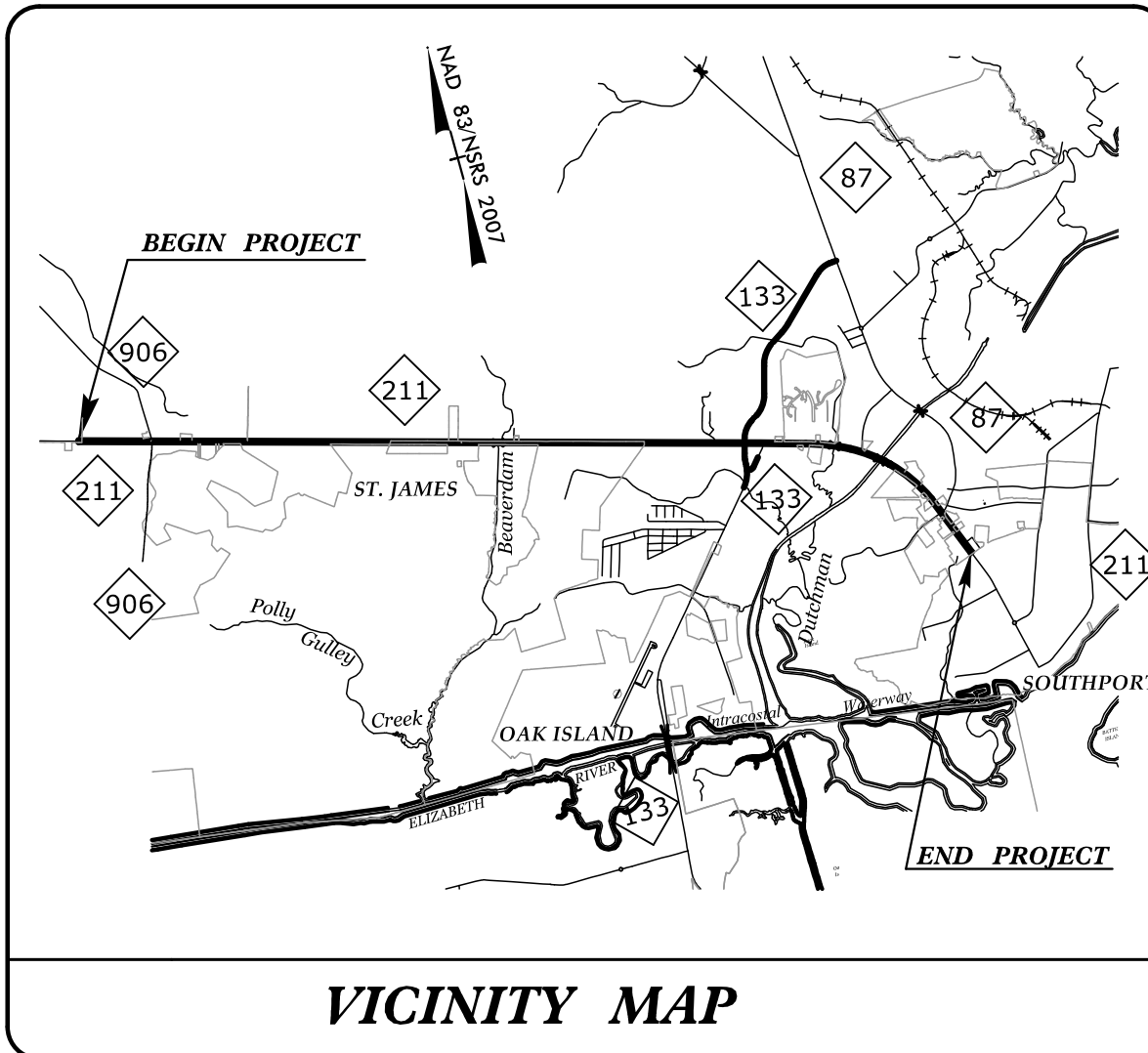


**TIP PROJECT: R-5021**



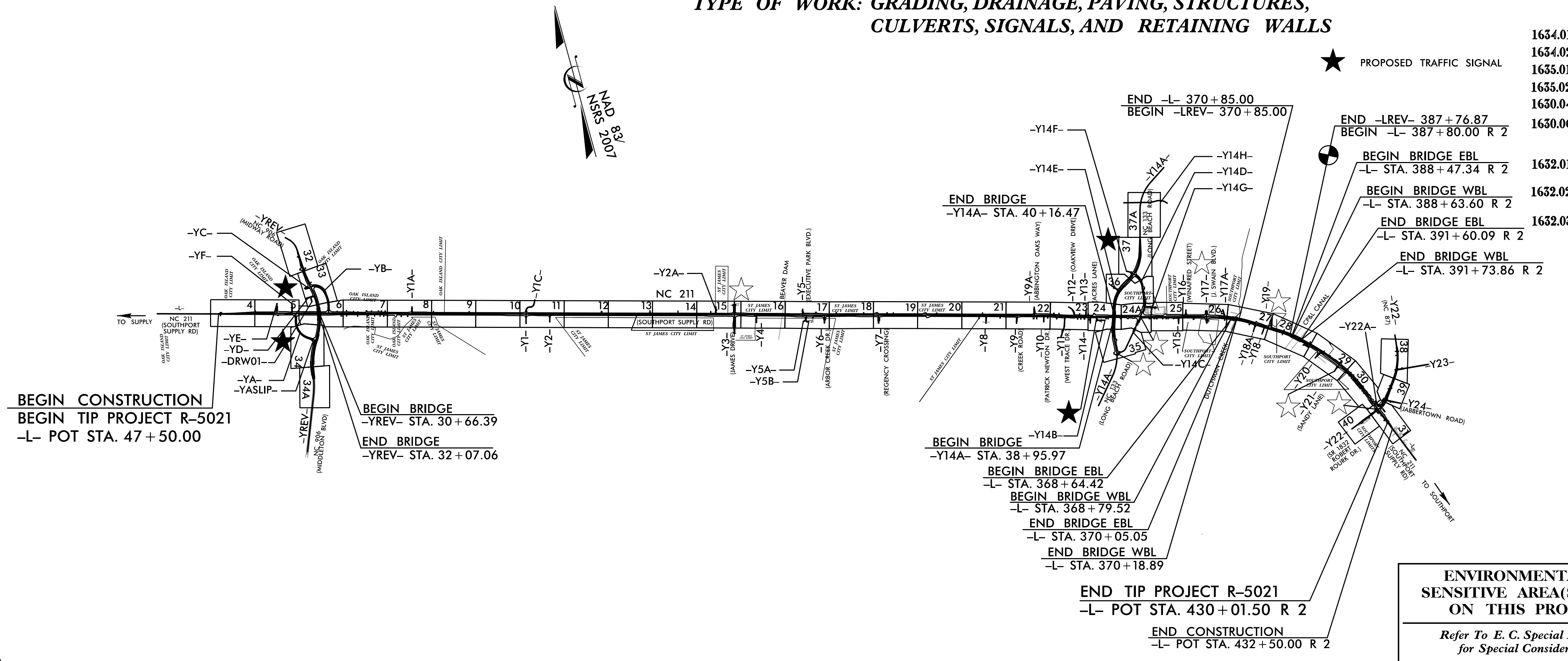
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**BRUNSWICK COUNTY**

LOCATION: NC 211 FROM WEST OF NC 906 (MIDWAY ROAD)  
TO EAST OF NC 87

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



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5021	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**EROSION AND SEDIMENT CONTROL MEASURES**

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

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

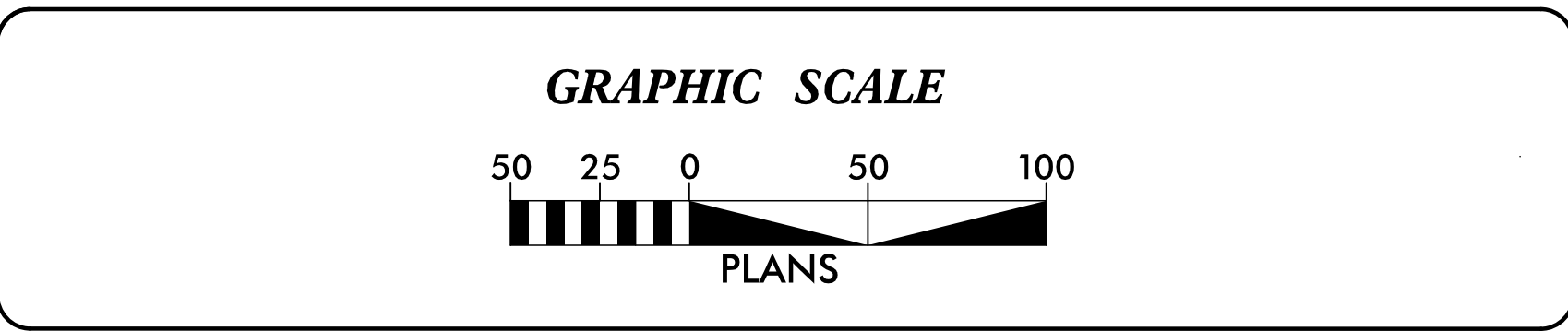
**THIS PROJECT HAS  
BEEN DESIGNED TO  
SENSITIVE WATERSHED  
STANDARDS.**

**ENVIRONMENTALLY  
SENSITIVE AREA(S) EXIST  
ON THIS PROJECT**

Refer To E. C. Special Provisions  
for Special Considerations.

HIGH QUALITY WATER(S) EXIST  
ON THIS PROJECT

High Quality Water Zone(s) Exist  
From Sta. -L- 210+75 /363+50  
to Sta. -L- 232+00 /375+50  
Refer To E. C. Special Provisions  
for Special Considerations.



**THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH  
THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000  
GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019  
AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.**

**HNTB**

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

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.

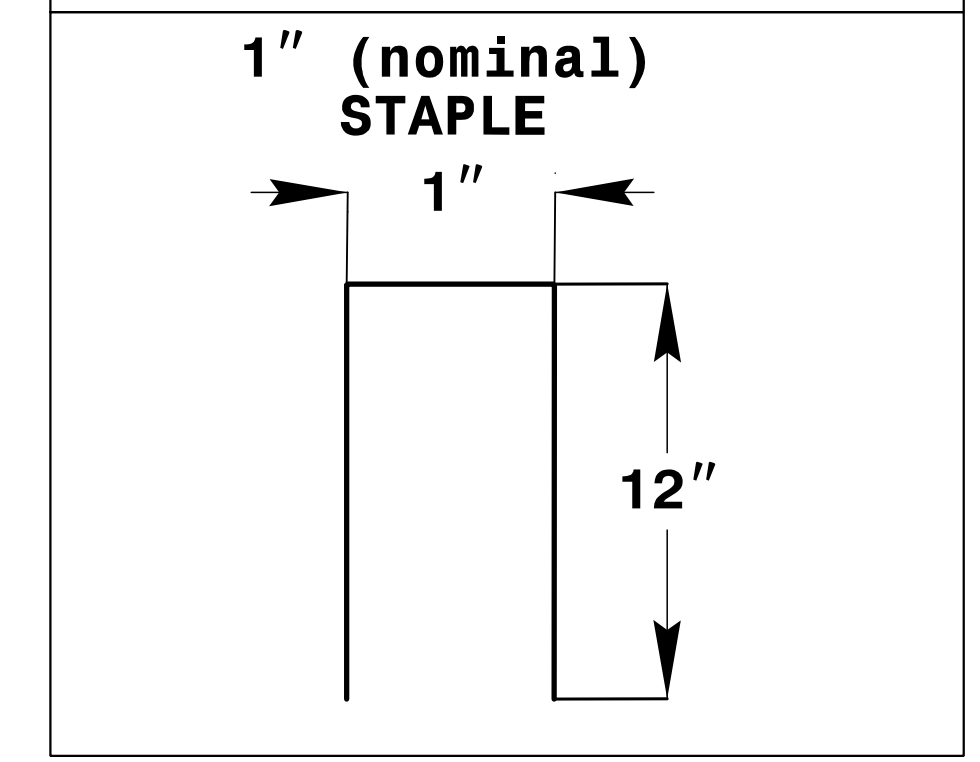
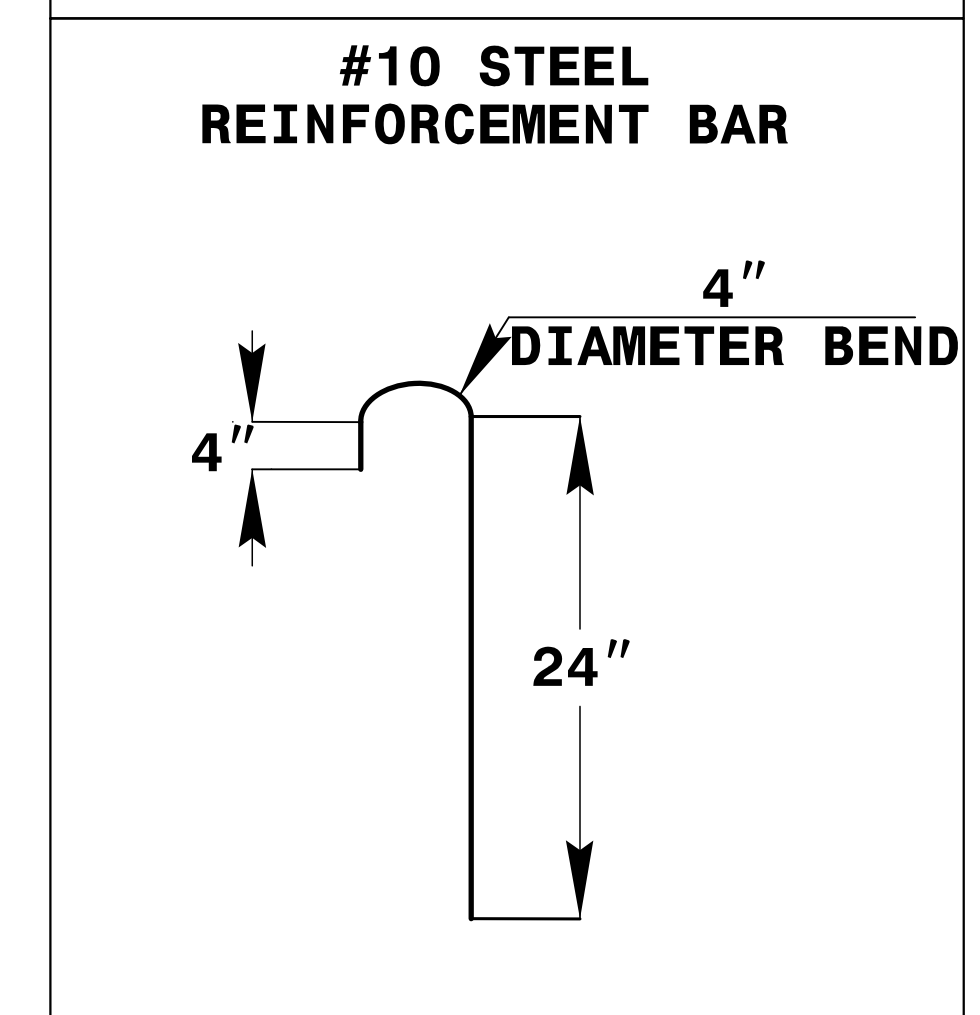
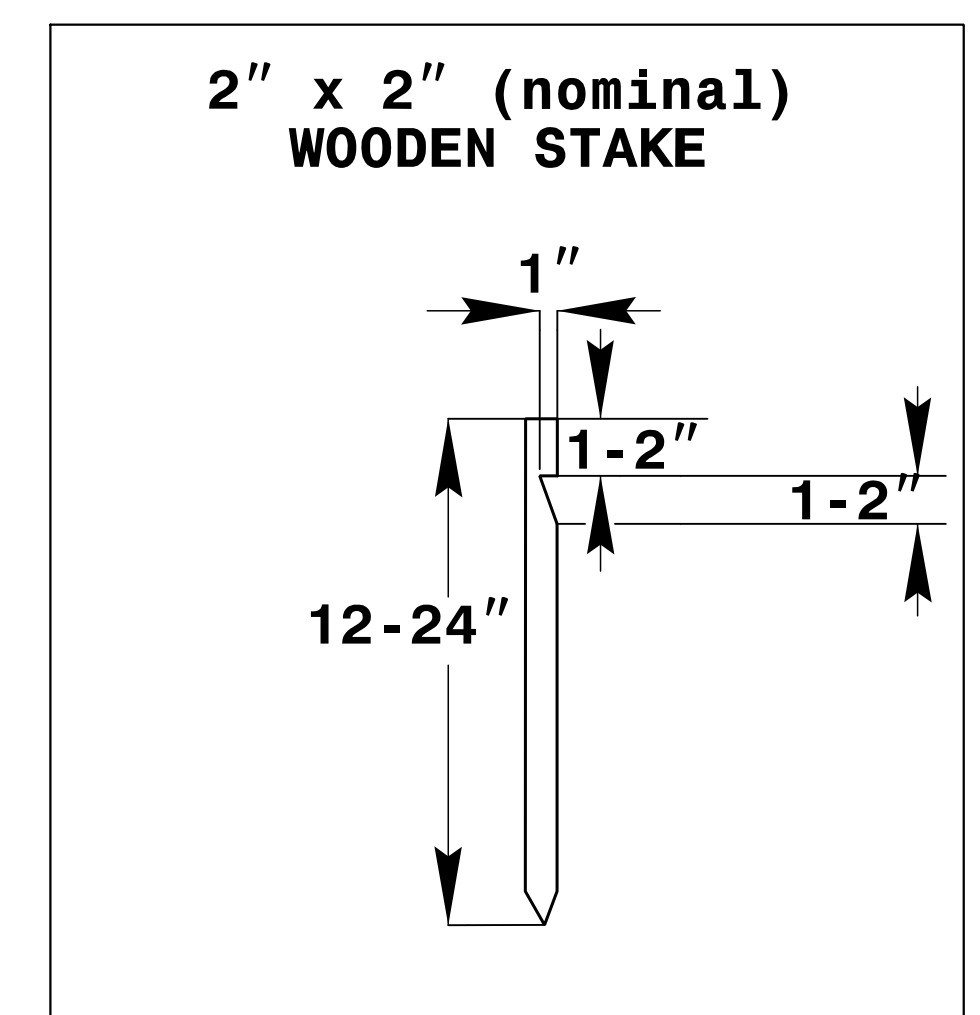
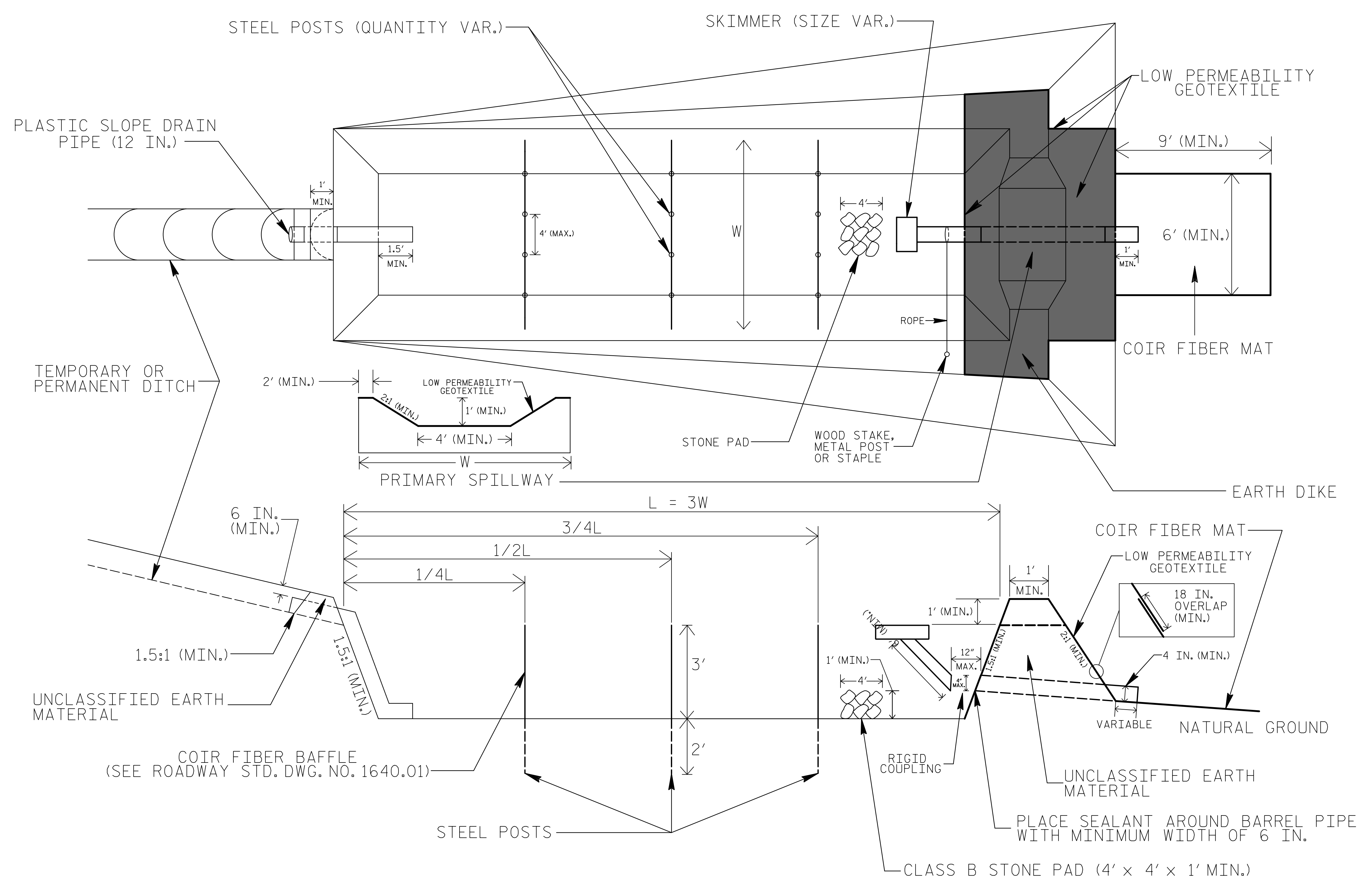
Roadway Standard Drawings

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	

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SKIMMER BASIN WITH BAFFLES DETAIL (EAST)



## COIR FIBER MAT ANCHOR OPTIONS

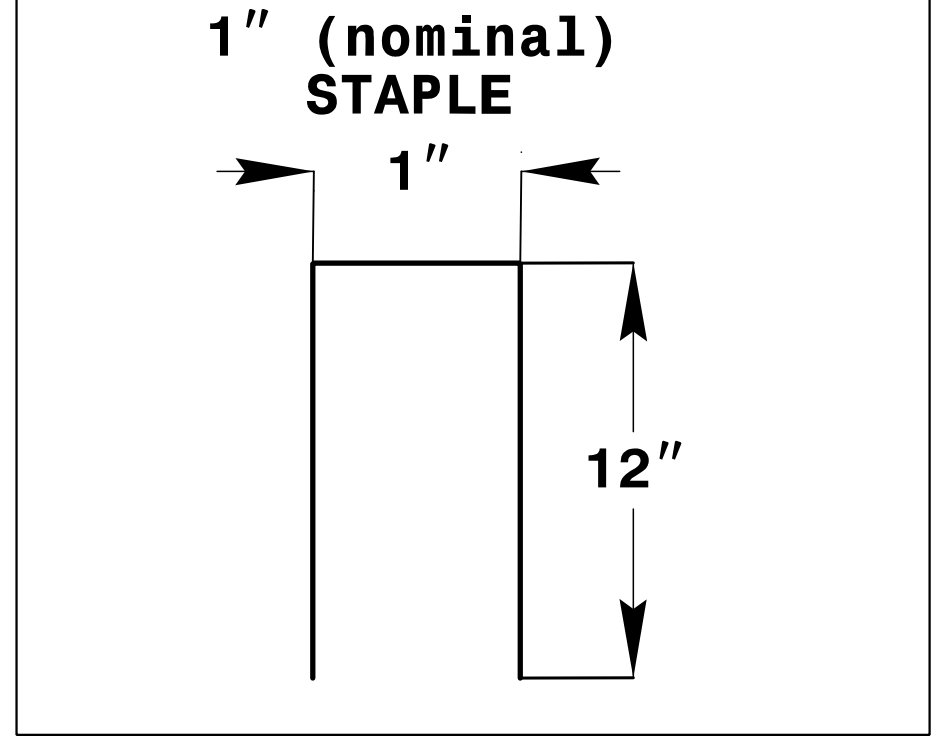
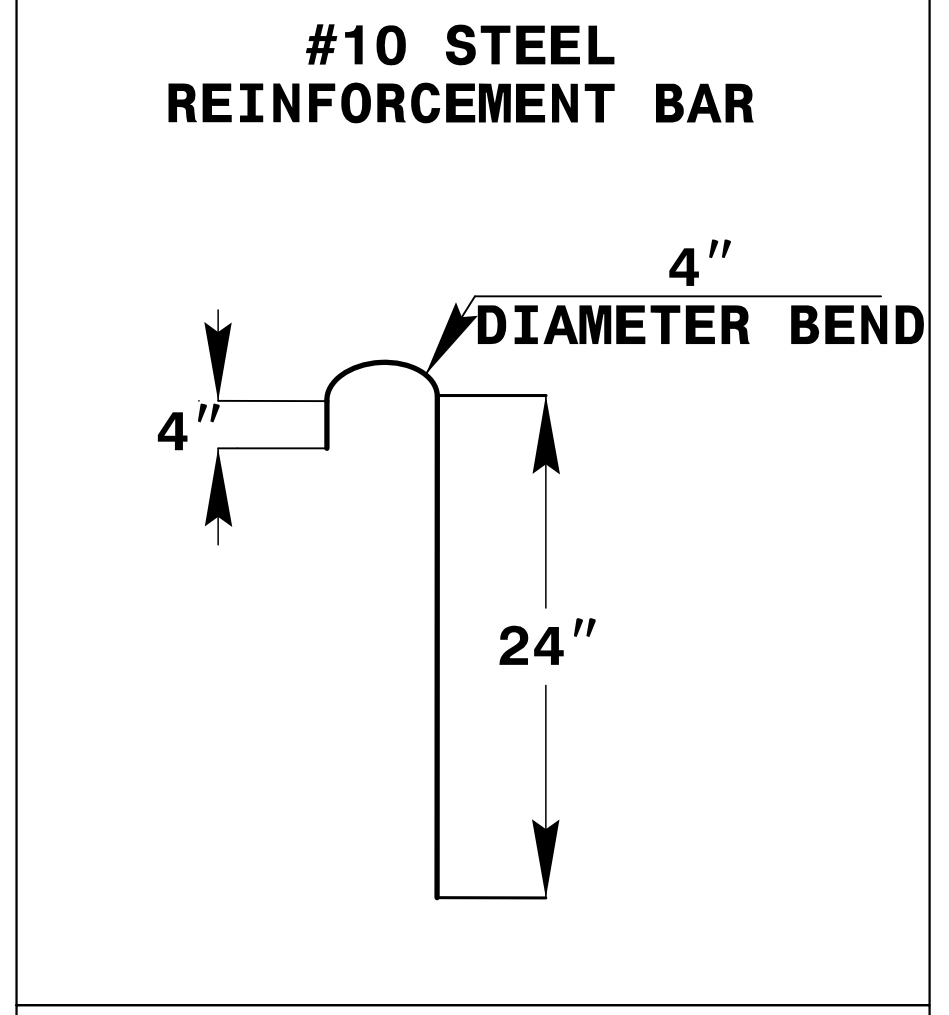
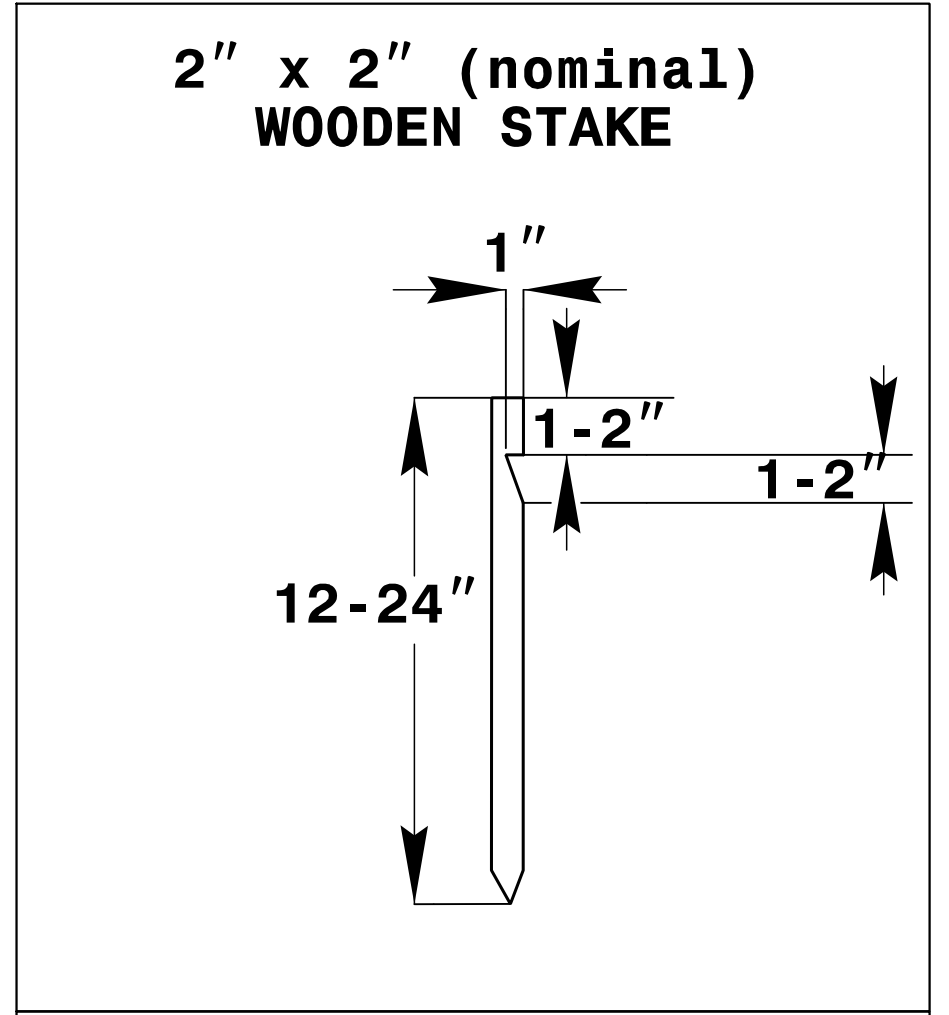
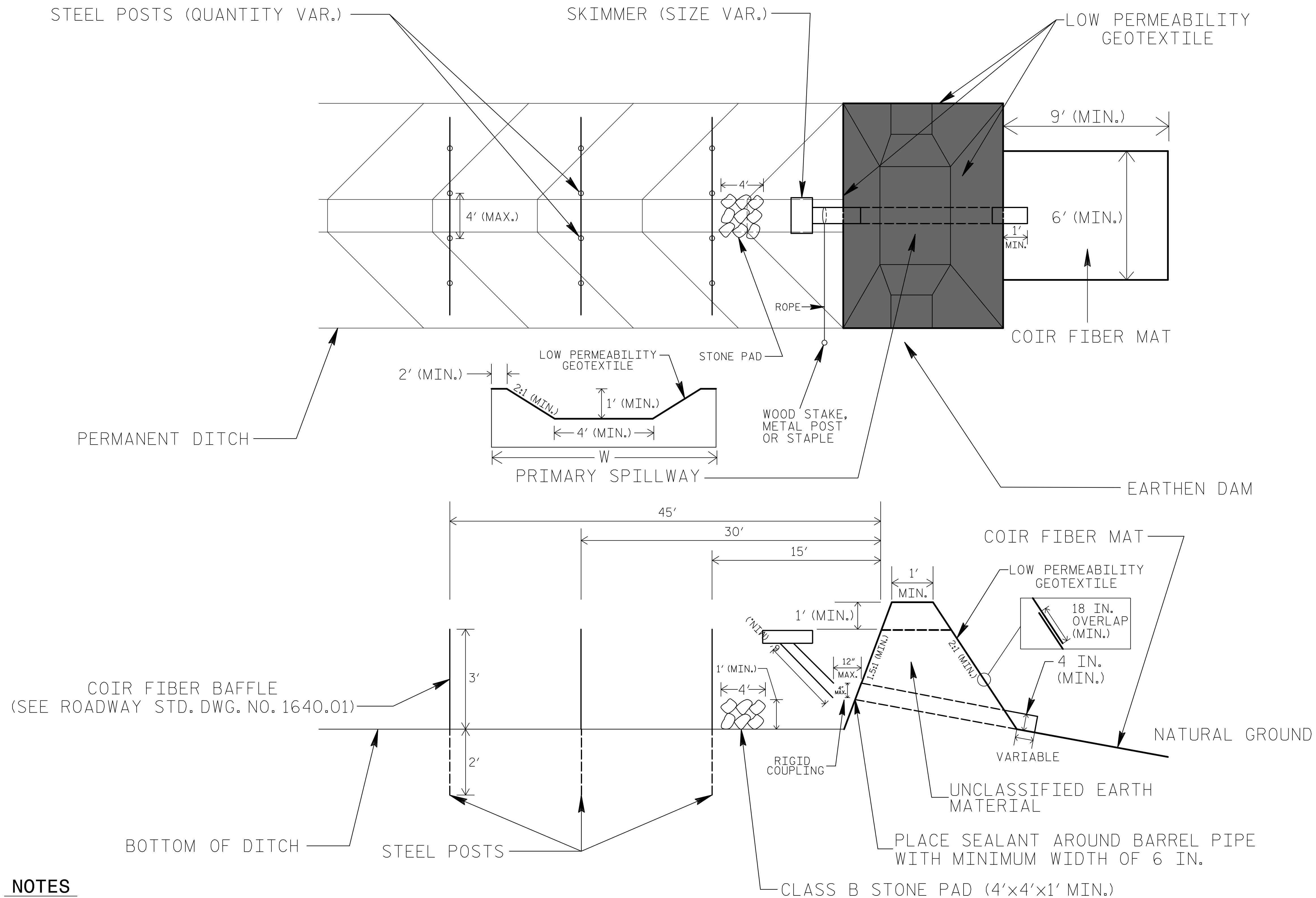
### NOTES

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

NOT TO SCALE

# EARTHEN DAM WITH SKIMMER DETAIL (EAST)

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-2A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



## COIR FIBER MAT ANCHOR OPTIONS

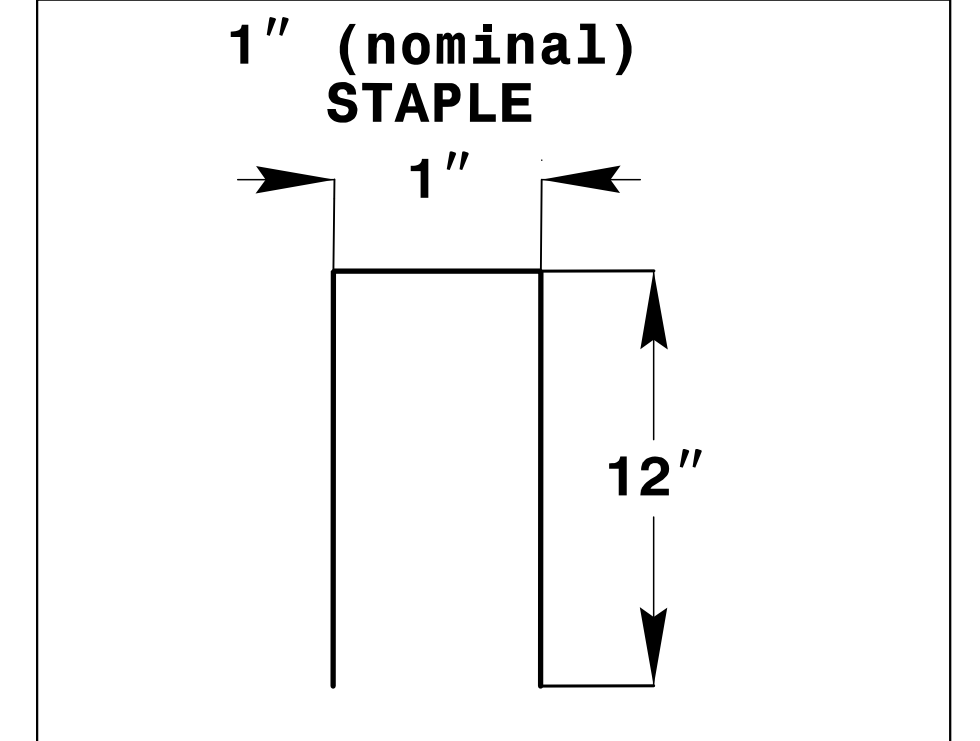
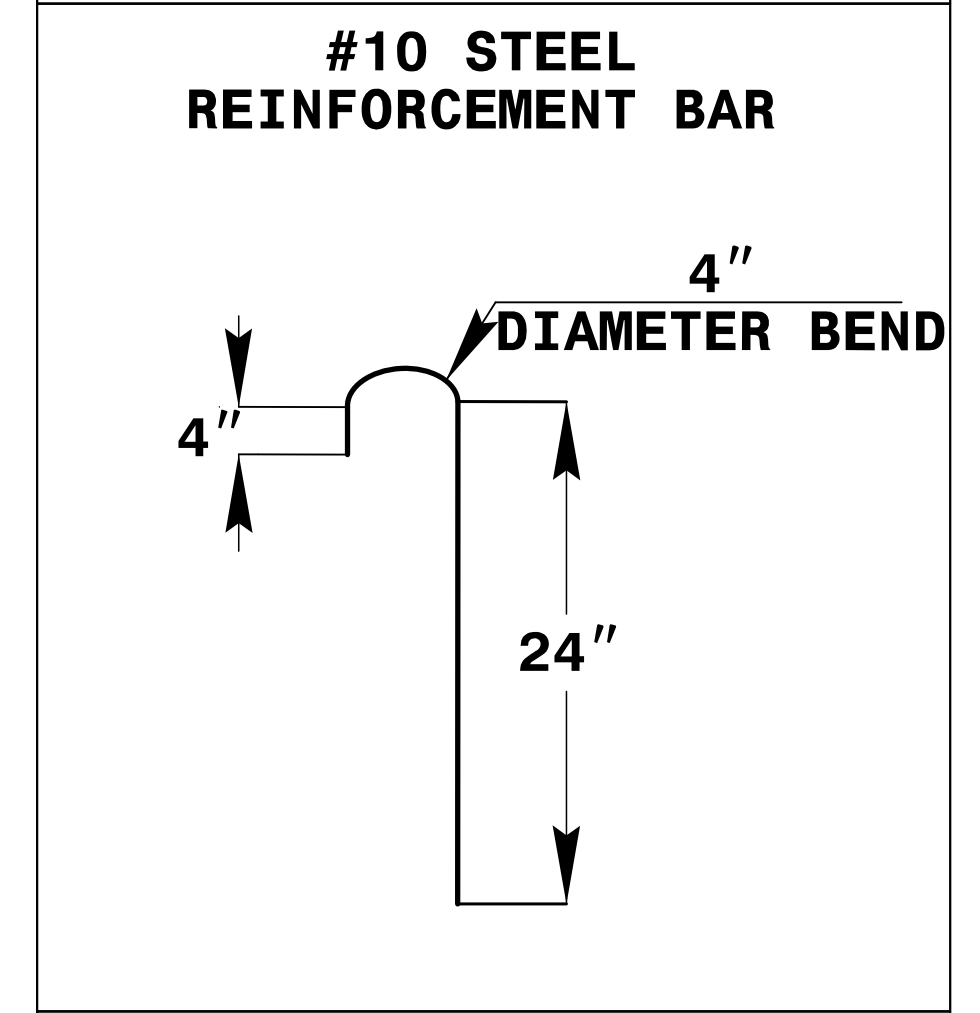
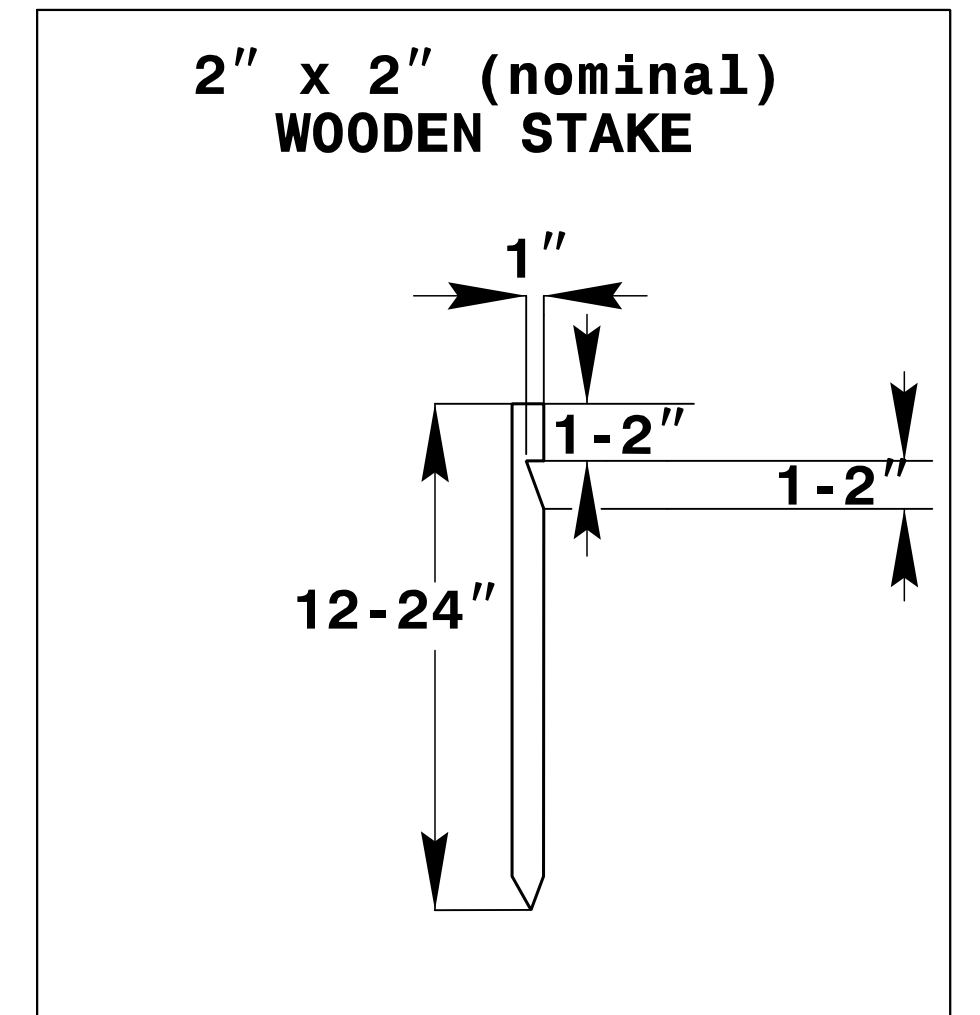
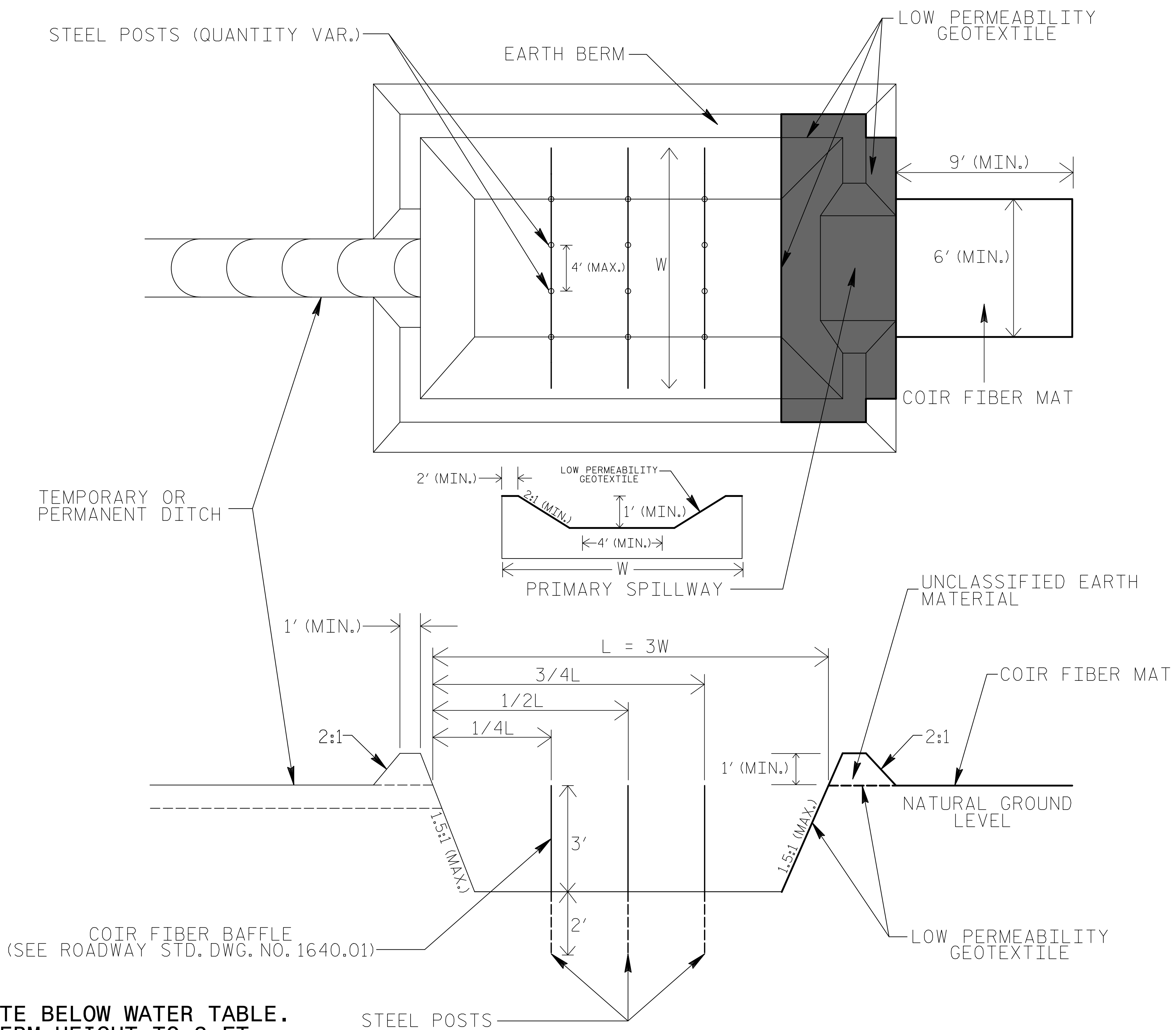
### NOTES

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

NOT TO SCALE

# INFILTRATION BASIN WITH BAFFLES DETAIL (EAST)

PROJECT REFERENCE NO. R-5021	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**COIR FIBER MAT ANCHOR OPTIONS**

## NOTES

1. DO NOT EXCAVATE BELOW WATER TABLE.
2. LIMIT EARTH BERM HEIGHT TO 3 FT.
3. AVOID COMPACTING BOTTOM OF BASIN.
4. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
5. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING  $Q/0.8$ , WHERE Q IS FLOW RATE (CFS) INTO BASIN.

NOT TO SCALE

# BORROW PIT DEWATERING BASIN DETAIL

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-2C</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**GENERAL NOTES:**

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING  $V = 8.0203 * Q * T$ , WHERE V IS VOLUME (FT<sup>3</sup>), 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.

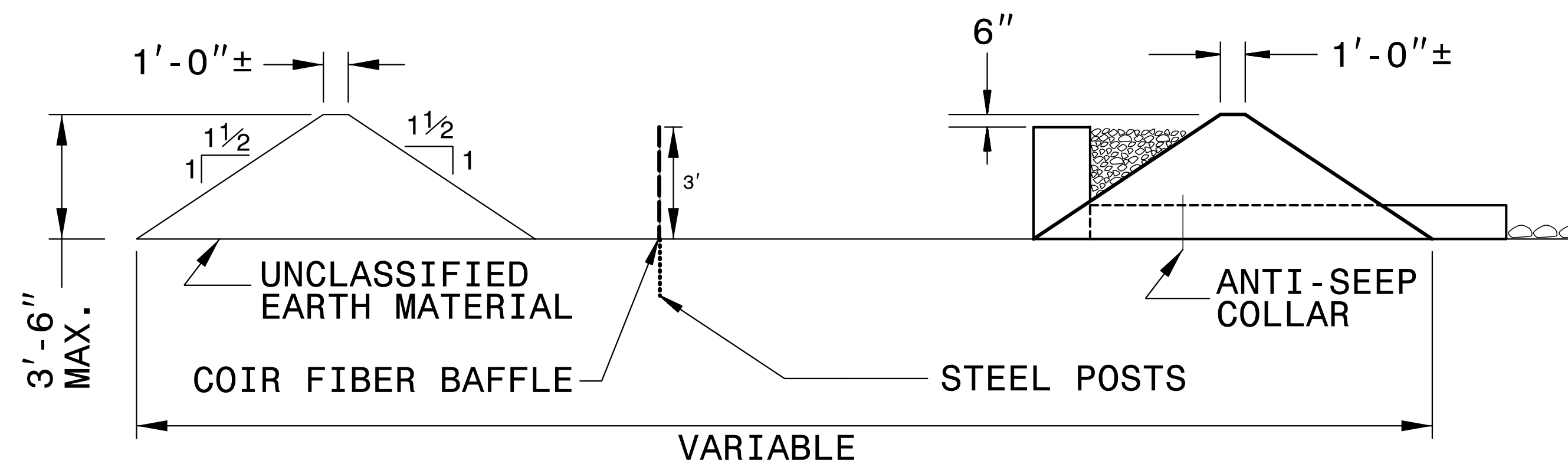
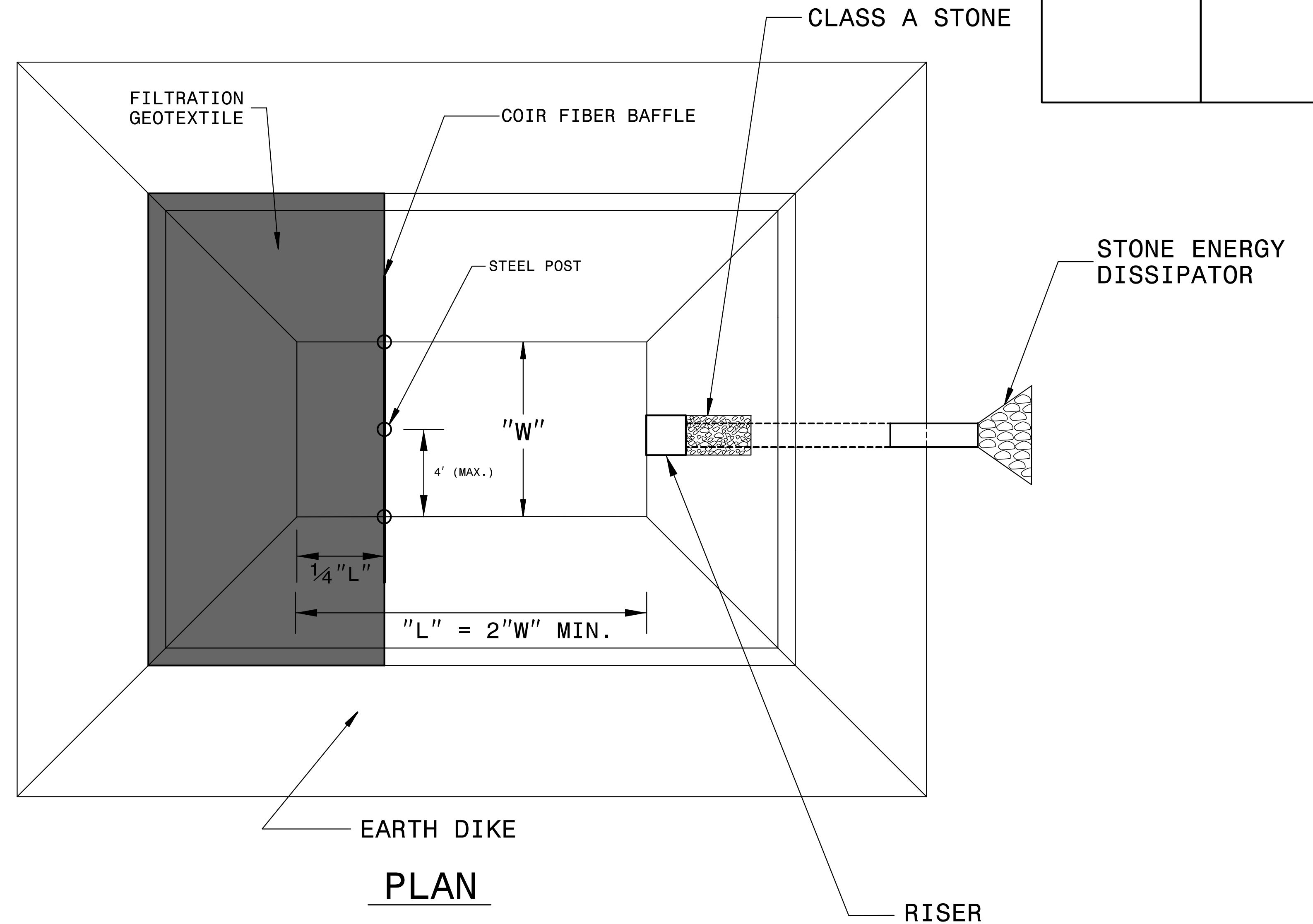
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

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. <i>R-5021</i>	SHEET NO. <i>EC-2D</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.

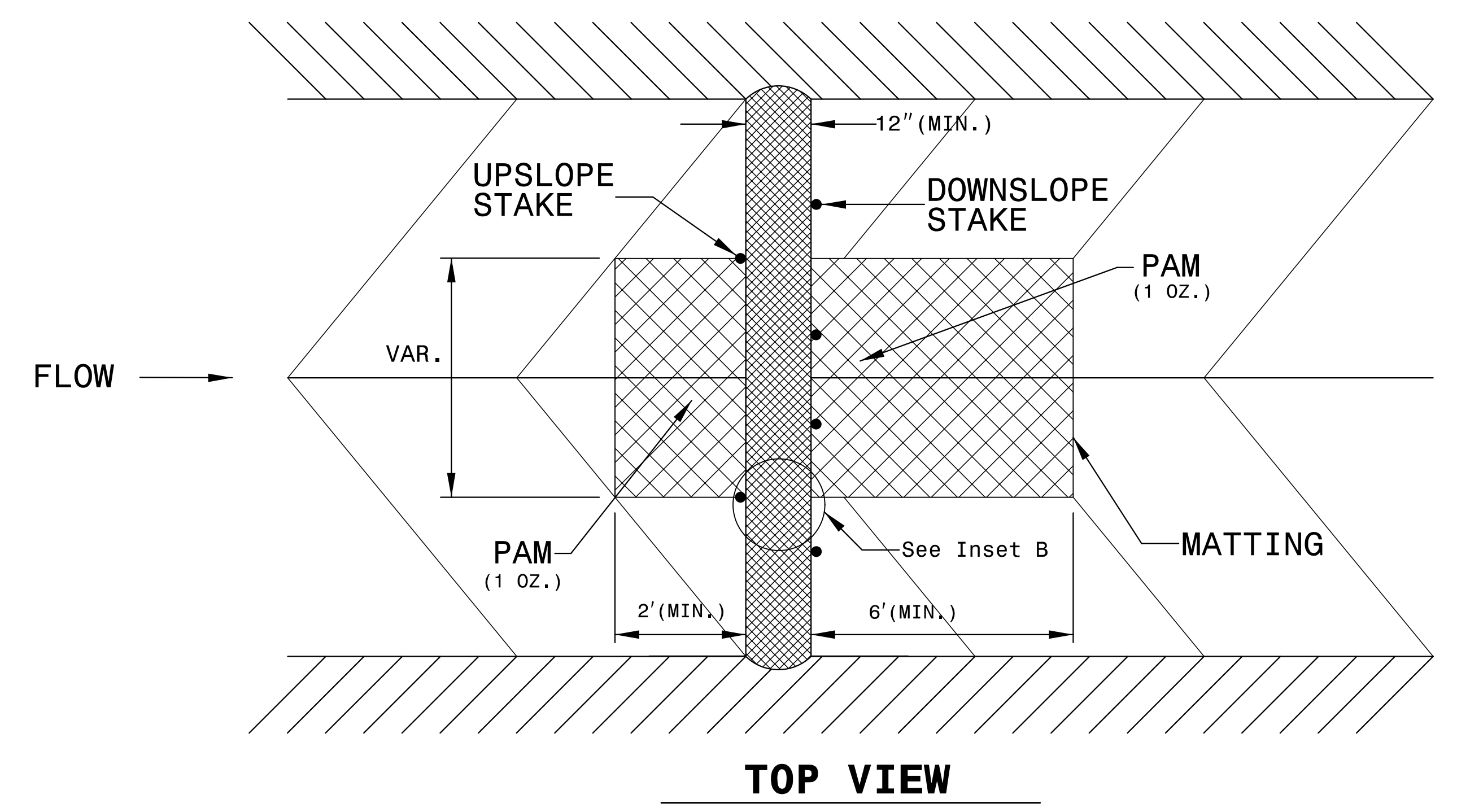
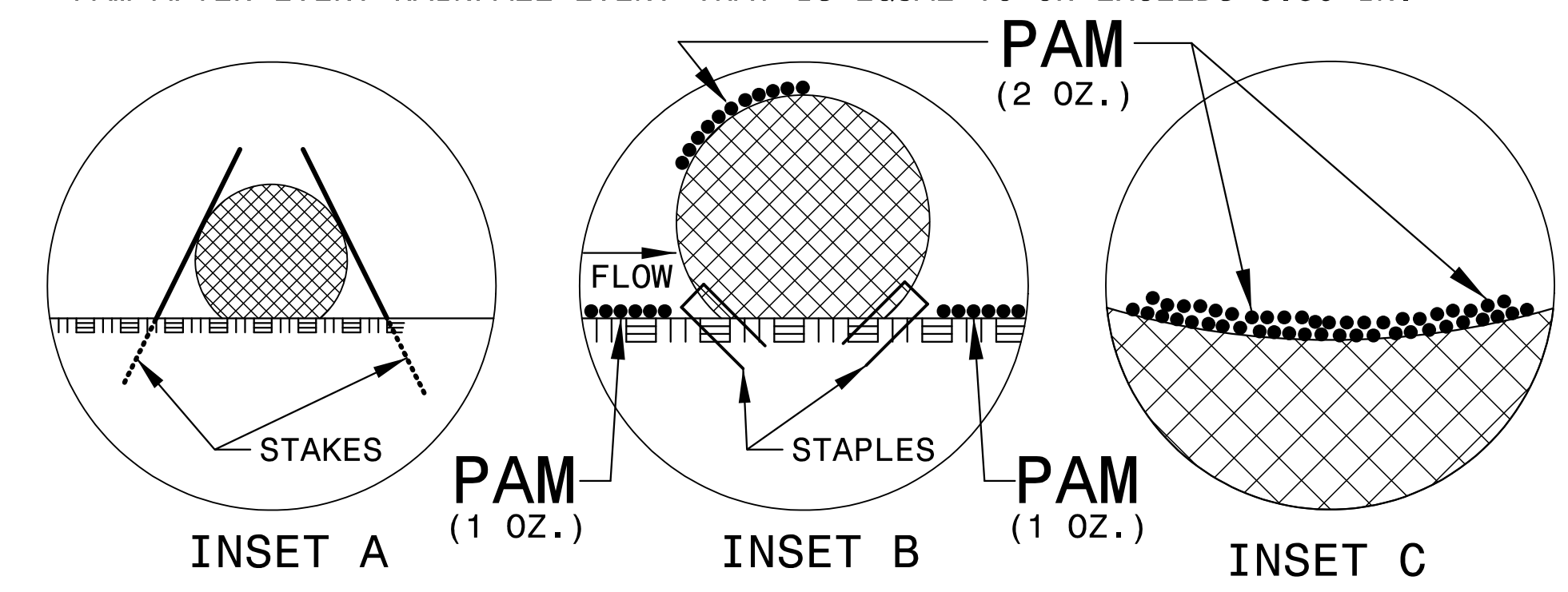
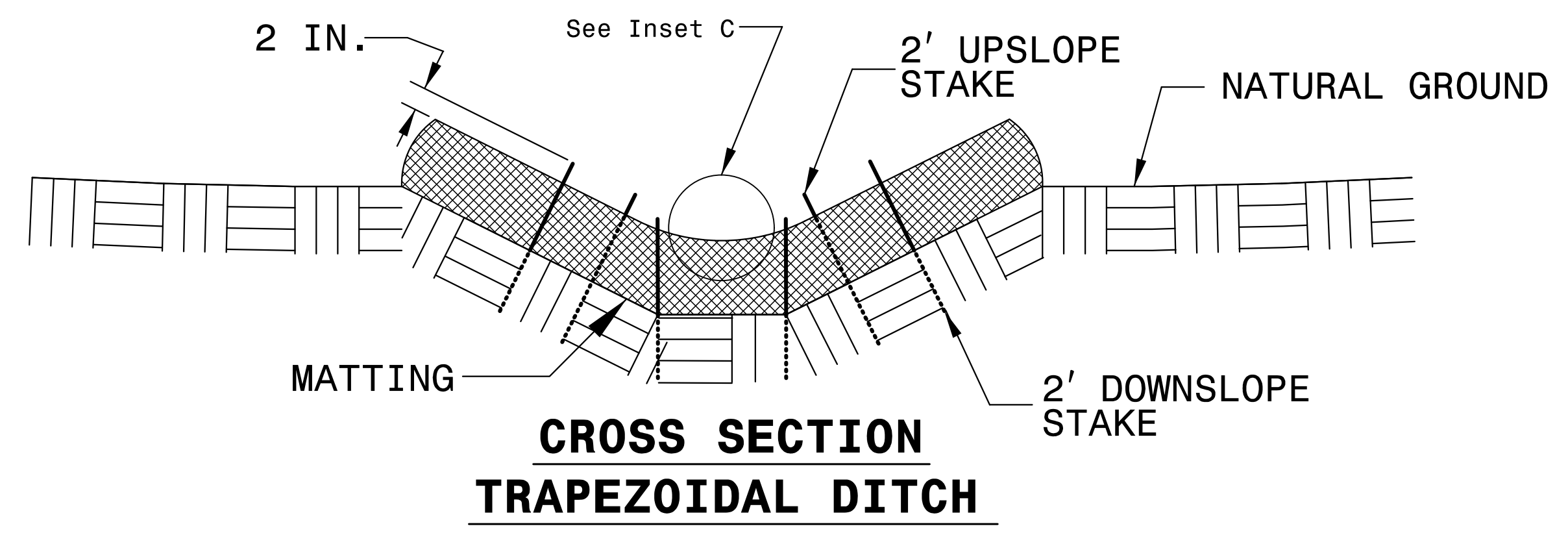
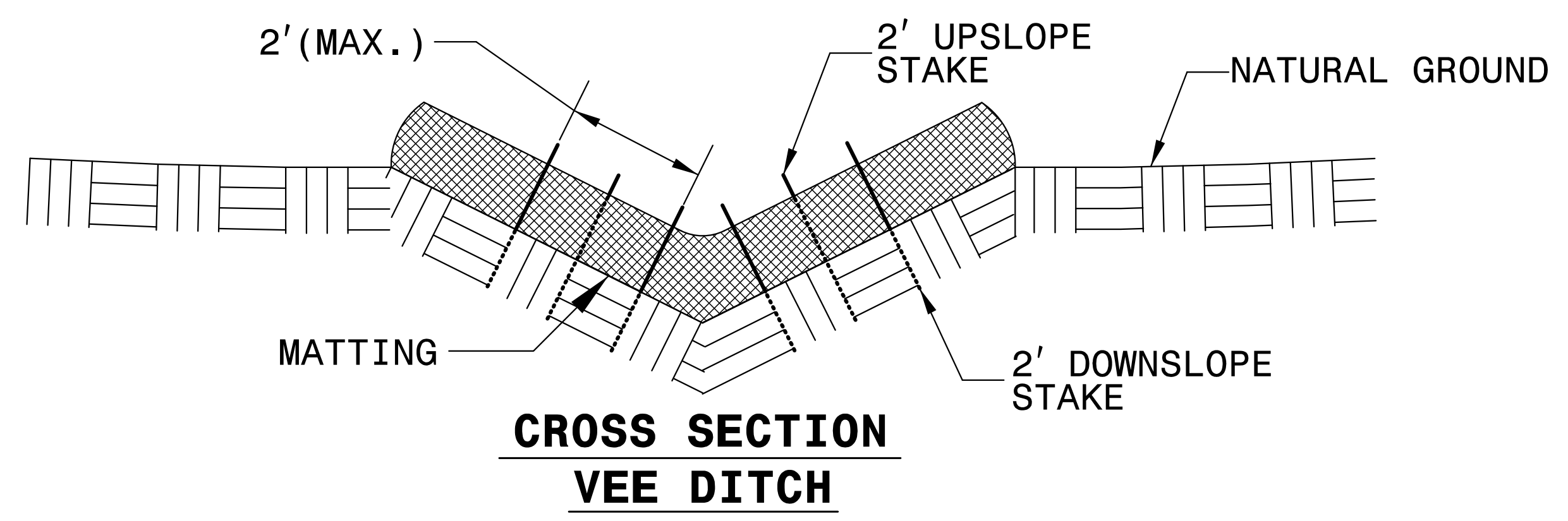
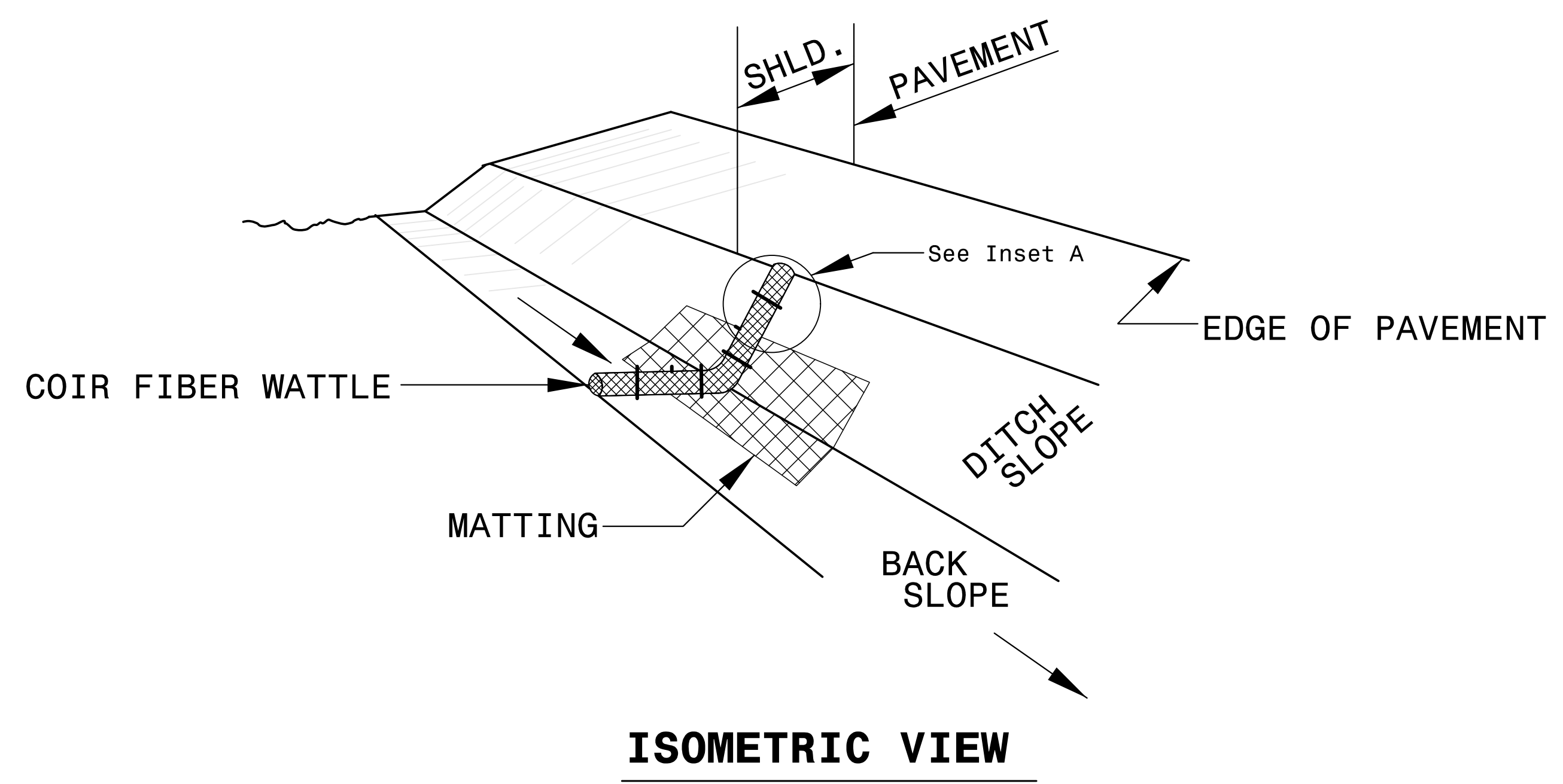
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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.

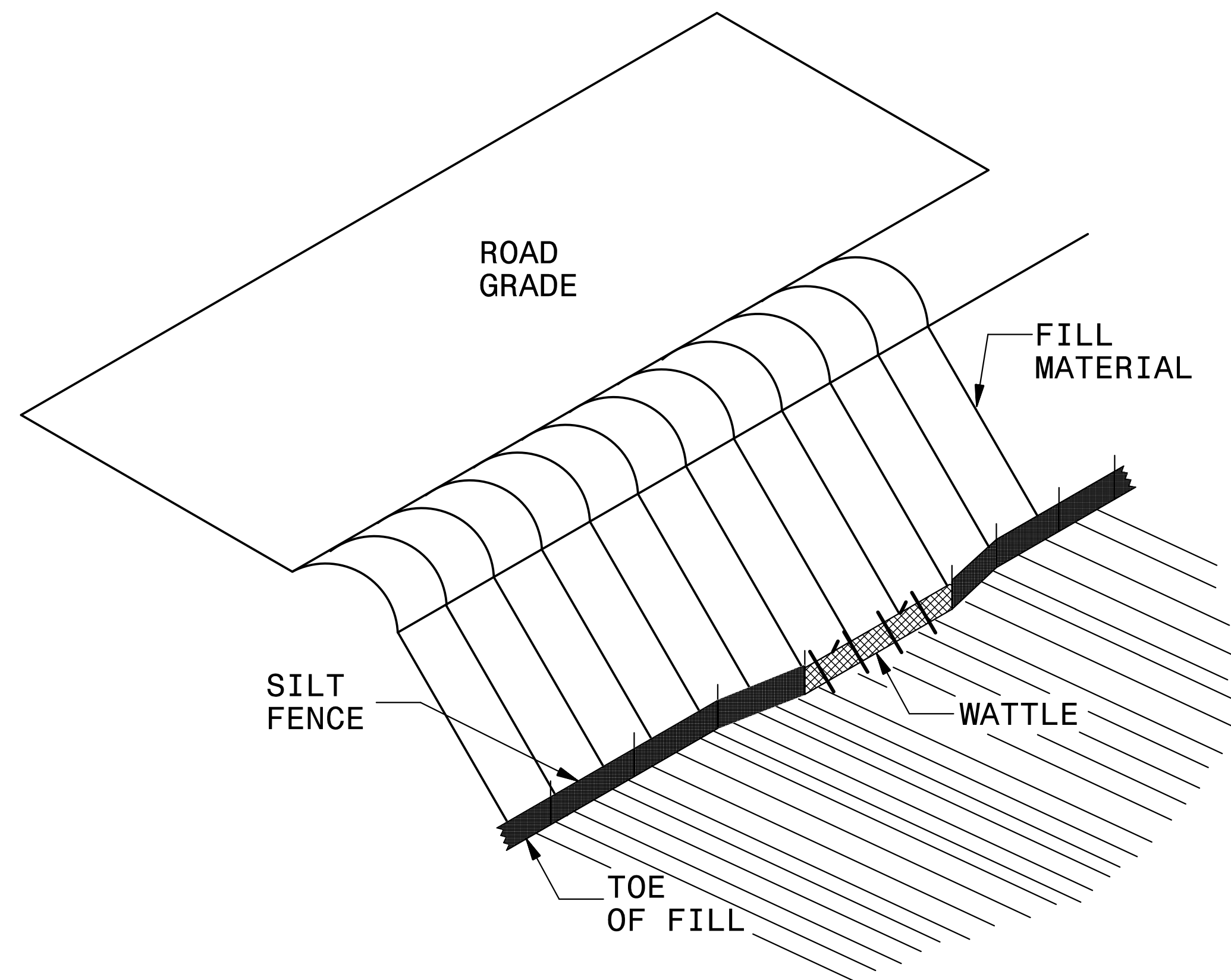
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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

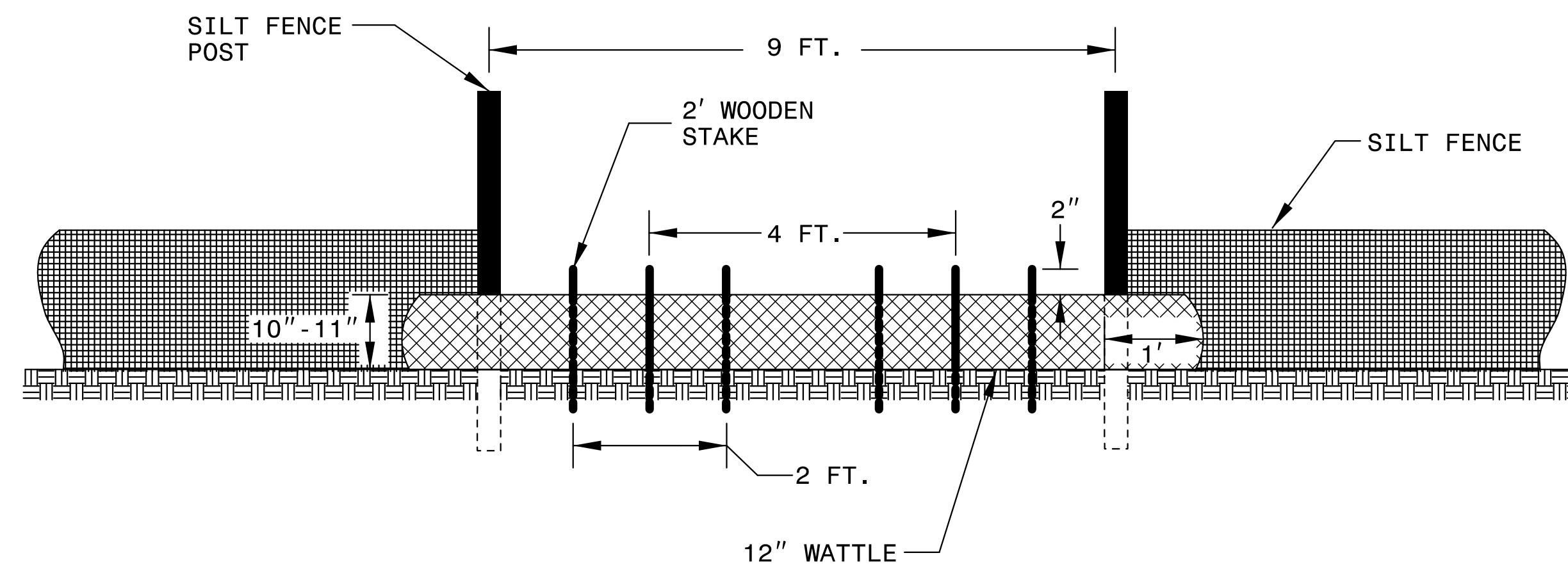


# SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-2E</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**ISOMETRIC VIEW**

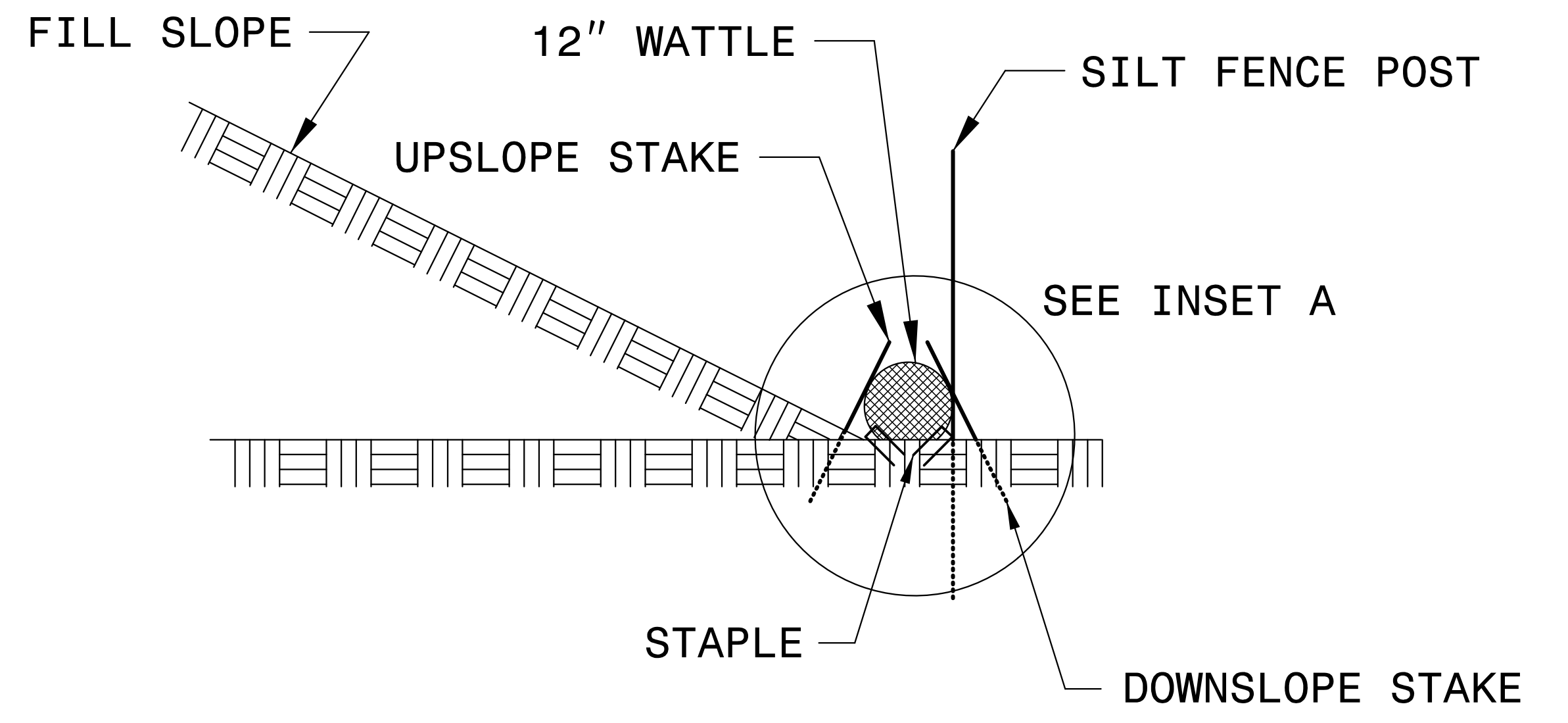
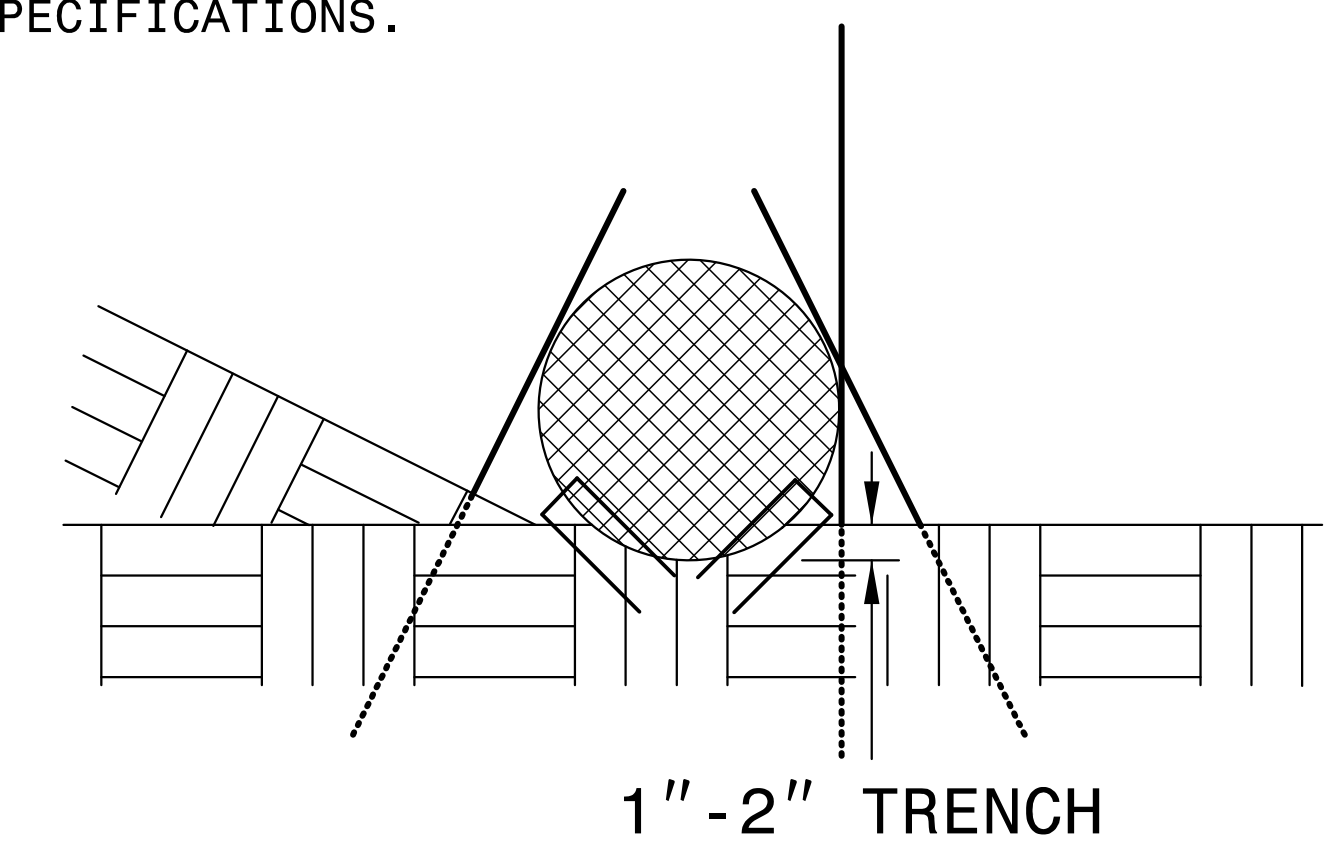


**VIEW FROM SLOPE**

**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.

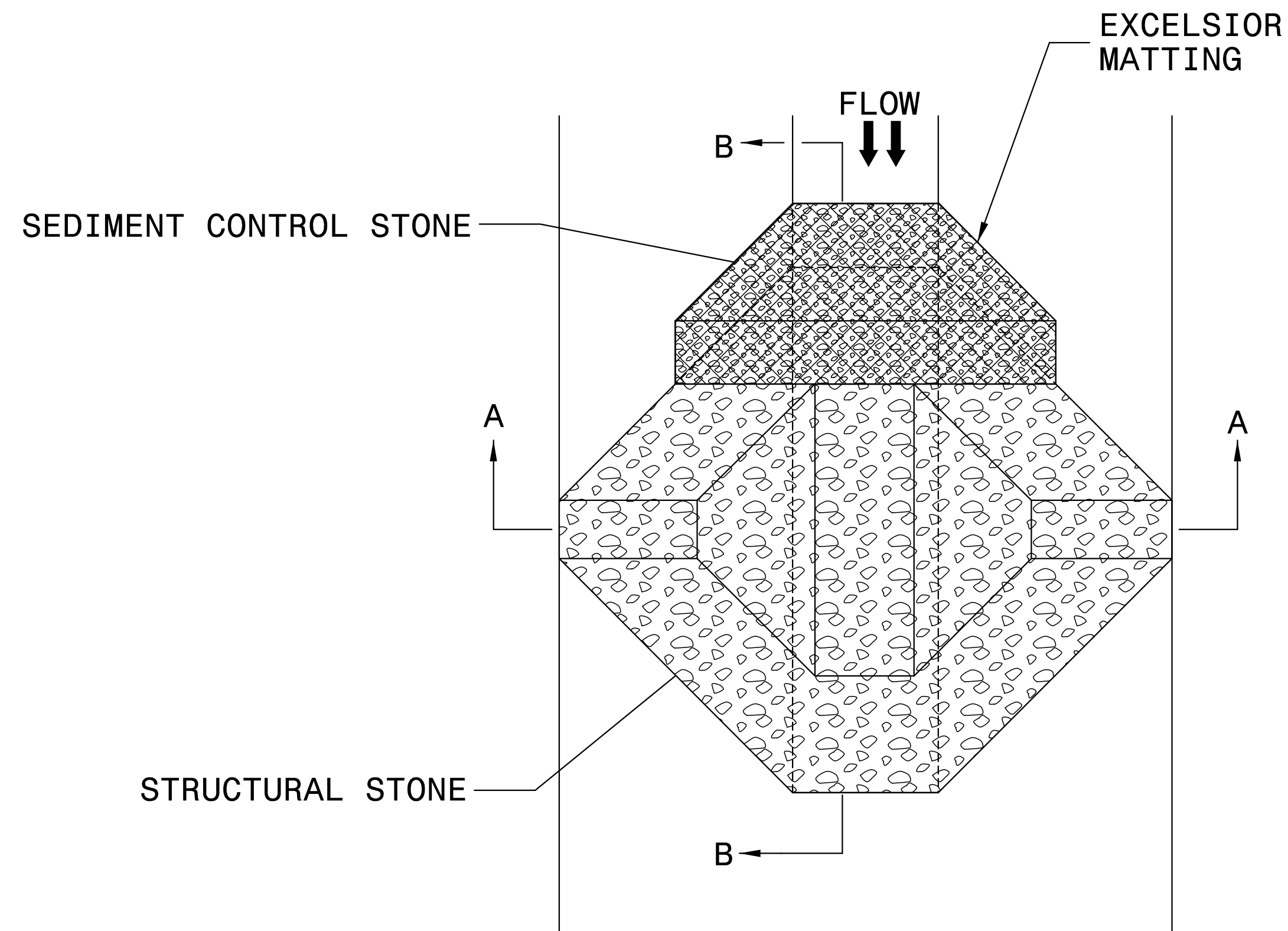
**INSET A**



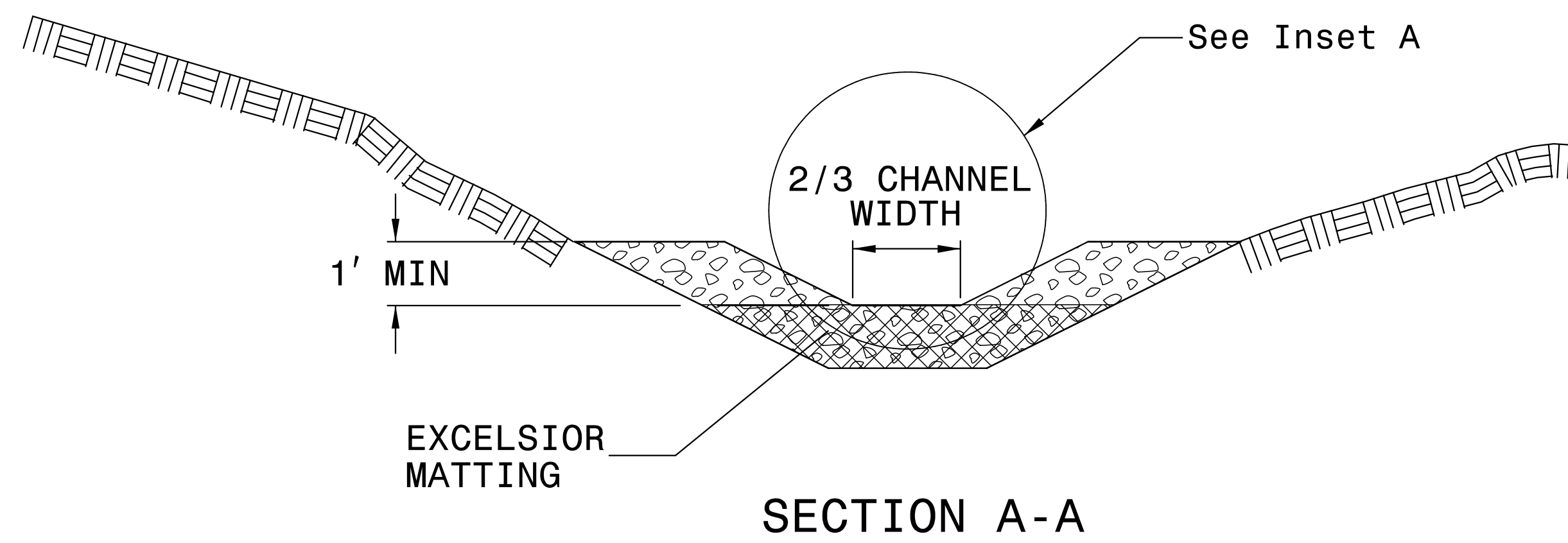
**SIDE VIEW**

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-2F</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

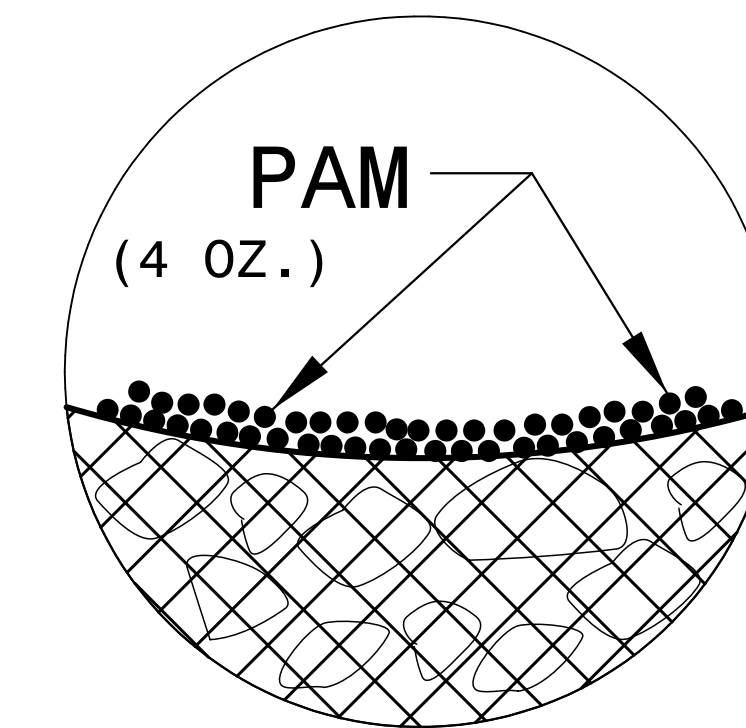
NOTES:

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

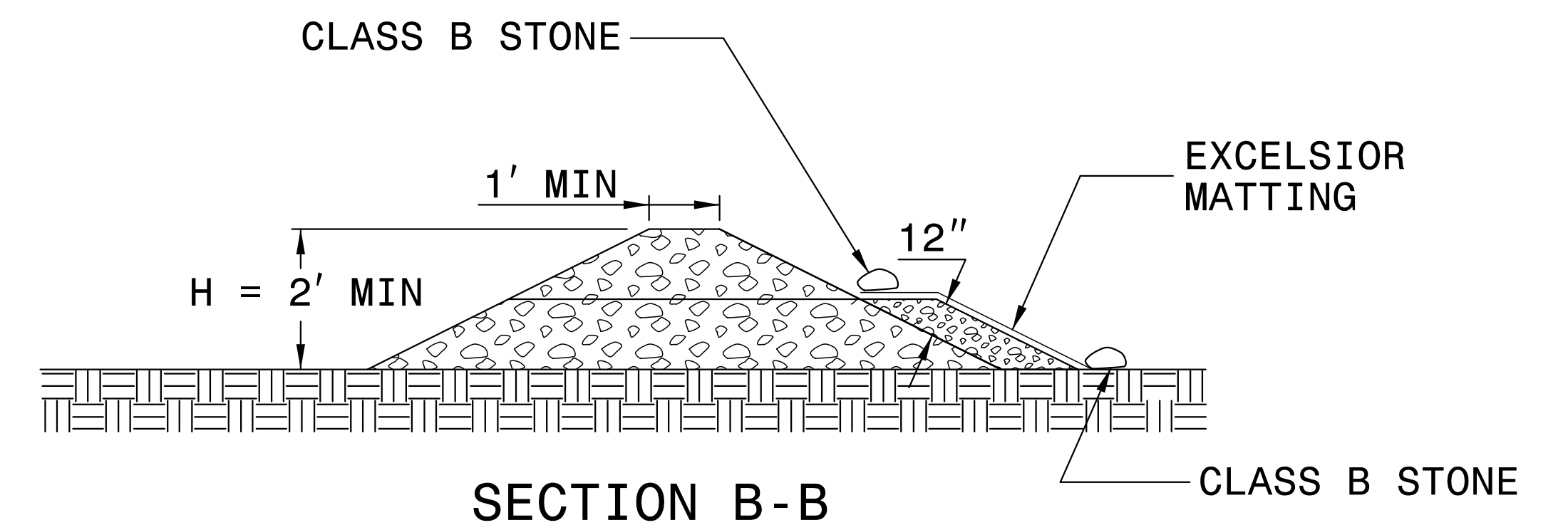
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

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PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-3C</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.

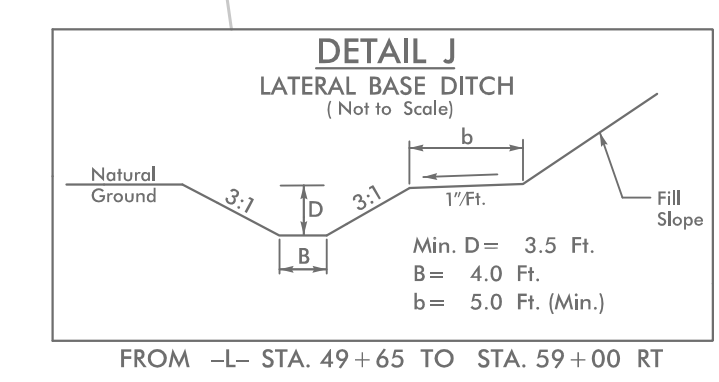
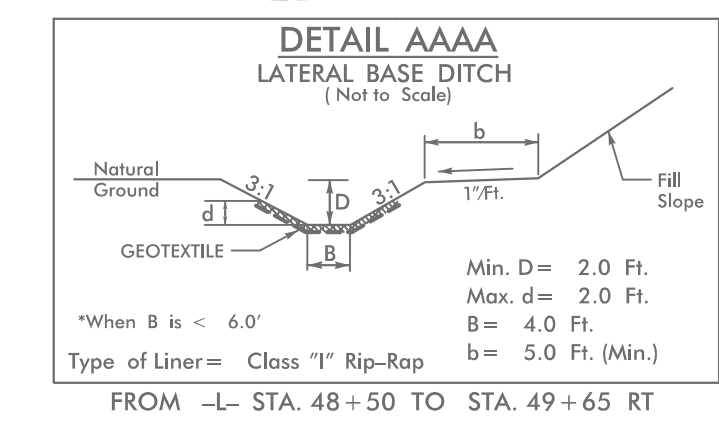
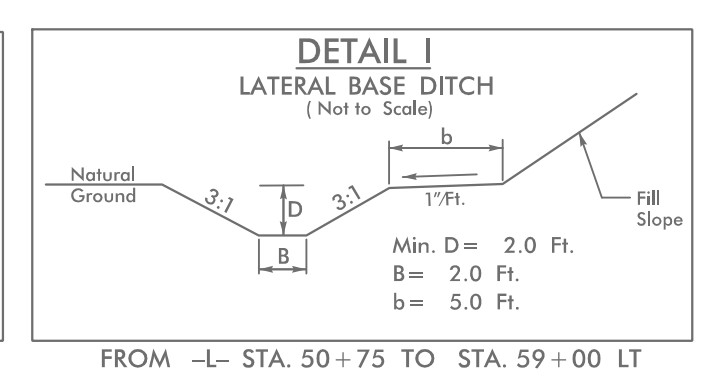
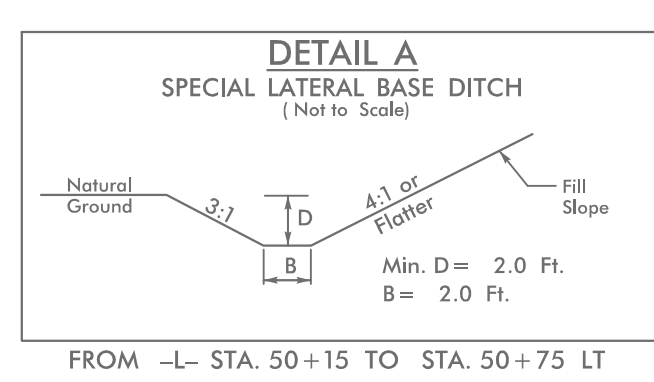
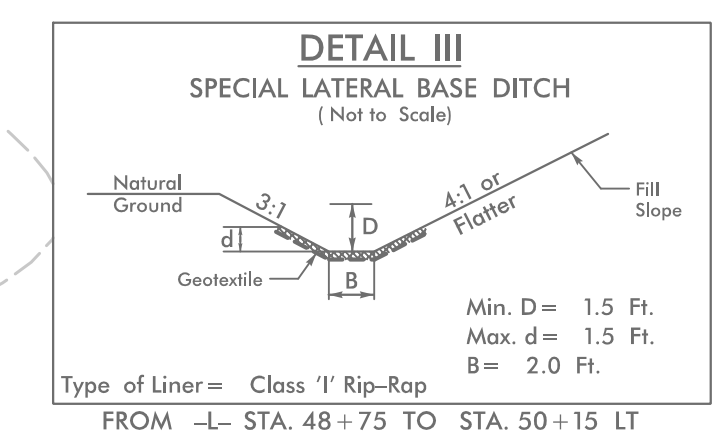
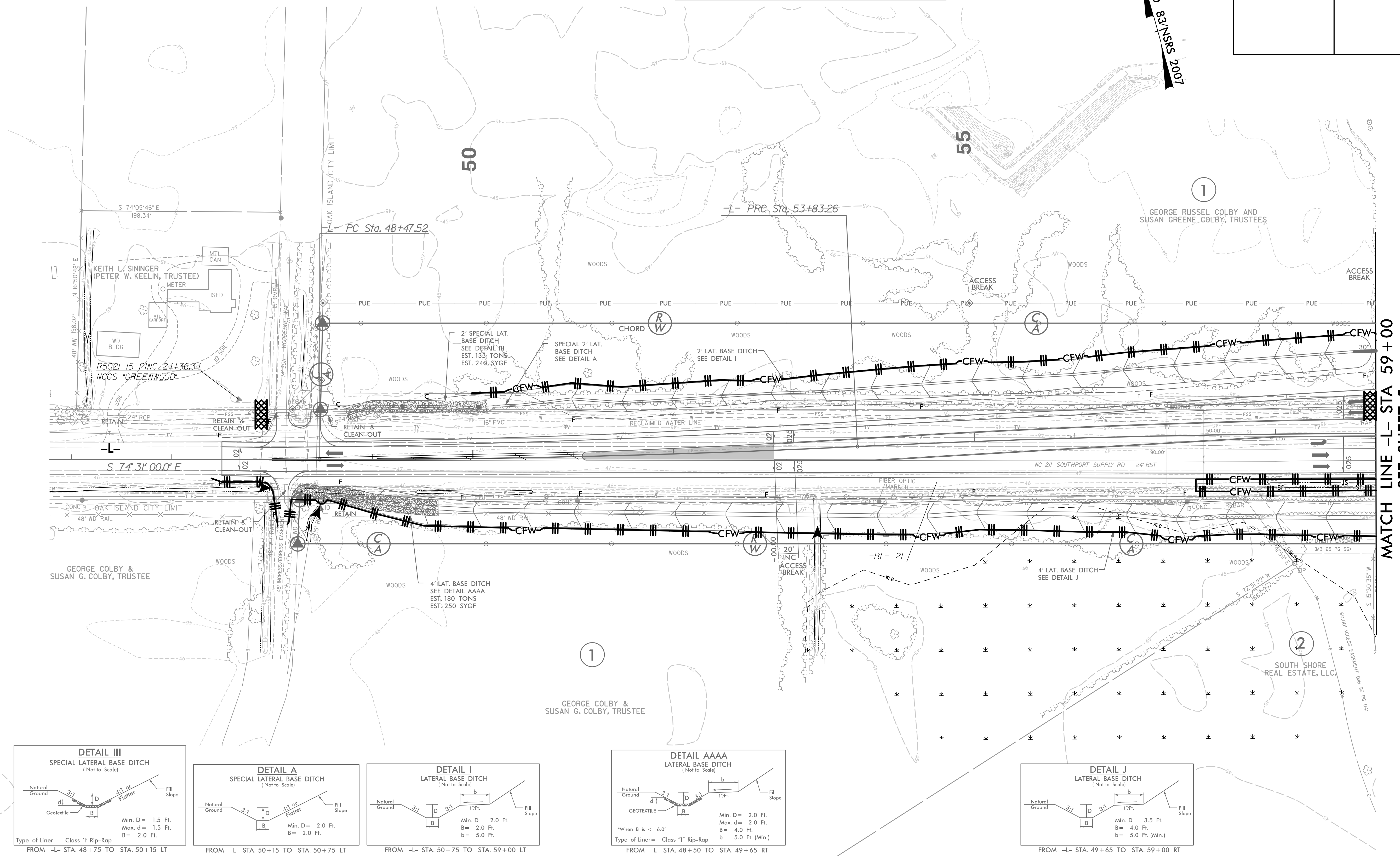
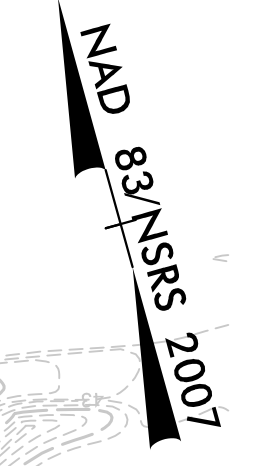
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PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:  
 UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

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 4



- NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 41  
 FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

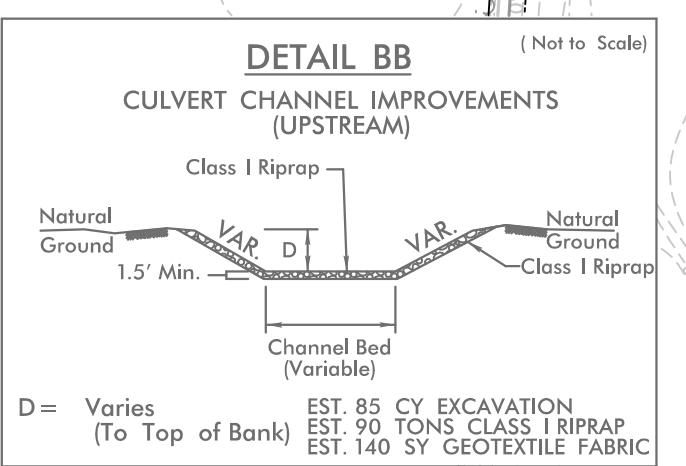
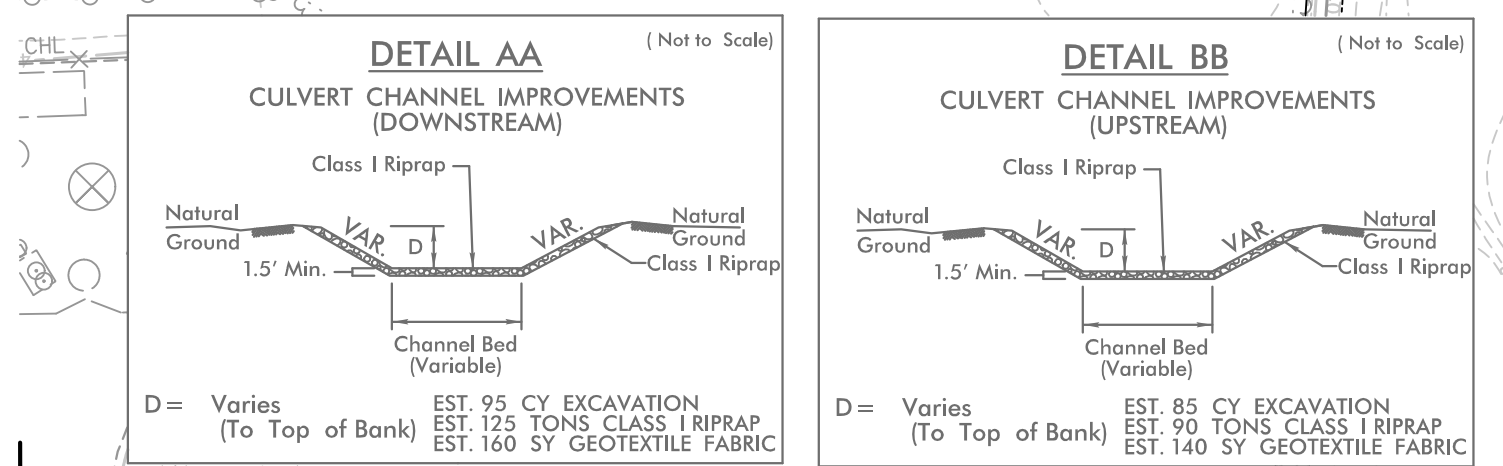
MATCH LINE -L- STA 59+00  
 SEE SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-5/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

**BEGIN CONSTRUCTION**  
 -YF- Sta. 10+75.00  
 -YF- POT Sta. 10+70.00



2.0 inch Skimmer with 1.625 inch Orifice Diameter 7 ft. weir length 4.0 ft. weir height ID 05.01C (See Earthen Dam with Skimmer Detail)

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

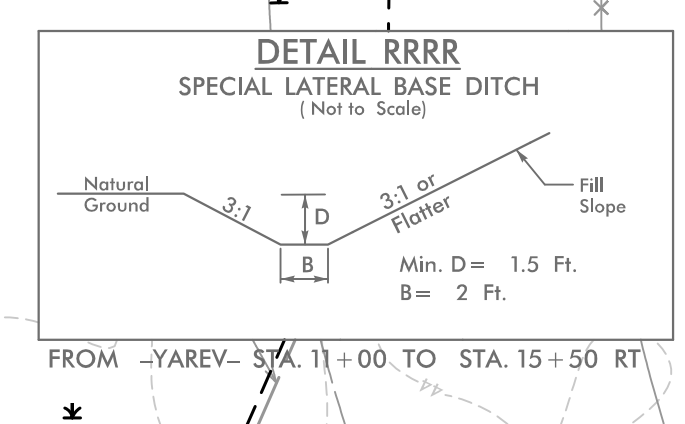
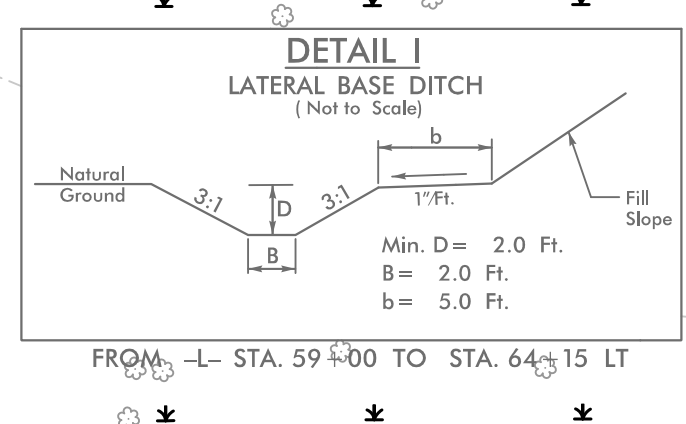
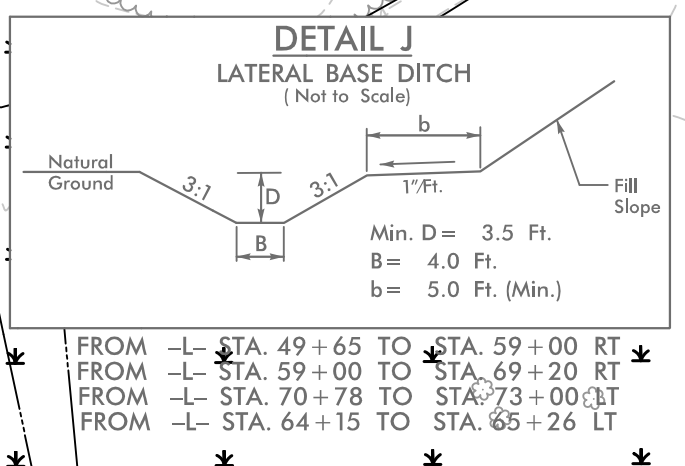
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

2.0 inch Skimmer with 1.625 inch Orifice Diameter 18 ft. weir length 3.75 ft. weir height ID 05.02C (See Earthen Dam with Skimmer Detail)

Temporary Rock Silt Check Type A 3.5 ft. weir height

80 x 20 x 3 12 ft. weir (See Infiltration Basin Detail) ID 6.09B

85 x 15 x 3 8 ft. weir (See Infiltration Basin Detail) ID 6.08B



-YAREV-  
 P/S Sta. 13+50.99  
 $\Delta = 47' 44.242"$  (LT)  
 D = 10' 44' 58.8"  
 L = 4441'  
 T = 235.86'  
 R = 533.00'  
 SE = 4%  
 V = 40mph

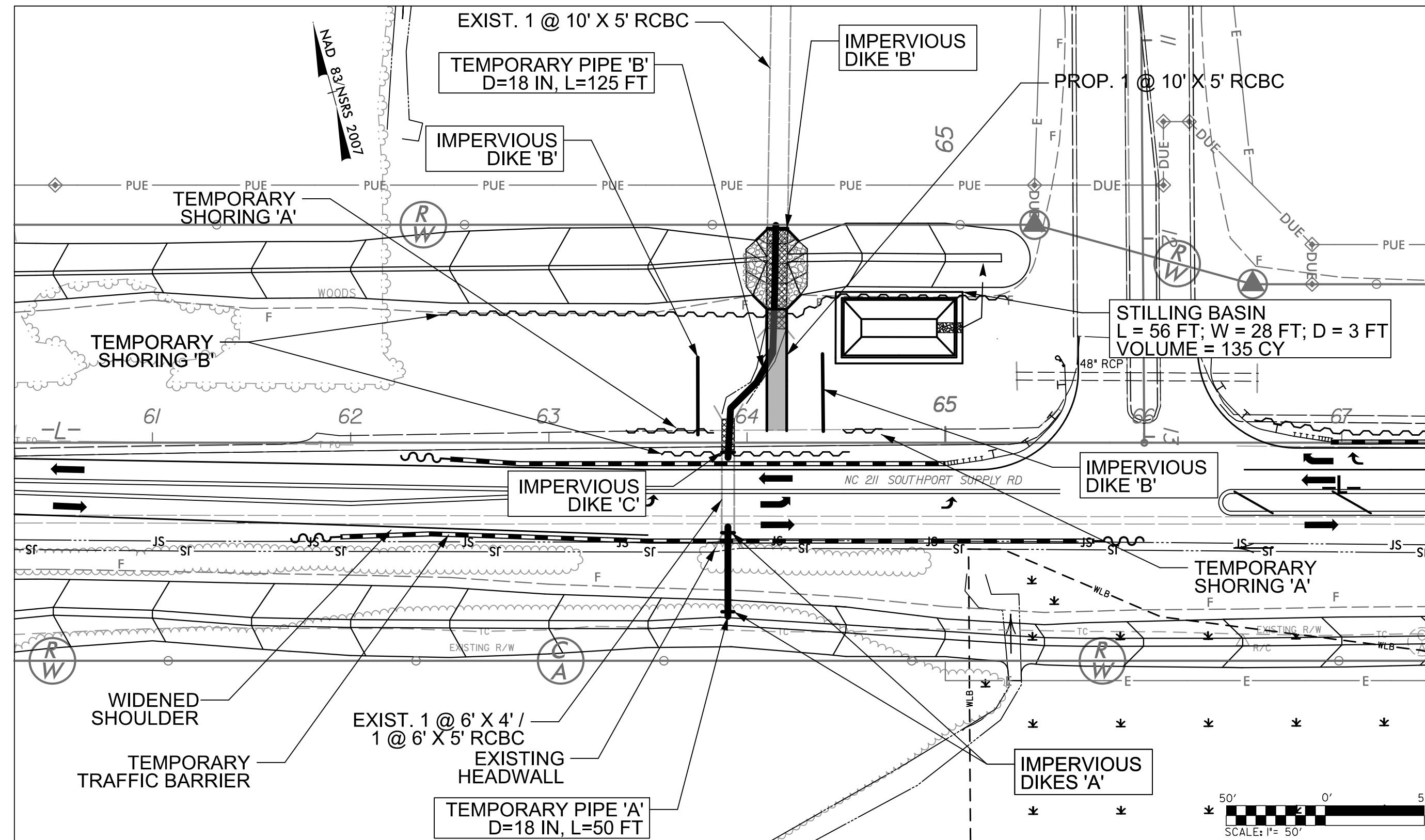
MATCH LINE -L- STA 59+00  
 SEE SHEET 4

MATCH LINE -L- STA 73+00  
 SEE SHEET 6

# R-5021 CULVERT PHASING 1 OF 6 NC 211 OVER UT TO RIVER SWAMP BRUNSWICK COUNTY -L- 64+15

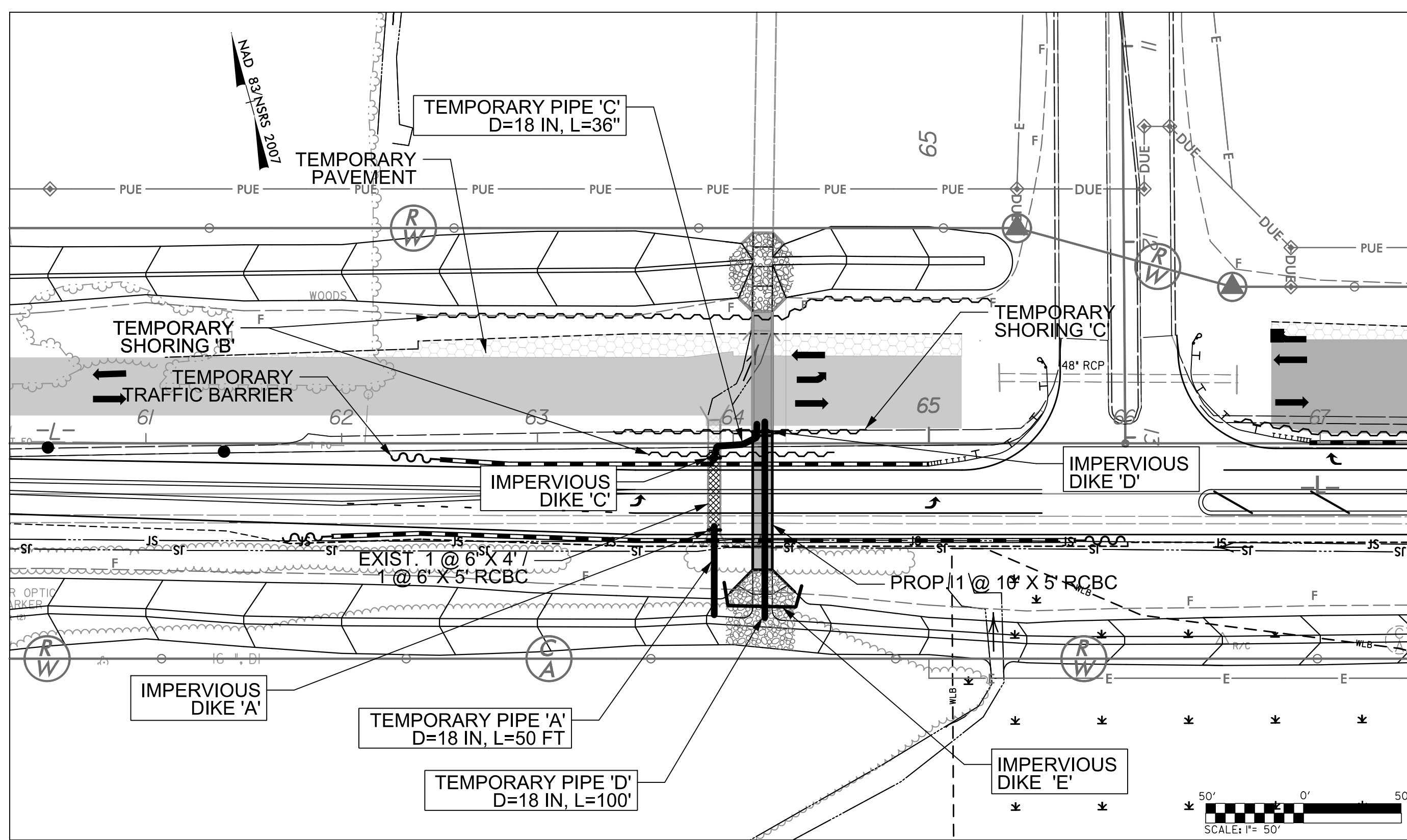
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO. <i>R-5021</i>	SHEET NO. <i>EC-5A/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



## PHASE I

1. CONSTRUCT STILLING BASIN T SIZE SPECIFIED AT THE LOCATION SHOWN.
2. INSTALL TEMPORARY PIPE 'A', IMPERVIOUS DIKES 'A', AND REMOVE EXISTING SOUTH SIDE HEADWALL. CONSTRUCT WIDENED SHOULDER RIGHT OF -L-. INSTALL TEMPORARY SHORING 'A' AND 'B' AND TEMPORARY TRAFFIC BARRIER AND SHIFT TRAFFIC RIGHT.
3. CONSTRUCT IMPERVIOUS DIKES 'B' AND 'C' AND TEMPORARY PIPE 'B'.
4. DEWATER CONSTRUCTION AREA(S) INTO STILLING BASIN.
5. REMOVE HEADWALL, WINGWALLS AND APPROX. 50 FT OF THE EXISTING 1 @ 10' X 5' RCBC. REMOVE HEADWALL, WINGWALLS AND APPROX. 15 FT OF THE EXISTING 1 @ 6' X 5' RCBC.
6. CONSTRUCT NEW HEADWALL AND WINGALLS ON EXIST. 1 @ 10' X 5' RCBC.
7. CONSTRUCT APPROXIMATELY 62 FT OF THE PROPOSED 1 @ 10' x 5' RCBC, INCLUDING HEADWALL AND WINGWALLS. CONSTRUCT DOWNSTREAM CHANNEL IMPROVEMENTS. ADJUST TEMPORARY PIPE 'B' AS NEEDED.
8. REMOVE STILLING BASIN.



## PHASE II

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED DURING PHASE II CULVERT CONSTRUCTION.
2. INSTALL TEMPORARY SHORING 'C'.
3. REMOVE IMPERVIOUS DIKES 'B' AND TEMPORARY PIPE 'B'. INSTALL IMPERVIOUS DIKE 'D' AND TEMPORARY PIPE 'C'.
4. CONSTRUCT PROPOSED WESTBOUND LANES OF NC 211 INCLUDING TEMPORARY PAVEMENT. INSTALL TEMPORARY TRAFFIC BARRIER. SHIFT TRAFFIC TO PROPOSED WESTBOUND LANES.
5. REMOVE IMPERVIOUS DIKES 'A' AND 'C' AND TEMPORARY PIPE 'A' AND 'C'. INSTALL IMPERVIOUS DIKES 'E' AND TEMPORARY PIPE 'D'.
6. CONSTRUCT REMAINDER OF PROPOSED 1 @ 10' x 5' RCBC INCLUDING HEADWALL AND WINGWALLS.
7. REMOVE REMAINDER OF EXISTING 1 @ 6' X 4' / 6' X 5' RCBC.
8. REMOVE IMPERVIOUS DIKES 'D' AND 'E', TEMPORARY PIPE 'D', AND TEMPORARY SHORINGS 'B' & 'C'.
9. CONSTRUCT PROPOSED EAST BOUND NC 211 AND REMOVE REMAINING SPECIAL STILLING BASIN(S).
10. COMPLETE UPSTREAM CHANNEL IMPROVEMENTS.
11. COMPLETE CONSTRUCTION OF EASTBOUND AND WESTBOUND LANES AND SHIFT TRAFFIC INTO FINAL PATTERN.

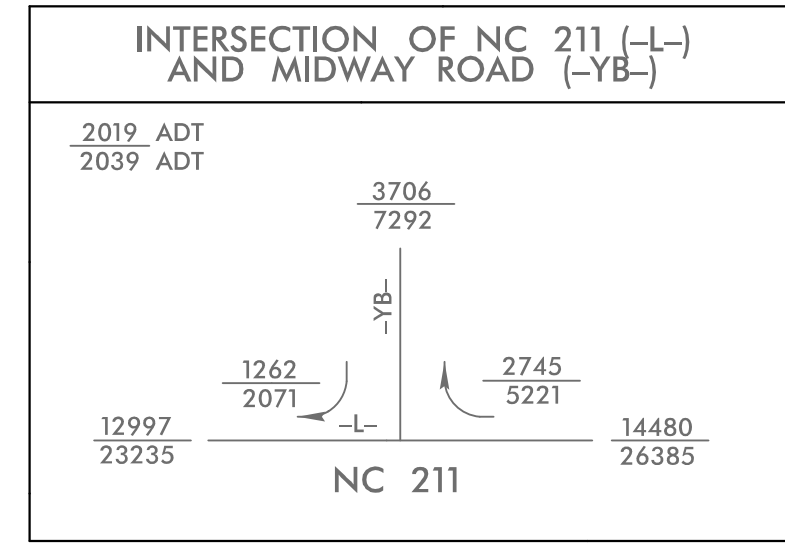
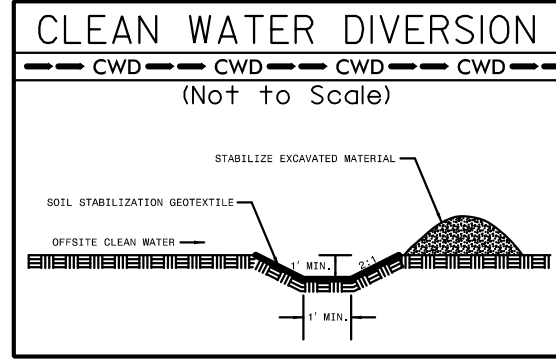
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-6/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 343 E. Six Forks Road, Suite 200  
 Raleigh, North Carolina 27609  
 NC License No: C-1554

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.

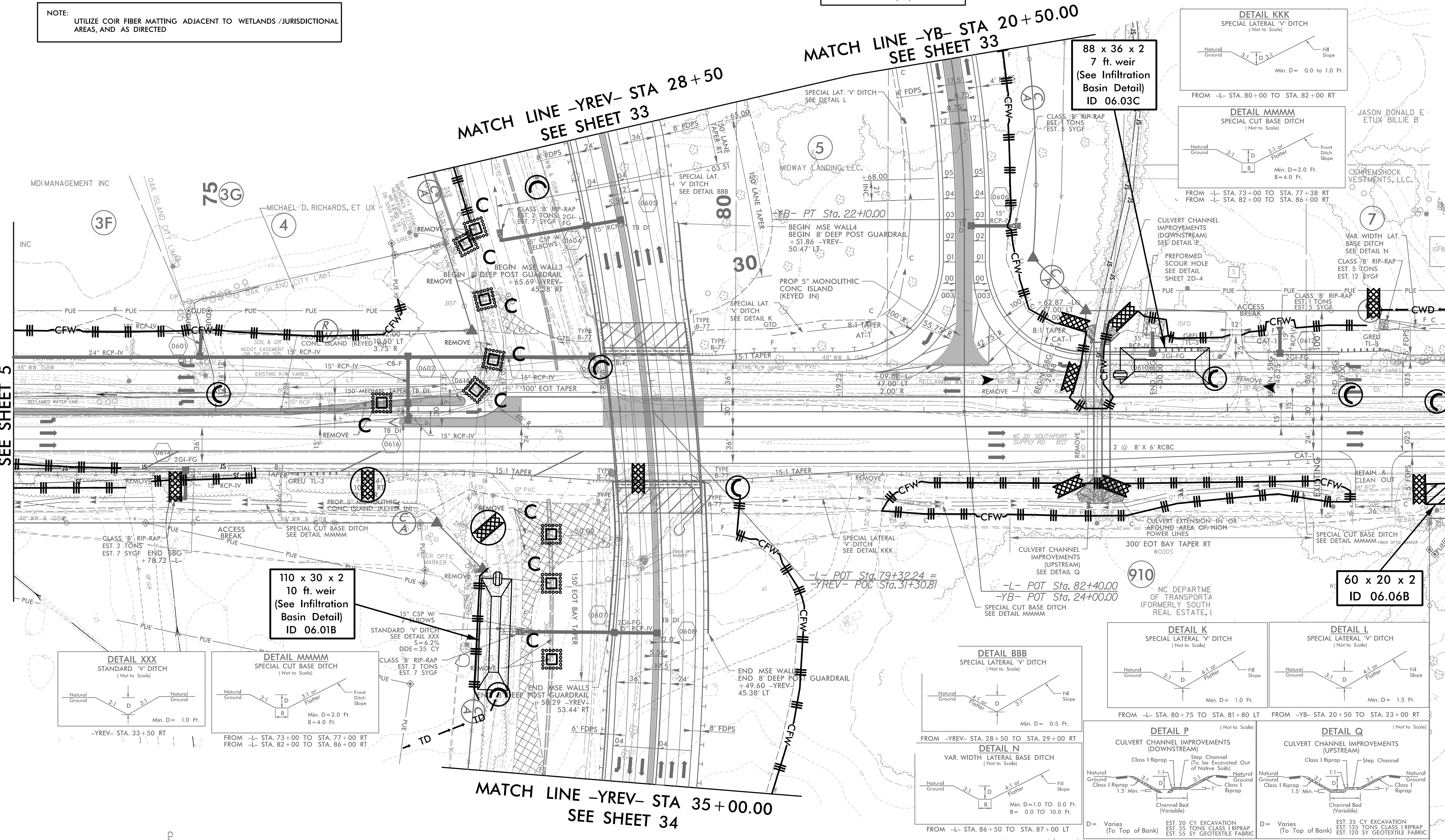


MAD  
 83 NSRS 2007

NOTE:  
 UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL  
 AREAS, AND AS DIRECTED

MATCH LINE -L- STA 73+00.00  
 SEE SHEET 5

MATCH LINE -L- STA 87+25.00 SEE SHEET 7



10/13/2021  
 EC-PSHG.dgn

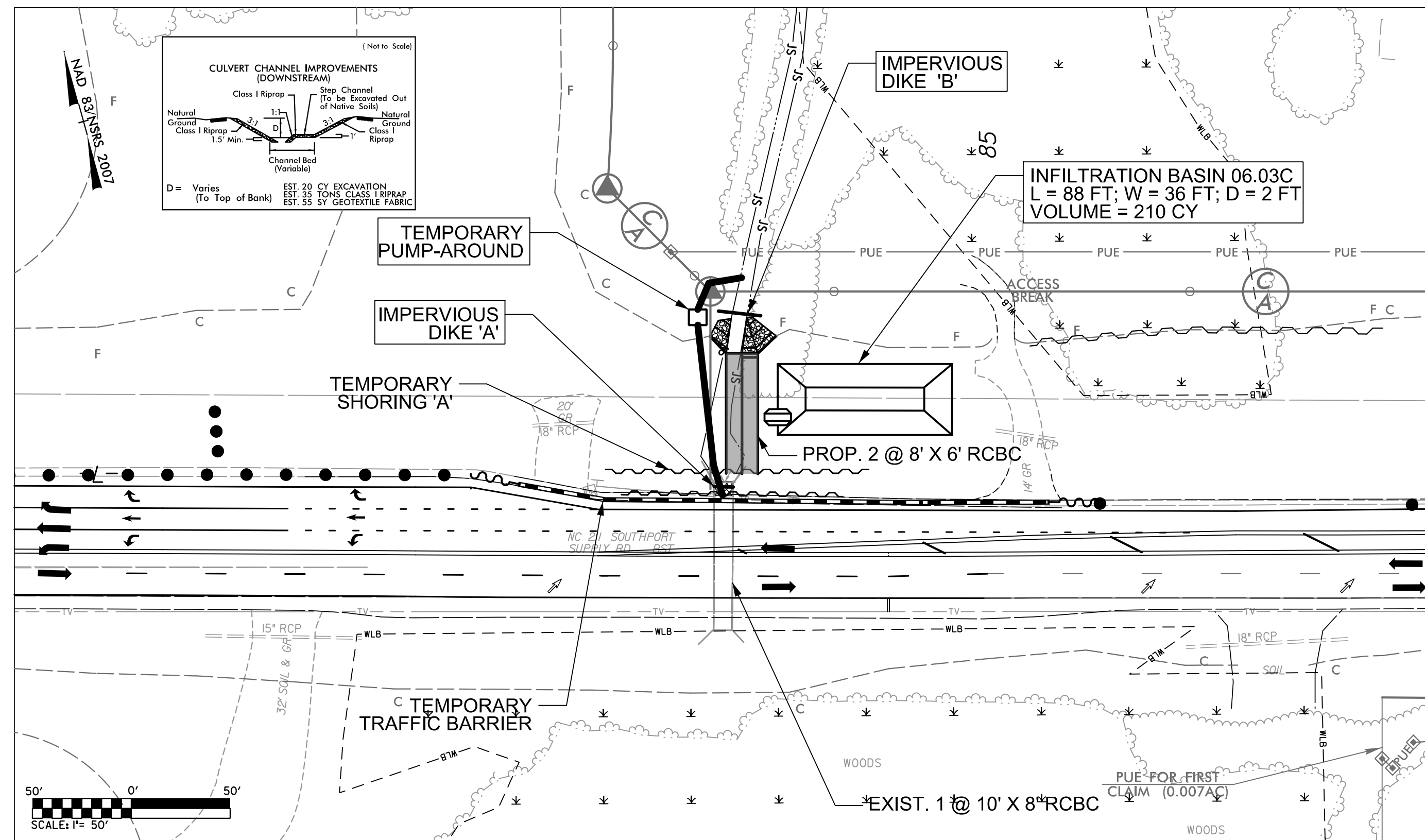
CLASS



R-5021 CULVERT PHASING 2 OF 6  
 NC 211 OVER RIVER SWAMP  
 BRUNSWICK COUNTY  
 -L- 83+75

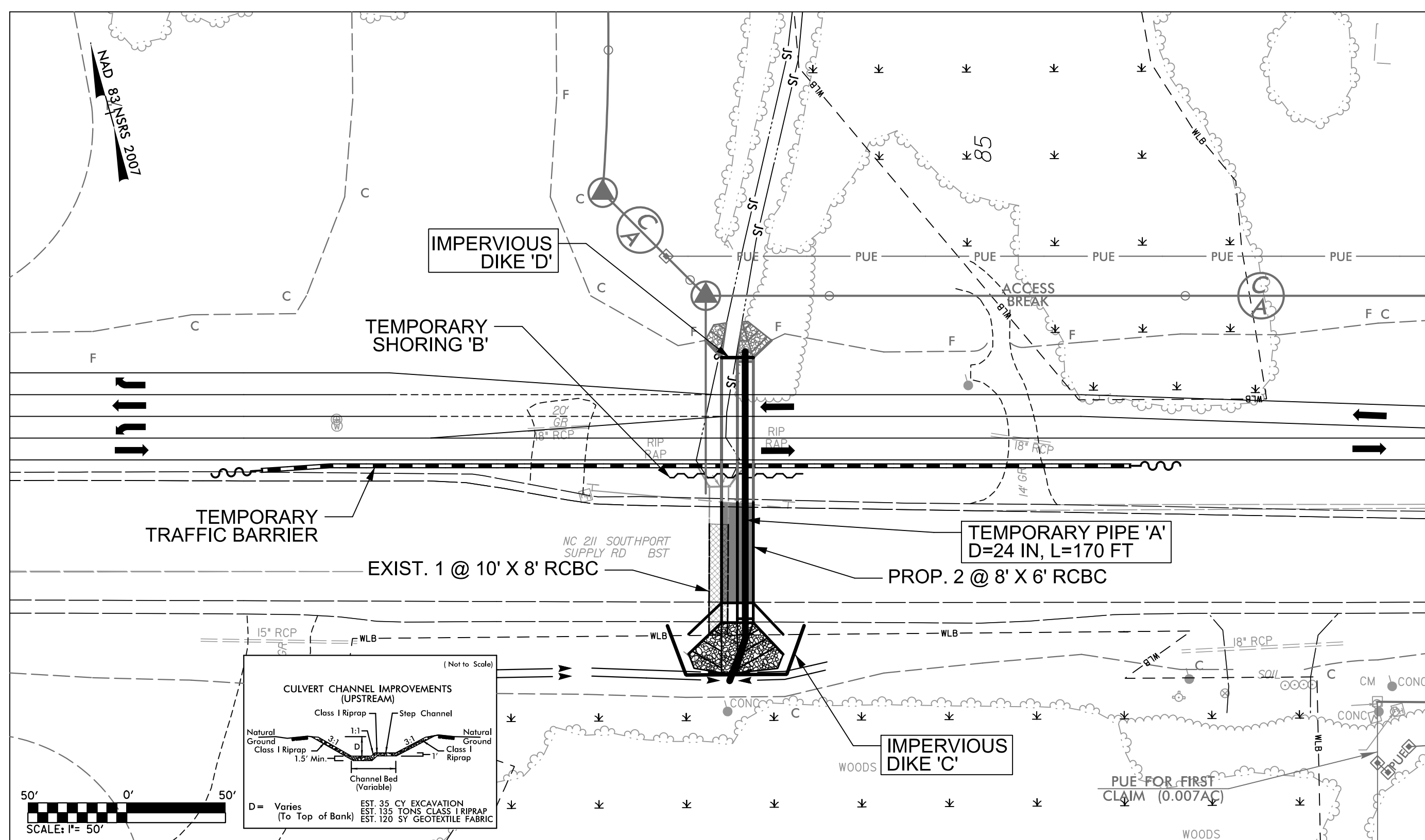
**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Road, Suite 200  
 Raleigh, North Carolina 27609  
 NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-6A/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



**PHASE I**

1. UTILIZE INFILTRATION BASIN 06.03C AS STILLING BASIN.
2. INSTALL TEMPORARY SHORING 'A' AND TEMPORARY TRAFFIC BARRIER AND SHIFT TRAFFIC RIGHT.
3. CONSTRUCT IMPERVIOUS DIKES 'A' & 'B', INSTALL PUMP-AROUND.
4. DEWATER CONSTRUCTION AREA INTO INFILTRATION BASIN 06.03C.
5. REMOVE HEADWALL, WINGWALLS, AND APPROX. 7 FT OF EXISTING 1 @ 10' X 8' RCBC.
6. CONSTRUCT APPROXIMATELY 61 FT OF PROPOSED 2 @ 8' x 6' RCBC AND DOWNSTREAM CHANNEL IMPROVEMENTS.
7. CONSTRUCT PROPOSED WESTBOUND LANES OF NC 211.



**PHASE II**

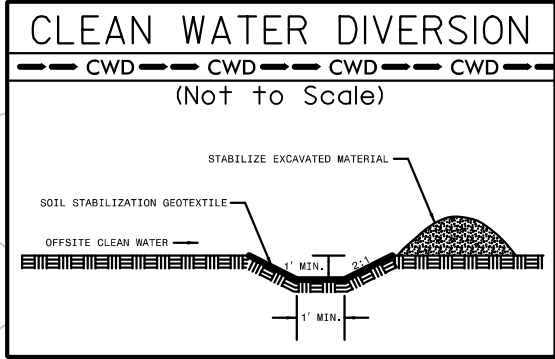
1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED DURING PHASE II CULVERT CONSTRUCTION.
2. INSTALL TEMPORARY SHORING 'B', ADJUST TEMPORARY TRAFFIC BARRIER CONFIGURATION AND SHIFT TRAFFIC ONTO WESTBOUND LANES OF NC 211.
3. INSTALL IMPERVIOUS DIKES 'C' & 'D', INSTALL TEMPORARY PIPE 'A'. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S).
4. REMOVE PUMP-AROUND, IMPERVIOUS DIKES 'A' & 'B', AND TEMPORARY SHORING 'A'.
5. REMOVE REMAINDER OF EXISTING 1 @ 10' X 8' RCBC.
6. CONSTRUCT REMAINDER OF PROPOSED 2 @ 8' x 6' RCBC & UPSTREAM WINGWALLS AND CONSTRUCT UPSTREAM CHANNEL IMPROVEMENTS.
7. REMOVE IMPERVIOUS DIKES 'C' & 'D', TEMPORARY PIPE 'A', TEMPORARY SHORING 'B', AND TEMPORARY TRAFFIC BARRIER. CONSTRUCT PROPOSED EASTBOUND NC 211.
8. COMPLETE CONSTRUCTION OF EASTBOUND AND WESTBOUND LANES, REMOVE REMAINING SPECIAL STILLING BASIN(S) AND SHIFT TRAFFIC INTO FINAL PATTERN.

5/14/99

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

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

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.

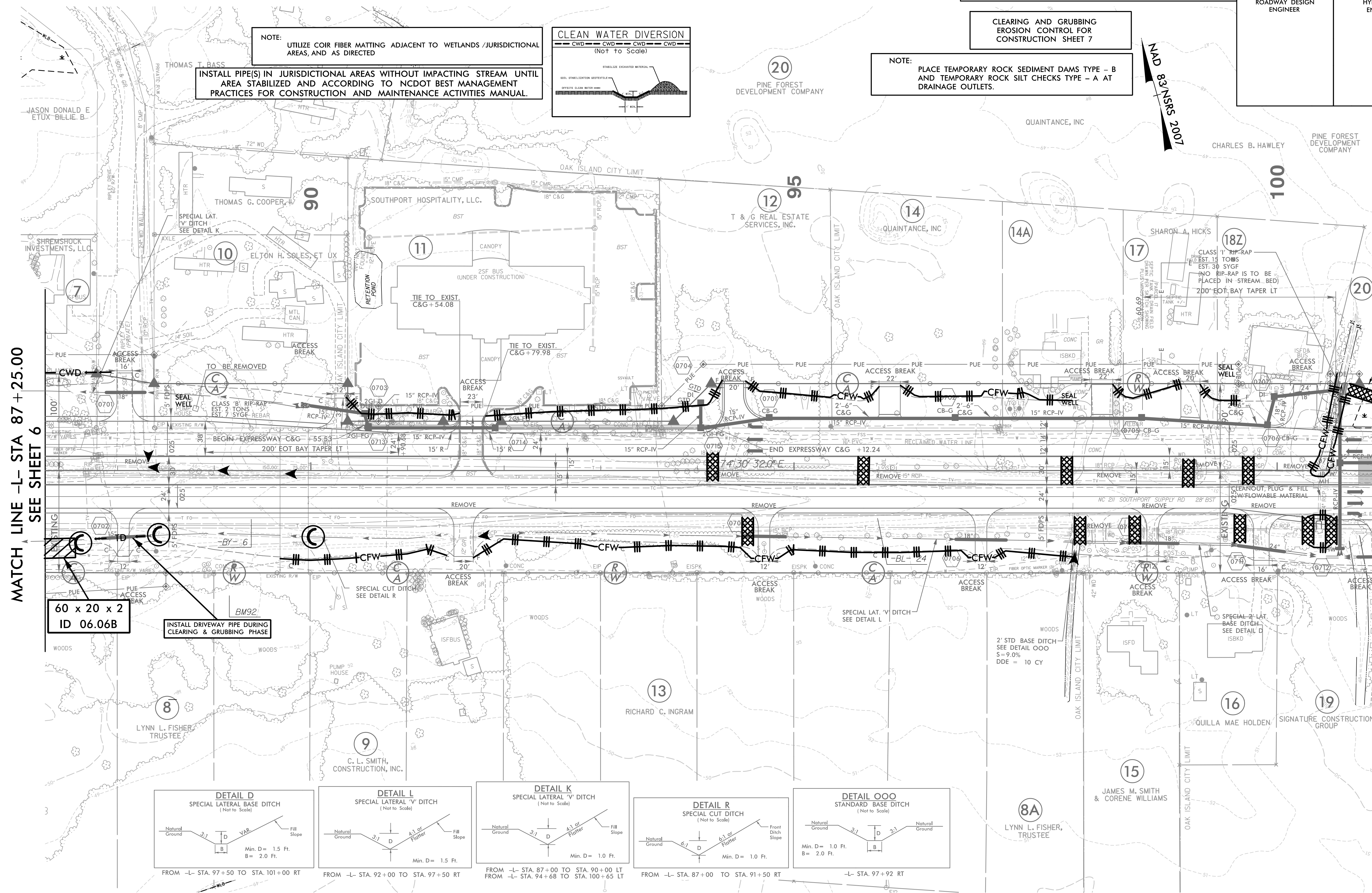


NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

MAD 8/1/NS/S 2007

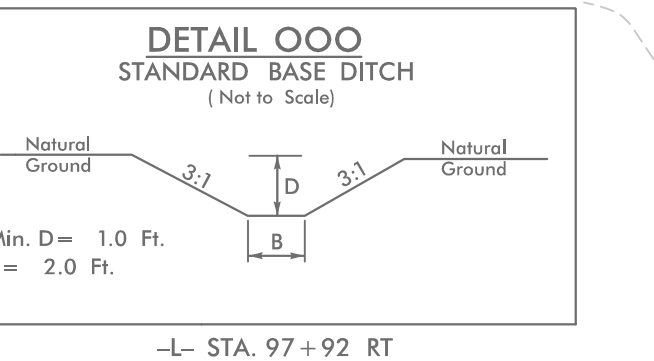
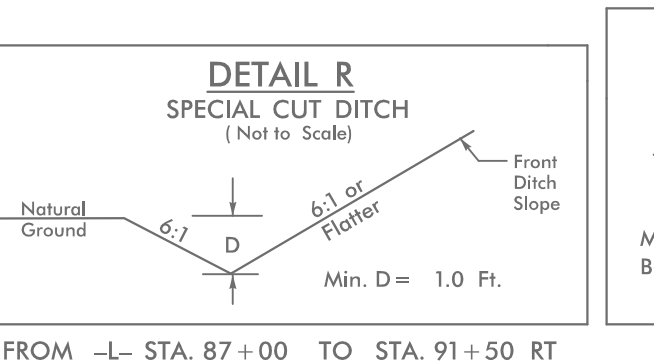
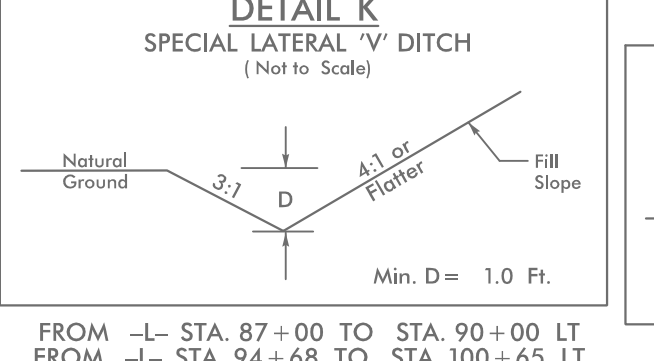
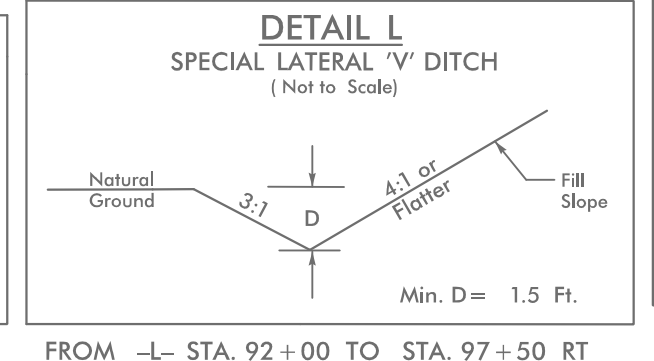
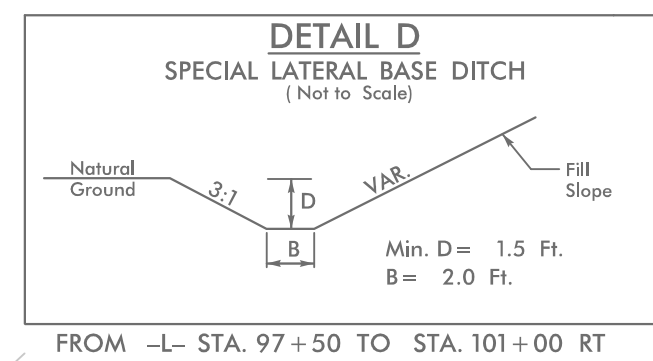
MATCH LINE -L- STA 87+25.00  
SEE SHEET 6

MATCH LINE -L- STA 101+00.00  
SEE SHEET 8



60 x 20 x 2  
ID 06.06B

INSTALL DRIVEWAY PIPE DURING  
CLEARING & GRUBBING PHASE



4/21/2008 L.E.C.-PSHT.dgn

5/14/99

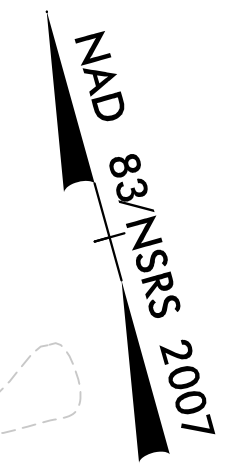
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-8/CONST.8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 8

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

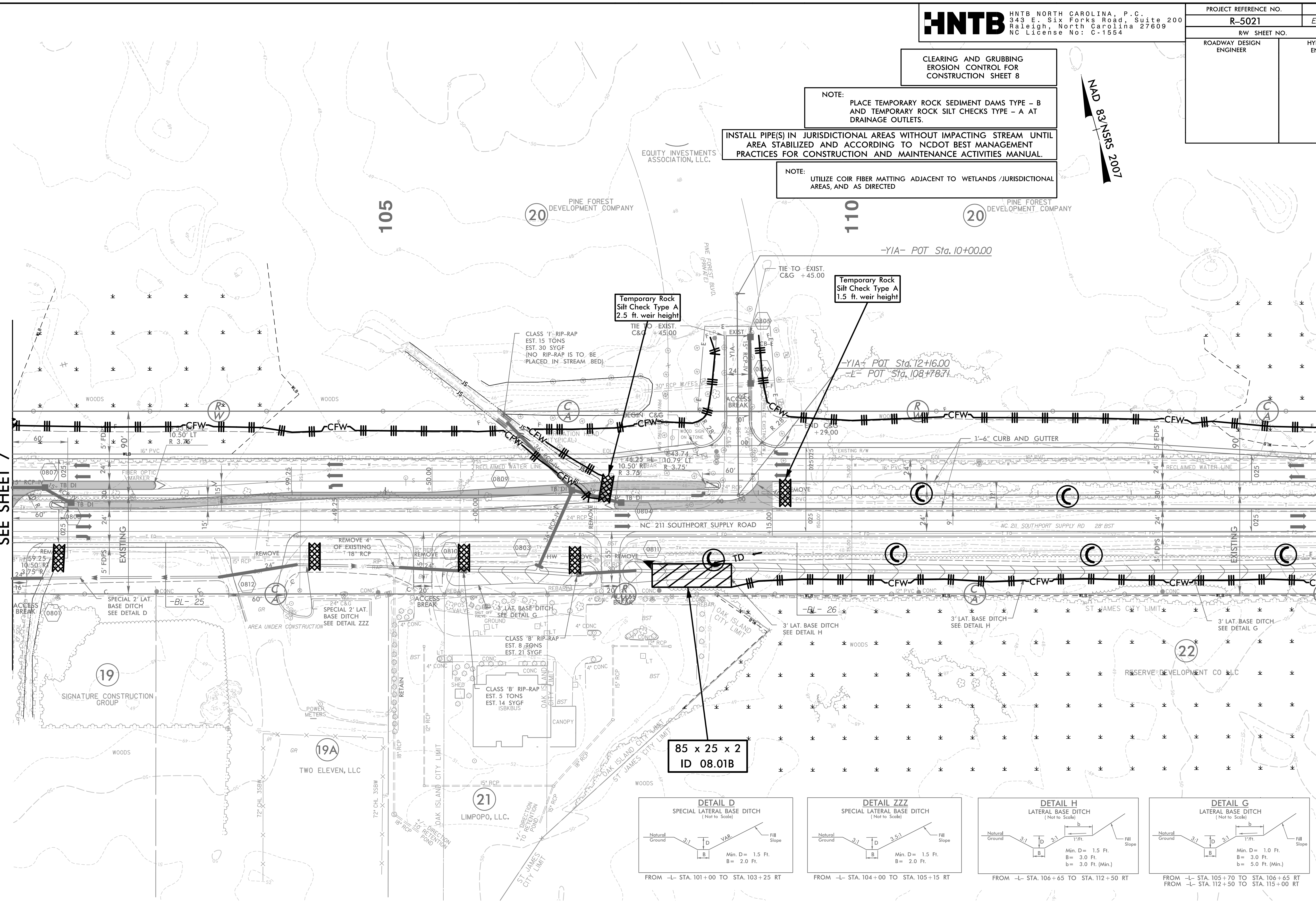
INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL  
 AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT  
 PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

NOTE:  
 UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL  
 AREAS, AND AS DIRECTED



MATCH LINE -L- STA 101+00.00  
 SEE SHEET 7

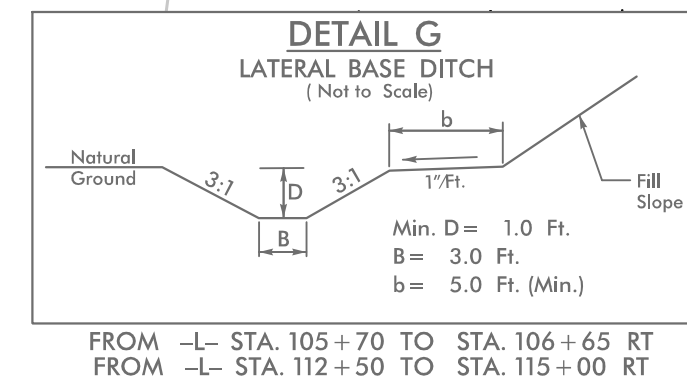
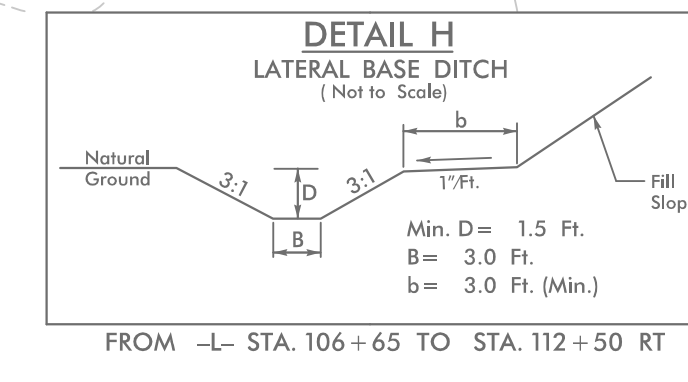
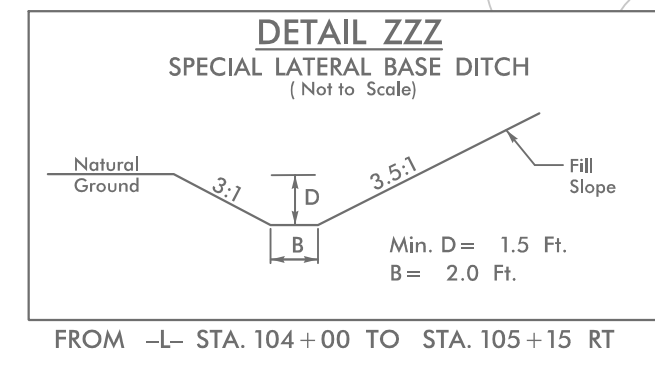
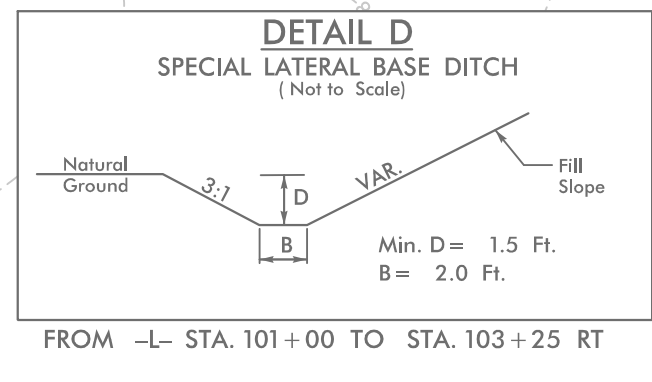
MATCH LINE -L- STA 115+00.00  
 SEE SHEET 9



Temporary Rock  
 Silt Check Type A  
 2.5 ft. weir height

Temporary Rock  
 Silt Check Type A  
 1.5 ft. weir height

85 x 25 x 2  
 ID 08.01B



11/2/2008 L.E.C.\_PSH8.dgn

5/14/99

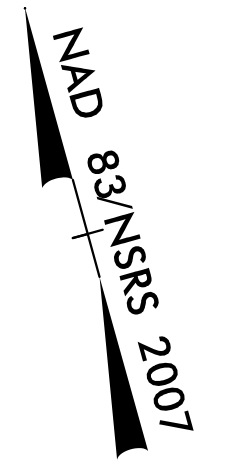
NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

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.

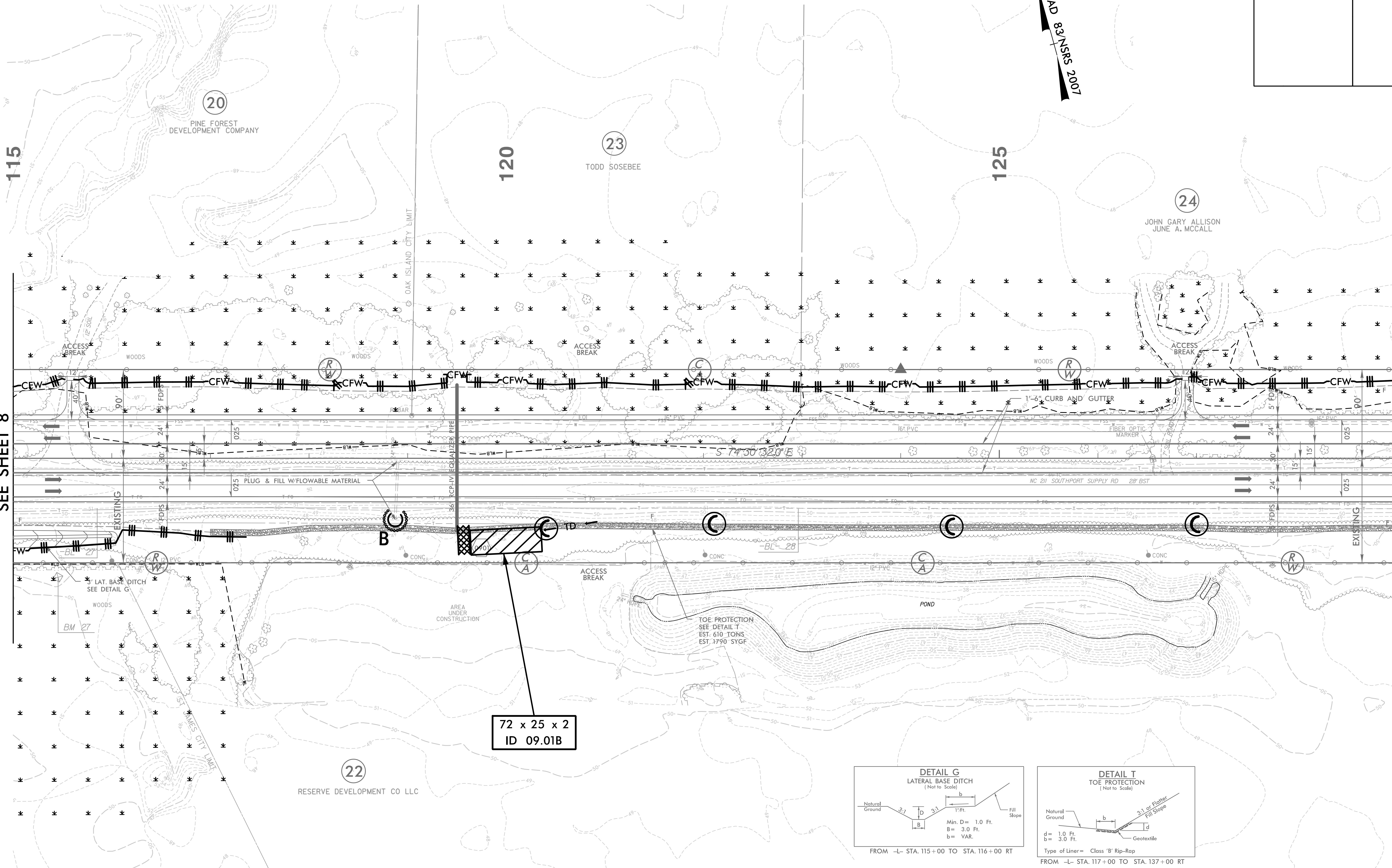
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-9/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

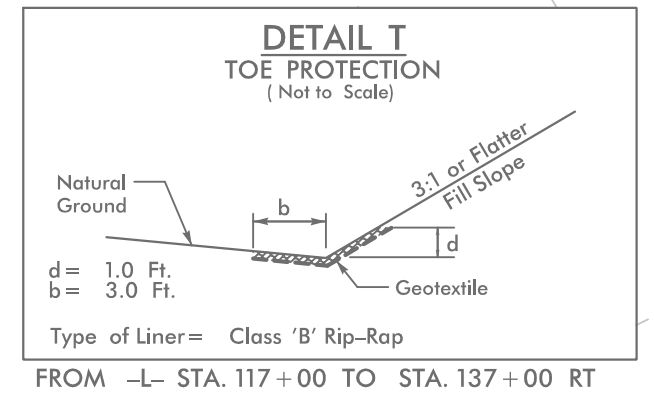
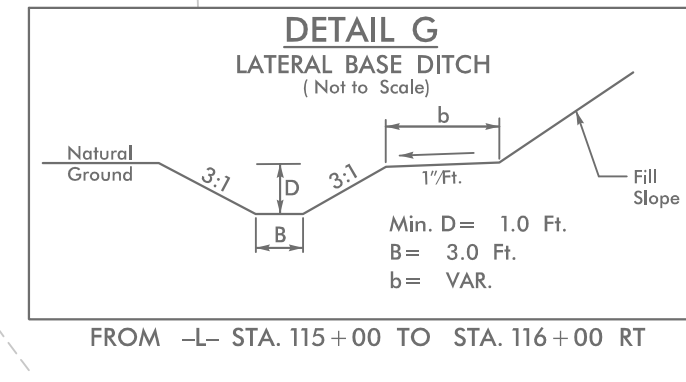


MATCH LINE -L- STA 115 + 00.00  
SEE SHEET 8

MATCH LINE -L- STA 129 + 00.00  
SEE SHEET 10



72 x 25 x 2  
ID 09.01B



5/17/2021\_EC\_PSH9.dgn

5/14/99

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NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-10/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

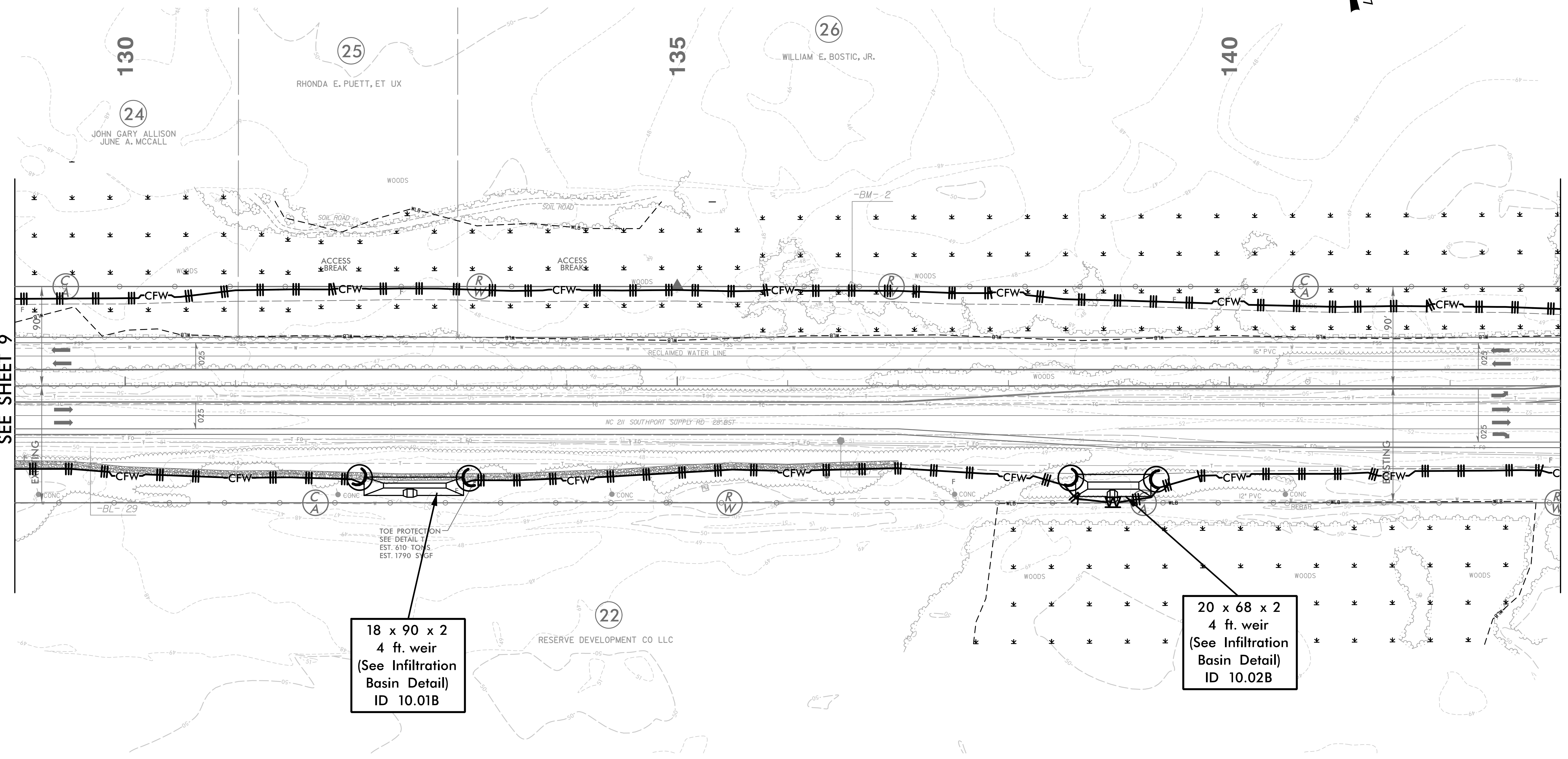
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 10

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

MAD 8/NSRS 2007

MATCH LINE -L- STA 129 + 00.00  
SEE SHEET 9

MATCH LINE -L- STA 143 + 00.00  
SEE SHEET 11



5/17/2021 EC\_PSH10.dgn

5/14/99

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 11

**BEGIN CONSTRUCTION**  
-YIC- Sta. 10+00.00

-YIC- POT Sta. 9+00.00

NOTE:

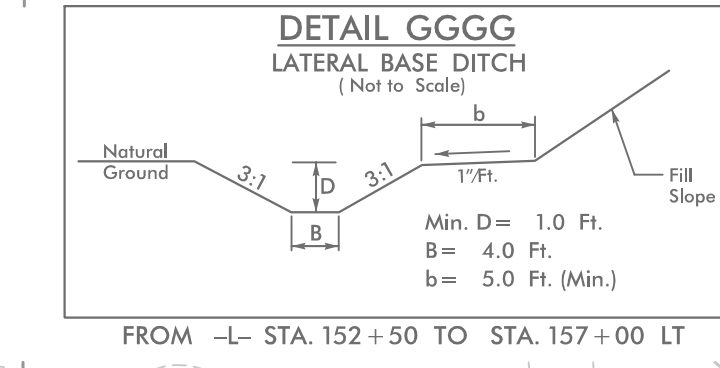
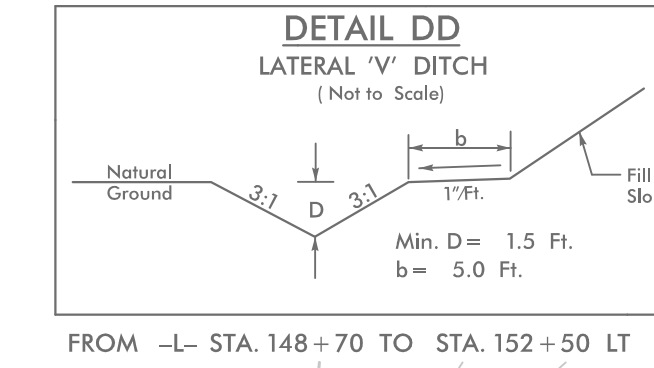
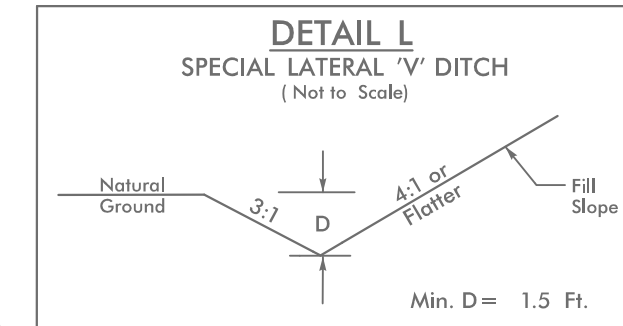
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

NOTE:

UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL  
AREAS, AND AS DIRECTED

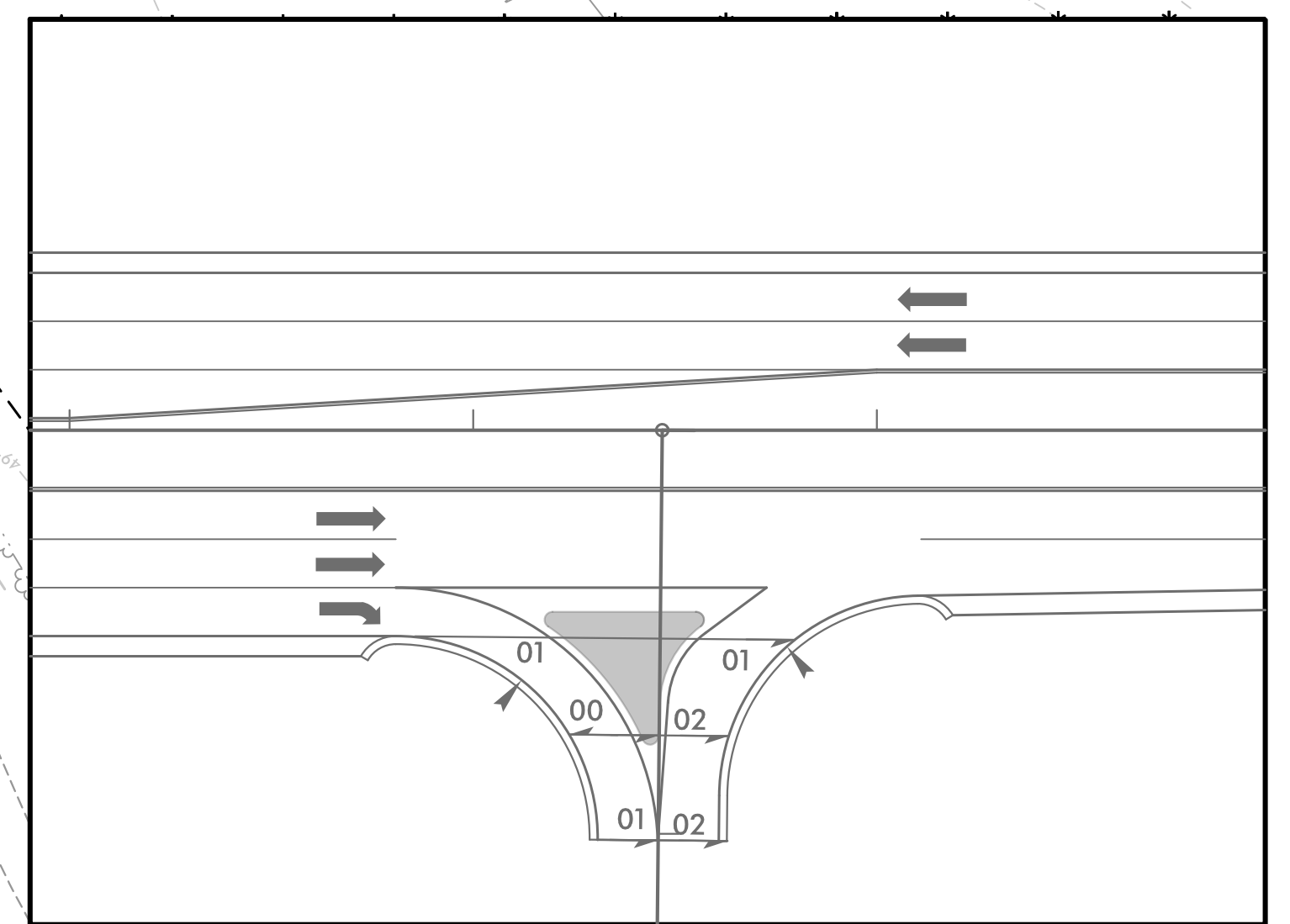
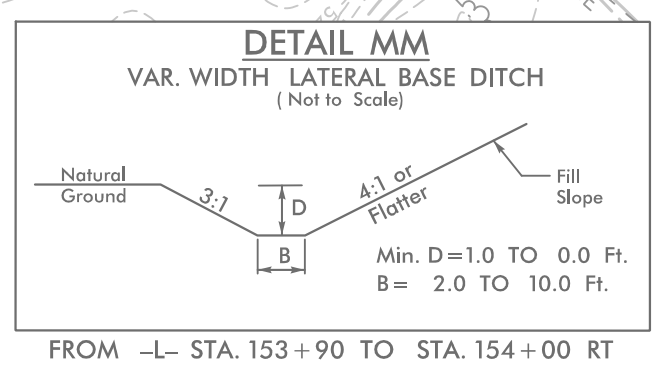
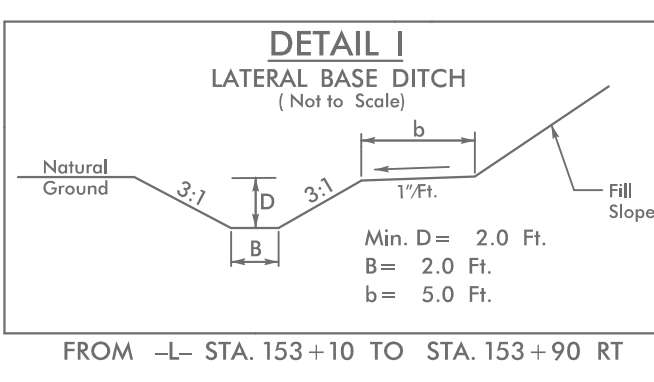
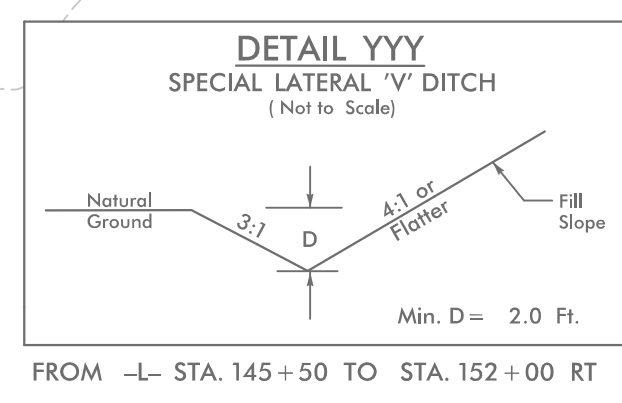
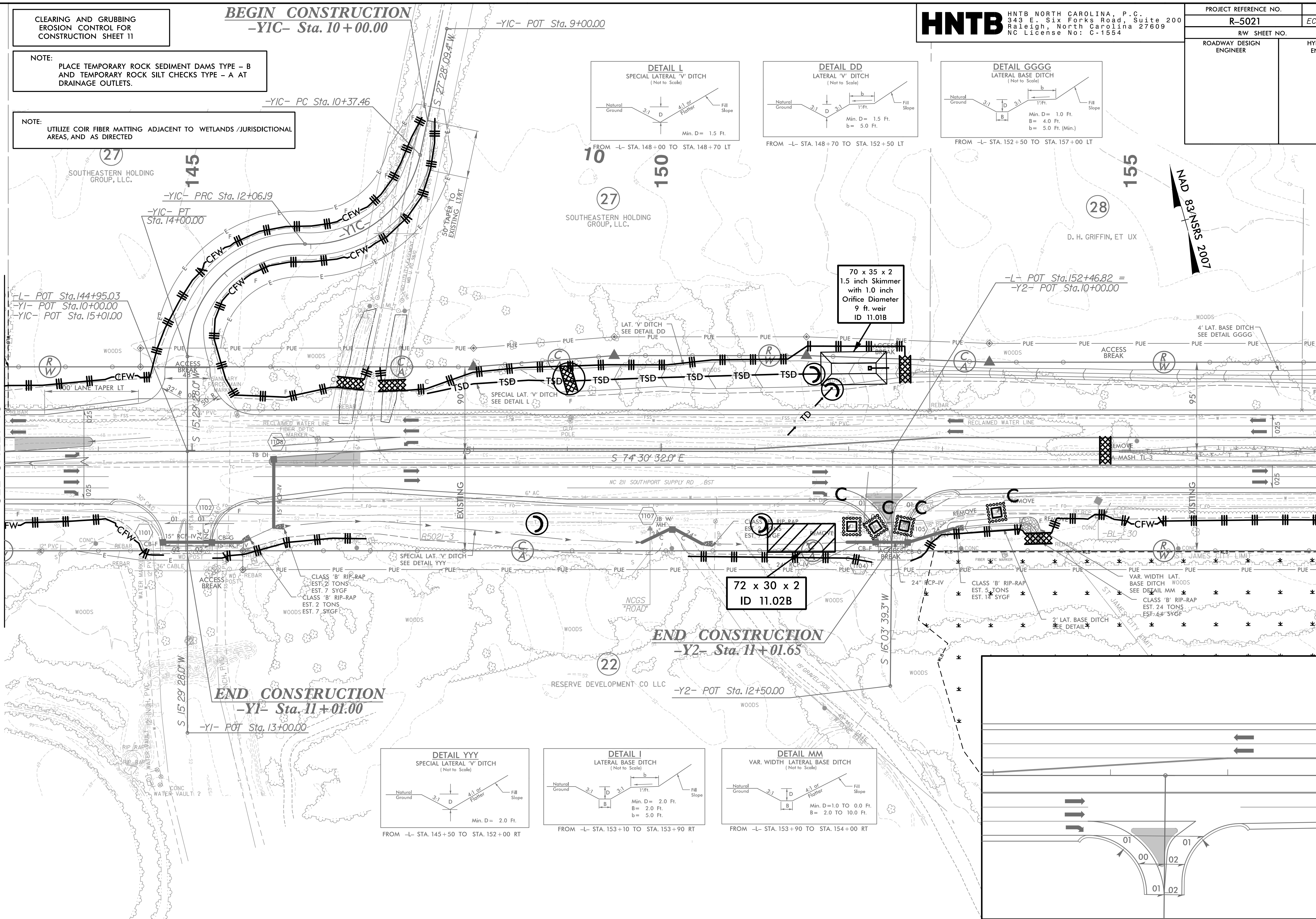
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-II/CONST-II
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCH LINE -L- STA 143+00.00  
SEE SHEET 10

MATCH LINE -L- STA 157+00.00  
SEE SHEET 12



5/17/2021\_EC\_PSH11.dgn

5/14/99

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 12

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

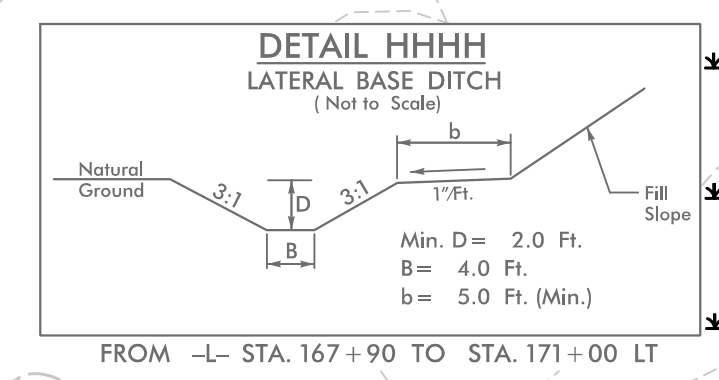
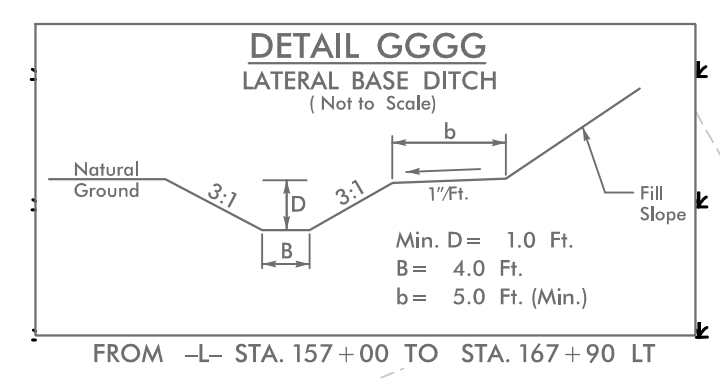
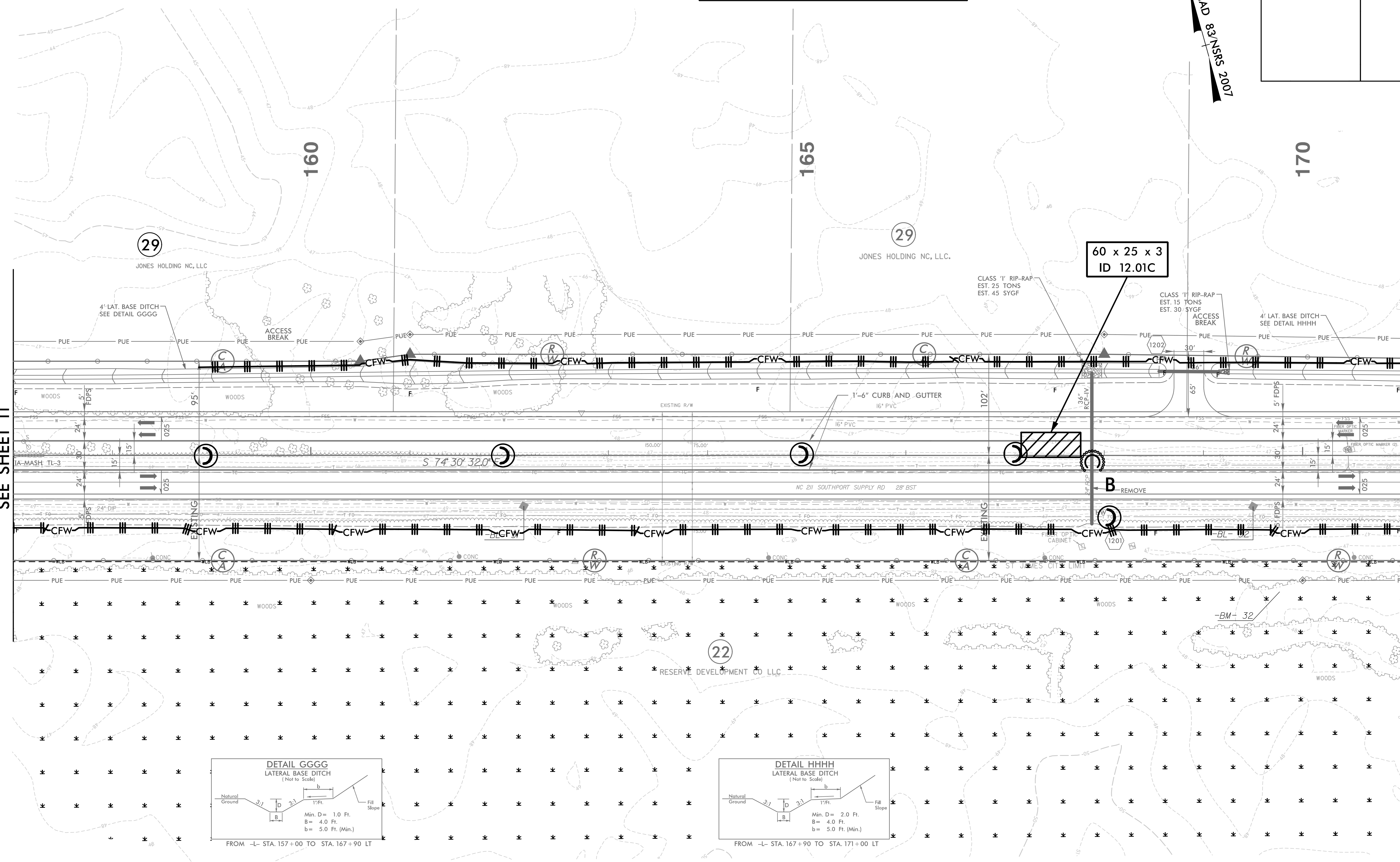
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-12/CONST.12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MAD 83NSRS 2007

MATCH LINE -L- STA 157 + 00.00  
SEE SHEET 11

MATCH LINE -L- STA 171 + 00.00  
SEE SHEET 13



5/14/2021\_EC\_PSH12.dgn

5/14/99

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

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

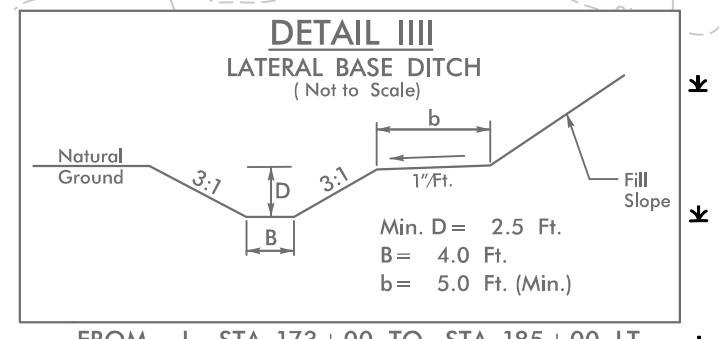
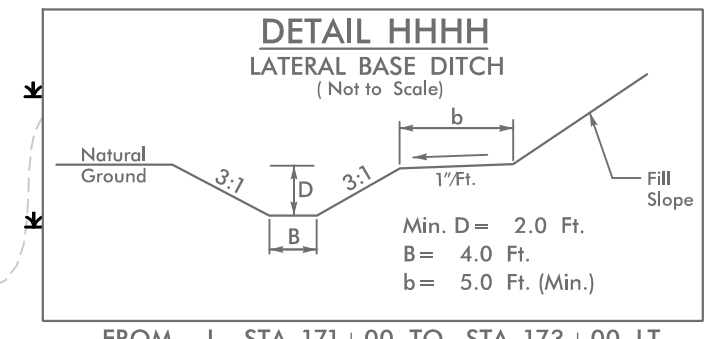
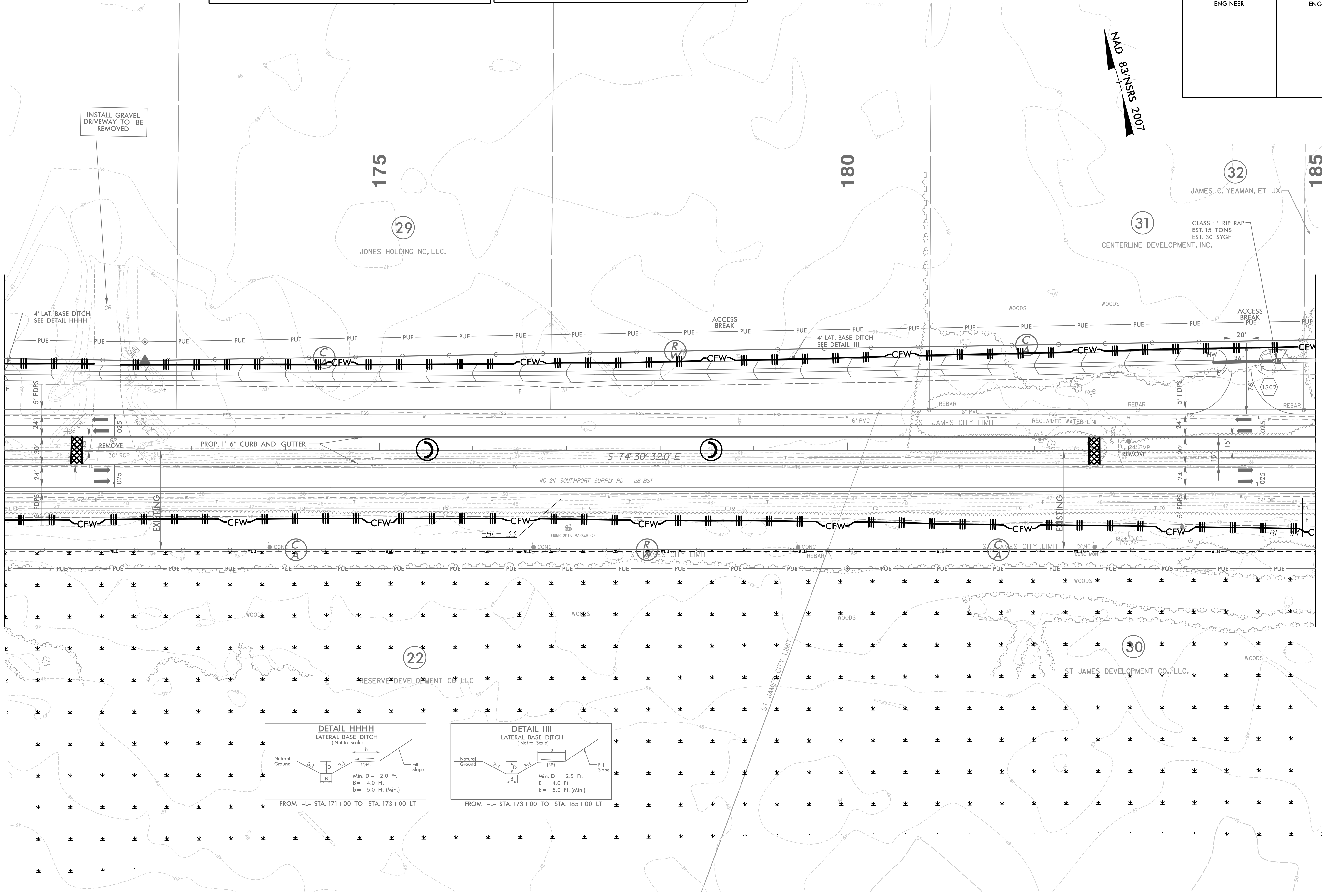
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 13

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

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-13/CONST.13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCH LINE -L- STA 171 + 00.00  
SEE SHEET 12

MATCH LINE -L- STA 185 + 00.00  
SEE SHEET 14



5/14/2021\_EC\_PSH13.dgn



5/14/99

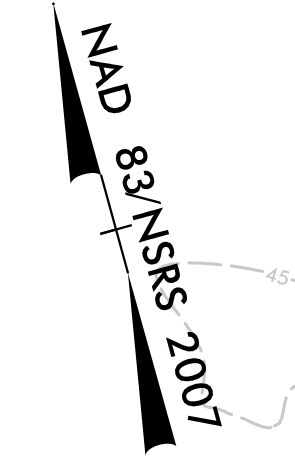
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-14/CONST.14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

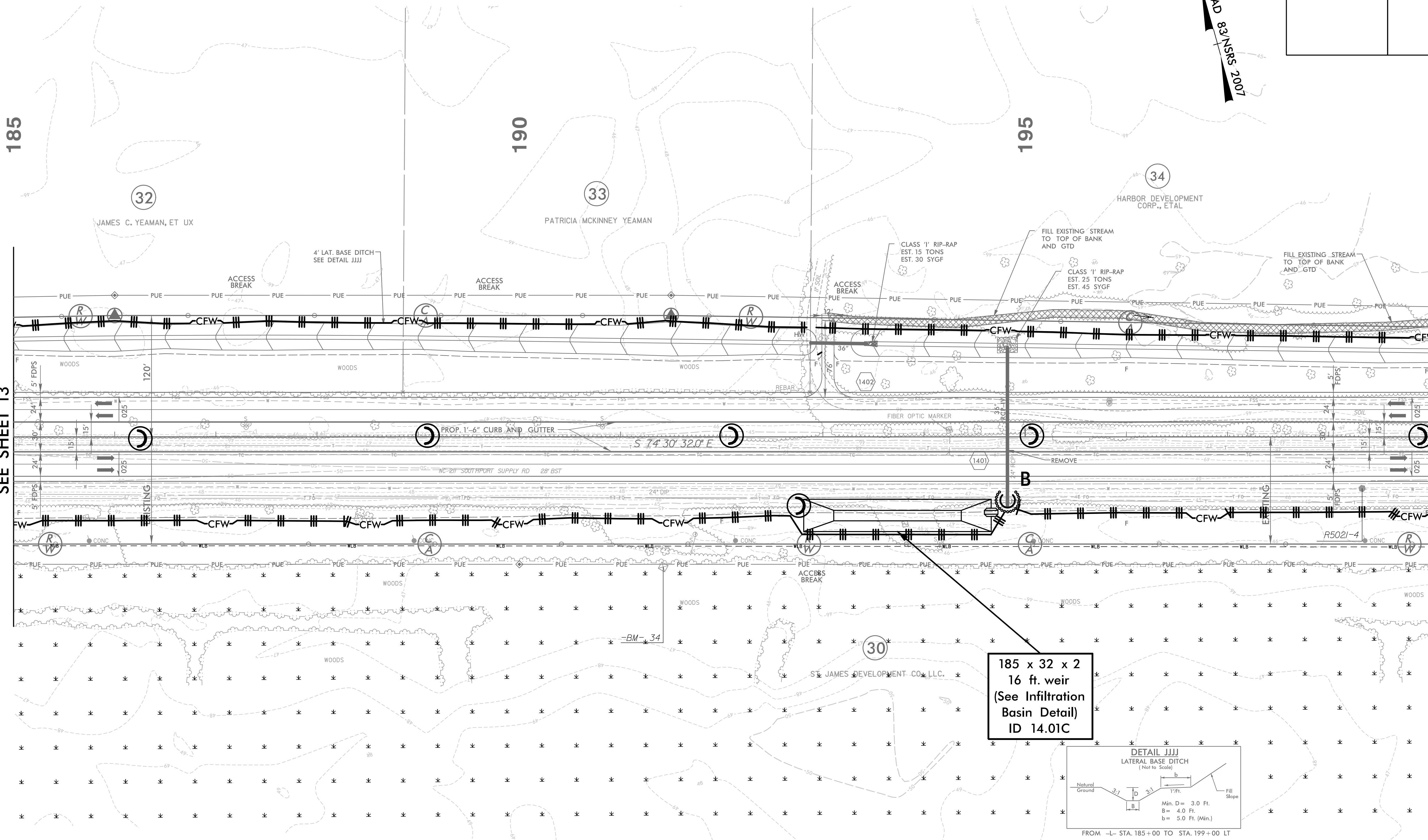
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 14

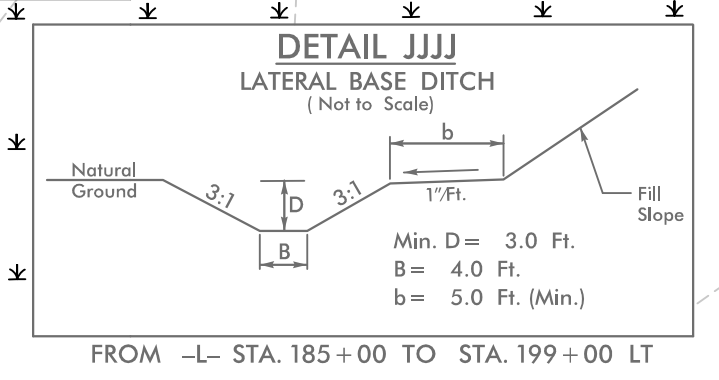


MATCH LINE -L- STA 185 + 00.00  
SEE SHEET 13

MATCH LINE -L- STA 199 + 00.00  
SEE SHEET 15



185 x 32 x 2  
16 ft. weir  
(See Infiltration Basin Detail)  
ID 14.01C



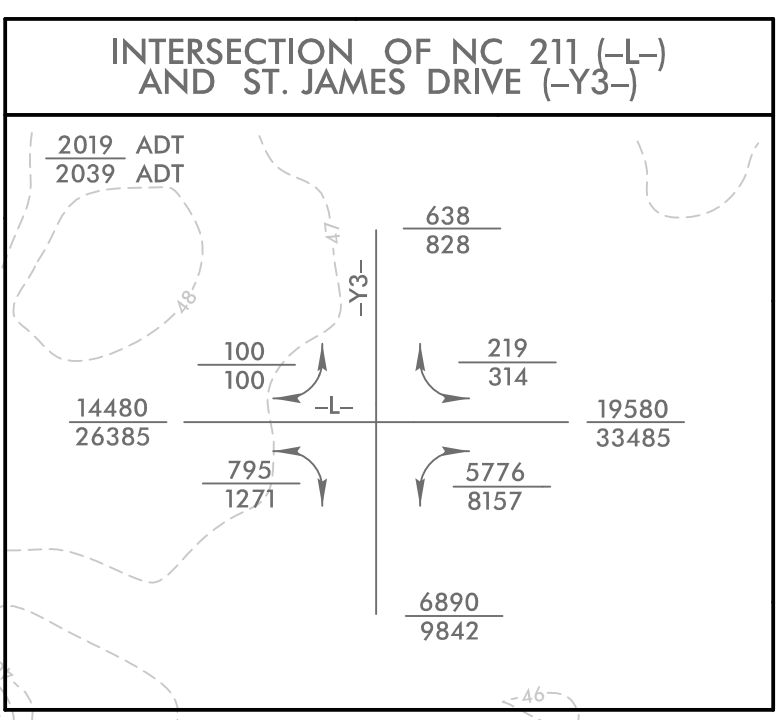
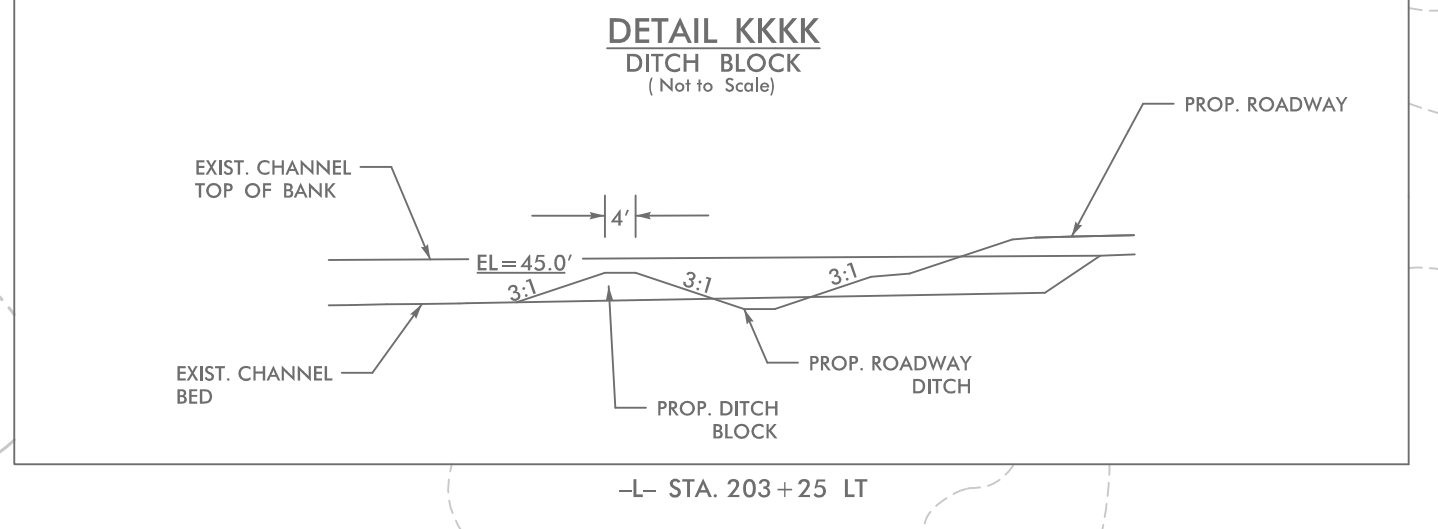
11/2/2008  
14.01\_EC\_PSH14.dgn  
HNTB

5/14/99

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

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 15

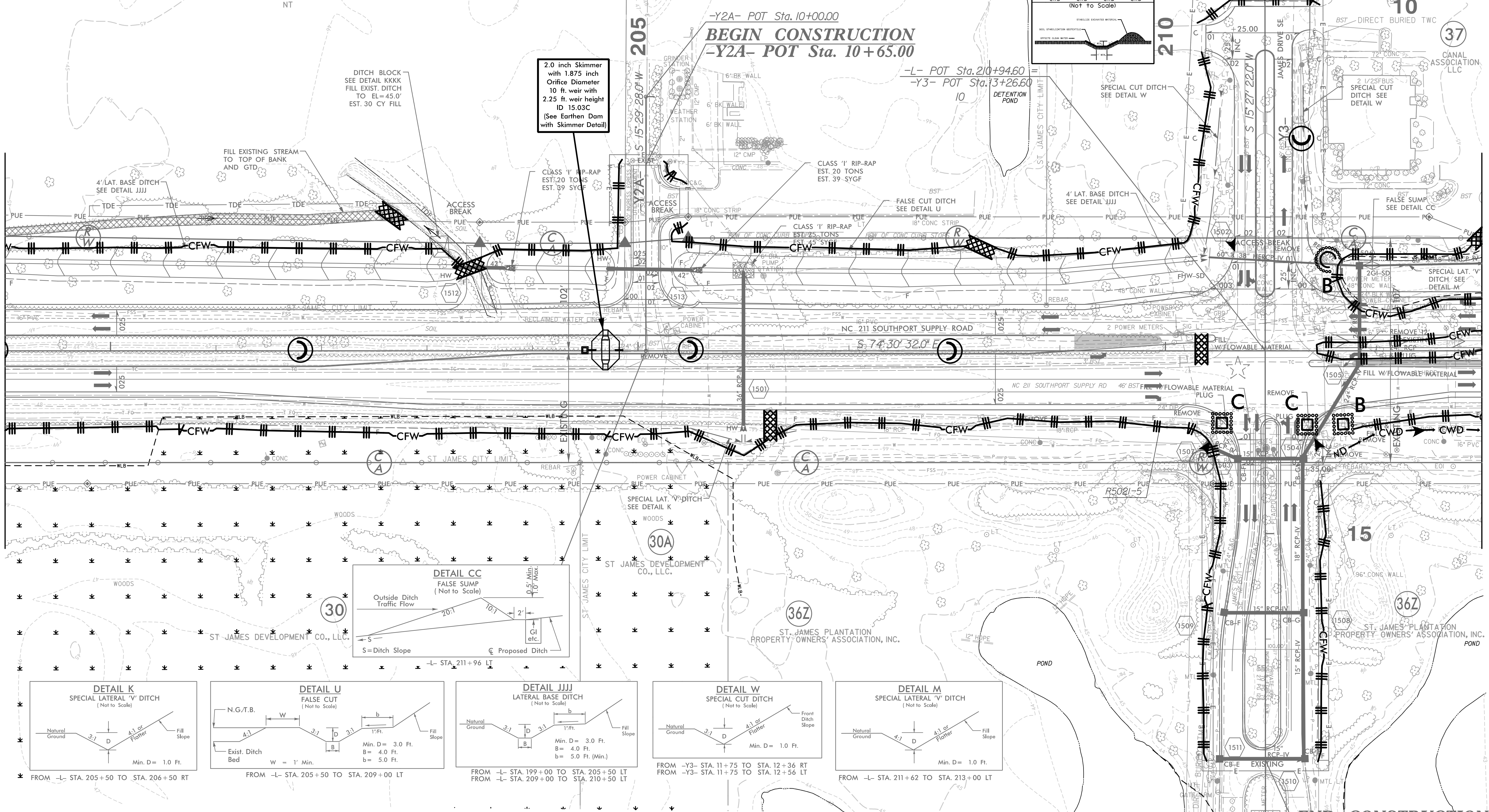


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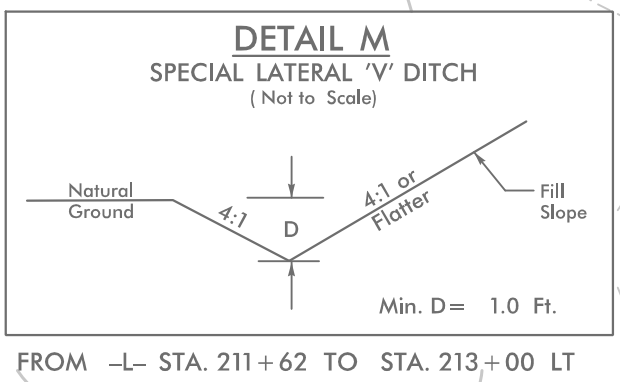
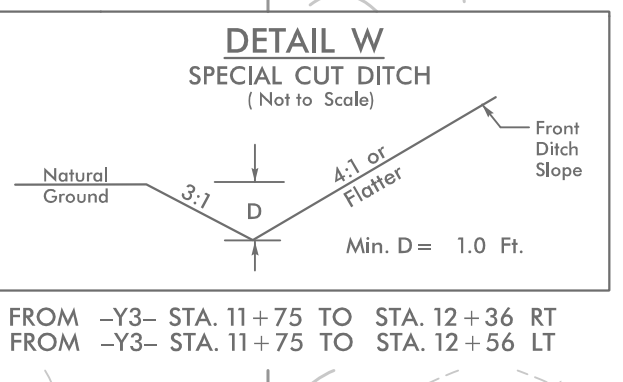
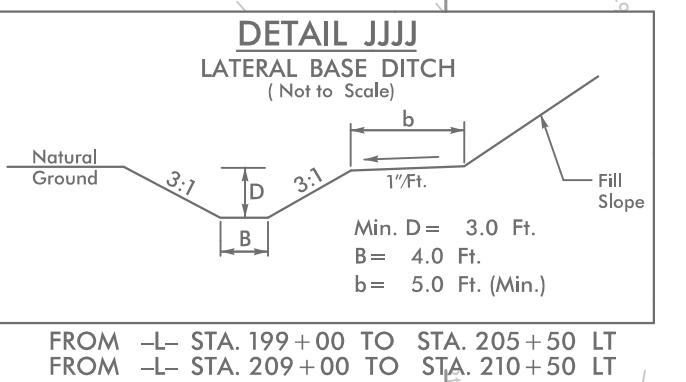
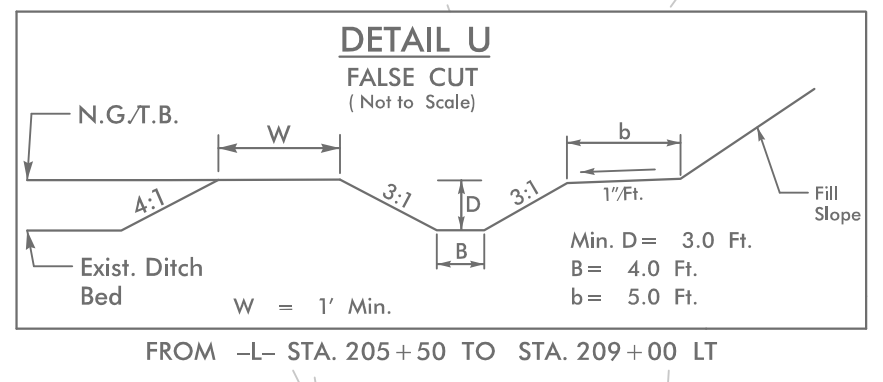
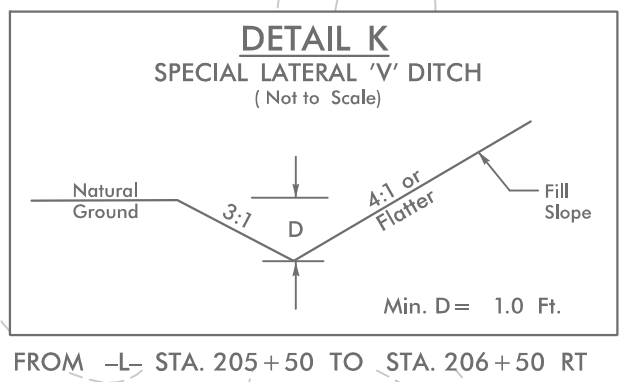
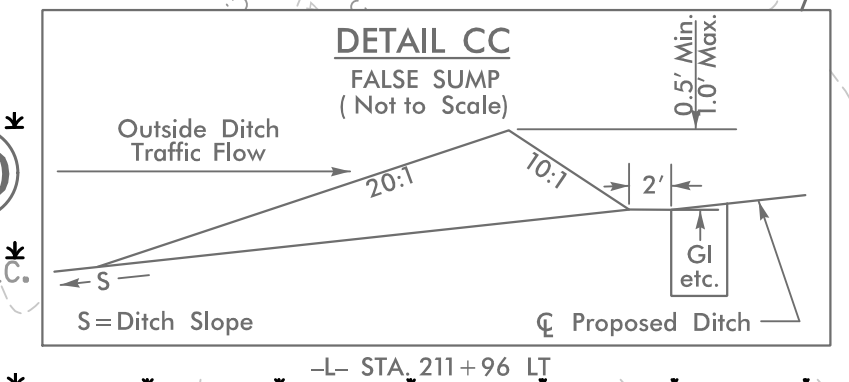
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-15/CONST.15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCH LINE -L- STA 199 + 00.00 SEE SHEET 14

MATCH LINE -L- STA 213 + 00.00 SEE SHEET 16



2.0 inch Skimmer with 1.875 inch Office Diameter 10 ft. weir with 2.25 ft. weir height ID 15.03C (See Earthen Dam with Skimmer Detail)



FOR -L- PROFILE, SEE SHEET 46  
FOR -Y2A- & -Y3- PROFILES, SEE SHEET 60  
FOR INTERSECTION DETAIL, SEE SHEET 2B-1  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

END CONSTRUCTION -Y3- Sta. 17 + 15.00

4/21/2021\_EC\_PSH15.dgn

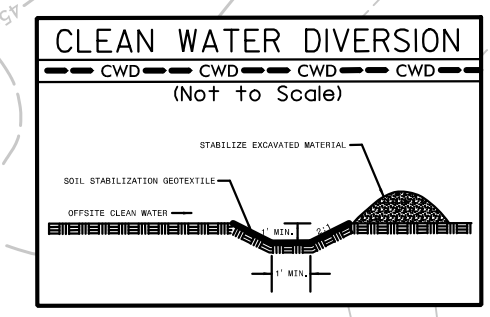
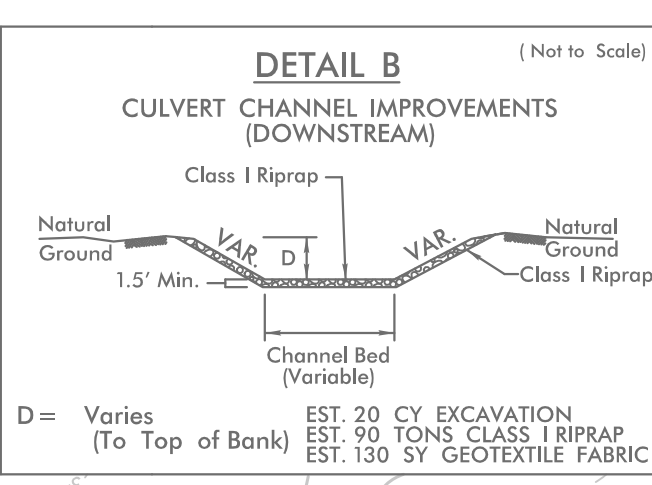
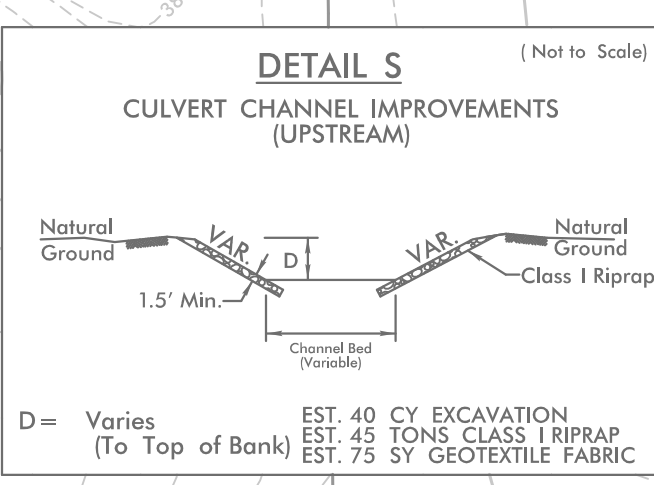
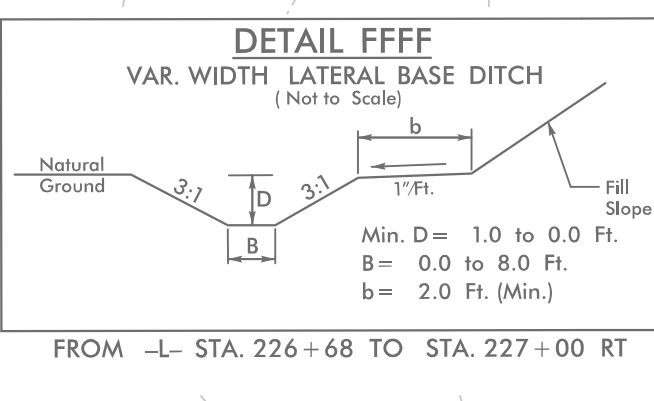
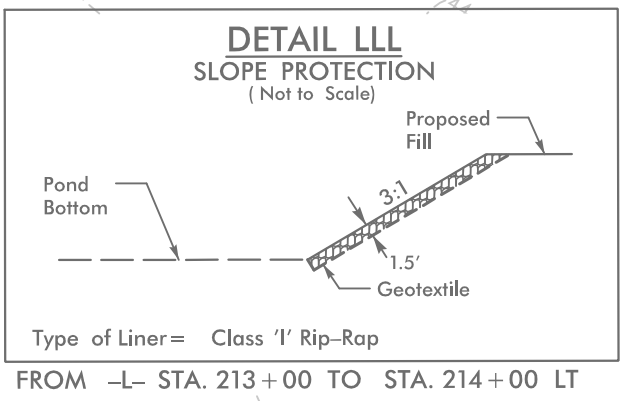
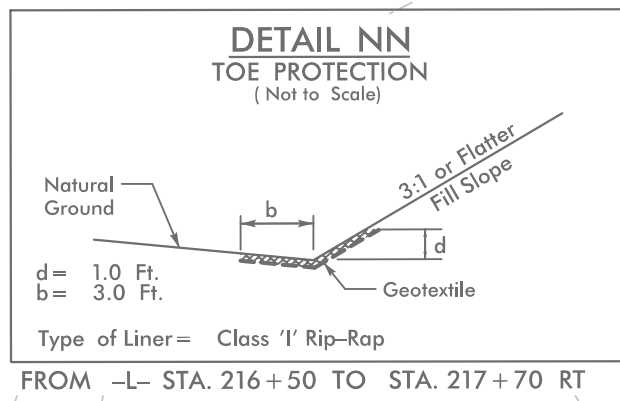
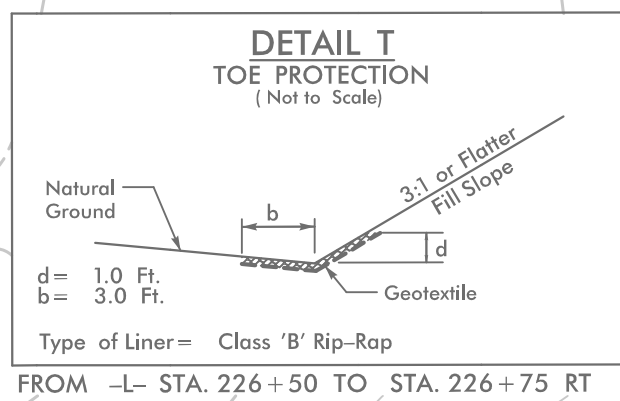
NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

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 16

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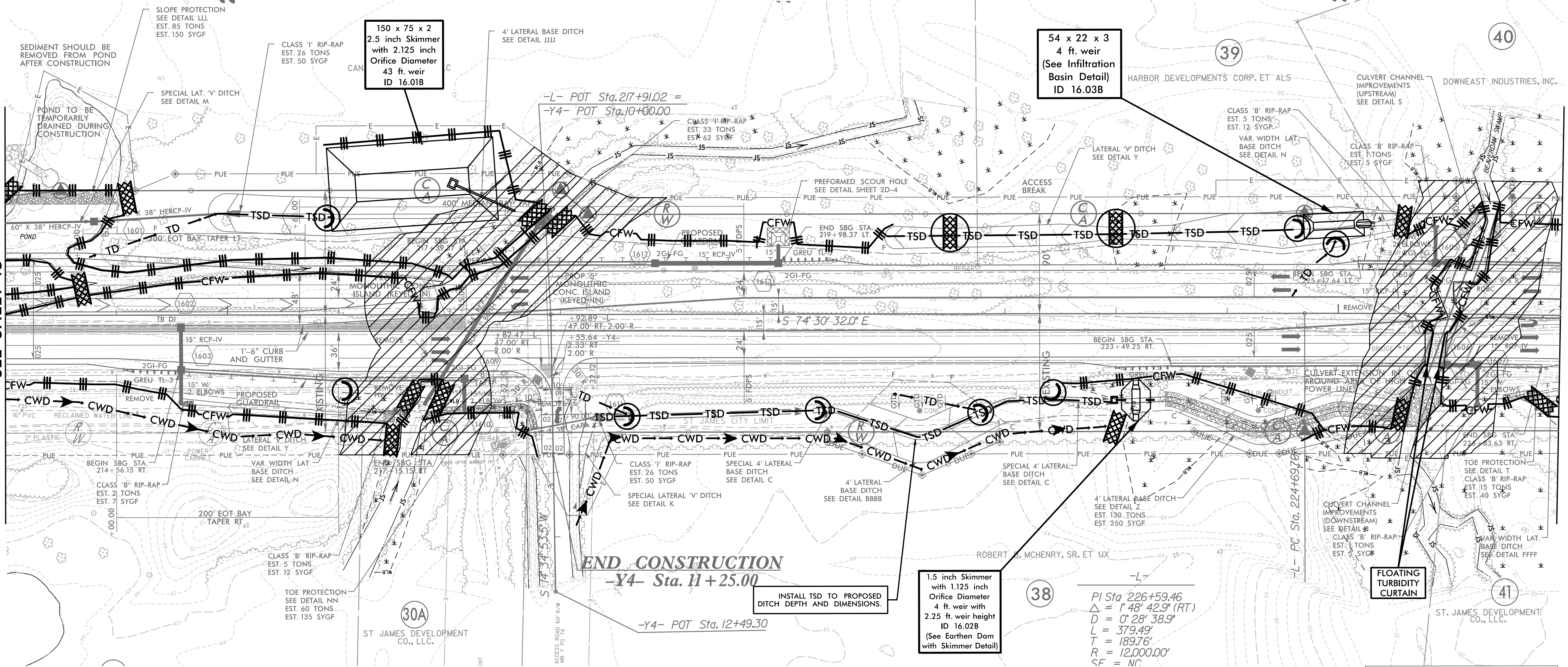
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-16/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



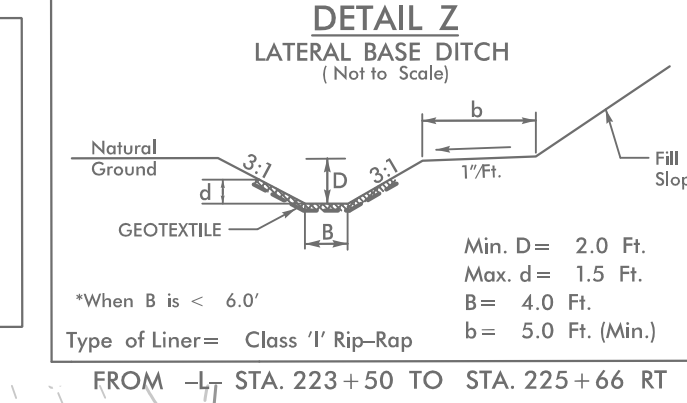
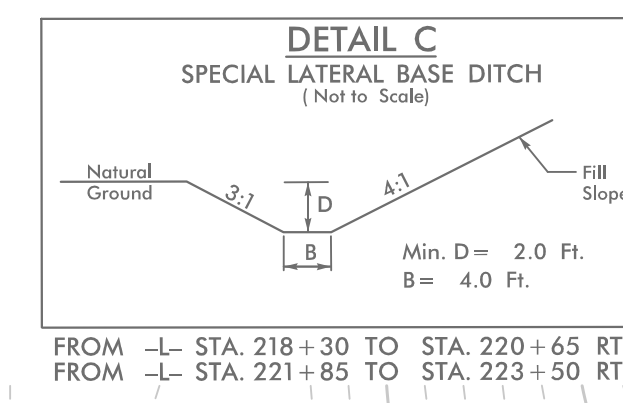
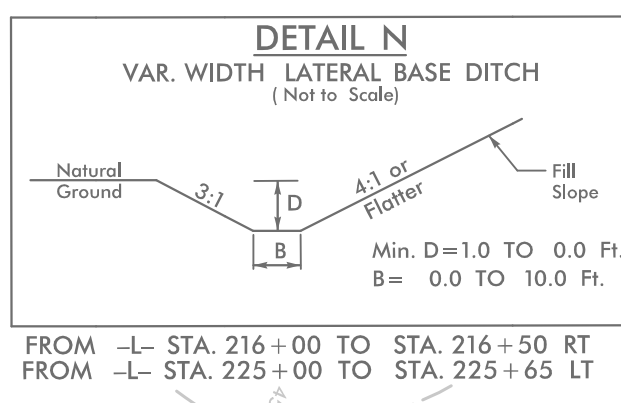
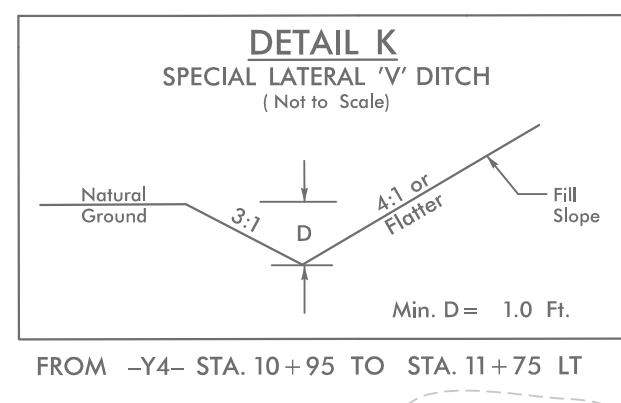
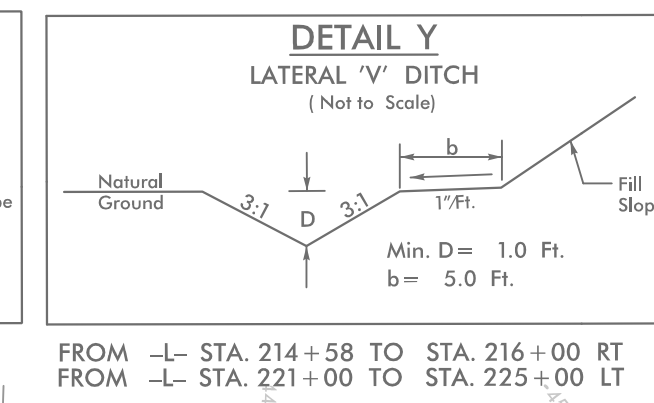
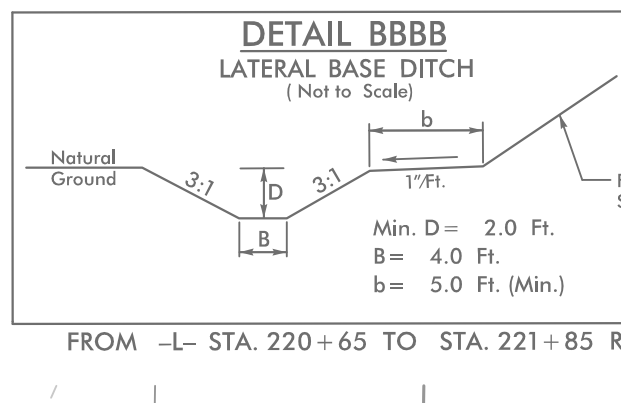
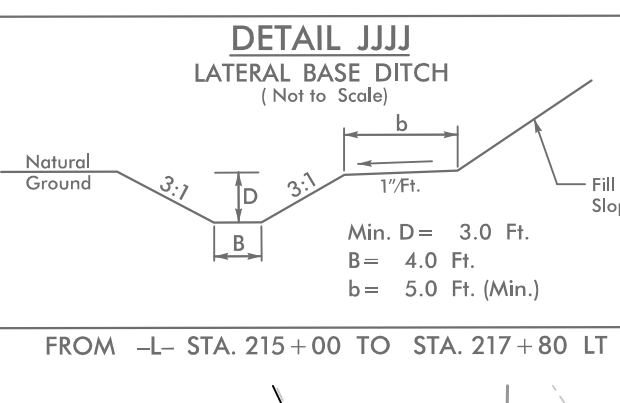
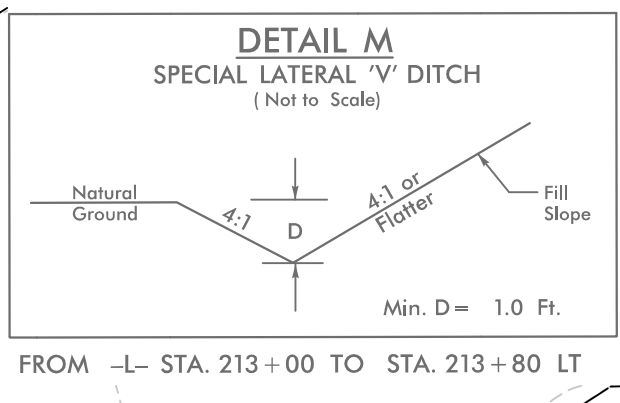
**ENVIRONMENTALLY SENSITIVE AREA**  
SEE PROJECT SPECIAL PROVISIONS

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.

MATCH LINE -L- STA 213+00.00  
SEE SHEET 15

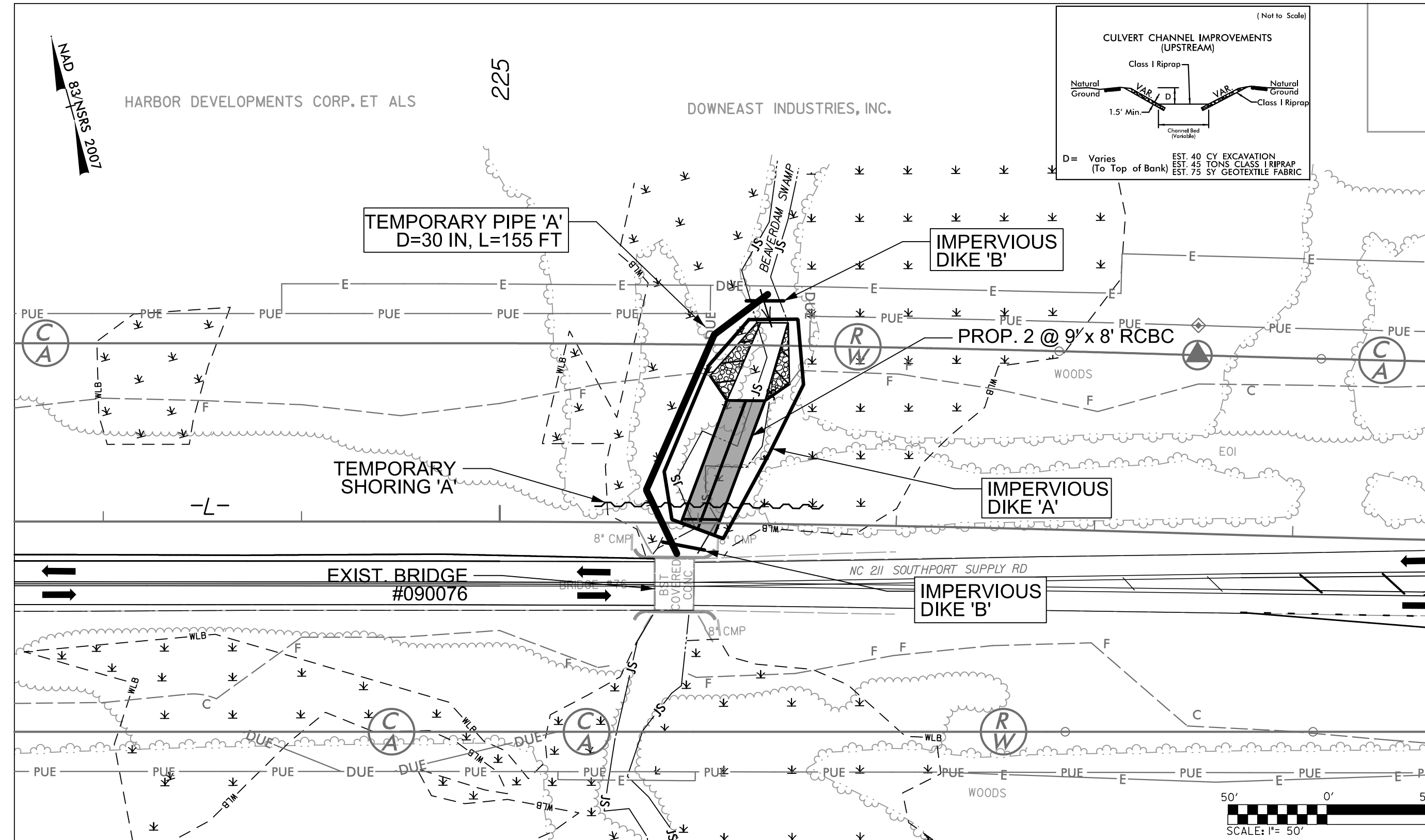


MATCH LINE -L- STA 227+00.00  
SEE SHEET 17



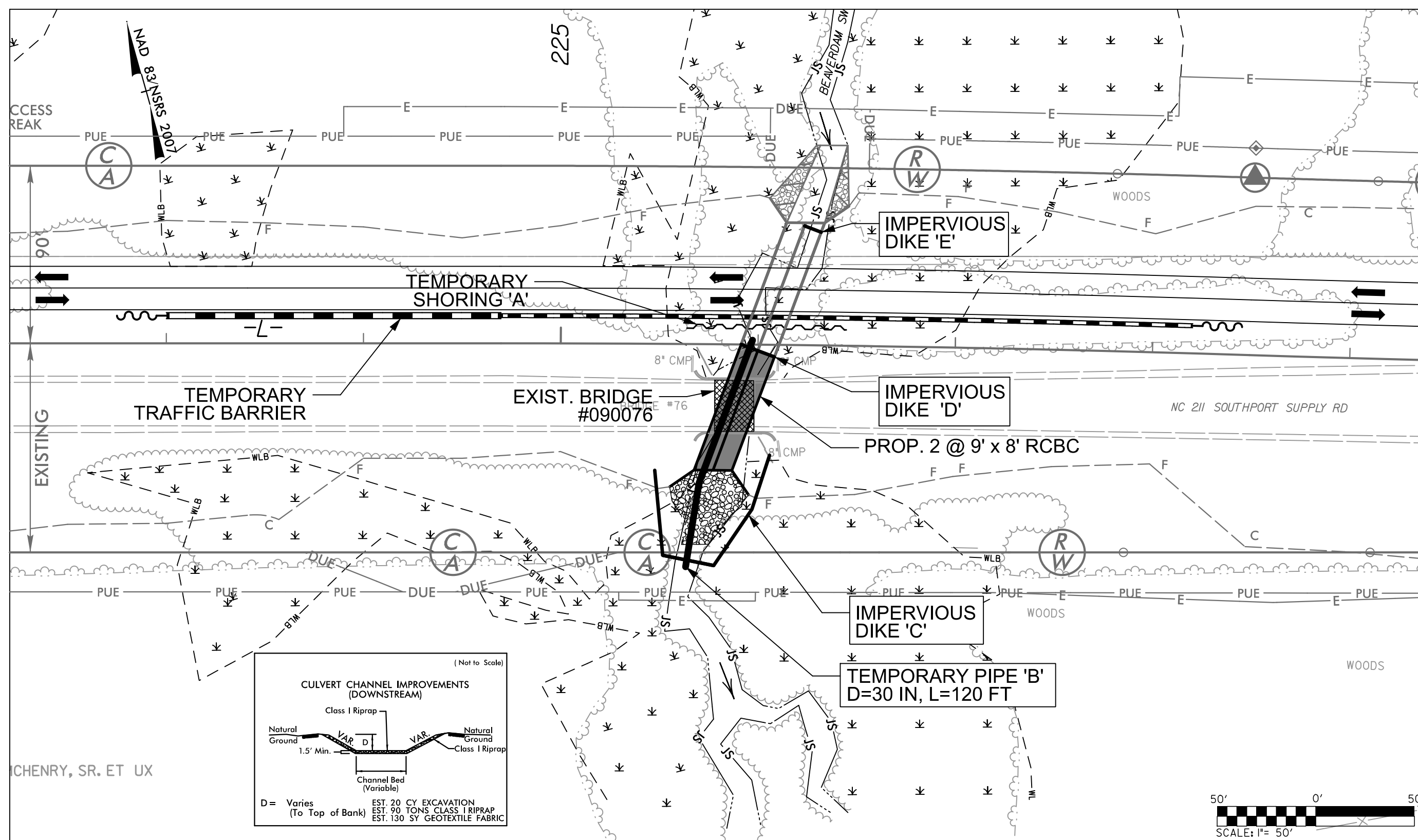
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-16A/CONST.16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**R-5021 CULVERT PHASING 3 OF 6  
 NC 211 OVER BEAVERDAM SWAMP  
 BRUNSWICK COUNTY  
 -L- 226+01**



**PHASE I**

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED DURING CULVERT CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKE 'A' AROUND WORK AREA. INSTALL IMPERVIOUS DIKES 'B' AND TEMPORARY PIPE 'A'.
3. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S).
4. CONSTRUCT APPROXIMATELY 70 FT OF PROPOSED 2 @ 9' x 8' RCBC. CONSTRUCT HEADWALL, WINGWALLS, AND UPSTREAM CHANNEL IMPROVEMENTS.
4. REMOVE IMPERVIOUS DIKE(S) 'A' & 'B' & TEMPORARY PIPE 'A'. INSTALL TEMPORARY SHORING 'A' AND CONSTRUCT PROPOSED WESTBOUND NC 211.



**PHASE II**

1. INSTALL TEMPORARY TRAFFIC BARRIER. SHIFT TRAFFIC TO PROPOSED WESTBOUND NC 211.
2. REMOVE EXISTING BRIDGE #090076 IN ITS ENTIRETY.
3. INSTALL IMPERVIOUS DIKES 'C', 'D', & 'E'. INSTALL TEMPORARY PIPE 'B'.
4. DEWATER CONSTRUCTION AREA(S) INTO SPECIAL STILLING BASIN(S) AS NEEDED.
5. CONSTRUCT REMAINDER OF PROPOSED 2 @ 9' x 8' RCBC. CONSTRUCT HEADWALL, WINGWALLS, AND DOWNSTREAM CHANNEL IMPROVEMENTS.
6. REMOVE IMPERVIOUS DIKES 'C', 'D', & 'E', TEMPORARY SHORING 'A', TEMPORARY PIPE 'B' AND ANY REMAINING SPECIAL STILLING BASIN(S).
7. CONSTRUCT EASTBOUND LANES OF PROPOSED NC 211.
8. COMPLETE CONSTRUCTION OF EASTBOUND AND WESTBOUND LANES AND SHIFT TRAFFIC INTO FINAL PATTERN.



5/14/99

4/22/2021  
EC\_PSH18.dgn

NOTE:  
UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

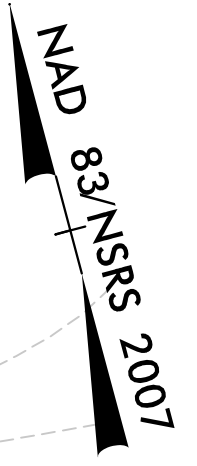
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



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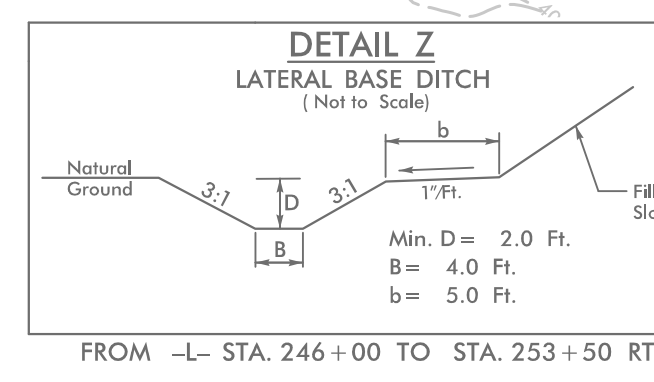
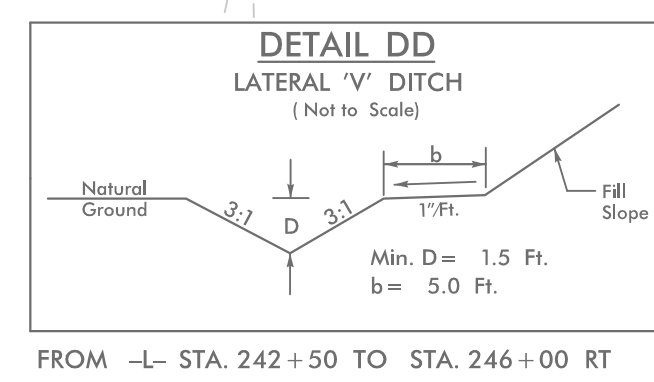
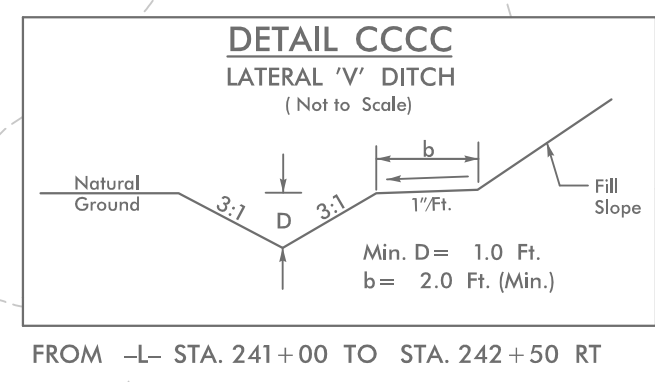
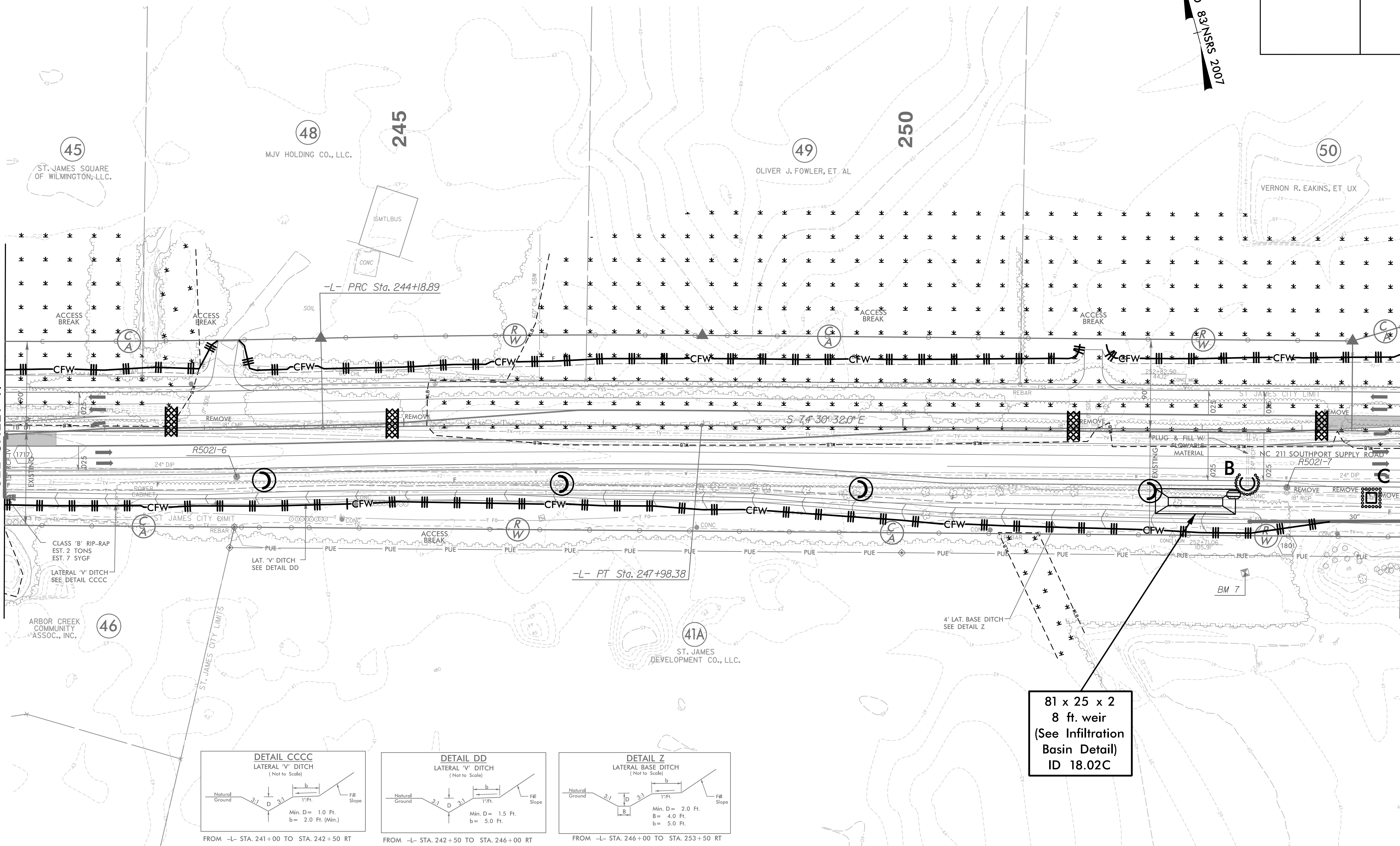
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-18/CONST.18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 18



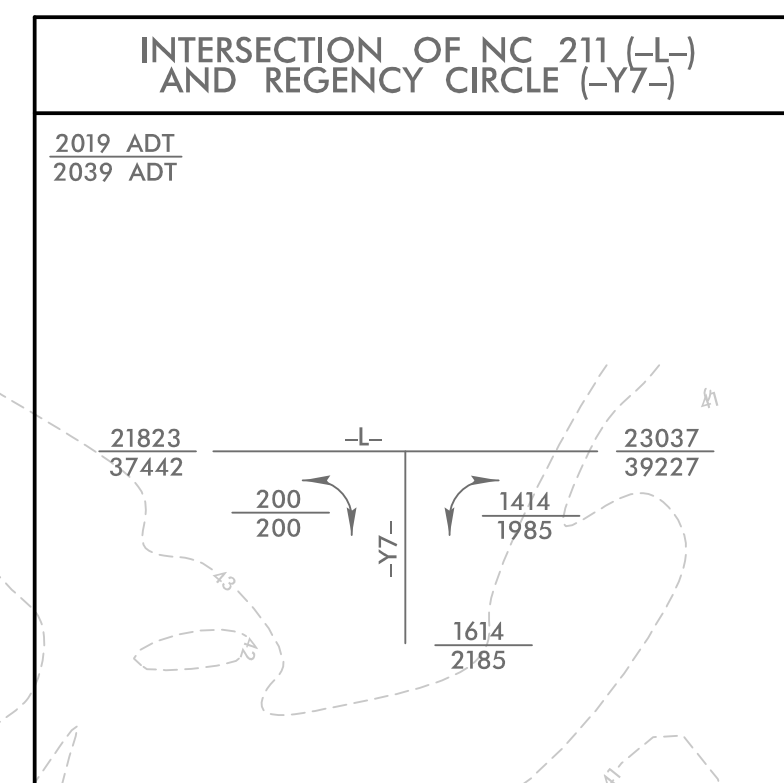
MATCH LINE -L- STA 241+00.00  
SEE SHEET 17

MATCH LINE -L- STA 255+00.00  
SEE SHEET 19



**81 x 25 x 2  
8 ft. weir  
(See Infiltration  
Basin Detail)  
ID 18.02C**

5/14/99



NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

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PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-19/CONST.19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

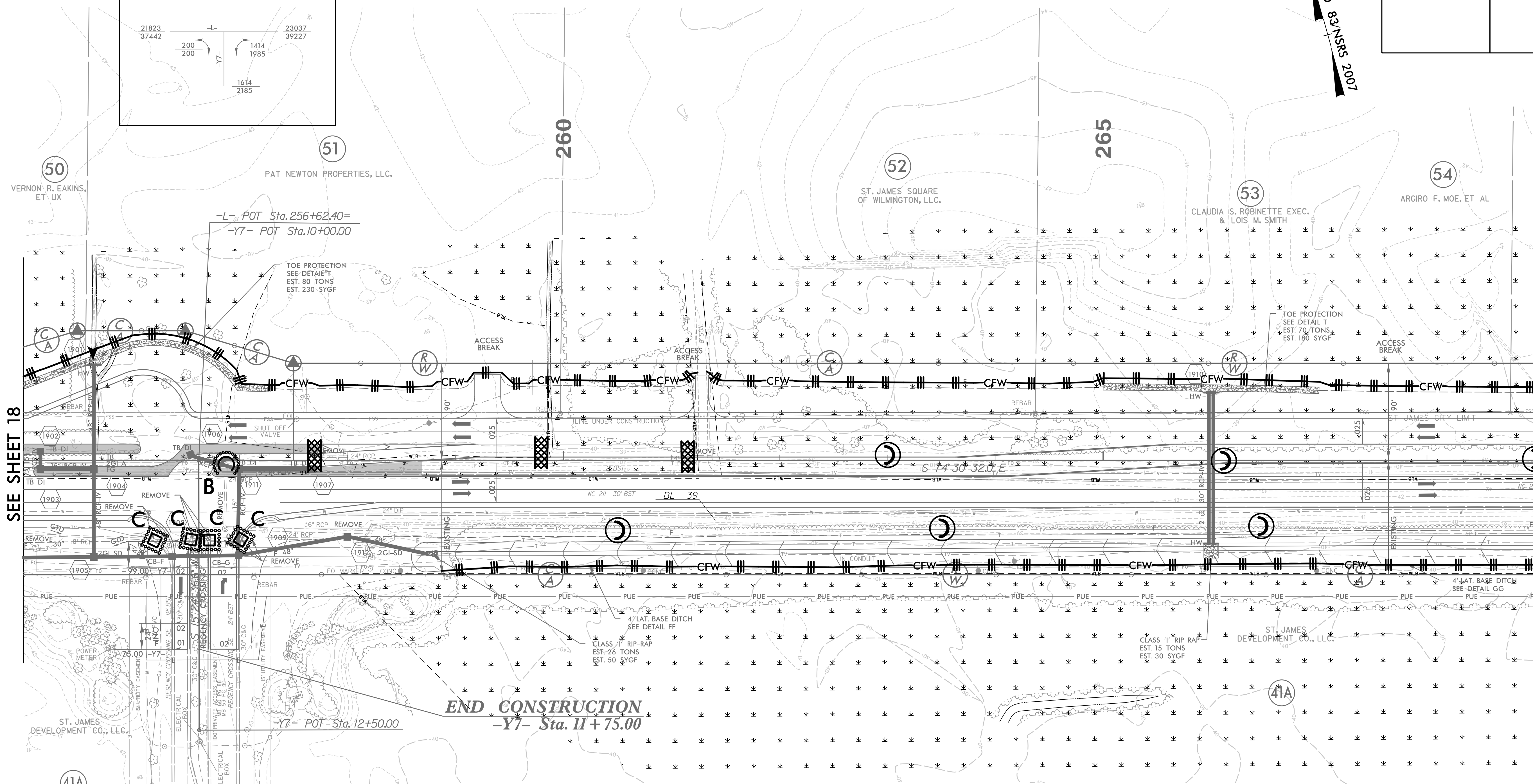
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 19

NAD 83 NSRS 2007

MATCH LINE -L- STA 255 + 00.00  
SEE SHEET 18

MATCH LINE -L- STA 269 + 00.00  
SEE SHEET 20

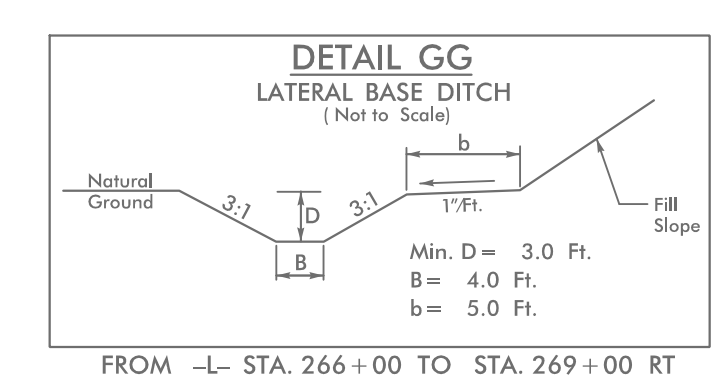
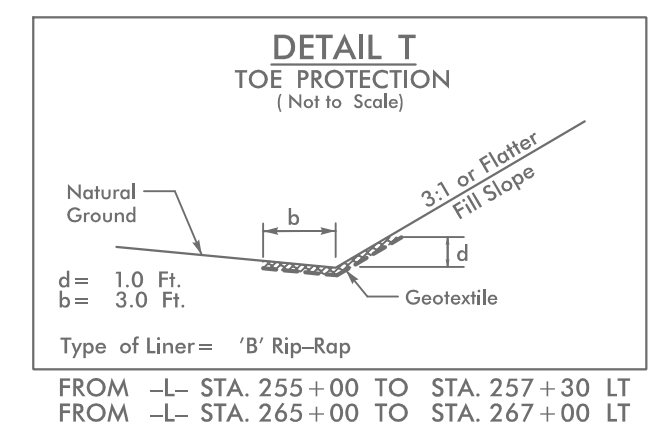
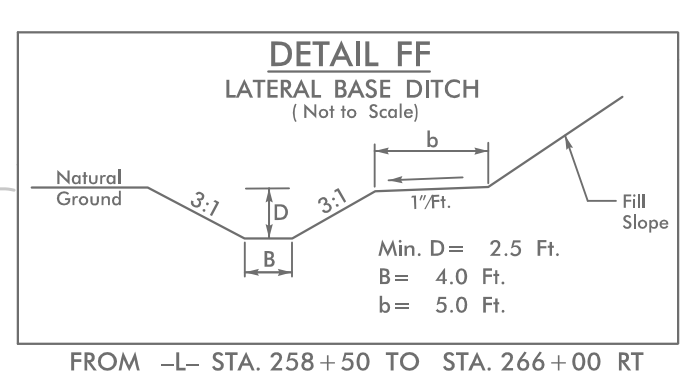


-L- POT Sta. 256+62.40=  
 -Y7- POT Sta. 10+00.00

TOE PROTECTION  
SEE DETAIL T  
EST. 80 TONS  
EST. 230 SYGF

TOE PROTECTION  
SEE DETAIL T  
EST. 70 TONS  
EST. 190 SYGF

**END CONSTRUCTION**  
 -Y7- Sta. 11 + 75.00



11/28/2018  
 10:30:18  
 EC\_PSH19.dgn  
 HNTB

5/14/99

5/14/2021\_EC\_PSH20.dgn

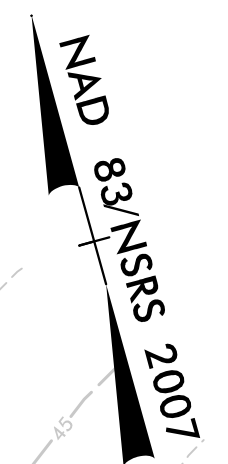
NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

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

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NC License No: C-1554

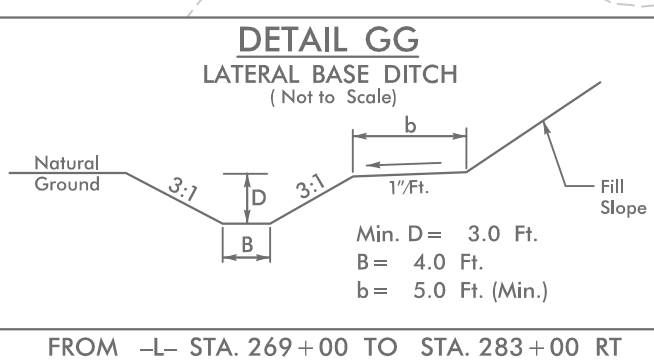
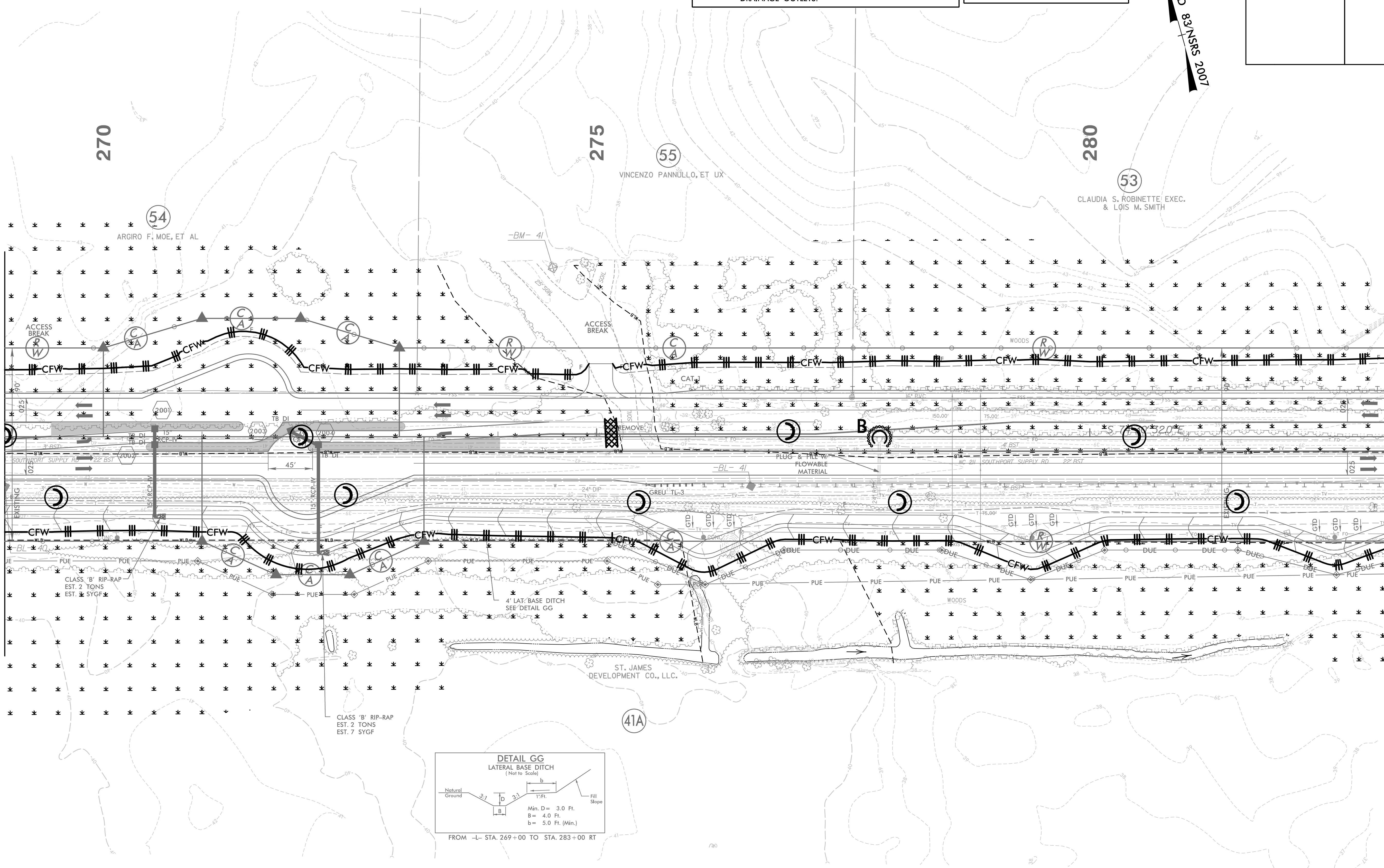
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-20/CONST.20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 20



MATCH LINE -L- STA 269 + 00.00  
SEE SHEET 19

MATCH LINE -L- STA 283 + 00.00  
SEE SHEET 21





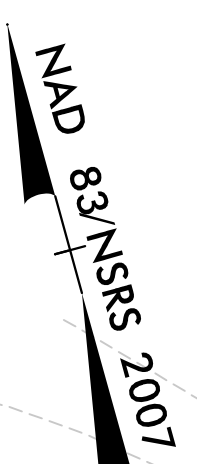
PROJECT REFERENCE NO.		SHEET NO.	
R-5021		EC-21/CONST.21	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

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 Raleigh, North Carolina 27609  
 NC License No: C-1554

NOTE:  
 UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

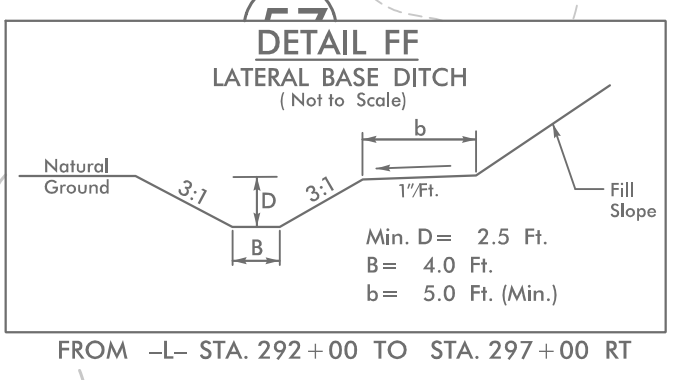
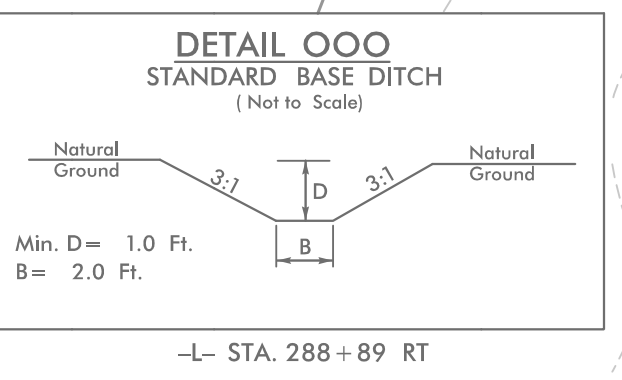
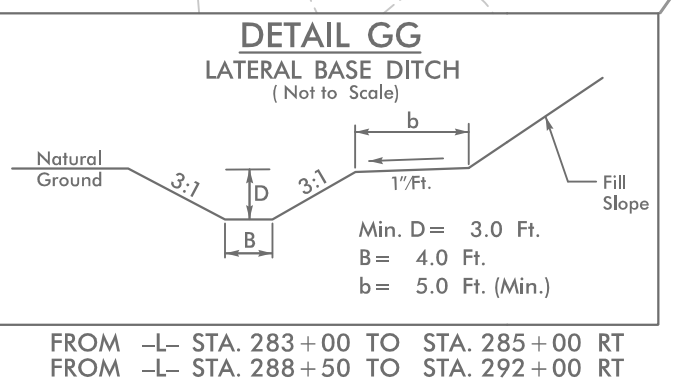
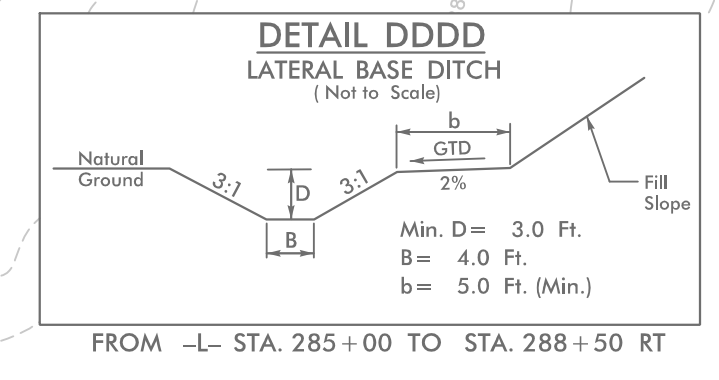
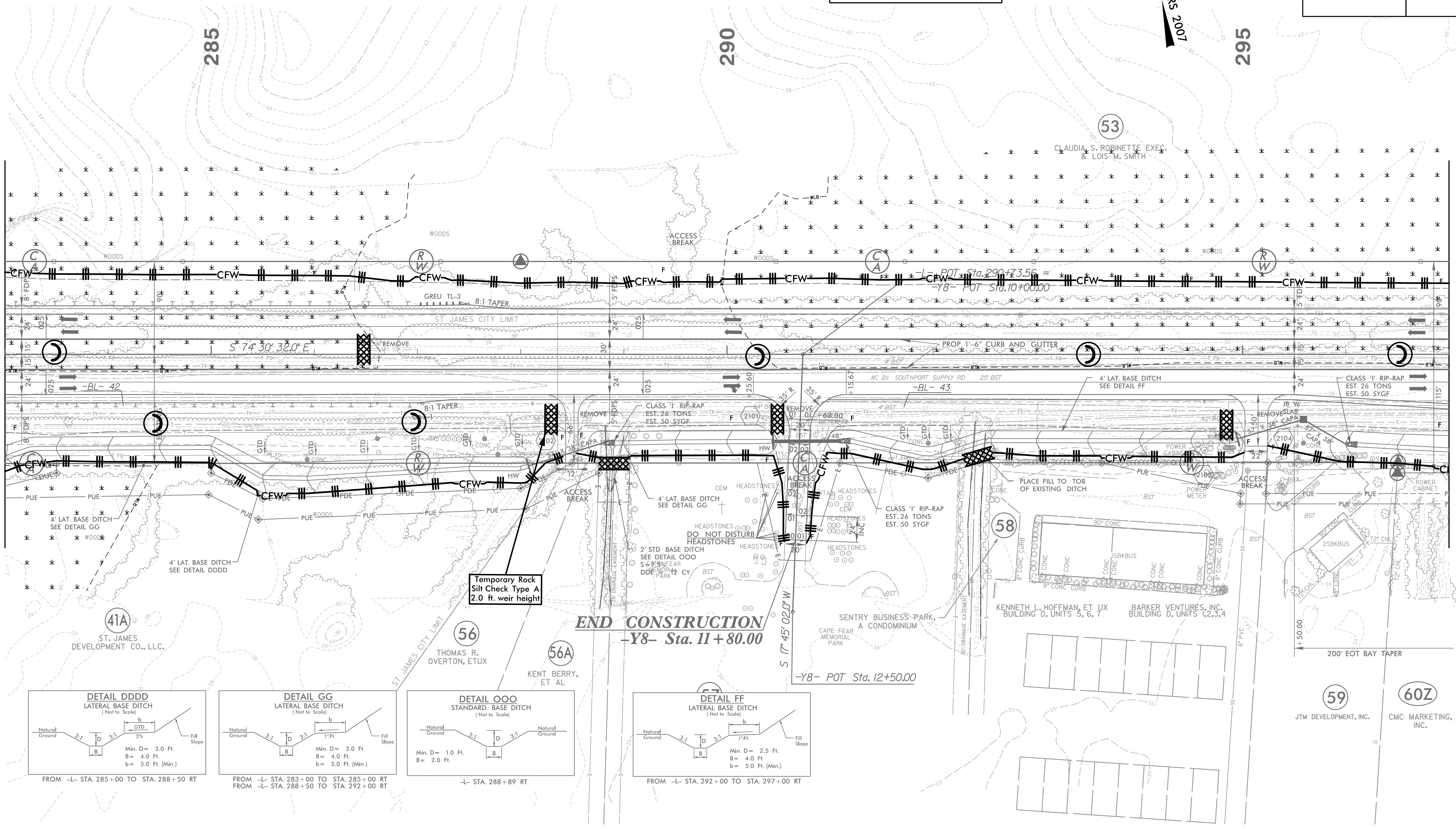
NOTE:  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 21

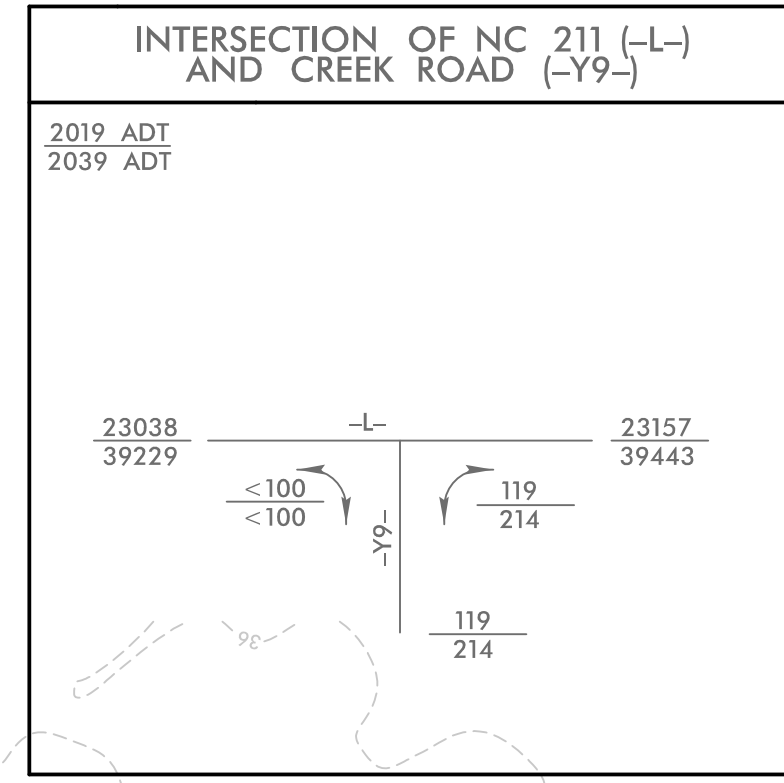


MATCH LINE -L- STA 283 + 00.00  
SEE SHEET 20

MATCH LINE -L- STA 297 + 00.00  
SEE SHEET 22



5/14/99



NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

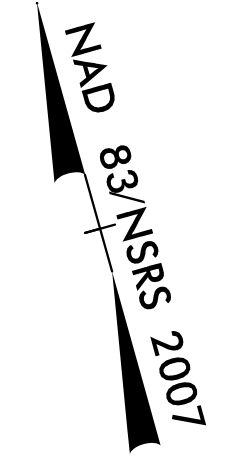
**HNTB** HNTB NORTH CAROLINA, P.C.  
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Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-22/CONST.22
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 22

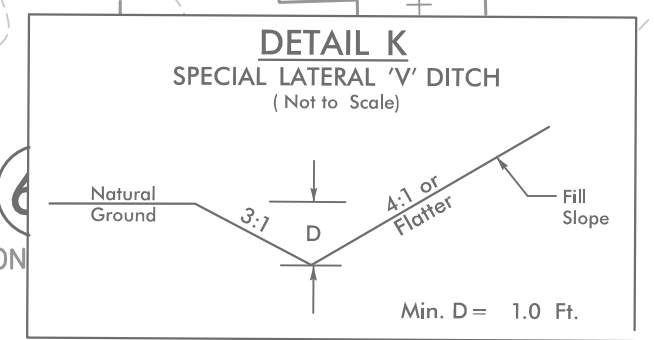
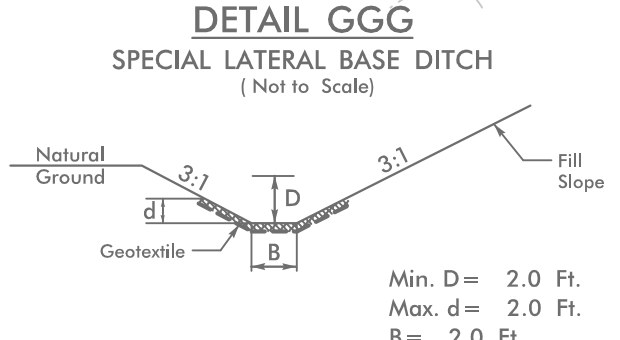
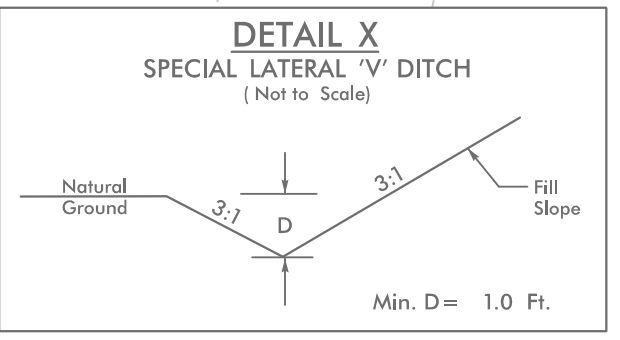
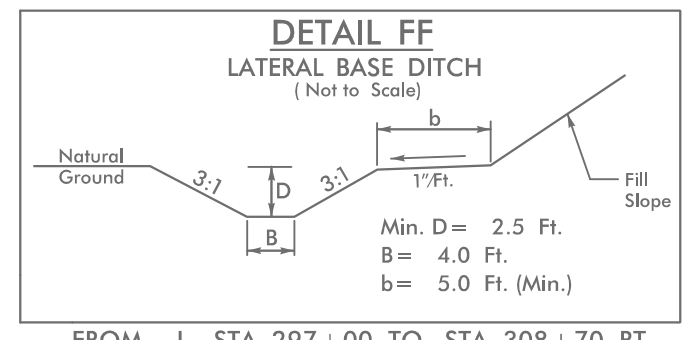
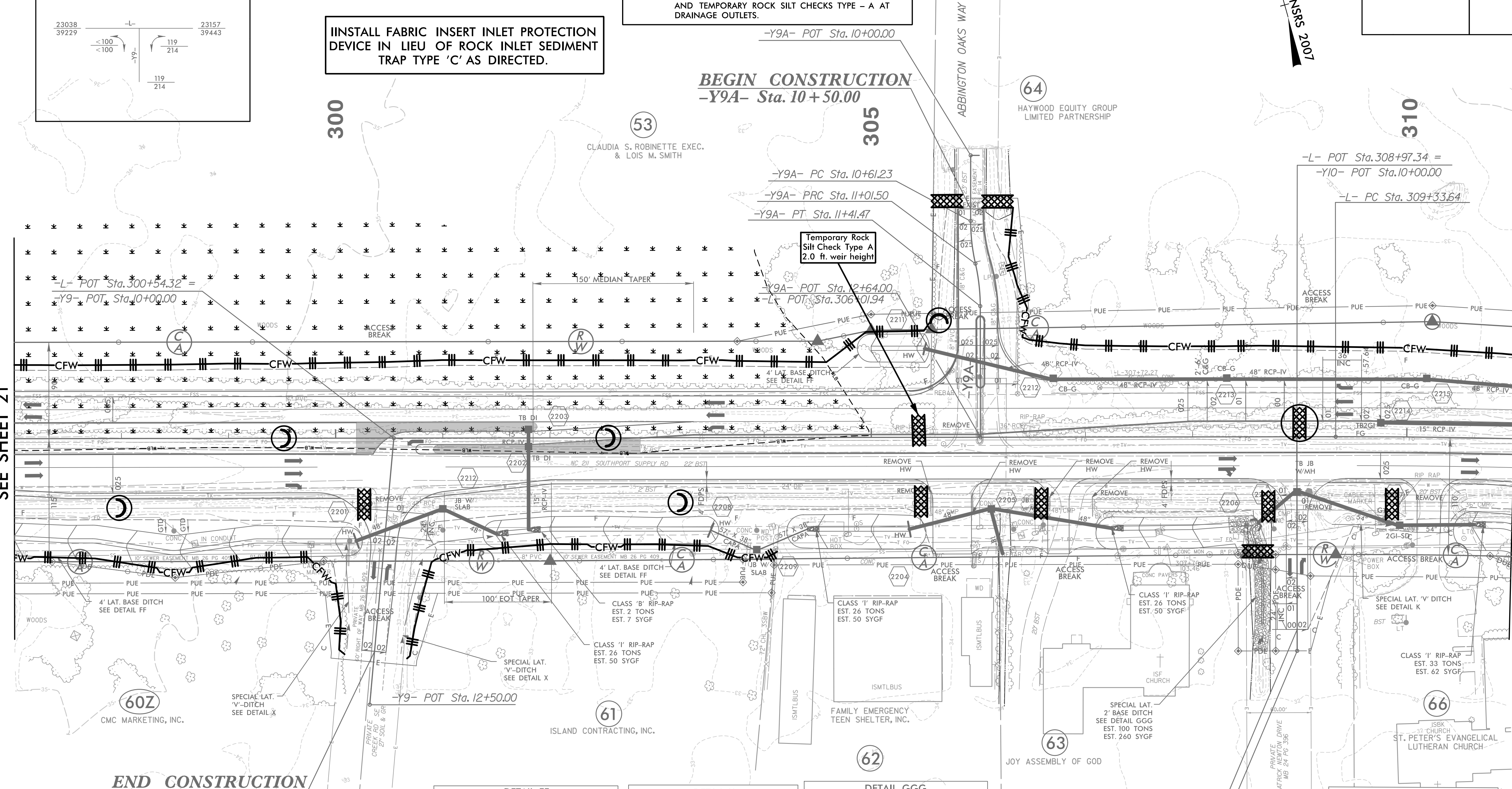
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

INSTALL FABRIC INSERT INLET PROTECTION DEVICE IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE 'C' AS DIRECTED.



MATCH LINE -L- STA 297 + 00.00  
SEE SHEET 21

MATCH LINE -L- STA 311 + 00.00  
SEE SHEET 23



10/13/2021 EC\_PSH22.dgn

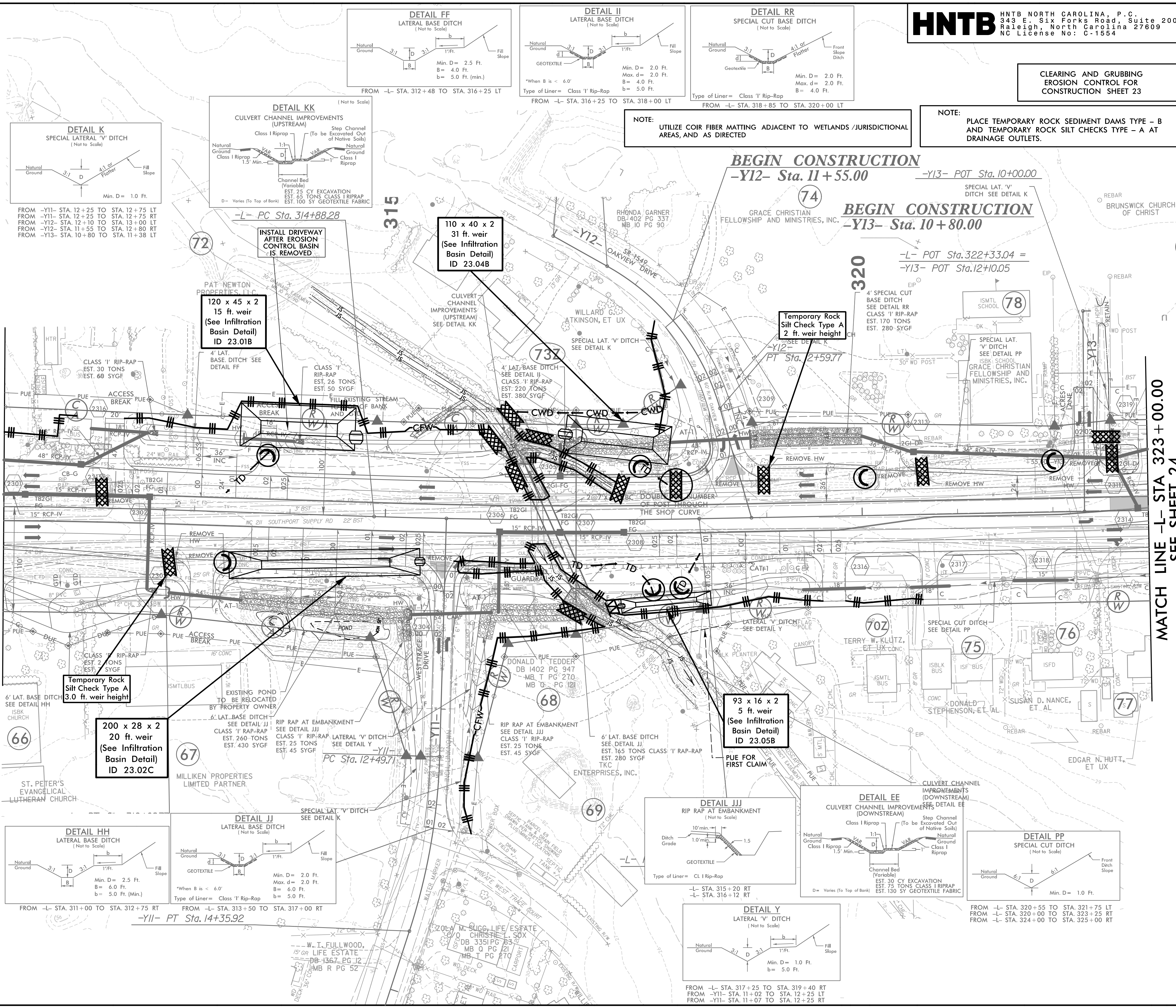
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-23/CONST.23
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 23

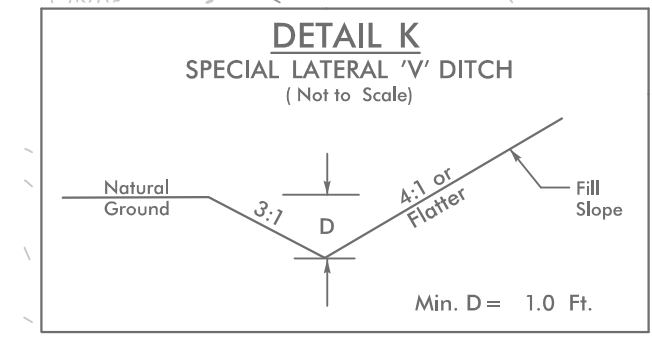
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

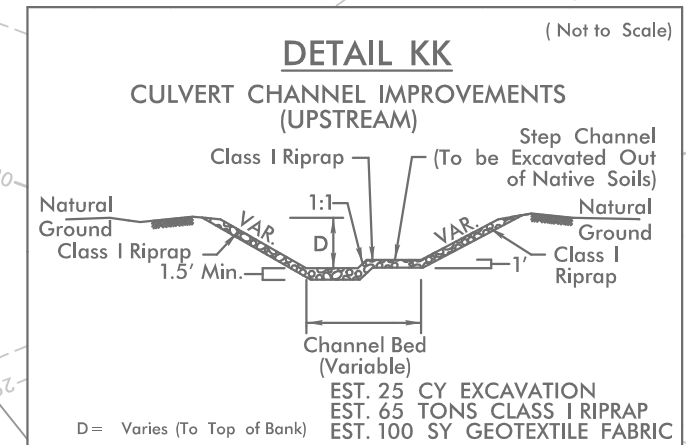


MATCH LINE -L- STA 311 + 00.00  
 SEE SHEET 22

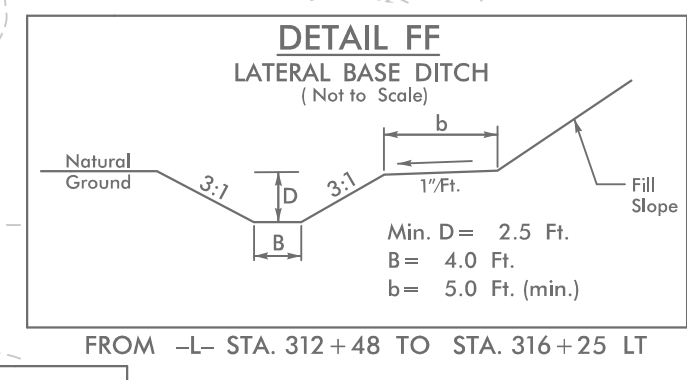
MATCH LINE -L- STA 323 + 00.00  
 SEE SHEET 24



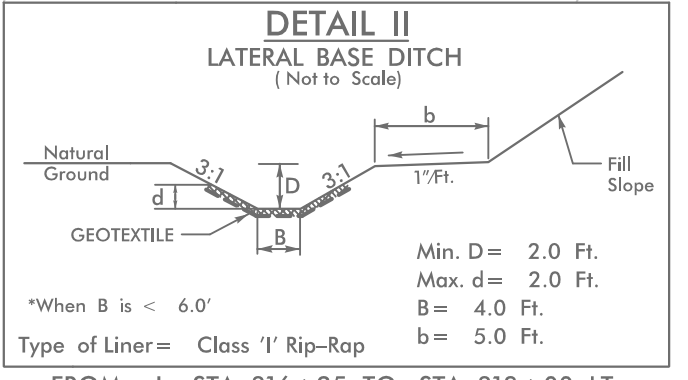
FROM -Y11- STA. 12 + 25 TO STA. 12 + 75 LT  
 FROM -Y11- STA. 12 + 25 TO STA. 12 + 75 RT  
 FROM -Y12- STA. 11 + 55 TO STA. 12 + 80 LT  
 FROM -Y12- STA. 11 + 55 TO STA. 12 + 80 RT  
 FROM -Y13- STA. 10 + 80 TO STA. 11 + 38 LT



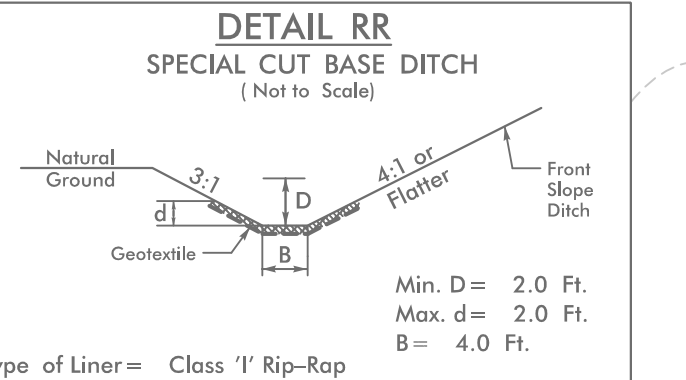
-L- PC Sta. 314+88.28



FROM -L- STA. 312 + 48 TO STA. 316 + 25 LT



FROM -L- STA. 316 + 25 TO STA. 318 + 00 LT



FROM -L- STA. 318 + 85 TO STA. 320 + 00 LT

BEGIN CONSTRUCTION  
 -Y12- Sta. 11 + 55.00

-Y13- POT Sta. 10+00.00

BEGIN CONSTRUCTION  
 -Y13- Sta. 10 + 80.00

-L- POT Sta. 322+33.04 =  
 -Y13- POT Sta. 12+10.05

INSTALL DRIVEWAY AFTER EROSION CONTROL BASIN IS REMOVED

110 x 40 x 2  
 31 ft. weir  
 (See Infiltration Basin Detail)  
 ID 23.04B

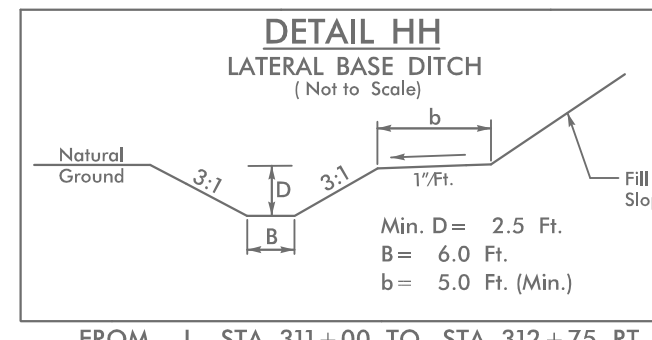
120 x 45 x 2  
 15 ft. weir  
 (See Infiltration Basin Detail)  
 ID 23.01B

Temporary Rock Silt Check Type A  
 2 ft. weir height

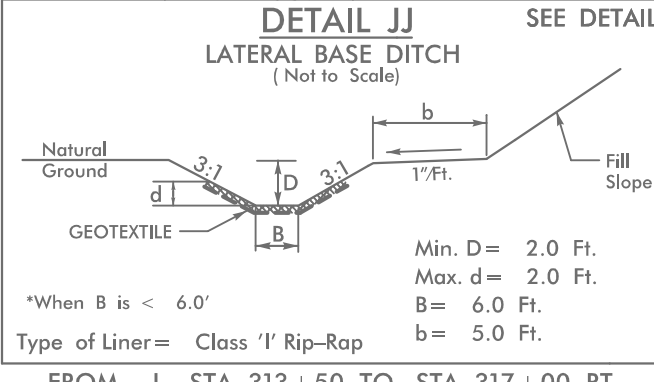
Temporary Rock Silt Check Type A  
 3.0 ft. weir height

200 x 28 x 2  
 20 ft. weir  
 (See Infiltration Basin Detail)  
 ID 23.02C

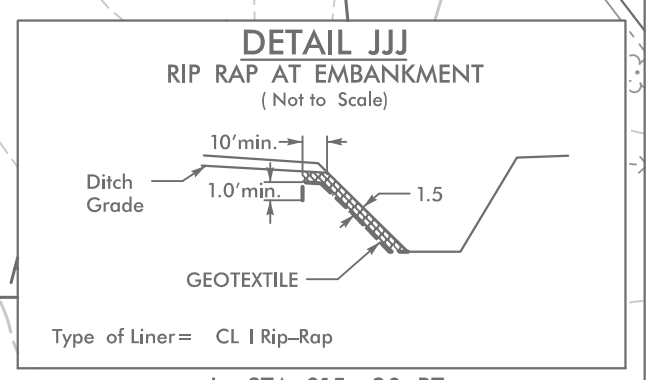
93 x 16 x 2  
 5 ft. weir  
 (See Infiltration Basin Detail)  
 ID 23.05B



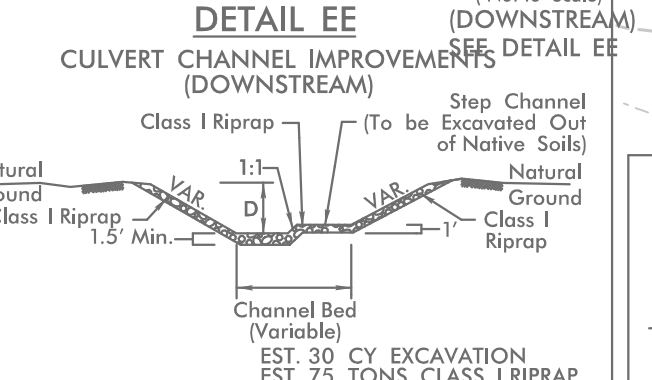
FROM -L- STA. 311 + 00 TO STA. 312 + 75 RT



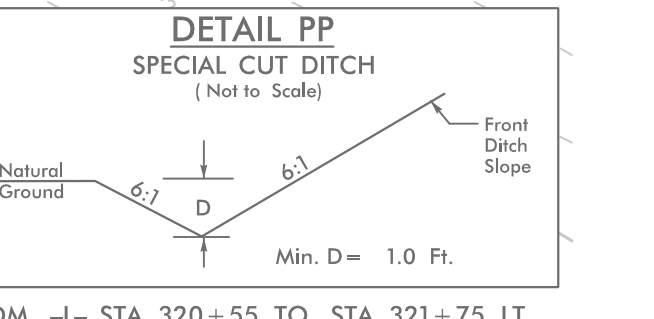
FROM -L- STA. 313 + 50 TO STA. 317 + 00 RT



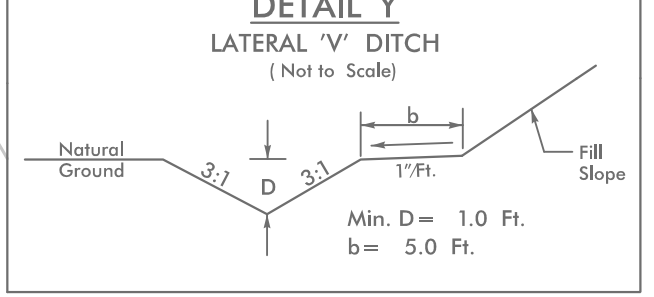
-L- STA. 315 + 20 RT  
 -L- STA. 316 + 12 RT



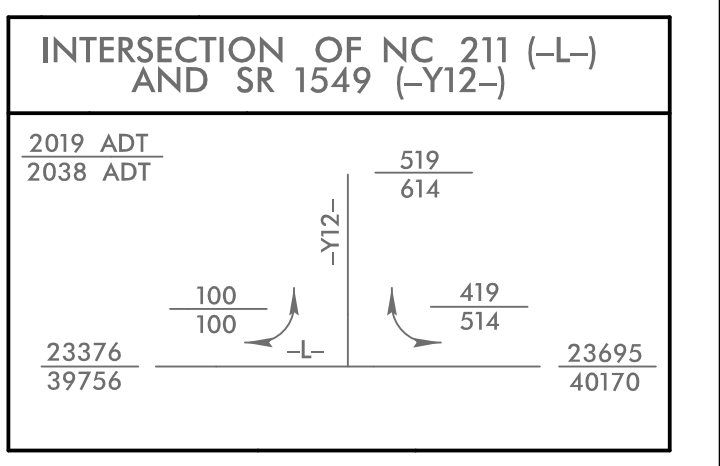
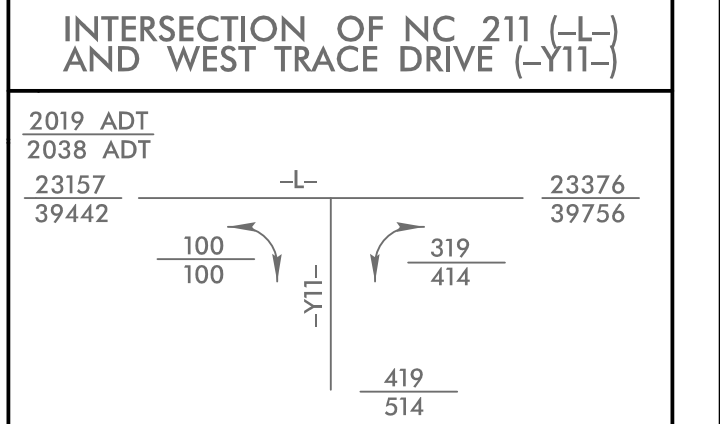
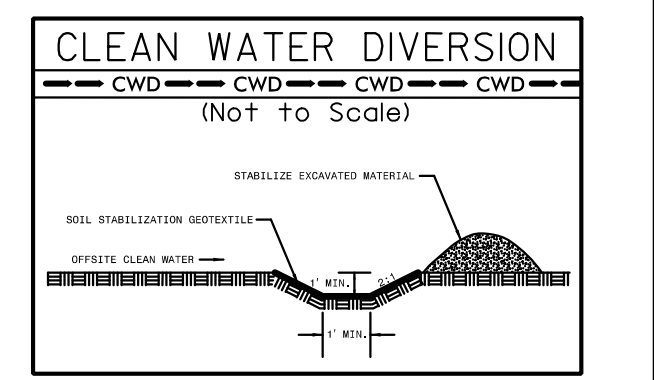
D = Varies (To Top of Bank)



FROM -L- STA. 320 + 55 TO STA. 321 + 75 LT  
 FROM -L- STA. 320 + 00 TO STA. 323 + 25 RT  
 FROM -L- STA. 324 + 00 TO STA. 325 + 00 RT



FROM -L- STA. 317 + 25 TO STA. 319 + 40 RT  
 FROM -Y11- STA. 11 + 02 TO STA. 12 + 25 LT  
 FROM -Y11- STA. 11 + 07 TO STA. 12 + 25 RT

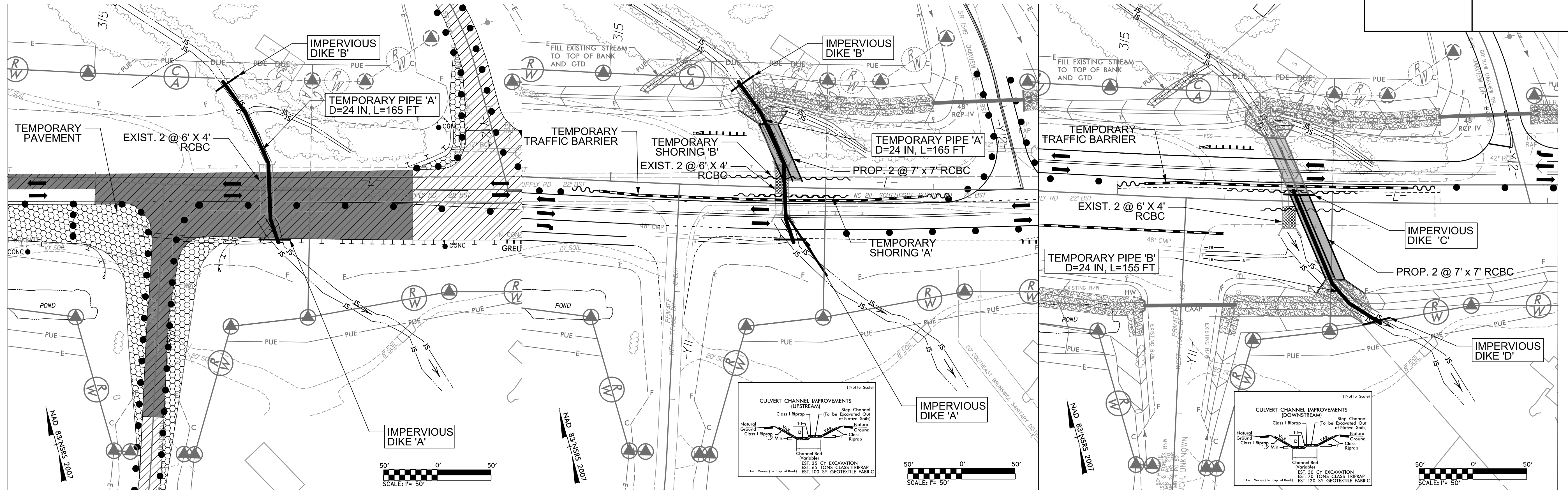


NAD  
 83 NRS 2007

10/13/2021 EC\_PSH23.dgn

PROJECT REFERENCE NO. <b>R-5021</b>	SHEET NO. <b>EC-23A/CONST.23</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**R-5021 CULVERT PHASING 4 OF 6  
NC 211 OVER UT TO JUMP AND RUN CREEK  
BRUNSWICK COUNTY  
-L- 316+72**



**PHASE I**

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED DURING CULVERT CONSTRUCTION.
2. INSTALL IMPERVIOUS DIKES 'A' & 'B'. INSTALL TEMPORARY PIPE 'A'.
3. DEWATER CONSTRUCTION AREA(S) INTO SPECIAL STILLING BASIN(S).
4. CONSTRUCT TEMPORARY FILL AND PAVEMENT.

**PHASE II**

1. SHIFT TRAFFIC TO TEMPORARY PAVEMENT. INSTALL TEMPORARY SHORING 'A' AND REMOVE APPROX. 27' OF EXISTING 2 @ 6' X 4' RCBC.
2. CONSTRUCT APPROX. 57' OF PROPOSED 2 @ 7' X 7' RCBC AND UPSTREAM CHANNEL IMPROVEMENTS.
3. INSTALL TEMPORARY SHORING 'B' AND CONSTRUCT WESTBOUND LANES OF PROPOSED NC 211.

**PHASE III**

1. SHIFT TRAFFIC TO PROPOSED WESTBOUND LANES OF NC 211.
2. REMOVE TEMPORARY PIPE 'A'. INSTALL IMPERVIOUS DIKES 'C' & 'D'. REMOVE IMPERVIOUS DIKES 'A' & 'B'. INSTALL TEMPORARY PIPE 'B'. REMOVE REMAINDER OF EXISTING 2 @ 6'X4' RCBC.
4. DEWATER CONSTRUCTION AREA(S) INTO SPECIAL STILLING BASIN(S).
5. CONSTRUCT REMAINDER OF PROPOSED 2 @ 7' x 7' RCBC AND DOWNSTREAM CHANNEL IMPROVEMENTS.
6. REMOVE IMPERVIOUS DIKES 'C' & 'D'. REMOVE TEMPORARY PIPE 'B' AND ANY REMAINING SPECIAL STILLING BASIN(S). CONSTRUCT EAST BOUND LANES OF PROPOSED NC 211.
7. REMOVE TEMPORARY SHORINGS AND COMPLETE CONSTRUCTION OF EASTBOUND AND WESTBOUND LANES AND SHIFT TRAFFIC INTO FINAL PATTERN.

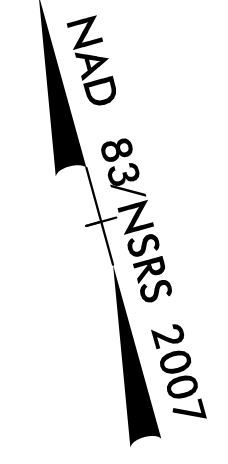
5/14/99

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 24

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

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-24/CONST.24
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



★ PROPOSED TRAFFIC SIGNAL

NOTE: INSTALL FABRIC INSERT INLET PROTECTION DEVICE IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE 'C' AS DIRECTED.

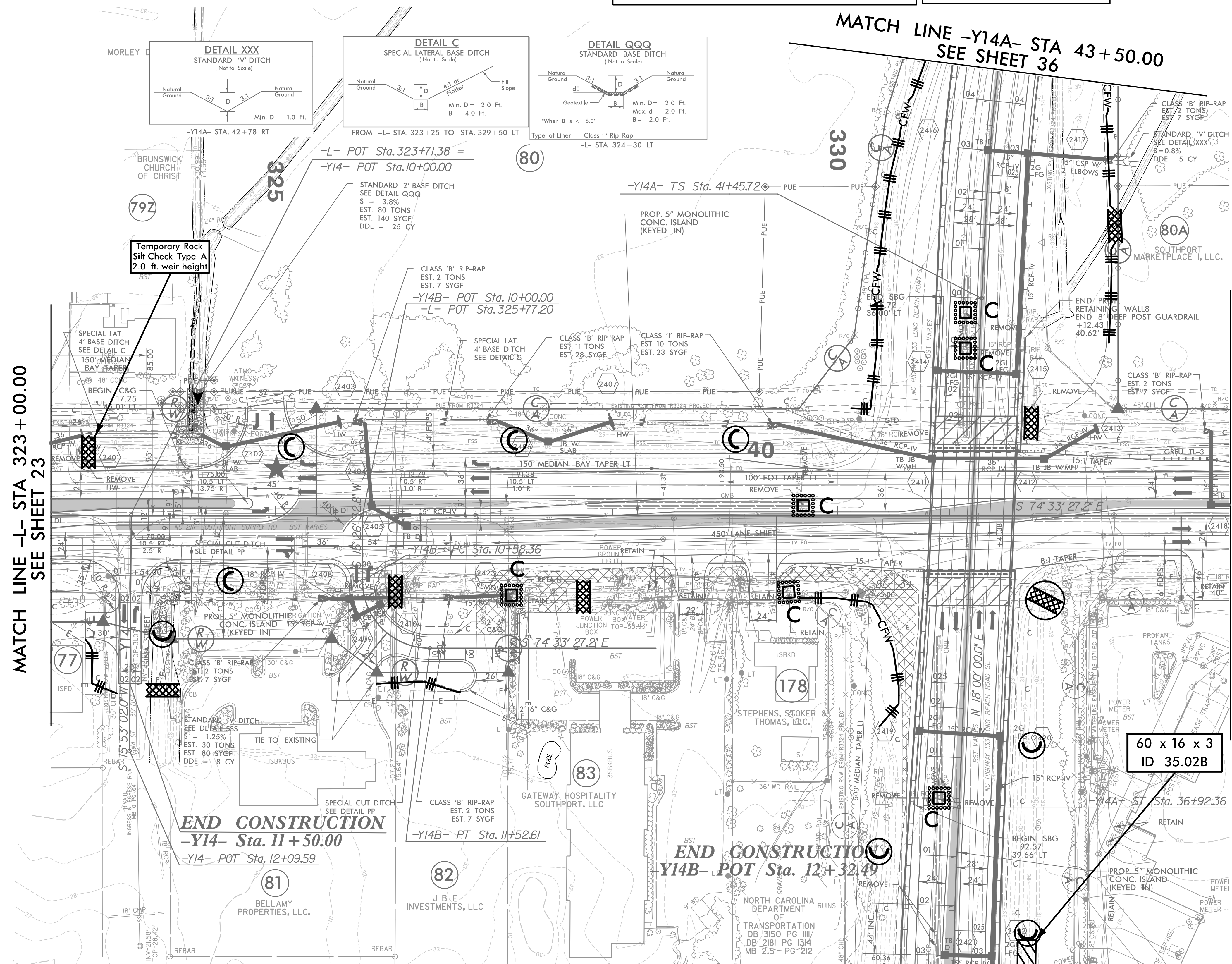
NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS / JURISDICTIONAL AREAS, AND AS DIRECTED

MATCH LINE -L- STA 323 + 00.00 SEE SHEET 23

MATCH LINE -L- STA 333 + 50.00 SEE SHEET 24A

MATCH LINE -Y14- STA 43 + 50.00 SEE SHEET 36

MATCH LINE -Y14- STA 35 + 50.00 SEE SHEET 35



**END CONSTRUCTION**  
-Y14- Sta. 11 + 50.00  
-Y14- POT Sta. 12 + 09.59

**END CONSTRUCTION**  
-Y14B- POT Sta. 12 + 32.49

60 x 16 x 3  
ID 35.02B

5/14/2021\_EC\_PSH24.dgn

5/14/99

NOTE: UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL AREAS, AND AS DIRECTED

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 24A

DO NOT DISTURB FENCE AROUND BRUNSWICK ELECTRIC PARCEL

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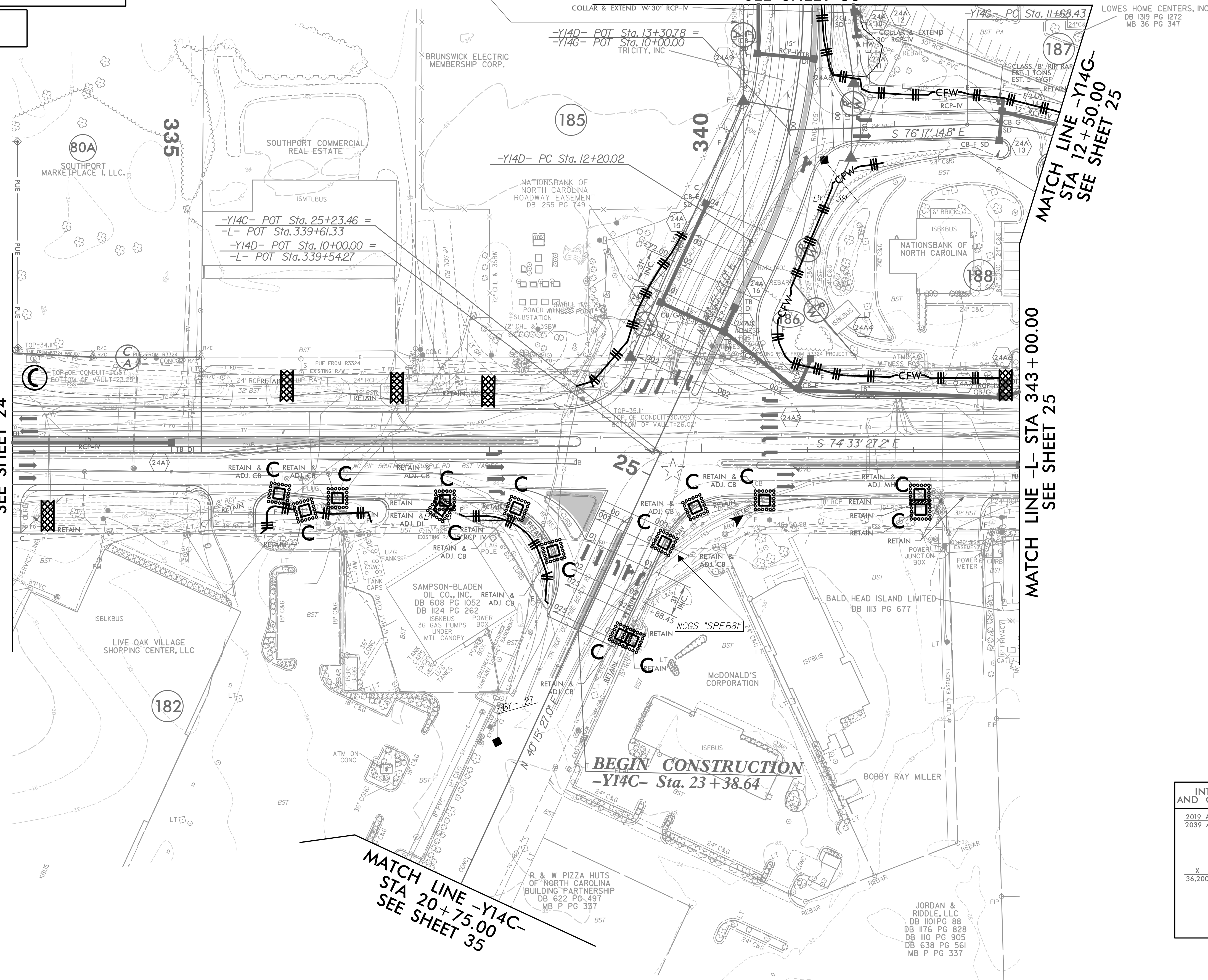
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-24A/CONST.24A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCH LINE -Y14D- STA 14 + 50.00  
SEE SHEET 36

MATCH LINE -L- STA 333 + 50.00  
SEE SHEET 24

MATCH LINE -L- STA 343 + 00.00  
SEE SHEET 25

MATCH LINE -Y14G- STA 12 + 50.00  
SEE SHEET 25



EXISTING TRAFFIC SIGNAL

NAD 83 NTSRS 2007

INTERSECTION OF NC 211 (-L-) AND OLD LONGBEACH RD (-Y14CD-)

2019 ADT	2039 ADT	X	
		-Y14D-	28,800
		X	13,500
		-L-	8,500
X		X	38,100
		-Y14C-	11,400
		X	4,500
		X	22,700

MATCH LINE -Y14C- STA 20 + 75.00  
SEE SHEET 35

4/21/2021\_EC\_PSH24A.dgn

5/14/99

INSTALL FABRIC INSERT INLET PROTECTION DEVICE IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE 'C' AS DIRECTED.

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 25

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

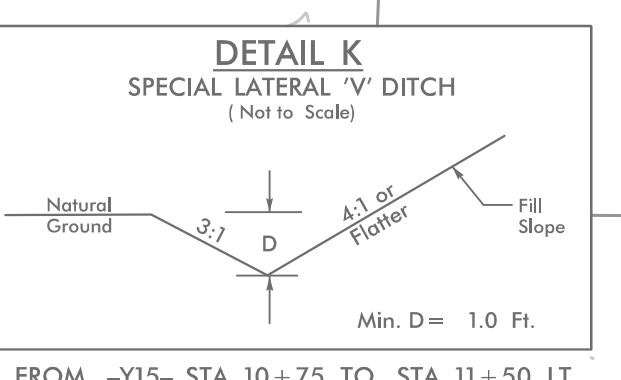
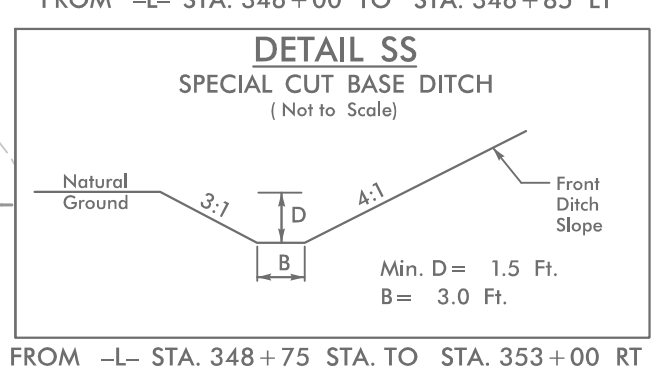
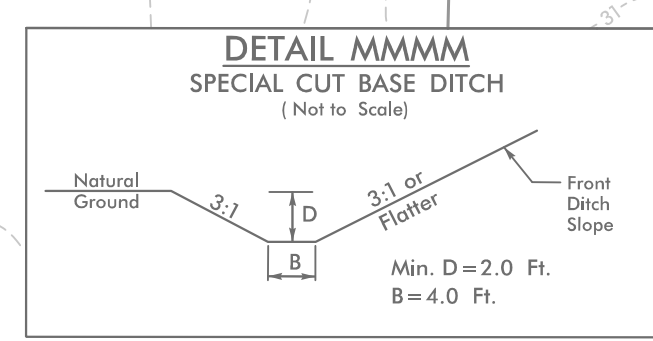
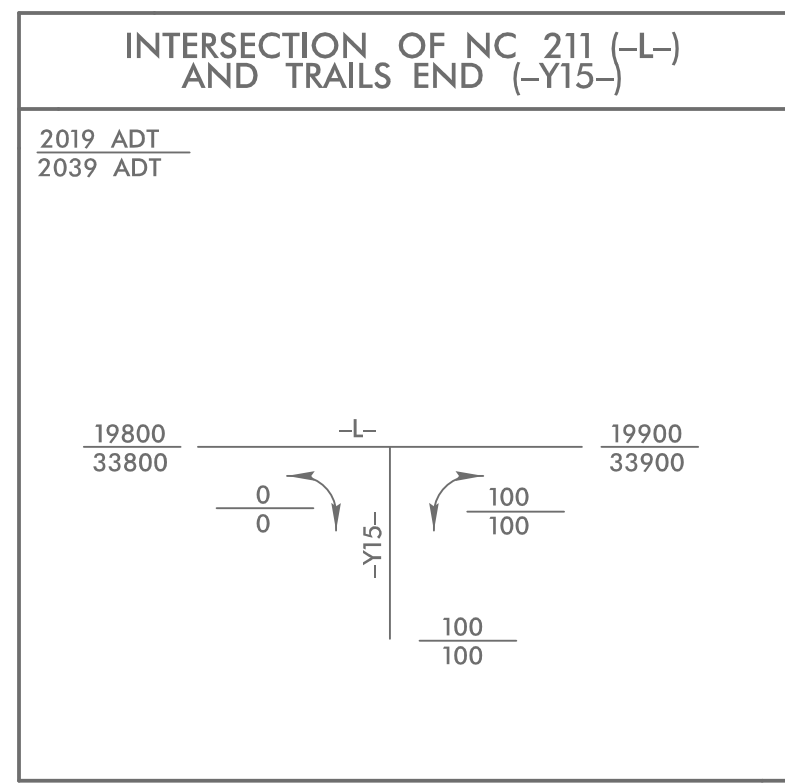
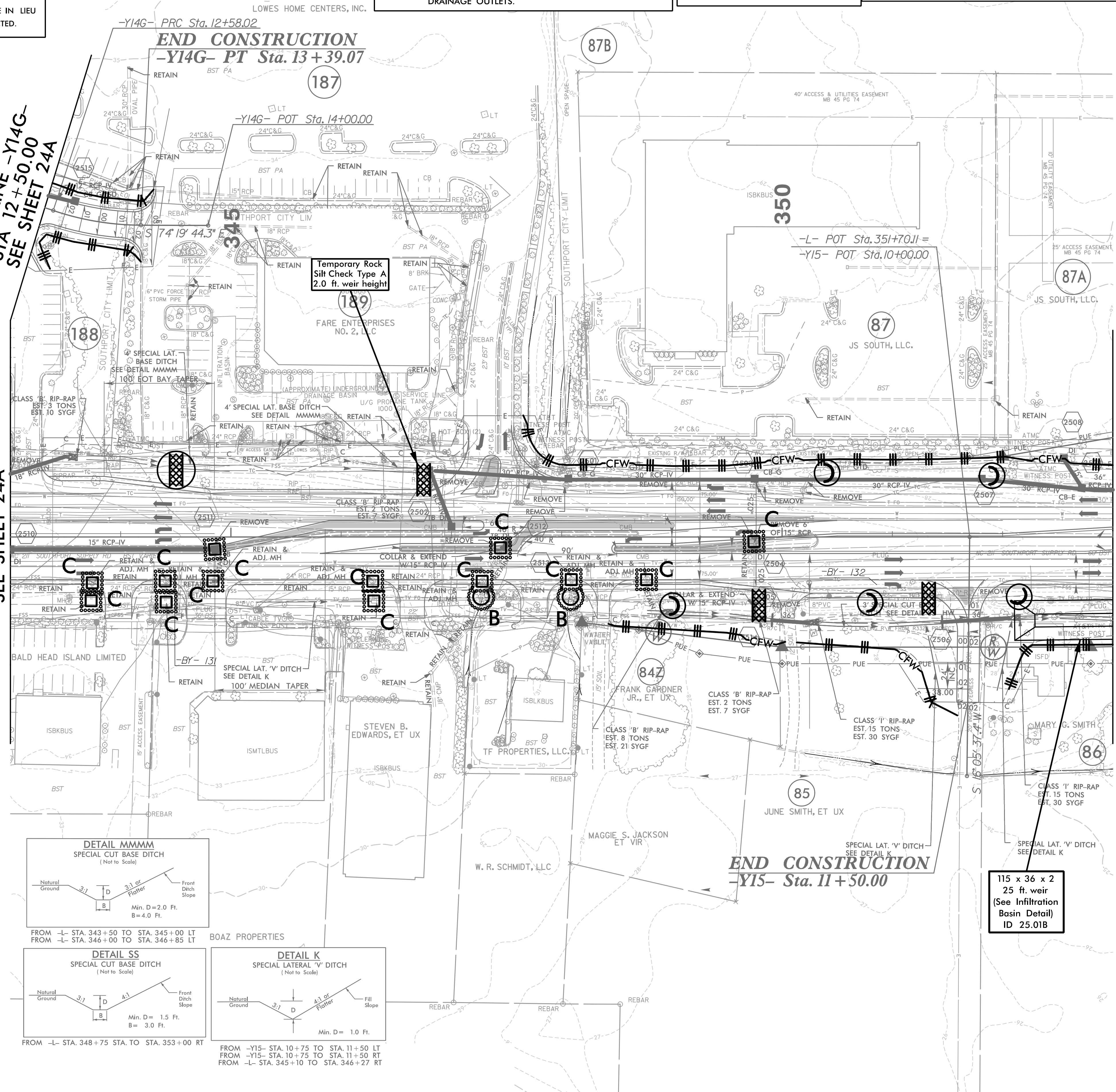
PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-25/CONST.25
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCH LINE -Y14G- STA 12+50.00 SEE SHEET 24A

MATCH LINE -L- STA 343+00.00 SEE SHEET 24A

MATCH LINE -L- STA 353+00.00 SEE SHEET 26

NAD 83/NSRS 2007



115 x 36 x 2  
25 ft. weir  
(See Infiltration Basin Detail)  
ID 25.01B

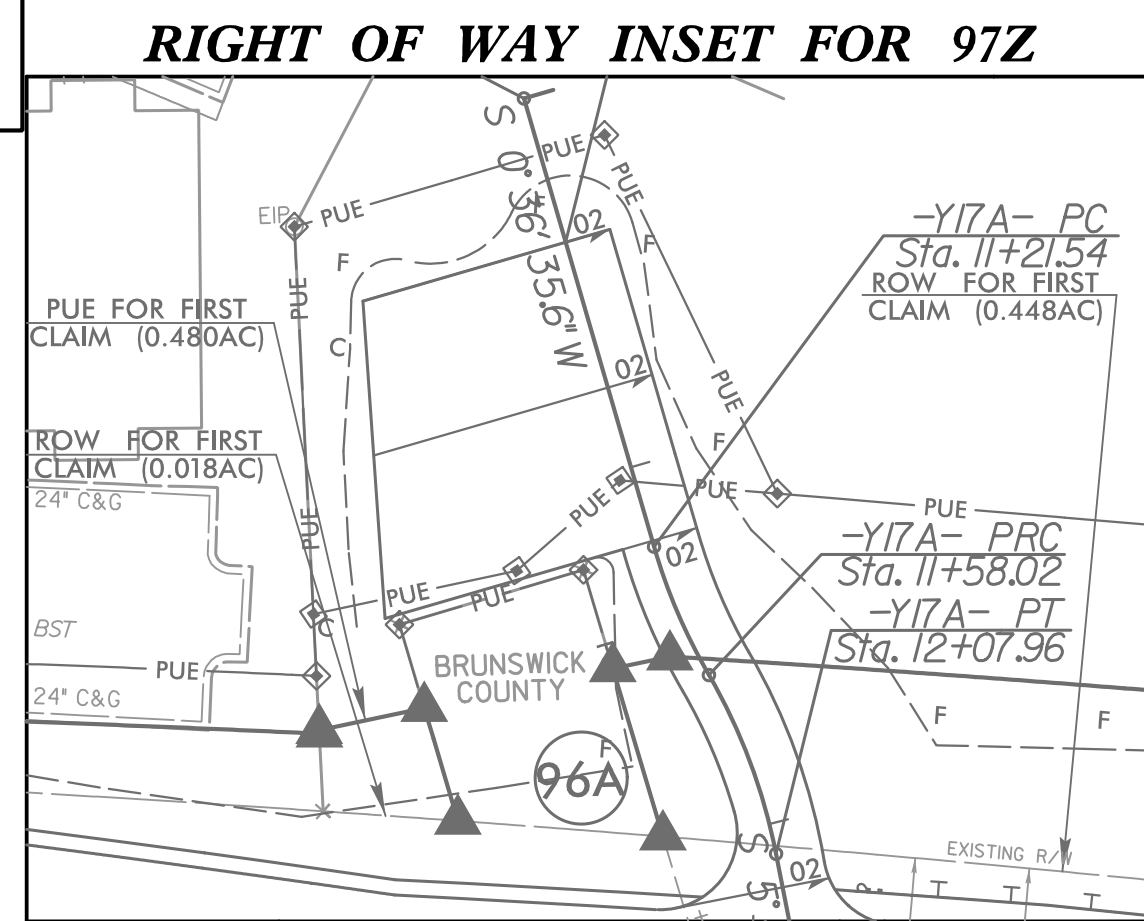
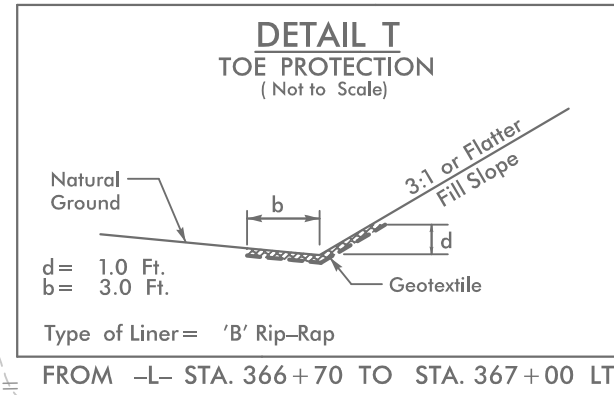
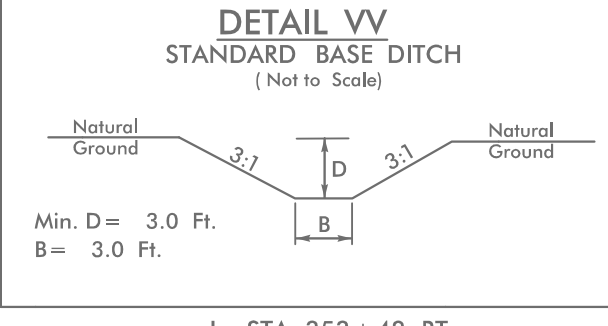
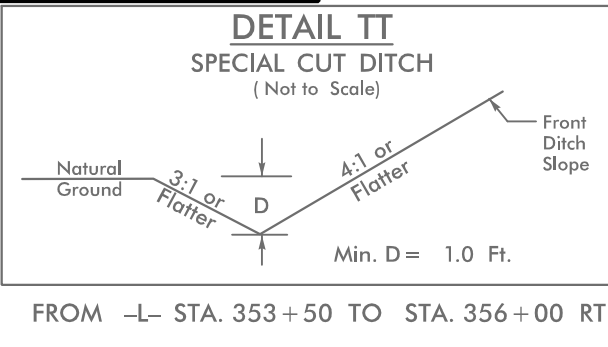
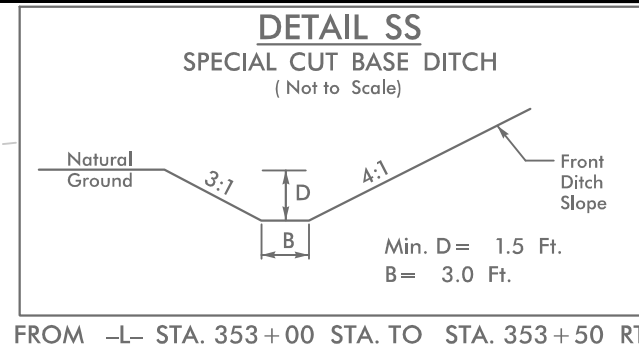
5/14/2021\_EC\_PSH25.dgn

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 26

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

INSTALL FABRIC INSERT INLET PROTECTION DEVICE IN LIEU  
OF ROCK INLET SEDIMENT TRAP TYPE 'C' AS DIRECTED.

NOTE:  
UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS /JURISDICTIONAL  
AREAS, AND AS DIRECTED

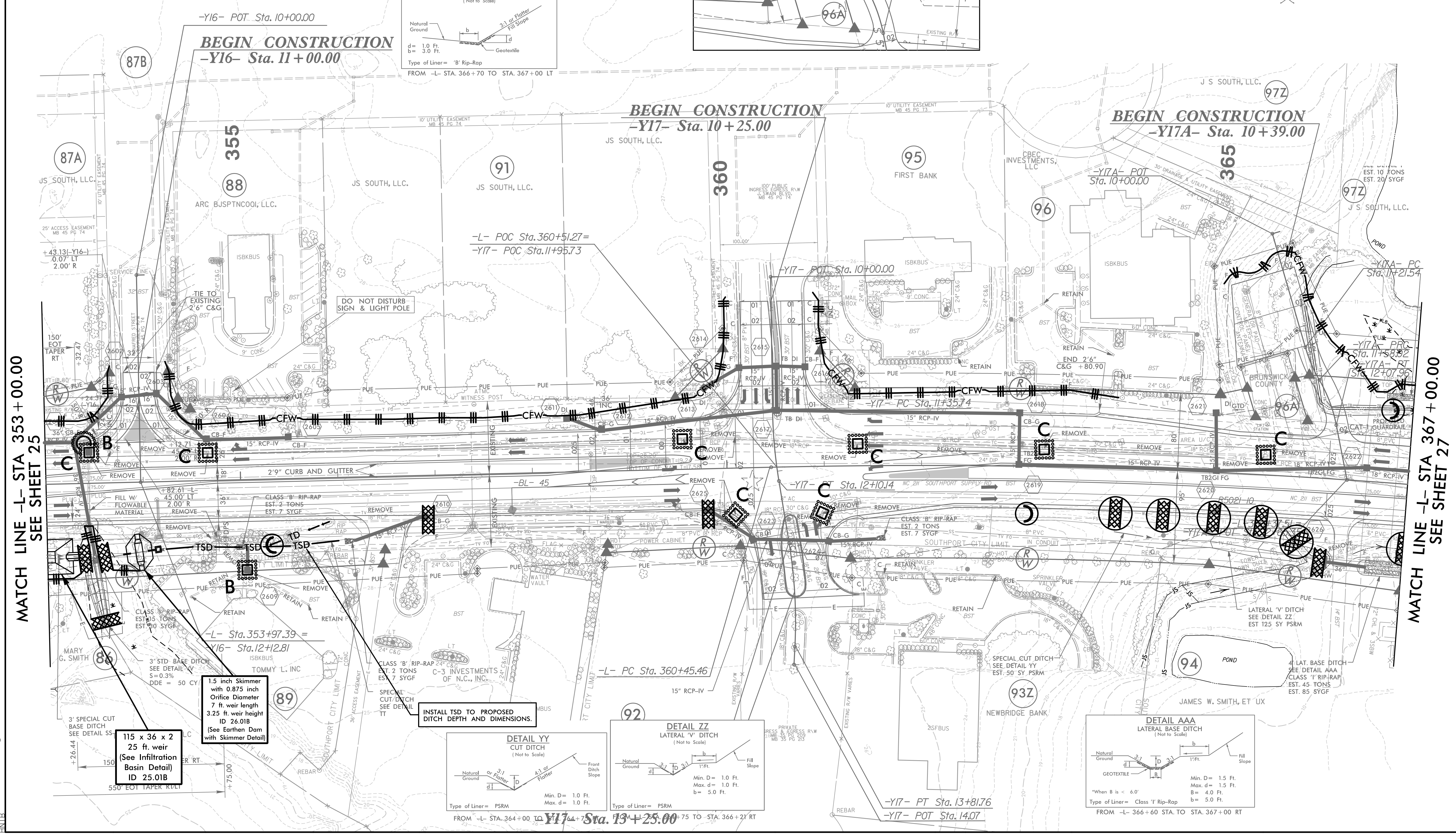


**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
R-5021	EC-26/CONST.26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



★ EXISTING TRAFFIC SIGNAL



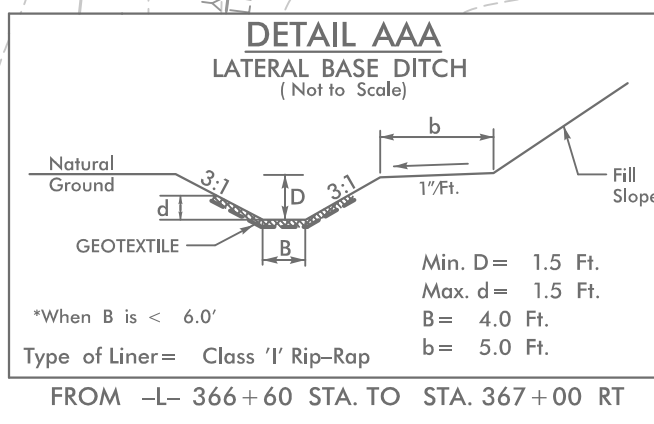
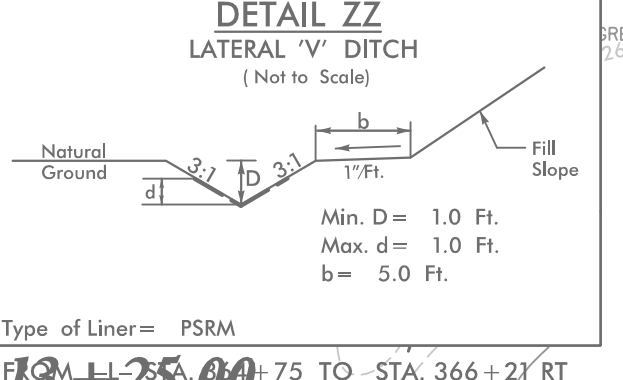
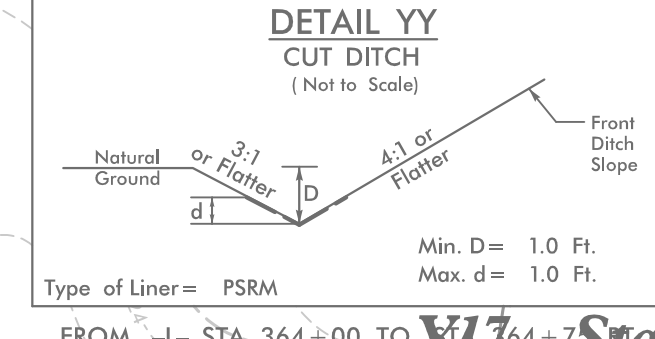
MATCH LINE -L- STA 353 + 00.00  
SEE SHEET 25

MATCH LINE -L- STA 367 + 00.00  
SEE SHEET 27

115 x 36 x 2  
25 ft. weir  
(See Infiltration  
Basin Detail)  
ID 25,01B

1.5 inch Skimmer  
with 0.875 inch  
Orifice Diameter  
7 ft. weir length  
3.25 ft. weir height  
ID 26,01B  
(See Earthen Dam  
with Skimmer Detail)

INSTALL TSD TO PROPOSED  
DITCH DEPTH AND DIMENSIONS.



5/14/2021-EC\_PSH26.dgn  
HNTB