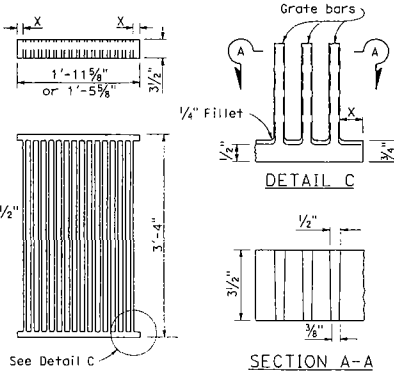
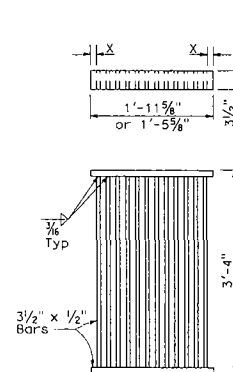


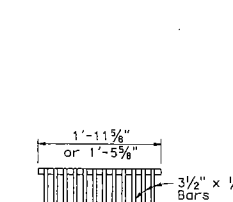
**RECTANGULAR GRATE DETAILS**  
(See table below)



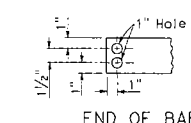
**ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE**



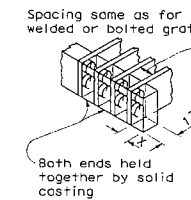
**ALTERNATIVE WELDED GRATE**



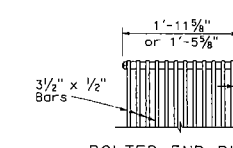
**CAST END BLOCK**



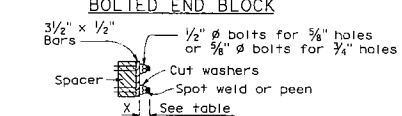
**END OF BAR**



**ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE**

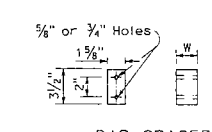


**BOLTED END BLOCK**

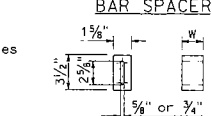


**BOLTING DETAIL**

**ALTERNATIVE BOLTED GRATE**



**BAR SPACER**

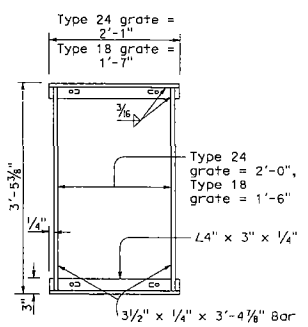


**ALTERNATIVE SPACER**  
W = 1 3/8" or 2"

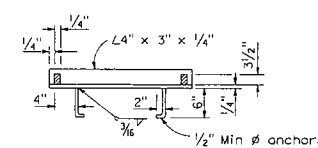
- NOTES:**
1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
  2. Contractor has the option of using cast nodular iron, cast steel, welded, bolted, or cast end block grate.
  3. See Special Provisions for requirements pertaining to galvanizing or asphalt dipping of grates and frames.
  4. Rounded top of bars optional on all grates.
  5. Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
  6. Full penetration butt welds may be substituted for the fillet welds on all anchors.
  7. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
  8. Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

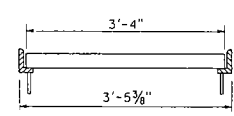
REGISTERED CIVIL ENGINEER  
 May 1, 2006  
 PLANS APPROVAL DATE  
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 To get to the Caltrans web site, go to: <http://www.dot.ca.gov>



**TYPICAL FRAME**



**CROSS SECTION**  
(Thru frame)



**LONGITUDINAL SECTION**  
(Thru frame and grate)

**RECTANGULAR FRAME DETAILS**  
(For all rectangular grates)

**GRATE BAR SPACING TABLE**

TYPE	No. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/8"
24-9	9	2"	1 3/8"
24-12	12	1 3/8"	1 1/4"

INLET TYPE	COVER TYPE	WEIGHT LB
OS	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OCF	PLATE	112
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

INLET TYPE	GRATE TYPE	No. OF GRATES	WEIGHT LB
GDD	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
G0,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22

**BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**

(See General Notes, No 8)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**GRATE DETAILS**

NO SCALE

**D77A**