

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**PROPOSED**  
**HIGHWAY PLANS**

**FAP ROUTE 885 (IL RT 146)**  
**SECTION 13B-1**  
**BOX CULVERT REPLACEMENT**  
**STRUCTURE NO. 091-7046**  
**OVER UNNAMED STREAM**  
**UNION COUNTY**  
 C-99-043-11  
**PROJECT F-0885(044)**

F.A.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	13B-1	UNION	14	1
ILLINOIS CONTRACT NO. 78255				

FOR INDEX OF SHEETS, SEE SHEET NO. 2  
 FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3

UNION COUNTY UNIT ROAD DISTRICT NO. 1

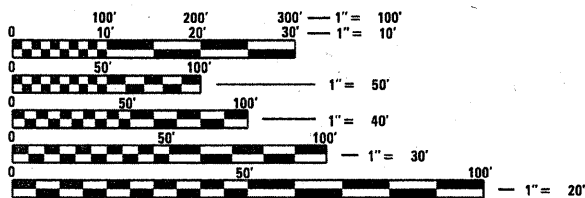
**HIGHWAY CLASSIFICATION**

FAP ROUTE 885 - IL 146

ADT 16,200 (2009)

5% TRUCKS

FUNCTIONAL CLASS: OTHER PRINCIPAL ARTERIAL

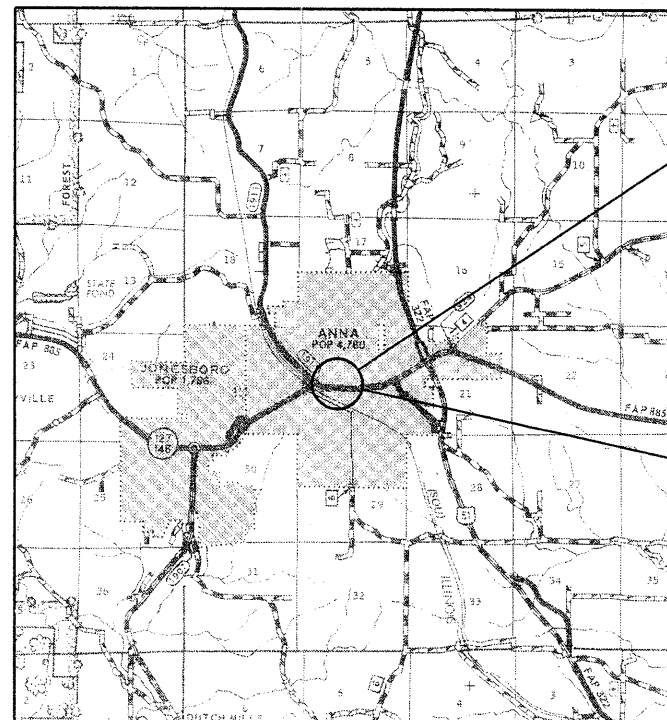


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
 1-800-892-0123  
 OR 811

PROJECT ENGINEER: GRANT DETERDING  
 PROJECT MANAGER: DAVID PICHE 618-351-5227

CONTRACT NO. 78255



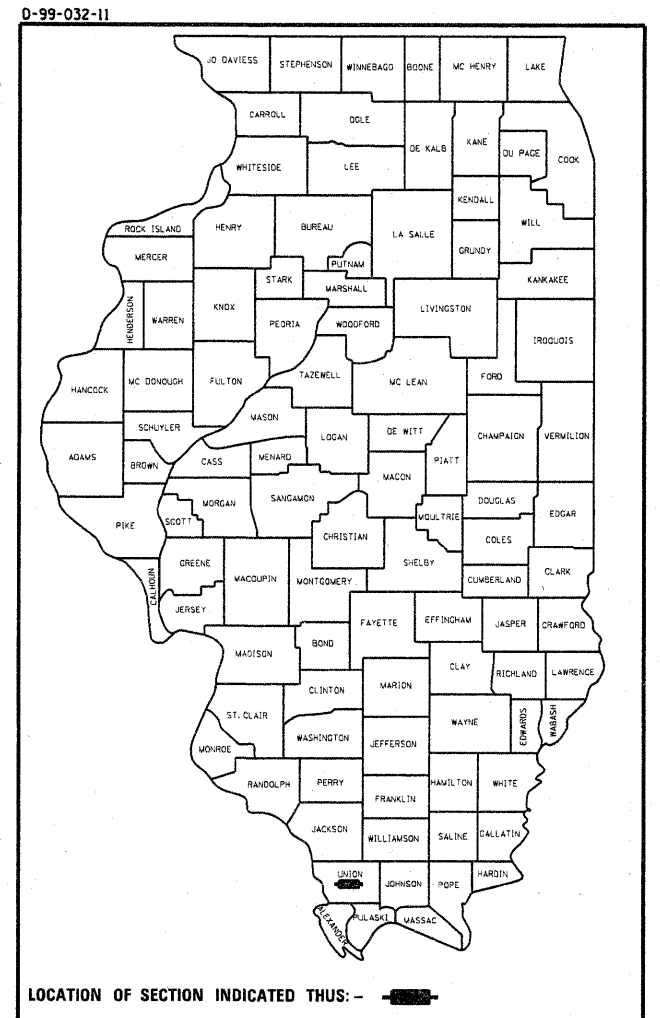
BEGIN STA. 10+43.0

PROPOSED BOX CULVERT  
 STA. 10+74.9  
 SINGLE 10'-0" x 4'-0" x 86'-0"  
 PRECAST REINFORCED CONCRETE BOX  
 CULVERT - 10° LEFT AHEAD SKEW  
 STRUCTURE NO. 091-7090

END STA. 10+94.5

GROSS LENGTH = 51.5 FT

NET LENGTH = 51.5 FT



STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED Oct 18th 2011

James C.  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

December 9 20 11  
Scott E. Stahl P.E. Ia  
 acting ENGINEER OF DESIGN AND ENVIRONMENT

December 9 20 11  
William R. Fryer  
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY  
 OF THE STATE OF ILLINOIS**



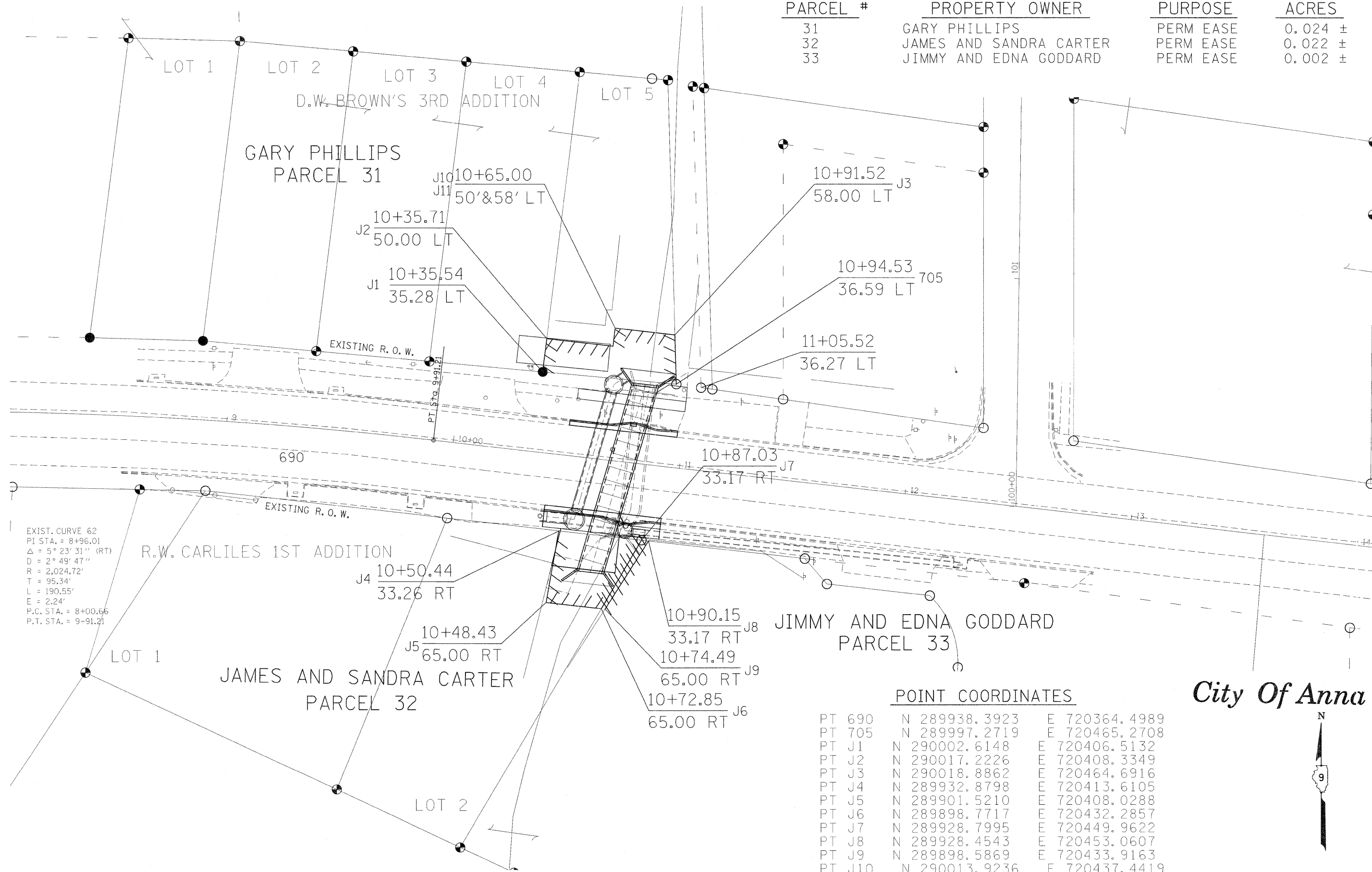
copy to 8/20/11

CODE NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	UNION COUNTY	
				STP FUNDING	CONST. CODE 0040
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	25		
20700220	POROUS GRANULAR EMBANKMENT	CU YD	406		
25000115	SEEDING, CLASS 1B	ACRE	0.1		
25000350	SEEDING, CLASS 7	ACRE	0.1		
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	9		
25000500	PHOSOPHORUS FERTILIZER NUTRIENT	POUND	9		
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	9		
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.2		
25100115	MULCH, METHOD 2	ACRE	0.1		
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	12		
40200100	AGGREGATE SURFACE COURSE, TYPE A	TON	13		
40300100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	103		
40603245	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL 19.0, NI05	TON	71		
40603550	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "D", NI05	TON	18		
42300100	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 5 INCH	SQ YD	58		
42400100	PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	592		
44000100	PAVEMENT REMOVAL	SQ YD	206		
44000200	DRIVEWAY PAVEMENT REMOVAL	SQ YD	54		
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	99		
44000600	SIDEWALK REMOVAL	SQ FT	539		
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1		
50200100	STRUCTURE EXCAVATION	CU YD	681		
50800205	REINFORCEMENT BARS (EPOXY COATED)	POUND	1080		

CODE NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	UNION COUNTY	
				STP FUNDING	CONST. CODE 0040
50901720	BICYCLE RAILING	FOOT	55		
54003000	CONCRETE BOX CULVERTS	CU YD	14.1		
54011004	PRECAST CONCRETE BOX CULVERTS 10' X 4'	FOOT	86		
54248510	CONCRETE COLLAR	CU YD	5.7		
550A0120	STORM SEWER, CLASS A, TYPE 1 24"	FOOT	11		
550A0190	STORM SEWER, CLASS A, TYPE 1 48"	FOOT	64		
55101200	STORM SEWER REMOVAL 24"	FOOT	6		
55101900	STORM SEWER REMOVAL 48"	FOOT	18		
60224030	MANHOLES, TYPE A, 6' -DIAMETER, TYPE 15 FRAME AND LID	EACH	1		
60224446	MANHOLES, TYPE A, 7' -DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1		
60224459	MANHOLES, TYPE A, 8' -DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1		
60404800	FRAMES AND GRATES, TYPE 11	EACH	1		
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	99		
67100100	MOBILIZATION	L SUM	1		
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1		
70102622	TRAFFIC CONTROL AND PROTECTION, STANDARD 701502	L SUM	1		
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	40		
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1		
70300100	SHORT TERM PAVEMENT MARKING	FOOT	16		
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	103		
78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	103		
Z0055905	TEMPORARY CONSTRUCTION FENCE	FOOT	200		



PARCEL #	PROPERTY OWNER	PURPOSE	ACRES
31	GARY PHILLIPS	PERM EASE	0.024 ±
32	JAMES AND SANDRA CARTER	PERM EASE	0.022 ±
33	JIMMY AND EDNA GODDARD	PERM EASE	0.002 ±



EXIST. CURVE 62  
 PI STA. = 8+96.01  
 $\Delta = 5^\circ 23' 31''$  (RT)  
 $D = 2^\circ 49' 47''$   
 $R = 2,024.72'$   
 $T = 95.34'$   
 $L = 190.55'$   
 $E = 2.24'$   
 P.C. STA. = 8+00.66  
 P.T. STA. = 9+91.21

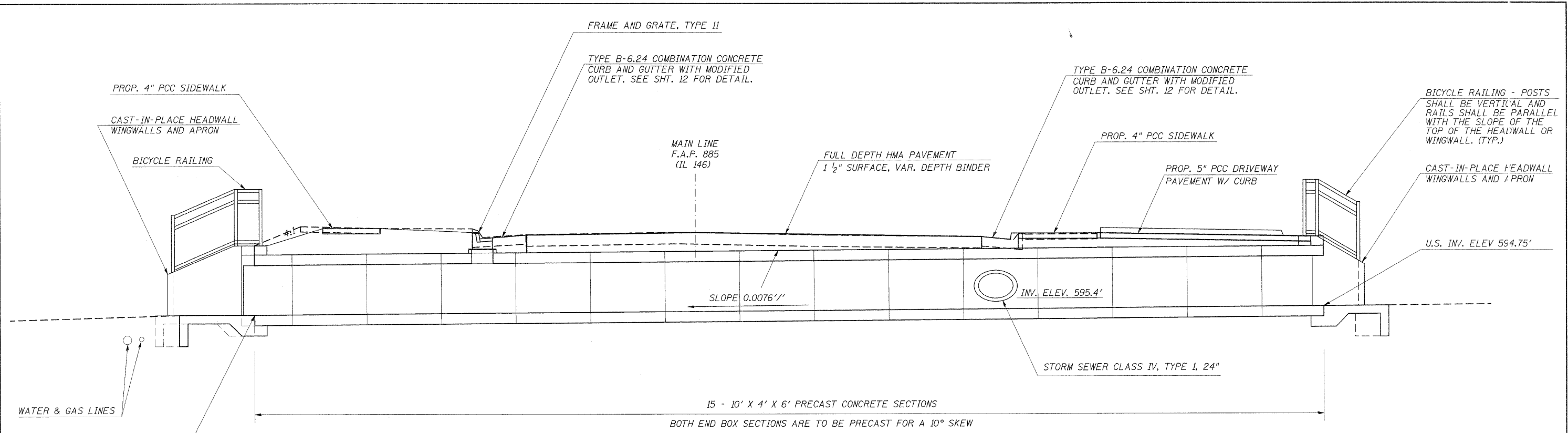
**POINT COORDINATES**

PT 690	N 289938.3923	E 720364.4989
PT 705	N 289997.2719	E 720465.2708
PT J1	N 290002.6148	E 720406.5132
PT J2	N 290017.2226	E 720408.3349
PT J3	N 290018.8862	E 720464.6916
PT J4	N 289932.8798	E 720413.6105
PT J5	N 289901.5210	E 720408.0288
PT J6	N 289898.7717	E 720432.2857
PT J7	N 289928.7995	E 720449.9622
PT J8	N 289928.4543	E 720453.0607
PT J9	N 289898.5869	E 720433.9163
PT J10	N 290013.9236	E 720437.4419
PT J11	N 290021.8727	E 720438.3428

*City Of Anna*

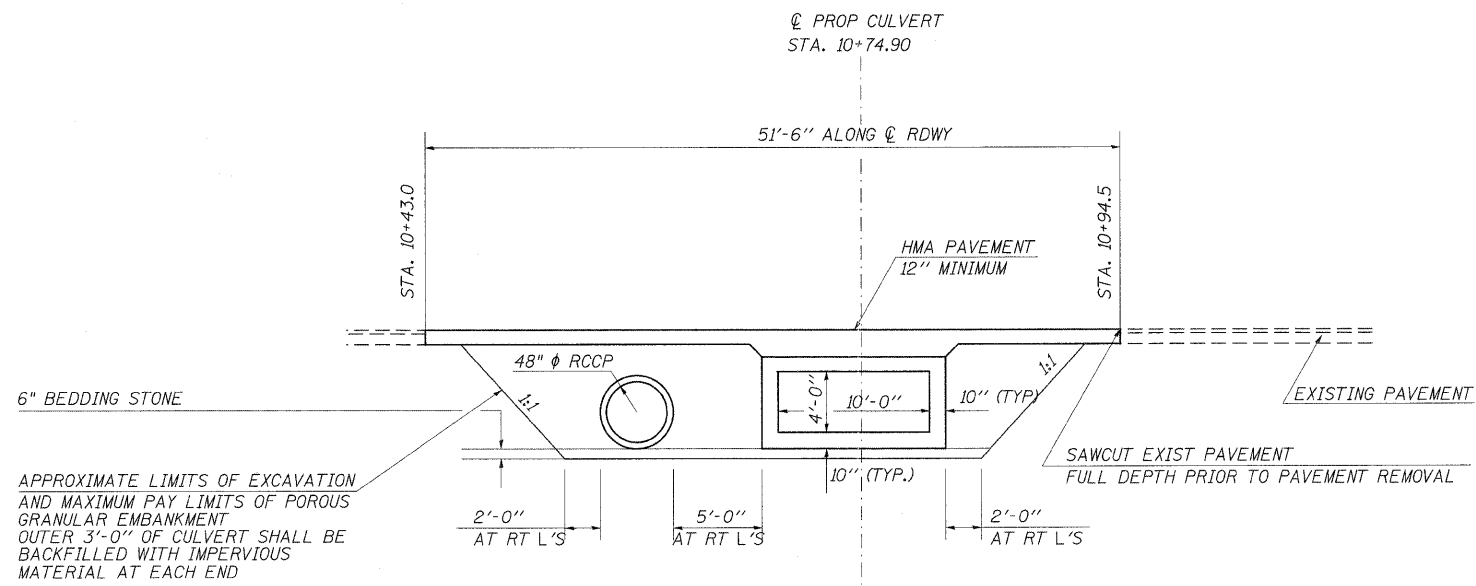


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PLOT SCALE = 20,000' / in.	CHECKED -	REVISED -	REVISED -		PROJECT D903211	JOB NO. R-99-003-11	CONTRACT NO. 78255		ILLINOIS FED. AID PROJECT		
PLOT DATE = 11/7/2011	DATE -	REVISED -	REVISED -		SCALE: 20	SHEET 1 OF 1 SHEETS	STA.	TO STA.			



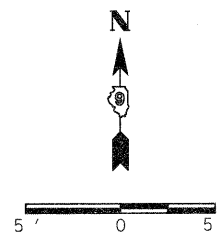
**PROFILE ALONG CENTERLINE OF PROPOSED BOX CULVERT**

**TYPICAL LIMITS OF POROUS GRANULAR EMBANKMENT AT 091-7046**

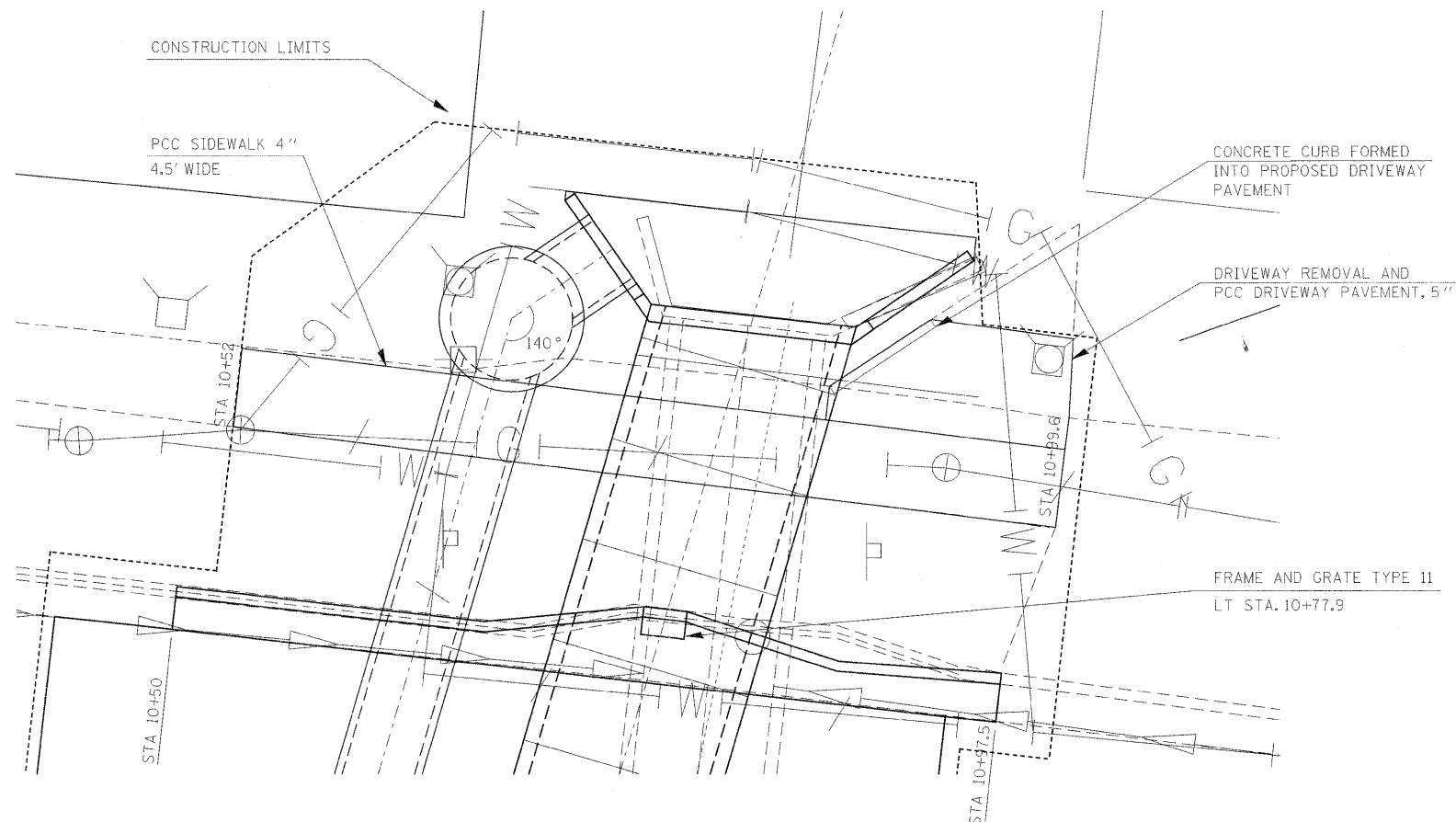


NOTE: POROUS GRANULAR EMBANKMENT WILL BE CA7 OR CA11 WITH THE TOP 1' CONSISTING OF CA6 OR CA10.

FILE NAME =	USER NAME = detersingj	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BOX CULVERT PROFILE AND CROSS-SECTION SN 091-7046</b>			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
02\pwork\pwork\dot\deterdingj\d0265173\8256_sht_091-7046.plndgn		DRAWN -	REVISED -					885	13B-1	UNION	14	6
	PLOT SCALE = 4.0000' / 1" IN.	CHECKED -	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO. 78255				
	PLOT DATE = 11/7/2011	DATE -	REVISED -		ILLINOIS FED. AID PROJECT							



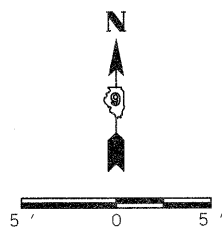
**DETAIL AT DOWNSTREAM END  
OF PROPOSED BOX CULVERT**



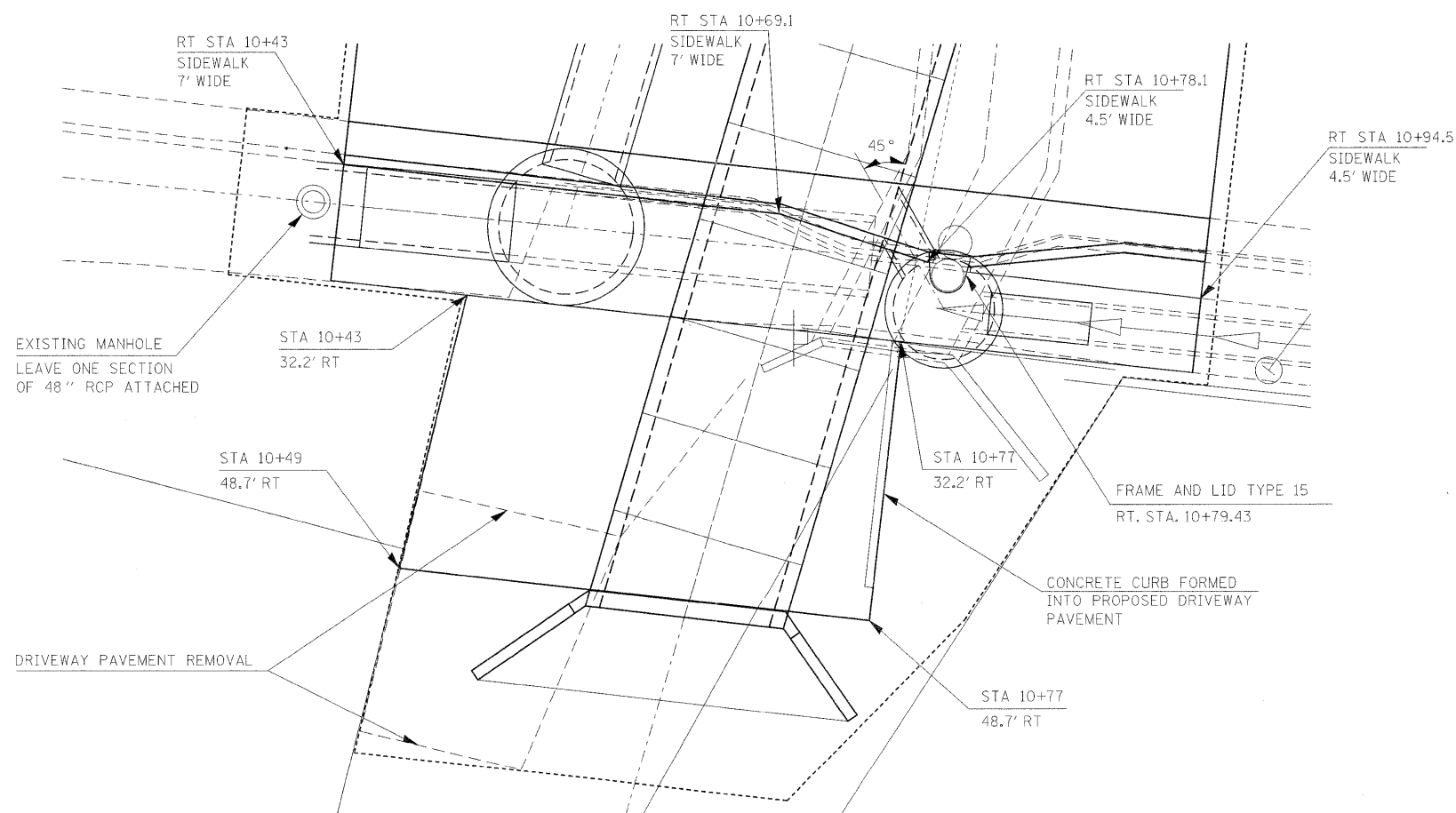
NOTE: A QUANTITY OF STONE DUMPED RIPRAP HAS BEEN INCLUDED IN THE PLANS FOR STABILIZATION OF THE DOWNSTREAM STREAM BANKS. BY AGREEMENT, THE CITY OF ANNA WILL STABILIZE THE STREAM CHANNEL WITH ADDITIONAL CONCRETE.

GAS AND WATER LINES ARE IN CLOSE PROXIMITY TO THE DOWNSTREAM WORK AREA. EXTREME CAUTION SHOULD BE USED WHEN DIGGING IN THIS AREA.

A CONCRETE COLLAR SHALL BE CONSTRUCTED AT ALL LOCATIONS WHERE PROPOSED STORM SEWER PIPES INTERSECT AN INLET/MANHOLE OR THE PROPOSED BOX CULVERT.



**DETAIL AT UPSTREAM END  
OF PROPOSED BOX CULVERT**



NOTE: THE PROPOSED 24"Ø STORM SEWER PIPE THAT INTERSECTS THE NEW 10'W x 4'H BOX CULVERT SHALL BE CUT FLUSH WITH THE INSIDE FACE OF THE BOX CULVERT.

ONE SECTION EACH (ASSUMED TO BE 6' LONG) OF 24"Ø AND 48"Ø EXISTING STORM SEWER PIPE WILL BE REMOVED WITH THE PAY ITEM REMOVAL OF EXISTING STRUCTURES. THE REMAINDER WILL BE REMOVED WITH THE PAY ITEM STORM SEWER REMOVAL OF THE SIZE SPECIFIED.

FILE NAME -	USER NAME - detersd\nggj	DESIGNED -	REVISED -
o:\pwork\pwork\pwork\detersd\nggj\d0265173\8255_sht_031-7846.plt.dgn		DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CULVERT END DETAILS**

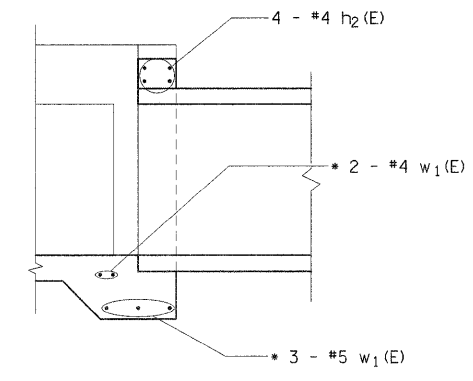
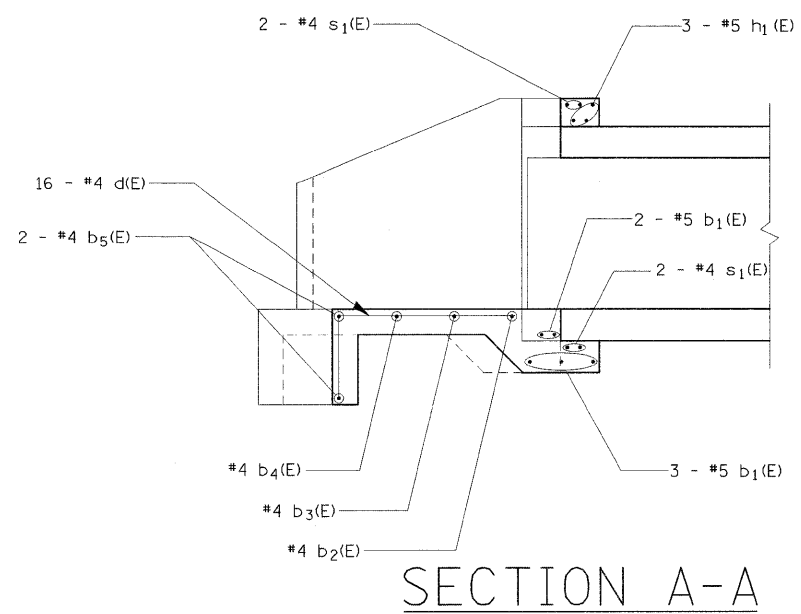
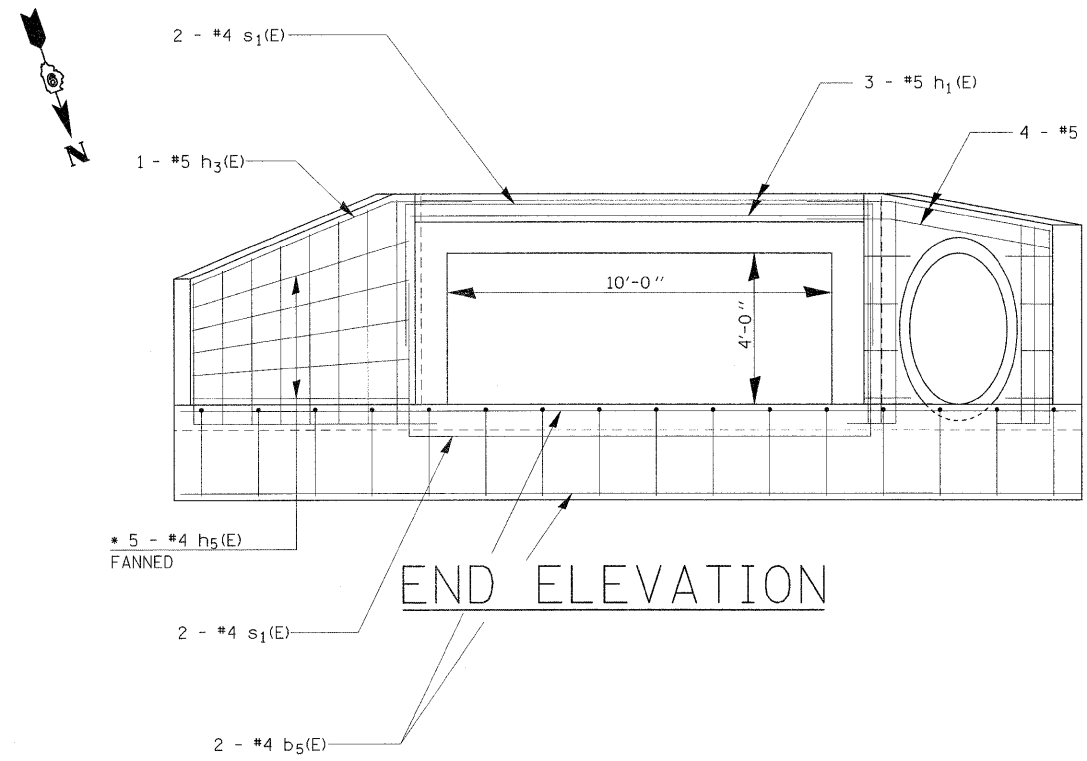
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	13B-1	UNION	14	7
				CONTRACT NO. 78255
[ILLINOIS] FED. AID PROJECT				

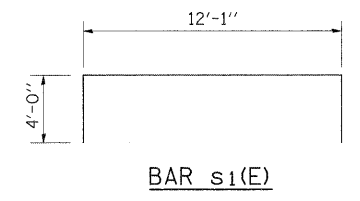
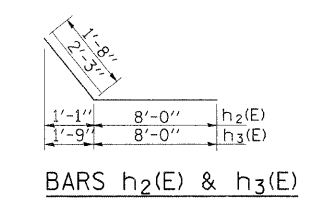
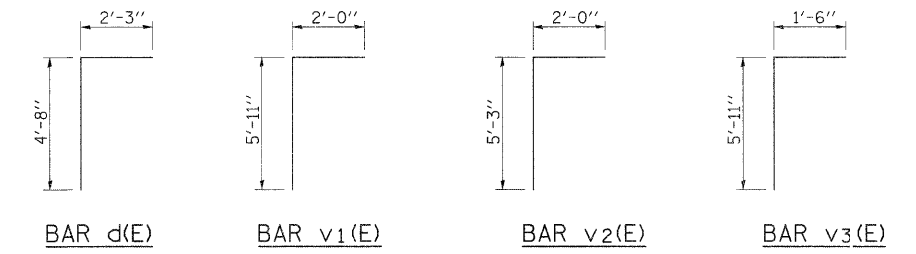
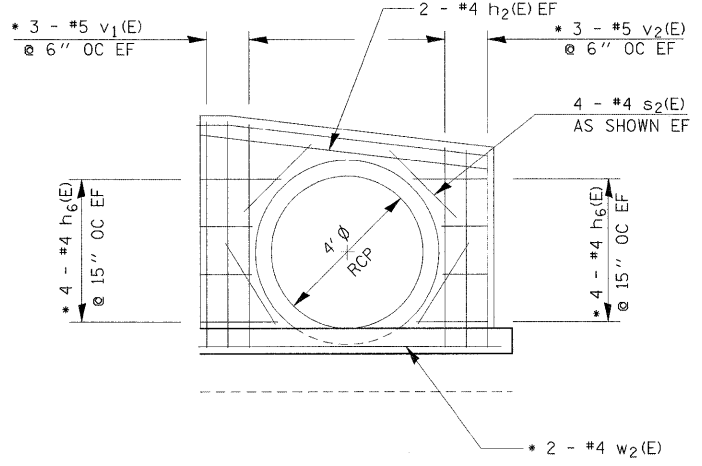
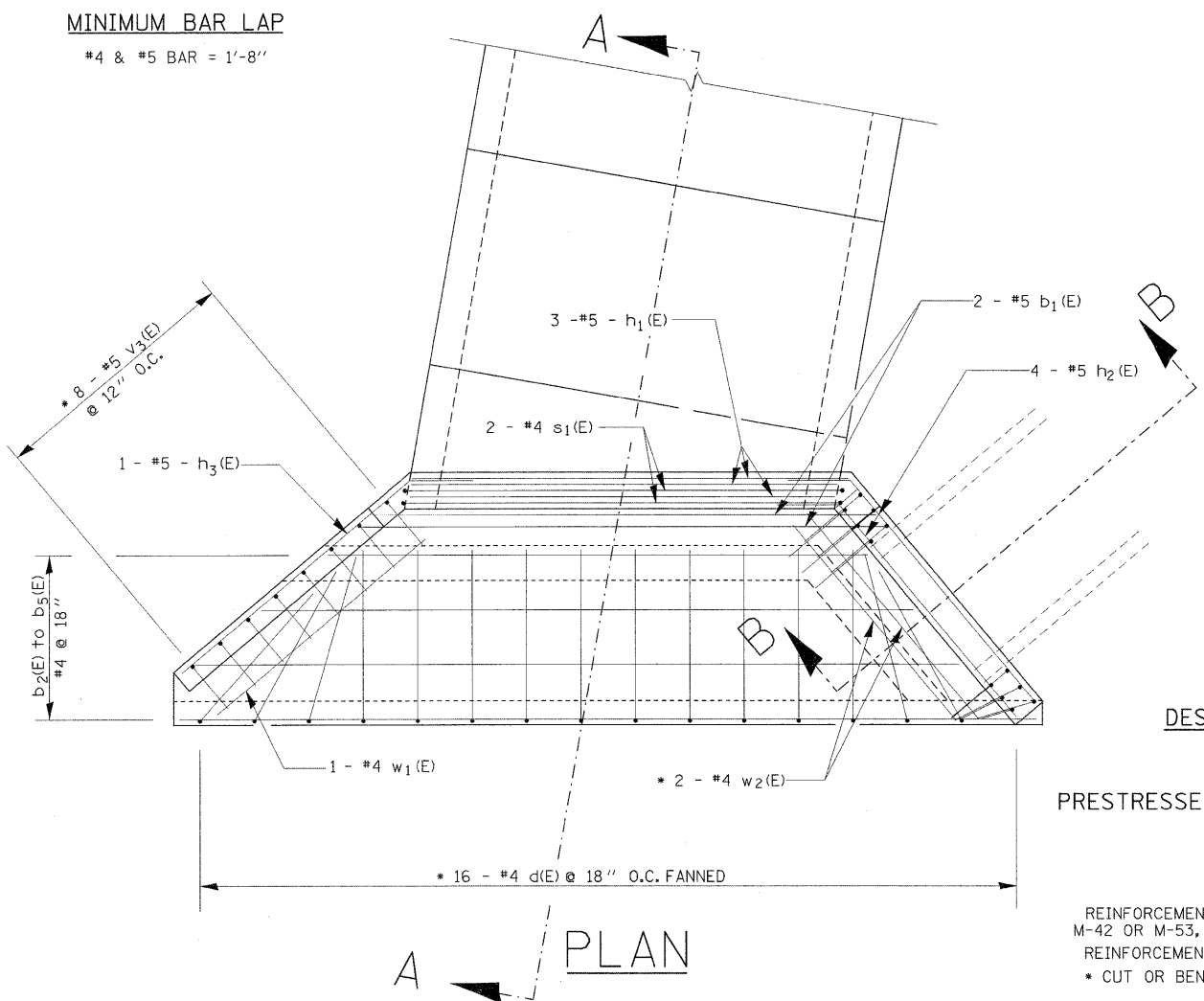








**MINIMUM BAR LAP**  
#4 & #5 BAR = 1'-8"



**DESIGN STRESSES**  
fy = 60,000 psi  
f'c = 3,500 psi

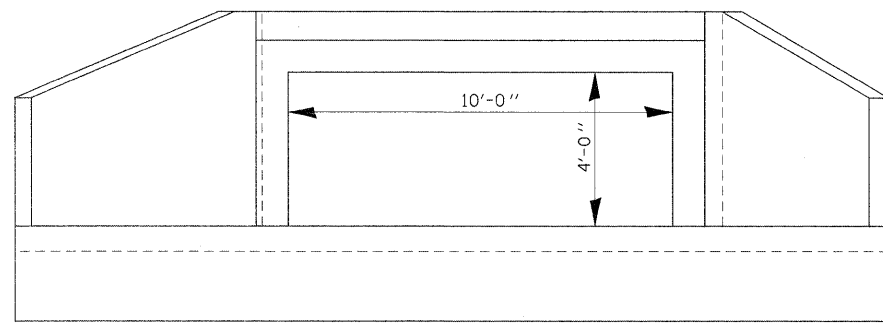
PRESTRESSED BOX LOADING HL 93

**NOTES**

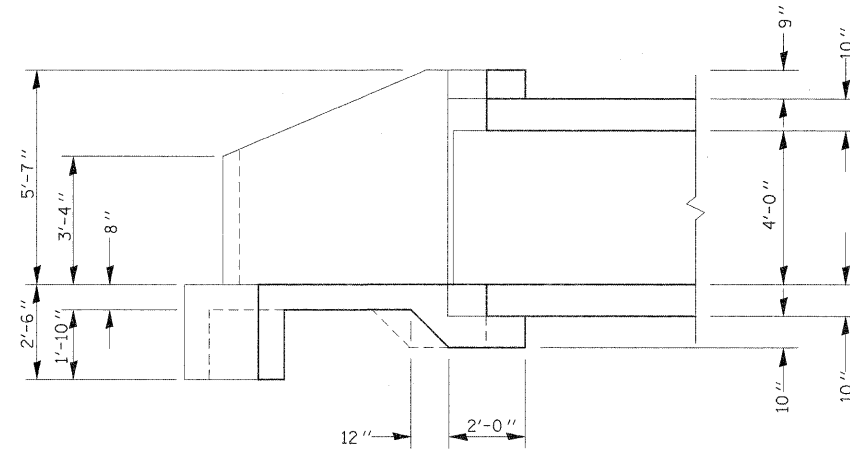
REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 M-42 OR M-53, GRADE 60.  
REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.  
• CUT OR BEND IN FIELD TO FIT

**BILL OF MATERIAL**

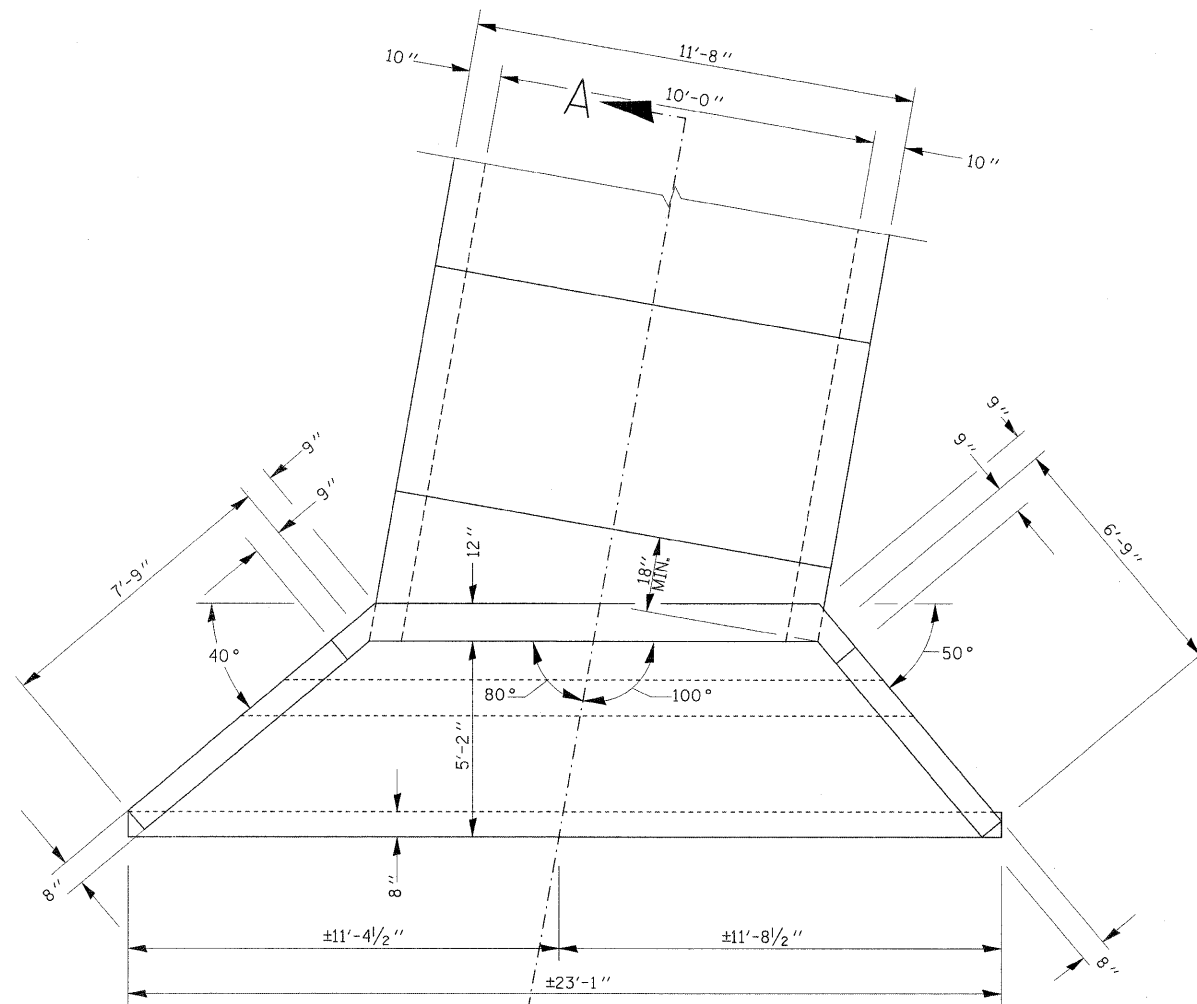
Bar	No.	Size	Length	Shape
b1(E)	5	#5	13'-8"	—
b2(E)	1	#4	14'-9"	—
b3(E)	1	#4	18'-0"	—
b4(E)	1	#4	21'-0"	—
b5(E)	2	#4	23'-6"	—
d(E)	16	#4	6'-11"	┌
h1(E)	3	#5	11'-6"	—
h2(E)	4	#5	9'-8"	—
h3(E)	1	#5	10'-3"	—
h5(E)	5	#4	7'-10"	—
h6(E)	16	#4	2'-2"	—
s1(E)	4	#4	20'-1"	┌
s2(E)	8	#4	2'-6"	—
v1(E)	6	#5	7'-11"	┌
v2(E)	6	#5	7'-3"	┌
v3(E)	8	#5	7'-5"	┌
w1(E)	6	#4	7'-4"	—
CONCRETE BOX CULVERTS				Cu. Yd. 7.6
REINFORCEMENT BARS, EPOXY COATED				Pound 610



END ELEVATION



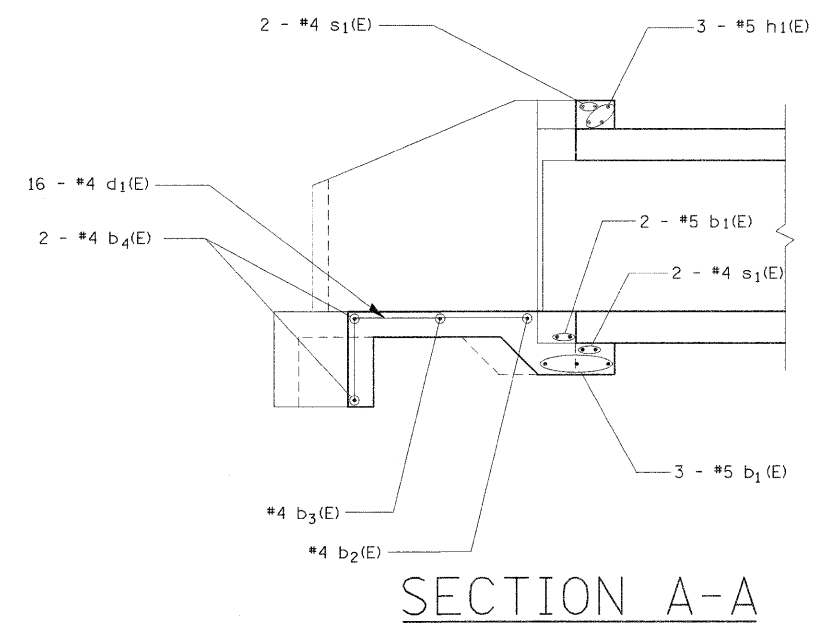
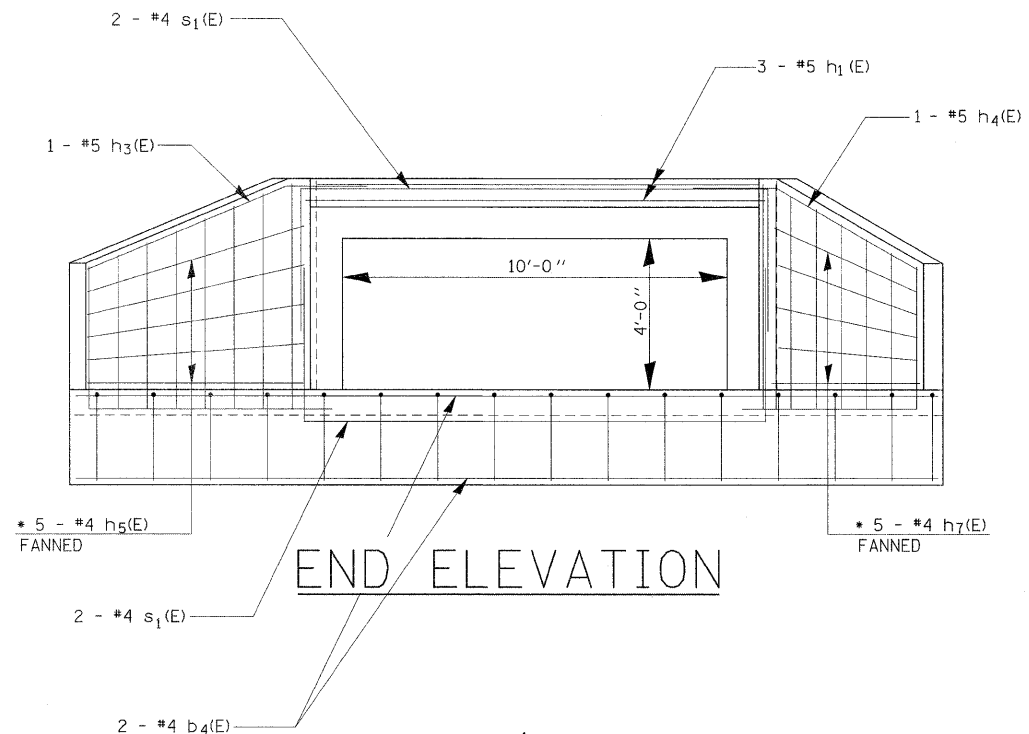
SECTION A-A



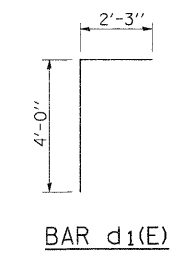
PLAN

NOTES  
EXPOSED EDGES SHALL BE BEVELED  $\frac{3}{4}$ ".

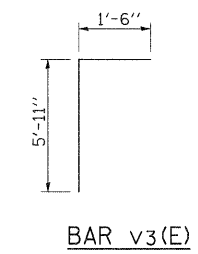
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c:\px\work\p\dot\detersingj\d8265173\br-78255_sht_091-7846.pln.Default.dgn	DRAWN -	REVISED -	885			13B-1	UNION	14	10	
PLOT SCALE = 50.0000 1/16"	CHECKED -	REVISED -	CONTRACT NO. 78255							
PLOT DATE = 11/7/2011	DATE -	REVISED -	ILLINOIS FED. AID PROJECT							
						SCALE:	SHEET	OF	SHEETS	STA. TO STA.



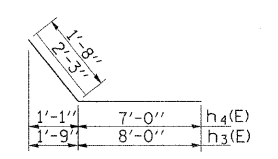
SECTION A-A



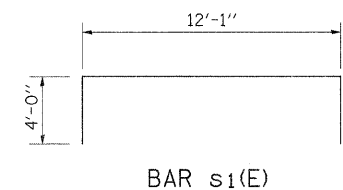
BAR d1(E)



BAR v3(E)

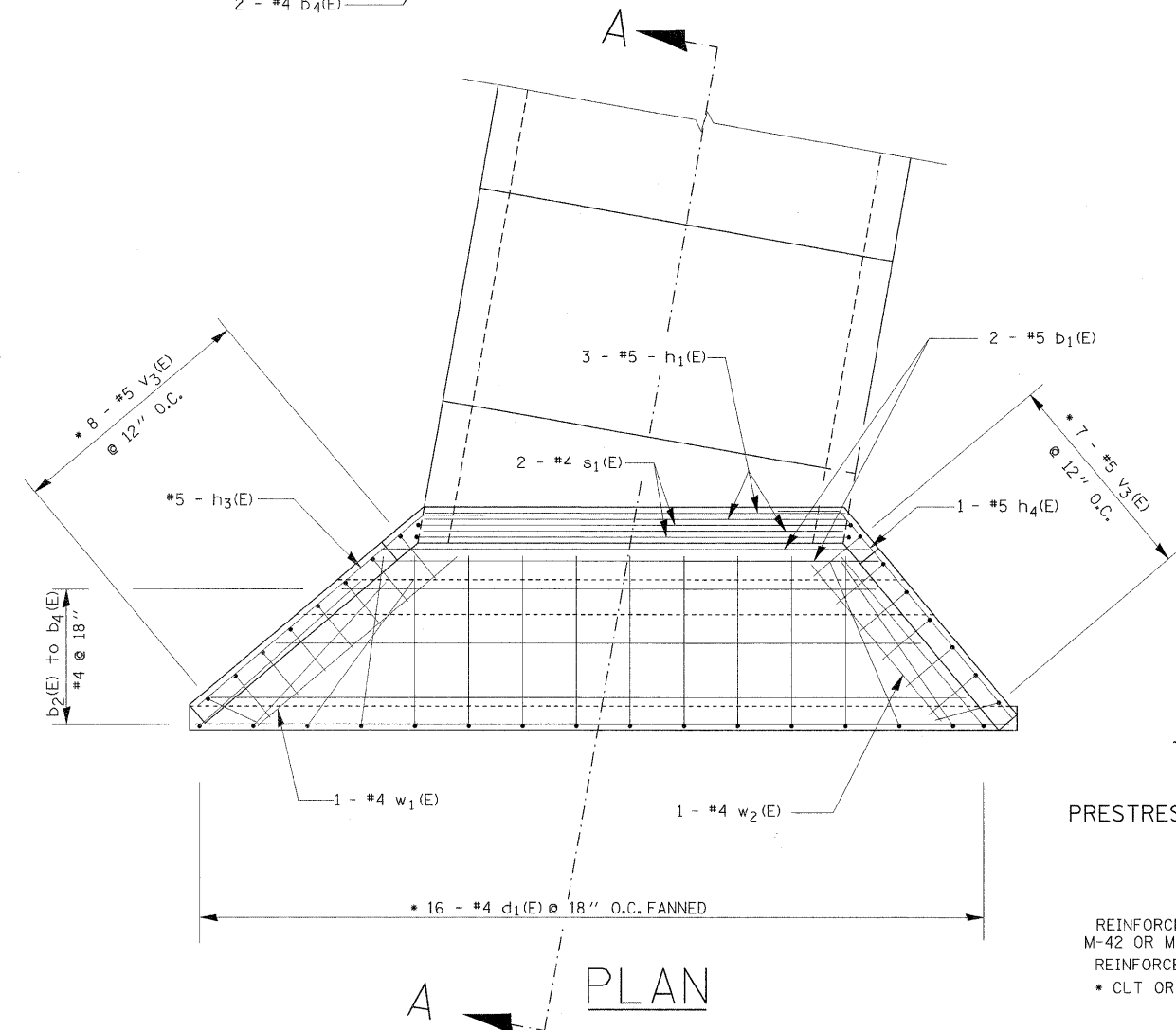


BARS h4(E) & h3(E)



BAR s1(E)

MINIMUM BAR LAP  
#4 & #5 BAR = 1'-8"



DESIGN STRESSES  
fy = 60,000 psi  
f'c = 3,500 psi

PRESTRESSED BOX LOADING HL 93

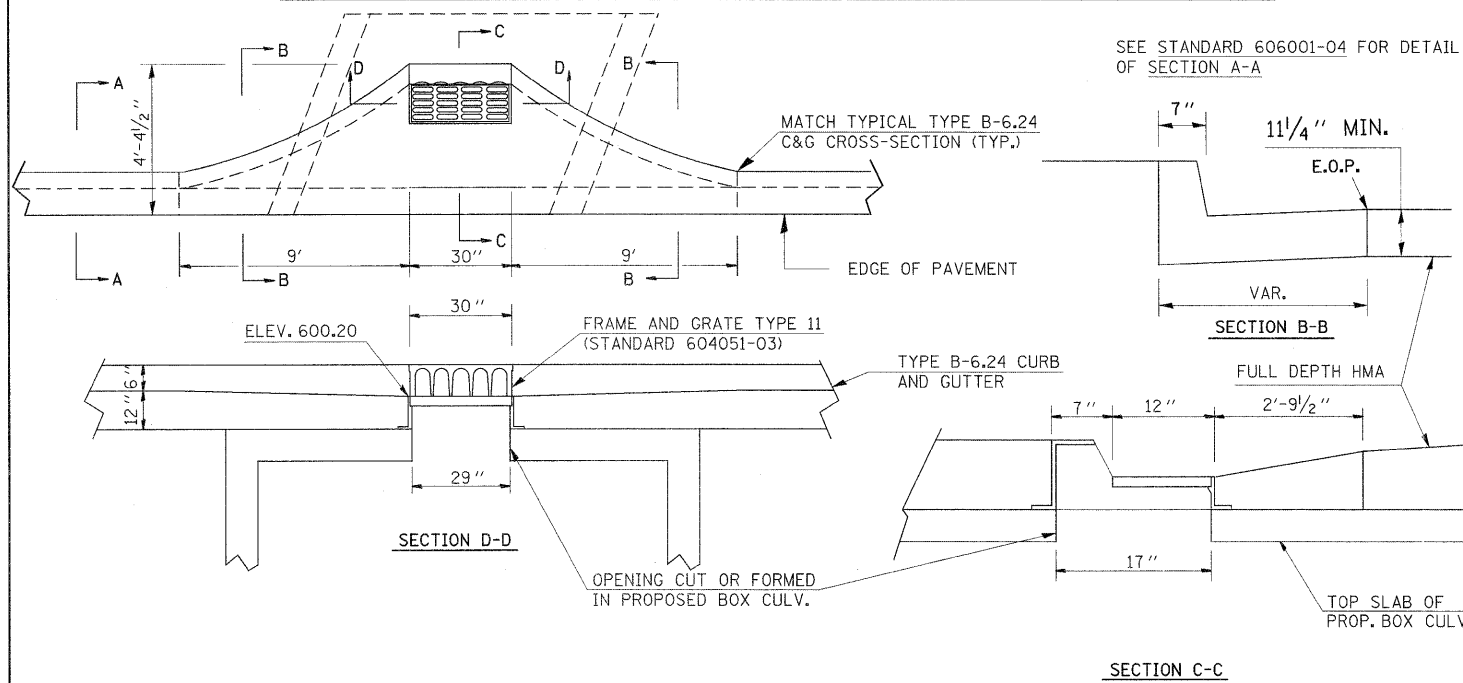
NOTES

- REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31 M-42 OR M-53, GRADE 60.
- REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.
- CUT OR BEND IN FIELD TO FIT

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b1(E)	5	#5	13'-8"	—
b2(E)	1	#4	14'-9"	—
b3(E)	1	#4	18'-0"	—
b4(E)	2	#4	21'-0"	—
d1(E)	16	#4	6'-3"	U
h1(E)	3	#5	11'-6"	—
h3(E)	1	#5	10'-3"	—
h4(E)	1	#5	8'-8"	—
h5(E)	5	#4	7'-10"	—
h7(E)	5	#4	6'-10"	—
s1(E)	4	#4	20'-1"	U
v3(E)	15	#5	7'-5"	U
w1(E)	1	#4	7'-4"	—
w2(E)	1	#4	6'-4"	—
CONCRETE BOX CULVERTS			Cu. Yd.	6.5
REINFORCEMENT BARS, EPOXY COATED			Pound	470

**MODIFIED OUTLET FOR TYPE B GUTTER – LT STA 10+77.9**

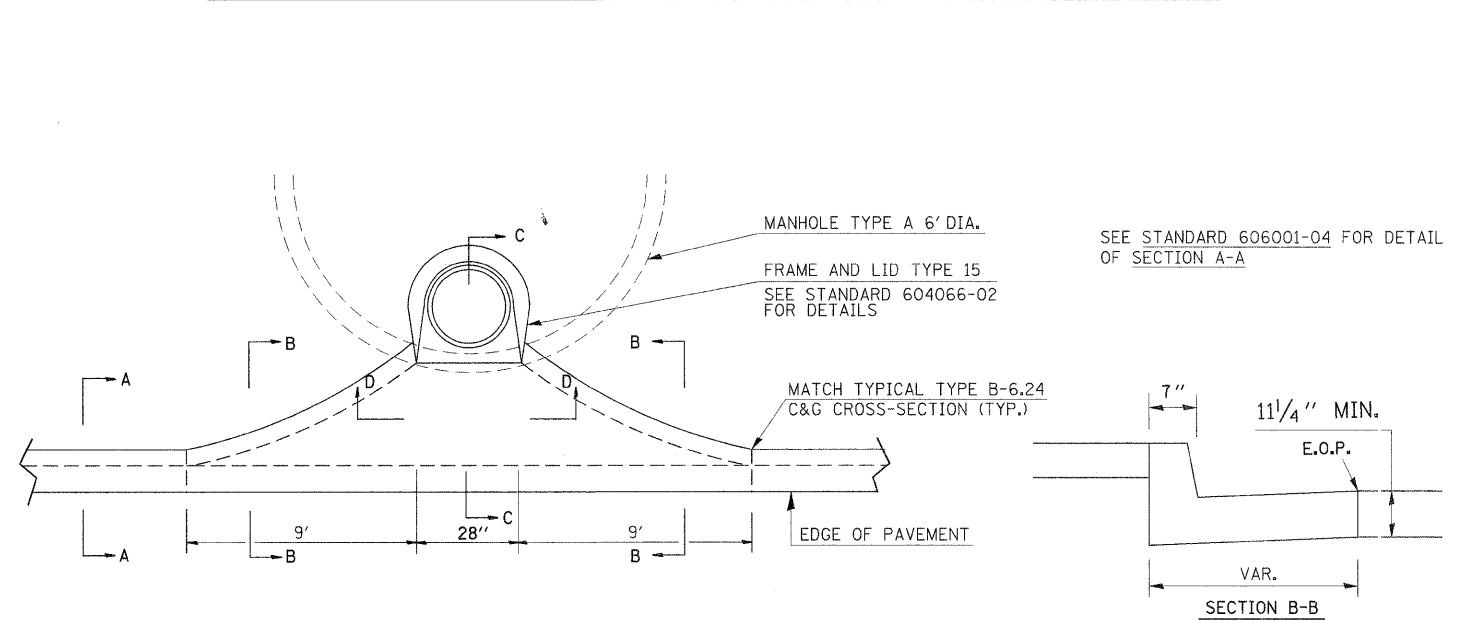


**NOTES:**

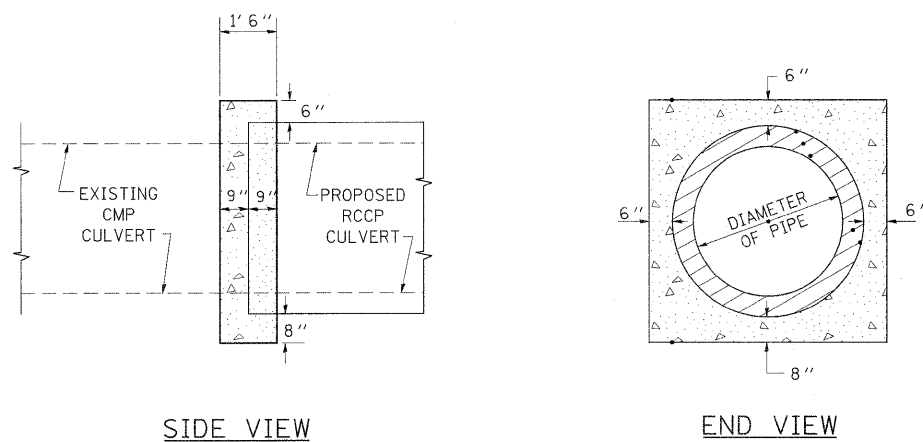
THE COST OF THE MODIFIED OUTLET SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24 WHICH PRICE SHALL INCLUDE FURNISHING AND PLACING ALL JOINTS, AND WELDED WIRE FABRIC REINFORCEMENT WHEN REQUIRED.

THE COST OF PROVIDING AN OPENING IN THE TOP OF THE PROPOSED BOX CULVERT IN THE LOCATION REQUIRED SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR PRECAST CONCRETE BOX CULVERTS 10' x 4'

**MODIFIED OUTLET FOR TYPE B GUTTER – RT. STA. 10+79.45**



**DETAILS OF CONCRETE COLLAR FOR PIPE CULVERT**



**QUANTITY ONE COLLAR**

DIA OF PIPE	CLASS SI CONC CU YD (EST)
24"	0.30
30"	
36"	
48"	1.20

THE CONCRETE COLLAR SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR CONCRETE COLLAR, AS SHOWN ON THE PLANS. CLASS SI CONCRETE SHALL BE USED THROUGHOUT.

TO BE USED:

REVISIONS

DRAWN	7-2-90
REVISED	8-22-94
REVISED	3-26-08
REVISED	

STD. 9-77

FILE NAME =	USER NAME = detersingj	DESIGNED =	REVISED =
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		CHECKED =	REVISED =
		DATE =	REVISED =

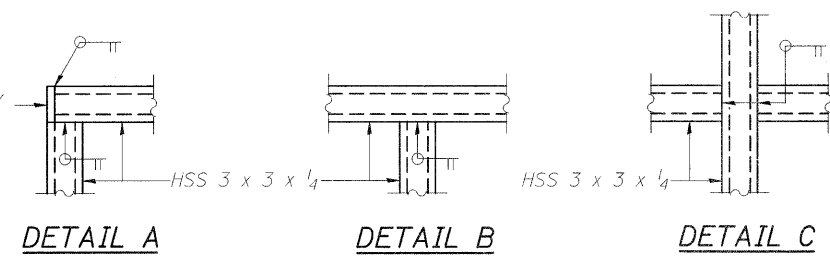
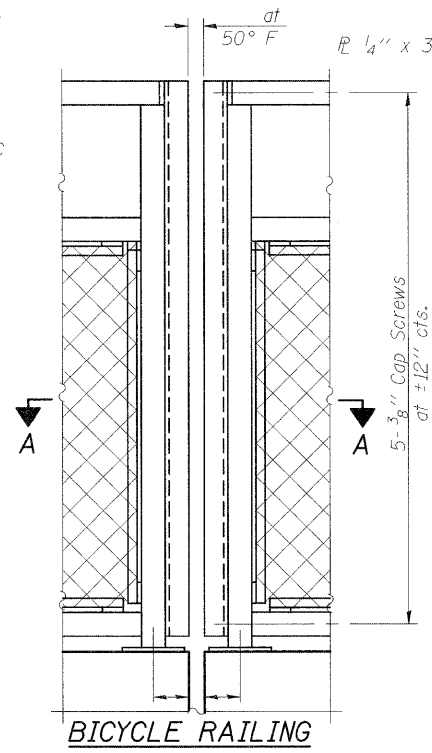
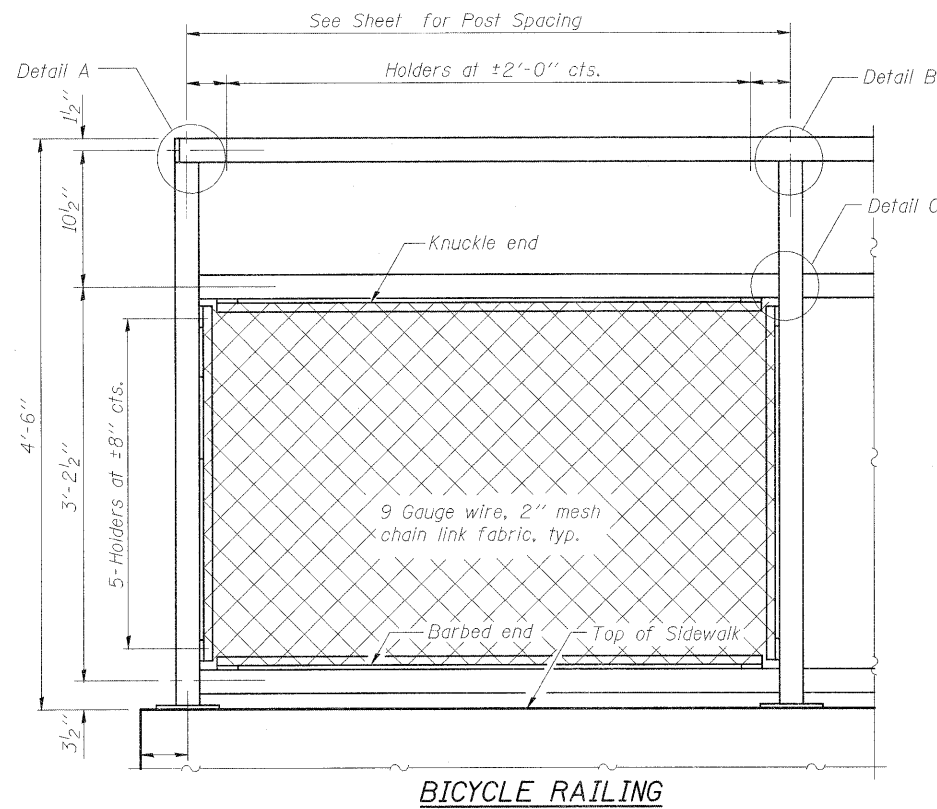
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**MODIFIED OUTLET DETAIL &  
DETAILS OF CONCRETE COLLAR**

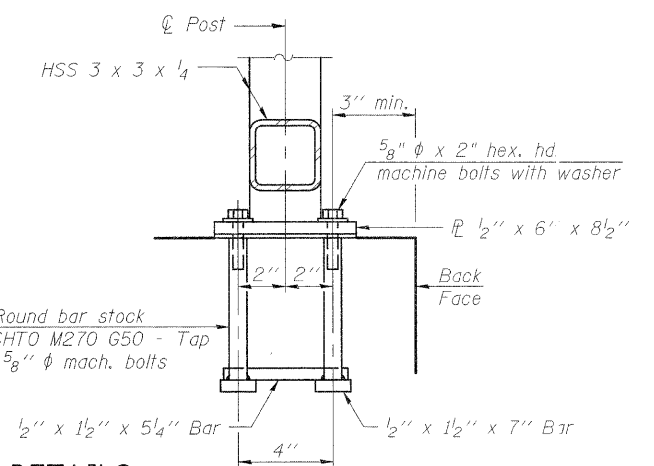
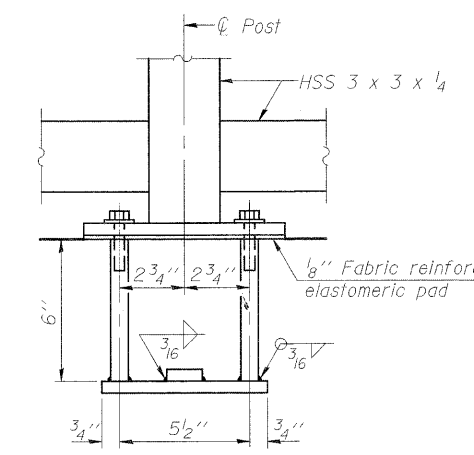
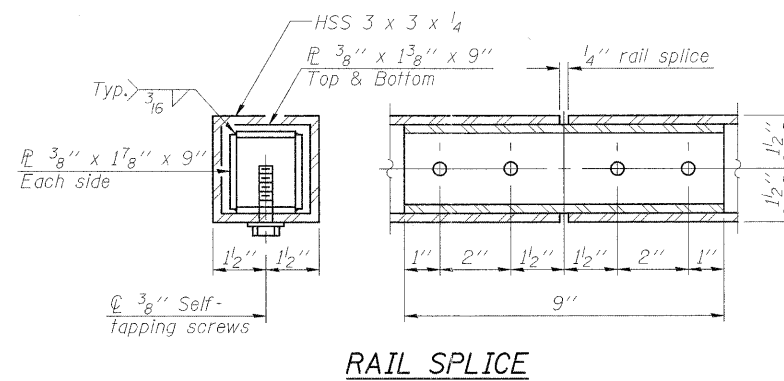
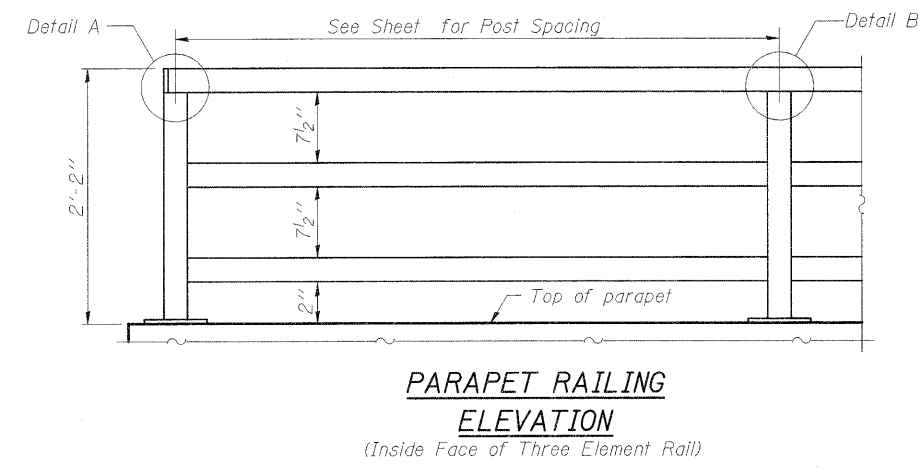
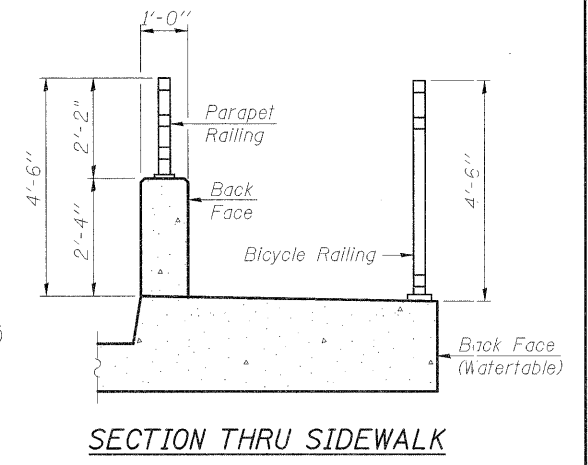
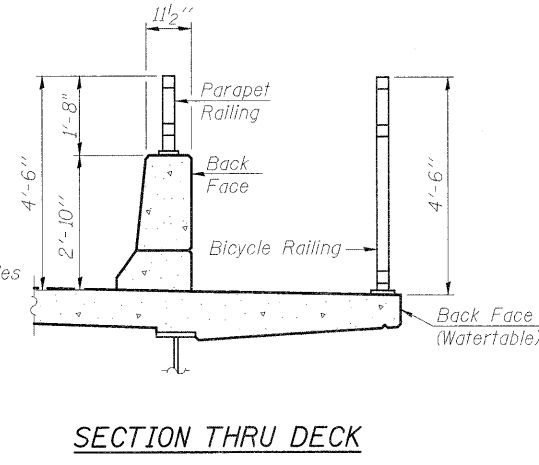
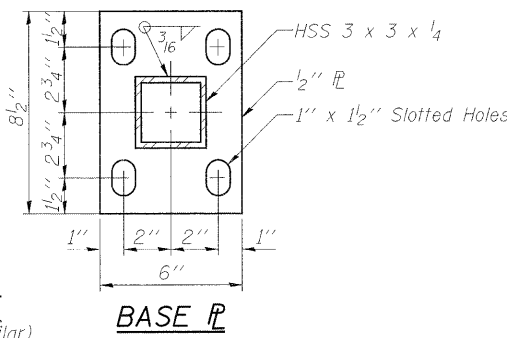
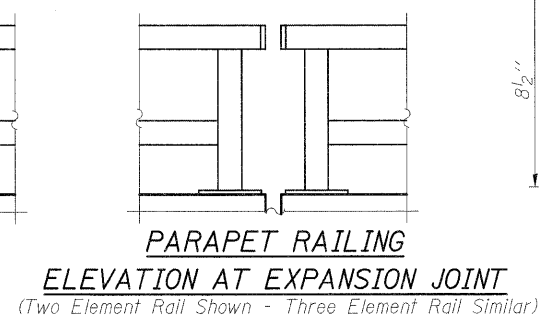
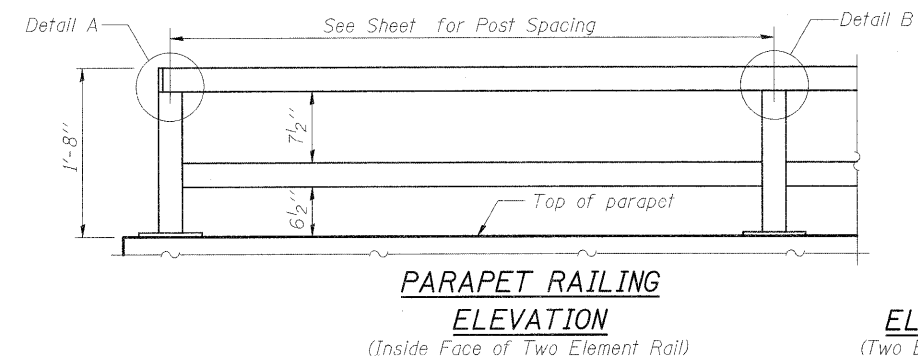
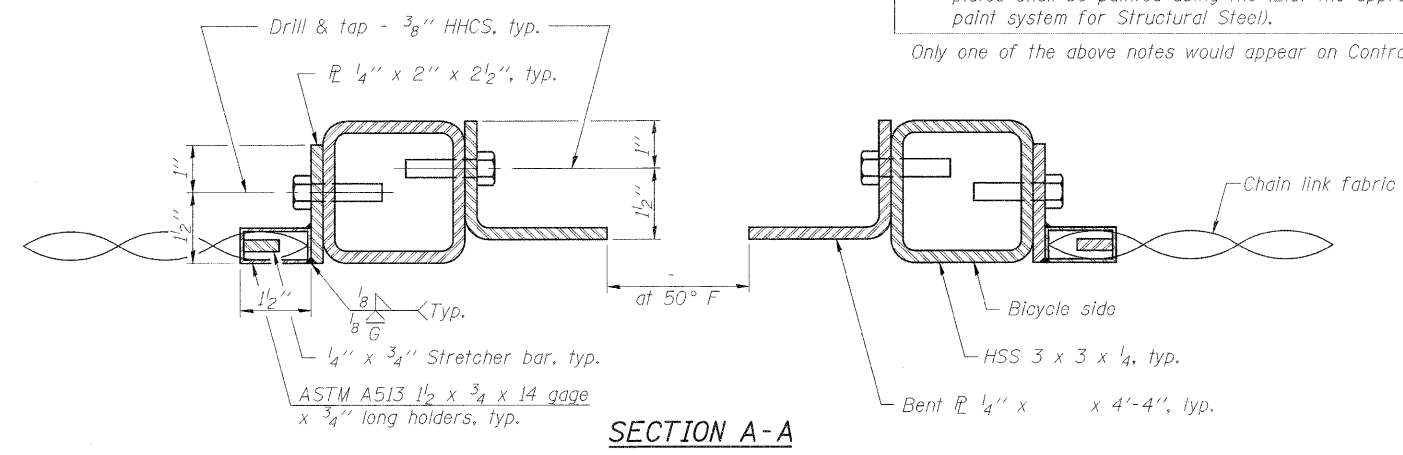
SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	13B-1	UNION	14	12
CONTRACT NO. 78255				
ILLINOIS FED. AID PROJECT				





The designer should add the appropriate note as applicable.  
 A. When railing is galvanized:  
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
 B. When railing is painted:  
 All post, railing, splices, anchor devices, and bent plates shall be painted using the (List the appropriate paint system for Structural Steel).  
 Only one of the above notes would appear on Contract Plans.



In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" φ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

**BILL OF MATERIAL.**

Item	Unit	Quantity
Bicycle Railing	Foot	55

R-29 7-1-10 (10'-0" Maximum Post Spacing)

FILE NAME =	USER NAME =	DESIGNED -	REVISD
		CHECKED -	REVISD
		DRAWN -	REVISD
		CHECKED -	REVISD

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

**BICYCLE RAILING STRUCTURE NO.**

SHEET NO. OF SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	138-1	UNION	14	14
CONTRACT NO. 78255			ILLINOIS FED. AID PROJECT	