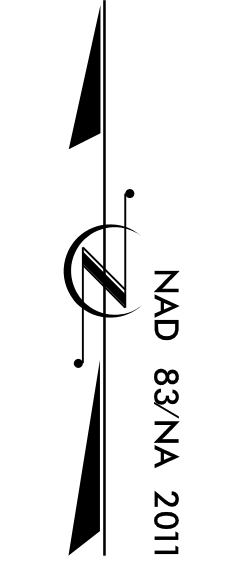


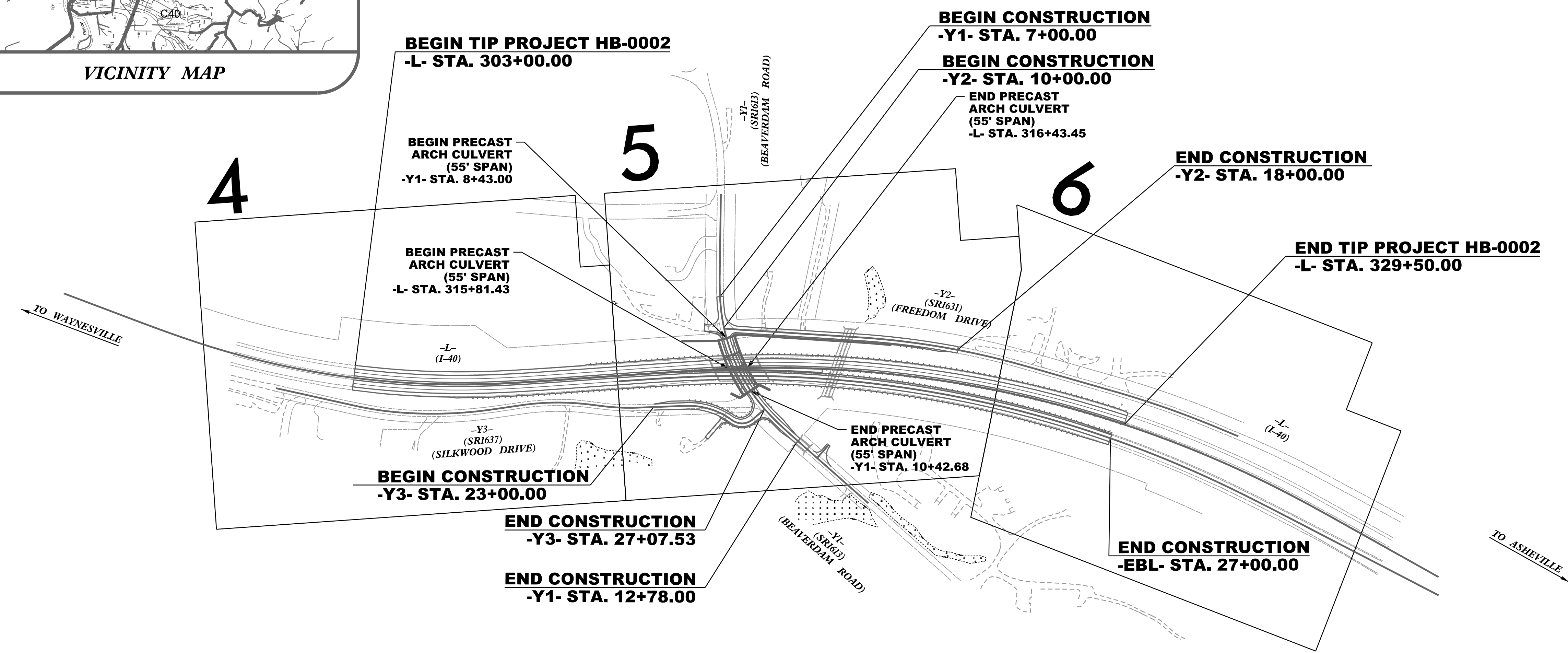
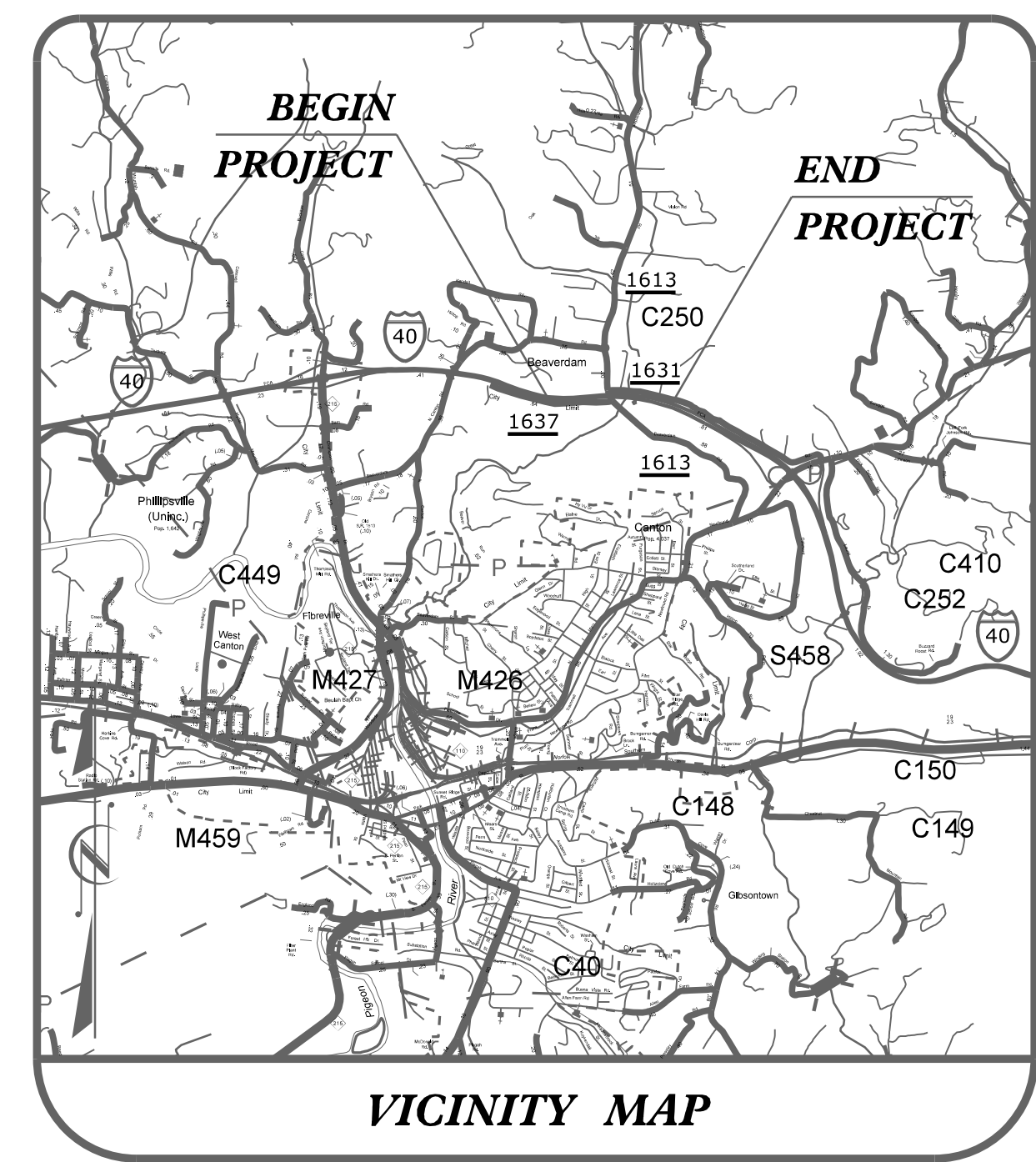
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0002	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



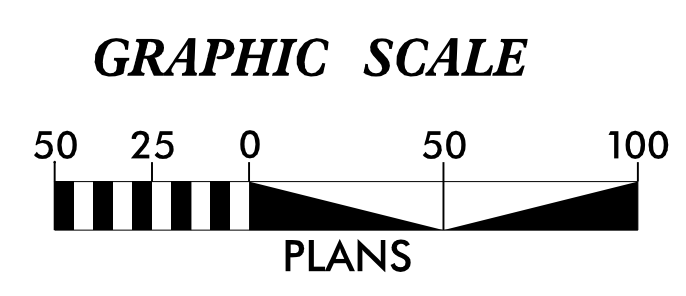
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

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

LOCATION: BRIDGES 248 & 249 ON I-40 OVER SR 1613 (BEAVERDAM ROAD)  
 TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE.



CONTRACT: C204796 TIP PROJECT: HB-0002



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.



Prepared in the Office of:  
**WETHERILL ENGINEERING, INC.**  
 1223 JONES FRANKLIN ROAD  
 RALEIGH, NC 27606

Designed by:  
**KATIE ESTEP** 4485  
 NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings  
 The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1/20/2024 11:00:00 AM HB-0002-EC-1.dgn USER:kstep

# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

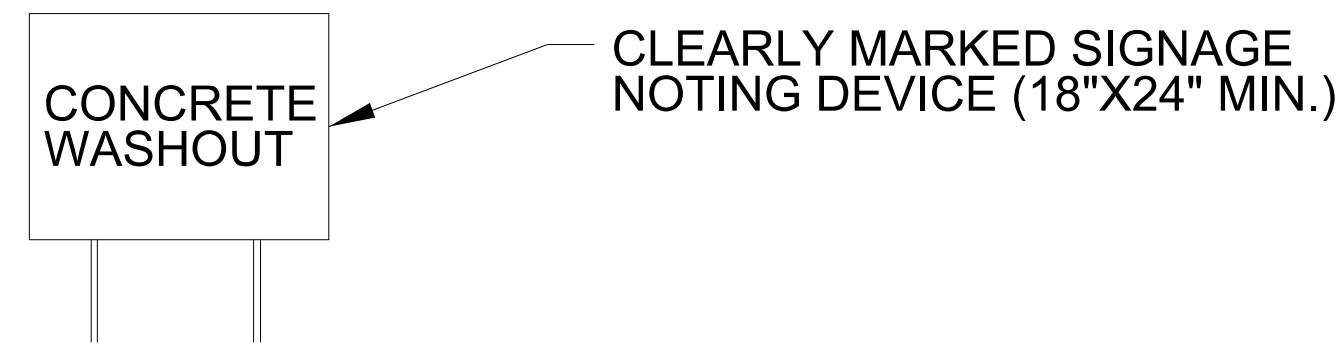
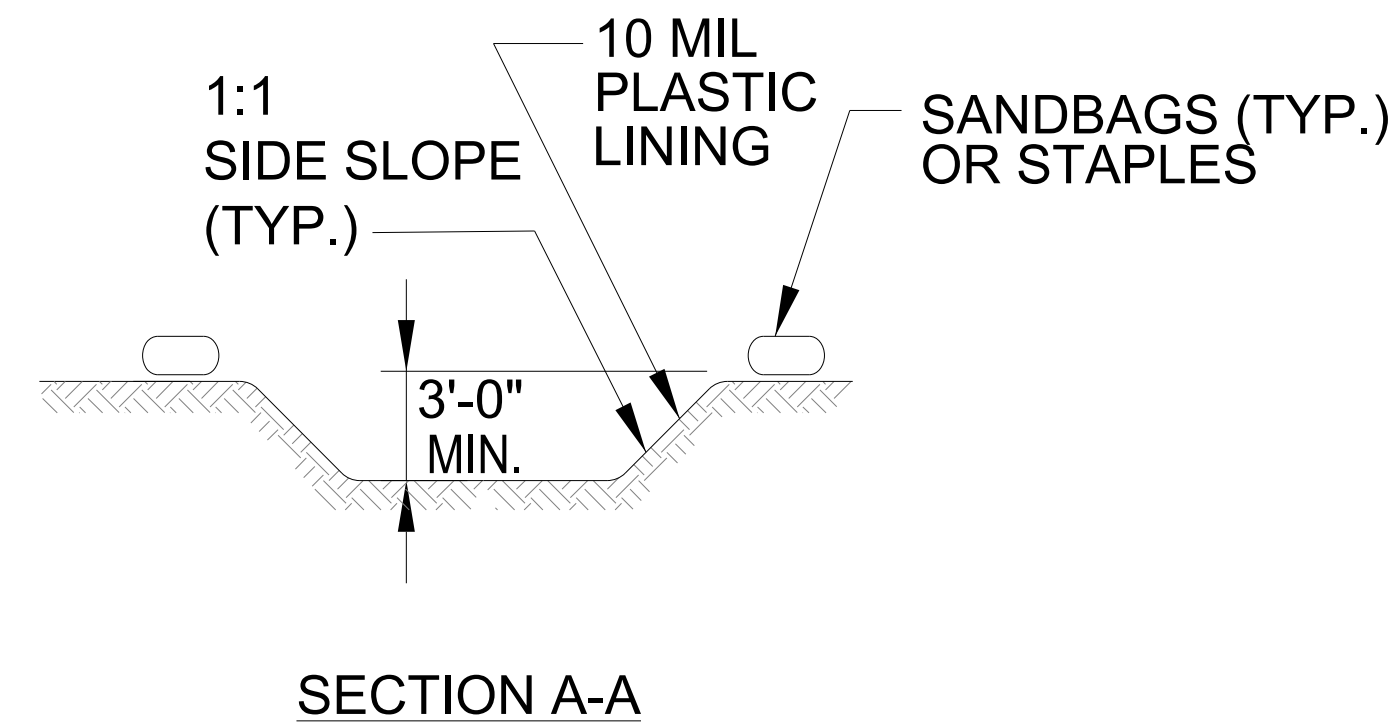
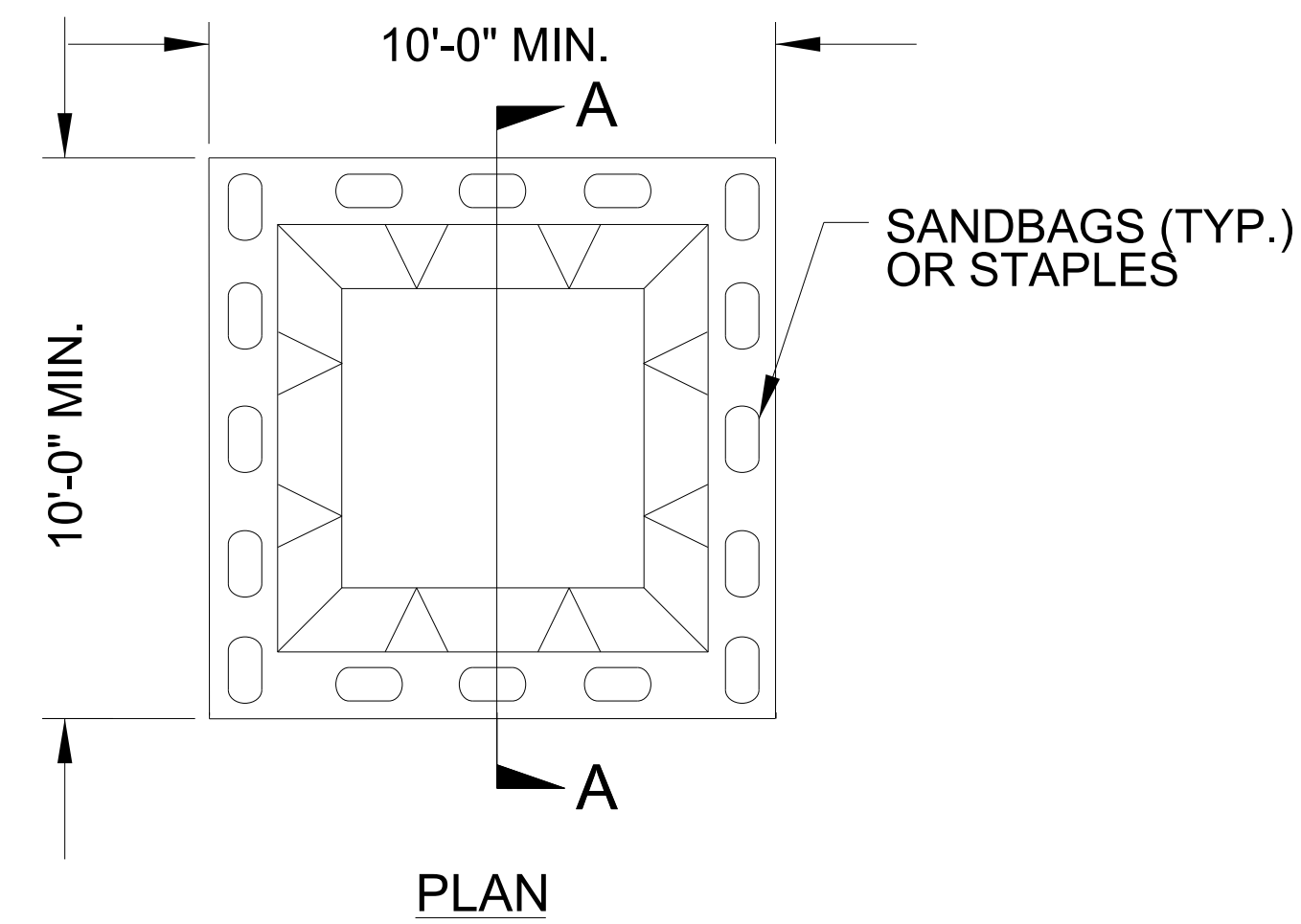
PROJECT REFERENCE NO. <b>HB-0002</b>	SHEET NO. <b>EC-2</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

## EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A	A	1636.03	Excelsior Wattle Barrier	
1632.02	Type B	B	1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C	C			

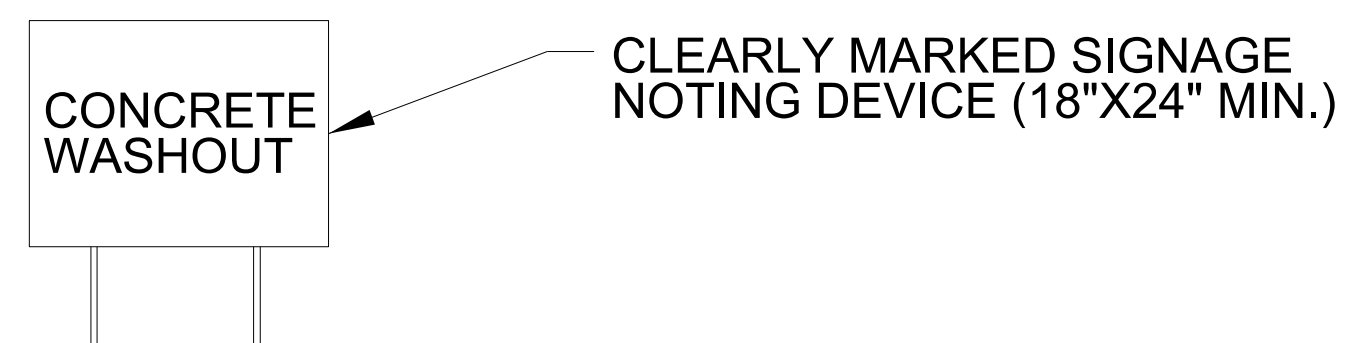
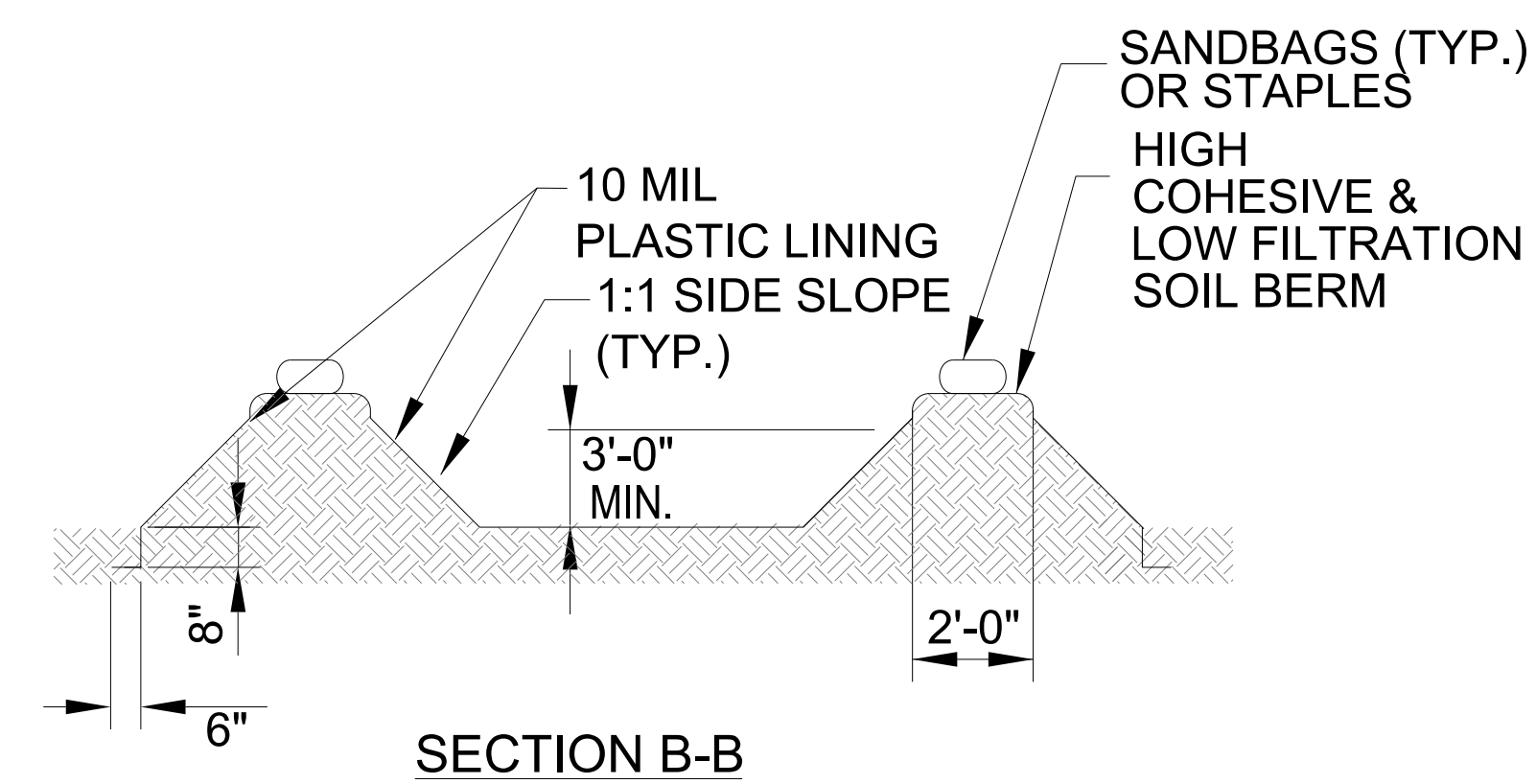
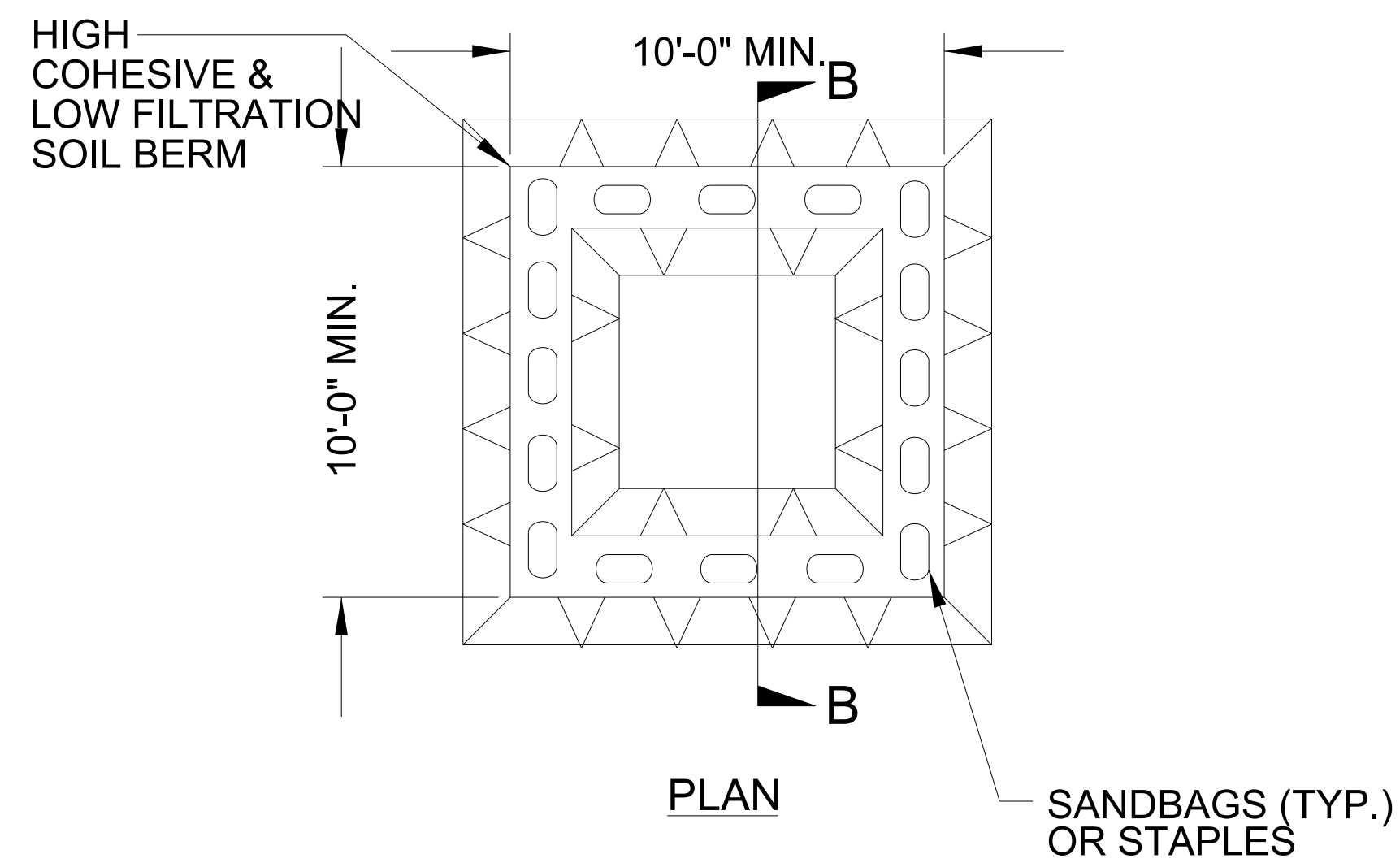
PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-2A</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



**BELOW GRADE WASHOUT STRUCTURE**  
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
  2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
  3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



**ABOVE GRADE WASHOUT STRUCTURE**  
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
  2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
  3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING FOR EROSION CONTROL (DITCHES)**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	305+00	308+00	LT	255
5	-Y3-	23+80	25+00	RT	115
5	-Y1-	11+45	11+77	RT	70
5	-EØL-	16+47	16+98	RT	100
5	-EØL-	19+42	23+37	RT	525
5	-L-	319+50	327+00	MED	1575
5	-L-	328+37	329+50	MED	65
6	-EØL-	18+27	21+38	RT	330
6	-EØL-	21+38	23+85	RT	345
<i>SUBTOTAL FOR MATTING (DITCHES)</i>					3,380

**EXCELSIOR MATTING FOR EROSION CONTROL (DITCHES)**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	303+00	305+00	LT	145
6	-EØL-	25+82	26+80	RT	100
6	-L-	328+50	329+50	LT	55
<i>SUBTOTAL FOR EXCELSIOR MATTING (DITCHES)</i>					300
<i>SUBTOTAL FOR MATTING (DITCHES)</i>					3,380
<i>SUBTOTAL FOR MATTING (SLOPES)</i>					22,672
<i>MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER</i>					60,000
<i>TOTAL</i>					86,352
<i>SAY</i>					87,000

**MATTING FOR EROSION CONTROL (SLOPES)**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	303+50	310+00	LT	7927
4	-L-	310+50	316+23	RT	3447
5	-L-	312+00	314+00	LT	1195
5	-L-	316+75	318+90	RT	1382
5	-L-	319+51	327+50	RT	5203
5	-L-	321+47	323+00	LT	3233
6	-Y2-	14+60	15+47	LT	285
<i>SUBTOTAL FOR MATTING (SLOPES)</i>					22,672

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

---



---

PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER


# ***SOIL STABILIZATION TIMEFRAMES***

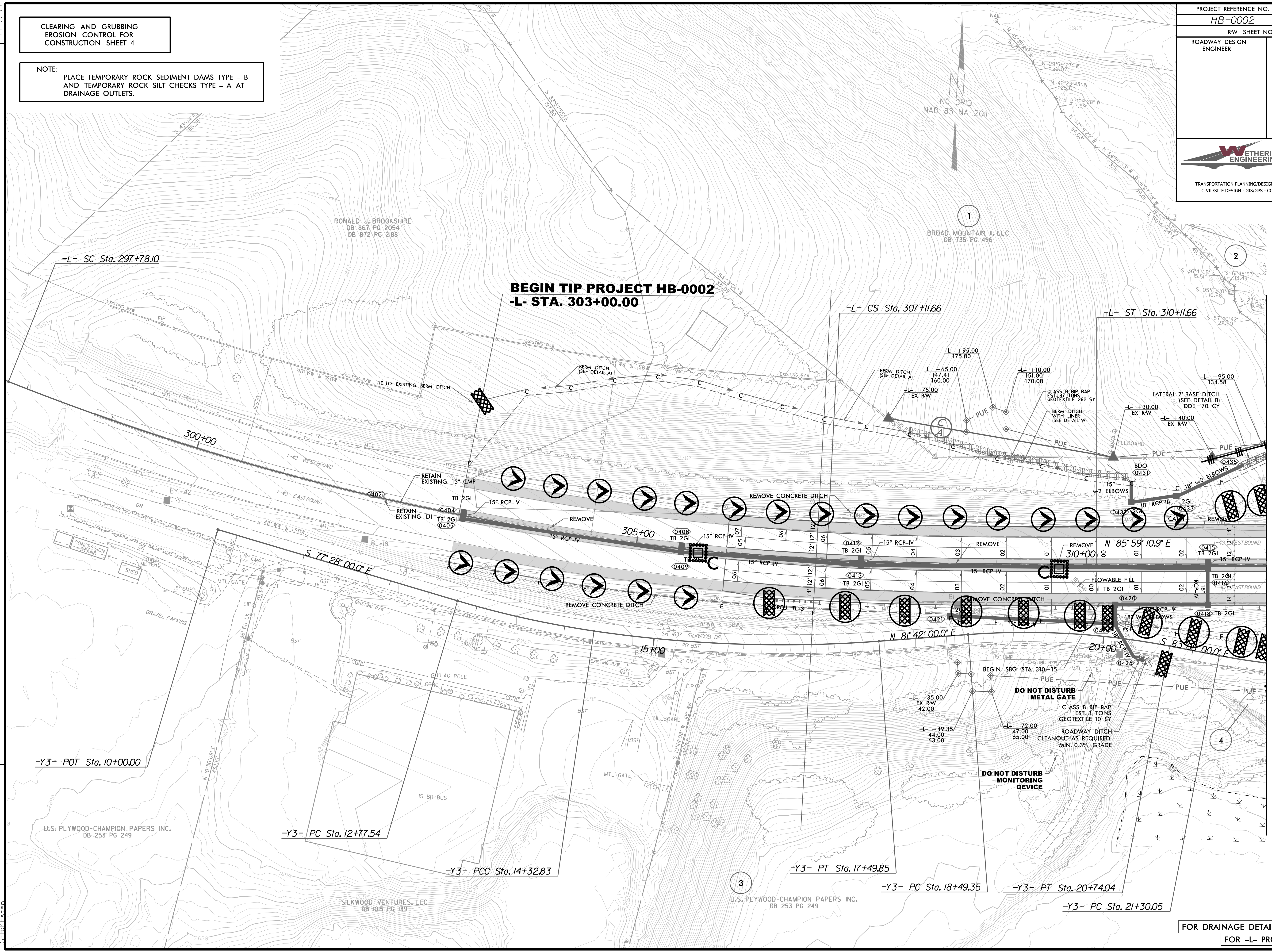
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES



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.

PROJECT REFERENCE NO. <b>HB-0002</b>	SHEET NO. <b>EC-4/CONST. 4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



REVISIONS

MATCHLINE -L- STA. 312+00 SEE SHEET 5


1/30/2024  
I:\304\2024\HB-0002-EC-4.dgn  
11:56:51 AM

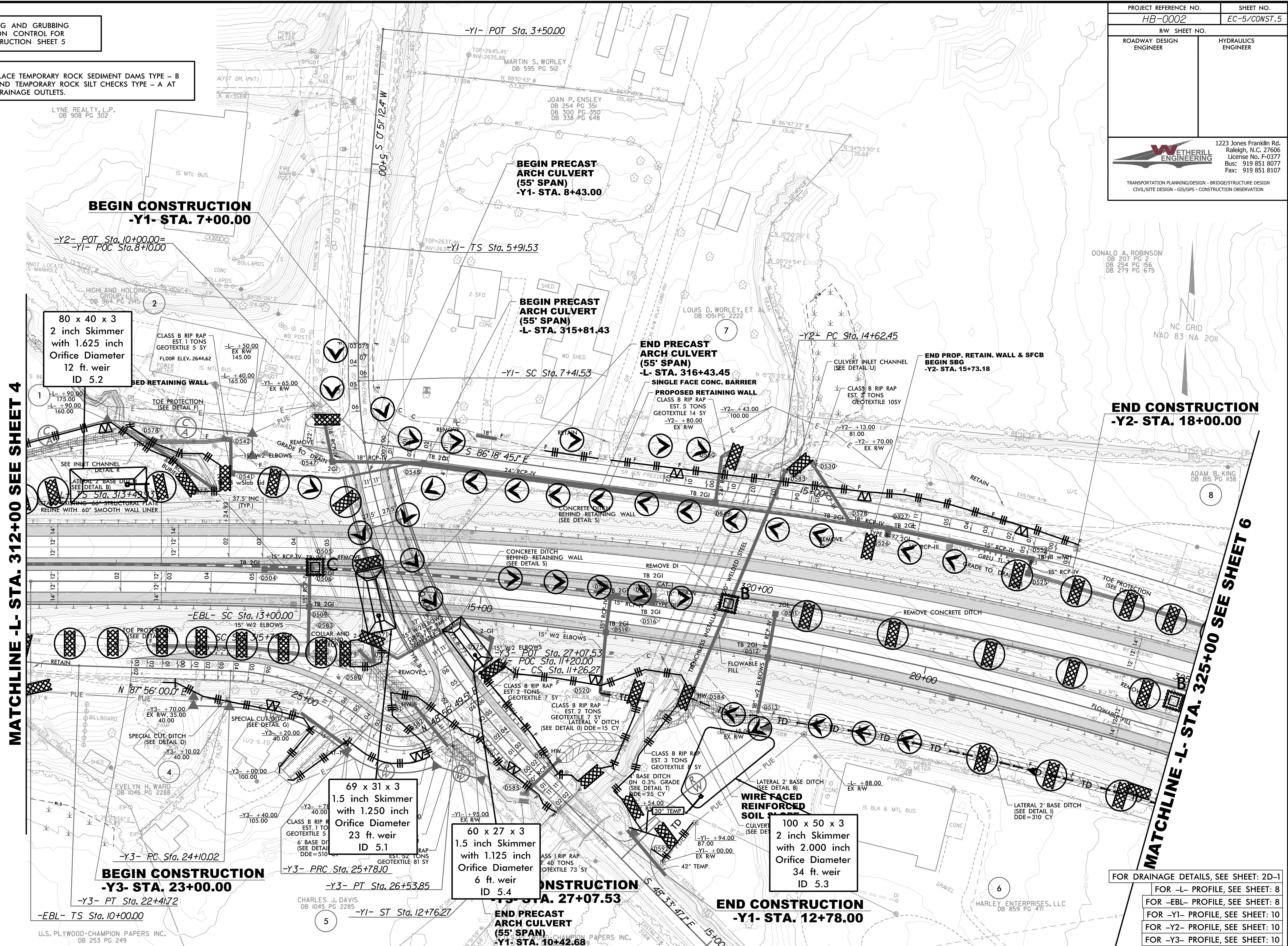
FOR DRAINAGE DETAILS, SEE SHEET: 2D-1  
FOR -L- PROFILE, SEE SHEET: 7



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.

PROJECT REFERENCE NO. <b>HB-0002</b>	SHEET NO. <b>EC-5/CONST.5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



MATCHLINE -L- STA. 312+00 SEE SHEET 4

MATCHLINE -L- STA. 325+00 SEE SHEET 6

80 x 40 x 3  
2 inch Skimmer  
with 1.625 inch  
Orifice Diameter  
12 ft. weir  
ID 5.2

69 x 31 x 3  
1.5 inch Skimmer  
with 1.250 inch  
Orifice Diameter  
23 ft. weir  
ID 5.1

60 x 27 x 3  
1.5 inch Skimmer  
with 1.125 inch  
Orifice Diameter  
6 ft. weir  
ID 5.4

100 x 50 x 3  
2 inch Skimmer  
with 2.000 inch  
Orifice Diameter  
34 ft. weir  
ID 5.3

FOR DRAINAGE DETAILS, SEE SHEET: 2D-1
FOR -L- PROFILE, SEE SHEET: 8
FOR -EBL- PROFILE, SEE SHEET: 8
FOR -Y1- PROFILE, SEE SHEET: 10
FOR -Y2- PROFILE, SEE SHEET: 10
FOR -Y3- PROFILE, SEE SHEET: 10

REVISIONS

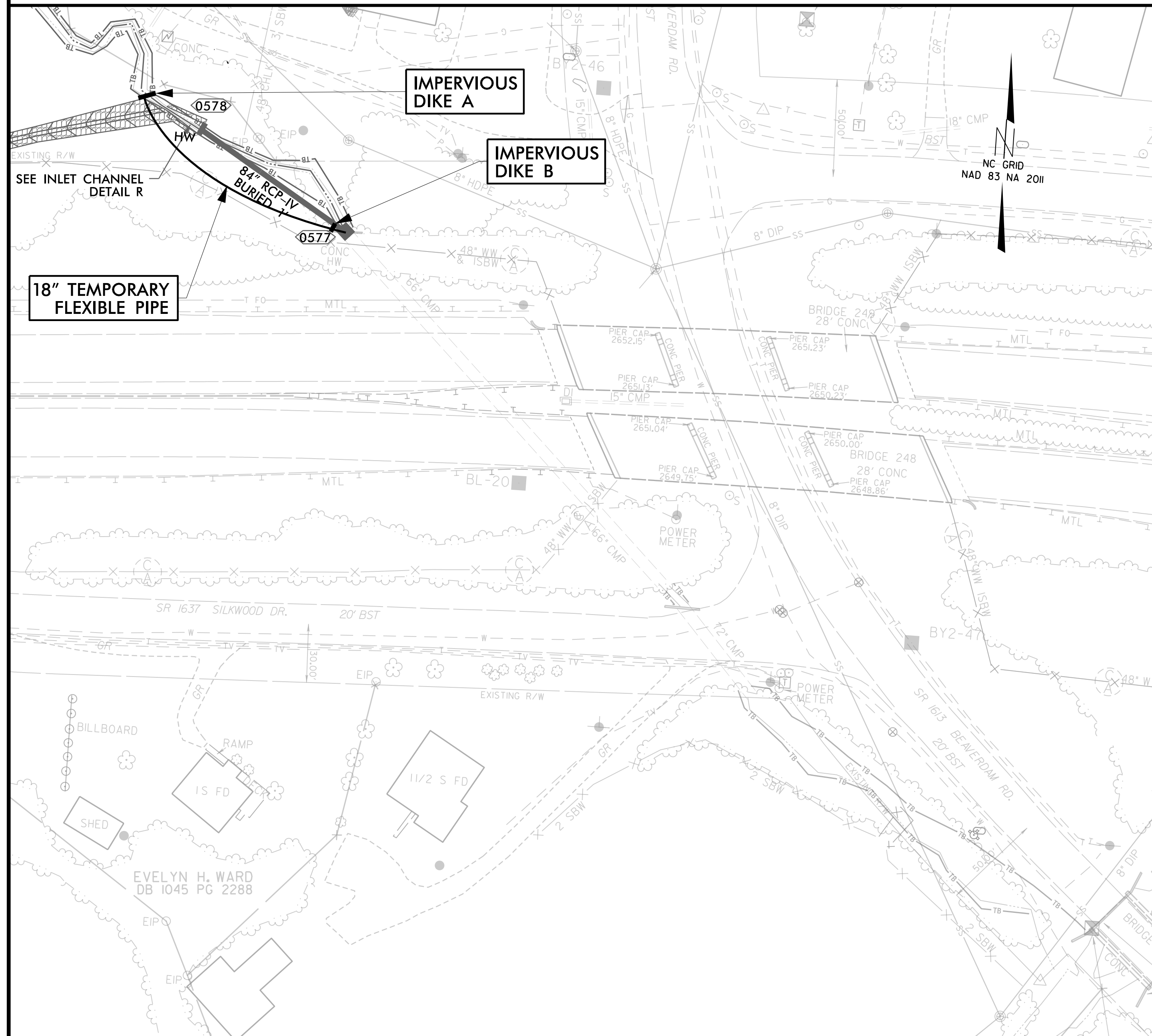
8/17/99  
2/1/2012 02:25 HB-0002-EC-5.dgn  
11:56 AM



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	EC-5A/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

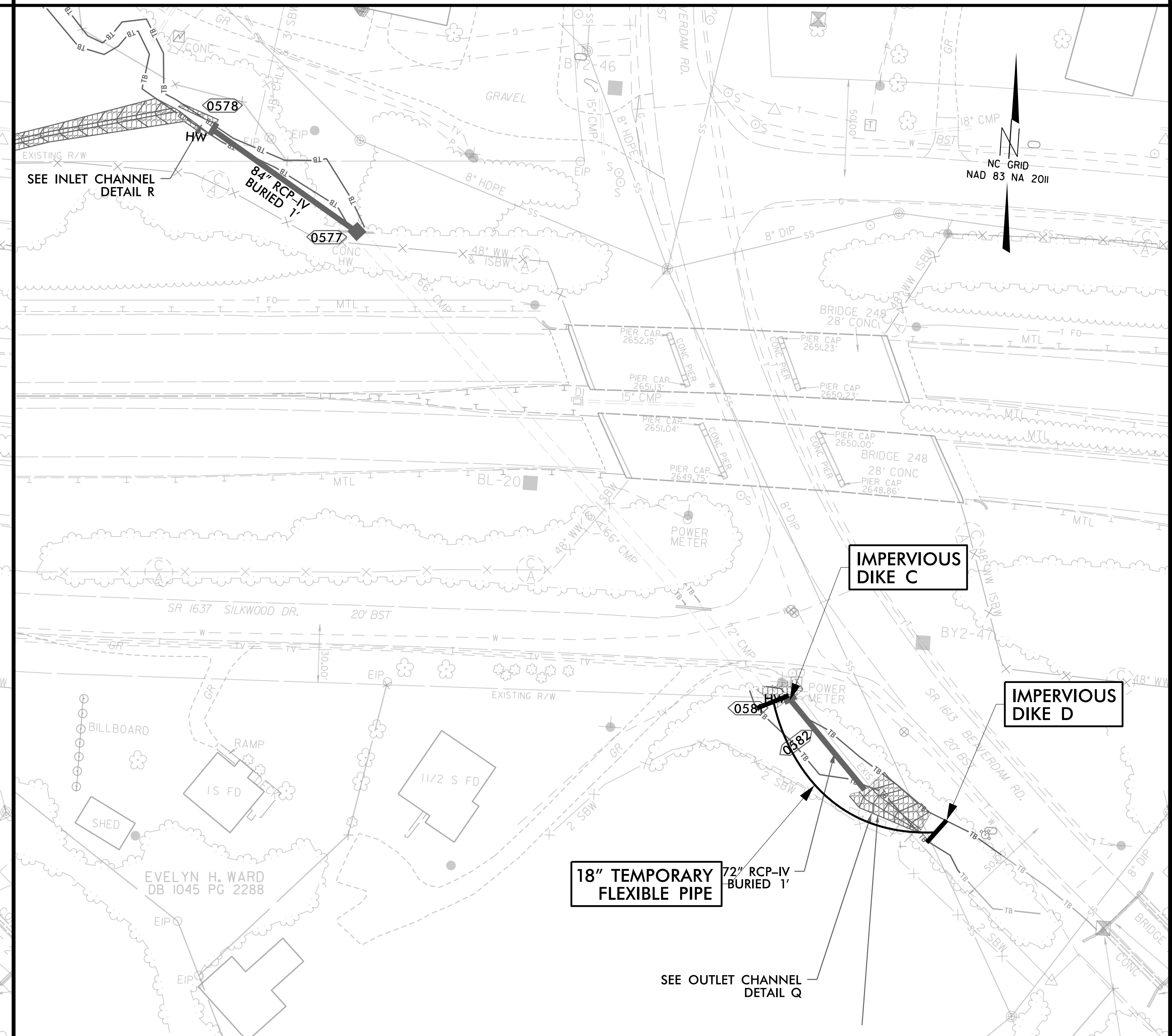
# STA -L- 315 + 00 PIPE CONSTRUCTION SEQUENCE

## PHASE I



1. UTILIZE SPECIAL STILLING BASIN(S) AS NECESSARY DURING PHASE I PIPE INSTALLATION
2. INSTALL IMPERVIOUS DIKES A AND B. UTILIZE 18" TEMPORARY PIPE TO MAINTAIN FLOW
3. INSTALL 84" RCP-IV, JUNCTION BOX AND INLET CHANNEL
4. REMOVE 18" TEMPORARY PIPE, IMPERVIOUS DIKES A AND B
5. REMOVE SPECIAL STILLING BASIN(S)

## PHASE II



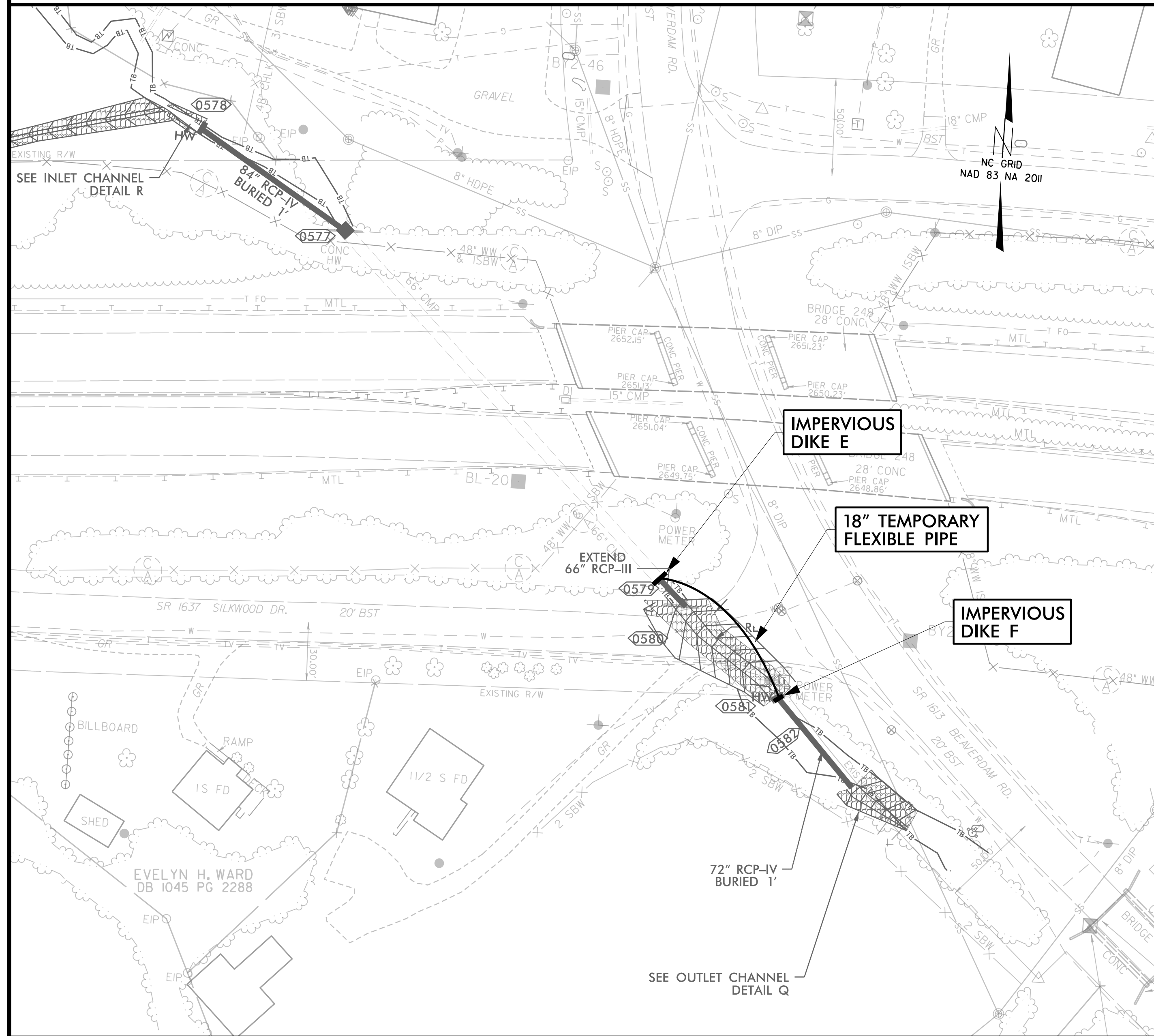
1. UTILIZE SPECIAL STILLING BASIN(S) AS NECESSARY DURING PHASE II PIPE INSTALLATION
2. INSTALL IMPERVIOUS DIKES C AND D
3. INSTALL 18" TEMPORARY PIPE TO MAINTAIN FLOW
4. INSTALL 72" RCP-IV AND OUTLET CHANNEL
5. REMOVE 18" TEMPORARY PIPE, IMPERVIOUS DIKES C AND D
6. REMOVE SPECIAL STILLING BASIN(S)



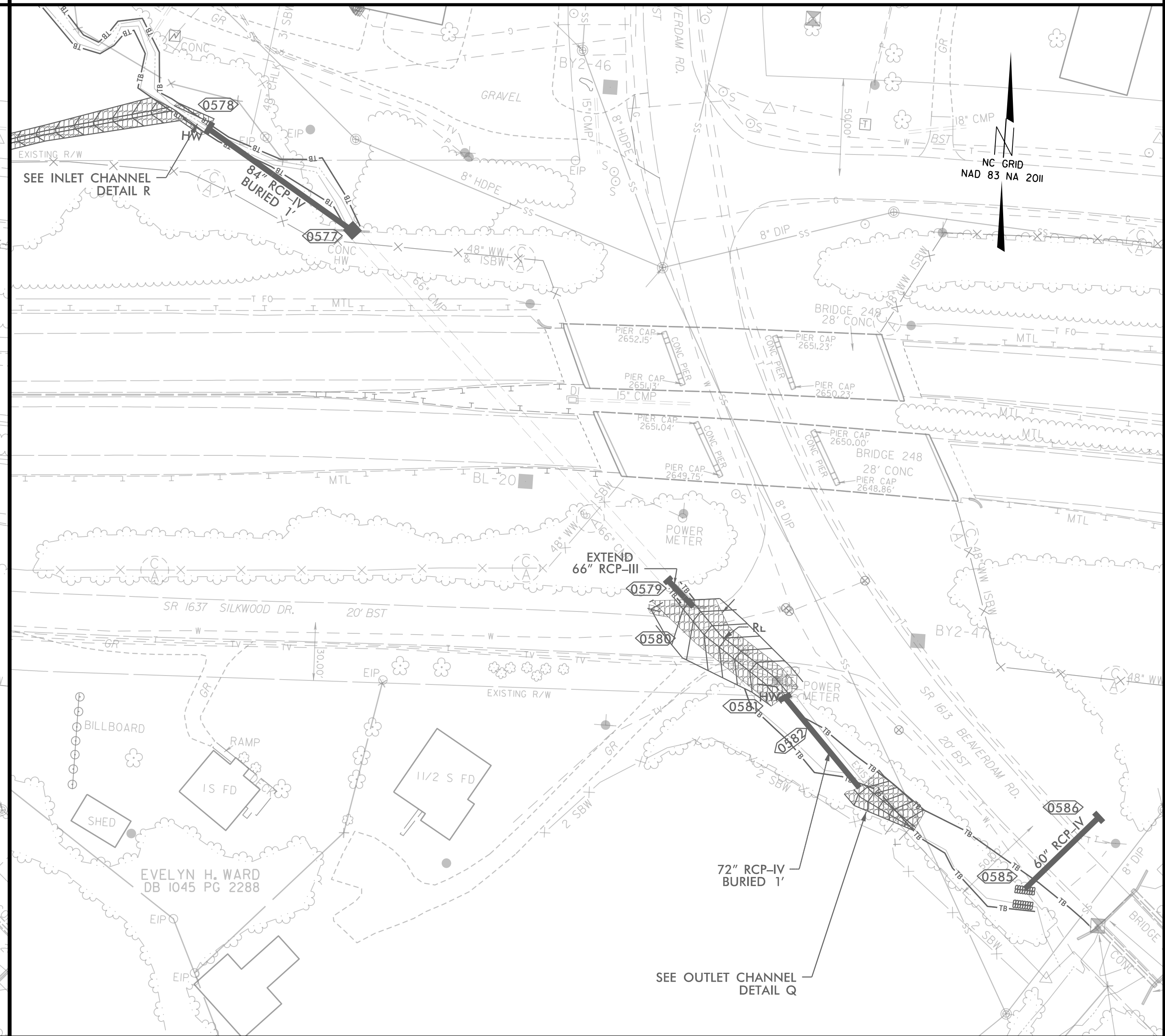
PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-5B/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# STA -L- 315 + 00 PIPE CONSTRUCTION SEQUENCE

## PHASE III



## PHASE IV



1. UTILIZE SPECIAL STILLING BASIN(S) AS NECESSARY DURING PHASE III PIPE INSTALLATION
2. INSTALL IMPERVIOUS DIKES E AND F, AND 18" TEMPORARY PIPE TO DIVERT FLOW
3. REMOVE 72" CMP, COMPLETE 6' BASE DITCH (SEE DETAIL H) AND INSTALL RIPRAP
4. REMOVE TEMPORARY PIPE, INSTALL 66" RCP-III

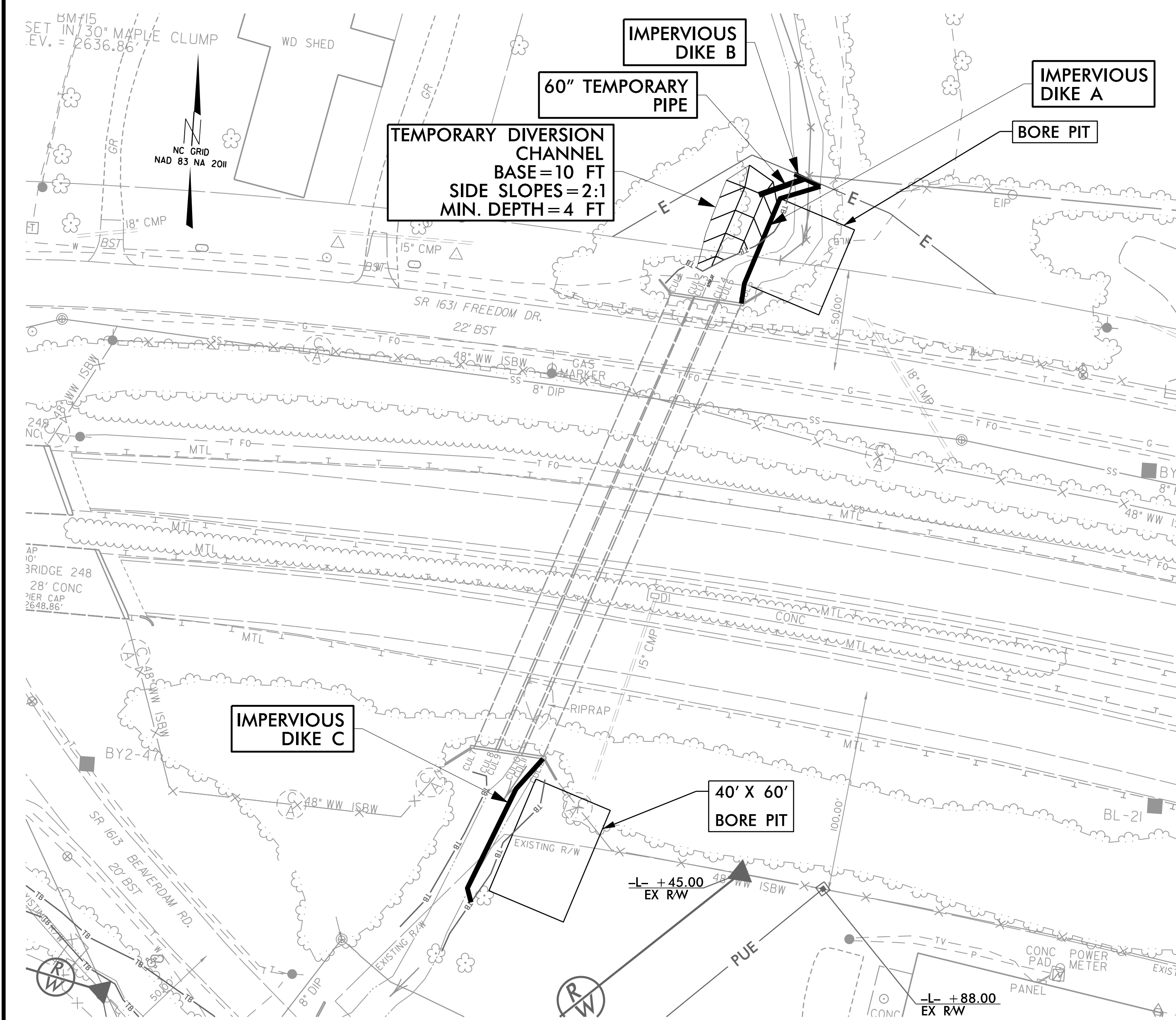
1. UTILIZE SPECIAL STILLING BASIN(S) AS NECESSARY DURING PHASE IV PIPE INSTALLATION
2. INSTALL 60" RCP-IV
3. INSTALL RIPRAP AT OUTLET
4. REMOVE SPECIAL STILLING BASIN(S)
5. COMPLETE ROADWAY



PROJECT REFERENCE NO.	SHEET NO.
HB-0002	EC-5C/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

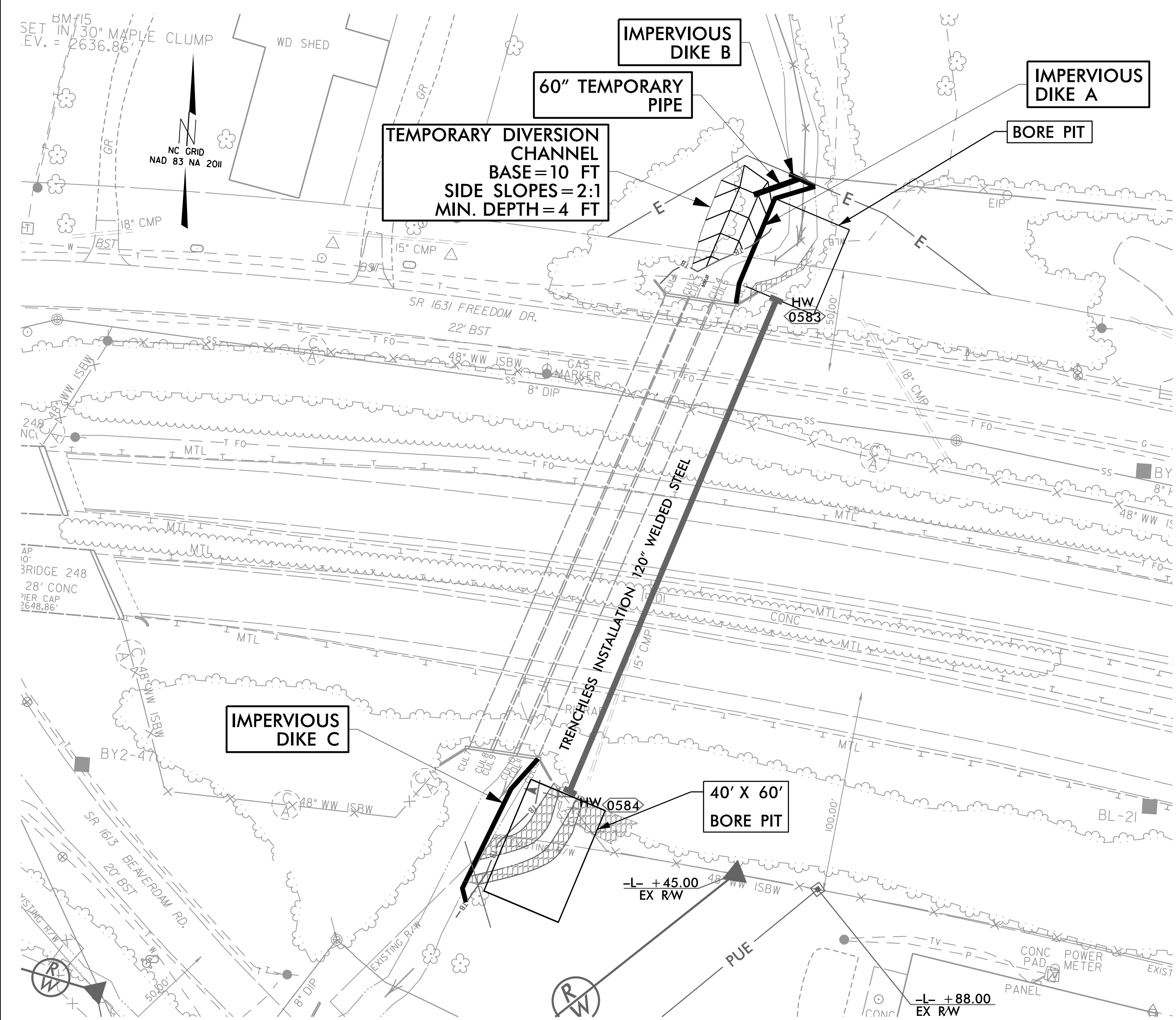
# STA -L- 320+00 PIPE CONSTRUCTION SEQUENCE

## PHASE I



1. INSTALL SPECIAL STILLING BASIN UPSTREAM.
2. INSTALL TEMPORARY DIVERSION CHANNEL. INSTALL IMPERVIOUS DIKE A AND TEMPORARY 60" PIPE UPSTREAM.
3. INSTALL IMPERVIOUS DIKES B AND C.
4. INSTALL BORE PITS UPSTREAM AND DOWNSTREAM.

## PHASE II



1. INSTALL 120" WELDED STEEL PIPE VIA TRENCHLESS INSTALLATION, REMOVING EXISTING DRAINAGE AS NEEDED.
2. COMPLETE DOWNSTREAM CHANNEL IMPROVEMENTS, INSTALL HEADWALLS AND RIPRAP.
3. RESTORE UPSTREAM CHANNEL.
4. REMOVE IMPERVIOUS DIKES.
5. REMOVE TEMPORARY DRAINAGE AND SPECIAL STILLING BASIN.
6. FILL IN TEMPORARY DIVERSION CHANNEL.
7. COMPLETE ROADWAY.












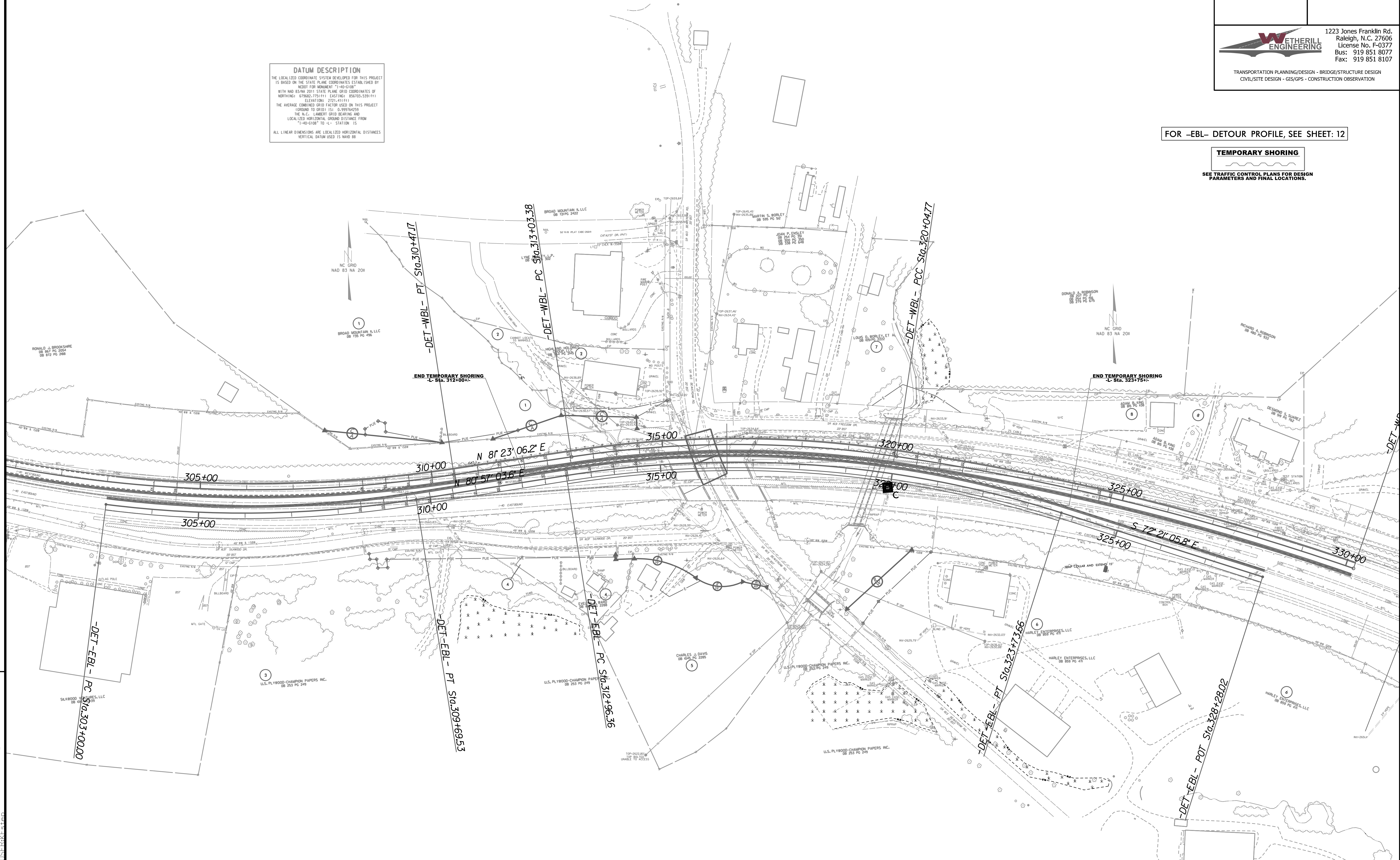
PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-8/CONST.2B-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCSDT FOR MONUMENT T1-40-C108 WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 87962.738(11) EASTING: 80670.238(11) ELEVATION: 2721.411(1) THE AVERAGE CORNER GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99974259 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM T1-40-C108 TO C-1 STATION IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAOD 88

FOR -EBL- DETOUR PROFILE, SEE SHEET: 12

**TEMPORARY SHORING**  
 SEE TRAFFIC CONTROL PLANS FOR DESIGN PARAMETERS AND FINAL LOCATIONS.


REVISIONS

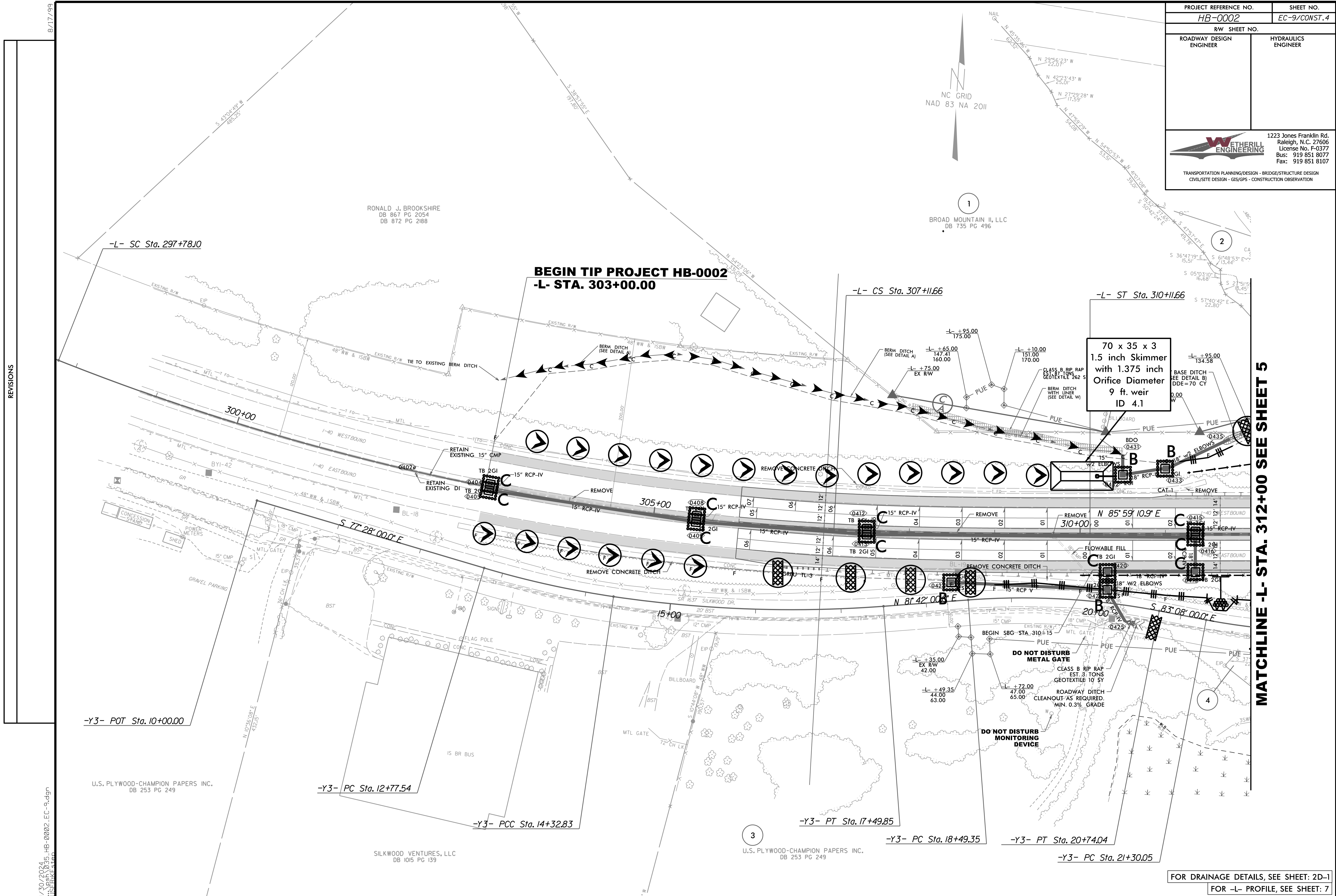


11/21/2023  
 HB-0002-EC-8.dgn  
 T1-40-C108

8/17/99



PROJECT REFERENCE NO. <b>HB-0002</b>		SHEET NO. <b>EC-9/CONST. 4</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
		1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
		TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



REVISIONS

MATCHLINE -L- STA. 312+00 SEE SHEET 5

**70 x 35 x 3**  
**1.5 inch Skimmer**  
**with 1.375 inch**  
**Orifice Diameter**  
**9 ft. weir**  
**ID 4.1**


**DO NOT DISTURB**  
**METAL GATE**

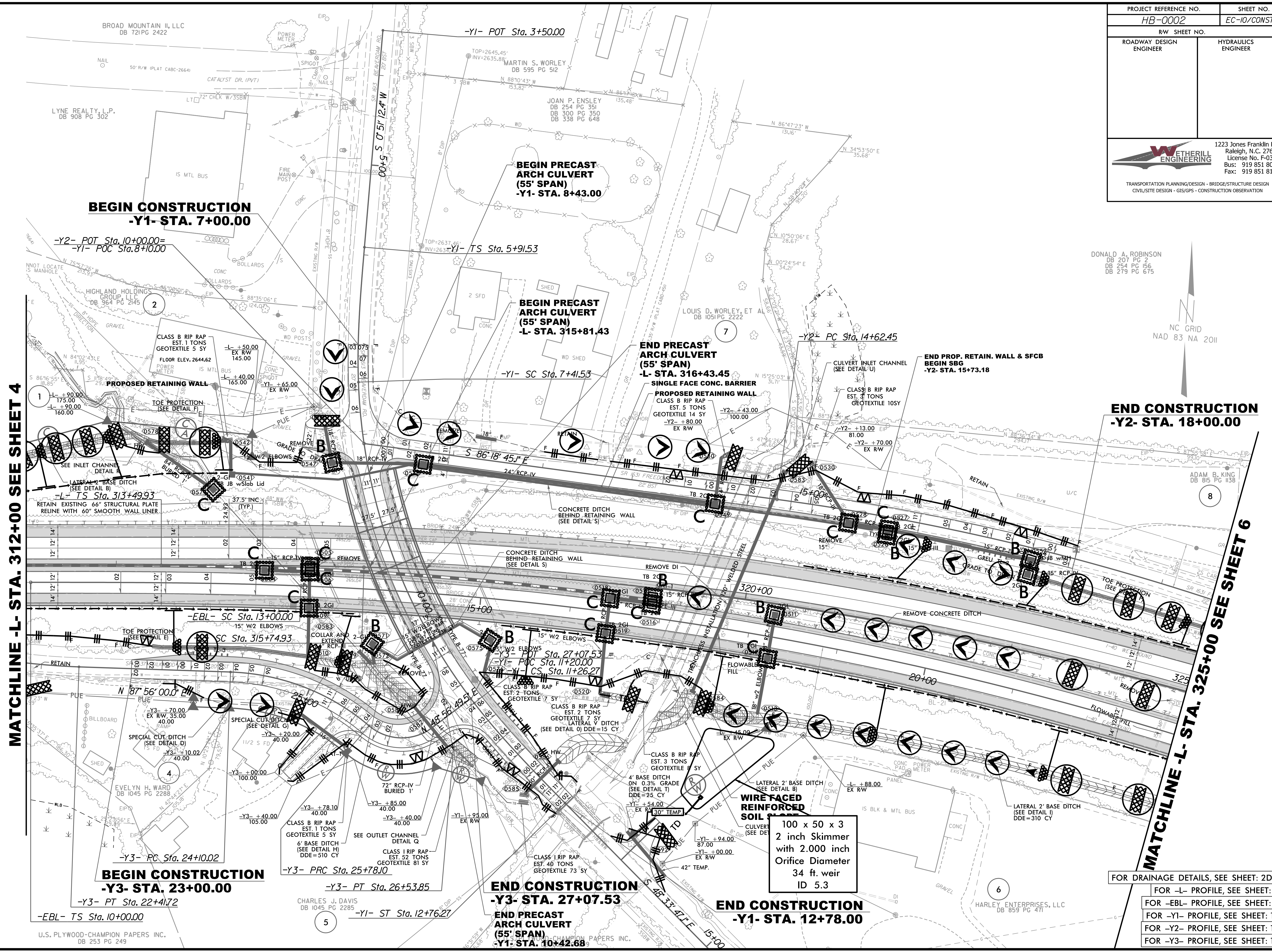
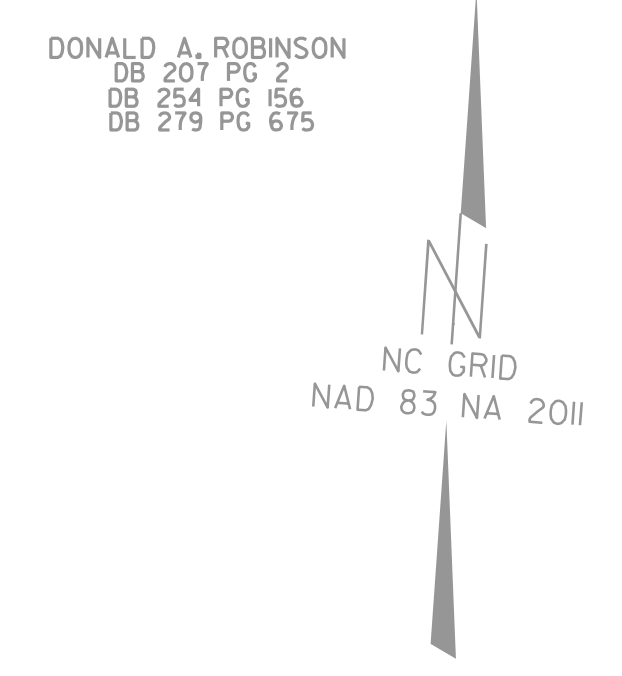
**DO NOT DISTURB**  
**MONITORING**  
**DEVICE**

FOR DRAINAGE DETAILS, SEE SHEET: 2D-1  
FOR -L- PROFILE, SEE SHEET: 7

1/30/2024 11:30 AM EC-9.dgn HB-0002-EC-9.dgn



PROJECT REFERENCE NO. <i>HB-0002</i>	SHEET NO. <i>EC-10/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	



MATCHLINE -L- STA. 312+00 SEE SHEET 4

MATCHLINE -L- STA. 325+00 SEE SHEET 6

100 x 50 x 3  
2 inch Skimmer  
with 2.000 inch  
Orifice Diameter  
34 ft. weir  
ID 5.3

FOR DRAINAGE DETAILS, SEE SHEET: 2D-1
FOR -L- PROFILE, SEE SHEET: 8
FOR -EBL- PROFILE, SEE SHEET: 8
FOR -Y1- PROFILE, SEE SHEET: 10
FOR -Y2- PROFILE, SEE SHEET: 10
FOR -Y3- PROFILE, SEE SHEET: 10

REVISIONS

1/30/2024, HB-0002-EC-10.dgn



8.17.99

-L- CURVE DATA		-EBL- CURVE DATA		-Y2- CURVE DATA	
PI Sta 325+93.35	PIs Sta 336+40.47	PI Sta 22+13.97	PIs Sta 31+94.22	PI Sta 17+51.69	PI Sta 25+33.97
$\Delta = 29^{\circ} 51' 28.7''$ (RT)	$\Theta_s = 1^{\circ} 41' 15.0''$	$\Delta = 26^{\circ} 54' 47.0''$ (RT)	$\Theta_s = 2^{\circ} 15' 00.0''$	$\Delta = 12^{\circ} 14' 45.1''$ (RT)	$\Delta = 6^{\circ} 40' 00.0''$ (RT)
D = 1' 30' 00.0"	Ls = 225.00'	D = 1' 30' 00.0"	Ls = 300.00'	D = 2' 07' 30.0"	D = 1' 45' 00.0"
L = 1,990.53'	LT = 150.01'	L = 1,794.20'	LT = 200.02'	L = 576.28'	L = 380.95'
T = 1,018.42'	ST = 75.01'	T = 913.97'	ST = 100.01'	T = 289.24'	T = 190.69'
R = 3,819.72'		R = 3,819.72'		R = 2,696.27'	R = 3,274.04'
SE = .06		SE = .06			
DS = 75 MPH		DS = 75 MPH			

PROJECT REFERENCE NO. **HB-0002** SHEET NO. **EC-11/CONST.6**

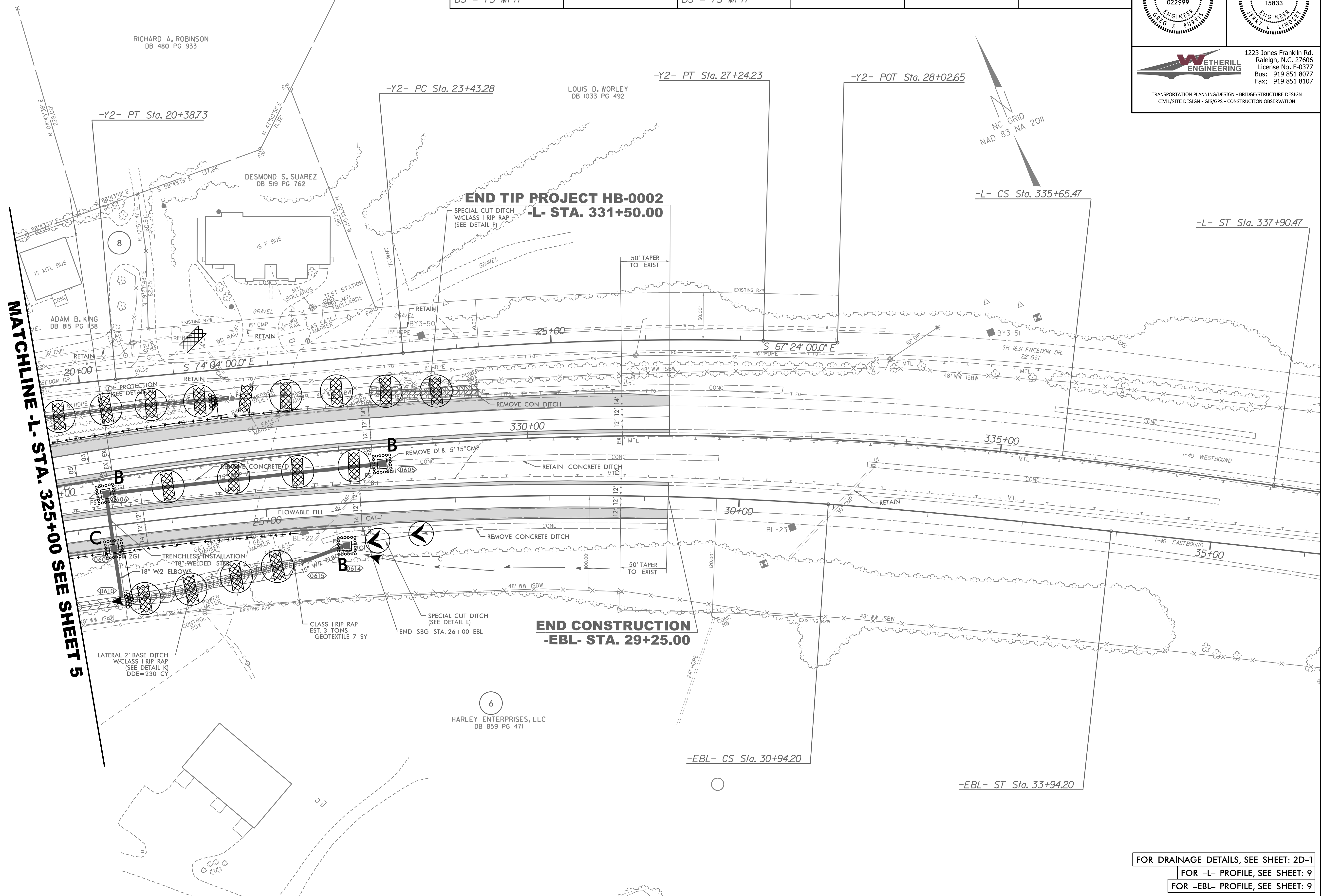
RW SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**WETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



REVISIONS

2/6/2024 10:45 AM HB-0002-EC-11.dgn

FOR DRAINAGE DETAILS, SEE SHEET: 2D-1  
 FOR -L- PROFILE, SEE SHEET: 9  
 FOR -EBL- PROFILE, SEE SHEET: 9