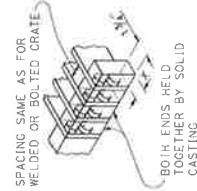
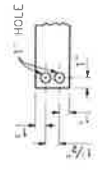
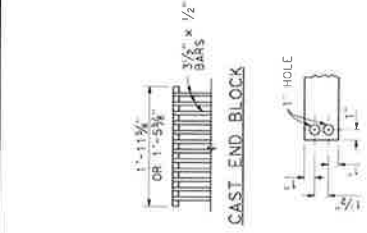
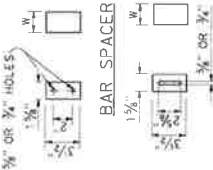
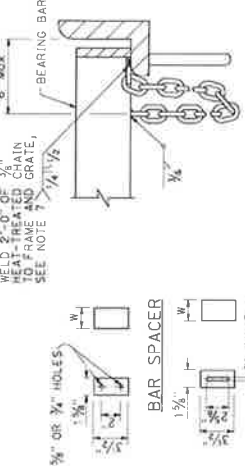


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- NOTES:**
1. Grate type numbers refer to approximate width of grate, in inches and number of bars, respectively.
 2. Rounded top of bars optional on all grates.
 3. Pipe inlets with 6 grates shall be placed so that bars parallel direction of principle surface flow.
 4. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
 5. Stoppers, square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
 6. Grate and frame weights are based on steel grates. Weights of face angles, stops, protection bars, etc. are not included.
 7. Connect chain to grate and frame only at locations shown on the plans. When chain grates, do not use cast ductile iron grates.

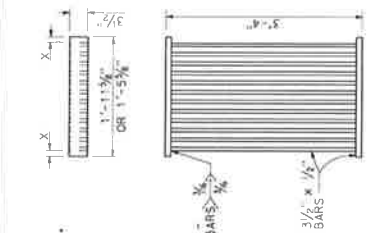


ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL END BLOCK GRATE

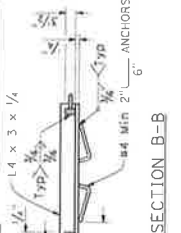


ALTERNATIVE SPACER
 W = 1/4" or 2"

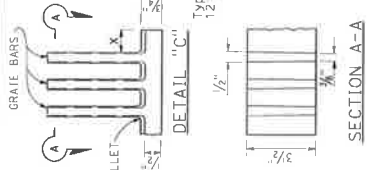
DETAIL "D"
 (Steel grates only)



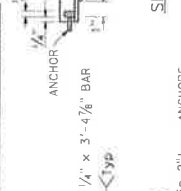
ALTERNATIVE WELDED GRATE



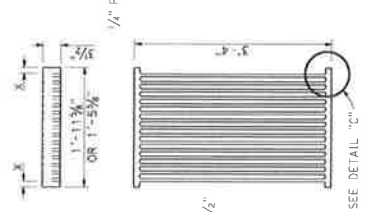
SECTION C-C



ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE



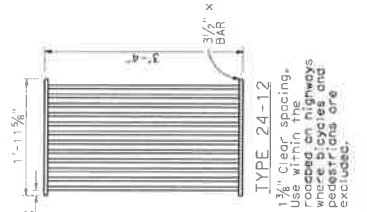
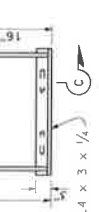
SECTION B-B



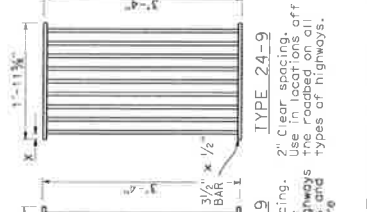
ALTERNATIVE WELDED GRATE



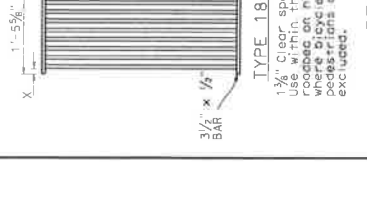
SECTION B-B



TYPE 18-9
 1 1/2" Clear spacing. Use within the roadway on highways where bicycles and mopeds are excluded.

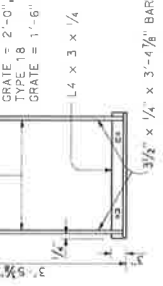
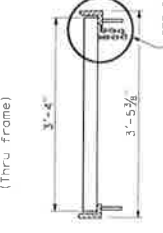
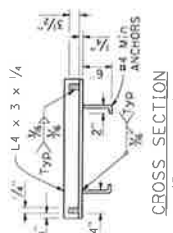


TYPE 24-9
 2" Clear spacing. Use within the roadway on highways where bicycles and mopeds are excluded.



TYPE 24-12
 1 3/4" Clear spacing. Use within the roadway on highways where bicycles and mopeds are excluded.

RECTANGULAR GRATE DETAILS
 (See table below)



RECTANGULAR FRAME DETAILS
 (For all rectangular grates)

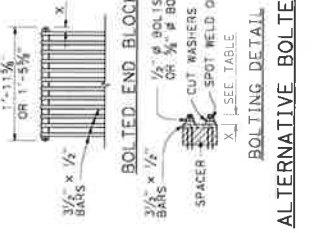
INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDD	24-12	2	634
G01-7	24-12	1	326
G00-10	24-12	1	326
G0.G1.G2.G3.G4 (TYPE 24)	24-9	1	253
	24-12	1	326
G4 (TYPE 18).G5.G6	18-9	1	249
G11	18-9	2	498
G12	18-9	2	498
G13	24-12	2	652
G14	24-12	2	652
TRASH BACK GRATE CHAIN		2	32
			3

INLET TYPE	COVER TYPE	WEIGHT LB
G5	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OGP1	PLATE	112
OGP1	REDWOOD	42
OMP1	PLATE	177
OMP1	PLATE	177

TYPE	No. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/4"	1 1/2"
24-9	9	2"	1 1/2"
24-12	12	1 3/4"	1 1/2"

BASIS FOR Misc IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS
 (See Note 6)

ALTERNATIVE BOLTED GRATE



BOLTING DETAIL

1/2" B BOLTS FOR 3/8" HOLES OR 3/8" B BOLTS FOR 1/2" HOLES
 CUT WASHERS
 SPACER
 SPOT WELD OR PEEN
 X) SEE TABLE