

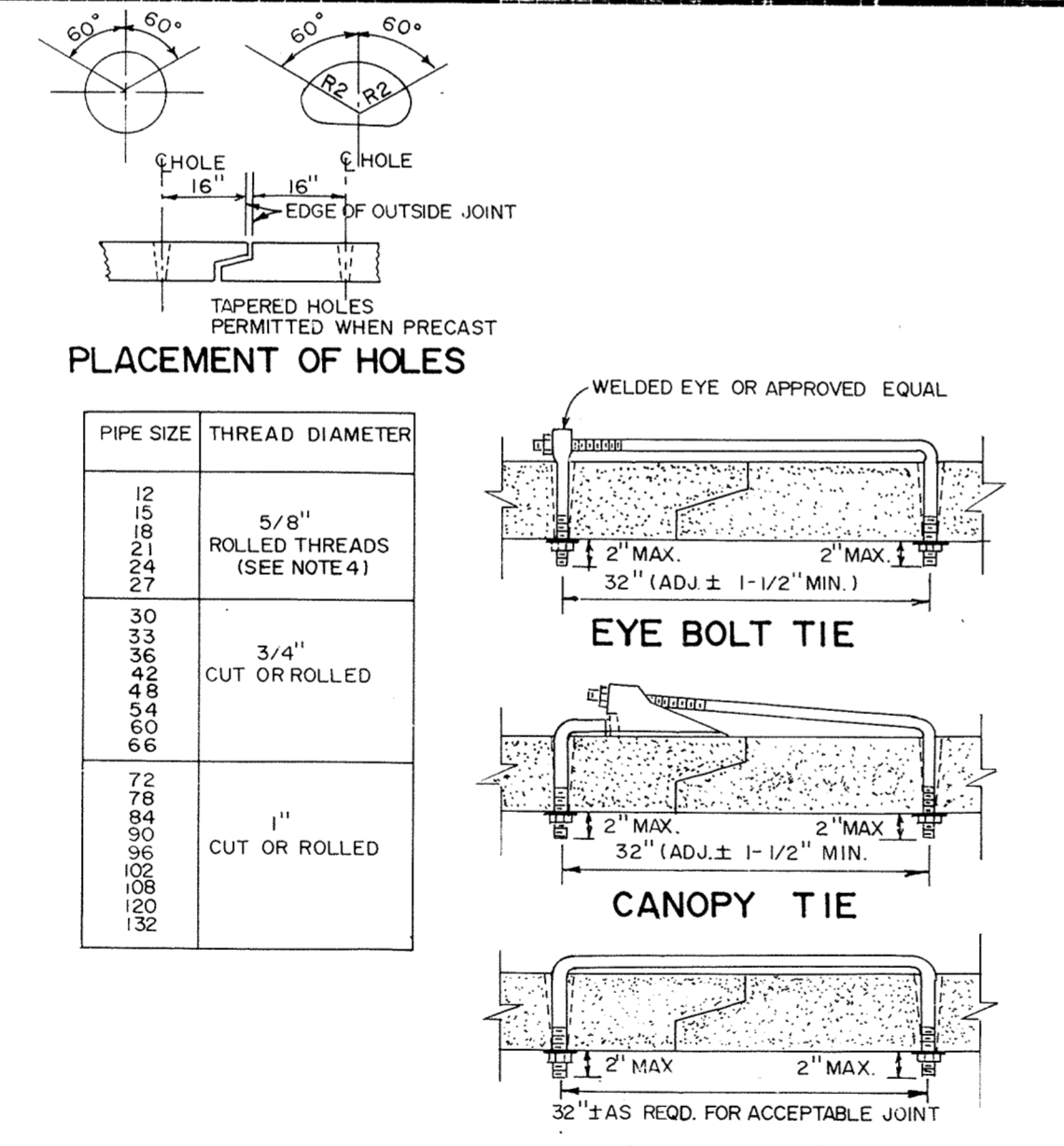
RIP-RAP INSTALLATION

TRASH GUARD

STANDARD MANHOLE CASTING

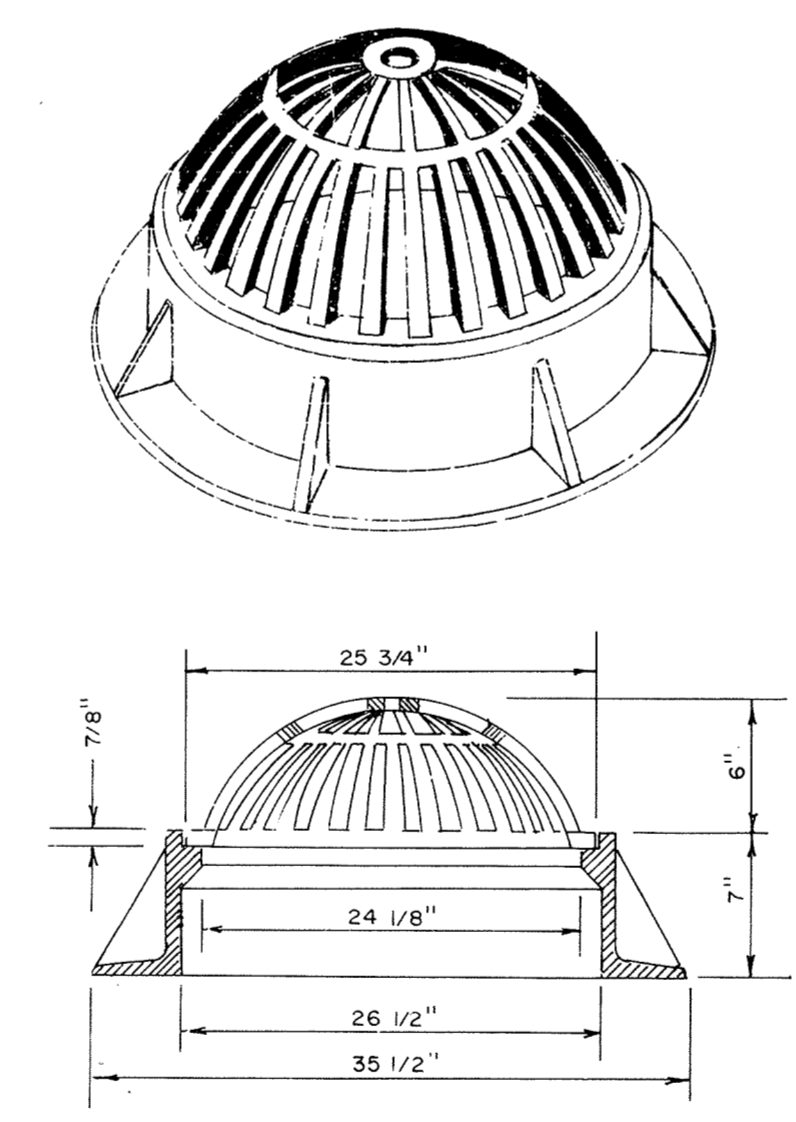
SLAB-TOP MANHOLE

STANDARD MANHOLE

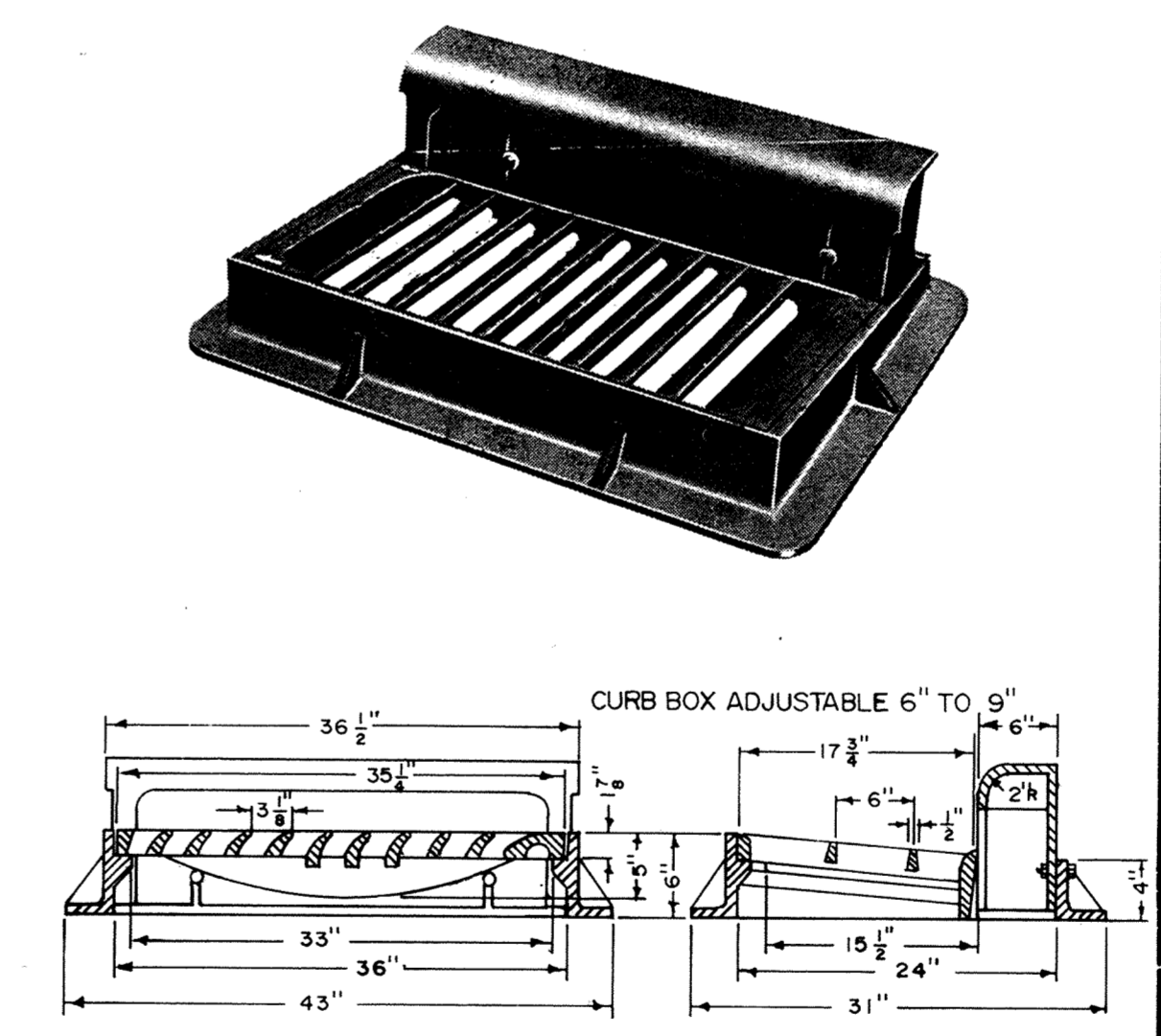


- NOTES:
- Holes shall be cast-in or drilled 16" from outside edge of joint.
  - Nuts and washers are not required on inside of pipe with 27" diam or less.
  - Ties are not required for bell pipe 24" and smaller. On other sizes, tie may be inserted from inside.
  - Cut threads may be used if washer and nut are used.
  - Pipe sizes listed are inside diam of round pipe or equivalent diam of pipe arch.

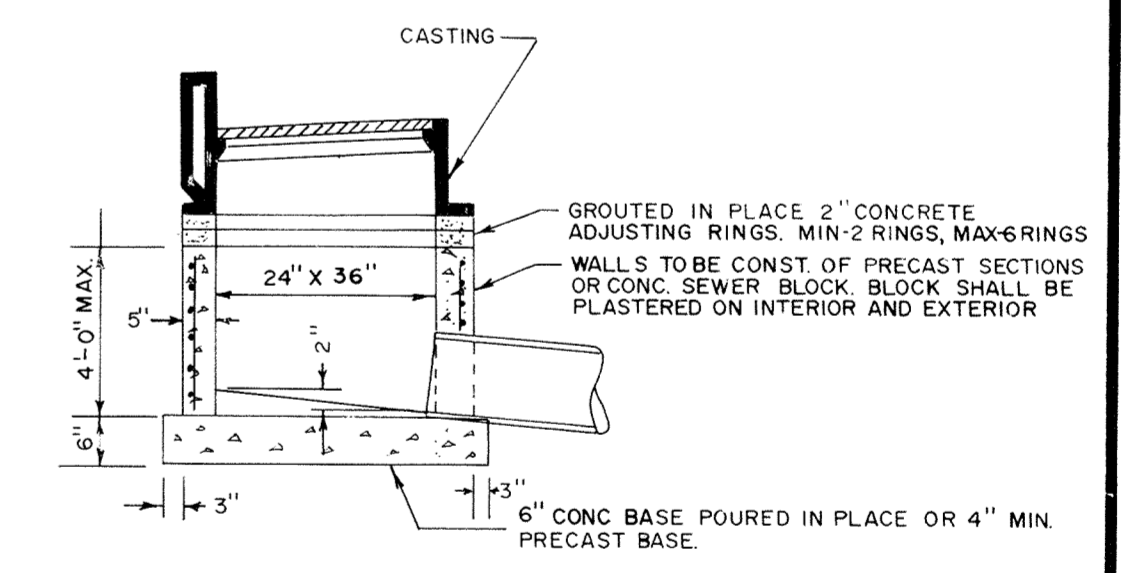
CONCRETE PIPE JOINT TIES



BEEHIVE CASTING



STANDARD INLET CASTING



SHALLOW CATCH BASIN

RECORD PLAN  
DEC. 1993

**MSA** CONSULTING ENGINEERS  
Maier Stewart & Associates Inc.  
1959 SLOAN PLACE (612) 774-6021 ST. PAUL, MINNESOTA 55117

REVISIONS	DATE	DESCRIPTION	DESIGNED	CHECKED	DRAWN

GRAPHIC SCALE  
0 HORIZ. NONE  
0 VERT.