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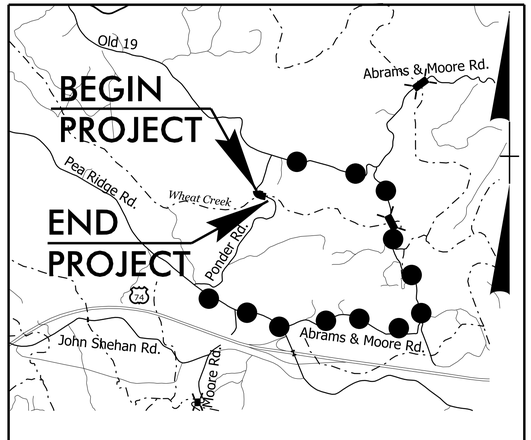
09/08/99

WBS ELEMENT: 17BP.14.R.74

CONTRACT: DN00194

See Sheet 1-A For Index of Sheets



DETOUR ROUTE **VICINITY MAP**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

POLK COUNTY

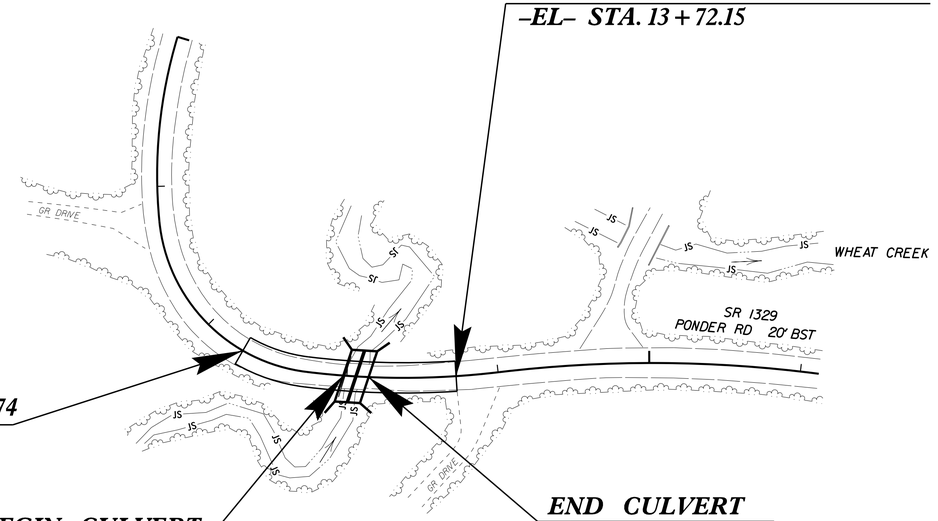
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.74	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.74		P.E.
17BP.14.R.74		ROW & UTIL.
17BP.14.R.74		CONST.

LOCATION: BRIDGE NO. 70 ON SR 1329 OVER WHEAT CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE

NAD 83/NSRS 2007



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 2000 = 80
ADT = NA
DHV = NA %
D = NA %
T = NA % *
V = 20 MPH
* TTST = NA
FUNC CLASS = LOCAL

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY WBS ELEMENT 17BP.14.R.74 = 0.024 MI
LENGTH STRUCTURE WBS ELEMENT 17BP.14.R.74 = 0.003 MI
TOTAL LENGTH OF WBS ELEMENT 17BP.14.R.74 = 0.027 MI

PLANS PREPARED BY:

Baker

Michael Baker Engineering, Inc.
5550 Seventy-Seven Center Drive, Suite 320
Charlotte, NC 28217
Professional Corporation License Number:
F-1084

FOR
DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

TODD H. BUCKNER, PE
PROJECT ENGINEER

WARREN JOHNSON
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
JOSH DEYTON, PE
DIVISION BRIDGE MANAGEMENT ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20117 ENGINEER SCOTT WILDMAN BROOKHART

DocuSigned by: Scott Wildman Brookhart
E690EDD5D5E4DC...

SIGNATURE: *P.E.* 8/4/2015

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

DocuSigned by:
1087011E87F6435...

SIGNATURE: *P.E.* 8/4/2015

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

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8/4/2015

INDEX OF SHEETS

SHEET NUMBER	
1	TITLE SHEET
1–A	INDEX OF SHEETS AND GENERAL NOTES
1–B	CONVENTIONAL SYMBOLS
1–C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3–A	SUMMARY OF EARTHWORK, RIGHT OF WAY DATA SUMMARY, PAVEMENT REMOVAL SUMMARY, GUARDRAIL SUMMARY
4	PLAN AND PROFILE SHEET
TMP–1 THRU TMP–2	TRAFFIC MANAGEMENT PLAN
PMP–1	PAVEMENT MARKING PLAN
EC–1 THRU EC–6	EROSION CONTROL PLANS
UO–1 THRU UO–2	UTILITIES BY OTHERS
X–1 THRU X–3	CROSS SECTIONS
C–1 THRU C–6	STRUCTURE PLANS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO. TITLE

DIVISION 2 – EARTHWORK
200.02 Method of Clearing – Method II
225.02 Guide for Grading Subgrade – Secondary and Local
225.04 Method of Obtaining Superelevation – Two Lane Pavement

DIVISION 5 – SUBGRADE, BASES AND SHOULDERS
560.01 Method of Shoulder Construction – High Side of Superelevated Curve – Method I

DIVISION 8 – INCIDENTALS
862.01 Guardrail Placement
862.02 Guardrail installation
862.03 Structure Anchor Units
876.01 Rip Rap in Channels

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01–17–12
REVISED: 11/01/11

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 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.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

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 FOR THIS PROJECT.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Rutherford EMC, 186 Hudlow Rd, Forest City, NC 28043

Windstream, 1408 Patton Ave, Asheville, NC 28806

ANY RELOCATION OF EXISTING UTILITIES WIL BE ACCOMPLISHED BY OTHERS.

ALL RIGHT–OF–WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2012 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — 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
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

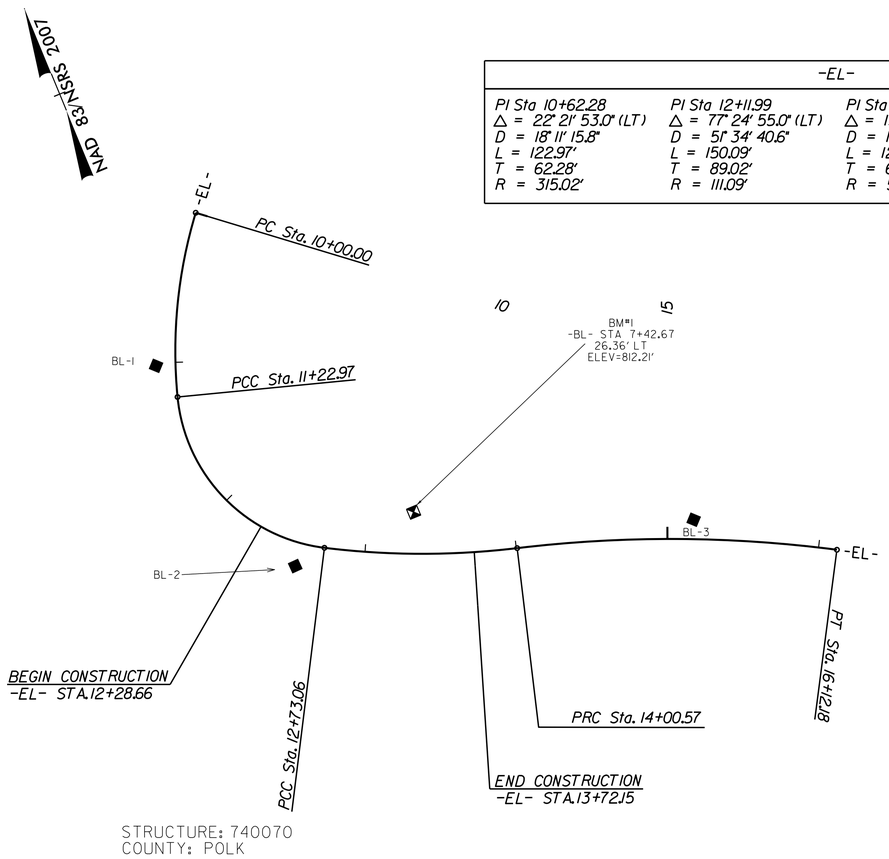
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	1-C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET

POLK COUNTY

LOCATION: BRIDGE NO. 70 ON SR 1329 OVER WHEAT CREEK

-EL-			
PI Sta 10+62.28	PI Sta 12+11.99	PI Sta 13+37.13	PI Sta 15+06.92
Δ = 22° 21' 53.0" (LT)	Δ = 77° 24' 55.0" (LT)	Δ = 13° 53' 06.6" (LT)	Δ = 14° 16' 00.6" (RT)
D = 18° 11' 15.8"	D = 51° 34' 40.6"	D = 10° 53' 21.4"	D = 6° 44' 32.0"
L = 122.97'	L = 150.09'	L = 127.51'	L = 211.60'
T = 62.28'	T = 89.02'	T = 64.07'	T = 106.35'
R = 315.02'	R = 111.09'	R = 526.17'	R = 849.81'



STRUCTURE: 740070
COUNTY: POLK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "74-0070 BL-3"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 579306.9150(ft) EASTING: 1083447.7210(ft)
ELEVATION: 818.30(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999838956
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"74-0070 BL-3" TO -EL- STATION 12+28.66 IS
N 68° 24' 19.9401" W. 285.55'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BL

POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1	BL-1	579536.5345	1083158.7615	821.53	11+01.99	12.88 RT
2	BL-2	579379.2999	1083193.0481	813.52	12+57.51	15.60 RT
3	BL-3	579306.9150	1083447.7210	818.30	15+17.07	12.80 LT

BM1 ELEVATION = 812.21
N 579382 E 1083279
BL STATION 7+42.67 26.36 LEFT
RR SPIKE IN 15" BIRCH TREE

Scale 1" = 50'
50' 0 50' 100'

REVISIONS

8/17/99

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pgdrisker BY PARTI BRIDGE

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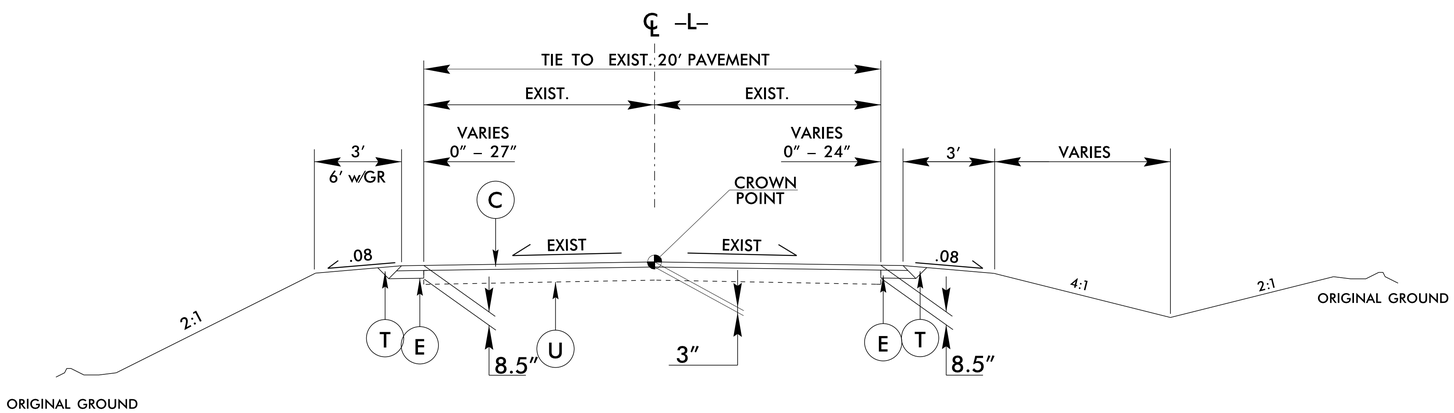
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER DocuSigned by: 108701 1E67F6435... 8/4/2015	PROVIDED BY DIVISION

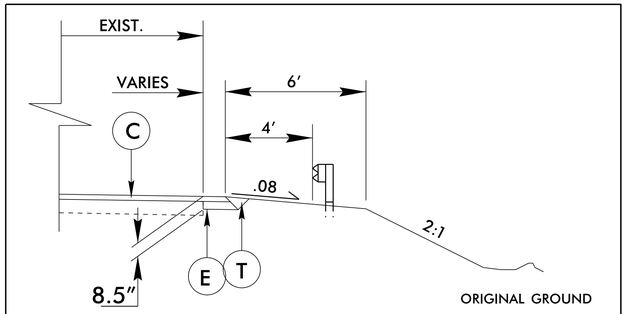
C	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J	PROP. 8″ AGGREGATE BASE COURSE.
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2″ IN DEPTH.	T	EARTH MATERIAL.
E	PROP. APPROX. 5.5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL BELOW)

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



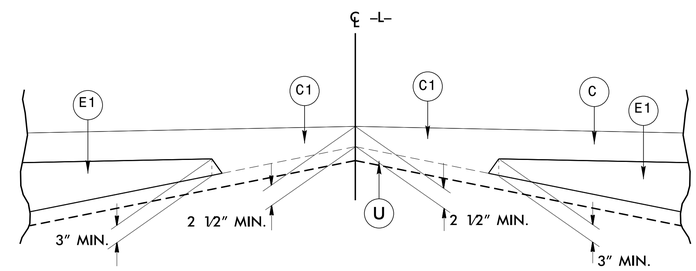
TYPICAL SECTION NO. 1

**–EL– STA. 12 + 28.66 TO STA. 12 + 87
**–EL– STA. 13 + 34 TO STA. 13 + 72.15
** OVERLAY EXISTING PAVEMENT ONLY

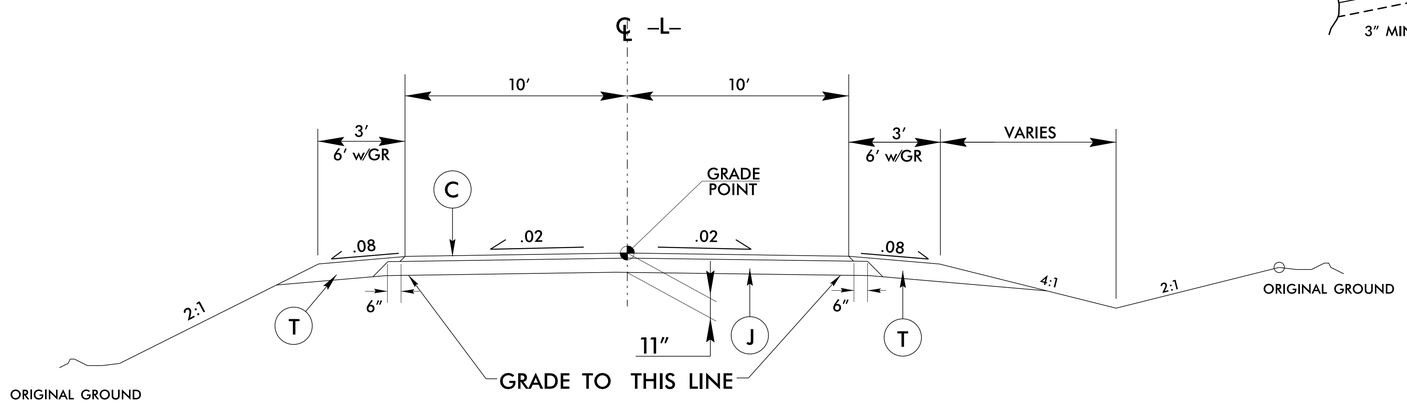


INSERT NO. 1

–EL– STA. 12 + 45 TO STA. 13 + 68 LT
–EL– STA. 12 + 47 TO STA. 13 + 62 RT



Detail Showing Method of Wedging



TYPICAL SECTION NO. 2

–EL– STA. 12 + 87 TO STA. 13 + 34

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CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	3-A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- STA.12+28.66 TO STA.13+72.15	67	180	113	
LOSS DUE TO CLEARING AND GRUBBING	-3		3	
PROJECT TOTALS:	64	180	116	
ESTIMATE FOR REPLACING TOPSOIL ON BORROW PITS			16	
REDUCTION FOR CULVERT			-68	
GRAND TOTALS:	47		64	
SAY:	50		70	

CONTINGENCY ITEMS

UNDERCUT = 50 CY
SELECT GRANULAR MATERIAL = 50 CY
GEOTEXTILE FOR SOIL STABILIZATION = 50 SY
INCIDENTAL STONE BASE = 50 CY

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

RIGHT OF WAY AREA DATA SHEET

ALL UNITS ARE IN ACRES UNLESS OTHERWISE NOTED

PARCEL No.	PROPERTY NAME	TOTAL AREA	AREA TAKEN		AREA REMAIN RIGHT	AREA REMAIN LEFT	Constr. Easement	Permanent Drainage Easement	Temp. Drainage Easement	Permanent Utility Easement
			Right	Left						
1	SALLY WALKER	18.50		0.00		18.50	0.00	0.00	0.00	0.00
2	KENNETH & LAURA MOORE	9.18	0.00		9.18		0.00	0.00	0.00	0.00
3	EUGENE & DAWN HOELZE	69.73	0.00		69.73		0.00	0.00	0.00	0.00

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	12+87	12+95		16
-L-	13+14	13+34		40
			TOTAL:	56
			SAY:	60

"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								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	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	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	TYPE 350, TL-II	EA	G	NG				
-L-	12+45	13+70	LT	125																			2							
-L-	12+45	13+70	RT	125																			2							
			SUBTOTAL	250																										
		LESS TYPE 350 TL-2, @25'		-100																										
ADDITIONAL GUARDRAIL POSTS = 5 EA			TOTAL	150																			4							

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CABINET TAB: ENER

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER
DocuSigned by: 108701HE87E4A... 8/4/2015

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20117 ENGINEER SCOTT WILDMAN BROOKHART
DocuSigned by: Scott Wildman Brookhart 2168DEDD5D5E4DC... 8/4/2015

-EL-			
PI Sta 10+62.28	PI Sta 12+11.99	PI Sta 13+37.13	PI Sta 15+06.92
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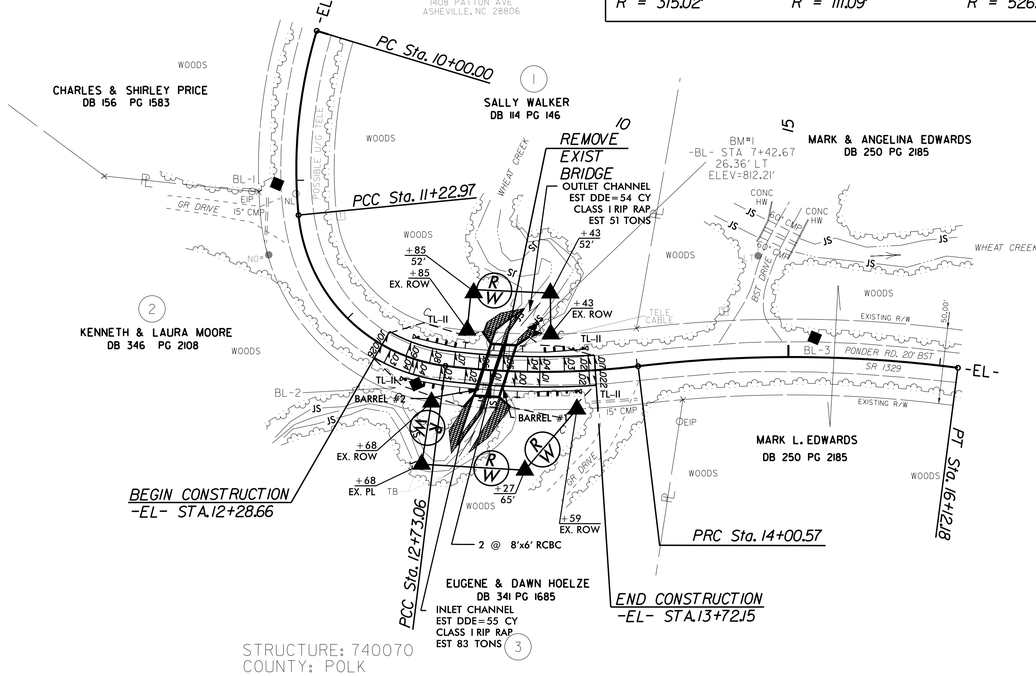
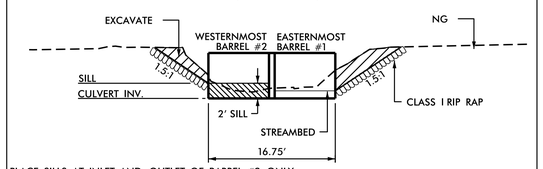
D = 18° 11' 15.8"	D = 51° 34' 40.6"	D = 10° 53' 21.4"	D = 6° 44' 32.0"
L = 122.97'	L = 150.09'	L = 127.51'	L = 211.60'
T = 62.28'	T = 89.02'	T = 64.07'	T = 106.35'
R = 315.02'	R = 111.09'	R = 526.17'	R = 849.81'



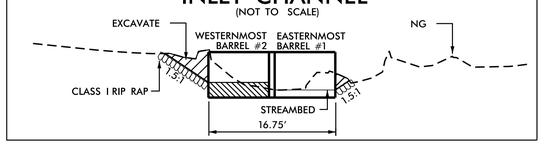
STRUCTURE: 740070
COUNTY: POLK

OUTLET CHANNEL
(NOT TO SCALE)



PLACE SILLS AT INLET AND OUTLET OF BARREL #2 ONLY.
BACKFILL BARREL#2 WITH NATIVE BED MATERIAL AND SUBSIDIZE WITH CLASS 'B' RIP RIP IF NEEDED.

INLET CHANNEL
(NOT TO SCALE)



FLOODPLAIN BENCH
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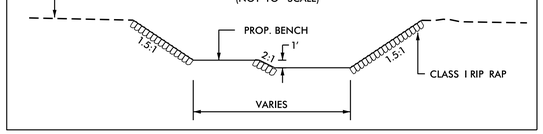


NAD 83/2007

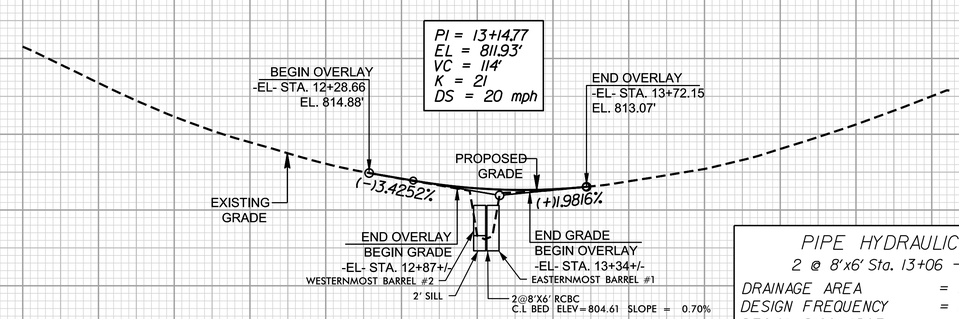
BRIDGE DECK

Point	North	East	Elevation
CL1	579371.0174	1083238.1028	812.46'
CL2	579364.2337	1083252.2309	812.25'
D1	579364.1434	1083232.5446	811.96'
D2	579377.5338	1083243.7037	811.94'
D3	579370.9461	1083257.6602	812.03'
D4	579357.3927	1083246.6545	811.84'

BRIDGE SEAT

Point	North	East	Elevation
NE1	579372.1400	1083257.9661	810.81'
NW1	579378.3615	1083244.5666	810.70'
SE1	579356.5153	1083245.2465	810.67'
SW1	579362.8178	1083231.9663	810.67'

-EL-



PIPE HYDRAULIC DATA
2 @ 8'x6' Sta. 13+06 -EL-

DRAINAGE AREA	= 3.1	SQ.MI.
DESIGN FREQUENCY	= 2	YRS
DESIGN DISCHARGE	= 330	CFS
DESIGN HW ELEVATION	= 811.1	FT
100 YEAR DISCHARGE	= 1,500	CFS
100 YEAR HW ELEVATION	= 815.20	FT
OVERTOPPING FREQUENCY	= +/-2	YRS
OVERTOPPING DISCHARGE	= 480	CFS
OVERTOPPING ELEVATION	= 812.70	FT

REVISIONS

8/17/99

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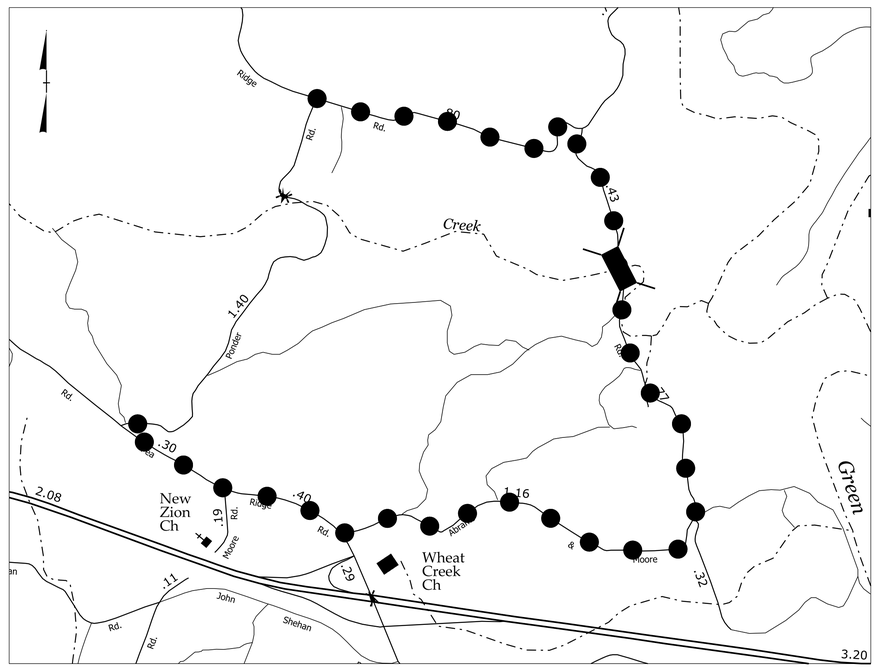
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

POLK COUNTY



DETOUR ROUTE

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	GENERAL NOTES AND PHASING
TMP-2	OFFSITE DETOUR PLAN - PONDER ROAD (SR 1329)

SHEET NO.
TMP-1

17BP.14.R.74

WBS ELEMENT:

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, PE — STATE TRAFFIC MANAGEMENT ENGINEER
TODD H. BUCKNER, PE — TRAFFIC CONTROL PROJECT ENGINEER
_____ TRAFFIC CONTROL PROJECT DESIGN ENGINEER
_____ TRAFFIC CONTROL DESIGN ENGINEER

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

APPROVED: DocuSigned by: 1267D11E67F6435...
DATE: 8/4/2015

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PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.74	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 JANAUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
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 MULTILANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

APPROVED: DATE: 8/4/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

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

ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.74	TMP-1B

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 TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

C) 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.

D) 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.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

G) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS, INSTALL 2 APPLICATIONS OF PAVEMENT MARKINGS ON THE FINAL SURFACE, ACCORDING TO RSD 1205.01 AND 1205.02 (SEE PMP–1).

PHASING NOTES

TRAFFIC CONTROL PHASING

NOTES: COORDINATE WITH THE ENGINEER FOR INSTALLATION AND REMOVAL OF ALL SIGNING AND TRAFFIC CONTROL DEVICES.

STEP 1: USING RSD 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON PONDER ROAD (SR 1329).

STEP 2: USING RSD 1101.03, SHEET 1 OF 9 AND SHEET TMP–2, INSTALL DETOUR SIGNS AND BARRICADES AND CLOSE PONDER ROAD (SR 1329)

STEP 3: REMOVE EXISTING BRIDGE NO. 70 AND CONSTRUCT PROPOSED CULVERT AND ROADWAY, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE FINAL PAVEMENT MARKINGS ON PONDER ROAD (SR 1329) FROM –L– STA. 12+29 +/– TO STA. 13+72 +/–.

STEP 4: REMOVE ALL ADVANCE WORK ZONE DETOUR SIGNS AND TRAFFIC CONTROL DEVICES AND OPEN PONDER ROAD (SR 1329) TO TRAFFIC.

APPROVED: DocuSigned by: DATE: 8/4/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

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

GENERAL NOTES AND PHASING

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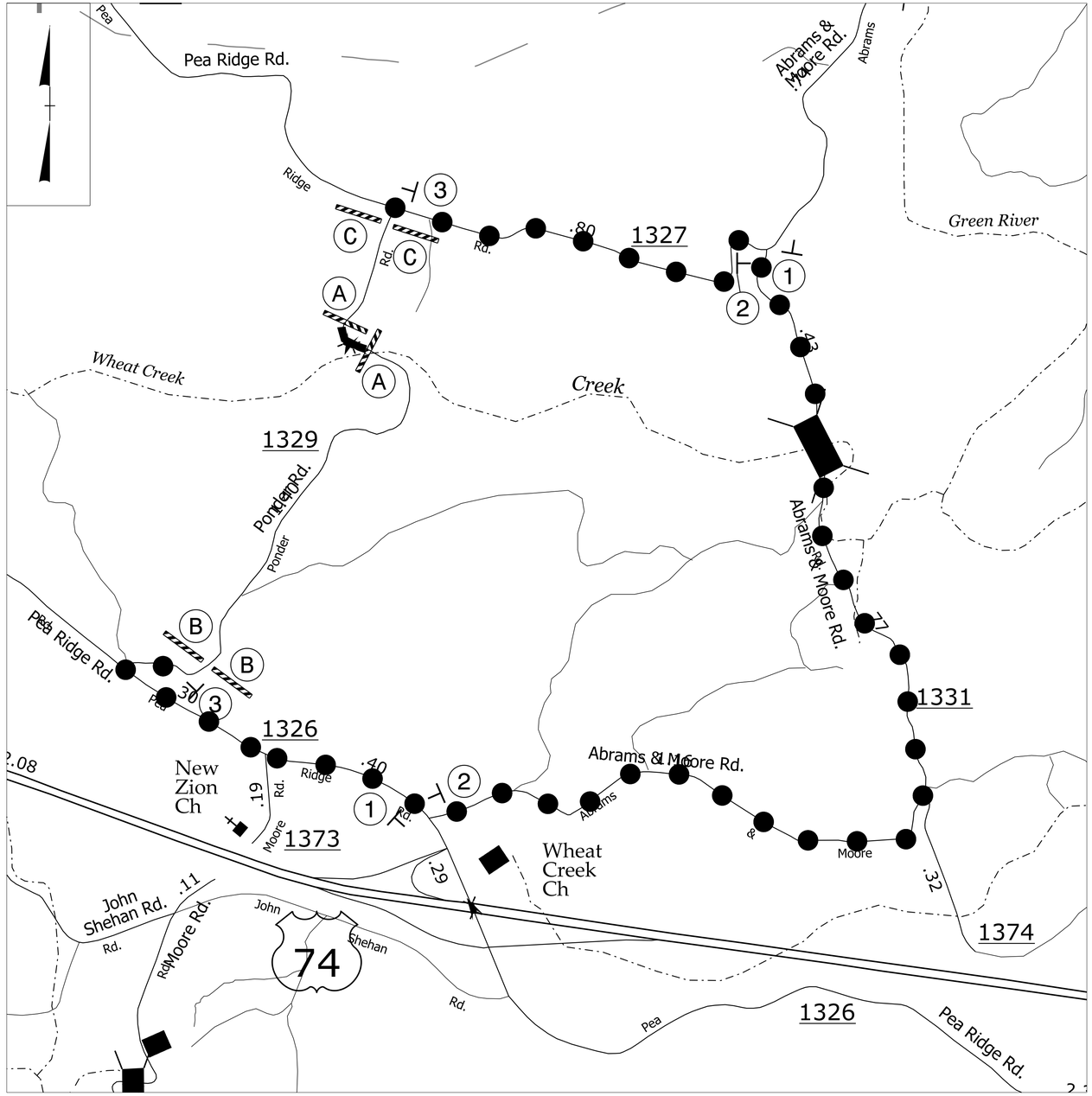
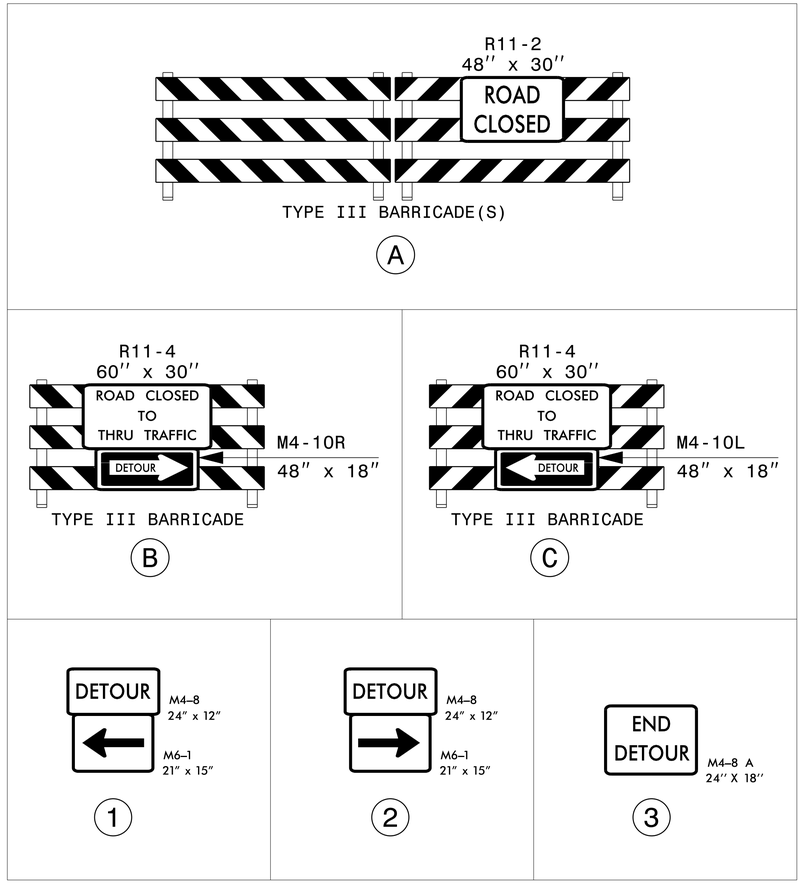
PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.74	TMP-2





DETOUR ROUTE

REFER TO RSD 1101.03, SHEET 1 OF 9, FOR ADDITIONAL SIGN AND BARRICADE PLACEMENT

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034367 ENGINEER TODD H. BUCKNER

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

OFFSITE DETOUR PLAN PONDER RD (SR 1329)

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT MARKING PLAN

POLK COUNTY

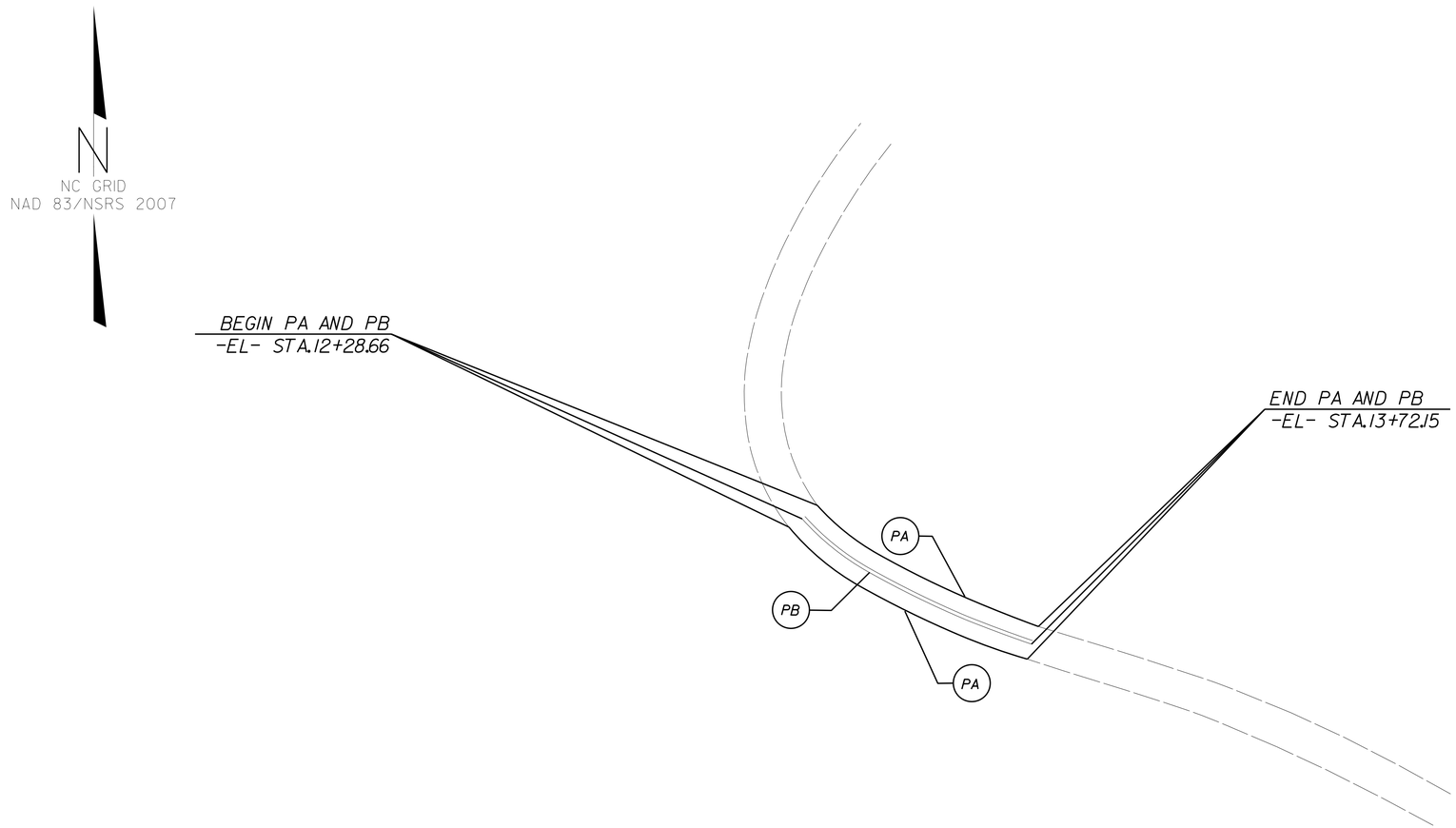
PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION (PAINT - 4")
PA	WHITE EDGELINE
PB	YELLOW DOUBLE CENTER

NOTE: FINAL PAINT TO BE A DOUBLE COAT.

SHEET NO.
PMP-1

WBS ELEMENT: 17BP.14.R.74



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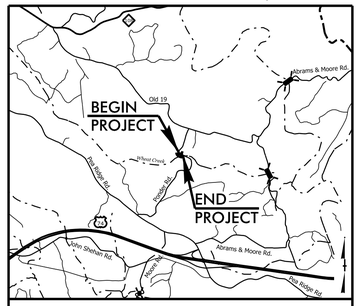
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.74	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.74		

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

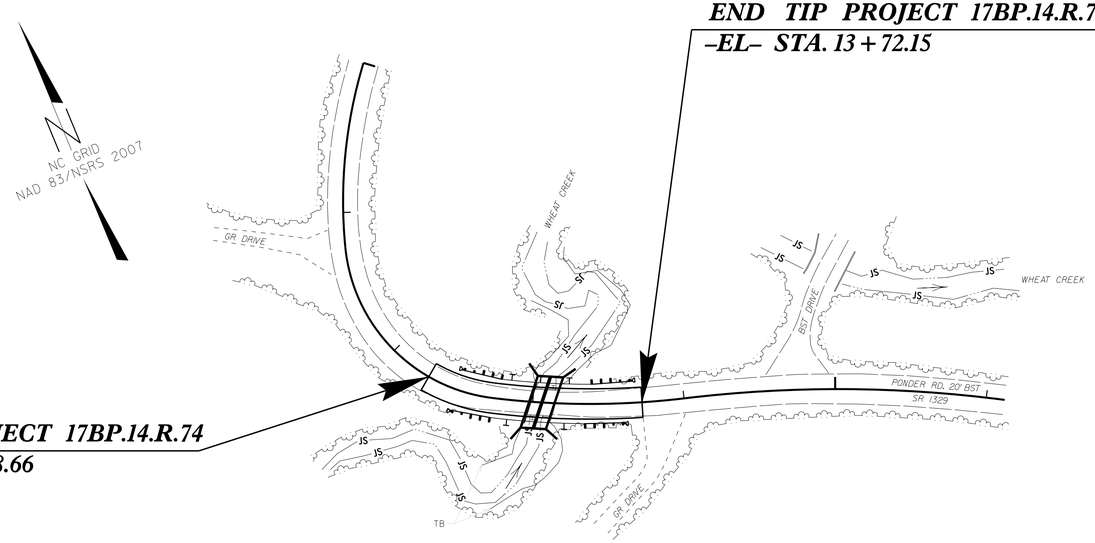
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

POLK COUNTY

LOCATION: BRIDGE NO. 70 ON SR 1329 OVER WHEAT CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURE



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	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

NCDOT CONTACT: JOSH DEYTON, PE
DIVISION BRIDGE MANAGEMENT ENGINEER

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:

Baker

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
Professional Corporation License Number:
F-1084

TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA 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 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01 Temporary Silt Fence
1622.01 Temporary Berms and Slope Drains
1606.01 Special Sediment Control Fence
1630.04 Stilling Basin
1631.01 Matting Installation
1633.01 Temporary Rock Silt Check Type A
1640.01 Coir Fiber Baffle

TIP PROJECT: 17BP.14.R.74

CONTRACT: 6300029467

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	EC-2

TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA CERTIFICATION NO.

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.

REVISIONS

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R/W SHEET NO.	

TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA CERTIFICATION NO.

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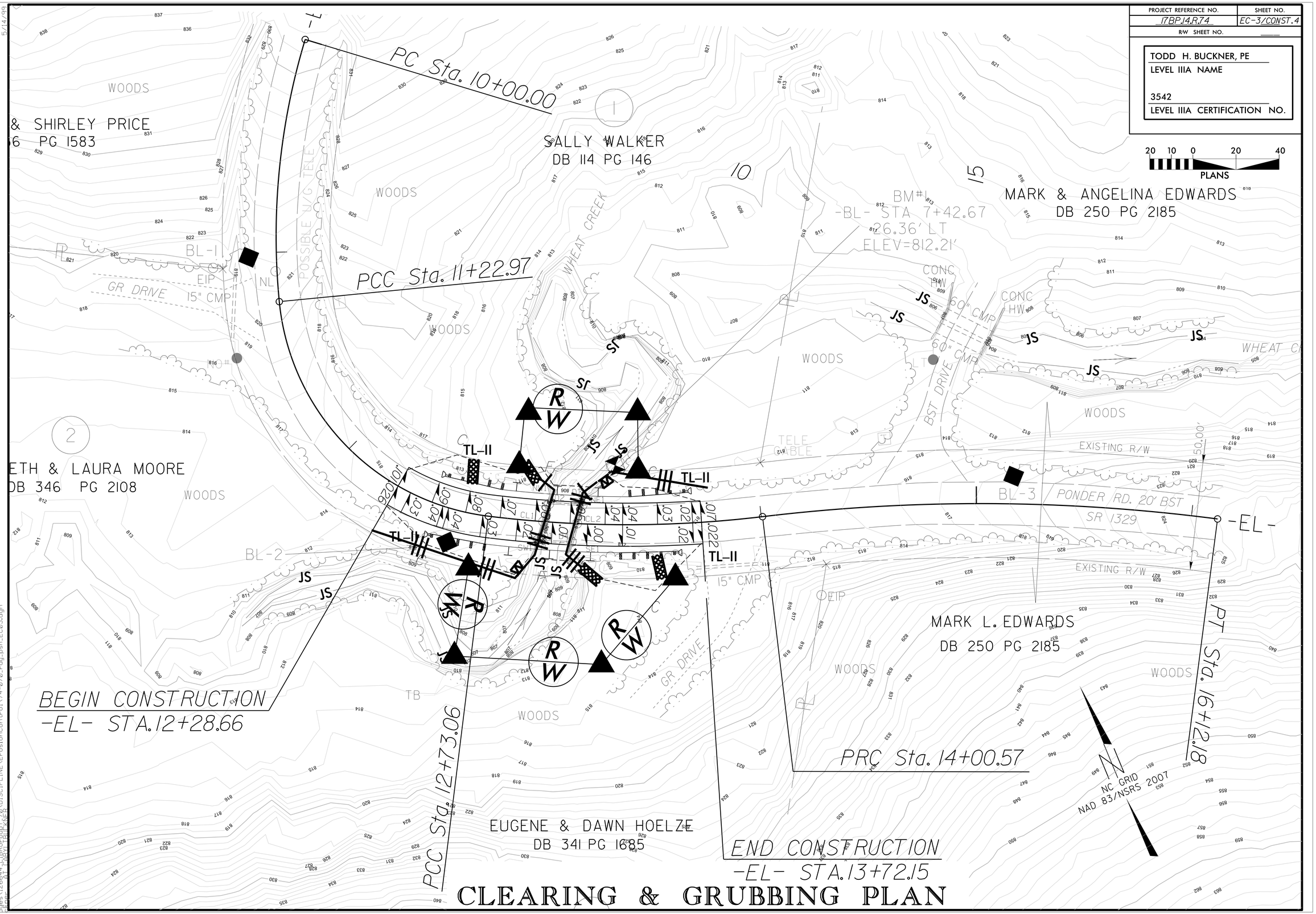
PLANS



CLEARING & GRUBBING PLAN

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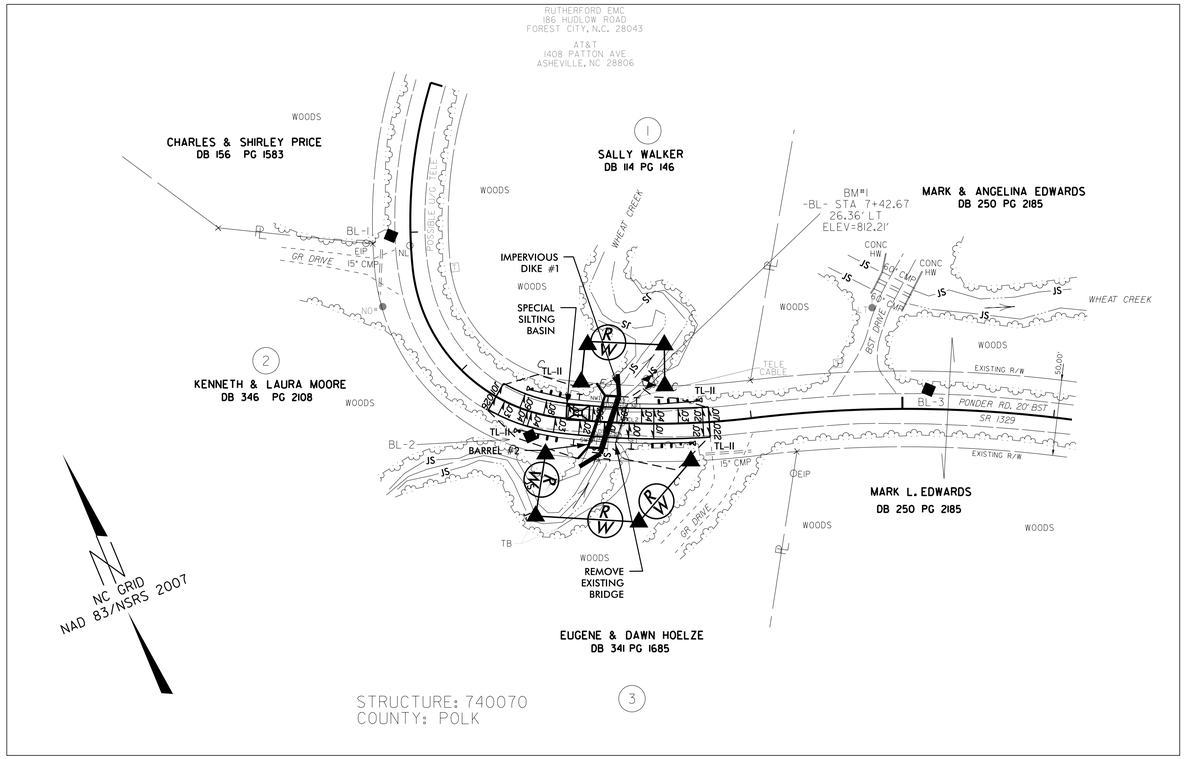
TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA CERTIFICATION NO.



STAGE 1

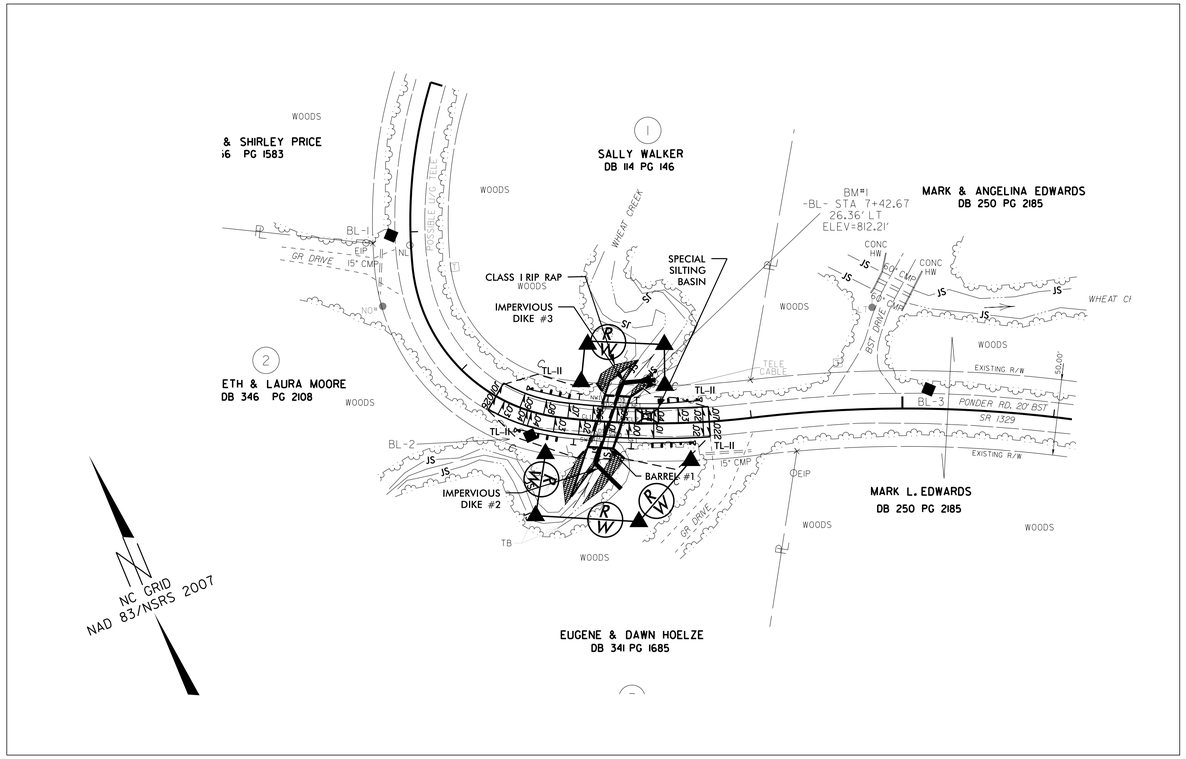
REMOVE EXISTING BRIDGE STRUCTURE.

INSTALL SPECIAL STILLING BASIN.

CONSTRUCT TEMPORARY IMPERVIOUS DIKE #1 TO DIVERT STREAM FLOW EAST OF PROPOSED CULVERT #2.

DEWATER CONSTRUCTION AREA AND TREAT EFFLUENT WATER USING A SPECIAL STILLING BASIN.

INSTALL CULVERT #2 AND WESTERN HALF OF HEADWALLS.



STAGE 1

REMOVE IMPERVIOUS DIKE #1.

INSTALL SPECIAL STILLING BASIN.

CONSTRUCT TEMPORARY IMPERVIOUS DIKE #2 & #3 AS SHOWN TO DIVERT STREAM INTO CULVERT #2.

DEWATER CONSTRUCTION AREA AND TREAT EFFLUENT WATER USING A SPECIAL STILLING BASIN.

INSTALL CULVERT #1 AND REMAINING PORTION OF HEADWALLS.

REMOVE SPECIAL STILLING BASIN AND IMPERVIOUS DIKES AND STABILIZE BANKS WITH CLASS I RIPRAP.

SR 1329 OVER WHEAT CREEK
-L- STA. 13 + 06

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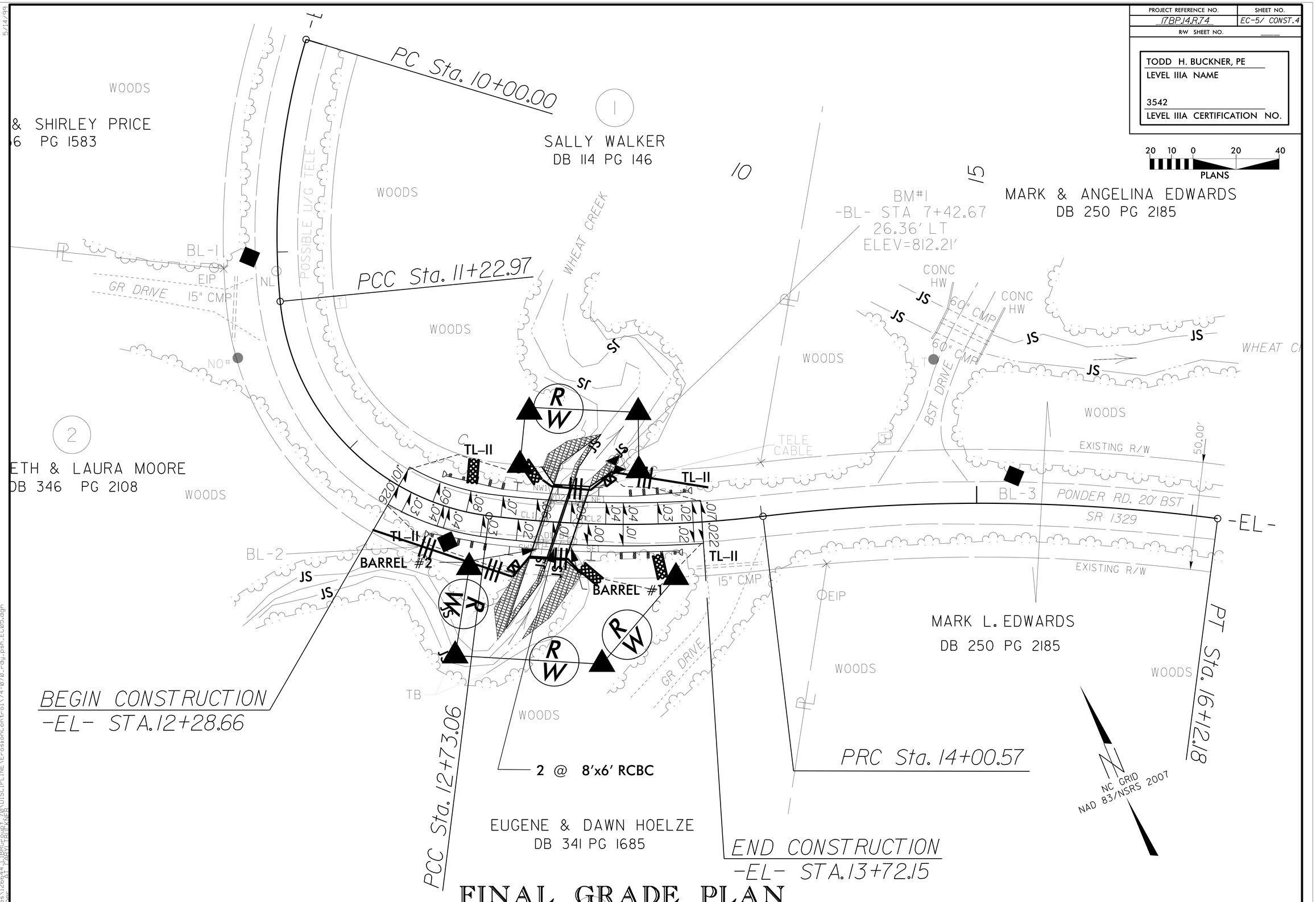
17BP.14.R.74	EC-5/ CONST.4
R/W SHEET NO.	

TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA CERTIFICATION NO.



FINAL GRADE PLAN

5/14/99

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17BP.14.R.74	EC-6
R/W SHEET NO.	

TODD H. BUCKNER, PE
LEVEL IIIA NAME

3542
LEVEL IIIA CERTIFICATION NO.

DETAIL

(NOT TO SCALE)

MULTI–BARREL LOW FLOW CHANNEL, SILLS AND FLOOD PLAIN

*NOTES:

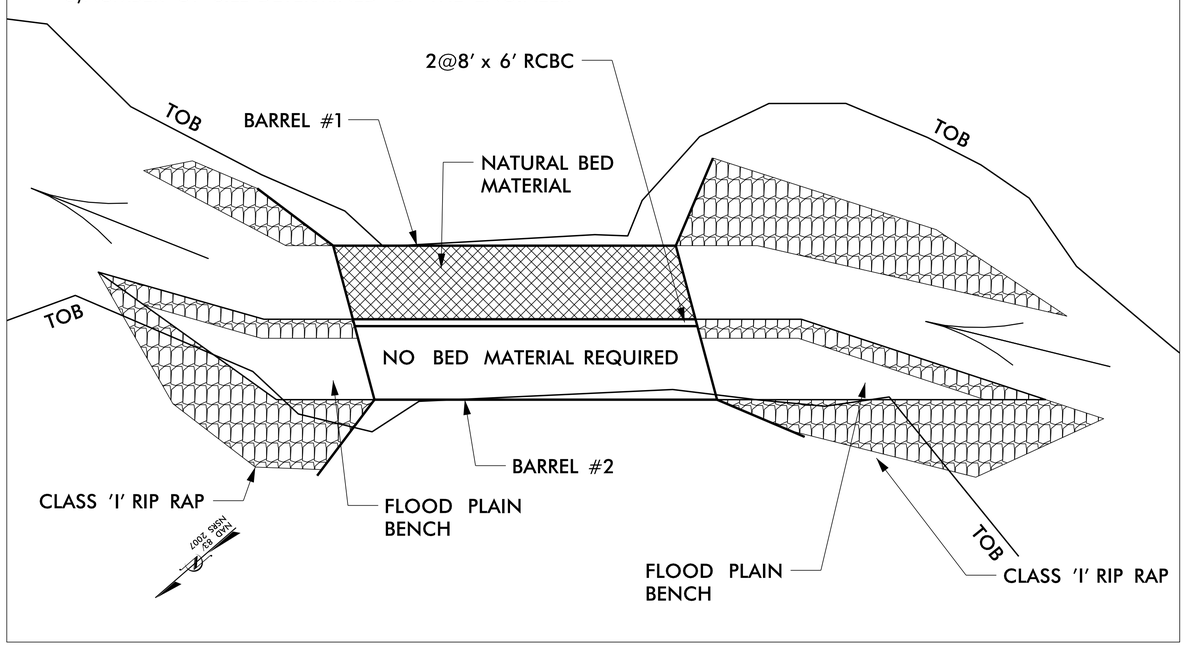
1)BED MATERIAL SHALL BE EXCAVATED AND STOCKPILED DURING INSTALLATION OF THE CULVERTS AND SILLS. THE NATURAL BED MATERIALS SHALL THEN BE PLACED IN THE INLET OF THE CULVERT TO THE SPECIFIED ELEVATION

2)SILLS ARE TO BE MADE OF ALUMINIZED STEEL AND MECHANICALLY ATTACHED TO THE INVERT OF THE CULVERT

3) CLASS 'I' RIP RAP MAY BE USED TO SUPPLEMENT NATURAL BED MATERIAL

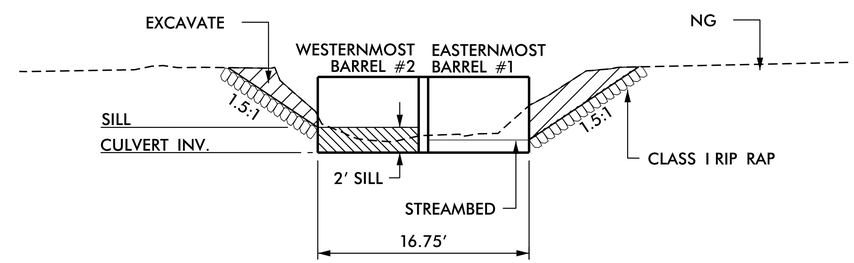
4)DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL

5)NUMBER OF SILL DETERMINED BY THE ENGINEER



OUTLET CHANNEL

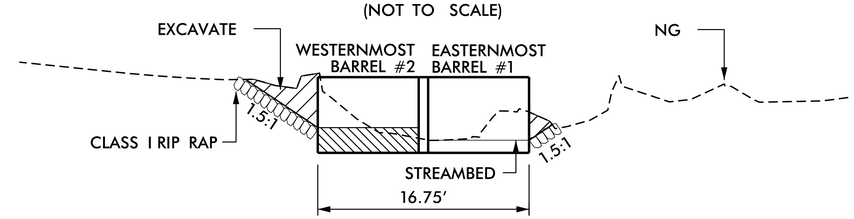
(NOT TO SCALE)



PLACE SILLS AT INLET AND OUTLET OF BARREL #2 ONLY.
BACKFILL BARREL#2 WITH NATIVE BED MATERIAL AND SUBSIDIZE WITH CLASS 'B' RIP RIP IF NEEDED.

INLET CHANNEL

(NOT TO SCALE)



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At: Tabs\TBUCKNER

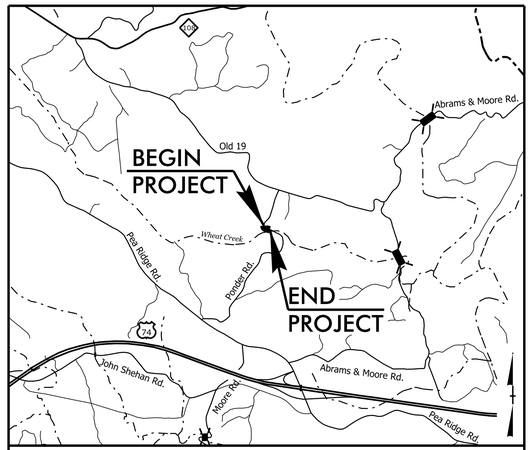
PROJECT: 17BP.14.R.74

CONTRACT: 6300029467

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	UO–1

UTILITIES BY OTHERS PLAN
POLK COUNTY

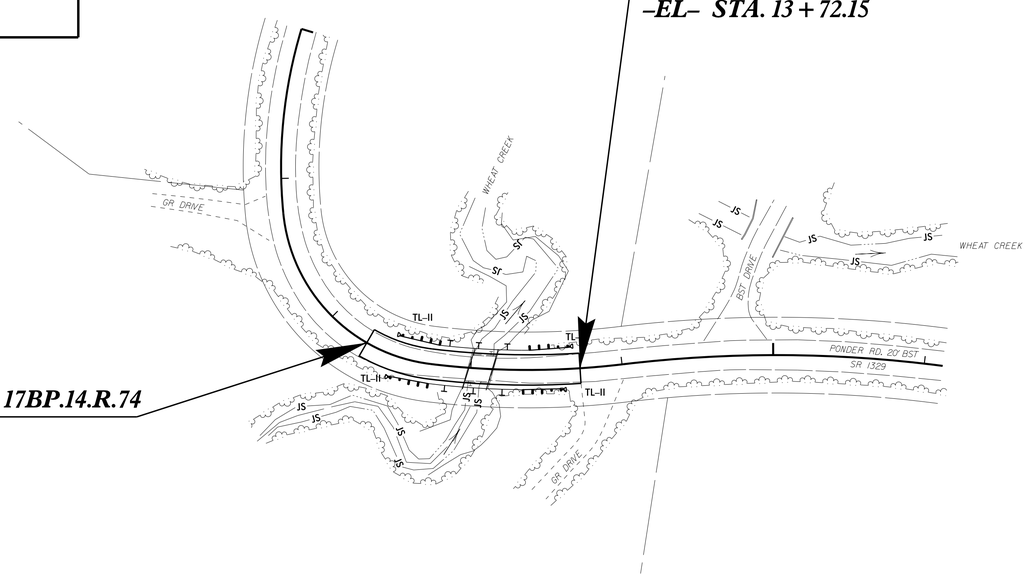


VICINITY MAP

LOCATION: BRIDGE NO. 70 ON SR 1329 OVER WHEAT CREEK

TYPE OF WORK: POWER DISTRIBUTION AND TELEPHONE COMMUNICATIONS RELOCATION

END PROJECT 17BP.14.R.74
–EL– STA. 13+72.15



BEGIN PROJECT 17BP.14.R.74
–EL– STA. 12+28.66

NCDOT CONTACT: JOSH DEYTON, PE
DIVISION BRIDGE MANAGEMENT ENGINEER

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

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO–1	TITLE SHEET
UO–2	UTILITIES BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) Windstream (Telecommunications)
(2) Rutherford Electric Membership Cooperative (Power Distribution)

Baker
Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
919-463-5488

UTILITIES COORDINATION CONSULTANT
Brandy Creech

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Ronald B. Wilkins, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER

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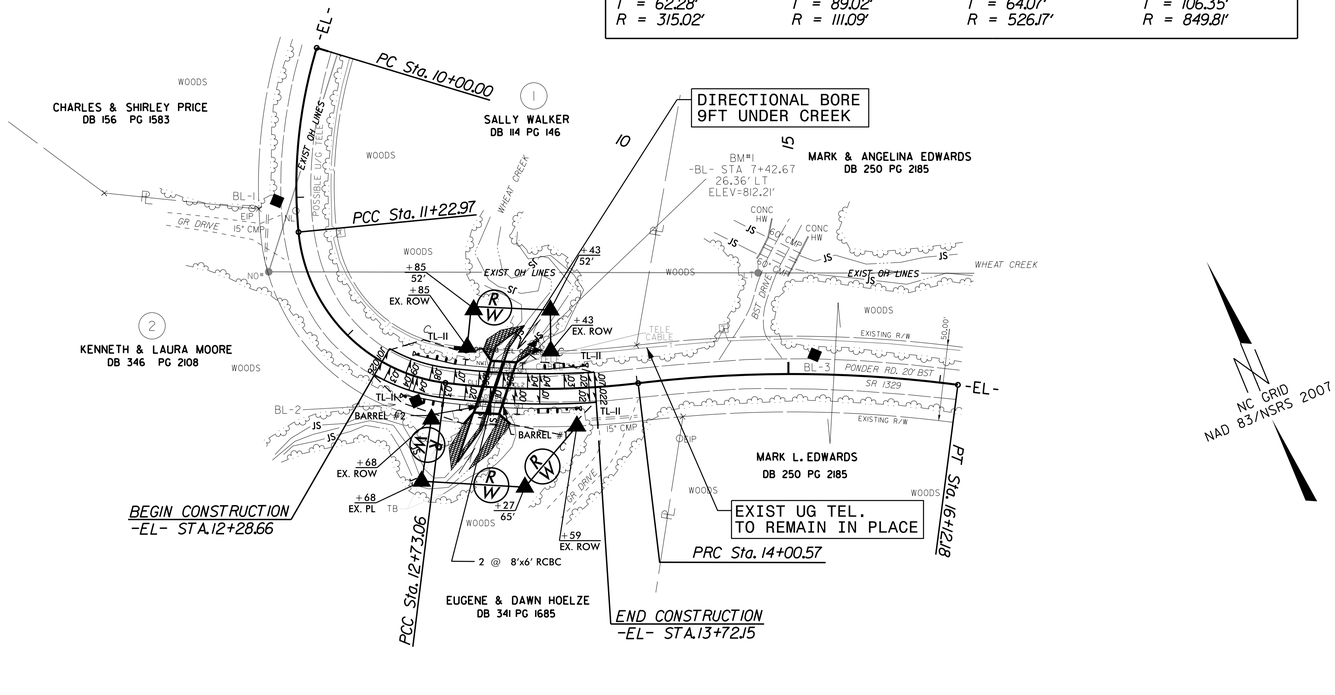
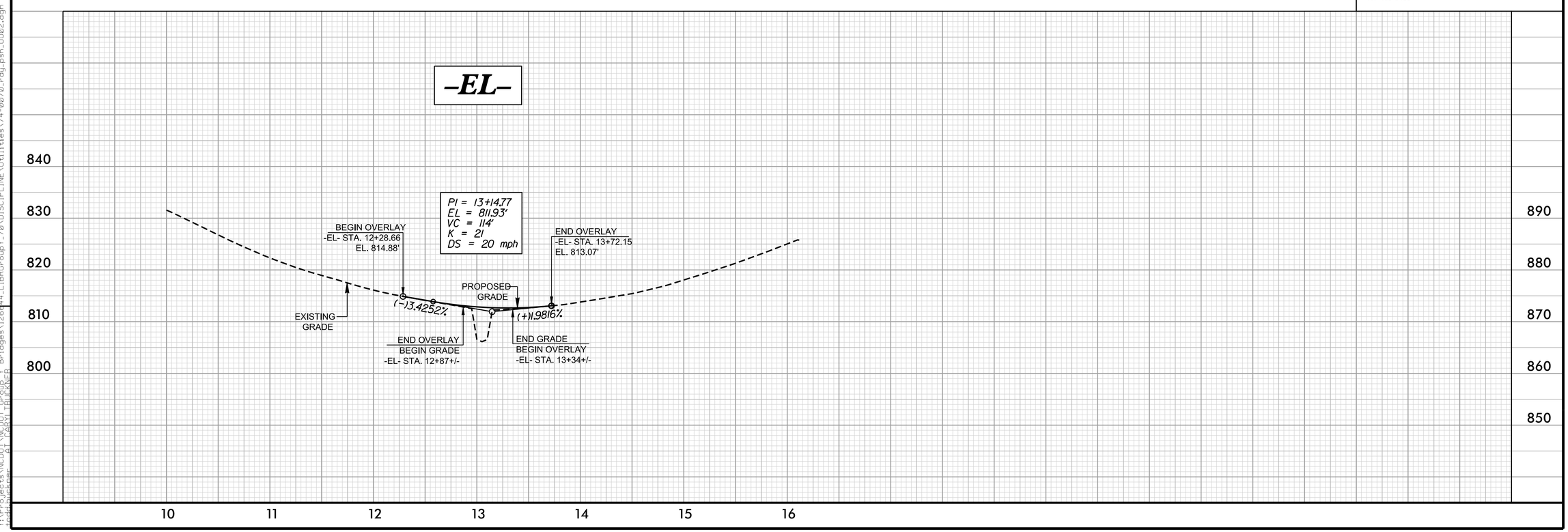
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.74	U0-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

-EL-			
PI Sta 10+62.28	PI Sta 12+11.99	PI Sta 13+37.13	PI Sta 15+06.92
Δ = 22° 21' 53.0" (LT)	Δ = 77° 24' 55.0" (LT)	Δ = 13° 53' 06.6" (LT)	Δ = 14° 16' 00.6" (RT)
D = 18° 11' 15.8"	D = 51° 34' 40.6"	D = 10° 53' 21.4"	D = 6° 44' 32.0"
L = 122.97'	L = 150.09'	L = 127.51'	L = 211.60'
T = 62.28'	T = 89.02'	T = 64.07'	T = 106.35'
R = 315.02'	R = 111.09'	R = 526.17'	R = 849.81'





Baker
Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, NC 27518
919-463-5488

REVISIONS

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Bridge Group 41 CARY TRIPKNER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

POLK COUNTY
17BP.14.R.74

CROSS SECTION SUMMARY

Station El	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+28.66	0	0
12+50.00	5	0
13+00.00	18	140
13+50.00	21	141
13+72.15	6	1

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REVISIONS

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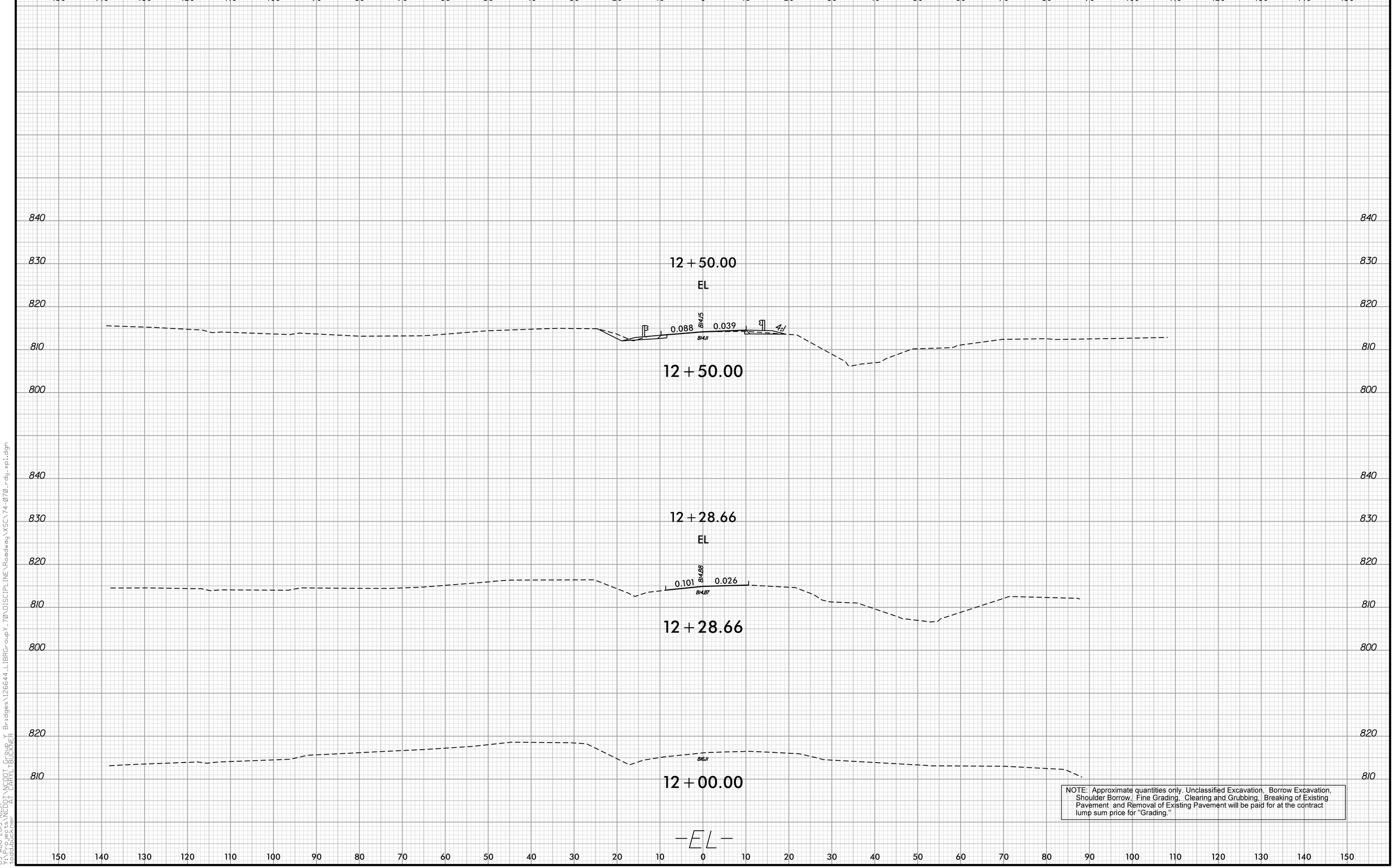
	17BP.14.R.74	X-1



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

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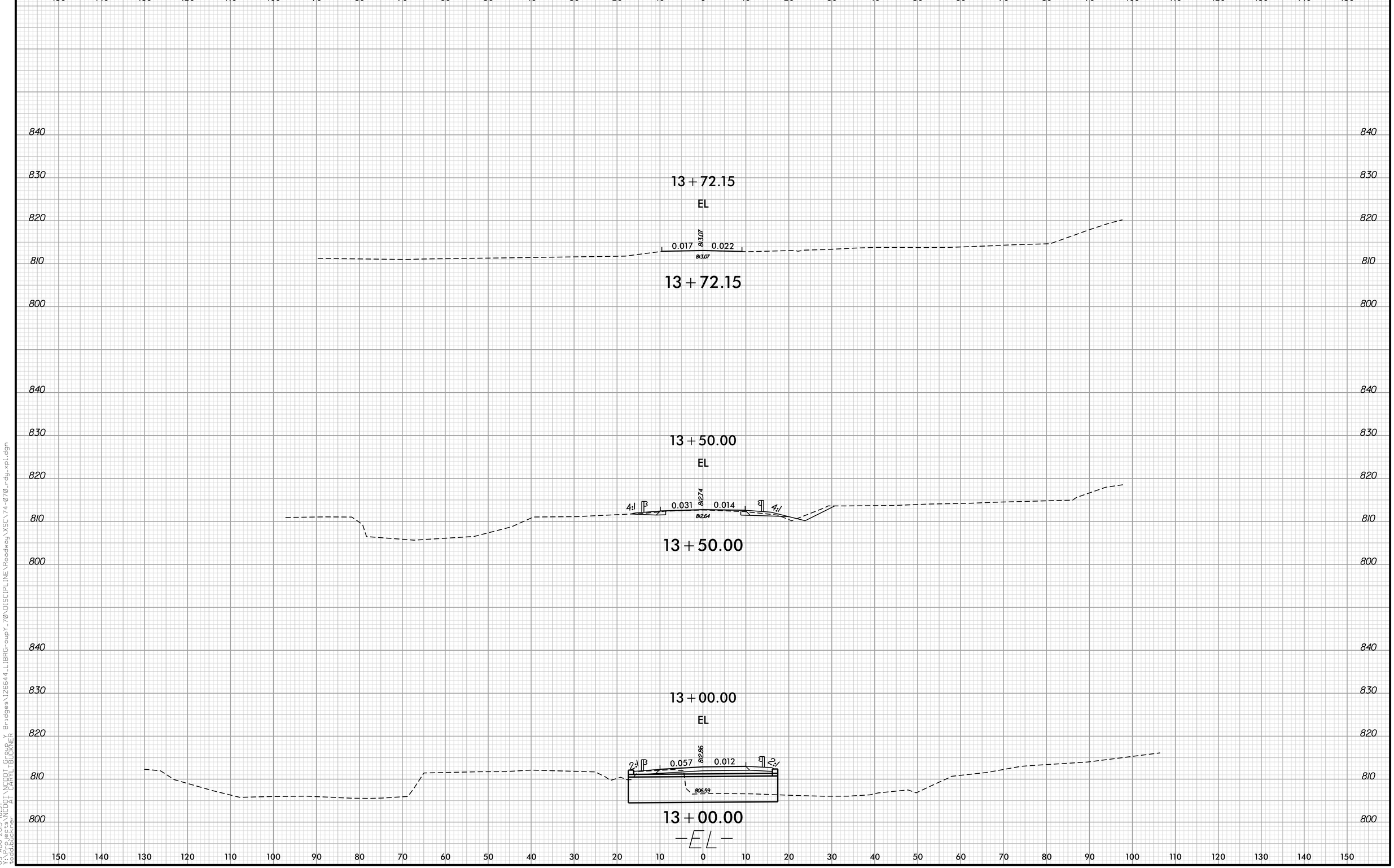

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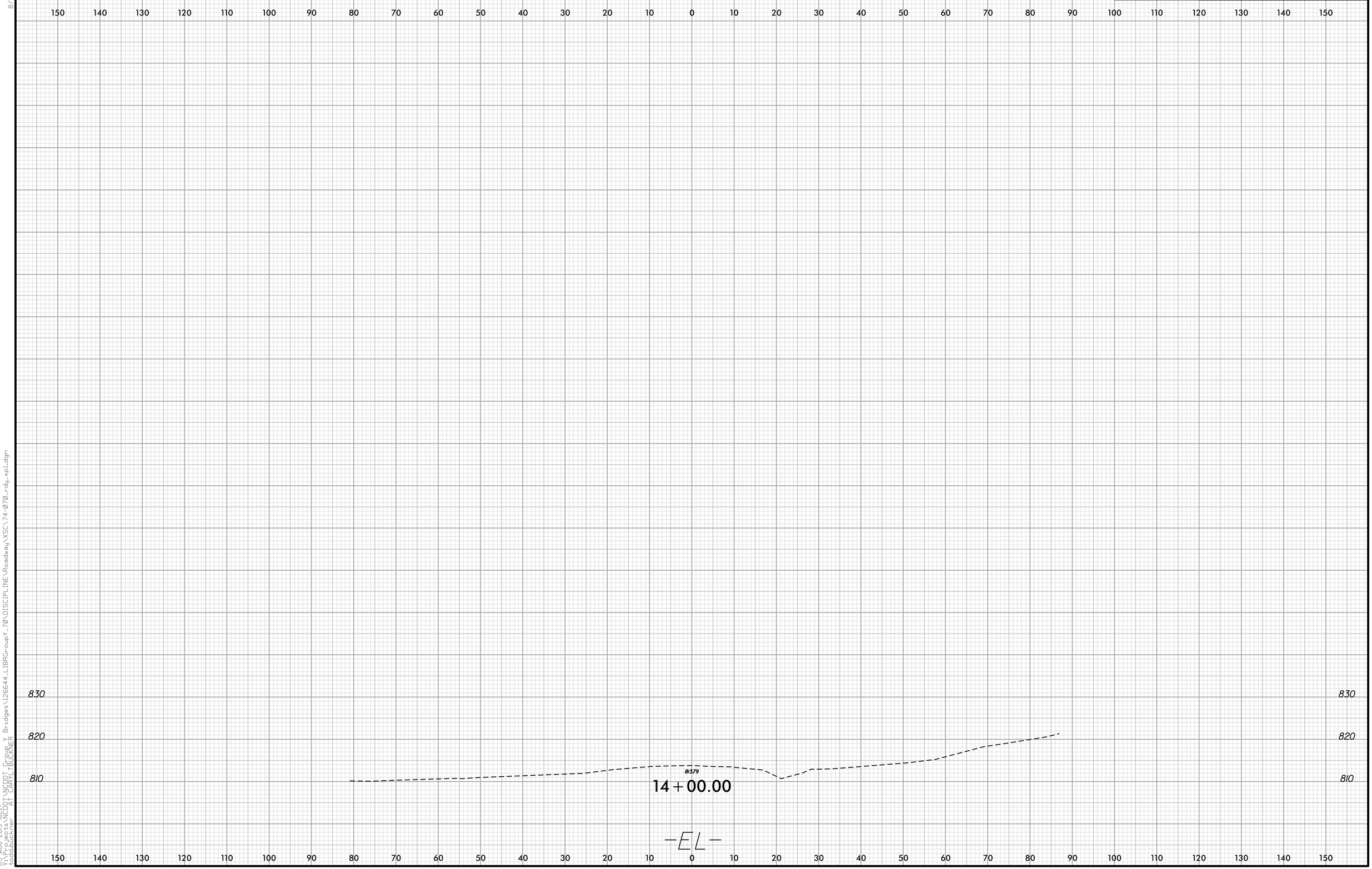

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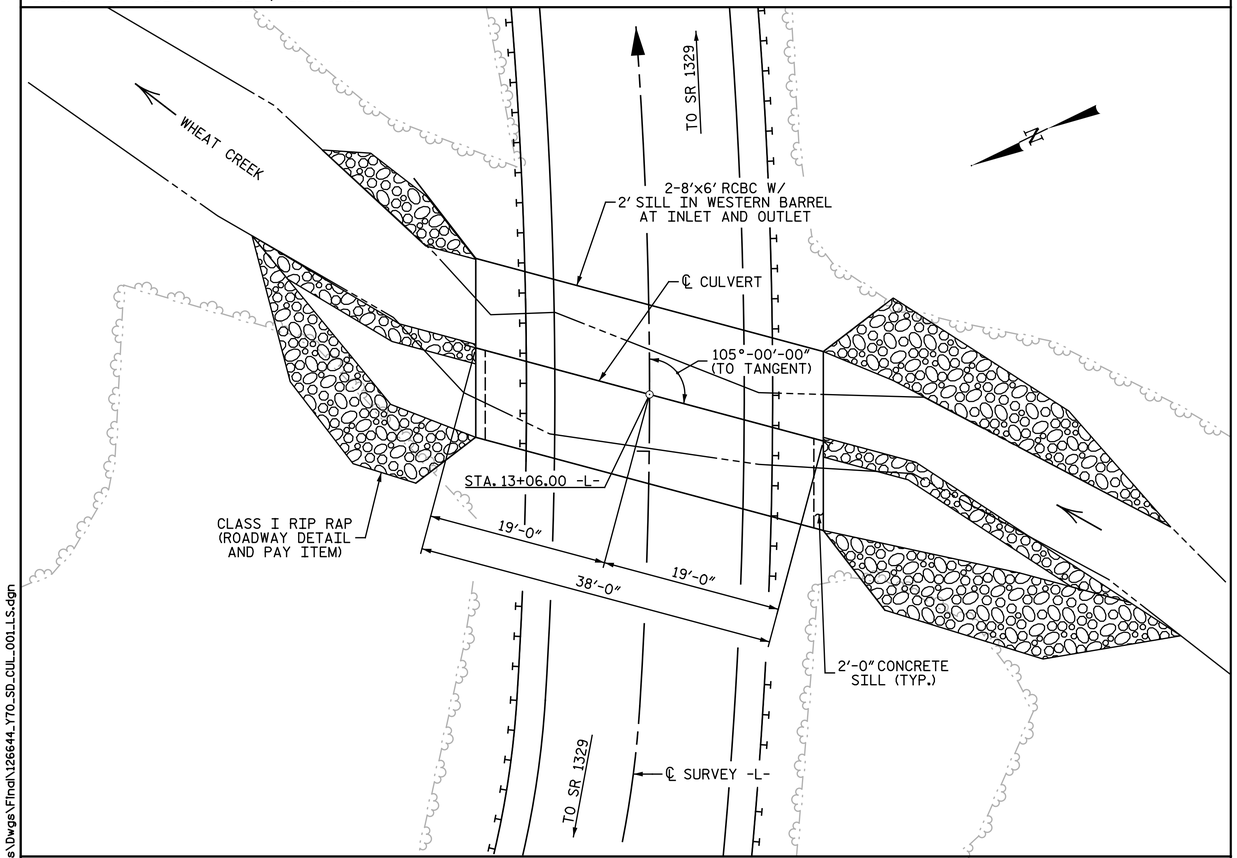


LOCATION SKETCH

ROADWAY DATA

GRADE POINT ELEV. @ STA. 13+06.00 -EL-	= 812.78
BED ELEV. @ STA. 13+06.00	= 804.6
ROADWAY SLOPES	= 2 : 1

HYDRAULIC DATA

DESIGN DISCHARGE	= 330 CFS
FREQUENCY OF DESIGN FLOOD	= 2 YR
DESIGN HIGH WATER ELEVATION	= 811.1
DRAINAGE AREA	= 2.36 SQ. MI.
BASE DISCHARGE (Q100)	= 1500 CFS
BASE HIGH WATER ELEVATION	= 815.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 480 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 2 YR +
OVERTOPPING FLOOD ELEVATION	= 812.7

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE				
BARREL @	1.973	CY/FT	75.0	C.Y.
WING ETC.			18.6	C.Y.
TOTAL			93.6	C.Y.
REINFORCING STEEL				
BARREL			12,043	LBS.
WINGS ETC.			934	LBS.
TOTAL			12,977	LBS.
CULVERT EXCAVATION @ STA. 13+06.00 -L-			LUMP SUM	
FOUNDATION CONDITIONING MATERIAL			60	TONS
GEOTEXTILE FOR SOIL STABILIZATION			50	SY
CLASS I RIP RAP			134	TONS

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN FILL = 1.0 FT.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES 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. 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 WILL 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.

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

A 3'-0" STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR EROSION CONTROL PLANS, SEE ROADWAY PLANS.

THE EXISTING STRUCTURE CONSISTING OF 1 @ 18'-3" TIMBER DECK ON TIMBER GIRDERS, CLEAR ROADWAY WIDTH OF APPROXIMATELY 14'-8", TIMBER CAPS ON TIMBER PILES W/ TIMBER ABUTMENTS AND LOCATED AT THE PROPOSED LOCATION SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

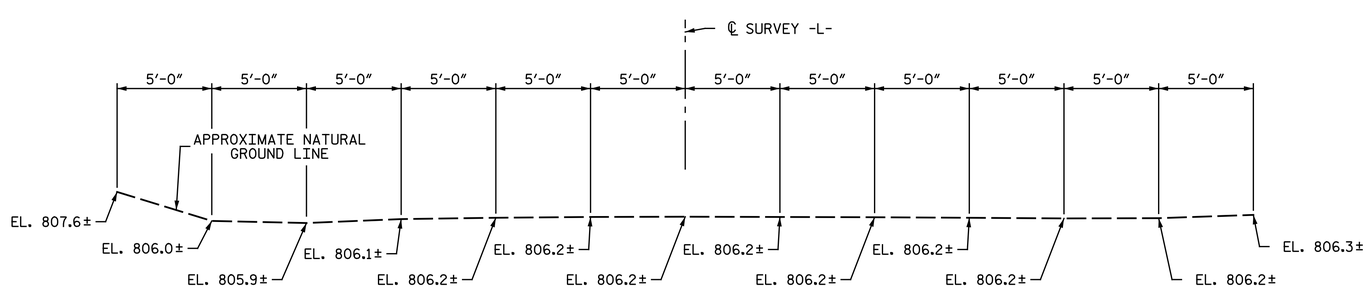
AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAS-IN-PLACE DESIGN, FOR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

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



PROFILE ALONG ℄ CULVERT

PROJECT NO. 17BP.14.R.74

POLK COUNTY

STATION: 13+06.00 -L-

REPLACES BRIDGE NO. 70

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

DocuSigned by: Andrew Phillips 5752848F5064459...

8/5/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

DOUBLE 8FT. X 6FT.
CONCRETE BOX CULVERT
105° SKEW

Baker

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

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

DRAWN BY : C. E. MAYHEW DATE : 6-6-12
CHECKED BY : R. F. DECOLA DATE : 6-6-12

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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
							LIVE-LOAD FACTORS $\gamma_{(LL)}$	MOMENT				SHEAR				
								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	1.32	--	1.75	1.90	1	TOP SLAB-MIDDLE (INSIDE)	4.00	1.32	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		HL-93 (OPERATING)	N/A		1.71	--	1.35	2.46	1	TOP SLAB-MIDDLE (INSIDE)	4.00	1.71	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		HS-20 (INVENTORY)	36.000	2	1.32	47.52	1.75	1.90	1	TOP SLAB-MIDDLE (INSIDE)	4.00	1.32	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		HS-20 (OPERATING)	36.000		1.71	61.56	1.35	2.46	1	TOP SLAB-MIDDLE (INSIDE)	4.00	1.71	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SHSH	13.500		2.78	37.53	1.40	3.45	1	TOP SLAB-MIDDLE (INSIDE)	4.00	2.78	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNGARBS2	20.000		2.55	51.00	1.40	3.23	1	TOP SLAB-MIDDLE (INSIDE)	4.00	2.55	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNAGRIS2	22.000		2.79	61.38	1.40	3.45	1	TOP SLAB-MIDDLE (INSIDE)	4.00	2.79	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNCOTTS3	27.250	3	1.26	34.34	1.40	2.79	1	TOP SLAB-MIDDLE (INSIDE)	4.00	1.26	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNAGGRS4	34.925		1.64	57.28	1.40	2.49	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.64	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNS5A	35.550		1.48	52.61	1.40	2.76	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.48	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNS6A	39.950		1.45	57.93	1.40	2.56	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.45	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		SNS7B	42.000		1.44	60.48	1.40	2.56	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.44	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.46	81.18	1.40	3.38	1	TOP SLAB-MIDDLE (INSIDE)	4.00	2.46	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNT4A	33.075		1.57	51.93	1.40	3.09	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.57	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNT6A	41.600		1.50	62.40	1.40	2.77	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.50	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNT7A	42.000		1.52	63.84	1.40	2.70	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.52	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNT7B	42.000		1.49	62.58	1.40	2.89	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.49	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNAGRIT4	43.000		1.51	64.93	1.40	2.65	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.51	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNAGT5A	45.000		1.48	66.60	1.40	2.58	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.48	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2
		TNAGT5B	45.000		1.48	66.60	1.40	2.12	1	BOTTOM SLAB-RIGHT (OUTSIDE)	8.00	1.48	1	TOP SLAB-RIGHT (OUTSIDE)	8.00	1, 2

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. ALL DISTANCES ARE MEASURED FROM THE INSIDE FACE OF THE WALLS OR TOP OF BOTTOM SLAB.
2. BOXES ARE CONSIDERED TO BE IDENTICAL, SO CONTROLLING BOX WAS ASSUMED TO BE BOX NO. 1.

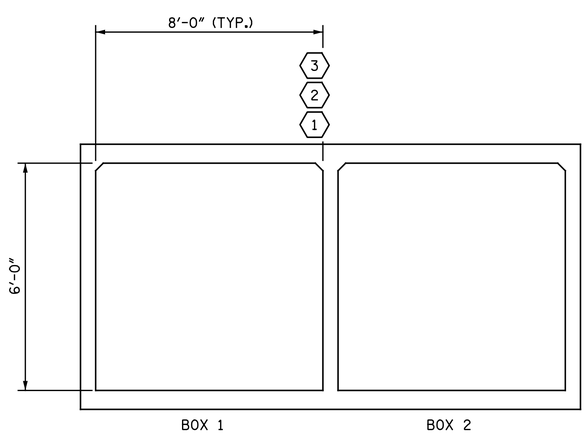
(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. 17BP.14.R.74

POLK COUNTY

STATION: 13+06.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

DocuSigned by: Andrew Phillips 575284BF5094459...

8/5/2015

Baker

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

(NON-INTERSTATE TRAFFIC)

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

DRAWN BY : C. E. MAYHEW DATE : 6-6-12
CHECKED BY : R. F. DECOLA DATE : 6-6-12

DWG. 2 OF 6

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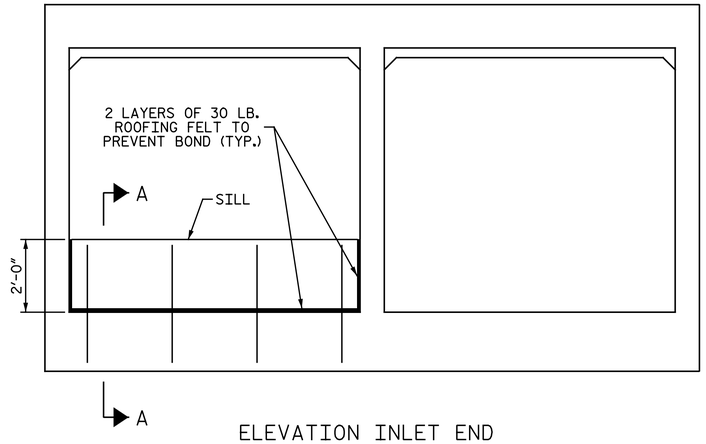

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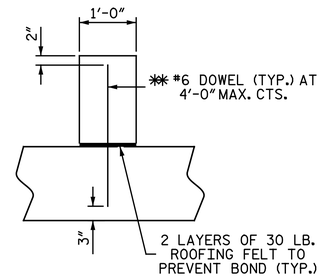
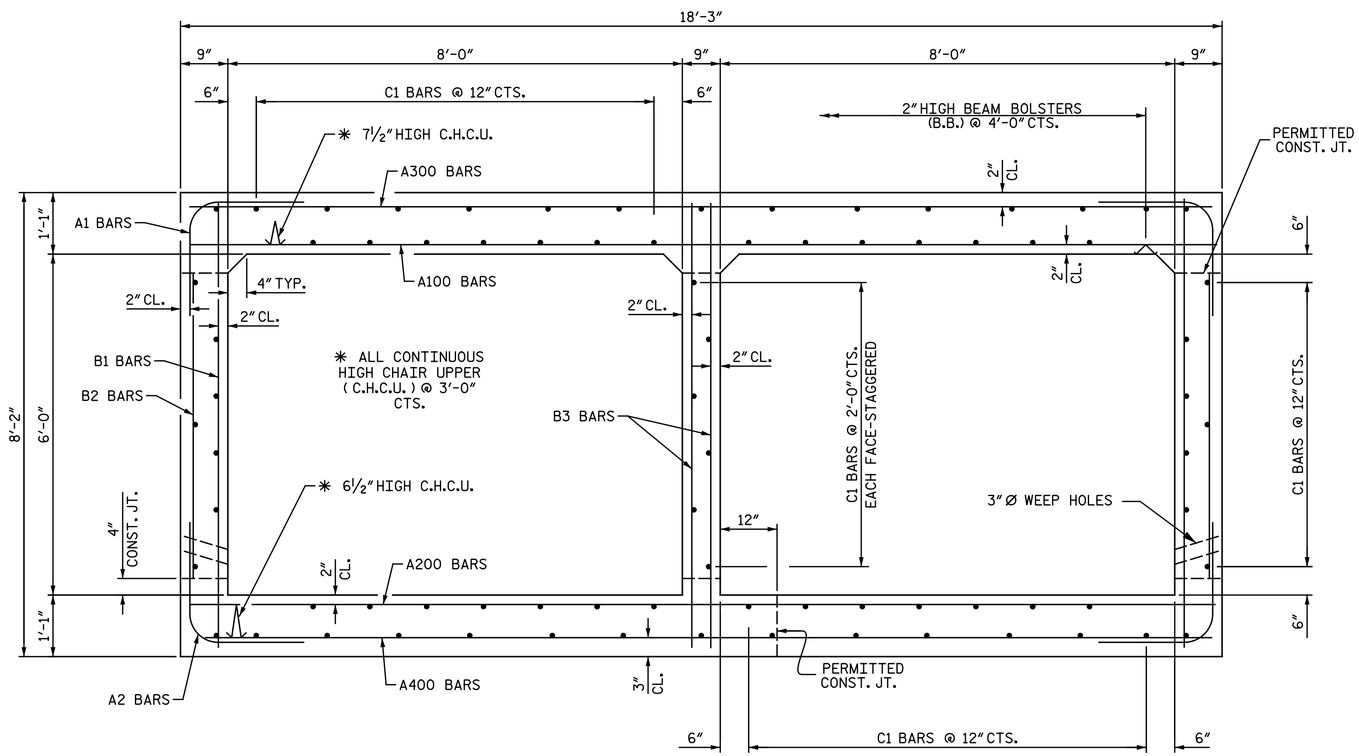


SECTION A-A

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

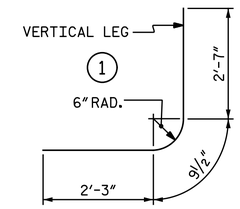
CULVERT SILL DETAILS



RIGHT ANGLE SECTION OF BARREL

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTH CHART

BAR	SIZE	SPLICE LENGTH
"B"	5	1'-9"
C1	4	1'-11"

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	92	5	1	5' - 8"	544
A2	92	5	1	5' - 8"	544
A100	50	6	STR	17' - 11"	1,346
A101	2	6	STR	15' - 9"	47
A102	2	6	STR	13' - 3"	40
A103	2	6	STR	10' - 9"	32
A104	2	6	STR	8' - 3"	25
A105	2	6	STR	5' - 9"	17
A106	6	6	STR	3' - 3"	29
A200	50	6	STR	17' - 11"	1,346
A201	2	6	STR	15' - 9"	47
A202	2	6	STR	13' - 3"	40
A203	2	6	STR	10' - 9"	32
A204	2	6	STR	8' - 3"	25
A205	2	6	STR	5' - 9"	17
A206	6	6	STR	3' - 3"	29
A300	50	6	STR	17' - 11"	1,346
A301	2	6	STR	15' - 9"	47
A302	2	6	STR	13' - 3"	40
A303	2	6	STR	10' - 9"	32
A304	2	6	STR	8' - 3"	25
A305	2	6	STR	5' - 9"	17
A306	6	6	STR	3' - 3"	29
A400	50	6	STR	17' - 11"	1,346
A401	2	6	STR	15' - 9"	47
A402	2	6	STR	13' - 3"	40
A403	2	6	STR	10' - 9"	32
A404	2	6	STR	8' - 3"	25
A405	2	6	STR	5' - 9"	17
A406	6	6	STR	3' - 3"	29
B1	92	5	STR	7' - 9"	744
B2	92	5	STR	5' - 4"	512
B3	92	5	STR	7' - 9"	744
C1	154	4	STR	19' - 10"	2,040
D1	6	6	STR	2' - 8"	24
G1	8	5	STR	18' - 6"	154
S2	12	8	STR	18' - 6"	593
REINFORCING STEEL					LBS. 12,043

PROJECT NO. 17BP.14.R.74

POLK COUNTY

STATION: 13+06.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

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8/5/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL SECTION & SILL DETAILS
DOUBLE 8FT. X 6FT. CONCRETE BOX CULVERT
105° SKEW

Baker
Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

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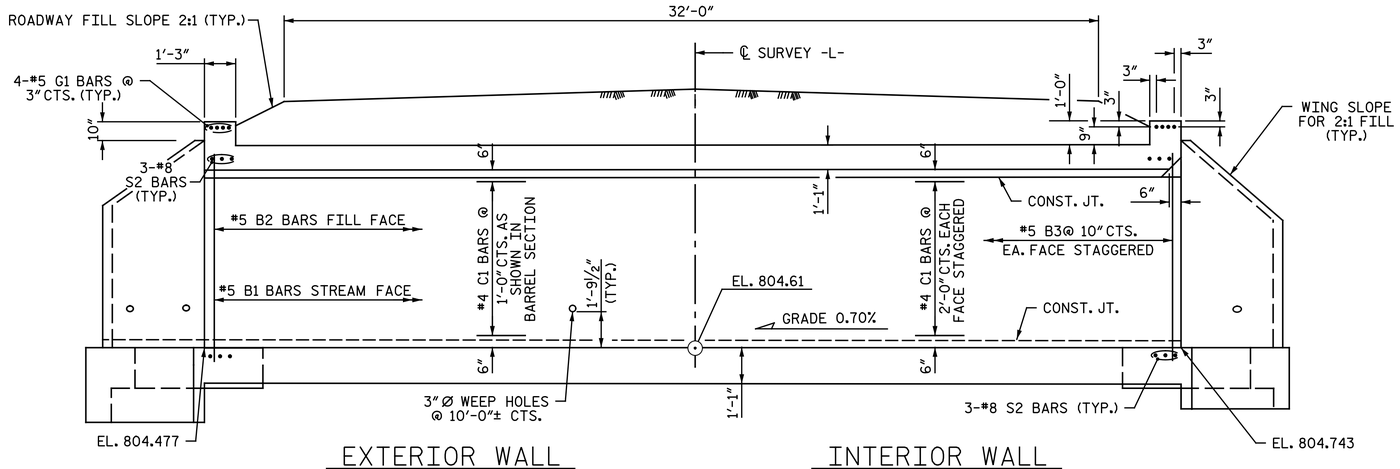
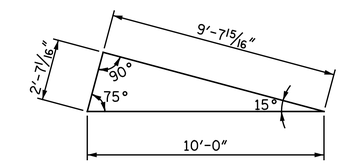
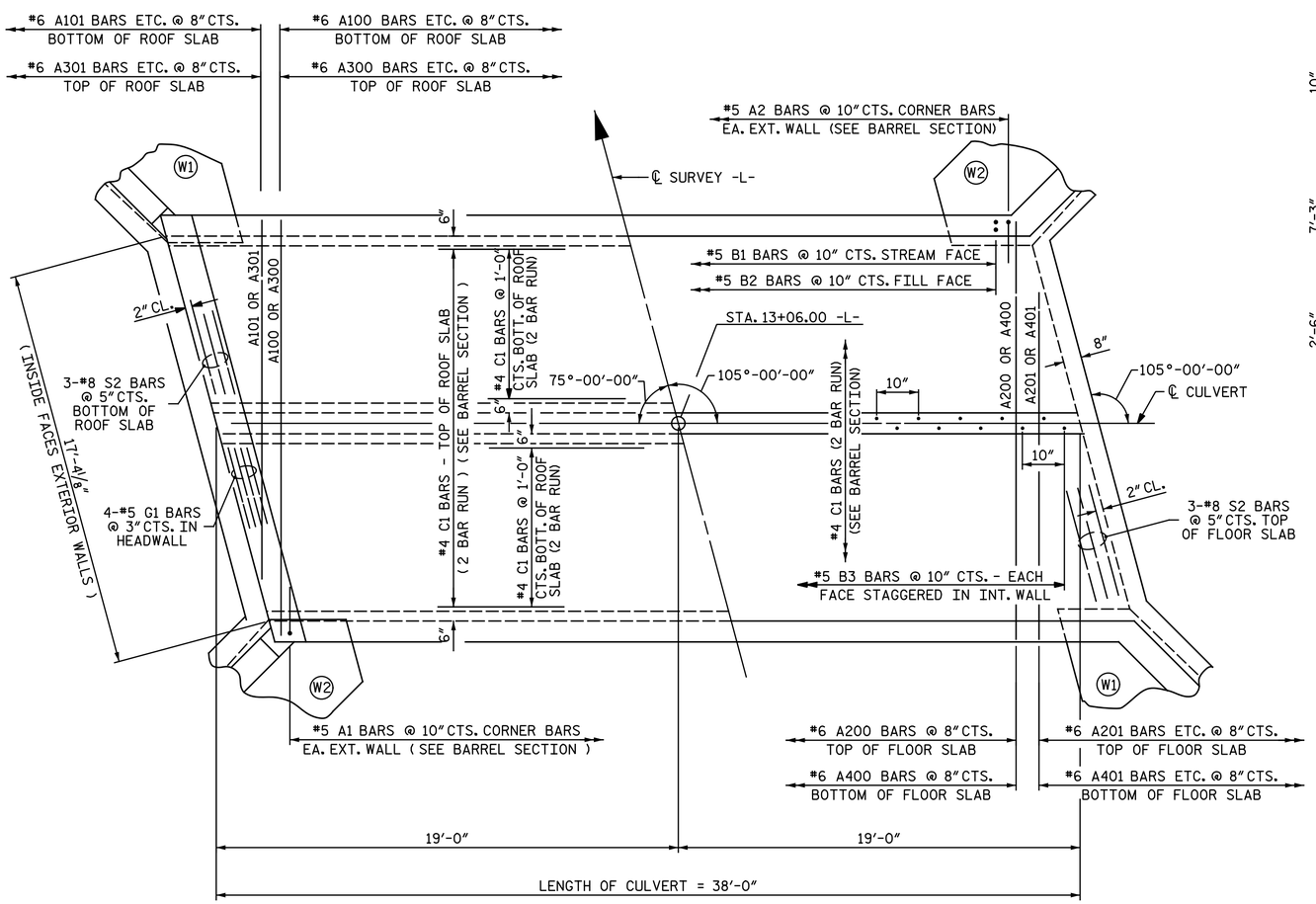


CULVERT SECTION NORMAL TO ROADWAY

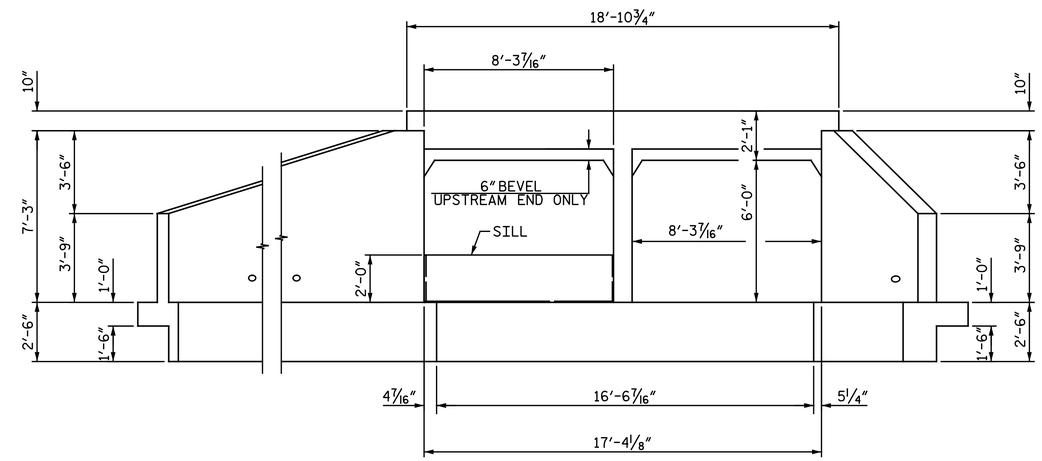


SKEW TRIANGLE



PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB



END ELEVATION NORMAL TO SKEW - INLET END

PROJECT NO. 17BP.14.R.74

POLK COUNTY

STATION: 13+06.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

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8/5/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN & ELEVATION

DOUBLE 8FT. X 6FT. CONCRETE BOX CULVERT

105° SKEW

Baker

Michael Baker Engineering, Inc.
8000 Regency Parkway, Suite 600
Cary, North Carolina 27518
NC License No.: F-1084

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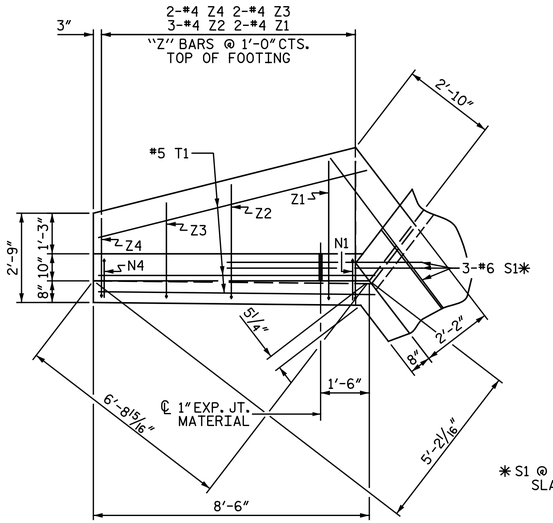
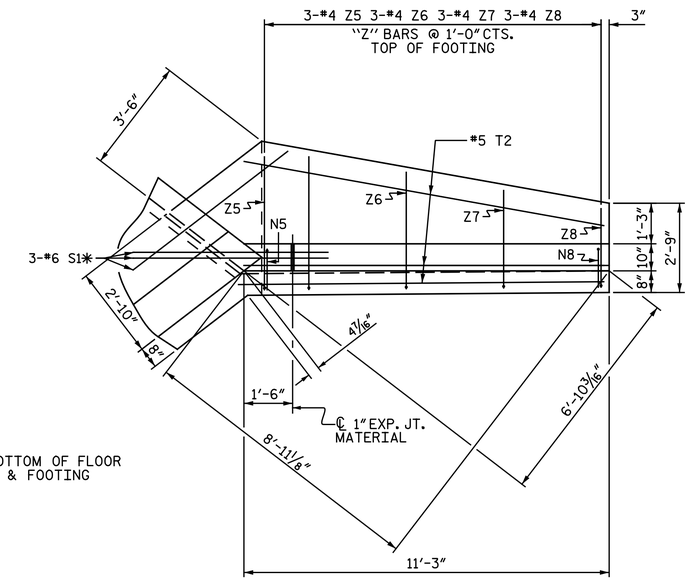
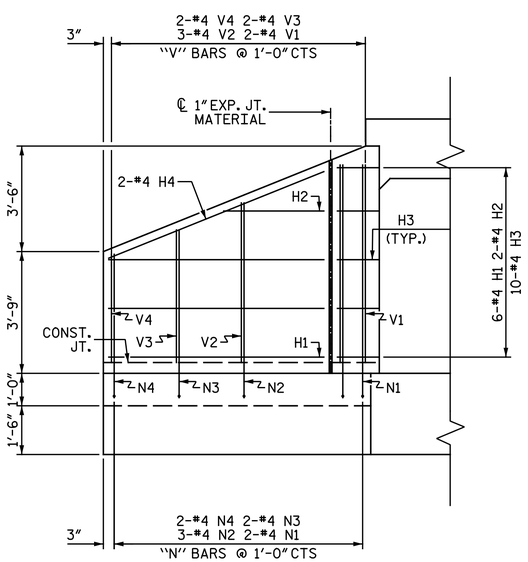


PLAN W2

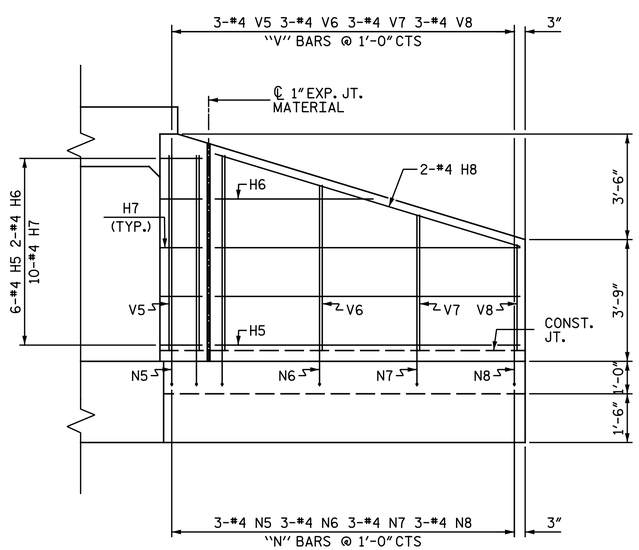


PLAN W1

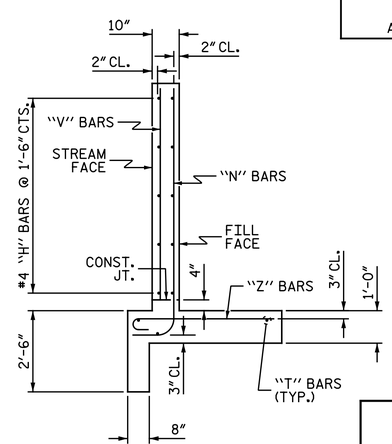
✱ S1 @ BOTTOM OF FLOOR SLAB & FOOTING



ELEVATION W2

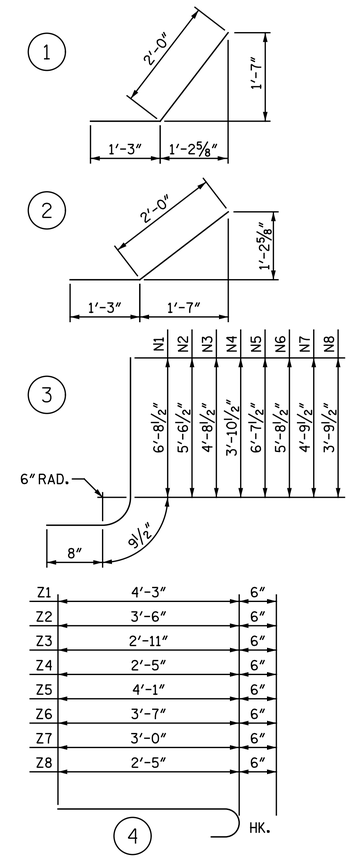


ELEVATION W1



TYPICAL WING SECTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	6'-7"	53
H2	4	#4	STR	3'-1"	8
H3	20	#4	1	3'-3"	43
H4	4	#4	STR	7'-1"	19
H5	12	#4	STR	9'-4"	75
H6	4	#4	STR	4'-10"	13
H7	20	#4	2	3'-3"	43
H8	4	#4	STR	9'-9"	26
N1	4	#4	3	8'-2"	22
N2	6	#4	3	7'-1"	28
N3	4	#4	3	6'-2"	16
N4	4	#4	3	5'-4"	14
N5	6	#4	3	8'-1"	32
N6	6	#4	3	7'-2"	29
N7	6	#4	3	6'-3"	25
N8	6	#4	3	5'-3"	21
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	8'-6"	53
T2	6	#5	STR	11'-3"	70
V1	4	#4	STR	6'-1"	16
V2	6	#4	STR	4'-11"	20
V3	4	#4	STR	4'-1"	11
V4	4	#4	STR	3'-4"	9
V5	6	#4	STR	6'-0"	24
V6	6	#4	STR	5'-1"	20
V7	6	#4	STR	4'-2"	17
V8	6	#4	STR	3'-3"	13
Z1	4	#4	4	4'-9"	13
Z2	6	#4	4	4'-0"	16
Z3	4	#4	4	3'-5"	9
Z4	4	#4	4	2'-11"	8
Z5	6	#4	4	4'-7"	18
Z6	6	#4	4	4'-1"	16
Z7	6	#4	4	3'-6"	14
Z8	6	#4	4	2'-11"	12

REINFORCING STEEL	934	LBS
FOR 4 WINGS		
CLASS A CONCRETE		
4 WINGS	14.2	CY
2 HEADWALLS	1.7	CY
2 END CURTAIN WALLS	2.1	CY
2 SILLS	.6	CY
TOTAL	18.6	CY

PROJECT NO. 17BP.14.R.74
POLK COUNTY
STATION: 13+06.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

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5752848F5006459...
8/5/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CULVERT WINGS
DOUBLE 8FT. X 6FT. CONCRETE BOX CULVERT
105° SKEW

Baker
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8000 Regency Parkway, Suite 600
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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 2012 "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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" 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 1/4" 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" 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.

PROJECT NO. 17BP.14.R.74
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STATION: 13+06.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 040769 ENGINEER ANDREW L. PHILLIPS

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8/5/2015

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

DOUBLE 8FT. X 6FT. CONCRETE BOX CULVERT
105° SKEW

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