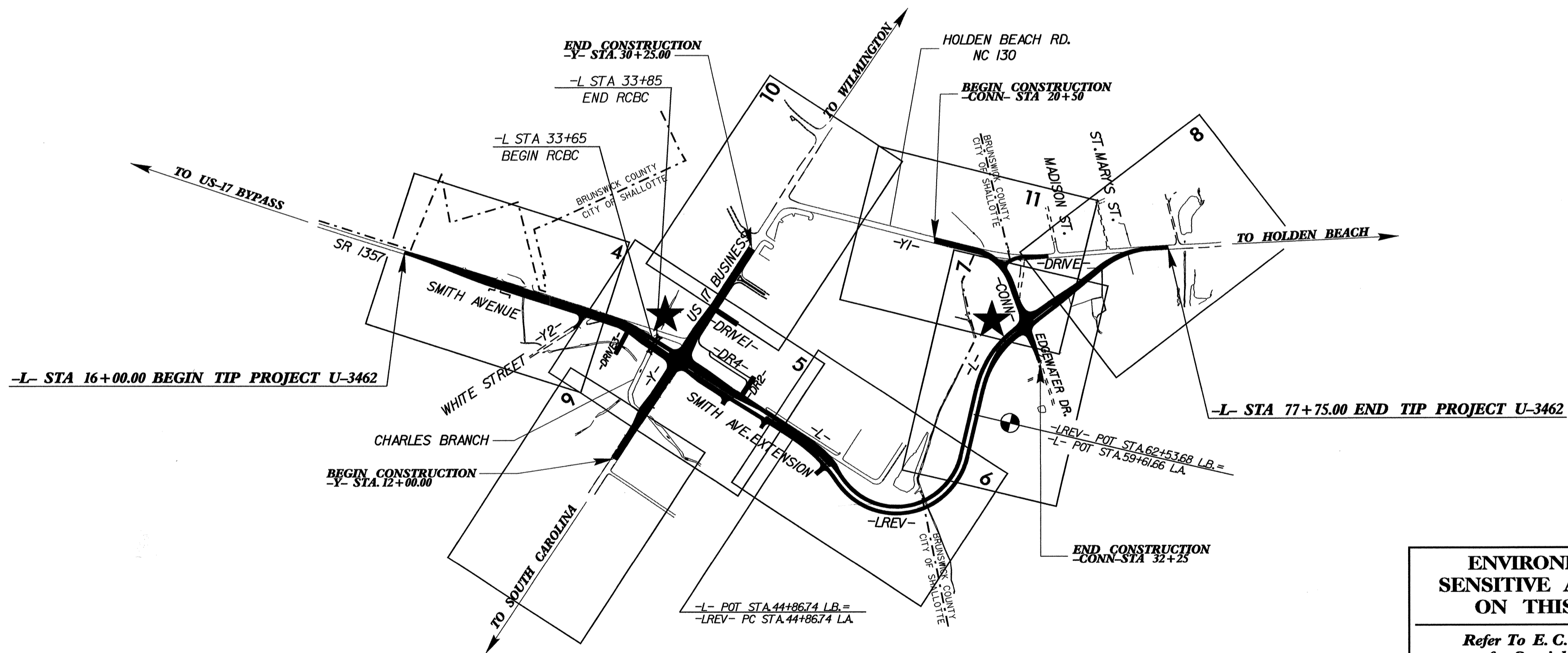


**TIP PROJECT: U-3462**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 PLAN FOR PROPOSED  
 HIGHWAY EROSION CONTROL  
**BRUNSWICK COUNTY**

**LOCATION: EXTENSION OF SR 1357 FROM WEST OF  
 US 17 BUSINESS TO NC 130 IN SHALLOTTE**

**TYPE OF WORK: GRADING DRAINAGE, PAVING, CULVERTS,  
 SIGNING AND TRAFFIC SIGNALS**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3462	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**EROSION AND SEDIMENT CONTROL MEASURES**

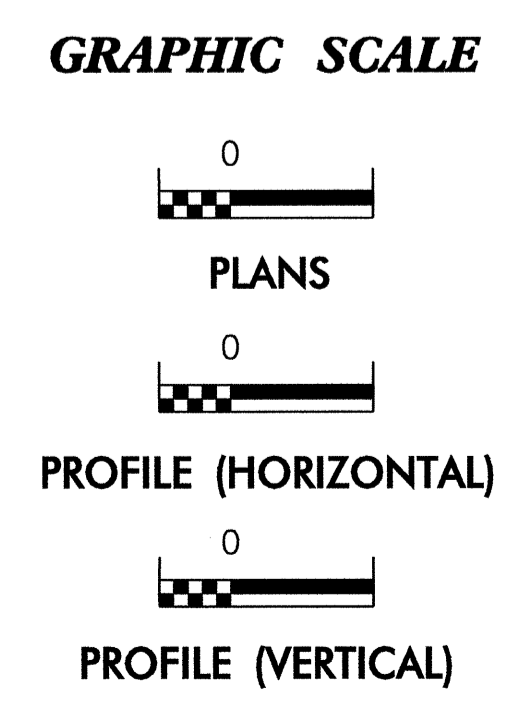
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	--- r50 ---
1630.05	Temporary Diversion	--- TD ---
1605.01	Temporary Silt Fence	
	Special Sediment Control Fence	--- / \ / \ / \ ---
1622.01	Temporary Berms and Slope Drains	--- T ---
1630.01	Riser Basin	--- R ---
	Silt Basin Type B	--- S ---
1633.01	Temporary Rock Silt Check Type-A	--- X ---
	Temporary Rock Silt Check Type-B	--- T ---
	Wattle	--- W ---
1634.01	Temporary Rock Sediment Dam Type-A	--- A ---
1634.02	Temporary Rock Sediment Dam Type-B	--- B ---
1635.01	Rock Pipe Inlet Sediment Trap Type-A	--- P ---
1635.02	Rock Pipe Inlet Sediment Trap Type-B	--- Q ---
1630.04	Stilling Basin	--- S ---
1630.06	Special Stilling Basin	--- SB ---
	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 ---

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

**THIS PROJECT HAS  
 BEEN DESIGNED TO  
 SENSITIVE WATERSHED  
 STANDARDS.**

**ENVIRONMENTALLY  
 SENSITIVE AREA(S) EXIST  
 ON THIS PROJECT**  
 Refer To E. C. Special Provisions  
 for Special Considerations.

**HIGH QUALITY WATER(S) EXIST  
 ON THIS PROJECT**  
 High Quality Water Zone(s) Exist  
 From Sta. \_\_\_\_\_ Begin  
 to Sta. \_\_\_\_\_ End  
 Refer To E. C. Special Provisions  
 for Special Considerations.



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**

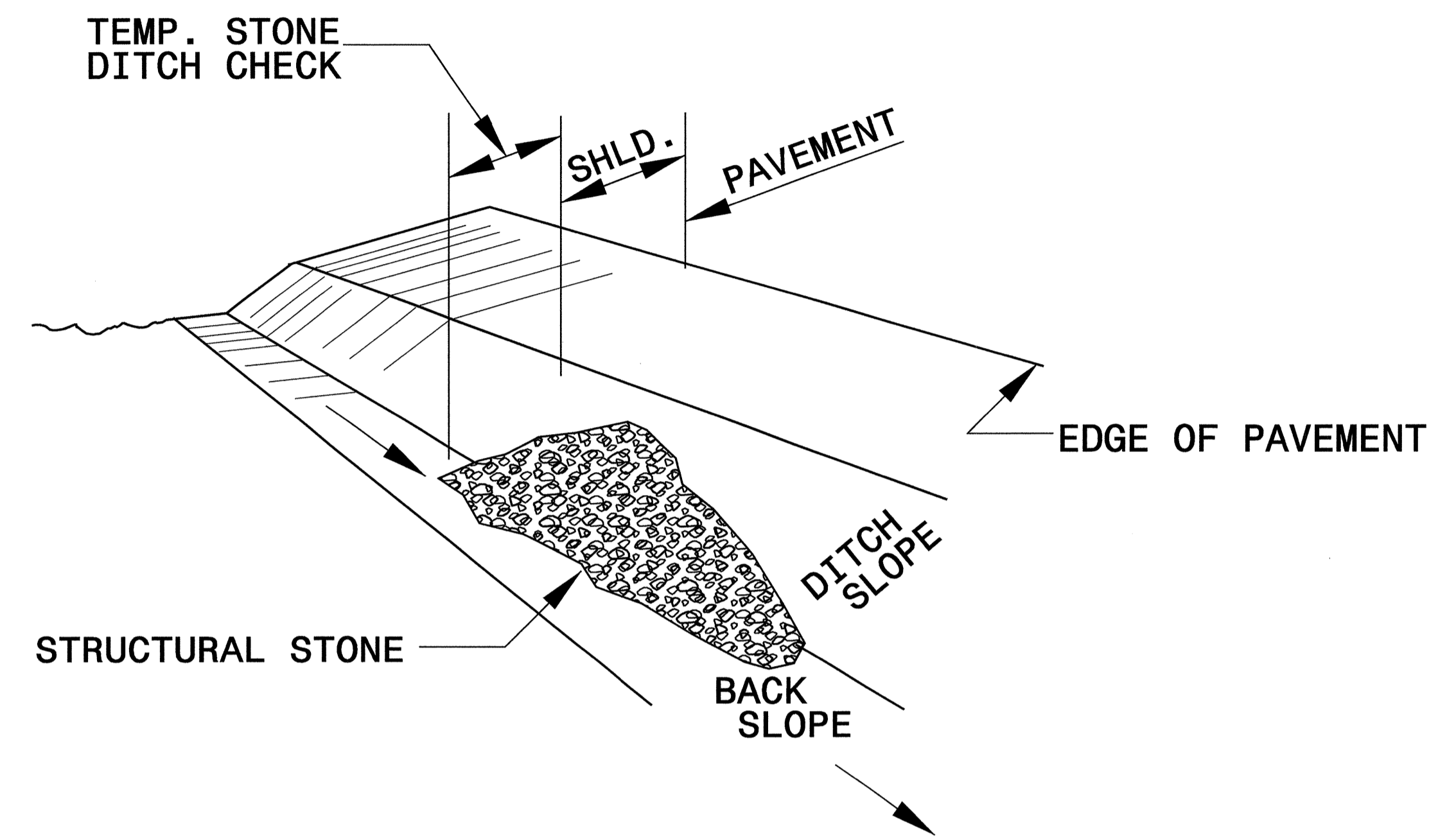
Roadway Standard Drawings

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 revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
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	1634.01 Temporary Rock Sediment Dam Type B
1630.05 Temporary Diversion	1634.02 Temporary Rock Sediment Dam Type A
1630.06 Special Stilling Basin	1635.01 Rock Pipe Inlet Sediment Trap Type A
	1635.02 Rock Pipe Inlet Sediment Trap Type B

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

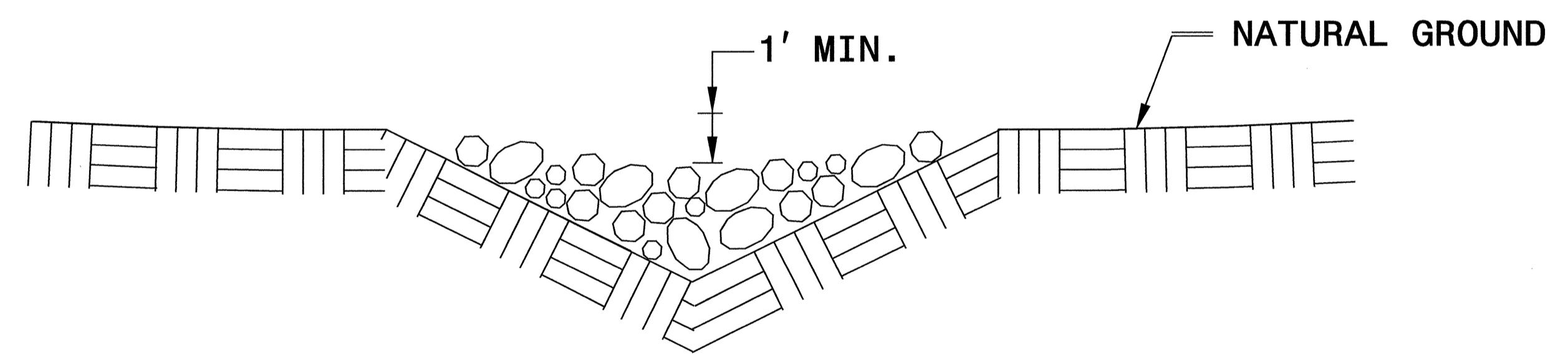


**ISOMETRIC VIEW**

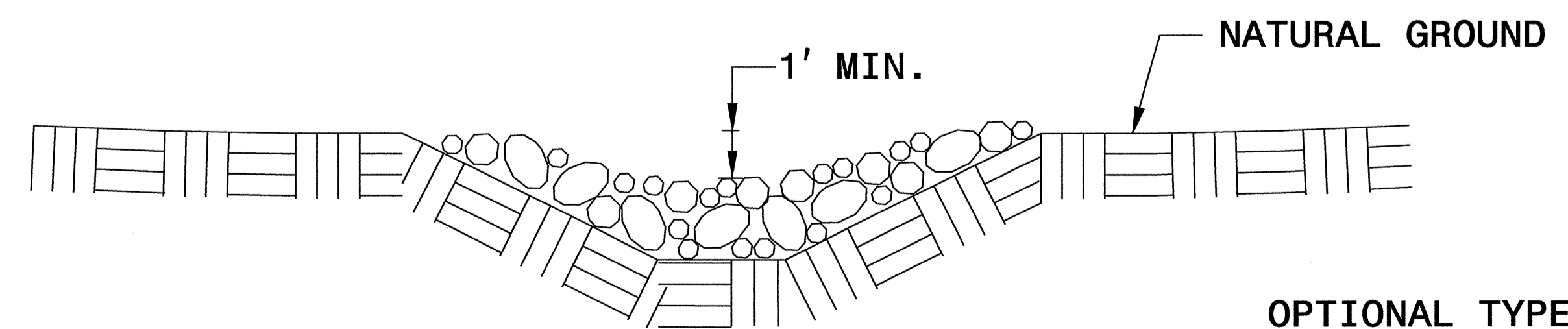
**NOTES:**

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

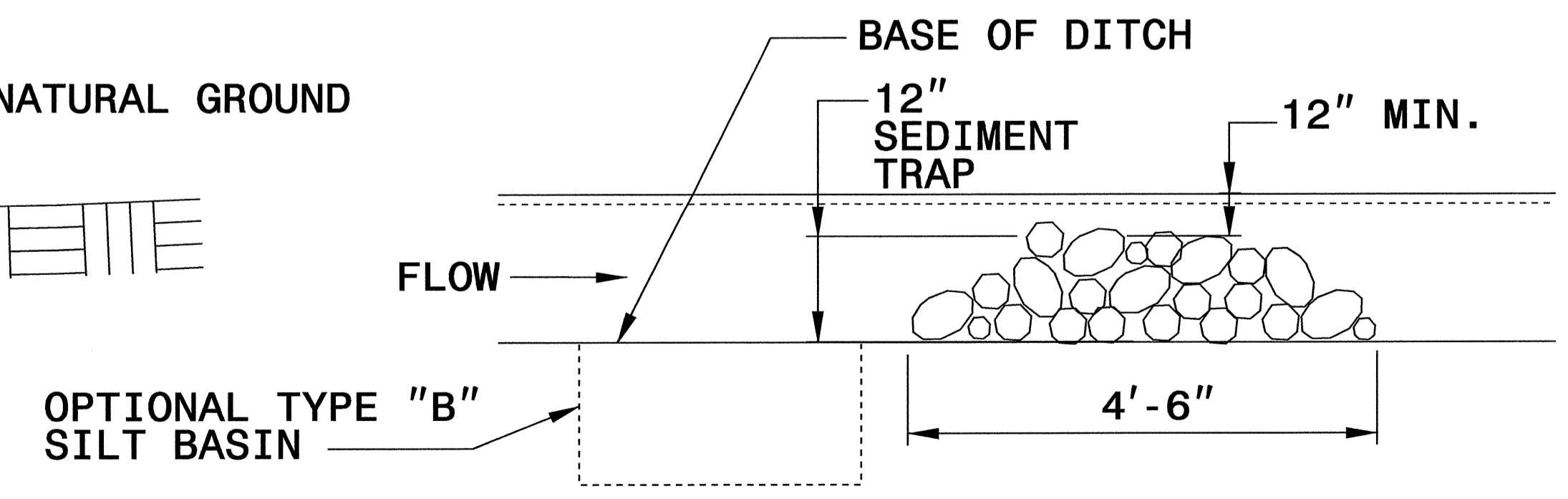
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



**CROSS SECTION VEE DITCH**



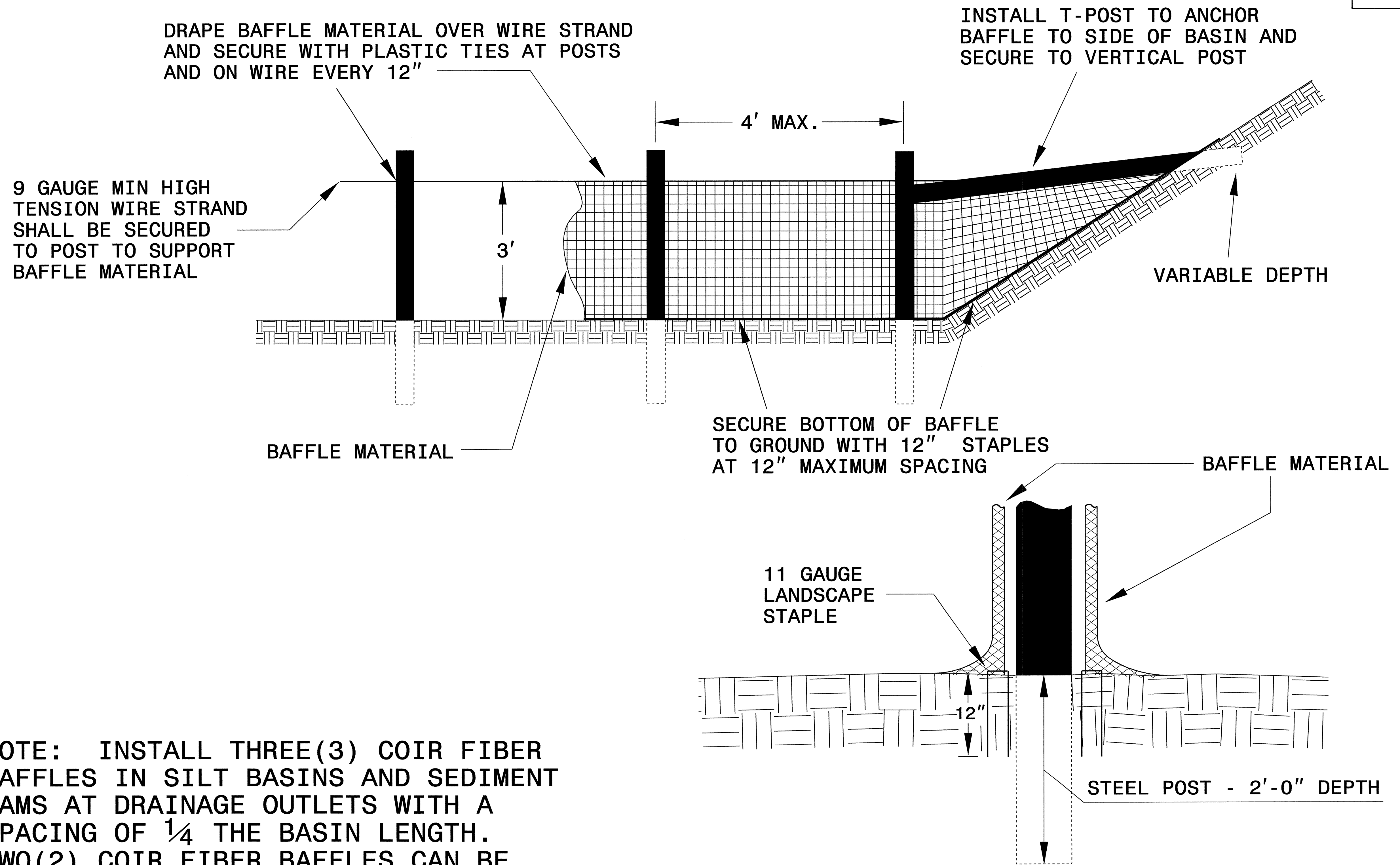
**CROSS SECTION TRAPEZOIDAL DITCH**



**ELEVATION VIEW**

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# COIR FIBER BAFFLE DETAIL

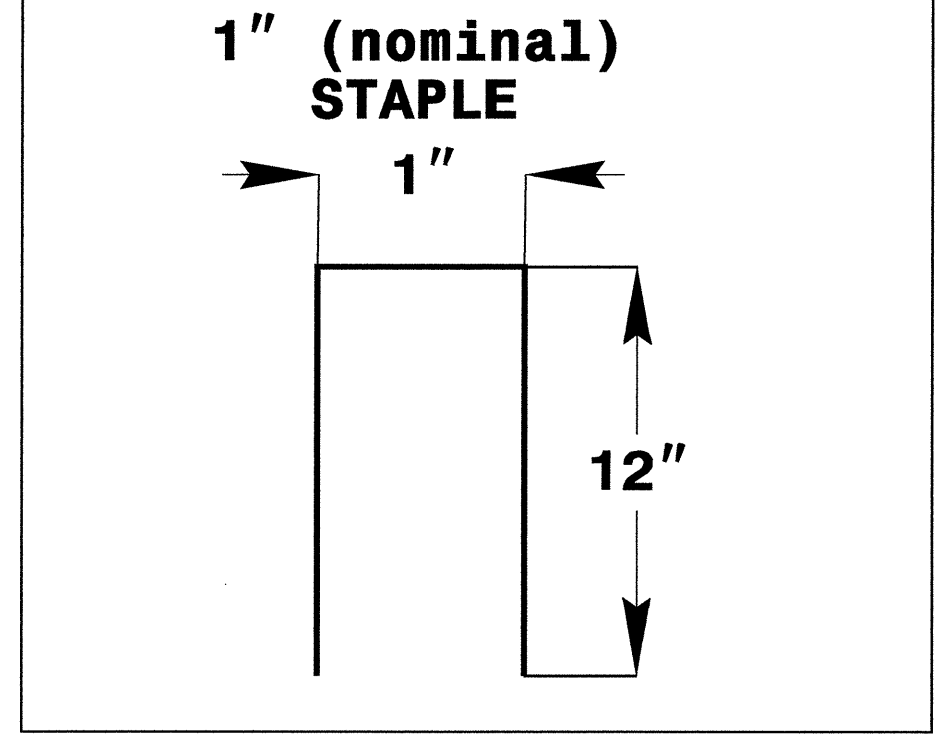
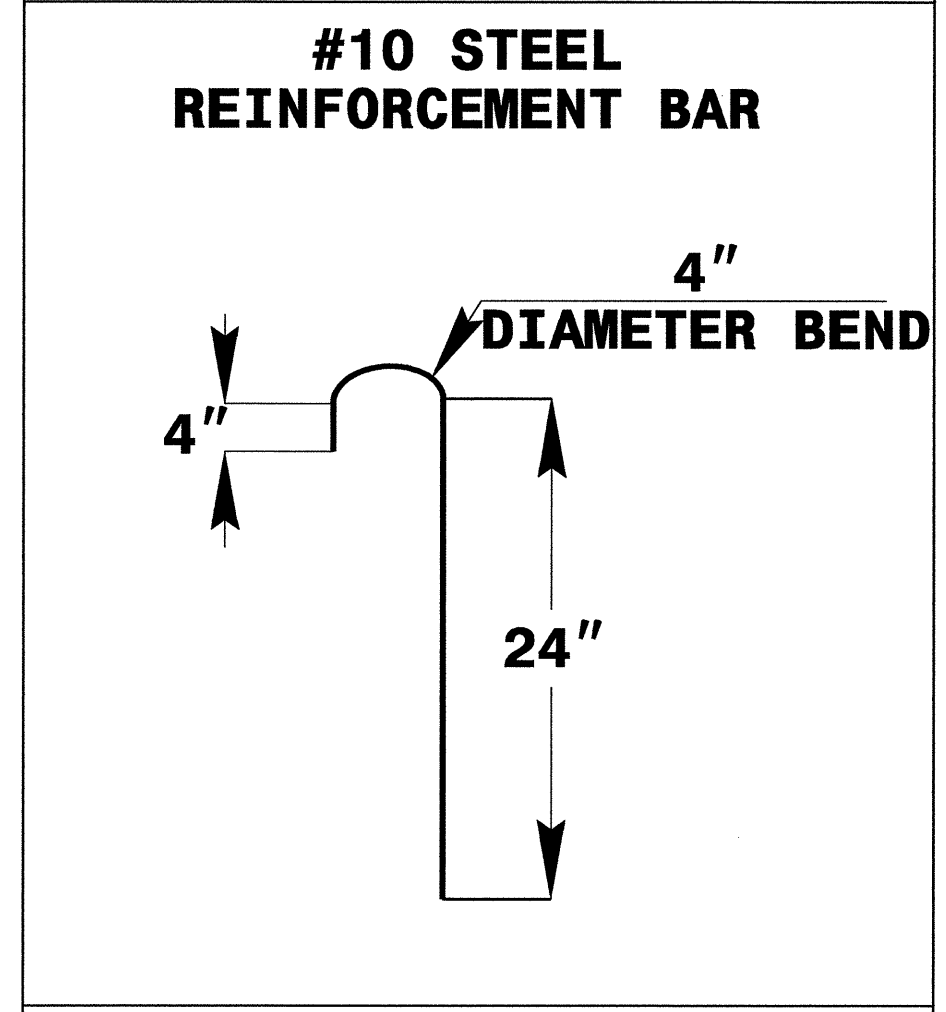
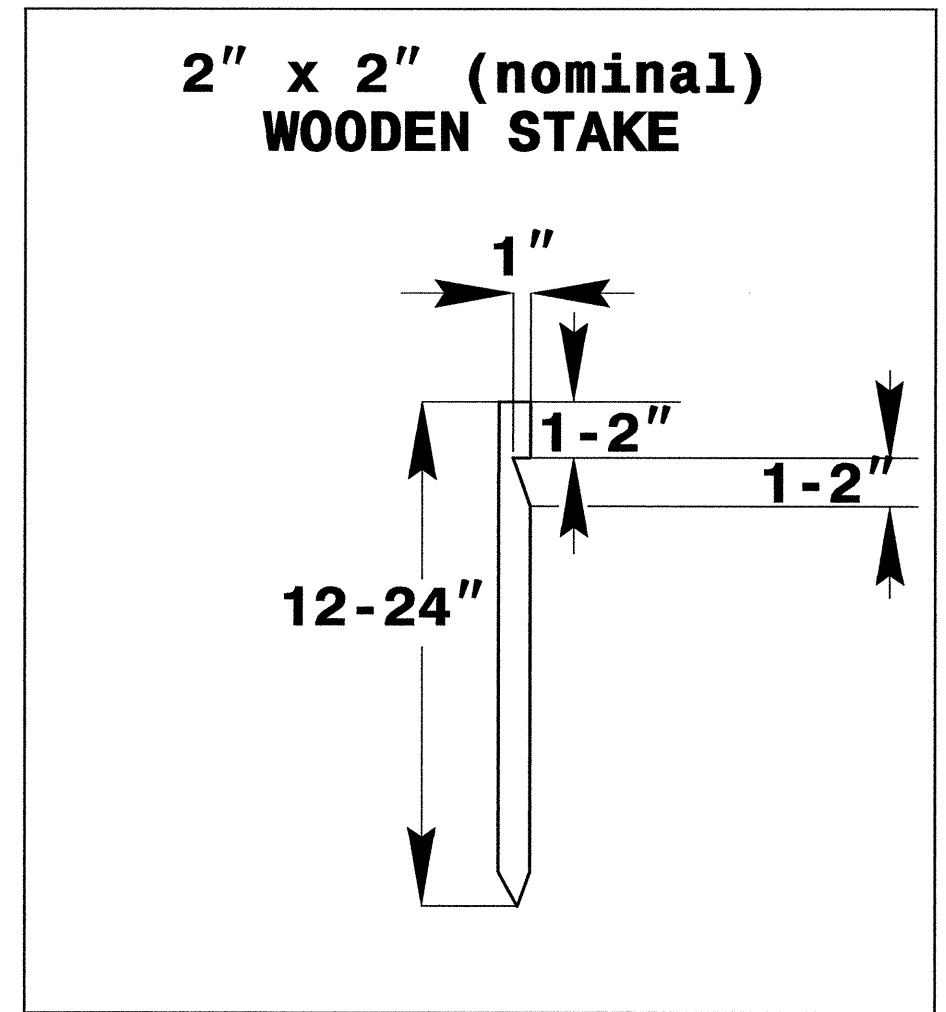
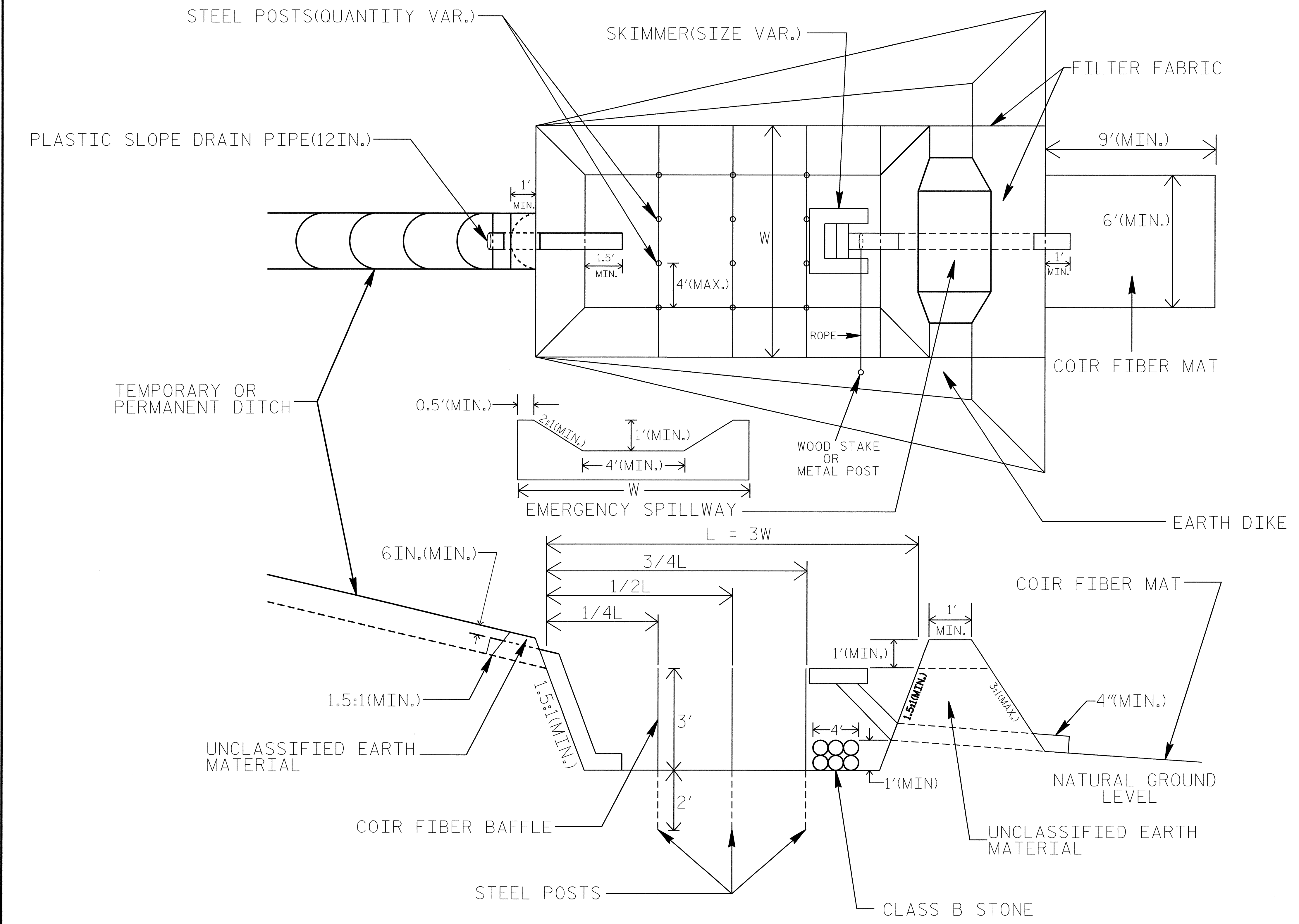


NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF  $\frac{1}{4}$  THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF  $\frac{1}{3}$  THE BASIN LENGTH.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12" LANDSCAPE STAPLES

# SKIMMER BASIN WITH BAFFLES DETAIL

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



## COIR FIBER MAT ANCHOR OPTIONS

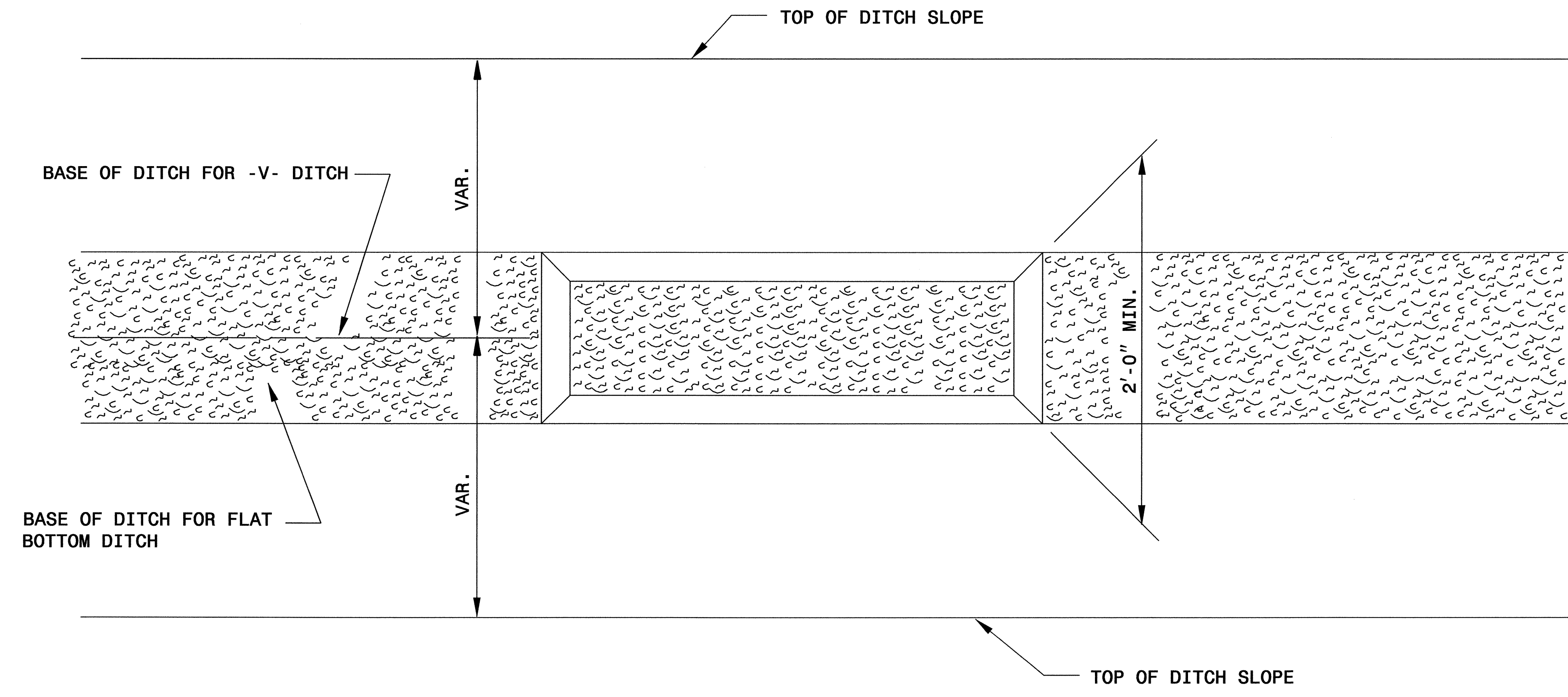
### NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. 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.

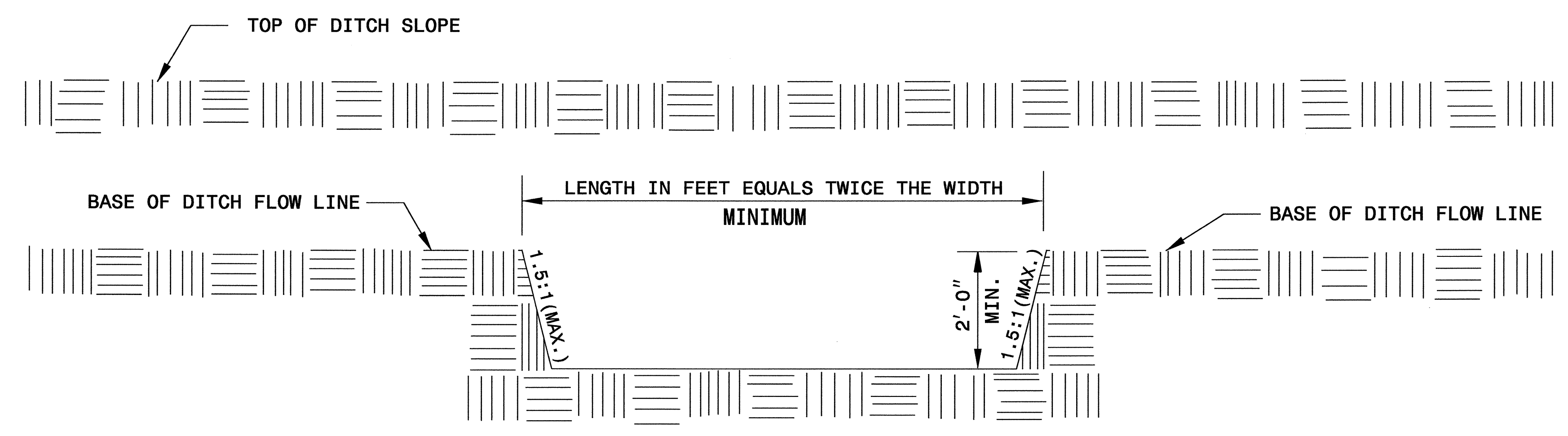
NOT TO SCALE

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SILT BASIN 'B' DETAIL



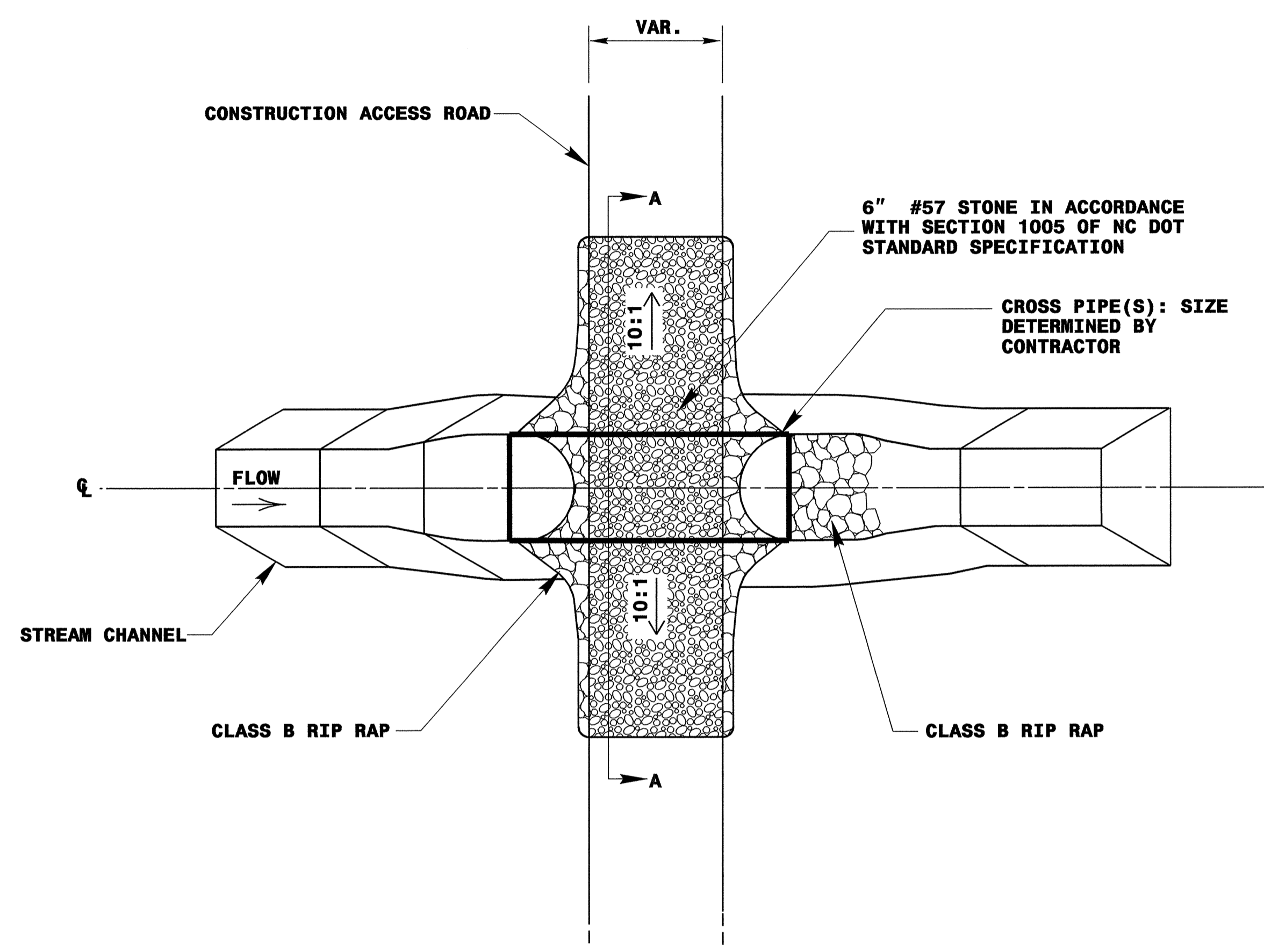
PLAN



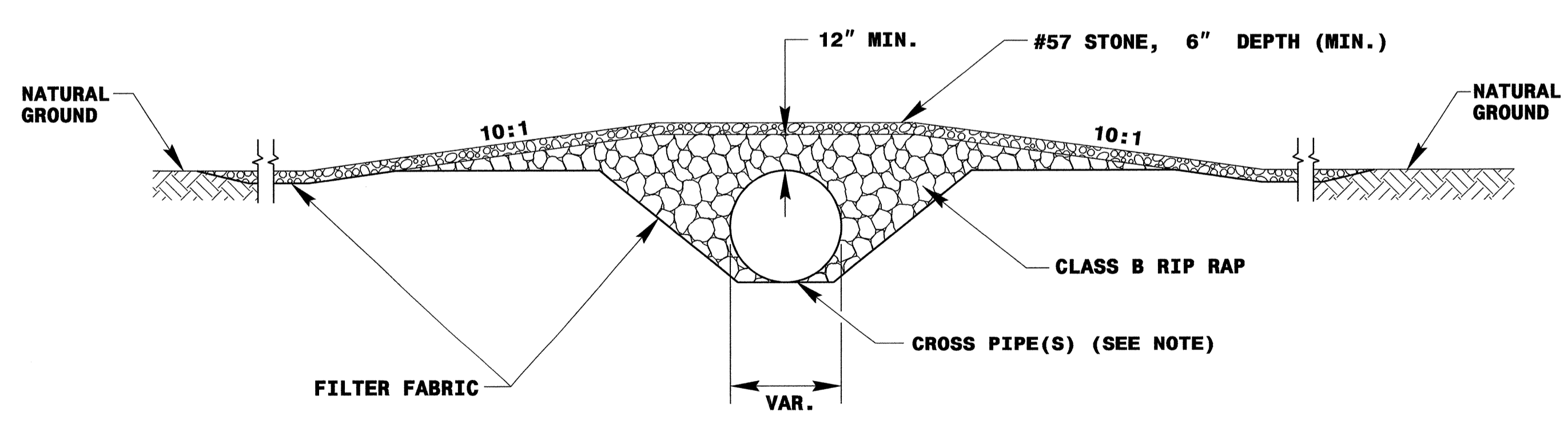
ELEVATION

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# TEMPORARY STREAM CROSSING



**PLAN VIEW**

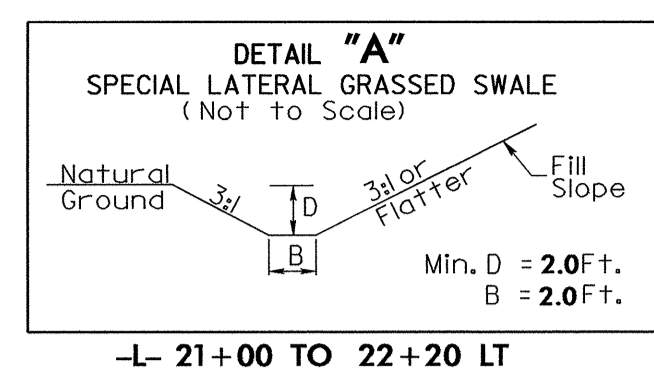


**SECTION A-A**  
NOT TO SCALE

**NOTE: PIPE(S) FOR TEMPORARY STREAM CROSSING SHALL BE DESIGNED TO PASS THE PEAK OR BANKFULL FLOW, WHICHEVER IS LESS, FROM A 2-YEAR PEAK STORM, WITHOUT OVER TOPPING.**



PROJECT REFERENCE NO. U-3462		SHEET NO. EC-4/CONST.4	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



**28 x 14 x 3**  
10 ft. weir  
(See Infiltration Basin Detail)  
ID 4.2C

**26 x 12 x 3**  
8 ft. weir  
(See Infiltration Basin Detail)  
ID 4.1C

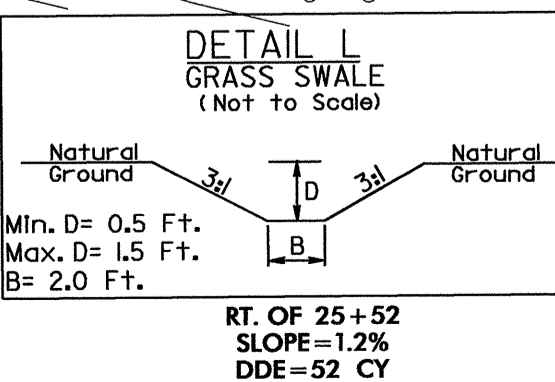
SEE SHEET 12 FOR PROFILE OF -L-  
SEE SHEET 15 FOR PROFILE OF -Y2REV-  
SEE SHEET 2 FOR RETAINING WALL PLANS

MATCHLINE -L- STA. 29 + 50.00 SEE SHEET 5

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

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

-Y2-  
PI Sta 11+61.94  
 $\Delta = 3^{\circ}50'56.1''$  (RT)  
D = 111.19.8"  
L = 323.76'  
T = 161.94'  
R = 4,819.52'  
e = EXIST.



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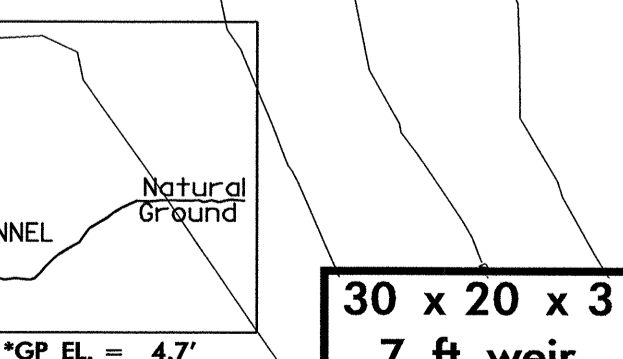
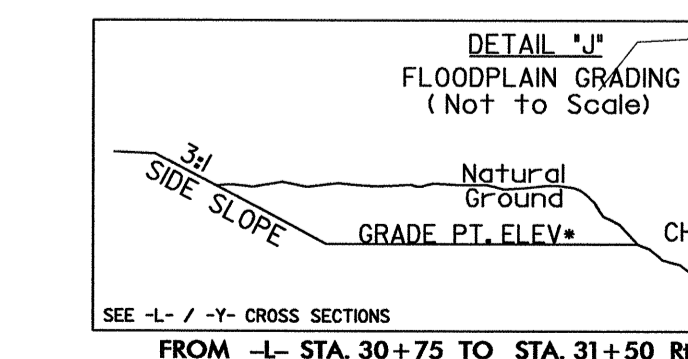
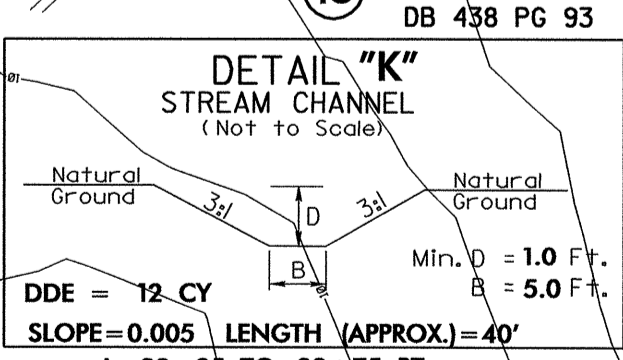
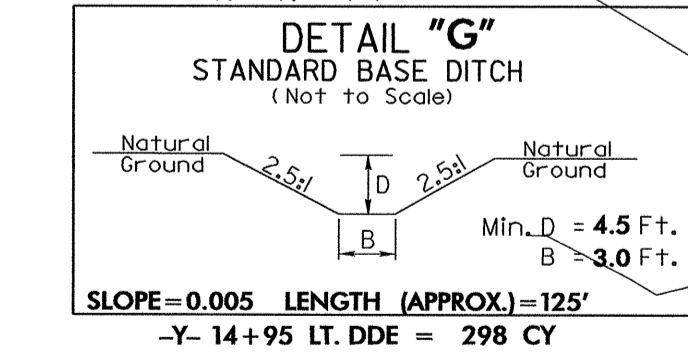
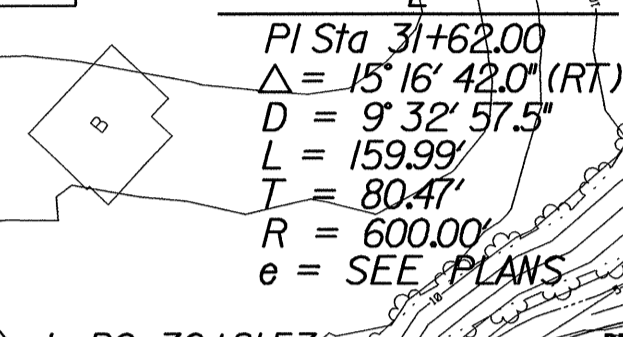
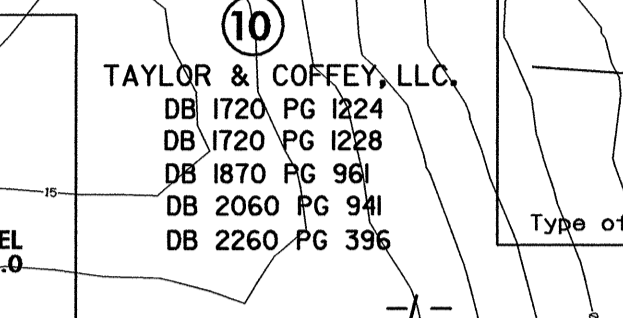
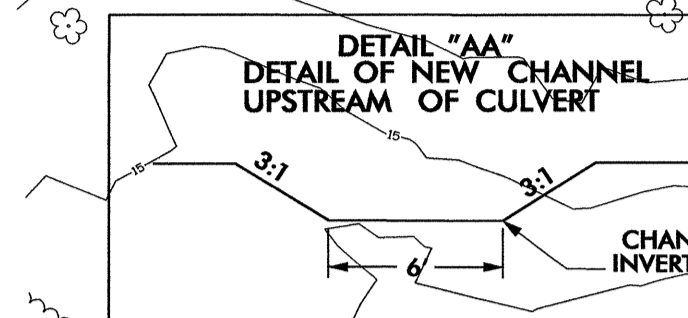
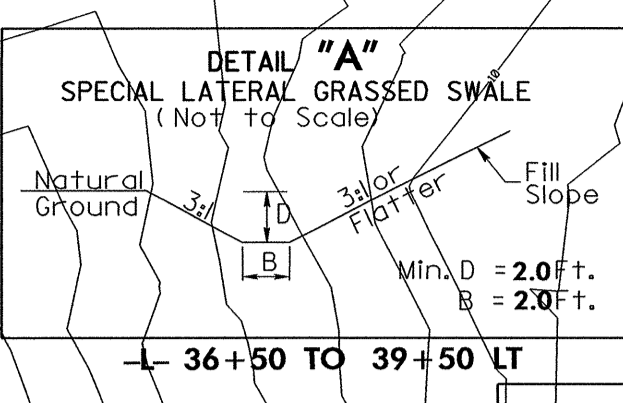
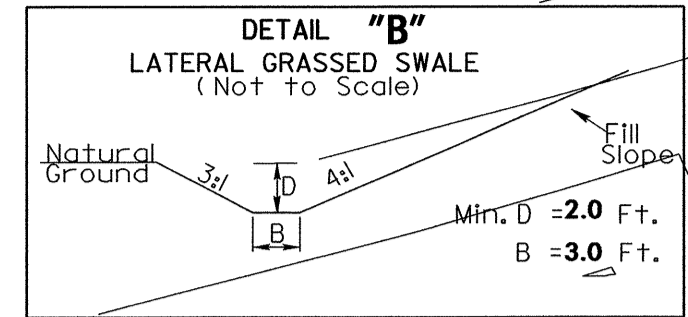
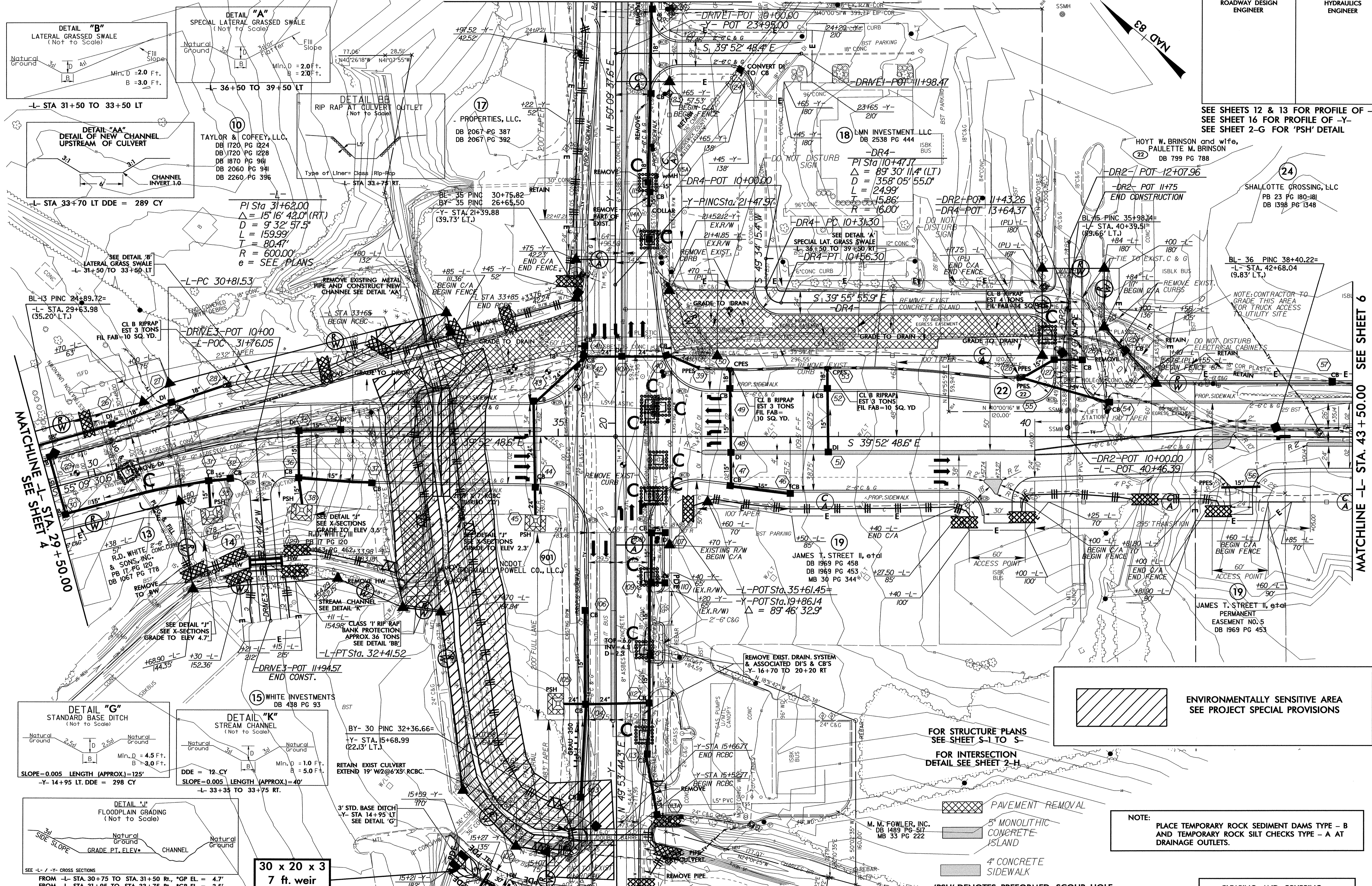
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PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEETS 12 & 13 FOR PROFILE OF -L-  
SEE SHEET 16 FOR PROFILE OF -Y-  
SEE SHEET 2-G FOR 'PSH' DETAIL

MATCHLINE -Y- STA. 24+50.00 SEE SHEET 10



SEE -L- / -Y- CROSS SECTIONS  
FROM -L- STA. 30+75 TO STA. 31+50 RT. \*GP EL. = 4.7'  
FROM -L- STA. 31+95 TO STA. 33+75 RT. \*GP EL. = 3.5'  
FROM -L- STA. 34+00 TO STA. 35+00 RT. \*GP EL. = 2.3'  
FROM -Y- STA. 15+70 TO STA. 19+00 LT. \*GP EL. = 2.3'

MATCHLINE -Y- STA. 15+00.00 SEE SHEET 9

**ENVIRONMENTALLY SENSITIVE AREA**  
SEE PROJECT SPECIAL PROVISIONS

FOR STRUCTURE PLANS  
SEE SHEET S-1 TO S-5

FOR INTERSECTION  
DETAIL SEE SHEET 2-H

**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

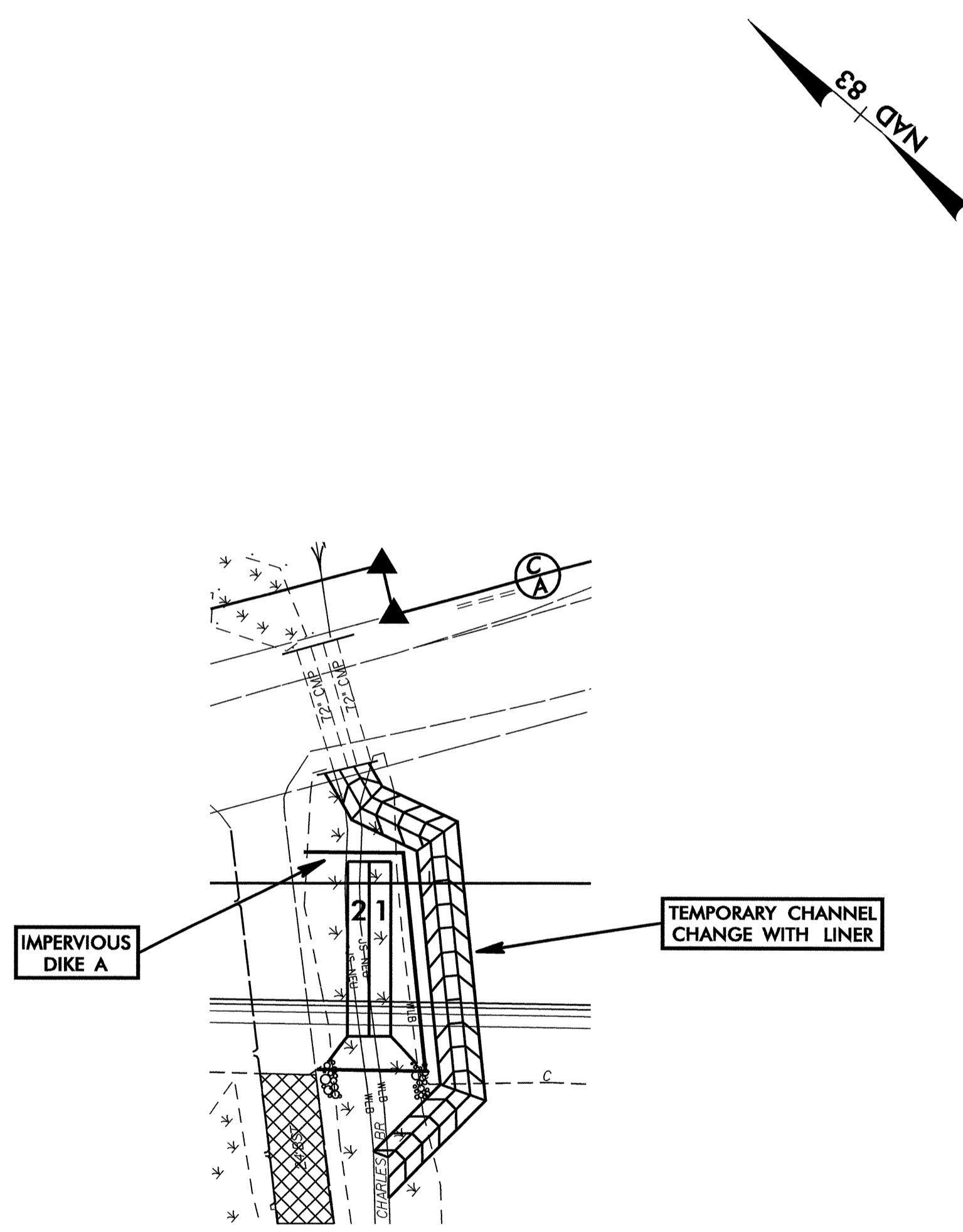
MATCHLINE -L- STA. 43+50.00 SEE SHEET 6

PROJECT REFERENCE NO. U-3462	SHEET NO. EC-6/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# CULVERT CONSTRUCTION SEQUENCE STA. 33+75 -L-

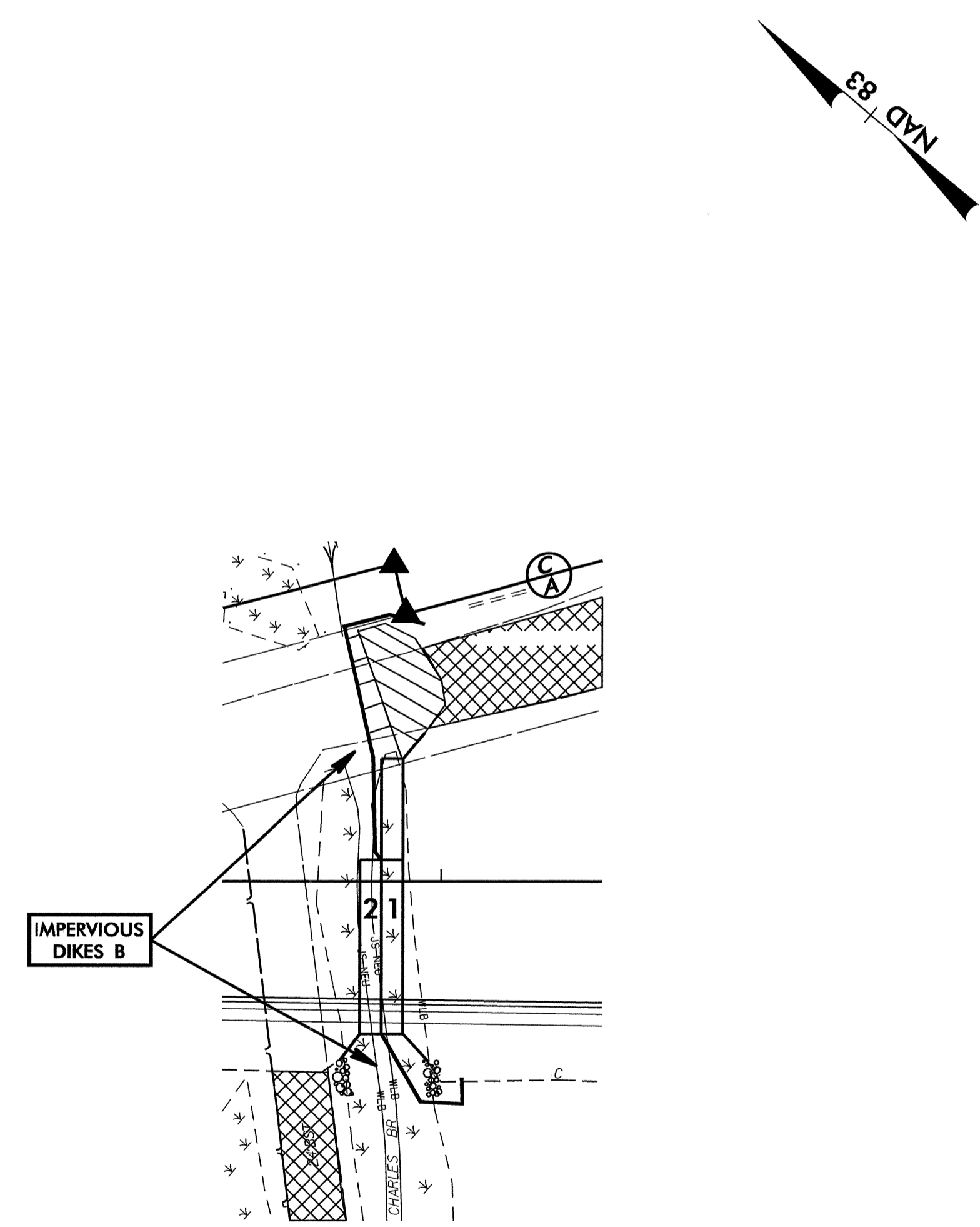
## PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT IMPERVIOUS DIKE A AND TEMPORARY CHANNEL CHANGE WITH LINER (6 FT. BASE, 3 FT. DEEP, 2:1 SIDE SLOPES), DIVERTING FLOW.
3. CONSTRUCT PORTION OF PROPOSED RCBC.
4. REMOVE TEMPORARY CHANNEL CHANGE AND IMPERVIOUS DIKE A, ALLOWING FLOW THROUGH PARTIAL PROPOSED RCBC.
5. CONSTRUCT PORTION OF -L- LINE ROADWAY.



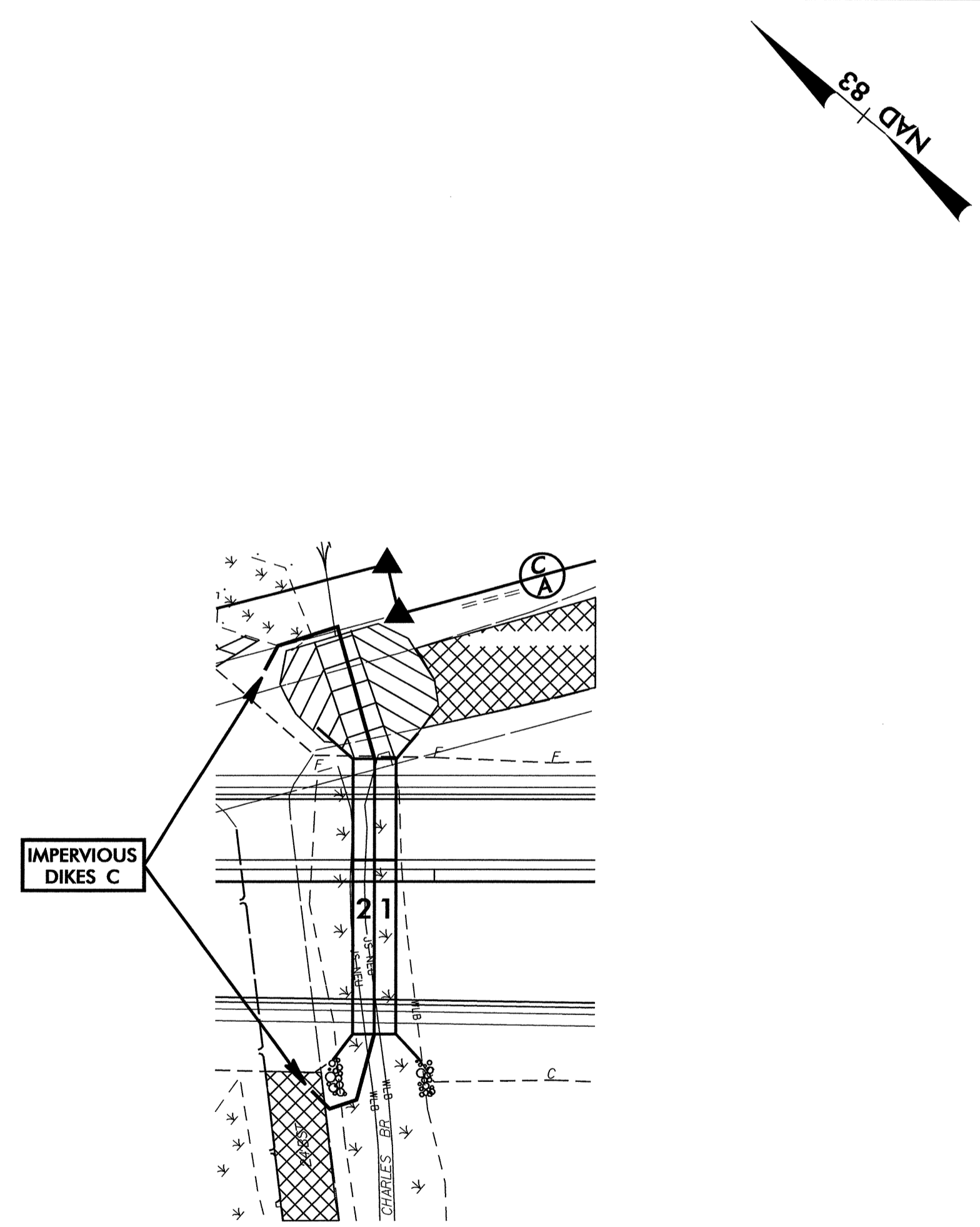
## PHASE II

6. REMOVE EXISTING 2 @ 72" CMPS.
7. CONSTRUCT IMPERVIOUS DIKES B, DIVERTING FLOW THROUGH BARREL 2.
8. CONSTRUCT REMAINDER OF BARREL 1 AND PORTION OF INLET CHANNEL IMPROVEMENTS.
9. REMOVE IMPERVIOUS DIKES B.



## PHASE III

10. CONSTRUCT IMPERVIOUS DIKES C, DIVERTING FLOW THROUGH COMPLETED BARREL 1.
11. CONSTRUCT REMAINDER OF BARREL 2 AND REMAINDER OF INLET CHANNEL IMPROVEMENTS.
12. REMOVE IMPERVIOUS DIKES C AND ANY REMAINING SPECIAL STILLING BASINS.
13. COMPLETE ROADWAY.



PROJECT REFERENCE NO. U-3462	SHEET NO. EC-7/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

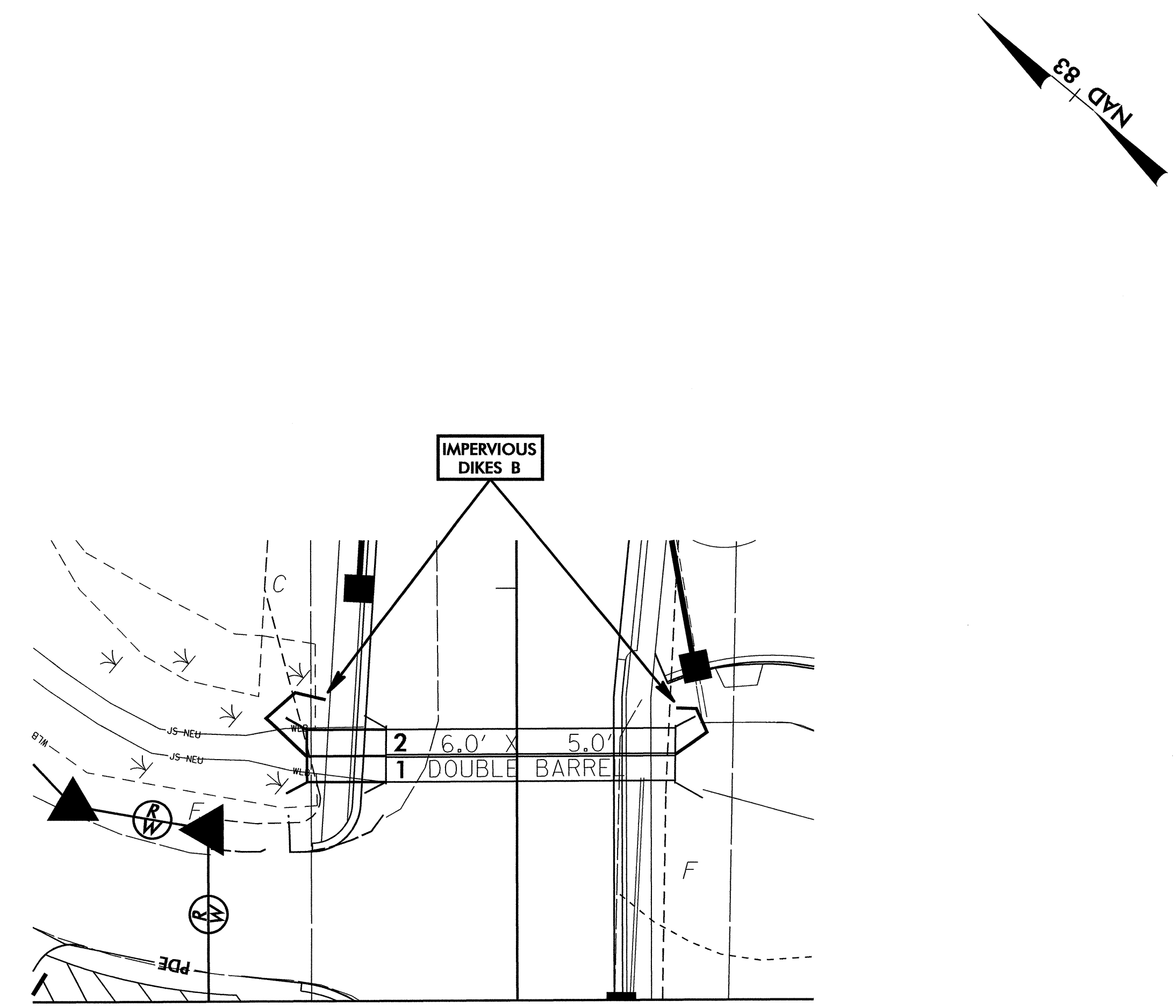
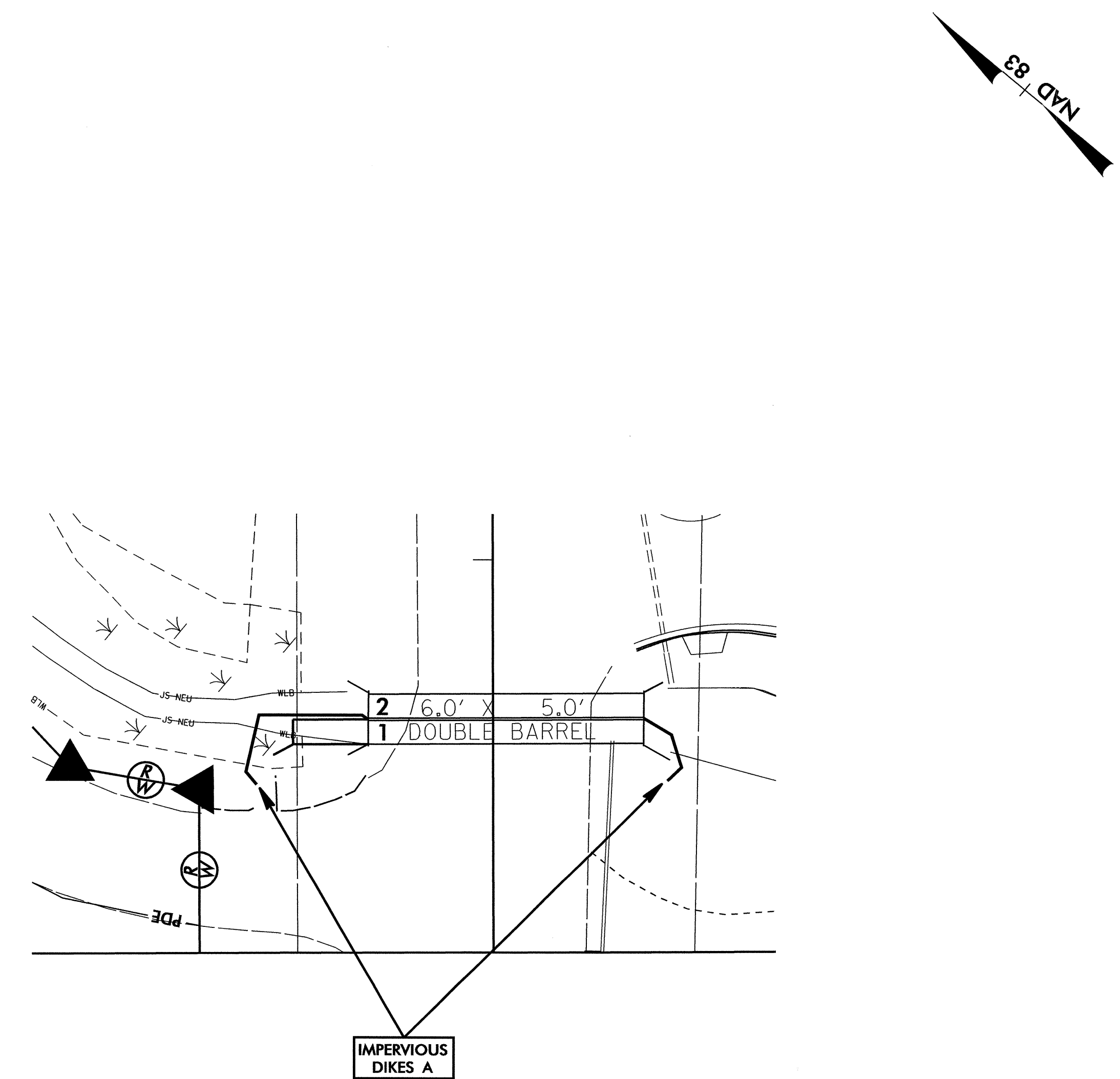
# CULVERT CONSTRUCTION SEQUENCE STA. 15 + 59.77 -Y-

## PHASE I

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

## PHASE II

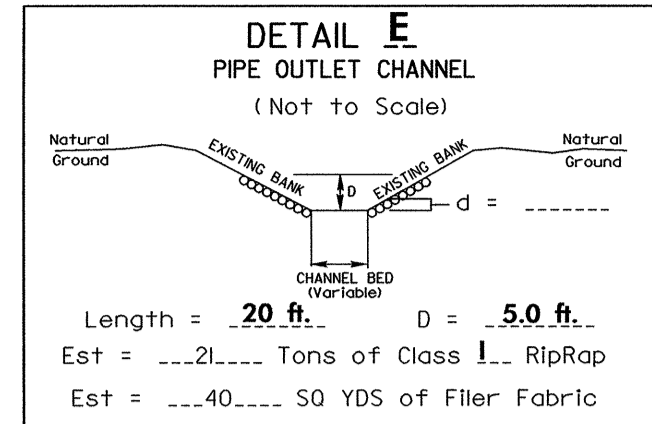
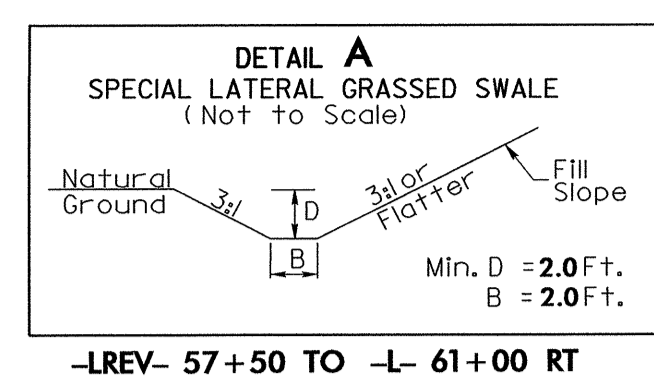
5. CONSTRUCT IMPERVIOUS DIKES B, DIVERTING FLOW THROUGH BARREL 1.
6. CONSTRUCT PROPOSED EXTENSION OF BARREL 2.
7. REMOVE IMPERVIOUS DIKES B AND ANY REMAINING SPECIAL STILLING BASIN(S).
8. COMPLETE ROADWAY.



SEE SHEET 13 FOR PROFILE OF -LREV-

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.



27 x 10 x 3  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 4.3F

20 x 10 x 3  
ID 6.3F

20 x 10 x 3  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 6.2F

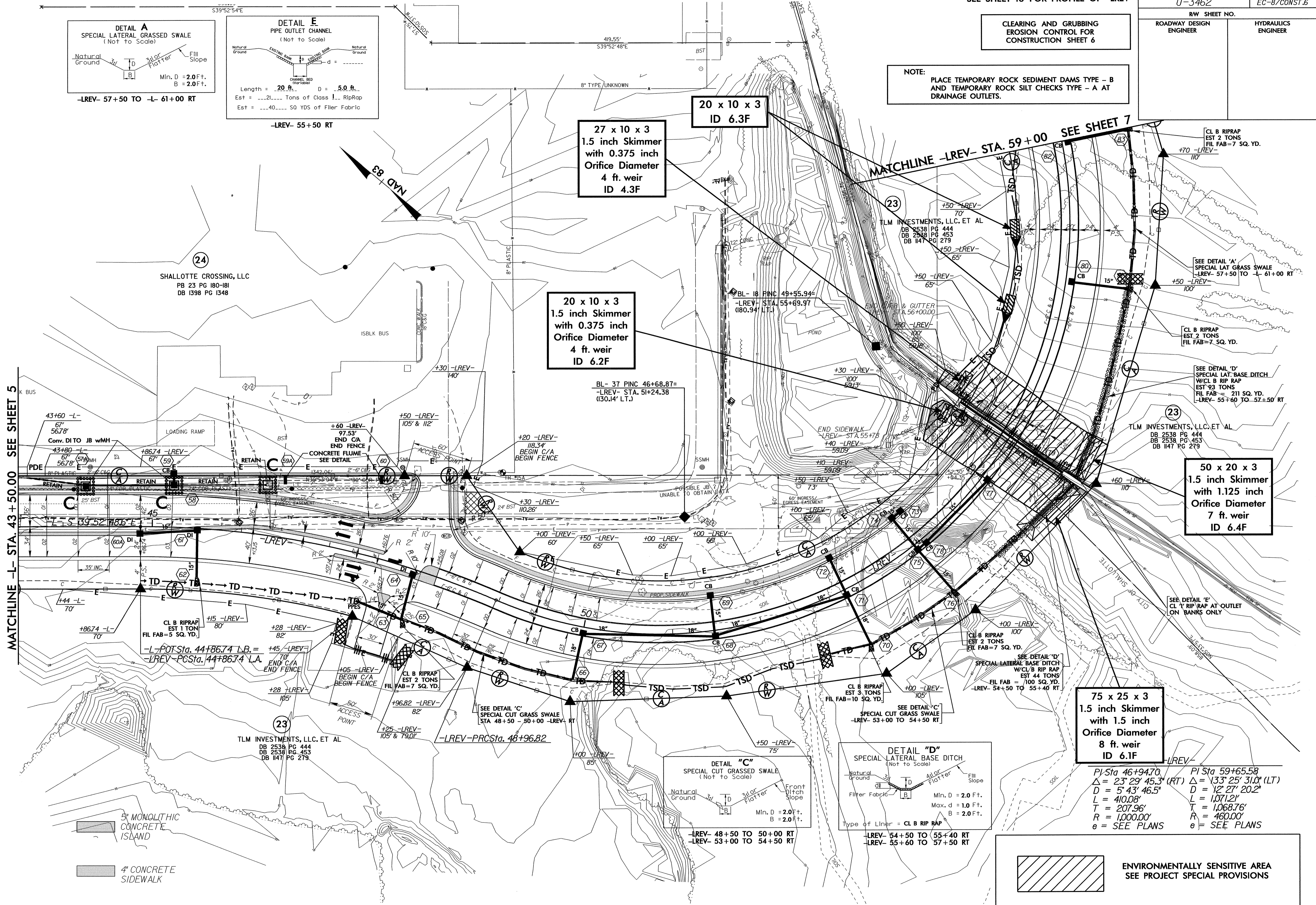
50 x 20 x 3  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
7 ft. weir  
ID 6.4F

75 x 25 x 3  
1.5 inch Skimmer  
with 1.5 inch  
Orifice Diameter  
8 ft. weir  
ID 6.1F

MATCHLINE -L- STA. 43+50.00 SEE SHEET 5

MATCHLINE -LREV- STA. 59+00 SEE SHEET 7

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PI Sta 46+94.70 Δ = 23° 29' 45.3" (RT)  
D = 5' 43' 46.5"  
L = 410.08'  
T = 207.96'  
R = 1,000.00'  
e = SEE PLANS

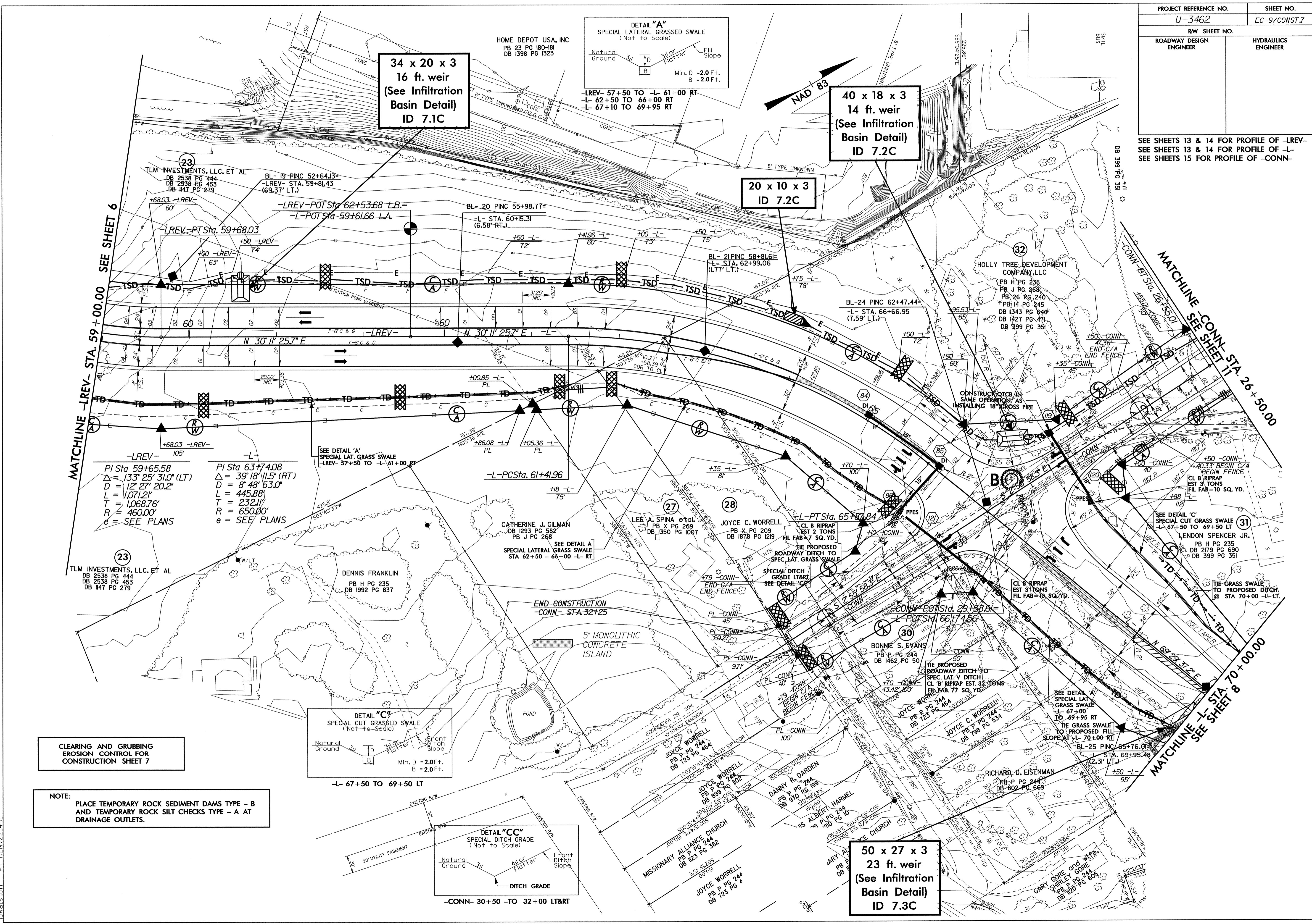
PI Sta 59+65.58 Δ = 133° 25' 31.0" (LT)  
D = 12' 27' 20.2"  
L = 1,071.21'  
T = 1,068.76'  
R = 460.00'  
e = SEE PLANS

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

4" CONCRETE  
SIDEWALK

PROJECT REFERENCE NO.		SHEET NO.	
U-3462		EC-9/CONST.7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SEE SHEETS 13 & 14 FOR PROFILE OF -LREV-  
SEE SHEETS 13 & 14 FOR PROFILE OF -L-  
SEE SHEETS 15 FOR PROFILE OF -CONN-

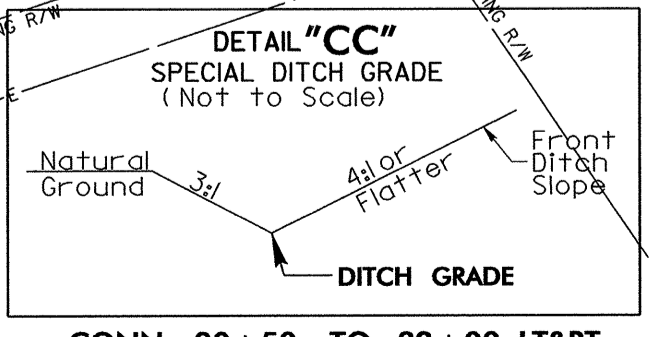
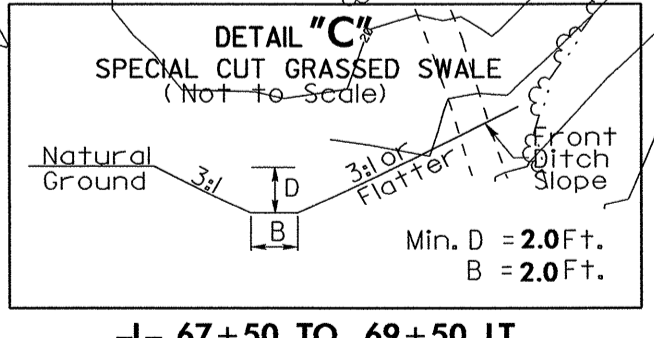
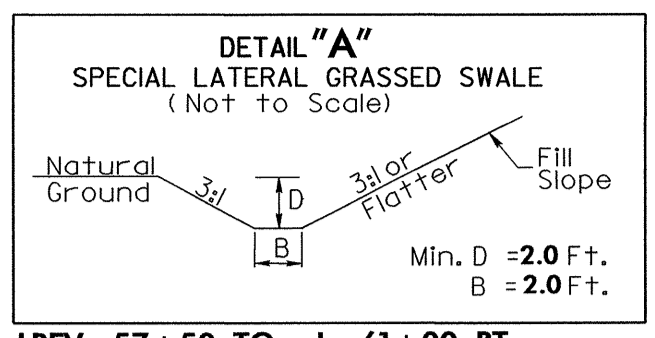


**34 x 20 x 3  
16 ft weir  
(See Infiltration  
Basin Detail)  
ID 7.1C**

**40 x 18 x 3  
14 ft weir  
(See Infiltration  
Basin Detail)  
ID 7.2C**

**20 x 10 x 3  
weir  
ID 7.2C**

**50 x 27 x 3  
23 ft weir  
(See Infiltration  
Basin Detail)  
ID 7.3C**



**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.

**-LREV-  
PI Sta 59+65.58  
Δ = 133' 25' 31.0" (LT)  
D = 12' 27' 20.2"  
L = 1,071.21'  
T = 1,068.76'  
R = 460.00'  
e = SEE PLANS**

**-L-  
PI Sta 63+74.08  
Δ = 39' 18' 11.5" (RT)  
D = 8' 48' 53.0"  
L = 445.88'  
T = 232.11'  
R = 650.00'  
e = SEE PLANS**

**-L-PCSta. 61+41.96**

**END CONSTRUCTION  
-CONN- STA. 32+25**

**-L- 67+50 TO 69+50 LT**

**-CONN- 30+50 TO 32+00 LT&RT**

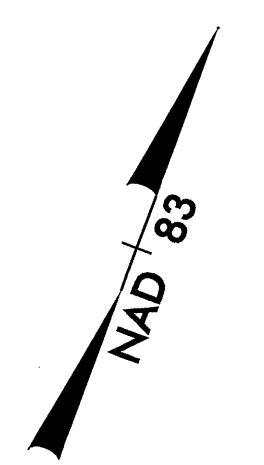
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PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-10/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

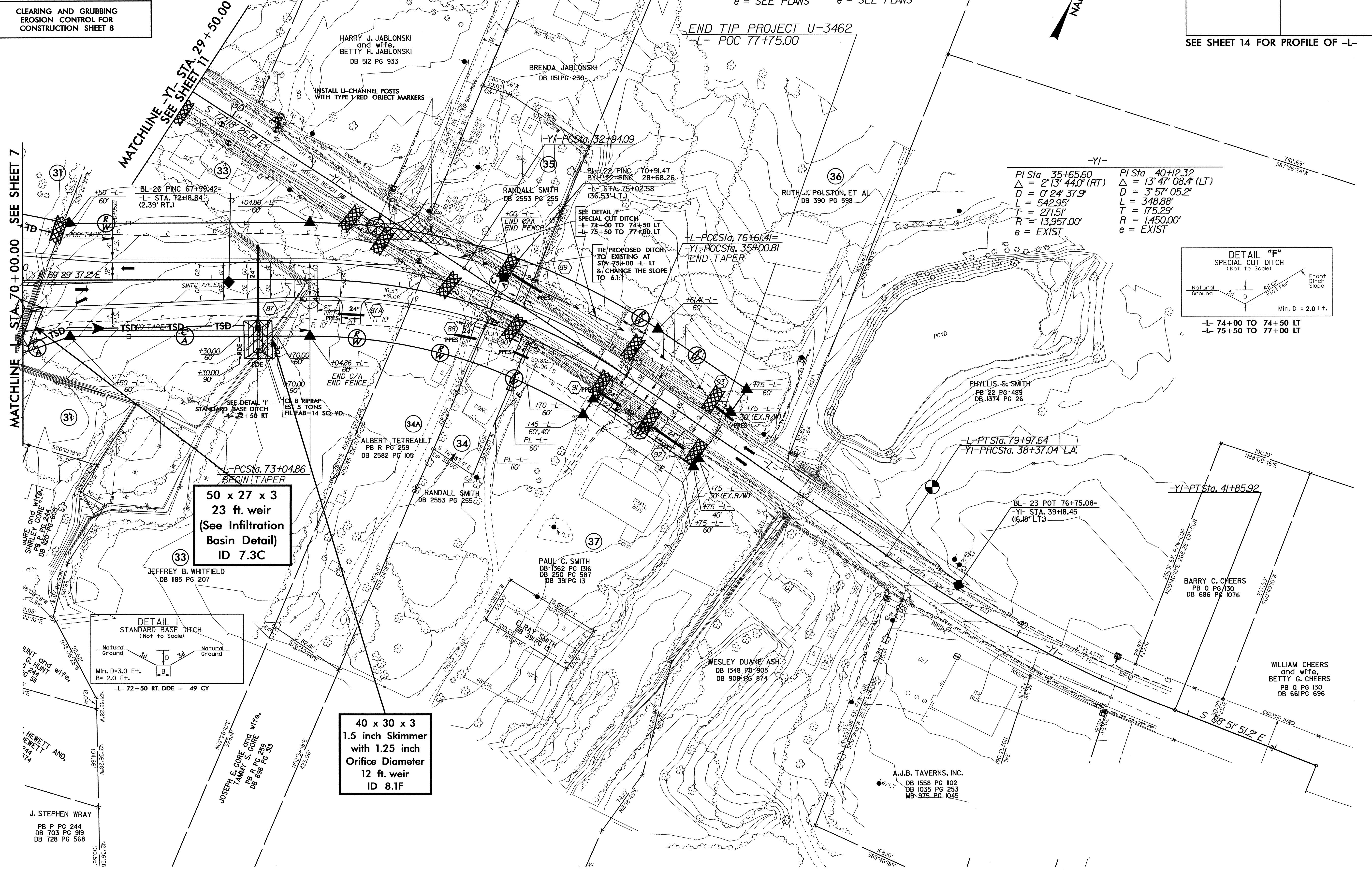
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 8

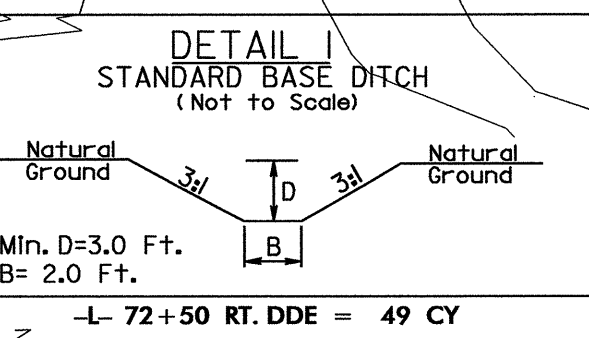
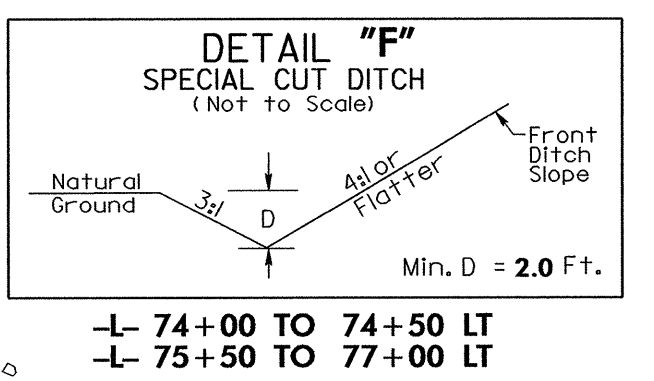
-L-  
 PI Sta 74+88.57 PI Sta 78+29.53  
 $\Delta = 34^{\circ} 02' 51.0''$  (RT)  $\Delta = 1^{\circ} 22' 49.0''$  (RT)  
 $D = 9' 32' 57.5''$   $D = 0' 24' 37.9''$   
 $L = 356.54'$   $L = 336.23'$   
 $T = 183.71'$   $T = 168.12'$   
 $R = 600.00'$   $R = 13,957.00'$   
 $e = \text{SEE PLANS}$   $e = \text{SEE PLANS}$



SEE SHEET 14 FOR PROFILE OF -L-



-YI-  
 PI Sta 35+65.60 PI Sta 40+12.32  
 $\Delta = 2^{\circ} 13' 44.0''$  (RT)  $\Delta = 13^{\circ} 47' 08.4''$  (LT)  
 $D = 0' 24' 37.9''$   $D = 3' 57' 05.2''$   
 $L = 542.95'$   $L = 348.88'$   
 $T = 271.51'$   $T = 175.29'$   
 $R = 13,957.00'$   $R = 1,450.00'$   
 $e = \text{EXIST}$   $e = \text{EXIST}$



50 x 27 x 3  
 23 ft weir  
 (See Infiltration  
 Basin Detail)  
 ID 7.3C

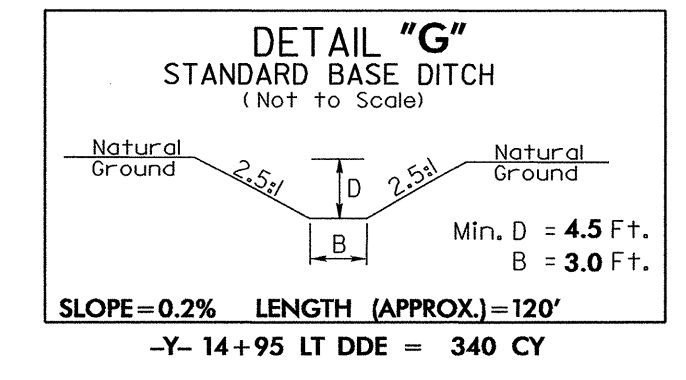
40 x 30 x 3  
 1.5 inch Skimmer  
 with 1.25 inch  
 Orifice Diameter  
 12 ft weir  
 ID 8.1F

8/17/99  
 27-AUG-2008 14:23  
 s:\tippro\projects\3462\environmental\design\3462-ec-ps08.dgn  
 J. Stephen Wray  
 DB 703 PG 919  
 DB 728 PG 568

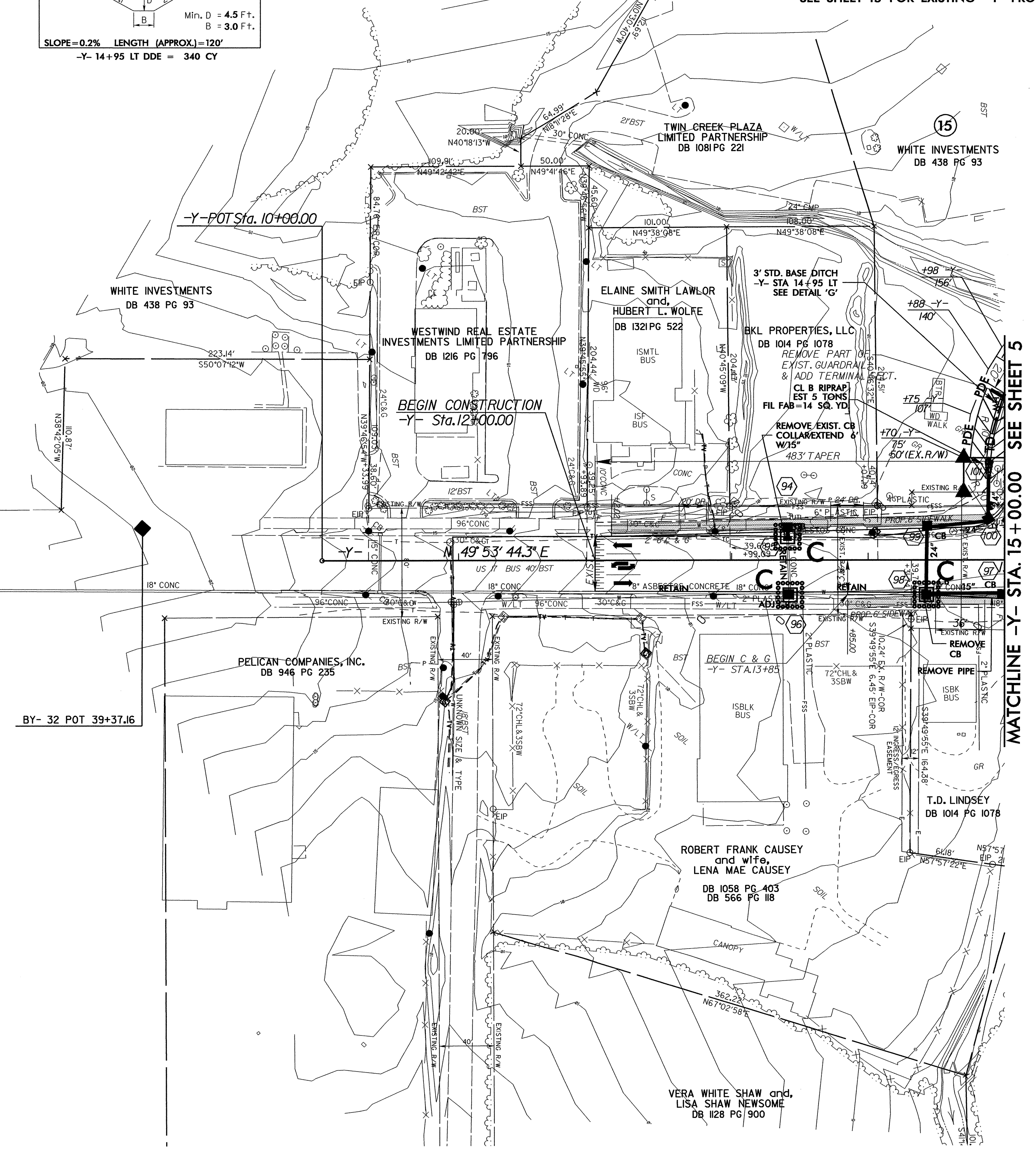
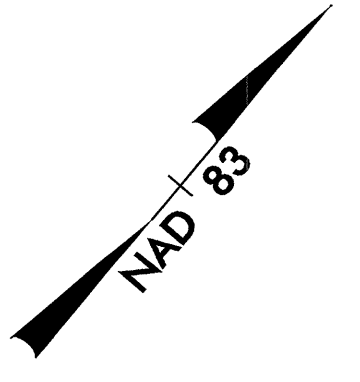
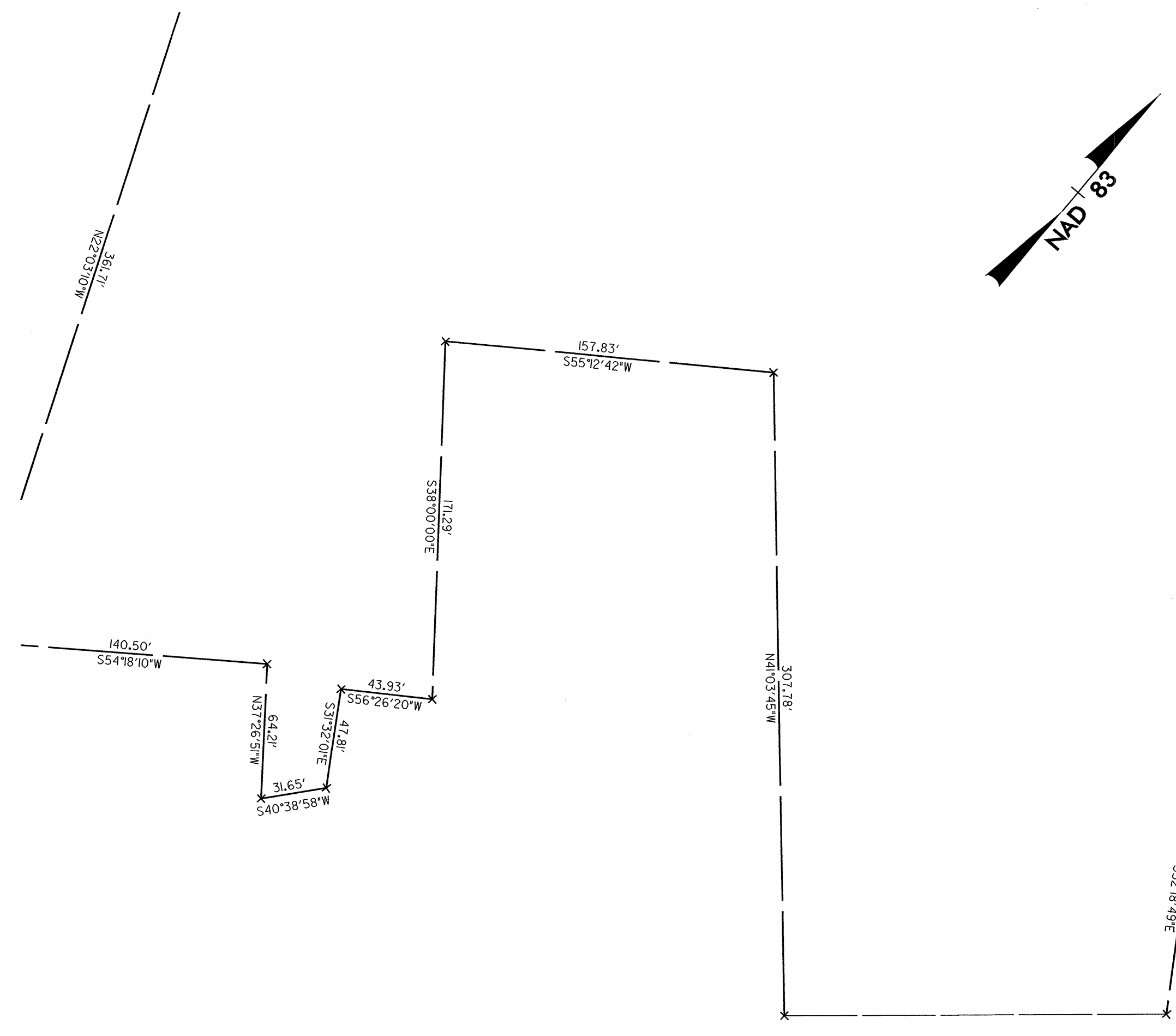
PROJECT REFERENCE NO.		SHEET NO.	
U-3462		EC-II/CONST.9	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

**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.



SEE SHEET 15 FOR EXISTING -Y- PROFILE



4" CONCRETE SIDEWALK

MATCHLINE -Y- STA. 15 + 00.00 SEE SHEET 5

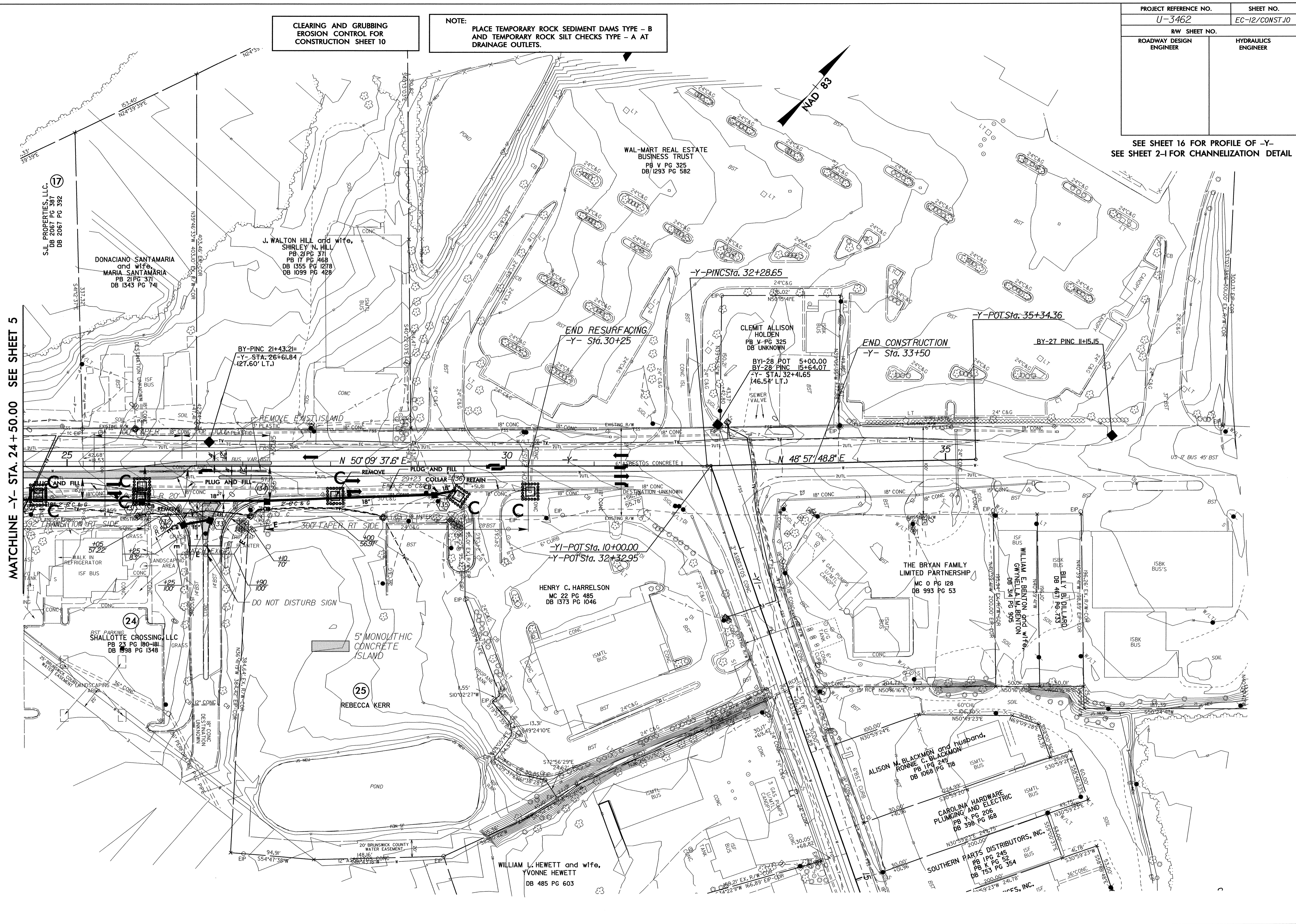
PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-12/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET 16 FOR PROFILE OF -Y-  
SEE SHEET 2-I FOR CHANNELIZATION DETAIL

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.

MATCHLINE -Y- STA. 24+50.00 SEE SHEET 5

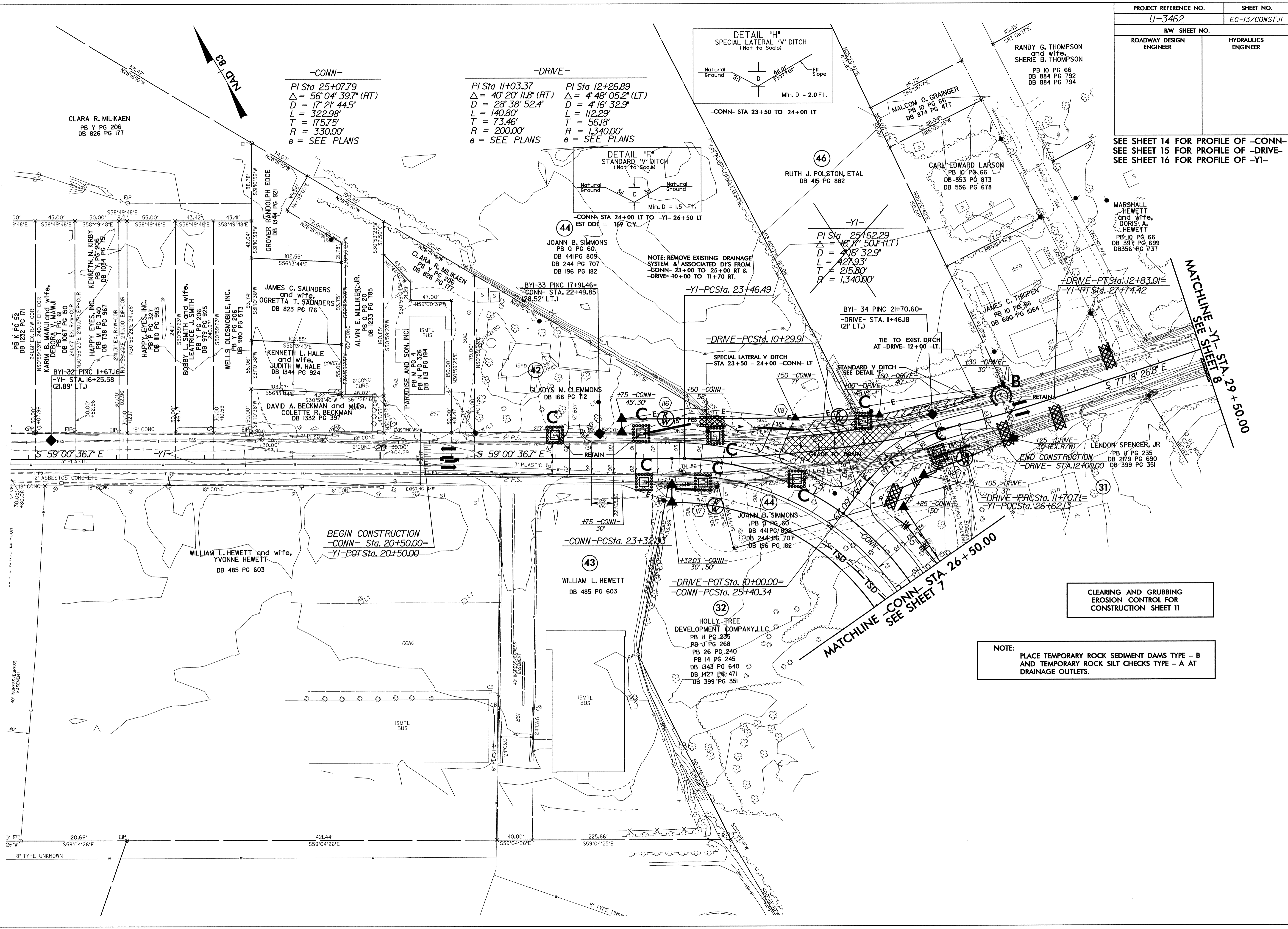




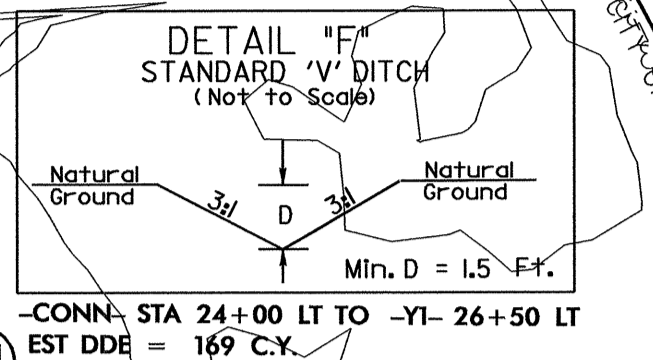
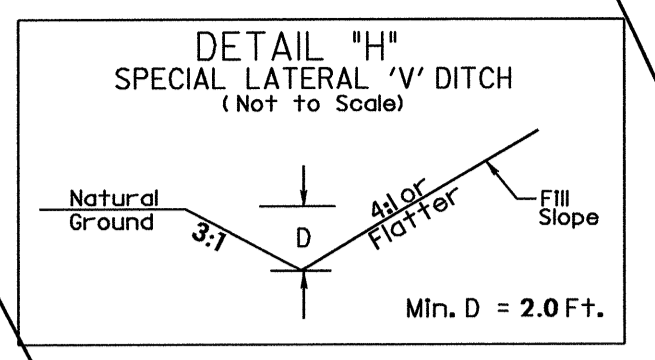
PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-13/CONST.II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
RANDY G. THOMPSON and wife, SHERIE B. THOMPSON PB 10 PG 66 DB 884 PG 792 DB 884 PG 794	

SEE SHEET 14 FOR PROFILE OF -CONN-  
 SEE SHEET 15 FOR PROFILE OF -DRIVE-  
 SEE SHEET 16 FOR PROFILE OF -YI-

27-AUG-2008 14:24  
 9:\supp\projects\3462\env\environmental\design\3462.ec-psh11.dgn  
 rdw\jstn AT RENV2149



-CONN-	-DRIVE-	-DRIVE-
PI Sta 25+07.79 $\Delta = 56' 04'' 39.7''$ (RT) $D = 17' 21'' 44.5''$ $L = 322.98'$ $T = 175.75'$ $R = 330.00'$ $e = \text{SEE PLANS}$	PI Sta 11+03.37 $\Delta = 40' 20'' 11.8''$ (RT) $D = 28' 38'' 52.4''$ $L = 140.80'$ $T = 73.46'$ $R = 200.00'$ $e = \text{SEE PLANS}$	PI Sta 12+26.89 $\Delta = 4' 48'' 05.2''$ (LT) $D = 4' 16'' 32.9''$ $L = 112.29'$ $T = 56.18'$ $R = 1,340.00'$ $e = \text{SEE PLANS}$



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.

MATCHLINE - CONN- STA. 26+50.00  
 SEE SHEET 7

MATCHLINE - YI- STA. 29+50.00  
 SEE SHEET 8

BEGIN CONSTRUCTION  
 -CONN- Sta. 20+50.00=  
 -YI- POT Sta. 20+50.00

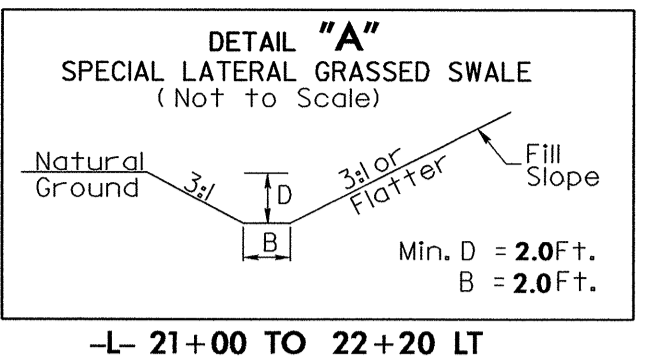
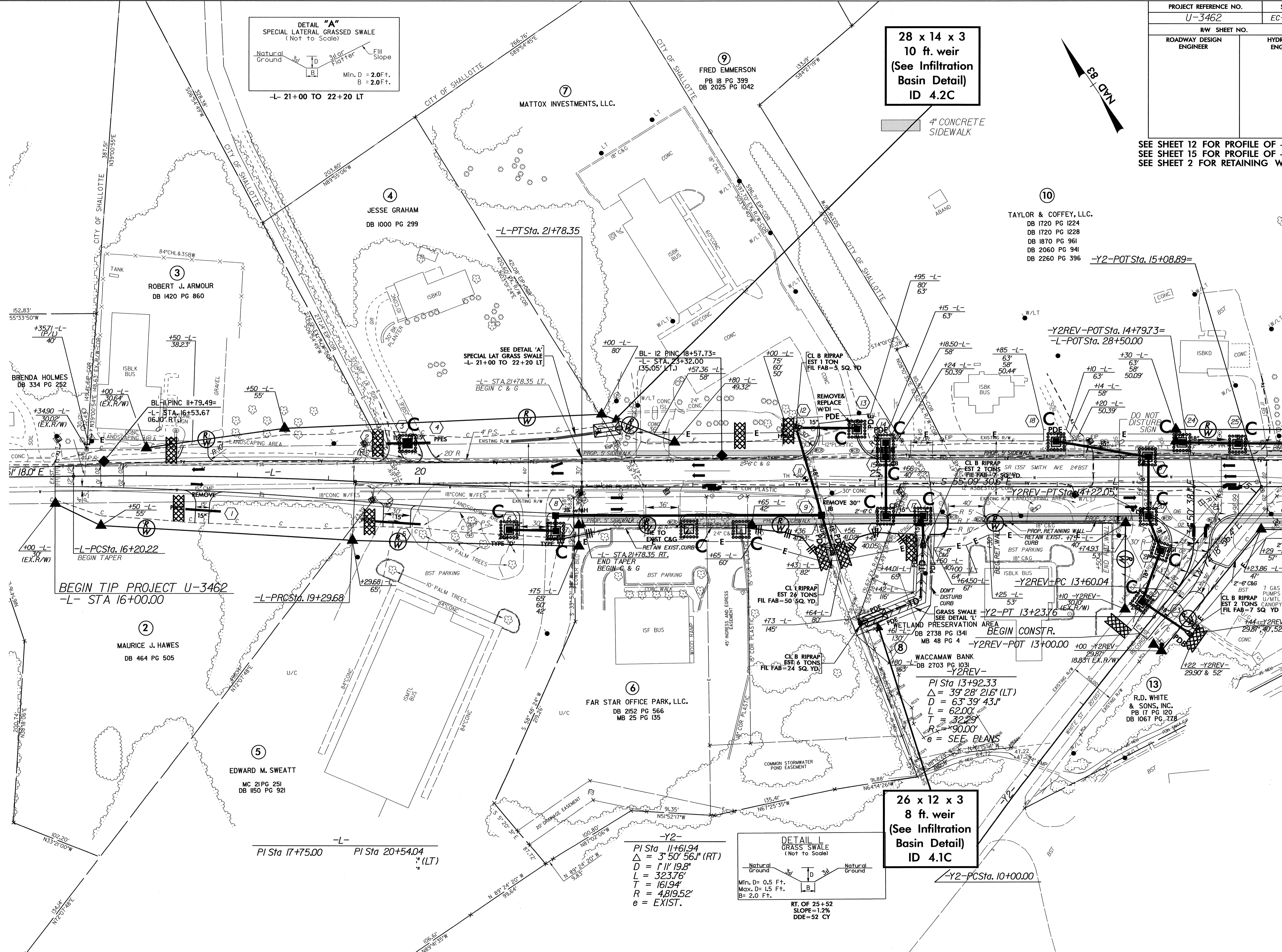
END CONSTRUCTION  
 -DRIVE- STA. 12+00.00

8" TYPE UNKNOWN

8" TYPE UNKNOWN

PROJECT REFERENCE NO.		SHEET NO.	
U-3462		EC-14/CONST.4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SEE SHEET 12 FOR PROFILE OF -L-  
SEE SHEET 15 FOR PROFILE OF -Y2REV-  
SEE SHEET 2 FOR RETAINING WALL PLANS



**28 x 14 x 3**  
10 ft. weir  
(See Infiltration Basin Detail)  
ID 4.2C

4" CONCRETE SIDEWALK

10  
TAYLOR & COFFEY, LLC.  
DB 1720 PG 1224  
DB 1720 PG 1228  
DB 1870 PG 961  
DB 2060 PG 941  
DB 2260 PG 396

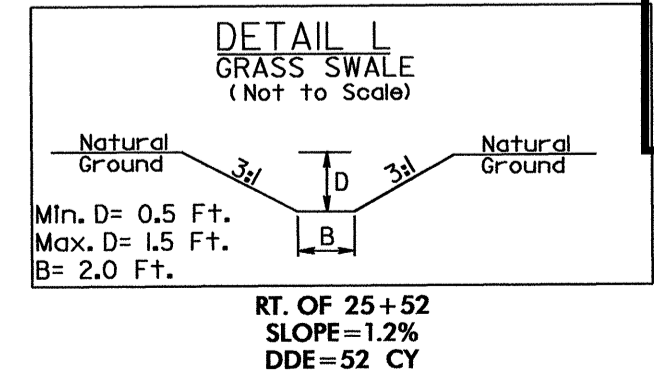
SEE DETAIL "A"  
SPECIAL LAT GRASS SWALE  
-L- 21+00 TO 22+20 LT

-L- STA. 21+78.35 LT.  
BEGIN C & G

BEGIN TIP PROJECT U-3462  
-L- STA 16+00.00

PI Sta 13+92.33  
Δ = 39° 28' 21.6" (LT)  
D = 63° 39' 43.1"  
L = 62.00'  
T = 32.29'  
R = 90.00'  
e = SEE PLANS

**26 x 12 x 3**  
8 ft. weir  
(See Infiltration Basin Detail)  
ID 4.1C

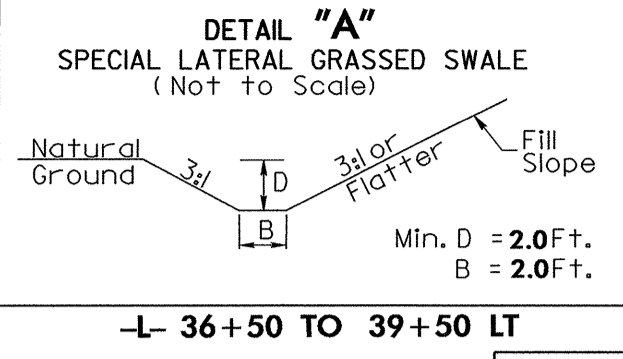
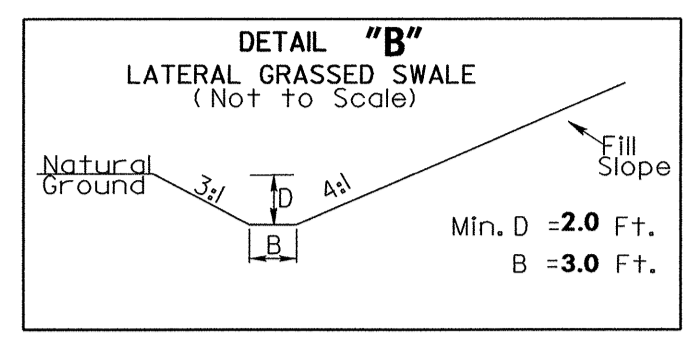


-Y2-  
PI Sta 11+61.94  
Δ = 3° 50' 56.1" (RT)  
D = 111° 19.8"  
L = 323.76'  
T = 161.94'  
R = 4,819.52'  
e = EXIST.

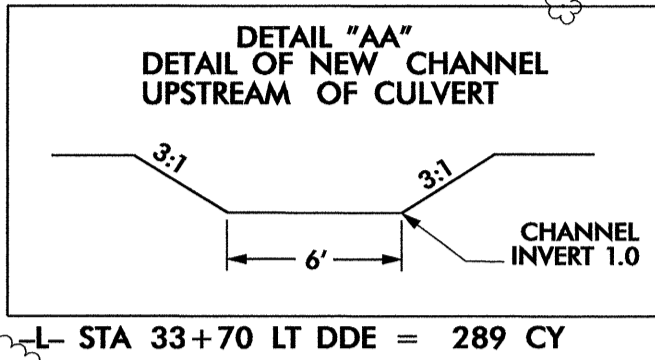
-L-  
PI Sta 17+75.00 PI Sta 20+54.04  
(LT)

MATCHLINE -L- STA. 29+50.00 SEE SHEET 5

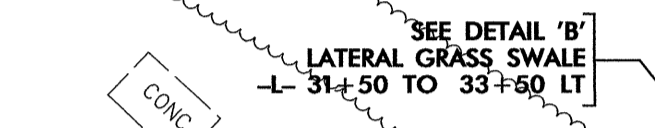
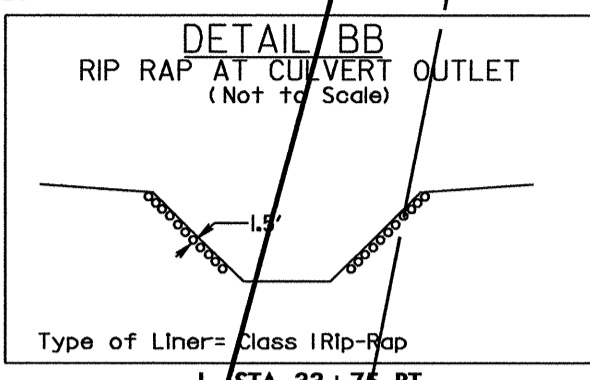
PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-15/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**30 x 14 x 3**  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
8 ft. weir  
ID 5.1C



**(10)** TAYLOR & COFFEY, LLC.  
DB 1720 PG 1224  
DB 1720 PG 1228  
DB 1870 PG 961  
DB 2060 PG 941  
DB 2260 PG 396

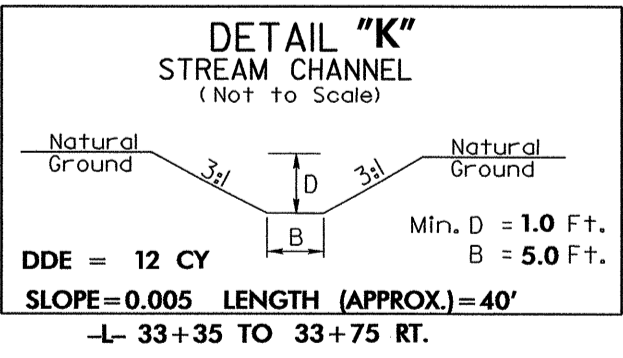
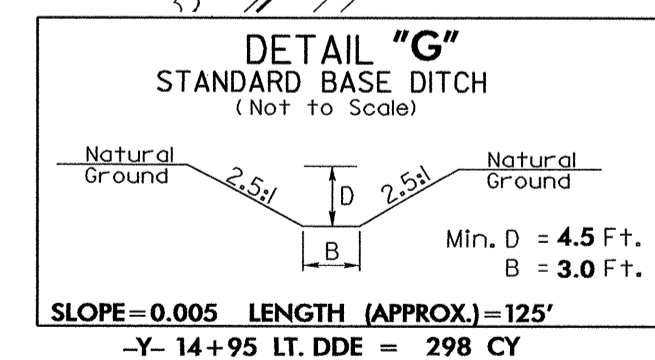


**(10)** PI Sta 31+62.00  
 $\Delta = 15' 16" 42.0" (RT)$   
 $D = 9' 32" 57.5"$   
 $L = 159.99'$   
 $T = 80.47'$   
 $R = 600.00'$   
 $e = \text{SEE PLANS}$

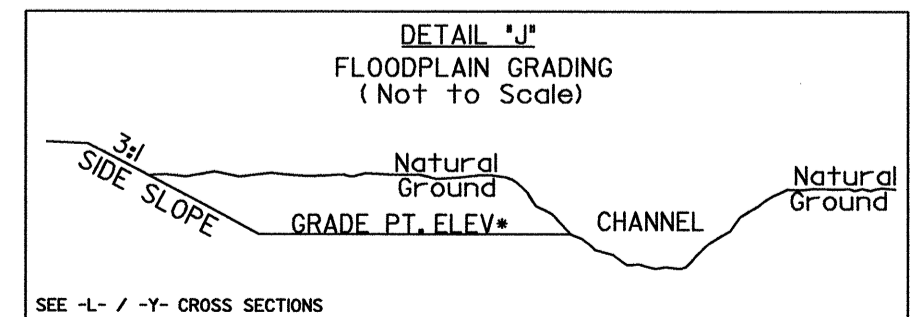
MATCHLINE -Y- STA. 24+50.00 SEE SHEET 10

MATCHLINE -L- STA. 29+50.00 SEE SHEET 4

MATCHLINE -L- STA. 43+50.00 SEE SHEET 6

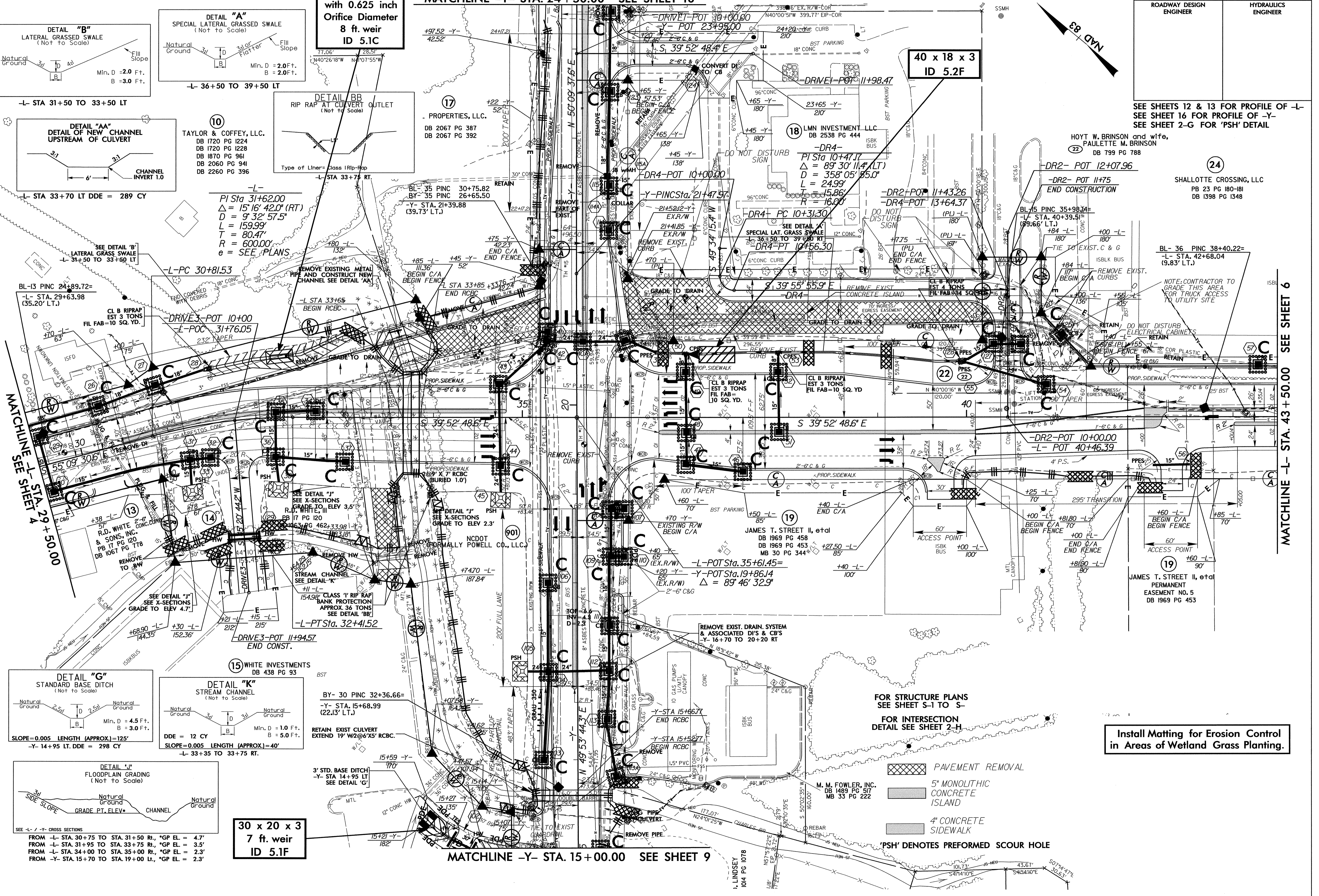


BY- 30 PINC 32+36.66=  
-Y- STA. 15+68.99  
(22.13' LT.)



**30 x 20 x 3**  
7 ft. weir  
ID 5.1F

MATCHLINE -Y- STA. 15+00.00 SEE SHEET 9



Install Matting for Erosion Control  
in Areas of Wetland Grass Planting.

FOR STRUCTURE PLANS  
SEE SHEET S-1 TO S-5

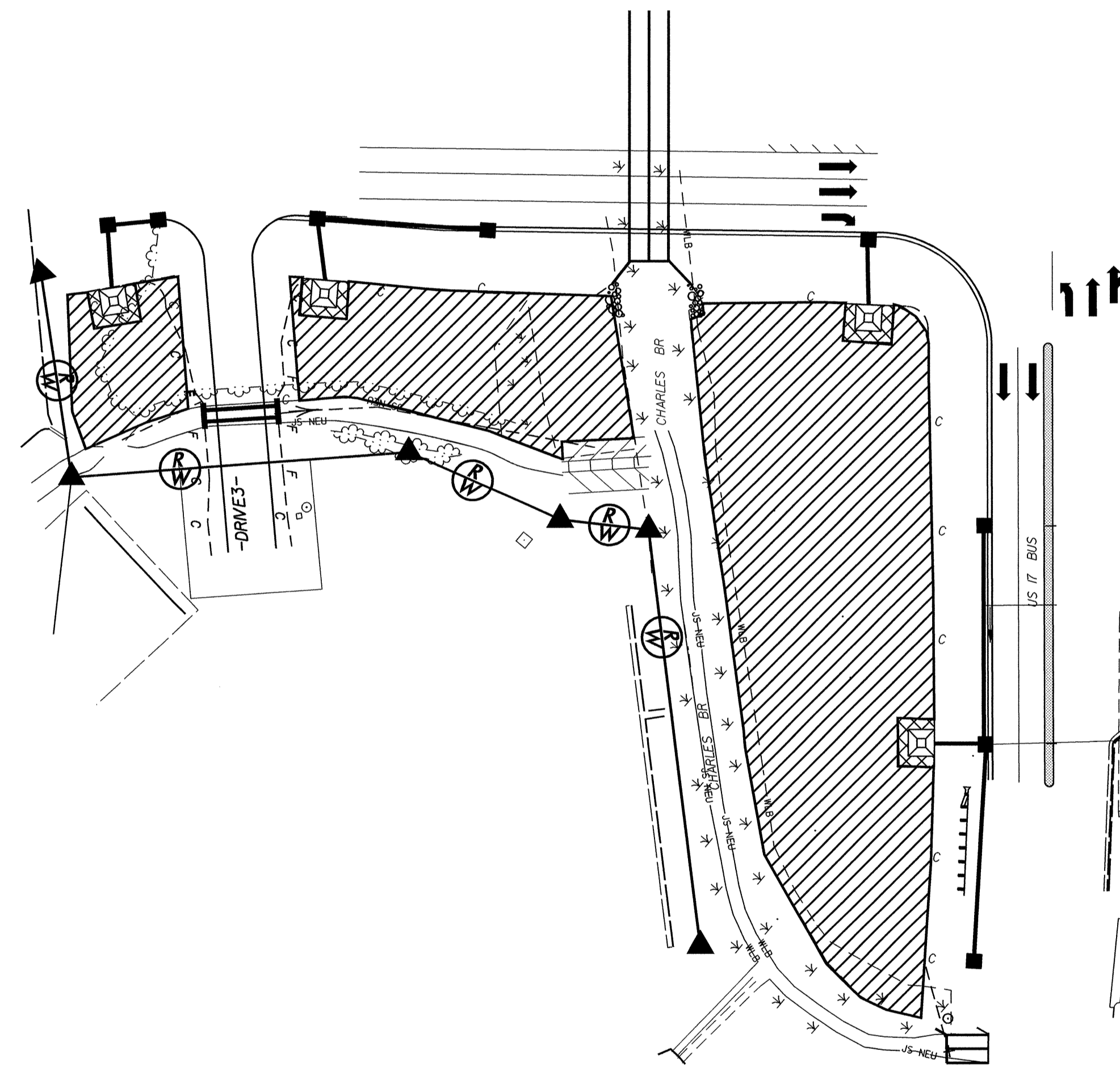
FOR INTERSECTION  
DETAIL SEE SHEET 2-H

- PAVEMENT REMOVAL
- 5" MONOLITHIC CONCRETE ISLAND
- 4" CONCRETE SIDEWALK
- 'PSH' DENOTES PREFORMED SCOUR HOLE

28-AUG-2008 09:51 g:\tiproject\ec\3462\environmental\design\3462\_ec\_psh05.dgn dwg:station AT REV 22.45

# 0.9 ACRE WETLAND GRASS PLANTING

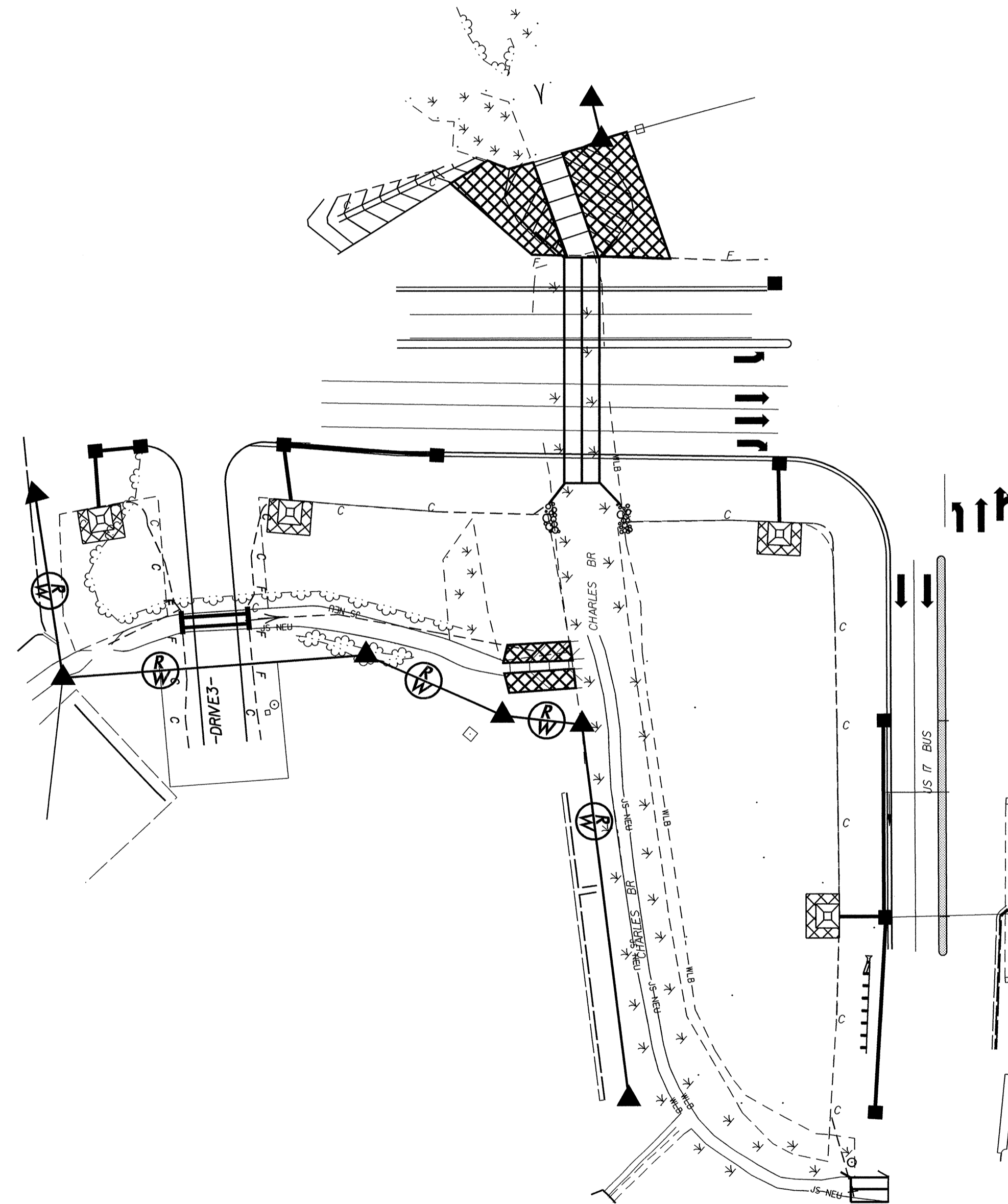
PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-16/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE EC-24 AND PROJECT SPECIAL PROVISIONS

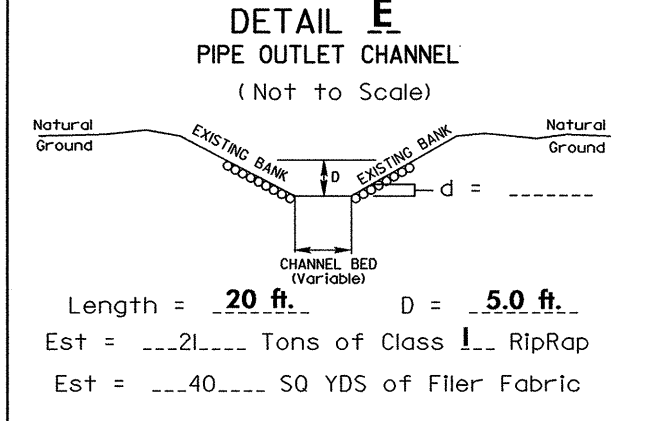
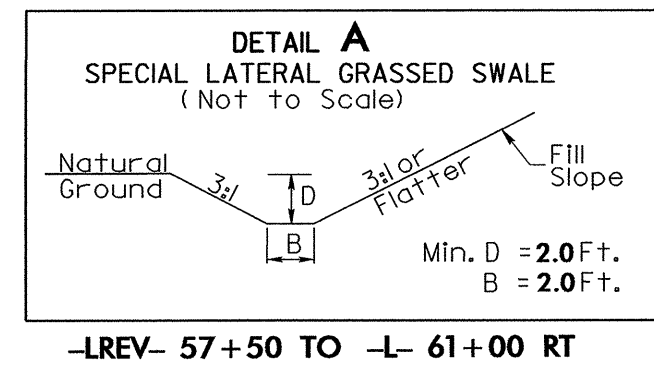
PROJECT REFERENCE NO. <i>U-3462</i>	SHEET NO. <i>EC-17/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# 0.1 ACRE STREAMBANK REFORESTATION



SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-18/CONST.6
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	



20 x 10 x 3  
ID 6.3F

27 x 10 x 3  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 4.3F

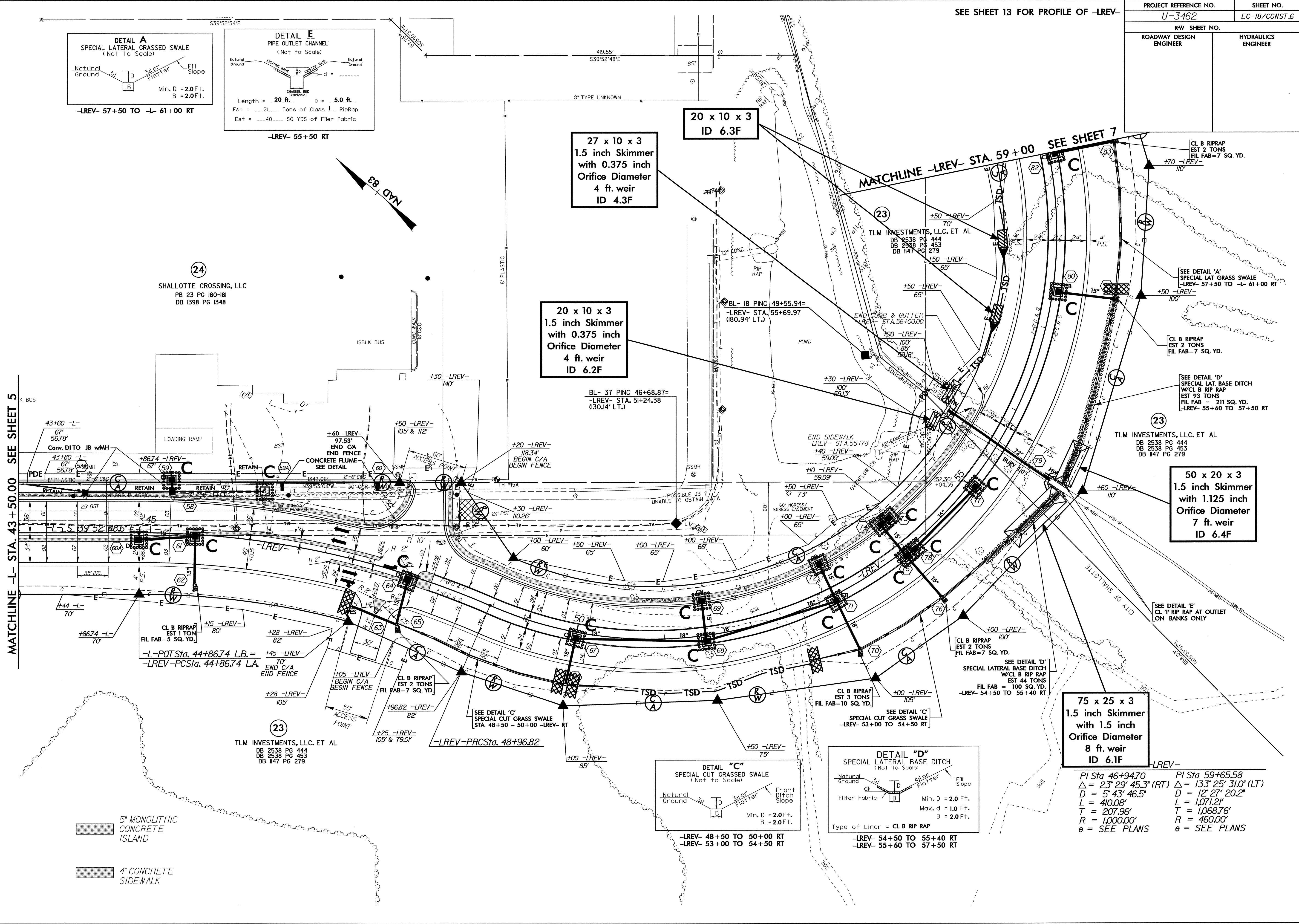
20 x 10 x 3  
1.5 inch Skimmer  
with 0.375 inch  
Orifice Diameter  
4 ft. weir  
ID 6.2F

50 x 20 x 3  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
7 ft. weir  
ID 6.4F

75 x 25 x 3  
1.5 inch Skimmer  
with 1.5 inch  
Orifice Diameter  
8 ft. weir  
ID 6.1F

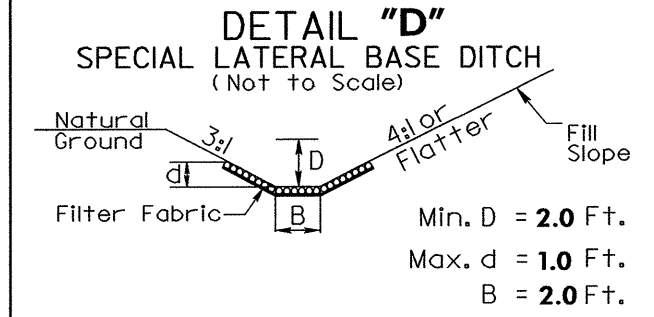
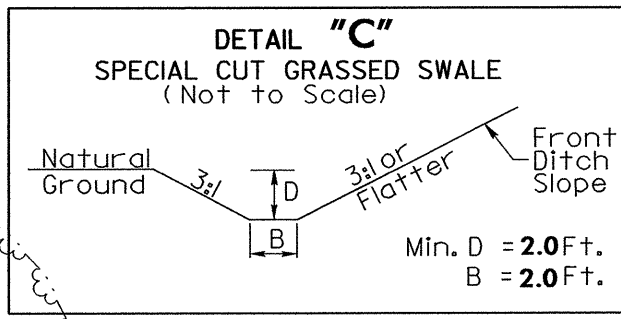
MATCHLINE -L- STA. 43+50.00 SEE SHEET 5

MATCHLINE -LREV- STA. 59+00 SEE SHEET 7



5' MONOLITHIC  
CONCRETE  
ISLAND

4' CONCRETE  
SIDEWALK



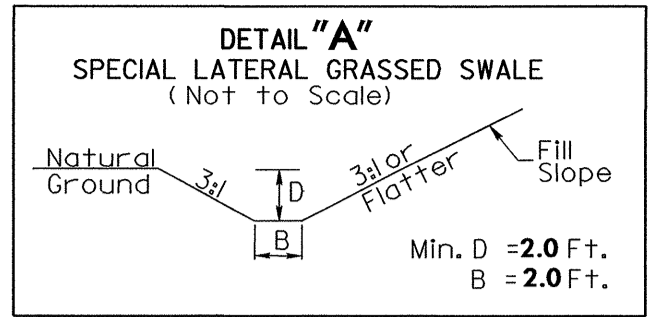
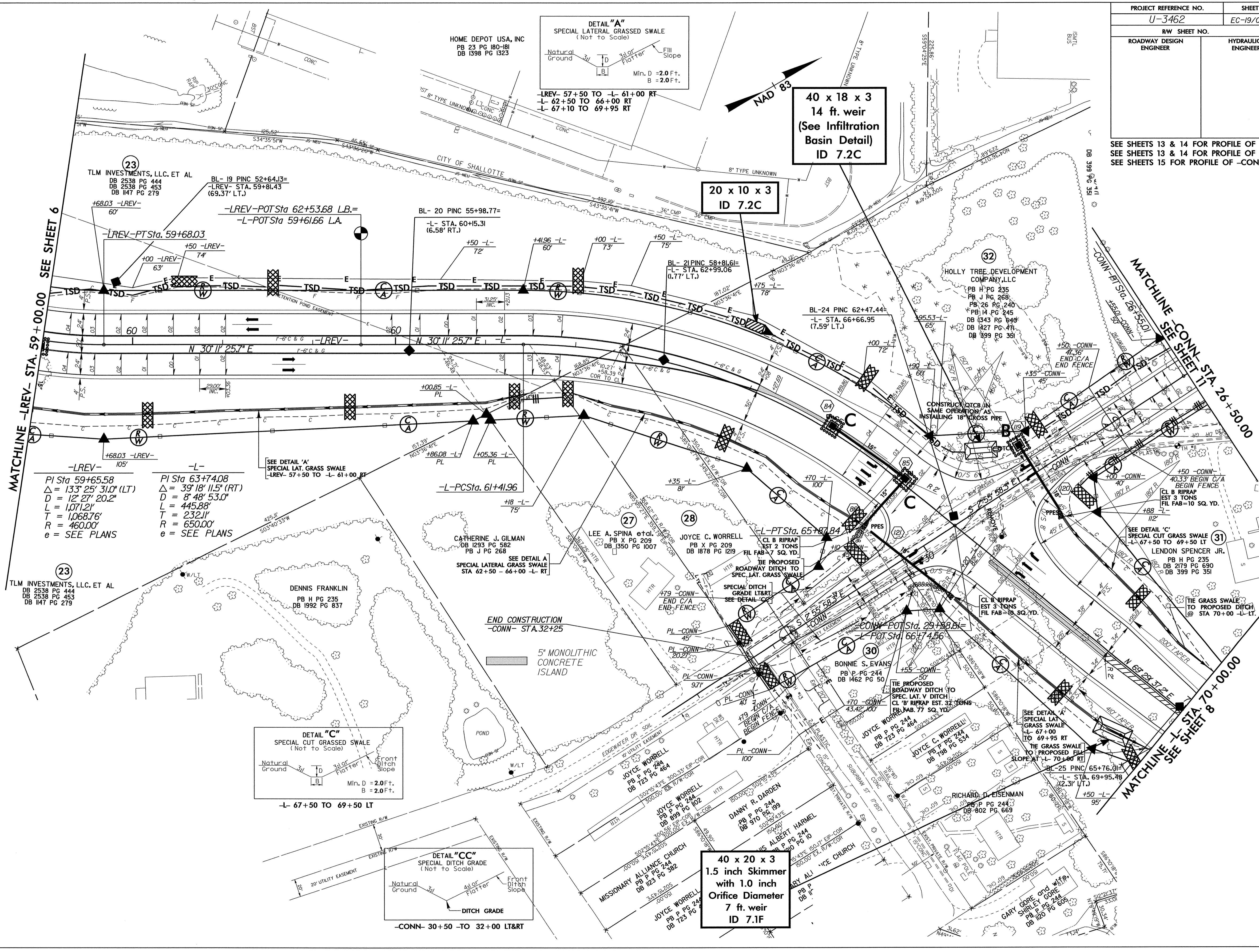
PI Sta 46+94.70  
Δ = 23° 29' 45.3" (RT)  
D = 5' 43" 46.5"  
L = 410.08'  
T = 207.96'  
R = 1,000.00'  
e = SEE PLANS

PI Sta 59+65.58  
Δ = 133° 25' 31.0" (LT)  
D = 12' 27" 20.2"  
L = 1,071.21'  
T = 1,068.76'  
R = 460.00'  
e = SEE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-19/CONST.7
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

SEE SHEETS 13 & 14 FOR PROFILE OF -LREV-  
SEE SHEETS 13 & 14 FOR PROFILE OF -L-  
SEE SHEETS 15 FOR PROFILE OF -CONN-

8/17/99  
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**40 x 18 x 3**  
14 ft. weir  
(See Infiltration Basin Detail)  
ID 7.2C

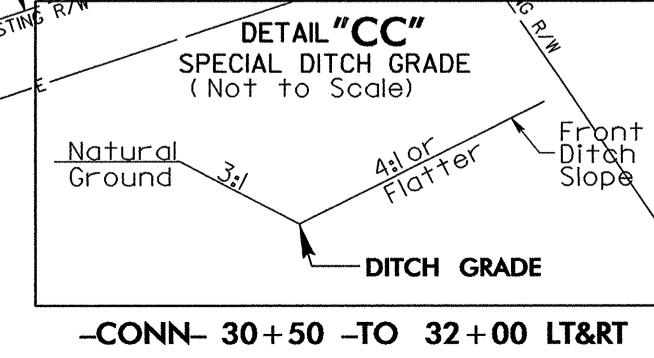
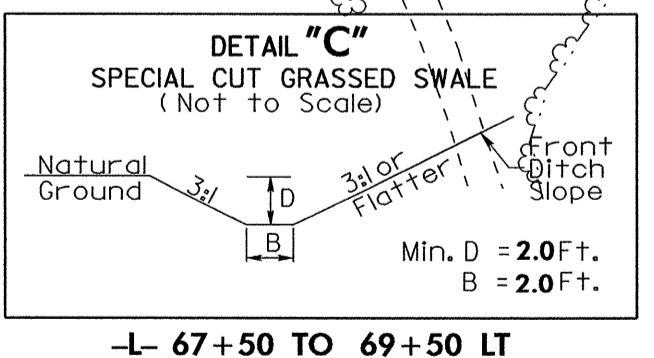
**20 x 10 x 3**  
ID 7.2C

MATCHLINE -LREV- STA. 59+00.00 SEE SHEET 6

MATCHLINE -CONN- STA. 26+50.00 SEE SHEET 11

-LREV- 105'  
PI Sta 59+65.58  
Δ = 133° 25' 31.0" (LT)  
D = 12' 27" 20.2"  
L = 1,071.21'  
T = 1,068.76'  
R = 460.00'  
e = SEE PLANS

-L-  
PI Sta 63+74.08  
Δ = 39° 18' 11.5" (RT)  
D = 8' 48" 53.0"  
L = 445.88'  
T = 232.11'  
R = 650.00'  
e = SEE PLANS



**40 x 20 x 3**  
1.5 inch Skimmer  
with 1.0 inch  
Orifice Diameter  
7 ft. weir  
ID 7.1F

END CONSTRUCTION  
-CONN- STA. 32+25

5' MONOLITHIC CONCRETE ISLAND

23  
TLM INVESTMENTS, LLC. ET AL  
DB 2538 PG 444  
DB 2538 PG 453  
DB 1147 PG 219

DENNIS FRANKLIN  
PB H PG 235  
DB 1992 PG 837

CATHERINE J. GILMAN  
DB 1293 PG 582  
PB J PG 268

LEE A. SPINA et al.  
PB X PG 209  
DB 1350 PG 1007

JOYCE C. WORRELL  
PB X PG 209  
DB 1878 PG 1219

BONNIE S. EVANS  
PB P PG 244  
DB 1462 PG 50

JOYCE C. WORRELL  
PB P PG 244  
DB 723 PG 464

JOYCE C. WORRELL  
PB P PG 244  
DB 798 PG 534

RICHARD D. EISENMAN  
PB P PG 244  
DB 802 PG 669

GARY GORE and WIFE  
SHIRLEY GORE  
PB H PG 246  
DB 1120 PG 608

31  
LONDON SPENCER JR.  
PB H PG 235  
DB 2179 PG 690  
DB 399 PG 351

CONSTRUCTION IN SAME OPERATION AS INSTALLING 18" CROSS PIPE

CL B RIPRAP EST 3 TONS  
FIL FAB = 10 SQ. YD.

CL B RIPRAP EST 3 TONS  
FIL FAB = 10 SQ. YD.

CL B RIPRAP EST 3 TONS  
FIL FAB = 10 SQ. YD.

31  
LONDON SPENCER JR.  
PB H PG 235  
DB 2179 PG 690  
DB 399 PG 351

TIE GRASS SWALE TO PROPOSED DITCH @ STA 70+00 -L- LT

SEE DETAIL "A" SPECIAL LAT GRASS SWALE -L- 67+00 TO 69+95 RT

SEE DETAIL "A" SPECIAL LAT GRASS SWALE -L- 67+00 TO 69+95 RT

SEE DETAIL "A" SPECIAL LAT GRASS SWALE -L- 67+00 TO 69+95 RT

SEE DETAIL "A" SPECIAL LAT GRASS SWALE -L- 67+00 TO 69+95 RT

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
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32  
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32  
HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
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DB 1427 PG 471  
DB 399 PG 351

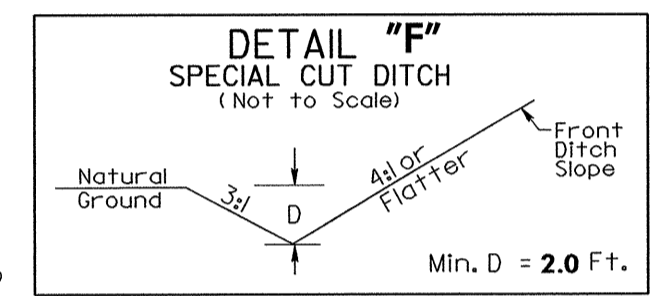
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HOLLY TREE DEVELOPMENT COMPANY, LLC  
PB H PG 235  
PB J PG 268  
PB K PG 240  
PB L PG 245  
DB 1343 PG 690  
DB 1427 PG 471  
DB 399 PG 351

PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-20/CONST.B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET 14 FOR PROFILE OF -L-

-L-  
 PI Sta 74+88.57    PI Sta 78+29.53  
 $\Delta = 34^{\circ} 02' 51.0''$  (RT)     $\Delta = 1^{\circ} 22' 49.0''$  (RT)  
 $D = 9^{\circ} 32' 57.5''$      $D = 0^{\circ} 24' 37.9''$   
 $L = 356.54'$      $L = 336.23'$   
 $T = 183.71'$      $T = 168.12'$   
 $R = 600.00'$      $R = 13,957.00'$   
 $e = \text{SEE PLANS}$      $e = \text{SEE PLANS}$

-YI-  
 PI Sta 35+65.60    PI Sta 40+12.32  
 $\Delta = 2^{\circ} 13' 44.0''$  (RT)     $\Delta = 13^{\circ} 47' 08.4''$  (LT)  
 $D = 0^{\circ} 24' 37.9''$      $D = 3^{\circ} 57' 05.2''$   
 $L = 542.95'$      $L = 348.88'$   
 $T = 271.51'$      $T = 175.29'$   
 $R = 13,957.00'$      $R = 1,450.00'$   
 $e = \text{EXIST}$      $e = \text{EXIST}$



-L- 74+00 TO 74+50 LT  
 -L- 75+50 TO 77+00 LT

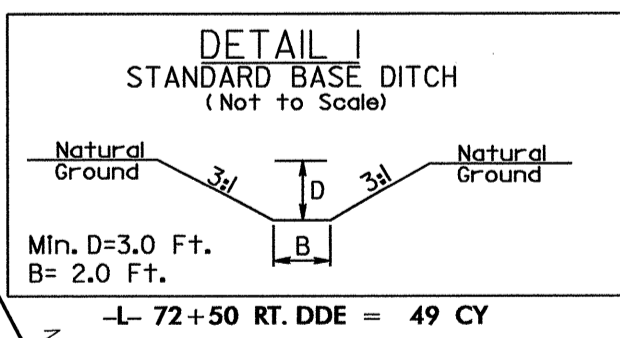
MATCHLINE -L- STA. 70+00.00 SEE SHEET 7

MATCHLINE -YI- STA. 29+50.00 SEE SHEET 11

END TIP PROJECT U-3462  
 -L- POC 77+75.00

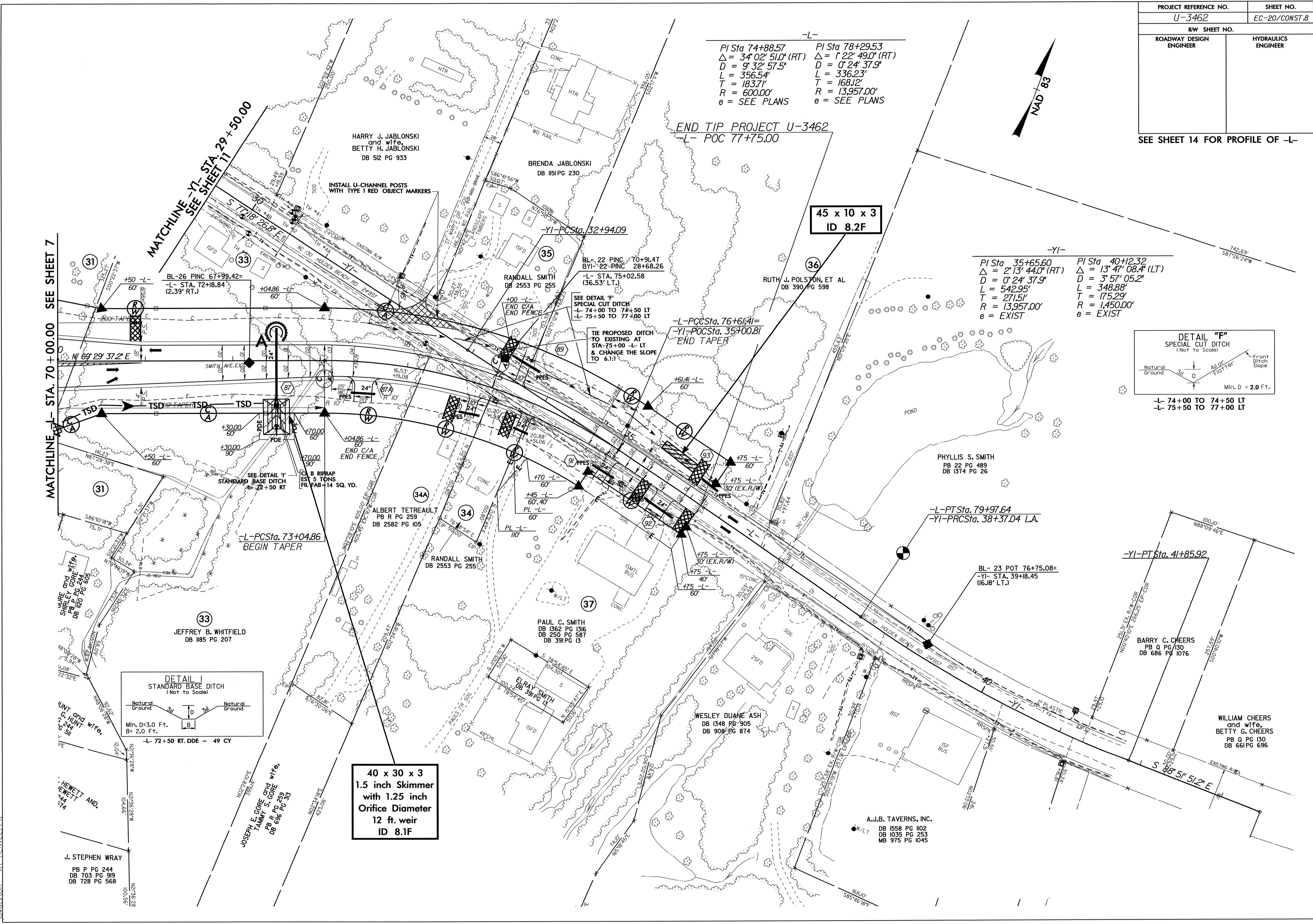
45 x 10 x 3  
 ID 8.2F

40 x 30 x 3  
 1.5 inch Skimmer  
 with 1.25 inch  
 Orifice Diameter  
 12 ft. weir  
 ID 8.1F



-L- 72+50 RT. DDE = 49 CY

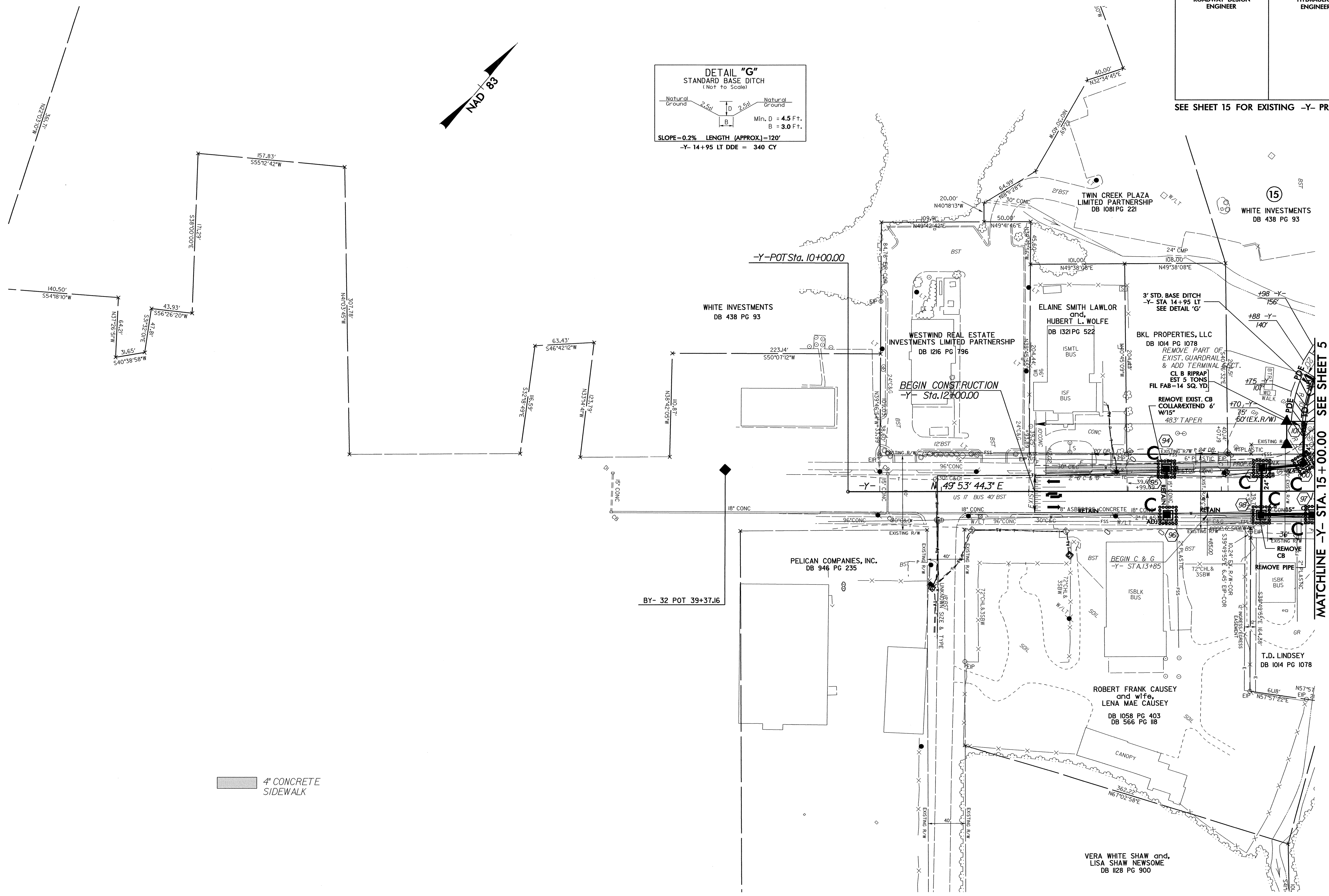
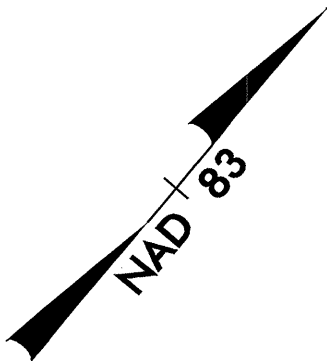
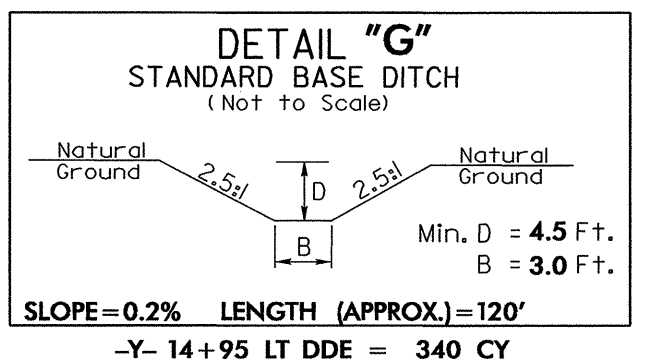
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 idwalston AT REN22149





PROJECT REFERENCE NO.		SHEET NO.	
U-3462		EC-21/CONST.9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

SEE SHEET 15 FOR EXISTING -Y- PROFILE



4" CONCRETE SIDEWALK

MATCHLINE -Y- STA. 15+00.00 SEE SHEET 5

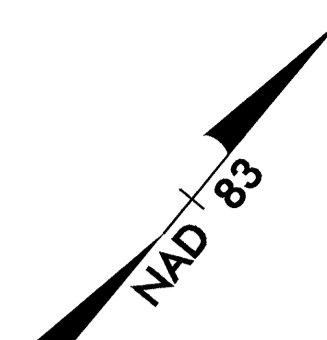
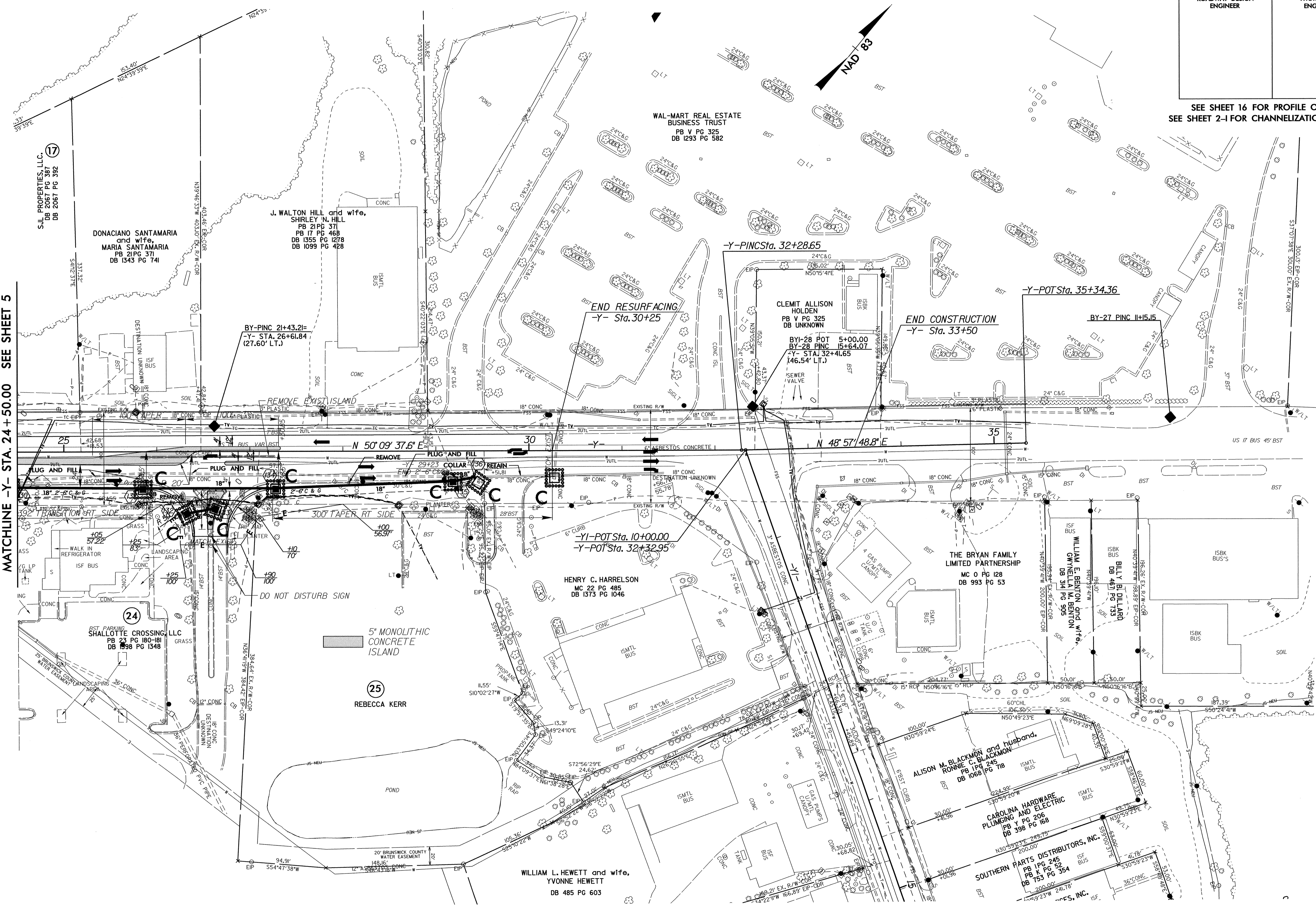
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PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-22/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

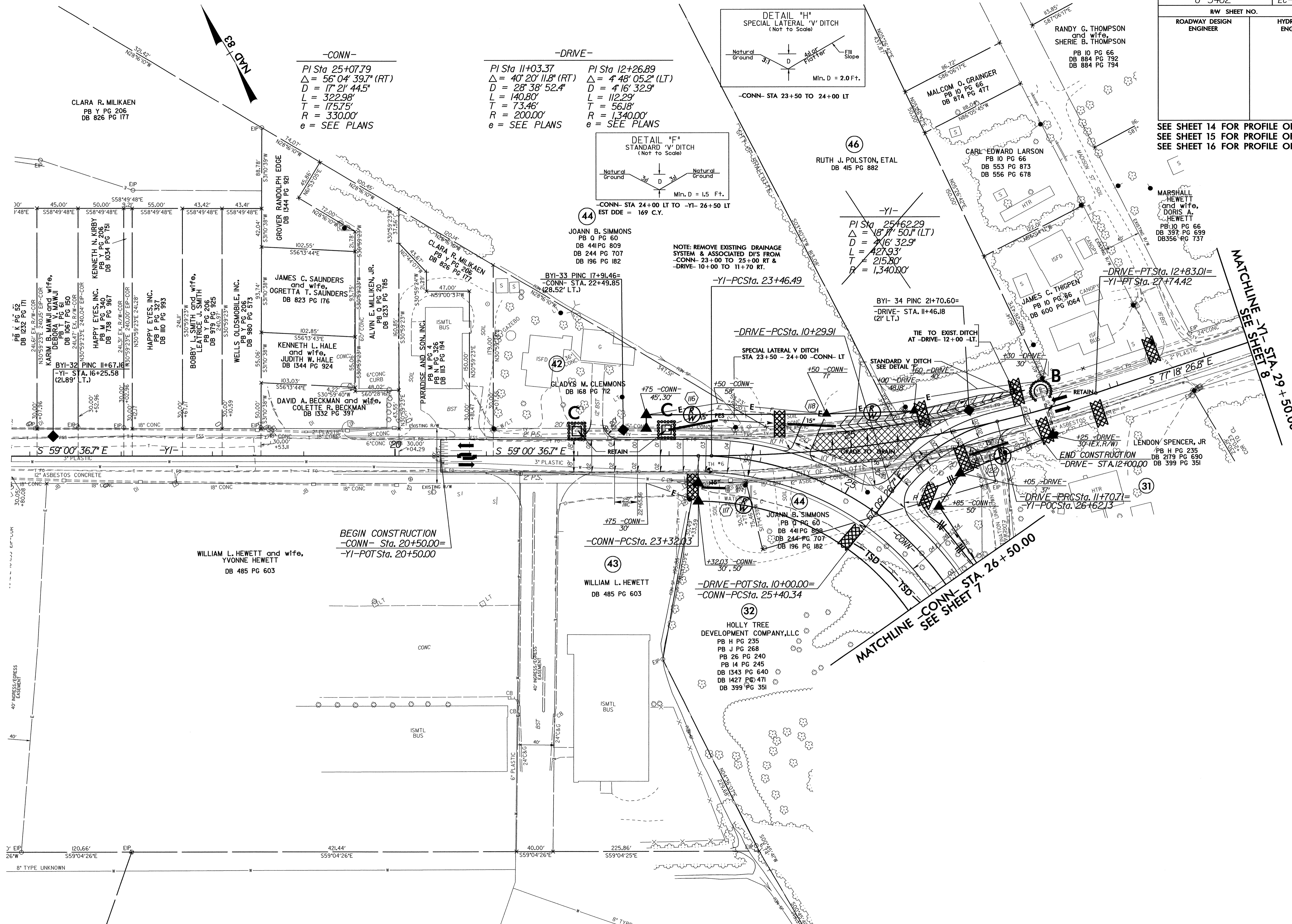
SEE SHEET 16 FOR PROFILE OF -Y-  
SEE SHEET 2-I FOR CHANNELIZATION DETAIL

MATCHLINE -Y- STA. 24 + 50.00 SEE SHEET 5



27-AUG-2008 10:12  
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 d:\ps110\AT\_RENV21.dwg  
 8/17/99

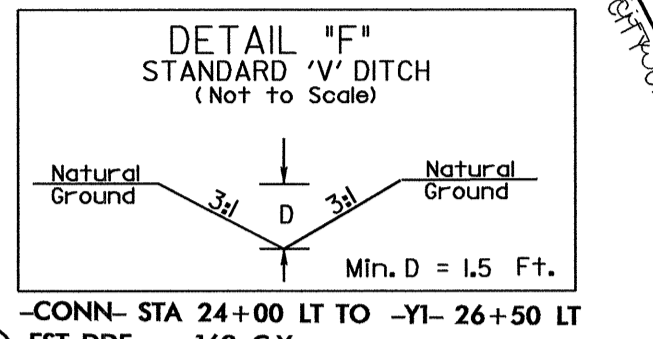
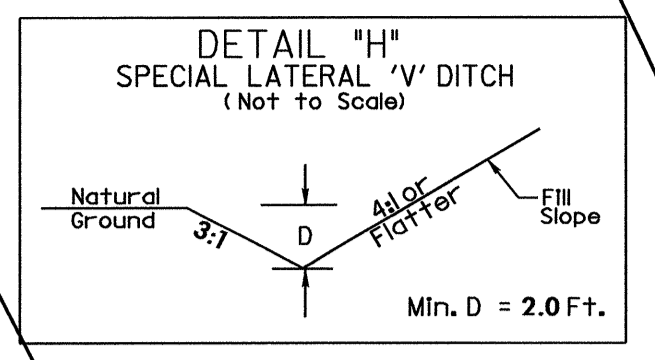
PROJECT REFERENCE NO.	SHEET NO.
U-3462	EC-23/CONST.II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**-CONN-**  
 PI Sta 25+07.79  
 $\Delta = 56^{\circ} 04' 39.7" (RT)$   
 $D = 17' 21.445"$   
 $L = 322.98'$   
 $T = 175.75'$   
 $R = 330.00'$   
 $e = \text{SEE PLANS}$

**-DRIVE-**  
 PI Sta 11+03.37  
 $\Delta = 40^{\circ} 20' 11.8" (RT)$   
 $D = 28' 38" 52.4"$   
 $L = 140.80'$   
 $T = 73.46'$   
 $R = 200.00'$   
 $e = \text{SEE PLANS}$

PI Sta 12+26.89  
 $\Delta = 4^{\circ} 48' 05.2" (LT)$   
 $D = 4' 16" 32.9"$   
 $L = 112.29'$   
 $T = 56.18'$   
 $R = 1,340.00'$   
 $e = \text{SEE PLANS}$

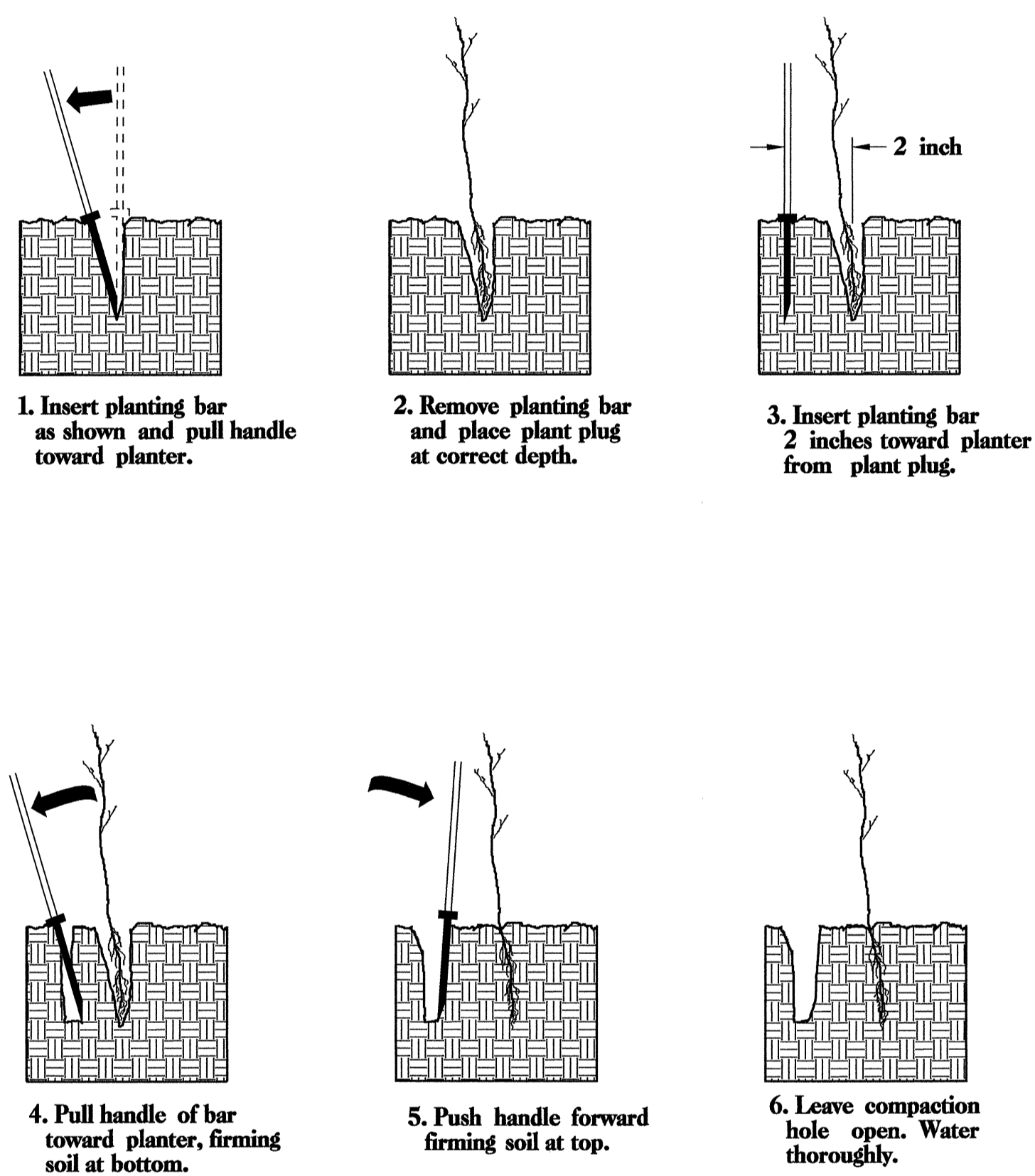


NOTE: REMOVE EXISTING DRAINAGE SYSTEM & ASSOCIATED D/S FROM -CONN- 23+00 TO 25+00 RT & -DRIVE- 10+00 TO 11+70 RT.

27-AUG-2008 10:14  
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 idmlston AT RENV2145

## PLANTING DETAILS

### DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR

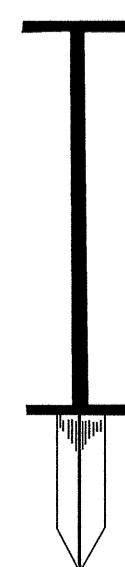


### PLANTING NOTES:

**PLANTING BAG**  
During planting, plant plugs shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



**KBC PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



## WETLAND GRASS PLANTING

- WETLAND GRASS SPECIES SHALL BE PLANTED 2 FT. TO 4 FT. ON CENTER, RANDOM SPACING, AVERAGING 3 FT. ON CENTER, APPROXIMATELY 4840 PLANTS PER ACRE.

### WETLAND GRASS PLANTING

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

33.3% SCIRPUS CYPERINUS	WOOLGRASS	2 in PEAT POT
33.3% CLADIUM JAMAICENSE	SAWGRASS	2 in PEAT POT
33.3% JUNCUS EFFUSUS	SOFT RUSH	2 in PEAT POT

## WETLAND GRASS PLANTING DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT