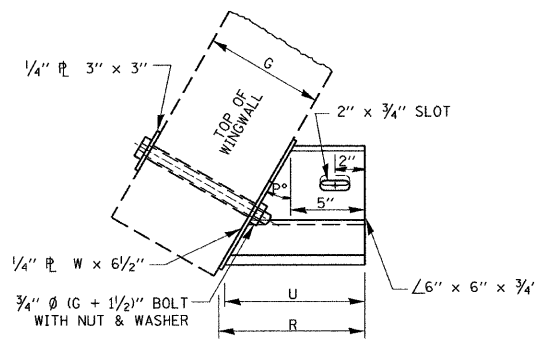
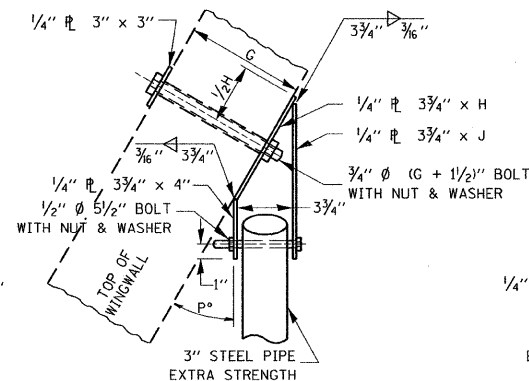


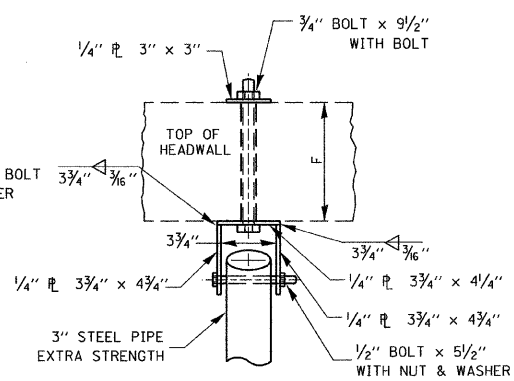
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



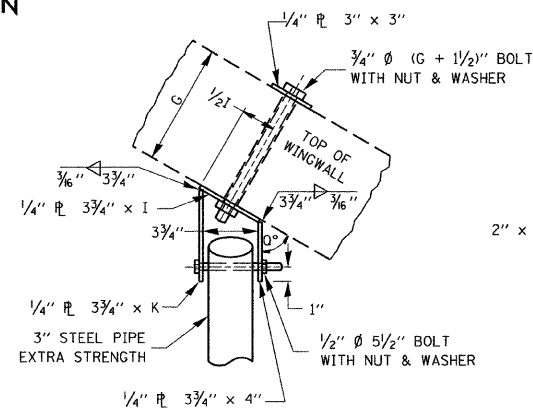
**PLAN**  
**END BRACKET ASSEMBLY - LEFT**



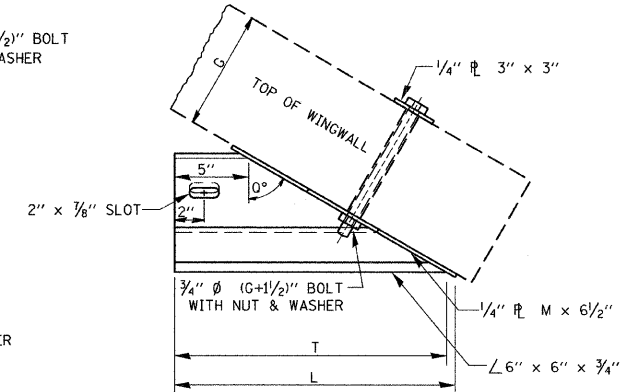
**PLAN**  
**WINGWALL BRACKET ASSEMBLY - LEFT**



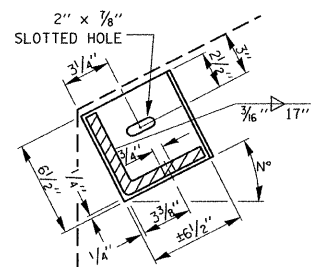
**PLAN**  
**HEADWALL BRACKET ASSEMBLY**



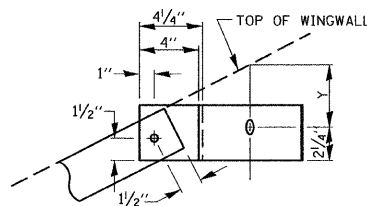
**PLAN**  
**WINGWALL BRACKET ASSEMBLY - RIGHT**



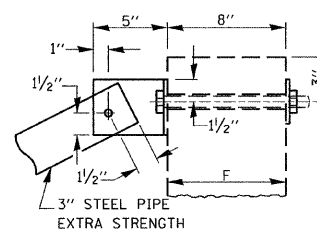
**PLAN**  
**END BRACKET ASSEMBLY - RIGHT**



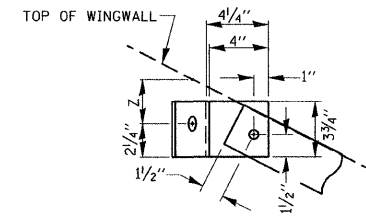
**SECTION THRU**  
**DETAIL A**



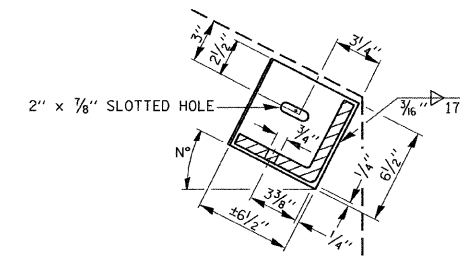
**SECTION THRU**  
**DETAIL B**



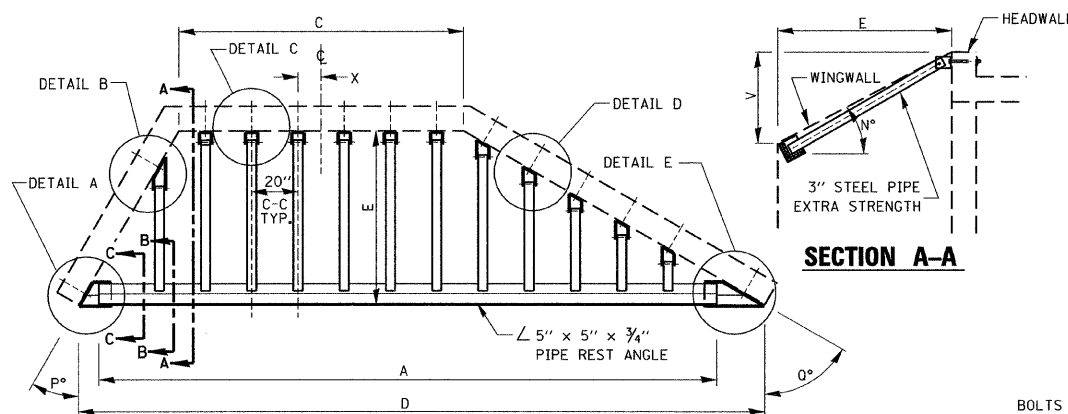
**SECTION THRU**  
**DETAIL C**



**SECTION THRU**  
**DETAIL D**

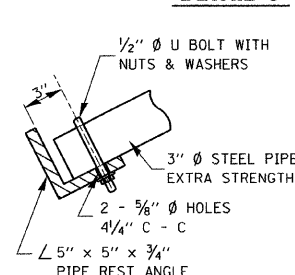


**SECTION THRU**  
**DETAIL E**

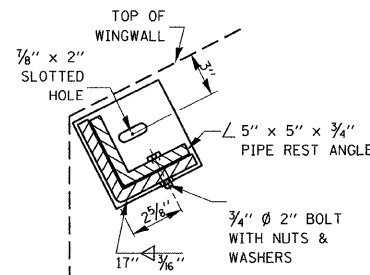


**PLAN VIEW**

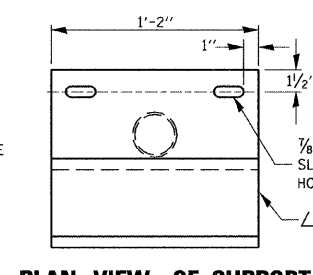
**SECTION A-A**



**SECTION B-B**

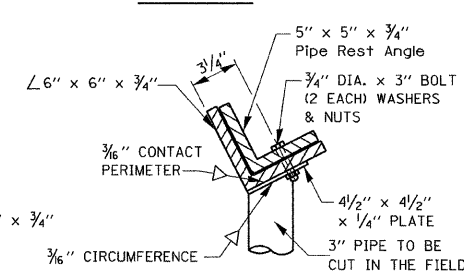


**SECTION C-C**

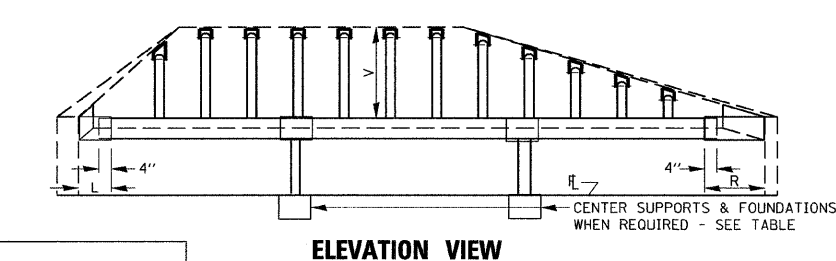


**PLAN VIEW OF SUPPORT**

3" STEEL PIPE, EXTRA STRENGTH  
x 2' LONG TO BE  
CUT TO FIT IN THE FIELD



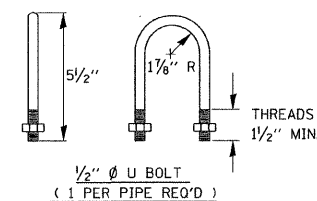
**END VIEW OF SUPPORT**



**ELEVATION VIEW**

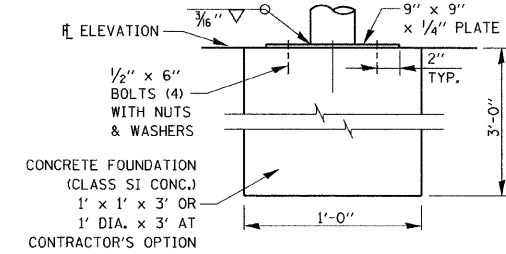
**GENERAL NOTES**

BOLTS AND NUTS SHALL CONFORM TO ASTM A 307. ALL BOLTS SHALL HAVE WASHERS AT EACH END. HOLES SHALL BE 1/16" OVERSIZE UNLESS OTHERWISE NOTED EXCEPT IN CONCRETE WHICH SHALL BE 1/8" OVERSIZE. ANGLES AND STEEL PLATES SHALL CONFORM TO AASHTO M183. STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B OR ASTM A 501. STEEL PIPES, ANGLES AND PLATES SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF AASHTO M111. BOLTS, NUTS AND WASHERS SHALL BE HOT DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF AASHTO M232. THE APPROXIMATE WEIGHT OF STEEL GIVEN IN TABLES INCLUDES PLATES, ANGLES, AND PIPES. BOLTS, NUTS AND WASHERS ARE NOT INCLUDED. ALL DIMENSIONS ARE TO BE VERIFIED IN THE FIELD. CUTTING OF THE EXTRA STRENGTH PIPE AND ANGLES TO THE EXACT LENGTHS AND DRILLING HOLES IS TO BE DONE IN THE FIELD. THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE "EACH" FOR GRATING FOR CONCRETE HEADWALLS, AND SHALL INCLUDE FABRICATION PAINTING, CENTER SUPPORTS WHEN REQUIRED, AND INSTALLATION OF THE GRATING AS DETAILED.



**DETERMINING NEED OF CENTER SUPPORTS**

TIP TO TIP OF WINGWALLS (DIMENSION "D")	NUMBER OF SUPPORTS REQUIRED	LOCATION
0'-0" TO 12'-6"	0	--
12'-6" TO 18'-0"	1	CENTER OF SPAN
18'-0" TO 24'-0"	2	1/3 OF SPAN
24'-0" TO 30'-0"	3	1/4 OF SPAN



**CENTER SUPPORT FOUNDATION**

**GRATING FOR CULVERTS WITH WINGWALLS**

DESIGNED -	JDC
CHECKED -	MFB
DRAWN -	JDC
CHECKED -	MFB

540-19

**benesch**

alfred benesch & company  
Engineers • Surveyors • Planners  
205 North Michigan Avenue, Suite 2400  
Chicago, Illinois 60601  
312-565-0450  
Job # 3938.02

SHEET NO. S6	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	796	104 I & 105 BR-1	FORD	51	. 42
SHEETS S7	CONTRACT NO. 66848				
	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			