

09/28/09

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

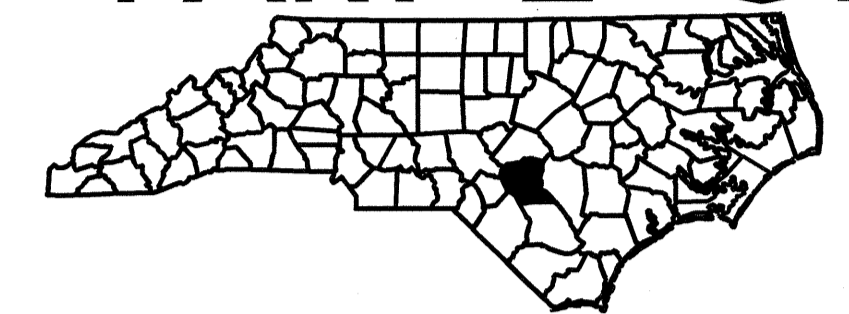
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4091	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33449.1.1	BRSTP-301(12)	P.E.	
33449.3.1	BRSTP-301(12)	RW, UTIL.	
33449.2.2	BRSTP-301(12)	CONST.	

# CUMBERLAND COUNTY

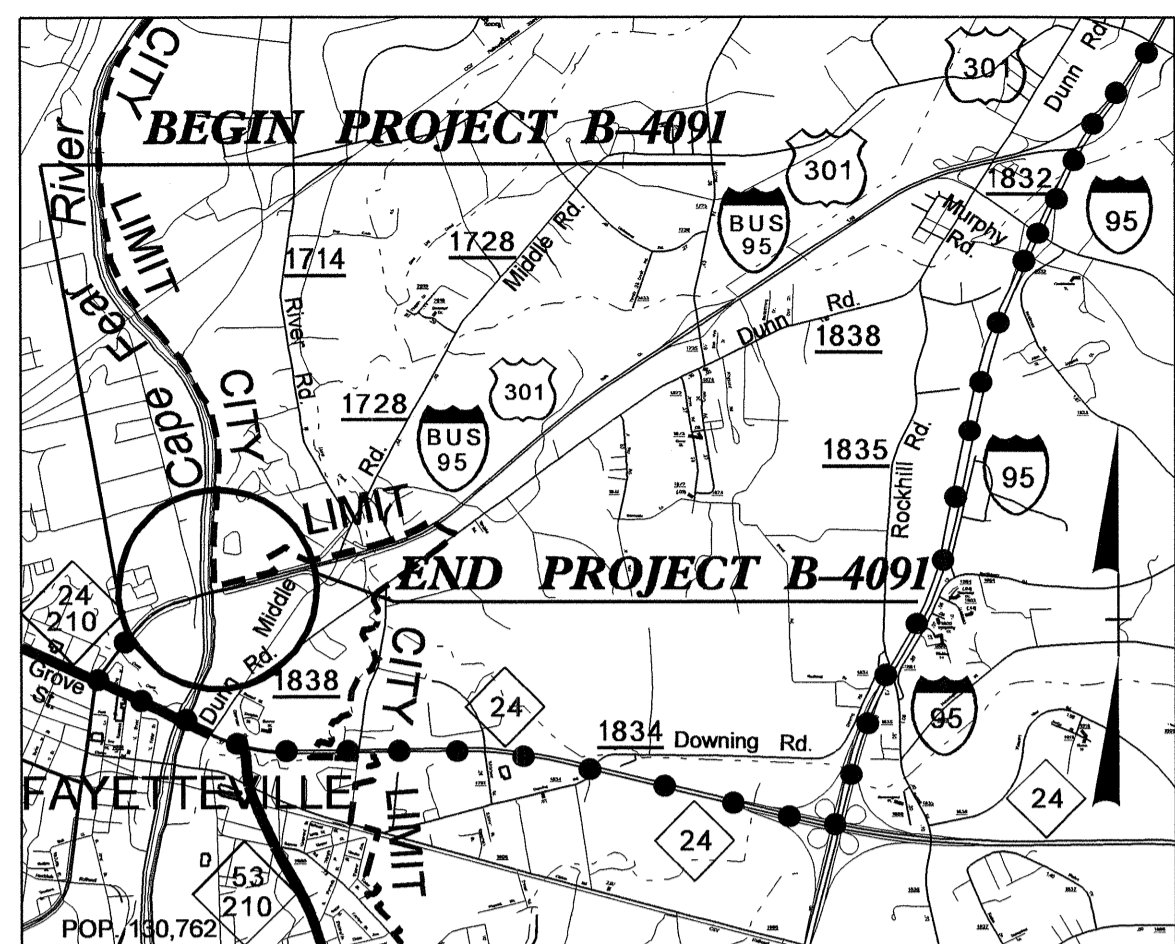
**LOCATION: I-95 BUS LOOP & US 301 - REPLACE BRIDGE 85 OVER  
CAPE FEAR RIVER, SR 1737 & SR 1739 IN FAYETTEVILLE**

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

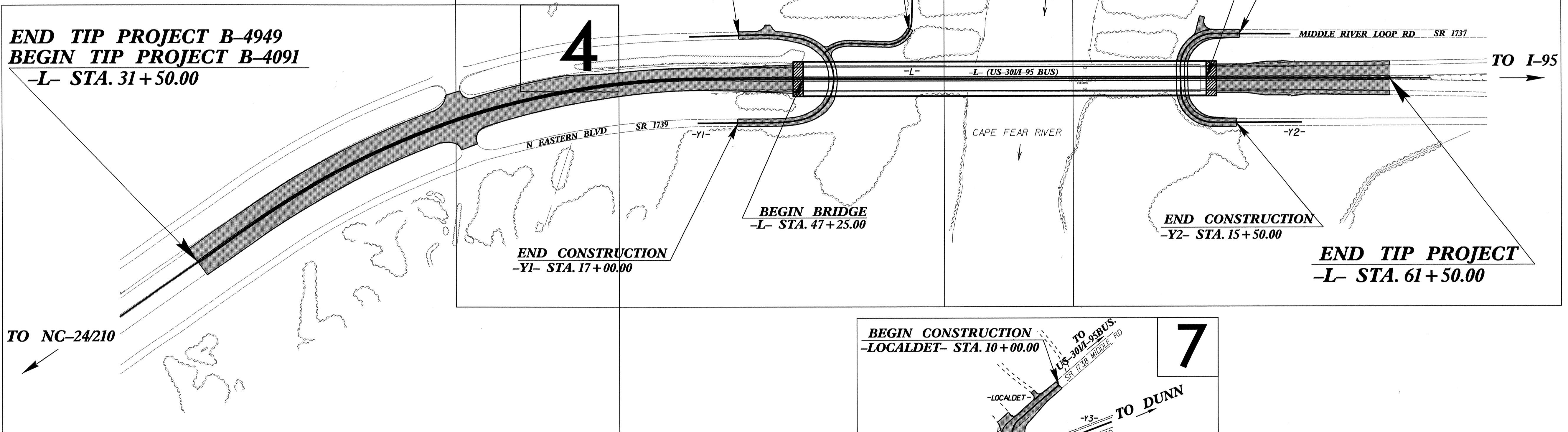
## PART 2 OF 2



**TIP PROJECT: B-4091**

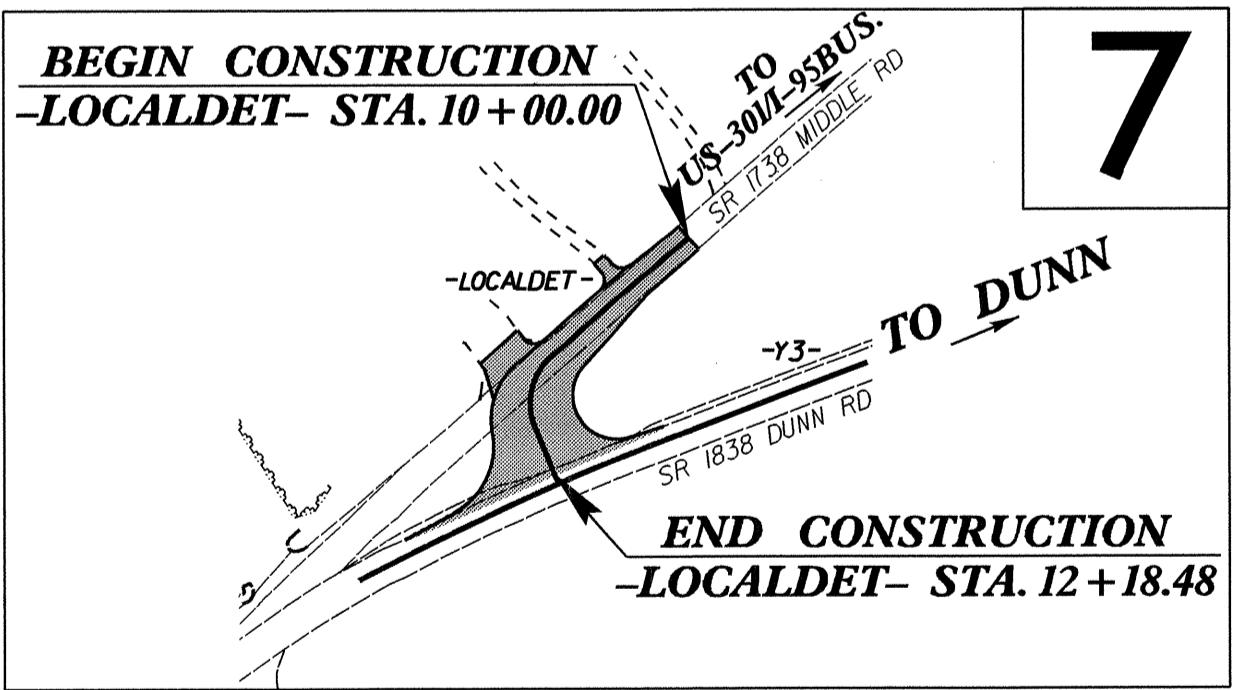


**VICINITY MAP**  
**OFF-SITE DETOUR**

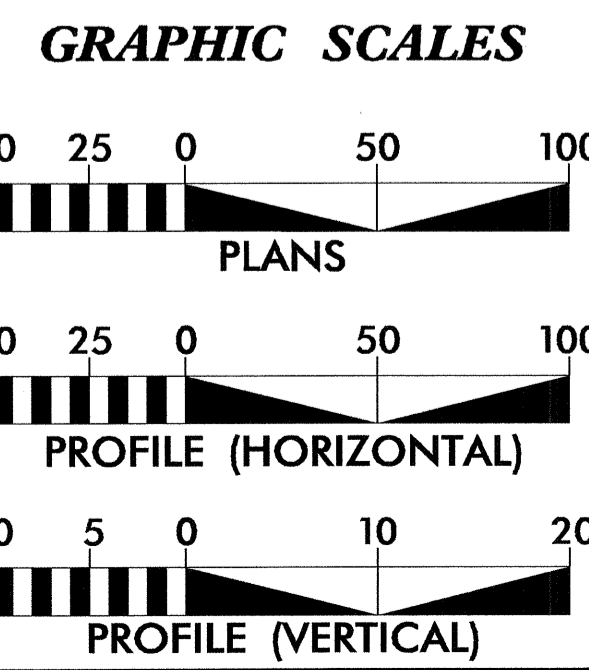


TO NC-24/210

TO I-95



**THERE IS CONTROL OF ACCESS ON THIS PROJECT.**



**DESIGN DATA**

ADT 2012 =	25,285 VPD
ADT 2035 =	37,170 VPD
DHV =	10 %
D =	55 %
*T =	7 %
V =	50 MPH
* (TTST 3% + DUAL 4%)	
FUNC. CLASS. =	FREWAY STATEWIDE TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4091 =	0.382 MILE
LENGTH STRUCTURE TIP PROJECT B-4091 =	0.186 MILE
TOTAL LENGTH TIP PROJECT B-4091 =	0.568 MILE

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

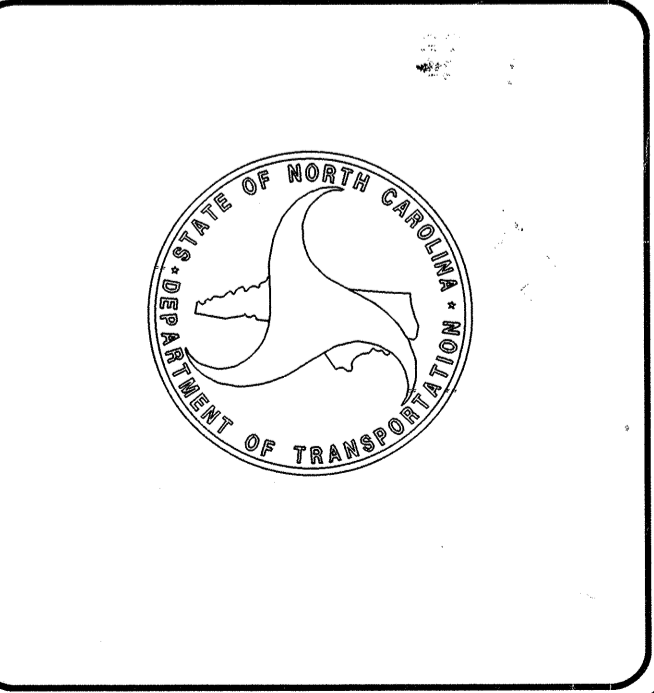
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	TONY HOUSER, PE PROJECT ENGINEER
LETTING DATE:	JEFFREY L. TEAGUE, PE PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: *Paul F. Fisher* 6/4/12 P.E.

**ROADWAY DESIGN ENGINEER**

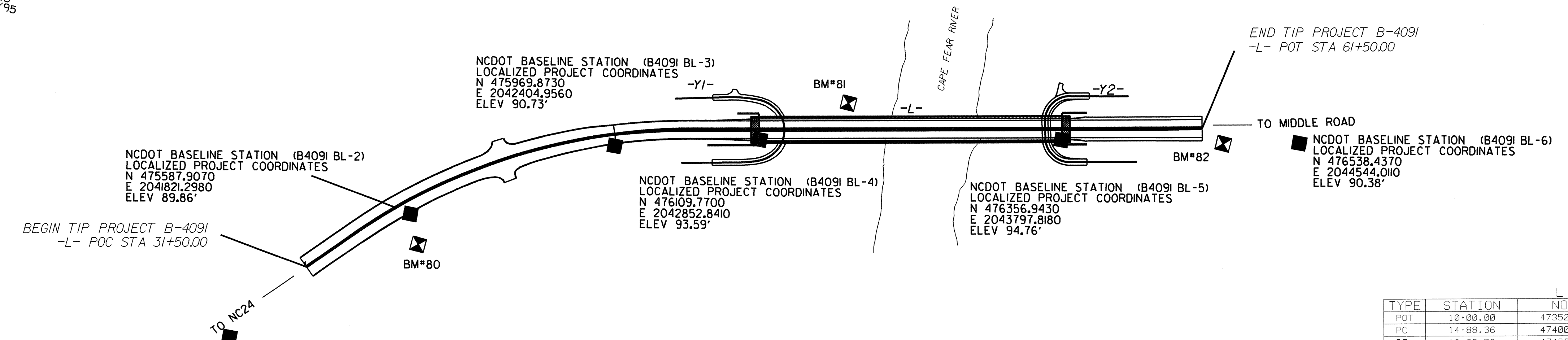
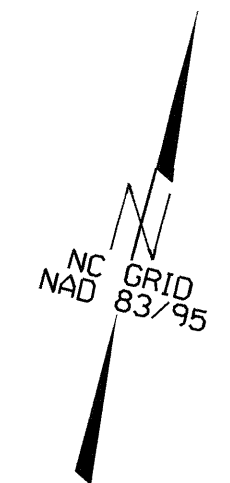
SIGNATURE: *Jeffrey L. Teague* 6-4-12 P.E.



01-JUN-2012 09:41 R:\Roadway\Proj\B4091\rdy-fsh.dgn \$\$\$USERNAME\$\$\$

**CONTRACT: C202879**

# SURVEY CONTROL SHEET B-4091



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B-4091 BL-1	475049.6230	2041358.7930	92.29	OUTSIDE PROJECT LIMITS	
2	B-4091 BL-2	475587.9070	2041821.2980	89.86	35+29.54	39.22 RT
3	B-4091 BL-3	475969.8730	2042404.9560	90.73	42+45.21	35.77 RT
4	B-4091 BL-4	476109.7700	2042852.8410	93.59	47+19.24	30.59 RT
5	B-4091 BL-5	476356.9430	2043797.8180	94.76	56+96.01	33.45 RT
6	B-4091 BL-6	476538.4370	2044544.0110	90.38	OUTSIDE PROJECT LIMITS	
7	B-4091 BL-7	476751.9160	2045358.3680	90.26	OUTSIDE PROJECT LIMITS	

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
20	B-4091 BY-20	472814.7283	2043432.3315	86.47	OUTSIDE PROJECT LIMITS	
21	B-4091 BY-21	473257.7234	2043727.5665	85.88	14+87.76	23.43 RT
11	B-4091 BY-11	473671.4010	2044001.3324	84.48	19+83.79	17.27 RT
12	B-4091 BY-12	474004.6214	2044217.4576	85.16	23+76.52	29.39 LT
13	B-4091 BY-13	474447.7981	2044510.5975	85.94	28+70.97	213.07 LT
14	B-4091 BY-14	474886.7560	2044812.8783	87.02	OUTSIDE PROJECT LIMITS	
15	B-4091 BY-15	475346.1250	2045125.4180	87.80	OUTSIDE PROJECT LIMITS	
22	B-4091 BY-22	475797.7835	2045435.9523	85.66	OUTSIDE PROJECT LIMITS	
23	B-4091 BY-23	476232.0570	2045764.2907	85.96	OUTSIDE PROJECT LIMITS	
24	B-4091 BY-24	476522.3413	2046201.1480	92.57	OUTSIDE PROJECT LIMITS	
25	B-4091 BY-25	477022.4146	2046532.5018	108.86	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
16	B-4091 BY1-16	474004.6214	2044217.4576	85.16	23+76.52	29.39 LT
17	B-4091 BY1-17	474317.3697	2044661.5683	85.92	29+17.19	18.99 LT
18	B-4091 BY1-18	474703.0769	2045201.9805	87.29	OUTSIDE PROJECT LIMITS	
19	B-4091 BY1-19	475125.2528	2045785.0600	89.39	OUTSIDE PROJECT LIMITS	

ALIGN	STATION	OFFSET	NORTH	EAST
L	31+50.00	-130.00	475416.8527	2041442.0144
L	31+50.00	130.00	475249.7829	2041641.3048
L	33+17.28	-130.00	475545.0456	2041549.4814
L	33+17.28	130.00	475378.0116	2041748.7291
L	61+50.00	137.41	476372.6148	2044263.2967
L	61+45.00	-141.16	476640.6279	2044187.1817
L	44+90.61	130.00	475955.1638	2042657.2599
L	44+90.61	-130.00	476206.5076	2042590.7295

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	17+75.58	-23.32	475955.1638	2042657.2599
Y1	10+43.02	-25.68	476206.5076	2042590.7295

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	14+50.00	50.46	476245.5341	2043782.1749
Y2	14+75.00	55.00	476234.7386	2043822.3003
Y2	14+87.27	51.09	476240.2189	2043842.3221
Y2	14+87.27	31.56	476259.5127	2043839.3074

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	25+70.00	-31.27	474124.3368	2044372.7241

ALIGN	STATION	OFFSET	NORTH	EAST
LOCALDET	10+50.00	-31.28	474163.9076	2044335.8027

TYPE	STATION	NORTH	EAST
POT	10+00.00	473520.7736	2040507.8694
PC	14+88.36	474004.8012	2040572.8012
PT	18+92.53	474369.6896	2040733.7911
PC	33+17.28	475461.5286	2041649.1052
PT	44+90.61	476080.8357	2042623.9947
POT	62+50.00	476531.8395	2044324.8091

TYPE	STATION	NORTH	EAST
POT	10+00.00	476169.7196	2042556.7204
PC	11+59.00	476214.6573	2042709.2379
PCC	12+68.82	476234.3829	2042817.0686
PCC	15+48.58	476042.5959	2042868.3348
PT	16+04.87	476022.9114	2042815.6736
POT	17+97.87	475971.7378	2042629.5815

TYPE	STATION	NORTH	EAST
POT	10+00.00	476548.7779	2043968.3494
PC	11+85.94	476582.2042	2043788.3364
PT	13+16.98	476400.1199	2043730.0795
PC	13+71.65	476347.5938	2043745.2104
PT	14+95.85	476292.4729	2043842.8217
POT	17+09.32	476347.8079	2044048.9957

TYPE	STATION	NORTH	EAST
POT	10+00.00	472867.5143	2043433.9722
PC	20+90.12	473769.0546	2044046.8311
PT	24+74.34	474043.0400	2044313.3990
POT	32+00.00	474467.3138	2044902.1053

TYPE	STATION	NORTH	EAST
POT	10+00.00	474785.8680	2044725.1988
PC	11+72.10	474644.0655	2044627.6830
PT	14+78.82	474356.2391	2044630.8582
POT	15+47.30	474300.6840	2044670.8961

TYPE	STATION	NORTH	EAST
POT	10+00.00	474222.8404	2044338.1179
PC	11+29.35	474115.9629	2044265.2659
PT	11+85.39	474063.4826	2044266.5506
POT	12+17.67	474037.7377	2044286.0104
POT	12+29.67	474028.1647	2044293.2464

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "VANDER RM3" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 464925.950067(±) EASTING: 2069182.42002(±) ELEVATION: 151.82'(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879130

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "VANDER RM3" TO -L- STATION 31+50.00 IS N 65°59'56.2" W 28038.5872'

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

..... ELEVATION = 87.07  
 80 N 475498 E 2041872  
 L STATION 35+02.00 139 RIGHT  
 R/R SPIKE IN BASE OF 14" GUM

..... ELEVATION = 68.04  
 81 N 476299 E 2043108  
 L STATION 50+14.00 88 LEFT  
 R/R SPIKE IN BASE OF 14" PINE

..... ELEVATION = 89.94  
 82 N 476460 E 2044289  
 L STATION 61+97.00 60 RIGHT  
 R/R SPIKE IN BASE OF 10" SYCAMORE

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCTHIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruction/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4091\_LS\_CONTROL\_10092.TXT

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

© INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

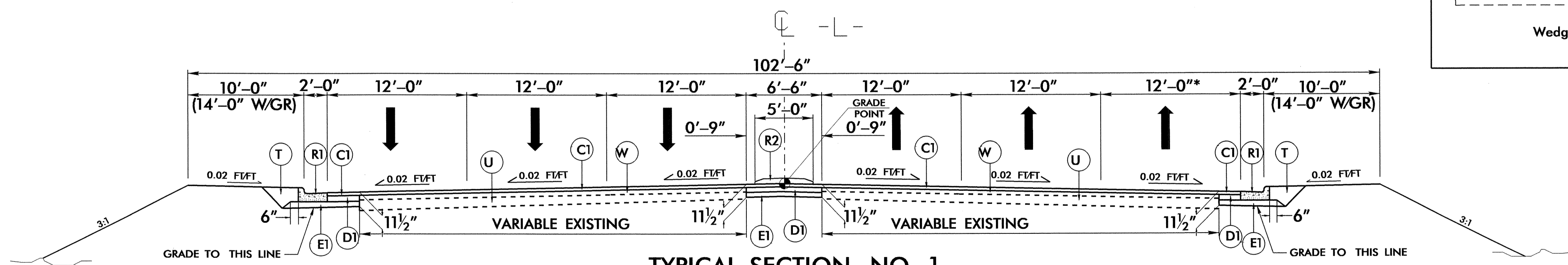
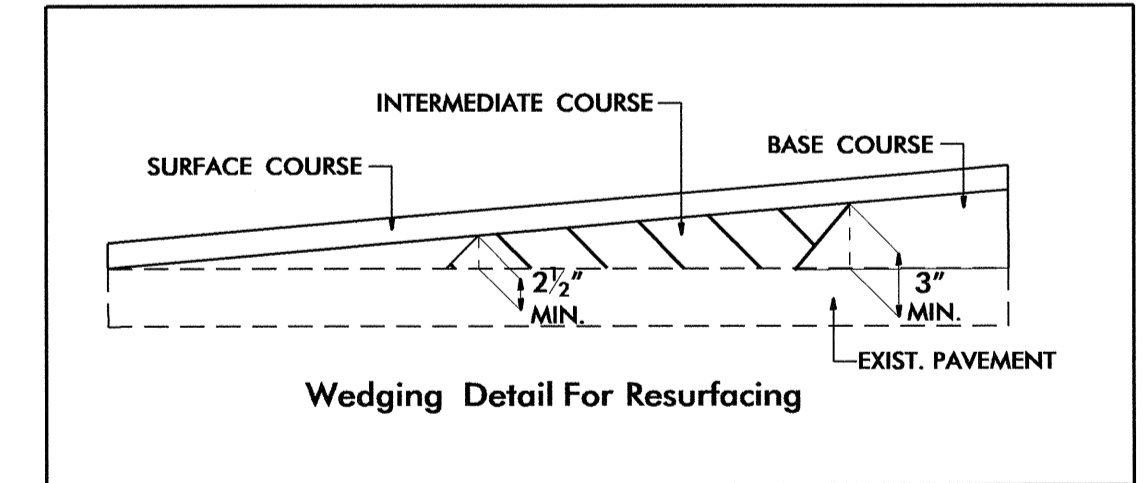
**NOTE: DRAWING NOT TO SCALE**

6/2/99 25 JUN 2012 10:43:13 C:\GIS\DRAWING\B4091\B4091\_1a\_1c.dgn

PROJECT REFERENCE NO. B-4091	SHEET NO. 2
ROADWAY DESIGN ANTHONY AARON HOUSER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18494	PAVEMENT DESIGN CLYDE S. MORRISON NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896

6-4-12  
5/31/12

PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN			
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	E3	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C3	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137 1/2 LBS. PER SQ. YD.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C4	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137 1/2 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J	PROP. 6" AGGREGATE BASE COURSE.
C5	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.
C6	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED).
C7	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R3	SHOULDER BERM GUTTER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	DOUBLE FACED CONCRETE BARRIER, TYPE IV.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D4	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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	

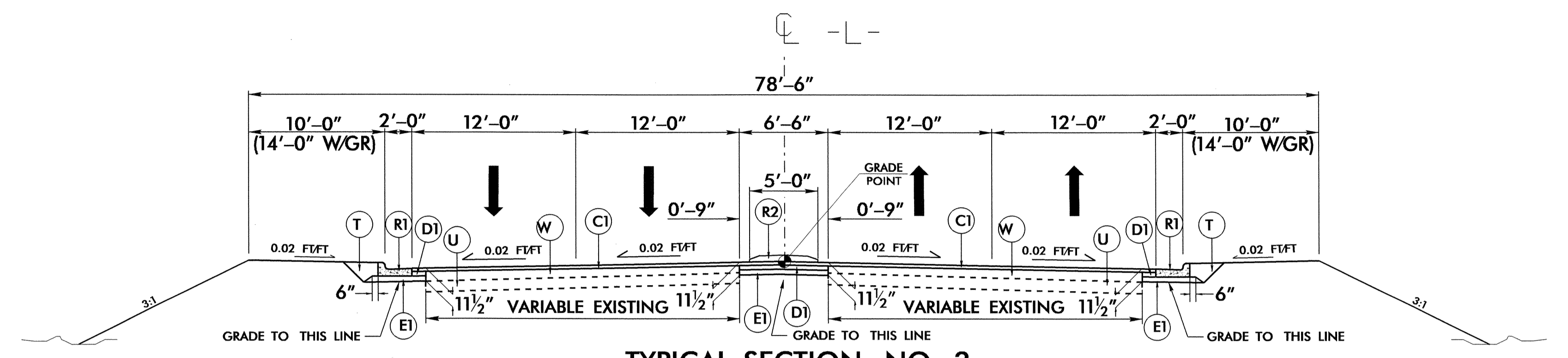


**TYPICAL SECTION NO. 1**  
 USE TYPICAL SECTION NO. 1 FOR THE FOLLOWING:  
 -L- STA. 31+50.00 TO -L- STA. 42+50.00

\*NOTE: LANE WIDTH TAPERS TO ZERO AT STATION 44+00.00

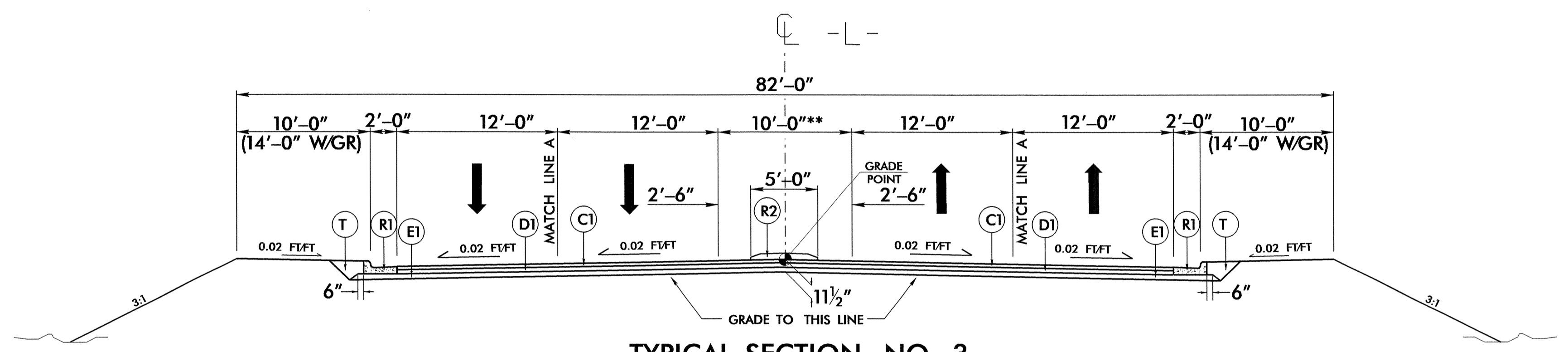
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PROJECT REFERENCE NO. <b>B-4091</b>	SHEET NO. <b>2-A</b>
ROADWAY DESIGN ENGINEER <b>ANTHONY AARON HOUSER</b> SEAL 18494 6.4.12	PAVEMENT DESIGN ENGINEER <b>CLYDE S. MORRISON</b> SEAL 22898 5/31/12



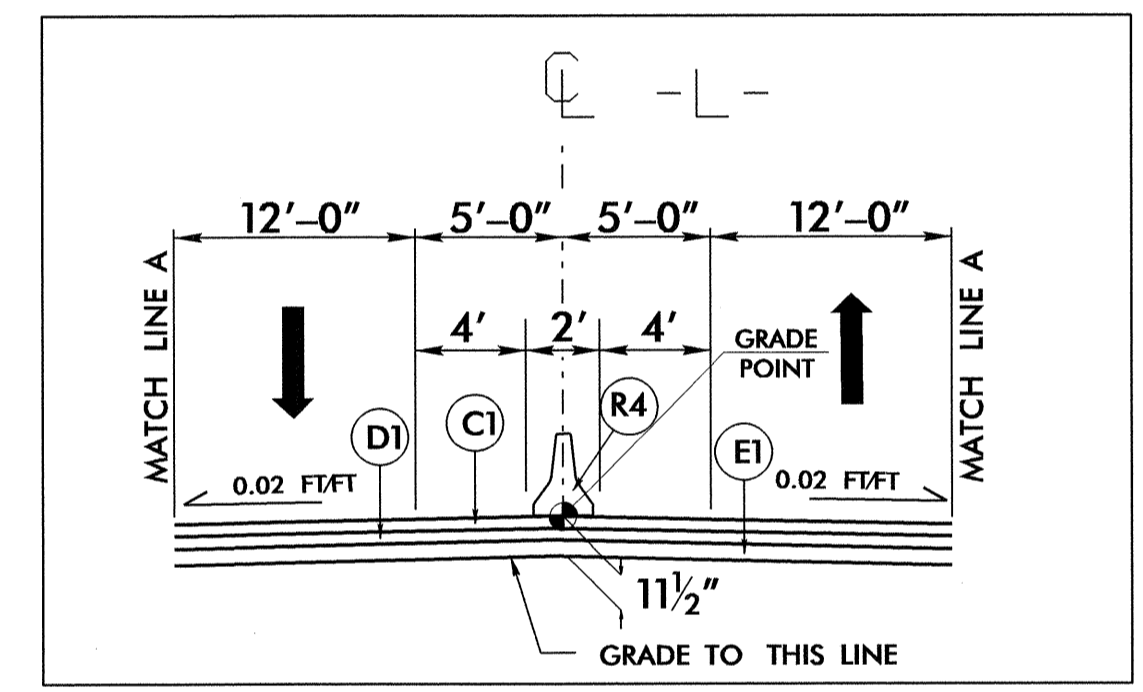
**TYPICAL SECTION NO. 2**

USE TYPICAL SECTION NO. 2 FOR THE FOLLOWING:  
-L- STA. 42+50.00 TO -L- STA. 45+00.00



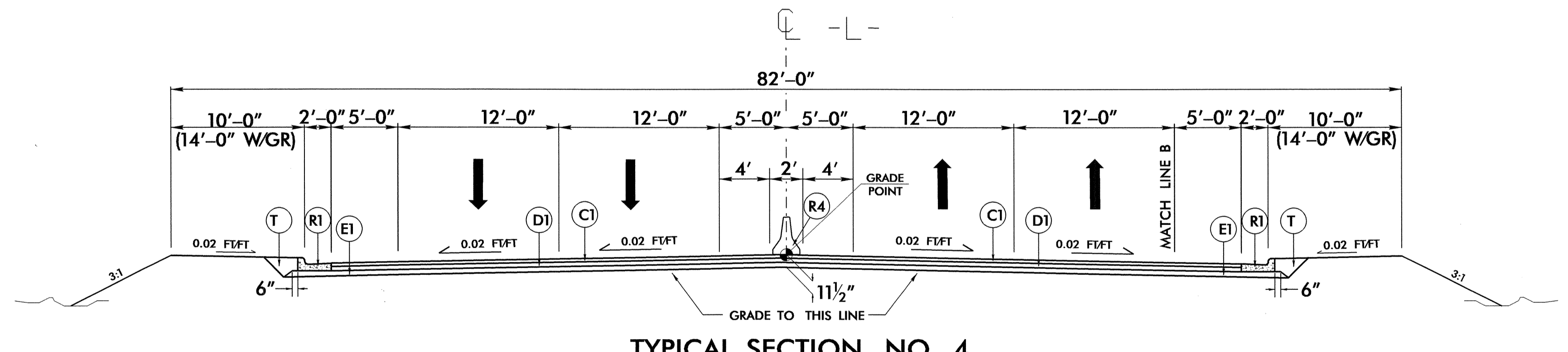
**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3 FOR THE FOLLOWING:  
-L- STA 45+00.00 TO -L- STA 47+25.00 (BEGIN BRIDGE)



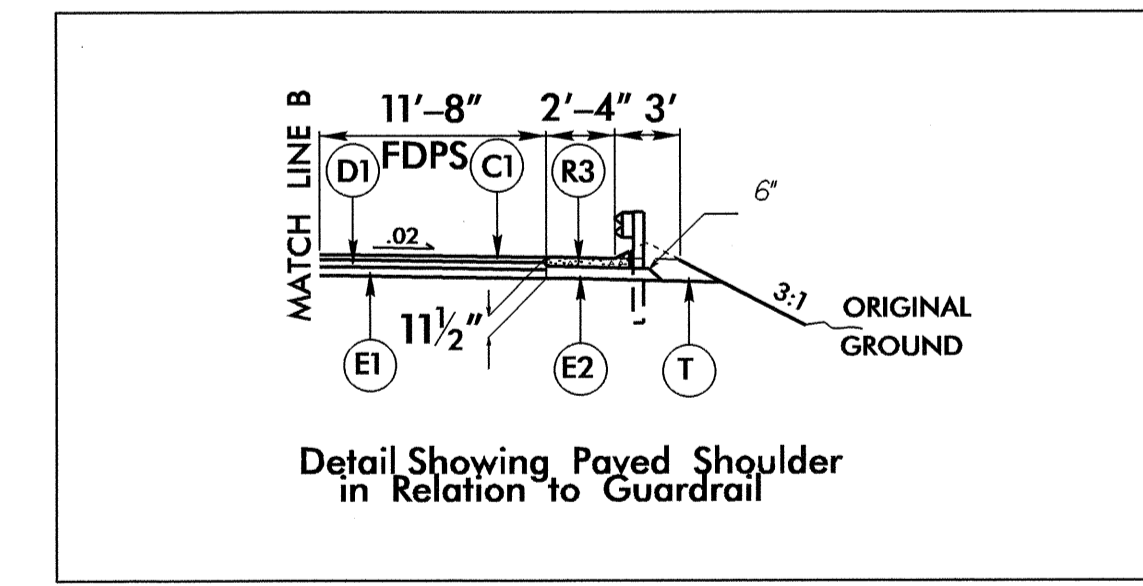
**TYPICAL SECTION NO. 3A**

\*\* USE TYPICAL SECTION NO. 3A FOR THE FOLLOWING:  
-L- STA 47+01.00 TO -L- STA 47+25.00



**TYPICAL SECTION NO. 4**

USE TYPICAL SECTION NO. 4 FOR THE FOLLOWING:  
-L- STA 57+05.00 (END BRIDGE) TO -L- STA 59+00.00



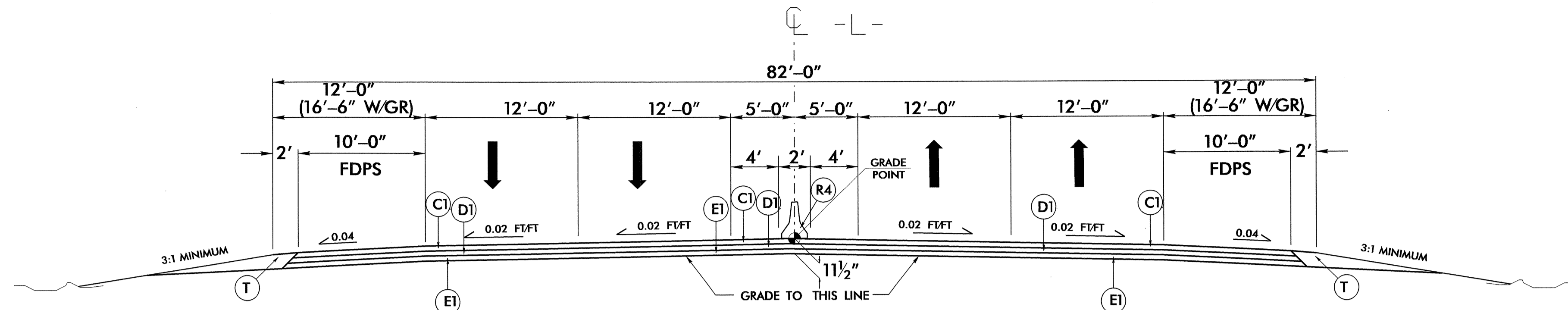
USE SHOULDER BERM GUTTER FOR THE FOLLOWING:  
-L- STA 58+50.00 TO -L- STA 59+11.25 (RT.)  
-L- STA 58+50.00 TO -L- STA 58+86.25 (LT.)

\*NOTE: 2'-6" C&G SECTION TRANSITIONS TO SHOULDER BERM GUTTER AT -L- STA. 58+00.00 TO -L- STA 58+50.00 (SEE PLAN VIEW)

PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN SEE SHEET 2 FOR FULL DESCRIPTIONS	
C1	3" S9.5C
C2	VAR DEPTH S9.5C
C3	1 1/4" SF9.5A
C4	2 1/2" SF9.5A
D1	4" I19.0C
D2	VAR DEPTH I19.0C
E1	4 1/2" B25.0C
E2	VAR DEPTH B25.0C
E3	4" B25.0B
R1	2'-6" CONC. C&G
R2	5" CONC. ISLAND
R3	SHLD. BERM GUTT.
R4	DBL FC CONC BAR
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

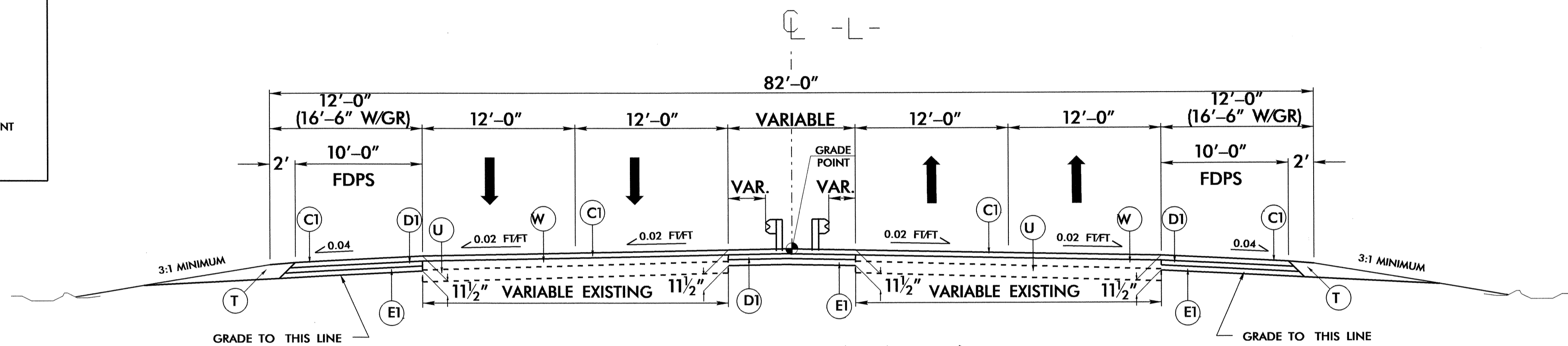
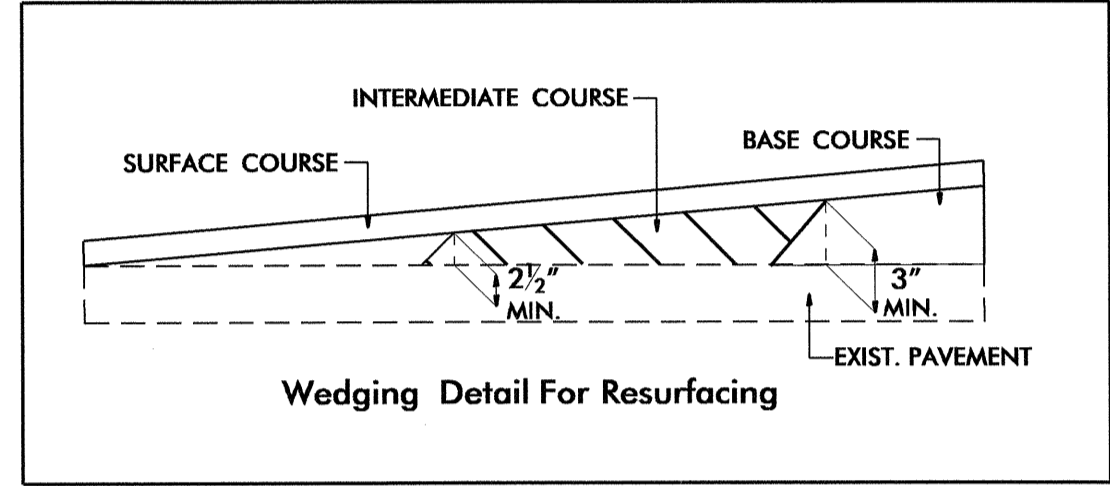
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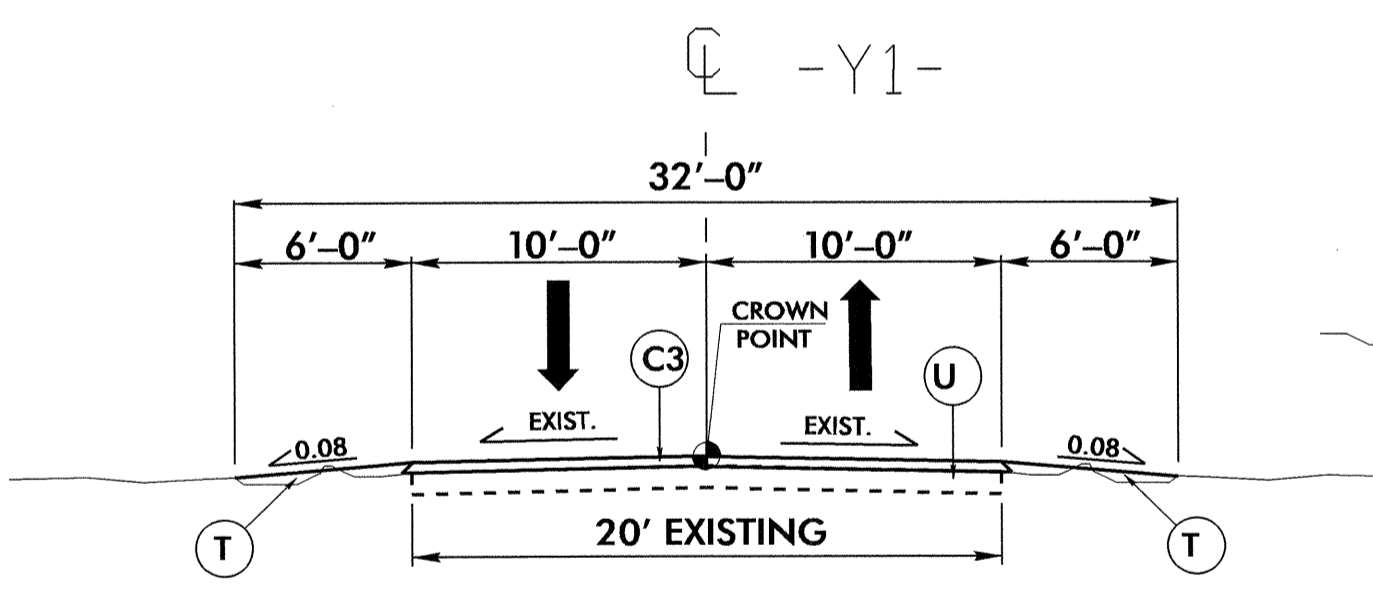
**TYPICAL SECTION NO. 5**

USE TYPICAL SECTION NO. 5 FOR THE FOLLOWING:  
-L- STA 59+00.00 TO -L- STA 60+00.00



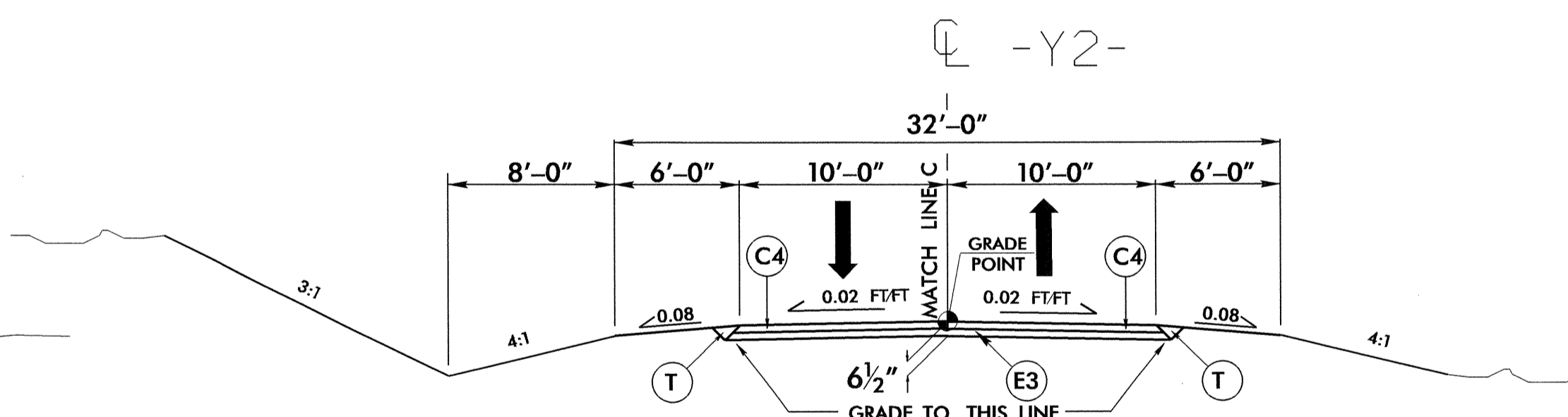
**TYPICAL SECTION NO. 6**

USE TYPICAL SECTION NO. 6 FOR THE FOLLOWING:  
-L- STA. 60+00.00 TO -L- STA. 61+50.00



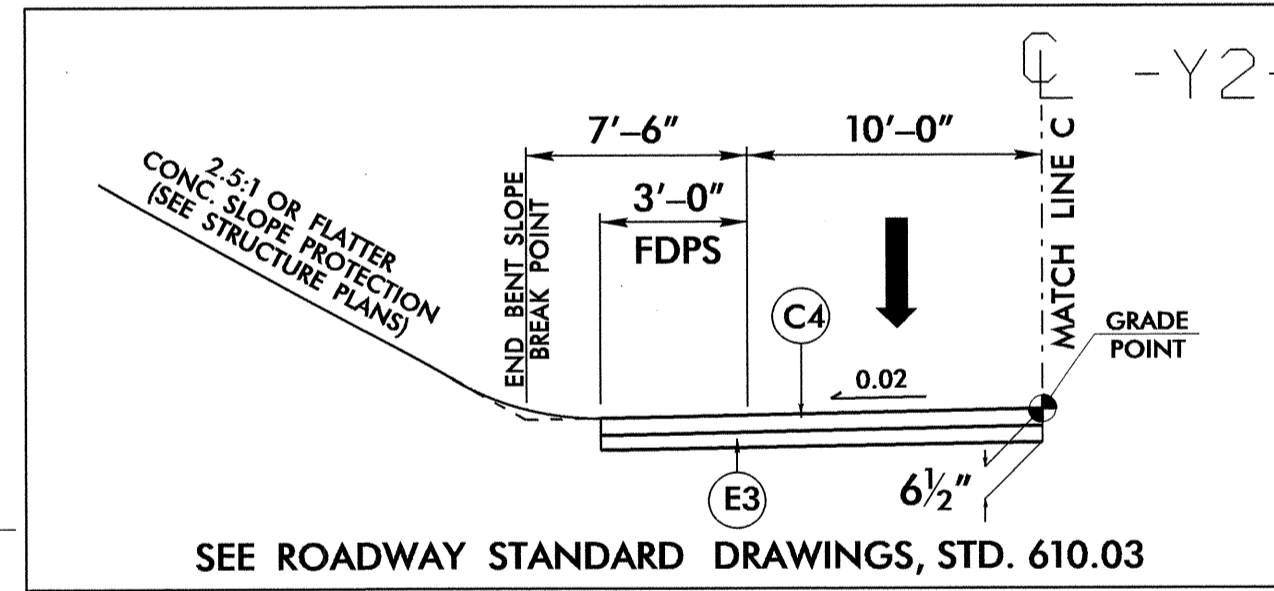
**TYPICAL SECTION NO. 7**

USE TYPICAL SECTION NO. 7 FOR THE FOLLOWING:  
-Y1- STA 11+20.00 TO -Y1- STA 17+00.00



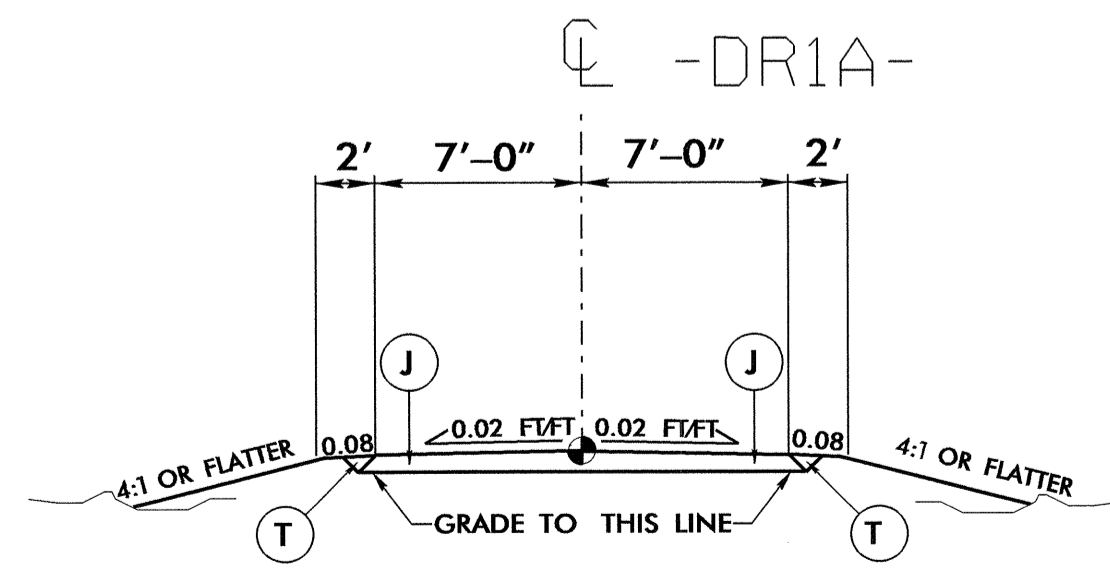
**TYPICAL SECTION NO. 8**

USE TYPICAL SECTION NO. 8 FOR THE FOLLOWING:  
-Y2- STA 11+25.00 TO -Y2- STA 15+50.00



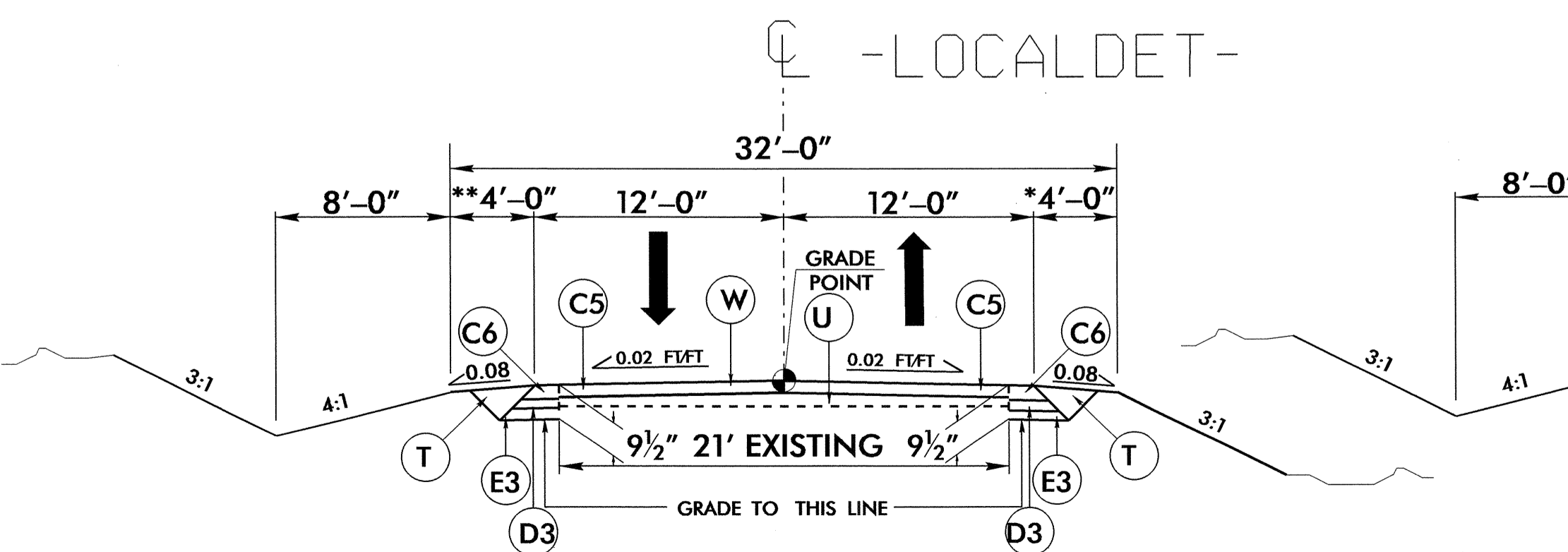
**TYPICAL SECTION NO. 8A**

USE TYPICAL SECTION NO. 8A FOR THE FOLLOWING:  
-Y2- STA 12+50.00 TO -Y2- STA 14+30.00 LT.



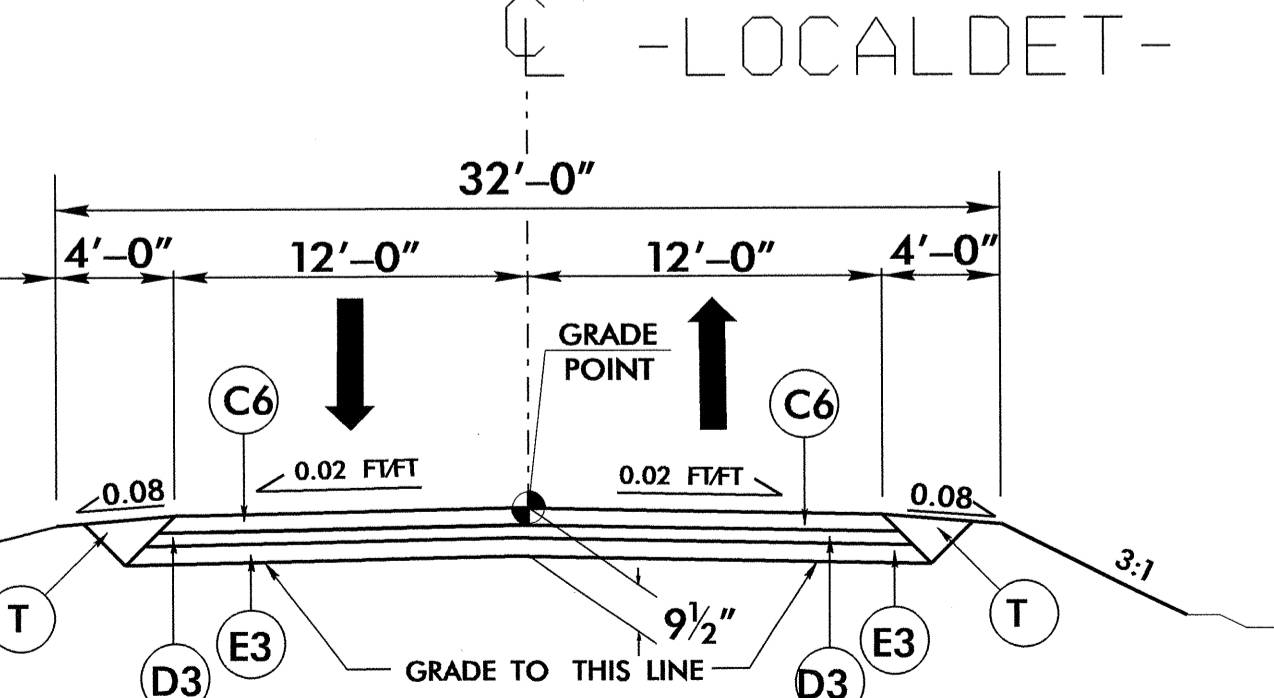
**TYPICAL SECTION NO. 9**

USE TYPICAL SECTION NO. 9 FOR THE FOLLOWING:  
-DRIA- STA 10+09.44 TO -DRIA- STA 12+30.00



**TYPICAL SECTION NO. 10**

USE TYPICAL SECTION NO. 10 FOR THE FOLLOWING:  
-LOCALDET- STA 10+00.00 TO -LOCALDET- STA 11+75.00  
\* USE 3'-0" SHOULDER RT. OF -LOCALDET- STA 10+00.00 TO -LOCALDET- STA 11+30.00  
\*\* USE 3'-0" SHOULDER LT. OF -LOCALDET- STA 10+00.00 TO -LOCALDET- STA 10+50.00



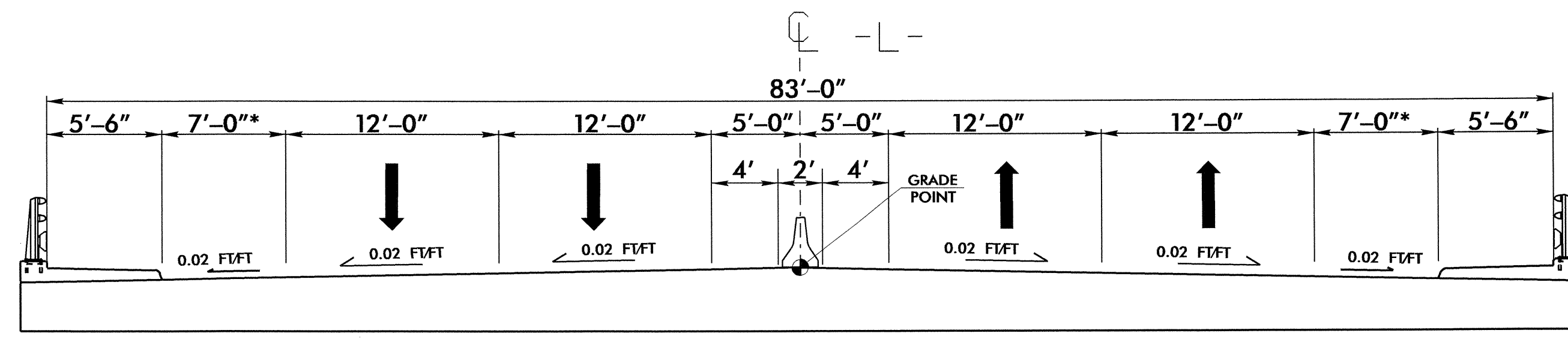
**TYPICAL SECTION NO. 11**

USE TYPICAL SECTION NO. 11 FOR THE FOLLOWING:  
-LOCALDET- STA 11+75.00 TO -LOCALDET- STA 12+18.48

**PAVEMENT SCHEDULE**  
FINAL PAVEMENT DESIGN  
SEE SHEET 2 FOR FULL DESCRIPTIONS

C1	3" S9.5C
C2	VAR DEPTH S9.5C
C3	1 1/4" SF9.5A
C4	2 1/2" SF9.5A
C5	1 1/2" S9.5B
C6	3" S9.5B
C7	VAR DEPTH S9.5B
D1	4" I19.0C
D2	VAR DEPTH I19.0C
D3	2 1/2" I19.0B
E1	4 1/2" B25.0C
E2	VAR DEPTH B25.0C
E3	4" B25.0B
E4	VAR DEPTH B25.0B
J	6" AGGREGATE BASE COURSE
R1	2'6" CONC. C&G
R3	SHLD. BERM GUTT.
R4	DBL FC CONC BAR
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

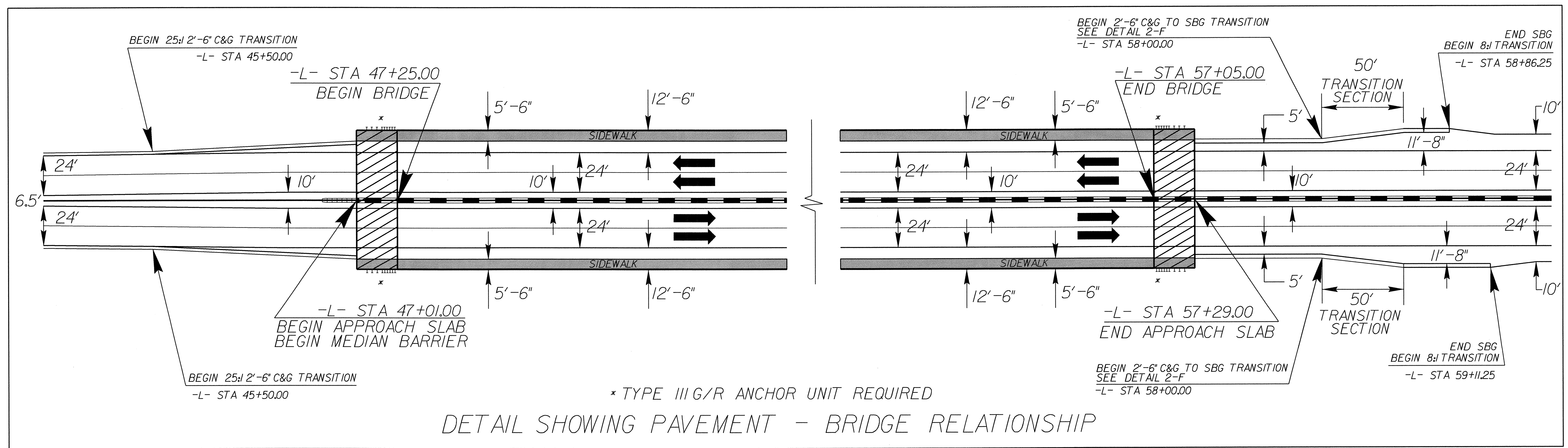
6/2/99  
31-MAY-2012 07:50  
P:\Roadway\Projects\104091\_rdy\_twp.dgn  
\$\$\$\$\$\$  
\$\$\$\$\$\$



**TYPICAL SECTION NO. 12**

\*NOTE: 7' OFFSET FOR HYDRAULIC SPREAD

USE TYPICAL SECTION NO. 12 FOR THE FOLLOWING:  
 -L- STA. 47+25.00 TO -L- STA. 57+05.00



\* TYPE III G/R ANCHOR UNIT REQUIRED  
 DETAIL SHOWING PAVEMENT - BRIDGE RELATIONSHIP

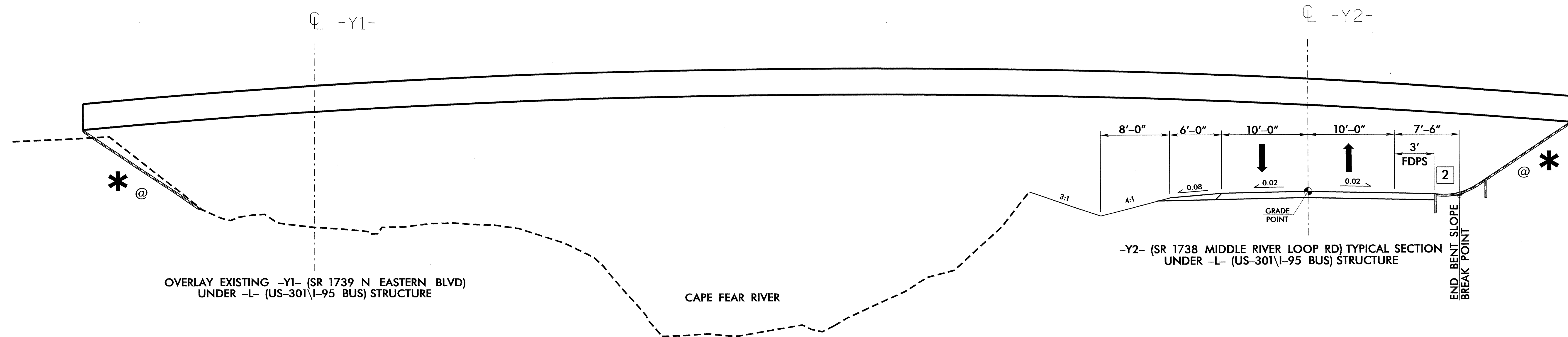
6/2/12

FILE: MAY-2012, 07:50, B4091L\_rdy\_top.dgn



*Anthony Houser*

# STRUCTURE TYPICAL SECTION



**NOTES:**

1. SEE SHEET 2-C FOR BRIDGE SKETCH
2. SEE SHEET 5 FOR PLAN VIEW
3. SEE SHEET 2 FOR -L- TYPICAL SECTION
4. SEE SHEET 2-B FOR -Y1- TYPICAL SECTION

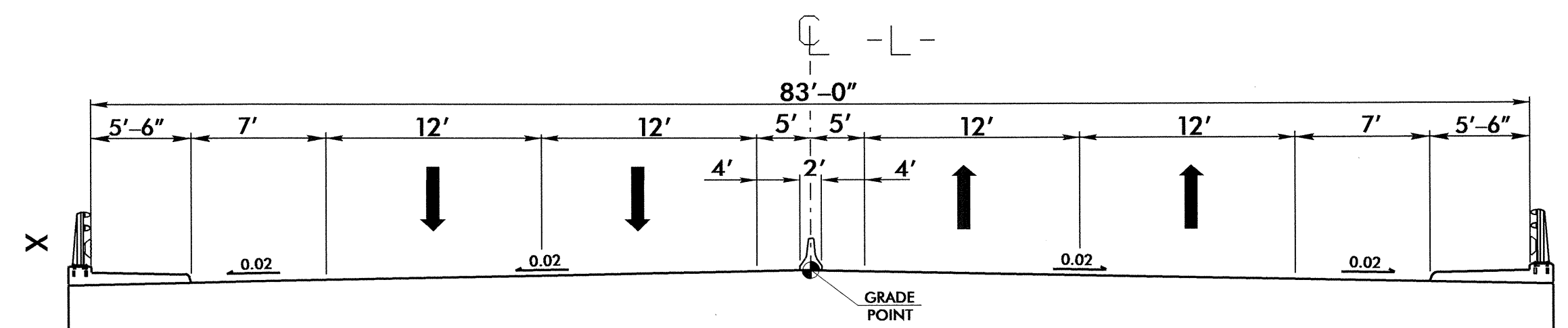
**NOTES:**

1. SEE SHEET 2-C FOR BRIDGE SKETCH
2. SEE SHEET 6 FOR PLAN VIEW
3. SEE SHEET 2 FOR -L- TYPICAL SECTION
4. SEE SHEET 2-B FOR -Y2- TYPICAL SECTION

DESIGN DATA	-Y1-	-L-
2012 ADT	495	25,285
2035 ADT	685	37,170
DHV (%)		10
D (%)		55
DUAL (%)		4
TTST (%)		3
V (MPH)	25	50
FUNC CLASS	LOCAL	FREEWAY

MINIMUM VERTICAL CLEARANCE = 15' TO 15'-6"

- × BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT
- @ SLOPES DETERMINED BY GEOTECHNICAL ENGINEERING UNIT
- \* BENT LOCATION TO BE DETERMINED BY STRUCTURE ENGINEERING UNIT



TYPICAL SECTION ON STRUCTURE

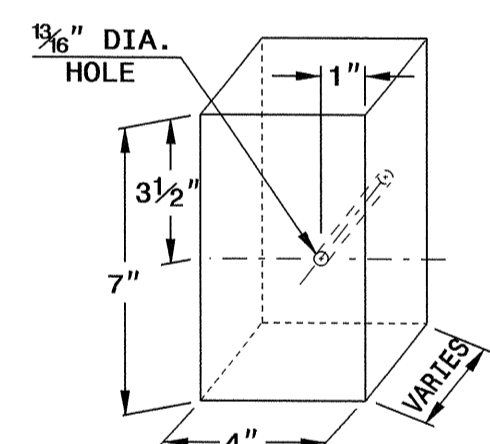
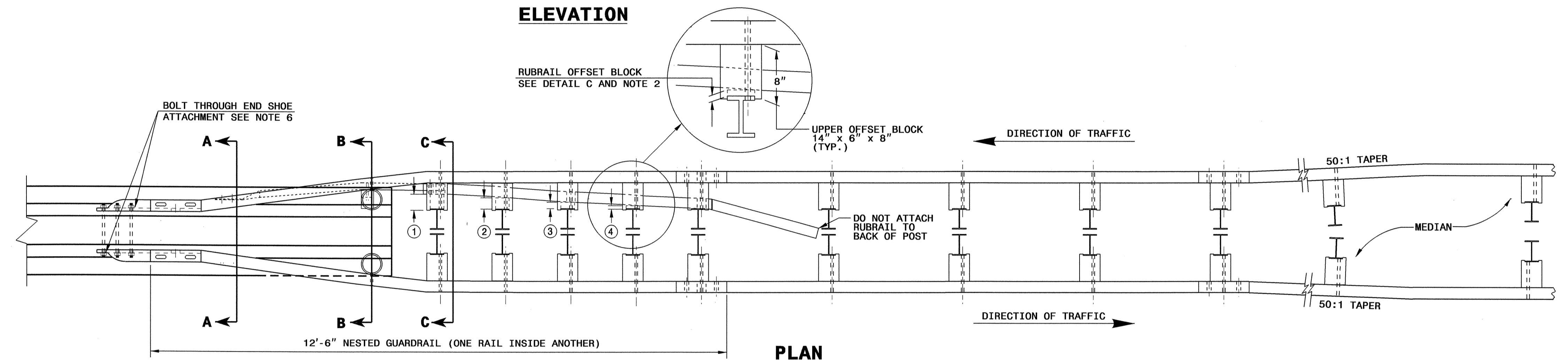
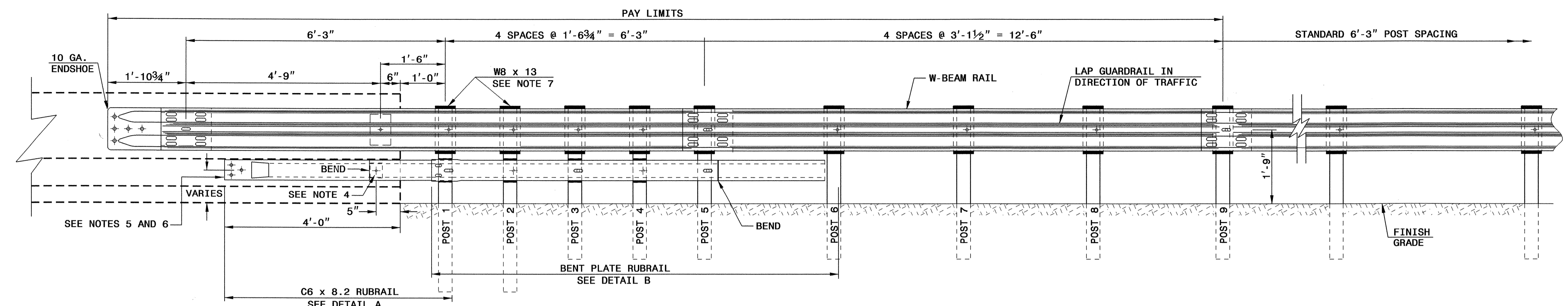
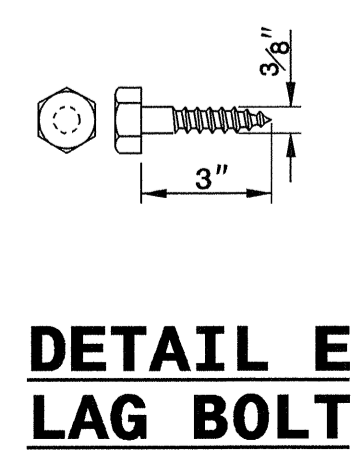
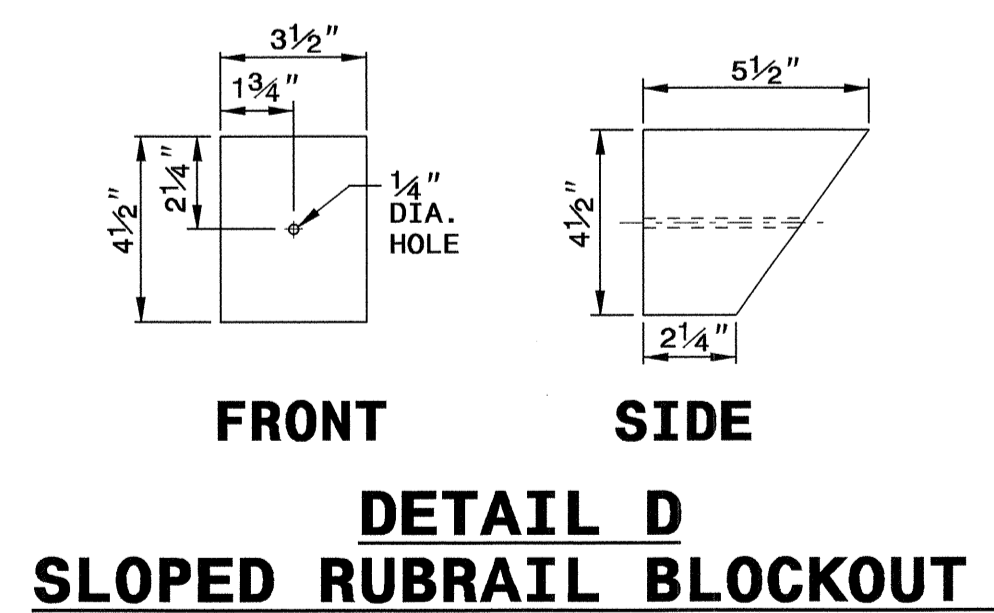
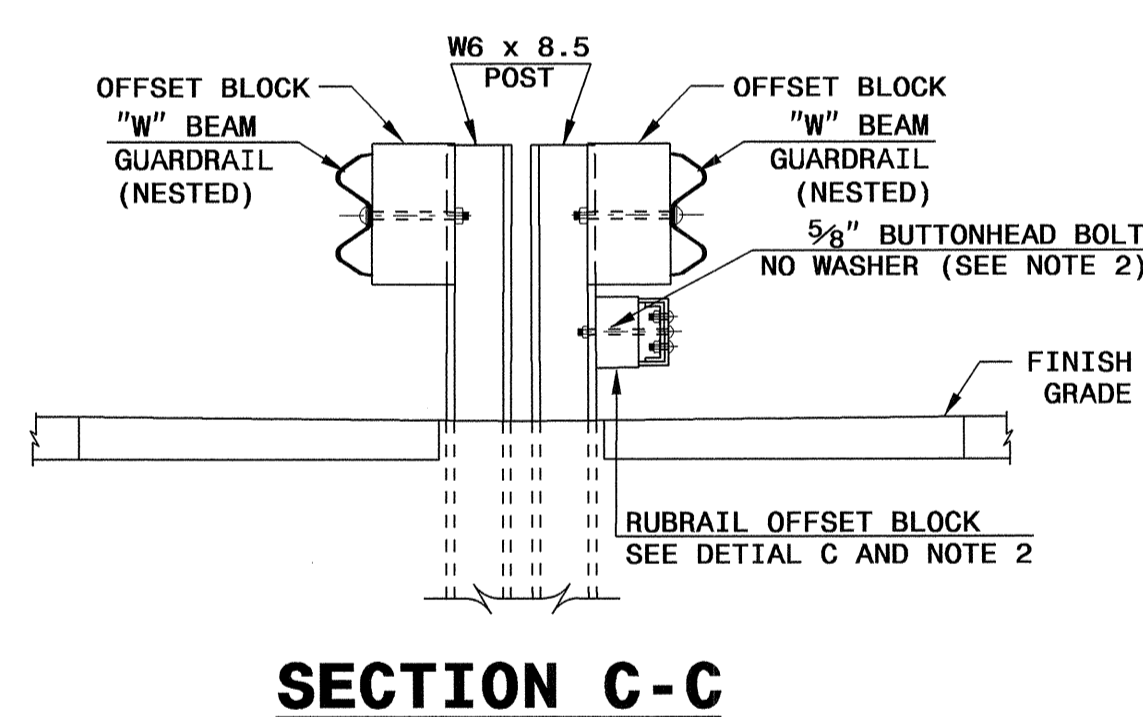
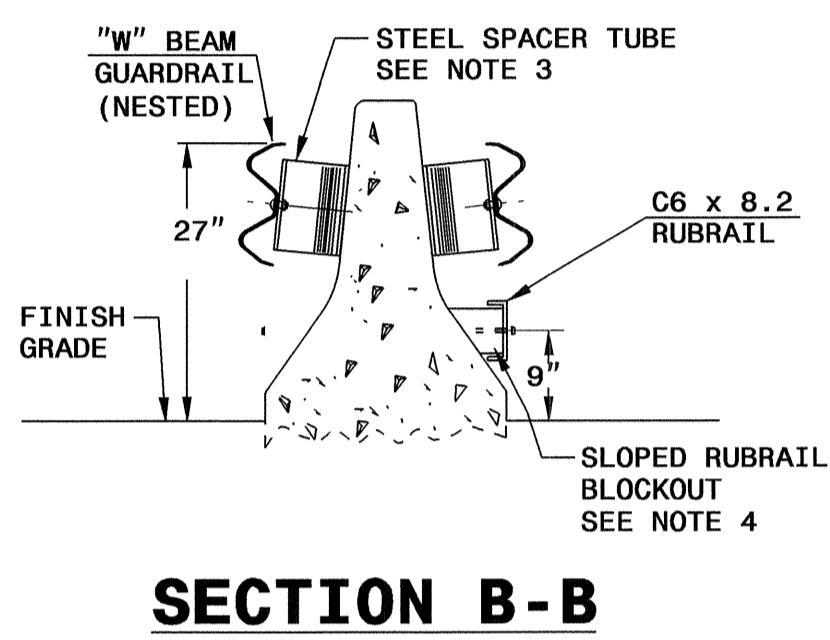
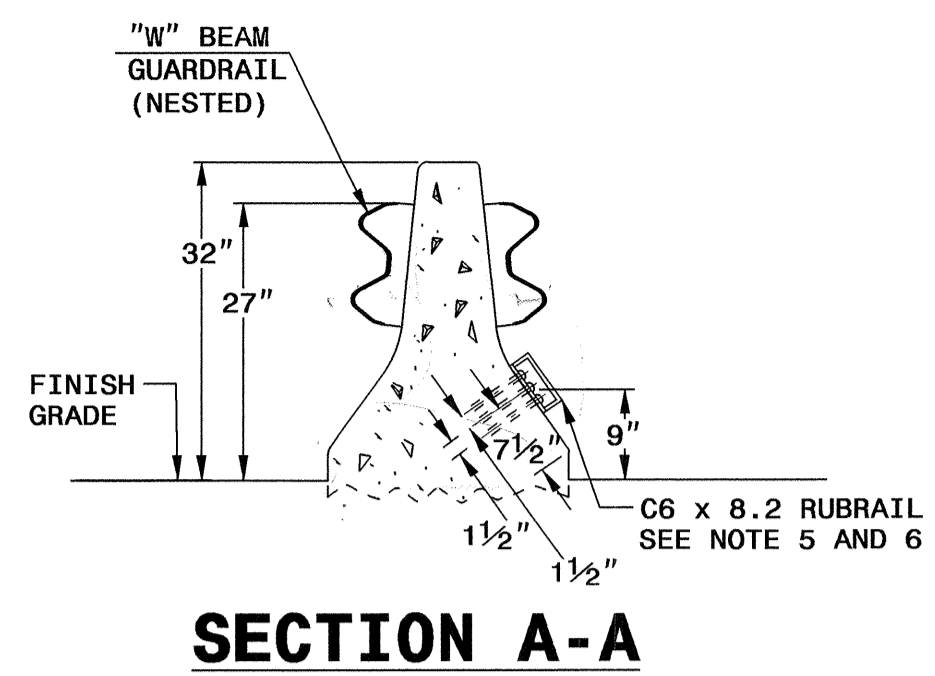
DESIGN DATA	-Y2-	-L-
2012 ADT	495	25,285
2035 ADT	685	37,170
DHV (%)		10
D (%)		55
DUAL (%)		4
TTST (%)		3
V (MPH)	25	50
FUNC CLASS	LOCAL	FREEWAY

MINIMUM VERTICAL CLEARANCE = 15' TO 15'-6"

- × BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT [2] SEE STD. 610.03
- @ SLOPES DETERMINED BY GEOTECHNICAL ENGINEERING UNIT
- \* BENT LOCATION TO BE DETERMINED BY STRUCTURE ENGINEERING UNIT

6/2/09

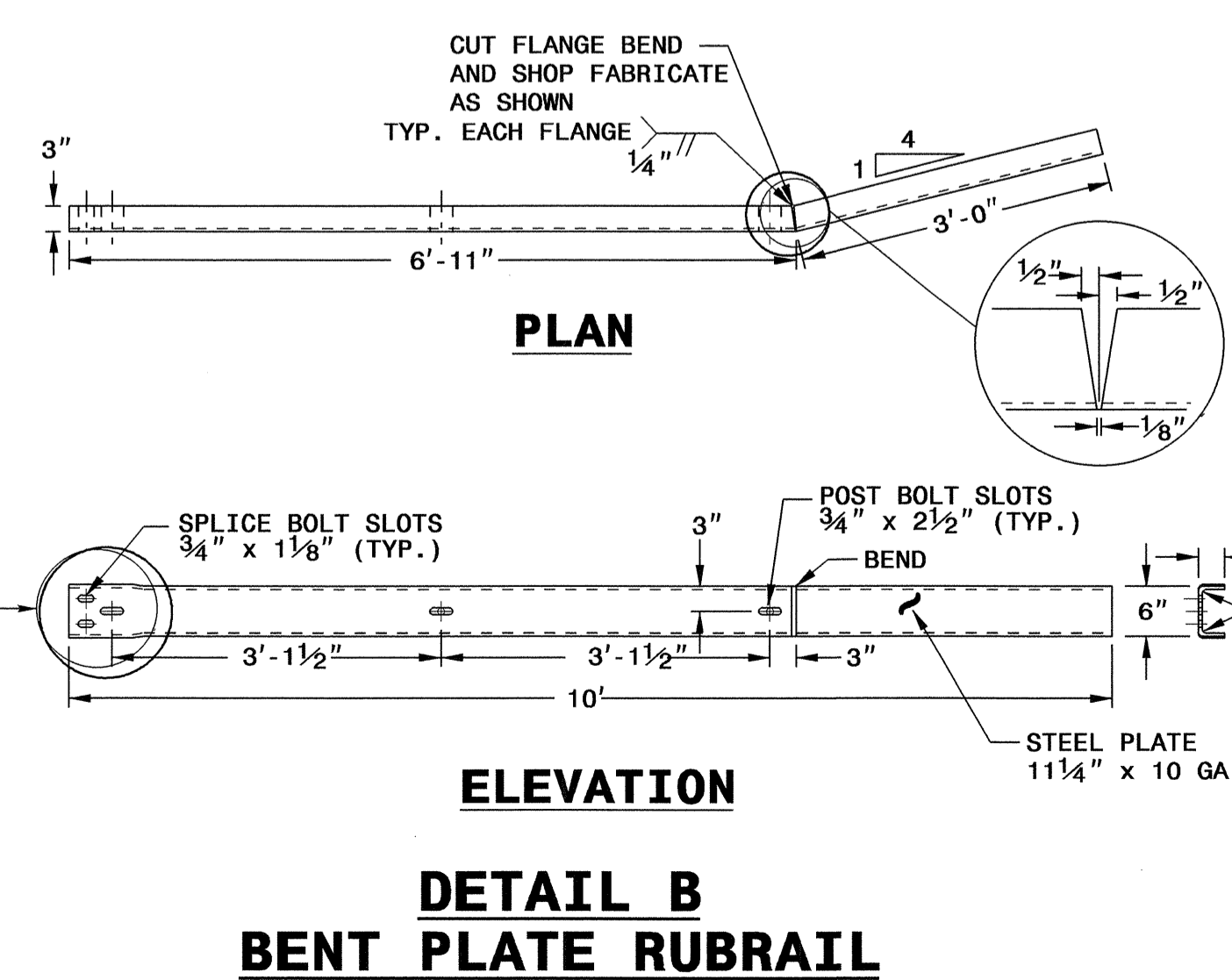
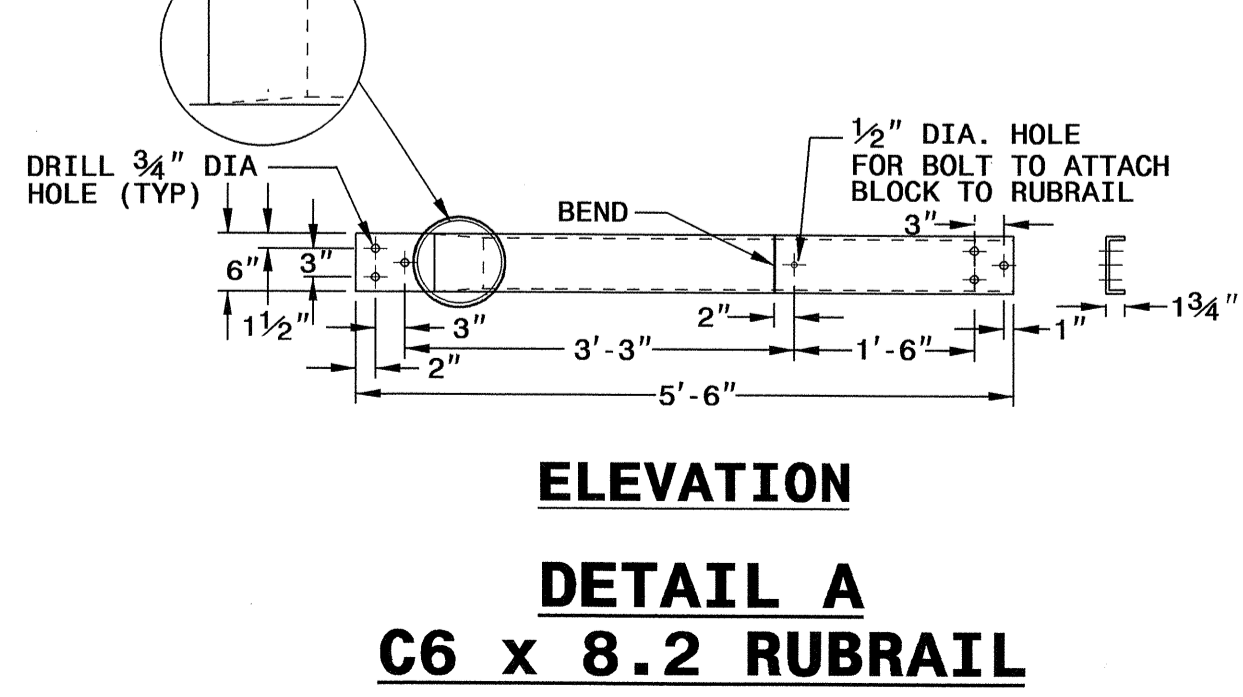
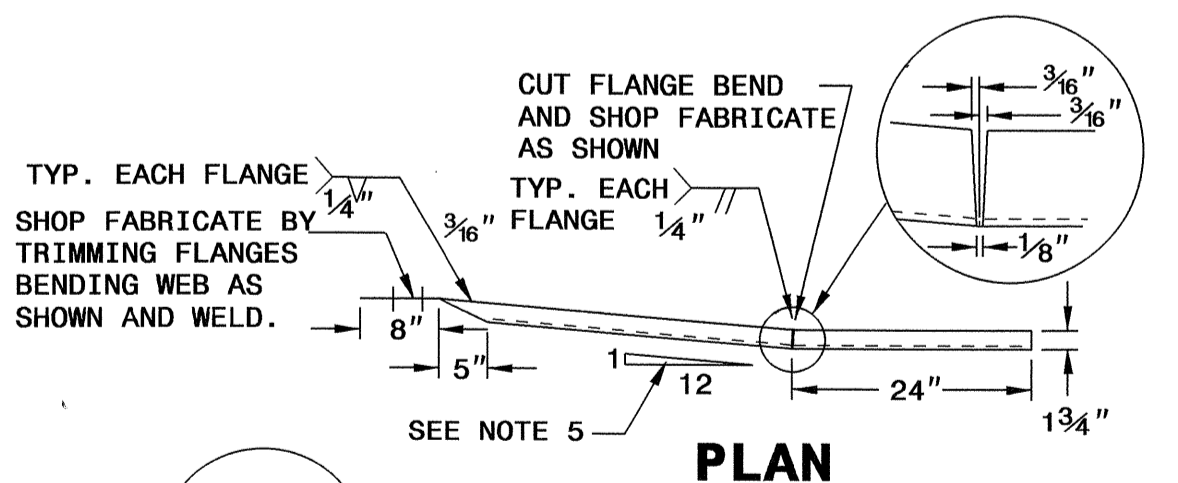
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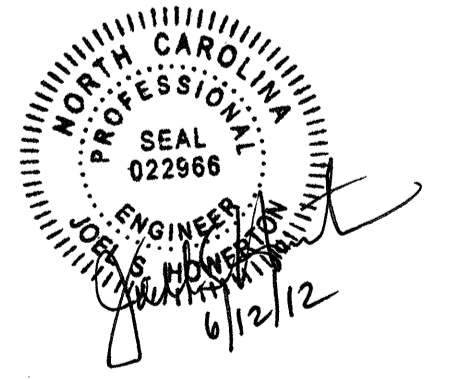
POST	THICKNESS	BOLT LENGTH
①	4 1/4"	9"
②	3 1/4"	5" *
③	2"	6"
④	1"	3" *

\* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

**DETAIL C  
RUBRAIL BLOCKOUT**



- GENERAL NOTES:**
- APPROACH END OF ANCHOR UNIT HAS RUBRAIL. 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" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" RUBRAIL BLOCKOUT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
  - 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 BUTTONHEAD 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 C6x8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER.
  - ANCHORAGE:
    - AT NEW OR EXISTING BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS SHALL BE 1/2".
    - AT NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING FIVE 7/8" CHEMICALLY ANCHORED THREADED RODS WITH NUTS AND WASHERS. MAXIMUM PROJECTION FOR THREADED RODS SHALL BE 1/2". THE W-BEAM END SHOE SHALL BE INSTALLED BEHIND THE NESTED W-BEAM ELEMENTS.
  - POSTS 1 AND 2 ARE 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE 6'-0".



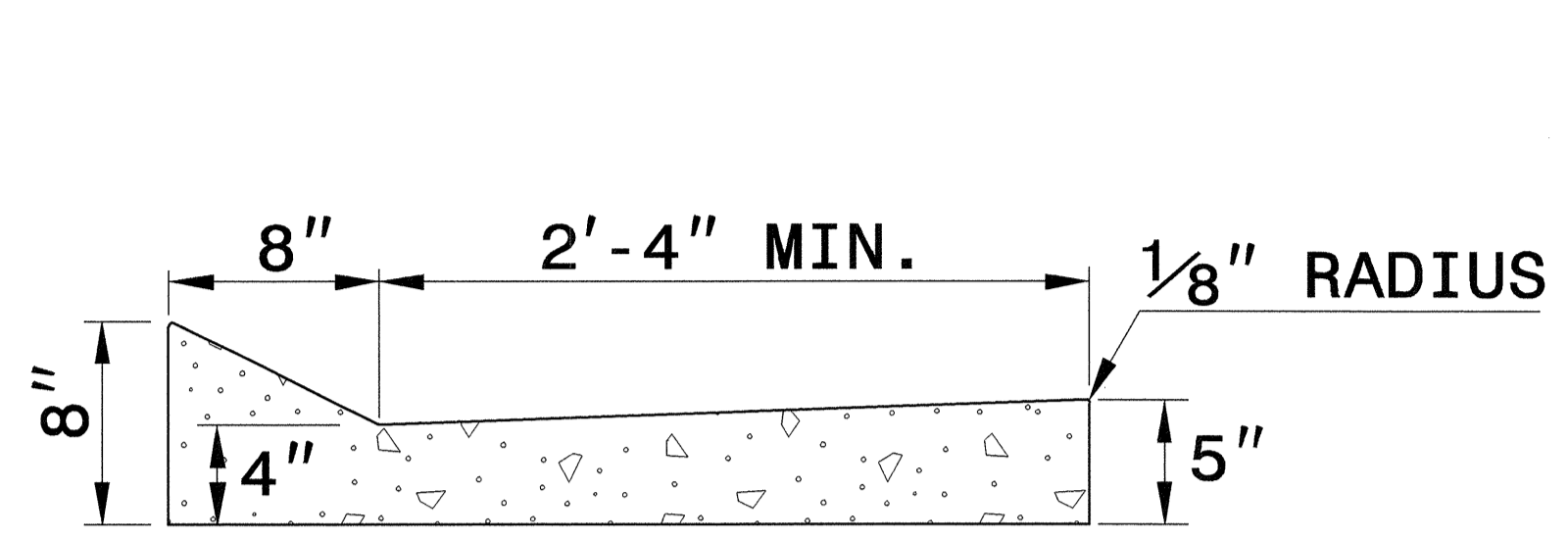
**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**GUARDRAIL ANCHOR UNIT NJ-25 TYING TO CONCRETE BARRIER**

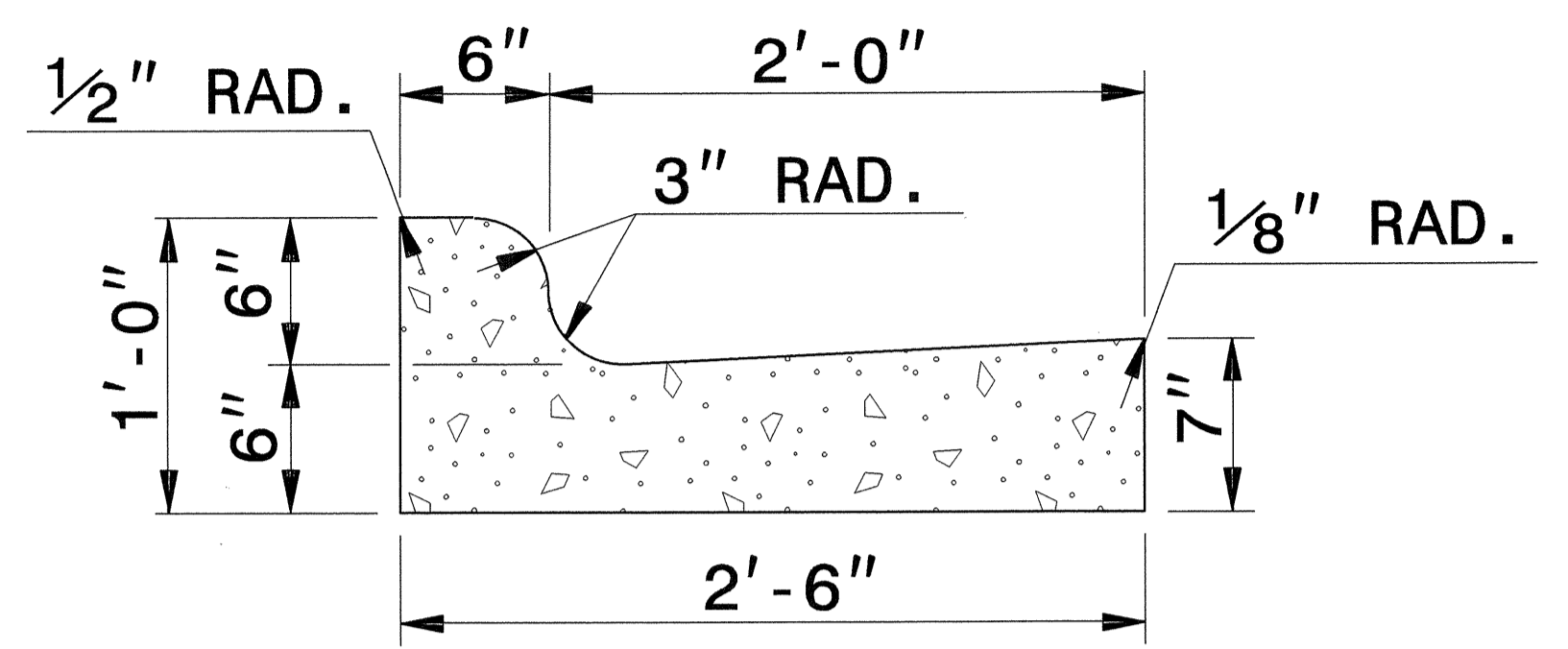
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 MODIFIED BY: DATE:  
 CHECKED BY: DATE: 6/24/12  
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24-AUG-2011 09:27 S:\Contracts\Special Details\vieward\usr\details\stand\662stds\ryj25.dgn \$\$\$USERNAME\$\$\$



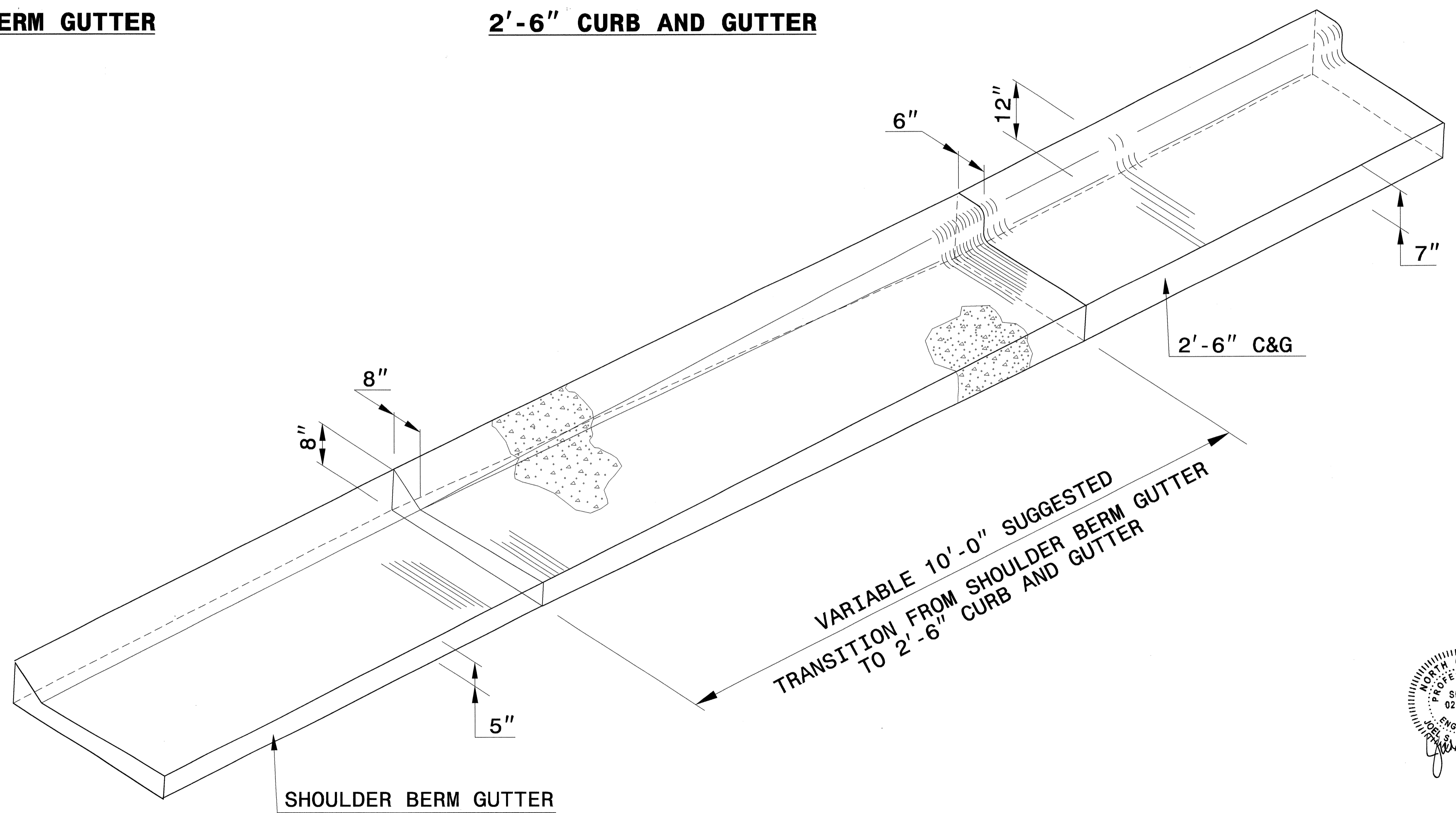


**SHOULDER BERM GUTTER**

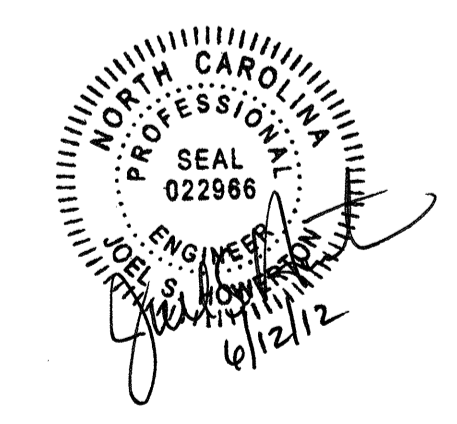


**2'-6" CURB AND GUTTER**

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

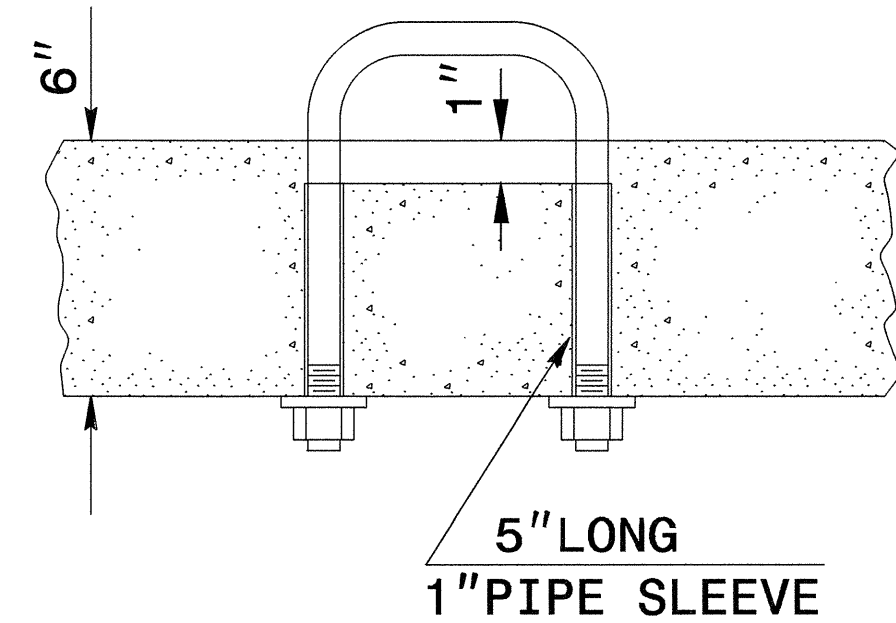


**ISOMETRIC VIEW OF TRANSITION**

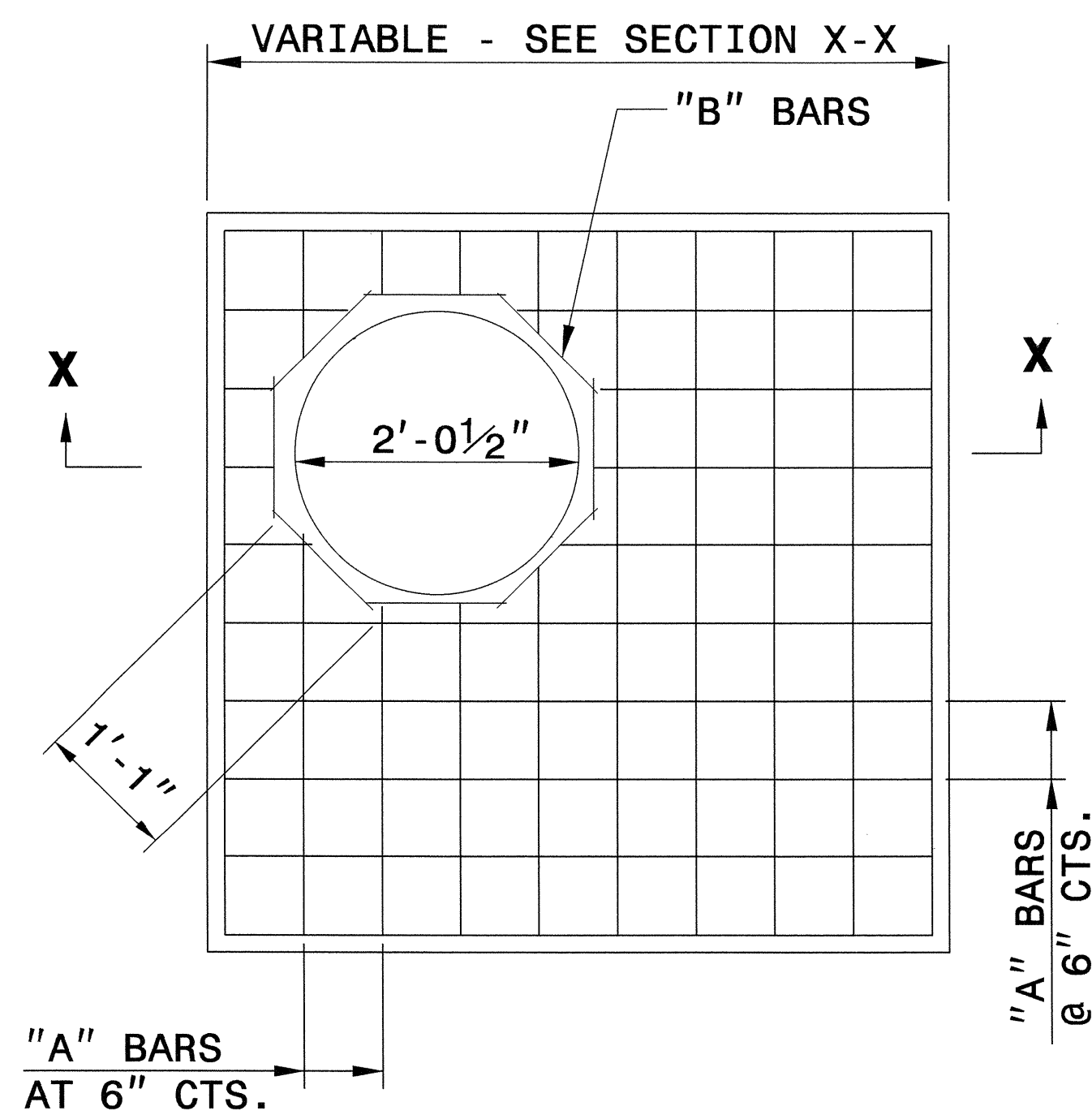


<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB &amp; GUTTER TRANSITION SECTION</b>	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY: <i>[Signature]</i>	DATE:
CHECKED BY: <i>[Signature]</i>	DATE: 5/1/12
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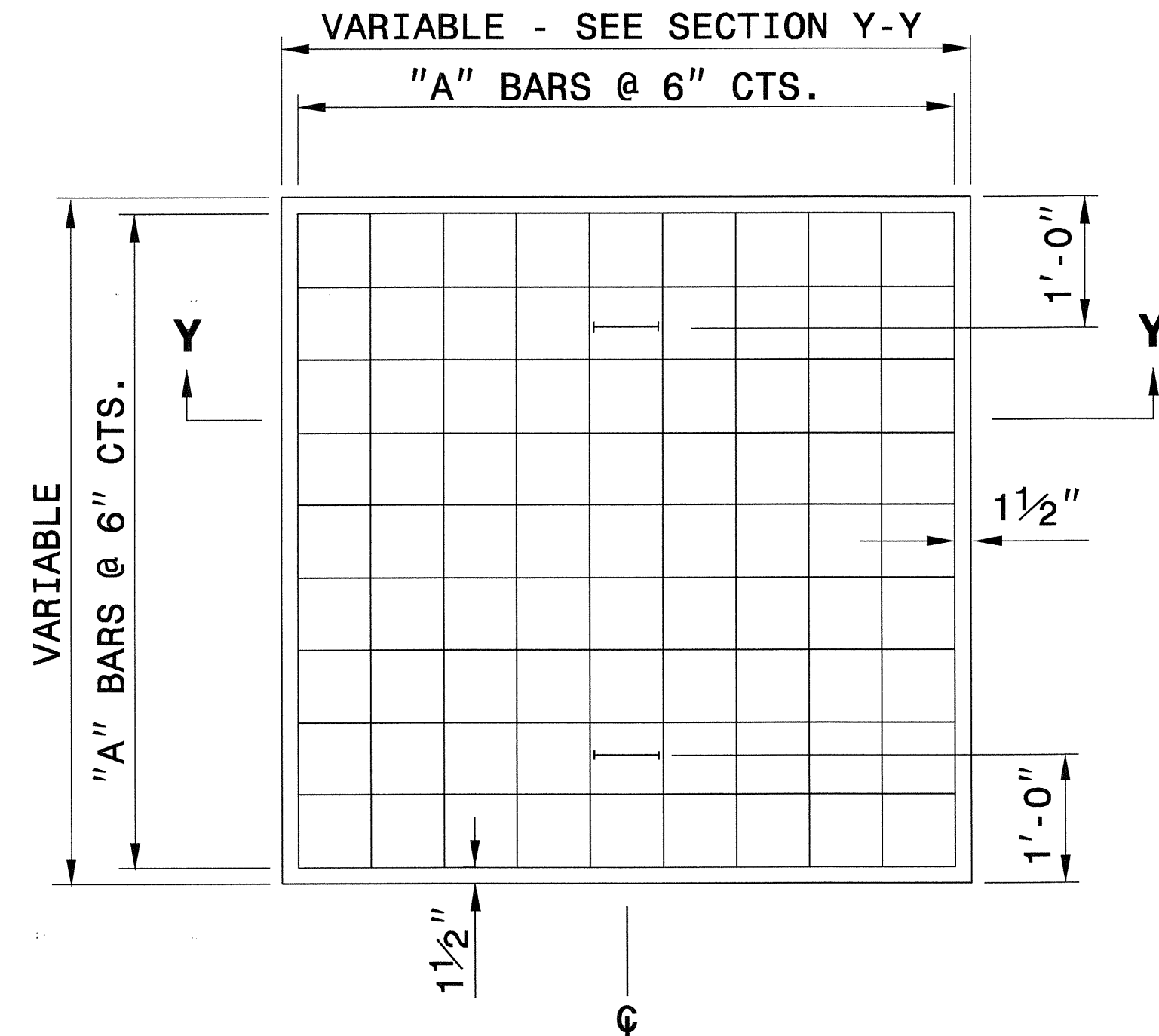
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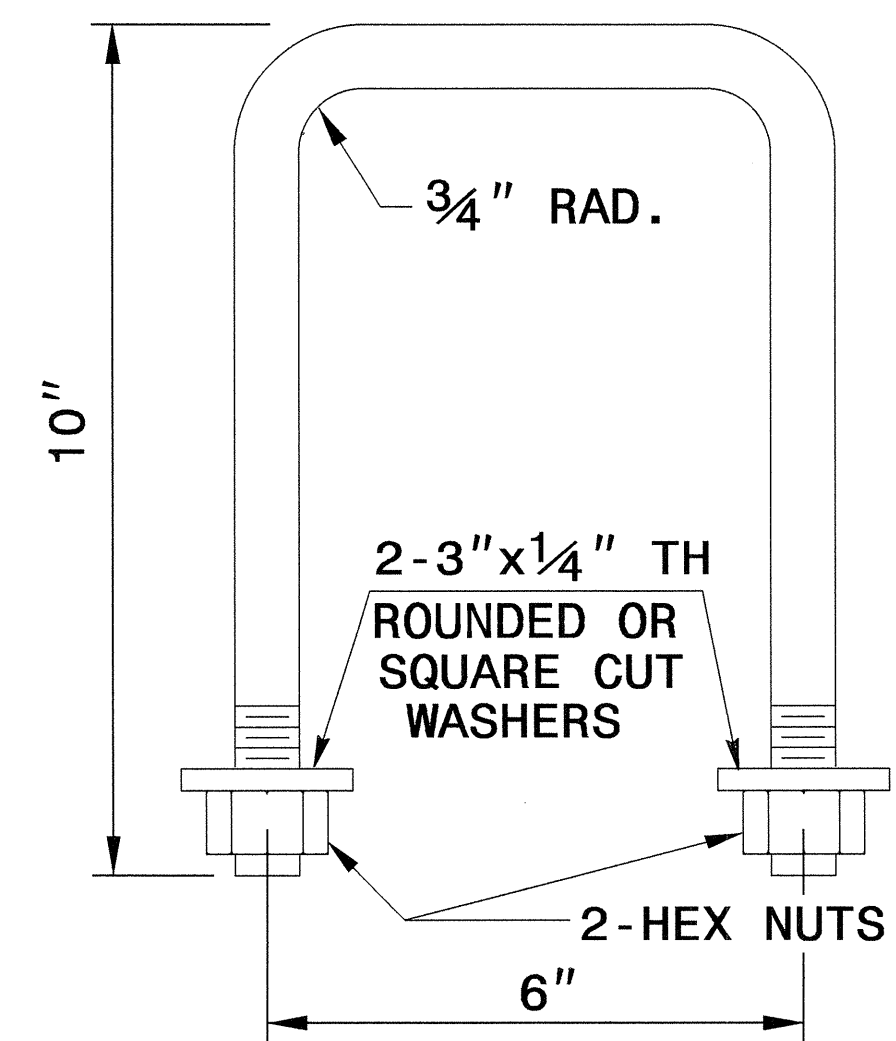
**PARTIAL SECTION**



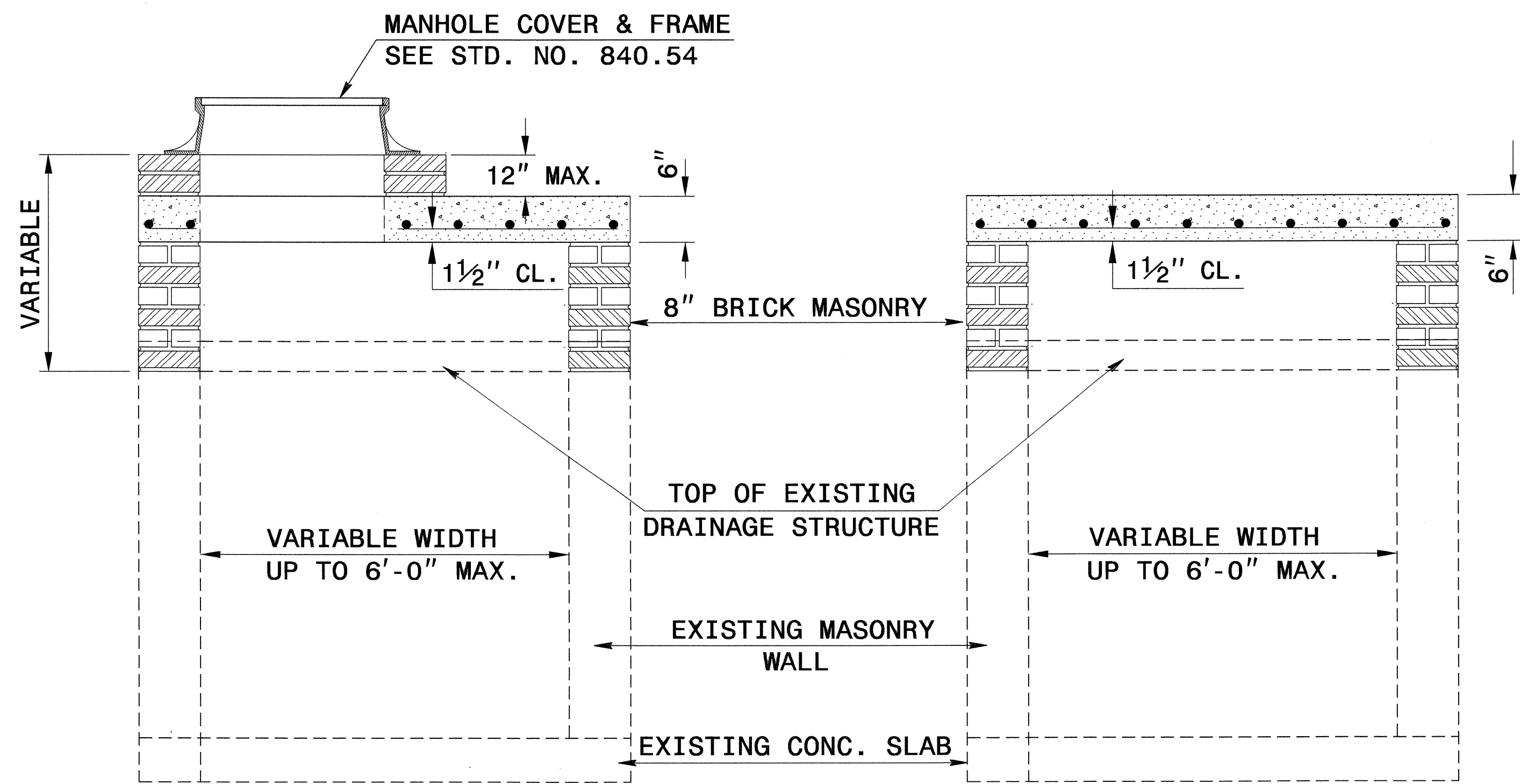
**PLAN**



**PLAN**



**DETAIL OF HANDLE**



**SECTION X-X**

**SECTION Y-Y**

**GENERAL NOTES:**

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

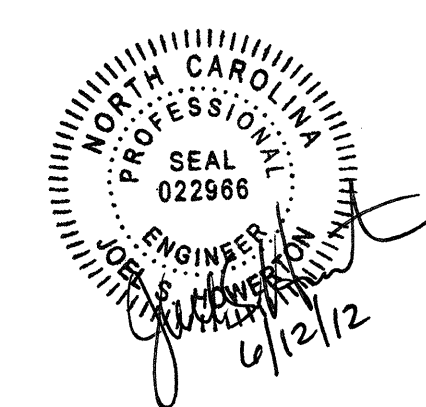
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

**BILL OF MATERIALS**

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

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

\*\*\*\*\*  
SYSTEMS  
\*\*\*\*\*

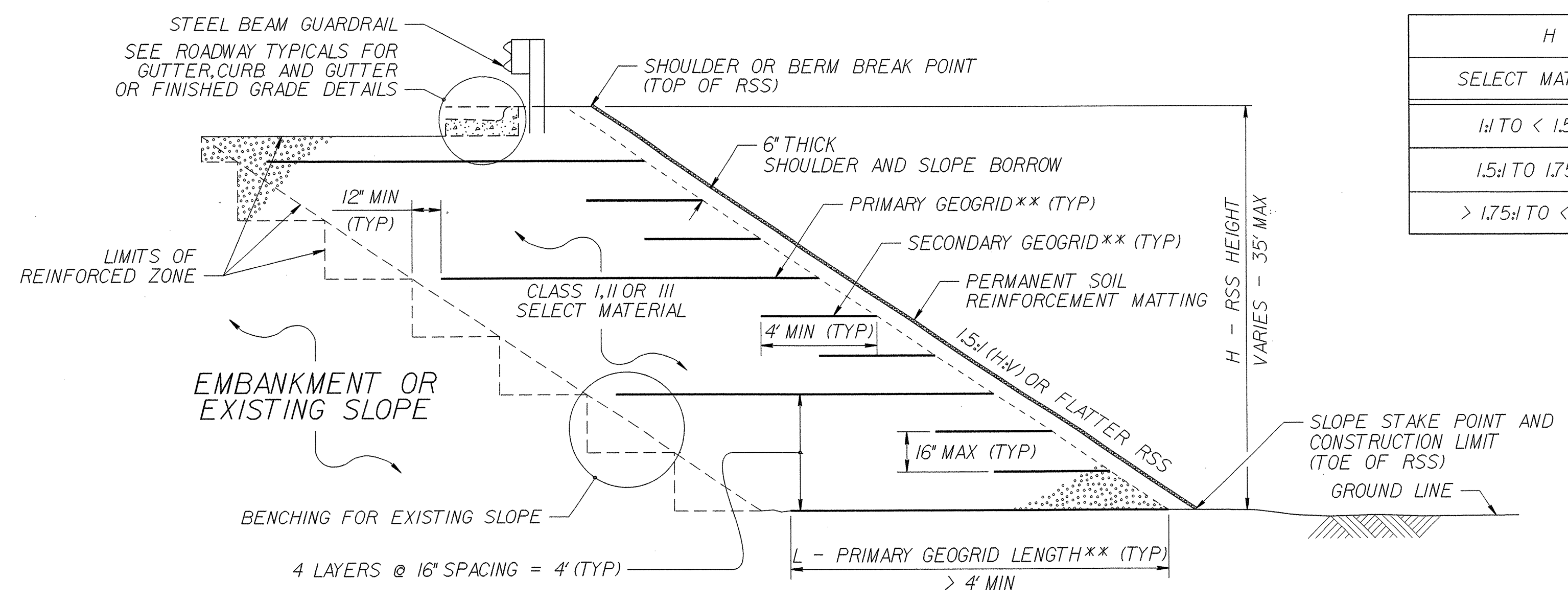


**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)**

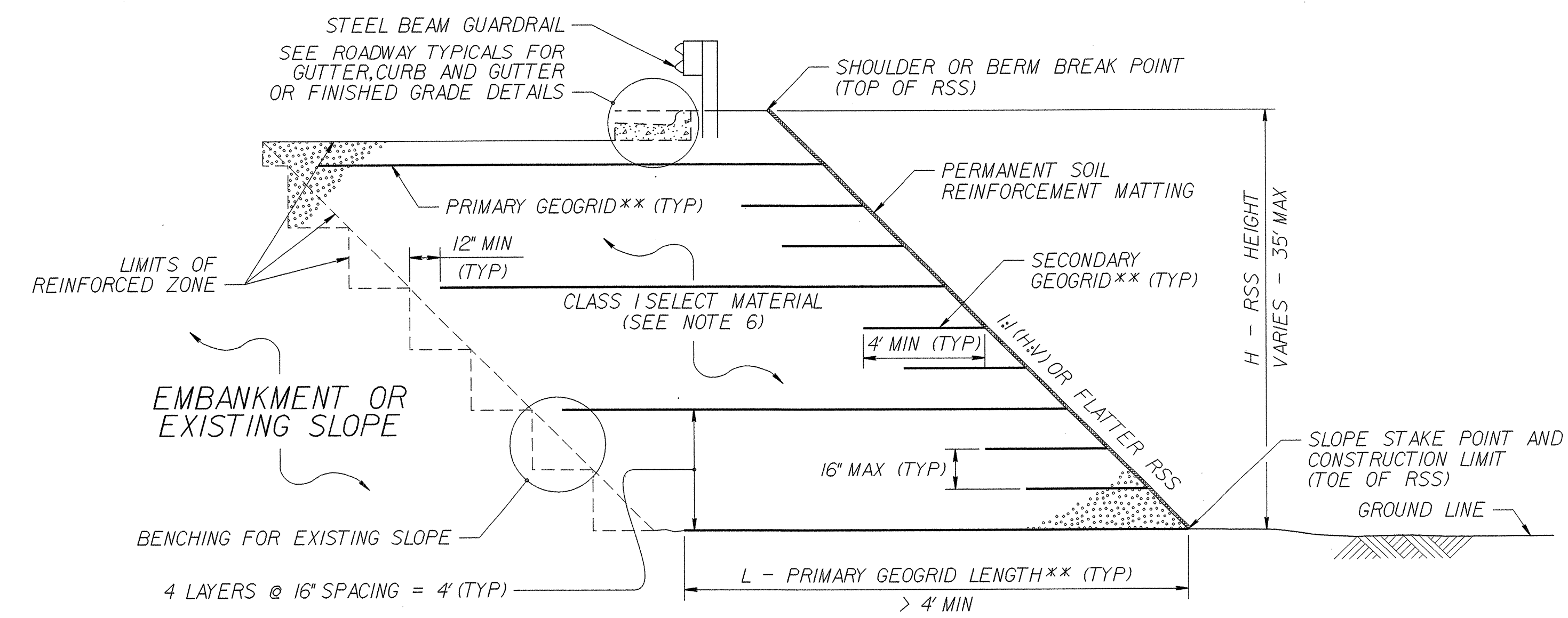
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 MODIFIED BY: T.S.S. DATE: FEB. 2000  
 CHECKED BY: [Signature] DATE: 5/3/12  
 FILE SPEC.: ps174:/usr/details/stand/boxtojob.dgn

H (FT)	0 - < 10		10 - 20		> 20 - 35	
SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III
1:1 TO < 1.5:1 (H:V) RSS	1.20	SEE NOTE 6	1.10	SEE NOTE 6	1.00	SEE NOTE 6
1.5:1 TO 1.75:1 (H:V) RSS	1.15	1.00	1.05	0.95	0.95	0.90
> 1.75:1 TO < 2:1 (H:V) RSS	1.10	0.75	1.00	0.70	0.90	0.65



**STANDARD RSS WITH SELECT MATERIAL THAT DOES NOT MEET ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS**

**\*\*SEE TABLES AND GEOGRID PLACEMENT DETAILS.**



**STANDARD RSS WITH SELECT MATERIAL THAT MEETS ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS**

**\*\*SEE TABLES AND GEOGRID PLACEMENT DETAILS.**

**NOTES:**

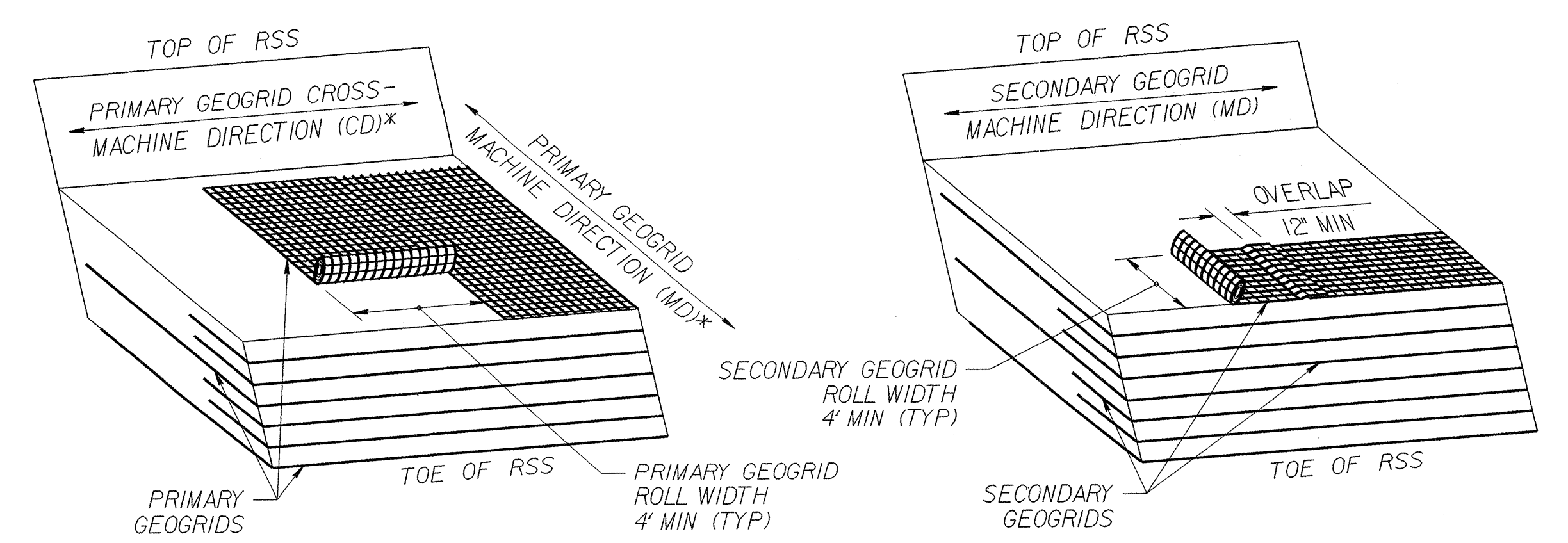
- SEE ROADWAY PLANS FOR REINFORCED SOIL SLOPE (RSS) LOCATIONS.
- FOR STANDARD REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR PERMANENT SOIL REINFORCEMENT MATTING, SEE PERMANENT SOIL REINFORCEMENT MAT PROVISION. FOR STEEL BEAM GUARDRAIL, SEE SECTION 862 OF THE STANDARD SPECIFICATIONS.
- STANDARD RSS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  LB/CF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  LB/SF
- DO NOT USE STANDARD RSS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE TOE OF RSS.
- DO NOT USE STANDARD RSS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW RSS.
- FOR 1:1 TO < 1.5:1 (H:V) RSS, USE CLASS I SELECT MATERIAL IN THE REINFORCED ZONE THAT MEETS ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS EXCEPT FOR SELECT MATERIAL THAT MEETS AASHTO M 145 FOR SOIL CLASSIFICATIONS A-4 AND A-5. DO NOT USE A-4 OR A-5 SOIL OR CLASS II OR III SELECT MATERIAL FOR 1:1 TO < 1.5:1 (H:V) RSS.
- EXCEPT FOR TENSAR UX GEOGRIDS, DO NOT SPLICE OR OVERLAP PRIMARY GEOGRIDS IN THE MACHINE DIRECTION (MD) SO SPLICES OR OVERLAPS ARE PARALLEL TO THE TOE OF RSS. TENSAR UX GEOGRIDS MAY BE SPLICED ONCE PER PRIMARY GEOGRID LENGTH IN ACCORDANCE WITH TENSAR'S BODKIN CONNECTION DETAIL. USE TENSAR UX GEOGRID PIECES AT LEAST 4' LONG.
- EXCEPT FOR TENSAR UX GEOGRIDS, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CROSS-MACHINE DIRECTION (CD). TENSAR UX GEOGRIDS MAY BE PLACED WITH A MAXIMUM SPACING BETWEEN GEOGRIDS OF 1.64' IN THE CD. STAGGER TENSAR UX GEOGRIDS SO GEOGRIDS ARE CENTERED OVER GAPS IN THE PRIMARY GEOGRID LAYER BELOW.
- DO NOT PLACE PRIMARY GEOGRIDS UNTIL EXCAVATION DIMENSIONS AND IN-SITU MATERIAL ARE APPROVED.

**L/H RATIO (L > 4' MIN)**  
**IF L ≤ 4', USE SECONDARY GEOGRID INSTEAD OF PRIMARY GEOGRID.**

H (FT)	0 - < 10		10 - 20		> 20 - 35		
SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III	
PRIMARY GEOGRID (SUBSTITUTE SECONDARY GEOGRID FOR PRIMARY GEOGRID FOR ≥ 2:1 (H:V) RSS)	1:1 TO < 1.5:1 (H:V) RSS	2XT	SEE NOTE 6	3XT	SEE NOTE 6	5XT	
		SG150		SG200		SG350	
		SF20		SF35		SF55	
		UX1100HS		UX1400HS		UX1500HS	
PRIMARY GEOGRID (SUBSTITUTE SECONDARY GEOGRID FOR ≥ 2:1 (H:V) RSS)	1.5:1 TO 1.75:1 (H:V) RSS	2XT	2XT	3XT	2XT	3XT	
		SG150	SG150	SG200	SG150	SG200	SG150
		SF20	SF20	SF35	SF20	SF35	SF20
		UX1100HS	UX1100HS	UX1400HS	UX1100HS	UX1400HS	UX1100HS
PRIMARY GEOGRID (SUBSTITUTE SECONDARY GEOGRID FOR ≥ 2:1 (H:V) RSS)	> 1.75:1 TO < 2:1 (H:V) RSS	2XT	2XT	2XT	2XT	2XT	
		SG150	SG150	SG150	SG150	SG150	SG150
		SF20	SF20	SF20	SF20	SF20	SF20
		UX1100HS	UX1100HS	UX1100HS	UX1100HS	UX1100HS	UX1100HS
SECONDARY GEOGRID	1:1 (H:V) OR FLATTER RSS	2XT		2XT		2XT	
		SG150		SG150		SG150	
		SF11		SF11		SF11	
		BX1100		BX1100		BX1100	

**PRIMARY AND SECONDARY GEOGRIDS**

- #XT REFERS TO MIRAFI SERIES GEOGRID.
- SG### REFERS TO STRATAGRID SERIES GEOGRID.
- SF## REFERS TO SYNTEEN SERIES GEOGRID.
- UX####HS AND BX#### REFER TO TENSAR SERIES GEOGRID.



**GEOGRID PLACEMENT DETAILS**

**\*SEE NOTES 7 AND 8.**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

★ SUMMARY OF EARTHWORK  
IN CUBIC YARDS

Table with columns: STATION, UNCL. EXCAV., UNDERCUT, EMBANK. +%, BORROW, WASTE. Includes subtotals for various station ranges and a grand total of 2,334 cubic yards.

ESTIMATED UNDERCUT EXCAVATION = 400 C.Y.

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.

★ SUMMARY OF ASPHALT  
PAVEMENT REMOVAL  
IN SQUARE YARDS

Table with columns: SURVEY LINE, STATION, LOCATION LTR/RT/CL, LENGTH, AVERAGE WIDTH, REMOVAL. Includes a total removal of 7,042.44 square yards.

★ Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

SUMMARY OF WOVEN WIRE FENCE  
47" FABRIC

Table with columns: STATION TO STATION, LOCATION LTR/RT/CL, 47" FABRIC LF, 4" POSTS EA, 5" POSTS EA. Includes a total of 190 fabric LF and 25 posts.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

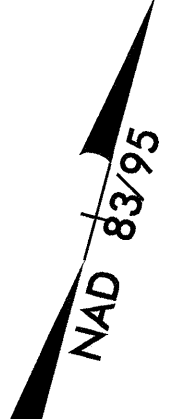
GUARDRAIL SUMMARY

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 SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GRAU 350, TYPE-III, CAT-1, NJ-25, DOUBLE FACED CONCRETE BARRIER TYPE IV), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS. Includes a total of 10 additional guardrail posts.

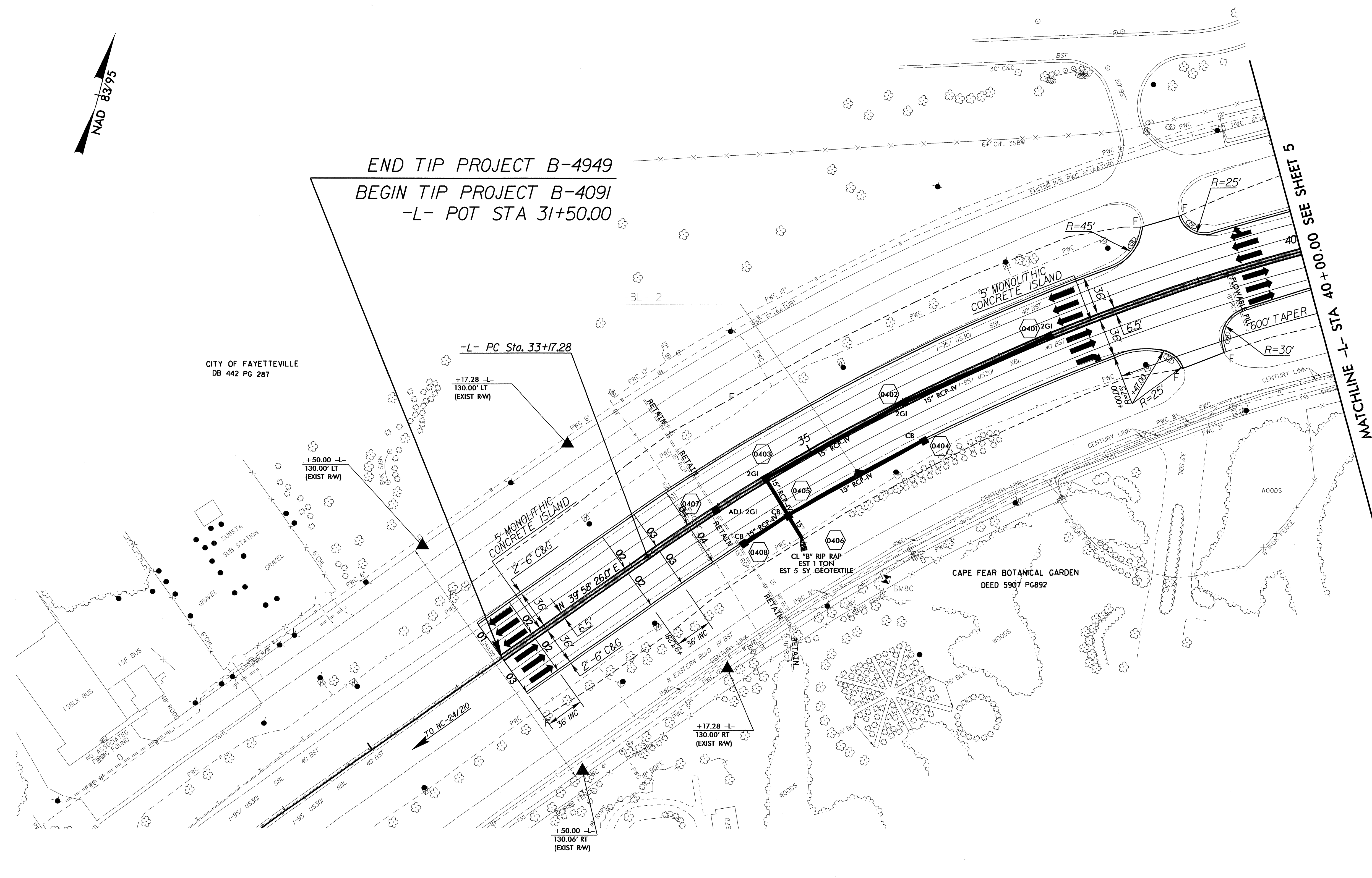








END TIP PROJECT B-4949  
 BEGIN TIP PROJECT B-4091  
 -L- POT STA 31+50.00



CITY OF FAYETTEVILLE  
 DB 442 PG 287

CAPE FEAR BOTANICAL GARDEN  
 DEED 5907 PG892

-L- CURVE DATA  
 PI Sta 39+23.12  
 $\Delta = 35^\circ 12' 00.0''$  (RT)  
 D = 3' 00' 00.0"  
 L = 1,173.33'  
 T = 605.84'  
 R = 1,909.86'  
 RO = 144'  
 SE = 0.04  
 INC = 36'

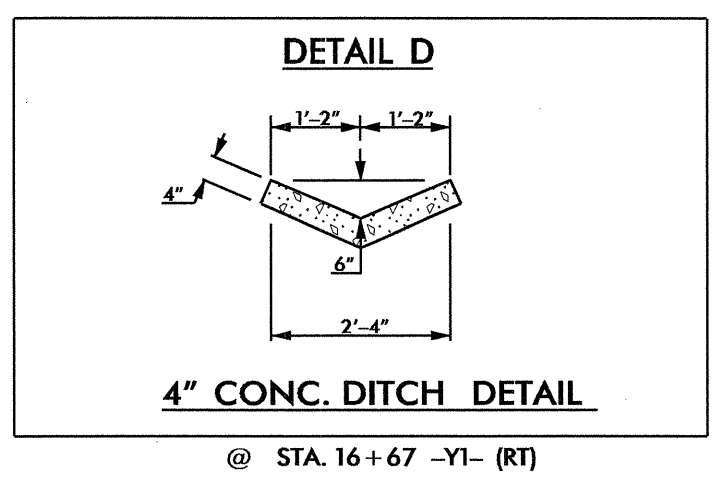
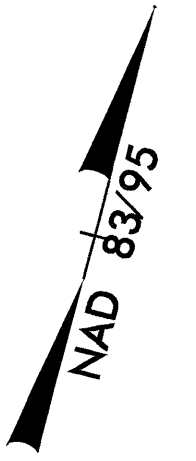
FOR -L- PROFILE, SEE SHEET NO. 8  
 SEE PMP FOR CURB RAMP LOCATIONS AND STATIONING  
 DRIVEWAY RADII ARE 15', UNLESS NOTED OTHERWISE

REVISIONS

8/17/99  
 30-MAY-2012 11:29 N:\b-4091\_rdy\_psh4.dgn  
 45:50:58.000 AM 6/11/12

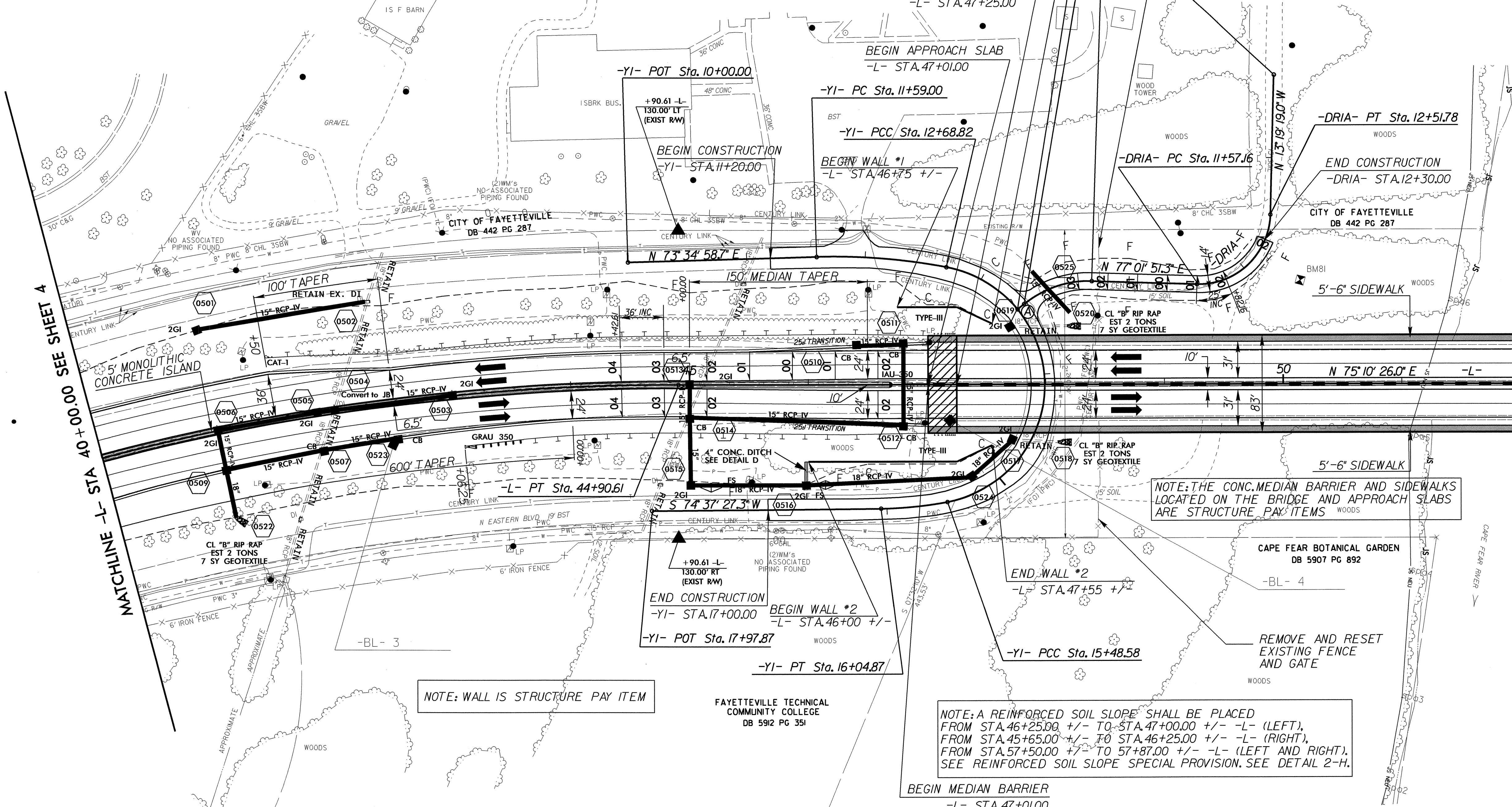
SEE SHEET 5  
 STA 40+00.00  
 -L- ATTACHLINE





NOTE: A PERMANENT SOIL REINFORCEMENT MAT (PSRM) SHALL BE PLACED ON 2.5:1 TO 3.0:1 SLOPES FROM STA.44+50.00 +/- TO STA.46+25.00 +/- -L- (LEFT), STA.46+75.00 +/- TO STA.47+13.00 +/- -L- (LEFT), STA.45+00.00 +/- TO 45+65.00 +/- -L- (RIGHT), STA.46+25.00 +/- TO 47+13.00 +/- -L- (RIGHT), STA.57+21.00 +/- TO 57+50.00 +/- -L- (LEFT), STA.57+21.00 +/- TO 57+50.00 +/- -L- (RIGHT), STA.57+87.00 +/- TO STA.58+00.00 +/- -L- (LEFT), AND STA.57+87.00 +/- TO 58+50.00 +/- -L- (RIGHT). SEE PERMANENT SOIL REINFORCEMENT MAT SPECIAL PROVISION.

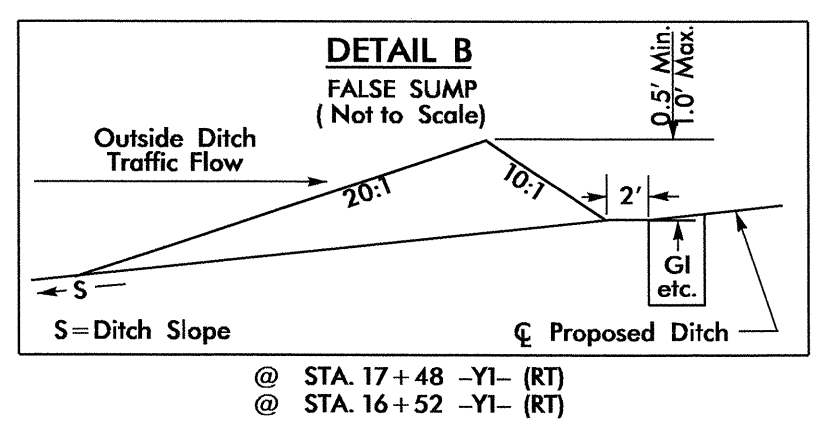
-DRIA- PC Sta.10+07.06  
-DRIA- POT Sta.10+00.00=  
-YI- POC Sta.13+40.00  
END WALL #1  
-L- STA.47+55 +/-  
BEGIN BRIDGE  
-L- STA.47+25.00



REVISIONS

MATCHLINE -L- STA 40+00.00 SEE SHEET A

MATCHLINE -L- STA 52+00.00 SEE SHEET 6



-L- CURVE DATA  
PI Sta 39+23.12  
 $\Delta = 35^\circ 12' 00.0''$  (RT)  
D = 3' 00' 00.0"  
L = 1173.33'  
T = 605.84'  
R = 1,909.86'  
RO = 144'  
SE = 0.04  
INC = 36'

-YI- CURVE DATA  
PI Sta 12+14.12  
 $\Delta = 12^\circ 06' 03.1''$  (RT)  
D = 11' 01' 06.3"  
L = 109.82'  
T = 55.12'  
R = 520.00'  
RO = 72'  
SE = 0.04  
INC = 18'

-DRIA- CURVE DATA  
PI Sta 15+76.80  
 $\Delta = 10^\circ 14' 22.4''$  (RT)  
D = 18' 11' 20.9"  
L = 56.29'  
T = 28.22'  
R = 315.00'  
SE = 0.04  
INC = 18'

PI Sta 18+05.94  
 $\Delta = 158^\circ 42' 03.0''$  (RT)  
D = 56' 43' 42.6"  
L = 279.76'  
T = 537.12'  
R = 101.00'  
RO = 72'  
SE = 0.04  
INC = 18'

-DRIA- CURVE DATA  
PI Sta 10+39.19  
 $\Delta = 40^\circ 58' 12.0''$  (RT)  
D = 66' 37' 22.8"  
L = 61.50'  
T = 32.13'  
R = 86.00'  
SE = 0.03  
A N 36' 03' 39.2" E

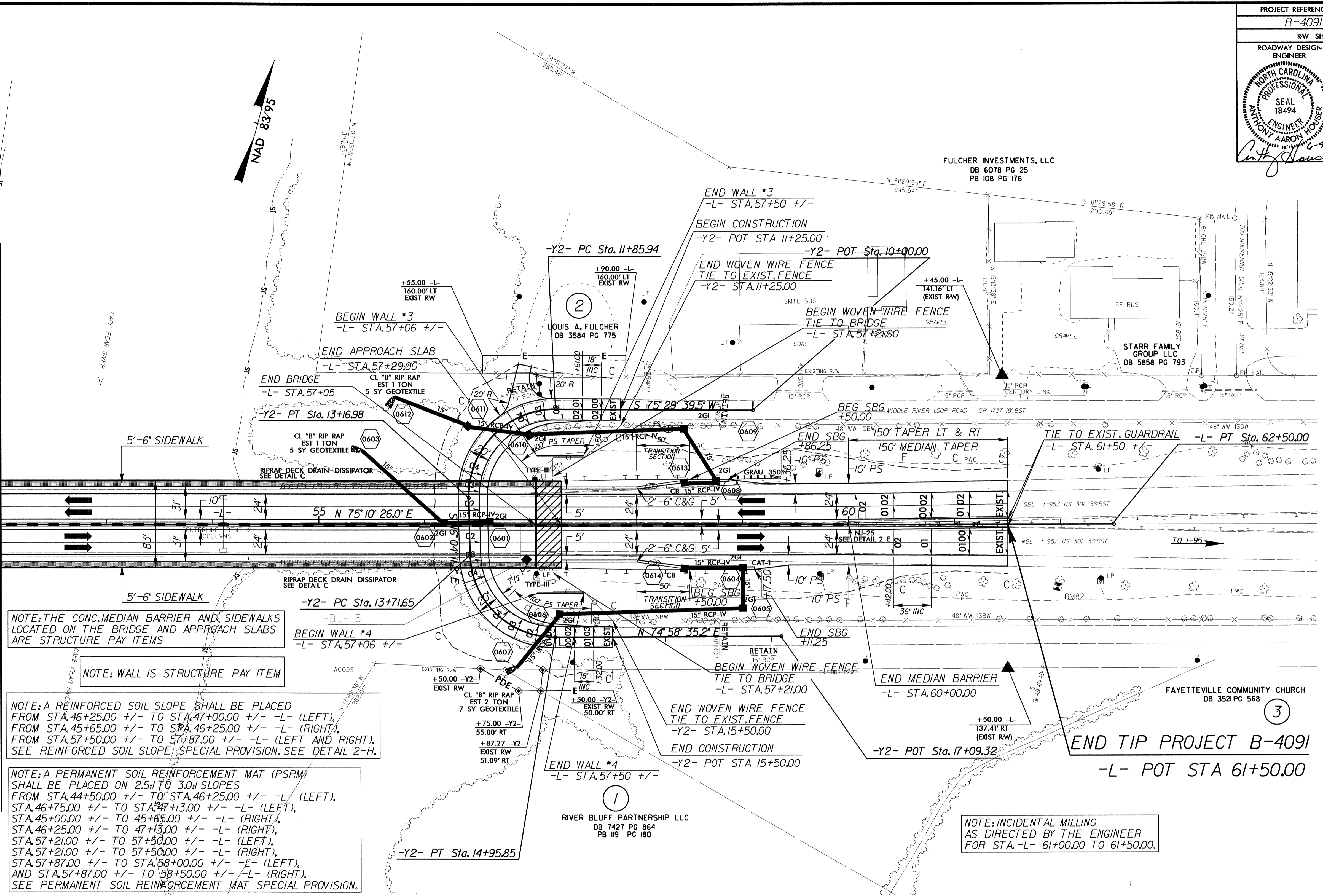
PI Sta 12+17.53  
 $\Delta = 90^\circ 21' 10.3''$  (LT)  
D = 95' 29' 34.7"  
L = 94.62'  
T = 60.37'  
R = 60.00'  
SE = 0.02

BRIDGE APPROACH SLAB
CONC MEDIAN BARRIER
DRIVEWAY RADII ARE 15', UNLESS NOTED OTHERWISE
FOR -L- PROFILE, SEE SHEET NO. 9
FOR -YI- PROFILE, SEE SHEET NO. 11
FOR -DRIA- PROFILE, SEE SHEET NO. 11
SEE SHEET 2-C FOR BRIDGE SKETCH
FOR STRUCTURE PLANS, SEE SHEETS S-54 THRU S-131
FOR WALL PLANS, SEE SHEETS W-3 THRU W-5

8/17/09  
31-MAY-2012 11:29 AM b-4091\_r.dwg-ps15.dgn  
\$3,851.00 PERMANENT FEE \$3,851.00

MATCHLINE -L- STA 52 + 00.00 SEE SHEET 5

REVISIONS



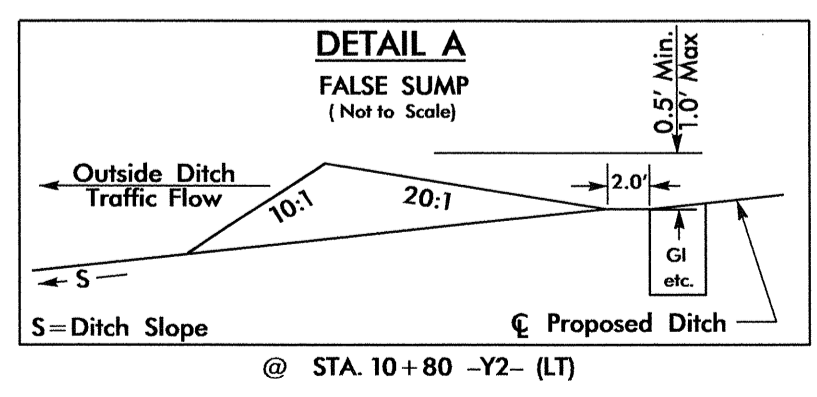
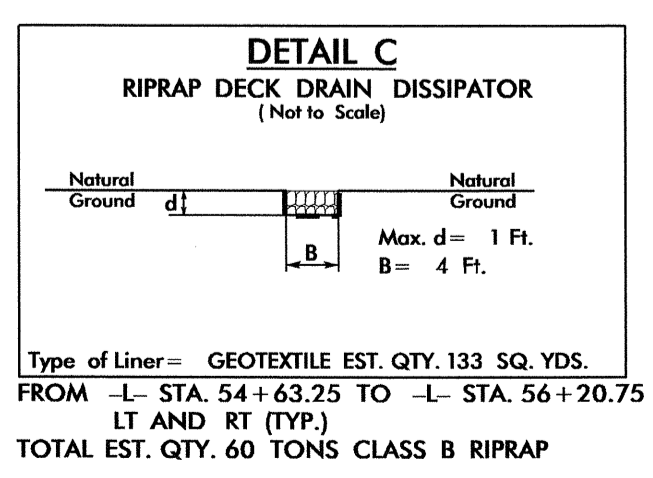
NOTE: THE CONC. MEDIAN BARRIER AND SIDEWALKS LOCATED ON THE BRIDGE AND APPROACH SLABS ARE STRUCTURE PAY ITEMS

NOTE: WALL IS STRUCTURE PAY ITEM

NOTE: A REINFORCED SOIL SLOPE SHALL BE PLACED FROM STA. 46+25.00 +/- TO STA. 47+00.00 +/- -L- (LEFT), FROM STA. 45+65.00 +/- TO STA. 46+25.00 +/- -L- (RIGHT), FROM STA. 57+50.00 +/- TO STA. 57+87.00 +/- -L- (LEFT AND RIGHT). SEE REINFORCED SOIL SLOPE SPECIAL PROVISION. SEE DETAIL 2-H.

NOTE: A PERMANENT SOIL REINFORCEMENT MAT (PSRM) SHALL BE PLACED ON 2.5:1 TO 3.0:1 SLOPES FROM STA. 44+50.00 +/- TO STA. 46+25.00 +/- -L- (LEFT), STA. 46+75.00 +/- TO STA. 47+13.00 +/- -L- (LEFT), STA. 45+00.00 +/- TO STA. 45+65.00 +/- -L- (RIGHT), STA. 46+25.00 +/- TO STA. 47+13.00 +/- -L- (RIGHT), STA. 57+21.00 +/- TO STA. 57+50.00 +/- -L- (LEFT), STA. 57+21.00 +/- TO STA. 57+50.00 +/- -L- (RIGHT), STA. 57+87.00 +/- TO STA. 58+00.00 +/- -L- (LEFT), AND STA. 57+87.00 +/- TO STA. 58+00.00 +/- -L- (RIGHT). SEE PERMANENT SOIL REINFORCEMENT MAT SPECIAL PROVISION.

NOTE: INCIDENTAL MILLING AS DIRECTED BY THE ENGINEER FOR STA. -L- 61+00.00 TO 61+50.00.



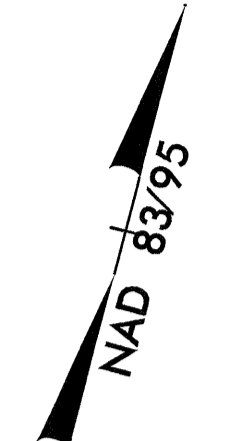
-Y2- CURVE DATA

PI Sta 12+70.21	PI Sta 14+50.20
Δ = 9° 33' 50.6" (LT)	Δ = 88° 57' 13.6" (LT)
D = 69° 52' 22.4"	D = 71° 37' 11.0"
L = 131.04'	L = 124.20'
T = 84.27'	T = 78.55'
R = 82.00'	R = 80.00'
RO = 72'	RO = 72'
SE = 0.04	SE = 0.04
INC = 18'	INC = 18'

- BRIDGE APPROACH SLAB
- CONC. MEDIAN BARRIER
- DRIVEWAY RADII ARE 15', UNLESS NOTED OTHERWISE
- FOR -L- PROFILE, SEE SHEET NO. 10
- FOR -Y1- PROFILE, SEE SHEET NO. 11
- FOR -DRIA- PROFILE, SEE SHEET NO. 11
- SEE SHEET 2-F FOR 2'-6" CURB & GUTTER TO SHOULDER BERM GUTTER TRANSITION
- SEE SHEET 2-C FOR BRIDGE SKETCH
- FOR STRUCTURE PLANS, SEE SHEETS S-54 THRU S-131
- FOR WALL PLANS, SEE SHEETS W-3 THRU W-5
- SEE PMP FOR CURB BERM LOCATIONS AND STATIONING

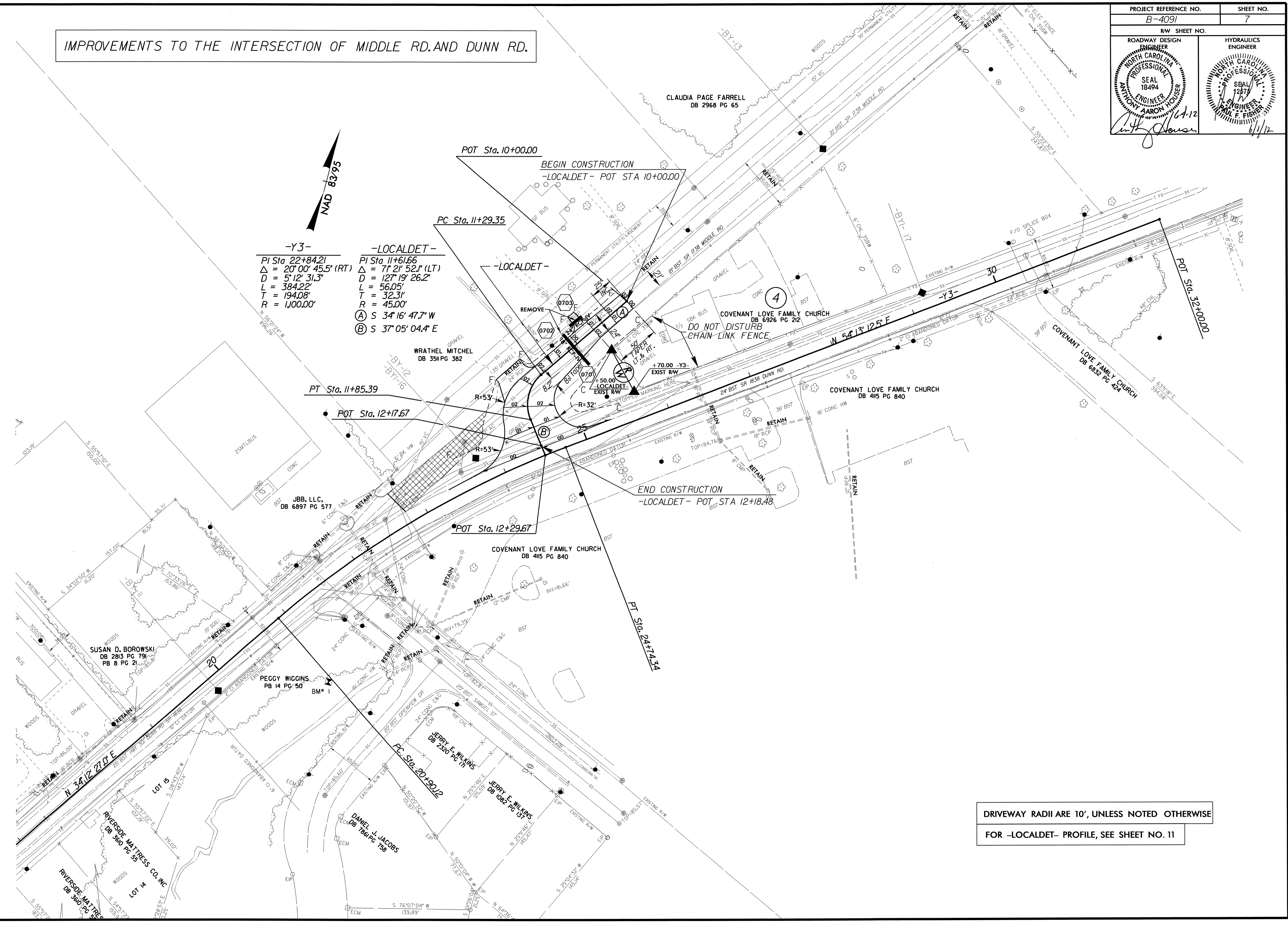
IMPROVEMENTS TO THE INTERSECTION OF MIDDLE RD. AND DUNN RD.

PROJECT REFERENCE NO. B-4091	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER ANTHONY AARON HOUSE SEAL 18494 6/12	HYDRAULICS ENGINEER PAUL F. FISHER SEAL 12671 6/12



**-Y3-**  
 PI Sta 22+84.21  
 $\Delta = 20^{\circ}00'45.5''$  (RT)  
 $D = 5^{\circ}12'31.3''$   
 $L = 384.22'$   
 $T = 194.08'$   
 $R = 1,100.00'$

**-LOCALDET-**  
 PI Sta 11+61.66  
 $\Delta = 71^{\circ}21'52.1''$  (LT)  
 $D = 127^{\circ}19'26.2''$   
 $L = 56.05'$   
 $T = 32.31'$   
 $R = 45.00'$   
 (A) S 34°16'47.7" W  
 (B) S 37°05'04.4" E

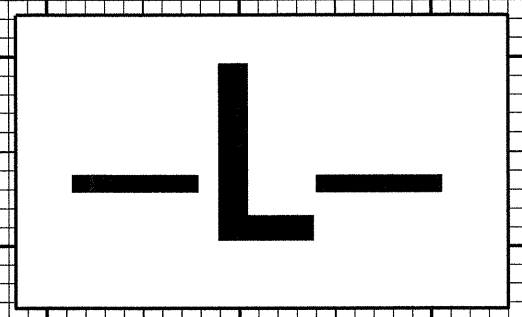
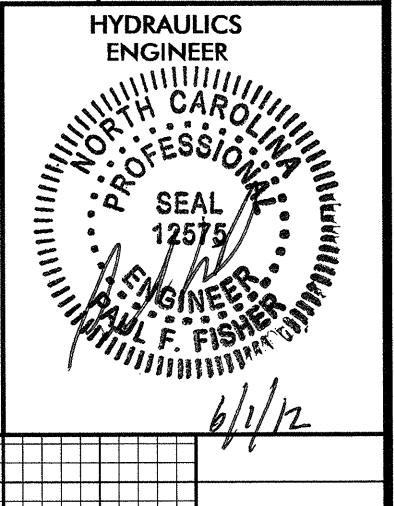
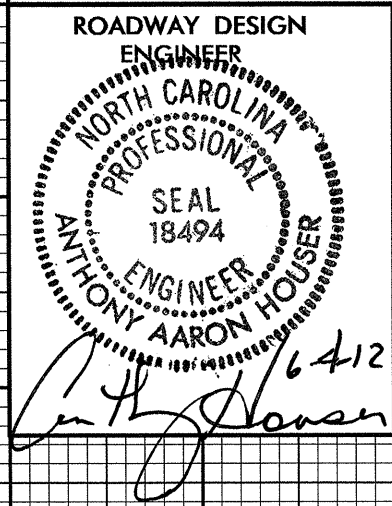


REVISIONS

DRIVEWAY RADII ARE 10', UNLESS NOTED OTHERWISE  
 FOR -LOCALDET- PROFILE, SEE SHEET NO. 11

10-MAY-2012 09:20  
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 ANTHONY AARON HOUSE

5/14/99



BEGIN GRADE  
-L- STA 31+50.00  
EL 92.85

PI = 34+50.00  
EL = 91.80'  
VC = 150'  
K = 215

PI = 39+25.00  
EL = 93.45'  
VC = 150'  
K = 232

BM \*80  
-L- STA 35+02  
139' RT  
EL = 87.07'

100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

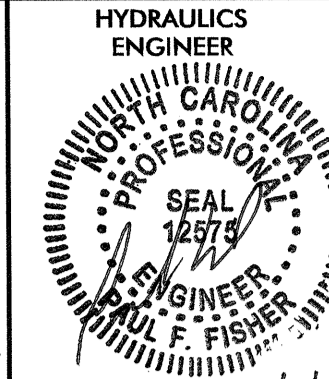
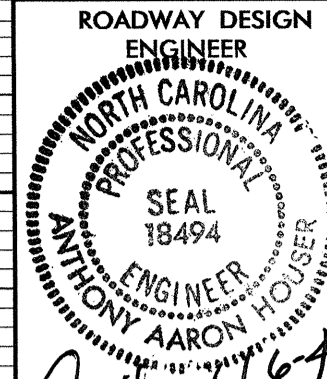
100  
90  
80  
70  
60  
50  
40  
30  
20  
10  
0

28 29 30 31 32 33 34 35 36 37 38 39 40

FOR -L- ALIGNMENT, SEE SHEET NO. 4

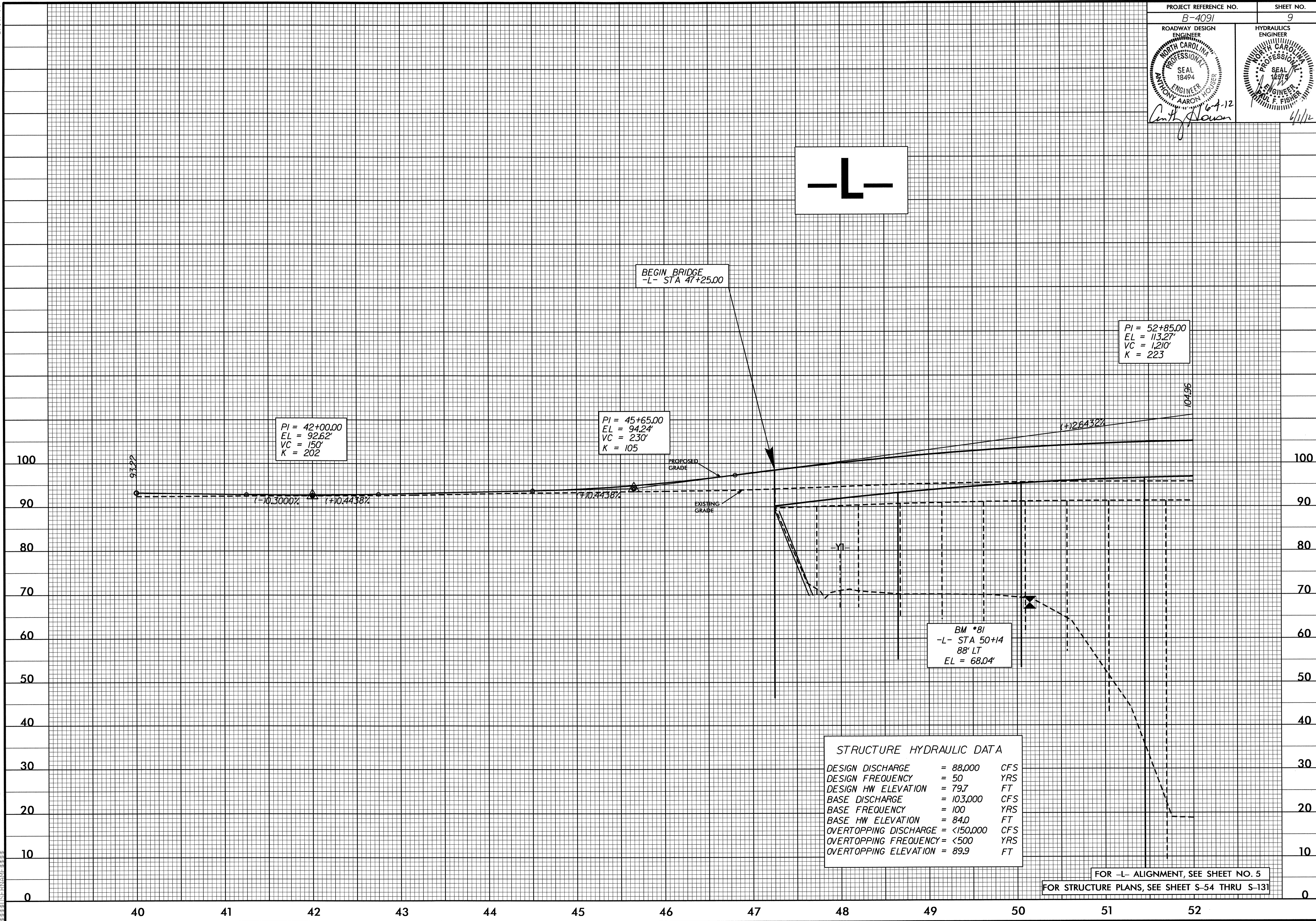
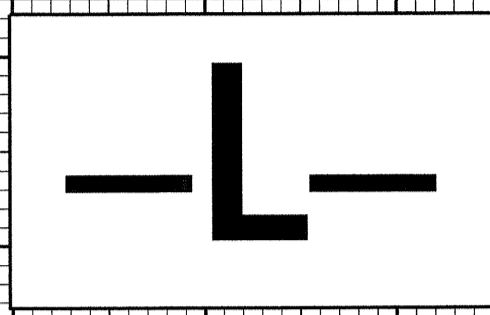
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\$\$\$\$\$

5/14/99



Anthony Houser  
6-7-12

6/1/12



BEGIN BRIDGE  
-L- STA 47+25.00

PI = 42+00.00  
EL = 92.62'  
VC = 150'  
K = 202

PI = 45+65.00  
EL = 94.24'  
VC = 230'  
K = 105

PI = 52+85.00  
EL = 113.27'  
VC = 1,210'  
K = 223

BM \*81  
-L- STA 50+14  
88' LT  
EL = 68.04'

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 88,000	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 79.7	FT
BASE DISCHARGE	= 103,000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 84.0	FT
OVERTOPPING DISCHARGE	= <150,000	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 89.9	FT

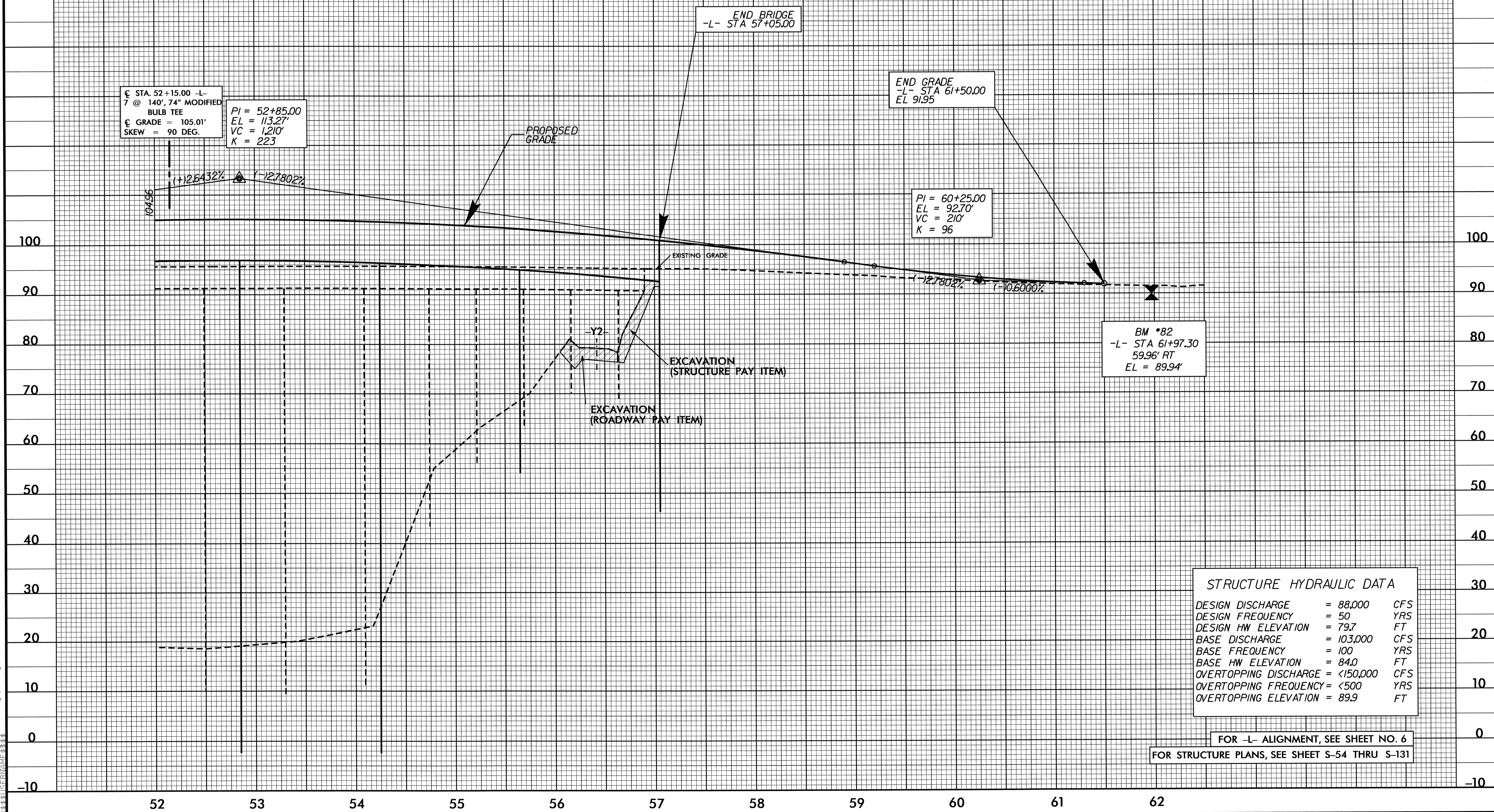
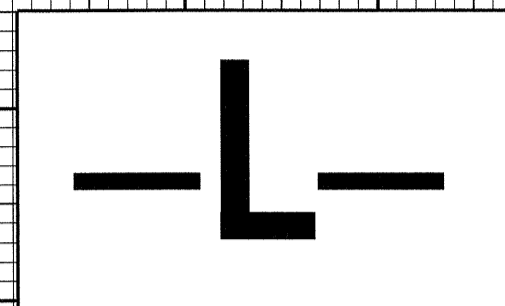
FOR -L- ALIGNMENT, SEE SHEET NO. 5

FOR STRUCTURE PLANS, SEE SHEET S-54 THRU S-131

31 MAY 2012 11:28  
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5/14/99

PROJECT REFERENCE NO. B-4091	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



STA. 52+15.00 -L-  
 7 @ 140', 74" MODIFIED  
 BULB TEE  
 GRADE = 105.01'  
 SKEW = 90 DEG.

PI = 52+85.00  
 EL = 113.27'  
 VC = 1210'  
 K = 223

END BRIDGE  
 -L- STA 57+05.00

END GRADE  
 -L- STA 61+50.00  
 EL 91.95

PI = 60+25.00  
 EL = 92.70'  
 VC = 210'  
 K = 96

BM \*82  
 -L- STA 61+97.30  
 59.96' RT  
 EL = 89.94'

STRUCTURE HYDRAULIC DATA		
DESIGN DISCHARGE	= 88,000	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 79.7	FT
BASE DISCHARGE	= 103,000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 84.0	FT
OVERTOPPING DISCHARGE	= <150,000	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 89.9	FT

FOR -L- ALIGNMENT, SEE SHEET NO. 6  
 FOR STRUCTURE PLANS, SEE SHEET S-54 THRU S-131

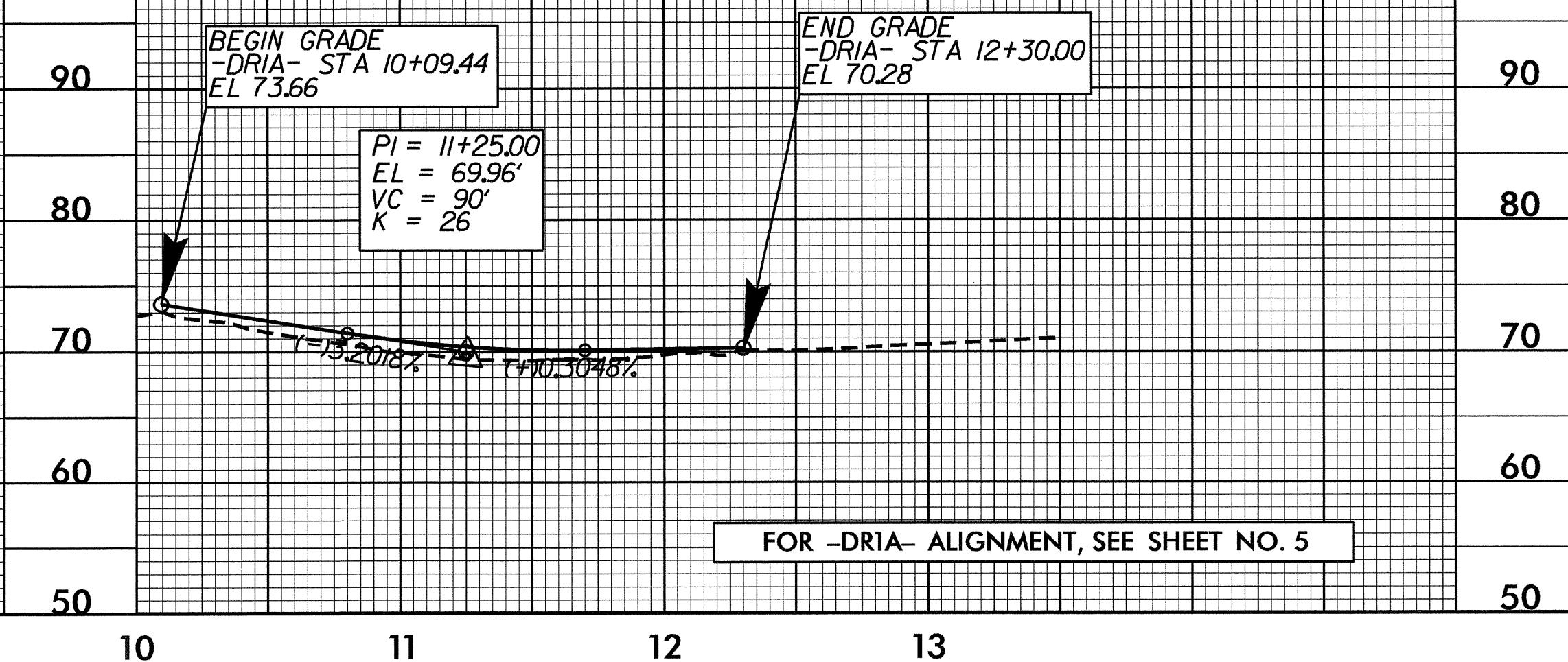
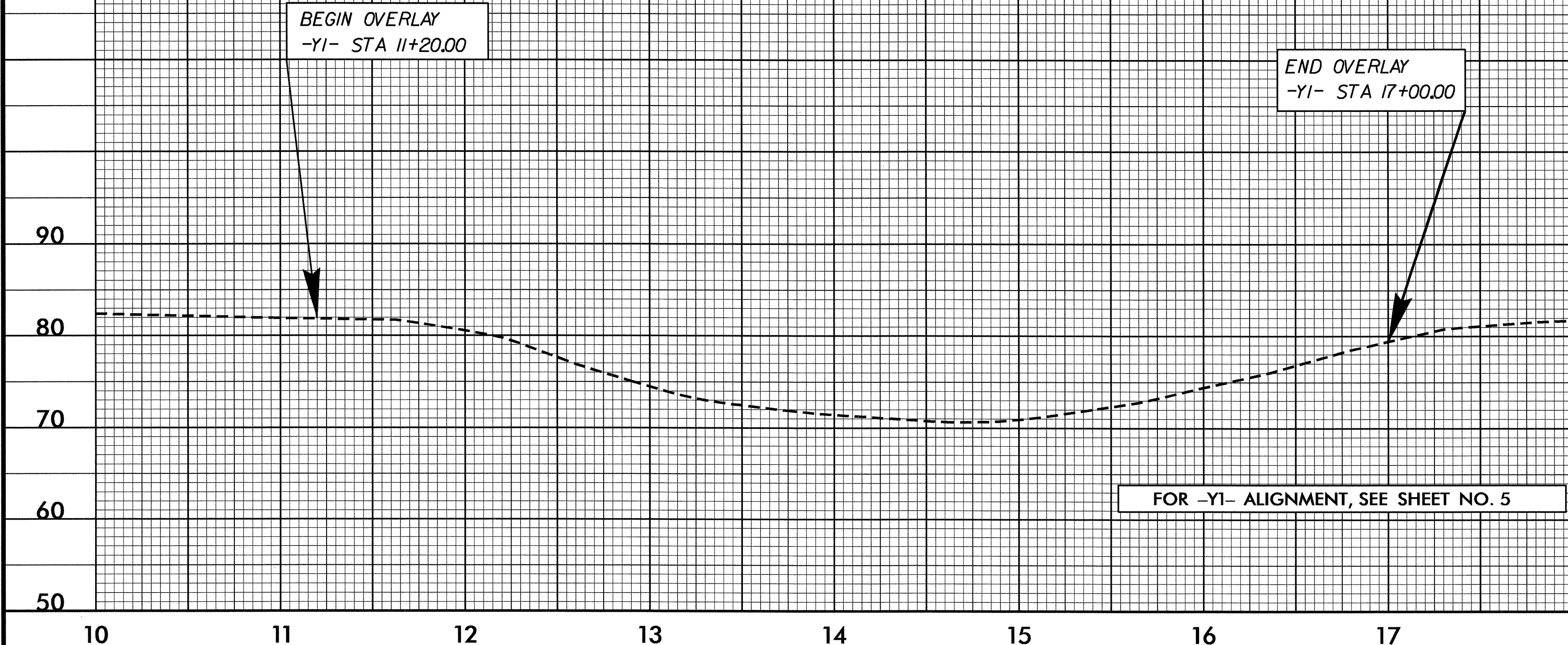
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5/28/99

PROJECT REFERENCE NO. B-4091	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

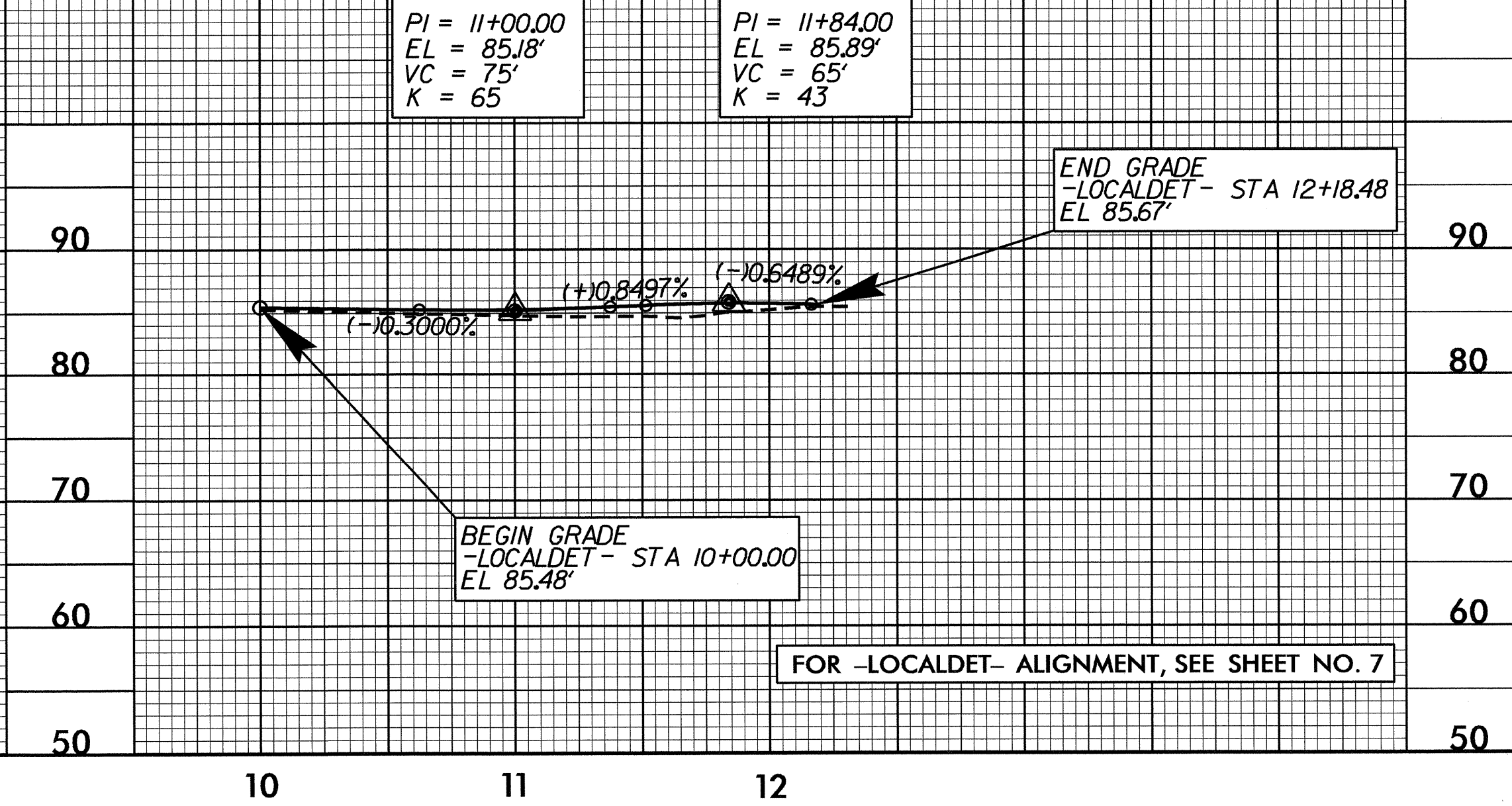
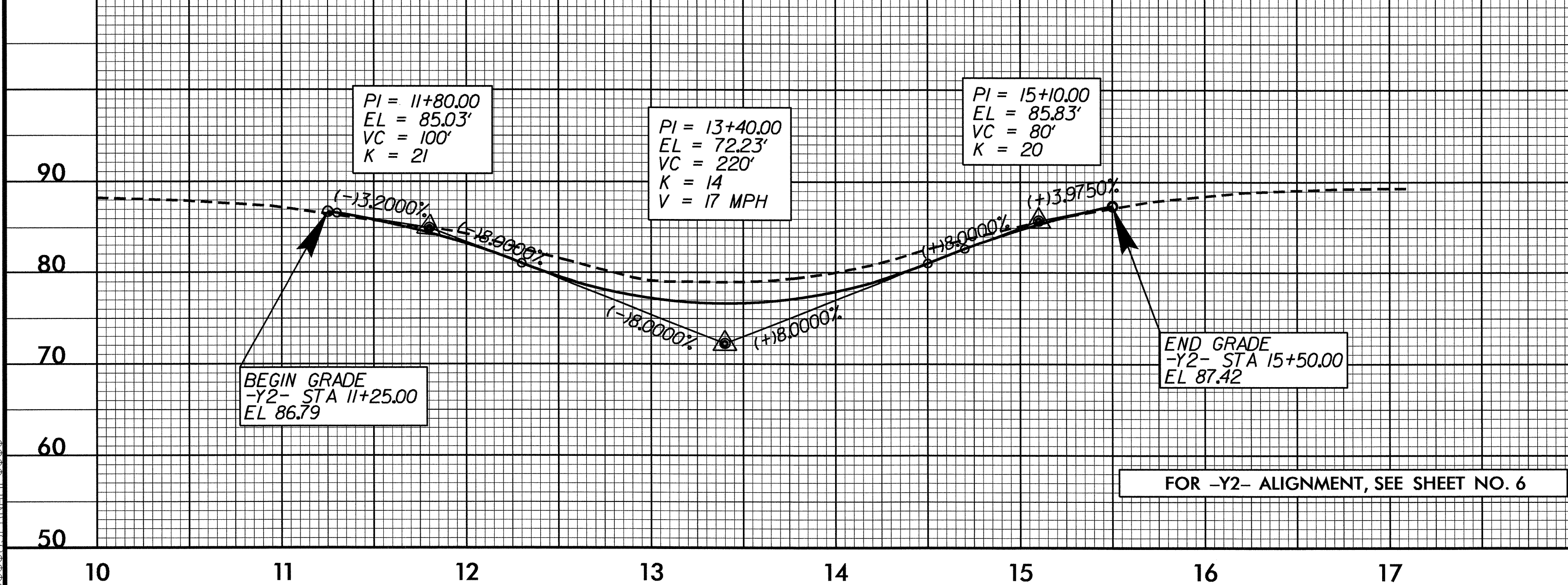
# -Y1-

# -DR1A-



# -Y2-

# -LOCALDET-



09-MAY-2012 14:35  
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ANTHONY AARON HOUSE