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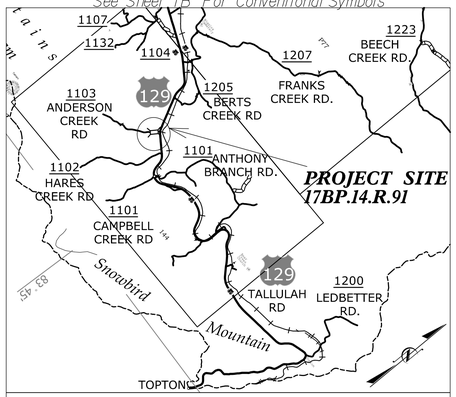
09/08/09

TIP PROJECT: 17BP.14.R.91

CONTRACT: DN00267

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GRAHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.91	1	X

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.91	N/A	PE
17BP.14.R.91	N/A	RIGHT–OF–WAY
17BP.14.R.91	N/A	CONSTRUCTION

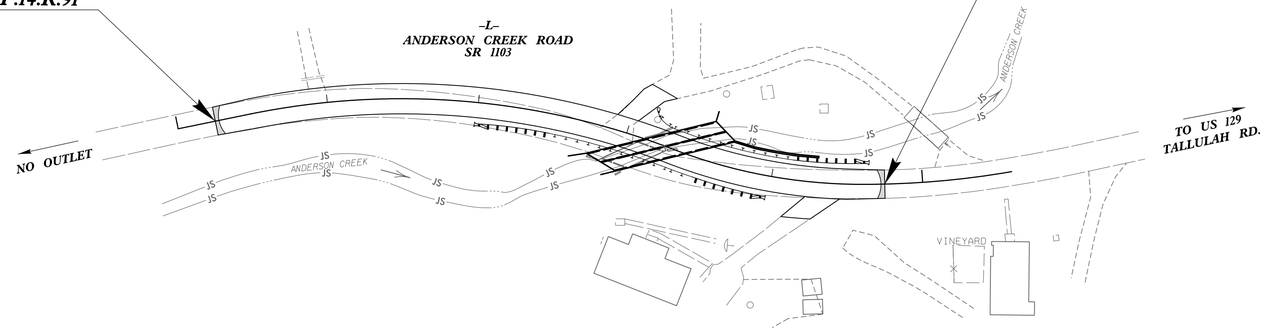
LOCATION: REPLACEMENT OF BRIDGE NO. 95 ON ANDERSON CREEK RD. (SR 1103) OVER ANDERSON CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT & WALL

4

END TIP PROJECT 17BP.14.R.91
–L– STA. 14 + 75.00

BEGIN TIP PROJECT 17BP.14.R.91
–L– STA. 10 + 25.00



CONTACT: JOSHUA B. DEYTON, P.E.
NCDOT HIGHWAY DIVISION 14

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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 2009 = 170
ADT 2025 = 340
DHV = NA %
D = NA %
T = 6 % *
V = 35 MPH
* TTST = NA DUAL NA
FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.14.R.91 = 0.085 MILE
LENGTH OF STRUCTURE PROJECT 17BP.14.R.91 = 0.000 MILE
TOTAL LENGTH PROJECT 17BP.14.R.91 = 0.085 MILE

PREPARED IN THE OFFICE OF:

WSP
434 Fayetteville Street, Suite 1500 Raleigh, NC 27601
Tel. (919) 836–4040 www.wsp–pb.com
License No. F–0891

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 10–26–2016

LETTING DATE:

RONYELL A. THIGPEN, PE
PROJECT ENGINEER

JENNIFER STARNES, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27876 ENGINEER RANA STANSELL P.E.

DocuSigned by: Rana Stansell 9/8/2017
CBF73E7A07694B7...
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN P.E.

DocuSigned by: Ronyell Thigpen 9/8/2017
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SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

9/7/2017
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Raleigh, NC 27601 - 919.836.4040
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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN

9/8/2017

DocuSigned by: Ronyell Thigpen
57051A863B324EE...

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INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01–17–12
REVISED: 11/01/11

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 II.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

SUBSURFACE PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR ON THIS PROJECT.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

UTILITY	UTILITY OWNER
Power	Tri State EMC
Phone	Frontier Communications

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

RIGHT–OF–WAY MARKERS:

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 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	
862.01	Guardrail Placement
862.02	Guardrail Installation
876.04	Drainage Ditches with Class 'B' Rip Rap

9/8/2017
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USHC044407

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

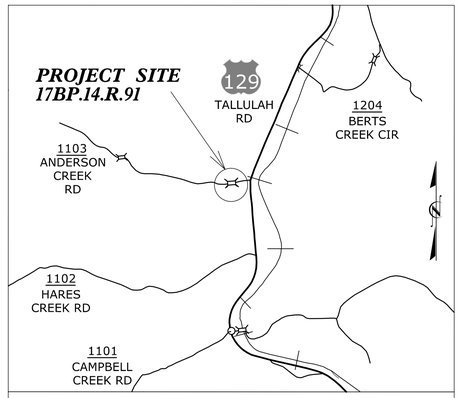
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	1C-1

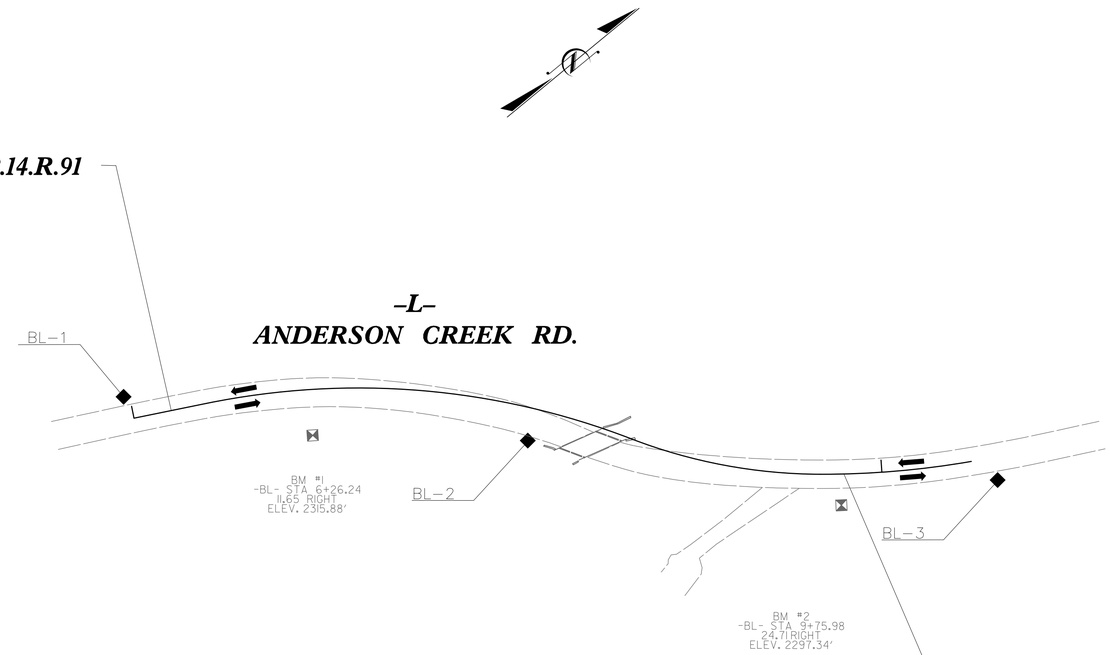
SURVEY CONTROL SHEET 17BP.14.R.91



VICINITY MAP

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	L OFFSET
1	BL-1	588877.0800	578894.1810	2321.75	OUTSIDE LIMITS	OUTSIDE LIMITS
2	BL-2	589063.3760	579085.8700	2305.23	12+66.70	21.72 RT
3	BL-3	589284.8930	579302.4180	2288.91	OUTSIDE LIMITS	OUTSIDE LIMITS

–L– STA. 10+25.00 BEGIN TIP PROJECT 17BP.14.R.91
LOCALIZED PROJECT COORDINATES
N = 588895.4772 E = 578921.1123



–L– STA. 14+75.00 END TIP PROJECT 17BP.14.R.91
LOCALIZED PROJECT COORDINATES
N = 589209.6624 E = 579234.5829

NOTES:

1. ***THE CONTROL DATA FOR THIS PROJECT WAS PROVIDED BY WSP. CONTROL POINTS PROVIDED ARE AS FOLLOWS:***
   BL–1
   BL–2
   BL–3
2. ***SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.***
3. ⬢ ***INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY WSP.***
   ◆ ***INDICATES CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY WSP.***

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "G101" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 589537.083(ft) EASTING: 579424.451(ft) ELEVATION: 2272.610(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .9997682688

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "G101" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

9/7/2017
R:\17BP GROUP 1\17BP.14.R.91_370095\Roadway\Proj\R-91_rdy_TSH_1C.dgn
USH\20407

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Raleigh, NC 27601 - 919.836.4040
www.wspgroup.com
LICENSE NO. F-0891

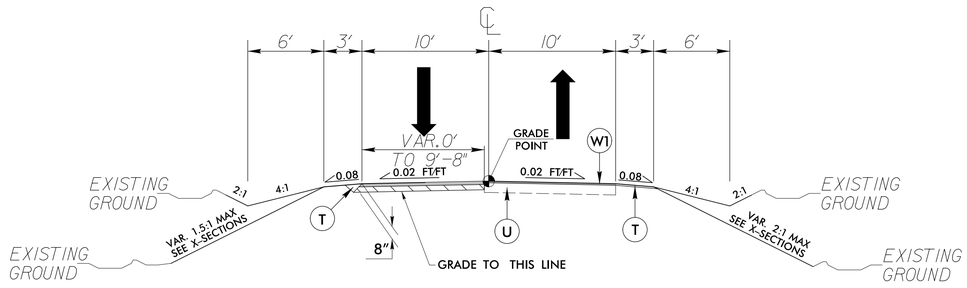
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN

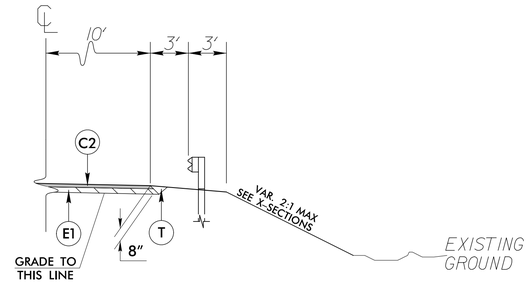
DocuSigned by: Ronyell Thigpen 9/8/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



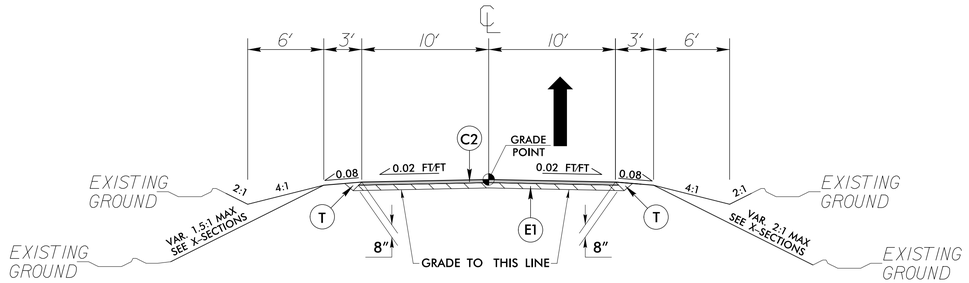
TYPICAL SECTION NO. 1

–L– STA. 10+25.00 TO STA. 12+63.00
–L– STA. 13+82.00 TO 14+75.00



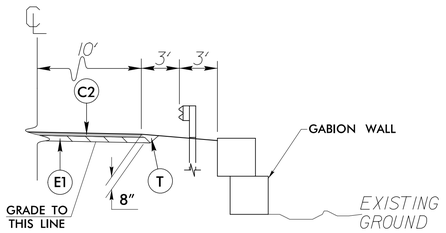
DETAIL A

GUARDRAIL
–L– STA. 13+14.00 TO STA. 14+64.00 (LT)
–L– STA. 11+99.00 TO STA. 13+99.00 (RT)



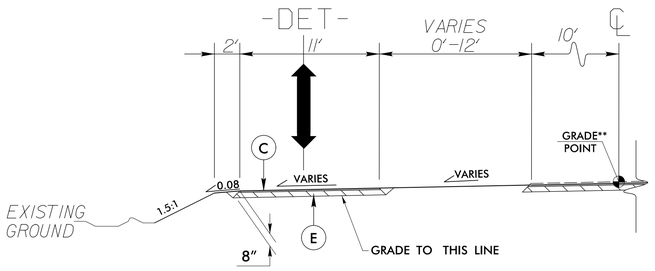
TYPICAL SECTION NO. 2

–L– STA. 12+63.00 TO STA. 13+82.00



DETAIL B

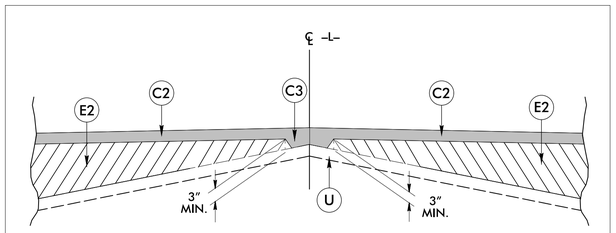
GABION WALL
–L– STA. 13+85.00 TO STA. 14+30.00



**NOTE: ALL ELEVATIONS AND SLOPES ARE TO BE EXTENDED AND CONSTRUCTED FROM TOP OF THE FIRST FIRST 1.5" LAYER OF SURFACE COURSE. FINAL LAYER OF SURFACE COURSE TO BE CONSTRUCTED AFTER TEMPORARY DETOUR IS REMOVED.

TYPICAL SECTION NO. 3

–DET– STA. 10+98.80 TO STA. 12+49.37
(USE IN CONJUNCTION WITH TMP–2)



WEDGING DETAIL 1

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1½″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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″ IN DEPTH.
J	PROP. 8″ AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	WEDGING (SEE DETAIL THIS SHEET).

NOTES:
1. ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

PAVEMENT SCHEDULE

C	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E	PROPOSED APPROX. 6″ 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″ OR GREATER THAN 5½″ IN DEPTH.

NOTES:
1. PAVEMENT SCHEDULE FOR TEMPORARY PAVEMENT.

REVISIONS 8/17/99

9/7/2017
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USER:RA407

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33290 9/22/2017 ENGINEER RONYELL A. THIGPEN DocuSigned by: Ronyell Thigpen 9C2B41A2DB5E447...	NORTH CAROLINA PROFESSIONAL SEAL 043232 9/22/2017 ENGINEER VIDYA MOHANDAS DocuSigned by: Vidya Mohandas 967C23E6FE0B404

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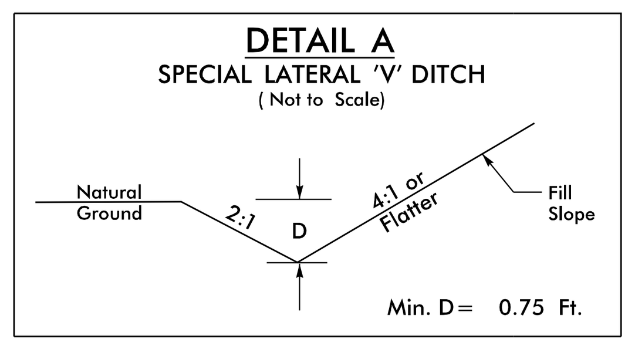
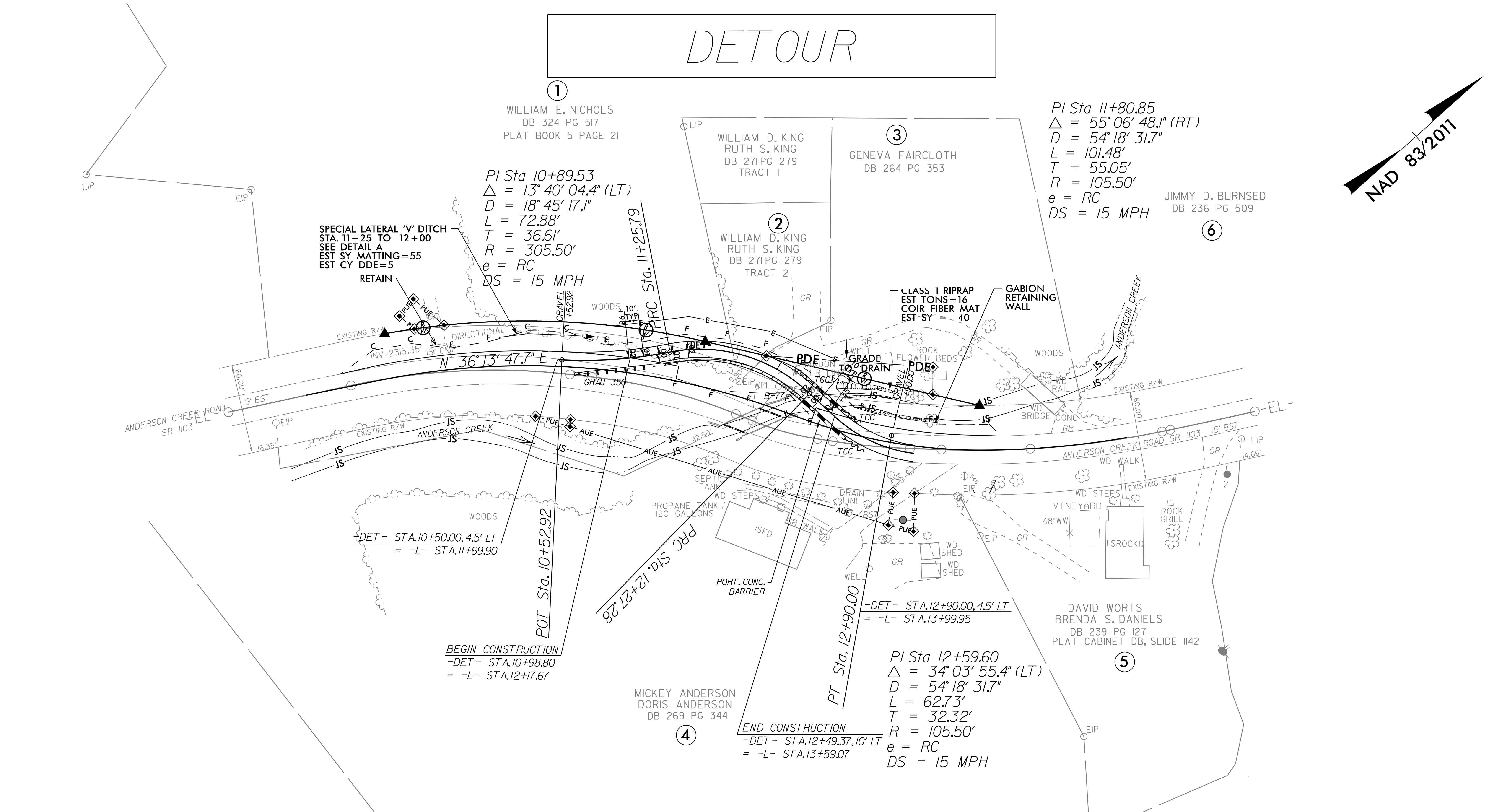
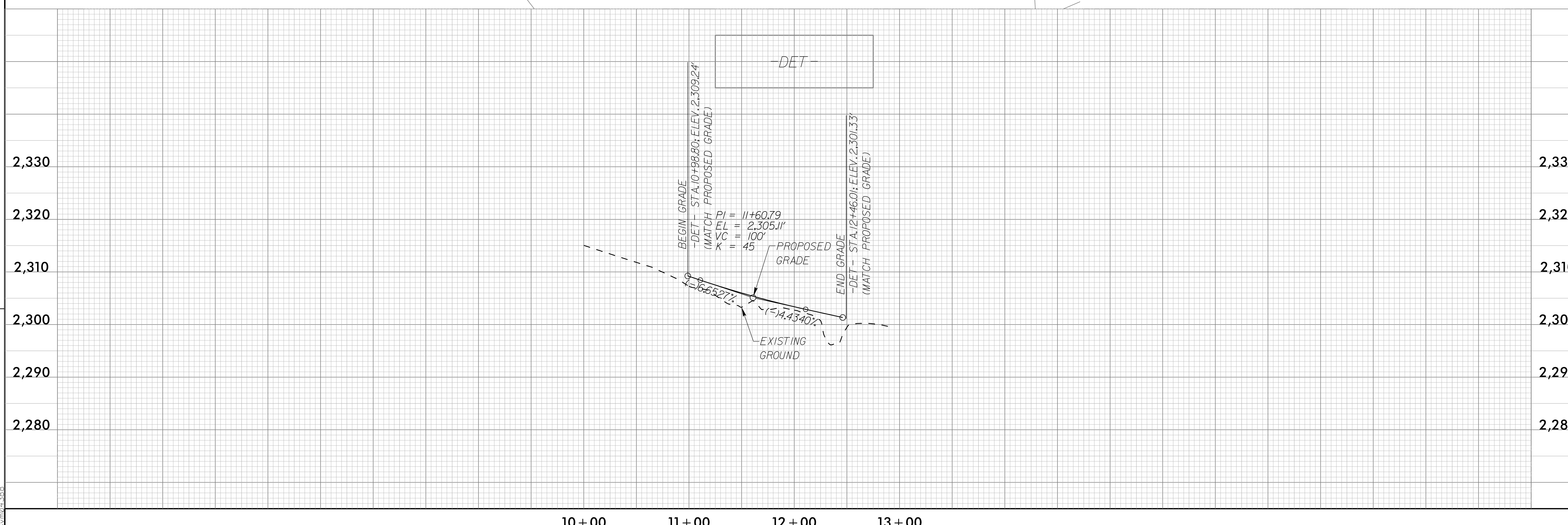
DETOUR



FROM STA. 11+25 TO STA. 12+00 LT





9/22/2017 R:\Raleigh Office NCDOT\17BP GROUP 1\17BP.14.R.91_370095\Roadway\Proj\R.91_RDY_DET_02a.dgn usvm04388

6/21/00

COMPUTED BY: H. CHRISTENBURY, EI DATE: XX-XX-XX
CHECKED BY: J. STARNES, PE DATE: XX-XX-XX

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	3B-1

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING	TEMP. CONST. EASE.	PERM. DRAIN. EASE.	PERM. UTIL. EASE.	AER. UTIL. EASE.
1	WILLIAM E. NICHOLS		1078.95 SF		740.50 SF		356.87 SF	729.87 SF
2	WILLIAM D. KING	0.17 AC	202.58 SF	7196.91 SF	529.19 SF			
3	VAN S. FAIRCLOTH	0.68 AC	1770.88 SF	27,902.78 SF	295.60 SF	1032.11 SF		
4	MICKEY ANDERSON						374.73 SF	1871.23 SF

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV. (CY)	EMBANK. +% (CY)	BORROW (CY)	WASTE (CY)
-DET-10+00+/-	-DET-12+90+/-	2	62	60	
P1 10+50.00 -L-LT	P1 12+50.00 -L-LT	5	62	57	
P1 13+45.00 -L-LT	P1 14+50.00 -L-LT	4	41	37	
P2 12+50.00 -L-RT	P2 13+45.00 -L-RT	26	60	34	
P3 10+50.00 -L-	P3 14+50.00 -L-	39	45	6	
SUBTOTAL 1:		76	270	194	
DETOUR REMOVAL		62	2		60
SUBTOTAL SUMMARIES 1		138	272	194	
EARTH TO REPLACE BORROW:				-60	-60
PROJECT TOTALS		138	272	134	0
EST 5% TOPSOIL FOR BORROW PITS				7	
GRAND TOTALS:		138	272	141	0
SAY:		140		150	

EST. DDE = 20 CUBIC YARDS

NOTE:
P1, P2, P3 REFERS TO PHASE 1, PHASE 2, PHASE 3 RESPECTIVELY.

NOTE:
APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

CONTINGENCY ITEMS

ITEM	QUANTITY	UNIT
INCIDENTAL STONE BASE	50	TONS
FOUNDATION CONDITIONING MATERIAL	20	TONS
FOUNDATION CONDITIONING GEOTEXTILE	40	SY
UNDERCUT	50	CY

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"
13+01	LT	0401			2302.44	2300.29	4.3								
14+25	RT	0402			2299.10	2296.82	4.3								
PROJECT TOTAL															
SAY															

STATION	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"
13+01																					
14+25																					
PROJECT TOTAL																					
SAY																					

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. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		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	T.B.D.I. STD. 840.35	G.D.I. FRAME WITH TWO GRATES STD. 840.20						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
13+01	50																																			20	DRIVEWAY PIPE; REMOVE EXISITING PIPE
14+25	53																																				DRIVEWAY PIPE; REMOVE EXISITING PIPE
PROJECT TOTAL	103																																			20	
SAY	103																																			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

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".

PAVEMENT REMOVAL SUMMARY

LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	10+59.98	13+00.95	CL	112.05
-L-	13+09.02	14+35.92	CL	77.61
			TOTAL:	189.66 SY
			SAY:	190

"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

LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	TYPE III	GRAU 350	TEMP GRAU 350	TEMP B-77	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+14.00	14+64.00	LT	137.5'	18.75'				3'-0"	6'-0"	6.25	50	0'-1.5"	1'-0"			1						1							
-L-	11+99.00	13+99.00	RT	200'					3'-0"	6'-0"	50	50	1'-0"	1'-0"			2													
			SUBTOTAL	337.5'	18.75'																									
			LESS DEDUCTIONS														3						1							
			GRAU-350 (3 x 50)=	150'																										
			AT-1 (1 x 6.25)=		6.25'																									
			TYPE III (0 x 18.75)=																											
			SUBTOTAL	150'	6.25'																									
			TOTALS	187.5'	12.5'												3						1							
			SAY	187.5'	12.5'		ADDITIONAL GUARDRAIL POSTS = 5										3						1							
-L-	12+82.00 +/-	14+03.00 +/-	RT	125'														2												TEMPORARY GUARDRAIL, SEE SHEET TMP-4
-L-	12+31.00 +/-	13+15.00 +/-	LT	87.5'														1	1											TEMPORARY GUARDRAIL, SEE SHEET TMP-5
			SAY	212.5'														3	1											

8/17/99

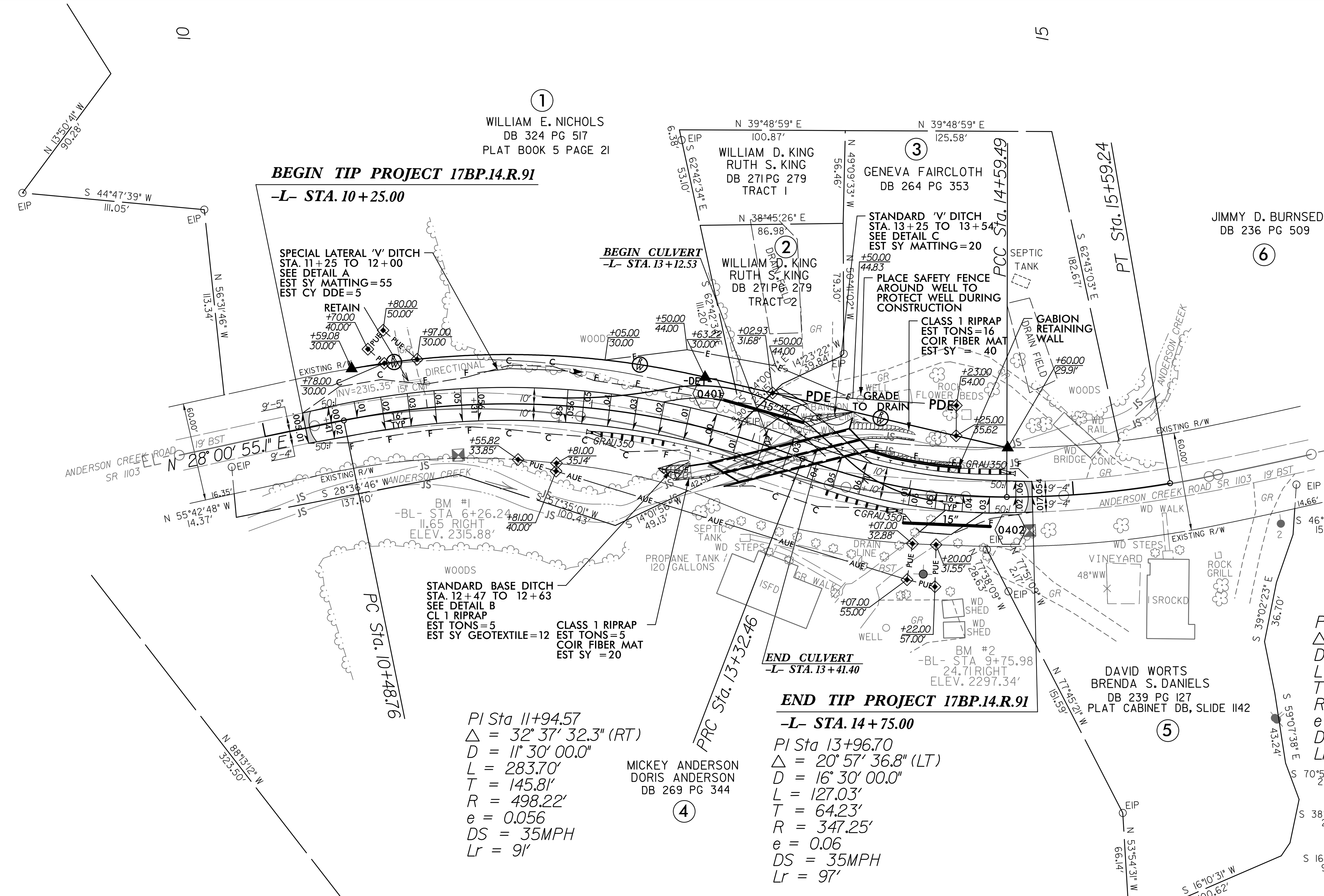
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	4
R/W SHEET NO.	

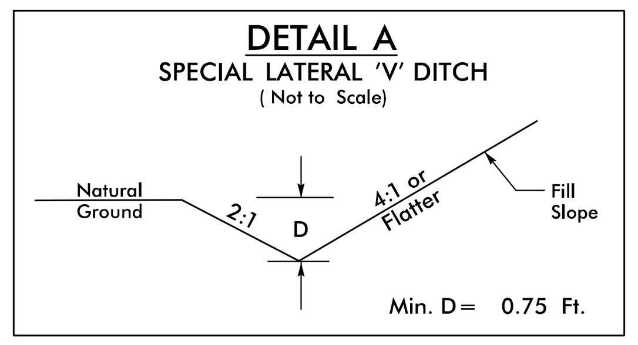
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33290 ENGINEER RONYELL A. THIGPEN	NORTH CAROLINA PROFESSIONAL SEAL 27876 ENGINEER RANA STANSELL
DocuSigned by: Ronyell Thigpen 9/8/2017 9C2B41A2DB5E447...	DocuSigned by: Rana Stansell 9/8/2017 CBF73E7A07694B7...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

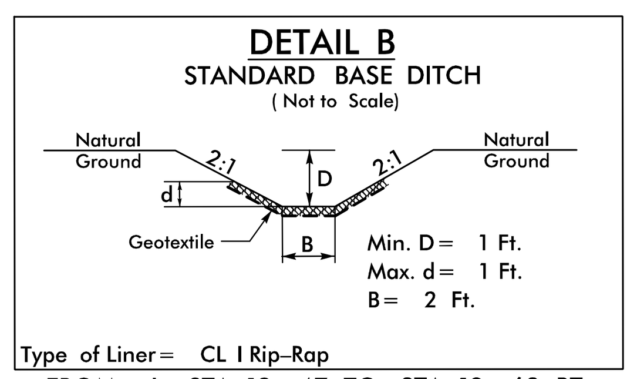
wsp
434 Fayetteville Street Suite 1500
Raleigh, NC 27601 - 919.836.4040
www.wspgroup.com
LICENSE NO. F-0891

REVISIONS

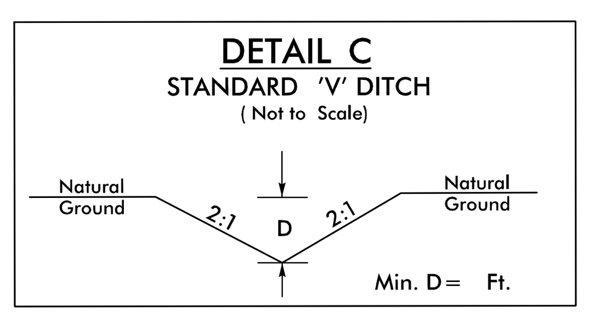

BEGIN TIP PROJECT 17BP.14.R.91
-L- STA. 10+25.00
END TIP PROJECT 17BP.14.R.91
-L- STA. 14+75.00
BEGIN CULVERT
-L- STA. 13+12.53
END CULVERT
-L- STA. 13+41.40
① WILLIAM E. NICHOLS
DB 324 PG 517
PLAT BOOK 5 PAGE 21
② WILLIAM D. KING
RUTH S. KING
DB 271 PG 279
TRACT 2
WILLIAM D. KING
RUTH S. KING
DB 271 PG 279
TRACT 1
③ GENEVA FAIRCLOTH
DB 264 PG 353
④ MICKEY ANDERSON
DORIS ANDERSON
DB 269 PG 344
⑤ DAVID WORTS
BRENDA S. DANIELS
DB 239 PG 127
PLAT CABINET DB, SLIDE 1142
⑥ JIMMY D. BURNSED
DB 236 PG 509
SPECIAL LATERAL 'V' DITCH
STA. 11+25 TO 12+00
SEE DETAIL A
EST SY MATTING=55
EST CY DDE=5
STANDARD BASE DITCH
STA. 12+47 TO 12+63
SEE DETAIL B
CL 1 RIPRAP
EST TONS=5
EST SY GEOTEXTILE=12
CLASS 1 RIPRAP
EST TONS=5
COIR FIBER MAT
EST SY =20
STANDARD 'V' DITCH
STA. 13+25 TO 13+54
SEE DETAIL C
EST SY MATTING=20
PLACE SAFETY FENCE
AROUND WELL TO
PROTECT WELL DURING
CONSTRUCTION
CLASS 1 RIPRAP
EST TONS=16
COIR FIBER MAT
EST SY = 40
GABION
RETAINING
WALL
PC Sta. 10+48.76
PRC Sta. 13+32.46
PCC Sta. 14+59.49
PT Sta. 15+59.24
PI Sta 11+94.57
Δ = 32° 37' 32.3" (RT)
D = 11° 30' 00.0"
L = 283.70'
T = 145.81'
R = 498.22'
e = 0.056
DS = 35MPH
Lr = 91'
PI Sta 13+96.70
Δ = 20° 57' 36.8" (LT)
D = 16° 30' 00.0"
L = 127.03'
T = 64.23'
R = 347.25'
e = 0.06
DS = 35MPH
Lr = 97'
PI Sta 15+09.49
Δ = 9° 55' 50.9" (LT)
D = 9° 57' 22.7"
L = 99.74'
T = 50.00'
R = 575.47'
e = MATCH EXIST.
DS = 35MPH
Lr = 82'
BM #1
-BL- STA 6+26.24
11.65 RIGHT
ELEV. 2315.88'
BM #2
-BL- STA 9+75.98
24.71 RIGHT
ELEV. 2297.34'
ANDERSON CREEK ROAD
SR 1103
N 28° 00' 55.1" E
EXISTING R/W
ANDERSON CREEK
WOODS
SEPTIC TANK
PROPANE TANK
120 GALLONS
VINEYARD
DRAIN FIELD
WELL
PDE
GRADE TO DRAIN
NAD 83/NA 2011



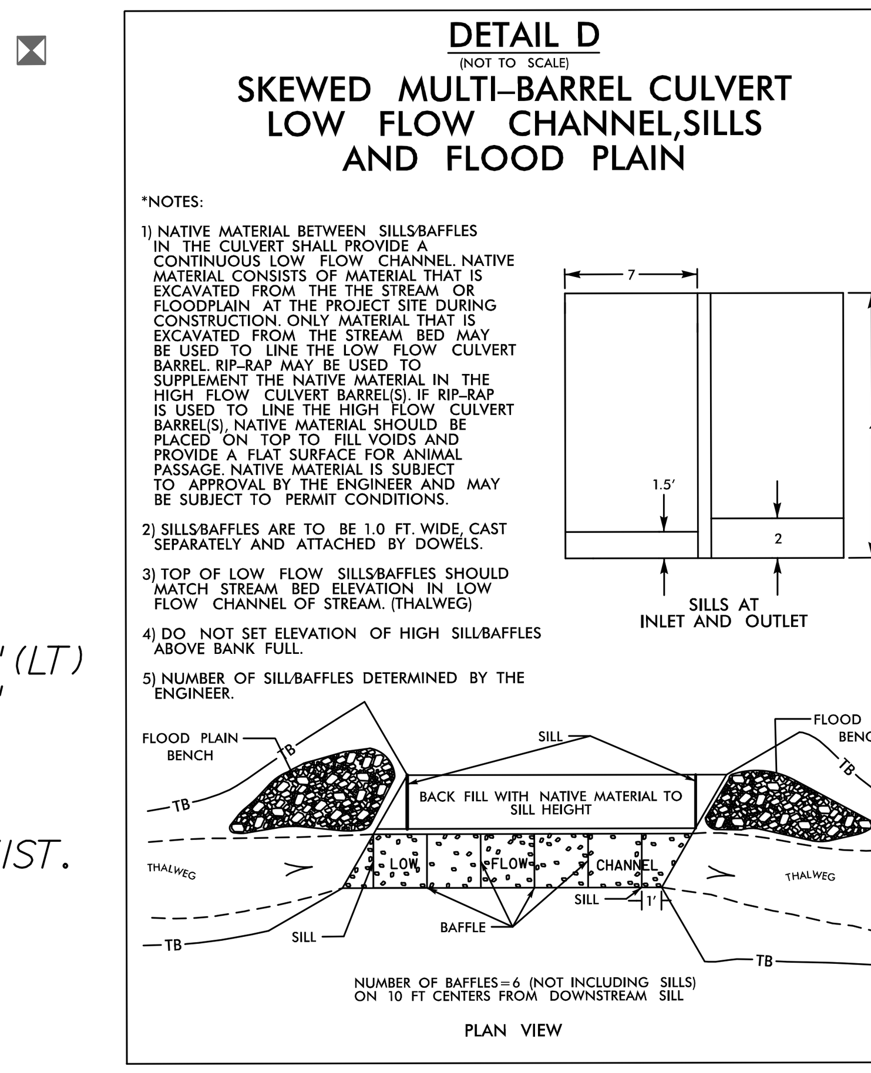
FROM STA. 11+25 TO STA. 12+00 LT



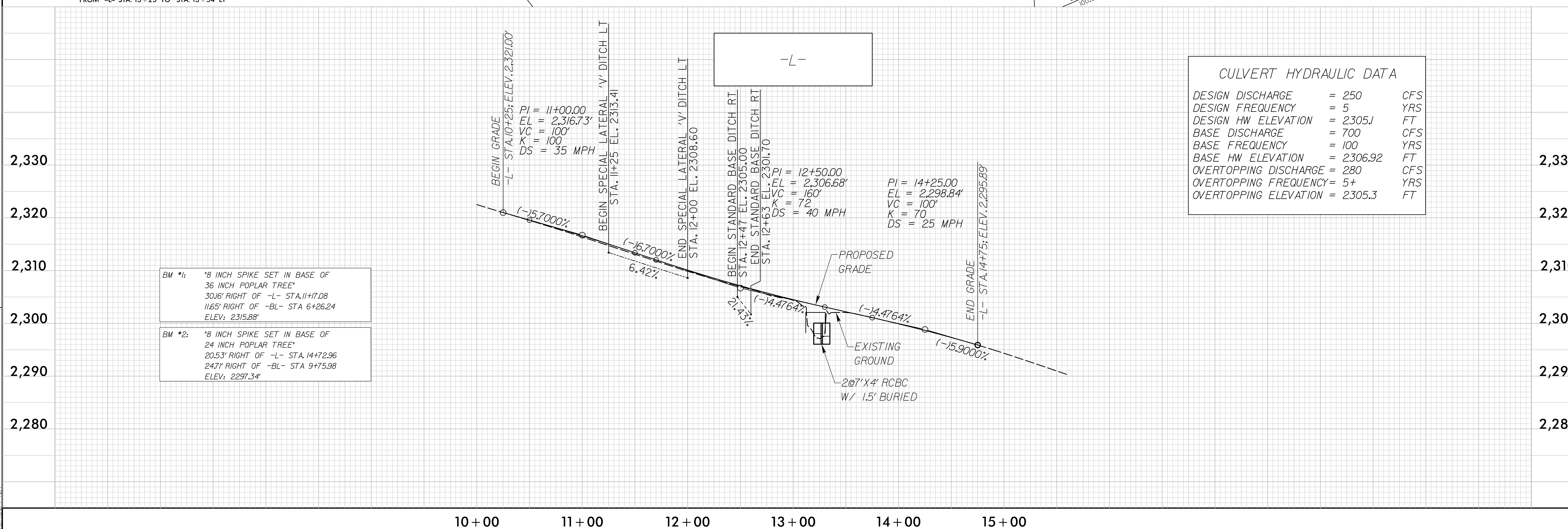
FROM -L- STA. 12+47 TO STA. 12+63 RT



FROM -L- STA. 13+25 TO STA. 13+54 LT


DETAIL D
(NOT TO SCALE)
SKEWED MULTI-BARREL CULVERT
LOW FLOW CHANNEL,SILLS
AND FLOOD PLAIN
*NOTES:
1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.
5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.
SILLS AT INLET AND OUTLET
FLOOD PLAIN BENCH
BACK FILL WITH NATIVE MATERIAL TO SILL HEIGHT
LOW FLOW CHANNEL
SILL
BAFFLE
THALWEG
TB
NUMBER OF BAFFLES=6 (NOT INCLUDING SILLS) ON 10 FT CENTERS FROM DOWNSTREAM SILL
PLAN VIEW
9/13

NOTE:
REFERENCE CULVERT PLANS ON SHEETS C-1 THROUGH C-13.
REFERENCE DETOUR ON SHEET 2B-1.


-L-
BEGIN GRADE
-L- STA.10+25; ELEV.2,321.00'
PI = 11+00.00
EL = 2,316.73'
VC = 100'
K = 100
DS = 35 MPH
BEGIN SPECIAL LATERAL 'V' DITCH LT
STA. 11+25 EL. 2313.41
END SPECIAL LATERAL 'V' DITCH LT
STA. 12+00 EL. 2308.60
BEGIN STANDARD BASE DITCH RT
STA. 12+47 EL. 2305.00
END STANDARD BASE DITCH RT
STA. 12+63 EL. 2301.70
PI = 12+50.00
EL = 2,306.68'
VC = 160'
K = 72
DS = 40 MPH
PI = 14+25.00
EL = 2,298.84'
VC = 100'
K = 70
DS = 25 MPH
END GRADE
-L- STA.14+75; ELEV.2,295.89'
(-)5.7000%
(-)6.7000%
6.42%
21.43%
(-)4.4764%
(-)4.4764%
(-)5.9000%
PROPOSED GRADE
EXISTING GROUND
2@7'X4' RCBC
W/ 1.5' BURIED
2,330
2,320
2,310
2,300
2,290
2,280
10+00
11+00
12+00
13+00
14+00
15+00

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	250	CFS
DESIGN FREQUENCY	=	5	YRS
DESIGN HW ELEVATION	=	2305.1	FT
BASE DISCHARGE	=	700	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2306.92	FT
OVERTOPPING DISCHARGE	=	280	CFS
OVERTOPPING FREQUENCY	=	5+	YRS
OVERTOPPING ELEVATION	=	2305.3	FT

BM #1: "8 INCH SPIKE SET IN BASE OF 36 INCH POPLAR TREE"
30.16' RIGHT OF -L- STA.11+17.08
11.65' RIGHT OF -BL- STA 6+26.24
ELEV: 2315.88'

BM #2: "8 INCH SPIKE SET IN BASE OF 24 INCH POPLAR TREE"
20.53' RIGHT OF -L- STA. 14+72.96
24.71' RIGHT OF -BL- STA 9+75.98
ELEV: 2297.34'

9/7/2017
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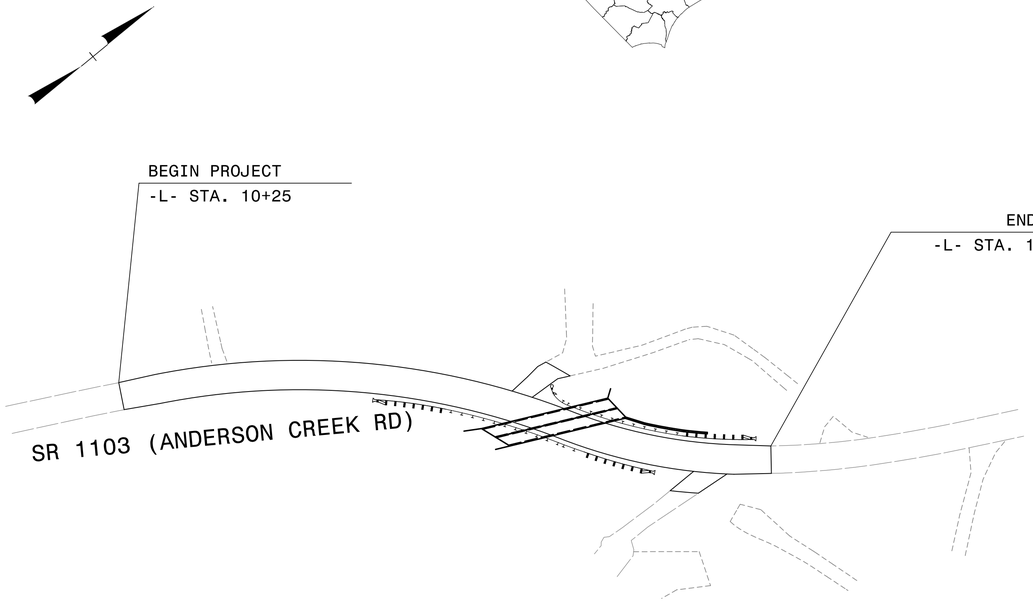
USHC044407

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GRAHAM COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-3	WRITTEN PHASING
TMP-4	PHASE I DETAIL
TMP-5	PHASE II DETAIL

SHEET NO.
TMP-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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) 814-5000 FAX: (919) 771-2745

_____	*STATE TRAFFIC MANAGEMENT ENGINEER*
D. A. PARKER, P.E.	*TRAFFIC CONTROL PROJECT ENGINEER*
R. M. GARRETT	*TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
_____	*TRAFFIC CONTROL DESIGN ENGINEER*

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

1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203
NC LIC. NO. F-0165

APPROVED: DocuSigned by: Richard O Lynski 6ED4DD32FEE446D...

DATE: 9/8/2017

NORTH CAROLINA PROFESSIONAL SEAL 037467 ENGINEER RICHARD A ODYNSKI

PROJECT: 17BP.14.R.91

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	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
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

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

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TEMPORARY PAVEMENT MARKING

PAINT (4")

PA WHITE EDGELINE

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- AUTOMATED FLAGGING DEVICE W/ GATE ARM
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

APPROVED: DocuSigned by: Richard Odynski 6E04DD32FEE446D...

DATE: 9/8/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037467 ENGINEER RICHARD A ODYNSKI

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

wsp

1001 Morehead Square Dr.
Suite 610
Charlotte NC, 28203

NC LIC. NO. F-0165

TRANSPORTATION MANAGEMENT PLAN
ROADWAY STANDARD DRAWINGS & LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	TMP-1B

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.
THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

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

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 250 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

TRAFFIC BARRIER

K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

L) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

PAVEMENT MARKINGS AND MARKERS

M) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1103	PAINT	NONE

N) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

O) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING

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

MISCELLANEOUS

Q) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL RESIDENCES AT ALL TIMES. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS DURING CONSTRUCTION OF DRIVEWAYS.

APPROVED: DocuSigned by: Richard Ostynski 6E04DC02FEE446D...

DATE: 9/8/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 037467 ENGINEER RICHARD A OSTYNSKI

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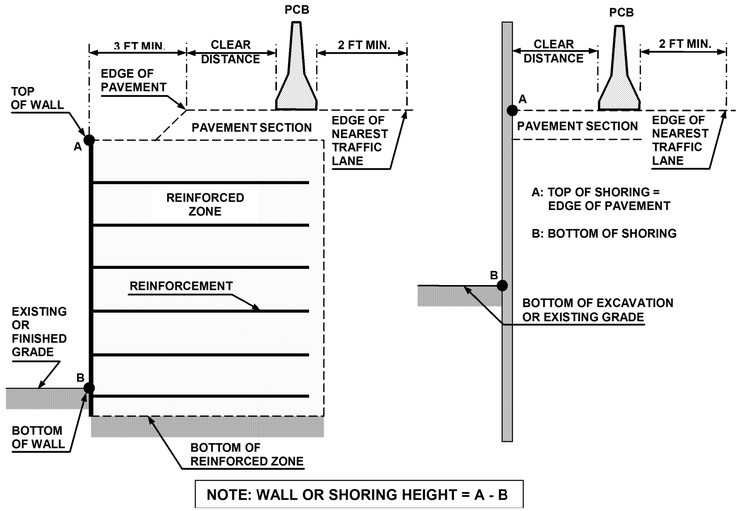
TRANSPORTATION MANAGEMENT PLAN GENERAL NOTES



NOTE: WALL OR SHORING HEIGHT = A - B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	TMP-2

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

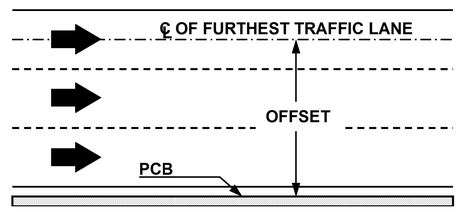


FIGURE B

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TRANSPORTATION MANAGEMENT PLAN

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	TMP-3

PHASING NOTES

PHASE I

STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS ON ALL ROADS ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.01 WHERE WORK WILL BE OCCURRING NO MORE THAN THREE DAYS PRIOR TO BEGINNING CONSTRUCTION.

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, AS NEEDED, INSTALL TEMPORARY PAVEMENT BETWEEN SR 1103 AND DRIVEWAY AS SHOWN ON SHEET TMP-4 TO MAINTAIN ACCESS WHILE INSTALLING BARRIER.

STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 14 OF 15, SHIFT TRAFFIC AND INSTALL CONCRETE BARRIER AND TEMPORARY SHORING. CONSTRUCT IMPROVEMENTS UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE, AS SHOWN ON SHEET TMP-4.

NOTE: AUTOMATED FLAGGING OPERATIONS AND DEVICES WILL NEED TO BE ACTIVE FOR 24 HOURS FOR THE DURATION OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DESIGN, MAINTENANCE, AND OPERATION OF ALL EQUIPMENT.

PHASE II

STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, AS NEEDED, SHIFT TRAFFIC AND INSTALL CONCRETE BARRIER AS SHOWN ON SHEET TMP-5.

STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 14 OF 15, CONSTRUCT REMAINDER OF ROADWAY AND CULVERT AS SHOWN ON SHEET TMP-5.

STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, AS NEEDED, INSTALL FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND SHIFT TRAFFIC TO THE FINAL TRAFFIC PATTERN. SEE FINAL PAVEMENT MARKINGS PLANS FOR MORE INFORMATION.

STEP 4: REMOVE LANE CLOSURE DEVICES AND SIGNS AFTER CONSTRUCTION IS COMPLETE.

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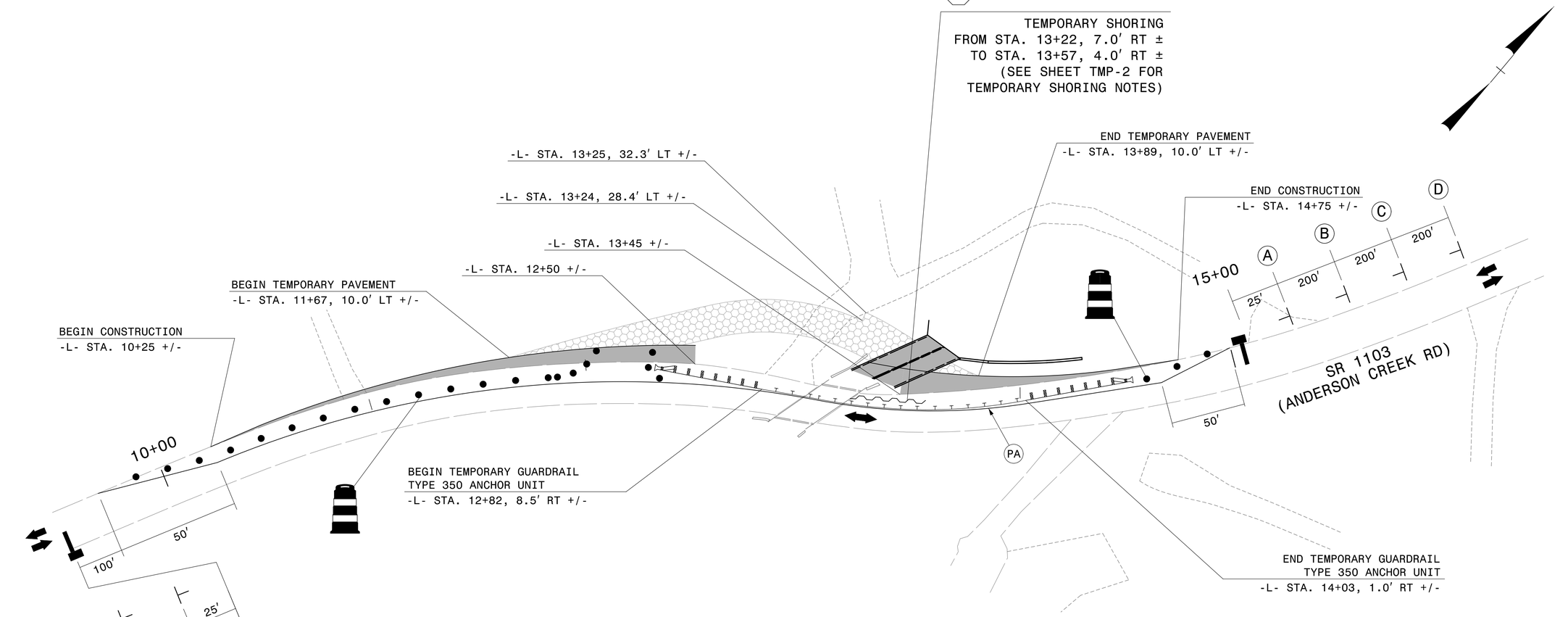
TRANSPORTATION MANAGEMENT PLAN
WRITTEN PHASING

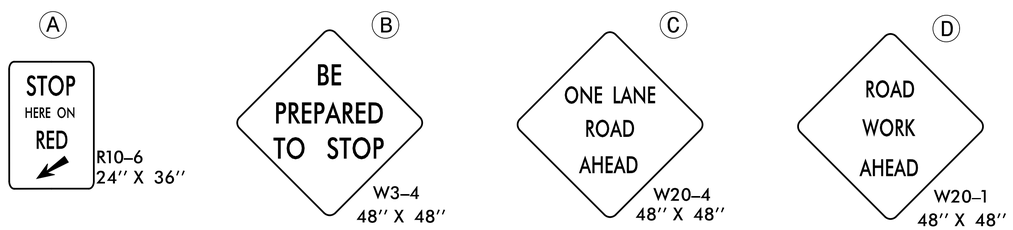
PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	TMP-4

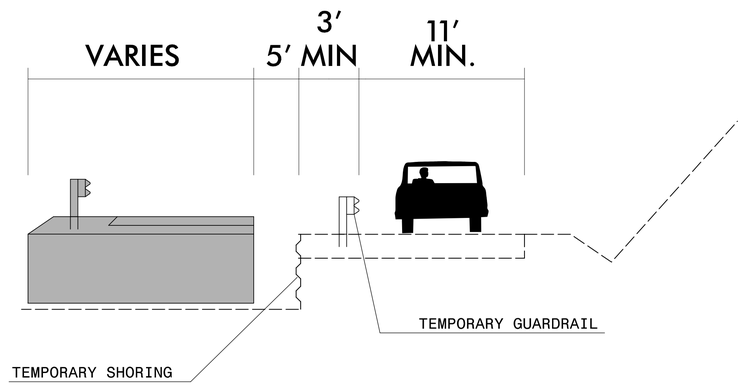


LOCATION/ SHORING TYPE	FROM STATION	TO STATION	OFFSET RANGE	EST. AVERAGE SHORING HEIGHT	MAX SHORING HEIGHT
ROADWAY/ BRIDGE	13+22	13+57	7.0′ RIGHT OF -L- TO 4.0′ RIGHT OF -L-	6.2′	8′

NOTE: ADD ADDITIONAL GUARDRAIL POSTS WITHIN THE LIMITS OF THE TEMPORARY SHORING.

NOTE: AUTOMATED FLAGGING OPERATIONS AND DEVICES WILL NEED TO BE ACTIVE FOR 24 HOURS FOR THE DURATION OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DESIGN, MAINTENANCE, AND OPERATION OF ALL EQUIPMENT.





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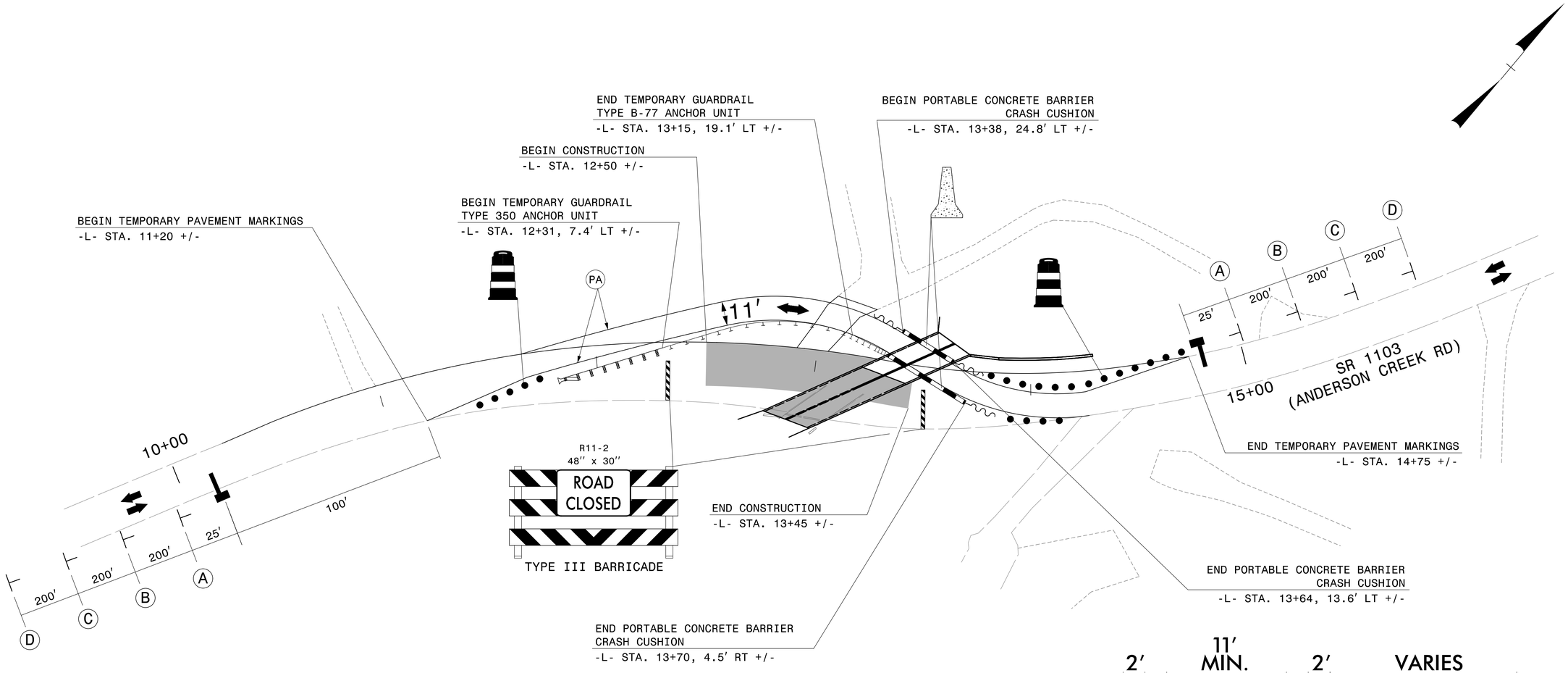
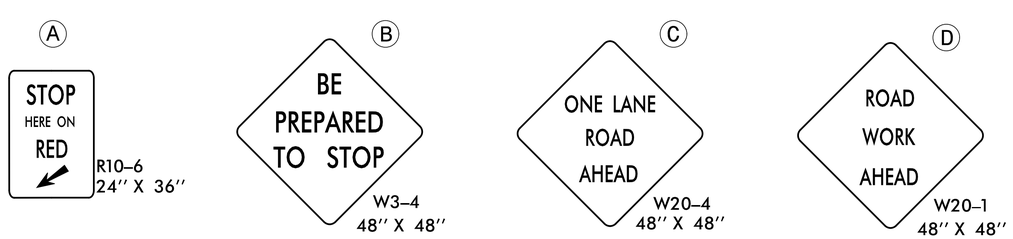
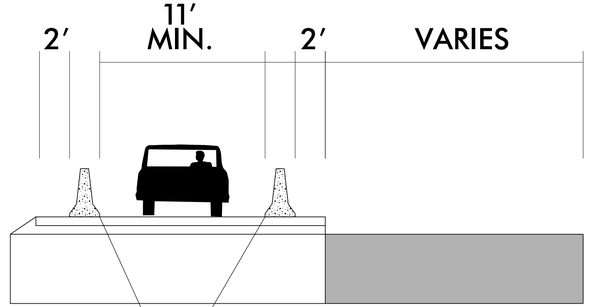
TRANSPORTATION MANAGEMENT PLAN PHASE I DETAILS

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	TMP-5



NOTE: AUTOMATED FLAGGING OPERATIONS AND DEVICES WILL NEED TO BE ACTIVE FOR 24 HOURS FOR THE DURATION OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR DESIGN, MAINTENANCE, AND OPERATION OF ALL EQUIPMENT.





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TRANSPORTATION MANAGEMENT PLAN PHASE II DETAILS

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.91	PMP-1

PAVEMENT MARKING SCHEDULE

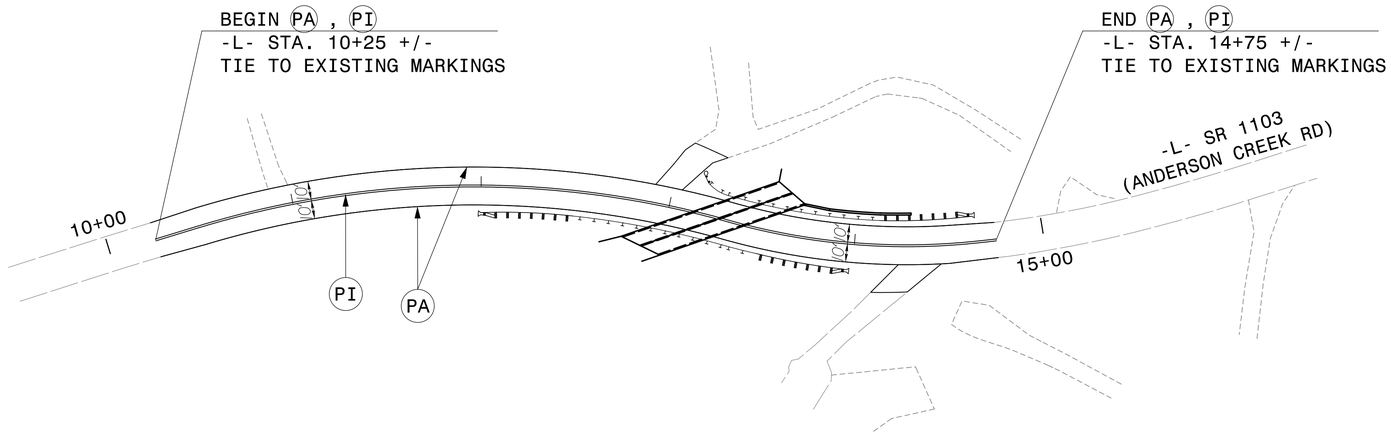
PA PAINT WHITE EDGELINE (4″, 90 MILS, 2 COATS)
PI PAINT YELLOW DOUBLE CENTER LINE (4″, 120 MILS, 2 COATS)

PAVEMENT MARKING QUANTITIES

PA PAY ITEM LENGTH = 900 LF TOTAL QUANTITY = 1,800 LF
PI PAY ITEM LENGTH = 450 LF TOTAL QUANTITY = 1,800 LF

ROADWAY STANDARD DRAWINGS

1205.01 PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02 PAVEMENT MARKINGS - DIVIDED AND UNDIVIDED ROADWAYS
1261.01 GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02 GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01 GUARDRAIL END DELINEATION
1264.01 OBJECT MARKERS
1264.02 PLACEMENT OF OBJECT MARKERS



GENERAL NOTES

THE FOLLOWING NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE 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	MARKING	MARKER
SR 1103	PAINT	NONE

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
D) STOP BAR LOCATIONS AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
E) ALL PAVEMENT MARKINGS ARE EXISTING UNLESS OTHERWISE NOTED.
F) RELOCATE ALL EXISTING SIGNS AS REQUIRED BY THE ENGINEER.

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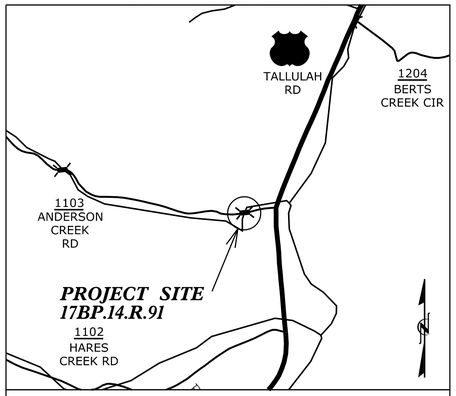
PAVEMENT MARKING PLAN

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

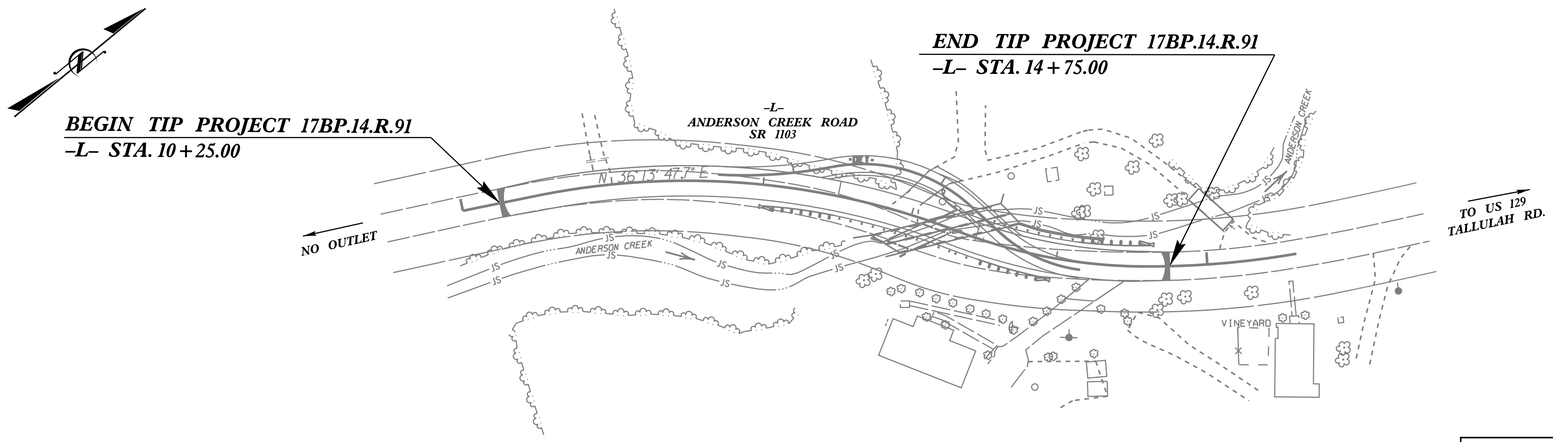
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GRAHAM COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO. 95 ON ANDERSON CREEK RD. (SR 1103) OVER ANDERSON CREEK

TYPE OF WORK: GRADING, PAVING, TRAFFIC CONTROL, DRAINAGE, & STRUCTURES

TIP PROJECT: 17BP.14.R.91



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.91	EC-1	

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

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	SW CW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM) 4	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

RANA STANSELL, PE
LEVEL IIIA NAME

3597
LEVEL IIIA CERTIFICATION NO.

GRAPHIC SCALE

0 20
PLANS

0 50
PROFILE (HORIZONTAL)

0 10
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.

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434 FAYETTEVILLE STREET
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2012 STANDARD SPECIFICATIONS

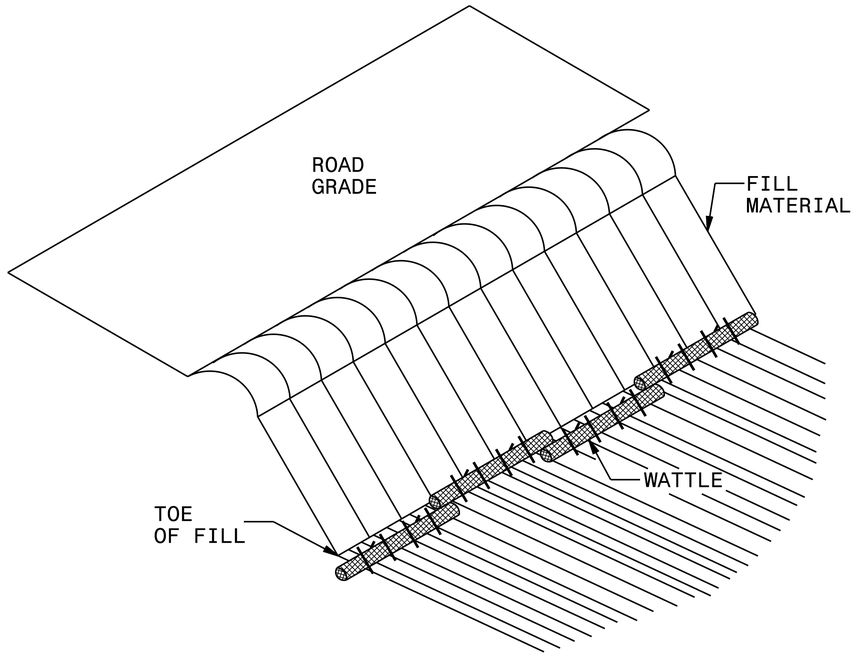
Roadway Standard Drawings

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.91	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE BARRIER DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER EXCELSIOR WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

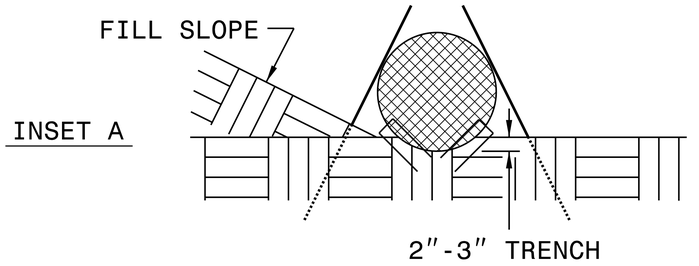
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

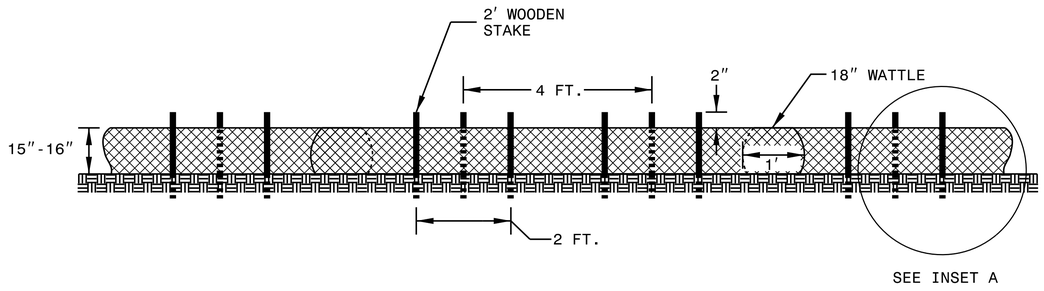
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

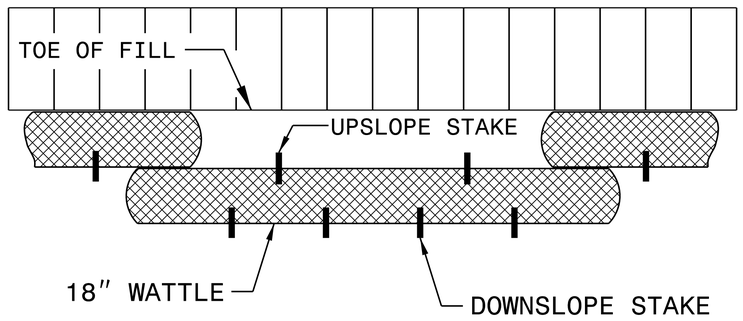
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.





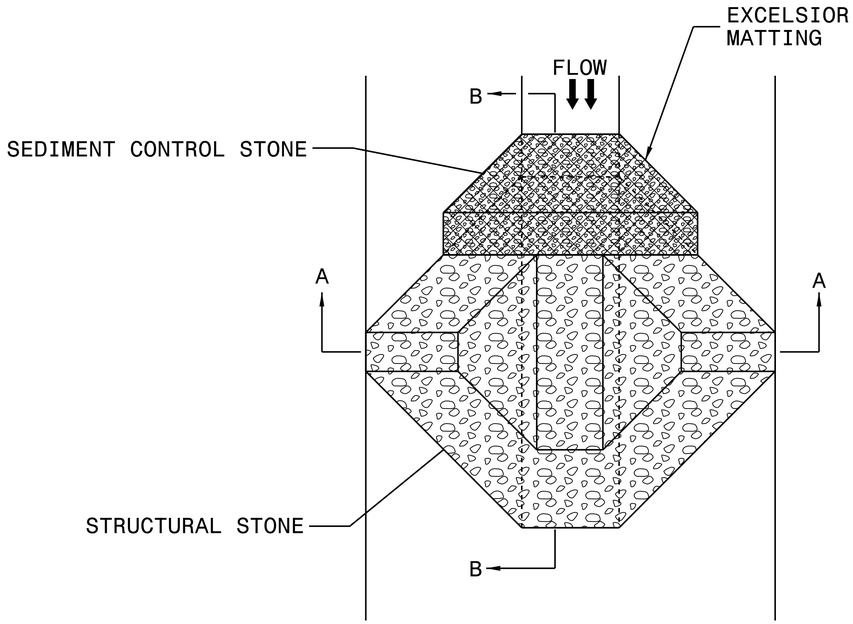
FRONT VIEW



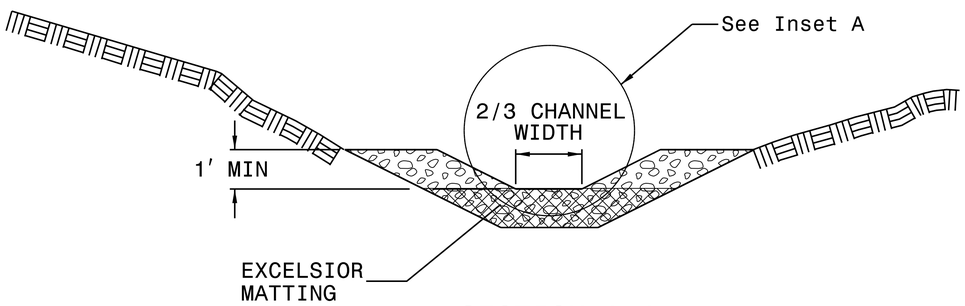
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.91	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

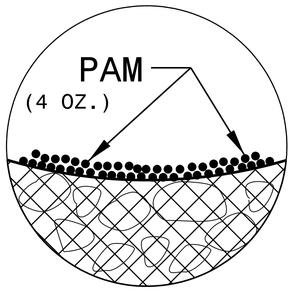
NOTES:

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

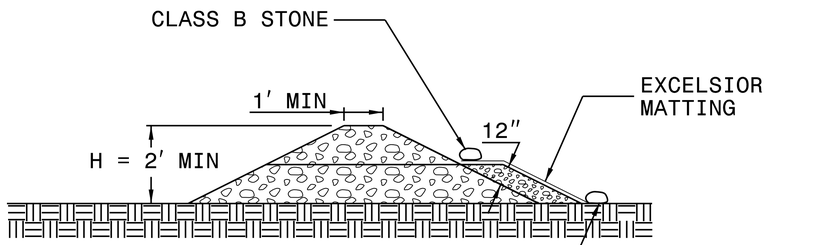
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.14.R.91	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

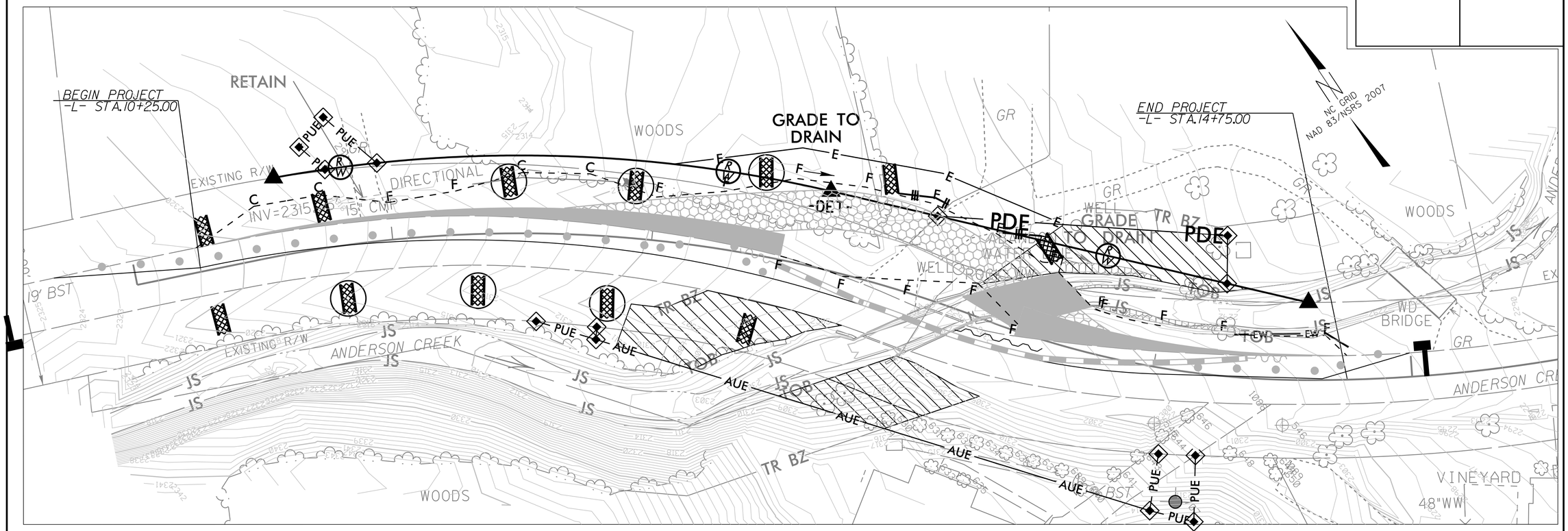
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.
17BPJ4.R.91	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION CONTROL PLAN



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET TMP–4 (PHASE I)

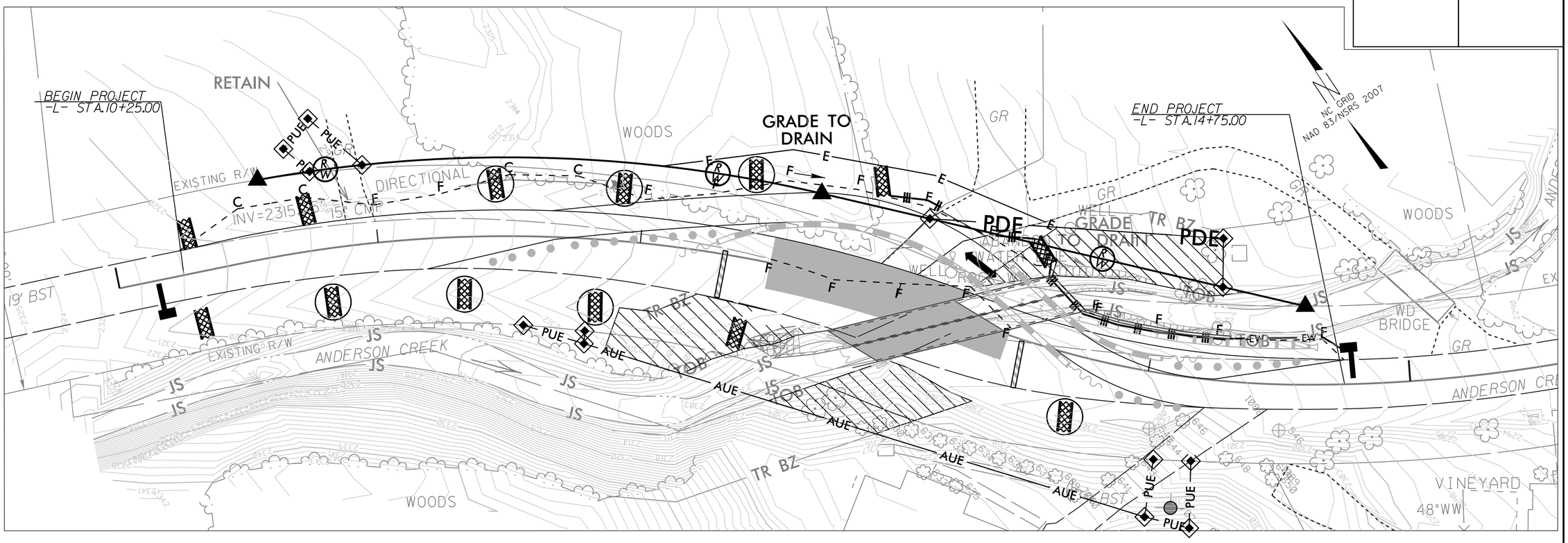
NOTE:
TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

BRIDGE REMOVAL AND CULVERT CONSTRUCTION SHALL BE PER REQUIREMENTS IN THE NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL

TROUT STREAM
BUFFER ZONE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.91	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION CONTROL PLAN



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET TMP–5 (PHASE II)

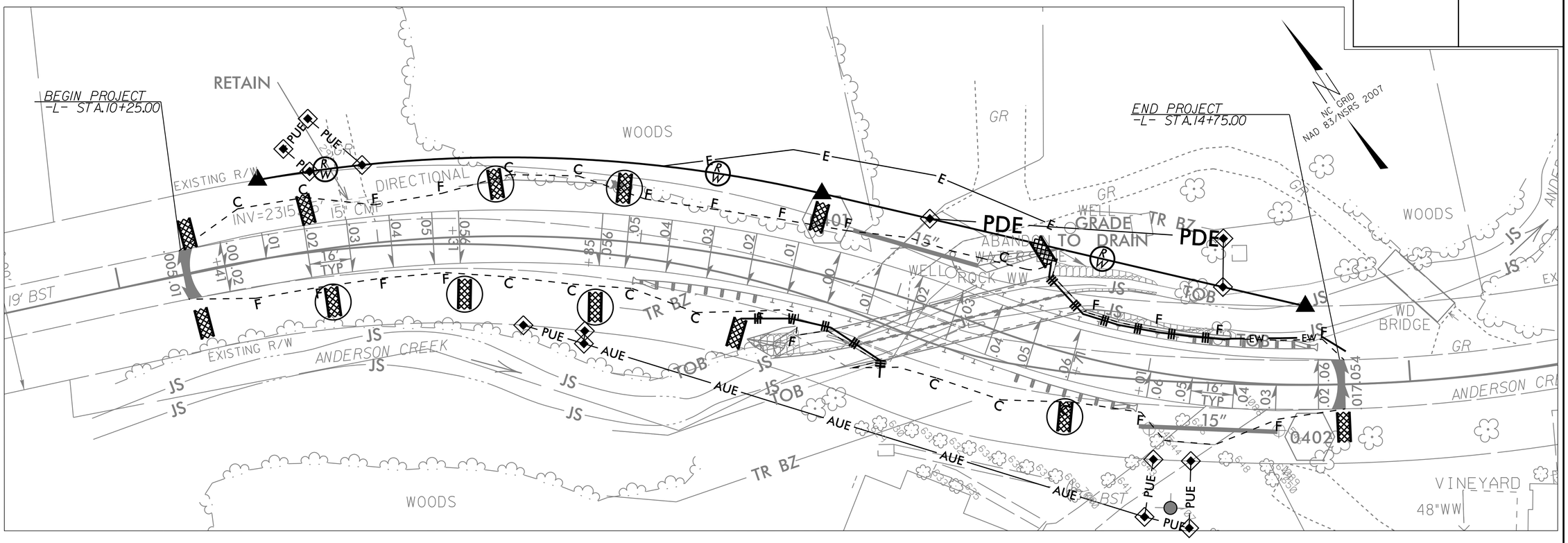
NOTE:
TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

BRIDGE REMOVAL AND CULVERT CONSTRUCTION SHALL BE PER REQUIREMENTS IN THE NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL

TROUT STREAM
BUFFER ZONE

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EROSION CONTROL PLAN



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA 11+25 TO 12+00 LT
STA 13+25 TO 13+54 LT

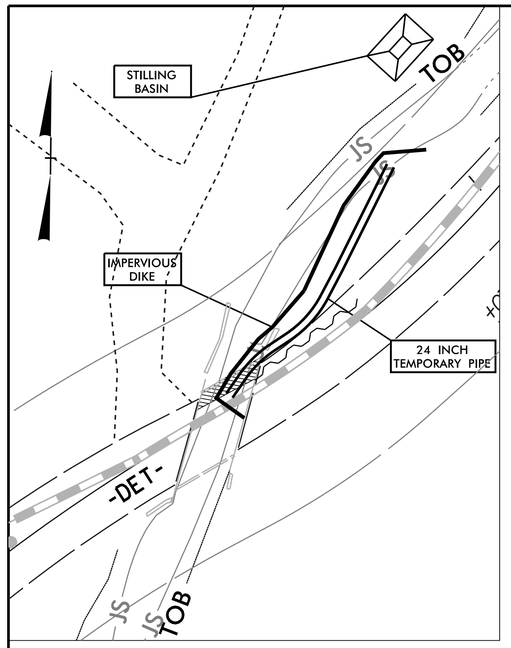
Place Matting for Erosion Control on Slope as Work Allows.
Sta. 11+00 to Sta. 11+50 LT
Sta. 12+00 to 13+25 LT

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.91	EC-7.CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 13+27 –L–

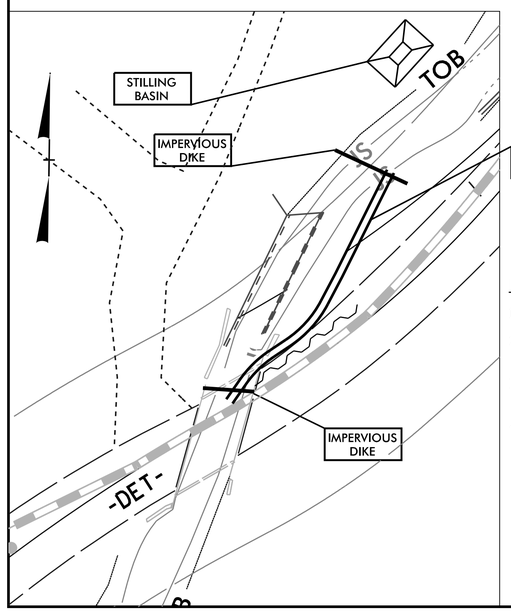
STAGE I

(2) 7'X4' RCBC -L-



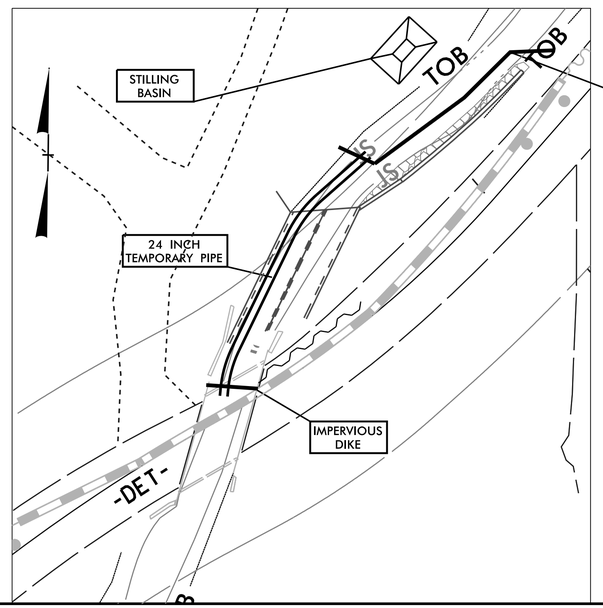
PHASE I

1. INSTALLTEMPORARY SHORING/BARRIERS AND DIRECT TRAFFIC ONTO UPSTREAM SIDE OF ROAD OVER EXISTING BRIDGE.
2. REMOVE PORTION OF EXISTING BRIDGE.
3. CONSTRUCT IMPERVIOUS DIKES.
4. DEWATER AREA ENCLOSED INSIDE OF IMPERVIOUS DIKE INTO SPECIAL STILLING BASIN.
5. INSTALL TEMPORARY 24"FLEXIBLE PIPE AS SHOWN AND BACKFILL TO NATURAL GRADE. DEWATER AREA AS NECESSARY INTO SPECIAL STILLING BASIN.



PHASE II

1. RELOCATE IMPERVIOUS DIKE.
2. DEWATER AREA ENCLOSED INSIDE OF IMPERVIOUS DIKE INTO SPECIAL STILLING BASIN.
3. CONSTRUCT DOWNSTREAM NW BARREL CULVERT INCLUDING WINGWALLS AND BOTTOM SLAB.
4. DO NOT CONSTRUCT SILL IN NW BARREL AT THIS TIME.



PHASE III

1. RELOCATE TEMPORARY 24"FLEXIBLE PIPE AND IMPERVIOUS DIKE.
2. DEWATER AREA ENLCOSED INSIDE OF IMPERVIOUS DIKE INTO SPECIAL STILLING BASIN.
3. CONSTRUCT DOWNSTREAM NE BARREL CULVERT INCLUDING WINGWALLS, BOTTOM SLAB, COIR FIBER MAT AND CLASS I RIPRAP ALONG WINGWALLS. BUILD RETAINING WALL.
4. CONSTRUCT SILL AND BAFFLES IN NE BARREL.
5. BACKFILL INSIDE BARREL WITH STOCKPILED NATIVE MATERIAL.

GRAPHIC SCALE

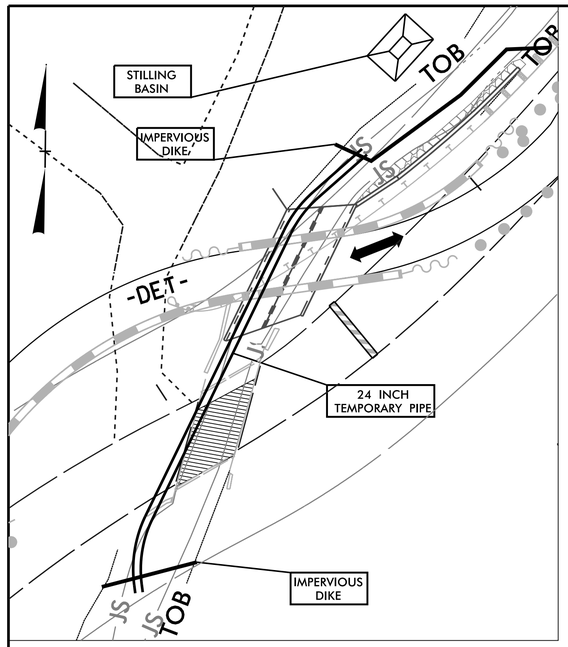
0 20

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	EC-8/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 13+27 -L-

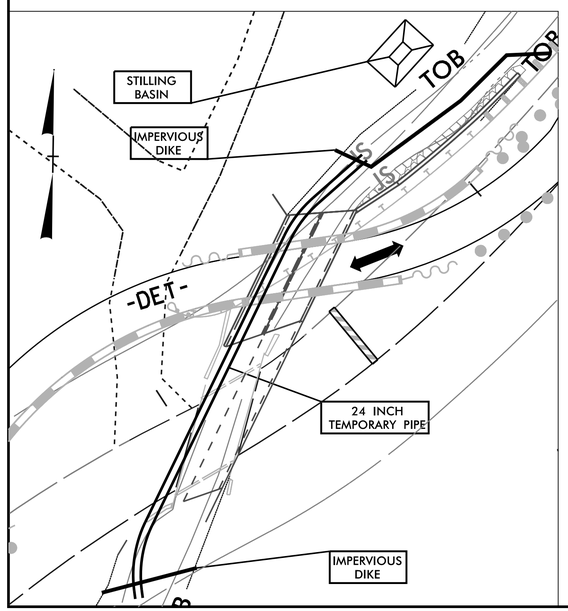
STAGE II

(2) 7'X4' RCBC -L-



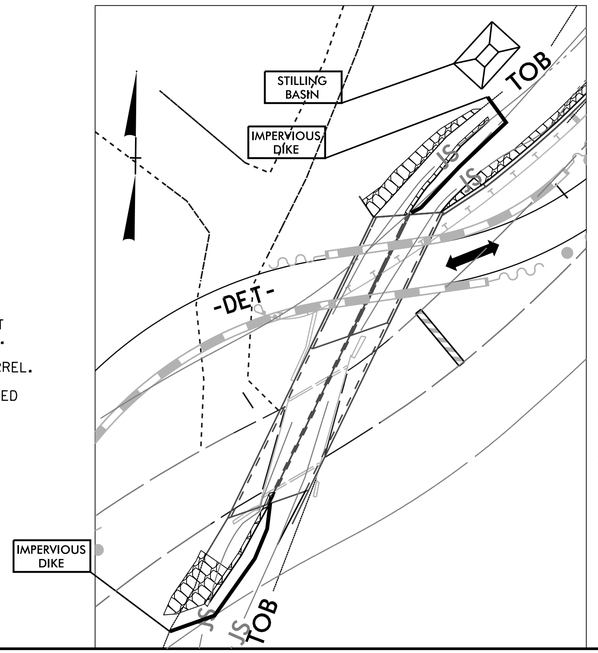
PHASE I

1. CONSTRUCT TEMPROARY ROADWAY OVER OVER NEWLY CONSTRUCTED BARRELS. INSTALL TEMPORARY BARRIERS AND DIRECT TRAFFIC ONTO TEMPORARY ROADWAY.
2. INSTALL TEMPORARY SHORING AND REMOVE REMAINING PORTION OF EXISTING BRIDGE. SEE NCDOT BRIDGE DEMOLITION GUIDELINES.
3. INSTALL ADDITIONAL 24" TEMPORARY FLEXIBLE PIPE AND RELOCATE IMPERVIOUS DIKE. DEWATER AREA ENCLOSED INSIDE OF IMPERVIOUS DIKE INTO SPECIAL STILLING BASIN.



PHASE II

1. CONSTRUCT UPSTREAM SE BARREL CULVERT INCLUDING WINGWALLS AND BOTTOM SLAB.
2. CONSTRUCT SILL AND BAFFLES IN SE BARREL.
3. BACKFILL INSIDE BARREL WITH STOCKPILED NATIVE MATERIAL.



PHASE III

1. RELOCATE IMPERVIOUS DIKE IN ORDER TO REDIRECT WATER INTO EAST BARREL.
2. DEWATER AREA ENCLOSED INSIDE OF IMPERVIOUS DIKE INTO SPECIAL STILLING BASIN.
3. CONSTRUCT UPSTREAM SW BARREL CULVERT INCLUDING WINGWALLS AND BOTTOM SLAB ALONG WINGWALLS.
4. CONSTRUCT UPSTREAM AND DOWNSTREAM BENCHES AND SILLS IN WEST BARREL. INSTALL COIR FIBER MAT AND CLASS I RAP RAP.
5. BACKFILL INSIDE BARREL WITH STOCKPILED NATIVE MATERIAL.
6. REMOVE IMPERVIOUS DIKE AND SPECIAL STILLING BASIN.
7. REMOVE TEMPORARY SHORING. FINSIH ROADWAY WORK, OPEN NEW ROAD TO TRAFFIC, AND REMOVE TEMPORARY ROADWAY.

GRAPHIC SCALE

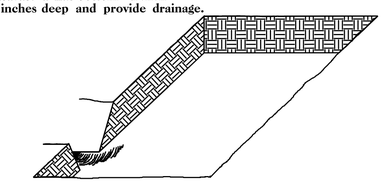
0 20

PLANTING DETAILS

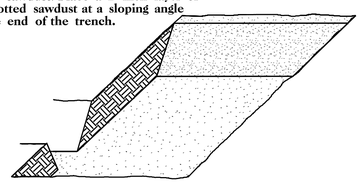
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

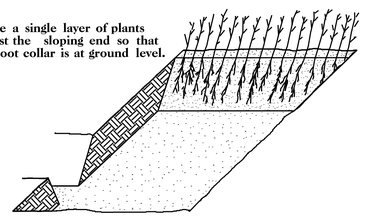
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



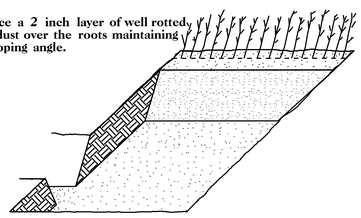
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

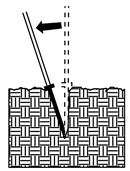


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

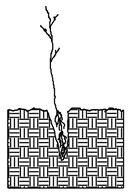


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

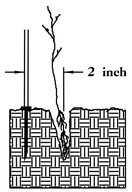
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



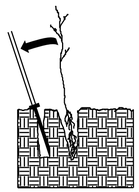
1. Insert planting bar as shown and pull handle toward planter.



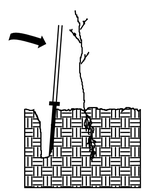
2. Remove planting bar and place seedling at correct depth.



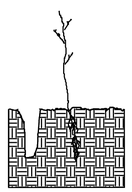
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.91	RF-1	

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

REFORESTATION MAY BE UTILIZED ON THIS PROJECT AT THE DISCRETION OF THE NCDOT FIELD OPERATIONS ENGINEER.

REFORESTATION

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

REFORESTATION

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

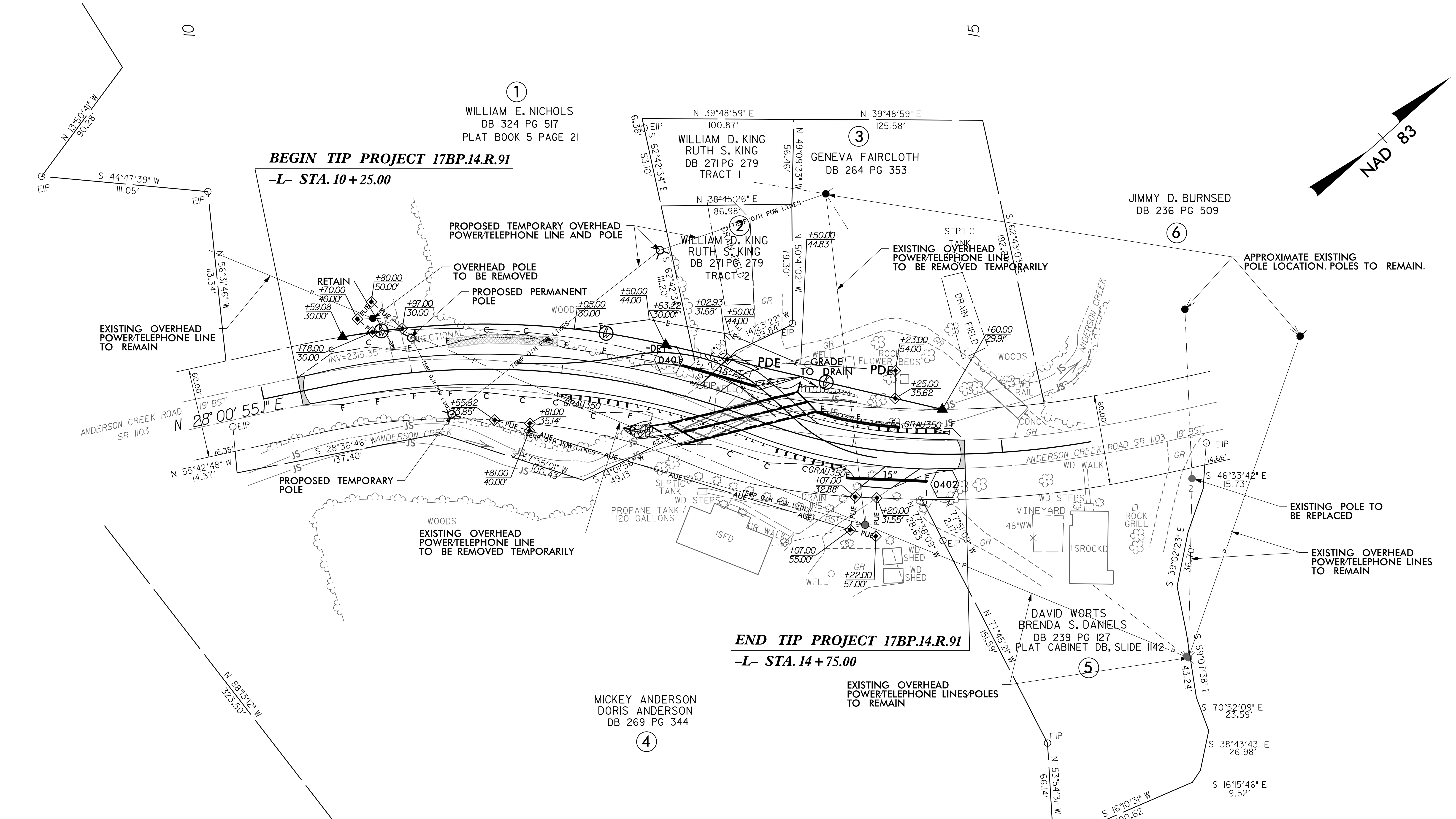
25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

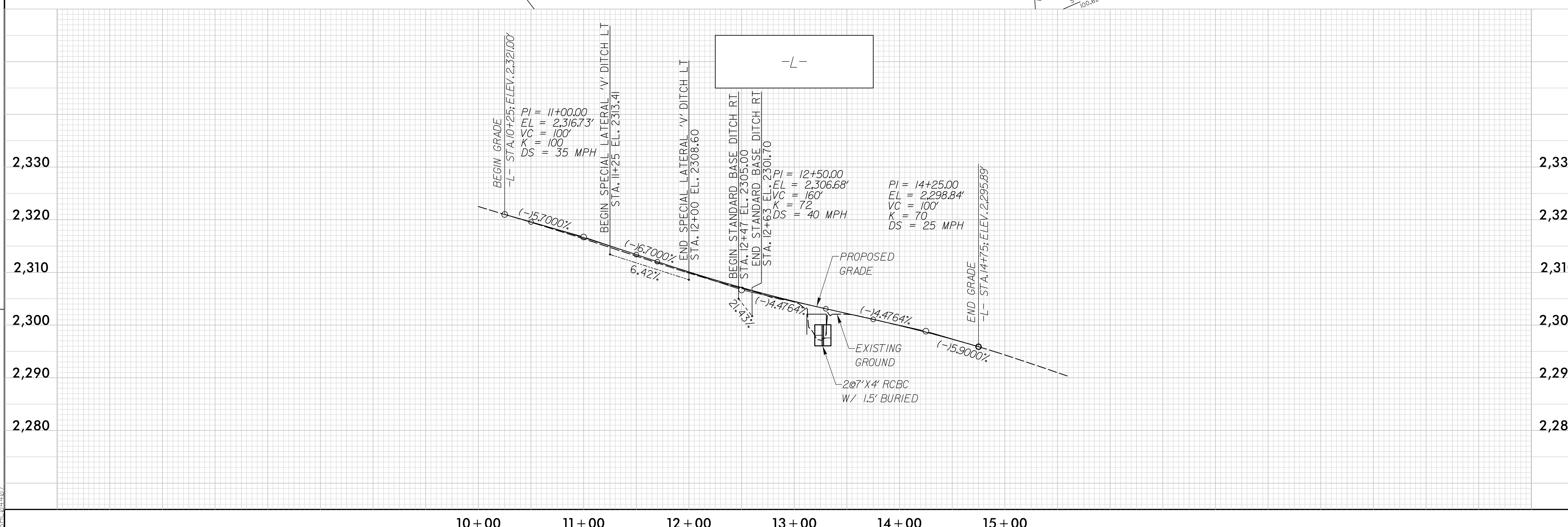
REFORESTATION DETAIL SHEET

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	U0-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

NOTE: ANY WORK OUTSIDE OF EASEMENTS SHOWN SHALL BE AQUIRED BY DUKE ENERGY





REVISIONS

8/17/99

8/25/2017
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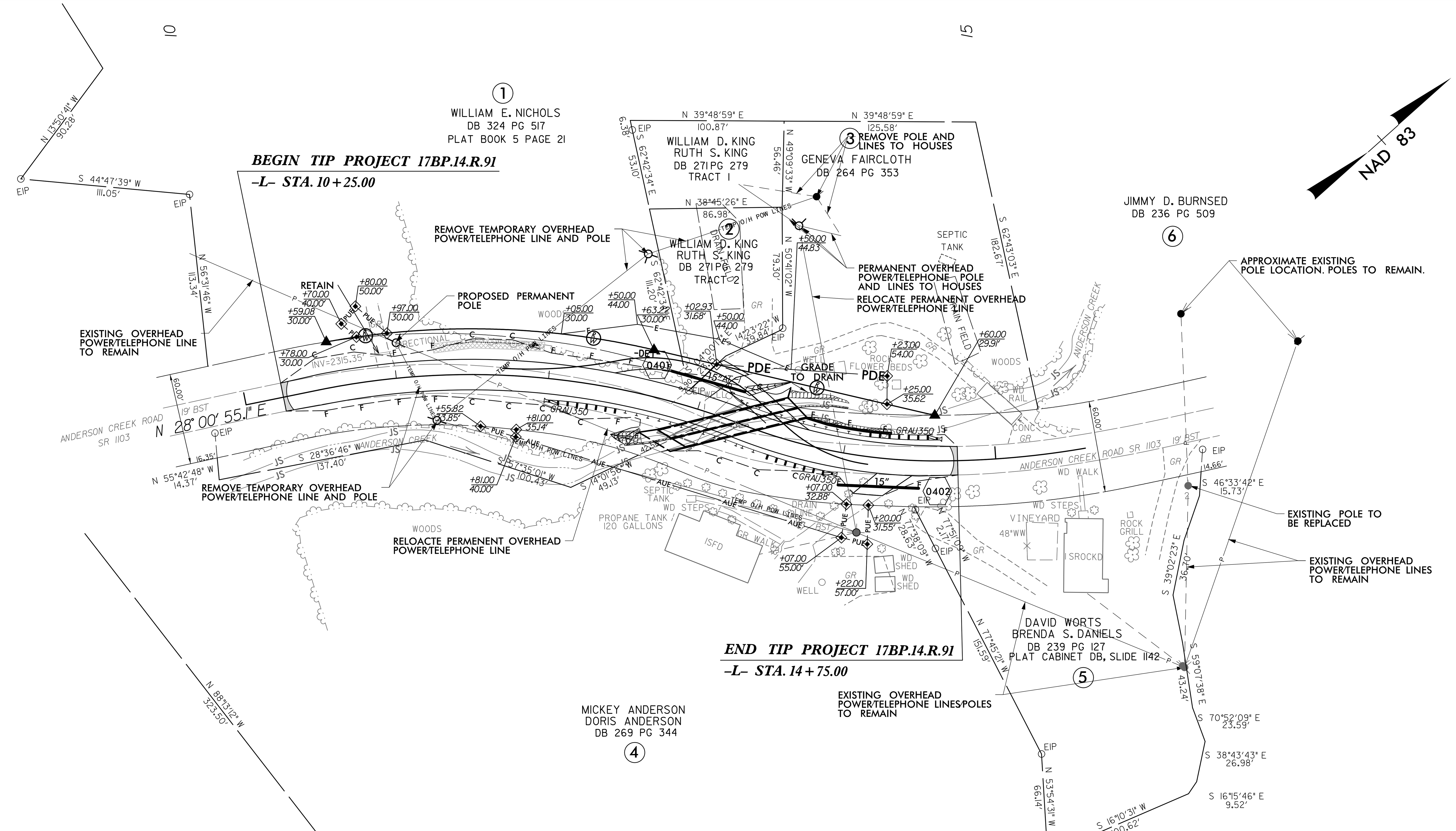
USHC04407

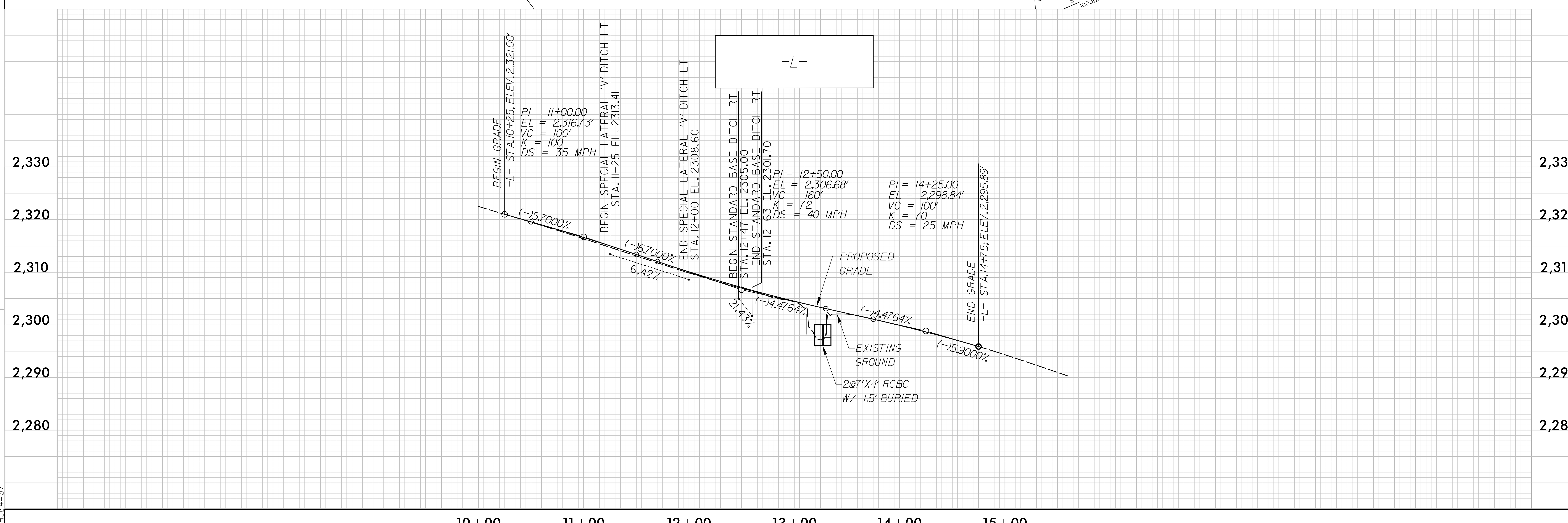
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.91	U0-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

NOTE: ANY WORK OUTSIDE OF EASEMENTS SHOWN SHALL BE AQUIRED BY DUKE ENERGY

REVISIONS

8/17/99





8/25/2017
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USHC04407