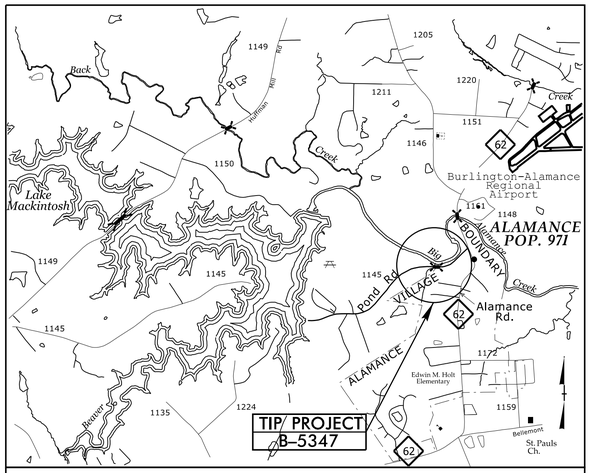
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

TIP PROJECT: B-5347

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5347	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46061.1.1	BRZ-1145(8)	PE
46061.2.1		R/W UTIL.



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ALAMANCE COUNTY

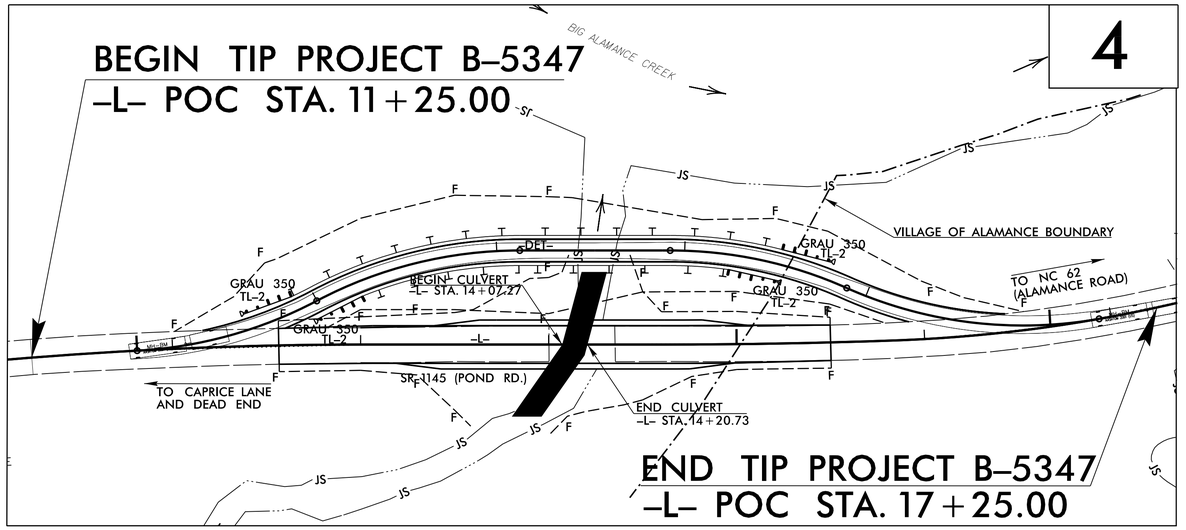
LOCATION: BRIDGE NO. 170 OVER A PRONG OF BIG ALAMANCE CREEK ON SR 1145 (POND RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT

NAD 83/2011

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
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	EW CFW
	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	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	IB
	Safety Fence	
	Flagging	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE

50 25 0 50 100

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

Designed by:

Taylor Carter, EI — ***3932***

NAME — *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

Jennifer Parish, EI, CPESC, CPSWQ

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

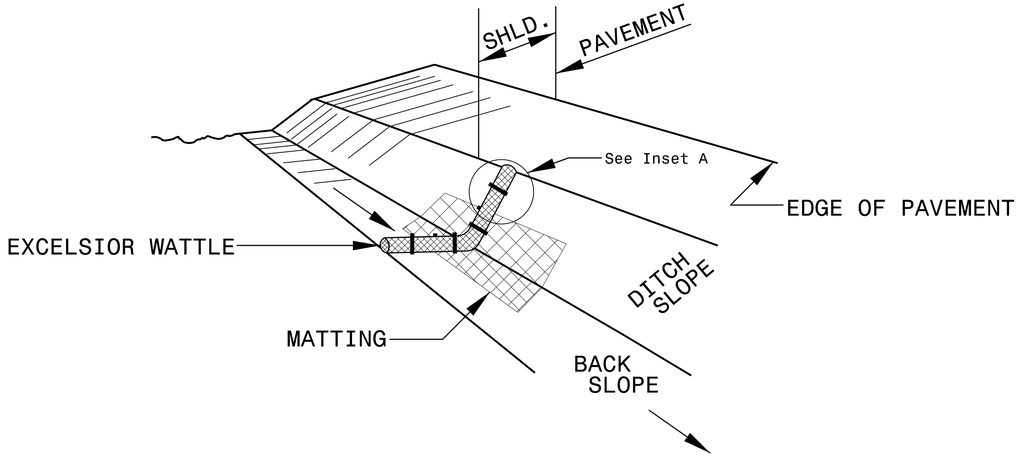
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type 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		

8/16/2017
5:56:48 PM
B-5347_EC_tsh.dgn

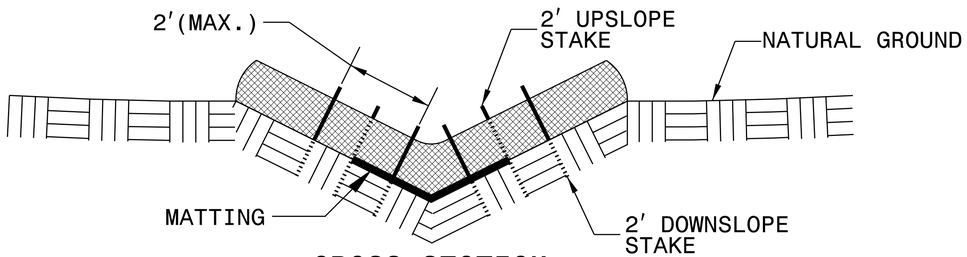
PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

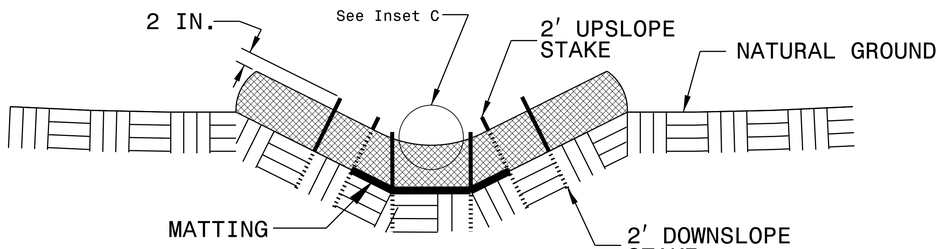
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR 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.

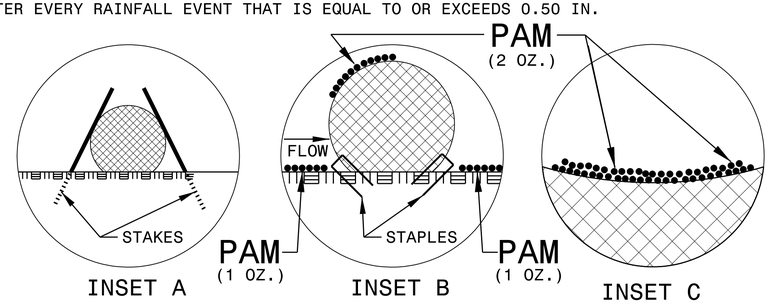
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

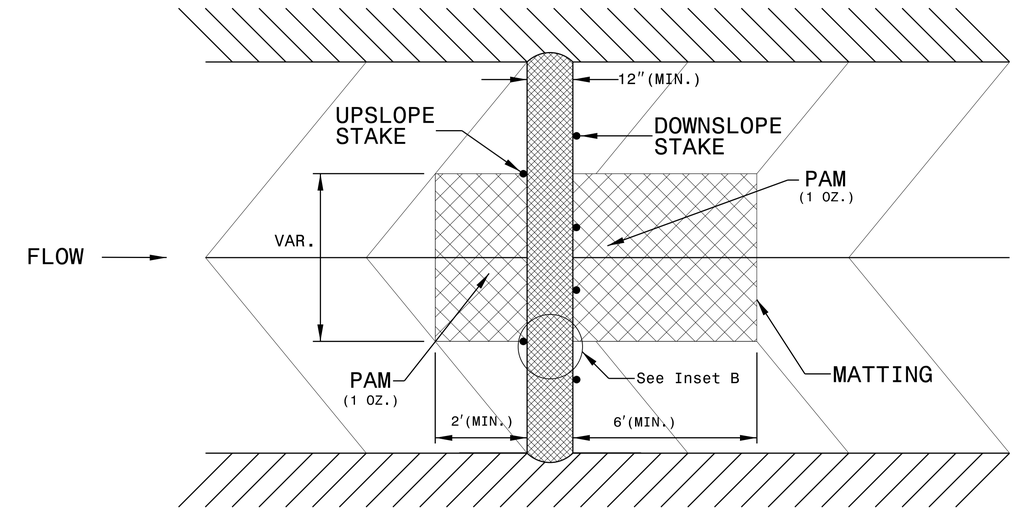
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.



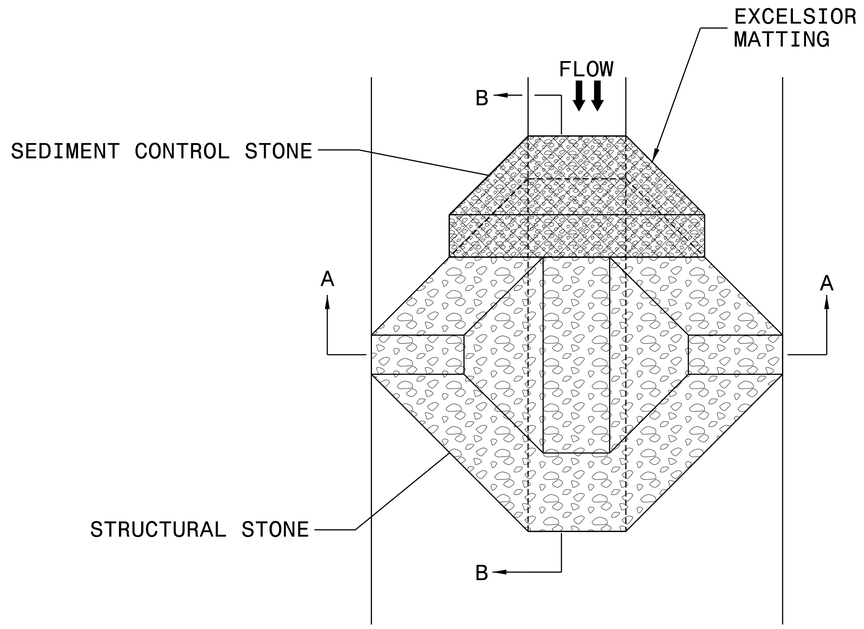


TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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



PLAN

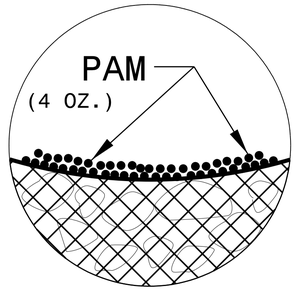
NOTES:

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

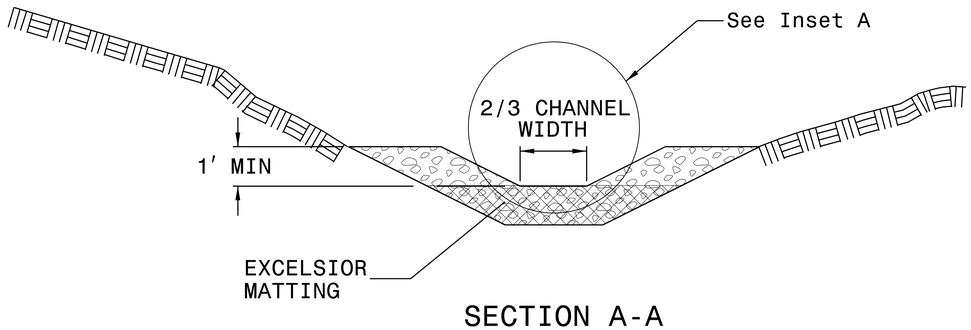
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

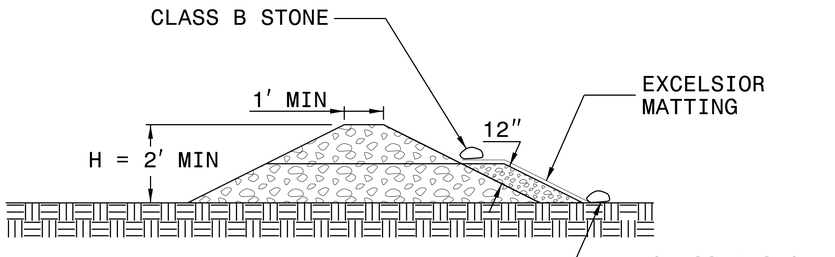
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

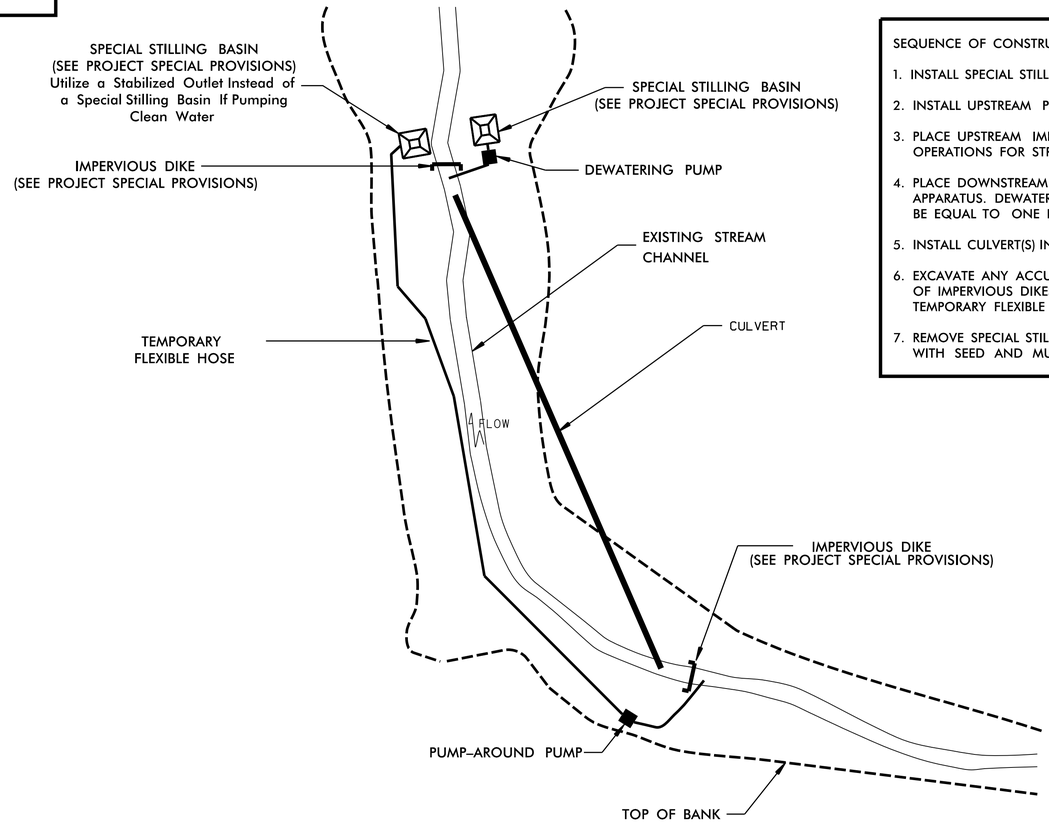
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_TSH.tbl
USER: TCARTER DATE: 8/2/2017 TIME: 8:28:25 AM
FILE: NCDOT\2015-2017_Erosion_On-Call\NCDOT-B5239_B5347_c_\6.0_CAD_BIM\6.2_Work_In_Progress\B-5347\Erosion Control\B5347_EC_DETAILS&MATTING.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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.



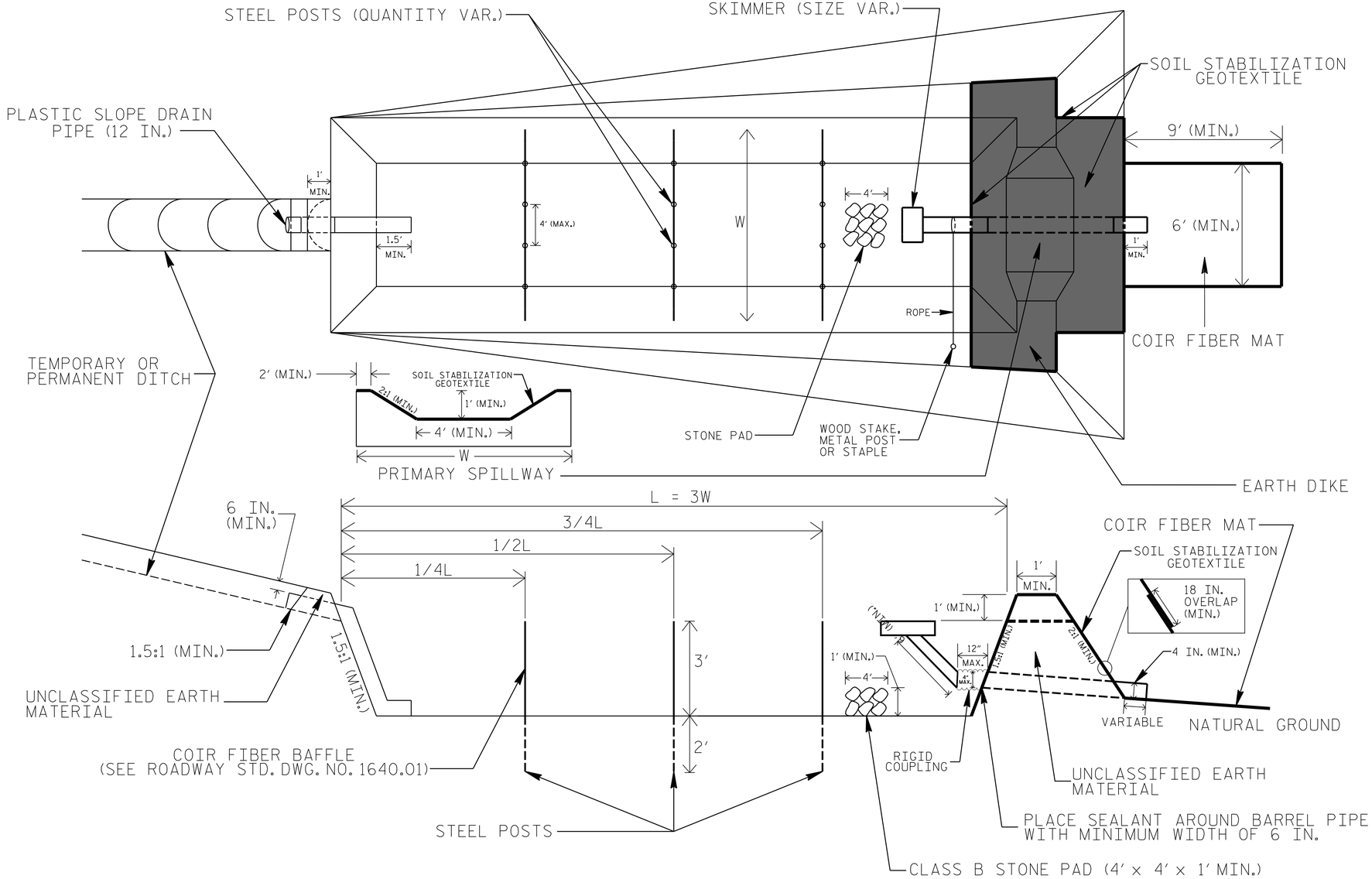
SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

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.

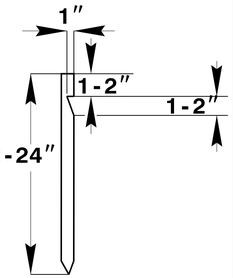
PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_TSH.tbl
USER: TCARTER DATE: 8/2/2017 TIME: 8:29:08 AM
FILE: NCDOT\2015-2017_Erosion_On-Call\NCDOT-B5239_B5347_c_\6.0_CAD_BIM\6.2_Work_In_Progress\B-5347\Erosion Control\B5347_EC_DETAILS&MATTING.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

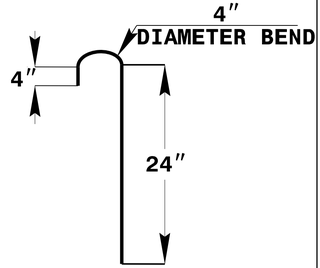
SKIMMER BASIN WITH BAFFLES DETAIL



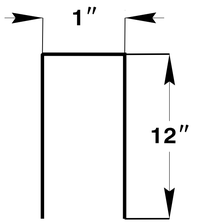
2″ x 2″ (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1″ (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

NOTES

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-3

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR DITCHES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	14+83	16+35	RT	155
	MATTING IN DITCHES SUBTOTAL				155
	MATTING FOR SLOPES				
4	L	13+25	14+50	RT	320
4	L	13+75	14+50	LT	110
20-1	DET	11+80	12+80	RT	135
20-1	DET	10+70	13+80	LT	690
	MATTING FOR SLOPE SUBTOTAL				1255
	MISC. MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER				3440
	MATTING TOTAL				4850

PERMANENT SOIL REINFORCEMNT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	14+02	14+83	RT	70
	MISC. PSRM TO BE INSTALLED AS DIRECTED BY THE ENGINEER				50
			PSRM TOTAL		120

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	*STABILIZATION TIME*	*TIMEFRAME EXCEPTIONS*
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.

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-4/CONST.2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

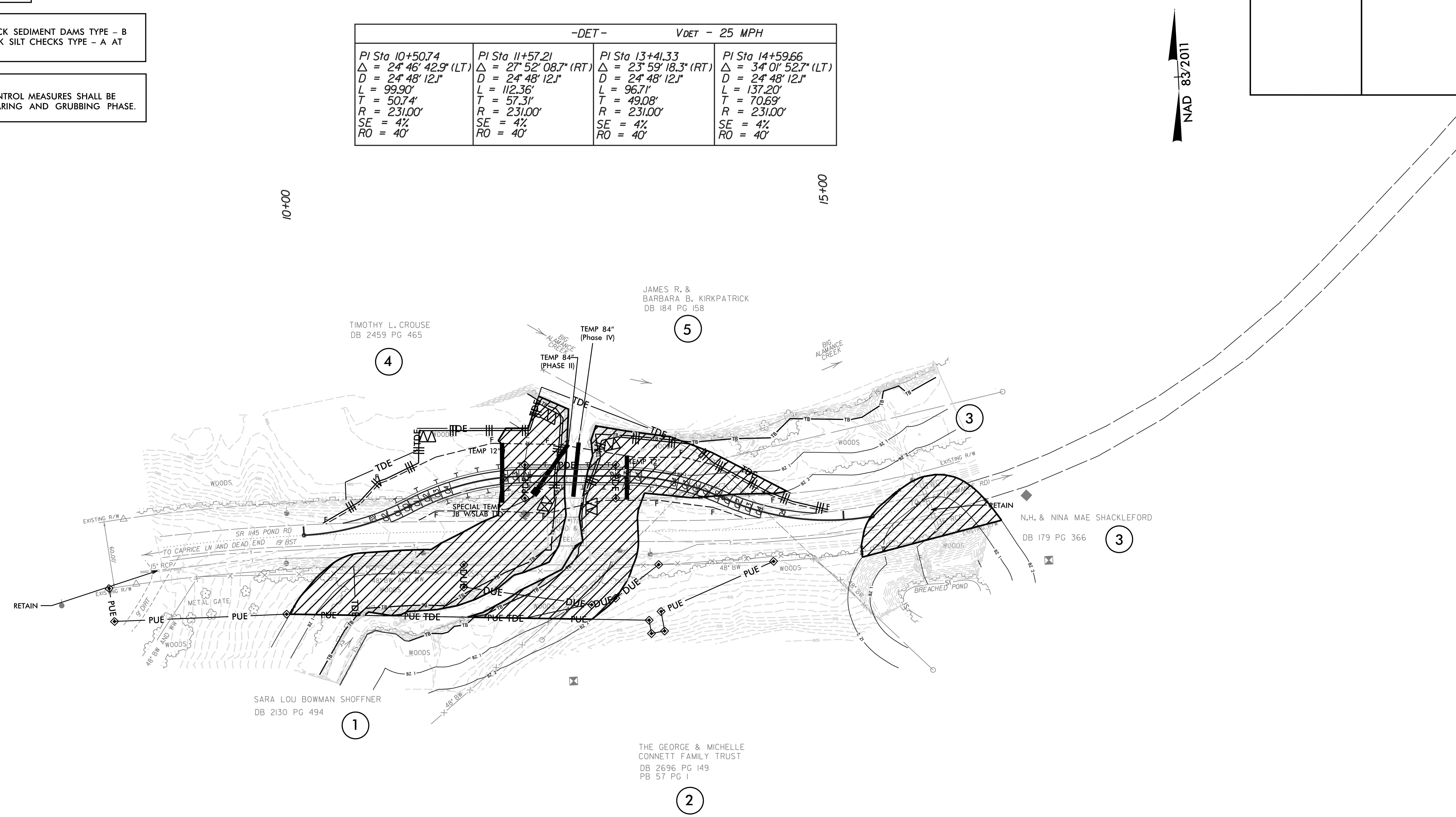
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2B-1

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.

-DET- VDET - 25 MPH

PI Sta 10+50.74	PI Sta 11+57.21	PI Sta 13+41.33	PI Sta 14+59.66
Δ = 24° 46' 42.9" (LT)	Δ = 27° 52' 08.7" (RT)	Δ = 23° 59' 18.3" (RT)	Δ = 34° 01' 52.7" (LT)
D = 24° 48' 12.1"	D = 24° 48' 12.1"	D = 24° 48' 12.1"	D = 24° 48' 12.1"
L = 99.90'	L = 112.36'	L = 96.71'	L = 137.20'
T = 50.74'	T = 57.31'	T = 49.08'	T = 70.69'
R = 231.00'	R = 231.00'	R = 231.00'	R = 231.00'
SE = 4%	SE = 4%	SE = 4%	SE = 4%
RO = 40'	RO = 40'	RO = 40'	RO = 40'



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

8/17/99
8/16/2017
B-5347_EC_psh_detour.dgn

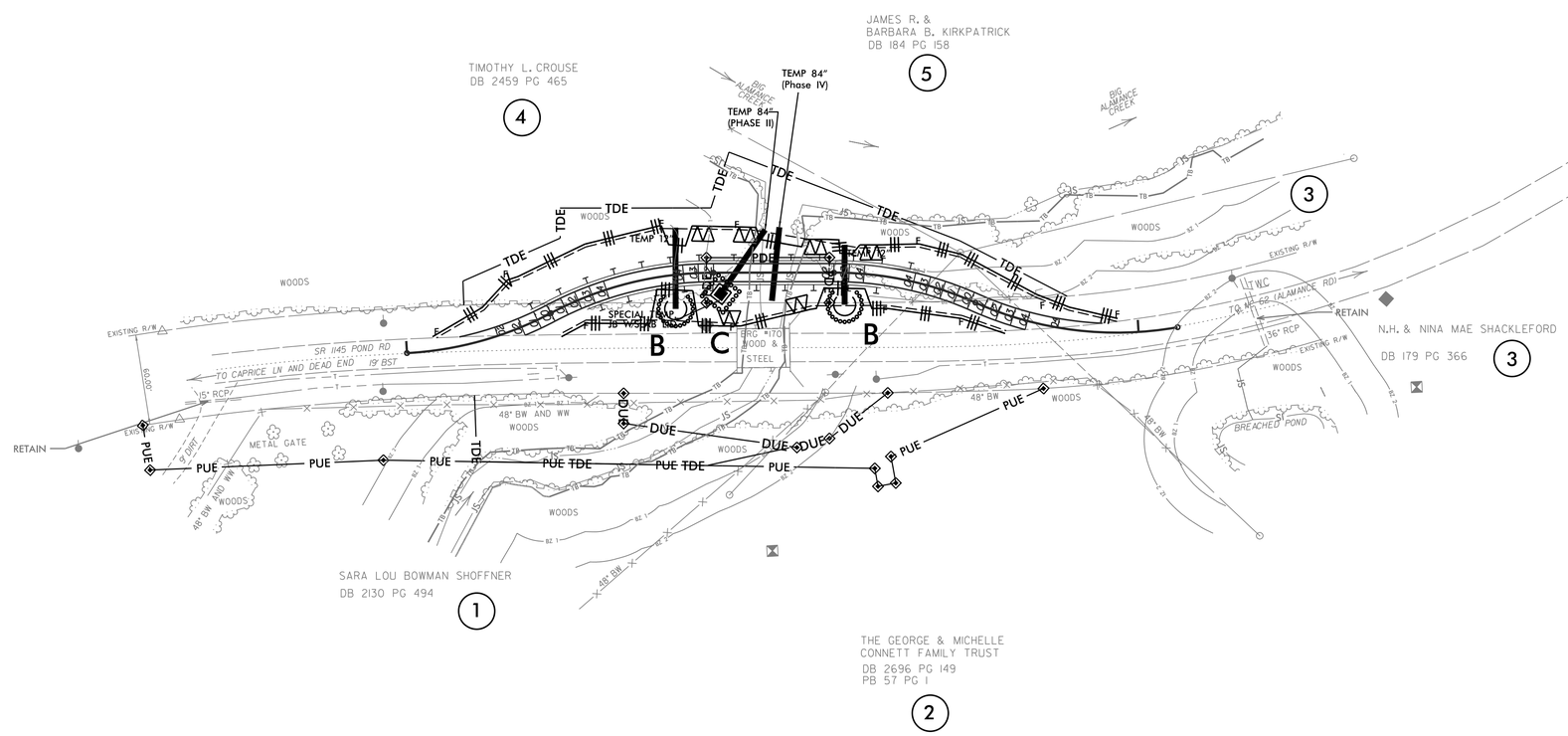
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-5/CONST.2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/2011

Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+80 to Sta. 12+80 –DET– Rt
Sta. 10+70 to Sta. 13+80 –DET– Lt

-DET- V_{DET} = 25 MPH			
PI Sta 10+50.74 △ = 24° 46' 42.9" (LT) D = 24° 48' 12.1" L = 99.90' T = 50.74' R = 231.00' SE = 4% RO = 40'	PI Sta 11+57.21 △ = 27° 52' 08.7" (RT) D = 24° 48' 12.1" L = 112.36' T = 57.31' R = 231.00' SE = 4% RO = 40'	PI Sta 13+41.33 △ = 23° 59' 18.3" (RT) D = 24° 48' 12.1" L = 96.71' T = 49.08' R = 231.00' SE = 4% RO = 40'	PI Sta 14+59.66 △ = 34° 01' 52.7" (LT) D = 24° 48' 12.1" L = 137.20' T = 70.69' R = 231.00' SE = 4% RO = 40'



8/16/2017
B-5347_EC_psh_detour.dgn
11:39:57 PM

8/17/99

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

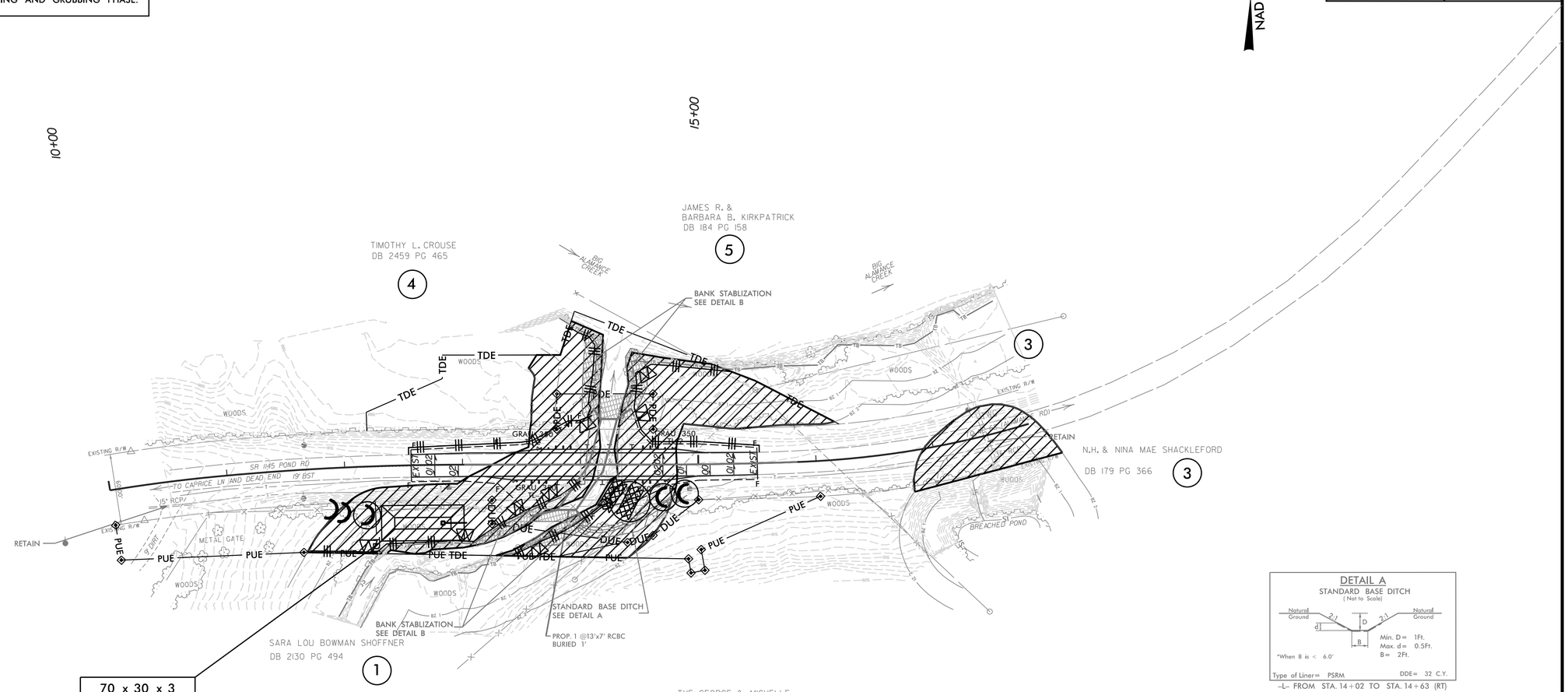
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

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

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-			
PI Sta 10+48.51	PI Sta 11+99.34	PI Sta 15+22.82	PI Sta 16+84.28
△ = 3° 56' 05.7" (RT)	△ = 5° 14' 55.5" (RT)	△ = 2° 00' 55.7" (LT)	△ = 14° 37' 34.7" (LT)
D = 4° 03' 25.6"	D = 2° 33' 56.7"	D = 1° 38' 48.2"	D = 1° 20' 01.7"
L = 96.99'	L = 204.57'	L = 122.39'	L = 199.44'
T = 48.51'	T = 102.36'	T = 61.20'	T = 100.26'
R = 1,412.23'	R = 2,233.10'	R = 3,479.38'	R = 781.26'

NAD 83/2011



70 x 30 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
4 ft. weir
ID 4.1B

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

GRASS SWALE DATA
TOTAL DA= 0.94ac c=0.22
Imp= 0.02ac (c=0.9)
Grass= 0.02ac (c=0.5)
Woods= 0.9ac (c=0.2)
SLOPE= 0.012 ft/ft
SS= 2:1 (LT) 7:1 (RT)
L REQ.= 94'
L PRO.= 150'

Q2= 0.92cfs Q10= 1.68cfs
V2= 1.25ft/s V10= 1.45ft/s
D2= 0.43ft D10= 0.54ft

-L- STA. 14+83 to 16+35 (RT)

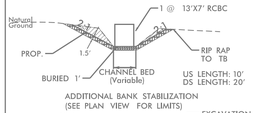
DETAIL A
STANDARD BASE DITCH
(Not to Scale)

Type of Liner= PSRM DDE= 32 C.Y.

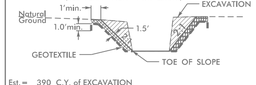
-L- FROM STA. 14+02 TO STA. 14+63 (RT)

DETAIL B
RIP RAP AT CULVERT
(Not to Scale)

RIP RAP AT PIPE OUTLET
(STD. NO. 876.02)



ADDITIONAL BANK STABILIZATION
(SEE PLAN VIEW FOR LIMITS)



Est.= 390 C.Y. of EXCAVATION
Est.= 350 Tons of Class I Rip-Rap
Est.= 510 S.Y. OF GEOTEXTILE

-L- STA. 13+11 TO STA. 14+04 (RT)
-L- STA. 14+01 TO STA. 14+67 (LT)

8/16/2017
B-5347_EC_psh.dgn
8:13:24 PM

13'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 14+14 –L–

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

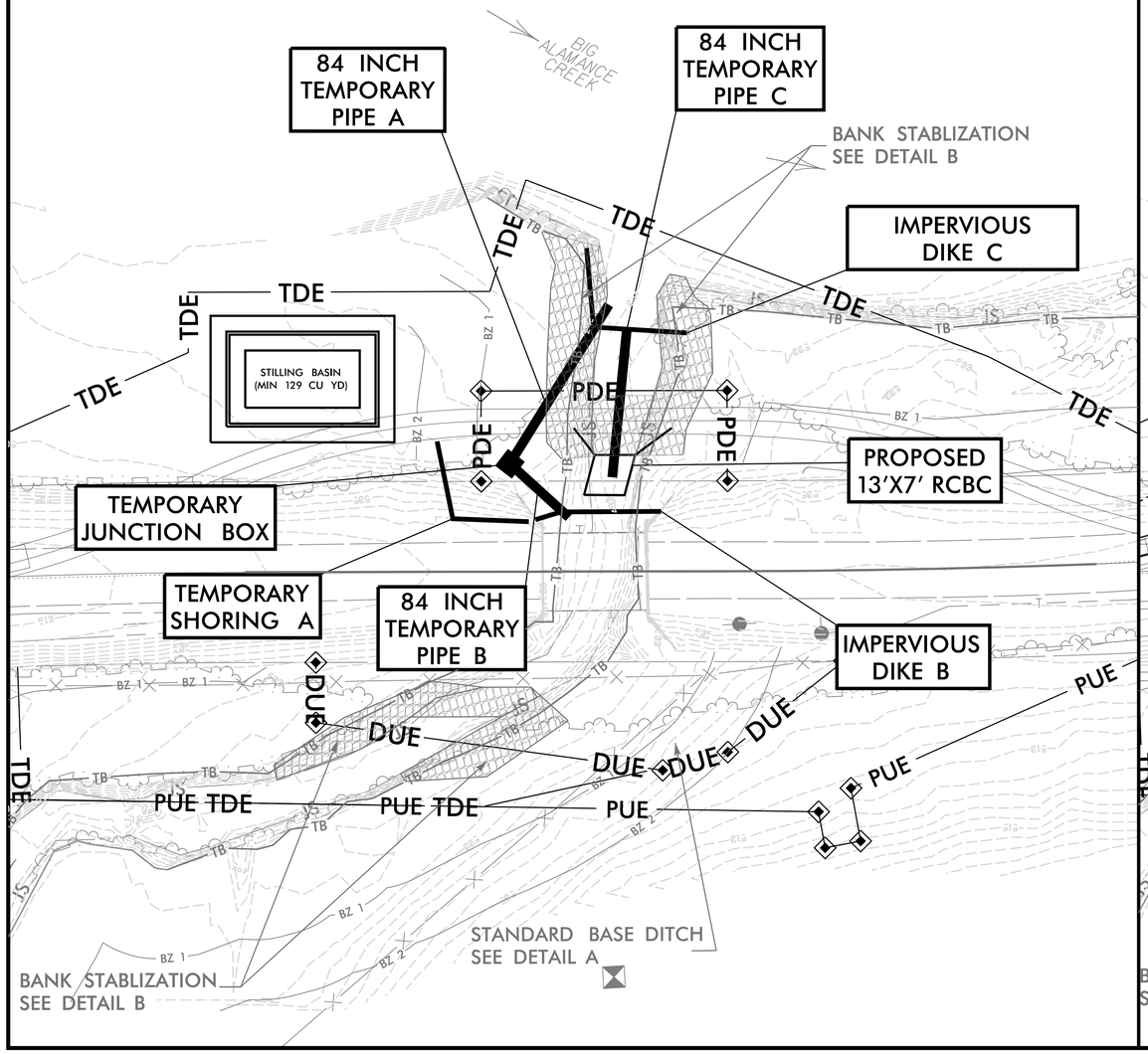
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B–5347	EC–6A/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. CONSTRUCT STILLING BASIN (MIN. VOLUME =129 CUBIC YARDS).
2. INSTALL TEMPORARY JUNCTION BOX WITH 84" TEMPORARY DIVERSION PIPES A & B.
3. CONSTRUCT IMPERVIOUS DIKES (B AND C) AND TEMPORARY SHORING A, DIVERTING FLOW INTO TEMPORARY PIPE A.
4. CONSTRUCT AS MUCH AS POSSIBLE OF THE OUTLET END OF THE PROPOSED CULVERT AND ITS WINGWALLS.
5. INSTALL TEMPORARY 84" PIPE C, PLUG BOTH ENDS (TO BE USED FOR FLOW DURING PHASE IV).

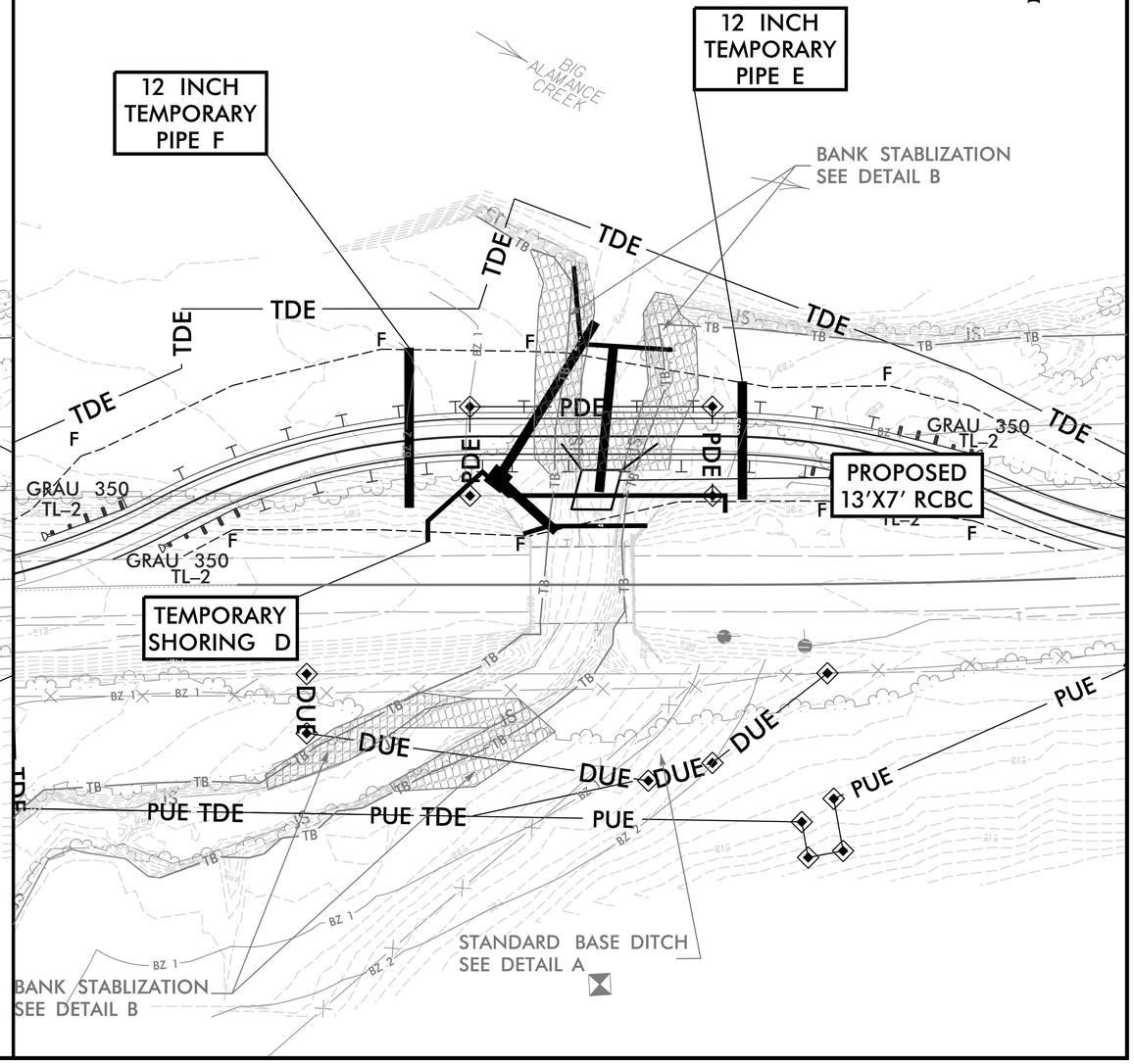
NAD 83/2011



PHASE II

1. REMOVE PHASE I STILLING BASIN AND PHASE I TEMPORARY SHORING A.
2. INSTALL TEMPORARY SHORING D.
3. CONSTRUCT ON–SITE DETOUR AND INSTALL TEMPORARY PIPES E AND F.
4. SHIFT TRAFFIC ONTO DETOUR.

NAD 83/2011



PLOT DRIVER: NCDOT_df.c _e _50. PENTABLE: NCDOT_EC_BW. b
USER: e e e DATE: 8/ 7/20 7 TIME: :38:22 AM
FILE: NCDOT\20 5-20 7_E _O ~Co \NCDOT-B5239_B5347_c_\6.0_CAD_BIM\6.2_W _I _P e \B-5347\E C \B-5347_EC_CS_PSH.d

13'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 14+14 –L–

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

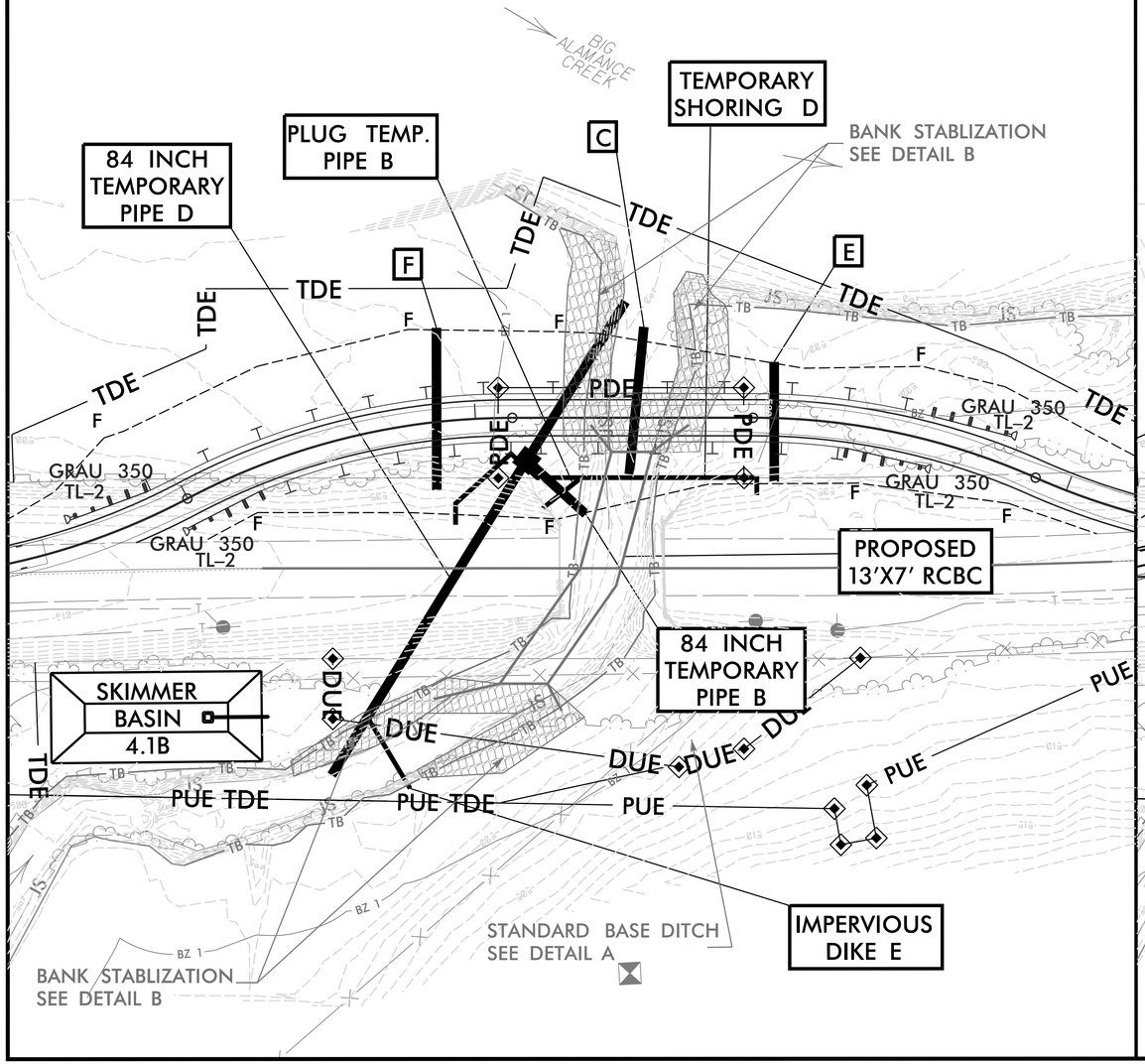
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B–5347	EC–6B/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE III

1. CONSTRUCT AND UTILIZE SKIMMER BASIN 4.1B AS NEEDED FOR DEWATERING.
2. CONSTRUCT TEMPORARY PIPE D AND CONNECT TO TEMPORARY JUNCTION BOX.
3. BUILD IMPERVIOUS DIKE E AND RE–DIRECT FLOW INTO PIPE.
4. PLUG SE JOINT OF TEMPORARY DIVERSION PIPE B.
5. REMOVE PHASE I IMPERVOIUS DIKE B AND C.
6. REMOVE EXISTING BRIDGE.
7. CONSTRUCT REMAINING CULVERT AND HEADWALLS.

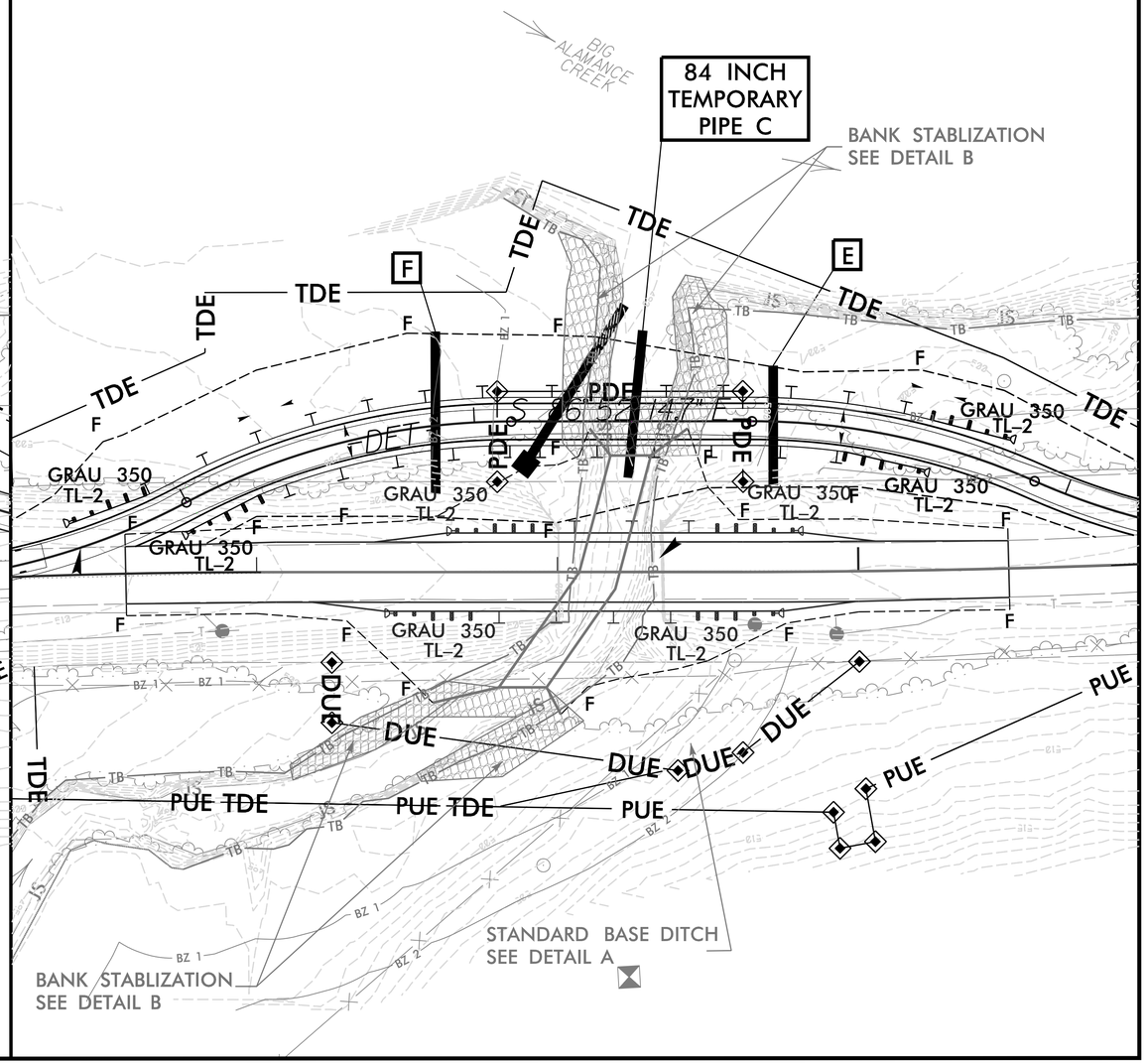
NAD 83/2011



PHASE IV

1. UNPLUG PIPE C AND REMOVE IMPERVIOUS DIKES, SWITCHING FLOW THROUGH CONSTRUCTED CULVERT AND INTO PIPE C.
2. REMOVE TEMPORARY PIPE D AND AS MUCH AS POSSIBLE OF TEMPORARY PIPE B.
3. BUILD NEW ROADWAY USING TEMPORARY SHORING WHEN NECESSARY TO PROVIDE PHASE V ACCESS TO TEMPORARY JUNCTION BOX TO REMOVE TEMPORARY PIPES ALONG WITH JUNCTION BOX.
4. SWITCH TRAFFIC TO RECONSTRUCTED L–LINE.

NAD 83/2011



13'X7' RCBC CULVERT CONSTRUCTION SEQUENCE STA. 14+14 –L–

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

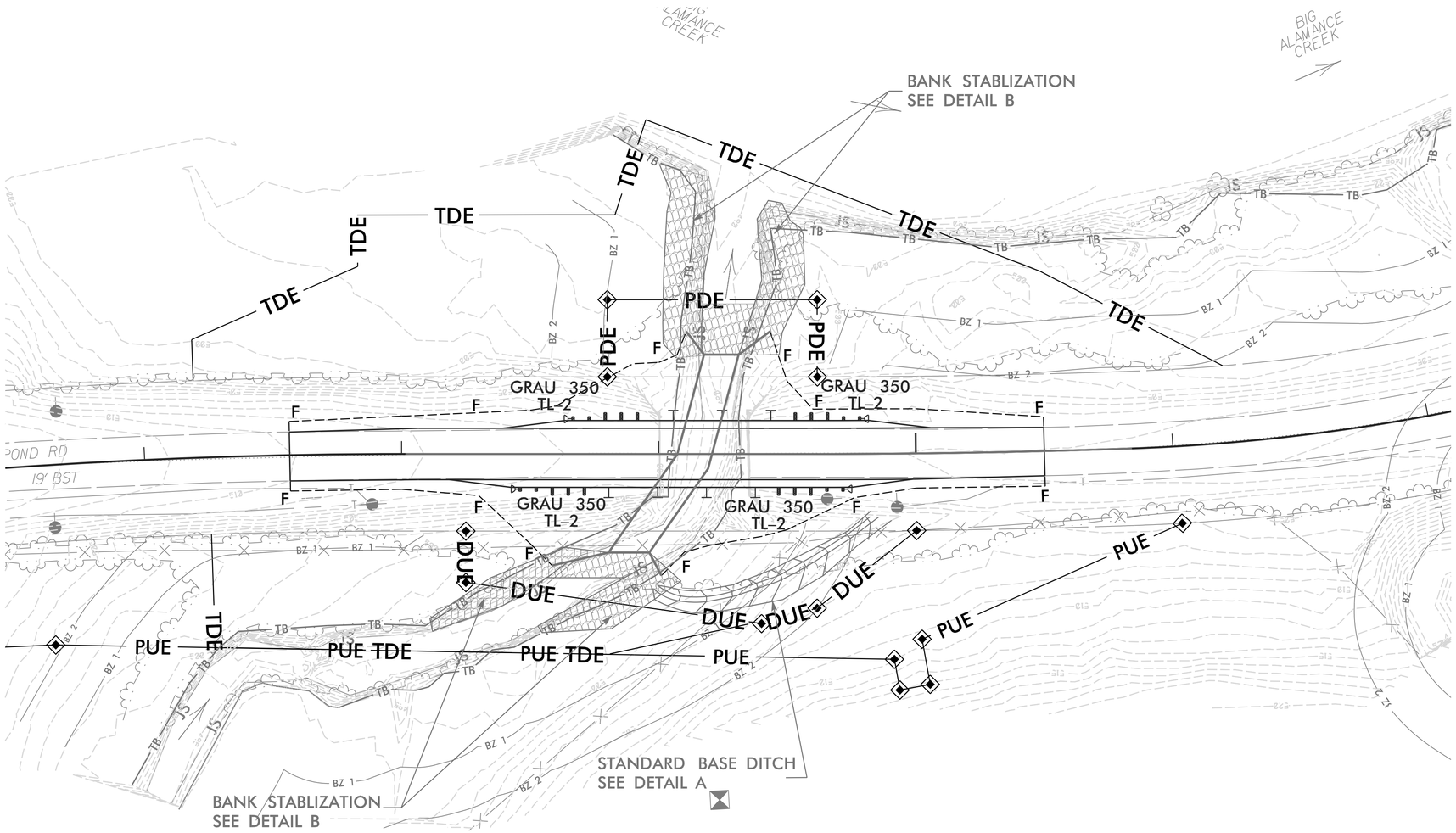
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B–5347	EC–6C/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE V

1. REMOVE DETOUR, ALONG WITH TEMPORARY PIPE E AND F.
2. REMOVE TEMPORARY PIPE A AND THE TEMPORARY JUNCTION BOX ALONG WITH THE REMAINDER OF TEMPORARY PIPE B.
3. REMOVE ALL TEMPORARY SHORING.
4. CONSTRUCT BANK STABILIZATION, STANDARD BASE DITCH AND INSTALL RIP–RAP PER PLANS.

NAD 83/2011



PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_EC_BW.tbl
USER: wyelver† DATE: 8/16/2017 TIME: 5:49:38 PM
FILE: NCDOT\2015-2017_Erosion_On-Call\NCDOT-B5239_B5347_c_\6.0_CAD_BIM\6.2_Work_In_Progress\B-5347\Erosion Control\B-5347_EC_CS_PSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5347	EC-7/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-			
PI Sta 10+48.51	PI Sta 11+99.34	PI Sta 15+22.82	PI Sta 16+84.28
△ = 3° 56′ 05.7″ (RT)	△ = 5° 14′ 55.5″ (RT)	△ = 2° 00′ 55.7″ (LT)	△ = 14° 37′ 34.7″ (LT)
D = 4° 03′ 25.6″	D = 2° 33′ 56.7″	D = 1° 38′ 48.2″	D = 7° 20′ 01.7″
L = 96.99′	L = 204.57′	L = 122.39′	L = 199.44′
T = 48.51′	T = 102.36′	T = 61.20′	T = 100.26′
R = 1,412.23′	R = 2,233.10′	R = 3,479.38′	R = 781.26′

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 13+25 to Sta. 14+50 –L– Rt
Sta. 13+75 to Sta. 14+50 –L– Lt

70 x 30 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
4 ft. weir
ID 4.1B

GRASS SWALE DATA

TOTAL DA = 0.94ac c = 0.22
Imp = 0.02ac (c = 0.9)
Grass = 0.02ac (c = 0.5)
Woods = 0.9ac (c = 0.2)
SLOPE = 0.012 ft/ft
SS = 2:1 (LT) 7:1 (RT)
L REQ. = 94′
L PRO. = 150′

Q2 = 0.92cfs Q10 = 1.68cfs
V2 = 1.25ft/s V10 = 1.45ft/s
D2 = 0.43ft D10 = 0.54ft

–L– STA. 14+83 to 16+35 (RT)

DETAIL A

STANDARD BASE DITCH
(Not to Scale)

Min. D = 1Ft.
Max. d = 0.5Ft.
B = 2Ft.

*When B is < 6.0′

Type of Liner = PSRM

DDE = 32 C.Y.

–L– FROM STA. 14+02 TO STA. 14+63 (RT)

DETAIL B

RIP RAP AT CULVERT
(Not to Scale)

RIP RAP AT PIPE OUTLET
(STD. NO. 876.02)

US LENGTH: 10′
DS LENGTH: 20′

Est. = 390 C.Y. of EXCAVATION
Est. = 350 Tons of Class I Rip–Rap
Est. = 510 S.Y. OF GEOTEXTILE

–L– STA. 13+11 TO STA. 14+04 (RT)
–L– STA. 14+01 TO STA. 14+67 (LT)