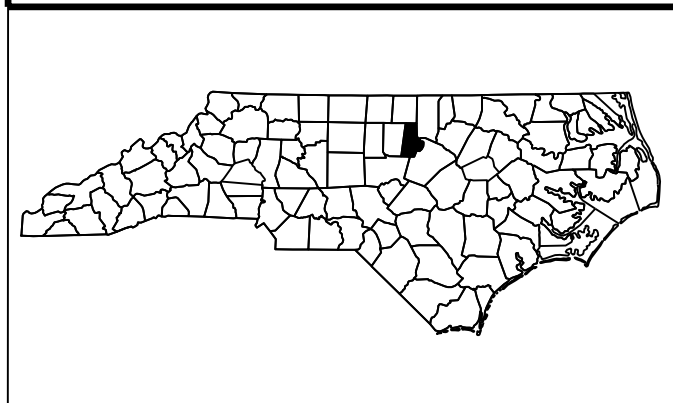
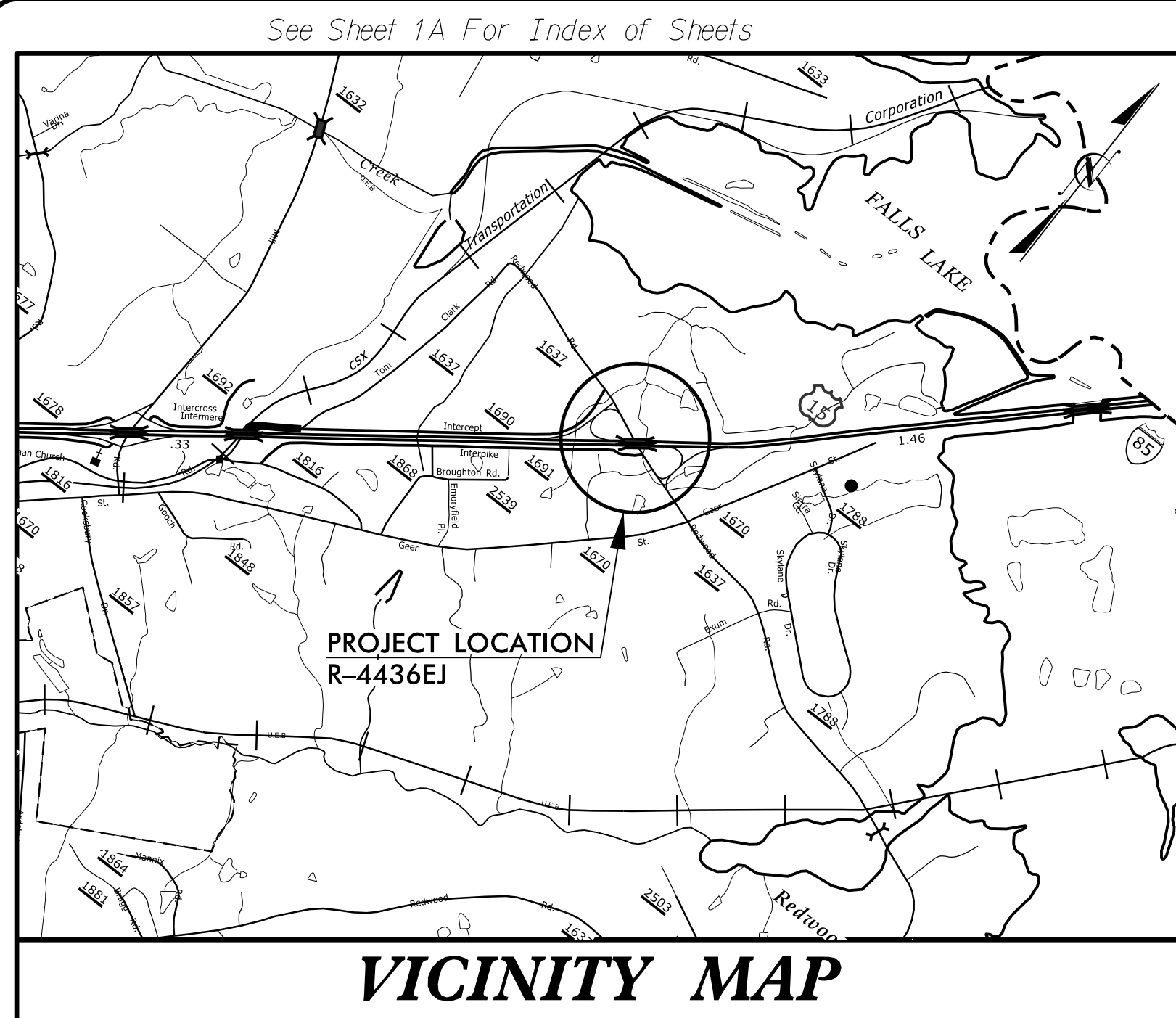


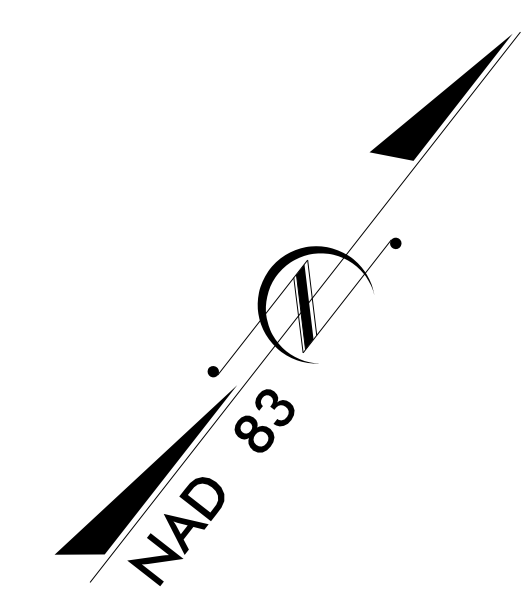
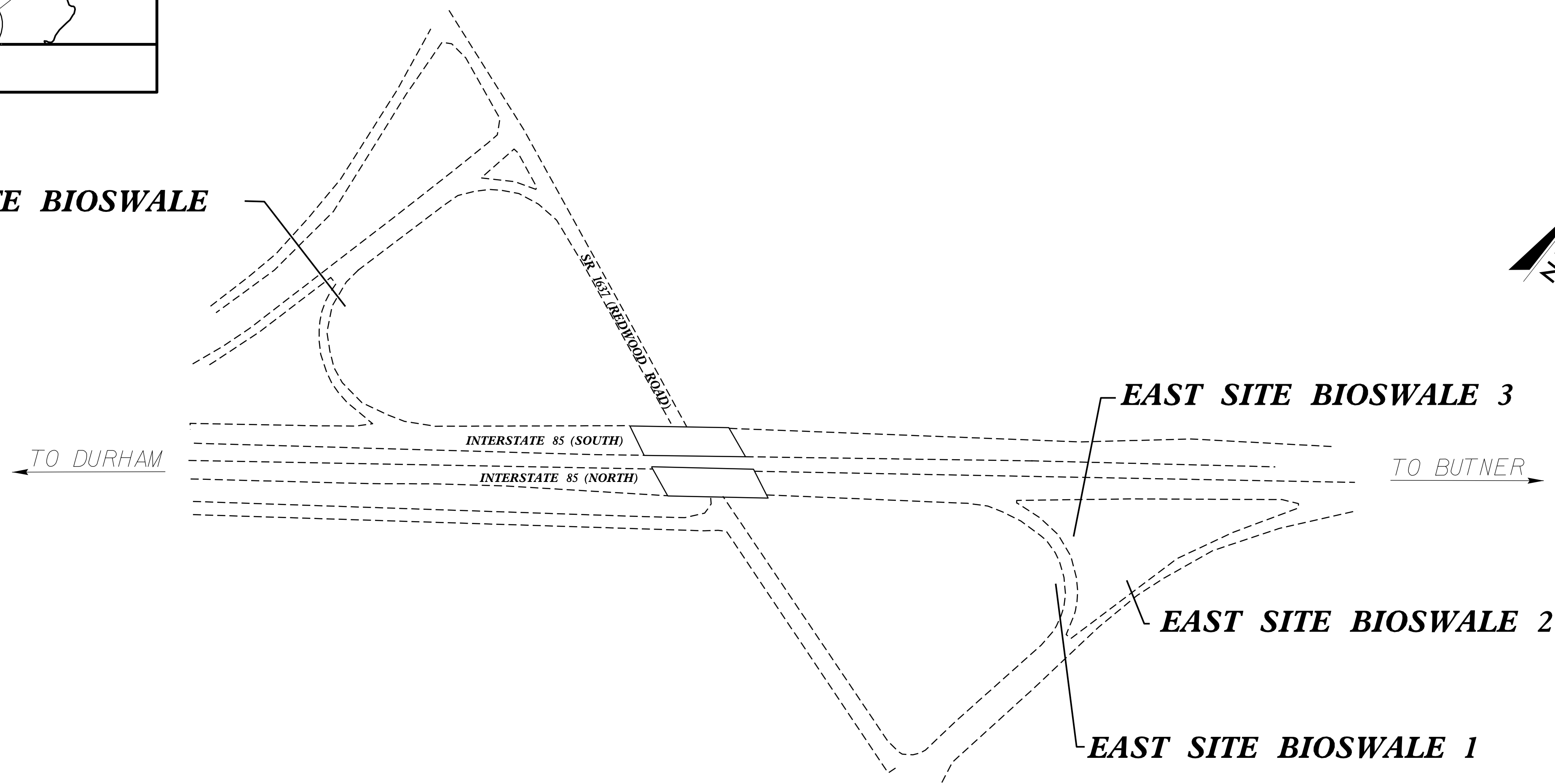
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TIP PROJECT: R-4436EJ

CONTRACT: DE00193



WEST SITE BIOSWALE



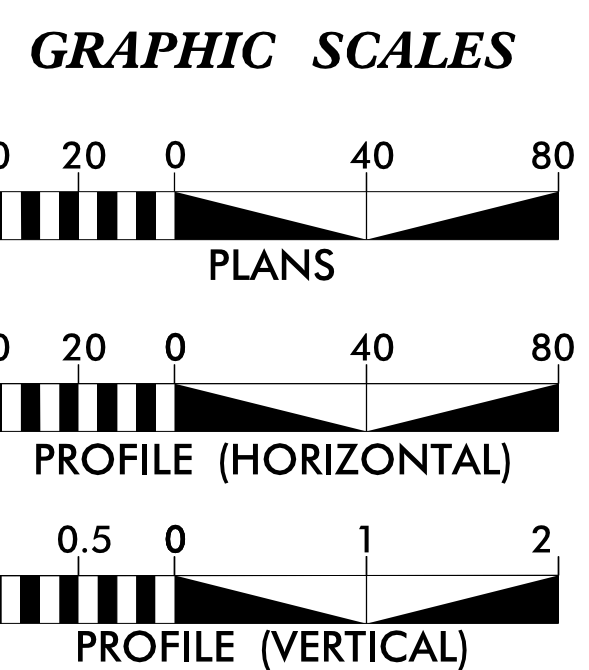
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DURHAM COUNTY

**LOCATION: I-85 AND SR 1637 (REDWOOD ROAD), NORTH OF DURHAM
SOUTH OF FALLS LAKE DRAINS TO UNNAMED
TRIBUTARY TO FALL LAKE**

**TYPE OF WORK: RETROFIT STORMWATER CONTROL MEASURES
BIO-SWALES INCLUDING: GRADING
DRAINAGE, EROSION CONTROL**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4436EJ	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34625.2.68	STP-1637(004)	CONSTRUCTION	



DESIGN DATA

PROJECT LENGTH

Prepared In the Office of:

2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

LETTING DATE:
MAY 24, 2017

STEVEN BONDOR, P.E.
PROJECT ENGINEER

ANDREW VANCE
PROJECT DESIGN ENGINEER

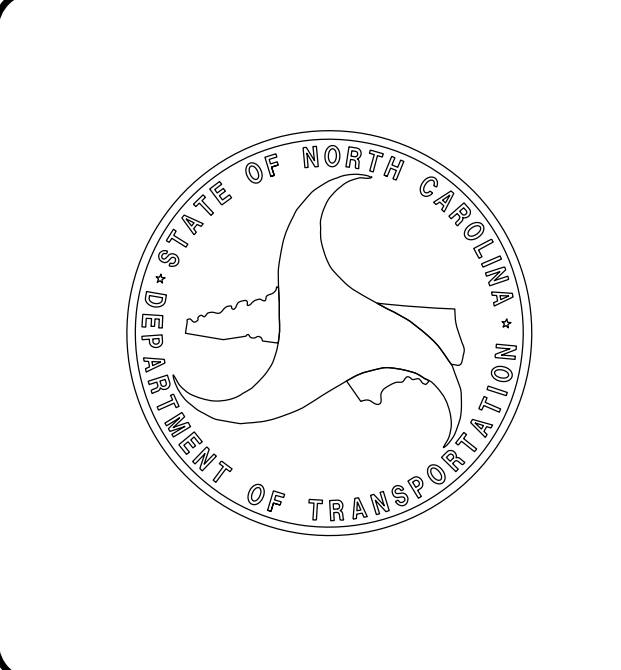
HYDRAULICS ENGINEER

DocuSigned by:
Steve Bondor 3/23/2017

STEVEN BONDOR, P.E.
SIGNATURE:

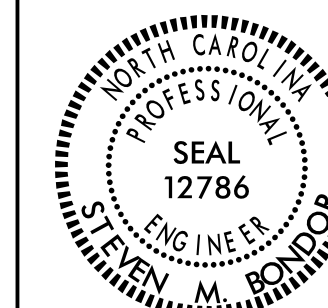
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USER: sbondor

HYDRAULICS
ENGINEER



DocuSigned by:
Steven Boudar
SFD582564149469

3/21/2017

INDEX OF SHEETS

SHEET NUMBER	INDEX OF SHEETS
	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
1C-2	SURVEY CONTROL SHEET
2D-1	DRAINAGE DETAILS
3B-1	SUMMARY OF QUANTITIES
3D-1	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN AND PROFILE WEST BIOSWALE SITE
5	PLAN AND PROFILE WEST BIOSWALE SITE
6	PLAN AND PROFILE EAST BIOSWALE SITE - 1
7	PLAN AND PROFILE EAST BIOSWALE SITE - 2
8	PLAN AND PROFILE EAST BIOSWALE SITE - 3
TMP-1	TRANSPORTATION MANAGEMENT PLAN
EC-1	EROSION CONTROL PLAN WEST BIOSWALE SITE
EC-2	EROSION CONTROL PLAN EAST BIOSWALE SITES
EC-3	EROSION CONTROL DETAILS

STANDARD DRAWINGS

EFF. 01-17-2012
REV. 02-29-2016

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD OF PIPE INSTALLATION
DIVISION 8 - INCIDENTALS	
816.04	MARKERS FOR DRAINAGE STRUCTURE AND CONC PAD
840.14	CONCRETE DROP INLET
840.15	BRICK DROP INLET
840.16	DROP INLET FRAME AND GRATES
876.03	DRAINAGE DITCHES WITH CLASS A RIP RAP
876.04	DRAINAGE DITCHES WITH CLASS B RIP RAP

GENERAL NOTES

- SPECIFICATIONS: NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (JANUARY 2012).
- GRADING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATIONS OF THE PROPOSED DITCHES. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY NCDOT IN ORDER TO SECURE A PROPER TIE-IN.
- SUBSURFACE PLANS: NOT SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHALL PREPARE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

REVISIONS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	⑩ 23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠ ☠
Potential Contamination Area: Soil	☠ ? ☠
Known Contamination Area: Water	☠ ☠
Potential Contamination Area: Water	☠ ? ☠
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⋈
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	⊕
Church	⊕
Dam	⊕

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	←
Disappearing Stream	-----
Spring	-----
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite RW Marker	-----
Proposed Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	-----
Pavement Removal	-----

VEGETATION:

Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	-----
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	-----
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

POWER:	-----
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

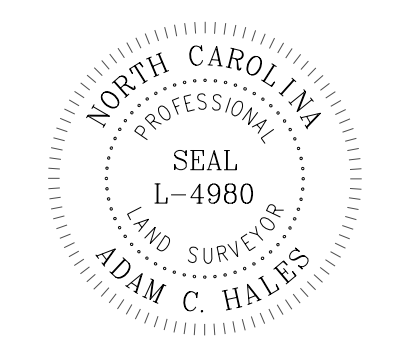
SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

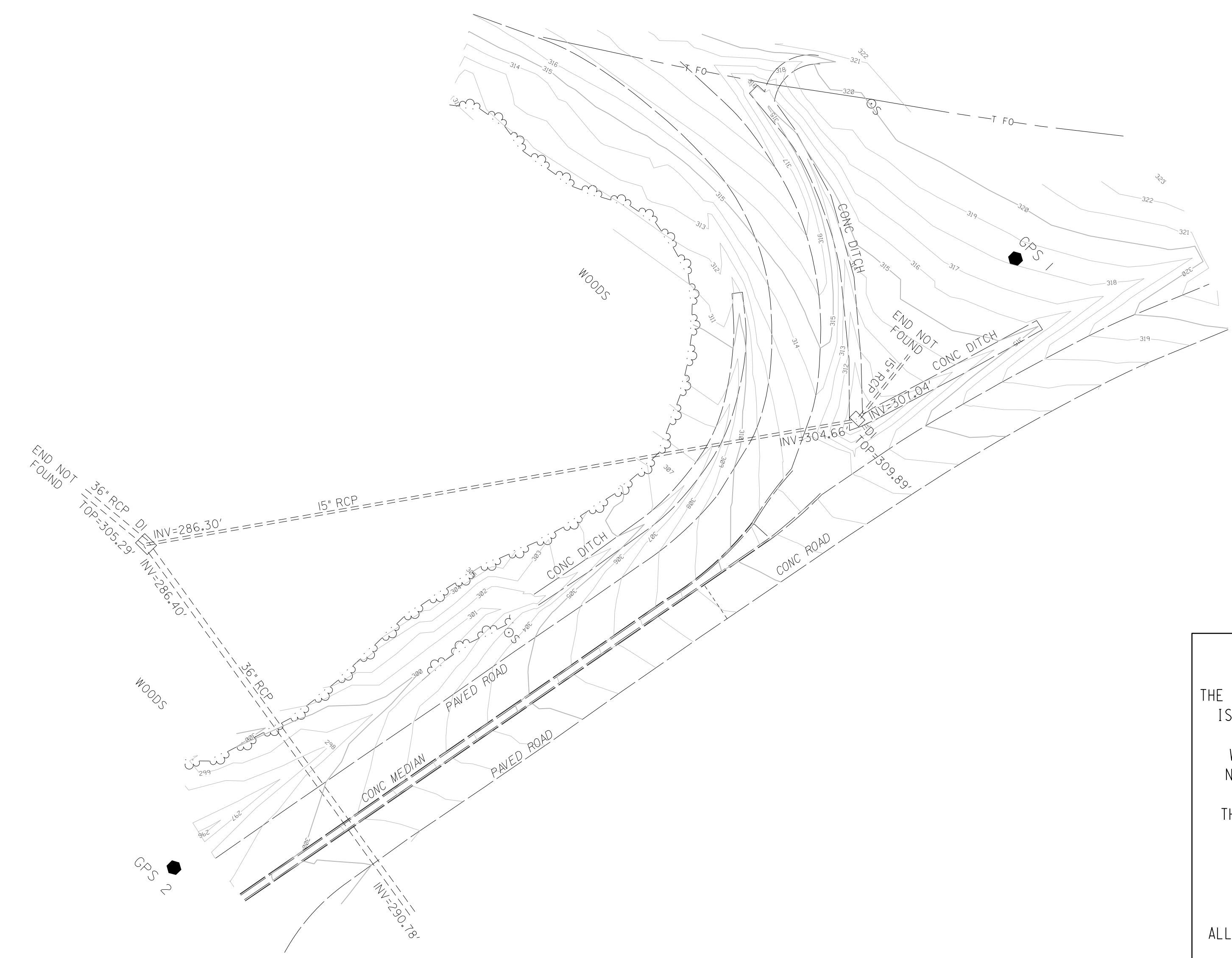
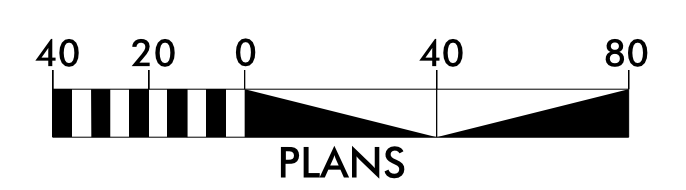
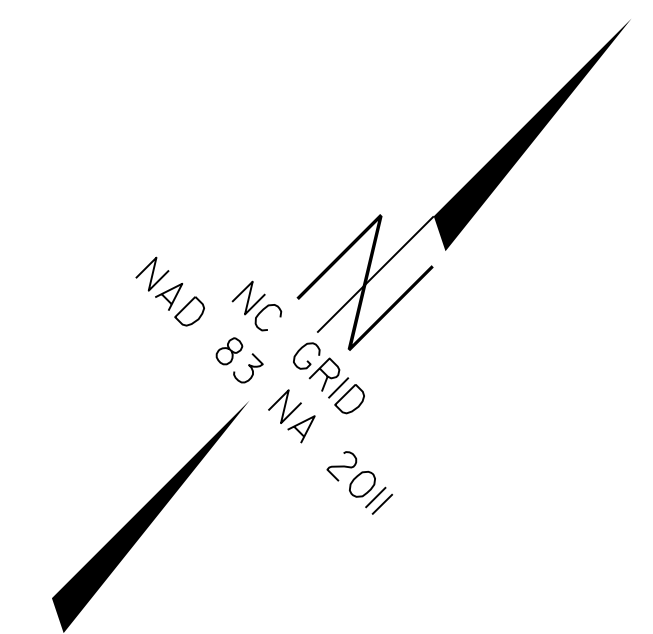
Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole LOS A (S.U.E.*)	-----
Abandoned According to Utility Records	-----
End of Information	-----

04/06/15



DocuSigned by:
Adam Hales
DB8A2208FF4F3

3/21/2017



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-2"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 839828.708(ft) EASTING: 2061021.832(ft)
 ELEVATION: 297.894(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99996202

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

EXISTING CONDITIONS SURVEY

SITE COORDINATE CONTROL AND EXISTING CONDITIONS FOR PROJECT ARE FROM A TOPOGRAPHIC SURVEY PERFORMED IN JANUARY 2017
 BY: DEWBERRY ENGINEERS INC.

PointNo.	Northing (Y)	Easting (X)	Elev (Z)	Description
1	840332.757	2061102.722	318.440	4017
2	839828.708	2061021.832	297.894	4017

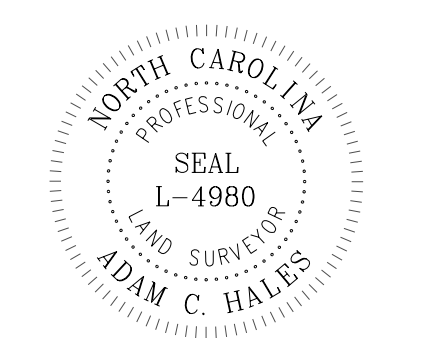
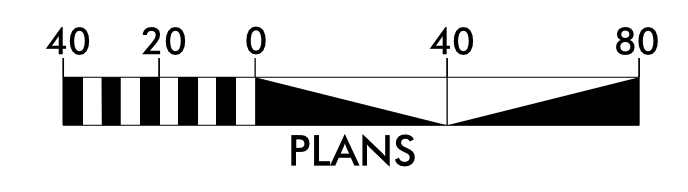
**SURVEY CONTROL
 EXISTING CONDITIONS MAP
 EAST SITE**

8/17/99

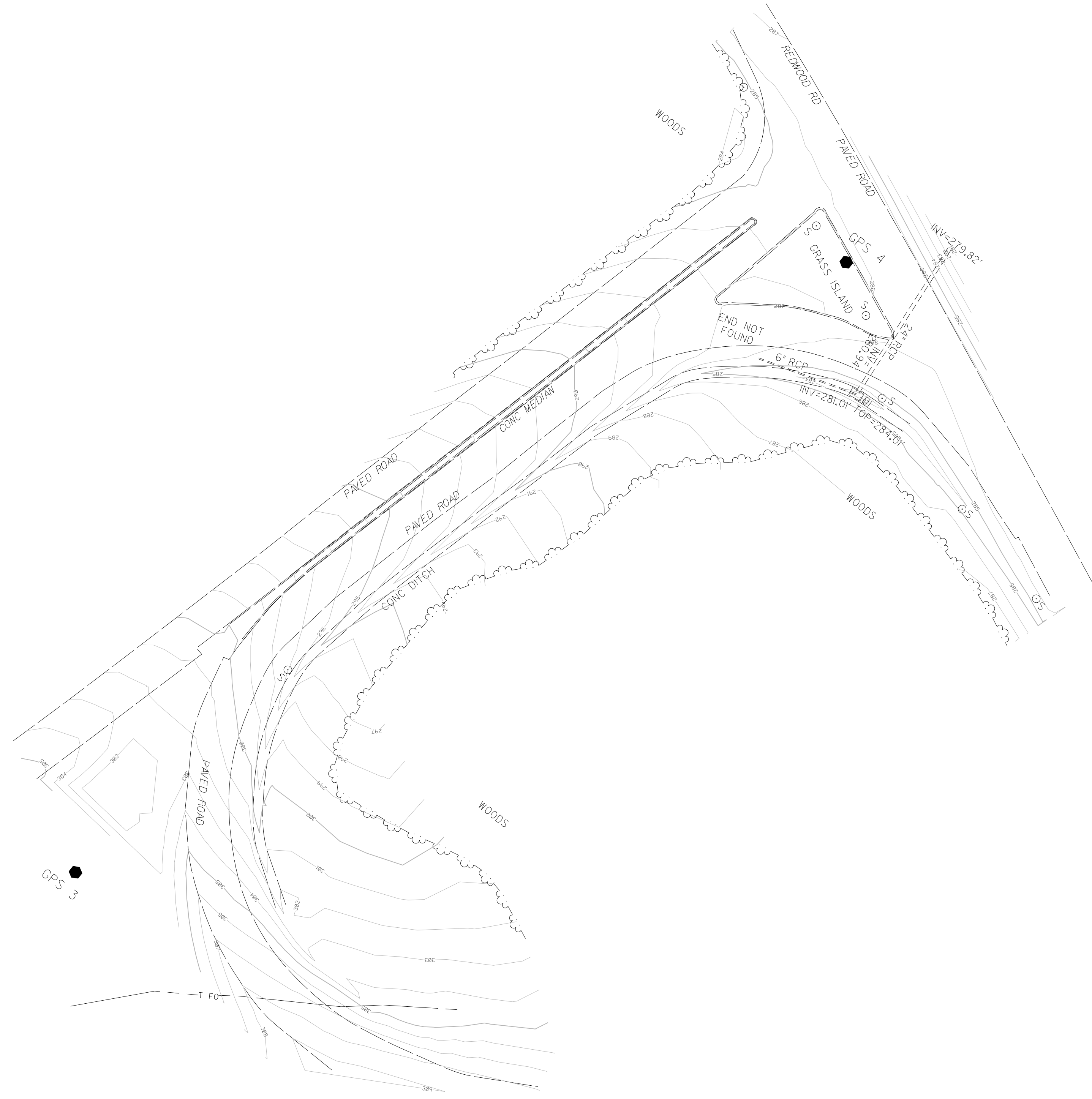
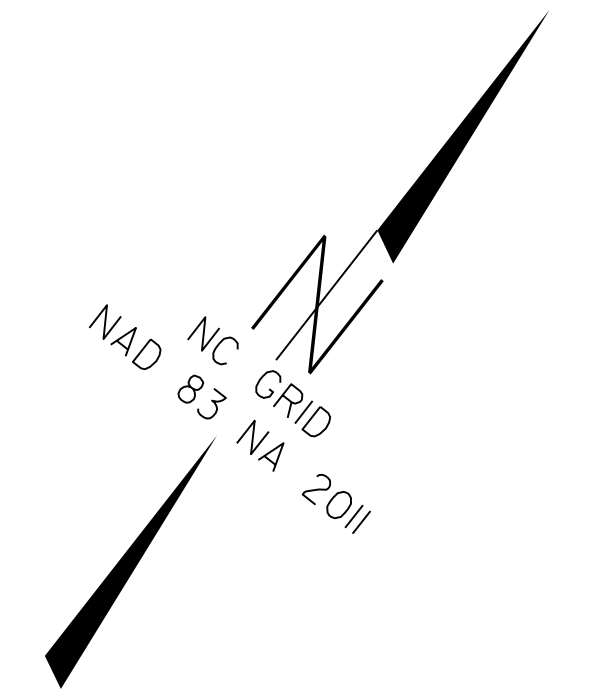


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.5000
NCBELS #: F-0929

PROJECT REFERENCE NO.	SHEET NO.
R-4436EJ	IC-2
RW SHEET NO.	



DocuSigned by:
Adam Hales
3/21/2017



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 839828.708(±) EASTING: 2061021.832(±)
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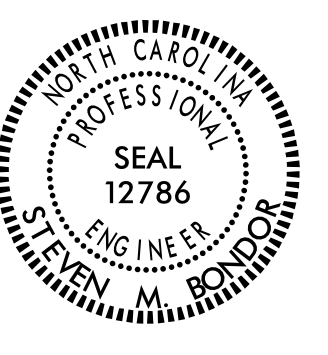
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 VERTICAL DATUM USED IS NAVD 88

EXISTING CONDITIONS SURVEY
 SITE COORDINATE CONTROL AND EXISTING CONDITIONS FOR PROJECT ARE FROM A TOPOGRAPHIC SURVEY PERFORMED IN JANUARY 2017 BY: DEWBERRY ENGINEERS INC.

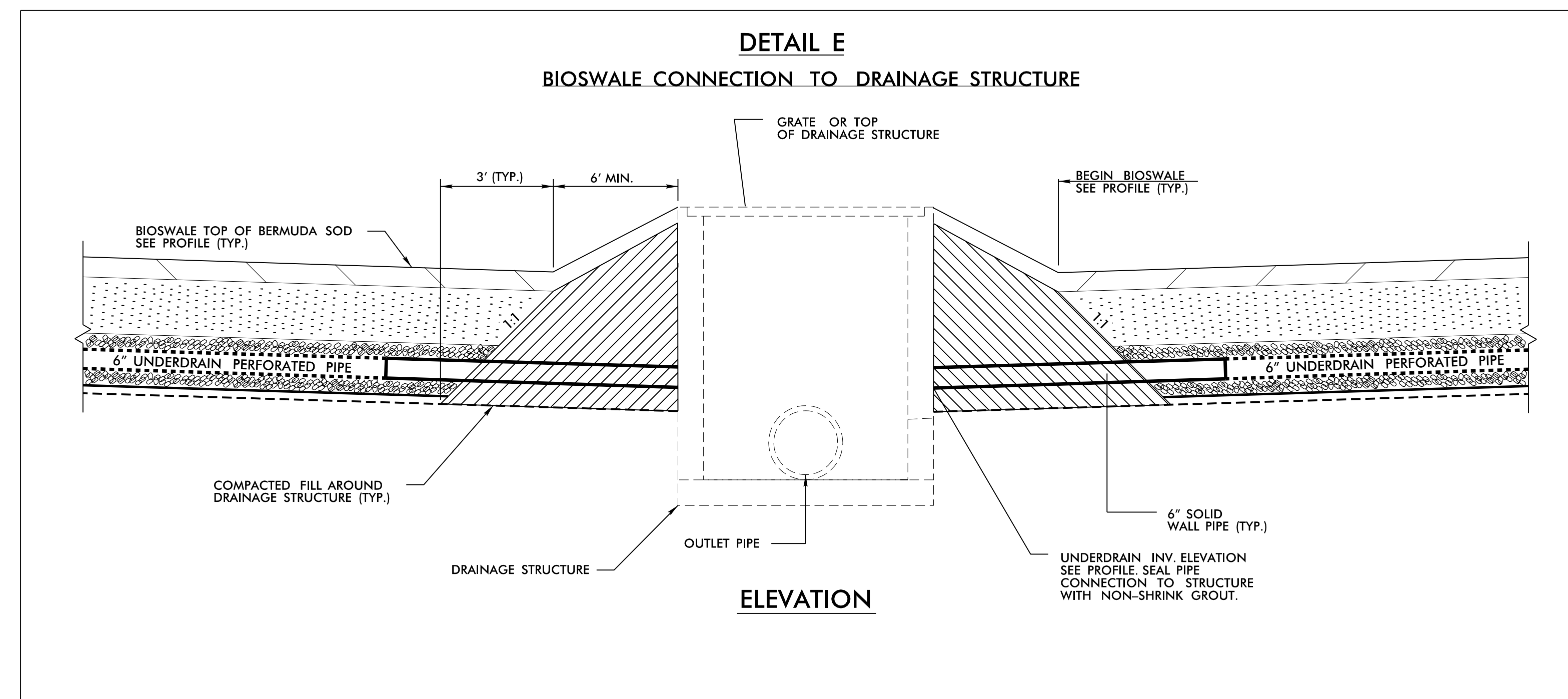
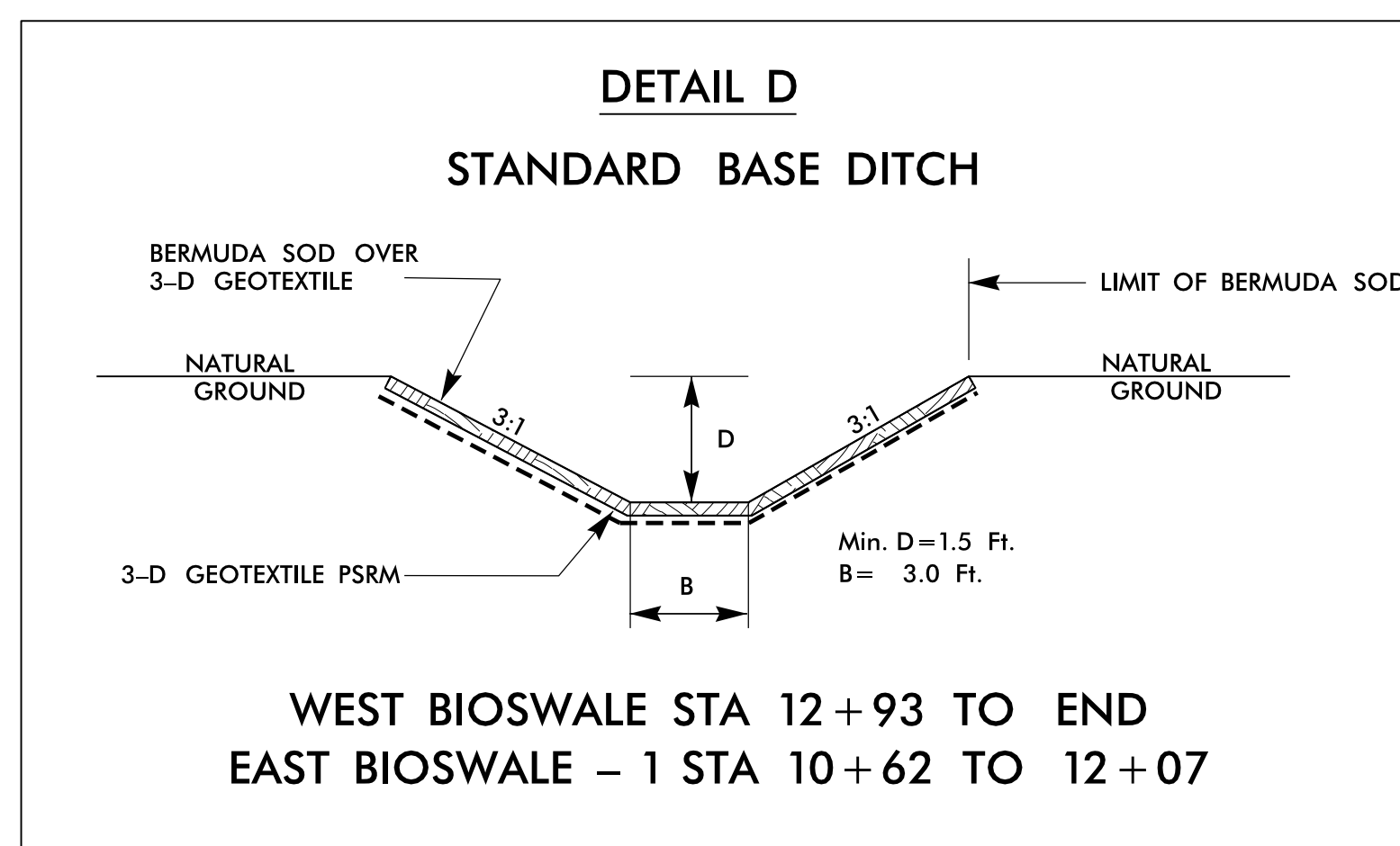
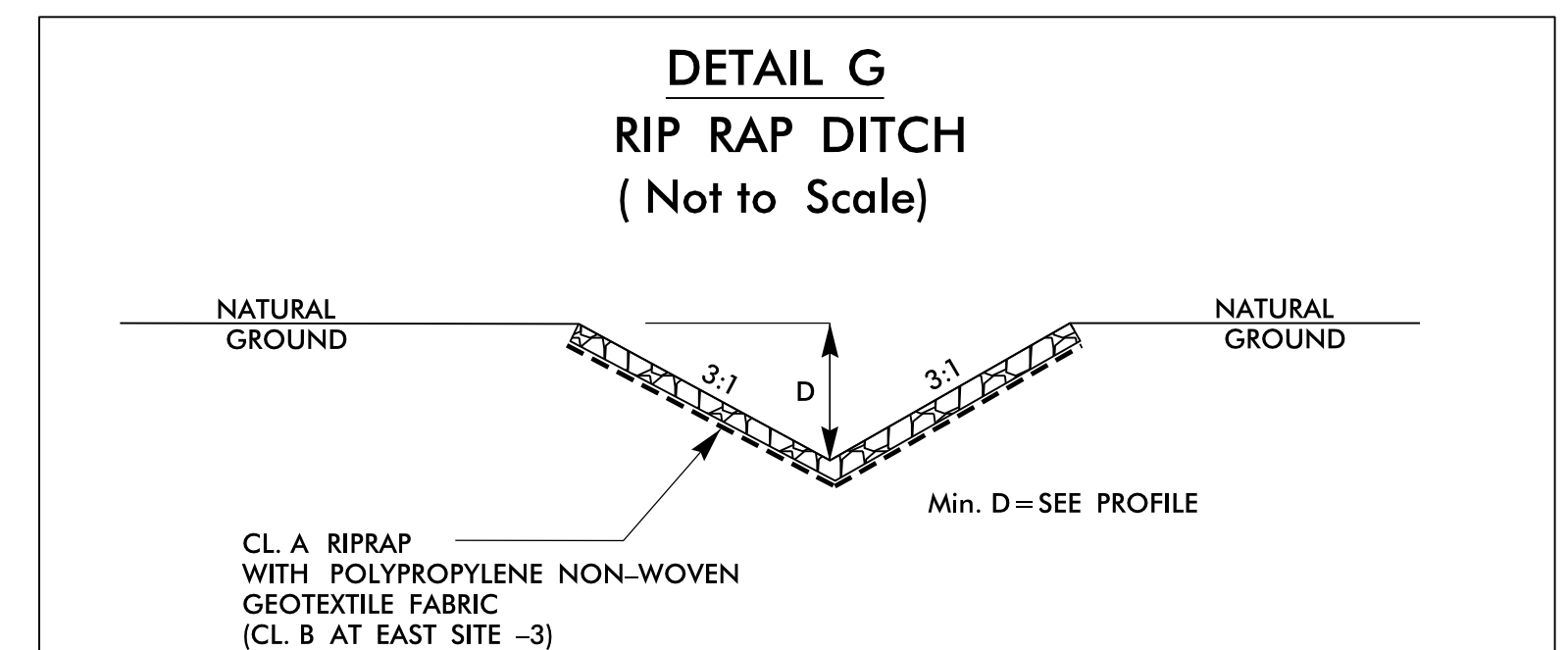
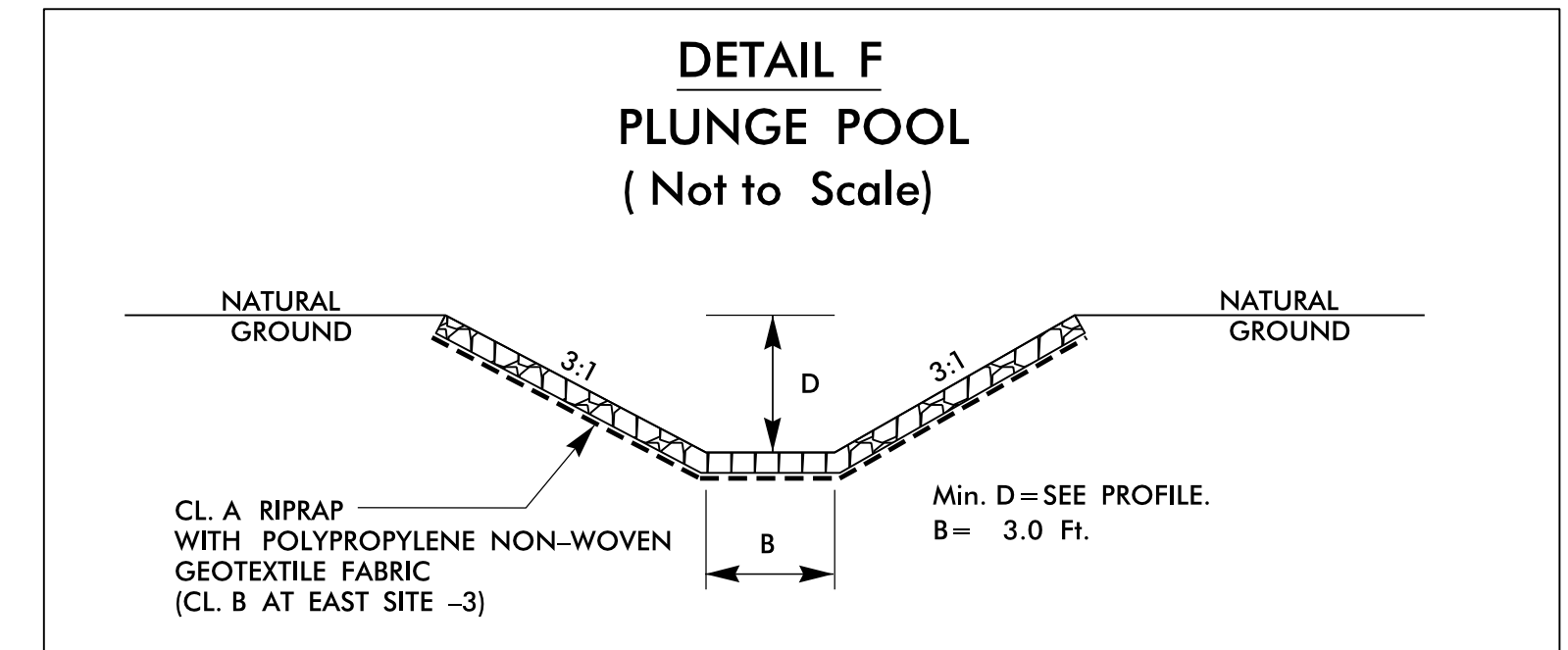
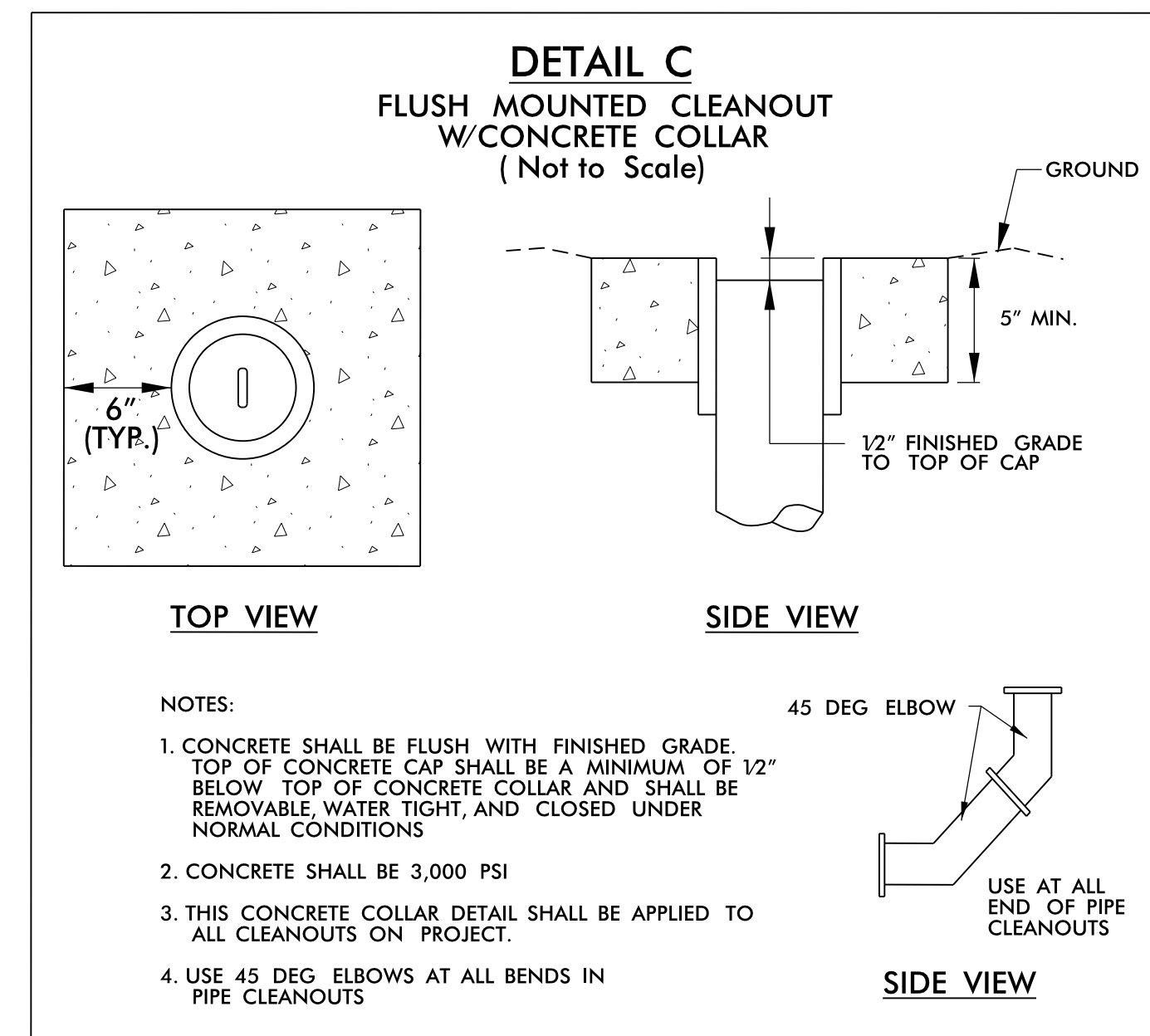
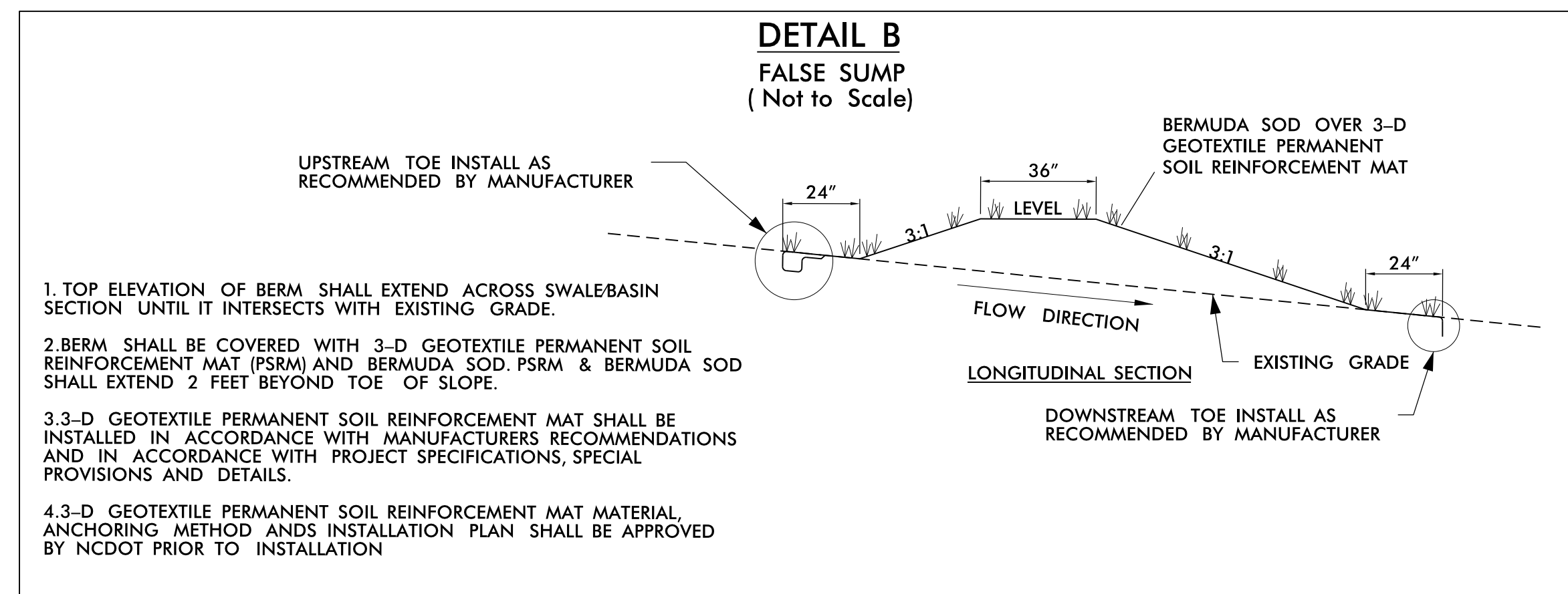
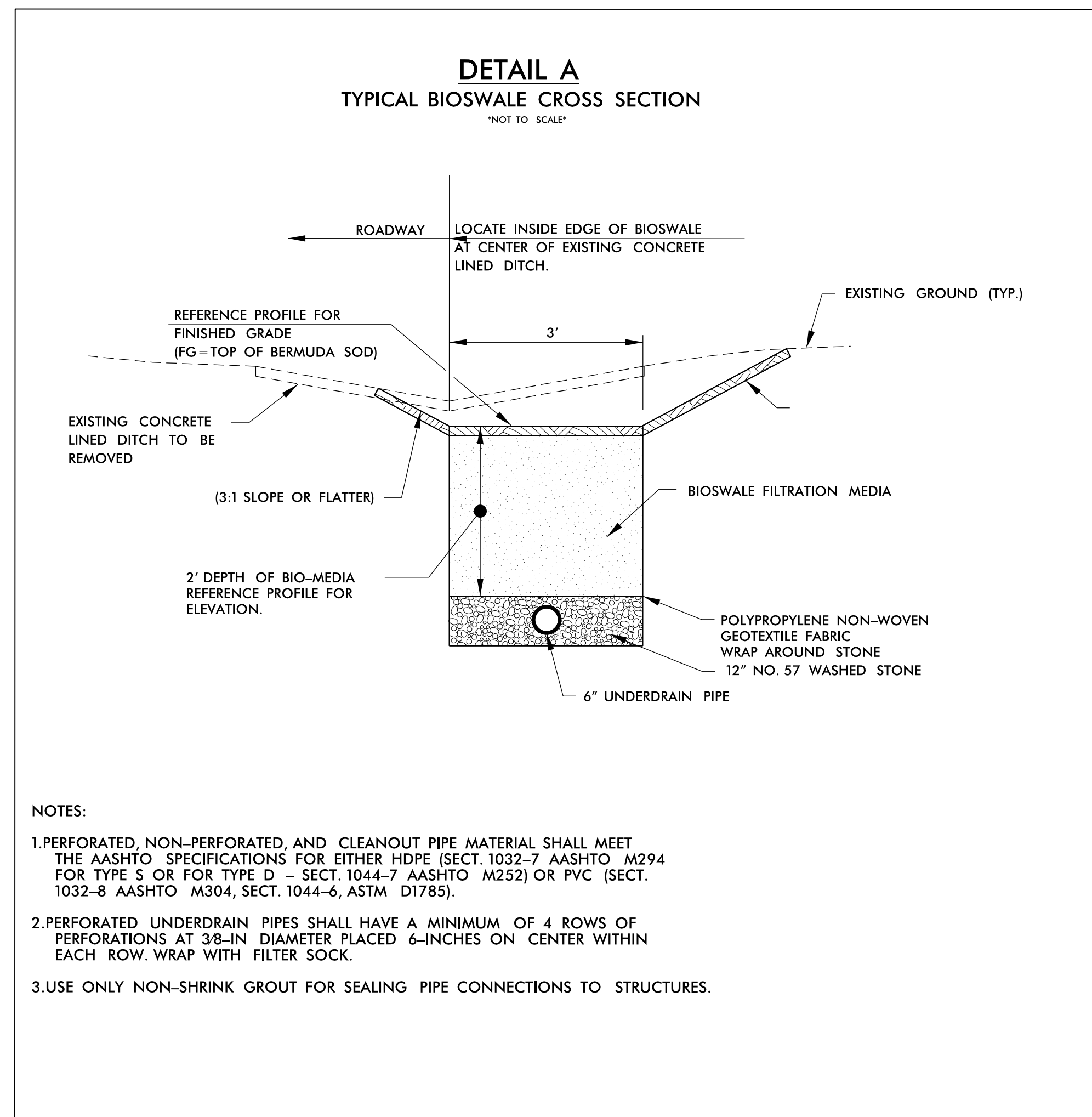
**SURVEY CONTROL
 EXISTING CONDITIONS MAP
 WEST SITE**

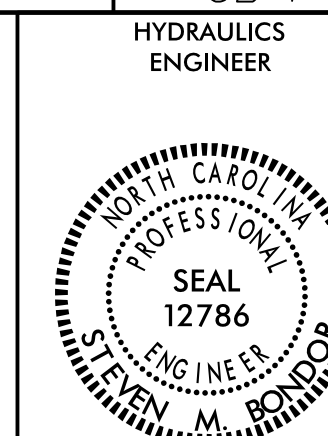
PointNo.	Northing (Y)	Easting (X)	Elev (Z)	Description
1	840332.757	2061102.722	318.440	4017
2	839828.708	2061021.832	297.894	4017
3	839686.383	2059709.722	303.495	4017
4	840210.481	2059836.810	286.375	4017

3/28/2017 11:59:41 AM
 3/24/16 JHN Existing Conditions Map West.dgn
 JHEB:ncm



DocuSigned by:
Steven M. Bondon/21/2017
SF0582964149489





DocuSigned by:
Steven Boudors/21/2017
SF0582964145489

TOTAL PROJECT SUMMARY

SUMMARY TOTAL PROJECT COMBINED			
Section	Item	Quantity	Unit
800	MOBILIZATION	0.5	LS
801	CONSTRUCTION SURVEYING	0.5	LS
226	GRADING	0.6	LS
PSP-1	BIO SWALE FILTRATION MEDIA	136	CY
305	15" DRAINAGE PIPE	145	LF
305	6" PERF SUBDRN PIPE	550	LF
305	6" OUTLET PIPE	102	LF
305	6" HDPE 45 DEGREE FITTING	12	EA
305	6" HDPE TEE FITTING	2	EA
840	MASONRY DRAINAGE STRUCTURE	3	EA
840	2 FRAME WITH GRATE STD 840.16	3	EA
PSP-2	CONCRETE CLEANOUT FLUSH MOUNT	7	EA
876	RIP RAP CL. A	68	TON
876	RIP RAP CL. B	38	TON
PSP-3	NO. 57 WASHED STONE	92	TON
PSP-4	POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	951	SY
PSP-5	3-D GEOTEXTILE PERMANENT SOIL REINFORCEMENT M	450	SY
PSP-6	DRAINAGE STRUCTURE MARKERS	7	EA
1664	SODDING (BERMUDA)	1095	SY
1664	WATER	35	1000 GAL
1660	SEEDING & MULCHING	2	ACR
1605	TEMPORARY SILT FENCE	1000	LF
1610	STONE FOR EROSION CONTROL STONE CLASS A	80	TON
1610	SEDIMENT CONTROL STONE	40	TON
1105	TEMPORARY TRAFFIC CONTROL	0.5	LS

INDIVIDUAL SITE SUMMARY

West Bioswale		
Item	Quantity	Unit
UNCLASSIFIED EXCAVATION	305	CY
BIO SWALE FILTRATION MEDIA	47	CY
REMOVE CATCH BASIN	1	EA
REMOVAL EXISTING CONCRETE DITCH LINING	353	SY
6" PERF SUBDRN PIPE	193	LF
6" OUTLET PIPE	27	LF
6" HDPE 45 DEGREE FITTING	6	EA
6" HDPE TEE FITTING	2	EA
MASONRY DRAINAGE STRUCTURE	1	EA
2 FRAME WITH GRATE STD 840.16	1	EA
CONCRETE CLEANOUT FLUSH MOUNT	4	EA
RIP RAP CL. A	34	TON
NO. 57 WASHED STONE	32	TON
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	305	SY
3-D GEOTEXTILE PERMANENT SOIL REINFORCEMENT M	289	SY
DRAINAGE STRUCTURE MARKERS	4	EA
SODDING (BERMUDA)	540	SY
WATER	17	1000 GAL
SEEDING & MULCHING	0.8	ACR
TEMPORARY SILT FENCE	600	LF
STONE FOR EROSION CONTROL STONE CLASS A	20	TON
SEDIMENT CONTROL STONE	10	TON

East Bioswale - 1		
Item	Quantity	Unit
UNCLASSIFIED EXCAVATION	203	CY
BIO SWALE FILTRATION MEDIA	41	CY
REMOVAL EXISTING CONCRETE DITCH LINING	130	SY
15" DRAINAGE PIPE	145	LF
6" PERF SUBDRN PIPE	169	LF
6" OUTLET PIPE	23	LF
6" HDPE 45 DEGREE FITTING	2	EA
MASONRY DRAINAGE STRUCTURE	2	EA
2 FRAME WITH GRATE STD 840.16	2	EA
CONCRETE CLEANOUT FLUSH MOUNT	1	EA
RIP RAP CL. A	10	TON
NO. 57 WASHED STONE	28	TON
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	246	SY
3-D GEOTEXTILE PERMANENT SOIL REINFORCEMENT M	161	SY
DRAINAGE STRUCTURE MARKERS	1	EA
SODDING (BERMUDA)	338	SY
WATER	11	1000 GAL
SEEDING & MULCHING	0.5	ACR
TEMPORARY SILT FENCE	400	LF
STONE FOR EROSION CONTROL STONE CLASS A	20	TON
SEDIMENT CONTROL STONE	10	TON

East Bioswale - 2		
Item	Quantity	Unit
UNCLASSIFIED EXCAVATION	84	CY
BIO SWALE FILTRATION MEDIA	19	CY
REMOVAL EXISTING CONCRETE DITCH LINING	67	SY
6" PERF SUBDRN PIPE	69	LF
6" OUTLET PIPE	25	LF
6" HDPE 45 DEGREE FITTING	2	EA
CONCRETE CLEANOUT FLUSH MOUNT	1	EA
RIP RAP CL. A	24	TON
NO. 57 WASHED STONE	13	TON
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	177	SY
DRAINAGE STRUCTURE MARKERS	1	EA
SODDING (BERMUDA)	84	SY
WATER	3	1000 GAL
SEEDING & MULCHING	0.1	ACR
TEMPORARY SILT FENCE	0	LF
STONE FOR EROSION CONTROL STONE CLASS A	20	TON
SEDIMENT CONTROL STONE	10	TON

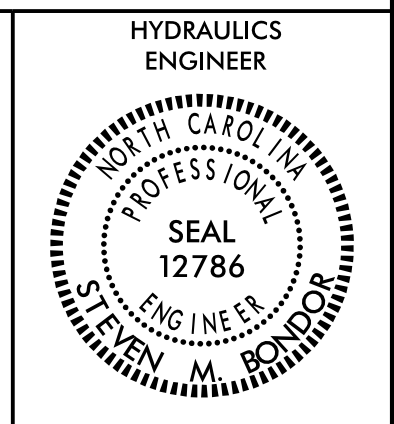
East Bioswale - 3		
Item	Quantity	Unit
UNCLASSIFIED EXCAVATION	106	CY
BIO SWALE FILTRATION MEDIA	30	CY
REMOVAL EXISTING CONCRETE DITCH LINING	101	SY
6" PERF SUBDRN PIPE	119	LF
6" OUTLET PIPE	28	LF
6" HDPE 45 DEGREE FITTING	2	EA
CONCRETE CLEANOUT FLUSH MOUNT	1	EA
RIP RAP CL. B	38	TON
NO. 57 WASHED STONE	20	TON
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	223	SY
DRAINAGE STRUCTURE MARKERS	1	EA
SODDING (BERMUDA)	133	SY
WATER	4	1000 GAL
SEEDING & MULCHING	0.3	ACR
TEMPORARY SILT FENCE	0	LF
STONE FOR EROSION CONTROL STONE CLASS A	20	TON
SEDIMENT CONTROL STONE	10	TON

8/17/19

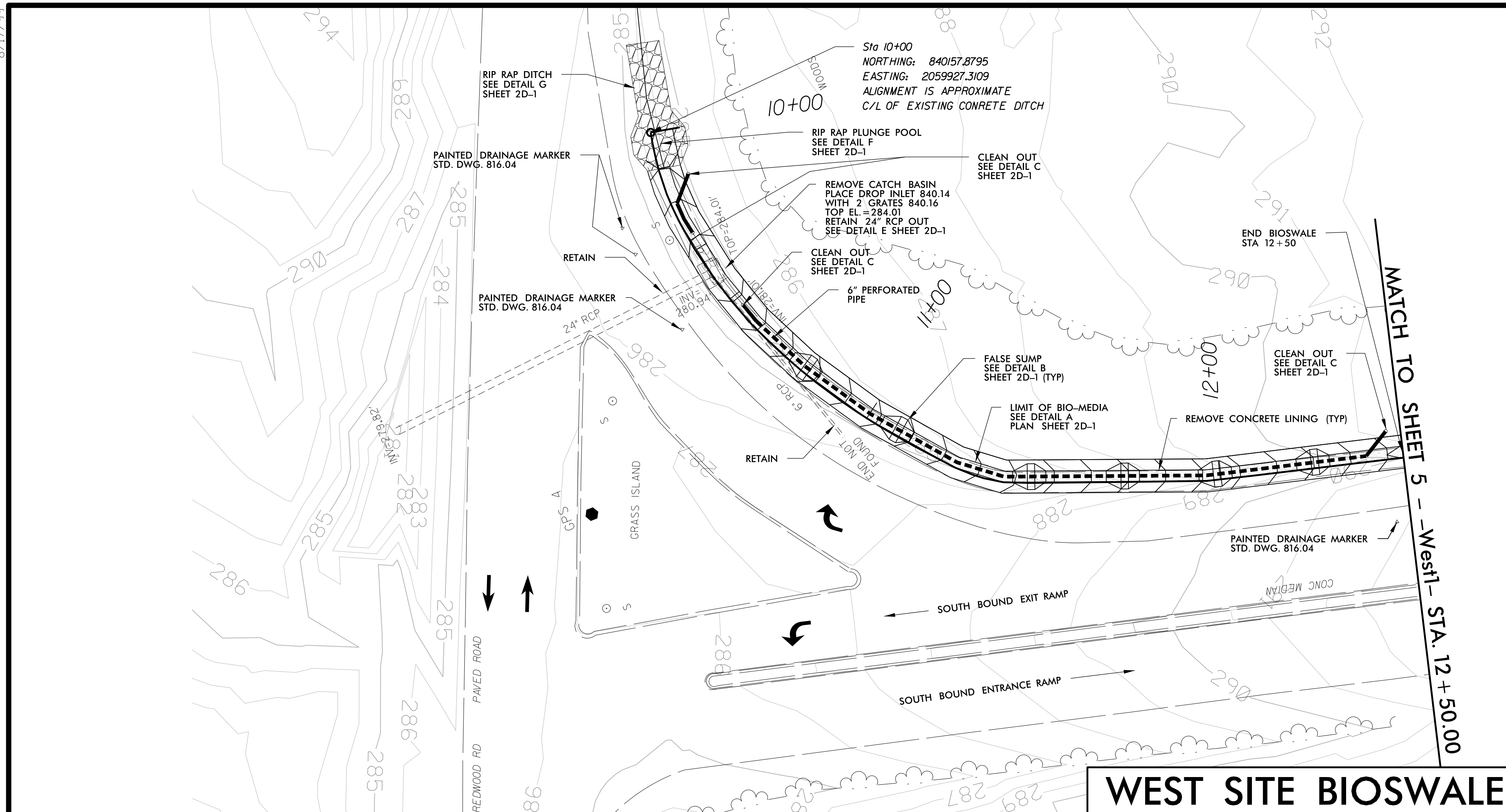
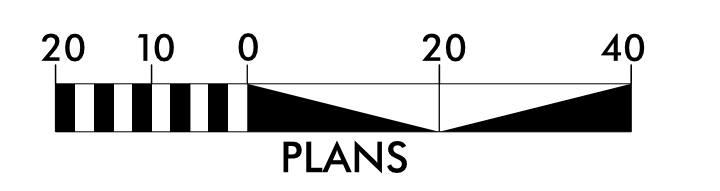
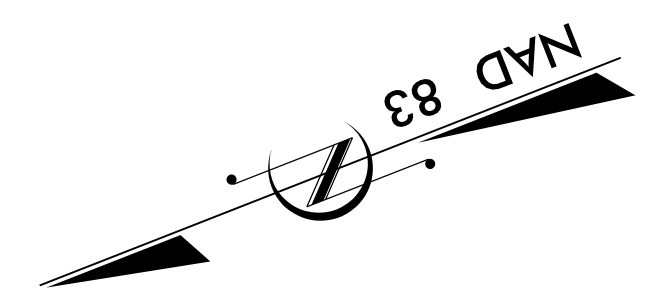


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9797
NCBELS #: F-0929

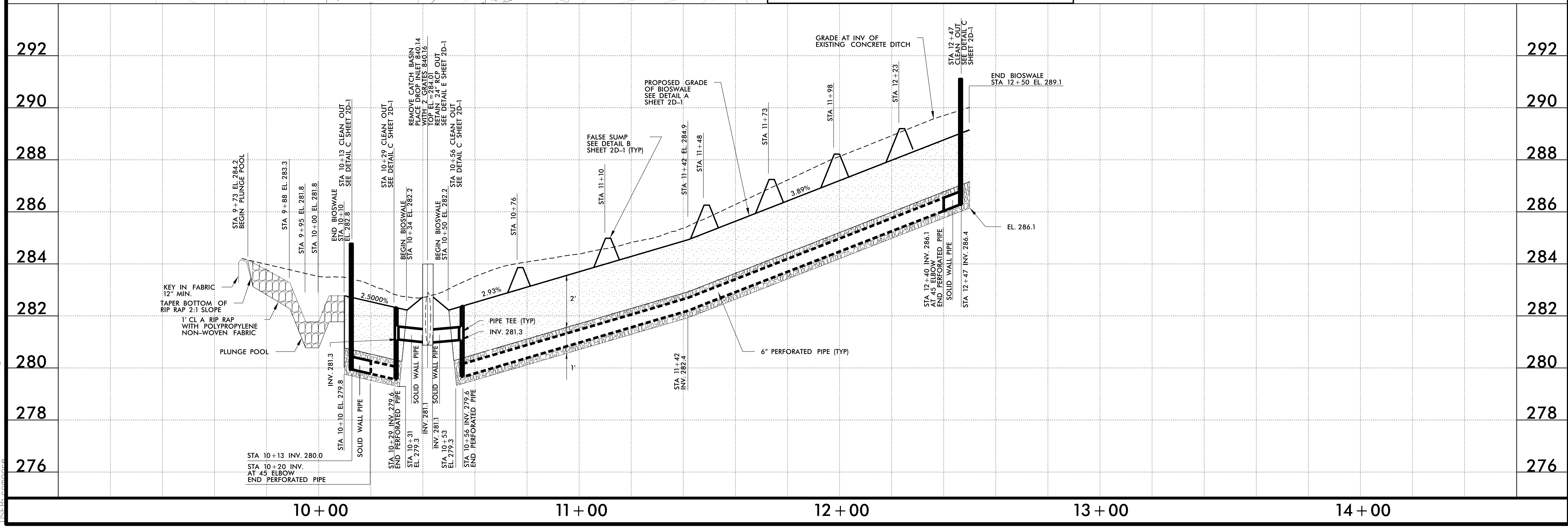
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RW SHEET NO.	



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Steven Bondor 3/23/2017
SF582864148489



WEST SITE BIOSWALE



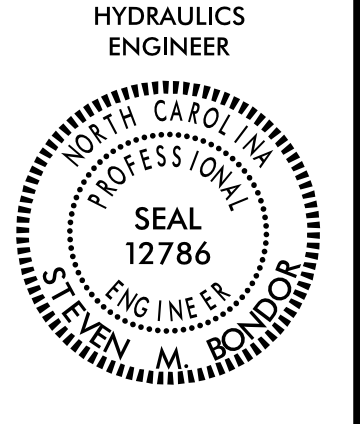
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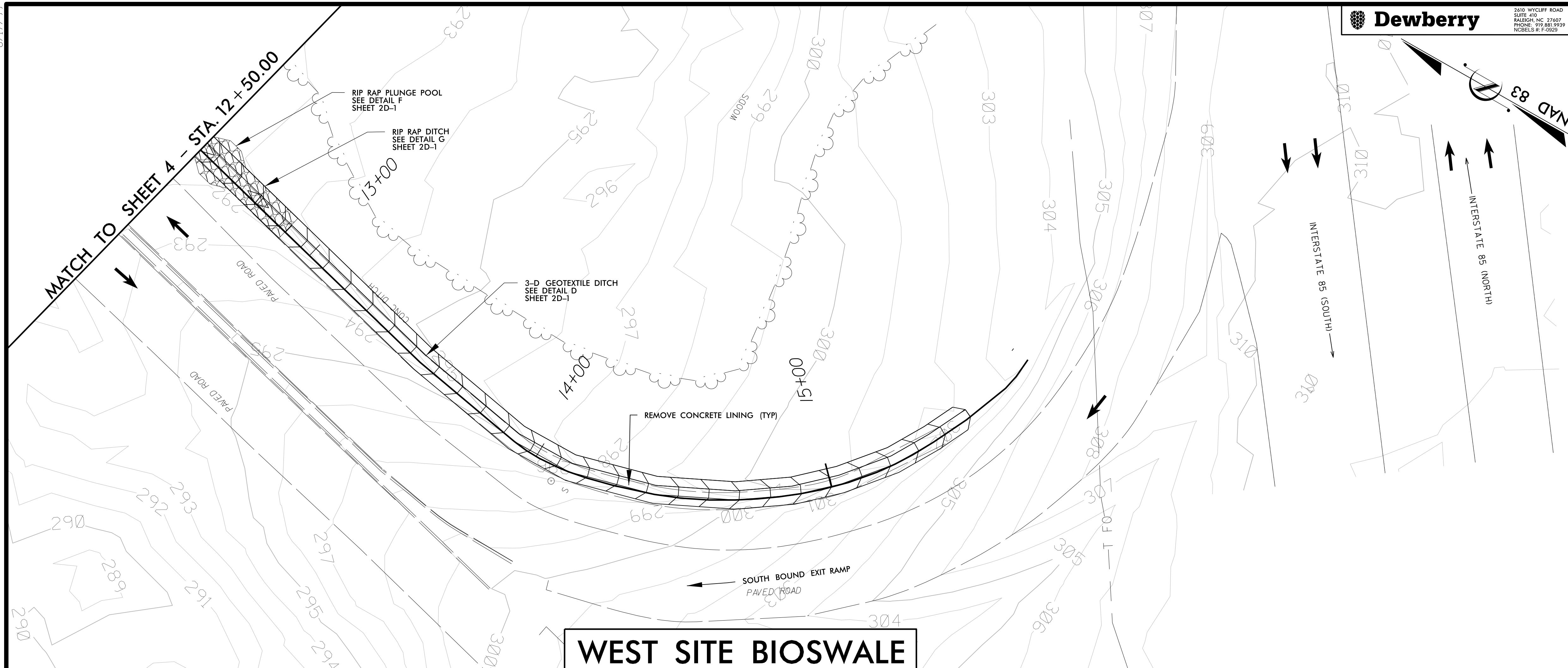
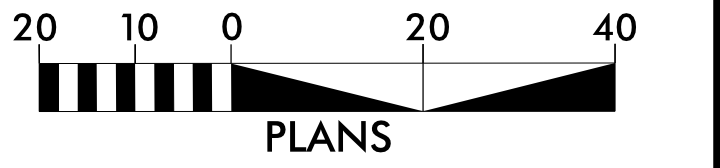


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SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9729
NCBELS #: F-0929

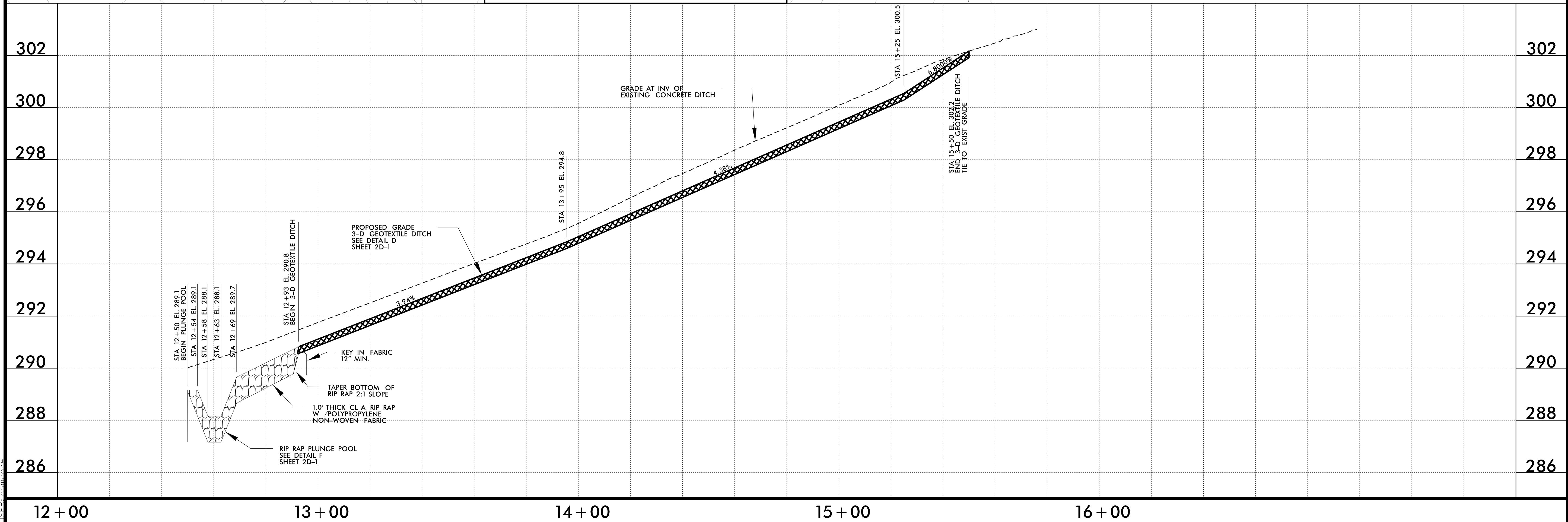
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RW SHEET NO.	



Designed by
Steven Bondors/21/2017
SFD0502864149489



WEST SITE BIOSWALE



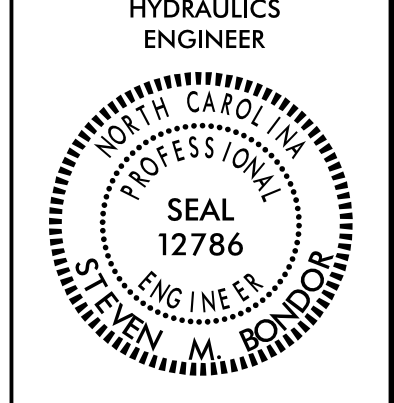
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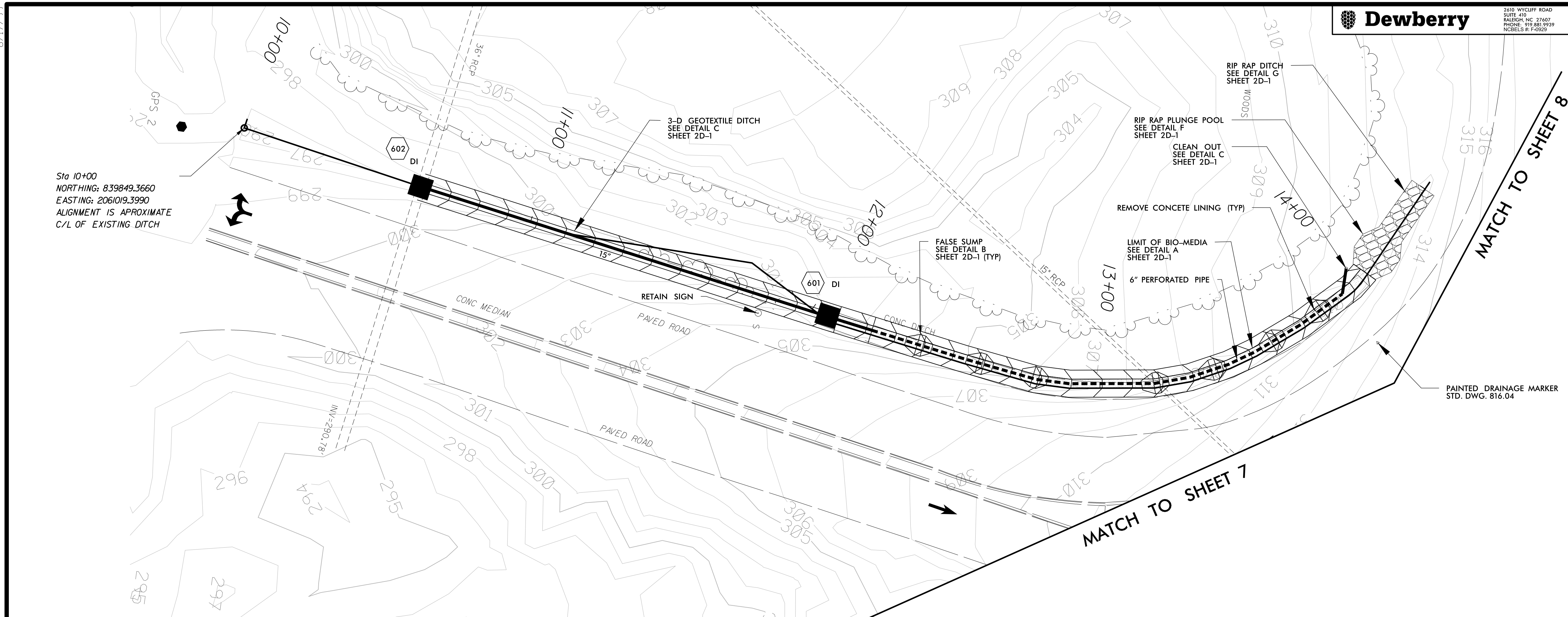
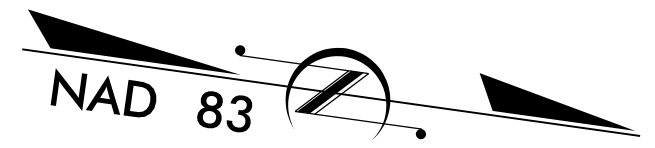
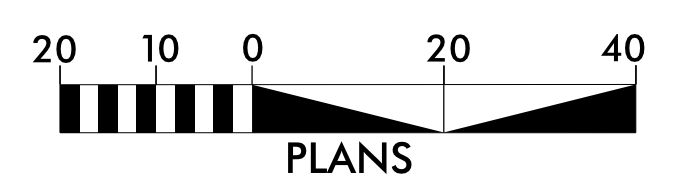


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27601
PHONE: 919.881.9999
NCBELTS # F-09209

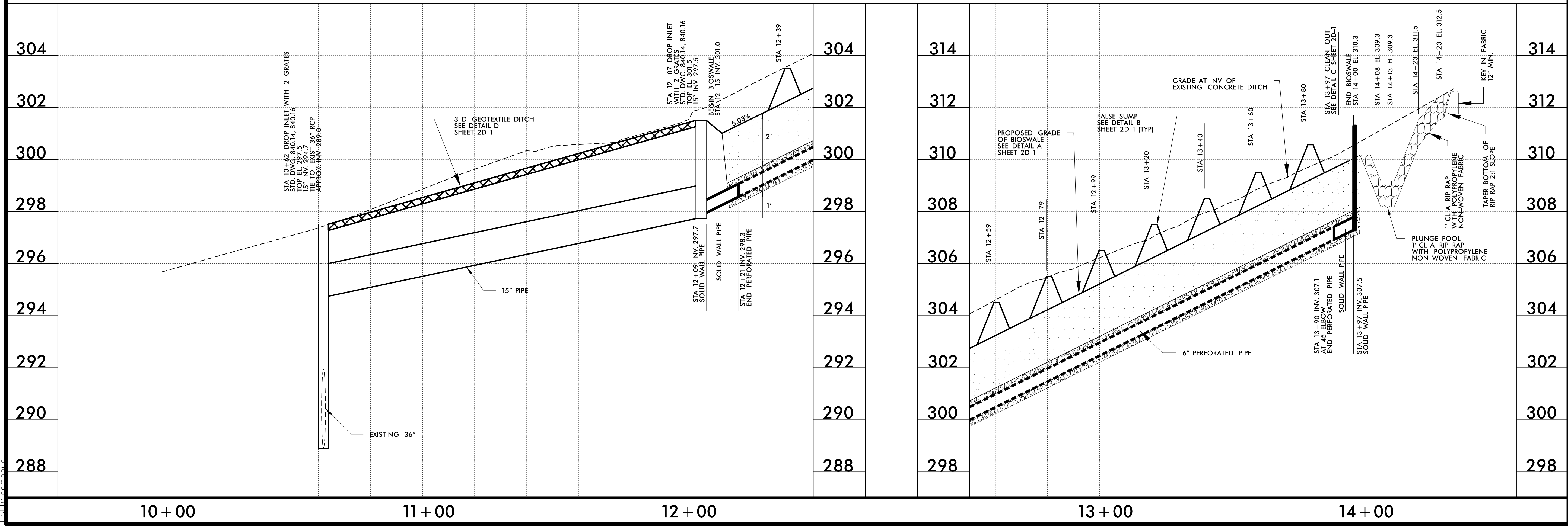
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RW SHEET NO.	



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Steven Bondar 3/21/2017
SFD582964149489

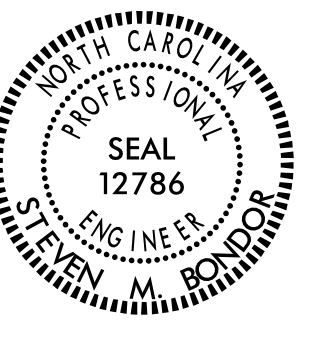


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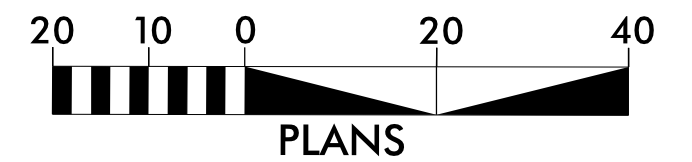
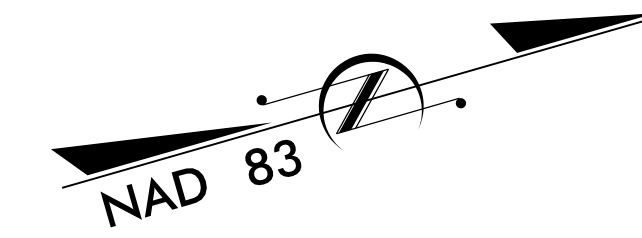


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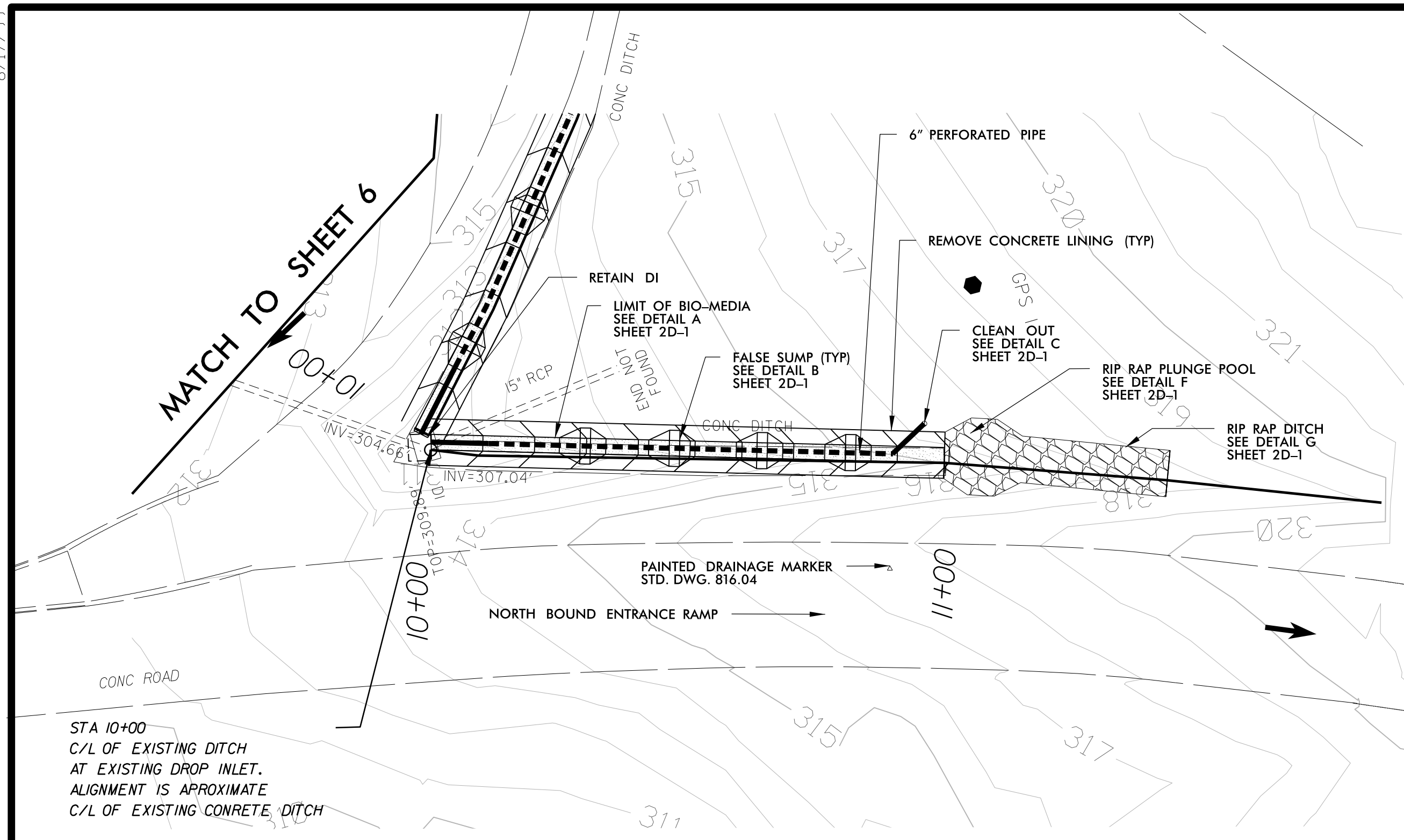
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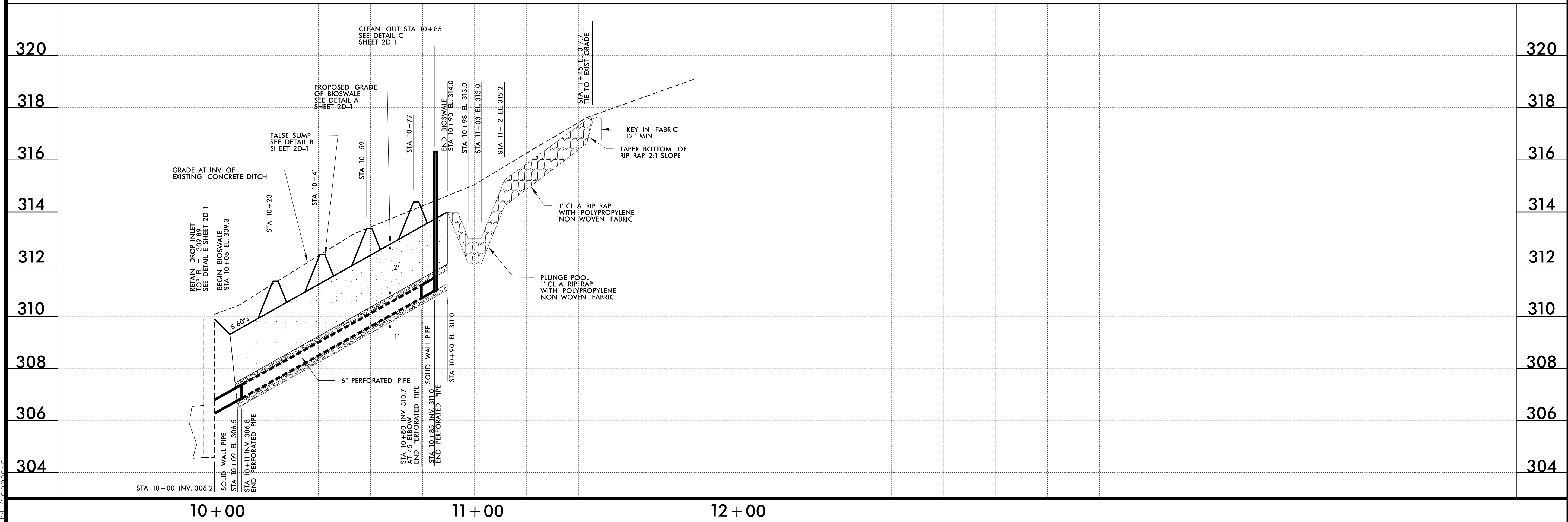
DocuSigned by:
Steve Bendor 3/21/2017
SFD582964148499



PLANS



EAST SITE BIOSWALE - 2



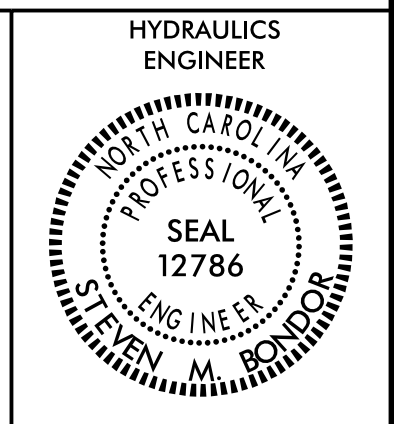
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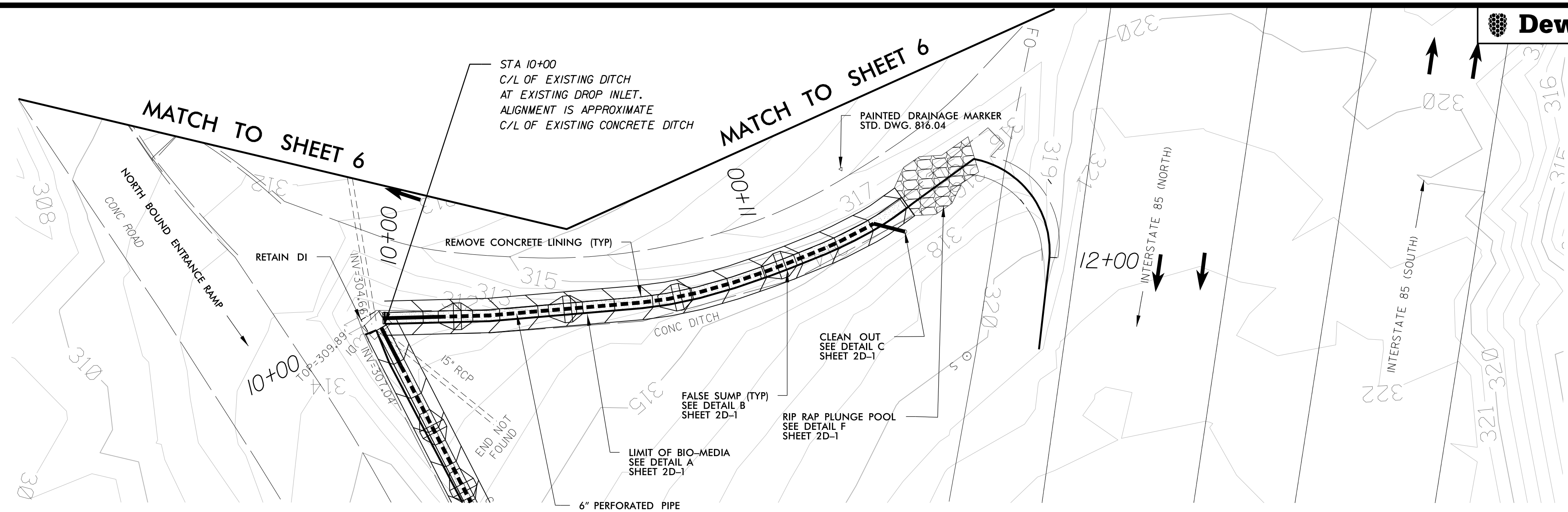
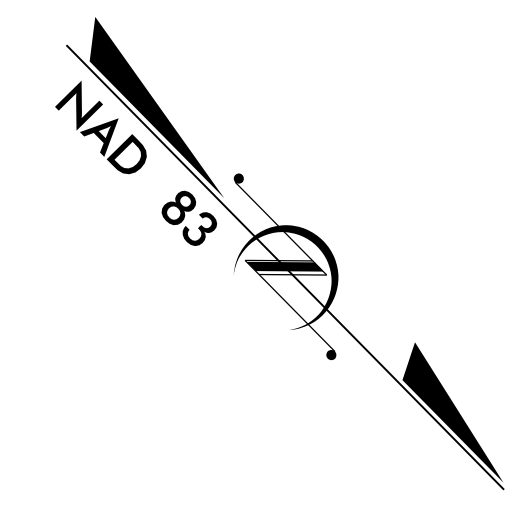
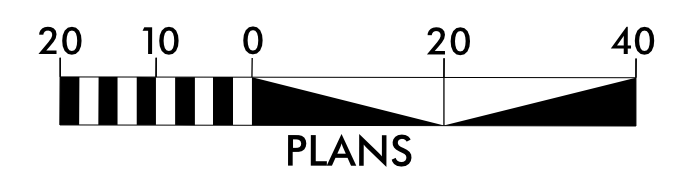


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NCBELS #: F-0929

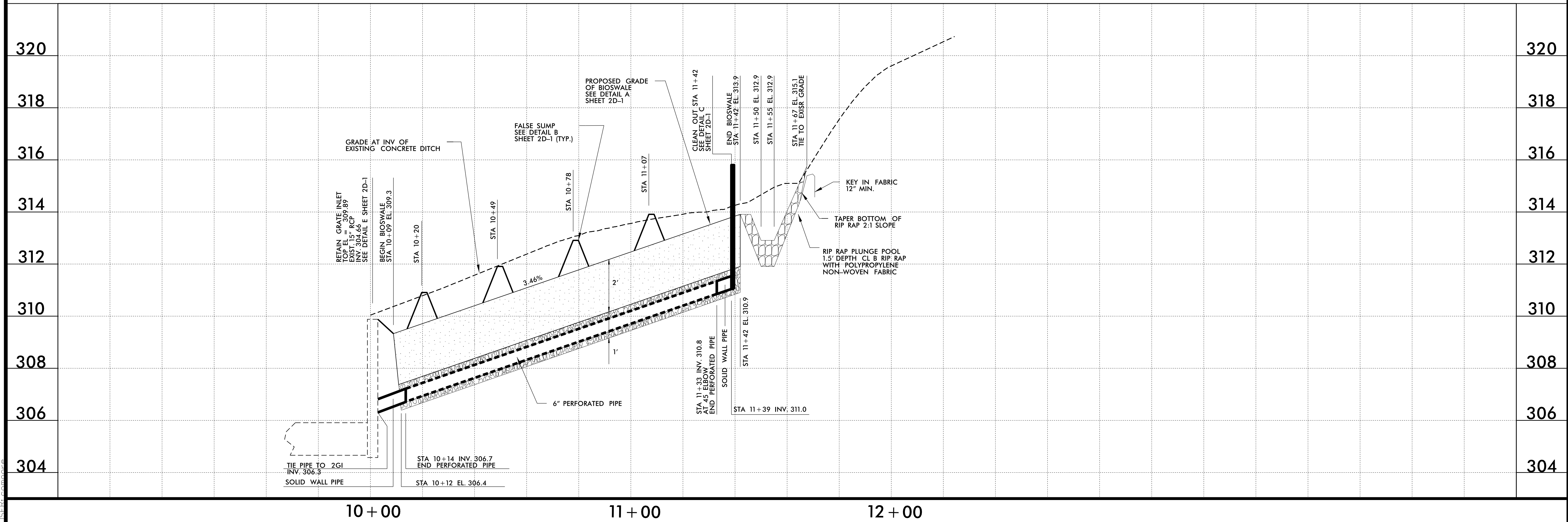
PROJECT REFERENCE NO.	SHEET NO.
R-4436EJ	8
RW SHEET NO.	



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Steve Bender 3/21/2017
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EAST SITE BIOSWALE - 3



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TRAFFIC CONTROL PLAN



2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.5939
NCBELS #: F-0929

PROJECT REFERENCE NO. <i>R-4436EJ</i>	SHEET NO. <i>TMP-1</i>
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RW SHEET NO.

ROADWAY DESIGN ENGINEER

DocuSigned by:
Chad Bobrowski 3/21/2017
E24F8CEBA0054AF

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 A.M.–9:00 A.M. MONDAY THRU FRIDAY 4:00 P.M.–7:00 P.M. MONDAY THRU FRIDAY

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

ALL ROADS

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF THE DAY BEFORE INDEPENDENCE DAY AND THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

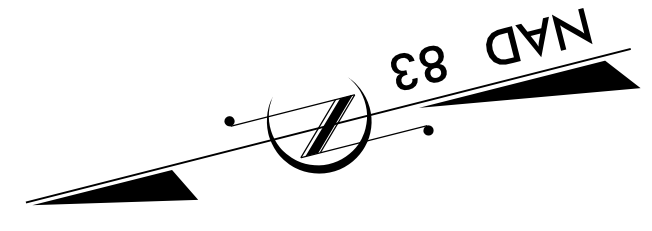
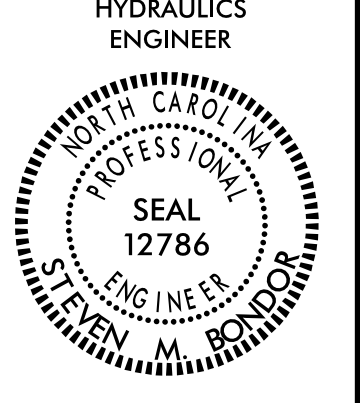
I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

NCDOT ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" – PROJECT SERVICES UNIT, N.C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

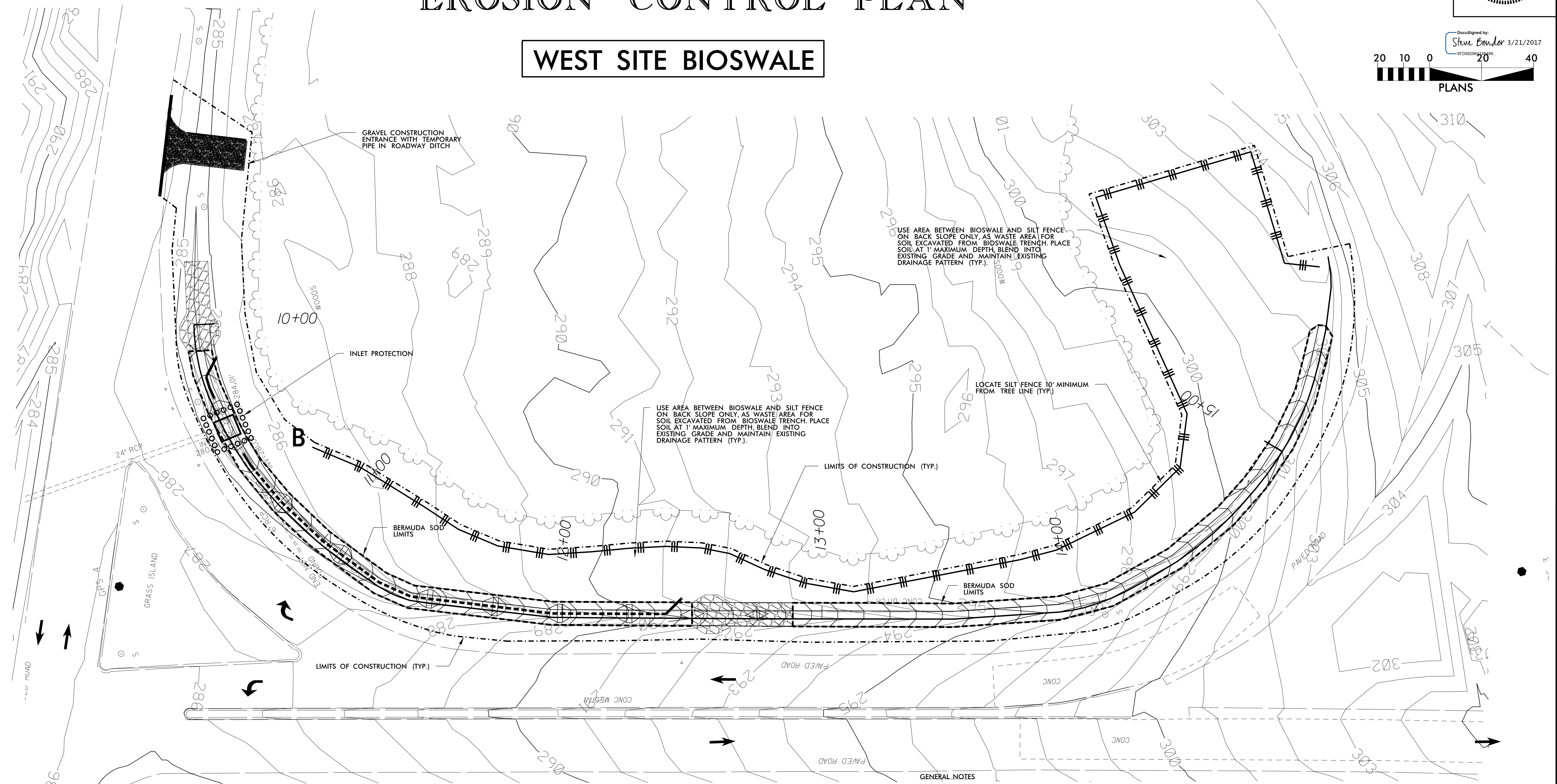
STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM



EROSION CONTROL PLAN

WEST SITE BIOSWALE

DocuSigned by:
Steve Bondor 3/21/2017
SFD0829976
PLANS



GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST RECENT STANDARDS AND SPECIFICATION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE NOTED.
2. WASTE SOIL SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF AT THE CONTRACTORS EXPENSE
3. DEWATERING: THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND EQUIPMENT WITH WHICH TO REMOVE AND PROPERLY DISPOSE OF ANY AND ALL WATER ENTERING THE EXCAVATION OR OTHER PARTS OF THE WORK AND KEEP ALL EXCAVATIONS DRY UNTIL SUCH TIME AS PIPE LAYING AND GRADING IS COMPLETED. NO WATER SHALL BE ALLOWED TO RISE AROUND THE PIPE IN UNBACKFILLED TRENCHES NOR SHALL IT BE ALLOWED TO RISE OVER MASONRY UNTIL THE CONCRETE OR MORTAR HAS SET (MINIMUM 24 HOURS). THE CONTRACTOR SHALL PUMP OR DRAIN SEDIMENT-LADEN WATER THROUGH SEDIMENT BAG(S) PRIOR TO DISCHARGE TO ADJACENT PROPERTY OR OTHER CONSTRUCTION (SEE DETAILS).
4. THE CONTRACTOR SHALL CONTACT THE LOCATOR AT 811 OR 1-800-632-4949 BEFORE COMMENCING ANY WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WHETHER INDICATED ON THE DRAWINGS OR NOT. THE CONTRACTOR WILL ASSURE THE PRESENCE ON SITE OF AS REPRESENTATIVE OF THE GAS COMPANY WHEN WORKING IN THE VICINITY OF ANY GAS MAINS.

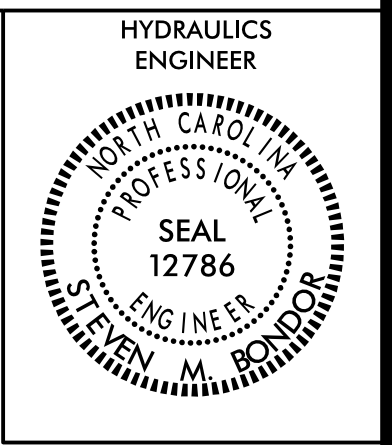
FALLS LAKE WATERSHED GROUND COVER REQUIREMENTS:
 IN DISTURBED AREAS WHERE GRADING ACTIVITIES HAVE BEEN COMPLETED, PROVIDE PERMANENT GROUND COVER NO LATER THAN SEVEN DAYS.
 IN DISTURBED AREAS WHERE GRADING ACTIVITIES ARE INCOMPLETE, PROVIDE TEMPORARY GROUND COVER NO LATER THAN SEVEN DAYS FOR SLOPES STEEPER THAN 3:1; TEN DAYS FOR SLOPES EQUAL TO OR FLATTER THAN 3:1; FOURTEEN DAYS FOR AREAS WITH NO SLOPE.

CONSTRUCTION SEQUENCE

1. CONDUCT PRE-CONSTRUCTION MEETING WITH NCDOT DIVISION OFFICE.
2. CONTRACTOR SHALL NOTIFY NCDOT DIVISION OFFICE SEVEN DAYS PRIOR TO BEGINNING LAND DISTURBING ACTIVITY.
3. FLAG WORK LIMITS.
4. INSTALL TRAFFIC CONTROL DEVICES PER TRAFFIC CONTROL PLAN.
5. INSTALL GRAVEL CONSTRUCTION ENTRANCE.
6. INSTALL ROCK INLET SEDIMENT TRAP AT EXISTING INLETS.
7. INSTALL AND RELOCATE SILT FENCE AS NEEDED PREVENT SEDIMENT FROM LEAVING THE SITE OR BEING DEPOSITED ON TOP OF NEWLY INSTALLED UNDERDRAIN, MEDIA OR BERMUDA SOD.
8. REMOVE CONCRETE LINING FROM EXISTING DITCHES BEGINNING UPSTREAM.
9. INSTALL PSM DITCH.
10. EXCAVATE BIOSWALE, INSTALL WASHED STONE, UNDERDRAIN PIPE, AND CLEANOUTS.
11. BACKFILL WITH FILTRATION MEDIA.
12. INSTALL RIPRAP PLUNG POOLS AND RIPRAP DITCHES.
13. INSTALL BERMUDA SOD, PROVIDE TEMPORARY OR PERMANENT SEED AND MULCH IN REMAINING DISTURBED AREA PER NCDOT SPECIFICATIONS.
14. CONFIRM WITH NCDOT WHEN VEGETATION IS STABILIZED AND REMOVE TEMPORARY DEVICES.

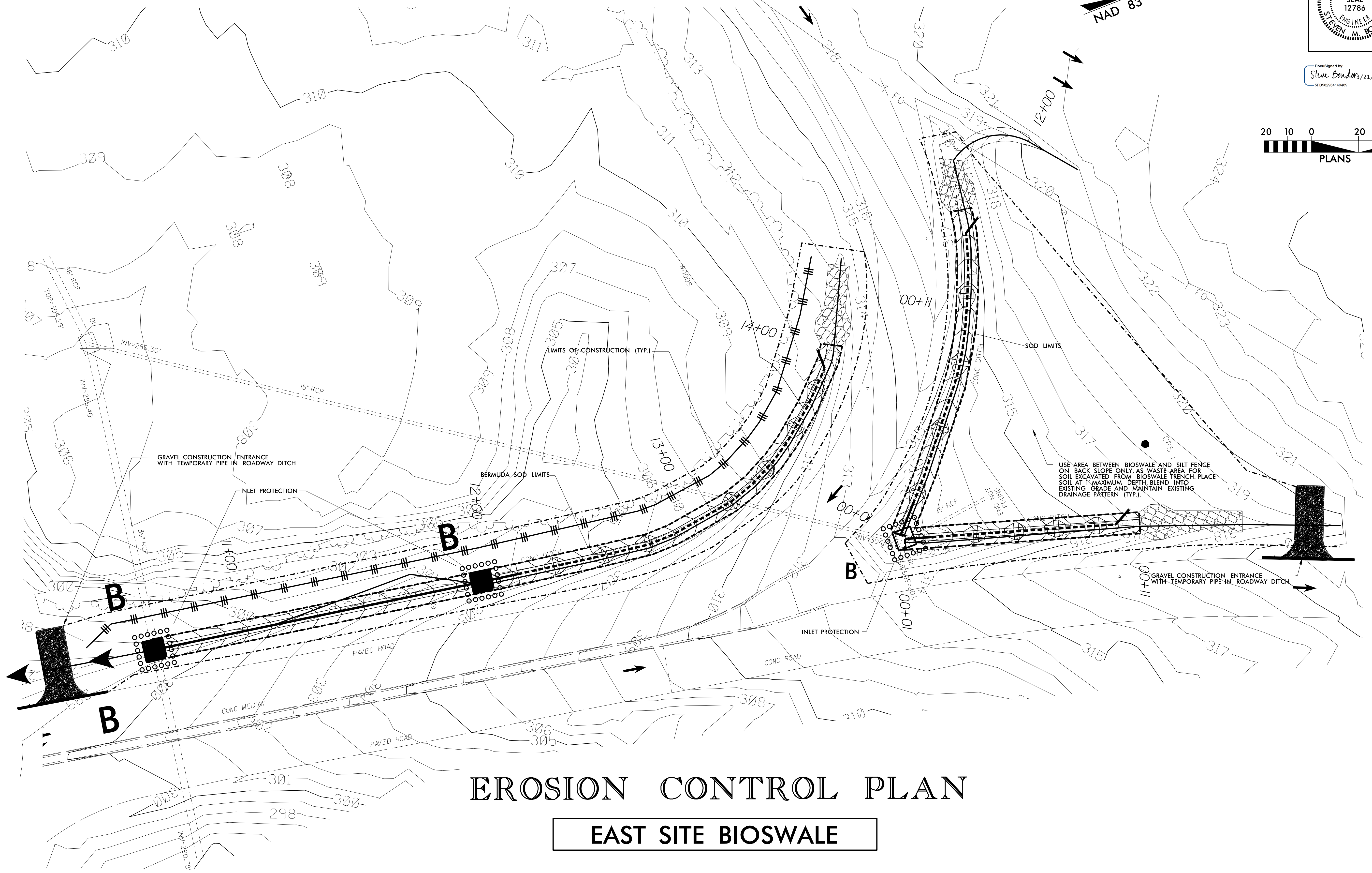
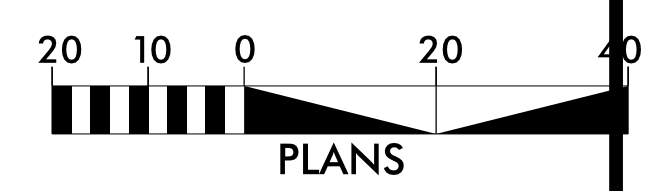
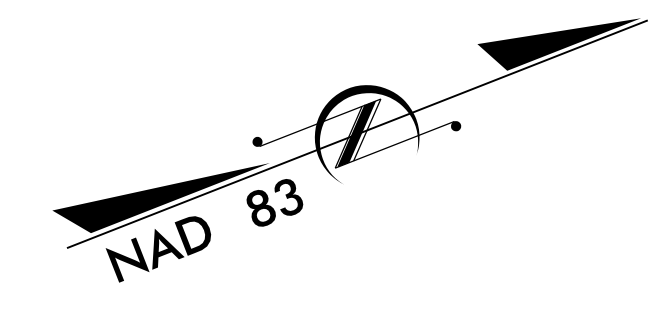
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	- - - - - - - - -
1632.02	Rock Inlet Sediment Trap Type B	■
1633.02	Temporary Rock Silt Check Type B	▲

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Steve Bouders 3/21/2017
SPD8296414989

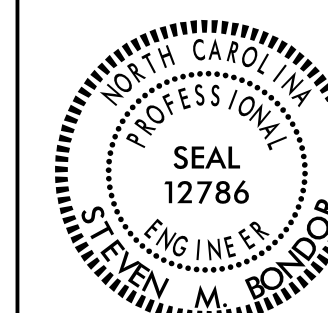
FALLS LAKE WATERSHED GROUND COVER REQUIREMENTS:
 IN DISTURBED AREAS WHERE GRADING ACTIVITIES HAVE BEEN COMPLETED, PROVIDE PERMANENT GROUND COVER NO LATER THAN SEVEN DAYS.
 IN DISTURBED AREAS WHERE GRADING ACTIVITIES ARE INCOMPLETE, PROVIDE TEMPORARY GROUND COVER NO LATER THAN SEVEN DAYS FOR SLOPES STEEPER THAN 3:1; TEN DAYS FOR SLOPES EQUAL TO OR FLATTER THAN 3:1; FOURTEEN DAYS FOR AREAS WITH NO SLOPE.



EROSION CONTROL PLAN

EAST SITE BIOSWALE

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EROSION CONTROL DETAILS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
ROCK INLET SEDIMENT TRAP TYPE 'B'

NOTE:
USE CLASS 'A' STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.
DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
CONSTRUCT TOP OF BERM A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
ROCK INLET SEDIMENT TRAP TYPE 'B'

SHEET 1 OF 1
1632.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

NOTE:
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'B'

NOTES:
USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL. PLACE SEDIMENT CONTROL STONE AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'B'

SHEET 1 OF 1
1633.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
GRAVEL CONSTRUCTION ENTRANCE

NOTE: PLACE FILTER FABRIC BENEATH STONE

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06
ENGLISH STANDARD DRAWING FOR
GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1
1607.01