Bridge Contract

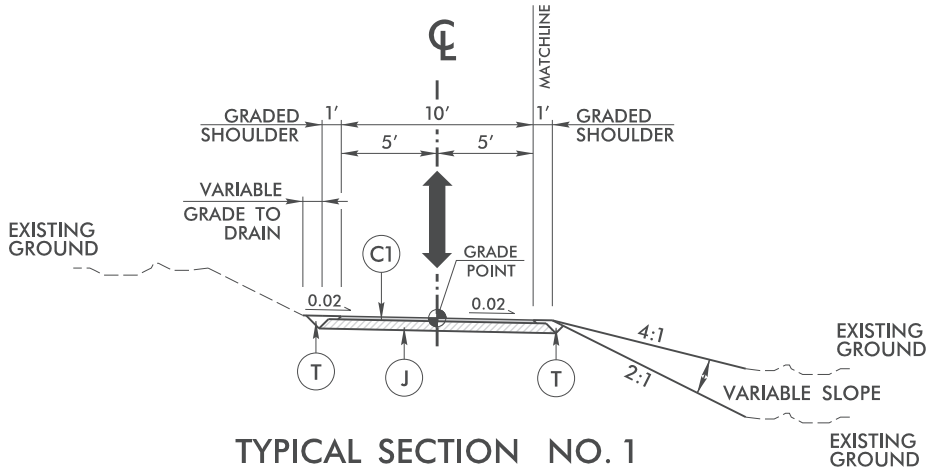
Site # 100-01-00205 - 187 Sweet Birch Lane over the Cane River in Yancey County

6/2/99

PAVEMENT SCHEDULE

C1	PROPOSED 2" ASPHALT SURFACE COURSE, TYPE S4.75A, AT AN AVERAGE RATE OF 220 LBS PER SQ YD
C2	PROPOSED ASPHALT SURFACE COURSE, TYPE S4.75A, AT AN AVERAGE RATE OF 110 LBS PER SQ YD PER INCH
J	6" AGGREGATE BASE COURSE
T	EARTH MATERIAL

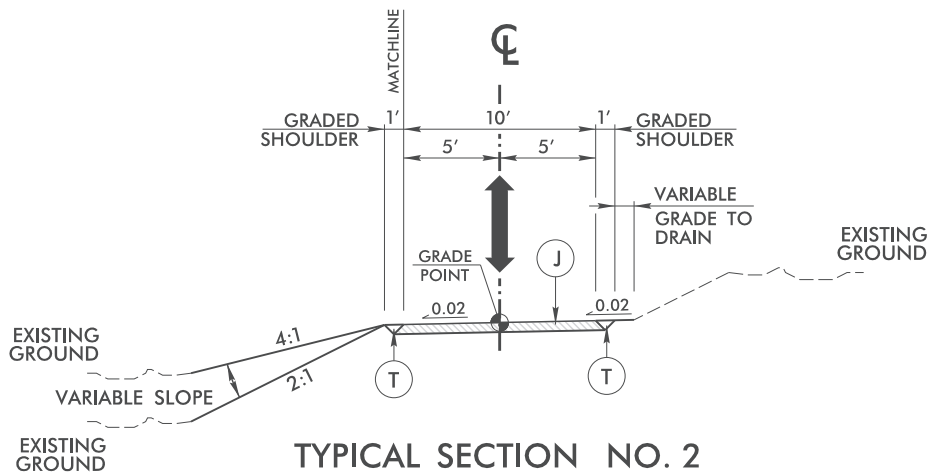
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

ASPHALT SURFACE

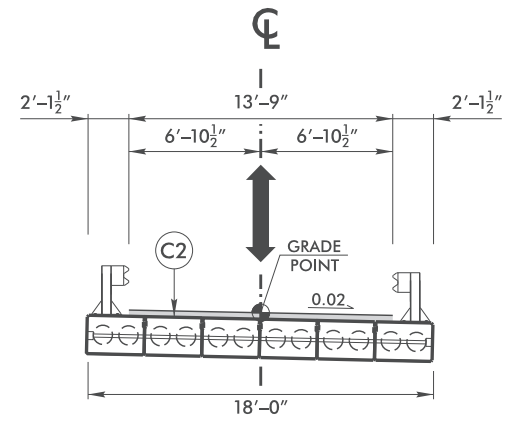
–L– STA 10+11.05 TO 10+69.00+/– (BEGIN BRIDGE)
–L– STA 11+71.79+/– (END BRIDGE) TO 12+08.91
–Y6B– STA 10+07.62 TO 10+22.00 (MIRRORED)
–DR1– STA 10+00.00 TO 10+39.00 (MIRRORED)



TYPICAL SECTION NO. 2

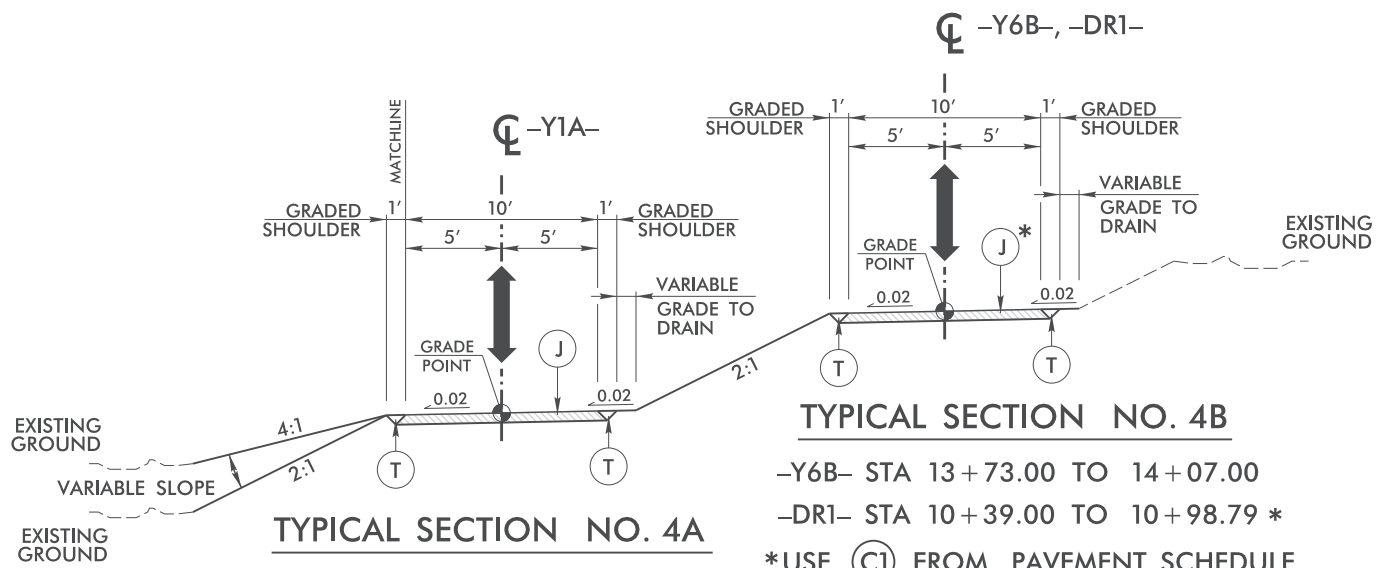
ABC SURFACE

–Y6B– STA 10+22.00 TO 13+73.00
–Y6B– STA 14+07.00 TO 14+25.00
–Y1A– STA 10+47.82 TO 10+78.00
–Y1A– STA 11+12.00 TO 21+19.00
–Y1A– STA 21+67.00 TO 22+34.29
–Y1– STA 11+33.56 TO 19+00.00



TYPICAL SECTION NO. 3

–L– STA 10+69.00+/– (BEGIN BRIDGE) TO 11+71.79+/– (END BRIDGE)
(SEE STRUCTURE PLANS)

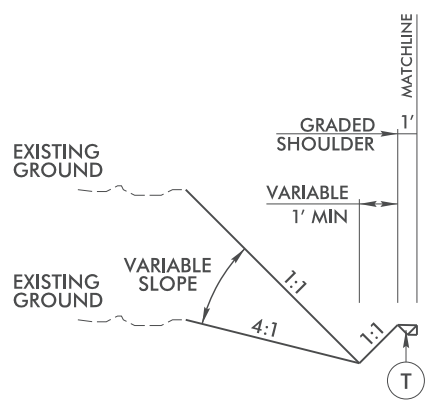


TYPICAL SECTION NO. 4A

–Y1A– STA 10+78.00 TO 11+12.00
–Y1A– STA 21+19.00 TO 21+67.00

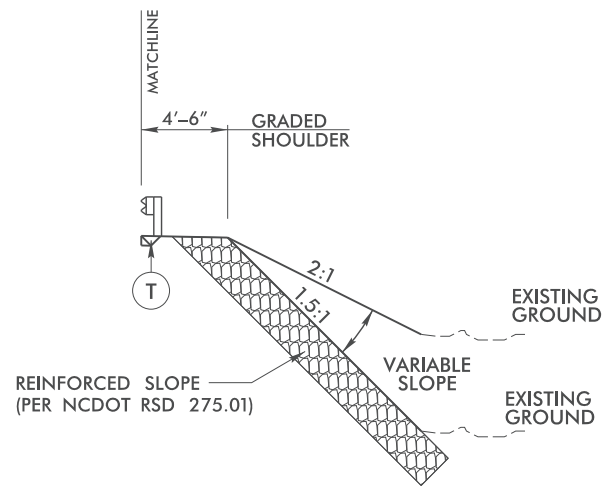
TYPICAL SECTION NO. 4B

–Y6B– STA 13+73.00 TO 14+07.00
–DR1– STA 10+39.00 TO 10+98.79 *
*USE (C1) FROM PAVEMENT SCHEDULE



INSET

DITCH SECTIONS



INSET

GUARDRAIL SECTIONS

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL R. Erskine Brooks ERSKINE BROOKS

3/20/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfi.tbl
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NCDOT 2024 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" CONTRACTS STANDARDS AND DEVELOPMENT UNIT – N. C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N. C., DATED JANUARY 16, 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	METHOD OF CLEARING – METHOD II
225.02	GUIDE FOR GRADING SUBGRADE – SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION – TWO LANE PAVEMENT
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION – HIGH SIDE OF SUPERELEVATED CURVE – METHOD I
DIVISION 8 – INCIDENTALS	
862.01	GUARDRAIL PLACEMENT (USE DETAILS IN LIEU OF STANDARDS FOR SHEETS 4, 6, 11, 12, AND 14 OF 15)
862.02	GUARDRAIL INSTALLATION (USE DETAIL IN LIEU OF STANDARD FOR SHEET 5 OF 9)
862.03	STRUCTURE ANCHOR UNITS (USE DETAIL IN LIEU OF STANDARDS FOR SHEET 6 AND 8 OF 9)
876.01	RIP RAP IN CHANNELS AND DITCHES

GENERAL NOTES: NCDOT 2024 STANDARD SPECIFICATIONS

GRADING AND SURFACING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION 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 THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

EXCAVATION: LOCALIZED BLASTING MAY BE REQUIRED FOR EXCAVATION AND INSTALLATION OF DRAINAGE STRUCTURE AND PIPES. BLASTING WILL BE CONSIDERED INCIDENTAL TO THE OVERALL GRADING, AND SHALL BE COMPLETED IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 220.

CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION: ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION: ASPHALT AND EARTH SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

PLACE AT-1 END UNITS NO CLOSER THAN 15' FROM US 19W EDGE OF PAVEMENT

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

-Y6B-

PI Sta 10+19.24	PI Sta 11+37.95
Δ = 35° 33' 23.6" (LT)	Δ = 37° 07' 01.8" (RT)
D = 95° 29' 34.7"	D = 19° 05' 54.9"
L = 37.23'	L = 194.35'
T = 19.24'	T = 100.72'
R = 60.00'	R = 300.00'

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: R. Erskine Brooks, NORTH CAROLINA PROFESSIONAL ENGINEER ERSKINE BROOKS, 5/18/2026

HYDRAULICS ENGINEER: Devin Morrison - 3, NORTH CAROLINA PROFESSIONAL ENGINEER DEVIN G MORRISON, 5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SCALE (HORIZONTAL): 20 10 0 20 40

(100-01-00205) -L- POT Sta. 10+00.00

BEGIN PROJECT 100-01-00205
BEGIN CONSTRUCTION
100-01-00205 -L- STA. 10+11.05 =
US 19W SOUTH PDB -L- STA. 240+73.85

US 19W

HONEYCUTT LARRY B & MONA
PARCEL NO.: 989100699039000

VALLEY VIEW SUNSET LLC
PARCEL NO.: 989100799221000

MORROW BENJAMIN KEVIN
PARCEL NO.: 989100588286000

-L- +07.03
55.00' RT (EX ROW)

US 19 GUARDRAIL END UNITS TO BE INSTALLED BY NCDOT

END BENT WALL (TYP)

-L- +20.84
55.00' LT (EX ROW)
US 19 GUARDRAIL END UNITS TO BE INSTALLED BY NCDOT

CLASS "II" RIP RAP SLOPE PROTECTION (TYP)

BEGIN BRIDGE
-L- STA. 10+69.00 +/-

END BRIDGE
-L- STA. 11+71.79 +/-

GUARDRAIL MOUNTED TO BRIDGE DECK (TYP)

CANE RIVER

CLASS 'II' RIP RAP SLOPE PROTECTION (TYP)
-L- STA 11+00.00 TO 12+09.00 RT & LT

-L- +56
55.00' RT

-L- +64.70
70.22' LT

-L- POT Sta. 12+00.00 =
-Y6B- PC Sta. 10+00.00

-L- +60
55.00' LT

-Y6B- +85
40.00' LT

CLASS 'II' RIP RAP
157.2 TONS
w/ GEO TEXTILE

REINFORCED SLOPE
(NCDOT RSD 275.01)
-Y6B- STA 10+80.00
TO 12+95.00 LT

-Y6B- +00
20.00' LT

INV = 2420.00

-Y6B-
SWEETBIRCH ROAD

-Y6B- +37
20.00' RT

-Y6B- PRC Sta. 10+37.23

INV = 2421.23

-Y6B- Sta 10+22.00
END ASPHALT SURFACE
BEGIN ABC SURFACE

-L- POT Sta. 12+40.00

-Y6B- +70
20.00' RT
25.00' RT

-L- +33.98
37.38' RT

-L- +21.85
0.55' RT

GRADE TO DRAIN

WEBB BOBBY
PARCEL NO.: 989100679835000

MATCHLINE -Y6B- STA. 12+00.00,
SEE SHEET 3

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

FOR -L- PROFILE, SEE SHEET 7
FOR -Y6A- PROFILE, SEE SHEET 7
FOR -Y6B- PROFILE, SEE SHEET 7

REVISIONS
REV 01 - 04/06/2026: REVISED GUARDRAIL TIES TO US 19W; ADDED AT-1 END UNITS AND CLARIFIED MINIMUM OFFSET FROM US 19W.
REV 02 - 05/15/2026: REVISED BRIDGE BEGIN AND END LABELS; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE.

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FILE: \
PENTABLE: NCDOT_pshpfl.tbl
DATE: 5/15/2026
TIME: 3:12:48 PM

NCDOT 2024 ROADWAY ENGLISH STANDARD DRAWINGS

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GENERAL NOTES: NCDOT 2024 STANDARD SPECIFICATIONS

GRADING AND SURFACING: THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION 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 THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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PLACE AT-1 END UNITS NO CLOSER THAN 15' FROM US 19W EDGE OF PAVEMENT

REV 01

PROJECT REFERENCE NO.	SHEET NO.
	2A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: R. Erskine Brooks, NORTH CAROLINA PROFESSIONAL ENGINEER ERSKINE BROOKS, 5/18/2026

HYDRAULICS ENGINEER: Devin Morrison - 3, NORTH CAROLINA PROFESSIONAL ENGINEER DEVIN C. MORRISON, 5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-Y6B-

PI Sta 10+19.24	PI Sta 11+37.95
Δ = 35° 33' 23.6" (LT)	Δ = 37° 07' 01.8" (RT)
D = 95° 29' 34.7"	D = 19° 05' 54.9"
L = 37.23'	L = 194.35'
T = 19.24'	T = 100.72'
R = 60.00'	R = 300.00'

(100-01-00205) -L- POT Sta. 10+00.00

BEGIN PROJECT 100-01-00205
BEGIN CONSTRUCTION
100-01-00205 -L- STA. 10+11.05 =
US 19W SOUTH PDB -L- STA. 240+73.85

US 19W

2' 11' 11' 2'

MORROW BENJAMIN KEVIN
PARCEL NO.: 989100588286000

VALLEY VIEW SUNSET LLC
PARCEL NO.: 989100799221000

-L- +07.03
55.00' RT (EX ROW)

US 19 GUARDRAIL END UNITS TO BE INSTALLED BY NCDOT

END BENT WALL (TYP)

CLASS 'II' RIP RAP SLOPE PROTECTION (TYP)

REV 02

BEGIN BRIDGE
-L- STA.10+69.00 +/-

END BRIDGE
-L- STA.11+71.79 +/-

-L- +56
55.00' RT

-L- +64.70
70.22' LT

CANE RIVER

CLASS 'II' RIP RAP SLOPE PROTECTION (TYP)
-L- STA 11+00.00 TO 12+09.00 RT & LT

REV 01

R 35'

R 30'

+44.05

6.875

49.48

-L- +20.84
55.00' LT (EX ROW)

US 19 GUARDRAIL END UNITS TO BE INSTALLED BY NCDOT

GUARDRAIL MOUNTED TO BRIDGE DECK (TYP)

S 4° 36' 23.5" W

55' 55'

END BENT WALL (TYP)

-L- POT Sta. 12+00.00 =
-Y6B- PC Sta. 10+00.00

-L- +60
55.00' LT

-Y6B- +85
40.00' LT

CLASS 'B' RIP RAP EST. 2 TONS
7 SY GEO-TEXTILE

REINFORCED SLOPE (NCDOT RSD 275.01)
-Y6B- STA 10+80.00 TO 12+95.00 LT

INV=2420.00

-Y6B- +00
20.00' LT

R 25'

AT-1

R 300'

+33.83

R 200'

RCP-HY

+50.0

SWEETBIRCH ROAD -Y6B-

R 50'

50.0

+54.63

11' (TYP)

GRADE TO DRAIN 0201

-Y6B- +37
20.00' RT

-Y6B- PRC Sta. 10+37.23

-L- +33.98
37.38' RT

-L- +21.85
0.55' RT

INV=2421.23

-Y6B- Sta 10+22.00
END ASPHALT SURFACE
BEGIN ABC SURFACE

-L- POT Sta. 12+40.00

-Y6B- +70
20.00' RT
25.00' RT

WEBB BOBBY
PARCEL NO.: 989100679835000

MATCHLINE -Y6B- STA. 12+00.00, SEE SHEET 3A

FOR -L- PROFILE, SEE SHEET 7
FOR -Y6A- PROFILE, SEE SHEET 7
FOR -Y6B- PROFILE, SEE SHEET 7

REV 02

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

REVISIONS

REV 01 - 04/06/2026: REVISED GUARDRAIL TIES TO US 19W; ADDED AT-1 END UNITS AND CLARIFIED MINIMUM OFFSET FROM US 19W.
REV 02 - 05/15/2026: REVISED BRIDGE BEGIN AND END LABELS; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE.

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TIME: 3:12:58 PM

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USER: BPHILLIPS DATE: 5/15/2026 TIME: 3:13:04 PM
FILE: \

REVISIONS
REV 01 - 05/15/2026: ADDED CONTRACTOR EXCAVATION NOTE; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REMOVED DRAINAGE BOX AND ADDED DRAINAGE DITCH -L- STA 13+25.00 TO 14+25.00 RT WITH DETAIL; REVISED TCE FROM -L- STA 13+25.00 TO 14+43.00 RT.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

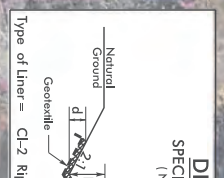
-Y6B-

PI Sta 11+37.95	PI Sta 13+58.54
Δ = 37° 07' 01.8" (RT)	Δ = 10° 12' 09.2" (RT)
D = 19° 05' 54.9"	D = 8° 11' 06.4"
L = 194.35'	L = 124.65'
T = 100.72'	T = 62.49'
R = 300.00'	R = 700.00'
PI Sta 14+34.40	PI Sta 15+03.77
Δ = 7° 50' 12.0" (RT)	Δ = 12° 16' 17.8" (RT)
D = 28° 38' 52.4"	D = 57° 17' 44.8"
L = 27.36'	L = 21.42'
T = 13.70'	T = 10.75'
R = 200.00'	R = 100.00'

-Y1A-

PI Sta 10+34.66	PI Sta 11+21.41
Δ = 11° 59' 35.0" (LT)	Δ = 14° 54' 25.9" (RT)
D = 17° 21' 44.5"	D = 14° 19' 26.2"
L = 69.08'	L = 104.07'
T = 34.66'	T = 52.33'
R = 330.00'	R = 400.00'
PI Sta 12+73.88	PI Sta 15+50.37
Δ = 7° 12' 17.2" (RT)	Δ = 16° 41' 25.6" (LT)
D = 3° 34' 51.6"	D = 4° 46' 28.7"
L = 201.20'	L = 349.56'
T = 100.73'	T = 176.03'
R = 1,600.00'	R = 1,200.00'

DETAIL B
SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 13+25 TO STA. 14+25 -Y1A- RT

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	3

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

R. Erskine Brooks
NORTH CAROLINA NO. 049 PROFESSIONAL ENGINEER ERSKINE BROOKS
5/18/2026

HYDRAULICS ENGINEER

Devin Morrison
NORTH CAROLINA NO. 049 PROFESSIONAL ENGINEER DEVIN C. MORRISON
5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

FOR -Y1A- PROFILE, SEE SHEET 8
FOR -Y6B- PROFILE, SEE SHEET 7

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	3A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — R. Erskine Brooks — ERSKINE BROOKS — 5/18/2026

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — Devin Morrison — 3 — ENGINEER — DEVIN G. MORRISON — 5/18/2026

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REVISIONS

REV 01 - 05/15/2026: ADDED CONTRACTOR EXCAVATION NOTE; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REMOVED DRAINAGE BOX AND ADDED DRAINAGE DITCH -L- STA 13+25.00 TO 14+25.00 RT WITH DETAIL; REVISED TOE FROM -L- STA 13+25.00 TO 14+43.00 RT.

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfi.tbl
USER: BPHILLIPS DATE: 5/15/2026 TIME: 3:13:11 PM
FILE: \

VALLEY VIEW SUNSET LLC
PARCEL NO.: 989100799221000

CANE RIVER

CANE RIVER

MATCHLINE -Y6B- STA. 12+00.00, SEE SHEET 2A

MATCHLINE -Y1A- STA. 14+35.00, SEE SHEET 4A

-Y1A- PC Sta. 10+00.00

-Y1A- PRC Sta. 10+69.08

-Y1A- PCC Sta. 11+73.15

REINFORCED SLOPE (NCDOT RSD 275.01) -Y1A- STA 10+00.00 TO 11+40.00 LT

-Y1A- +60 45.00' LT

-Y1A- +20 42.00' RT

-Y1A- +73.15 20.00' LT

-Y1A- +95 20.00' LT & 38.00' LT

-Y1A- +95 20.00' LT & 38.00' LT

CLASS 'I' RIP RAP EST. 15 TONS 30 SY GEO-TEXTILE

INV=2408.00

0302

-Y1A- +73.34 20.00' LT

36" RCP-IV BURIED 0.6'

-Y6B- +32 20.00' LT

-Y1A- +00 20.00' LT

-Y1A- +47 20.00' LT

11' (TYP)

+47.82

+69.26

R 2'

-Y6B-

S 54° 41' 06.8" E

-Y1A-

-Y1A- +73.15 27.00' RT

-Y1A- +00 20.00' RT

-Y1A- +00 20.00' RT

-Y1A- +25 35.00' RT

-Y1A- +24 35.00' RT

SPECIAL 'V' DITCH SEE DETAIL B

0301

INV=2409.25

-Y6B- +32 25.00' RT

-Y6B- +96 25.00' RT

-Y6B- PCC Sta. 14+20.70

END GRADE (100–01–00205) -Y6B- STA. 14+25.00

-Y6B- +35 25.00' RT 8.00' LT

+75.5

+00

25' TAPER

EXIST

S 36° 38' 45.6" E

15+00

S 24° 22' 27.8" E

-Y1A- PRC Sta. 13+74.34

CLASS 'II' RIP RAP SLOPE PROTECTION FOR PIPE INLET EST. 10 TONS 20 SY GEO-TEXTILE

-Y6B- PT Sta. 12+31.58

-Y6B- PC Sta. 12+96.05

-Y6B- PT Sta. 14+48.05

-Y6B- PC Sta. 14+93.02

-Y6B- PT Sta. 15+14.43

-Y6B- POT Sta. 15+56.43

WEBB BOBBY
PARCEL NO.: 989100679835000

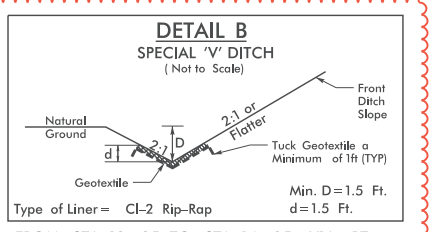
REV 01

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

REV 01

DETAIL B
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner = CI–2 Rip–Rap

FROM STA. 13+25 TO STA. 14+25 -Y1A- RT

-Y6B-

PI Sta 11+37.95	PI Sta 13+58.54	PI Sta 14+34.40	PI Sta 15+03.77
Δ = 37° 07' 01.8" (RT)	Δ = 10° 12' 09.2" (RT)	Δ = 7° 50' 12.0" (RT)	Δ = 12° 16' 17.8" (RT)
D = 19° 05' 54.9"	D = 8° 11' 06.4"	D = 28° 38' 52.4"	D = 57° 17' 44.8"
L = 194.35'	L = 124.65'	L = 27.36'	L = 21.42'
T = 100.72'	T = 62.49'	T = 13.70'	T = 10.75'
R = 300.00'	R = 700.00'	R = 200.00'	R = 100.00'

-Y1A-

PI Sta 10+34.66	PI Sta 11+21.41	PI Sta 12+73.88	PI Sta 15+50.37
Δ = 11° 59' 35.0" (LT)	Δ = 14° 54' 25.9" (RT)	Δ = 7° 12' 17.2" (RT)	Δ = 16° 41' 25.6" (LT)
D = 17° 21' 44.5"	D = 14° 19' 26.2"	D = 3° 34' 51.6"	D = 4° 46' 28.7"
L = 69.08'	L = 104.07'	L = 201.20'	L = 349.56'
T = 34.66'	T = 52.33'	T = 100.73'	T = 176.03'
R = 330.00'	R = 400.00'	R = 1,600.00'	R = 1,200.00'

FOR -Y1A- PROFILE, SEE SHEET 8
FOR -Y6B- PROFILE, SEE SHEET 7

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: BPHILLIPS DATE: 5/15/2026 TIME: 3:13:16 PM
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REVISIONS
REV 01 - 05/15/2026: REVISED TCE FROM -L- STA 13+25.00 TO 14+43.00 RT; ADDED HAND CLEARING LEGEND; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REVISED DRAINAGE DITCH FROM -L- STA 16+00.00 TO 18+00.00 RT.

MATCHLINE –Y1A– STA. 14+35.00, SEE SHEET 3

-Y1A-

PI Sta 15+50.37
Δ = 16° 41' 25.6" (LT)
D = 4° 46' 28.7"
L = 349.56'
T = 176.03'
R = 1,200.00'

PI Sta 17+75.60
Δ = 3° 56' 52.4" (RT)
D = 3° 49' 11.0"
L = 103.36'
T = 51.70'
R = 1,500.00'

PI Sta 18+80.75
Δ = 15° 13' 55.8" (LT)
D = 14° 19' 26.2"
L = 106.34'
T = 53.49'
R = 400.00'

PI Sta 19+72.14
Δ = 21° 48' 41.7" (RT)
D = 28° 38' 52.4"
L = 76.14'
T = 38.53'
R = 200.00'

HC HC HAND CLEARING (NON-GRUBBING)

REV 01

-Y1A- +43
20.00' RT

-Y1A- +00.00
20.00' RT

-Y1A- +23.91
20.00' LT

-Y1A- +65.00
20.00' LT

-Y1A- +96.00
36.00' LT

-Y1A- +60.00
40.00' LT

-Y1A- +75.00
35.00' RT

-Y1A- +27.26
20.00' RT

-Y1A- +10.00
20.00' RT

-Y1A- +27.26
20.00' LT

-Y1A- +33.60
20.00' RT

-Y1A- PRC Sta. 18+27.26

-Y1A- PRC Sta. 19+33.60

-Y1A- PRC Sta. 17+23.91

-Y1A-

CANE RIVER

VALLEY VIEW SUNSET LLC
PARCEL NO.: 9891007992210000

WEBB, BOBBY
PARCEL NO.: 9891006783500O

NEILL, LONDON RILEY
PARCEL NO.: 9891008834000O

HYDE, PETER E. & SARAH K
PARCEL NO.: 9891007785610O

REINFORCED SLOPE (NCDOT RSD 275.01) -Y1A- STA 19+30.00 TO 22+34.29 LT

CLASS II RIP RAP 60 SY GEO-TEXTILE

SPECIAL 'V' DITCH SEE DETAIL A

RCP 24" 0.6

SB

SI

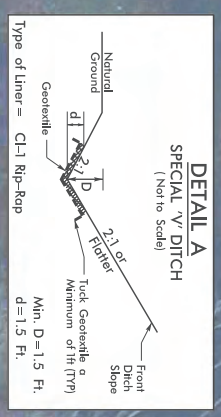
JS

02

5' 5'

15+00

DETAIL A
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner = CL-1 Rip-Rap

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	4

R.W. SHEET NO.

ROADWAY DESIGN ENGINEER
R. Erskine Brooks
NORTH CAROLINA PROFESSIONAL ENGINEER R. ERSKINE BROOKS 049
5/18/2026

HYDRAULICS ENGINEER
Devin Morrison - 3
NORTH CAROLINA PROFESSIONAL ENGINEER D. C. MORRISON 049
5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

MATCHLINE –Y1A– STA. 19+85.00, SEE SHEET 5

FROM STA. 16+00 TO STA. 18+00 -Y1A- RT

FOR -Y1A- PROFILE, SEE SHEET 8

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	4A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER R. Erskine Brooks ERSKINE BROOKS — 5/18/2026

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER Devin Morrison 3 DEVIN G. MORRISON — 5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

REVISIONS

REV 01 - 05/15/2026: REVISED TCE FROM -L- STA 13+25.00 TO 14+43.00 RT; ADDED HAND CLEARING LEGEND; ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REVISED DRAINAGE DITCH FROM -L- STA 16+00.00 TO 18+00.00 RT.

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VALLEY VIEW SUNSET LLC
PARCEL NO.: 989100799221000

NEILL, LONDON RILEY
PARCEL NO.: 989100883400000

WEBB BOBBY
PARCEL NO.: 989100679835000

HYDE, PETER E & SARAH K
PARCEL NO.: 989100778561000

CANE RIVER

MATCHLINE –Y1A– STA. 14+35.00, SEE SHEET 3A

MATCHLINE –Y1A– STA. 19+85.00, SEE SHEET 5A

–Y1A– PRC Sta. 18+27.26

–Y1A– PRC Sta. 19+33.60

–Y1A– PRC Sta. 17+23.91

REINFORCED SLOPE (NCDOT RSD 275.01) –Y1A– STA 19+30.00 TO 22+34.29 LT

–Y1A– +60.00 40.00' LT

–Y1A– +96.00 36.00' LT

–Y1A– +27.26 20.00' LT

–Y1A– +65.00 20.00' LT

–Y1A– +23.91 20.00' LT

CLASS 'I' RIP RAP
EST. 15 TONS
30 SY GEO–TEXTILE
INV=2405.00

0402

36" RCP–Y BURIED 0.6'

15+00

–Y1A–

–Y1A– +33.60 20.00' RT

–Y1A– +27.26 20.00' RT

–Y1A– +10.00 20.00' RT

–Y1A– +75.00 35.00' RT

–Y1A– +43 20.00' RT

–Y1A– +00.00 20.00' RT

SPECIAL 'V' DITCH
SEE DETAIL A

REV 01

0401
INV=2406.20

CLASS 'I' RIP RAP SLOPE PROTECTION FOR PIPE INLET
EST. 10 TONS
20 SY GEO–TEXTILE

REV 01

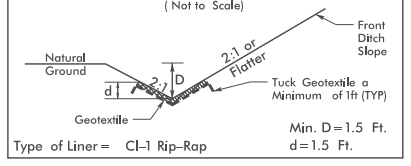
HC HC HAND CLEARING (NON–GRUBBING)

REV 01

–Y1A–

PI Sta 15+50.37	PI Sta 17+75.60	PI Sta 18+80.75	PI Sta 19+72.14
△ = 16° 41' 25.6" (LT)	△ = 3° 56' 52.4" (RT)	△ = 15° 13' 55.8" (LT)	△ = 21° 48' 41.7" (RT)
D = 4° 46' 28.7"	D = 3° 49' 11.0"	D = 14° 19' 26.2"	D = 28° 38' 52.4"
L = 349.56'	L = 103.36'	L = 106.34'	L = 76.14'
T = 176.03'	T = 51.70'	T = 53.49'	T = 38.53'
R = 1,200.00'	R = 1,500.00'	R = 400.00'	R = 200.00'

DETAIL A
SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 16+00 TO STA. 18+00 –Y1A– RT

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

REV 01

FOR –Y1A– PROFILE, SEE SHEET 8

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: BPHILLIPS DATE: 5/15/2026 TIME: 3:13:31 PM
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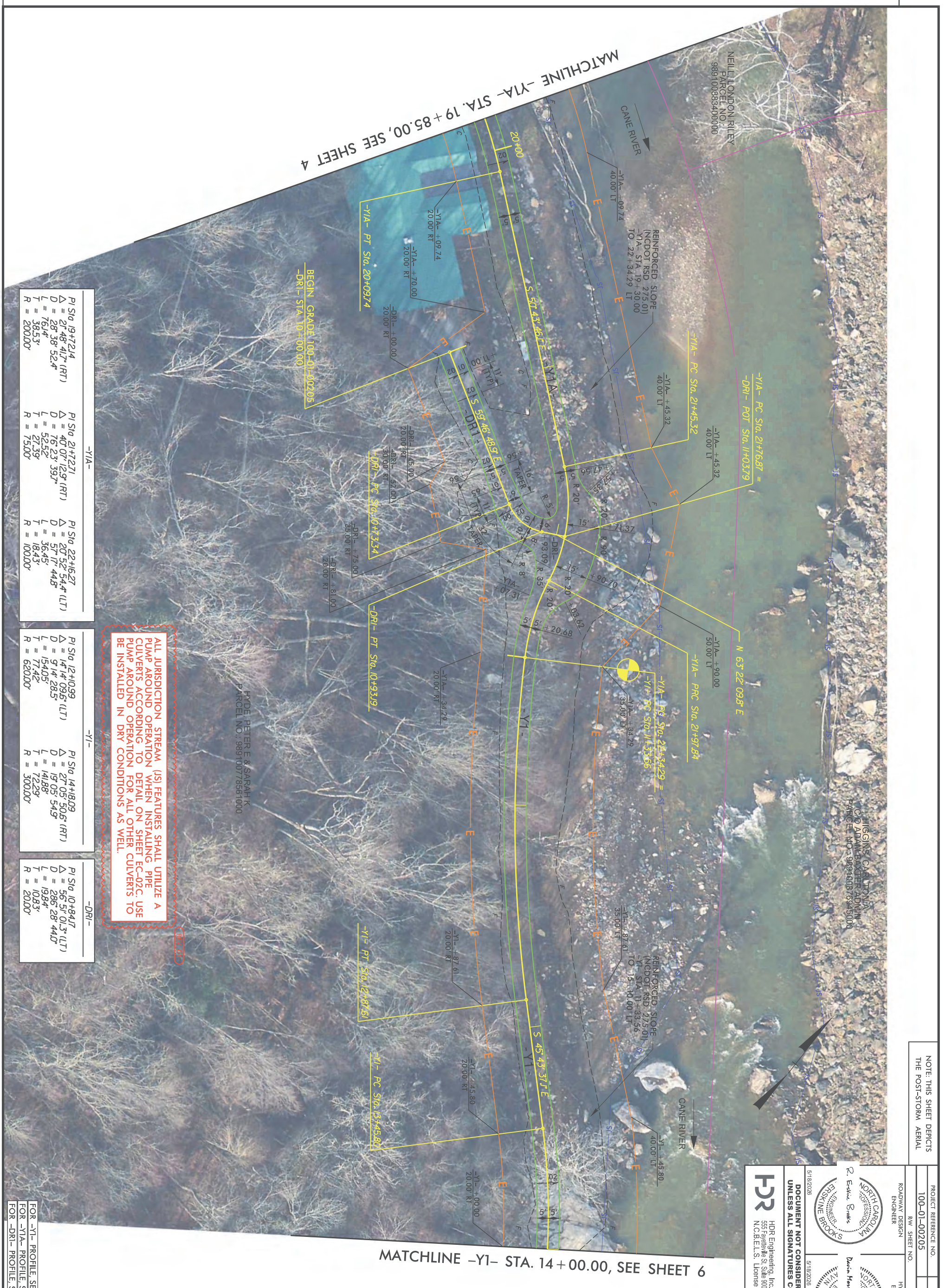
REVISIONS
REV 01 - 05/15/2026: ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE.



-Y1A-		
PI Sta 19+72.14	PI Sta 21+72.71	PI Sta 22+16.27
Δ = 21° 48' 41.7" (RT)	Δ = 40° 07' 12.9" (RT)	Δ = 20° 52' 54.4" (LT)
D = 28° 38' 52.4"	D = 76° 23' 39.7"	D = 57° 17' 44.8"
L = 76.14'	L = 52.52'	L = 36.45'
T = 38.53'	T = 27.39'	T = 18.43'
R = 200.00'	R = 75.00'	R = 100.00'

-Y1-	
PI Sta 12+10.99	PI Sta 14+18.09
Δ = 14° 14' 09.6" (LT)	Δ = 27° 05' 50.6" (RT)
D = 9° 14' 28.5"	D = 19° 05' 54.9"
L = 154.05'	L = 141.88'
T = 77.42'	T = 72.29'
R = 620.00'	R = 300.00'

-DR1-	
PI Sta 10+84.17	
Δ = 56° 51' 01.3" (LT)	
D = 286° 28' 44.0"	
L = 19.84'	
T = 10.83'	
R = 20.00'	

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR -Y1- PROFILE, SEE SHEET 8
FOR -Y1A- PROFILE, SEE SHEET 8
FOR -DR1- PROFILE, SEE SHEET 8

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
R. Erskine Brooks
NORTH CAROLINA PROFESSIONAL ENGINEER R. ERSKINE BROOKS
5/18/2026

HYDRAULICS ENGINEER
Davin Morrison 3
NORTH CAROLINA PROFESSIONAL ENGINEER DAVIN C. MORRISON
5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	5A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL, R. Erskine Brooks, ENGINEER, ERSKINE BROOKS — 5/18/2026

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL, Devin Morrison - 3, ENGINEER, DEVIN G. MORRISON — 5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

HIGGINS, CARLTON A
C/O ADAM BAXTER ADMIN
PARCEL NO.: 989100876945000

NEILL, LONDON RILEY
PARCEL NO.:
989100883400000

HYDE, PETER E & SARAH K
PARCEL NO.: 989100778561000

CANE RIVER

-Y1A- PC Sta. 21+76.87 =
-DR1- POT Sta. 11+03.79

-Y1A- PC Sta. 21+45.32

-Y1A- PRC Sta. 21+97.84

-Y1A- PC Sta. 22+34.29 =
-Y1- PC Sta. 11+33.56

N 63° 22' 09.8" E

REINFORCED SLOPE
(NCDOT RSD 275.01)
-Y1A- STA 19+30.00
TO 22+34.29 LT

REINFORCED SLOPE
(NCDOT RSD 275.01)
-Y1- STA 11+33.56
TO 15+10.00 LT

-Y1A- +09.74 40.00' LT
-Y1A- +45.32 40.00' LT
-Y1A- +90.00 50.00' LT
-Y1A- +34.29 35.00' LT
-Y1- +87.61 35.00' LT
-Y1- +45.80 40.00' LT

MATCHLINE -Y1A- STA. 19+85.00, SEE SHEET 4A

20+00

S 50° 43' 46.1" E -Y1A-

S 59° 46' 48.9" E -DR1-

S 45° 43' 37.1" E -Y1-

R 20' | R 90' | R 35' | R 8'

+57.35 | +47.56 | +71.37 | +90.70 | +03.62 | +20.68 | +93.09 | +07.31

16' TAPER | 32' TAPER | 11' (TYP) | 5' | 6' | 8' | 9.2' | 10.0' | 10.2'

-Y1A- +09.74 20.00' RT
-Y1A- +70.00 20.00' RT
-DR1- +00.00 20.00' RT
-DR1- +45.00 20.00' RT
-DR1- +52.00 30.00' RT
-DR1- +75.00 35.00' RT
-DR1- +81.00 20.00' RT
-Y1A- +34.29 20.00' RT
-Y1- +87.61 20.00' RT
-Y1- +45.80 20.00' RT
-Y1- +00.00 20.00' RT

-Y1A- PT Sta. 20+09.74
-DR1- PC Sta. 10+73.34
-DR1- PT Sta. 10+93.19
-Y1- PT Sta. 12+87.61
-Y1- PC Sta. 13+45.80

BEGIN GRADE 100-01-00205
-DR1- STA. 10+00.00

MATCHLINE -Y1- STA. 14+00.00, SEE SHEET 6A

REV 01

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

-Y1A-		
PI Sta 19+72.14	PI Sta 21+72.71	PI Sta 22+16.27
Δ = 21° 48' 41.7" (RT)	Δ = 40° 07' 12.9" (RT)	Δ = 20° 52' 54.4" (LT)
D = 28° 38' 52.4"	D = 76° 23' 39.7"	D = 57° 17' 44.8"
L = 76.14'	L = 52.52'	L = 36.45'
T = 38.53'	T = 27.39'	T = 18.43'
R = 200.00'	R = 75.00'	R = 100.00'

-Y1-	
PI Sta 12+10.99	PI Sta 14+18.09
Δ = 14° 14' 09.6" (LT)	Δ = 27° 05' 50.6" (RT)
D = 9° 14' 28.5"	D = 19° 05' 54.9"
L = 154.05'	L = 141.88'
T = 77.42'	T = 72.29'
R = 620.00'	R = 300.00'

-DR1-
PI Sta 10+84.17
Δ = 56° 51' 01.3" (LT)
D = 286° 28' 44.0"
L = 19.84'
T = 10.83'
R = 20.00'

FOR -Y1- PROFILE, SEE SHEET 8
FOR -Y1A- PROFILE, SEE SHEET 8
FOR -DR1- PROFILE, SEE SHEET 8

REVISIONS

REV 01 - 05/15/2026: ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE.

PLOT DRIVER: NCDOT_pdf.color_eng.50.plt
USER: BPHILLIPS
FILE: \

PENTABLE: NCDOT_pshpfl.tbl
DATE: 5/15/2026
TIME: 3:13:42 PM

REVISIONS

REV 01 - 05/15/2026: ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REVISED DRAINAGE PIPE FROM 0601 TO 0602, REVISED ROW FROM 17+63.42 TO 18+18.00 LT.

MATCHLINE –Y1– STA. 14+00.00, SEE SHEET 5

–Y1–

PI Sta 14+18.09	PI Sta 15+26.69	PI Sta 16+64.75
Δ = 27° 05' 50.6" (RT)	Δ = 14° 49' 03.7" (LT)	Δ = 4° 14' 25.9" (RT)
D = 19° 05' 54.9"	D = 19° 05' 54.9"	D = 10° 25' 02.7"
L = 141.88'	L = 77.58'	L = 40.71'
T = 72.29'	T = 39.01'	T = 20.36'
R = 300.00'	R = 300.00'	R = 550.00'
PI Sta 17+87.39	PI Sta 18+67.80	PI Sta 19+73.58
Δ = 13° 40' 09.1" (RT)	Δ = 27° 09' 33.5" (LT)	Δ = 44° 49' 52.5" (RT)
D = 28° 38' 52.4"	D = 5° 17' 44.8"	D = 49° 49' 20.7"
L = 47.71'	L = 47.40'	L = 89.98'
T = 23.97'	T = 24.15'	T = 47.44'
R = 200.00'	R = 100.00'	R = 115.00'

FOR –Y1– PROFILE, SEE SHEET 8

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

REV 01

HYDE, PETER E & SARAH K
PARCEL NO.: 9891007785610000

BAKER, TED H & EVELYN
PARCEL NO.: 9891009601240000

HIGGINS, CARLTON A
C/O ADAM BAXTER ADMIN
PARCEL NO.: 9891008769450000

CANE RIVER

REINFORCED SLOPE
(NCDOT RSD 275.01)
–Y1– STA 16+30.00
TO 16+70.00 LT

REINFORCED SLOPE
(NCDOT RSD 275.01)
–Y1– STA 11+33.56
TO 15+10.00 LT

END GRADE 100-01-00205
–Y1– STA 19+00.00

END PROJECT 100-01-00205
END CONSTRUCTION
100-01-00205 –Y1– STA 19+10.00

GRADE TO DRAIN
TOP=2418.53
INV=2413.15

0603

0601

0602
CLASS 'B' RIP RAP
ESD=2 TONS
1 SY GEO-TEXTILE

INV=2402.00

INV=2402.75

INV=2410.00

INV=2413.00

INV=2415.00

INV=2415.50

INV=2416.00

INV=2416.50

INV=2417.00

INV=2417.50

INV=2418.00

INV=2418.50

INV=2419.00

INV=2419.50

INV=2420.00

INV=2420.50

INV=2421.00

INV=2421.50

INV=2422.00

INV=2422.50

INV=2423.00

INV=2423.50

INV=2424.00

INV=2424.50

INV=2425.00

INV=2425.50

INV=2426.00

INV=2426.50

INV=2427.00

INV=2427.50

INV=2428.00

INV=2428.50

INV=2429.00

INV=2429.50

INV=2430.00

INV=2430.50

INV=2431.00

INV=2431.50

INV=2432.00

INV=2432.50

INV=2433.00

INV=2433.50

INV=2434.00

INV=2434.50

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	6A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER R. Erskine Brooks ERSKINE BROOKS

5/18/2026

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER Devin Morrison 3 DEVIN G. MORRISON

5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

REVISIONS

REV 01 - 05/15/2026: ADDED JURISDICTIONAL STREAM EROSION CONTROL NOTE; REVISED DRAINAGE PIPE FROM 0601 TO 0602, REVISED ROW FROM 17+63.42 TO 18+18.00 LT.

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl.tbl
USER: BPHILLIPS TIME: 3:13:56 PM
FILE: \ DATE: 5/15/2026

HIGGINS, CARLTON A
C/O ADAM BAXTER ADMIN
PARCEL NO.: 989100876945000

CANE RIVER

REINFORCED SLOPE (NCDOT RSD 275.01) –Y1– STA 11+33.56 TO 15+10.00 LT

REINFORCED SLOPE (NCDOT RSD 275.01) –Y1– STA 16+30.00 TO 16+70.00 LT

REV 01

MATCHLINE –Y1– STA. 14+00.00, SEE SHEET 5A

–Y1– +87.68 40.00' LT
–Y1– +00.00 40.00' LT
–Y1– +14.00 20.00' LT
–Y1– +44.38 35.00' LT
–Y1– +30.00 35.00' LT
–Y1– +15.00 20.00' LT
–Y1– +73.00 35.00' LT
–Y1– +85.00 20.00' LT
–Y1– +63.42 20.00' LT
–Y1– +76.00 33.00' LT
CLASS 'B' RIP RAP EST. 2 TONS 7 SY GEO–TEXTILE 0602
–Y1– +10.00 24.00' LT
–Y1– +63.00 35.00' LT
INV=2410.63
CLASS 'B' RIP RAP EST. 5 TONS 14 SY GEO–TEXTILE 0604
–Y1– PC Sta. 19+26.14

15+00

S 33° 26' 49.6" E
S 29° 12' 23.6" E
S 15° 32' 14.5" E
S 42° 41' 48.0" E

–Y1–

INV=2404.00
18" RCP-V BURIED
0601
TOP=2408.75
INV=2405.00
11' (TYP)
+21.0
24" RCP-IV
+75.23
25' TAPER
0603
GRADE TO DRAIN
TOP=2416.65
INV=2413.15

–Y1– +50.00 25.00' RT
–Y1– +87.68 25.00' RT
–Y1– +65.26 25.00' RT
–Y1– +25.00 45.00' RT
–Y1– +05.00 45.00' RT
–Y1– +00.00 20.00' RT
–Y1– +44.38 20.00' RT
–Y1– +85.09 20.00' RT
–Y1– +63.42 20.00' RT
–Y1– +43.65 20.00' RT
–Y1– +11.13 20.00' RT
–Y1– +91.05 20.00' RT
–Y1– +10.00 20.00' RT 20.00' LT

–Y1– PRC Sta. 14+87.68
–Y1– PT Sta. 15+65.26
–Y1– PC Sta. 16+44.38
–Y1– PT Sta. 16+85.09
–Y1– PC Sta. 17+63.42
–Y1– PT Sta. 18+11.13
–Y1– PC Sta. 18+43.65
–Y1– PT Sta. 18+91.05

END GRADE 100–01–00205
–Y1– STA. 19+00.00

END PROJECT 100–01–00205
END CONSTRUCTION
100–01–00205 –Y1– STA. 19+10.00

–Y1–		
PI Sta 14+18.09 Δ = 27° 05' 50.6" (RT) D = 19° 05' 54.9" L = 141.88' T = 72.29' R = 300.00'	PI Sta 15+26.69 Δ = 14° 49' 03.1" (LT) D = 19° 05' 54.9" L = 77.58' T = 39.01' R = 300.00'	PI Sta 16+64.75 Δ = 4° 14' 25.9" (RT) D = 10° 25' 02.7" L = 40.71' T = 20.36' R = 550.00'
PI Sta 17+87.39 Δ = 13° 40' 09.1" (RT) D = 28° 38' 52.4" L = 47.71' T = 23.97' R = 200.00'	PI Sta 18+67.80 Δ = 27° 09' 33.5" (LT) D = 57° 17' 44.8" L = 47.40' T = 24.15' R = 100.00'	PI Sta 19+73.58 Δ = 44° 49' 52.5" (RT) D = 49° 49' 20.7" L = 89.98' T = 47.44' R = 115.00'

HYDE, PETER E & SARAH K
PARCEL NO.: 989100778561000

BAKER, TED H & EVELYN
PARCEL NO.: 989100960124000

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

REV 01

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR –Y1– PROFILE, SEE SHEET 8

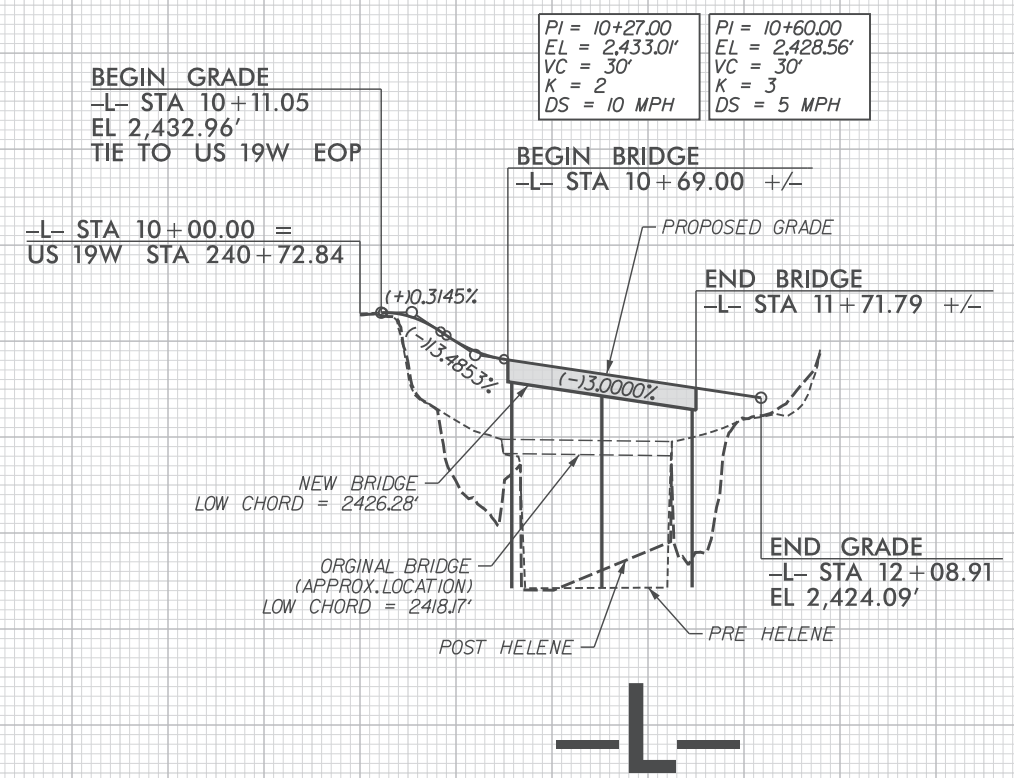
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	7

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER R. Erskine Brooks ERSKINE BROOKS
3/20/2026

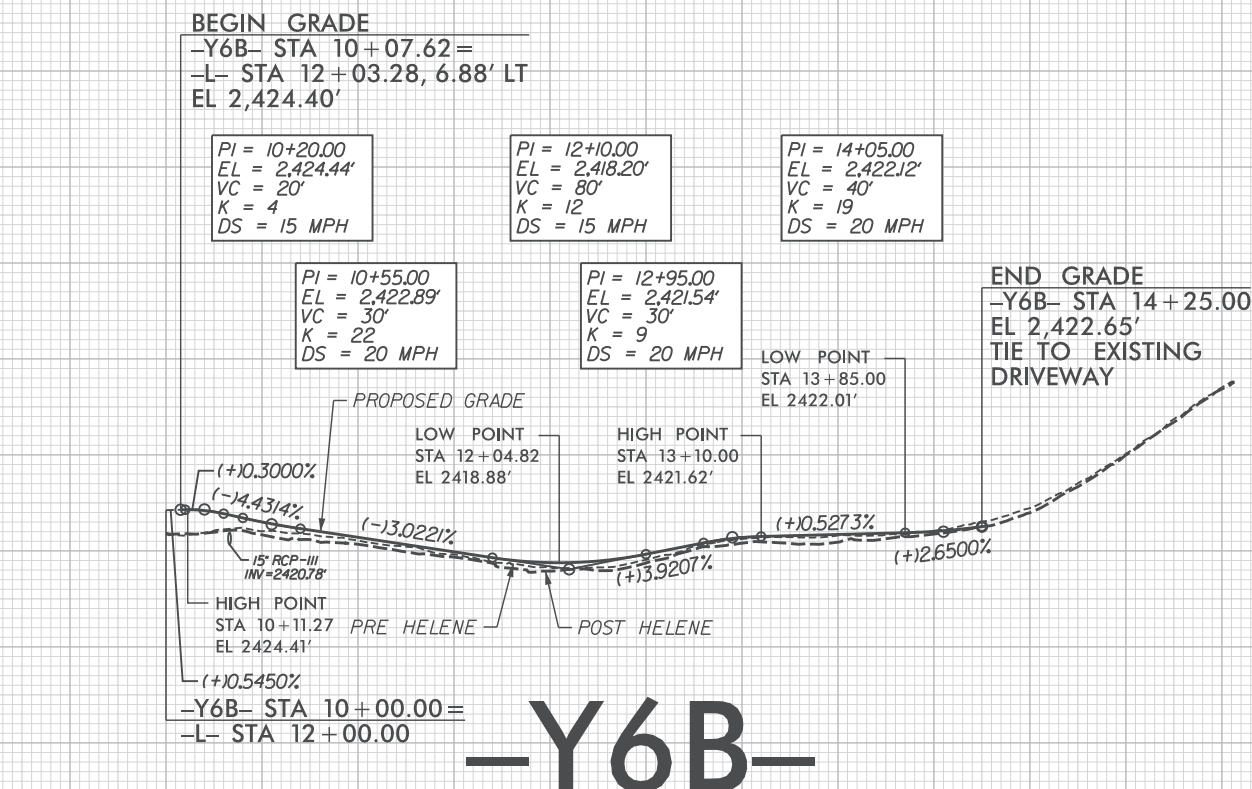
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER Davin Morrison 3 DAVIN C MORRISON
3/20/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



HYDRAULIC CONVEYANCE AREA PRE HELENE = 1062 SQFT
HYDRAULIC CONVEYANCE AREA POST HELENE = 1613 SQFT

FOR –L– PLAN, SEE SHEET 2



–Y6B–

FOR –Y6B– PLAN, SEE SHEETS 2 AND 3

REVISIONS

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PENTABLE: NCDOT_pshpfi.tbl
DATE: 3/20/2026
TIME: 4:04:49 PM

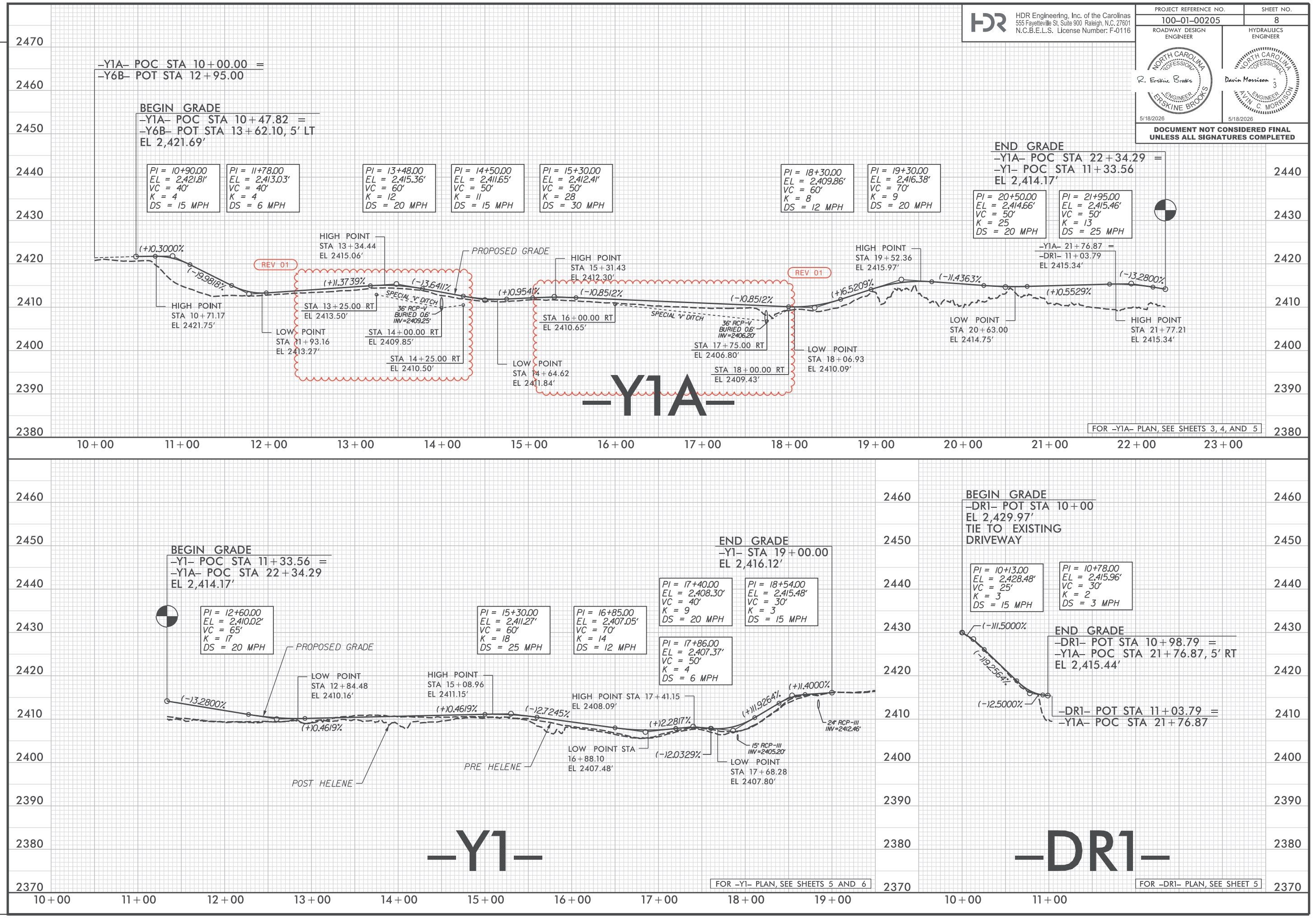
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	8

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER R. ERSKINE BROOKS
R. Erskine Brooks
5/18/2026

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER DAVIN C. MORRISON 3
Davin Morrison 3
5/18/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



REVISIONS

REV 01 - 05/15/2026: ADDED DRAINAGE DITCH -L- STA 13+25.00 TO 14+25.00 RT; REVISED TCE FROM -L- STA 13+25.00 TO 14+43.00 RT, REVISED DRAINAGE DITCH -L- STA 16+00.0 TO 18+00.00 RT.

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
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DATE: 5/15/2026
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TIME: 3:14:03 PM

PROJ. REFERENCE NO.	SHEET NO.
100-01-00205	TMP-1

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

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
US 19W	MON-FRI: 7:00 AM TO 9:00 AM 4:00 PM TO 6:00 PM

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

ROAD NAME

US 19W

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 4:00 PM DECEMBER 31ST TO 9:00 AM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 AM THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 4:00 PM THURSDAY AND 9:00 AM MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 4:00 PM FRIDAY TO 9:00 AM TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 4:00 PM THE DAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 4:00 PM FRIDAY AND 9:00 AM TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 4:00 PM TUESDAY TO 9:00 AM MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 4:00 PM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 AM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CLOSE ROAD AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 19W	ANYTIME

D) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 19W	MONDAY - SUNDAY 7:00 AM TO 9:00 AM 4:00 PM TO 6:00 PM	30 MINUTES FOR GIRDER/MATERIAL DELIVERY

E) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

F) 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.

G) 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.

H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL, 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.

I) NOTIFY THE NCDOT STATEWIDE TRANSPORTATION OPERATIONS CENTER (STOC) AT 877-627-7862 APPROXIMATELY 30 MINUTES PRIOR TO INSTALLING AND WITHIN 15 MINUTES AFTER REMOVING THE LANE CLOSURE.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF THAT EXCEEDS 2 INCHES.

   BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

K) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

L) 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.

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

TRAFFIC CONTROL DEVICES

N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

P) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

Q) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 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
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1180.01	SKINNY-DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING

APPROVED: R. Erskine Brooks

DATE: 3/20/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032584 ENGINEER R. ERSKINE BROOKS

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION NO. WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSPORTATION MANAGMENT PLAN

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
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INSTALL WORK ZONE ADVANCE WARNING SIGNS IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3, AND PER GENERAL NOTE M (SHEET TMP-1).

ROAD WORK AHEAD
W20-1
48" X 48"

END ROAD WORK
G20-2 A
48" X 24"

ONE LANE ROAD AHEAD
W20-4
48" X 48"

BE PREPARED TO STOP
W3-4
48" X 48"

W20-7 A
48" X 48"

350' 350' 350' 100' 100'

25' BUFFER SPACE

ADJUST BEGIN/END BUFFER SPACE TO MEET END OF NEW AND/OR EXISTING DRIVEWAY AND CURRENT CONSTRUCTION ACCESS POINT.

US 19W

CANE RIVER

-Y6B-

-L-
SWEETBIRCH RD

REV 01

50' 25' 350' 350' 350'

WHEN WORKING ADJACENT TO US 19W, CLOSE NORTHBOUND TRAVEL LANE. MAINTAIN TRAFFIC BY USE OF FLAGGERS IN A 1-LANE, 2-WAY TRAFFIC PATTERN. IMPLEMENT SIGNING AND DEVICES IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 19.

LEGEND

GENERAL
- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA

PAVEMENT MARKINGS
- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES
- BARRICADE (TYPE III)
- CONE
- DRUM
- FLAGGER

TEMPORARY SIGNING
- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PROJ. REFERENCE NO.	SHEET NO.
100-01-00205	TMP-2

HDR Engineering, Inc. of the Carolinas
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N.C.B.E.L.S. License Number: F-0116

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE

OUTSIDE OF NORMAL WORKING HOURS, AND WHEN WORKING AWAY FROM TRAFFIC AND OTHER OPERATIONS WHEN LANE CLOSURES ARE NOT REQUIRED, MAINTAIN NORMAL 2-LANE, 2-WAY TRAFFIC ON US 19W, AND MAINTAIN DRUMS AND BARRICADES ACROSS -L- INTERSECTION.

APPROVED: R. Erskine Brooks

DATE: 4/10/2026

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032584 ENGINEER R ERSKINE BROOKS

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

REVISIONS

REV 01 - 04/10/2026: REVISED GUARDRAIL TIES TO US 19W.

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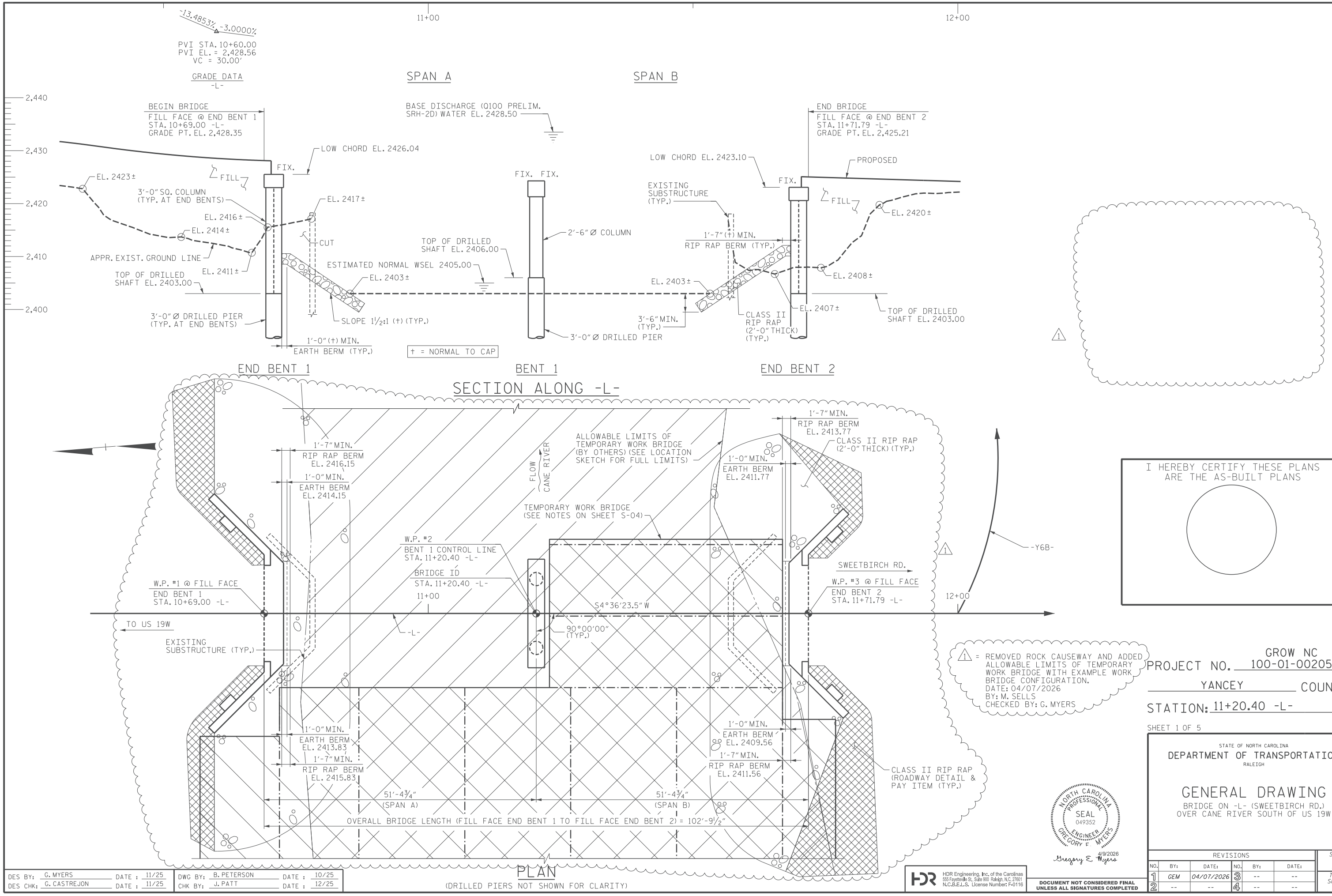

1 = REMOVED ROCK CAUSEWAY AND ADDED ALLOWABLE LIMITS OF TEMPORARY WORK BRIDGE WITH EXAMPLE WORK BRIDGE CONFIGURATION.
DATE: 04/07/2026
BY: M. SELLS
CHECKED BY: G. MYERS

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE ON -L- (SWEETBIRCH RD.)
OVER CANE RIVER SOUTH OF US 19W

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

Gregory E. Myers 4/9/2026

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

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REVISIONS						SHEET NO. S-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	GEM	04/07/2026	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

DES BY: G. MYERS DATE: 11/25
DES CHK: G. CASTREJON DATE: 11/25
DWG BY: B. PETERSON DATE: 10/25
CHK BY: J. PATT DATE: 12/25

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt
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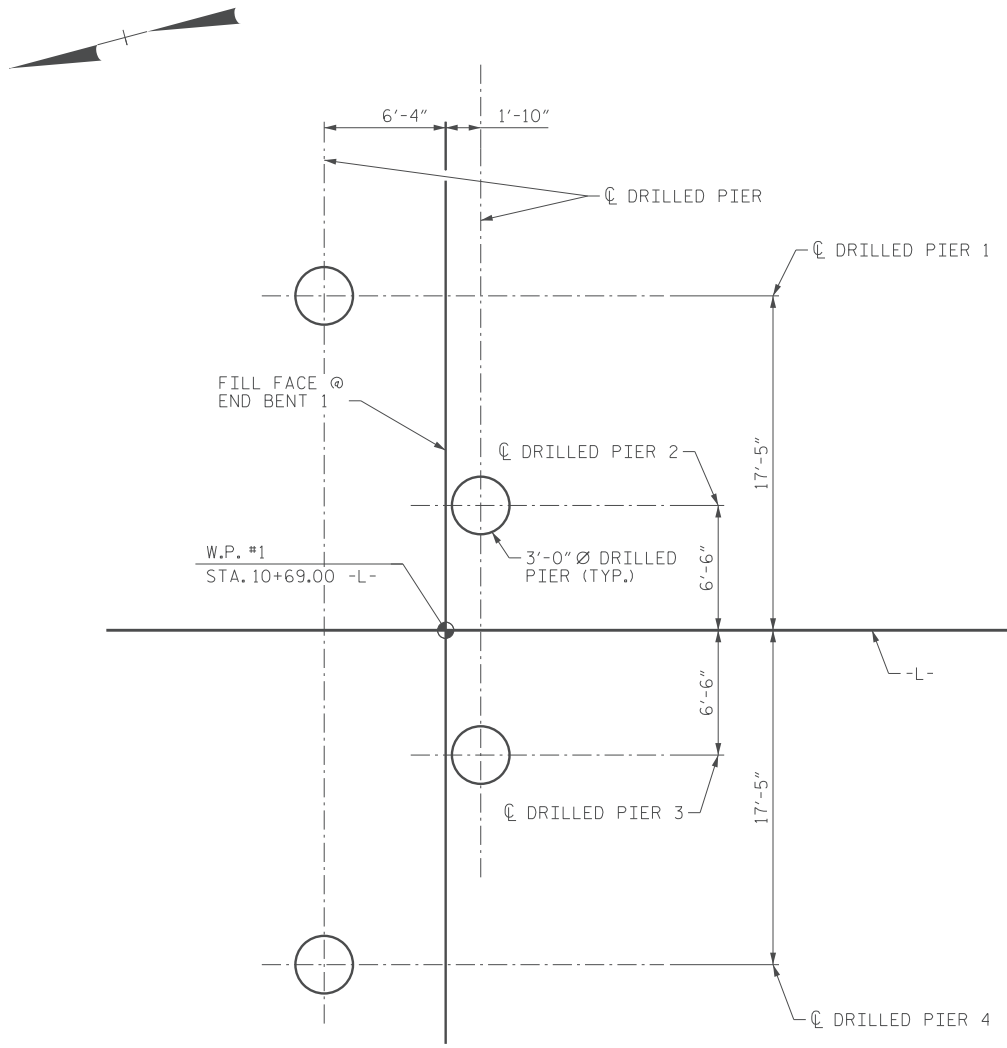

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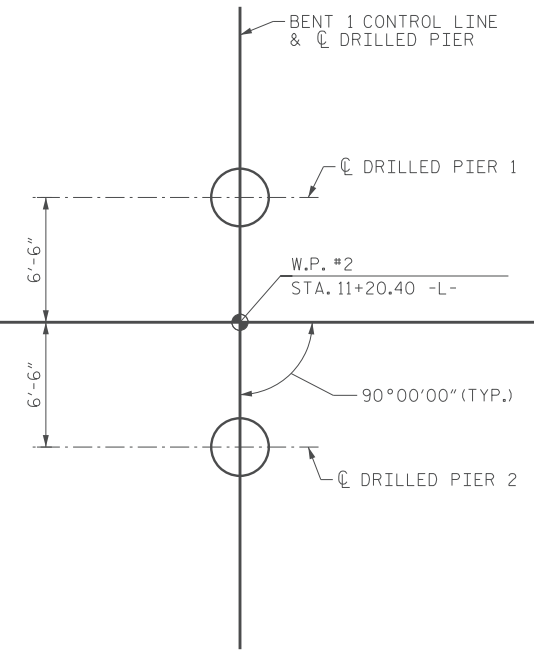
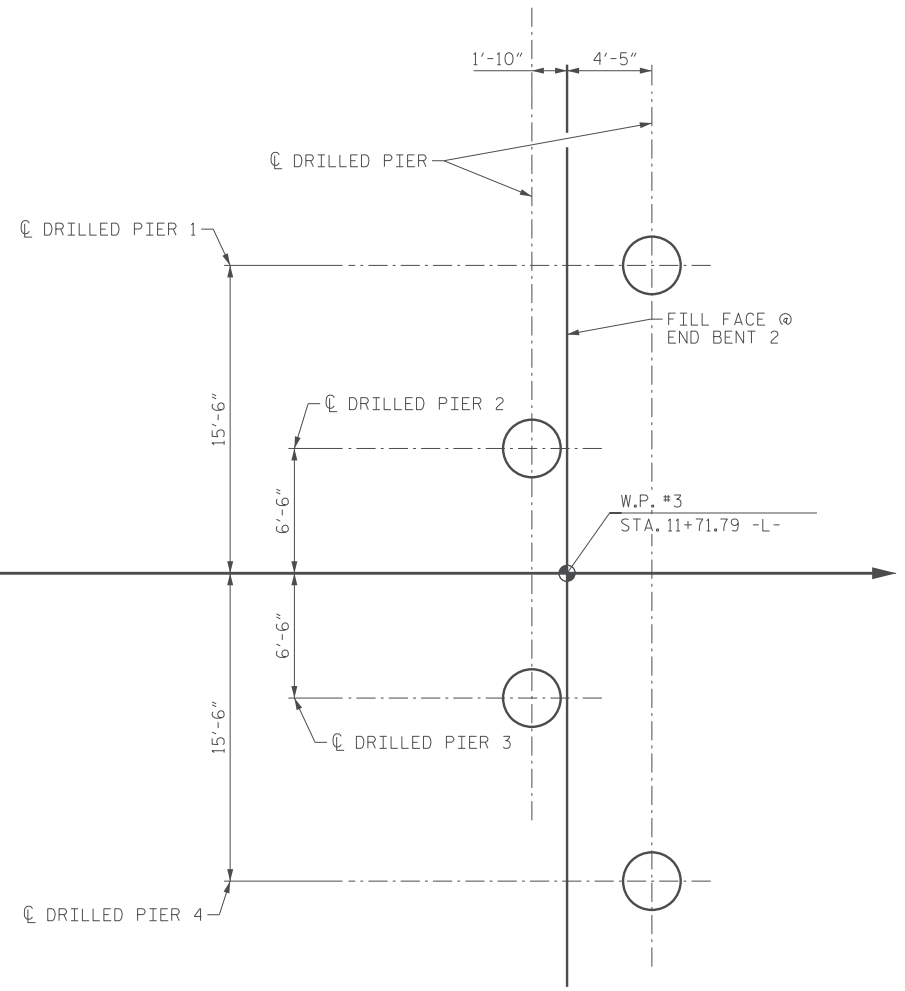


BENT 1



END BENT 2

FOUNDATION LAYOUT

NOTES

FOR GEOTECHNICAL FOUNDATION TABLES, SEE SHEET S-03.

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOUNDATION LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E Myers 6

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-02
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 21
1	--	--	3	--	--	
2	--	--	4	--	--	

DES BY: G. MYERS	DATE : 10/25	DWG BY: B. PETERSON	DATE : 10/25
DES CHK: G. CASTREJON	DATE : 10/25	CHK BY: G. MYERS	DATE : 12/25

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt
USER: DCARTER DATE: 12/23/2025
FILE: ...\CAD\Plan Production Set\2
PENTABLE: NCDOT STRUCTURES DEFAULT PEN.tbl
TIME: 10:05:56 AM

SUMMARY OF DRILLED PIER INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Number of Piers per Line	Factored Resistance per Pier KIPS	Required Drilled Pier Tip Elevation FT	Required Tip Resistance per Pier KSF	Scour Critical Elevation FT	Minimum Drilled Pier Penetration Into Rock per Pier LIN FT	Drilled Pier Length* per Pier LIN FT	Drilled Pier Length Not In Soil* per Pier LIN FT	Drilled Pier Length In Soil* per Pier LIN FT	Permanent Steel Casing Required? YES	Permanent Steel Casing Tip Elevation (Elevation Not To Extend Casing Below) FT	Permanent Steel Casing Length** per Pier LIN FT
End Bent 1, Piers 1-4	4	395	2389.50	130		8.6	13.5***	8.6	4.9			
Bent 1, Piers 1-2	2	615	2389.50	200	2398.10	8.5	16.5***	8.6	4.9	YES	2398.10	7.9
End Bent 2, Piers 1-4	4	400	2389.50	130		8.5	13.5***	8.6	4.9			
TOTAL QUANTITY:								86	49			15.8

* Drilled Pier Length, Drilled Pier Length Not in Soil and Drilled Pier Length in Soil represent estimated drilled pier quantities and are measured and paid for as either "36" Dia. Drilled Piers" or "36" Dia. Drilled Piers Not in Soil" and "36" Dia. Drilled Piers in Soil" in accordance with Article 411-7 of the NCDOT Standard Specifications. For bents with a not in soil pay item, drilled piers through air or water will be paid at the contract unit price for "36" Dia. Drilled Piers in Soil."

** Permanent Steel Casing Length equals the difference between the ground line or top of drilled pier elevation, whichever is higher, and the permanent casing tip elevation and is measured and paid for as "Permanent Steel Casing for 36" Dia. Drilled Pier" in accordance with Article 411-7 of the NCDOT Standard Specifications.

*** Drilled pier lengths are based on assumption that rock elevation is approximately at Elevation 2398 ft. If different subsurface conditions are encountered, Engineer shall be contacted for updated pier lengths.

SUMMARY OF DRILLED PIER TESTING

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pier(s) #(-#) (e.g., "Bent 1, Piers 1-3")	Standard Penetration Test (SPT) EACH	Crosshole Sonic Logging (CSL) EACH	Thermal Integrity Profiler (TIP) EACH	Shaft Inspection Device (SID) EACH	Pile Integrity Test (PIT) EACH
End Bent 1, Piers 1-4		1			
Bent 1, Piers 1-2		1			
End Bent 2, Piers 1-4		1			
TOTAL QUANTITY:		3			

NOTES:

1. The Drilled Pier Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Saket Kabra, #053059) on 03-17-2026.
2. The design presented herein is based on subusurface information obtained from borings performed for Site-0217A. It has been assumed that similar subsurface conditions exist at the current site. Actual rock elevations may vary from those indicated. If significant variations in rock elevation are encountered during construction, the Engineer must be contacted immediately to review and verify the design.
3. The Engineer may adjust the quantity for Permanent Steel Casing, SPTs, TIPs, CSL Testing, SID Inspections and PITs when necessary.
4. For Drilled Piers, see Section 411 of the Standard Specifications.
5. CSL tubes are required and CSL testing may be required for drilled piers. The engineer will determine the need for CSL testing. For CSL testing, see section 411 of the Standard Specifications.
6. SID inspections may be required for drilled piers. The engineer will determine the need for SID inspections.
7. Permanent steel casings are required for drilled piers at Bent No. 1. Do not extend permanent casings below elevation 2398 ft without prior approval from the Engineer.
8. Test Holes are required for drilled piers at End Bent No. 1, End Bent No.2 and Bent No. 1 to confirm continous rock. For Test holes, see Section 411 of the Standard Specifications.

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

3/19/2026

Gregory E. Myers

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
GEOTECHNICAL
FOUNDATION TABLES

REVISIONS						SHEET NO. S-03
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	MJS	03/26	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

DES BY: J. PATT	DATE: 10/25	DWG BY: B. PETERSON	DATE: 10/25
DES CHK: S. DICKENS	DATE: 10/25	CHK BY: G. MYERS	DATE: 12/25

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt
USER: GMYERS DATE: 3/18/2026
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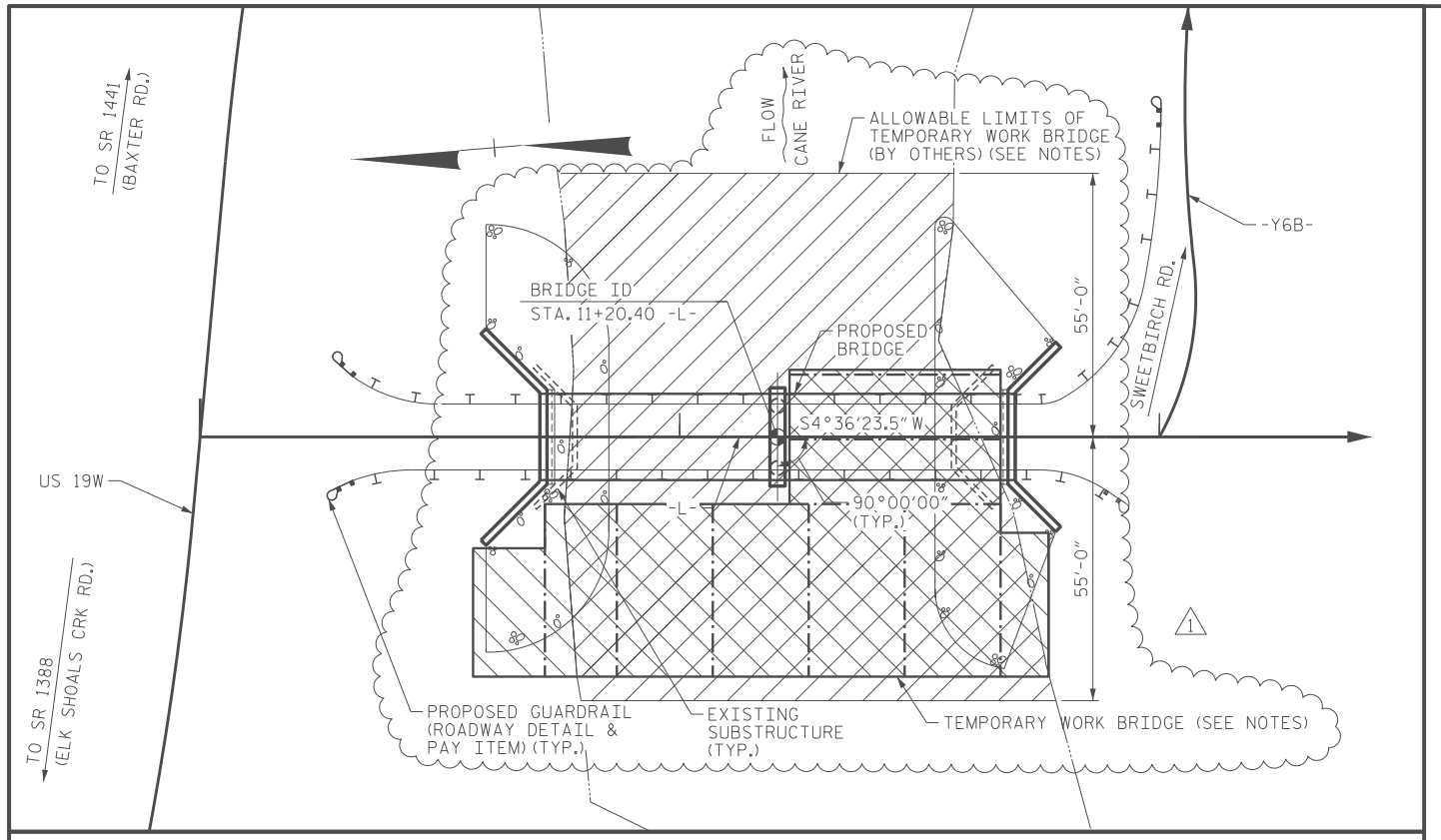


LOCATION SKETCH

HYDRAULIC DATA	
Q100 PRELIM. SRH-2O DISCHARGE	= 36,320 CFS
BASE FLOOD ELEVATION	= 2423.9 FT.
DRAINAGE AREA	= 112.0 SQ. MI.
Q100 PRELIM. SRH-2O WATER ELEVATION	= 2428.5 FT.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA. 11+20.40 -L-	REMOVAL OF EXISTING STRUCTURE AT STATION 11+20.40 -L-	ASBESTOS ASSESSMENT	3'-0" DIA DRILLED PIERS IN SOIL	3'-0" DIA DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" DIA DRILLED PIER	CSL TESTING
	LUMP SUM	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.
SUPERSTRUCTURE							
END BENT 1				19.6	34.4		1
BENT 1				9.8	17.2	15.8	1
END BENT 2				19.6	34.4		1
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	49.0	86.0	15.8	3

	CLASS A CONCRETE (BRIDGE)	REINFORCING STEEL (BRIDGE)	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONC CORED SLABS	
	CU. YDS.	LBS.	LBS.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						LUMP SUM	12	600.0
END BENT 1	94.7	25,896	2,382	315	350			
BENT 1	12.9	7,013	1,143					
END BENT 2	73.1	18,534	2,166	205	230			
TOTAL	180.7	51,443	5,691	520	580	LUMP SUM	12	600.0

NOTES

ASSUMED LIVE LOAD = HS-20 OR ALTERNATE LOADING

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF PUBLIC SAFETY FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 2398.10 SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

GUARDRAIL IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

THE FUNCTION OF GUARDRAIL PROVIDED ON STRUCTURE IS TO GUIDE DRIVERS ACROSS THE BRIDGE RATHER THAN MEET CRASH DESIGN REQUIREMENTS.

1 FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS AT STA. 11+20.40 -L-, SEE SPECIAL PROVISIONS.

TEMPORARY WORK BRIDGE SHOWN FOR INFORMATION ONLY AND IS INTENDED TO BE REPRESENTATIVE OF A SINGLE POSSIBLE SOLUTION. FINAL WORK TRESTLE DESIGN AND CONFIGURATION TO BE DETERMINED BY CONTRACTOR.

1 = REMOVED ROCK CAUSEWAY AND ADDED ALLOWABLE LIMITS OF TEMPORARY WORK BRIDGE WITH EXAMPLE WORK BRIDGE CONFIGURATION.
DATE: 04/07/2026
BY: M. SELLS
CHECKED BY: G. MYERS

GROW NC
PROJECT NO. 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY F. MYERS

Gregory F. Myers 4/9/2026

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON -L- (SWEETBIRCH RD.) OVER CANE RIVER SOUTH OF US 19W

REVISIONS						SHEET NO. S-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	GEM	04/07/2026	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

DES BY: G. MYERS DATE: 11/25
DES CHK: G. CASTREJON DATE: 11/25
DWG BY: B. PETERSON DATE: 10/25
CHK BY: K. DICKENS DATE: 12/25

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt PENTABLE: NCDOT STRUCTURES DEFAULT PEN.tbl
USER: GMYERS DATE: 4/8/2026 TIME: 2:17:38 PM
FILE: ...\CAD\Plan Production Set\4

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.394	–	1.75	0.276	1.57	50'	EL	24.5	0.531	1.39	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
		HL-93 (OPERATING)	N/A		1.807	–	1.35	0.276	2.03	50'	EL	24.5	0.531	1.81	50'	EL	2.45	N/A	–	–	--	–	--	
		HS-20 (INVENTORY)	36.000	2	1.667	60.007	1.75	0.276	1.95	50'	EL	24.5	0.531	1.67	50'	EL	2.45	0.80	0.276	1.79	50'	EL	24.5	
		HS-20 (OPERATING)	36.000		2.161	77.787	1.35	0.276	2.52	50'	EL	24.5	0.531	2.16	50'	EL	2.45	N/A	–	–	--	–	--	
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.635	49.079	1.4	0.276	4.95	50'	EL	24.5	0.531	4.70	50'	EL	2.45	0.80	0.276	3.64	50'	EL	24.5	
		SNGARBS2	20.000		2.871	57.420	1.4	0.276	3.91	50'	EL	24.5	0.531	3.42	50'	EL	2.45	0.80	0.276	2.87	50'	EL	24.5	
		SNAGRIS2	22.000		2.778	61.109	1.4	0.276	3.78	50'	EL	19.6	0.531	3.21	50'	EL	2.45	0.80	0.276	2.78	50'	EL	24.5	
		SNCOTTS3	27.250		1.814	49.418	1.4	0.276	2.47	50'	EL	24.5	0.531	2.36	50'	EL	2.45	0.80	0.276	1.81	50'	EL	24.5	
		SNAGGRS4	34.925		1.577	55.063	1.4	0.276	2.15	50'	EL	24.5	0.531	2.01	50'	EL	2.45	0.80	0.276	1.58	50'	EL	24.5	
		SNS5A	35.550		1.537	54.657	1.4	0.276	2.09	50'	EL	24.5	0.531	2.07	50'	EL	2.45	0.80	0.276	1.54	50'	EL	24.5	
		SNS6A	39.950		1.438	57.430	1.4	0.276	1.96	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.44	50'	EL	24.5	
		SNS7B	42.000		1.370	57.540	1.4	0.276	1.87	50'	EL	24.5	0.531	1.91	50'	EL	2.45	0.80	0.276	1.37	50'	EL	24.5	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.761	58.118	1.4	0.276	2.40	50'	EL	24.5	0.531	2.25	50'	EL	2.45	0.80	0.276	1.76	50'	EL	24.5	
		TNT4A	33.075		1.777	58.759	1.4	0.276	2.42	50'	EL	24.5	0.531	2.17	50'	EL	2.45	0.80	0.276	1.78	50'	EL	24.5	
		TNT6A	41.600		1.480	61.558	1.4	0.276	2.01	50'	EL	24.5	0.531	2.08	50'	EL	2.45	0.80	0.276	1.48	50'	EL	24.5	
		TNT7A	42.000		1.502	63.087	1.4	0.276	2.05	50'	EL	24.5	0.531	1.94	50'	EL	2.45	0.80	0.276	1.50	50'	EL	24.5	
		TNT7B	42.000		1.566	65.773	1.4	0.276	2.13	50'	EL	24.5	0.531	1.84	50'	EL	2.45	0.80	0.276	1.57	50'	EL	24.5	
		TNAGRIT4	43.000		1.486	63.902	1.4	0.276	2.02	50'	EL	24.5	0.531	1.77	50'	EL	2.45	0.80	0.276	1.49	50'	EL	24.5	
		TNAGT5A	45.000		1.388	62.470	1.4	0.276	1.89	50'	EL	24.5	0.531	1.80	50'	EL	2.45	0.80	0.276	1.39	50'	EL	24.5	
		TNAGT5B	45.000	3	1.360	61.206	1.4	0.276	1.85	50'	EL	24.5	0.531	1.68	50'	EL	2.45	0.80	0.276	1.36	50'	EL	24.5	
EMERGENCY VEHICLE (EV)		EV2	28.750		2.154	61.929	1.3	0.276	2.97	50'	EL	24.5	0.531	2.50	50'	EL	5.50	0.80	0.276	2.15	50'	EL	24.5	
		EV3	43.000	4	1.392	59.852	1.3	0.276	1.92	50'	EL	24.5	0.531	1.69	50'	EL	5.50	0.80	0.276	1.39	50'	EL	24.5	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ DC	γ DW
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.

2.

3.

4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

(4) EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER

EL - EXTERIOR LEFT GIRDER

ER- EXTERIOR RIGHT GIRDER

LRFR SUMMARY

FOR SPANS A & B

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 50' CORED SLAB UNIT 90° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO. S-05
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

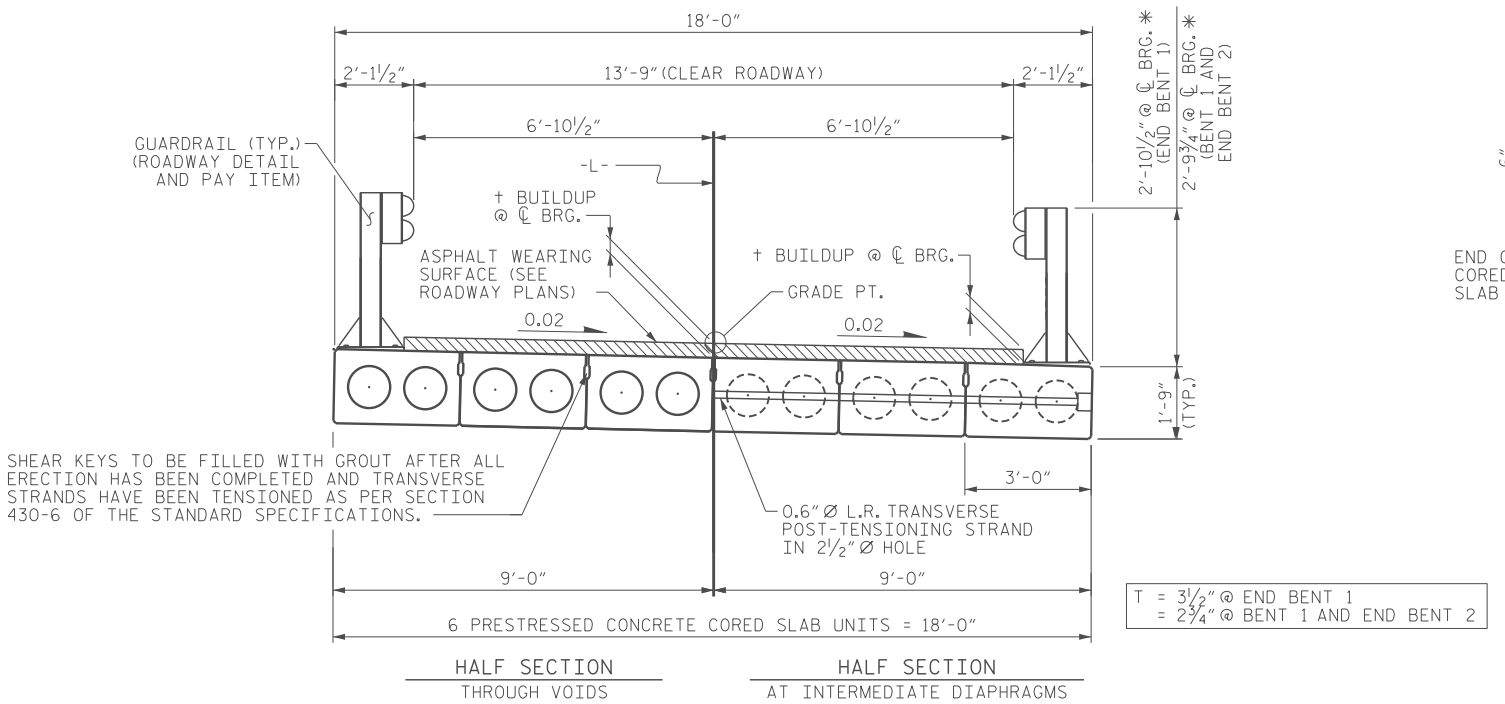
Gregory E Myers 6

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STD. NO. 21LRFR1_90S_50L

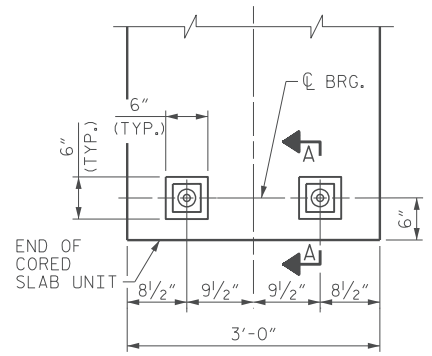
DES BY: G. MYERS	DATE: 10/25	DWG BY: D. CARTER	DATE: 11/25
DES CHK: G. MARTINEZ	DATE: 10/25	CHK BY: A. AMBROSI	DATE: 11/25



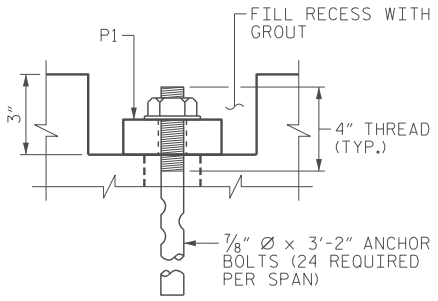
T = 3½″ @ END BENT 1
= 2¾″ @ BENT 1 AND END BENT 2

TYPICAL SECTION

* - THE MAXIMUM GUARDRAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE GUARDRAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE GUARDRAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

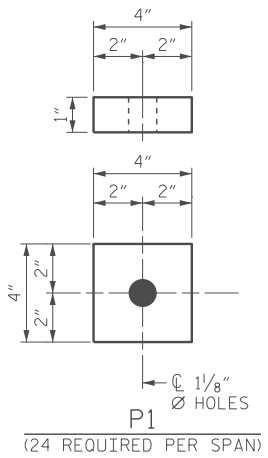


TYPICAL PLAN
(TYP. EA. CORED SLAB UNIT)



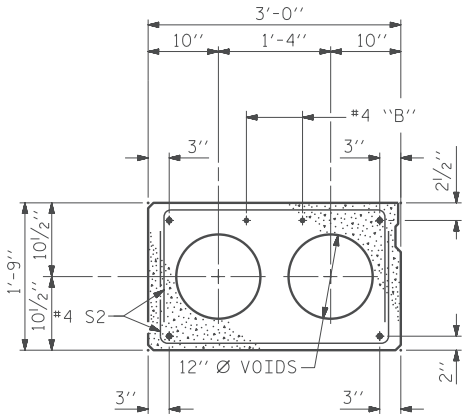
SECTION A-A

BLOCKOUT DETAIL FOR ANCHOR BOLTS



P1
(24 REQUIRED PER SPAN)

PLATE DETAILS

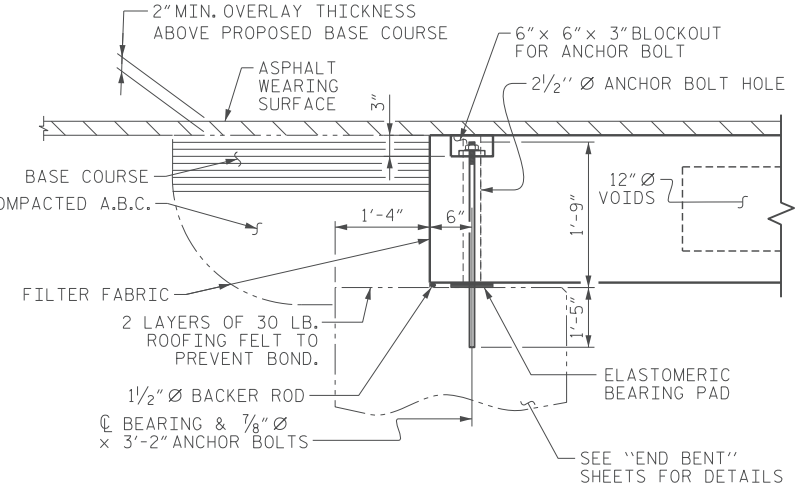


EXT. SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

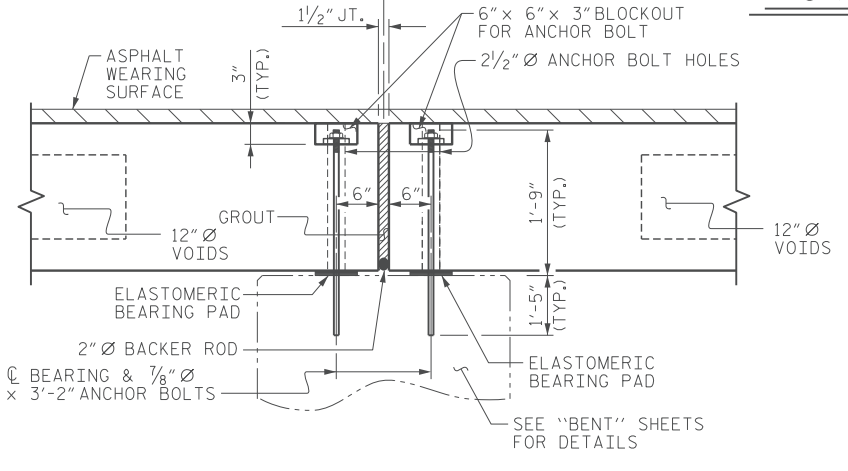
(GUARDRAIL ANCHORAGE ASSEMBLY NOT SHOWN. FOR GUARDRAIL ANCHOR ASSEMBLY, SEE SHEET 3 OF 3)

FIXED END

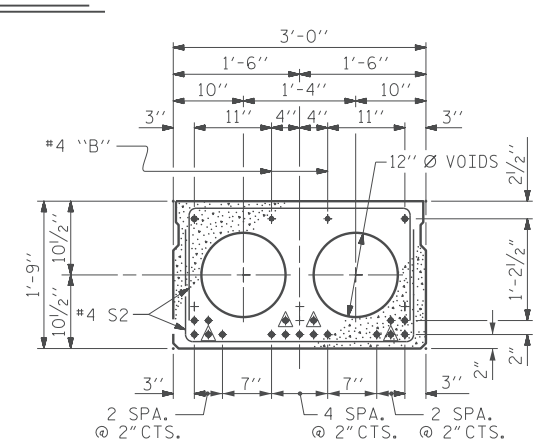


SECTION AT END BENT

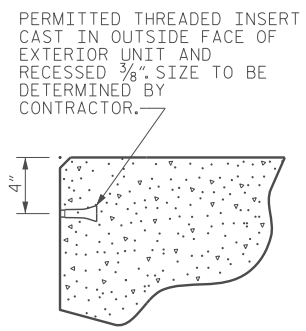
FIXED END FIXED END



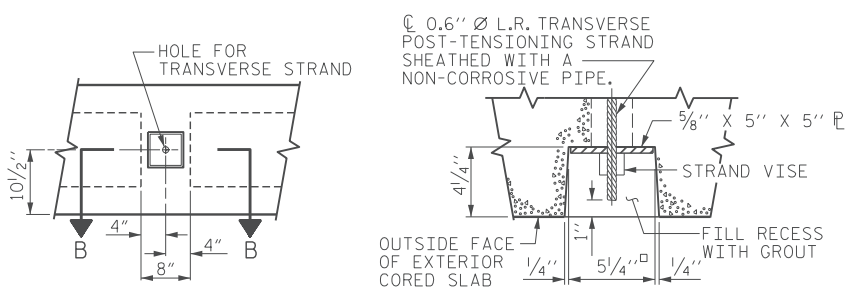
SECTION AT BENT



INTERIOR SLAB SECTION (50′ UNIT)
(19 STRANDS REQUIRED)



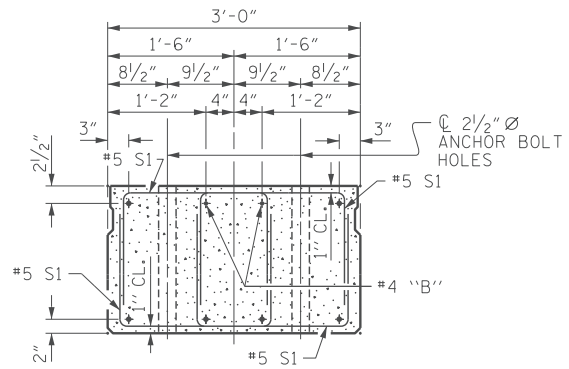
THREADED INSERT DETAIL



ELEVATION VIEW

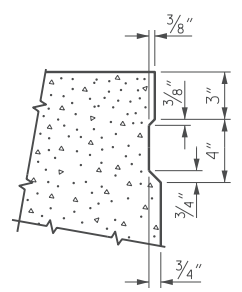
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF ANCHOR BOLT HOLES. (STRAND LAYOUT NOT SHOWN.)
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

0.6″ Ø LOW RELAXATION STRAND LAYOUT

⚠ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3′-0″ x 1′-9″ PRESTRESSED CONCRETE CORED SLAB UNIT

90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 1/26/2026

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

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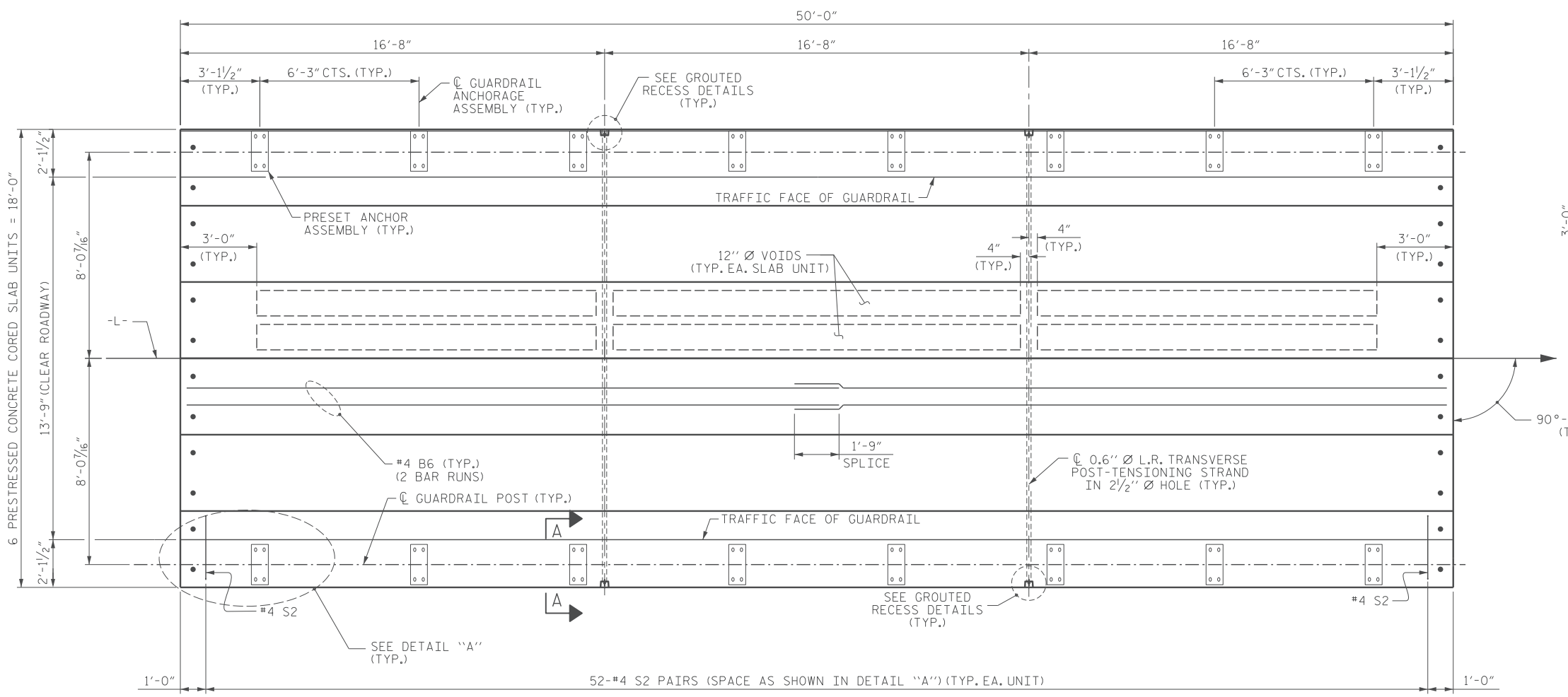
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

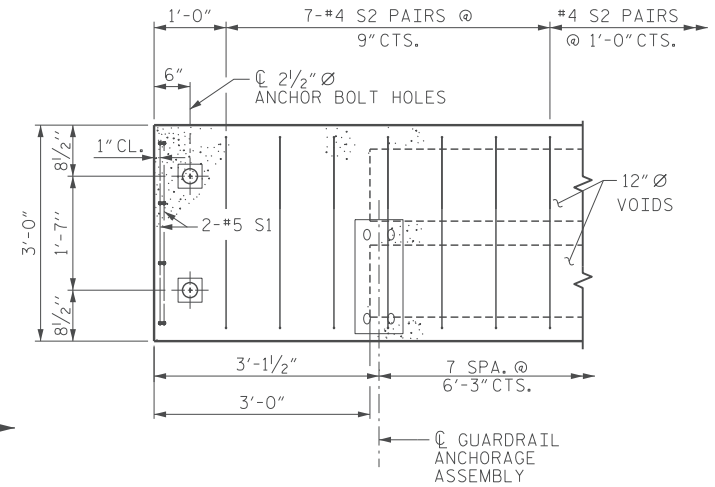
DES BY: G. MARTINEZ	DATE: 10/25	DWG BY: D. CARTER	DATE: 11/25
DES CHK: G. MYERS	DATE: 10/25	CHK BY: A. AMBROSI	DATE: 11/25

STD. NO. 21″PCS2_27_90S



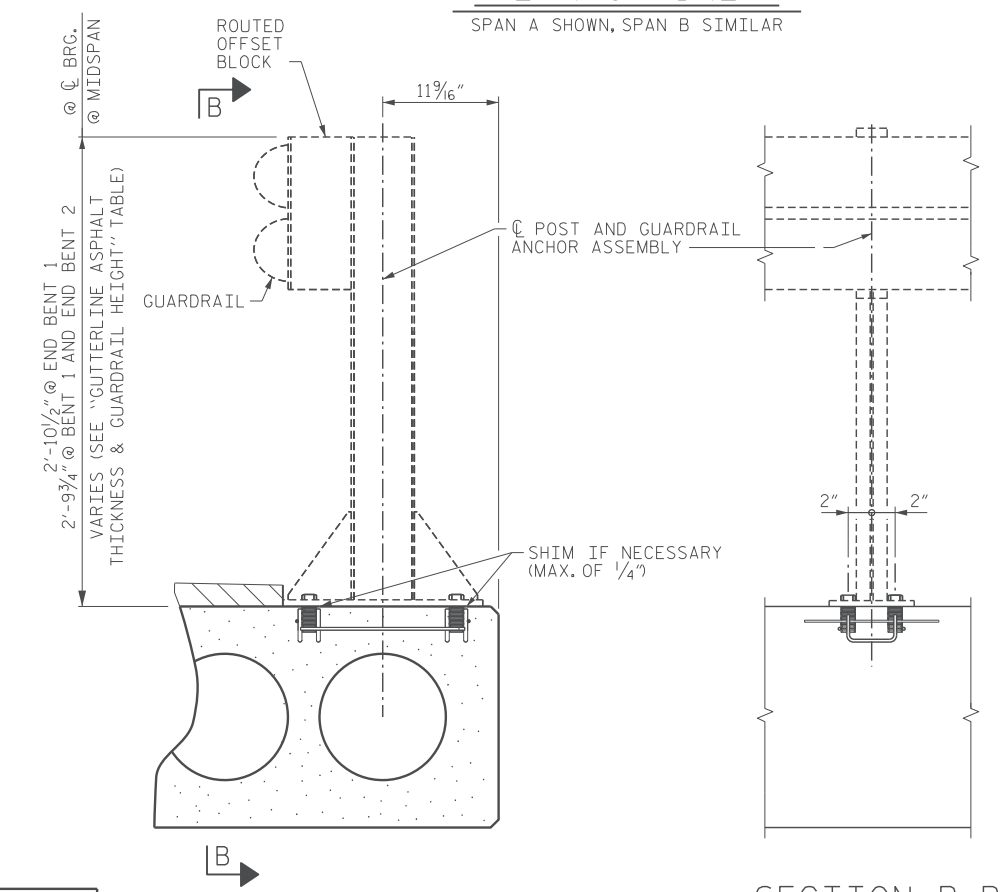
PLAN OF UNIT

SPAN A SHOWN, SPAN B SIMILAR



DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR



SECTION A-A

SECTION B-B

GUTTERLINE ASPHALT THICKNESS AND GUARDRAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MIDSPAN	GUARDRAIL HEIGHT @ MIDSPAN
50' UNIT	1⅝"	2'-8⅝"

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 50' UNIT 13'-9" CLEAR ROADWAY 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 1/26/2026

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DES BY: G. MYERS	DATE: 10/25	DWG BY: D. CARTER	DATE: 11/25
DES CHK: G. MARTINEZ	DATE: 10/25	CHK BY: A. AMBROSI	DATE: 11/25

STD. NO. 21"PCS_27_90S_50L

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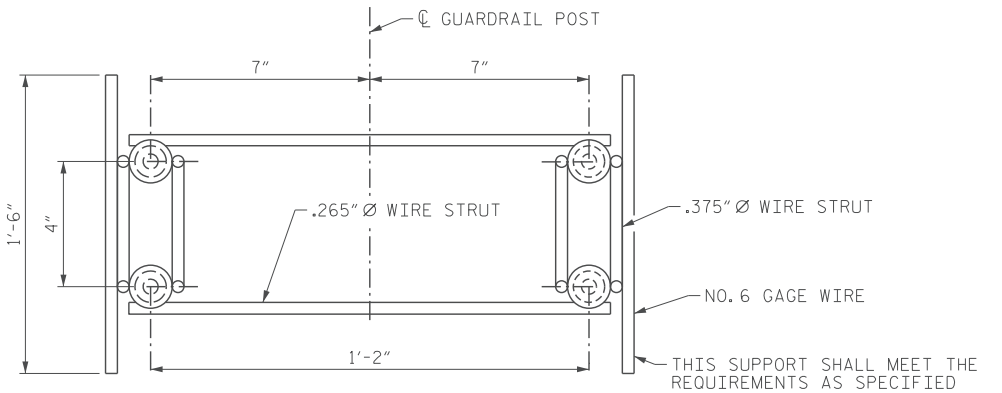
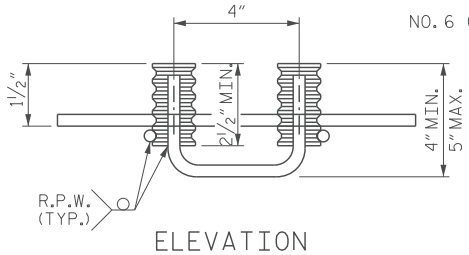
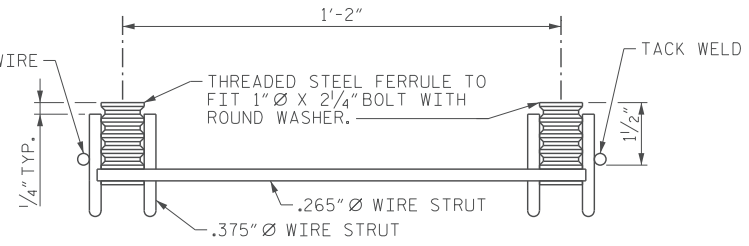


PLAN



ELEVATION



SIDE VIEW

GUARDRAIL ANCHOR ASSEMBLY FOR PRESTRESSED CONCRETE CORED SLAB UNIT

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
50' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1½" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅜" ↓
FINAL CAMBER	1⅛" ↑

** INCLUDES FUTURE WEARING SURFACE

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLAB REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
50' UNIT			
EXTERIOR C.S.	4	50'-0"	200'
INTERIOR C.S.	8	50'-0"	400'
TOTAL	12	50'-0"	600'

BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B6	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	104	#4	3	5'-4"	371	5'-4"	371
REINFORCING STEEL			LBS.		475		475
6500 P.S.I. CONCRETE			LBS.		7.1		7.1
0.6" Ø L.R. STRANDS			NO.		19		19

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½" Ø ANCHOR BOLT HOLES AND BLOCKOUTS AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNITS ENDS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

POST-TENSIONING SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE GUARDRAIL ANCHOR ASSEMBLY FOR CORED SLABS SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2½".

B. 4 - 1" Ø X 2¼" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2¼" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CORED SLABS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

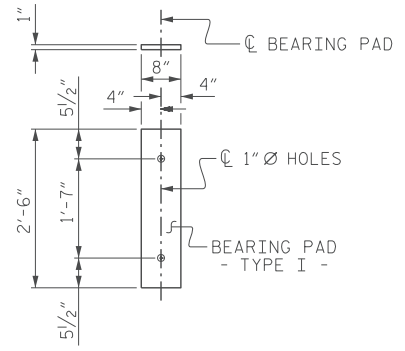
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR PRESTRESSED CORED SLAB UNITS.

FERRULES TO BE PLUGGED DURING CASTING OF PRESTRESSED CONCRETE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

PRESTRESSED CONCRETE CORED SLAB UNITS REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.



FIXED END
(TYPE I - 24 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARING SHALL BE 50 DUROMETER HARDNESS.

CONCRETE RELEASE STRENGTH	
UNIT	PSI
50' UNITS	4900

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" x 1'-9"
PRESTRESSED CONCRETE CORED SLAB UNIT
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E Myers 1/26/2026

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2	--	--	4	--	--	21

STD. NO. 21"PCS3_27_90S

DES BY: G. MYERS	DATE: 10/25	DWG BY: D. CARTER	DATE: 11/25
DES CHK: G. MARTINEZ	DATE: 10/25	CHK BY: A. AMBROSI	DATE: 11/25

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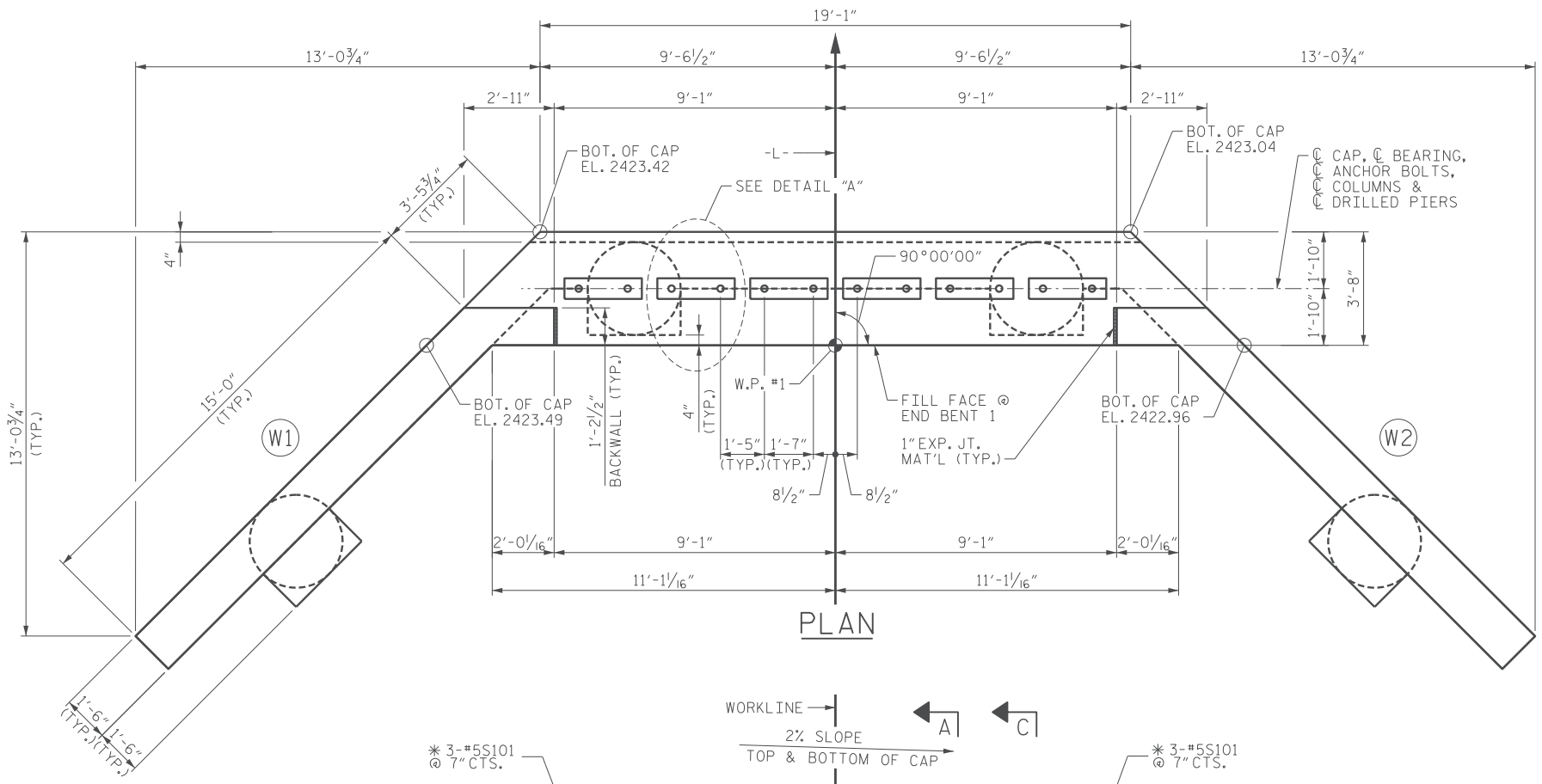
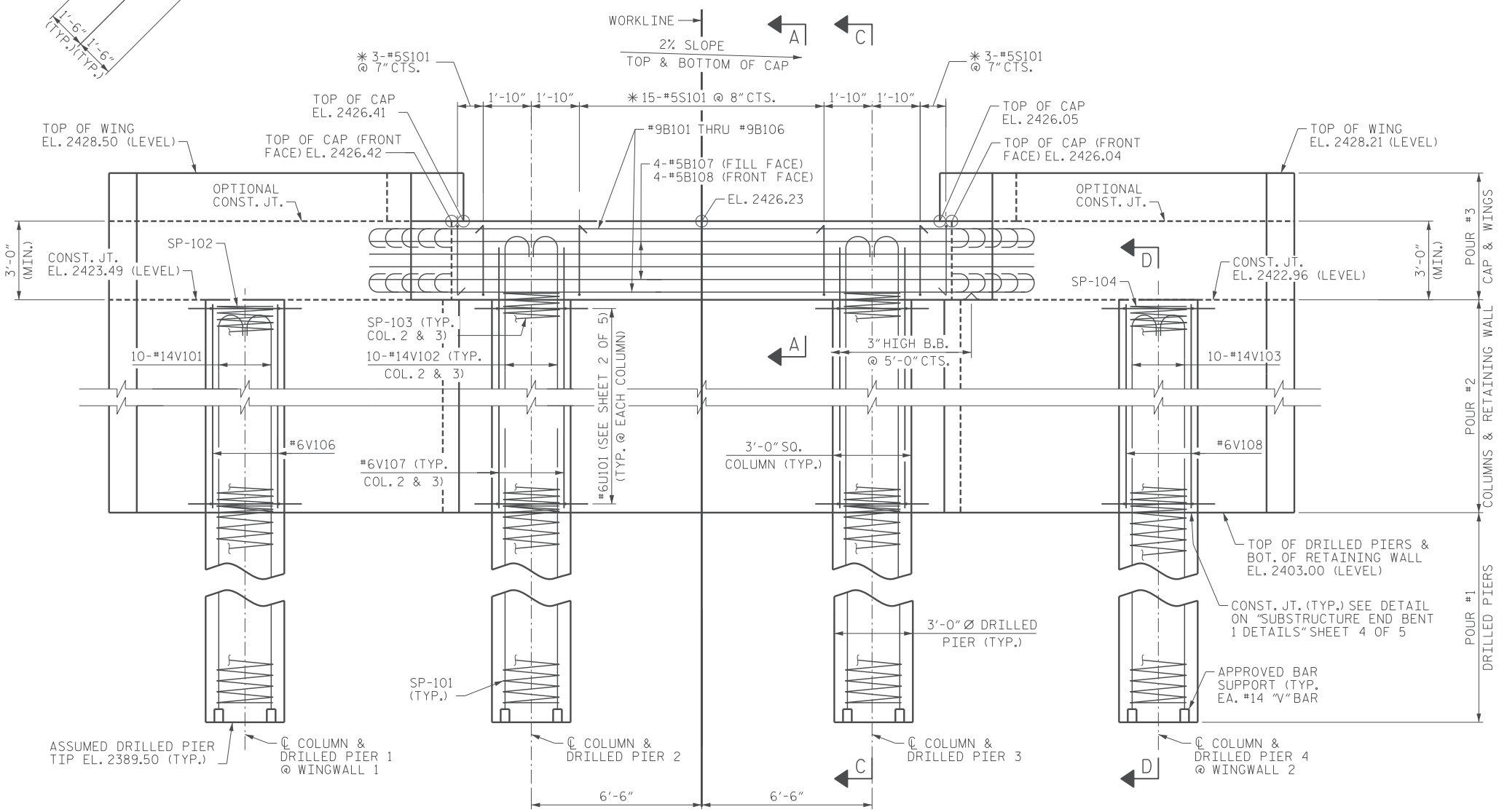




TOP OF COLUMN ELEVATIONS

COLUMN NO.	ELEVATION
1	2423.49
2	2423.36
3	2423.10
4	2422.96

NOTES

FOR SECTION A-A AND CONSTRUCTION JOINT DETAIL AT BASE OF WALL, SEE SHEET 5 OF 5.

FOR SECTIONS C-C AND D-D, SEE SHEET 4 OF 5.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

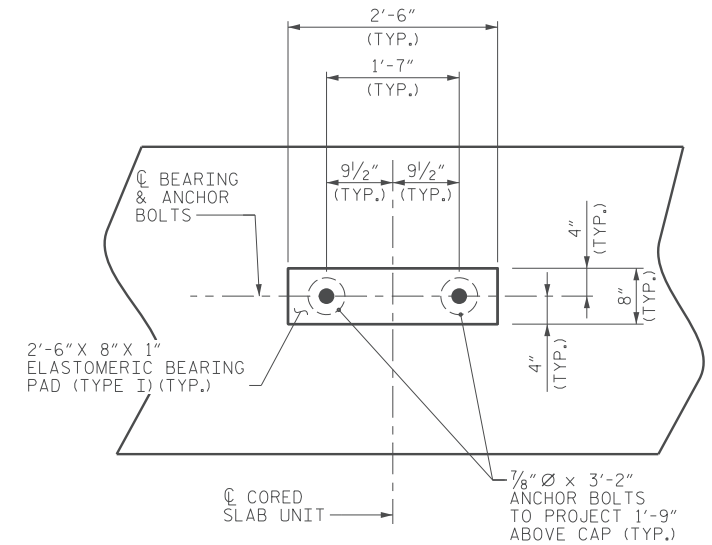
✳ INVERT ALTERNATE STIRRUPS.

THE CONTRACTOR SHALL FIELD VERIFY THE DRILLED PIER TIP ELEVATION AT EACH DRILLED PIER, PRIOR TO ORDERING REINFORCEMENT FOR DRILLED PIERS. DRILLED PIER LONGITUDINAL REINFORCEMENT AND SPIRAL LENGTHS ARE BASED ON THE ASSUMED DRILLED PIER TIP ELEVATION AND SHALL BE ADJUSTED AS NECESSARY TO MEET THE MINIMUM DRILLED PIER PENETRATION INTO ROCK.

REINFORCING STRAPS SHALL BE ATTACHED TO THE END BENT 1 RETAINING WALL. DESIGN REINFORCING STRAPS ON END BENT 1 RETAINING WALL AS SHOWN IN TIE BACK DETAIL ON SHEET 4 OF 5.

REINFORCING STRAPS SHALL NOT BE SPACED GREATER THAN 7 FEET ALONG THE FACE OF THE RETAINING WALL.

DESIGN REINFORCEMENT CONNECTED TO END BENT 1 RETAINING WALL FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE. CAST REINFORCEMENT OR CONNECTORS INTO RETAINING WALL FOR END BENT NO. 1 LOCATED AT STA. 10+69.00 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN RETAINING WALL.



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1 PLAN AND ELEVATION

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 6

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DES CHK:	K. DICKENS	DATE :	12/25
DWG BY:	B. PETERSON	DATE :	11/25
CHK BY:	G. MYERS	DATE :	12/25

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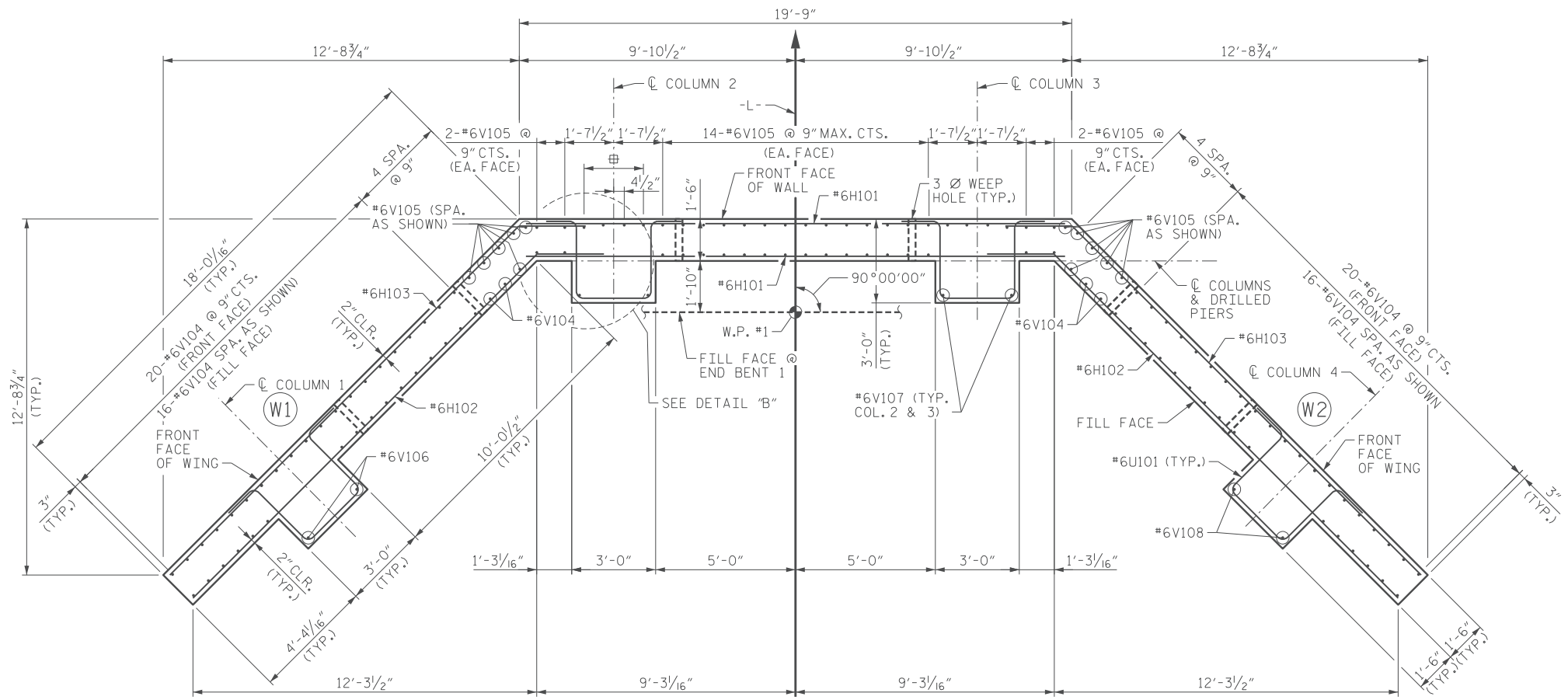
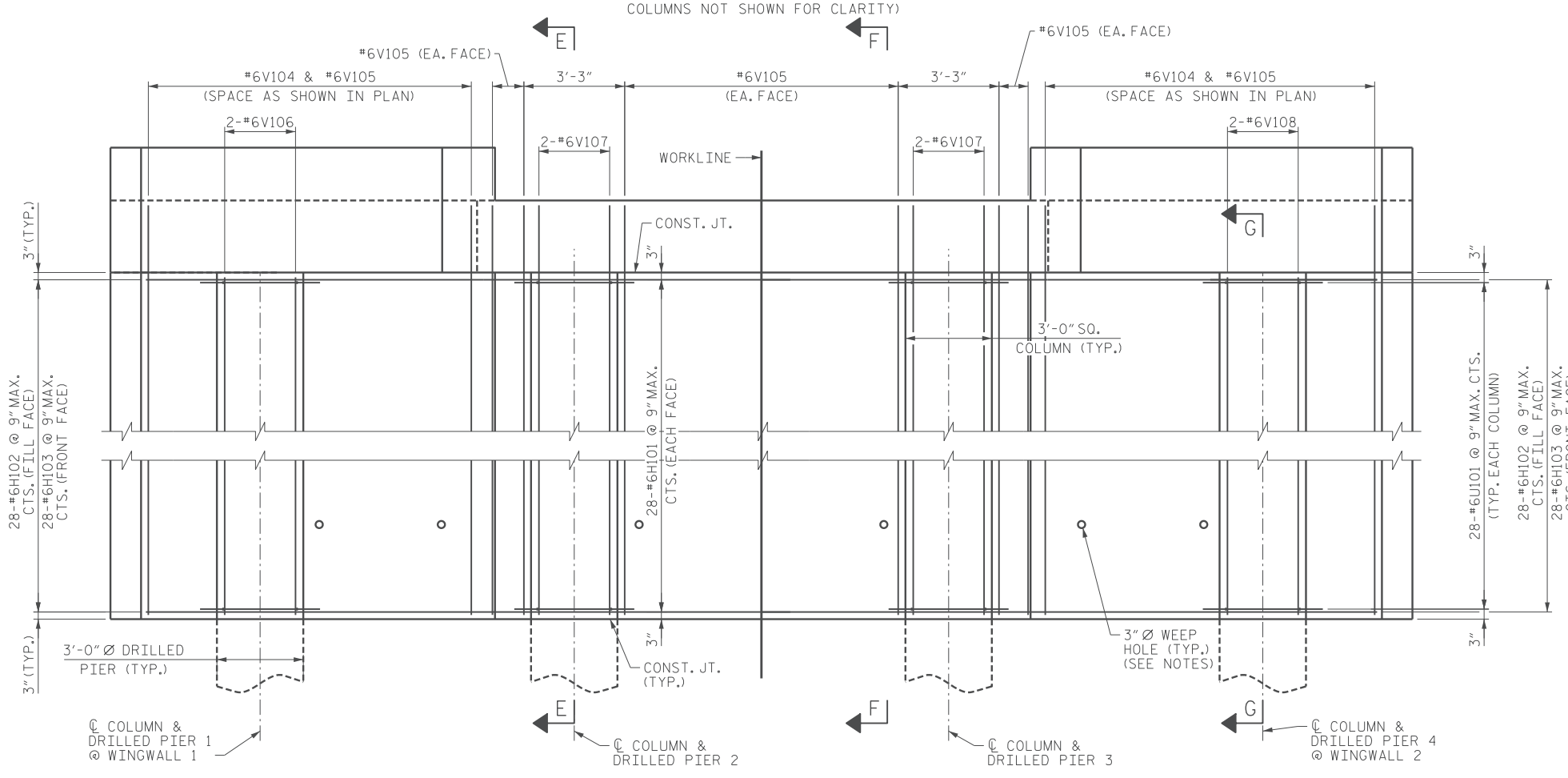


PLAN OF RETAINING WALL

(DRILLED PIERS AND MAIN REINFORCEMENT FOR DRILLED PIERS AND COLUMNS NOT SHOWN FOR CLARITY)



ELEVATION OF RETAINING WALL

NOTES

FOR SECTIONS E-E, F-F & G-G, SEE SHEET 4 OF 5.

FOR DETAIL "B", SEE SHEET 5 OF 5.

FOR ELEVATION OF WEEPHOLE, SEE SECTION F-F ON SHEET 4 OF 5.

⊕ = 4-#6V105 @ 9" CTS. (FRONT FACE) (TYP. COL. 2 & 3)

DES BY: J. PATT	DATE: 11/25
DES CHK: G. MYERS	DATE: 12/25
DWG BY: B. PETERSON	DATE: 11/25
CHK BY: G. MYERS	DATE: 12/25

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NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

Gregory E. Myers 6

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1 RETAINING WALL LAYOUT

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

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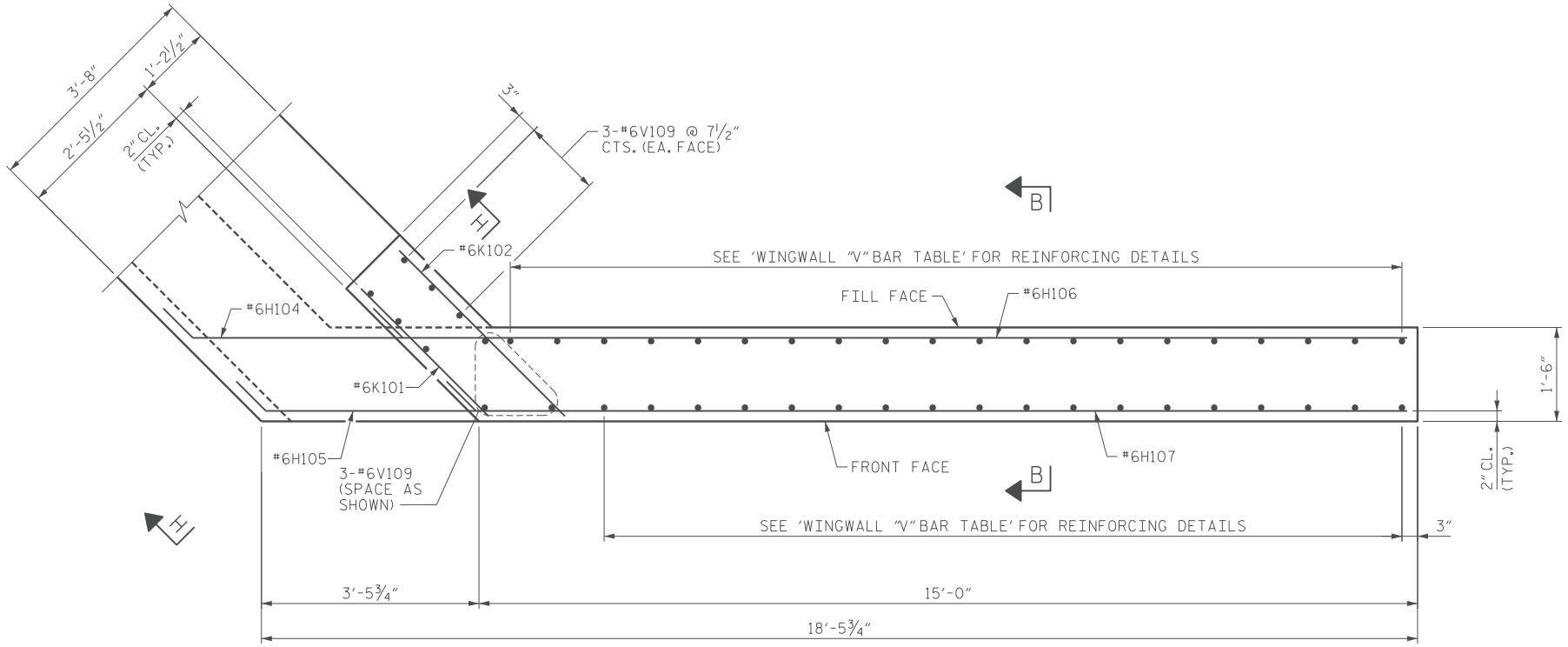
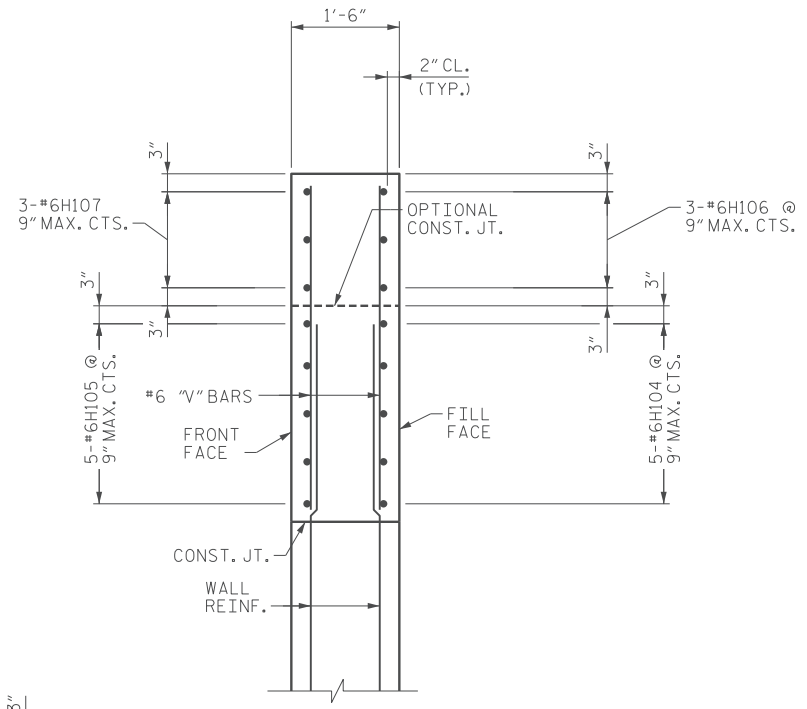
WINGWALL "V" BAR TABLE		
LOCATION	FRONT FACE	FILL FACE
WINGWALL 1	18-#6V110 @ 9"CTS.	20-#6V110 @ 9"CTS.
WINGWALL 2	18-#6V111 @ 9"CTS.	20-#6V111 @ 9"CTS.

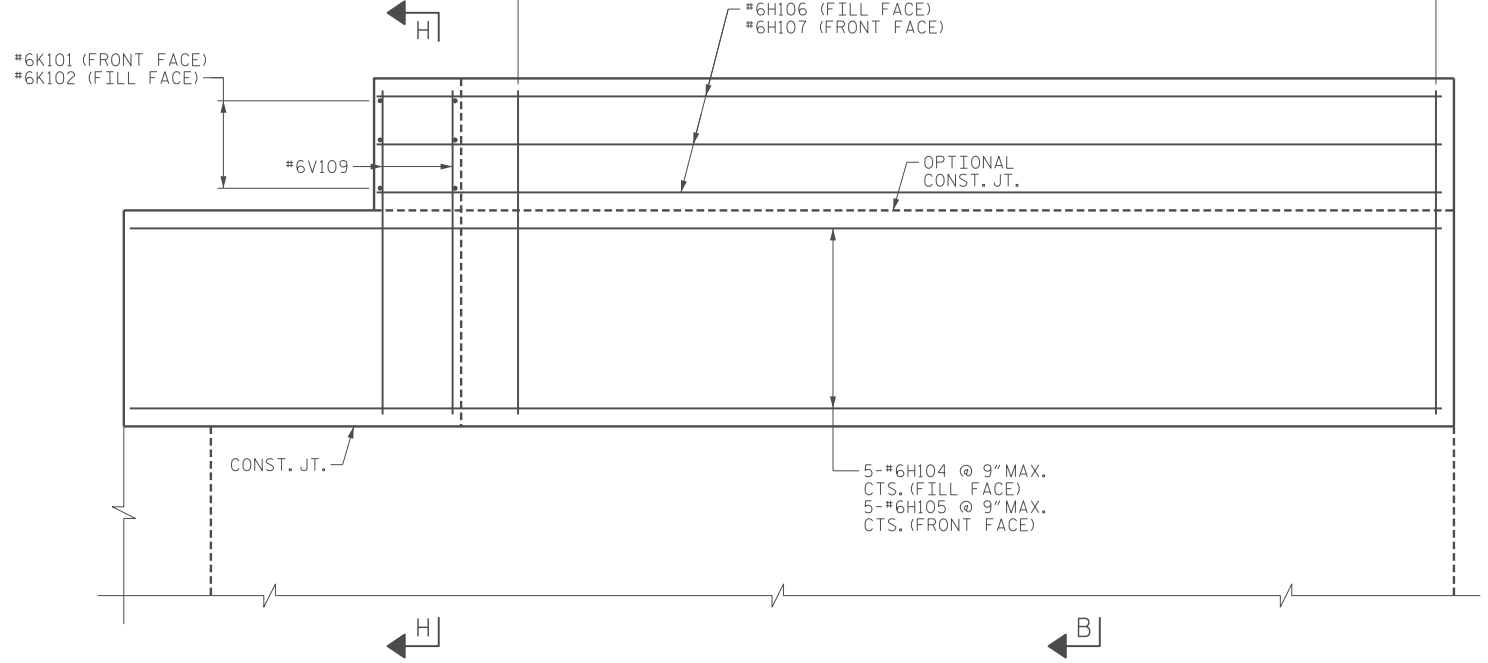


PLAN OF WING

(WING W1 SHOWN, WING W2 OPPOSITE HAND)
(DRILLED PIER AND COLUMN NOT SHOWN FOR CLARITY)

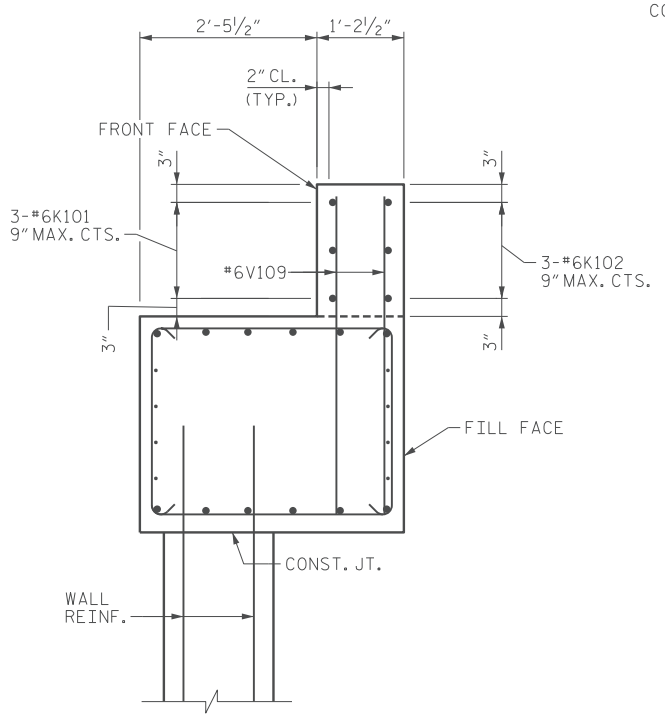


SECTION B-B



ELEVATION OF WING

(WING W1 SHOWN, WING W2 OPPOSITE HAND
(COLUMN NOT SHOWN FOR CLARITY)



SECTION H-H

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1 WINGWALL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E Myers 1/26/2026

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1	--	--	3	--	--	TOTAL SHEETS 21
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DES CHK: G. MYERS	DATE: 12/25	CHK BY: G. MYERS	DATE: 12/25

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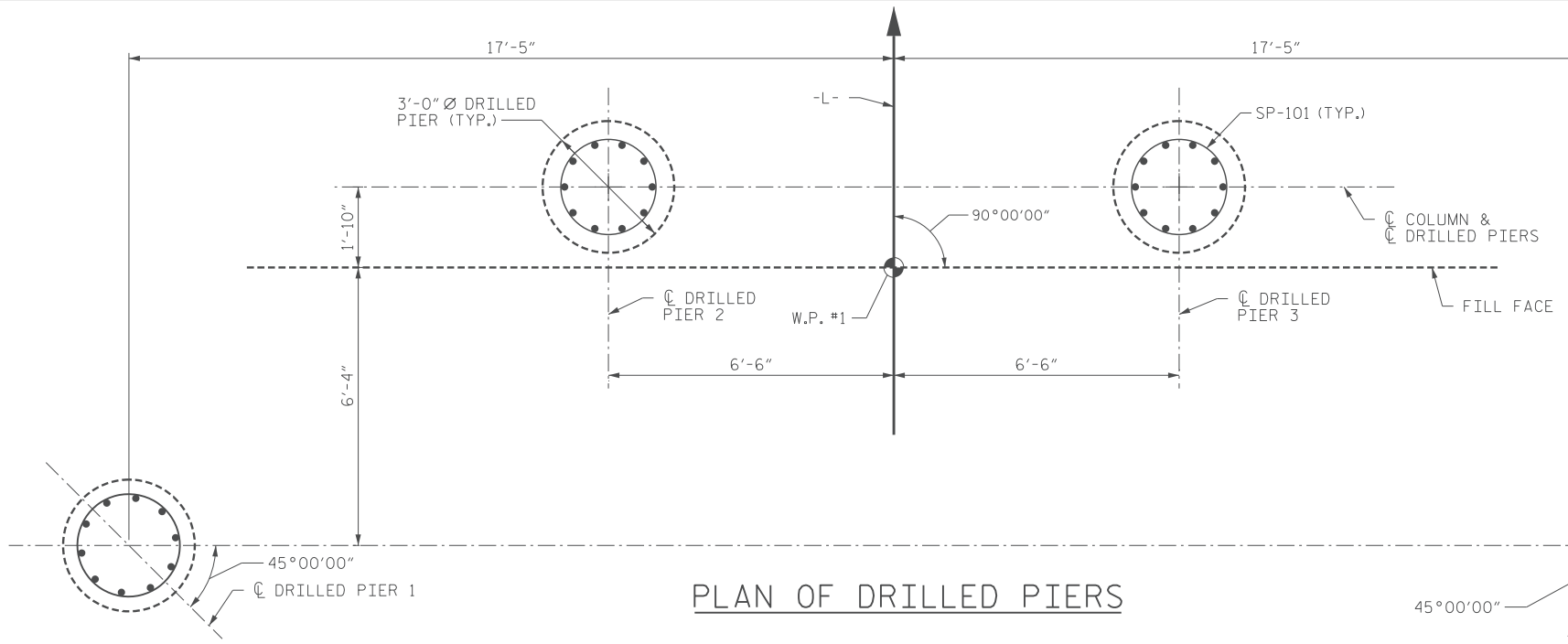
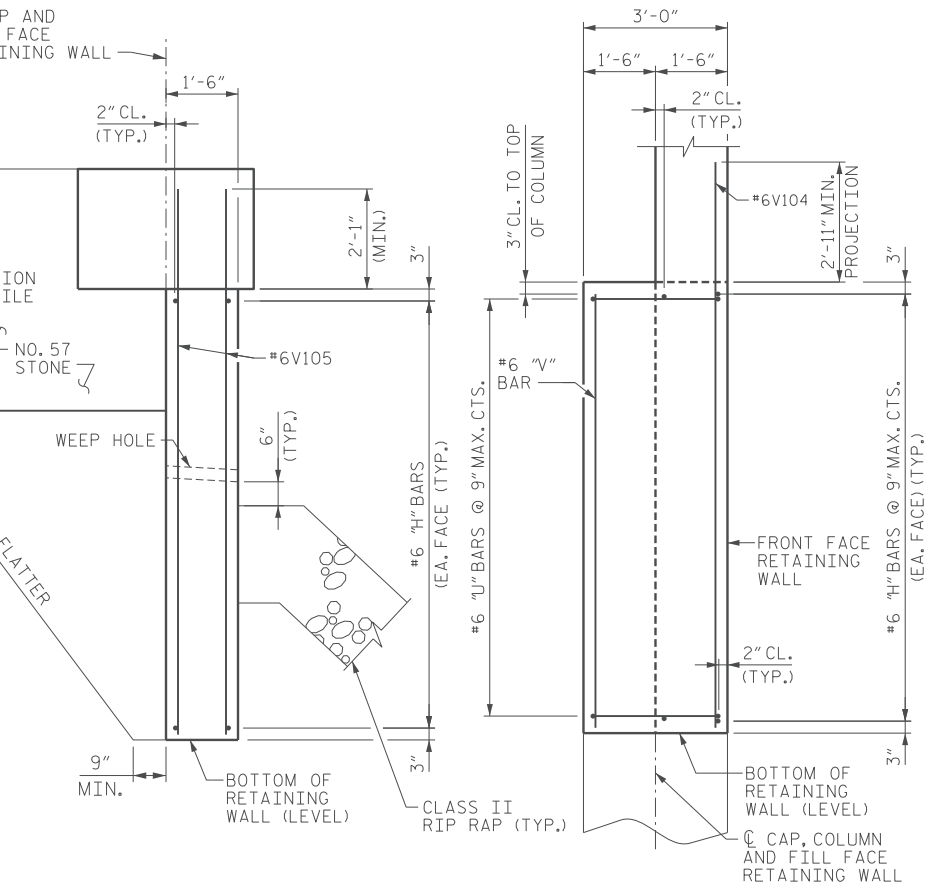
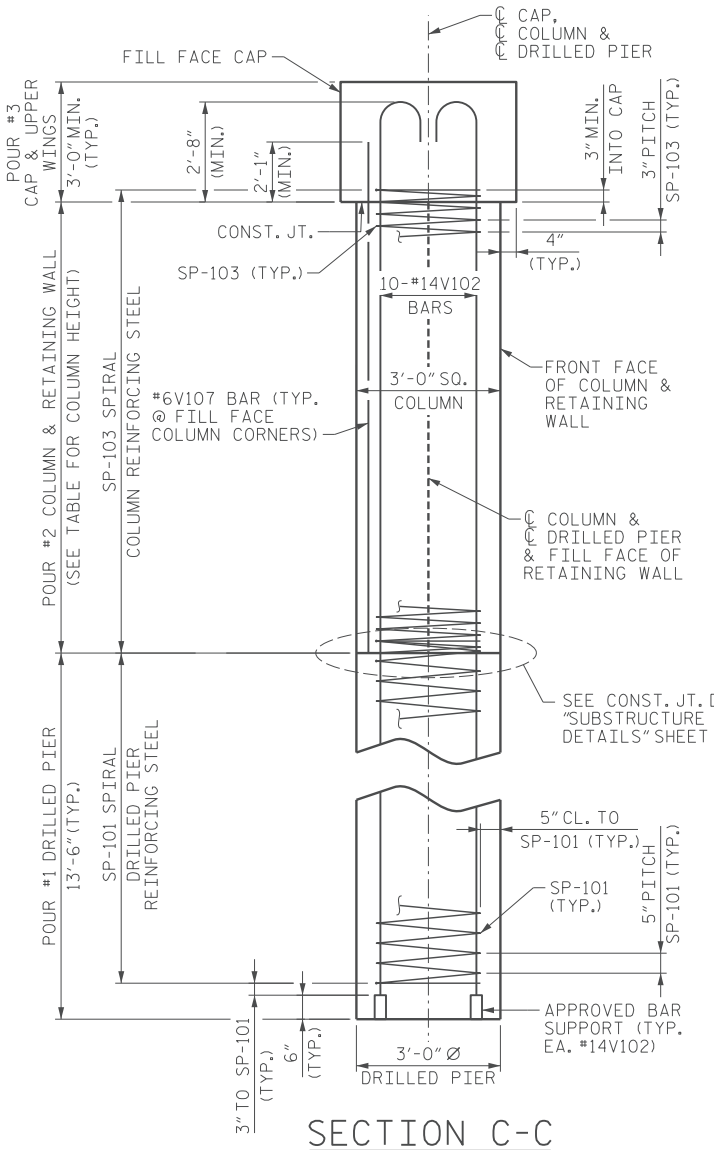


PLAN OF DRILLED PIERS

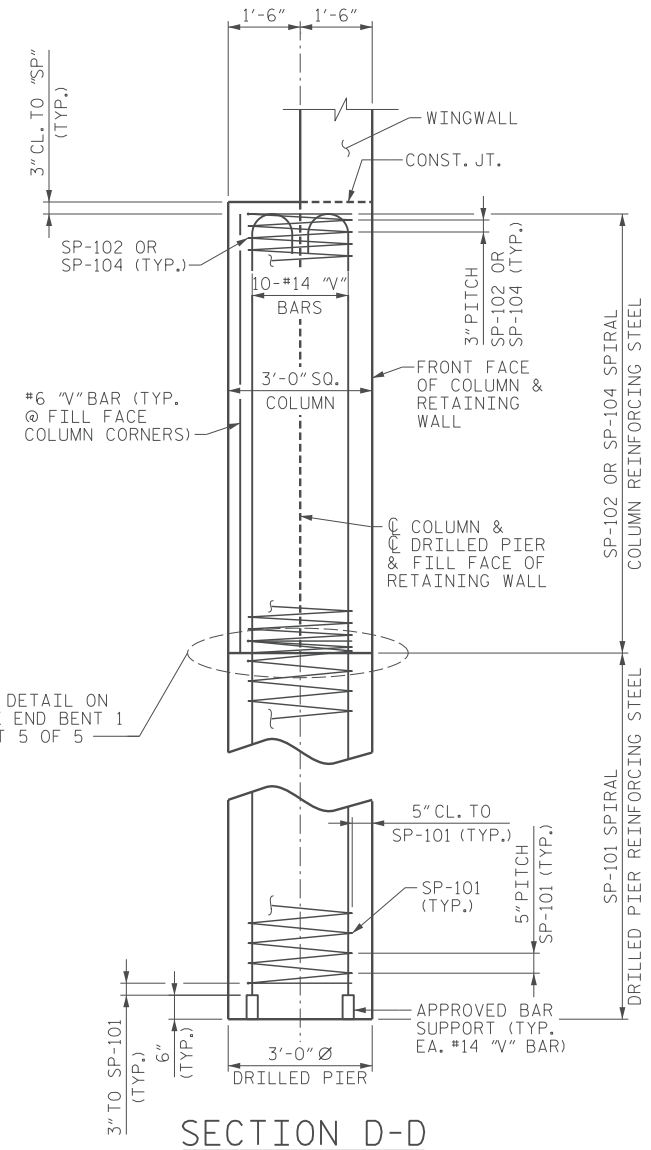


SECTION F-F

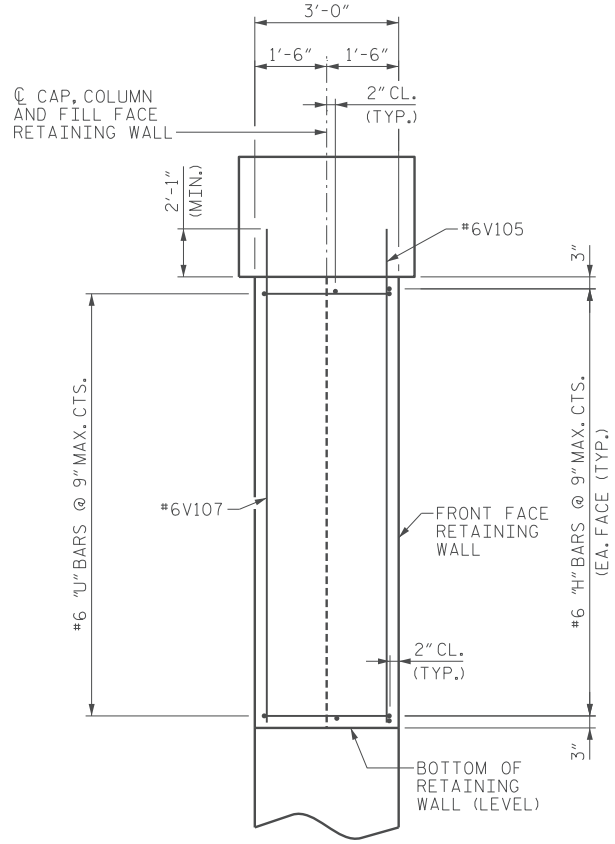
SECTION G-G



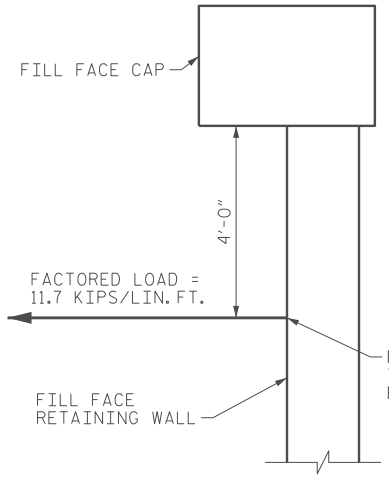
SECTION C-C



SECTION D-D



SECTION E-E



TIE BACK DETAIL

(SEE "SUBSTRUCTURE END BENT 1 PLAN AND ELEVATION" SHEET FOR NOTES)

COLUMN HEIGHTS	
COLUMN NO.	HEIGHT
1	20'-5 7/8"
2	20'-4 5/16"
3	20'-1 3/16"
4	19'-11 1/2"

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 6

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

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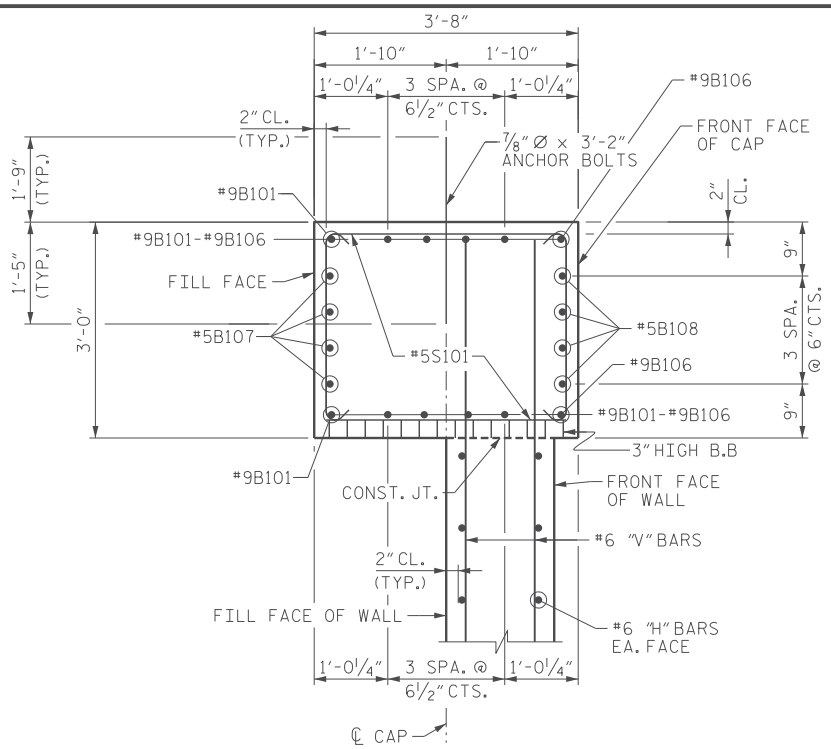
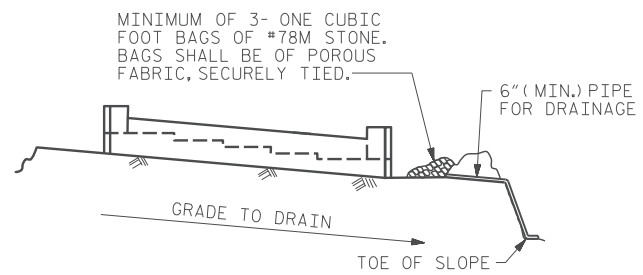
REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

DES BY:	J. PATT	DATE :	11/25
DES CHK:	G. MYERS	DATE :	12/25
DWG BY:	B. PETERSON	DATE :	11/25
CHK BY:	G. MYERS	DATE :	12/25



SECTION A-A

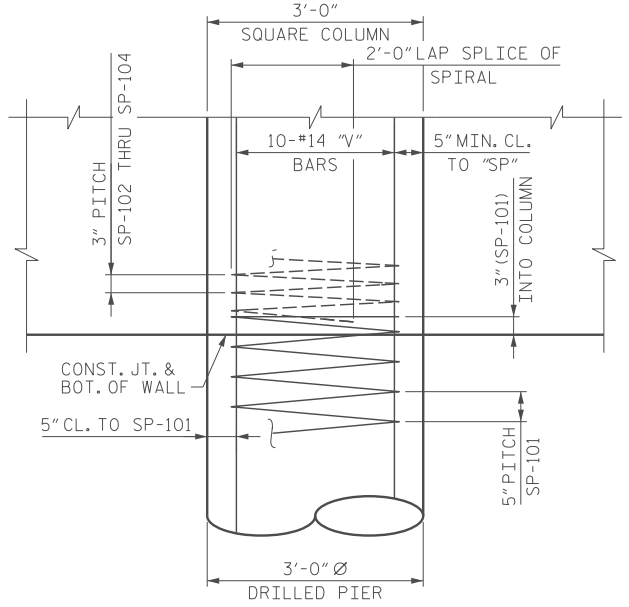


TEMPORARY DRAINAGE AT END BENT

BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

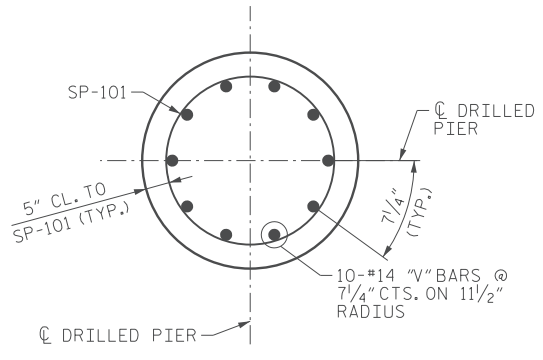
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

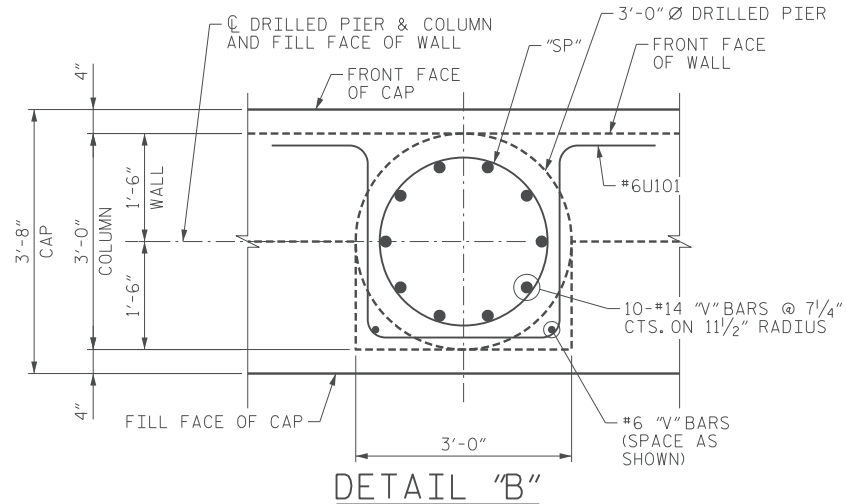


CONSTRUCTION JOINT DETAIL

(WALL REINFORCEMENT NOT SHOWN FOR CLARITY)

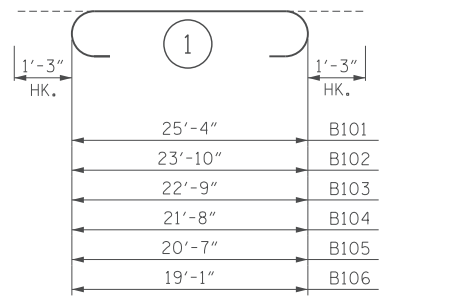


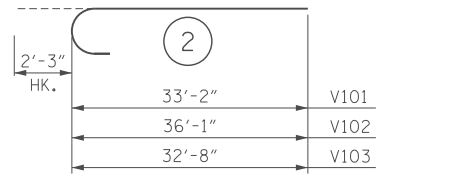
SECTION THRU DRILLED PIER

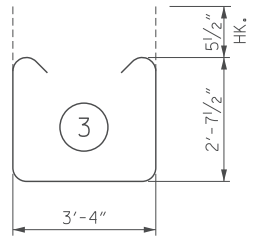


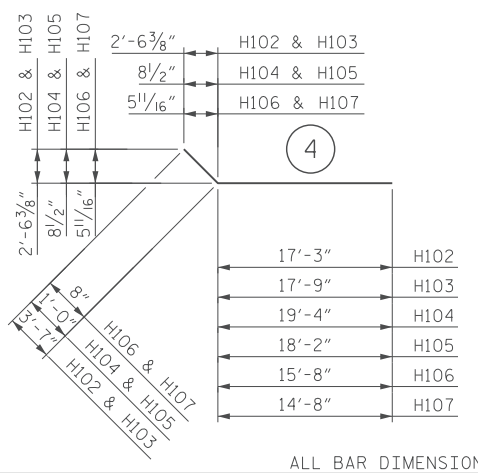
DETAIL "B"

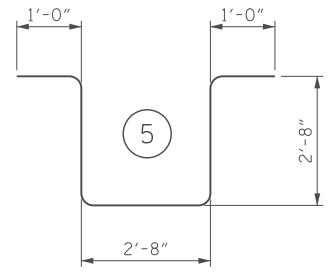
BAR TYPES

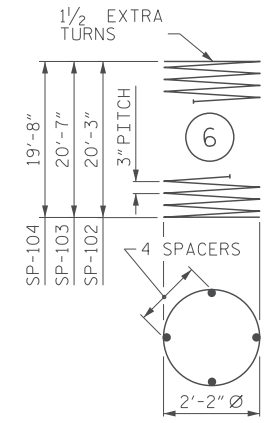


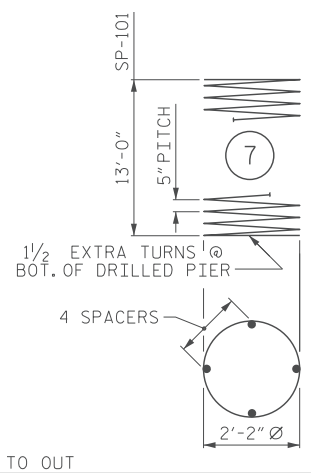












ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B101	2	#9	1	27'-10"	189
B102	2	#9	1	26'-4"	179
B103	2	#9	1	25'-3"	172
B104	2	#9	1	24'-2"	164
B105	2	#9	1	23'-1"	157
B106	2	#9	1	21'-7"	147
B107	4	#5	STR	25'-4"	106
B108	4	#5	STR	19'-2"	80
H101	56	#6	STR	19'-7"	1647
H102	56	#6	4	20'-10"	1752
H103	56	#6	4	21'-4"	1794
H104	10	#6	4	20'-4"	305
H105	10	#6	4	19'-2"	288
H106	6	#6	4	16'-4"	147
H107	6	#6	4	15'-4"	138
K101	6	#6	STR	2'-7"	23
K102	6	#6	STR	3'-5"	31
S101	21	#5	3	9'-6"	208
U101	112	#6	5	10'-0"	1682
V101	10	#14	2	35'-5"	2709
V102	20	#14	2	38'-4"	5865
V103	10	#14	2	34'-11"	2671
V104	76	#6	STR	23'-3"	2654
V105	56	#6	STR	22'-4"	1879
V106	2	#6	STR	20'-2"	61
V107	4	#6	STR	22'-3"	134
V108	2	#6	STR	19'-7"	59
V109	18	#6	STR	4'-0"	108
V110	38	#6	STR	4'-8"	266
V111	38	#6	STR	4'-11"	281
TOTAL					25,896 LBS.

SPIRAL COLUMN REINFORCING STEEL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-101	4	*	7	217'-8"	908
SP-102	1	**	6	551'-2"	368
SP-103	2	**	6	560'-1"	748
SP-104	1	**	6	535'-7"	358
TOTAL					2,382 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #2 (COLUMNS & RETAINING WALL)	76.2 C.Y.
POUR #3 (CAP & UPPER WINGS)	18.5 C.Y.
TOTAL CLASS A CONCRETE	94.7 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)	14.0 C.Y.

* THE SP-101 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

** THE SP-102 THRU SP-104 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 1 DETAILS AND BILL OF MATERIALS

REVISIONS						SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 21
1	--	--	3	--	--	
2	--	--	4	--	--	

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

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

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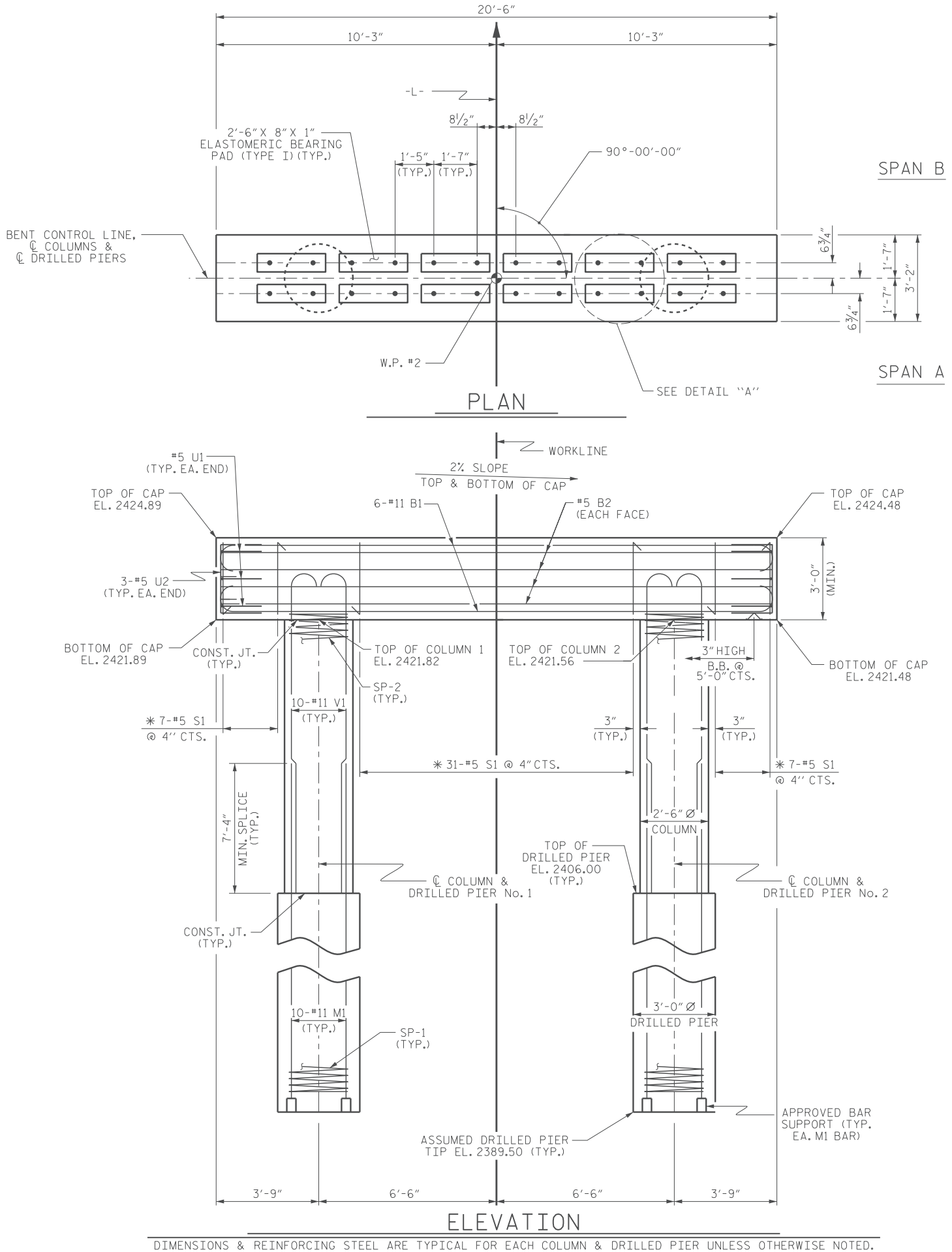
DES BY:	J. PATT	DATE :	11/25
DES CHK:	K. DICKENS	DATE :	12/25
DWG BY:	D. CARTER	DATE :	11/25
CHK BY:	G. MYERS	DATE :	12/25



DIMENSIONS & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER UNLESS OTHERWISE NOTED.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

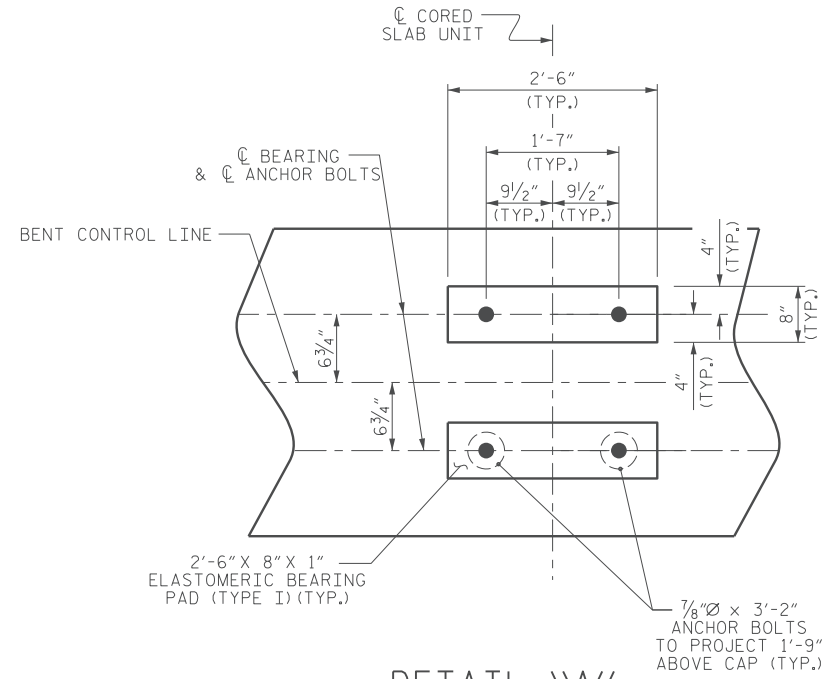
ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

* INVERT ALTERNATE STIRRUPS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT ONE FOOT BELOW THE GROUND LINE.

DRILLED PIERS SHALL BE TERMINATED ONE FOOT ± ABOVE NORMAL WATER SURFACE ELEVATION FOR SHAFTS LOCATED IN WATER.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE BENT No. 1

REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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DES BY:	A. AMBROSI	DWG BY:	B. PETERSON
DES CHK:	K. DICKENS	CHK BY:	K. DICKENS
DATE:	11/25	DATE:	09/25
DATE:	12/25	DATE:	12/25

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USER: GMYERS DATE: 12/23/2025
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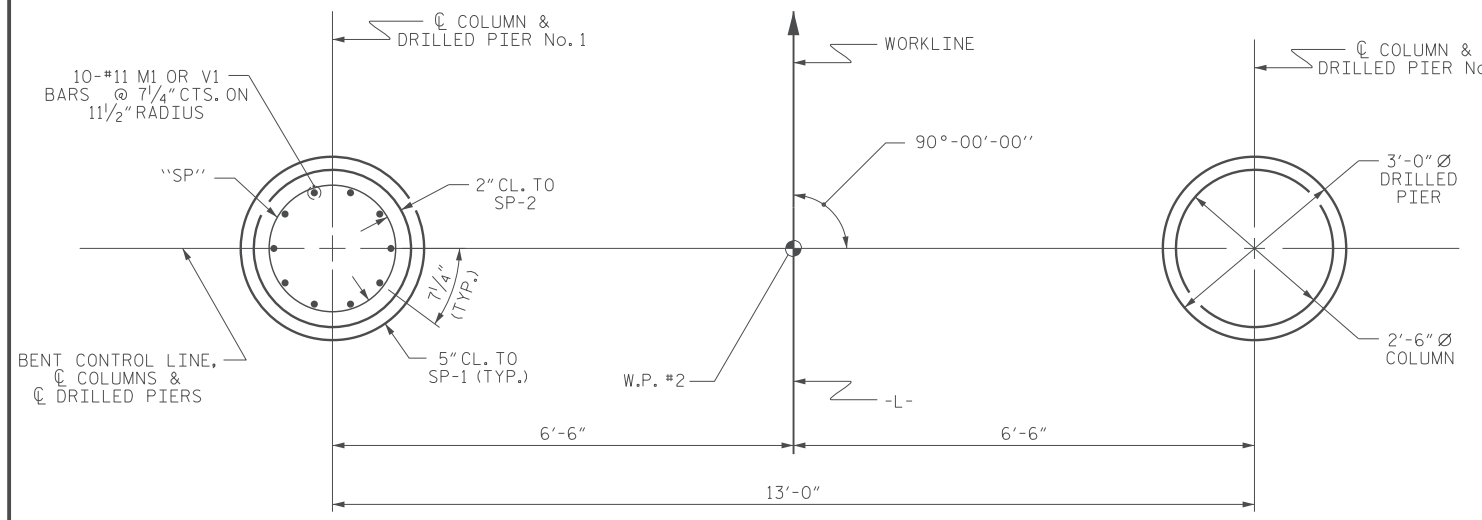
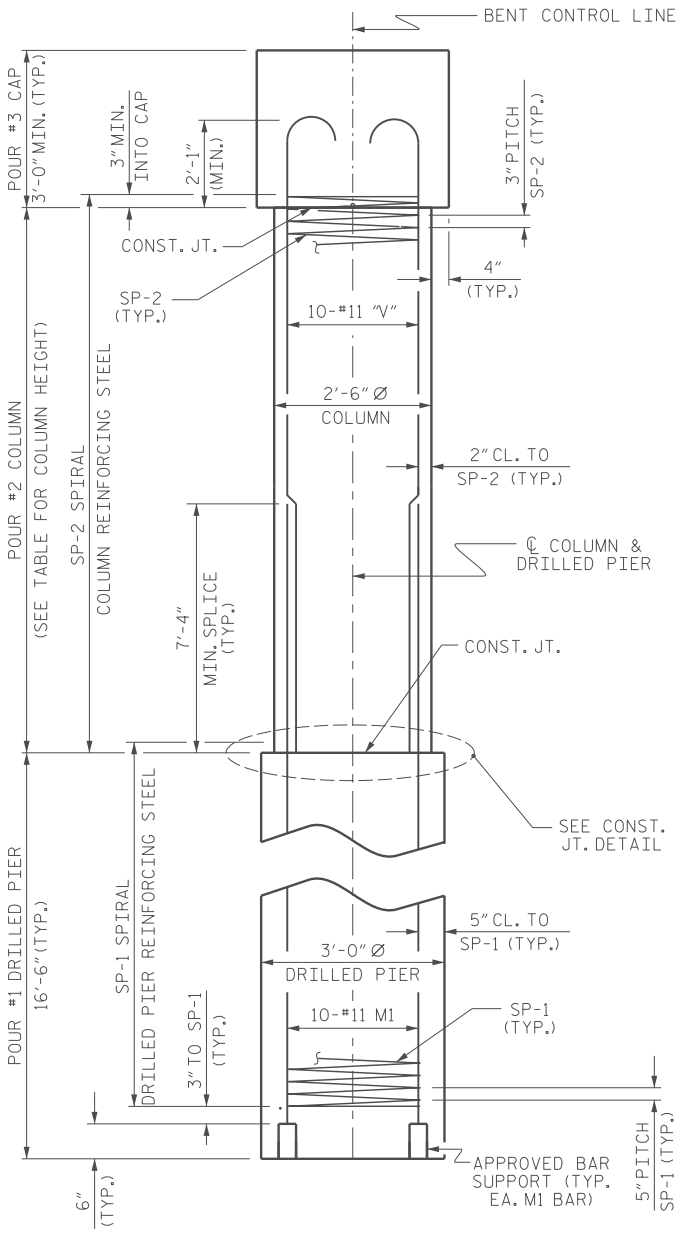
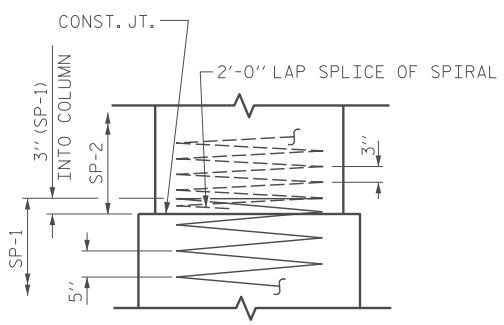


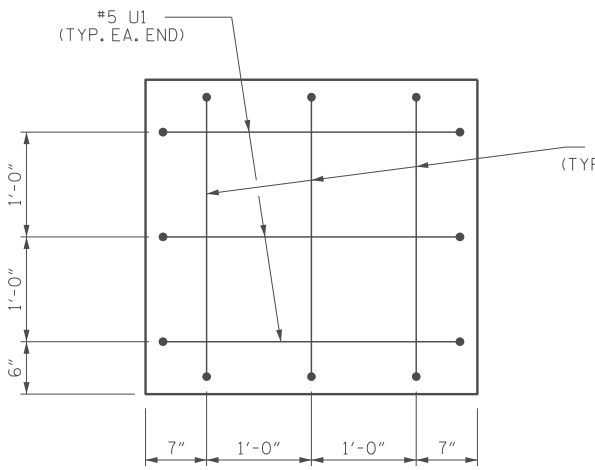
PLAN OF DRILLED PIERS & COLUMNS



END ELEVATION

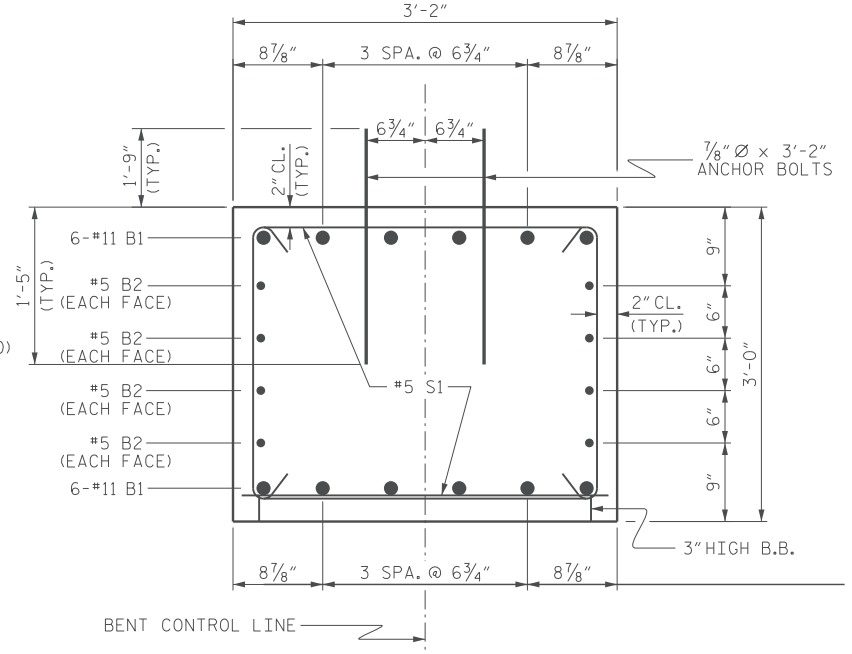


CONSTRUCTION JOINT DETAIL



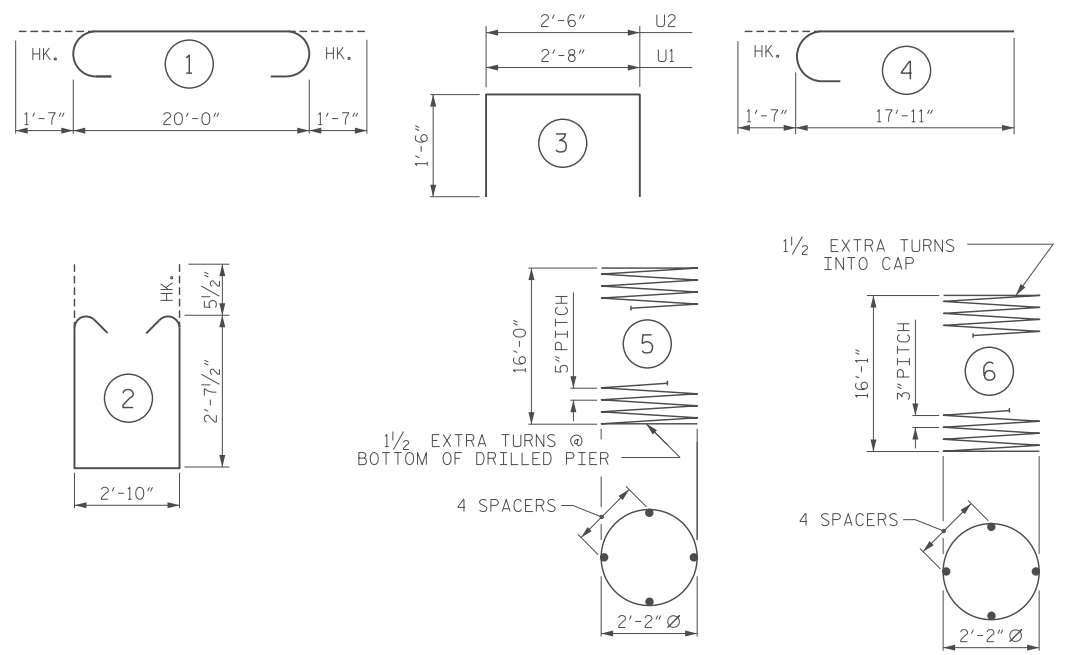
END OF CAP VIEW

(TYPICAL BOTH ENDS)



SECTION THRU CAP

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

COLUMN HEIGHTS

COLUMN NO.	HEIGHT (FT.)
1	15'-9⅞"
2	15'-6¾"

BILL OF MATERIAL

FOR ONE BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	12	#11	1	23'-2"	1478
B2	8	#5	STR	20'-2"	169
M1	20	#11	STR	26'-4"	2799
S1	45	#5	2	9'-0"	423
U1	6	#5	3	5'-8"	36
U2	6	#5	3	5'-6"	35
V1	20	#11	4	19'-6"	2073

REINFORCING STEEL (FOR ONE BENT) 7,013 LBS.

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-1	2	*	5	265'-7"	555
SP-2	2	**	6	439'-10"	588

SPIRAL COLUMN REINFORCING STEEL (FOR ONE BENT) 1,143 LBS.

* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

** THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR

CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)

POUR #2 (COLUMNS)	5.7 C.Y.
POUR #3 (CAP)	7.2 C.Y.
TOTAL CLASS A CONCRETE	12.9 C.Y.

DRILLED PIERS: (FOR ONE BENT)

DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)	8.6 C.Y.

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE BENT No. 1

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

Gregory E. Myers 6

DES BY: A. AMBROSI DATE: 11/25
DES CHK: K. DICKENS DATE: 12/25

DWG BY: B. PETERSON DATE: 09/25
CHK BY: K. DICKENS DATE: 12/25

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
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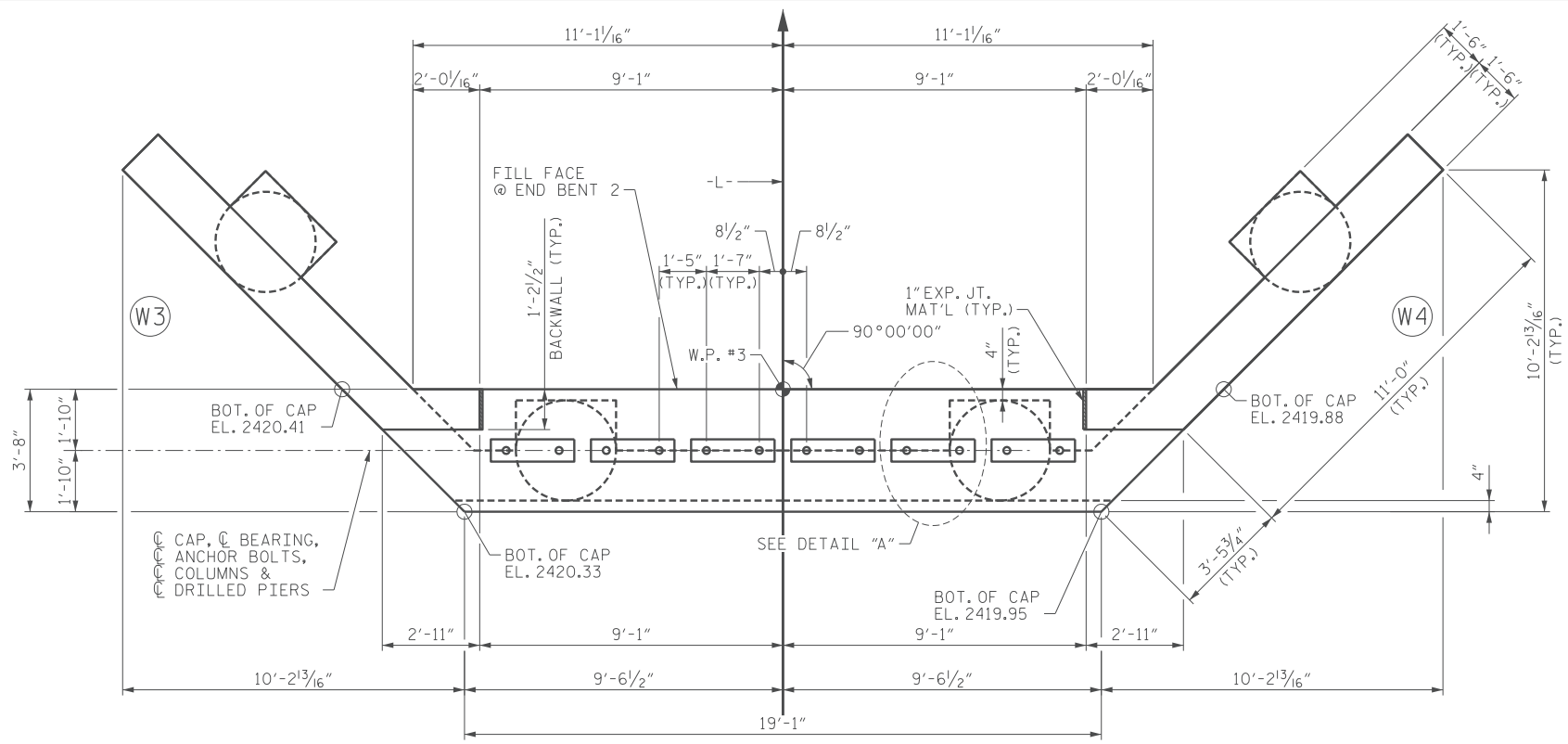
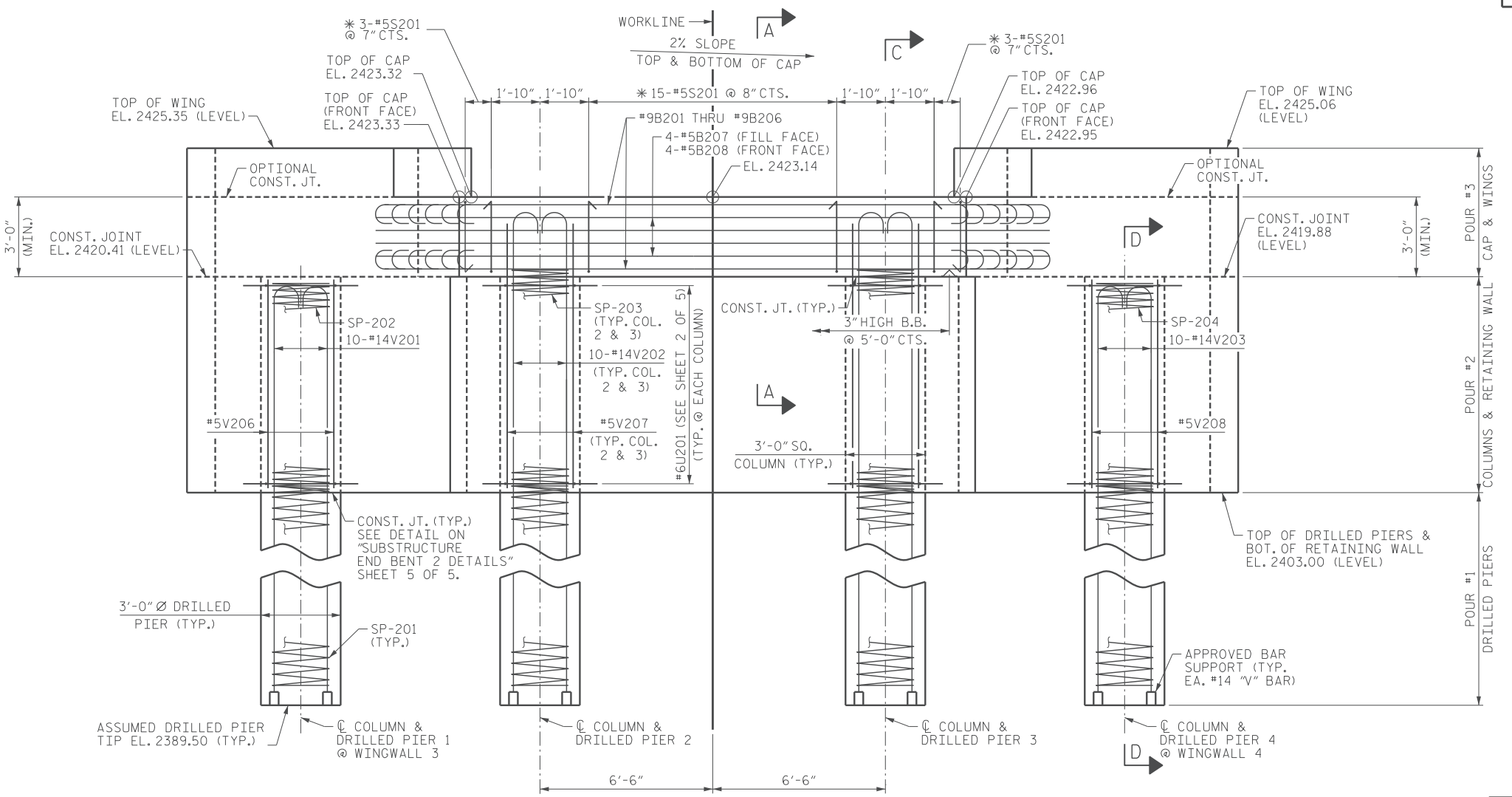


PLAN



ELEVATION

NOTES

FOR DETAIL "A", SEE "SUBSTRUCTURE END BENT 1 PLAN AND ELEVATION" SHEET.

FOR SECTION A-A AND CONSTRUCTION JOINT DETAIL AT BASE OF WALL, SEE SHEET 5 OF 5.

FOR SECTION C-C AND D-D, SEE SHEET 4 OF 5.

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

✱ INVERT ALTERNATE STIRRUPS.

THE CONTRACTOR SHALL FIELD VERIFY THE DRILLED PIER TIP ELEVATION AT EACH DRILLED PIER, PRIOR TO ORDERING REINFORCEMENT FOR DRILLED PIERS. DRILLED PIER LONGITUDINAL REINFORCEMENT AND SPIRAL LENGTHS ARE BASED ON THE ASSUMED DRILLED PIER TIP ELEVATION AND SHALL BE ADJUSTED AS NECESSARY TO MEET THE MINIMUM DRILLED PIER PENETRATION INTO ROCK.

TOP OF COLUMN ELEVATIONS

COLUMN NO.	ELEVATION
1	2420.41
2	2420.29
3	2420.14
4	2419.88

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2 PLAN AND ELEVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 1/26/2026

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N.C.B.E.L.S. License Number: F-0116

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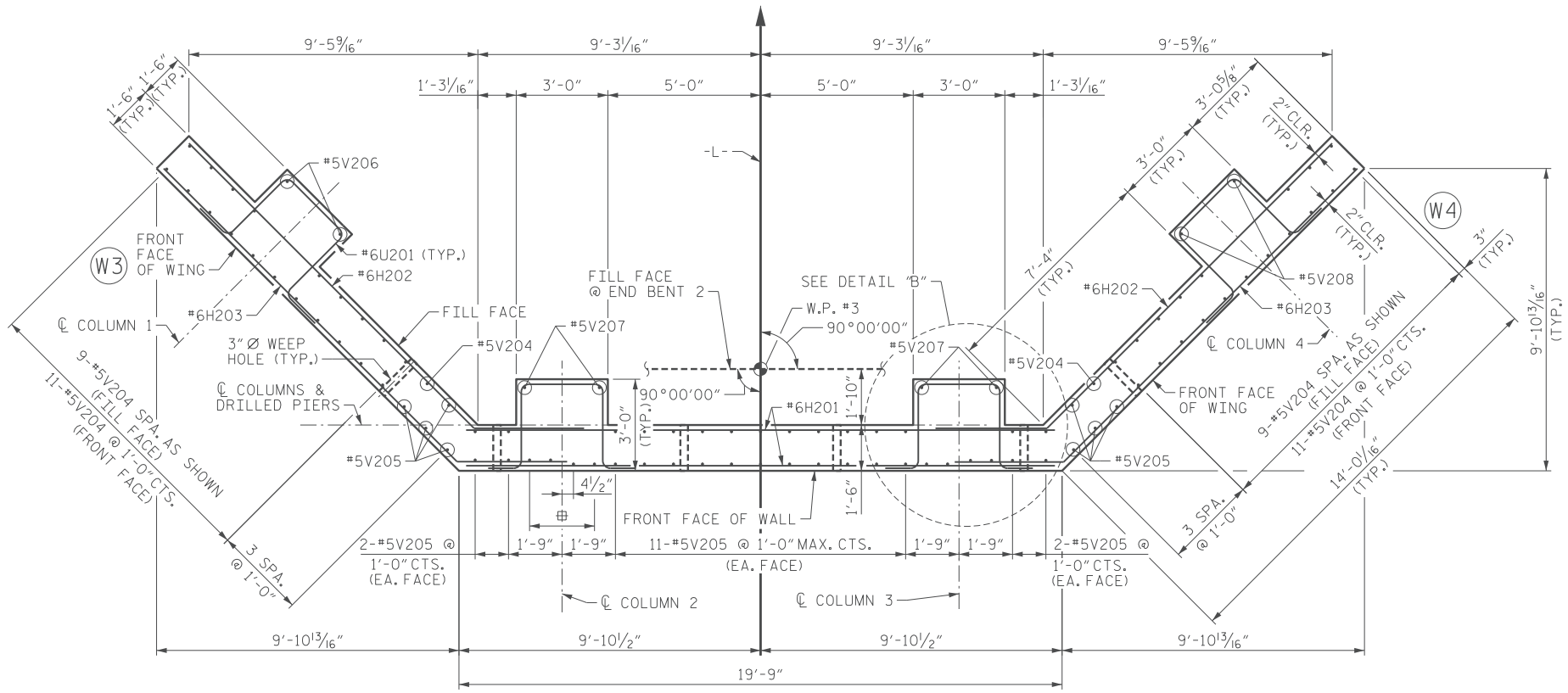
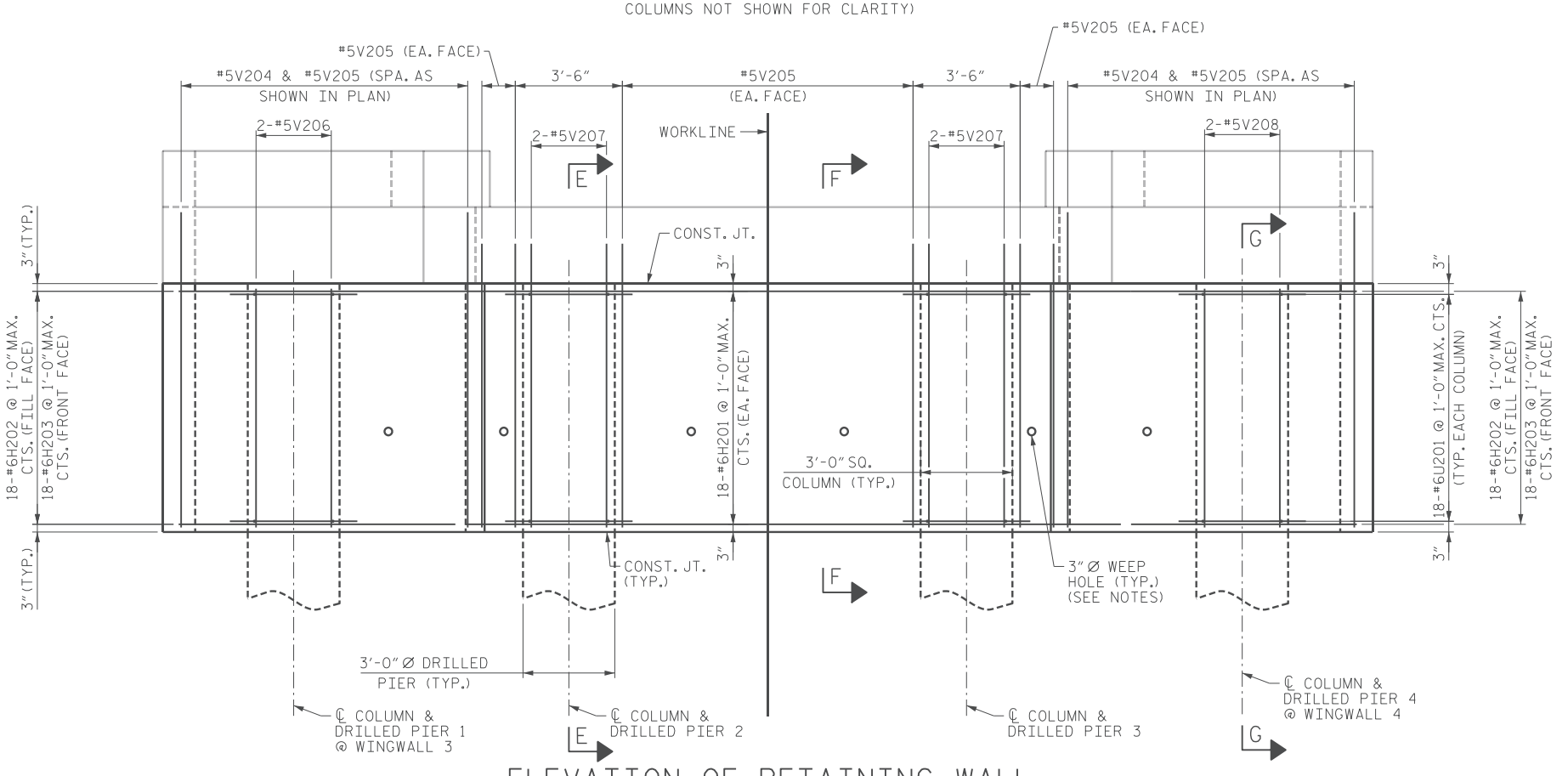
DES BY:	J. PATT	DATE :	11/25
DES CHK:	K. DICKENS	DATE :	11/25
DWG BY:	M. SELLS	DATE :	12/25
CHK BY:	G. MYERS	DATE :	12/25



PLAN OF RETAINING WALL

(DRILLED PIERS AND MAIN REINFORCEMENT FOR DRILLED PIERS AND COLUMNS NOT SHOWN FOR CLARITY)



ELEVATION OF RETAINING WALL

NOTES

FOR SECTIONS E-E, F-F & G-G, SEE SHEET 4 OF 5.

FOR DETAIL "B", SEE SHEET 5 OF 5.

FOR ELEVATION OF WEEPHOLE, SEE SECTION F-F ON SHEET 4 OF 5.

⊞ = 4-#5V205 @ 9" CTS. (FRONT FACE) (TYP. COL. 2 & 3)

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2 RETAINING WALL LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

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DES BY: J. PATT	DATE: 11/25	DWG BY: M. SELLS	DATE: 12/25
DES CHK: G. MYERS	DATE: 12/25	CHK BY: G. MYERS	DATE: 12/25

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USER: MSELLS DATE: 1/6/2026 TIME: 12:24:20 PM
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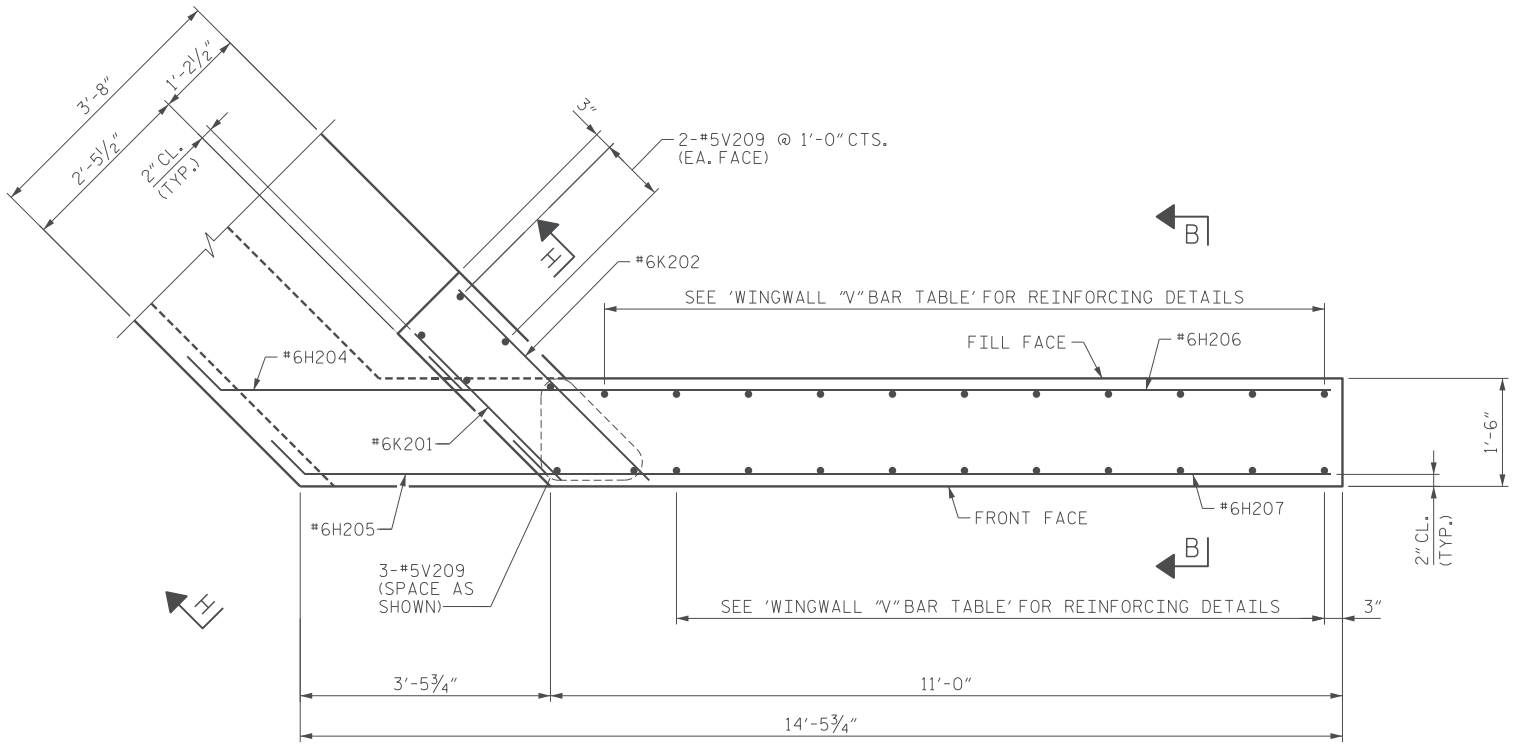
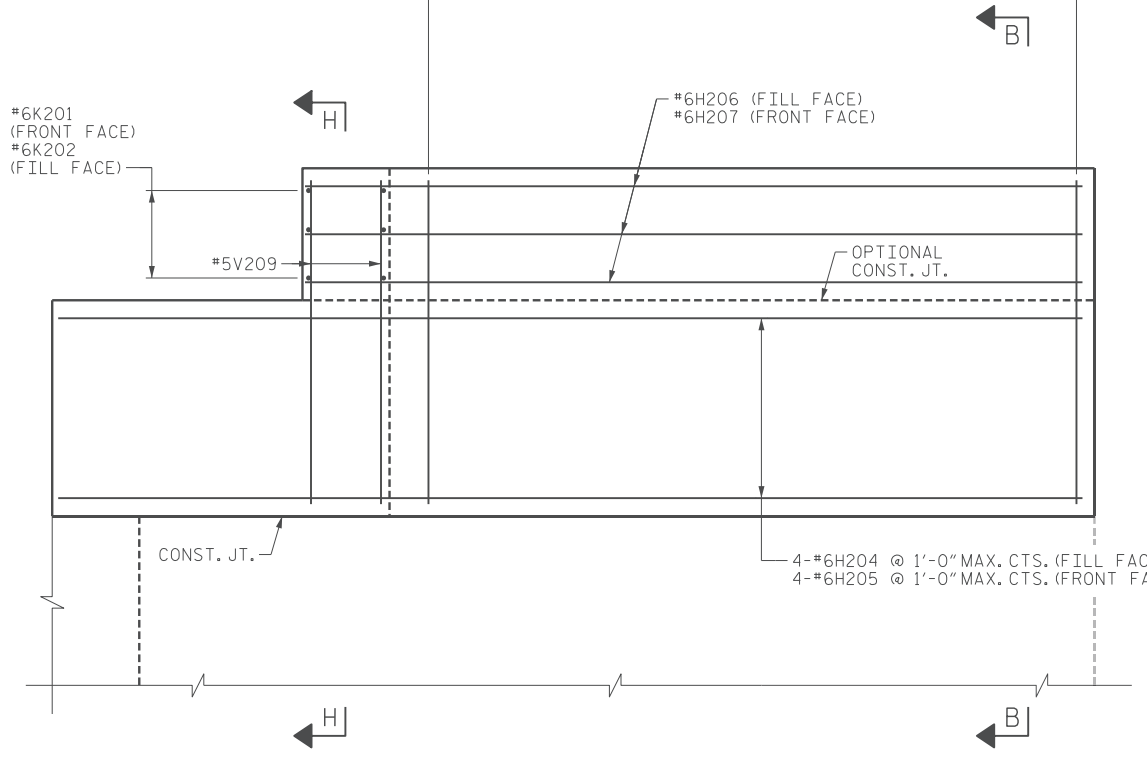
WINGWALL "V" BAR TABLE		
LOCATION	FRONT FACE	FILL FACE
WINGWALL 3	10-#5V210 @ 1'-0" CTS.	11-#5V210 @ 1'-0" CTS.
WINGWALL 4	10-#5V211 @ 1'-0" CTS.	11-#5V211 @ 1'-0" CTS.



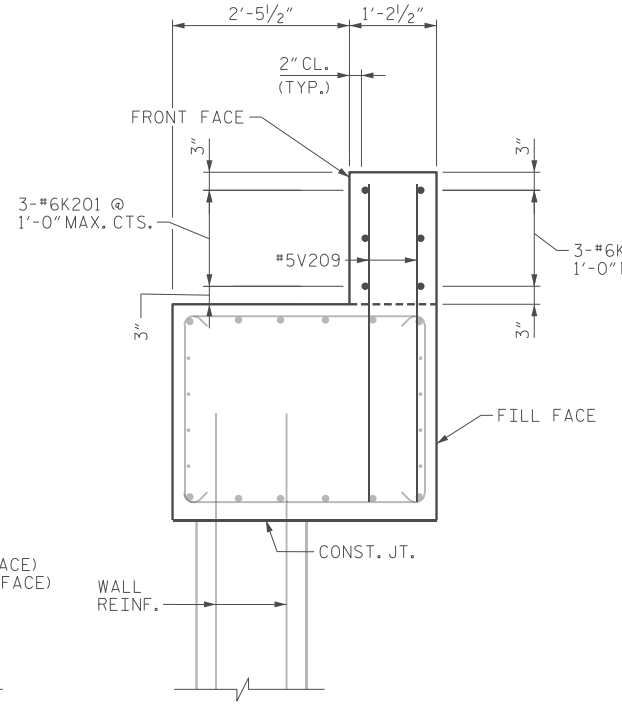
PLAN OF WING

(WING W4 SHOWN, WING W3 OPPOSITE HAND)
(DRILLED PIER AND COLUMN NOT SHOWN FOR CLARITY)

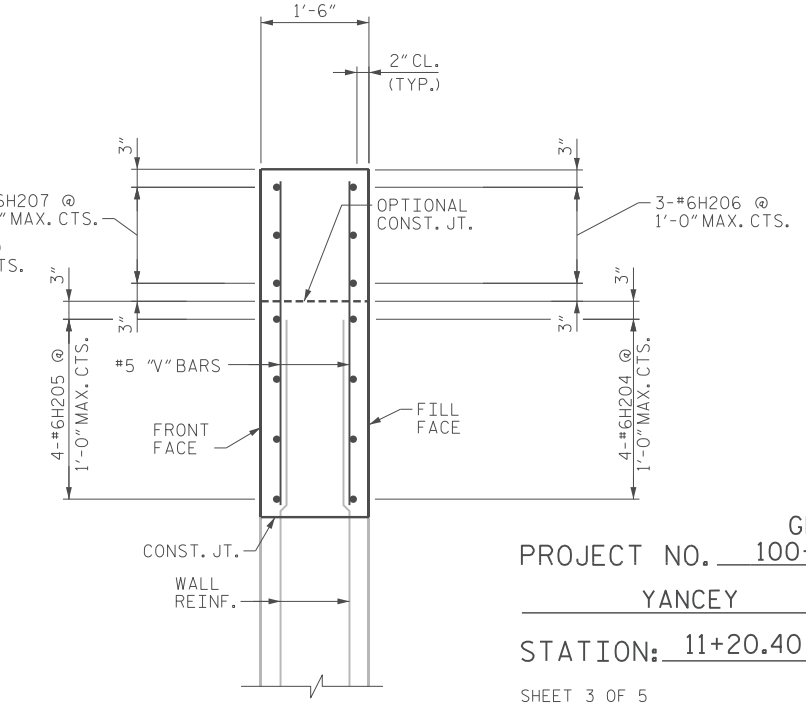


ELEVATION OF WING

(WING W4 SHOWN, WING W3 OPPOSITE HAND)
(COLUMN NOT SHOWN FOR CLARITY)



SECTION H-H



SECTION B-B

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2 WINGWALL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 6

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

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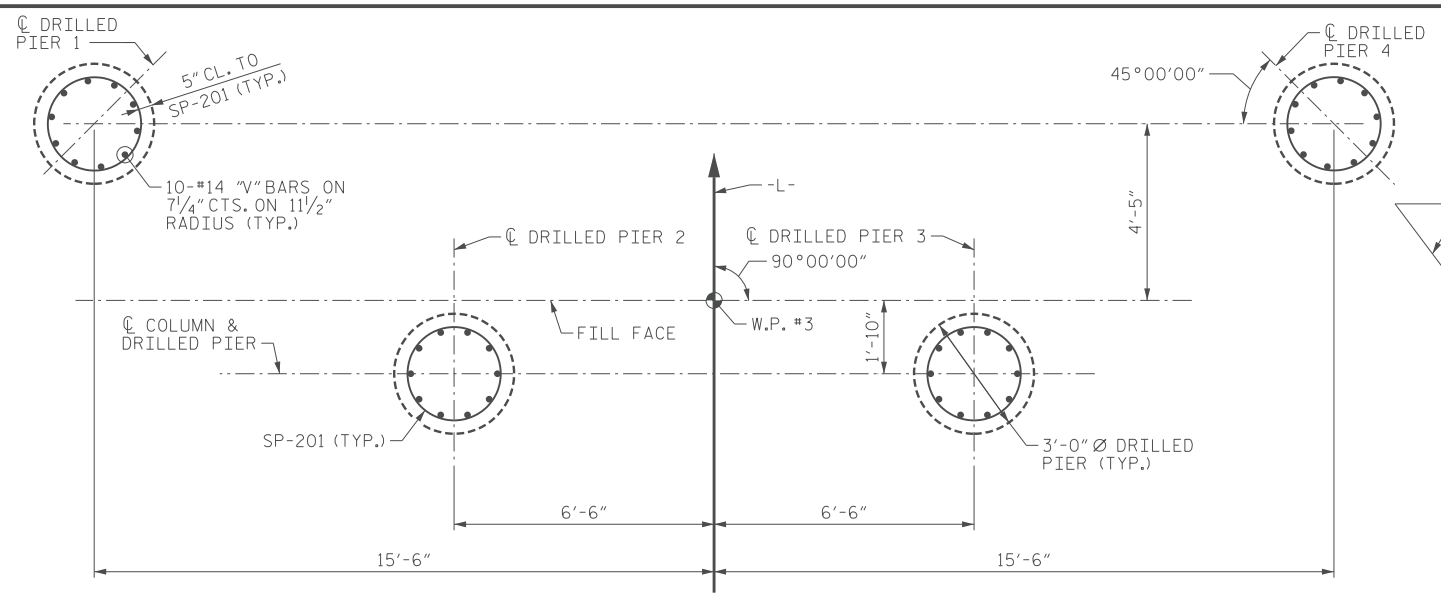
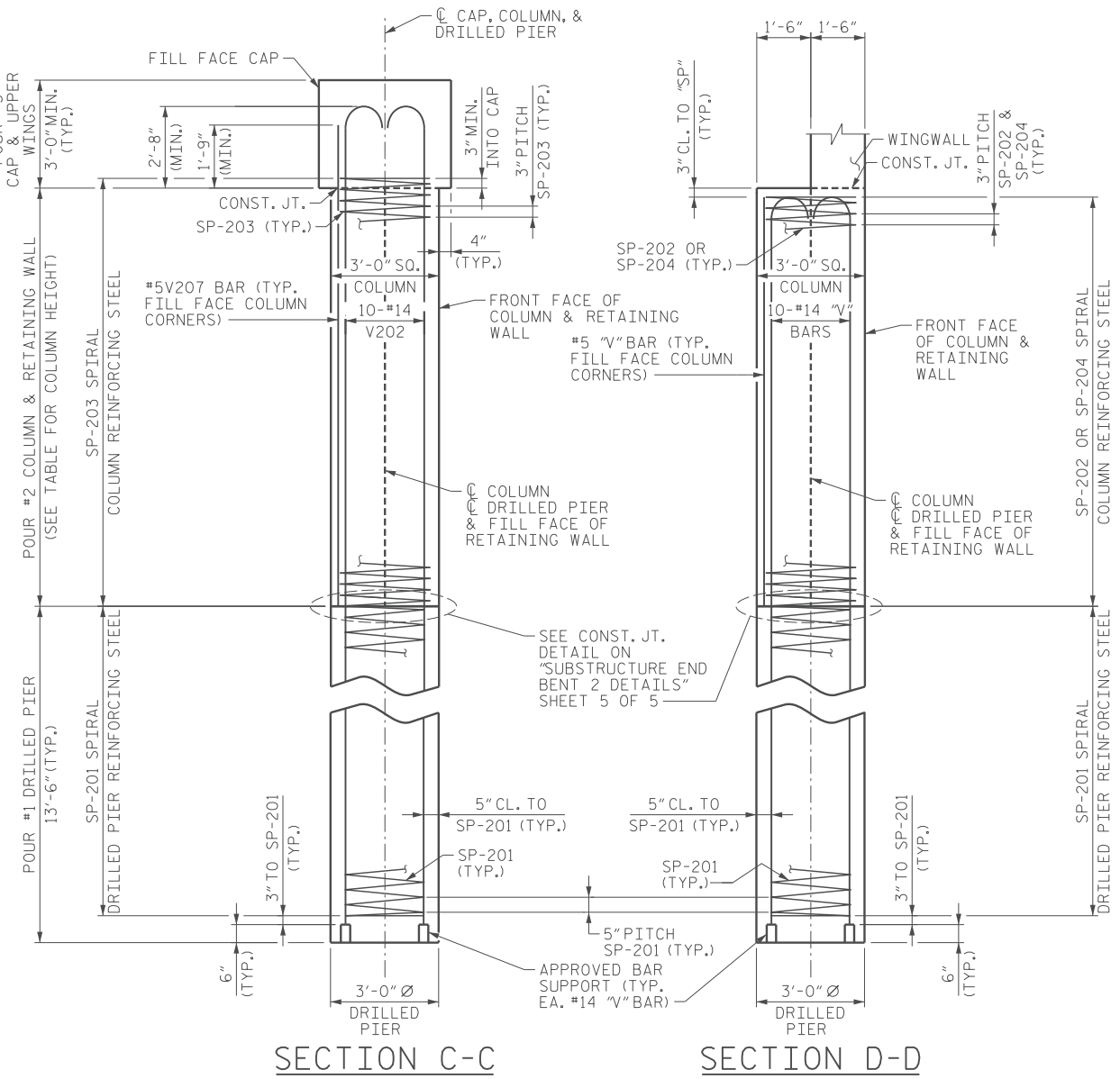
DES CHK: G. MYERS	DATE: 12/25	CHK BY: G. MYERS	DATE: 12/25

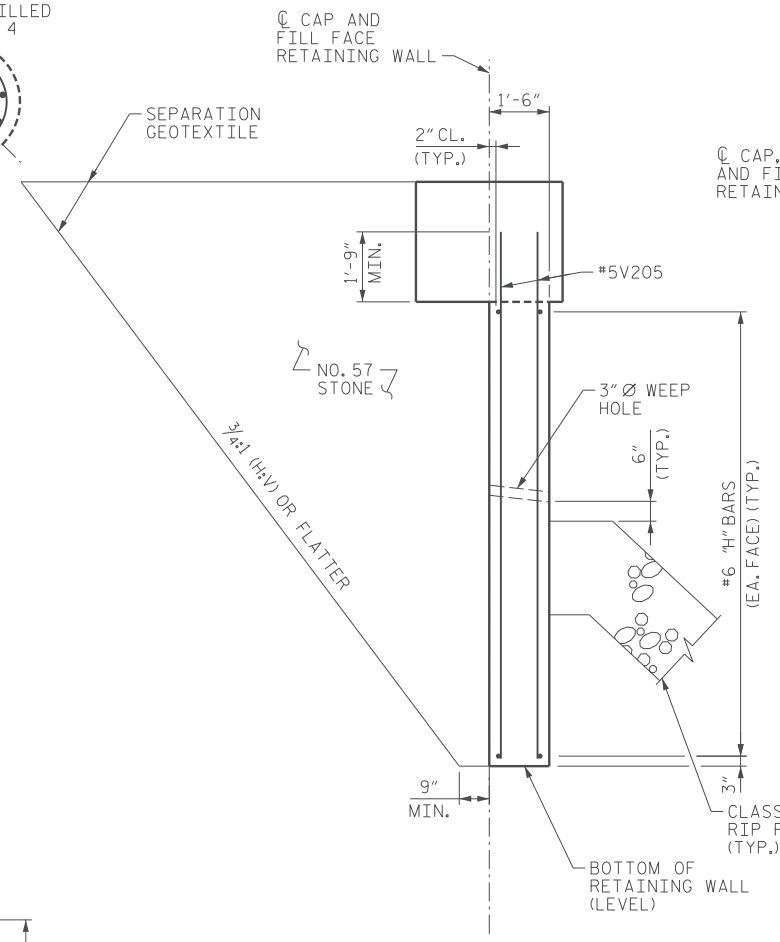


PLAN OF DRILLED PIERS

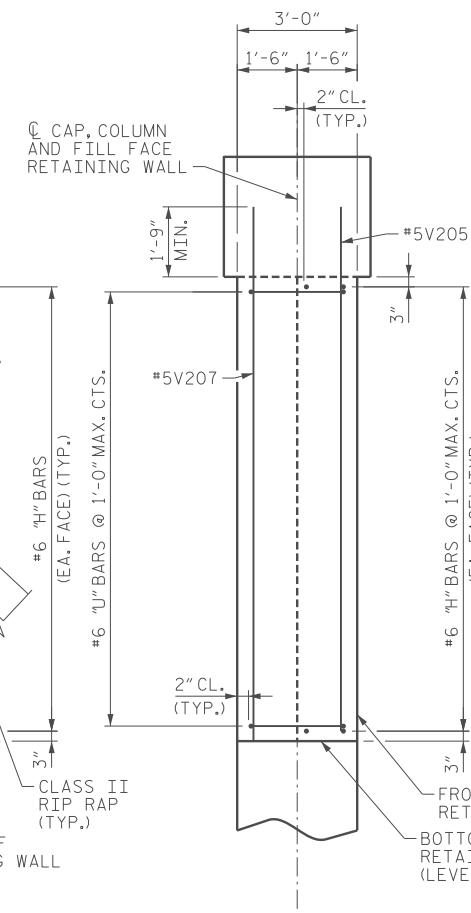


SECTION C-C

SECTION D-D



SECTION F-F



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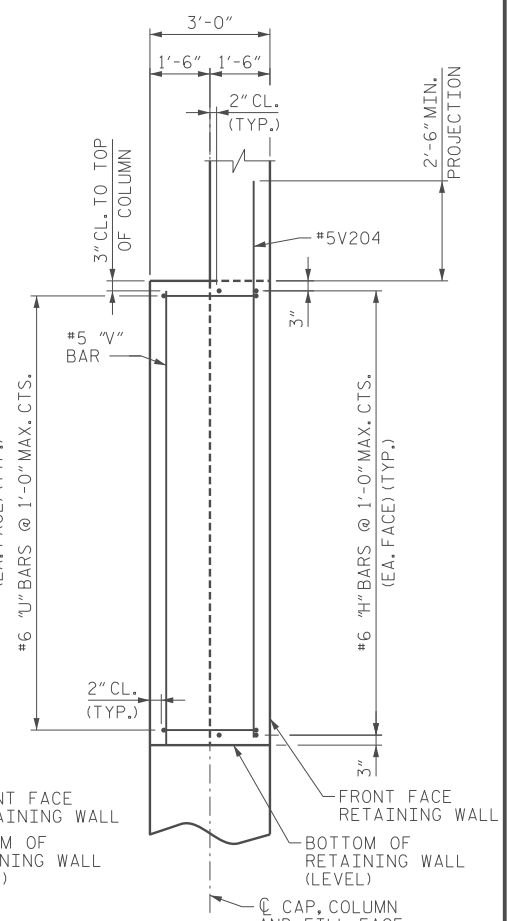
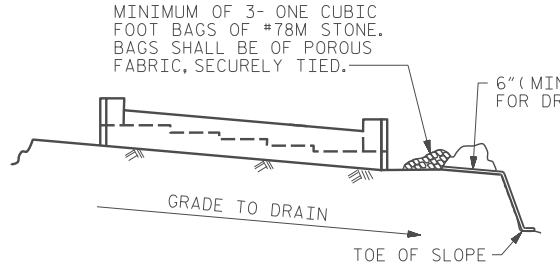


SECTION G-G



BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

COLUMN HEIGHTS	
COLUMN NO.	HEIGHT
1	17'-4 5/16"
2	17'-3 1/2"
3	17'-1 11/16"
4	16'-10 9/16"

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2 DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E Myers 6

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

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REVISIONS						SHEET NO. 5-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

DES BY: J. PATT DATE: 10/25
DES CHK: K. DICKENS DATE: 11/25
DWG BY: M. SELLS DATE: 12/25
CHK BY: G. MYERS DATE: 12/25

PLOT DRIVER: NCDOT STRUCTURES DEFAULT PLOTTER.plt PENTABLE: NCDOT STRUCTURES DEFAULT PEN.tbl
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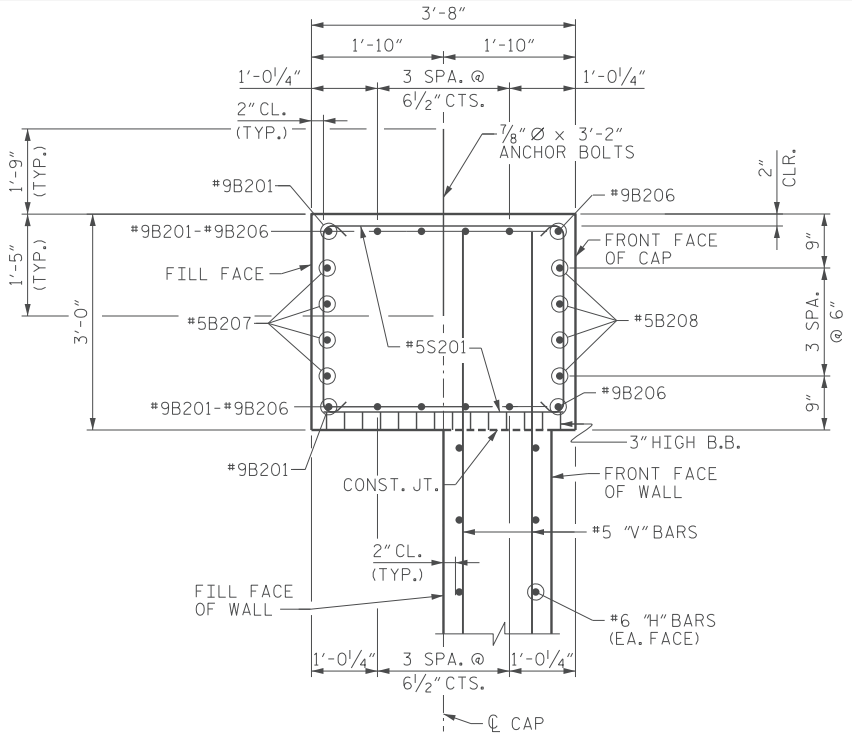
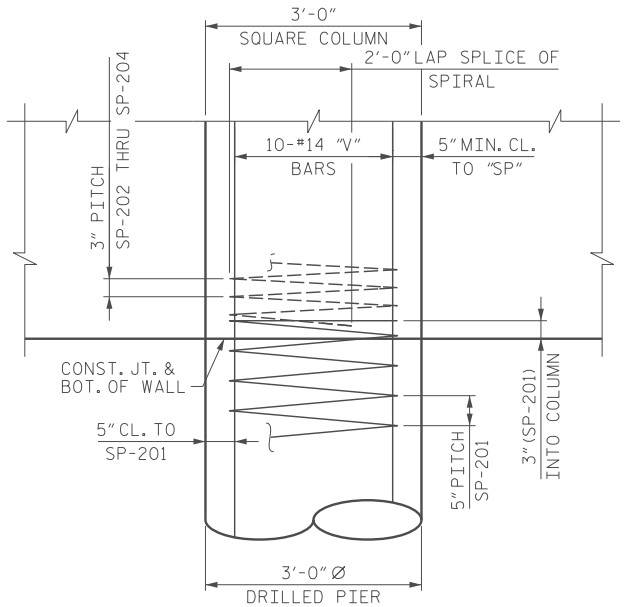
FILE: ...\CAD\Plan Production Set\19

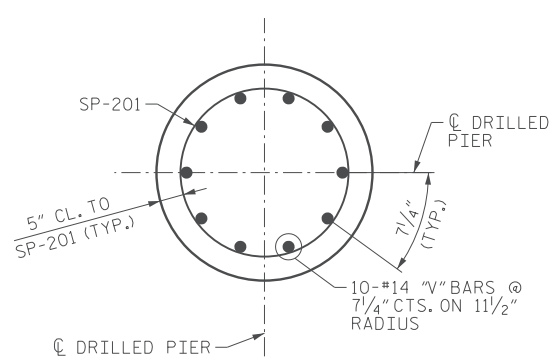


SECTION A-A



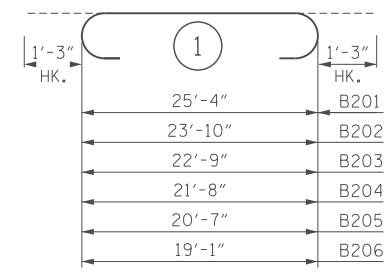
CONSTRUCTION JOINT DETAIL

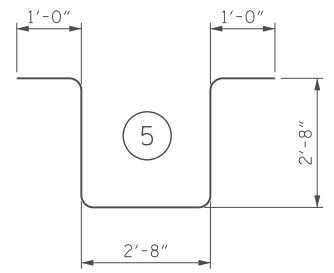
(WALL REINFORCEMENT NOT SHOWN FOR CLARITY)

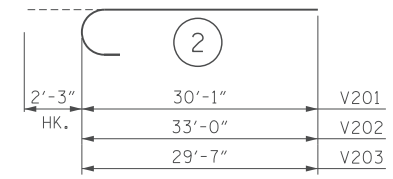


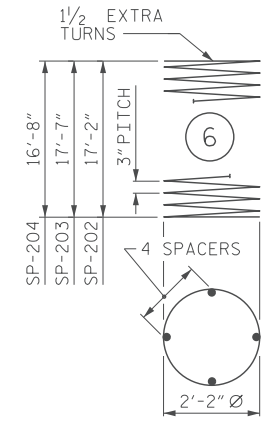
SECTION THRU DRILLED PIER

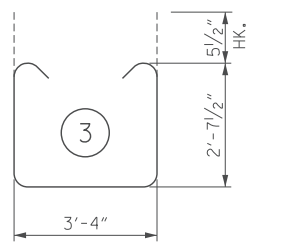
BAR TYPES

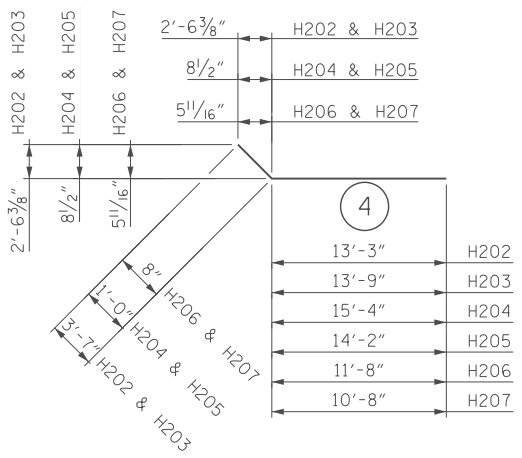


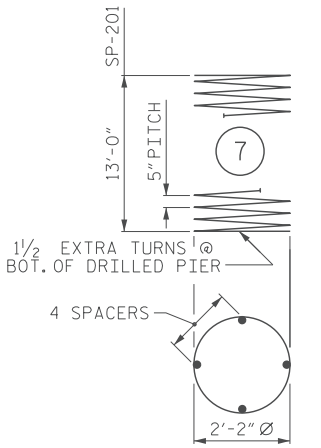












ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B201	2	#9	1	27'-10"	189
B202	2	#9	1	26'-4"	179
B203	2	#9	1	25'-3"	172
B204	2	#9	1	24'-2"	164
B205	2	#9	1	23'-1"	157
B206	2	#9	1	21'-7"	147
B207	4	#5	STR	25'-4"	106
B208	4	#5	STR	19'-2"	80
H201	36	#6	STR	19'-7"	1059
H202	36	#6	4	16'-10"	910
H203	36	#6	4	17'-4"	937
H204	8	#6	4	16'-4"	196
H205	8	#6	4	15'-2"	182
H206	6	#6	4	12'-4"	111
H207	6	#6	4	11'-4"	102
K201	6	#6	STR	2'-7"	23
K202	6	#6	STR	3'-5"	31
S201	21	#5	3	9'-6"	208
U201	72	#6	5	10'-0"	1081
V201	10	#14	2	32'-4"	2474
V202	20	#14	2	35'-3"	5393
V203	10	#14	2	31'-10"	2435
V204	42	#5	STR	19'-9"	865
V205	46	#5	STR	19'-2"	920
V206	2	#5	STR	17'-1"	36
V207	4	#5	STR	18'-9"	78
V208	2	#5	STR	16'-7"	35
V209	14	#5	STR	4'-0"	58
V210	21	#5	STR	4'-7"	100
V211	21	#5	STR	4'-10"	106
TOTAL					18,534 LBS.

SPIRAL COLUMN REINFORCING STEEL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
SP-201	4	*	7	217'-8"	908
SP-202	1	**	6	468'-10"	313
SP-203	2	**	6	479'-11"	641
SP-204	1	**	6	455'-5"	304
TOTAL					2,166 LBS.

CLASS A CONCRETE BREAKDOWN

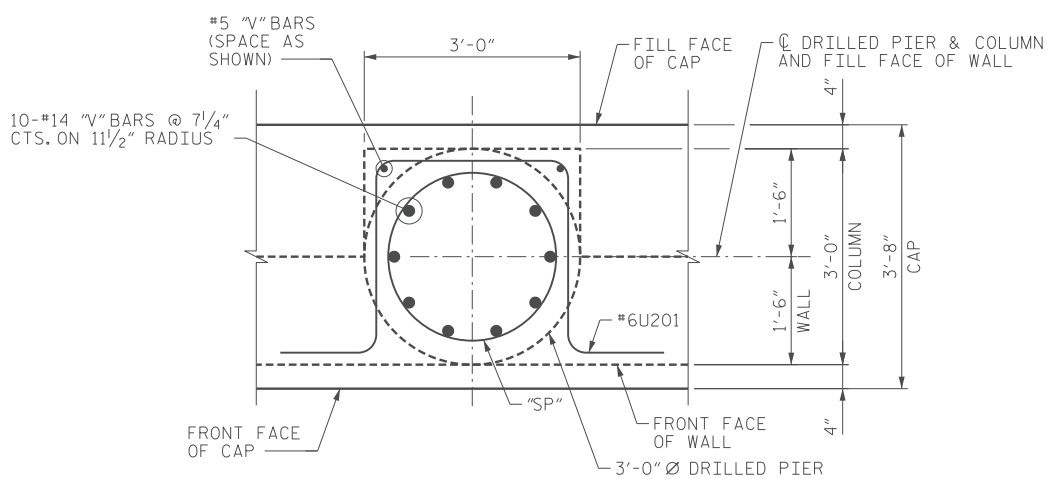
POUR #2 (COLUMNS & RETAINING WALL)	57.0 C.Y.
POUR #3 (CAP & UPPER WINGS)	16.1 C.Y.
TOTAL CLASS A CONCRETE	73.1 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE POUR #1 (DRILLED PIERS)	14.0 C.Y.

* THE SP-201 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR

** THE SP-202 THRU SP-204 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR



DETAIL "B"

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE END BENT 2 DETAILS AND BILL OF MATERIAL

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS 21
2	--	--	4	--	--	

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E. MYERS

Gregory E. Myers 6

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
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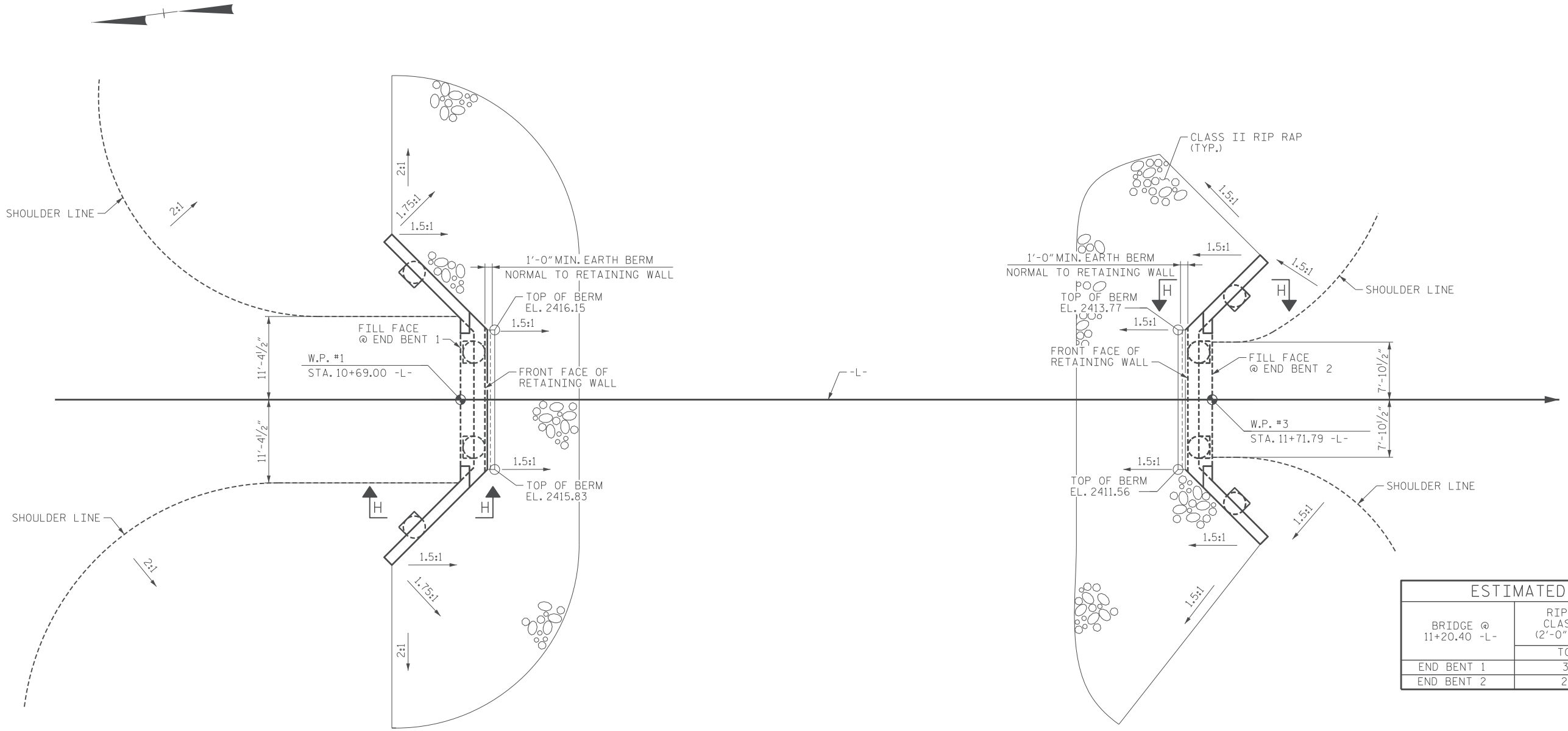
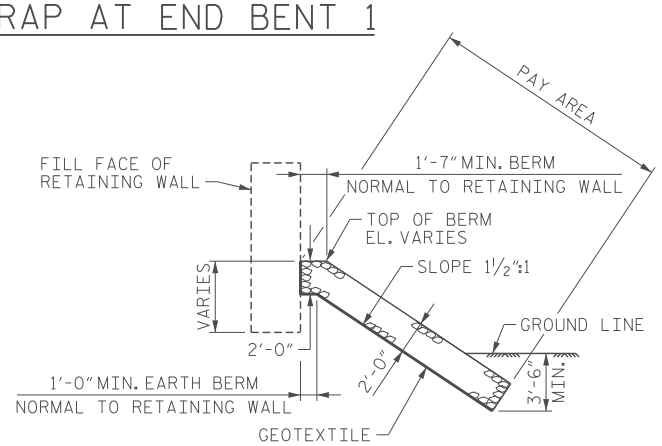
DES CHK:	K. DICKENS	DATE :	11/25
DWG BY:	M. SELLS	DATE :	12/25
CHK BY:	G. MYERS	DATE :	12/25



ESTIMATED QUANTITIES		
BRIDGE @ 11+20.40 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	315	350
END BENT 2	205	230

RIP RAP AT END BENT 1



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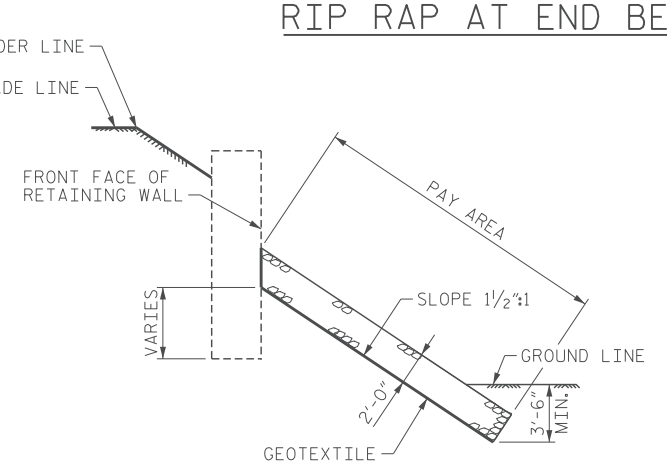
RIP RAP AT END BENT 2



SECTION H-H

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 049352 ENGINEER GREGORY E MYERS

Gregory E. Myers 1/26/2026

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1	--	--	3	--	--	TOTAL SHEETS
2	--	--	4	--	--	21

DES BY: A. AMBROSI	DATE: 12/25	DWG BY: D. CARTER	DATE: 12/25
DES CHK: G. MYERS	DATE: 12/25	CHK BY: G. MYERS	DATE: 12/25

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
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USER: DCARTER DATE: 12/23/2025
FILE: ...\CAD\Plan Production Set\21

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TIME: 2:01:09 PM

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. GROW NC 100-01-00205

YANCEY COUNTY

STATION: 11+20.40 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

REVISIONS						SHEET NO. SN
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	--	--	3	--	--	TOTAL SHEETS SN
2	--	--	4	--	--	

DWG BY: B. PETERSON DATE: 09/25
CHK BY: G. MYERS DATE: 12/25

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STD. NO. SN

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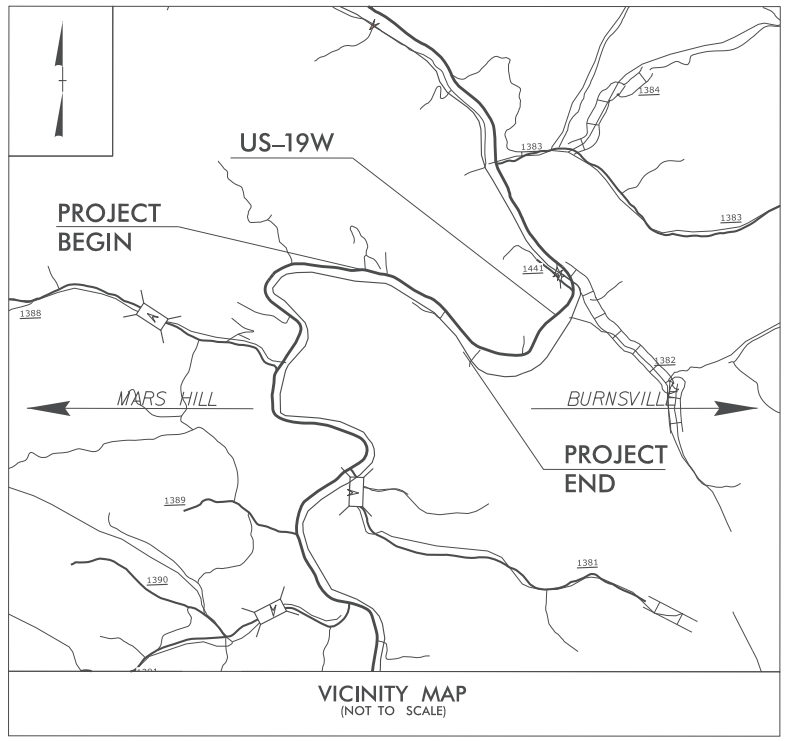
ENGINEER:
HDR Engineering Inc. of the Carolinas
440 S. Church St. Suite 1200
Charlotte, NC 28202-2075
704.338.8700

NCBELS License Number F-0116

RESPONSIBLE FOR MAINTENANCE:
NAME:
PH:
FAX:
EMAIL:



VICINITY MAP
(NOT TO SCALE)

Bid Drawings For

NORTH CAROLINA DPS

ROADWAY IMPROVEMENTS

Roadway Erosion Control Plans

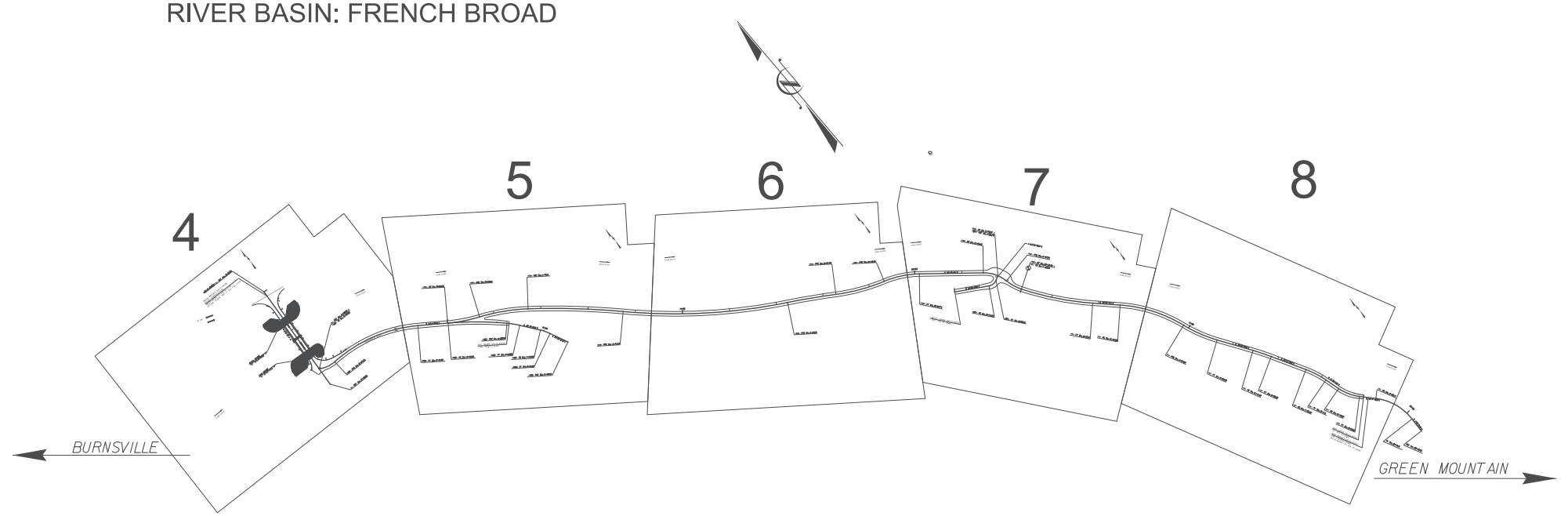
Project No.
100-01-00205

35.952849, -82.389463

ISSUED FOR PERMITTING - 05-07-2026

LIMITS OF DISTURBANCE = 2.76 ACRES

RIVER BASIN: FRENCH BROAD



2024 NCDOT STANDARD SPECIFICATIONS

GRAPHIC SCALE
0 20
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARMENT OF ENVIROMENTAL QUALITY DIVISION OF ENERGY, MINERAL AND LAND RESOURCES

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1200
Charlotte, NC 28202-2075
704.338.8700

NCBELS License Number F-0116

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–01
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

REVISIONS

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NORTH CAROLINA
STATE PORTS AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–02
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

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1607.01	Gravel Construction Entrance	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
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	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC-02A
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

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

- Temporary grass seed covered with straw or other mulches and tackifiers
- Hydroseeding
- Rolled erosion control products with or without temporary grass seed
- Appropriately applied straw or other mulch
- Plastic sheeting
- Permanent grass seed covered with straw or other mulches and tackifiers
- Geotextile fabrics such as permanent soil reinforcement matting
- Hydroseeding
- Shrubs or other permanent plantings covered with mulch
- Uniform and evenly distributed ground cover sufficient to restrain erosion
- Structural methods such as concrete, asphalt or retaining walls
- Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

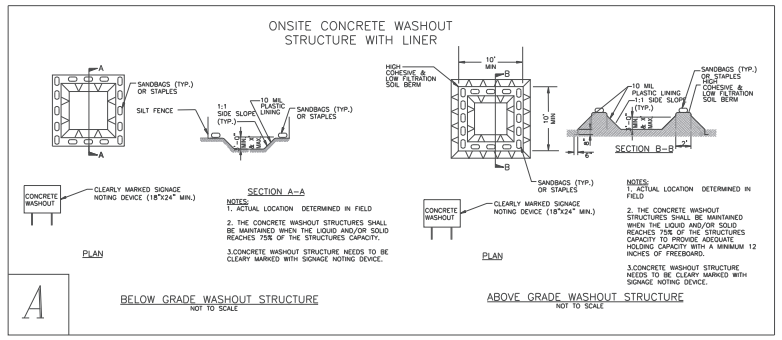
1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC-02B
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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item I(b)-(c) above	• ***Within 24 hours,*** an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(1)(7)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

REVISIONS

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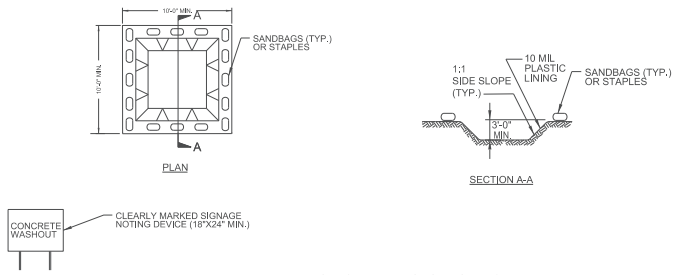
100–01–00205	EC–02C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

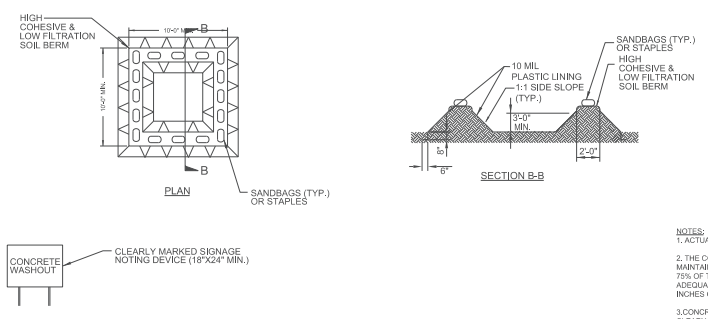
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



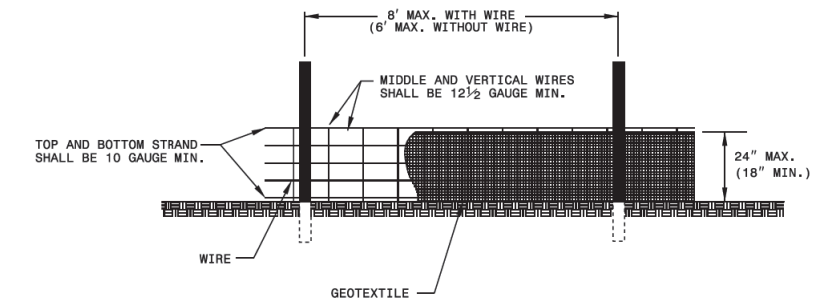
BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

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.



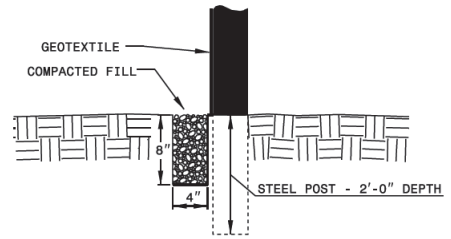
NOTES

USE GEOTEXTILE A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE POSTS AND WIRE AS DIRECTED.

USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 5 LINE WIRES WITH 12" VERTICAL SPACING.

PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.

FOR MECHANICAL SLICING METHOD INSTALLATION, GEOTEXTILE SHALL BE A MAXIMUM OF 18" ABOVE GROUND SURFACE.



EXTENSION OF GEOTEXTILE AND WIRE INTO TRENCH

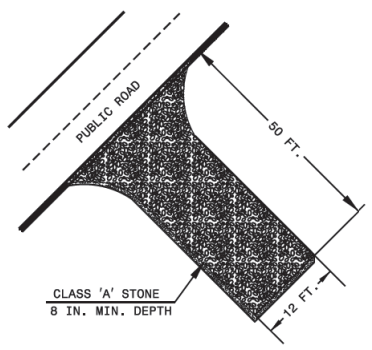
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-24

ROADWAY STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01

NOTES

1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE.



NOTE: PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE

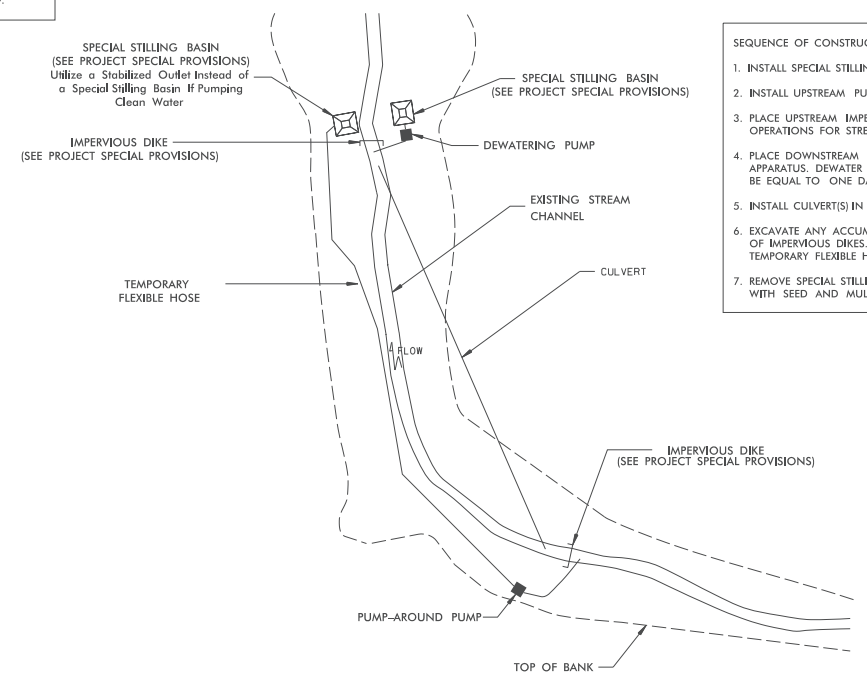
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-24

ROADWAY STANDARD DRAWING FOR
GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1
1607.01

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 and maintain stream bypass flow.



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.

REVISIONS

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USER: DWAGNER
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USER: DWAGNER DATE: 5/12/2026 TIME: 11:27:28 AM
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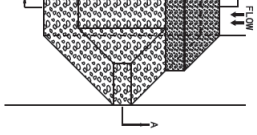
REVISIONS



SECTION A-A

SECTION B-B

NOTES

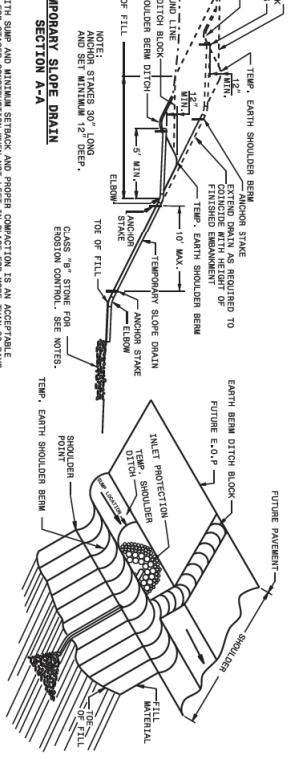
USE CLASS B EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

TEMPORARY ROCK SILT CHECK TYPE A

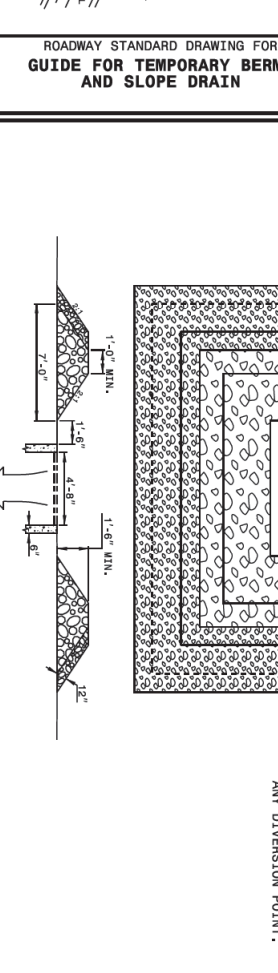
ROADWAY STANDARD DRAWING FOR

1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

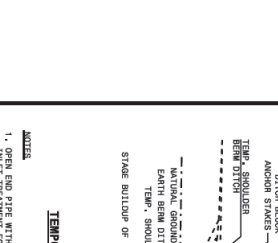
SHEET 1 OF 1 **1633.01**



INLET PROTECTION OPTION #1



INLET PROTECTION OPTION #2



TEMPORARY SLOPE DRAIN SECTION A-A

NOTES:
1. OPEN END PIPE WITH SUMP AND MINIMUM SETBACK AND PROPER COMPACTION IS AN ACCEPTABLE INLET TREATMENT FOR STAGED CONSTRUCTION WHEN NOT LEFT IN PLACE FOR MORE THAN 30 DAYS.
2. A TEMPORARY SLOPE DRAIN SHALL BE INSTALLED FOR MULTI-DIRECTION FLOW AND ELBOWS FOR SINGLE-DIRECTION FLOW AS DIRECTED.
3. EXTEND SLOPE DRAINS TO BOTTOM OF SLOPE. SEDIMENT BASINS AND EROSION CONTROL MEASURES.
4. LOCATE SLOPE DRAINS ON UNDISTURBED OR STABILIZED GROUND.
5. USE MAXIMUM SLOPE DRAIN SPACING OF 200 FT MEASURED ALONG TOP OF SLOPE.

INLET PROTECTION OPTION #2

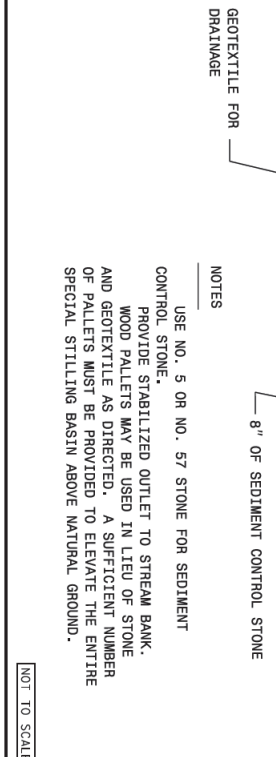
ISOMETRIC VIEW OPTION #1

GUIDE FOR TEMPORARY BERMS AND SLOPE DRAIN

ROADWAY STANDARD DRAWING FOR

1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 1 OF 1 **1622.01**



NOTES

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
PROVIDE STABILIZED OUTLET TO STREAM BANK.
WOOD PALLETS MAY BE USED IN LIEU OF STONE AND GEOTEXTILE AS DIRECTED. A SUFFICIENT NUMBER OF PALLETS MUST BE PROVIDED TO ELEVATE THE ENTIRE SPECIAL STILLING BASIN ABOVE NATURAL GROUND.

NOT TO SCALE

SPECIAL STILLING BASIN

ROADWAY STANDARD DRAWING FOR

1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 1 OF 1 **1630.06**

NOTES

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
USE HARDWARE CLOTH 24 GAUGE WIRE MESH WITH ¼ INCH MESH OPENINGS.
INSTALL 5 FT. SELF FASTENER ANGLE STEEL POST 2 FT. DEEP MINIMUM.
ATTACH HARDWARE CLOTH TO POSTS WITH WIRE STAPLE OR OTHER ACCEPTABLE METHODS.
SPACE POSTS A MAXIMUM OF 3 FT.
FOR INSTALLATION BETWEEN SECTIONS OF SILT FENCE, EXTEND SEDIMENT CONTROL STONE A MINIMUM OF 12" ON EACH SIDE OF SPECIAL SEDIMENT CONTROL FENCE SECTION.

SPECIAL SEDIMENT CONTROL FENCE

ROADWAY STANDARD DRAWING FOR

1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 1 OF 1 **1606.01**

SECTION A-A

NOTES

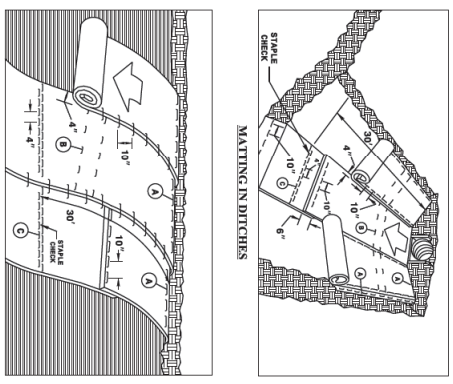
CLEAN SEDIMENT WHEN 1/2 FULL AND AS DIRECTED.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE. USE CLASS A STONE FOR STRUCTURAL STONE.
CONSTRUCT TOP OF BERM A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.

ROCK INLET SEDIMENT TRAP TYPE B

ROADWAY STANDARD DRAWING FOR

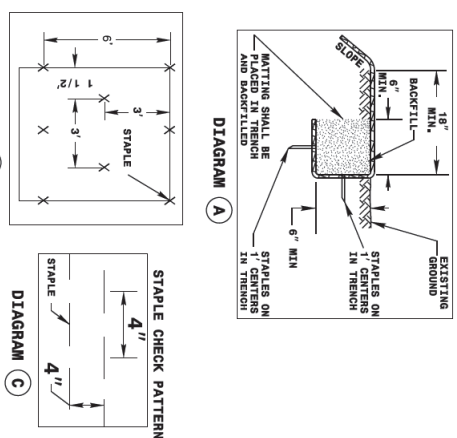
1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 1 OF 1 **1632.02**



NOTES

THIS DETAIL APPLIES TO STREAM, EXCELSIOR, COTH FIBER MAT AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION AND AS DIRECTED.
STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.
TRENCH ALL UPSLOPE EDGES OF MATTING THAT ARE NOT OVERLAPPED BY ANOTHER SECTION OF MATTING.



STAPLE CHECK PATTERN

NOT TO SCALE

MATTING INSTALLATION

ROADWAY STANDARD DRAWING FOR

1-24 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 1 OF 1 **1631.01**

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO. 100-01-00205 SHEET NO. EC-02D
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-03
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NORTH CAROLINA
STATE PORTS AUTHORITY

SOIL STABILIZATION SUMMARY SHEET

MATTING IN DITCHES - EXCELSIOR

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
6	-Y1A-	16+00	17+75	RT	205
MATTING FOR DITCHES - EXCELSIOR SUBTOTAL					205

COIR FIBER MATTING ON SLOPES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+25	10+70	RT	170
4	-L-	10+40	10+70	LT	120
4	-L-	11+70	11+80	LT	35
4	-L-	11+70	11+90	RT	70
4	-Y6B-	10+25	10+75	LT	175
5	-Y6B-	13+75	14+25	LT	150
6-7	-Y1A-	19+00	22+25	LT	1130
7	-Y1-	11+33	13+75	LT	660
8	-Y1-	14+25	14+75	LT	150
8	-Y1-	14+25	14+50	RT	40
8	-Y1-	16+25	16+50	LT	60
8	-Y1-	18+25	18+50	LT	50
	MATTING SUBTOTAL FOR SLOPES				2810
	MATTING SUBTOTAL FOR DITCHES				205
	MISC. MATTING AS DIRECTED BY ENGINEER				7500
				TOTAL	10310
				SAY	11000

REVISIONS

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NORTH CAROLINA
STATE PORTS AUTHORITY

SOIL STABILIZATION TIMEFRAMES

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-03A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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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 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

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–04/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

REVISIONS

(100–01–00205) –L– POT Sta. 10+00.00

BEGIN PROJECT 100–01–00205
BEGIN CONSTRUCTION
100–01–00205 –L– STA. 10+11.05 =
US 19W SOUTH PDB –L– STA. 240+73.85

US 19W

240+00

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

BEGIN BRIDGE
–L– STA. 10+69.00 +/–

END BRIDGE
–L– STA. 11+71.79 +/–

FLOATING TURBIDITY CURTAIN

CANE RIVER

CANE RIVER

–L– POT Sta. 12+00.00 =
–Y6B– PC Sta. 10+00.00

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO–TEXTILE

S 4°36'23.5"W

151' RCP LV

AT–1

–Y6B–
SWEETBIRCH ROAD

GRADE TO DRAIN
0201

LIMITS OF DISTURBANCE (TYP.)

–Y6B– PRC Sta. 10+37.23

–L– POT Sta. 12+40.00

MATCHLINE –Y6B– STA. 12+00.00,
SEE SHEET 3A

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

FOR –L– PROFILE, SEE SHEET 7
FOR –Y6A– PROFILE, SEE SHEET 7
FOR –Y6B– PROFILE, SEE SHEET 7

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NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-05/CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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N.C.B.E.L.S. License Number: F-0116

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

CANE RIVER

CANE RIVER

-Y1A- PC Sta. 10+00.00

-Y1A- PRC Sta. 10+69.08

-Y1A- PCC Sta. 11+73.15

MATCHLINE -Y6B- STA. 12+00.00, SEE SHEET 2

-Y6B-

S 54° 41' 06.8" E

-Y6B- PT Sta. 12+31.58

-Y6B- PC Sta. 12+96.05

-Y6B- PCC Sta. 14+20.70

END GRADE (100-01-00205)
-Y6B- STA. 14+25.00

-Y6B- PT Sta. 14+48.05

-Y6B- PC Sta. 14+93.02

-Y6B- PT Sta. 15+14.43

-Y6B- POT Sta. 15+56.43

S 36° 38' 45.6" E

15+00

S 24° 22' 27.8" E

CLASS 'I' RIP RAP
EST. 15 TONS
30 SY GEO-TEXTILE

0302

36" RCP-IV
BURIED 0.6'

-Y1A-

LIMITS OF DISTURBANCE (TYP.)

0301

SPECIAL 'V' DITCH
SEE DETAIL B

-Y1A- PRC Sta. 13+74.34

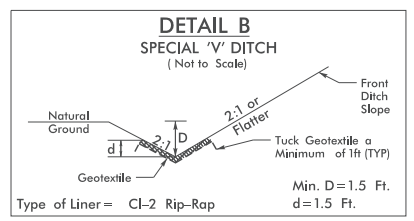
CLASS 'II' RIP RAP
SLOPE PROTECTION
FOR PIPE INLET
EST. 10 TONS
20 SY GEO-TEXTILE

MATCHLINE -Y1A- STA. 14+35.00, SEE SHEET 4

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

DETAIL B
SPECIAL 'V' DITCH
(Not to Scale)



FROM STA. 13+25 TO STA. 14+25 -Y1A- RT

FOR -Y1A- PROFILE, SEE SHEET 8
FOR -Y6B- PROFILE, SEE SHEET 7

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–06/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: THIS SHEET DEPICTS THE POST–STORM AERIAL

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27801
N.C.B.E.L.S. License Number: F-0116

CANE RIVER

CANE RIVER

MATCHLINE –Y1A– STA. 14+35.00, SEE SHEET 3

MATCHLINE –Y1A– STA. 19+85.00, SEE SHEET 5

–Y1A– PRC Sta. 18+27.26

–Y1A– PRC Sta. 19+33.60

–Y1A– PRC Sta. 17+23.91

15+00

-Y1A-

CLASS 'I' RIP RAP
EST. 15 TONS
30 SY GEO–TEXTILE

0402

36" RCP-Y
BURIED 0.6'

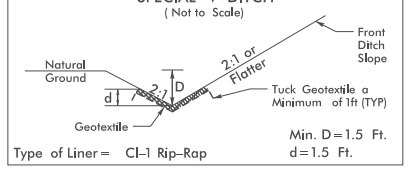
SPECIAL 'V' DITCH
SEE DETAIL A

LIMITS OF DISTURBANCE (TYP.)

0401

CLASS 'I' RIP RAP
SLOPE PROTECTION
FOR PIPE INLET
EST. 10 TONS
20 SY GEO–TEXTILE

DETAIL A
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner= CI–1 Rip–Rap

FROM STA. 16+00 TO STA. 18+00 –Y1A– RT

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR –Y1A– PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: DWAGNER
FILE: \

PENTABLE: NCDOT_EC_C&G.tbl
DATE: 5/12/2026
TIME: 11:27:54 AM

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-07/CONST.07
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

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

FLOATING TURBIDITY CURTAIN

-Y1A- PC Sta. 21+76.87 =
-DR1- POT Sta. 11+03.79

N 63° 22' 09.8" E

-Y1A- PC Sta. 21+45.32

-Y1A- PRC Sta. 21+97.84

-Y1A- PC Sta. 22+34.29 =
-Y1- PC Sta. 11+33.56

CANE RIVER

CANE RIVER

MATCHLINE -Y1A- STA. 19+85.00, SEE SHEET 4

S 50° 43' 46.1" E -Y1A-

20+00

S 59° 46' 48.9" E -DR1-

-Y1-

S 45° 43' 37.1" E -Y1-

LIMITS OF DISTURBANCE (TYP.)

MATCHLINE -Y1- STA. 14+00.00, SEE SHEET 6

-Y1A- PT Sta. 20+09.74

-DR1- PC Sta. 10+73.34

-DR1- PT Sta. 10+93.19

-Y1- PT Sta. 12+87.61

-Y1- PC Sta. 13+45.80

BEGIN GRADE 100-01-00205
-DR1- STA. 10+00.00

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR -Y1- PROFILE, SEE SHEET 8
FOR -Y1A- PROFILE, SEE SHEET 8
FOR -DR1- PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: DWAGNER
FILE: \

PENTABLE: NCDOT_EC_C&G.tbl
DATE: 5/12/2026
TIME: 11:27:59 AM

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–08/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: THIS SHEET DEPICTS THE POST–STORM AERIAL

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 8

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

CANE RIVER

FLOATING TURBIDITY CURTAIN

CANE RIVER

MATCHLINE –Y1– STA. 14+00.00, SEE SHEET 5

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO–TEXTILE
0602

CLASS 'B' RIP RAP
EST. 5 TONS
14 SY GEO–TEXTILE
0604

–Y1– PC Sta. 19+26.14

18" RCP–V BURIED

24" RCP–V

0601

0603

S 29° 12' 23.6" E

S 15° 32' 14.5" E

S 42° 41' 48.0" E

S 33° 26' 49.6" E

15+00

- Y1 -

LIMITS OF DISTURBANCE (TYP.)

GRADE TO DRAIN

–Y1– PRC Sta. 14+87.68

–Y1– PT Sta. 15+65.26

–Y1– PC Sta. 16+44.38

–Y1– PT Sta. 16+85.09

–Y1– PC Sta. 17+63.42

–Y1– PT Sta. 18+11.13

–Y1– PC Sta. 18+43.65

–Y1– PT Sta. 18+91.05

END GRADE 100–01–00205
–Y1– STA. 19+00.00

END PROJECT 100–01–00205
END CONSTRUCTION
100–01–00205 –Y1– STA. 19+10.00

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR –Y1– PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_EC_C&G.tbl
USER: DWAGNER DATE: 5/12/2026 TIME: 11:28:04 AM
FILE: \

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-09/CONST.04
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

(100-01-00205) -L- POT Sta. 10+00.00

BEGIN PROJECT 100-01-00205
BEGIN CONSTRUCTION
100-01-00205 -L- STA. 10+11.05 =
US 19W SOUTH PDB -L- STA. 240+73.85

US 19W

240+00

-L-

S 4° 36' 23.5" W

BEGIN BRIDGE
-L- STA.10+69.00 +/-

END BRIDGE
-L- STA.11+71.79 +/-

FLOATING TURBIDITY CURTAIN

IMPERVIOUS DIKE*

CANE RIVER

CANE RIVER

-L- POT Sta. 12+00.00 =
-Y6B- PC Sta. 10+00.00

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO-TEXTILE

75" RCP FLY

-Y6B-
SWEETBIRCH ROAD

GRADE TO DRAIN
0201

LIMITS OF DISTURBANCE (TYP.)

-Y6B- PRC Sta. 10+37.23

-L- POT Sta. 12+40.00

MATCHLINE -Y6B- STA. 12+00.00,
SEE SHEET 3A

FOR -L- PROFILE, SEE SHEET 7
FOR -Y6A- PROFILE, SEE SHEET 7
FOR -Y6B- PROFILE, SEE SHEET 7

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt PENTABLE: NCDOT_EC_FINAL.tbl
USER: DWAGNER DATE: 5/12/2026 TIME: 11:28:11 AM
FILE: \

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-10 CONST.05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

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

CANE RIVER

CANE RIVER

-Y1A- PC Sta. 10+00.00

-Y1A- PRC Sta. 10+69.08

-Y1A- PCC Sta. 11+73.15

MATCHLINE -Y6B- STA. 12+00.00, SEE SHEET 2

-Y6B-

S 54° 41' 06.8" E

-Y6B- PT Sta. 12+31.58

-Y6B- PC Sta. 12+96.05

-Y6B- PCC Sta. 14+20.70

END GRADE (100-01-00205)
-Y6B- STA. 14+25.00

-Y6B- PT Sta. 14+48.05

-Y6B- PC Sta. 14+93.02

-Y6B- PT Sta. 15+14.43

-Y6B- POT Sta. 15+56.43

S 36° 38' 45.6" E

15+00

S 24° 22' 27.8" E

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

CLASS 'I' RIP RAP
EST. 15 TONS
30 SY GEO-TEXTILE

0302

36" RCP-IV
BURIED 0.6'

-Y1A-

LIMITS OF DISTURBANCE (TYP.)

0301

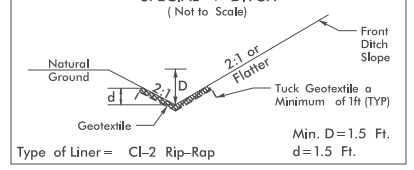
SPECIAL 'V' DITCH
SEE DETAIL B

-Y1A- PRC Sta. 13+74.34

CLASS 'II' RIP RAP
SLOPE PROTECTION
FOR PIPE INLET
EST. 10 TONS
20 SY GEO-TEXTILE

MATCHLINE -Y1A- STA. 14+35.00, SEE SHEET 4

DETAIL B
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner= CI-2 Rip-Rap

FROM STA. 13+25 TO STA. 14+25 -Y1A- RT

FOR -Y1A- PROFILE, SEE SHEET 8
FOR -Y6B- PROFILE, SEE SHEET 7

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.pltPENTABLE: NCDOT_EC_FINAL.tbl
USER: DWAGNER DATE: 5/12/2026 TIME: 11:28:14 AM
FILE: \

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-11/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

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

CANE RIVER

CANE RIVER

MATCHLINE -Y1A- STA. 14+35.00, SEE SHEET 3

MATCHLINE -Y1A- STA. 19+85.00, SEE SHEET 5

-Y1A- PRC Sta. 18+27.26

-Y1A- PRC Sta. 19+33.60

-Y1A- PRC Sta. 17+23.91

15+00

-Y1A-

CLASS 'I' RIP RAP
EST. 15 TONS
30 SY GEO-TEXTILE

0402

36" RCP
BURIED 0.5'

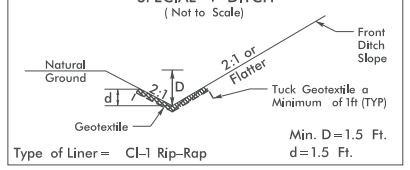
0401

CLASS 'I' RIP RAP
SLOPE PROTECTION
FOR PIPE INLET
EST. 10 TONS
20 SY GEO-TEXTILE

SPECIAL 'V' DITCH
SEE DETAIL A

LIMITS OF
DISTURBANCE (TYP.)

DETAIL A
SPECIAL 'V' DITCH
(Not to Scale)



Type of Liner= CI-1 Rip-Rap

FROM STA. 16+00 TO STA. 18+00 -Y1A- RT

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR -Y1A- PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: DWAGNER
FILE: \
PENTABLE: NCDOT_EC_FINAL.tbl
DATE: 5/12/2026
TIME: 11:28:19 AM

NOTE: THIS SHEET DEPICTS THE POST-STORM AERIAL

PROJECT REFERENCE NO.	SHEET NO.
100-01-00205	EC-12/CONST.07
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

FLOATING TURBIDITY CURTAIN

CANE RIVER

CANE RIVER

-Y1A- PC Sta. 21+76.87 =
-DR1- POT Sta. 11+03.79

-Y1A- PC Sta. 21+45.32

N 63° 22' 09.8" E

-Y1A- PRC Sta. 21+97.84

-Y1A- PC Sta. 22+34.29 =
-Y1- PC Sta. 11+33.56

S 50° 43' 46.1" E

-Y1A-

20+00

S 90° 46' 48.9" E

-DR1-

-Y1-

S 45° 43' 37.1" E

-Y1-

LIMITS OF DISTURBANCE (TYP.)

MATCHLINE -Y1A- STA. 19+85.00, SEE SHEET 4

MATCHLINE -Y1- STA. 14+00.00, SEE SHEET 6

-Y1A- PT Sta. 20+09.74

-DR1- PC Sta. 10+73.34

-DR1- PT Sta. 10+93.19

-Y1- PT Sta. 12+87.61

-Y1- PC Sta. 13+45.80

BEGIN GRADE 100-01-00205
-DR1- STA. 10+00.00

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC-02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR -Y1- PROFILE, SEE SHEET 8
FOR -Y1A- PROFILE, SEE SHEET 8
FOR -DR1- PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
USER: DWAGNER
FILE: \
DATE: 5/12/2026
PENTABLE: NCDOT_EC_FINAL.tbl
TIME: 11:28:22 AM

PROJECT REFERENCE NO.	SHEET NO.
100–01–00205	EC–13/CONST.08
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: THIS SHEET DEPICTS THE POST–STORM AERIAL

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

MATCHLINE –Y1– STA. 14+00.00, SEE SHEET 5

FLOATING TURBIDITY CURTAIN

CANE RIVER

CANE RIVER

CLASS 'B' RIP RAP
EST. 2 TONS
7 SY GEO–TEXTILE
0602

CLASS 'B' RIP RAP
EST. 5 TONS
14 SY GEO–TEXTILE
0604

–Y1– PC Sta. 19+26.14

18" RCP–V BURIED 4'

24" RCP–V

0601

0603

GRADE TO DRAIN

LIMITS OF DISTURBANCE (TYP.)

S 29° 12' 23.6" E

S 33° 26' 49.6" E

S 32° 14' 5" E

S 42° 41' 48.0" E

15+00

–Y1– PRC Sta. 14+87.68

–Y1– PT Sta. 15+65.26

–Y1– PC Sta. 16+44.38

–Y1– PT Sta. 16+85.09

–Y1– PC Sta. 17+63.42

–Y1– PT Sta. 18+11.13

–Y1– PC Sta. 18+43.65

–Y1– PT Sta. 18+91.05

END GRADE 100–01–00205
–Y1– STA. 19+00.00

END PROJECT 100–01–00205
END CONSTRUCTION
100–01–00205 –Y1– STA. 19+10.00

CONTRACTOR TO EXCAVATE NO STEEPER THAN 2H:1V SLOPE AT EACH OPEN END PIPE TO MAINTAIN AT LEAST 1' OF COVER BETWEEN THE ROAD SURFACE AND TOP OF PIPE.

ALL JURISDICTION STREAM (JS) FEATURES SHALL UTILIZE A PUMP AROUND OPERATION WHEN INSTALLING PIPE CULVERTS ACCORDING TO DETAIL ON SHEET EC–02C. USE PUMP AROUND OPERATION FOR ALL OTHER CULVERTS TO BE INSTALLED IN DRY CONDITIONS AS WELL.

FOR –Y1– PROFILE, SEE SHEET 8

REVISIONS

PLOT DRIVER: NCDOT.pdf_color_eng_100.plt
USER: DWAGNER
FILE: \

PENTABLE: NCDOT_EC_FINAL.tbl
DATE: 5/12/2026
TIME: 11:28:27 AM

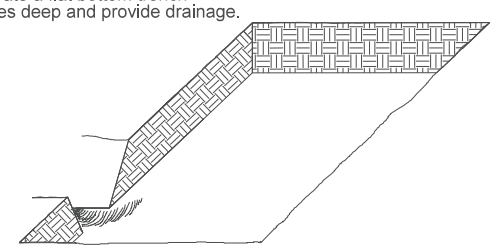
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	100-01-0205	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

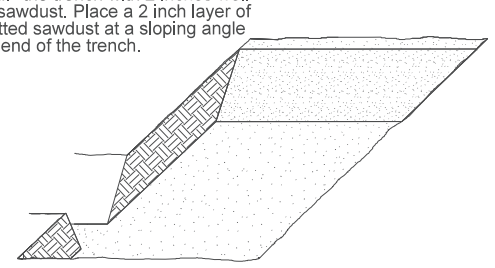
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

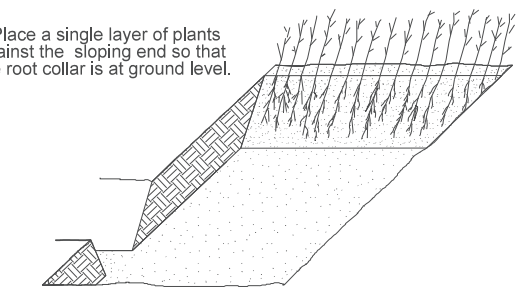
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



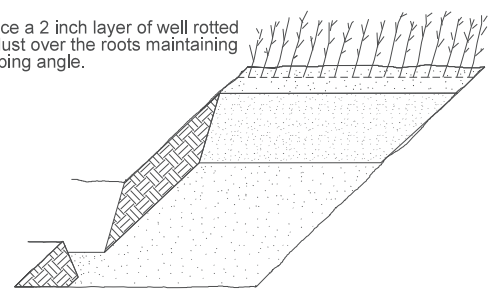
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

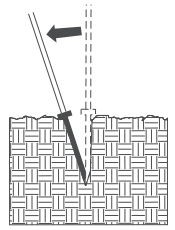


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

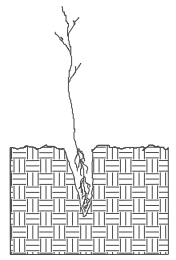


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

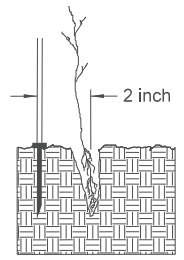
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



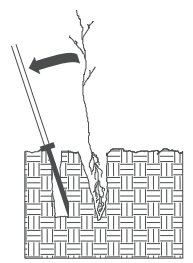
1. Insert planting bar as shown and pull handle toward planter.



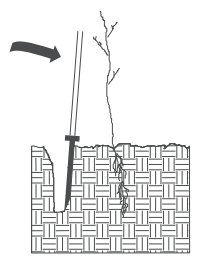
2. Remove planting bar and place seedling at correct depth.



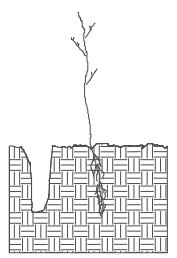
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

40% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
30% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
30% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

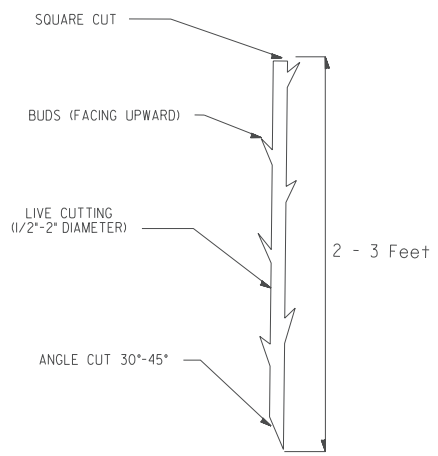
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

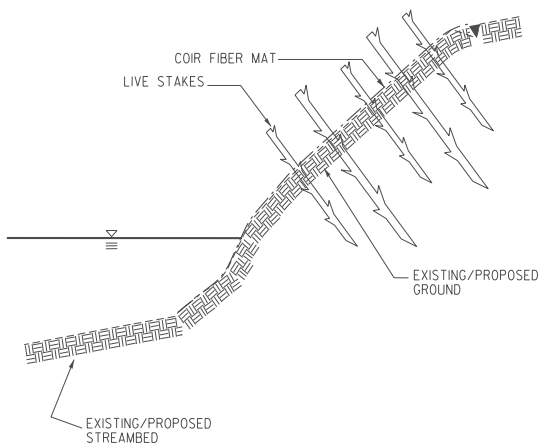
PROJECT REFERENCE NO.	SHEET NO.
100-01-0205	RF-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

LIVE STAKE

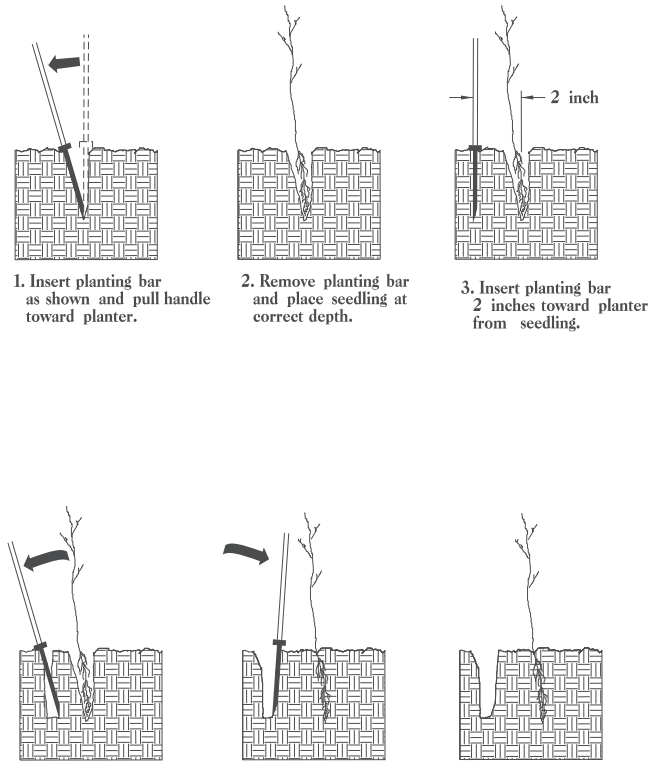




BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE SPACED APPROXIMATELY 4 FEET ON CENTER
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 3/4 OF LIVE STAKE IS WITHIN GROUND

BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

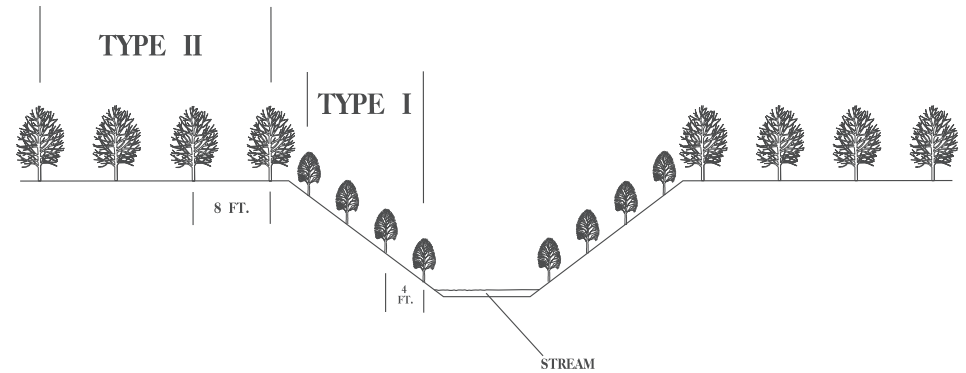
PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

- ☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- ☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- ☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

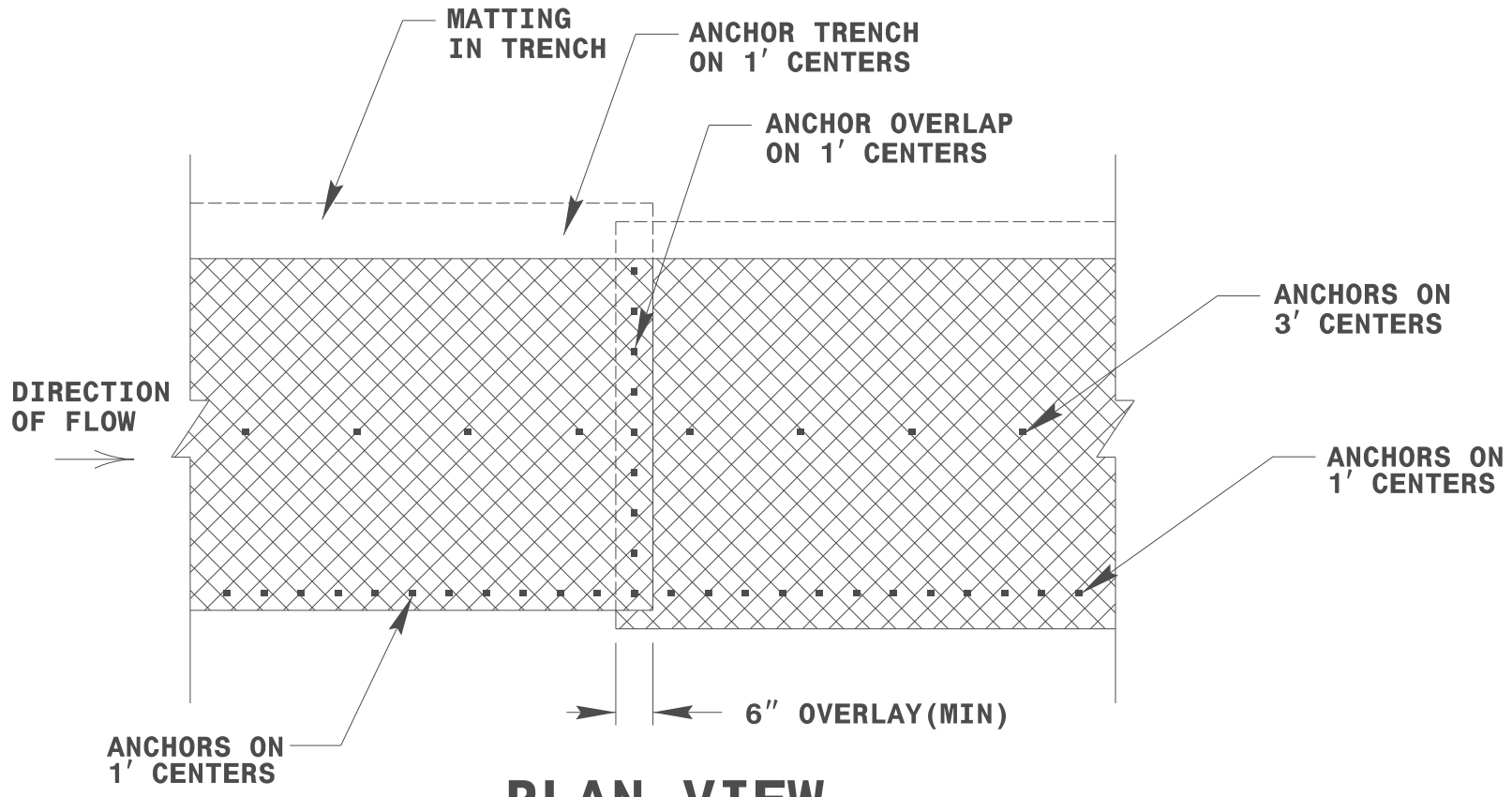
TYPE 1		
50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES
TYPE 2		
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% PRUNUS SEROTINA	BLACK CHERRY	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

- ☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

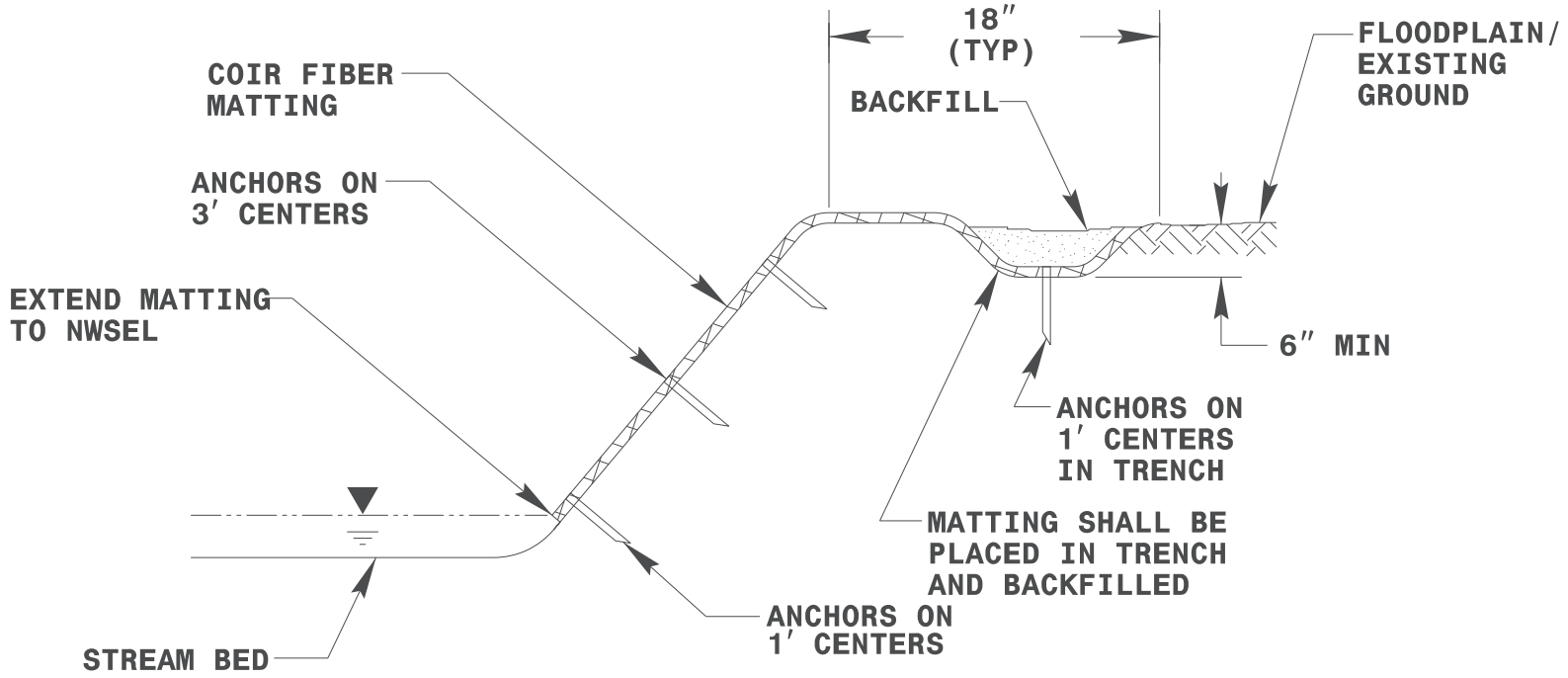
STREAMBANK REFORESTATION DETAIL SHEET 1 OF 2

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

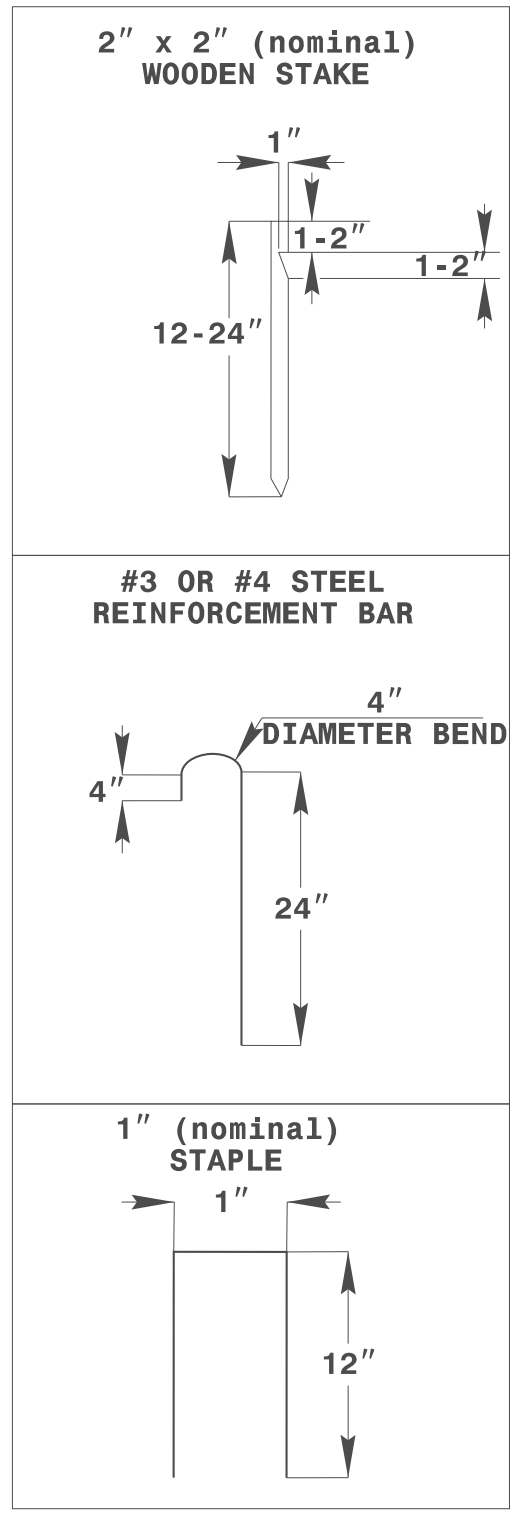
PROJECT REFERENCE NO.	SHEET NO.
100-01-0205	RF-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN VIEW



TYPICAL CROSS SECTION



ANCHOR OPTIONS

COIR FIBER MATTING DETAIL

NOT TO SCALE

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2
N.C.D.O.T.- ROADSIDE ENVIRONMENTAL UNIT