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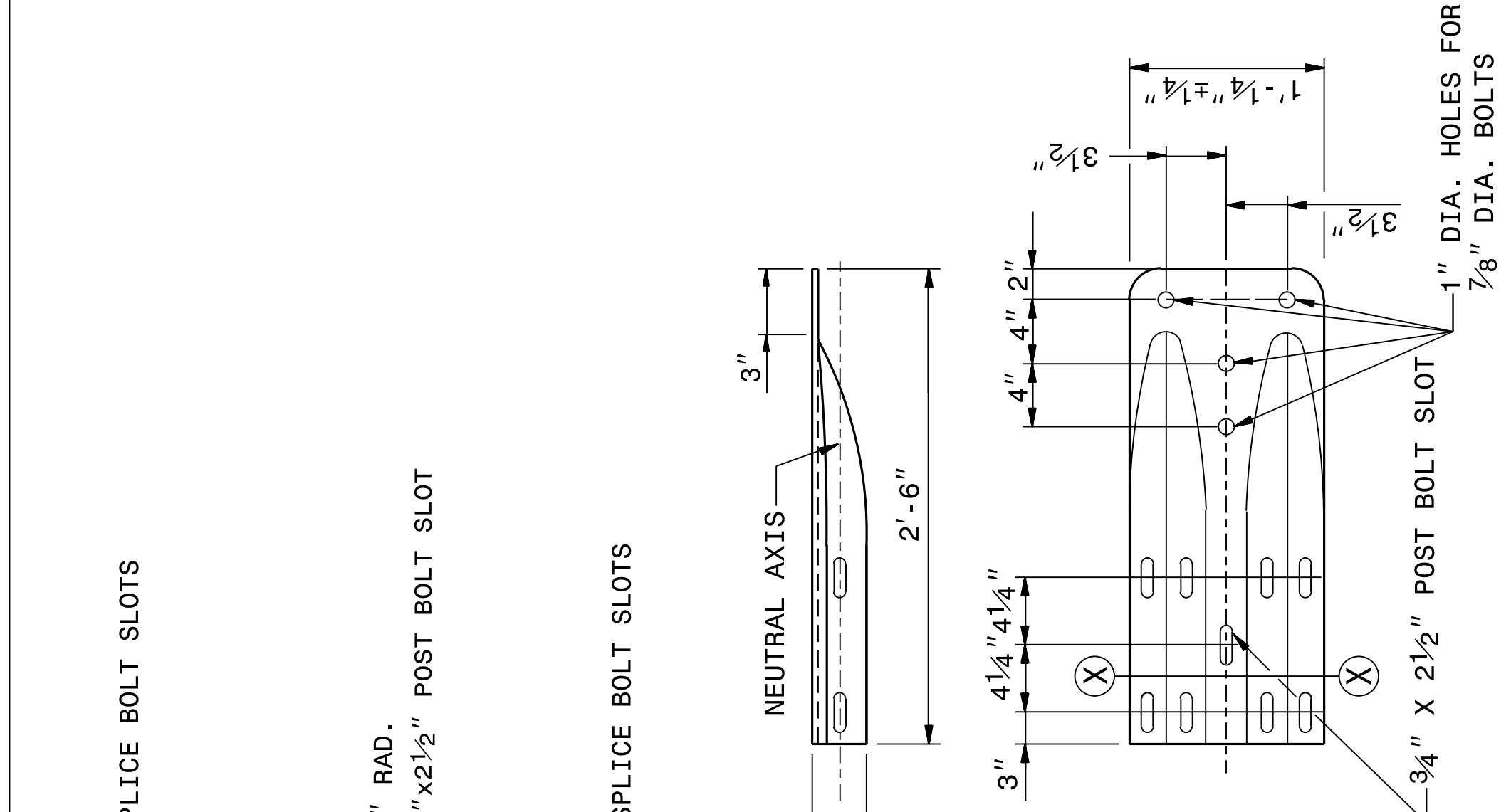
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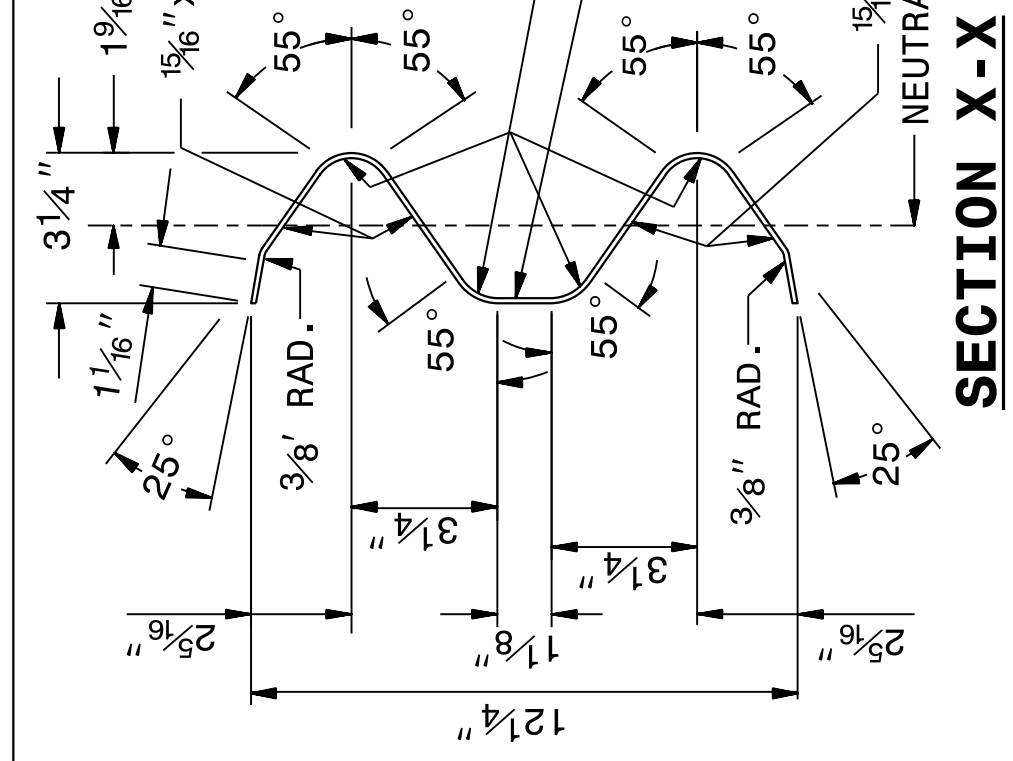
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ROADWAY DETAIL DRAWING FOR
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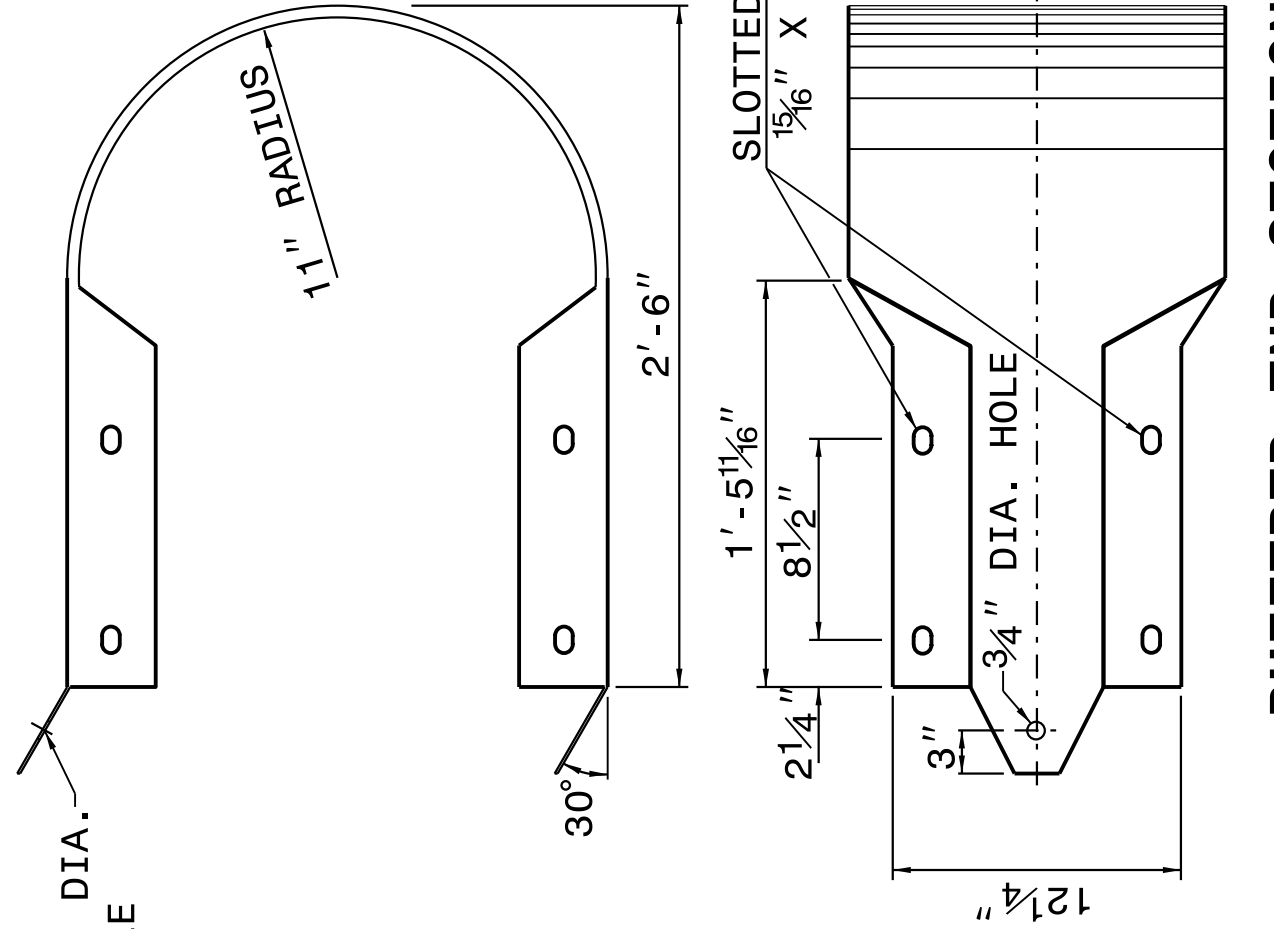
SHEET 8 OF 8
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TYPICAL END SHOE



SECTION X-X



BUFFERED END SECTION

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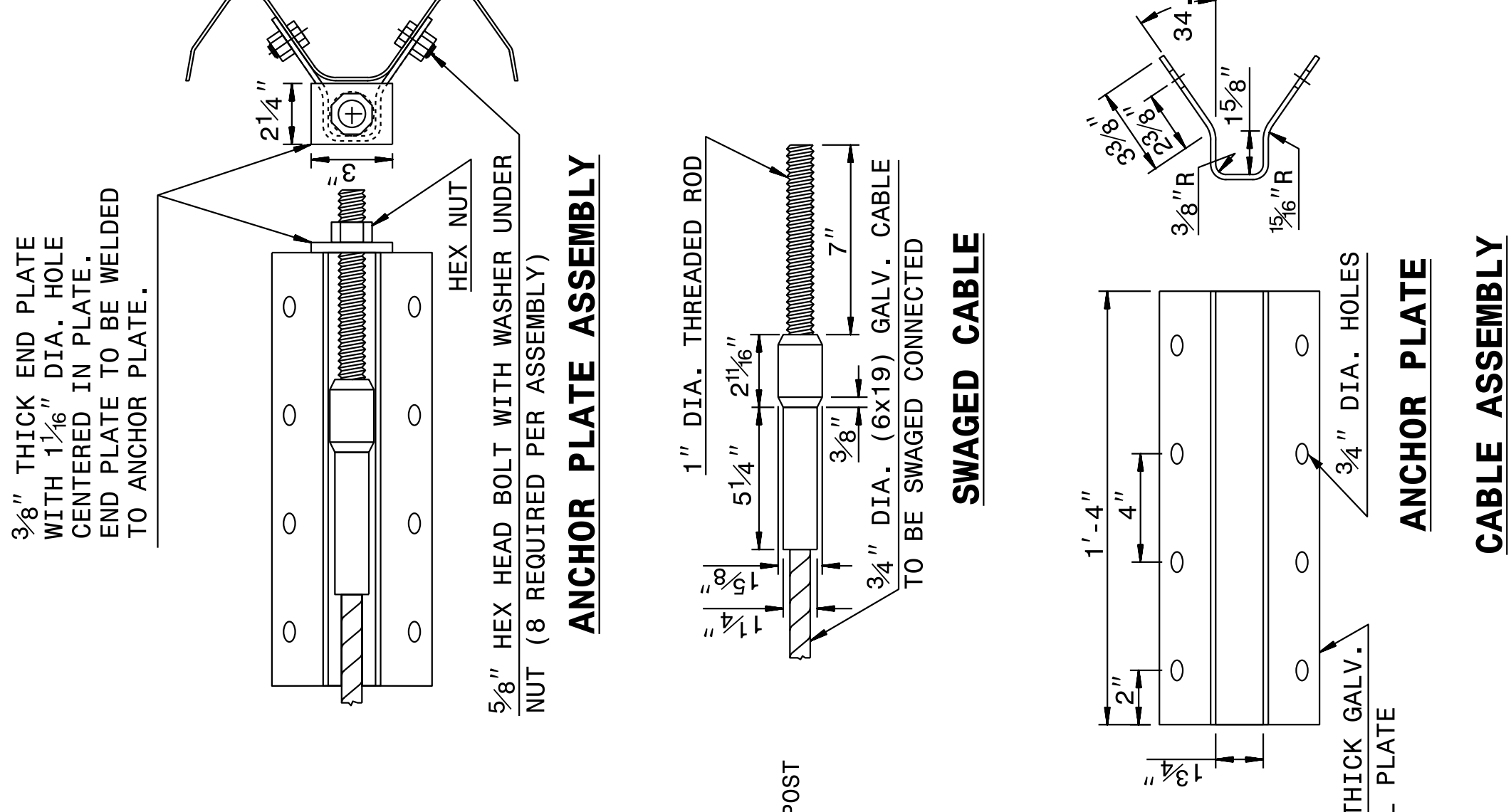
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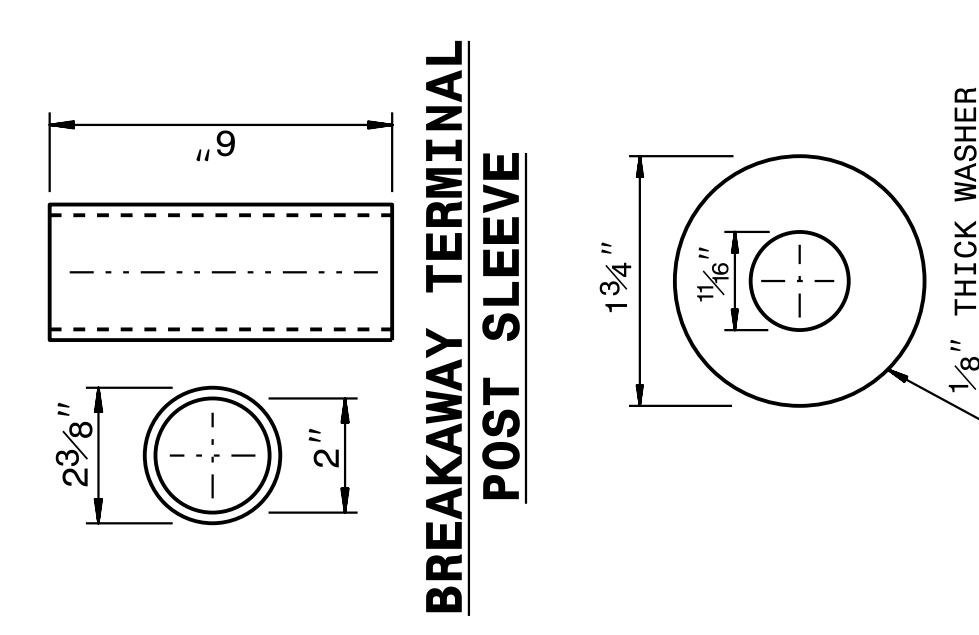
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ROADWAY DETAIL DRAWING FOR
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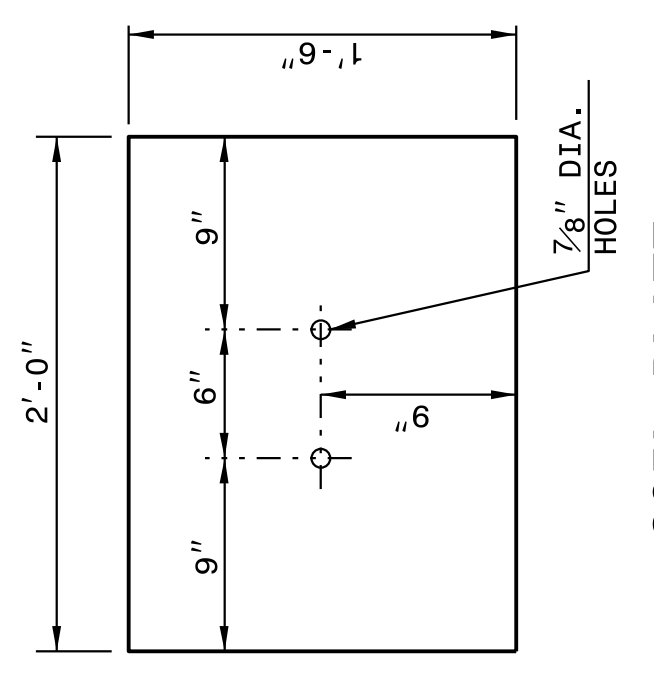
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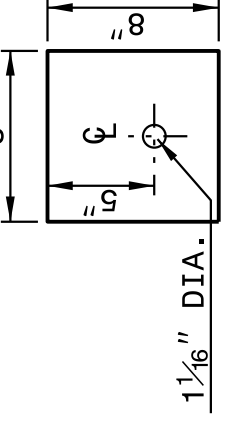
ANCHOR PLATE ASSEMBLY



BREAKAWAY TERMINAL POST SLEEVE



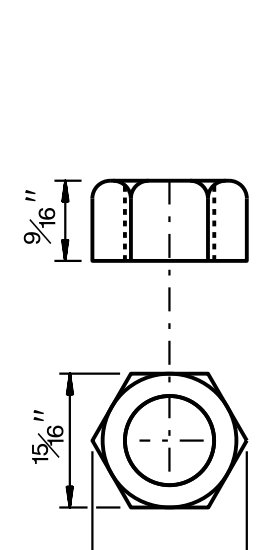
SOIL PLATE



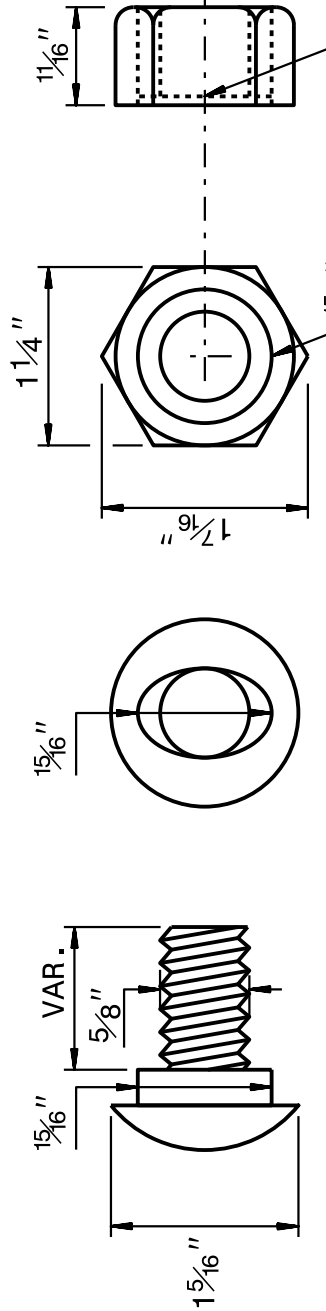
BEARING PLATE



DETAIL OF STANDARD WASHER



DETAIL OF STANDARD HEX BOLT AND NUT



DETAIL OF BUTTON HEAD BOLT AND NUT

SYSTEM PARTS - GENERAL USE

SYSTEM PARTS

ORIGINAL BY: J. HOWERTON DATE: 06-22-12
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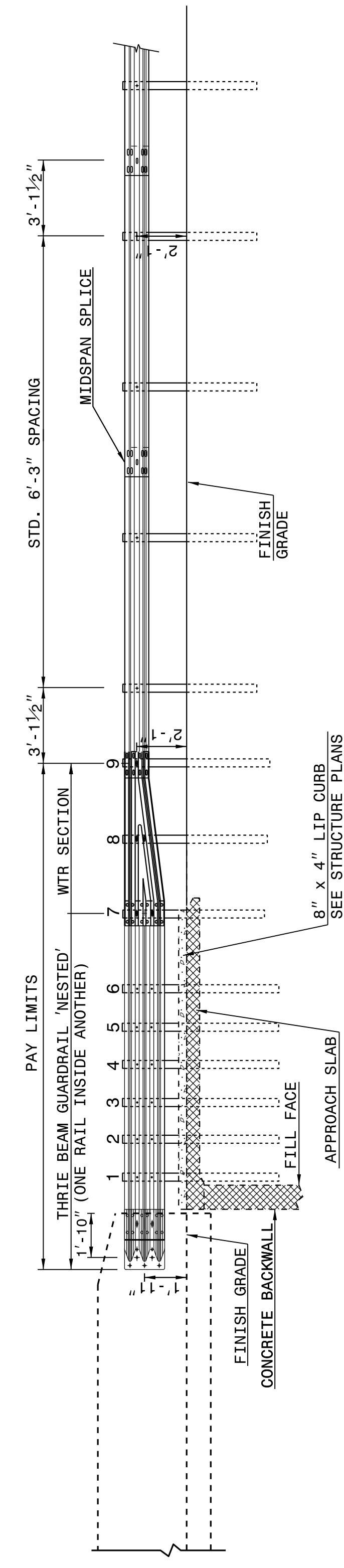
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
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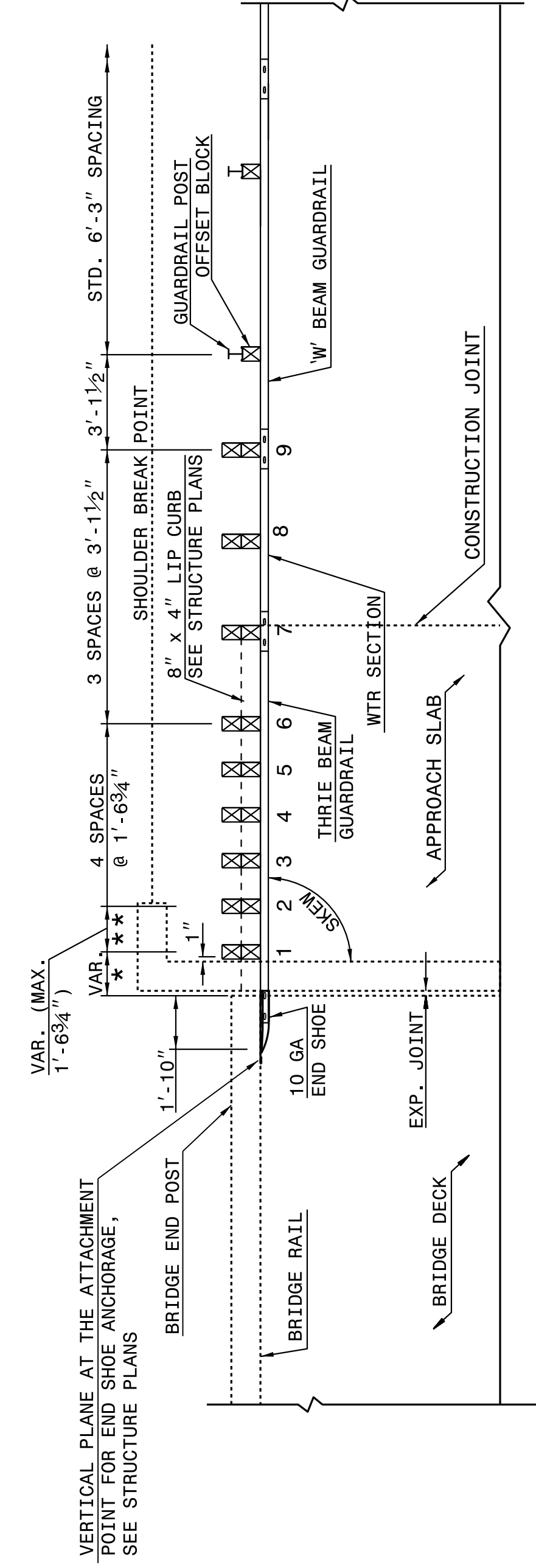
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
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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 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

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

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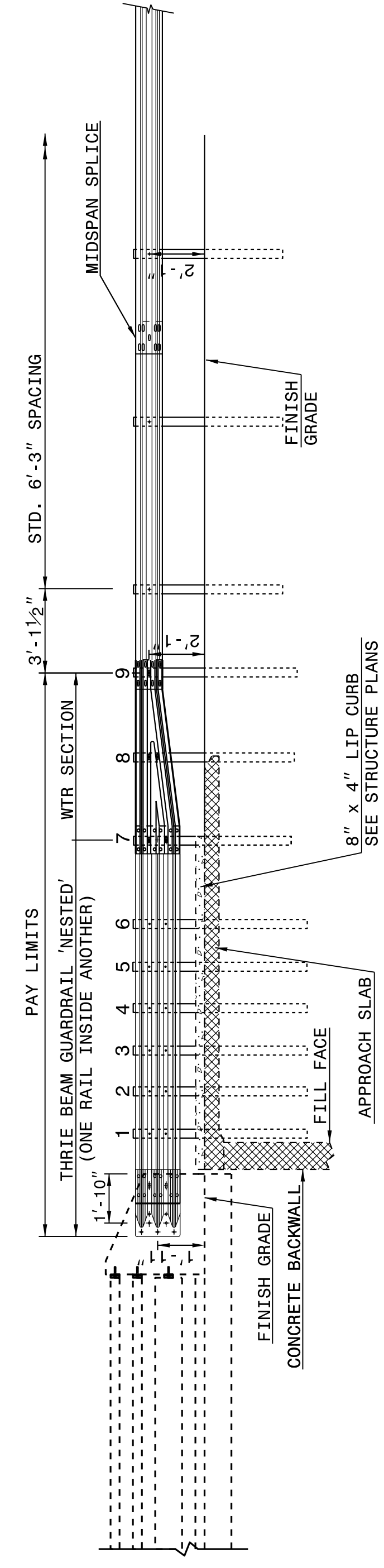
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
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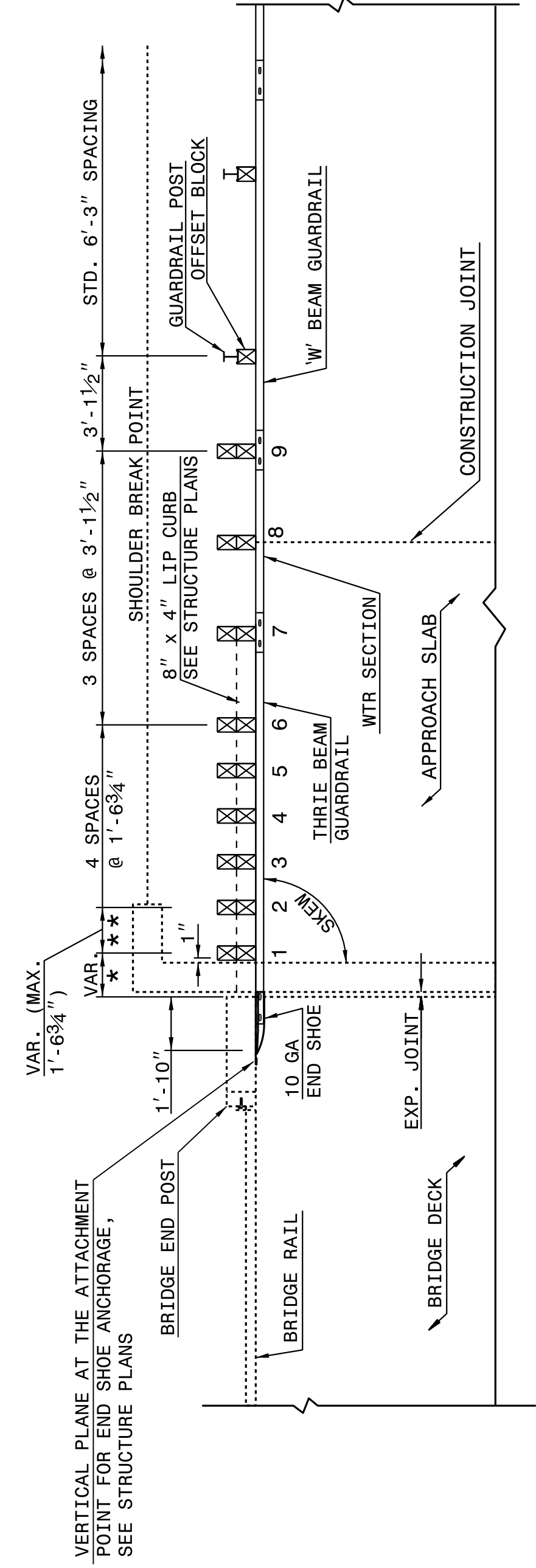
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 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 5 FOR POST SECTIONS 1 THRU 9.



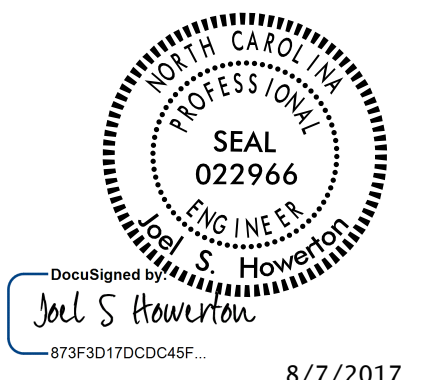
PLAN VIEW

**GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE**

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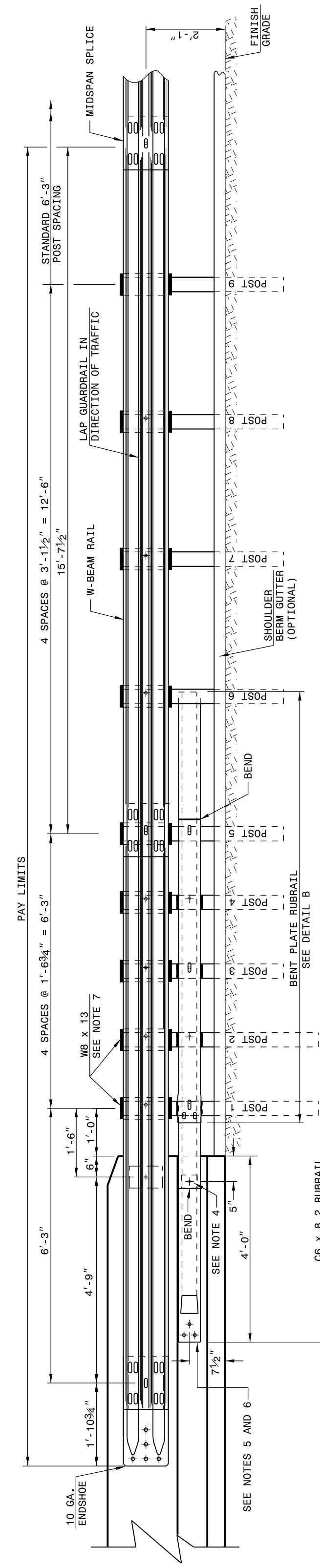
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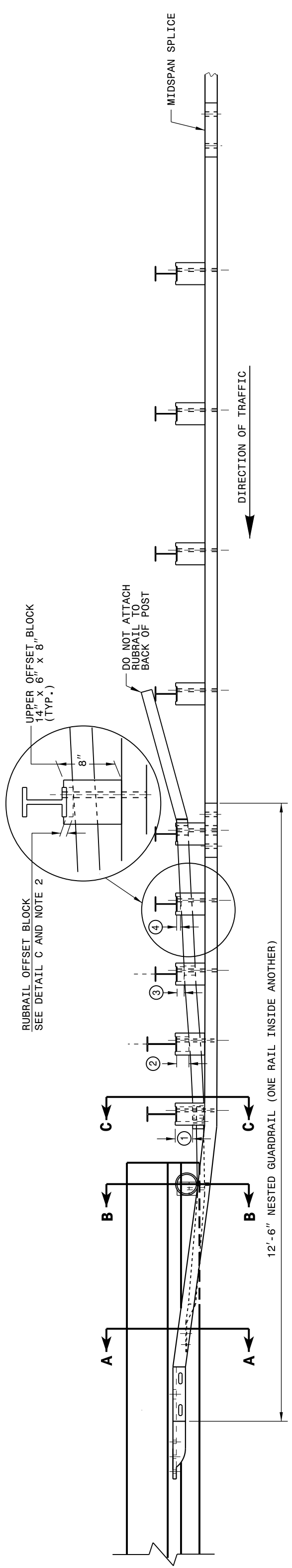
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
FOR F-SHAPE BARRIER

SHEET 4 OF 7
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ELEVATION

- GENERAL NOTES:
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL. RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTT-ON BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE RUBRAIL BLOCKOUTS TO POSTS 1 AND 2 WITH 3/4" BUTT-ON BOLTS. RUBRAIL IS SECURED TO POST 5 WITH 3/4" BUTT-ON BOLTS.
 - SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 2 WITH 3/4" BUTT-ON BOLTS. RUBRAIL IS SECURED TO POST 5 WITH 3/4" BUTT-ON BOLTS.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTT-ON BOLT AND RECTANGULAR PLATE WASHER.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED END OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE THE BARRIER OR BRIDGE RAIL.
 - (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1/2".
(b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
(c) AT NEW BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE AND RUBRAIL AS DETAILED ON THE STRUCTURE PLANS.
 - POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



PLAN

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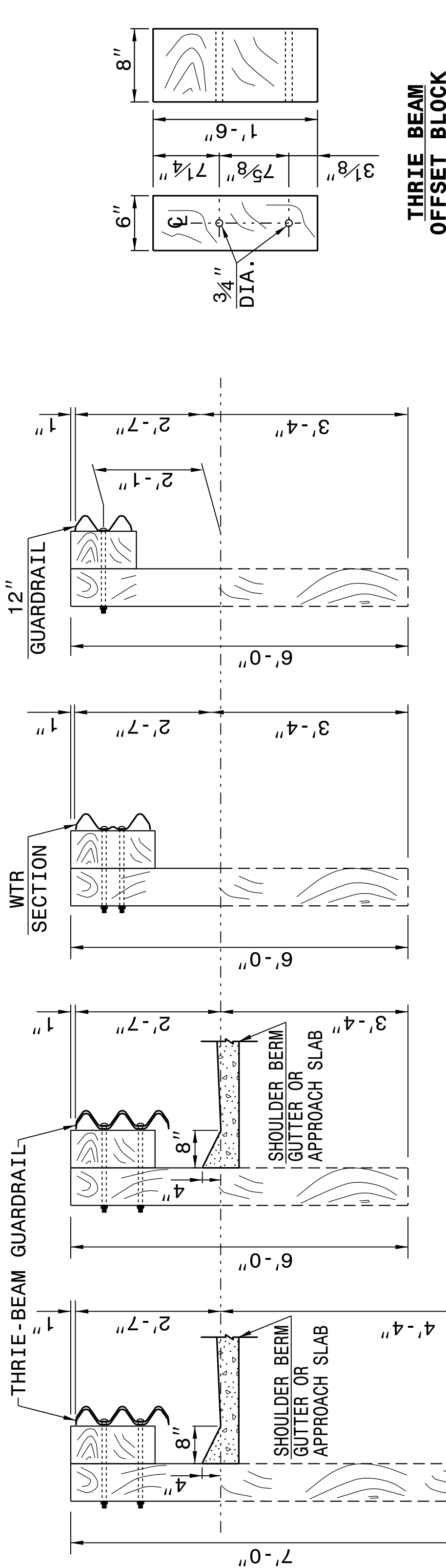
ROADWAY DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

SHEET 4 OF 7
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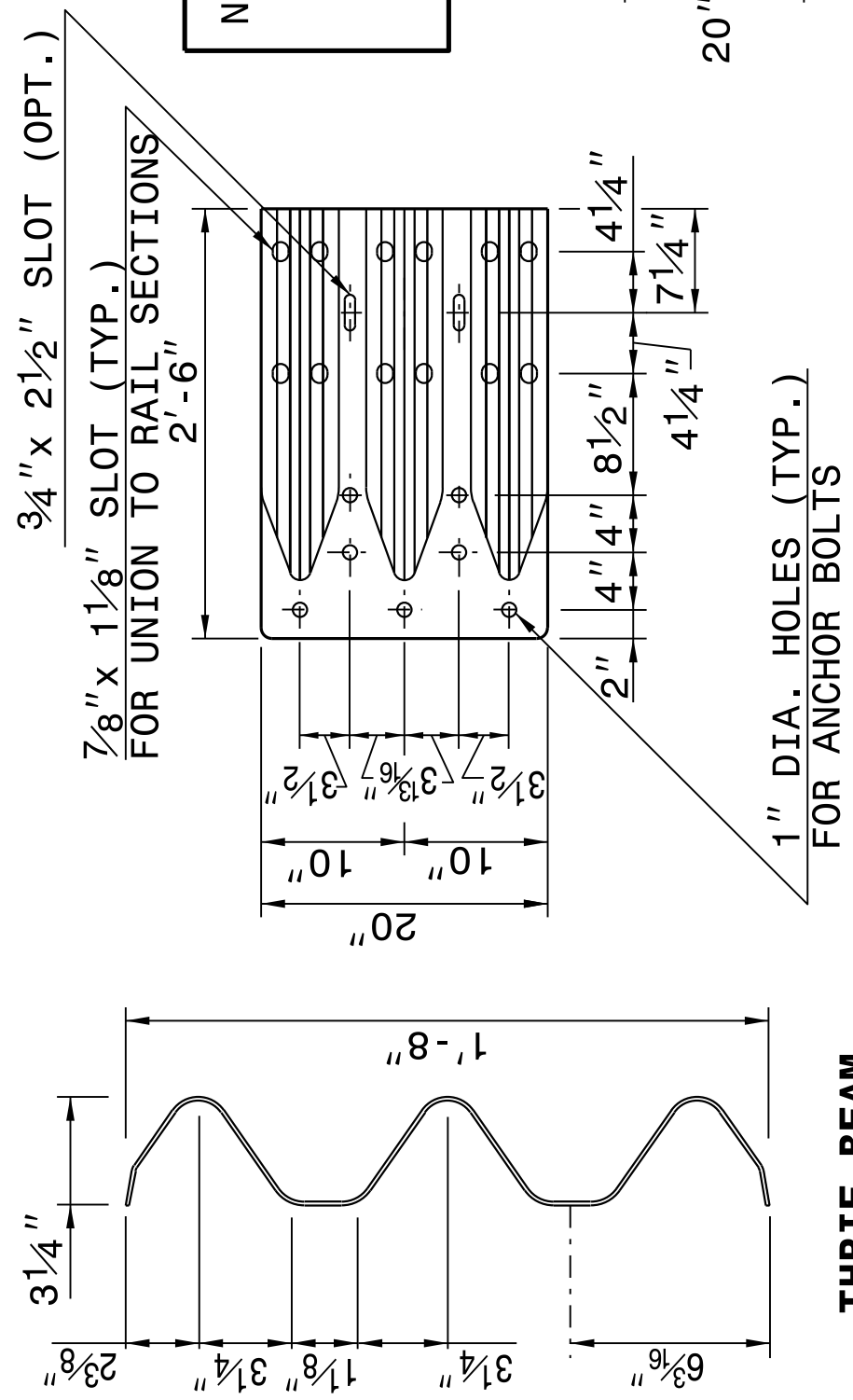
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

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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.



THRIE-BEAM SECTION
END SHOE

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GUARDRAIL ANCHOR UNIT, TYPE III

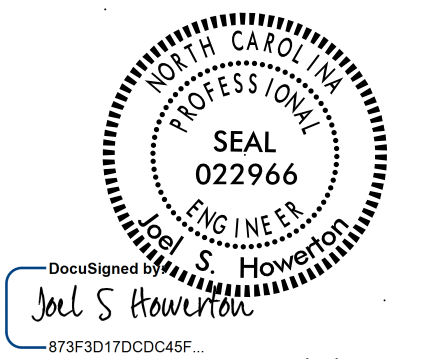
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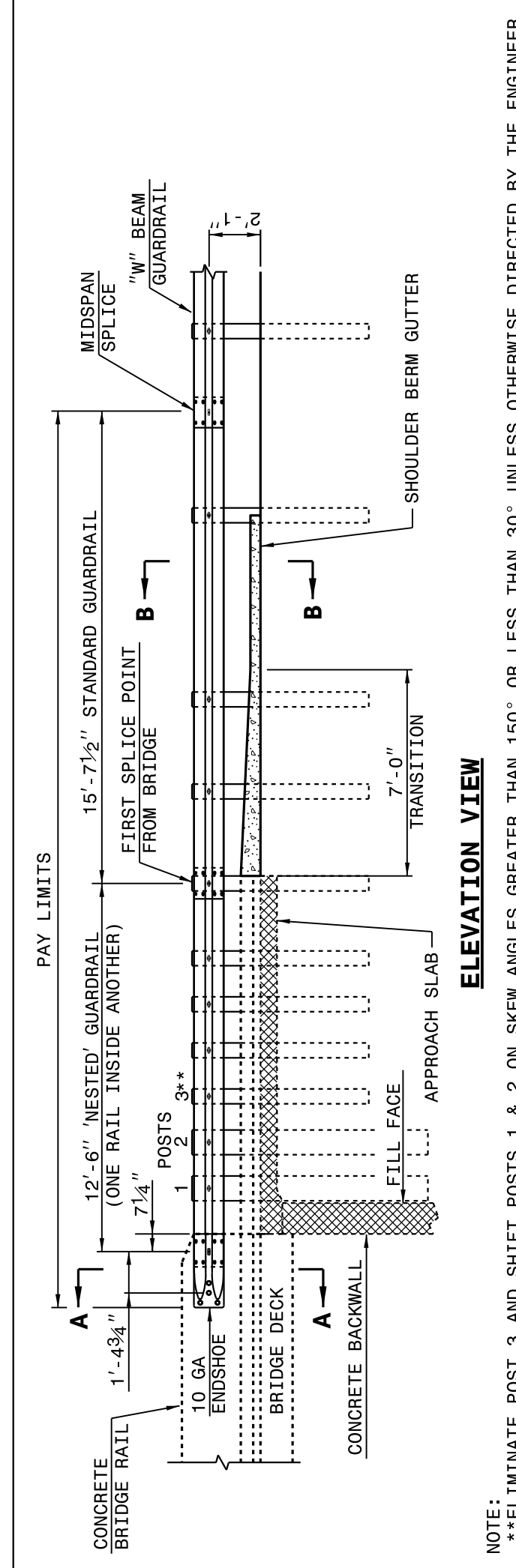
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STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT TYPE B-83

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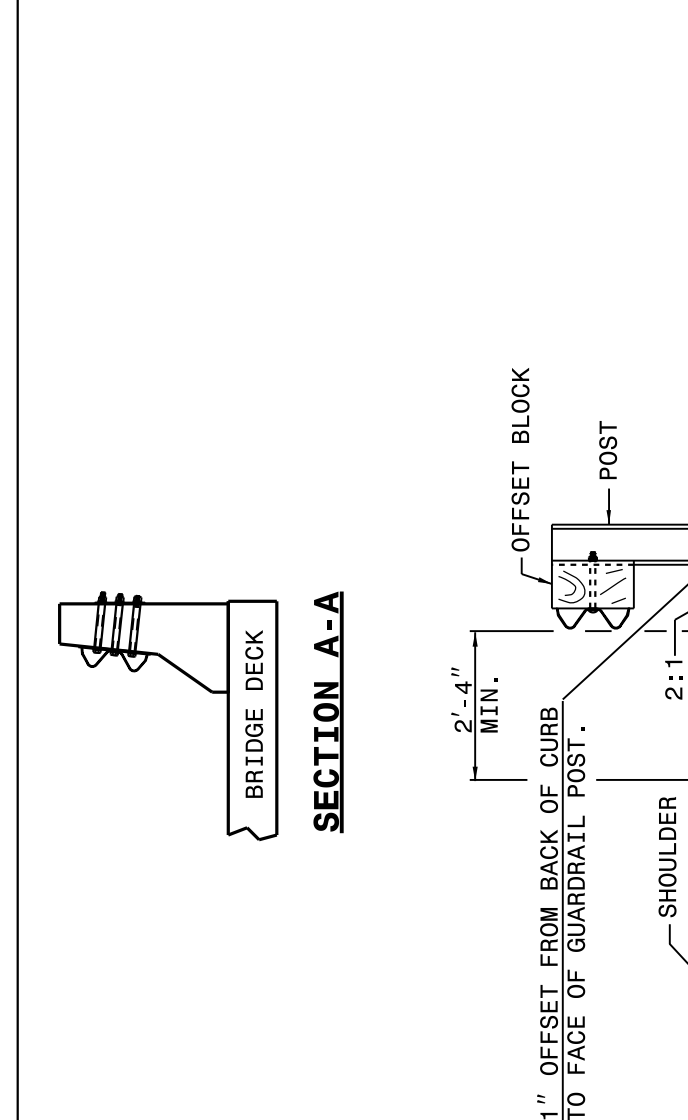
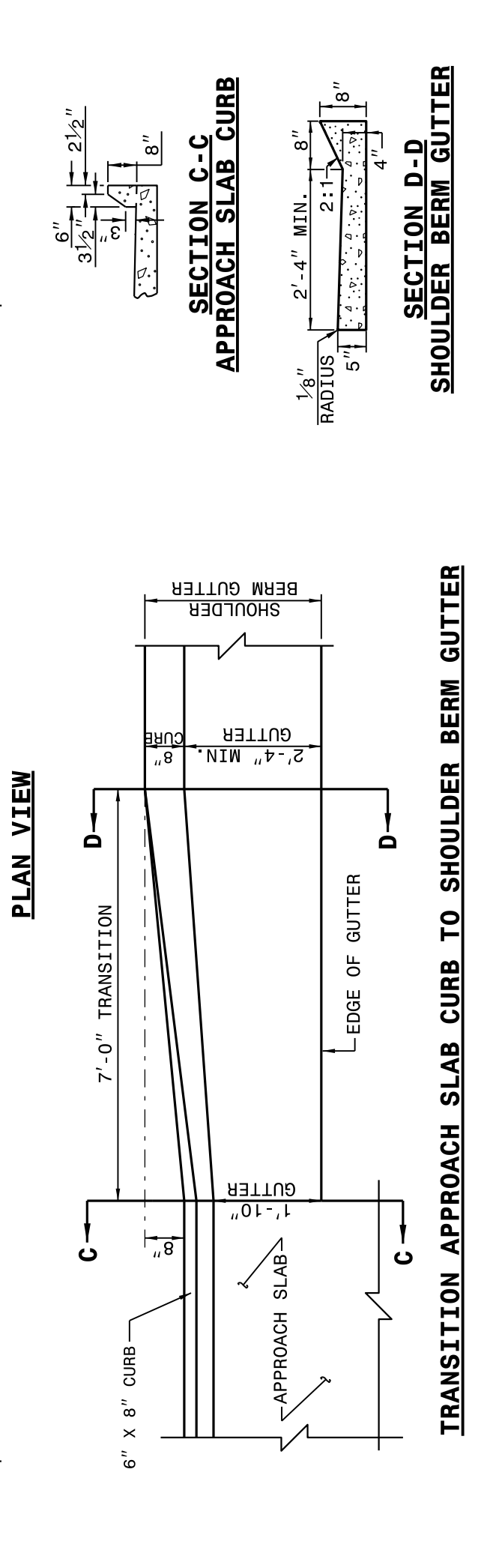
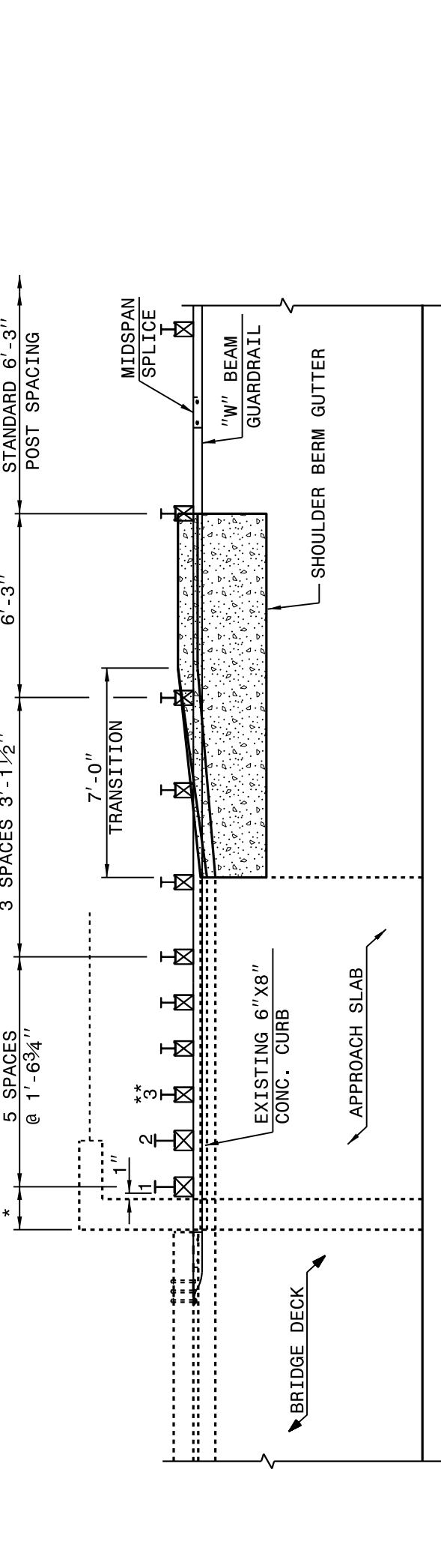
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ROADWAY DETAIL DRAWING FOR
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 GUARDRAIL ANCHOR UNIT TYPE B-83

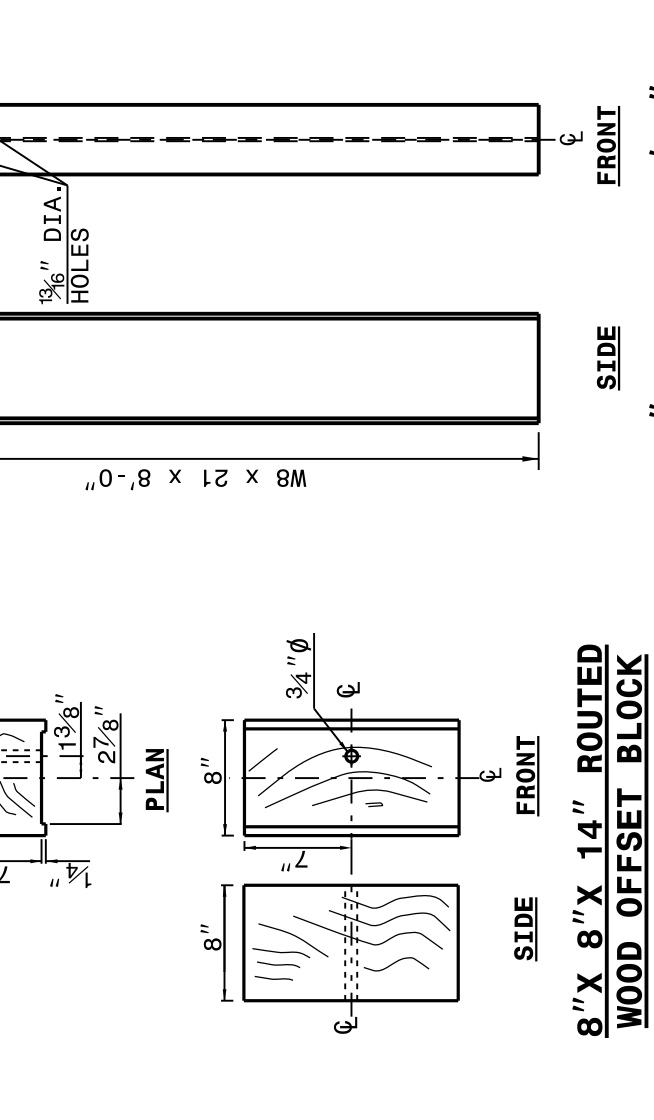
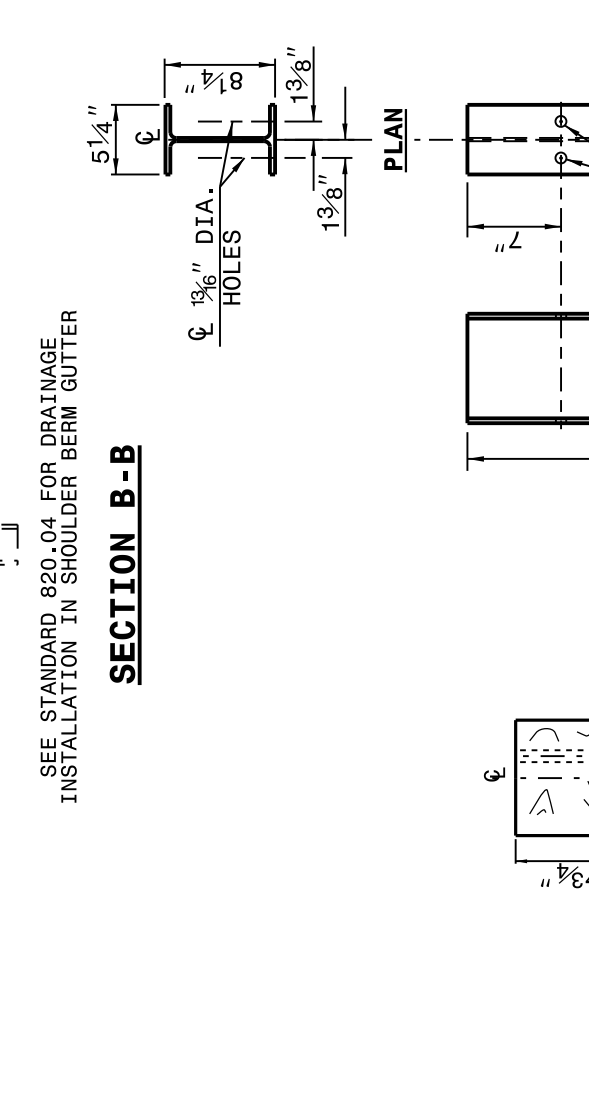
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NOTE:
 **ELIMINATE POST 3 AND SHIFT POSTS 1 & 2 ON SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 *MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -USE NO WOOD POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
 -POSTS 1 AND 2 ARE TO BE 21" X 8" LONG STEEL POST AND 8" X 8" X 14" WOOD ROUTED OFFSET BLOCK.
 -SHOULDER BERM GUTTER IS REQUIRED IF NO CURBING EXISTS THROUGH ANCHOR UNIT PAY LIMITS
 -ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE AS SHOWN IN STANDARD 862.04



SEE STANDARD 820.04 FOR DRAINAGE INSTALLATION IN SHOULDER BERM GUTTER



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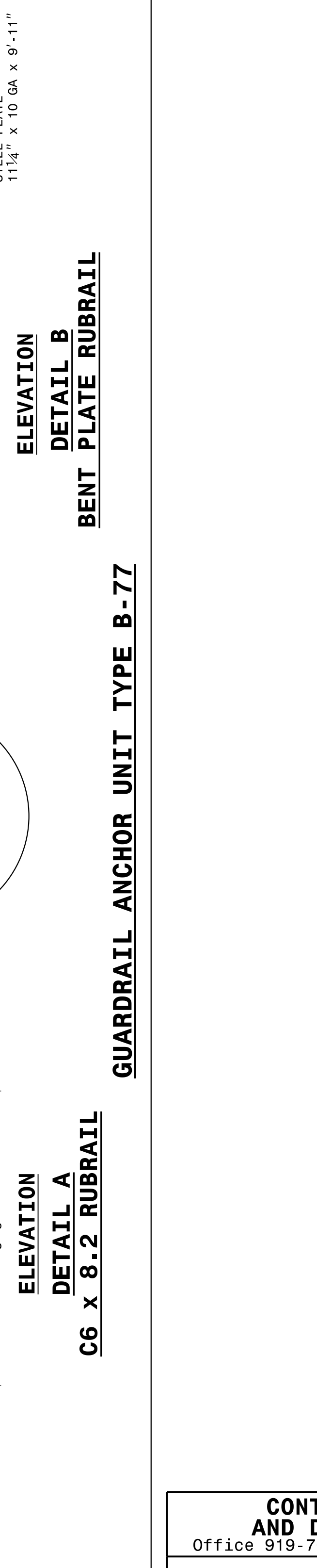
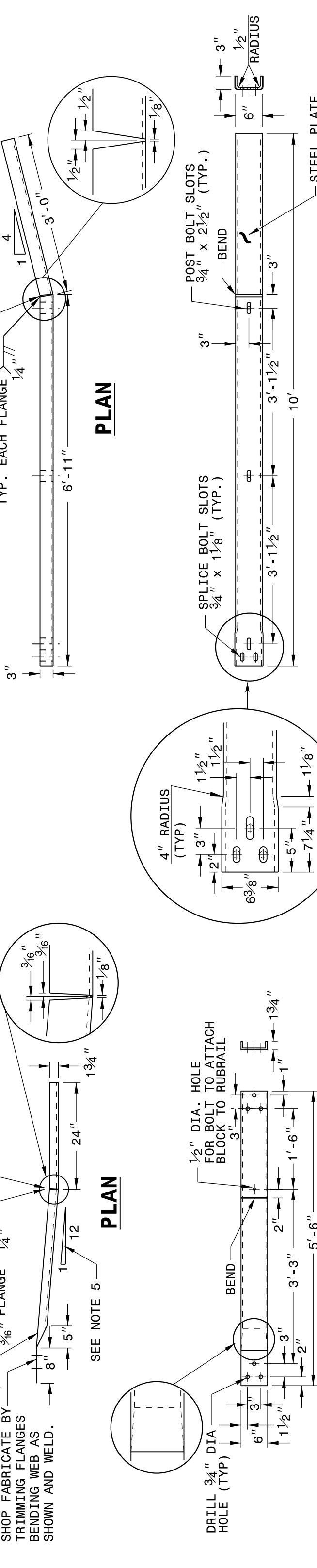
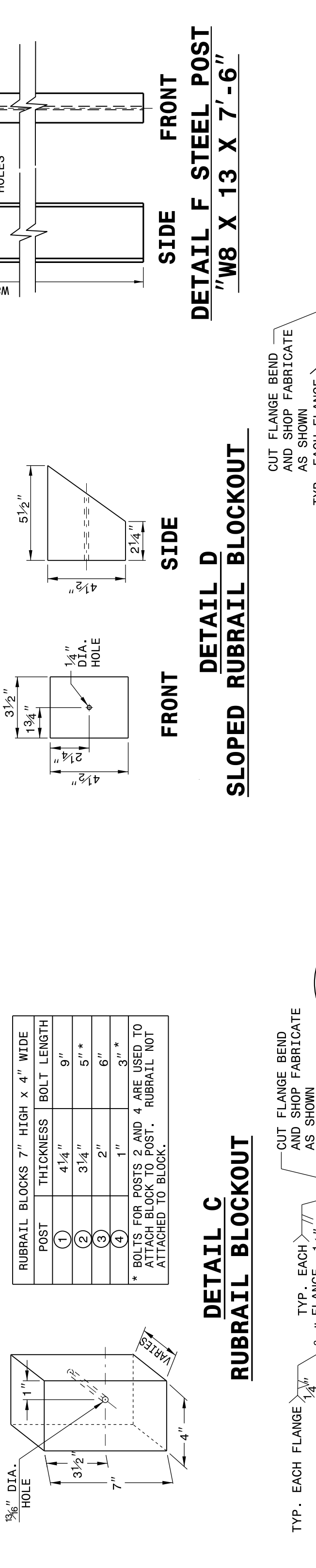
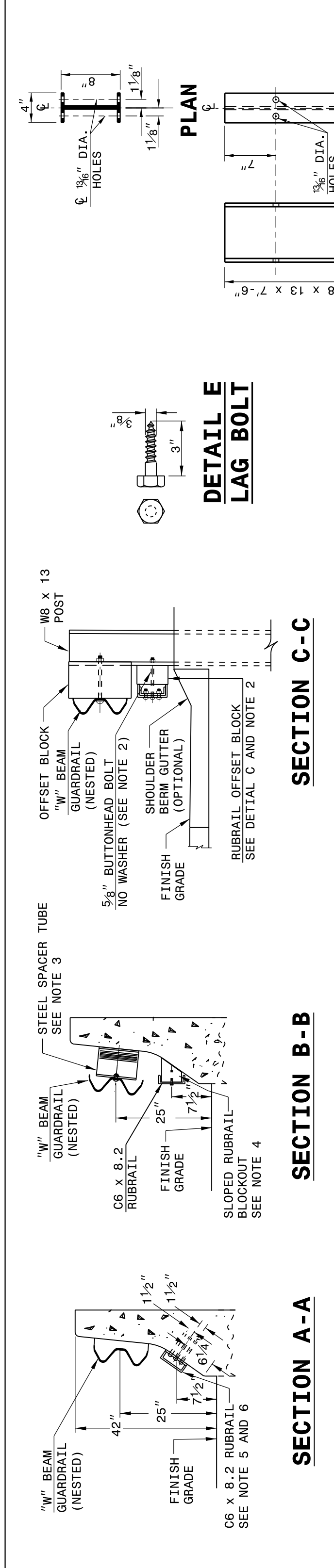
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT TYPE B-83

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ROADWAY DETAIL DRAWING FOR
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 GUARDRAIL ANCHOR UNIT TYPE B-77
 FOR F-SHAPE BARRIER

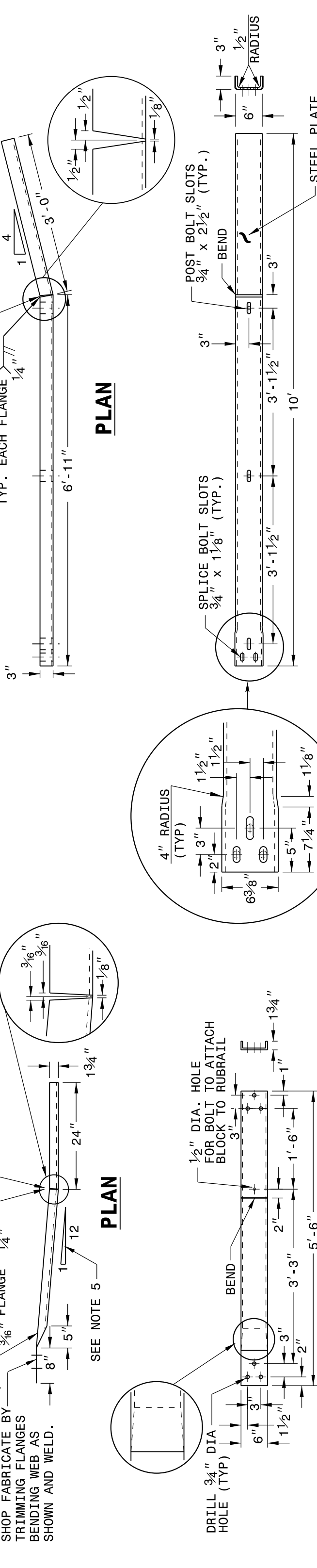
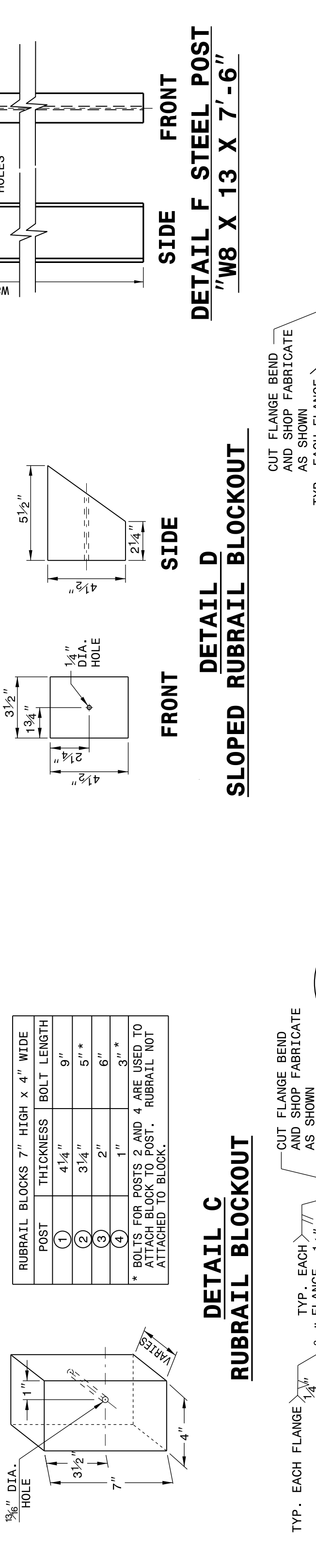
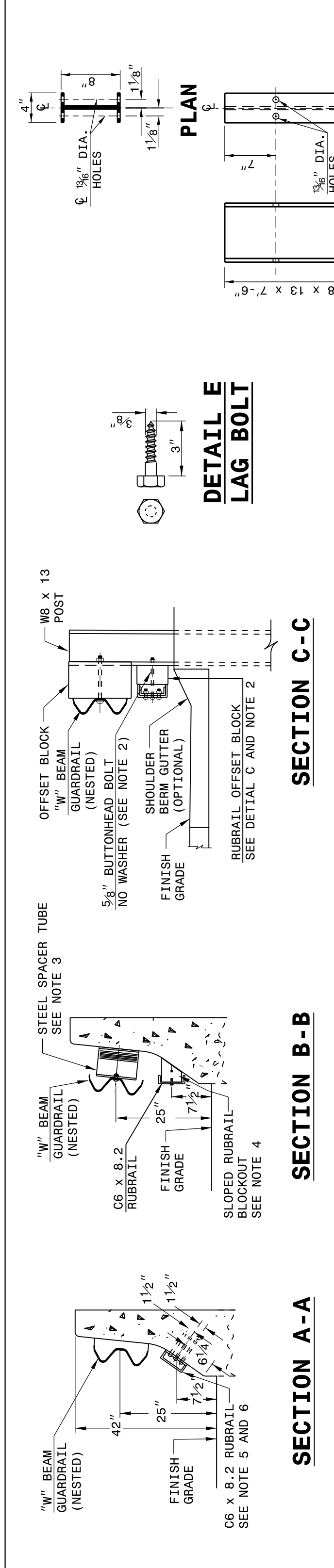
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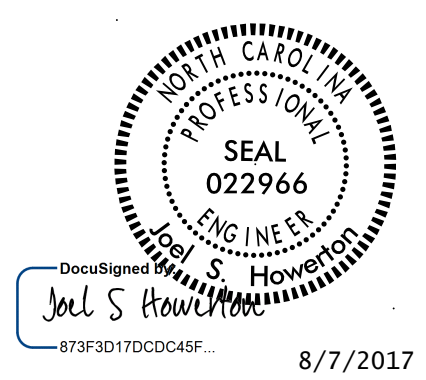
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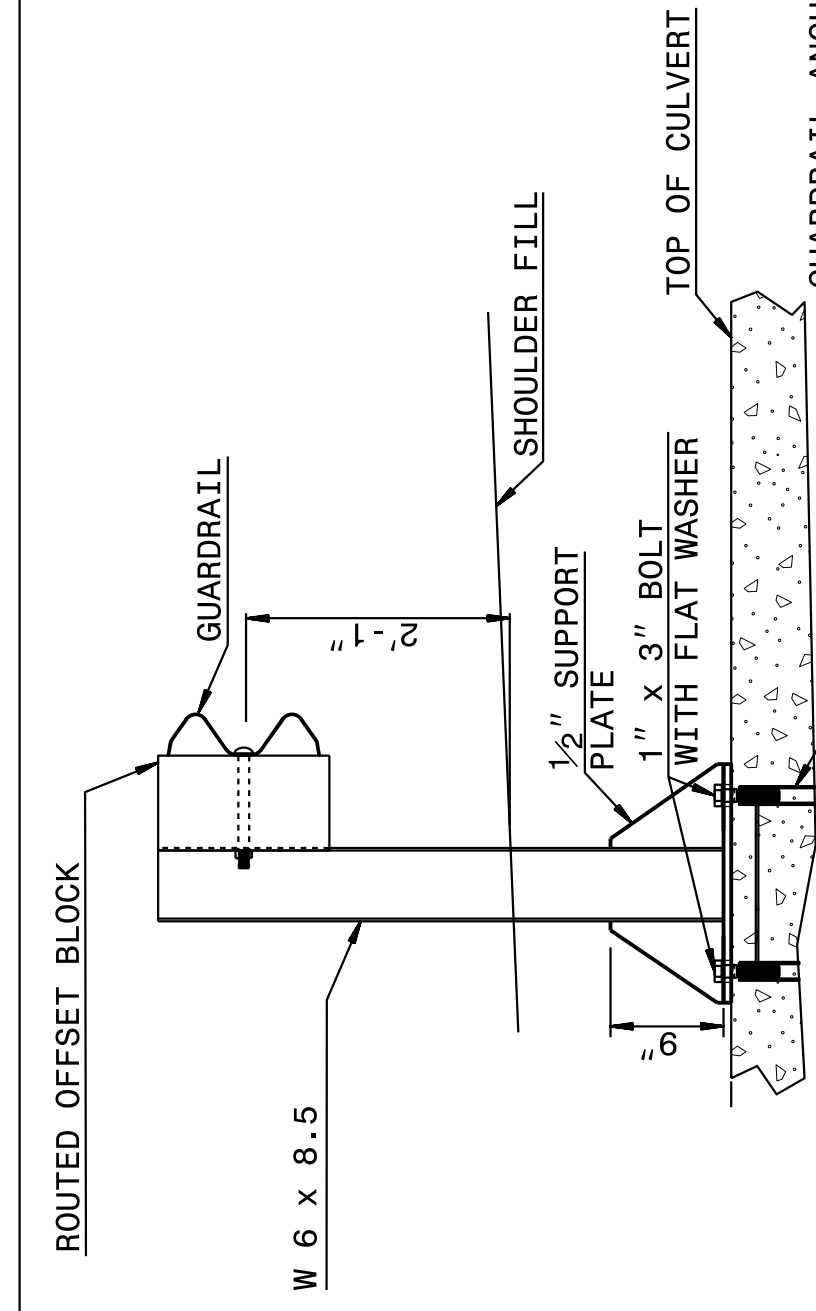


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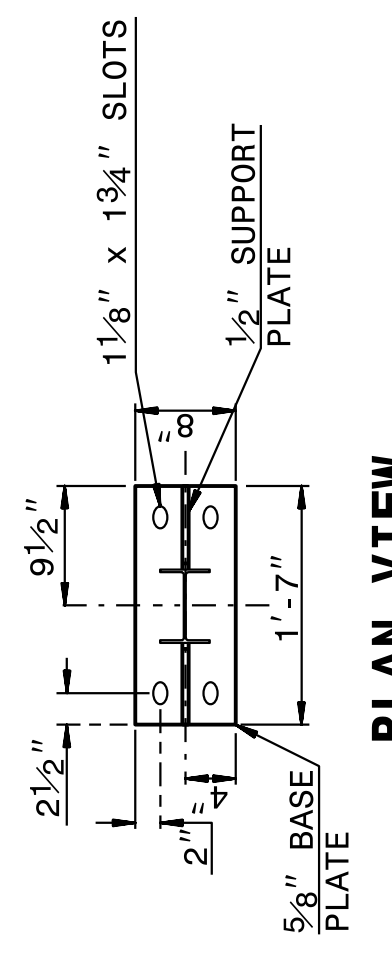
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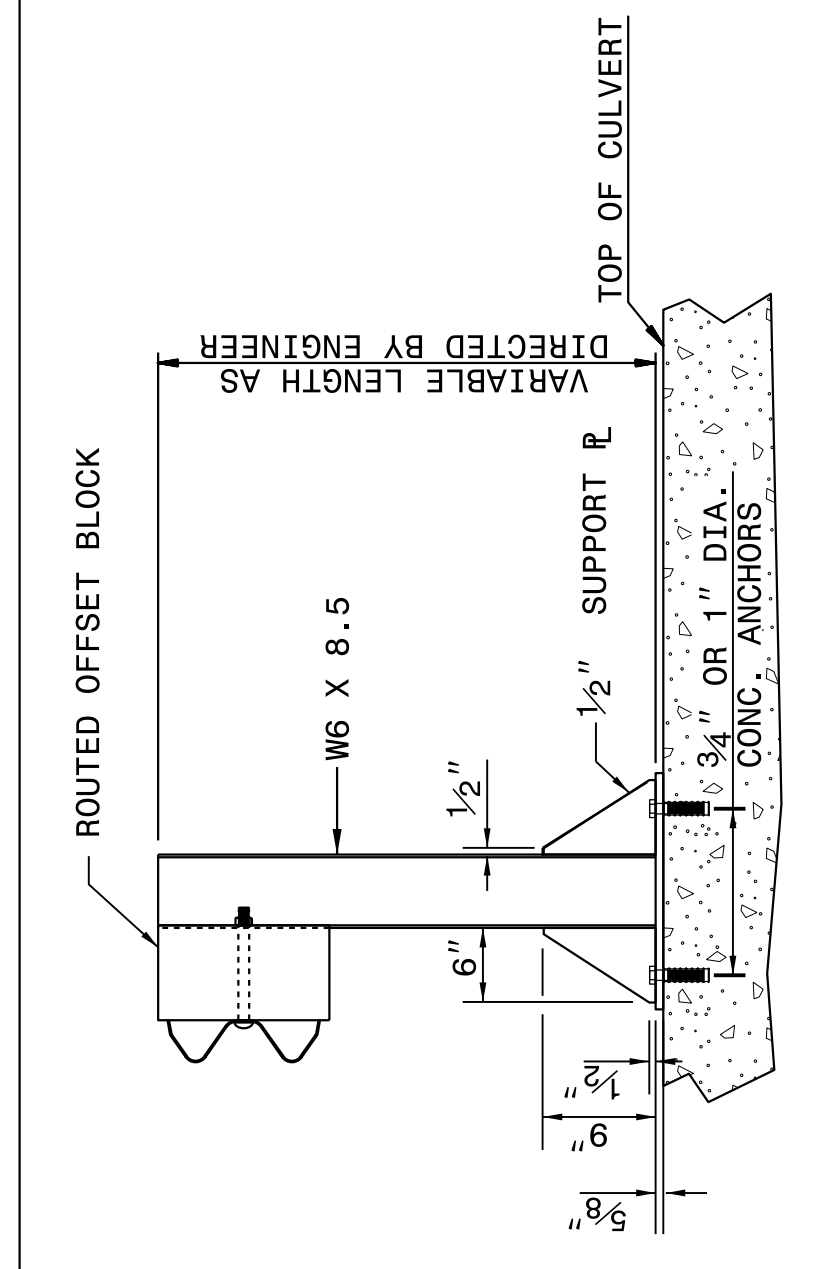
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT



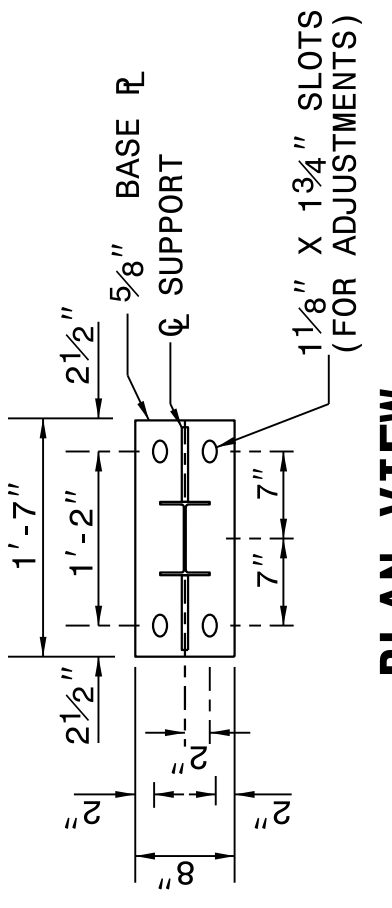
ELEVATION VIEW



PLAN VIEW



ELEVATION VIEW



PLAN VIEW

ROADWAY DETAIL DRAWING FOR
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 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

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NOTES FOR:
 -USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 2875 LBS. FOR A 3/4" OR 1" DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON 1/4 THE ACTUAL HOLDING POWER OF THE ANCHOR IN 3500 PSI CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.
 -USE ANCHORS GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153. SIZE HOLES FOR THE CONCRETE ANCHORS IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATIONS. DRILL HOLES WITH A CARBIDE OR DIAMOND TIPPED MASONRY BIT POWERED BY A ROTARY OR ROTARY IMPACT DRILL. NO OTHER IMPACT TOOLS WILL BE PERMITTED. DRILL HOLES VERTICALLY. FURNISH DOCUMENTATION OF HOLE SIZE RECOMMENDED FOR THE SPECIFIED ANCHOR TO THE ENGINEER BEFORE DRILLING HOLES. THOROUGHLY CLEAN HOLES FOR ANCHORS OF ALL CONCRETE CHIPS, DUST, GREASE, OIL, ETC. BEFORE ANCHORS ARE INSTALLED. REPAIR ALL DAMAGE CAUSED BY THIS WORK TO THE SATISFACTION OF THE ENGINEER.

NEW STRUCTURES:
 -ATTACH POST TO INSERT ASSEMBLY UNITS (USING ANCHOR BOLTS SUPPLIED WITH INSERTS) WHICH HAVE BEEN CAST INTO THE STRUCTURE DURING CONSTRUCTION.

EXISTING STRUCTURES:
 -USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 2875 LBS. FOR A 3/4" OR 1" DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON 1/4 THE ACTUAL HOLDING POWER OF THE ANCHOR IN 3500 PSI CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.

ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

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PROJECT REFERENCE NO. R-5703	SHEET NO. 2C-14
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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
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

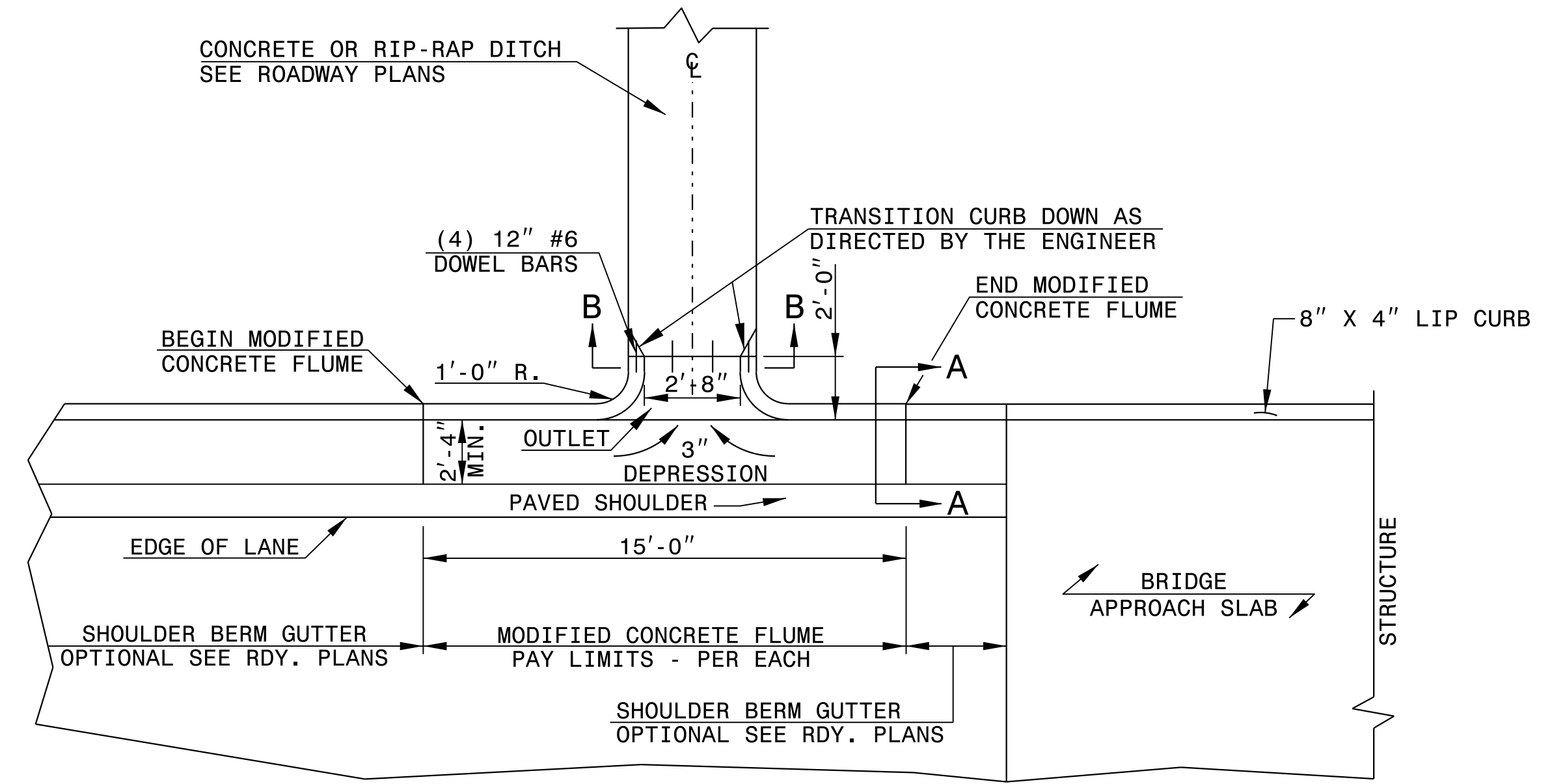
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

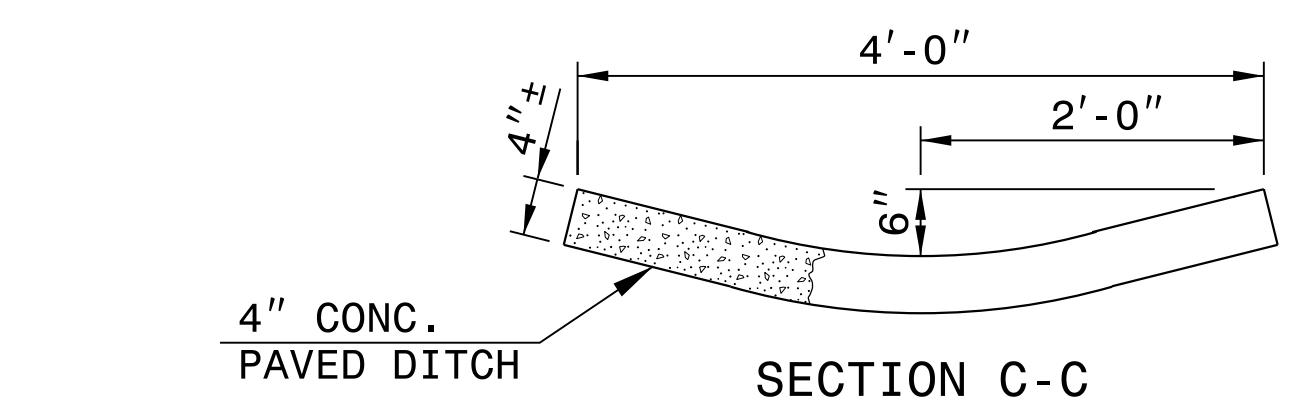
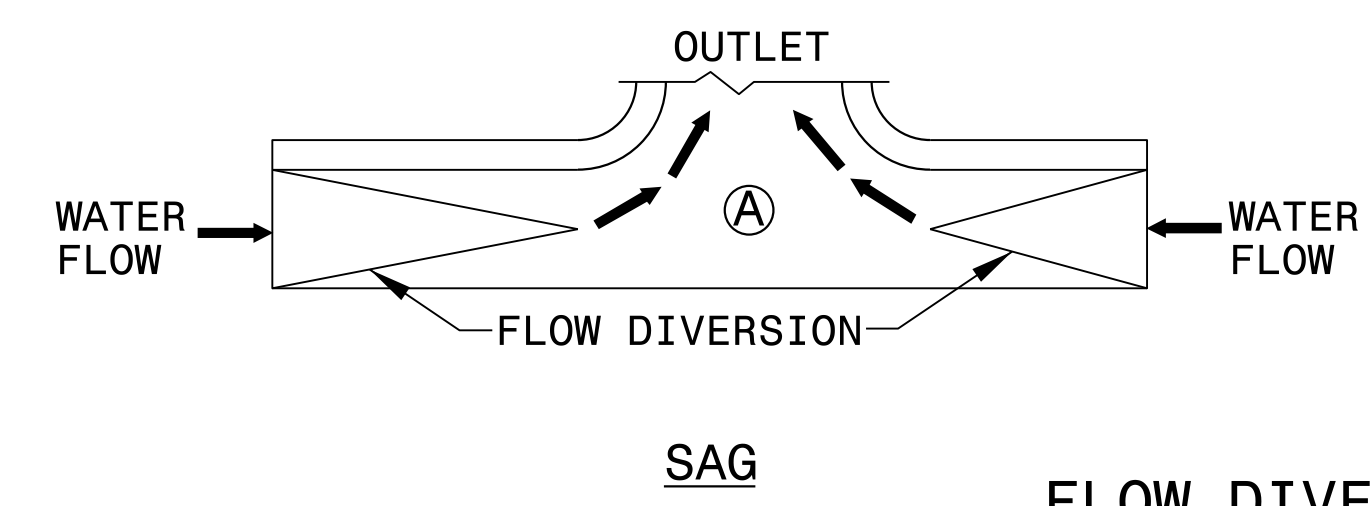
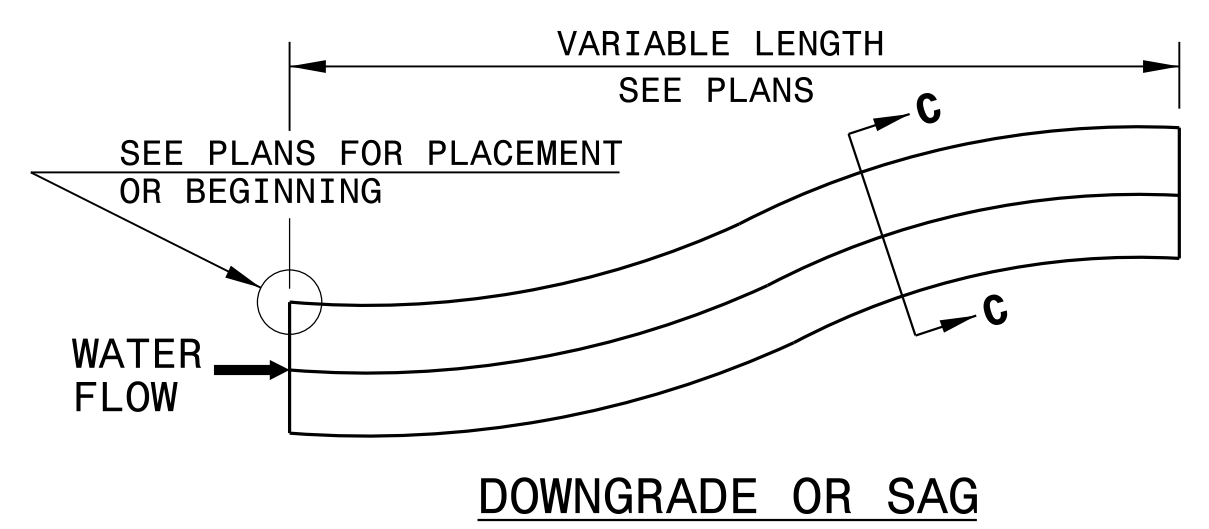
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

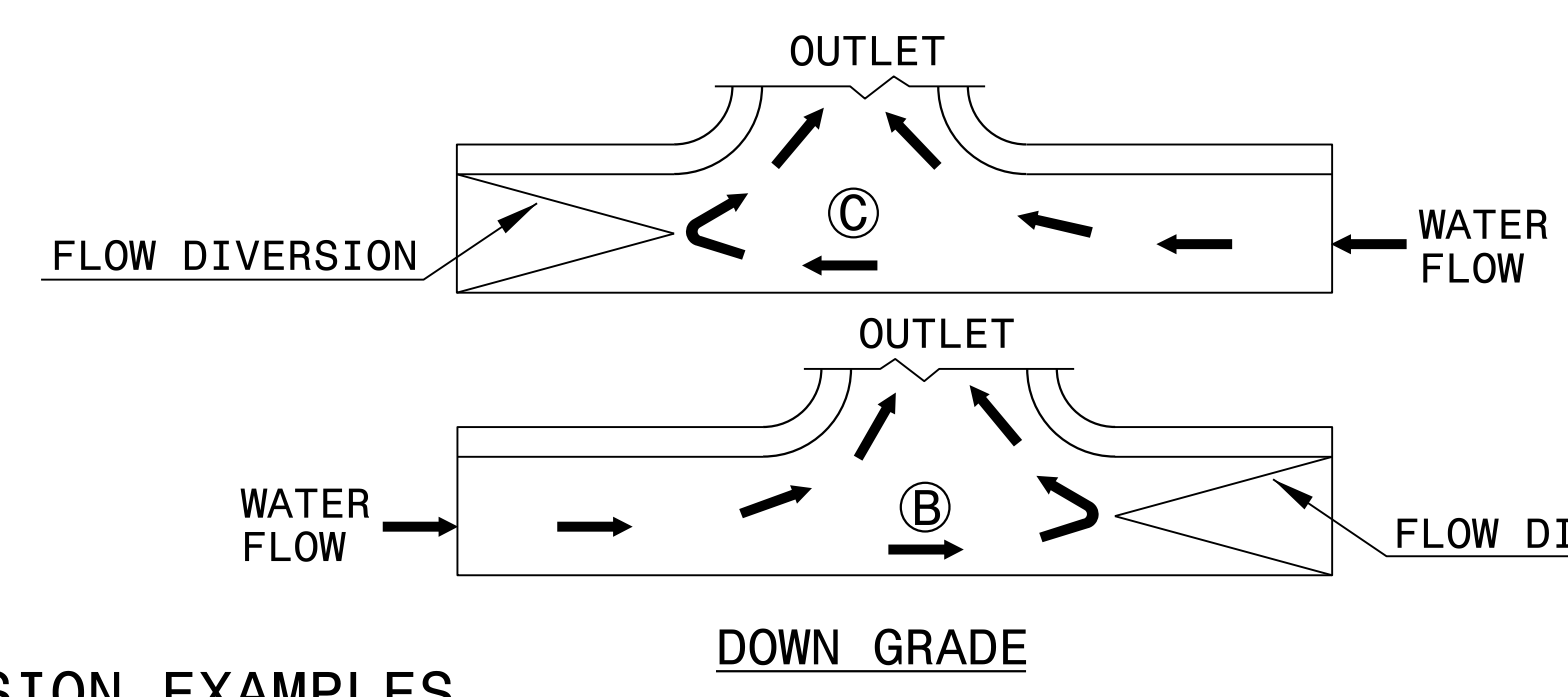
SHEET 1 OF 1
MODFLMDTCH



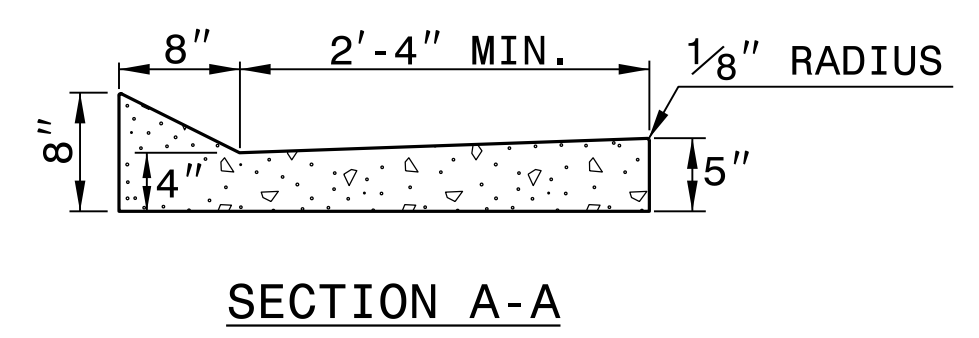
PLAN VIEW



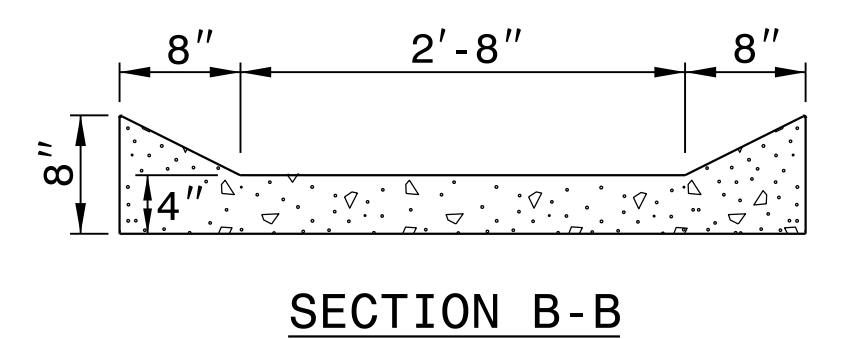
SECTION C-C



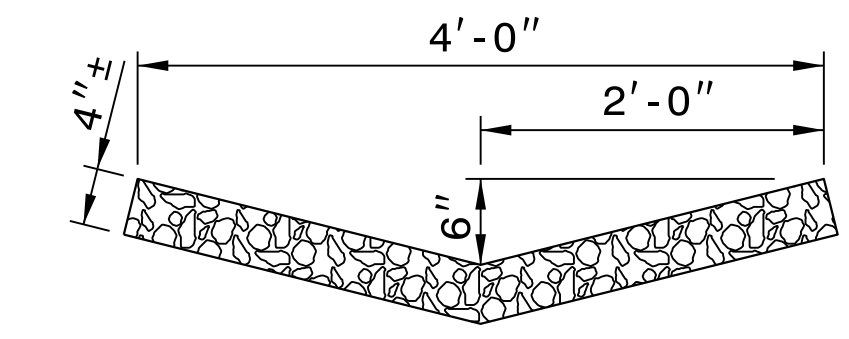
FLOW DIVERSION EXAMPLES



SECTION A-A



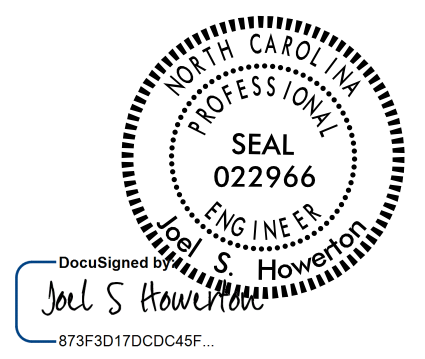
SECTION B-B



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.

23-JUN-2017 08:58 S:\Contracts\Special Details\Howerton\modiflume.dgn JHowerton AT_CSD-292595



8/7/2017

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SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
 MODIFIED BY: E.E. Ward DATE: July 2004
 CHECKED BY: DATE: _____
 FILE SPEC.: _____

5/14/99

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

ENGLISH DETAIL DRAWING FOR
GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES
METHOD III

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

ENGLISH DETAIL DRAWING FOR
GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES
METHOD III

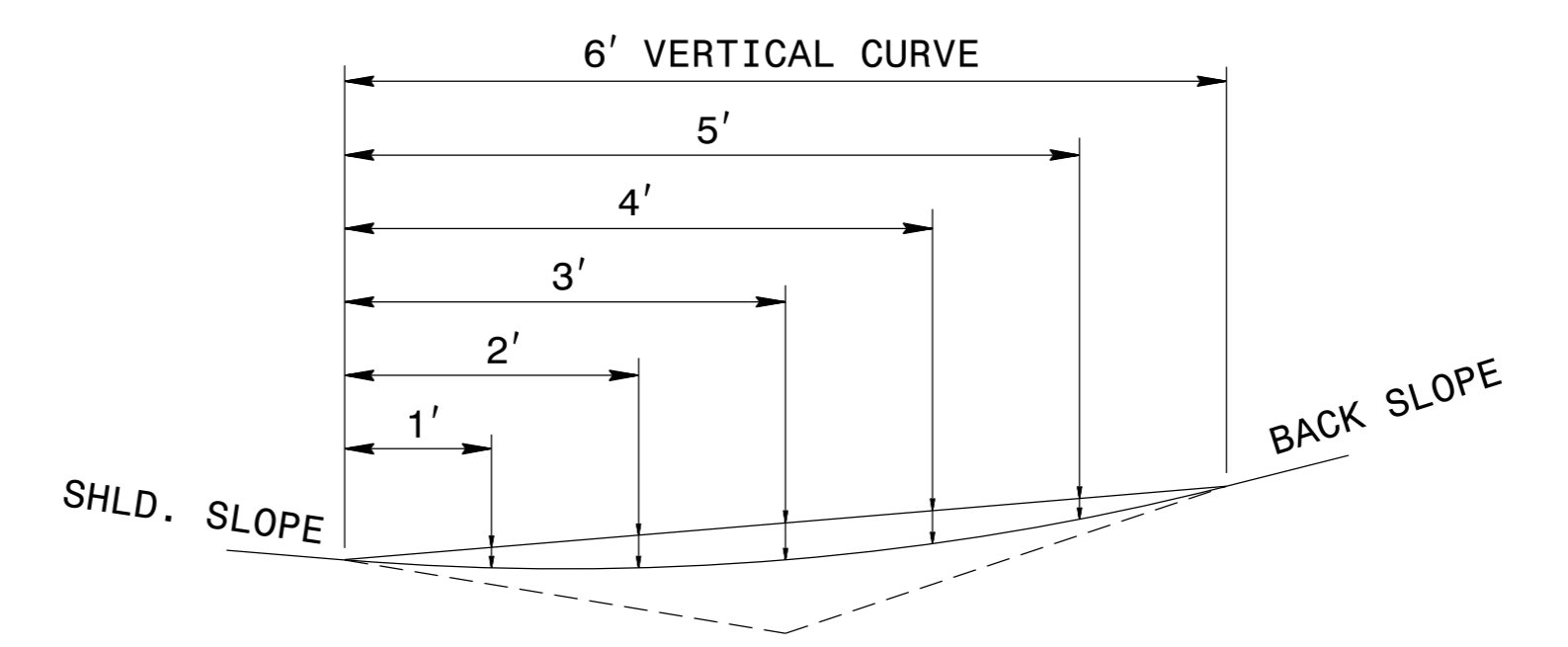
SHEET 1 OF 1
610D03

SHEET 1 OF 1
610D03

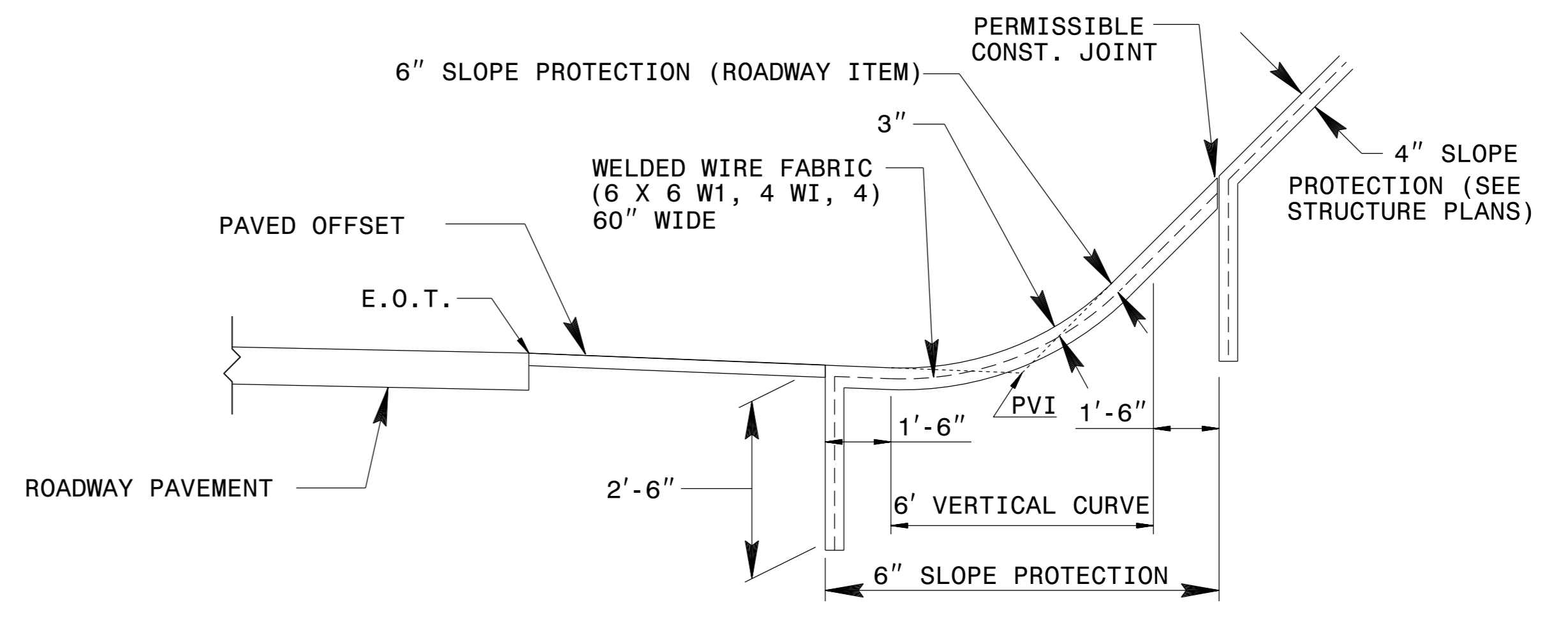
HORZ. DIM.	1½:1 BACK SLOPE SHOULDER SLOPE									
	.04	.03	.02	.01	.00	-.01	-.02	-.03	-.04	-.05
1'	0.26'	0.27'	0.27'	0.27'	0.28'	0.28'	0.28'	0.29'	0.30'	0.31'
2'	0.42'	0.42'	0.43'	0.44'	0.44'	0.45'	0.46'	0.46'	0.47'	0.48'
3'	0.47'	0.48'	0.49'	0.49'	0.50'	0.51'	0.52'	0.52'	0.53'	0.54'
4'	0.42'	0.42'	0.43'	0.44'	0.44'	0.45'	0.46'	0.46'	0.47'	0.48'
5'	0.26'	0.27'	0.27'	0.27'	0.28'	0.28'	0.28'	0.29'	0.30'	0.31'

HORZ. DIM.	2:1 BACK SLOPE SHOULDER SLOPE									
	.04	.03	.02	.01	.00	-.01	-.02	-.03	-.04	-.05
1'	0.19'	0.20'	0.20'	0.20'	0.21'	0.21'	0.22'	0.22'	0.23'	0.23'
2'	0.31'	0.31'	0.32'	0.33'	0.33'	0.34'	0.35'	0.35'	0.36'	0.37'
3'	0.35'	0.35'	0.36'	0.37'	0.38'	0.38'	0.39'	0.40'	0.41'	0.41'
4'	0.31'	0.31'	0.32'	0.33'	0.33'	0.34'	0.35'	0.35'	0.36'	0.37'
5'	0.19'	0.20'	0.20'	0.20'	0.21'	0.21'	0.22'	0.22'	0.23'	0.23'

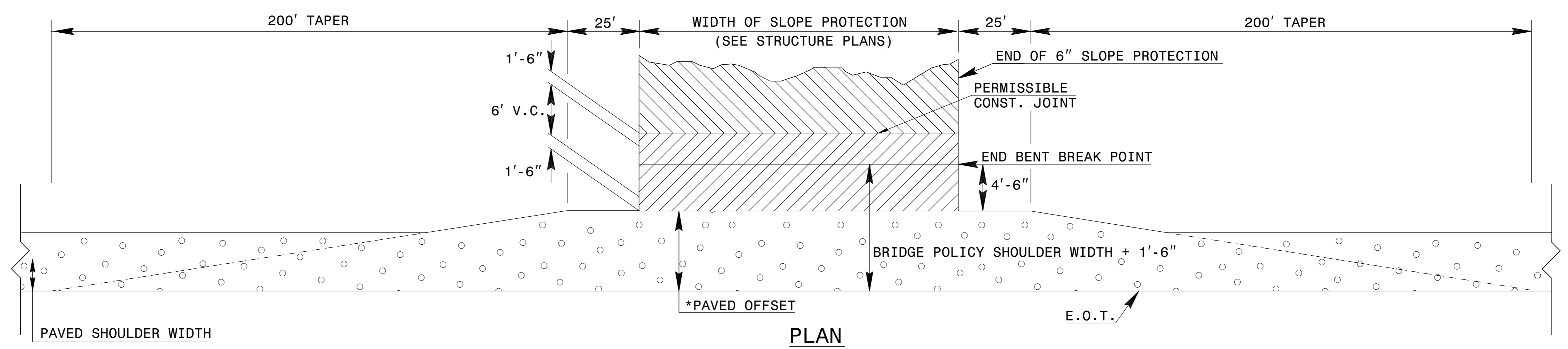
VERTICAL CURVE OFFSET
(FOR 6' V.C. AT BRIDGES)



TYPICAL SECTION



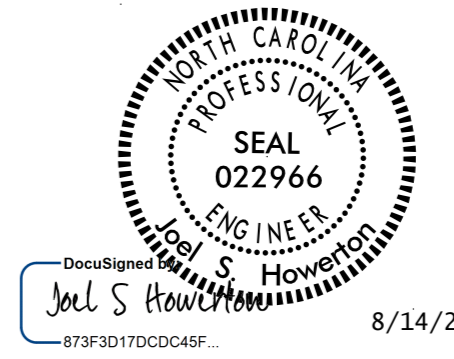
ELEVATION



PLAN

NOTES:
PAVE THE FULL WIDTH OF THE SHOULDER AS SHOWN WITH SHOULDER PAVEMENT MATERIAL AS SHOWN ON PLANS.
* PAVED OFFSET BASED ON BRIDGE POLICY (SEE STRUCTURE PLANS).
PROTECT SLOPE WITH REINFORCED CONCRETE PAVING. CONCRETE BLOCK PAVING WILL NOT BE PERMITTED.
OFFSETS FOR 6' V.C. DENOTES FINISHED GRADE OF SLOPE PROTECTION.

5/14/99



8/14/2017

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CONTRACT STANDARDS
AND DEVELOPMENT UNIT
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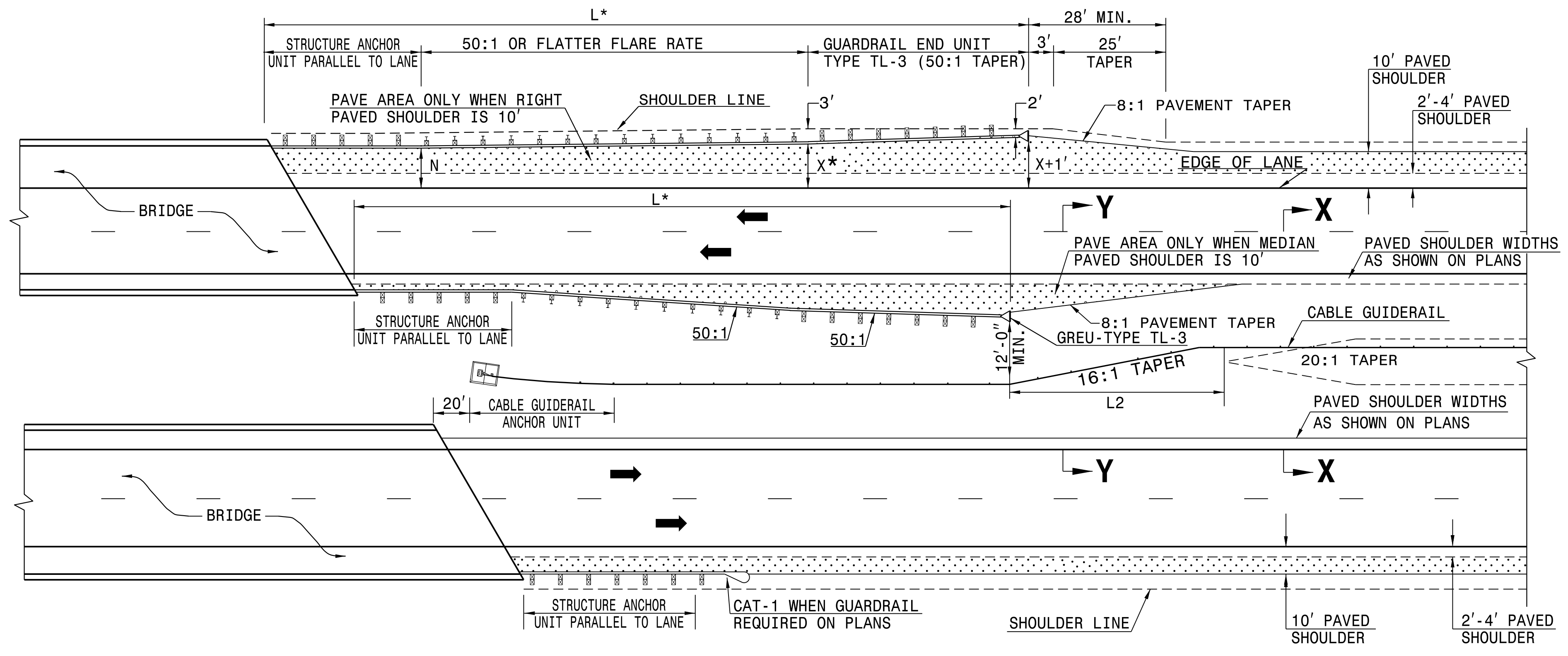
SEE TITLE PLATE

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: J. Howerton DATE: 12/02/15
CHECKED BY: _____ DATE: _____
FILE SPEC.: Division 6/0610d03.dgn

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

ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
DUAL LANE BRIDGES GUIDERAIL LAYOUT

SHEET 2 OF 12
865D01



DIMENSIONS FOR LENGTH OF GUARDRAIL APPROACHING DUAL LANE BRIDGES						
MEDIAN WIDTH	-L-*			-L2-		
	70 MPH	60 MPH	50 MPH	DIM.		
46' & ABOVE	300.0'	250.0'	150.0'			40.0'

NOTES: *BASED ON "X" OF 12'
USE FLARE RATE AS THE CONTROL IF THE "X" DISTANCE IS NOT OBTAINED. ("X" IS BASED ON SHOULDER WIDTHS IN THE HIGHWAY DESIGN BRANCH MANUAL, PART 1, 1-4B, F1A).
"N"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.
THE DESIGN LAYOUT FOR LENGTHS SHOWN ON THIS STANDARD ARE MINIMUM DESIGN LENGTHS.
SEE STANDARD 862.01 SHEET 1 FOR SECTIONS XX, YY
SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

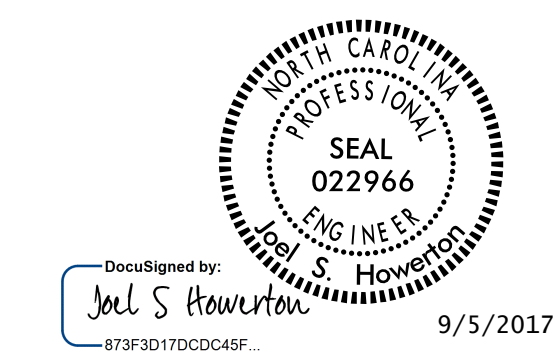
DETAIL OF CABLE GUIDERAIL AT DUAL LANE BRIDGES

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

ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
DUAL LANE BRIDGES GUIDERAIL LAYOUT

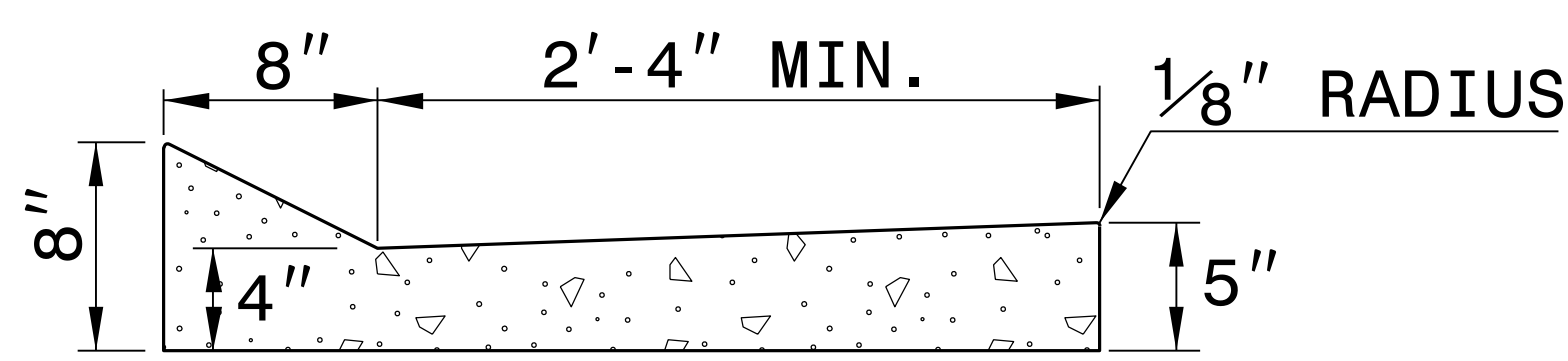
SHEET 2 OF 12
865D01

3-AUG-2017 09:43 S:\Contracts\Special Details\Howerton\Standard Drawings\Details in Lieu of Standards\Division 8\865d01 Sheet 2.dgn Jhowerton AT_CSD-232595

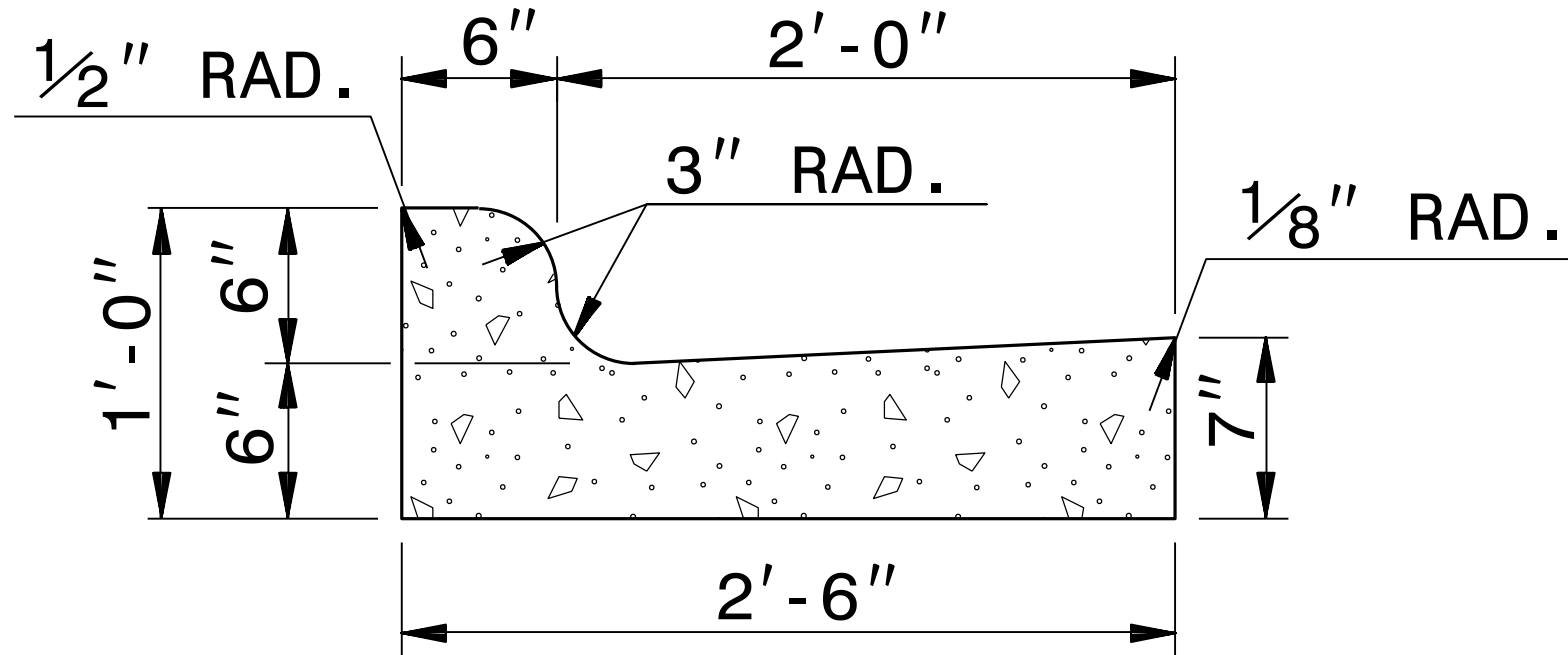


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CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
SEE TITLE BLOCK	
ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

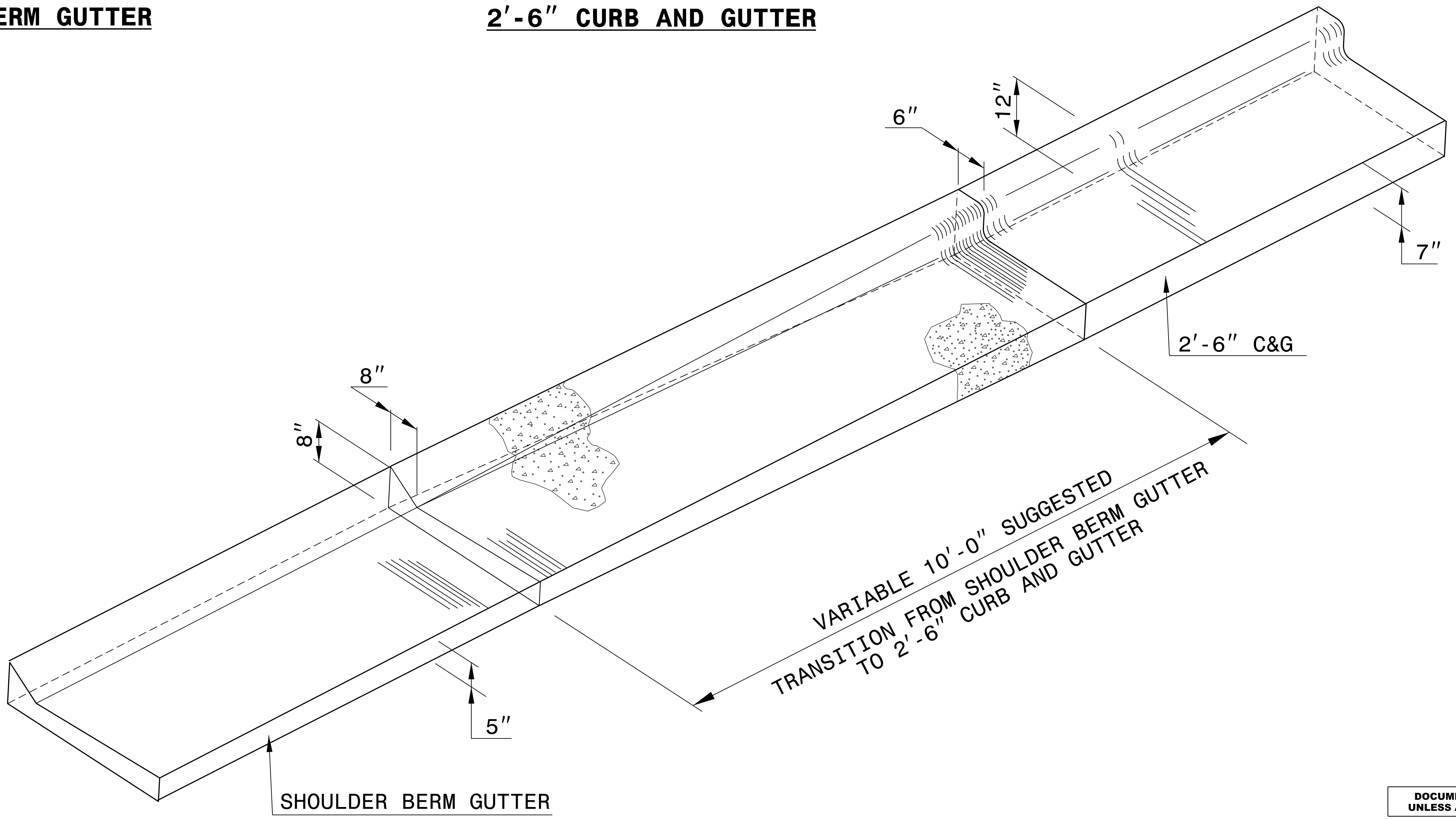


SHOULDER BERM GUTTER



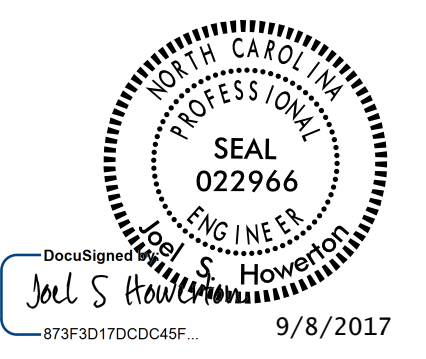
2'-6" CURB AND GUTTER

*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



ISOMETRIC VIEW OF TRANSITION

VARIABLE 10'-0" SUGGESTED
TRANSITION FROM SHOULDER BERM GUTTER
TO 2'-6" CURB AND GUTTER

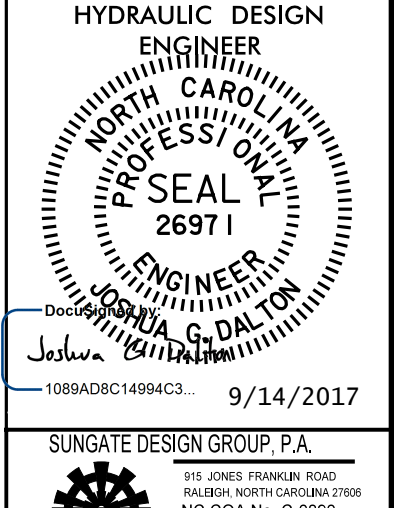


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UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

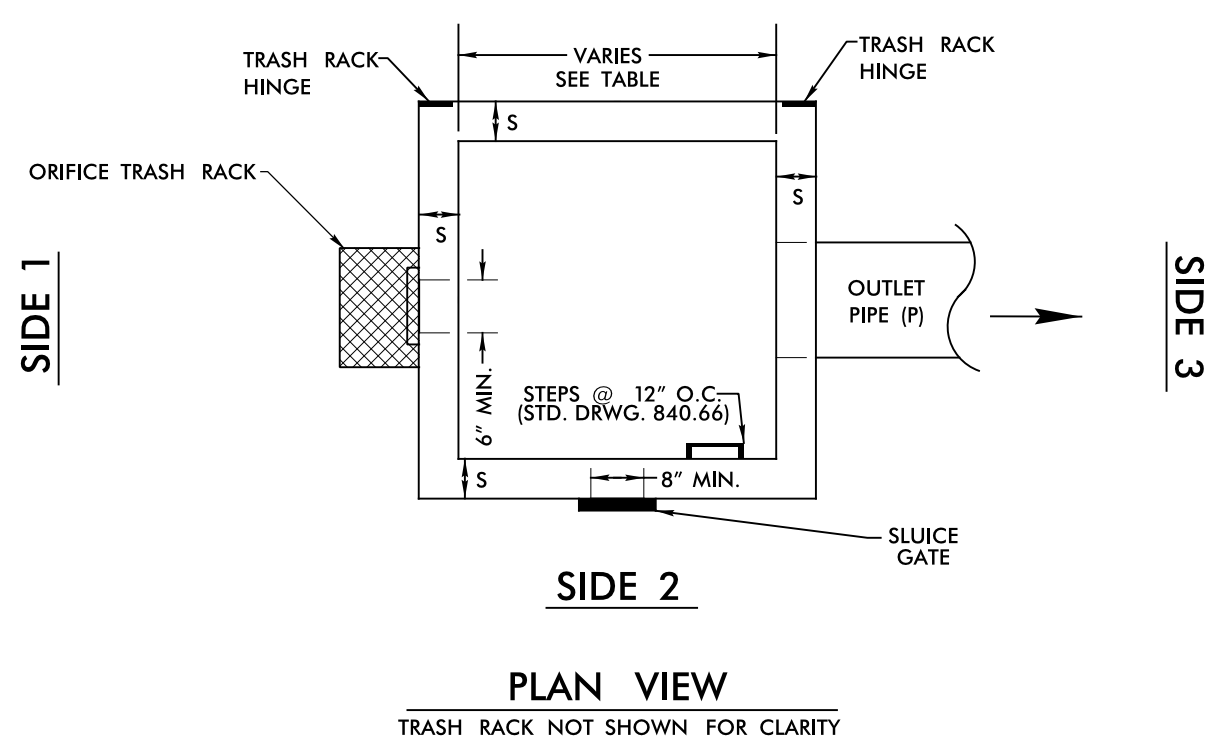
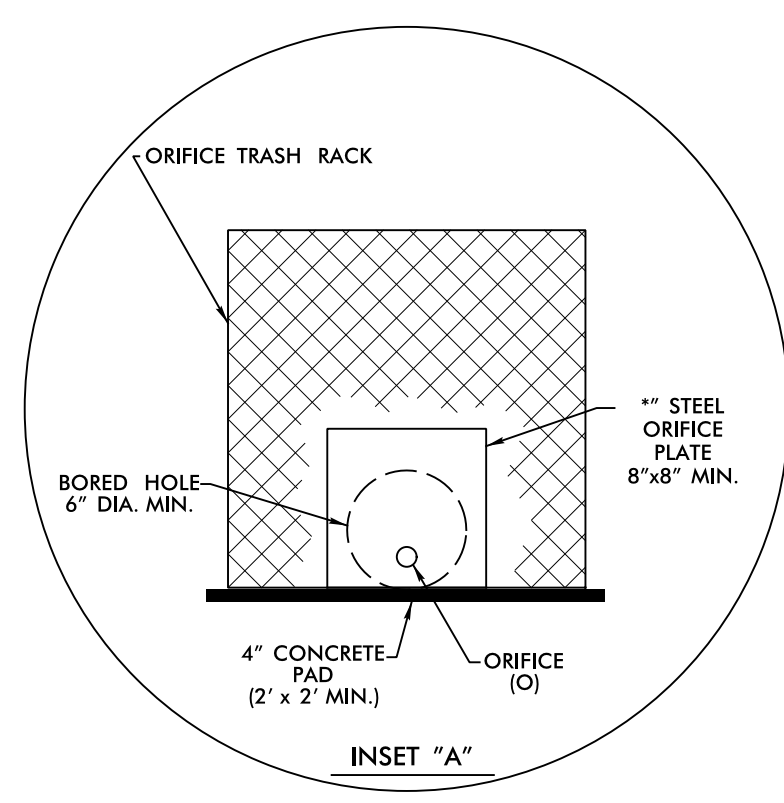
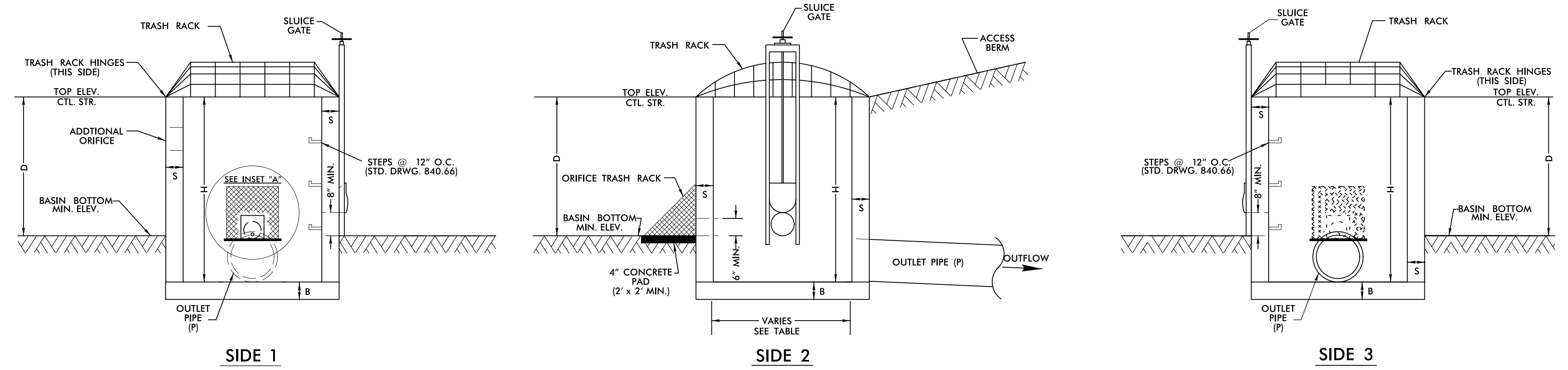
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5/14/99



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

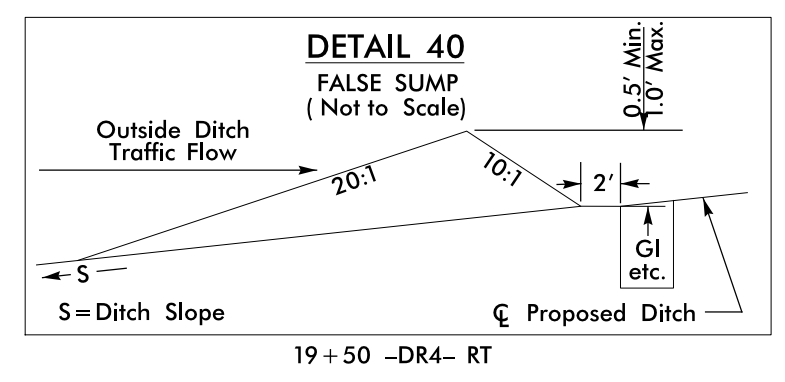
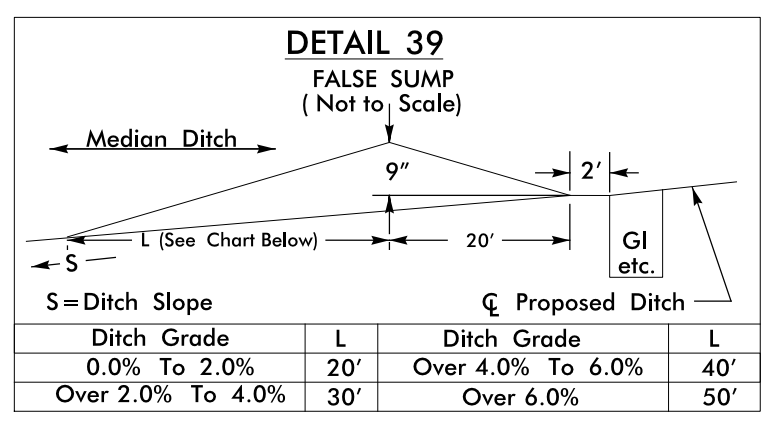
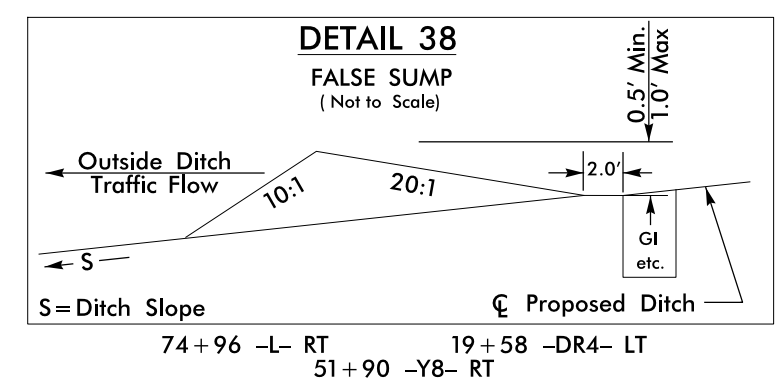
DETAIL 35
DRY DETENTION BASIN DRAWDOWN STRUCTURE
 NOT TO SCALE



- NOTES:
1. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WQ_E ELEVATION.
 2. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
 3. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
 4. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
 5. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
 6. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
 7. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
 8. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
 9. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.
 10. TRASH RACK AND ORIFICE TRASH RACK ARE INCIDENTAL TO THE COST OF THE DRAINAGE STRUCTURE.

MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE

STATION	STRUCTURE NUMBER	S (INCHES) 6" MIN.	B (INCHES) 6" MIN.	BASIN BOTTOM MINIMUM ELEV.	TOP ELEVATION CONTROL STRUCTURE	MAX. STORAGE DEPTH(D) FEET	INV. ELEV. CTL. STR.	CTL. STR. DIMENSIONS (W x L x H)	ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	OUTLET PIPE DIAMETER(P) INCHES	ADDT'L ORIFICE(S) DIAMETER(O) INCHES	ORIFICE INV. ELEV.
97+00 -L- LT	0655	6	6	72.1	75.10	3.0	72.1	4'x4'x3.0'	3"	72.1	30"	15"	73.0
23+00 -Y8RPA- RT	2521	6	6	56.5	66.0	9.5	56.5	4'x4'x9.5'	2"	56.5	36"	10"/15"	59.0/62.0



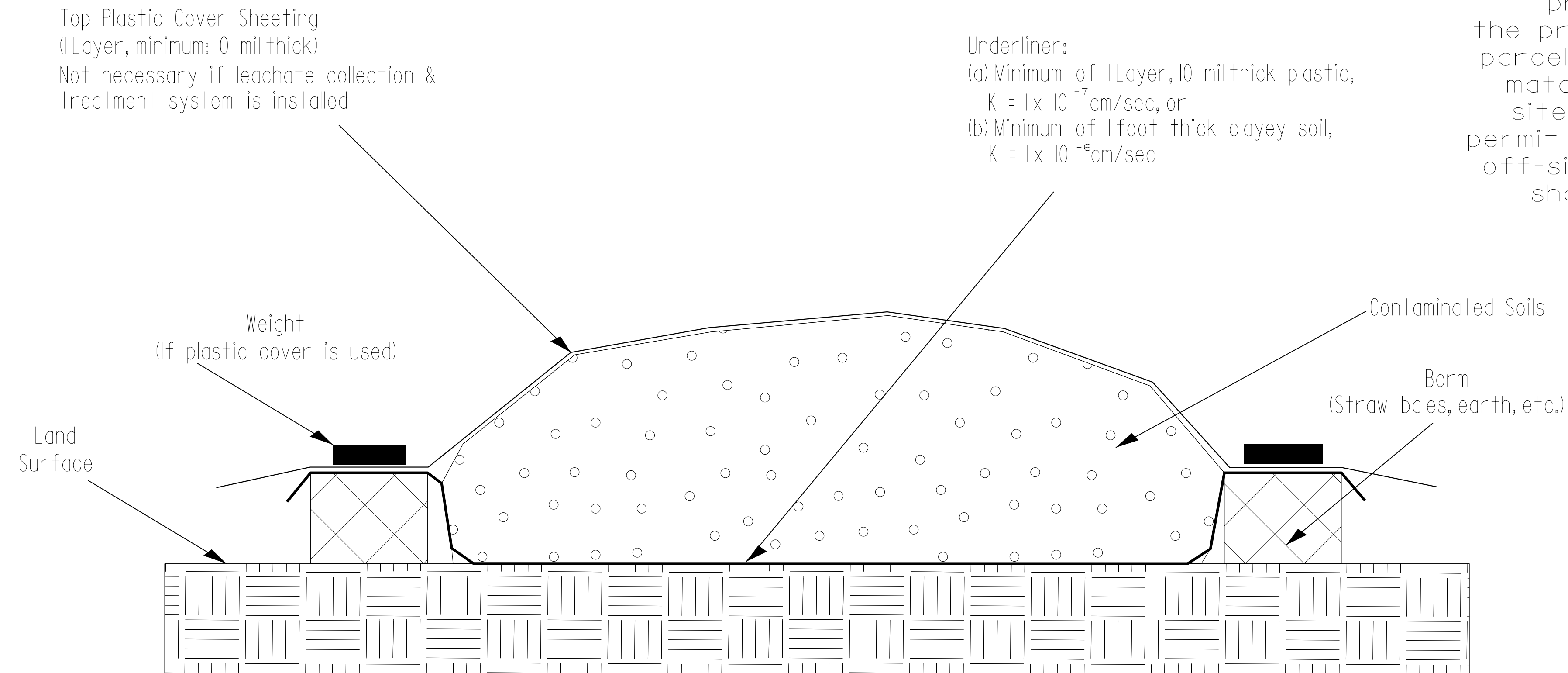
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

8/17/99

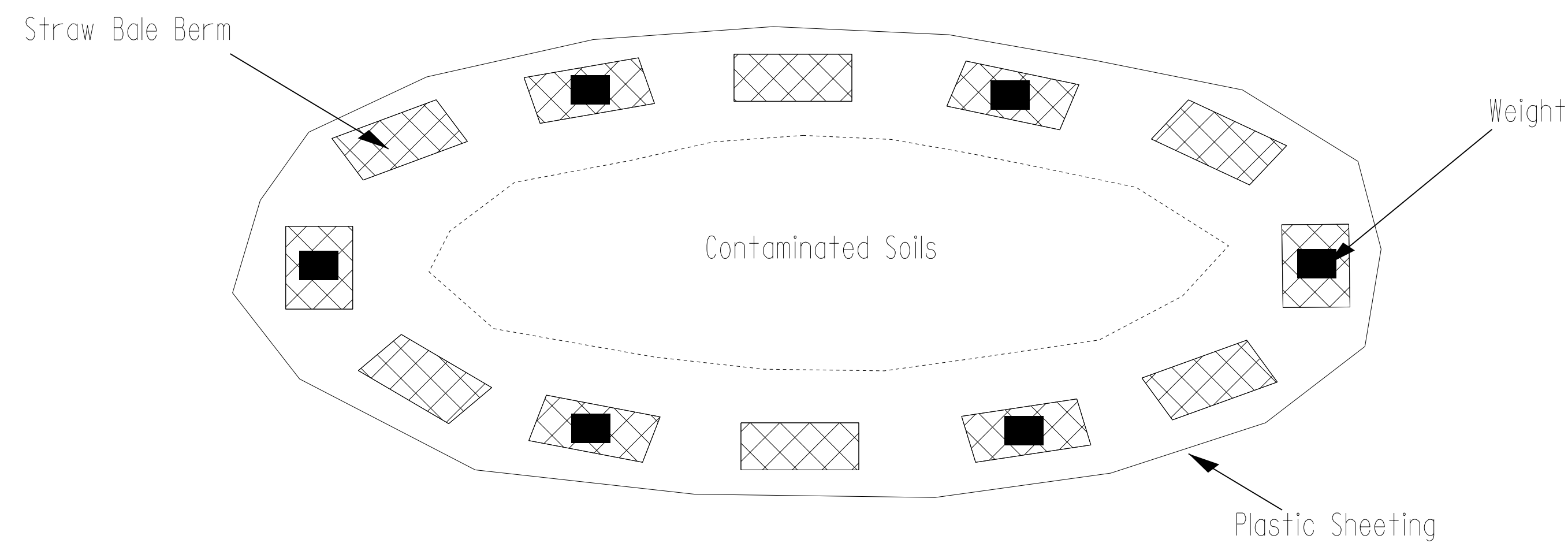
14 SEP 2017 15:31 P:\P-5703_RDY_PSH_2D-1.dgn

Detail for Temporary Containment of Contaminated Soil

Cross-Section View



Map View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section for off-site temporary storage. Stockpile shall be removed within 45 days.

GEOTECHNICAL ENGINEERING UNIT

EASTERN REGIONAL OFFICE
 WESTERN REGIONAL OFFICE
 CONTRACT OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STOCKPILE CONTAINMENT DETAIL					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY:	DATE:
REVIEWED BY:	DATE:

12/06/07

COMPUTED BY: CJT DATE: 10/17/2016
CHECKED BY: TAH DATE: 8/7/2017

PROJECT REFERENCE NO. R-5703 SHEET NO. 3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK
IN CUBIC YARDS

Table with 6 columns: LOCATION, UNCLASSIFIED EXCAVATION, UNDERCUT, EMBANKMENT +%, BORROW, WASTE. Rows include various station ranges and materials like gravel, sand, etc.

SUMMARY OF
ASPHALT PAVEMENT REMOVAL

Table with 7 columns: LINE, STATION, STATION, LOCATION, LENGTH OR AREA, WIDTH, SQUARE YARDS. Includes rows for various pavement types and locations.

2'-6" CURB & GUTTER

Table with 7 columns: LINE, STATION, STATION, SIDE, GROSS LENGTH, DEDUCTIONS (DRIVES, OTHERS), NET LENGTH (FT.).

WOVEN WIRE FENCE, 47" FABRIC

Table with 6 columns: LINE, STATION TO STATION, LOC. LT/RT, 47" FABRIC L.F., 4" POSTS, 5" POSTS.

SHOULDER BERM
GUTTER SUMMARY

Table with 5 columns: SURVEY LINE, LOC., STATION, STATION, LENGTH (FT.).

CABLE GUIDERAIL SUMMARY

Table with 7 columns: SURVEY LINE, BEG. STA., END STA., LENGTH (FT.), END ANCHOR UNIT, INTERMEDIATE ANCHOR UNIT, COMMENTS.

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.

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.

15-SEP-2017 09:33 \\nsr-5703.RDY_SUM_381.dgn

COMPUTED BY: Jason Galeazzi DATE: 01/18/2017
CHECKED BY: Terry Harris, PE DATE: 02/19/2017

PROJECT REFERENCE NO. R-5703 SHEET NO. 3B-2

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

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

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOULDER WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (XI MOD, XI, GREU TL-3, XIII, CAT-1, VI MOD, B-77), IMPACT ATTENUATOR TYPE 350 (G, NG), SINGLE FACED CONCRETE BARRIER, REMOVE EXISTING GUARDRAIL, REMOVE & STOCKPILE EXISTING GUARDRAIL, REMARKS.

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. SHEET NO.
R-5703 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)

Table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III, R.C. Class IV, R.C. Class V), Quantities for Drainage Structures, Frame/Grates/Hood, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

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

REMARKS

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. R-5703 SHEET NO. 3D-4

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, Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC), C. S. PIPE, R. C. PIPE CLASS III, R. C. PIPE CLASS IV, R. C. PIPE CLASS V, ENDWALLS, REINFORCED ENDWALLS, DRAINAGE STRUCTURE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, OPEN THROAT C.B. STD., D.I. STD., G.D.I. TYPE, G.D.I. (W.S. SAG) FRAME, M.H. FRAME AND COVER, ADJUST ZOI, 15" C.S. ELBOW, 18" C.S. ELBOW, 24" C.S. ELBOW, 30" SLUICE GATE, MODIFIED CONC. FLUME, PIPE CLEAN OUT, FLOWABLE FILL, CONCRETE COLLARS CL. "B" STD., PIPE REMOVAL, REMARKS. Includes SHEET TOTALS at the bottom.

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. R-5703 SHEET NO. 3D-6

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)

Main data table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III, R.C. Class IV, R.C. Class V), Endwalls, Reinforced Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, Open Throat C.B., D.I., G.D.I., G.D.I. (W.S. Sag), M.H., Adjust 2GI, 15" C.S. Elbow, 18" C.S. Elbow, 24" C.S. Elbow, 30" Sluice Gate, Modified Conc. Flume, Pipe Clean Out, Flowable Fill, Concrete Collars, and Pipe Removal. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing codes like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding material descriptions.

REMARKS

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. SHEET NO.
R-5703 3D-7

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, Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC), C. S. PIPE, R. C. PIPE CLASS III, R. C. PIPE CLASS IV, R. C. PIPE CLASS V, ENDWALLS, REINFORCED ENDWALLS, MASONRY, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, OPEN THROAT C.B. STD., D.I. STD., G.D.I. TYPE, G.D.I. (W.S. SAG) FRAME, M.H. FRAME AND COVER, ADJUST 2G1, 15" C.S. ELBOW, 18" C.S. ELBOW, 24" C.S. ELBOW, 30" SLUICE GATE, MODIFIED CONC. FLUME, PIPE CLEAN OUT, FLOWABLE FILL, CONCRETE COLLARS CL., PIPE REMOVAL, ABBREVIATIONS, REMARKS.

SHEET TOTALS

1132 228 816 268 1432 580 256 48 9.000 19 1 18 6 13

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. SHEET NO.
R-5703 3D-8

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 for Line & Station, Offset, Structure Number, Pipe Size, Pipe Material (Side Drain, C.S., R.C. Class III, R.C. Class IV, R.C. Class V), Invert Elevation, Minimum Required Slope, Quantities for Drainage Structures, Frame/Grates/Hood, and Remarks. Includes a SHEET TOTALS row at the bottom.

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. R-5703 SHEET NO. 3D-9

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 for Line & Station, Offset, Structure Number, Top Elevation, Invert Elevation, Minimum Required Slope, Side Drain Pipe, C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class IV, R.C. Pipe Class V, Endwalls, Reinforced Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, Open Throat C.B., D.I., G.D.I., G.D.I. (W.S. Sag), M.H., Adjust 2G1, 15" C.S. Elbow, 18" C.S. Elbow, 24" C.S. Elbow, 30" Sluice Gate, Modified Conc. Flume, Pipe Clean Out, Flowable Fill, Concrete Collars, Pipe Removal, and Remarks. Includes a SHEET TOTALS row at the bottom.

CARYL BURNS

COMPUTED BY: SUNGATE DESIGN GROUP DATE: 8/1/2017
CHECKED BY: MICHAEL BAKER ENGINEERING DATE: 8/14/2017

PROJECT NO. SHEET NO.
R-5703 3D-11

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)

Main data table with columns for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S., R.C. Class III/IV/V), Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame/Grates/Hood, Concrete/Transitional Section, and Pipe Removal. Includes a detailed grid for material quantities and a summary section at the bottom.

ABBREVIATIONS table listing terms like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding descriptions.

SHEET TOTALS and PROJECT TOTALS summary rows at the bottom of the page, showing cumulative values for various categories.

COMPUTED BY: SWT DATE: 8/11/17
 CHECKED BY: SSL DATE: 8/11/17

(2-16-16)

PROJECT NO.
R-5703

SHEET NO.
3G-1

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
	CONTINGENCY			SD	3000
				TOTAL LF:	3000

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

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
Y1	15+25	24+75	ASU		750	1400	800		
Y1	33+25	44+95	ASU		850	1600	950		
Y8	51+25	52+75	ASU		70	50	250		
Y8	53+75	54+25	ASU		70	50	250		
Y8	55+25	55+75	ASU		40	50	250		
Y8	56+75	60+75	ASU		1250	2500	1750		
Y9	10+75	11+25	ASU		70	150	250		
	CONTINGENCY				500	1000	500		500
				TOTAL CY/TONS/SY:	3600	6800	5000**	0	500

*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 BRIDGE WAITING PERIODS

Bridge Description	End Bent	MONTHS
No. 208 on -L- over -Y1-	1 and 2	2
No. 209 on -L- over -Y1-	1 and 2	2
No. 210 on -L- over -Y3-	1 and 2	2
No. 211 on -L- over -Y3-	1 and 2	2
No. 212 on -L- over -Y4-	1 and 2	1
No. 213 on -L- over -Y4-	1 and 2	1
No. 214 on -L- over Stonyton Creek	1 and 2	1
No. 215 on -L- over Stonyton Creek	1 and 2	1
No. 216 on -L- over -Y6-	1 and 2	1
No. 217 on -L- over -Y6-	1 and 2	1
No. 218 on -L- over -Y7-	1 and 2	1
No. 219 on -L- over -Y7-	1 and 2	1
No. 220 on -L- over -Y8-	1 and 2	1
No. 221 on -L- over -Y8-	1 and 2	1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

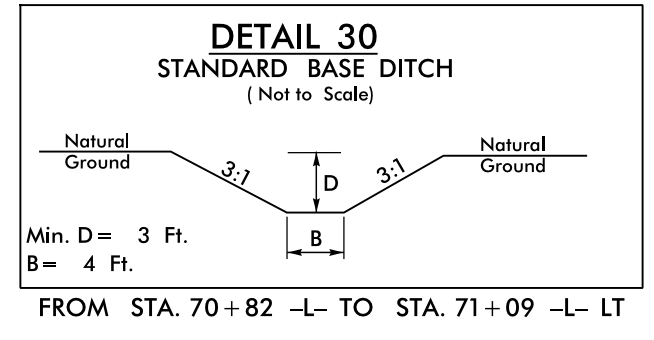
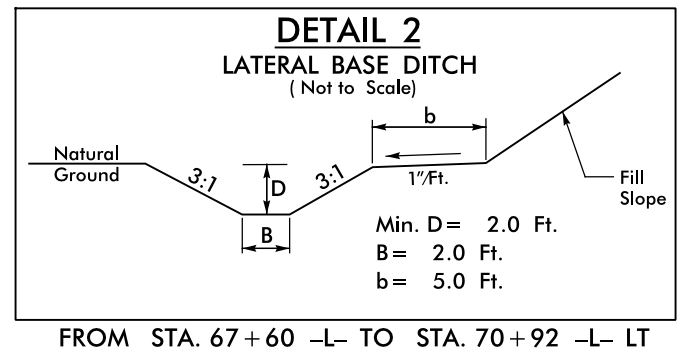
PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	N.C. GLOBAL TRANSPARK AUTHORITY
2	4,5,6,26,27	L. C. MOSELEY, HEIRS
3	6,26	ROBERT GILMER FOSTER, ET AL
4	6	JOHN DORSEY TYNDALL
5	6,7	ROBERT K. HILL, JR.
6	7	DEBRA A. STROUD, ET AL
7	7,8	FAYE GRANT HUMPHREY
8	8,9	DICKERSON FARMS PROPERTY, LLC
9	9,10,11	LINDA F BEAMON
10	10,11	JAMES H JR & EDWARD W FIELDS
11	11	JAMES H FIELDS JR
12	11	JAMES H JR & EDWARD W FIELDS
13	11	JEFFREY L MOORE
14	11,12	MARTIN & DONNA E HARPER
15	12	CYNTHIA M WORTHINGTON
16	12,13	NELLIE D ELMORE
17	12,13	CLAIRE W HERRING
18	13,14,15	CYNTHIA M WORTHINGTON
19	15	PERRY GRANDCHILDREN LLC
20	15,16	CLAIRE W HERRING
21	16,17,18	BEULAH H HAMILTON
22	18	JIMMY & MARIA TORRES
23	18	RICHARD K & LYNETTE R RILEY
24	18	DANNY QUINN
25	18	CECIL L & PEGGY S ELMORE
26	18,19	KENNETH E & DONALD HOWELL
27	18,19,20	ROBERT & GAIL J HILL
28	18,19	ROBERT & GAIL J HILL
29	19,20	JEFFREY S WHITLEY
30	20	ERVIN J & SYLVIA W CUNNINGHAM
31	20	ROBERT G & SHEILA J PRIDGEN
32	20	LINWOOD E & RHONDA H HERRING
33	20	WILLIAM B & PENNY H HILL
34	20	ROBERT & GAIL HILL
35	20,21,22,23,24	NANCY MCLAWHORN JONES
36	20,21,22	STANLEY & IRISTEN M GRANT
37	22	CHERYL O HILL HEIRS & BRENDA O WOODARD
38	24,25,28,29,30	CANDAY FAMILY LLC
39	25	ANNE MCARTHUR GADDIS
40	25,30	WILLIAM L & INEZ D THAXTON
41	25	VALLIE O SMITH & BARBARA O MCGINNIS
42	25,29	BECKY O BERRY
43	25,29	ADAMS RENTALS LLC
44	28	WILLIAM T & ELIZABETH HUNT
45	28	ROBERT A & BONNIE O GADDIS
46	28	RONDA & SANDRA JONES
47	28	HAYWOOD E. & DEBORAH W. STROUD
48	28	ANNETTE D GERMINO
49	28	CHARLIE G KING
50	28	WILLIE JR & HILDA H LANGSTON
51	28	ALVIN B & MARY E HEATH
52	28	HAZEL S KING, JEFFERY S KING & EVELYN K SWIENCKI
53	28	BUCK G JR & INGER F HARRISON
54	28	MARCIA D CRAWFORD
55	27	MILDRED K. CUNNINGHAM
56	26	N.C. GLOBAL TRANSPARK AUTHORITY
57	30	JOHN H & VERNELL W HARVEY
58	26	NEUSE REGIONAL WATER & SEWER
59	24	JIM B. POTTER et ux

PROJECT REFERENCE NO. R-5703		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER Michael Baker Engineering, Inc. SEAL 034367 9/14/2017		HYDRAULICS ENGINEER Michael Baker Engineering, Inc. SEAL 26971 9/14/2017	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			

-L-

PI Sta 41+20.02	PIs Sta 61+01.32
$\Delta = 29' 4" 12.7" (RT)$	$\Theta s = 0' 30" 20.0"$
$D = 0' 44' 56.3"$	$Ls = 135.00'$
$L = 3,963.72'$	$LT = 90.00'$
$T = 2,027.42'$	$ST = 45.00'$
$R = 7,650.00'$	
$Ds = 70mph$	
$SE = 0.03$	
$RUNOFF = 135'$	



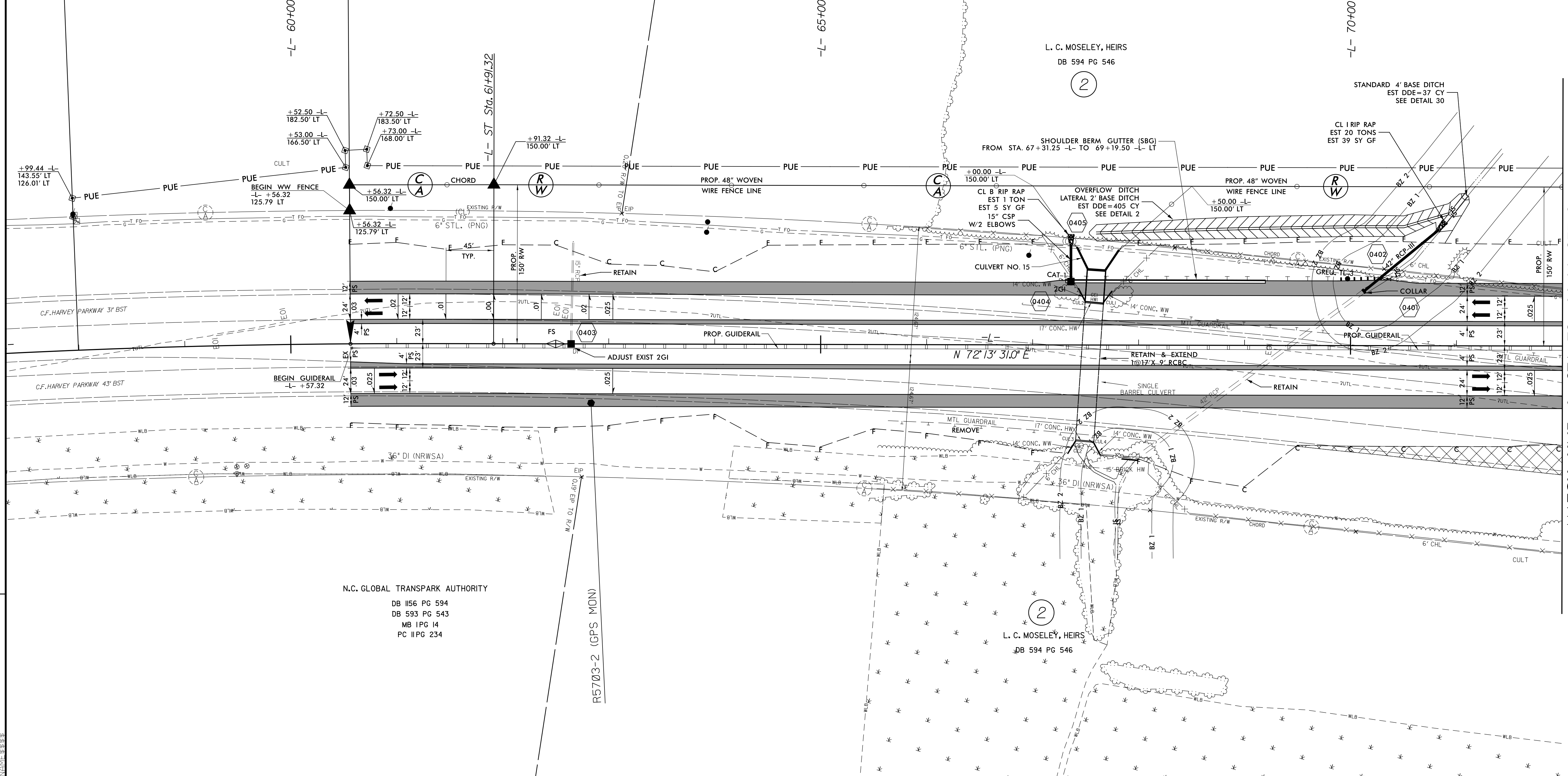
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N.C. GLOBAL TRANSPARK AUTHORITY
DB 1141 PG 259
PC 6 PG 251
PC 11 PG 234

BEGIN TIP PROJECT R-5703

-L- CS Sta. 60+56.32

BEGIN CONSTRUCTION
-L- POC Sta. 57+99.44

REVISIONS



N.C. GLOBAL TRANSPARK AUTHORITY
DB 1156 PG 594
DB 593 PG 543
MB 1 PG 14
PC 11 PG 234

(2)
L. C. MOSELEY, HEIRS
DB 594 PG 546

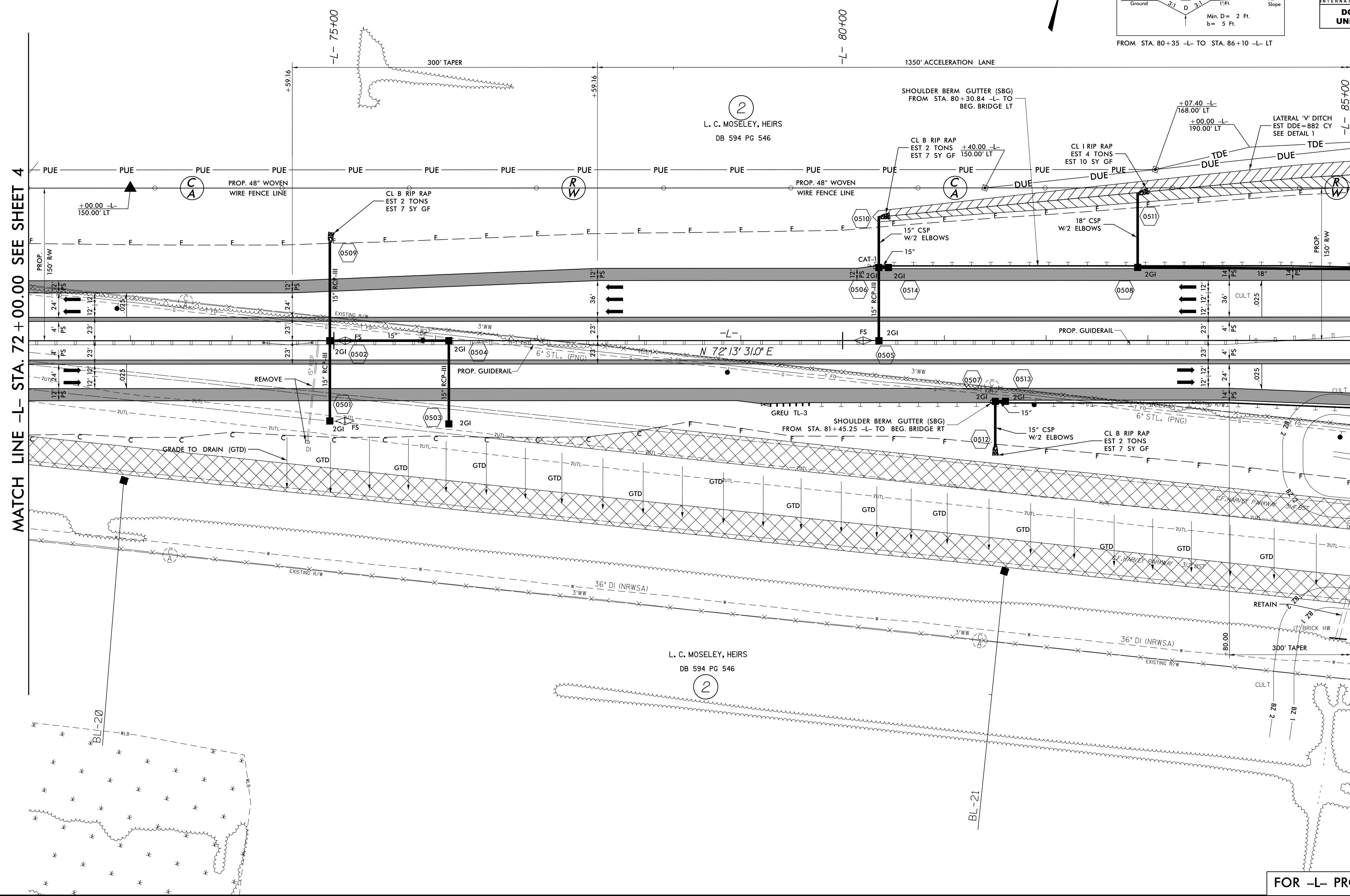
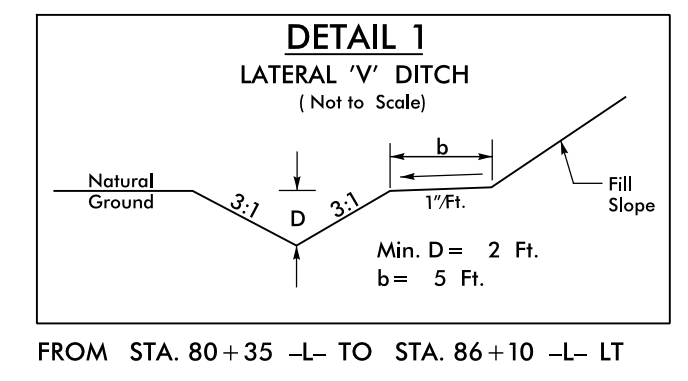
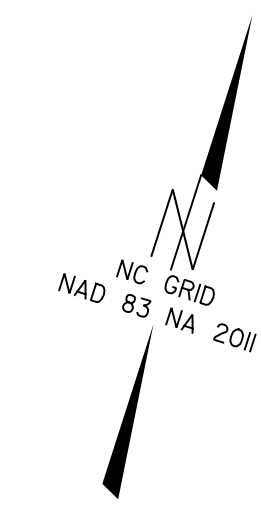
FOR -L- PROFILE SEE SHEET 31
FOR CULVERT NO. 15 PLANS SEE SHEETS C15-1 TO C15-5

MATCH LINE -L- STA. 72+00.00 SEE SHEET 5

8/17/19

R5703-2 (GPS MON)

PROJECT REFERENCE NO. <i>R-5703</i>		SHEET NO. <i>5</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER SEAL 034367 MICHAEL BAKER ENGINEERING, INC. 10001 BERRY AVE RALEIGH, NC 27608 INTERNATIONAL LICENSE: F-1084		HYDRAULICS ENGINEER SEAL 26971 JOSHUA G. DALTON SUNGATE DESIGN GROUP, P.A. 915 JONES FRANKLIN ROAD RALEIGH, NC 27608 NC CDR No. C-9800	
9/14/2017		9/14/2017	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



MATCH LINE -L- STA. 72 + 00.00 SEE SHEET 4

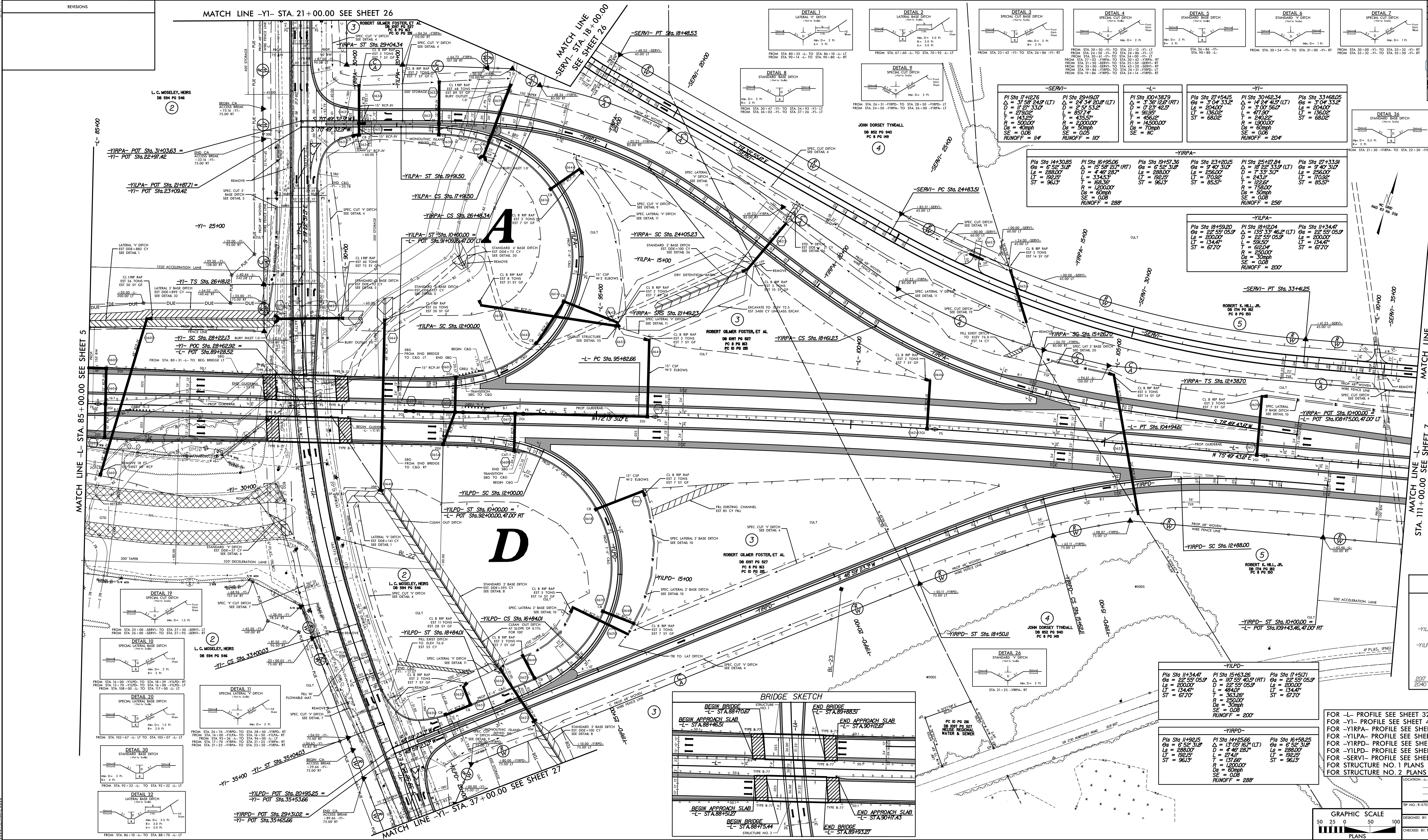
MATCH LINE -L- STA. 85 + 00.00 SEE SHEET 6

REVISIONS

13 SEP 2017 10:50 P:\R-5703_RDY_psh_05.dgn

FOR -L- PROFILE SEE SHEET 31 & 32

REVISIONS	



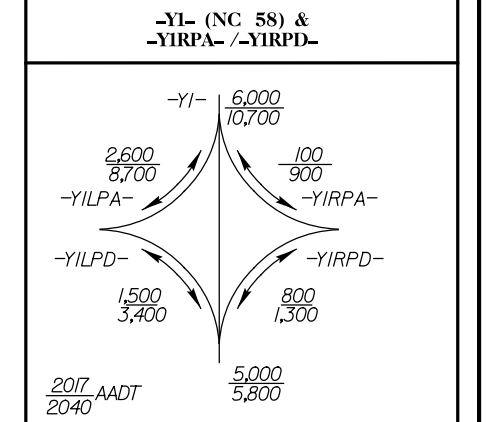
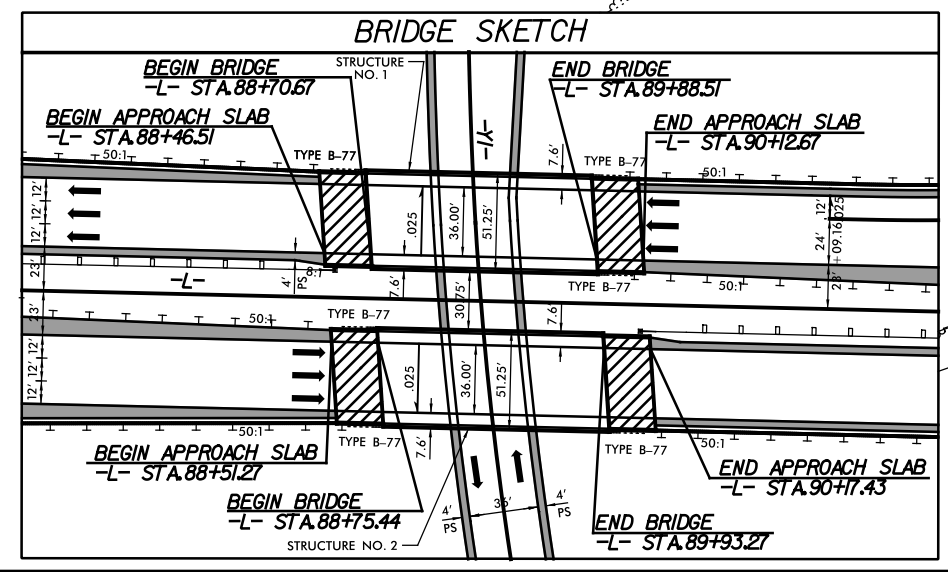
PROJECT REFERENCE NO. R-5703
SHEET NO. 6

ROADWAY DESIGN ENGINEER
JAMES C. HILL, JR.
11/27/2011

SEAL 034367
SEAL 8871

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-SERVI- PI Sta 11+1276 $\Delta = 3' 58' 24.57''$ (LT) $D = 17' 29' 33.02''$ $L = 275.25'$ $T = 143.25'$ $R = 500.00'$ $Ea = 4.00'$ $SE = 0.08'$ $ST = 96.13'$ $RUNOFF = 114'$	-SERVI- PI Sta 29+947 $\Delta = 2' 54' 20.27''$ (LT) $D = 27' 33' 42.57''$ $L = 657.74'$ $T = 435.57'$ $R = 500.00'$ $Ea = 4.00'$ $SE = 0.08'$ $ST = 96.13'$ $RUNOFF = 110'$	-SERVI- PI Sta 100+3879 $\Delta = 2' 54' 12.57''$ (RT) $D = 17' 29' 33.02''$ $L = 275.25'$ $T = 143.25'$ $R = 500.00'$ $Ea = 4.00'$ $SE = 0.08'$ $ST = 96.13'$ $RUNOFF = 114'$	-YIRPA- PI Sta 27+545 $\Delta = 3' 04' 33.27''$ $D = 28.047'$ $L = 136.02'$ $ST = 68.02'$	-YIRPA- PI Sta 30+663.4 $\Delta = 1' 24' 41.57''$ (LT) $D = 37' 31' 55.07''$ $L = 477.97'$ $T = 246.22'$ $R = 1300.00'$ $Ea = 6.00'$ $SE = 0.08'$ $ST = 68.02'$ $RUNOFF = 204'$	-YIRPA- PI Sta 33+680.5 $\Delta = 3' 04' 33.27''$ $D = 28.047'$ $L = 136.02'$ $ST = 68.02'$
-YIRPA- PI Sta 14+308.5 $\Delta = 6' 52' 31.87''$ $D = 288.07'$ $L = 243.57'$ $ST = 96.13'$	-YIRPA- PI Sta 15+425.6 $\Delta = 1' 58' 21.77''$ (RT) $D = 4' 48' 53.27''$ $L = 334.57'$ $T = 68.36'$ $R = 1200.00'$ $Ea = 6.00'$ $SE = 0.08'$ $ST = 96.13'$ $RUNOFF = 288'$	-YIRPA- PI Sta 19+573.6 $\Delta = 6' 52' 31.87''$ $D = 288.07'$ $L = 243.57'$ $ST = 96.13'$	-YIRPA- PI Sta 23+202.5 $\Delta = 9' 40' 31.07''$ $D = 266.07'$ $L = 243.57'$ $ST = 96.13'$	-YIRPA- PI Sta 25+278.4 $\Delta = 1' 24' 41.57''$ (LT) $D = 37' 31' 55.07''$ $L = 477.97'$ $T = 246.22'$ $R = 1300.00'$ $Ea = 6.00'$ $SE = 0.08'$ $ST = 68.02'$ $RUNOFF = 256'$	-YIRPA- PI Sta 27+339.9 $\Delta = 9' 40' 31.07''$ $D = 266.07'$ $L = 243.57'$ $ST = 96.13'$
-YIRPA- PI Sta 18+592.0 $\Delta = 2' 55' 05.59''$ $D = 200.07'$ $L = 134.47'$ $ST = 67.70'$	-YIRPA- PI Sta 18+204 $\Delta = 1' 58' 21.77''$ (LT) $D = 22' 55' 05.59''$ $L = 59.57'$ $T = 68.36'$ $R = 500.00'$ $Ea = 6.00'$ $SE = 0.08'$ $ST = 67.70'$ $RUNOFF = 200'$	-YIRPA- PI Sta 18+344.7 $\Delta = 2' 55' 05.59''$ $D = 200.07'$ $L = 134.47'$ $ST = 67.70'$	-YIRPA- PI Sta 15+632.6 $\Delta = 1' 58' 21.77''$ (RT) $D = 22' 55' 05.59''$ $L = 59.57'$ $T = 68.36'$ $R = 500.00'$ $Ea = 6.00'$ $SE = 0.08'$ $ST = 67.70'$ $RUNOFF = 200'$	-YIRPD- PI Sta 17+157.1 $\Delta = 2' 55' 05.59''$ $D = 200.07'$ $L = 134.47'$ $ST = 67.70'$	-YIRPD- PI Sta 17+157.1 $\Delta = 2' 55' 05.59''$ $D = 200.07'$ $L = 134.47'$ $ST = 67.70'$



FOR -L- PROFILE SEE SHEET 32 & 33
 FOR -YI- PROFILE SEE SHEET 43 & 44
 FOR -YIRPA- PROFILE SEE SHEET 45
 FOR -YILPA- PROFILE SEE SHEET 46
 FOR -YIRPD- PROFILE SEE SHEET 46 & 47
 FOR -YILPD- PROFILE SEE SHEET 47
 FOR -SERVI- PROFILE SEE SHEET 54
 FOR STRUCTURE NO. 1 PLANS SEE SHEETS S1-1 THRU S-25
 FOR STRUCTURE NO. 2 PLANS SEE SHEETS S2-1 THRU S-25

GRAPHIC SCALE
 0 25 50 100
 PLANS

DESIGNED BY: W. JOHNSON
 CHECKED BY: T. BUCKNER, P.E. DATE: 10-21-2010

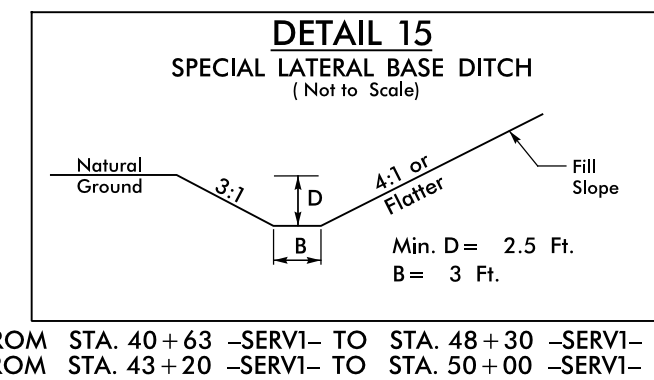
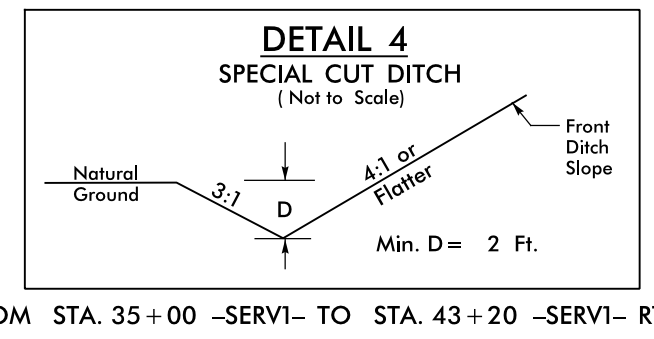
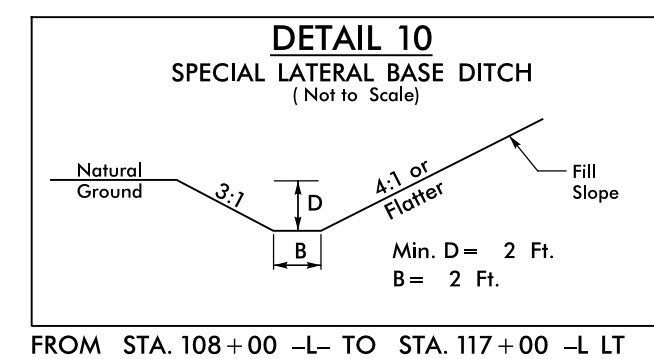
PROJECT REFERENCE NO. R-5703		SHEET NO. 7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER SEAL 034367 MICHAEL BAKER ENGINEERING, INC. 10870110070435 11/27/2017		HYDRAULICS ENGINEER SEAL 26971 JOSHUA G. DARTON 10870110070435 11/27/2017	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Raleigh, NC 27618 NC CDS No. E-1084		SUNGATE DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDS No. E-9800	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-L-

Pls Sta 121+41.66 Os = 1' 01" 16.0" Ls = 180.00' LT = 120.00' ST = 60.00'	Pls Sta 124+75.49 Δ = 6' 12" 27.6" (LT) D = 1' 08" 04.5" L = 547.14' T = 273.84' R = 5,050.00' Ds = 70mph SE = 0.04 RUNOFF = 180'	Pls Sta 128+08.79 Os = 1' 01" 16.0" Ls = 180.00' LT = 120.00' ST = 60.00'
---	---	---

-SERVI-

Pls Sta 47+87.93 Δ = 8' 14" 59.6" (LT) D = 1' 10" 52.9" L = 698.34' T = 349.77' R = 4,850.00' Ds = 50mph SE = 0.06 RUNOFF = 132'
--



8/17/99

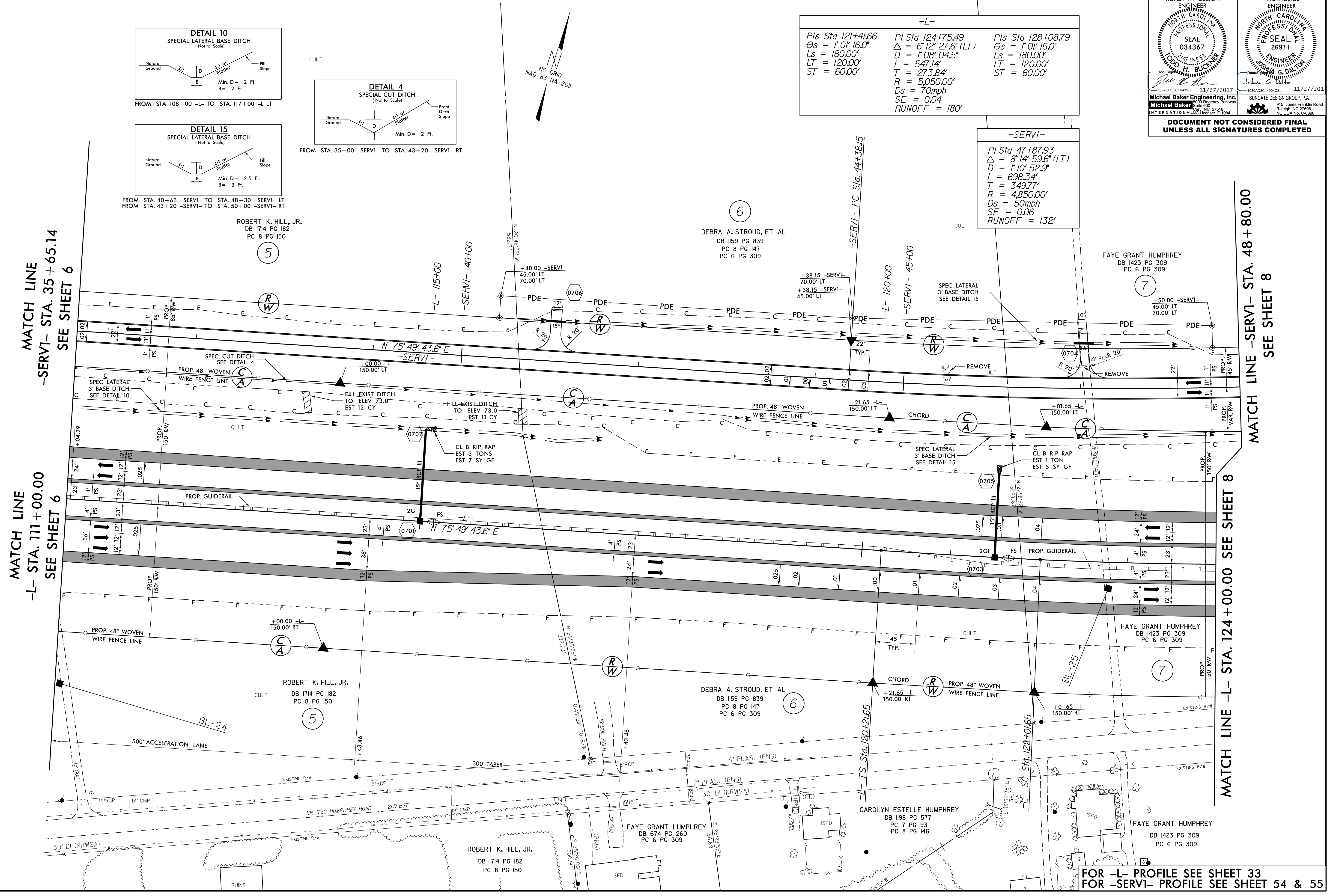
REVISIONS

MATCH LINE
-SERVI- STA. 35 + 65.14
SEE SHEET 6

MATCH LINE
-L- STA. 111 + 00.00
SEE SHEET 6

MATCH LINE -SERVI- STA. 48 + 80.00
SEE SHEET 8

MATCH LINE -L- STA. 124 + 00.00 SEE SHEET 8

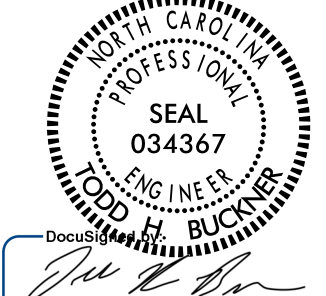
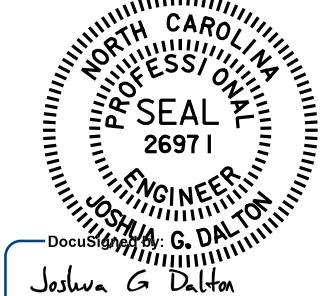


27 NOV 2017 09:25
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FOR -L- PROFILE SEE SHEET 33
FOR -SERVI- PROFILE SEE SHEET 54 & 55

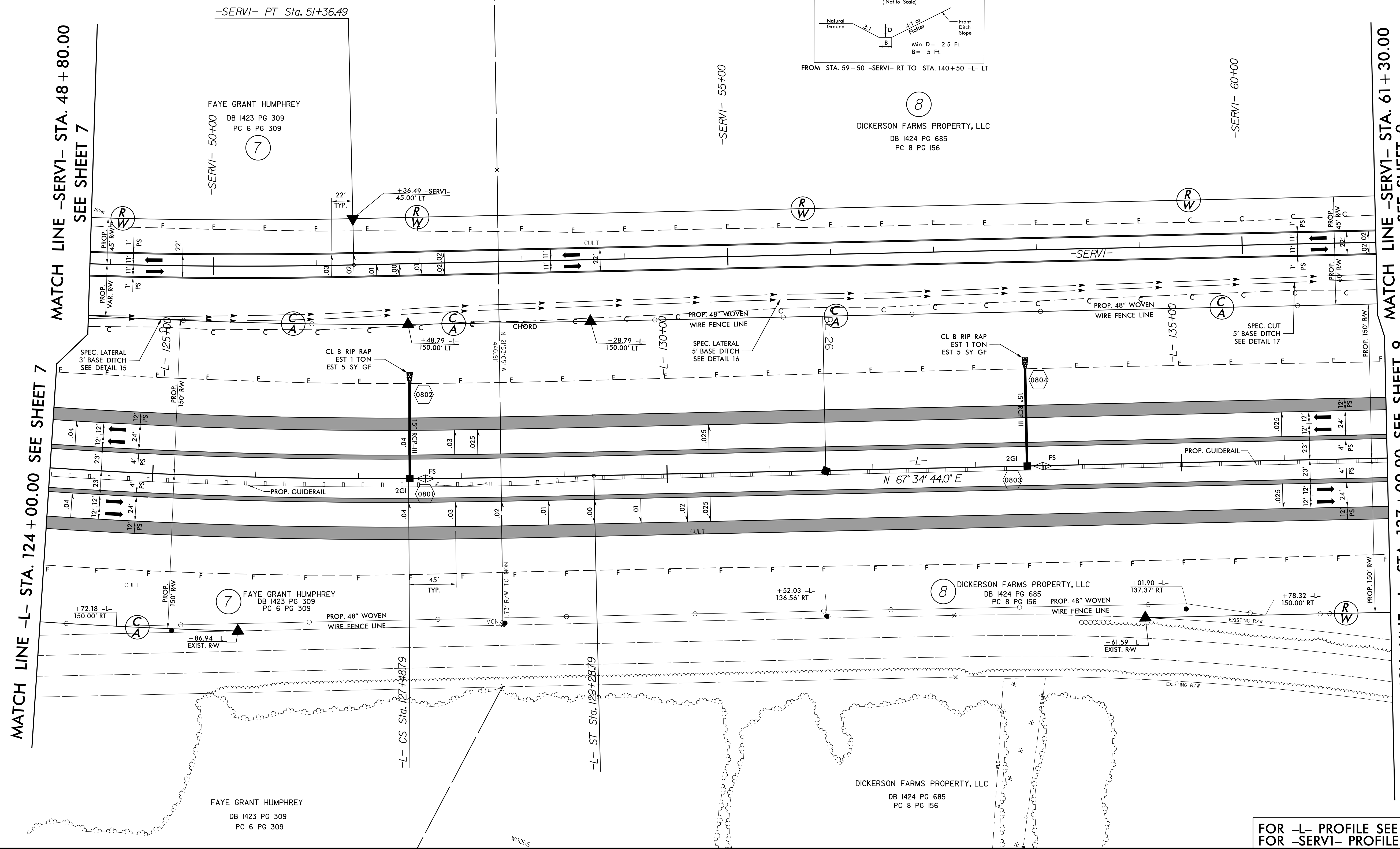
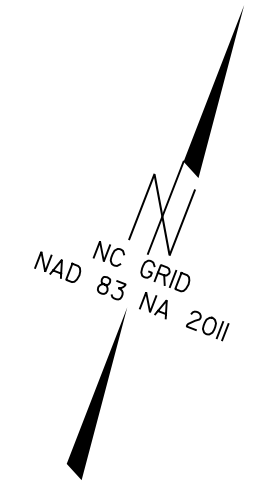
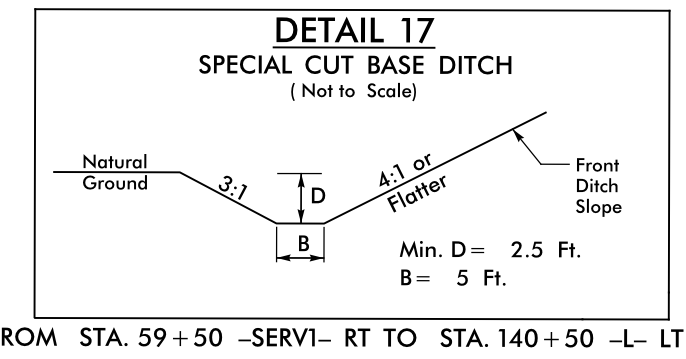
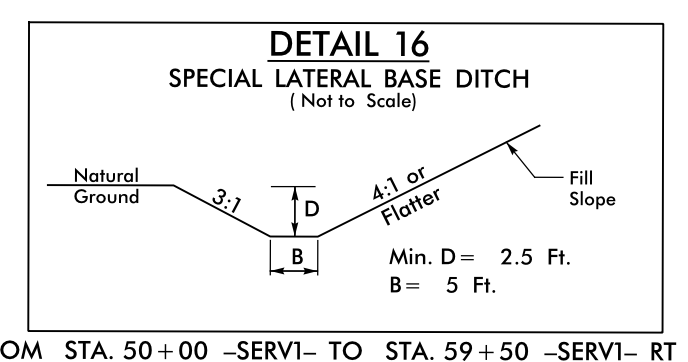
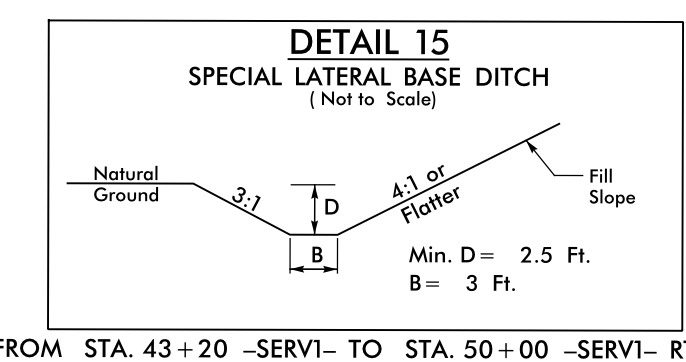
8/17/19

I:\SEP-2017\4457\AR-5703-RDY_psh_08.dgn

PROJECT REFERENCE NO. R-5703		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 Michael Baker Engineering, Inc. 8000 Regency Parkway Cary, NC 27518 NC CDR No. F-1084		 Joshua G. Dalton SINGATE DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDR No. C-9800	
9/14/2017 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-L-		
Pls Sta 121+41.66	Pls Sta 124+75.49	Pls Sta 128+08.79
$\theta_s = 1^{\circ} 01' 16.0''$	$\Delta = 6^{\circ} 12' 27.6''$ (LT)	$\theta_s = 1^{\circ} 01' 16.0''$
$L_s = 180.00'$	$D = 1^{\circ} 08' 04.5''$	$L_s = 180.00'$
$LT = 120.00'$	$L = 547.14'$	$LT = 120.00'$
$ST = 60.00'$	$T = 273.84'$	$ST = 60.00'$
	$R = 5,050.00'$	
	$D_s = 70\text{mph}$	
	$SE = 0.04$	
	$RUNOFF = 180'$	

-SERVI-
Pls Sta 47+87.93
$\Delta = 8^{\circ} 14' 59.6''$ (LT)
$D = 1^{\circ} 10' 52.9''$
$L = 698.34'$
$T = 349.77'$
$R = 4,850.00'$
$D_s = 50\text{mph}$
$SE = 0.06$
$RUNOFF = 132'$



REVISIONS

MATCH LINE -SERVI- STA. 48 + 80.00
SEE SHEET 7

MATCH LINE -L- STA. 124 + 00.00 SEE SHEET 7

MATCH LINE -SERVI- STA. 61 + 30.00
SEE SHEET 9

MATCH LINE -L- STA. 137 + 00.00 SEE SHEET 9

FOR -L- PROFILE SEE SHEET 33 & 34
FOR -SERVI- PROFILE SEE SHEET 55 & 56

8/17/19

L:\SEP-2017\457\AR-5703_RDY_psh_09.dgn

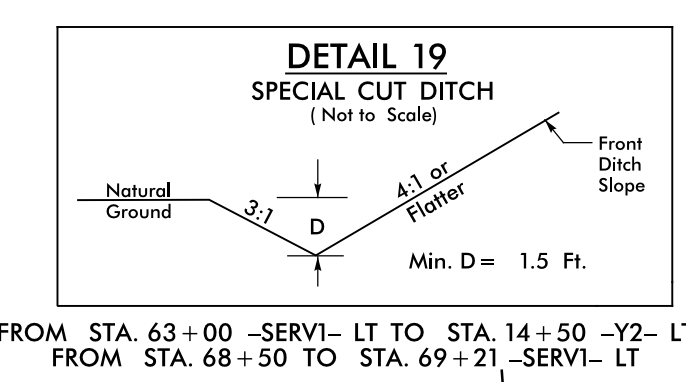
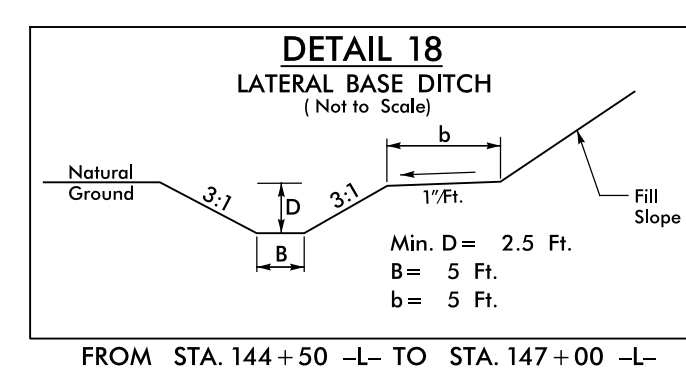
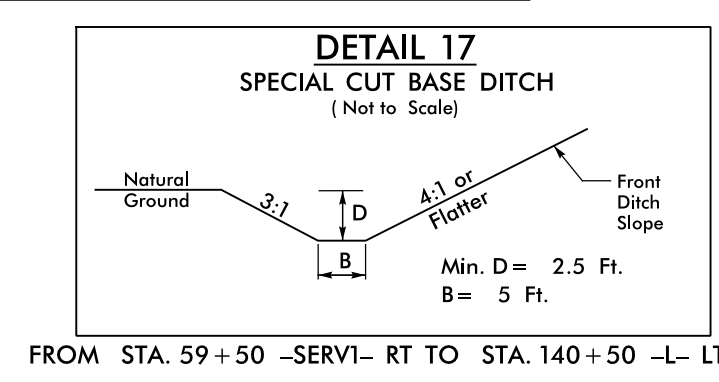
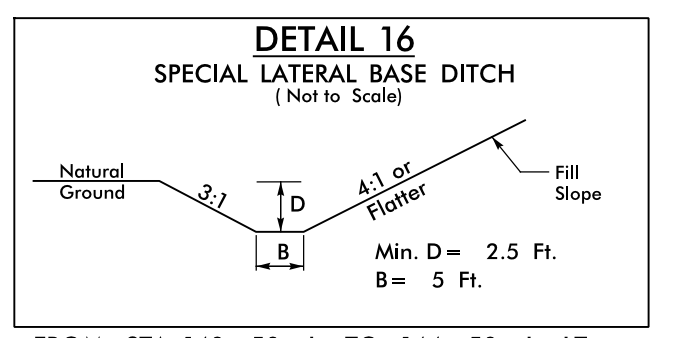
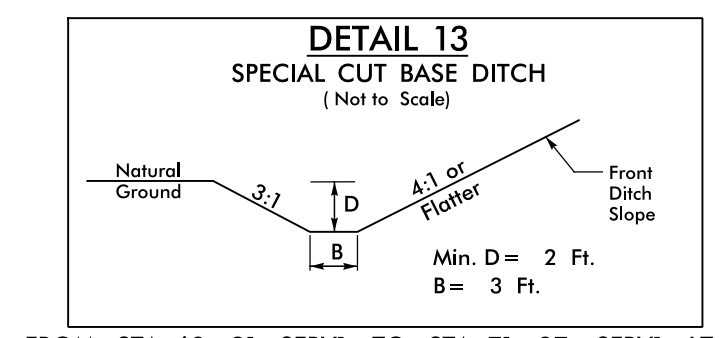
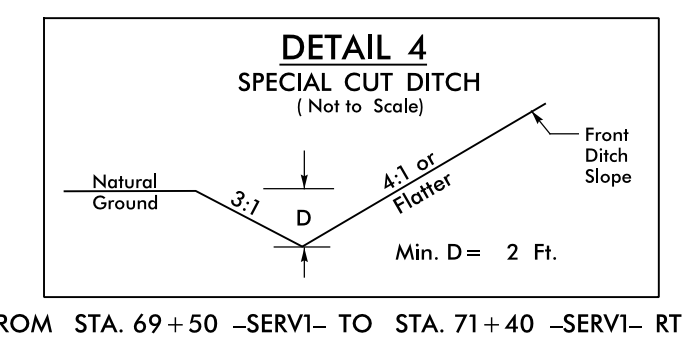
PROJECT REFERENCE NO. R-5703	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER Michael Baker Engineering, Inc. SEAL 034367 INTERNATIONAL License: F-1084	HYDRAULICS ENGINEER Michael Baker Engineering, Inc. SEAL 26971 INTERNATIONAL License: F-1084
9/14/2017	9/14/2017
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-

Pls Sta 146+74.40 θs = 2° 27' 19.9" Ls = 270.00' LT = 180.02' ST = 90.02'	Pls Sta 158+61.41 Δ = 38° 24' 10.2" (RT) D = 1' 49' 08.1" L = 211.31' T = 1097.03' R = 3,150.00' Ds = 70mph SE = 0.06 RUNOFF = 270'	Pls Sta 169+65.70 θs = 2° 27' 19.9" Ls = 270.00' LT = 180.02' ST = 90.02'
---	---	---

-Y2-

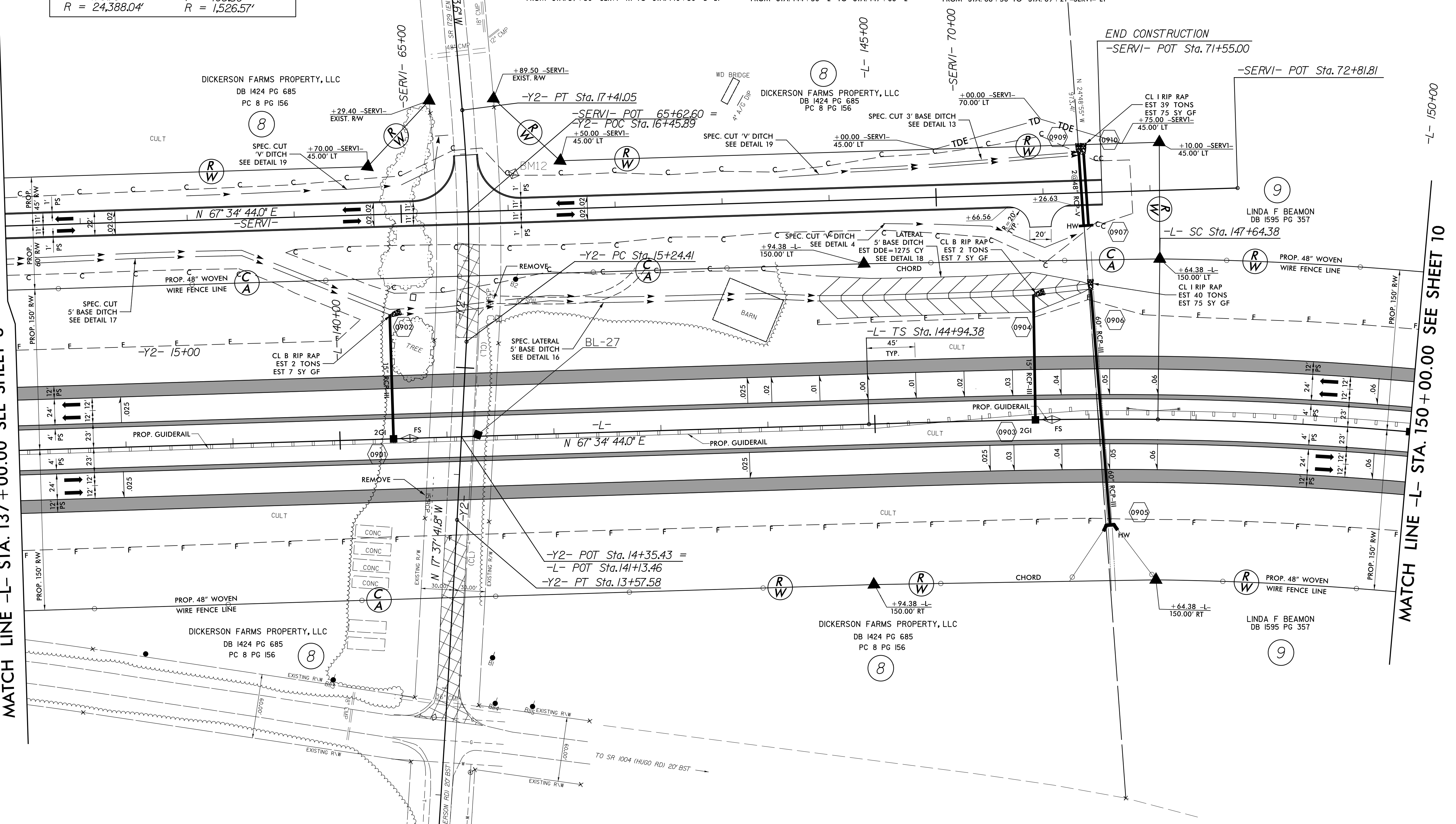
Pls Sta 11+78.79 Δ = 0° 50' 24.3" (LT) D = 0' 14' 05.8" L = 357.58' T = 178.79' R = 24,388.04'	Pls Sta 16+32.91 Δ = 8° 07' 51.8" (LT) D = 3' 45' 11.7" L = 216.64' T = 108.50' R = 1,526.57'
---	--



MATCH LINE -SERVI- STA. 61+30.00
SEE SHEET 8

MATCH LINE -L- STA. 137+00.00 SEE SHEET 8

MATCH LINE -L- STA. 150+00.00 SEE SHEET 10

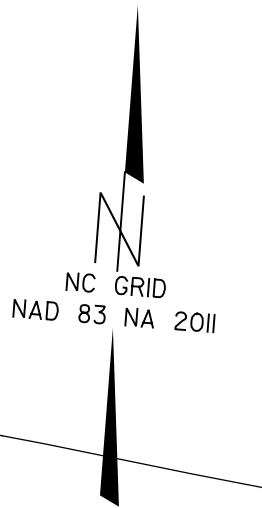


FOR -L- PROFILE SEE SHEET 34
FOR -SERVI- PROFILE SEE SHEET 55 & 56

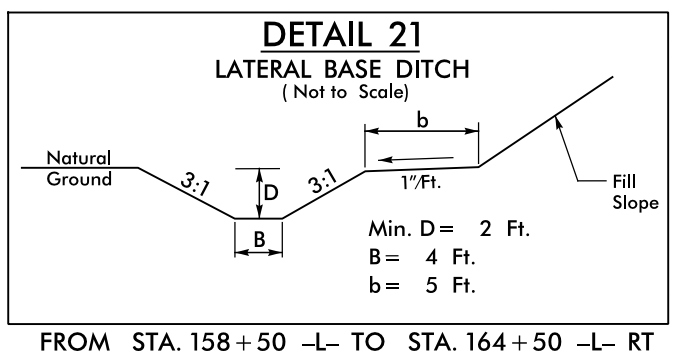
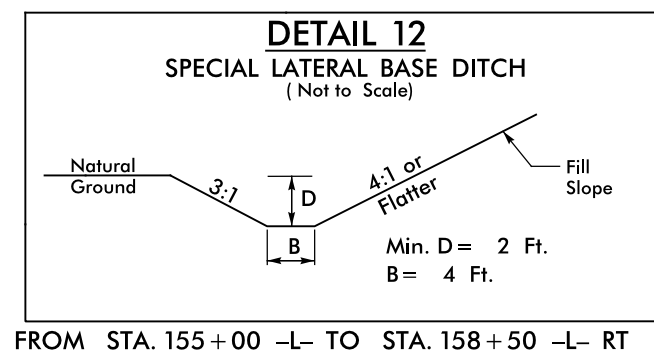
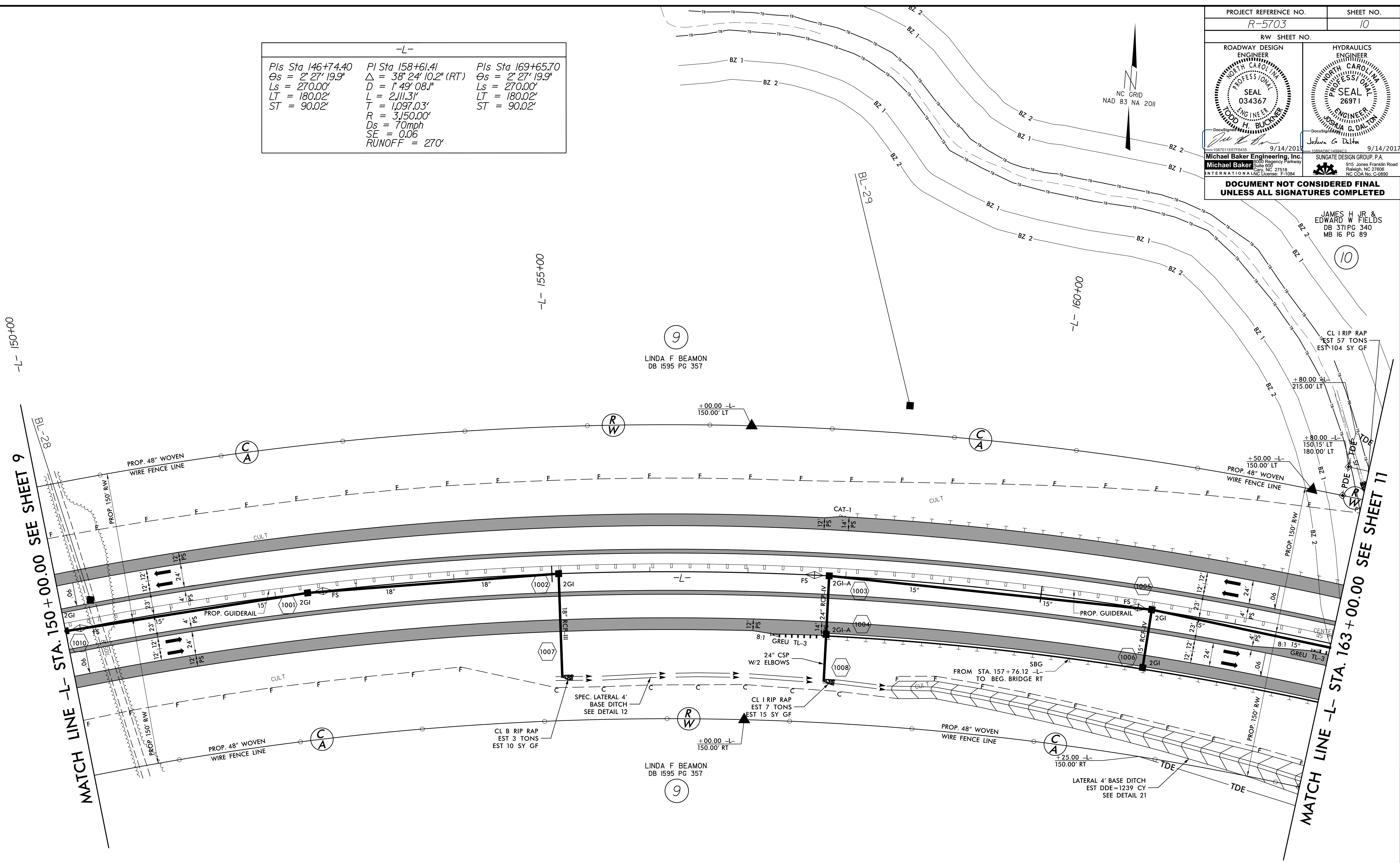
8/17/99

PROJECT REFERENCE NO. R-5703		SHEET NO. 10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER Michael Baker Engineering, Inc. SEAL 034367 LLOYD H. BUCKNER		HYDRAULICS ENGINEER Michael Baker Engineering, Inc. SEAL 26971 JOSHUA G. DALTON	
9/14/2017		9/14/2017	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>JAMES H JR & EDWARD W FIELDS DB 371 PG 340 MB 16 PG 89</p>			

-L-		
PIs Sta 146+74.40	PI Sta 158+61.41	PIs Sta 169+65.70
$\Theta s = 2' 27'' 19.9''$	$\Delta = 38' 24'' 10.2'' (RT)$	$\Theta s = 2' 27'' 19.9''$
$Ls = 270.00'$	$D = 1' 49'' 08.1''$	$Ls = 270.00'$
$LT = 180.02'$	$L = 2,111.31'$	$LT = 180.02'$
$ST = 90.02'$	$T = 1,097.03'$	$ST = 90.02'$
	$R = 3,150.00'$	
	$Ds = 70\text{mph}$	
	$SE = 0.06$	
	$RUNOFF = 270'$	



REVISIONS

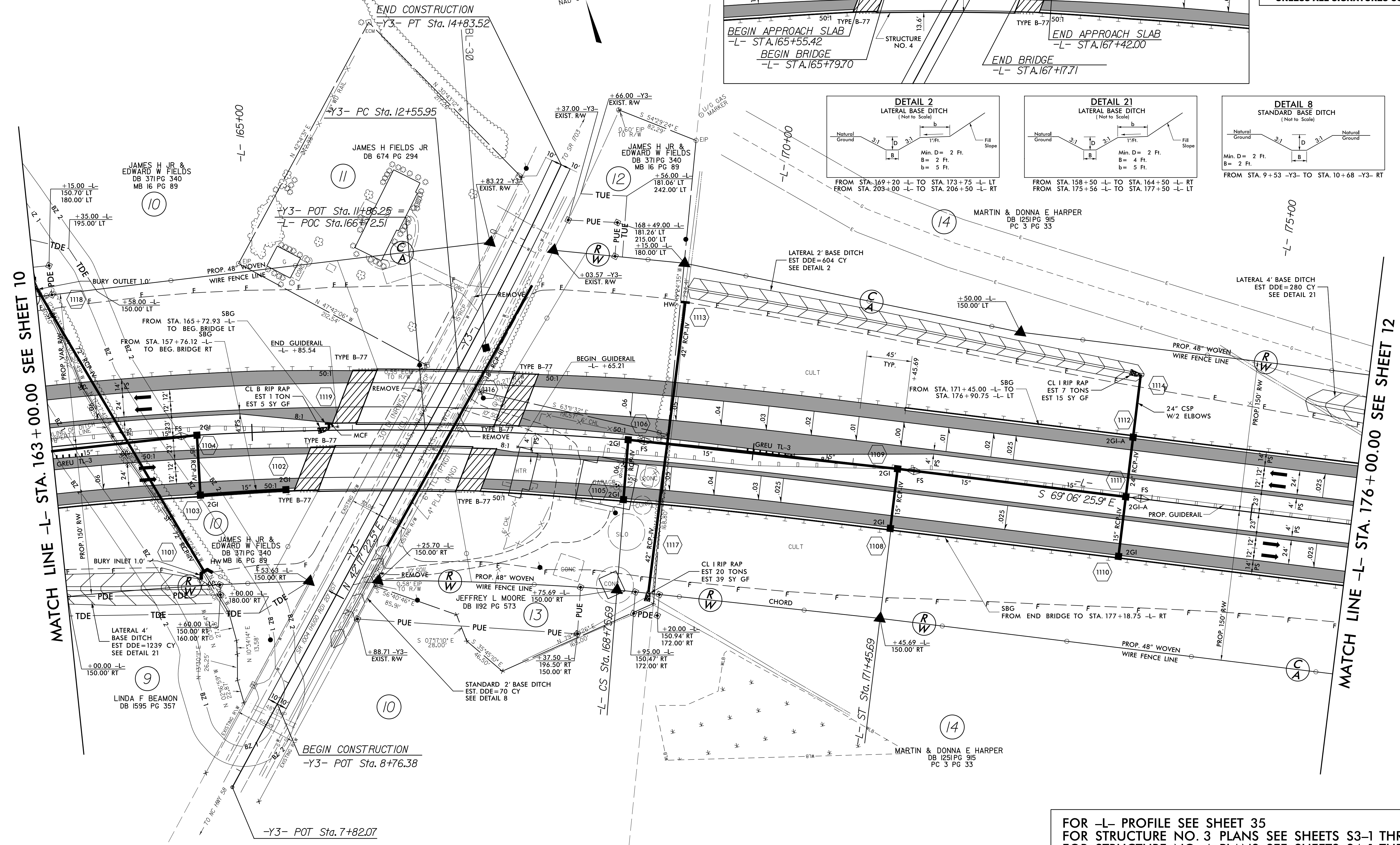
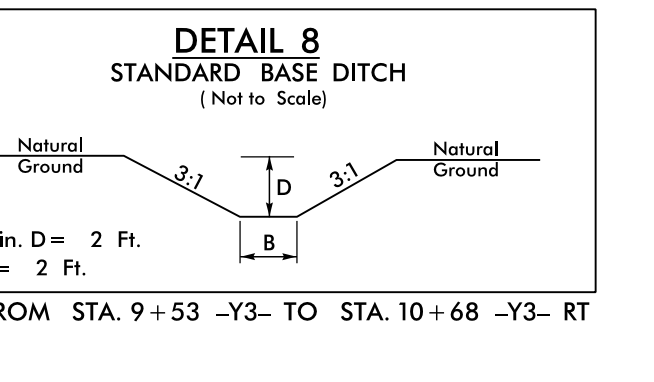
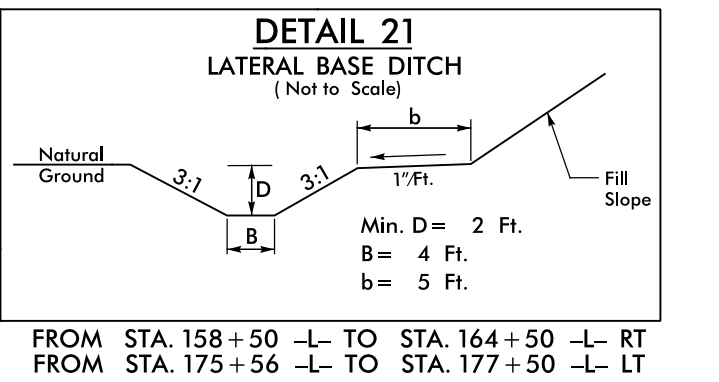
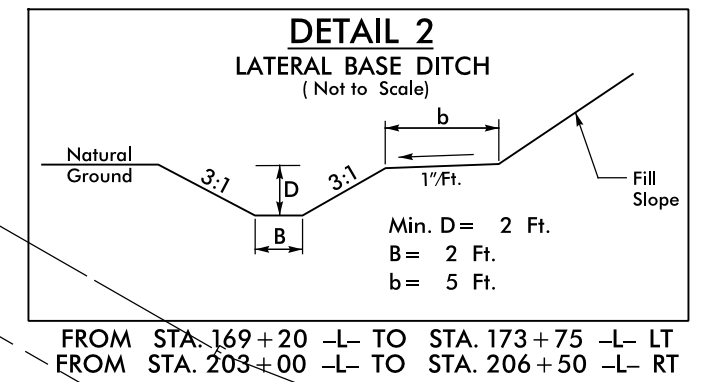
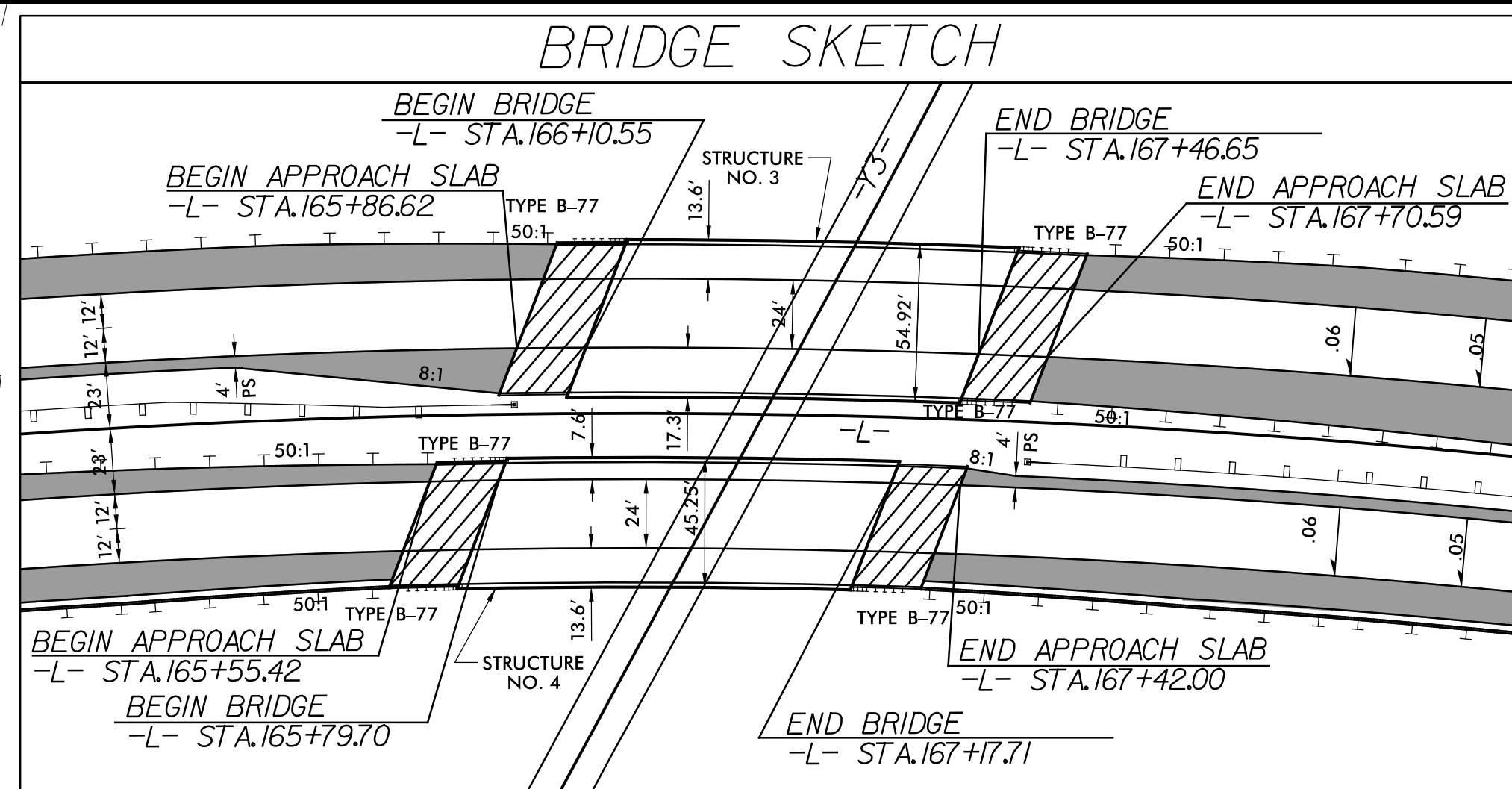


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FOR -L- PROFILE SEE SHEET 34 & 35

PROJECT REFERENCE NO. R-5703		SHEET NO. 11	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 034367	
11/21/2017		11/21/2017	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Charlotte, NC 27718 INTERNATIONAL License: F-1084		SUNGATE DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27606 NC CDR No. C-9890	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-L-			-Y3-		
Pls Sta 146+74.40	PI Sta 158+61.41	Pls Sta 169+65.70	PI Sta 13+12.84		
$\Theta_s = 2^\circ 27' 19.9''$	$\Delta = 38^\circ 24' 10.2''$ (RT)	$\Theta_s = 2^\circ 27' 19.9''$	$\Delta = 1^\circ 39' 16.3''$ (LT)		
$L_s = 270.00'$	$D = 1^\circ 49' 08.1''$	$L_s = 270.00'$	$D = 1^\circ 27' 15.1''$		
$LT = 180.02'$	$L = 2,111.31'$	$LT = 180.02'$	$L = 113.78'$		
$ST = 90.02'$	$T = 1,097.03'$	$ST = 90.02'$	$T = 56.89'$		
	$R = 3,150.00'$		$R = 3,940.00'$		
	$D_s = 70\text{mph}$		$D_s = 55\text{mph}$		
	$SE = 0.06$		$SE = \text{EXIST}$		
	$\text{RUNOFF} = 270'$				



REVISIONS

MATCH LINE -L- STA. 163+00.00 SEE SHEET 10

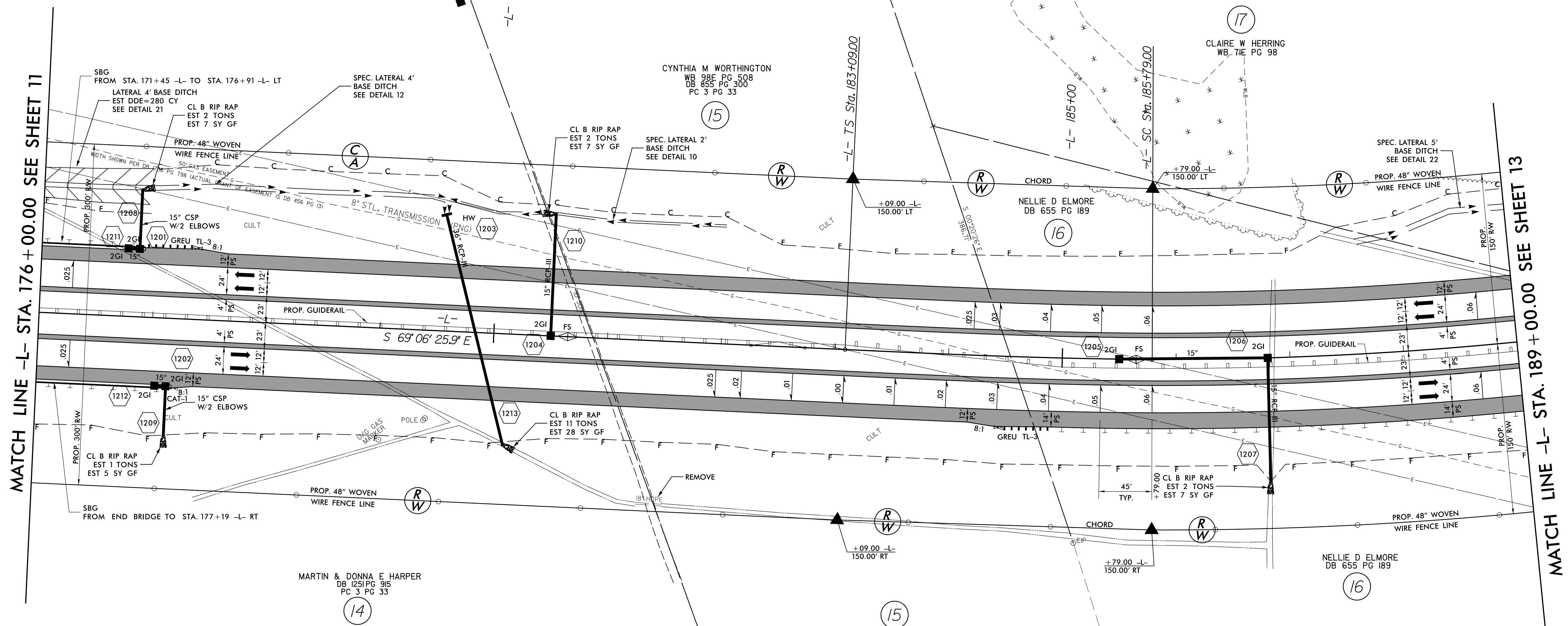
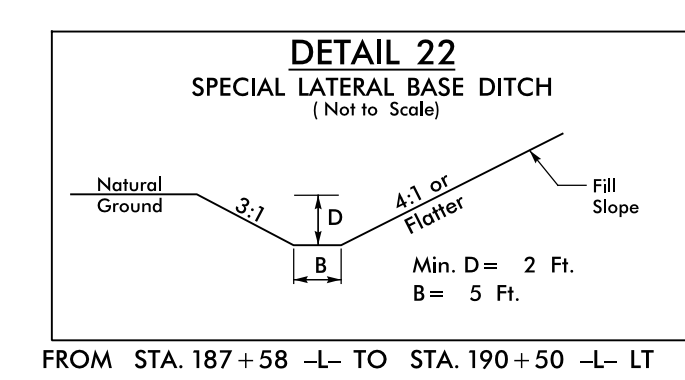
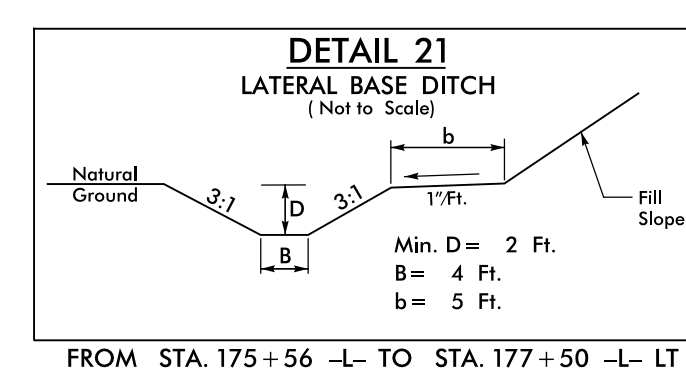
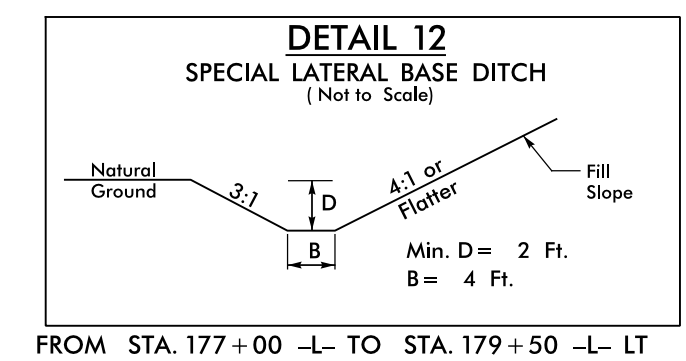
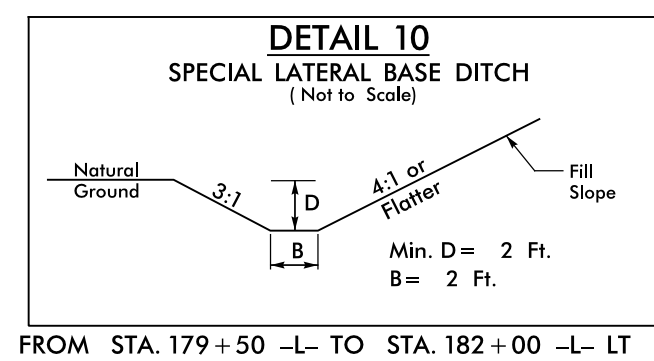
MATCH LINE -L- STA. 176+00.00 SEE SHEET 12

FOR -L- PROFILE SEE SHEET 35
 FOR STRUCTURE NO. 3 PLANS SEE SHEETS S3-1 THRU S-34
 FOR STRUCTURE NO. 4 PLANS SEE SHEETS S4-1 THRU S-31

8/17/99

11 SEP 2017 14:57 I:\R-5703_RDY_psh_12.dgn

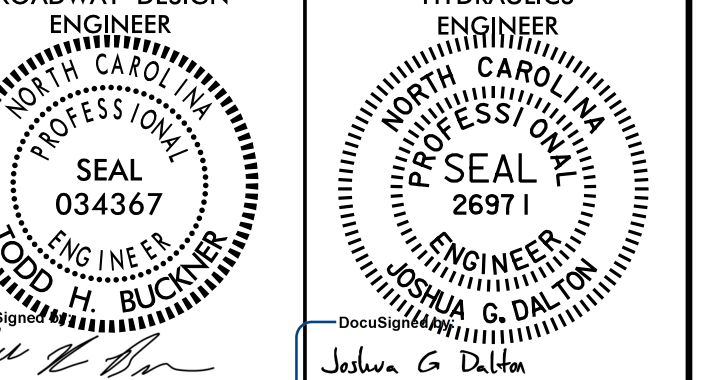
PROJECT REFERENCE NO. R-5703		SHEET NO. 12	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER Michael Baker Engineering, Inc. SEAL 034367 9/14/2017		HYDRAULICS ENGINEER Michael Baker Engineering, Inc. SEAL 26971 9/14/2017	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			



-L-

Pls Sta 184+89.02	Pl Sta 188+43.74	Pls Sta 191+97.25
$\Delta s = 2' 27'' 19.9''$	$\Delta = 9' 36'' 28.7''$ (LT)	$\Delta s = 2' 27'' 19.9''$
$Ls = 270.00'$	$D = 1' 49'' 08.1''$	$Ls = 270.00'$
$LT = 180.02'$	$L = 528.23'$	$LT = 180.02'$
$ST = 90.02'$	$T = 264.73'$	$ST = 90.02'$
	$R = 3,150.00'$	
	$Ds = 70\text{mph}$	
	$SE = 0.06$	
	$RUNOFF = 270'$	

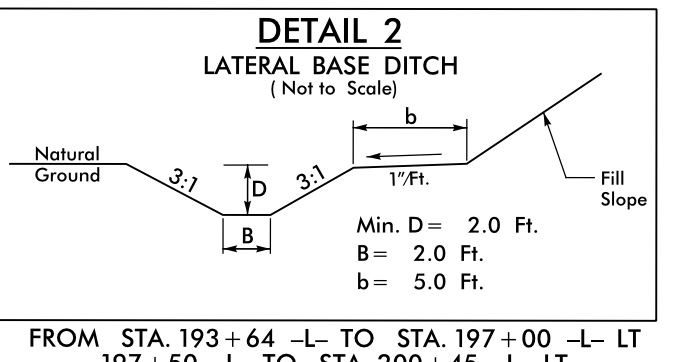
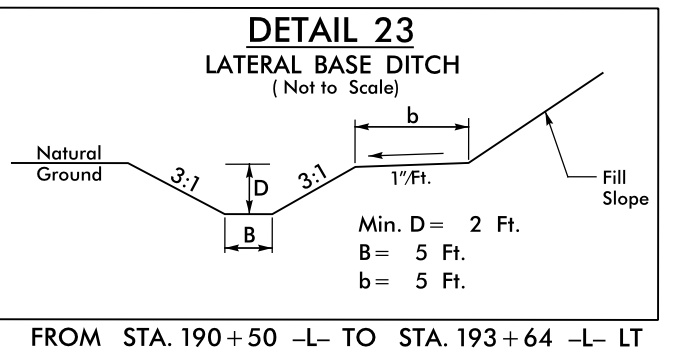
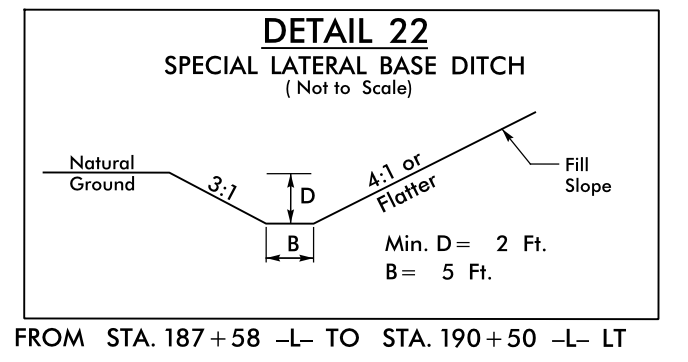
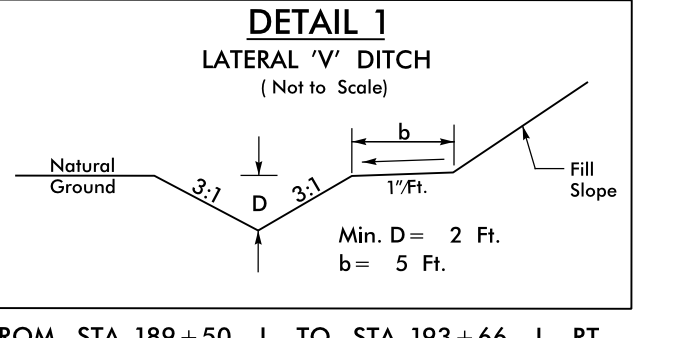
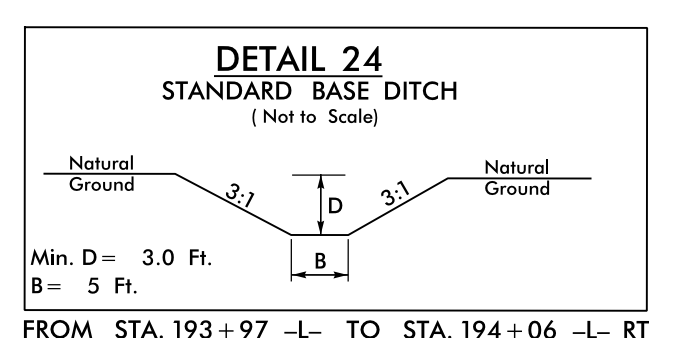
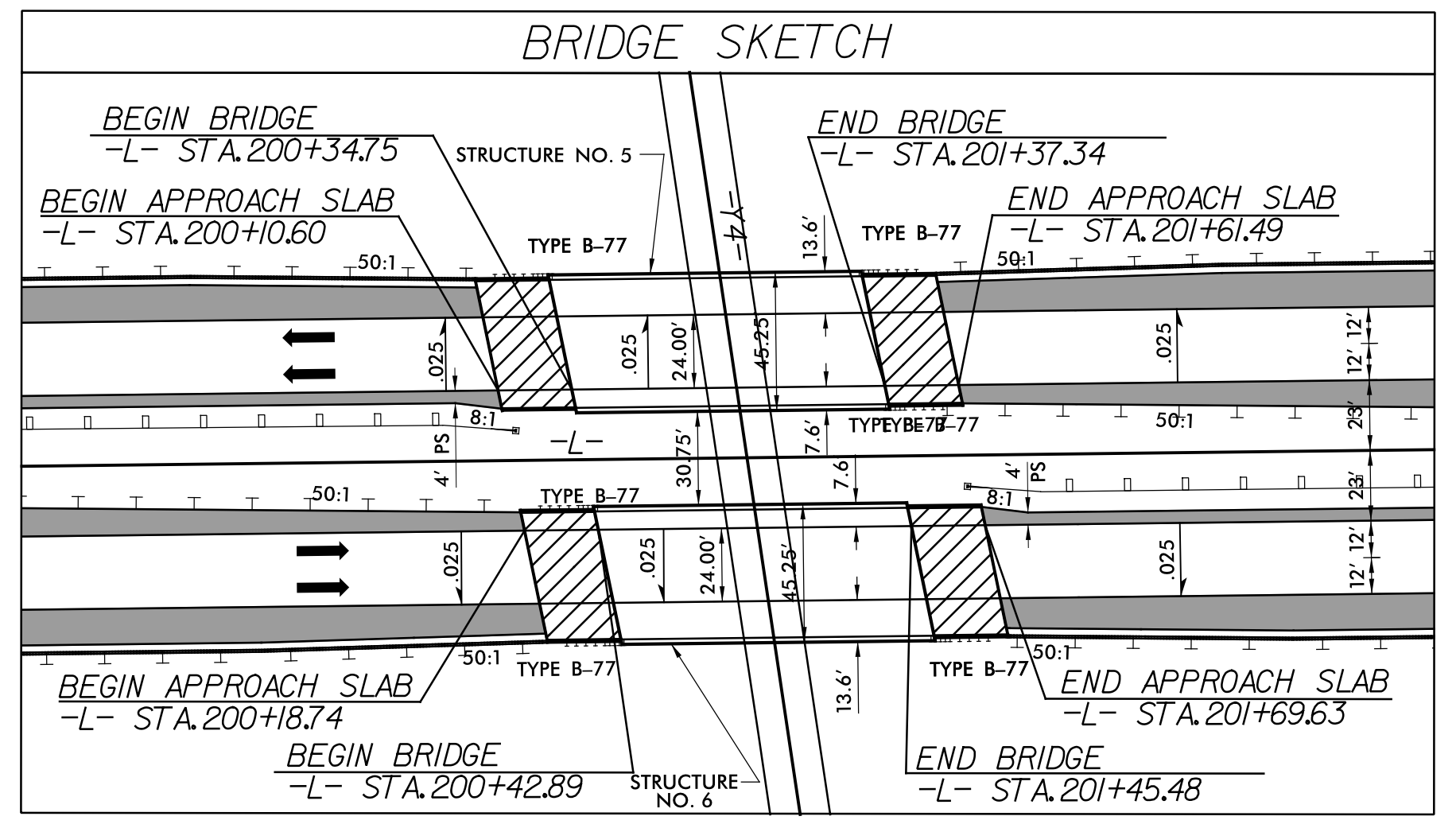
FOR -L- PROFILE SEE SHEET 35 & 36



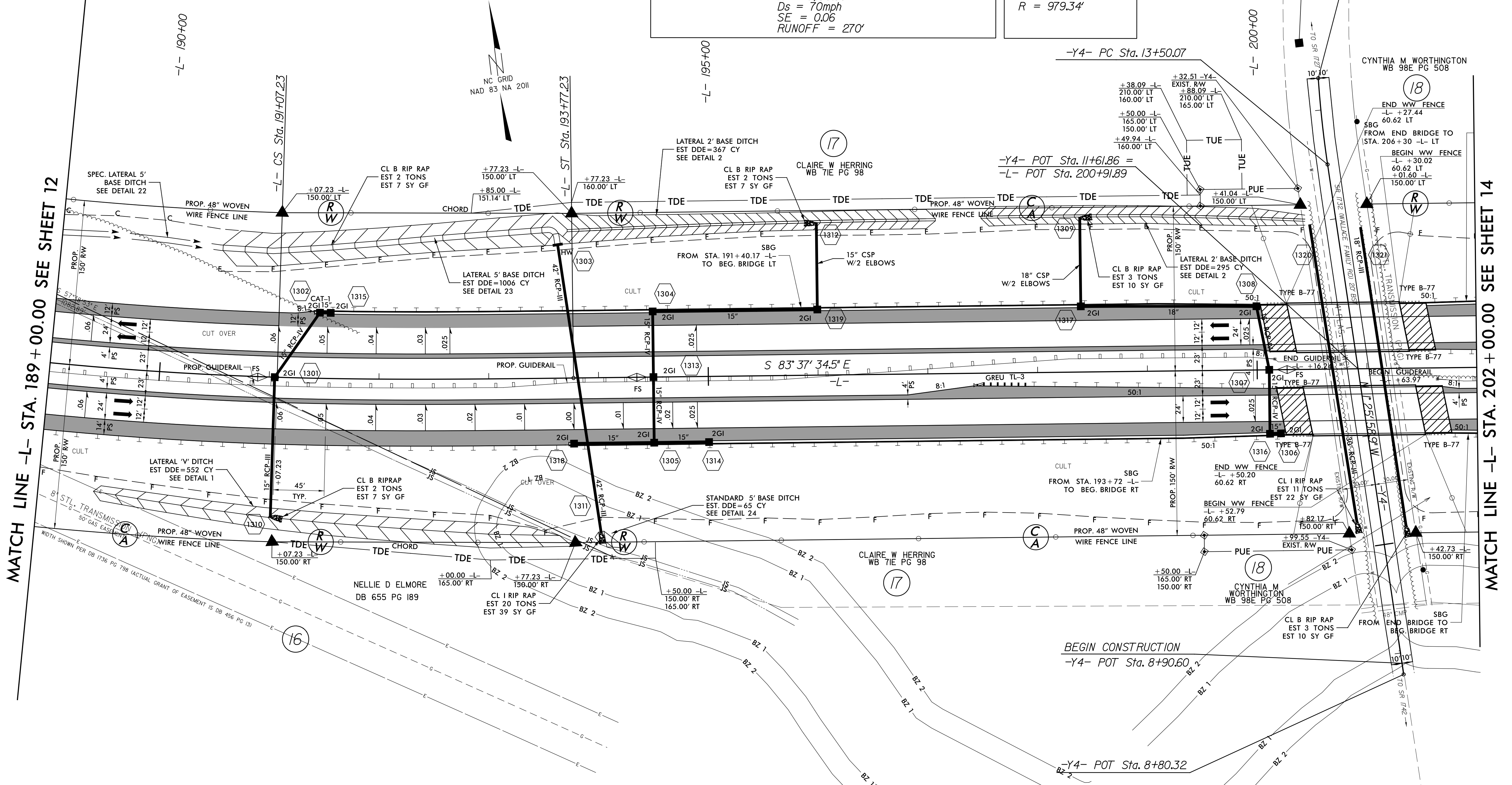
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 NC License: E-1084

SINGATEC DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27606 NC License: S-9989

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-			-Y4-		
Pls Sta 184+89.02	Pl Sta 188+43.74	Pls Sta 191+97.25	Pl Sta 13+89.63		
$\Delta s = 2' 27'' 19.9''$	$\Delta = 9' 36'' 28.7'' (LT)$	$\Delta s = 2' 27'' 19.9''$	$\Delta = 4' 37'' 38.2'' (RT)$		
$L_s = 270.00'$	$D = 1' 49'' 08.1''$	$L_s = 270.00'$	$D = 5' 51'' 01.6''$		
$LT = 180.02'$	$L = 528.23'$	$LT = 180.02'$	$L = 79.09'$		
$ST = 90.02'$	$T = 264.73'$	$ST = 90.02'$	$T = 39.57'$		
	$D_s = 3,150.00'$		$R = 979.34'$		
	$SE = 0.06$				
	$RUNOFF = 270'$				



MATCH LINE -L- STA. 189 + 00.00 SEE SHEET 12

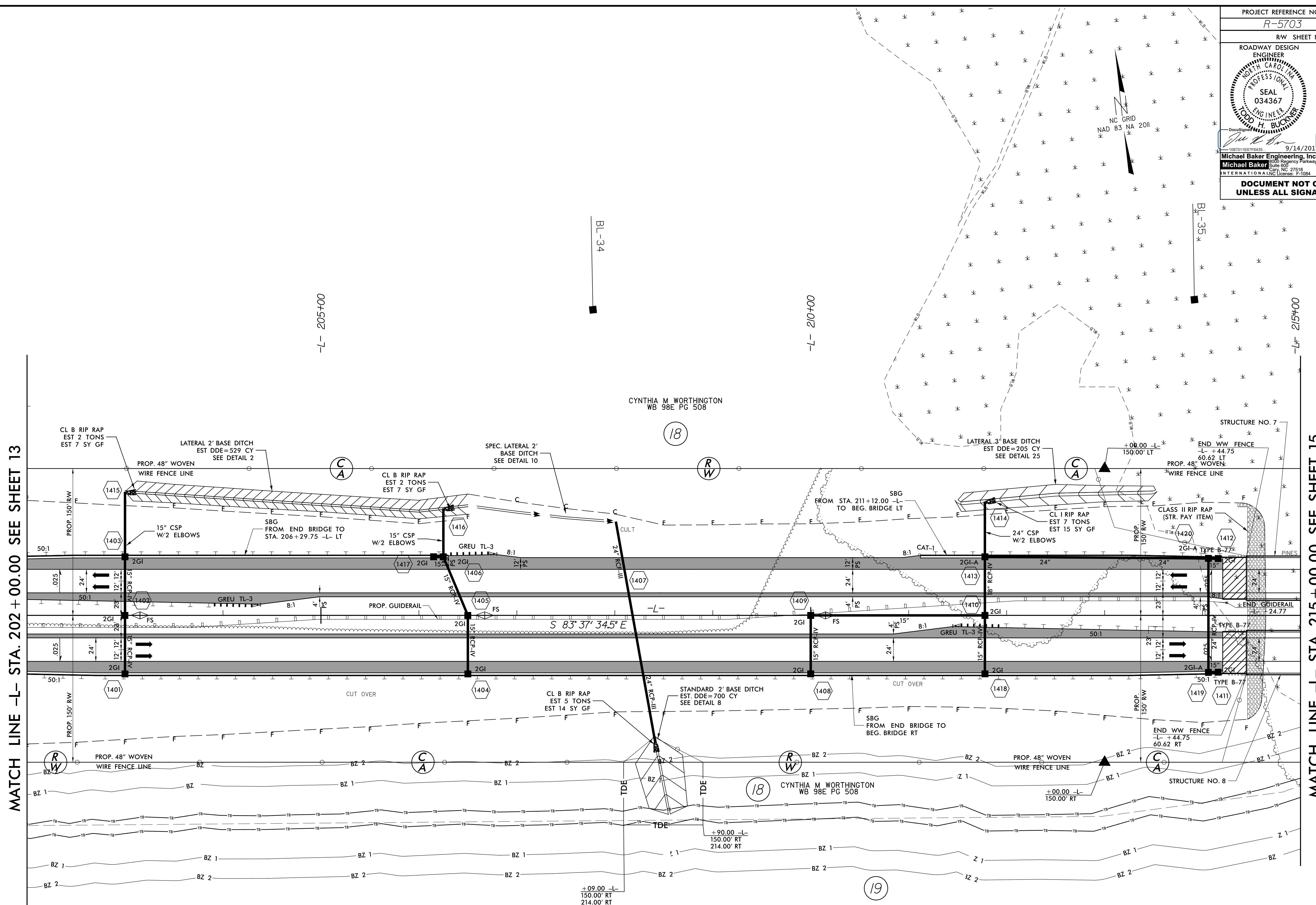
MATCH LINE -L- STA. 202 + 00.00 SEE SHEET 14

REVISIONS

FOR -L- PROFILE SEE SHEET 36
FOR STRUCTURE NO. 5 PLANS SEE SHEETS S5-1 THRU S5-25
FOR STRUCTURE NO. 6 PLANS SEE SHEETS S6-1 THRU S6-25

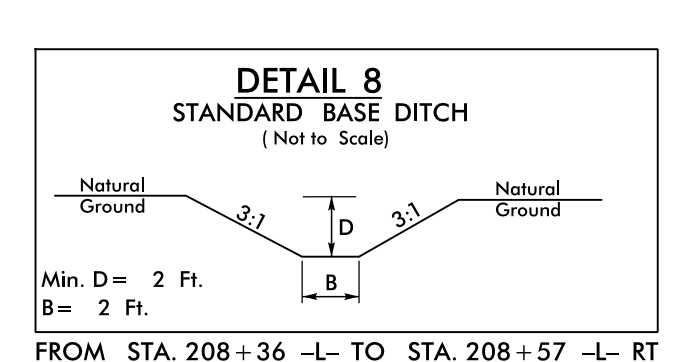
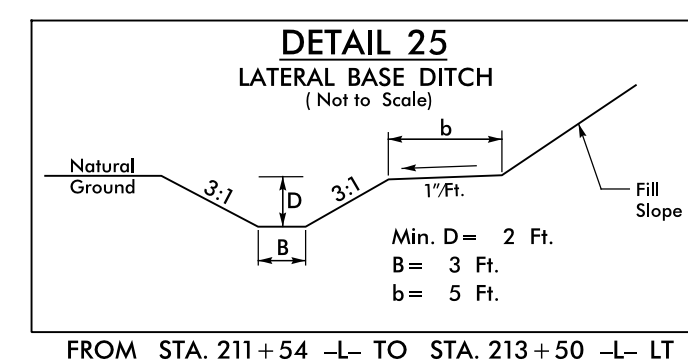
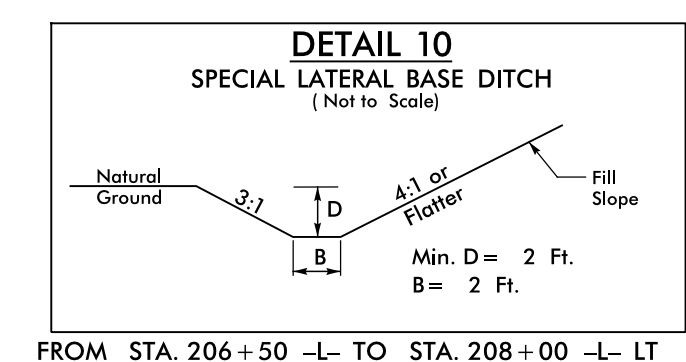
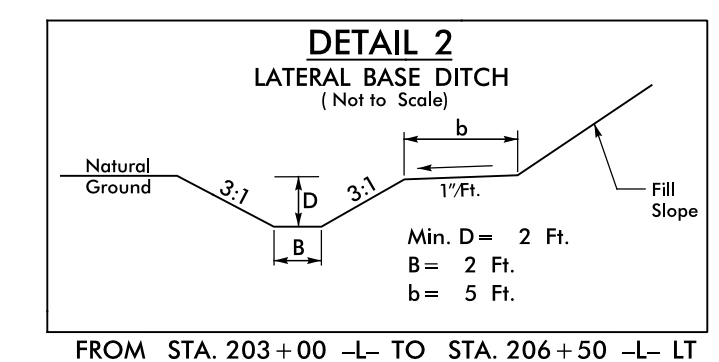
8/17/19
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PROJECT REFERENCE NO. R-5703	SHEET NO. 14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 034367 DODD H. BUCKNER	HYDRAULICS ENGINEER SEAL 26971 JOSHUA G. DALTON
9/14/2017	9/14/2017
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 INTERNATIONAL INC. License: F-1084	SUNGATE DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDR No. C-9900
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MATCH LINE -L- STA. 202 + 00.00 SEE SHEET 13

MATCH LINE -L- STA. 215 + 00.00 SEE SHEET 15



FOR -L- PROFILE SEE SHEET 36 & 37
FOR STRUCTURE NO. 7 PLANS SEE SHEETS S7-1 THRU S7-50
FOR STRUCTURE NO. 8 PLANS SEE SHEETS S8-1 THRU S8-52

REVISIONS

8/17/19

13 SEP 2017 10:53 P:\REP-2017\0553\AR-5703-RDY_psh_14.dgn

PERRY GRANDCHILDREN LLC
DB I266 PG 924

CYNTHIA M. WORTHINGTON
WB 98E PG 508

(18)

(18)

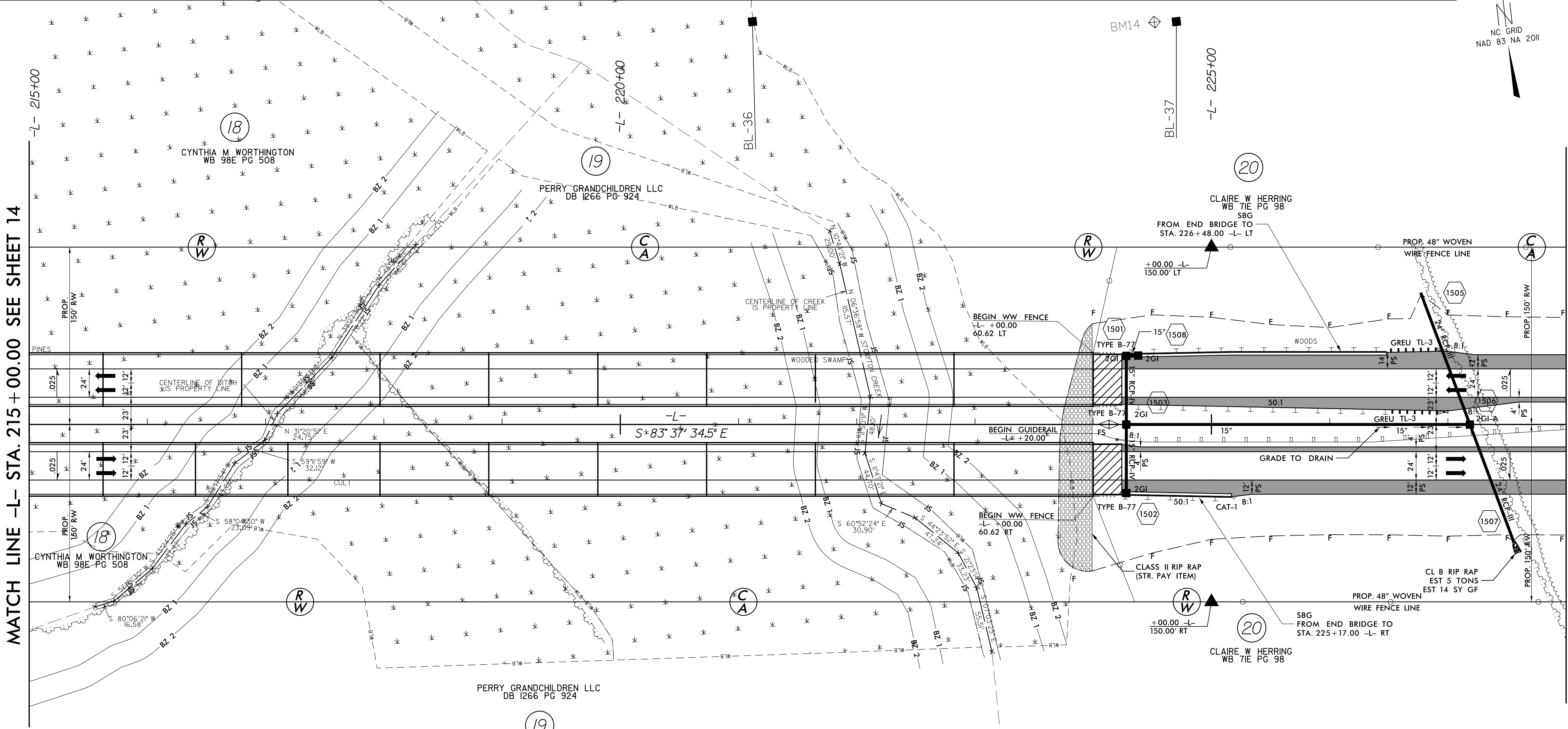
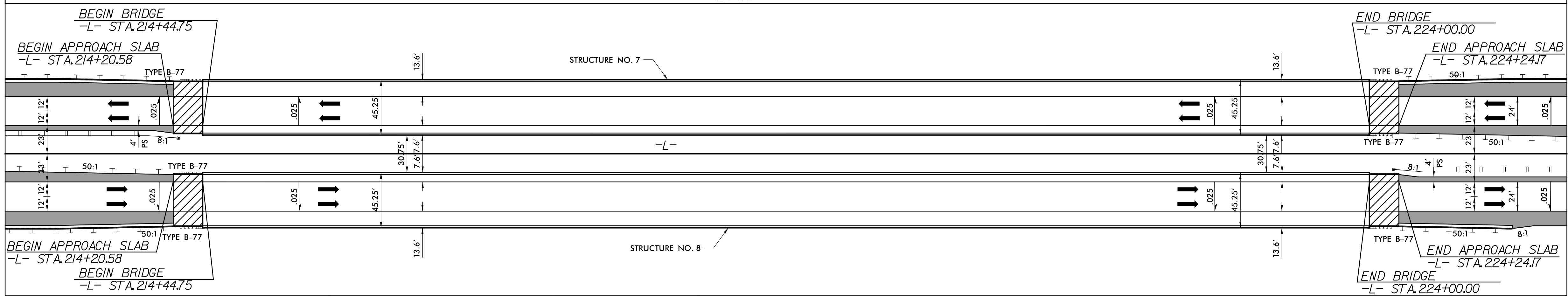
(19)

8/17/19

BRIDGE SKETCH

PROJECT REFERENCE NO. R-5703	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 034367 MICHAEL BAKER	HYDRAULICS ENGINEER SEAL 26971 JOSHUA G. DALTON
9/14/2017	9/14/2017
Michael Baker Engineering, Inc. 10001 HERSHMAN Suite 600 Raleigh, NC 27618 INTERNATIONAL INC. License: F-1084	SINGATE DESIGN GROUP P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDR No. C-9909

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



REVISIONS

MATCH LINE -L- STA. 215 + 00.00 SEE SHEET 14

MATCH LINE -L- STA. 228 + 00.00 SEE SHEET 16

FOR -L- PROFILE SEE SHEET 37
 FOR STRUCTURE NO. 7 PLANS SEE SHEETS S7-1 THRU S7-50
 FOR STRUCTURE NO. 8 PLANS SEE SHEETS S8-1 THRU S8-52

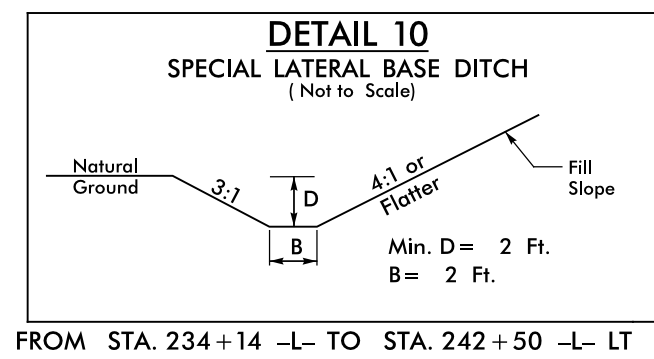
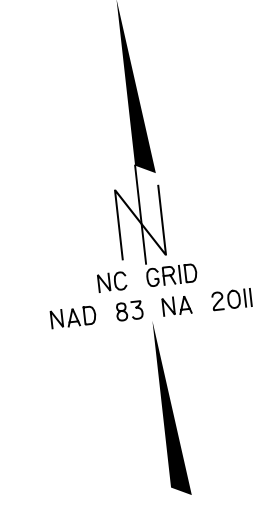
13 SEP 2017 10:56 P:\2017\19-56\19-5703_RDY_psh_15.dgn
 8:58:50 USER:JGAL

REVISIONS

PROJECT REFERENCE NO. R-5703		SHEET NO. 16	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER MICHAEL BAKER ENGINEERING, INC. SEAL 034367 LODD H. BUCKNER		HYDRAULICS ENGINEER MICHAEL BAKER ENGINEERING, INC. SEAL 26971 JOSHUA G. DALTON	
9/14/2017		9/14/2017	
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 INTERNATIONAL INC. License: F-1084		SINGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDA No. C-9800	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

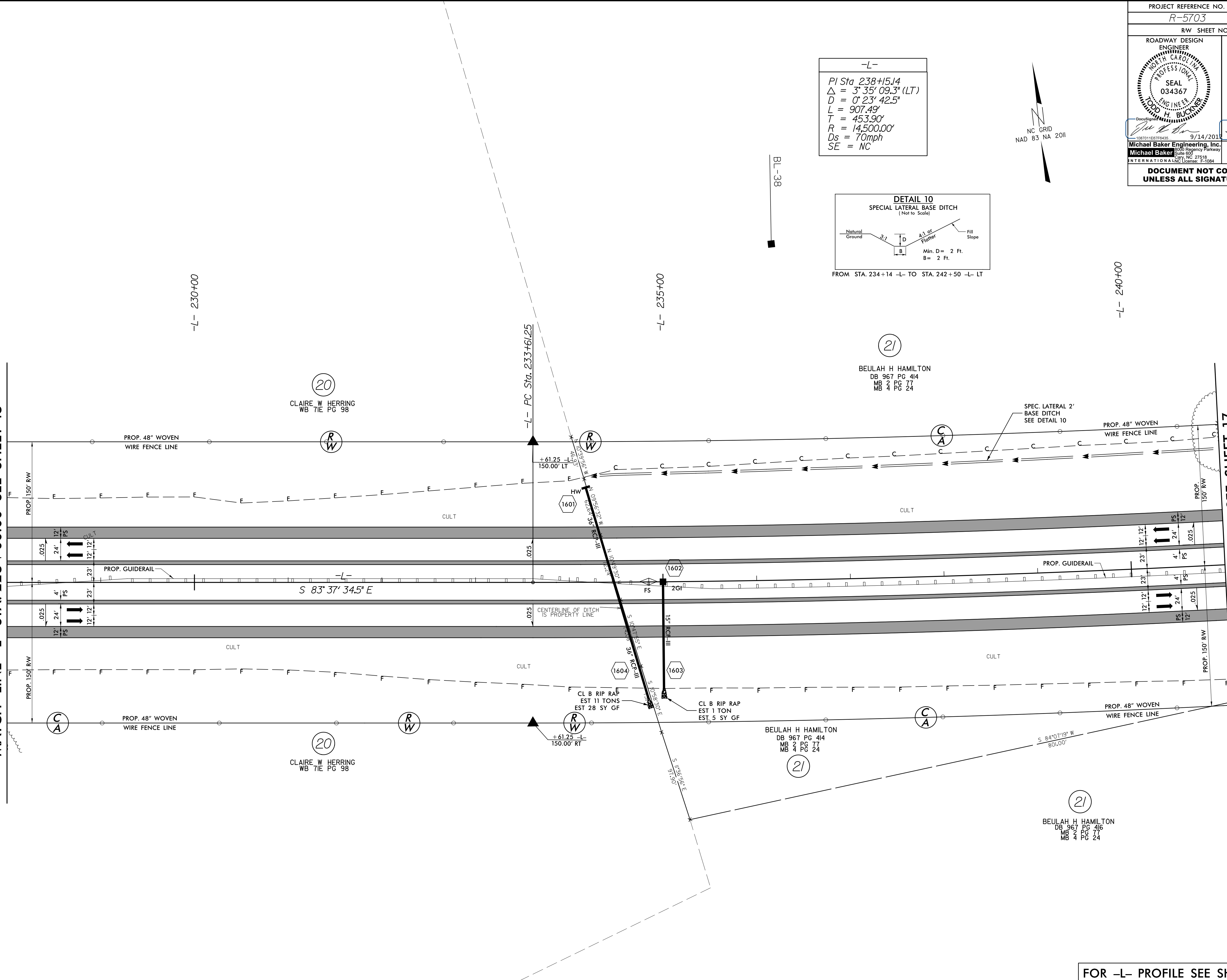
-L-

PI Sta. 238+15.14
 $\Delta = 3^\circ 35' 09.3" (LT)$
 $D = 0^\circ 23' 42.5"$
 $L = 907.49'$
 $T = 453.90'$
 $R = 14,500.00'$
 $Ds = 70mph$
 $SE = NC$



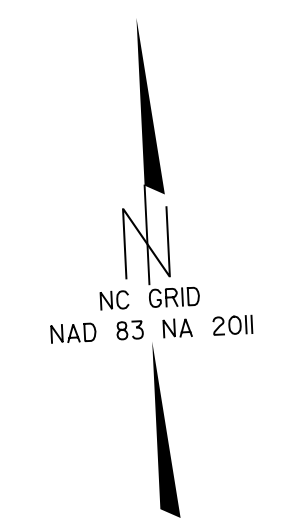
MATCH LINE -L- STA. 228 + 00.00 SEE SHEET 15

MATCH LINE -L- STA. 241 + 00.00 SEE SHEET 17

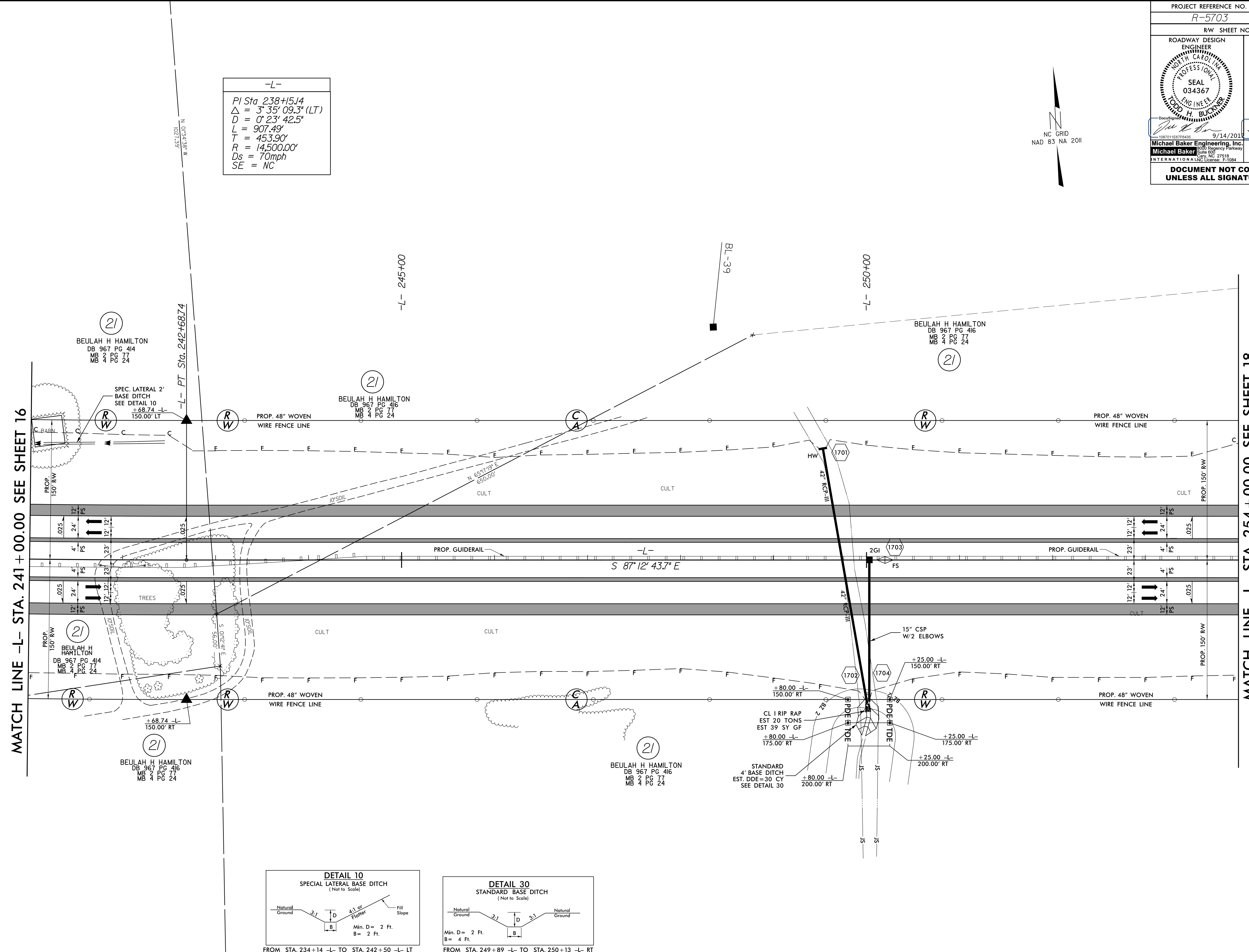


FOR -L- PROFILE SEE SHEET 37 & 38

PROJECT REFERENCE NO. R-5703	SHEET NO. 17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 034367 MICHAEL BAKER ENGINEERING, INC. 9/14/2017	HYDRAULICS ENGINEER SEAL 26971 SINGATE DESIGN GROUP, P.A. 9/14/2017
<p>Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Cary, NC 27518 NC License: E-13884</p> <p>SINGATE DESIGN GROUP, P.A. 915 Jones Franklin Road Raleigh, NC 27608 NC CDR No. E-9800</p>	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	



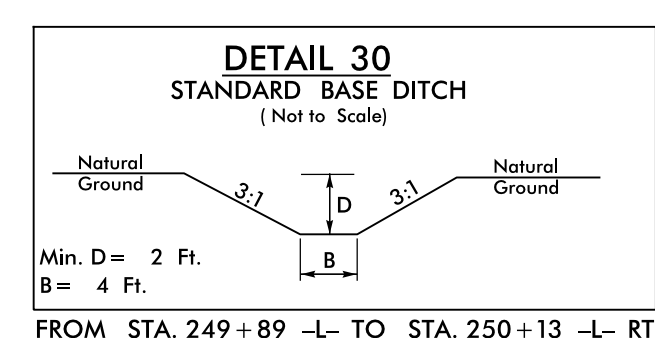
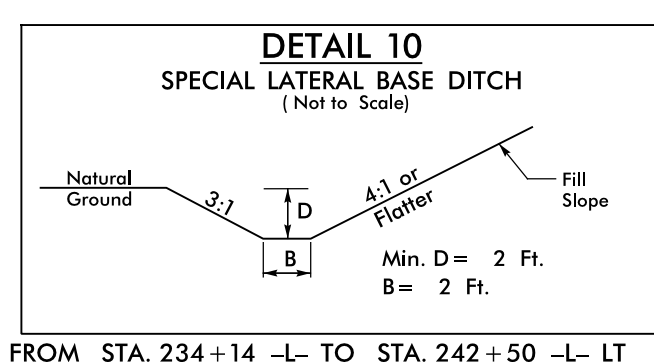
-L-
 PI Sta 238+15.14
 $\Delta = 3^\circ 35' 09.3" (LT)$
 $D = 0' 23' 42.5"$
 $L = 907.49'$
 $T = 453.90'$
 $R = 14,500.00'$
 $D_s = 70\text{mph}$
 $SE = NC$



MATCH LINE -L- STA. 241 + 00.00 SEE SHEET 16

MATCH LINE -L- STA. 254 + 00.00 SEE SHEET 18

REVISIONS



FOR -L- PROFILE SEE SHEET 38

8/17/19

L:\SEP-2017\457\AR-5703_RDY_psh_17.dgn