This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

DocuSign Envelope ID: 5D6BC5D9-67F6-452F-AB85-EC3FE4CBE29C

09/08/99

TIP PROJECT: 17BP.7.R.138

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.138	1	

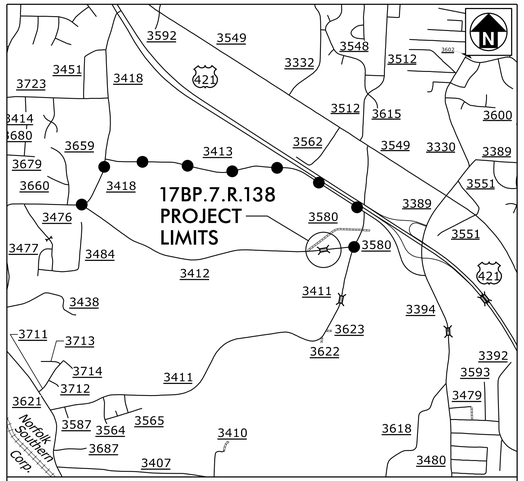
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

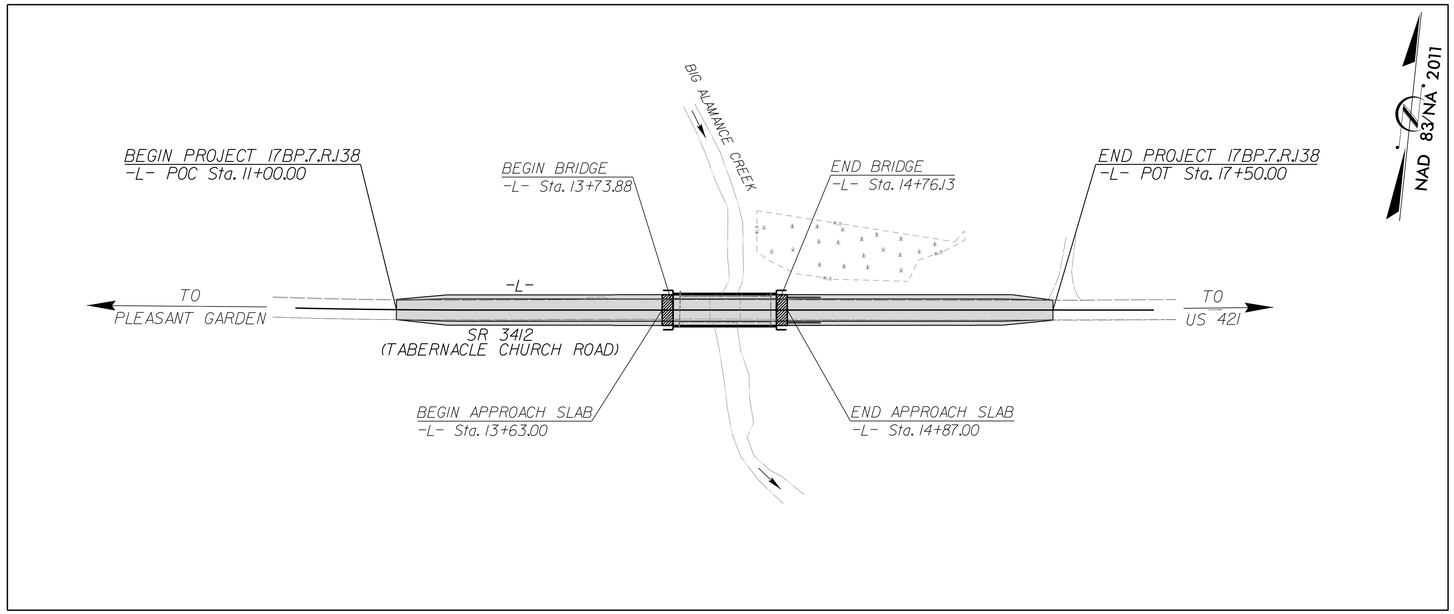
GUILFORD COUNTY

LOCATION: BRIDGE NO. 584 OVER BIG ALAMANCE CREEK ON SR 3412 (TABERNACLE CHURCH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



VICINITY MAP
(NOT TO SCALE)
OFF-SITE DETOUR



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT (2015) = 530
ADT (2025) = 1,060

V = 45 MPH

FUNC CLASS = LOCAL

SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT = 0.104 MILES

LENGTH STRUCTURE TIP PROJECT = 0.019 MILES

TOTAL LENGTH TIP PROJECT = 0.123 MILES

Prepared in the Office of Simpson Engineers & Associates for

DIVISION 7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

DAVID SIMPSON, PE
PROJECT ENGINEER

REID B. ROBOL, PE
HYDRAULIC ENGINEER

NCDOT CONTACT:

TIM POWERS, PE
DIVISION BRIDGE PROGRAM MANAGER

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER JAMES TIMOTHY JORDAN

DocuSigned by: James Timothy Jordan
SIGNATURE:
02 February 2022
P.E.

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043870 ENGINEER REID B. ROBOL

DocuSigned by: Reid B. Robol
SIGNATURE:
02 February 2022
P.E.

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com

LICENSE NO. C-2521

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

7:34:30 AM
R:\Roadway\Proj\400584_rdy_tsh.dgn
JOR66165

DocuSign Envelope ID: 29F2B25C-B72D-475A-B198-7B77D3033259

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 JAMES TIMOTHY FOGLEMAN

DocuSigned by: JAMES TIMOTHY FOGLEMAN
10/11/2022

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:
MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01–16–18

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 II.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT FOR THE STRUCTURE ONLY. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS–SECTIONS PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T AND SPECTRUM.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01–16–2018

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	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 – MAJOR STRUCTURES	
422.02	Bridge Approach Fills – Type II Modified Approach Fill
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A–1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C–1	GUARDRAIL INSTALLATION DETAIL
2C–2	GUARDRAIL ANCHOR UNITS DETAIL
3B–1	GUARDRAIL, EARTHWORK, AND SHOULDER BERM GUTTER SUMMARY
3D–1	DRAINAGE SUMMARY
4	PLAN AND PROFILE SHEET
RW–01 THRU RW–04	SURVEY CONTROL SHEET
TMP–1 THRU TMP–4	TRAFFIC MANAGEMENT PLANS
EC–1 THRU EC–5	EROSION CONTROL PLANS
RF–1	REFORESTATION DETAIL SHEET
UO–1 THRU UO–2	UTILITIES BY OTHERS PLANS
X–1 THRU X–3	CROSS–SECTIONS
S–1 THRU S–19	STRUCTURE PLANS
SN	STRUCTURE NOTES

JOR66165
R:\Roadway\Proj\400584_rdy_psh1A.dgn
10/11/2022 2:24:38 PM

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	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 — 23
- 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
- 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.

12/2/2016
JOR66165
R:\Roadway\Proj\400584_rdy_pshlB.dgn
2/2/2022 7:34:42 AM

DocuSign Envelope ID: 5D6BC5D9-67F6-452F-AB85-EC3FE4CBE29C

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	2A–1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

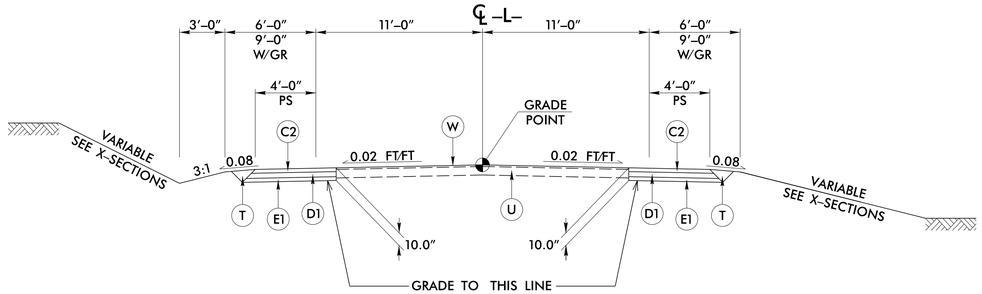
DocuSigned by:
02 February 2022

MOTT MACDONALD I & E, LLC
LICENSE NO. F–0669

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:

MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay–Varina, NC 27526
www.mottmac.com

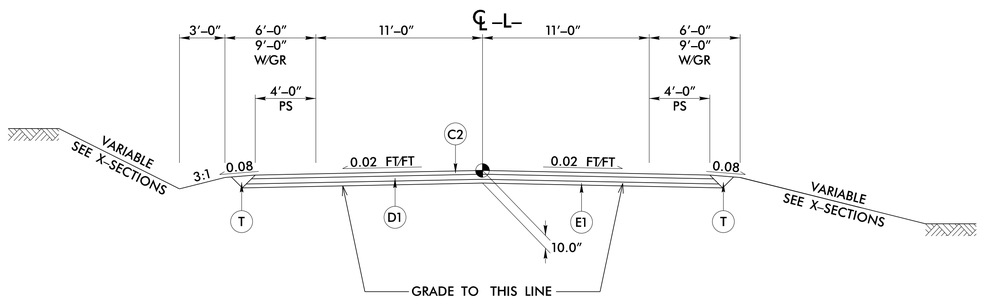


TYPICAL SECTION NO. 1

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
–L– STA 11+00.00 TO 11+50.00

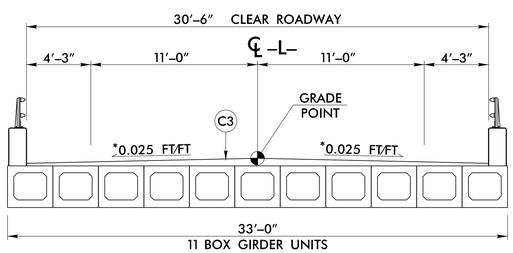
USE TYPICAL SECTION NO. 1:
–L– STA 11+50.00 TO 12+75.00
–L– STA 15+90.00 TO 17+00.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING:
–L– STA 17+00.00 TO 17+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
–L– STA 12+75.00 TO 13+73.88 (BEGIN BRIDGE)
–L– STA 14+76.13 (END BRIDGE) TO 15+90.00

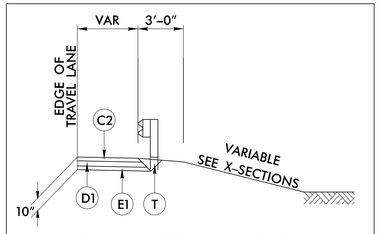


*.025 REQUIRED TO ACCOMADATE HYDRAULIC SPREAD

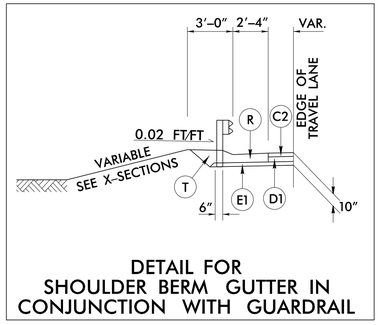
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
–L– STA 13+73.88 (BEGIN BRIDGE) TO 14+76.13 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR PAVEMENT DEPTHS ON STRUCTURE

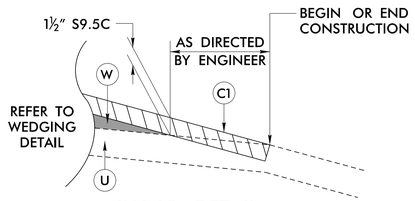


DETAIL FOR FULL DEPTH PAVED SHOULDER IN CONJUNCTION WITH GUARDRAIL



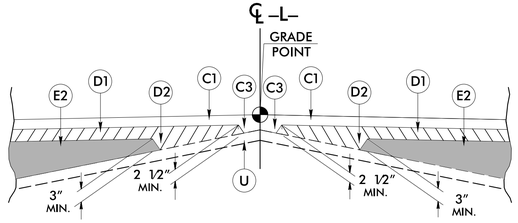
DETAIL FOR SHOULDER BERM GUTTER IN CONJUNCTION WITH GUARDRAIL

–L– STA 14+87.00 TO 15+20.00 RT
–L– STA 14+87.00 TO 15+20.00 LT



MILLING DETAIL

DETAIL SHOWING PROFILE VIEW



Detail Showing Method of Wedging

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½″ IN DEPTH OR GREATER THAN 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. 3″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 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.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE DETAIL SHOWING METHOD OF WEDGING).

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

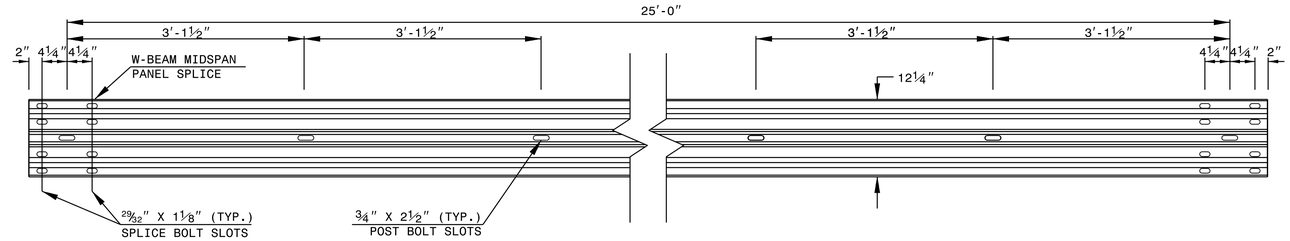
JOB66165
R:\Roadway\Proj\400584_rdy_typ.dgn
2/2/2022 7:34:48 AM

DocuSign Envelope ID: 5D6BC5D9-67F6-452F-AB85-EC3FE4CBE29C

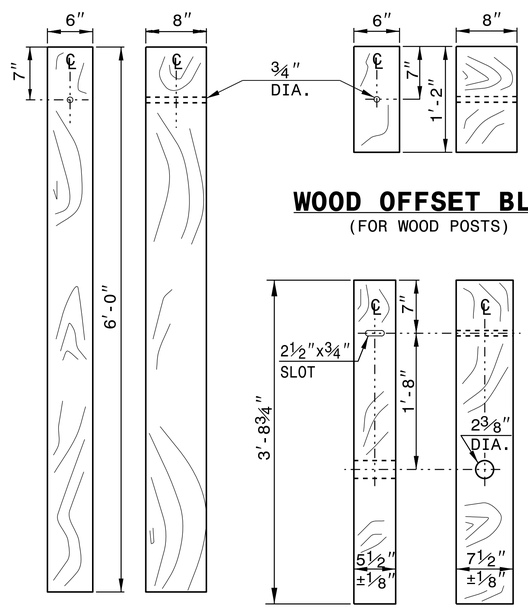
PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.138 - GUILFORD 584	2C-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION



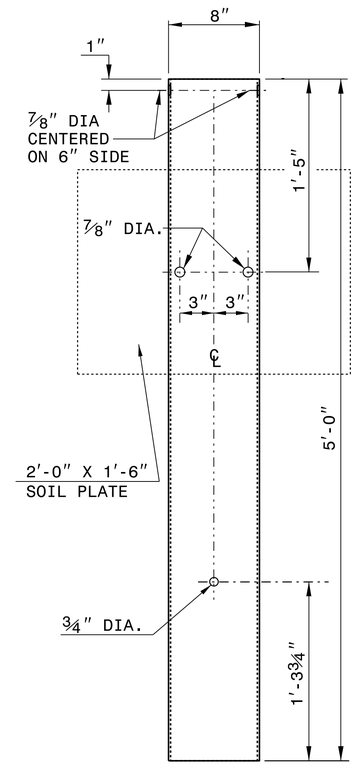
STANDARD W-BEAM GUARDRAIL



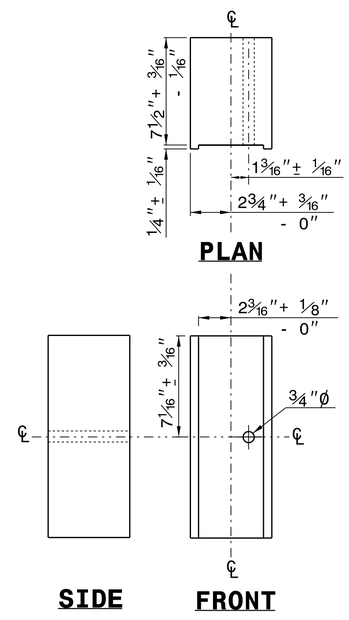
STANDARD LINE POST

WOOD OFFSET BLOCK
(FOR WOOD POSTS)

SHORT WOOD BREAKAWAY POST



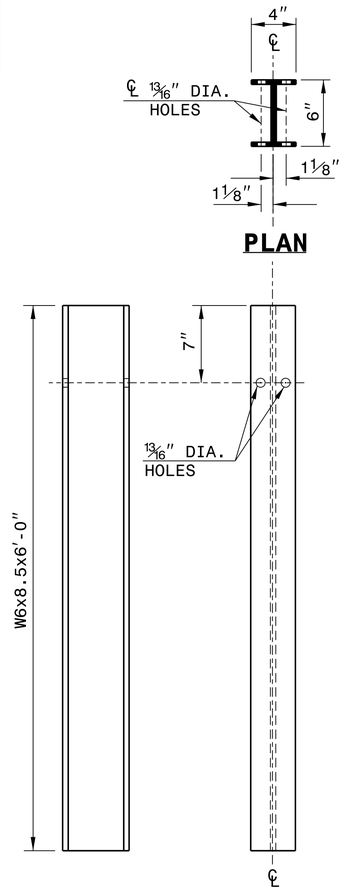
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

SHEET 6 OF 8
862D02

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 022071 ENGINEER
DocuSigned by: Ronald Vaughan
F81B6038...
02 February 2022

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

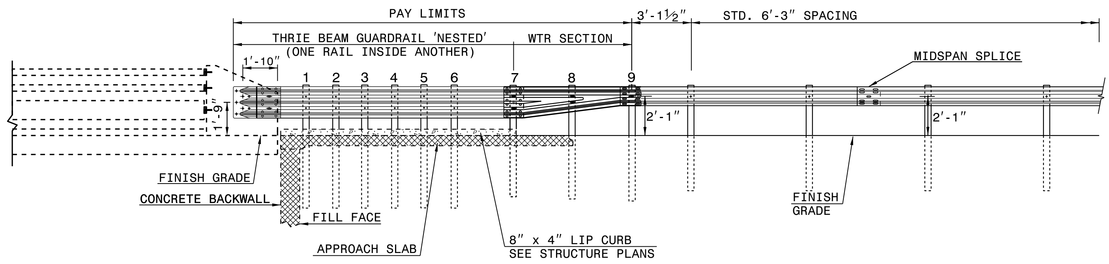
SEE TITLE BLOCK

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

DocuSign Envelope ID: 50B0C509-67F6-42CF-AB86-ECDFE4CBE29C

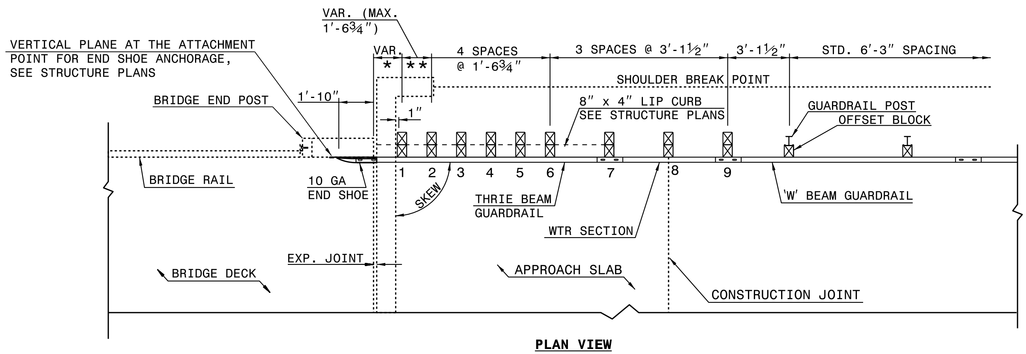
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

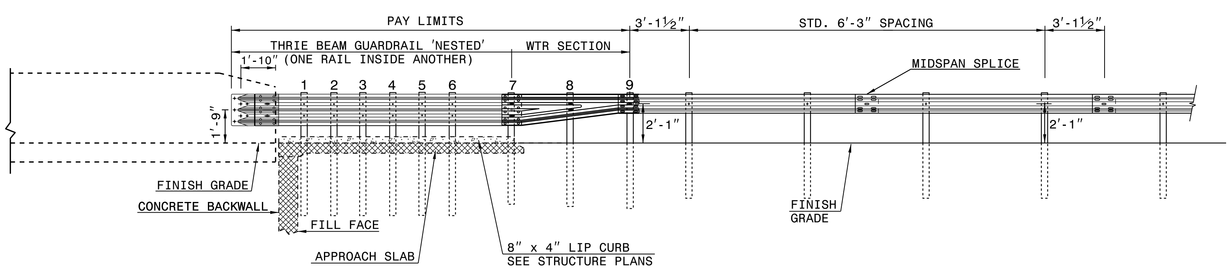
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

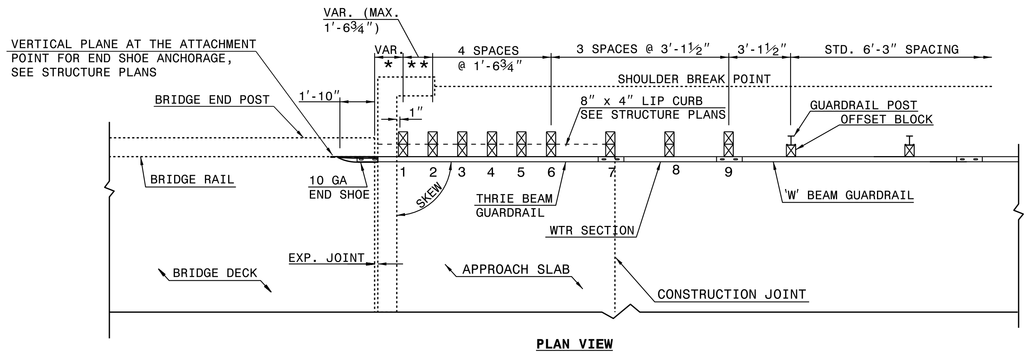
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03

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

SEE TITLE BLOCK

ORIGINAL BY: J. HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022071 ENGINEER
DocuSigned by: Mark Mathis
02 February 2022

PROJECT REFERENCE NO. 17BP.7.R.138 - GUILFORD 584
SHEET NO. 2C-2

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	3B–1

"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 SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	AT–1	GREU TL–2	TYPE III						NO.	PERMITTED G	PERMITTED NG	
–L–	13+17.63	13+73.88	RT	56.25′				13+73.88 (BRIDGE)	6′	9′						1	1									
–L–	13+17.63	13+73.88	LT	56.25′			13+73.88 (BRIDGE)		6′	9′						1	1									
–L–	14+76.13	16+69.88	RT	193.75′			14+76.13 (BRIDGE)		6′	9′						1	1									
–L–	14+76.13	17+07.38	LT	231.25′				14+76.13 (BRIDGE)	6′	9′						1	1									
		SUBTOTAL		537.50′																						
		LESS ANCHOR DEDUCTIONS																								
		GREU TL–2 4 x 25.00′ =		–100.00′																						
		TYPE III 4 x 18.75′ =		–75.00′																						
		TOTAL		362.50′												4	4									5 ADDITIONAL GUARDRAIL POSTS

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 11+00.00 TO 13+73.88 (BEGIN BRIDGE)	120		410	290	
–L– 14+76.13 (END BRIDGE) TO 17+50.00	9		606	597	
SUBTOTAL	129		1016	887	
WASTE IN LIEU OF BORROW					
PROJECT TOTAL	129			887	
5% TO REPLACE BORROW				45	
GRAND TOTAL	129			932	
SAY	140			980	

SUMMARY OF SHOULDER BERM GUTTER

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
–L–	14+87.00	15+20.00	LT	33.00′
–L–	14+87.00	15+20.00	RT	33.00′
			TOTAL:	66.00′
			SAY:	70′

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Asphalt Pavement will be paid for at the contract Lump Sum price for "Grading".

JOR66165
R:\Roadway\Proj\400584_rdy_psh3B-1.dgn
2/2/2022 7:34:53 AM

SUB–REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE PVC	DO NOT USE CAAP	DO NOT USE HDPE
11+71	LT	401																	
12+06	RT	402																	
12+94	LT	403																	
14+96	LT	404	407	686.8'	683.6'	683.5'													
14+96	RT	405	408	686.8'	683.6'	683.5'													
15+15	LT	407	406	686.9'	683.5'	678.3'			24'							X			
15+15	RT	408	409	686.9'	683.5'	679.0'			28'							X			
TOTAL									52'										

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
11+71																						
12+06																						
12+94																						
14+96																20'						
14+96																20'						
15+15																						
15+15																						
TOTAL																40'						

STATION	*** R. C. PIPE (CLASS V)	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	*** R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35	15" DRAINAGE PIPE ELBOWS	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
11+71					36'																						28	
12+06					56'																						56	
12+94					40'																						28	
14+96								1														1	1					
14+96								1														1	1					
15+15								1														1	1	2				
15+15								1														1	1	2				
TOTAL					132'			4														4	4	4			112	

* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300–5".

J0R66165
R:\Roadway\Proj\400584_rdy_psh3D-1.dgn
2/2/2022 7:34:59 AM

DocuSign Envelope ID: 5D6BC5D9-67F6-452F-AB85-EC3FE4CBE29C

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	4

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
DocuSigned by: 02 February 2022
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 043870 ENGINEER
DocuSigned by: 02 February 2022
VHB ENGINEERING
LICENSE NO. C-3705

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:
MOTT MACDONALD
7621 Parkway Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/americas

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

VERTICAL SCALE 5' 0 5' 10'
HORIZONTAL SCALE 25' 0 25' 50'

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner= CLASS B RIP RAP
–L– STA. 11+00 TO 13+00 RT

DETAIL 2
TOE PROTECTION
(Not to Scale)

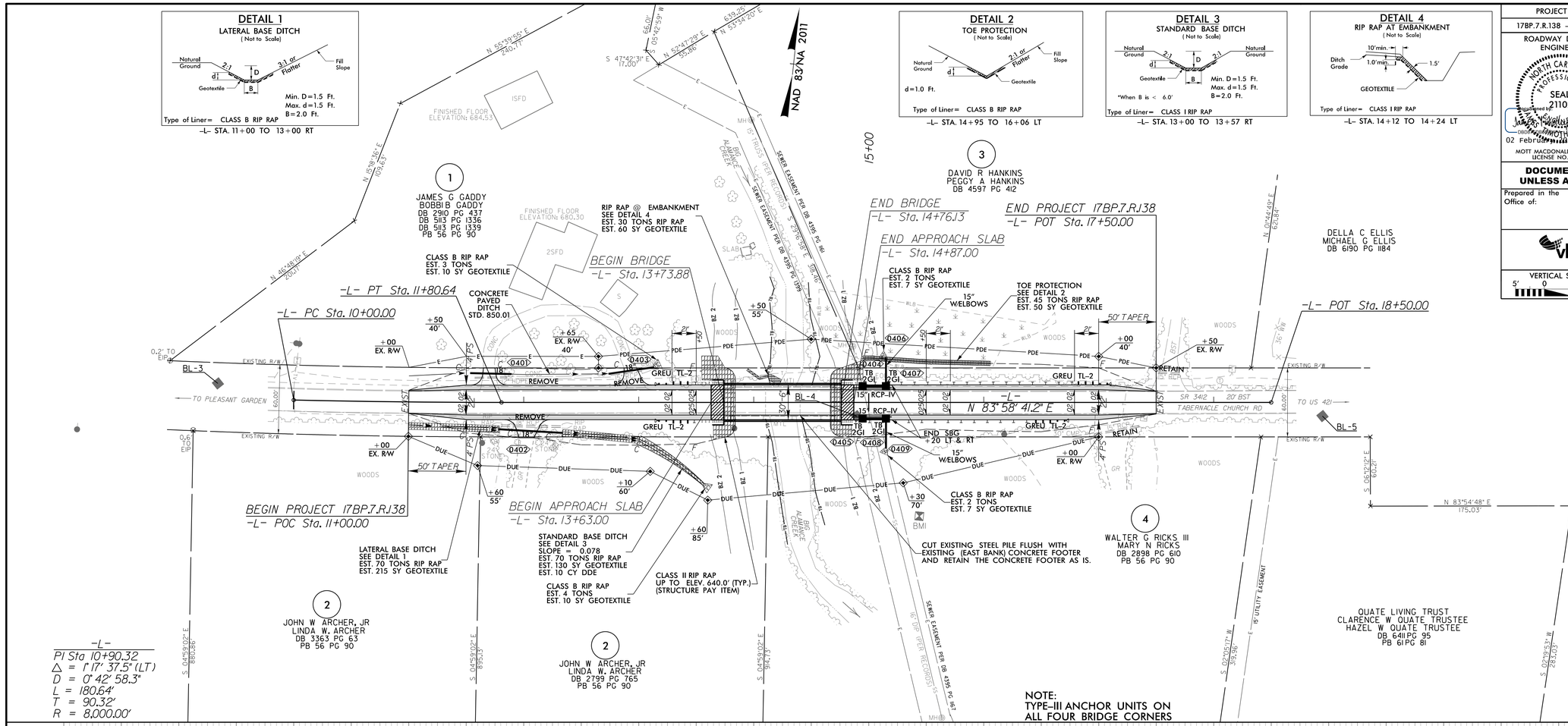
d=1.0 Ft.
Type of Liner= CLASS B RIP RAP
–L– STA. 14+95 TO 16+06 LT

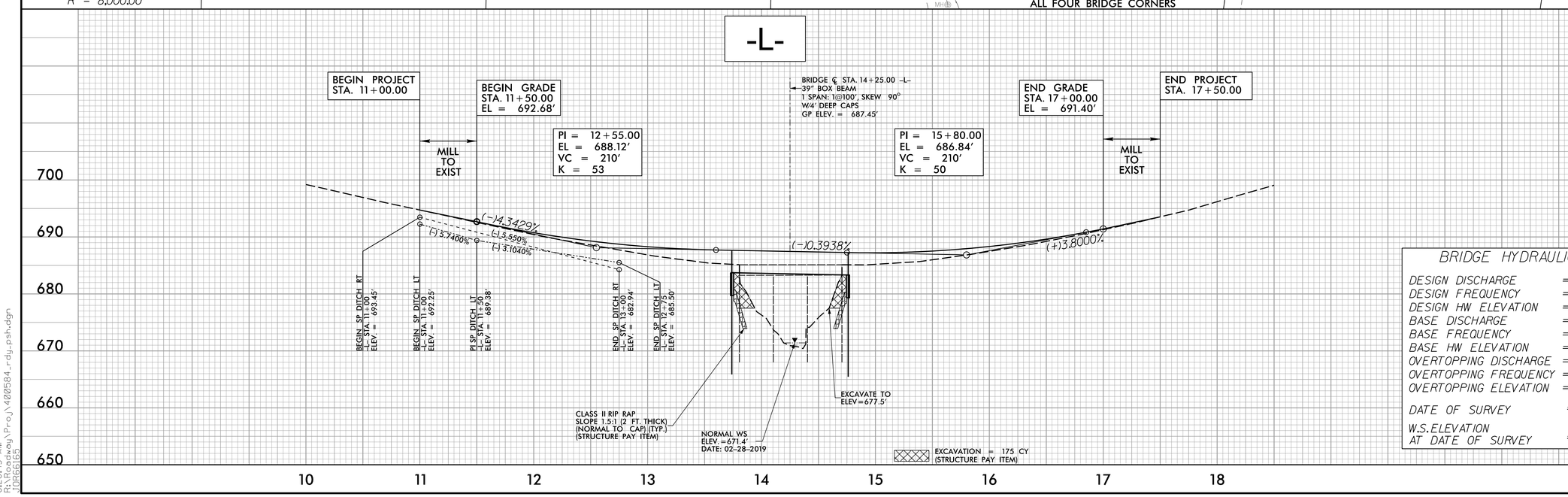
DETAIL 3
STANDARD BASE DITCH
(Not to Scale)

*When B is < 6.0'
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner= CLASS I RIP RAP
–L– STA. 13+00 TO 13+57 RT

DETAIL 4
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CLASS I RIP RAP
–L– STA. 14+12 TO 14+24 LT





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	1494	CFS
DESIGN FREQUENCY	=	25	YR
DESIGN HW ELEVATION	=	679.1	FT
BASE DISCHARGE	=	2116	CFS
BASE FREQUENCY	=	100	YR
BASE HW ELEVATION	=	680.5	FT
OVERTOPPING DISCHARGE	=	6666	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	687.2	FT
DATE OF SURVEY	=	02/28/2019	
W.S. ELEVATION AT DATE OF SURVEY	=	671.4	FT

2/2/2022
8:20:45 AM
R:\Roadway\Proj\400584_rdy_psh.dgn
JDR6165

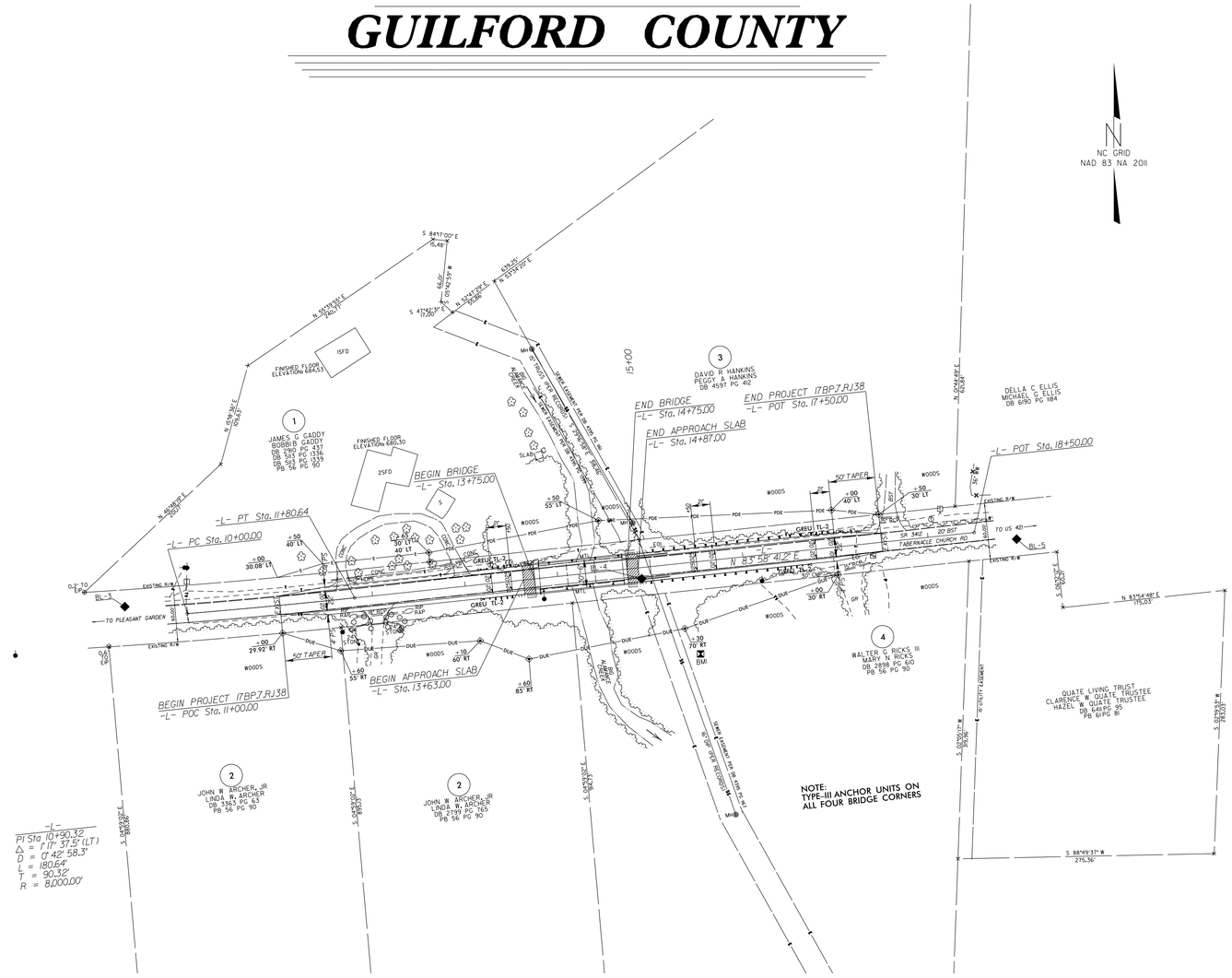
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	400584	RW01	04

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

GUILFORD COUNTY

TIP PROJECT: 400584



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 NCDOT GPS MONUMENT "400584-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 805,994.764(ft) EASTING: 1,787,620.671(ft)
ELEVATION: 713.50(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999201005
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88/GEOID G12BNC

Prepared in the Office of:

DRMP
DRMP, INC.
8000 REGENCY PARKWAY, SUITE 110
CARY, NC 27518
PHONE: (919) 650 1038

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
1/12/2021	*10/15/2021*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR JAMES W. BROWN

SIGNATURE: *Date:* 09/02/2021

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

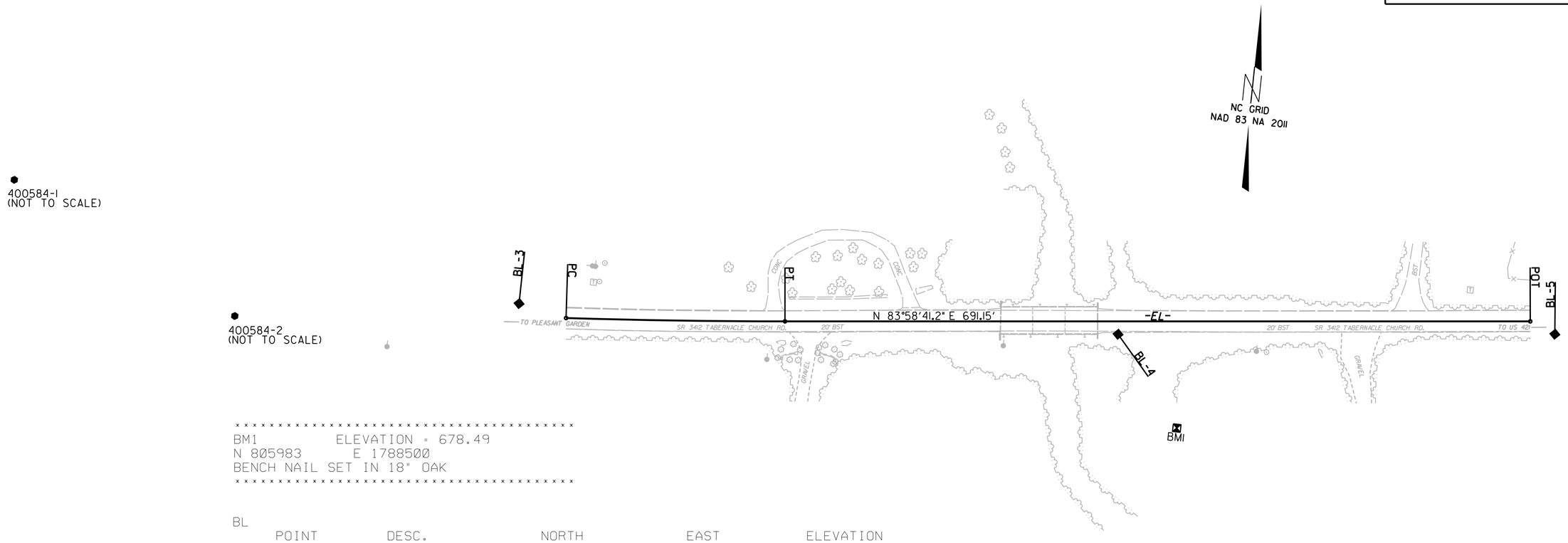
09/08/99

02-SEP-2021 12:13
\\drmpi.com\Prj\Projects20\20-0431.007_NCDOT_Div_7_400584_RW\LocationSurveys\Revisions\Sheet Dgn\400584_ls_rw01.dgn
CChambliss AT CAR-CCHAMBLISS

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.138	RW02C-1
Location and Surveys	
DRMP INC	

SURVEY CONTROL SHEET FOR 40-0584

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION




```
*****************************************
BM1          ELEVATION = 678.49
N 805983       E 1788500
BENCH NAIL SET IN 18" OAK
*****************************************
```

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	400584-1	806041.1190	1786862.4610	729.73
2	400584-2	805994.7640	1787620.6710	713.50
3	BL-3	806033.8830	1787881.6270	701.91
4	BL-4	806063.8600	1788437.0030	684.71
5	BL-5	806106.4040	1788839.8420	701.14

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	806025.133	1787926.395							
CURVE			N 84°51'10.0" E	203.03	01°44'57.6"(LT)	00°51'41.7"	203.04	101.53	6650.00
PT	806043.347	1788128.605							
LINE			N 83°58'41.2" E	691.15					
POT	806115.855	1788815.940							

I, Charles W. Brown, 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) 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.

Witness my original signature, registration number and seal this 8th day of November, 2018.

Professional Land Surveyor PLS # L-3314 Seal

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR CHARLES W. BROWN

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.

6/2/99
08-NOV-2018 14:03
P:\Projects\17BP.03344.061_D07bp2_Div.7_Bridges\LocationSurveys\400584 - Pleasant Garden\Submittal\400584_ls_RW02C-1.dgn
profile: ncdot_CMPE_11

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
40-0584	RWD02-1

Location and Surveys

DRMP
DRMP, INC.
8000 REGENCY PARKWAY, SUITE 110
CARY, NC 27518
PHONE: (919) 650 1038

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR CHARLES W. BROWN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, CHARLES W. BROWN, PLS, 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.

This 2nd day of September, 2021.

Professional Land Surveyor L-3314

TYPE	STATION	L NORTH	EAST
PC	10+00.00	806026.4264	1787948.7615
PT	11+80.64	806043.3475	1788128.6049
POT	18+50.00	806113.5688	1788794.2698

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

REVISIONS

6/2/99

02-SEP-2021 13:32
\\cdrmp.com\Projects20\20-0431.007_NCDOT_Div_7_400584_RW\LocationSurveys\Revisions\Sheet Dgn\400584_ls_rw02d.dgn
CChambliss AT CAR-CCHAMBLISS

RIGHT OF WAY & PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
40-0584	RW03E-1

Location and Surveys

DRMP
DRMP, INC.
8000 REGENCY PARKWAY, SUITE 110
CARY, NC 27518
PHONE: (919) 650 1038

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR CHARLES W. BROWN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMANENT EASEMENT-E ONLY (NO RIGHT OF WAY ACQUIRED ON THIS PROJECT)

ALIGN	STATION	OFFSET	NORTH	EAST	
L	11+00.00	29.92	806005.5093	1788051.2056	
L	11+60.00	55.00	805986.4973	1788113.7033	
L	12+65.00	-30.00	806082.0318	1788209.3506	
L	12+65.00	-40.00	806091.9767	1788208.3016	
L	13+10.00	60.00	805997.2493	1788263.5441	
L	13+60.00	85.00	805977.6327	1788315.8909	
L	14+50.00	-55.00	806126.3019	1788390.7071	POINT NOT SET, FELL IN RIP-RAP
L	15+30.00	70.00	806010.3844	1788483.3792	
L	17+00.00	30.00	806067.9980	1788648.2448	
L	17+00.00	-40.00	806137.6118	1788640.9012	
L	17+50.00	-30.00	806132.9124	1788691.6744	

I, CHARLES W. BROWN, 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 2nd day of September, 2021.

Professional Land Surveyor PLS # L-3314

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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 8/12/21 TO 8/16/21 .

REVISIONS

6/2/99

02-SEP-2021 13:37
V:\Projects20\20-0431.007_NCDOT_Div_7_400584_RW\LocationSurveys\Revisions\Sheet Dgn\400584_ls_rw03e.dgn
cchambliss AT CAR-CCHAMBLISS

6/2/99

REVISIONS

I, CHARLES W. BROWN, 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 2nd day of September, 2021.

Professional Land Surveyor PLS # L-3314

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR CHARLES W. BROWN

PROJECT REFERENCE NO.	SHEET NO.
40-0584	RW04

Location and Surveys

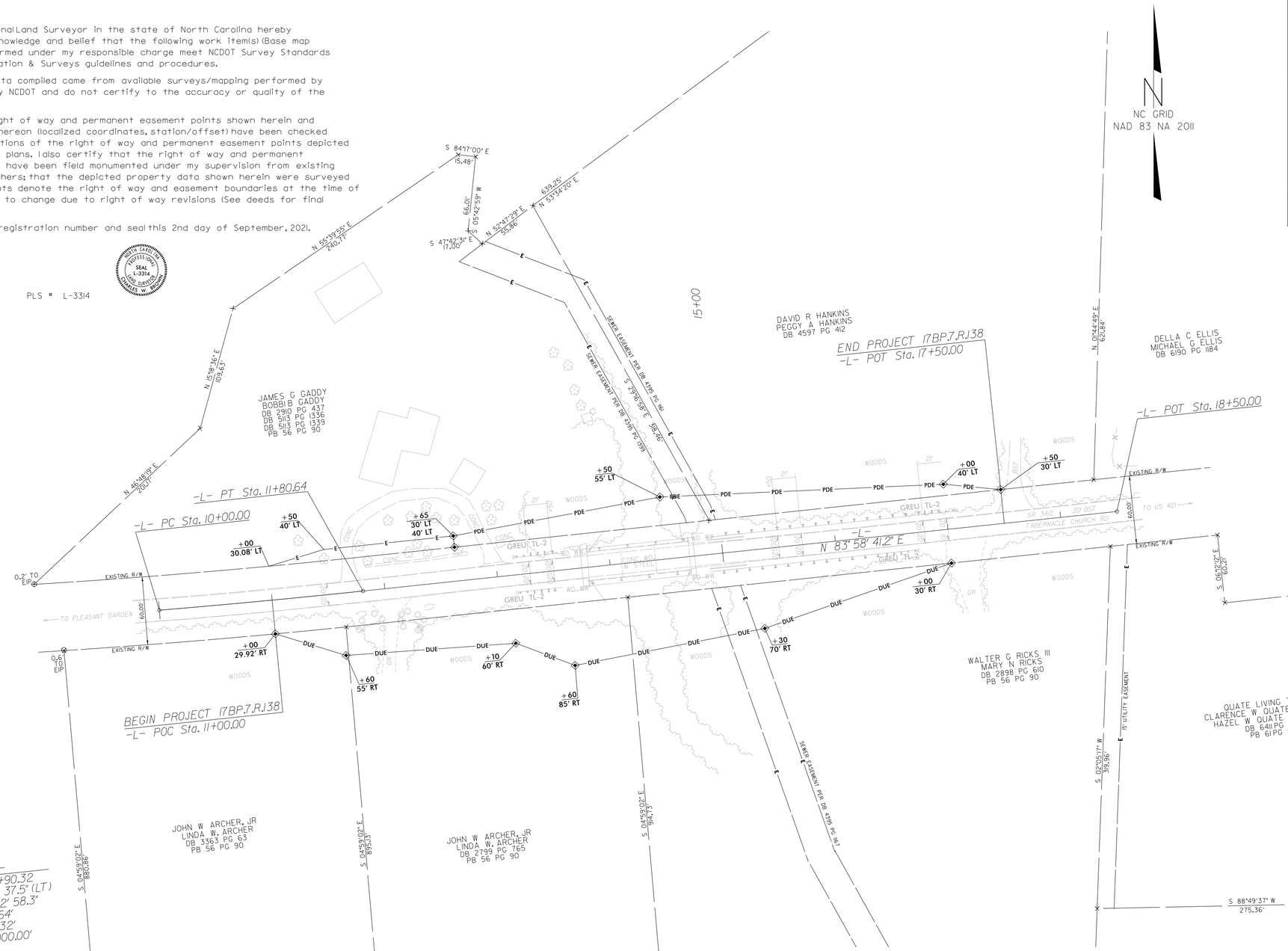
DRMP

DRMP, INC.
8000 REGENCY PARKWAY, SUITE 110
CARY, NC 27518
PHONE: (919) 650 1038

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3314 LAND SURVEYOR CHARLES W. BROWN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 8/12/2021 TO 8/16/2021 .

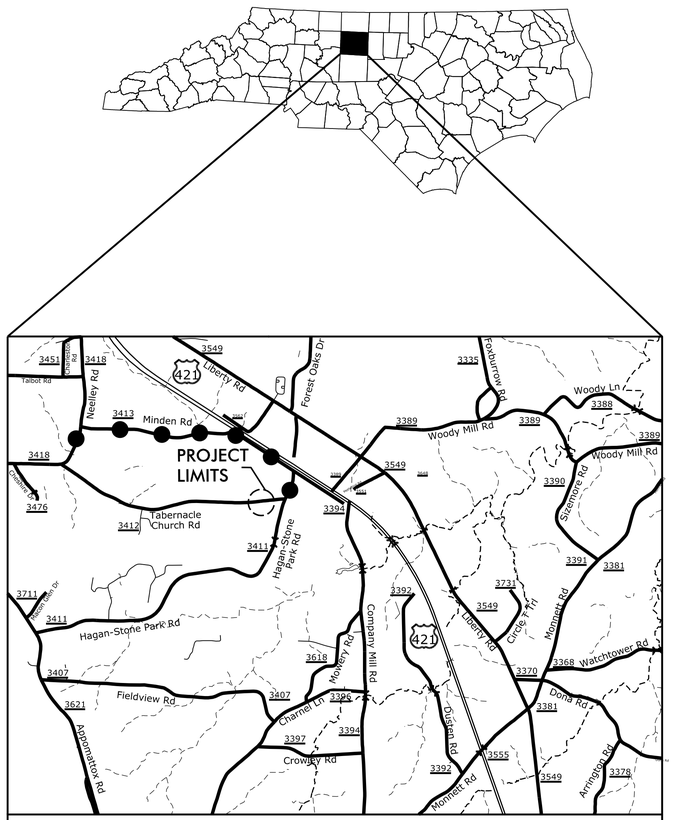
02-SEP-2021 2:05
\\cdrm1.com\Projects\20\20-0431.007_NCDOT_Div_7_400584_RW\LocationSurveys\Revisions\400584_ls_rw04.dgn
CCHambliss AT CAR\CCHAMBLISS

DocuSign Envelope ID: 18F9770E-7E3F-44B7-A3F5-E96809D7D2FE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GUILFORD COUNTY



VICINITY MAP

DETOUR ROUTE

LOCATION: BRIDGE NO. 584 OVER LITTLE ALMANANCE CREEK ON SR 3412 (TABERNACLE CHURCH RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGY, GENERAL NOTES, LOCAL NOTES AND PHASING
TMP-3	DETOUR FOR TABERNACLE CHURCH ROAD CLOSURE
TMP-4	ROAD CLOSURE SIGNS, DETOUR SIGNS AND SIGN DESIGN

SHEET NO.
TMP-1

17BP.7.R.138

PROJECT:

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

PLANS PREPARED BY:

M. RZEPKA, P.E.
PROJECT ENGINEER

E. CARRON
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

T. POWERS, P.E.
DIV. 7 BRIDGE PROGRAM MANAGER

PROJECT DESIGN ENGINEER

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

HDR
555 Fayetteville St.,
Suite 900
Raleigh, NC 27601

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C26049D...

DATE: 9/23/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

9/23/2021
C:\pwworking\east01\d0794523\17BP.7.R.138_tmp_title.dgn
3:21:59 PM

DocuSign Envelope ID: 18F9770E-7E3F-44B7-A3F5-E96809D7D2FE

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

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.138	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C260490...

DATE: 9/23/2021

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

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

9/23/2021
c:\pwworking\east01\d0794523\17BP.7.R.138_tmp_title_1a.dgn
3:22:50 PM

DocuSign Envelope ID: 18F9770E-7E3F-44B7-A3F5-E96809D7D2FE

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

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.138	TMP-2

MANAGEMENT STRATEGY

THIS PROJECT CONSISTS OF REPLACING BRIDGE NO. 584 OVER LITTLE ALMANANCE CREEK ON SR 3412 (TABERNACLE CHURCH RD.). DURING CONSTRUCTON, SR 3412 (TABERNACLE CHURCH RD.) WILL BE CLOSED AT THE CONSTRUCTION LIMITS AND TRAFFIC WILL BE PLACED ON AN OFF-SITE DETOUR ALONG SR 3411 (HAGAN-STONE RD.), SR 3413 (MINDEN RD.) AND SR 3418 (NEELLEY RD.).

SR 3412 (TABERNACLE CHURCH RD.) WILL BE REOPENED TO 2-LANE/2-WAY TRAFFIC UPON COMPLETION OF 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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

C) 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.

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

TRAFFIC CONTROL DEVICES

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

LOCAL NOTES

1) MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN THE CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9), INSTALL ROAD CLOSURE AND DETOUR SIGNS. CLOSE SR 3412 (TABERNACLE CHURCH RD.) AND DETOUR TRAFFIC (SEE LOCAL NOTE 1).

RECORD EXISTING PAVEMENT MARKING LOCATIONS WITHIN PROJECT LIMITS BEFORE PROCEEDING TO STEP 2.

STEP 2

REMOVE EXISTING BRIDGE.

STEP 3

CONSTRUCT PROPOSED STRUCTURE AND ROADWAY.

STEP 4

PLACE FINAL PAVEMENT MARKINGS AND MARKERS ON SR 3412 (TABERNACLE CHURCH RD.) IN RECORDED LOCATIONS AND OPEN ROAD TO TRAFFIC.

STEP 5

REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...

DATE: 9/23/2021

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

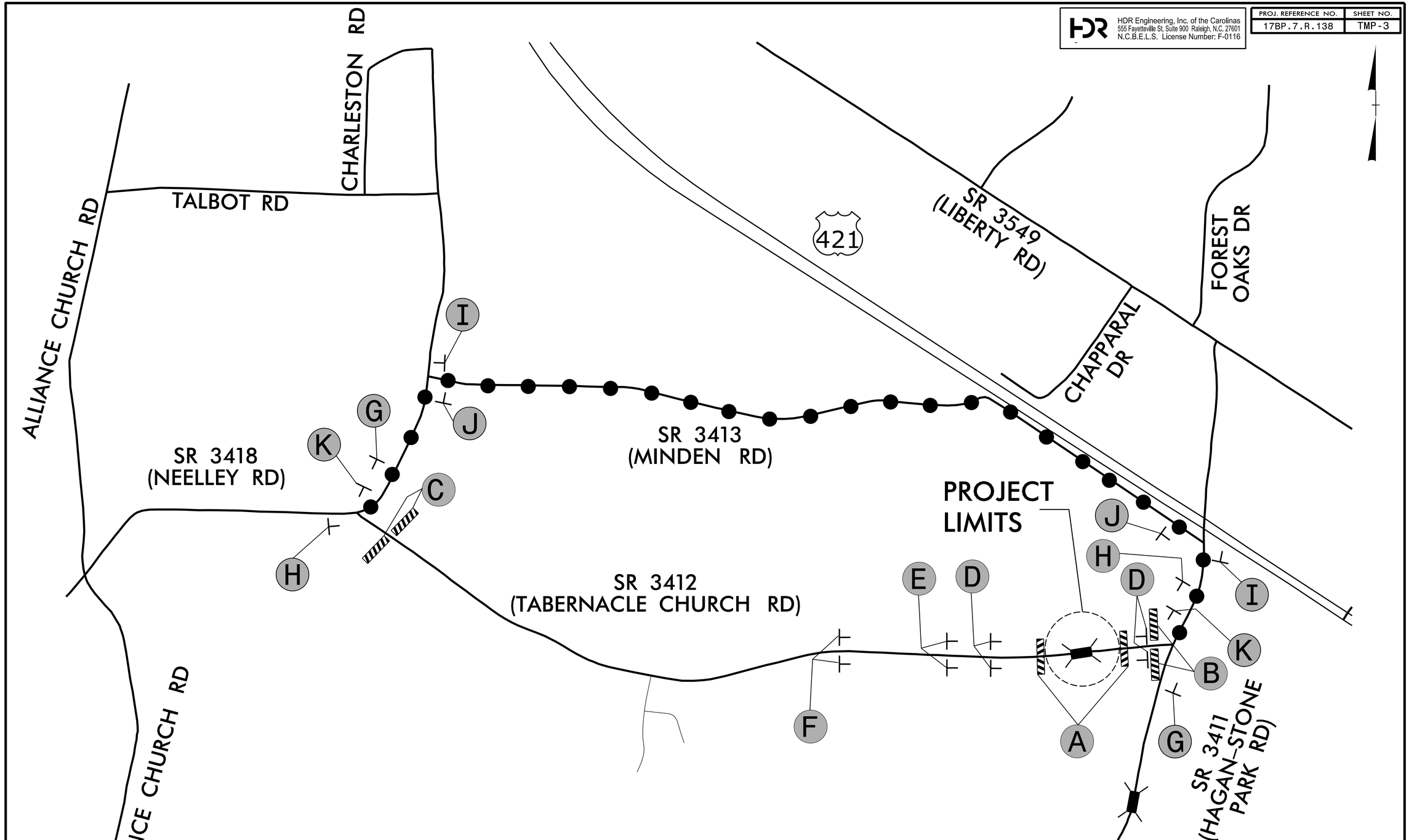
TRANSPORTATION OPERATIONS PLAN

9/23/2021
C:\Dworking\east01\d0794523\17BP.7.R.138_tmp_top_2.dgn
3:23:36 PM

DocuSign Envelope ID: 18F9770E-7E3F-44B7-A3F5-E96809D7D2FE

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

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.138	TMP-3



NOTES: REFER TO RSD 1101.03, (SHEET 1 OF 9) FOR APPLICABLE NOTES

DETOUR ROUTE

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...

DATE: 9/23/2021

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

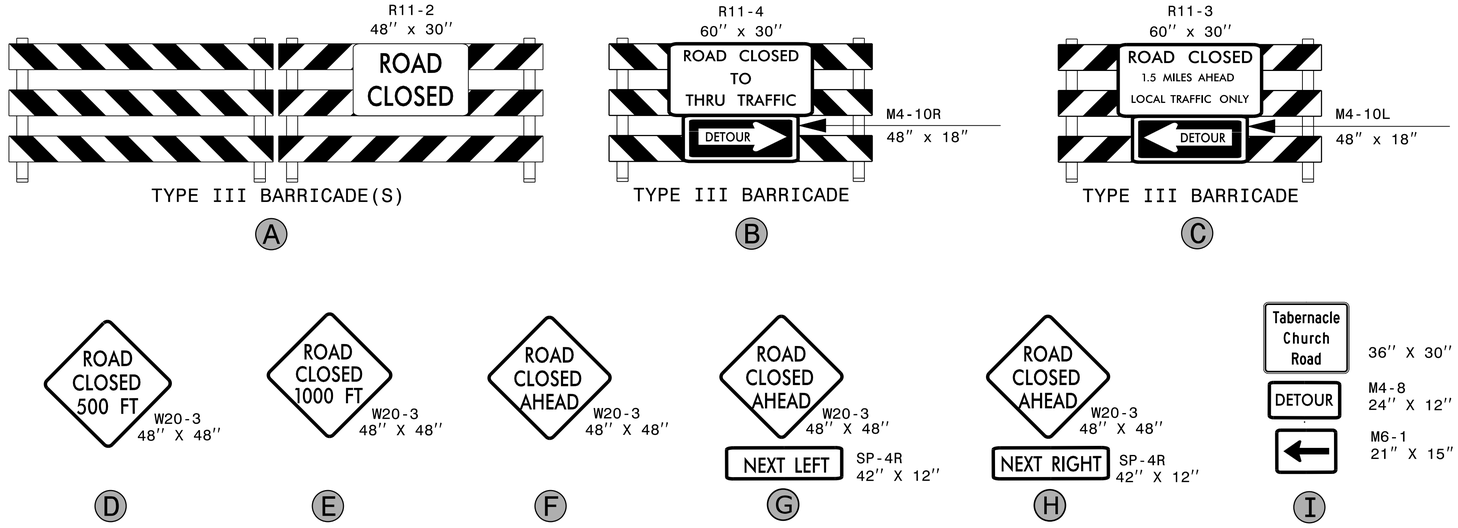
DETOUR FOR
TABERNACLE CHURCH RD
CLOSURE

9/23/2021
C:\pwworking\east01\d0794523\17BP.7.R.138_tmp_detour_3.dgn
3:41:03 PM

DocuSign Envelope ID: 18F9770E-7E3F-44B7-A3F5-E96809D7D2FE

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

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.R.138	TMP-4



SIGN NUMBER: Tabernacle Church
TYPE: STATIONARY
QUANTITY: 6

SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
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

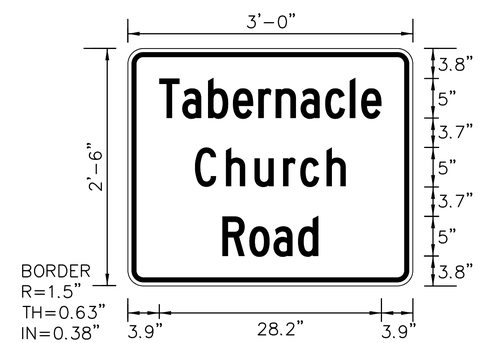
USE NOTES: 1,2

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: R DRAYTON
PROJECT ID: 17BP.7.R.138

CHECKED BY: M RZEPKA
LOCATION:

Apr 23, 2021
DIV: 7



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																												Series/Size Text Length
		T	a	b	e	r	n	a	c	l	e																	C 2000
	7.6	3.8	3.5	3.5	1.9	1.9	7.6	7.6	7.6	7.6	7.6	7.6																21.9
		C	h	u	r	c	h																					C 2000
	8.5	3.9	3.6	3.6	2.2	3.3	2.4	8.5																				12.1
		R	o	a	d																							
	11.9	3.4	3.1	3.1	2.6	11.9																						

FILENAME:

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...
DATE: 9/23/2021

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROAD CLOSURE SIGNS, DETOUR SIGNS AND SIGN DESIGN

9/23/2021
C:\pwworking\east01\d0794523\17BP.7.R.138_tmp_detour_4.dgn
3:42:02 PM

TIP PROJECT: 17BP.7.R138

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.138	EC-1	

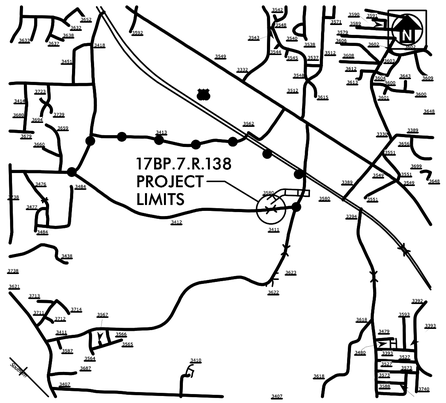
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

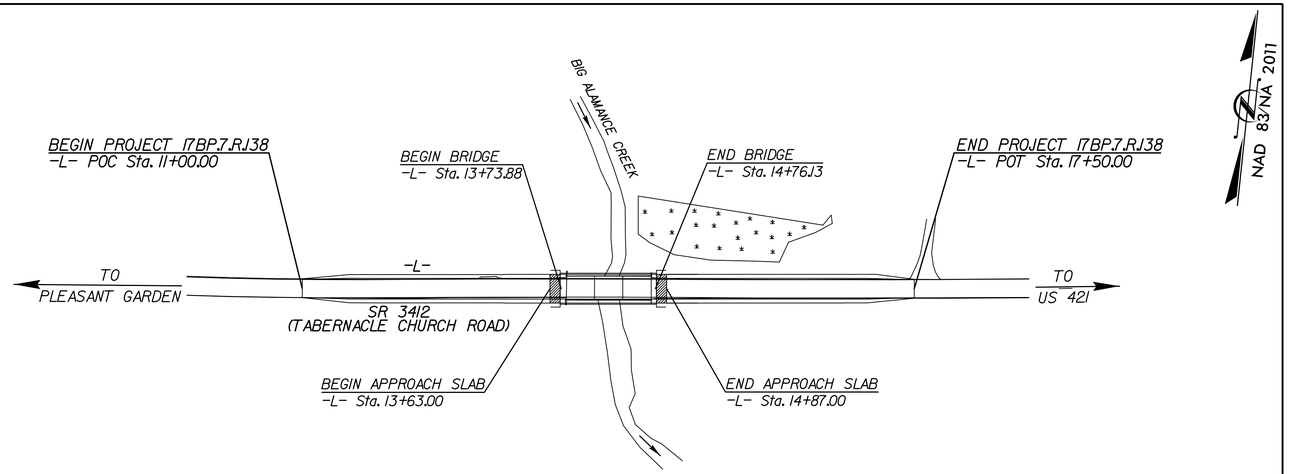
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
GUILFORD COUNTY

LOCATION: BRIDGE NO. 584 OVER BIG LITTLE ALAMANCE CREEK ON SR 3412 (TABERNACLE CHURCH ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



VICINITY MAP
NOT TO SCALE



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	SW 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	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

50 25 0 50 100
PLANS

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

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

Prepared In the Office of:

VHB ENGINEERING
9940 MAIN CAMPUS DRIVE, SUITE 500
RALEIGH, NC 27606

Designed by:

REID ROBOL — ***3409***
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

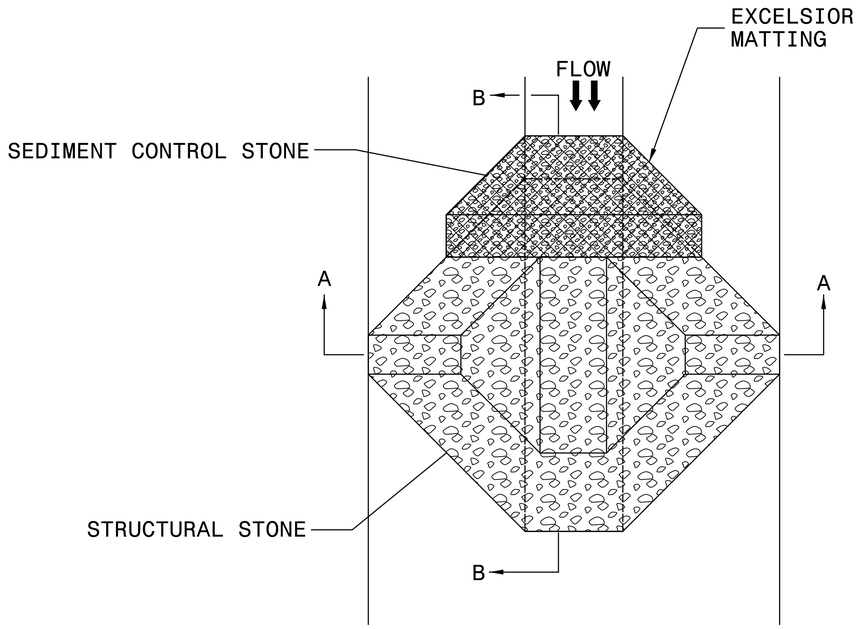
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

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		

R:\Environmental\Design\4200584_REU_TSH.dgn
25613 PM
Phase3

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.138	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

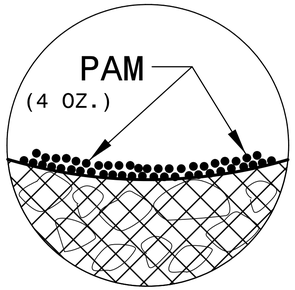
NOTES:

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

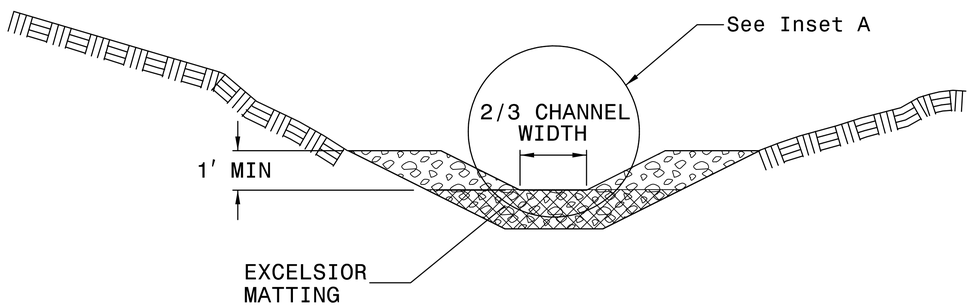
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

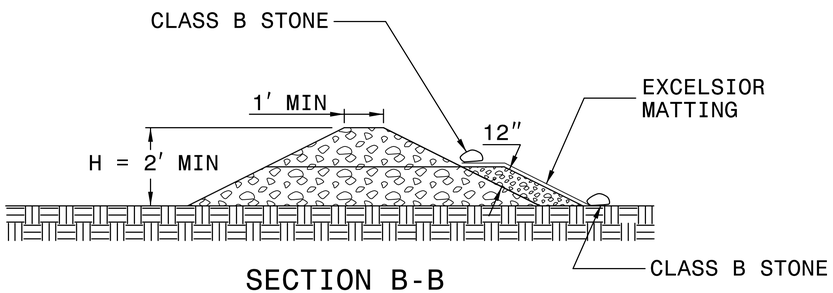
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.138	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+00	12+75	LT	55
				SUBTOTAL	55
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					5660
				TOTAL	5715
				SAY	5715

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.RJ38	EC-3B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

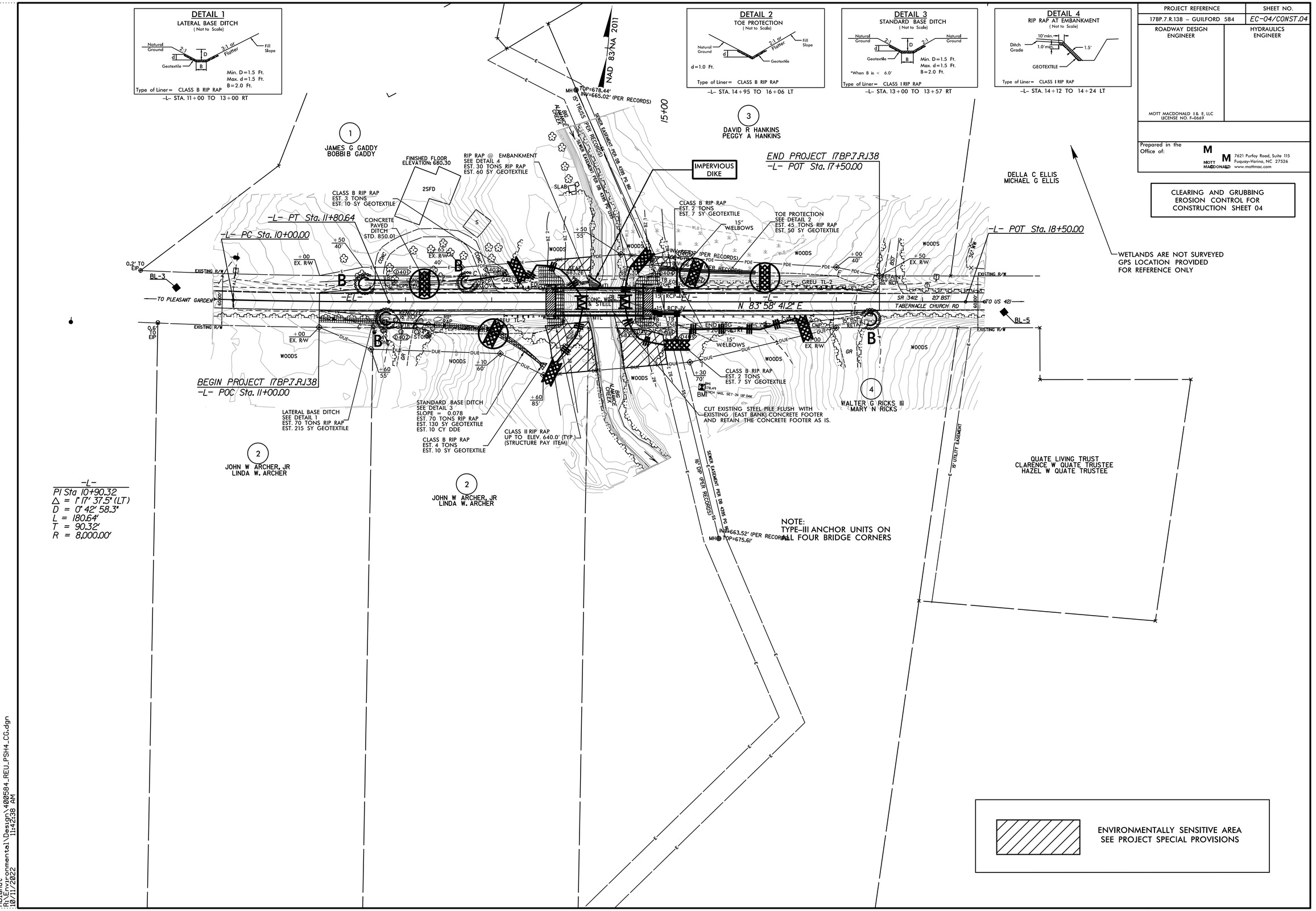
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	EC-04/CONST.04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

Prepared in the Office of:
MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

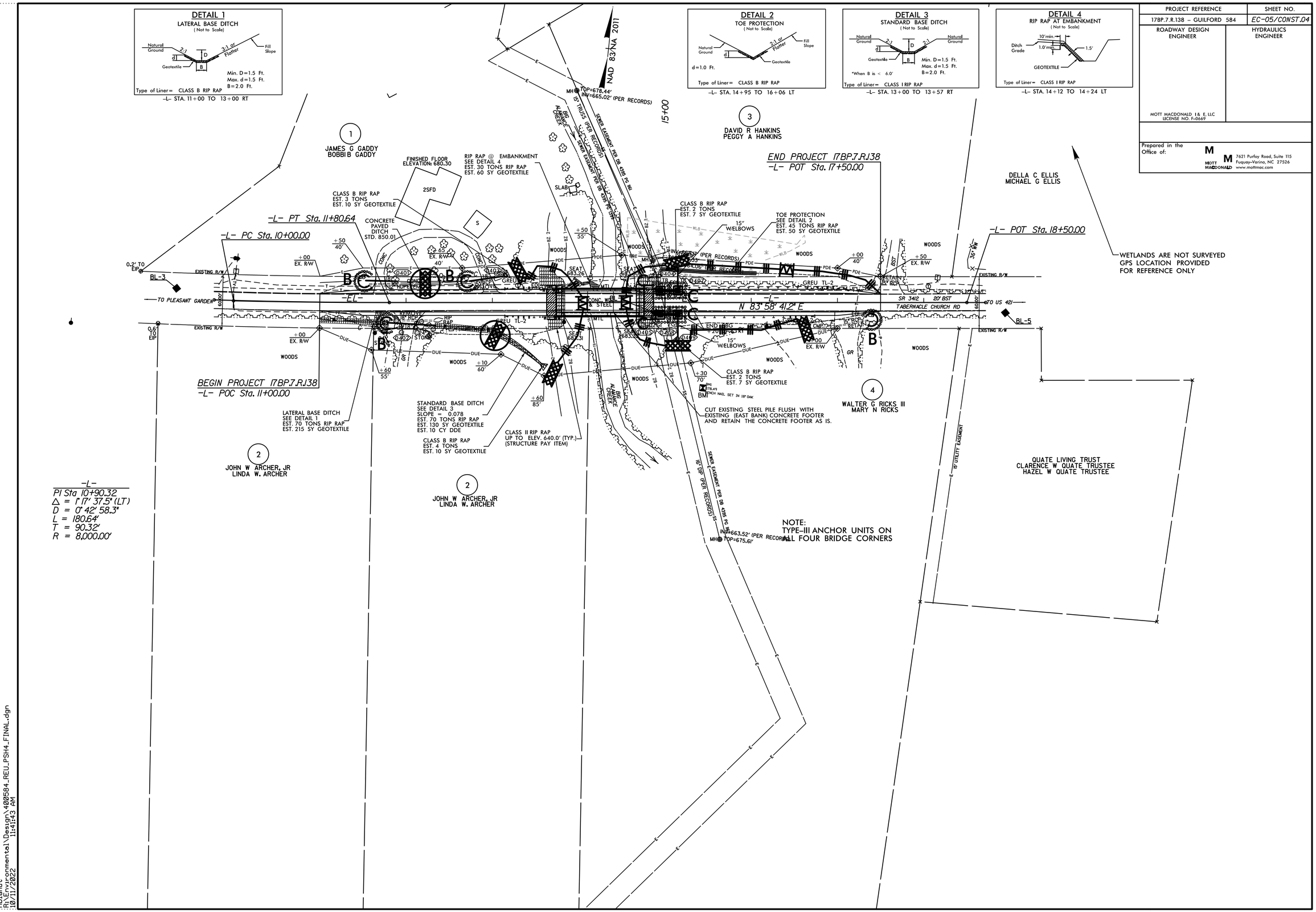


nblehut
R:\Environmental\Design\400584_REU_PSH4_CG.dgn
10/11/2022 11:42:38 AM

PROJECT REFERENCE	SHEET NO.
17BP.7.R.138 – GUILFORD 584	EC-05/CONST.04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

Prepared in the Office of:
MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com



nblahut
R:\Environmental\Design\400584_REU_PSH4_FINAL.dgn
10/11/2022 11:41:43 AM

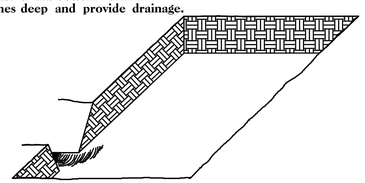
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.138	RF-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

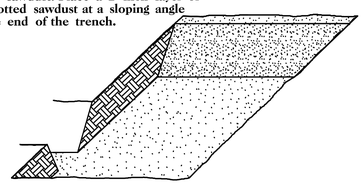
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

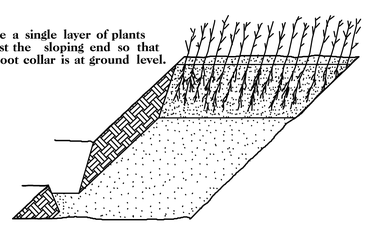
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



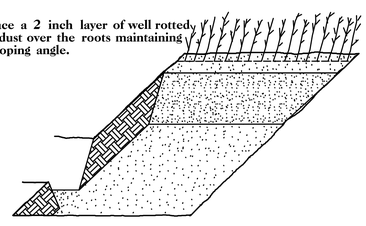
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

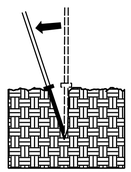


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

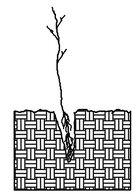


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

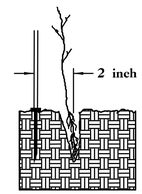
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



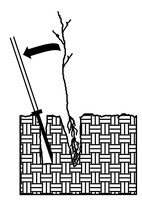
1. Insert planting bar as shown and pull handle toward planter.



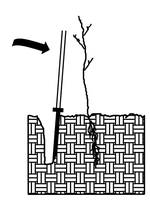
2. Remove planting bar and place seedling at correct depth.



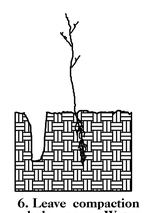
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

REFORESTATION

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

REFORESTATION

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

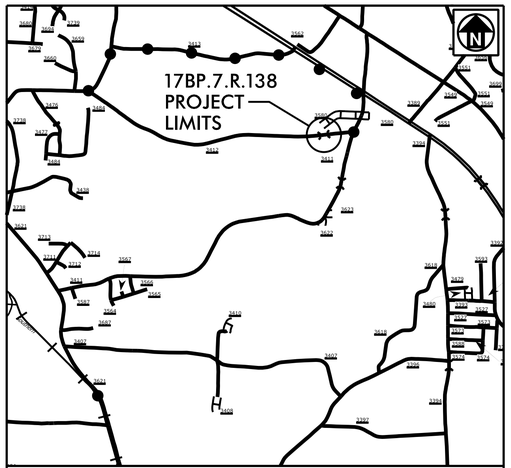
25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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

09/08/99

PROJECT: 17BP.7.R.138



VICINITY MAP
(NOT TO SCALE)
OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

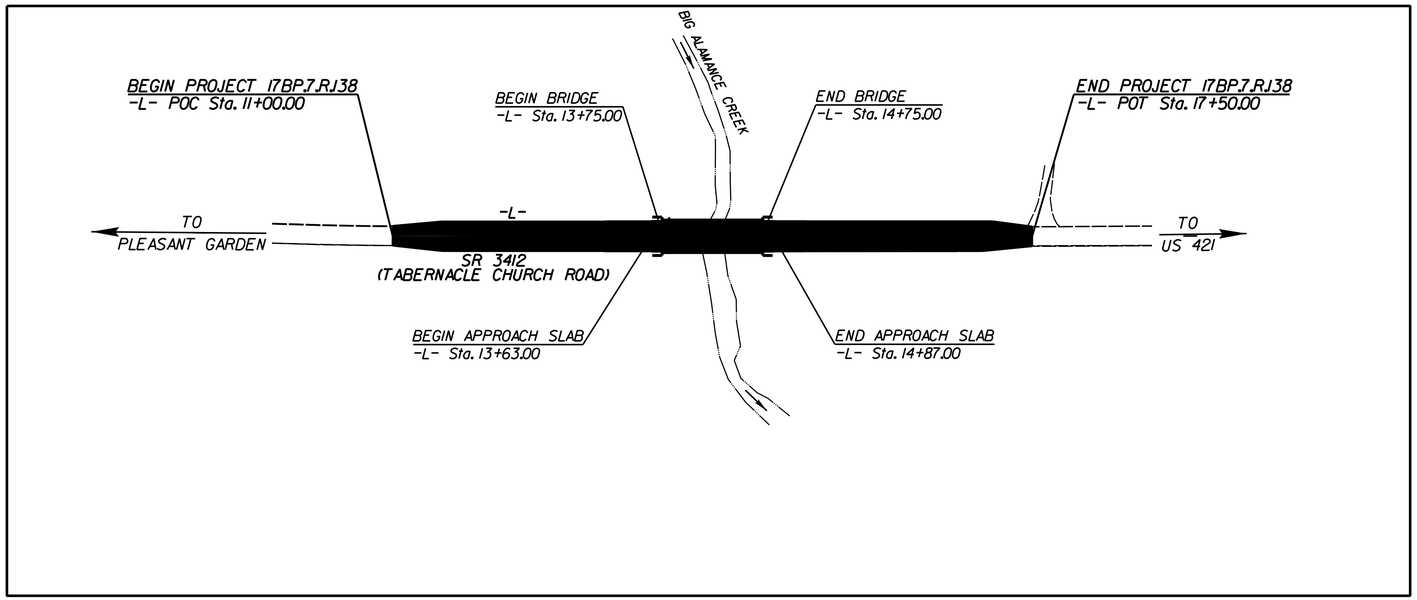
T.I.P. NO.	SHEET NO.
17BP.7.R.138	UO-1

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.

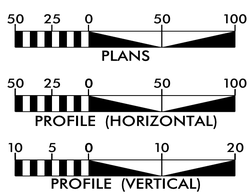
UTILITIES BY OTHERS PLANS
GUILFORD COUNTY

LOCATION: BRIDGE NO. 584 OVER BIG LITTLE ALAMANCE CREEK ON SR 3412 (TABERNACLE CHURCH ROAD)

TYPE OF WORK: POWER (DISTRIBUTION) AND COMMUNICATIONS



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO-1	*TITLE SHEET*
UO-2	*UBO PLAN SHEET*

UTILITY OWNERS WITH CONFLICTS

(A) POWER - DUKE ENERGY
(B) COMMUNICATIONS - AT&T
(C) COMMUNICATIONS - SPECTRUM

PREPARED IN THE OFFICE OF:

SAM™
2641 Sumner Boulevard
Suite 116
Raleigh, NC 27616
(919) 878-7466

Freddie Bunn — *UTILITY PROJECT MANAGER*
Matthew Ward — *PROJECT UTILITY COORDINATOR*

DIVISION OF HIGHWAYS
DIVISION XX
DIV ADDRESS
1584 YANCEYVILLE ST. PO BOX 14996
GREENSBORO, NC 27415

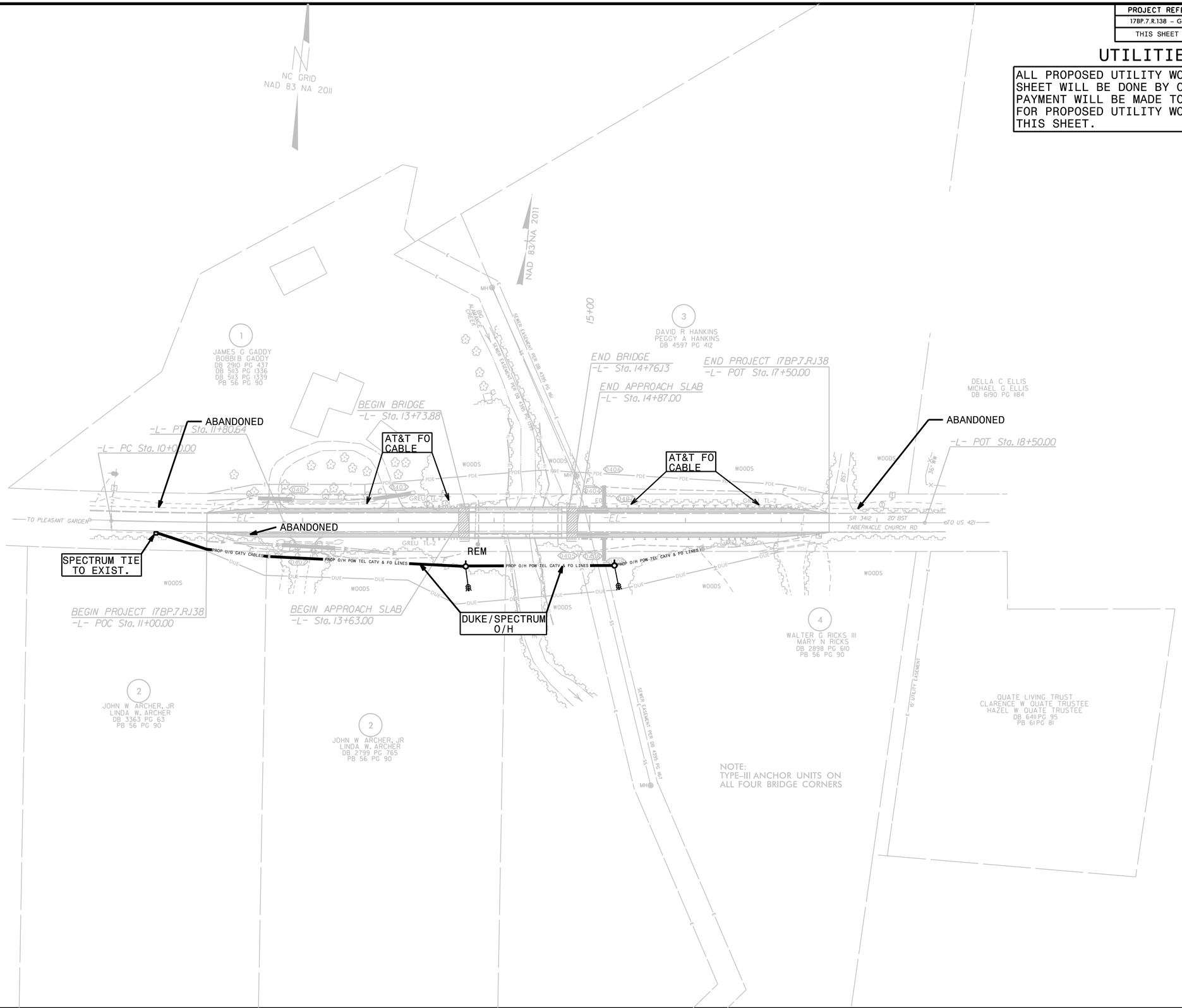
Tim Powers, PE — *DIVISION CONTACT #1*
Patty Eason, PE — *DIVISION CONTACT #2*

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.138 – GUILFORD 584	UO-2
THIS SHEET CORRESPONDS TO RDY- 2	

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.



$$DATE$$