

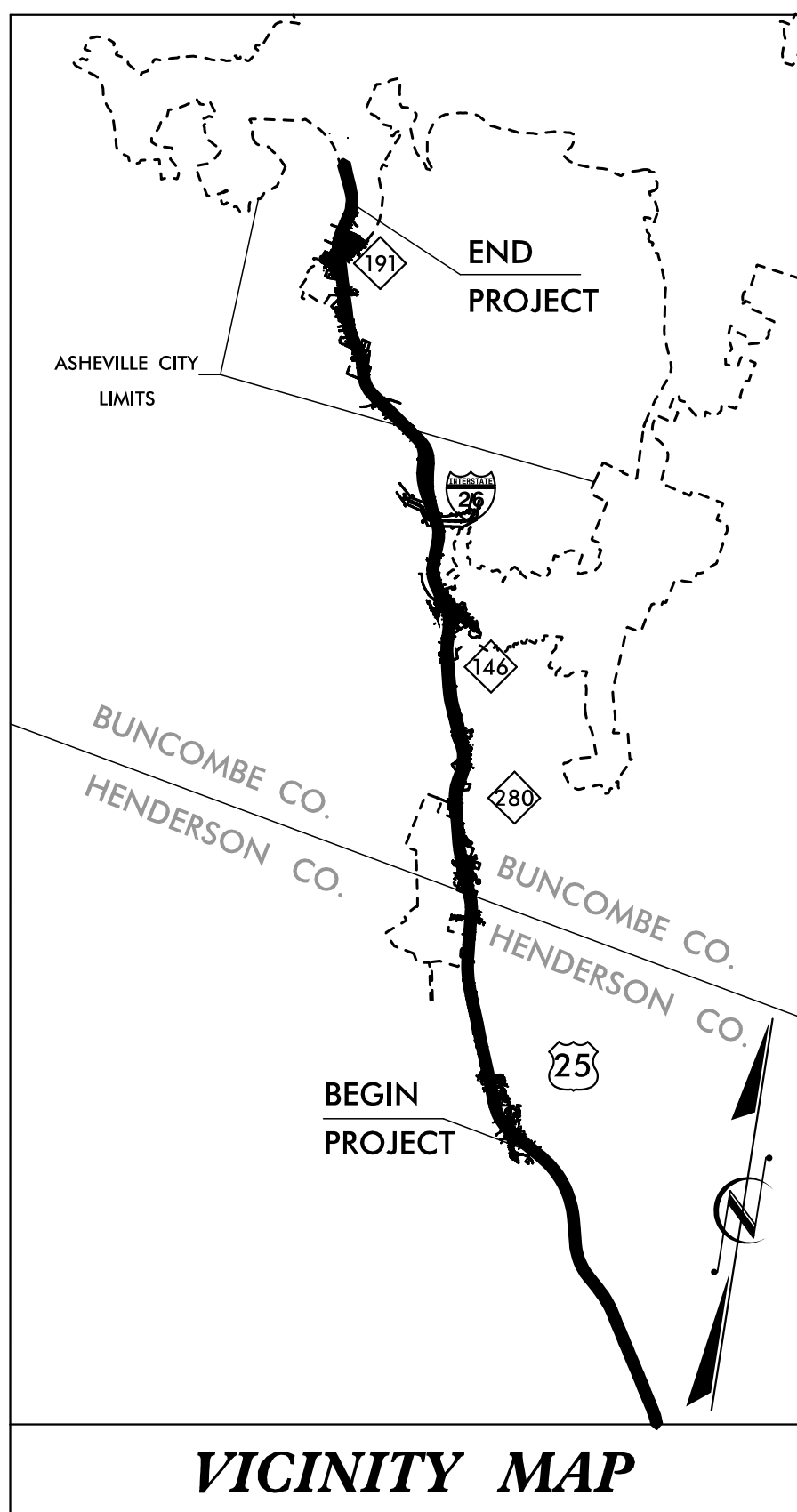
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4700	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
WBS 36030.1.1	IMNHF-026-1(86)9	I-4700	

**TIP PROJECT: I-4700**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

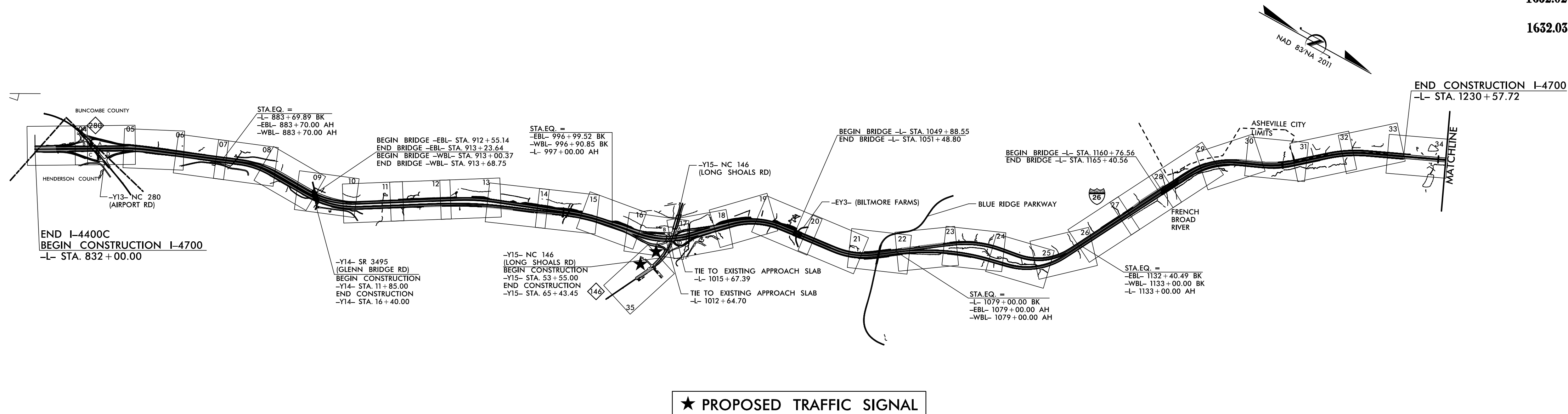
**BUNCOMBE &  
HENDERSON COUNTIES**

**LOCATION: I-26 FROM 0.3 MI EAST OF NC 280 (AIRPORT ROAD)  
TO 0.5 MI EAST OF NC 191 (BREVARD ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS,  
RETAINING WALLS, SOUND WALLS, SIGNALS AND SIGNING**

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	— TD —
1630.05	Temporary Diversion	— TD —
1605.01	Temporary Silt Fence	— SIF —
1606.01	Special Sediment Control Fence	— SCF —
1622.01	Temporary Berms and Slope Drains	— B&SD —
1630.02	Silt Basin Type B	— SB —
1633.01	Temporary Rock Silt Check Type-A	— TRSC —
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	— TRSC/PAM —
1633.02	Temporary Rock Silt Check Type-B	— TRSC —
	Wattle / Coir Fiber Wattle	— WF —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— WF/PAM —
1634.01	Temporary Rock Sediment Dam Type-A	— TRSD —
1634.02	Temporary Rock Sediment Dam Type-B	— TRSD —
1635.01	Rock Pipe Inlet Sediment Trap Type-A	— RPIS —
1635.02	Rock Pipe Inlet Sediment Trap Type-B	— RPIS —
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	— SB —
	Tiered Skimmer Basin	— TSB —
	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.*

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared In the Office of:  
**HNTB**  
HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

Designed by:  
**NATALIE CHAN, P.E.** 3444  
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

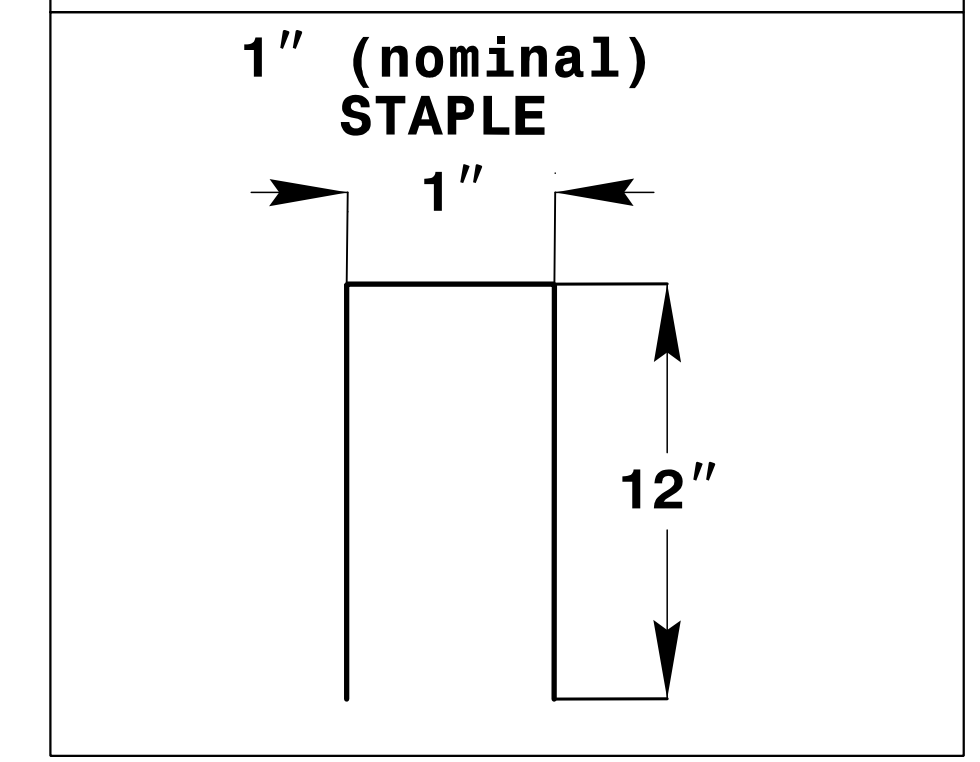
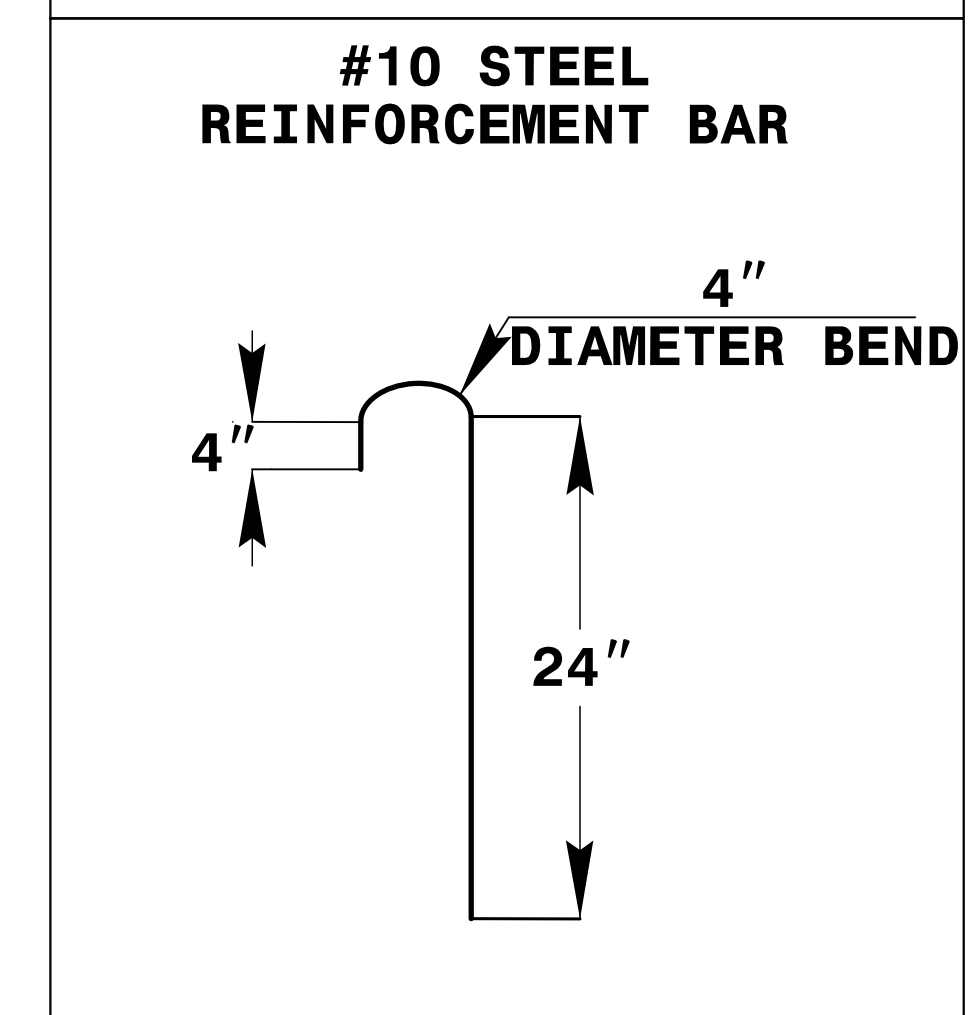
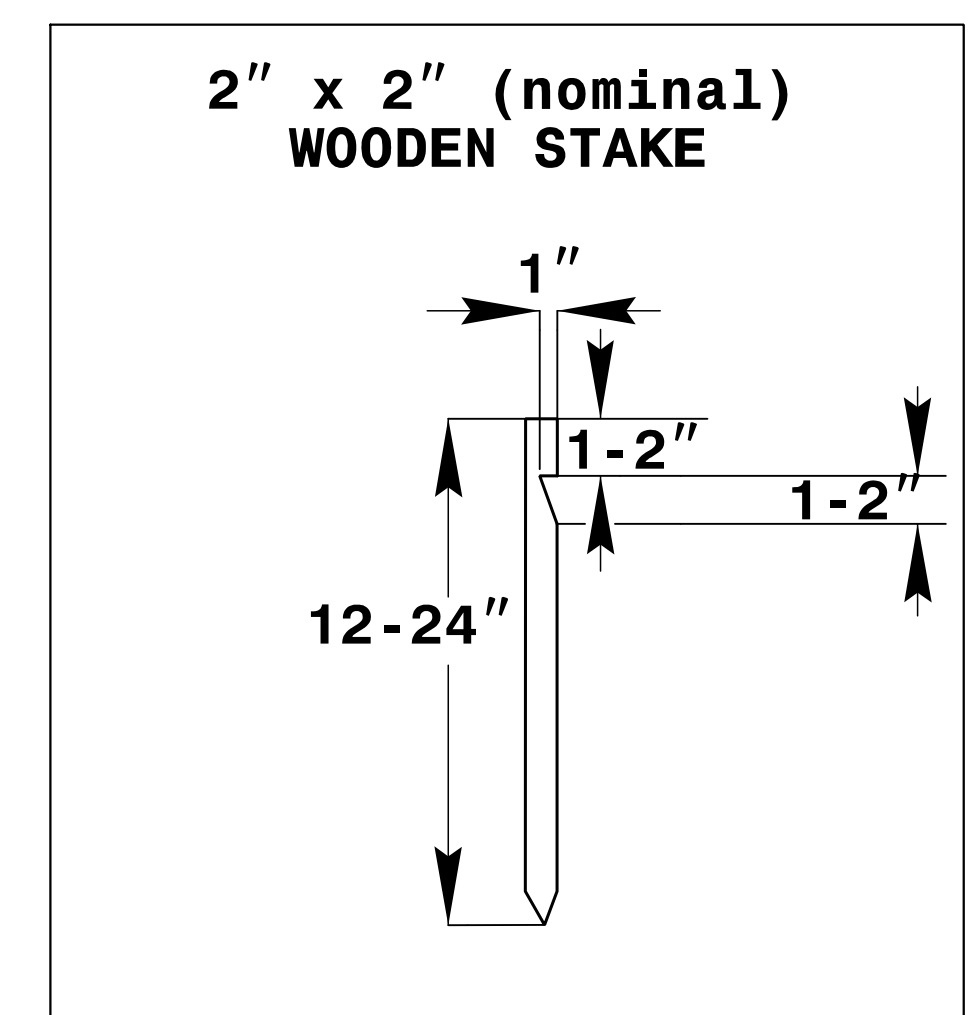
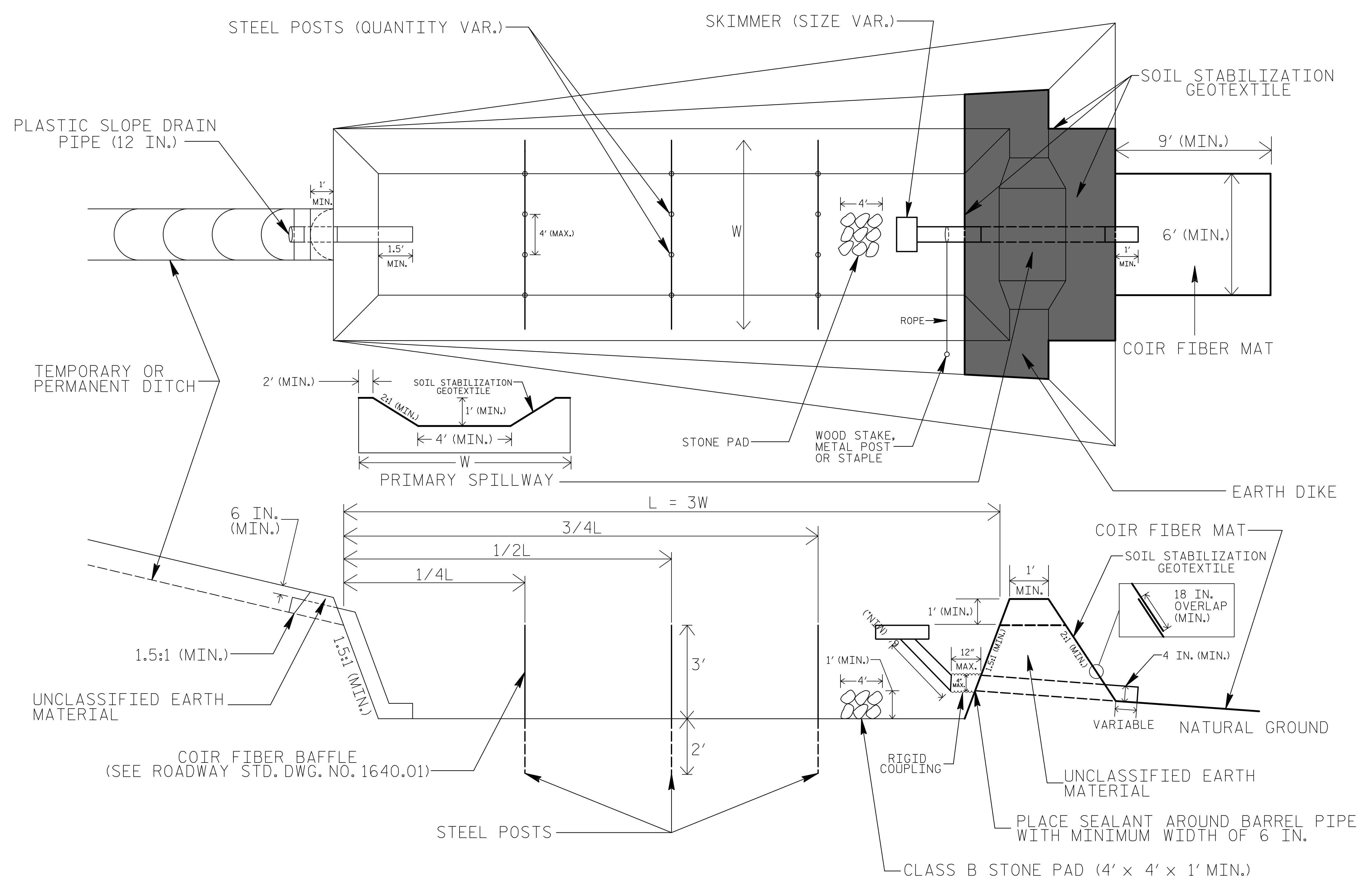
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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 J
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 J
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type J	1634.02 Temporary Rock Sediment Dam Type J
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 J
1630.05 Temporary Diversion	1640.01 Coir Fiber Wattle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

2/12/2018 EC-PSH-01.TSH.dgn

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SKIMMER BASIN WITH BAFFLES DETAIL



## COIR FIBER MAT ANCHOR OPTIONS

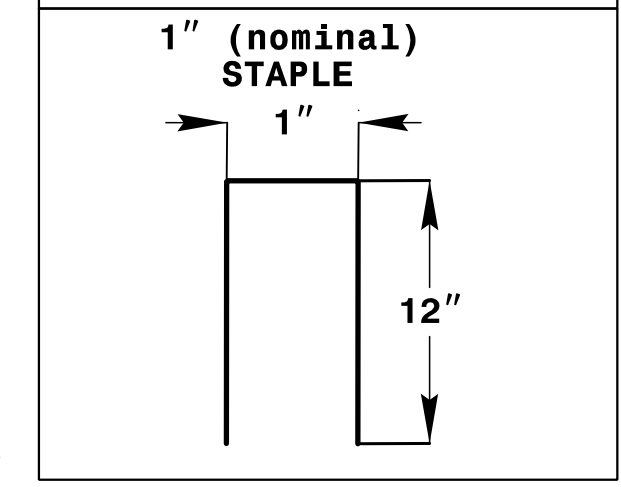
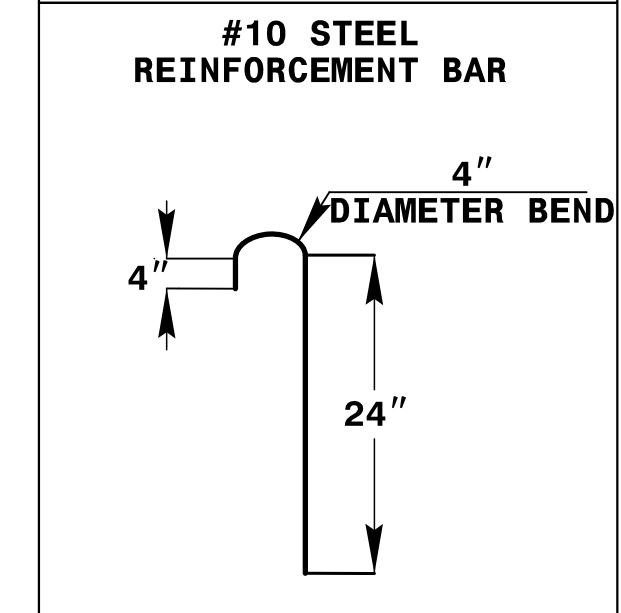
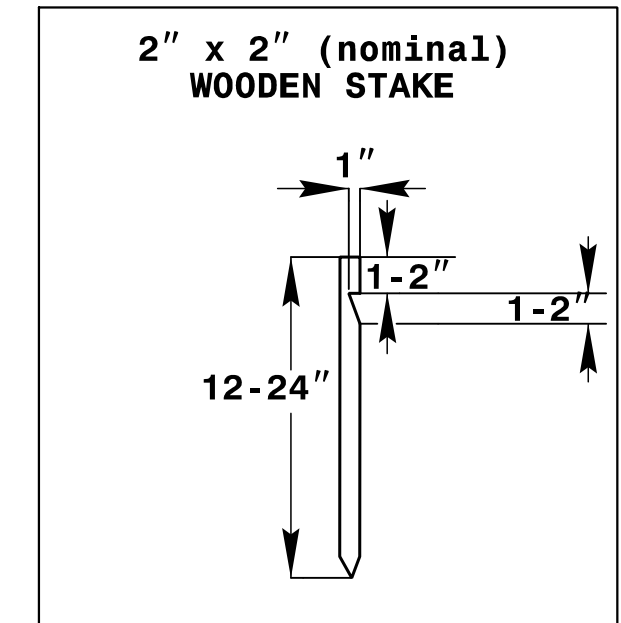
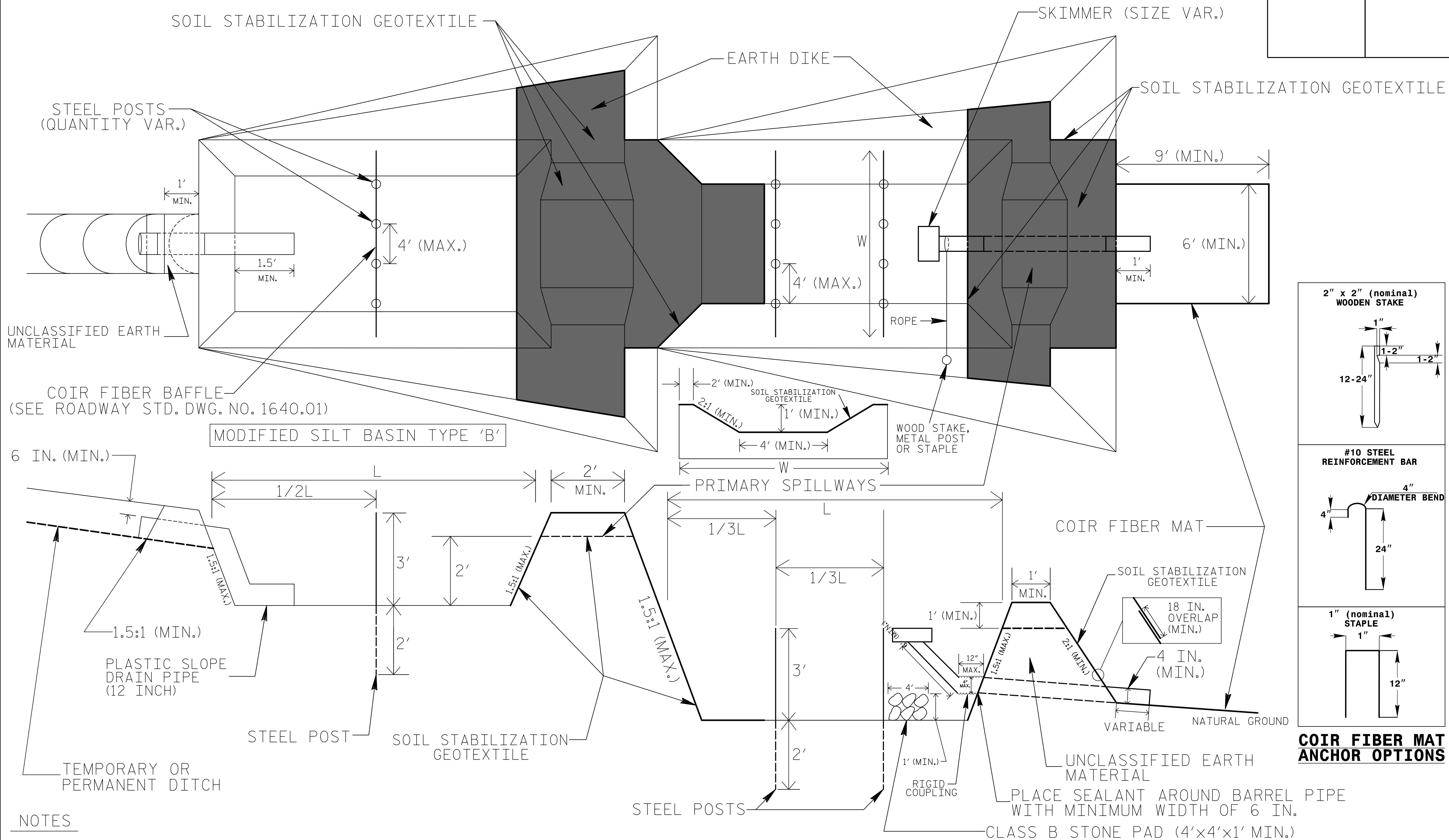
### NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

# TIERED SKIMMER BASIN DETAIL

PROJECT REFERENCE NO. I-4700	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



## COIR FIBER MAT ANCHOR OPTIONS

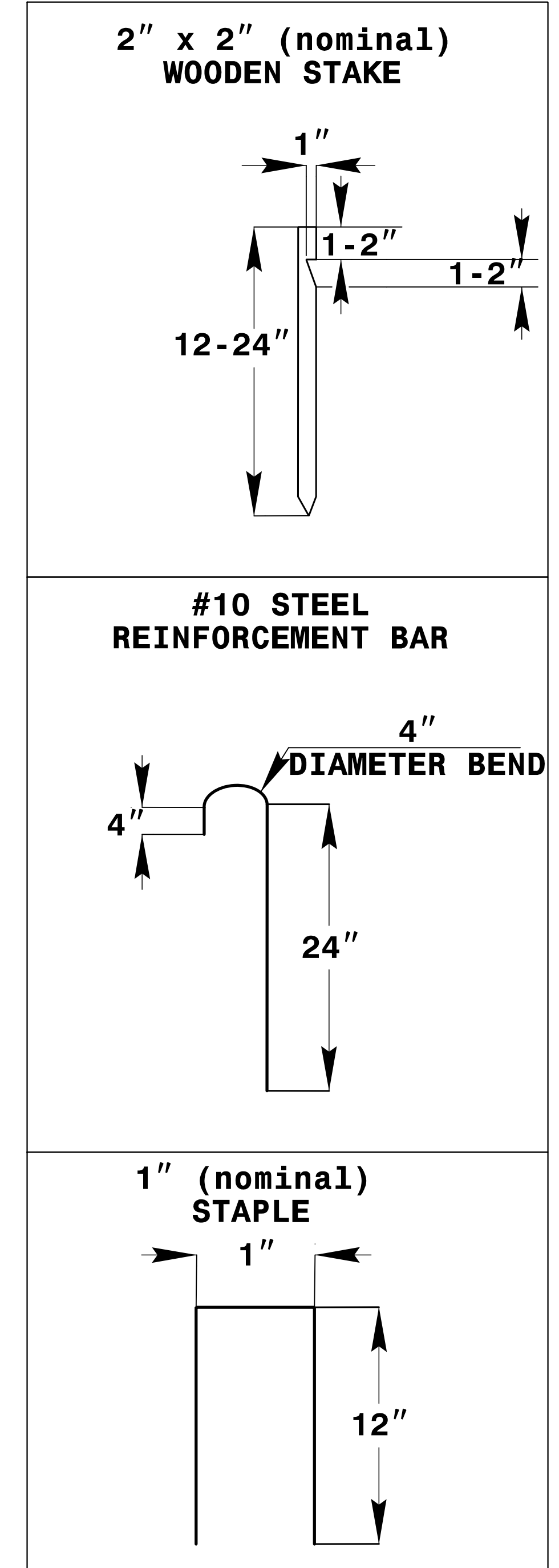
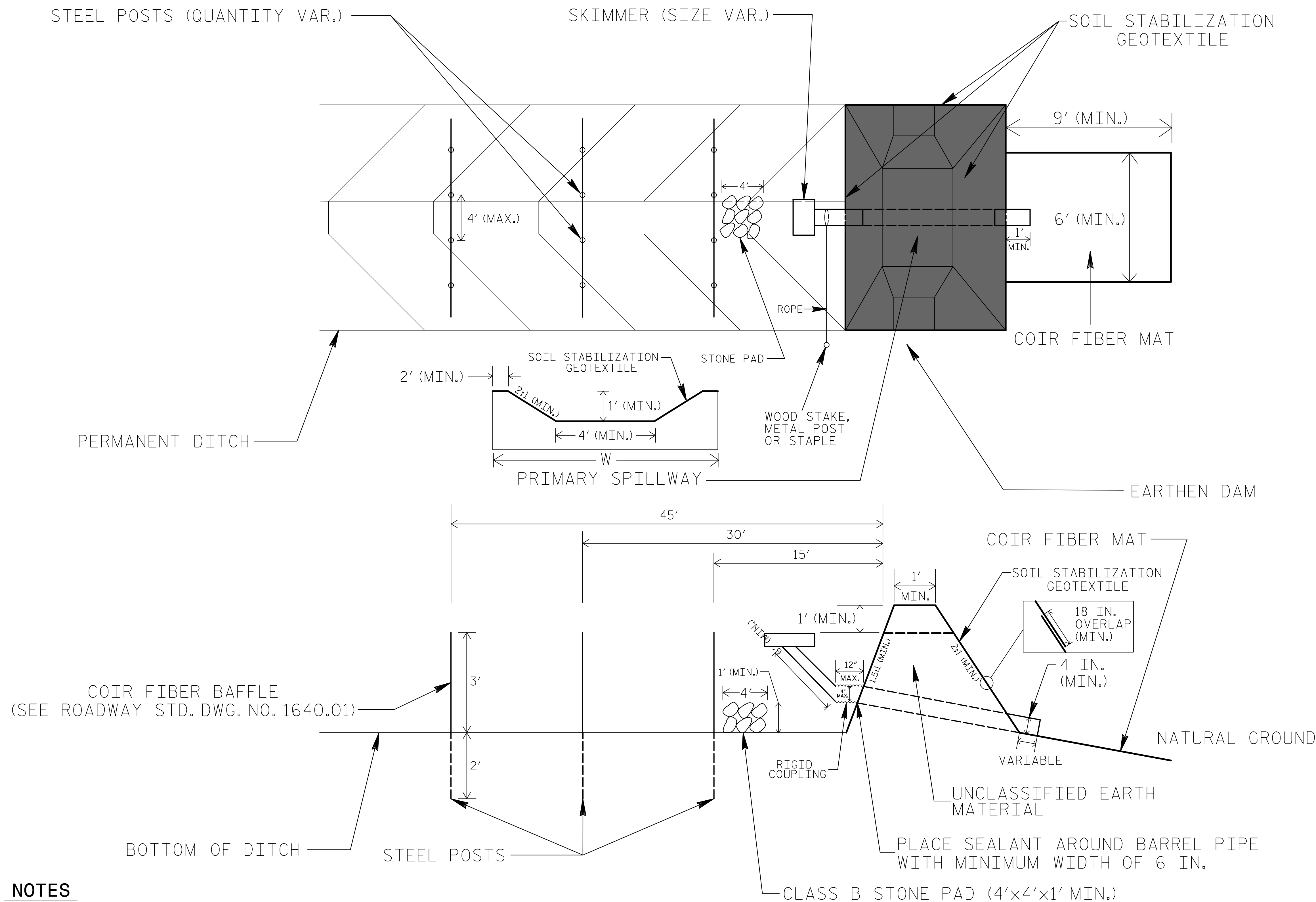
### NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 5 FT.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 3FT., THE MINIMUM BASIN WIDTHS SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY WEIR LENGTHS (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO UPPER BASIN.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# EARTHEN DAM WITH SKIMMER



## COIR FIBER MAT ANCHOR OPTIONS

### NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

**NOTES:**

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

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

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

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

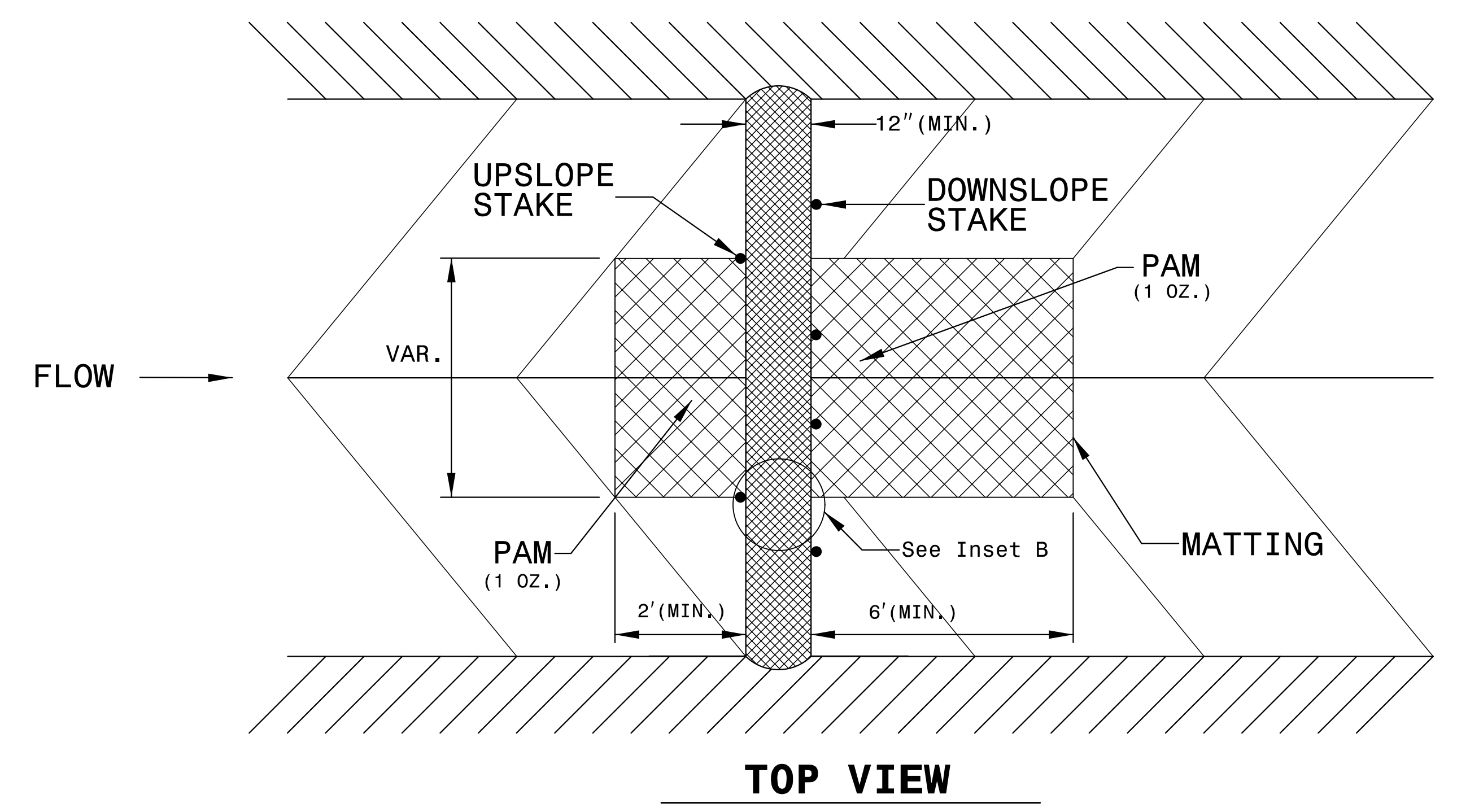
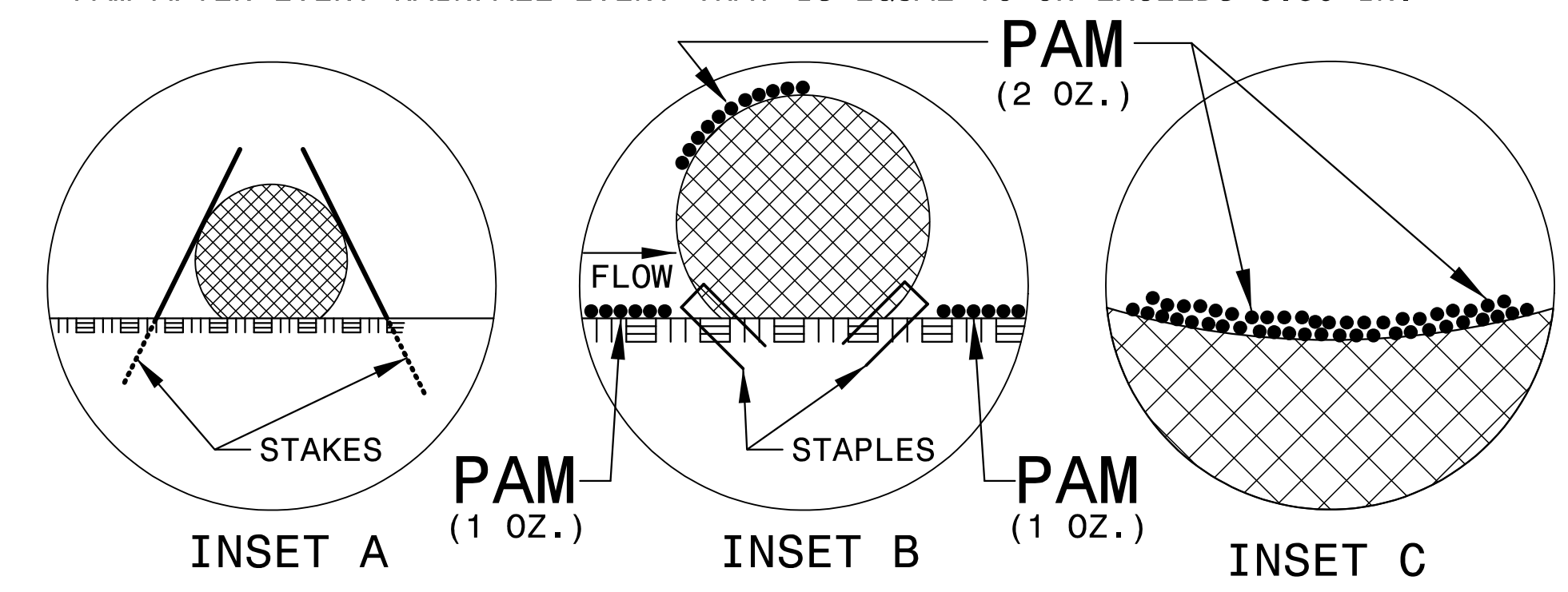
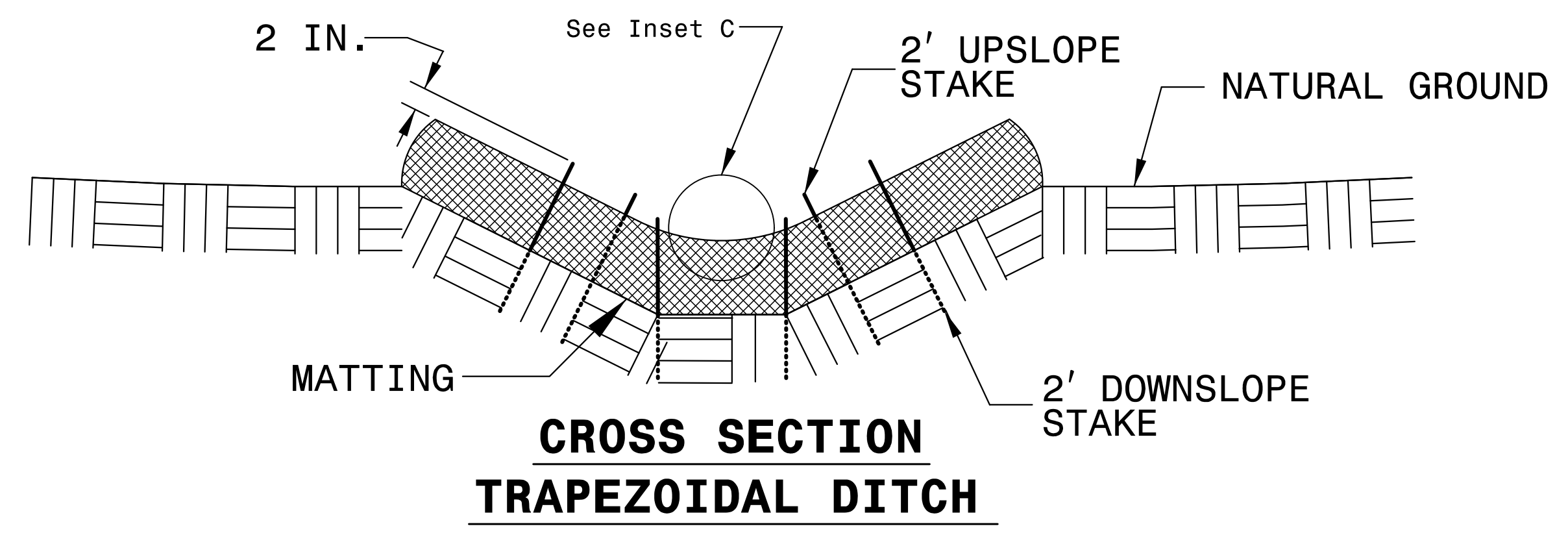
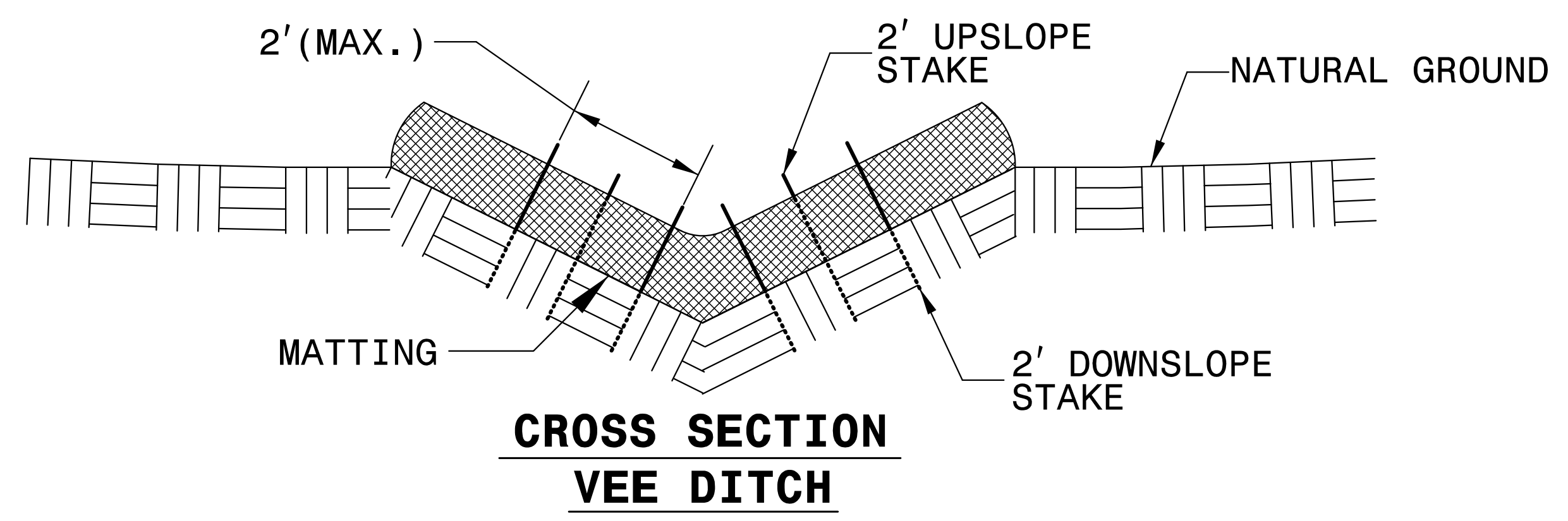
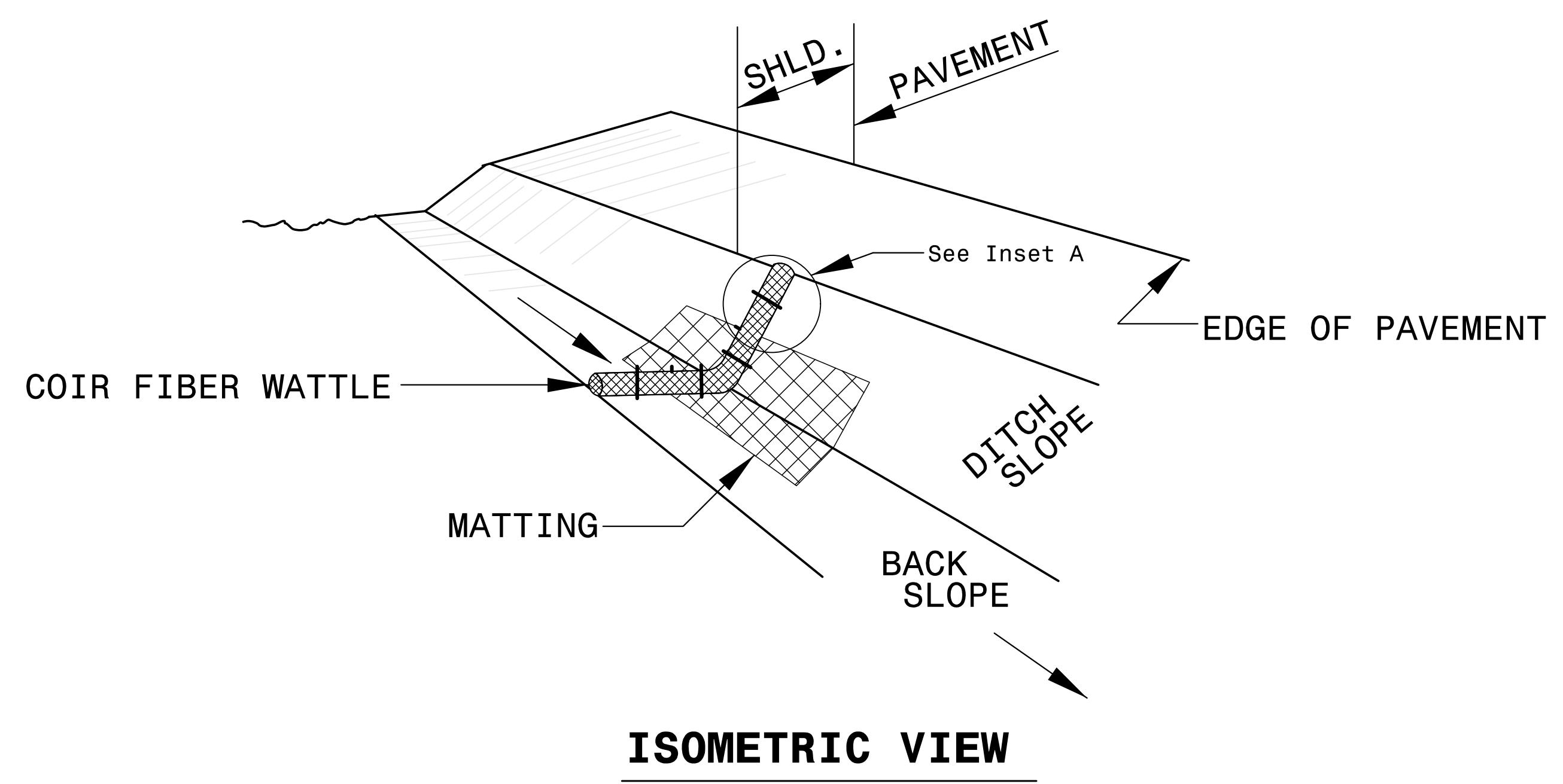
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

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

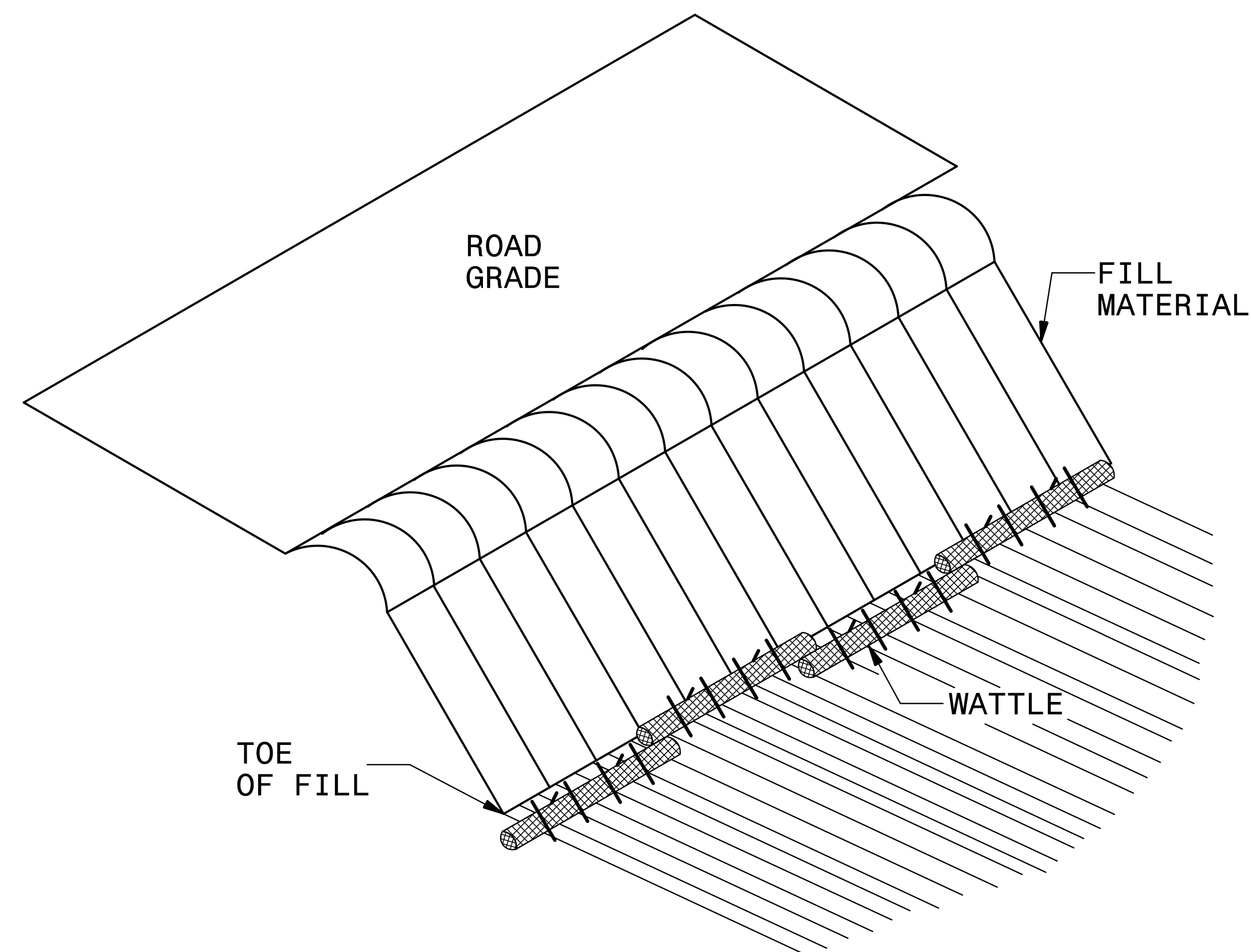
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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

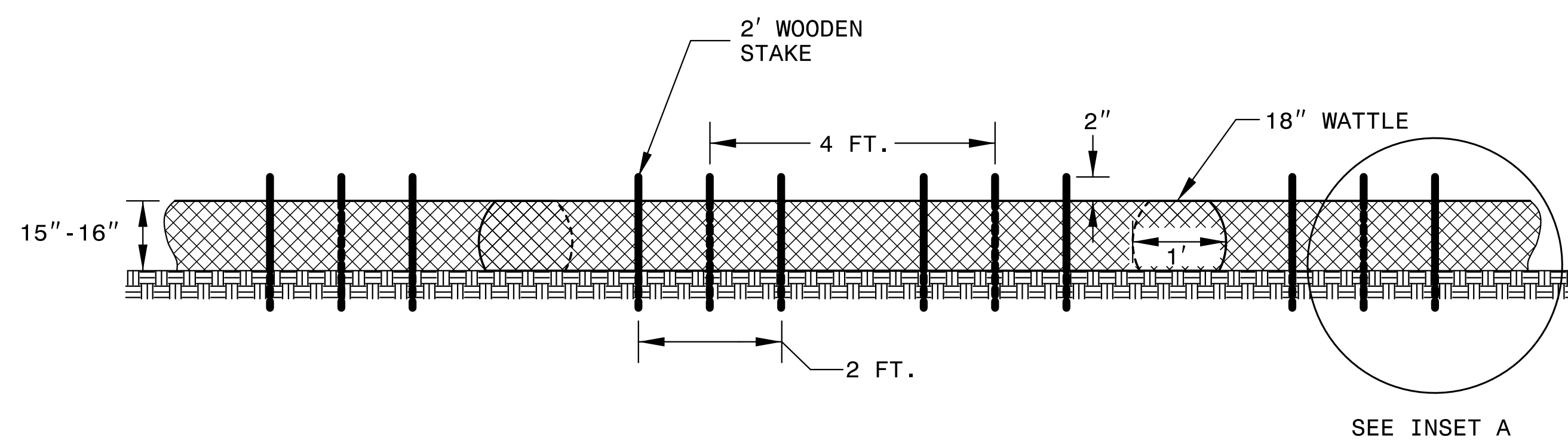


PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-2D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# COIR FIBER WATTLE BARRIER DETAIL



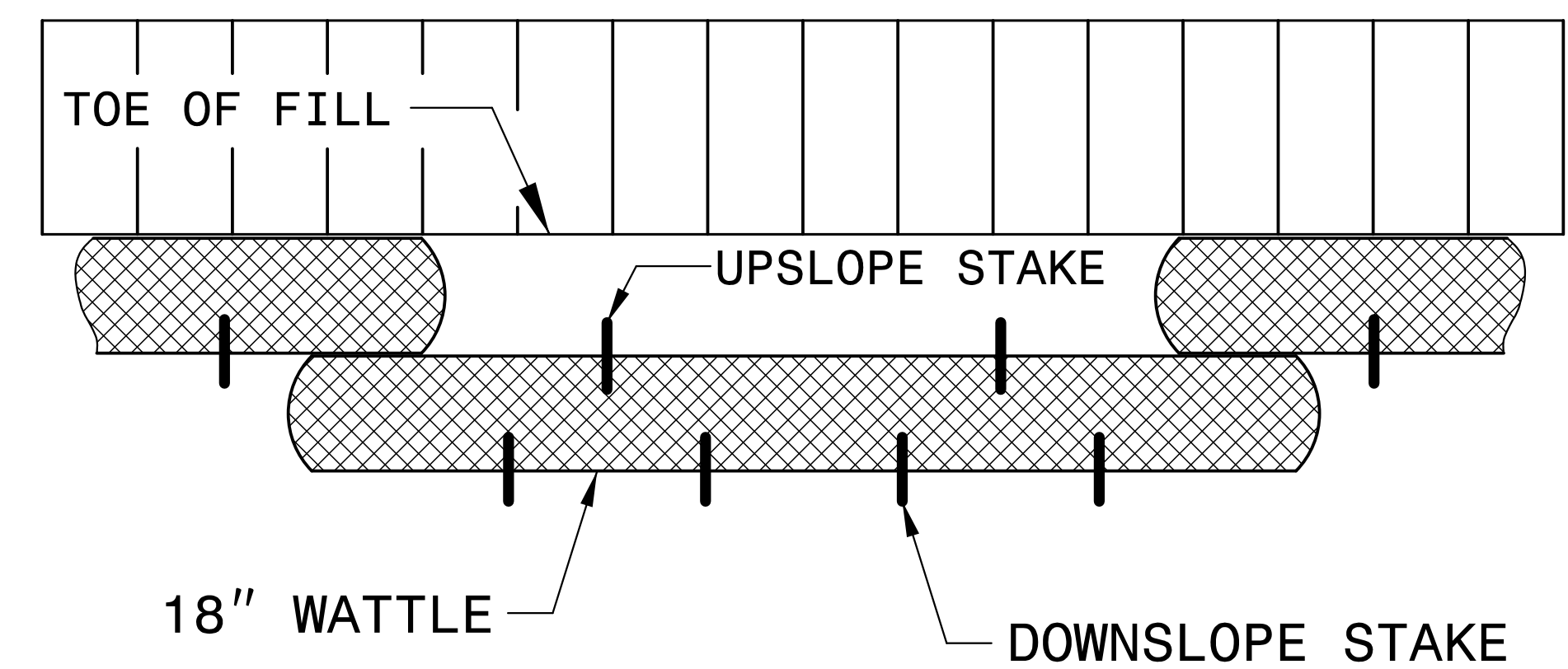
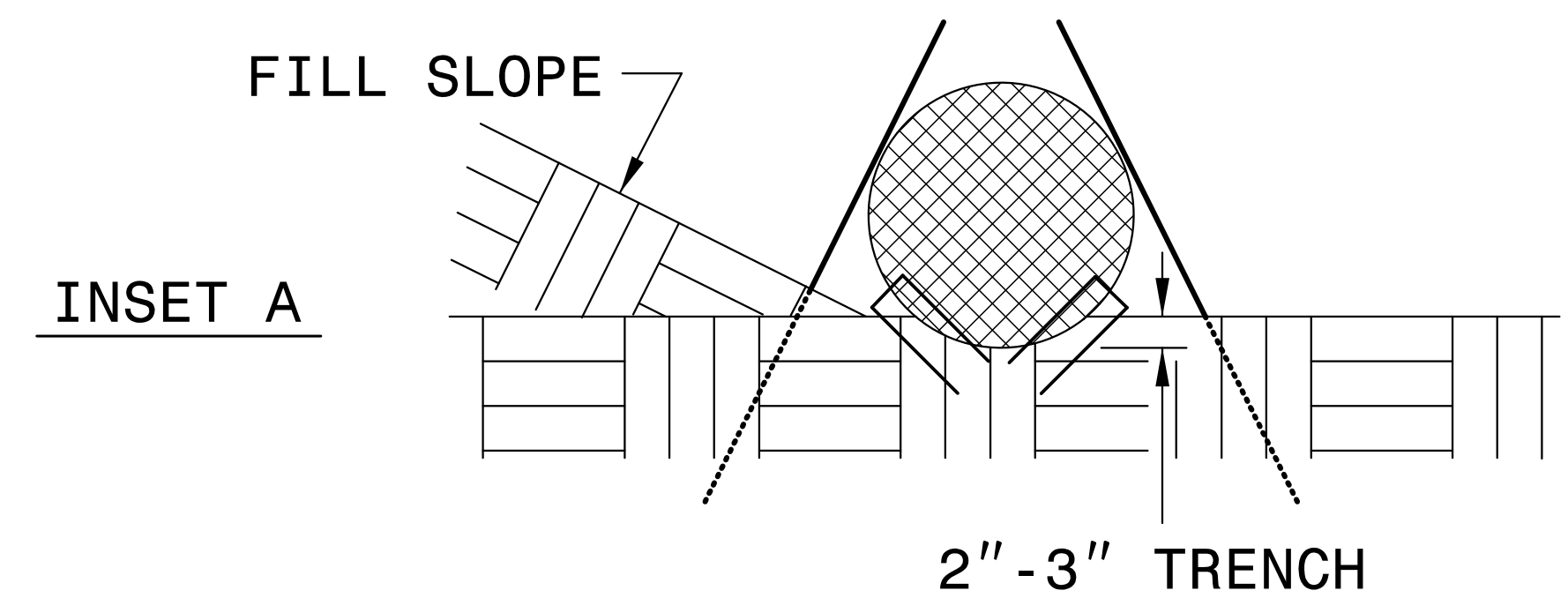
**ISOMETRIC VIEW**



**FRONT VIEW**

**NOTES:**

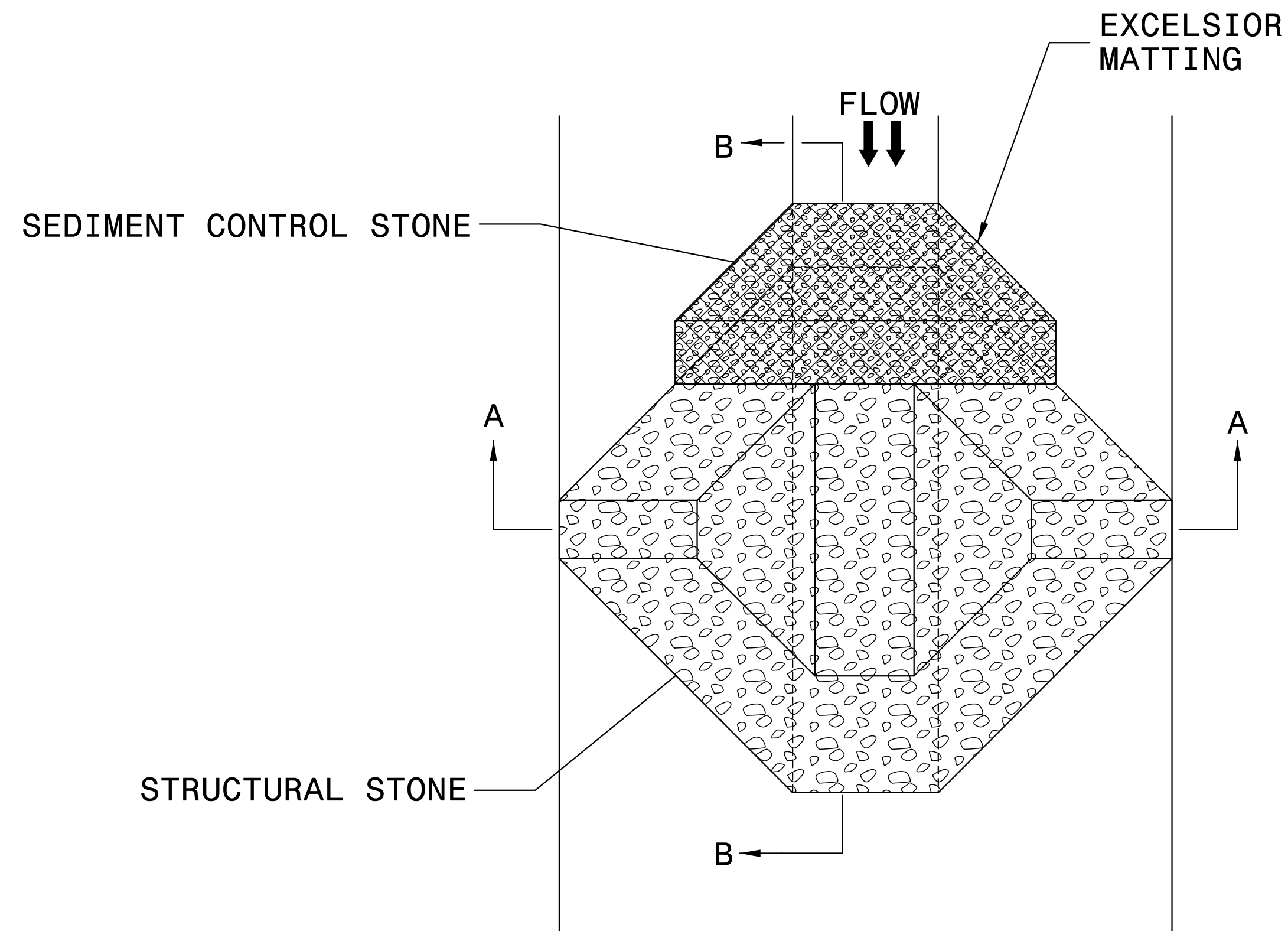
- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 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.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.



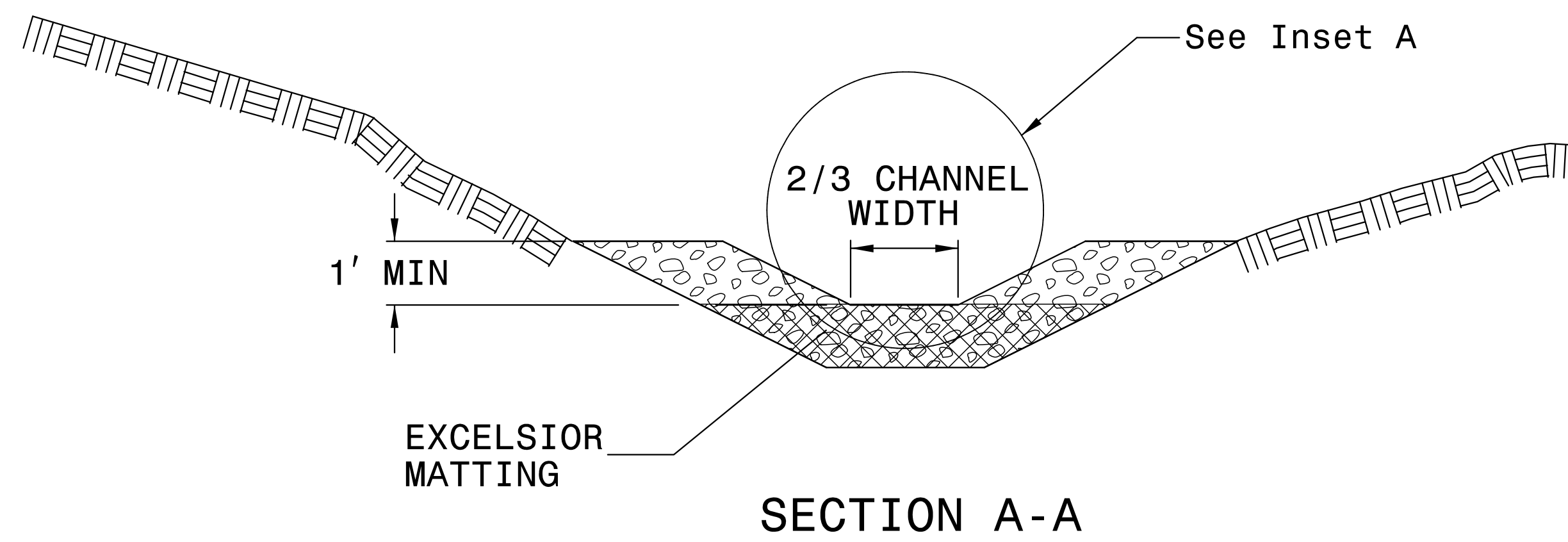
**TOP VIEW**

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-2E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

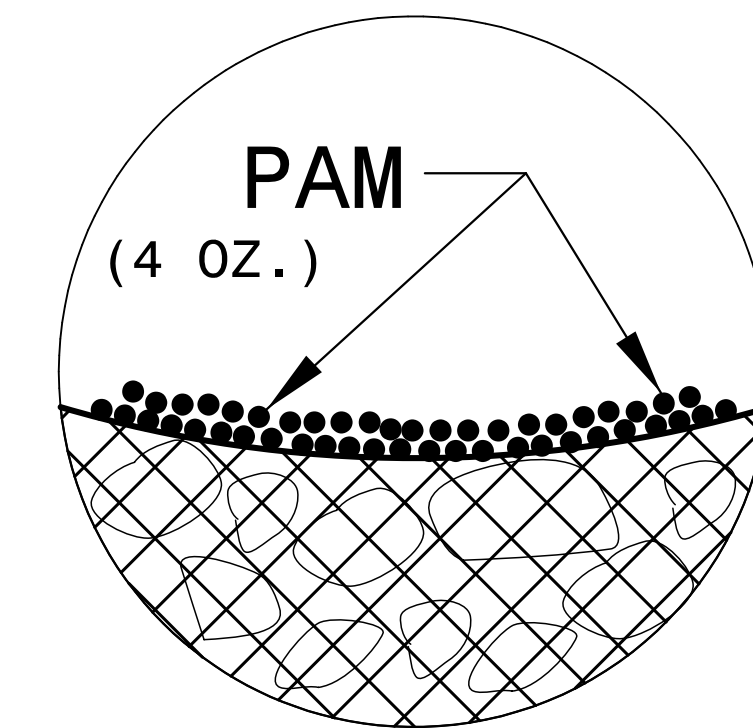
NOTES:

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

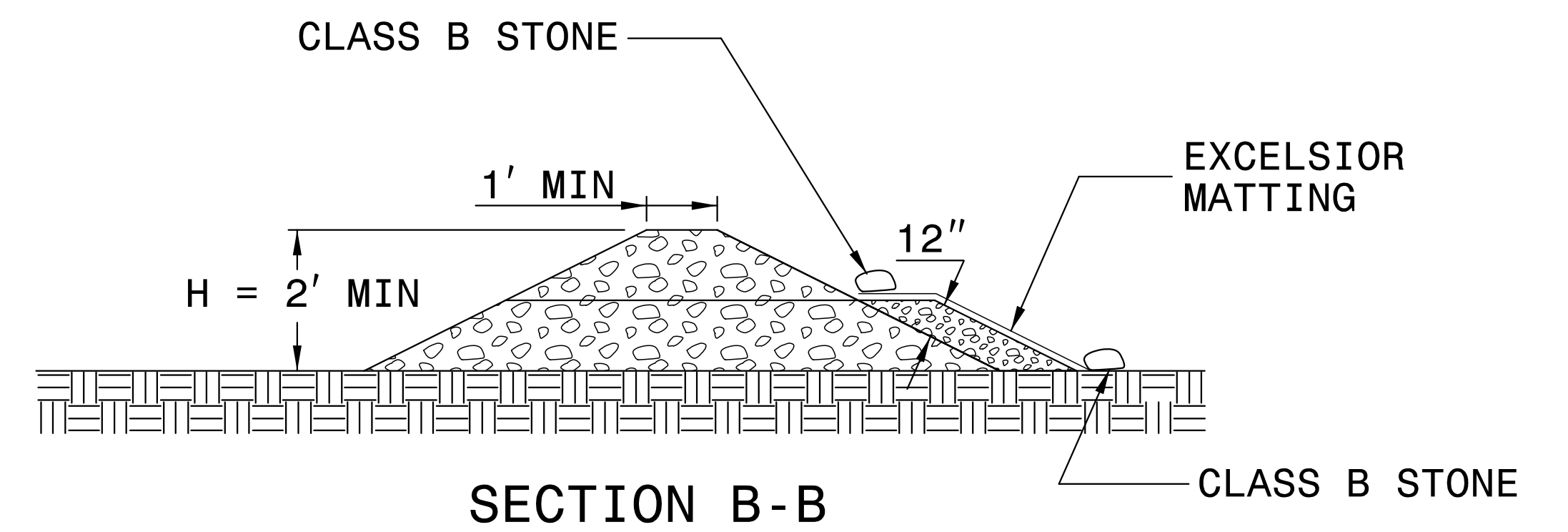
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 B-B

NOT TO SCALE





DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. I-4700	SHEET NO. EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**COIR FIBER MATTING**

**COIR FIBER MATTING**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	832+00	832+75	LT	120
4	L	835+25	835+75	RT	40
8	WBL BERM	891+50	894+50	RT	225
9	WBL	901+85	902+00	RT	25
9	WBL	904+75	905+25	RT	80
9	WBL BERM	905+00	911+00	RT	450
10	WBL	911+00	912+80	RT	180
10	EBL	912+11	914+10	LT	210
10	WBL	914+40	916+00	RT	155
11	WBL	932+21	932+75	RT	60
11	WBL BERM	932+50	936+50	RT	300
13	WBL	951+00	951+50	RT	40
15	WBL	988+00	990+25	RT	340
16	L	992+97	994+35	RT	85
16	L	995+50	996+00	RT	35
16	WBL BERM	991+50	994+50	RT	235
16	WBL BERM	995+50	996+00	RT	40
18	Y15RPA	19+00	21+06	LT	285
19	L	1031+50	1042+25	RT	665
19	L BERM	1032+00	1038+00	RT	455
20	L	1051+50	1055+00	RT	340
21	L	1055+00	1057+00	RT	195
21	L	1058+50	1064+00	LT	620
21	L	1063+50	1065+00	RT	115
23	EBL	1084+75	1085+10	LT	35
23	EBL	1084+50	1089+50	RT	790
23	WBL	1085+50	1102+75	LT	1720
24	EBL	1103+80	1105+50	LT	210
24	WBL	1107+75	1108+25	RT	40
24	WBL	1107+34	1107+62	RT	55

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
24	EBL	1105+40	1105+65	RT	70
24	EBL	1106+73	1106+85	RT	80
25	WBL BERM	1108+25	1110+50	RT	140
25	EBL BERM	1114+51	1119+00	LT	305
25	WBL	1116+00	1118+00	RT	200
25	WBL	1119+00	1120+50	LT	150
26	EBL	1122+00	1122+50	RT	40
26	EBL	1127+50	1128+50	LT	125
26	EBL	1129+25	1130+00	LT	95
32	L	1204+60	1205+15	RT	40
33	L	1216+25	1217+75	LT	180
33	L BERM	1217+75	1221+75	LT	245
33	L BERM	1221+75	1229+40	LT	465
			SUBTOTAL		10280
	MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				945
			TOTAL		11225
			SAY		11500

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>1-4700</i>	SHEET NO. <i>EC-3B</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.

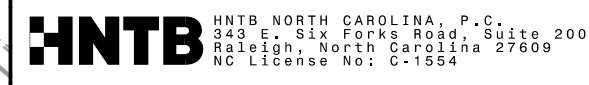
8/17/99

2/15/2019  
14700A.EC.PSH.04

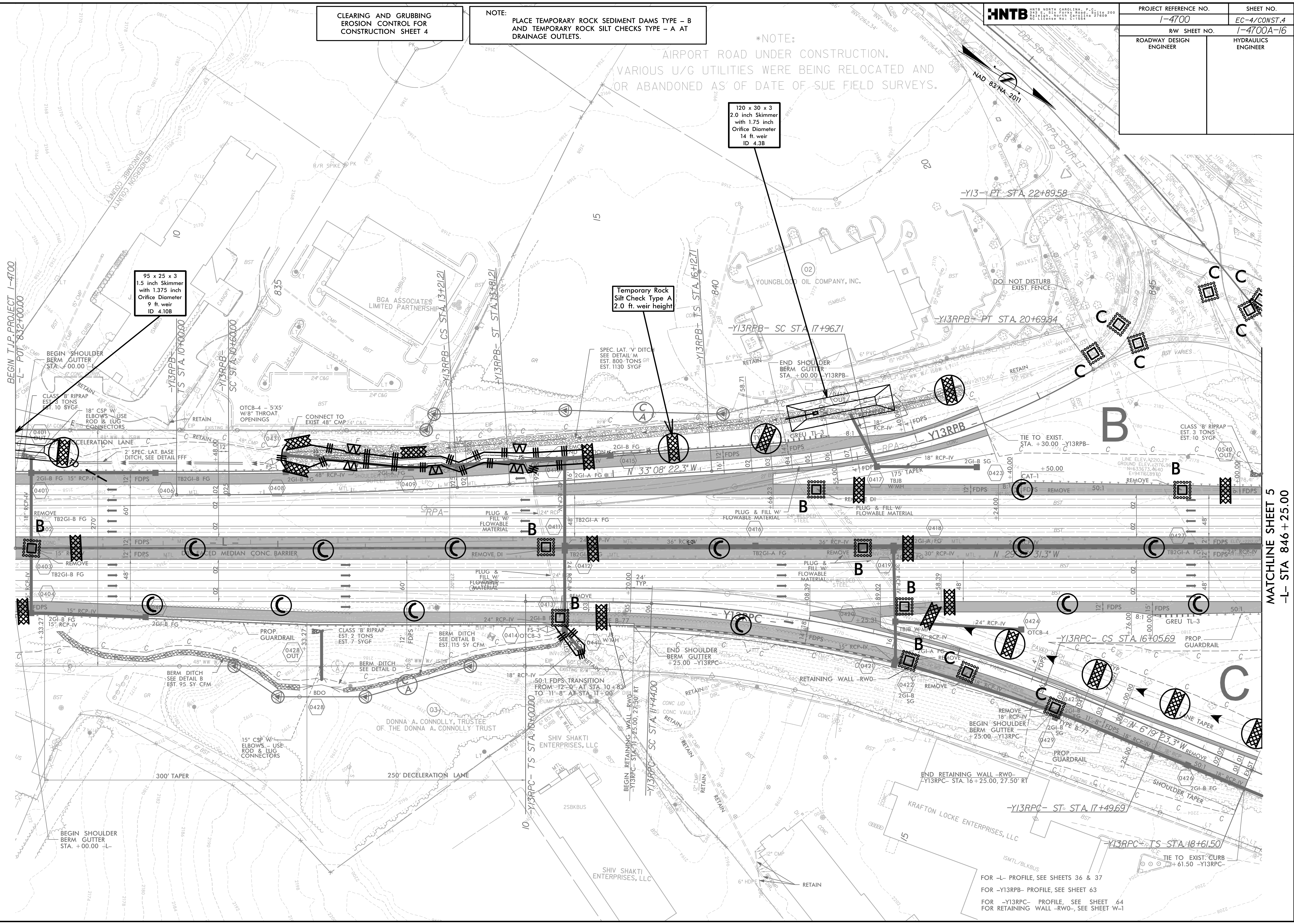
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4

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

\*NOTE:  
AIRPORT ROAD UNDER CONSTRUCTION.  
VARIOUS U/G UTILITIES WERE BEING RELOCATED AND  
OR ABANDONED AS OF DATE OF SUE FIELD SURVEYS.



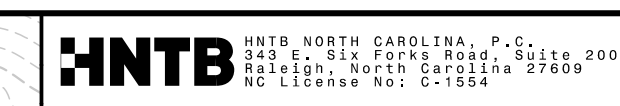
PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-4/CONST.4
RW SHEET NO.	1-4700A-16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCHLINE SHEET 5  
-L- STA 846 +25.00

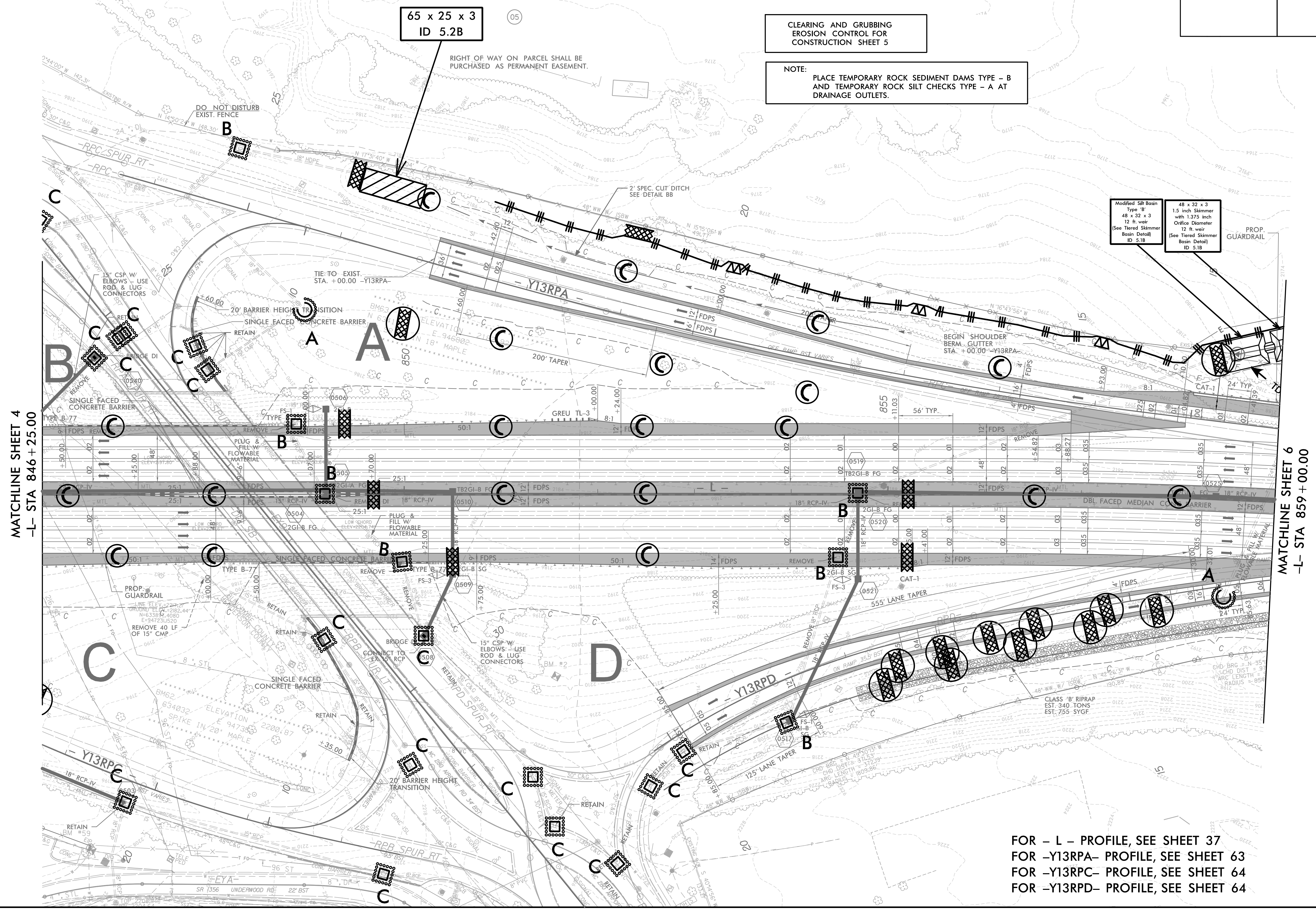
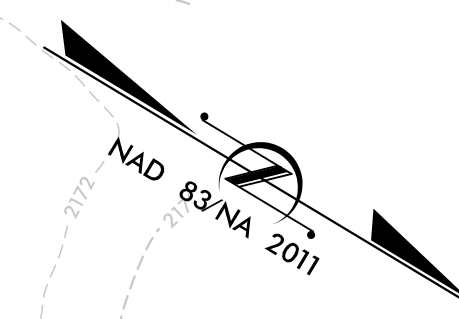
FOR -L- PROFILE, SEE SHEETS 36 & 37  
FOR -Y13RBP- PROFILE, SEE SHEET 63  
FOR -Y13RPC- PROFILE, SEE SHEET 64  
FOR RETAINING WALL -RW-, SEE SHEET W-1

8/17/99



PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-5/CONST.5
RW SHEET NO.	1-4700A - 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

\*NOTE:  
AIRPORT ROAD UNDER CONSTRUCTION.  
VARIOUS U/G UTILITIES WERE BEING RELOCATED AND  
OR ABANDONED AS OF DATE OF SUE FIELD SURVEYS.



FOR - L - PROFILE, SEE SHEET 37  
FOR -Y13RPA- PROFILE, SEE SHEET 63  
FOR -Y13RPC- PROFILE, SEE SHEET 64  
FOR -Y13RPD- PROFILE, SEE SHEET 64

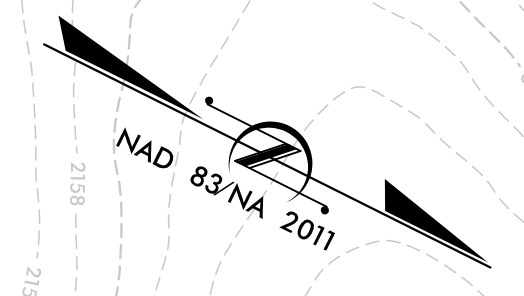
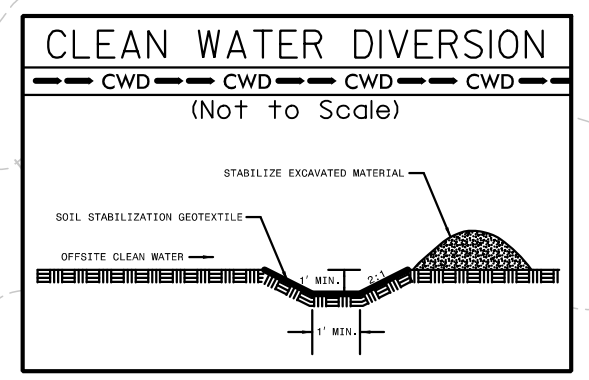
2/15/2016  
1:4700A.EC.PSH.05.dgn  
HNTB

7/19/2017

PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-6/CONST.6
RW SHEET NO.	1-4700A - 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

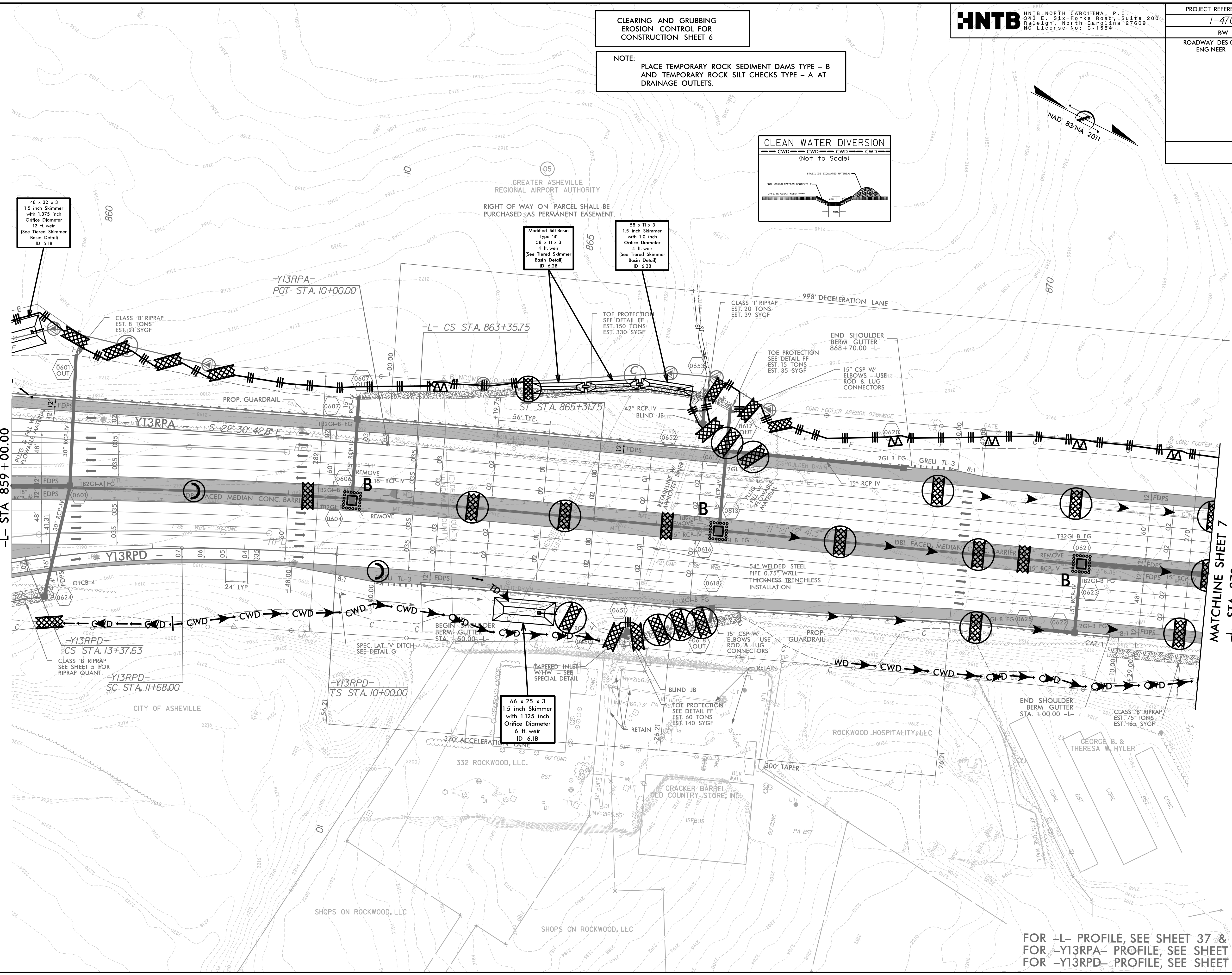
**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 6**

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



MATCHLINE SHEET 5  
 -L- STA 859 + 00.00

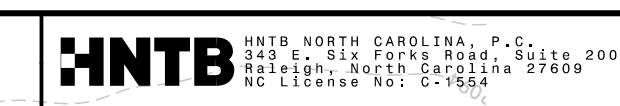
MATCHLINE SHEET 7  
 -L- STA 872 + 00.00



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FOR -L- PROFILE, SEE SHEET 37 & 38  
 FOR Y13RPA PROFILE, SEE SHEET 63  
 FOR Y13RPD PROFILE, SEE SHEET 64

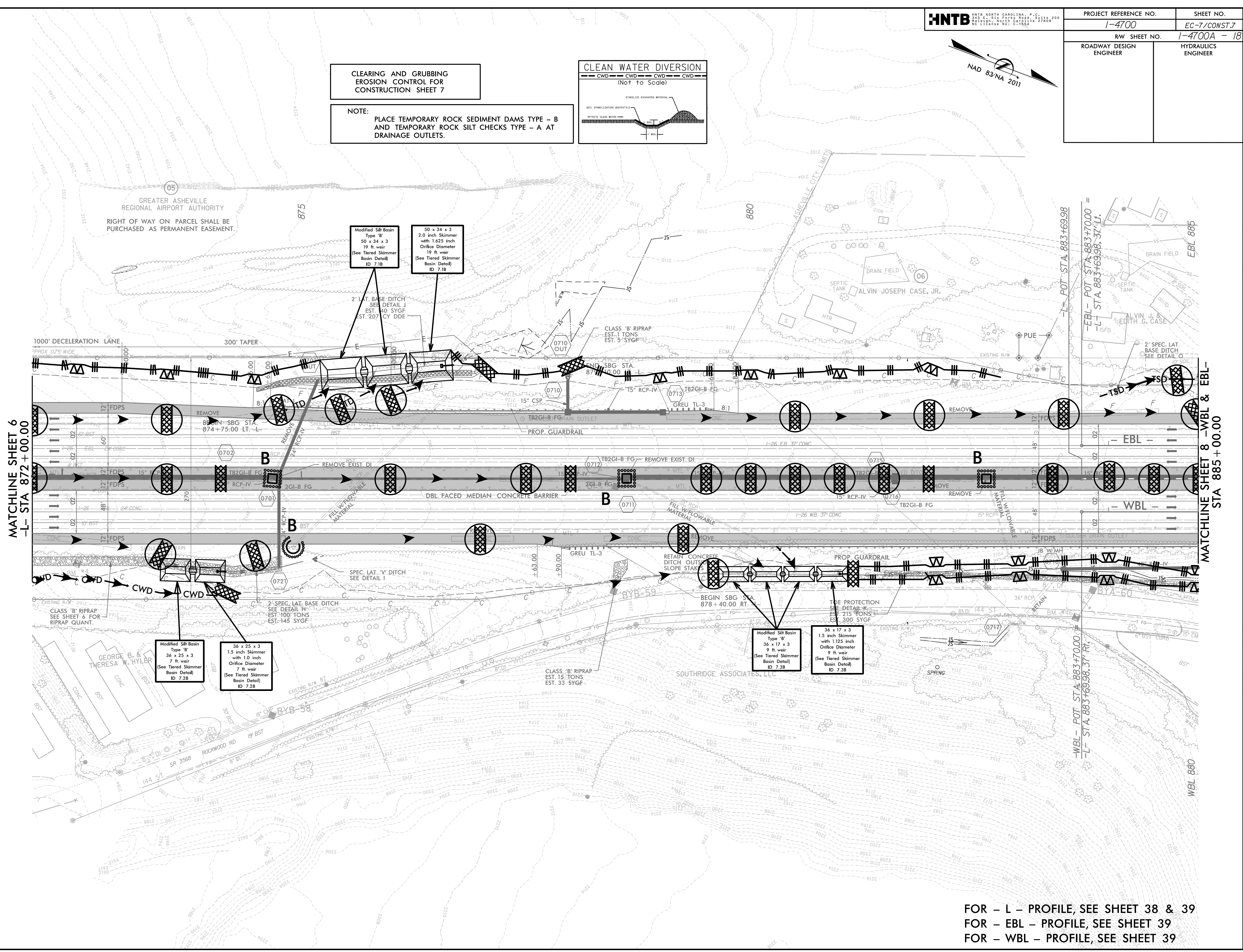
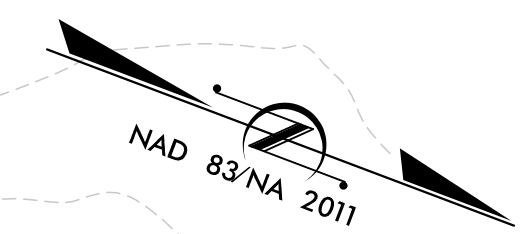
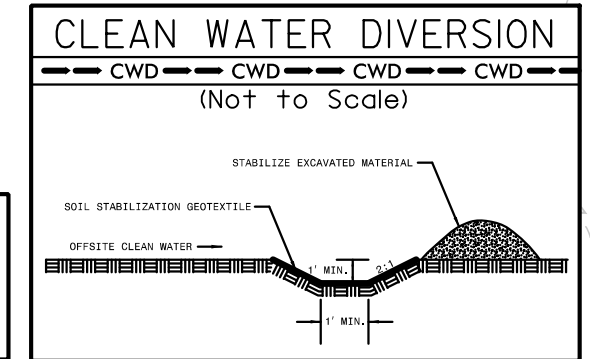
8/17/99



PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-7/CONST.7
RW SHEET NO.	1-4700A - 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



MATCHLINE SHEET 6  
-L- STA 872+00.00

MATCHLINE SHEET 8 -WBL & EBL  
STA 885+00.00

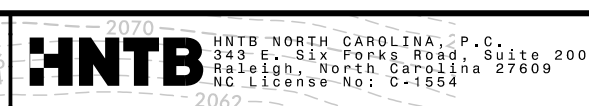
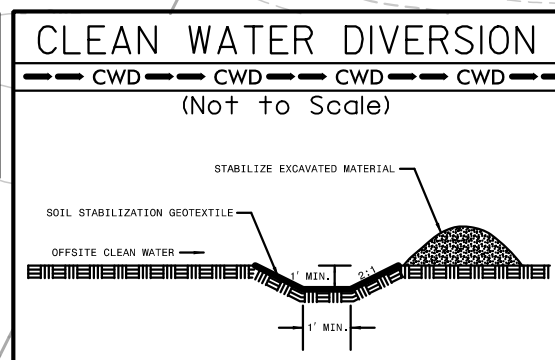
1/28/2016  
14700A.EC.PSH.07.dgn

FOR - L - PROFILE, SEE SHEET 38 & 39  
FOR - EBL - PROFILE, SEE SHEET 39  
FOR - WBL - PROFILE, SEE SHEET 39

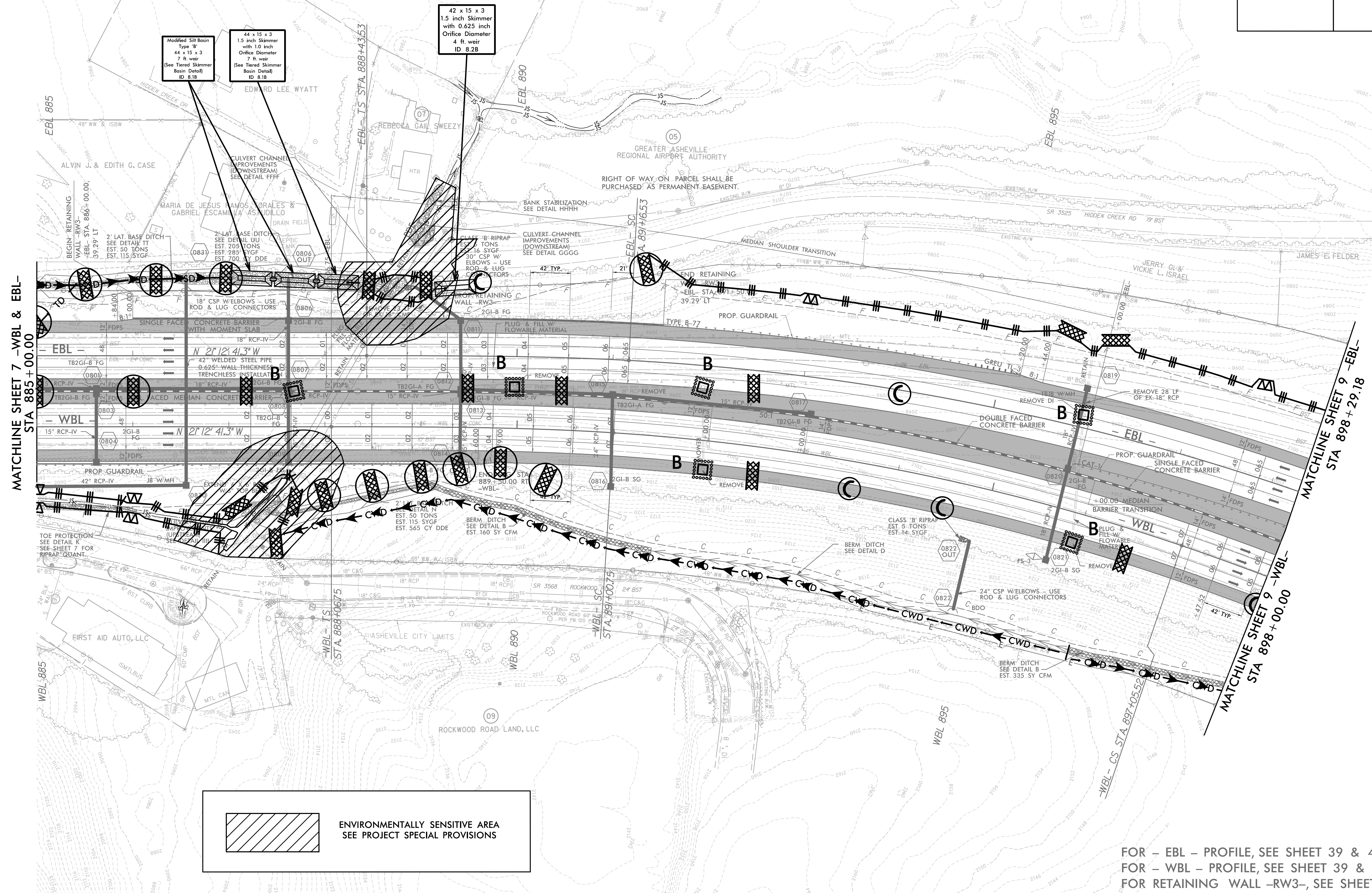
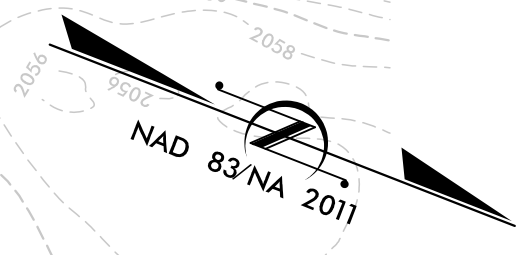
8/17/99

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



PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-8/CONST.8
RW SHEET NO.	1-4700A - 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

FOR - EBL - PROFILE, SEE SHEET 39 & 40  
FOR - WBL - PROFILE, SEE SHEET 39 & 40  
FOR RETAINING WALL -RW3-, SEE SHEET W-2

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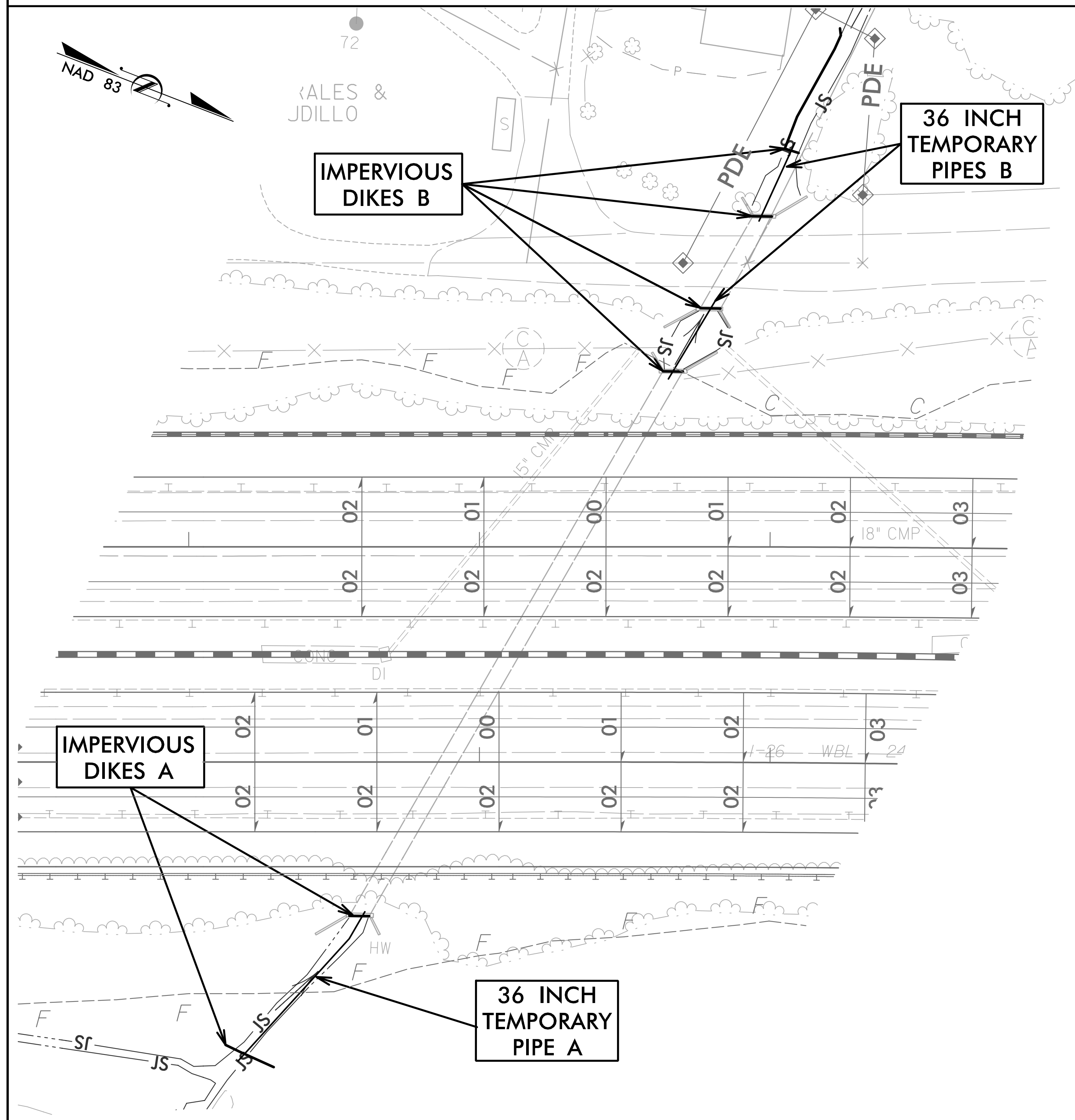
# CULVERT CONSTRUCTION SEQUENCE

STA. 888 + 32 -EBL-  
 STA. 887 + 89 -WBL-  
 UT TO FRENCH BROAD RIVER

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-8A/CONST.B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

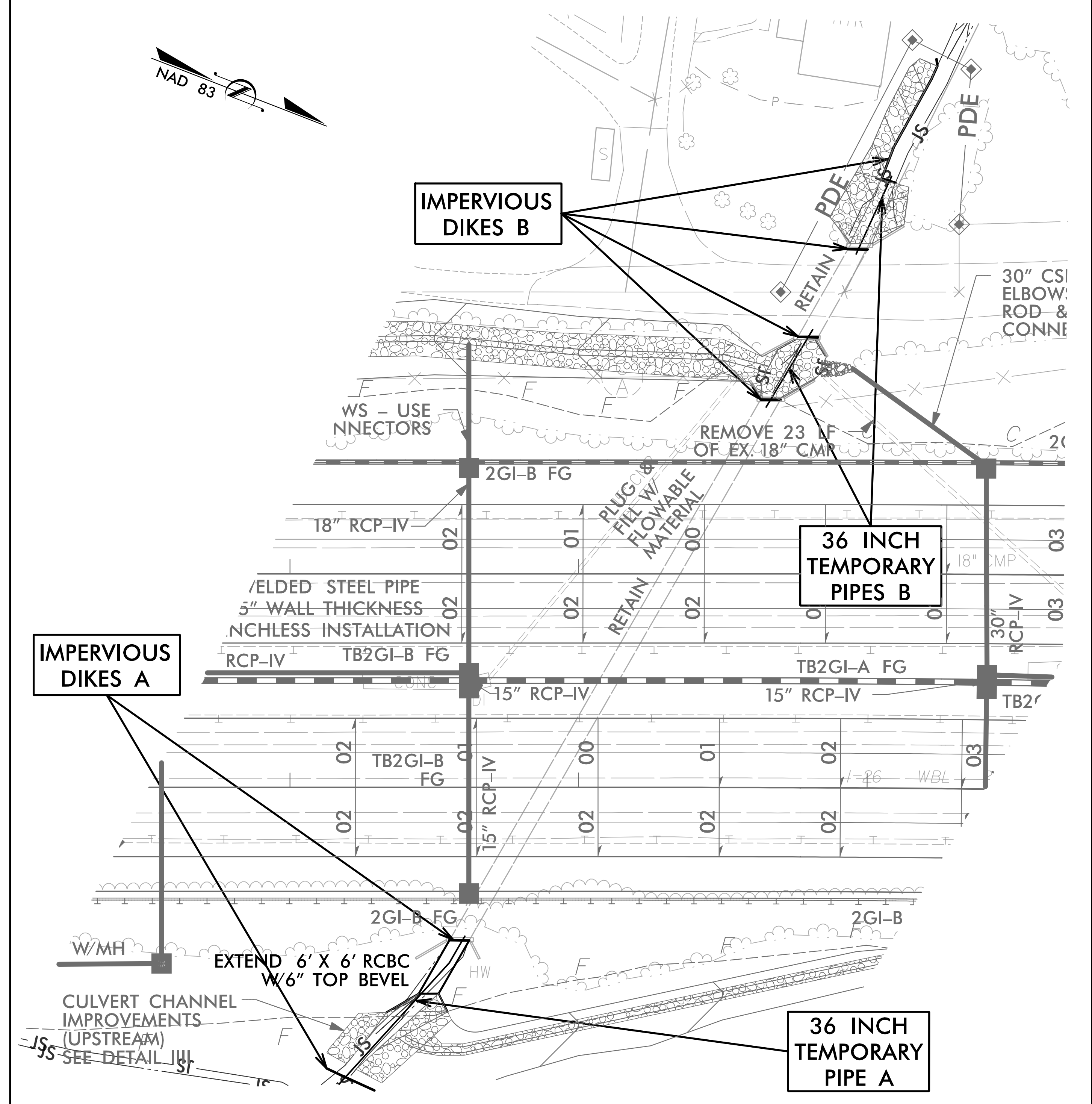
## PHASE I

1. INSTALL IMPERVIOUS DIKES A AND B AS SHOWN.
2. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
3. INSTALL 36" TEMPORARY PIPES A AND B AS SHOWN.



## PHASE II

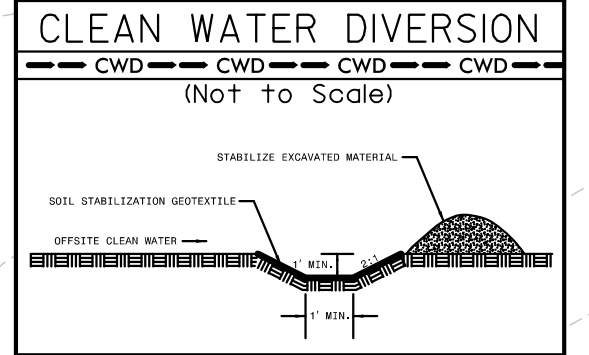
1. INSTALL PROPOSED 6 X 6 RCBC CULVERT EXTENSION.
2. INSTALL UPSTREAM / DOWNSTREAM CHANNEL IMPROVEMENTS AND DOWNSTREAM BANK STABILIZATION.
3. REMOVE IMPERVIOUS DIKES A, B, 36" TEMPORARY PIPES A AND B.
4. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S).
5. COMPLETE FILL SLOPE.



8/17/99  
2/15/2019  
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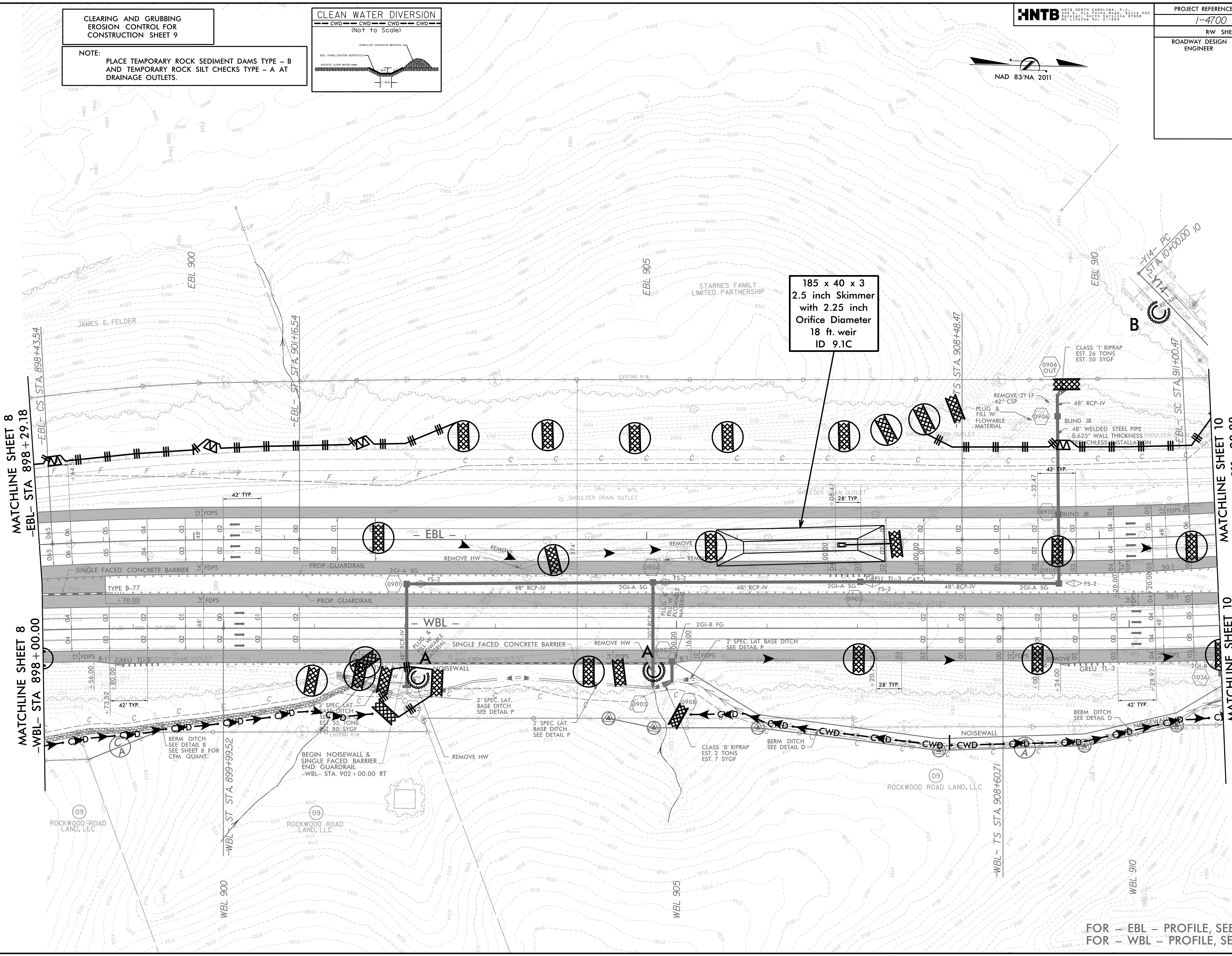
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 9

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



HNTB  
HNTB NORTH CAROLINA, P.C.  
10000 W. PARKWAY, SUITE 200  
Raleigh, North Carolina 27609  
REG. ENGINEER NO. 51154

PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-9/CONST.9
RW SHEET NO.	1-4700A-20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



185 x 40 x 3  
2.5 inch Skimmer  
with 2.25 inch  
Orifice Diameter  
18 ft. weir  
ID 9.1C

MATCHLINE SHEET 8  
-EBL- STA 898+29.18

MATCHLINE SHEET 8  
-WBL- STA 898+00.00

MATCHLINE SHEET 10  
-EBL- STA 911+28.88

MATCHLINE SHEET 10  
-WBL- STA 911+00.00

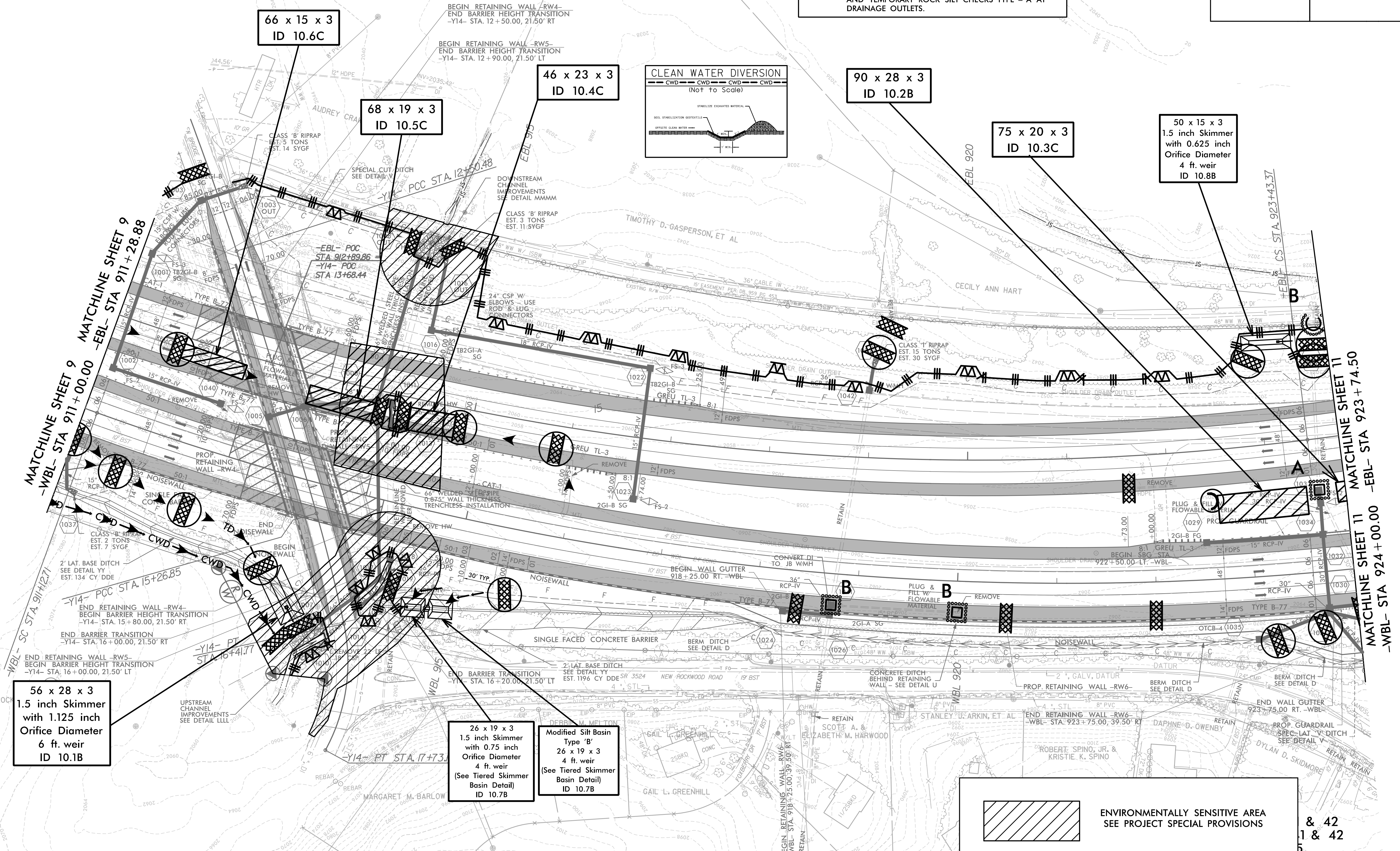
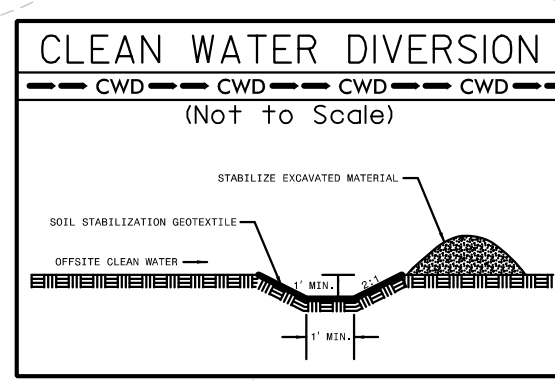
FOR -EBL- PROFILE, SEE SHEET 40 & 41  
FOR -WBL- PROFILE, SEE SHEET 40 & 41

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2/15/2019  
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<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 345 W. 5th FARRIS ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 NC LICENSE NO. 211554	PROJECT REFERENCE NO.	SHEET NO.
	1-4700	EC-10/CONST.10
ROADWAY DESIGN ENGINEER	RW SHEET NO.	1-4700A - 21
HYDRAULICS ENGINEER		

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 10

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



FOR RETAINING WALL -RW4-, SEE SHEET W-3  
FOR RETAINING WALL -RW5-, SEE SHEET W-4  
FOR RETAINING WALL -RW6-, SEE SHEET W-5

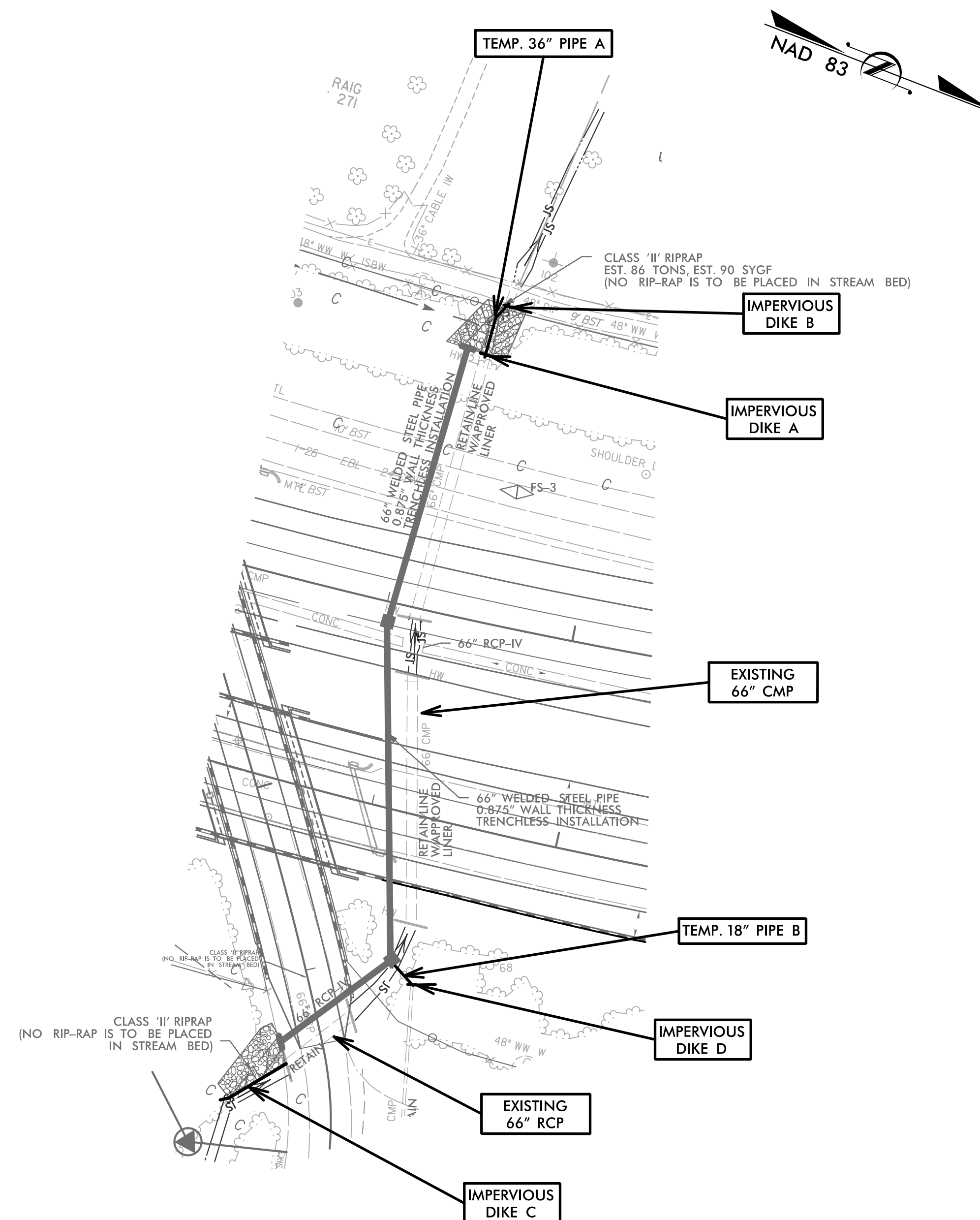
# CULVERT CONSTRUCTION SEQUENCE

STA. 914 + 03 -EBL-  
 STA. 914 + 09 -WBL-  
 UT OF FRENCH BROAD RIVER

PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-10A/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

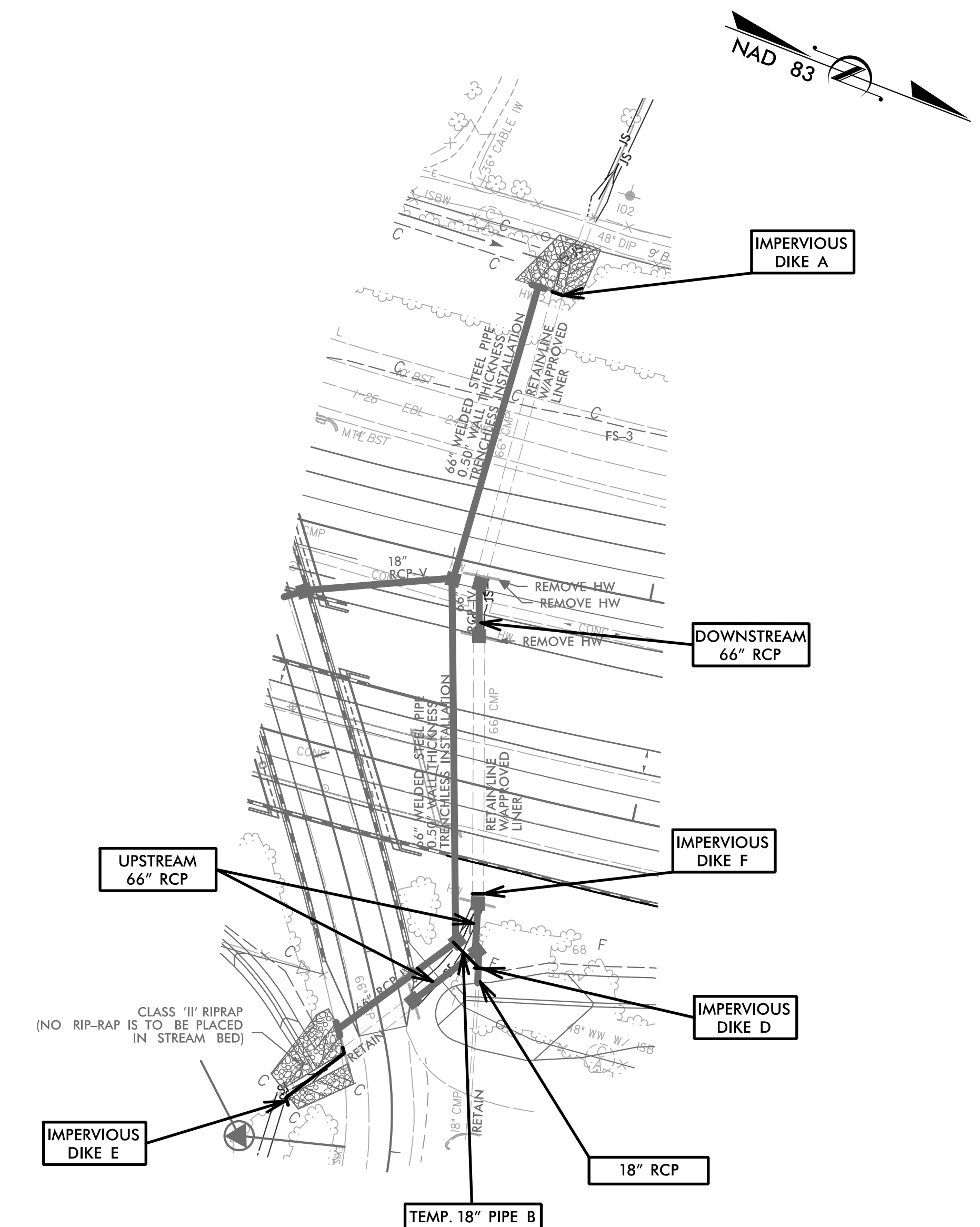
## PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT PIPE CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES A, B, C AND TEMPORARY 36" PIPE A AS SHOWN.
3. INSTALL PROPOSED 66" RCP AND BOTH 66" WSP WHILE KEEPING WATER FLOW THROUGH EXISTING 66" RCP, 66" CMP, AND TEMPORARY 36" PIPE A.
4. INSTALL JUNCTION BOXES, HEADWALLS, DOWNSTREAM CLASS 'II' RIPRAP, AND PORTION OF UPSTREAM CLASS 'II' RIPRAP.
5. INSTALL IMPERVIOUS DIKE D AS SHOWN.
6. INSTALL AND CONNECT TEMPORARY 18" PIPE B WITH NEWLY CONSTRUCTED JUNCTION BOX AS SHOWN.

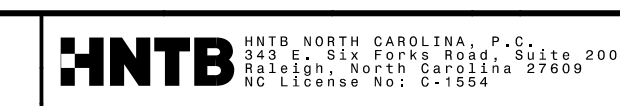


## PHASE II

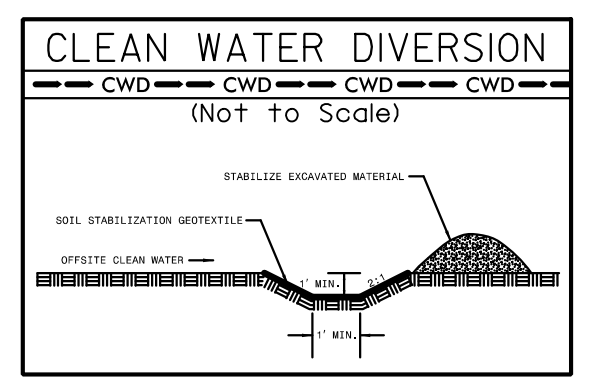
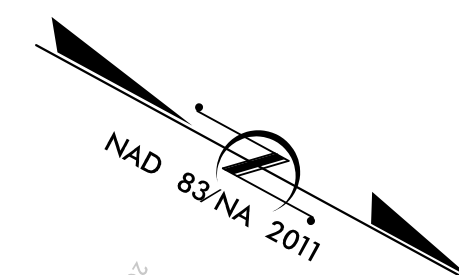
1. REMOVE IMPERVIOUS DIKE B, C AND TEMPORARY PIPE A.
2. INSTALL IMPERVIOUS DIKES E AND F AS SHOWN AND DIVERT WATER INTO NEWLY CONSTRUCTED 66" RCP AND WSP.
3. INSTALL NORTH SIDE UPSTREAM AND DOWNSTREAM 66" RCP, AND JUNCTION BOXES.
4. INSTALL NORTH SIDE UPSTREAM AND DOWNSTREAM CLASS 'II' RIPRAP.
5. REMOVE TEMPORARY PIPE B AND IMPERVIOUS DIKE D AND INSTALL 18" RCP.
6. REMOVE ANY REMAINING IMPERVIOUS DIKES, SPECIAL STILLING BASIN(S) AND COMPLETE ROADWAY.



8/17/99



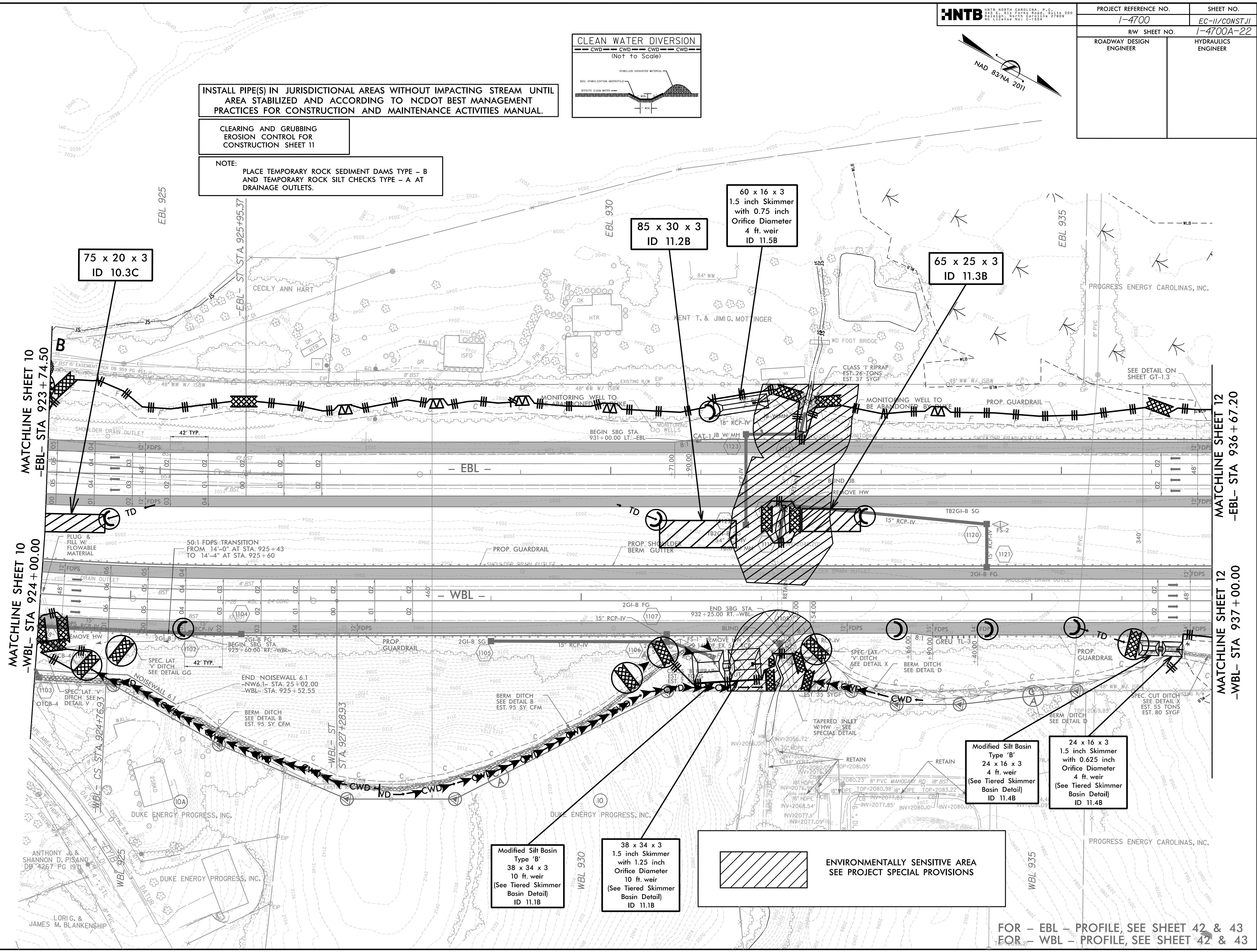
PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-II/CONST.II
RW SHEET NO.	1-4700A-22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

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.



75 x 20 x 3  
ID 10.3C

85 x 30 x 3  
ID 11.2B

60 x 16 x 3  
1.5 inch Skimmer  
with 0.75 inch  
Orifice Diameter  
4 ft. weir  
ID 11.5B

65 x 25 x 3  
ID 11.3B

Modified Silt Basin  
Type 'B'  
38 x 34 x 3  
10 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 11.1B

38 x 34 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
10 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 11.1B

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

Modified Silt Basin  
Type 'B'  
24 x 16 x 3  
4 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 11.4B

24 x 16 x 3  
1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
4 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 11.4B

MATCHLINE SHEET 10  
-EBL- STA 923+74.50

MATCHLINE SHEET 10  
-WBL- STA 924+00.00

MATCHLINE SHEET 12  
-EBL- STA 936+67.20

MATCHLINE SHEET 12  
-WBL- STA 937+00.00

5/9/2019  
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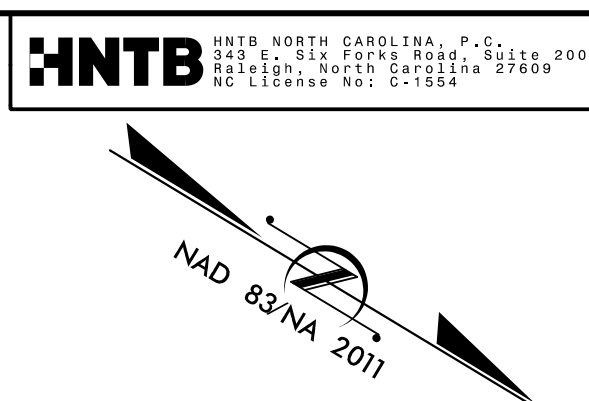
FOR - EBL - PROFILE, SEE SHEET 42 & 43  
FOR - WBL - PROFILE, SEE SHEET 42 & 43

8/17/99

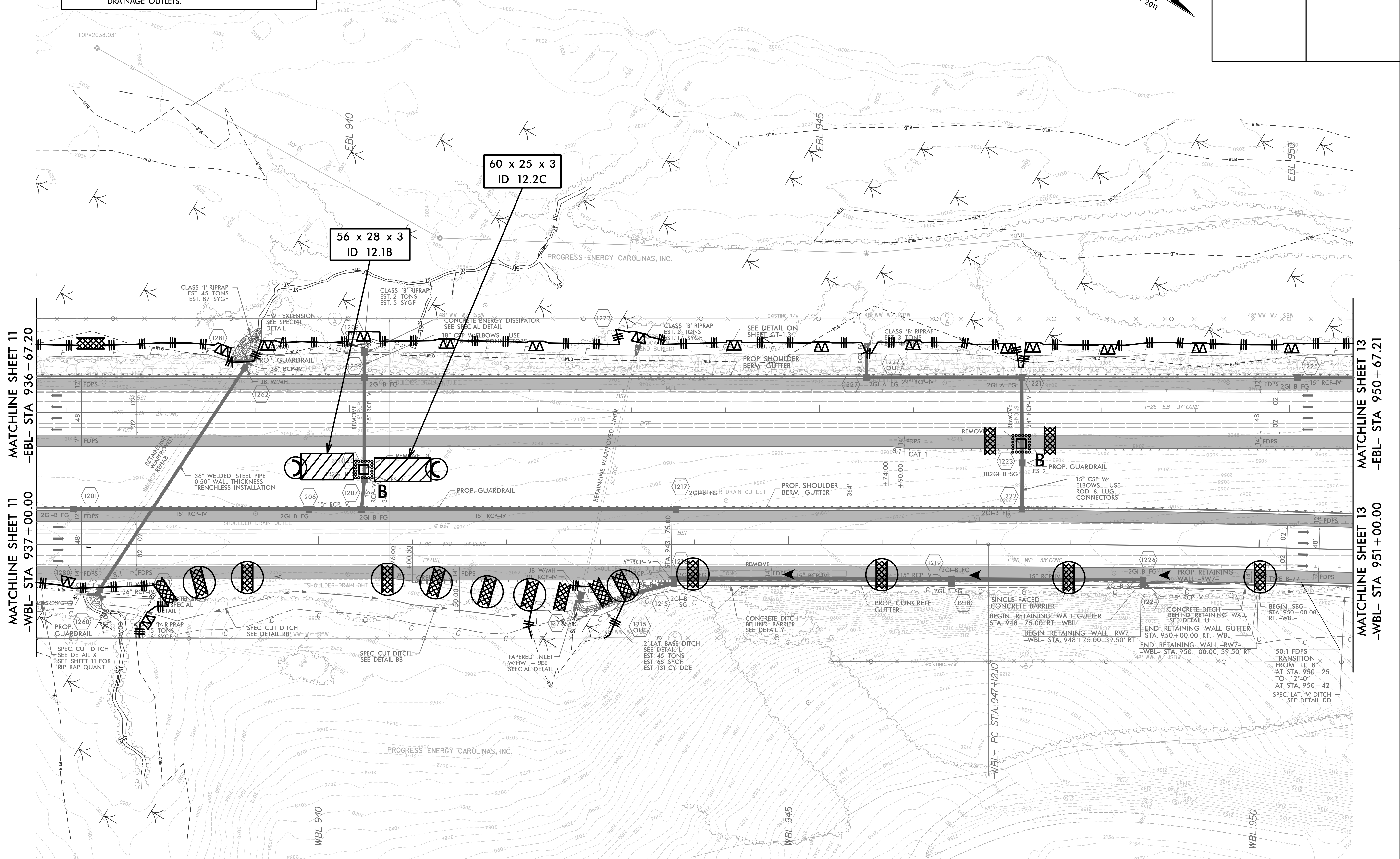
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 12

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL  
AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT  
PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

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



PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-12/CONST.12
R/W SHEET NO. 1-4700A-23	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCHLINE SHEET 11  
-EBL- STA 936 + 67.20

MATCHLINE SHEET 11  
-WBL- STA 937 + 00.00

MATCHLINE SHEET 13  
-EBL- STA 950 + 67.21

MATCHLINE SHEET 13  
-WBL- STA 951 + 00.00

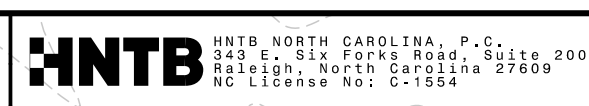
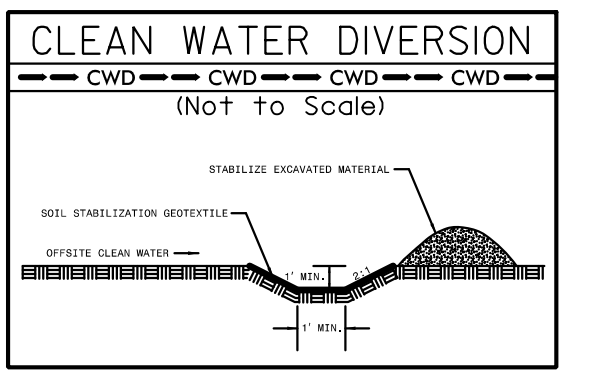
FOR - EBL - PROFILE, SEE SHEET 43 & 44  
FOR - WBL - PROFILE, SEE SHEET 43 & 44  
FOR RETAINING WALL -RW7-, SEE SHEET W-6

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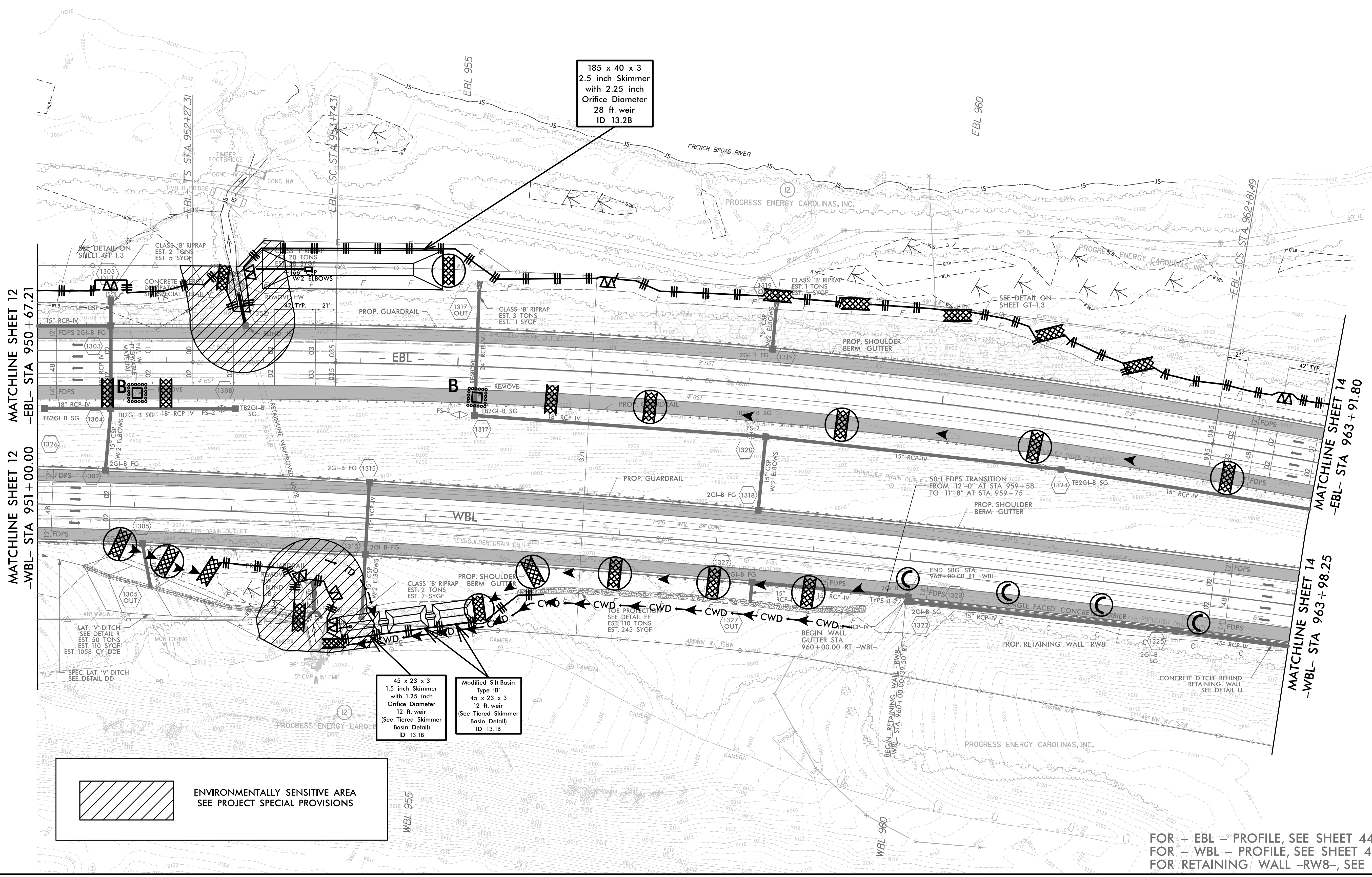
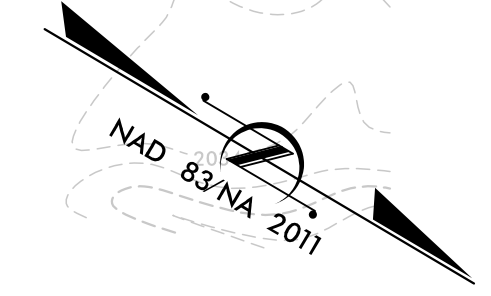
8/17/99

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.



PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-13/CONST.13
RW SHEET NO.	1-4700A-24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



185 x 40 x 3  
2.5 inch Skimmer  
with 2.25 inch  
Orifice Diameter  
28 ft. weir  
ID 13.2B

45 x 23 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
12 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 13.1B

Modified Silt Basin  
Type 'B'  
45 x 23 x 3  
12 ft. weir  
(See Tiered Skimmer  
Basin Detail)  
ID 13.1B

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

FOR + EBL - PROFILE, SEE SHEET 44 & 45  
FOR - WBL - PROFILE, SEE SHEET 44 & 45  
FOR RETAINING WALL -RW8-, SEE SHEET W-7

1/28/2016  
14700A.EC.PSH.13.dgn  
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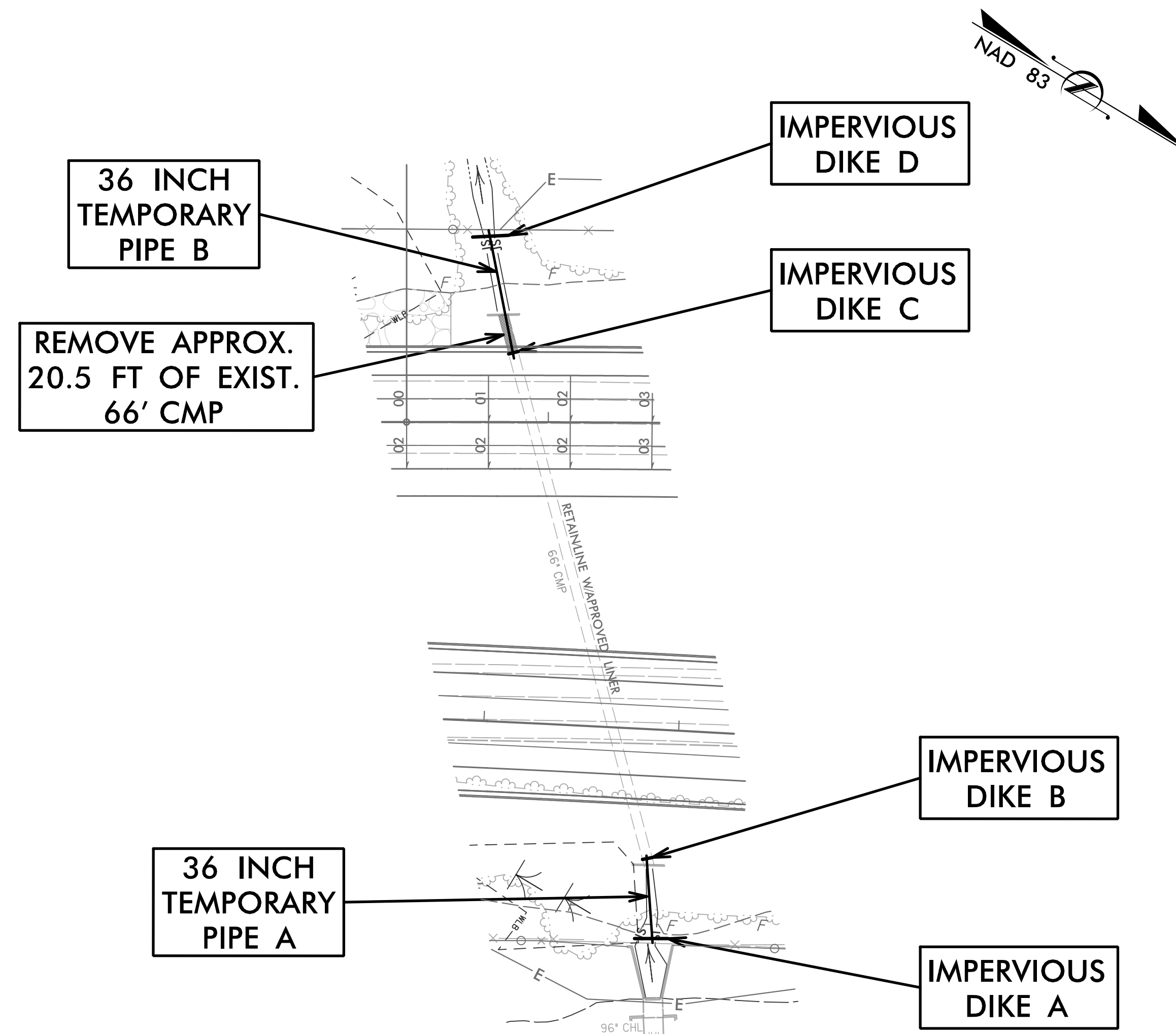
# PIPE CONSTRUCTION SEQUENCE

STA. 952 + 91 -EBL-  
 STA. 953 + 66 -WBL-  
 UT TO FRENCH BROAD RIVER

PROJECT REFERENCE NO. 1-4700	SHEET NO. EC-13A/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

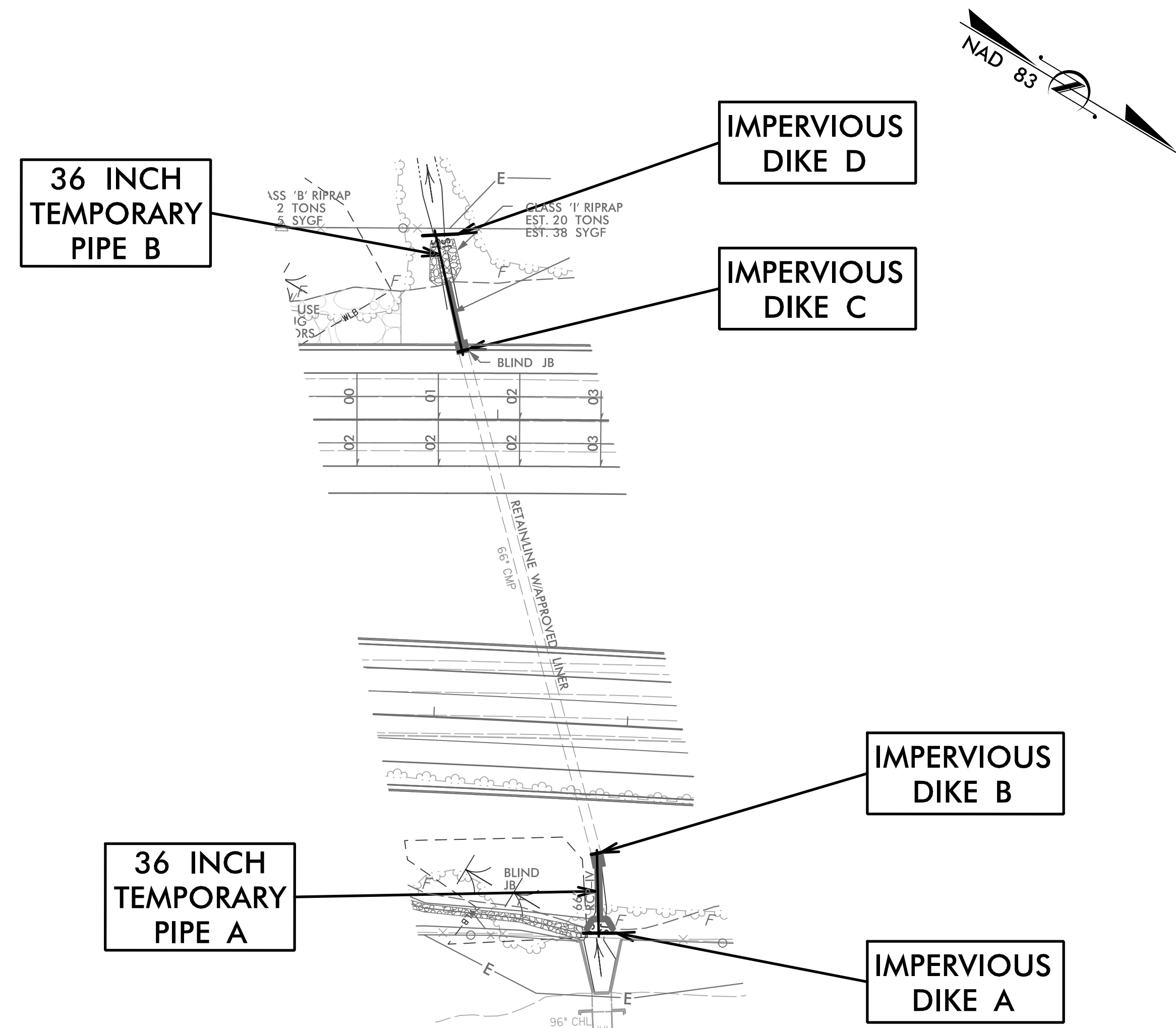
## PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT PIPE CONSTRUCTION.
2. INSTALL IMPERVIOUS A, B, C AND D.
3. INSTALL TEMPORARY 36" PIPE A AND B.
4. DIVERT FLOW THROUGH EXISTING 66" CMP AND TEMPORARY PIPES
5. REMOVE UPSTREAM AND DOWNSTREAM HEADWALLS OF EXISTING 66" CMP.
6. REMOVE APPROXIMATE 20.5 FT OF EXISTING 66" CMP FROM THE DOWNSTREAM SIDE.



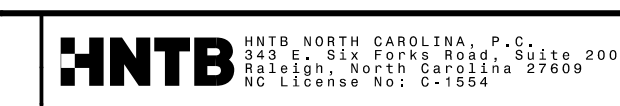
## PHASE II

1. MAINTAIN IMPERVIOUS A, B, C, D AND TEMPORARY PIPE A AND B.
2. INSTALL PROPOSED UPSTREAM AND DOWNSTREAM 66" RCP, 66" CSP, BLIND JB AND UPSTREAM HEADWALL.
3. INSTALL DOWNSTREAM CLASS 'I' RIPRAP.
4. REMOVE ALL IMPERVIOUS DIKES, TEMPORARY PIPES, AND ANY REMAINING SPECIAL STILLING BASIN(S).
5. COMPLETE ROADWAY.





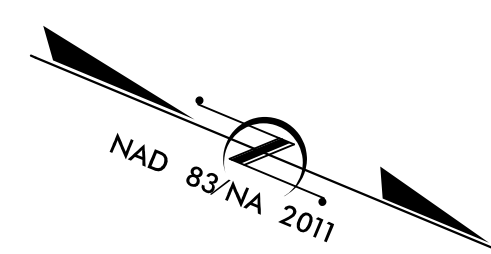
8/17/99



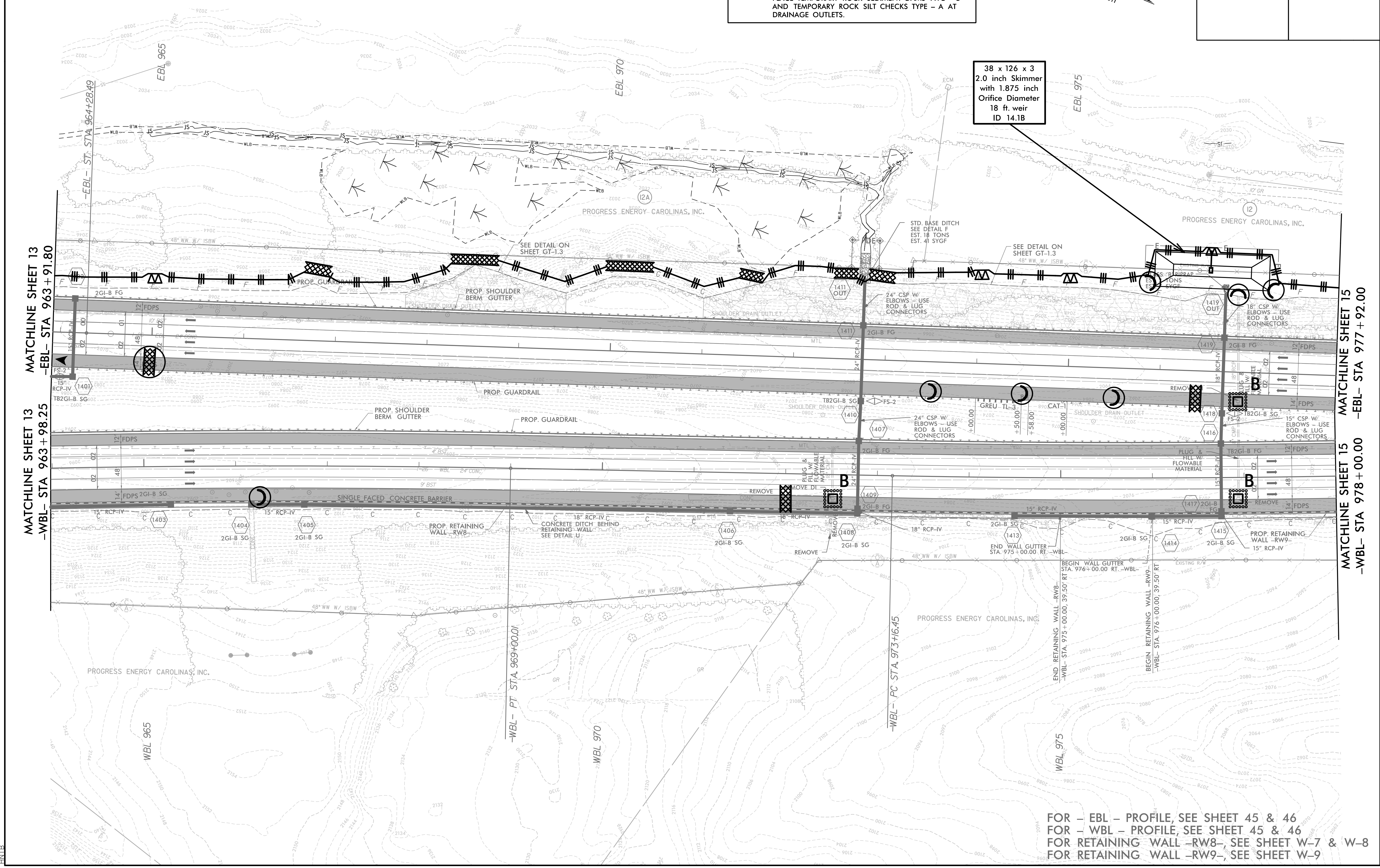
PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-14/CONST.14
RW SHEET NO.	1-4700A-25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 14

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



38 x 126 x 3  
2.0 inch Skimmer  
with 1.875 inch  
Orifice Diameter  
18 ft. weir  
ID 14.1B



MATCHLINE SHEET 13  
-EBL- STA 963+91.80

MATCHLINE SHEET 13  
-WBL- STA 963+98.25

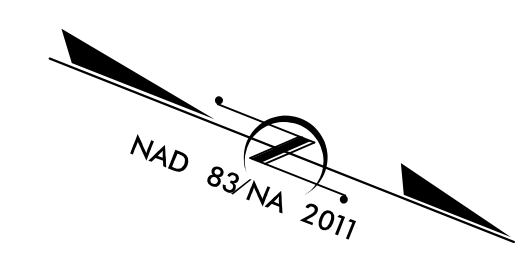
MATCHLINE SHEET 15  
-EBL- STA 977+92.00

MATCHLINE SHEET 15  
-WBL- STA 978+00.00

FOR - EBL - PROFILE, SEE SHEET 45 & 46  
FOR - WBL - PROFILE, SEE SHEET 45 & 46  
FOR RETAINING WALL -RW8-, SEE SHEET W-7 & W-8  
FOR RETAINING WALL -RW9-, SEE SHEET W-9

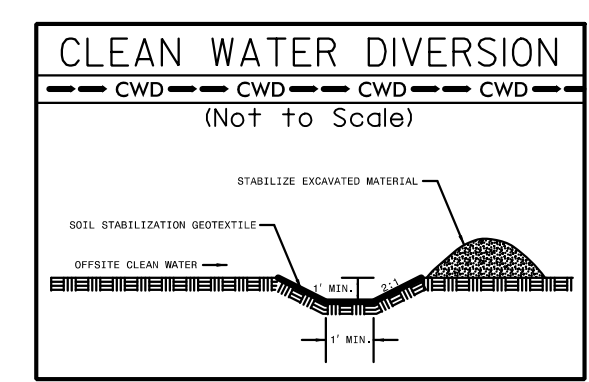
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PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-15/CONST.15
RW SHEET NO.	1-4700A-26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 15**

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



40 x 125 x 3  
 2.0 inch Skimmer  
 with 2.0 inch  
 Orifice Diameter  
 19 ft. weir  
 ID 15.4B

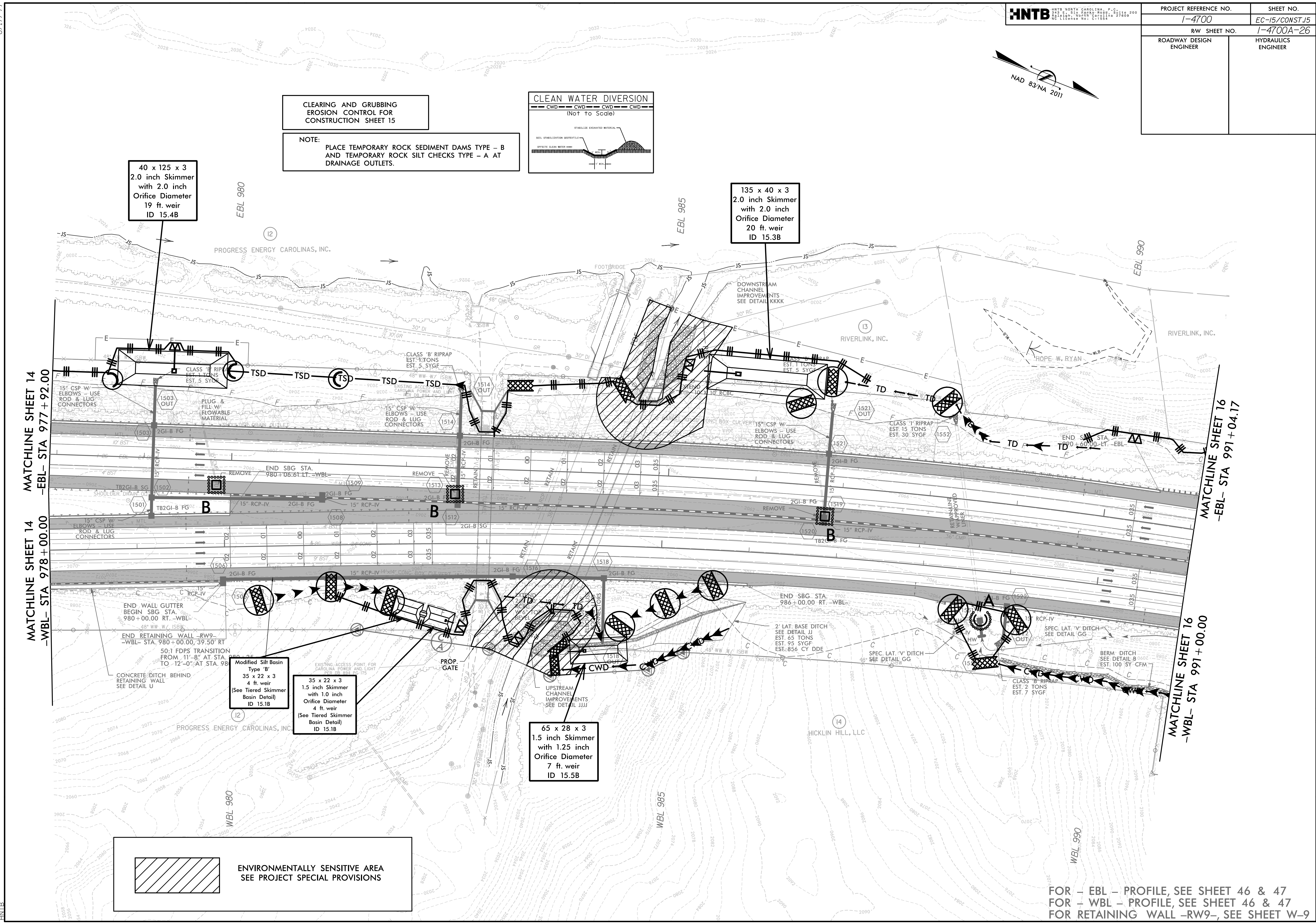
135 x 40 x 3  
 2.0 inch Skimmer  
 with 2.0 inch  
 Orifice Diameter  
 20 ft. weir  
 ID 15.3B

Modified Silt Basin  
 Type 'B'  
 35 x 22 x 3  
 4 ft. weir  
 (See Tiered Skimmer  
 Basin Detail)  
 ID 15.1B

35 x 22 x 3  
 1.5 inch Skimmer  
 with 1.0 inch  
 Orifice Diameter  
 4 ft. weir  
 (See Tiered Skimmer  
 Basin Detail)  
 ID 15.1B

65 x 28 x 3  
 1.5 inch Skimmer  
 with 1.25 inch  
 Orifice Diameter  
 7 ft. weir  
 ID 15.5B

ENVIRONMENTALLY SENSITIVE AREA  
 SEE PROJECT SPECIAL PROVISIONS



FOR - EBL - PROFILE, SEE SHEET 46 & 47  
 FOR - WBL - PROFILE, SEE SHEET 46 & 47  
 FOR RETAINING WALL -RW9-, SEE SHEET W-9

8.17/99  
 2/27/2019  
 C:\Users\jg147000A\EC.PSH.15.dgn  
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PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-15A/CONST J5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# CULVERT CONSTRUCTION SEQUENCE

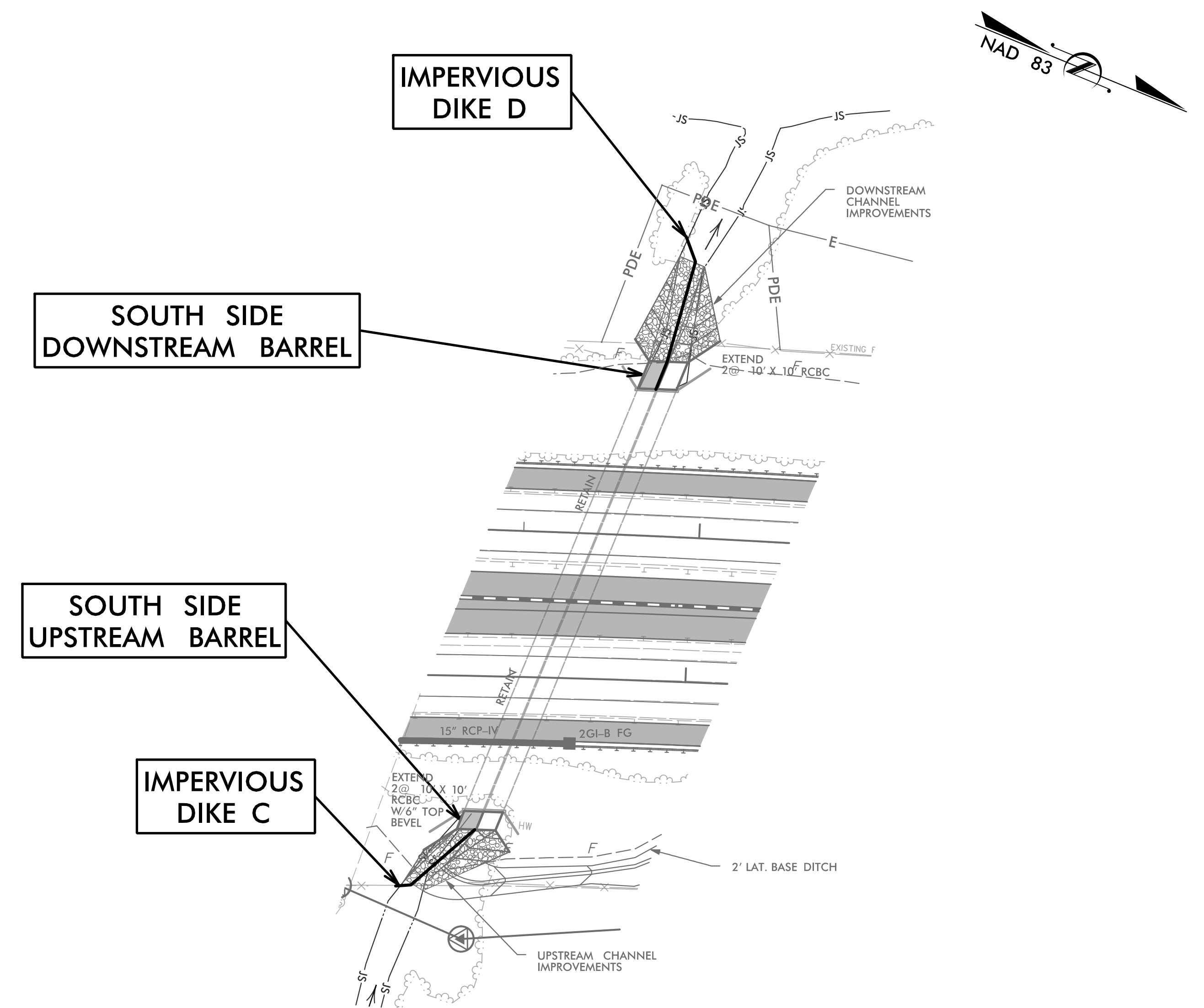
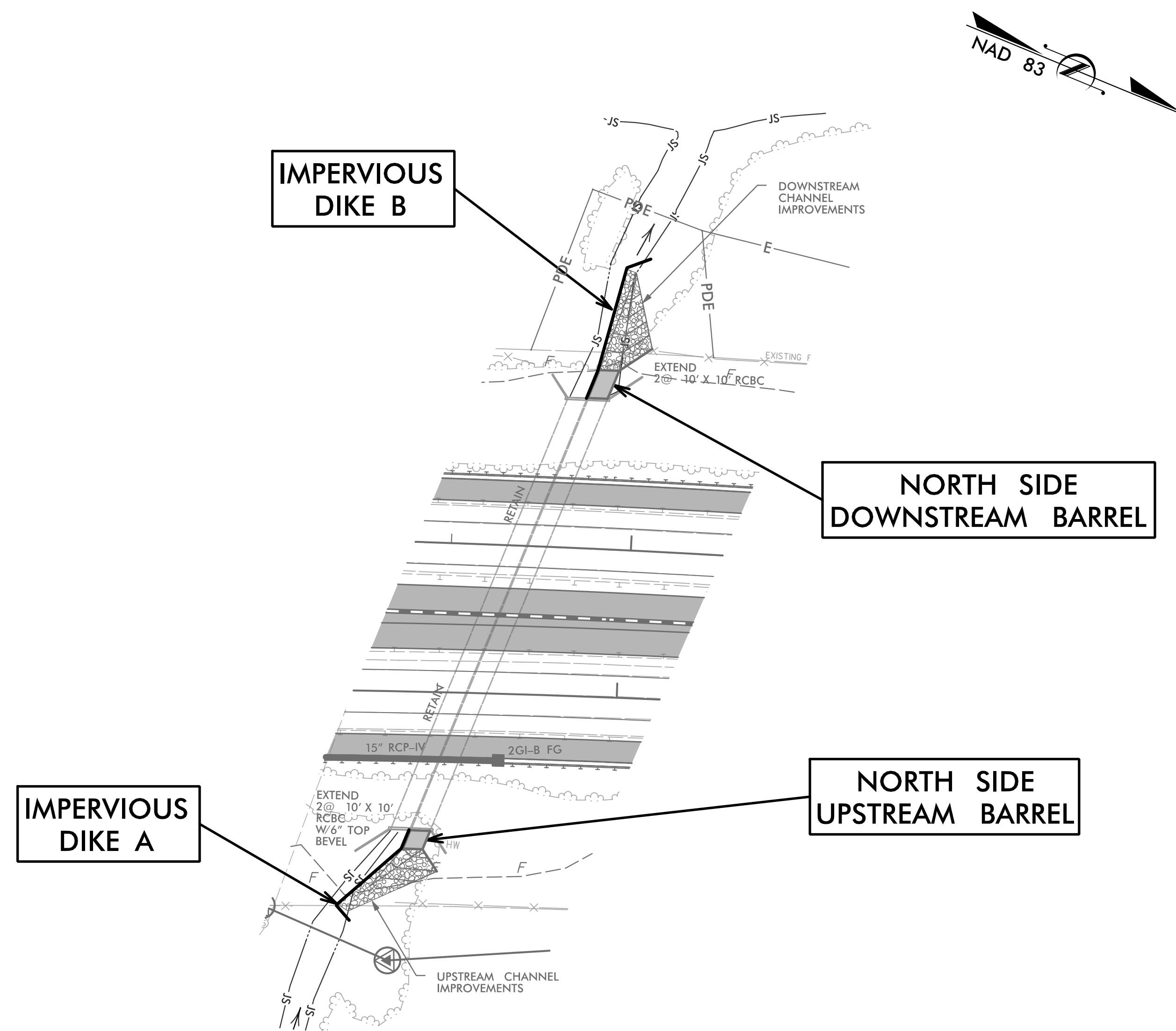
STA. 984 + 42 -EBL-  
STA. 984 + 16 -WBL-  
POWELL CREEK

## PHASE I

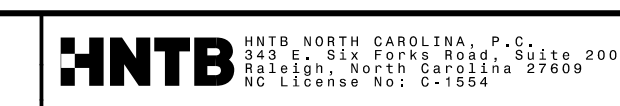
1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES A, AND B.
3. INSTALL NORTH SIDE UPSTREAM AND DOWNSTREAM BARRELS AS SHOWN.
4. INSTALL PORTION OF UPSTREAM AND DOWNSTREAM CHANNEL IMPROVEMENTS AS SHOWN.

## PHASE II

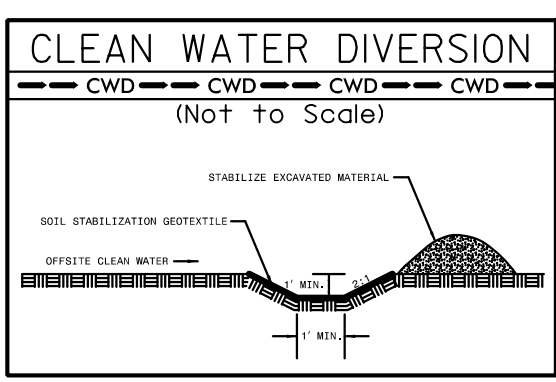
1. REMOVE IMPERVIOUS DIKES A AND B.
2. INSTALL IMPERVIOUS DIKES C AND D.
3. INSTALL SOUTH SIDE UPSTREAM AND DOWNSTREAM BARRELS AS SHOWN.
4. INSTALL REST OF UPSTREAM AND DOWNSTREAM CHANNEL IMPROVEMENTS AS SHOWN.
5. REMOVE IMPERVIOUS DIKES AND ANY REMAINING SPECIAL STILLING BASIN(S).
6. COMPLETE FILL SLOPE AND 2' LAT. BASE DITCH.



8.17/99

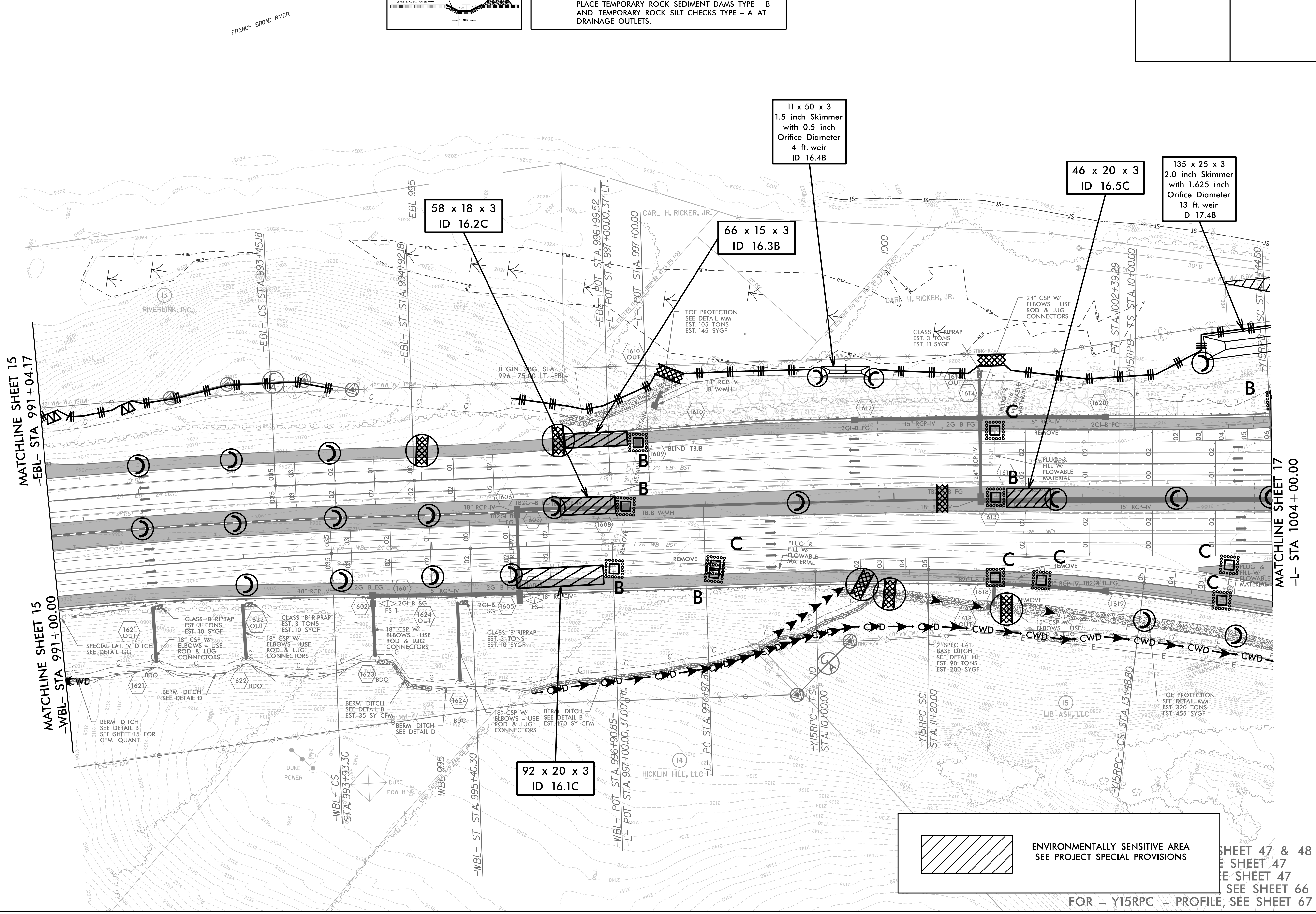


PROJECT REFERENCE NO.	SHEET NO.
1-4700	EC-16/CONST.16
RW SHEET NO.	1-4700A-27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 16

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



MATCHLINE SHEET 15  
-EBL- STA 991+04.17

MATCHLINE SHEET 15  
-WBL- STA 991+00.00

MATCHLINE SHEET 17  
-L- STA 1004+00.00

ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

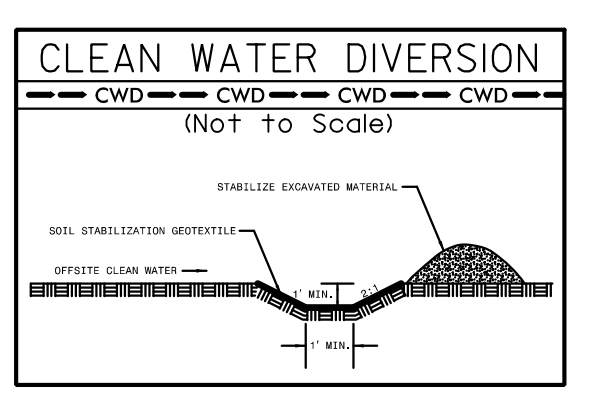
SHEET 47 & 48  
SHEET 47  
SHEET 47  
SEE SHEET 66  
FOR - Y15RPC - PROFILE, SEE SHEET 67

2/15/2016  
14700A.EC.PSH.16.dgn  
HNTB

8/17/99  
2/15/2018  
\\s1\proj\14700A.ec.psh.17.dgn  
HNTB

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 17

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

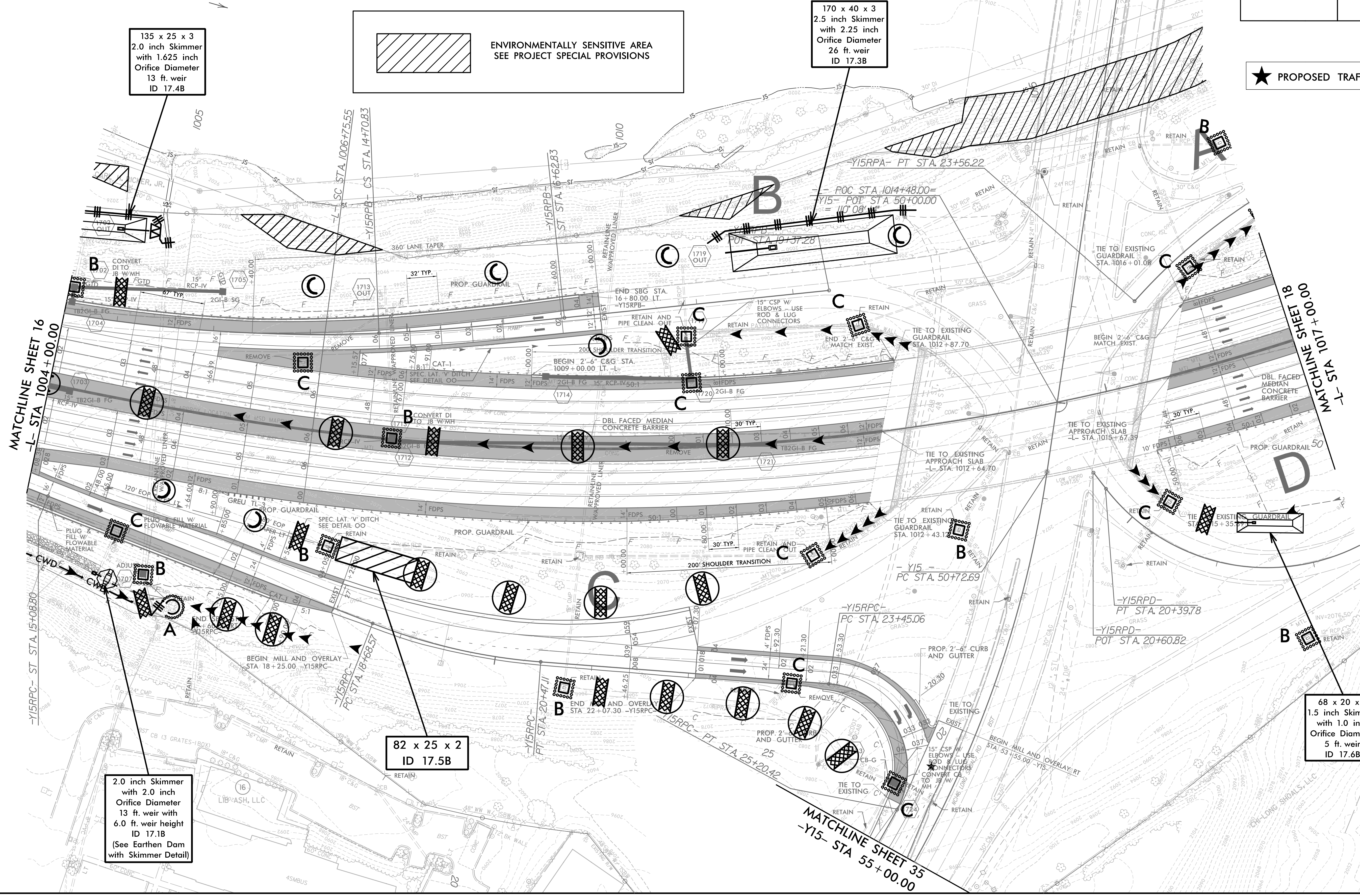


ENVIRONMENTALLY SENSITIVE AREA  
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
1-4700		EC-17/CONST.17	
RW SHEET NO.		1-4700A-28	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



PROPOSED TRAFFIC SIGNAL



MATCHLINE SHEET 16  
-L- STA 100+00.00

MATCHLINE SHEET 35  
-Y15- STA 55+00.00

SHEETS 18  
0.00 TO 101.10  
AT 15M