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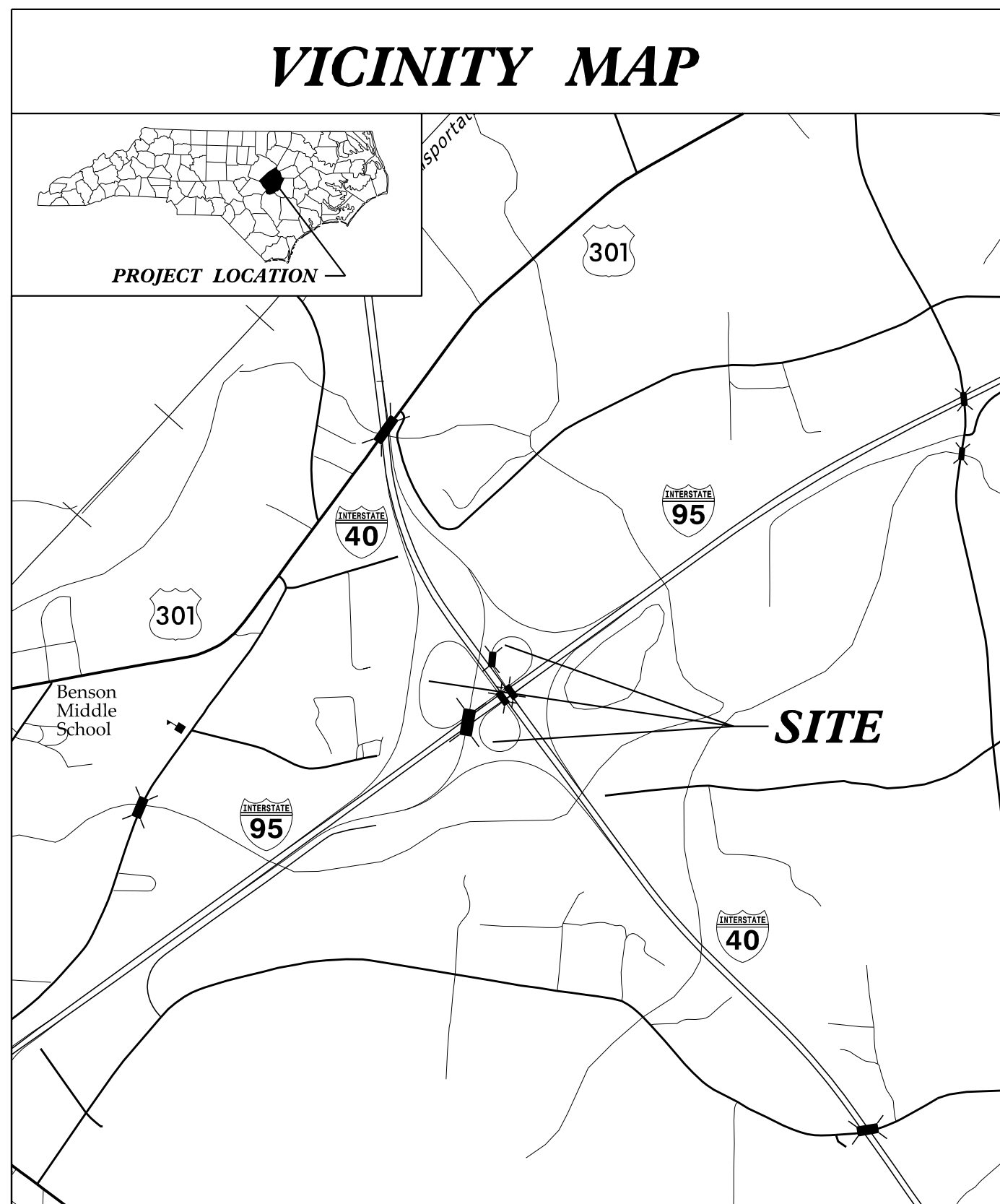
09/08/99

3/10/2017
 U:\DGN & misc files\psh_l_title Sheet.dgn
 Fr cooper

TIP PROJECT: R-4436DD

CONTRACT: DD00203

See Sheet 1-A For Index of Sheets



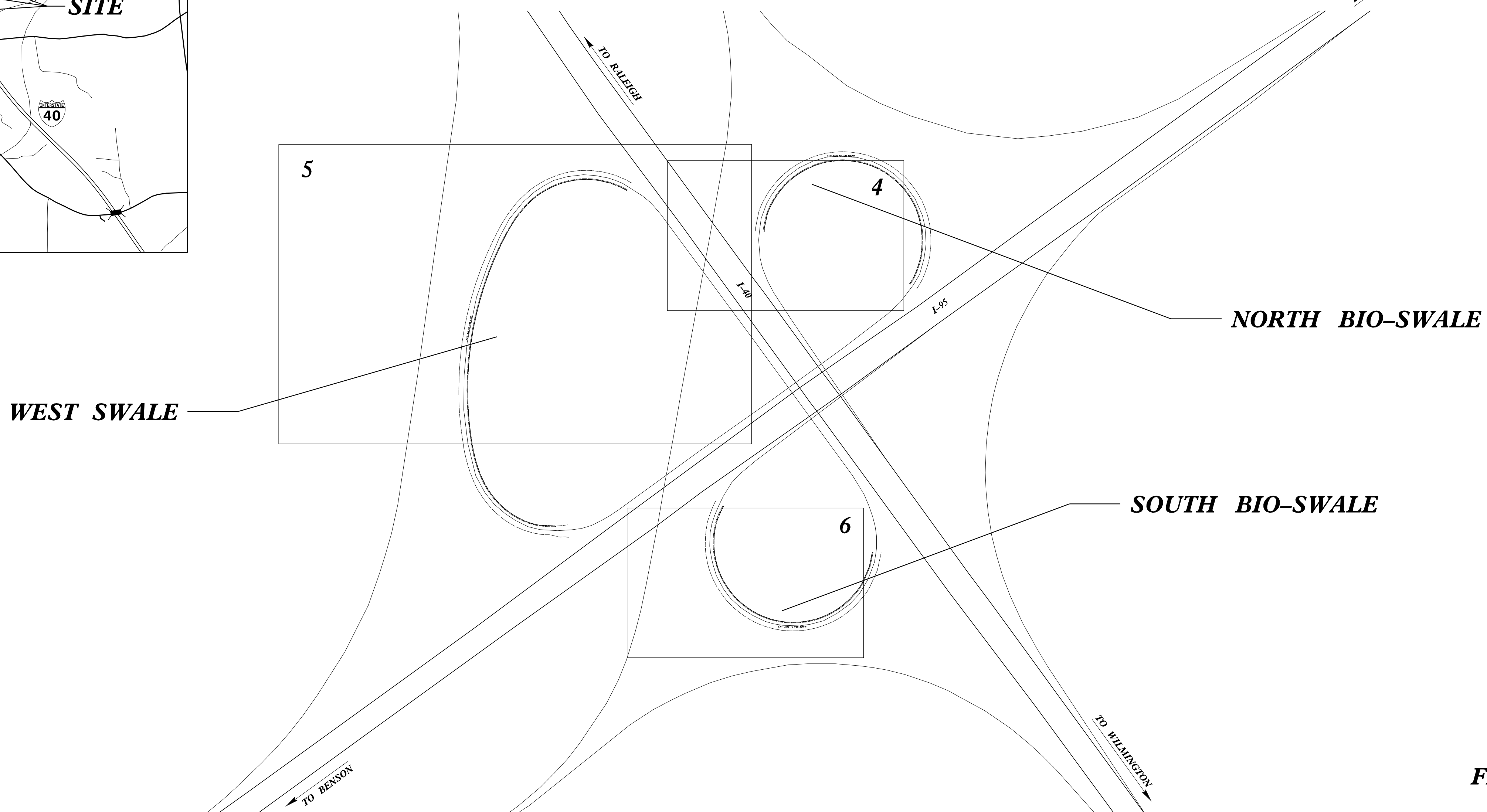
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

JOHNSTON COUNTY

LOCATION: I-40 & I-95 INTERCHANGE

TYPE OF WORK: RETROFIT STORMWATER CONTROL MEASURES (BIO-SWALES & SWALES). INCLUDING: GRADING, DRAINAGE, SEED & MULCH & EROSION CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4436DD	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
34625.1.1		P.E.	
34625.2.65	STP-0040(052)	CONSTRUCTION	



FINAL PLANS

**SCALE VARIES
 (SEE PLAN SHEETS)**

NCDOT CONTACT:
 BRIAN LIPSCOMB, PE
 HIGHWAY STORMWATER PROGRAM

REVISION SCHEDULE:
 30% DESIGN SUBMITTAL 11-09-2016
 90% DESIGN SUBMITTAL 01-06-2017
 FINAL DESIGN SUBMITTAL 03-10-2017



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2012 STANDARD SPECIFICATIONS

LETTING DATE:
 04-25-2017

ANTHONY GRUBBS
 PROJECT ENGINEER

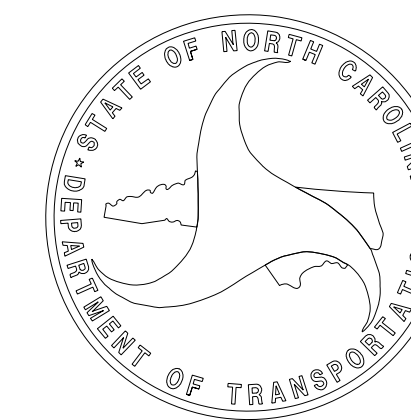
EMILY GROVES
 PROJECT DESIGN ENGINEER


HYDRAULICS ENGINEER



3/10/2017

ANTHONY GRUBBS P.E.
 SIGNATURE:



PROJECT REFERENCE NO. <i>R-4436DD</i>	SHEET NO. <i>1-A</i>
RW SHEET NO. _____	
HYDRAULICS ENGINEER	
	
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INDEX OF SHEETS

SHEET NUMBER	SHEET DISCRPTION
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
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2-B	SWALE DETAILS & CLEANOUT DETAILS
2-C	PRECAST OUTLET STRUCTURE DETAILS
2-D	SURVEY CONTROL & EXISTING CONDITIONS MAP
3B /3D	SUMMARY OF QUANTITIES
4	PLAN SHEET NORTH BIO-SWALE
5	PLAN SHEET WEST SWALE
6	PLAN SHEET SOUTH BIO-SWALE
TC-1	TRAFFIC CONTROL PLAN
TC-2	TRAFFIC CONTROL PLAN
TC-3	TRAFFIC CONTROL PLAN
EC-1	EROSION CONTROL PLAN NORTH LOOP
EC-2	EROSION CONTROL PLAN WEST LOOP
EC-3	EROSION CONTROL PLAN SOUTH LOOP
EC-4	EROSION CONTROL DETAILS - TEMPORARY SILT FENCE, ROCK INLET SEDIMENT TRAP TYPE C, & TEMPORARY ROCK SILT CHECK TYPE A
EC-5	COIR FIBER WATTLE SILT FENCE BREAK DETAILS
EC-6	TEMPORARY ROCK SILT CHECK A DETAILS

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
300.01	METHOD OF PIPE INSTALLATION
816.04	MARKERS FOR DRAINAGE STRUCTURE AND CONCRETE PAD
840.02	CONCRETE CATCH BASIN
840.03	FRAME, GRATES, AND HOOD
840.20	FRAMES AND WIDE SLOT FLAT GRATES
840.25	ANCHORAGE FOR FRAMES
840.45	PRECAST DRAINAGE STRUCTURE
840.54	MANHOLE
846.01	EXPRESSWAY GUTTER
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS
1607.01	GRAVEL CONSTRUCTION ENTRANCE
1632.03	ROCK INLET SEDIMENT TRAP TYPE C

GENERAL NOTES

- SPECIFICATIONS: NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (JANUARY 2012)
- GRADING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATIONS OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. 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: NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHALL PREPARE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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	□ EGM
Parcel/Sequence Number	①23
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	○
Well	○
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 R/W Marker	△
Proposed Control of Access Line with Concrete C/A Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
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	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-S-

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	A/G Water

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	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	A/G 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.*)	-----

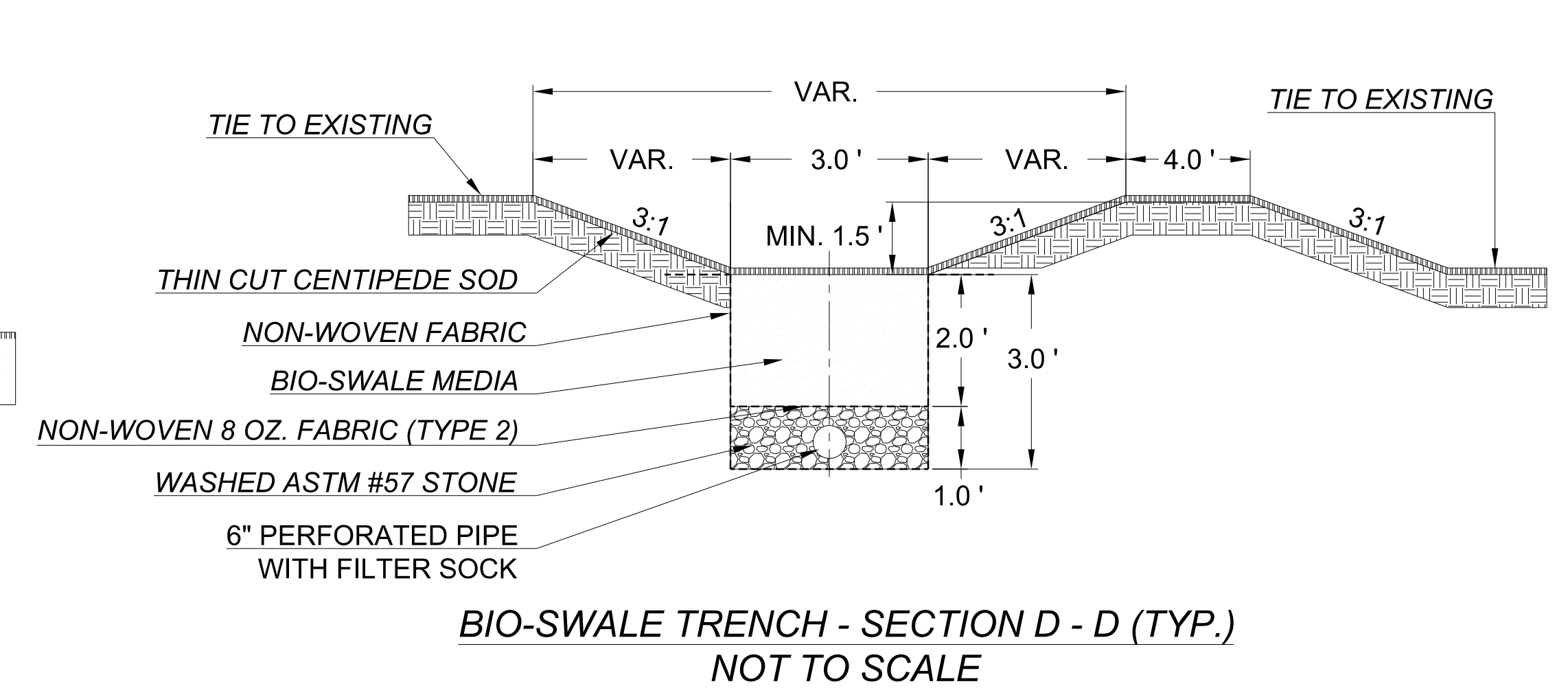
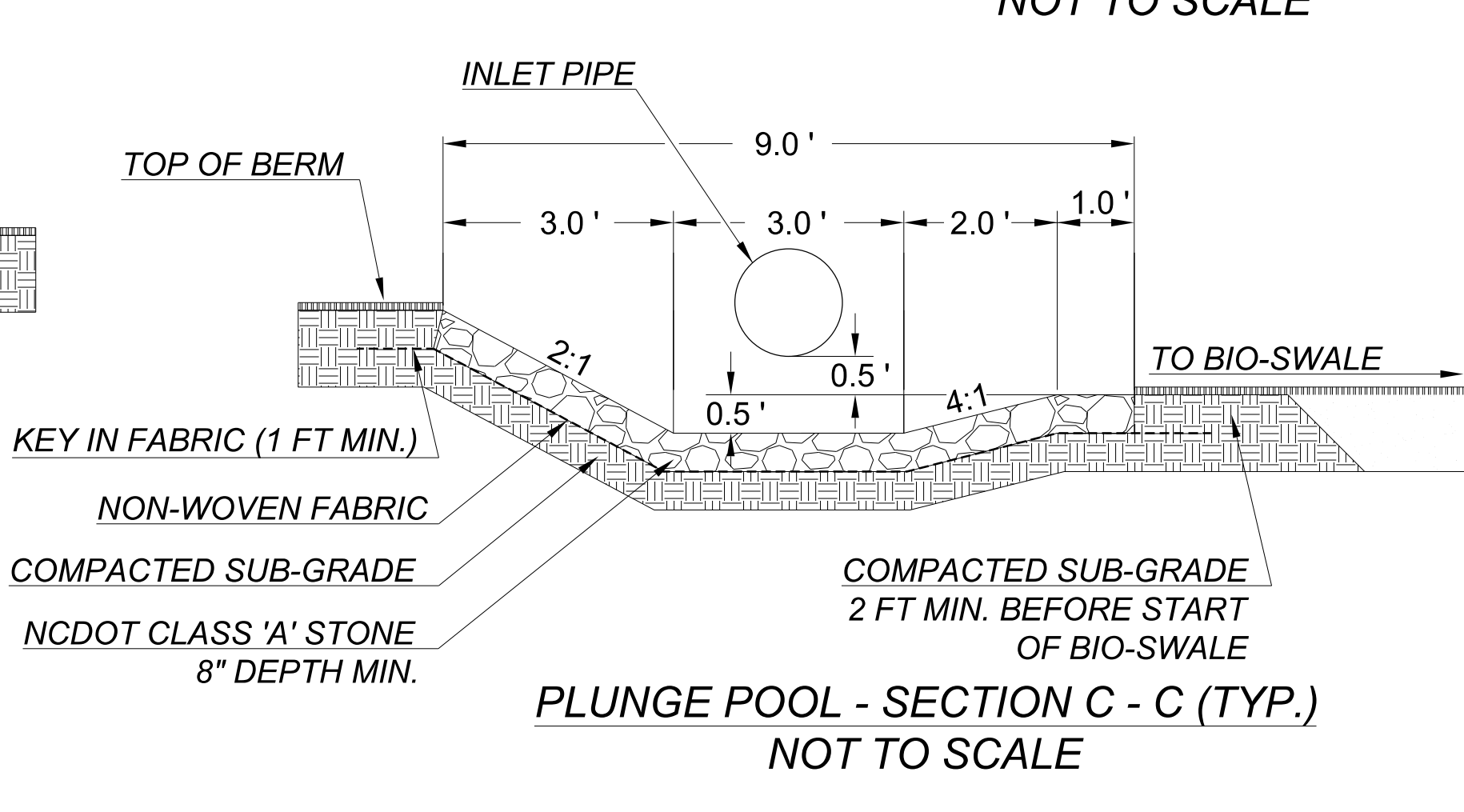
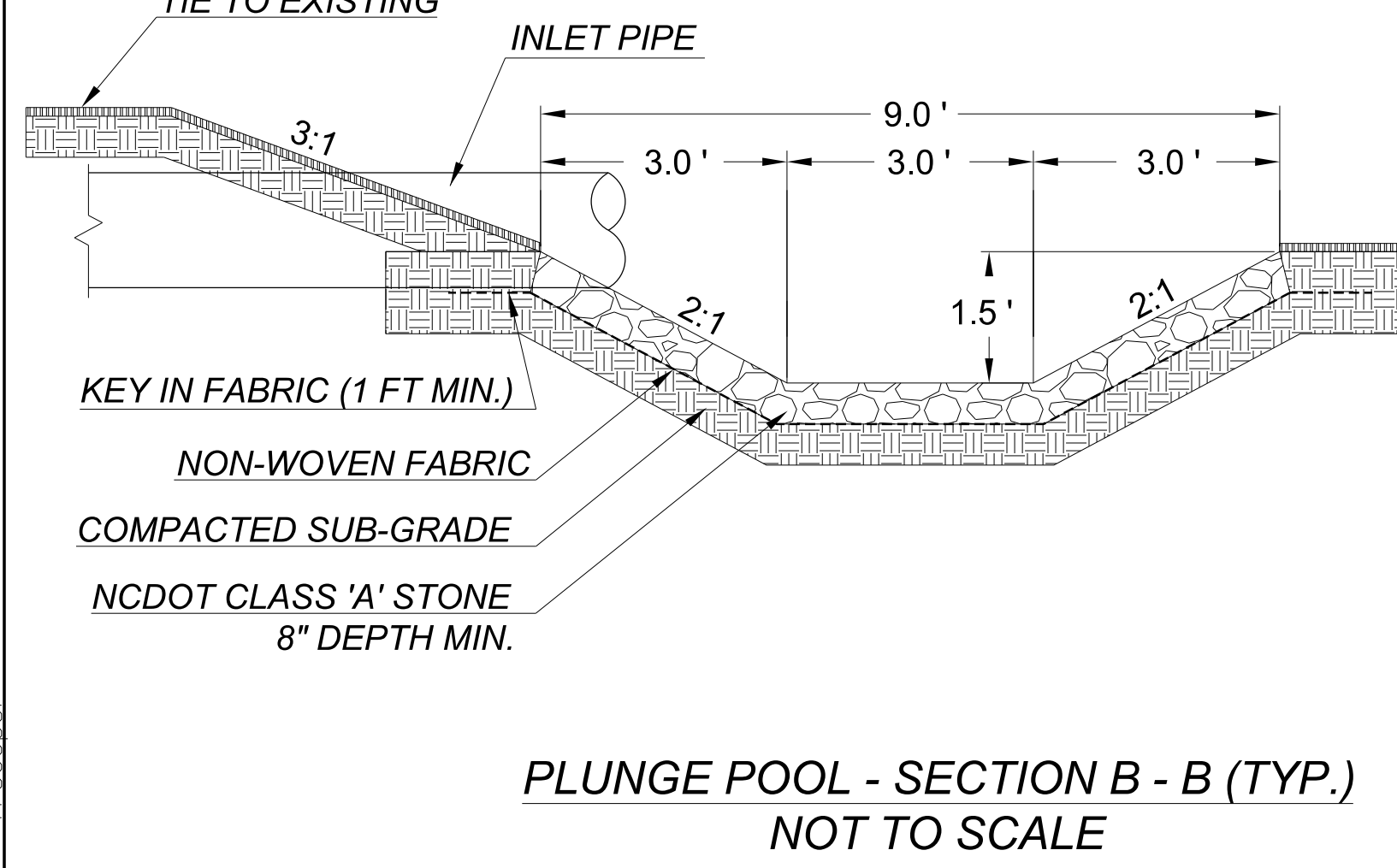
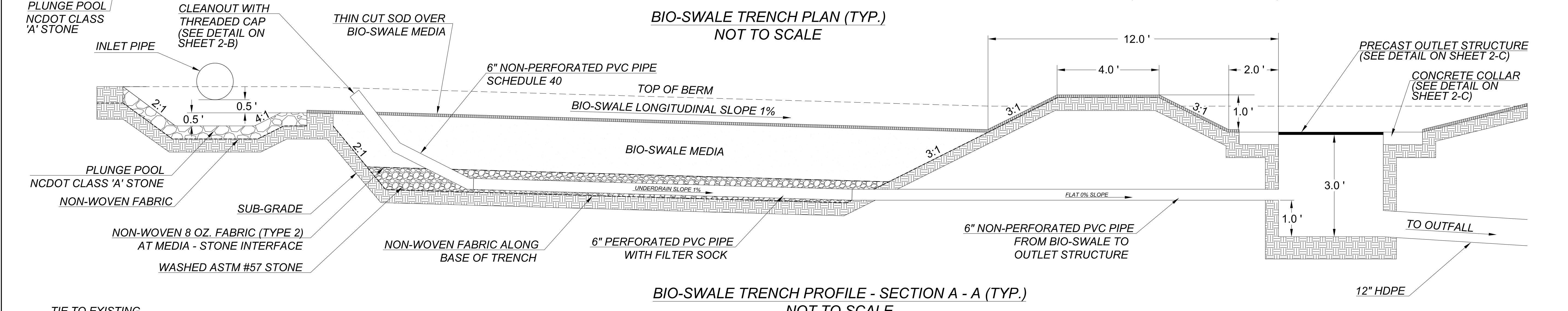
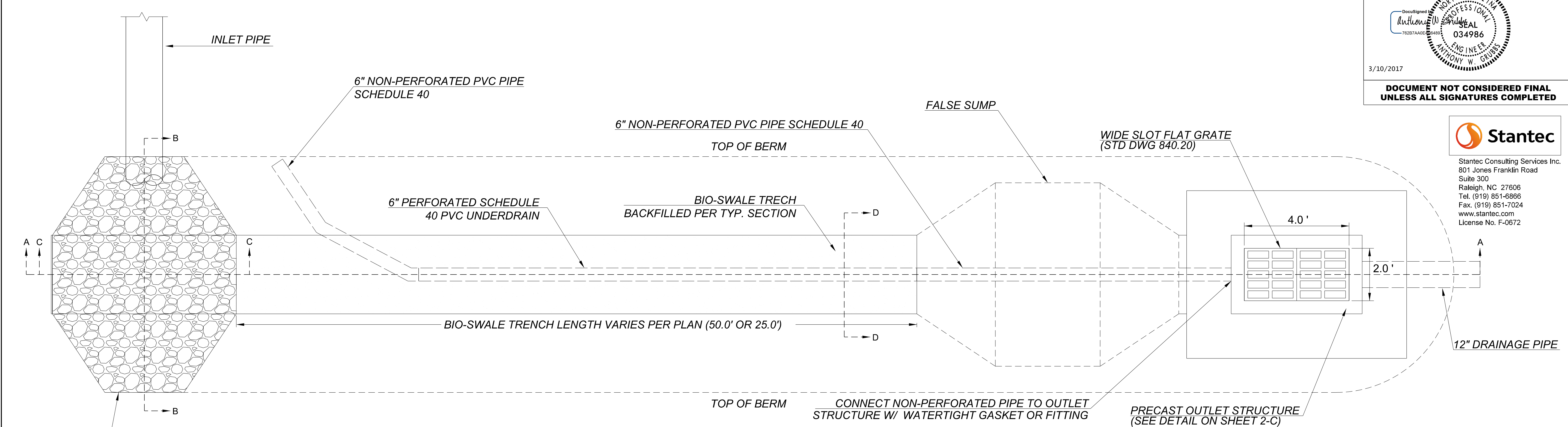
MISCELLANEOUS:

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	AATUR
End of Information	E.O.I.

BIO-SWALE DETAILS

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RW SHEET NO.	
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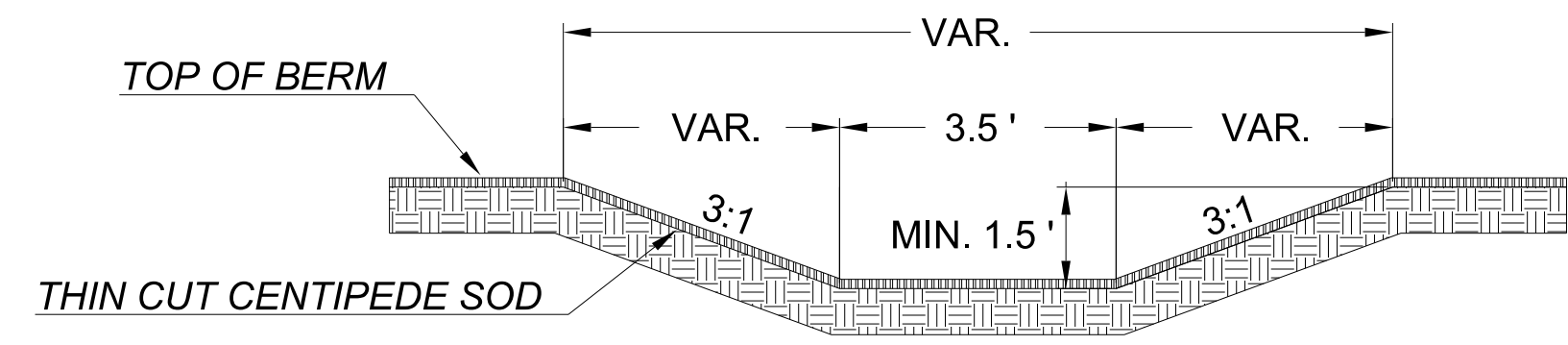


SWALE & CLEANOUT DETAILS

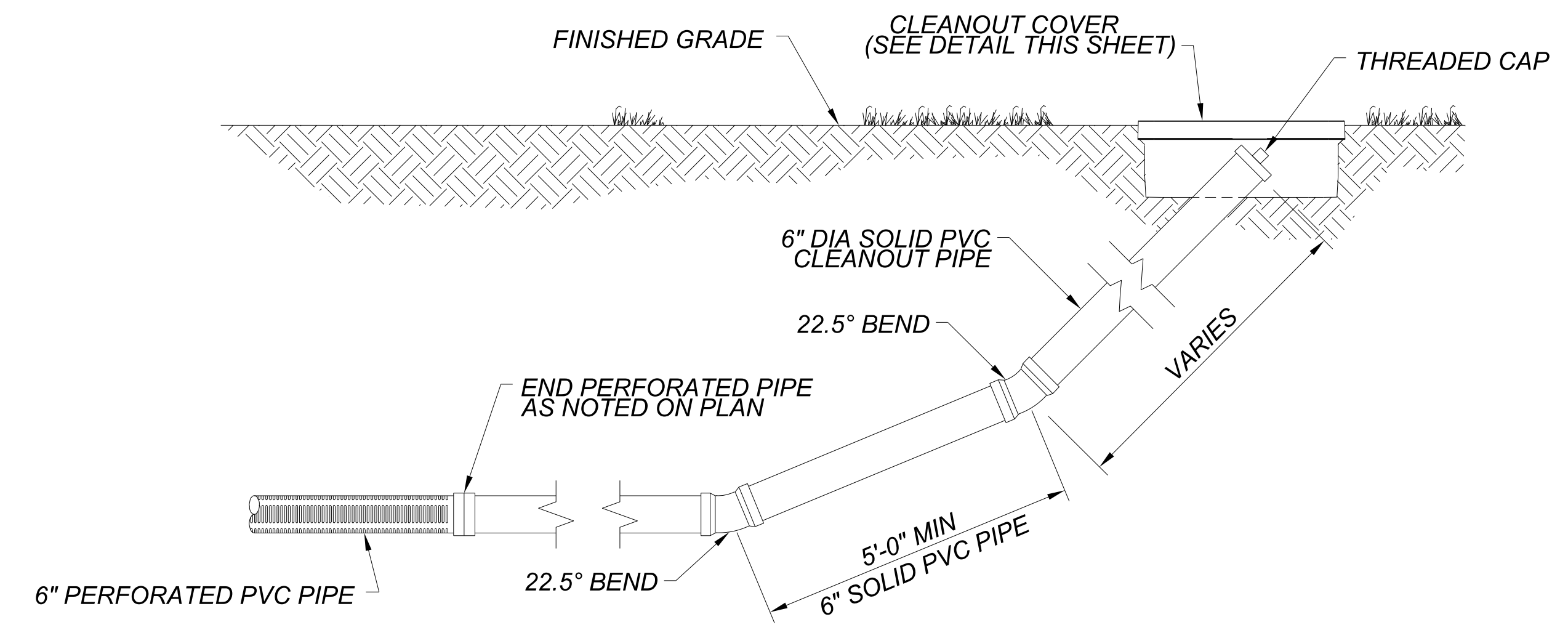
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RW SHEET NO. _____	
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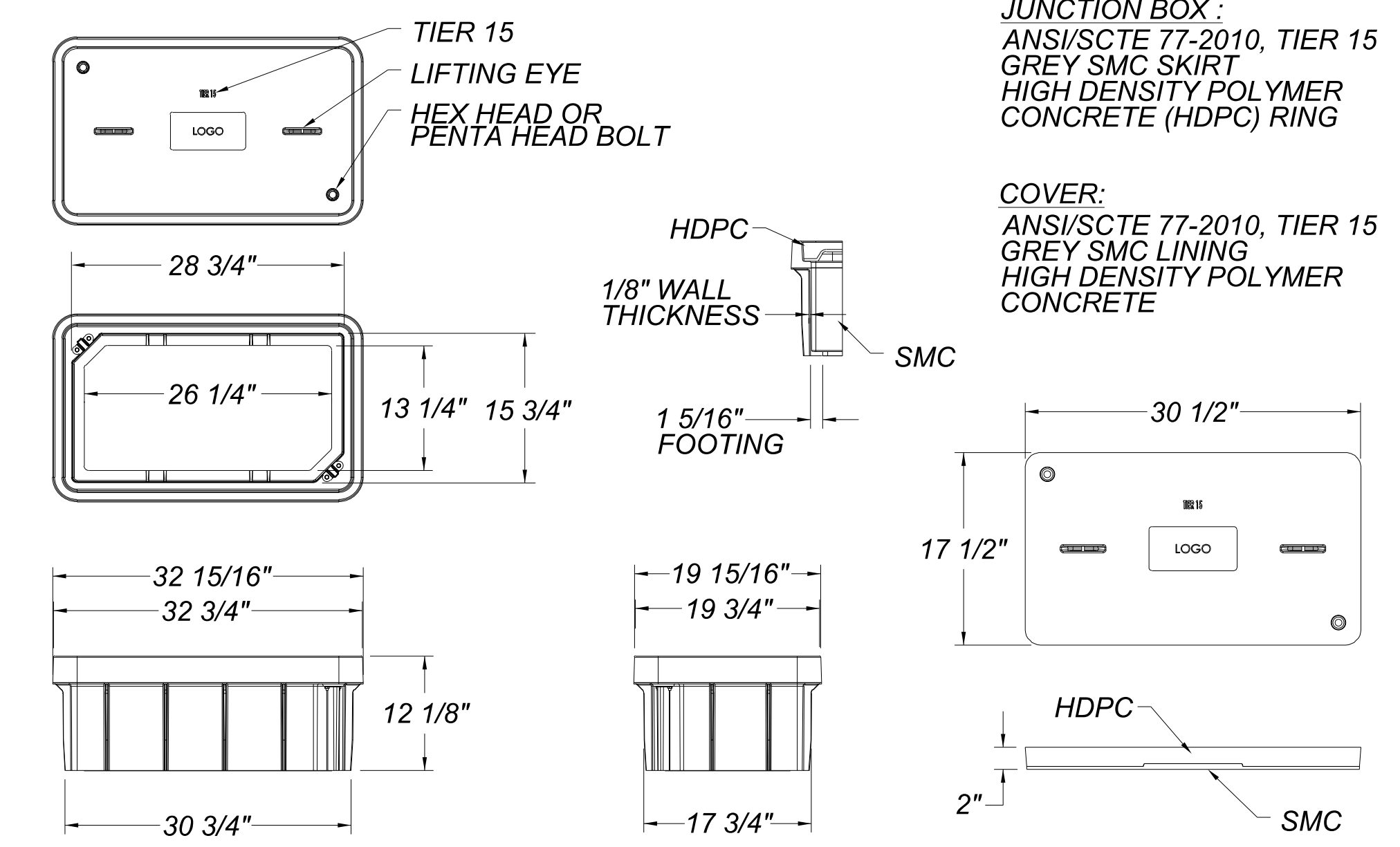
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SWALE - (TYP.)
NOT TO SCALE




CLEANOUT - (TYP.)
NOT TO SCALE



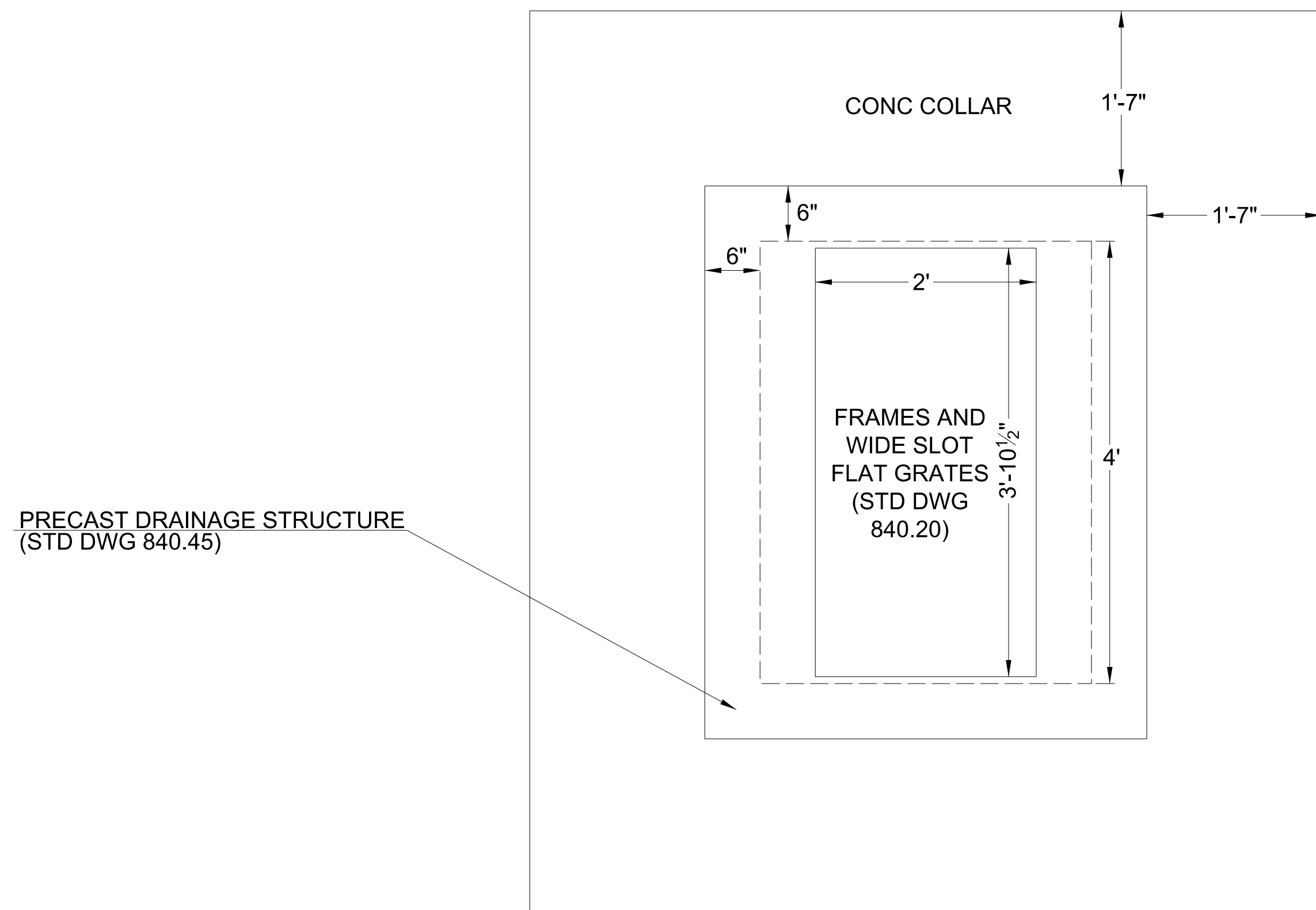
POLYMER CONCRETE
CLEANOUT COVER - 17" x 30" x 12"
NOT TO SCALE

PRECAST OUTLET STRUCTURE DETAILS

PROJECT REFERENCE NO. R-4436DD	SHEET NO. 2-C
RW SHEET NO.	
HYDRAULICS ENGINEER	
	
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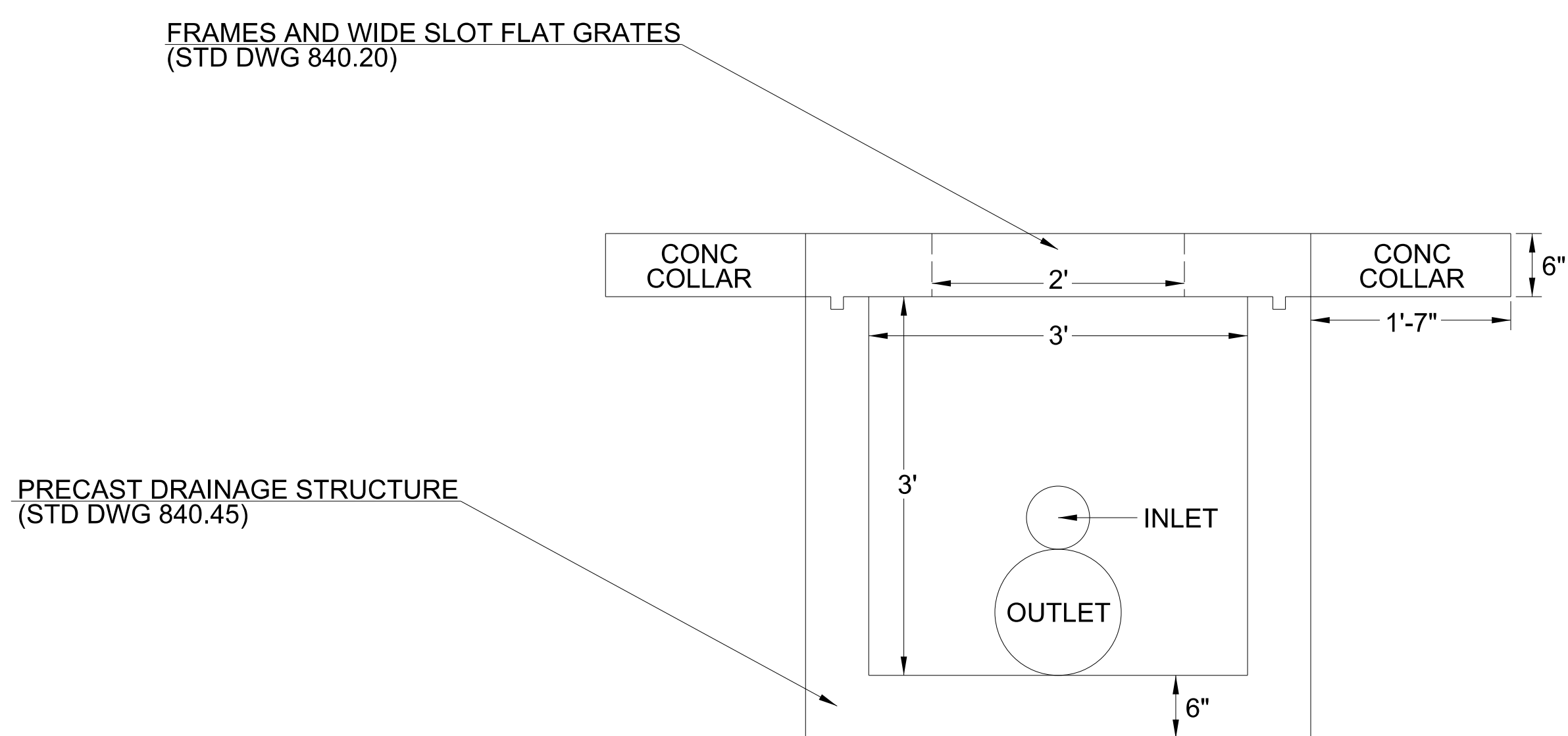
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PRECAST DRAINAGE STRUCTURE
(STD DWG 840.45)

PLAN VIEW
NOT TO SCALE

NOTES:
SEE STANDARD DRAWING 840.25 FOR FRAME ANCHORAGE



PRECAST DRAINAGE STRUCTURE
(STD DWG 840.45)

SECTION (TYP.)
NOT TO SCALE

5/14/09

SURVEY CONTROL / EXISTING CONDITIONS

PROJECT REFERENCE NO. R-4436DD	SHEET NO. 2-D
RW SHEET NO.	

PT#	NORTHING	EASTING	ELEVATION
1	597513.8690	2143967.6970	173.6730
2	597681.1300	2143474.7610	190.5880
3	597621.8270	2142945.0850	200.2900
4	596734.3920	2142784.3530	180.2310
5	596753.0810	2143319.6630	175.3110
6	596566.8970	2143708.8710	187.6620
7	597001.6420	2144141.1260	182.7260

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY THE NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 597513.8690 EASTING: 2143967.6970 ELEVATION: 173.6730 (M) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT IS 0.999872531 THE NAD 83/NA 2011 STATE PLANE GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO "L-1" STATION IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DIMENSIONS ARE LOCALIZED VERTICAL DISTANCES

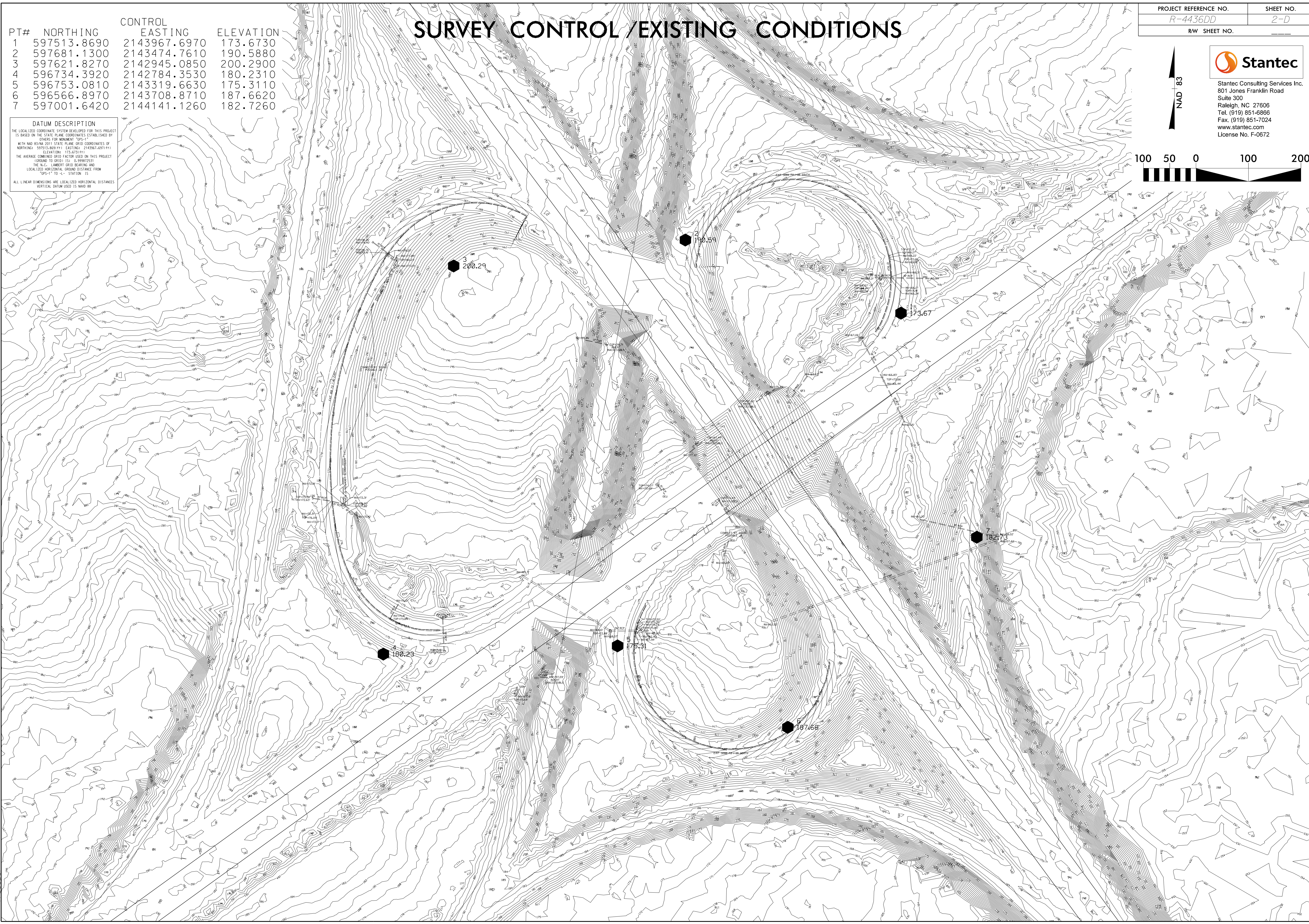


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NAD 83

NC GRID
 NAD 83 NA 2011



12/06/07

COMPUTED BY: EMILY GROVES DATE: 02-28-2017
 CHECKED BY: ANTHONY GRUBBS DATE: 03-09-2017

SUMMARY OF QUANTITIES

PROJECT REFERENCE NO. R-4436DD	SHEET NO. 3B / 3D
RW SHEET NO.	
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SUMMARY OF EARTHWORK (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY			
		NORTH LOOP	WEST LOOP	SOUTH LOOP	PROJECT TOTALS
UNCLASSIFIED EXCAVATION	CY	77	370	37	484
ENGINEERED MEDIA	CY	12		6	18
RIP RAP CLASS A	TON	4	4	4	12
NO. 57 STONE, WASHED	TON	8		4	12

DRAINAGE SUMMARY (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY			
		NORTH LOOP	WEST LOOP	SOUTH LOOP	PROJECT TOTALS
6" PERFORATED SCHEDULE 40 PVC PIPE	LF	44		18	62
6" NON-PERFORATED PIPE	LF	30		30	60
12" HDPE PIPE	LF	60	35	44	139
CLEANOUT COVER	EA	1		1	2
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	SY	38	14	21	73
FRAME WITH TWO GRATES (840.22)	EA	1		1	2
FRAME (AT ROADSIDE) WITH F GRATE (840.03)	EA	1 (F)		1 (F)	2 (F)
FRAME (AT ROADSIDE) WITH G GRATE (840.03)			2 (G)		2 (G)
EXPRESSWAY GUTTER	LF	159			159
REMOVAL OF EXISTING CONCRETE PAVEMENT	SY	11			11
CONC PAVEMENT	SY	53			53
PERMANENT SOIL REINFORCEMENT MAT (PYRAMAT)	SY		420		420

SUMMARY FOR EROSION CONTROL (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY			
		NORTH LOOP	WEST LOOP	SOUTH LOOP	PROJECT TOTALS
SEDIMENT CONTROL STONE 57	TON	10	20	10	40
STONE FOR EROSION CONTROL 'A'	TON	50	25	45	120
TEMP. SILT FENCE	LF	350	200	300	850
1/4" HARDWARE CLOTH	LF	20	100	20	140
SEEDING & MULCHING	ACR	0.5	0.5	0.5	1.5
SODDING	SY	370		195	565
WATER	1000 GAL	4		3	7
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	SY	75	75	75	225

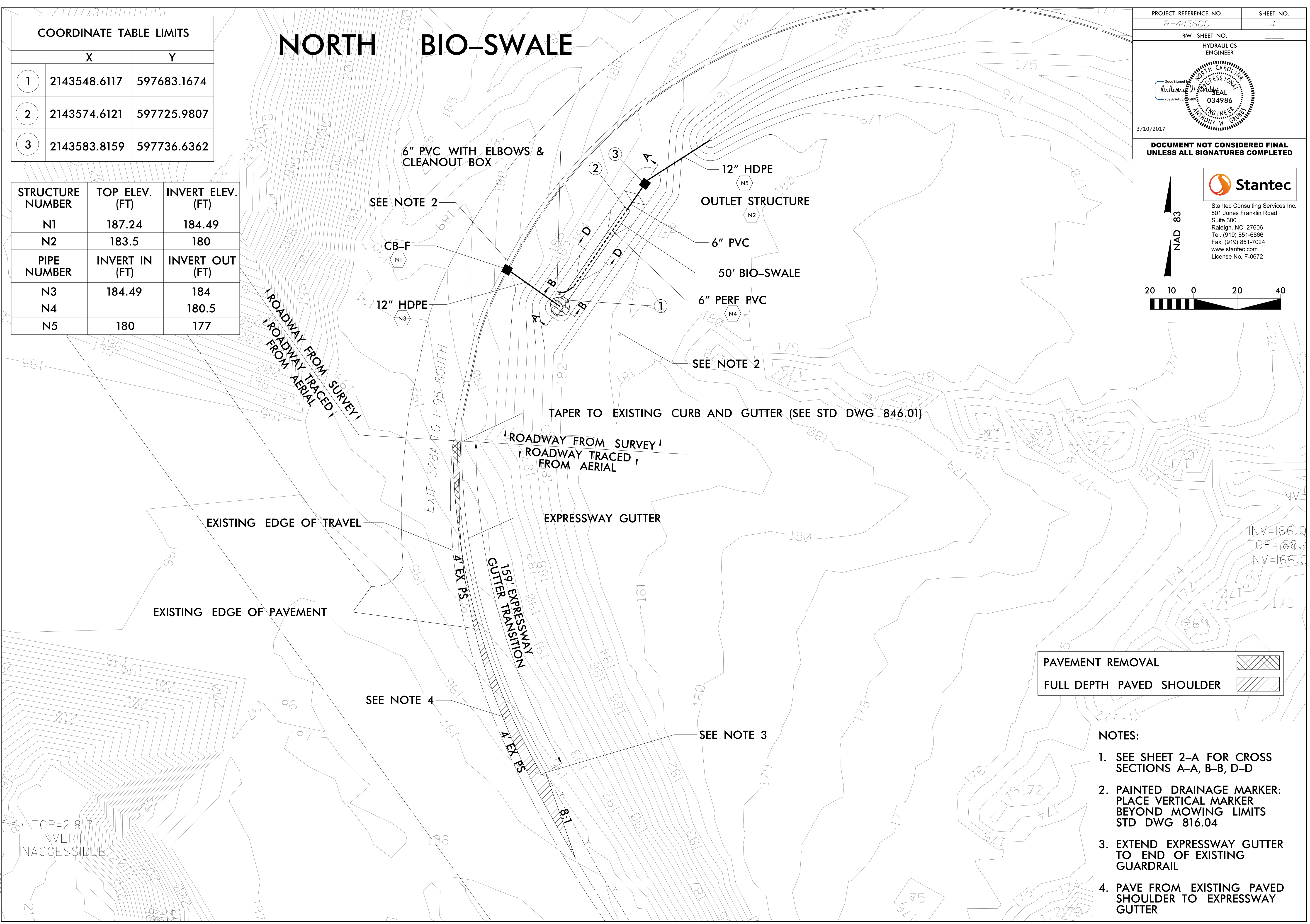
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3/10/2017
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COORDINATE TABLE LIMITS		
	X	Y
1	2143548.6117	597683.1674
2	2143574.6121	597725.9807
3	2143583.8159	597736.6362

STRUCTURE NUMBER	TOP ELEV. (FT)	INVERT ELEV. (FT)
N1	187.24	184.49
N2	183.5	180
PIPE NUMBER	INVERT IN (FT)	INVERT OUT (FT)
N3	184.49	184
N4		180.5
N5	180	177

NORTH BIO-SWALE



PROJECT REFERENCE NO. R-4436DD	SHEET NO. 4
RW SHEET NO.	
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PAVEMENT REMOVAL	
FULL DEPTH PAVED SHOULDER	

- NOTES:**
- SEE SHEET 2-A FOR CROSS SECTIONS A-A, B-B, D-D
 - PAINTED DRAINAGE MARKER: PLACE VERTICAL MARKER BEYOND MOWING LIMITS STD DWG 816.04
 - EXTEND EXPRESSWAY GUTTER TO END OF EXISTING GUARDRAIL
 - PAVE FROM EXISTING PAVED SHOULDER TO EXPRESSWAY GUTTER

5/14/99

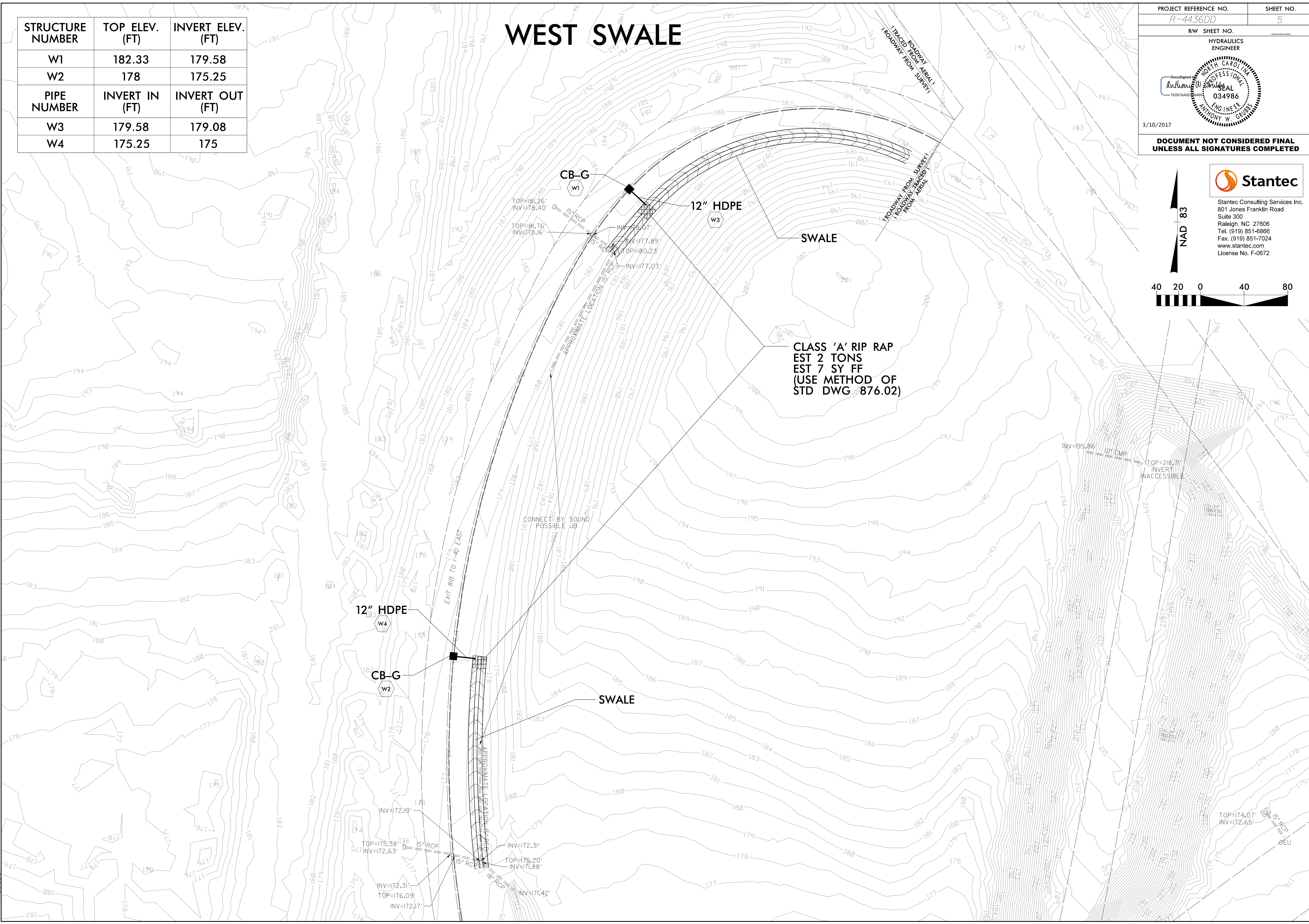
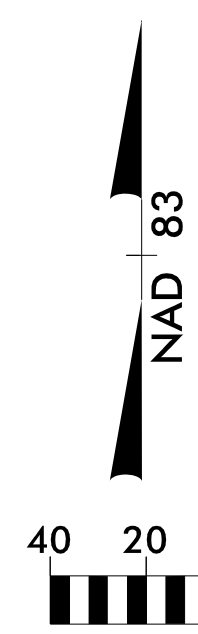
STRUCTURE NUMBER	TOP ELEV. (FT)	INVERT ELEV. (FT)
W1	182.33	179.58
W2	178	175.25
PIPE NUMBER	INVERT IN (FT)	INVERT OUT (FT)
W3	179.58	179.08
W4	175.25	175

WEST SWALE

PROJECT REFERENCE NO. R-4436DD	SHEET NO. 5
RW SHEET NO.	
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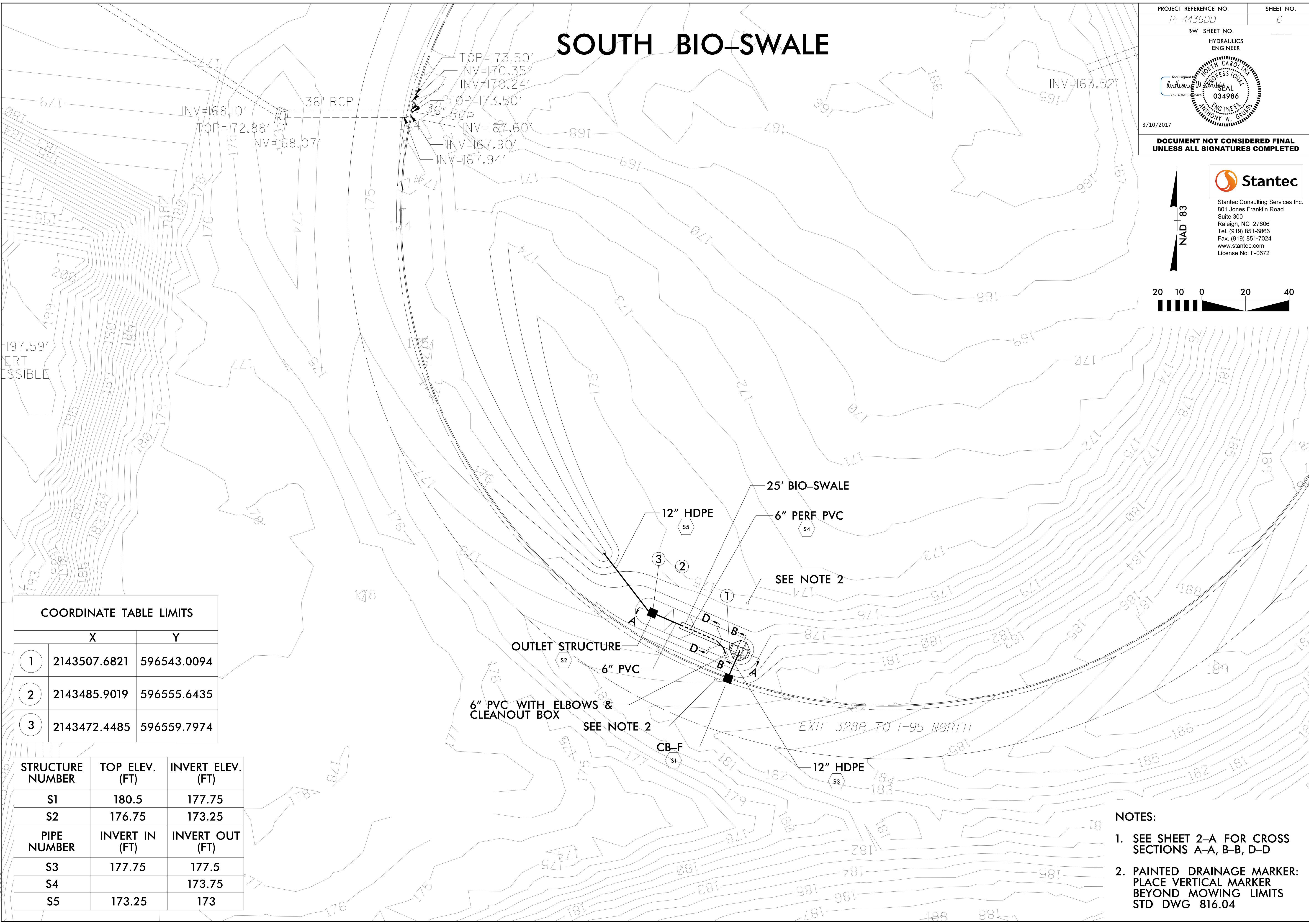
U:\DDN & misc files\psh_5_West_Loop.dgn
3/10/2017
F:\cadd

5/14/99

SOUTH BIO-SWALE

PROJECT REFERENCE NO. R-4436DD	SHEET NO. 6
RW SHEET NO.	
HYDRAULICS ENGINEER	
3/10/2017	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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COORDINATE TABLE LIMITS		
	X	Y
1	2143507.6821	596543.0094
2	2143485.9019	596555.6435
3	2143472.4485	596559.7974

STRUCTURE NUMBER	TOP ELEV. (FT)	INVERT ELEV. (FT)
S1	180.5	177.75
S2	176.75	173.25
PIPE NUMBER	INVERT IN (FT)	INVERT OUT (FT)
S3	177.75	177.5
S4	173.75	173.75
S5	173.25	173

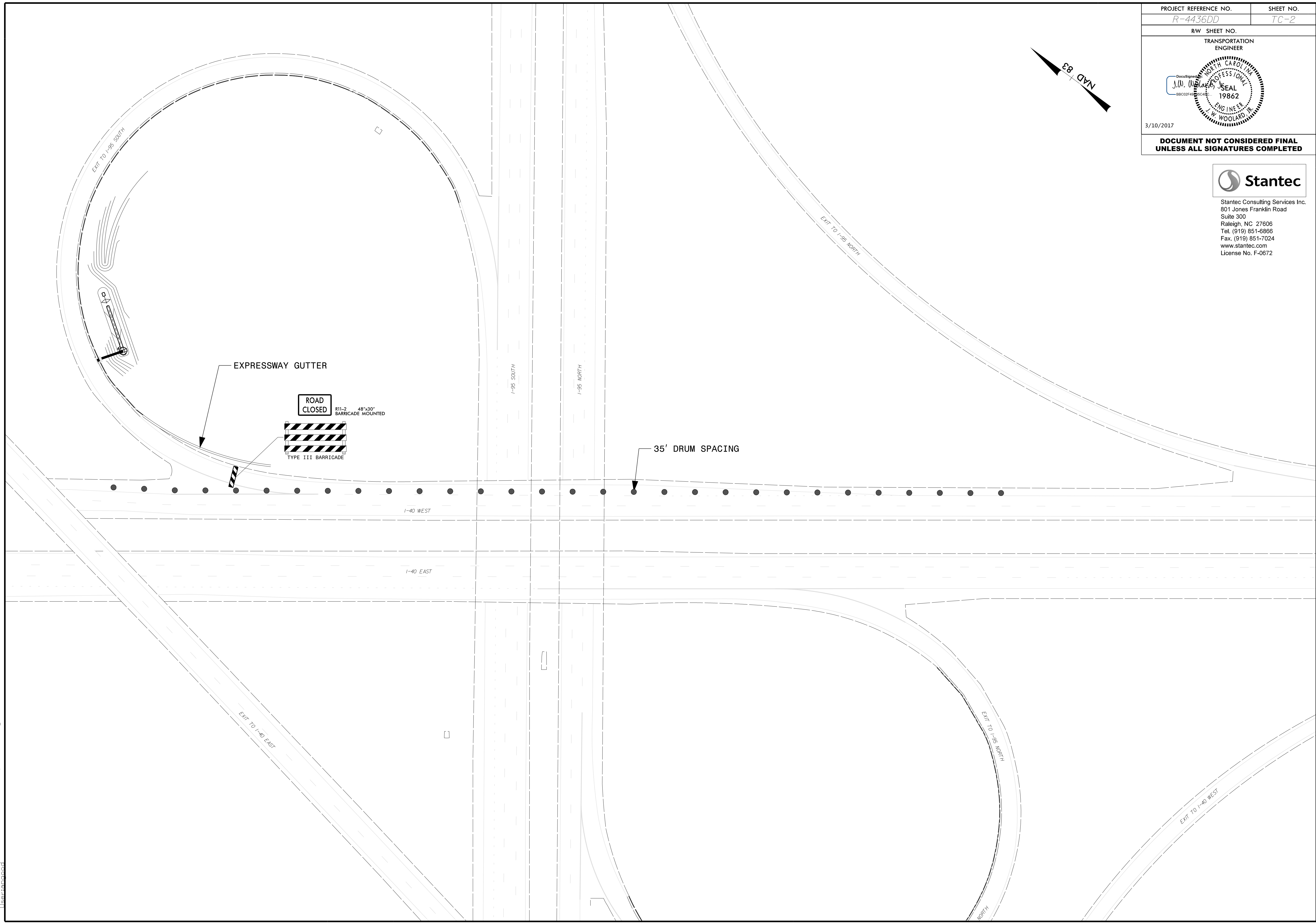
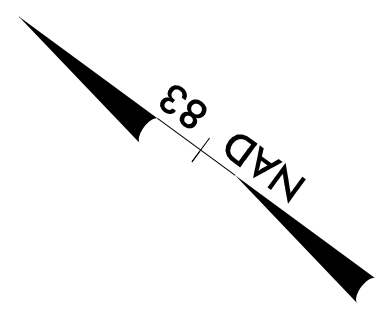
- NOTES:**
- SEE SHEET 2-A FOR CROSS SECTIONS A-A, B-B, D-D
 - PAINTED DRAINAGE MARKER: PLACE VERTICAL MARKER BEYOND MOWING LIMITS STD DWG 816.04

3/10/2017 J:\DON & misc files\psh_6_South Loop.dgn
 F:\copper

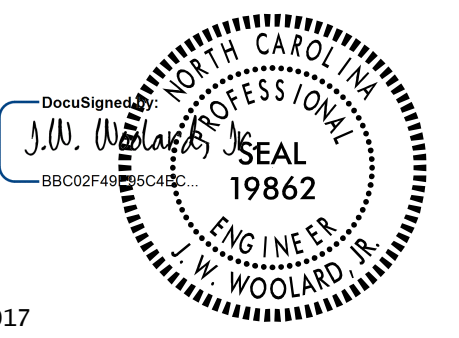
PROJECT REFERENCE NO. <i>R-4436DD</i>	SHEET NO. <i>TC-2</i>
RW SHEET NO.	
TRANSPORTATION ENGINEER	
3/10/2017	
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 jwooldar

PROJECT REFERENCE NO. R-4436DD	SHEET NO. TC-3
RW SHEET NO.	
TRANSPORTATION ENGINEER	
	
3/10/2017	
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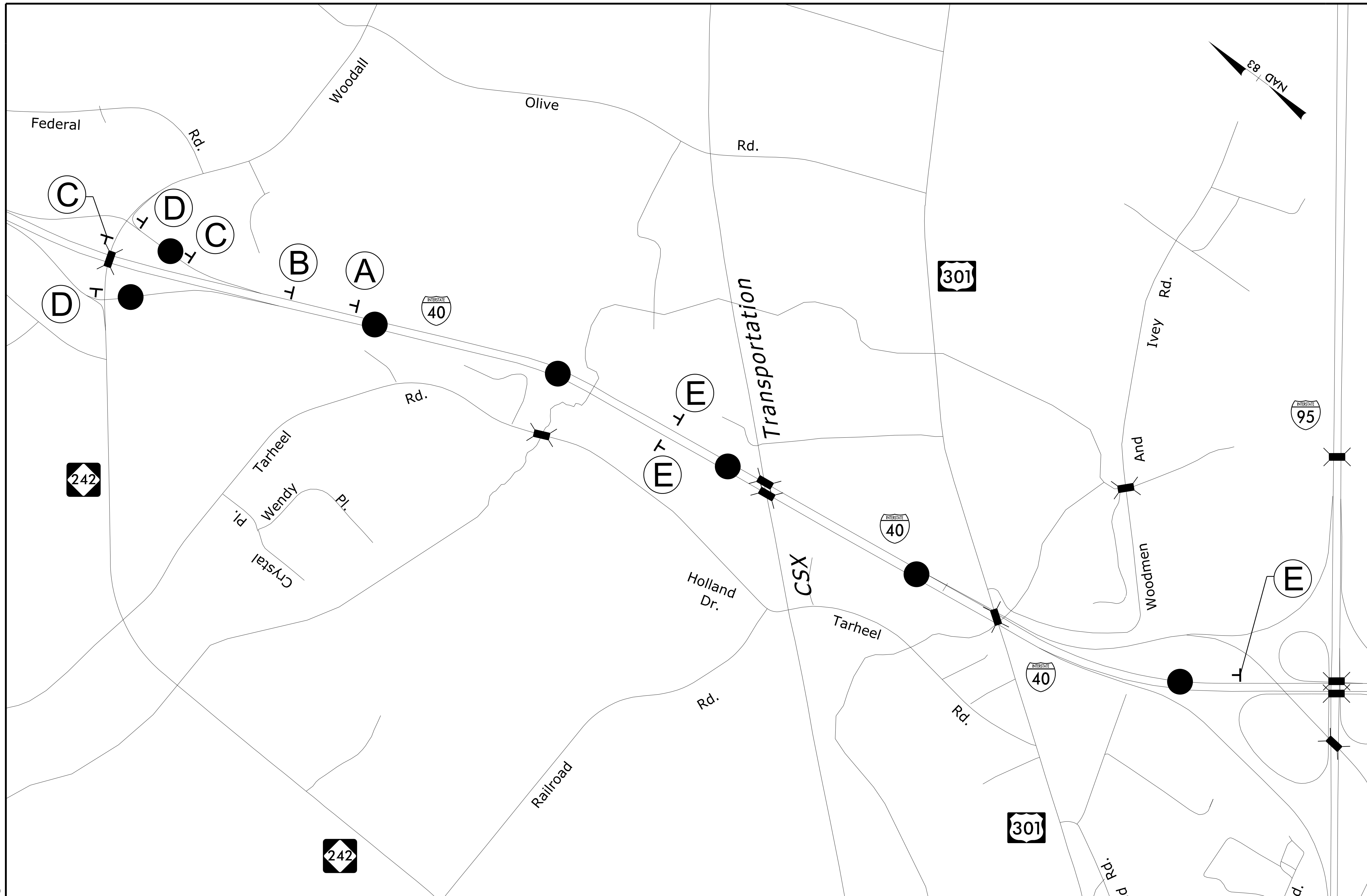
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CHANGEABLE MESSAGE SIGN

EXIT 328A I-95 SB CLOSED	FOLLOW SIGNED DETOUR
--------------------------------	----------------------------

NOTE: PLACE CMS 1 MILE
IN ADVANCE OF
EXIT 328A



DETOUR ROUTE SIGNS

<p>A</p> <p>DETOUR M4-8 24"x12"</p> <p>SOUTH M3-3 24"x12"</p> <p>INTERSTATE 95</p> <p>M5-2 21"x15"</p>	<p>B</p> <p>DETOUR M4-8 24"x12"</p> <p>SOUTH M3-3 24"x12"</p> <p>INTERSTATE 95</p> <p>M6-2 21"x15"</p>	<p>C</p> <p>DETOUR M4-8 24"x12"</p> <p>SOUTH M3-3 24"x12"</p> <p>INTERSTATE 95</p> <p>M5-1 21"x15"</p>	<p>D</p> <p>DETOUR M4-8 24"x12"</p> <p>SOUTH M3-3 24"x12"</p> <p>INTERSTATE 95</p> <p>M6-1L 21"x15"</p>	<p>E</p> <p>DETOUR M4-8 24"x12"</p> <p>SOUTH M3-3 24"x12"</p> <p>INTERSTATE 95</p> <p>M6-3 21"x15"</p>
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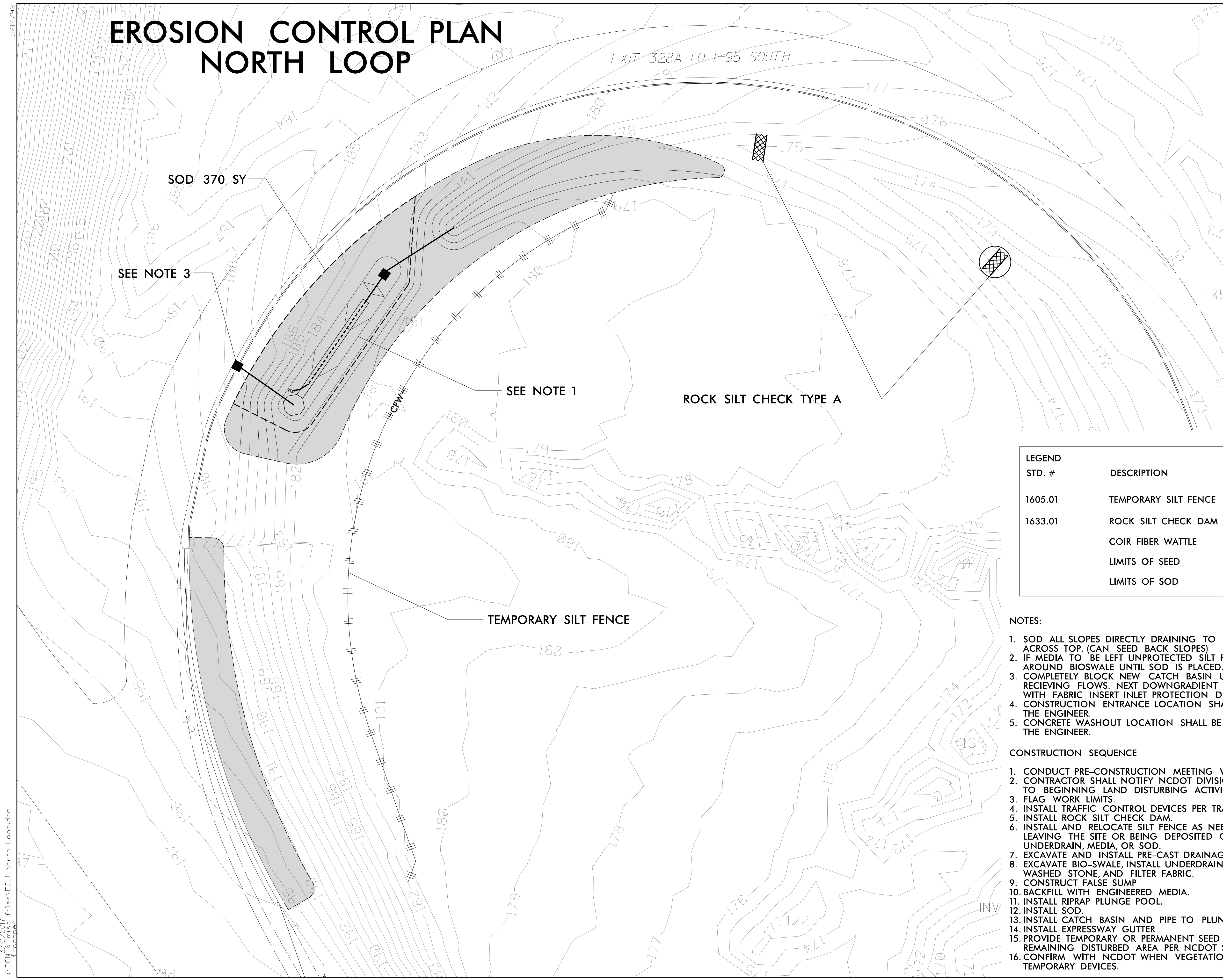
EROSION CONTROL PLAN NORTH LOOP

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-1
RW SHEET NO.	
HYDRAULICS ENGINEER	
3/10/2017	
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NAD 83

CRYSTAL MOORE
 LEVEL III NAME
 33124
 LEVEL III CERTIFICATION NO.



STD. #	DESCRIPTION	SYMBOL
1605.01	TEMPORARY SILT FENCE	— — — — —
1633.01	ROCK SILT CHECK DAM	▣
	COIR FIBER WATTLE	—CFW—
	LIMITS OF SEED	▭
	LIMITS OF SOD	▭

NOTES:

- SOD ALL SLOPES DIRECTLY DRAINING TO THE BIO-SWALE. SOD BERMS ACROSS TOP. (CAN SEED BACK SLOPES)
- IF MEDIA TO BE LEFT UNPROTECTED SILT FENCE SHALL BE PLACED AROUND BIOSWALE UNTIL SOD IS PLACED.
- COMPLETELY BLOCK NEW CATCH BASIN UNTIL BIO-SWALE IS CAPABLE OF RECEIVING FLOWS. NEXT DOWNGRADIENT CATCHBASIN SHALL BE FITTED WITH FABRIC INSERT INLET PROTECTION DEVICE.
- CONSTRUCTION ENTRANCE LOCATION SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
- CONCRETE WASHOUT LOCATION SHALL BE DETERMINED IN FIELD BY THE ENGINEER.

CONSTRUCTION SEQUENCE

- CONDUCT PRE-CONSTRUCTION MEETING WITH NCDOT DIVISION OFFICE.
- CONTRACTOR SHALL NOTIFY NCDOT DIVISION OFFICE SEVEN DAYS PRIOR TO BEGINNING LAND DISTURBING ACTIVITY.
- FLAG WORK LIMITS.
- INSTALL TRAFFIC CONTROL DEVICES PER TRAFFIC CONTROL PLAN.
- INSTALL ROCK SILT CHECK DAM.
- INSTALL AND RELOCATE SILT FENCE AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE OR BEING DEPOSITED ON TOP OF NEWLY INSTALLED UNDERDRAIN, MEDIA, OR SOD.
- EXCAVATE AND INSTALL PRE-CAST DRAINAGE STRUCTURE
- EXCAVATE BIO-SWALE, INSTALL UNDERDRAIN PIPE, CLEANOUTS, WASHED STONE, AND FILTER FABRIC.
- CONSTRUCT FALSE SUMP
- BACKFILL WITH ENGINEERED MEDIA.
- INSTALL RIPRAP PLUNGE POOL.
- INSTALL SOD.
- INSTALL CATCH BASIN AND PIPE TO PLUNGE POOL.
- INSTALL EXPRESSWAY GUTTER
- PROVIDE TEMPORARY OR PERMANENT SEED AND MULCH IN REMAINING DISTURBED AREA PER NCDOT SPECIFICATIONS.
- CONFIRM WITH NCDOT WHEN VEGETATION IS STABILIZED AND REMOVE TEMPORARY DEVICES.

EROSION CONTROL PLAN WEST LOOP

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-2
RW SHEET NO.	
HYDRAULICS ENGINEER	
3/10/2017	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

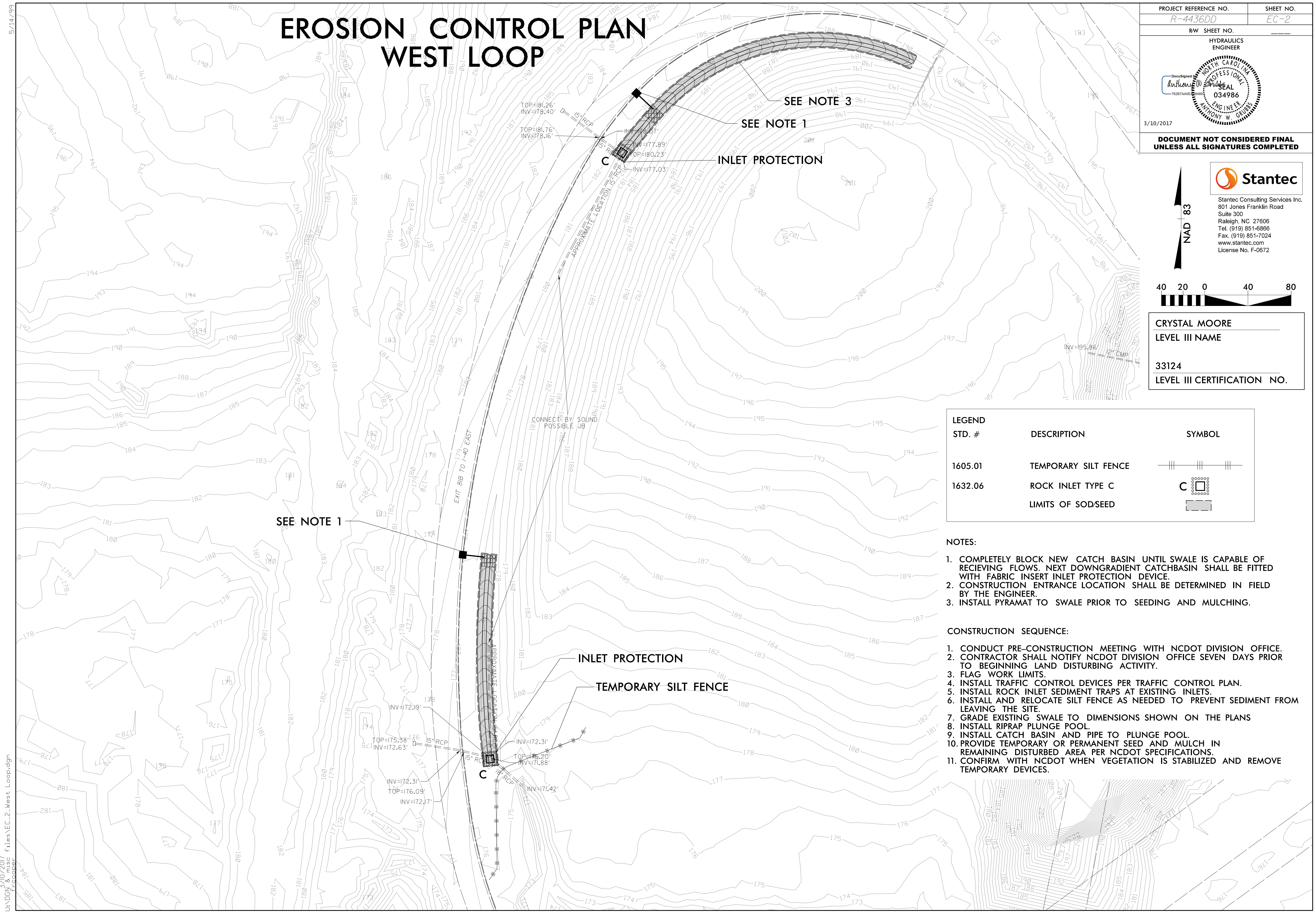
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NAD 83

CRYSTAL MOORE
LEVEL III NAME

33124
LEVEL III CERTIFICATION NO.



STD. #	DESCRIPTION	SYMBOL
1605.01	TEMPORARY SILT FENCE	
1632.06	ROCK INLET TYPE C	
	LIMITS OF SODSEED	

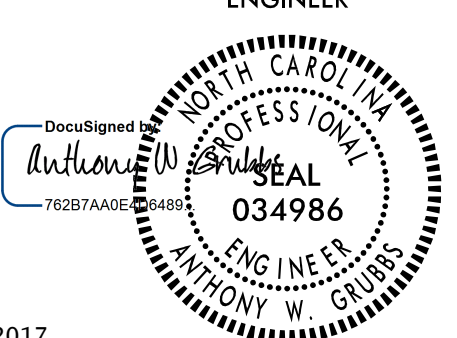
- NOTES:**
1. COMPLETELY BLOCK NEW CATCH BASIN UNTIL SWALE IS CAPABLE OF RECEIVING FLOWS. NEXT DOWNGRADIENT CATCHBASIN SHALL BE FITTED WITH FABRIC INSERT INLET PROTECTION DEVICE.
 2. CONSTRUCTION ENTRANCE LOCATION SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
 3. INSTALL PYRAMAT TO SWALE PRIOR TO SEEDING AND MULCHING.

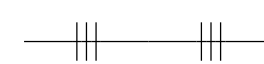



- CONSTRUCTION SEQUENCE:**
1. CONDUCT PRE-CONSTRUCTION MEETING WITH NCDOT DIVISION OFFICE.
 2. CONTRACTOR SHALL NOTIFY NCDOT DIVISION OFFICE SEVEN DAYS PRIOR TO BEGINNING LAND DISTURBING ACTIVITY.
 3. FLAG WORK LIMITS.
 4. INSTALL TRAFFIC CONTROL DEVICES PER TRAFFIC CONTROL PLAN.
 5. INSTALL ROCK INLET SEDIMENT TRAPS AT EXISTING INLETS.
 6. INSTALL AND RELOCATE SILT FENCE AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE.
 7. GRADE EXISTING SWALE TO DIMENSIONS SHOWN ON THE PLANS
 8. INSTALL RIPRAP PLUNGE POOL.
 9. INSTALL CATCH BASIN AND PIPE TO PLUNGE POOL.
 10. PROVIDE TEMPORARY OR PERMANENT SEED AND MULCH IN REMAINING DISTURBED AREA PER NCDOT SPECIFICATIONS.
 11. CONFIRM WITH NCDOT WHEN VEGETATION IS STABILIZED AND REMOVE TEMPORARY DEVICES.

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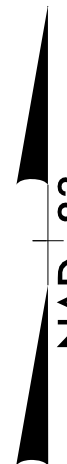

EROSION CONTROL PLAN SOUTH LOOP

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-3
RW SHEET NO.	
HYDRAULICS ENGINEER	
	
3/10/2017	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

STD. #	DESCRIPTION	SYMBOL
1605.01	TEMPORARY SILT FENCE	
1633.01	ROCK SILT CHECK DAM	
	LIMITS OF SEED	
	LIMITS OF SOD	

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NAD 83

CRYSTAL MOORE
 LEVEL III NAME

33124
 LEVEL III CERTIFICATION NO.

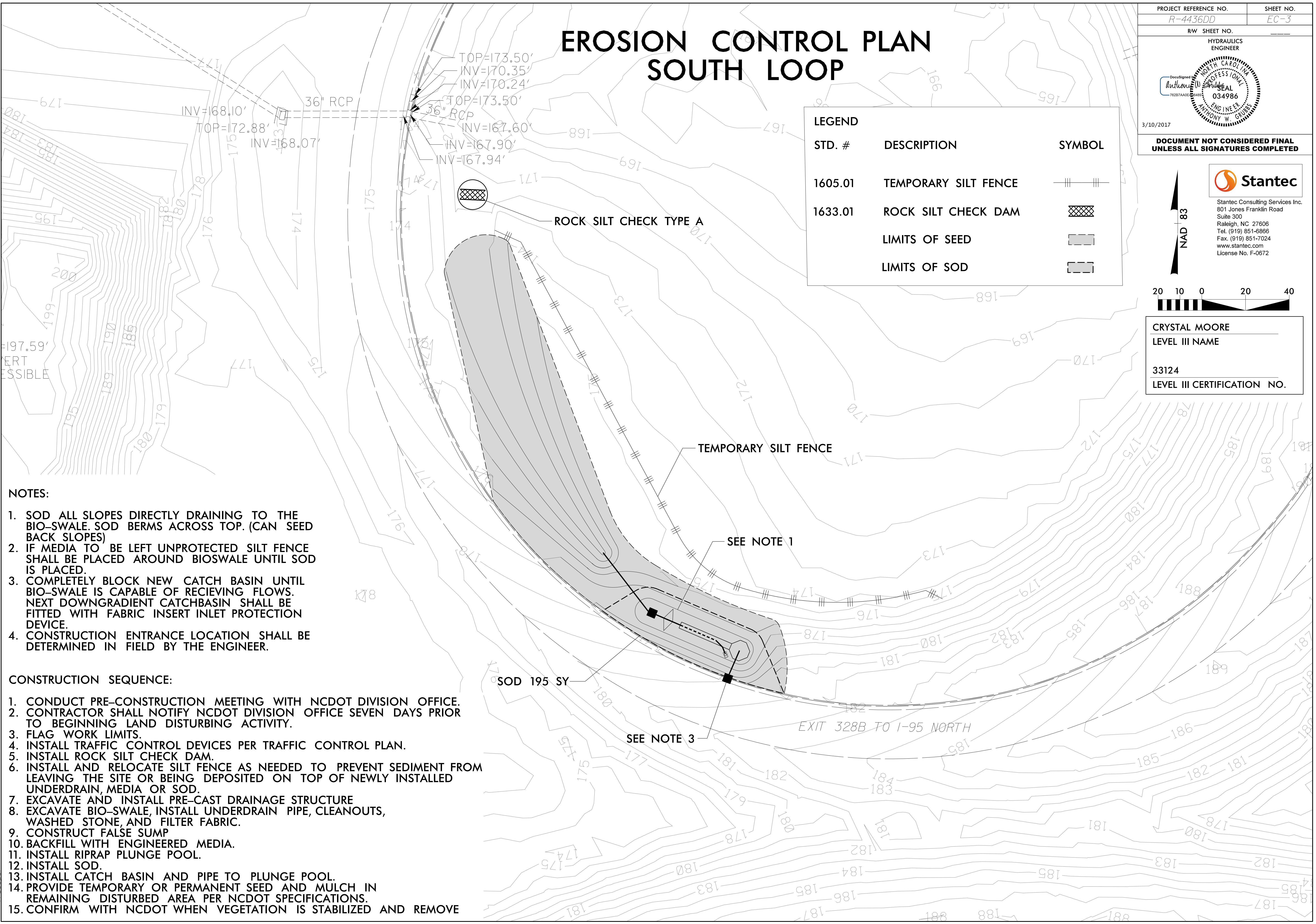
NOTES:

1. SOD ALL SLOPES DIRECTLY DRAINING TO THE BIO-SWALE. SOD BERMS ACROSS TOP. (CAN SEED BACK SLOPES)
2. IF MEDIA TO BE LEFT UNPROTECTED SILT FENCE SHALL BE PLACED AROUND BIOSWALE UNTIL SOD IS PLACED.
3. COMPLETELY BLOCK NEW CATCH BASIN UNTIL BIO-SWALE IS CAPABLE OF RECEIVING FLOWS. NEXT DOWNGRAIDENT CATCHBASIN SHALL BE FITTED WITH FABRIC INSERT INLET PROTECTION DEVICE.
4. CONSTRUCTION ENTRANCE LOCATION SHALL BE DETERMINED IN FIELD BY THE ENGINEER.

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 ROCK SILT CHECK DAM.
6. INSTALL AND RELOCATE SILT FENCE AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE OR BEING DEPOSITED ON TOP OF NEWLY INSTALLED UNDERDRAIN, MEDIA OR SOD.
7. EXCAVATE AND INSTALL PRE-CAST DRAINAGE STRUCTURE
8. EXCAVATE BIO-SWALE, INSTALL UNDERDRAIN PIPE, CLEANOUTS, WASHED STONE, AND FILTER FABRIC.
9. CONSTRUCT FALSE SUMP
10. BACKFILL WITH ENGINEERED MEDIA.
11. INSTALL RIPRAP PLUNGE POOL.
12. INSTALL SOD.
13. INSTALL CATCH BASIN AND PIPE TO PLUNGE POOL.
14. PROVIDE TEMPORARY OR PERMANENT SEED AND MULCH IN REMAINING DISTURBED AREA PER NCDOT SPECIFICATIONS.
15. CONFIRM WITH NCDOT WHEN VEGETATION IS STABILIZED AND REMOVE

3/10/2017
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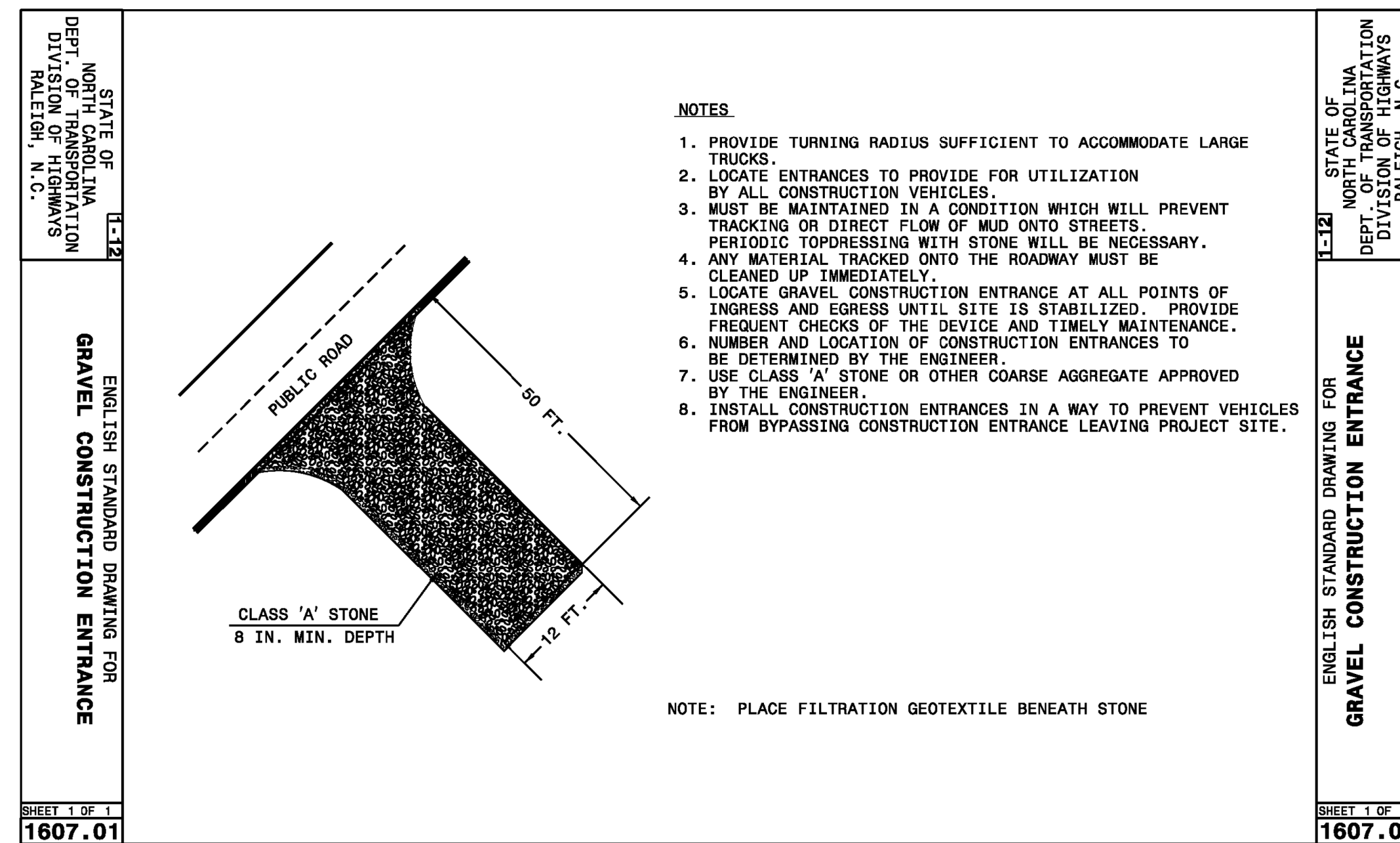
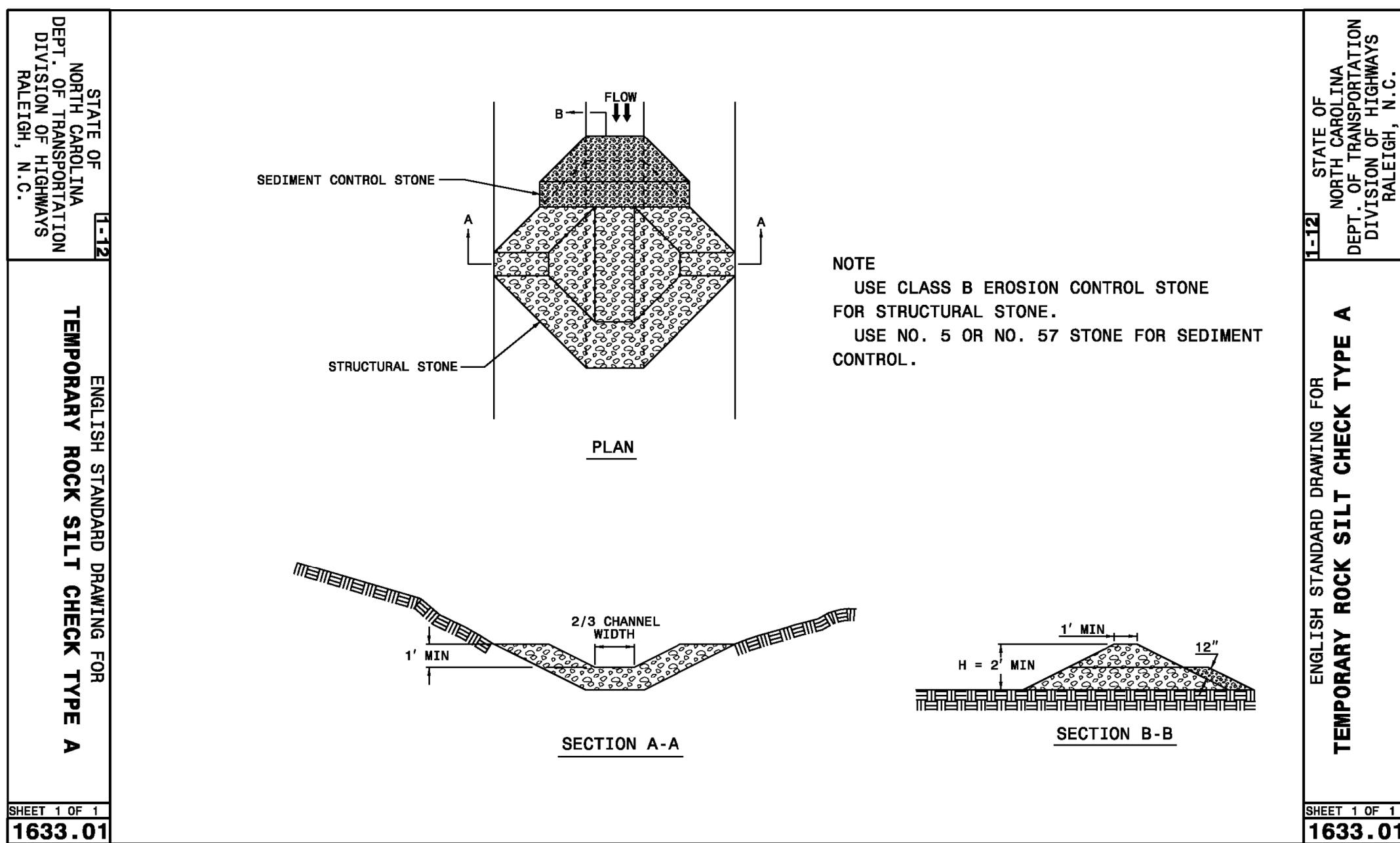
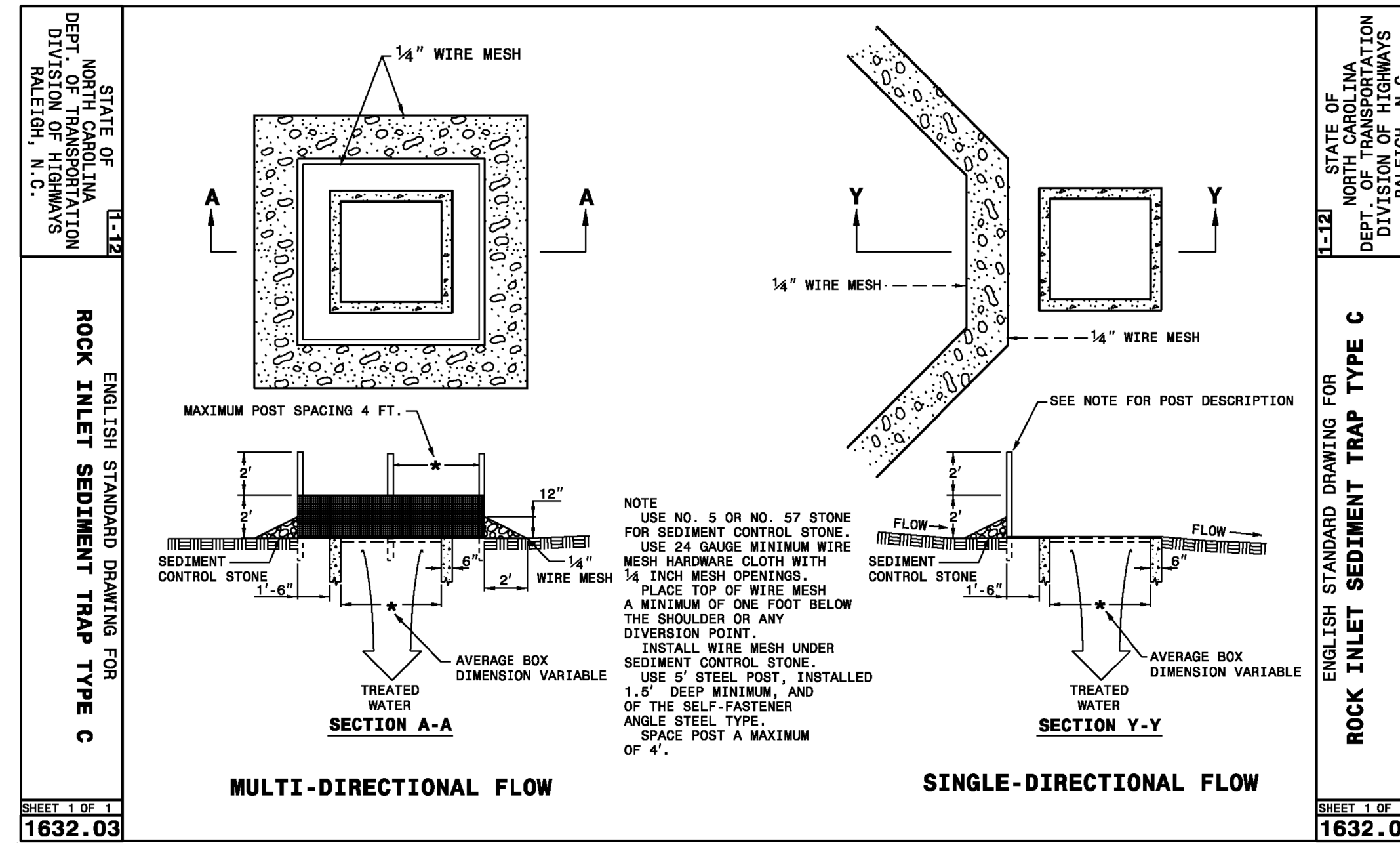
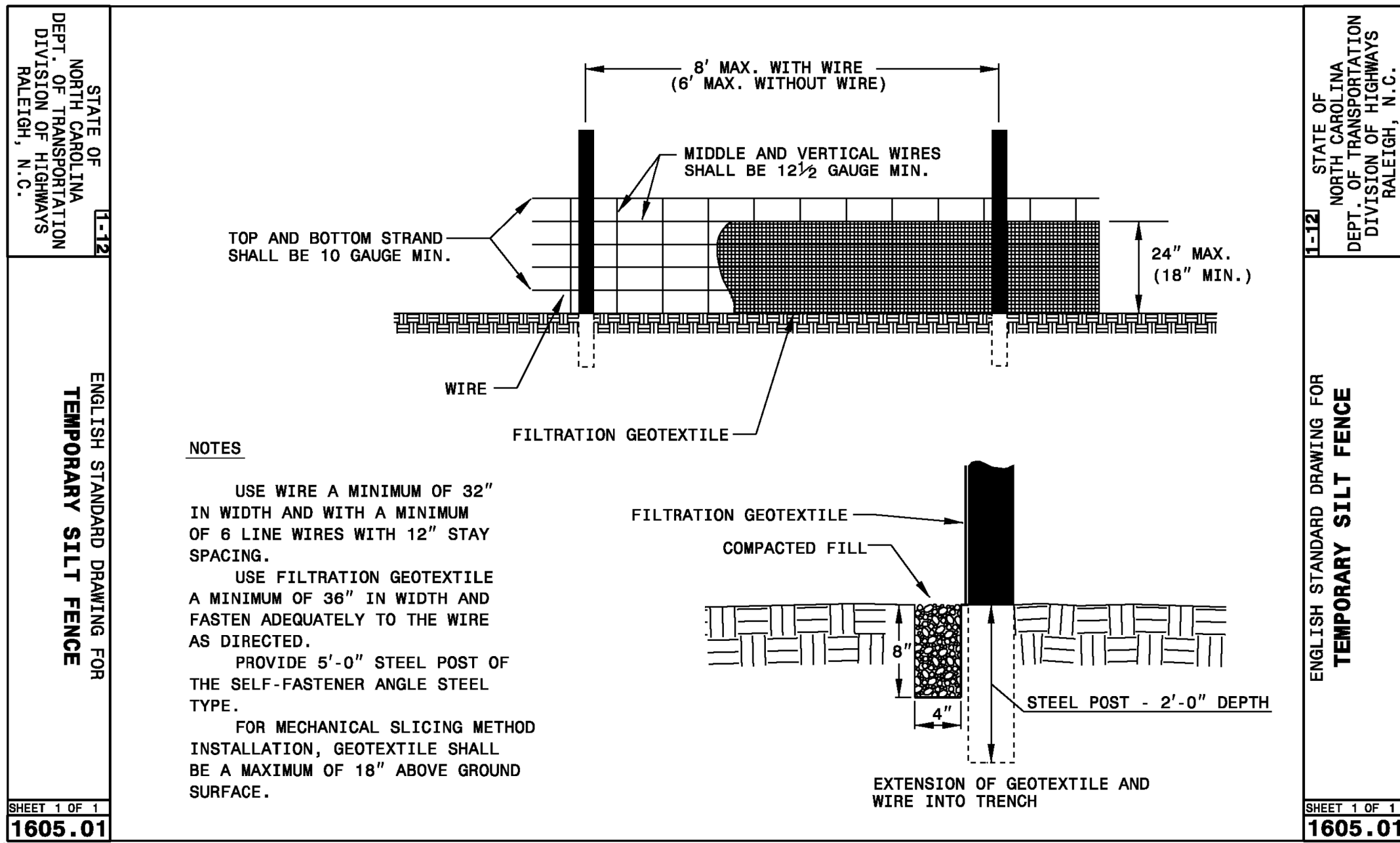


EROSION CONTROL DETAILS

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-4
RW SHEET NO.	
HYDRAULICS ENGINEER	
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CRYSTAL MOORE
LEVEL III NAME
33124
LEVEL III CERTIFICATION NO.

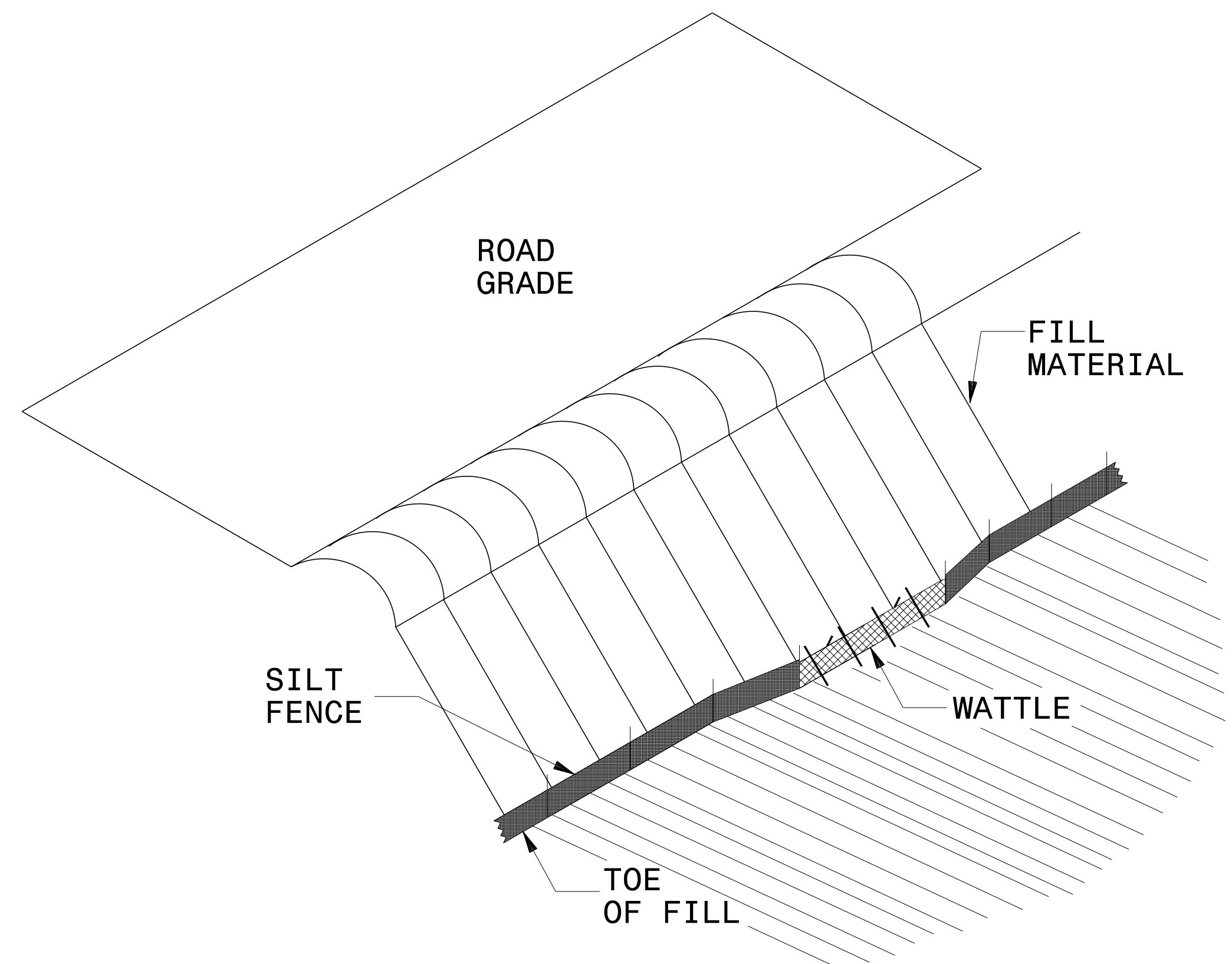


SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-5
RW SHEET NO.	
HYDRAULICS ENGINEER	
3/10/2017	
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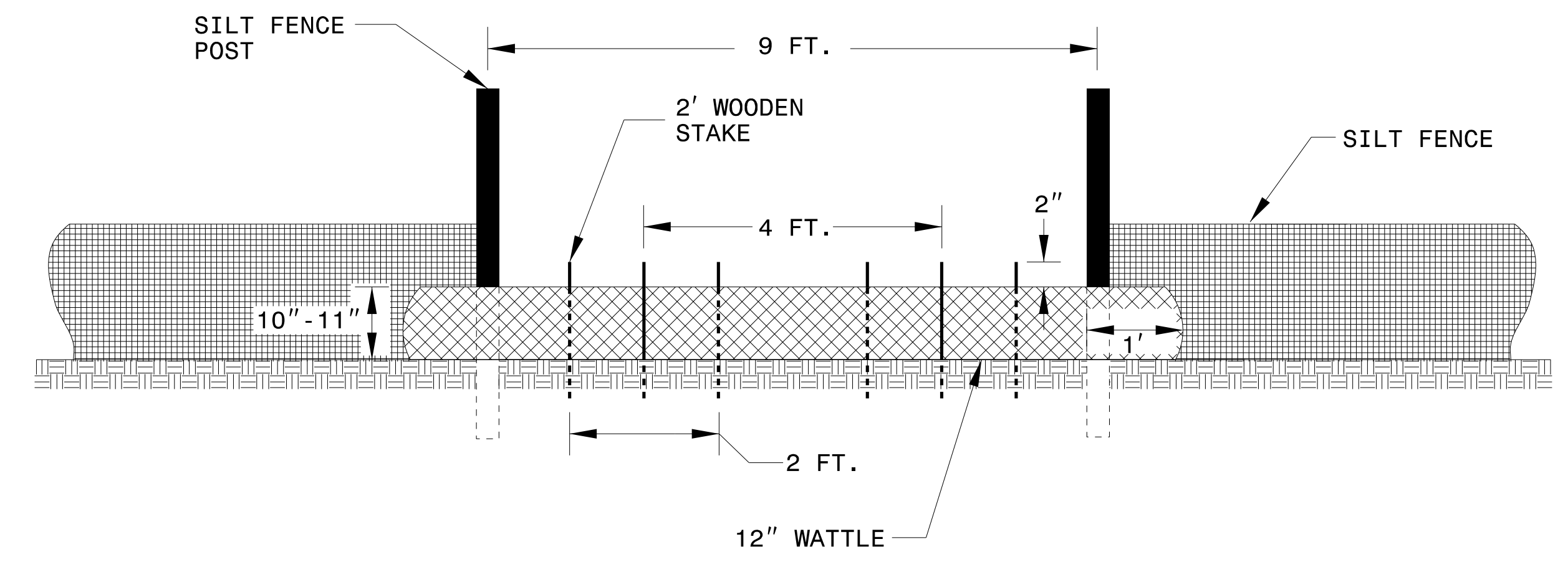
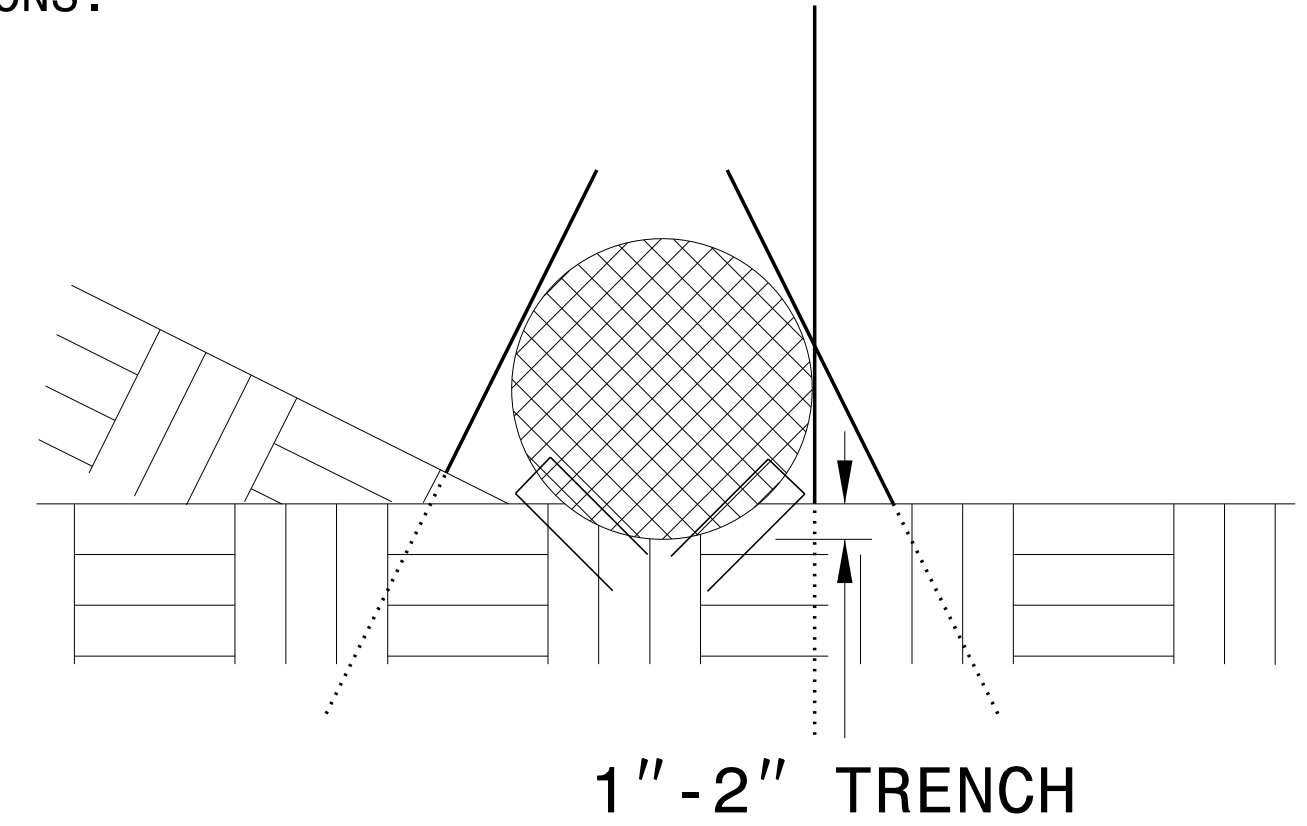
CRYSTAL MOORE
LEVEL III NAME
33124
LEVEL III CERTIFICATION NO.



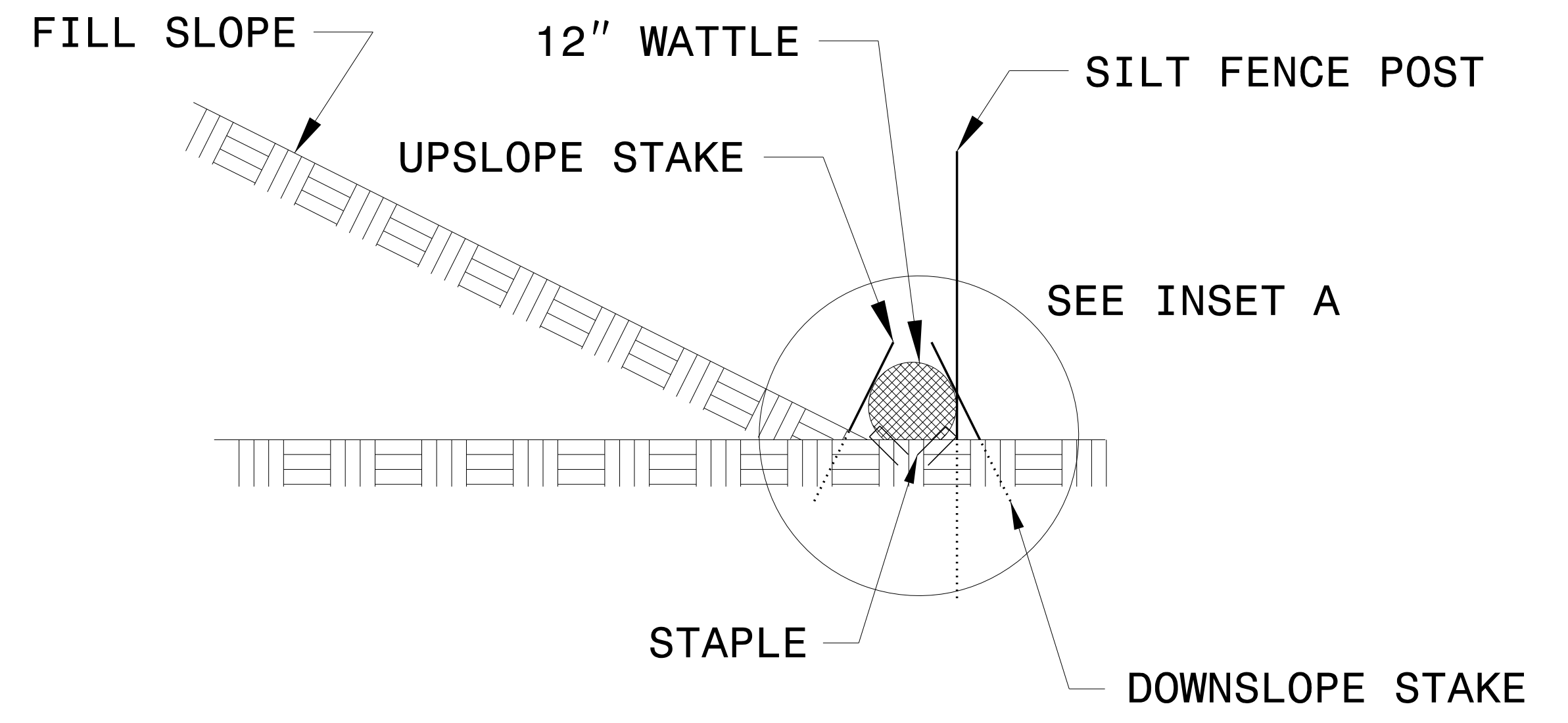
ISOMETRIC VIEW

- NOTES:**
- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
 - EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
 - DO NOT PLACE WATTLE ON TOE OF SLOPE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
 - INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



VIEW FROM SLOPE



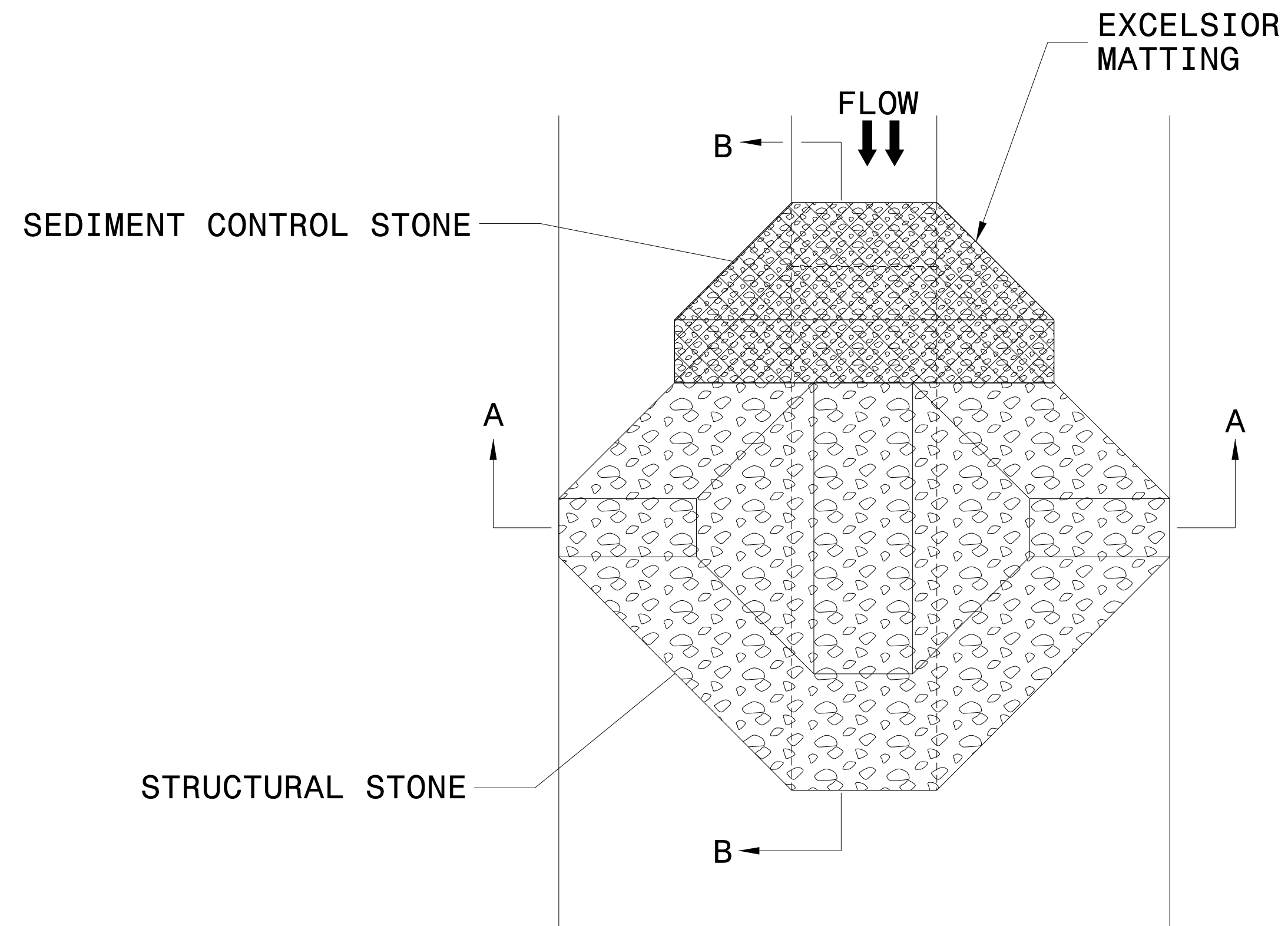
SIDE VIEW

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

PROJECT REFERENCE NO. R-4436DD	SHEET NO. EC-6
RAW SHEET NO.	
HYDRAULICS ENGINEER	
3/10/2017	
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CRYSTAL MOORE
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 33124
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PLAN

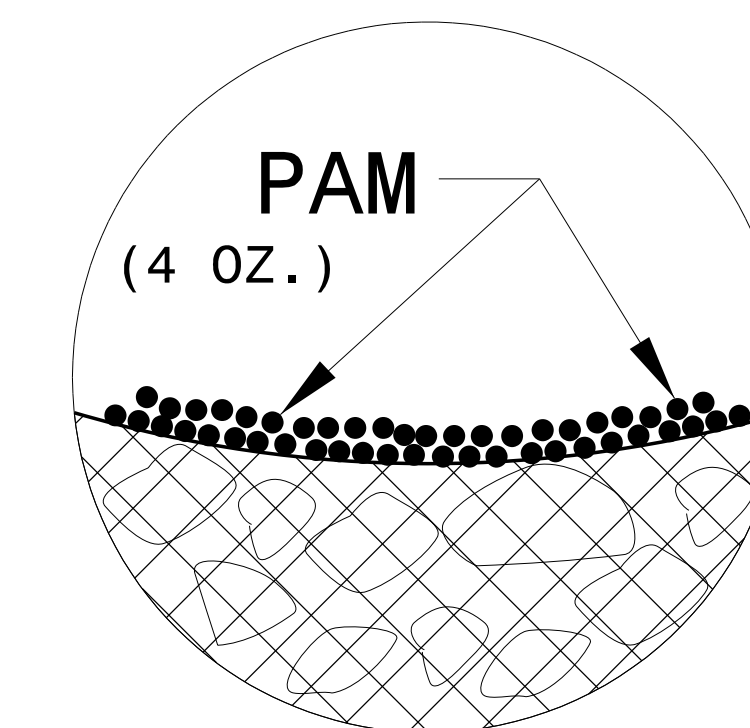
NOTES:

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

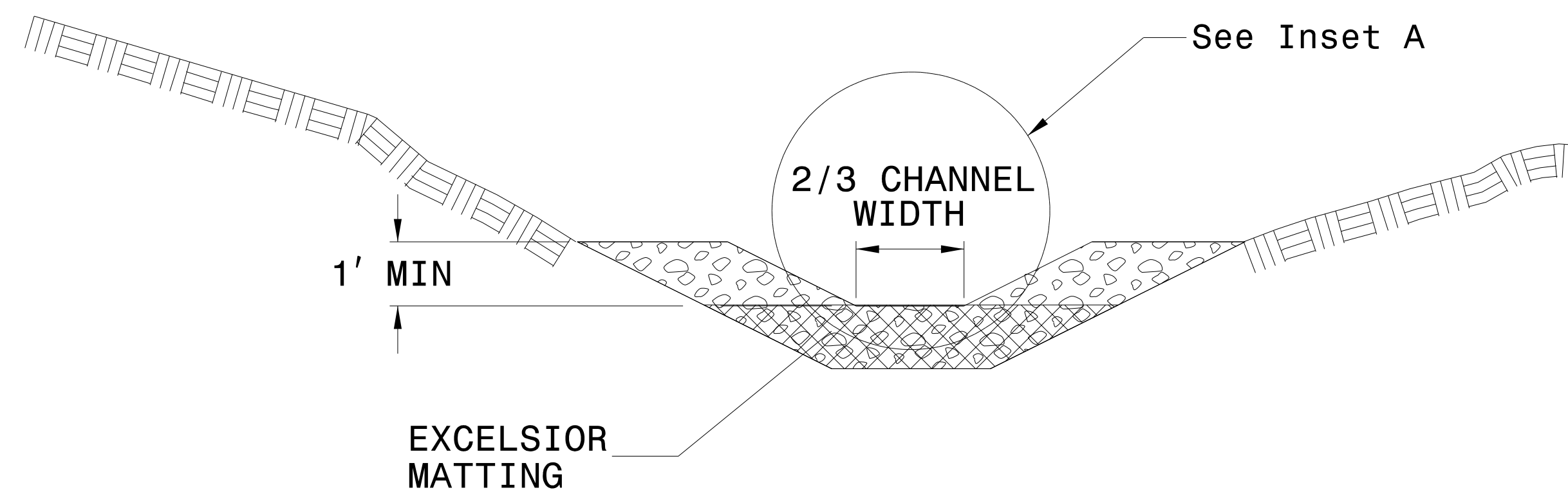
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

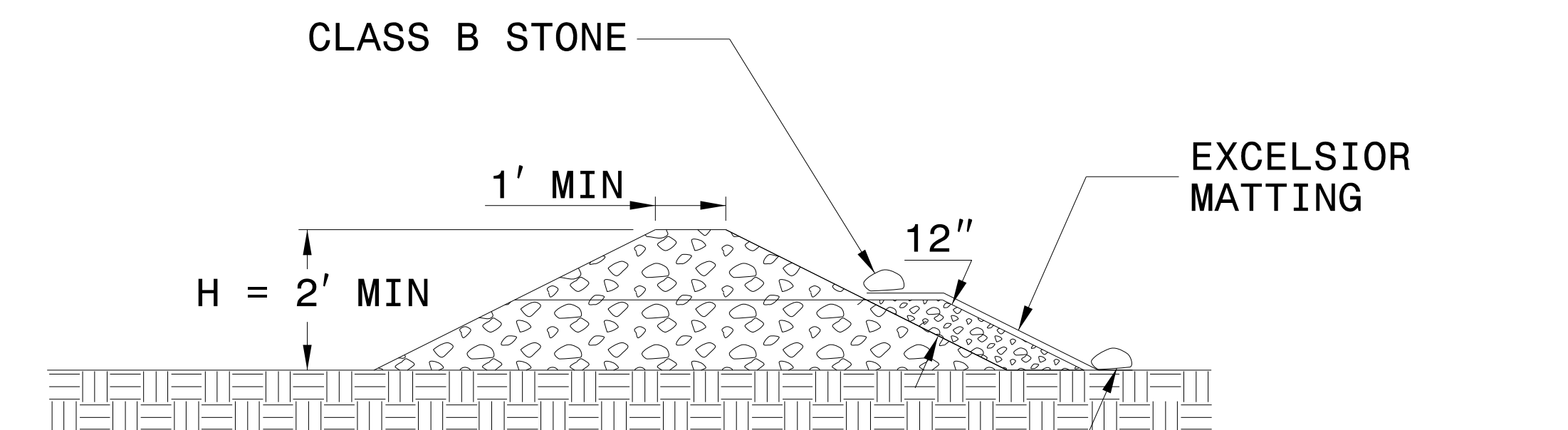
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE