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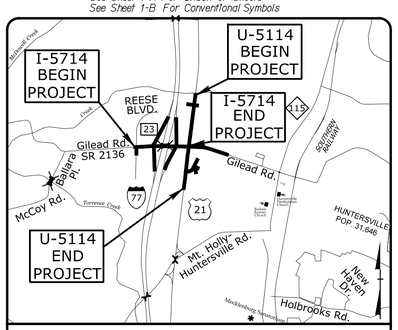
09/08/99

TIP PROJECT: I-5714 /U-5114

CONTRACT: C204104

See Sheet 1A For Index of Sheets

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



VICINITY MAP
NOT TO SCALE

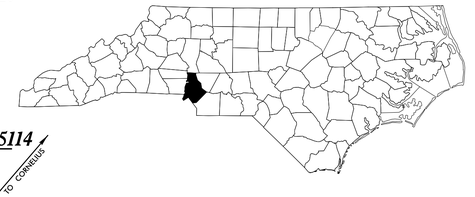
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

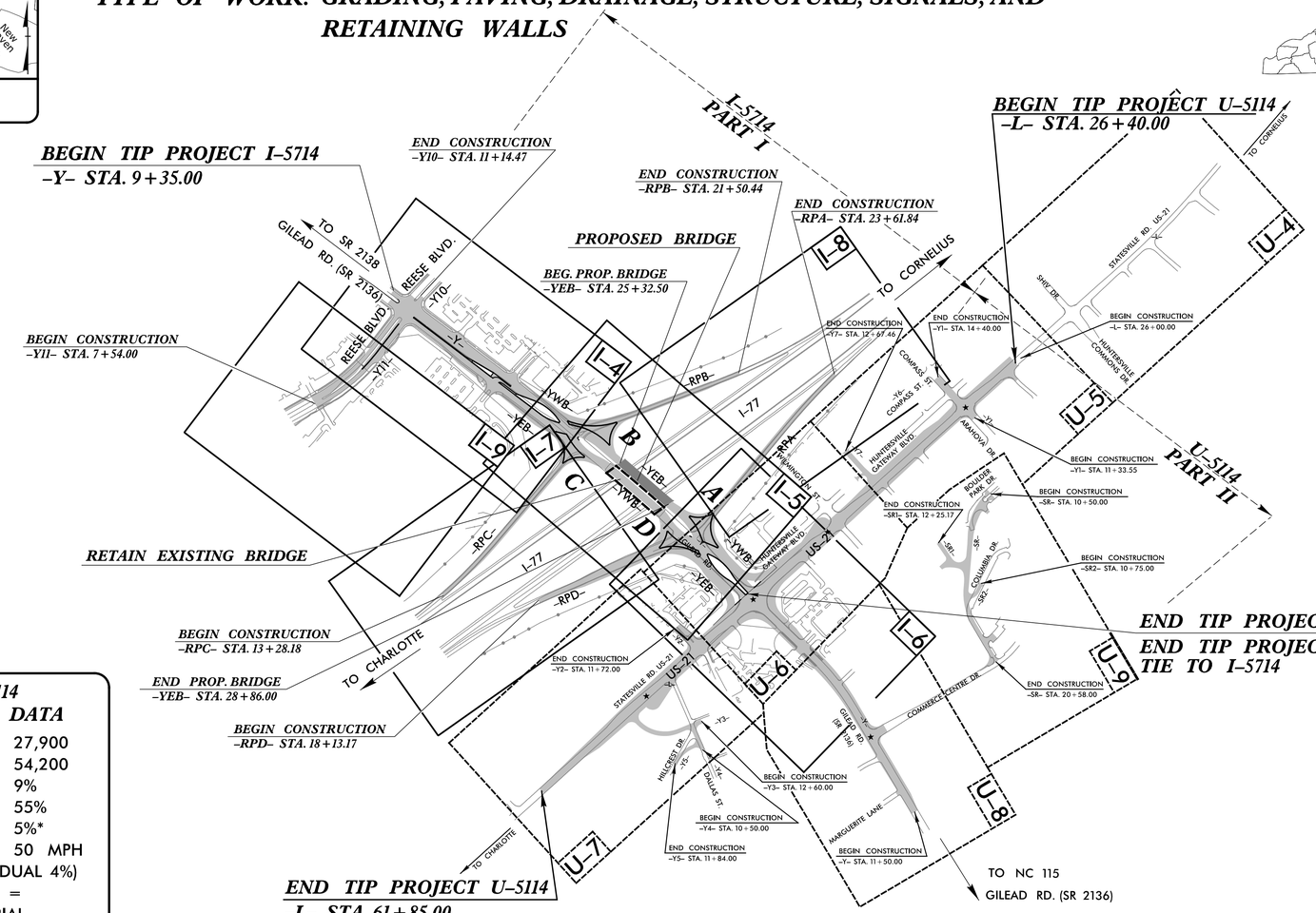
MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5714 /U-5114	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50127.1.FS1	NHPP-077-1(219)23	PE (I-5714)
50127.2.1	NHPP-077-1(219)23	R/W & UTIL (I-5714)
50127.3.1	NHPP-077-1(219)23	CONST. (I-5714)
42376.1.R2		PE (U-5114)
42376.2.1		R/W (U-5114)
42376.2.2		UTIL (U-5114)
42376.3.1		CONST. (U-5114)

LOCATION: I-77 /SR 2136 /US 21 DIVERGING DIAMOND INTERCHANGE IN HUNTERSVILLE.
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, SIGNALS, AND RETAINING WALLS





NAD 83/NA 2011

I-5714 DESIGN DATA

ADT 2018 = 40,300
ADT 2040 = 52,300
K = 8%
D = 55%
T = 4%*
V = 40 MPH
& 30 MPH THRU DDI
* TTST = 1% DUAL 3%
FUNC CLASS =
MINOR ARTERIAL

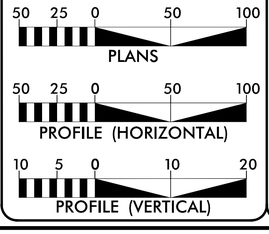
U-5114 DESIGN DATA

ADT 2018 = 27,900
ADT 2038 = 54,200
K = 9%
D = 55%
T = 5%*
V = 50 MPH
* (TTST = 1% + DUAL 4%)
FUNC CLASS =
MINOR ARTERIAL

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PROJECT LENGTH

I-5714

LENGTH ROADWAY TIP PROJECT I-5714 = 0.425 MILES
LENGTH STRUCTURE TIP PROJECT I-5714 = 0.067 MILES
TOTAL LENGTH OF TIP PROJECT I-5714 = 0.492 MILES

U-5114

LENGTH ROADWAY TIP PROJECT U-5114 = 0.671 MILES
TOTAL LENGTH OF TIP PROJECT U-5114 = 0.671 MILES

GRAND TOTAL LENGTH OF TIP PROJECT I-5714 /U-5114 = 1.163 MILES

Prepared for the North Carolina Department of Transportation
In the Office of:

vhb 940 Main Campus Drive, Suite 500 Raleigh, NC 27606 VHB Engineering NC, P.C. (C-3705)
SUNGATE DESIGN GROUP, P.A.
STV 100 STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
I-5714 JULY 31, 2017
RIGHT OF WAY DATE:
U-5114 SEPTEMBER 6, 2016
LETTING DATE:
JULY 17, 2018

JIMMY GOODNIGHT, PE
PROJECT ENGINEER
NIKKI HONEYCUTT, PE
PROJECT ENGINEER
JONATHAN SOIKA, PE
PROJECT DESIGN ENGINEER
MAAMOON ABDELAZIZ
PROJECT DESIGN ENGINEER
NCDOT CONTACT BRYAN KEY, PE
PROJECT DESIGN ENGINEER-ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

5/1/2018
I-5714_rdy_tsh_Comb.dgn
FMartin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5714 / U-5114	1A

I-5714 ROADWAY DESIGN ENGINEER

SEAL 033822 ENGINEER JONATHAN P. OLONG

6/8/2018 12:59:29 PM EDT

U-5114 ROADWAY DESIGN ENGINEER

SEAL 039234 ENGINEER MARY T. HONEYCUTT

6/8/2018 12:58:55 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET (I-5714 / U-5114)
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS

I-5714

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET (I-5714)
1C-1 THRU 1C-3	SURVEY CONTROL SHEETS
2A-1 THRU 2A-6	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-8	ROADWAY DETAILS
2C-1 THRU 2C-5	SPECIAL DETAILS
2G-1	GEOTECHNICAL DETAILS
3B-1 THRU 3B-3	ROADWAY SUMMARIES
3D-1 THRU 3D-4	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 16	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-69	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-20	PAVEMENT MARKING PLANS
E-1 THRU E-2	ELECTRICAL PLANS
EC-1 THRU EC-15	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-26	SIGNING PLANS
SIG-1 THRU SCP-24	SIGNAL PLANS
UC-1 THRU UC-7	UTILITIES CONSTRUCTION PLANS
UD-1 THRU UD-8	UTILITIES BY OTHERS PLANS
X-1A THRU X-1C	CROSS SECTION SUMMARY SHEET
X-1 THRU X-55	CROSS SECTIONS
S-1 THRU S-53	STRUCTURE PLANS

U-5114

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1C-1	SURVEY CONTROL SHEET
1D-1	PROPOSED ALIGNMENT CONTROL SHEET
2A-1 THRU 2A-4	TYPICAL SECTIONS
2B-1 THRU 2B-5	INTERSECTION DETAILS
2C-1 THRU 2C-8	ROADWAY DETAILS
2D-1	DRAINAGE DETAILS
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1 THRU 3B-2	EARTHWORK, GUARDRAIL, CHAIN LINK FENCE AND PAVEMENT REMOVAL SUMMARY SHEET
3D-1 THRU 3D-9	DRAINAGE SUMMARY SHEETS
3G-1	GEOTECHNICAL SUMMARY SHEET
3P-1	PARCEL INDEX SHEET
4 THRU 9	PLAN SHEETS
10 THRU 15	PROFILE SHEETS
EC-1 THRU EC-15	EROSION CONTROL PLANS
SIG-1 THRU SIG-9	SIGNAL PLANS
SIG-M1 THRU SIG-M8	STANDARD SIGNAL DETAIL SHEETS
UC-1 THRU UC-12	UTILITIES CONSTRUCTION PLANS
UD-1 THRU UD-6	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION INDEX OF SHEETS
X-1B THRU X-1C	CROSS SECTION SUMMARY SHEETS
X-1 THRU X-51	CROSS SECTIONS
W-1 THRU W-13	RETAINING WALL PLANS

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.01	Concrete Pavement Joints - Construction and Contraction Joints
700.03	Dowel Assembly
700.05	Tying Proposed Pavement to Existing
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
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
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

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.

GRADING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS 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 CHARLOTTE WATER, AT&T,

CHARTER/SPECTRUM, PIEDMONT NATURAL GAS, DUKE ENERGY (DISTRIBUTION,

ELECTRICITIES (DISTRIBUTION), DUKE NET (SPECTRUM), LEVEL 3 (CENTURY LINK),

SEWER (CHARL.), TWC, SPRINT, WINDSTREAM,

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-SR- 12+00 THRU 16+00. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

6/8/2018
I-5714_rdy_Index_Comb.dgn
Scale

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
I-5714 / U-5114	1-B

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:

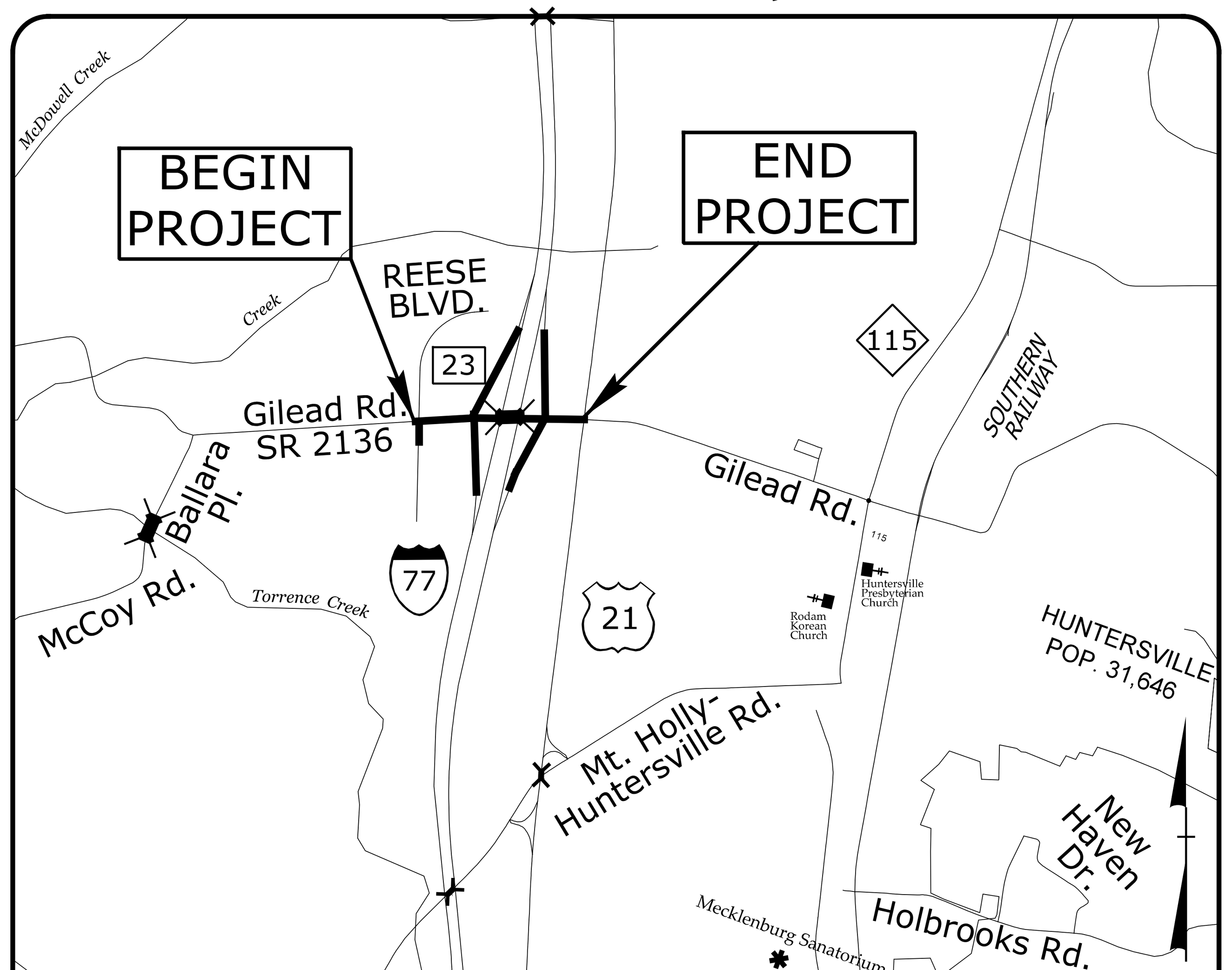
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?UTL)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

09/08/99

TIP PROJECT: I–5714

CONTRACT: C204104

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



VICINITY MAP

NOT TO SCALE

PLFI PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

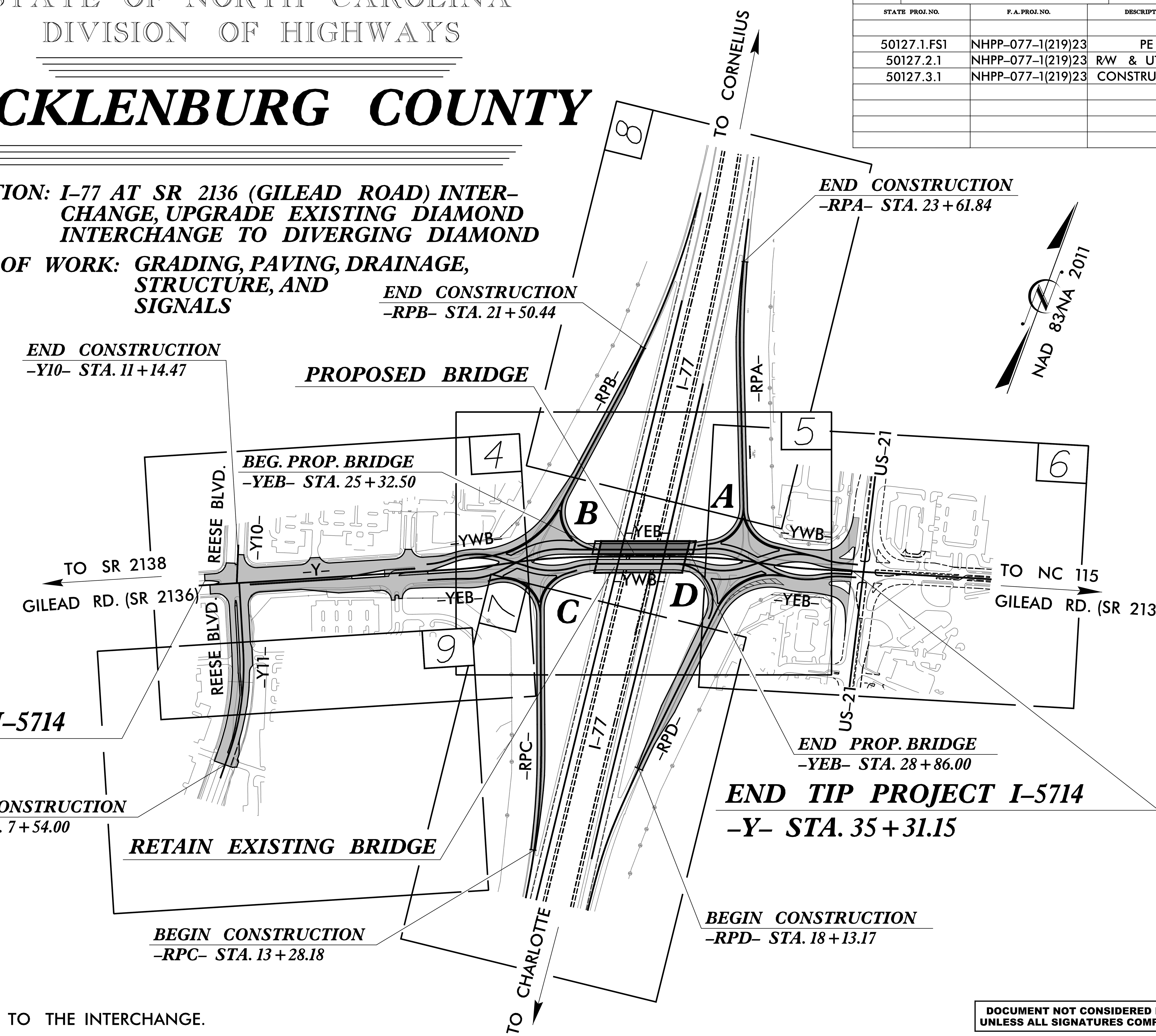
MECKLENBURG COUNTY

LOCATION: I–77 AT SR 2136 (GILEAD ROAD) INTERCHANGE, UPGRADE EXISTING DIAMOND INTERCHANGE TO DIVERGING DIAMOND

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–5714	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50127.1.FS1	NHPP–077–1(219)23	PE
50127.2.1	NHPP–077–1(219)23	R/W & UTILITIES
50127.3.1	NHPP–077–1(219)23	CONSTRUCTION



THIS IS A CONTROLLED–ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2018 = 40,300
ADT 2040 = 52,300
K = 8 %
D = 55 %
T = 4 % *
V = 40 MPH
& 30 MPH THRU DDI
* TTST = 1% DUAL 3%
FUNC CLASS = MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I–5714	=	0.425 MI.
LENGTH STRUCTURE TIP PROJECT I–5714	=	0.067 MI.
TOTAL LENGTH OF TIP PROJECT I–5714	=	0.492 MI.

Prepared for the North Carolina Department of Transportation
In the Office of:

vhb
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258
ENG FIRM LICENSE NO. C-890

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 31, 2017

LETTING DATE:
JULY 17, 2018

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

JONATHAN SOIKA, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT
BRYAN KEY, PE
PROJECT DESIGN ENGINEER–ROADWAY DESIGN

HYDRAULICS ENGINEER

DocuSigned by: Joshua G. Dalton
1089AD8C14994C3...
6/6/2018 12:13:44 PM EDT
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

DocuSigned by:
AEB35098FFE34F1...
6/6/2018 12:21:31 PM EDT
P.E.
SIGNATURE:

6/5/2018
I-5714_rdy_tsh.dgn
FMarin

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
I-5714	1C-1
Location and Surveys	

SURVEY CONTROL SHEET

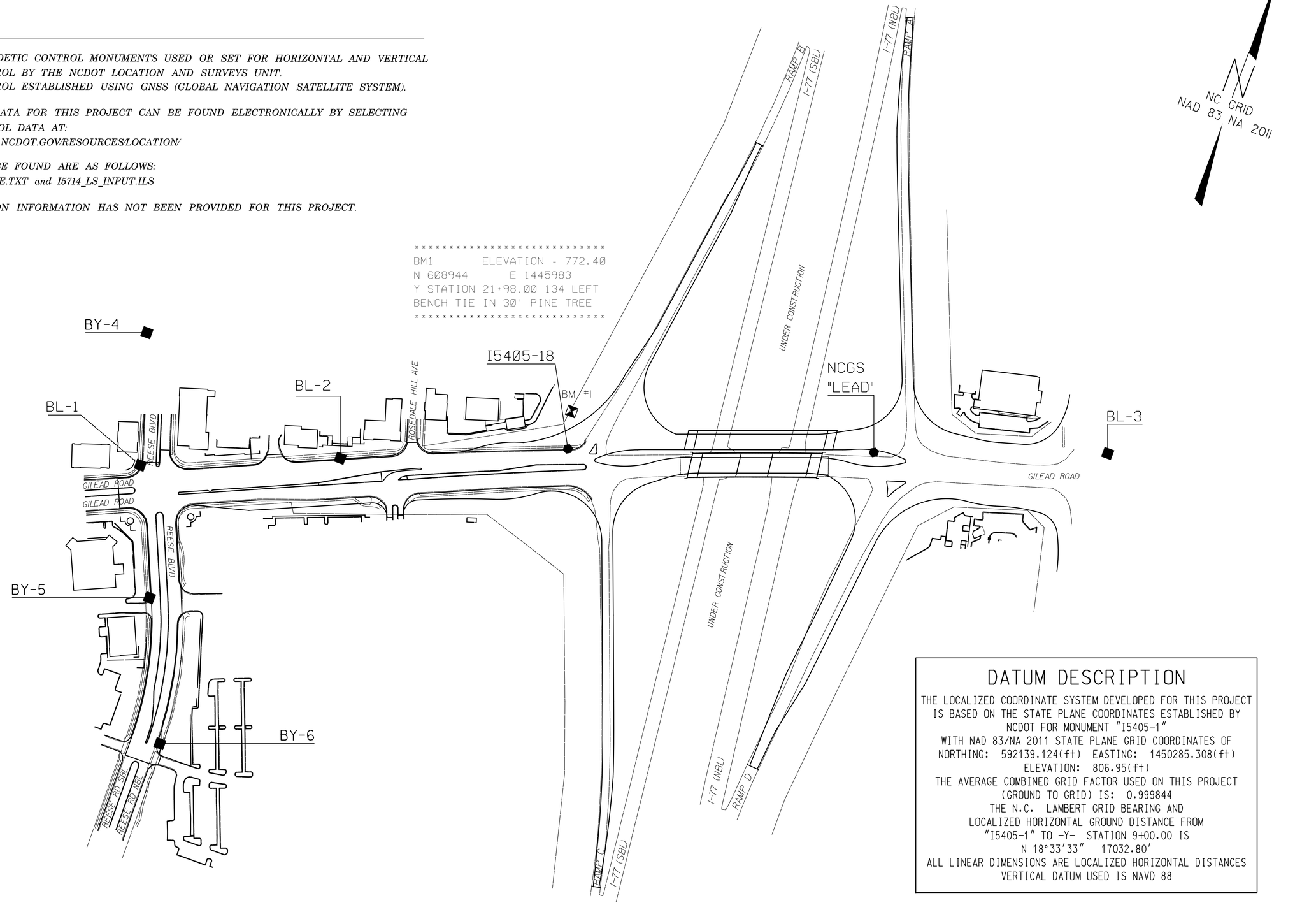
NOTES:

⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

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:
I5714_LS_BASELINE.TXT and I5714_LS_INPUT.ILS

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "I5405-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 592139.124(ft) EASTING: 1450285.308(ft)
ELEVATION: 806.95(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999844
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "I5405-1" TO -Y- STATION 9+00.00 IS
N 18°33'33" 17032.80'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

4/17/2018
I5714_SCS_1C-1.dgn
EMartin

SURVEY CONTROL SHEET

BL

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
1	BL-1	608402.2230	1444939.7720	756.39	10+16.27	75.49 LT
2	BL-2	608607.7100	1445439.9620	755.96	15+56.83	60.92 LT
18	I5405-18	608845.5000	1446008.2100	766.75	21+75.70	34.71 LT
49	NCGS "LEAD"	609124.1400	1446787.0500	773.45	29+98.55	9.55 LT
3	BL-3	609341.1980	1447380.6870	771.15	36+30.74	65.30 LT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
4	BY-4	608744.0880	1444831.9060	754.06	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
5	BY-5	608075.2390	1445087.3380	745.95	12+05.90	51.08 LT
6	BY-6	607715.2990	1445250.8310	727.35	OUTSIDE PROJECT LIMITS	

Y

TYPE	STATION	NORTH	EAST
POT	9+00.00	608286.1321	1444864.0077
PC	19+11.42	608695.5410	1445788.8659
PRC	21+31.46	608793.7010	1445985.7088
PT	25+01.65	608948.3073	1446321.6647
PC	28+43.52	609066.8761	1446642.3182
PRC	31+70.00	609154.6661	1446956.3972
PT	33+83.24	609206.2065	1447163.2014
POT	37+00.00	609299.0766	1447466.0458

Y10

TYPE	STATION	NORTH	EAST
POT	10+00.00	608351.4571	1445011.5773
POT	11+50.00	608494.2066	1444965.5058

Y11

TYPE	STATION	NORTH	EAST
POT	7+00.00	607600.7315	1445219.9789
PC	8+06.46	607707.1821	1445218.5645
PCC	9+71.54	607871.2280	1445202.0767
PT	12+19.59	608107.7133	1445128.9735
POT	14+90.00	608355.4308	1445020.5540

YEB

TYPE	STATION	NORTH	EAST
POT	18+26.30	608628.6206	1445725.3931
PC	18+35.45	608632.3261	1445733.7640
PRC	19+78.67	608686.0720	1445866.4824
PT	21+22.55	608765.6695	1445984.6925
PC	22+34.98	608848.8166	1446060.3646
PRC	24+05.68	608936.5423	1446204.1141
PT	24+32.90	608944.8128	1446230.0392
PC	29+04.20	609108.2692	1446672.0854
PRC	29+42.52	609123.8164	1446707.0831
PT	31+26.11	609155.4507	1446885.0323
PC	32+44.25	609140.1296	1447002.1766
PRC	34+49.18	609182.3162	1447198.6642
PT	35+25.82	609213.8531	1447268.2913
POT	35+81.40	609230.1467	1447321.4238

YWB

TYPE	STATION	NORTH	EAST
POT	18+26.30	608686.6857	1445699.6893
PC	18+26.30	608686.6857	1445699.6893
PRC	19+18.69	608736.4049	1445777.1329
PT	21+22.00	608811.4687	1445961.9075
PC	22+45.64	608817.2815	1446085.4104
PRC	24+27.27	608878.5733	1446253.4508
PT	25+16.76	608921.5763	1446331.5491
PC	28+46.54	609035.9509	1446640.8600
PRC	29+36.52	609054.1304	1446728.6453
PT	31+22.10	609119.0656	1446899.3379
PC	32+34.49	609189.1098	1446987.2423
PRC	34+35.65	609254.4852	1447173.5163
PT	35+13.41	609264.6798	1447250.3819
POT	35+74.61	609280.4996	1447309.5042

RPA

TYPE	STATION	NORTH	EAST
POT	10+00.00	609252.3927	1447138.8183
PC	11+64.90	609233.0004	1446975.0658
PT	13+74.43	609332.6750	1446807.6103
TS	18+68.90	609792.0341	1446624.6100
SC	20+38.90	609950.4775	1446563.0139
CS	23+60.96	610257.3918	1446465.8001
ST	25+30.96	610422.4041	1446424.9429

RPB

TYPE	STATION	NORTH	EAST
POT	10+00.00	608768.2070	1445851.5905
PC	10+54.32	608791.9210	1445900.4601
PT	14+31.80	609085.1250	1446113.6930
TS	19+50.44	609598.7944	1446185.3188
SC	21+20.44	609767.3674	1446207.2558
CS	26+38.23	610284.3630	1446221.5344
ST	28+08.23	610453.8898	1446208.9352

RPC

TYPE	STATION	NORTH	EAST
POT	10+00.00	607439.9289	1446549.6478
TS	10+46.45	607485.8894	1446542.9361
SC	12+50.45	607687.3485	1446510.9207
CS	16+27.04	608051.7044	1446416.9048
ST	18+31.04	608243.5020	1446347.4469
PC	22+65.30	608649.9174	1446194.4513
PT	25+41.60	608718.1681	1445965.5517
POT	25+58.07	608708.4443	1445952.2488

RPD

TYPE	STATION	NORTH	EAST
POT	10+00.00	607403.2868	1446803.0370
TS	12+05.29	607607.2927	1446780.1402
SC	14+77.29	607878.2897	1446757.9917
CS	14+82.65	607883.6482	1446757.8882
ST	17+54.65	608155.2985	1446769.5540
PC	18+08.64	608209.1450	1446773.4993
PT	19+07.90	608308.0063	1446782.3892
PC	25+20.11	608916.7677	1446847.2999
PT	28+57.25	609138.5798	1447066.9460
POT	28+66.18	609139.6136	1447075.8157

SPURA

TYPE	STATION	NORTH	EAST
POT	10+00.00	609130.9936	1446688.9539
PC	10+54.34	609157.3421	1446736.4729
PT	12+70.88	609344.0394	1446803.0829

SPURB

TYPE	STATION	NORTH	EAST
PC	10+00.00	608978.8024	1446321.9595
PT	13+09.53	609140.2076	1446121.3737

SPURC

TYPE	STATION	NORTH	EAST
POT	10+00.00	608649.9174	1446194.4512
PC	10+24.67	608673.0094	1446185.7582
PT	12+14.53	608843.8811	1446233.5651
POT	12+55.39	608869.0983	1446265.7145

SPURD

TYPE	STATION	NORTH	EAST
PC	10+00.00	608874.4275	1446828.7059
PT	13+04.68	609031.0212	1446627.5283

L3NB_I-5405

TYPE	STATION	NORTH	EAST
PC	805+67.45	607812.4380	1446722.2556
PRC	811+15.46	608356.5513	1446657.0825
PT	817+69.98	609006.4096	1446579.2774
POT	825+11.70	609741.8646	1446483.0755

L3SB_I-5405

TYPE	STATION	NORTH	EAST
POT	793+98.22	606634.2478	1446681.8148
POT	828+10.94	610024.2378	1446288.5522

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4/17/2018
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PROJECT REFERENCE NO.	SHEET NO.
I-5714	1C-3
Location and Surveys	

SURVEY CONTROL SHEET

L_U-5114

TYPE	STATION	NORTH	EAST
POT	10+00.00	612742.0918	1446432.7192
PC	11+03.98	612645.0651	1446470.0987
PRC	18+41.63	611942.2394	1446692.5710
PRC	21+52.82	611642.1010	1446774.6506
PT	26+00.00	611209.7341	1446888.5255
PC	33+60.45	610468.7125	1447059.3433
PT	36+25.28	610210.8357	1447119.5878
POT	64+25.00	607486.4063	1447764.5221

Y_U-5114

TYPE	STATION	NORTH	EAST
POT	10+00.00	609481.5321	1448960.7559
PC	18+14.02	609456.9993	1448147.1063
PT	21+80.37	609397.4185	1447786.7338
POT	28+32.39	609206.2587	1447163.3717

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
RPA	11+35.77	41.45	609277.5850	1446999.1150

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
RPB	11+41.00	-63.00	608887.2945	1445934.0821
RPB	12+95.00	-96.45	609001.5085	1445986.4551

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
RPD	27+86.74	78.34	609048.4981	1447029.3524

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y	11+55.48	58.23	608336.3026	1445121.1930
Y	12+12.00	79.00	608340.1864	1445181.2823
Y	14+21.23	79.42	608424.4934	1445372.7799
Y	17+37.00	102.32	608531.3754	1445670.7876
Y	17+84.00	-110.30	608744.8256	1445627.6983
Y	18+03.00	-82.20	608726.8182	1445656.4481

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y11	7+50.00	55.00	607651.4579	1445274.3097
Y11	7+50.00	40.28	607651.2623	1445259.5917
Y11	8+80.00	39.90	607784.2181	1445254.4779
Y11	8+80.00	55.00	607785.5859	1445269.5176
Y11	13+90.00	38.00	608279.05780	1445095.4608
Y11	13+90.00	51.00	608284.2703	1445107.3700
Y11	14+08.62	51.00	608301.3309	1445099.9030

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
YEB	19+46.84	76.16	608603.7780	1445864.0200
YEB	34+36.00	76.00	609109.2814	1447224.3451
YEB	34+72.00	98.47	609106.0775	1447263.7258

RIGHT OF WAY MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
YWB	19+30.00	-54.00	608785.4872	1445751.4866
YWB	34+41.92	-67.84	609322.3892	1447178.2128

ROW PERMANENT EASEMENT MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
RPA	11+50.00	55.00	609289.3706	1446983.3910
RPA	12+02.00	69.96	609302.4331	1446946.0050

ROW PERMANENT EASEMENT MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y	11+52.00	-73.71	608455.5428	1445064.6012
Y	11+52.00	-93.00	608473.1782	1445056.7946

ROW PERMANENT EASEMENT MARKER, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y10	11+30.00	36.50	608486.3837	1445006.3845

ALIGN	STATION	OFFSET	NORTH	EAST
YWB	34+26.00	-63.98	609318.2484	1447161.6607
YWB	34+26.00	-87.00	609341.2564	1447160.8678

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R3	PROPOSED 5″ MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	PROPOSED 4″ CONCRETE ISLAND COVER
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SUFRACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2″ IN DEPTH.	S	4″ CONCRETE SIDEWALK
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ OR GREATER THAN 4″ IN DEPTH	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V	MILLING OF ASPHALT PAVEMENT AT 1.5″ DEPTH. (REPLACE WITH 1.5″ OF S9.5C.)
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 5-1/2″ IN DEPTH OR LESS THAN 4″ IN DEPTH.	V1	VARIABLE DEPTH MILLING OF ASPHALT PAVEMENT, 0″ TO 3″ DEPTH. (REPLACE WITH 3″ OF S9.5C ALONG -Y-, RAMPS AND SPURS.)
L1	CLASS IV SUBGRADE STABILIZATION	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING)
N1	FABRIC STABILIZATION		
R1	PROPOSED 2′-6″ CURB AND GUTTER		
R2	PROPOSED 1′-6″ CURB AND GUTTER		

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

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOMA

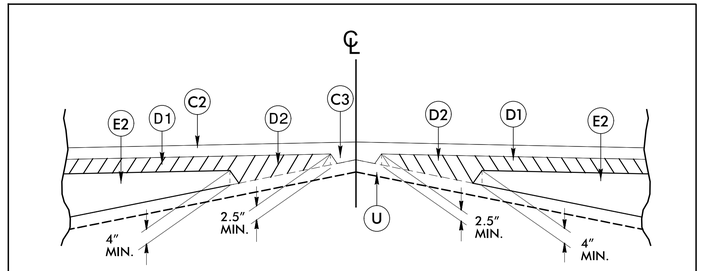
6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

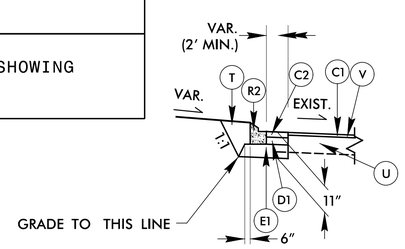
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

6/8/2018 4:15:19 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

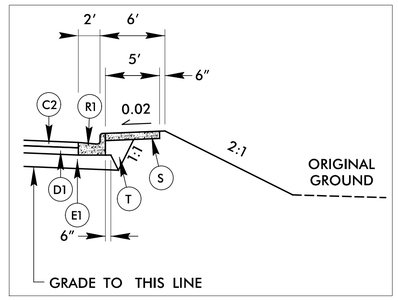


Ⓦ - DETAIL SHOWING METHOD OF WEDGING ON -Y-, -YEB-, -YWB-, RAMPS & SPURS



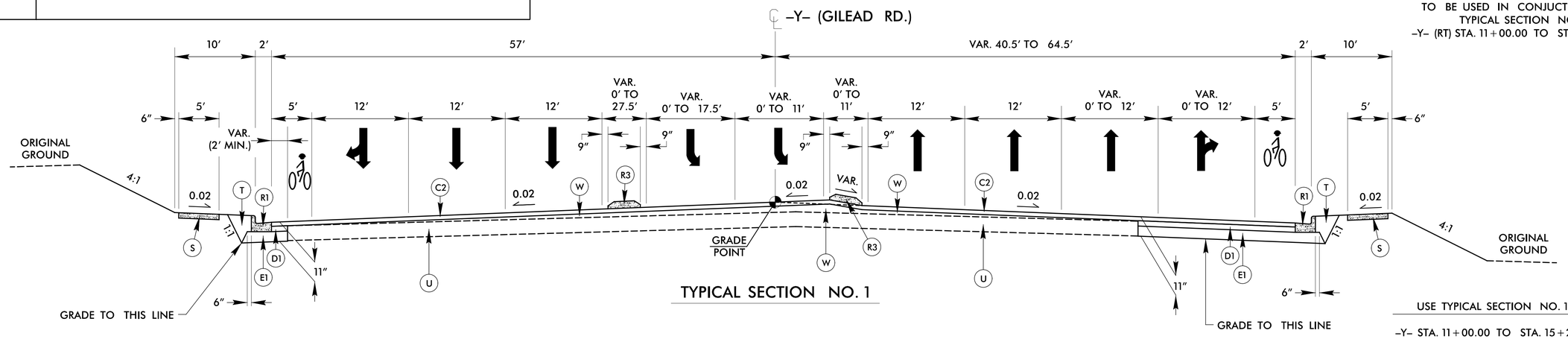
DETAIL A – MEDIAN ISLANDS

–Y– STA. 9+35.00 TO STA. 9+98.90
–Y10– STA. 10+67.84 TO STA. 10+79.00



INSET 1A

TO BE USED IN CONJUCTION WITH TYPICAL SECTION NO. 1
–Y– (RT) STA. 11+00.00 TO STA. 12+86.77



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:

–Y– STA. 11+00.00 TO STA. 15+21.37
–Y– STA. 16+53.32 TO STA. 18+26.30

NOTE: FROM –Y– STA. 9+35.00 TO STA. 11+00.00, TRANSITION FROM EXISTING PAVEMENT TO TYPICAL SECTION NO. 1. CONDUCT 1.5″ MILLING AND OVERLAY PER SHEET 2B–1.

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SONKA

6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK E. MORRISON

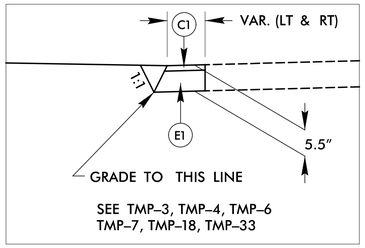
6/8/2018 4:15:19 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

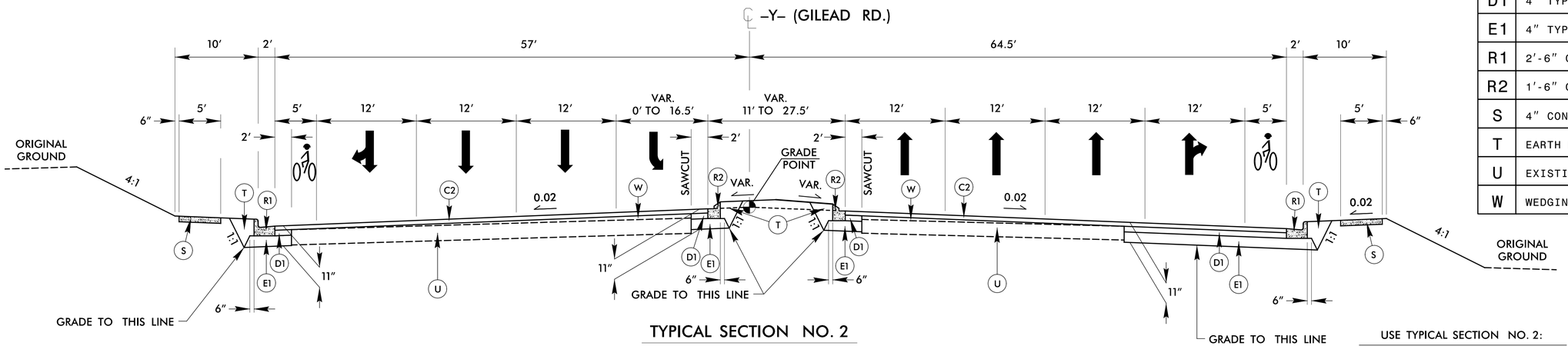
PAVEMENT SCHEDULE

C1	1.5″ TYPE S9.5C
C2	3″ TYPE S9.5C
D1	4″ TYPE I19.0C
E1	4″ TYPE B25.0C
R1	2′-6″ C&G
R2	1′-6″ C&G
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

DETAIL B – TEMP. PAVEMENT



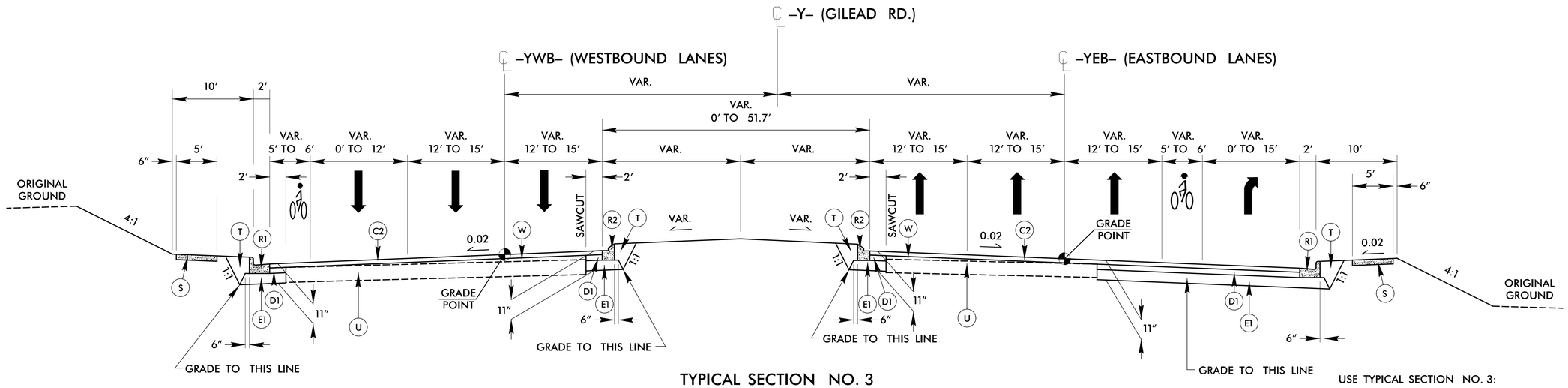
SEE TMP–3, TMP–4, TMP–6
TMP–7, TMP–18, TMP–33



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:

–Y– STA. 15+21.37 TO STA. 16+53.32



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:

–YWB– STA. 18+26.30 TO STA. 21+47.00
–YEB– STA. 18+26.30 TO STA. 21+88.77

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 ENGINEER JONATHAN P SOKA

6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 ENGINEER CLARK S MORRISON

6/8/2018 4:15:19 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

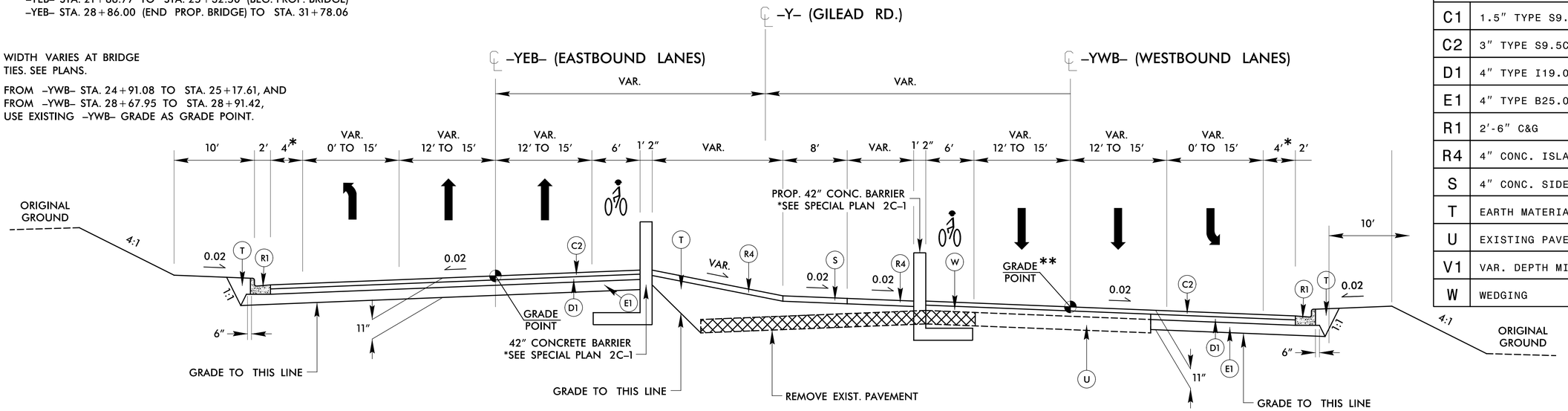
C1	1.5″ TYPE S9.5C
C2	3″ TYPE S9.5C
D1	4″ TYPE I19.0C
E1	4″ TYPE B25.0C
R1	2′-6″ C&G
R4	4″ CONC. ISLAND COVER
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	VAR. DEPTH MILLING
W	WEDGING

USE TYPICAL SECTION NO. 4:

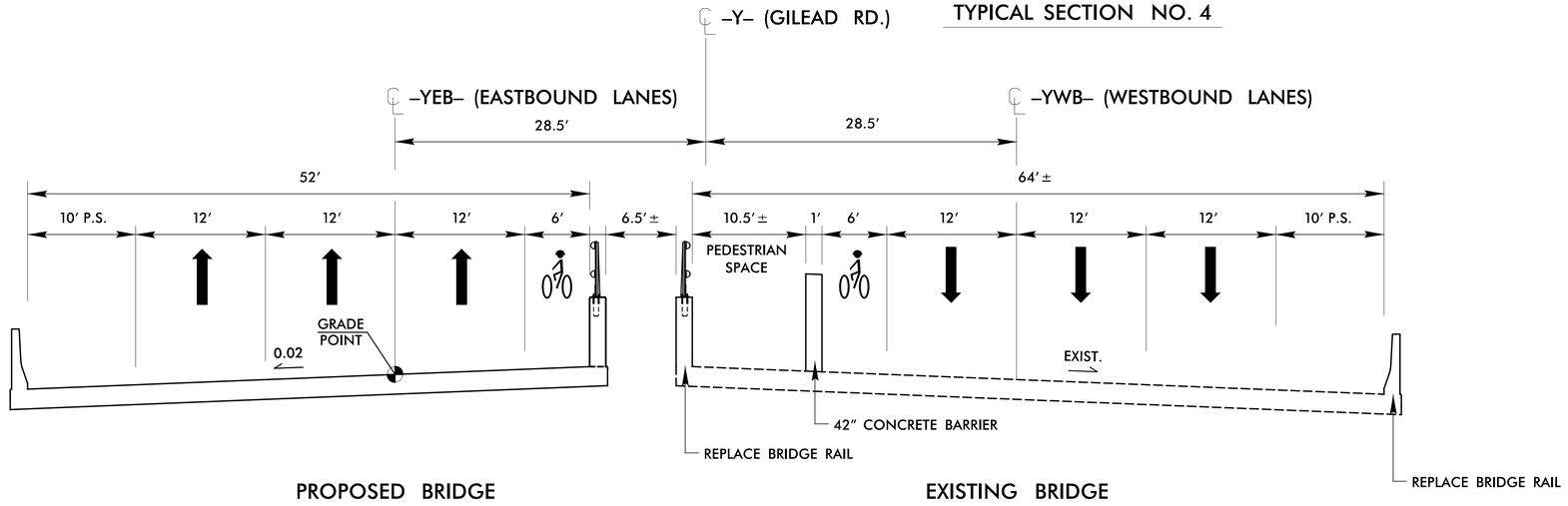
–YWB– STA. 22+19.13 TO STA. 25+17.61 (BEG. EXIST. BRIDGE)
–YWB– STA. 28+67.95 (END EXIST. BRIDGE) TO STA. 31+40.47
–YEB– STA. 21+88.77 TO STA. 25+32.50 (BEG. PROP. BRIDGE)
–YEB– STA. 28+86.00 (END PROP. BRIDGE) TO STA. 31+78.06

* WIDTH VARIES AT BRIDGE TIES. SEE PLANS.

** FROM –YWB– STA. 24+91.08 TO STA. 25+17.61, AND FROM –YWB– STA. 28+67.95 TO STA. 28+91.42, USE EXISTING –YWB– GRADE AS GRADE POINT.



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:

–YWB– STA. 25+17.61 (BEG. EXIST. BRIDGE) TO STA. 28+67.95 (END EXIST. BRIDGE)
–YEB– STA. 25+32.50 (BEG. PROP. BRIDGE) TO STA. 28+86.00 (END PROP. BRIDGE)

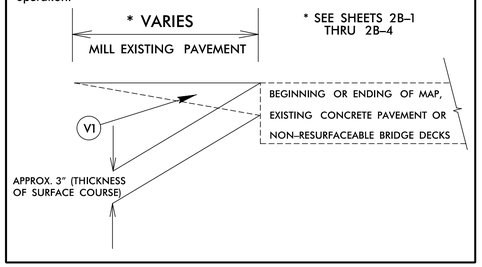
MILLING AT PAVEMENT TIE–INS

NOTES TO CONTRACTOR

For surface mixes over 1″ in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN T SOKA

6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

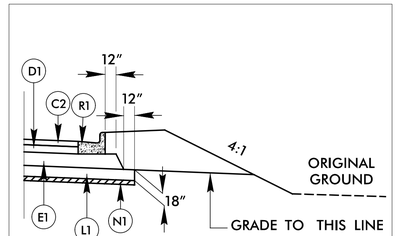
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S MORRISON

6/8/2018 4:15:19 PM EDT

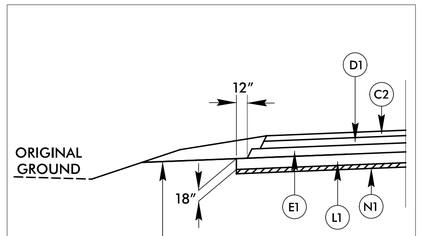
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE	
C1	1.5" TYPE S9.5C
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E1	4" TYPE B25.0C
L1	CLASS IV SUBGRADE STABILIZATION.
N1	FABRIC STABILIZATION
R1	2'-6" C&G
R2	1'-6" C&G
R4	4" CONC. ISLAND COVER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING
W	WEDGING

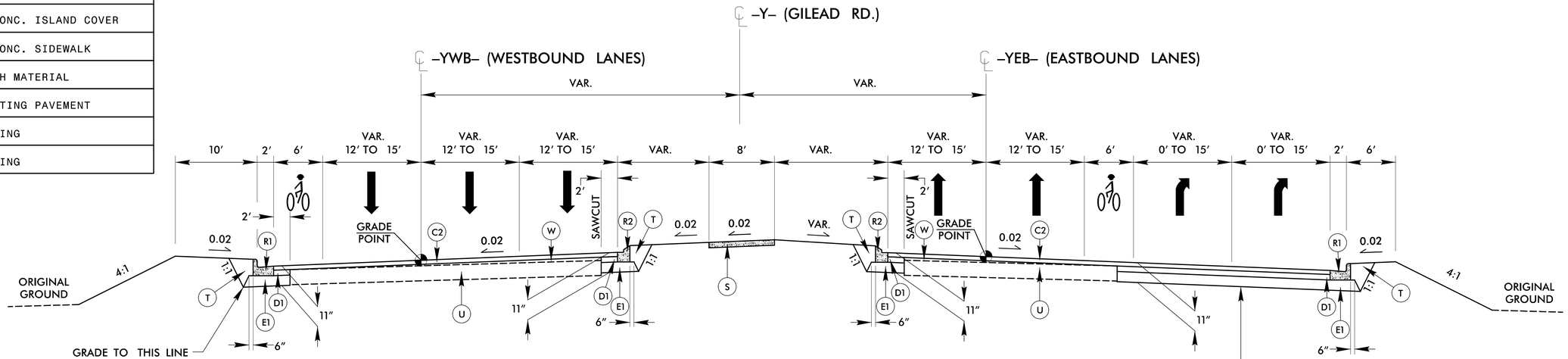
DETAIL C – AGGREGATE SUBGRADE



–YEB– STA. 32+35 TO STA. 35+49 LT & RT
–YWB– STA. 32+30 TO STA. 34+25 LT & RT



–RPD– STA. 25+75 TO 28+66 LT & RT



TYPICAL SECTION NO. 6

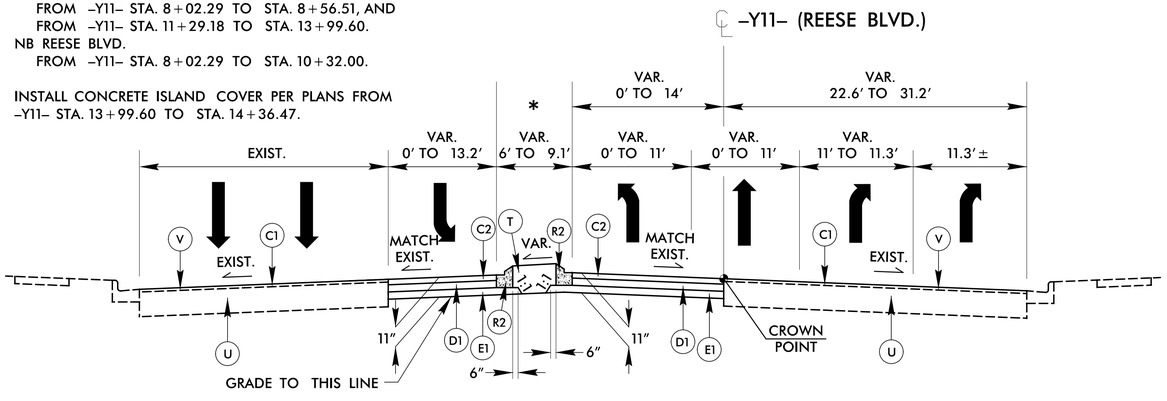
USE TYPICAL SECTION NO. 6:

–YWB– STA. 31+90.52 TO STA. 35+60.72
–YEB– STA. 31+78.02 TO STA. 35+70.88

* RETAIN EXISTING MEDIAN CURB AND GUTTER AS FOLLOWS:

SB REESE BLVD.
FROM –Y11– STA. 8+02.29 TO STA. 8+56.51, AND
FROM –Y11– STA. 11+29.18 TO STA. 13+99.60.
NB REESE BLVD.
FROM –Y11– STA. 8+02.29 TO STA. 10+32.00.

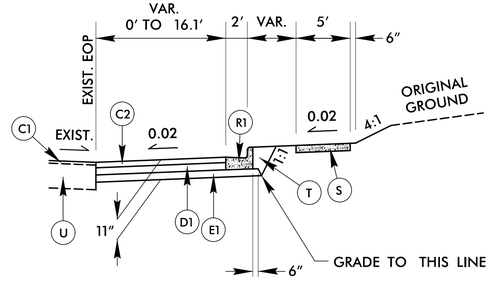
INSTALL CONCRETE ISLAND COVER PER PLANS FROM –Y11– STA. 13+99.60 TO STA. 14+36.47.



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7:

–Y11– STA. 7+54.00 TO STA. 14+49.83



INSET 7A

TO BE USED IN CONJUCTION WITH TYPICAL SECTION NO. 7
–Y11– STA. 7+83.05 TO STA. 8+74.93

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P SOKA

6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK E MORRISON

6/8/2018 4:15:19 PM EDT

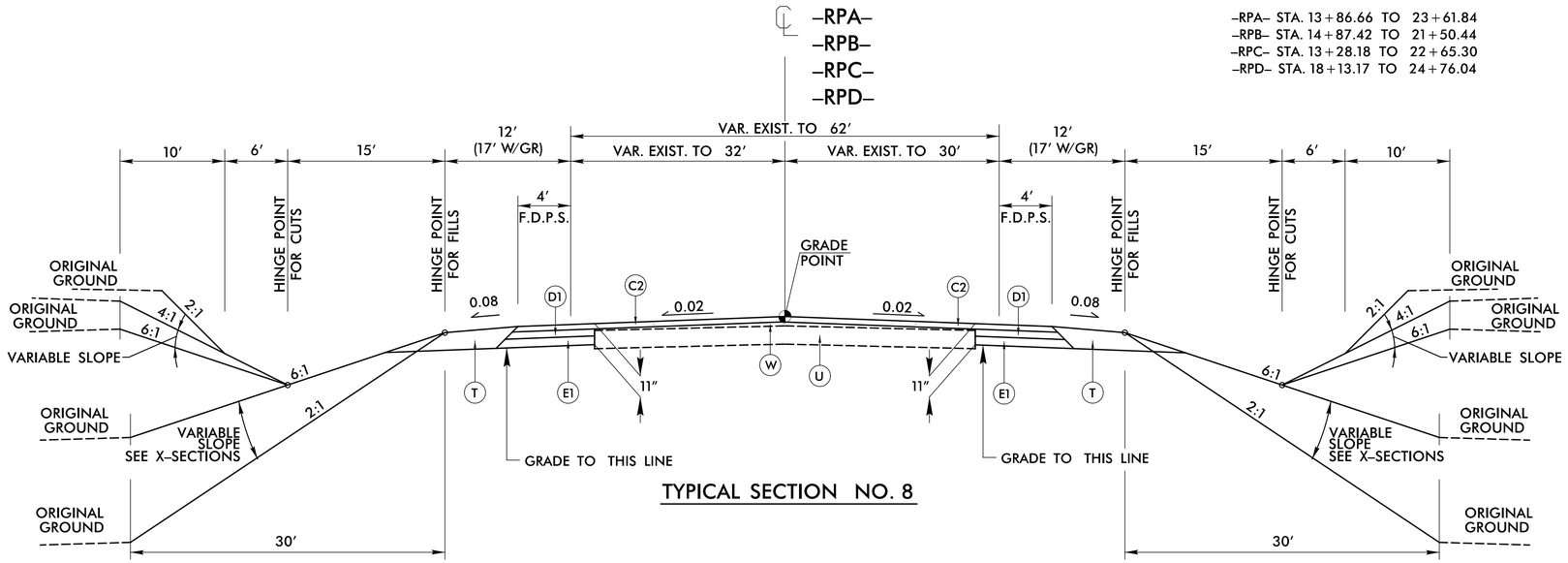
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

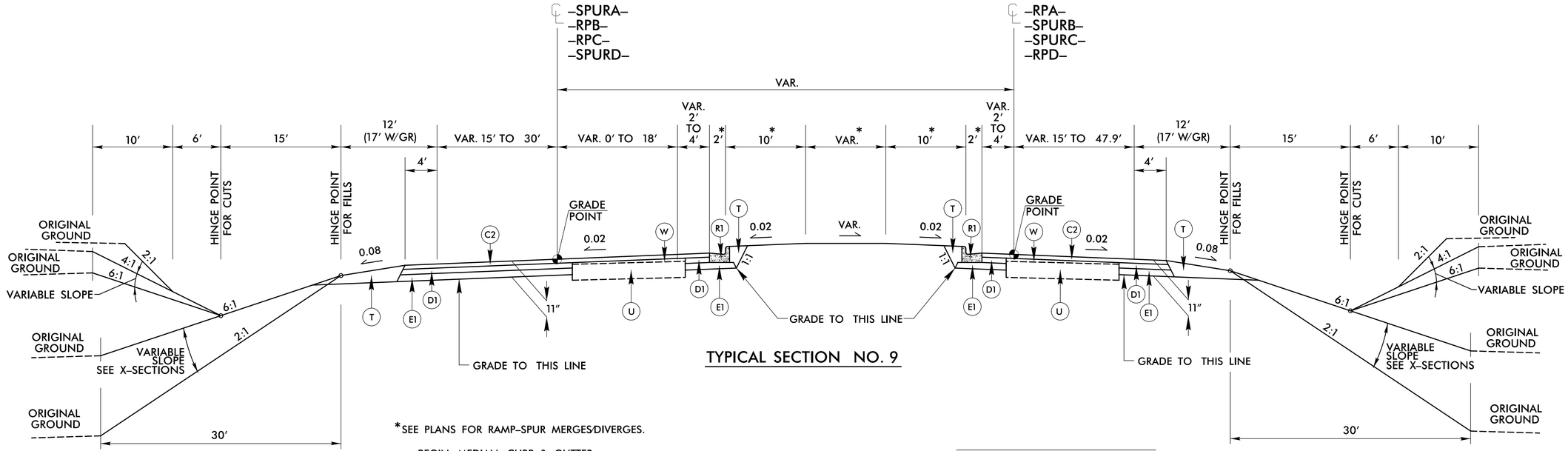
C2	3" TYPE S9.5C
D1	4" TYPE I19.0C
E1	4" TYPE B25.0C
R1	2'-6" C&G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

USE TYPICAL SECTION NO. 8:

–RPA– STA. 13+86.66 TO 23+61.84
–RPB– STA. 14+87.42 TO 21+50.44
–RPC– STA. 13+28.18 TO 22+65.30
–RPD– STA. 18+13.17 TO 24+76.04



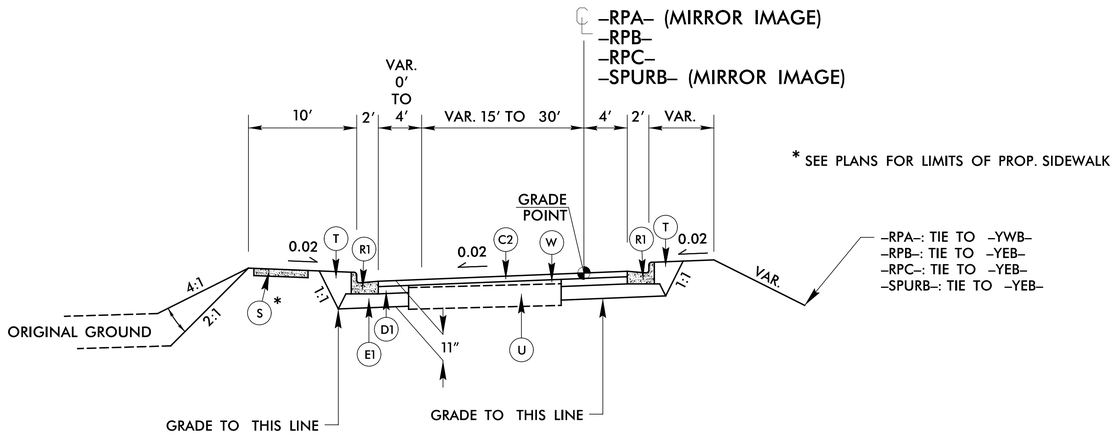
TYPICAL SECTION NO. 8



TYPICAL SECTION NO. 9

*SEE PLANS FOR RAMP–SPUR MERGES/DIVERGES.

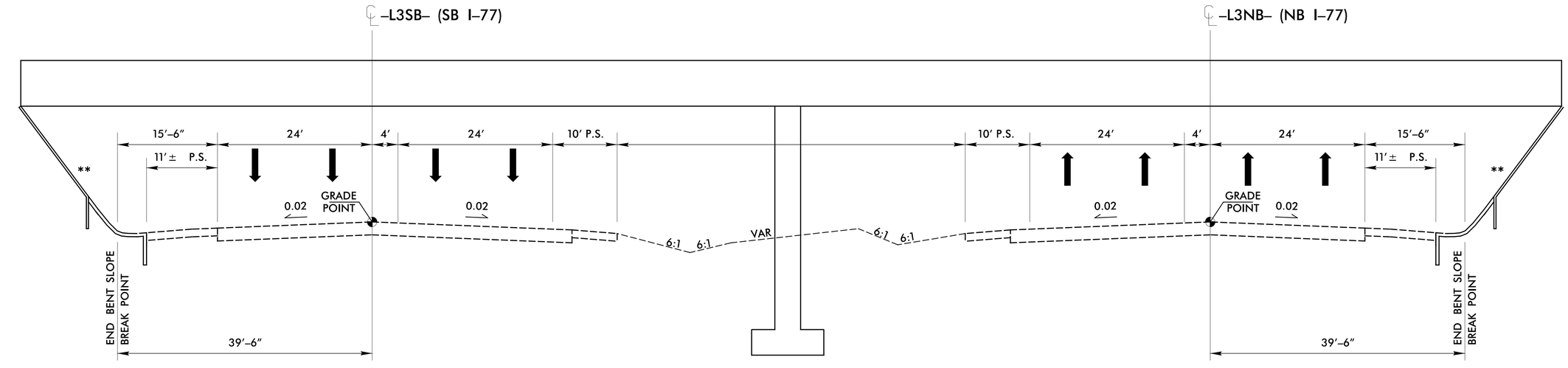
BEGIN MEDIAN CURB & GUTTER:
–RPC– STA. 23+18.04
–SPURC– STA. 10+52.79
–RPD– STA. 25+50.66
–SPURD– STA. 10+66.67
END MEDIAN CURB & GUTTER:
–RPA– STA. 13+38.28
–SPURA– STA. 12+22.54
–RPB– STA. 14+19.93
–SPURB– STA. 12+42.95



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10:

–RPA– STA. 11+14.10 TO 11+31.56
–RPB– STA. 11+32.08 TO 11+98.47
–RPC– STA. 24+67.28 TO 25+58.07
–SPURB– STA. 10+89.75 TO 11+71.47



** SEE STD. DWG. 610.03

TYPICAL SECTION NO. 11

(TYPICAL SECTION ALONG I–77 BENEATH PROPOSED STRUCTURE BASED ON TIP I–5405, WHICH IS CURRENTLY UNDER CONSTRUCTION)

USE TYPICAL SECTION NO. 11:

–L3SB– STA. 817+77.86 TO 818+37.86
–L3NB– STA. 818+02.72 TO 818+62.72

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2A-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SOTAK

6/8/2018 4:17:19 PM EDT

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022896 CLARK S. MORRISON

6/8/2018 4:15:19 PM EDT

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PAVEMENT SCHEDULE

C2	3″ TYPE S9.5C
D1	4″ TYPE I19.0C
E1	4″ TYPE B25.0C
R1	2′-6″ C&G
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA 29599 SEAL 033822 ENGINEER JONATHAN P. SCHNA

6/6/2018 9:19:52 AM EDT

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Prepared by

vhb
4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

REVISIONS 8/17/99

-Y10- STA. 11+14.14 RT.
END 1.5" MILL/OVERLAY

RETAIN EXISTING CURB AND GUTTER

-Y10- STA. 10+79.00 LT.
END 1.5" MILL/OVERLAY

-Y- STA. 11+00.00
END 1.5" MILL/OVERLAY;
BEGIN VARIABLE-DEPTH MILLING (3" - 0");
BEGIN GRADE

10' OF VARIABLE-DEPTH MILLING (3" - 0")

10' OF VARIABLE-DEPTH MILLING (3" - 0")

NAD 83/NA 2011

10 (-Y-)

-Y10-

RETAIN EXISTING CURB AND GUTTER

-Y- STA. 11+35.52 LT.
END VARIABLE-DEPTH MILLING

15 (-Y-)

-Y- STA. 9+35.00 LT.
BEGIN 1.5" MILL/OVERLAY

N 17° 53' 13.7" W

-YWB-

MATCHLINE -YWB-
STA. 20+00.00
SEE SHEET 2B-2

-Y- N 66° 07' 20.5" E

N 66° 07' 20.5" E

-YEB-

MATCHLINE -YEB-
STA. 20+00.00
SEE SHEET 2B-2

-Y- STA. 9+53.65 RT.
BEGIN 1.5" MILL/OVERLAY

RETAIN EXISTING CURB AND GUTTER

-Y- STA. 11+47.52 RT.
END VARIABLE-DEPTH MILLING

N 2° 38' 15.9" W

10' OF VARIABLE-DEPTH MILLING (3" - 0")

-Y11-

10 (-Y11-)

-Y11-

-Y11-

NOVANT HEALTH DRIVEWAY
1.5" MILL/OVERLAY

N 0° 49' 40.6" W

-Y11- STA. 7+54.00
BEGIN 1.5" MILL/OVERLAY

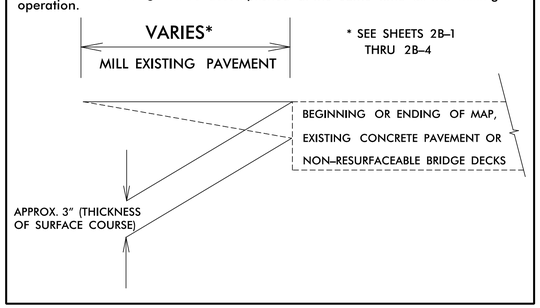
MILLING AT PAVEMENT TIE-INS

NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.



PROPOSED 1.5" MILLING AND 1.5" OVERLAY

PROPOSED VARIABLE-DEPTH MILLING (3" - 0") AND 3" OVERLAY

MILLING DETAIL

6/4/2018
I-5714_rdy_esh02B-1.dgn
jdavis

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-2

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOIKA

6/6/2018 9:19:52 AM EDT

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Prepared by

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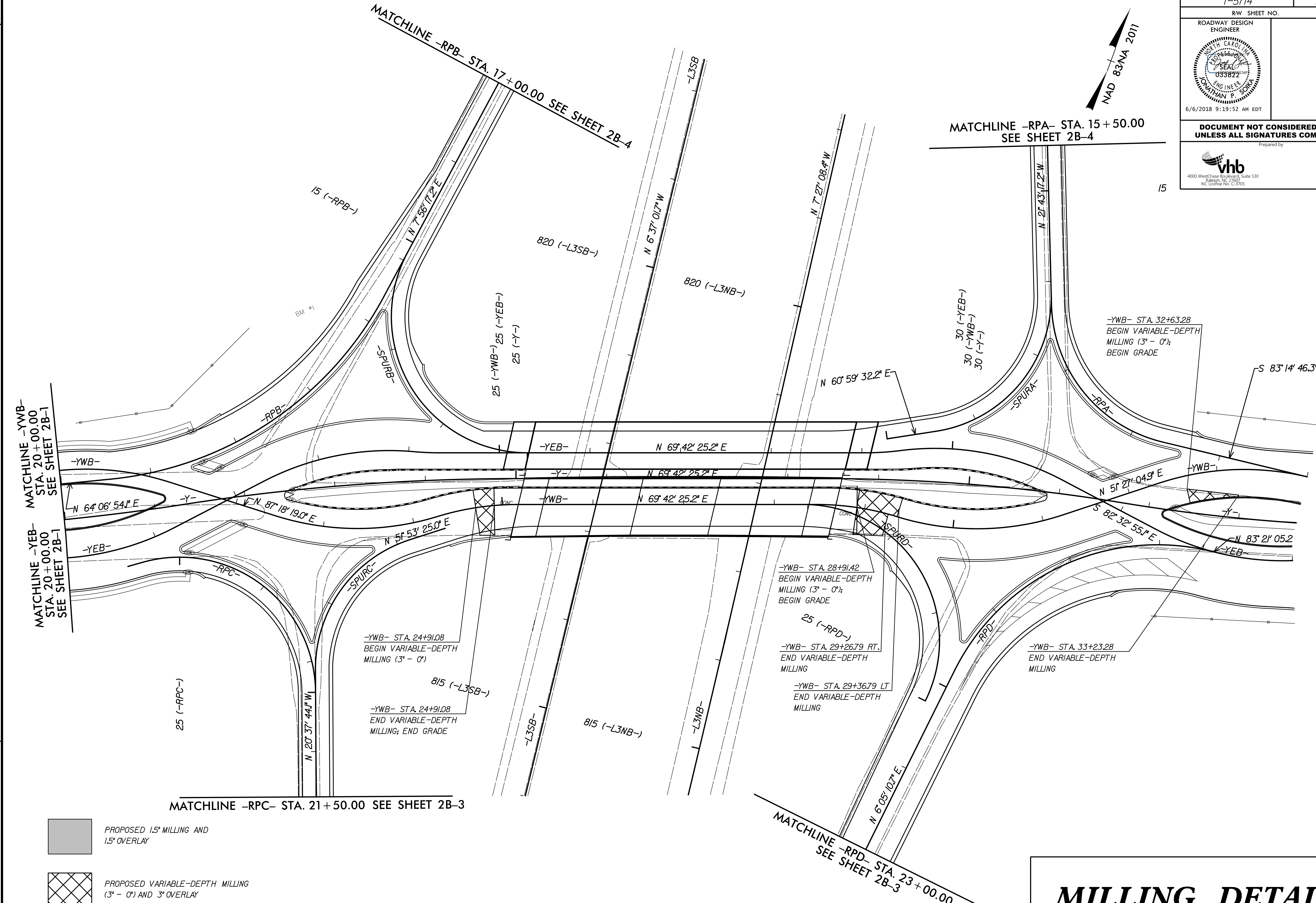
NC License No. C-3705



NAD 83/NA 2011
MATCHLINE -RPB- STA. 17+00.00 SEE SHEET 2B-4
MATCHLINE -RPA- STA. 15+50.00
SEE SHEET 2B-4
MATCHLINE -YWB- STA. 20+00.00 SEE SHEET 2B-1
MATCHLINE -YEB- STA. 20+00.00 SEE SHEET 2B-1
MATCHLINE -RPC- STA. 21+50.00 SEE SHEET 2B-3
MATCHLINE -RPD- STA. 23+00.00 SEE SHEET 2B-3
15 (-RPB-)
15
820 (-L3SB-)
820 (-L3NB-)
815 (-L3SB-)
815 (-L3NB-)
25 (-YWB-)
25 (-YEB-)
25 (-Y-)
30 (-YEB-)
30 (-YWB-)
30 (-Y-)
25 (-RPD-)
25 (-RPC-)
N 7° 56' 17.2" E
N 6° 37' 01.7" W
N 7° 27' 08.4" W
N 21° 43' 17.2" W
N 60° 59' 32.2" E
S 83° 14' 46.3" W
N 69° 42' 25.2" E
N 64° 06' 54.1" E
N 87° 18' 19.0" E
N 51° 53' 25.0" E
N 51° 27' 04.9" E
S 82° 32' 55.1" E
N 83° 21' 05.2
N 20° 37' 44.1" W
N 6° 05' 10.7" E
-L3SB-
-L3NB-
-YEB-
-Y-
-YWB-
-RPA-
-RPB-
-RPC-
-RPD-
-SPURA-
-SPURB-
-SPURC-
-SPURD-
BM #1
-YWB- STA. 32+63.28
BEGIN VARIABLE-DEPTH
MILLING (3" - 0");
BEGIN GRADE
-YWB- STA. 28+91.42
BEGIN VARIABLE-DEPTH
MILLING (3" - 0");
BEGIN GRADE
-YWB- STA. 24+91.08
BEGIN VARIABLE-DEPTH
MILLING (3" - 0")
-YWB- STA. 24+91.08
END VARIABLE-DEPTH
MILLING; END GRADE
-YWB- STA. 29+26.79 RT.
END VARIABLE-DEPTH
MILLING
-YWB- STA. 29+36.79 LT
END VARIABLE-DEPTH
MILLING
-YWB- STA. 33+23.28
END VARIABLE-DEPTH
MILLING

PROPOSED 1.5" MILLING AND 1.5" OVERLAY

PROPOSED VARIABLE-DEPTH MILLING (3" - 0") AND 3" OVERLAY

MILLING DETAIL

6/5/2018
I-5714_rdy_psh02B-2.dgn
FMarin

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P SOUKA

6/6/2018 9:19:52 AM EDT

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Prepared by

vhb

4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

REVISIONS

8/17/99

-RPC- STA. 13+28.18
BEGIN VARIABLE-DEPTH
MILLING (3" TO 0");
BEGIN GRADE

-RPC- STA. 14+23.47 LT.
END VARIABLE-DEPTH
MILLING

805 (-L3SB-)

15 (-RPC-)

20 (-RPC-)

MATCHLINE -RPC- STA. 21+50.00
SEE SHEET 2B-2

N 8° 18' 29.9" W

-RPC-

N 20° 37' 44.1" W

810 (-L3SB-)

-L3SB-

N 6° 37' 01.7" W

-RPC- STA. 13+68.48 RT.
END VARIABLE-DEPTH
MILLING

-RPD- STA. 18+13.17
BEGIN VARIABLE-DEPTH
MILLING (3" TO 0");
BEGIN GRADE

15 (-RPD-)

810 (-L3NB-)

NAD 83/NA 2011

-RPD-

N 6° 24' 13.9" W

-RPD- STA. 18+49.17 LT.
END VARIABLE-DEPTH
MILLING

20 (-RPD-)

N 4° 11' 25.8" E

N 6° 05' 10.7" E

-RPD- STA. 18+58.17 RT.
END VARIABLE-DEPTH
MILLING

MATCHLINE -RPD- STA. 23+00.00
SEE SHEET 2B-2

PROPOSED 1.5" MILLING AND
1.5" OVERLAY

PROPOSED VARIABLE-DEPTH MILLING
3" - 0") AND 3" OVERLAY

MILLING DETAIL

6/5/2018
I-5714_rdy_pshtB2B-3.dgn
kwinn

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SOSNA

6/6/2018 9:19:52 AM EDT

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Prepared by

vhb

4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

NAD 83/NA 2011

REVISIONS

8/17/99

MATCHLINE -RPB- STA. 17+00.00 SEE SHEET 2B-2

-RPB- STA. 21+07.43 LT.
BEGIN VARIABLE-DEPTH
MILLING (0" TO 3")

20 (-RPB-)

825 (-L3SB-)

-RPB- STA. 21+50.44
END VARIABLE-DEPTH
MILLING; END GRADE

25 (-RPB-)

N 7° 56' 11.2" E

-RPB-

-RPB- STA. 21+15.43 RT.
BEGIN VARIABLE-DEPTH
MILLING (0" TO 3")

-L3SB-

N 6° 37' 01.7" W

825 (-L3NB-)

20 (-RPA-)

25 (-RPA-)

-RPA- STA. 23+20.67 LT.
BEGIN VARIABLE-DEPTH
MILLING (0" TO 3")

-L3NB-

N 7° 27' 08.4" W

-RPA-

MATCHLINE -RPA- STA. 15+50.00 SEE SHEET 2B-2

N 2° 43' 17.2" W

-RPA- STA. 23+61.84
END VARIABLE-DEPTH
MILLING; END GRADE

-RPA- STA. 22+95.67 RT.
BEGIN VARIABLE-DEPTH
MILLING (0" TO 3")

PROPOSED 1.5" MILLING AND 1.5" OVERLAY

PROPOSED VARIABLE-DEPTH MILLING (3" – 0") AND 3" OVERLAY

MILLING DETAIL

6/5/2018
I-5714_rdy_psh02B-4.dgn
kmartin

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SOIKA

6/6/2018 9:19:52 AM EDT

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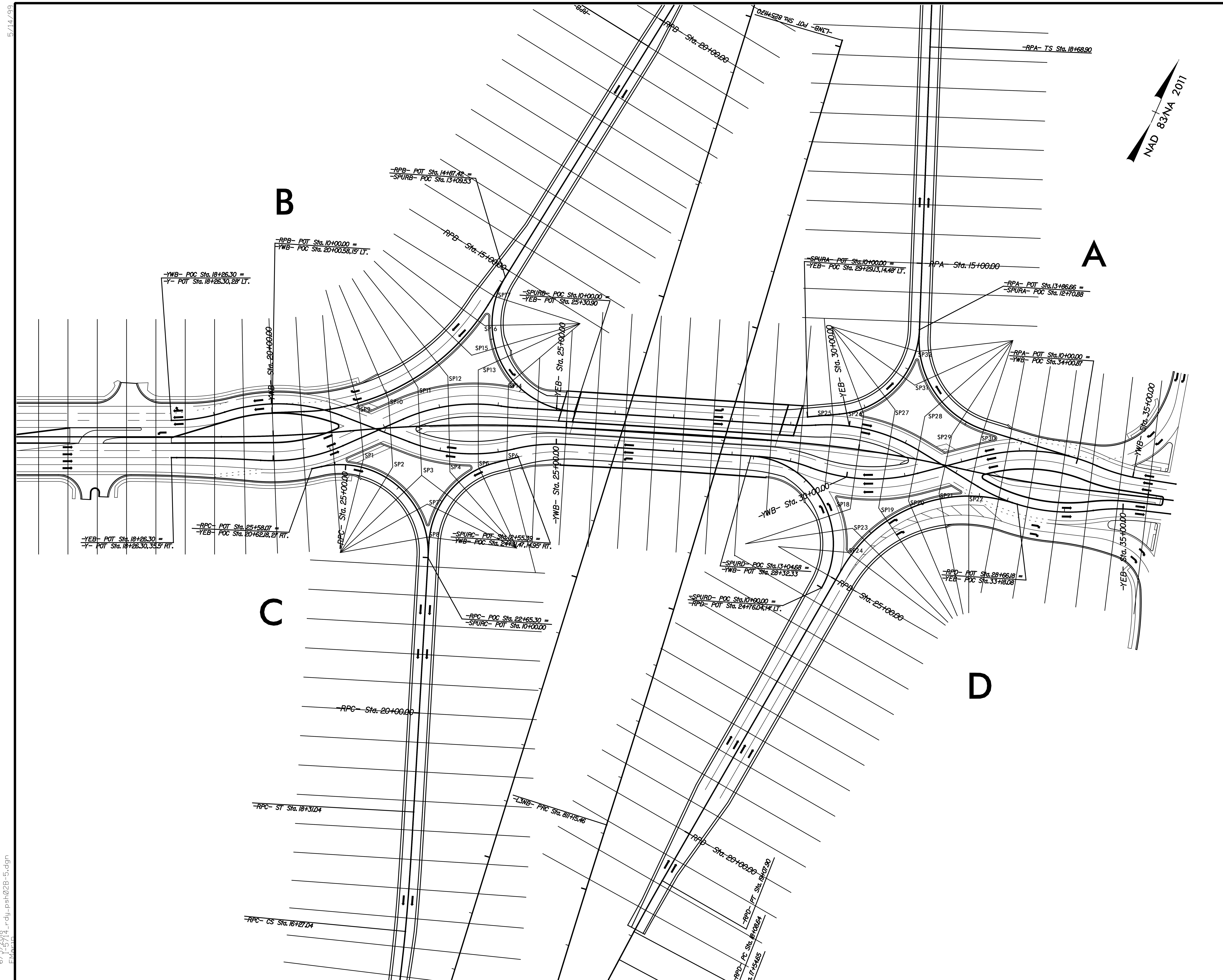
Prepared by

vhb

4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

SHEAR POINT DIAGRAM
GILEAD ROAD DDI OVER I-77
SCALE: 1"= 80'



6/5/2018
I-5714_rdy_psh02B-5.dgn

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOKA

6/6/2018 9:19:52 AM EDT

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4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

-Y-

PI Sta 20+21.52
△ = 5° 15' 10.8" (LT)
D = 2° 23' 14.4"
L = 220.04'
T = 110.10'
R = 2,400.00'

-Y11-

PI Sta 10+96.09
△ = 12° 55' 13.0" (LT)
D = 5° 12' 31.3"
L = 248.05'
T = 124.55'
R = 1,100.00'
SE = EXIST.

-YWB-

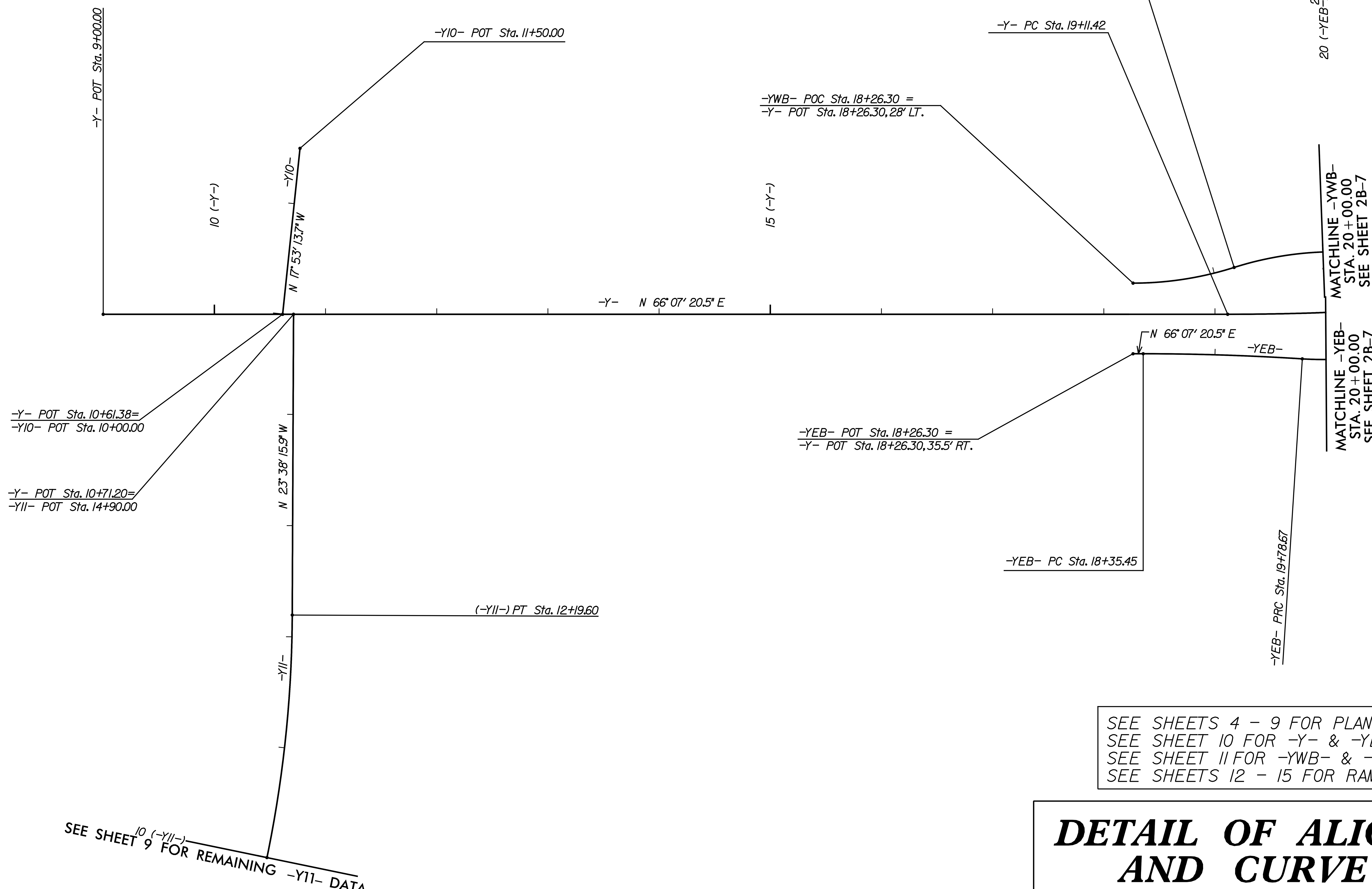
PI Sta 18+72.87
△ = 17° 38' 45.9" (LT)
D = 19° 05' 54.9"
L = 92.39'
T = 46.57'
R = 300.00'
SE = NC

PI Sta 20+24.43
△ = 38° 49' 44.4" (RT)
D = 19° 05' 54.9"
L = 203.31'
T = 105.73'
R = 300.00'
SE = RC

-YEB-

PI Sta 19+07.08
△ = 3° 39' 47.4" (RT)
D = 2° 33' 28.3"
L = 143.21'
T = 71.63'
R = 2,240.00'
SE = NC

PI Sta 20+52.02
△ = 27° 28' 48.9" (LT)
D = 19° 05' 54.9"
L = 143.89'
T = 73.35'
R = 300.00'
SE = RC



SEE SHEETS 4 - 9 FOR PLAN SHEETS
SEE SHEET 10 FOR -Y- & -YEB- PROFILES
SEE SHEET 11 FOR -YWB- & -Y11- PROFILES
SEE SHEETS 12 - 15 FOR RAMP & SPUR PROFILES

DETAIL OF ALIGNMENTS AND CURVE DATA

6/5/2018
I-5714_rdy_psh02B-6.dgn

DocuSign Envelope ID: D2A56E7B-017A-4F31-9EB0-FE2FD847E5A7

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOKA

6/6/2018 9:19:52 AM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared by

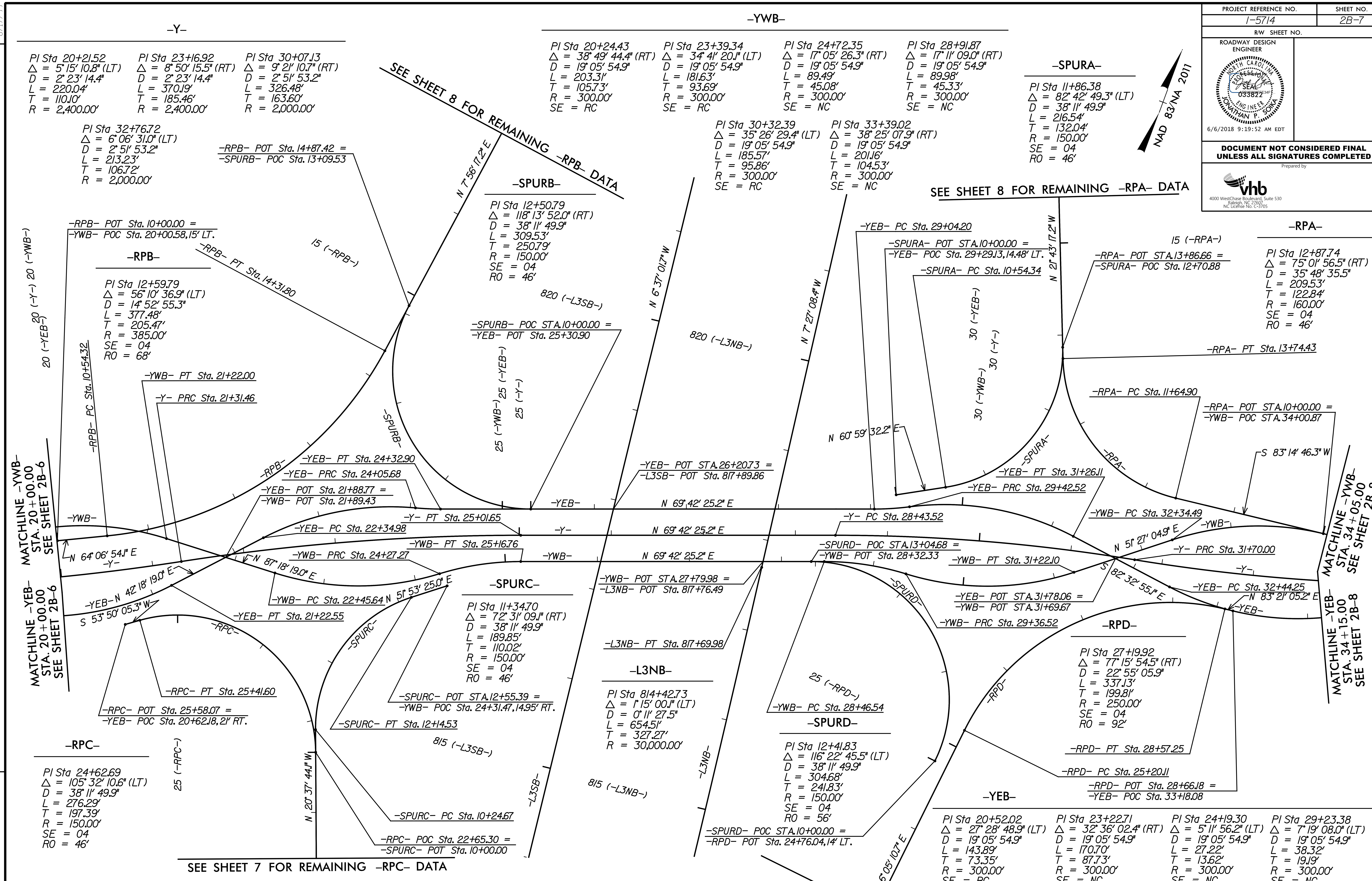
vhb

4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

NAD 83/NA 2011

8/17/99

REVISIONS



-Y-

PI Sta 20+21.52
△ = 5° 15' 10.8" (LT)
D = 2° 23' 14.4"
L = 220.04'
T = 110.10'
R = 2,400.00'

PI Sta 23+16.92
△ = 8° 50' 15.5" (RT)
D = 2° 23' 14.4"
L = 370.19'
T = 185.46'
R = 2,400.00'

PI Sta 30+07.13
△ = 9° 21' 10.7" (RT)
D = 2° 51' 53.2"
L = 326.48'
T = 163.60'
R = 2,000.00'

PI Sta 32+76.72
△ = 6° 06' 31.0" (LT)
D = 2° 51' 53.2"
L = 213.23'
T = 106.72'
R = 2,000.00'

-YWB-

PI Sta 20+24.43
△ = 38° 49' 44.4" (RT)
D = 19° 05' 54.9"
L = 203.31'
T = 105.73'
R = 300.00'
SE = RC

PI Sta 23+39.34
△ = 34° 41' 20.1" (LT)
D = 19° 05' 54.9"
L = 181.63'
T = 93.69'
R = 300.00'
SE = RC

PI Sta 24+72.35
△ = 17° 05' 26.3" (RT)
D = 19° 05' 54.9"
L = 89.49'
T = 45.08'
R = 300.00'
SE = NC

PI Sta 28+91.87
△ = 17° 11' 09.0" (RT)
D = 19° 05' 54.9"
L = 89.98'
T = 45.33'
R = 300.00'
SE = NC

PI Sta 30+32.39
△ = 35° 26' 29.4" (LT)
D = 19° 05' 54.9"
L = 185.57'
T = 95.86'
R = 300.00'
SE = RC

PI Sta 33+39.02
△ = 38° 25' 07.9" (RT)
D = 19° 05' 54.9"
L = 201.16'
T = 104.53'
R = 300.00'
SE = NC

-SPURA-

PI Sta 11+86.38
△ = 82° 42' 49.3" (LT)
D = 38° 11' 49.9"
L = 216.54'
T = 132.04'
R = 150.00'
SE = 04
RO = 46'

-SPURB-

PI Sta 12+50.79
△ = 118° 13' 52.0" (RT)
D = 38° 11' 49.9"
L = 309.53'
T = 250.79'
R = 150.00'
SE = 04
RO = 46'

-RPB-

PI Sta 12+59.79
△ = 56° 10' 36.9" (LT)
D = 14° 52' 55.3"
L = 377.48'
T = 205.47'
R = 385.00'
SE = 04
RO = 68'

-RPA-

PI Sta 12+87.74
△ = 75° 01' 56.5" (RT)
D = 35° 48' 35.5"
L = 209.53'
T = 122.84'
R = 160.00'
SE = 04
RO = 46'

-SPURC-

PI Sta 11+34.70
△ = 72° 31' 09.1" (RT)
D = 38° 11' 49.9"
L = 189.85'
T = 110.02'
R = 150.00'
SE = 04
RO = 46'

-L3NB-

PI Sta 814+42.73
△ = 1° 15' 00.1" (LT)
D = 0° 11' 27.5"
L = 654.51'
T = 327.27'
R = 30,000.00'

-RPD-

PI Sta 27+19.92
△ = 77° 15' 54.5" (RT)
D = 22° 55' 05.9"
L = 337.13'
T = 199.81'
R = 250.00'
SE = 04
RO = 92'

-SPURD-

PI Sta 12+41.83
△ = 116° 22' 45.5" (LT)
D = 38° 11' 49.9"
L = 304.68'
T = 241.83'
R = 150.00'
SE = 04
RO = 56'

-RPC-

PI Sta 24+62.69
△ = 105° 32' 10.6" (LT)
D = 38° 11' 49.9"
L = 276.29'
T = 197.39'
R = 150.00'
SE = 04
RO = 46'

-YEB-

PI Sta 20+52.02
△ = 27° 28' 48.9" (LT)
D = 19° 05' 54.9"
L = 143.89'
T = 73.35'
R = 300.00'
SE = RC

PI Sta 23+22.71
△ = 32° 36' 02.4" (RT)
D = 19° 05' 54.9"
L = 170.70'
T = 87.73'
R = 300.00'
SE = NC

PI Sta 24+19.30
△ = 5° 11' 56.2" (LT)
D = 19° 05' 54.9"
L = 27.22'
T = 13.62'
R = 300.00'
SE = NC

PI Sta 29+23.38
△ = 7° 19' 08.0" (LT)
D = 19° 05' 54.9"
L = 38.32'
T = 19.19'
R = 300.00'
SE = NC

PI Sta 30+37.29
△ = 35° 03' 47.7" (RT)
D = 19° 05' 54.9"
L = 183.59'
T = 94.77'
R = 300.00'
SE = RC

PI Sta 33+50.89
△ = 39° 08' 17.0" (LT)
D = 19° 05' 54.9"
L = 204.93'
T = 106.64'
R = 300.00'
SE = NC

DETAIL OF ALIGNMENTS AND CURVE DATA

SEE SHEETS 4 - 9 FOR PLAN SHEETS
SEE SHEET 10 FOR -Y- & -YEB- PROFILES
SEE SHEET 11 FOR -YWB- & -Y11- PROFILES
SEE SHEETS 12 - 15 FOR RAMP & SPUR PROFILES

6/5/2018
I-5714_rdy_psh02B-7.dgn
FMarin

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2B-8

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOIKA

6/6/2018 9:19:52 AM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared by

vhb
4000 WestChase Boulevard, Suite 530
Raleigh, NC 27607
NC License No. C-3705

-Y-

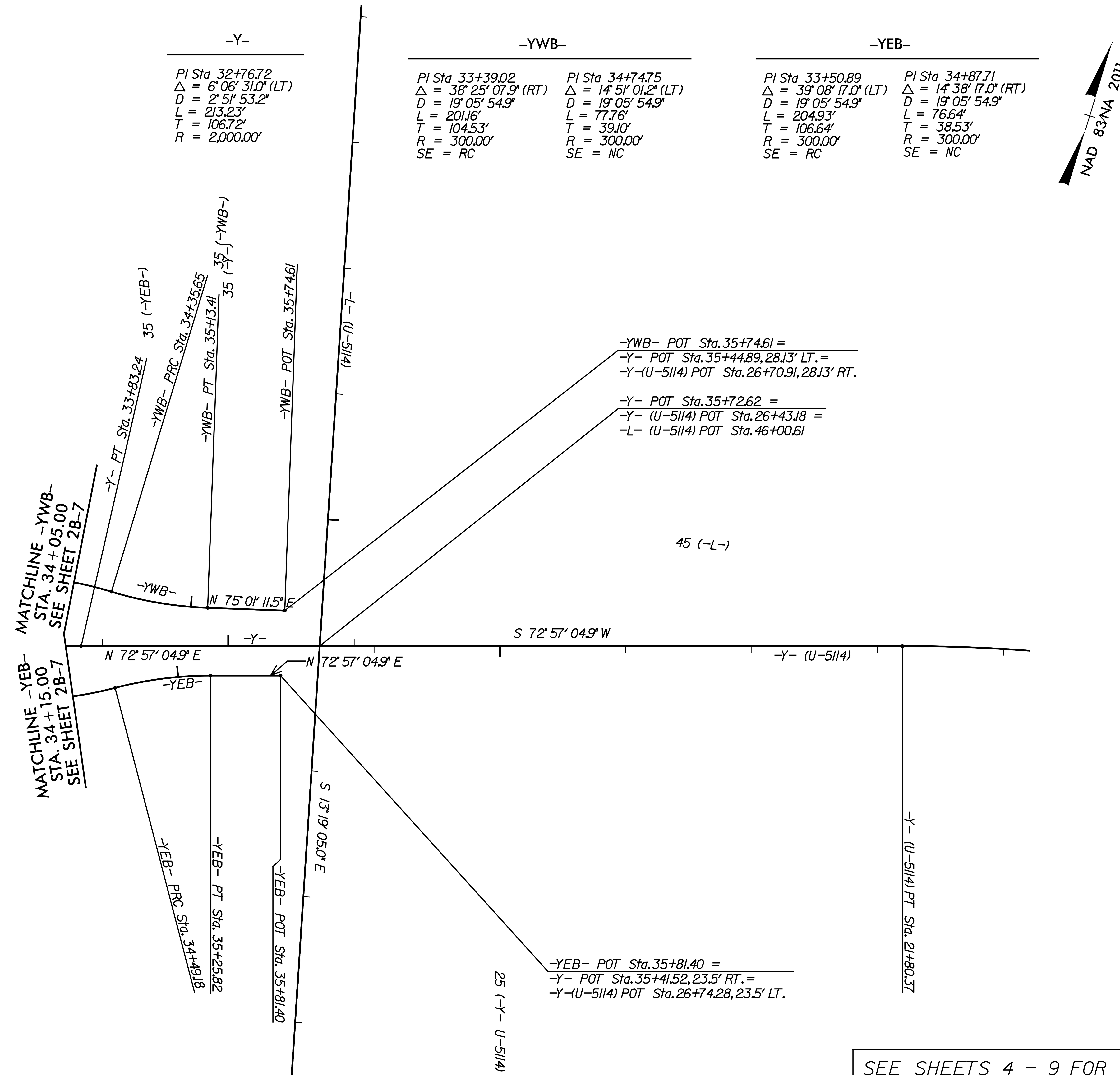
PI Sta 32+76.72
Δ = 6° 06′ 31.0″ (LT)
D = 2° 51′ 53.2″
L = 213.23′
T = 106.72′
R = 2,000.00′

-YWB-

PI Sta 33+39.02	PI Sta 34+74.75
Δ = 38° 25′ 07.9″ (RT)	Δ = 14° 51′ 01.2″ (LT)
D = 19° 05′ 54.9″	D = 19° 05′ 54.9″
L = 201.16′	L = 77.76′
T = 104.53′	T = 39.10′
R = 300.00′	R = 300.00′
SE = RC	SE = NC

-YEB-

PI Sta 33+50.89	PI Sta 34+87.71
Δ = 39° 08′ 17.0″ (LT)	Δ = 14° 38′ 17.0″ (RT)
D = 19° 05′ 54.9″	D = 19° 05′ 54.9″
L = 204.93′	L = 76.64′
T = 106.64′	T = 38.53′
R = 300.00′	R = 300.00′
SE = RC	SE = NC



SEE SHEETS 4 - 9 FOR PLAN SHEETS
SEE SHEET 10 FOR -Y- & -YEB- PROFILES
SEE SHEET 11 FOR -YWB- & -YII- PROFILES
SEE SHEETS 12 - 15 FOR RAMP & SPUR PROFILES

DETAIL OF ALIGNMENTS AND CURVE DATA

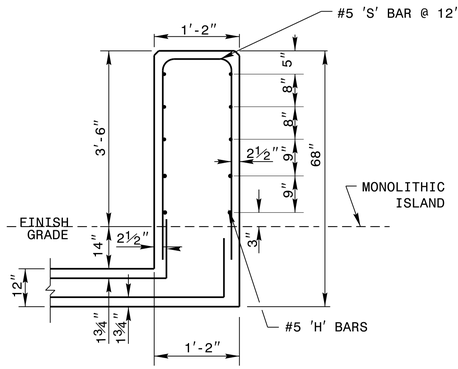
REVISIONS

8/17/99

6/5/2018
I-5714_rdy_psh02B-8.dgn

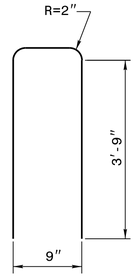
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2C-1



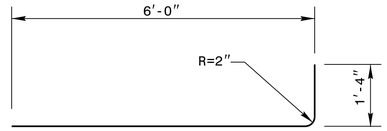
DETAIL X-X

CROSS SECTIONAL VIEW



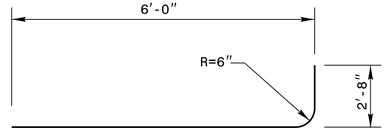
S - BARS

#5 BAR



L - BARS

#5 BAR



J - BARS

#5 BAR

GENERAL NOTES:

-CLASS 'AA' CONCRETE TO BE USED THROUGHOUT.

-REINFORCING STEEL TO BE CUT, BENT OR RELOCATED AS DIRECTED BY THE ENGINEER.

-ALL EXPOSED CORNERS TO BE CHAMFERED 1".

-MAINTAIN 1¾" MINIMUM CONCRETE COVERAGE ON ALL STEEL.

-GRADE THE MEDIAN BETWEEN THE BARRIERS TO DRAIN AS DIRECTED BY THE ENGINEER.

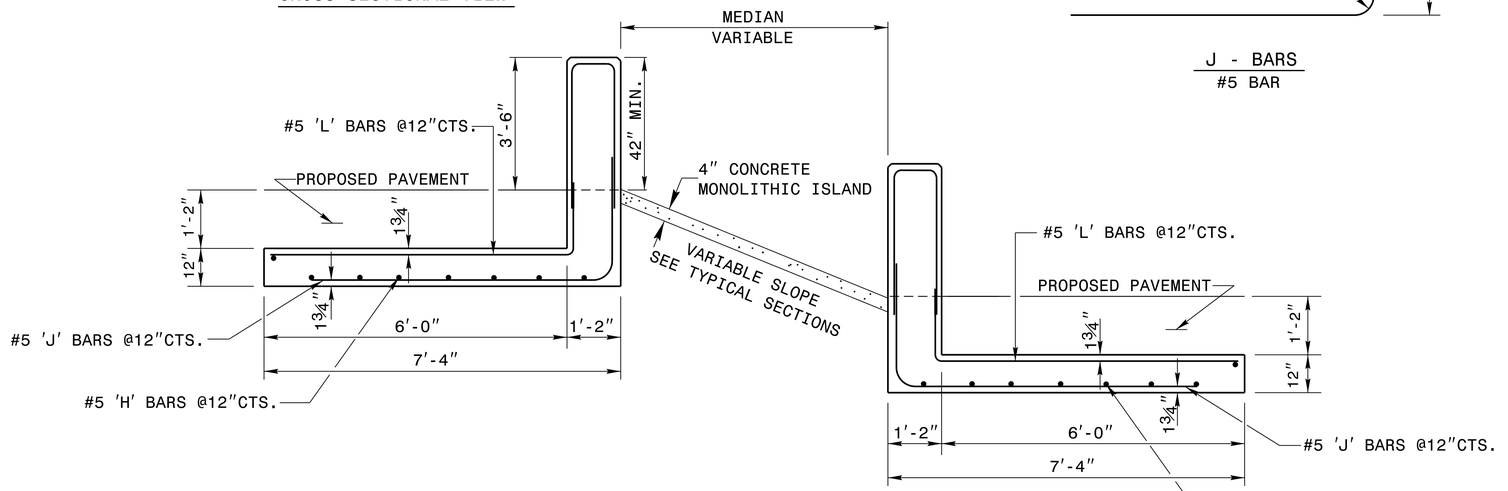
BILL OF MATERIAL

PER FT. QUANTITIIES OF ONE BARRIER

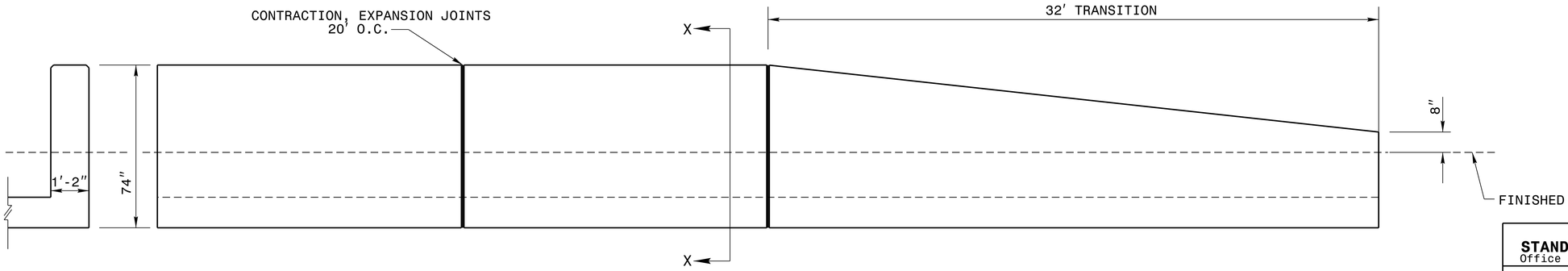
CODE	BAR#	LENGTH	LBS/FT.	QTY.	LBS
H	5	1'-0"	1.043	18	18.8
J	5	8'-8"	1.043	1	9.0
L	5	7'-4"	1.043	1	7.6
S	5	8'-5"	1.043	1	8.8
		TOTAL WEIGHT STEEL			44.2

CLASS "AA" CONCRETE

MOMENT SLAB BARRIER 0.5 CU.YDS.



CROSS SECTIONAL VIEW



ELEVATION VIEW

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Stevenson
87F3F3D17DC0C45F...
4/25/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS STANDARDS AND SPECIAL DESIGN
Office 919-707-6900 FAX 919-250-4119

MOMENT SLAB FOR DDI BARRIER RAIL

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: kkempf DATE: 04-06-18
CHECKED BY: _____ DATE: _____
FILE SPEC.: details\kkempf\english\i5714 moment slab barrier.dgn

!!APR 2018 (2:25
S:\Contracts\Special Details\kkempf\english\i5714 moment slab barrier.dgn
kkempf AT CSD-292596

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2C-2

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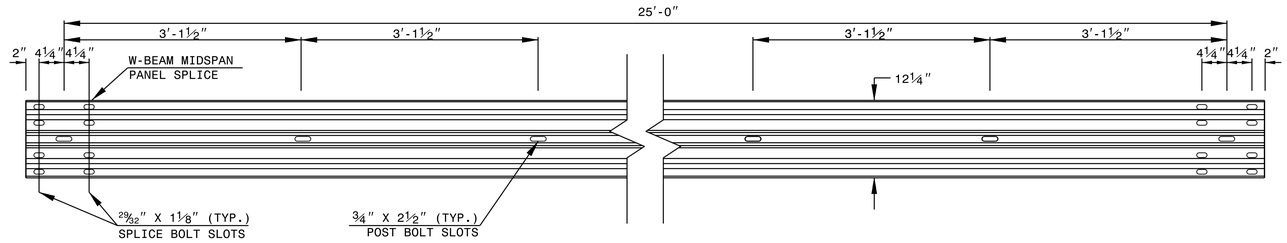
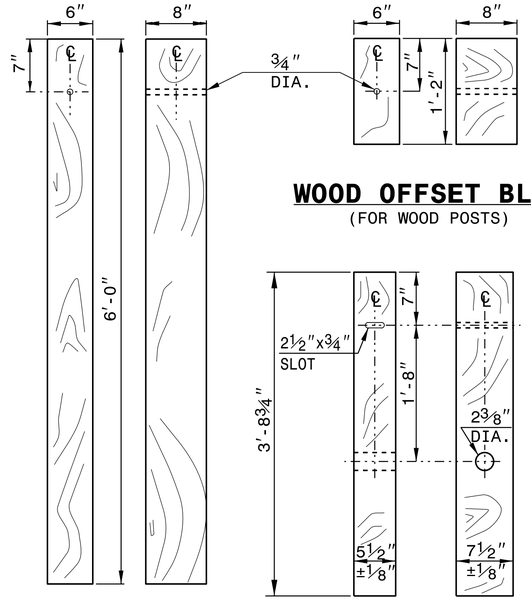
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION



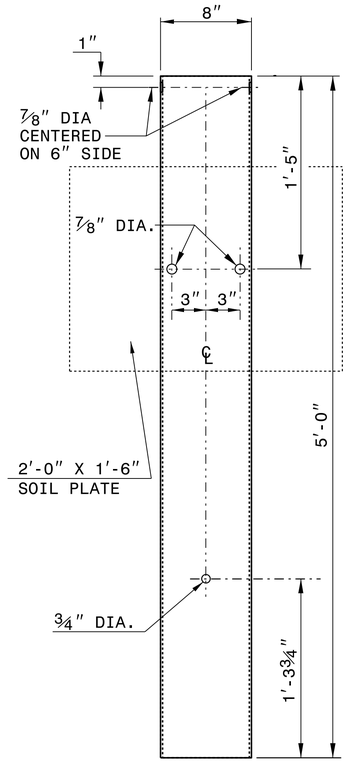
STANDARD W-BEAM GUARDRAIL



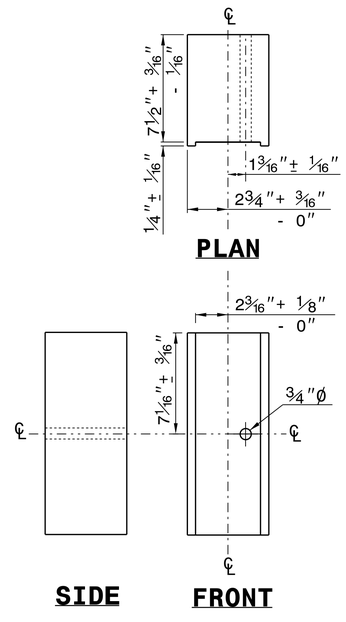
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



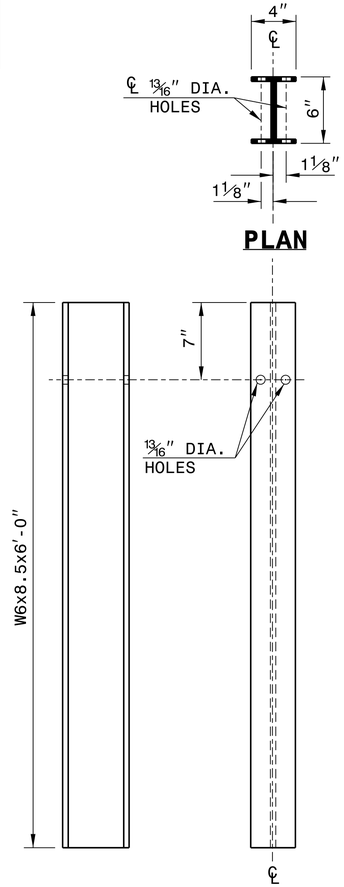
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN

SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

SHEET 6 OF 8
862D02

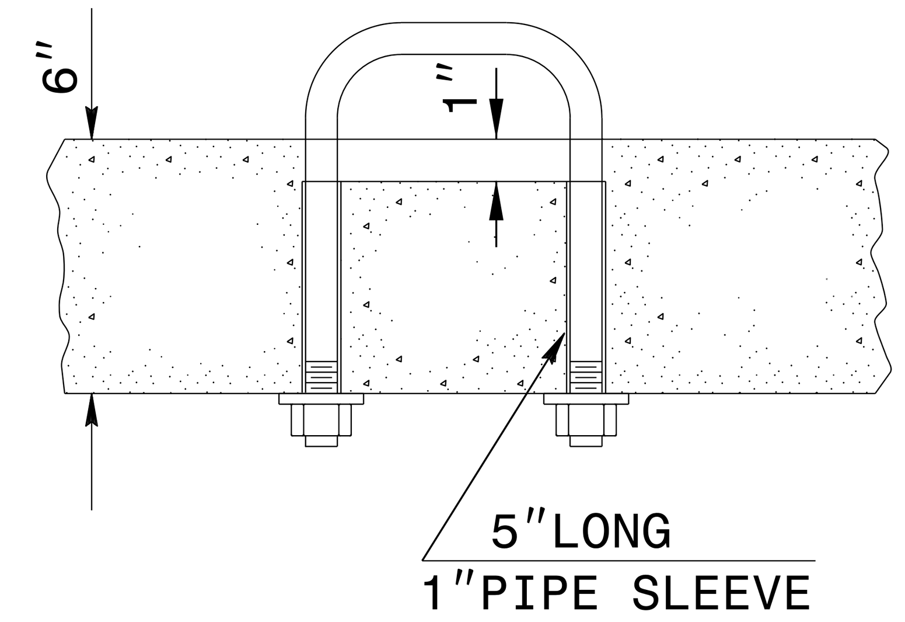
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH J. HOWERTON
873F3D17DCDC4SF...
4/25/2018

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

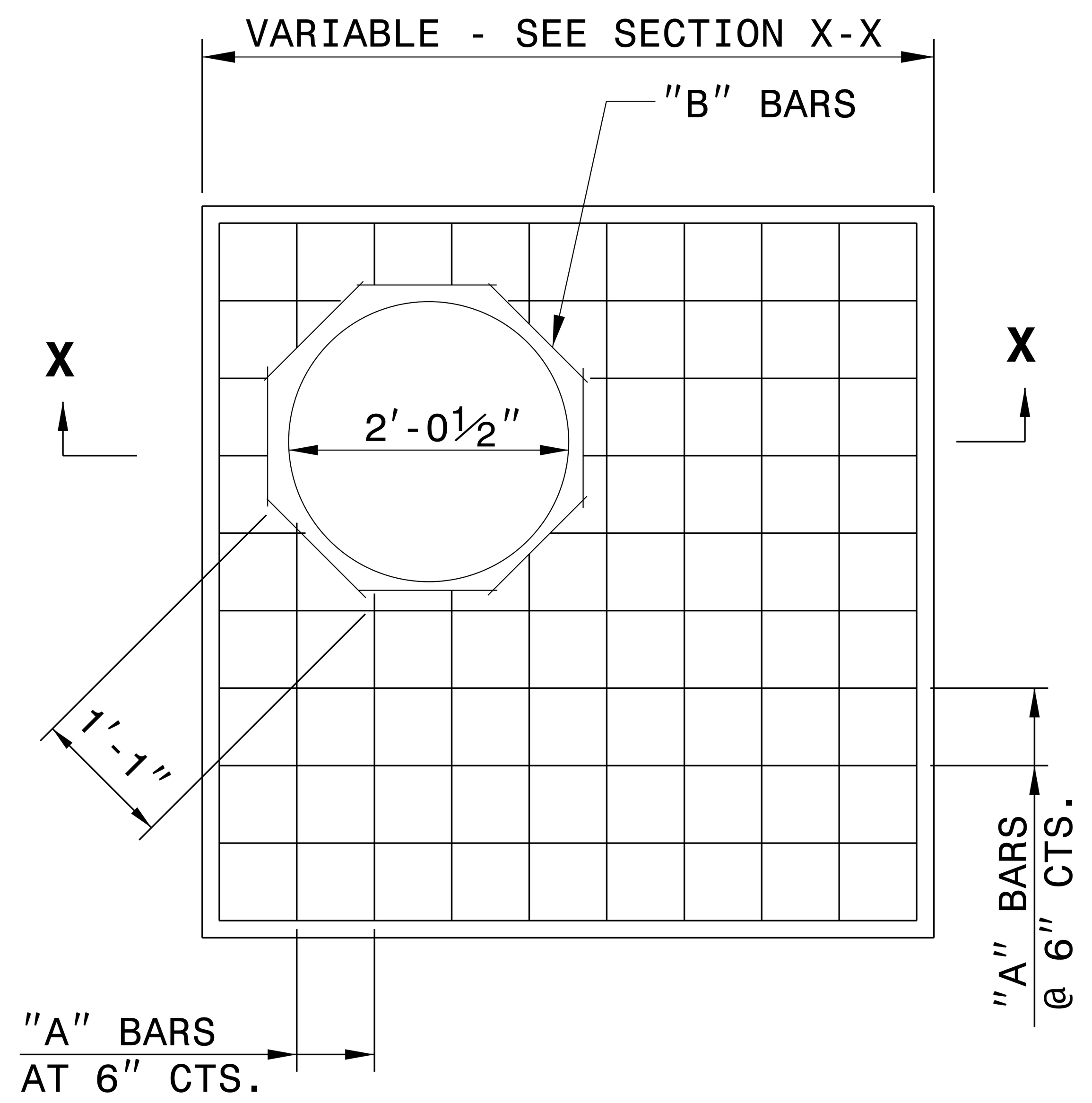
SEE TITLE BLOCK

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

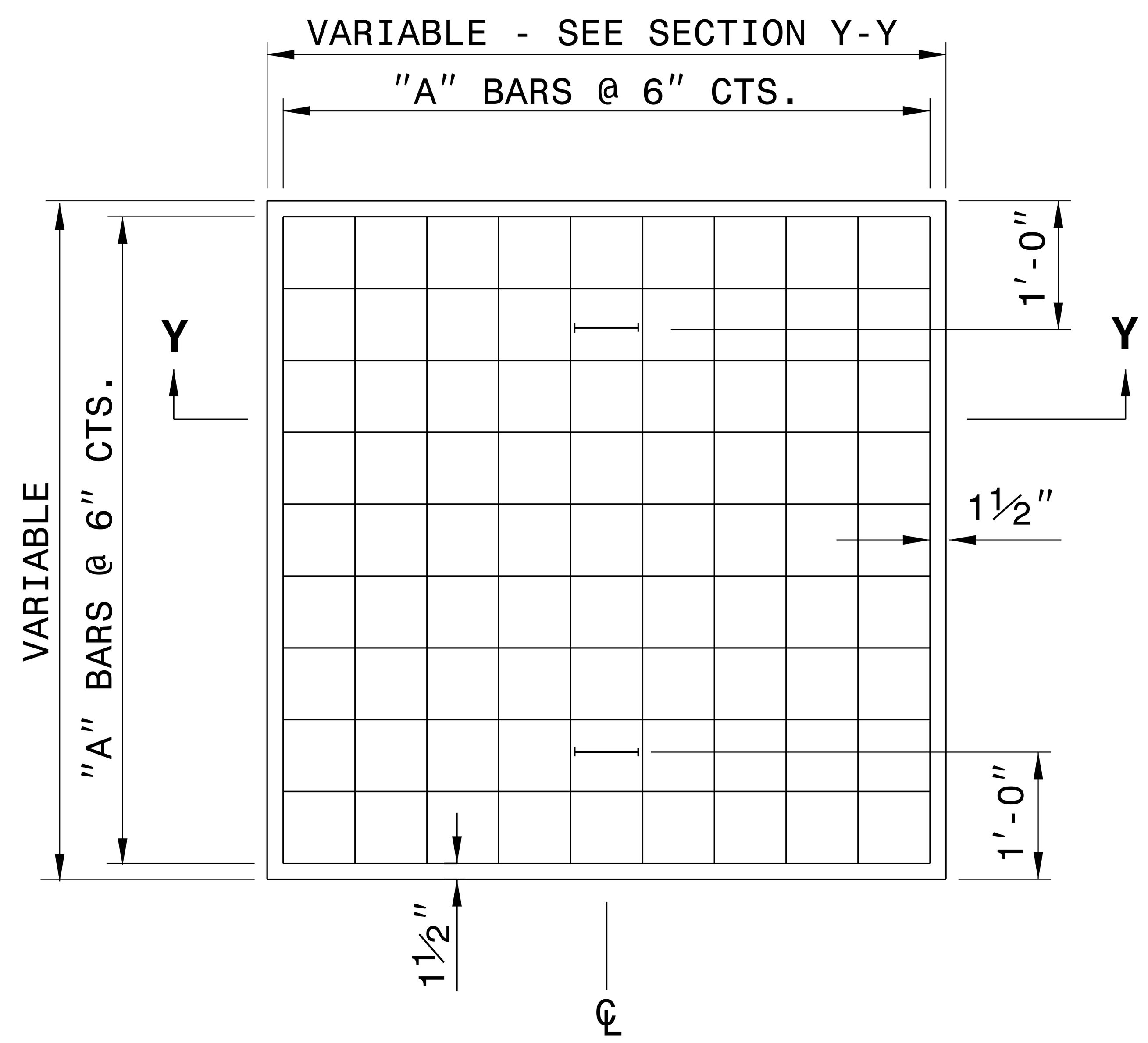
PROJECT REFERENCE NO.	SHEET NO.
I-5714	2C-3



PARTIAL SECTION



PLAN



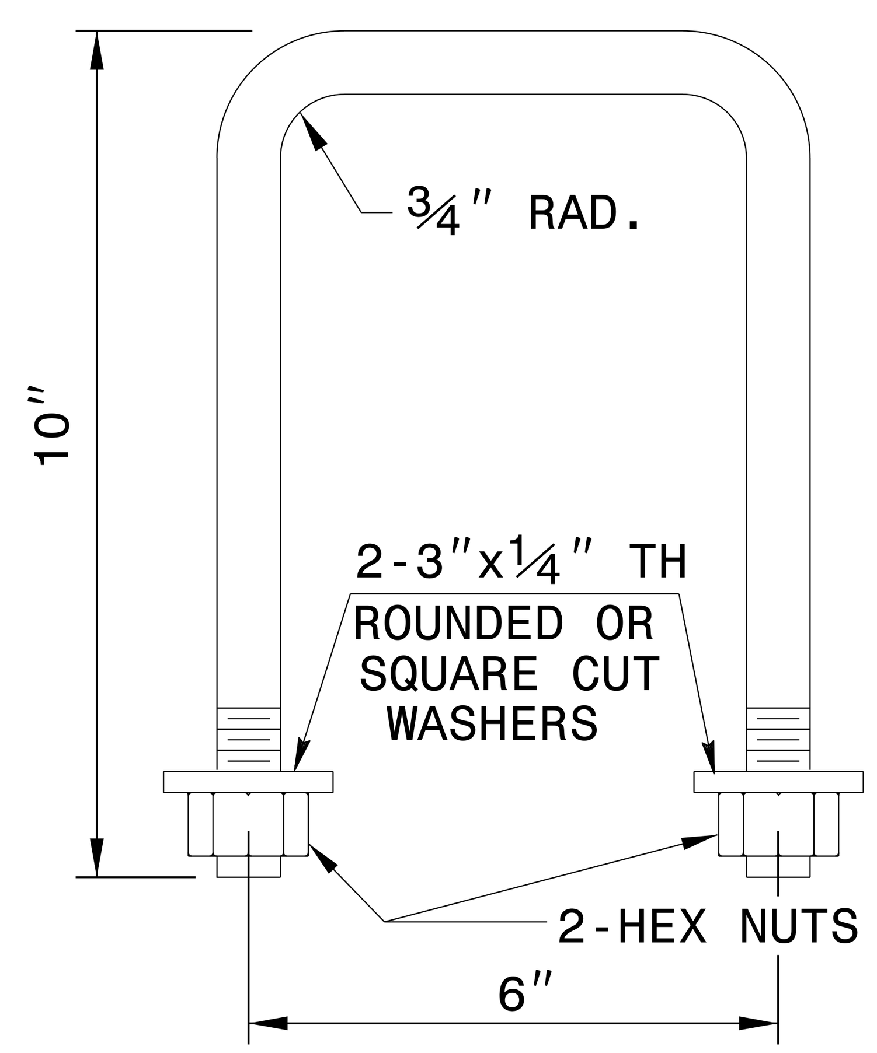
PLAN

GENERAL NOTES:

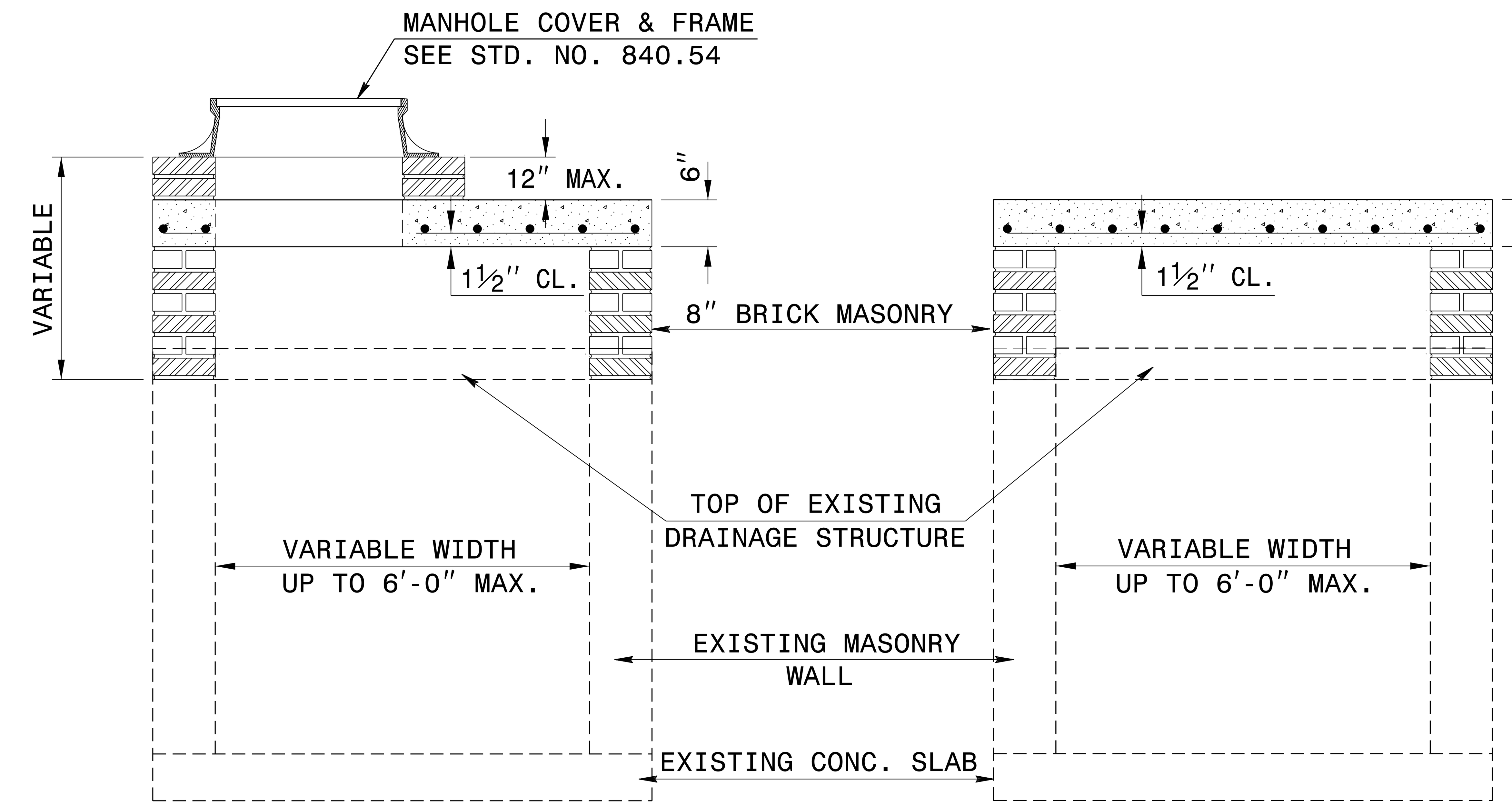
CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
873F3D17DCDC45F...
4/25/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

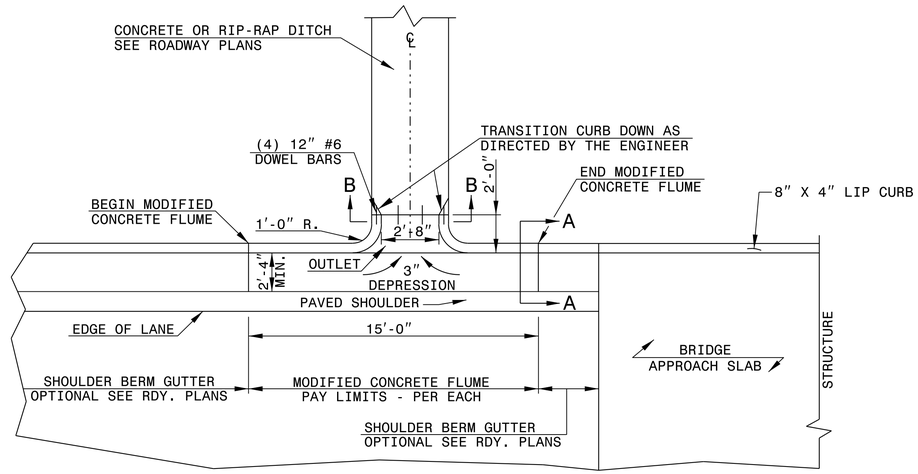
PROJECT REFERENCE NO.	SHEET NO.
I-5714	2C-4

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

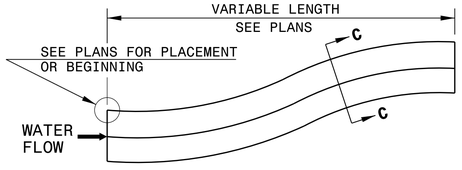
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

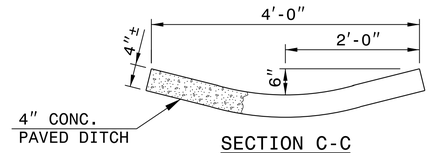
WITH CONCRETE OR RIP-RAP DITCH



PLAN VIEW

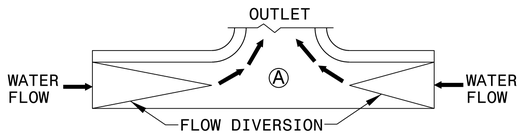


DOWNGRADE OR SAG

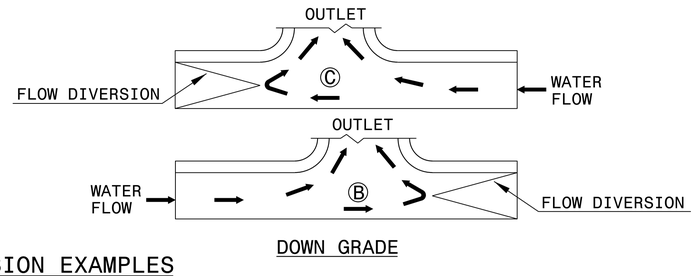


SECTION C-C

SECTION A-A

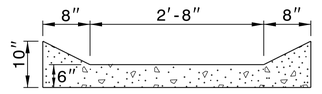


SAG

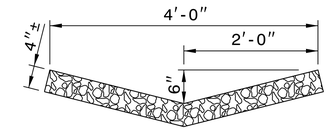


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1

MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
4/25/2018

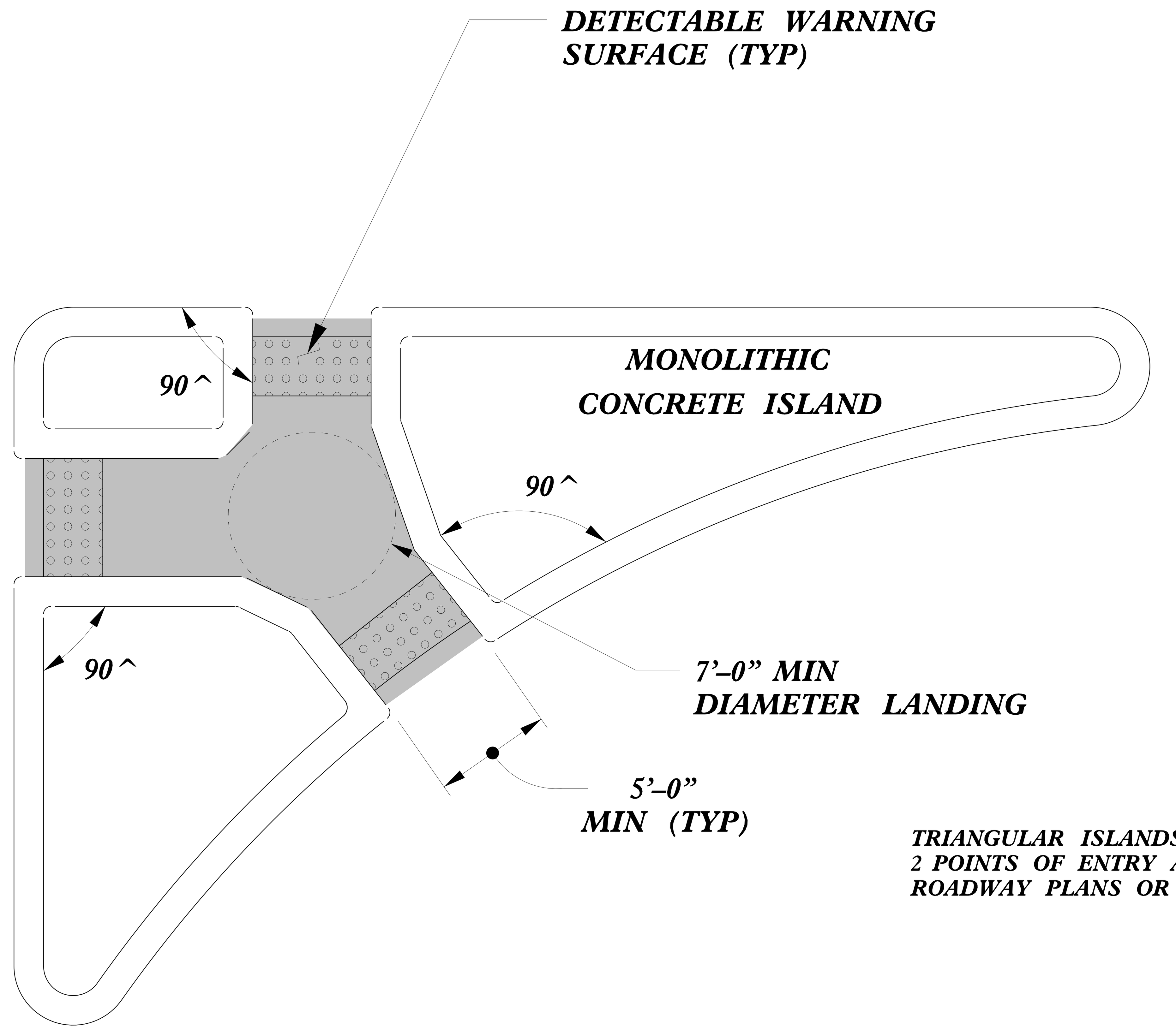
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

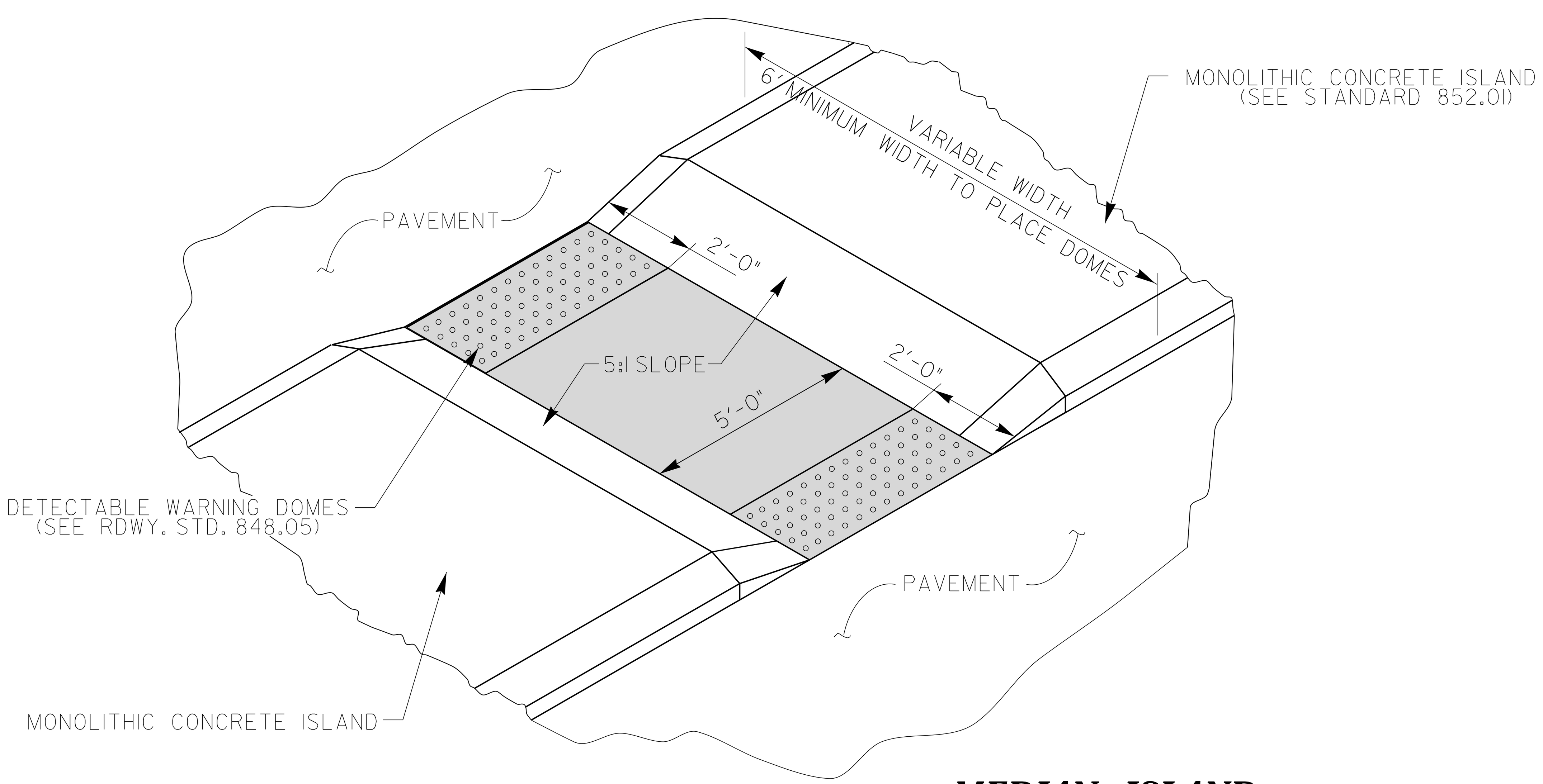
PROJECT REFERENCE NO.	SHEET NO.
I-5714	2C-5

PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

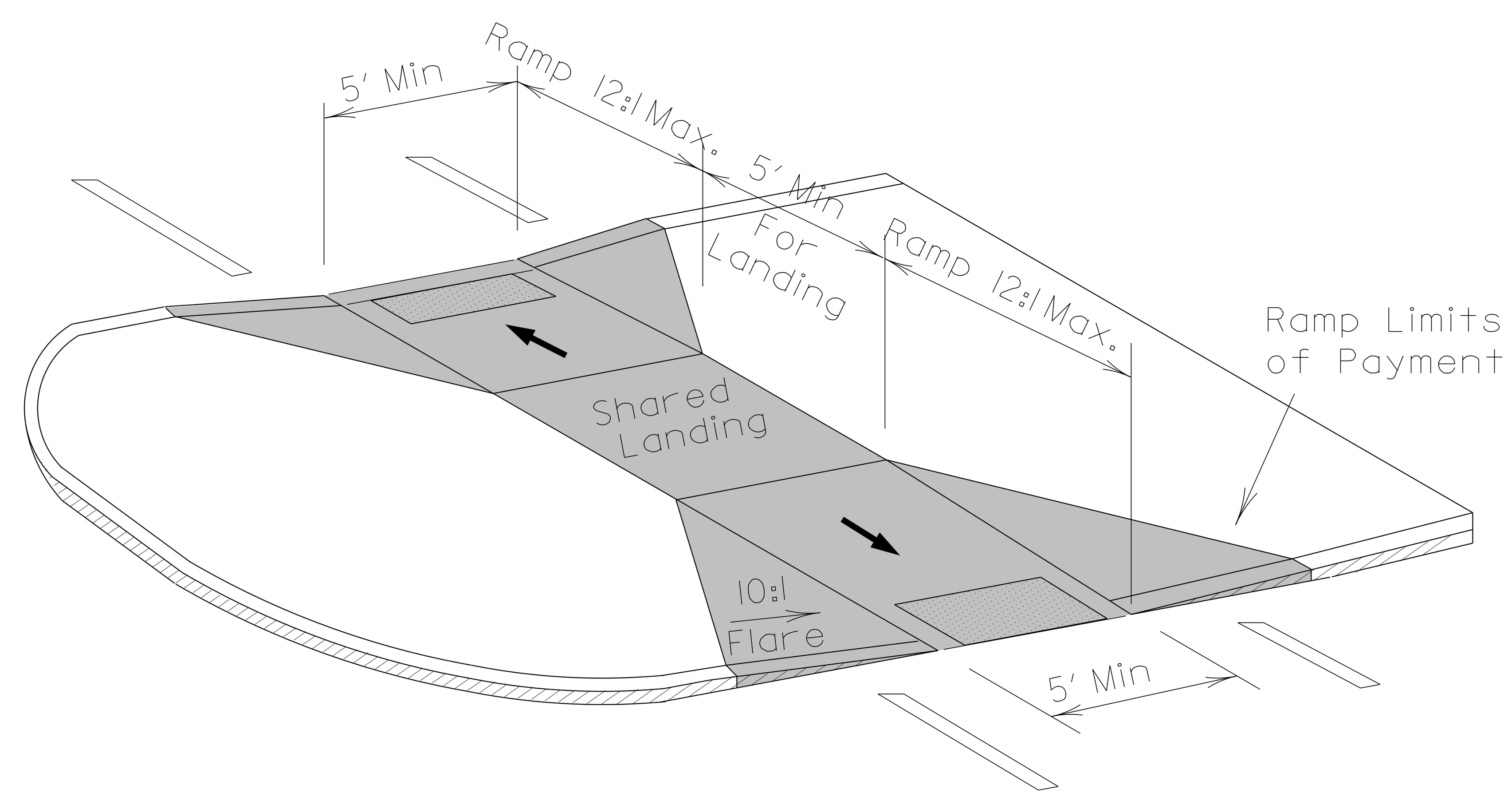


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton 4/25/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Median or Turn Lane Islands

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

5/14/99
$$$$SYSTIME$$$$ $$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
I-5714	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 4/26/2018
F760CAE89DEC4D3... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

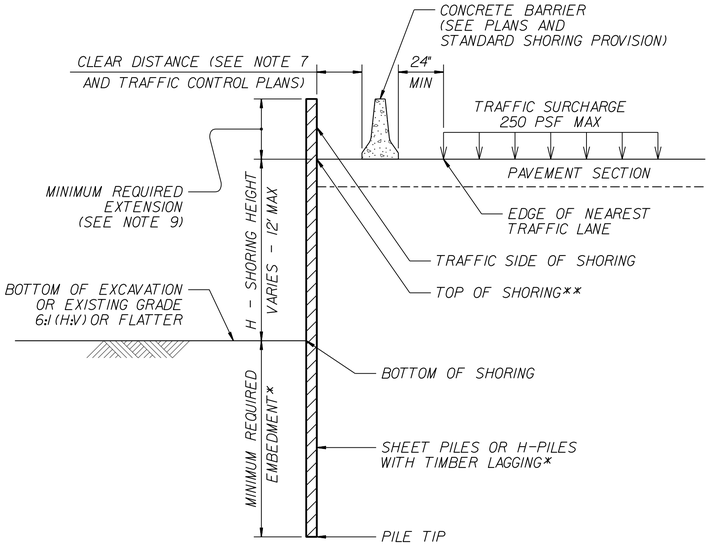
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (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 "--".**

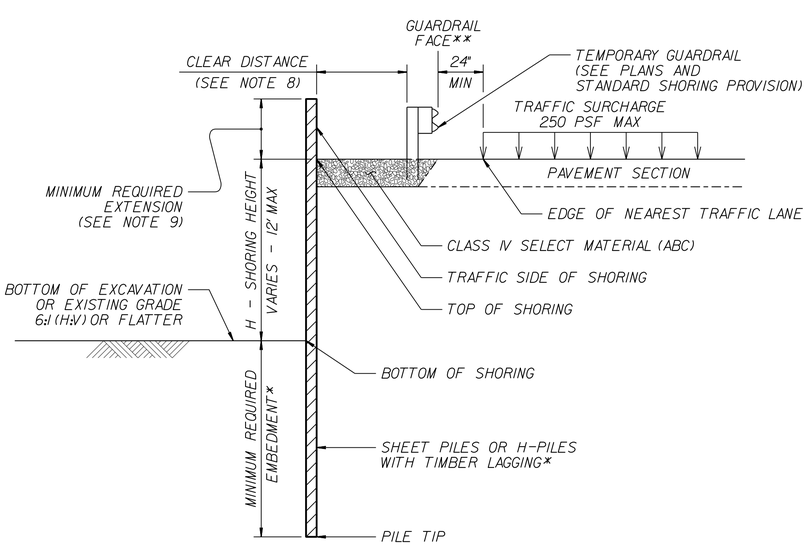
NOTES:

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 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
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.



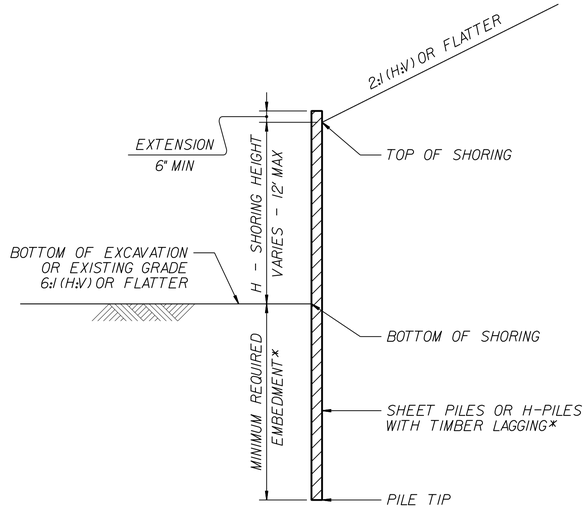
CONCRETE BARRIER

****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

COMPUTED BY: FMM	DATE: 4-18-2018
CHECKED BY: DG	DATE: 4-24-2018

PROJECT REFERENCE NO.	SHEET NO.
I-5714	3B-1

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
PHASE 1					
-Y- (LT) 10+97.09 TO 20+59.01	417		156		261
-Y- (RT) 17+17.00 TO 20+62.42	289		84		205
-RPC- (LT) 24+73.03 TO 25+58.07	143		29		114
-RPB- (LT) 10+58.38 TO 21+50.44	1,773		534		1,239
-Y- 22+33.54 TO 22+53.75			20	20	
-RPC- (RT) 13+28.18 TO 22+65.30	259		775	516	
-SPURC- 10+00.00 TO 12+35.25	64		430	366	
-Y- (RT) 22+80.54 TO 24+94.29	8		116	108	
-Y- (LT) 23+32.50 TO 25+14.10			1,406	1,406	
-SPURB- 10+65.49 TO 12+00.00	78		605	527	
-Y- (LT) 28+67.26 TO 30+76.06			1,463	1,463	
-SPURA- 10+00.00 TO 11+75.00	46		656	610	
-Y- (LT) 31+65.00 TO 35+25.06	32		1,015	983	
-L- (RT) 43+86.58 TO 45+57.41	5		296	291	
-RPA- 11+67.78 TO 23+61.84	136	100	1,045	909	100
-Y- (RT) 28+78.88 TO 30+08.35	26		83	57	
-SPURD- 10+24.06 TO 12+69.45	292		386	94	
-RPD- (LT) 18+13.17 TO 25+00.00	89		325	236	
-Y- 20+32.64 TO 22+19.57	74		325	251	
-Y11- 7+54.00 TO 14+21.01	706				706
PHASE 1 SUBTOTAL	4,437	100	9,749	7,838	2,625

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
PHASE 2					
-Y- (RT) 11+01.87 TO 16+71.69	92		596	504	
-RPC- (LT) 13+28.18 TO 24+73.03	554		9		545
-SPURB- 12+00.00 TO 13+09.53	21		302	281	
-RPB (RT) 14+87.42 TO 21+50.00	81		297	216	
-SPURA- 11+75.00 TO 12+70.88	60		94	34	
-RPA- (LT) 13+86.66 TO 23+61.84	367		1,105	738	
-RPD- (RT) 18+13.17 TO 28+33.23	498		1,796	1,298	
-Y- (RT) 32+50.00 TO 35+00.00	23		771	748	
-L- (RT) 46+48.24 TO 48+63.80			975	975	
-Y- (LT) 22+68.93 TO 23+34.56			613	613	
PHASE 2 SUBTOTAL	1,696	0	6,558	5,407	545
PHASE 3					
PHASE 3 SUBTOTAL	0	0	0	0	0
PHASE 1, 2, & 3 TOTAL	6,133	100	16,307	13,245	3,169

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

5/9/06

6/4/2018
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5/9/06

COMPUTED BY: FMM DATE: 4-18-2018
CHECKED BY: DG DATE: 4-24-2018

PROJECT REFERENCE NO.	SHEET NO.
I-5714	3B-2

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
PHASE 4					
–Y– 14 + 92.76 TO 16 + 64.56	20		76	56	
–Y– 17 + 33.70 TO 21 + 12.72	65		443	378	
–Y– 22 + 43.59 TO 25 + 10.04	7		412	405	
–Y– 28 + 67.26 TO 30 + 87.08			314	314	
–Y– 32 + 15.10 TO 35 + 26.77	19		370	351	
PHASE 4 SUBTOTAL	111	0	1,614	1,503	0
PHASE 5					
–Y– (LT) 22 + 29.59 TO 22 + 94.07			115	115	
–RPB– (RT) 12 + 37.09 TO 14 + 19.80			321	321	
–Y– (RT) 21 + 20.06 TO 22 + 97.79	9		164	155	
–RPC– (RT) 23 + 18.14 TO 24 + 99.93	32		78	46	
–SPURC– (LT) 10 + 52.89 TO 11 + 31.14			72	72	
–Y– (RT) 30 + 05.19 TO 31 + 77.47	8		99	91	
–RPD– (LT) 25 + 50.86 TO 27 + 70.70			132	132	
–SPURD– (RT) 10 + 66.84 TO 11 + 22.49			18	18	
–Y– (LT) 30 + 62.88 TO 31 + 65.00			381	381	
–RPA– (LT) 12 + 54.49 TO 13 + 38.17			53	53	
–SPURA– (RT) 11 + 75.00 TO 12 + 40.09			67	67	
PHASE 5 SUBTOTAL	49	0	1,500	1,451	0
PHASE 4 & 5 TOTAL	160	0	3,114	2,954	0

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
PHASES 1–5 TOTAL	6,293	100	19,421	16,199	3,169
MATERIAL FOR SHOULDER CONSTRUCTION	0	0	2,093	2,093	0
LOSS DUE TO CLEARING & GRUBBING	–150	0	0	150	0
ADDITIONAL UNDERCUT	0	850	978	978	850
ROCK WASTE TO REPLACE BORROW	0	0	0	0	0
ADJUST FOR ROCK WASTE	0	0	0	0	0
WASTE IN LIEU OF BORROW	0	0	0	–3,069	–3,069
PROJECT TOTAL	6,143	950	22,492	16,351	950
EST. 5% TO REPLACE TOP SOIL BORROW PIT				818	
GRANDTOTAL	6,143	950	22,492	17,168	950
I–5714 SAY	6,150			17,175	
U–5114 SAY	12,450	2,700		20,600	
GRANDTOTAL SAY	18,600	3,650		37,775	
I–5714 PAVMENT STRUCTURE VOLUME	875				
U–5114 PAVMENT STRUCTURE VOLUME	5,800				
GRANDTOTAL SAY P.S.V.	6,675				

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

6/4/2018
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fmann

COMPUTED BY: FMM DATE: 3-26-18
CHECKED BY: DJG DATE: 3/26/18

PROJECT NO.	SHEET NO.
I-5714	3B-3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-Y-	15+21	16+53	RT	36.36			
-Y-	18+26	20+33	RT	70.67			
-Y-	21+20	23+14	RT	974.1			
-Y-	30+00	30+93	RT	423.06			
-Y-	22+25	22+92	LT	367.62			
-Y-	21+61	21+67	LT	0.34			
-Y-	30+77	31+63	LT	425.62			
-Y-	32+15	35+27	CL	1157.43			
-Y-	22+56	25+09	RT	228.55			
-Y-	22+60	22+78	LT	13.45			
-Y-	28+57	30+77	RT	174.22			
-Y-	30+56	30+76	LT	12.58			
-RPA-	12+92	23+62	RT	378.58			
-RPA-	13+34	23+62	LT	377.81			
-RPB-	12+50	21+50	LT	500.3			
-RPB-	14+17	21+50	RT	298.87			
-RPC-	13+28	23+85	LT	502.06			
-RPC-	13+28	23+39	RT	397.24			
-RPD-	18+13	25+82	LT	356.1			
-RPD-	18+13	27+09	RT	278.09			
-Y-	20+70	21+10	LT	8.89			
-Y-	28+60	30+32	RT	38.22			
		TOTAL:		7020.16			
		SAY		7025			
		U-5114 SAY		3560			
		GRAND SAY:		10,585			

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.

CHAIN LINK FENCE, 48 FABRIC

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E LINE POSTS	F TERMINAL POSTS
-Y- 17+37.00 TO -Y- 19+41.56	RT.	206.35	1	1		17.20	2
-Y- 20+23.52 TO -Y- 22+26.08	LT	229.32	1	2		19.28	3
-Y- 32+18.61 TO -Y- 34+49.99	RT	243.76	1	2		20.48	3
-Y- 32+39.14 TO -Y- 34+31.65	LT	184.62		2		15.72	2
-Y- 25+10.13	LT	9.17	2			0.43	2
-Y- 28+59.78	RT	9.22	2			0.44	2
TOTAL		882.45				73.54	14
SAY		**883.00**				**74.00**	**14.00**

CHAIN LINK FENCE, (U-5114)

STATION TO STATION	LENGTH
-W1- 34+02.56 TO 36+14.65	206.35
-W2- 36+50.65 TO 39+39.95	229.32
TOTAL	582.00
SAY	**585.00**

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS			IMPACT ATTENUATOR TYPE 350		SINGLE FACED 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	TYPE B-77	GREU TL-3	CAT-1	G	NG				
-RPA-	15+75.00	21+56.25	RT	581.25			1		14	17.00	50.00					1	1						
-Y-	23+23.72	24+93.77	RT																		170.34		
-Y-	28+60.07	30+36.92	LT																		177.7213		
			TOTAL	**581.25**												**1**	**1**				**348.0613**		
DEDUCTION FOR ANCHORS:																							
TYPE		**QTY**	**LT/EA**																				
GRAU 350 TL-3		1.00	50.00	-50.00																			
CAT-1		1.00	6.25	-6.25																			
			PROJECT TOTAL	**525.00**																			
			U-5114	625.00												**3**	**3**				352		
			SAY	**1150**												**4**	**4**				701		
			ADDITIONAL GUARDRAIL POSTS	15	EA																		

BSMITH-NEW

COMPUTED BY:	Brad T. Smith, EI	**DATE:**	4/24/2018
CHECKED BY:	Joshua G. Dalton, PE	**DATE:**	4/24/2018

PROJECT NO.	SHEET NO.
I-5714	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)													R. C. PIPE CLASS III								R. C. PIPE CLASS IV							QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	MODIFIED CONC. FLUME	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	PIPE REMOVAL	REMARKS
			FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	12	15	18	24	30	36	42	48	15	18	24	30	36	42	48	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05														CY	CY	LIN. FT.	
Y 11+90	43	RT	0401		756.4																																1			1	1																					
			0401	0402		752.5	752.4																							12																																
Y 12+01	43	RT	0402		756.5																																1			1			1																			
			0402	0403		752.4	752.1																							8																																
Y 12+01	36	RT	0403		756.0																																																							0.3990		
Y 12+00	4	RT	0404		756.0																																																							0.3990		Remove existing CB
Y 12+00	59	LT	0405		756.2																																																				1					
Y 11+49	59	LT	0406		756.0																																																				1					
Y 15+12	59	LT	0407		756.0																																																				1					
Y 15+45	59	LT	0408		756.1	750.9																															1	0.1		1		1																					
Y 18+15	59	LT	0409		758.6																																																				1					
Y 15+90	59	LT	0410		756.3																																																				1					
Y 16+89	11	LT	0411		758.0																																1							1		1	1																
			0411	0412		754.8	754.0																96																																								
Y 15+91	0	CL	0412		758.1	750.5																															1	2.6															1		1							
Y 15+92	45	RT	0413		756.2																																																							0.4465		Remove existing CB
			0413	0417		750.4	750.3																								20																															
Y 14+63	67	RT	0414		755.9																																1			1		1																					
			0414	0418		752.8	752.6																							52																																
YEB 19+35	37	RT	0415		760.9																																1			1			1																			
			0415	0416		757.9	754.4																							172																																
Y 17+60	67	RT	0416		757.4																																1			1			1																			Remove existing DI
			0416	0417		754.4	750.4	0.4																						168																													15			Fill existing 18" RCP
Y 15+92	66	RT	0417		756.2																																1	1.0		1			1																			
			0417	0418		750.1	749.6																											72																											19			Fill existing 36" RCP
Y 15+19	67	RT	0418		755.9	748.1																															1	2.8		1	1																					18	Remove existing CB, est. 18' LF 36" RCP
Y 15+21	82	RT	0419		755.3																																																		1	1						
Y 12+00	11	RT	0420		756.0																																																							0.3990		
			0420	0404		750.4	749.8																							8																																
YWB 20+98	16	RT	0501		766.2																																1							1		1	1																
			0501	0503		762.9	762.4																							76																																
YWB 22+28	21	RT	0502		767.6																																1			1			1																			
			0502	0503		764.5	762.4																							80																																
YEB 21+24	23	RT	0503		765.5																																1			1			1																			
			0503	0504		762.4	762.2																							60																																
Y 22+90	18	RT	0505		770.2																																1									1	1																
			0505	0506		767.0	766.8																36																																								
YEB 22+72	19	RT	0506		770.3																																1															1		1									
			0506	0507		766.8	766.6																							56																																
YEB 22+72	36	LT	0507		769.9																																1	0.9		1		1																					
			0507	0508		764.0	763.7																							84																																
YEB 24+91	34	LT	0509		774.3																																1			1		1																					
			0509	0530		769.3	766.9																							84																																
YWB 24+38	36	RT	0511		770.9																																1			1			1																			
			0511	0512		767.9	767.8																32																																								
RPB 16+16	36	RT	0513		758.1																																1												1		1													
			0513	0805		755.1	752.1	1.0																100																																					100	Remove est. 100 LF 18" RCP
RPB 16+13	26	RT	0514		755.2																																																							0.4465		Remove existing DI
			0514	0513		755.2	755.1	0.3																12																																						
SPURD 11+64	27	LT	0515		772.5																																																					1				
SHEET TOTALS																							164	112						860	20			72			19	7.4		13	2	4	7	2		3	3		1		1	1	1	1	2	1	5	1	34	2.0900	118	

BSMITH-NEW

COMPUTED BY:	Brad T. Smith, EI	**DATE:**	4/24/2018
CHECKED BY:	Joshua G. Dalton, PE	**DATE:**	4/24/2018

PROJECT NO.	SHEET NO.
I-5714	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)													R. C. PIPE CLASS III								R. C. PIPE CLASS IV							QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	MODIFIED CONC. FLUME	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	PIPE REMOVAL	REMARKS
SIZE THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	12	15	18	24	30	36	42	48	15	18	24	30	36	42	48	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05															CY	CY	LIN. FT.	
YEB 30+56	21 LT	0516		775.2																																1	0.1		1			1																			
		0516	0517		770.1	769.8																							80																																
YEB 31+02	21 RT	0518		774.7																																1															1		1								
		0518	0519		771.2	771.0																32																																							
Y 30+45	17 RT	0519		774.2																																1									1	1															
		0519	0521		771.0	769.8																							60																																
YEB 32+20	23 RT	0520		772.6																																1			1		1																				
		0520	0521		769.5	769.1																							124																																
YWB 30+65	36 RT	0521		773.0																																1			1		1																				
		0521	0523		769.1	765.8																							116																																
YWB 32+70	31 RT	0524		772.4																																1							1		1	1															
		0524	0526		769.1	767.9																							100																																
YEB 32+95	54 RT	0526		770.9																																1			1		1																				
		0526	0527		767.9	766.9																							124																																
YEB 34+00	55 RT	0527		769.9																																1			1		1																				
		0527	0602		766.9	766.6																							68																																
YWB 34+00	28 LT	0528		770.6																																1			1			1																			
		0528	0605		767.5	767.1																							68																																
YWB 24+90	36 RT	0529		771.2																																1			1			1																			
		0529	0511		768.2	767.9																							44																																
SPURB 11+52	21 RT	0530		770.0																																1			1		1																				
		0530	0510		766.9	766.7																24																																							
YEB 34+82	21 RT	0601		770.8																																1							1		1	1															
		0601	0602		767.6	766.6																							56																																
YEB 34+59	74 RT	0602		769.7																																1			1	1																					
		0602	0603		766.6	766.4	0.4																						24																																
YEB 34+88	82 RT	0603		769.8																																1			1			1																			
		0603	0653		766.4	759.2	0.6															104																																							Tie to str. 0653 TIP: U-5114
YWB 34+63	53 LT	0605		770.1																																1			1	1																					
		0605	0607		767.1	767.0																							8																																
YWB 35+06	20 LT	0606		771.0																																1							1		1	1															
		0606	0607		767.8	767.0																							48																																
YWB 34+70	57 LT	0607		770.1																																1			1	1																					
		0607	0625		767.0	766.3	0.3																						108																																Tie to str. 0625 TIP: U-5114
RPC 15+72	37 RT	0701		745.4																																1											1		1	1											
		0701	0702		741.4	740.8	1.6															32																																							
RPC 15+39	32 RT	0702		746.8																																																		1	1						
RPC 20+08	33 RT	0703		755.1																																1												1		1											
		0703	0704		750.7	750.6	0.8															12																																							
RPC 20+03	23 RT	0704		750.6																																																						0.3990		Remove existing DI
RPD 22+56	53 RT	0705		759.9																																1												1		1											
		0705	0707		756.9	750.2																	180																																					183	Remove est. 183 LF 18" RCP
RPD 22+61	35 RT	0706		757.1																																																						0.3990		Remove existing DI
		0706	0705		757.1	756.9																20																																							
RPD 20+75	39 RT	0707		750.2																																																						0.4465		
RPA 17+50	46 LT	0801		753.0																																1												1		1											
		0801	0802		750.0	741.5																116																																							
L3NB_I5405 825+00	51 RT	0802		744.9																																1	0.9											1		1											
RPA 22+50	29 LT	0803		741.8																																1												1		1											
		0803	0804		739.0	738.9																12																																							
							SHEET TOTALS															352	180						1028							23	1.0		12	3	5	4	3		4	4	1	5	1	6	1		1	1	1				1.2445	183	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

BSMITH-NEW

COMPUTED BY:	Brad T. Smith, EI	**DATE:**	4/24/2018
CHECKED BY:	Joshua G. Dalton, PE	**DATE:**	4/24/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5714	3D-3

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	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	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	A 0' THRU 5' EACH	B 5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	MODIFIED CONC. FLUME	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
RPA 22+61	21 LT	0804		743.3																																																		1	1						
RPB 17+15	27 RT	0805		752.1																																																							0.4465		
Y11 8+30	44 RT	0901		727.8																																1									1	1															
		0901	0902		725.0	724.9																28																																							
Y11 8+01	45 RT	0902		724.9																																																							0.3390		Remove existing DI
SHEET TOTALS																						28														1									1	1								1	1				0.7855		
PROJECT TOTALS																						544	292						1888	20			72			43	8.4		25	5	9	11	5		8	8	1	6	1	7	2	1	2	4	3	5	1	34	4.1200	301	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: FMM DATE: 6/4/2018
CHECKED BY: JS DATE: 6/4/2018

PROJECT REFERENCE NO.	SHEET NO.
I-5714	3D-4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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".

STATEWIDE
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	HDPE PIPE 30"	HDPE PIPE	C.S. PIPE 12" .064	C.S. PIPE 15" .064	C.S. PIPE 18" .064
I–5714 TOTAL												
U–5114 TOTAL								436			116	
COMBINED TOTAL								436			116	

	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"	R.C. PIPE (CLASS V) 12"	15"	30"	36"	42"	48"
I–5714 TOTAL	544	292							1888	20			72								
U–5114 TOTAL	772	476	568	272	604		132	80	3392	2200	536	232	704				456				
COMBINED TOTAL	1316	768	568	272	604		132	80	5280	2220	536	232	776				456				

	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05
I–5714 TOTAL		43	8.4		25	5	9	11		5	
U–5114 TOTAL	6	164	131.8		113	14	48	52		16	5
COMBINED TOTAL	6	207	140.2		138	19	57	63		21	5

	OPEN THROAT C.B STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (W.S. SAG) FRAME WITH GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.22	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S. SAG) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME & COVER STD. 840.54
I–5714 TOTAL		8	8	1	7	1	6		2		1	2		4
U–5114 TOTAL	3	26	26			1	9	7	4	6	3	1	2	15
COMBINED TOTAL	3	34	34	1	7	2	15	7	6	6	4	3	2	19

	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING C.B. TO T.B.J.B	CONVERT EXISTING C.B. TO J.B	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	PIPE REMOVAL	REMARKS
I–5714 TOTAL	3				5			1		34	4.12	301	
U–5114 TOTAL	2	1	1	1	3	1	6		1	359	3.1736	1187	
COMBINED TOTAL	5	1	1	1	8	1	6	1	1	393	7.2936	1488	

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

COMPUTED BY: JBJ DATE: 3-21-2018
CHECKED BY: EM DATE: 3-21-2018

PROJECT REFERENCE NO.	SHEET NO.
I-5714	3G-1

(1-16-18)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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
YEB	32+35.00	35+49.00	ASU	18	810	2400	2530		
YWB	32+30.00	34+25.00	ASU	18	600	1650	1740		
RPD	25+75.00	28+66.00	ASU	18	490	1300	1380		
CONTINGENCY					500	950	1000		
				TOTAL CY/TONS/SY:	2400	6300	6650*	0	0
				U-5114	2200	3450	5150*	0	0
				GRANDTOTAL CY/TONS/SY:	4600	9750	11800*		

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.**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	500
				TOTAL LF:	500
				U-5114 TOTAL LF:	200
				GRANDTOTAL LF:	700

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

5/9/06

6/8/2018
I5714_rdy_sum_3G-1.dgn

12/06/07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
I-5714	3P-1

PARCEL INDEX SHEET

PARCEL NUMBER	SHEET NUMBER	PROPERTY OWNER NAME
1	4 & 5	DDRM ROSEDALE SHOPPING CENTER LLC
2	4, 5, 7, & 9	NOVANT HEALTH INC
2A	4	HUNTERSVILLE BUSINESS PARK ASSOCIATION
3	5 & 6	FRED J. LEE
4	5 & 7	HALLMARK INC OF STATESVILLE
5	5 & 6	CREH LLC

5/7/2018
I-5714_rdy_sht3P-1_ParcelIndex.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5714	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 033822 JONATHAN P. SOKA — 6/6/2018 12:21:31 PM EDT	SEAL 26971 JOSHUA G. DALTON — 6/6/2018 12:13:44 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

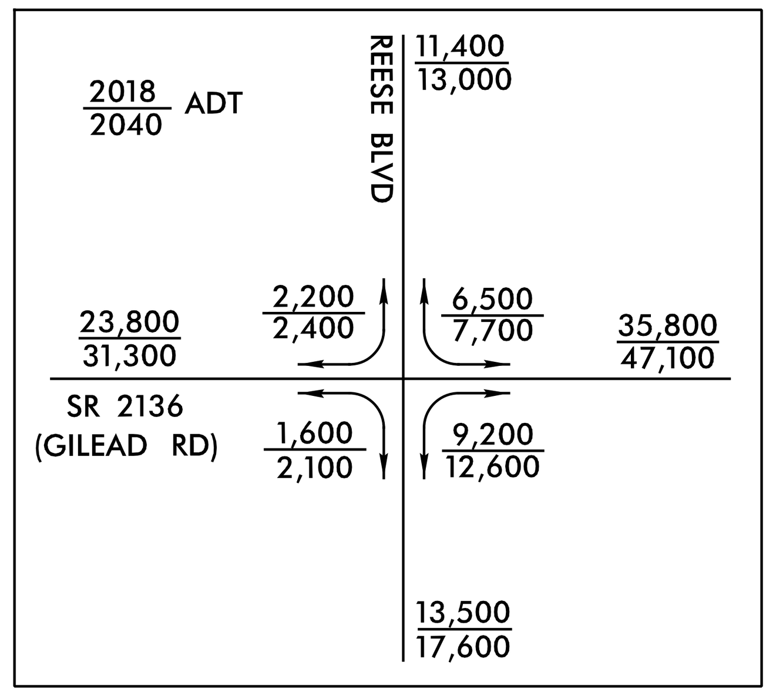
Prepared by

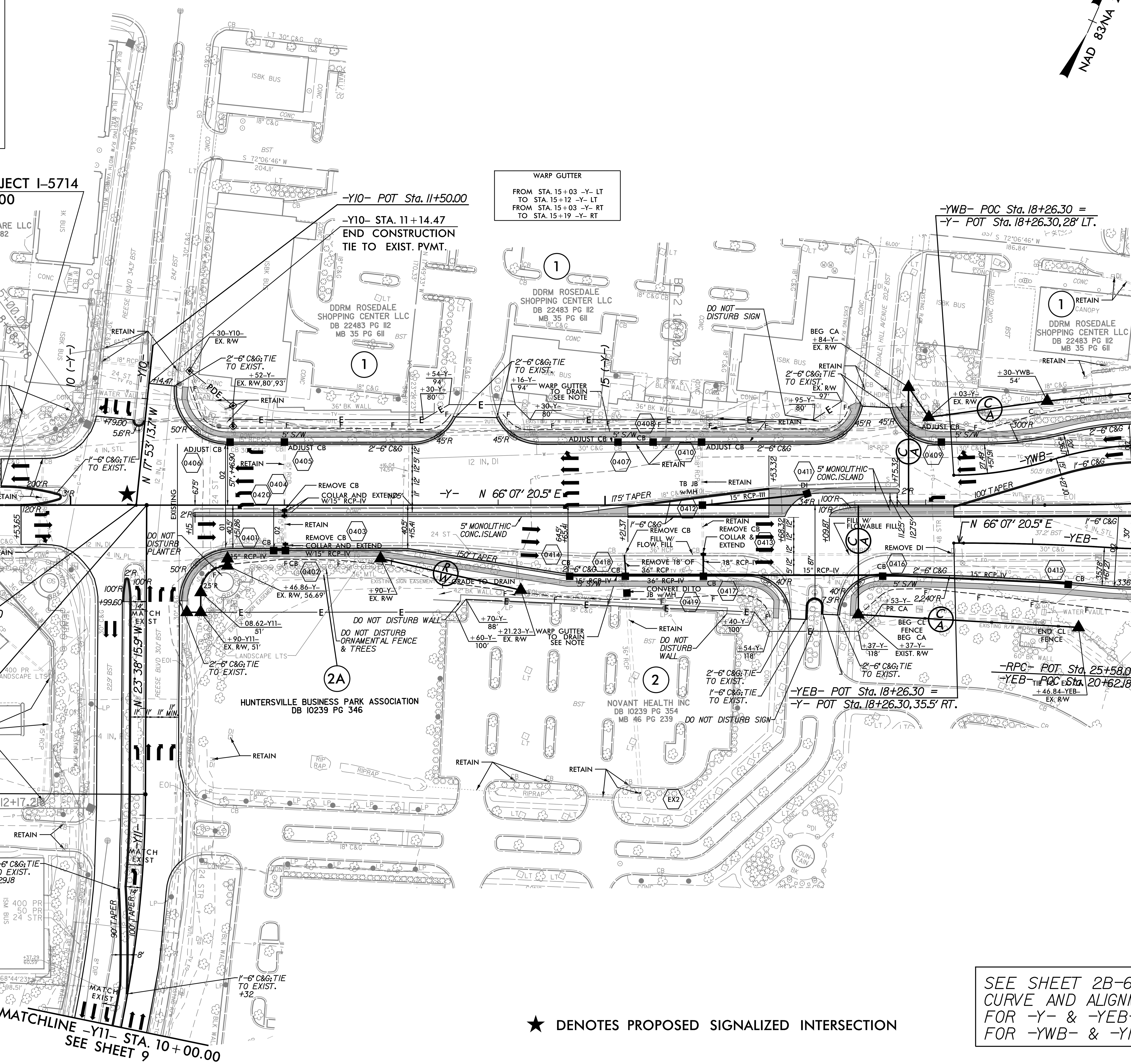
vhb — 940 Main Campus Drive, Suite 500, Raleigh, NC 27606, NC License No. C-3705

SUNGATE DESIGN GROUP, P.A.

REVISIONS

8/17/99



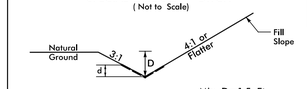


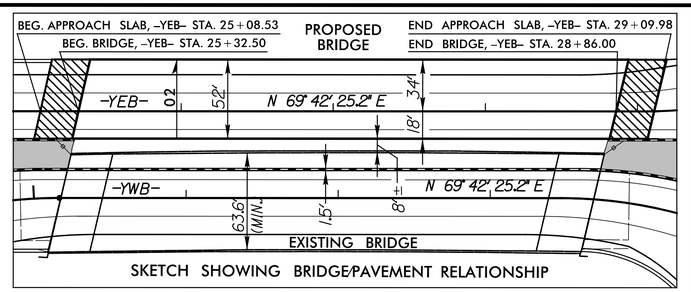
NAD 83/NA 2011
BEGIN TIP PROJECT I-5714
-Y- STA. 9+35.00
-Y10- POT Sta. 11+50.00
-Y10- STA. 11+14.47
END CONSTRUCTION
TIE TO EXIST. PVMT.
WARP GUTTER
FROM STA. 15+03 -Y- LT
TO STA. 15+12 -Y- LT
FROM STA. 15+03 -Y- RT
TO STA. 15+19 -Y- RT
-YWB- POC Sta. 18+26.30 =
-Y- POT Sta. 18+26.30, 28' LT.
CHM MARKET SQUARE LLC
DB 28759 PG 382
MB 34 PG 41
DDRM ROSEDALE SHOPPING CENTER LLC
DB 22483 PG 112
MB 35 PG 611
-Y- N 66°07' 20.5" E
N 17°53' 13.7" W
N 23°38' 15.9" W
MATCHLINE -YWB- STA. 20+00.00 SEE SHEET 5
MATCHLINE -YEB- STA. 20+00.00 SEE SHEET 5
-Y- POT Sta. 10+61.38=
-Y10- POT Sta. 10+00.00
ST. CHARLES PLACE LLC
DB 20449 PG 949
MB 45 PG 794
-Y- POT Sta. 10+71.20=
-Y11- POT Sta. 14+90.00
-Y11- PT Sta. 12+19.59
HUNTERSVILLE BUSINESS PARK ASSOCIATION
DB 10239 PG 346
NOVANT HEALTH INC
DB 10239 PG 354
MB 46 PG 239
-YEB- POT Sta. 18+26.30 =
-Y- POT Sta. 18+26.30, 35.5' RT.
-RPC- POT Sta. 25+58.07
-YEB- POC Sta. 20+62.18
MATCHLINE -Y11- STA. 10+00.00 SEE SHEET 9

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

SEE SHEET 2B-6 FOR HORIZONTAL CURVE AND ALIGNMENT DATA
FOR -Y- & -YEB- PROFILES SEE SHEET 10
FOR -YWB- & -Y11- PROFILES SEE SHEET 11

6/5/2018 I-5714_rdy_psh04.dgn





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PROJECT REFERENCE NO.	SHEET NO.
I-5714	5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 033822 JONATHAN P. SOIKA DocuSigned by: AEB35098FFE34F1... 6/6/2018 12:21:31 PM EDT	SEAL 26971 JOSHUA G. DALTON DocuSigned by: Joshua G. Dalton 1089AD8C14994C3... 6/6/2018 12:13:44 PM EDT

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SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DETAIL 1

SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
3:1
D
d
4:1 or Flatter
Fill Slope

Min. D=1.5 Ft.
Max. d=1.5 Ft.

Type of Liner= Grass

FROM STA. 14+00 -RPB- TO STA. 15+50 -RPB- LT
FROM STA. 11+62 -SPURB- TO STA. 20+50 -RPB- RT
FROM STA. 19+46 -RPD- TO STA. 25+84 -RPD- RT
FROM STA. 11+38 -SPURA- TO STA. 20+00 -RPA- LT
FROM STA. 10+57 -SPURD- TO STA. 11+27 -SPURD- LT
FROM STA. 15+72 -RPC- TO STA. 12+35 -SPURC- RT

BEG. APPROACH SLAB, -YEB- STA. 25+08.53
BEG. BRIDGE, -YEB- STA. 25+32.50
PROPOSED BRIDGE
END APPROACH SLAB, -YEB- STA. 29+09.98
END BRIDGE, -YEB- STA. 28+86.00

-YEB- 02 52' N 69° 42' 25.2" E 34'
18'
-YWB- N 69° 42' 25.2" E
63.6' (MIN.) 15' 8'
EXISTING BRIDGE

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

FOR -YWB- PROFILE SEE SHEET 11
FOR -YEB- PROFILE SEE SHEET 10
FOR -RPA- PROFILE SEE SHEET 12
FOR -SPURA- PROFILE SEE SHEET 12
FOR -RPB- PROFILE SEE SHEET 13
FOR -SPURB- PROFILE SEE SHEET 13
FOR -RPC- PROFILE SEE SHEET 14
FOR -SPURC- PROFILE SEE SHEET 14
FOR -RPD- PROFILE SEE SHEET 15
FOR -SPURD- PROFILE SEE SHEET 15

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

SEE SHEET 2B-7 FOR HORIZONTAL CURVE AND ALIGNMENT DATA

DETAIL 2

SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
3:1
D
d
4:1 or Flatter
Fill Slope

Min. D=1.0 Ft.
Max. d=1.0 Ft.

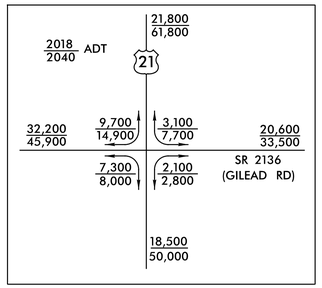
Type of Liner= Grass

FROM STA. 22+00 -RPC- TO STA. 24+69 -RPC- LT

6/5/2018
I-5714_rdy_psh05.dgn
FMarin

8/17/99

REVISIONS



NOTE: I–5714 AND U–5114 ARE ON DIFFERENT SURVEY DATUMS.

NAD 83/NA 2011

PROPOSED IMPROVEMENTS UNDER TIP U–5114

–YWB– POT Sta. 35+74.61 =
–Y– POT Sta. 35+44.89, 28.13' LT.

–Y– POT Sta. 35+72.62 =
–Y– (U–5114) POT Sta. 26+43.18 =
–L– (U–5114) POT Sta. 46+00.61

END TIP PROJECT I–5714
(TIE TO TIP PROJECT U–5114 (BY OTHERS))
–Y– STA. 35+31.15

–YEB– POT Sta. 35+81.40 =
–Y– POT Sta. 35+41.52, 23.5' RT.

PROPOSED IMPROVEMENTS UNDER TIP U–5114

★ DENOTES PROPOSED SIGNALIZED INTERSECTION

SEE SHEET 2B-8 FOR HORIZONTAL CURVE AND ALIGNMENT DATA

FOR –YEB– PROFILE SEE SHEET 10
FOR –YWB– PROFILE SEE SHEET 11

PROJECT REFERENCE NO.	SHEET NO.
I-5714	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SOINS

6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

6/6/2018 12:13:44 PM EDT

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Prepared by

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6/5/2018
I-5714_rdy_psh06.dgn
Plotted

PROJECT REFERENCE NO.	SHEET NO.
I-5714	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: [signature] AEB35098FFE34F1... NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOIKA	DocuSigned by: Joshua G. Dalton 1089AD8C14994C3... NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
6/6/2018 12:21:31 PM EDT	6/6/2018 12:13:44 PM EDT

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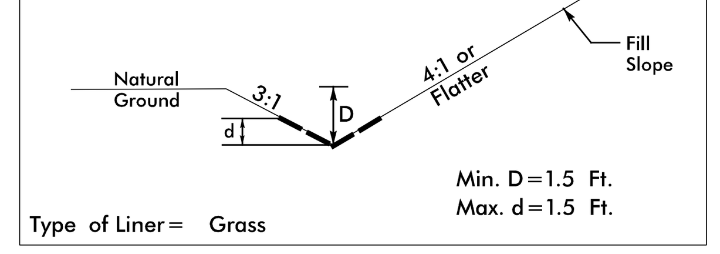
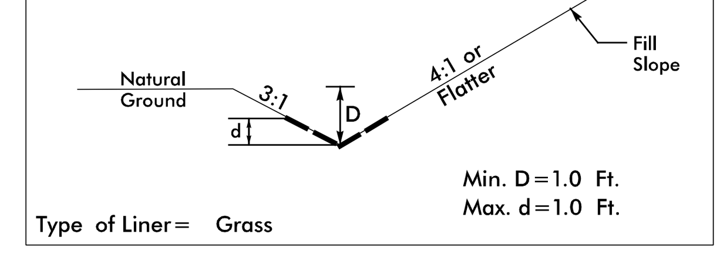
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 15+72 -RPC- TO STA. 12+35 -SPURC- RT
FROM STA. 19+46 -RPD- TO STA. 25+84 -RPD- RT

DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 18+64 -RPD- TO STA. 21+50 -RPD- LT

-RPC-

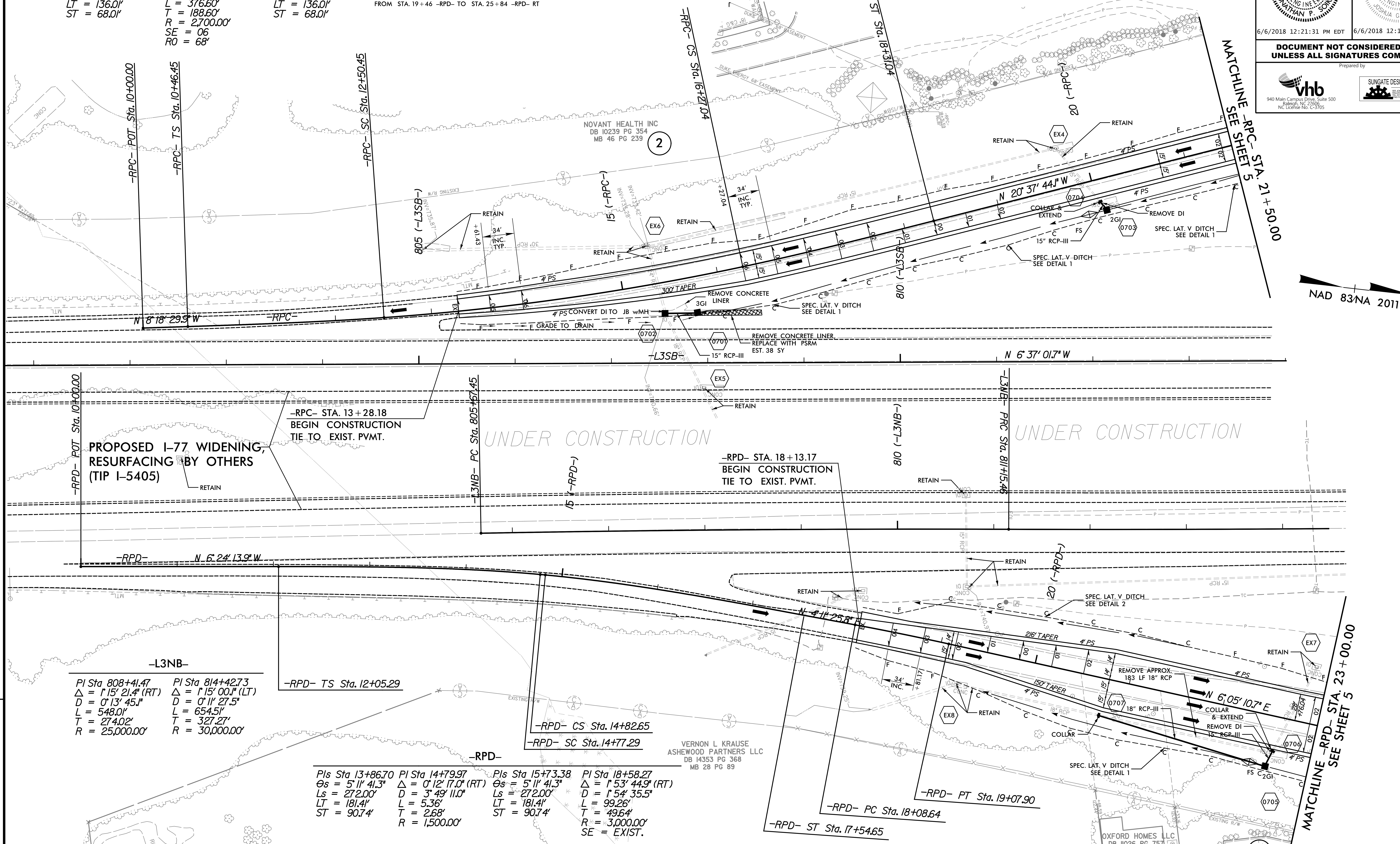
PIs Sta 11+82.46	PI Sta 14+39.05	PIs Sta 16+95.05
Θs = 2° 09' 52.2"	Δ = 7° 59' 29.8" (LT)	Θs = 2° 09' 52.2"
Ls = 204.00'	D = 2° 07' 19.4"	Ls = 204.00'
LT = 136.01'	L = 376.60'	LT = 136.01'
ST = 68.01'	T = 188.60'	ST = 68.01'
	R = 2,700.00'	
	SE = .06	
	RO = 68'	

-L3NB-

PI Sta 808+41.47	PI Sta 814+42.73
Δ = 1° 15' 21.4" (RT)	Δ = 1° 15' 00.1" (LT)
D = 0° 13' 45.1"	D = 0° 11' 27.5"
L = 548.01'	L = 654.51'
T = 274.02'	T = 327.27'
R = 25,000.00'	R = 30,000.00'

-RPD-

PIs Sta 13+86.70	PI Sta 14+79.97	PIs Sta 15+73.38	PI Sta 18+58.27
Θs = 5° 11' 41.3"	Δ = 0° 12' 17.0" (RT)	Θs = 5° 11' 41.3"	Δ = 1° 53' 44.9" (RT)
Ls = 272.00'	D = 3° 49' 11.0"	Ls = 272.00'	D = 1° 54' 35.5"
LT = 181.41'	L = 5.36'	LT = 181.41'	L = 99.26'
ST = 90.74'	T = 2.68'	ST = 90.74'	T = 49.64'
	R = 1,500.00'		R = 3,000.00'
			SE = EXIST.



FOR -RPC- PROFILE SEE SHEET 14
FOR -RPD- PROFILE SEE SHEET 15

REVISIONS

8/17/99

6/5/2018
I-5714_rdy_psh07.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5714	8

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 033822, JONATHAN P. SOKA — 6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER — SEAL 26971, JOSHUA G. DALTON — 6/6/2018 12:13:44 PM EDT

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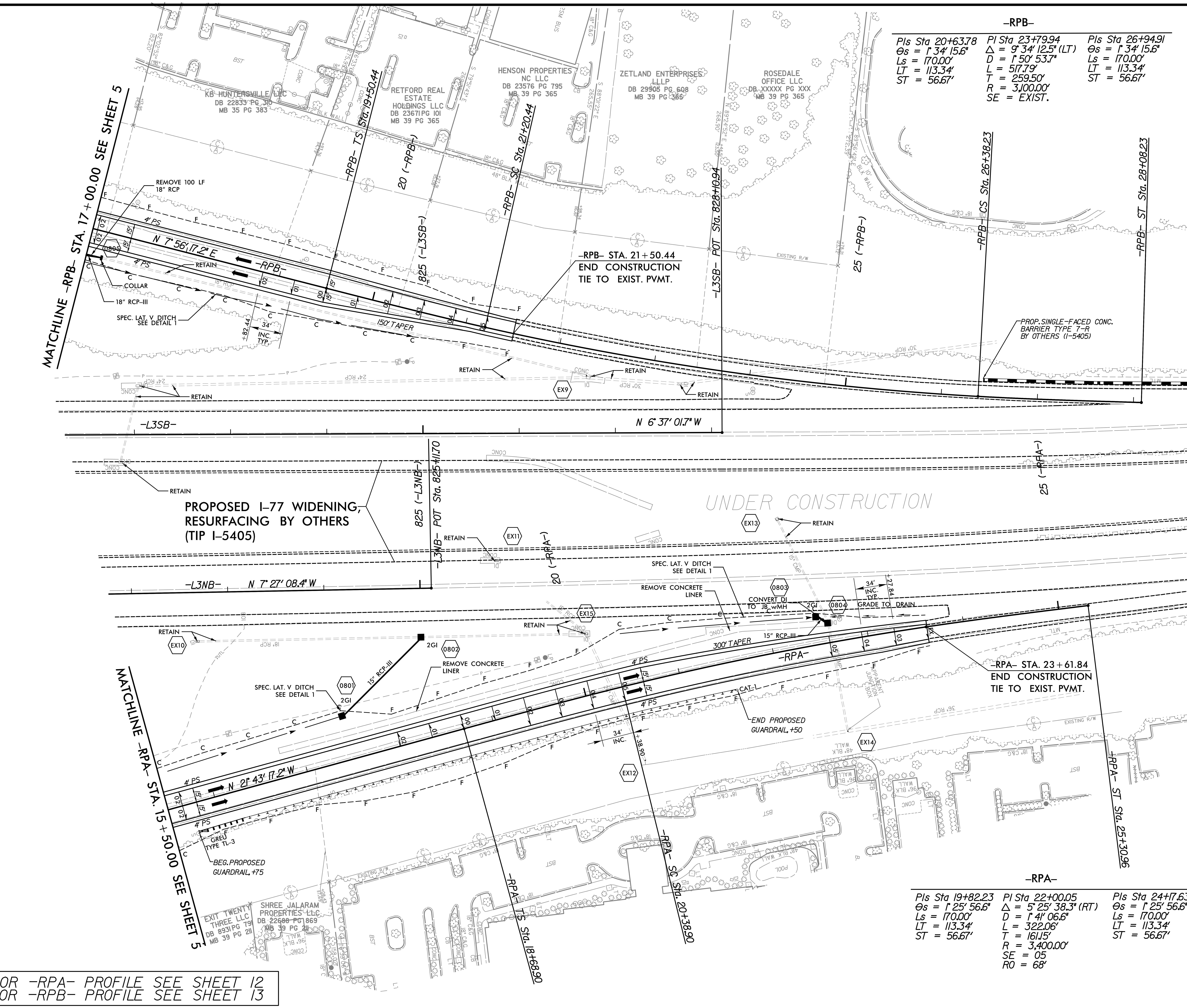
-RPB-

PIs Sta 20+63.78	PI Sta 23+79.94	PIs Sta 26+94.91
Θs = 1° 34' 15.6"	Δ = 9° 34' 12.5" (LT)	Θs = 1° 34' 15.6"
Ls = 170.00'	D = 1° 50' 53.7"	Ls = 170.00'
LT = 113.34'	L = 517.79'	LT = 113.34'
ST = 56.67'	T = 259.50'	ST = 56.67'
	R = 3,100.00'	
	SE = EXIST.	

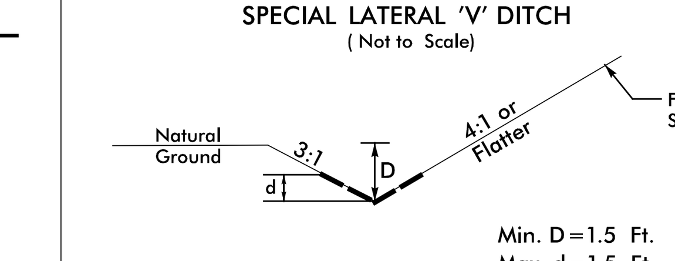


MATCHLINE -RPB- STA. 17+00.00 SEE SHEET 5
MATCHLINE -RPA- STA. 15+50.00 SEE SHEET 5
KB HUNTERSVILLE LLC DB 22833 PG 310 MB 35 PG 383
RETFORD REAL ESTATE HOLDINGS LLC DB 23671 PG 101 MB 39 PG 365
HENSON PROPERTIES NC LLC DB 23576 PG 795 MB 39 PG 365
ZETLAND ENTERPRISES LLLP DB 29905 PG 608 MB 39 PG 365
ROSEDALE OFFICE LLC DB XXXXX PG XXX MB 39 PG 365
SHREE JALARAM PROPERTIES LLC DB 22688 PG 869 MB 39 PG 211
EXIT TWENTY THREE LLC DB 8931 PG 791 MB 39 PG 211
REMOVE 100 LF 18" RCP
COLLAR
18" RCP-III
SPEC. LAT. V DITCH SEE DETAIL 1
N 7° 56' 17.2" E
-RPB-
150' TAPER
-RPB- TS Sta. 19+50.44
-RPB- SC Sta. 21+20.44
-RPB- STA. 21+50.44 END CONSTRUCTION TIE TO EXIST. PVMT.
-L3SB- POT Sta. 828+10.94
-RPB- CS Sta. 26+38.23
-RPB- ST Sta. 28+08.23
PROP. SINGLE-FACED CONC. BARRIER TYPE 7-R BY OTHERS (I-5405)
NAD 83/NA 2011
RETAIN
-L3SB-
N 6° 37' 01.7" W
PROPOSED I-77 WIDENING, RESURFACING BY OTHERS (TIP I-5405)
UNDER CONSTRUCTION
-L3NB- POT Sta. 825+11.70
-L3NB-
N 7° 27' 08.4" W
REMOVE CONCRETE LINER
CONVERT DI TO JB w/MH
GRADE TO DRAIN
300' TAPER
15" RCP-III
-RPA-
-RPA- STA. 23+61.84 END CONSTRUCTION TIE TO EXIST. PVMT.
N 21° 43' 17.2" W
END PROPOSED GUARDRAIL, +50
BEG. PROPOSED GUARDRAIL, +75
GREU TYPE TL-3
-RPA- TS Sta. 18+68.90
-RPA- SC Sta. 20+38.90
-RPA- ST Sta. 25+30.96
EX9 EX10 EX11 EX12 EX13 EX14 EX15
0801 0802 0803 0804 0805

-RPA-

PIs Sta 19+82.23	PI Sta 22+00.05	PIs Sta 24+17.63
Θs = 1° 25' 56.6"	Δ = 5° 25' 38.3" (RT)	Θs = 1° 25' 56.6"
Ls = 170.00'	D = 1° 41' 06.6"	Ls = 170.00'
LT = 113.34'	L = 322.06'	LT = 113.34'
ST = 56.67'	T = 161.15'	ST = 56.67'
	R = 3,400.00'	
	SE = 05	
	RO = 68'	

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Grass

FROM STA. 11+38 -SPURA- TO STA. 17+50 -RPA- LT
FROM STA. 20+50 -RPA- TO STA. 22+50 -RPA- LT
FROM STA. 11+62 -SPURB- TO STA. 20+50 -RPB- RT

FOR -RPA- PROFILE SEE SHEET 12
FOR -RPB- PROFILE SEE SHEET 13

REVISIONS

6/5/2018 I-5714_rdy_psh08.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5714	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 033822 JONATHAN P. SOKA 6/6/2018 12:21:31 PM EDT	SEAL 26971 JOSHUA G. DALTON 6/6/2018 12:13:44 PM EDT

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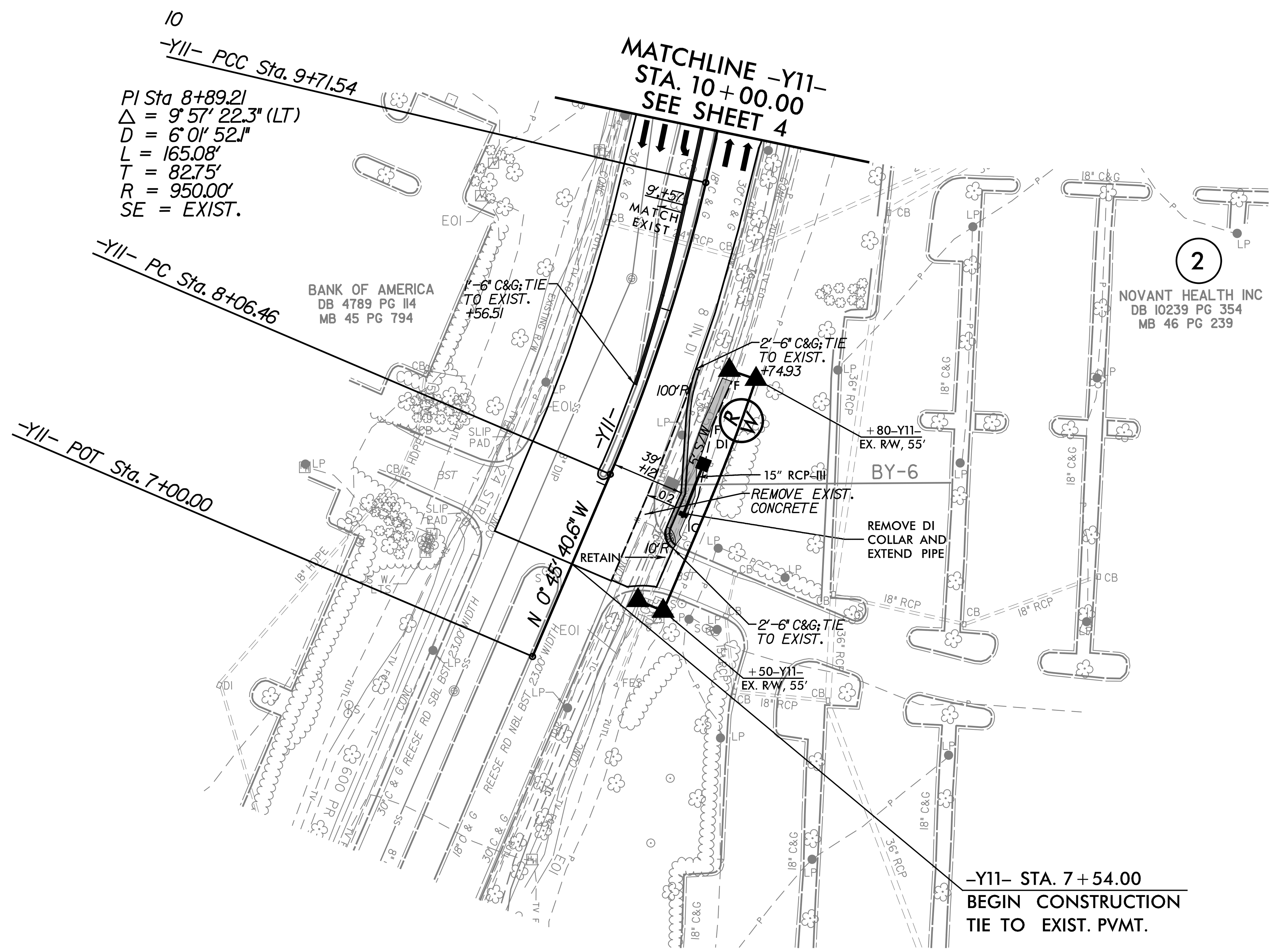
NAD 83/NA 2011

REVISIONS

8/17/99



FOR -Y11- PROFILE, SEE SHEET 11

6/5/2018
I-5714_rdy_psh09.dgn

5/28/99

BM1 ELEVATION = 772.40
N 608944 E 1445983
Y STATION 21+98.00 134 LEFT
BENCH TIE SPIKE IN 30" PINE TREE

NOTE: CONDUCT 1.5" MILLING AND 1.5" OVERLAY FROM –Y– STA. 9+35.00 TO STA. 11+00.00

–Y–

BEGIN GRADE –Y– STA. 11+00.00
EL =757.16'

PI = 11+10.00
EL = 757.31'

PI = 13+50.00
EL = 758.03'
VC = 120'
K = 150
V = 55MPH

PI = 15+10.00
EL = 757.23'
VC = 140'
K = 126
V = 55MPH

END GRADE –Y– STA. 18+26.30
EL =760.35'

PI = 17+60.00
EL = 758.76'
VC = 120'
K = 67
V = 40MPH

(+)1.5000% (+)0.3000% (+)0.3000% (–)0.5000% (–)0.5000% (+)0.6120% (+)0.6120% (+)2.3967%

–YEB–

BEGIN GRADE –YEB– STA. 18+26.30
EL =759.64'

PI = 18+80.00
EL = 760.93'
VC = 100'
K = 157
V = 60MPH

PI = 20+45.00
EL = 763.84'
VC = 140'
K = 117
V = 55MPH

769.64

(+)2.4022% (+)1.7636% (+)1.7636% (+)2.9589%

FOR –Y–&–YEB– PLANS SEE SHEET 4

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	10

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. CORA

6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

6/6/2018 12:13:44 PM EDT

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–YEB–

BEGIN BRIDGE –YEB– STA. 25+32.50

END BRIDGE –YEB– STA. 28+86.00

PI = 24+10.00
EL = 774.64'
VC = 210'
K = 95
V = 50MPH

PI = 29+55.00
EL = 778.66'
VC = 90'
K = 23
V = 30MPH

PI = 30+50.00
EL = 775.66'
VC = 100'
K = 56
V = 35MPH

PI = 34+00.00
EL = 770.82'
VC = 200'
K = 85
V = 45MPH

END GRADE –YEB– STA. 35+67.37
EL = 772.46'
TIE TO U–5114

769.91

(+)2.9589% (+)0.7376% (+)0.7376% (–)3.1579% (–)1.3838% (–)1.3838% (+)0.9818%

SEE CROSS SECTIONS FOR SPECIFIC PROPOSED UNDERCUT LOCATIONS

FOR –YEB– PLAN SEE SHEETS 5 & 6

6/5/2018
I-5714_dy_pf110.dgn
EMorin

5/28/99

BM1 ELEVATION = 772.40
N 608944 E 1445983
Y STATION 21+98.00 134 LEFT
BENCH TIE SPIKE IN 30" PINE TREE

–YWB–

BEGIN GRADE –YWB– STA. 18+26.30
EL =759.79'

END GRADE –YWB– STA. 21+47.00
EL =767.81'

PI = 20+25.00
EL = 764.57'
VC = 150'
K = 600
V = 80MPH

(+)2.4056%

(+)2.6557%

BEGIN GRADE –YWB– STA. 22+19.13
EL =768.30'

END GRADE –YWB– STA. 24+91.08
EL =772.21'

PI = 24+40.00
EL = 772.06'
VC = 100'
K = 71
V = 45MPH

(+)1.7024%

(–)0.2937%

BEGIN GRADE –YWB– STA. 28+91.42
EL =774.47'

(–)0.3011%

END GRADE –YWB– STA. 31+40.47
EL =773.72'

FOR –YWB– PLAN SEE SHEETS 4,5 & 6

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	11

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SORY
6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER
Prepared by: Joshua G. Dalton, P.E. Sungate Design Group
NORTH CAROLINA PROFESSIONAL ENGINEER 26971 JOSHUA G. DALTON
6/6/2018 12:13:44 PM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–YWB–

BEGIN GRADE –YWB– STA. 31+90.52
EL =774.02'

END GRADE –YWB– STA. 35+60.61
EL =772.46'
TIE TO U–5114

PI = 34+00.00
EL = 770.72'
VC = 220'
K = 83
V = 45MPH

(–).5731%

(+)1.0805%

SEE CROSS SECTIONS FOR SPECIFIC PROPOSED UNDERCUT LOCATIONS

–Y11–

BEGIN RESURFACING –Y11– STA. 7+54.00
EL =726.71'

END RESURFACING –Y11– STA. 14+49.83
TIE TO –Y– RESURFACING
EL =756.66'

FOR –YII– PLAN SEE SHEETS 4 & 9

6/5/2018
I-5714_rdy_pf111.dgn
FMorrill

5/28/99

–RPA–

BEGIN GRADE –RPA– STA. 11+14.10
EL =772.51′

PI = 11+70.00
EL = 773.53′
VC = 100′
K = 35
V = 35MPH

PI = 13+80.00
EL = 771.40′
VC = 200′
K = 84
V = 50MPH

(+)1.8247%
(–)1.0148%
(–)1.0148%
(–)3.3887%
(–) 2.7361%
(–) 4.4000%

BEGIN UNDERCUT
STA. 11+50 –RPA–

END UNDERCUT
STA. 12+75 –RPA–

SEE CROSS SECTIONS FOR SPECIFIC PROPOSED UNDERCUT LOCATIONS

SPEC. LAT. V DITCH
PI=13+86.7 –RPA– LT
PI=12+70.7 –SPURA– LT
EL=767.1

SPEC. LAT. V DITCH
PI=15+00 –RPA– LT
EL=764.0

END SPEC. LAT. V DITCH
PI=17+50 –RPA– LT
EL=753.0

PI = 20+95.00
EL = 747.17′
VC = 380′
K = 241
V = 80MPH

END GRADE –RPA– STA. 23+61.84
EL =742.28′

PI = 22+85.00
EL = 743.73′

(–)3.3887%
(–)1.8105%
(–)1.8105%
(–)1.8870%
(–) 0.2500%

BEG SPEC. LAT. V DITCH
PI=20+50 –RPA– LT
EL=742.3

END SPEC. LAT. V DITCH
PI=22+50 –RPA– LT
EL=741.8

FOR –RPA– PLAN SEE SHEETS 5 & 8

–SPURA–

BEGIN GRADE –SPURA– STA. 10+00.00
EL =778.10′

END GRADE –SPURA– STA. 12+70.88
EL =770.66′

PI = 10+70.00
EL = 777.40′
VC = 90′
K = 26
V = 30MPH

PI = 11+70.00
EL = 772.96′
VC = 110′
K = 51
V = 40MPH

(–)1.0000%
(–)4.4400%
(–)2.2799%
(–) 2.0347%

BEG. SPEC. LAT. V DITCH
PI=11+38 –SPURA– LT
EL=769.8

SPEC. LAT. V DITCH
PI=12+70.7 –SPURA– LT
PI=13+86.7 –RPA– LT
EL=767.1

FOR –SPURA– PLAN SEE SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	12

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033822 JONATHAN P. SOINK

6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

6/6/2018 12:13:44 PM EDT

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5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	13

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033822 ENGINEER JONATHAN P. SOIKA — DocuSigned by: AEB33C98FFE34F1...	NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON — DocuSigned by: Joshua G. Dalton 1089AD8C14994C3...
6/6/2018 12:21:31 PM EDT	6/6/2018 12:13:44 PM EDT

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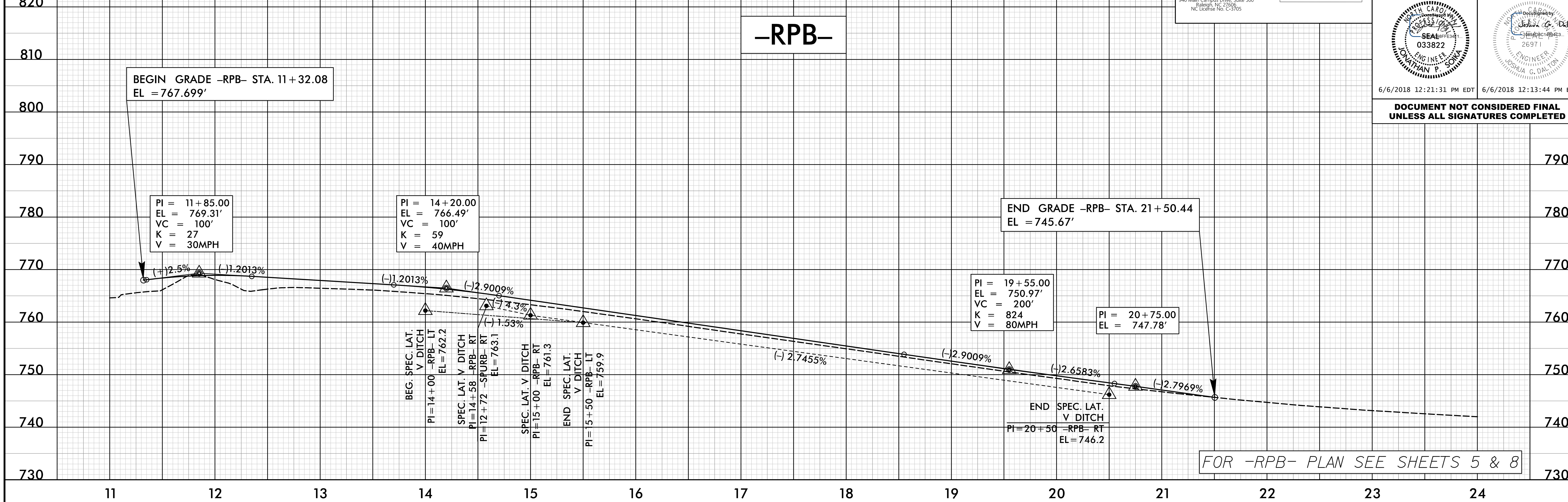
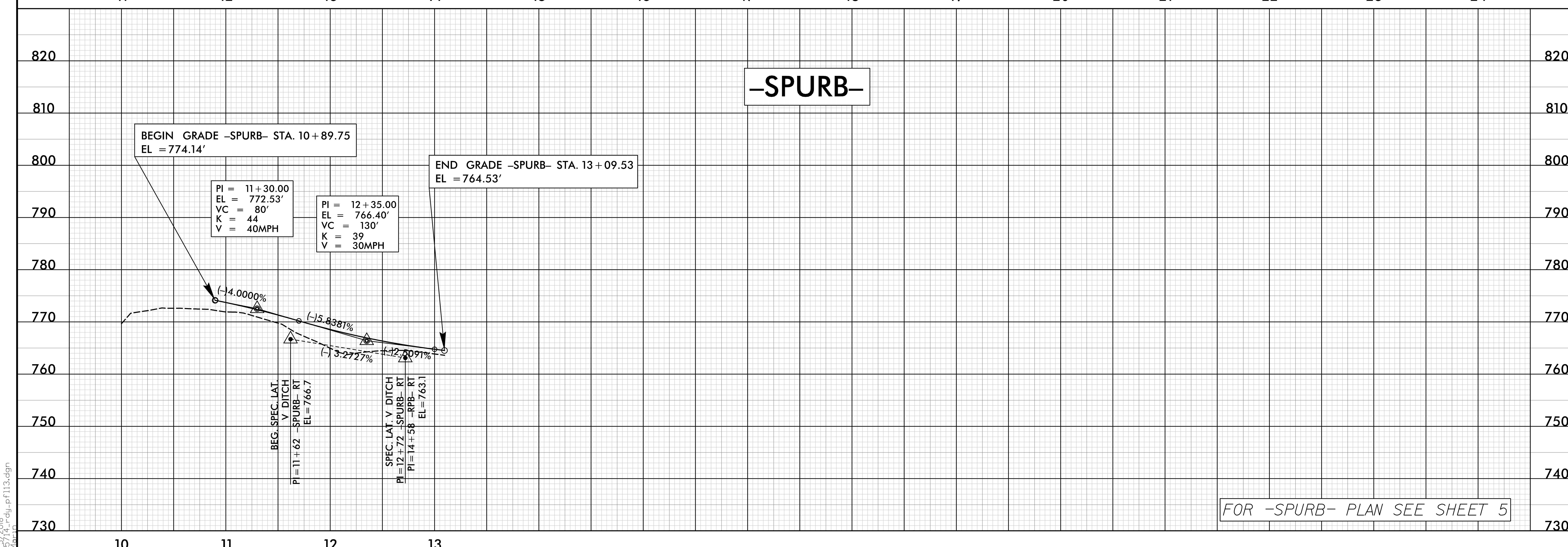

-RPB-
820
810
800
790
780
770
760
750
740
730
BEGIN GRADE -RPB- STA. 11+32.08
EL =767.699'
PI = 11+85.00
EL = 769.31'
VC = 100'
K = 27
V = 30MPH
PI = 14+20.00
EL = 766.49'
VC = 100'
K = 59
V = 40MPH
END GRADE -RPB- STA. 21+50.44
EL =745.67'
PI = 19+55.00
EL = 750.97'
VC = 200'
K = 824
V = 80MPH
PI = 20+75.00
EL = 747.78'
(+)2.5%
(-)1.2013%
(-)1.2013%
(-)2.9009%
(-)4.3%
(-)1.53%
(-) 2.7455%
(-)2.9009%
(-)2.6583%
(-)2.7969%
BEG. SPEC. LAT. V DITCH
PI=14+00 -RPB- LT
EL=762.2
SPEC. LAT. V DITCH
PI=14+58 -RPB- RT
PI=12+72 -SPURB- RT
EL=763.1
SPEC. LAT. V DITCH
PI=15+00 -RPB- RT
EL=761.3
END SPEC. LAT. V DITCH
PI=15+50 -RPB- LT
EL=759.9
END SPEC. LAT. V DITCH
PI=20+50 -RPB- RT
EL=746.2
FOR -RPB- PLAN SEE SHEETS 5 & 8
11
12
13
14
15
16
17
18
19
20
21
22
23
24


-SPURB-
820
810
800
790
780
770
760
750
740
730
BEGIN GRADE -SPURB- STA. 10+89.75
EL =774.14'
PI = 11+30.00
EL = 772.53'
VC = 80'
K = 44
V = 40MPH
PI = 12+35.00
EL = 766.40'
VC = 130'
K = 39
V = 30MPH
END GRADE -SPURB- STA. 13+09.53
EL =764.53'
(-)4.0000%
(-)5.8381%
(-) 3.2727%
(-)2.6091%
BEG. SPEC. LAT. V DITCH
PI=11+62 -SPURB- RT
EL=766.7
SPEC. LAT. V DITCH
PI=12+72 -SPURB- RT
PI=14+58 -RPB- RT
EL=763.1
FOR -SPURB- PLAN SEE SHEET 5
10
11
12
13

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$USER$

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	14

ROADWAY DESIGN ENGINEER
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JONATHAN P. SOIKA
6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER
SEAL 26971
JOSHUA G. DALTON
6/6/2018 12:13:44 PM EDT

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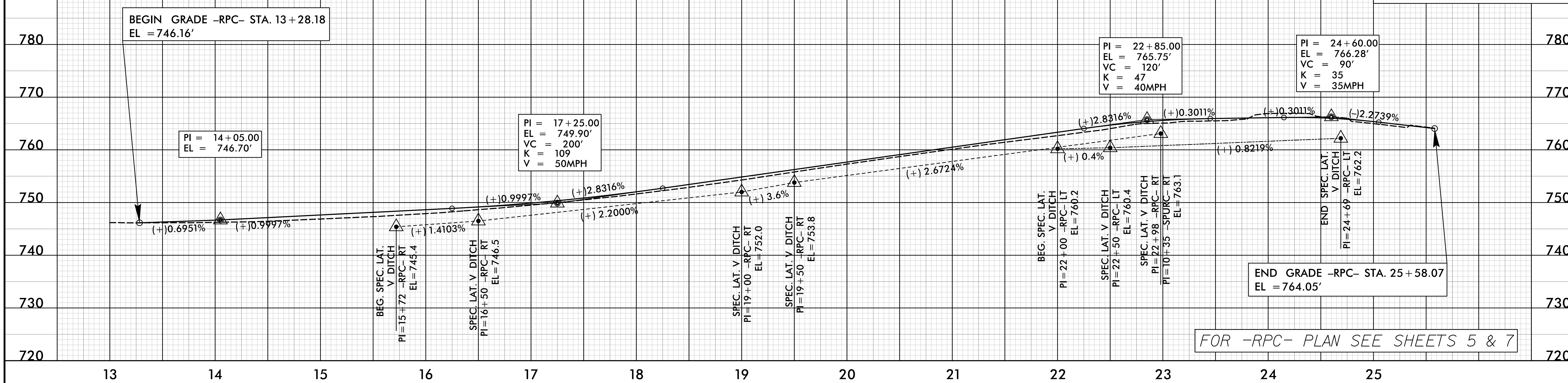
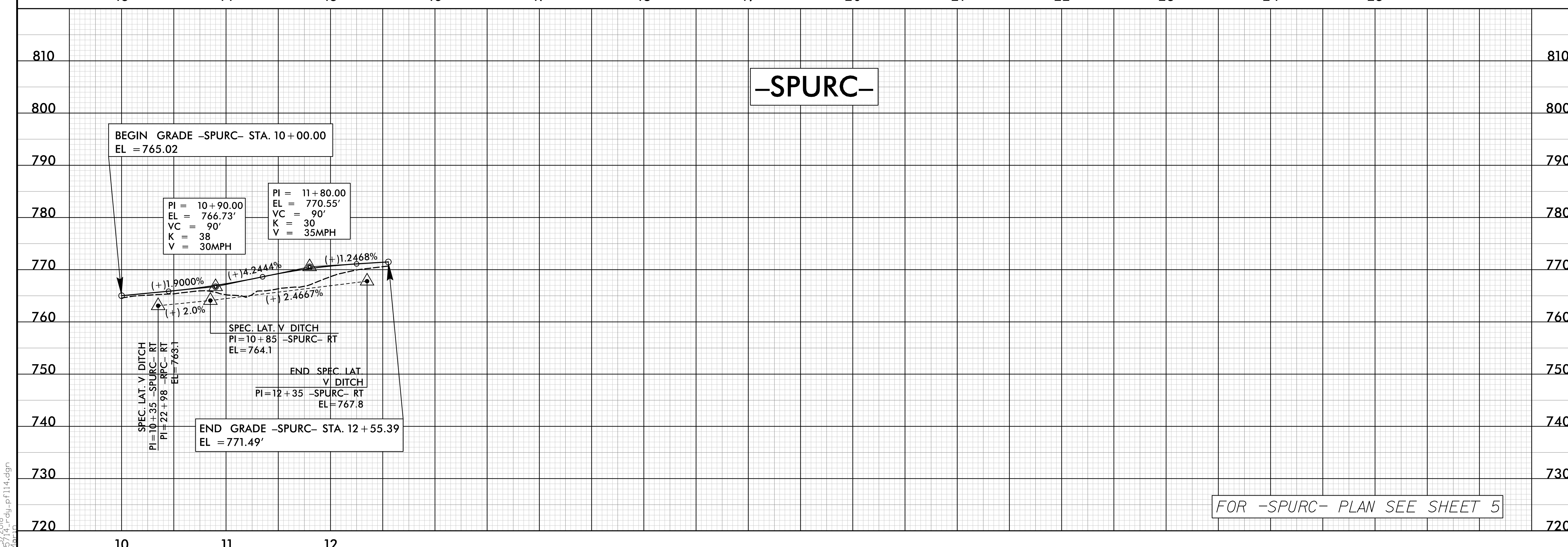


–RPC–
BEGIN GRADE –RPC– STA. 13+28.18
EL =746.16′
PI = 14+05.00
EL = 746.70′
PI = 17+25.00
EL = 749.90′
VC = 200′
K = 109
V = 50MPH
PI = 22+85.00
EL = 765.75′
VC = 120′
K = 47
V = 40MPH
PI = 24+60.00
EL = 766.28′
VC = 90′
K = 35
V = 35MPH
(+)0.6951%
(+)0.9997%
(+)1.4103%
(+)0.9997%
(+)2.8316%
(+)2.2000%
(+)3.6%
(+)2.6724%
(+)2.8316%
(+)0.4%
(+)0.3011%
(+)0.8219%
(+)0.3011%
(–)2.2739%
BEG. SPEC. LAT. V DITCH
PI=15+72 –RPC– RT
EL=745.4
SPEC. LAT. V DITCH
PI=16+50 –RPC– RT
EL=746.5
SPEC. LAT. V DITCH
PI=19+00 –RPC– RT
EL=752.0
SPEC. LAT. V DITCH
PI=19+50 –RPC– RT
EL=753.8
BEG. SPEC. LAT. V DITCH
PI=22+00 –RPC– LT
EL=760.2
SPEC. LAT. V DITCH
PI=22+50 –RPC– LT
EL=760.4
SPEC. LAT. V DITCH
PI=22+98 –RPC– RT
PI=10+35 –SPURC– RT
EL=763.1
END SPEC. LAT. V DITCH
PI=24+69 –RPC– LT
EL=762.2
END GRADE –RPC– STA. 25+58.07
EL =764.05′
FOR –RPC– PLAN SEE SHEETS 5 & 7
810
800
790
780
770
760
750
740
730
720
13
14
15
16
17
18
19
20
21
22
23
24
25



–SPURC–
BEGIN GRADE –SPURC– STA. 10+00.00
EL =765.02
PI = 10+90.00
EL = 766.73′
VC = 90′
K = 38
V = 30MPH
PI = 11+80.00
EL = 770.55′
VC = 90′
K = 30
V = 35MPH
(+)1.9000%
(+)4.2444%
(+)1.2468%
(+)2.0%
(+)2.4667%
SPEC. LAT. V DITCH
PI=10+85 –SPURC– RT
EL=764.1
END SPEC. LAT. V DITCH
PI=12+35 –SPURC– RT
EL=767.8
SPEC. LAT. V DITCH
PI=10+35 –SPURC– RT
PI=22+98 –RPC– RT
EL=763.1
END GRADE –SPURC– STA. 12+55.39
EL =771.49′
FOR –SPURC– PLAN SEE SHEET 5
810
800
790
780
770
760
750
740
730
720
10
11
12

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6/5/2018
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5/28/99

–RPD–

BEGIN GRADE –RPD– STA. 18+13.17
EL =751.33′

PI = 18+90.00
EL = 753.25′

PI = 24+70.00
EL = 770.40′
VC = 320′
K = 164
V = 60MPH

END GRADE –RPD– STA. 27+84.12
EL =772.59′

PI = 27+35.00
EL = 773.08′
VC = 90′
K = 45
V = 40MPH

(+)2.9579%
(+)1.0102%
(–)0.9996%
(+)1.0102%
(+) 0.44%
(+)2.9579%
(+) 0.28%
(+) 3.1102%
(+) 2.8800%
(+) 1.92%

BEG. SPEC. LAT. V DITCH PI=18+64 –RPD– LT EL=749.7

SPEC. LAT. V DITCH PI=19+00 –RPD– LT EL=749.8

BEG. SPEC. LAT. V DITCH PI=19+46 –RPD– RT EL=751.1

END SPEC. LAT. V DITCH PI=21+50 –RPD– LT EL=757.0

SPEC. LAT. V DITCH PI=22+00 –RPD– RT EL=759.0

SPEC. LAT. V DITCH PI=25+50 –RPD– RT EL=763.7

END SPEC. LAT. V DITCH PI=27+33 –RPD– RT EL=766.5

SEE CROSS SECTIONS FOR SPECIFIC PROPOSED UNDERCUT LOCATIONS

FOR –RPD– PLAN SEE SHEETS 5 & 7

–SPURD–

BEGIN GRADE –SPURD– STA. 10+00.00
EL =769.46′

PI = 10+80.00
EL = 771.06′
VC = 90′
K = 171
V = 65MPH

(+)2.0039%
(+)2.5298%
(+) 1.4493%

BEG. SPEC. LAT. V DITCH PI=10+58 –SPURD– LT EL=767.3

END SPEC. LAT. V DITCH PI=11+27 –SPURD– LT EL=768.3

END GRADE –SPURD– STA. 11+83.84
EL =773.69′

FOR –SPURD– PLAN SEE SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
I-5714	15

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6/6/2018 12:21:31 PM EDT

HYDRAULICS ENGINEER
CAROLINA PROFESSIONAL ENGINEER Joshua G. Dalton Signature/Initials 26971 ENGINEER JOSHUA G. DALTON
6/6/2018 12:13:44 PM EDT

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I-5714	16

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ROADWAY DESIGN ENGINEER

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HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

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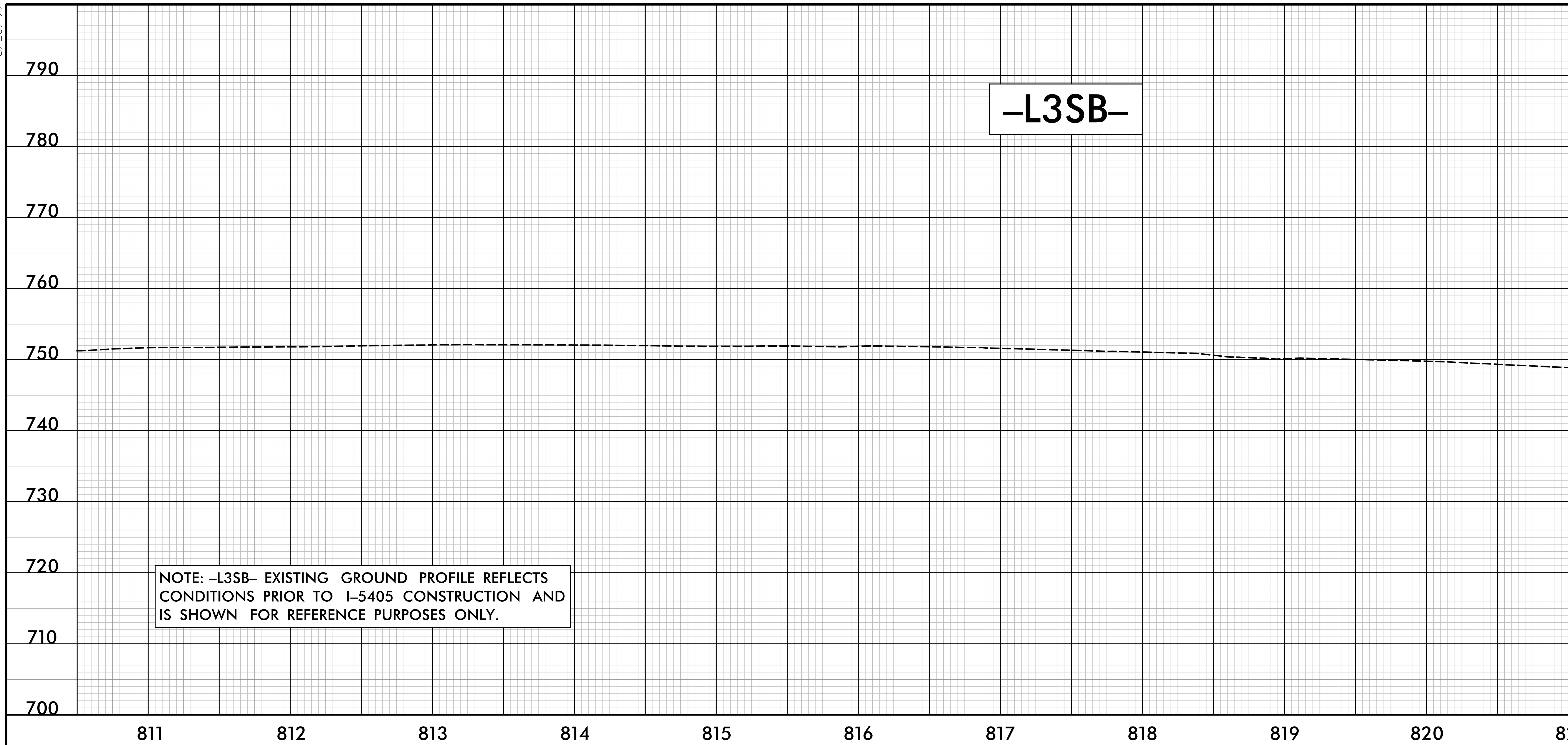

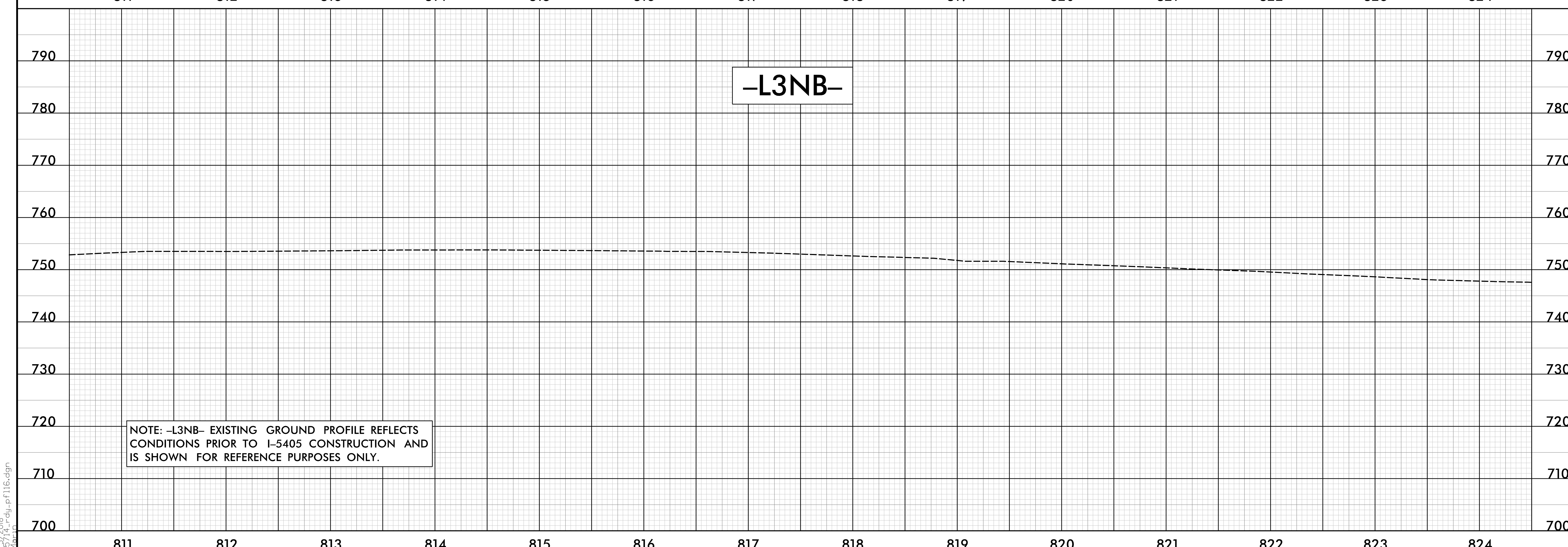

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