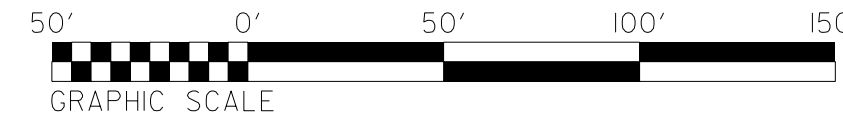


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PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-20/CONST.08</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

8/17/99

SCHEMATIC DEVELOPMENT  
DESIGN DEVELOPMENT  
CONSTRUCTION

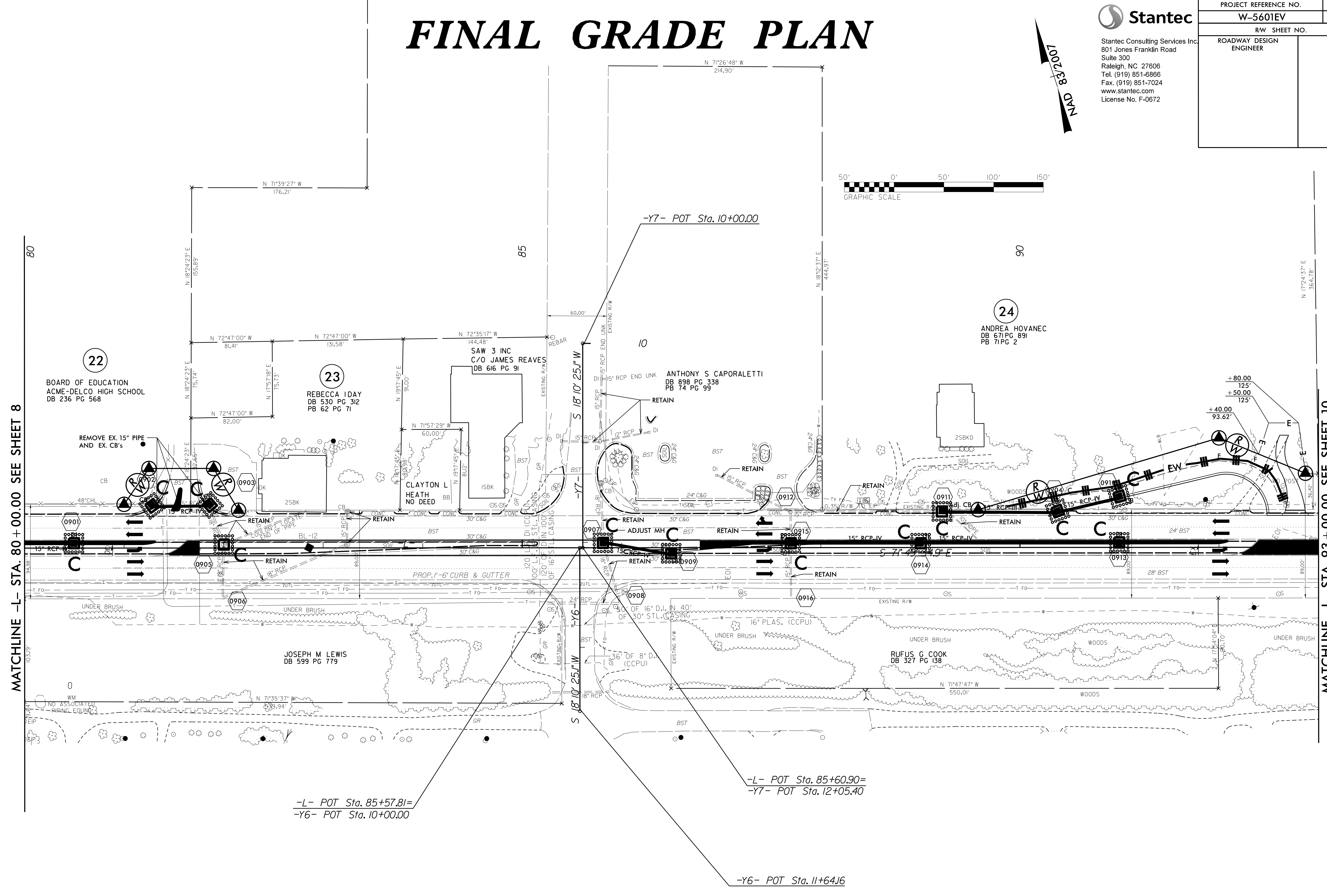
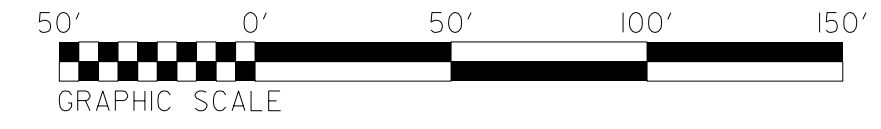
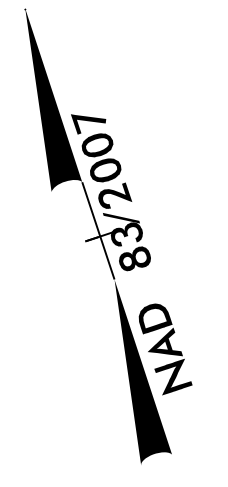
8/17/99

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PROJECT REFERENCE NO. <b>W-5601EV</b>		SHEET NO. <b>EC-21/CONST.09</b>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



MATCHLINE -L- STA. 80 + 00.00 SEE SHEET 8

MATCHLINE -L- STA. 93 + 00.00 SEE SHEET 10

-L- POT Sta. 85+57.81=  
-Y6- POT Sta. 10+00.00

-L- POT Sta. 85+60.90=  
-Y7- POT Sta. 12+05.40

-Y6- POT Sta. 11+64.16

REVISIONS

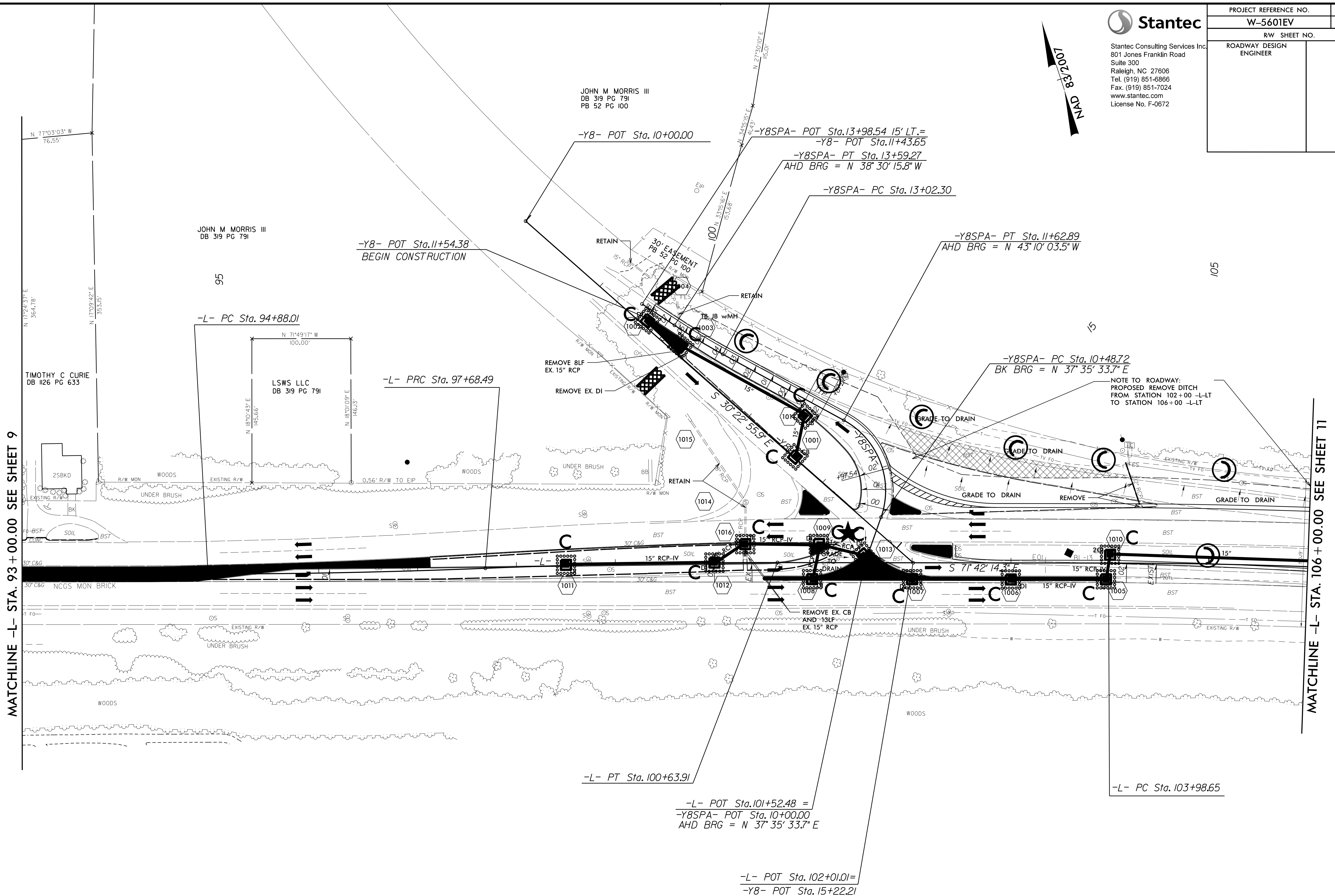
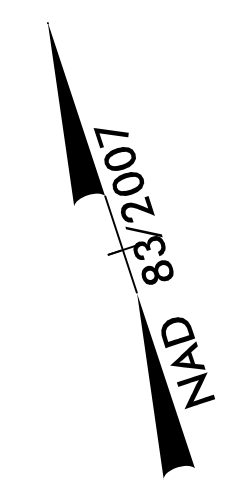
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BY \$\$\$\$\$\$  
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8/17/99



PROJECT REFERENCE NO.	SHEET NO.
W-5601EV	EC-22/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

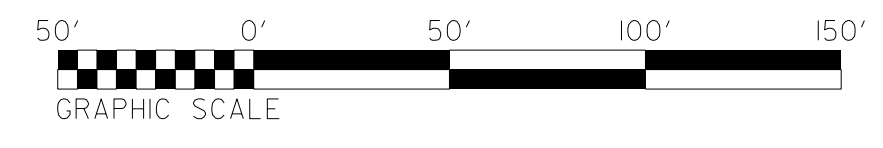
Stantec Consulting Services Inc.  
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Suite 300  
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Tel. (919) 851-6866  
Fax. (919) 851-7024  
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REVISIONS

MATCHLINE -L- STA. 93 + 00.00 SEE SHEET 9

MATCHLINE -L- STA. 106 + 00.00 SEE SHEET 11



★ PROPOSED SIGNAL

# FINAL GRADE PLAN

SECTION 101  
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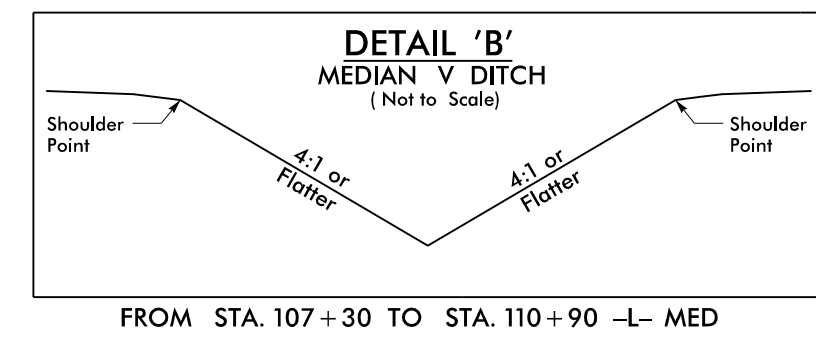
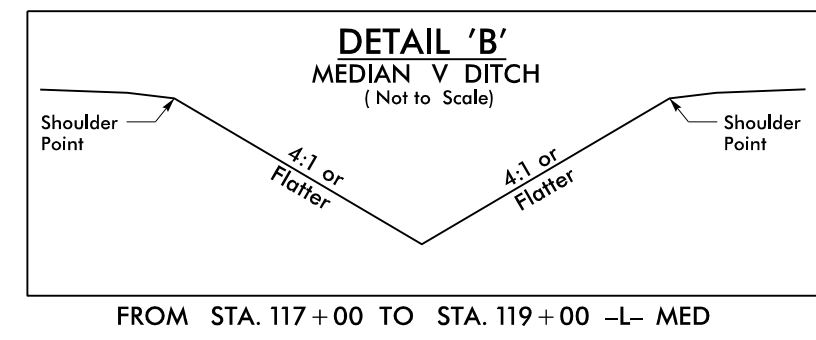
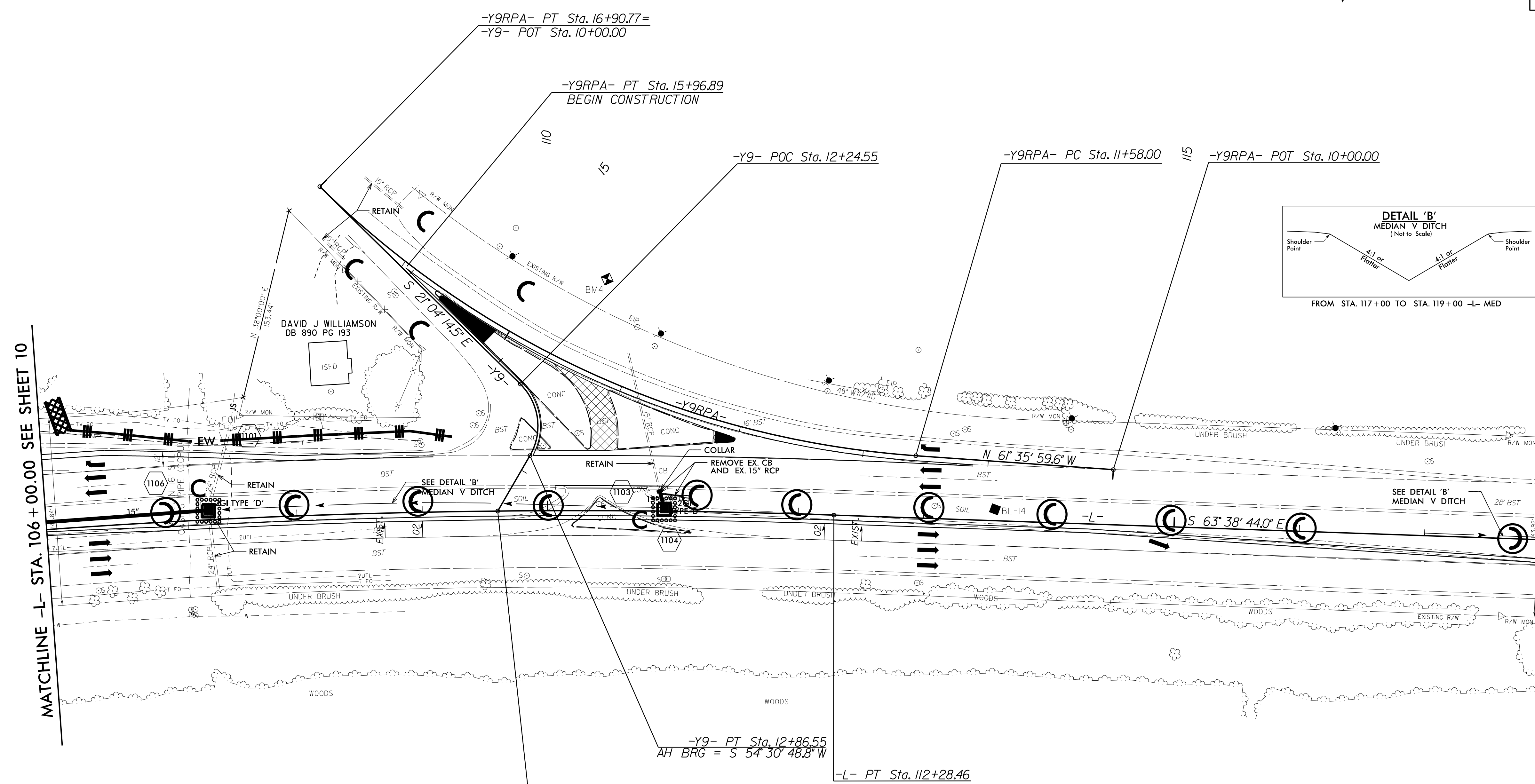
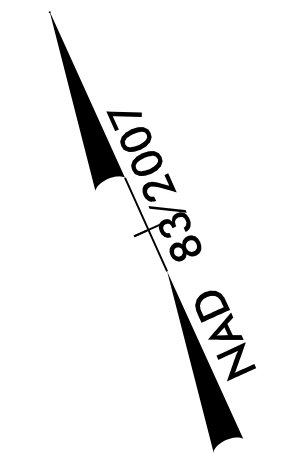
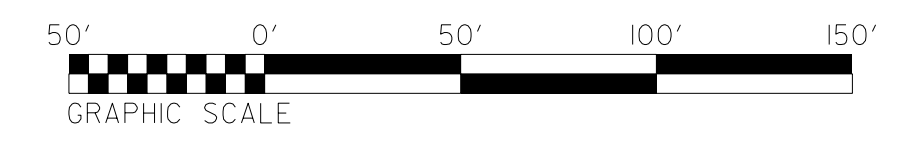
8/17/99

# FINAL GRADE PLAN



PROJECT REFERENCE NO. W-5601EV		SHEET NO. EC-23/CONST.II
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

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801 Jones Franklin Road  
Suite 300  
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MATCHLINE -L- STA. 106 + 00.00 SEE SHEET 10

MATCHLINE -L- STA. 118 + 00.00 SEE SHEET 12

REVISIONS

-Y9RPA-	-Y9-	-L-
PI Sta 14+36.08	PI Sta 12+61.00	PI Sta 108+14.24
$\Delta = 40^\circ 31' 45.1''$ (RT)	$\Delta = 75^\circ 35' 03.3''$ (RT)	$\Delta = 8^\circ 03' 30.3''$ (RT)
D = 7' 36' 25.9"	D = 12' 54' 21.3"	D = 0' 58' 16.0"
L = 532.77'	L = 62.00'	L = 829.81'
T = 278.08'	T = 36.45'	T = 415.59'
R = 753.18'	R = 47.00'	R = 5,900.00'

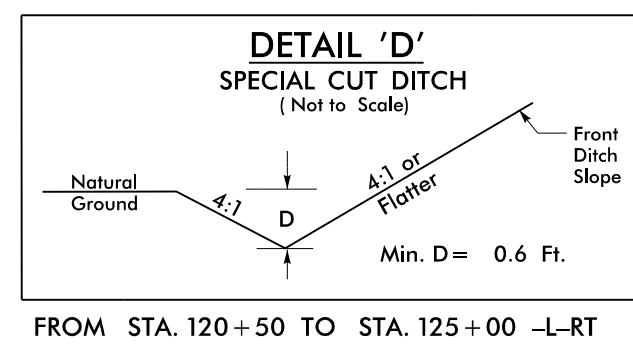
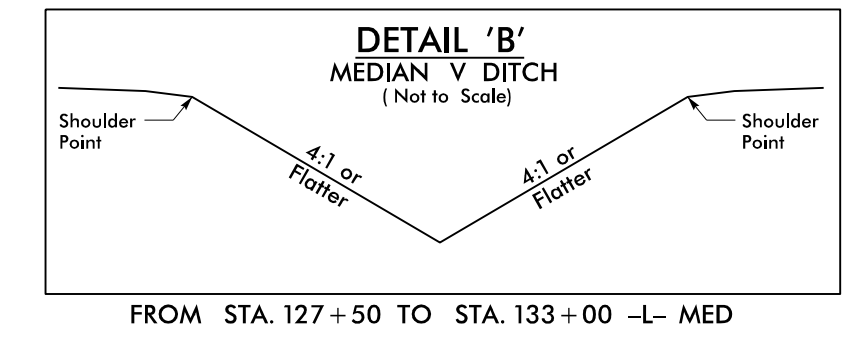
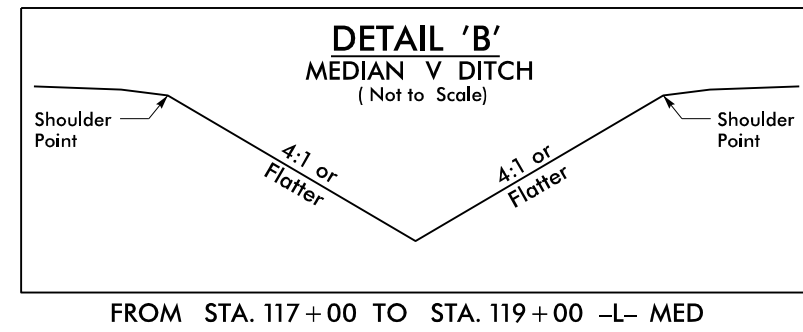
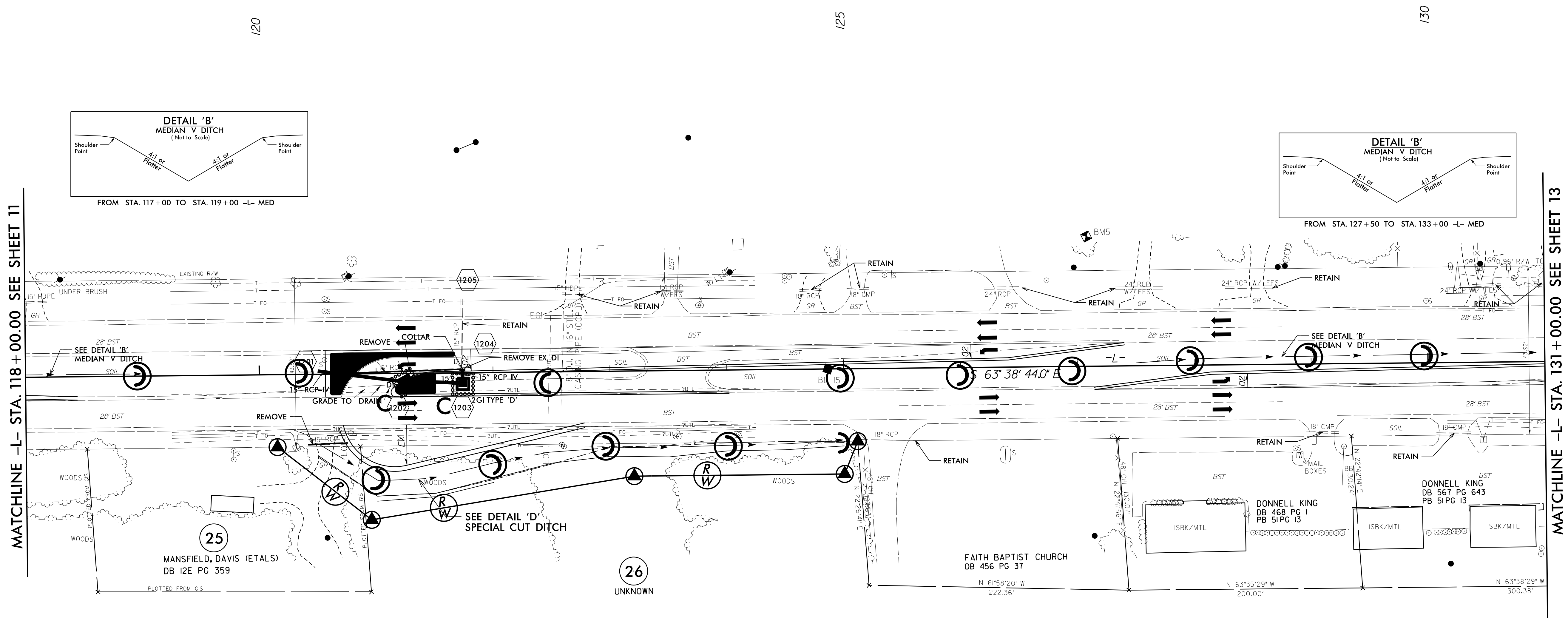
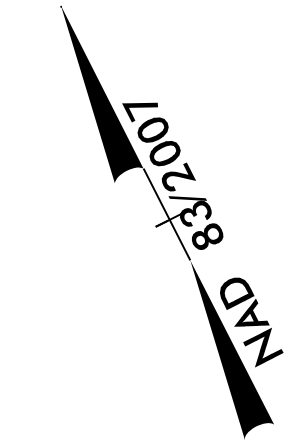
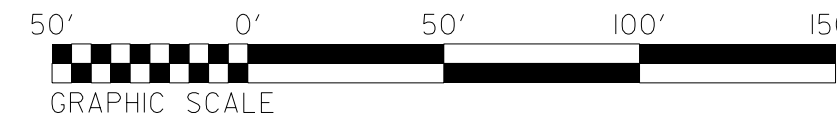
SCHEMATIC CONSTRUCTION LINE

# FINAL GRADE PLAN



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PROJECT REFERENCE NO. <b>W-5601EV</b>		SHEET NO. <i>EC-24/CONST J2</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



REVISIONS

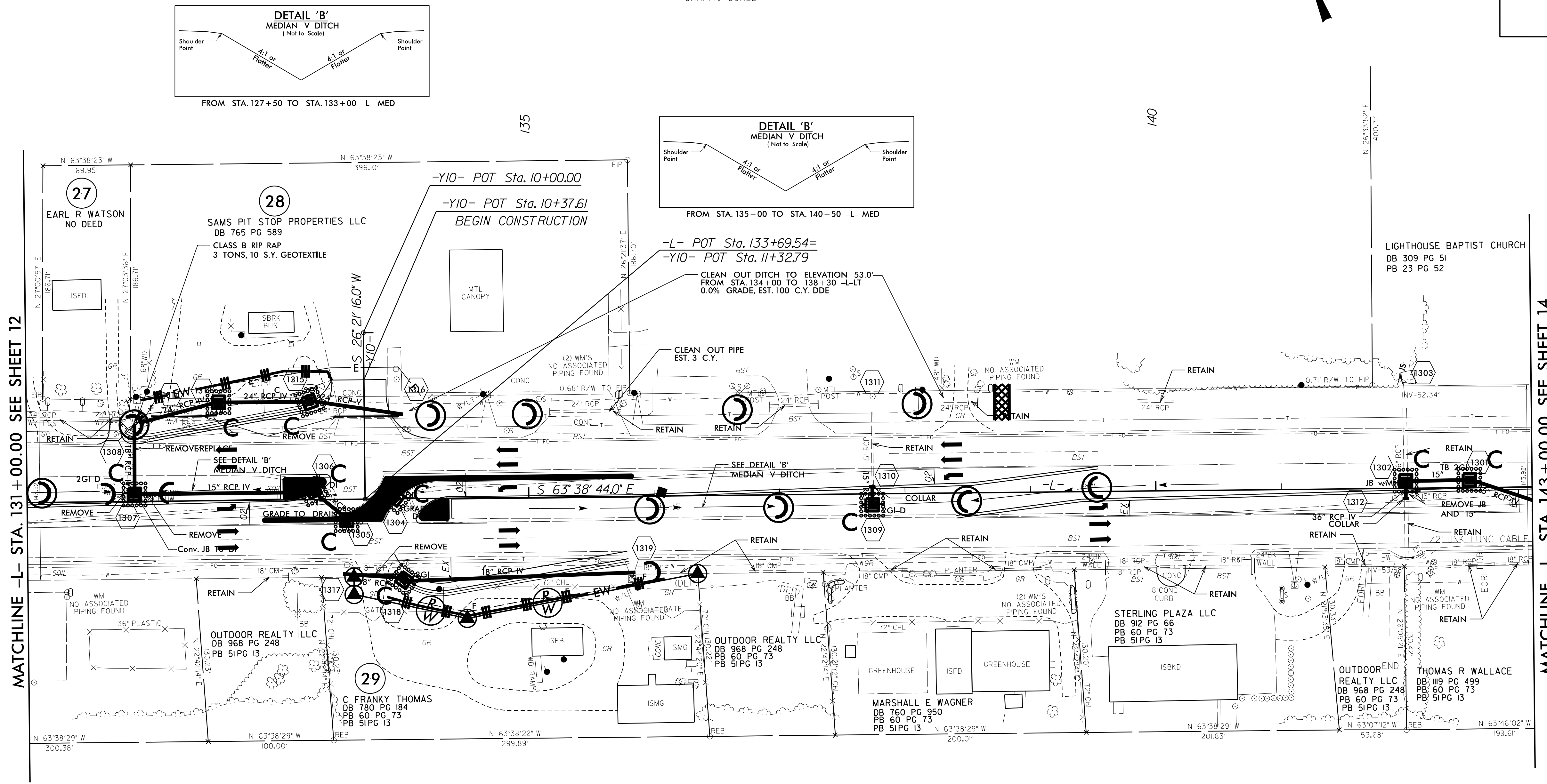
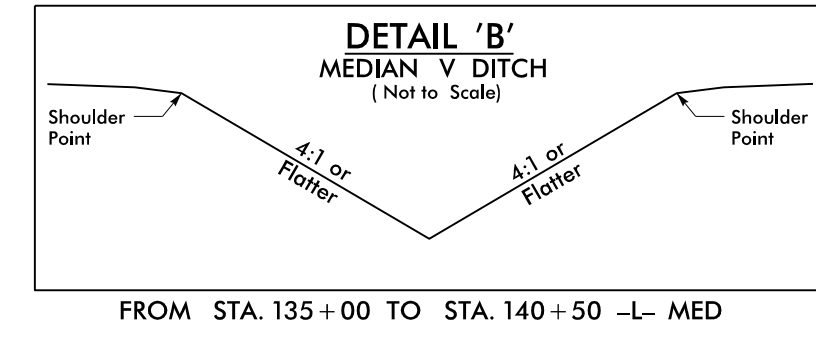
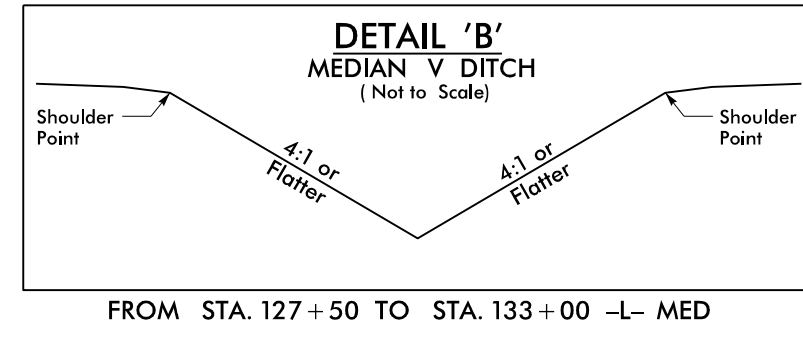
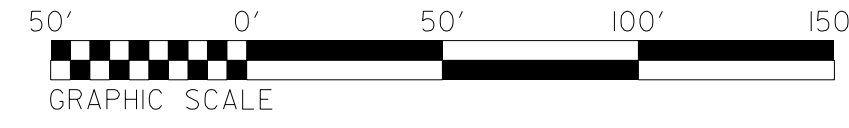
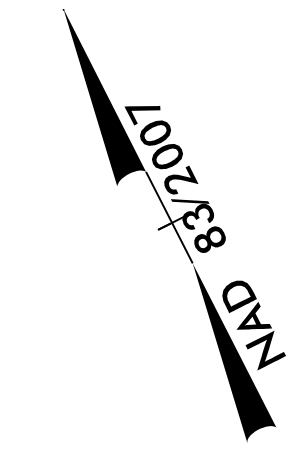
8/17/99

DATE PLOTTED: 08/17/99  
PLOTTER: HP PLOTTER  
SCALE: AS SHOWN  
DRAWN BY: [unreadable]  
CHECKED BY: [unreadable]  
APPROVED BY: [unreadable]

# FINAL GRADE PLAN

PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <b>EC-25/CONST.13</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Tel. (919) 851-6866  
Fax. (919) 851-7024  
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MATCHLINE -L- STA. 131+00.00 SEE SHEET 12

MATCHLINE -L- STA. 143+00.00 SEE SHEET 14

REVISIONS

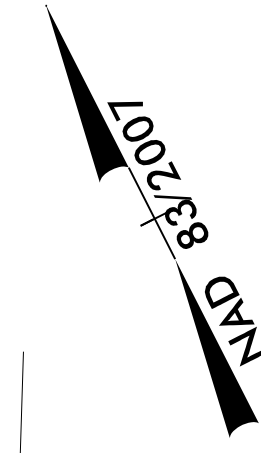
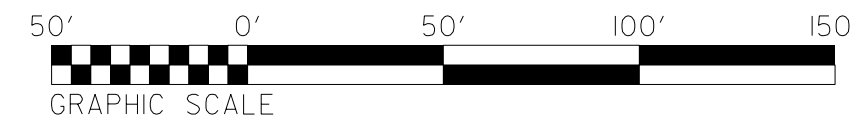
8/17/99

SCHEMATIC DESIGN \$\$\$\$\$\$  
 PRELIMINARY \$\$\$\$\$\$  
 CONSTRUCTION \$\$\$\$\$\$  
 AS-BUILT \$\$\$\$\$\$

8/17/99

REVISIONS

# FINAL GRADE PLAN

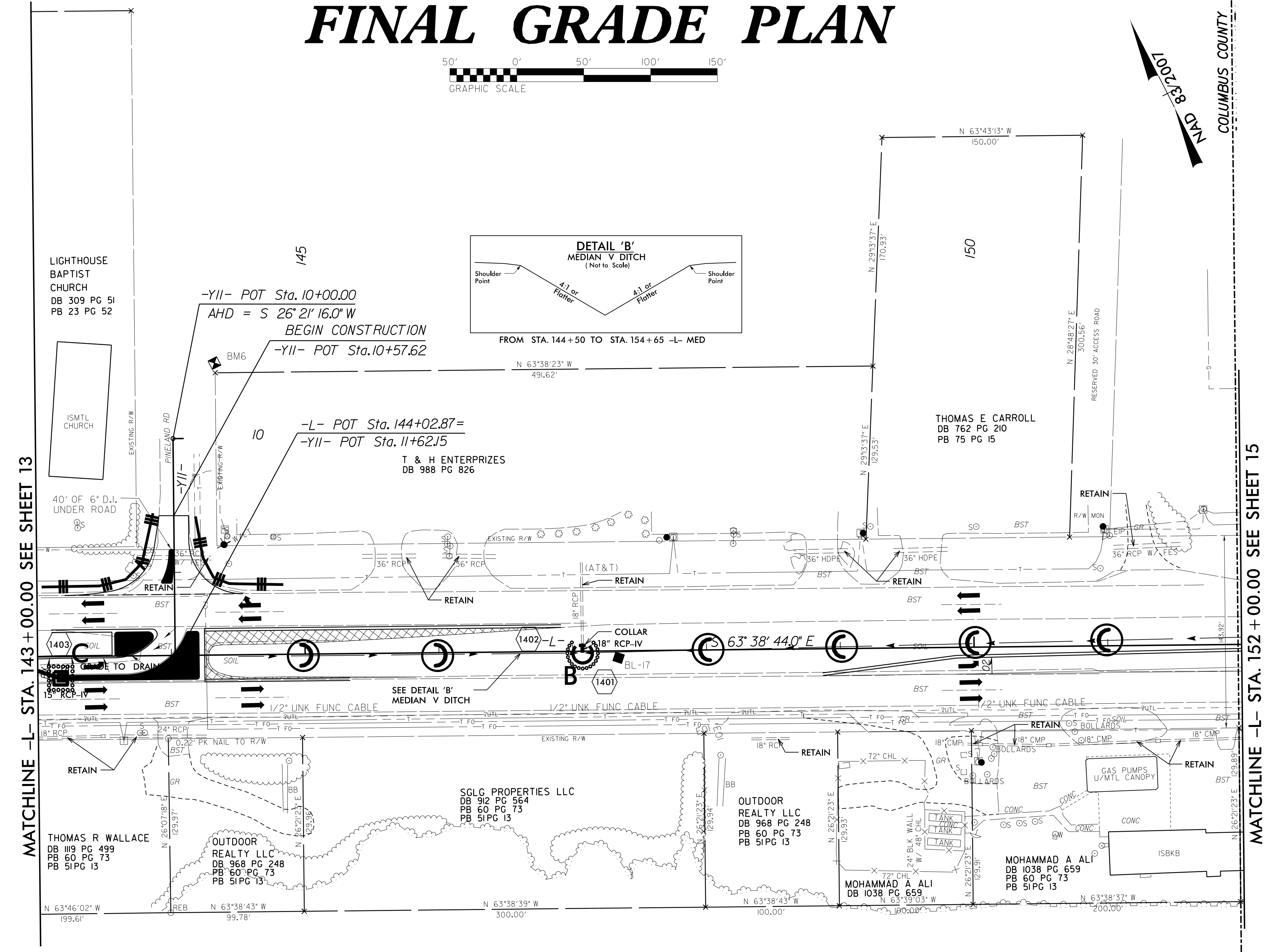


COLUMBUS COUNTY



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PROJECT REFERENCE NO.	SHEET NO.
W-5601EV	EC-26/CONST J4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



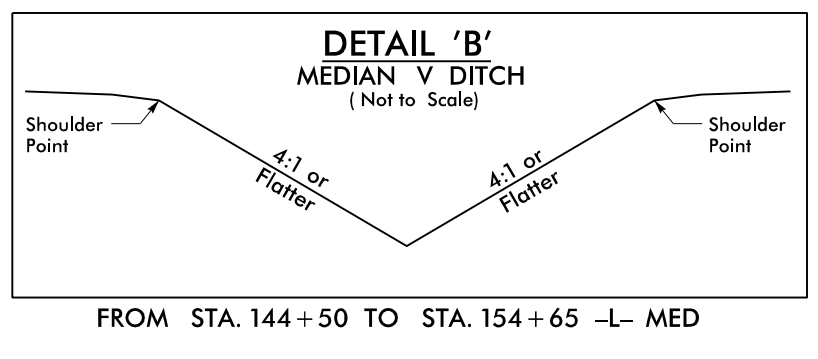
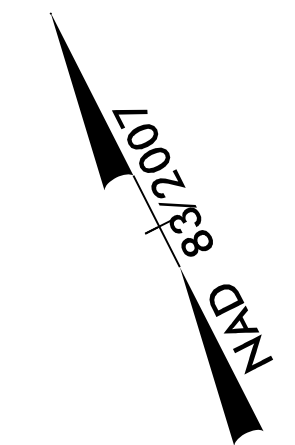
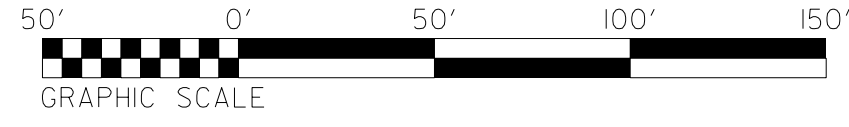
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# FINAL GRADE PLAN

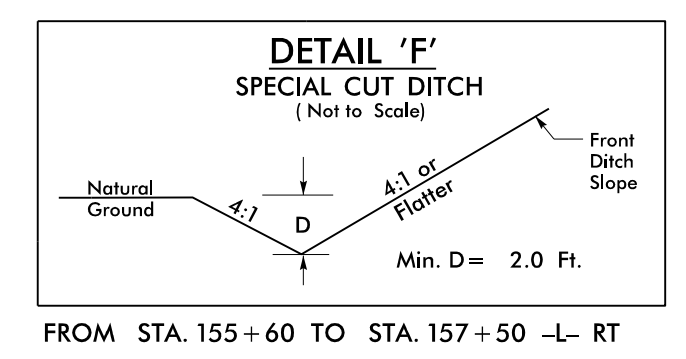
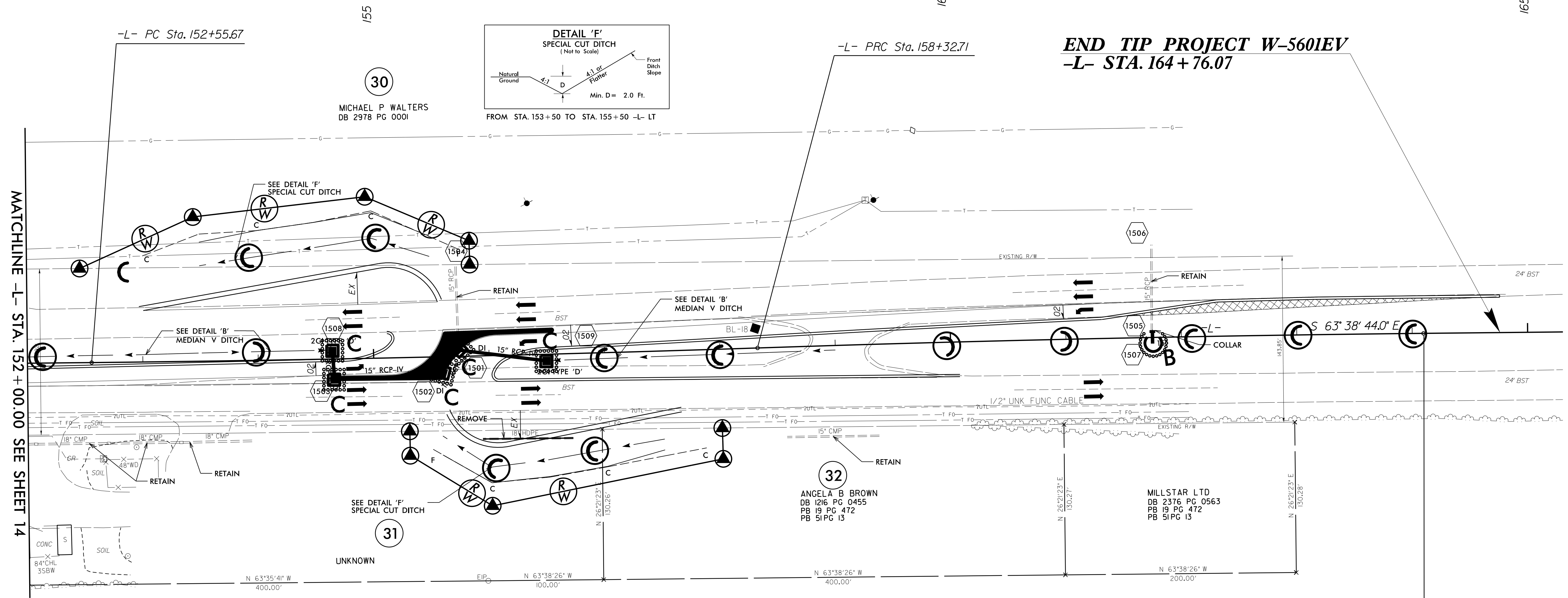
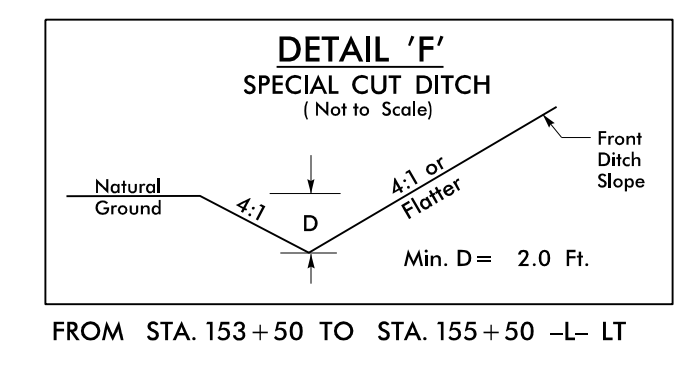
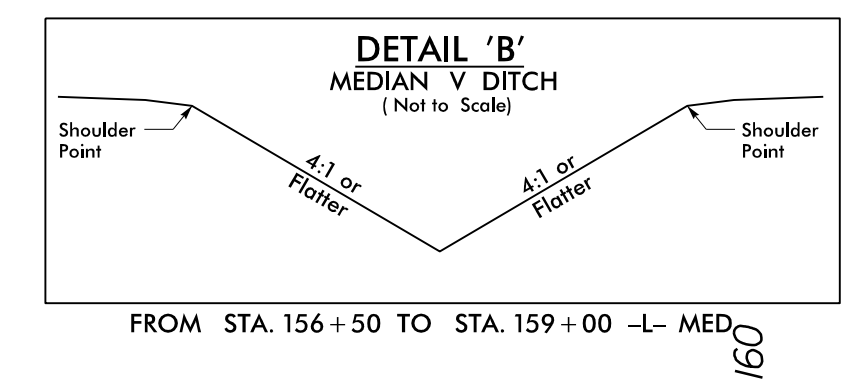


PROJECT REFERENCE NO. <b>W-5601EV</b>	SHEET NO. <i>EC-27/CONST.15</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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-L-	
PI Sta 155+44.20 Δ = 1'19" 21.0" (LT) D = 0'13" 45.1" L = 577.04' T = 288.54' R = 25,000.00'	PI Sta 161+21.25 Δ = 1'19" 21.0" (RT) D = 0'13" 45.1" L = 577.04' T = 288.54' R = 25,000.00'



8/17/99

SCHEMATIC DEVELOPMENT  
DESIGN DEVELOPMENT  
FINAL DESIGN