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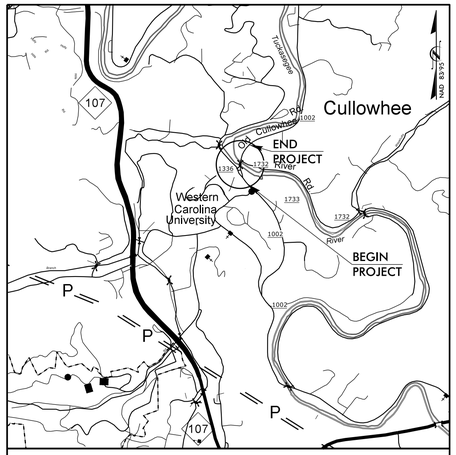
09/08/99

TIP PROJECT: B-4159

CONTRACT: C203498

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



VICINITY MAP SHOWING LOCATION OF PROJECT B–4159

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

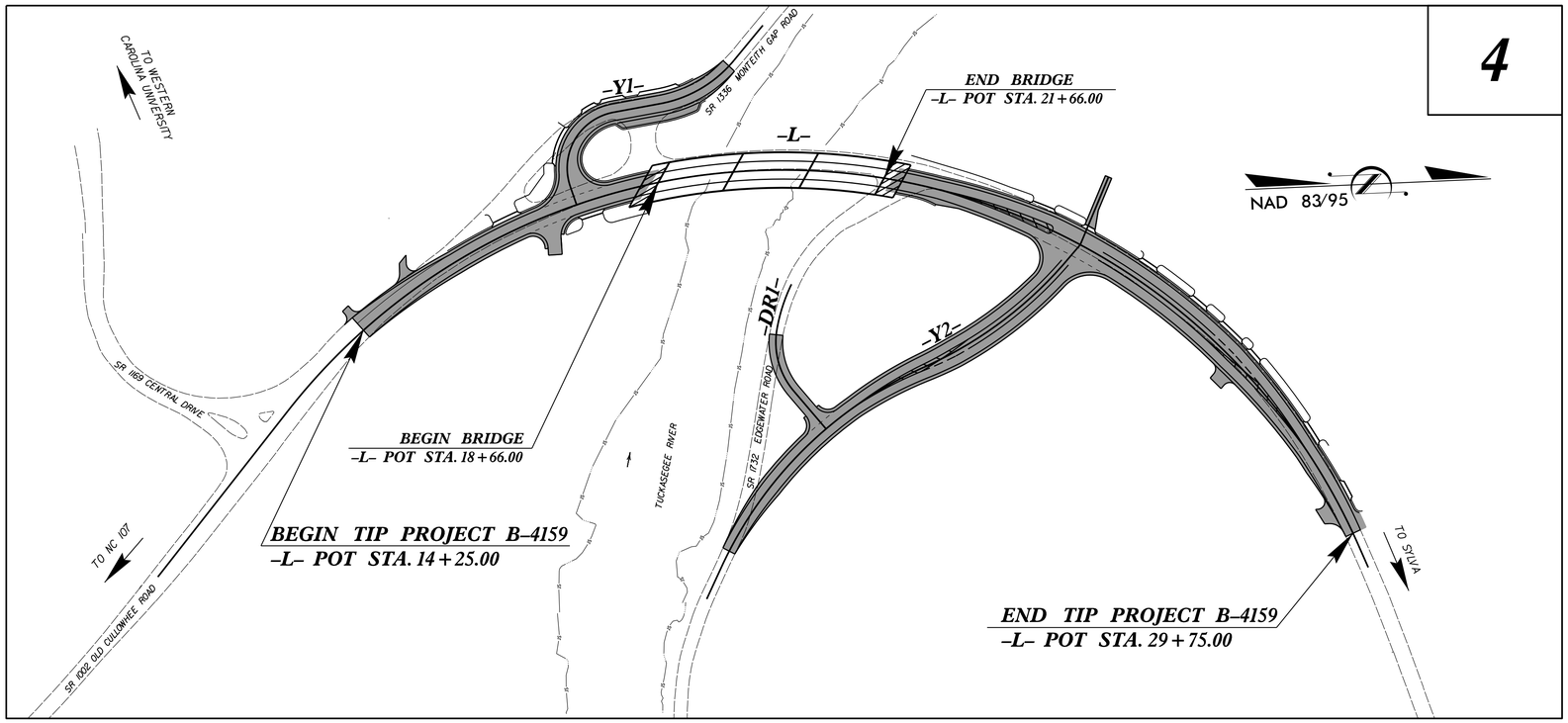
JACKSON COUNTY

LOCATION: BRIDGE NO. 108 OVER THE TUCKASEGEE RIVER ON SR 1002 (OLD CULLOWHEE RD.)

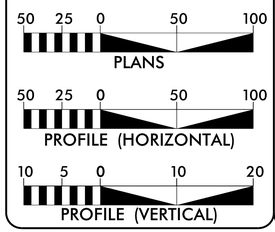
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4159	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33507.1.1	FSTR BRZ–1002(13)	PE
33507.3.1	BRZ–1002(13)	ROW & UTIL
33507.2.FD1	BRZ–1002(13)	CONST.



GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 5,419
ADT 2035 = 6,600
DHV = 9 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST 1% DUAL 4%
FUNC CLASS =
RURAL COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B–4159 = 0.237 MILES
LENGTH OF STRUCTURE TIP PROJECT B–4159 = 0.057 MILES
TOTAL LENGTH OF TIP PROJECT B–4159 = 0.294 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 22, 2013

LETTING DATE:
DECEMBER 15, 2015

TONY HOUSER, P.E.
PROJECT ENGINEER

LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 032619 ENGINEER CARLAS R. SHARPLESS
10/13/2015
DocuSigned by: Carlas R. Sharpless
P.E.
SIGNATURE

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER
10/8/2015
DocuSigned by: Tony Houser
P.E.
SIGNATURE

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

02-OCT-2015 09:41
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4159	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER

10/8/2015

DocuSigned by: Tony Houser

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEET
2A-1 THRU 2A-3	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING, DETAILS, TYPICAL SECTION ON BRIDGE AND SKETCH SHOWING BRIDGE/PAVEMENT REATIONSHIP.
2B-1 THRU 2B-2	CHANNELIZATION DETAILS
2B-3	EXISTION ROW TO BE ABANDONED DETAIL
2B-4	ONE LANE, TWO WAY TRAFFIC W/ TRAFFIC SIGNAL
2C-1	CURB RAMPS, DIRECTIONAL RAMPS
2C-2	STRUCTURE ANCHOR UNITS, TYPE III
2C-3	DETAIL OF TEMPORARY 1"STEEL COVER OVER DRAINAGE STRUCTURE
2G-1	STANDARD TEMPORARY SHORING
2H-1	STOCKPILE CONTAINMENT DETAIL
3B	SUMMARY OF GUARDRAIL, EARTHWORK, REMOVAL AND BREAKING OF EXISTING ASPHALT PAVEMENT, REMOVAL OF EXISTING CONCRETE PAVEMENT.
3D	SUMMARY OF DRAINAGE QUANTITIES
3G	SUMMARY OF GEOTECHNICAL QUANTITIES
4	PLAN SHEET
5 THRU 6	PROFILE SHEET
TMP-1 THRU TMP-11	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
SIGN-1 THRU SIGN-4	SIGNING PLANS
SIG.1.0 THRU SIG.4.3	SIGNAL PLANS
SIG.M1 THRU SIG.M9	STANDARD DRAWINGS FOR METAL POLES
SIG.P1 THRU SIG.P3	PEDESTRIAN PUSHBUTTON LOCATION
UC-1 THRU UC-13	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-A THRU X-29	CROSS-SECTIONS
S-1 THRU S-60	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

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.

UNDERDRAINS:
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 900 MM RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

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".

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE:
- PSNC Energy - Gas
- Tuckaseegee Water and Sewer Authority - Water & Sewer
- Western Carolina University - Raw Water
- Duke Energy Progress - Power
- Western Carolina University - Power
- Morris Broadband - Cable TV
- Frontier Communication - Telephone

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 OTHERS.

CURB RAMPS
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

ROCK
ROCK IS ANTICIPATED BETWEEN -Y2- STA. 12+50.00 TO -Y2- STA. 15+50.00. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-17-2012
REV. 10-30-2012

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
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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12/05/11

PROJECT REFERENCE NO.	SHEET NO.
B-4159	1B

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.
B-4159	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B-4159

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	595248.7660	754595.4480	2131.37	10+03.80	23.01 RT
2	BL-2	595374.6310	754454.0660	2115.44	11+93.05	26.63 RT
3	BL-3	595597.5250	754221.4650	2089.26	15+20.98	9.91 RT
4	BL-4	595913.1160	754096.1250	2075.58	18+66.01	4.75 RT
5	BL-5	596237.6230	754070.8940	2076.76	21+85.90	33.13 LT
6	BL-6	596509.8020	754194.1550	2077.47	24+75.73	26.61 LT
7	BL-7	596727.5650	754405.0390	2080.45	27+71.69	22.56 LT
8	BL-8	596884.3400	754736.4900	2077.85	OUTSIDE PROJECT LIMITS	

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
33	BL-3	595597.5250	754221.4650	2089.26	OUTSIDE PROJECT LIMITS	
10	BY2-10	595785.9920	754068.6770	2078.25	13+43.78	6.87 RT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
100	BL-10	595785.9920	754068.6770	2078.25	OUTSIDE PROJECT LIMITS	
11	BY3-11	595736.9880	754333.8980	2070.00	10+25.07	13.93 RT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
110	BY2-10	595785.9920	754068.6770	2078.25	13+43.78	6.87 RT
12	BY4-12	596072.7260	753901.7370	2070.64	OUTSIDE PROJECT LIMITS	

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
55	BL-5	596237.6230	754070.8940	2076.76	16+01.99	251.47 LT
13	BY5-13	596071.5690	754222.5830	2064.99	13+41.70	195.67 LT
14	BY5-14	595957.0890	754602.0440	2069.74	10+39.94	15.00 LT
15	BY5-15	595894.7700	754863.0840	2069.27	OUTSIDE PROJECT LIMITS	

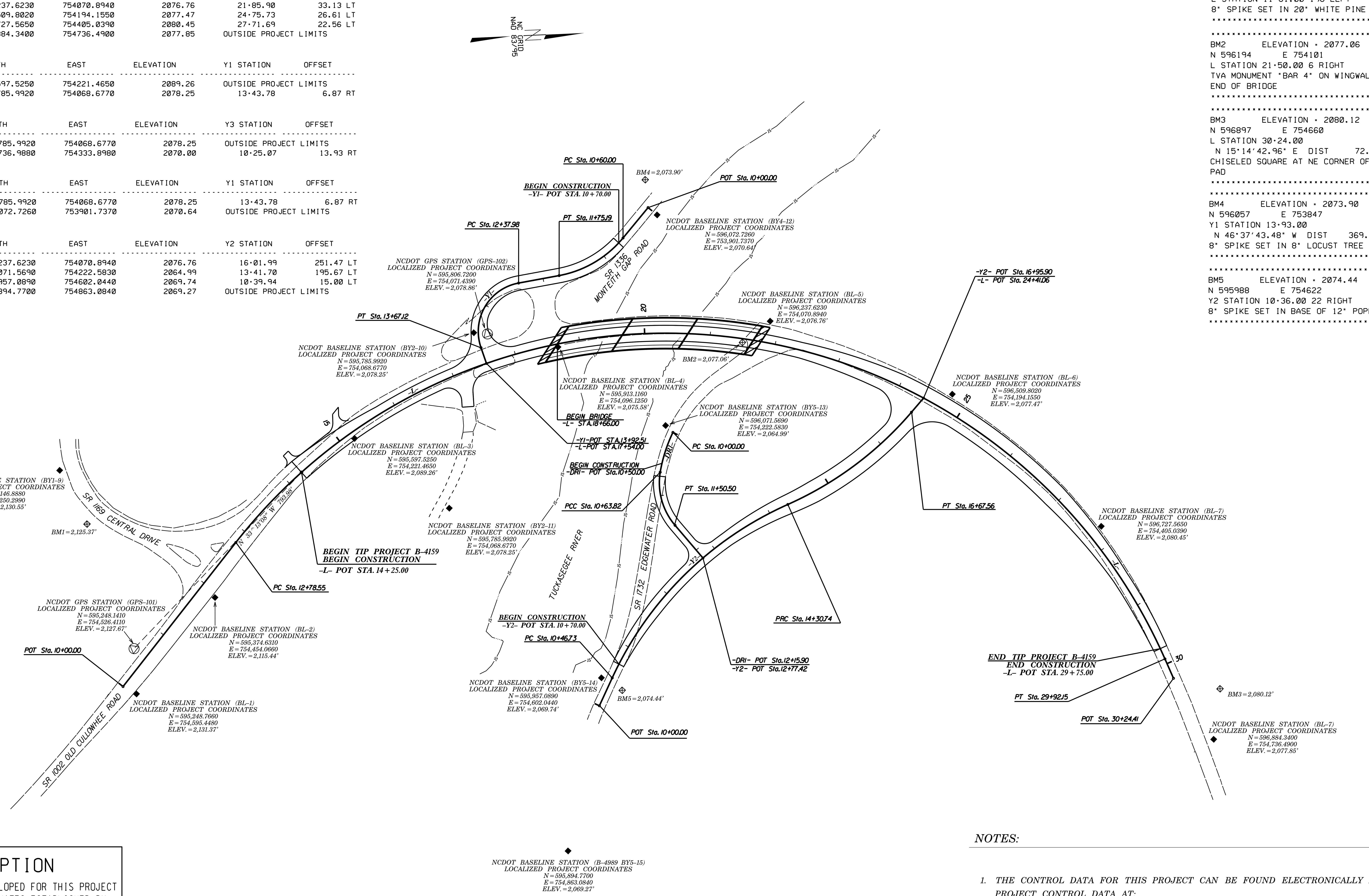
BM1 ELEVATION = 2125.37
N 595185 E 754334
L STATION 11+61.00 196 LEFT
8" SPIKE SET IN 20" WHITE PINE STUMP

BM2 ELEVATION = 2077.06
N 596194 E 754101
L STATION 21+50.00 6 RIGHT
TVA MONUMENT "BAR 4" ON WINGWALL AT NE END OF BRIDGE

BM3 ELEVATION = 2080.12
N 596897 E 754660
L STATION 30+24.00
N 15°14'42.96" E DIST 72.70
CHISELED SQUARE AT NE CORNER OF CONC. PAD

BM4 ELEVATION = 2073.90
N 596057 E 753847
Y1 STATION 13+93.00
N 46°37'43.48" W DIST 369.63
8" SPIKE SET IN 8" LOCUST TREE STUMP

BM5 ELEVATION = 2074.44
N 595988 E 754622
Y2 STATION 10+36.00 22 RIGHT
8" SPIKE SET IN BASE OF 12" POPLAR TREE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B-4159 GPS-1"
WITH HARN-NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 595,248.1410(ft) EASTING: 754,526.4110(ft)
ELEVATION: 2,127.67(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997772
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4159 GPS-1" TO -L- STATION 14+25.00 IS
N 33°13'08" W 793.98
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B-4159_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4159	1C-2
Location and Surveys	

SURVEY CONTROL SHEET B-4159

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+19.54	-51.96	595477.1790	754233.0279
L	14+60.00	-50.00	595512.0876	754207.9498
L	15+75.00	-50.00	595614.3213	754141.7010
L	16+10.03	-35.00	595653.8832	754137.8163
L	17+01.44	-35.00	595741.2623	754099.9808
L	19+82.78	-70.00	596027.5826	754011.4977
L	21+92.00	-70.00	596252.4364	754036.5169
L	22+11.00	-35.00	596263.4227	754075.4036
L	24+28.75	-35.00	596472.6584	754161.5525
L	25+67.38	-35.00	596591.3388	754243.6211
L	29+75.00	-35.00	596841.5163	754581.6607
L	29+75.00	-15.27	596823.2775	754589.1977
L	29+78.70	14.88	596796.7975	754604.0685
L	29+82.29	40.00	596774.8224	754616.7263
L	26+85.65	40.00	596625.2605	754379.0031
L	25+14.22	41.06	596503.0007	754271.5270
L	23+45.00	45.00	596362.2413	754194.9676
L	21+62.49	45.00	596198.2245	754142.2482
L	21+15.63	85.00	596148.8009	754174.2021
L	20+76.84	85.00	596114.2395	754169.9835
L	18+53.08	85.00	595914.1079	754177.2942
L	18+35.25	40.00	595889.7475	754136.0222
L	17+16.81	40.00	595781.0020	754165.4021
L	16+96.85	40.00	595763.1403	754171.8644
L	16+48.34	40.00	595720.4045	754189.3483
L	16+34.30	23.00	595701.0845	754179.4474
L	14+99.01	23.00	595586.7799	754244.2615
L	15+00.42	40.00	595597.4518	754257.5640
L	14+25.00	40.00	595539.9262	754300.4756
L	14+25.00	14.62	595523.8459	754280.8443

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+47.72	31.00	595761.8977	754073.7191
Y1	12+37.98	31.00	595853.1838	753965.4439
Y1	12+02.03	30.77	595888.8186	753960.7021
Y1	10+78.36	-30.46	596026.5416	753970.2631
Y1	10+66.30	-50.11	596050.9537	753974.1159

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	11+61.17	-40.00	596005.5477	754482.0428
Y2	12+10.39	-40.00	596041.0707	754442.8502
Y2	14+30.74	-40.00	596237.6040	754313.6399
Y2	16+00.00	-40.00	596371.8247	754234.3358
Y2	16+15.00	50.00	596441.7617	754292.9570
Y2	15+08.00	189.00	596415.7277	754481.5040
Y2	11+62.00	369.00	596321.1107	754742.2374
Y2	11+34.00	48.00	596058.1606	754557.5275
Y2	10+60.00	40.00	596014.8479	754610.3433
Y2	10+60.00	13.00	595991.1575	754597.3909

-L-

TYPE	STATION	NORTH	EAST
POT	10+00.00	595228.8224	754583.3640
PC	12+78.55	595410.0300	754371.8067
PT	29+92.15	596815.5546	754610.9428
POT	30+24.41	596827.2585	754641.0087

-Y1-

TYPE	STATION	NORTH	EAST
POT	10+00.00	596059.5452	753890.0035
PC	10+60.00	596019.3593	753934.5578
PT	11+75.19	595919.6587	753987.4603
PC	12+37.98	595857.4720	753996.1459
PT	13+67.12	595795.9755	754091.8623
POT	13+92.51	595803.2305	754116.1852

-Y2-

TYPE	STATION	NORTH	EAST
POT	10+00.00	595952.1412	754644.4234
PC	10+46.73	595973.5299	754602.8775
PRC	14+30.74	596252.2507	754350.8619
PT	16+67.56	596446.4938	754218.8147
POT	16+95.90	596465.8444	754198.1097

-DR1-

TYPE	STATION	NORTH	EAST
PC	10+00.00	596082.2747	754233.5859
PCC	10+63.82	596060.2489	754293.2574
PT	11+50.50	596079.3270	754375.0577
POT	12+15.90	596119.5518	754426.6146

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+73.00	-57.46	595705.1422	754089.9275
L	16+53.00	-80.00	595676.4225	754077.5974
L	16+63.00	-91.00	595682.2119	754063.1367
L	16+87.00	-64.41	595716.5258	754077.9064
L	21+99.93	-55.00	596257.1271	754053.1201
L	22+90.00	-55.00	596348.8137	754081.5253
L	22+90.00	-35.00	596341.8689	754100.2808
L	24+25.92	-55.00	596480.0032	754142.7120
L	25+67.09	-51.19	596601.3905	754230.9259
L	25+67.20	-45.00	596597.5474	754235.7797
L	27+26.81	-74.25	596739.0264	754335.8022
L	28+10.00	-45.00	596768.8597	754424.7183
L	28+10.00	-35.00	596760.5526	754430.2854
L	17+00.74	80.37	595780.6197	754208.4322
L	16+82.81	107.76	595775.5514	754239.6932
L	16+72.00	89.69	595759.9691	754226.4856
L	16+15.00	23.00	595684.1529	754187.5436
L	15+55.00	23.00	595632.7927	754215.1865
L	15+55.00	75.00	595659.0737	754260.0563
L	15+19.07	75.38	595631.4404	754277.5004
L	15+01.49	52.37	595605.2189	754267.2441
L	15+00.42	40.00	595597.4518	754257.5640

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+30.00	31.00	595764.0686	754048.8344
Y1	13+30.00	45.00	595750.3621	754045.9828
Y1	13+16.00	45.00	595756.9390	754024.6041
Y1	13+16.00	31.00	595769.8782	754029.9499

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	15+05.61	-40.00	596300.0581	754283.8460
Y2	15+01.00	-60.00	596286.6290	754268.4467
Y2	15+18.00	-63.00	596298.1619	754258.3410
Y2	15+22.47	-40.00	596313.4975	754275.9505

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
DR1	11+08.41	25.76	596036.0591	754343.6327
DR1	11+27.94	42.53	596029.0304	754373.8554

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "B-4159 GPS-1" WITH HARN-NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 595,248.1410(ft) EASTING: 754,526.4110(ft) ELEVATION: 2,127.67(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997772 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4159 GPS-1" TO -L- STATION 14+25.00 IS N 33°13'08" W 793.98 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: B-4159_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *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. NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

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$$USERNAME$$

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2A-1

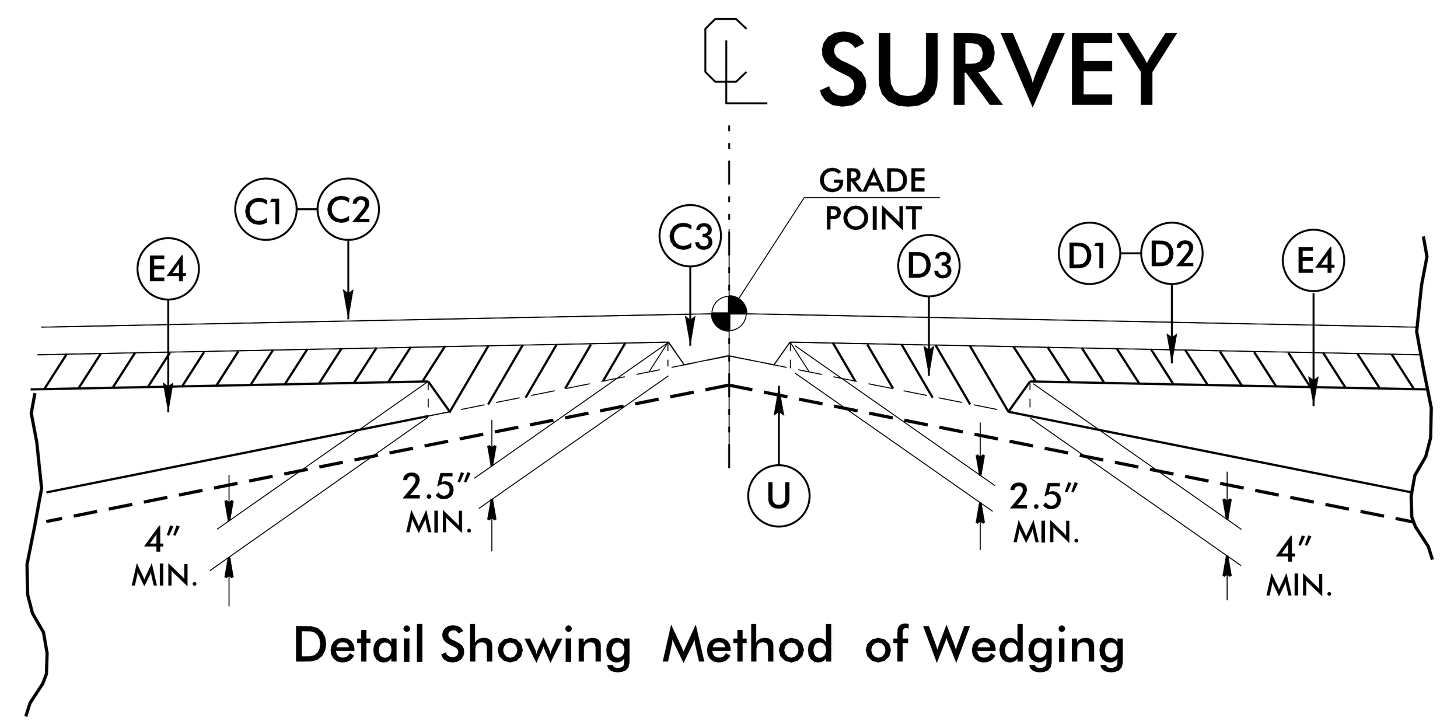
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18494 ANTHONY AARON HOUSER — 10/8/2015 — Tony Houser

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON — 10/12/2015 — Clark S Morrison

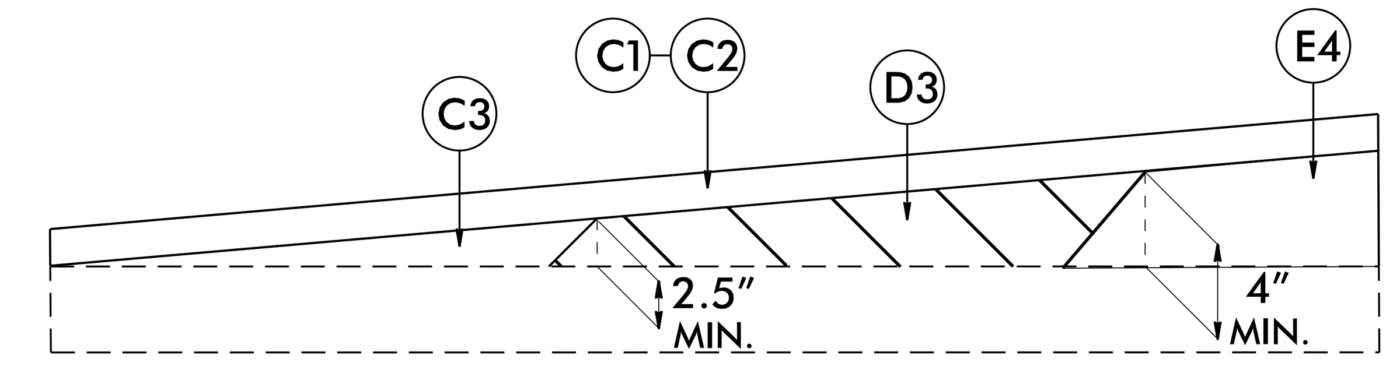
PAVEMENT SCHEDULE

A	6" JOINTED CONCRETE WITHOUT DOWELS, REINFORCED 4X4 W3 X W3 WIRE MESH.
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" OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE 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" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E4	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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROP. 4" AGGREGATE BASE COURSE.
R1	2'-6" CONCRETE CURB & GUTTER.
R2	8"X 18" CONCRETE CURB.
S	5' SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASHPHALT PAVEMENT (SEE WEDGING DETAIL).

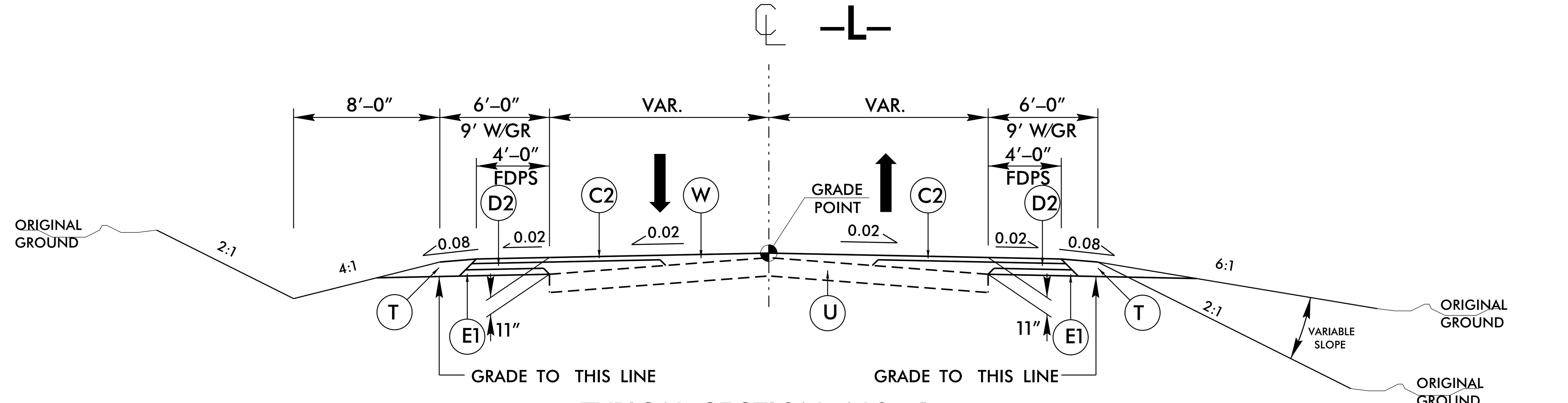
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



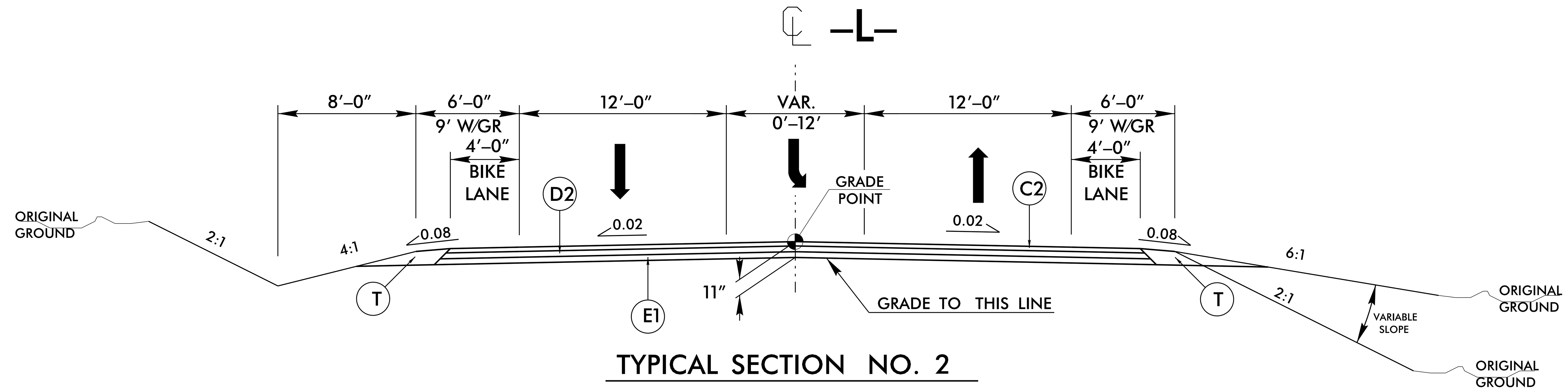
Wedging Detail For Resurfacing



TYPICAL SECTION NO. 1

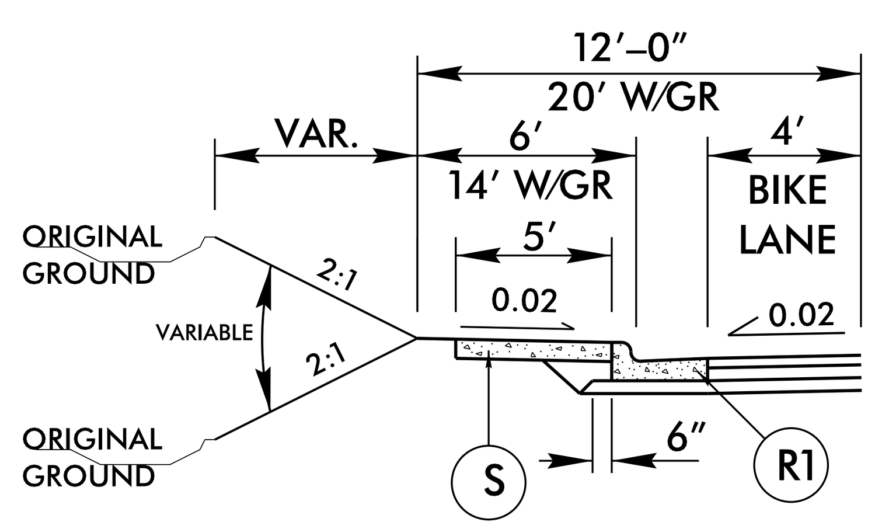
-L- STA. 14+25.00 TO STA. 15+75.00
-L- STA. 26+00.00 TO STA. 29+75.00

NOTE:
INCIDENTAL MILLING
-L- STA. 14+25.00 TO 15+00.00
-L- STA. 29+00.0 TO 29+75.00



TYPICAL SECTION NO. 2

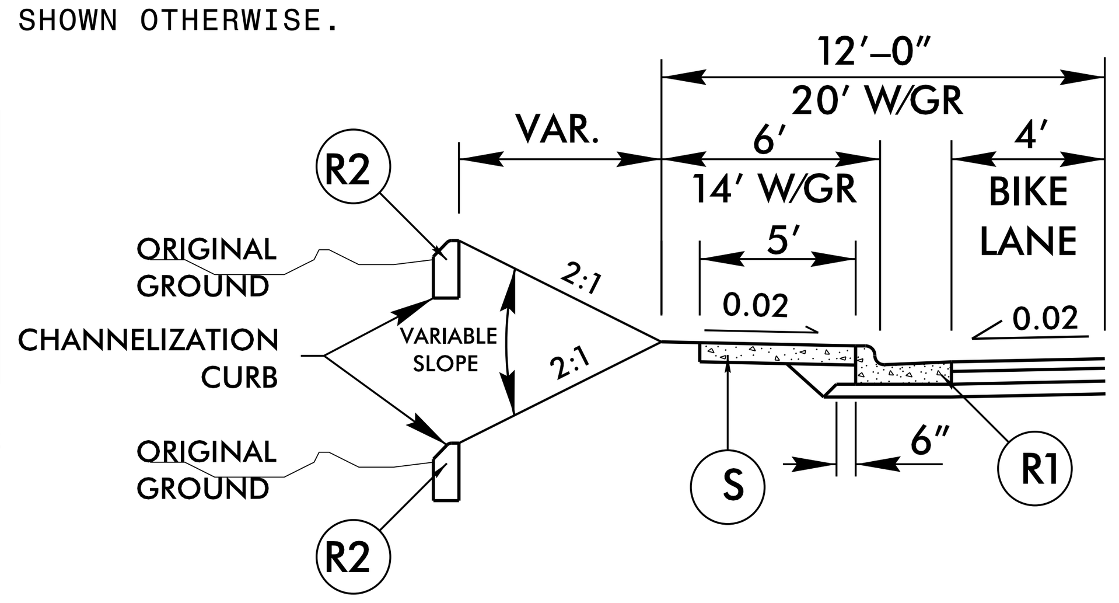
-L- STA. 15+75.00 TO STA. 18+66.00 (BEGIN BRIDGE)
-L- STA. 21+66.00 (END BRIDGE) TO STA. 26+00.00



TYPICAL SECTION NO. 2A

USE IN CONJUNCTION WITH NO. 2

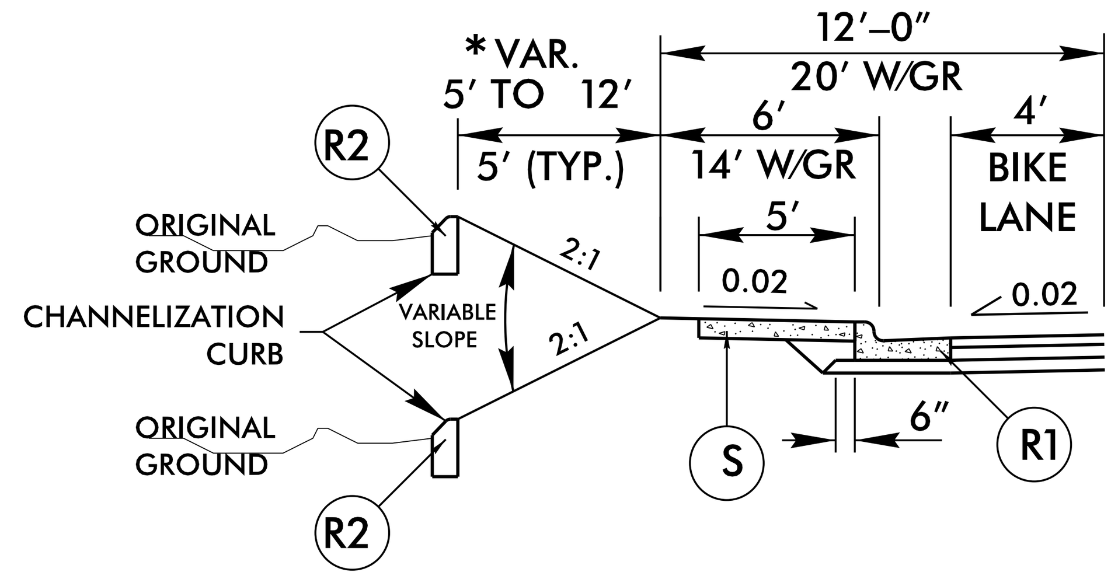
-L- STA. 15+75.00 TO STA. 16+39.22 LT
-L- STA. 17+14.96 TO STA. 18+69.64 LT
-L- STA. 24+34.12 TO STA. 25+12.55 LT



TYPICAL SECTION NO. 2B

USE IN CONJUNCTION WITH NO. 2

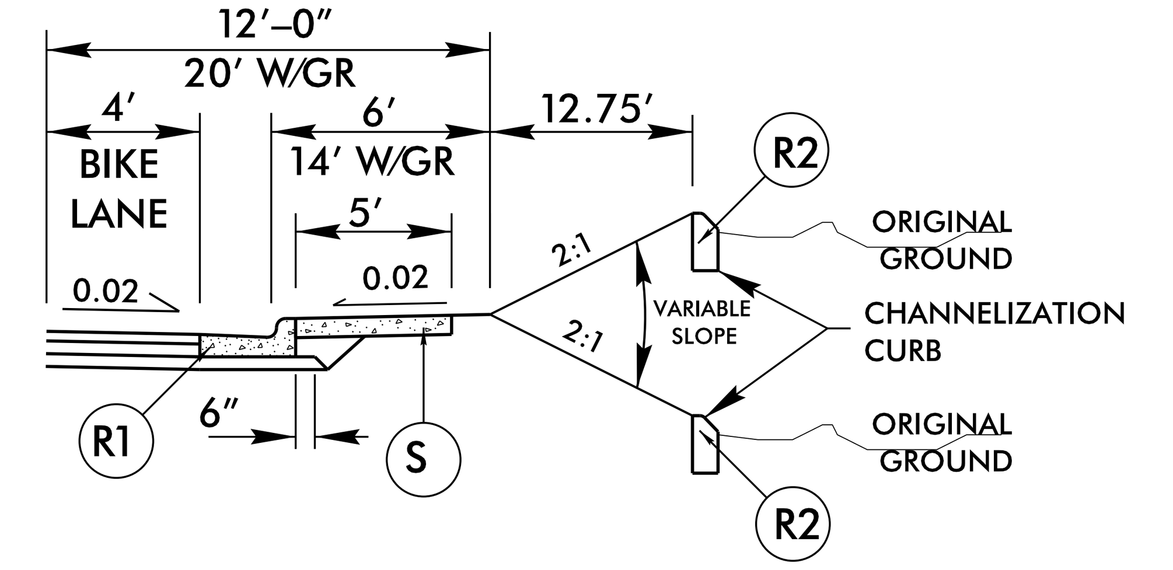
-L- STA. 16+39.22 TO STA. 17+14.96 LT



TYPICAL SECTION NO. 2C

USE IN CONJUNCTION WITH NO. 2

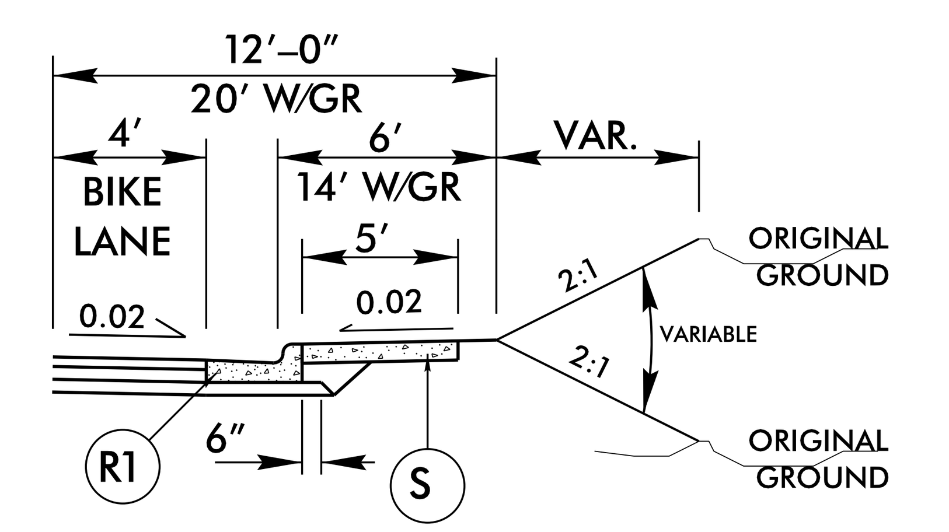
*-L- STA. 21+95.50 TO STA. 23+27.88 LT
-L- STA. 23+27.88 TO STA. 24+34.12 LT
-L- STA. 25+12.55 TO STA. 28+60.00 LT



TYPICAL SECTION NO. 2D

USE IN CONJUNCTION WITH NO. 2

-L- STA. 17+24.50 TO STA. 18+44.74 RT



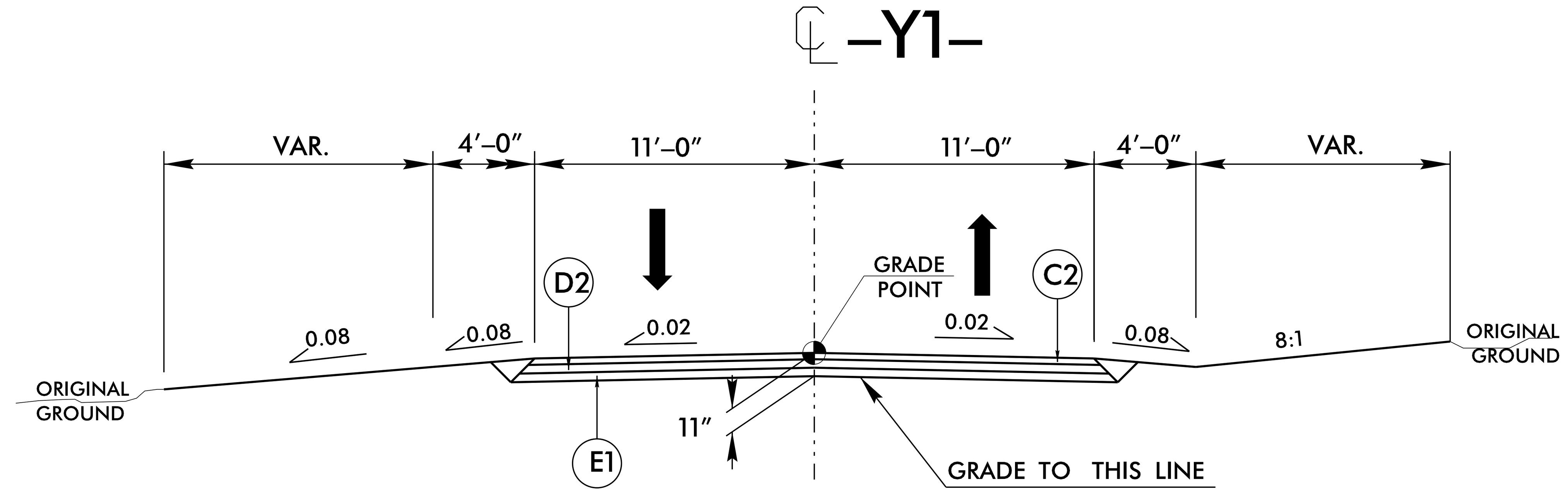
TYPICAL SECTION NO. 2E

USE IN CONJUNCTION WITH NO. 2

-L- STA. 21+71.12 TO STA. 22+41.06 RT

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18494 ANTHONY AARON HOUSER	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON
10/8/2015 DocuSigned by: Tony Houser 3F7D4DCE8E364ED...	10/12/2015 DocuSigned by: Clark S Morrison 0662301E4F400...

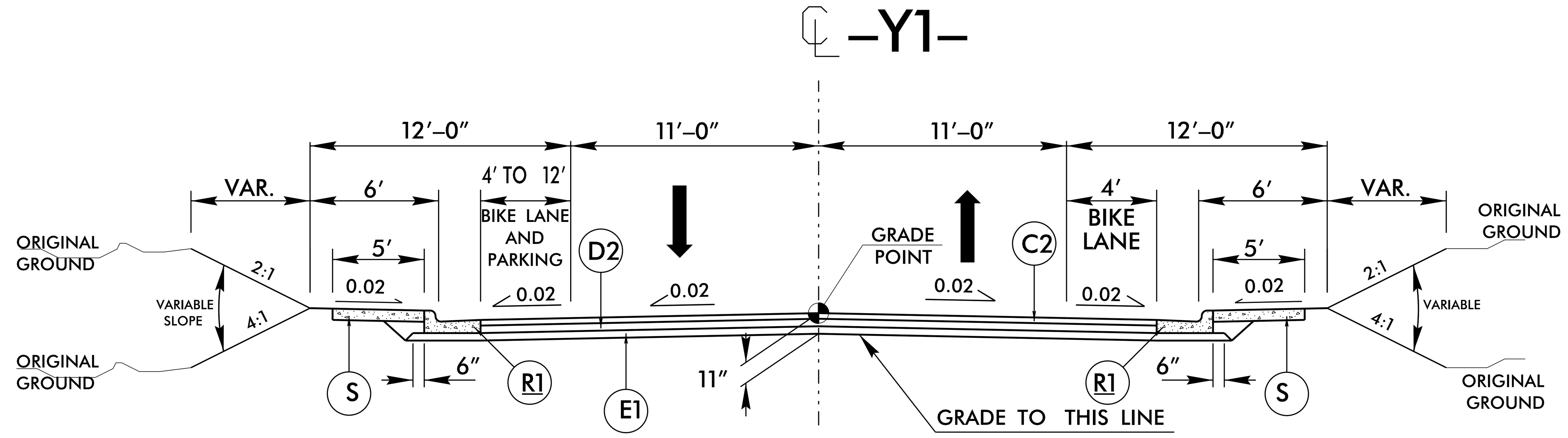
A	6" CONC.
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.0" B25.0B
E4	VAR. B25.0B
J_	4" ABC
R1	2'6" CONC. CURB
R2	8"X18" CONC. C.
S	5' SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 :

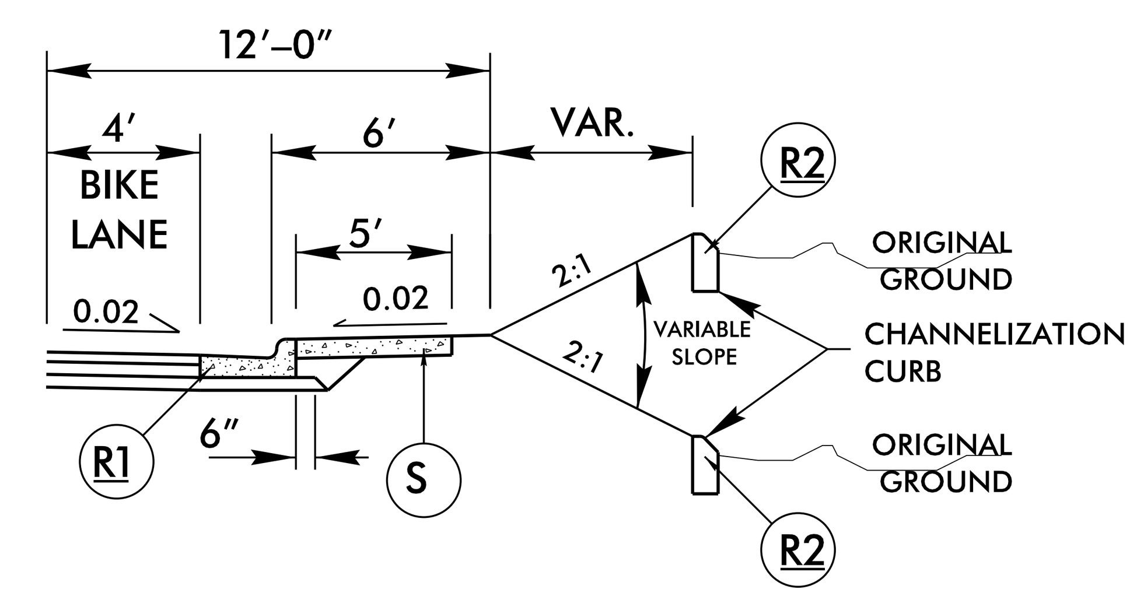
-Y1- STA. 10+70.00 TO STA. 11+20.00 (FOR TIE-IN)



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 :

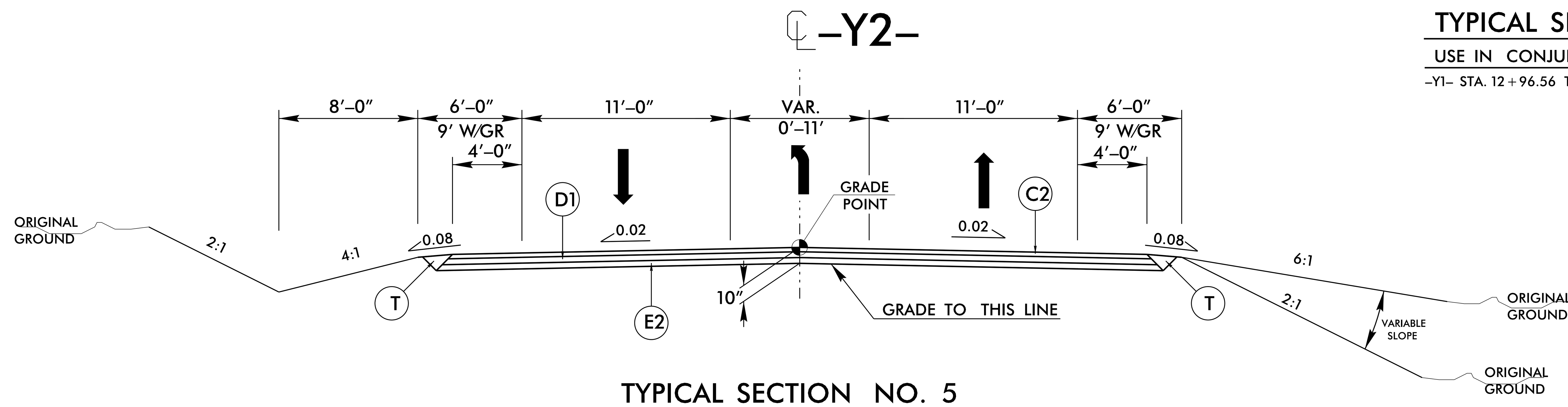
-Y1- STA. 11+20.00 TO STA. 13+80.51



TYPICAL SECTION NO. 4A

USE IN CONJUNCTION WITH NO. 4

-Y1- STA. 12+96.56 TO STA. 13+55.91 LT



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 :

-Y2- STA. 10+70.00 TO STA. 16+77.47

6/2/99

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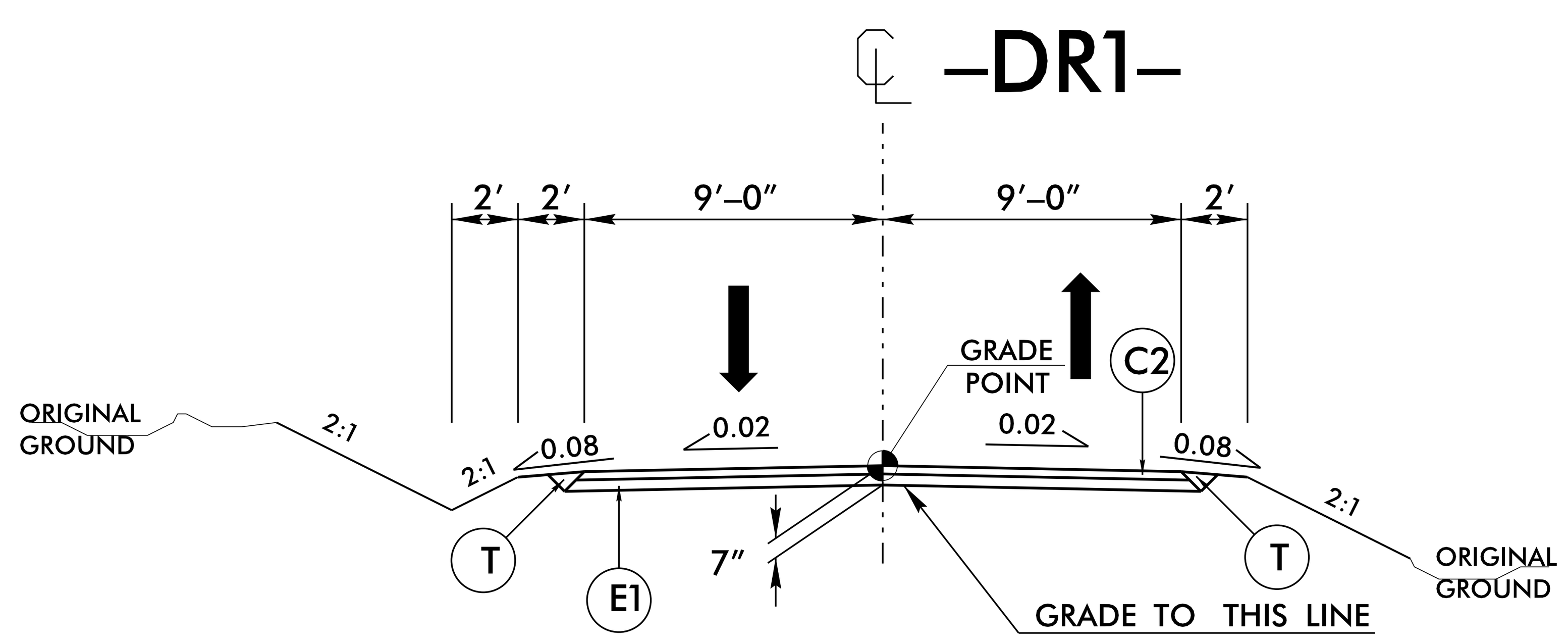
PROJECT REFERENCE NO.	SHEET NO.
B-4159	2A-3

ROADWAY DESIGN ENGINEER — SEAL 18494 — ANTHONY AARON HOUSER — 10/8/2015 — Tony Houser

PAVEMENT DESIGN ENGINEER — SEAL 022896 — CLARK S. MORRISON — 10/12/2015 — Clark S Morrison

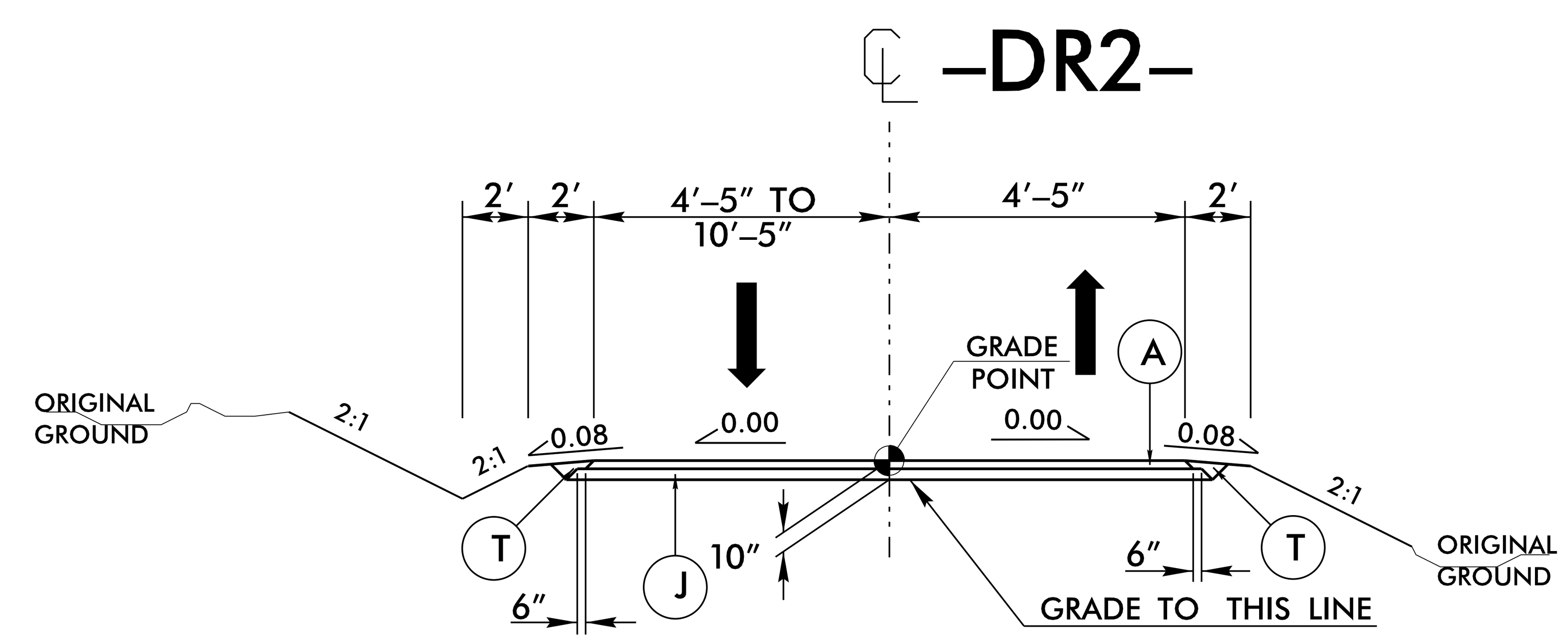
A	6" CONC.
C1	1½" S9.5B
C2	3" S9.5B
C3	VAR. S9.5B
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
E1	4" B25.0B
E2	4.5" B25.0B
E3	5.0" B25.0B
E4	VAR. B25.0B
J_	4" ABC
R1	2'6" CONC. CURB
R2	8"X18" CONC. C.
S	5' SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 :

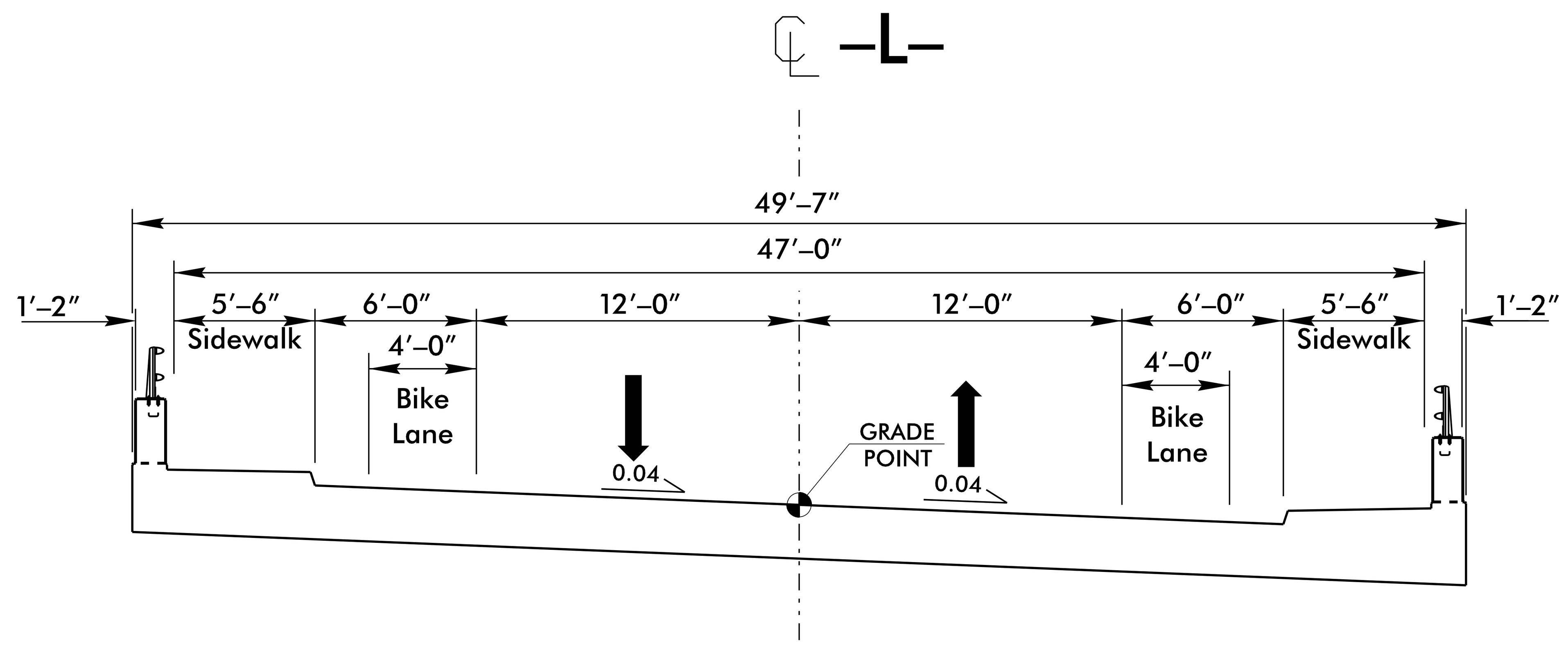
-DR1- STA. 10+70.00 TO STA. 12+04.90



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 :

-DR2- STA. 10+00.00 TO STA. 10+66.83

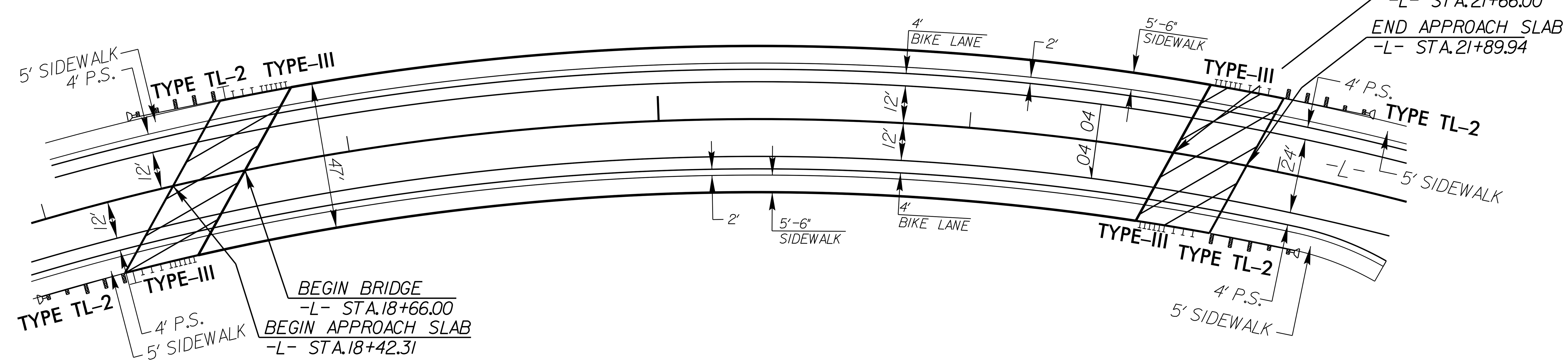


TYPICAL SECTION ON BRIDGE

USE BRIDGE TYPICAL SECTION :

-L- STA. 18+66.00 (BEGIN BRIDGE) TO STA. 21+66.00 (END BRIDGE)

SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP



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CHANNELIZATION DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2B-1
R/W SHEET NO.	

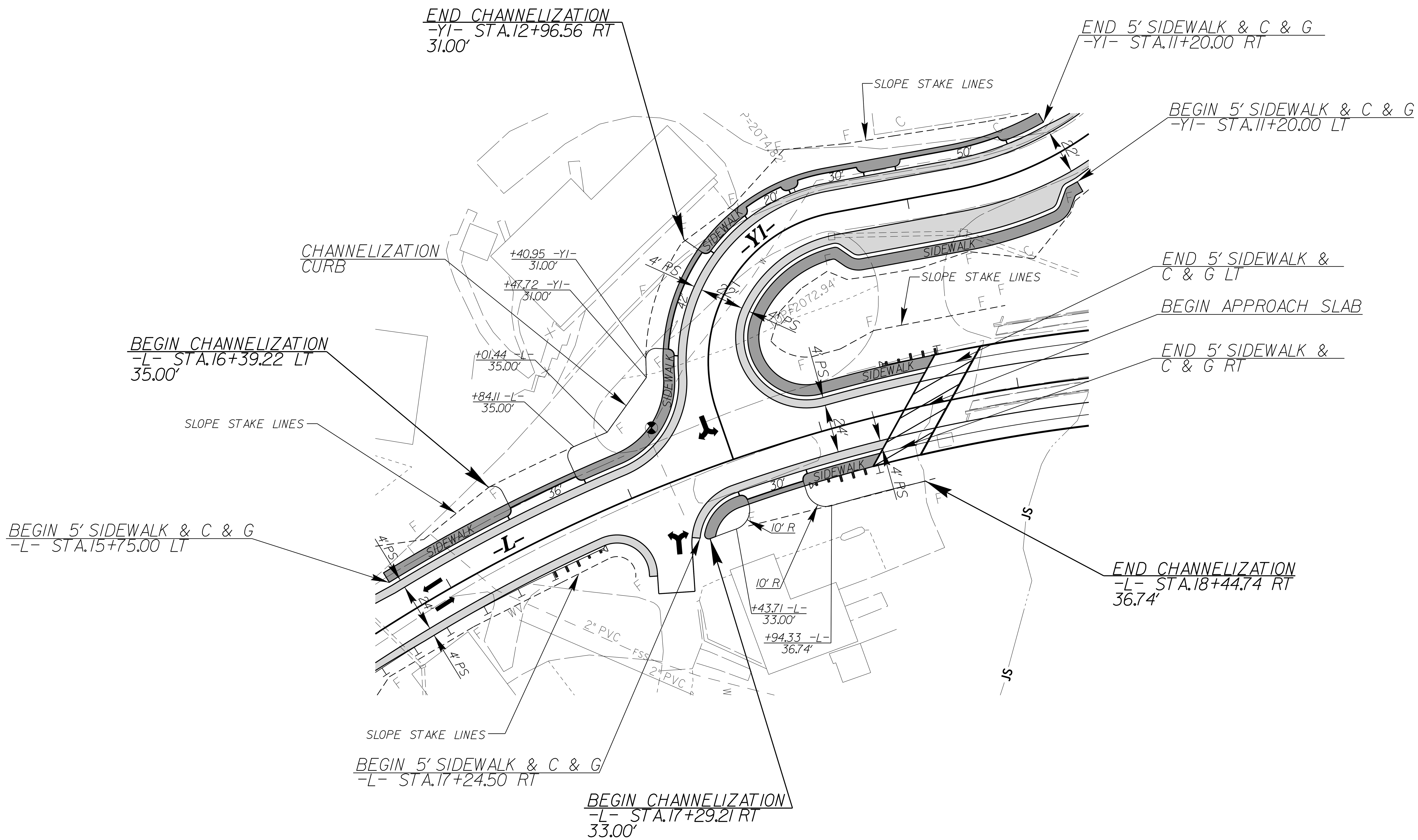
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER

DocuSigned by: Tony Houser

NAD 83/95

30 15 0 30 60
ENGLISH SCALE



NOTE: USE 5' RADIUS FOR CHANNELIZATION CURBS UNLESS OTHERWISE NOTED.

REVISIONS

8/17/99

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CHANNELIZATION DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOSER
10/8/2015
DocuSigned by:
Tony Hoser
3F7D4DCE8E364ED...

NAD 83/95

30 15 0 30 60
ENGLISH SCALE

BEGIN 5' SIDEWALK & C & G RT

END APPROACH SLAB

BEGIN 5' SIDEWALK & C & G LT

BEGIN CHANNELIZATION -L- STA. 21+95.50 36.00'

CHANNELIZATION CURB

CHANNELIZATION CURB

CHANNELIZATION CURB

CHANNELIZATION CURB

CHANNELIZATION CURB

CHANNELIZATION CURB

+55.76 -L- 32.35

+95.55 -L- 34.00'

+29.06 -L- 34.00'

+12.55 -L- 34.00'

+14.05 -L- 34.00'

+47.04 -L- 34.00'

+27.82 -L- 34.00'

+45.28 -L- 34.00'

+89.93 -L- 34.00'

+95.87 -L- 34.00'

+25.03 -L- 32.70'

+14.43 -L- 29.34'

+53.87 -L- 28.00'

SLOPE STAKE LINES

SLOPE STAKE LINES

SLOPE STAKE LINES

-DR2-

-Y2-

-L-

SIDEWALK

8:1 TAPER

END 5' SIDEWALK & C & G -L- STA. 22+41.06 RT

END CHANNELIZATION -L- STA. 28+60.00 28.00'

END 5' SIDEWALK & C & G -L- STA. 29+53.66 LT

4" PS

18'

16.5'

24'

30'

20'

NOTE: USE 5' RADIUS FOR CHANNELIZATION CURBS UNLESS OTHERWISE NOTED.

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4159	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER

10/8/2015

DocuSigned by: Tony Houser

EXISTING ROW TO BE ABANDONED DETAIL

TO BE ABANDONED

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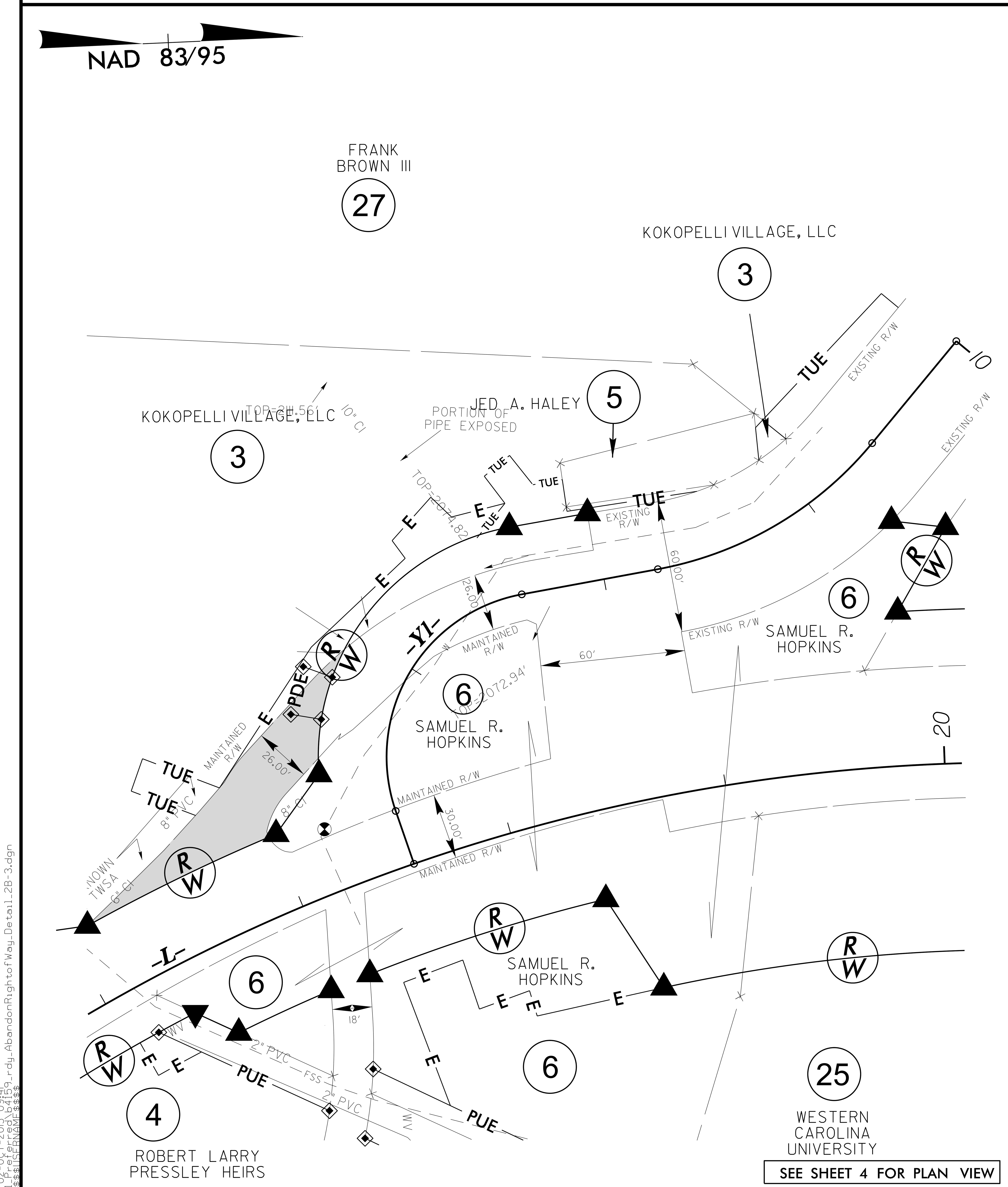
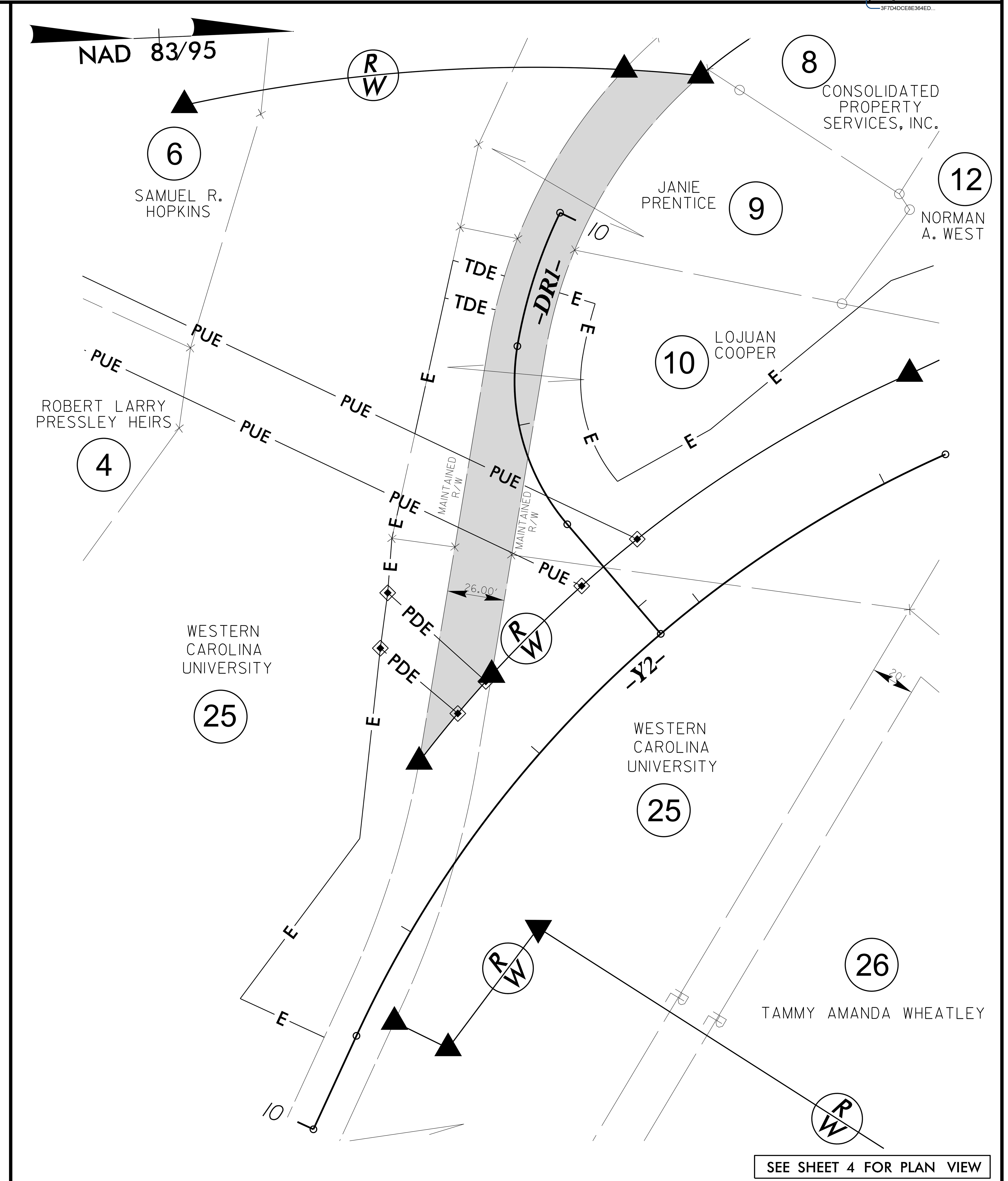
PLANS





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PROJECT REFERENCE NO.	SHEET NO.
B-4159	2B-4

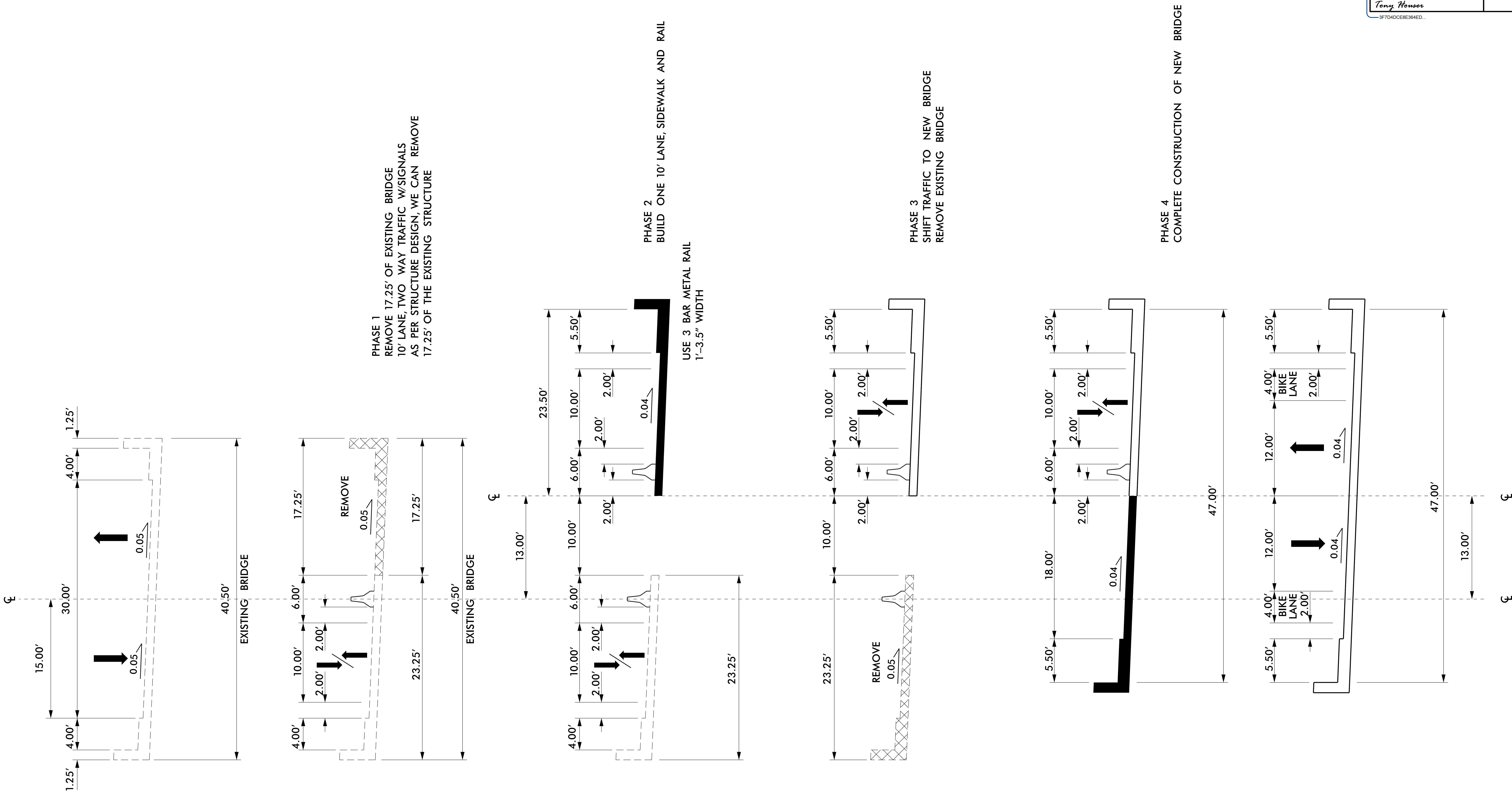
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER

10/8/2015

DocuSigned by: Tony Houser

ONE LANE, TWO WAY TRAFFIC W/TRAFFIC SIGNAL



02-OCT-2015 09:41
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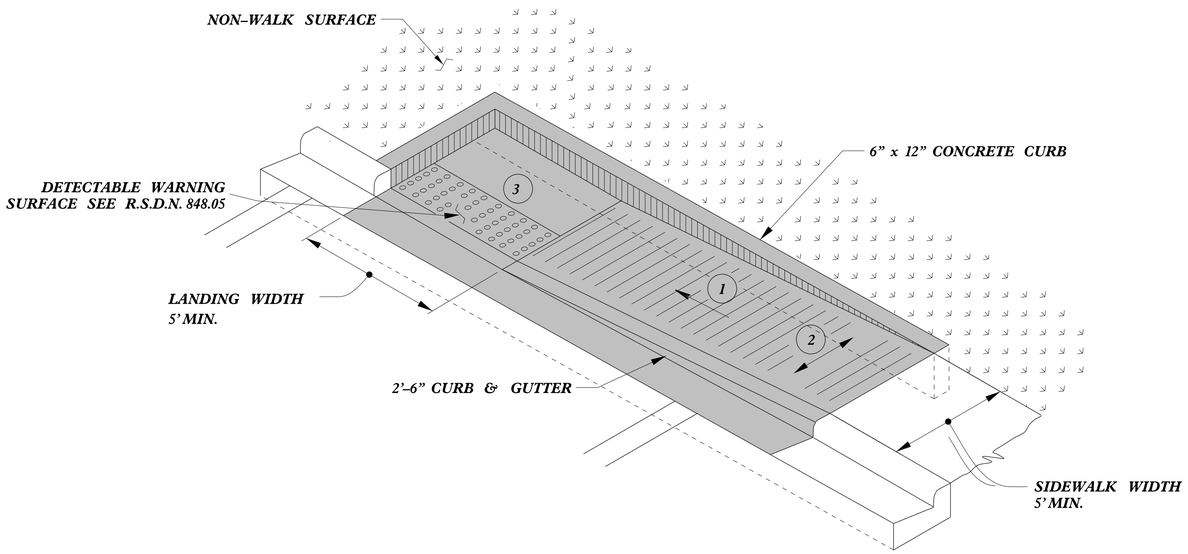
6/2/99

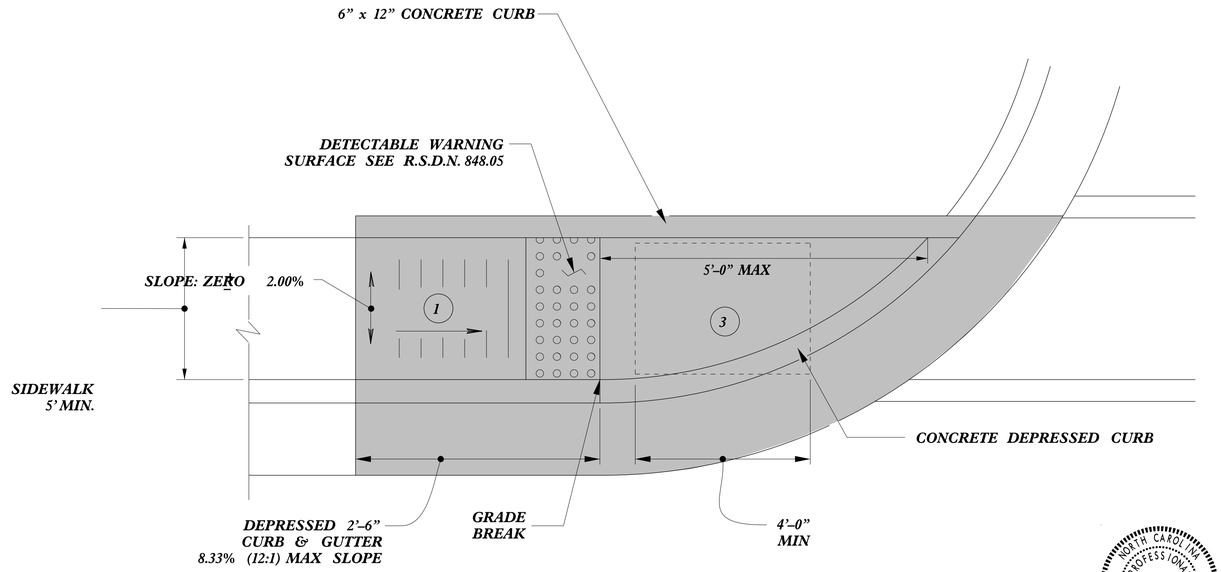
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2C-1



TYPE 1A

PAY LIMITS FOR 1 CURB RAMP



TYPE 1

(1) *8.33% (12:1) MAX RAMP SLOPE*

(2) *CROSS SLOPE: 2.00%*

(3) *CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

10/7/2015
DocuSigned by:
Joel Howerton
873F3D17DCDC45F...

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

CURB RAMPS

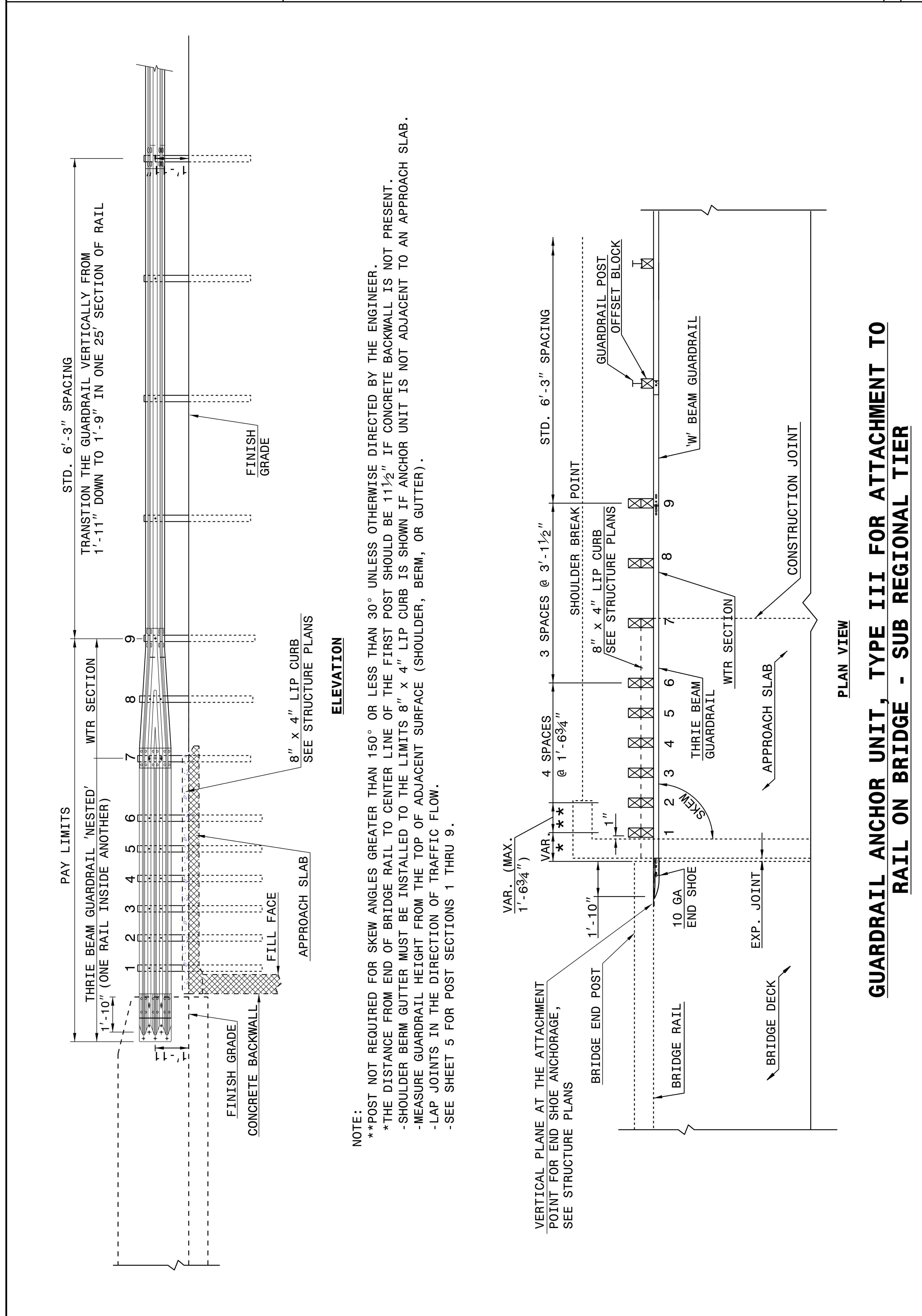
Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$SYSTEM$$$$
$$$$DESIGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4159	2C-2

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER
SHEET 2 OF 7 862d03

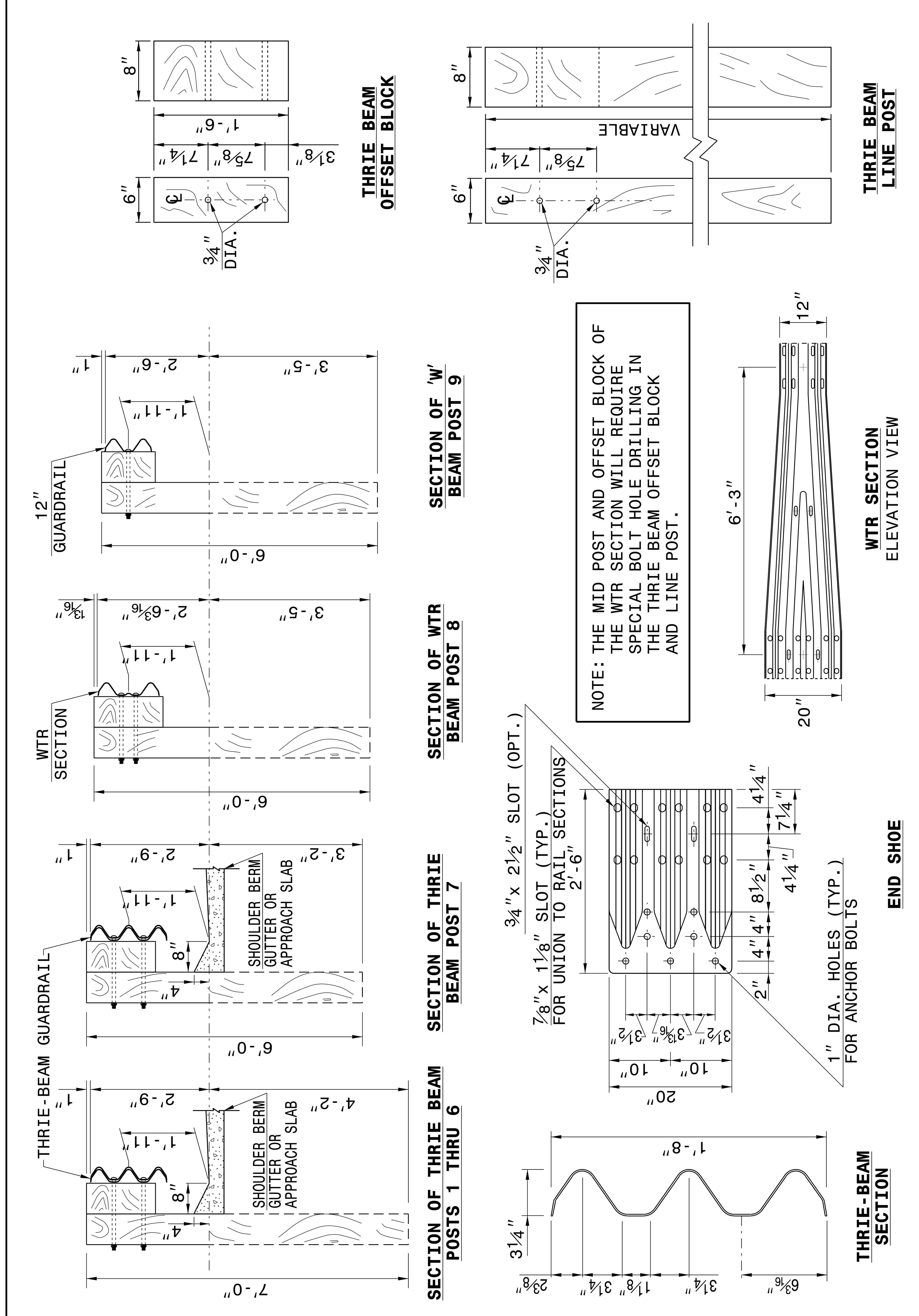


STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

SHEET 2 OF 7 **862d03**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
SHEET 3 OF 7 862d03



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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7 **862d03**

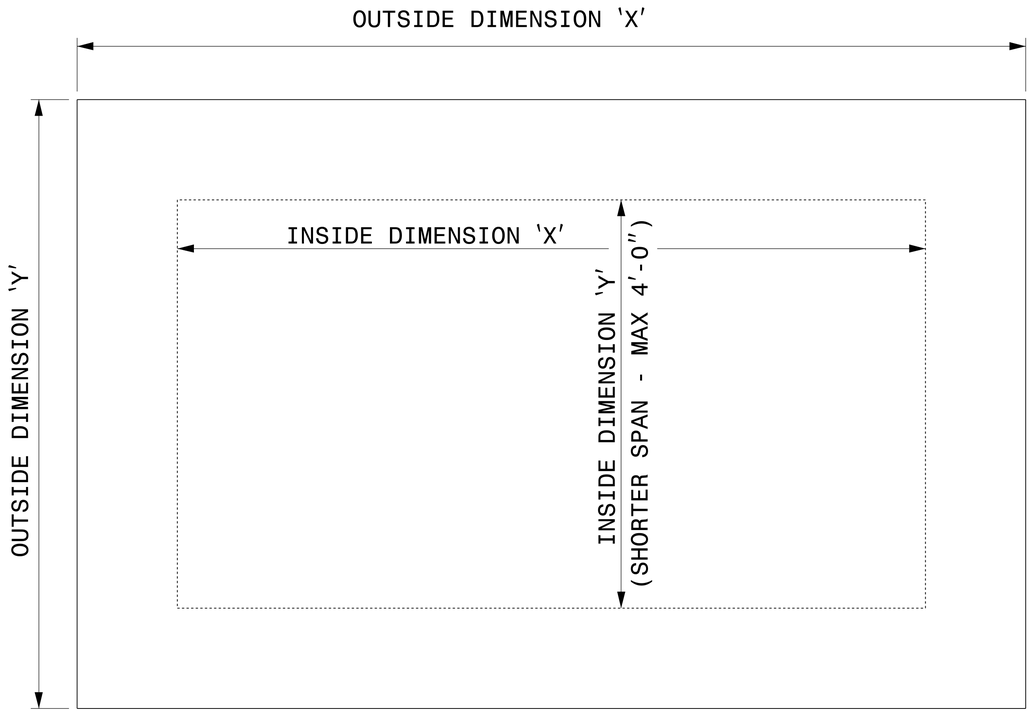
SEAL 022966 NORTH CAROLINA PROFESSIONAL ENGINEER Joel S. Howerton
10/7/2015

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

SEE TITLE BLOCK

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

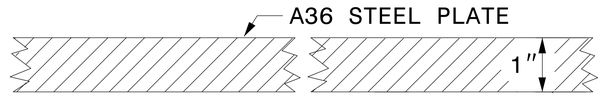
PROJECT REFERENCE NO.	SHEET NO.
B-4159	2C-3



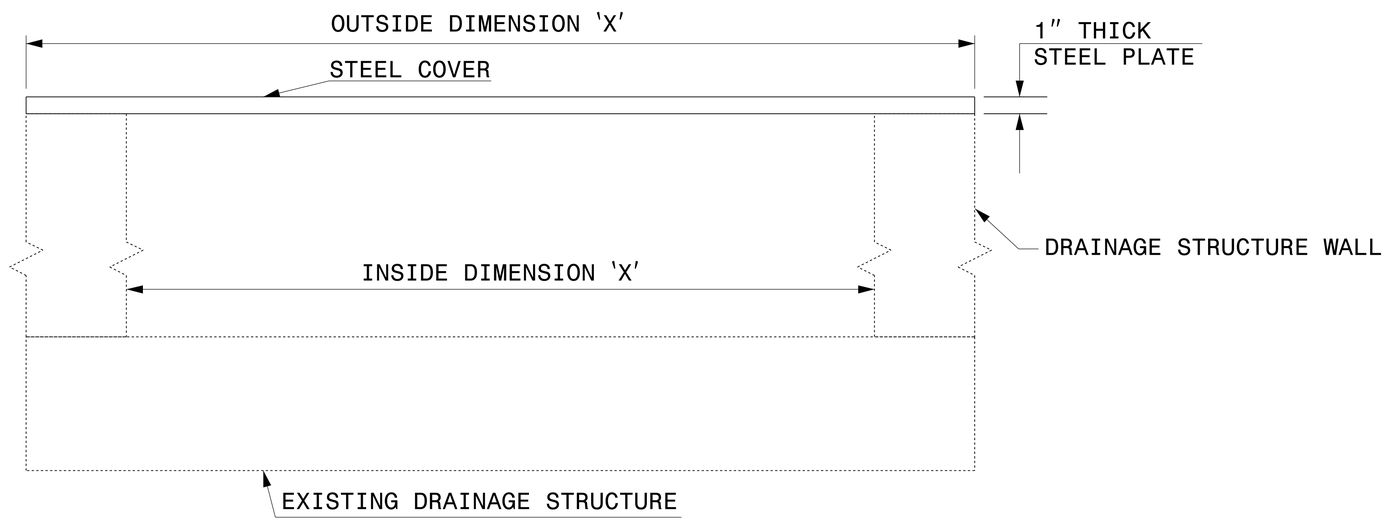
PLAN VIEWS

GENERAL NOTES:

-USE GRADE A36 STEEL
-STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
-FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
-SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
-QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.



SECTION VIEW OF STEEL TOP PLATE



ELEVATION VIEWS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S Howerton

10/7/2015
DocuSigned by:
Joel Howerton
873F3D17ODCDC45F...

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

DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

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$$$$USERNAME$$$$
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PROJECT REFERENCE NO.	SHEET NO.
B-4159	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden F760CAE896FC4D3...

5/4/2015

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

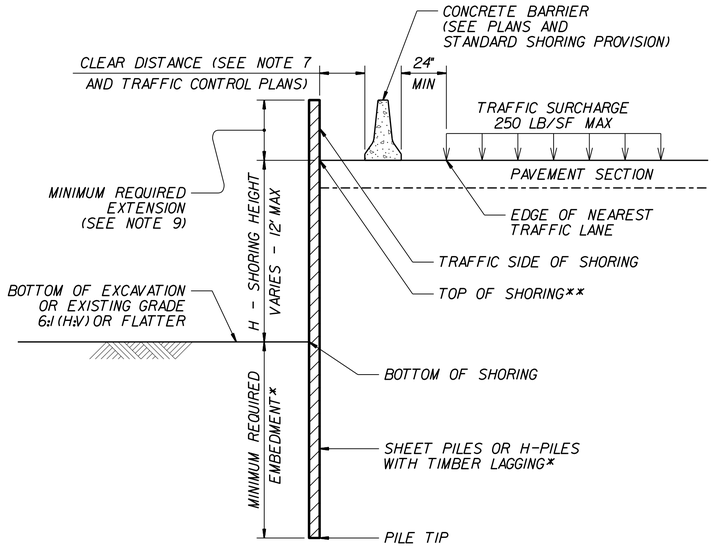
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

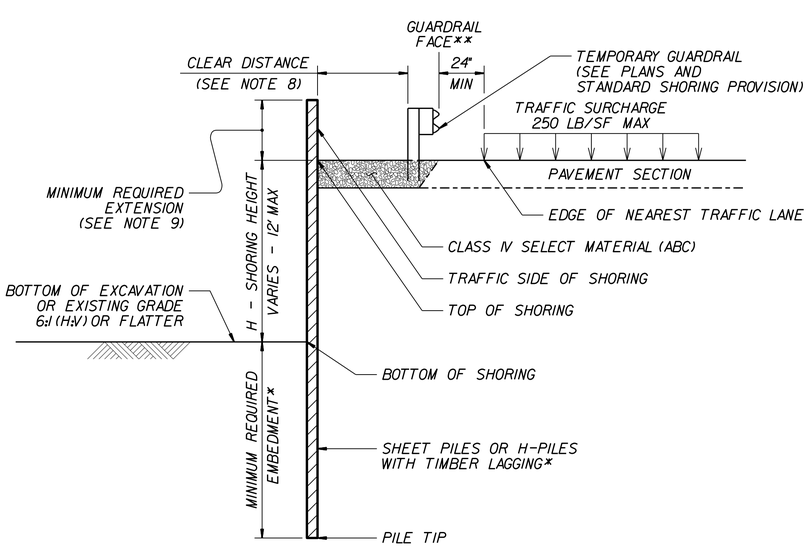
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



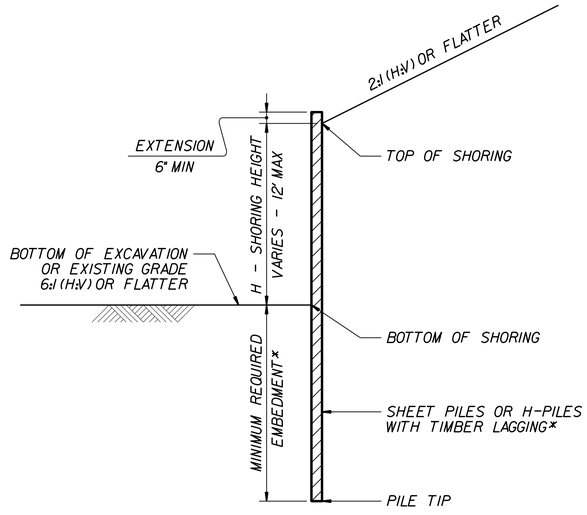
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET
B-4159	2H-1

GEOENVIRONMENTAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31499 ENGINEER CYRUS F. PARKER

DocuSigned by: Cyrus Parker 8/25/2014 C96492AF5E824DF...

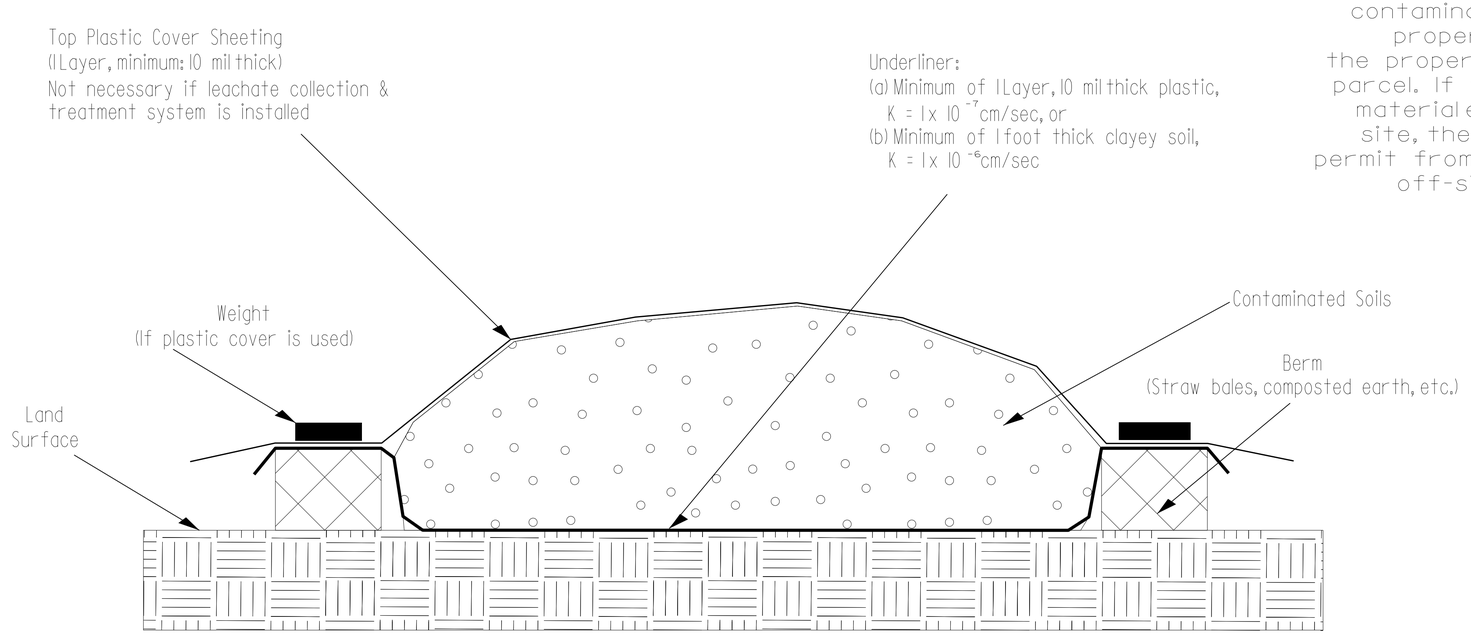
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

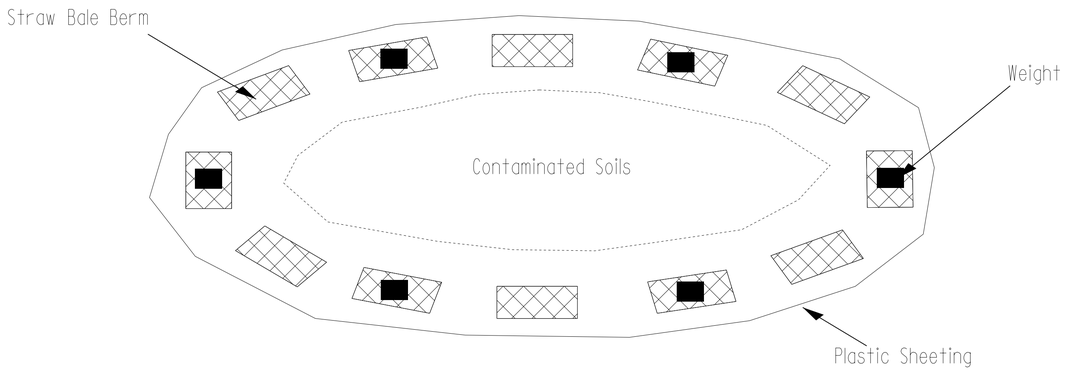
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section for off-site temporary storage.

Map View



PREPARED BY:	DATE:
REVIEWED BY:	DATE:

GEOTECHNICAL ENGINEERING UNIT

☐ *EASTERN REGIONAL OFFICE*
☐ *WESTERN REGIONAL OFFICE*
☒ *CONTRACT OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STOCKPILE CONTAINMENT DETAIL

REVISIONS

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

12/06/07

COMPUTED BY: E.Douglas DATE: 7-18-13
CHECKED BY: J.Braxton DATE: 9-25-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4159	3B

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
–L– STA. 14+25.00 RT	–L– STA. 18+66.00 RT (BEGIN BRIDGE)	36	710	674	
–L– STA. 14+25.00 LT	–L– STA. 18+66.00 LT (BEGIN BRIDGE)	138	500	362	
–Y1– STA. 10+70.00	–Y1– STA. 13+80.51	182	383	201	
	SUBTOTALS	365	1,592	1,236	
–L– STA. 21+66.00 RT (END BRIDGE)	–L– STA. 29+75.00 RT	747	645		102
–L– STA. 21+66.00 LT (END BRIDGE)	–L– STA. 29+75.00 LT	64	615	551	
–Y2– STA. 10+70.00	–Y2– STA. 16+77.47	129,085	51		129,034
–DR1– STA. 10+70.00	–DR1– STA. 12+04.90	412	2		410
–DR2– STA. 10+00.00	–DR2– STA. 10+66.83	2	72	70	
	SUBTOTALS:	130,310	1,385	621	129,545
	TOTAL:	130,666	2,977	1,857	129,545
LOSS DUE TO CLEARING AND GRUBBING		–2,000			–2,000
WASTE TO REPLACE BORROW				–1,857	–1,857
	PROJECT TOTALS:	128,666	2,977		125,688
ADJUST FOR ROCK WASTE SWELL					5,037
ADJUST FOR UNCOMPACTED ROCK WASTE					3,777
	GRAND TOTALS:	128,666	2,977		134,502
	SAY:	128,800			
SHOULDER BORROW = 120 CY					

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

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
–L–	15+25	17+11	LT	1,932.76		214.75
–L–	15+75	16+55	℄	1,955.54		217.28
–L–	21+23	26+00	LT/RT	15,739.66		1,748.85
–L–	21+71	24+23	RT	5,441.16		604.57
–Y1–	10+70	13+14	LT/RT	9,695.27		1,077.25
–DR1–/–Y2–	10+70	10+70	RT/LT	5,402.88		600.32
					TOTAL:	4,463.03
					SAY:	4,470

BREAKING OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
–L–	16+55	18+87	℄	5516.22		612.91
					TOTAL	612.91
					SAY	620

REMOVAL OF EXISTING CONCRETE PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
–DR2–	10+00	10+75	℄	694.48		77.16
					TOTAL:	77.16
					SAY:	80

"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 (WEATHERING STEEL BEAM GUARDRAIL WITH PAINTED LAP)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS							IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350 TL2 (PAINTED)	M–350	XIII	CAT–1	VI MOD	TES (WEATHERING)	TYPE III (WEATHERING)	G	NG				
–L–	14+75.00	16+75.00	RT	200			15+00	16+00	4	7	25	25	0.5	0.5			2												CONTRACTOR TO LOCATE WATER LINES
–L–	17+92.02	18+42.02(BR)	RT	50			18+42.02(BR)		12	20	25		0.5				1						1						BEFORE INSTALLING GUARDRAIL
–L–	21+55.38(BR)	22+05.38	RT	50				21+55.38(BR)	12	20		25		0.5			1						1						
–L–	18+38.05	18+88.05(BR)	LT	50				18+88.05(BR)	12	20		25		0.5			1						1						
–L–	22+75.99(BR)	22+25.99	LT	50			22+75.99(BR)		12	20	25		0.5				1						1						
–L–	21+21.69	21+40.06	RT	25																		2							
–Y2–	–Y2– 10+70.00	–DR1– 11+75.09	LT	187.5	37.5		TIE TO EXIST		6	9																181.00		TIE INTO EXIST GUARDRAIL AT –Y2– STA. 10+70.00
–DR1–	EDGEWATER RD.	–DR1– 11+75.09	RT	312.5					2	5												1				329.50		
			TOTAL:	925	37.5												6					3	4					
	LESS ANCHOR DEDUCTIONS:				0																							
(6 PAINTED) GRAU 350 TYPE TL–2 @ 25' EA. =				–150																								
(4 WEATHERING) TYPE III @ 18.75' EA. =				–75																								
			GRANDTOTAL:	700	37.5												6					3	4				510.50		
			SAY:	725	37.5												6					3	4				512.5		
							ADDITIONAL GUARDRAIL POSTS =10																							

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$$$$USERNAME$$$$
28-OCT-2015 15:56

COMPUTED BY: L. A. Whipple DATE: 1/28/2015
CHECKED BY: J. W. Braxton DATE: 2/6/2015

PROJECT REFERENCE NO.	SHEET NO.
B-4159	3D

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L- 14+15.00	LT	0401		2098.30	2095.83		
-L- 15+02.00	LT	0401	0402		2095.83	2087.72	
-L- 15+02.00	LT	0402		2090.47	2087.47		
-L- 15+55.00	LT	0402	0405		2087.47	2084.52	
-L- 15+55.00	LT	0405		2087.00	2084.52		
-L- 15+07.00	RT	0403		2086.23			
-L- 15+17.00	RT	0403	0404		2073.00	2071.00	
-Y1- 13+23.00	RT	0406		2078.46			
-Y1- 12+91.00	RT	0406	0421		2075.46	2074.02	
-Y1- 12+91.00	RT	0421		2077.27			
-Y1- 11+25.00	RT	0421	0407		2074.02	2069.53	
-Y1- 11+25.00	RT	0407		2072.53			
-Y1- 11+27.00	RT/LT	0407	0408		2068.78	2066.50	
-Y1- 11+27.00	LT	0408		2070.77			
-Y1- 11+26.00	LT	0408	0420		2066.50	2065.00	
-L- 23+00.00	LT	0409		2076.88			
-L- 24+00.00	LT	0409	0410		2074.63	2074.00	
-L- 24+00.00	LT	0410		2076.77			
-L- 23+78.50	LT/RT	0410	0411		2074.00	2071.55	
-L- 28+00.00	LT	0414		2079.75			
-L- 26+50.00	LT	0414	0413		2077.50	2076.00	
-L- 26+50.00	LT	0413		2079.59			
-L- 25+50.00	LT	0413	0412		2076.00	2075.50	
-L- 25+50.00	LT	0412		2078.62			
-L- 24+99.00	LT/RT	0412	0425		2075.50	2075.00	
-L- 24+99.00	RT	0425		2077.87			
-Y2- 16+74.00	RT	0425	0424		2074.87	2071.06	
-Y2- 15+99.00	RT	0424		2074.06			
-Y2- 15+00.00	RT	0424	0416		2071.06	2069.14	
-Y2- 15+00.00	RT	0416		2072.14			
-Y2- 13+50.00	RT	0416	0417		2067.39	2063.12	
-Y2- 13+50.00	RT	0417		2067.87			
-Y2- 12+00.00	RT	0417	0418		2063.12	2061.43	
-Y2- 12+00.00	RT	0418		2066.18			
-Y2- 11+99.00	RT/LT	0418	0419		2061.00	2060.50	
-DR1- 19+94.95	RT						
SUB TOTALS							
SHEET TOTALS							

STATION (SIZE / THICKNESS OR GAUGE)	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109
-L- 15+02.00 (0401-0402)														88					
SUB TOTALS														88					
SHEET TOTALS														88					

STATION	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 15+55.00 (0402-0405)		52													
-L- 15+17.00 (0403-0404)					20										
-Y1- 12+91.00 (0406-0421)		44													
-Y1- 11+25.00 (0421-0407)		168													
-Y1- 11+27.00 (0407-0408)			36												
-Y1- 11+26.00 (0408-0420)			28												
-L- 24+00.00 (0409-0410)	100														
-L- 23+78.50 (0410-0411)									112						
-L- 26+50.00 (0414-0413)	152														
-L- 25+50.00 (0413-0412)	104														
-L- 24+99.00 (0412-0425)									84						
-Y2- 16+74.00 (0425-0424)		84													
-Y2- 15+00.00 (0424-0416)		104													
-Y2- 13+50.00 (0416-0417)			148												
-Y2- 12+00.00 (0417-0418)			140												
-Y2- 11+99.00 (0418-0419)					96										
SUB TOTALS	356	452	352		116				196						
SHEET TOTALS	356	452	352		116				196						

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* 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
-L- 14+15.00								1			
-L- 15+02.00 (0402)								1			
-L- 15+55.00 (0405)								1			
-L- 15+07.00								1	5	3.23	
-Y1- 13+23.00								1			
-Y1- 12+91.00 (0421)								1			1
-Y1- 11+25.00 (0407)								1			1
-L- 23+00.00								1			
-L- 24+00.00 (0410)								1			
-L- 28+00.00								1			
-L- 26+50.00 (0413)								1			
-L- 25+50.00 (0412)								1			
-L- 24+99.00 (0425)								1			
-Y2- 15+99.00								1			
-Y2- 15+00.00 (0416)								1			
-Y2- 13+50.00 (0417)								1			
-Y2- 12+00.00 (0418)								1	0.18		
SUB TOTALS								17	5.18	3.23	2
SHEET TOTALS								17	5.18	9.38	2

STATION	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	T.B.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	M.H. FRAME & COVER STD. 840.54	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		CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 14+15.00							1	1		1									
-L- 15+02.00 (0402)									1	1								12	REMOVE EXIST. 18"CMP
-L- 15+55.00 (0405)									1	1								142	REMOVE EXIST. 18" CMP/ (REMOVE EXIST. HW) AND
																			RETAIN EXIST. 18" CMP CROSS PIPE
-L- 15+07.00											1	1							
-Y1- 13+23.00									1	1									
-Y1- 12+91.00 (0421)	1																		
-Y1- 11+25.00 (0421-0407)																		124	REMOVE 2 EXIST. 24"RCP/CMP AND DI'S
-Y1- 11+25.00 (0407)			1																
-Y1- 11+26.00									1	1									
-L- 23+00.00							1							1					
-L- 24+00.00 (0410)							1							1					
-L- 28+00.00							1							1					
-L- 26+50.00 (0413)							1							1					
-L- 25+50.00 (0412)							1							1					
-L- 24+99.00 (0425)									1	1									
-Y2- 15+99.00									1	1									
-Y2- 15+00.00 (0416)										1					1				
-Y2- 13+50.00 (0417)										1					1				
-Y2- 12+00.00 (0418)										1					1				
-DR1- 19+94.95																			PIPE CLEAN OUT
SUB TOTALS	1		1				6	1	6	10	1	1		5	3			278	
SHEET TOTALS	1		1				6	1	6	10	1	1		5	3			278	

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

4/04/06
02-OCT-2015 09:41
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$$$$USERNAME$$$$

COMPUTED BY:PQL DATE: 3/9/15
CHECKED BY:SCC DATE: 3/9/15

(4-21-15)

PROJECT NO.		SHEET NO.
B-4159	33507.1.1	3G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				UD	100
				TOTAL LF:	100

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE	Approx. Station	Approx. Offset
		TOTAL GAUGES (EACH):	

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
							TOTAL SY:	0

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF REINFORCED SOIL SLOPES (RSS)

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	SY
					TOTAL SY:	0

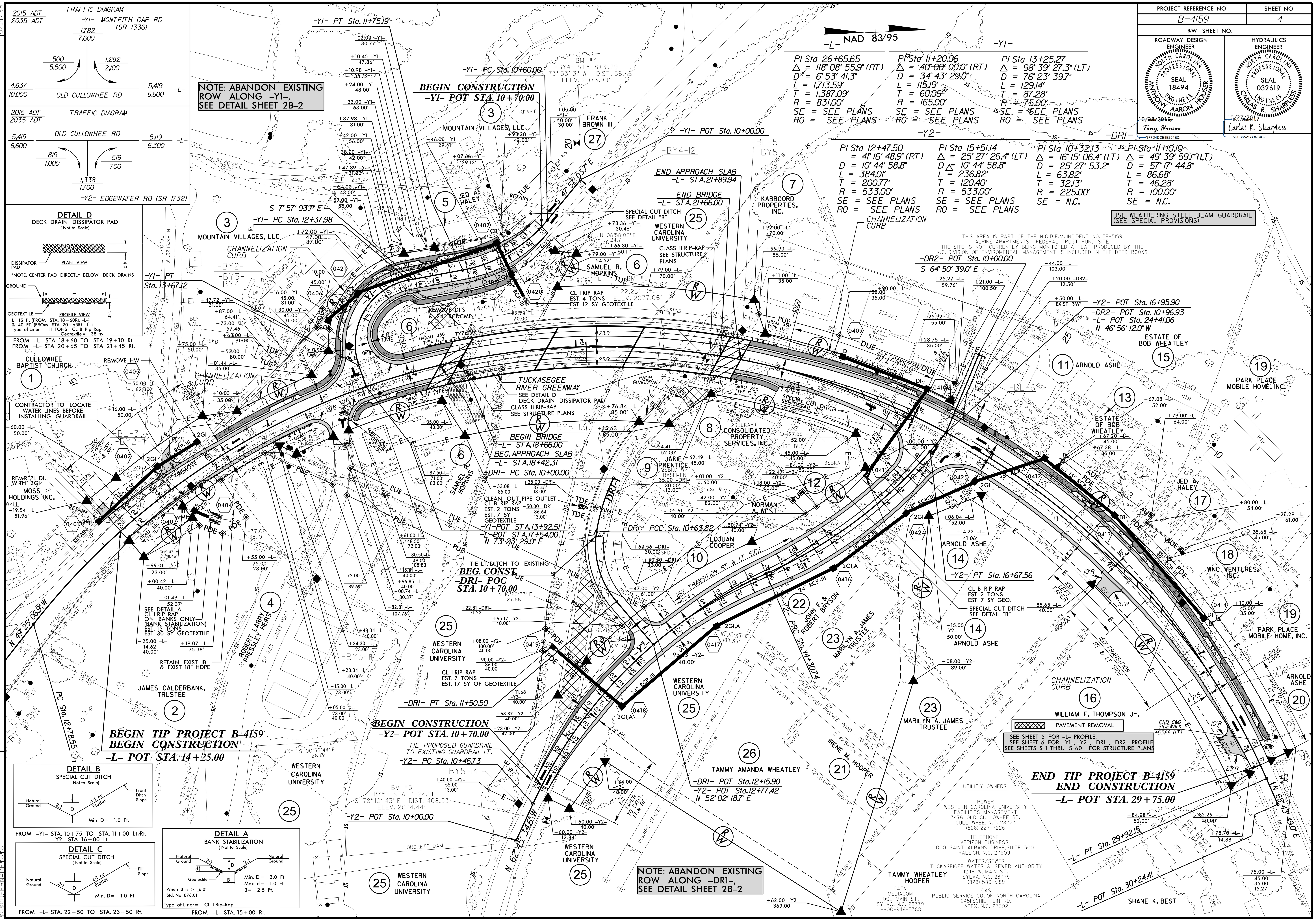
SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

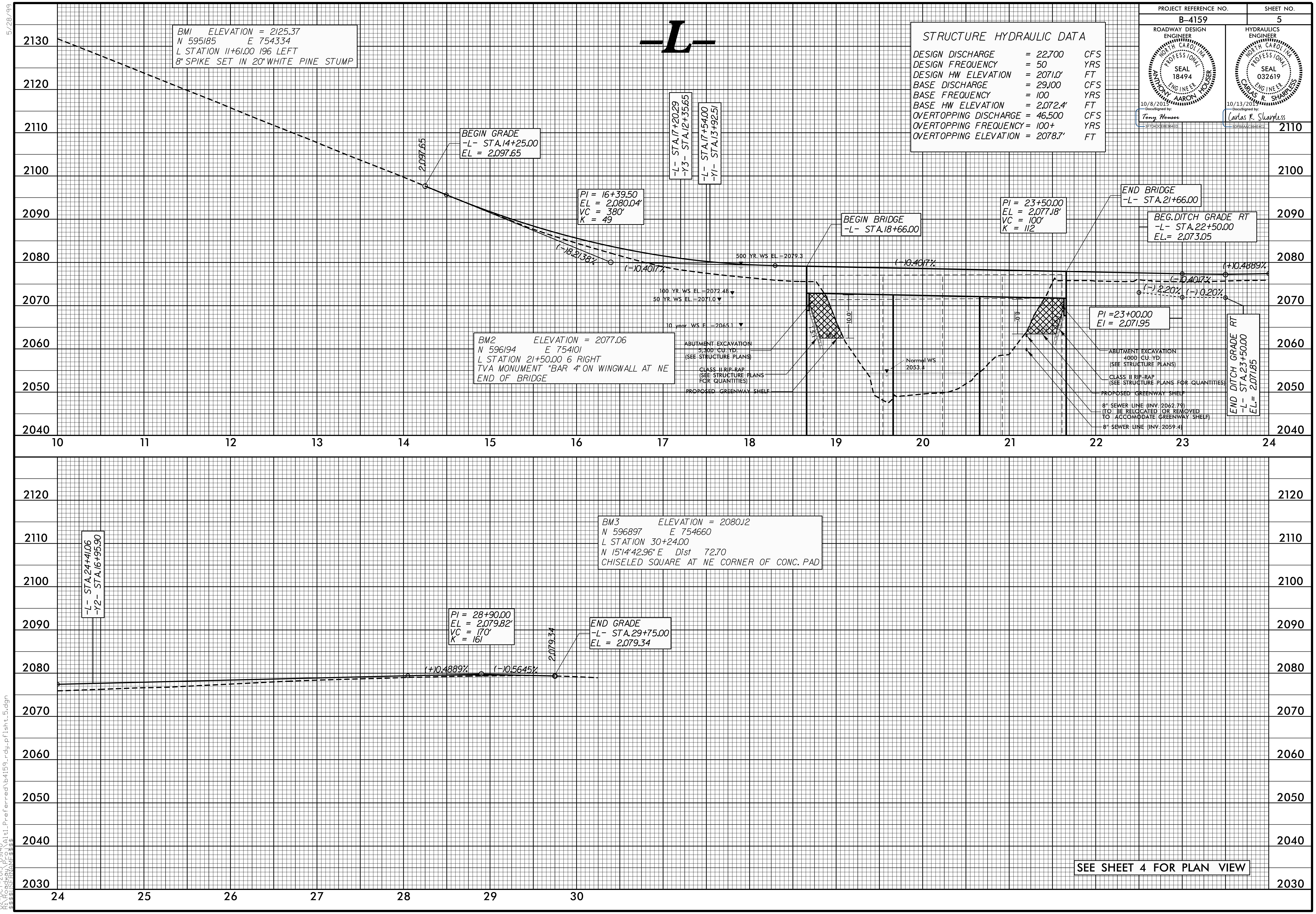
LINE	Station	Station	SY
CONTINGENCY			
		TOTAL SY:	0

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

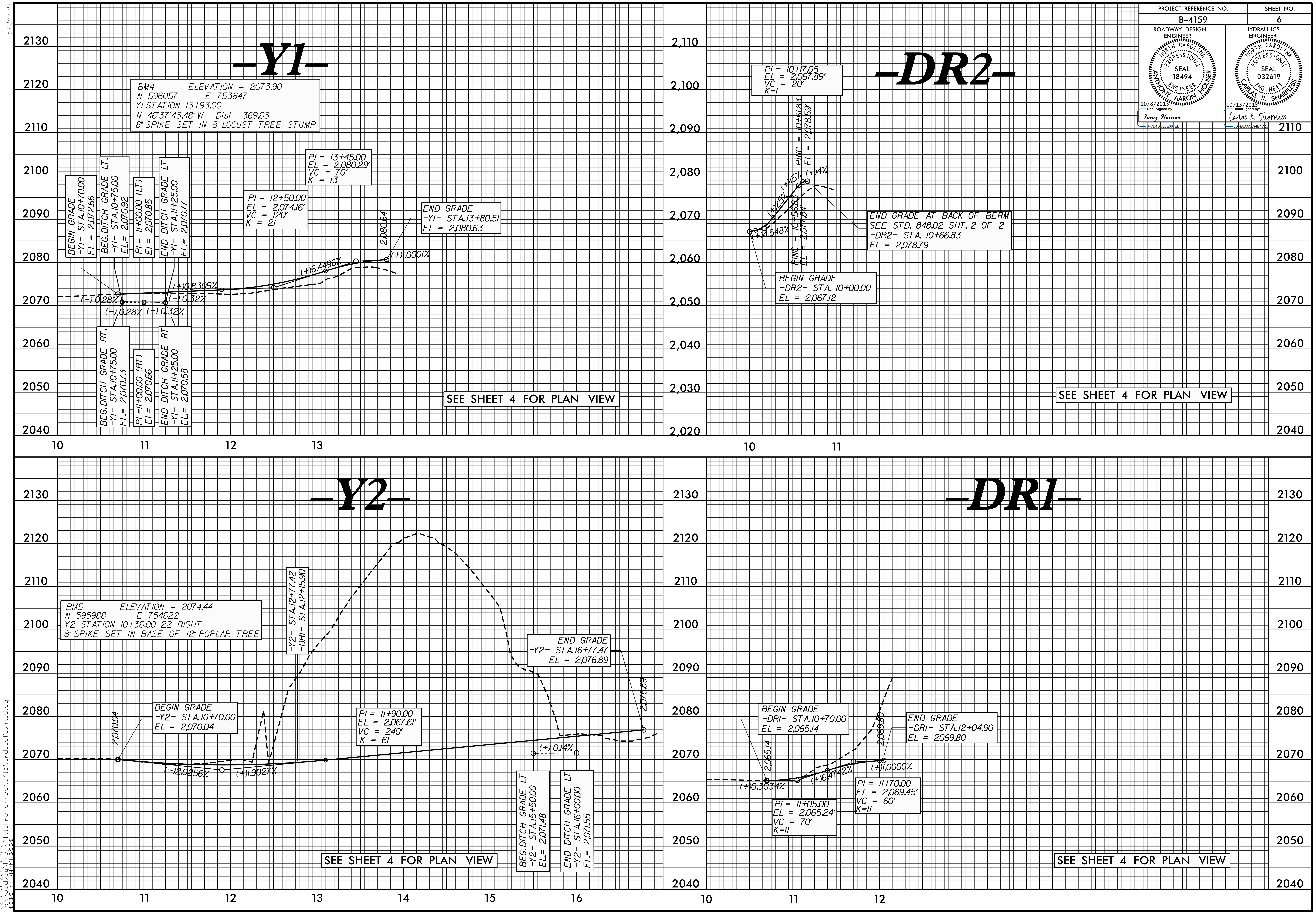
LINE	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		650	1229	1300		
				TOTAL CY/TONS/SY:	650	1229	1300*	0	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization
*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.


PROJECT REFERENCE NO. B-4159
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER
NORTH CAROLINA PROFESSIONAL SEAL 032619 ENGINEER CARLOS R. SHARPLESS
NAD 83/95
-L- PI Sta 26+65.65 Δ = 118° 08' 55.9" (RT) D = 6° 53' 41.3" L = 1,713.59' T = 1,387.09' R = 831.00' SE = SEE PLANS RO = SEE PLANS
-Y1- PI Sta 11+20.06 Δ = 40° 00' 00.0" (RT) D = 34° 43' 29.0" L = 115.19' T = 60.06' R = 165.00' SE = SEE PLANS RO = SEE PLANS
-Y1- PI Sta 13+25.27 Δ = 98° 39' 27.3" (LT) D = 76° 23' 39.7" L = 129.14' T = 87.28' R = 75.00' SE = SEE PLANS RO = SEE PLANS
-Y2- PI Sta 12+47.50 Δ = 41° 16' 48.9" (RT) D = 10° 44' 58.8" L = 384.01' T = 200.77' R = 533.00' SE = SEE PLANS RO = SEE PLANS
-Y2- PI Sta 15+51.14 Δ = 25° 27' 26.4" (LT) D = 10° 44' 58.8" L = 236.82' T = 120.40' R = 533.00' SE = SEE PLANS RO = SEE PLANS
-DRI- PI Sta 10+32.13 Δ = 16° 15' 06.4" (LT) D = 25° 27' 53.2" L = 63.82' T = 32.13' R = 225.00' SE = N.C.
-DRI- PI Sta 11+10.10 Δ = 49° 39' 59.1" (LT) D = 57° 17' 44.8" L = 86.68' T = 46.28' R = 100.00' SE = N.C.
USE WEATHERING STEEL BEAM GUARDRAIL (SEE SPECIAL PROVISIONS)
THIS AREA IS PART OF THE N.C.D.E.M. INCIDENT NO. TF-5159 ALPINE APARTMENTS FEDERAL TRUST FUND SITE THE SITE IS NOT CURRENTLY BEING MONITORED A PLAT PRODUCED BY THE N.C. DIVISION OF ENVIRONMENTAL MANAGEMENT IS INCLUDED IN THE DEED BOOKS
2015 ADT 2035 ADT TRAFFIC DIAGRAM -Y1- MONTEITH GAP RD (SR 1336) OLD CULLOWHEE RD
2015 ADT 2035 ADT TRAFFIC DIAGRAM OLD CULLOWHEE RD -Y2- EDGEWATER RD (SR 1732)
NOTE: ABANDON EXISTING ROW ALONG -Y1-, SEE DETAIL SHEET 2B-2
NOTE: ABANDON EXISTING ROW ALONG -DR1-, SEE DETAIL SHEET 2B-2
DETAIL D DECK DRAIN DISSIPATOR PAD (Not to Scale)
DETAIL B SPECIAL CUT DITCH (Not to Scale) FROM -Y1- STA. 10+75 TO STA. 11+00 Lt./Rt. -Y2- STA. 16+00 Lt.
DETAIL C SPECIAL CUT DITCH (Not to Scale) FROM -L- STA. 22+50 TO STA. 23+50 Rt.
DETAIL A BANK STABILIZATION (Not to Scale) Type of Liner= CL I Rip-Rap FROM -L- STA. 15+00 Rt.
BEGIN TIP PROJECT B-4159 BEGIN CONSTRUCTION -L- POT STA. 14+25.00
BEGIN CONSTRUCTION -Y1- POT STA. 10+70.00
BEGIN CONSTRUCTION -Y2- POT STA. 10+70.00
BEG. CONST. -DRI- POC STA. 10+70.00
END TIP PROJECT B-4159 END CONSTRUCTION -L- POT STA. 29+75.00
BEGIN BRIDGE -L- STA. 18+66.00 BEG. APPROACH SLAB -L- STA. 18+42.31
END BRIDGE -L- STA. 21+66.00 END APPROACH SLAB -L- STA. 21+89.94
TUCKASEGEE RIVER GREENWAY
SEE SHEET 5 FOR -L- PROFILE. SEE SHEET 6 FOR -Y1-, -Y2-, -DRI-, -DR2- PROFILE SEE SHEETS S-1 THRU S-60 FOR STRUCTURE PLANS
PAVEMENT REMOVAL
UTILITY OWNERS
POWER WESTERN CAROLINA UNIVERSITY FACILITIES MANAGEMENT 3476 OLD CULLOWHEE RD. CULLOWHEE, N.C. 28723 (828) 227-7226
TELEPHONE VERIZON BUSINESS 1000 SAINT ALBANS DRIVE, SUITE 300 RALEIGH, N.C. 27609
WATER/SEWER TUCKASEIGEE WATER & SEWER AUTHORITY 1246 W. MAIN ST. SYLVA, N.C. 28779 (828) 586-5189
GAS PUBLIC SERVICE CO. OF NORTH CAROLINA 2451 SCHIEFFLIN RD. APEX, N.C. 27502
CATV MEDIACOM 1061 MAIN ST. SYLVA, N.C. 28779 1-800-946-5388
CULLOWHEE BAPTIST CHURCH
MOSS HOLDINGS INC.
JAMES CALDERBANK, TRUSTEE
MOUNTAIN VILLAGES, LLC
ROBERT LARRY PRESSLEY HEIRS
JED A. HALEY
SAMUEL R. HOPKINS
FRANK BROWN III
KABBOORD PROPERTIES, INC.
CONSOLIDATED PROPERTY SERVICES, INC.
JANIE PRENTICE
LOJUAN COOPER
NORMAN A. WEST
ARNOLD ASHE
ESTATE OF BOB WHEATLEY
PARK PLACE MOBILE HOME, INC.
WNC VENTURES, INC.
WILLIAM F. THOMPSON Jr.
MARILYN A. JAMES TRUSTEE
IRENE M. HOOPER
TAMMY AMANDA WHEATLEY
TAMMY WHEATLEY HOOPER
JOHN E. & ROBERT BRYSON
SHANE K. BEST
WESTERN CAROLINA UNIVERSITY
CONTRACTOR TO LOCATE WATER LINES BEFORE INSTALLING GUARDRAIL
CHANNELIZATION CURB
REVISIONS



PROJECT REFERENCE NO. B-4159
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18494 ENGINEER ANTHONY AARON HOUSER
10/8/2015
Tony Houser
NORTH CAROLINA PROFESSIONAL SEAL 032619 ENGINEER CARLOS R. SHARPLESS
10/13/2015
Carlos R. Sharpless
-L-
BM1 ELEVATION = 2125.37
N 595185 E 754334
L STATION 11+61.00 196 LEFT
8" SPIKE SET IN 20" WHITE PINE STUMP
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = 22,700 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 2071.0' FT
BASE DISCHARGE = 29,100 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 2,072.4' FT
OVERTOPPING DISCHARGE = 46,500 CFS
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING ELEVATION = 2078.7' FT
BEGIN GRADE
-L- STA.14+25.00
EL = 2,097.65
2,097.65
-L- STA.17+20.29
-Y3- STA.12+35.65
-L- STA.17+54.00
-Y1- STA.13+92.51
PI = 16+39.50
EL = 2,080.04'
VC = 380'
K = 49
(-)8.2138%
(-)0.4017%
500 YR. WS EL.=2079.3
100 YR. WS EL.=2072.48
50 YR. WS EL.=2071.0
10 year WS EL.=2065.1
BEGIN BRIDGE
-L- STA.18+66.00
PI = 23+50.00
EL = 2,077.18'
VC = 100'
K = 112
END BRIDGE
-L- STA.21+66.00
BEG. DITCH GRADE RT
-L- STA.22+50.00
EL= 2,073.05
(+)0.4889%
(-)0.4017%
(-) 2.20%
(-) 0.20%
10.0'
Normal WS 2053.4
ABUTMENT EXCAVATION
5,300 CU. YD.
(SEE STRUCTURE PLANS)
CLASS II RIP-RAP
(SEE STRUCTURE PLANS FOR QUANTITIES)
PROPOSED GREENWAY SHELF
BM2 ELEVATION = 2077.06
N 596194 E 754101
L STATION 21+50.00 6 RIGHT
TVA MONUMENT "BAR 4" ON WINGWALL AT NE END OF BRIDGE
PI =23+00.00
EI = 2,071.95
ABUTMENT EXCAVATION
4000 CU. YD.
(SEE STRUCTURE PLANS)
CLASS II RIP-RAP
(SEE STRUCTURE PLANS FOR QUANTITIES)
PROPOSED GREENWAY SHELF
8" SEWER LINE (INV. 2062.79)
(TO BE RELOCATED OR REMOVED TO ACCOMODATE GREENWAY SHELF)
8" SEWER LINE (INV. 2059.4)
END DITCH GRADE RT
-L- STA.23+50.00
EL.= 2,071.85
-L- STA.24+41.06
-Y2- STA.16+95.90
BM3 ELEVATION = 2080.12
N 596897 E 754660
L STATION 30+24.00
N 15°14'42.96" E Dist 72.70
CHISELED SQUARE AT NE CORNER OF CONC. PAD
PI = 28+90.00
EL = 2,079.82'
VC = 170'
K = 161
(+)0.4889%
(-)0.5645%
2,079.34
END GRADE
-L- STA.29+75.00
EL = 2,079.34
SEE SHEET 4 FOR PLAN VIEW



PROJECT REFERENCE NO.
B-4159
SHEET NO.
6
ROADWAY DESIGN ENGINEER
SEAL 18494
ANTHONY AARON HOUSER
NORTH CAROLINA PROFESSIONAL ENGINEER
10/8/2015
Tony Houser
HYDRAULICS ENGINEER
SEAL 032619
CARLAS R. SHARPLESS
10/13/2015
Carlas R. Sharpless
-Y1-
BM4 ELEVATION = 2073.90
N 596057 E 753847
Y1 STATION 13+93.00
N 46°37'43.48" W Dist 369.63
8" SPIKE SET IN 8" LOCUST TREE STUMP
BEGIN GRADE -Y1- STA.10+70.00 EL = 2,072.66
BEG. DITCH GRADE LT. -Y1- STA.10+75.00 EL = 2,070.92
PI = 11+00.00 (LT) El = 2,070.85
END DITCH GRADE LT -Y1- STA.11+25.00 EL = 2,070.77
PI = 12+50.00 EL = 2,074.16' VC = 120' K = 21
PI = 13+45.00 EL = 2,080.29' VC = 70' K = 13
END GRADE -Y1- STA.13+80.51 EL = 2,080.63
2,080.64
(+)1.0001%
(+)6.4496%
(+)0.8309%
(-)0.28%
(-)0.32%
BEG. DITCH GRADE RT. -Y1- STA.10+75.00 EL = 2,070.73
PI = 11+00.00 (RT) El = 2,070.66
END DITCH GRADE RT -Y1- STA.11+25.00 EL = 2,070.58
SEE SHEET 4 FOR PLAN VIEW
-DR2-
PI = 10+17.05 EL = 2,067.89' VC = 20' K=1
PINC = 10+61.83 EL = 2,078.59'
PINC = 10+56.83 EL = 2,077.84
(+)4.548%
(+)25%
(+)15%
(+)4%
END GRADE AT BACK OF BERM SEE STD. 848.02 SHT. 2 OF 2 -DR2- STA. 10+66.83 EL = 2,078.79
BEGIN GRADE -DR2- STA. 10+00.00 EL = 2,067.12
SEE SHEET 4 FOR PLAN VIEW
-Y2-
BM5 ELEVATION = 2074.44
N 595988 E 754622
Y2 STATION 10+36.00 22 RIGHT
8" SPIKE SET IN BASE OF 12" POPLAR TREE
-Y2- STA.12+77.42
-DR1- STA.12+15.90
BEGIN GRADE -Y2- STA.10+70.00 EL = 2,070.04
2,070.04
PI = 11+90.00 EL = 2,067.61' VC = 240' K = 61
(-)2.0256%
(+)1.9027%
END GRADE -Y2- STA.16+77.47 EL = 2,076.89
2,076.89
(+) 0.14%
BEG. DITCH GRADE LT -Y2- STA.15+50.00 EL = 2,071.48
END DITCH GRADE LT -Y2- STA.16+00.00 EL = 2,071.55
SEE SHEET 4 FOR PLAN VIEW
-DR1-
BEGIN GRADE -DR1- STA.10+70.00 EL = 2,065.14
2,065.14
(+)0.3034%
PI = 11+05.00 EL = 2,065.24' VC = 70' K=11
(+)6.1742%
PI = 11+70.00 EL = 2,069.45' VC = 60' K=11
END GRADE -DR1- STA.12+04.90 EL = 2069.80
2,069.80
(+)0.0000%
SEE SHEET 4 FOR PLAN VIEW