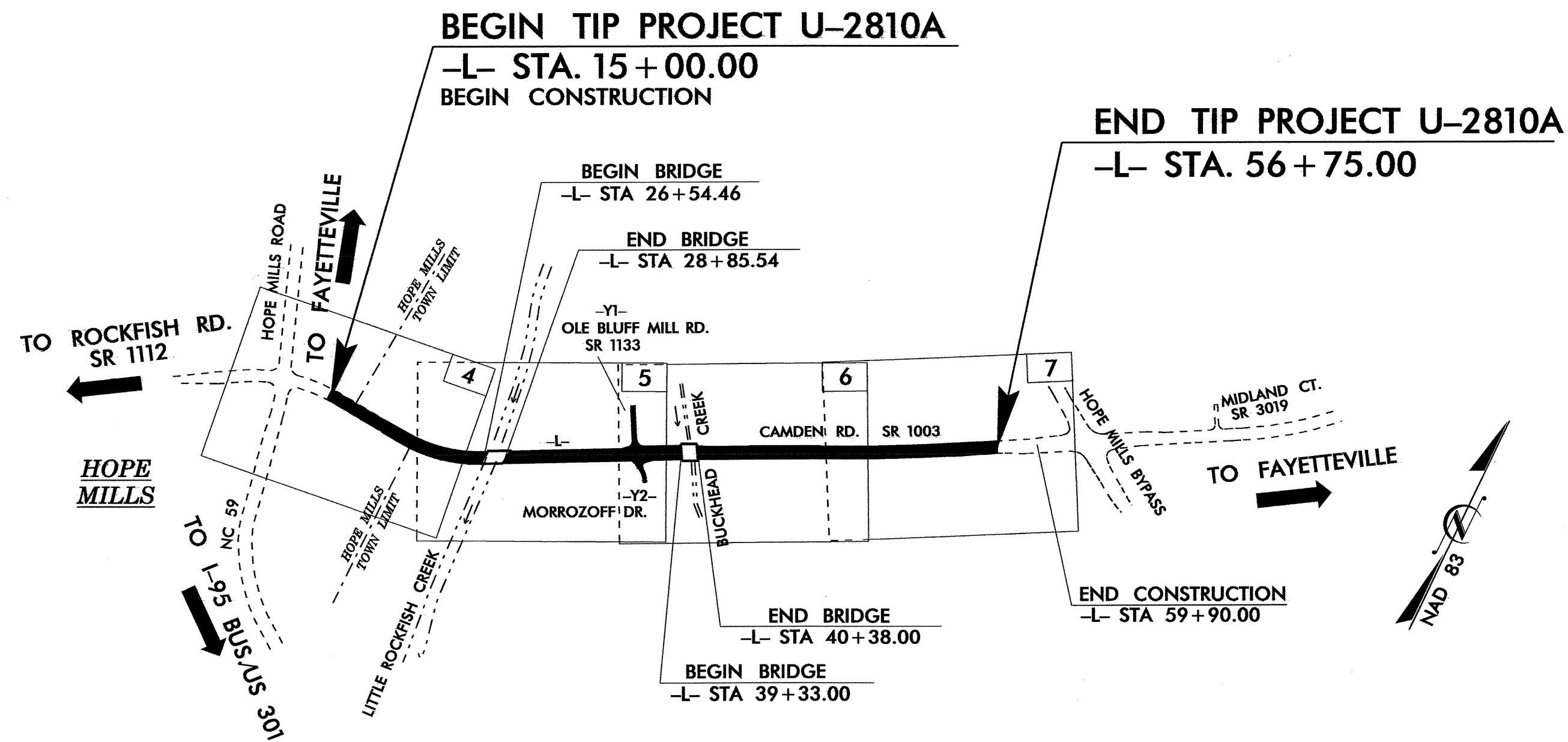


TIP PROJECT: U-2810A

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

**LOCATION: SR 1003 (CAMDEN ROAD) FROM NC 59
 (HOPE MILLS ROAD) TO HOPE MILLS BYPASS**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES,
 CULVERT, RETAINING WALL, RESURFACING,
 WIDENING, AND CURB & GUTTER**

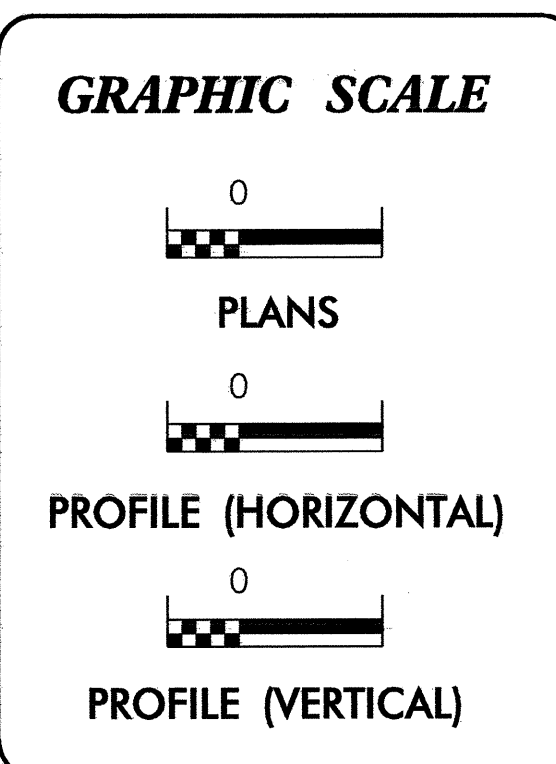


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2810A	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	---X---
1622.01	Temporary Berms and Slope Drains	---T---
1630.01	Riser Basin	○
	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▩
	Temporary Rock Silt Check Type-B	▶
	Wattle	~
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	▩
1635.01	Rock Pipe Inlet Sediment Trap Type-A	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

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



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

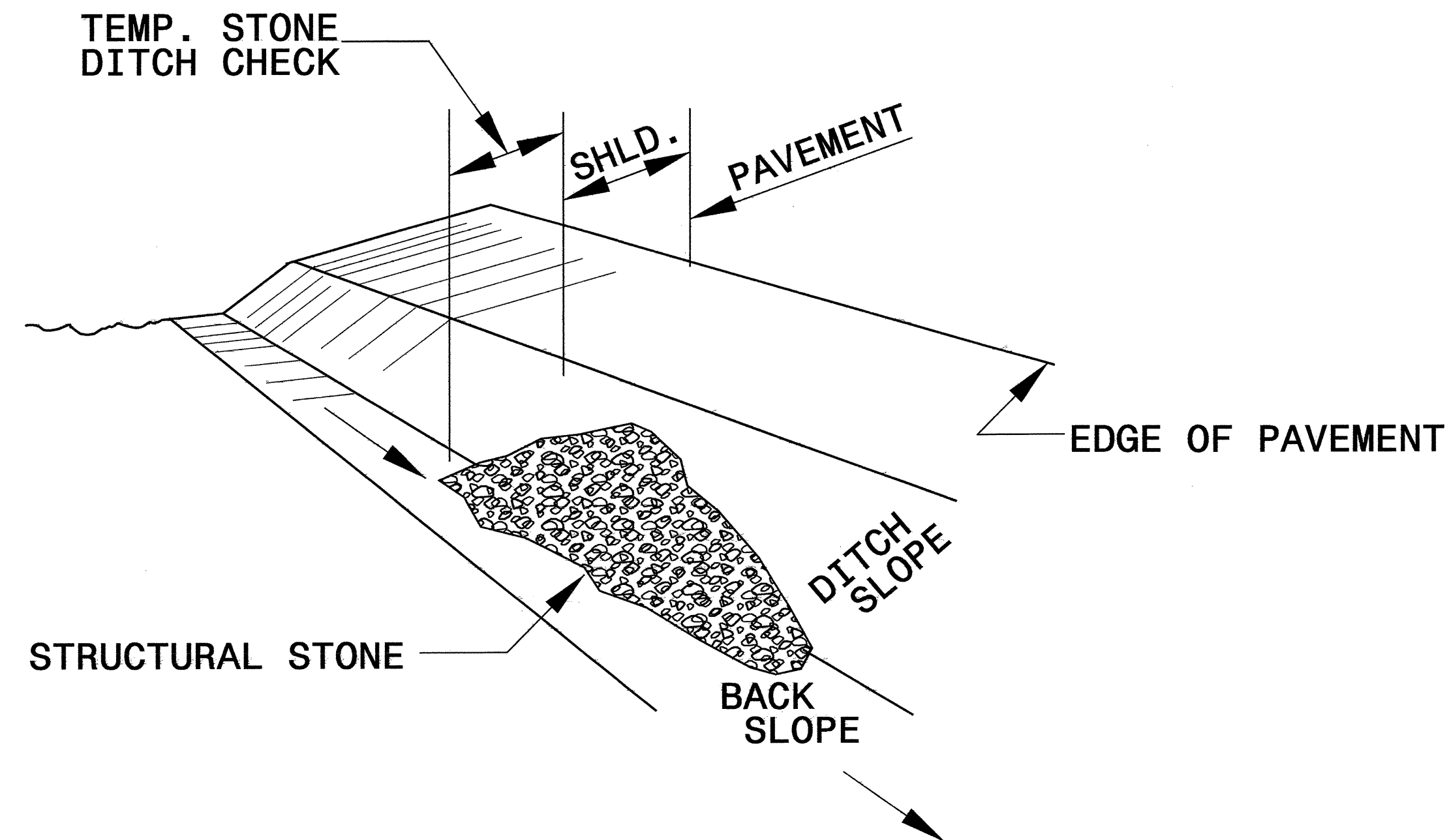
Roadway Standard Drawings

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
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	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.03 Temporary Silt Ditch	
1630.04 Stilling Basin	
1630.05 Temporary Diversion	

PROJECT REFERENCE NO. U-2810A	SHEET NO. EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

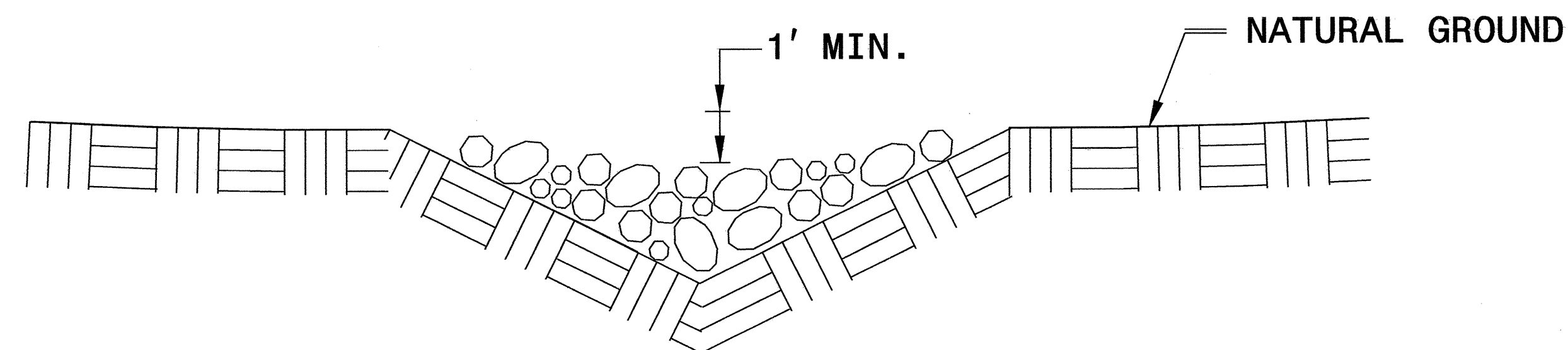


ISOMETRIC VIEW

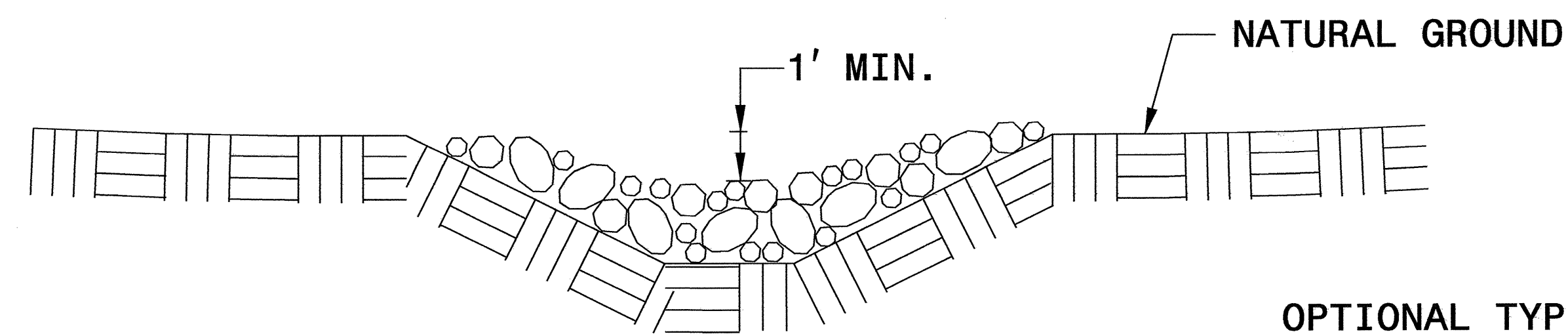
NOTES:

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

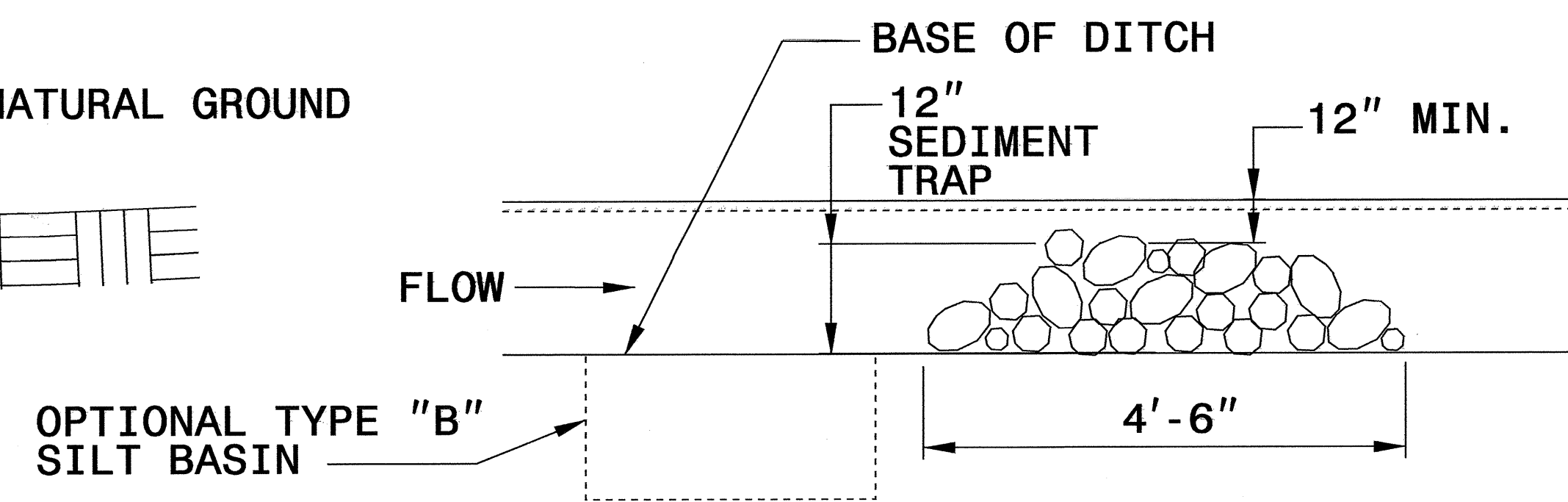
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION VEE DITCH



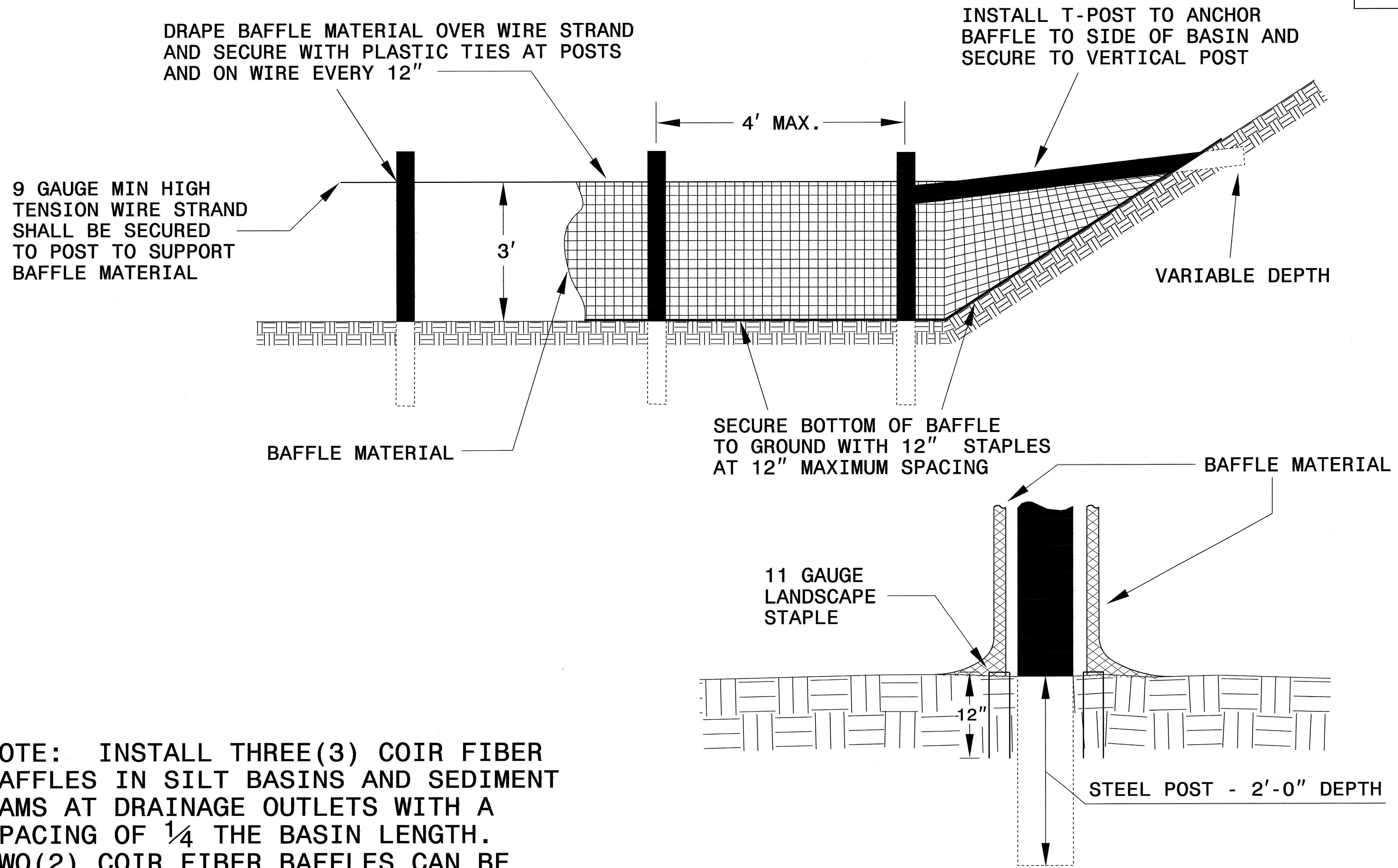
CROSS SECTION TRAPEZOIDAL DITCH



ELEVATION VIEW

PROJECT REFERENCE NO. U-2810A	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL

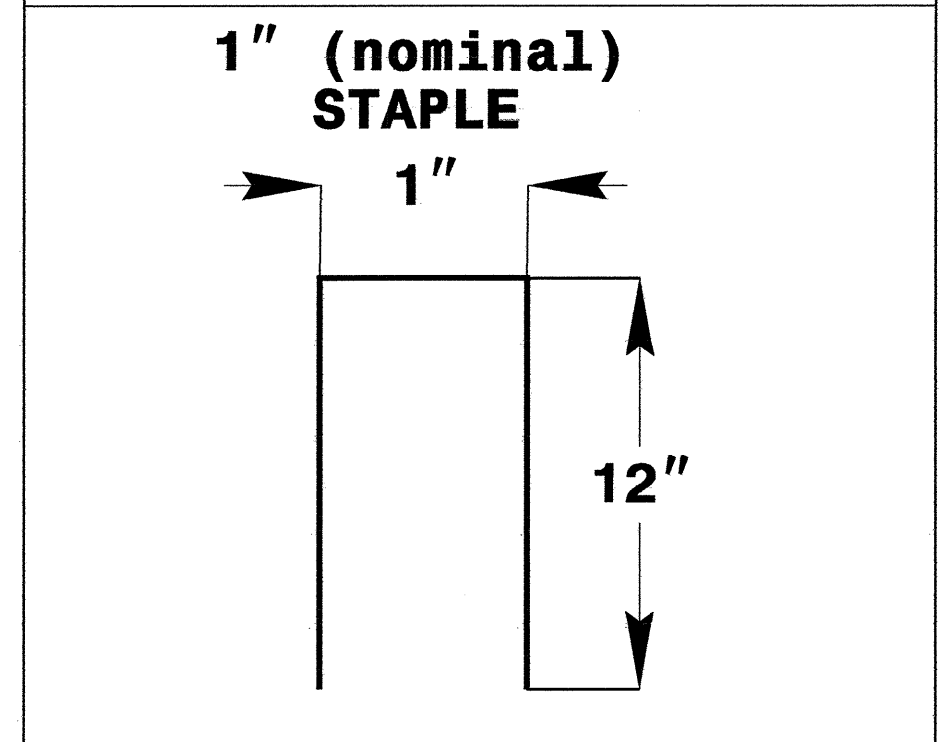
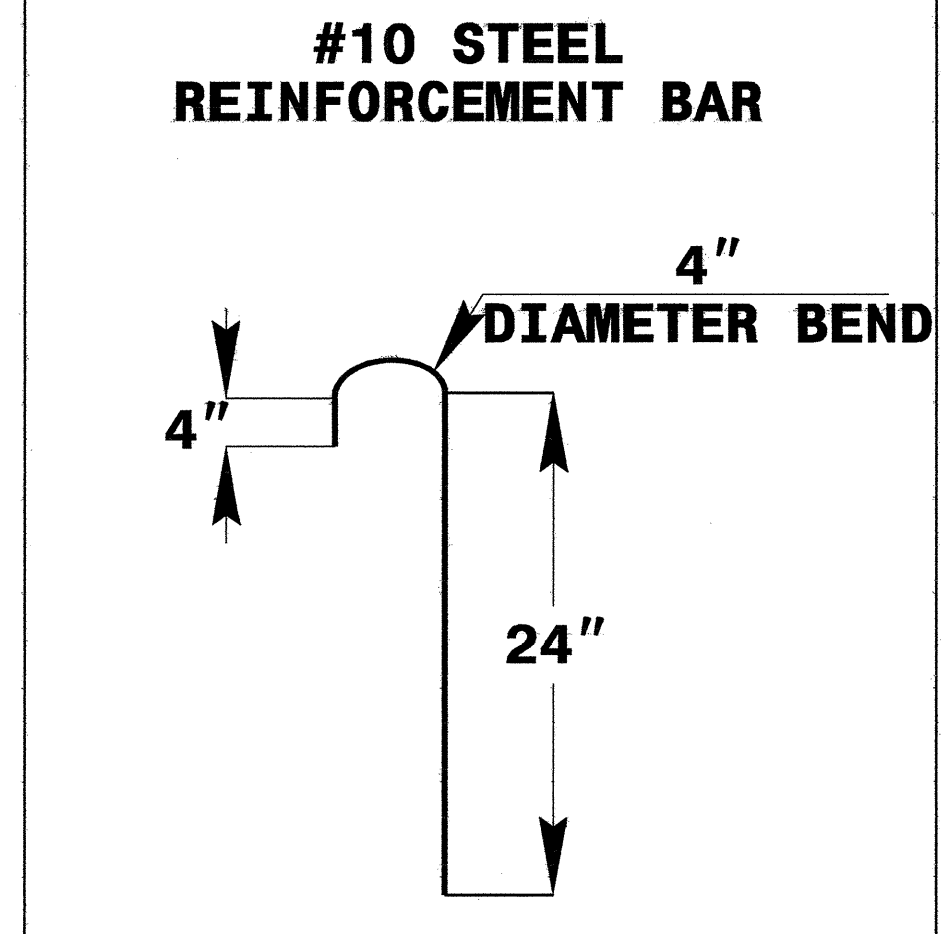
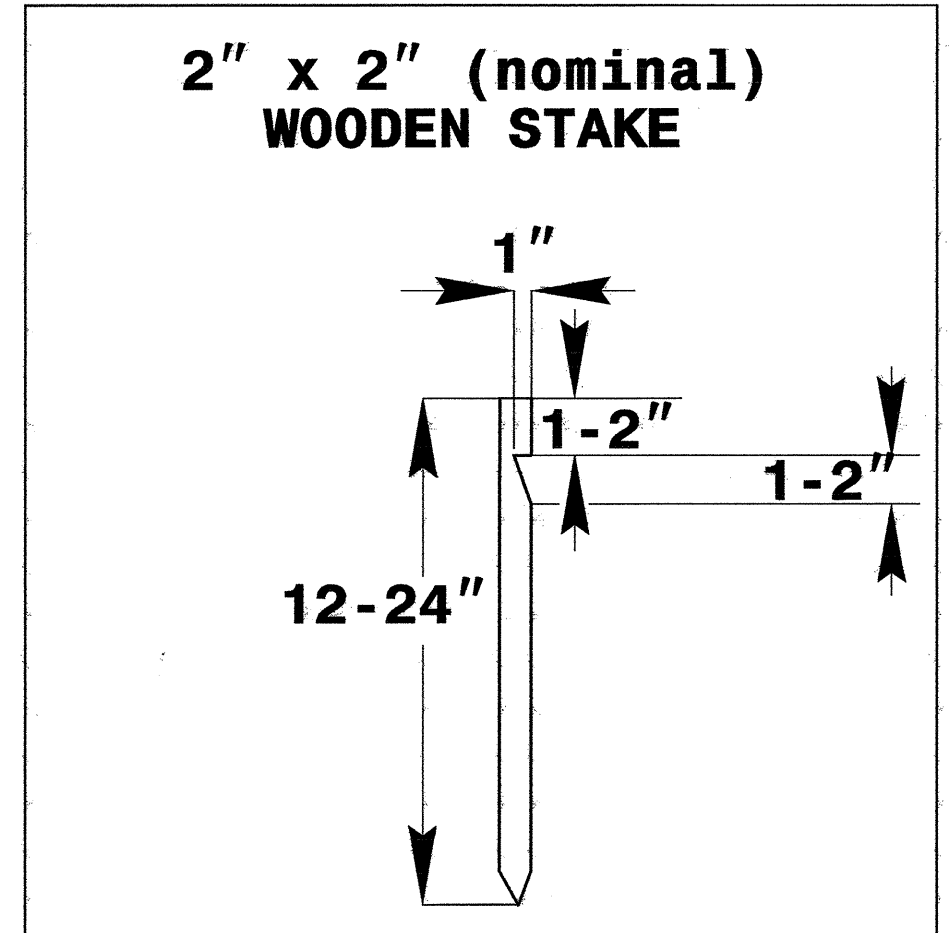
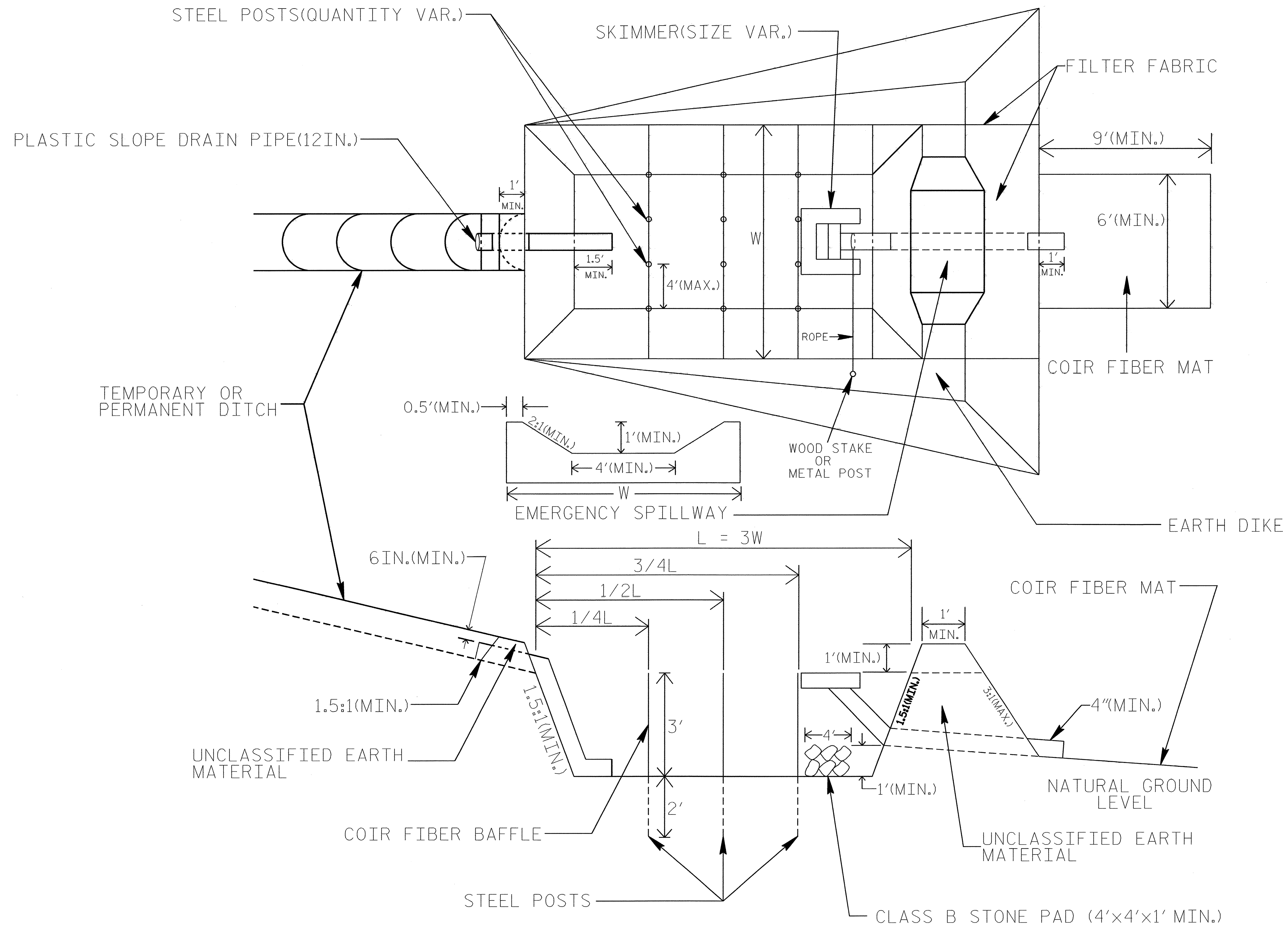


NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

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-2810A	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

BORROW PIT DEWATERING BASIN DETAIL

PROJECT REFERENCE NO. U-2810A	SHEET NO. EC-2C
RW SHEET NO.	
DESIGNER ENGINEER	APPROVER ENGINEER

GENERAL NOTES:

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING $V = 8.0203 * Q * T$, WHERE V IS VOLUME (FT³), Q IS PUMP FLOW RATE (GPM), AND T IS DEWATERING TIME (HR). USE MAXIMUM FLOW RATE OF 1000 GPM AND A MINIMUM DEWATERING TIME OF 2 HOURS.

RISER SHALL BE A NON-PERFORATED, SMOOTH OR CORRUGATED MATERIAL WITH A FLASHBOARD OPTION.

CONSTRUCT THE COIR FIBER BAFFLE WITH A MATERIAL THAT MEETS THE SPECIFICATIONS OF THE COIR FIBER MAT SPECIAL PROVISION PROVIDED IN THE CONTRACT.

PROVIDE 5' STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 3' OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE BASIN WITH 12" STAPLES.

INSTALL TYPE 2 FILTER FABRIC ON SIDESLOPES AND BOTTOM OF BASIN AT INLET AS SHOWN IN THE DETAIL.

USE THE TYPICAL SECTION SHOWN FOR THE BORROW PIT DEWATERING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A NON-PERFORATED RISER.

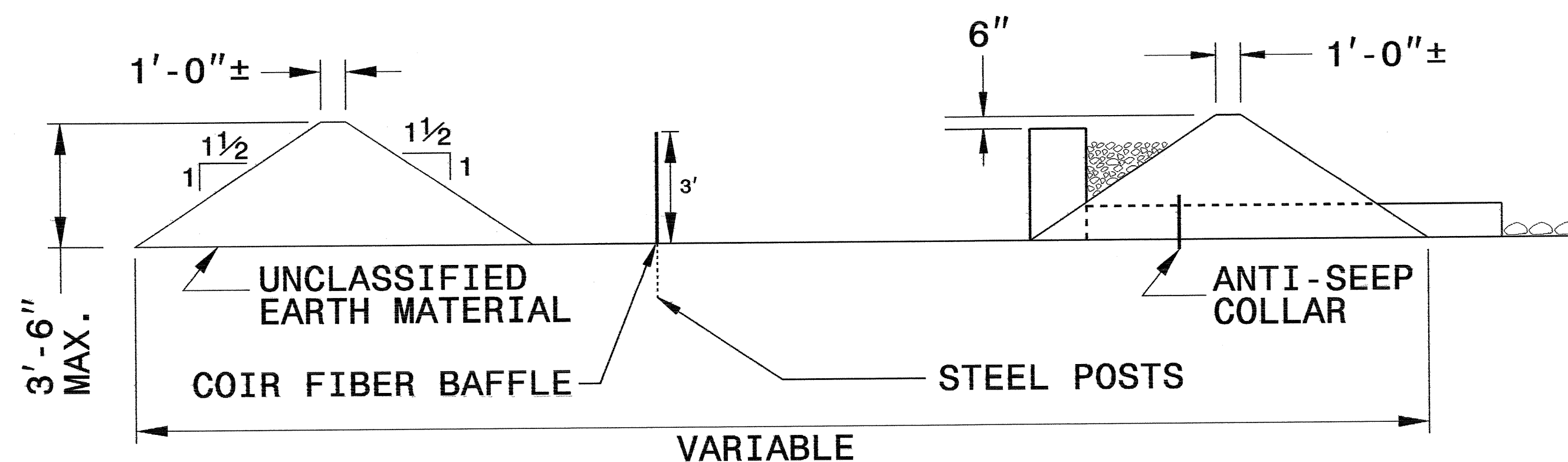
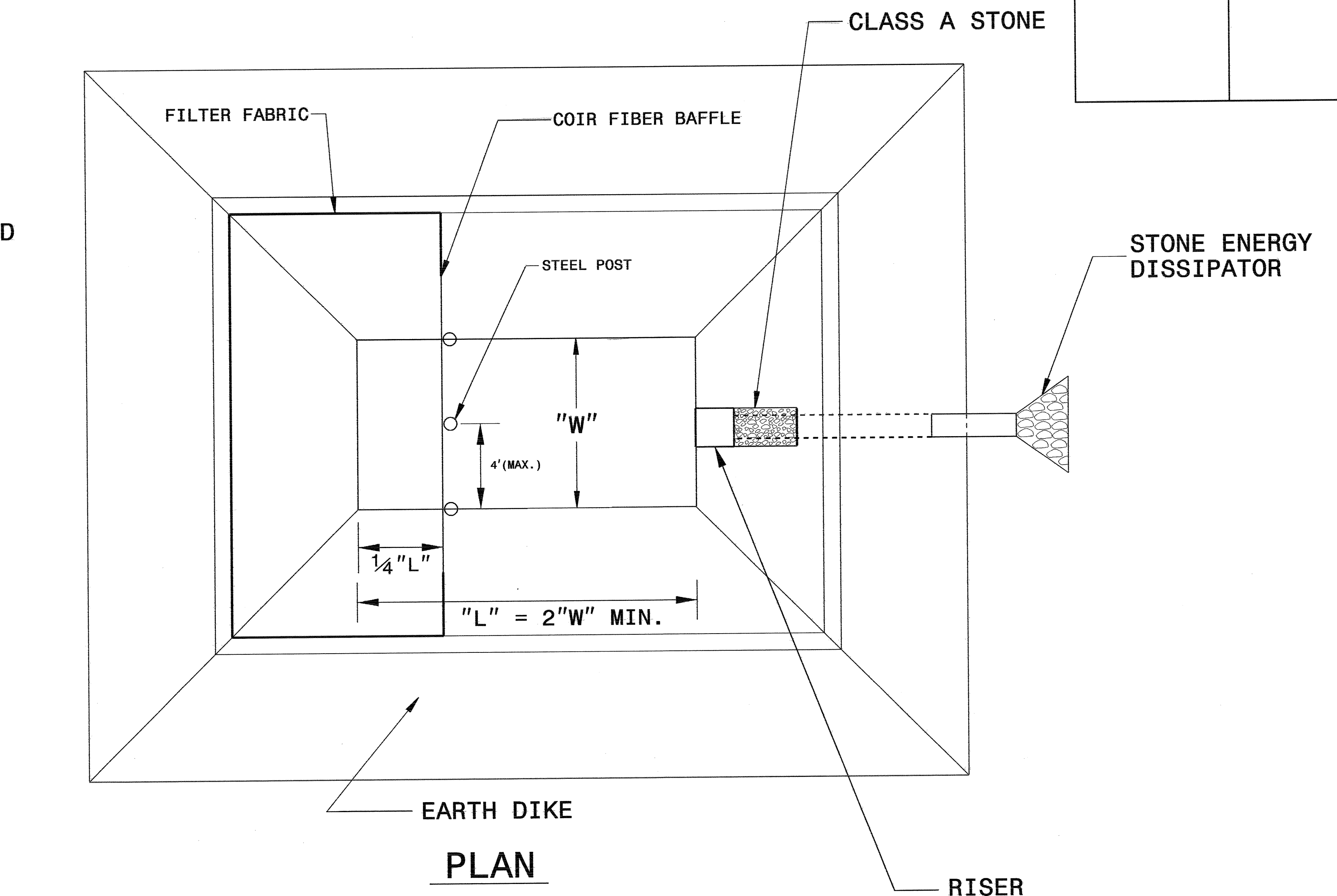
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

THE BORROW PIT DEWATERING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

SUBMIT THE SIZE, LOCATION AND RISER PIPE MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 6 IN. BELOW TOP OF EARTH DIKE.

PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



TYPICAL SECTION VIEW

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-04/CONST.04
RW SHEET NO.	
DESIGNED BY	DRAWN BY
ENGINEER	ENGINEER

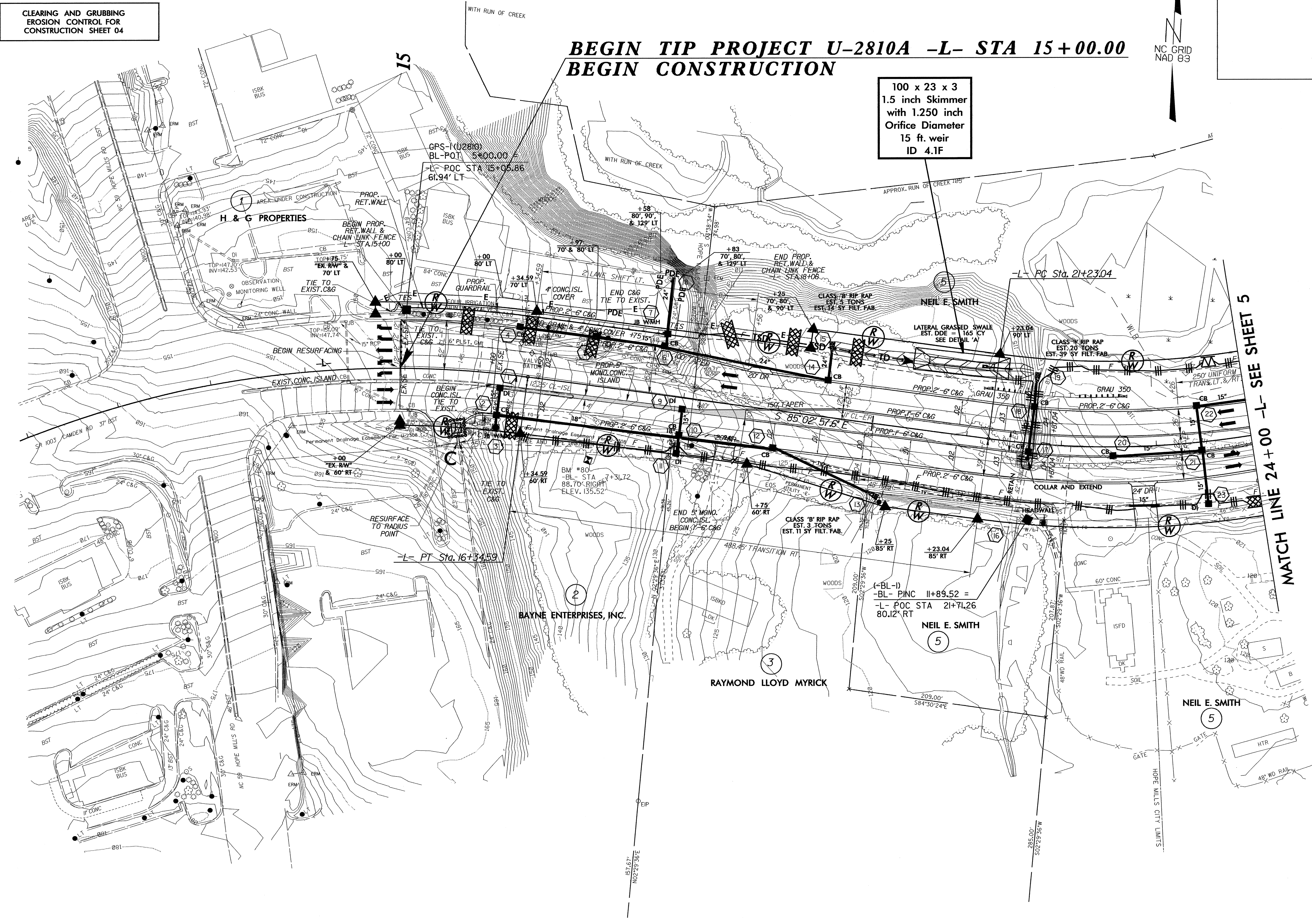
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

**BEGIN TIP PROJECT U-2810A -L- STA 15+00.00
BEGIN CONSTRUCTION**

NC GRID
NAD 83

100 x 23 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
15 ft. weir
ID 4.1F

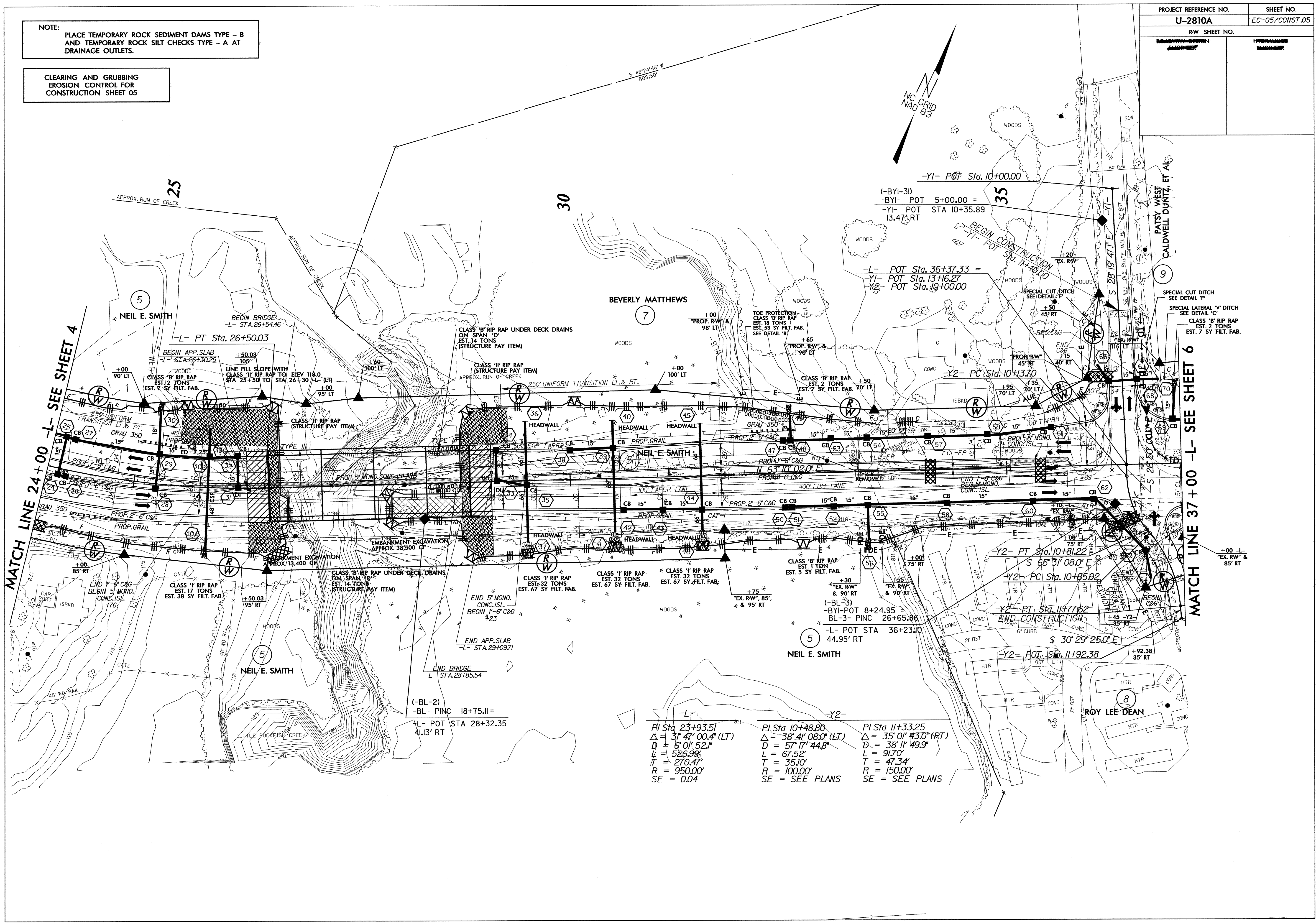


MATCH LINE 24+00 -L- SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-05/CONST.05
RW SHEET NO.	
DESIGNER	HYDRAULIC ENGINEER
ENGINEER	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 05



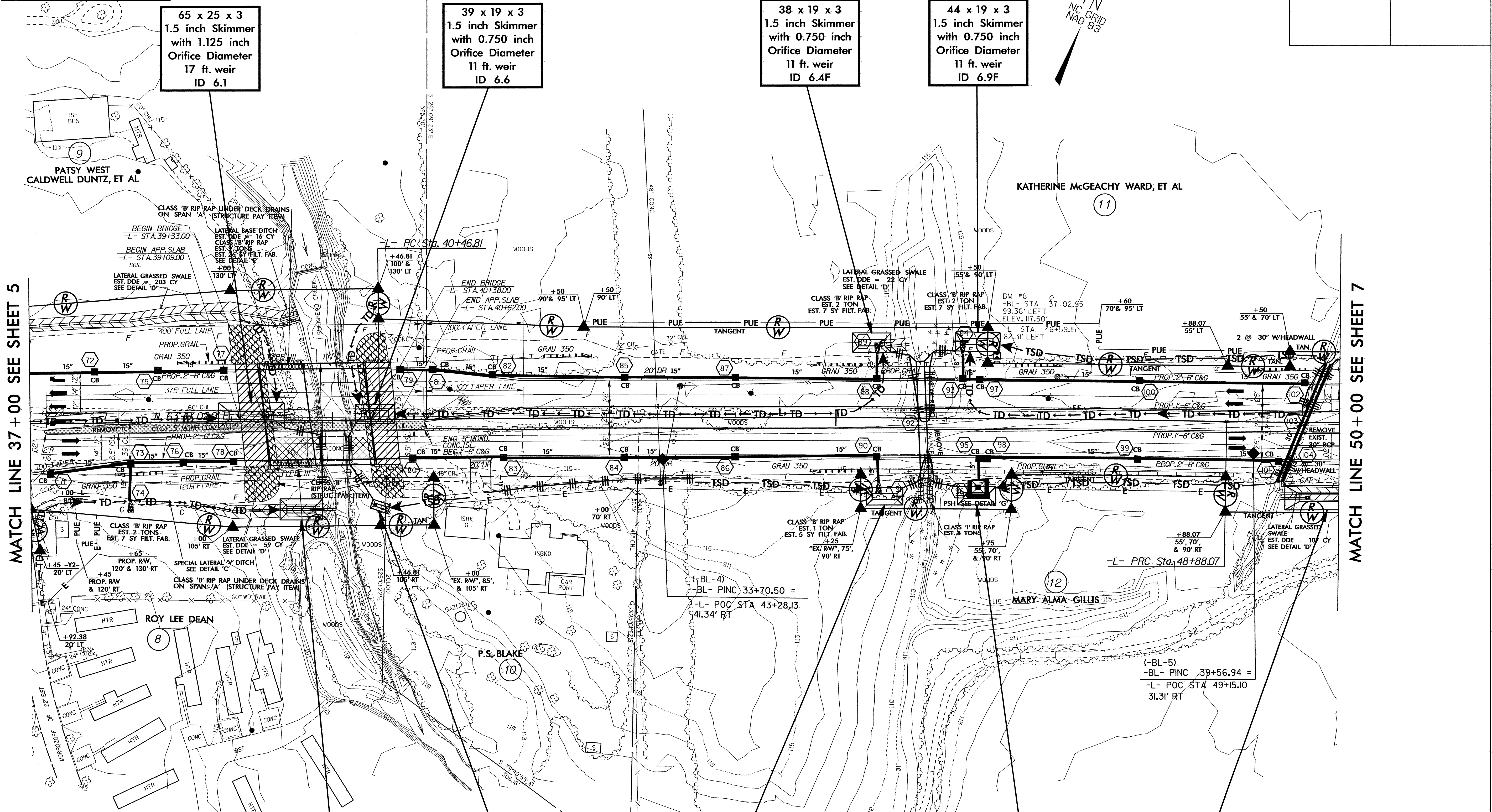
-L- PI Sta 23+93.51 Δ = 31° 47' 00.4\" (LT) D = 6° 01' 52.1\" L = 526.99' T = 270.47' R = 950.00' SE = 0.04	-Y2- PI Sta 10+48.80 Δ = 38° 41' 08.0\" (LT) D = 57° 17' 44.8\" L = 67.52' T = 35.10' R = 100.00' SE = SEE PLANS	-Y2- PI Sta 11+33.25 Δ = 35° 01' 43.0\" (RT) D = 38° 11' 49.9\" L = 91.70' T = 47.34' R = 150.00' SE = SEE PLANS
--	---	---

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-06/CONST.06
RW SHEET NO.	
DESIGNED BY	CHECKED BY
ENGINEER	ENGINEER

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

NOTE: UTILIZE SKIMMER BASINS AS STILLING BASINS WHERE APPLICABLE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 06



MATCH LINE 37+00 SEE SHEET 5

MATCH LINE 50+00 SEE SHEET 7



65 x 25 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
17 ft. weir
ID 6.1

39 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 6.6

38 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 6.4F

44 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 6.9F

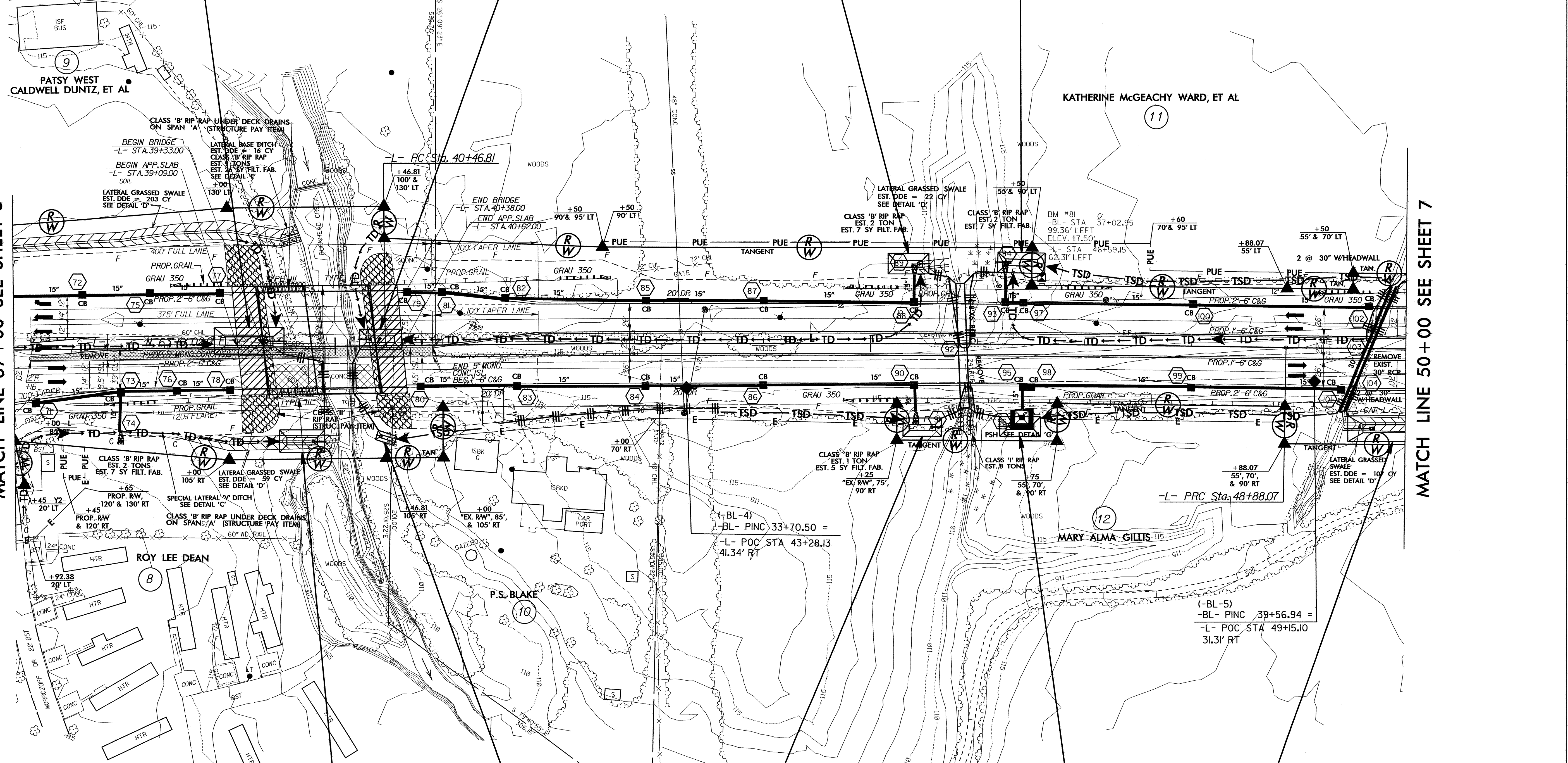
42 x 21 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
13 ft. weir
ID 6.2F

18 x 9 x 3
1.5 inch Skimmer
with 0.250 inch
Orifice Diameter
4 ft. weir
ID 6.3

36 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 6.5F

38 x 18 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
10 ft. weir
ID 6.8F

89 x 24 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
16 ft. weir
ID 7.2F

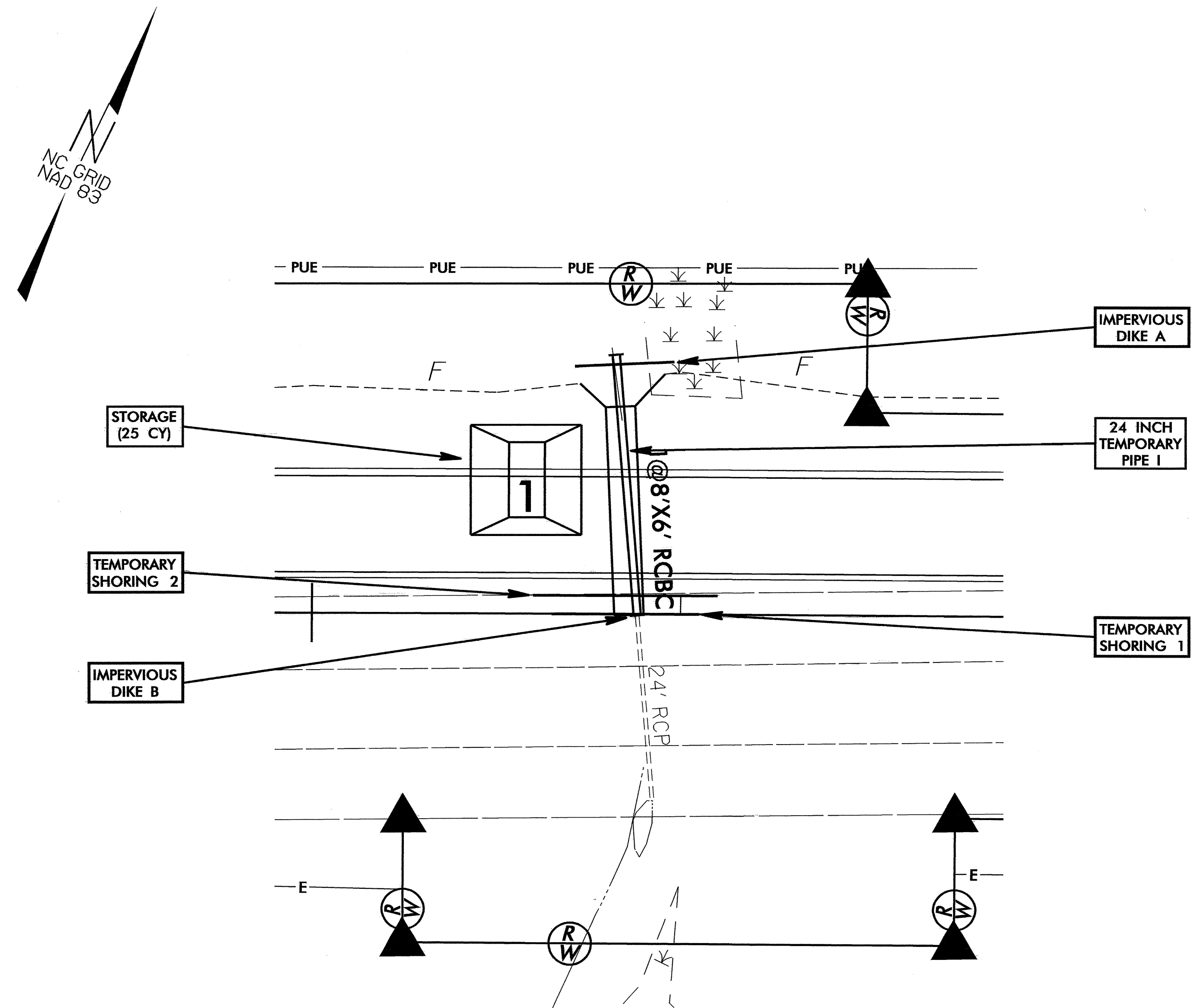


PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-7/CONST.6
RW SHEET NO.	
ENGINEER	ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 45 + 86 -L-

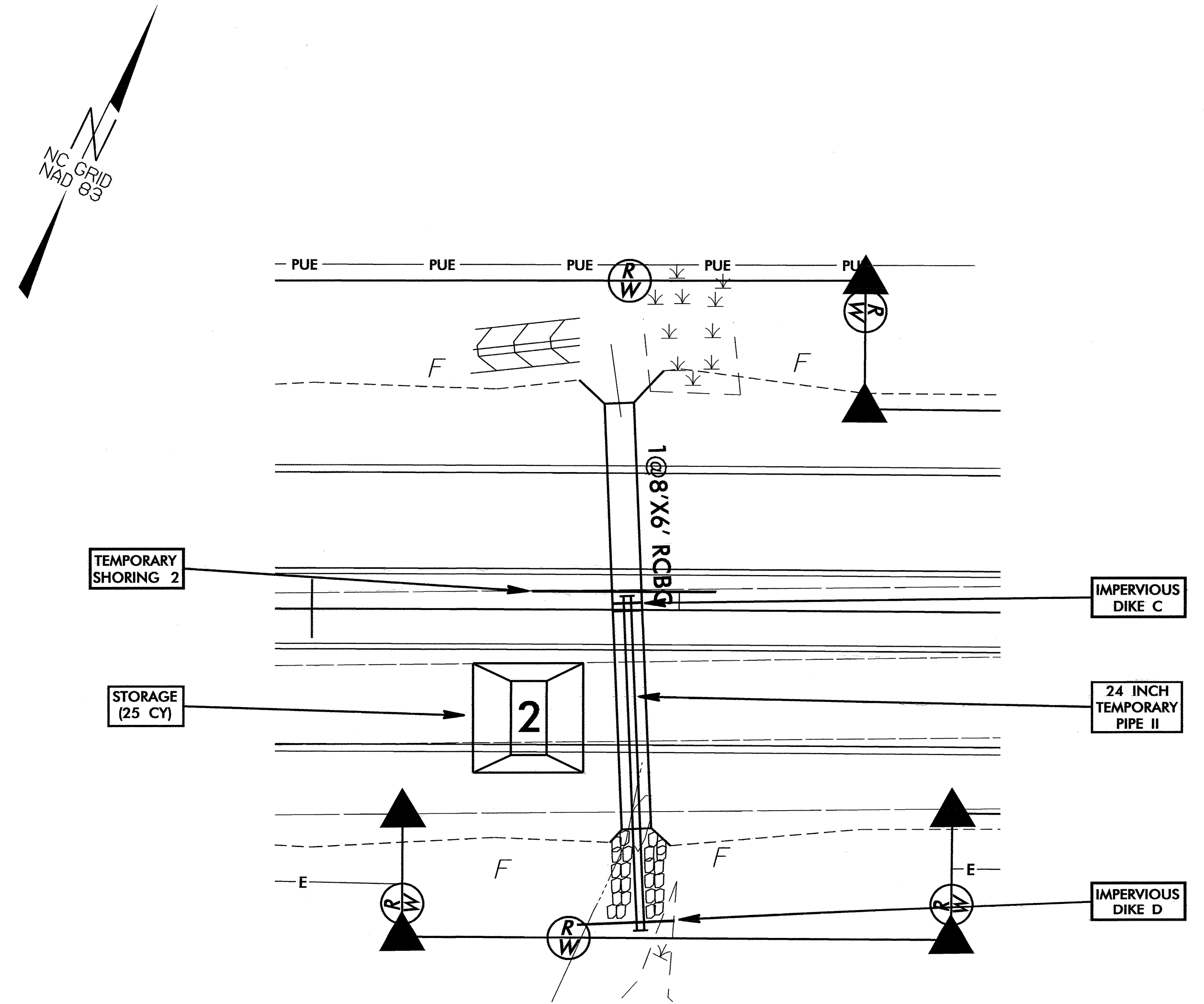
PHASE I

1. CONSTRUCT STILLING BASIN 1 (25 CY).
2. INSTALL TEMPORARY SHORING 1 PER TRAFFIC CONTROL PLANS (ON CENTERLINE).
3. CONSTRUCT IMPERVIOUS DIKES A AND B AND 24" TEMPORARY PIPE I, DIVERTING FLOW THROUGH THE TEMPORARY PIPE.
4. CONSTRUCT NORTHERN PORTION OF THE PROPOSED CULVERT.
5. REMOVE IMPERVIOUS DIKES A AND B, TEMPORARY PIPE I, AND STILLING BASIN 1.
6. INSTALL TEMPORARY SHORING 2 PER TRAFFIC CONTROL PLANS (5' LEFT OF CENTERLINE).
7. CONSTRUCT PORTION OF PROPOSED ROADWAY OVER COMPLETED PORTION OF THE PROPOSED CULVERT AND SHIFT TRAFFIC.
8. REMOVE TEMPORARY SHORING 1.



PHASE II

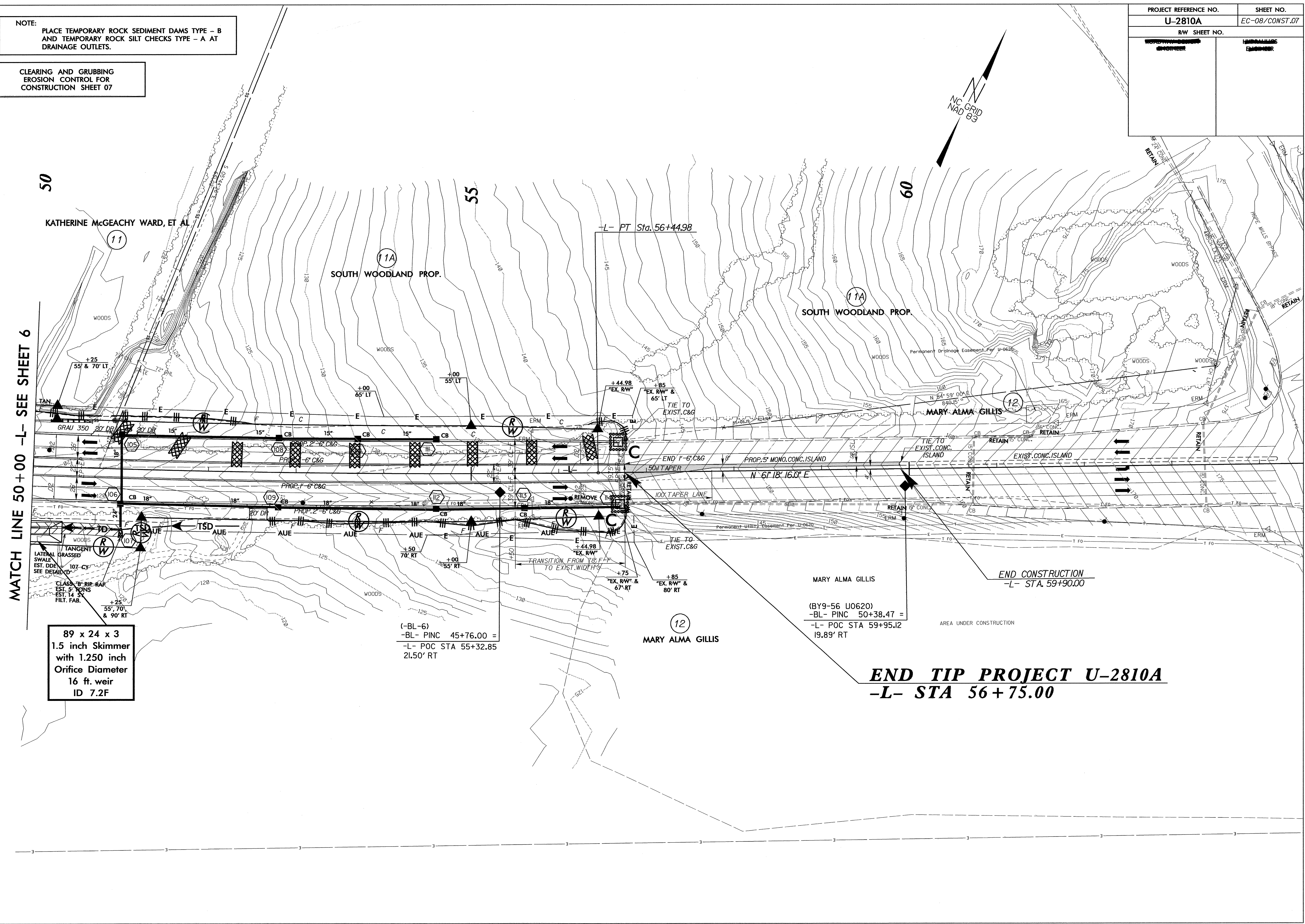
9. CONSTRUCT STILLING BASIN 2 (25 CY).
10. CONSTRUCT IMPERVIOUS DIKES C AND D. UTILIZE "BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES" TO DIVERT FLOW AND DEWATER SITE, AND REMOVE EXISTING 24" RCP.
11. INSTALL 24" TEMPORARY PIPE II BETWEEN IMPERVIOUS DIKES C AND D, DIVERTING FLOW THROUGH THE TEMPORARY PIPE.
12. CONSTRUCT SOUTHERN PORTION OF THE PROPOSED CULVERT.
13. REMOVE IMPERVIOUS DIKES C AND D, TEMPORARY PIPE II, AND STILLING BASIN 2.
14. CONSTRUCT PROPOSED ROADWAY OVER SOUTHERN PORTION OF THE PROPOSED CULVERT.
15. REMOVE TEMPORARY SHORING 2.
16. COMPLETE ROADWAY AND OPEN TO TRAFFIC.



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 07

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-08/CONST.07
RW SHEET NO.	
WATERWAY ENGINEER	LANDSCAPE ENGINEER



MATCH LINE 50+00 -L- SEE SHEET 6

89 x 24 x 3
 1.5 inch Skimmer
 with 1.250 inch
 Orifice Diameter
 16 ft. weir
 ID 7.2F

(-BL-6)
 -BL- PINC 45+76.00 =
 -L- POC STA 55+32.85
 21.50' RT

MARY ALMA GILLIS
 (BY9-56 U0620)
 -BL- PINC 50+38.47 =
 -L- POC STA 59+95.12
 19.89' RT

END TIP PROJECT U-2810A
-L- STA 56+75.00

END CONSTRUCTION
 -L- STA. 59+90.00

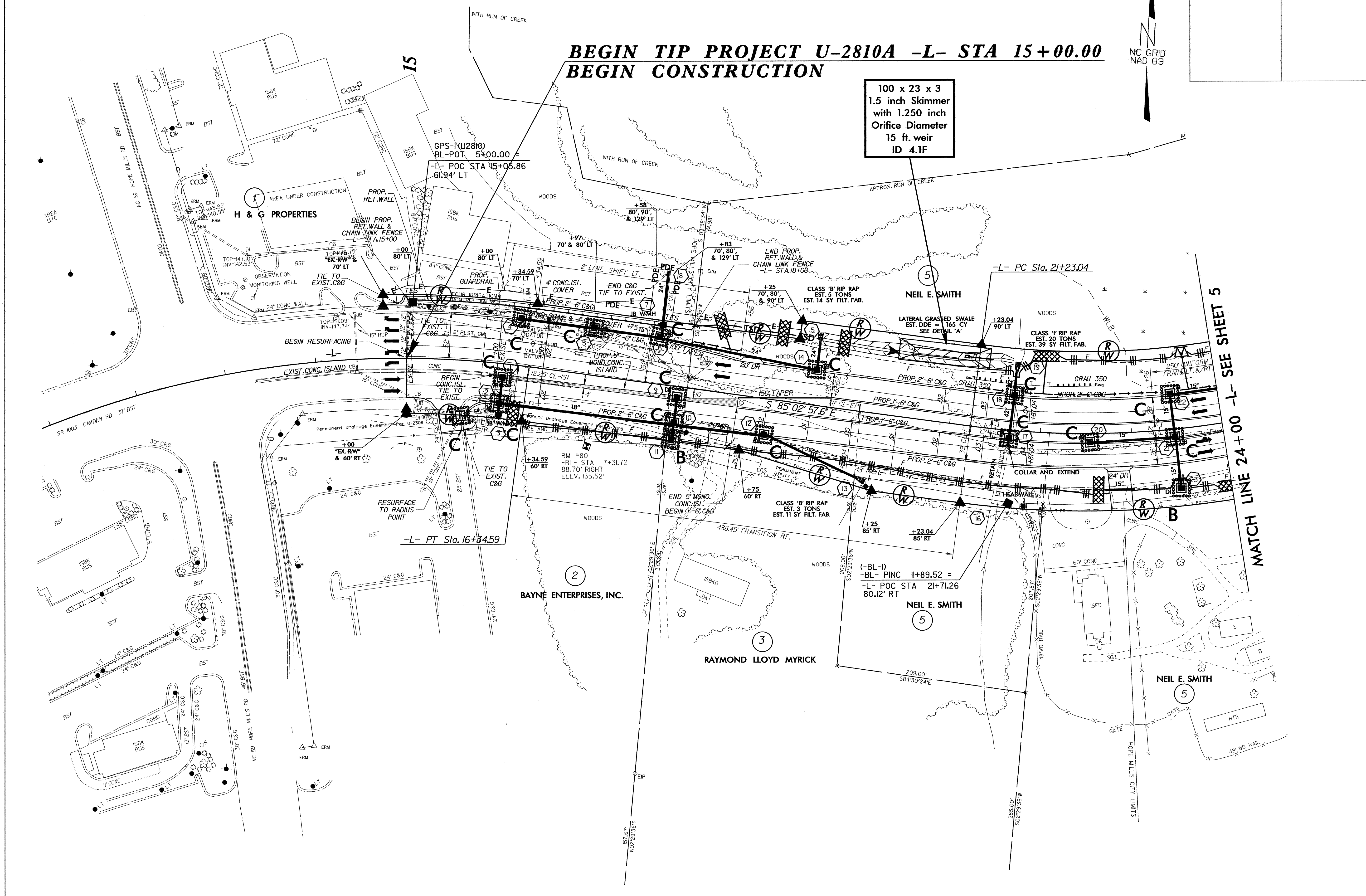
AREA UNDER CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-09/CONST.04
RW SHEET NO.	
ROADMAN-DEVON ENGINEER	HYDRA-MICS ENGINEER

**BEGIN TIP PROJECT U-2810A -L- STA 15+00.00
BEGIN CONSTRUCTION**

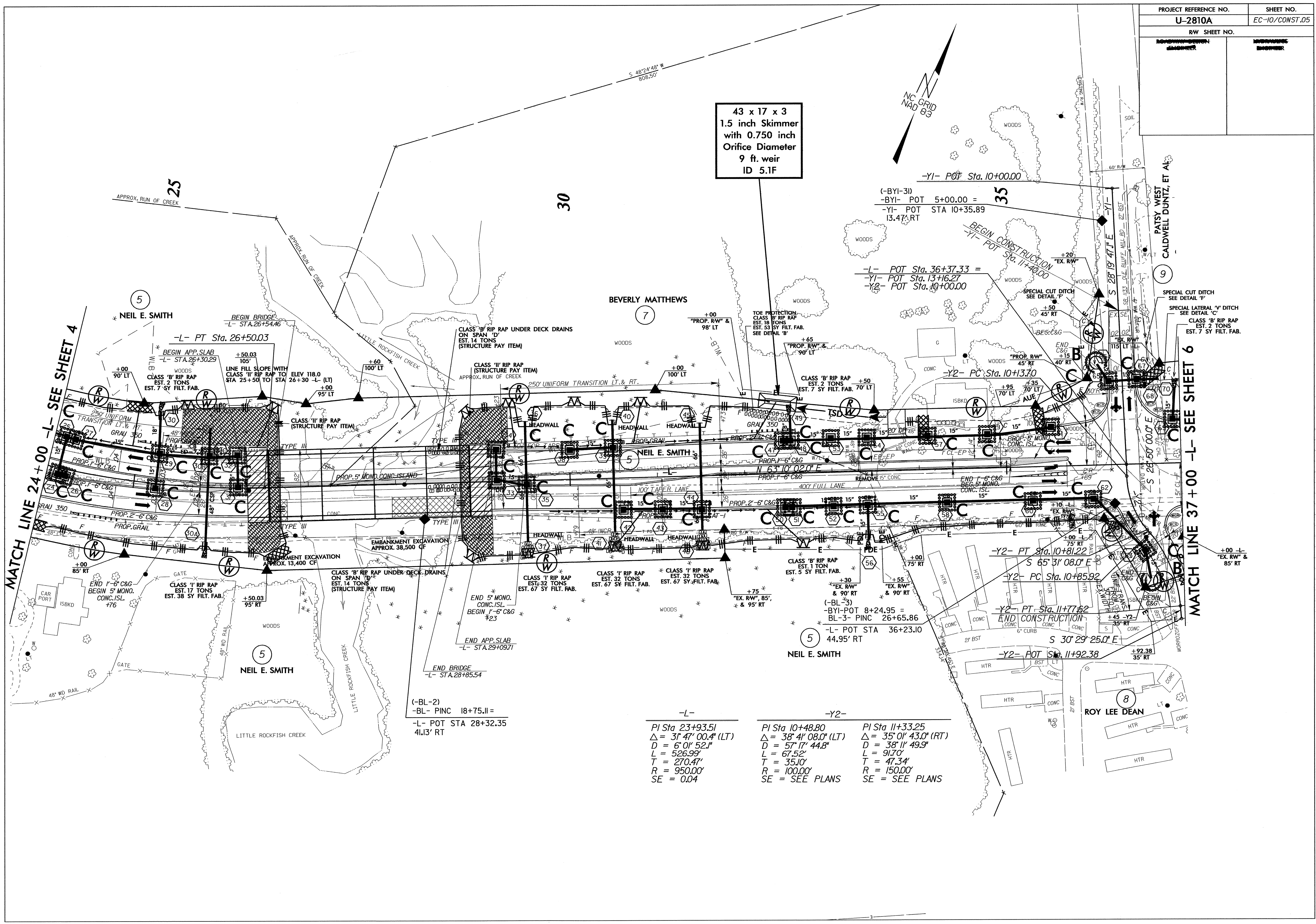
NC GRID
NAD 83

100 x 23 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
15 ft. weir
ID 4.1F



MATCH LINE 24+00 -L- SEE SHEET 5

43 x 17 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
9 ft. weir
ID 5.1F



(-BL-2)
-BL- PINC 18+75.11 =
-L- POT STA 28+32.35
41.13' RT

-L-
PI Sta 23+93.51
Δ = 31' 47" 00.4" (LT)
D = 6' 01" 52.1"
L = 526.99'
T = 270.47'
R = 950.00'
SE = 0.04

-Y2-
PI Sta 10+48.80
Δ = 38' 41" 08.0" (LT)
D = 57' 17" 44.8"
L = 67.52'
T = 35.10'
R = 100.00'
SE = SEE PLANS

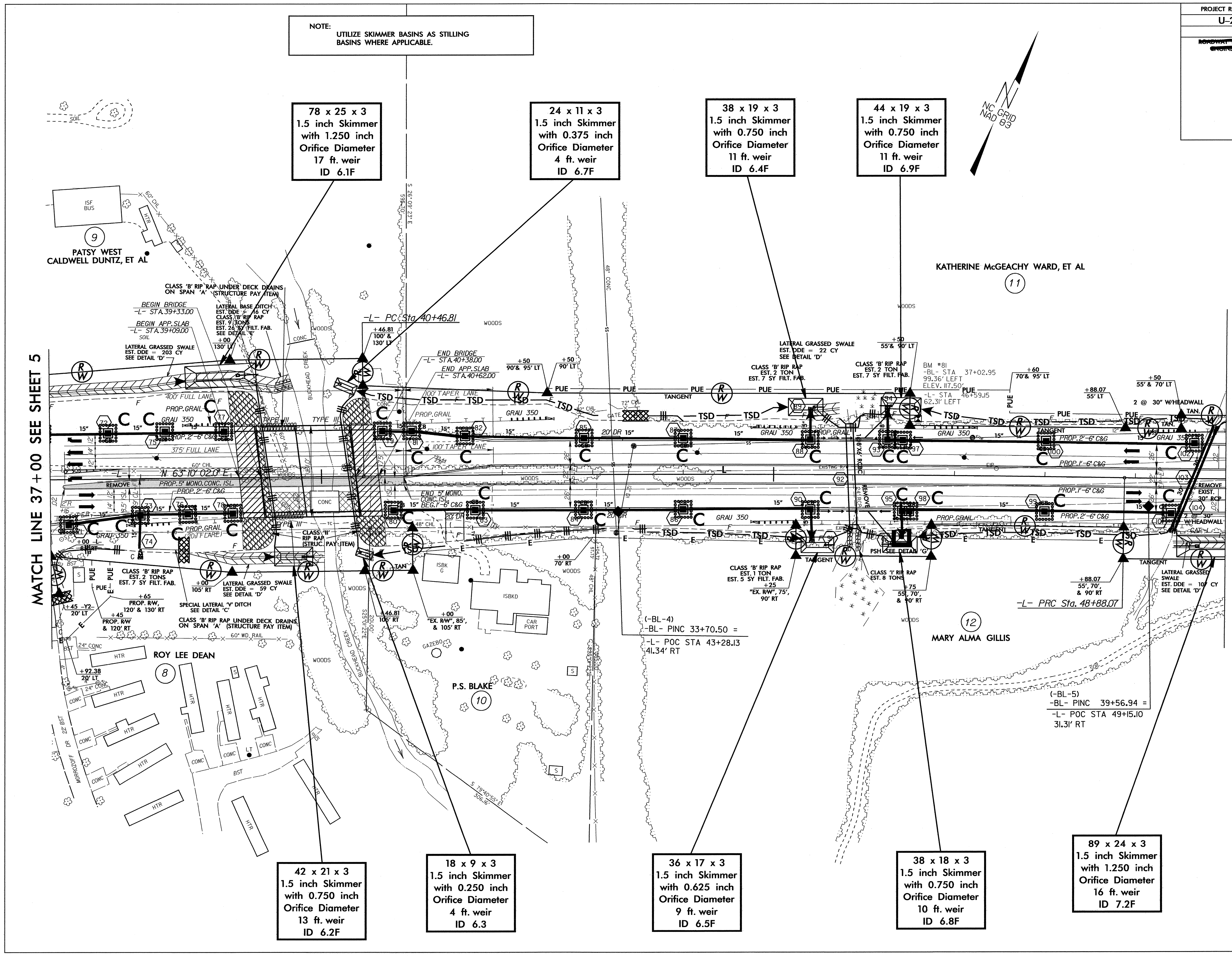
-Y2-
PI Sta 11+33.25
Δ = 35' 01" 43.0" (RT)
D = 38' 11" 49.9"
L = 91.70'
T = 47.34'
R = 150.00'
SE = SEE PLANS

MATCH LINE 24+00 -L- SEE SHEET 4

MATCH LINE 37+00 -L- SEE SHEET 6

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-II/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER

NOTE: UTILIZE SKIMMER BASINS AS STILLING BASINS WHERE APPLICABLE.



MATCH LINE 37+00 SEE SHEET 5

MATCH LINE 50+00 SEE SHEET 7

78 x 25 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
17 ft. weir
ID 6.1F

24 x 11 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 6.7F

38 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 6.4F

44 x 19 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
11 ft. weir
ID 6.9F

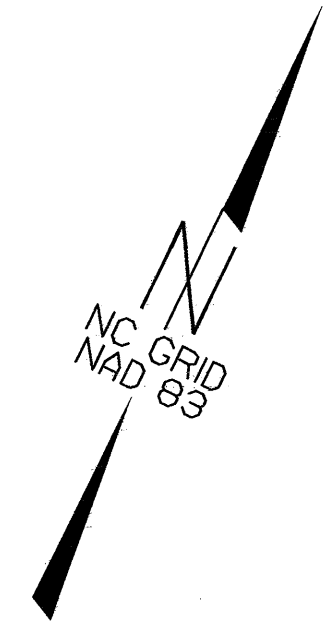
42 x 21 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
13 ft. weir
ID 6.2F

18 x 9 x 3
1.5 inch Skimmer
with 0.250 inch
Orifice Diameter
4 ft. weir
ID 6.3

36 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
9 ft. weir
ID 6.5F

38 x 18 x 3
1.5 inch Skimmer
with 0.750 inch
Orifice Diameter
10 ft. weir
ID 6.8F

89 x 24 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
16 ft. weir
ID 7.2F



9
PATSY WEST
CALDWELL DUNTZ, ET AL

11
KATHERINE McGEACHY WARD, ET AL

8
ROY LEE DEAN

10
P.S. BLAKE

12
MARY ALMA GILLIS

(-BL-5)
-BL- PINC 39+56.94 =
-L- POC STA 49+15.10
31.31' RT

(-BL-4)
-BL- PINC 33+70.50 =
-L- POC STA 43+28.13
41.34' RT

46.81
106' RT

45-12
20' LT

42-38
24' LT

75
55', 70',
& 90' RT

88.07
55' LT

88.07
55' LT

BEGIN BRIDGE
-L- STA. 39+33.00
BEGIN APP. SLAB
-L- STA. 39+09.00
LATERAL GRASSED SWALE
EST. DDE = 203 CY
SEE DETAIL 'D'

END BRIDGE
-L- STA. 40+38.00
END APP. SLAB
-L- STA. 40+62.00
LATERAL GRASSED SWALE
EST. DDE = 22 CY
SEE DETAIL 'D'

CLASS 'B' RIP RAP
EST. 2 TON
EST. 7 SY FILT. FAB.
SEE DETAIL 'D'

CLASS 'B' RIP RAP
EST. 2 TON
EST. 7 SY FILT. FAB.
SEE DETAIL 'D'

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.
SEE DETAIL 'D'

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY FILT. FAB.
SEE DETAIL 'D'

CLASS 'B' RIP RAP
EST. 1 TON
EST. 5 SY FILT. FAB.
EX. RW, 75',
90' RT

CLASS 'B' RIP RAP
EST. 8 TONS
EST. 8 SY FILT. FAB.
SEE DETAIL 'G'

LATERAL GRASSED
SWALE
EST. DDE = 10' CY
SEE DETAIL 'D'

SPECIAL LATERAL 'V' DITCH
EST. DDE = 59 CY
SEE DETAIL 'C'

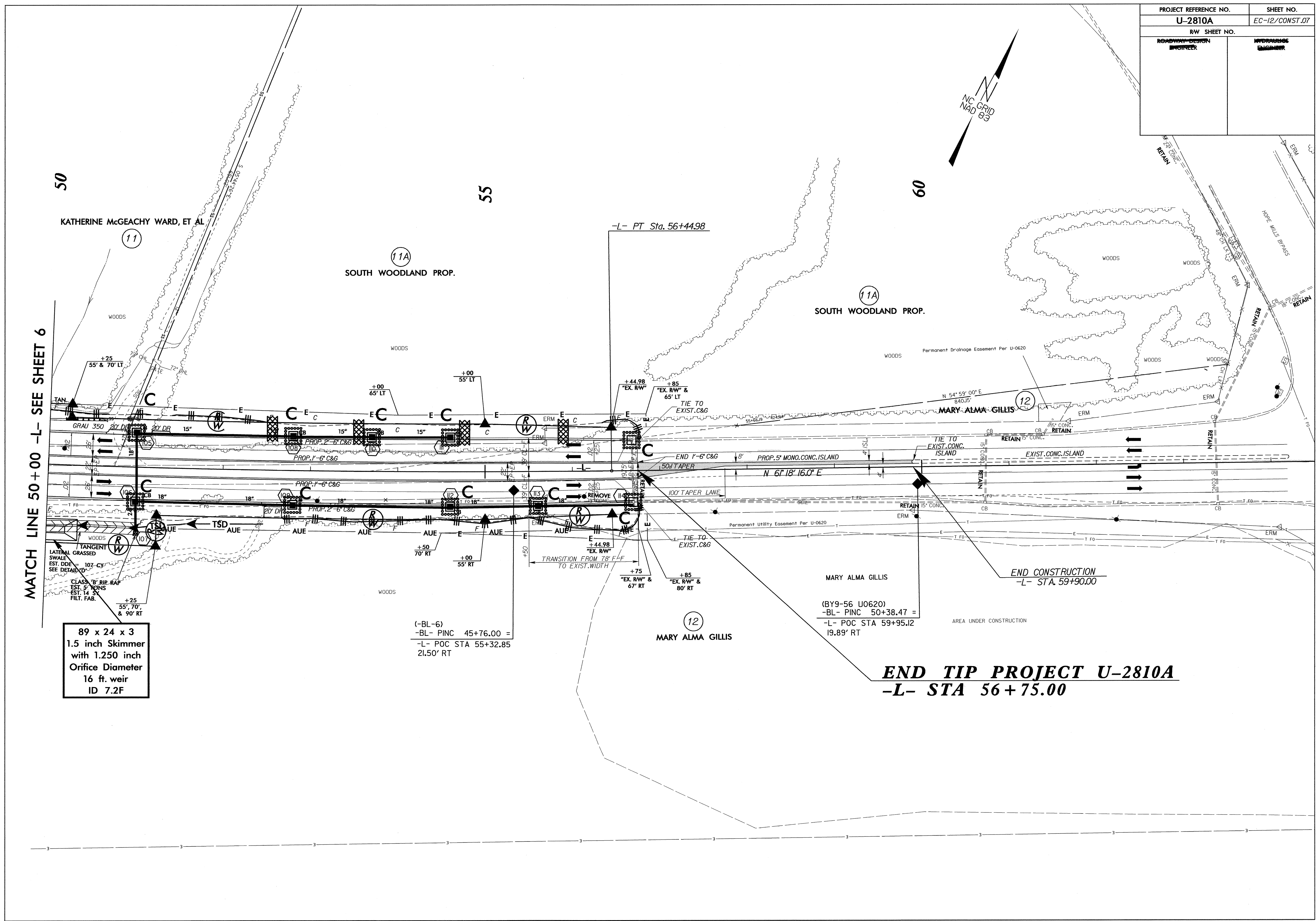
CLASS 'B' RIP RAP UNDER DECK DRAINS
ON SPAN 'A' (STRUCTURE PAY ITEM)

CLASS 'B' RIP RAP UNDER DECK DRAINS
ON SPAN 'A' (STRUCTURE PAY ITEM)

CLASS 'B' RIP RAP UNDER DECK DRAINS
ON SPAN 'A' (STRUCTURE PAY ITEM)

CLASS 'B' RIP RAP UNDER DECK DRAINS
ON SPAN 'A' (STRUCTURE PAY ITEM)

PROJECT REFERENCE NO.	SHEET NO.
U-2810A	EC-12/CONST.07
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER



MATCH LINE 50+00 -L- SEE SHEET 6

89 x 24 x 3
1.5 inch Skimmer
with 1.250 inch
Orifice Diameter
16 ft. weir
ID 7.2F

(-BL-6)
-BL- PINC 45+76.00 =
-L- POC STA 55+32.85
21.50' RT

MARY ALMA GILLIS
(BY9-56 U0620)
-BL- PINC 50+38.47 =
-L- POC STA 59+95.12
19.89' RT

END TIP PROJECT U-2810A
-L- STA 56+75.00

END CONSTRUCTION
-L- STA. 59+90.00

AREA UNDER CONSTRUCTION