

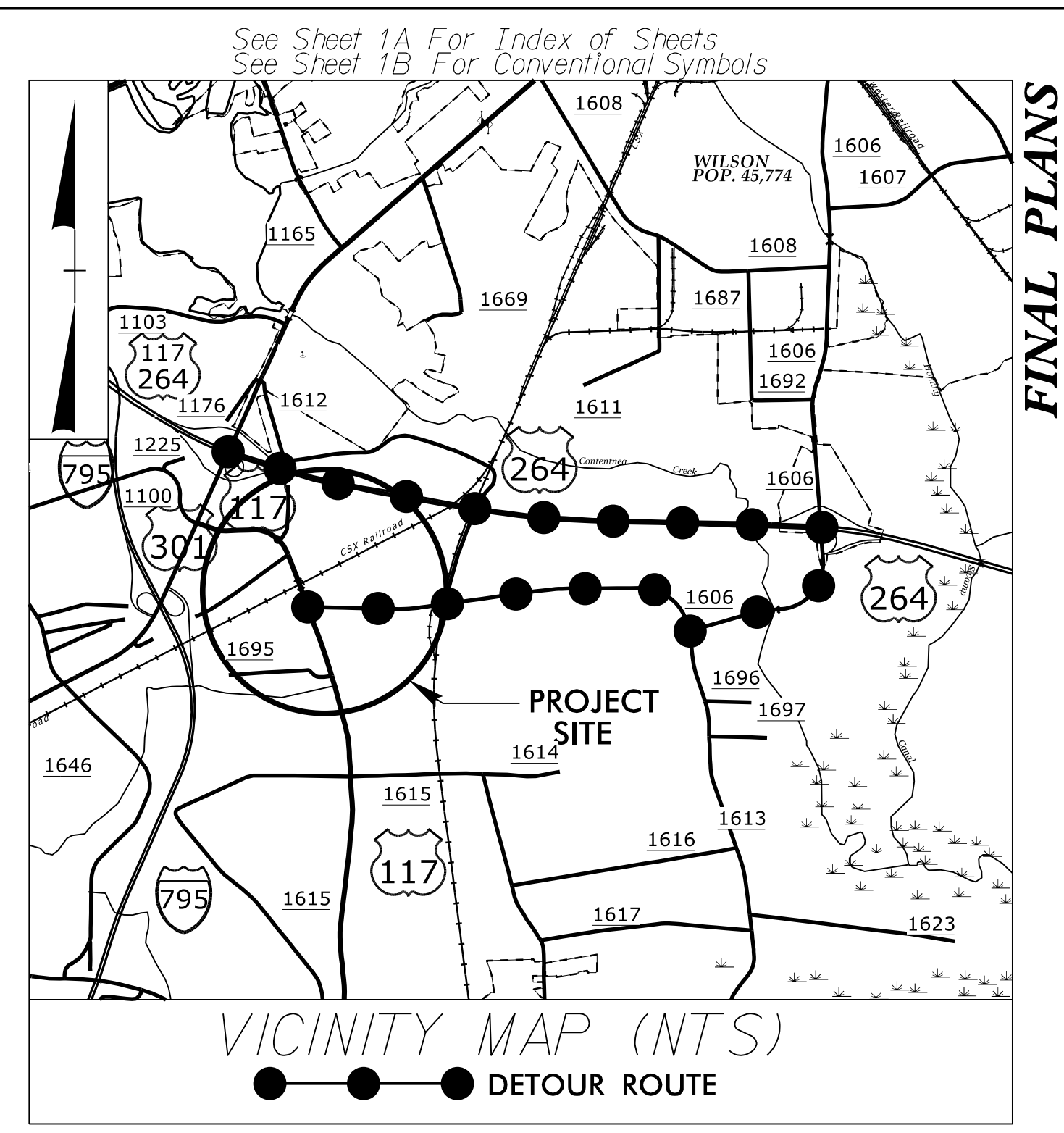
09\_08/2019

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-5666</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45621.1.1		P.E.	
45621.2.1		ROW/UTIL	
45621.3.1		CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**WILSON COUNTY**

**LOCATION: REPLACE BRIDGE NO. 47 OVER  
SEABOARD COAST LINE RAILROAD ON US 117**

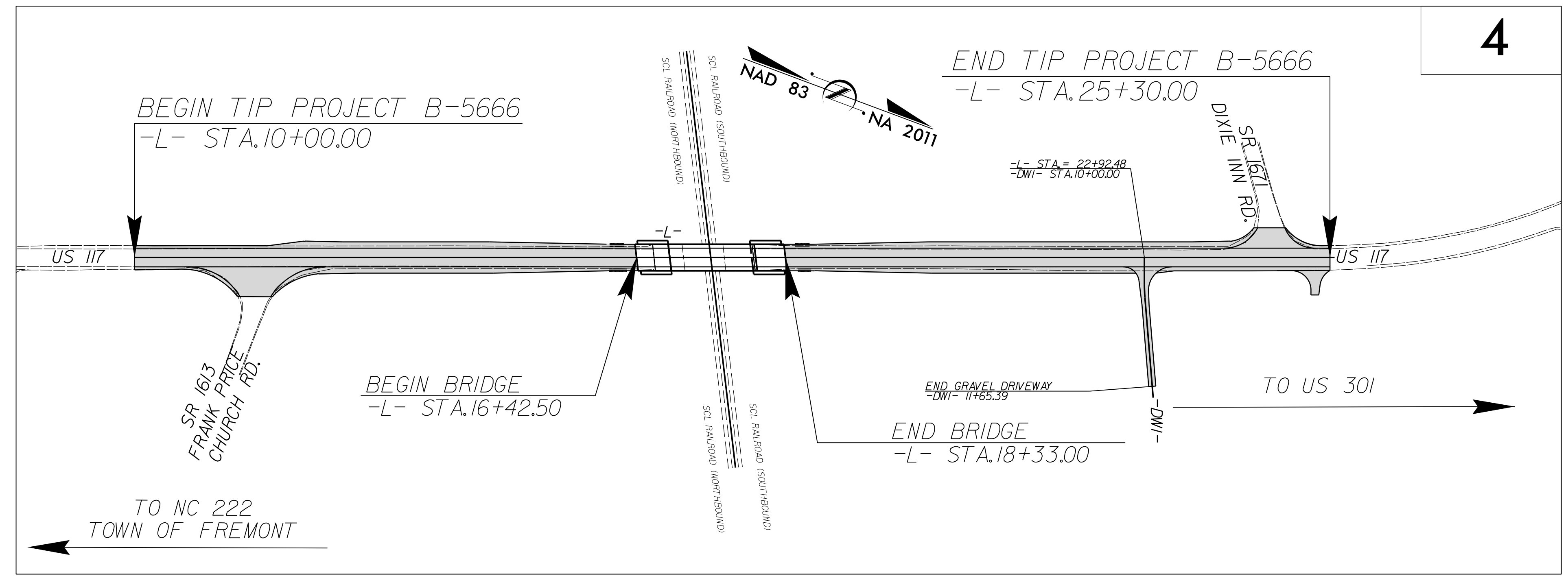
**TYPE OF WORK: DRAINAGE, GRADING, PAVING AND STRUCTURE**



FINAL PLANS

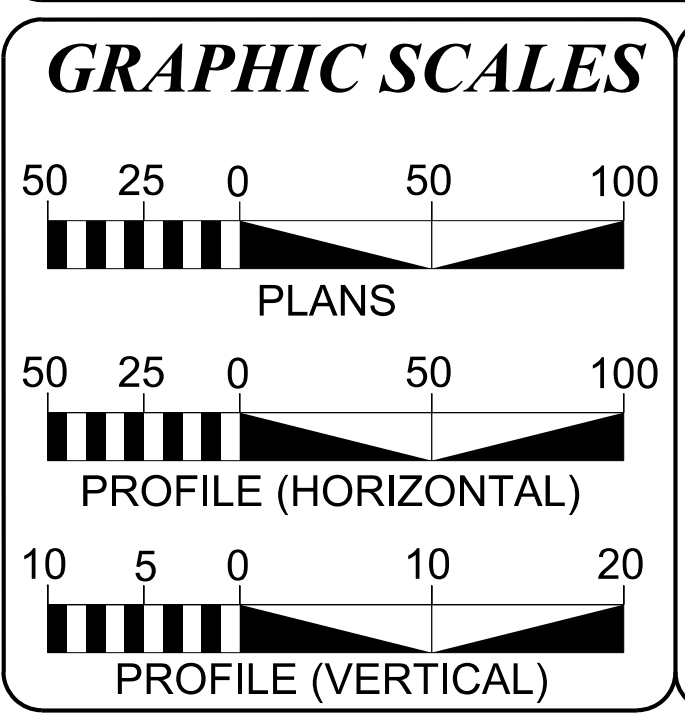
TIP PROJECT: B-5666

CONTRACT: C204536



A DESIGN EXCEPTION WILL BE REQUIRED FOR SAG & CREST VERTICAL CURVES AND VERTICAL STOPPING SIGHT DISTANCE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT 2020 = 5,070  
ADT 2040 = 6,200  
K = 8 %  
D = 55 %  
T = 4 % \*  
V = 55 MPH  
\* TTST = 2% DUAL 2%  
FUNCTIONAL CLASS = MINOR ARTERIAL  
REGIONAL TIER

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-5666 = .254 MILES  
LENGTH OF STRUCTURE TIP PROJECT B-5666 = .036 MILES  
TOTAL LENGTH OF TIP PROJECT B-5666 = .290 MILES

Prepared in the Office of:  
KCI Associates of N.C., P.A.  
4505 Falls of Neuse Road, Suite 400  
Raleigh, NC 27609  
Phone (919) 783-9214  
Fax (919) 783-9266  
www.kci.com

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
DECEMBER 20, 2019

**LETTING DATE:**  
July 20, 2021

**NC DOT CONTACT:**

Plans Prepared For:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr.  
Raleigh NC, 27610

**DEWAYNE L. SYKES, P.E.**  
PROJECT ENGINEER

**BRYAN E. HOUGH, P.E.**  
PROJECT DESIGN ENGINEER

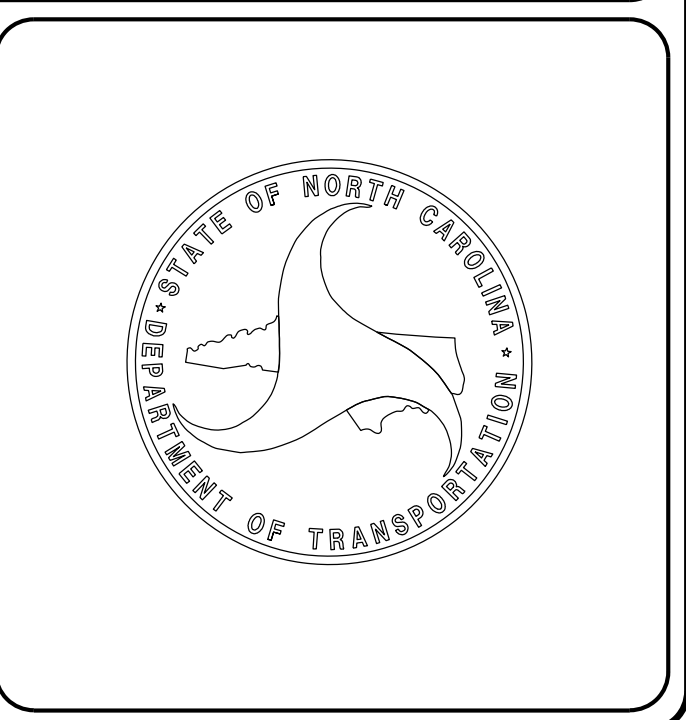
**DAVID STUTTS, P.E.**  
STRUCTURES MANAGEMENT UNIT

**HYDRAULICS ENGINEER**

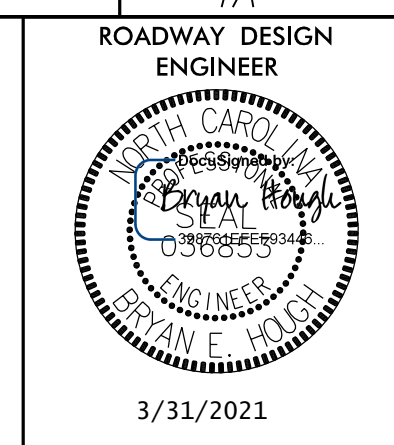
DocuSigned by:  
CACC9018EBCA57  
SIGNATURE:

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
Bryan E. Hough  
SIGNATURE:



18-MAY-2021 06:48  
M:\208\1251501945\22\_B-5666\Roadway\Proj\B-5666\_Rdy\_tsh.dgn  
\$\$\$\$\$SERVNAME\$\$\$\$\$



SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	TYPICAL SECTIONS, PAVEMENT SCHEDULE, WEDGING DETAIL, INCIDENTAL MILLING DETAIL, SHOULDER BERM GUTTER DETAIL AND GUARDRAIL INSET
3B-1	SUMMARY OF EARTHWORK, SUMMARY OF SHOULDER BERM GUTTER, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF BREAKING EXISTING PAVEMENT, AND SUMMARY OF GUARDRAIL
3D-1	DRAINAGE SUMMARY SHEET
3G-1	GEOTECHNICAL SUMMARY SHEET
4	PLAN SHEET
5	PROFILE SHEET
RW-01 TO RW-04	RIGHT OF WAY PLANS
TMP-1 TO TMP-3	TRANSPORTATION MANAGEMENT PLANS
PMP-1 TO PMP-2	PAVEMENT MARKING PLANS
EC-1 TO EC-6	EROSION CONTROL PLANS
SIGN-1 TO SIGN-4	SIGNING PLANS
UC-1 TO UC-4	UTILITY CONSTRUCTION PLANS
UO-1 TO UO-2	UTILITIES BY OTHERS PLANS
X-0	CROSS SECTION SUMMARY SHEET
X-1 TO X-15	CROSS-SECTIONS
S-1 TO S-30	STRUCTURE PLANS

**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.

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

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

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

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

**SUBSURFACE DRAINS:**  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

**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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

**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  
Town of Black Creek (power), Centurylink (telephone and fiber optic)  
and Charter/Spectrum (Cable TV)

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.

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	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.03	Bridge Approach Fills - Type A - Alternate Approach Fill For Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface 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
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

### 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	-x-x-x-
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	▬
False Sump	▽

### RAILROADS:

Standard Gauge	-----
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	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
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	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	▨

### VEGETATION:

Single Tree	☀
Single Shrub	☁

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

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	⊠ T
U/G Telephone Cable Hand Hole	○ T
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	□
TV Tower	⊗
U/G TV Cable Hand Hole	○ TV
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	□
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7UTL ---
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.



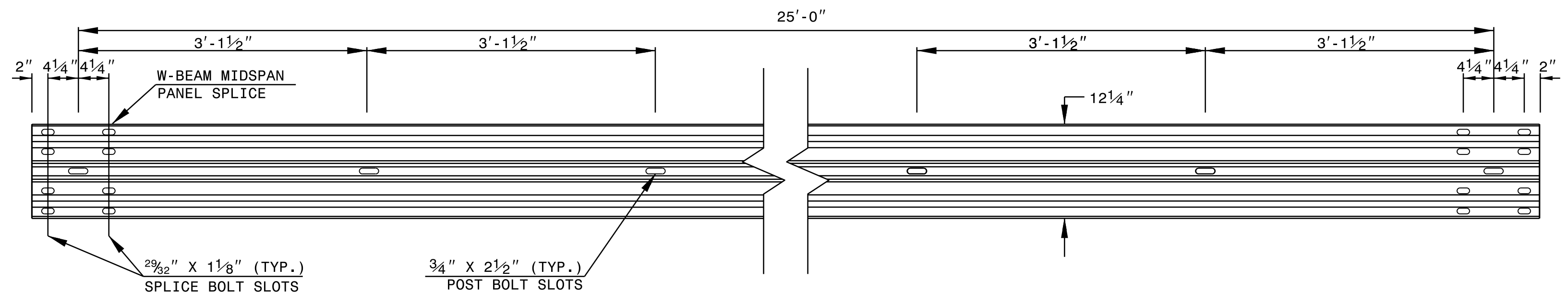




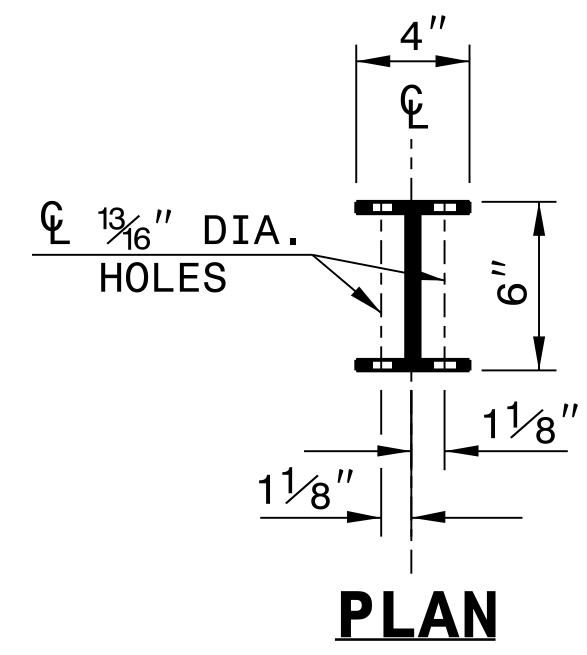
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

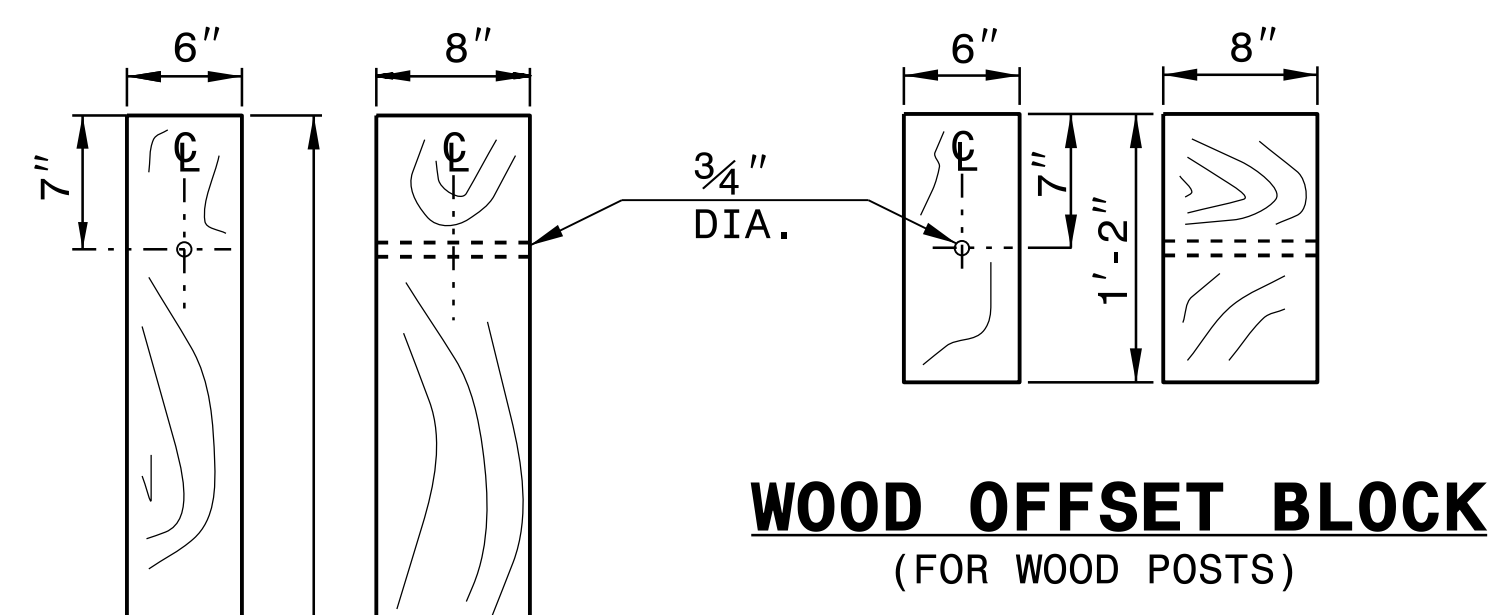
SHEET 6 OF 8  
**862D02**



**STANDARD W-BEAM GUARDRAIL**



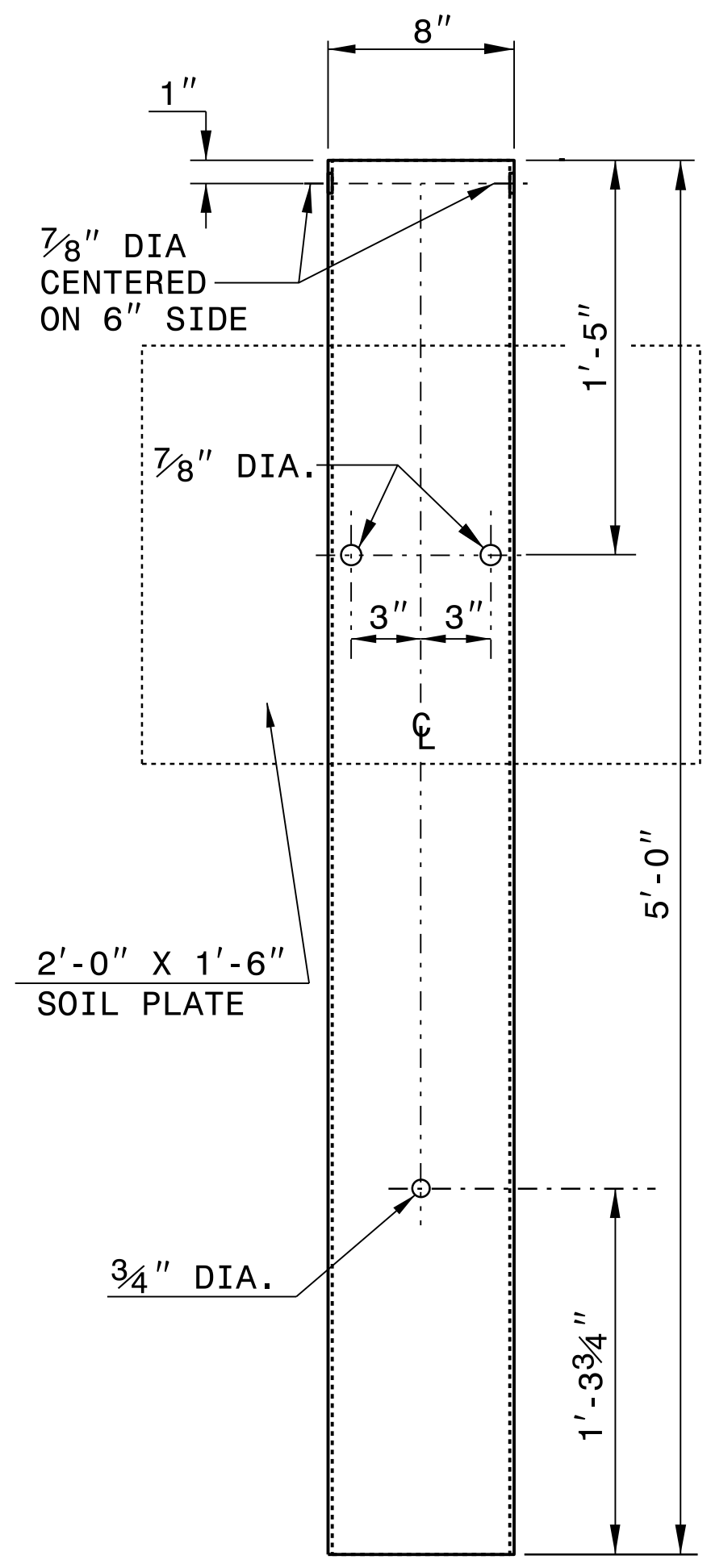
**PLAN**



**WOOD OFFSET BLOCK  
(FOR WOOD POSTS)**

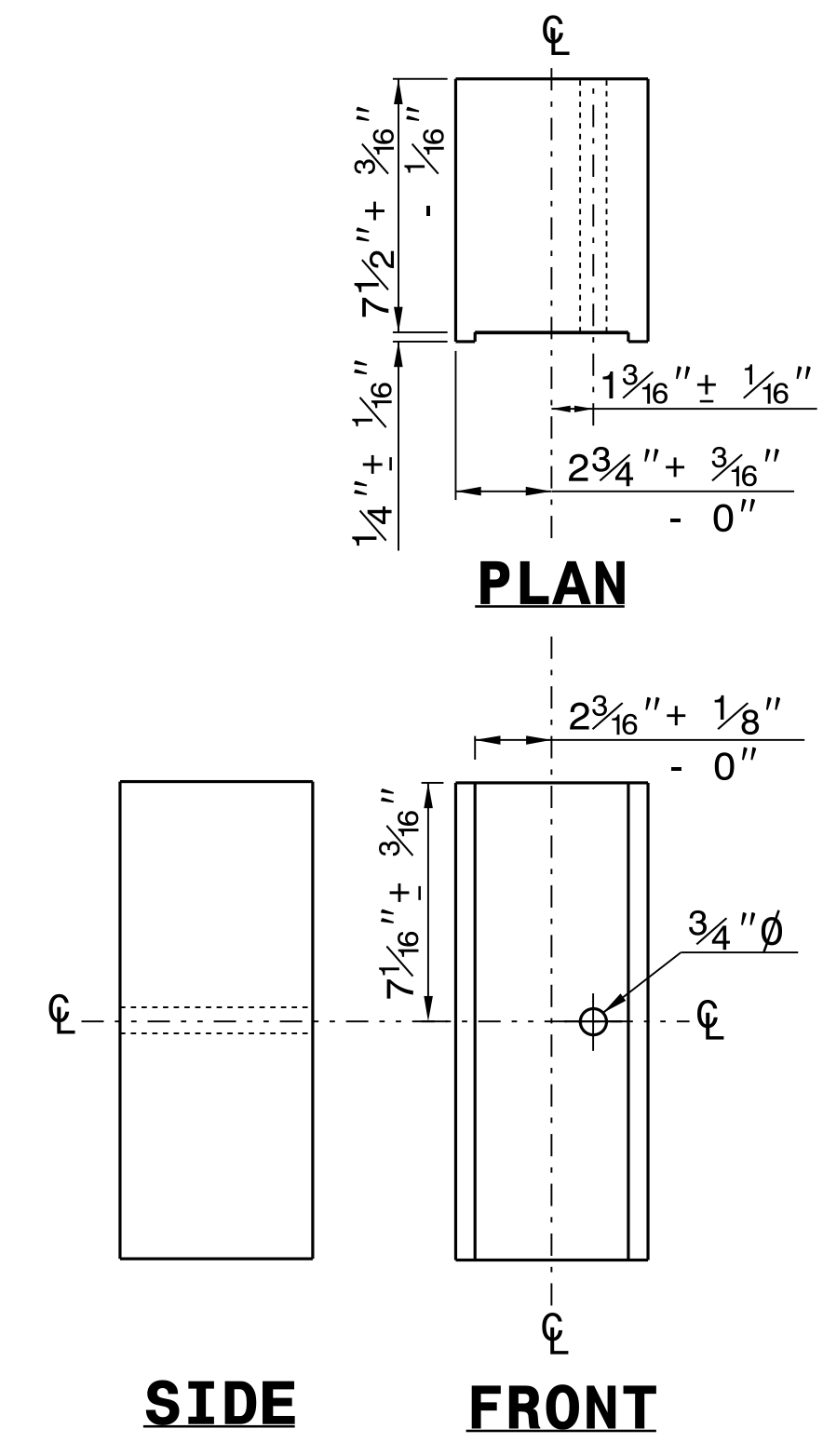
**STANDARD  
LINE POST**

**SHORT WOOD  
BREAKAWAY POST**



**STEEL TUBE  
TS 6"x8"x0.1875"**

**SYSTEM PARTS**

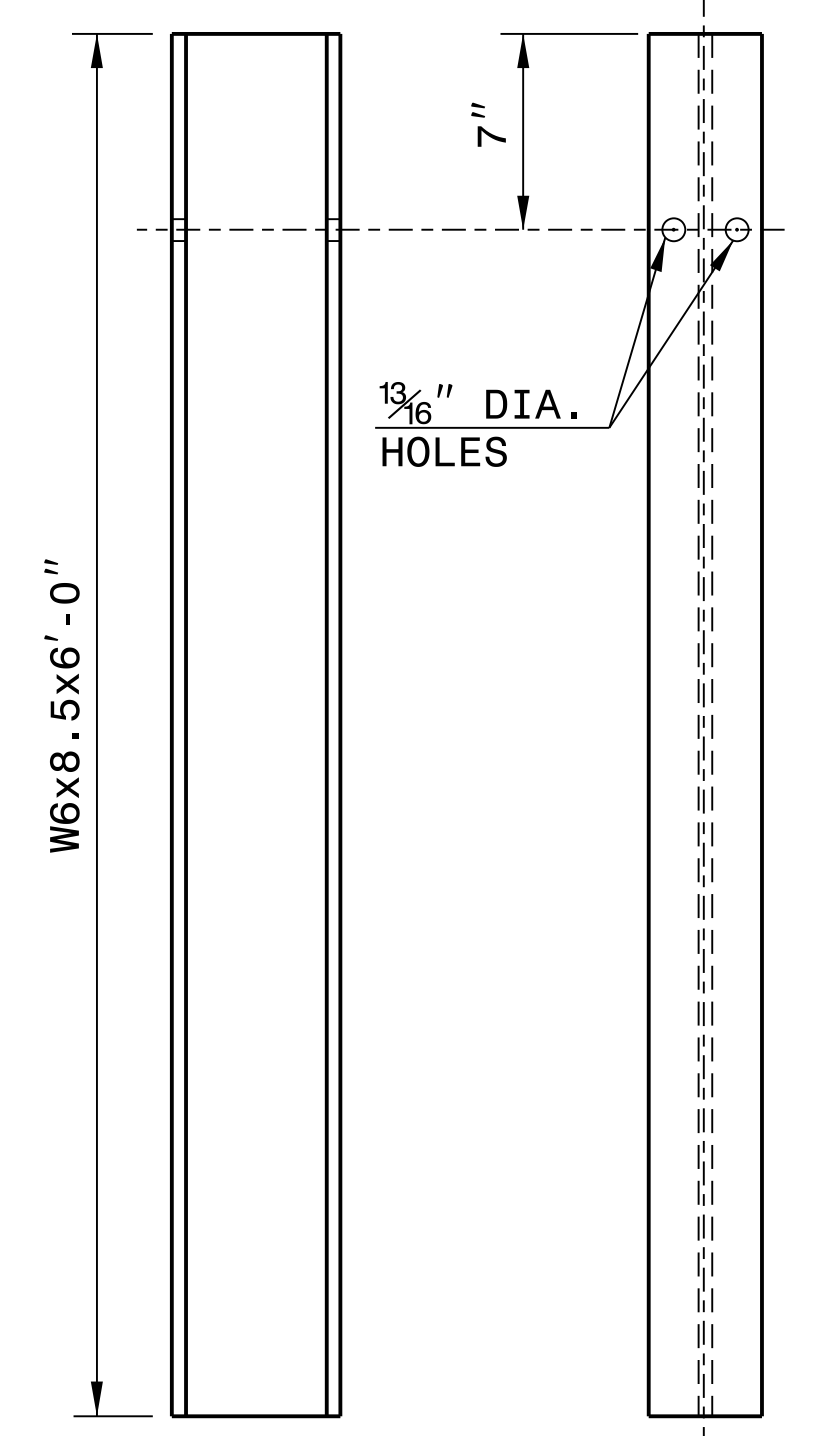


**PLAN**

**SIDE**

**FRONT**

**ROUTED  
OFFSET BLOCK**



**SIDE**

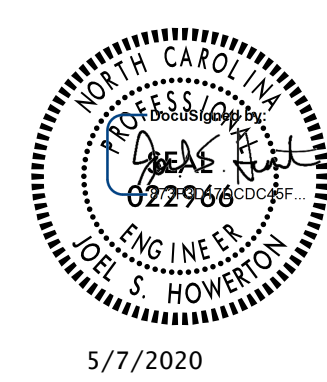
**FRONT**

**"W6" STEEL POST**

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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**



5/7/2020

**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.: \_\_\_\_\_

12/20/2019

COMPUTED BY: MTU DATE: 12/20/2019  
CHECKED BY: LMY DATE: 12/20/2019

PROJECT NO. B-5666 SHEET NO. 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".

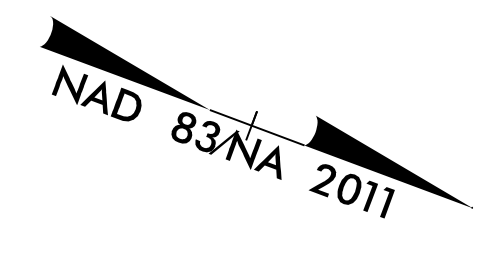
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, DRAINAGE PIPE (12-42), DO NOT USE RCP, DO NOT USE CSP, DO NOT USE CAAP, DO NOT USE HDPE, DO NOT USE PVC, ENDWALLS, REINFORCED ENDWALLS, MASONRY, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes summary rows for SHEET TOTALS and PROJECT TOTALS.

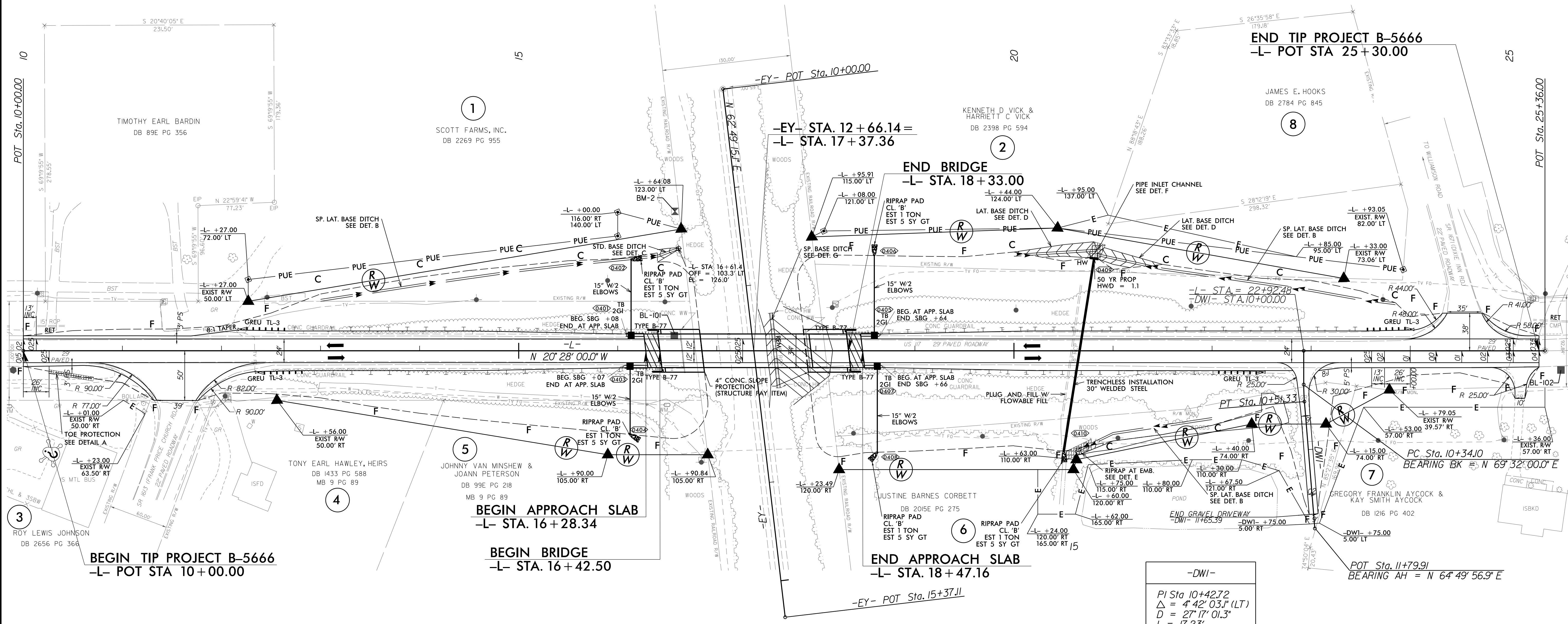




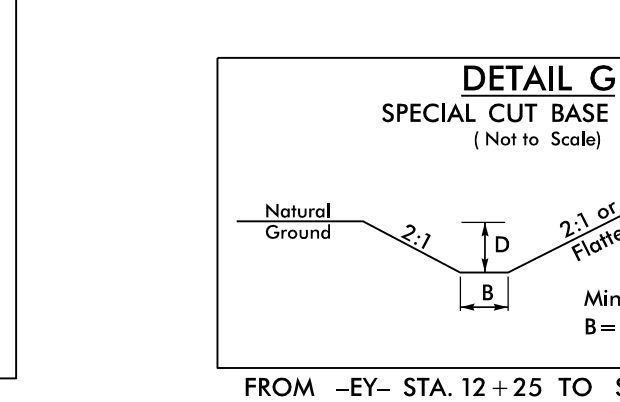
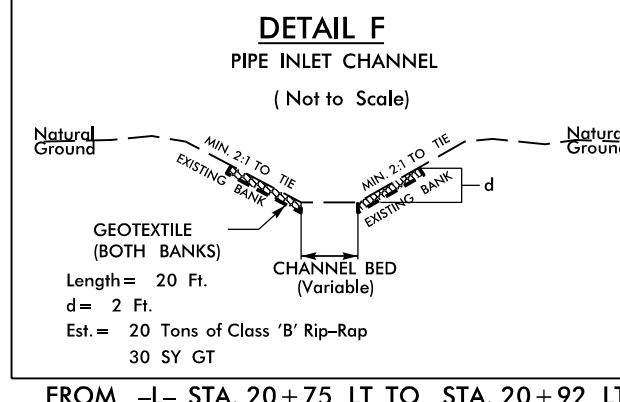
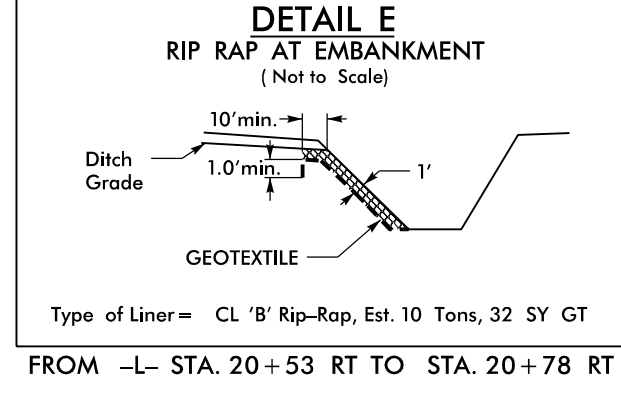
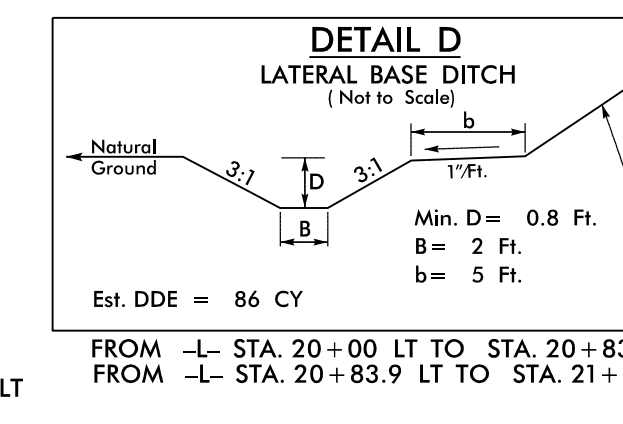
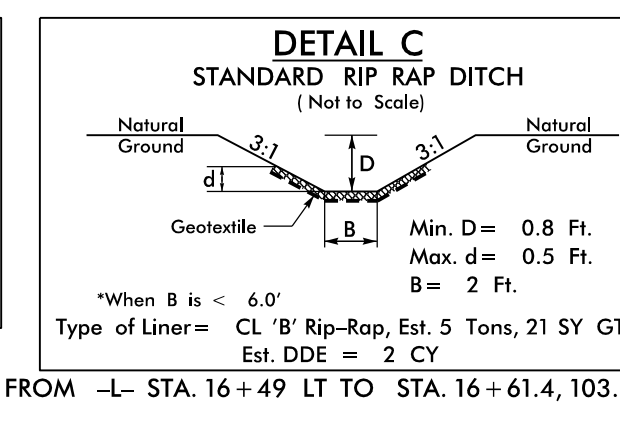
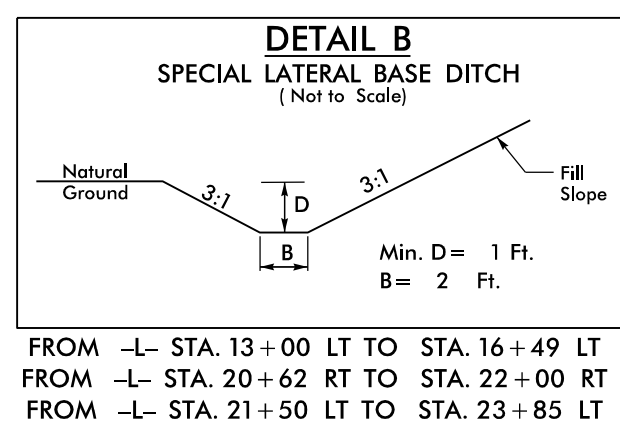
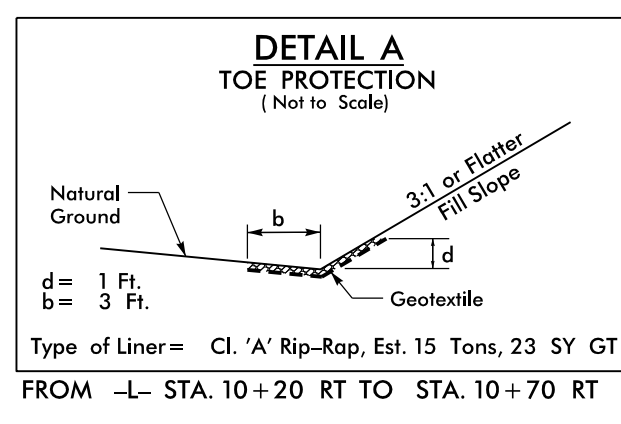
PROJECT REFERENCE NO. B-5666		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER 		HYDRAULICS ENGINEER 	
5/27/2021		5/27/2021	



CREST  
-L- STA. 17+41.86  
+4.7534% -4.5103%



-DWI-  
PI Sta. 10+42.72  
Δ = 4' 42" 03.1" (LT)  
D = 27' 17" 01.3"  
L = 17.23'  
T = 8.62'  
R = 210.00'



**LEGEND**



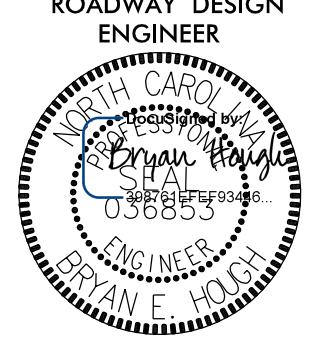
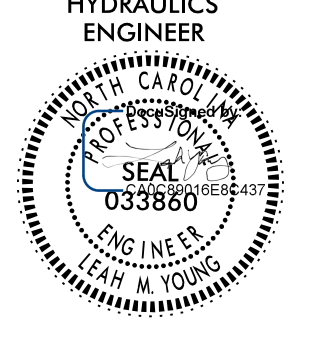
FOR BRIDGE SEE SHEETS, S-1 TO S-30

FOR -L- PROFILE SEE SHEET 5

FOR -DWI- PROFILE SEE SHEET 5



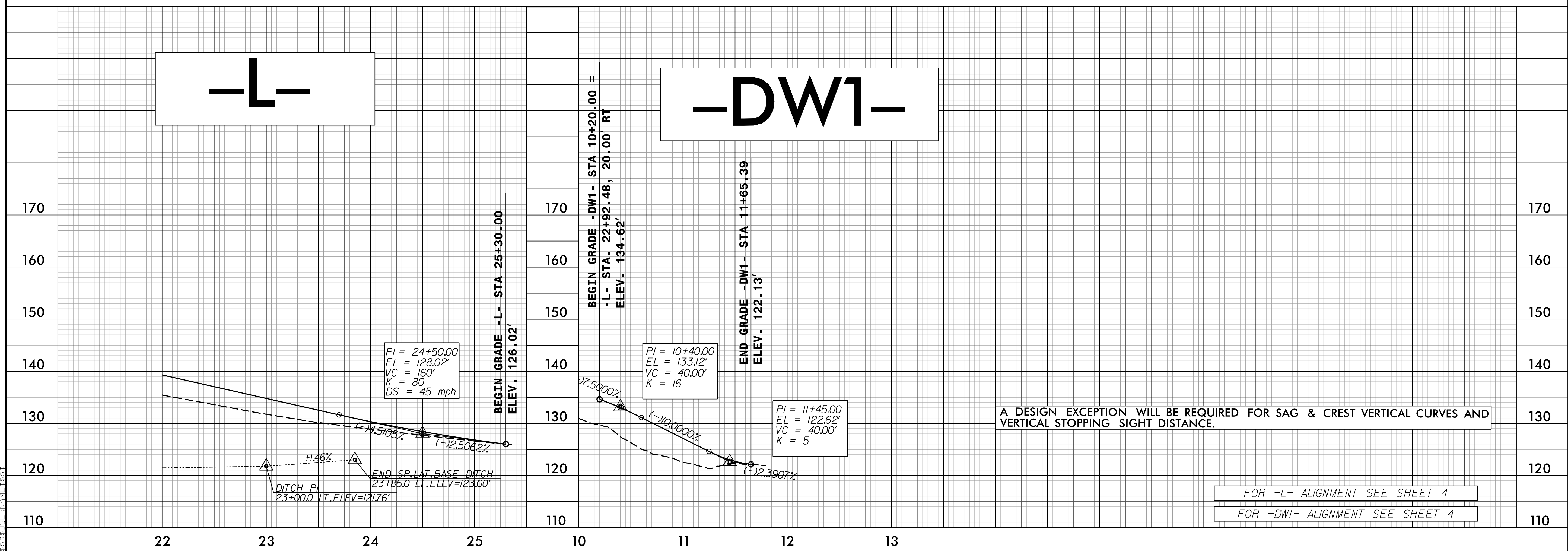
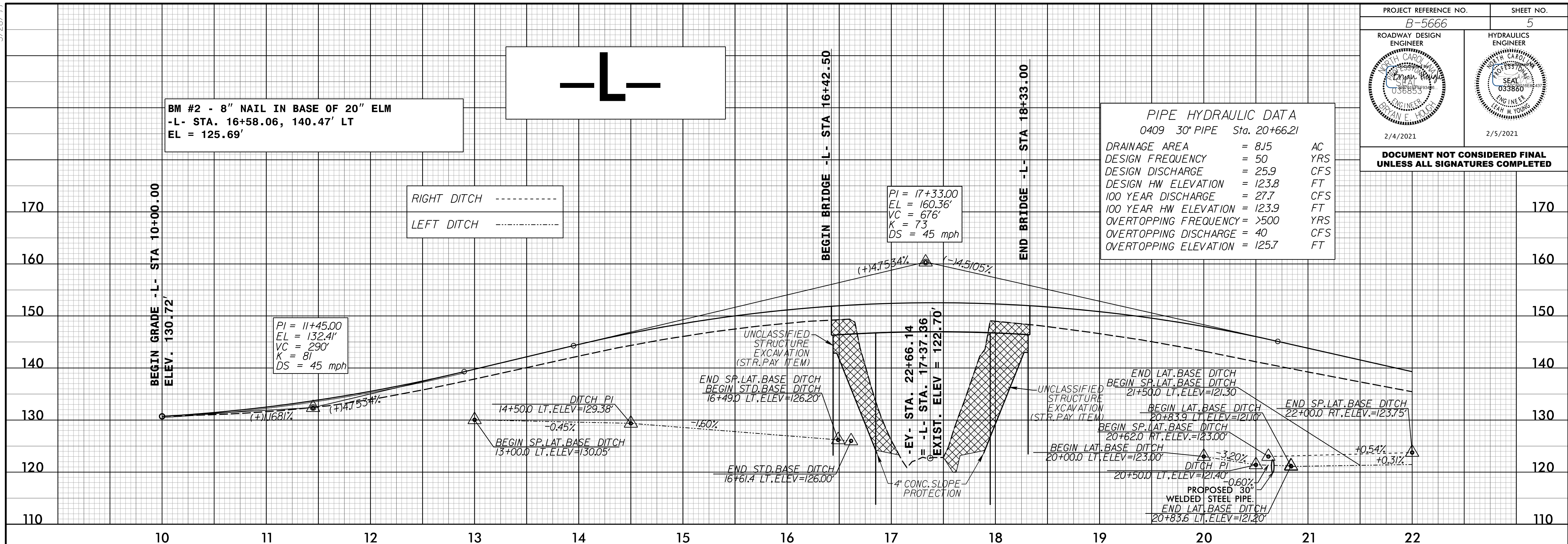
5/28/99

PROJECT REFERENCE NO. <b>B-5666</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
2/4/2021	2/5/2021

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**PIPE HYDRAULIC DATA**  
0409 30" PIPE Sta. 20+66.21

DRAINAGE AREA	= 8.15	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 25.9	CFS
DESIGN HW ELEVATION	= 123.8	FT
100 YEAR DISCHARGE	= 27.7	CFS
100 YEAR HW ELEVATION	= 123.9	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= 40	CFS
OVERTOPPING ELEVATION	= 125.7	FT



FOR -L- ALIGNMENT SEE SHEET 4  
FOR -DW1- ALIGNMENT SEE SHEET 4

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