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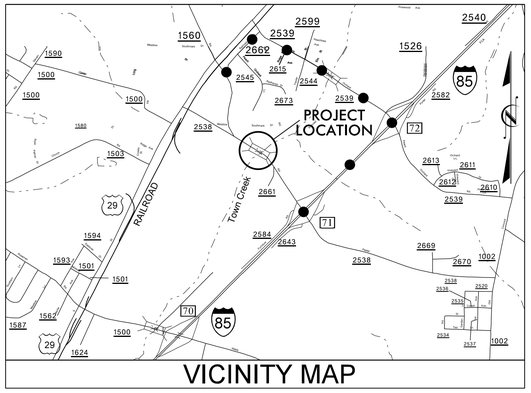
09/08/99

TIP PROJECT: 17BP.9.R.60

CONTRACT: DI0117

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



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

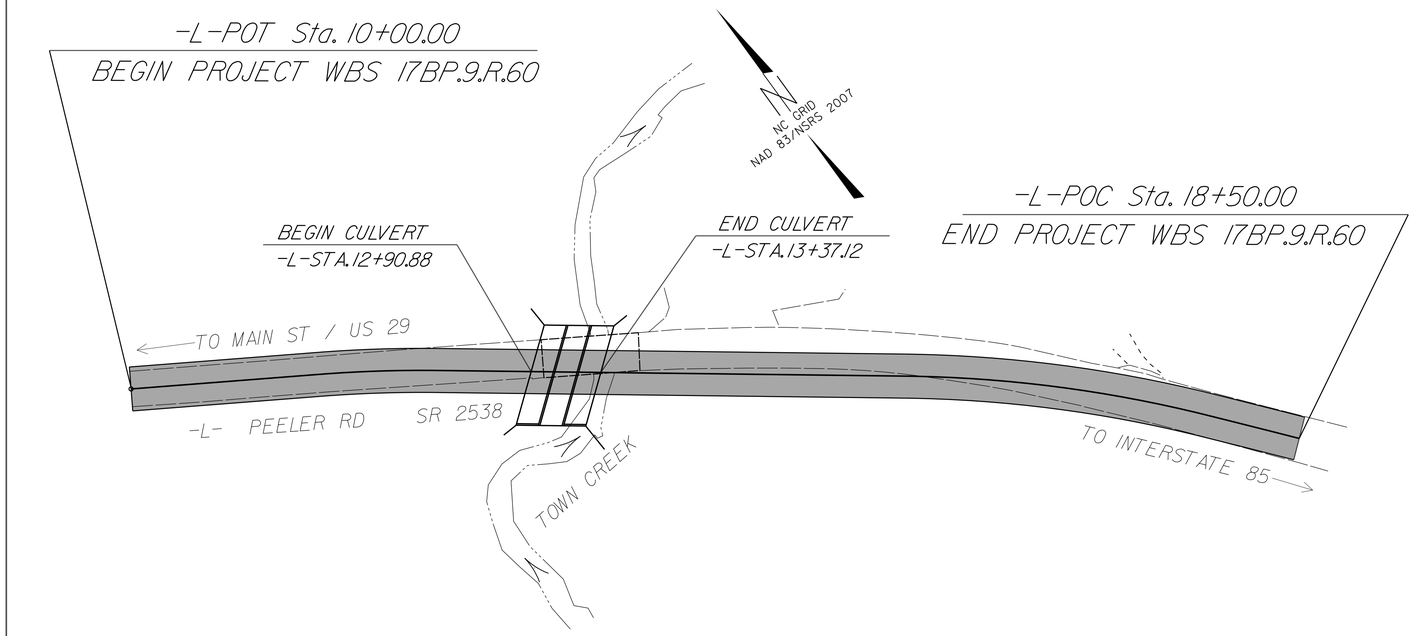
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.60	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.9.R.60	N/A	PE
17BP.9.R.60	N/A	RW/UTILS
17BP.9.R.60	N/A	CONST

LOCATION: ***REPLACE EXISTING BRIDGE NO. 281 ON PEELER RD. (SR 2538) OVER TOWN CREEK WITH BOX CULVERT***

TYPE OF WORK: GRADING, DRAINAGE, WIDENING, BOX CULVERT, AND PAVEMENT MARKINGS

4



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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 = 8520
ADT 2037 = 15400
DHV = 9 %
D = 55 %
T = 8 % *
V = 50 MPH
* 4% TTST + 4% DUALS

FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BD-5109Z = 0.161 MILE
LENGTH STRUCTURE TIP PROJECT BD-5109Z = 0.009 MILE
TOTAL LENGTH TIP PROJECT BD-5109Z = 0.152 MILE

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2014

LETTING DATE:
TBD

MATTHEW W. JONES, PE
PROJECT ENGINEER

W. AL BLANTON, PE, PLS
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022000 W. Galen Call

DocuSigned by: Galen Call 9/22/2015
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025499 William A. Blanton

DocuSigned by: William A. Blanton 9/22/2015
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

22-SEP-2015 10:59
S:\DDC\2014-17BP9R60-Peeler Rd\17BP9R60_ddc_tsh.dgn
wablanton AT D9CAD268308

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	1-A

DDC ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025499 ENGINEER William A. Blanton

9/22/2015

DocuSigned by: William A. Blanton

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, Salisbury-Rowan Utilities,

AT&T, Time Warner Cable,

Private Utility Owners (Wilco-Hess, Love's Travel Stops &Country Stores - Force Sewer)

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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	
200.03	Method of Clearing - Method III
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 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	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 R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- 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:

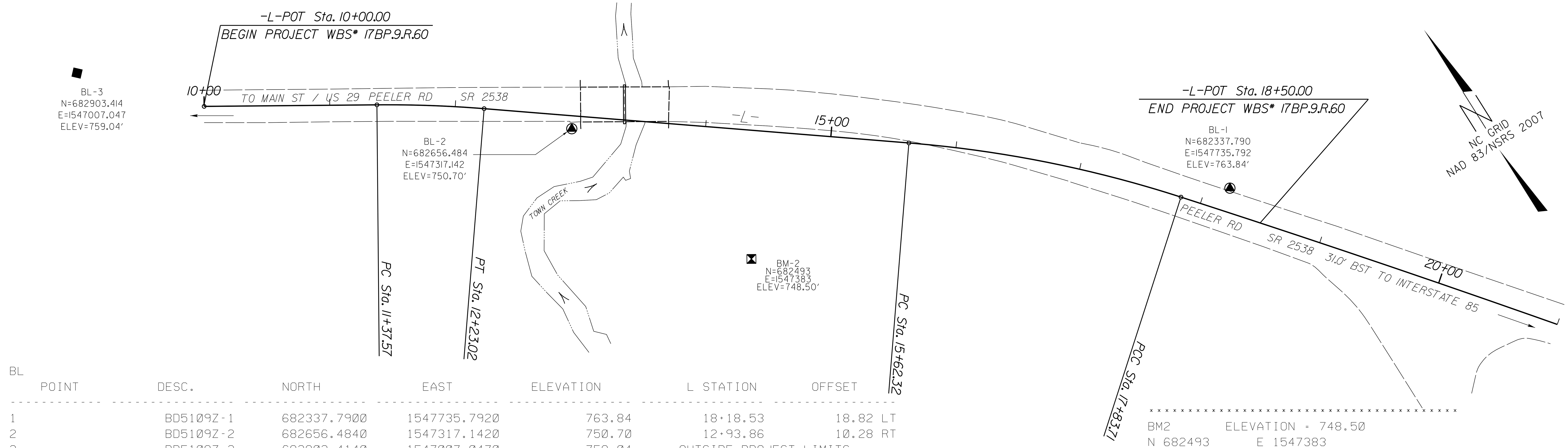
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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.9.R.60	1C
DDC	

SURVEY CONTROL SHEET 17BP.9.R.60



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BD5109Z-1	682337.7900	1547735.7920	763.84	18+18.53	18.82 LT
2	BD5109Z-2	682656.4840	1547317.1420	750.70	12+93.86	10.28 RT
3	BD5109Z-3	682903.4140	1547007.0470	759.04	OUTSIDE PROJECT LIMITS	

BM2 ELEVATION = 748.50
N 682493 E 1547383
L STATION 14+45.00 102 RIGHT

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+28.31	-40.00	682846.3989	1547123.7508
L	11+37.57	-40.00	682789.1378	1547216.8028
L	12+23.02	-40.00	682739.1521	1547290.4395
L	10+38.21	40.00	682773.0765	1547090.2568
L	11+37.57	40.00	682721.0050	1547174.8769
L	12+23.02	40.00	682675.0371	1547242.5916
L	15+62.32	40.00	682472.1039	1547514.5190
L	17+83.71	40.00	682326.7576	1547668.3535
L	12+90.38	-40.00	682698.8660	1547344.4220

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	682827.1709	1547078.6735
PC	11+37.57	682755.0733	1547195.8376
PT	12+23.02	682707.0950	1547266.5158
PC	15+62.32	682504.1627	1547538.4404
PCC	17+83.71	682352.4603	1547699.0027
PCC	17+83.71	682352.4603	1547699.0027
PT	42+07.27	680345.2068	1549049.0749

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BD5109Z-1" (BL-1)
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 682337.790(ft) EASTING: 1547735.792(ft)
ELEVATION: 763.84(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986106
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BD5109Z-1" (BL-1) TO -L- STATION IS
N 53°19'24.8" W 819.33'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+07.00	40.00	682737.0296	1547148.8357
L	12+46.00	95.00	682617.2174	1547228.1111
L	13+08.00	95.00	682580.1356	1547277.7998
L	12+72.00	-40.00	682709.8564	1547329.6951
L	12+72.00	-95.00	682753.9349	1547362.5901
L	13+70.99	-95.00	682694.7292	1547441.9244
L	13+70.99	-46.06	682655.5050	1547412.6521
L	11+07.00	51.00	682727.6612	1547143.0708
L	12+46.00	52.00	682651.6785	1547253.8288
L	14+26.00	55.00	682541.6159	1547396.2948
L	15+36.00	55.00	682475.8286	1547484.4482
L	15+36.00	40.00	682487.8491	1547493.4188
L	11+18.00	-40.00	682799.3963	1547200.1337
L	11+18.00	-55.00	682812.1713	1547207.9949
L	11+33.00	-55.00	682804.3101	1547220.7699
L	11+33.00	-40.00	682791.5351	1547212.9087

NOTE: DRAWING NOT TO SCALE

NOTES:

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

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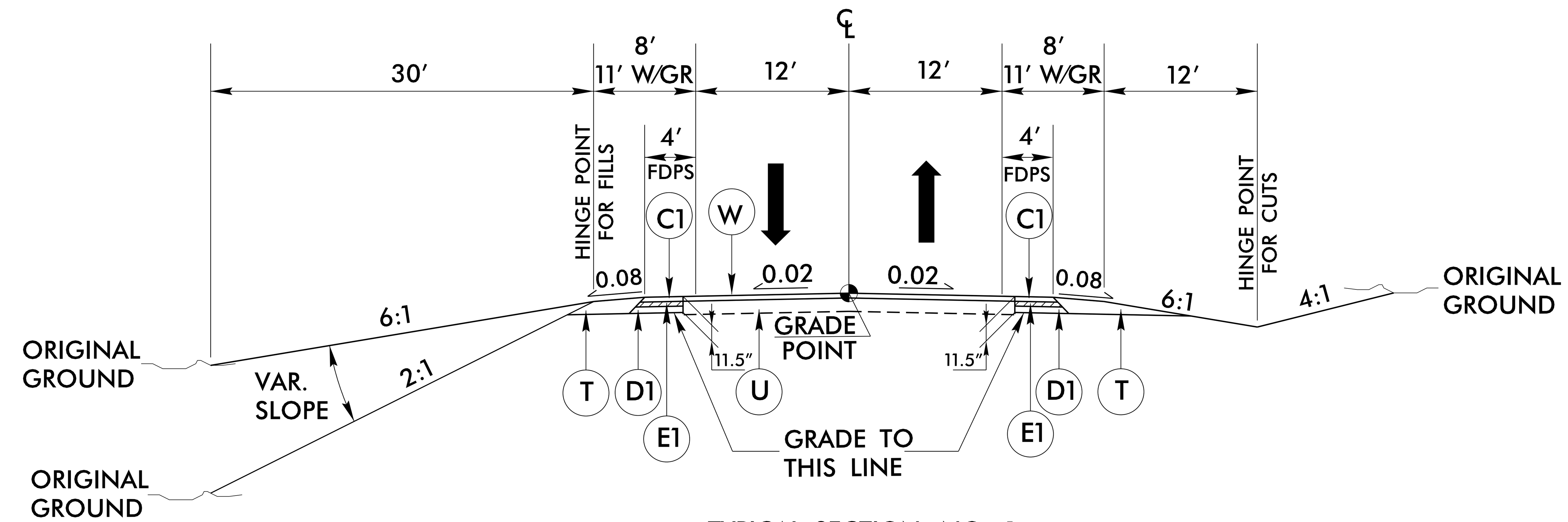
PROJECT REFERENCE NO.	SHEET NO.
I7BP.9.R.60	2
R/W SHEET NO.	____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025499 ENGINEER William A. Blanton

DocuSigned by: William A. Blanton CC86371B19FC44D...

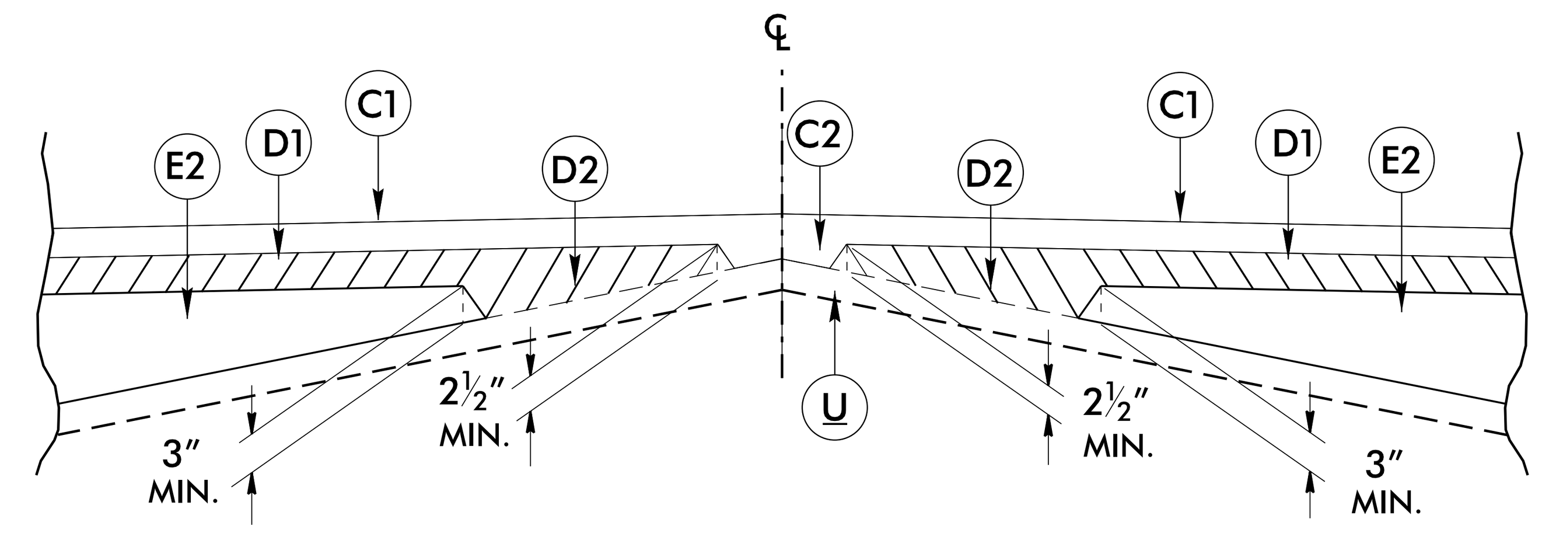
9/22/2015



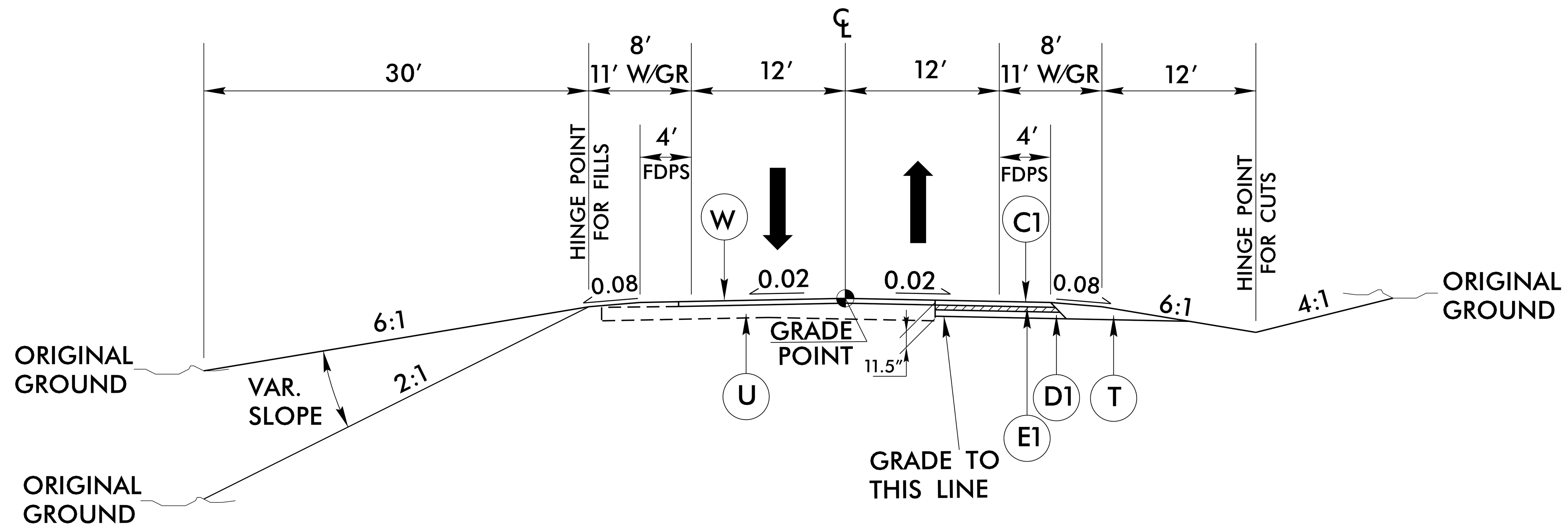
TYPICAL SECTION NO. 1

–L– STA. 10+00 TO 12+00

–L– STA. 17+75 TO 18+50



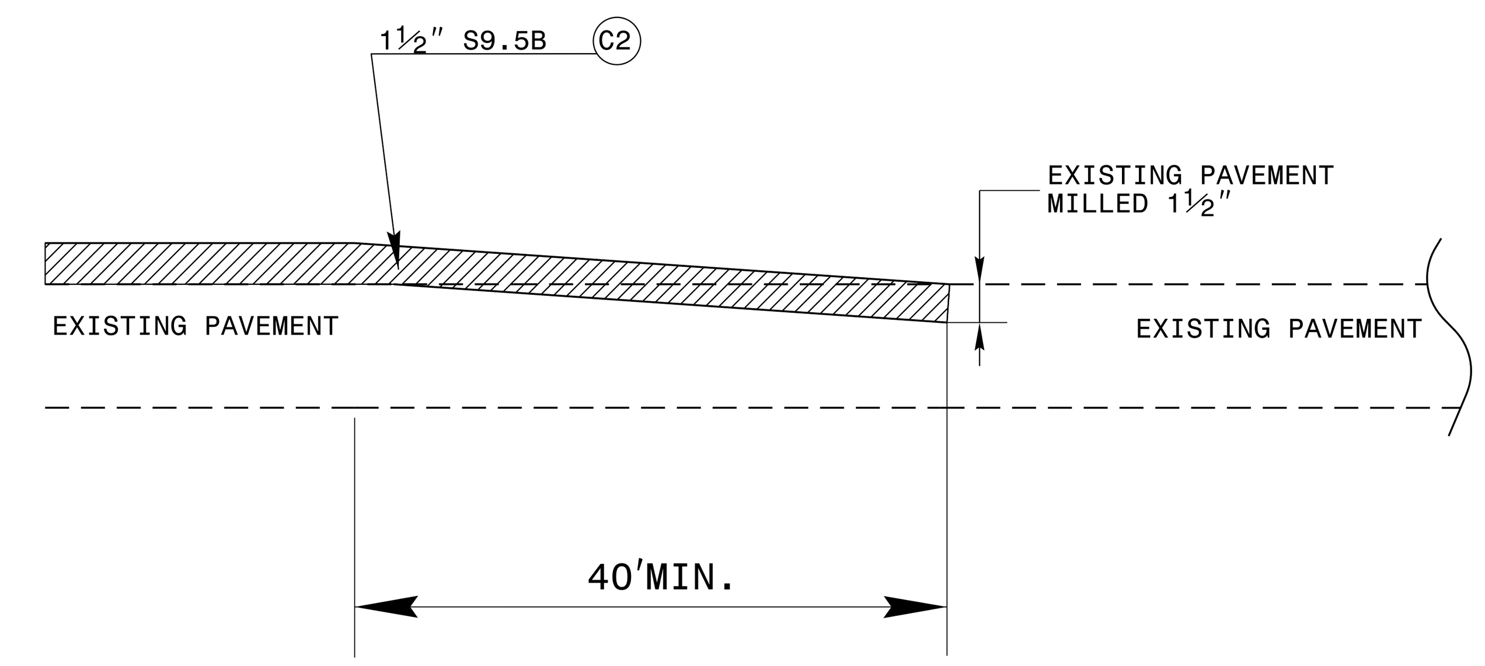
DETAIL SHOWING METHOD OF WEDGING



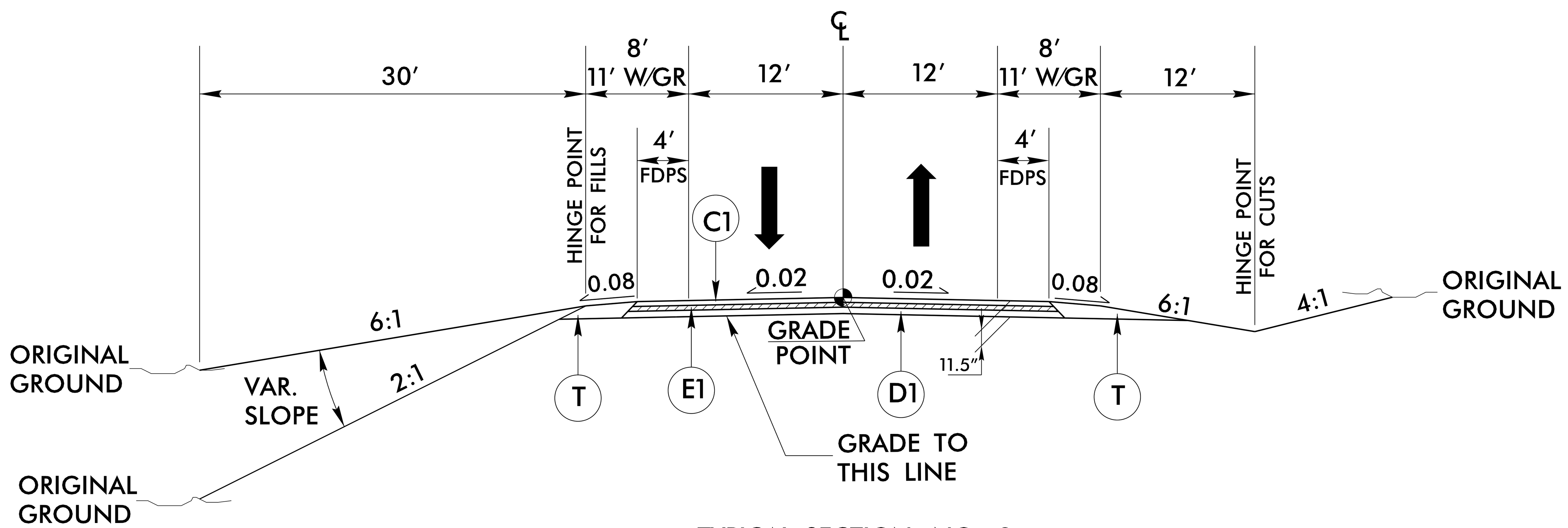
TYPICAL SECTION NO. 2

–L– STA. 12+00 TO 13+00

–L– STA. 13+75 TO 17+75



INCIDENTAL MILLING EXISTING PAVEMENT



TYPICAL SECTION NO. 3

–L– STA. 13+00 TO 13+75

PAVEMENT SCHEDULE

C1	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.	T	EARTH MATERIAL
C2	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 PLACE IN LAYERS NOT TO EXCEED 2″ IN DEPTH.	U	EXISTING PAVEMENT
D1	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, 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. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.		
E2	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″ DEPTH.		

5/14/99

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wablanton AT D9CAD268308

6/21/00

COMPUTED BY:	DATE:
CHECKED BY:	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	3A

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
10+00 -L-	18+50	791	3307	2516	0
SUBTOTALS:		791	3307	2516	0
LOSS DUE TO CLEAR & GRUBB		-20			
PROJECT TOTALS		771	3307	2536	0
GRAND TOTALS		771	3307	2536	0
SAY		770		2540	

NOTE:
1) EARTHWORK QUANTITIES ARE CALCULATED BY DDC UNIT.

2) APPROXIMATE QUANTITIES ONLY, UNCLASSIFIED EXCAVATION, SHOULDER BORROW, FINE GRADING, CLARING AND GRUBBING, BREAKING OF EXISTING ASPHALT, AND REMOVAL OF EXISTING ASPHALT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

3) EARTHWORK QUANTITIES EXCLUDE VOLUMES FOR "UNCLASSIFIED CULVERT EXCAVATION".

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
L	13+75	17+25	LT/RT	1250
TOTAL:				1250
SAY:				1250

PARCEL INDEX

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAMES
1	4	LINDA C. & RONNIE C. RINEHART
2	4	LESTER W. & LOUISE HONEYCUTT
3	4	FITZMARK LLC
4	4	JESSIE MAE BURGESS

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".

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″
14+00	RT	401													
TOTAL															

STATION	C.S. PIPE (UNLESS NOTED OTHRWISE)													CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED)							
	12″	15″	18″	24″		30″		36″		42″		48″		12″	15″	18″	24″	30″	36″	42″	48″
	.064	.064	.064	.064		.079		.079		.109		.109									
14+00																					
TOTAL																					

STATION	15″ SIDE DRAIN PIPE	18″ SIDE DRAIN PIPE	24″ SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.		QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE			
				R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE		E	F	G	
14+00		68′											
TOTAL		68′											

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32								CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
14+00																					20′	PSH OUTLET
TOTAL																					20′	

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

"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	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END
-L-	11+00	13+80	LT	280′			CULVERT HEADWALL		8′	11′	50′	50′	1′	1′
-L-	11+00	14+10	RT	310′			CULVERT HEADWALL		8′	11′	50′	50′	1′	1′
	LESS ANCHOR DEDUCTIONS													
	GRAU 350 4 @ 50′		=	-200′										
			TOTAL	400′										

SURVEY LINE	ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-			2													
-L-			2													
			4													

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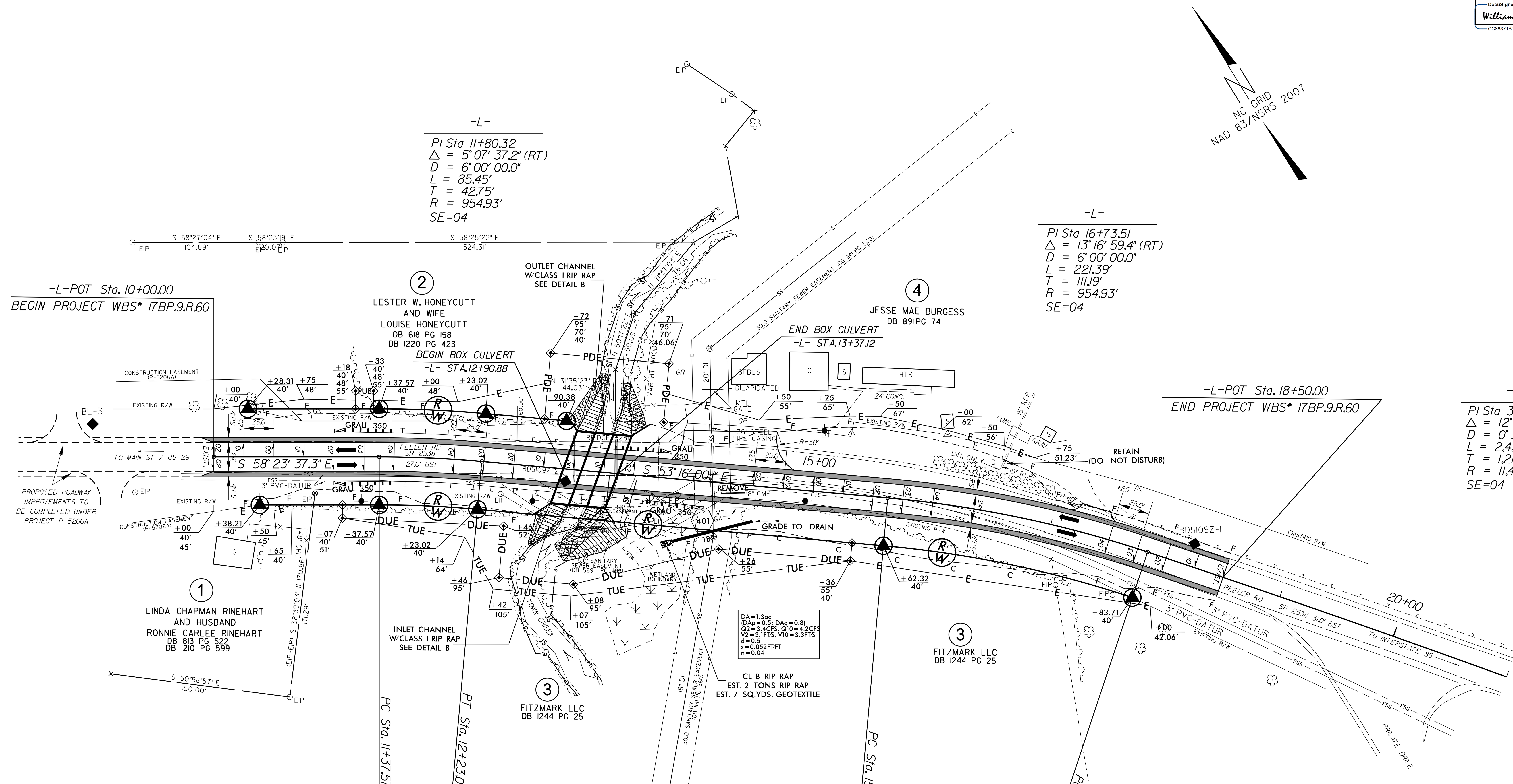
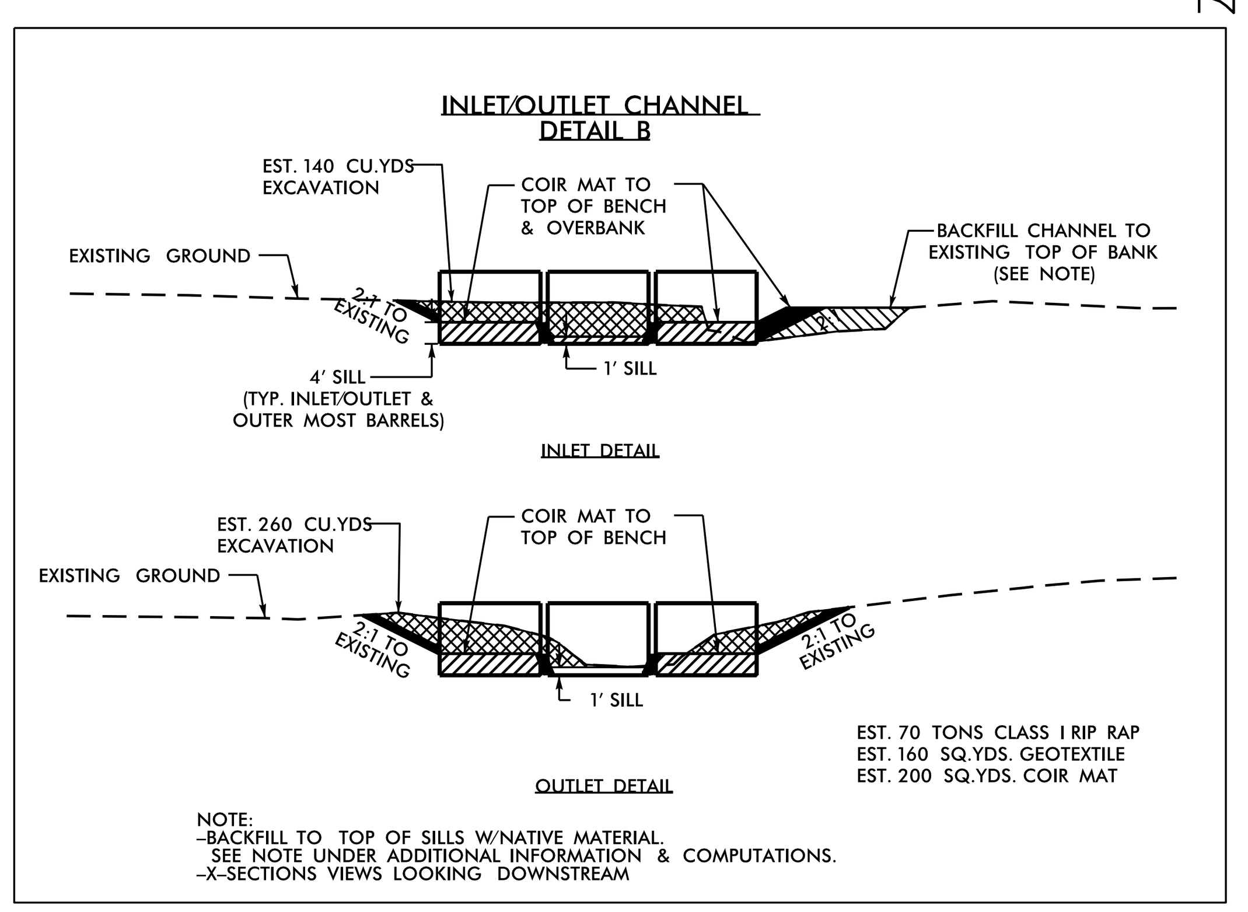
PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 025499 ENGINEER WILLIAM A. BLANTON	NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL
DocuSigned by: William A. Blanton 9/22/2015	DocuSigned by: Galen Cail 9/22/2015

PAVEMENT REMOVAL



NC GRID
NAD 83/NSRS 2007
-L-
PI Sta 11+80.32
Δ = 5° 07' 37.2" (RT)
D = 6° 00' 00.0"
L = 85.45'
T = 42.75'
R = 954.93'
SE=04
-L-
PI Sta 16+73.51
Δ = 13° 16' 59.4" (RT)
D = 6° 00' 00.0"
L = 221.39'
T = 111.19'
R = 954.93'
SE=04
-L-
PI Sta 30+00.03
Δ = 12° 07' 04.0" (RT)
D = 0° 30' 00.0"
L = 2,423.56'
T = 1,216.32'
R = 11,459.16'
SE=04
-L-POT Sta. 10+00.00
BEGIN PROJECT WBS# 17BP.9.R.60
-L-POT Sta. 18+50.00
END PROJECT WBS# 17BP.9.R.60
BEGIN BOX CULVERT
-L- STA.12+90.88
END BOX CULVERT
-L- STA.13+37.12
OUTLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
INLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
LESTER W. HONEYCUTT
AND WIFE
LOUISE HONEYCUTT
DB 618 PG 158
DB 1220 PG 423
JESSE MAE BURGESS
DB 891 PG 74
LINDA CHAPMAN RINEHART
AND HUSBAND
RONNIE CARLEE RINEHART
DB 813 PG 522
DB 1210 PG 599
FITZMARK LLC
DB 1244 PG 25
S 58° 23' 37.3" E
S 53° 16' 00.1" E
TO MAIN ST / US 29
PEELER RD SR 2538
TO INTERSTATE 85
PROPOSED ROADWAY IMPROVEMENTS TO BE COMPLETED UNDER PROJECT P-5206A
GRADE TO DRAIN
RETAIN (DO NOT DISTURB)
CL B RIP RAP
EST. 2 TONS RIP RAP
EST. 7 SQ.YDS. GEOTEXTILE
DA=1.3ac
Q2=3.4CFS, Q10=4.2CFS
s=0.052FT/FT
n=0.04
PC Sta. 11+37.57
PT Sta. 12+23.02
PC Sta. 15+62.32
PCC Sta. 17+83.71
30.0' SANITARY SEWER EASEMENT
PRIVATE DRIVE



INLET/OUTLET CHANNEL
DETAIL B
EST. 140 CU.YDS. EXCAVATION
COIR MAT TO TOP OF BENCH & OVERBANK
BACKFILL CHANNEL TO EXISTING TOP OF BANK (SEE NOTE)
EXISTING GROUND
4' SILL (TYP. INLET/OUTLET & OUTER MOST BARRELS)
1' SILL
INLET DETAIL
EST. 260 CU.YDS. EXCAVATION
COIR MAT TO TOP OF BENCH
OUTLET DETAIL
EST. 70 TONS CLASS I RIP RAP
EST. 160 SQ.YDS. GEOTEXTILE
EST. 200 SQ.YDS. COIR MAT
NOTE:
-BACKFILL TO TOP OF SILLS W/NATIVE MATERIAL.
SEE NOTE UNDER ADDITIONAL INFORMATION & COMPUTATIONS.
-X-SECTIONS VIEWS LOOKING DOWNSTREAM

NOTE:
SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS C1-C7 FOR STRUCTURE PLANS

REVISIONS

8/17/99

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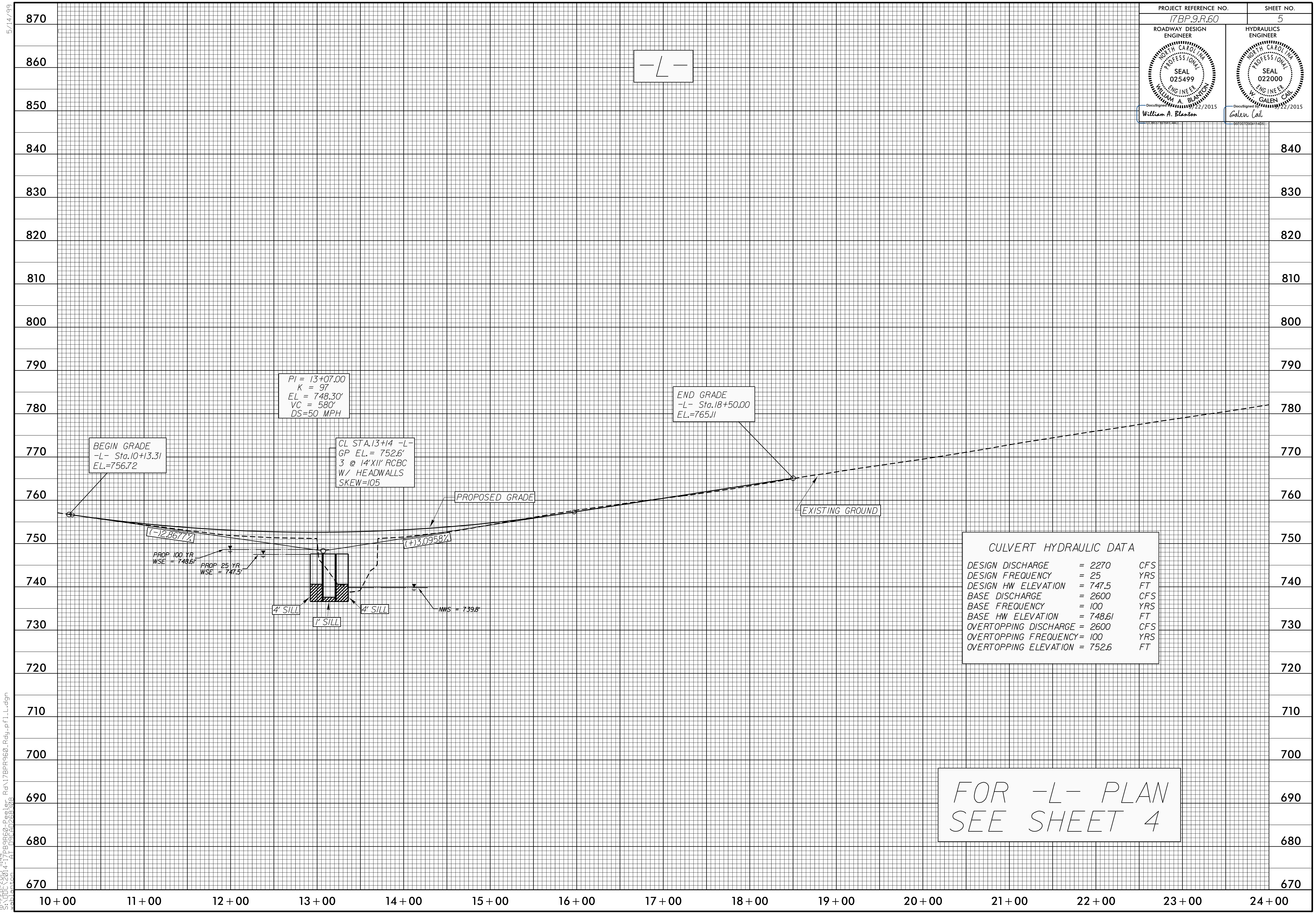
PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025499 WILLIAM A. BLANTON — DocuSigned by: William A. Blanton 9/22/2015 — CC86371B19FC44D...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022000 W. GALEN CAIL — DocuSigned by: Galen Cail 9/22/2015 — 06F097D904114D5...



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	2270	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	747.5	FT
BASE DISCHARGE	=	2600	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	748.61	FT
OVERTOPPING DISCHARGE	=	2600	CFS
OVERTOPPING FREQUENCY	=	100	YRS
OVERTOPPING ELEVATION	=	752.6	FT

FOR -L- PLAN SEE SHEET 4

5/14/99

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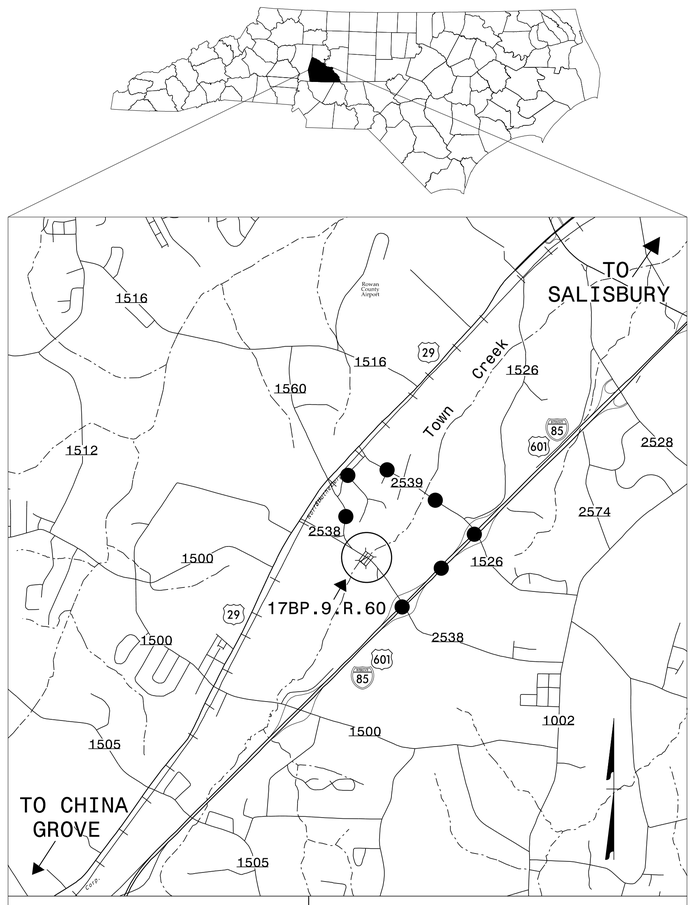
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ROWAN COUNTY



VICINITY MAP | OFFSITE DETOUR

LOCATION: REPLACE BRIDGE NO. 281 OVER TOWN CREEK ON SR 2538 (PEELER ROAD) WITH BOX CULVERT
TYPE OF WORK: GRADING, DRAINAGE, WIDENING, CULVERT, AND PAVEMENT MARKINGS

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, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
DAVID BISSETTE, P.E. — *TRAFFIC CONTROL PROJECT ENGINEER*
HELEN SHYU, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
KARMEN DAIS — *TRAFFIC CONTROL DESIGN ENGINEER*

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

INDEX OF SHEETS

APPROVED: DocuSigned by: David Bissette 8/5/2015
DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

SHEET NO.
TMP-1

PROJECT WBS:
17BP.9.R.60

7/2/2015
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PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.60	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 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

LEGEND

GENERAL

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

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

APPROVED: DocuSigned by: David Bissette DATE: 8/3/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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

ROADWAY STANDARD DRAWINGS AND LEGEND

7/21/2015
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PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.60	TMP-1B

MANAGEMENT STRATEGIES

THE FOLLOWING TRAFFIC MANAGEMENT STRATEGIES WILL BE EMPLOYED FOR THIS PROJECT:

FULL ROAD CLOSURE

DURING THE REPLACEMENT OF BRIDGE NO. 281 ON SR 2538 (PEELER ROAD), THROUGH TRAFFIC WILL BE DETOURED TO THE NORTH USING I-85, SR 2539 (PEACH ORCHARD ROAD), SR 2662 (HADER STREET) AND SR 1560 (CEDAR SPRINGS ROAD EXTENSION CONSTRUCTED UNDER P-5206A).

COORDINATION WITH ADJACENT PROJECT

COORDINATE WITH P-5206A CONTRACTOR REGARDING THE PEELER ROAD AND PEACH ORCHARD ROAD RAILROAD CROSSING CLOSURES AND THE COMPLETION OF THE HADER STREET AND CEDAR SPRINGS ROAD EXTENSIONS AS DIRECTED BY THE ENGINEER

LOCAL NOTE

ACCESS TO PARCEL NO. 4, VIA GRAVEL DRIVEWAY LOCATED AT STA. 14+15±, MUST BE PROVIDED AND MAINTAINED AT ALL TIMES.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING,SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

SIGNING

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

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

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

PHASING

STEP 1: INSTALL CHANGEABLE MESSAGE SIGNS ON I-85 SEVEN (7) CALENDAR DAYS PRIOR TO CLOSURE OF SR 2538 (PEELER ROAD) AND MAINTAIN FOR THE DURATION OF THE ROAD CLOSURE.(SEE TMP-3)

STEP 2: USING RSD 1101.03, SHEET 1 OF 9, AND TMP-3, INSTALL DETOUR SIGNS AND CLOSE SR 2538 (PEELER ROAD) TO THROUGH TRAFFIC AND DETOUR TRAFFIC OFFSITE.

STEP 3: AWAY FROM TRAFFIC, WHILE MAINTAINING ACCESS TO GRAVEL DRIVEWAY LOCATED AT STA. 14+15±:

A) REMOVE EXISTING BRIDGE NO. 281.

B) CONSTRUCT PROPOSED CULVERT AND ROADWAY SECTIONS ACCORDING TO STRUCTURE AND ROADWAY PLANS.

C) PLACE FINAL PAVEMENT MARKINGS ACCORDING TO PAVEMENT MARKING PLAN.

STEP 4: OPEN SR 2538 (PEELER ROAD) TO TRAFFIC AND REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: DocuSigned by: David Bissette DATE: 8/3/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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

TRANSPORTATION OPERATIONS PLAN

7/31/2015
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User:kedils

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.60	TMP-2

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

SIGN WIDTH: 3′-0″
HEIGHT: 1′-0″
TOTAL AREA: 3.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.5″
WIDTH: 0.5″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

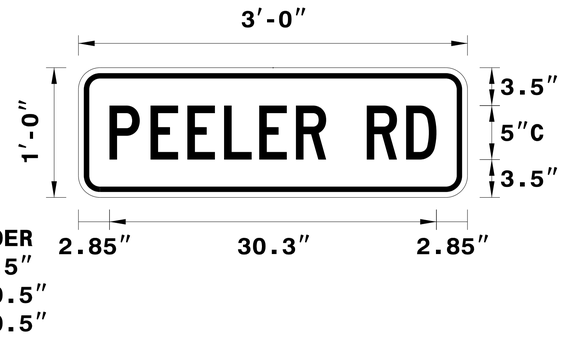
SYMBOL	X	Y	WID	HT

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: AHG
PROJECT ID: BD-5109Z
CHECKED BY: RBR
DIV: 9
Dec 03, 2014



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

Series/Size
Text Length

	P	E	E	L	E	R		R	D																		C 2000
	2.9	3.8	3.4	3.4	3.3	3.4	2.8	3.8	3.7	2.8	2.9																30.3

FILENAME: 17BP9R60_WORKZONE_SIGNS

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED DocuSigned by: Ron King DATE: 12/9/2014

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

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

SPECIAL SIGN DESIGN

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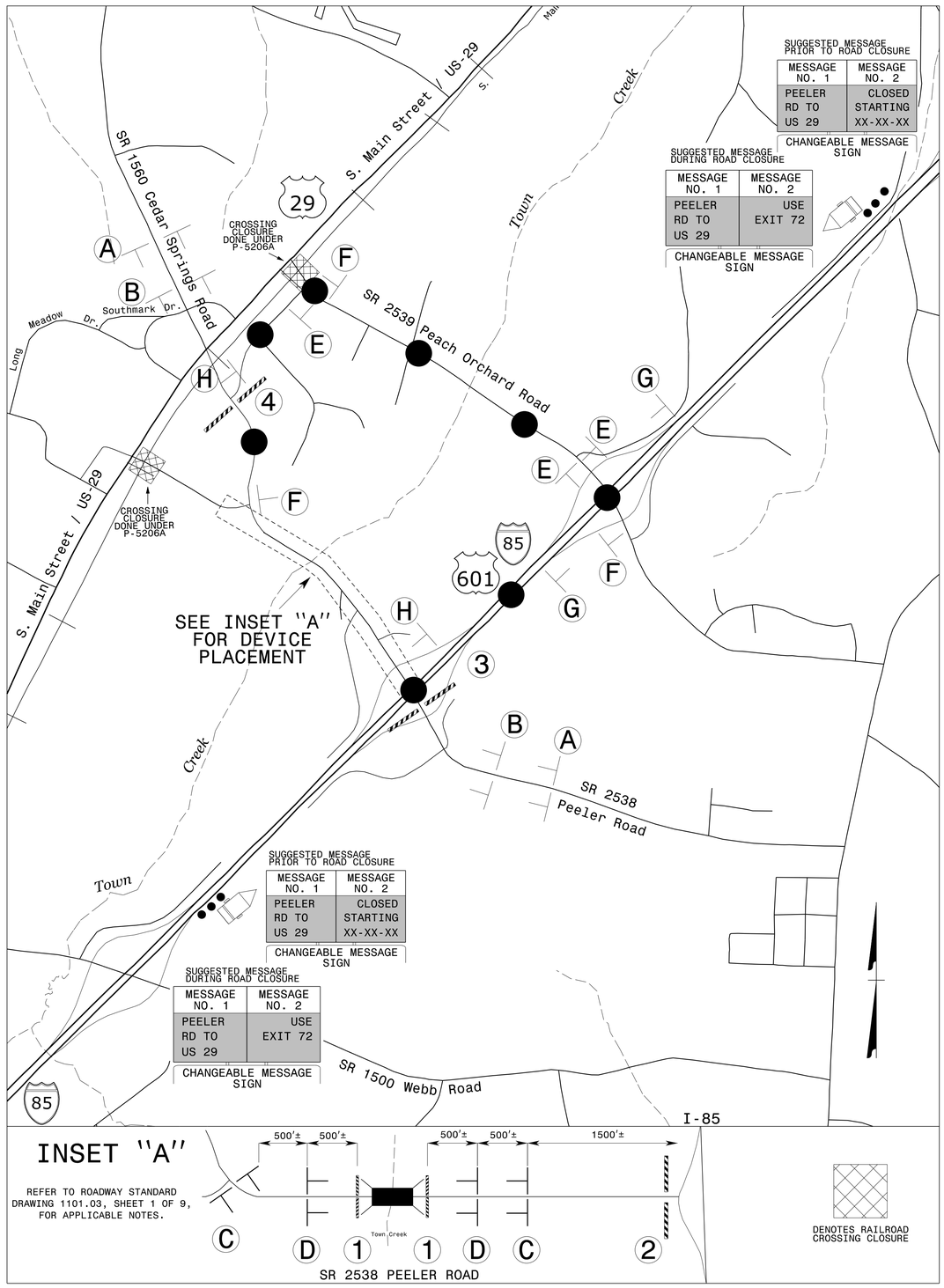
PROJ. REFERENCE NO.	SHEET NO.
17BP.9.R.60	TMP-3



INSET "A"

REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9, FOR APPLICABLE NOTES.

DENOTES RAILROAD CROSSING CLOSURE

A — ROAD CLOSED AHEAD — W20-3, 48"x 48"

B — DETOUR AHEAD — W20-2, 48"x 48"

C — ROAD CLOSED 1000 FT — W20-3, 48"x 48"

D — ROAD CLOSED 500 FT — W20-3, 48"x 48"

E — PEELER RD (SPECIAL 36"x 12") / DETOUR (M4-8, 24"x 12") / M6-1, 21"x 15"

F — PEELER RD (SPECIAL 36"x 12") / DETOUR (M4-8, 24"x 12") / M6-1, 21" X 15"

G — PEELER RD (SPECIAL 36"x 12") / DETOUR (M4-8, 24"x 12") / M6-2, 21"x 15"

H — END DETOUR — M4-8 A, 24"x 18"

1 — R11-2, 48" x 30" — ROAD CLOSED — TYPE III BARRICADE(S)

2 — R11-4, 60" x 30" — ROAD CLOSED TO THRU TRAFFIC — TYPE III BARRICADE

3 — R11-4, 60"x 30" — ROAD CLOSED TO THRU TRAFFIC / DETOUR — M4-10R, 48"x 18" — TYPE III BARRICADE

4 — R11-4, 60" x 30" — ROAD CLOSED TO THRU TRAFFIC / DETOUR — M4-10L, 48" x 18" — TYPE III BARRICADE

APPROVED: DocuSigned by: David Bissette DATE: 8/3/2015

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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

OFFSITE DETOUR ROUTE AND ROAD CLOSURE

7/31/2015
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TIP NO.	SHEET NO.
17BP.9.R.60	PMP-1

APPROVED:

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025499 William A. Blanton

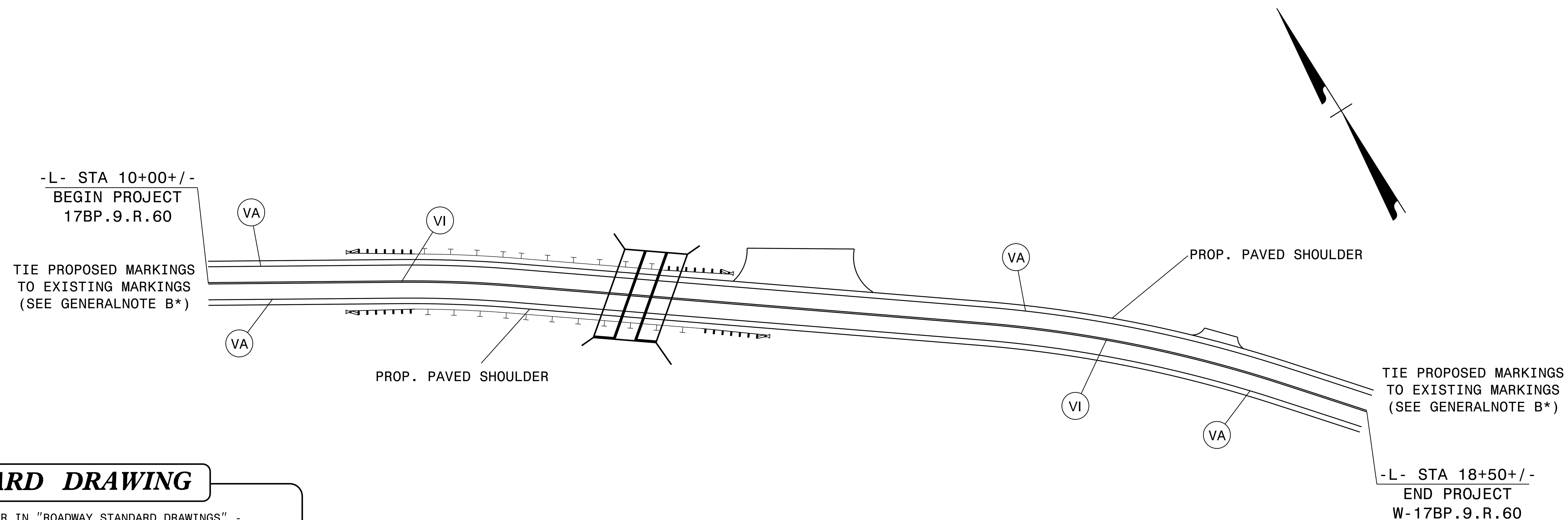
DocuSigned by: William A. Blanton 9/22/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

ROWAN COUNTY

LOCATION: REPLACE EXISTING BRIDGE NO. 281 ON PEELER RD. (SR 2538) OVER TOWN CREEK WITH BOX CULVERT



ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE AND MULTILANE ROADWAYS
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - TEMPORARY AND PERMANENT
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM
VA	WHITE EDGELINE (4")	THERMOPLASTIC
VI	YELLOW DOUBLE CENTER (4")	THERMOPLASTIC

FINAL PAVEMENT MARKING QUANTITIES

SYMBOL	DESCRIPTION	QUANTITY
VA	WHITE EDGELINE (4")	1700 LF
VI	YELLOW DOUBLE CENTER (4")	1700 LF

GENERAL NOTES

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.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING TYPE	MARKERS
SR 2538 (-L-)	Thermoplastic w/Highly Reflective Elements	Raised

(All Stop Bars, Arrow Symbols, and Diagonal lines shall be Thermoplastic)

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.(*)

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) STOPBAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON THE BRIDGE DECK(s) PRIOR TO PLACING POLYUREA PAVEMENT MARKING.

TIP PROJECT: 17BP.9.R.60

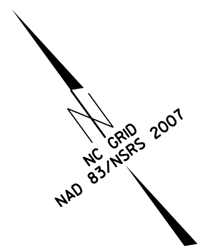
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.R.60	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

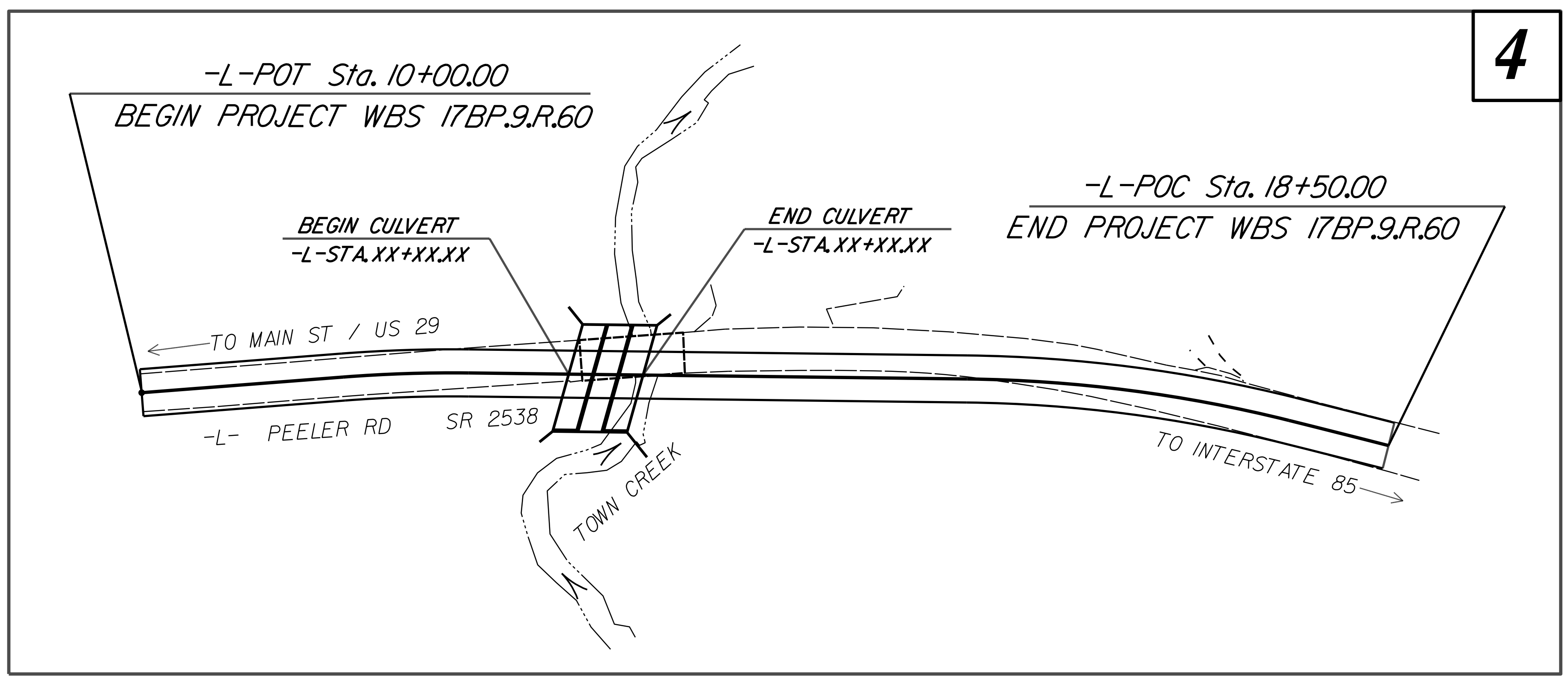
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ROWAN COUNTY



LOCATION: ***REPLACE EXISTING BRIDGE NO. 281 ON PEELER RD. (SR 2538) OVER TOWN CREEK WITH BOX CULVERT***

TYPE OF WORK: ***GRADING, DRAINAGE, WIDENING, CULVERT, AND PAVEMENT MARKINGS***



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.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
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:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Designed by:

Natalie Chan, P.E. — *491*
NAME — *LEVEL III CERTIFICATION NO.*

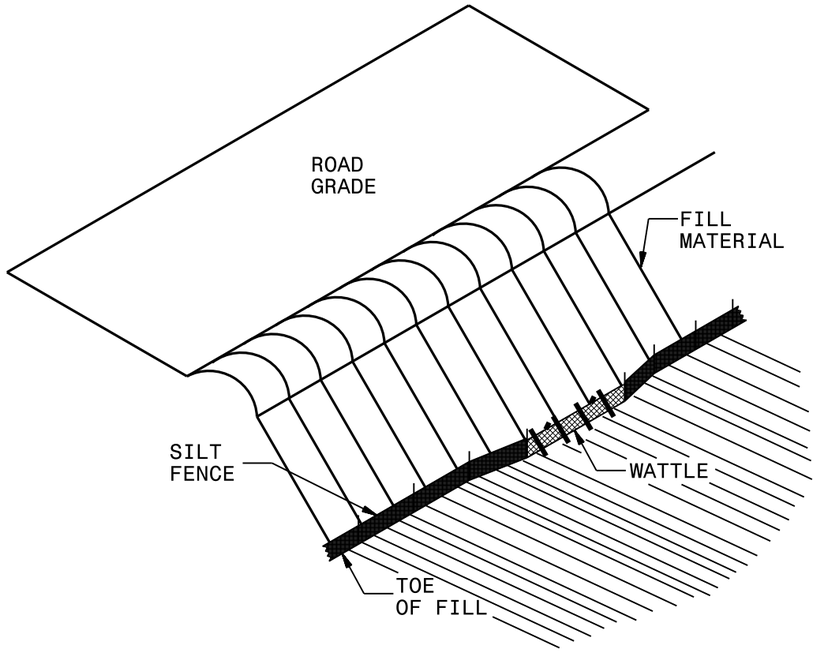
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

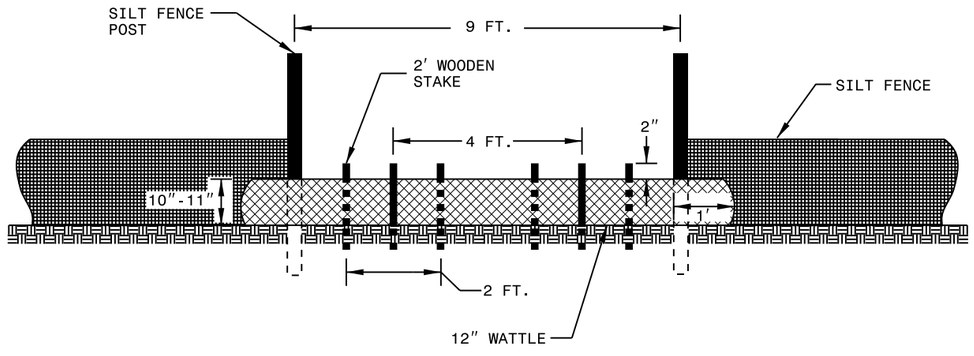
1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary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

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

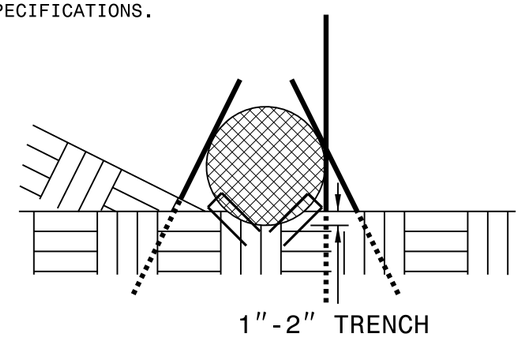
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

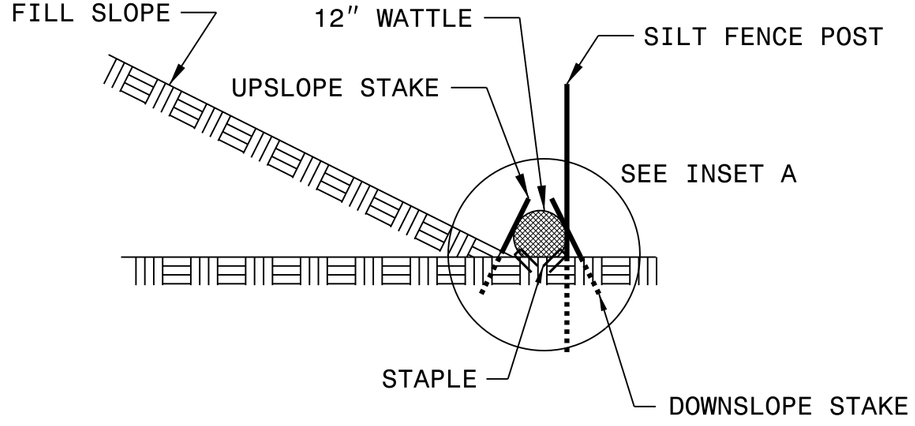
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A

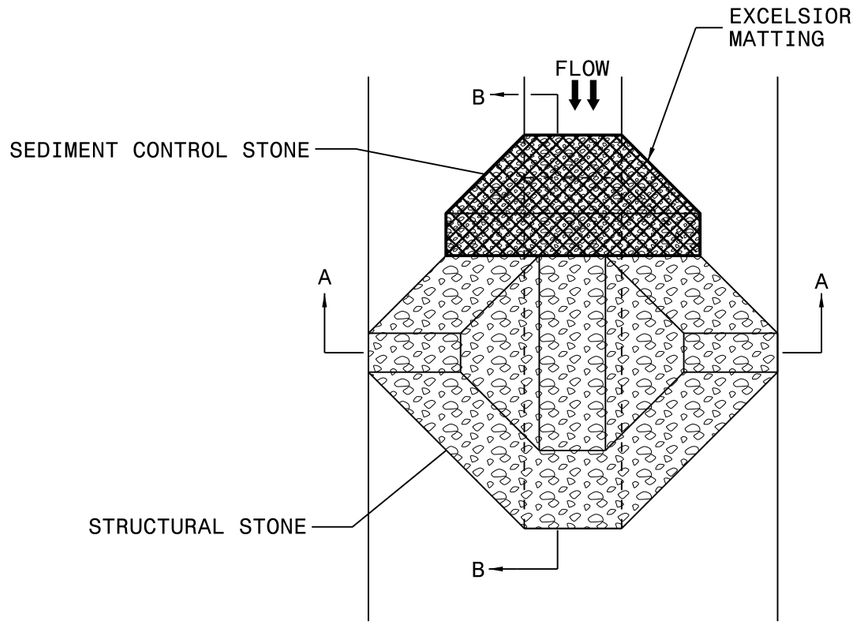




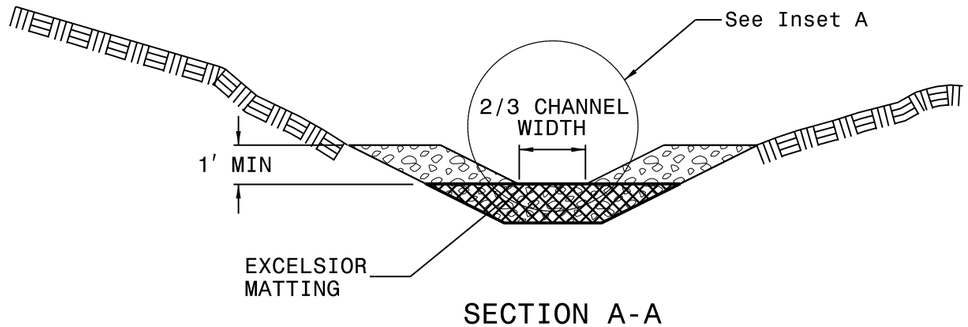
SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

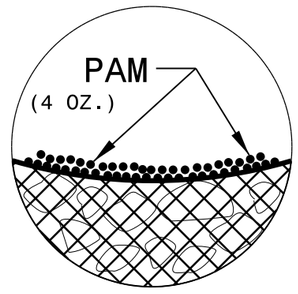
NOTES:

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

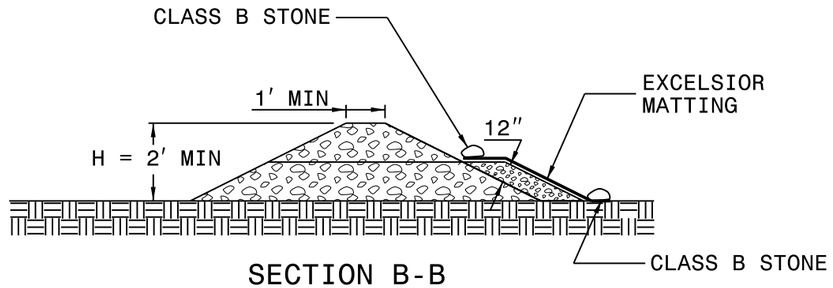
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-3
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	14+75	17+25	RT	285
				SUBTOTAL	285
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					3200
				TOTAL	3485
				SAY	3500

MATTING FOR EROSION CONTROL

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-3A
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.

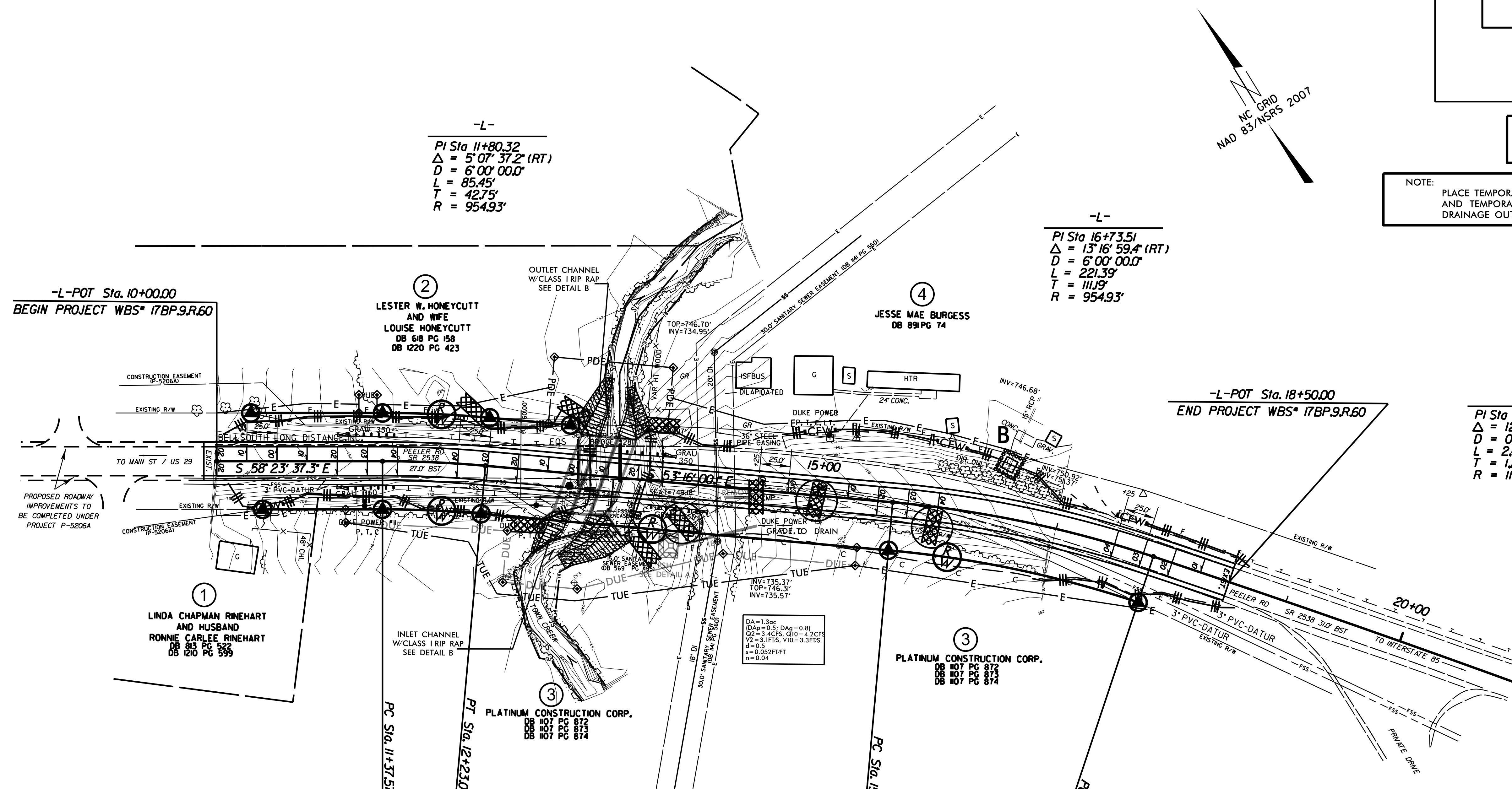
PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: DUE TO THE AGE AND RESOLVE OF THE DESIGNER, THE ANTIQUATED PRACTICE OF DEFINING CURVES BY DEGREE INSTEAD OF AN EVEN RADIUS WAS UTILIZED.

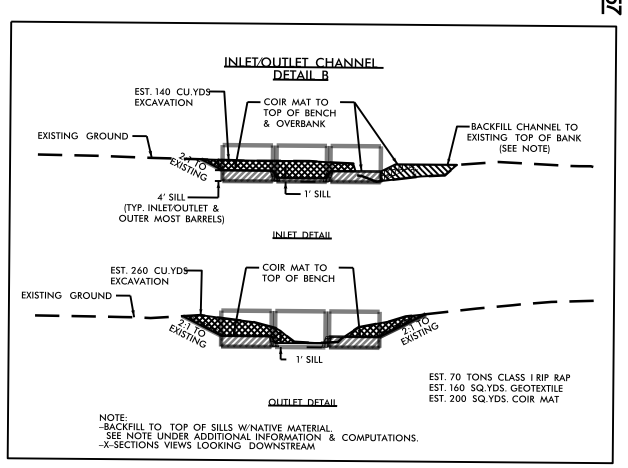
PAVEMENT REMOVAL

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

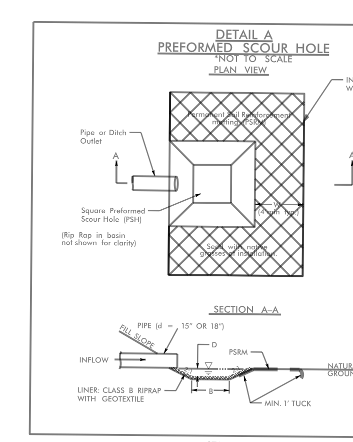
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.



NC GRID
NAD 83/NSRS 2007
-L-
PI Sta 11+80.32
Δ = 5° 07' 37.2" (RT)
D = 6° 00' 00.0"
L = 85.45'
T = 42.75'
R = 954.93'
-L-POT Sta. 10+00.00
BEGIN PROJECT WBS# 17BP.9.R.60
LESTER W. HONEYCUTT
AND WIFE
LOUISE HONEYCUTT
DB 618 PG 158
DB 1220 PG 423
OUTLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
JESSE MAE BURGESS
DB 891 PG 74
-L-
PI Sta 16+73.51
Δ = 13° 16' 59.4" (RT)
D = 6° 00' 00.0"
L = 221.39'
T = 111.19'
R = 954.93'
-L-POT Sta. 18+50.00
END PROJECT WBS# 17BP.9.R.60
-L-
PI Sta 30+00.03
Δ = 12° 07' 04.0" (RT)
D = 0° 30' 00.0"
L = 2,423.56'
T = 1,216.32'
R = 11,459.16'
S 58° 23' 37.3" E
PEELER RD
SR 2538
TO MAIN ST / US 29
TO INTERSTATE 85
PROPOSED ROADWAY IMPROVEMENTS TO BE COMPLETED UNDER PROJECT P-5206A
LINDA CHAPMAN RINEHART
AND HUSBAND
RONNIE CARLEE RINEHART
DB 813 PG 522
DB 1210 PG 599
INLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
PLATINUM CONSTRUCTION CORP.
DB 1107 PG 872
DB 1107 PG 873
DB 1107 PG 874
PC Sta. 11+37.57
PT Sta. 12+23.02
PC Sta. 15+62.32
PCC Sta. 17+83.71
15+00
20+00
PRIVATE DRIVE
DA=1.3ac
(DAp=0.5; DAg=0.8)
Q2=3.4CFS, Q10=4.2CFS
V2=3.1FPS, V10=3.3FPS
d=0.5
s=0.052FT/FT
n=0.04
INV=736.54'
TOP=745.80'



INLET/OUTLET CHANNEL
DETAIL B
EST. 140 CU.YDS EXCAVATION
COIR MAT TO TOP OF BENCH & OVERBANK
BACKFILL CHANNEL TO EXISTING TOP OF BANK (SEE NOTE)
EXISTING GROUND
4' SILL (TYP. INLET/OUTLET & OUTER MOST BARRELS)
1' SILL
INLET DETAIL
EST. 260 CU.YDS EXCAVATION
COIR MAT TO TOP OF BENCH
EXISTING GROUND
1' SILL
OUTLET DETAIL
EST. 70 TONS CLASS I RIP RAP
EST. 160 SQ.YDS. GEOTEXTILE
EST. 200 SQ.YDS. COIR MAT
NOTE:
-BACKFILL TO TOP OF SILLS W/NATIVE MATERIAL.
SEE NOTE UNDER ADDITIONAL INFORMATION & COMPUTATIONS.
-X-SECTIONS VIEWS LOOKING DOWNSTREAM



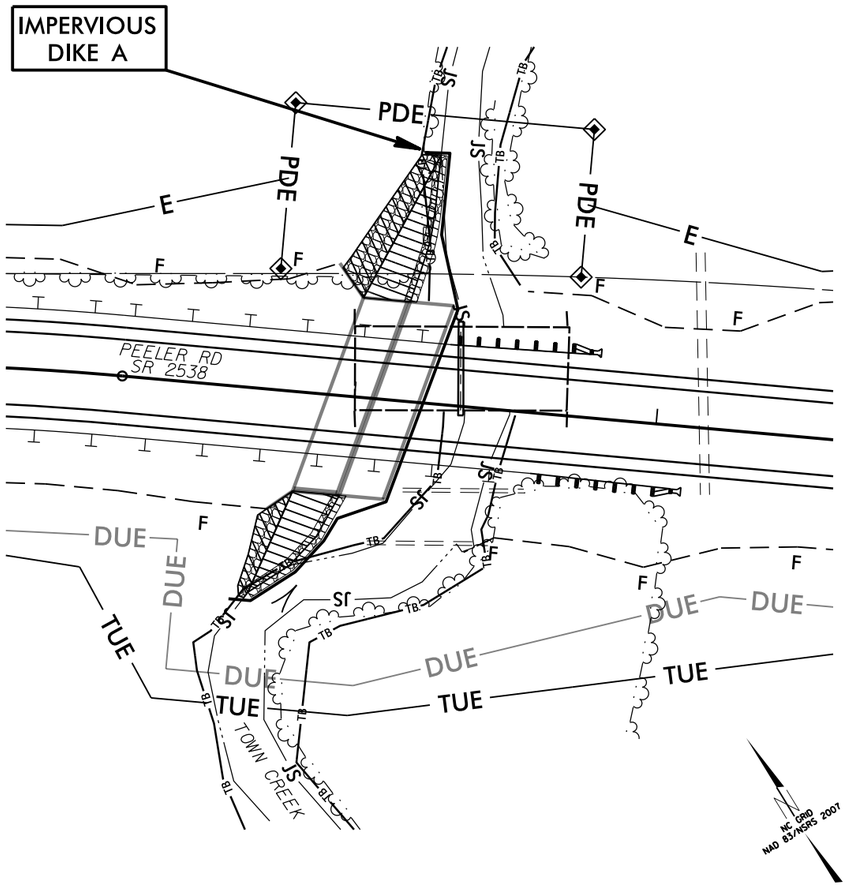
NOTE:
SEE SHEET 5 FOR -L- PROFILE

CULVERT CONSTRUCTION SEQUENCE STA. 12 + 90 –L–

PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

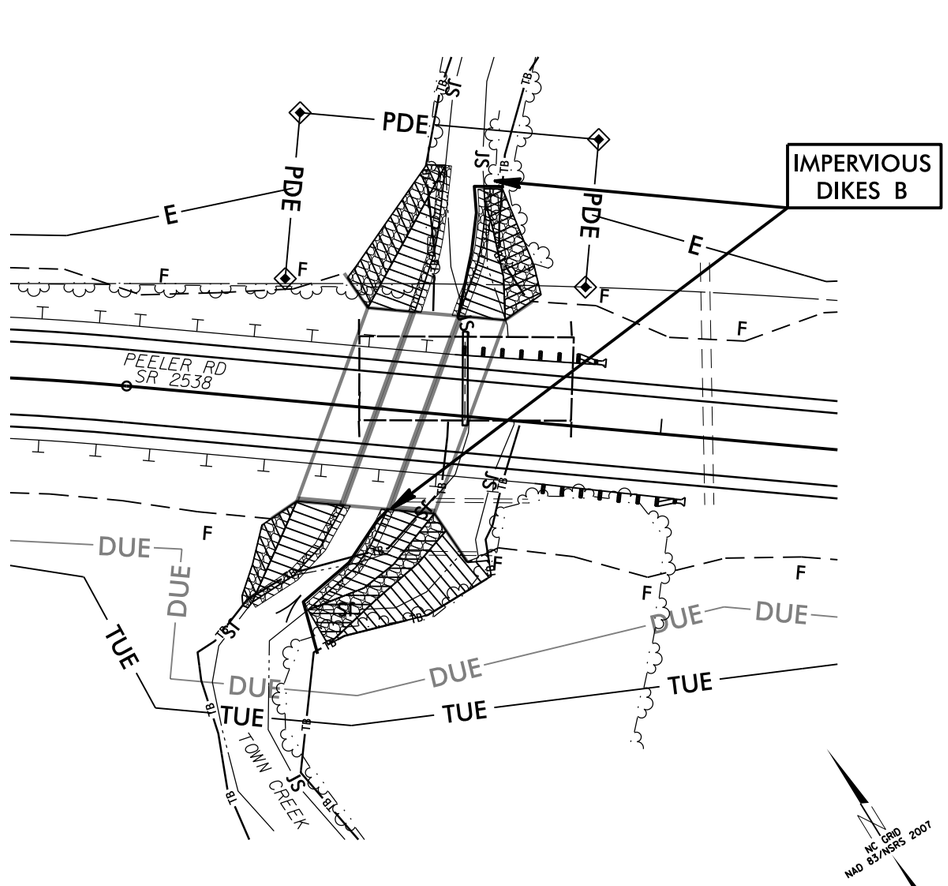
PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. REMOVE EXISTING BRIDGE.
3. INSTALL IMPERVIOUS DIKE A, DIVERTING FLOW.
4. CONSTRUCT THE PROPOSED TWO NORTHWESTERN BARRELS AND WESTERN UPSTREAM / DOWNSTREAM CHANNEL IMPROVEMENTS.
5. REMOVE IMPERVIOUS DIKE A.



PHASE II

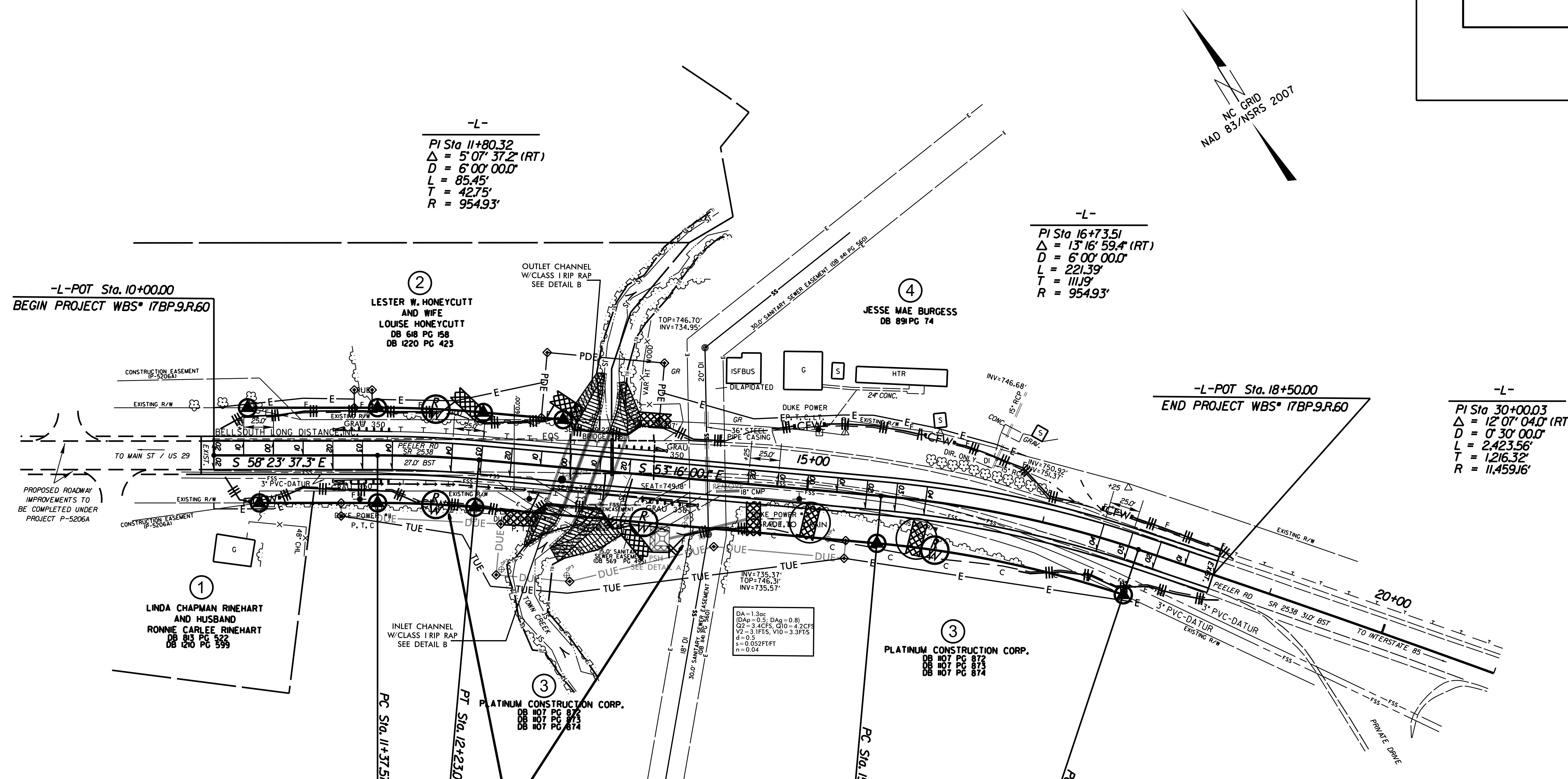
6. INSTALL IMPERVIOUS DIKES B, DIVERTING FLOW THROUGH COMPLETED BARRELS.
7. CONSTRUCT THE REMAINING NORTHEASTERN BARREL AND REMAINING UPSTREAM / DOWNSTREAM CHANNEL IMPROVEMENTS.
8. REMOVE IMPERVIOUS DIKES TO ALLOW NORMAL FLOW THROUGH THE NEWLY CONSTRUCTED CULVERT.
9. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S), AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
17BP.9.R.60	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE: DUE TO THE AGE AND RESOLVE OF THE DESIGNER, THE ANTIQUATED PRACTICE OF DEFINING CURVES BY DEGREE INSTEAD OF AN EVEN RADIUS WAS UTILIZED.

PAVEMENT REMOVAL



NC GRID
NAD 83/NSRS 2007
-L-
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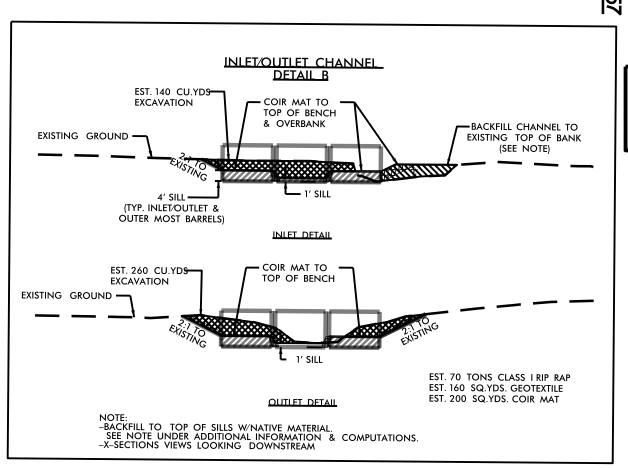
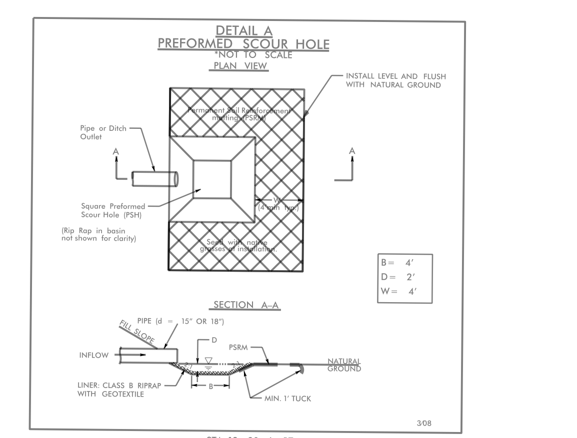
Δ = 5° 07' 37.2" (RT)
D = 6° 00' 00.0"
L = 85.45'
T = 42.75'
R = 954.93'
-L-
PI Sta 16+73.51
Δ = 13° 16' 59.4" (RT)
D = 6° 00' 00.0"
L = 221.39'
T = 111.19'
R = 954.93'
-L-
PI Sta 30+00.03
Δ = 12° 07' 04.0" (RT)
D = 0° 30' 00.0"
L = 2,423.56'
T = 1,216.32'
R = 11,459.16'
-L-POT Sta. 10+00.00
BEGIN PROJECT WBS# 17BP.9.R.60
-L-POT Sta. 18+50.00
END PROJECT WBS# 17BP.9.R.60
2
LESTER W. HONEYCUTT
AND WIFE
LOUISE HONEYCUTT
DB 618 PG 158
DB 1220 PG 423
4
JESSE MAE BURGESS
DB 891 PG 74
1
LINDA CHAPMAN RINEHART
AND HUSBAND
RONNIE CARLEE RINEHART
DB 813 PG 522
DB 1210 PG 599
3
PLATINUM CONSTRUCTION CORP.
DB 1107 PG 872
DB 1107 PG 873
DB 1107 PG 874
OUTLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
INLET CHANNEL
W/CLASS I RIP RAP
SEE DETAIL B
S 58° 23' 37.3" E
S 53° 16' 00.1" E
PEELER RD
SR 2538
TO MAIN ST / US 29
TO INTERSTATE 85
PROPOSED ROADWAY
IMPROVEMENTS TO
BE COMPLETED UNDER
PROJECT P-5206A
PC Sta. 11+37.57
PT Sta. 12+23.02
PC Sta. 15+62.32
PCC Sta. 17+83.71
15+00
20+00
TOP=746.70'
INV=734.95'
INV=735.37'
TOP=746.31'
INV=735.57'
INV=736.54'
TOP=745.80'
DA=1.3ac
(DAp=0.5; DAg=0.8)
Q2=3.4CFS, Q10=4.2CFS
V2=3.1FPS, V10=3.3FPS
d=0.5
s=0.052FT/FT
n=0.04
30.0' SANITARY SEWER EASEMENT
DUKE POWER
ISFBUS
DILAPIDATED
HTR
PRIVATE DRIVE

Place Matting for Erosion Control on Slope as Work Allows. Sta. 12+00 to Sta. 14+00



INLET/OUTLET CHANNEL
DETAIL B
EST. 140 CU.YDS. EXCAVATION
COIR MAT TO TOP OF BENCH & OVERBANK
BACKFILL CHANNEL TO EXISTING TOP OF BANK (SEE NOTE)
EXISTING GROUND
1' SILL
4' SILL (TYP. INLET/OUTLET & OUTER MOST BARRELS)
INLET DETAIL
EST. 260 CU.YDS. EXCAVATION
COIR MAT TO TOP OF BENCH
OUTLET DETAIL
EST. 70 TONS CLASS I RIP RAP
EST. 160 SQ.YDS. GEOTEXTILE
EST. 200 SQ.YDS. COIR MAT
NOTE:
-BACKFILL TO TOP OF SILLS W/NATIVE MATERIAL.
SEE NOTE UNDER ADDITIONAL INFORMATION & COMPUTATIONS.
-X-SECTIONS VIEWS LOOKING DOWNSTREAM

NOTE:
SEE SHEET 5 FOR -L- PROFILE



25-NOV-2014 13:47
8/17/99

09/08/99

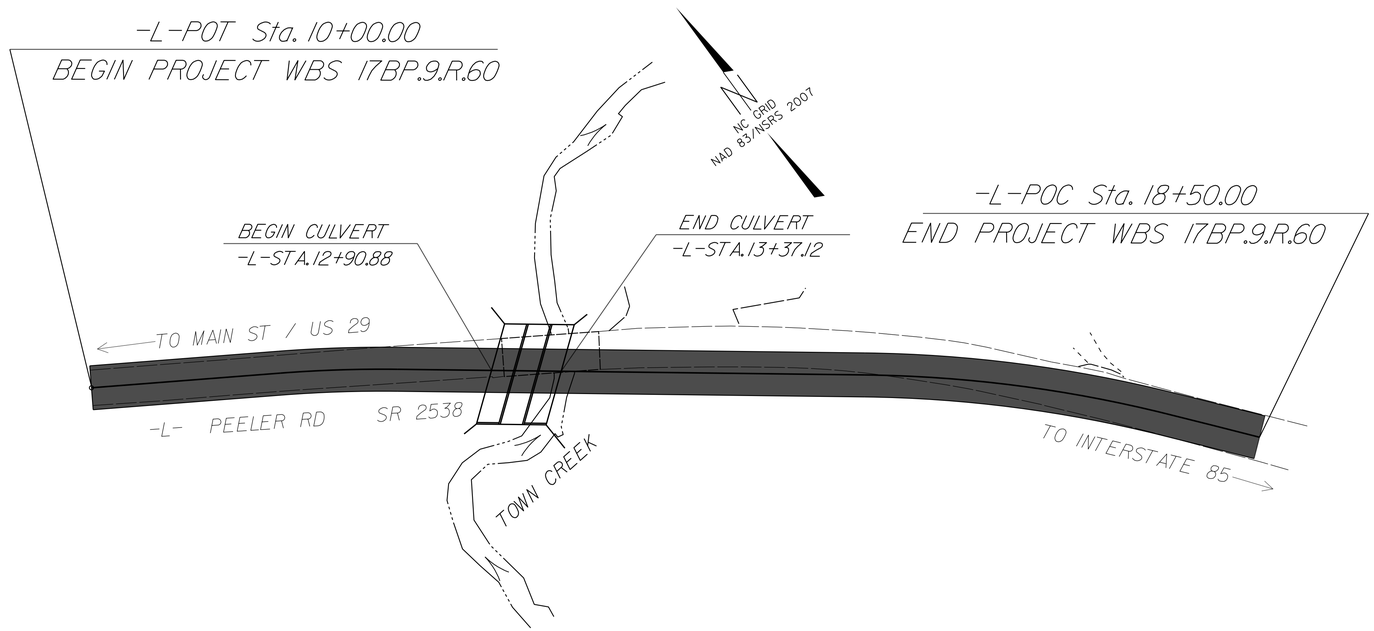
T.I.P. NO.	SHEET NO.
17BP.9.R.60	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
ROWAN COUNTY

REPLACE EXISTING BRIDGE NO. 281 ON PEELER RD. (SR 2538) OVER TOWN CREEK WITH BOX CULVERT

4



TIP PROJECT: 17BP.9.R.60

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–4 – UO5	*UTILITY BY OTHERS – DUKE ENERGY*
UO–6	*UTILITY BY OTHERS – PRIVATE SANITARY SEWER FORCE MAINS*

UTILITY OWNERS ON PROJECT

(A) POWER (DISTRIBUTION) – DUKE ENERGY
(B) COMMUNICATIONS – WINDSTREAM
(C) CABLE TELEVISION – TIME WARNER
(D) SANITARY SEWER – PRIVATE FORCE MAINS OWNED BY LOVES AND WILCO–HESS

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
DIVISION 9

375 SILAS CREEK PKWY
WINSTON–SALEM NC 27127
PHONE (336) 747–7800
FAX (336) 703–6693

MATTHEW W. JONES, PE	*DIVISION BRIDGE PROJECT MANAGER*
W. AL BLANTON, PE, PLS	*DIVISION DESIGN ENGINEER*
R. DAVID TRANTHAM	*DIVISION UTILITY COORDINATOR*

PROJECT REFERENCE NO.	SHEET NO.
~~BD-5109Z~~	~~4~~
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

~~INCOMPLETE PLANS~~
~~DO NOT USE FOR R/W ACQUISITION~~
~~PRELIMINARY PLANS~~
~~DO NOT USE FOR CONSTRUCTION~~

PAVEMENT REMOVAL

UO-4

CHARGING WID: SHR952207
CHARGING WID: DOM952207

P-1
*Sta.# 11+25 @ 35' R-C/L
*Existing pole location okay.Need to re-work pole.
*Install 8' fiberglass X-arm.Primary wire to be DBL ended on arm.
*Install anchors/guys to hold both spans as shown

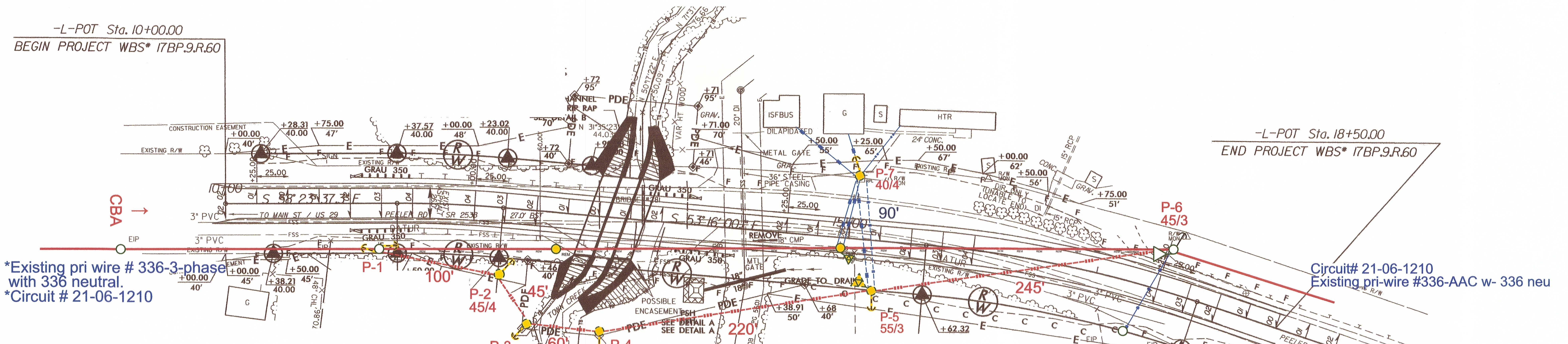
P-2
*Sta.# 12+23 @ 50' R-C/L
*Set and 45/4 pole (Temp).
*40° angle on pole.Frame with 8' fiberglass X-arm. DBL end pri-wire, sht# 22321-DUK.
*Install anchor/guy to hold pole angle.

P-3
*Sta.# 12+50 @ 90' R-C/L
*Set a 45/4 pole (Temp).
*50° angle on pole.Frame with 8' fiberglass X-arm. DBL end pri-wire,sht#22321-DUK.
*Install anchor/guy to hold pole angle.

P-7
*Sta.#15+05 @ 50' L-C/L
*C/O existing pole to a 40/4, additional clearance needed.
*Transfer existing svc drops and U/G service & anchor/guy to new pole.

This is for the temporary relocation of Duke's facilities during bridge construction

This is Phase-1 of the relocation project



*Temporary line to be relocated once new bridge is completed.

P-4
*Sta.# 13+05 @ 90' R-C/L.
*Set a 45/4 pole (Temp).
*17° angle on pole.Frame with 8' dbl wood X-arm. sht#1.108-1 & 1.36-1 in OHDS manual.
*Install anchor/guys to hold pole angle.

P-5
*Sta.# 15+21 @ 40' R-C/L
*Set a 55/3 pole @ 9' depth,due to construction cut at pole base.Clearance issue.This is a permanent location.
*Frame pole using a 10' fiberglass X-arm, for future pri-wire relocation.DBL dead-end pri-wire.
*Transfer existing banked TX's (2-10's & 1-25) to new pole.FAC ID# 39287318
*Install 90' of 1/0-3 secondary cable & 90' of 1/0-4 secondary cable across rd to P-7.
*Guy secondary cables as shown.

P-6
*C/O existing pole to a 45/3.
*Additional clearance needed.
*New angle on pole (24° angle), due to new line relocation.
*Frame with 8' fiberglass X-arm.Pri-wire to be DBL dead ended.Sht#1.108-1 in OHDS manual & 22321-DUK.
*Transfer existing pri-wire, secondary cable & anchor/guy to new pole.
*Transfer existing 1-phase TX-25 kva to new pole. Place tx on A-phase.

CONSTRUCTION NOTES

*All new pri-wire will be #336 AAC-3-phase with 336-neutral unless noted otherwise.
*Use standard wood X-arms for construction unless noted otherwise.
*Use 6,000 lb pri-helix anchors/guys unless noted otherwise.
*Frame neutral conductor @ 8' level on all poles, unless noted otherwise.Clearance issue and additional attachments.

*The poles and primary wire between P-1 and P-5 are (Temporary) during the bridge construction

REVISIONS

8/17/99

CHARGING WID: SHR226965
CHARGING WID: DOM226965

UO-5

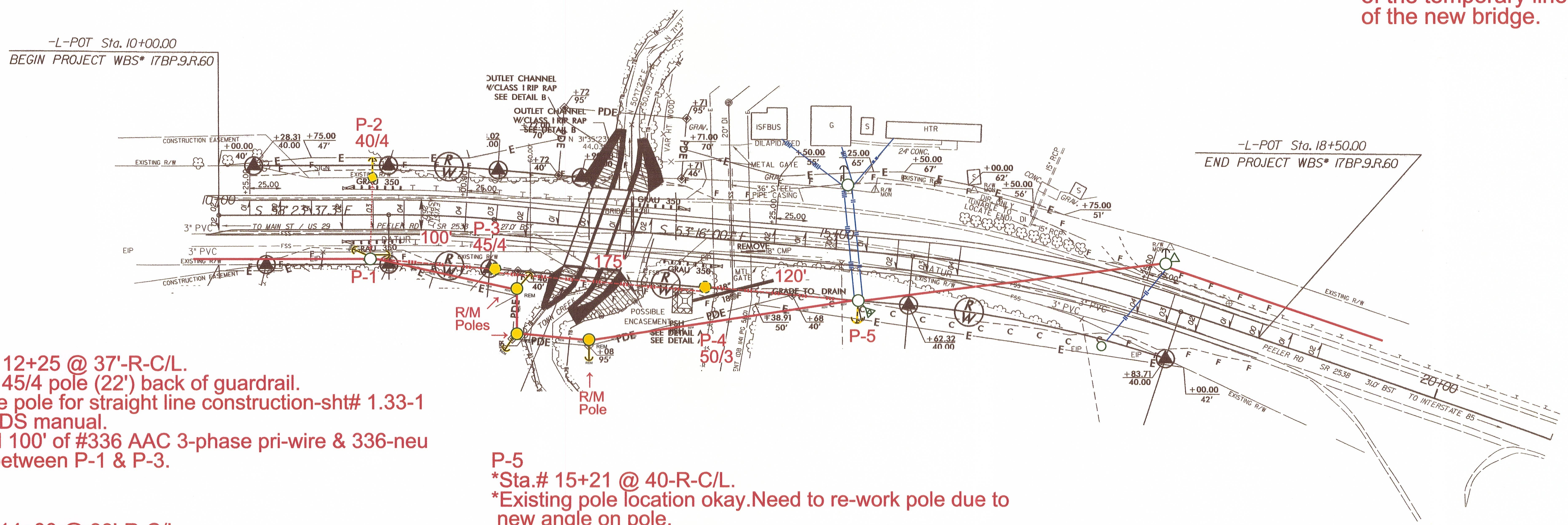
PROJECT REFERENCE NO.	SHEET NO.
~~BD-5109Z~~	~~4~~
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

P-1
*Sta.# 11+25 @ 35'-R-C/L
*Need to re-work existing pole due to new angle.
*Remove existing anchors/guys
*Attach new pri-wire to existing 8' fiberglass X-arm
*Install pri & neu span guy across rd to P-2.
*R/M (Temp) pri-wire

P-2
*Sta.# 11+25 @ 28'-L-C/L
*Set a 40/4 pole for span guy attachments
*Min guy lead 18'

This is for the Permanent relocation of the temporary lines upon completion of the new bridge.



P-3
*Sta.# 12+25 @ 37'-R-C/L.
*Set a 45/4 pole (22') back of guardrail.
*Frame pole for straight line construction-sht# 1.33-1 in OHDS manual.
*Install 100' of #336 AAC 3-phase pri-wire & 336-neu wire between P-1 & P-3.

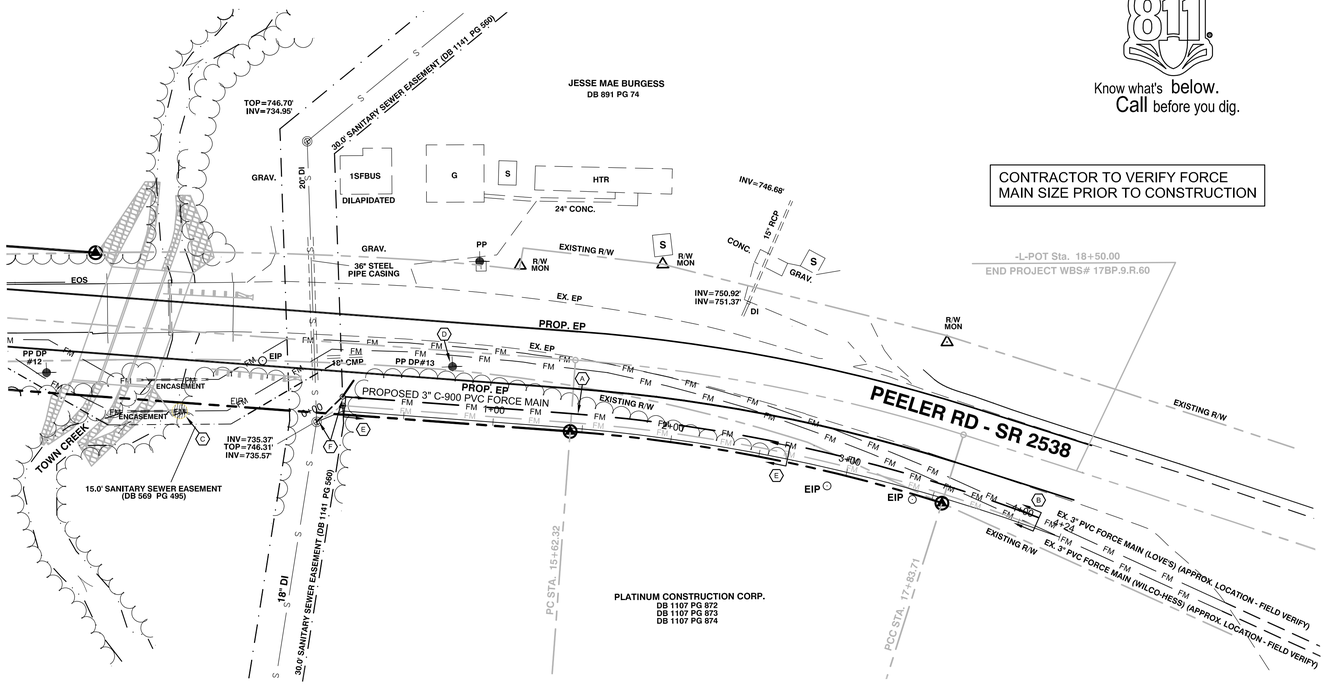
P-4
*Sta.# 14+00 @ 39'-R-C/L
*Set a 50/3 pole, (22') back of guardrail.
*Frame pole for straight line construction-sht# 1.33-1 in OHDS manual.
*Install 175' of #336-AAC 3-phase pri-wire & 336 neu wire between P-3 & P-4.

P-5
*Sta.# 15+21 @ 40-R-C/L.
*Existing pole location okay.Need to re-work pole due to new angle on pole.
* (14°) angle on pole. Pole has 10' fiberglass X-arm framed for new primary wire.
*Wire to be DBL dead ended on X-arm.
*Install 120' of #336-AAC 3-phase pri-wire & 336-neu conductor, between P-5 & P-4.
*Install anchor/guy to hold angle on pole.Min guy lead 18'.

CONSTRUCTION NOTES
*All new primary wire #336-AAC with 336-neutral unless noted otherwise.
*Use standard wood X-arms construction unless noted otherwise.
*Frame neutral conductor @ 8' level unless noted otherwise.
*Use 6,000 lb pri-helix anchors/guys, unless noted otherwise.

REVISIONS

8/17/99



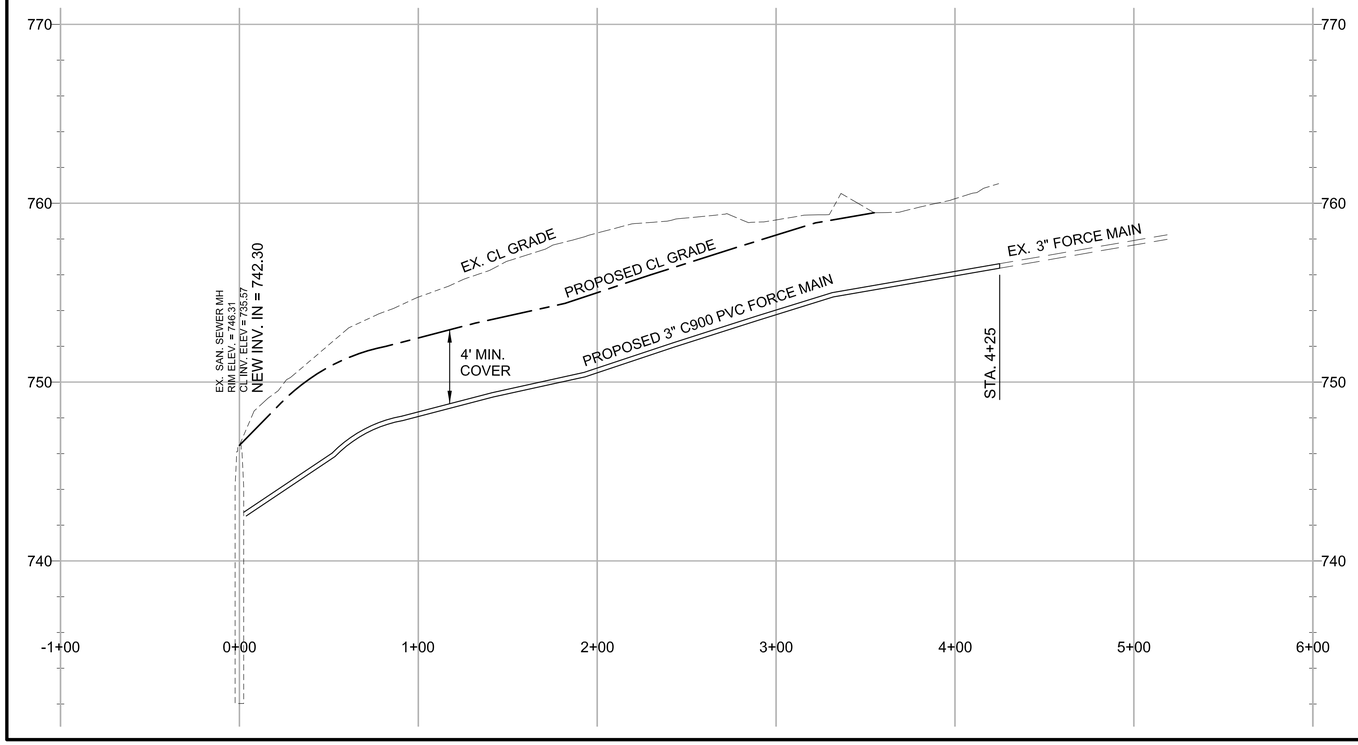
Know what's **below.**
Call before you dig.

CONTRACTOR TO VERIFY FORCE MAIN SIZE PRIOR TO CONSTRUCTION

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft. (horizontal)
1 inch = 4 ft. (vertical)



UO-6

KEY NOTES

(A) PROPOSED 3" C-900 PVC FORCE MAIN.

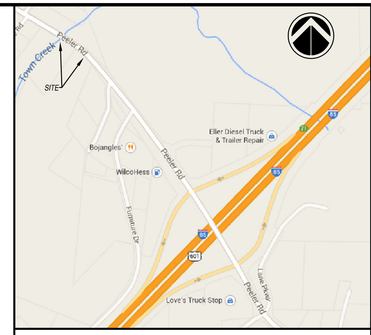
(B) EXISTING 3" FORCE MAIN TO BE ABANDONED IN PLACE.

(C) FORCE MAIN DRAINAGE PIT. EXCAVATE A PIT WITH MINIMUM DIMENSIONS 3' X 3' X 3'. AFTER EXISTING FM IS CONNECTED TO NEW PIPING, PROVIDE A STATE LICENSED SEWAGE HAULER WITH 3,000 GALLON MINIMUM CAPACITY. CUT EXISTING PIPE AND DRAIN INTO PIT. PUMP SANITARY SEWER FROM PIT AND LEGALLY DISPOSE AT A PROPERLY PERMITTED WWTP.

(D) EXISTING POLE TO BE RELOCATED BY OTHERS.

(E) EXISTING TREES AND VEGETATION TO BE REMOVED AS REQUIRED FOR FORCE MAIN INSTALLATION.

(F) PROPOSED 6" SEWER TAP TO BE PURCHASED FROM AND INSTALLED BY SALISBURY-ROWAN UTILITIES DEPARTMENT. 4" CAST IRON CLEANOUT TO BE INSTALLED AT EASEMENT.



VICINITY MAP
NOT TO SCALE

LOVE'S PEELER ROAD - SALISBURY, NC NOTES

A. GENERAL NOTES

1. BOUNDARY LOCATION, TOPOGRAPHIC SURVEY AND THE PROPOSED SITE INFORMATION WAS PROVIDED IN AN AUTOCAD DRAWING FILE BY NCDOT.
2. EXISTING UTILITY INFORMATION IS ILLUSTRATED FROM NCDOT DRAWING FILE . CONTRACTOR SHALL CONTACT NORTH CAROLINA ONE CALL CENTER (800) 632-4949 AT LEAST THREE DAYS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL ILLUSTRATED UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND AVOIDING DESTRUCTION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND UTILITIES. NOTIFY ENGINEER IMMEDIATELY IF ANY ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE A REVISION TO THE DESIGN.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMING TO ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO THE CONSTRUCTION.
4. CONTRACTOR SHALL PROVIDE THE NECESSARY SIGNAGE AND FLAGMEN WHEN WORKING WITHIN THE PUBLIC ROAD RIGHT-OF-WAY. UTILIZE TEMPORARY TRAFFIC CONTROL DEVICES TO ENSURE THE SAFETY OF EMPLOYEES AND THE GENERAL PUBLIC.
5. CONTRACTOR SHALL VERIFY PROPOSED GRADES AND ELEVATIONS IN ADVANCE OF CONSTRUCTION OPERATIONS. NOTIFY ENGINEER OF ANY CONFLICT.
6. CONTRACTOR SHALL VERIFY THAT ALL NECESSARY PERMITS, APPROVALS AND ENCROACHMENT AGREEMENTS FROM THE APPROPRIATE AGENCIES HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF ANY WORK.
7. CONTACT CITY OF SALISBURY AND THE SALISBURY-ROWAN UTILITIES DEPARTMENT TO SCHEDULE A CONSTRUCTION INSPECTION PRIOR TO COMMENCEMENT OF PUBLIC UTILITY CONSTRUCTION. CONTRACTOR TO COORDINATE ALL UTILITY TIE-INS TO EXISTING WITH THE CITY OF SALISBURY AND THE SRU UTILITY DEPARTMENT.
8. CONSTRUCTION STAKEOUT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND BASED ON NCDOT STAKE-OUT OF THE NEW RIGHT-OF-WAY LINE.
9. MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN UTILITIES AND STORM DRAINAGE PIPES.
11. THE FORCEMAIN SHALL BE INSTALLED WITH A MINIMUM OF 4'-0" OF COVER. CONTRACTOR SHALL BE RESPONSIBLE FOR THE ROUTING OF THE FORCEMAIN ABOVE OR BELOW STORM DRAINAGE/SANITARY SEWER LINES TO MAINTAIN 18" MINIMUM VERTICAL SEPARATION AS WELL AS MINIMUM COVER REQUIREMENTS.

B. EROSION CONTROL NOTES

1. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE LAND QUALITY SECTION OF THE NCDENR.
2. STABILIZATION STONE UNDER PIPING TO BE PLACED AS REQUIRED BY ENGINEER WHEN CONDITIONS WARRANT.
3. AS A MINIMUM REQUIREMENT, ALL GRADED AREAS NOT UNDER PAVEMENT AND WITHIN THE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE PREPARED, FERTILIZED, LIMED, SEEDED AND MULCHED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION AS FOLLOWS (APPLICATION RATE PER 1,000 SQUARE FEET):

   TYPE I SEEDING (LAWNS OR OTHER FOCAL AREAS)

   100 LBS. OF LIME
   20 LBS. OF 10-20-20 OR 20 LBS. OF 10-10-10 IN COMBINATION WITH 4 LBS OF 0-46-0
   5 LBS. OF TALL FESCUE, CONTAINING A BLEND OF 2 OR MORE TALL FESCUES
   1 LB. OF KENBLUE OR KENTUCKY BLUEGRASS
   1 LB. OF WINTER ANNUAL RYE (NOVEMBER 1 TO MARCH 1)

   TYPE II SEEDING (GENERAL OR LOW MAINTENANCE AREAS)

   100 LBS. OF LIME
   15 LBS. OF 10-20-20 OR 15 LBS. OF 10-10-10 IN COMBINATION WITH 3 LBS. OF 0-46-0
   4 LBS. OF TALL FESCUE, CONTAINING A BLEND OF 2 OR MORE TALL FESCUES
   1 LB. OF SERICEA LESPEDEZA (USE UNSCARIFIED SEED AUGUST 15 TO FEBRUARY 1)
   ¼ LB. OF GERMAN MILLET (MAY 1 TO AUGUST 15)
   1 LB. OF RYE GRAIN (AUGUST 15 TO MAY 1)

   SEEDING MIXTURES OTHER THAN THOSE LISTED ABOVE MUST BE APPROVED BY THE ENGINEER PRIOR TO SEEDING.
4. PRIOR TO REQUESTING A FINAL INSPECTION, THE OWNER WILL SUBMIT RECORD DRAWINGS AND ENGINEER'S CERTIFICATION TO THE SALISBURY-ROWAN UTILITIES (SRU) DEPARTMENT.

C. FORCE MAIN NOTES

1. THE MOST CURRENT EDITION OF THE CITY OF SALISBURY CONSTRUCTION STANDARDS MANUAL AND OF THE NCDENR MINIMUM DESIGN CRITERIA FOR THE PERMITTING OF PUMP STATIONS AND FORCE MAINS, WILL GOVERN ALL SANITARY SEWER CONSTRUCTION.
2. ALL WORK SHALL BE PERFORMED/INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. ALL CONSTRUCTION, MATERIALS AND SANITATION PROCEDURES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NORTH CAROLINA PLUMBING CODE AND THE CITY OF SALISBURY AND SRU CONSTRUCTION STANDARDS MANUAL.
4. ACCEPTABLE WORKING CONDITIONS OF SANITARY SEWER STRUCTURES AND PIPING SHALL BE VERIFIED BY THE CONTRACTOR AND ALL CONDITIONS FOUND TO BE UNACCEPTABLE SHALL BE REPORTED TO THE ENGINEER, PRIOR TO ANY CONNECTIONS, EXTENSIONS, OR STRUCTURES BEING INSTALLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP AND REPAIR OF UNACCEPTABLE CONDITIONS THAT RESULT FROM FAILURE TO REPORT SUCH CONDITIONS PRIOR TO COMMENCING WORK OR THAT RESULT FROM WORK BEING PERFORMED.
5. DENSITY TESTS BY AN INDEPENDENT TESTING LAB ARE TO BE MADE AS DIRECTED BY THE ENGINEER AT THE OWNER'S EXPENSE.
6. CONSTRUCTION RECORD DRAWINGS WILL BE PREPARED BY THE ENGINEER TO ACCOMPANY THE REQUIRED CERTIFICATION.
7. CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY TO COVER ALL DEFECTS IN MATERIALS AND WORKMANSHIP.

D. CONSTRUCTION SEQUENCE

1. CLEAR TREES AND VEGETATION AS REQUIRED TO LAY NEW PIPE.
2. INSTALL TEMPORARY EROSION CONTROL MEASURES.
3. COORDINATE NEW TAP/CONNECTION INTO EXISTING MANHOLE WITH SALISBURY ROWAN UTILITIES.
4. INSTALL NEW FORCEMAIN PIPING.
5. CONTACT ENGINEER 72 HOURS IN ADVANCE TO SCHEDULE FORCEMAIN PRESSURE TESTING
6. UPON SATISFACTORY PRESSURE TESTING, PREPARE FOR CONNECTION TO EXISTING PIPE.
7. ENGAGE A LICENSED SEWAGE HAULER TO PUMP OUT WETWELL WHILE PUMP STATION IS TEMPORARILY OUT OF SERVICE.
8. COORDINATE TIE-IN WITH BUSINESS OWNERS TO COMPLETE TIE-IN DURING PERIODS OF LOWER FLOW - WORK AT NIGHT MAY BE REQUIRED.
9. TEMPORARILY SHUT-DOWN PUMP STATION WITH PUMP TRUCK ON STANDBY. PUMP STATION OPERATION MAY BE SUSPENDED FOR A MAXIMUM OF THREE HOURS.
10. CUT EXISTING FORCEMAIN TO CONNECT NEW PIPING. PROVIDE PROVISIONS FOR PUMPING WASTE FLOW DRAINING FROM FORCEMAIN.
11. COMPLETE TIE-IN TO NEW PIPING. RETURN PUMP STATION TO SERVICE AND VERIFY CONNECTION IS NOT LEAKING PRIOR TO BACKFILLING EXCAVATION.
12. EXCAVATE PUMP PIT TO DRAIN LOWER SECTION OF EXISTING FORCEMAIN. PUMP AND HAUL DRAINED WASTE.
13. BACKFILL PUMP PIT EXCAVATION.

Allied Design, Inc.
CIVIL ENGINEERING • LAND SURVEYING
4720 KESTER MILL ROAD
WINSTON-SALEM, NORTH CAROLINA 27103
Phone: (336) 765-2377
Fax: (336) 760-8886
e-mail: ASurvey@aol.com

NORTH CAROLINA PROFESSIONAL SEAL 19701 ENGINEER STEVE M. CAUSEY 1-30-15

LOVE'S FORCE MAIN
PEELER ROAD - SR 2538
SALISBURY, NORTH CAROLINA

PROJECT NO.: 14-062
DRAWN BY: JNN
CHECKED BY: SMC
DATE: 01/30/15

REVISIONS

NO.	DATE	DESCRIPTION
A	01/30/15	ISSUED FOR BIDDING

SANITARY SEWER
FORCE MAIN
PLAN

SHEET
C1

PROJ. REFERENCE NO.	SHEET NO.
17PB9R60	X-1

8/23/99

18-FEB-2015 14:41
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wablanton AT D9CAD268308


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17PB9R60
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0.030
2.25:1
2:1
751.53
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0.040
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0.040
2:1
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751.82
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2:1
2:1
752.42
11+75.00
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753.71
0.040
2:1
2.4:1
753.04
11+50.00
760
755
750
745
740

PROJ. REFERENCE NO. 17PB9R60 | SHEET NO. X-3

PROJ. REFERENCE NO.	SHEET NO.
17PB9R60	X-4

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8/23/99

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PROJ. REFERENCE NO.	SHEET NO.
17PB9R60	X-7

8/23/99

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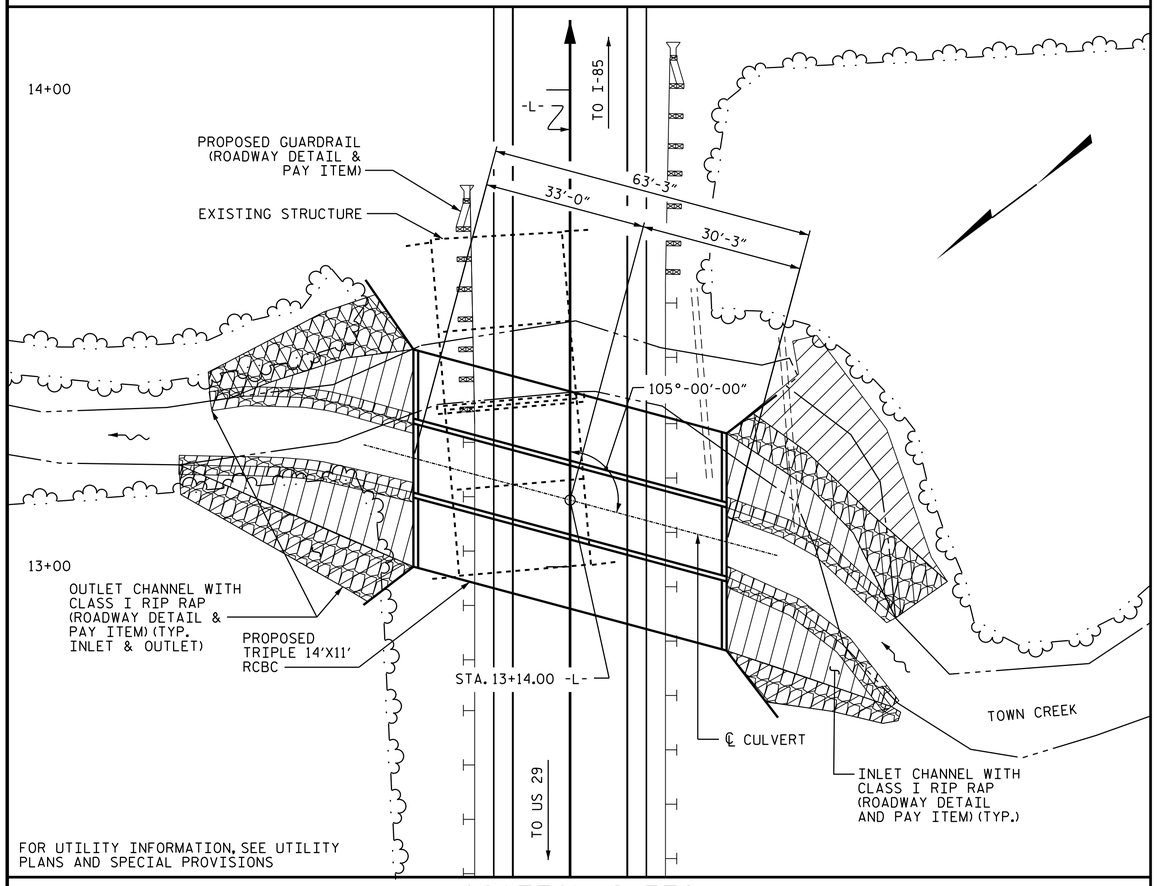
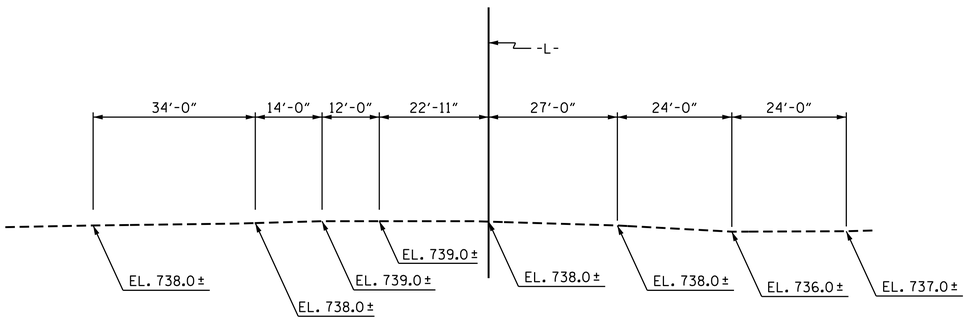
BM #2: RAILROAD SPIKE IN ROOT OF ASH IN SEWER LINE EASEMENT, 102' RIGHT OF STA. 14+45.00 -L-, EL. 748.50



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

ROADWAY DATA

GRADE PT. EL. @ STA. 13+14.00 -L-	= 752.63
BED EL. @ STA. 13+14.00 -L-	= 736.50
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

DESIGN DISCHARGE	= 2270 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 747.5
DRAINAGE AREA	= 5 SQ.MI.
BASE DISCHARGE (Q100)	= 2600 C.F.S.
BASE HIGH WATER ELEVATION	= 748.61

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2600+ C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YR.
OVERTOPPING HIGH WATER ELEVATION	= 752.6

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE	LUMP SUM	
CULVERT EXCAVATION	LUMP SUM	
FOUNDATION CONDITIONING MATERIAL	TONS	200
CLASS A CONCRETE		
STAGE I	C.Y.	155.2
STAGE II	C.Y.	200.2
TOTAL	C.Y.	355.4
REINFORCING STEEL		
STAGE I	LBS.	20,621
STAGE II	LBS.	25,496
TOTAL	LBS.	46,117
PLACEMENT OF NATURAL STREAM BED MATERIAL	LUMP SUM	

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NOTES

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

DESIGN FILL----------5.29 FT. (MAX.), 4.73 FT. (MIN.)

FOR OTHER DESIGN DATA AND NOTES, SEE SHEET SN.

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 & FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS IN STAGE I.
2. THE REMAINING PORTIONS OF THE WALLS, SILLS AND WINGS FULL HEIGHT IN STAGE I.
3. WING FOOTINGS & FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS IN STAGE II.
4. THE REMAINING PORTIONS OF THE WALLS, SILLS AND WINGS FULL HEIGHT IN STAGE II.
5. THE ENTIRE 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.

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

NO PRECAST REINFORCING BOX CULVERT OPTION WILL BE ALLOWED.

THE EXISTING STRUCTURE CONSISTING OF FOUR SPANS 1 @ 17'-0", 2 @ 18'-3", AND 1 @ 17'-0" WITH STEEL PLANK DECK ON CONTINUOUS I-BEAMS, END BENTS & INTERIOR BENT 2 OF TIMBER CAP & PILES WITH BENT 2 PILES ENCLOSED IN CONCRETE, INTERIOR BENT 1 & 3 OF STEEL CAPS ON TIMBER PILES WITH A 28 FOOT CLEAR ROADWAY LOCATED AT THE PROPOSED STRUCTURE 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 REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+14.00 -L-."

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

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

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.

NATURAL STREAM BED MATERIAL SHALL BE USED TO BACKFILL THE CULVERT BETWEEN SILLS. SEE SPECIAL PROVISIONS FOR "PLACEMENT OF NATURAL STREAM BED MATERIAL".

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 1 OF 6 REPLACES BRIDGE #281

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD

TRIPLE 14 FT. X 11 FT. CONCRETE BOX CULVERT

105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 21638 ENGINEER LAURA E. SUTTON
DocuSigned by: Laura C. Sutton AE35E3E67276406...
2/10/2015

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE' DAVENPORT, JR.
DocuSigned by: D. André Davenport, Jr. 895DC284F664495...
2/10/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			6

STD.NO.CB223A

DRAWN BY : R. P. PATEL DATE : 10/21/14
CHECKED BY : N. D. AIUTO DATE : 11/04/14
DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 11/11/14

09-FEB-2015 14:12
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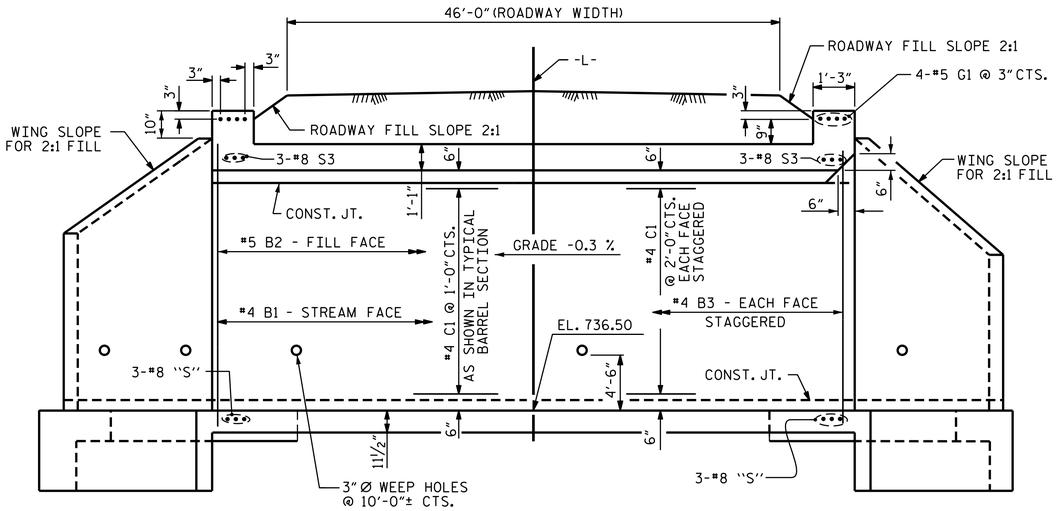
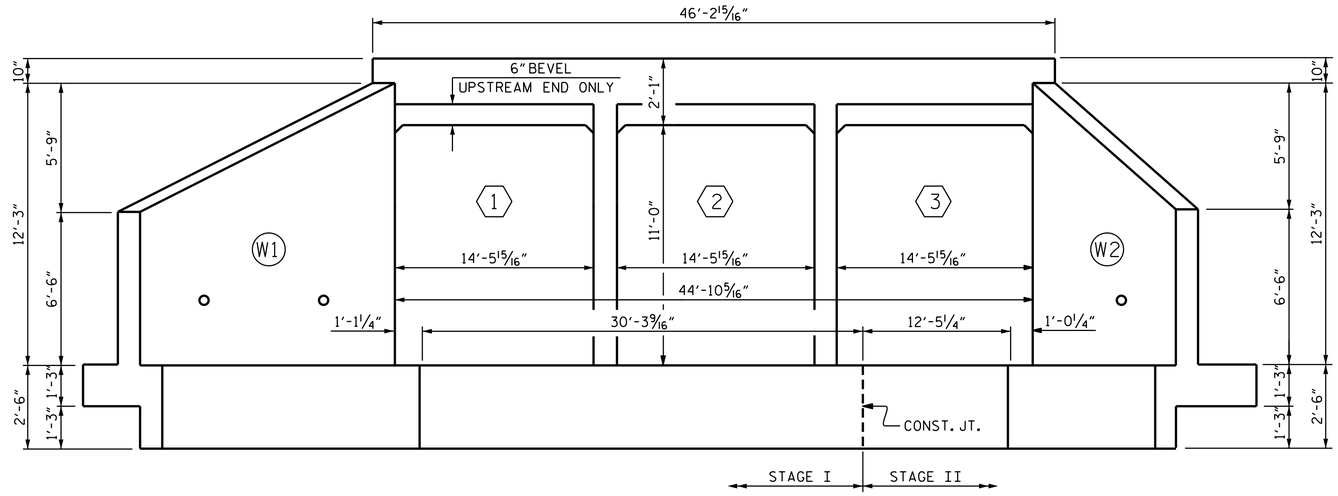
dodavenport

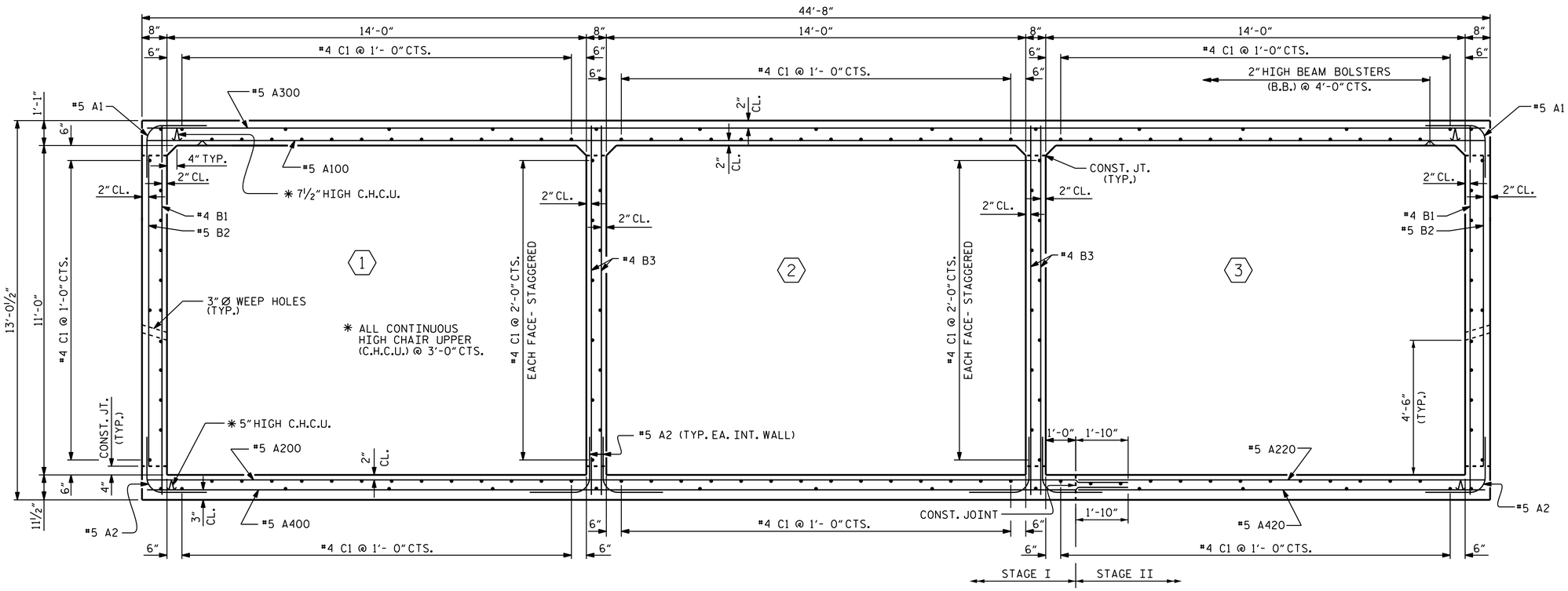


CULVERT SECTION NORMAL TO ROADWAY



INLET END ELEVATION NORMAL TO SKEW

(LOOKING DOWNSTREAM)



RIGHT ANGLE SECTION OF BARREL

THERE ARE 156 "C" BARS IN SECTION OF BARREL.
THERE ARE 72 "C" BARS IN STAGE I.
THERE ARE 84 "C" BARS IN STAGE II.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.

DocuSigned by: D. André Davenport, Jr. 895DC284F664495... 2/10/2015

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BARREL STANDARD

TRIPLE 14 FT. X 11 FT. CONCRETE BOX CULVERT

105° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			6

STD. NO. CB223

ASSEMBLED BY : R. P. PATEL	DATE : 10/21/14	SPECIAL
CHECKED BY : N. D. AIUTO	DATE : 11/04/14	
DRAWN BY : BRAIN STALEY III	DATE : 11-30-71	STANDARD
CHECKED BY : JOEL A. JOHNSON	DATE : 12-30-71	

DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 11/11/14

09-FEB-2015 14:12
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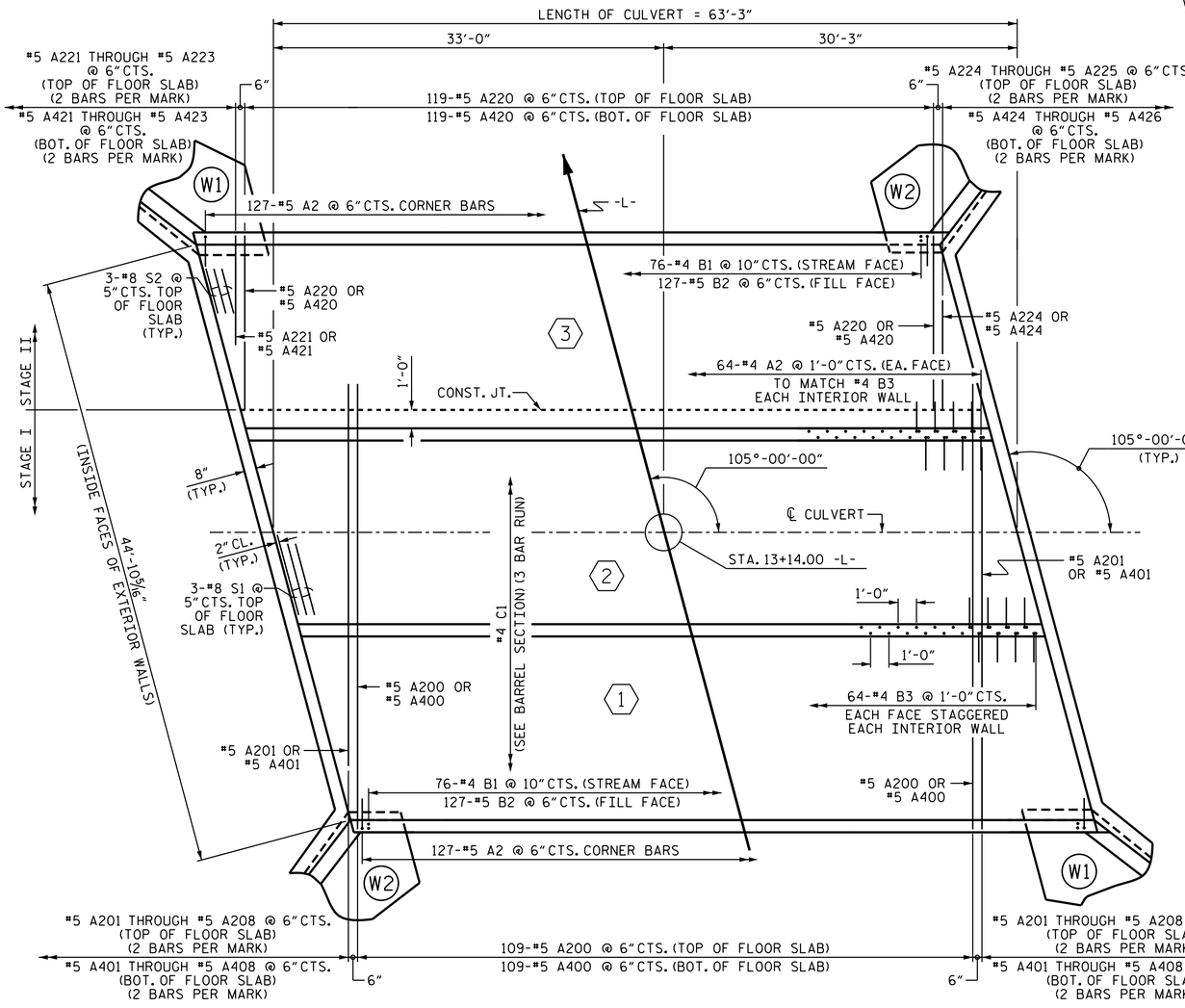
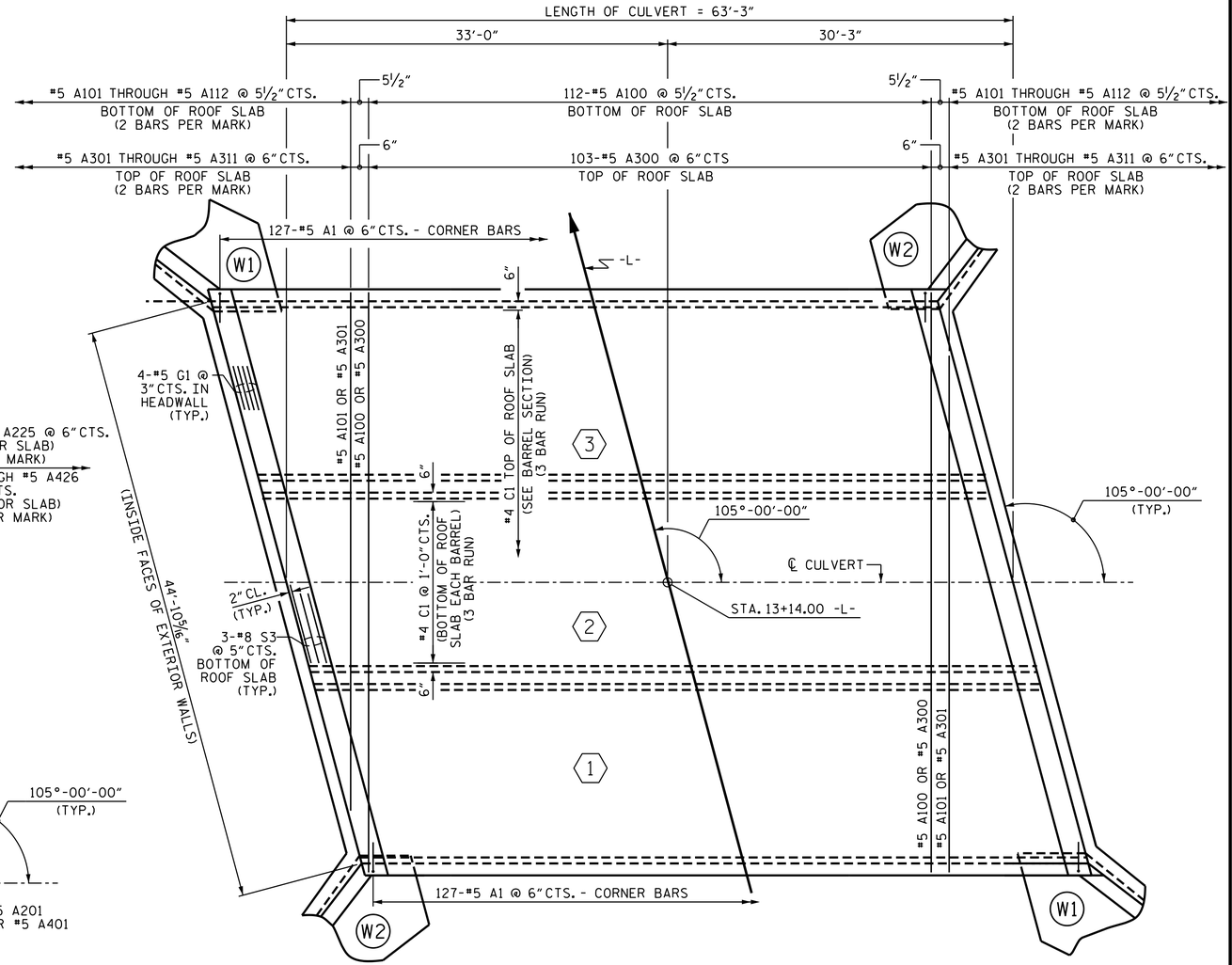
dadavenport

REVISED 11-19-99 BY M.M. CHECKED BY R.W.W.
REVISED 8-28-92 BY E.L.P. CHECKED BY G.R.P.
REDRAWN 8-27-90 BY C.O.C. CHECKED BY M.A.J.



PLAN - FLOOR SLAB



PLAN - ROOF SLAB

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 14 FT. X 11 FT. CONCRETE BOX CULVERT

105° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			6

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT JR.

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2/10/2015

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CHECKED BY :	N. D. AIUTO	DATE :	11/04/14
DESIGN ENGINEER OF RECORD:	R. P. PATEL	DATE :	11/11/14

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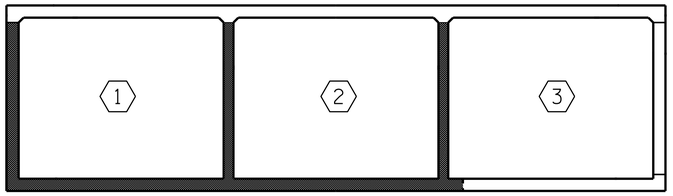
ddavenport



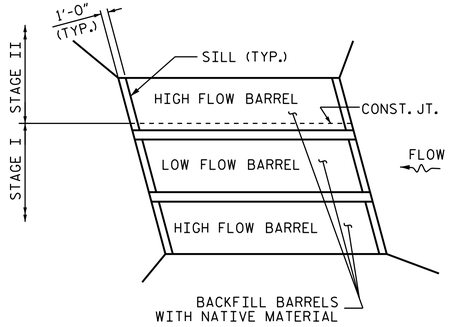
STAGE I STAGE II

CONSTRUCTION SEQUENCE

(LOOKING DOWNSTREAM)

STAGE I QUANTITIES		
CLASS A CONCRETE		
BARREL @ 1.890 C.Y./FT.	C.Y.	119.6
WINGS, ETC.	C.Y.	35.6
TOTAL	C.Y.	155.2
REINFORCING STEEL		
BARREL	LBS.	19,098
WINGS, ETC.	LBS.	1,523
TOTAL	LBS.	20,621

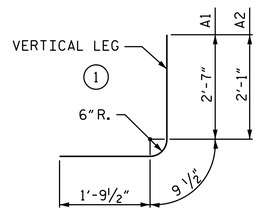
STAGE II QUANTITIES		
CLASS A CONCRETE		
BARREL @ 2.586 C.Y./FT.	C.Y.	163.6
WINGS, ETC.	C.Y.	36.6
TOTAL	C.Y.	200.2
REINFORCING STEEL		
BARREL	LBS.	23,973
WINGS, ETC.	LBS.	1,523
TOTAL	LBS.	25,496



PLAN SHOWING BARREL LAYOUT WITH SILLS

PLACE SILLS AT INLET AND OUTLET OF ALL BARRELS.
BACKFILL EXTERIOR BARRELS WITH NATIVE MATERIAL TO A DEPTH OF 4'.
BACKFILL CENTER BARREL WITH NATIVE MATERIAL TO A DEPTH OF 1'.

BAR TYPE



BAR DIMENSIONS ARE OUT TO OUT.

SPLICE LENGTH CHART

BAR	SIZE	SPLICE LENGTH
A200	#5	1'-9"
A400	#5	1'-9"
B1, B3	#4	1'-5"
C1	#4	1'-11"
S1	#8	4'-0"

BILL OF MATERIAL

STAGE I

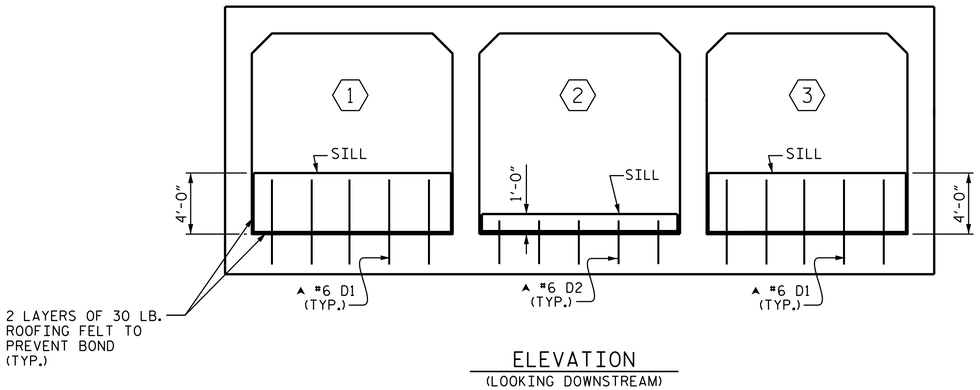
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	127	#5	1	5'-2"	684
A2	383	#5	1	4'-8"	1864
A200	109	#5	STR	32'-8"	3714
A201	4	#5	STR	29'-4"	122
A202	4	#5	STR	25'-7"	107
A203	4	#5	STR	21'-10"	91
A204	4	#5	STR	18'-2"	76
A205	4	#5	STR	14'-5"	60
A206	4	#5	STR	10'-8"	45
A207	4	#5	STR	6'-11"	29
A208	4	#5	STR	3'-2"	13
A400	109	#5	STR	32'-8"	3714
A401	4	#5	STR	29'-1"	121
A402	4	#5	STR	25'-5"	106
A403	4	#5	STR	21'-8"	90
A404	4	#5	STR	17'-11"	75
A405	4	#5	STR	14'-2"	59
A406	4	#5	STR	10'-5"	43
A407	4	#5	STR	6'-9"	28
A408	4	#5	STR	3'-0"	13
B1	76	#4	STR	12'-6"	635
B2	127	#5	STR	10'-4"	1369
B3	256	#4	STR	12'-6"	2138
C1	216	#4	STR	22'-5"	3234
D1	10	#6	STR	4'-6"	68
D2	10	#6	STR	1'-6"	23
S1	6	#8	STR	36'-0"	577

REINFORCING STEEL LBS. 19,098

STAGE II

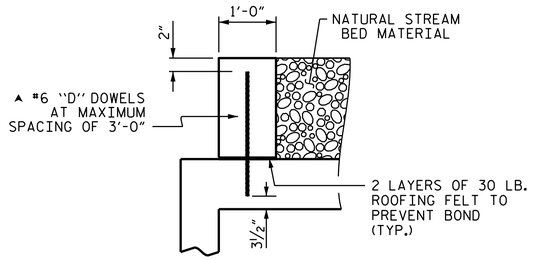
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	127	#5	1	5'-2"	684
A2	127	#5	1	4'-8"	618
A100	112	#5	STR	44'-3"	5169
A101	4	#5	STR	40'-5"	169
A102	4	#5	STR	37'-0"	154
A103	4	#5	STR	33'-7"	140
A104	4	#5	STR	30'-2"	126
A105	4	#5	STR	26-9"	112
A106	4	#5	STR	23'-3"	97
A107	4	#5	STR	19'-10"	83
A108	4	#5	STR	16-5"	68
A109	4	#5	STR	13'-0"	54
A110	4	#5	STR	9'-7"	40
A111	4	#5	STR	6-2"	26
A112	4	#5	STR	2'-9"	11
A220	119	#5	STR	13'-5"	1665
A221	2	#5	STR	10'-9"	22
A222	2	#5	STR	7'-0"	15
A223	2	#5	STR	3'-4"	7
A224	2	#5	STR	9'-9"	20
A225	2	#5	STR	6'-0"	13
A420	119	#5	STR	13-5"	1665
A421	2	#5	STR	11'-0"	23
A422	2	#5	STR	7'-3"	15
A423	2	#5	STR	3-6"	7
A424	2	#5	STR	11'-5"	24
A425	2	#5	STR	7'-8"	16
A426	2	#5	STR	3-11	8
A300	103	#5	STR	44'-3"	4754
A301	4	#5	STR	40'-1"	167
A302	4	#5	STR	36'-4"	152
A303	4	#5	STR	32'-7"	136
A304	4	#5	STR	28'-11"	121
A305	4	#5	STR	25'-2"	105
A306	4	#5	STR	21'-5"	89
A307	4	#5	STR	17'-8"	74
A308	4	#5	STR	13'-11"	58
A309	4	#5	STR	10'-3"	43
A310	4	#5	STR	6'-6"	27
A311	4	#5	STR	2'-9"	11
B1	76	#4	STR	12'-6"	635
B2	127	#5	STR	10'-4"	1369
C1	252	#4	STR	22'-5"	3774
D1	10	#6	STR	4'-6"	68
G1	8	#5	STR	45'-10"	382
S2	6	#8	STR	13'-11"	223
S3	6	#8	STR	45'-10"	734

REINFORCING STEEL LBS. 23,973



ELEVATION

(LOOKING DOWNSTREAM)



SECTION THROUGH SILL

CULVERT SILL DETAILS

(SILLS LOCATED AT INLET AND OUTLET ONLY)

▲ #6 "D" DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER FLOOR SLAB HAS BEEN FLOAT FINISHED.

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE 14 FT. X 11 FT. CONCRETE BOX CULVERT

105° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR.

DocuSigned by:
D. André Davenport, Jr.
895DC284F664495...
2/10/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-4
1			3			TOTAL SHEETS
2			4			6

DRAWN BY : N.D'AIUTO DATE : 10/21/14
CHECKED BY : H.A.LOCKLEAR DATE : 2/3/14
DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 11/11/14

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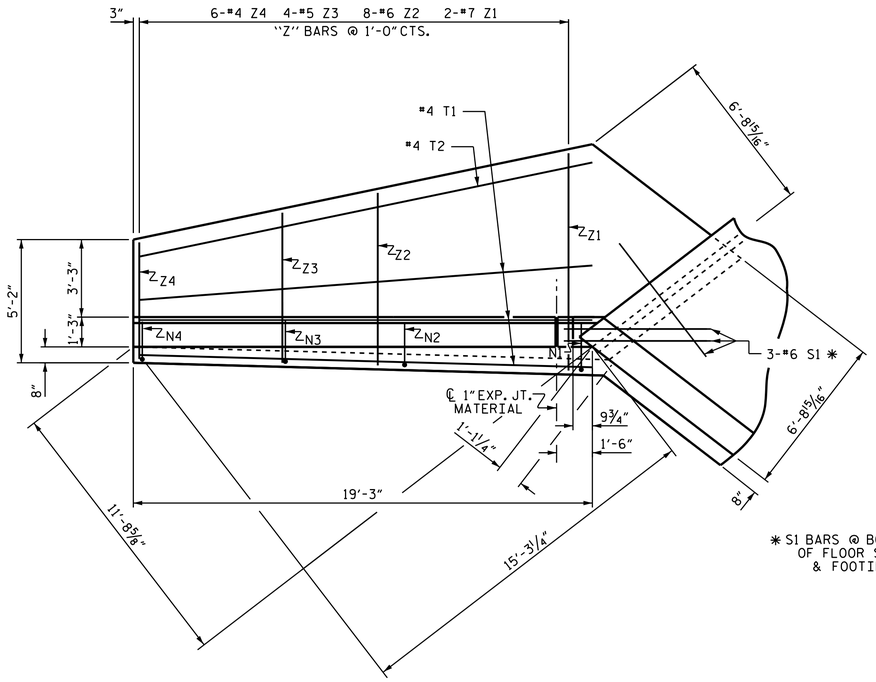
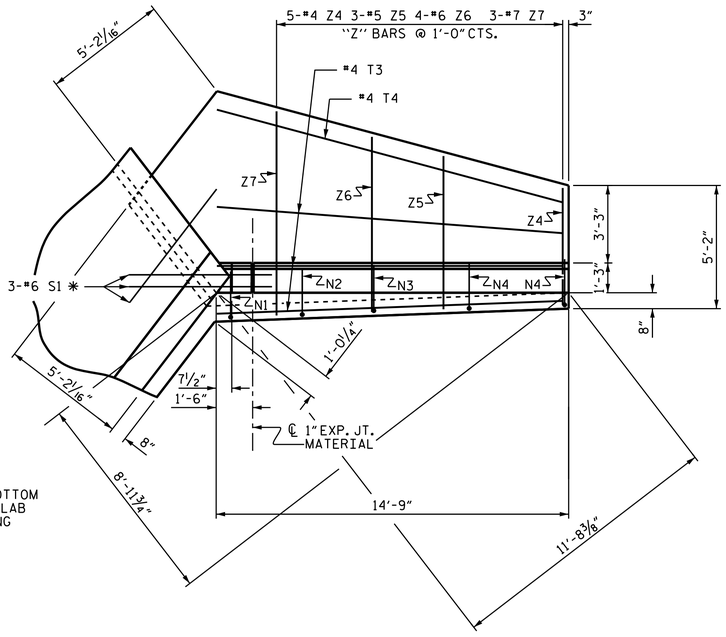
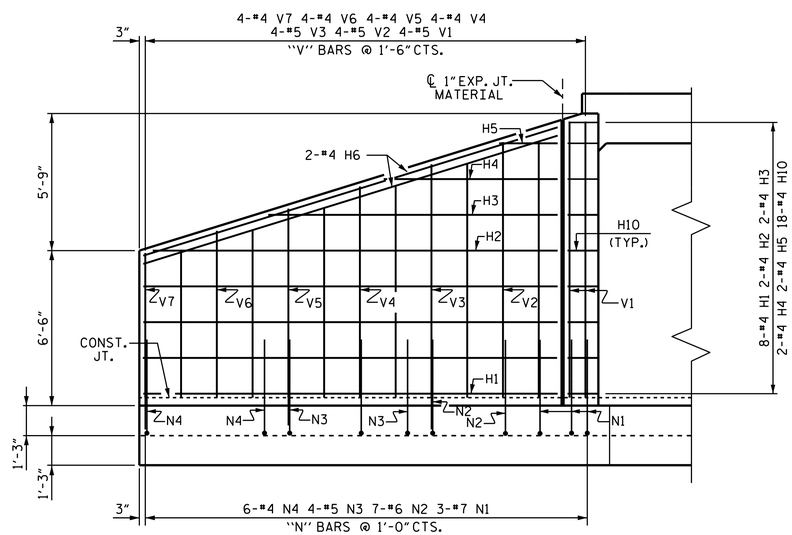


PLAN W1

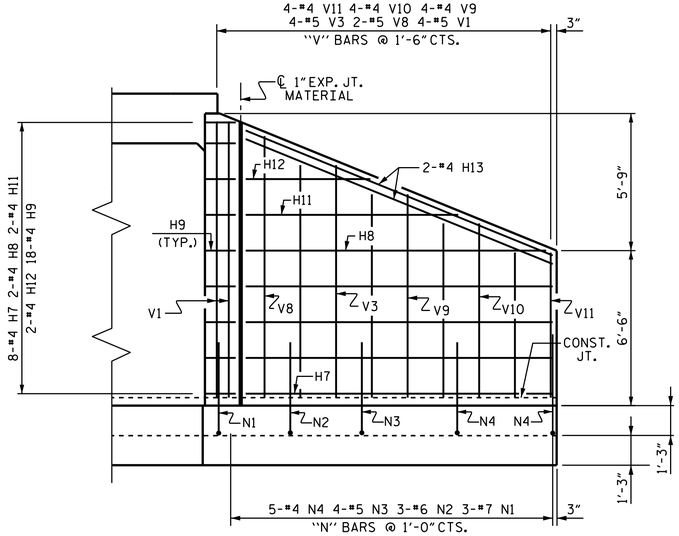


* S1 BARS @ BOTTOM OF FLOOR SLAB & FOOTING

PLAN W2

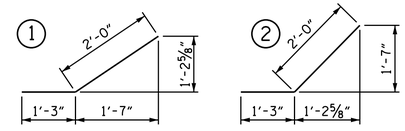


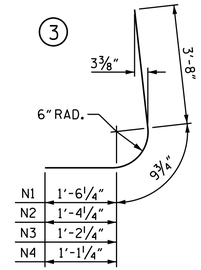
ELEVATION W1

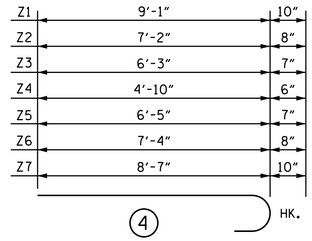


ELEVATION W2

BAR TYPES







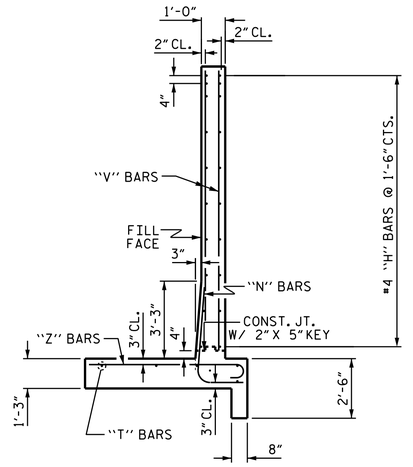
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

STAGE I/STAGE II SIMILAR

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	4	STR	17'-4"	93
H2	2	4	STR	16'-11"	23
H3	2	4	STR	12'-1"	16
H4	2	4	STR	7'-3"	10
H5	2	4	STR	2'-5"	3
H6	4	4	STR	18'-2"	49
H7	8	4	STR	12'-10"	69
H8	2	4	STR	12'-7"	17
H9	18	4	2	3'-3"	39
H10	18	4	1	3'-3"	39
H11	2	4	STR	8'-11"	12
H12	2	4	STR	5'-2"	7
H13	4	4	STR	13'-10"	37
N1	6	7	3	6'-0"	74
N2	10	6	3	5'-10"	88
N3	8	5	3	5'-8"	47
N4	11	4	3	5'-7"	41
S1	6	6	STR	6'-0"	54
T1	3	4	STR	19'-0"	38
T2	1	4	STR	19'-5"	13
T3	3	4	STR	14'-6"	29
T4	1	4	STR	15'-0"	10
V1	8	5	STR	11'-7"	97
V2	4	5	STR	10'-8"	45
V3	8	5	STR	9'-9"	81
V4	4	4	STR	8'-10"	24
V5	4	4	STR	7'-11"	21
V6	4	4	STR	7'-0"	19
V7	4	4	STR	6'-0"	16
V8	2	5	STR	10'-10"	23
V9	4	4	STR	8'-6"	23
V10	4	4	STR	7'-3"	19
V11	4	4	STR	6'-1"	16
Z1	2	7	4	9'-11"	41
Z2	8	6	4	7'-10"	94
Z3	4	5	4	6'-10"	29
Z4	11	4	4	5'-4"	39
Z5	3	5	4	7'-0"	22
Z6	4	6	4	8'-0"	48
Z7	3	7	4	9'-5"	58

REINFORCING STEEL FOR 2 WINGS	LBS.	1,523
STAGE I - CLASS A CONCRETE		
2 WINGS	C.Y.	26.5
END CURTAIN WALLS	C.Y.	3.7
SILLS	C.Y.	5.4
TOTAL	C.Y.	35.6
STAGE II - CLASS A CONCRETE		
2 WINGS	C.Y.	26.5
HEADWALLS	C.Y.	4.3
END CURTAIN WALLS	C.Y.	1.5
SILLS	C.Y.	4.3
TOTAL	C.Y.	36.6



TYPICAL WING SECTION

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR CONCRETE BOX CULVERT

H = 11'-0" SLOPE = 2:1

105° SKEW

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NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE DAVENPORT, JR.

DocuSigned by: D. André Davenport, Jr. 895DC284F664495...
2/10/2015

ASSEMBLED BY : N. D. AIUTO	DATE : 1/22/15	DESIGN ENGINEER OF RECORD: R.P.PATEL DATE : 2/3/15	
CHECKED BY : H.A.LOCKLEAR	DATE : 2/3/15		
DRAWN BY : A. K. PATEL	DATE : 11/04		
CHECKED BY : M. K. BEARD	DATE : 12/04		

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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 x RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
							LIVE-LOAD FACTORS (γ_{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)	**1.02**	--	1.75	**1.02**	**1**	**TOP SLAB**	**6.23**	1.22	1	TOP SLAB	13.53	1
		HL-93 (OPERATING)	N/A		1.32	--	1.35	1.32	1	TOP SLAB	6.23	1.59	1	TOP SLAB	13.53	1
		HS-20 (INVENTORY)	36.000	(2)	**1.36**	48.86	1.75	**1.36**	**1**	**TOP SLAB**	**6.23**	1.40	1	BOTTOM SLAB	13.64	2
		HS-20 (OPERATING)	36.000		1.76	63.34	1.35	1.76	1	TOP SLAB	6.23	1.82	1	BOTTOM SLAB	13.64	2
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.46	33.32	1.40	2.46	1	TOP SLAB	6.23	2.84	1	EXTERIOR WALL	11.06	2
		SNGARBS2	20.000		2.31	46.13	1.40	2.31	1	TOP SLAB	6.23	2.61	1	TOP SLAB	13.53	1
		SNAGRIS2	22.000		2.24	49.25	1.40	2.24	1	BOT. CORNER WALL	11.72	2.69	1	EXTERIOR WALL	11.06	3
		SNCOTTS3	27.250	(3)	**1.28**	34.79	1.40	**1.28**	**1**	**TOP SLAB**	**6.23**	1.52	1	TOP SLAB	13.53	1
		SNAGGRS4	34.925		1.51	52.57	1.40	1.51	1	TOP SLAB	6.23	1.72	1	TOP SLAB	13.53	1
		SNS5A	35.550		1.39	49.38	1.40	1.39	1	TOP SLAB	6.23	1.59	1	TOP SLAB	13.53	1
		SNS6A	39.950		1.39	55.43	1.40	1.39	1	TOP SLAB	6.23	1.58	1	BOTTOM SLAB	13.64	2
		SNS7B	42.000		1.41	59.40	1.40	1.41	1	TOP SLAB	6.23	1.50	1	TOP SLAB	13.53	1
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.90	62.83	1.40	1.91	1	BOTTOM SLAB	13.93	1.90	1	BOTTOM SLAB	13.64	3
		TNT4A	33.075		1.52	50.24	1.40	1.52	1	TOP SLAB	6.23	1.81	1	TOP SLAB	13.53	1
		TNT6A	41.600		1.50	62.28	1.40	1.50	1	BOTTOM SLAB	13.93	1.52	1	BOTTOM SLAB	13.64	3
		TNT7A	42.000		1.49	62.61	1.40	1.49	1	BOTTOM SLAB	13.93	1.52	1	BOTTOM SLAB	13.64	3
		TNT7B	42.000		1.45	61.02	1.40	1.45	1	TOP SLAB	6.60	1.51	1	BOTTOM SLAB	13.64	2
		TNAGRIT4	43.000		1.45	62.28	1.40	1.45	1	TOP SLAB	6.23	1.46	1	BOTTOM SLAB	13.64	2
		TNAGT5A	45.000		1.41	63.26	1.40	1.41	1	BOTTOM SLAB	13.93	1.41	1	BOTTOM SLAB	13.64	3
		TNAGT5B	45.000		1.40	63.12	1.40	1.41	1	BOTTOM SLAB	13.93	1.40	1	BOTTOM SLAB	13.64	3

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. BOTH MOMENT AND SHEAR RATING FACTORS ARE CONTROLLED BY MINIMUM FILL.
2. MOMENT RATING FACTOR IS CONTROLLED BY MINIMUM FILL; SHEAR RATING FACTOR IS CONTROLLED BY MAXIMUM FILL.
3. BOTH MOMENT AND SHEAR RATING FACTORS ARE CONTROLLED BY MAXIMUM FILL.

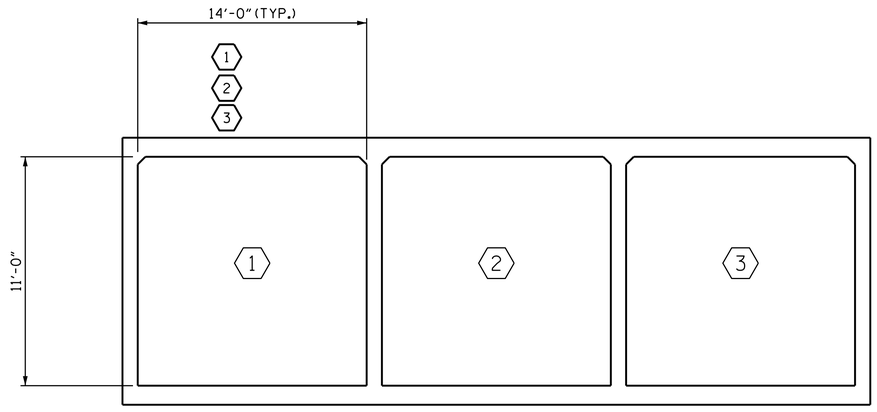
(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

PROJECT NO. 17BP.9.R.60

ROWAN COUNTY

STATION: 13+14.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
2			4			6

NORTH CAROLINA PROFESSIONAL SEAL 10730 ENGINEER D. ANDRE' DAVENPORT, JR.

DocuSigned by: D. André Davenport, Jr. 895DC284F664495...

2/10/2015

ASSEMBLED BY : R. P. PATEL DATE : 10/21/14
CHECKED BY : N. D. AIUTO DATE : 11/04/14

DRAWN BY : WMC 7/11
CHECKED BY : GM 7/11

REV. 10/1/11 MAA/GM

DESIGN ENGINEER OF RECORD: R. P. PATEL DATE : 11/11/14

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dadavenport

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.

ENGLISH

JANUARY, 1990

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