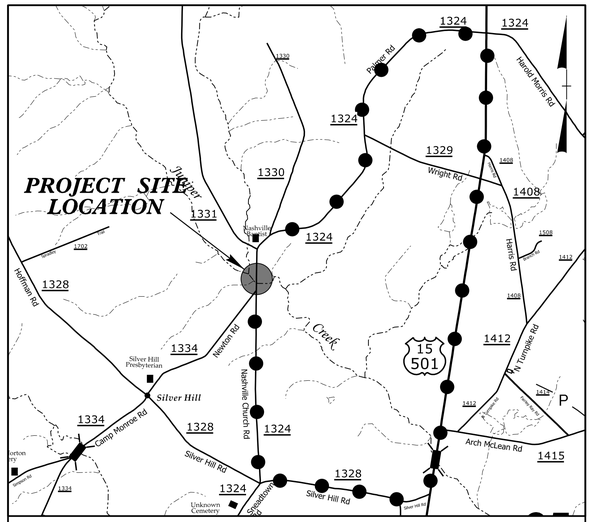
09/08/99

PROJECT: DF15408.2083803

See Sheet 1A For Index of Sheets



VICINITY MAP

OFF-SITE DETOUR ROUTE

N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SCOTLAND COUNTY

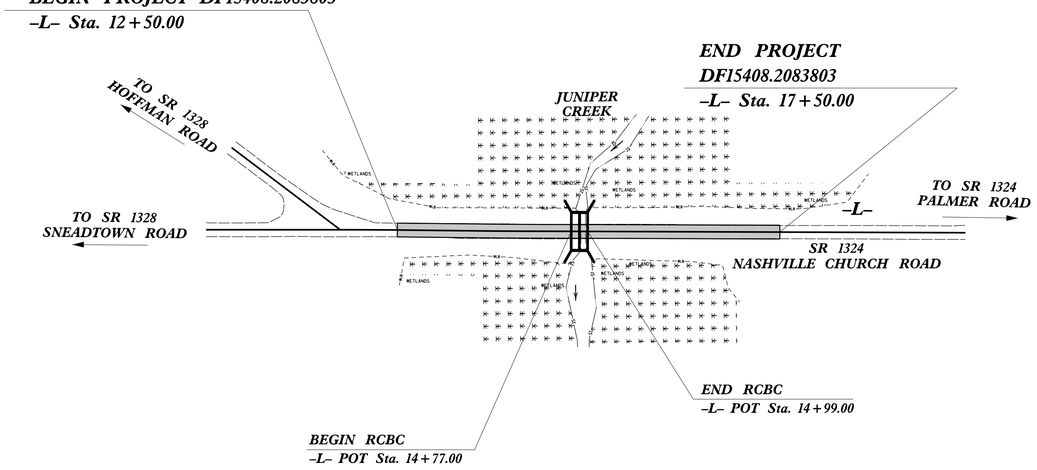
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15408.2083803	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
DF15408.2083803		PE	

LOCATION: PIPE 82 2030 OVER JUNIPER CREEK ON SR 1324 (NASHVILLE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & RCBC

NAD 83/
NA 2011

4



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 0 50 100
PLANS

50 0 50 100
PROFILE (HORIZONTAL)

10 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT	=	
ADT	=	
K	=	%
D	=	%
T	=	% *
V	=	60 MPH
* TTST	=	DUAL

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT DF15408.2083803 = 0.091 mi

LENGTH STRUCTURE PROJECT DF15408.2083803 = 0.004 mi

TOTAL LENGTH OF PROJECT DF15408.2083803 = 0.095 mi

PLANS PREPARED BY:
CH ENGINEERING
3220 GLEN ROYAL RD, RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 26, 2019

LETTING DATE:

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
DIVISION 8
121 DOT Drive
Carthage, NC 28327

BRIAN A. WILES, PE
PROJECT ENGINEER

TIM WELCH, PE
NCDOT CONTACT
DIV 8 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6906
FIRM PE NUMBER : P-0671

NORTH CAROLINA PROFESSIONAL SEAL 040302 ENGINEER WILLIAM KEITH JERNIGAN JR

10/14/2019

DocuSigned by:
Bill Jernigan
SIGNATURE:

P.E.

ROADWAY DESIGN ENGINEER

10/14/2019

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

DocuSigned by:
Brian A Wiles
SIGNATURE:

P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/14/2019
R:\Roadway\Proj\SR1324_Rdy_tsh.dgn
USERNAME

8/17/99

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

Digitally signed by Brian A. Wiles
Date: 2019.12.17 08:58:37 -05'00'

12/17/2019

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INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
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.

CLEARING:

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

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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Lumbee River EMC - Power, Scotland County - Water and AT&T - Communications.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

TEMPORARY DIVERSIONS WETLAND REPAIRS:

THE TEMPORARY DIVERSIONS IN THE WETLAND AREAS WILL BE RESTORED TO PRECONSTRUCTION SLOPE AND CONTOURS. EXCAVATED MATERIAL SHALL BE STRATEGICALLY STOCKPILED AND PROTECTED. THIS MATERIAL WILL BE USED TO BACKFILL THE EXCAVATED AREAS TO THE ORIGINAL DENSITY. THE AREA WILL THEN BE RESEEDED WITH THE APPROPRIATE NATIVE WETLAND SEED MIX.

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation

12/17/2019
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kmcnair

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

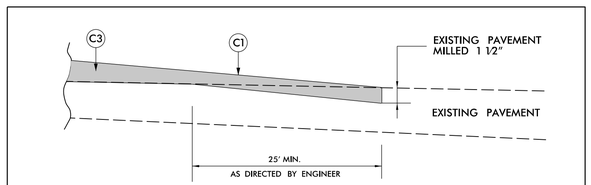
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

6/2/99

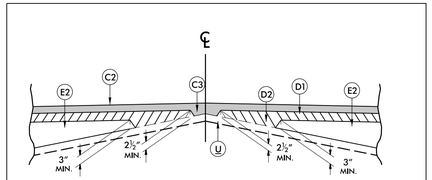
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

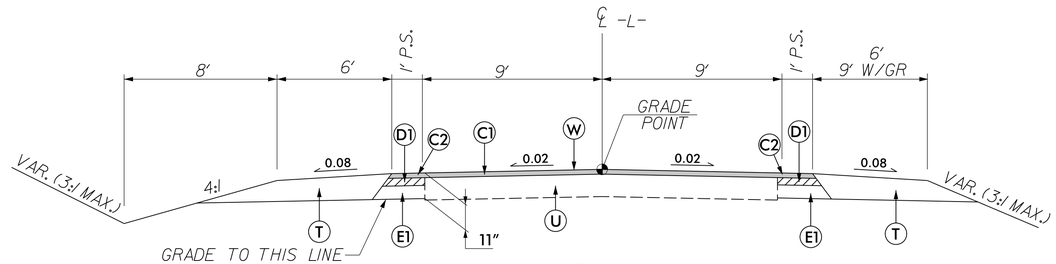
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Incidental Milling Existing Pavement



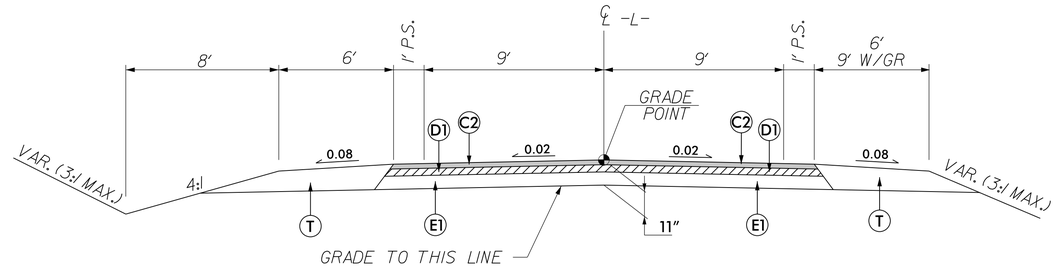
Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

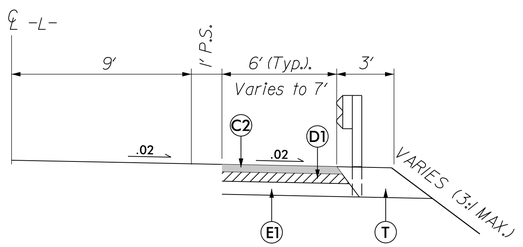
-L- STA 12+50.00 TO -L- STA 14+50.00

-L- STA 15+75.00 TO -L- STA 17+50.00

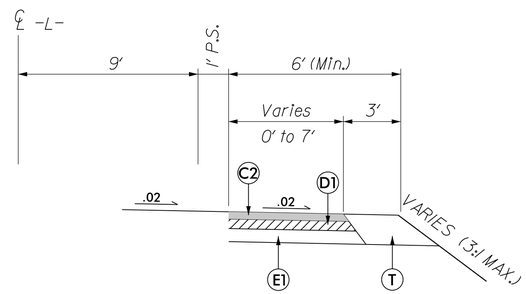


TYPICAL SECTION NO. 2

-L- STA 14+50.00 TO -L- STA 15+75.00



TYPICAL SECTION
FOR PAVED SHOULDER w/ GUARDRAIL



TYPICAL SECTION
FOR PAVED SHOULDER

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN A WILSON ALLEN WILSON
DocuSigned by: Brian A Wilson
10/14/2019

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

9/19/2019
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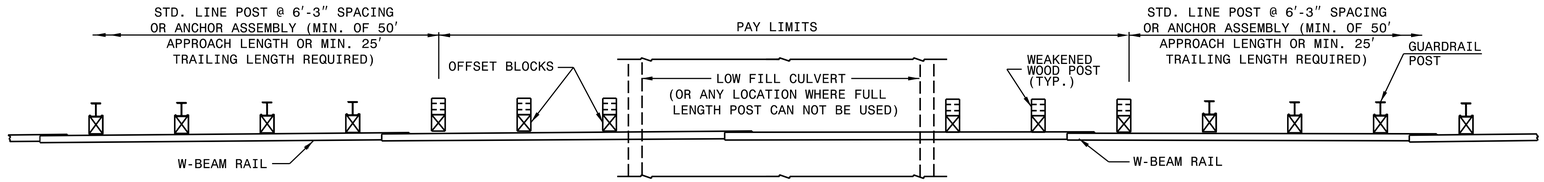
kfenwick

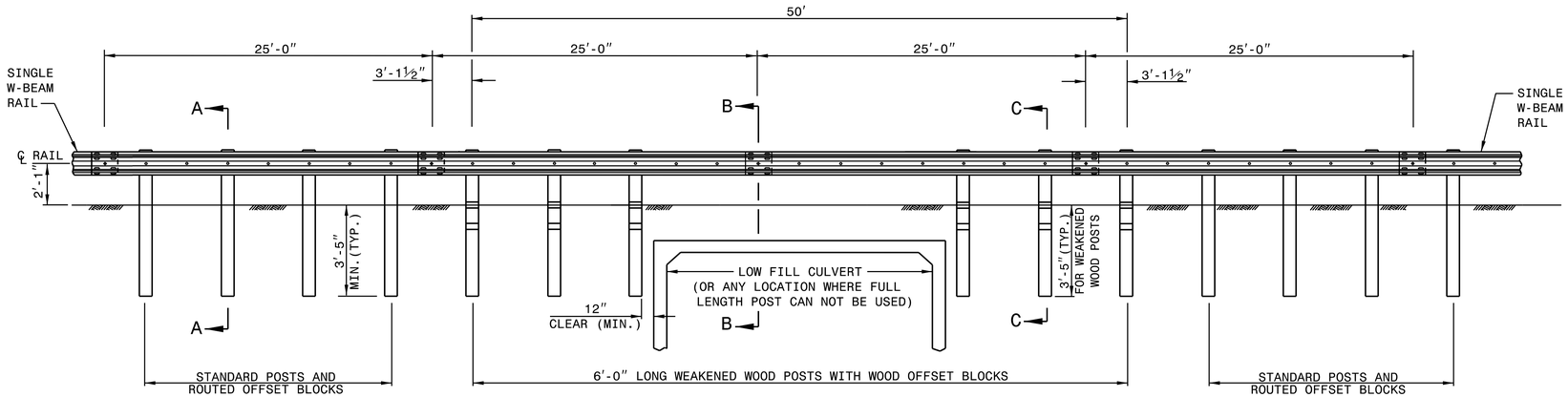
PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	2C-1

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

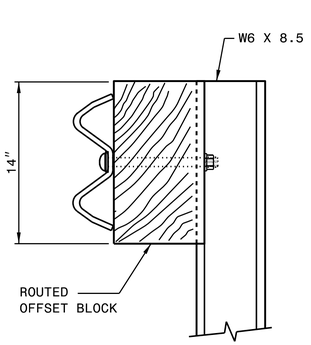
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25′-0″ CLEAR SPAN



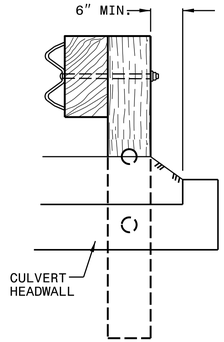
PLAN



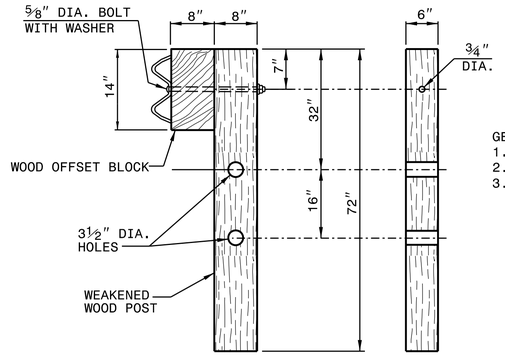
ELEVATION
25′-0″ GUARDRAIL SPAN



SECTION A-A



SECTION B-B



SECTION C-C **FRONT**
WEAKENED WOOD POST

GENERAL NOTES:
1. LAP RAIL IN THE DIRECTION OF TRAFFIC FLOW.
2. SEE ROADWAY PLANS FOR LOCATIONS AND CONTINUATION OF RAIL OR END SECTIONS.
3. MINIMUM DISTANCE OF 5 FEET BEHIND THE GUARDRAIL SHOULD BE CLEAR OF ANY FIXED-OBJECT HAZARDS THAT COULD SNAG AN IMPACTING VEHICLE.

SHEET - OF -
862D01

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

SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25′-0″ CLEAR SPAN

SHEET - OF -
862D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JAMES S. HOWERTON
DocuSigned by: 873F3D17DCD...
10/14/2019

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

25′-0″ CLEAR SPAN GUARDRAIL PLACEMENT

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

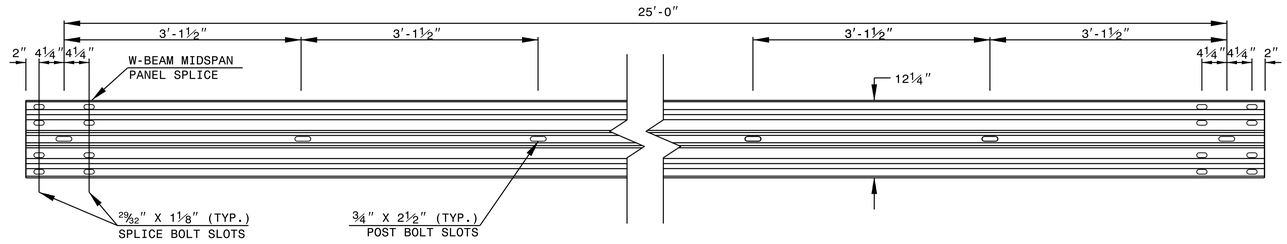
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	2C-2
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

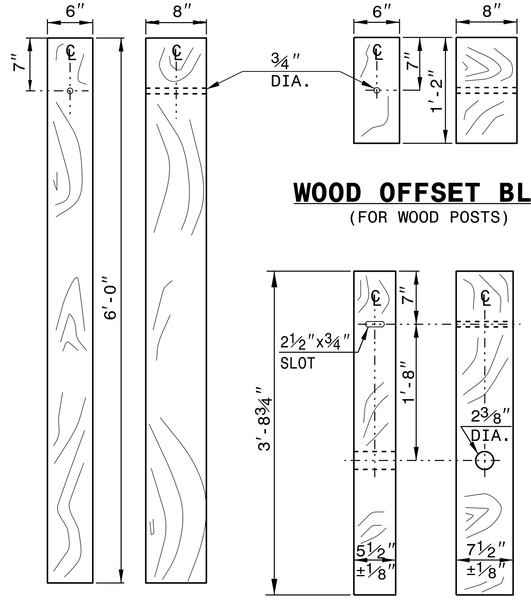
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



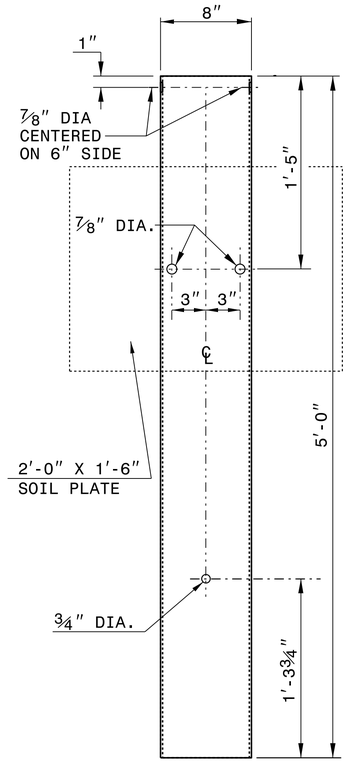
STANDARD W-BEAM GUARDRAIL



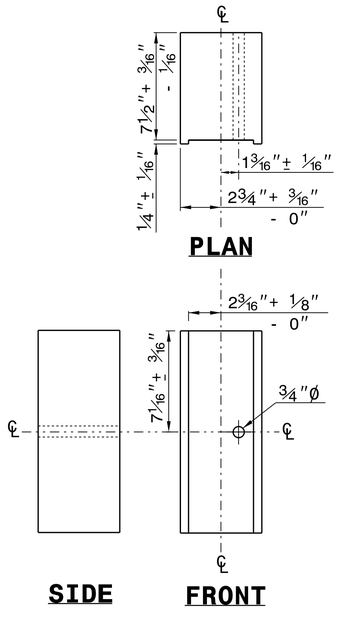
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



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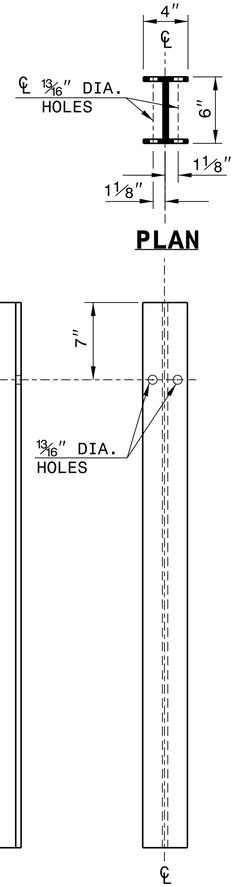

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER J. S. HOWERTON
DocuSigned by: 6797301705C4...
10/14/2019

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

12/06/07

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– 12+50	17+50	241	97		144
	SUBTOTAL	241	97		144
TOTAL		241	97		144
MATERIAL FOR SHOULDER CONSTRUCTION			186	186	
LOSS DUE TO CLEARING & GRUBBING					
WASTE IN LIEU OF BORROW				–144	–144
PROJECT TOTAL		241	283	42	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				2	
GRAND TOTALS:		241		44	
SAY:		250		75	

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
L	14+50	15+75	CL	250
			TOTAL:	250
			SAY:	250

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Asphalt Pavement will be paid for at the contract lump sum price for grading.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS							CLEAR SPAN	IMPACT ATTENUATOR TYPE 350			SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	GREU TL–2	GREU TL–3	M–350	TYPE III	CAT–1	VI MOD	AT–1		EA	G	NG				
L	13+63.00	16+13.00	LT	250.00					7	10	50	50	1	1			2						1							
L	13+63.00	16+13.00	RT	250.00					7	10	50	50	1	1			2						1							
		SUBTOTAL		500.00																										
		LESS DEDUCTIONS																												
		GREU TL–3 4 @ 50′		–200.00																										
		CLEAR SPAN 2 @ 50′		–100.00																										
		TOTAL		200.00													4						2							
		SAY		200.00			5 ADDITIONAL GUARDRAIL POSTS										4						2							

9/19/2019
R:\Roadway\Proj\SR1324_Rdy_sum.dgn
rstephens

REVISIONS 8/17/99

-L- PI Sta 12+20.47
Δ = 0° 36' 47.5" (RT)
D = 0° 45' 50.2"
L = 80.27'
T = 40.13'
R = 7,500.00'

-L- PI Sta 13+96.54
Δ = 0° 25' 17.9" (LT)
D = 0° 34' 22.6"
L = 73.59'
T = 36.79'
R = 10,000.00'

NAD 83/NA 2011

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	4
SCOTLAND COUNTY 82 2030	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER JEREMY ALLEN WILLS
10/14/2019

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 040302 ENGINEER WILLIAM ERIC VERNICAN, JR.
10/14/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L- POT Sta. 10+00.00
-Y- POT Sta. 10+00.00
-L- PC Sta. 11+80.34
-L- PT Sta. 12+60.60
-L- PC Sta. 13+59.74
-L- PT Sta. 14+33.33
-L- POT Sta. 19+92.58
-L- POT Sta. 17+50.00
END CONSTRUCTION
-L- POT Sta. 11+75.29 =
-Y- POT Sta. 11+78.01
-L- POC Sta. 12+50.00
BEGIN CONSTRUCTION

BL-101
BL-102
BL-103

TO HOFFMAN RD.
TO SNEADTOWN RD.
TO PALMER RD.
SR 1324 NASHVILLE CHURCH RD.
18' BST
EXISTING R/W
60.00'
AT&T Corp., COPPER
PK NAIL
DELAPIDATED BW
WOODS
WETLANDS
EIP
8" PVC, CITY OF LAURINBURG
INV=244.38
INV=244.67

N 37° 33' 54.9" E
N 0° 29' 13.3" E
N 1° 06' 00.8" E
N 0° 40' 42.9" E

1 WILLIAM HOPKINS, INC.
DB 465 PG 288
PB 6 PG 55

2 OWNER UNKNOWN
NO DEED FOUND

3 HECTOR MCMILLAN
NO DEED FOUND

4 TRIPLE CREEK FARMS
DB 1536 PG 163
PB 11PG 344

GRAHAM GAINEY JR.
DB 14E PG 242
PB 6 PG 1
PB 11PG 269

GREU TL-3
TUE
RW
WLB
F
E
1' P.S.
9' P.S.
8:1
2@10'x7' RCBC W/BEVELS
BURIED 1' W/SILLS
US INV. = 234.52'
DS INV. = 234.52'
SLOPE = 0.0%
FILL WITH NATIVE MATERIAL

CL II RIP RAP
BANK STABILIZATION
LENGTH = 24 FT
EST. = 7 TON, 20 SY GEOTEXTILE

CL II RIP RAP
BANK STABILIZATION
LENGTH = 24 FT
EST. = 9 TON, 24 SY GEOTEXTILE

PROPERTY LINE IS RUN OF UNNAMED CREEK AS IT MEANDERS

BM1 ELEVATION - 248.83
N 419361 E 1858671
BL STATION 14+25.00 73 RIGHT
BENCHTIE IN 6" PINE

FOR PROFILE, SEE SHEET 5

9/19/2019
K:\Projects\Proj\SR1324_Rdy_psh_04.dgn

5/14/99

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER ALLEN WILLIS
DocuSigned by: Allen Willis 4C5B3E3E7F2E4F2...
10/14/2019

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040302 ENGINEER DAVID JERNIGAN, JR.
DocuSigned by: David Jernigan, Jr. 4C5B3E3E7F2E4F2...
10/14/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 920	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 245.8	FT
BASE DISCHARGE	= 1360	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 246.8	FT
OVERTOPPING DISCHARGE	= 733.5	CFS
OVERTOPPING FREQUENCY	= <25	YRS
OVERTOPPING ELEVATION	= 245.5	FT

BEGIN GRADE
-L- STA 12+50.00
EL = 246.10'

PI = 14+85.00
EL = 245.45'
VC = 100'
K = 149
DS = 60 mph

END GRADE
-L- STA 17+50.00
EL = 246.50'

(-)0.27641% (+)0.39611%

2 @ 10' x 7' RCBC
BURIED 1'
WITH 1' SILLS

250 240 230 220 210

BM 1 ELEV = 248.83'
N 419,361E 1,858,671
-BL- STA 14+25 73' RIGHT
BENCHTIE IN 6" PINE

FOR PLAN, SEE SHEET 4

10 11 12 13 14 15 16 17 18 19 20 21

9/9/2019
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jcrouse

09/08/19

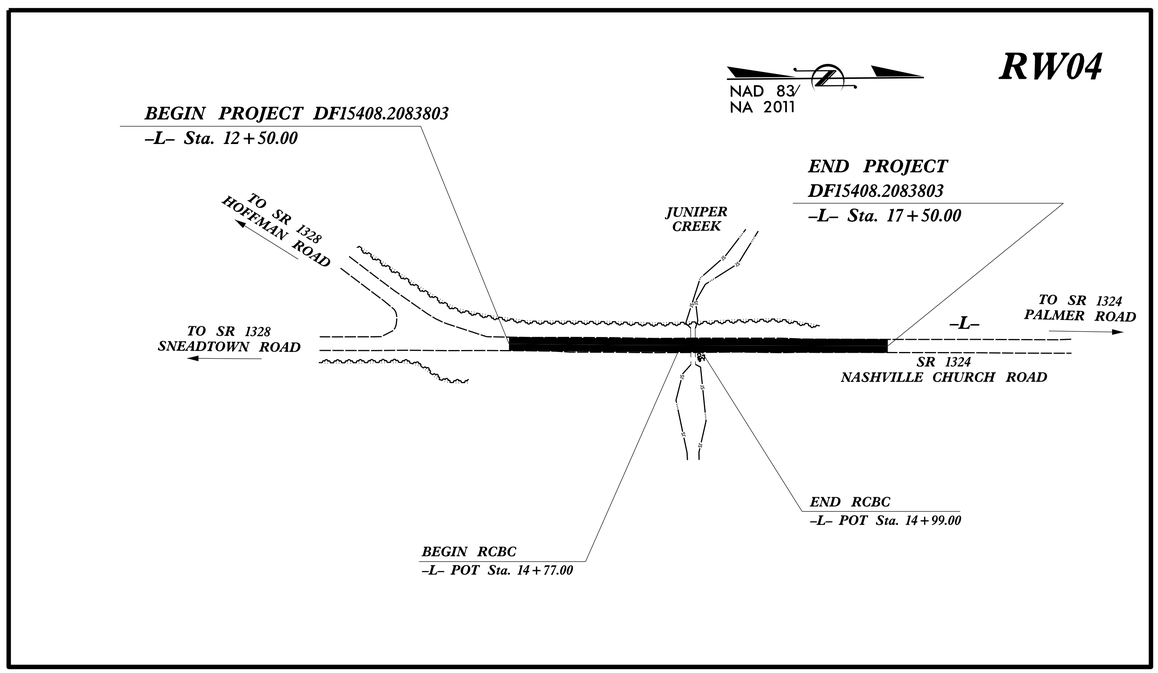
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15408.2083803	RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

SCOTLAND COUNTY

TIP PROJECT: 82–2030



GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "822030-2"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 417,695.0670(ft) EASTING: 1,858,582.1810(ft)
ELEVATION: 266.29 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999883822
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"822030-2" TO -L- STATION 12+50.00 IS
N 1^35'26.2" E 918.97(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD88/GEOID G12NC

Prepared In the Office of:

DEWBERRY ENGINEERS, INC
2610 Wycliff Rd. Ste. 410
Raleigh, NC 27607
PH (919) 881–9939
NCBELS # F–0929

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE: _____

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

DocuSigned by: Adam Hales E91D0BC1163E43D...

8/27/2019

SIGNATURE: *Date:*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RW02C-1

Location and Surveys

DEWBERRY ENGINEERS, INC.
2610 WYCLIFF RD.
RALEIGH, NC 27607

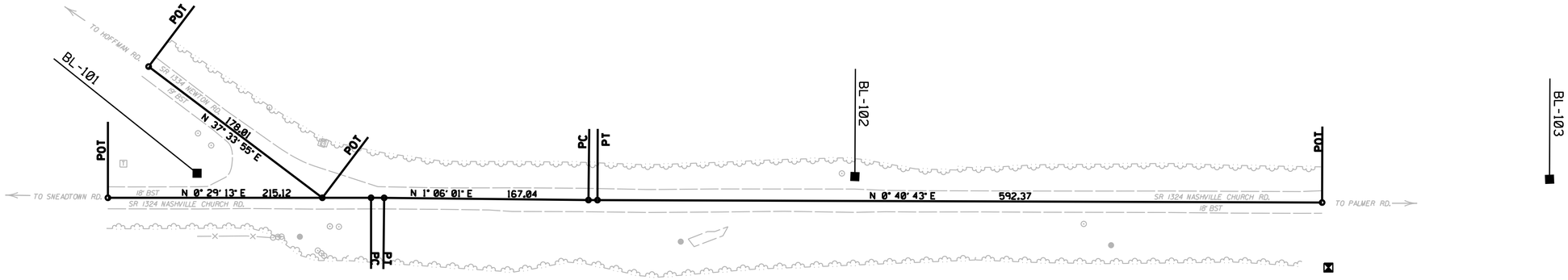
SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

NC GRID
NAD 83 NA 2011

OFFSITE PRIMARY CONTROL:

GPS 822030-1
GPS 822030-2



BM1 ELEVATION = 248.83
N 419361 E 1858671
EL STATION 19+93.00
N 84°56'30.2" E DIST 53.45
BENCHTIE IN 6" PINE

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

27-AUG-2019 12:47
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Active Project
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Al Matthews

6/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RW02C-2

Location and Surveys

DEWBERRY ENGINEERS, INC.
2610 WYCLIFF RD
RALEIGH, NC 27607

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION
101	BL-101	418436.7220	1858585.7780	247.41
102	BL-102	418974.4480	1858593.0680	244.46
103	BL-103	419542.2720	1858600.1010	246.50

PRIMARY CONTROL

POINT	DESC.	NORTH	EAST	ELEVATION
1	822030-1	417121.4010	1858579.3530	276.70
2	822030-2	417695.0670	1858582.1810	266.29

BENCHMARK DATA

BM1 ELEVATION = 248.83
N 419361 E 1858671
EL STATION 19+93.00
N 84°56'30.2" E DIST 53.45
BENCHTIE IN 6" PINE

ALIGNMENT DATA

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	418363.699	1858605.241							
LINE			N 00°29'13.3" E	215.12					
PC	418578.811	1858607.070							
CURVE			N 00°47'37.0" E	10.70	00°36'47.5"(RT)	05°43'46.5"	10.70	5.35	1000.00
PT	418589.512	1858607.218							
LINE			N 01°06'00.8" E	167.04					
PC	418756.519	1858610.425							
CURVE			N 00°53'21.8" E	7.36	00°25'17.9"(LT)	05°43'46.5"	7.36	3.68	1000.00
PT	418763.877	1858610.539							
LINE			N 00°40'42.9" E	592.37					
POT	419356.201	1858617.555							

EY

POINT	N	E	BEARING	DIST
POT	418397.883	1858498.207		
LINE			N 37°33'54.9" E	178.01
POT	418538.982	1858606.731		

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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Cooke, Al Nathaniel

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RW02D-1
Location and Surveys	

DEWBERRY ENGINEERS, INC
2610 WYCLIFF RD
RALEIGH, NC 27607

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	418363.6995	1858605.2410
PC	11+80.34	418544.0299	1858606.7739
PT	12+60.60	418624.2881	1858607.8856
PC	13+59.74	418723.4100	1858609.7892
PT	14+33.33	418796.9900	1858610.9315
POT	19+92.58	419356.2011	1858617.5547

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	418397.8835	1858498.2070
POT	11+78.01	418538.9817	1858606.7310

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

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dbyles
AT M13BBM

6/2/99

REVISIONS

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RW03E-1

Location and Surveys

DEWBERRY ENGINEERS, INC
2610 WYCLIFF RD.
RALEIGH, NC 27607

PROJECT SURVEYOR

DocuSigned by:
Adam Hales
E91DDBC1163E43D...

NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

8/27/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Adam Hales, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 27th day of August, 2019.

DocuSigned by:
Adam Hales
E91DDBC1163E43D...

Professional Land Surveyor L-4980 PLS # Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+59.74	-50.00	418724.3701	1858559.7984
L	13+59.74	-30.00	418723.9861	1858579.7947
L	13+59.74	50.00	418722.4500	1858659.7800
L	13+59.74	30.00	418722.8340	1858639.7837
L	14+33.33	-50.00	418797.5821	1858560.9350
L	14+33.33	50.00	418796.3978	1858660.9280
L	16+00.00	-50.00	418964.2381	1858562.9088
L	16+00.00	-30.00	418964.0012	1858582.9074
L	16+00.00	50.00	418963.0537	1858662.9018
L	16+00.00	30.00	418963.2906	1858642.9032

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

27-AUG-2019 12:47
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ahales

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RW04

Location and Surveys

DEWBERRY ENGINEERS, INC
2610 WYCLIFF RD
RALEIGH, NC 27607

PROJECT SURVEYOR

DocuSigned by: Adam Hales E91DDBC1163E43D...

NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

8/27/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Adam Hales, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

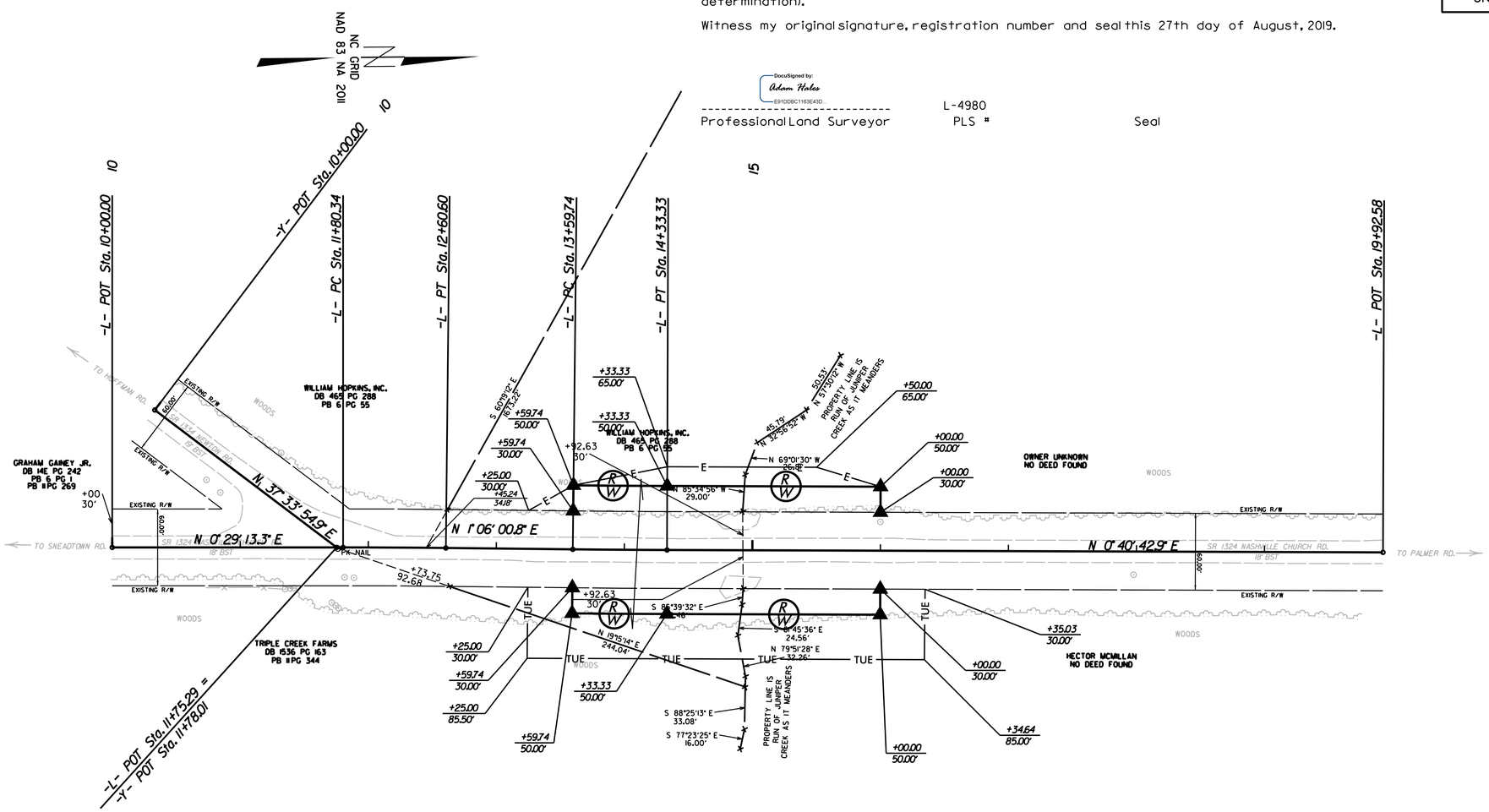
I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 27th day of August, 2019.

DocuSigned by: Adam Hales E91DDBC1163E43D...

Professional Land Surveyor — PLS # L-4980 — Seal



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS 6/2/99

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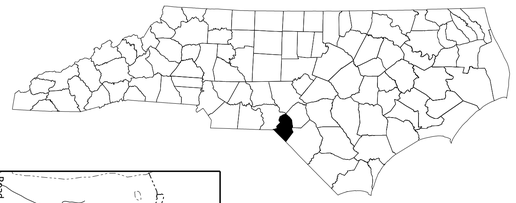
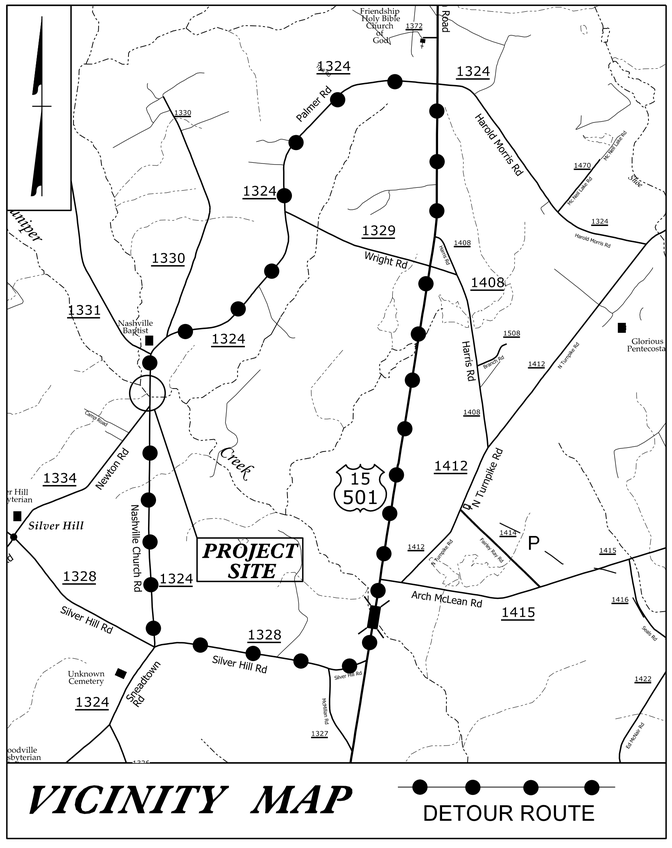
dhales M:\gaBRM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SCOTLAND COUNTY





VICINITY MAP

DETOUR ROUTE

LOCATION: PIPE 82 2030 OVER JUNIPER CREEK ON SR 1324 (NASHVILLE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURE

INDEX OF SHEETS

SHEET NO.
TMP-1

DF15408.2083803

PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

BRIAN A. WILES, PE
PROJECT MANAGER

NCDOT CONTACTS:

TIM WELCH, PE
DIV. 8 BRIDGE PROGRAM MANAGER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
DIVISION 8
121 DOT Drive
Carthage, NC 28327

PLANS PREPARED BY:
CH ENGINEERING
3220 GLEN ROYAL, RD, RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

APPROVED: DocuSigned by: Brian A Wiles 8890D0FEA2E34DE...

DATE: 10/14/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

9/11/2019
R:\Traffic\TrafficControl\TCP\SR1324_TC_TMP_1.dgn
USERNAME

PROJ. REFERENCE NO.	SHEET NO.
DF15408.2083803	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

FINAL PAVEMENT MARKING

PAINT PAVEMENT MARKING LINES (4")	4,000 LF
PERMANENT RAISED PAVEMENT MARKERS	15 EACH

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

APPROVED: DocuSigned by: Brian A Wiles 889D0DFEA2E34DE...

DATE: 10/14/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

9/11/2019
R:\Traffic\TrafficControl\TCP\SR1324_TC_TMP_1A.dgn
USERNAME

PROJ. REFERENCE NO.	SHEET NO.
DF15408.2083803	TMP-1B

MANAGEMENT STRATEGIES

-CLOSE SR 1324 (NASHVILLE CHURCH ROAD) AND DETOUR TRAFFIC OFF-SITE

-MAINTAIN LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

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.

SIGNING

A) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.

B) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

LOCAL NOTES

1) NOTIFY THE ENGINEER AT LEAST 30 DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

2) NOTIFY THE SCOTLAND SCHOOLS TRANSPORTATION OFFICE OF THE BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.

3) NOTIFY THE SCOTLAND COUNTY EMERGENCY MANAGEMENT OF THE BRIDGE REMOVAL 30 DAYS PRIOR TO ROAD CLOSURE.

PHASING

STEP 1) USING RSD 1101.03, SHEET 1 OF 9 AND TMP-4, CLOSE SR 1324 (NASHVILLE CHURCH RD) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON TMP-3. MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS.

STEP 2) REMOVE THE EXISTING STRUCTURE.

STEP 3) CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.

STEP 4) PLACE FINAL PAVEMENT MARKINGS.

STEP 5) OPEN SR 1324 (NASHVILLE CHURCH RD) TO TRAFFIC AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

CH ENGINEERING
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TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

APPROVED: DocuSigned by: Brian A Wiles 889DDFEA2E34DE...

DATE: 10/14/2019

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NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

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

TRANSPORTATION OPERATIONS PLAN

9/11/2019
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USERNAME

PROJ. REFERENCE NO.	SHEET NO.
DF15408.2083803	TMP-2

SIGN NUMBER: SP-1
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 5′-0″
HEIGHT: 2′-0″
TOTAL AREA: 10.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT′L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

DESIGN BY: TAG
PROJECT ID: ID
CHECKED BY:
LOCATION:
Sep 09, 2019
DIV: DIV

BORDER
R=1.5″
TH=0.63″
IN=0.47″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

																										Series/Size Text Length
	N	a	s	h	v	i	l	l	e		C	h	u	r	c	h										C 2000
	6.9	10.4	13.4	16.1	19.2	22.7	24.3	25.9	27.4	29.9	34.9	38.6	41.9	45.4	47.5	50.6										46.2
	R	o	a	d																						C 2000
	23.9	27.3	30.4	33.5																						12.1

FILENAME: SIGN DESIGNS - Work Zone

NORTH CAROLINA D.O.T. SIGN DETAIL

CH ENGINEERING
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DATE: 10/14/2019
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

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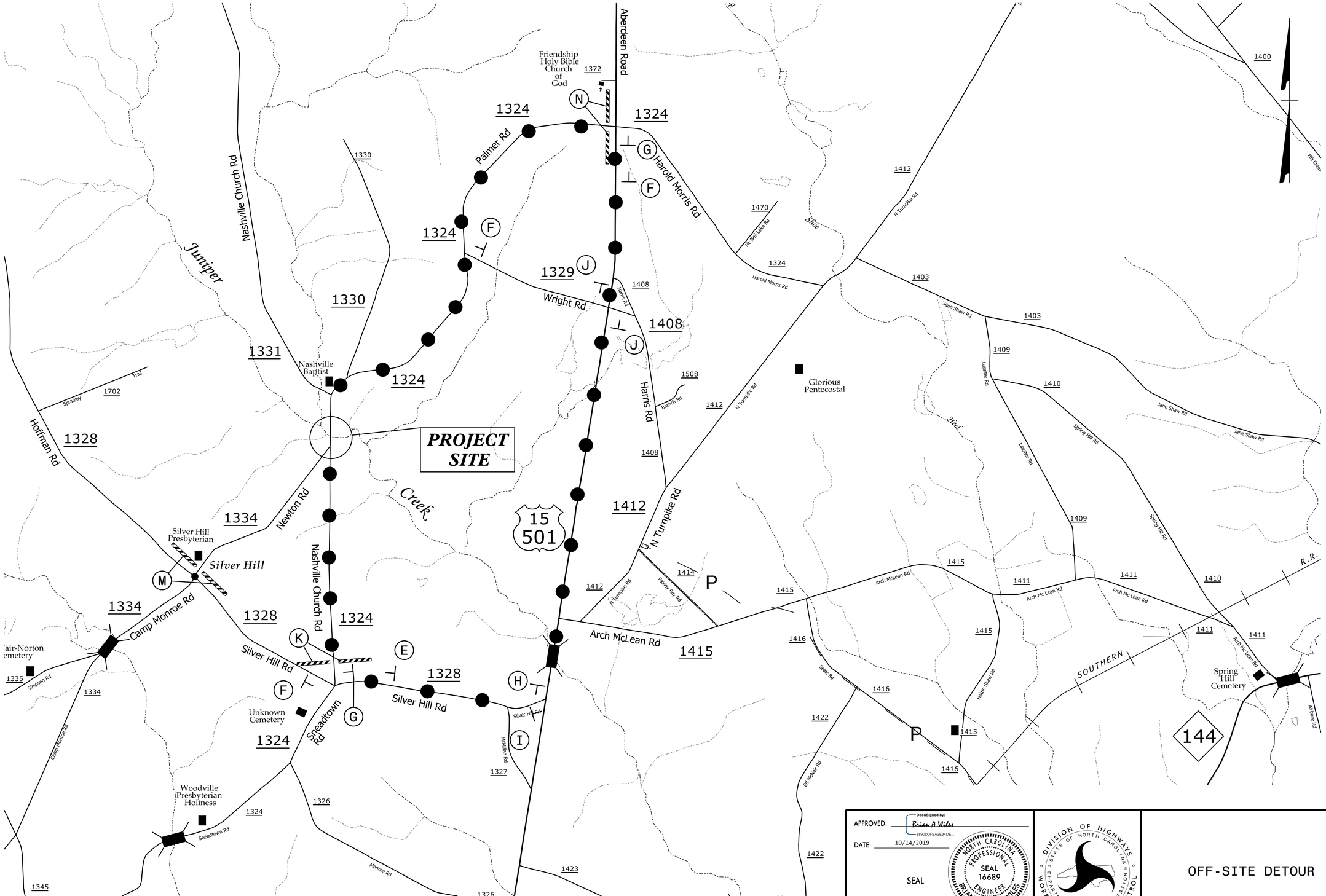
DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN DESIGN

9/11/2019
R:\Traffic\TrafficControl\TCP\SR1324_TC_TMP_2.dgn
USERNAME

PROJ. REFERENCE NO.	SHEET NO.
DF15408.2083803	TMP-3



APPROVED: DocuSigned by: Brian A Wiles 889ODDFEA2E34DE...

DATE: 10/14/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

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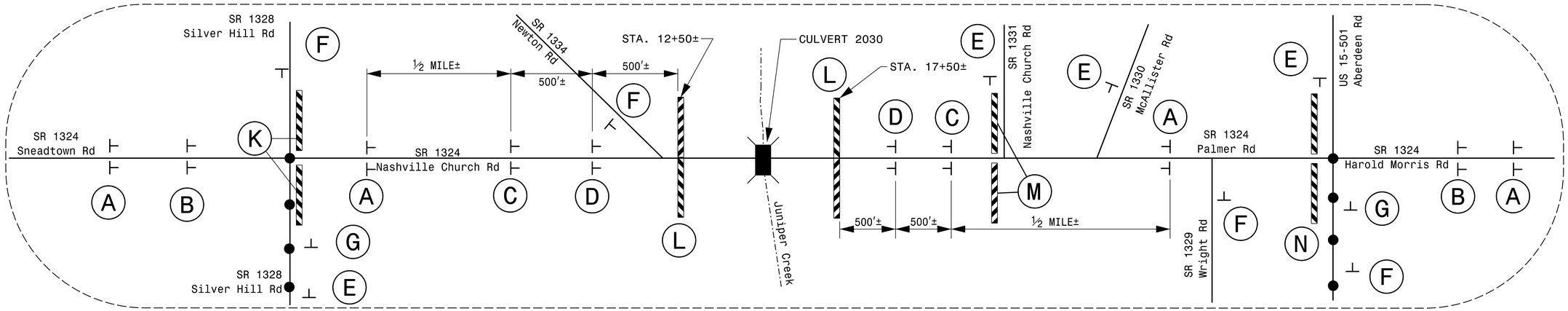
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

OFF-SITE DETOUR

9/11/2019
R:\Traffic\TrafficControl\TCP\SR1324_TC_TMP_3.dgn
USERNAME

PROJ. REFERENCE NO.	SHEET NO.
DF15408.2083803	TMP-4



A

B

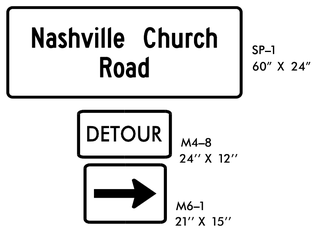
C

D

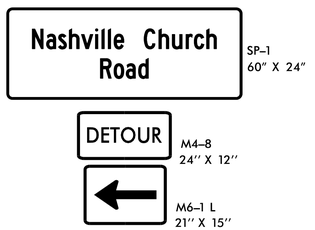
E

F

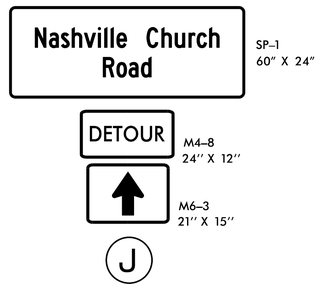
G



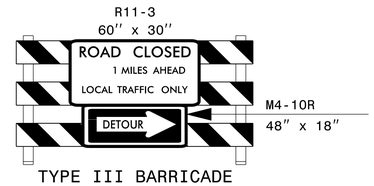
H



I



J



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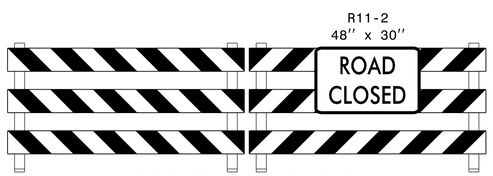
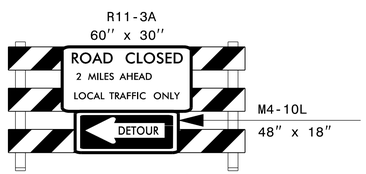


L

M



N

APPROVED: DocuSigned by: Brian A Wiles 8890D0FEA2E34DE...

DATE: 10/14/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16689 ENGINEER BRIAN ALLEN WILES

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NC LICENSE #P-0189

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

ROAD CLOSURE DETAIL and DETOUR SIGNS

9/25/2019
R:\Traffic\TrafficControl\TCP\SR1324_TC_TMP_4.dgn
USERNAME

See Sheet 1A For Index of Sheets

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15408.2083803	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

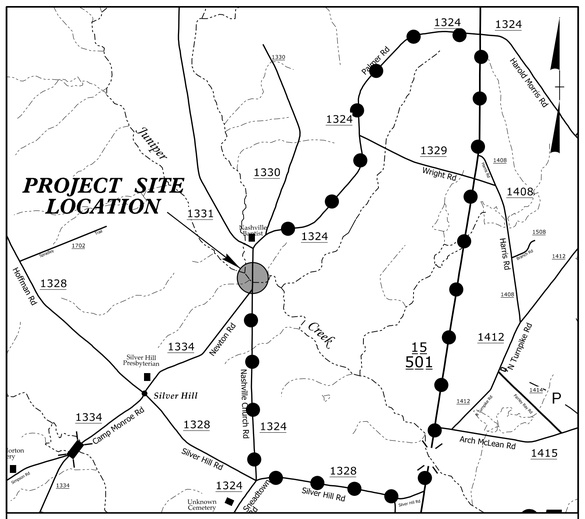
SCOTLAND COUNTY

LOCATION: PIPE 82 2030 OVER JUNIPER CREEK ON SR 1324 (NASHVILLE CHURCH ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & RCBC

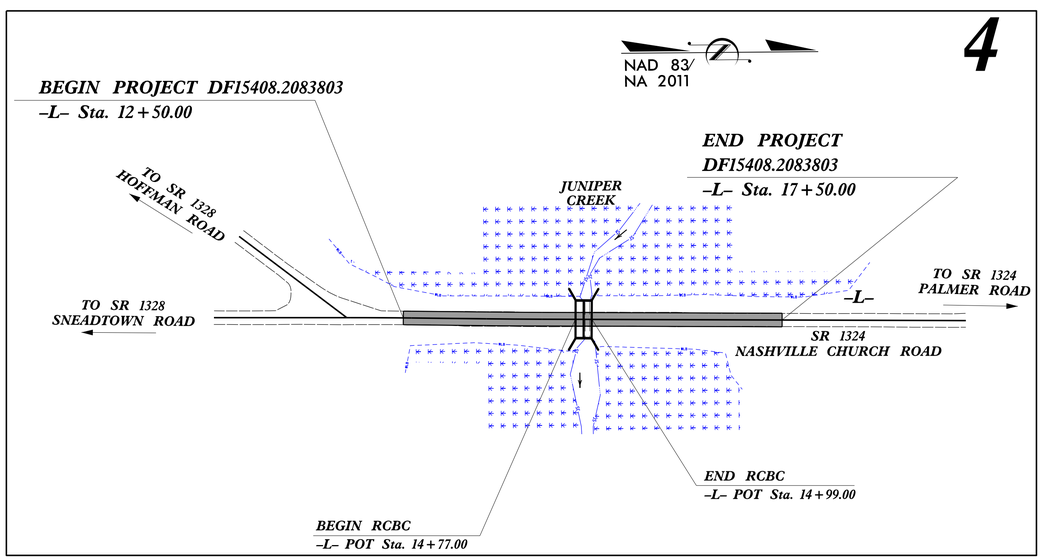
PROJECT: DF15408.2083803

R/W PLANS 06/26/2019



VICINITY MAP

OFF-SITE DETOUR ROUTE *N.T.S.*



4

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	
	Infiltration Basin	

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

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

MI ENGINEERING, PLLC

1011 SCHAUB DRIVE SUITE 100
RALEIGH, NC 27606

Designed by:

KYLE T. EDGERTON, EI 4117

NAME *LEVEL III CERTIFICATION NO.*

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

AARON HARPER, PE

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PROJECT REFERENCE NO.	SHEET NO.
DF15048.2083803	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

CLEARING & GRUBBING PLAN

-L-
PI Sta 12+20.47
△ = 0° 36' 47.5" (RT)
D = 0° 45' 50.2"
L = 80.27'
T = 40.13'
R = 7,500.00'

-L-
PI Sta 13+96.54
△ = 0° 25' 17.9" (LT)
D = 0° 34' 22.6"
L = 73.59'
T = 36.79'
R = 10,000.00'

NAD 83/NA 2011

CH ENGINEERING
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TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	EC-04/CONST.04
SCOTLAND COUNTY 82 2030	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

REVISIONS 8/17/99

-L- POT Sta. 10+00.00
-Y- POT Sta. 10+00.00
-L- PC Sta. 11+80.34
-L- PT Sta. 12+60.60
-L- RC Sta. 13+59.74
-L- PT Sta. 14+33.33
-L- POT Sta. 19+92.58
-L- POT Sta. 17+50.00
END CONSTRUCTION
-L- POC Sta. 12+50.00
BEGIN CONSTRUCTION
-L- POT Sta. 11+75.29 =
-Y- POT Sta. 11+78.01

BL-101
BL-102
BL-103

TO HOFFMAN RD.
TO SNEADTOWN RD.
TO PALMER RD.
SR 1324 NASHVILLE CHURCH RD.

GRAHAM GAINEY JR.
DB 14E PG 242
PB 6 PG 1
PB 11PG 269

WILLIAM HOPKINS, INC.
DB 465 PG 288
PB 6 PG 55

TRIPLE CREEK FARMS
DB 1536 PG 163
PB 11PG 344

OWNER UNKNOWN
NO DEED FOUND

HECTOR MCMILLAN
NO DEED FOUND

N 37°33'54.9" E
N 0°29'13.3" E
N 0°40'42.9" E
N 69°00'30" W 26.81'
S 88°25'13" E 83.08'
S 1°23'25" E 16.00'
S 88°25'13" E 8.30'
N 79°48'28" E 32.26'
N 19°15'14" E 24.63'
S 0°29'32" E 8.30'
T=106.00'

2@10'x7' RCBC W/BEVELS
BURIED 1' W/SILLS
US INV.=234.52'
DS INV.=234.52'
SLOPE=0.0%
FILL WITH NATIVE MATERIAL

CL II RIP RAP
BANK STABILIZATION
LENGTH=24 FT
EST.=16 TON, 44 SY GEOTEXTILE

PROPERTY LINE
RUN OF MINOR
CREEK AS IT MEANDERS

BM1 ELEVATION - 248.83
N 419361 E 1858671
BL STATION 14+25.00 73 RIGHT
BENCHTIE IN 6" PINE

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

FOR PROFILE, SEE SHEET 5

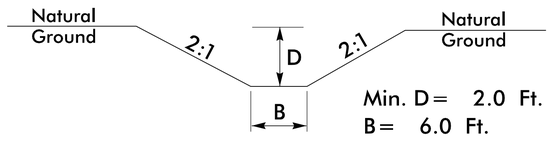
25-JUL-2019 11:02
C:\NLI_DGN\DF15408.2083803.Scotland.E5.(SR1324)\Erosion Control\CADD\SR1324_EC_psh_04.dgn

JUNIPER CREEK
CULVERT CONSTRUCTION SEQUENCE
STA. 14 + 88 –L–

PROJECT REFERENCE NO.	SHEET NO.
DF15048.2083803	EC-04A/CONST.04
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

1. CONSTRUCT SPECIAL STILLING BASIN PER NCDOT STANDARDS AT LOCATION SHOWN.
2. CONSTRUCT IMPREVIOUS DIKES AND DIVERSION CHANNEL AS SHOWN. DIVERSION CHANNEL TIE–INS SHOULD BE ISOLATED FROM JS FLOW. INSTALL 84" TEMPORARY PIPE AND BACKFILL
3. DIVERT CHANNEL FLOW THROUGH TEMPORARY DIVERSION CHANNEL AND PIPE.
4. CONSTRUCT CULVERT AND CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKES AND ALLOW FLOW THROUGH RCBC.
6. REMOVE STILLING BASIN AND TEMPORARY PIPE. FILL TEMPORARY DIVERSION CHANNEL TO EXISTING ELEVATIONS.
7. COMPLETE PROPOSED ROADWAY CONTRUCTION.

TEMPORARY CHANNEL
(Not to Scale)



Min. D = 2.0 Ft.
B = 6.0 Ft.

Type of Liner = Geotextile

TEMPORARY FLEXIBLE HOSE

DEWATERING PUMP

IMPERVIOUS DIKE "A"

TEMPORARY CHANNEL CHANGE WITH LINER

84 INCH TEMPORARY PIPE

SPECIAL STILLING BASIN

IMPERVIOUS DIKE "B"

NAD 83 NA 2011 NC GRID

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

SCALE: 1" = 20'

FINAL GRADE PLAN

NAD 83/NA 2011

-L-

PI Sta 12+20.47
△ = 0° 36' 47.5" (RT)
D = 0° 45' 50.2"
L = 80.27'
T = 40.13'
R = 7,500.00'

PI Sta 13+96.54
△ = 0° 25' 17.9" (LT)
D = 0° 34' 22.6"
L = 73.59'
T = 36.79'
R = 10,000.00'

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PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	EC-05/CONST.04
SCOTLAND COUNTY 82 2030	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS 8/17/99

-L- POT Sta. 10+00.00
-Y- POT Sta. 10+00.00
-L- PC Sta. 11+80.34
-L- PT Sta. 12+60.60
-L- PC Sta. 13+59.74
-L- PT Sta. 14+33.33
-L- POT Sta. 19+92.58
-L- POT Sta. 17+50.00
END CONSTRUCTION
-L- POC Sta. 12+50.00
BEGIN CONSTRUCTION
-L- POT Sta. 11+75.29 =
-Y- POT Sta. 11+78.01

BL-101
BL-102
BL-103

TO HOFFMAN RD.
TO SNEADTOWN RD.
TO PALMER RD.
SR 1324 NASHVILLE CHURCH RD.
18' BST
EXISTING R/W
AT&T Corp., COPPER
WOODS
DELAPIDATED BW
PK NAIL
8", PVC, CITY OF LAURINBURG
INV=244.38
INV=244.67
N 0° 29' 13.3" E
N 37° 33' 54.9" E
N 0° 40' 42.9" E
T 06° 00.8'

1 WILLIAM HOPKINS, INC.
DB 465 PG 288
PB 6 PG 55

2 OWNER UNKNOWN
NO DEED FOUND

3 HECTOR MCMILLAN
NO DEED FOUND

4 TRIPLE CREEK FARMS
DB 1536 PG 163
PB II PG 344

GRAHAM GAINEY JR.
DB 14E PG 242
PB 6 PG 1
PB II PG 269

GREU TL-3
TUE
RW
E
S 67°09'12" E
87.14'
N 19°15'14" E
244.64'
N 69°01'30" W
26.81'
N 70°18'28" W
32.26'
S 88°25'13" E
9.30'
S 88°25'13" E
33.08'
S 77°23'25" E
16.00'
N 75°01'12" W
45.15'
N 70°18'28" W
24.56'
S 19°15'32" E
24.46'

2@10'x7' RCBC W/BEVELS
BURIED 1' W/SILLS
US INV.=234.52'
DS INV.=234.52'
SLOPE=0.0%
FILL WITH NATIVE MATERIAL

CL II RIP RAP
BANK STABILIZATION
LENGTH=24 FT
EST.=16 TON, 44 SY GEOTEXTILE

PROPERTY LINE IS RUN OF INNER CREEK AS IT MEANDERS

BM1 ELEVATION = 248.83
N 419361 E 1858671
BL STATION 14+25.00 73 RIGHT
BENCHTIE IN 6" PINE

FOR PROFILE, SEE SHEET 5

25-JUL-2019 11:05
C:\Users\gerard.sisco\Desktop\DF15408.2083803.Scotland.E5.(SR1324)\Erosion Control\CADD\SR1324_EC_psh_05.dgn

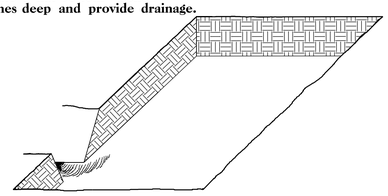
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	DF15408.2083803	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

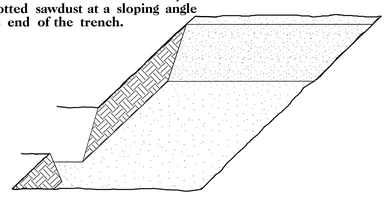
SEEDLING / LINER 3AREROOT PLANTING DETAIL

HEALING IN

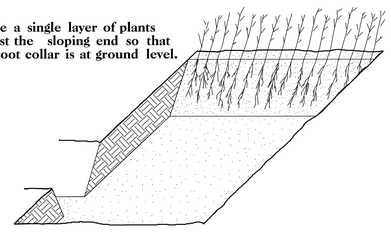
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



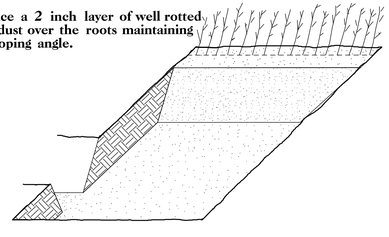
3. 3ackfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

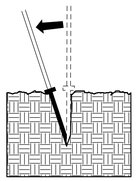


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

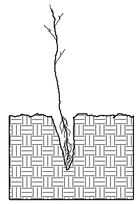


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

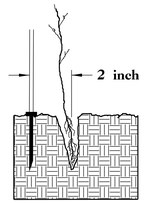
DI33LE PLANTING METHOD
USING THE K3C PLANTING 3AR



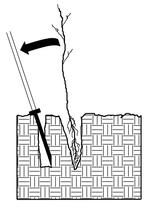
1. Insert planting bar as shown and pull handle toward planter.



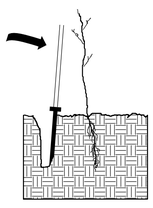
2. Remove planting bar and place seedling at correct depth.



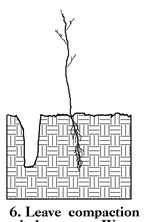
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.

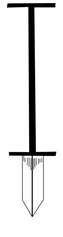


6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING 3AG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

K3C PLANTING 3AR
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 3E 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:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in 3R
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in 3R
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in 3R
25% 3ETULA NIGRA	RIVER 3IRCH	12 in – 18 in 3R

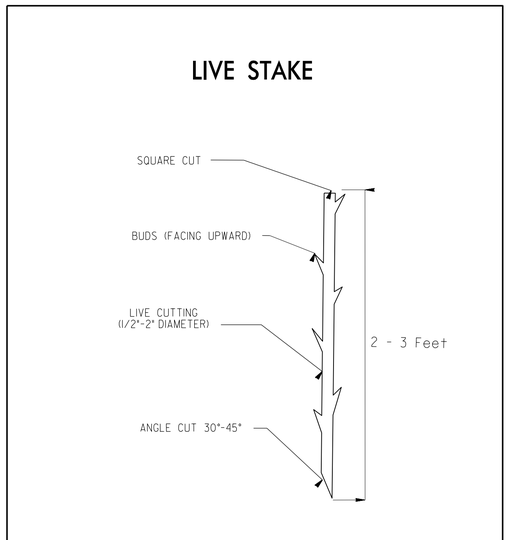
REFORESTATION DETAIL SHEET

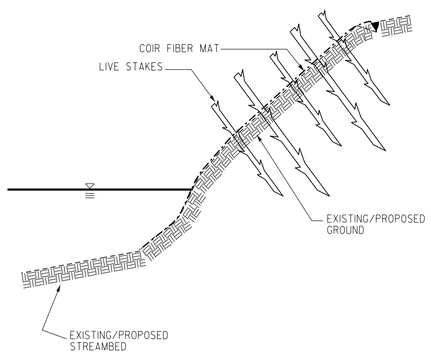
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RF-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

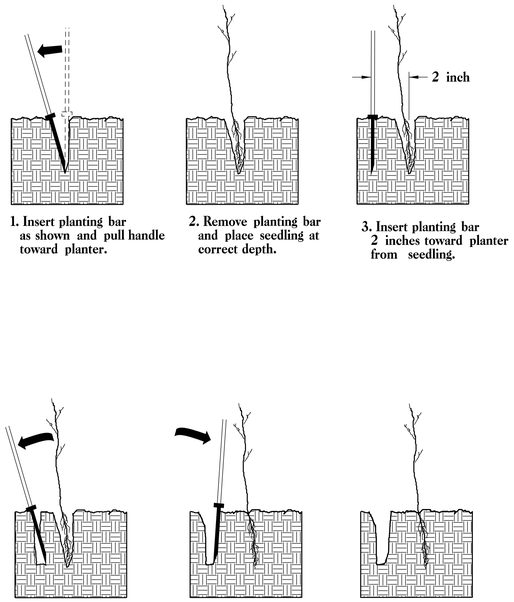




BANK STABILIZATION WITH LIVE STAKES

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.

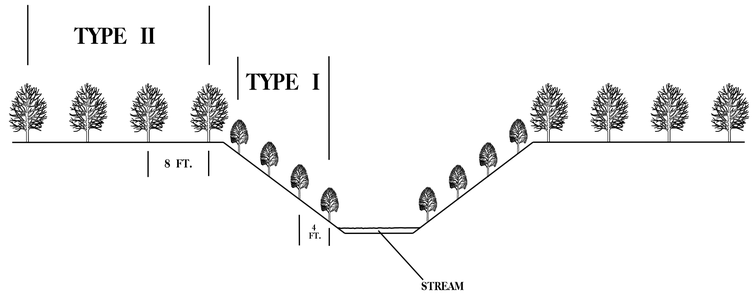
ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

☐ 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:

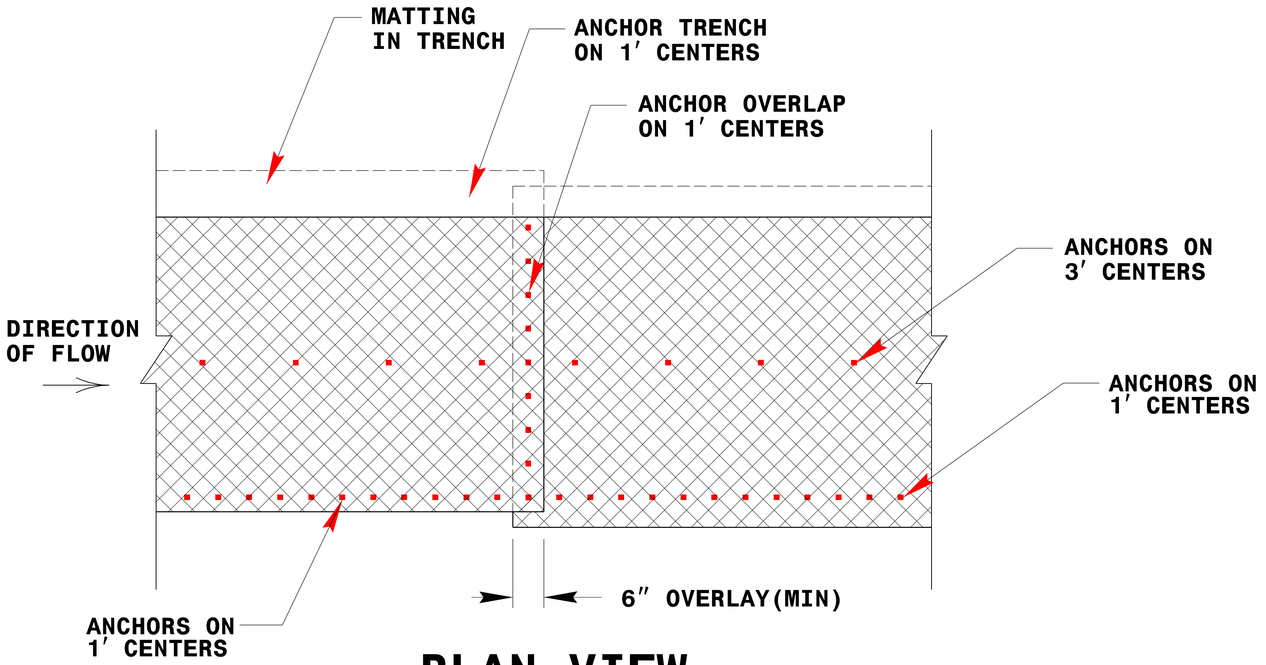
TYPE 1			
50%	SALIX NIGRA	BLACK WILLOW	2 ft – 3 ft LIVE STAKES
50%	CORNUS AMOMUM	SILKY DOGWOOD	2 ft – 3 ft LIVE STAKES
TYPE 2			
25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	PRUNUS SEROTINA	BLACK CHERRY	12 in – 18 in BR
25%	BETULA NIGRA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

☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

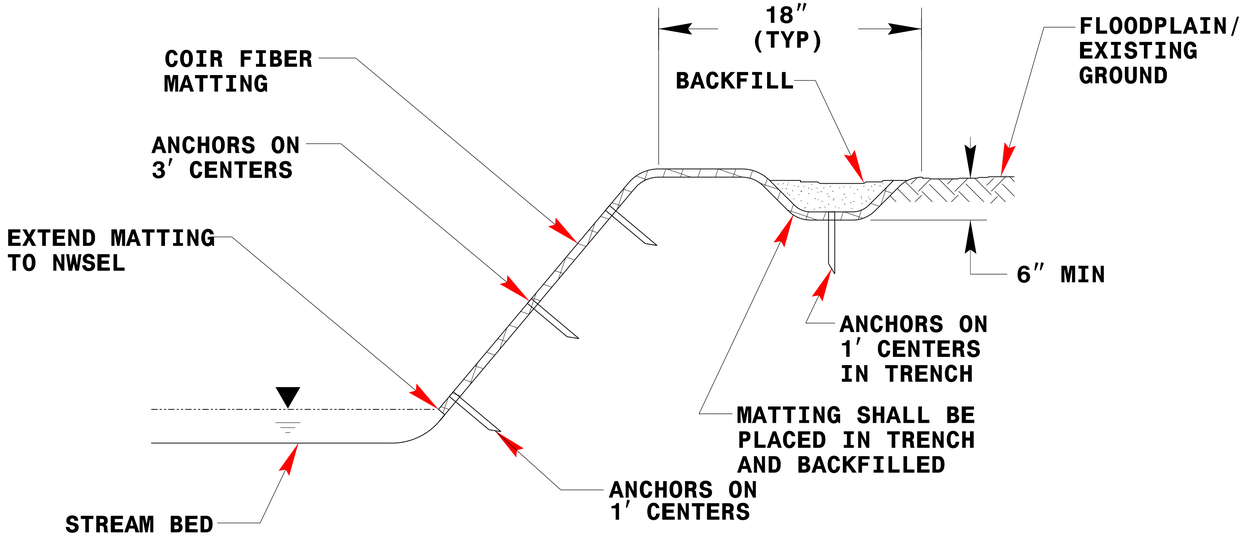
STREAMBANK REFORESTATION DETAIL SHEET 1 OF 2

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

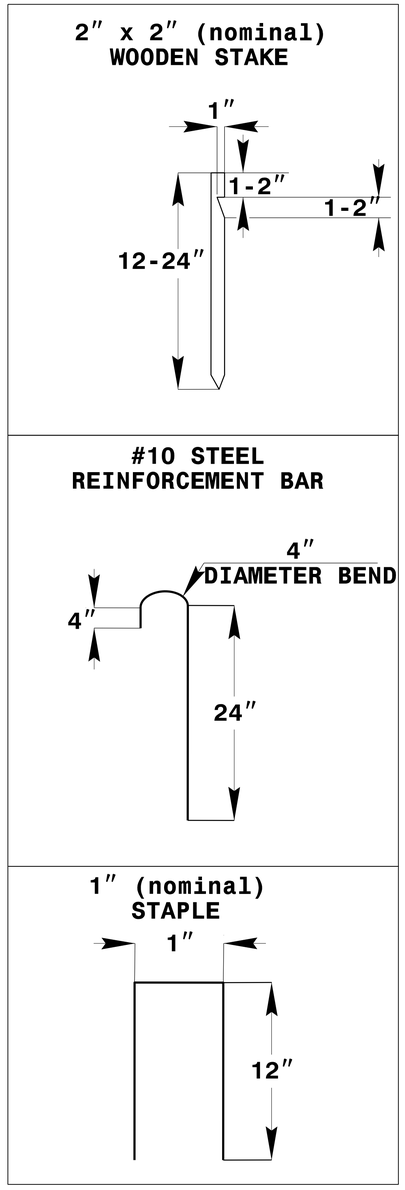
PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	RF-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN VIEW



TYPICAL CROSS SECTION



ANCHOR OPTIONS

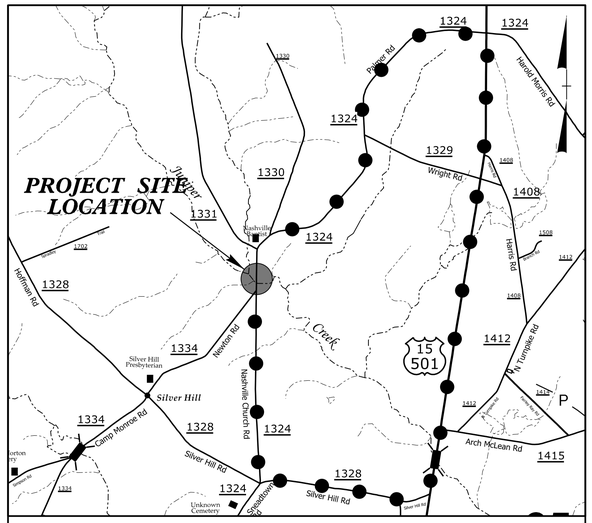
COIR FIBER MATTING DETAIL

NOT TO SCALE

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

09/08/99

PROJECT: DF15408.2083803



VICINITY MAP

OFF-SITE DETOUR ROUTE

N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
DF15408.2083803	UC–1

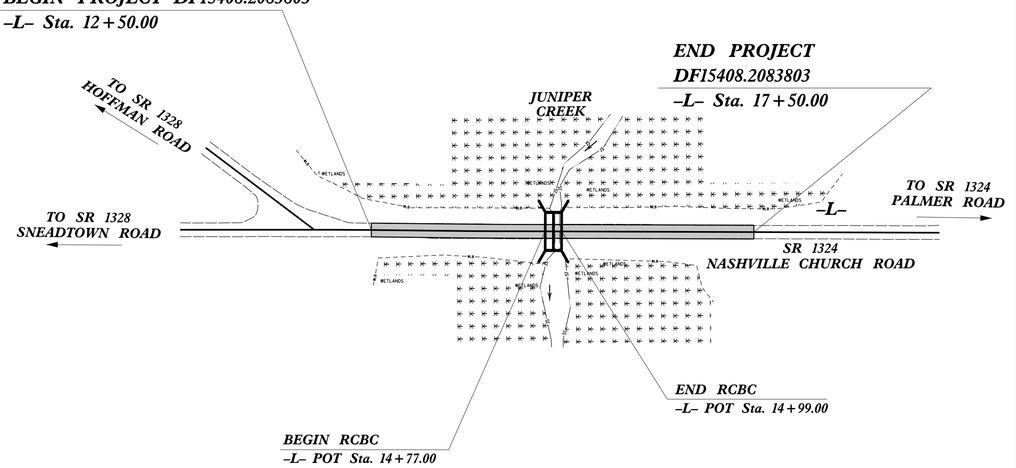
UTILITY CONSTRUCTION PLANS
SCOTLAND COUNTY

LOCATION: PIPE 82 2030 OVER JUNIPER CREEK ON SR 1324 (NASHVILLE CHURCH ROAD)

TYPE OF WORK: WATER LINE CONSTRUCTION

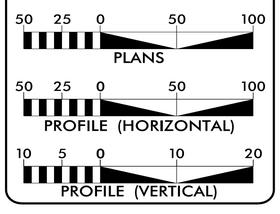
UC–4

NAD 83/
NA 2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC–1	TITLE SHEET
UC–2	UTILITY SYMBOLOGY
UC–3	DETAILS
UC–4	PLAN & PROFILE

WATER AND SEWER OWNERS ON PROJECT

(A) WATER SCOTLAND COUNTY

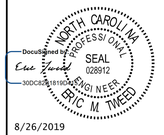
PREPARED IN THE OFFICE OF

CH ENGINEERING

3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

ERIC TWEED, PE — CONSULTANT CONTACT #1
BRIAN WILES, PE — CONSULTANT CONTACT #2

SEAL



8/26/2019

DIVISION OF HIGHWAYS
DIVISION 8
128 DOT DRIVE
CARTHAGE, NC 28327
PHONE (910) 773–8031

TIM WELCH, PE — BRIDGE PROGRAM MGR
TRAVIS MORGAN, PE — DIV. UTILITIES ENGINEER
JAMIE YOW — UTILITIES COORDINATOR

8/8/2019
R:\Utilities\Engineering\UC\Proj\SR1324_ut_tsn_UC01_psh.dgn
USERNAME

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	UC2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole — W
- Power Manhole — P
- Telephone Manhole — T
- Sanitary Sewer Manhole — S
- Hand Hole for Cable — HH
- Power Transformer
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable
- *Underground TV Cable
- *Underground Fiber Optics TV Cable
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

REV: 2/1/2012

7/30/2019
C:\Projects\Engineering\UC\Proj\SR1324_ut_sym_UC02_psh.dgn
USER NAME

5/14/99

PROJECT TYPICAL DETAILS

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

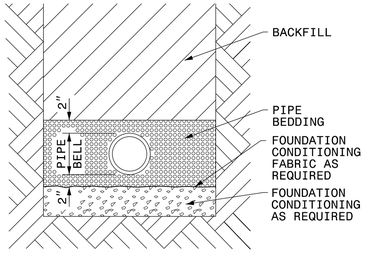
PROJECT REFERENCE NO.	SHEET NO.
	UC-3
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 028912 ENGINEER ERIC M TWEED
DocuSigned by: Eric Tweed 30DC5B9181B04C9...
8/26/2019

UTILITY CONSTRUCTION

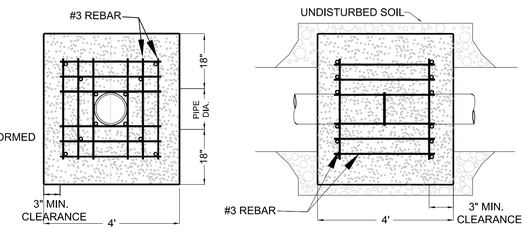
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

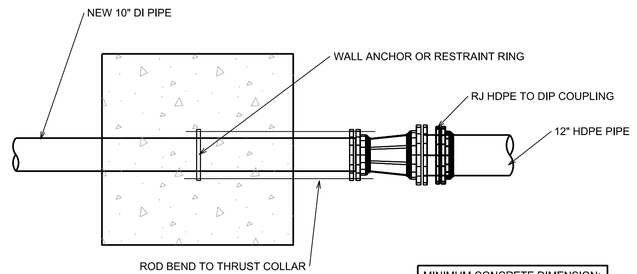
TRENCH DETAIL



PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

NOTES:
1. CONCRETE SHALL BE 300 PSI AND TRANSIT MIXED.
2. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
3. BACKFILL TAMPED IN 8" LIFTS





Sp = P x [(Dr - 1)/2]
Sp = 200 x [(11-1)/2]
Sp = 1000 psi

Poisson Effect Pullout Calculation
F=Sp x μ x π x Dm² x [1/Dr - 1/Dr²]
F=1000 x 0.45 x 3.14 x 10.29² x [1/11 - 1/11²]
F = 12,371 lbs

Concrete Weight Calcultation
[LxWxH - PipeVolume] x Density = Wt
[5 x 5 x 4 - 3.14 x 0.46² x 5] x 145 lbs/CuFt = Wt
Wt = 14,812 lbs

MINIMUM CONCRETE DIMENSION:
5' LONG
5' WIDE
4' HIGH

TRANSITION DETAIL

NO SCALE

8/26/2019
J:\Utilities\Engineering\UC\Proj\SR1324_ut_dtl_UC03_psh.dgn
jsmith

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	UC4
DESIGNED BY: EMT	
DRAWN BY: EMT	
CHECKED BY: BAW	
APPROVED BY:	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

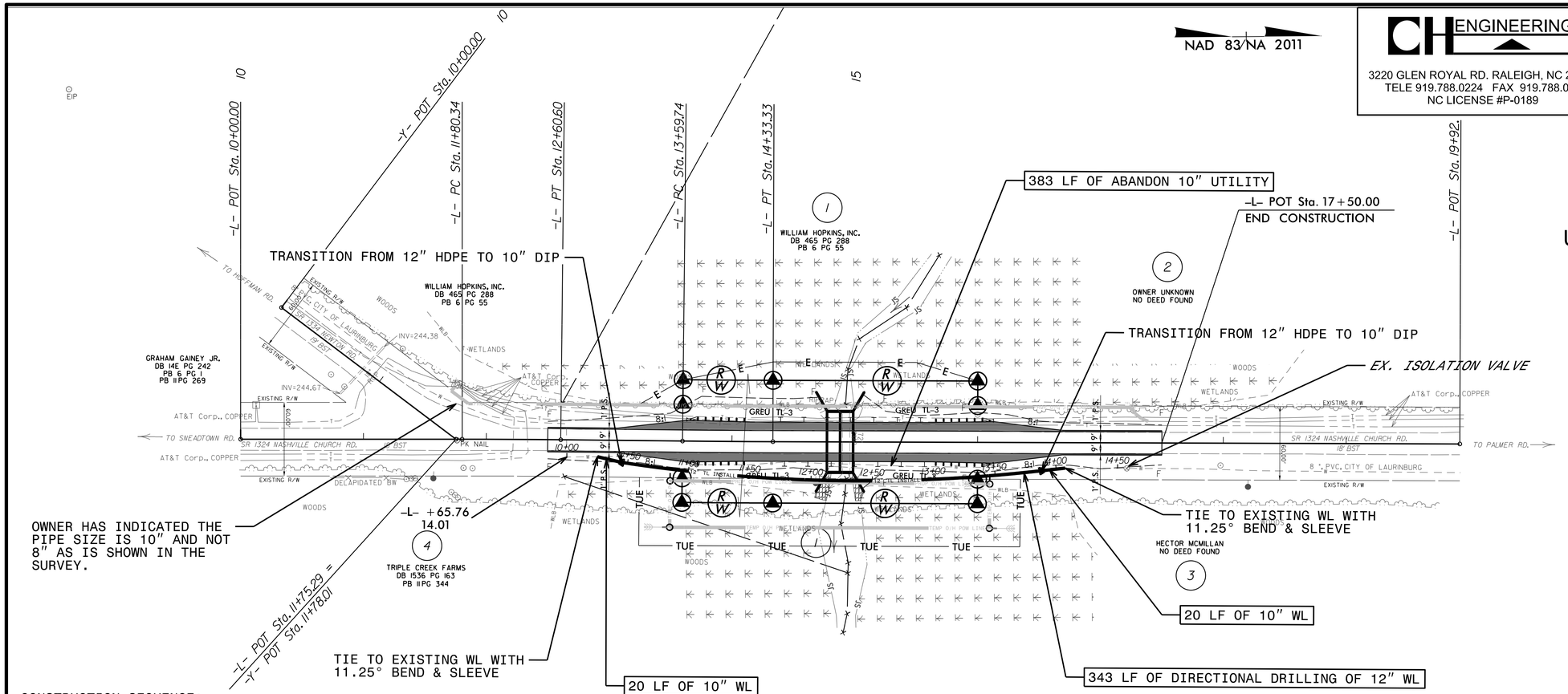
NORTH CAROLINA PROFESSIONAL SEAL 028912 ENGINEER ERIC M. TWEED
DocuSigned by:
8/26/2019
30DC2D1B1B4E4...

UTILITY CONSTRUCTION PLANS ONLY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION

NAD 83/NA 2011



CONSTRUCTION SEQUENCE:
OWNER HAS INDICATED THAT THE PORTION OF WATER LINE BEING REPLACED CAN BE PLACED OFF-LINE FOR EXTENDED PERIODS OF TIME BECAUSE IT IS LOOPED AND CAN BE BACK FED. THE INTENT IS TO CONSTRUCT THE CULVERT OVER THE OFF-LINE EXISTING WATER LINE AND THEN CONSTRUCT THE NEW WATER LINE AFTER THE CULVERT IS INSTALLED.

CONTRACTOR SHALL COORDINATE WITH OWNER TO OPERATE EXISTING VALVES PRIOR TO BEGINNING CONSTRUCTION.

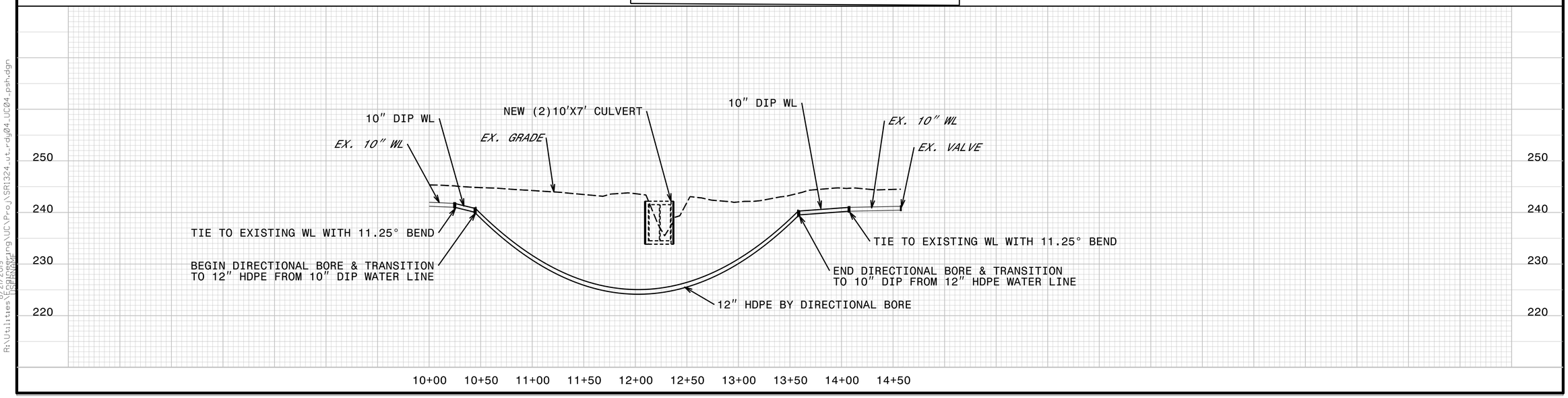
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER FITTINGS ON THIS PLAN SHEET IS 930 LBS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTES:
CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING 811 AND LOCATING EXISTING UTILITIES PRIOR TO DIGGING.

UTILITIES SHOWN IN PLANS MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE.

COORDINATE WITH OWNER FOR OPERATION OF VALVES.

PRESSURE TEST ACCORDING TO LATEST NCDOT STANDARDS.



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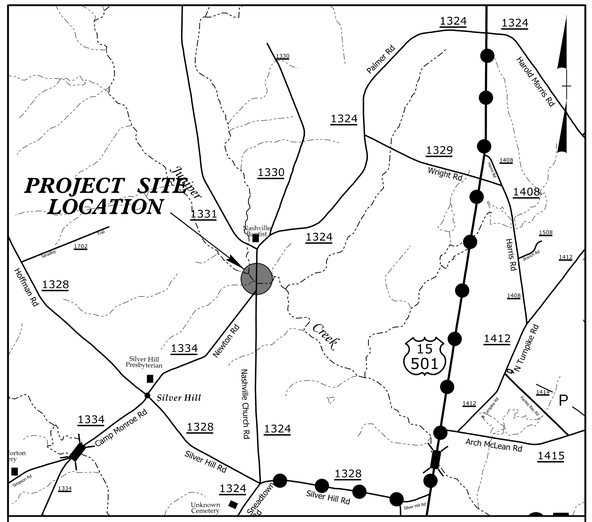
8/21/2019

09/08/99

TIP PROJECT: DF15408.2083803



VICINITY MAP

OFF-SITE DETOUR ROUTE

N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
SCOTLAND COUNTY

LOCATION: PIPE 82 2030 OVER JUNIPER CREEK ON SR 1324 (NASHVILLE CHURCH RD)

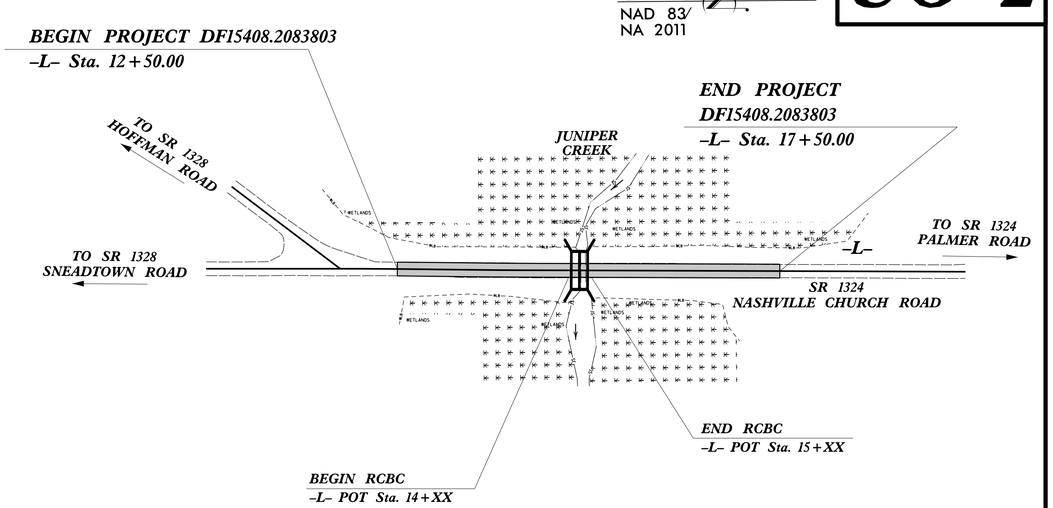
TYPE OF WORK: UTILITY RELOCATION

T.I.P. NO.	SHEET NO.
DF15408.2083803	UO–1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

UO–2

NAD 83/
NA 2011



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–2	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) POWER – LUMBEE RIVER EMC
(B) WATER – CITY OF LAURINBURG
(C) COMMUNICATIONS – AT&T

PREPARED IN THE OFFICE OF:
CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

UTILITIES PROJECT ENGINEER
Mary Jo Lee, P.E.

DIVISION OF HIGHWAYS
DIVISION 8
121 DOT DRIVE
CARTHAGE, NC 28327

JAMIE YOW	DIVISION CONTACT #1
TRAVIS MORGAN, PE	DIVISION CONTACT #2
TIM WELCH, PE	DIVISION CONTACT #3
	DIVISION CONTACT #4

12/16/2019
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USERNAME

PROJECT REFERENCE NO.	SHEET NO.
DF15408.2083803	U0-2
THIS SHEET CORRESPONDS TO RDY- 4	

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

-L-
PI Sta 12+20.47
△ = 0° 36' 47.5" (RT)
D = 0° 45' 50.2"
L = 80.27'
T = 40.13'
R = 7,500.00'

PI Sta 13+96.54
△ = 0° 25' 17.9" (LT)
D = 0° 34' 22.6"
L = 73.59'
T = 36.79'
R = 10,000.00'

NAD 83/NA 2011

-L- POT Sta. 10+00.00
-Y- POT Sta. 10+00.00
-L- PC Sta. 11+80.34
-L- PT Sta. 12+60.60
-L- PC Sta. 13+59.74
-L- PT Sta. 14+33.33
-L- POT Sta. 19+92.58
-L- POT Sta. 11+75.29 = -Y- POT Sta. 11+78.01

AT&T TIE POINT

AT&T INSTALLED DATE 3-1-19 DIRECTIONALLY BORED APPROX. 10' BELOW EXISTING CULVERT TO BE ABANDONED (DATUR)

AT&T TIE POINT

-L- POT Sta. 17+50.00
END CONSTRUCTION

AT&T ABANDONED

TO HOFFMAN RD.

TO SNEADTOWN RD.

TO PALMER RD.

SR 1324 NASHVILLE CHURCH RD. 18' BST

EXISTING R/W

AT&T Corp., COPPER

WOODS

WETLANDS

DELAPIDATED BW

PK NAIL

8 " PVC, CITY OF LAURINBURG

N 0° 29' 13.3" E

N 37° 33' 54.9" E

N 1° 06' 00.8" E

N 0° 40' 42.9" E

1 WILLIAM HOPKINS, INC. DB 465 PG 288 PB 6 PG 55

2 OWNER UNKNOWN NO DEED FOUND

3 HECTOR MCMILLAN NO DEED FOUND

4 TRIPLE CREEK FARMS DB 1536 PG 163 PB 11PG 344

GRAHAM GAINEY JR. DB 14E PG 242 PB 6 PG 1 PB 11PG 269

GREU TL-3

PROP U/G TEL CABLES

PROP O/H POW LINES

TEMP O/H POW LINES

TEMP U/G COMMUN CABLES

PROP U/G COMMUN CABLES

TOE

RW

LREMC NEW POLE

LREMC TEMP POLE

LREMC REPLACE POWER LINE

LREMC REMOVE POLE

LREMC TEMP POWER LINE

AT&T CABLE TO BE LAYED OUT IN TUE UNTIL ROAD CONSTRUCTION IS COMPLETED

AFTER CONSTRUCTION, AT&T CABLE TO BE PULLED BACK INTO THE RIGHT OF WAY AND PLACED ACROSS CULVERT AT 24" DEPTH

-L- POC Sta. 12+50.00
BEGIN CONSTRUCTION

2@10'x7' RCBC W/BEVELS
BURIED 1' W/SILLS
US INV.=234.52'
DS INV.=234.52'
SLOPE=0.0%
FILL WITH NATIVE MATERIAL

CL II RIP RAP
BANK STABILIZATION
LENGTH=24 FT
EST.=7 TON, 20 SY GEOTEXTILE

CL II RIP RAP
BANK STABILIZATION
LENGTH=24 FT
EST.=9 TON, 24 SY GEOTEXTILE

PROPERTY LINE IS RUN OF THE CREEK AS IT MEANDERS

CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

12/6/2019
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6/23/16

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255 250 245 240 235

246.03

4:1 0.020 0.020 4:1

S.S. 245.18 EP EP S.S. 245.05

245.88

12+75.00

255 250 245 240

246.10

0.020 0.020 4:1

S.S. 245.53 EP EP S.S. 245.28

246.07

12+50.00

250 245 240

EP EP

246.26

12+25.00

250 245 240

EP EP

246.50

12+00.00

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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255 250 245 240 235

245.82

0.020 0.020

3:1 4:1

S.S. 243.87 EP 245.43 EP S.S. 244.52

13+50.00

245.89

4:1 0.020 0.020 4:1

S.S. 244.29 EP 245.40 EP S.S. 244.85

13+25.00

245.96

4:1 0.020 0.020 4:1

S.S. 244.77 EP 245.58 EP S.S. 244.88

13+00.00

9/19/2019
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255 250 245 240 235

245.62

0.020 0.020

3:1 4:1

EP EP

245.48

S.S. 239.60 S.S. 244.10

14+25.00

245.69

0.020 0.020

3:1 4:1

EP EP

245.50

S.S. 239.56 S.S. 244.15

14+00.00

245.75

0.020 0.020

3:1 4:1

EP EP

245.48

S.S. 244.24

13+75.00

9/19/2019
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PLOTTED BY: Ryan Hall

6/23/16

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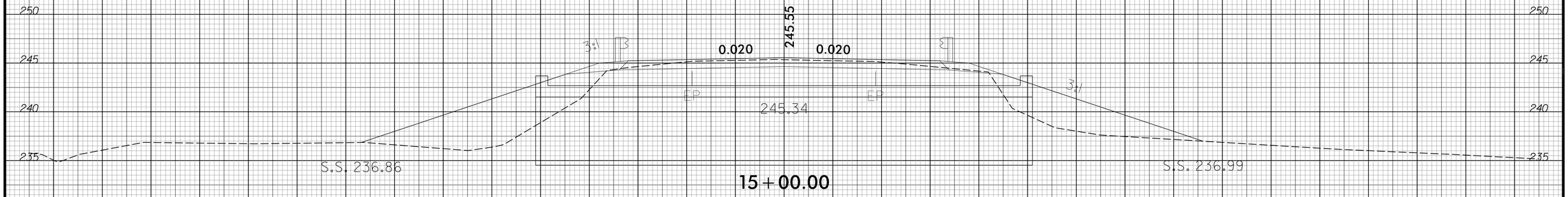

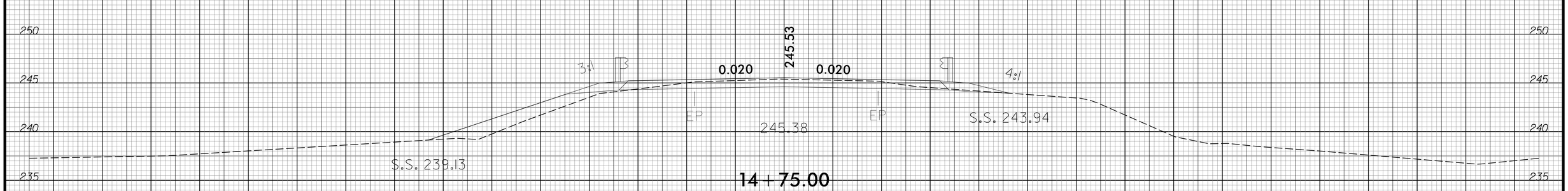

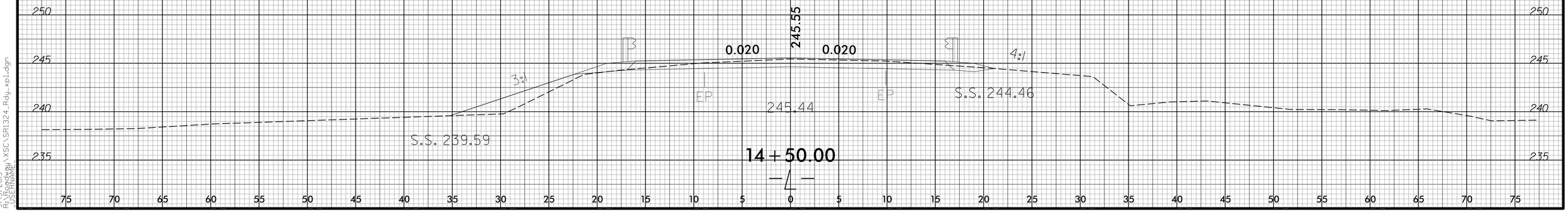

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S.S. 244.38 | EP | 245.74 | EP | S.S. 244.07

15+75.00

4:1 | 0.020 | 245.71 | 0.020 | 4:1

S.S. 244.49 | EP | 245.69 | EP | S.S. 244.08

15+50.00

4:1 | 0.020 | 245.61 | 0.020 | 4:1

S.S. 243.51 | EP | 245.52 | EP | S.S. 244.09

15+25.00

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246.10

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S.S. 245.18 EP EP S.S. 244.94

245.87

16+50.00

246.00

4:1 0.020 0.020 4:1

S.S. 244.42 EP EP S.S. 244.50

245.77

16+25.00

245.91

4:1 0.020 0.020 4:1

S.S. 244.18 EP EP S.S. 244.12

245.77

16+00.00

9/19/2019
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255 250 245 240 235

246.40

0.020 0.020

4:1

S.S. 245.79 EP EP S.S. 244.71

246.34

17+25.00

255 250 245 240 235

246.30

4:1 0.020 0.020 4:1

S.S. 245.61 EP EP S.S. 244.33

246.20

17+00.00

255 250 245 240 235

246.20

4:1 0.020 0.020 4:1

S.S. 245.48 EP EP S.S. 244.94

246.04

16+75.00

—℄—

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250
245
240

EP
246.66
18+00.00
EP

250
245
240

EP
246.57
17+75.00
EP

255
250
245
240
235

246.50
0.020
0.020
4.0%
S.S. 245.98
EP
246.46
17+50.00
EP
S.S. 245.06

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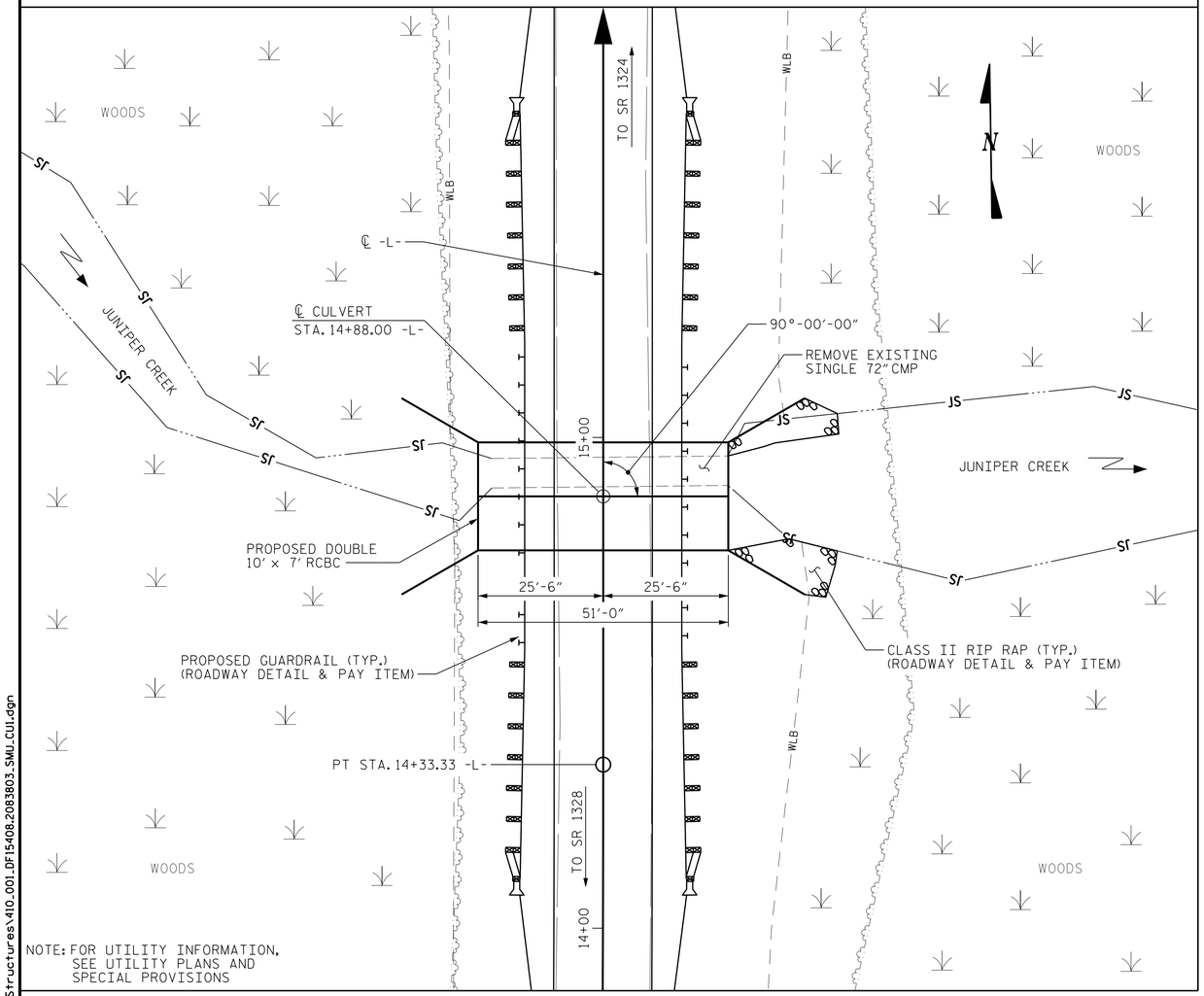
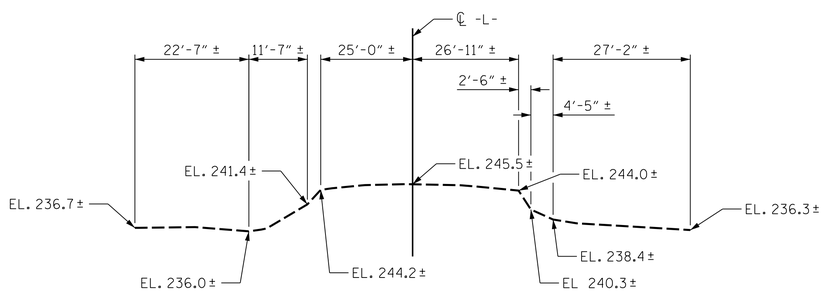


LOCATION SKETCH

GRADE POINT ELEVATION @ 14+88.00 -L- = 245.54
BED ELEVATION @ 14+88.00 -L- = 234.52
ROADWAY SLOPES = 3:1



PROFILE ALONG ℄ CULVERT

NOTES

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL----------2.45 FT.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 LINE OF 73"CM PIPE LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

EXCAVATE 1 FT. BELOW CULVERT AND FOOTINGS AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.

THE TOTAL QUANTITY OF FOUNDATION CONDITIONING MATERIAL INCLUDES A CONTINGENCY AMOUNT OF 192 TONS TO BE USED AT THE DISCRETION OF THE ENGINEER.

CULVERT BACKFILL IS INCIDENTAL TO CULVERT EXCAVATION AND/OR LUMP SUM GRADING.

CULVERT BACKFILL SHOULD BE TYPE 3 SELECT MATERIAL (SECTION 1016) UP TO THE TOP OF WEEP HOLE ELEVATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE	= 920 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 245.8 FT.
DRAINAGE AREA	= 15.50 SQ. MI.
BASE DISCHARGE (Q100)	= 1360 CFS
BASE HIGH WATER ELEVATION	= 246.8 FT.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 733.5 CFS
FREQUENCY OF OVERTOPPING FLOOD	= <25 YRS.
OVERTOPPING FLOOD ELEVATION	= 245.5 FT.*

-L- PROFILE DATA

PVI STA. 14+85.00 -L-
PVI EL. = 245.45
VC = 100.00'
g1 = -0.2764%
g2 = +0.3961%

*SAG OCCURS AT STA. 14+76.00 -L- EL. 245.53

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE			
BARREL @	2.16 CY/FT	110.0	C.Y.
WING ETC.		31.7	C.Y.
TOTAL		141.7	C.Y.
REINFORCING STEEL			
BARREL		14,815	LBS.
WINGS ETC.		1,807	LBS.
TOTAL		16,622	LBS.
CULVERT EXCAVATION		LUMP SUM	
FOUNDATION CONDITIONING MATERIAL		286 TONS	
REMOVAL OF EXISTING STRUCTURE		LUMP SUM	

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. DF15408.2083803
SCOTLAND COUNTY
STATION: 14+88.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 10 FT. X 7 FT. CONCRETE BOX CULVERT 90° SKEW

DRAWN BY : J.I. BREWER DATE : 07/19
CHECKED BY : B.E. ATKINSON DATE : 07/19
DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 07/19

NORTH CAROLINA PROFESSIONAL SEAL 46029 ENGINEER JULIA I. BREWER
11/6/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

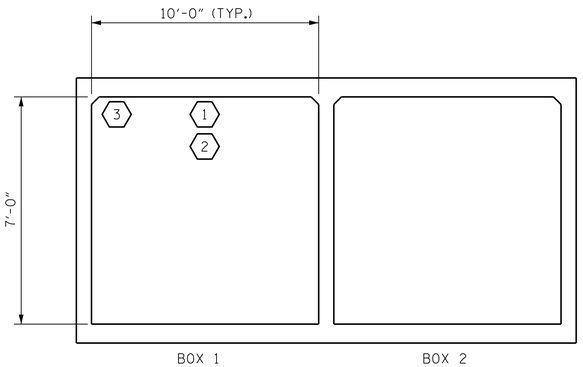
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-1
TOTAL SHEETS 5

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	⟨#⟩ CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
								MOMENT				SHEAR				
							LIVE-LOAD FACTORS γ_{LL}	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	⟨1⟩	1.18	--	1.75	1.18	2	TOP SLAB	5.00	1.23	2	TOP SLAB	0.00	
		HL-93 (OPERATING)	N/A		1.54	--	1.35	1.54	2	TOP SLAB	5.00	1.59	2	TOP SLAB	0.00	
		HS-20 (INVENTORY)	36.000	⟨2⟩	1.18	42.48	1.75	1.18	2	TOP SLAB	5.00	1.23	2	TOP SLAB	0.00	
		HS-20 (OPERATING)	36.000		1.54	55.44	1.35	1.54	2	TOP SLAB	5.00	1.59	2	TOP SLAB	0.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.17	29.30	1.40	2.17	1	TOP SLAB	5.00	2.28	2	TOP SLAB	0.00	
		SNGARBS2	20.000		2.03	40.60	1.40	2.03	2	TOP SLAB	5.00	2.12	2	TOP SLAB	0.00	
		SNAGRIS2	22.000		2.12	46.64	1.40	2.17	2	TOP SLAB	5.00	2.12	2	TOP SLAB	0.00	
		SNCOTTS3	27.250		1.27	34.61	1.40	1.42	1	EXTERIOR WALL	7.00	1.27	2	TOP SLAB	0.00	
		SNAGGRS4	34.925		1.42	49.59	1.40	1.42	1	EXTERIOR WALL	7.00	1.55	2	TOP SLAB	0.00	
		SNS5A	35.550		1.43	50.84	1.40	1.43	1	EXTERIOR WALL	7.00	1.43	2	TOP SLAB	0.00	
		SNS6A	39.950		1.40	55.93	1.40	1.42	1	EXTERIOR WALL	7.00	1.40	2	TOP SLAB	0.00	
		SNS7B	42.000		1.41	59.22	1.40	1.42	1	EXTERIOR WALL	7.00	1.41	2	BOTTOM SLAB	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.75	57.75	1.40	1.75	1	TOP SLAB	10.00	1.97	1	TOP SLAB	10.00	
		TNT4A	33.075		1.48	48.95	1.40	1.54	2	TOP SLAB	0.00	1.48	2	TOP SLAB	0.00	
		TNT6A	41.600		1.42	59.07	1.40	1.50	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	
		TNT7A	42.000		1.42	59.64	1.40	1.48	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	
		TNT7B	42.000		1.42	59.64	1.40	1.48	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	
		TNAGRIT4	43.000		1.33	57.19	1.40	1.33	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	
		TNAGT5A	45.000		1.32	59.40	1.40	1.32	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	
		TNAGT5B	45.000	⟨3⟩	1.22	54.90	1.40	1.22	2	TOP SLAB	0.00	1.42	2	TOP SLAB	0.00	



LRFR SUMMARY

(LOOKING DOWNSTREAM)

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

1.

2.

3.

4.

⟨#⟩ CONTROLLING LOAD RATING

⟨1⟩ DESIGN LOAD RATING (HL-93)

⟨2⟩ DESIGN LOAD RATING (HS-20)

⟨3⟩ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

PROJECT NO. DF15408.2083803

SCOTLAND COUNTY

STATION: 14+88.00 -L-

SHEET 2 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 046029 ENGINEER JULIA I. BREWER

Digitally signed by Julia I. Brewer

8/14/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-2

TOTAL SHEETS 5

STD. NO. LRFR5

ASSEMBLED BY:	J.I. BREWER	DATE:	07/19
CHECKED BY :	B.E. ATKINSON	DATE:	07/19
DESIGN ENGINEER OF RECORD:	J.I. BREWER	DATE:	07/19
DRAWN BY :	WMC 7/11	REV. 10/1/11	MAA/GM
CHECKED BY :	GM 7/11	REV. 12/17	MAA/THC

8/14/2019
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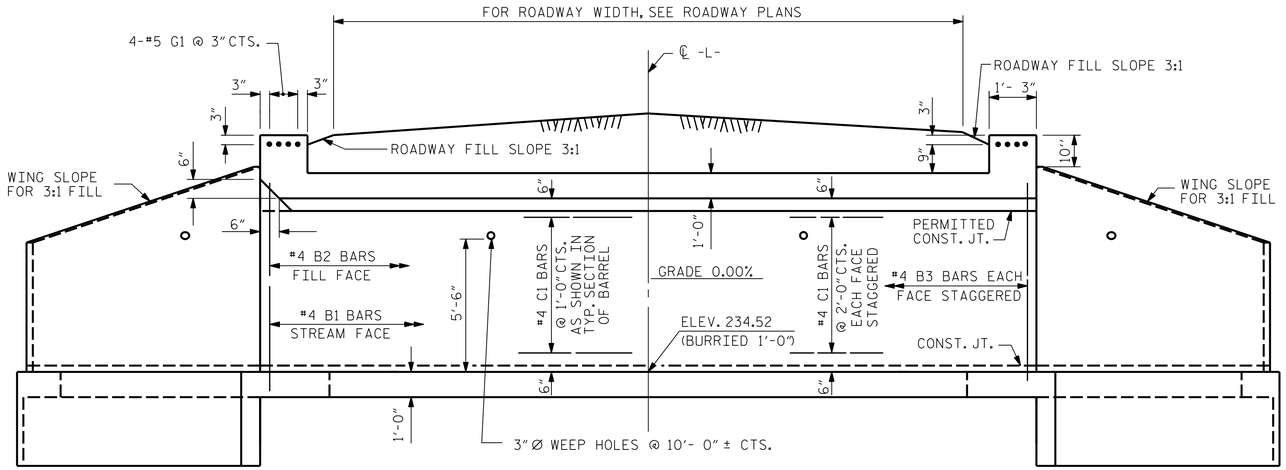
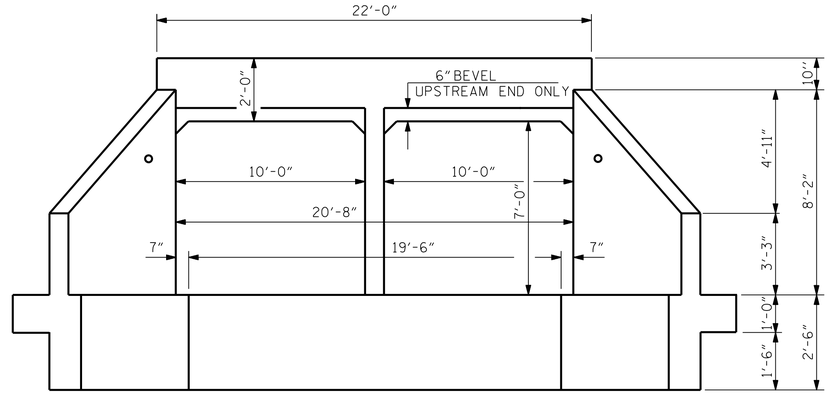
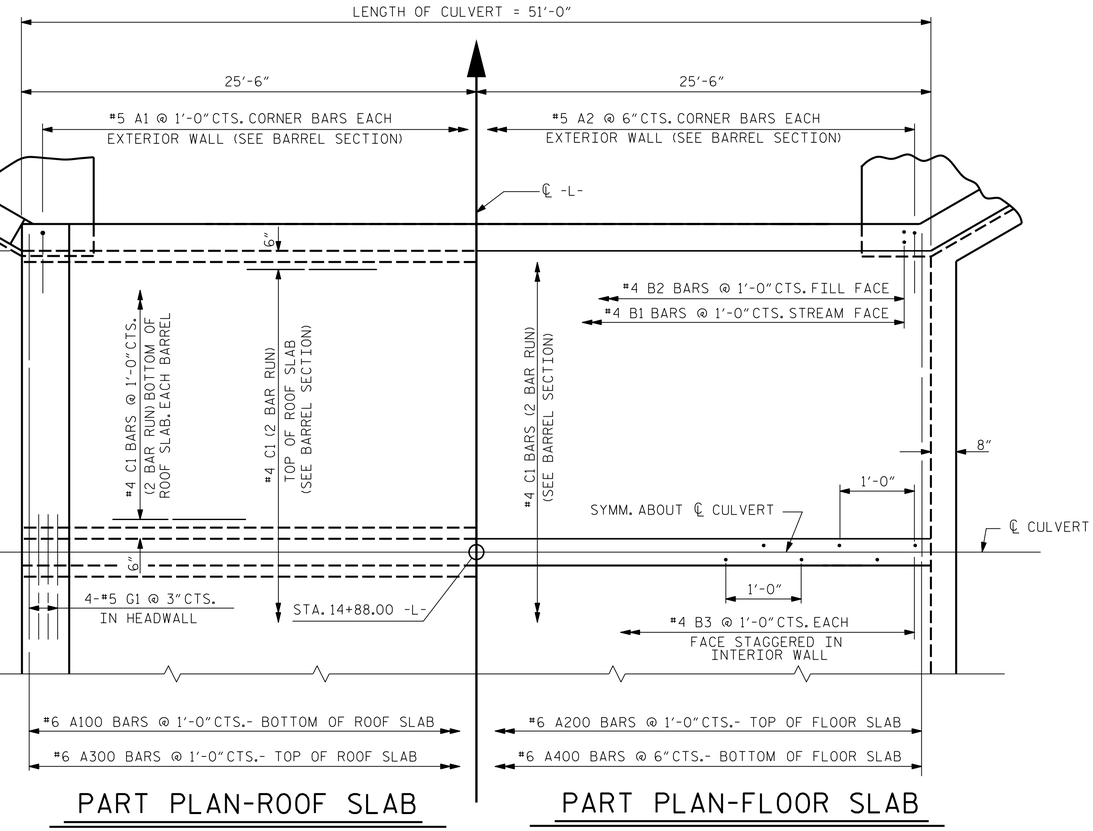


CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION



PART PLAN-ROOF SLAB

PART PLAN-FLOOR SLAB

(FOR LOCATION OF SILLS SEE SHEET 4 OF 5)

ASSEMBLED BY:	J.I. BREWER	DATE:	07/19
CHECKED BY :	B.E. ATKINSON	DATE:	07/19
DESIGN ENGINEER OF RECORD:	J.I. BREWER	DATE:	07/19
DRAWN BY :	TSS II/90	REV. 6/19	MAA/THC
CHECKED BY :	ARB II/90		

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NORTH CAROLINA PROFESSIONAL SEAL 46029 ENGINEER JOSIA I. BREWER
DocuSigned by: Josia I. Brewer
8/14/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

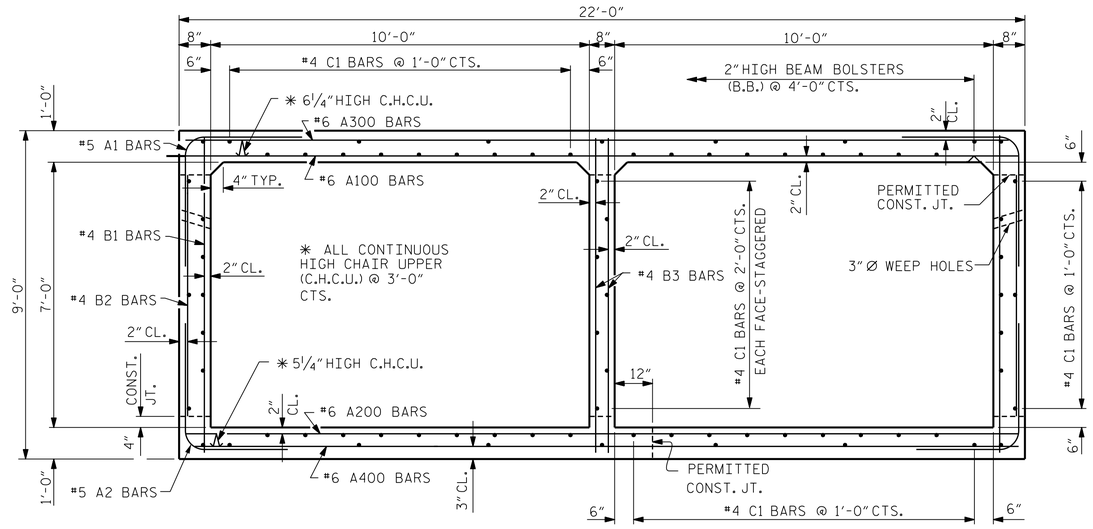
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			5

PROJECT NO. DF15408.2083803
SCOTLAND COUNTY
STATION: 14+88.00 -L-
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 10 FT. X 7 FT. CONCRETE BOX CULVERT 90° SKEW

STD. NO. CB90_2

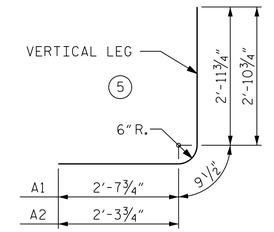


RIGHT ANGLE SECTION OF BARREL

THERE ARE 77 "C" BARS IN SECTION OF BARREL.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

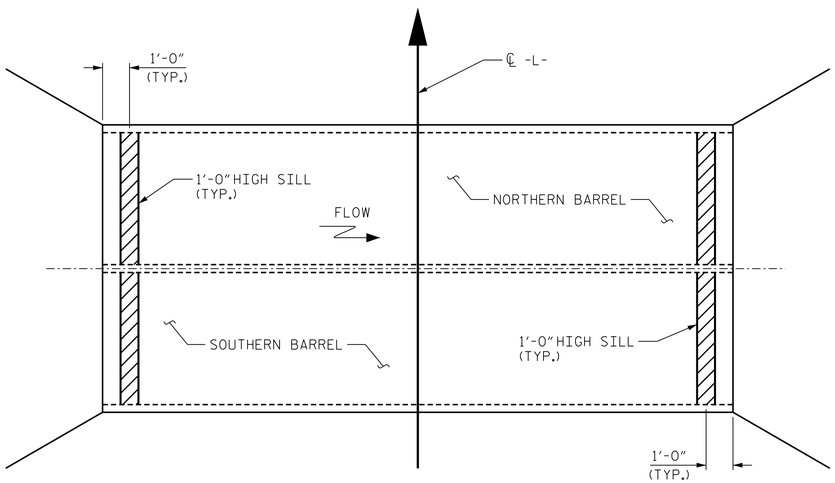


BILL OF MATERIAL

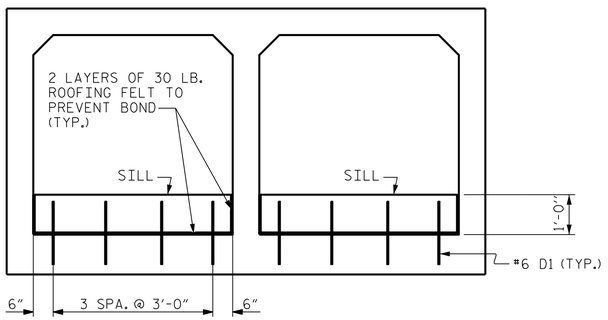
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	102	#5	5	6'-5"	683
A2	204	#5	5	6'-0"	1277
A100	51	#6	STR	21'-8"	1660
A200	51	#6	STR	21'-8"	1660
A300	51	#6	STR	21'-8"	1660
A400	102	#6	STR	21'-8"	3319
B1	102	#4	STR	8'-7"	585
B2	102	#4	STR	6'-4"	432
B3	102	#4	STR	8'-7"	585
C1	154	#4	STR	26'-7"	2735
D1	16	#6	STR	1'-7"	38
G1	8	#5	STR	21'-8"	181
REINFORCING STEEL					14,815 LBS.

SPLICE LENGTH CHART

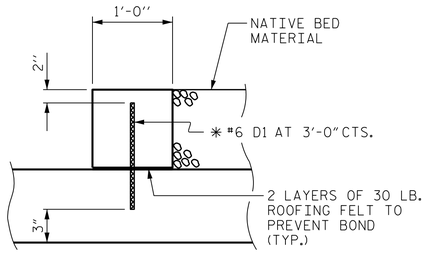
BAR	SIZE	SPLICE LENGTH
A200	#6	2'-9"
A400	#6	2'-9"
B1	#4	1'-10"
B3	#4	1'-10"
C1	#4	2'-5"



PLAN OF SILL LOCATIONS



ELEVATION



SECTION THROUGH SILL

* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

CULVERT SILL DETAILS

MATERIAL EXCAVATED FROM THE EXISTING BED SHALL BE STOCKPILED FOR USE IN THE PROPOSED CULVERT, THE MATERIAL SHALL BE PLACED IN BOTH BARRELS TO A DEPTH OF 1 FOOT. BED MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

THE ENTIRE COST OF WORK REQUIRED TO PLACE THE EXCAVATED MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR CULVERT EXCAVATION.

THE ENTIRE COST OF WORK REQUIRED TO CONSTRUCT THE SILL SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

PROJECT NO. DF15408.2083803

SCOTLAND COUNTY

STATION: 14+88.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 10 FT. X 7 FT. CONCRETE BOX CULVERT 90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 46029 ENGINEER JULIA I. BREWER
Digitally signed by Julia I. Brewer
8/14/2019

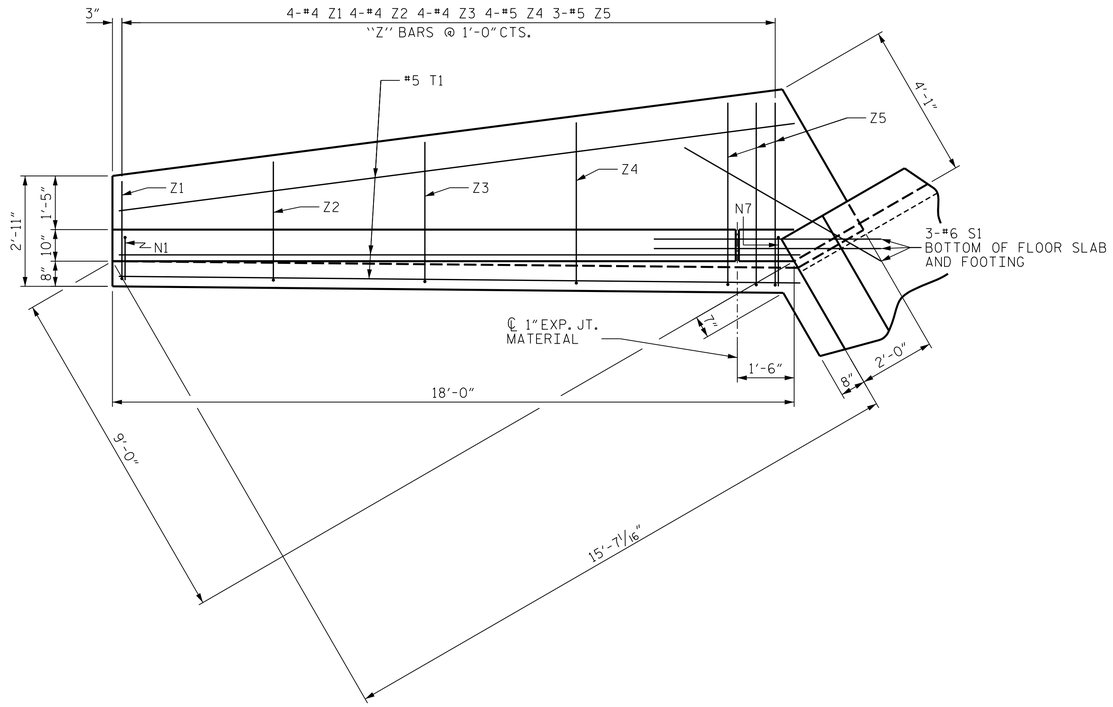
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

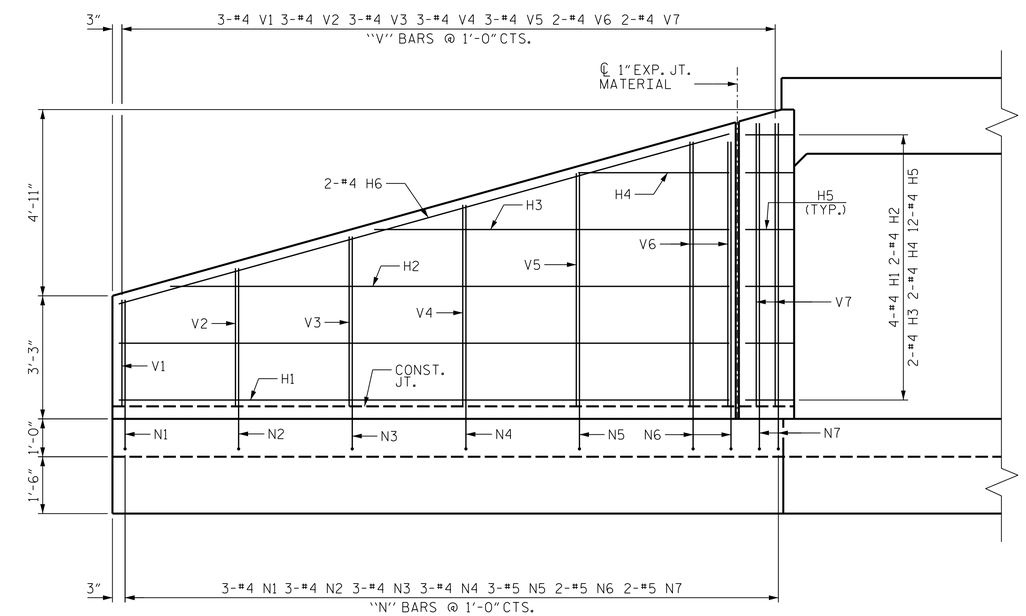
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4
1			3			TOTAL SHEETS
2			4			5

DRAWN BY :	J.I. BREWER	DATE :	07/19
CHECKED BY :	B.E. ATKINSON	DATE :	07/19
DESIGN ENGINEER OF RECORD :	J.I. BREWER	DATE :	07/19

8/14/2019
9:47:08 AM
User: jlsraelnalm
Filename: N:\NC Bridges\WI8033.03_Scotland_E5_(SR1324)\DF15408.2083803\Structures\410_007_DF15408.2083803_SMU_CU4.dgn



PLAN



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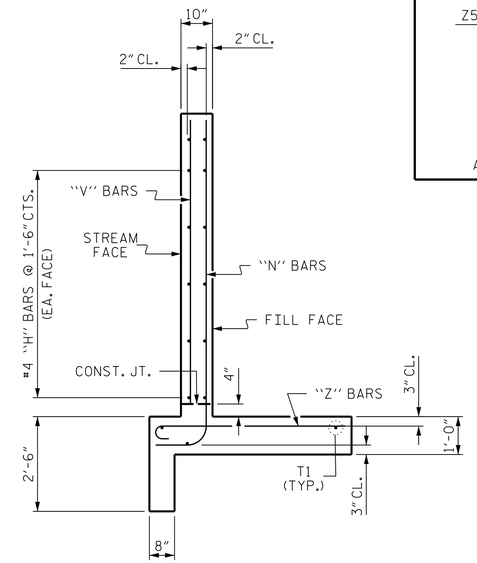
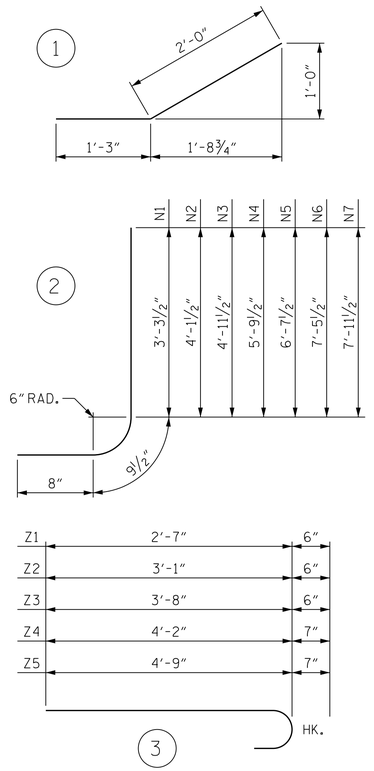


TYPICAL WING SECTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	16	#4	STR	16'-1"	172
H2	8	#4	STR	14'-8"	78
H3	8	#4	STR	9'-3"	49
H4	8	#4	STR	3'-10"	20
H5	48	#4	1	3'-3"	104
H6	8	#4	STR	16'-8"	89
N1	12	#4	2	4'-9"	38
N2	12	#4	2	5'-7"	45
N3	12	#4	2	6'-5"	51
N4	12	#4	2	7'-3"	58
N5	12	#5	2	8'-1"	101
N6	8	#5	2	8'-11"	74
N7	8	#5	2	9'-5"	79
S1	12	#6	STR	6'-0"	108
T1	12	#5	STR	18'-0"	225
V1	12	#4	STR	2'-9"	22
V2	12	#4	STR	3'-7"	29
V3	12	#4	STR	4'-5"	35
V4	12	#4	STR	5'-3"	42
V5	12	#4	STR	6'-1"	49
V6	8	#4	STR	6'-11"	37
V7	8	#4	STR	7'-5"	40
Z1	16	#4	3	3'-1"	33
Z2	16	#4	3	3'-7"	38
Z3	16	#4	3	4'-2"	45
Z4	16	#5	3	4'-9"	79
Z5	12	#5	3	5'-4"	67

TOTAL REINFORCING STEEL
FOR 4 WINGS 1,807 LBS

CLASS A CONCRETE
4 WINGS 27.2 CY
2 HEADWALLS 2.1 CY
2 END CURTAIN WALLS 2.4 CY
TOTAL 31.7 CY

PROJECT NO. DF15408.2083803
SCOTLAND COUNTY
STATION: 14+88.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR CONCRETE BOX CULVERT

H = 7'-0" SLOPE = 3:1
90° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 046029 ENGINEER DELTA I. BREWER
8/14/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-5
TOTAL SHEETS 5

DRAWN BY : J.I. BREWER DATE : 07/19
CHECKED BY : B.E. ATKINSON DATE : 07/19
DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 07/19

8/14/2019
9:47:41 AM
User: jisrcelnaim
Filename: N:\NC Bridges\MI8033.03_Scotland_E5_(SR1324)\DF15408.2083803\Structures\410_009_DF15408.2083803_SMU_CU5.dgn

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "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 INCH 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.

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (/) RGW REV. 5-7-03 RWW (/) JTE REV. 10-1-11 MAA (/) GM
REV. 8-16-99 RWW (/) LES REV. 5-1-06 TLA (/) GM REV. 12-17 MAA (/) THC