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09/08/99

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

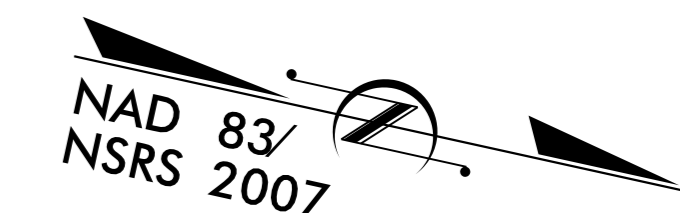
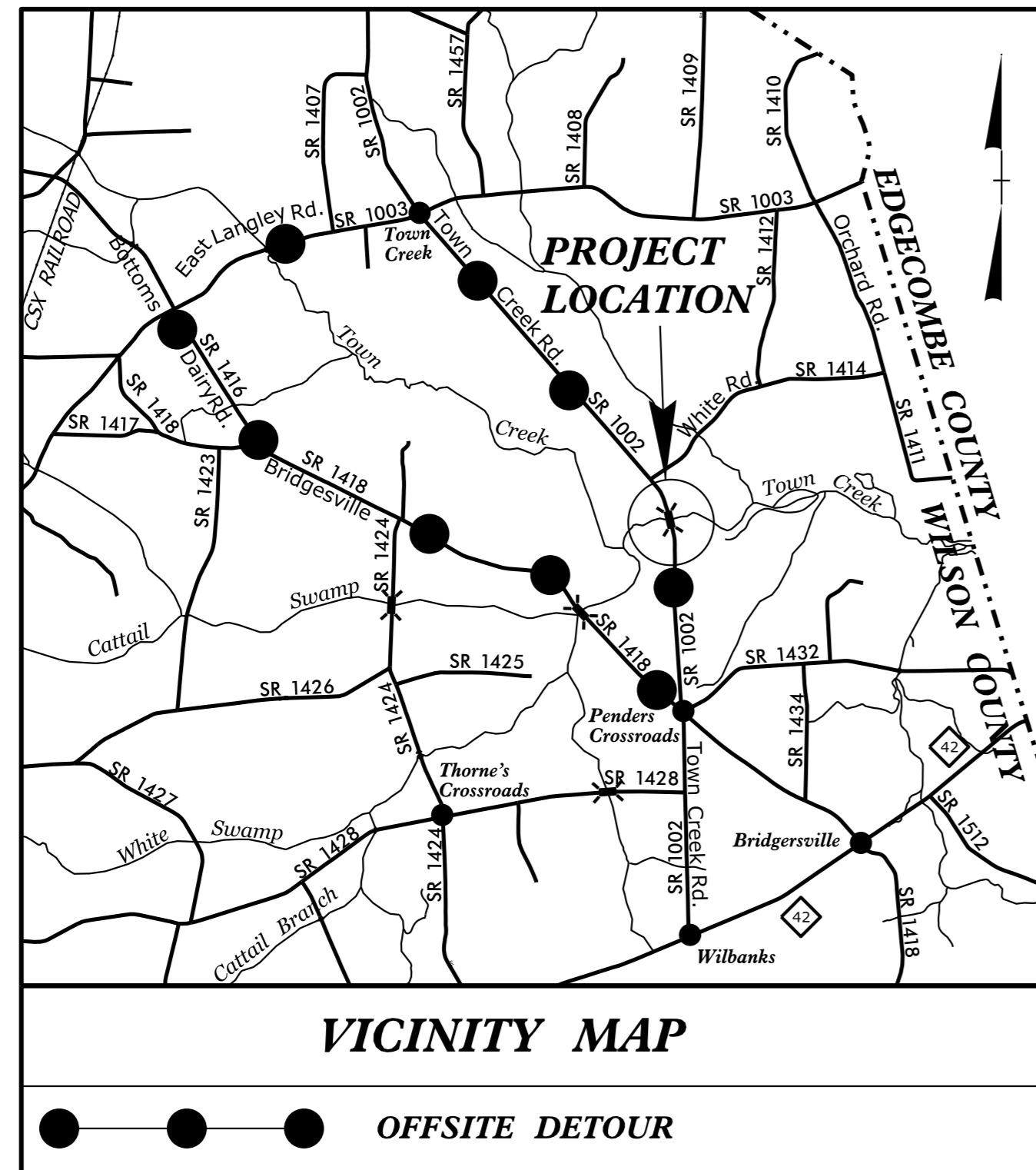
WILSON COUNTY

**LOCATION: BRIDGE NO. 109 OVER TOWN CREEK
ON SR 1002 (TOWN CREEK ROAD)**

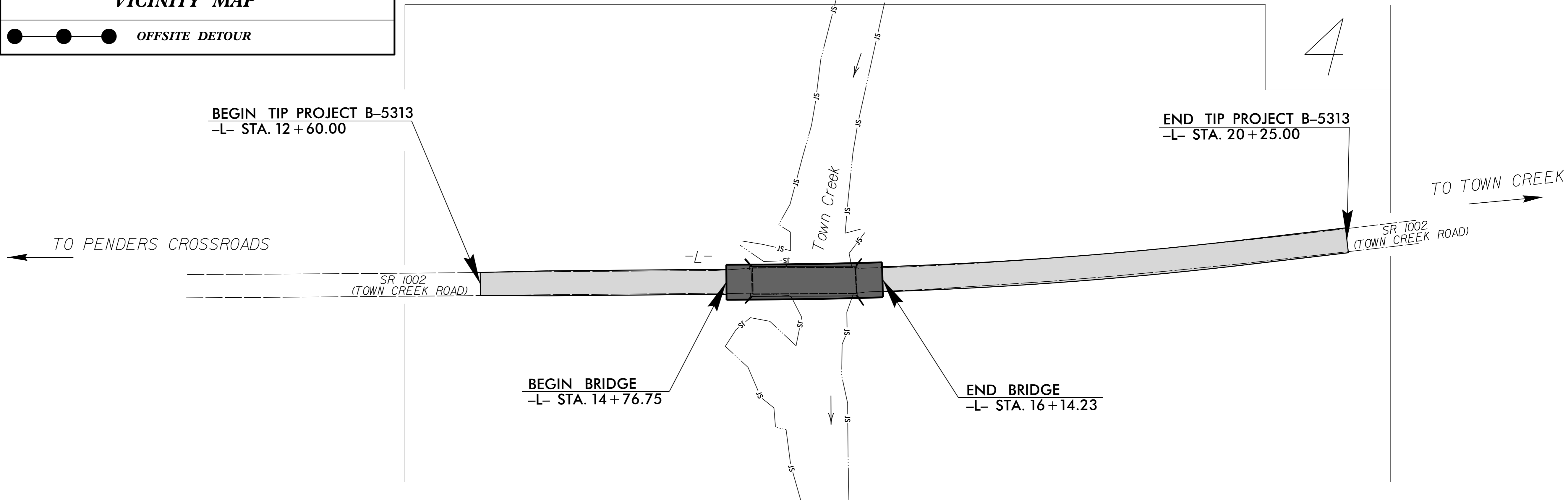
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5313	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46027.1.1	BRZ-1002(40)	P.E.	
46027.2.1	N/A	RW & UTIL	
46027.3.1	N/A	CONST.	

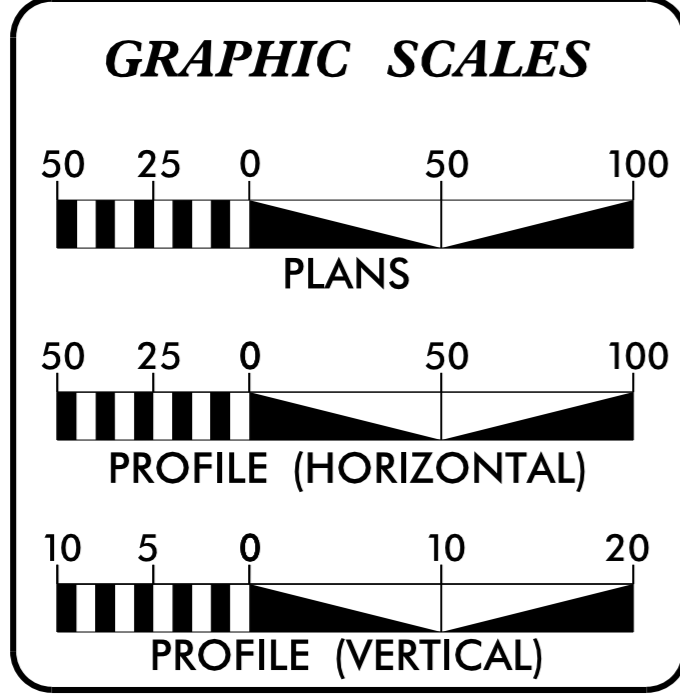
TIP PROJECT: B-5313



CONTRACT: C203807



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2016 =	653
ADT 2036 =	913
K =	11 %
D =	65 %
T =	10 % *
V =	60 MPH
* TTST =	2% + DUAL = 8%
FUNC CLASS =	
MINOR COLLECTOR	
SUBREGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5313 =	0.119 MILE
LENGTH STRUCTURE TIP PROJECT B-5313 =	0.026 MILE
TOTAL LENGTH TIP PROJECT B-5313 =	0.145 MILE

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

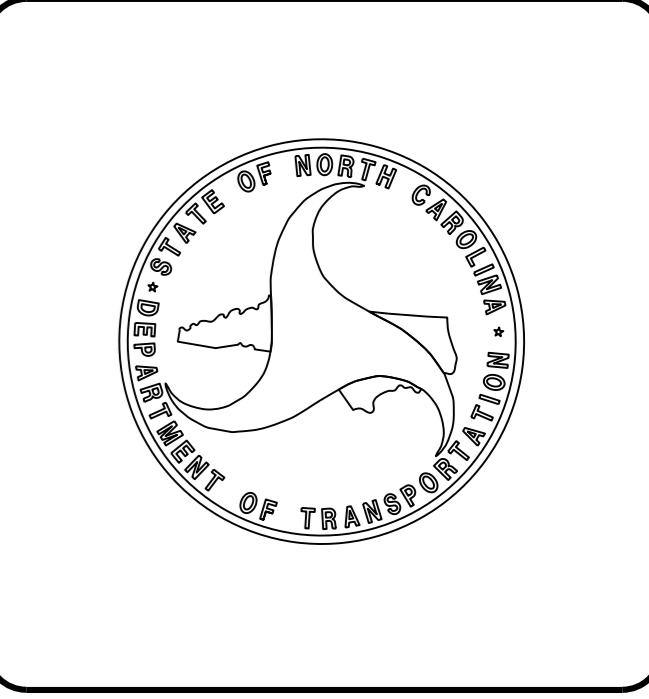
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: NOVEMBER 20, 2015	REKHA PATEL, PE PROJECT ENGINEER
LETTING DATE: JUNE 21, 2016	SAMUEL L. ST. CLAIR PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

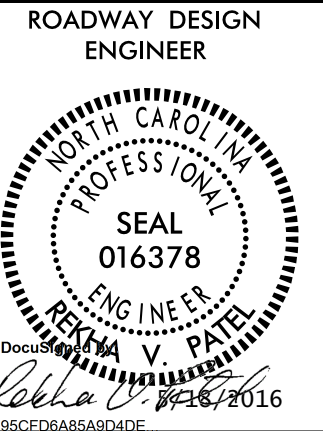
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ROADWAY DESIGN ENGINEER

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\$\$\$\$\$USERNAME\$\$\$\$\$



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

INDEX OF SHEETS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

GENERAL NOTES: 2012 SPECIFICATIONS

SHEET NUMBER	SHEET	The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:	GENERAL NOTES:
1	TITLE SHEET	STD. NO. TITLE	GRADING AND SURFACING OR RESURFACING AND WIDENING:
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS	DIVISION 2 - EARTHWORK	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.
1B	CONVENTIONAL SYMBOLS	200.02 Method of Clearing - Method II	
1C-1	SURVEY CONTROL SHEETS	225.02 Guide for Grading Subgrade - Secondary and Local	CLEARING:
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS	225.04 Method of Obtaining Superelevation - Two Lane Pavement	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2C-1	STRUCTURE ANCHOR UNIT DETAIL	DIVISION 3 - PIPE CULVERTS	SUPERELEVATION:
3B-1	ROADWAY SUMMARIES	300.01 Method of Pipe Installation	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.
3D-1	DRAINAGE SUMMARIES	DIVISION 4 - MAJOR STRUCTURES	SHOULDER CONSTRUCTION:
3G-1	GEOTECHNICAL SUMMARIES	422.11 Bridge Approach Fills - Sub Regional Tier	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01
4	PLAN AND PROFILE SHEET	DIVISION 8 - INCIDENTALS	SUBSURFACE DRAINS:
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS	806.01 Concrete Right-of-Way Marker	SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS	806.02 Granite Right-of-Way Marker	GUARDRAIL:
EC-1 THRU EC-4	EROSION CONTROL PLANS	815.02 Subsurface Drain	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.
RF-1	REFORESTATION PLANS	840.00 Concrete Base Pad for Drainage Structures	TEMPORARY SHORING:
UD-1 THRU UD-2	UTILITIES BY OTHERS PLANS	840.25 Anchorage for Frames - Brick or Concrete or Precast	SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.
X-1A	CROSS-SECTION SUMMARY SHEET	840.29 Frames and Narrow Slot Flat Grates	END BENTS:
X-1 THRU X-4	CROSS-SECTIONS	840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates	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.
S-1 THRU S-19	STRUCTURE PLANS	840.46 Traffic Bearing Precast Drainage Structure	UTILITIES:
		846.01 Concrete Curb, Gutter and Curb & Gutter	UTILITY OWNERS ON THIS PROJECT ARE Wilson Energy
		846.04 Drop Inlet Installation in Shoulder Berm Gutter	ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.
		862.01 Guardrail Placement	RIGHT-OF-WAY MARKERS:
		862.02 Guardrail Installation	ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.
		876.02 Guide for Rip Rap at Pipe Outlets	

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

04/05/15

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	----->
Property Monument	□ EDM
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	☠
Potential Contamination Area: Soil	☠
Known Contamination Area: Water	☠
Potential Contamination Area: Water	☠
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:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- RW
Proposed Right of Way Line with Iron Pin and Cap Marker	----- RW
Proposed Right of Way Line with Concrete or Granite R/W Marker	----- RW
Proposed Control of Access Line with Concrete CA Marker	----- CA
Existing Control of Access	----- CA
Proposed Control of Access	----- CA
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼ ☼ ☼ ☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC WW
MINOR:	
Head and End Wall	----- CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	----- S

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
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	⊙
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	●
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	⊙
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	⊠
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.*)	----- ?U/L
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.

SURVEY CONTROL SHEET B-5313

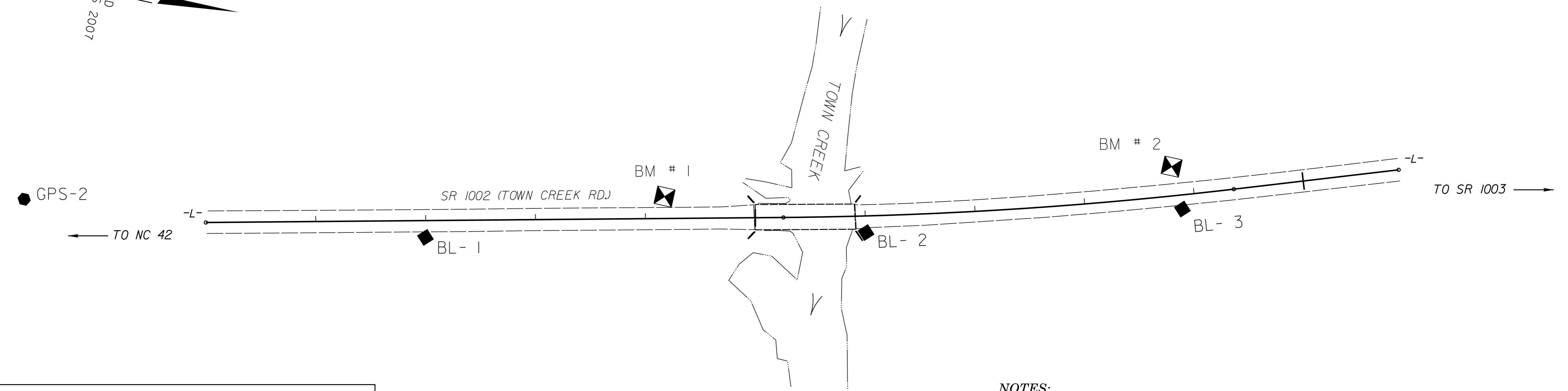
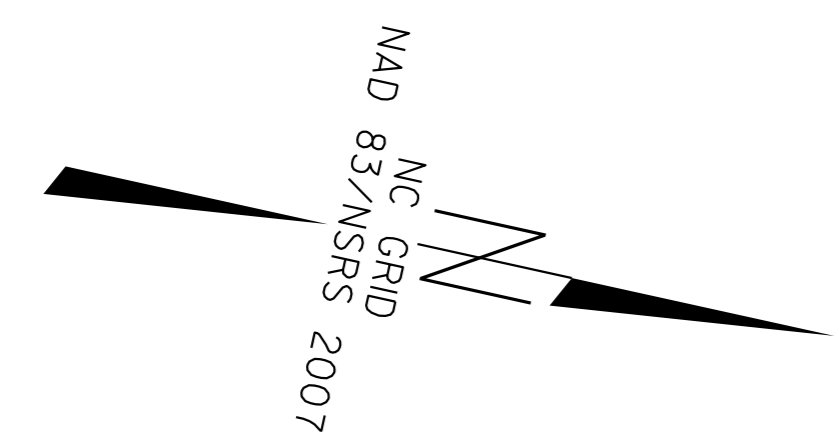
FINAL

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
200		GPS-2	742765.2630	2364093.1660	76.35	OUTSIDE PROJECT LIMITS	
1		BL-1	743131.0110	2364048.3960	76.79	12+01.29	15.66 RT
2		BL-2	743519.9030	2363957.7280	78.02	16+00.32	15.10 RT
3		BL-3	743796.4170	2363874.8010	77.84	18+88.00	12.78 RT

```

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
BM#1
N 743334      E 2363965
ELEVATION = 78.82'
-L- STATION 14+18.00 20' LT
RR SPIKE IN BASE OF 38" GUM
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
BM#2
N 743779      E 2363839
ELEVATION = 78.93'
-L- STATION 18+82.00 27' LT
RR SPIKE IN BASE OF 10" PINE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

```



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B5313-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 742765.263(ft) EASTING: 2364093.166(ft) ELEVATION: 76.35(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991760

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B5313-2" TO -L- STATION 10+00.00 IS N 11°34'05.68" 600.783'

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

- NOTES:**
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
- THE FILES TO BE FOUND ARE AS FOLLOWS:
B5313_LS_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.(VRS)

NOTE: DRAWING NOT TO SCALE

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SURVEY CONTROL SHEET B-5313

FINAL

TYPE	STATION	L	
		NORTH	EAST
POT	10+00.00	742931.3240	2364078.2060
PC	15+25.58	743443.5618	2363960.5297
PT	19+36.41	743838.2134	2363847.1022
POT	20+87.41	743980.8710	2363797.6120

ROW MARKER PERMANENT EASEMENT - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+70.00	-40.00	743573.2355	2363886.9119
L	16+70.00	-45.00	743571.9317	2363882.0849
L	16+90.00	-40.00	743592.3267	2363881.7012
L	16+90.00	-45.00	743590.9974	2363876.8812

ROW MARKER CONCRETE OR GRANITE - E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+50.00	-40.00	743263.4825	2363960.8573
L	13+50.00	-30.00	743265.7215	2363970.6034
L	15+25.58	-40.00	743434.6059	2363921.5451
L	17+50.00	-40.00	743649.4318	2363865.4673
L	17+50.00	-30.00	743652.2421	2363875.0643
L	17+50.00	30.00	743669.1040	2363932.6462
L	17+50.00	40.00	743671.9144	2363942.2432
L	15+25.58	40.00	743452.5177	2363999.5142
L	14+50.00	40.00	743378.8556	2364016.4365
L	13+50.00	30.00	743279.1554	2364029.0802

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 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.(VRS)

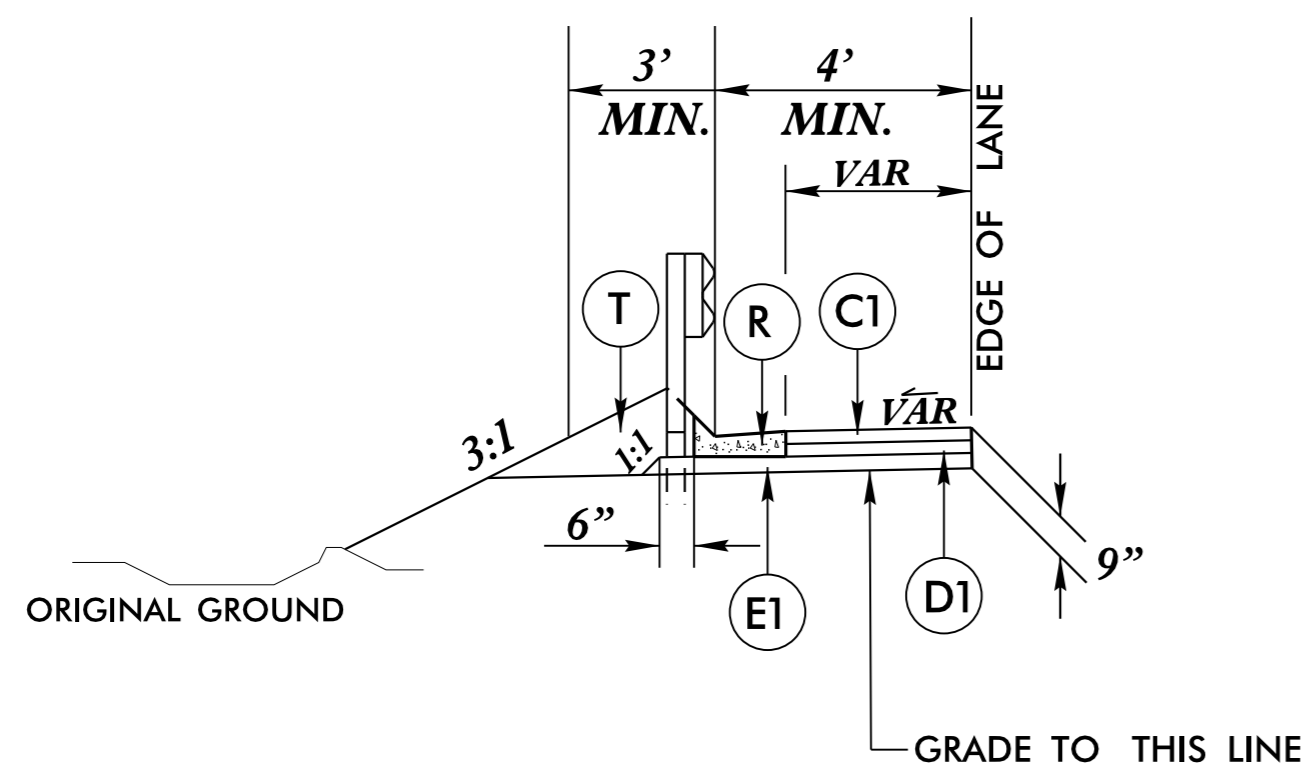
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6/2/09

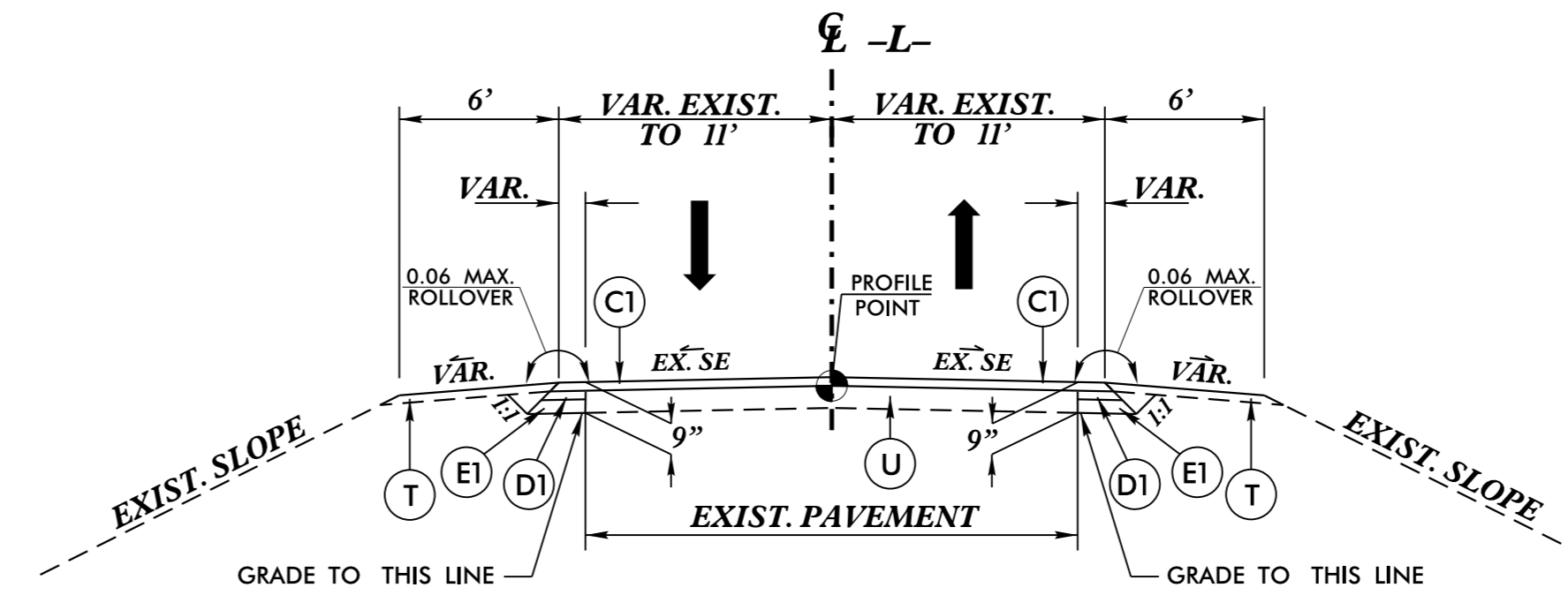
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE BASE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

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

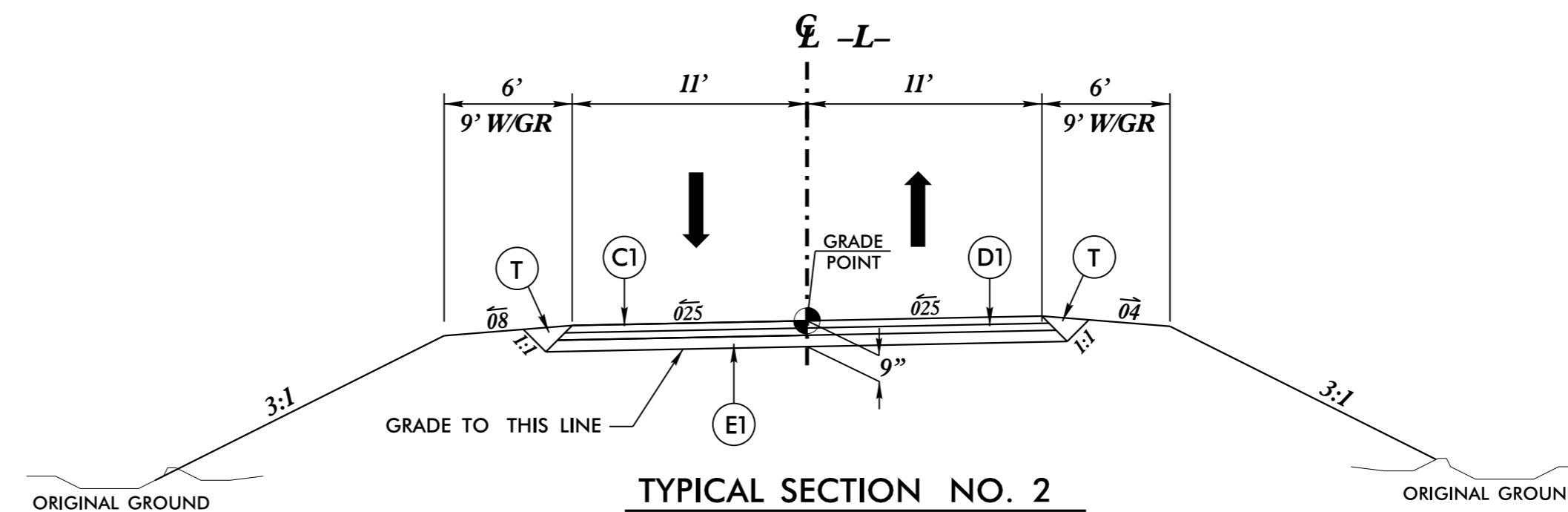


DETAIL SHOWING SHOULDER BERM GUTTER (SBG)

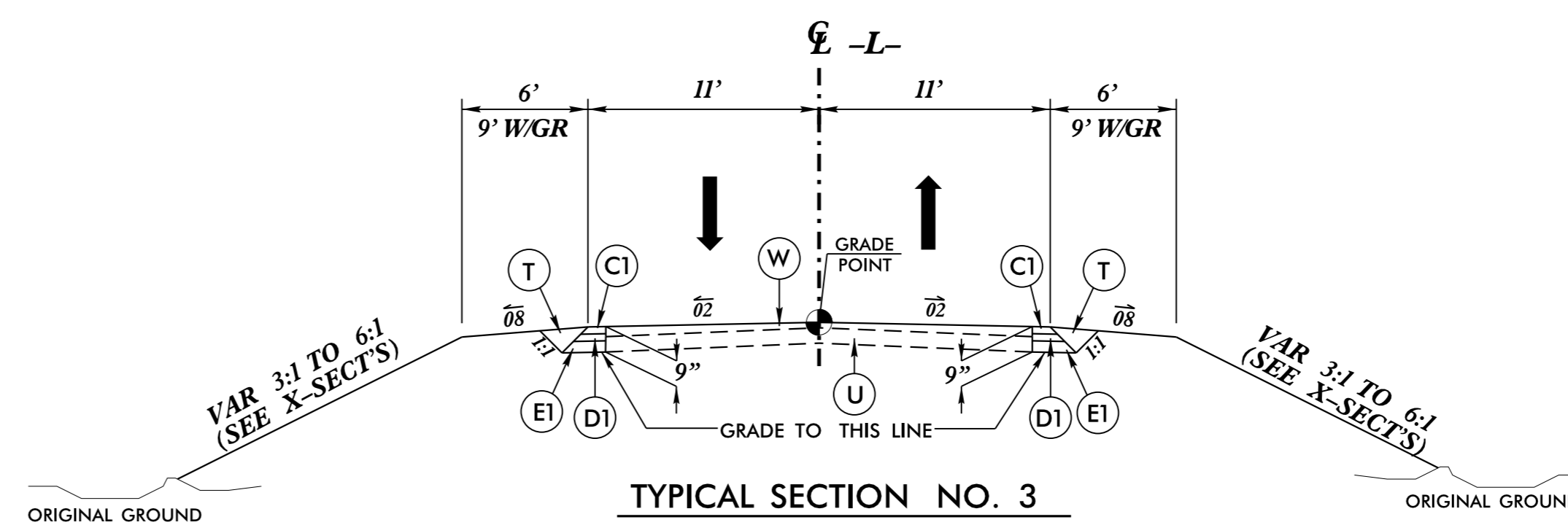
-L- STA. 13+80.00 (LT) TO BEGIN APPROACH SLAB
END APPROACH SLAB TO -L- STA. 16+80.00 (LT)



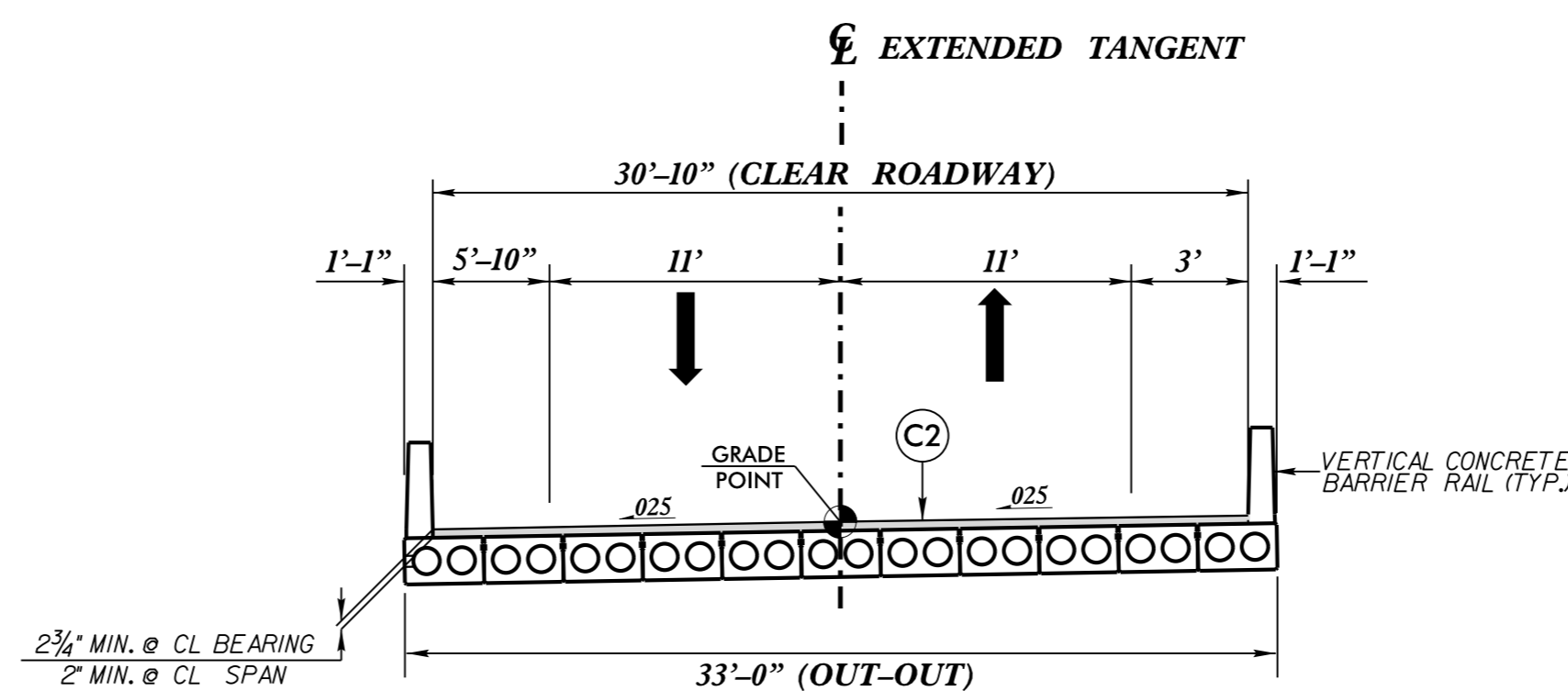
TYPICAL SECTION NO. 1
FROM -L- STA. 12+60.00 TO -L- STA. 13+20.00



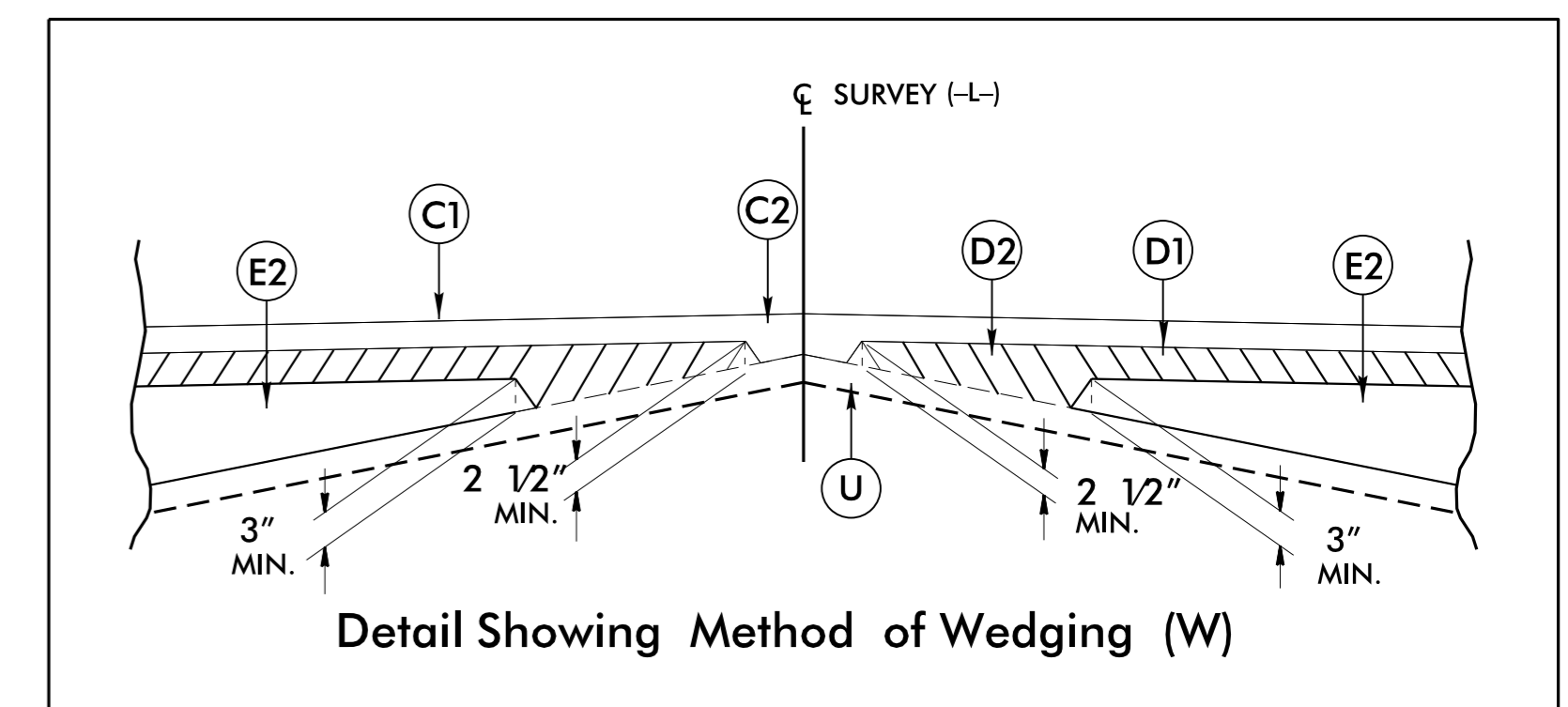
TYPICAL SECTION NO. 2
FROM -L- STA. 13+20.00 TO -L- STA. 14+76.75 (BEGIN BRIDGE)
FROM -L- STA. 16+14.23 (END BRIDGE) TO -L- STA. 17+80.00



TYPICAL SECTION NO. 3
FROM -L- STA. 17+80.00 TO -L- STA. 20+25.00



BRIDGE TYPICAL SECTION
(SEE STRUCTURE PLANS)
FROM -L- STA. 14+76.75 TO -L- STA. 16+14.23



Detail Showing Method of Wedging (W)

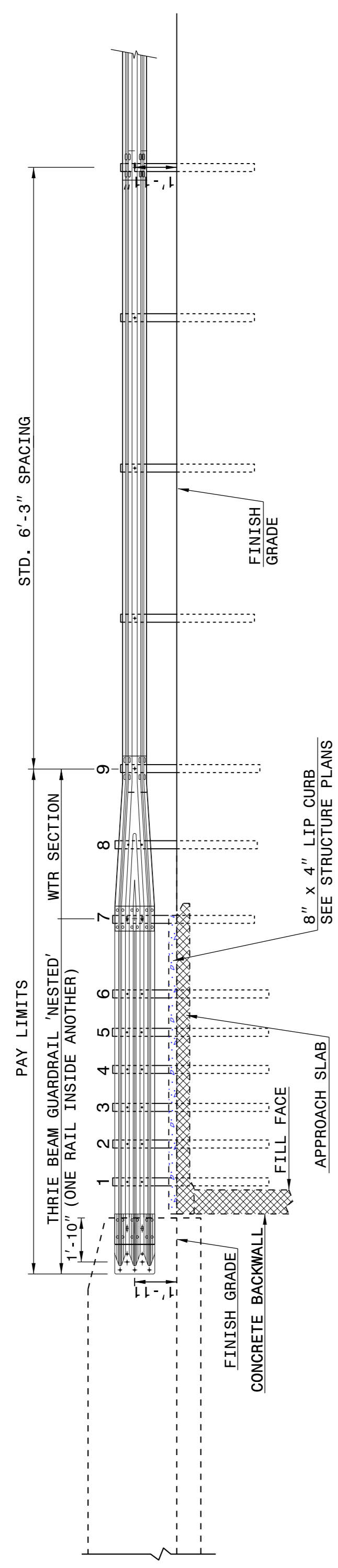
PROJECT REFERENCE NO. B-5313	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER Kobla V. Patel SEAL 016378 EXPIRES 12/31/2016	PAVEMENT DESIGN ENGINEER Clark S. Morrison SEAL 022896 EXPIRES 12/31/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

15-MAR-2016 15:19 AB-5313-r.dj-tyr.dgn

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

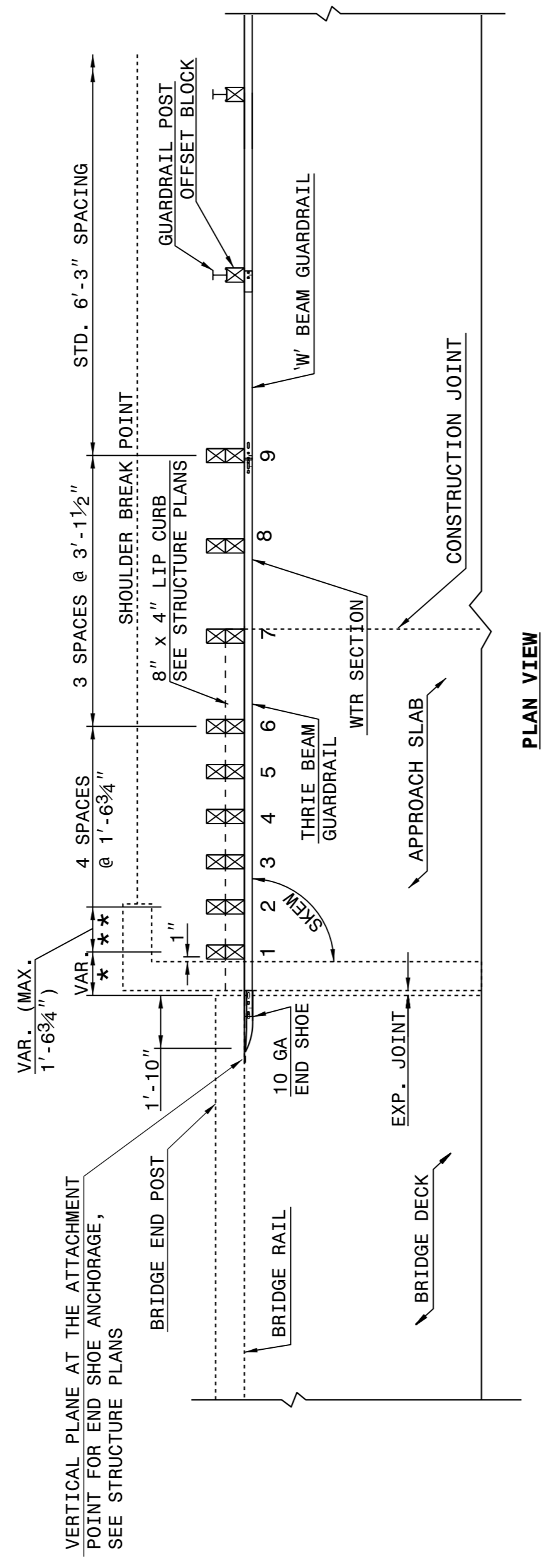
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

NOTE:
 **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½". IF CONCRETE BACKWALL IS NOT PRESENT.
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

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

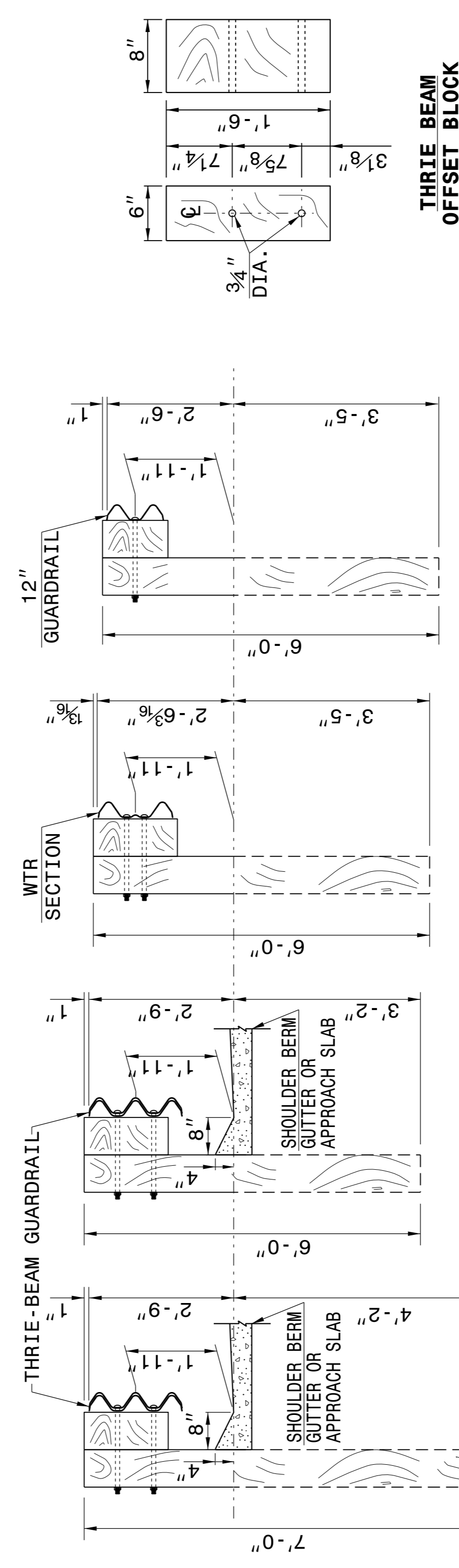
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

SHEET 3 OF 7
862d03

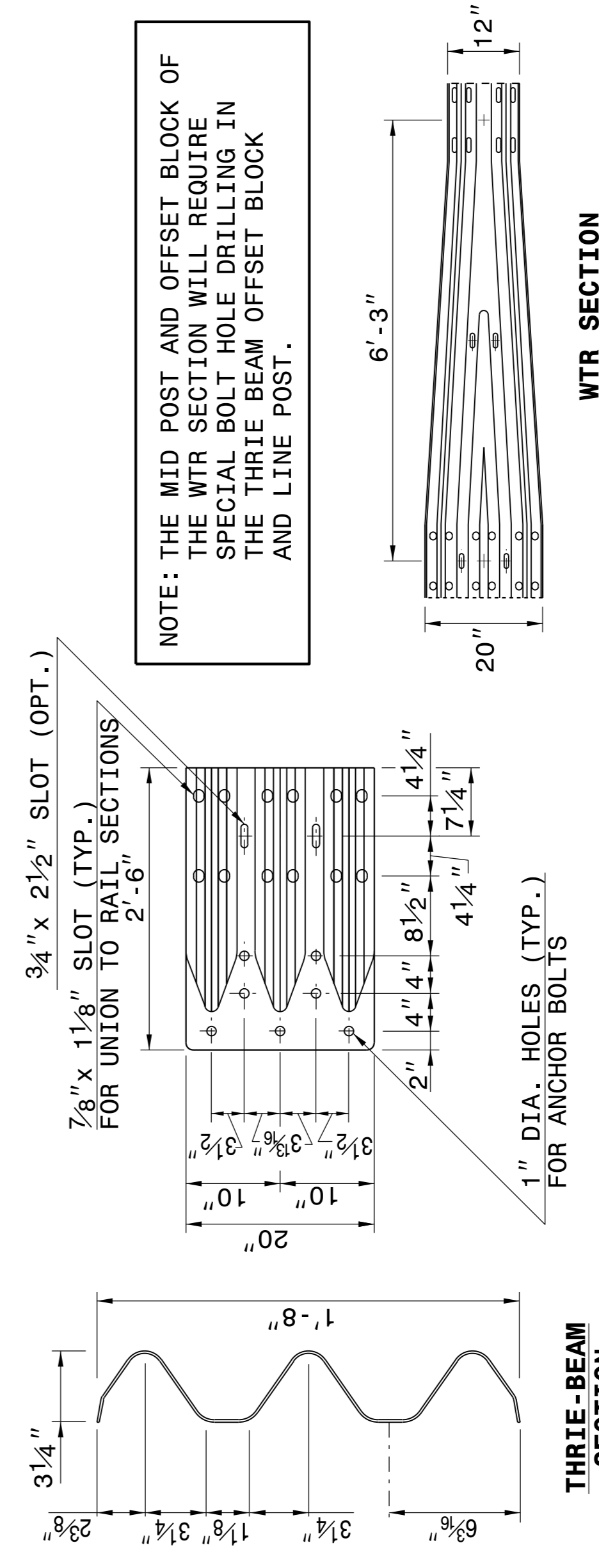


SECTION OF THRIE BEAM
POSTS 1 THRU 6

SECTION OF THRIE BEAM
POST 7

SECTION OF WTR
BEAM POST 8

SECTION OF 'W'
BEAM POST 9

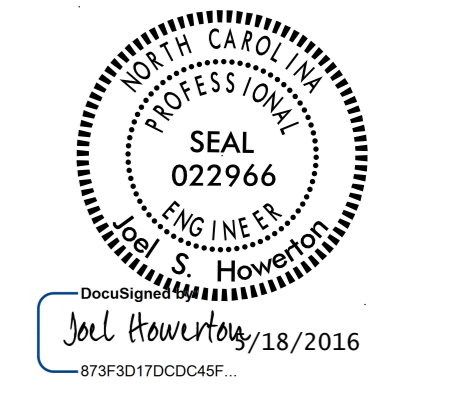


NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

SHEET 3 OF 7
862d03



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

SEE TITLE BLOCK

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

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
 In Cubic Yards

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L-					
12+50.00	14+76.75	60	123	63	0
16+14.23	20+50.00	38	404	366	0
PROJECT SUBTOTALS:		98	527	429	0
EST. FOR REPL. TOPSOIL ON BOR. PIT				22	
PROJECT TOTALS:		98	527	451	0
GRAND TOTALS:		98	527	451	0
SAY:		105	475	475	0

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

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

- DDE = 10 CY
- SELECT GRANULAR MATERIAL (CONTINGENCY) = 1100 CY
- SHALLOW UNDERCUT (CONTINGENCY) = 500 CY
- GEOTEXTILE FOR SOIL STABILIZATION (CONTINGENCY) = 2600 SY
- CLASS IV SUBGRADE STABILIZATION (CONTINGENCY) = 950 TONS
- UNDERCUT EXCAVATION (CONTINGENCY) = 1100 CY

PAVEMENT REMOVAL SUMMARY
 IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	13+20.00	14+99.38	CL	404.41			
-L-	15+90.96	17+80.00	CL	428.60			
TOTAL (SF):				833.01			
SAY:				875			

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	LENGTH
-L- LT	13+80.00	14+65.88	85.88
-L- LT	16+25.10	16+80.00	54.90
TOTAL:			140.78
SAY:			145

GUARDRAIL SUMMARY

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

"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

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	XI MOD	XI	GRAU 350	M-350	TYPE III	CAT-1	VI MOD	BIC	G	NG																											
-L-	13+20.50	14+76.75	LT	156.25				14+76.75	5.83	9		50		1																																					
-L-	13+95.50	14+76.75	RT	81.25				14+76.75	3	9		50		1																																					
-L-	16+14.61	17+45.86	LT	131.25				16+14.61	5.83	9		112.5		1																																					
-L-	16+13.85	16+95.10	RT	81.25				16+13.85	3	9		50		1																																					
SUBTOTALS:				450																																															
LESS ANCHOR DEDUCTIONS:																																																			
GRAU-350 TL-3 4 @ 50'				200																																															
TYPE III 4 @ 18.75'				75																																															
ANCHOR TOTALS:				275																																															
GUARDRAIL TOTALS:				175																																															
SAY:				187.5																																															

ADDITIONAL GUARDRAIL POSTS = 5 EACH

RD2661E3

COMPUTED BY: DWK DATE: 03/07/16
CHECKED BY: VBB DATE: 03/15/16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. B-5313 SHEET NO. 3D-1

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)

Main data table with columns for LINE & STATION, OFFSET, STRUCTURE NUMBER, Drainage Pipe, C. S. PIPE, R. C. PIPE CLASS III, R. C. PIPE CLASS IV, STRUCTURAL PLATE PIPE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, and REMARKS.

ABBREVIATIONS table listing materials like CORRUGATED ALUMINIUM ALLOY, CATCH BASIN, CORRUGATED STEEL, etc.

SHEET TOTALS

PROJECT TOTALS

COMPUTED BY: DWK DATE: 03-10-16
 CHECKED BY: VBB DATE: 03-14-16

PROJECT NO. B-5313	SHEET NO. 36-1
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**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
				SD	500
				TOTAL LF:	500

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

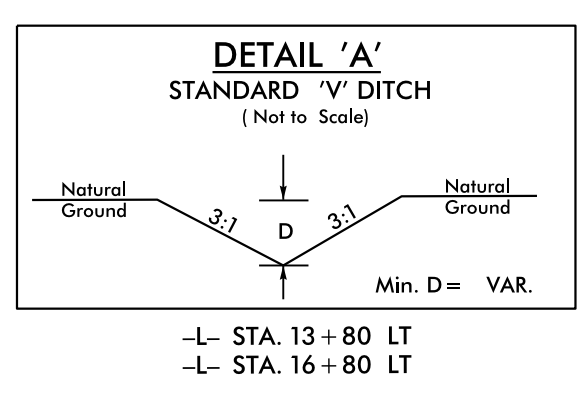
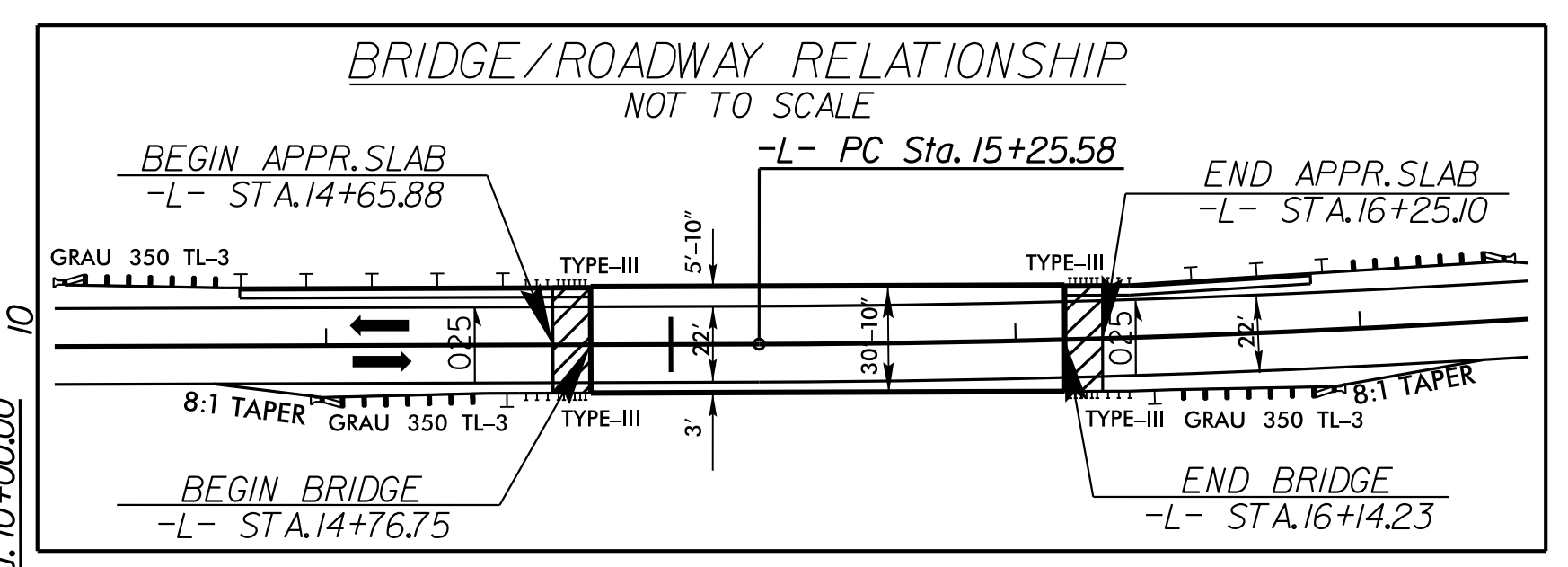
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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
					500	950	1500		
					TOTAL CY/TONS/SY:	500	950*	0	0

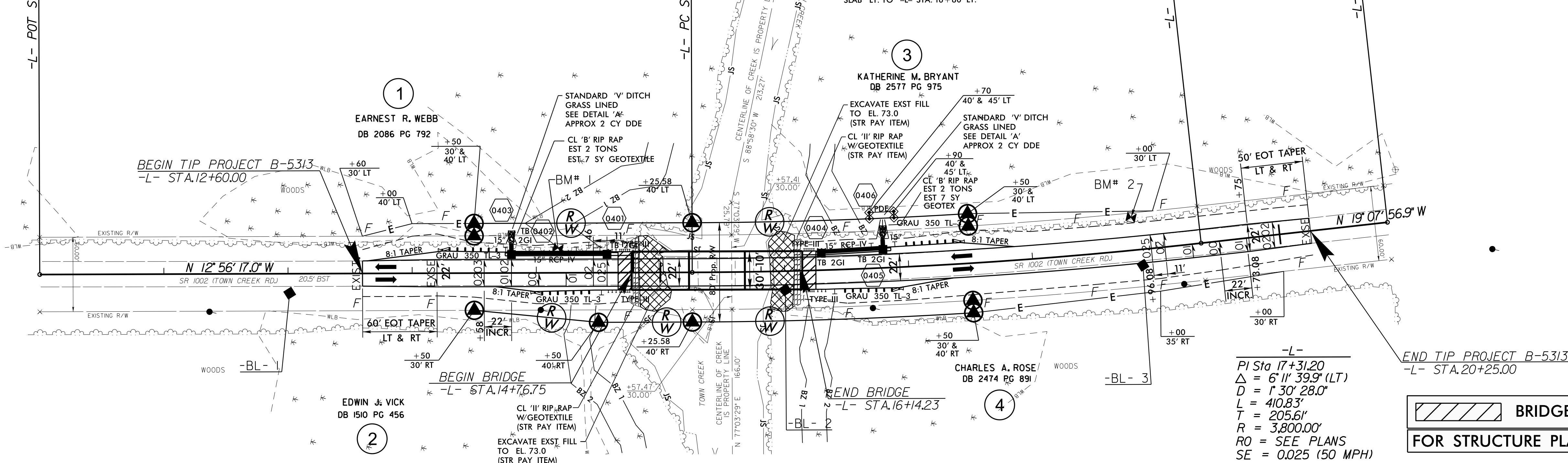
ASU = Aggregate Subgrade, AST = Aggregate Stabilization

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

8/17/99



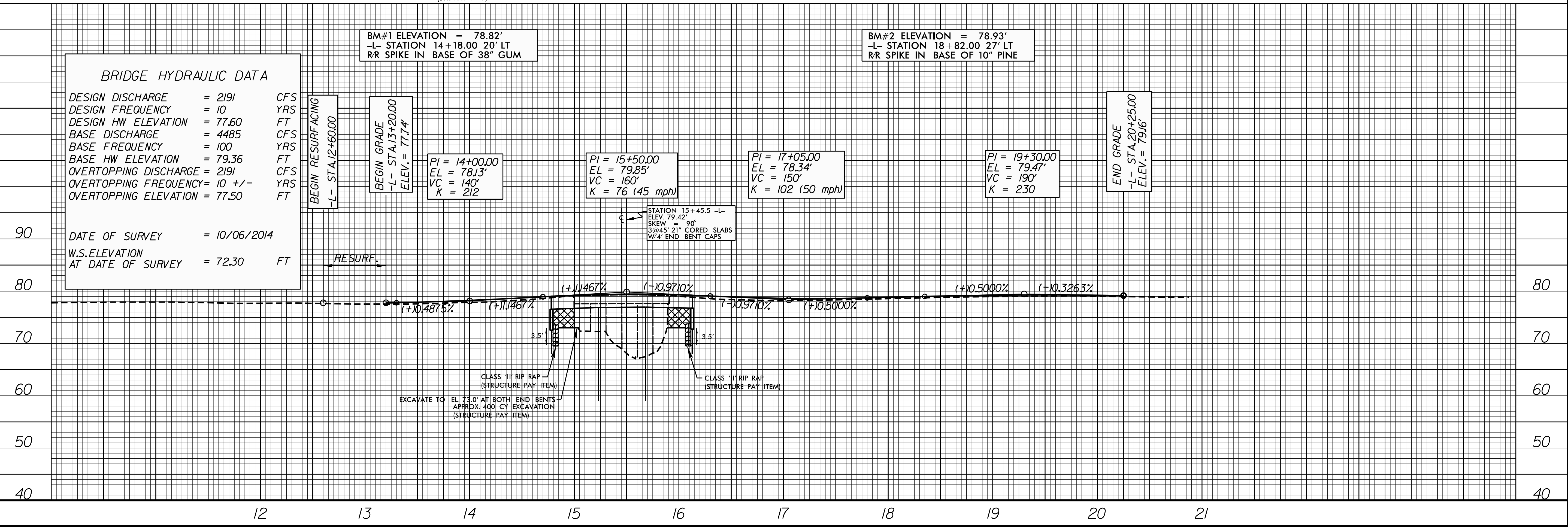
PROJECT REFERENCE NO. B-5313	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	



BRIDGE APPROACH SLAB
FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-19

BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 219 CFS
DESIGN FREQUENCY	= 10 YRS
DESIGN HW ELEVATION	= 77.60 FT
BASE DISCHARGE	= 4485 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 79.36 FT
OVERTOPPING DISCHARGE	= 2191 CFS
OVERTOPPING FREQUENCY	= 10 +/- YRS
OVERTOPPING ELEVATION	= 77.50 FT
DATE OF SURVEY	= 10/06/2014
W.S. ELEVATION AT DATE OF SURVEY	= 72.30 FT

BM#1 ELEVATION = 78.82' -L- STATION 14+18.00 20' LT R/R SPIKE IN BASE OF 38" GUM	BM#2 ELEVATION = 78.93' -L- STATION 18+82.00 27' LT R/R SPIKE IN BASE OF 10" PINE
BEGIN RESURFACING -L- STA. 12+60.00	END GRADE -L- STA. 20+25.00 ELEV. = 79.16'
BEGIN GRADE -L- STA. 13+20.00 ELEV. = 77.74'	PI = 14+00.00 EL = 78.13' VC = 140' K = 212
PI = 15+50.00 EL = 79.85' VC = 160' K = 76 (45 mph)	PI = 17+05.00 EL = 78.34' VC = 150' K = 102 (50 mph)
PI = 19+30.00 EL = 79.47' VC = 190' K = 230	



REVISIONS

10-MAR-2016 10:05 AM B-5313-rdy_psh.dgn