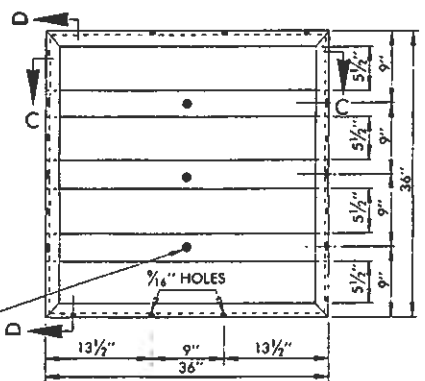
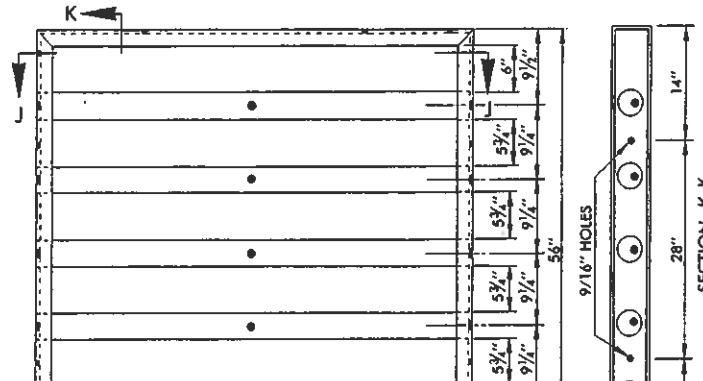


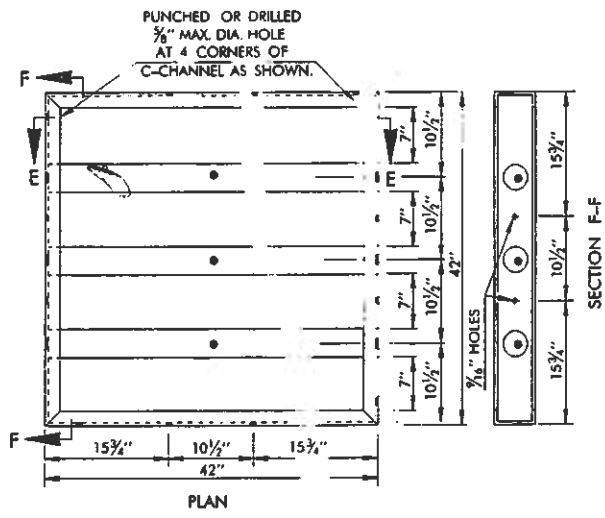
SECTION A-A  
30" GRATE



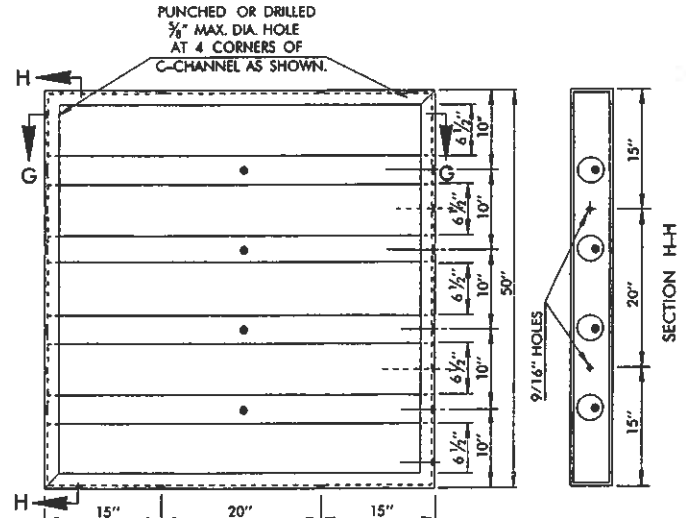
SECTION C-C  
36" GRATE



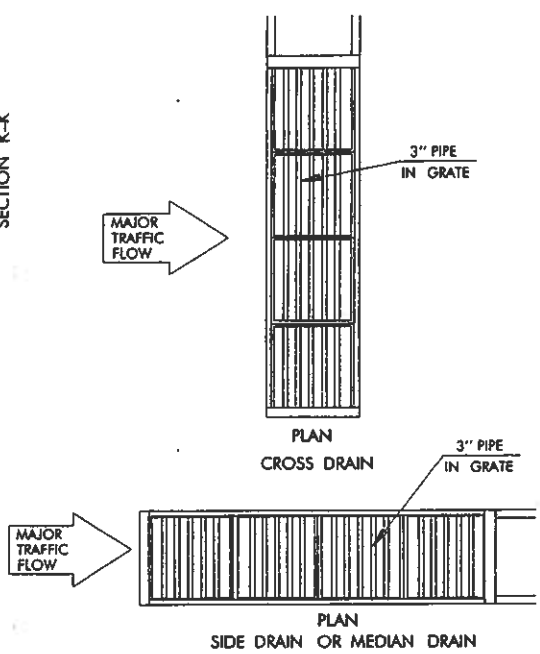
SECTION J-J  
56" GRATE



SECTION E-E  
42" GRATE



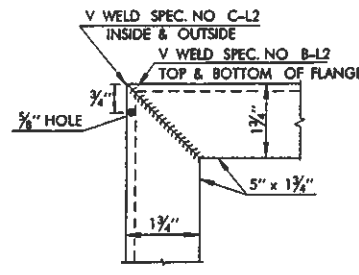
SECTION G-G  
50" GRATE



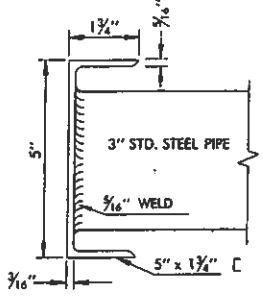
TYPE OF INSTALLATION

MATERIALS FOR GRATE					
GRATE SIZE	5" x 1 3/4" C NO.	TOTAL LENGTH	3" STD. STEEL PIPE NO.	TOTAL LENGTH	STEEL EST. @ LBS. PER GRATE
30"	4	10'-0"	2	4'-11 1/2"	105
36"	4	12'-0"	3	8'-9 1/8"	148
42"	4	14'-0"	3	10'-3 3/16"	173
50"	4	16'-8"	4	16'-4 1/8"	237
56"	4	18'-8"	5	22'-11 1/4"	301

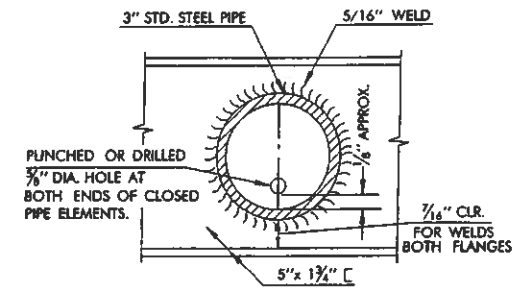
NOTE: 5" x 1 3/4" CHANNEL EST. @ 6.7 LBS. PER LIN. FT.  
3" STD. STEEL PIPE EST. @ 7.58 LBS. PER LIN. FT.  
GRATE WEIGHTS ESTIMATED FOR UNASSEMBLED MATERIALS, PRIOR TO DRILLING WELDING AND GALVANIZATION. WEIGHTS DO NOT INCLUDE WEIGHT OF CONNECTION OR ANCHOR DEVICES.



MITERED CORNER DETAIL



WELD DETAILS



WELD DETAILS

- GENERAL NOTES**
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 1999 ENGLISH STANDARD SPECIFICATIONS.
  - CONNECTION BOLTS SHALL BE 1/2"-13 UNC 2A x 1 1/2" GALVANIZED BOLT AND WILL BE USED WITH A 1/2"-13 UNC 2B GALVANIZED NUT ( SQUARE OR HEX HEAD ) WITH A STANDARD 1/2" GALVANIZED LOCK WASHER. CONNECTION DEVICES SHALL BE PLACED IN EACH DRILLED HOLE WHERE SECTIONS OF GRATES BUTT EACH OTHER OR WHERE GRATES TOUCH END AND BACK OF RECEIVING STRUCTURE. ( NONE IN SIDES ). COST OF CONNECTION DEVICES SHALL BE INCLUDED IN COST OF GRATE SECTIONS.
  - MATERIALS AND GALVANIZATION SHALL BE IN ACCORDANCE WITH 1999 ENGLISH STANDARD SPECIFICATIONS SEC. 721.01 & 721.02 AND SHALL CONFORM TO THE REQUIREMENT OF THE FOLLOWING ASTM SPECIFICATIONS:  
ASTM A-53 FOR PIPES  
ASTM A-123 FOR 'C' CHANNEL TYPES
  - IF 'USED PIPE' IS PERMITTED, IT SHALL CONFORM TO MINIMUM STRENGTH REQUIREMENTS OF NEW PIPE OF THE SAME CLASSIFICATION.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
611.06(N)	WELDED STEEL GRATE ( ■ " SQ.)	EA.

NOTE: DIMENSIONS OF GRATE, IN INCHES, SHALL BE SPECIFIED  
NOTE: BID FOR WELDED STEEL GRATES SHALL BE FULL COMPENSATION FOR ALL MATERIALS AND LABOR NECESSARY TO CONSTRUCT ( FABRICATE ) GRATE AND INSTALL ON DESIGNATED STRUCTURES.

APPROVED BY ROADWAY ENGINEER *C. M. Sankowski* DATE 9/1/99  
OKLAHOMA DEPT. OF TRANSPORTATION  
ROADWAY STANDARD ( ENGLISH )  
WELDED STEEL GRATES  
30", 36", 42", 50", & 56" SQ.  
1999 SPECIFICATIONS WSG-2 OOE  
R-58E