

TIP PROJECT: R-2582A

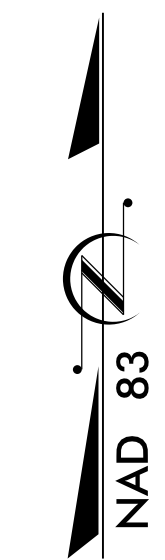
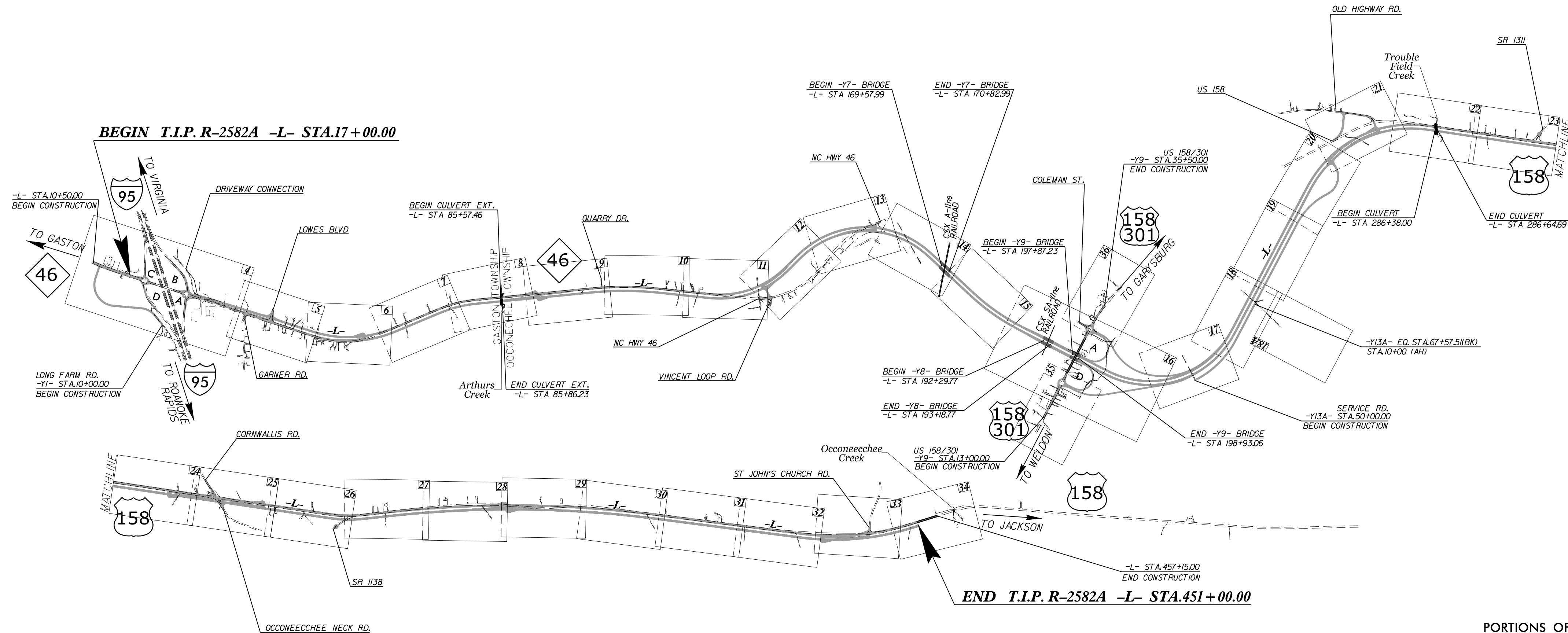
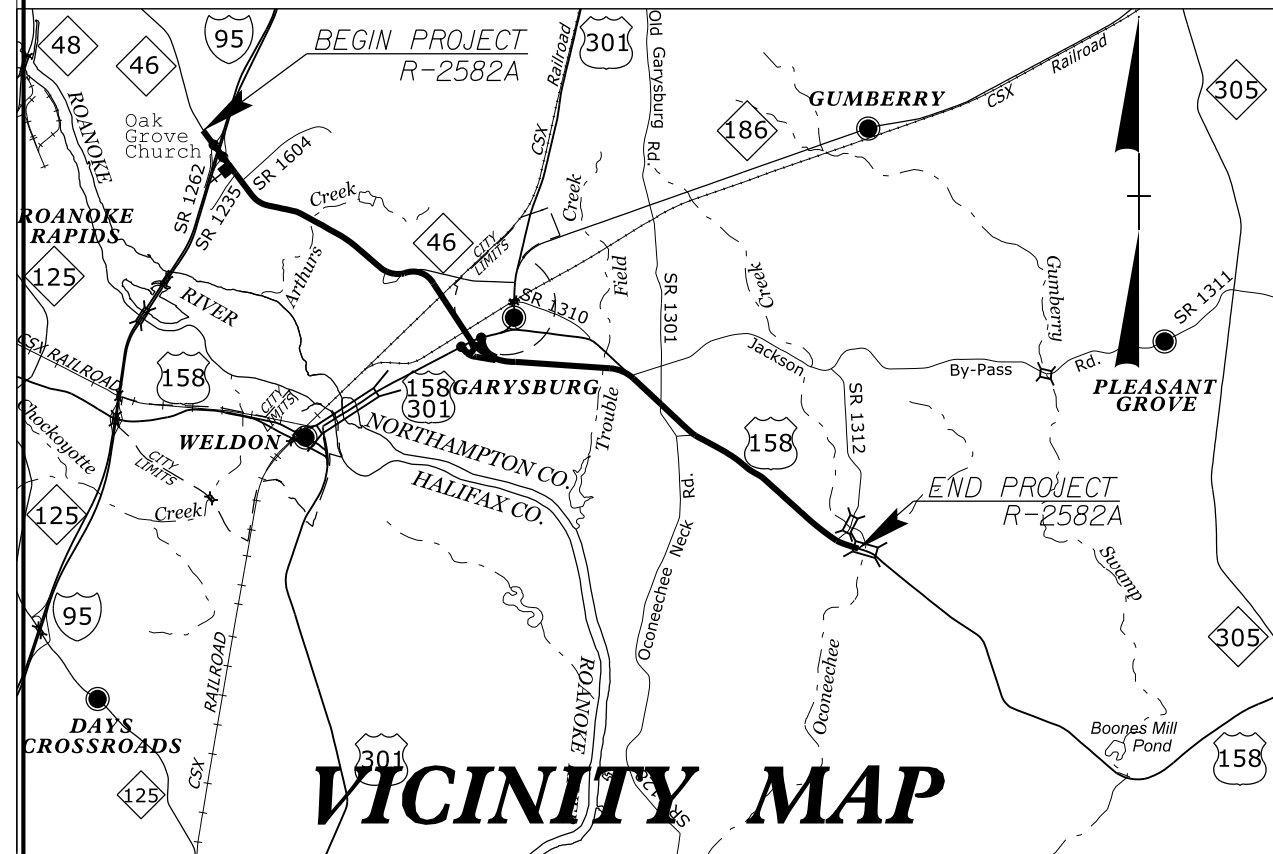
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

NORTHAMPTON COUNTY

LOCATION: US 158 FROM I-95/NC 46 IN ROANOKE RAPIDS
TO SR 1312 (ST. JOHN CHURCH RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RESURFACING,
GUARDRAIL, SIGNALS AND STRUCTURES.

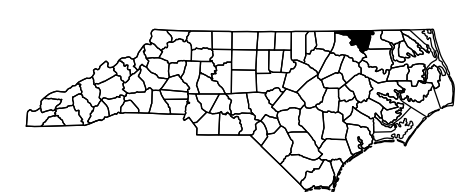


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2582A	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

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

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



PORTIONS OF THIS PROJECT HAVE PARTIAL AND/OR FULL CONTROL OF ACCESS. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GARYSBURG. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

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:

DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
504 Meadowlands Dr
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

Designed by:
Joy Saddler 4143
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:
Noelle Ring

Roadway Standard Drawings

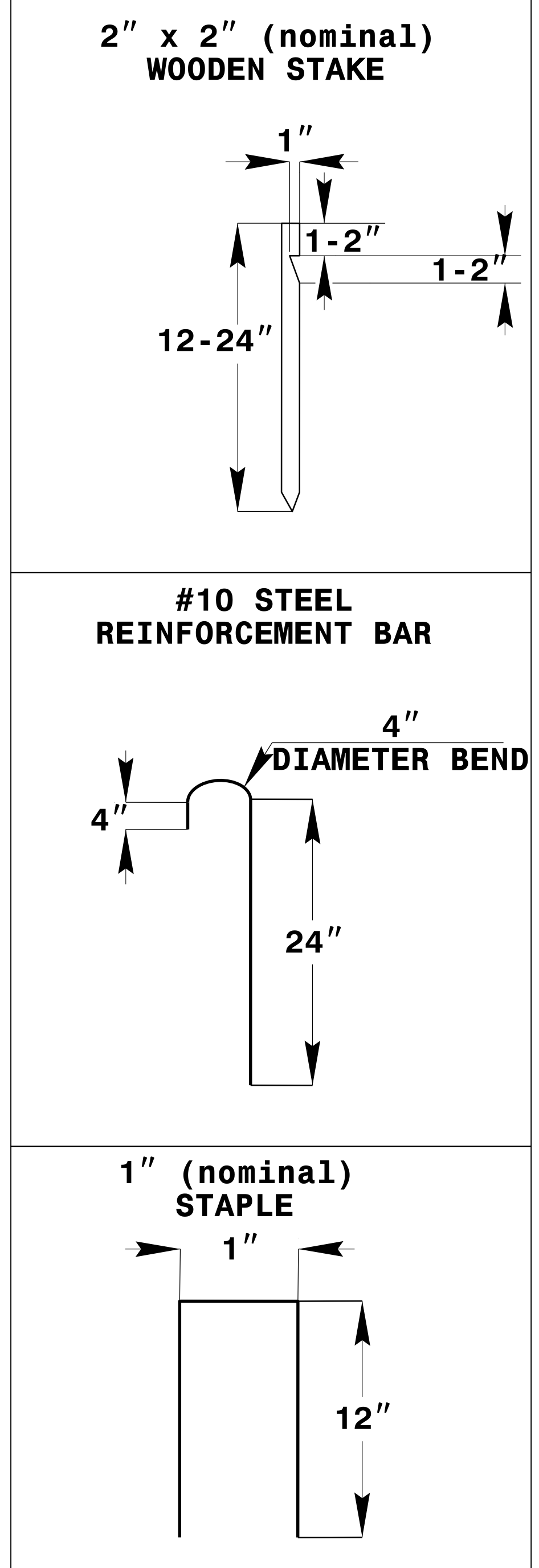
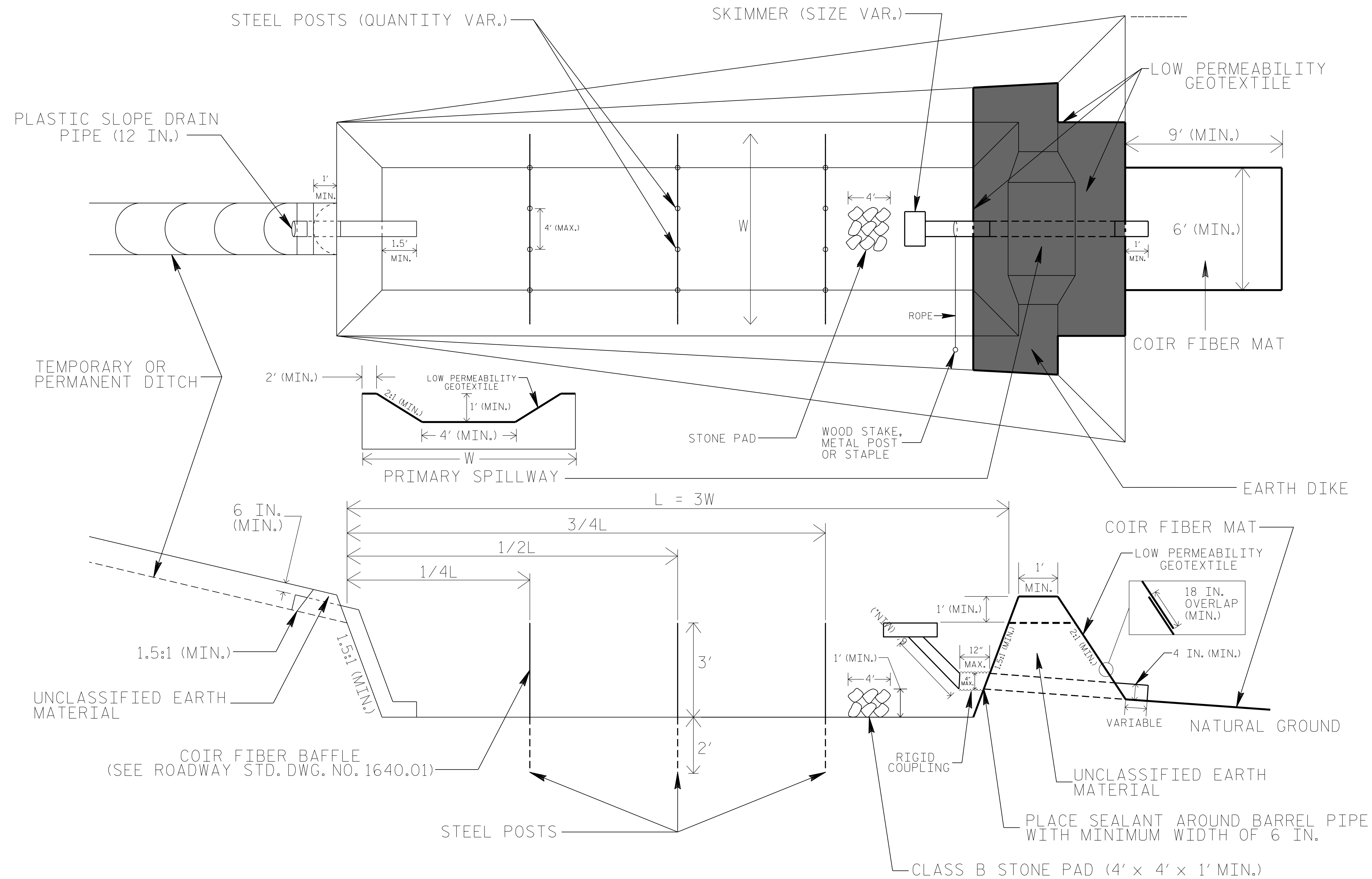
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

19-MAR-2018 16:23
JOY.SADDLER

SKIMMER BASIN WITH BAFFLES DETAIL (EAST)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT <small>ROADWAY AND ENVIRONMENTAL SERVICES</small> <small>NC FIRM LICENSE Nos P-0339</small> <small>504 Meadowslands Drive</small> <small>Hillsborough, NC 27278</small> <small>(919) 732-3883</small> <small>(919) 732-6676 (FAX)</small>	



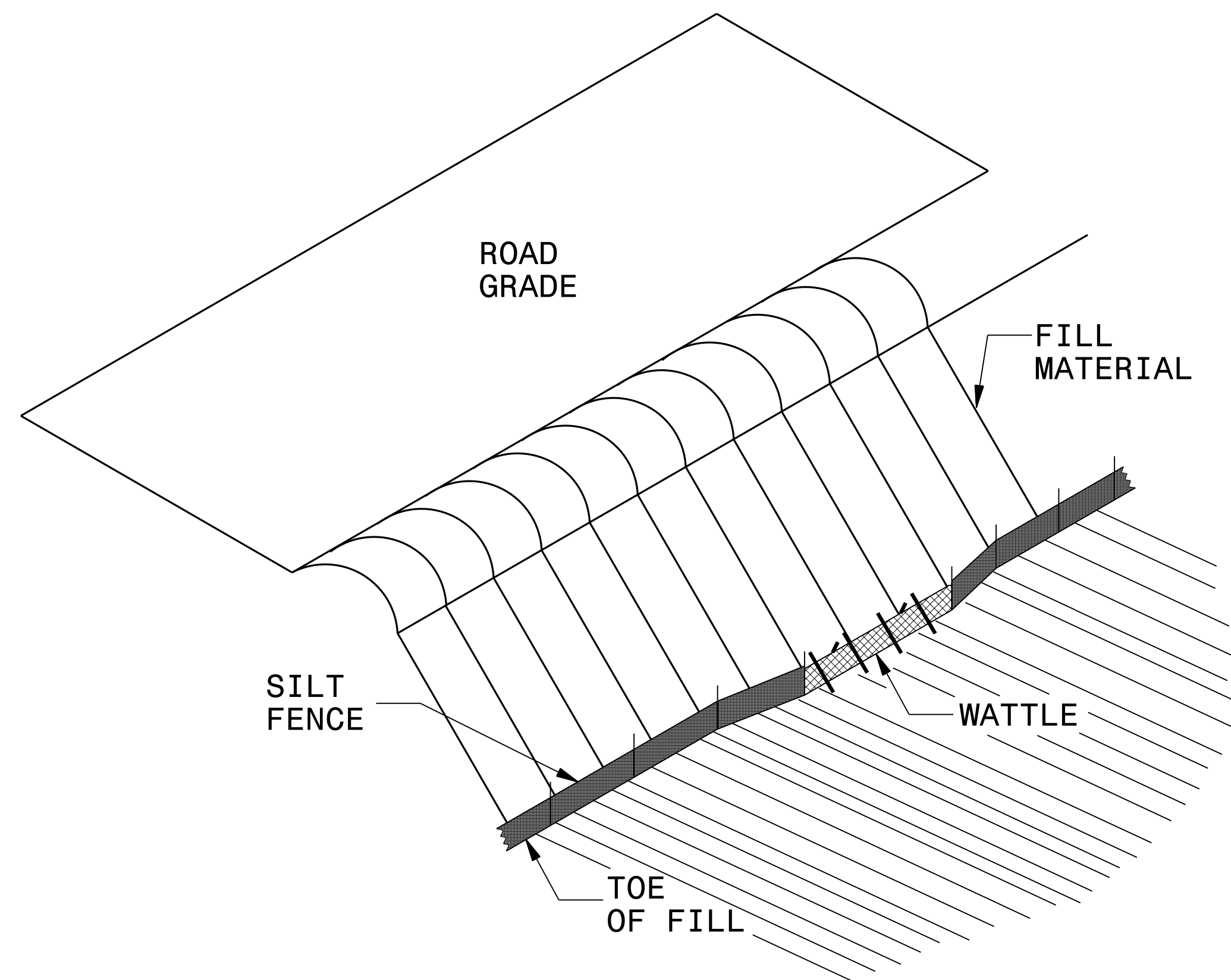
NOTES

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. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES <small>NC FIRM LICENSE Nos P-0339, 504 Meadowslands Drive, Hillsborough, NC 27278, (919) 732-3883, (919) 732-6676, FAX</small>	



NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

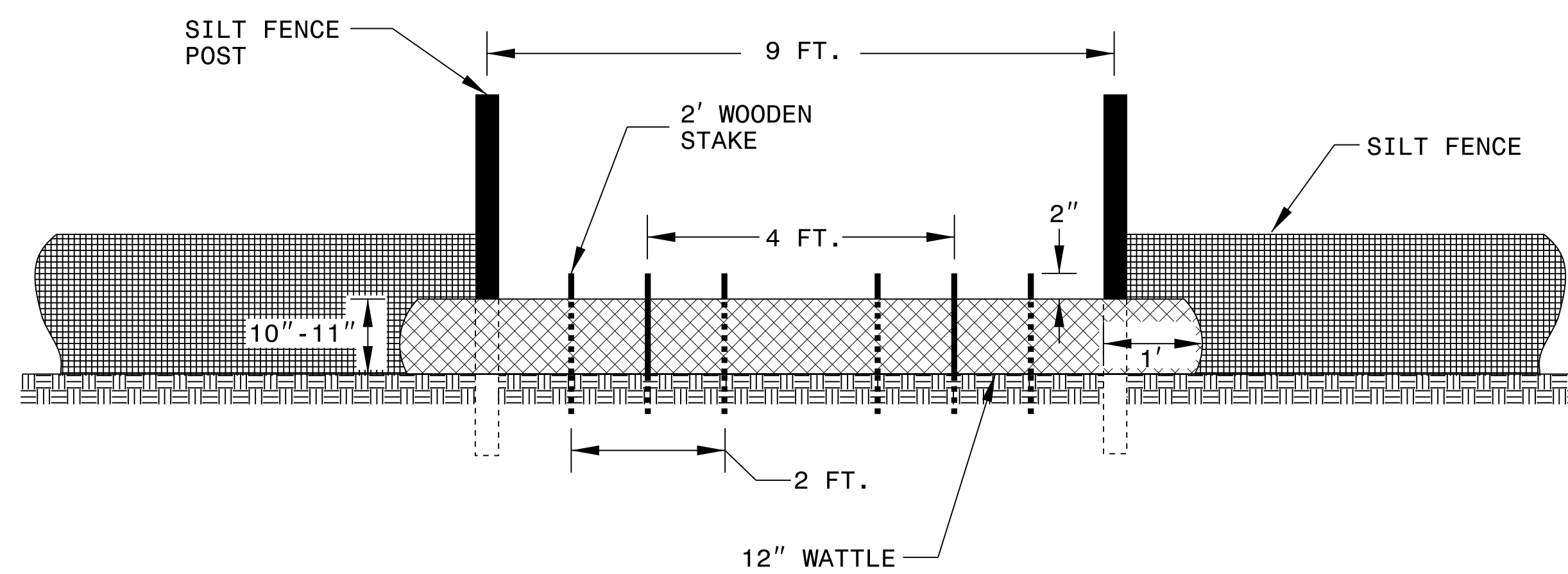
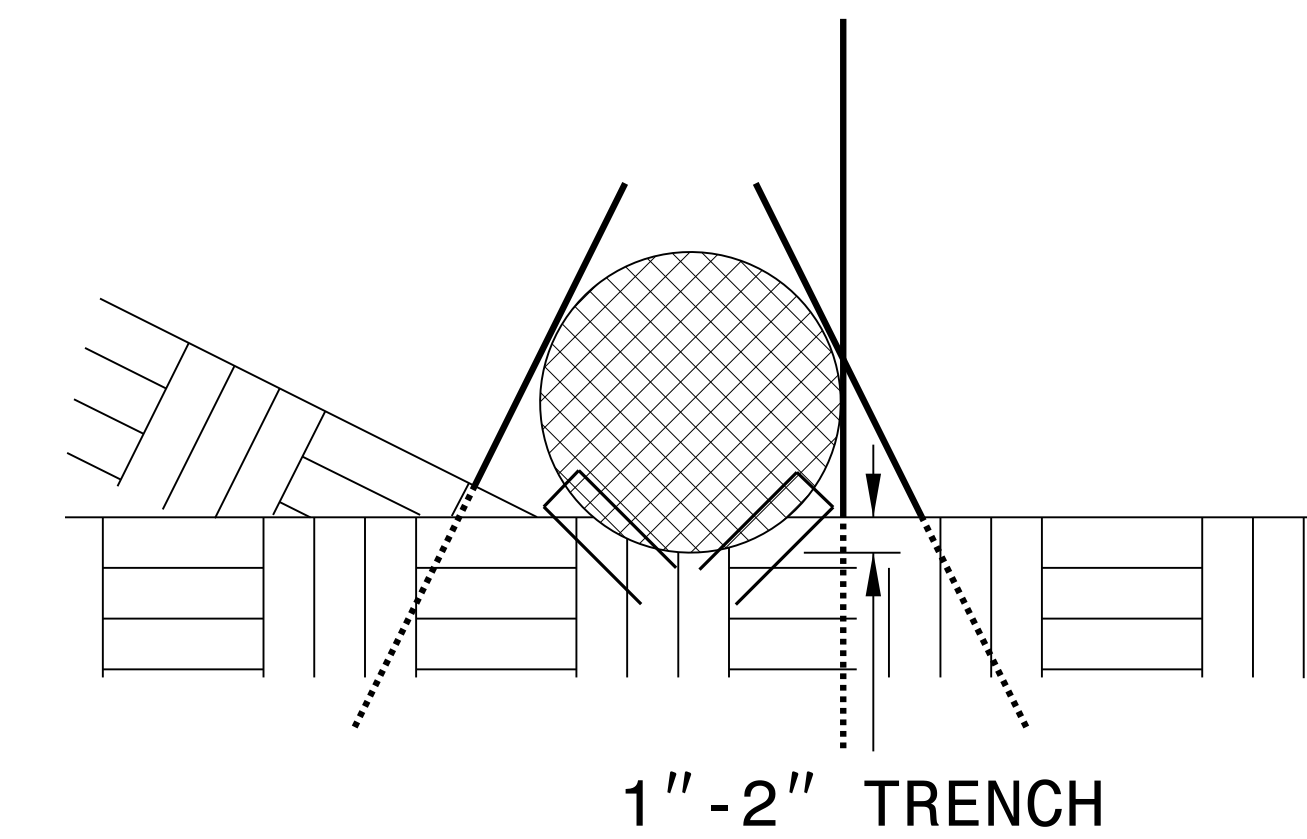
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

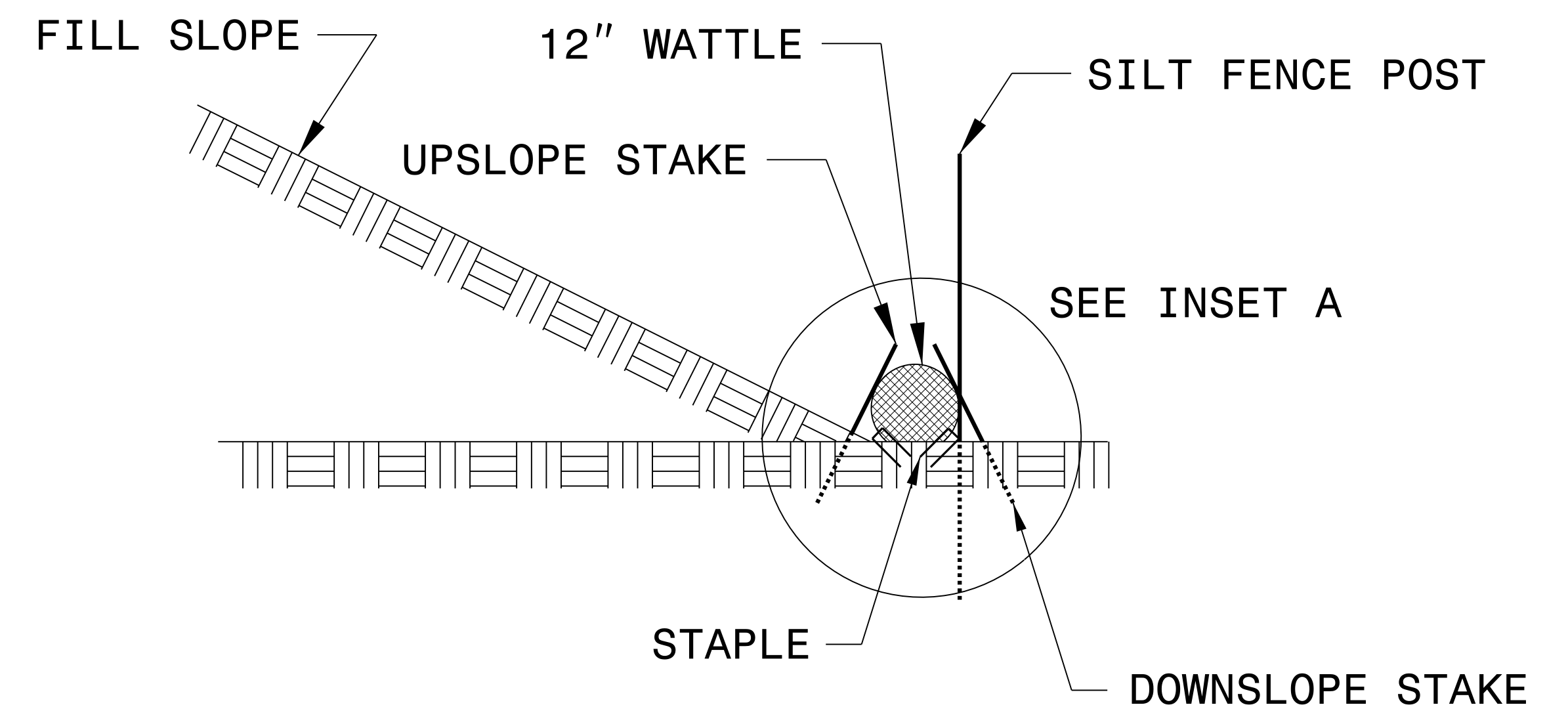
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



VIEW FROM SLOPE



SIDE VIEW

PROJECT REFERENCE NO. <i>R-2582A</i>	SHEET NO. <i>EC-2B</i>
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.

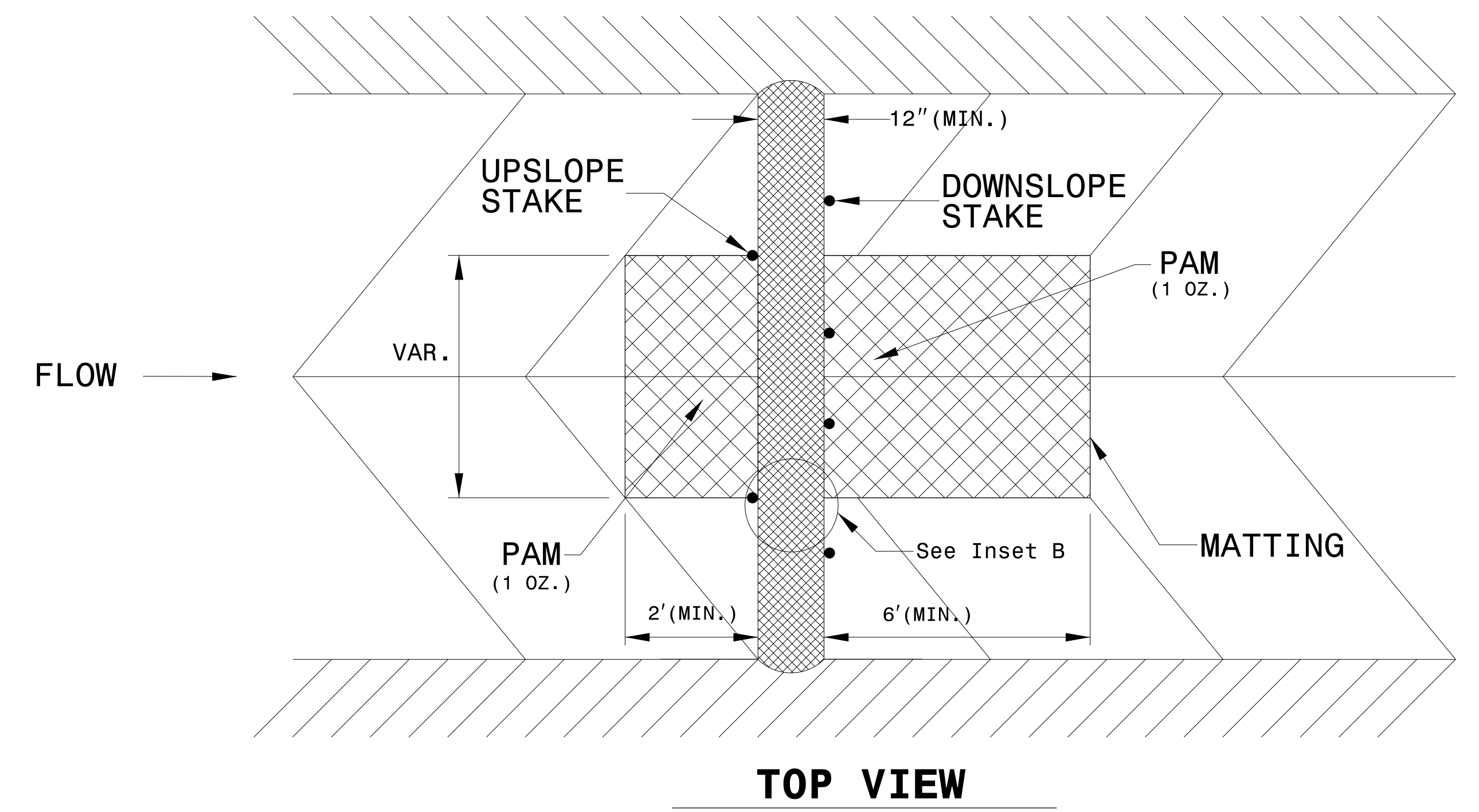
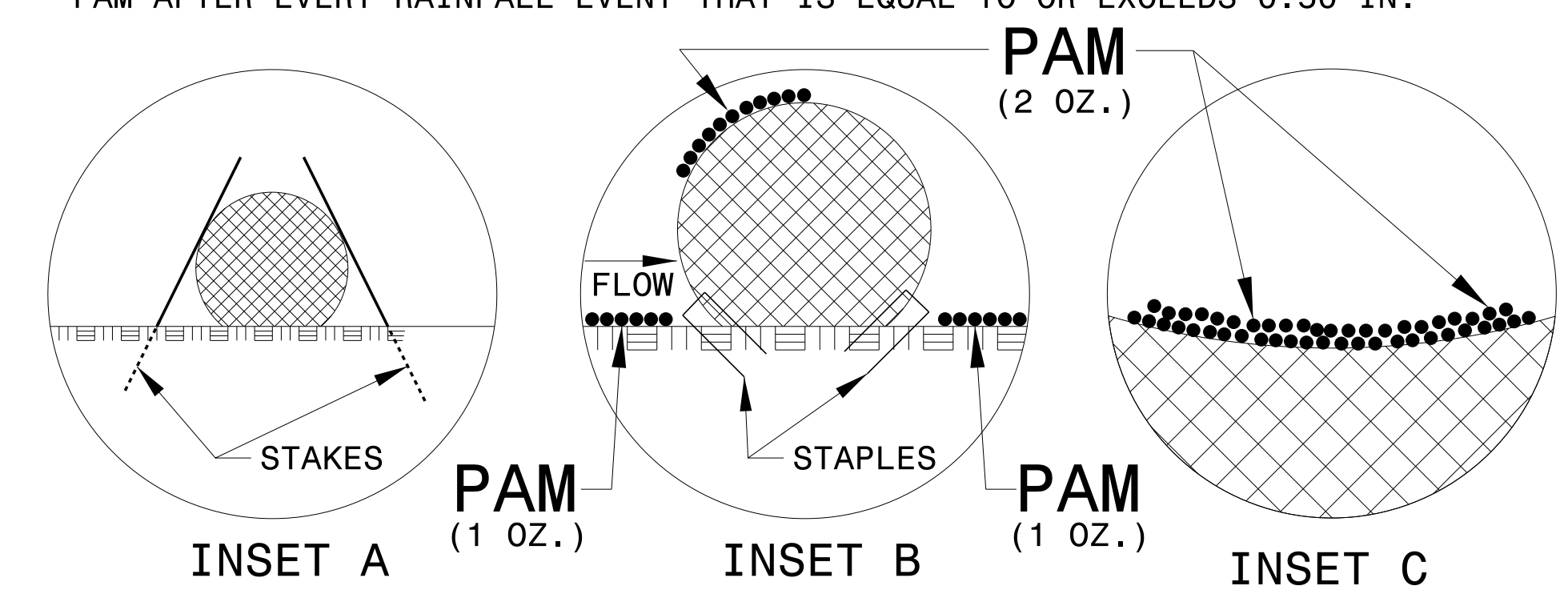
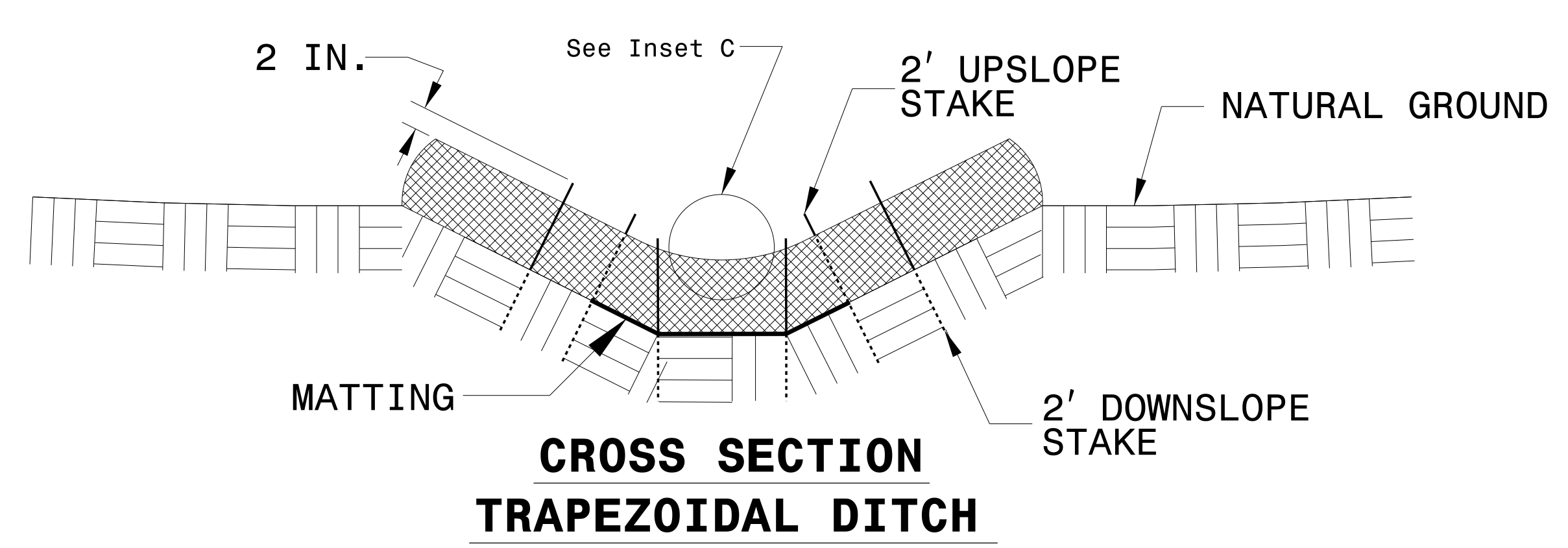
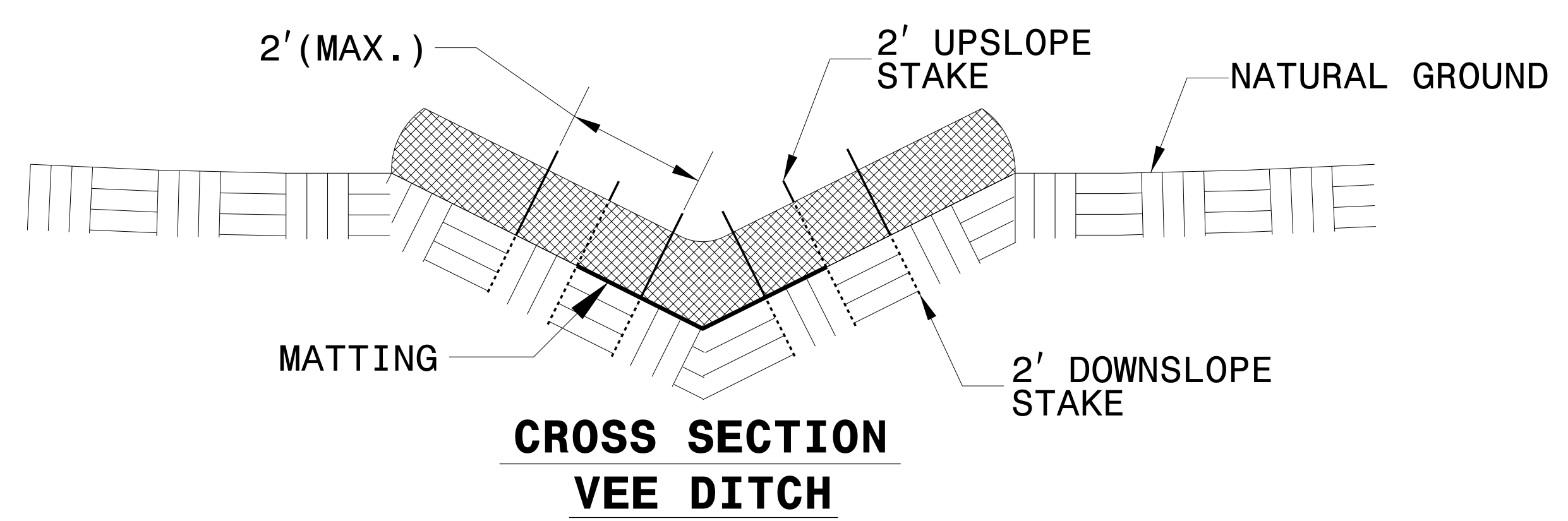
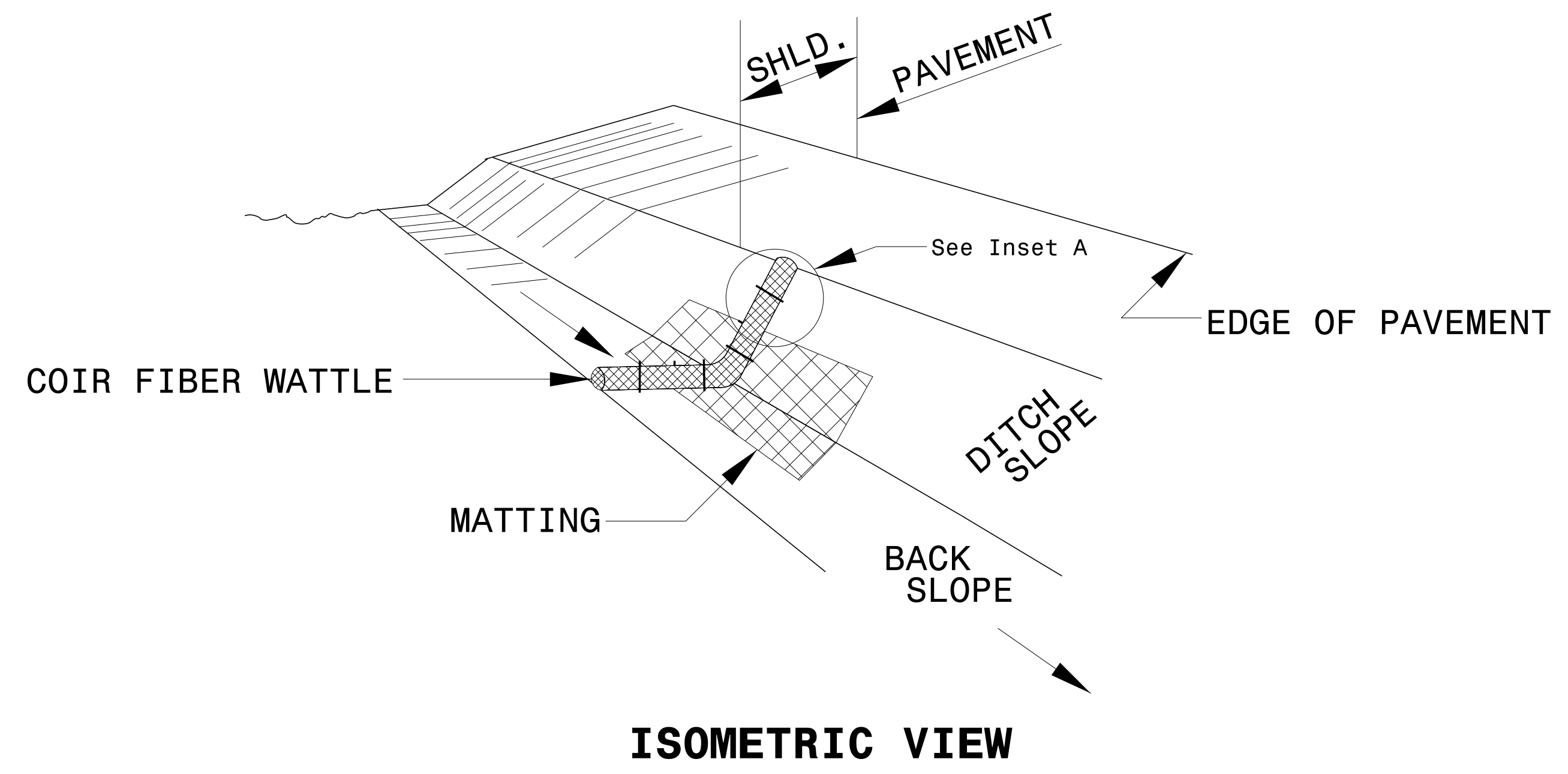
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.


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.

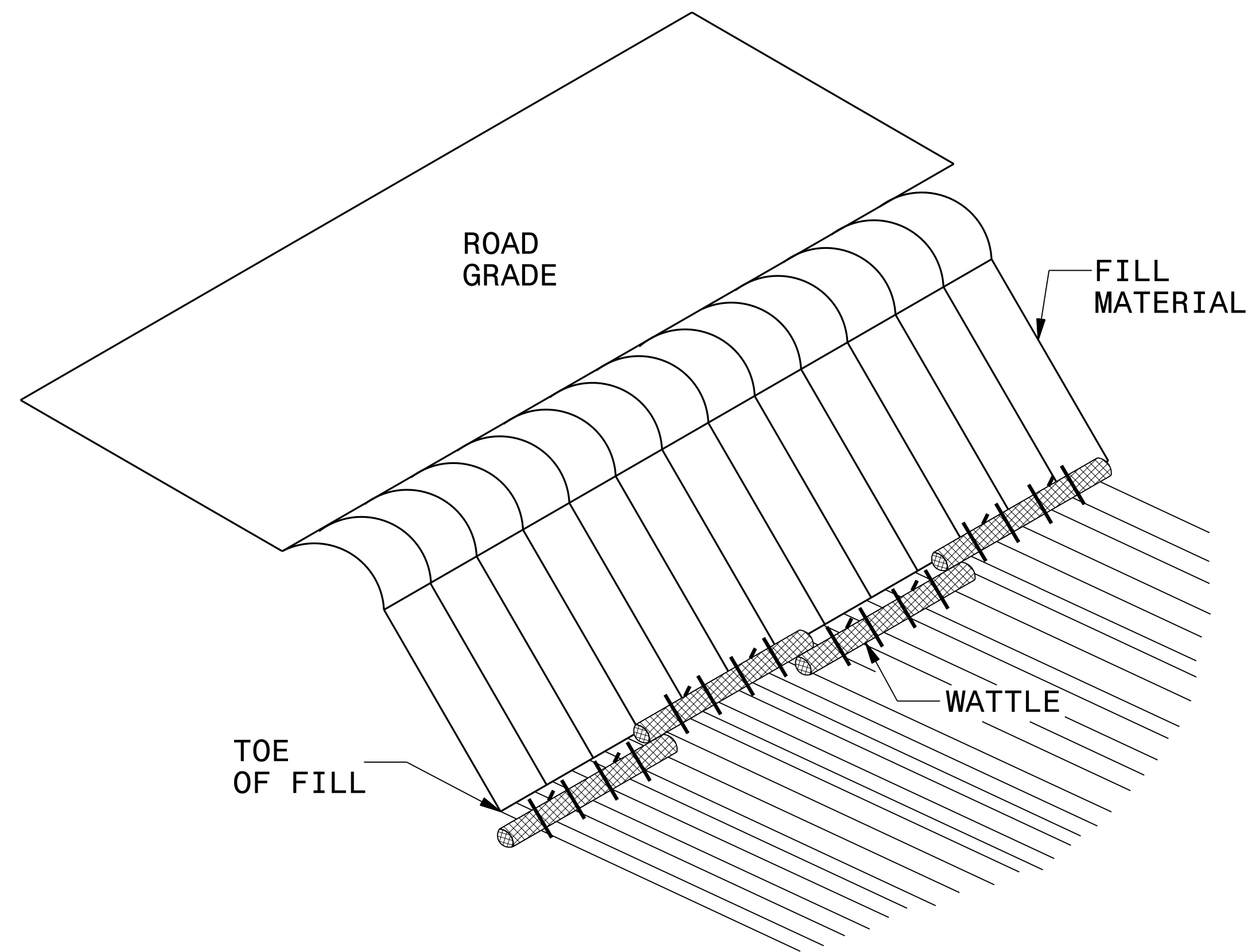
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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

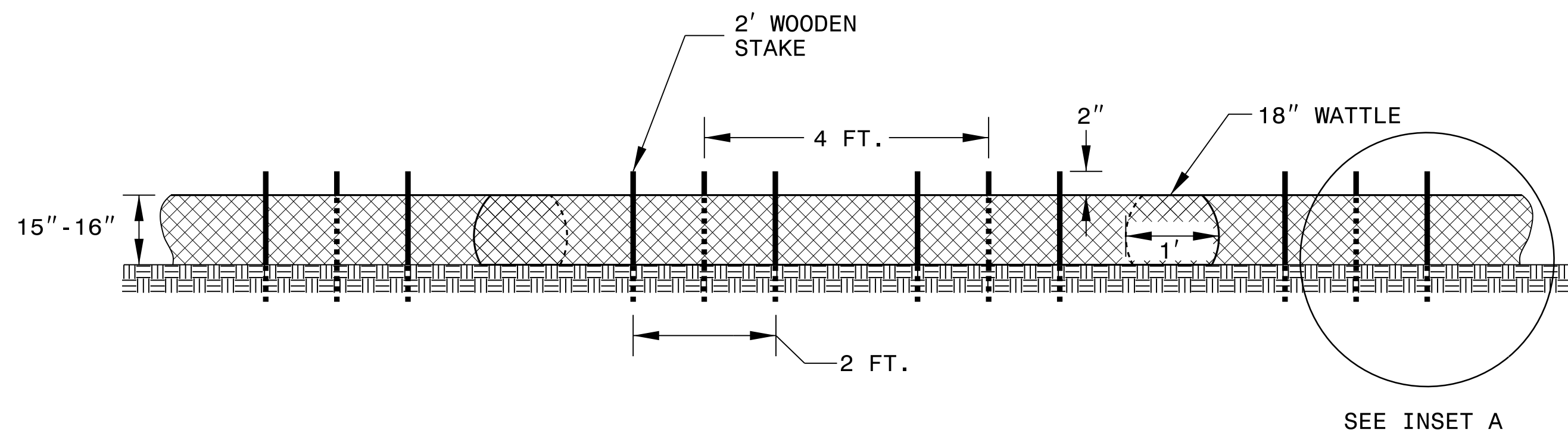


PROJECT REFERENCE NO. <i>R-2582A</i>	SHEET NO. <i>EC-2C</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:  <small>NC FIRM LICENSE: No. P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3863 (919) 732-6676 (FAX)</small>	

COIR FIBER WATTLE BARRIER DETAIL



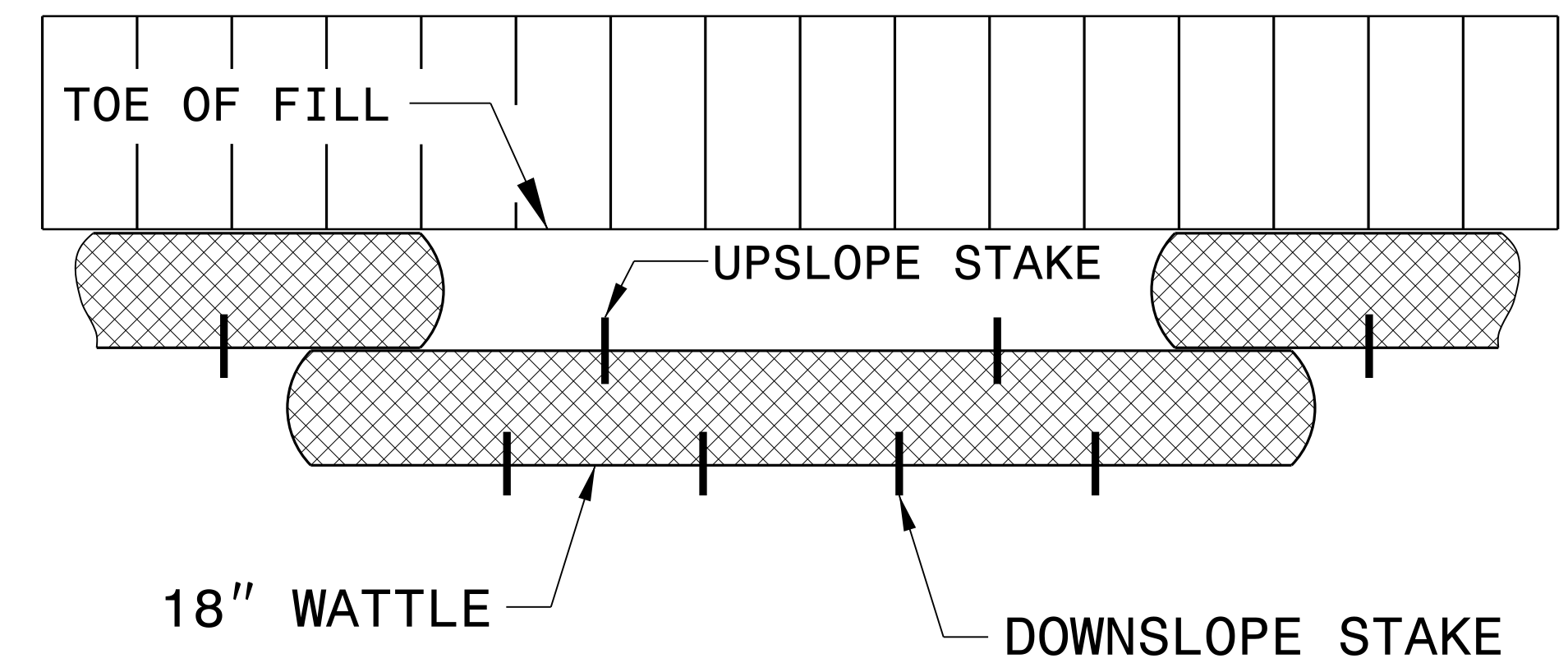
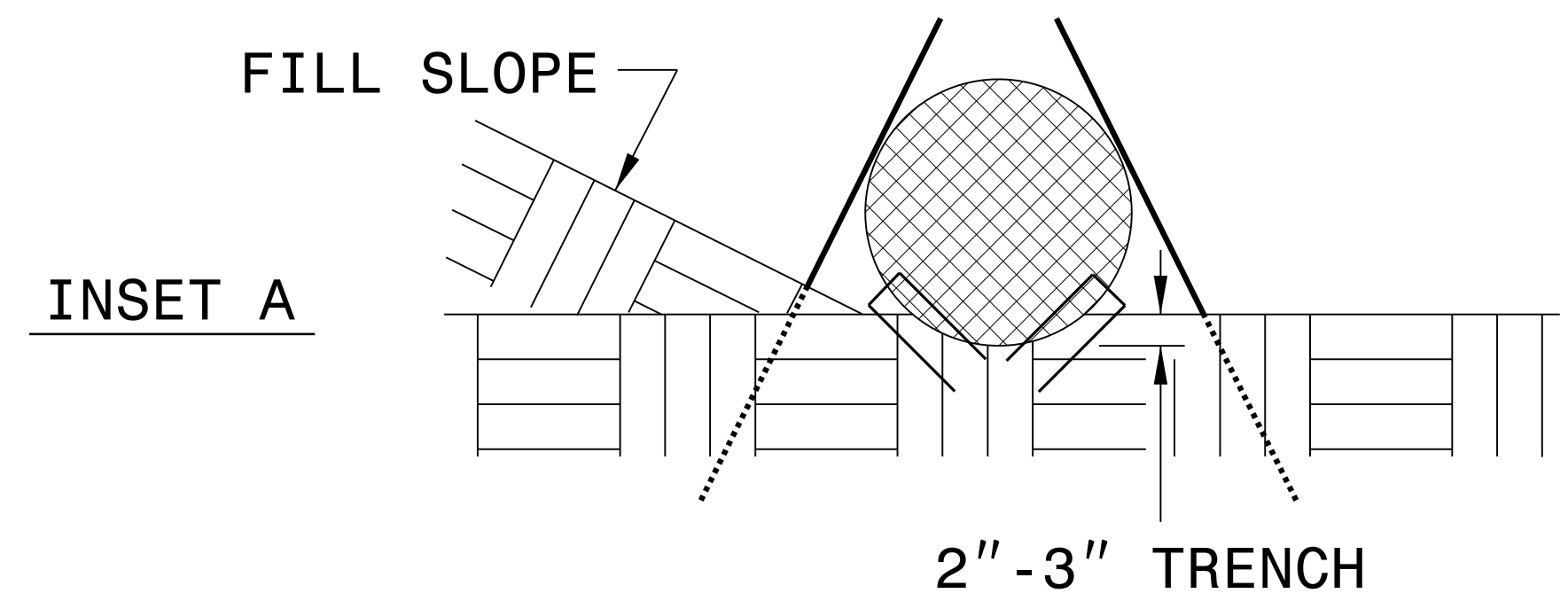
ISOMETRIC VIEW



FRONT VIEW

NOTES:

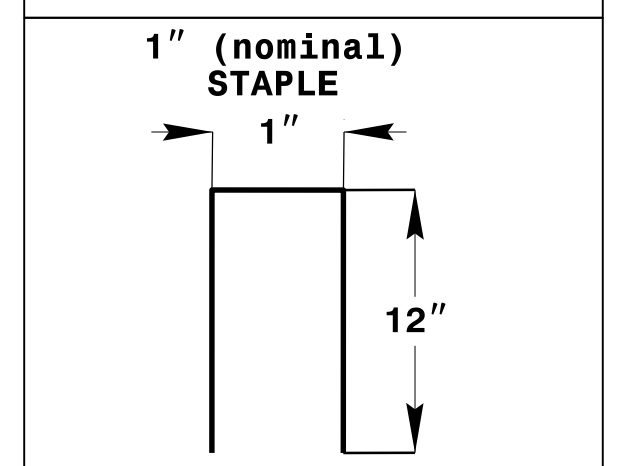
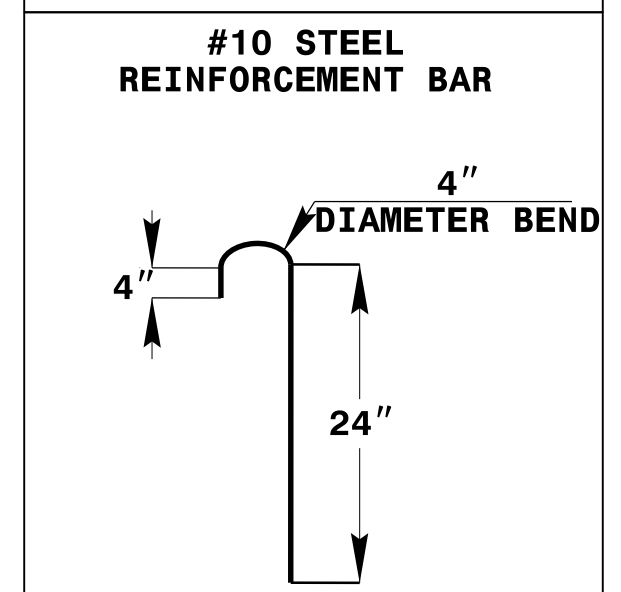
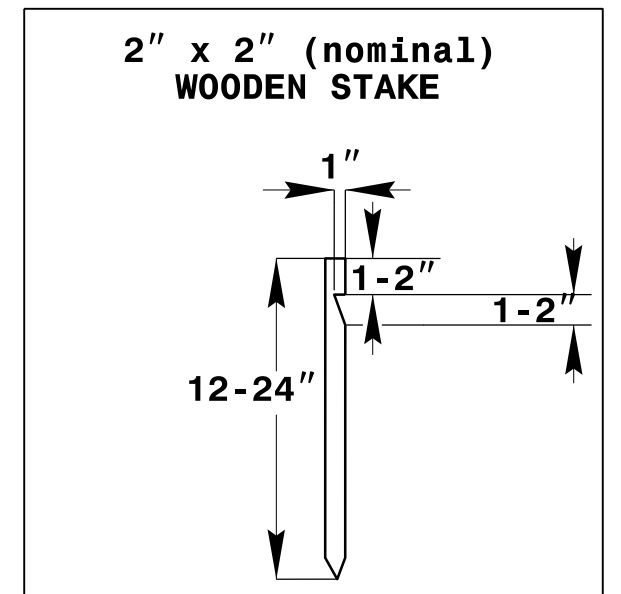
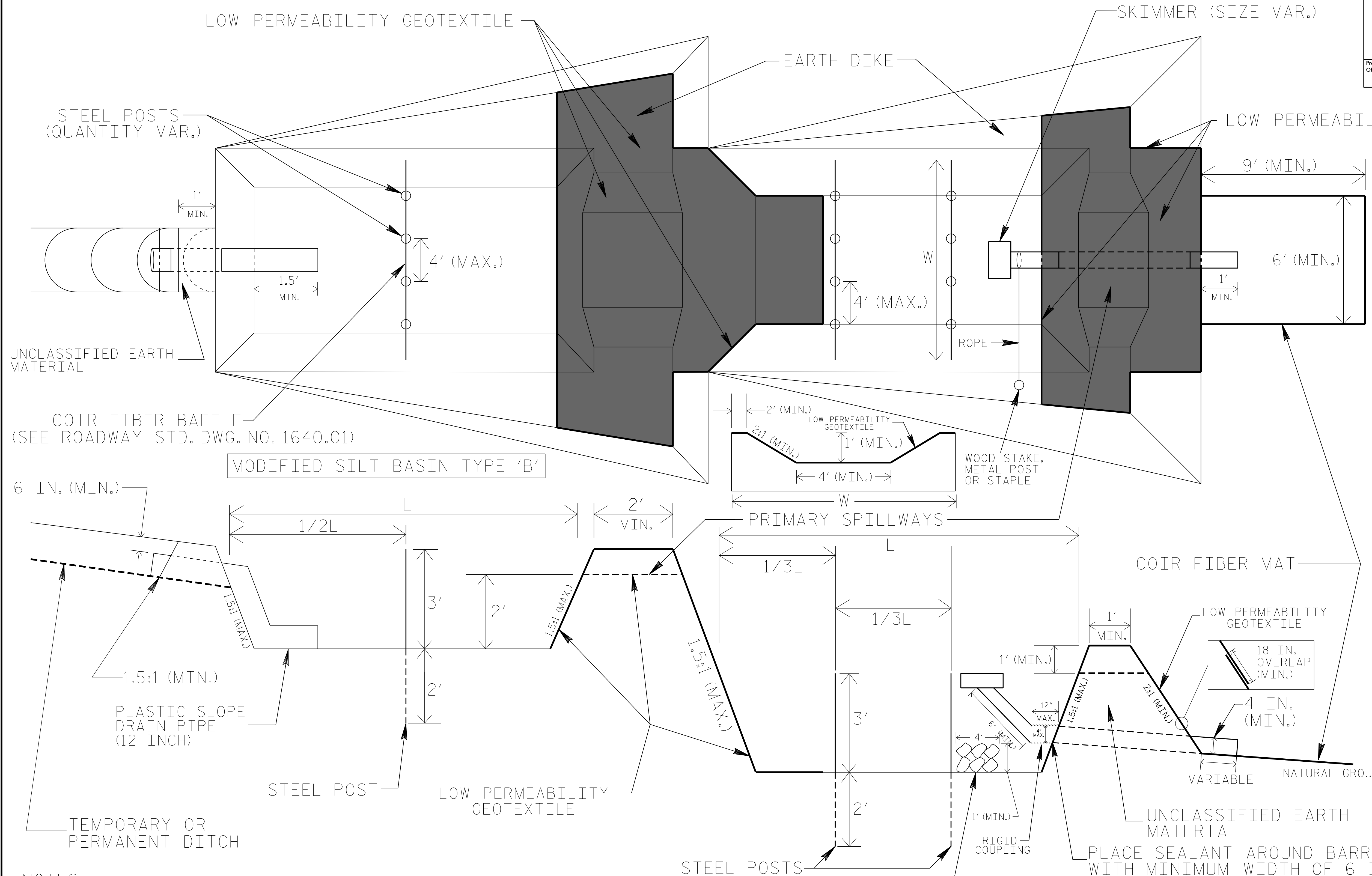
- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4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

TIERED SKIMMER BASIN DETAIL (EAST)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES <small>NC FIRM LICENSE Nos P-0339 504 Meadowlands Drive Hillsborough, NC 27278 (919) 752-3883 (919) 752-0670 (FAX)</small>	



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. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

BORROW PIT DEWATERING BASIN DETAIL

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES <small>NC FIRM LICENSE No. P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>	

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 IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1640.01 AND WITH MATERIAL THAT MEETS THE SPECIFICATIONS OF ROADWAY STANDARD 1640-14.

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 GEOTEXTILE 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.

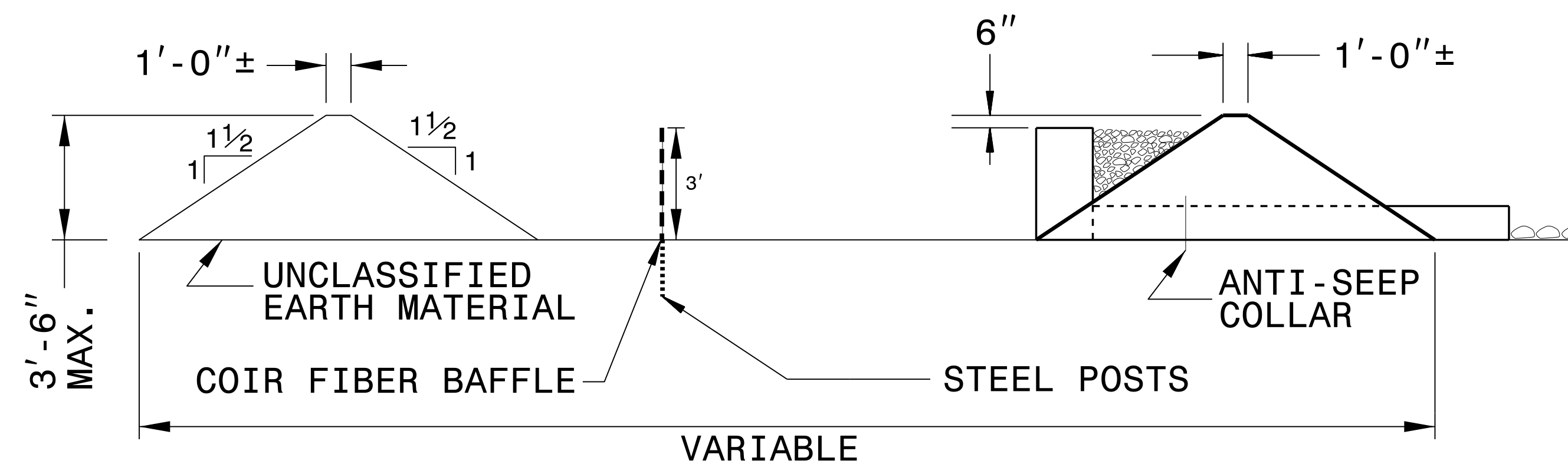
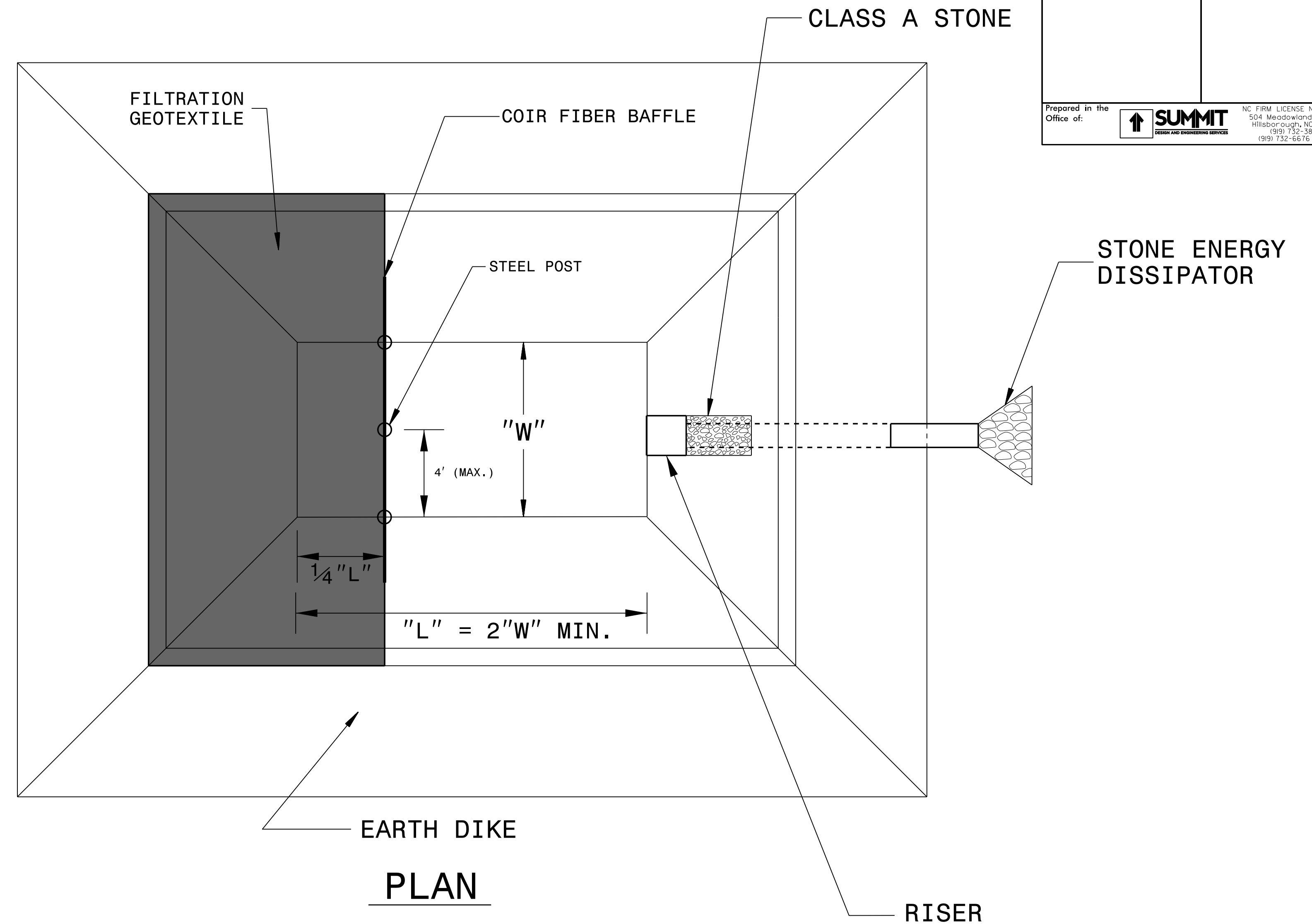
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

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.

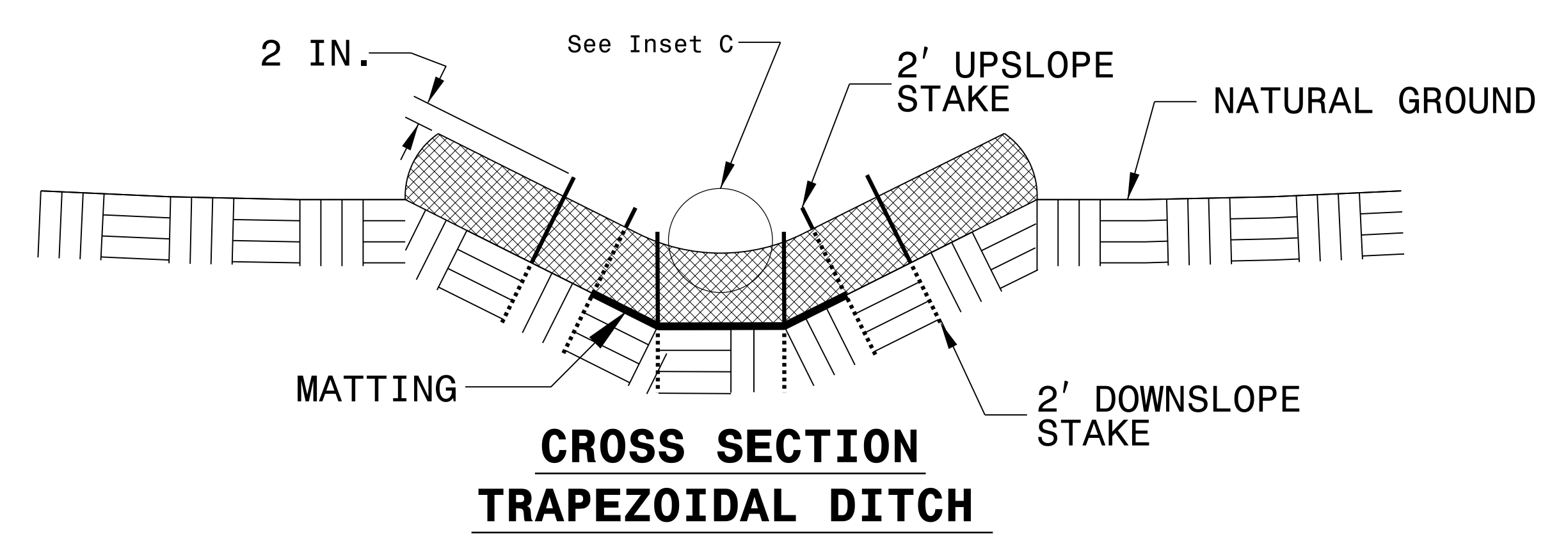
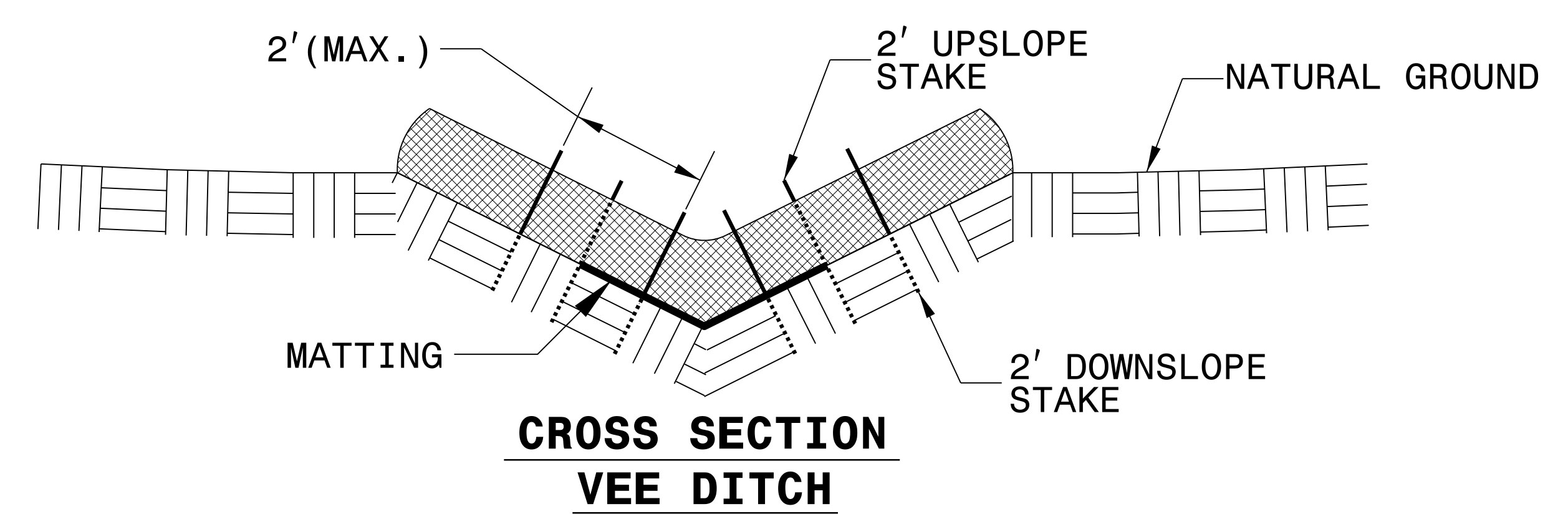
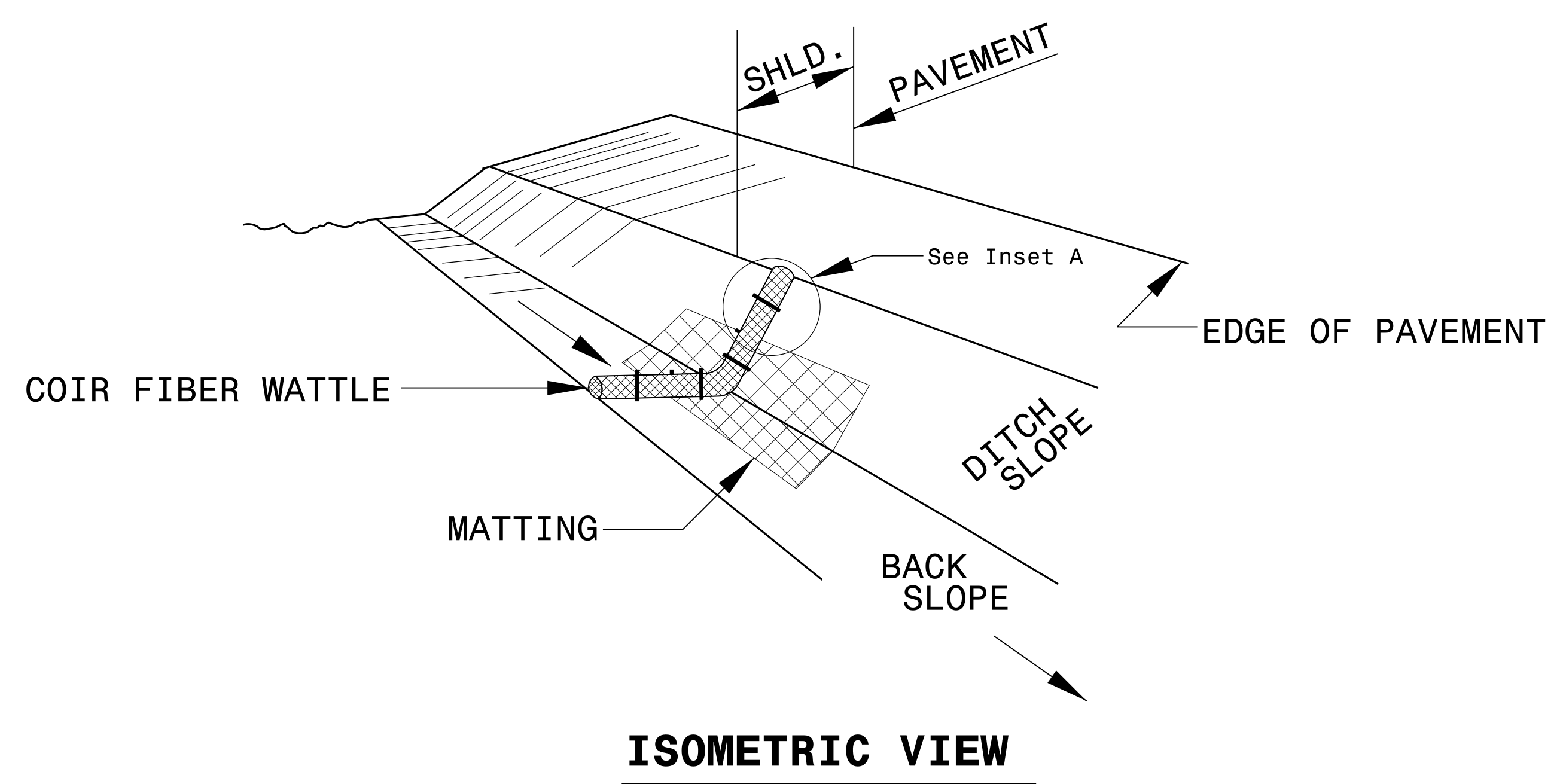


TYPICAL SECTION VIEW

NOT TO SCALE

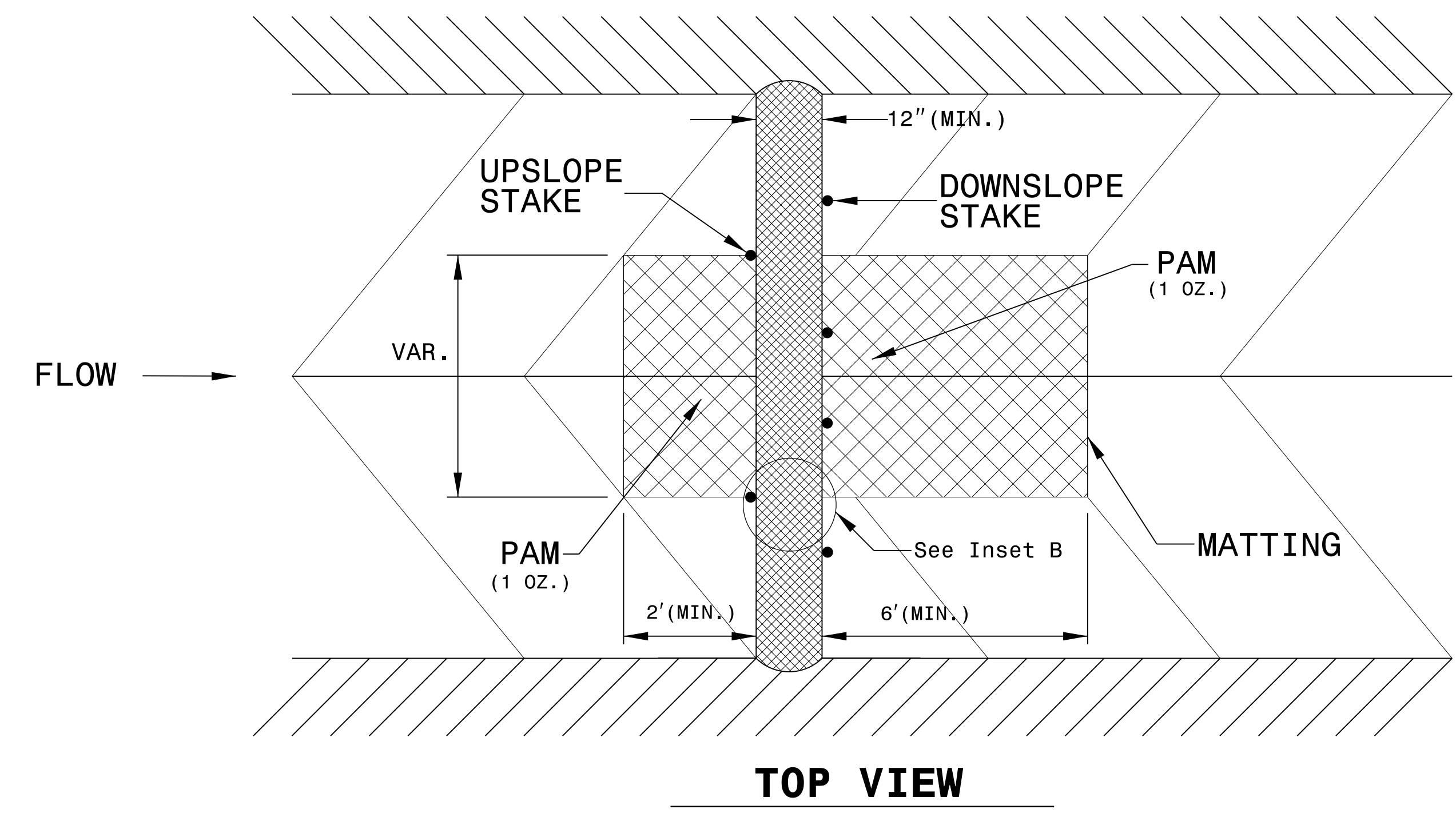
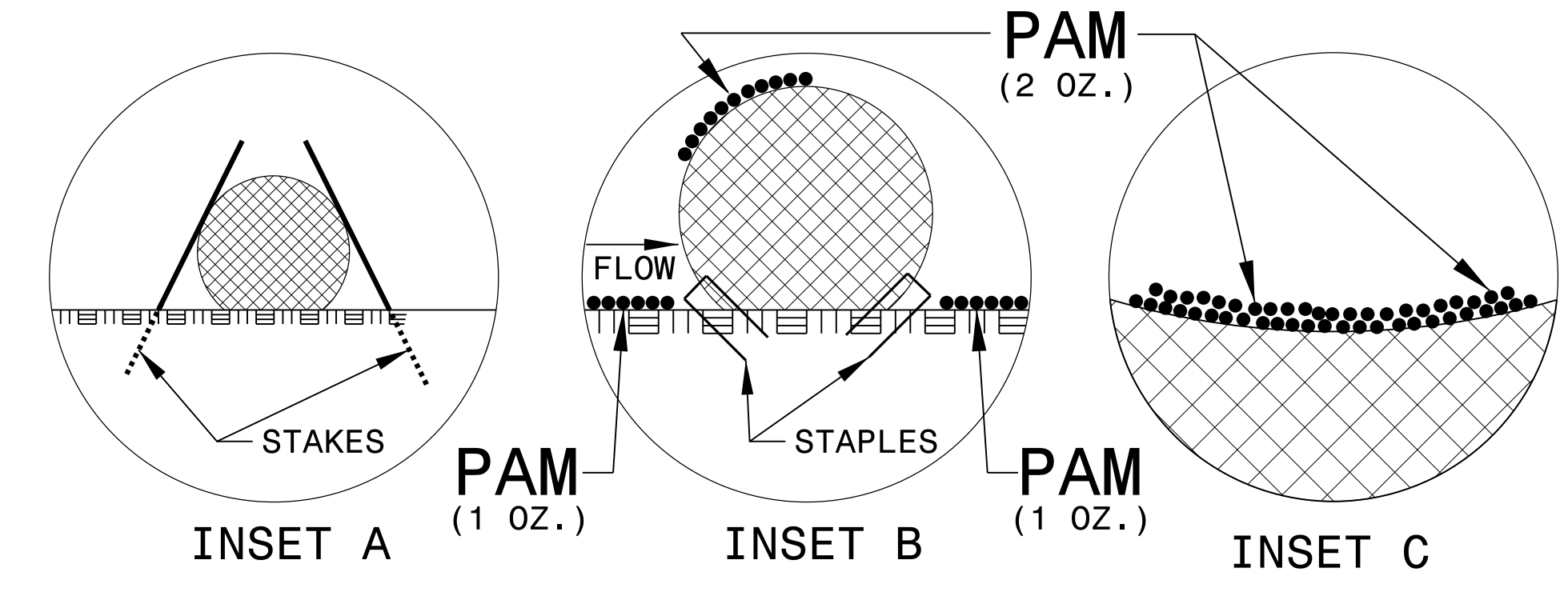
PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2F
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: 	

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



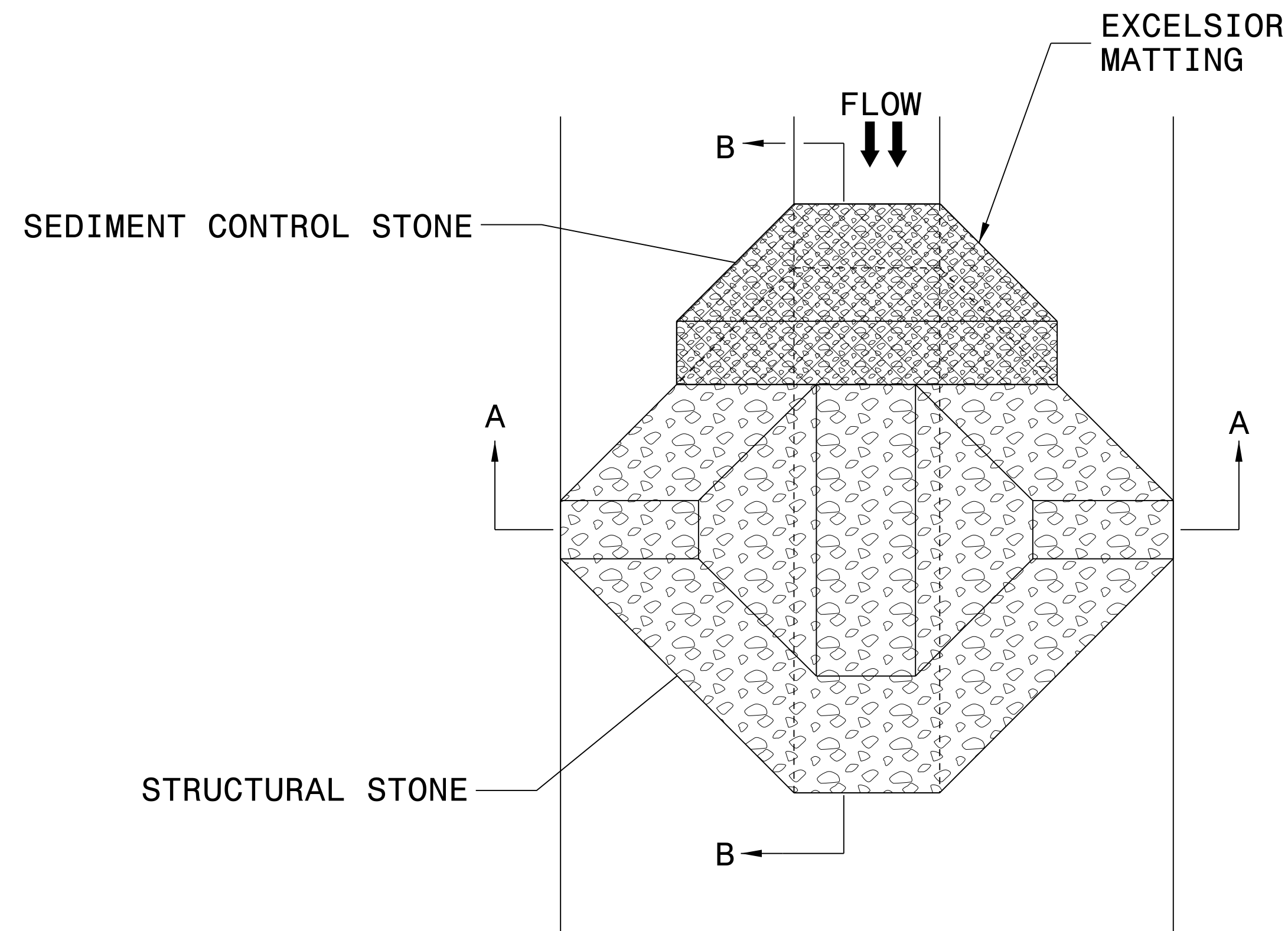
NOTES:

- 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 MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

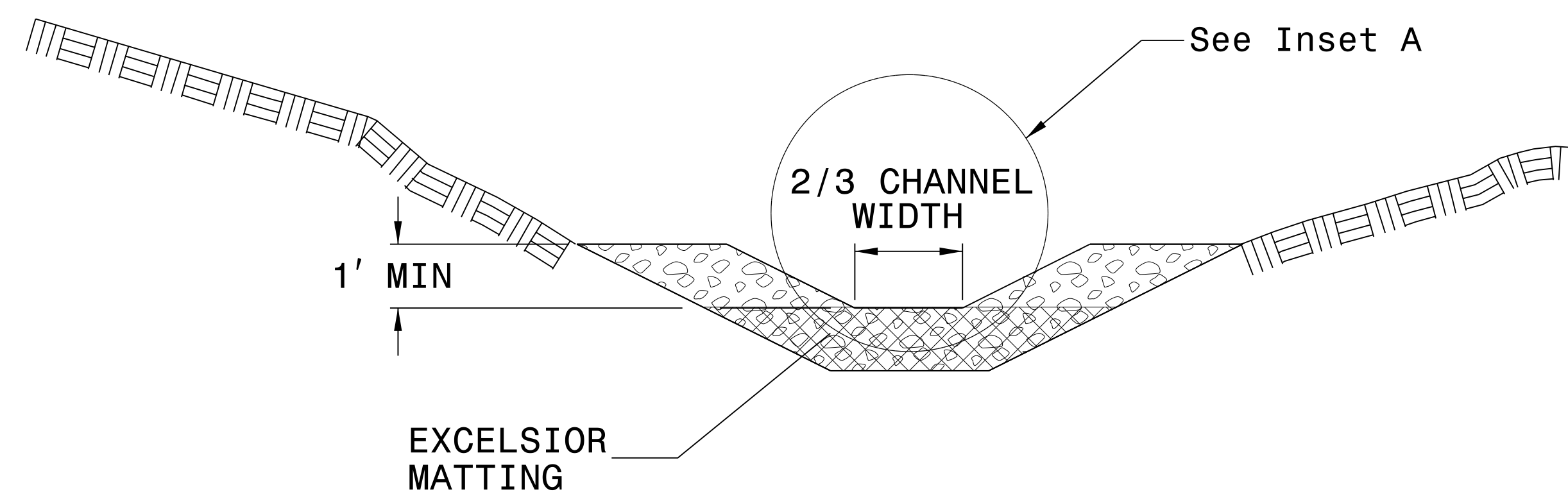


TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-2G
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT <small>ROADWAY AND HYDRAULICS SERVICES</small> NC FIRM LICENSE No. P-0359 504 Meadows Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)	



PLAN



SECTION A-A

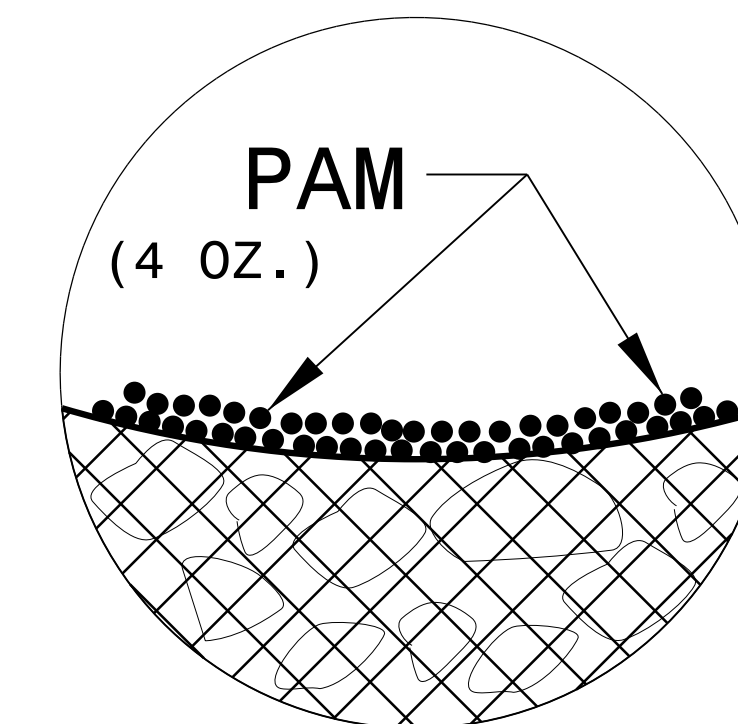
NOTES:

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

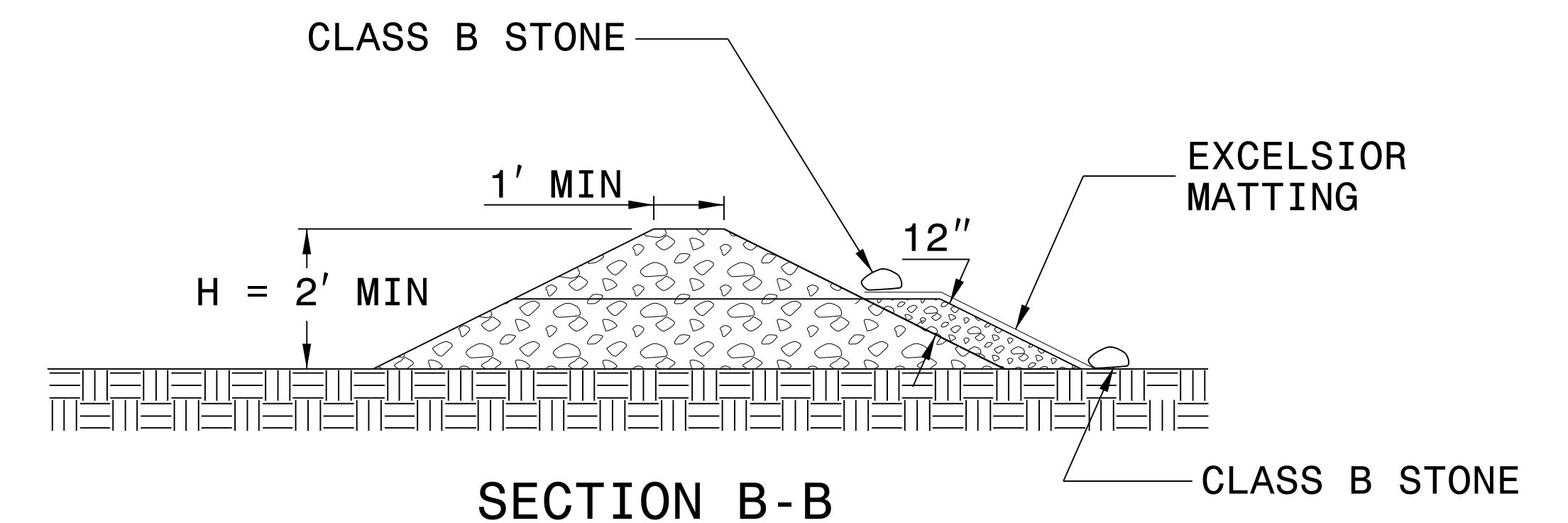
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

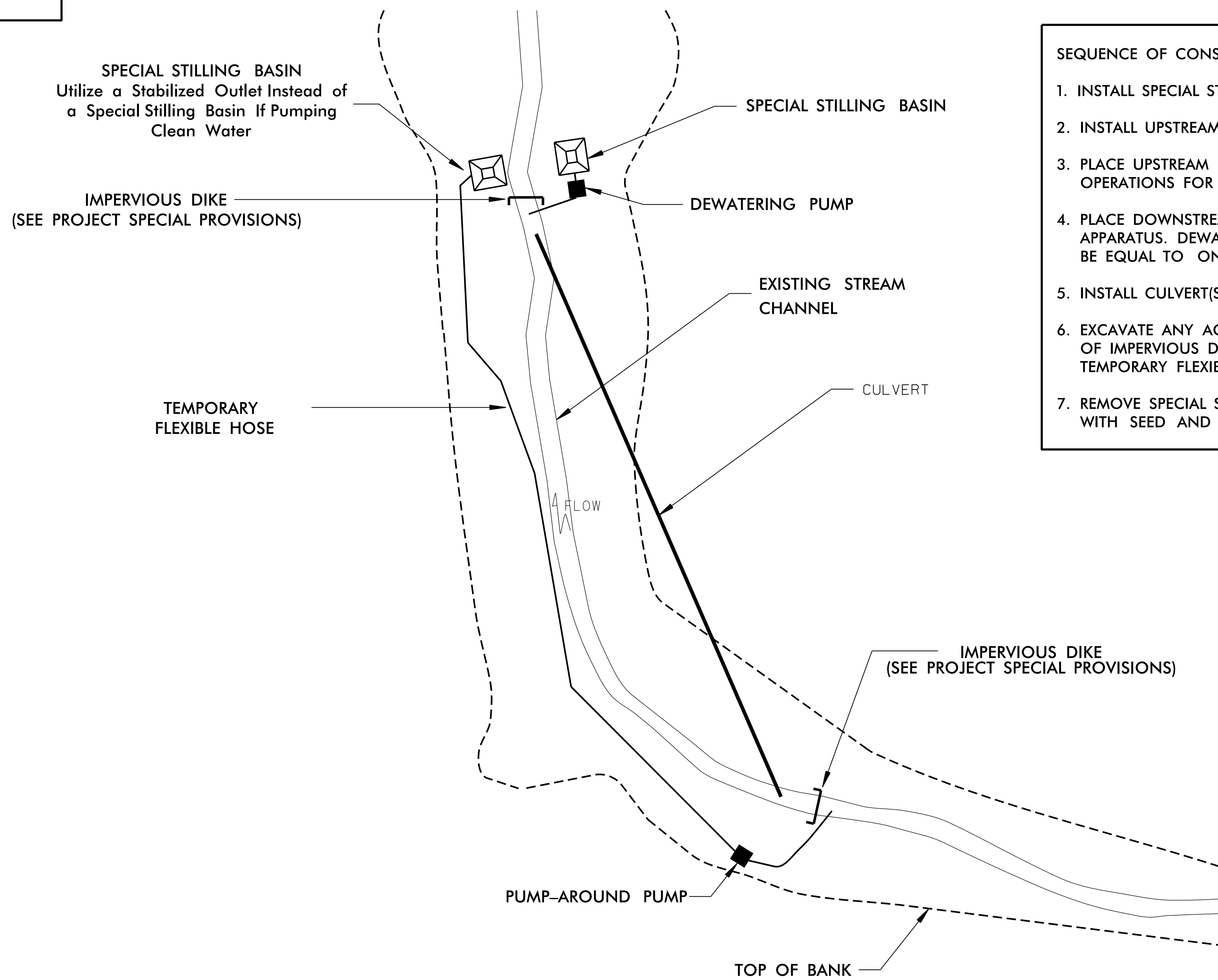
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2582A	EC-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP-AROUND OPERATION

NOTES:

- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
- 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
- 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
- 4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

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


DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

PROJECT REFERENCE NO. <i>R-2582A</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<small>Prepared in the Office of:</small> <small>NC FIRM LICENSE No. P-0339 504 Meadows Drive Wilmington, NC 27278 (919) 752-3883 (919) 752-6616 (Fax)</small>	

<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.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. R-2582A		SHEET NO. EC-3A-1	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:  NC FIRM LICENSE Nos P-0339 504 Meadows Road Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)			

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR FILL SLOPES

MATTING FOR CUT DITCHES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
16	-Y9-	24+40	25+70	LT	695
16	-Y9-	24+40	25+70	RT	590
			FILL SLOPE TOTAL		1285

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	30+50		LT	
	-195 RP8-		17+75	LT	115*
4	-L-	16+70	18+25	LT	
	-195 RPC-		12+67	RT	200**
4	-195 RPA-	14+50	15+78	RT	120
4	-195 RP8-	16+83	15+66	RT	85
4	-195 RP8-	17+75	16+24	LT	220
4	-195 RPC-	12+78	12+50	LT	170
4	-195 RP0-	12+00	14+27	LT	305
4	-L-	29+90	28+66	RT	145
5	-Y2-	13+00	13+75	LT	70
5	-Y3-	11+60	10+99	LT	45
5	-L-	37+00	38+53	LT	110
5	-L-	38+65	42+40	LT	455
5	-L-	43+50	48+35	LT	530
5	-L-	49+50	50+50	LT	85
5	-L-	33+50	38+05	RT	660
5	-L-	40+00	39+05	RT	150
5	-L-	47+30	43+50	RT	670
6	-L-	50+50	58+00	LT	305
6	-L-	58+00	60+65	LT	320
6	-L-	62+00	63+00	LT	85
6	-L-	55+00	57+82	RT	225
6	-L-	62+00	72+50	RT	845
6	-L-	60+50	68+00	MED	2350
7	-L-	75+00	80+50	RT	445
7	-L-	72+60	84+00	MED	2870
8	-L-	79+50	81+60	LT	195
8	-L-	89+50	90+50	LT	70
			SUBTOTAL		11860

* 30+50 -L- LT CONTINUES ONTO 17+75 -195 RP8- LT

**16+70 - 18+25 -L- LT CONTINUES ONTO 18+25 - 12+67 -195 RPC- RT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-3A-4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES	
NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27528 (919) 732-3883 (919) 732-6676 (FAX)	

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR FILL SLOPES

MATTING FOR CUT DITCHES

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

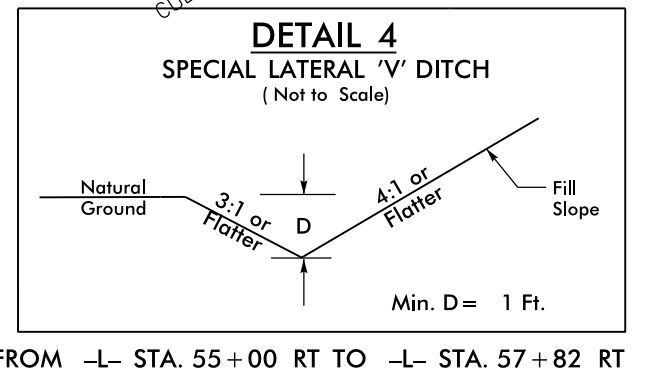
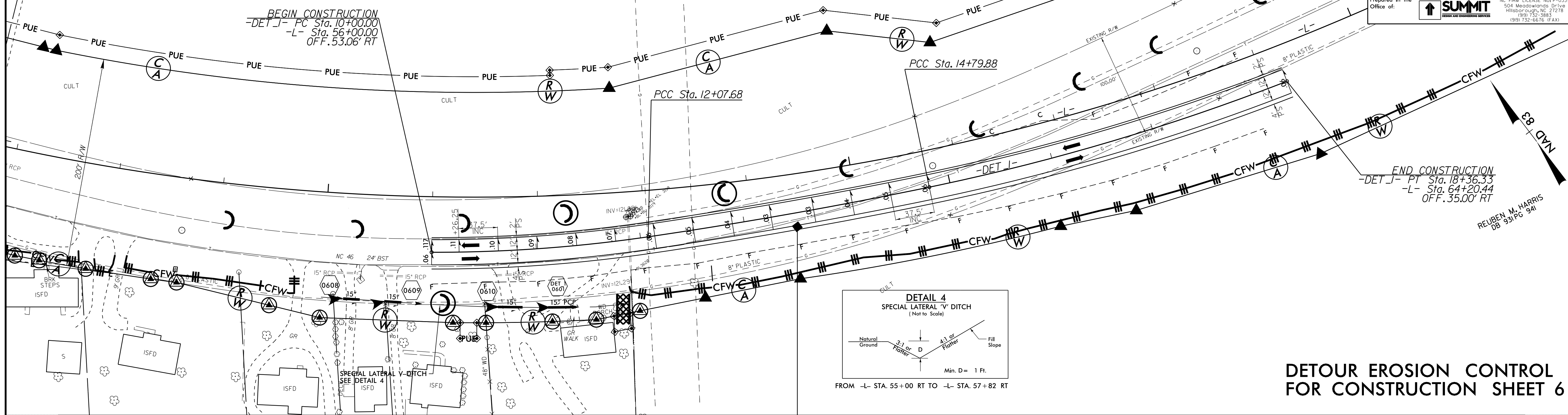
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
20	-Y13A-	38+00	HD	LT	50
20	-Y13A-	34+50	36+93	RT	195
20	-Y13A-	36+93	39+50	RT	210
20	-L-	266+00	269+90	LT	370
20	-L-	257+00	261+50	RT	365
21	-Y13-	12+90	19+00	LT	640
21	-L-	271+00	275+30	LT	380
21	-L-	270+00	271+00	LT	85
21	-L-	271+00	282+00	LT	1340
21	-L-	267+00	269+90	RT	270
21	-L-	270+50	276+00	RT	535
21	-L-	276+00	283+00	RT	650
21	-L-	270+00	275+00	MED	645
21	-L-	276+50	283+00	MED	890
22	-L-	283+67	284+75	RT	205
22	-L-	287+70	289+00	RT	140
22	-L-	290+00	298+00	RT	185
22	-L-	290+00	299+42	MED	1150
23	-L-	299+42	301+50	LT	105
23	-L-	301+50	307+70	LT	895
24	-L-	319+00	324+24	LT	425
24	-L-	316+50	318+28	RT	230
24	-L-	319+00	324+70	RT	585
25	-Y16-	18+75	19+32	LT	45
25	-L-	329+66	342+00	LT	240
25	-L-	324+70	325+88	RT	95
25	-L-	327+45	329+50	RT	210
25	-L-	327+45	HD	RT	50
25	-L-	329+70	339+50	RT	1395
				SUBTOTAL	12580

EROSION CONTROL FOR DETOUR PHASE II (DET_1)

ANNIE TUDOR
DB 02E PG 164

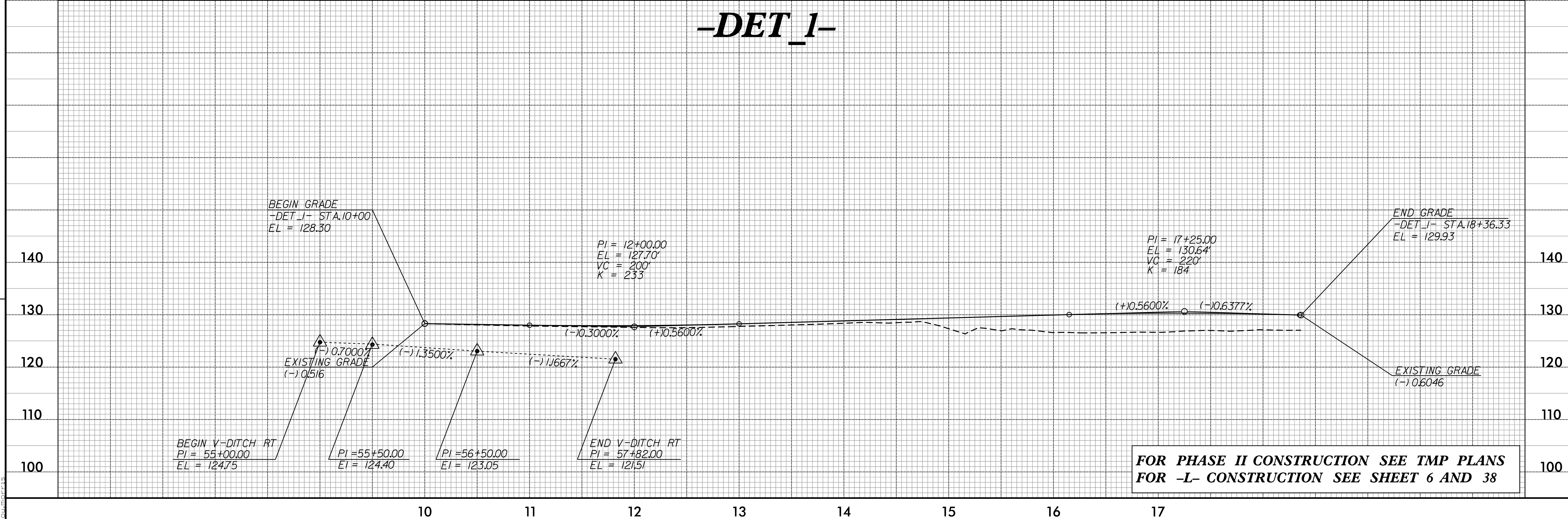
DET_1		
PI Sta 11+04.03	PI Sta 13+43.82	PI Sta 16+58.52
$\Delta = 8^{\circ}28'48.9"$ (LT)	$\Delta = 3^{\circ}23'25.7"$ (LT)	$\Delta = 9^{\circ}33'56.8"$ (LT)
$D = 4^{\circ}05'00.0"$	$D = 1^{\circ}14'44.0"$	$D = 2^{\circ}41'01.1"$ -L-
$L = 207.68'$	$L = 272.20'$	$L = 356.45'$
$T = 104.03'$	$T = 136.14'$	$T = 178.64'$
$R = 1,403.16'$	$R = 4,600.00'$	$R = 2,135.00'$
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS
SE = SEE PLANS	SE = 03	SE = 06

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-6DET/CONST.6
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>	



DETOUR EROSION CONTROL FOR CONSTRUCTION SHEET 6

-DET_1-



FOR PHASE II CONSTRUCTION SEE TMP PLANS FOR -L- CONSTRUCTION SEE SHEET 6 AND 38

8/17/99

DB 02E PG 164

REVISIONS

07-JAN-2019 13:12
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TUDORP15

REUBEN M. HARRIS
DB 93 PG 941

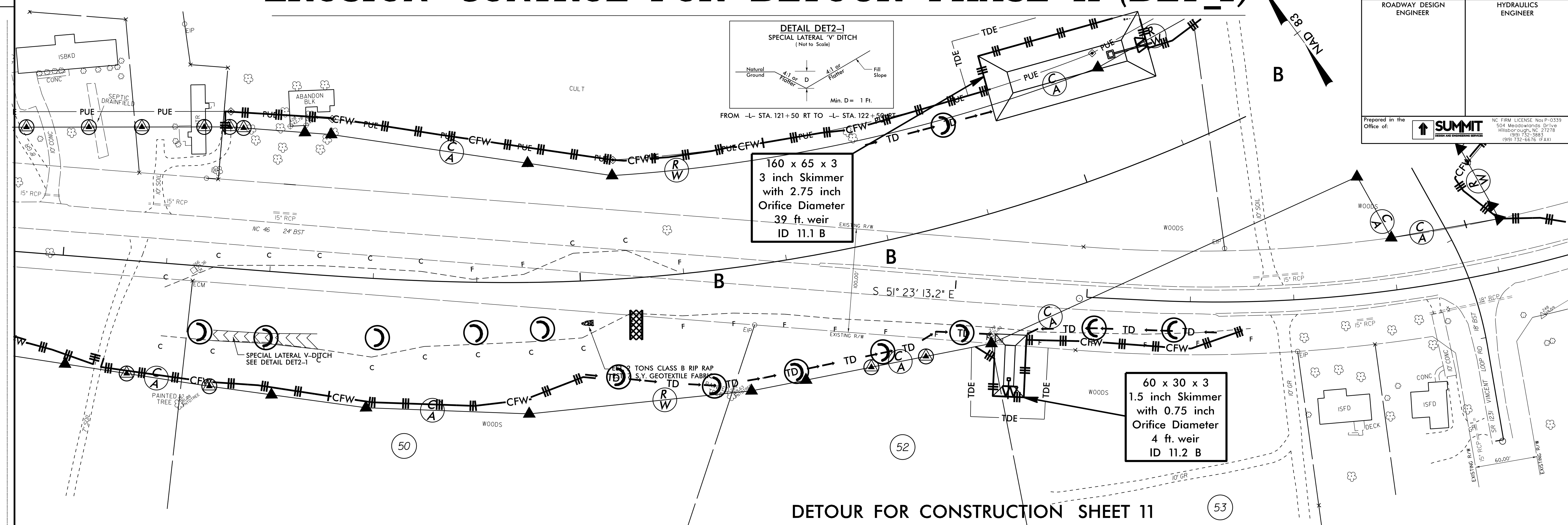
EROSION CONTROL FOR DETOUR PHASE II (DET_2)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-II/DET/CONST.II
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

Prepared in the Office of:

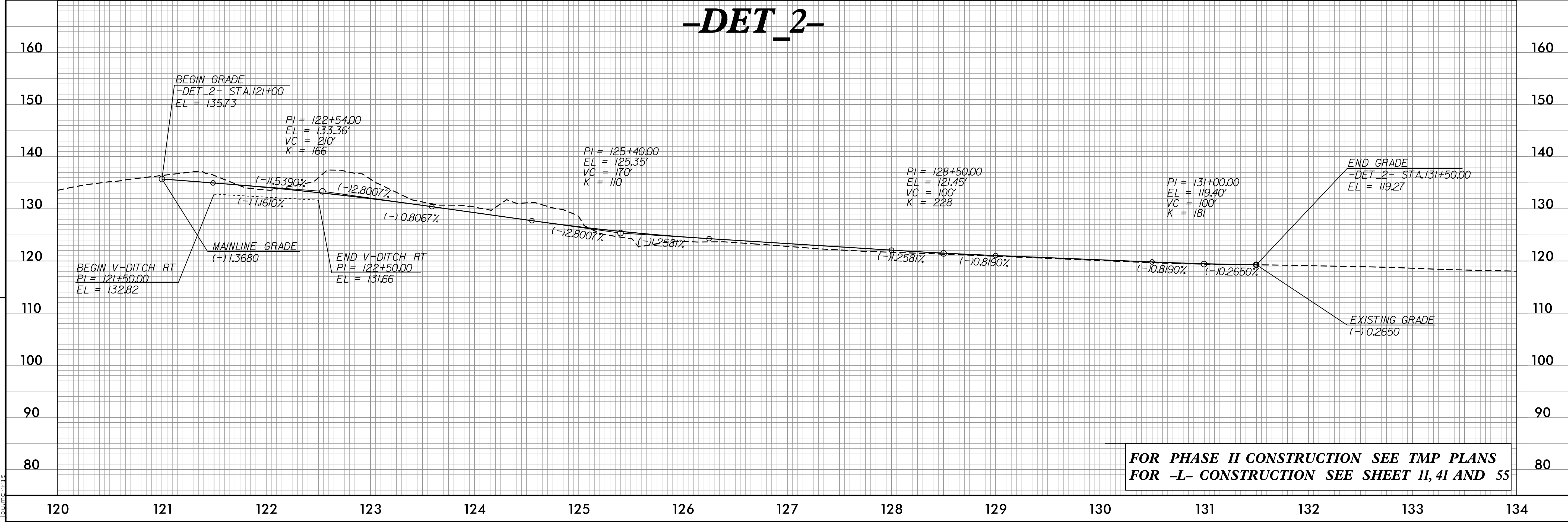
SUMMIT
DESIGN AND ENGINEERING SERVICES

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



DETOUR FOR CONSTRUCTION SHEET 11

-DET_2-



FOR PHASE II CONSTRUCTION SEE TMP PLANS
FOR -L- CONSTRUCTION SEE SHEET 11, 41 AND 55

REVISIONS

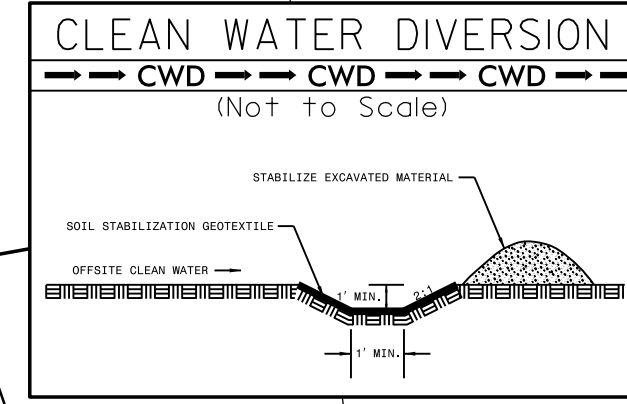
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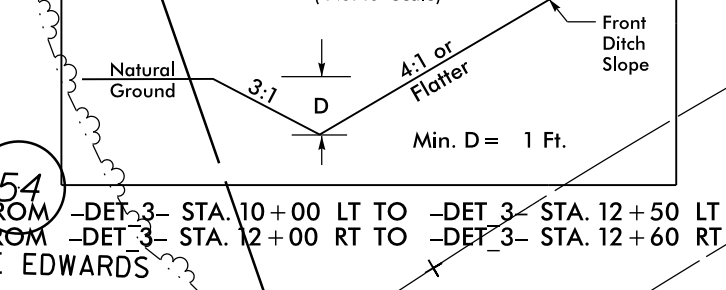
EROSION CONTROL FOR DETOUR PHASE III (DET_3)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-13DET/CONST.13
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES	
<small>NC FIRM LICENSE Nos P-0339 584 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 FAX</small>	

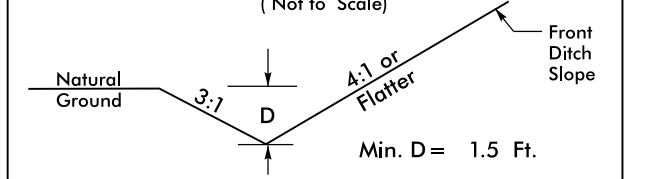
-DET_3-
 PI Sta 14+26.19
 $\Delta = 54' 11" 28.5' (RT)$
 $D = 6' 52' 41.7"$
 $T = 787.86'$
 $R = 833.00'$
 RO = SEE PLANS
 SE = 06



DETAIL DET3-1
 SPECIAL CUT DITCH FORD
 (Not to Scale)



DETAIL DET3-2
 SPECIAL CUT DITCH
 (Not to Scale)



BEGIN CONSTRUCTION
 -DET_3-PC Sta. 10+00.00
 -L- Sta. 148+65.43
 OFF. 213.23' RT

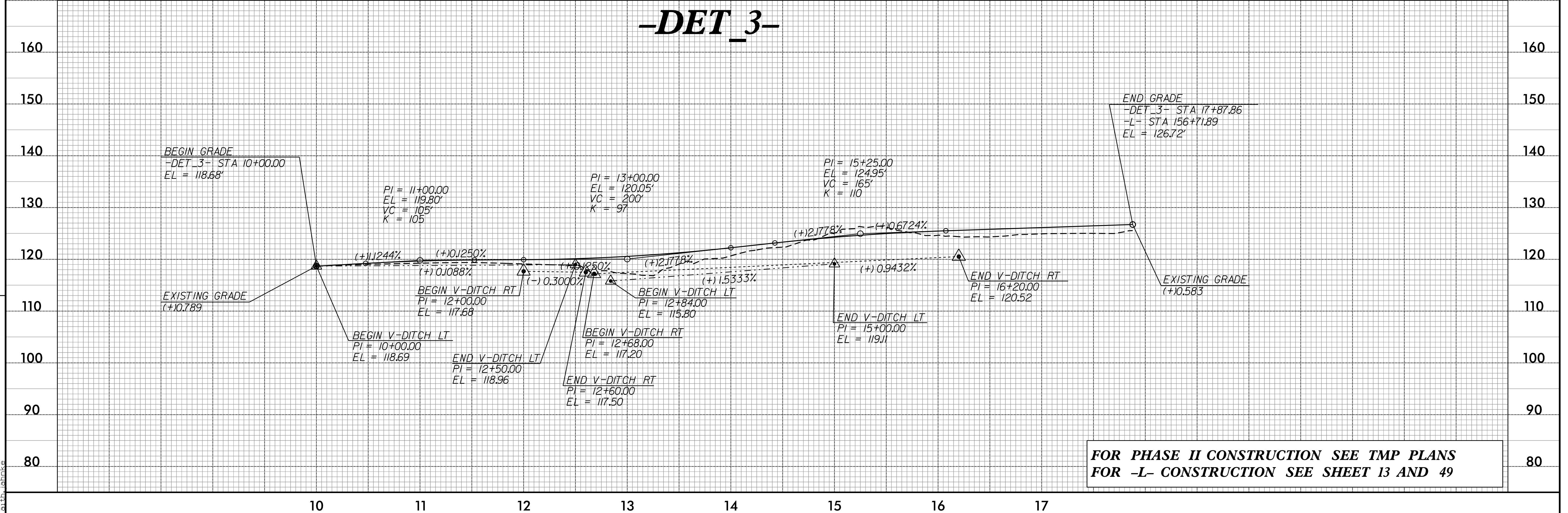
END CONSTRUCTION
 -DET_3-PT Sta. 17+87.86
 -L- Sta. 156+71.89
 OFF. 35.00' RT

120 x 30 x 3
 ID 13.3 CG

-L- POC Sta. 155+50.00
 -Y6- POT Sta. 10+00.00
 N 39° 47' 24.3" E

FROM -DET_3- STA. 12+68 RT TO -DET_3- STA. 16+20 RT
 FROM -DET_3- STA. 12+84 LT TO -DET_3- STA. 15+00 LT

-DET_3-



**FOR PHASE II CONSTRUCTION SEE TMP PLANS
 FOR -L- CONSTRUCTION SEE SHEET 13 AND 49**

REVISIONS

03-185-208 08/31/24
 R2-2582A-13-DET-3.dwg
 JTB:lab

EROSION CONTROL FOR DETOUR X-OVER PHASE III (DET_4A)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-15DET/CONST.15
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

Prepared in the Office of: **SUMMIT** DESIGN AND ENGINEERING SERVICES

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
CDD 1/25/2016 (FAX)

-DET_4A-

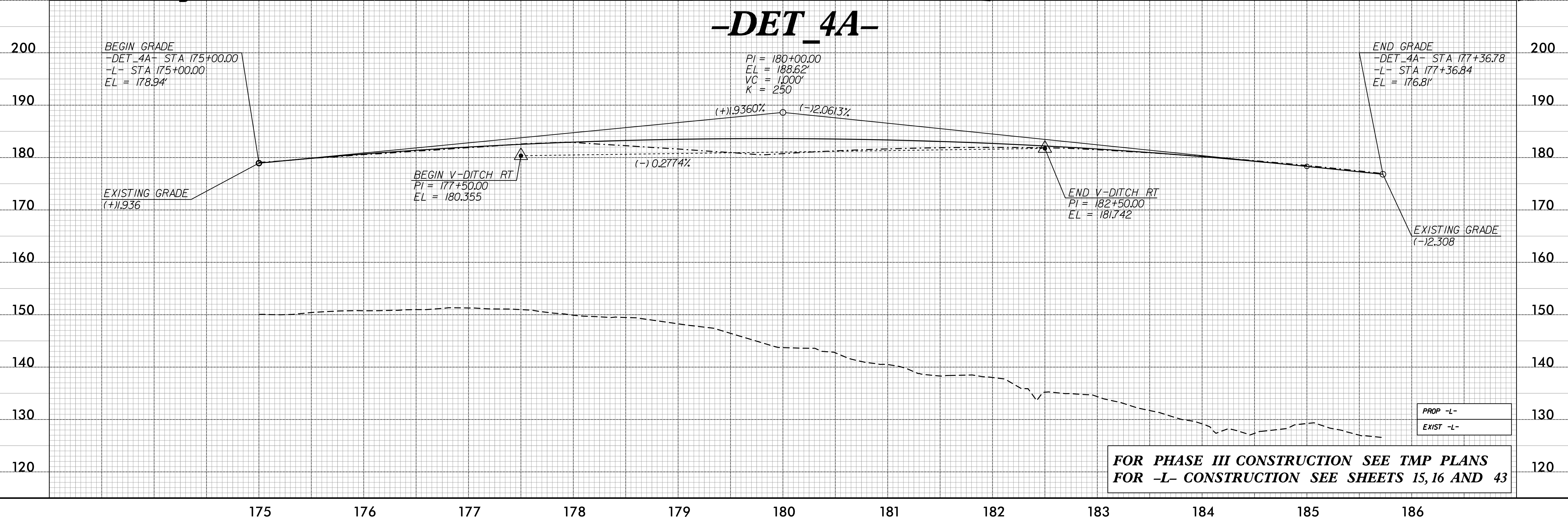
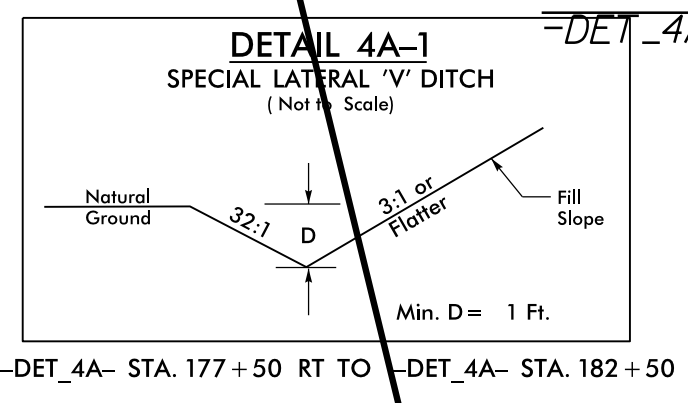
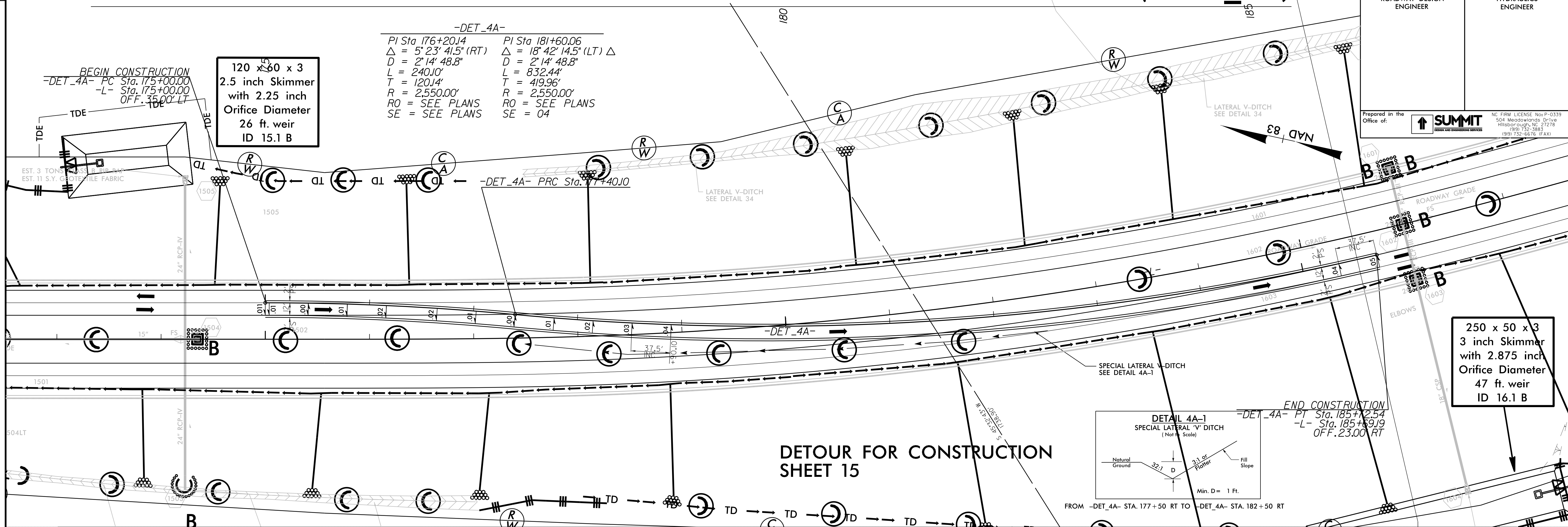
PI Sta 176+20.14	PI Sta 181+60.06
$\Delta = 5^{\circ} 23' 41.5" (RT)$	$\Delta = 18^{\circ} 42' 14.5" (LT) \Delta$
$D = 2^{\circ} 14' 48.8"$	$D = 2^{\circ} 14' 48.8"$
$L = 240.10'$	$L = 832.44'$
$T = 120.14'$	$T = 419.96'$
$R = 2,550.00'$	$R = 2,550.00'$
$RO = \text{SEE PLANS}$	$RO = \text{SEE PLANS}$
$SE = \text{SEE PLANS}$	$SE = 04$

BEGIN CONSTRUCTION
-DET_4A- PC Sta. 175+00.00
-L- Sta. 175+00.00
OFF. 35.00' LT

120 x 60 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
26 ft. weir
ID 15.1 B

END CONSTRUCTION
-DET_4A- PT Sta. 185+25.54
-L- Sta. 185+69.19
OFF. 23.00' RT

250 x 50 x 3
3 inch Skimmer
with 2.875 inch
Orifice Diameter
47 ft. weir
ID 16.1 B



**FOR PHASE III CONSTRUCTION SEE TMP PLANS
FOR -L- CONSTRUCTION SEE SHEETS 15, 16 AND 43**

REVISIONS

8/17/99

07-JAN-2018 13:13
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EROSION CONTROL FOR DETOUR X-OVER PHASE II (DET_4B)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-15DET2/CONST.15
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

Prepared in the Office of: **SUMMIT**

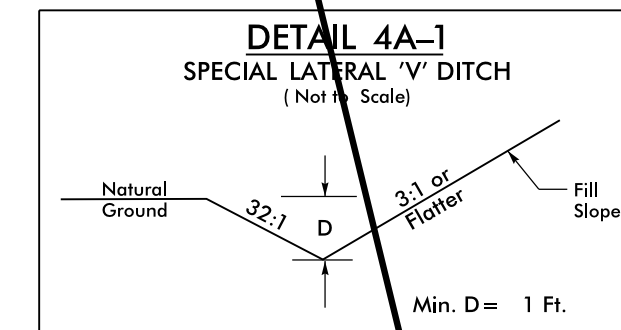
NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
SOP 125-0676 (7/41)

-DET_4B-

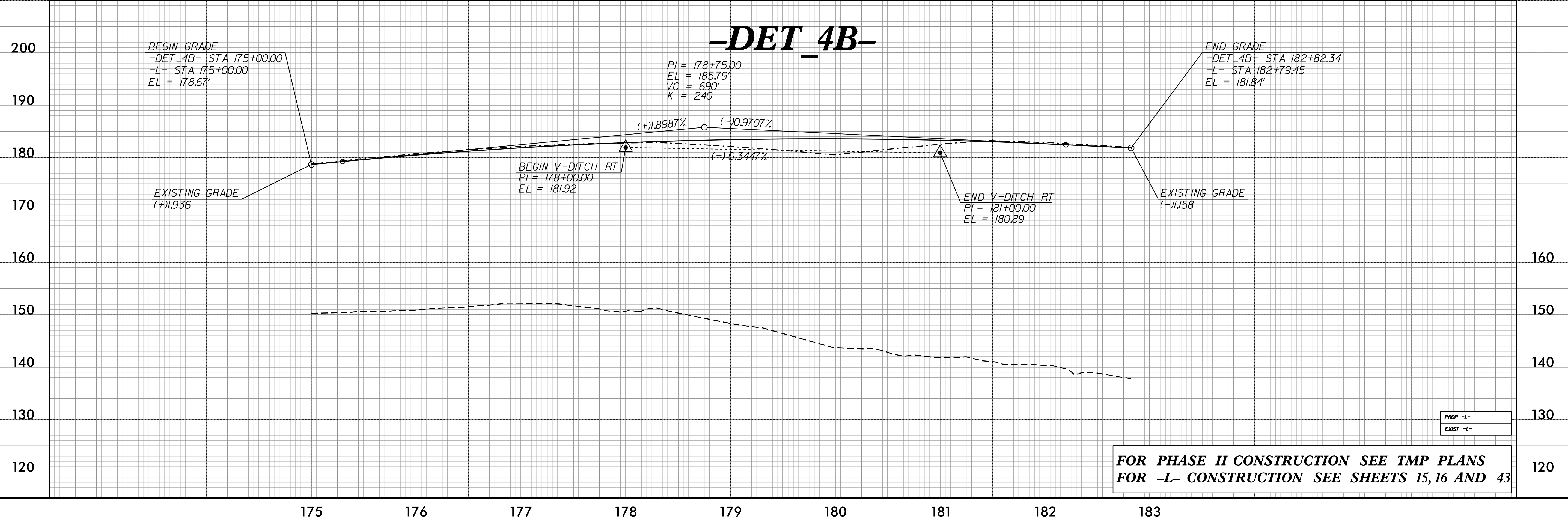
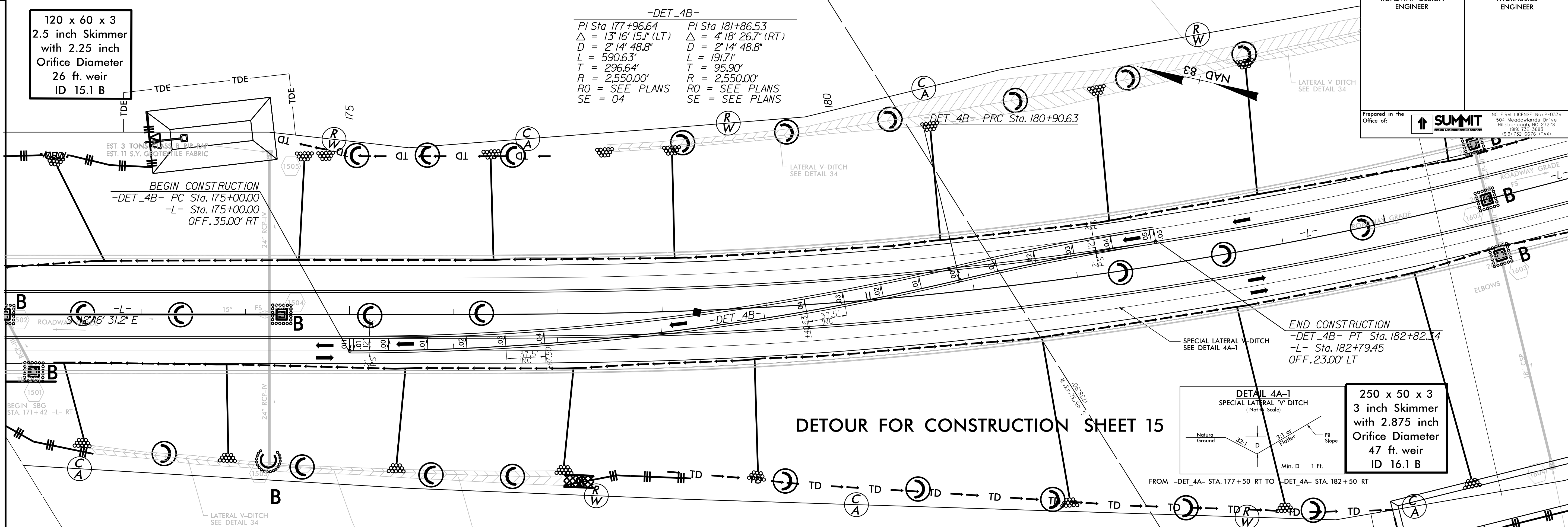
PI Sta 177+96.64	PI Sta 181+86.53
$\Delta = 13' 16' 15.1''$ (LT)	$\Delta = 4' 18' 26.7''$ (RT)
$D = 2' 14' 48.8''$	$D = 2' 14' 48.8''$
$L = 590.63'$	$L = 191.71'$
$T = 296.64'$	$T = 95.90'$
$R = 2,550.00'$	$R = 2,550.00'$
RO = SEE PLANS	RO = SEE PLANS
SE = 04	SE = SEE PLANS

120 x 60 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
26 ft. weir
ID 15.1 B

250 x 50 x 3
3 inch Skimmer
with 2.875 inch
Orifice Diameter
47 ft. weir
ID 16.1 B



DETOUR FOR CONSTRUCTION SHEET 15



FOR PHASE II CONSTRUCTION SEE TMP PLANS
FOR -L- CONSTRUCTION SEE SHEETS 15, 16 AND 43

PROP -L-
EXIST -L-

8/17/99

REVISIONS

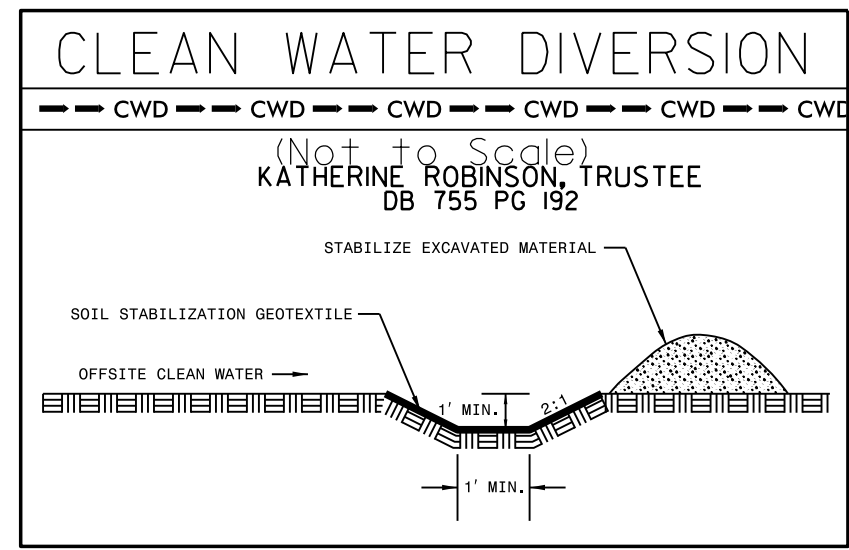
07-JAN-2008 13:13
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EROSION CONTROL FOR DETOUR X-OVER PHASE II (DET_5)

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-19DET/CONST.19
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

Prepared in the Office of: **SUMMIT**

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
CDS 132-6676 FAX 0

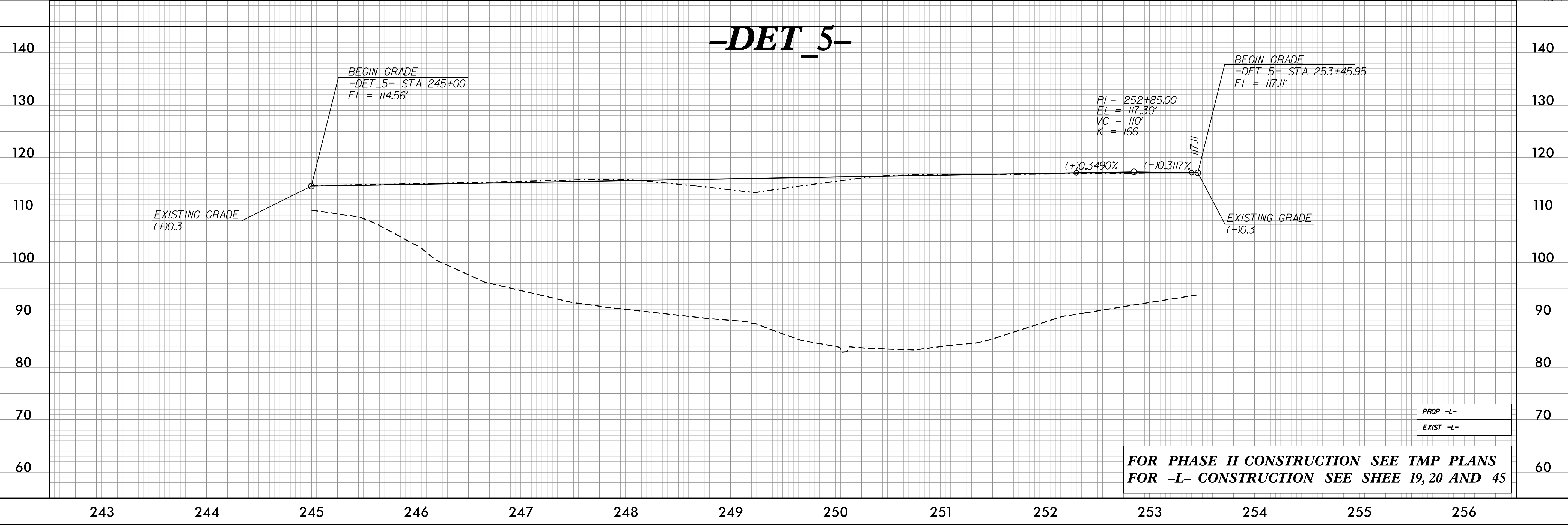
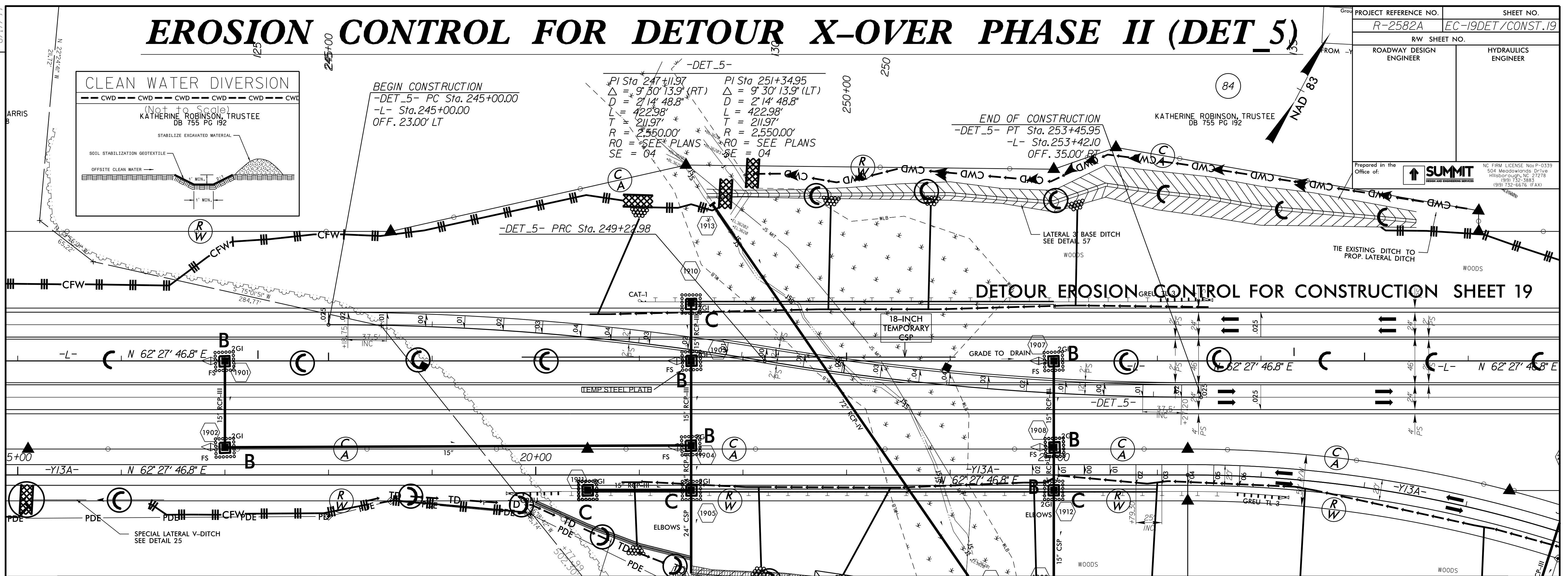


BEGIN CONSTRUCTION
-DET_5- PC Sta. 245+00.00
-L- Sta. 245+00.00
OFF. 23.00' LT

PI Sta 247+11.97
 $\Delta = 9' 30'' 13.9''$ (RT)
D = 2' 14' 48.8"
L = 422.98'
T = 211.97'
R = 2,550.00'
RO = SEE PLANS
SE = 04

PI Sta 251+34.95
 $\Delta = 9' 30'' 13.9''$ (LT)
D = 2' 14' 48.8"
L = 422.98'
T = 211.97'
R = 2,550.00'
RO = SEE PLANS
SE = 04

END OF CONSTRUCTION
-DET_5- PT Sta. 253+45.95
-L- Sta. 253+42.10
OFF. 35.00' RT



**FOR PHASE II CONSTRUCTION SEE TMP PLANS
FOR -L- CONSTRUCTION SEE SHEE 19, 20 AND 45**

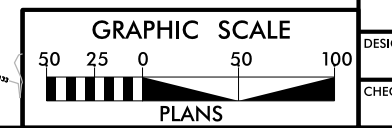
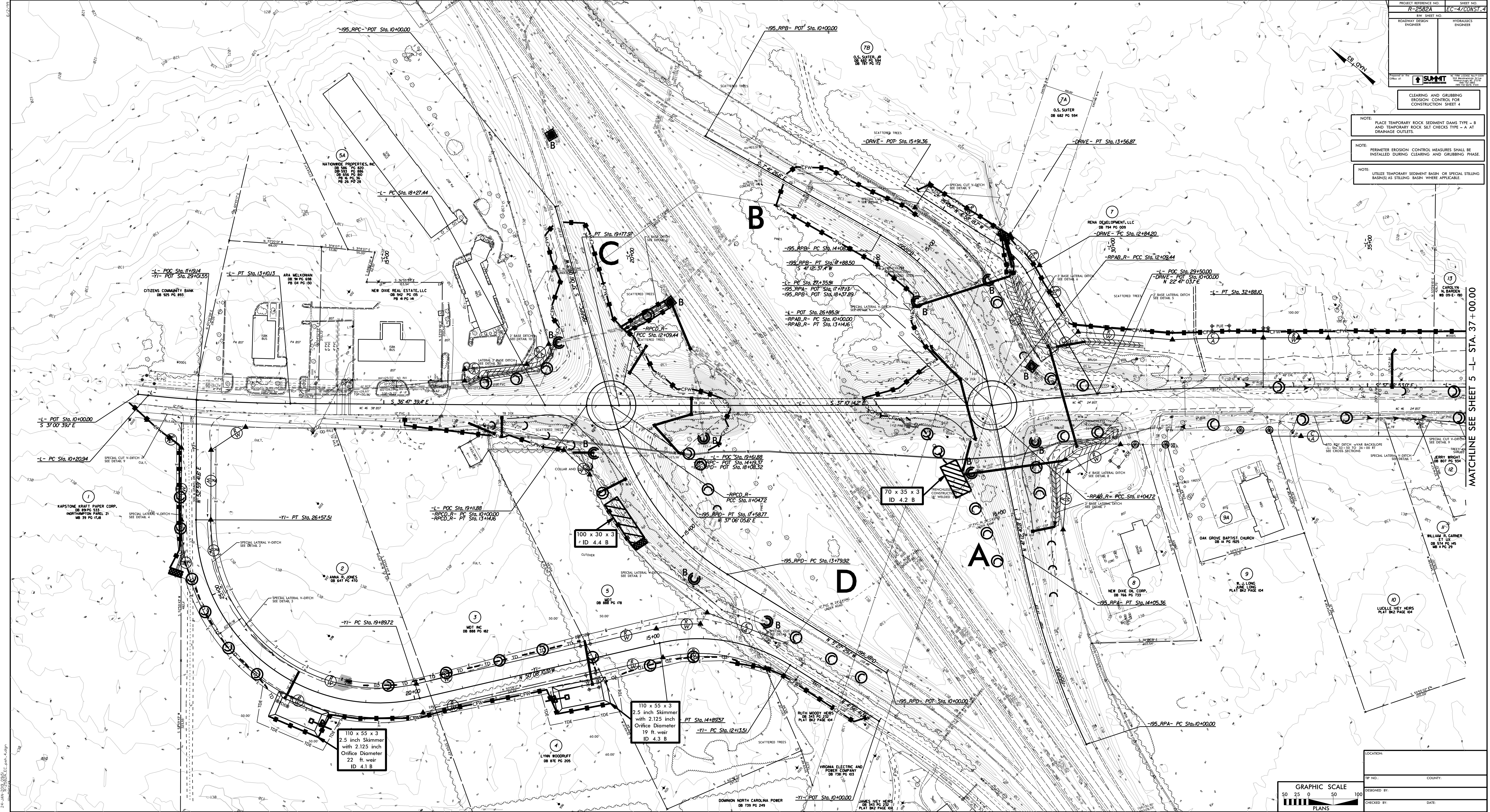
8/17/99

REVISIONS

26-SEP-2018 14:34
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PROJECT REFERENCE NO.	SHEET NO.
R-2582A	EC-4/CONST.4
REV. SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILING BASIN(S) AS STILING BASIN WHERE APPLICABLE.



LOCATION:	TP NO.:	COUNTY:
DESIGNED BY:	CHECKED BY:	DATE:

MATCHLINE SEE SHEET 5 - L - STA. 37 + 00.00

8/17/99

09-SEP-2008 11:48
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PROJECT REFERENCE NO. <i>R-2582A</i>	SHEET NO. <i>EC-5/CONST.5</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of:

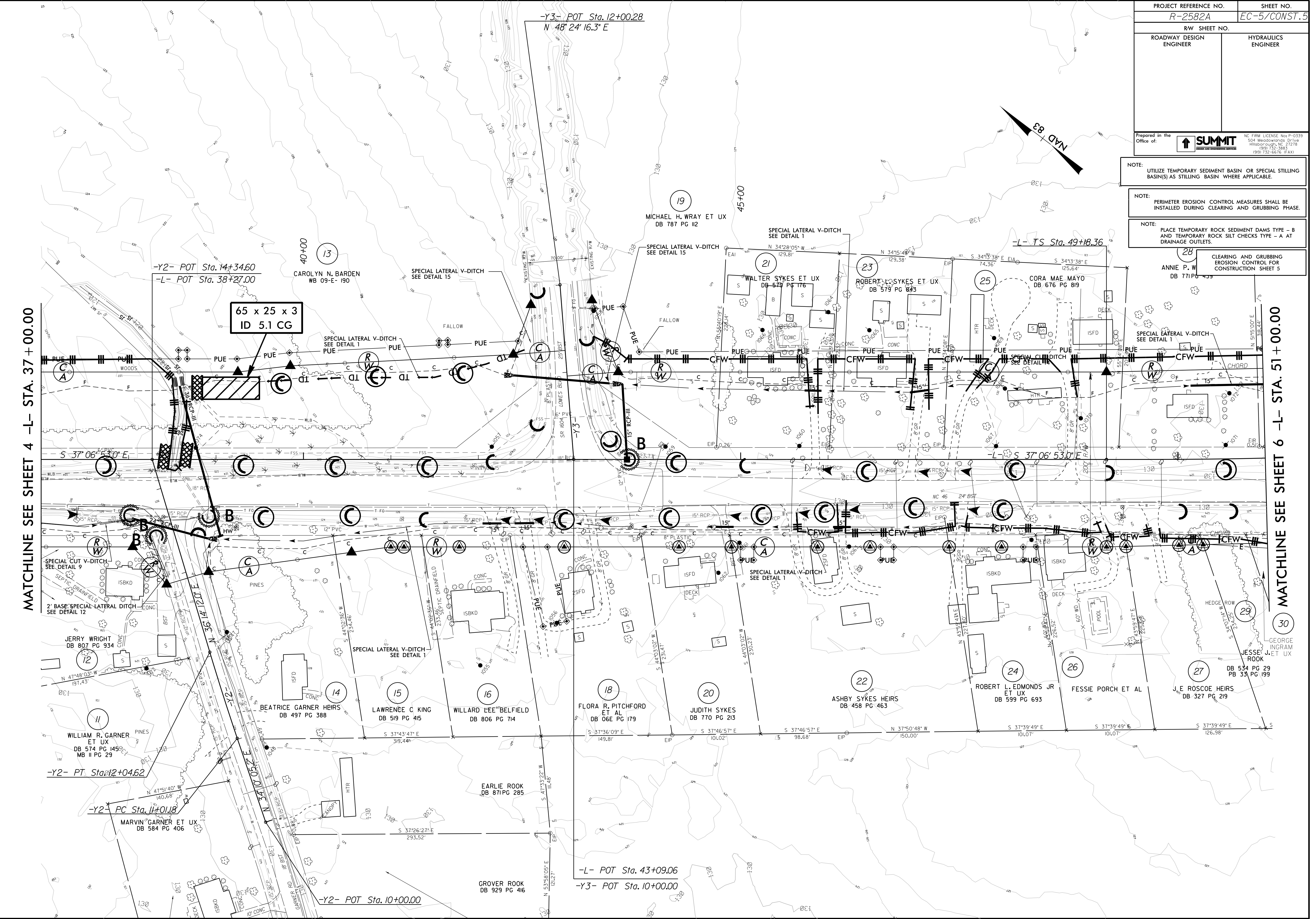
 NC FIRM LICENSE No. P-0359
 504 Meadows Drive
 Hillsborough, NC 27278
 (919) 732-3883
 (919) 732-6616 (FAX)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

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

NOTE: CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5



MATCHLINE SEE SHEET 4 -L- STA. 37+00.00

MATCHLINE SEE SHEET 6 -L- STA. 51+00.00

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-6/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: **SUMMIT**
DESIGN AND ENGINEERING SERVICES

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

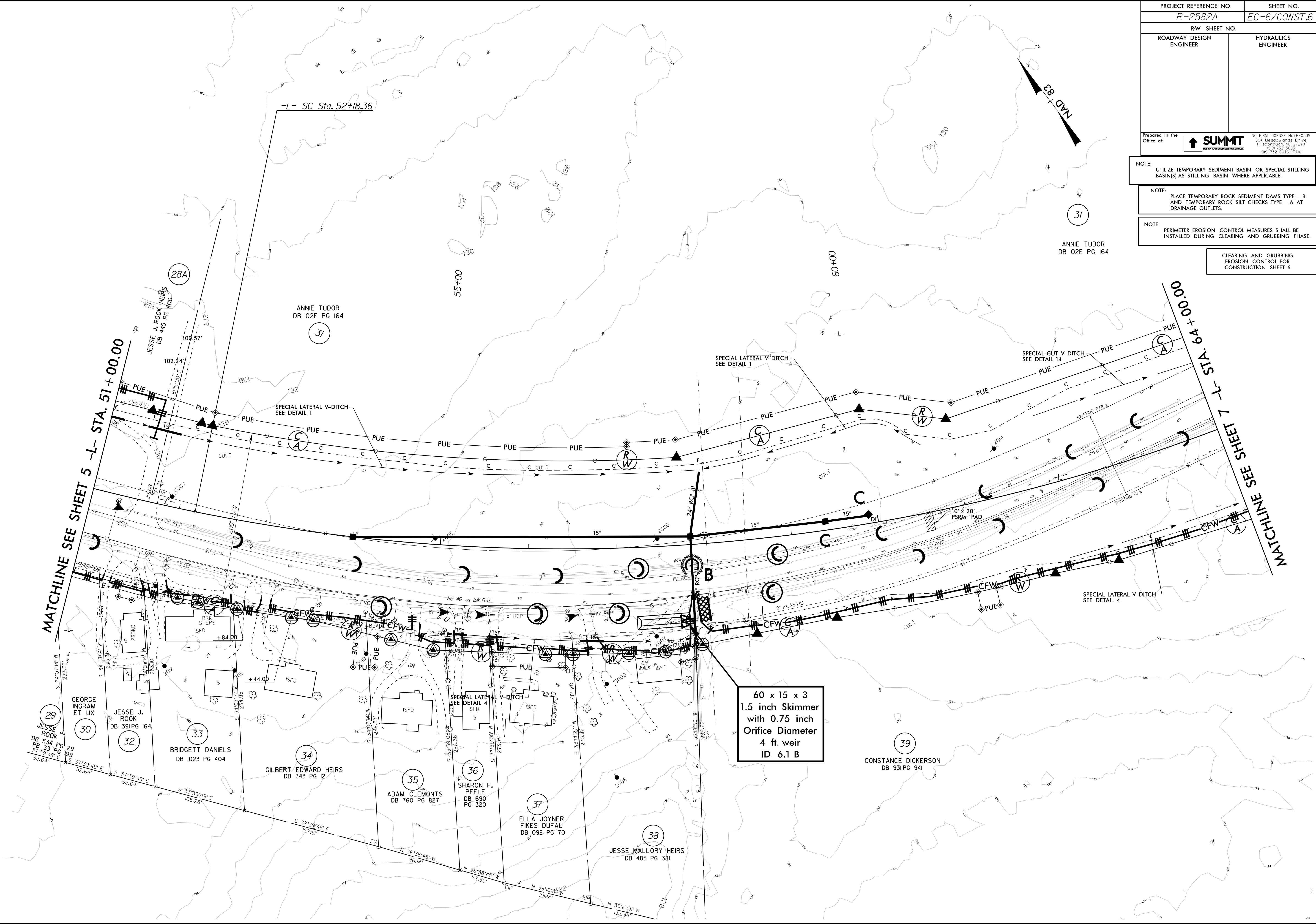
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6

8/17/99

24-JAN-2008 09:53
R4-2582A-EC-6-CONST.6.dgn
JLD/DOE/PLS

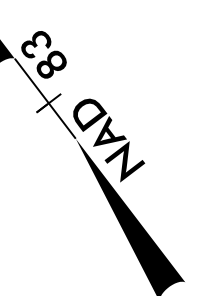


MATCHLINE SEE SHEET 5 -L- STA. 51+00.00

MATCHLINE SEE SHEET 7 -L- STA. 60+00.00

60 x 15 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 6.1 B

-L- SC Sta. 52+18.36



31
ANNIE TUDOR
DB 02E PG 164

29
JESSE J. ROOK
DB 534 PG 29
PB 33 PG 199
37°39'49" E
52.64'

30
GEORGE INGRAM
ET UX

32
JESSE J. ROOK
DB 391 PG 164

33
BRIDGETT DANIELS
DB 1023 PG 404

34
GILBERT EDWARD HEIRS
DB 743 PG 12

35
ADAM CLEMONTS
DB 760 PG 827

36
SHARON F. PEELE
DB 690 PG 320

37
ELLA JOYNER
FIKES DUFAU
DB 09E PG 70

38
JESSE MALLORY HEIRS
DB 485 PG 381

39
CONSTANCE DICKERSON
DB 931 PG 941

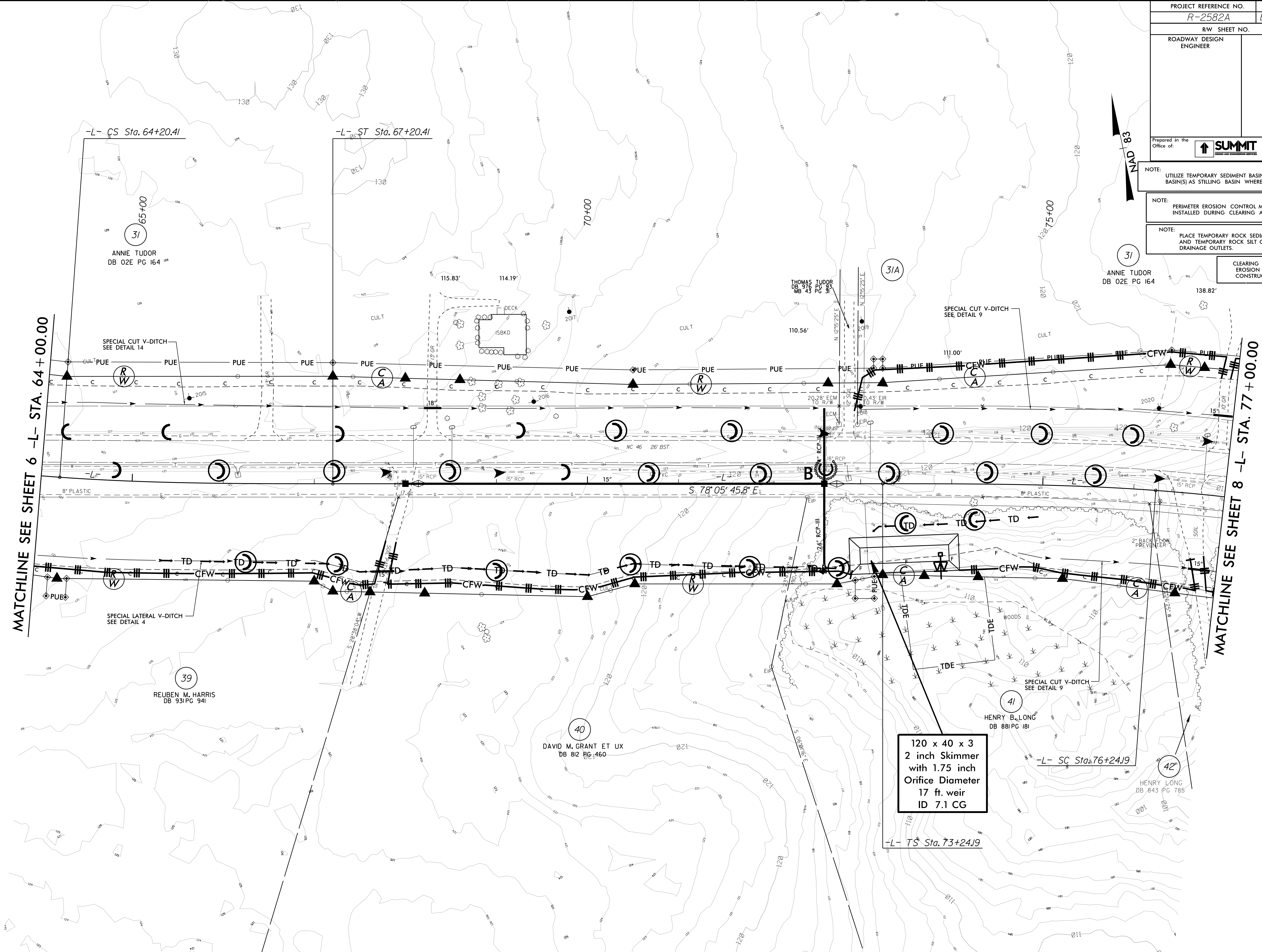
8/17/99

09-SEP-2018 11:50
R:\2582A\10-CONV\10-CONV-7.dgn
10/10/2018

PROJECT REFERENCE NO. <i>R-2582A</i>		SHEET NO. <i>EC-7/CONST.7</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES			
NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)			

- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- 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 7



NAD 83

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-8/CONST-8
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

Prepared in the Office of: **SUMMIT**
DESIGN AND ENGINEERING SERVICES

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

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

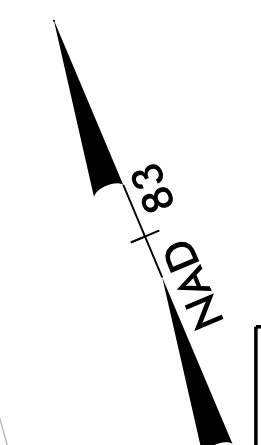
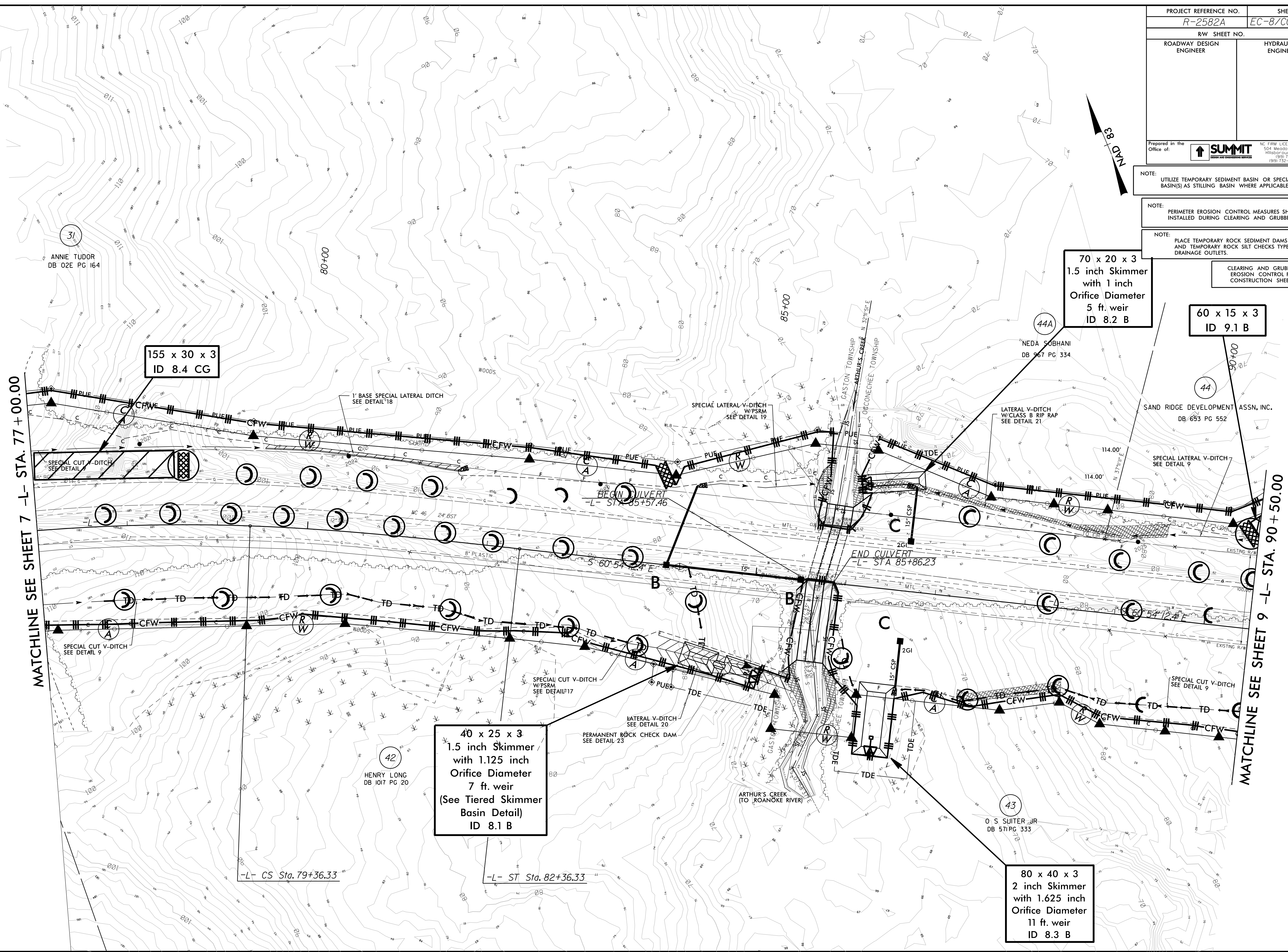
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 8

70 x 20 x 3
1.5 inch Skimmer
with 1 inch
Orifice Diameter
5 ft. weir
ID 8.2 B

60 x 15 x 3
ID 9.1 B

40 x 25 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
7 ft. weir
(See Tiered Skimmer
Basin Detail)
ID 8.1 B

80 x 40 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
11 ft. weir
ID 8.3 B



REVISIONS

MATCHLINE SEE SHEET 7 -L- STA. 77 + 00.00

MATCHLINE SEE SHEET 9 -L- STA. 90 + 50.00

8/17/99

8/25/2009 11:51 AM
C:\psm-8.dgn
10/10/2015

31
ANNIE TUDOR
DB 02E PG 164

80+00

85+00

44A
NEDA SOBHANI
DB 967 PG 334

44
SAND RIDGE DEVELOPMENT ASSN, INC.
DB 693 PG 552

42
HENRY LONG
DB 1017 PG 20

43
O. S. SUITER, JR.
DB 571 PG 333


-L- CS Sta. 79+36.33

-L- ST Sta. 82+36.33

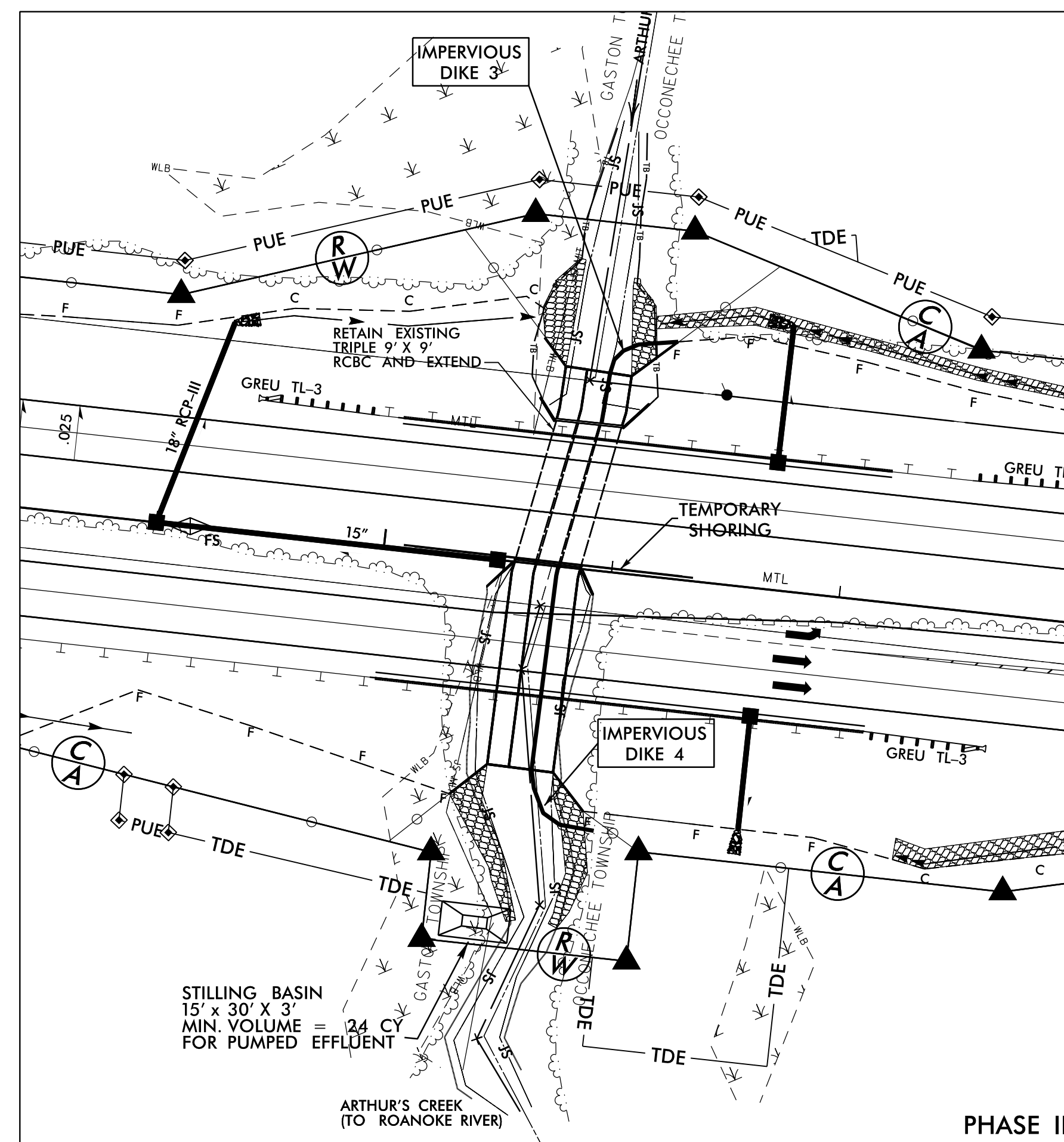
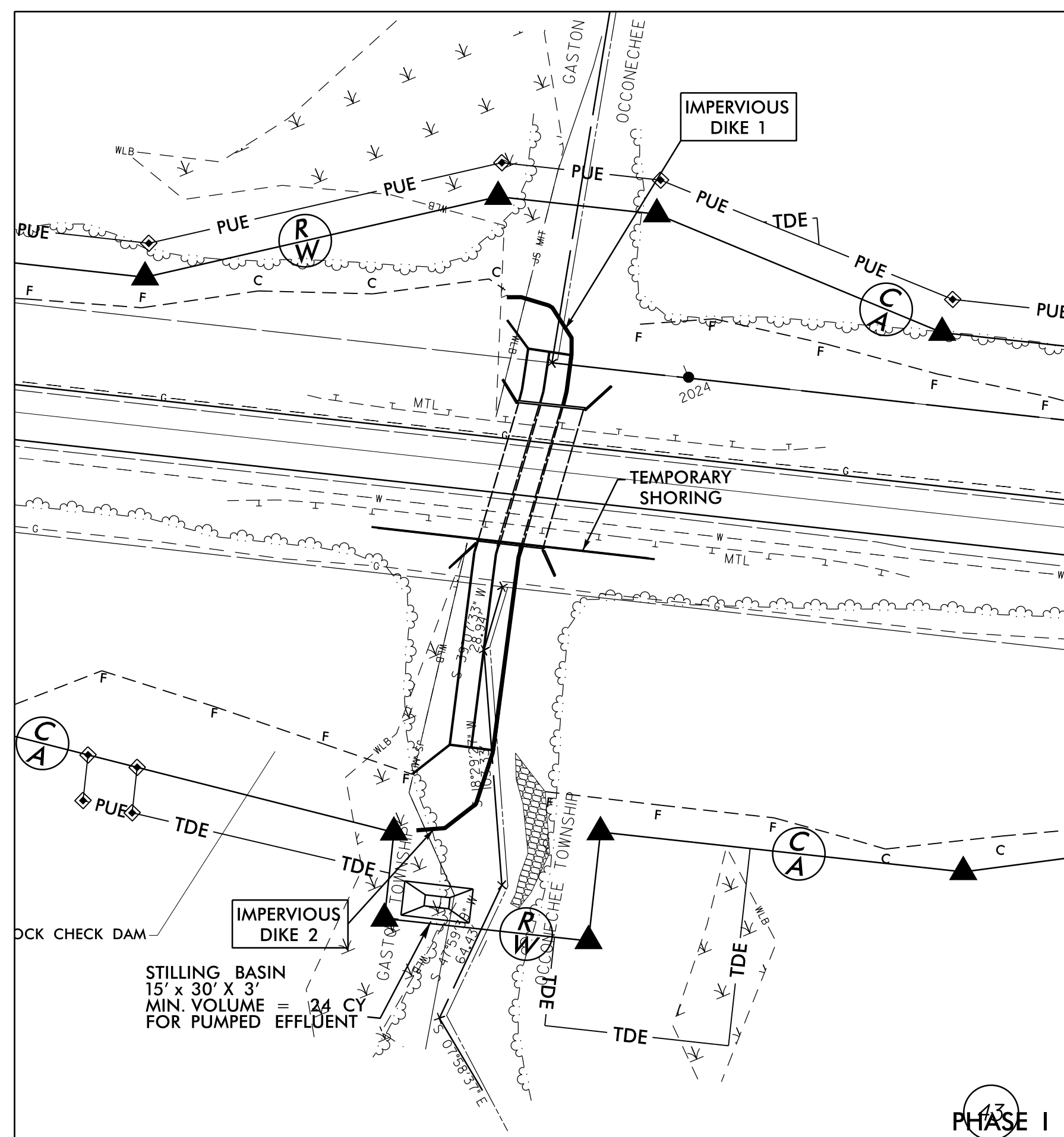
BEGIN CULVERT
-L- STA. 85+57.46

END CULVERT
-L- STA. 85+86.23

ARTHUR'S CREEK
(TO ROANOKE RIVER)

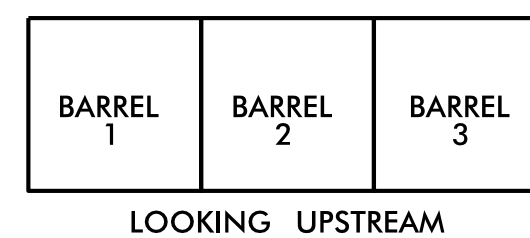
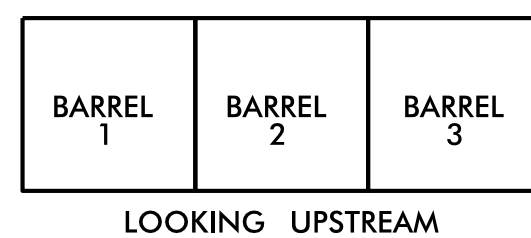
PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-8A/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:  NC FIRM LICENSE No. P-0339 504 Meadows Drive Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX)	

CULVERT CONSTRUCTION SEQUENCE STA. 85+72 -L-



NOTES

1. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
2. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DEWATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH STILLING BASIN AND/OR SPECIAL STILLING BASIN.

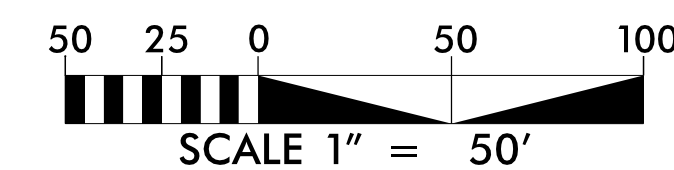


CONSTRUCTION SEQUENCE I

1. INSTALL IMPERVIOUS DIKES 1 AND 2 TO BLOCK FLOW FROM BARRELS 1 AND 2 AND DIRECT STREAM FLOW THROUGH EXISTING CULVERT BARREL 3.
2. INSTALL STILLING BASIN.
3. INSTALL TEMPORARY SHORING.
4. CONSTRUCT BARRELS 1 AND 2 OF CULVERT OUTLET EXTENSION AND SOUTHWEST STREAMBANK STABILIZATION.
5. REMOVE EXISTING GUARD RAIL.
6. CONSTRUCT PROPOSED WESTBOUND ROADWAY.

CONSTRUCTION SEQUENCE II

7. INSTALL IMPERVIOUS DIKE 3 AND 4 TO BLOCK FLOW FROM BARREL 3 OF THE CULVERT AND DIVERT FLOW THROUGH BARRELS 1 AND 2. MAINTAIN STILLING BASIN.
8. CONSTRUCT BARREL 3 OF CULVERT OUTLET EXTENSION AND SOUTHWEST STREAMBANK STABILIZATION.
9. REMOVE STILLING BASIN AND IMPERVIOUS DIKES AT INLET AND OUTLET AND REMOVE TEMPORARY SHORING.
10. CONSTRUCT PROPOSED EAST BOUND ROADWAY OVER NEW CULVERT AND SHIFT TRAFFIC ONTO NEW ROADWAY.
11. REMOVE OTHER EROSION CONTROL DEVICES AS ALLOWABLE.



REVISIONS

8/17/99

09-SEP-2018 11:52
R-2582A-EC.culvert construction sequence.psh.18A.dgn
summit

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

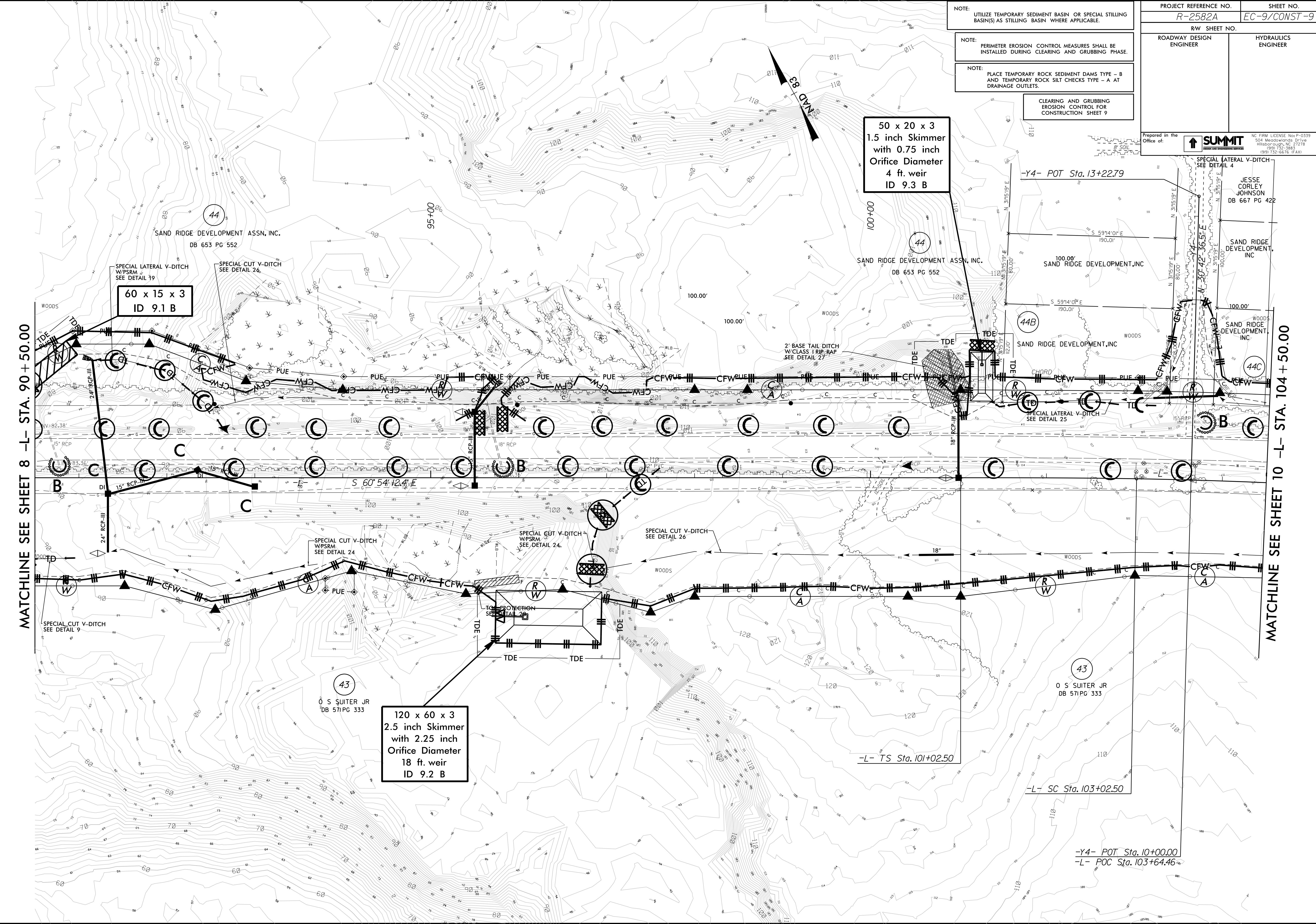
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 9

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-9/CONST-9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of:
SUMMIT
CIVIL AND ENVIRONMENTAL SERVICES

NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27578
(919) 732-3883
Fax (919) 732-6676



JESSE CORLEY JOHNSON
DB 667 PG 422


SAND RIDGE DEVELOPMENT, INC.

SAND RIDGE DEVELOPMENT, INC.

SAND RIDGE DEVELOPMENT, INC.

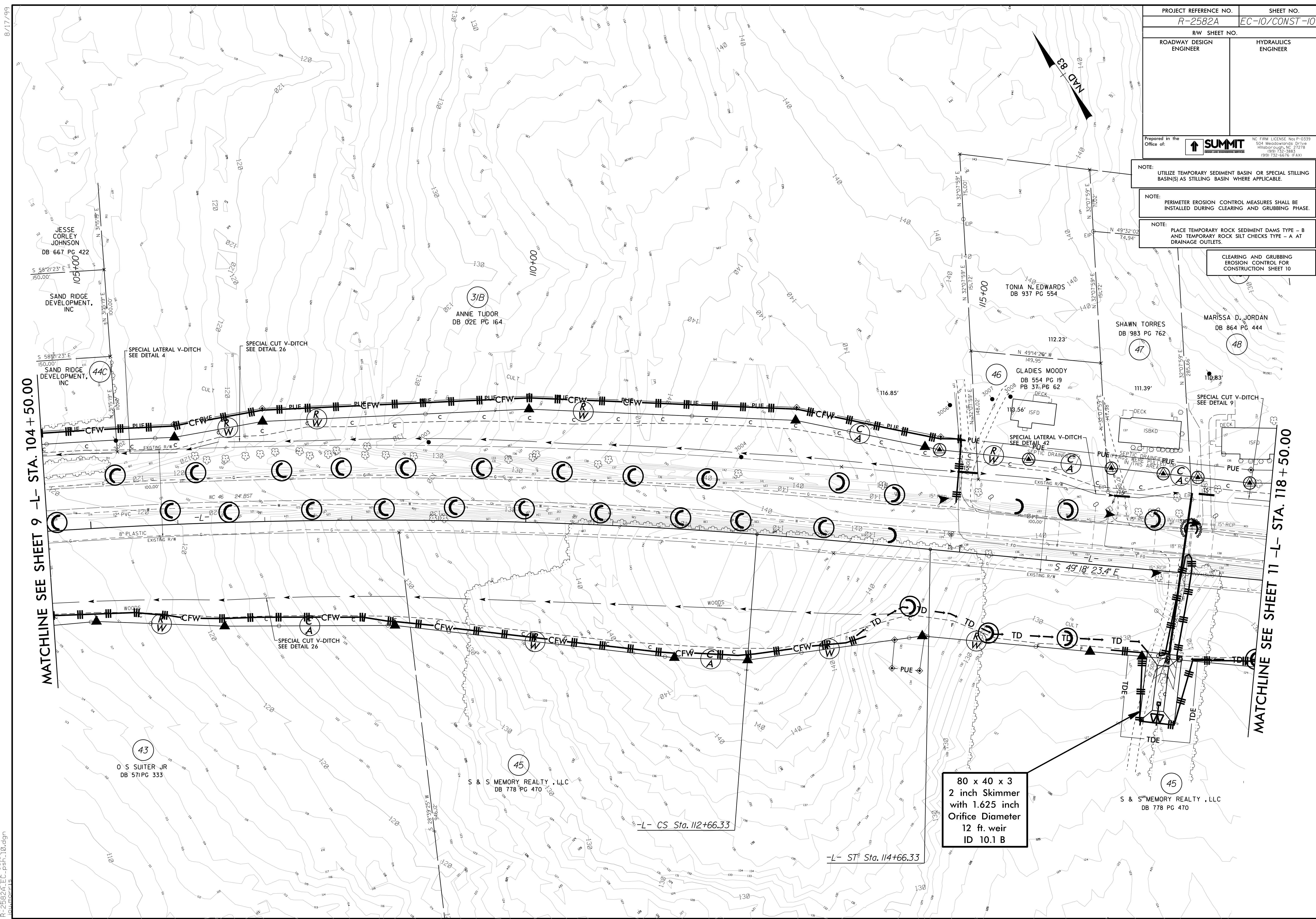
43
O S SUITER JR
DB 571 PG 333

-Y4- POT Sta. 10+00.00
-L- POC Sta. 103+64.46

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-10/CONST-10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (Fax)</small>	

- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- 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 10



MATCHLINE SEE SHEET 9 -L- STA. 104 + 50.00

MATCHLINE SEE SHEET 11 -L- STA. 118 + 50.00

80 x 40 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
12 ft. weir
ID 10.1 B

8/17/99

R4-JAN-2009 09:59
R-2582A-EC-10-10.dgn

8/17/99

24-JAN-2008 09:01
R:\2582A\EC-11.dgn
10/10/2015

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-11/CONST-11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

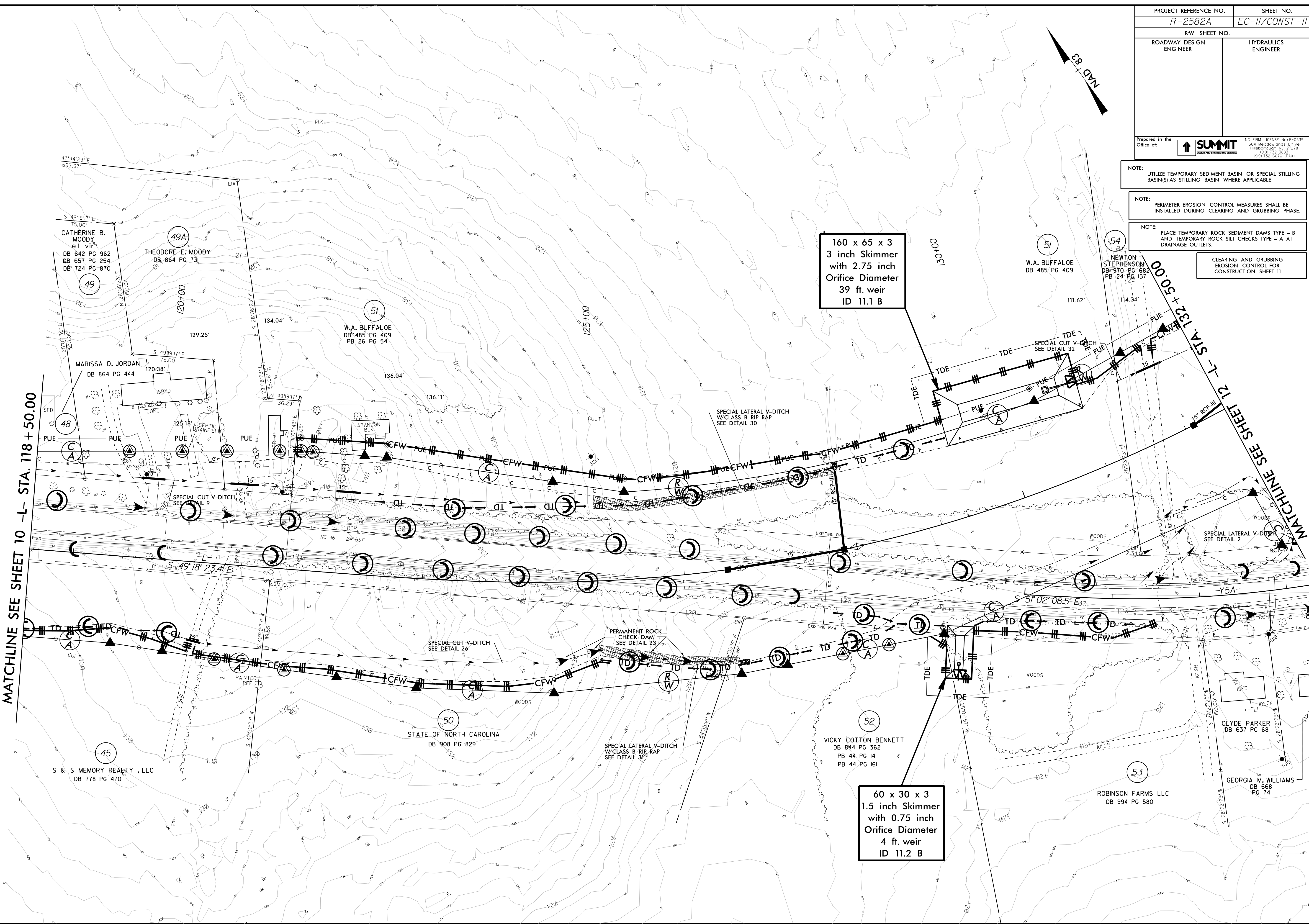
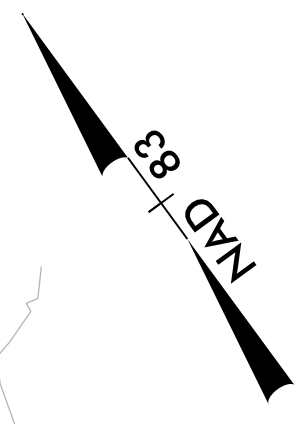
Prepared in the Office of: **SUMMIT**
DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

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 11



MATCHLINE SEE SHEET 10 - L- STA. 118+50.00

MATCHLINE SEE SHEET 12 - L- STA. 132+50.00

160 x 65 x 3
3 inch Skimmer
with 2.75 inch
Orifice Diameter
39 ft. weir
ID 11.1 B


60 x 30 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
4 ft. weir
ID 11.2 B

8/17/99

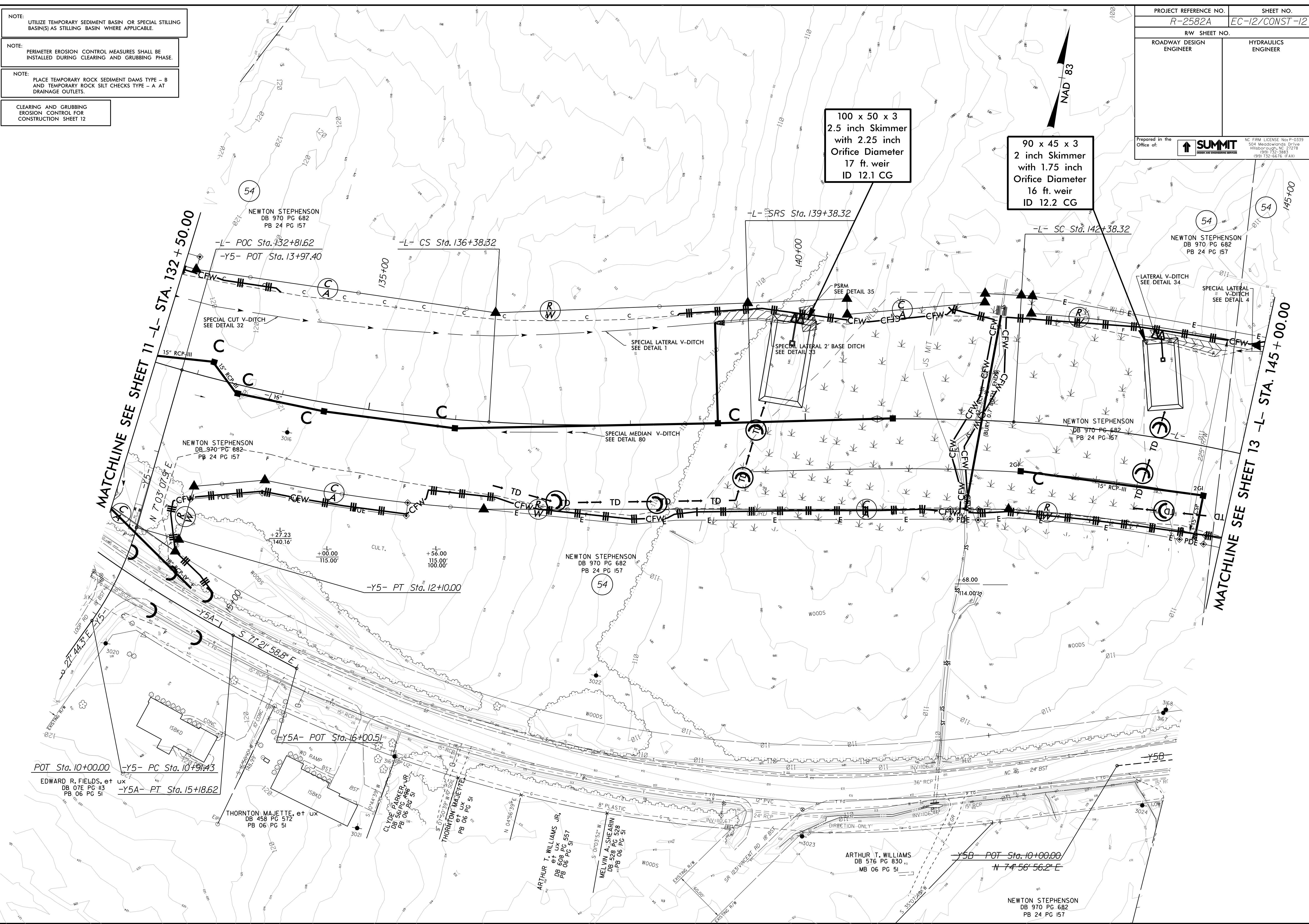
- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 12

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-12/CONST-12
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	


Prepared in the Office of:

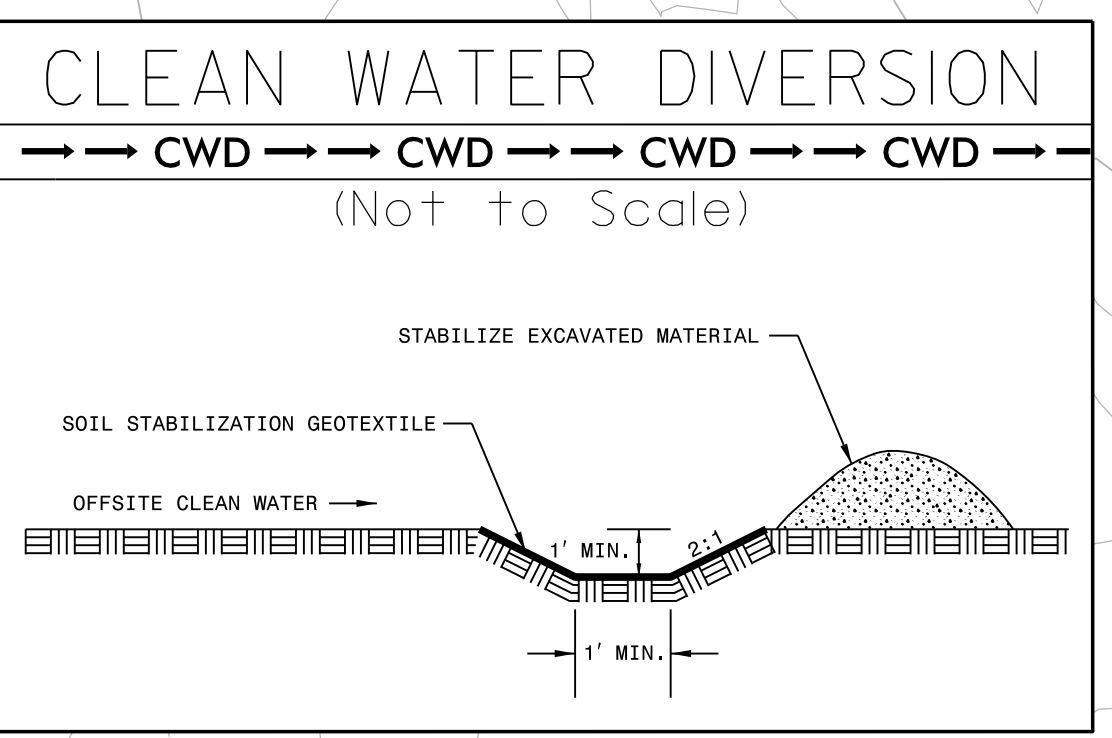


NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27578
(919) 732-3883
(919) 732-6676 (FAX)



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PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-13/CONST-13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-4676 (FAX)</small>	



**85 x 40 x 3
2 inch Skimmer
with 1.625 inch
Orifice Diameter
13 ft weir
ID 13.1 B**

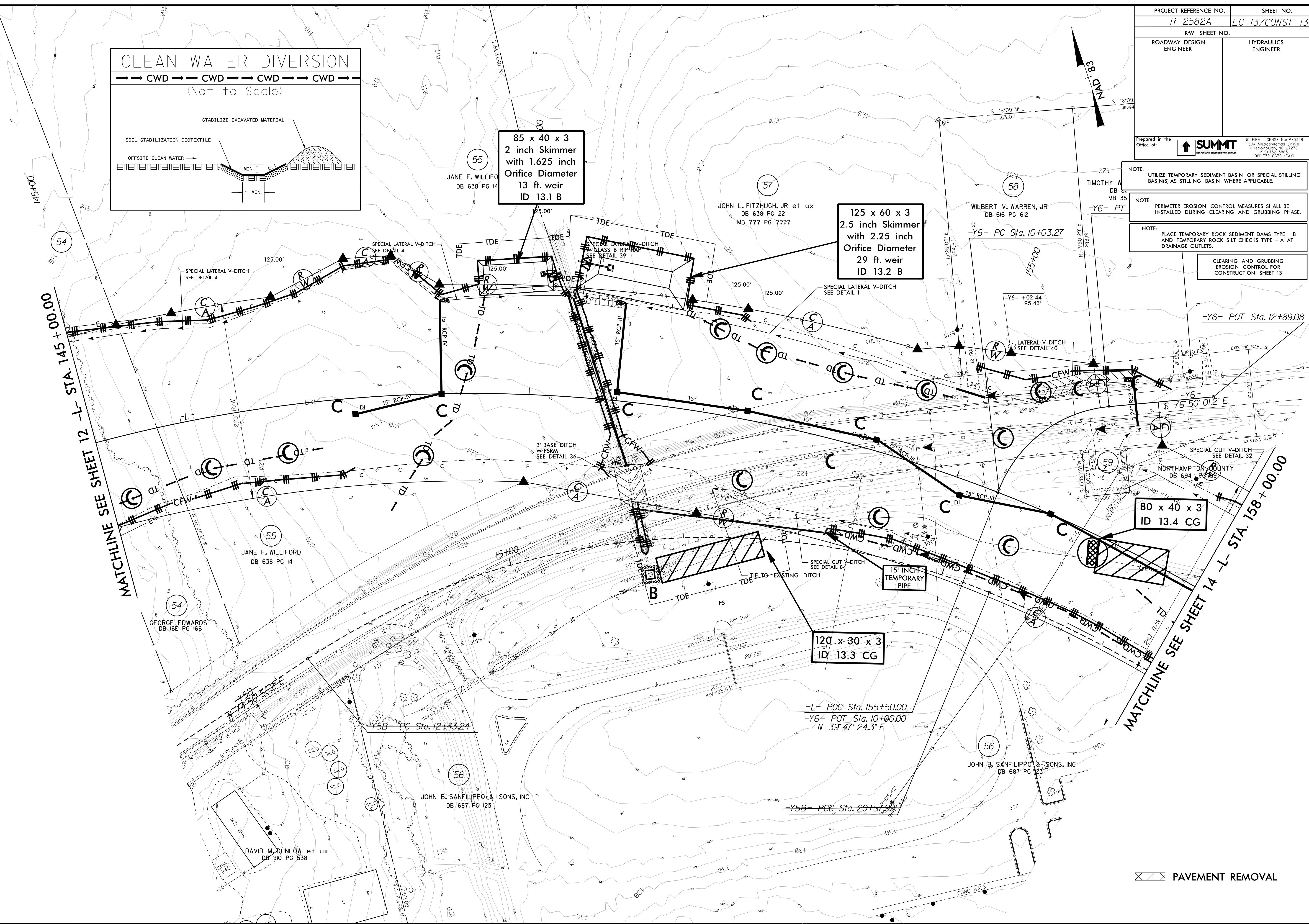
**125 x 60 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
29 ft weir
ID 13.2 B**

**80 x 40 x 3
ID 13.4 CG**

**120 x 30 x 3
ID 13.3 CG**

8/17/99

24-JAN-2009 09:05
R-2582A-EC-13.dgn
10/10/2015



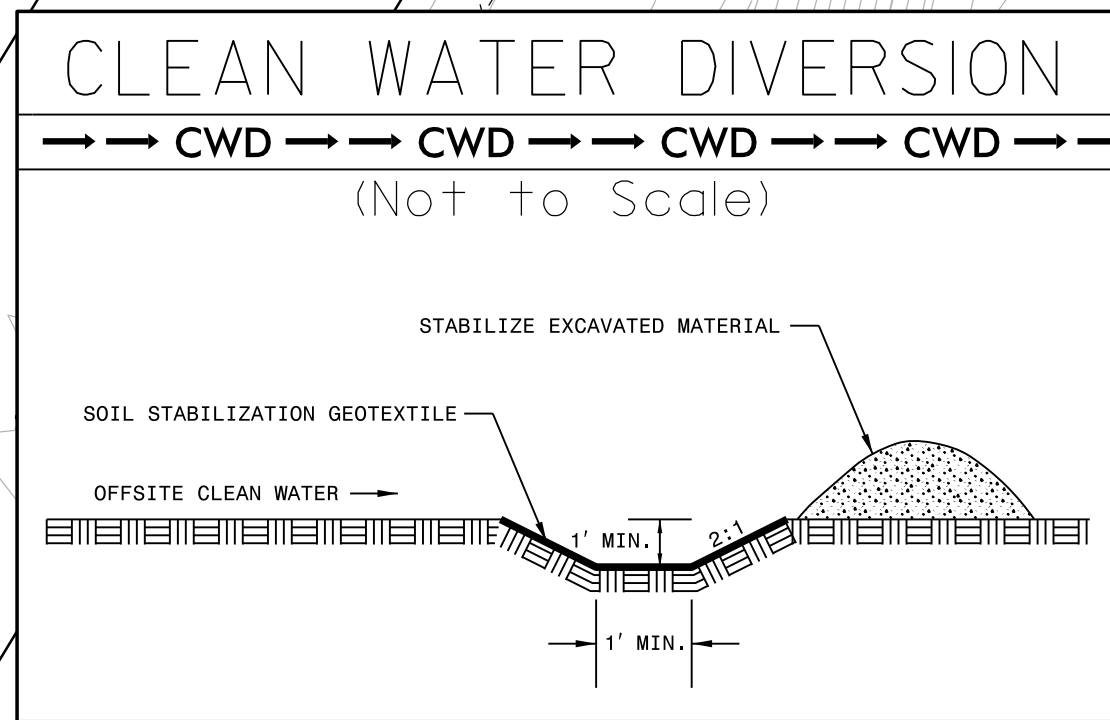
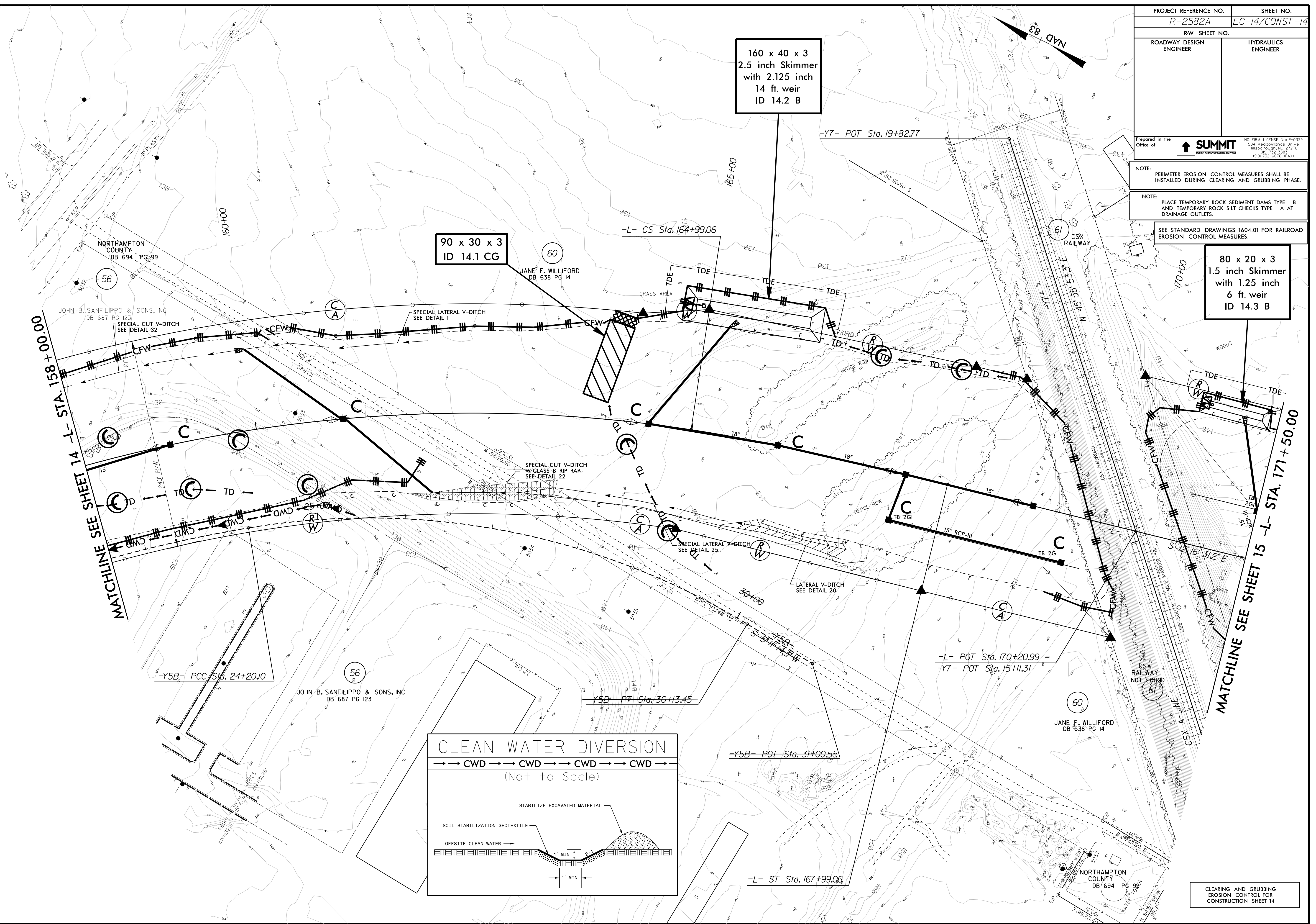
- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 13

 PAVEMENT REMOVAL


8/17/99

24-JAN-2008 09:06
R-2582A-EC-14-CONST-14.dgn
JLD/DOE/PLS

PROJECT REFERENCE NO. R-2582A		SHEET NO. EC-14/CONST-14	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES			
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>			
NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.			
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.			
SEE STANDARD DRAWINGS 1604.01 FOR RAILROAD EROSION CONTROL MEASURES.			



CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 14

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-15/CONST-15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-4676 (FAX)</small>	

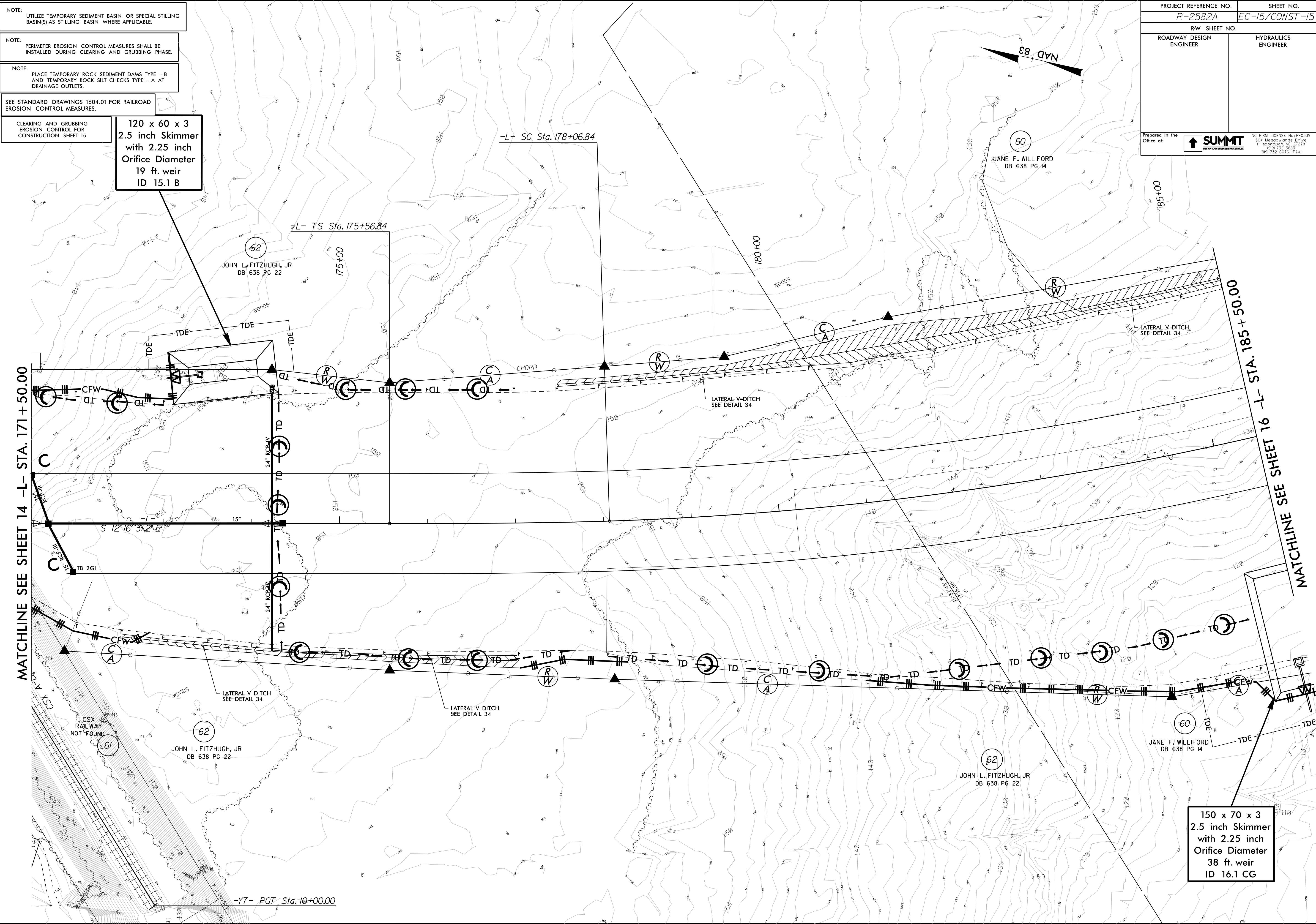
8/17/99

- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- SEE STANDARD DRAWINGS 1604.01 FOR RAILROAD EROSION CONTROL MEASURES.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 15

120 x 60 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
19 ft. weir
ID 15.1 B

REVISIONS



MATCHLINE SEE SHEET 14 -L- STA. 171 + 50.00

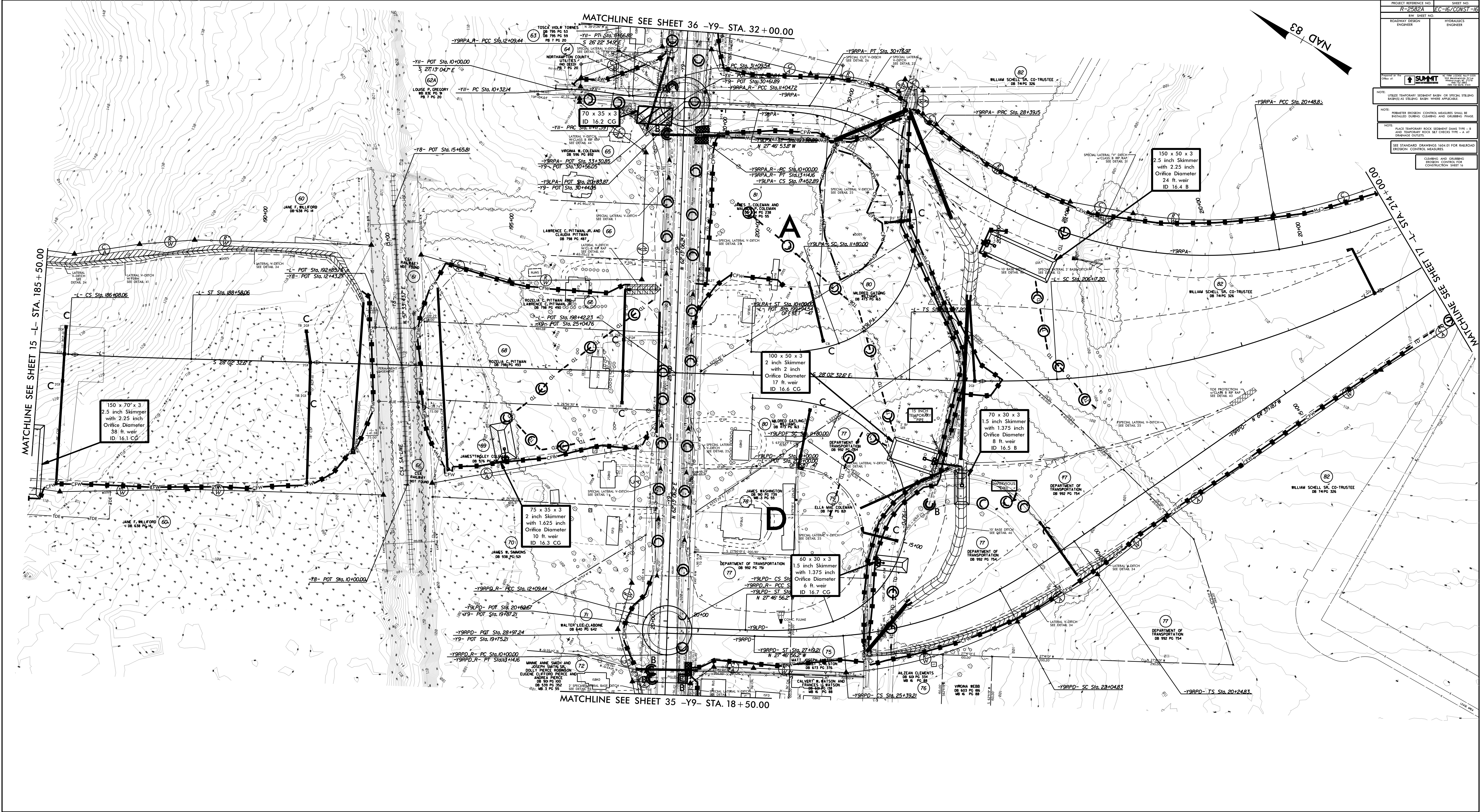
MATCHLINE SEE SHEET 16 -L- STA. 185 + 50.00

09-SEP-2009 12:00
R:\2582A\EC-15-CONST-15.dgn

-Y7- POT Sta. 10+00.00

150 x 70 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
38 ft. weir
ID 16.1 CG

PROJECT REFERENCE NO.	SHEET NO.
P-2582A	EC-16/CONST-16
RDWY DESIGN ENGINEER	HYDRAULICS ENGINEER
NOTE: LITRE TEMPORARY SEWERAGE BASHES OR SPECIAL STRENGTH BARRIERS AS STRENGTH BASHES WHERE APPLICABLE.	
NOTE: PREVENTER FROM CONTROL MEASURES SHALL BE INSTALLED DURING CLEANING AND GREASING PHASE.	
NOTE: PLACE TEMPORARY ROCK SEWERAGE DAMS TYPE - B AND TEMPORARY ROCK SET CHECKS TYPE - A AT CHANGE-OVER.	
SEE STANDARD DRAWINGS 160401 FOR RAILROAD PROVISION CONTROL MEASURES.	
CLEANING AND GREASING EXERCISE CONTROL FOR CONTINUOUS SHEET 16.	




MATCHLINE SEE SHEET 15 -L- STA. 185+50.00

MATCHLINE SEE SHEET 36 -Y9- STA. 32+00.00

MATCHLINE SEE SHEET 17 -L- STA. 214+00.00

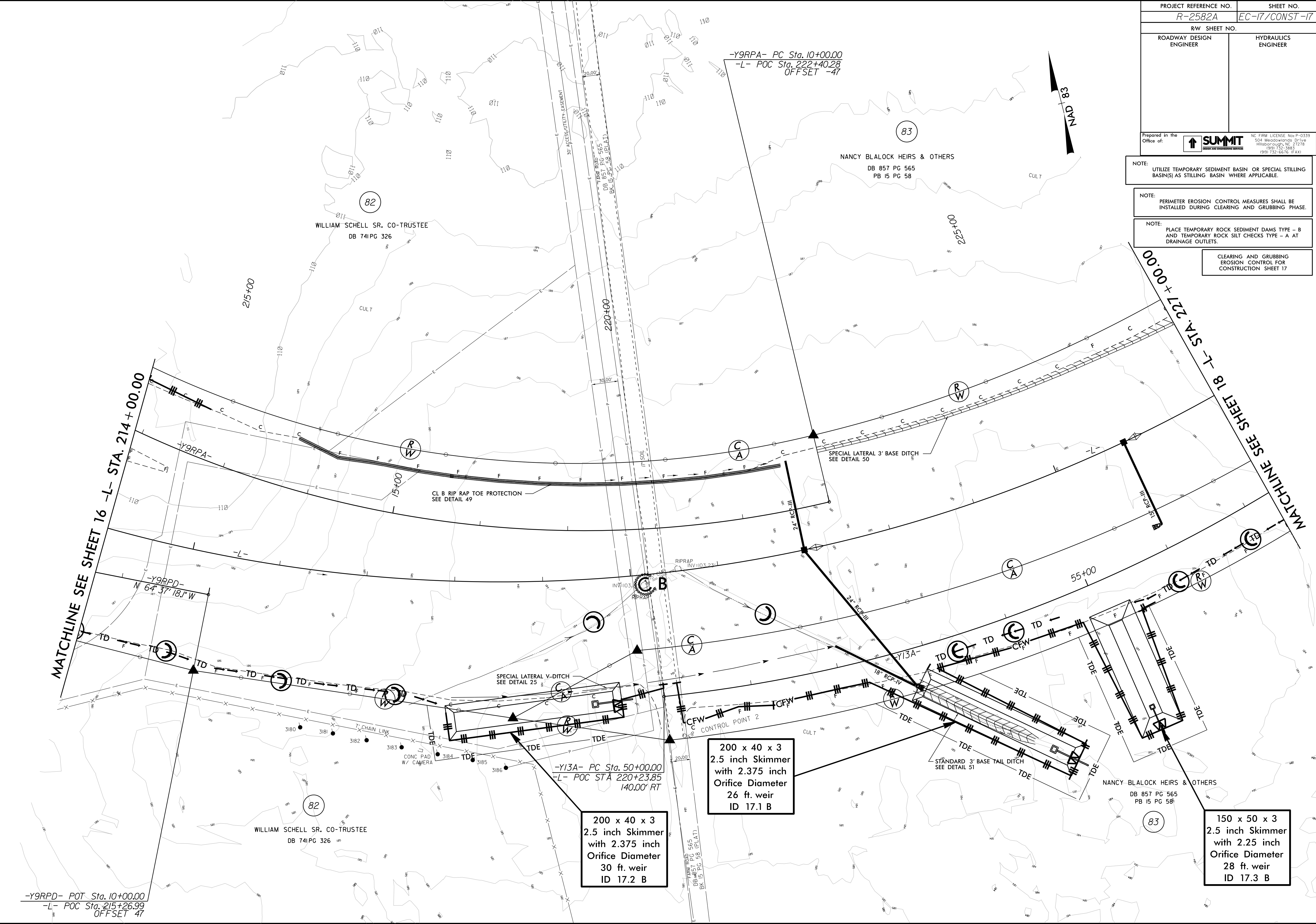
MATCHLINE SEE SHEET 35 -Y9- STA. 18+50.00

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-17/CONST-17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-4676 (FAX)</small>	

- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- 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 17

8/17/99

R4-JAN-2008 09:09
R-2582A-EC-17.dgn
10/10/2015




-Y9RPD- POT Sta. 10+00.00
-L- POC Sta. 215+26.99
OFFSET 47

200 x 40 x 3
2.5 inch Skimmer
with 2.375 inch
Orifice Diameter
30 ft weir
ID 17.2 B

200 x 40 x 3
2.5 inch Skimmer
with 2.375 inch
Orifice Diameter
26 ft weir
ID 17.1 B

150 x 50 x 3
2.5 inch Skimmer
with 2.25 inch
Orifice Diameter
28 ft weir
ID 17.3 B

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-18/CONST-18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27578 (919) 732-3883 (919) 732-6676 (FAX)</small>	

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

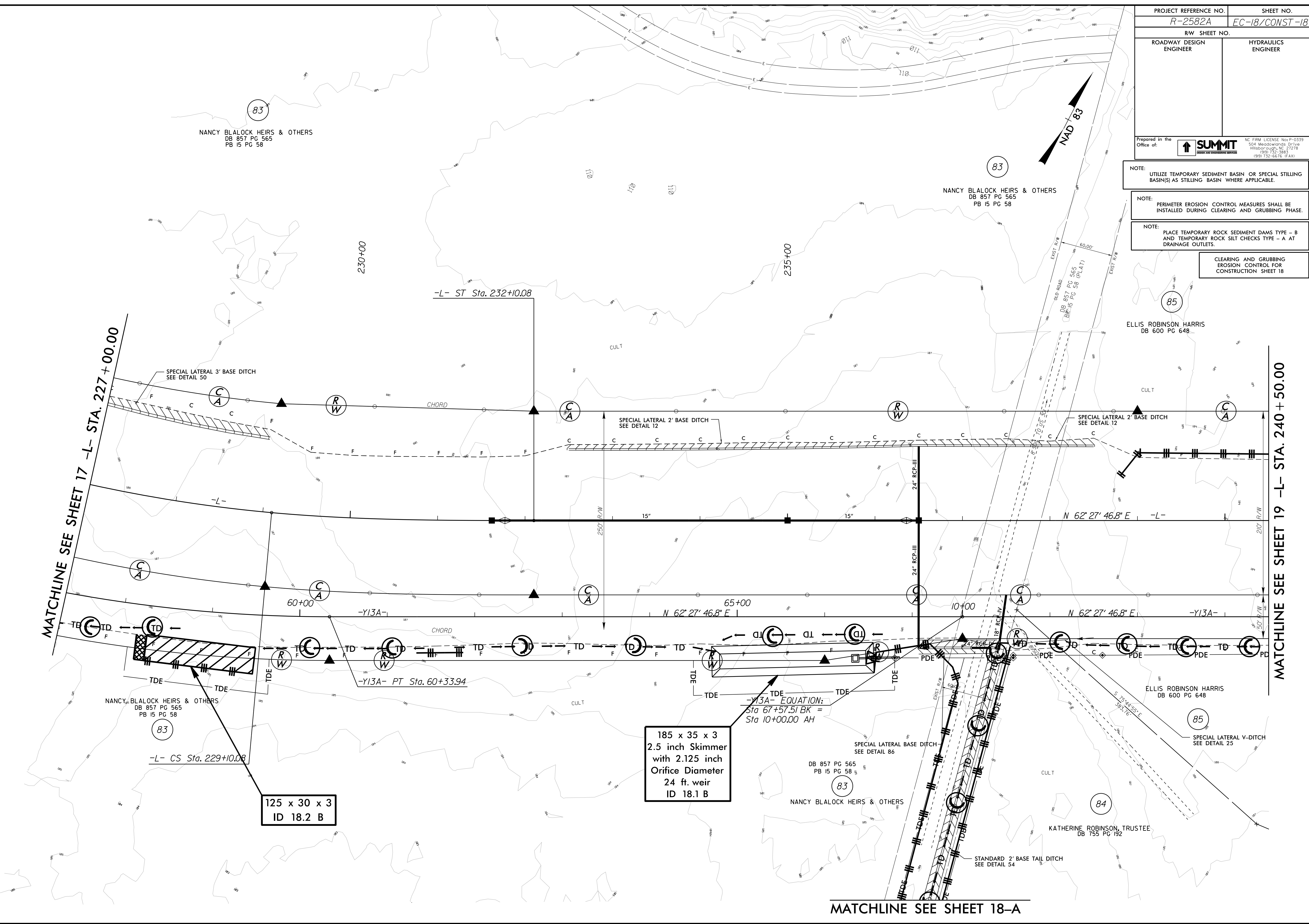
NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

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 18

8/17/99

R4-JAN-2008 0:11
R-2582A-EC-18.dgn
10/10/2013



MATCHLINE SEE SHEET 17 -L- STA. 227+00.00

MATCHLINE SEE SHEET 19 -L- STA. 240+50.00

185 x 35 x 3
2.5 inch Skimmer
with 2.125 inch
Orifice Diameter
24 ft. weir
ID 18.1 B

125 x 30 x 3
ID 18.2 B

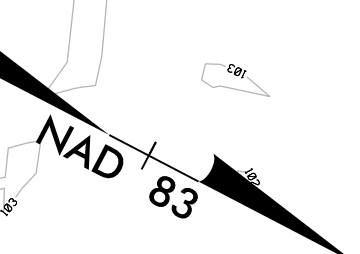
MATCHLINE SEE SHEET 18-A

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-18A/CONST-18A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

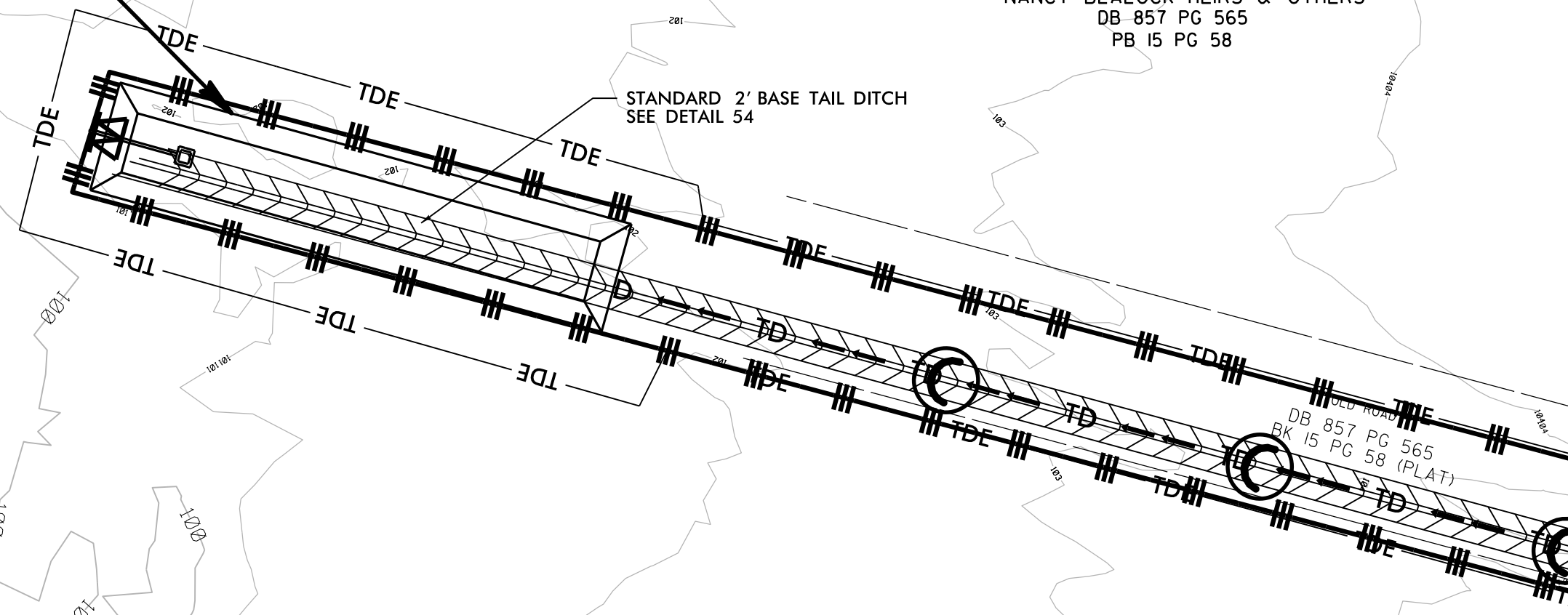
Prepared in the Office of: **SUMMIT** DESIGN AND ENGINEERING SERVICES
 NC FIRM LICENSE Nos P-0339
 504 Meadowslands Drive
 Hillsborough, NC 27278
 (919) 732-3883
 (919) 732-6676 (FAX)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 18A



210 x 40 x 3
 2.5 inch Skimmer
 with 2.375 inch
 Orifice Diameter
 32 ft. weir
 ID 18A.1 B



STANDARD 2' BASE TAIL DITCH
 SEE DETAIL 54

CULT
 (83)
 NANCY BLALOCK HEIRS & OTHERS
 DB 857 PG 565
 PB 15 PG 58

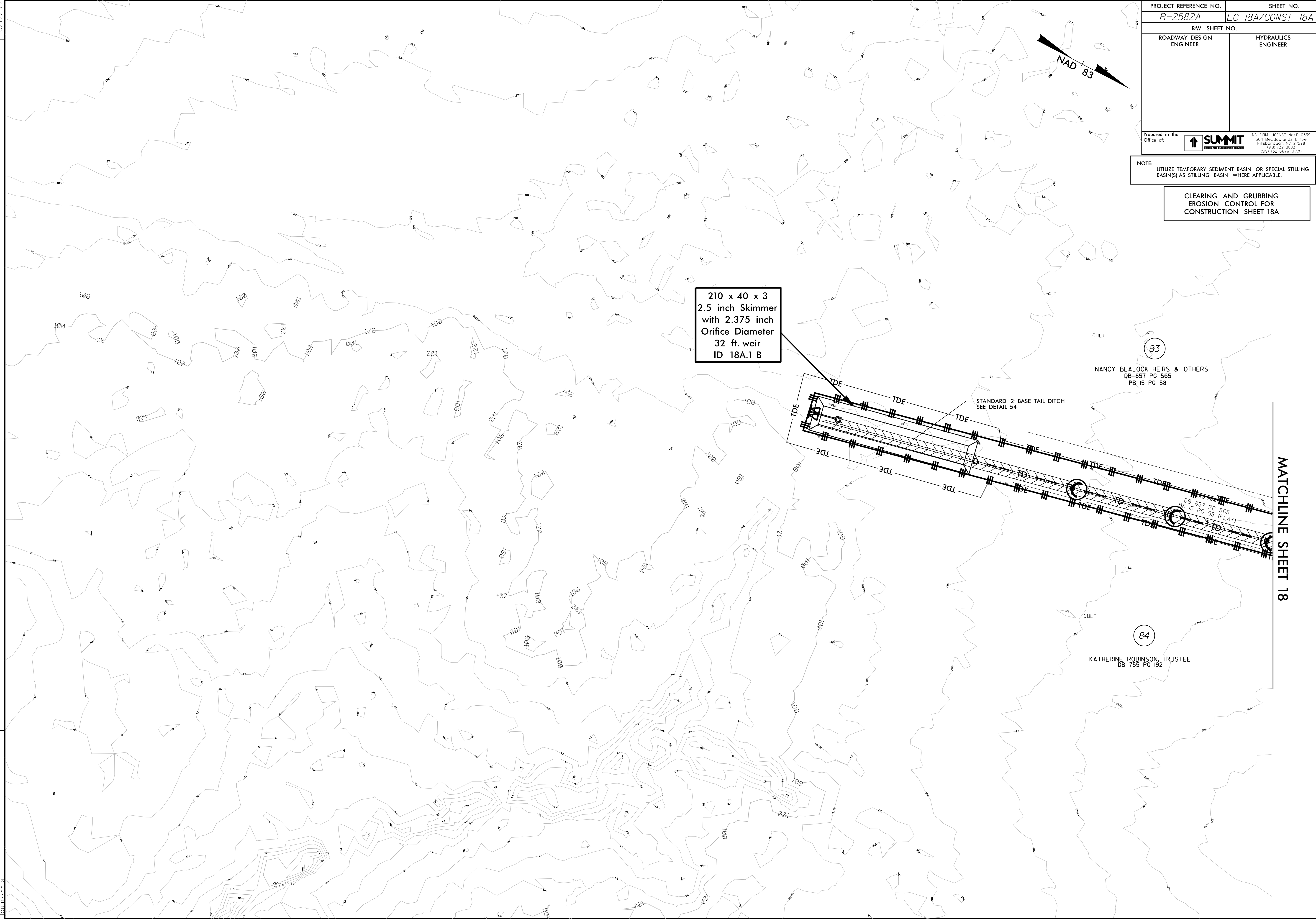
CULT
 (84)
 KATHERINE ROBINSON, TRUSTEE
 DB 755 PG 192

MATCHLINE SHEET 18

REVISIONS

8/17/99

24-JAN-2009 12:28:18 A.dgn
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 10/10/2008 11:15



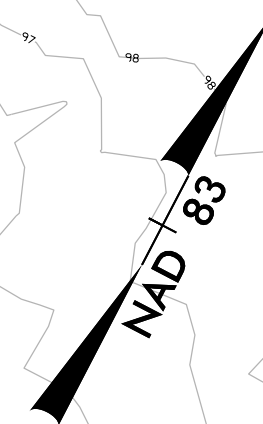
8/17/99

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

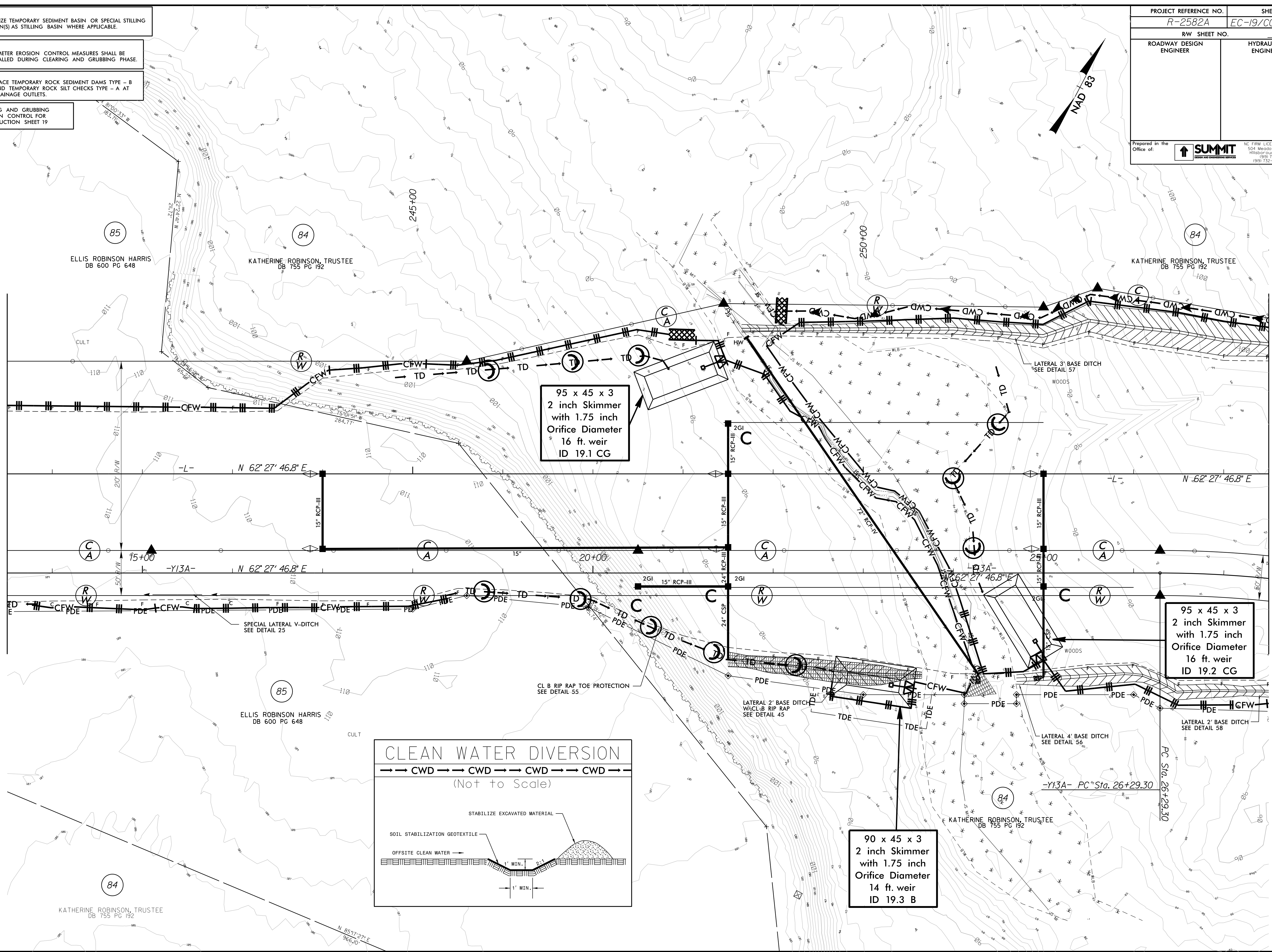
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 19



MATCHLINE SEE SHEET 18 -L- STA. 240 + 50.00

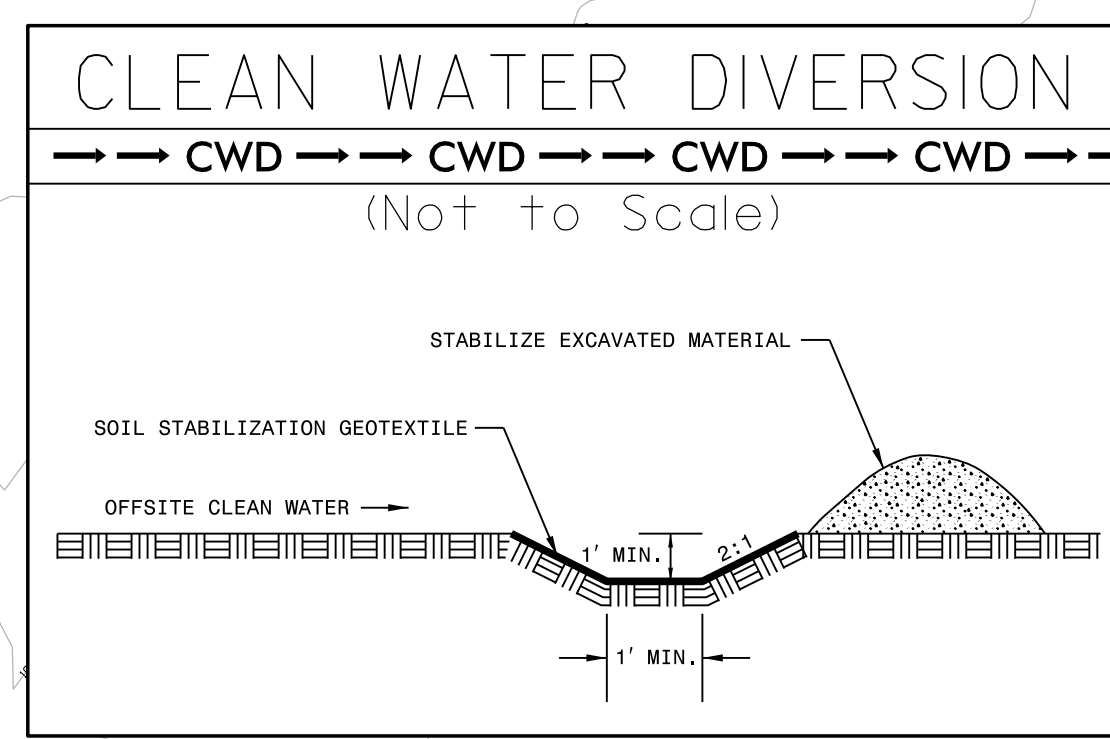
MATCHLINE SEE SHEET 20 -L- STA. 254 + 50.00



95 x 45 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
16 ft. weir
ID 19.1 CG

95 x 45 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
16 ft. weir
ID 19.2 CG

90 x 45 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
14 ft. weir
ID 19.3 B



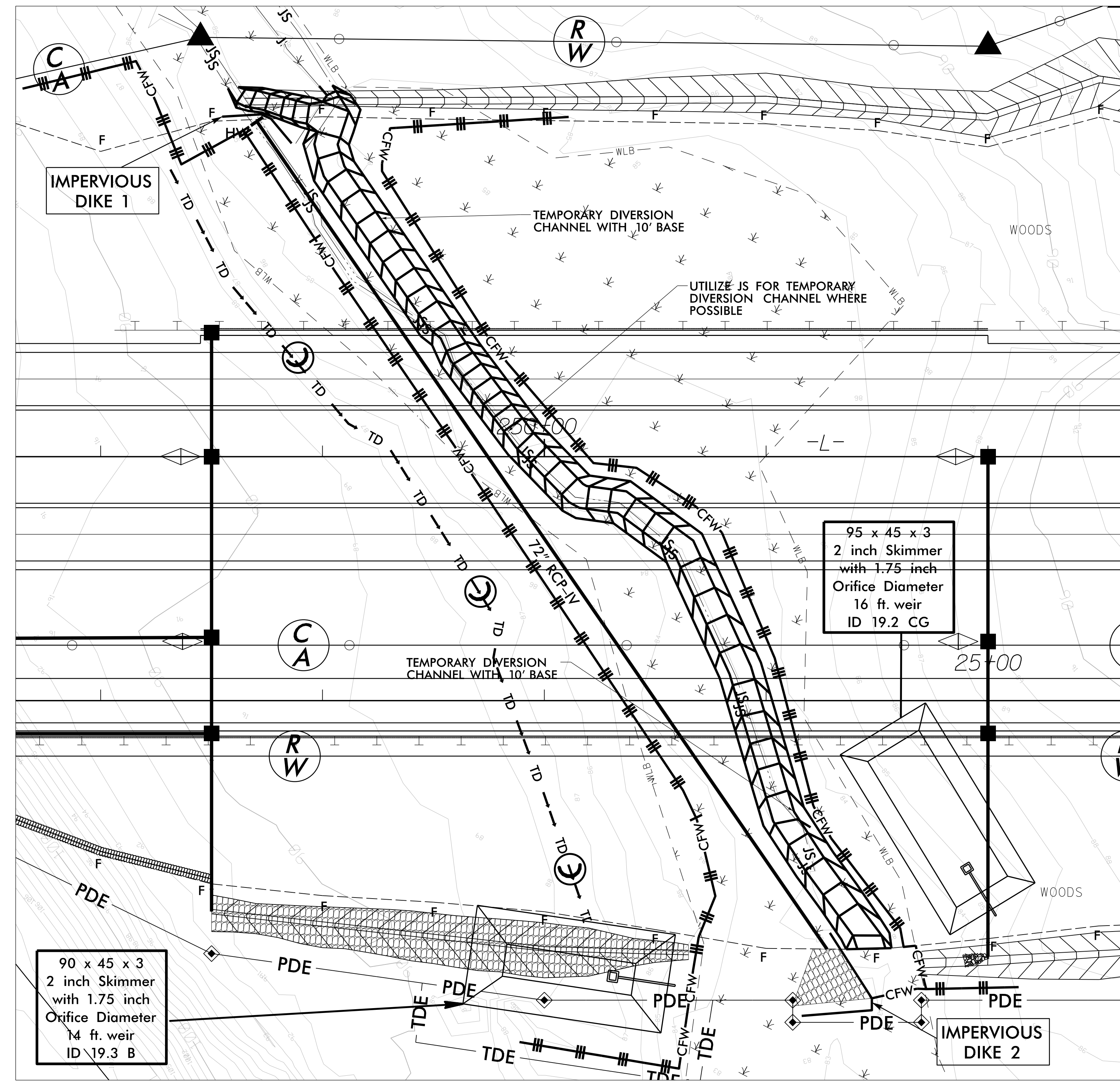
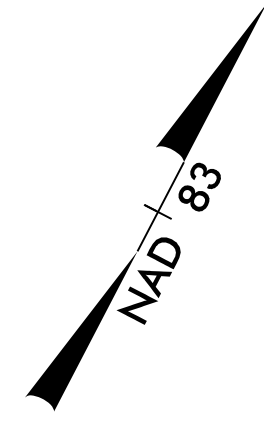
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8/17/99

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-19A/CONST.19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: SUMMIT <small>ROAD AND ENGINEERING SERVICES</small> <small>NC FIRM LICENSE: Not P-0339</small> <small>504 Meadows Drive</small> <small>Hillsborough, NC 27278</small> <small>(919) 732-3883</small> <small>(919) 732-6616 (Fax)</small>	

PIPE CONSTRUCTION SEQUENCE STA. 130+40 -L-



IMPERVIOUS DIKE 1

TEMPORARY DIVERSION CHANNEL WITH 10' BASE

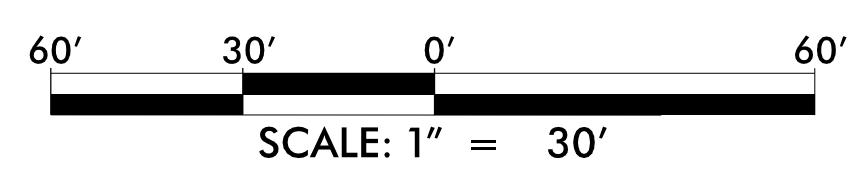
UTILIZE JS FOR TEMPORARY DIVERSION CHANNEL WHERE POSSIBLE

95 x 45 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
16 ft. weir
ID 19.2 CG

TEMPORARY DIVERSION CHANNEL WITH 10' BASE

90 x 45 x 3
2 inch Skimmer
with 1.75 inch
Orifice Diameter
14 ft. weir
ID 19.3 B

IMPERVIOUS DIKE 2

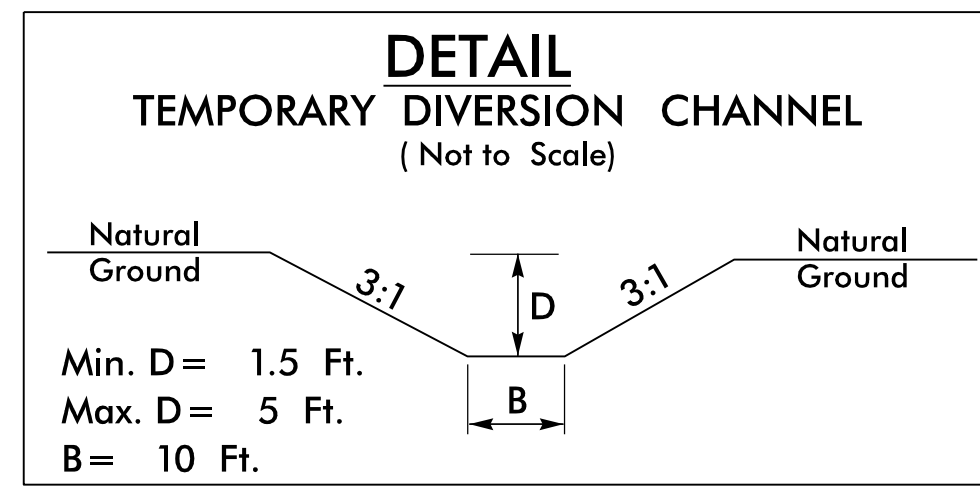


NOTES

1. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
2. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM.

CONSTRUCTION SEQUENCE

1. INSTALL SKIMMER BASINS 19.2 AND 19.3 ALONG WITH SILT FENCE WITH CFW BREAKS OUTSIDE SKIMMER BASIN LOCATIONS. INSTALL TEMPORARY DIVERSION DITCH TO SKIMMER BASIN 19.3. PLACE SPECIAL STILLING BASIN(S) AS DIRECTED.
2. INSTALL IMPERVIOUS DIKE 2 (~73 LF), ADJACENT CFW AND ALL SILT FENCE AND CFW EAST OF THE TEMPORARY CHANNEL. INSTALL OTHER EROSION CONTROL DEVICES TO THE GREATEST EXTENT POSSIBLE.
3. BEGIN CONSTRUCTION OF TEMPORARY 10' BASE DIVERSION CHANNEL 50' DOWNSTREAM OF CONFLUENCE OF JS (CONFLUENCE IS AT STA 249+00 LT 138 FT) SO THAT CONFLUENCE IS UNDISTURBED (~454 LF). UTILIZE SKIMMER BASIN 19.2 AND/OR SPECIAL STILLING BASIN(S) FOR DEWATERING.
4. EXCAVATE REMAINING TEMPORARY DIVERSION CHANNEL TYING IT TO BOTH ARMS OF THE JS (~50 LF). UTILIZE SKIMMER BASIN 19.2 AND/OR SPECIAL STILLING BASIN(S) FOR DEWATERING.
5. INSTALL IMPERVIOUS DIKE 1 (~37 LF) AS SHOWN DIVERTING WATER INTO TEMPORARY CHANNEL WITH 10' BASE. INSTALL REMAINING PIPE PHASING EROSION CONTROL DEVICES TO THE GREATEST EXTENT POSSIBLE.
6. DEWATER PROJECT AREA FOR INSTALLATION OF 72" RCP-IV AND CONSTRUCTION OF HEADWALL UTILIZING SKIMMER BASIN 19.2, 19.3 AND/OR SPECIAL STILLING BASIN(S). CONSTRUCT 72" RCP-IV WITH HEADWALL.
7. CONSTRUCT ANY UPSTREAM AND DOWNSTREAM IMPROVEMENTS AND PLACE REQUIRED RIP RAP.
8. REMOVE IMPERVIOUS DIKES AND TEMPORARY DIVERSION CHANNEL WITH 10' BASE. CONSTRUCT PROPOSED DITCH TO DIVERT EASTERN JS TO THE 72-INCH PIPE HW. UTILIZE SKIMMER BASIN 19.2 AND/OR SPECIAL STILLING BASIN(S) FOR DEWATERING IF NEEDED.
9. CONSTRUCT PROPOSED ROADWAY.
10. CONSTRUCT REMAINING PROPOSED DITCHES AND REMOVE SPECIAL STILLING BASIN(S).



EROSION CONTROL REVISION: PIPE CONSTRUCTION SEQUENCE WAS REVISED TO BRING THE TEMPORARY DIVERSION CHANNEL WITHIN PERMITTING LIMITS.

18-AUG-2020 12:24 R-2582A-EC-19A-CONST.19-PIPE CONSTRUCTION SEQUENCE.psh_19A.dgn

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-20/CONST-20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

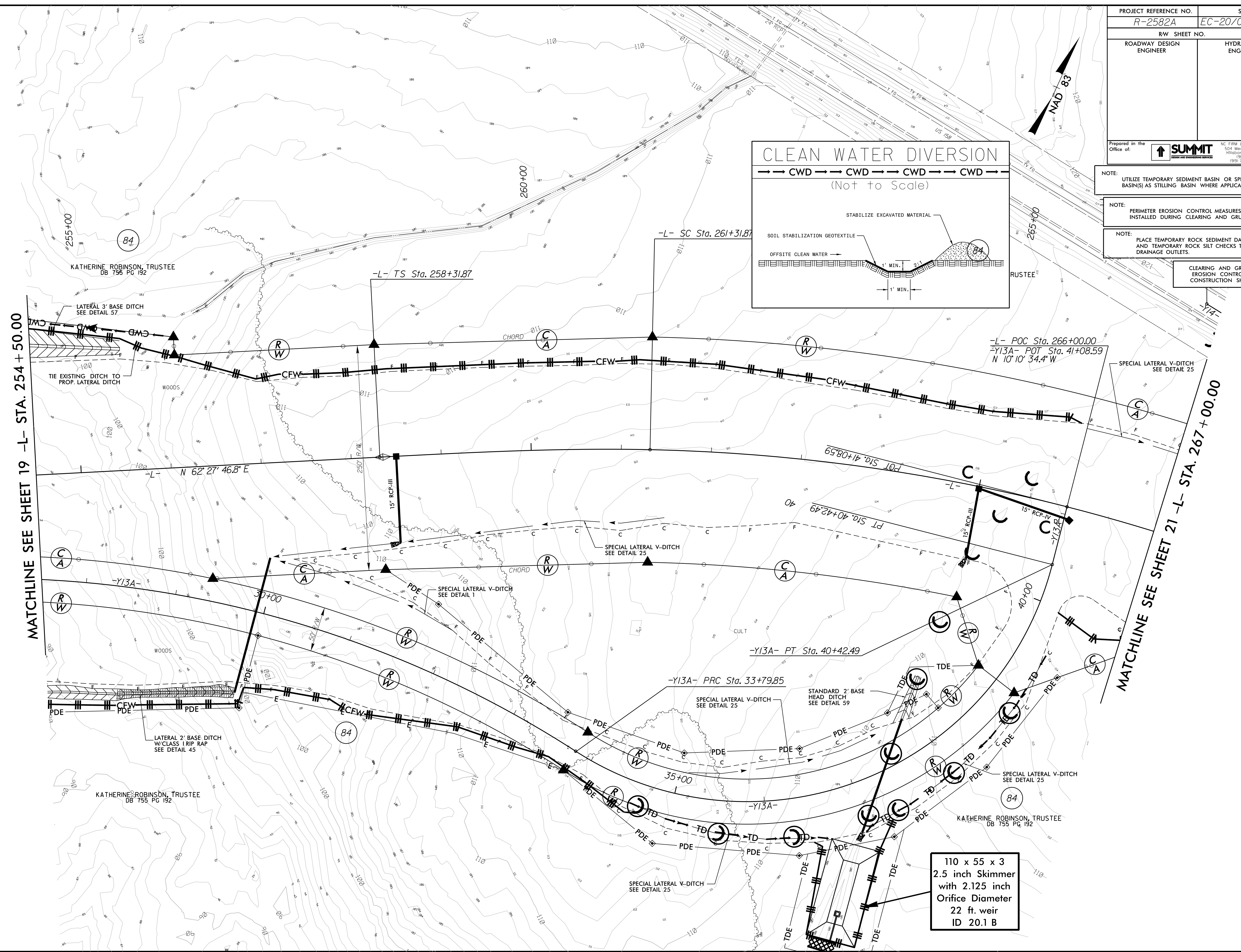
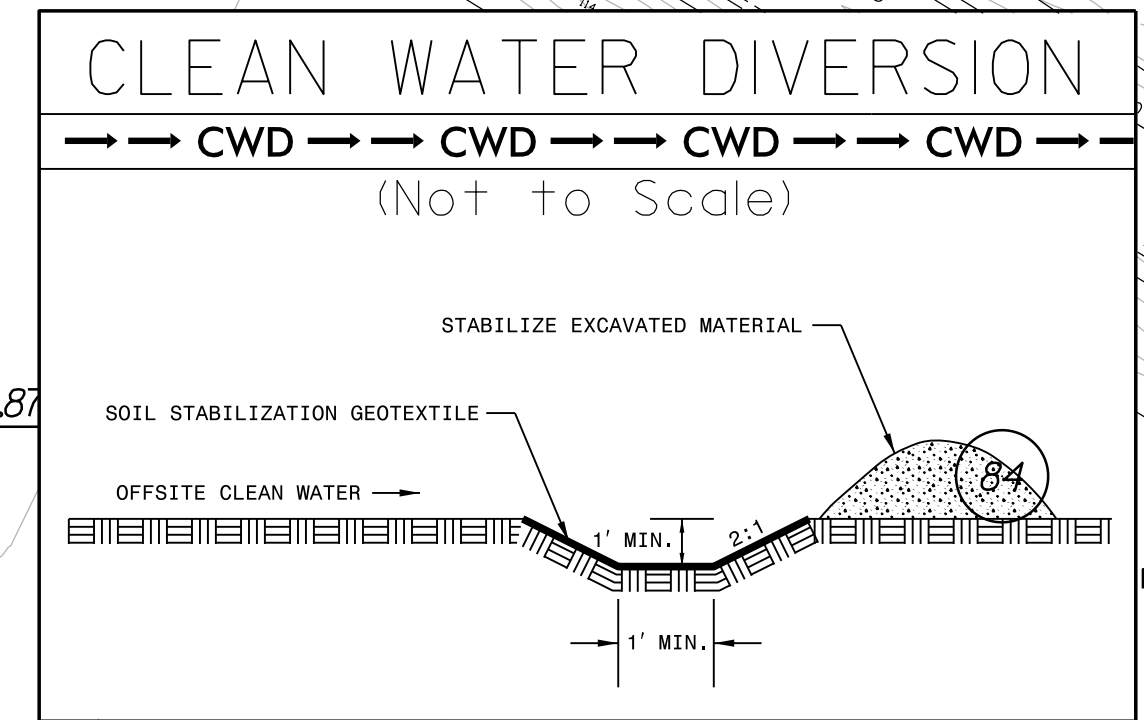
Prepared in the Office of: **SUMMIT**
DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
504 Meadowslands Drive
Hillsborough, NC 27578
(919) 732-3883
(919) 732-6676 (Fax)

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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

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 20




110 x 55 x 3
2.5 inch Skimmer
with 2.125 inch
Orifice Diameter
22 ft. weir
ID 20.1 B

REVISIONS

8/17/99

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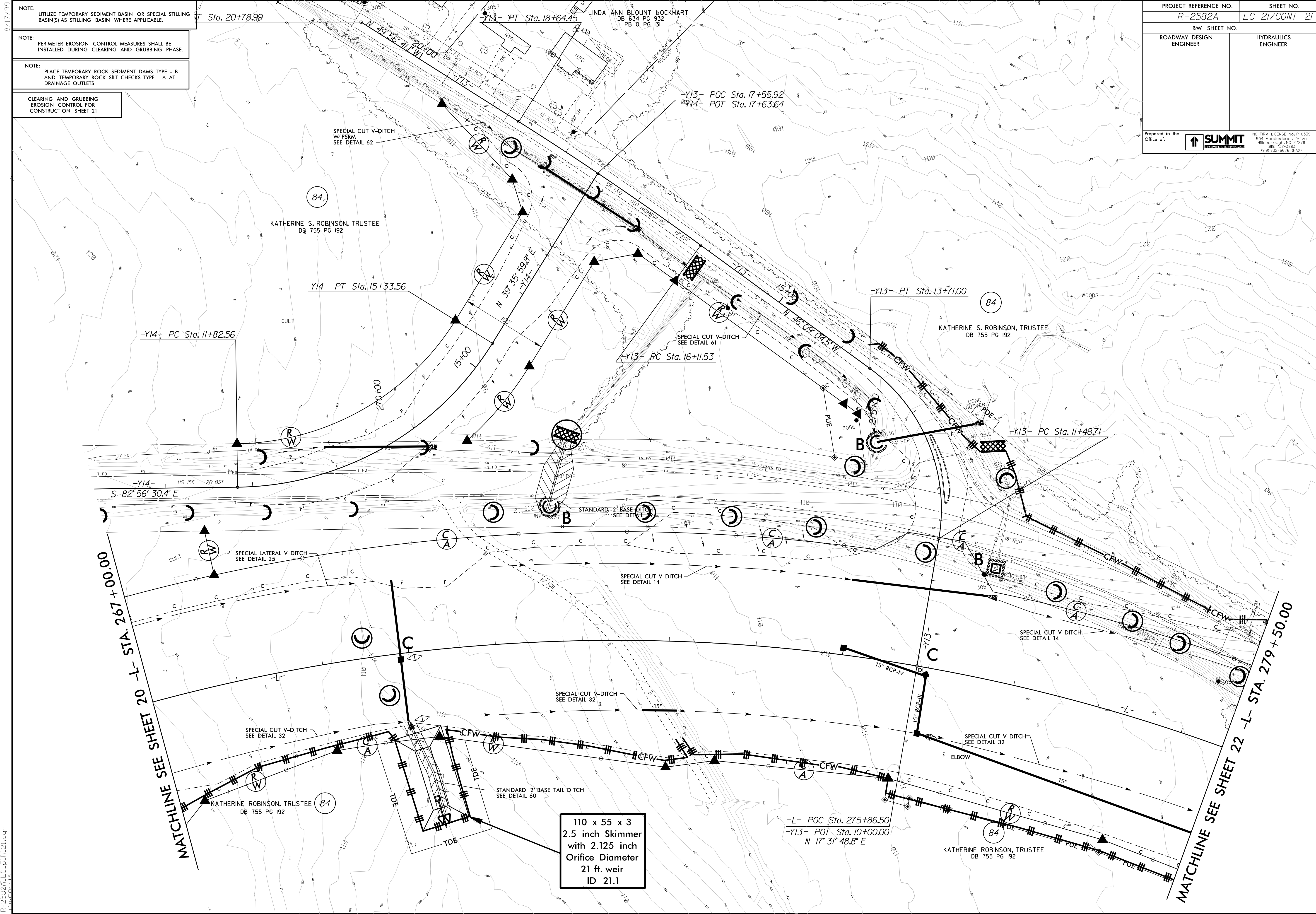
PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-21/CONT-21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>	

NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

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


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

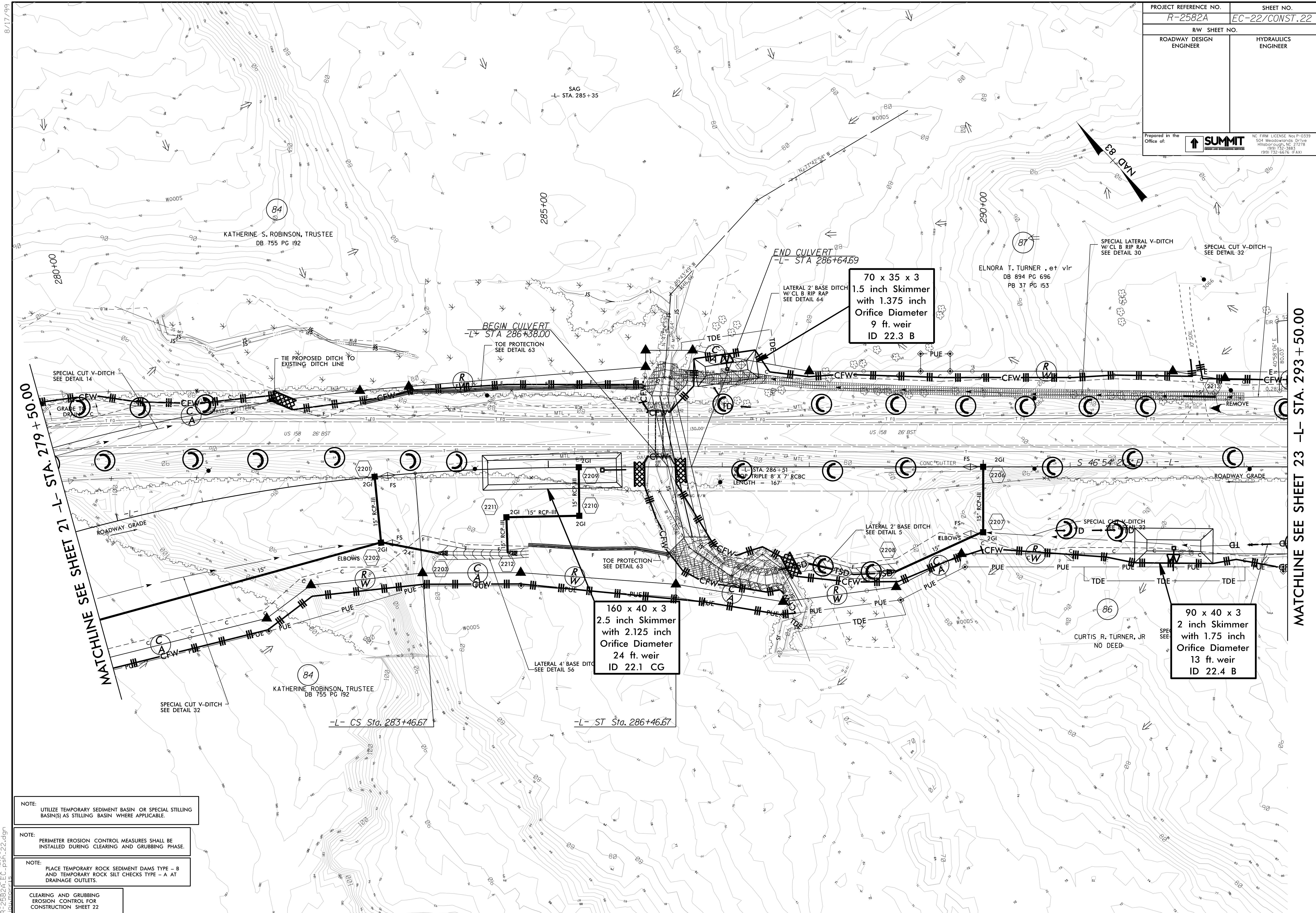
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 21



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PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-22/CONST.22
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
	
<small>NC FIRM LICENSE Nos P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>	




MATCHLINE SEE SHEET 21 -L- STA. 279 + 50.00

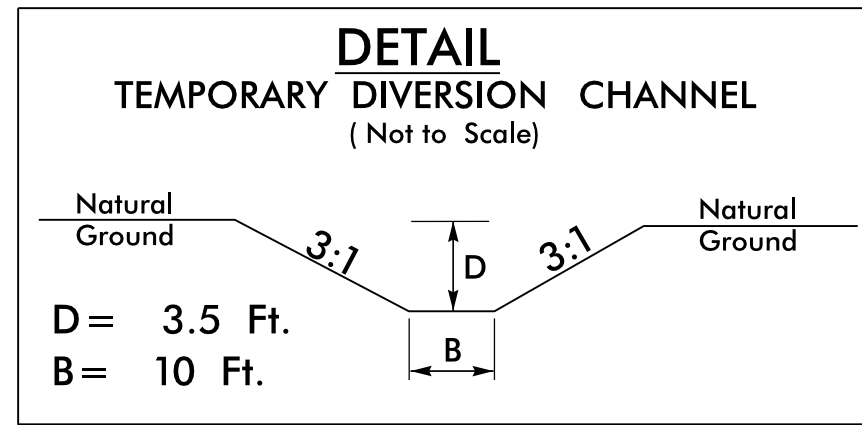
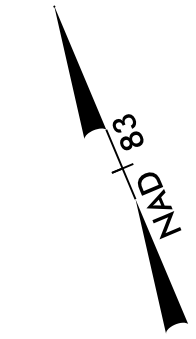
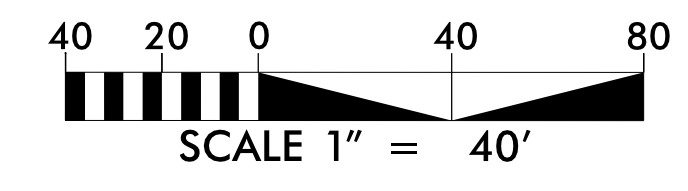
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- NOTE: UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.
- NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.
- NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
- CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 22

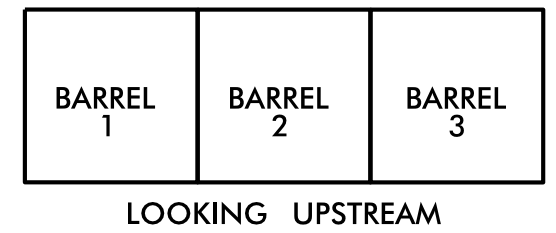
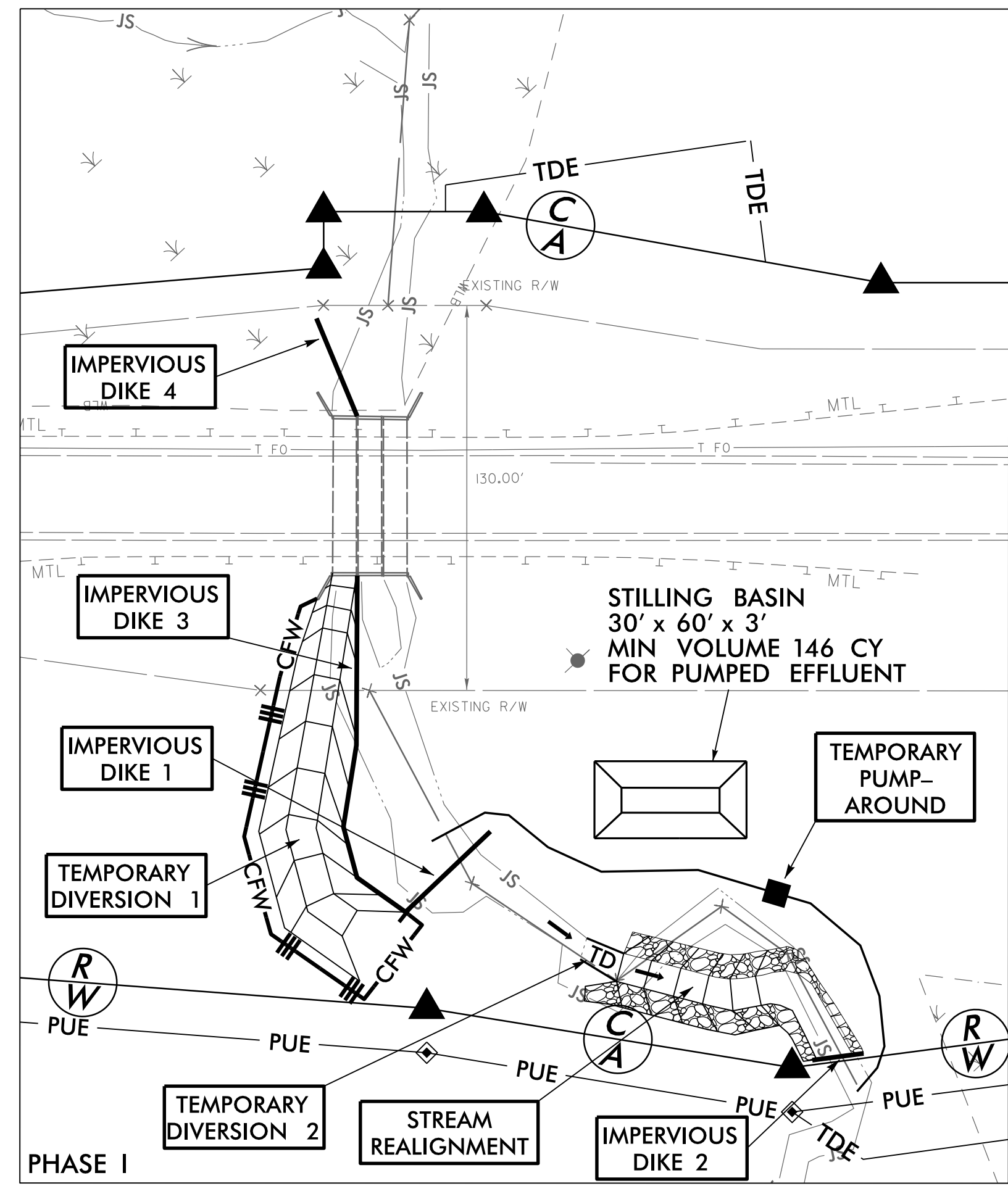
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CULVERT CONSTRUCTION SEQUENCE STA. 286 + 51 -L-

PROJECT REFERENCE NO. R-2582A	SHEET NO. EC-22A/CONST. 22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:  NC FIRM LICENSE No. P-01339 504 Meadowslands Drive Hillsborough, NC 27276 (919) 732-1883 (919) 732-6676 (FAX)	

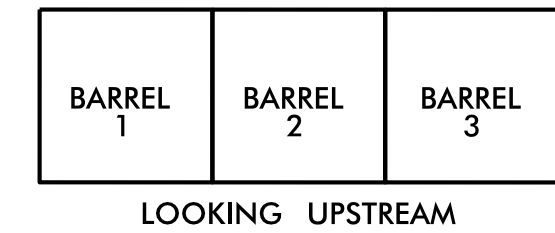
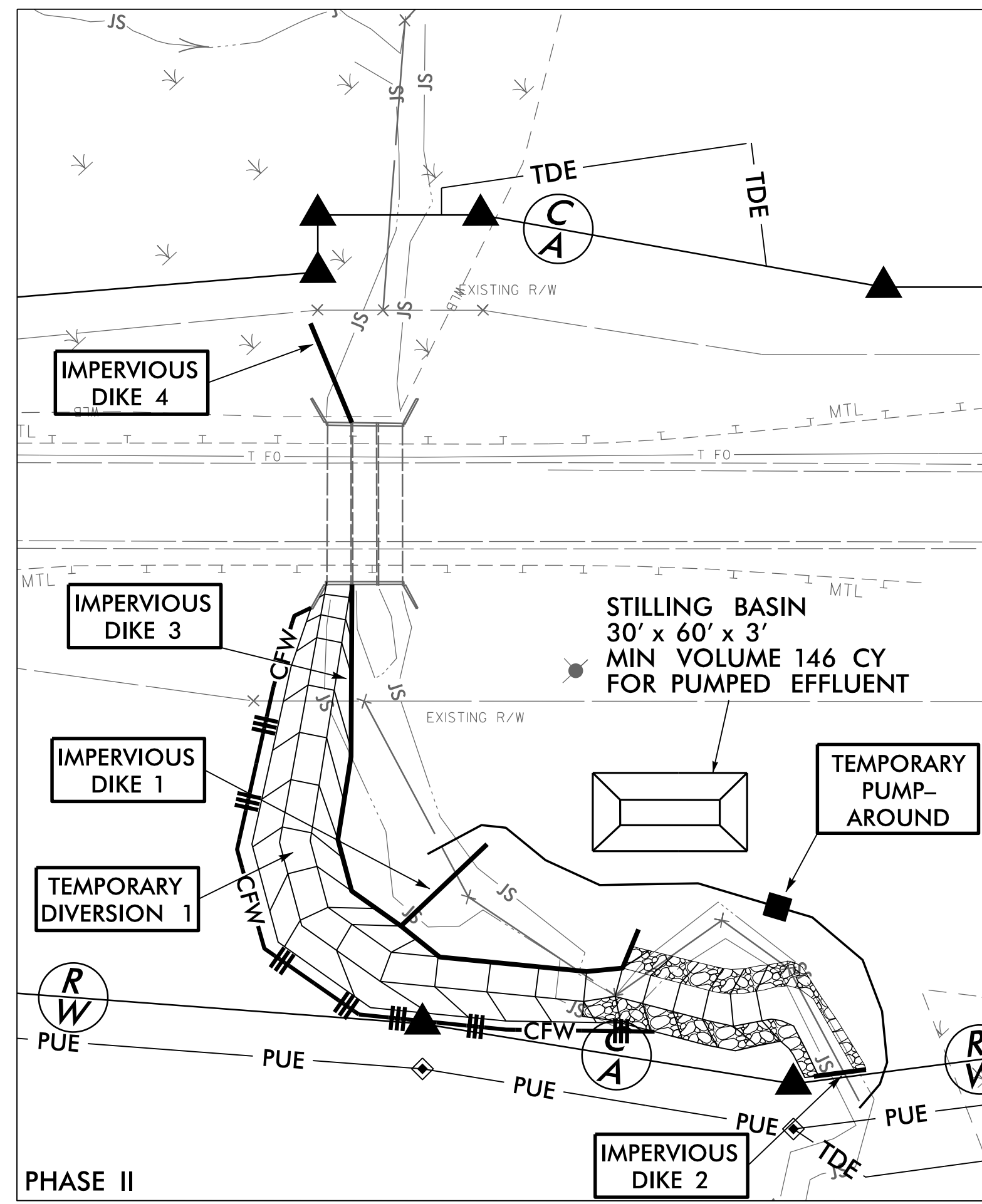


- NOTES (FOR ALL PHASES)**
1. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
 2. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
 3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
 4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
 5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DEWATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH STILLING BASIN AND/OR SPECIAL STILLING BASIN.



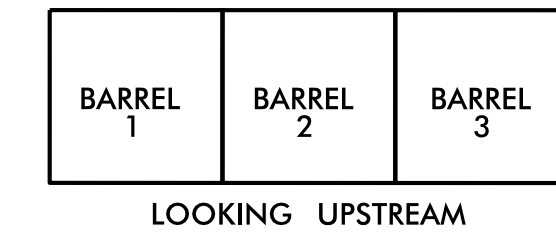
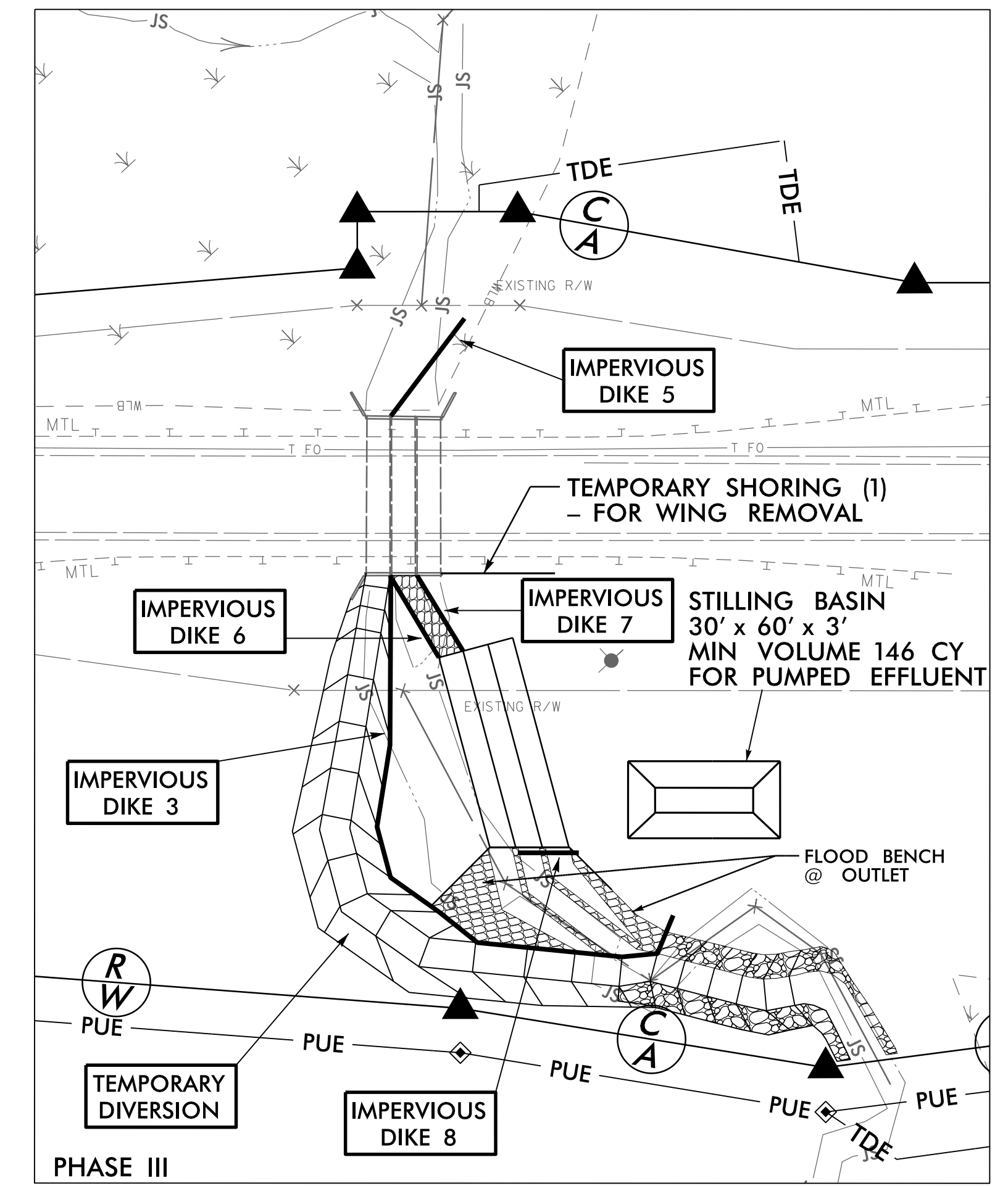
- CONSTRUCTION SEQUENCE I**
1. INSTALL SPECIAL STILLING BASIN AND STILLING BASIN IN FIELD DETERMINED LOCATION.
 2. INSTALL IMPERVIOUS DIKES 3 AND 4 AND DEWATER BARREL 1 OF THE EXISTING CULVERT UTILIZING SPECIAL STILLING BASINS AS NEEDED.
 3. INSTALL IMPERVIOUS DIKES 1 AND 2 AND TEMPORARY PUMP-AROUND.
 4. CONSTRUCT STREAM REALIGNMENT AND TEMPORARY DIVERSION 2 UTILIZING TEMPORARY PUMP-AROUND. STREAM REALIGNMENT CONSTRUCTION SHALL BE EQUAL TO ONE DAY'S WORK. STREAM OUTSIDE OF RIGHT OF WAY IS NOT TO BE IMPACTED.
 5. INSTALL SILT FENCE AND COIR FIBER WATTLE BREAKS ALONG TEMPORARY DIVERSION 1 PRIOR TO CONSTRUCTION OF TEMPORARY DIVERSION 1. REMOVE IMPERVIOUS DIKES 1 AND 2 AND TEMPORARY PUMP-AROUND ALLOWING FLOW THROUGH NEW STREAM REALIGNMENT. CONSTRUCT TEMPORARY DIVERSION 1 (SEE DETAIL) TO GREATEST EXTENT POSSIBLE.

*NOTE: IMPERVIOUS DIKES 1 AND 3 ARE SEPERATE DIKES



- CONSTRUCTION SEQUENCE II**
6. RE-INSTALL IMPERVIOUS DIKES 1 AND 2 AND TEMPORARY PUMP-AROUND.
 7. INSTALL ADDITIONAL SILT FENCE AND COIR FIBER WATTLE BREAKS ALONG TEMPORARY DIVERSION PRIOR TO CONSTRUCTION. MODIFY IMPERVIOUS DIKE 3 AND CONSTRUCT THE REMAINDER OF TEMPORARY DIVERSION 1 (SEE DETAIL) TYING INTO THE STREAM REALIGNMENT, UTILIZING IMPERVIOUS DIKES 1 AND 2 AND TEMPORARY PUMP-AROUND.
 8. REMOVE IMPERVIOUS DIKE 2 BUT IMPERVIOUS DIKE 1 AND TEMPORARY PUMP-AROUND ARE TO REMAIN IN OPERATION.

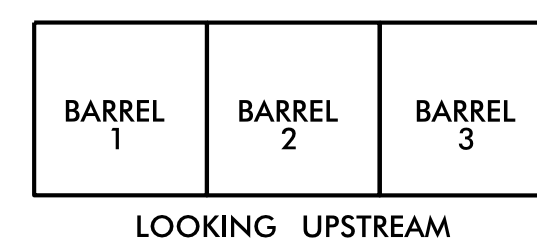
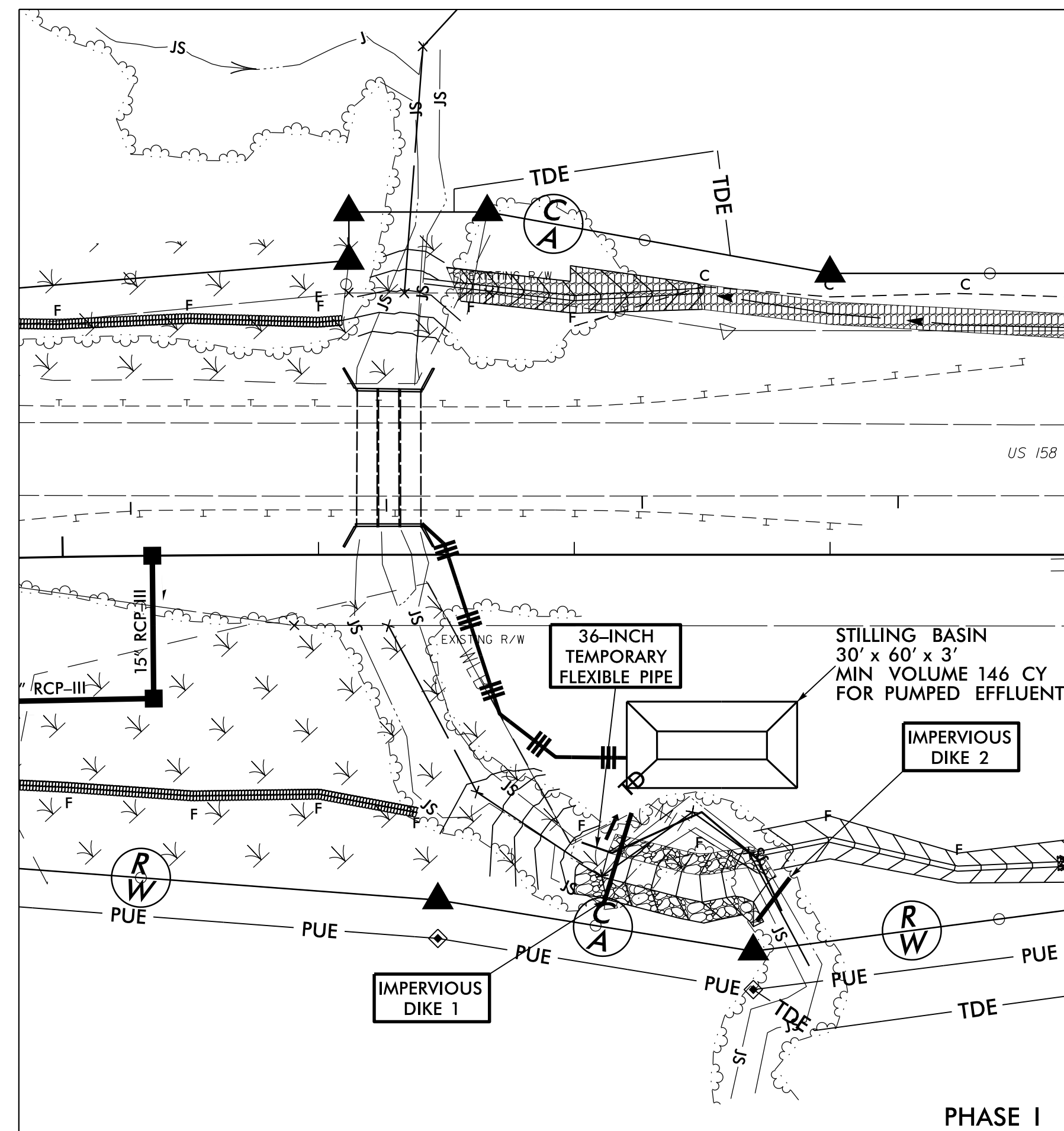
*NOTE: IMPERVIOUS DIKES 1 AND 3 ARE SEPERATE DIKES



- CONSTRUCTION SEQUENCE III**
9. REMOVE IMPERVIOUS DIKE 4 AND INSTALL IMPERVIOUS DIKE 5 TO DIVERT FLOW INTO BARREL 1 OF THE EXISTING CULVERT. REMOVE IMPERVIOUS DIKE 1 AND TEMPORARY PUMP-AROUND. TIE IN CONSTRUCTION AND DIVERSION OF WATER INTO TEMPORARY DIVERSION 1 SHALL BE EQUAL TO ONE DAY'S WORK.
 10. CONSTRUCT TEMPORARY SHORING (1) FOR WINGWALL REMOVAL.
 11. DEWATER THE CHANNEL AND BARRELS 2 AND 3 OF THE EXISTING CULVERT. REMOVE SOUTHEAST WINGWALL FROM BARREL 3 OF THE EXISTING CULVERT.
 12. CONSTRUCT THE PROPOSED CULVERT OUTLET END AND SOUTHERN WINGWALLS. CONSTRUCT FLOOD BENCHES AT OUTLET TO GREATEST EXTENT POSSIBLE.
 13. INSTALL IMPERVIOUS DIKES 6, 7 AND 8 AND LINE CHANNEL WITH RIPRAP.

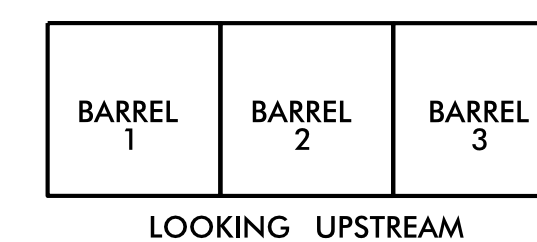
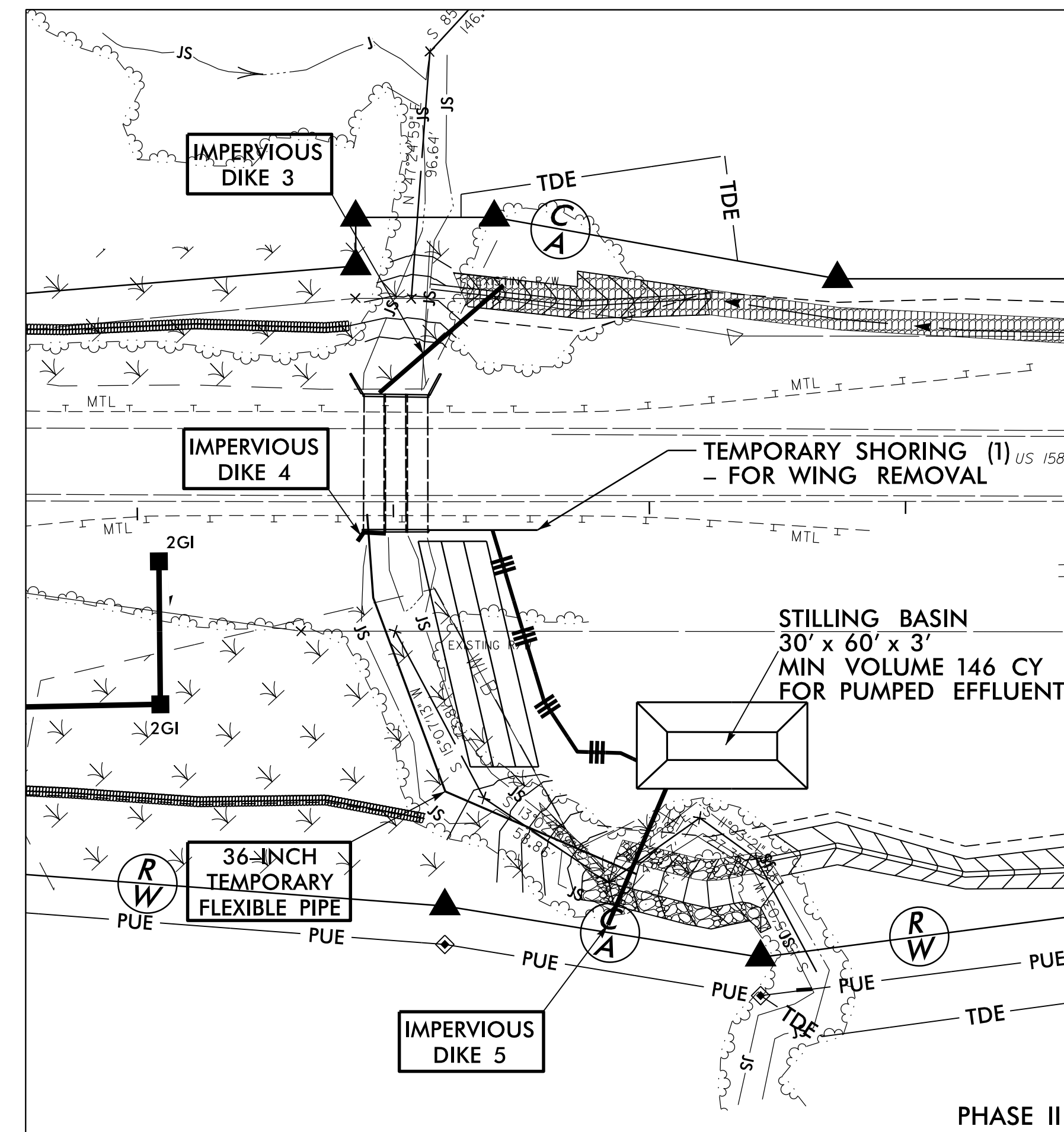
REVISIONS

CULVERT CONSTRUCTION SEQUENCE STA. 286+51 -L-



CONSTRUCTION SEQUENCE I

1. INSTALL IMPERVIOUS DIKES 1 AND 2 AND 36" TEMPORARY FLEXIBLE PIPE.
2. INSTALL STILLING BASIN.
3. CONSTRUCT 75 FT OF PROPOSED STREAM ALIGNMENT.
4. REMOVE DIKE 1 AND 2 AND PUMP AROUND UPON COMPLETION OF PROPOSED STREAM ALIGNMENT.

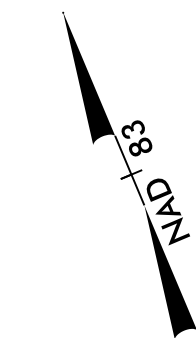
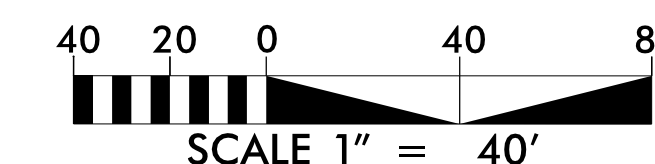


CONSTRUCTION SEQUENCE II

5. INSTALL IMPERVIOUS DIKE 3 TO BLOCK FLOW FROM BARRELS 2 AND 3.
6. INSTALL IMPERVIOUS DIKE 4 INSIDE BARREL 1 AND 36" TEMPORARY FLEXIBLE PIPE.
7. INSTALL IMPERVIOUS DIKE 5 AND MAINTAIN STILLING BASIN.
8. CONSTRUCT TEMPORARY SHORING FOR WING REMOVAL.
9. REMOVE EXISTING CULVERT OUTLET WINGWALLS.
10. CONSTRUCT CULVERT OUTLET END AND SOUTHEAST FLOOD BENCH AT OUTLET.

NOTES (FOR ALL PHASES)

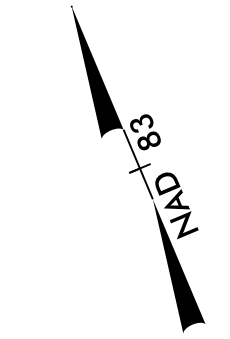
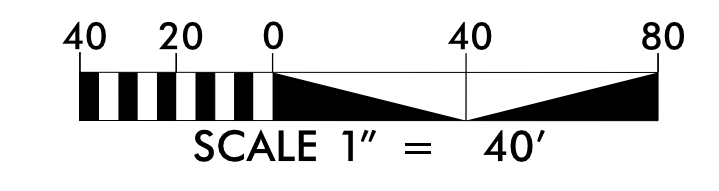
1. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
2. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO STREAM. FOR DEWATERING OF CULVERT SITES, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH STILLING BASIN AND/OR SPECIAL STILLING BASIN.



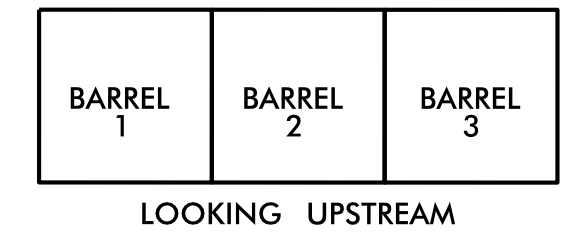
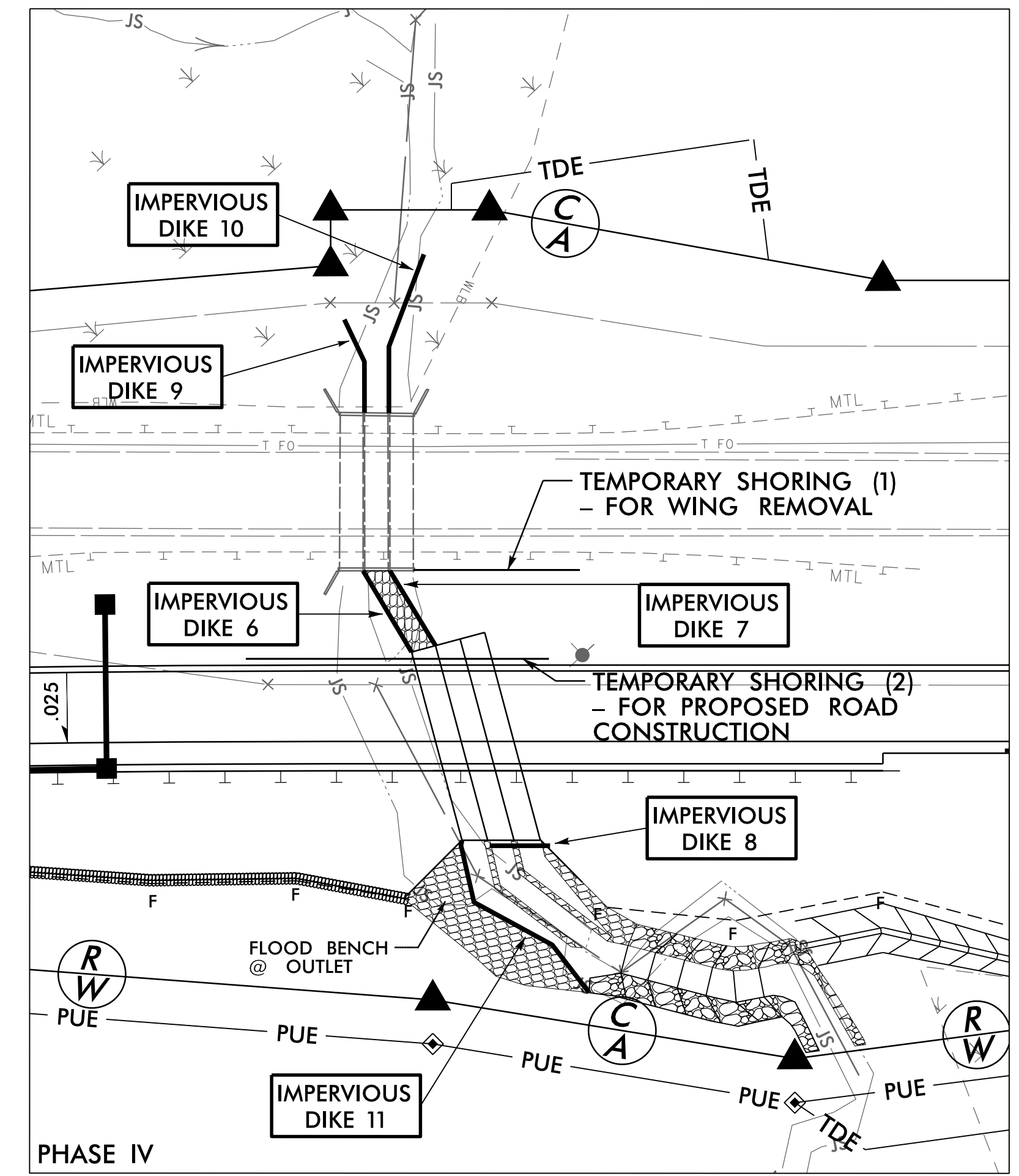
REVISIONS

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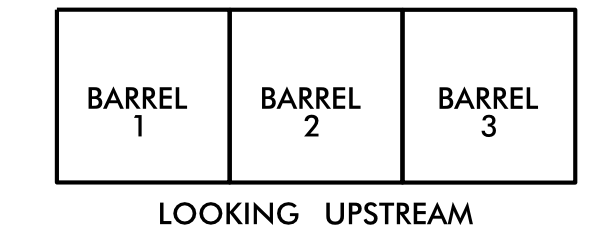
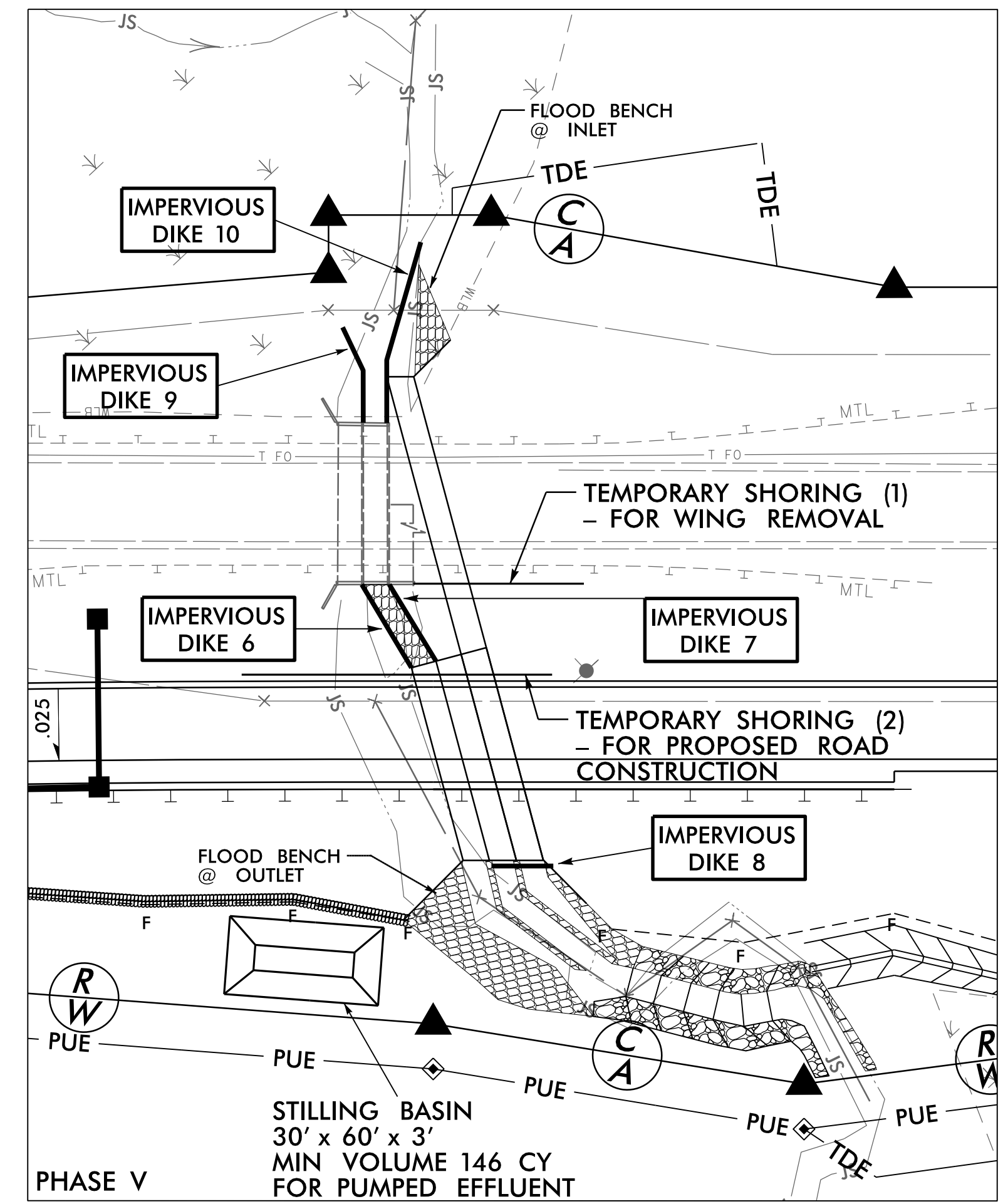


CULVERT CONSTRUCTION SEQUENCE STA. 286+51 -L-



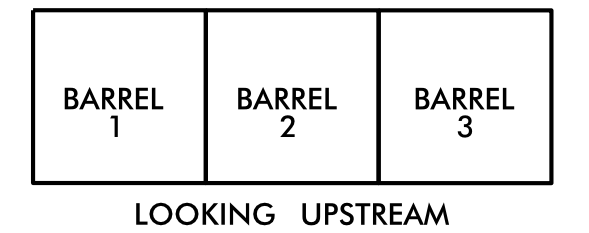
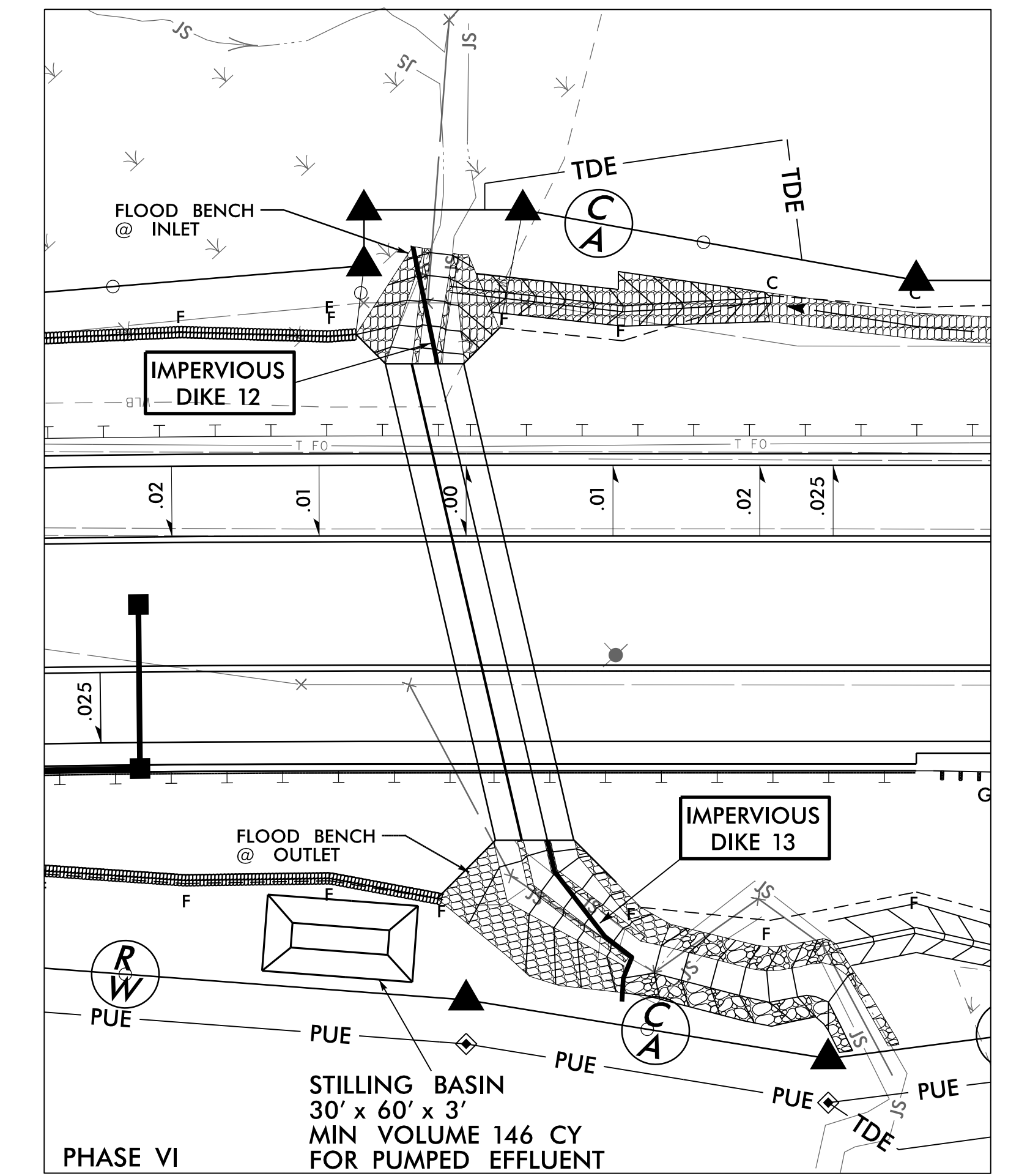
CONSTRUCTION SEQUENCE IV

14. REMOVE IMPERVIOUS DIKE 3 AND 5 AND INSTALL IMPERVIOUS DIKES 9 AND 10 TO DIVERT FLOW THROUGH BARREL 2 OF THE EXISTING CULVERT. INSTALL IMPERVIOUS DIKE 11 TO BLOCK FLOW FROM TEMPORARY DIVERSION TO THE STREAM REALIGNMENT.
15. DEWATER AND REMOVE TEMPORARY DIVERSION UTILIZING SPECIAL STILLING BASINS AS NEEDED.
16. CONSTRUCT REMAINING SOUTHWESTERN FLOOD BENCH TO GREATEST EXTENT POSSIBLE. REMOVE IMPERVIOUS DIKE 11.
17. CONSTRUCT TEMPORARY SHORING (2) OVER PROPOSED CULVERT FOR CONSTRUCTION OF EASTBOUND ROADWAY ALIGNMENT.
18. REMOVE STILLING BASIN. CONSTRUCT EASTBOUND ROADWAY ALIGNMENT OVER NEW CULVERT AND ALL DRAINAGE FEATURES ON THE SOUTHERN SIDE. SHIFT TRAFFIC ONTO NEW EASTBOUND ROADWAY ALIGNMENT.



CONSTRUCTION SEQUENCE V

19. REMOVE NORTHEAST WINGWALL AND UPSTREAM PORTION OF BARREL 3 OF THE EXISTING CULVERT AS NEEDED FOR CONSTRUCTION OF THE PROPOSED CULVERT. REMOVE TEMPORARY SHORING (1).
20. CONSTRUCT THE PROPOSED CULVERT BARREL 3 INLET END INCLUDING NORTHEAST WINGWALL AND FLOOD BENCH.
21. CONSTRUCT STILLING BASIN AT BASE OF FILL WITHIN RIGHT OF WAY.



CONSTRUCTION SEQUENCE VI

22. REMOVE IMPERVIOUS DIKES 8, 9 AND 10 AND INSTALL IMPERVIOUS DIKES 12 AND 13 TO DIRECT FLOW THROUGH BARREL 3 OF THE PROPOSED CULVERT.
23. DEWATER AND REMOVE REMAINDER OF EXISTING CULVERT AND IMPERVIOUS DIKES 6 AND 7.
24. DEWATER BARREL 1 OF THE PROPOSED CULVERT USING THE STILLING BASIN. CONSTRUCT THE PROPOSED CULVERT BARRELS 1 AND 2 INLET END INCLUDING NORTHWEST WINGWALL AND FLOOD BENCH.
25. CONSTRUCT REMAINDER OF SOUTHWEST FLOOD BENCH.
26. REMOVE TEMPORARY SHORING, STILLING BASIN, SPECIAL STILLING BASINS, AND IMPERVIOUS DIKES 12 AND 13 ALLOWING FLOW THROUGH COMPLETED CULVERT.
27. CONSTRUCT PROPOSED WEST BOUND ROADWAY OVER NEW CULVERT AND CONSTRUCT ALL ASSOCIATED ROADWAY DRAINAGE FEATURES.
28. COMPLETE ROADWAY AND SHIFT TRAFFIC TO FINAL TRAFFIC PATTERNS.

REVISIONS

8/17/99

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