

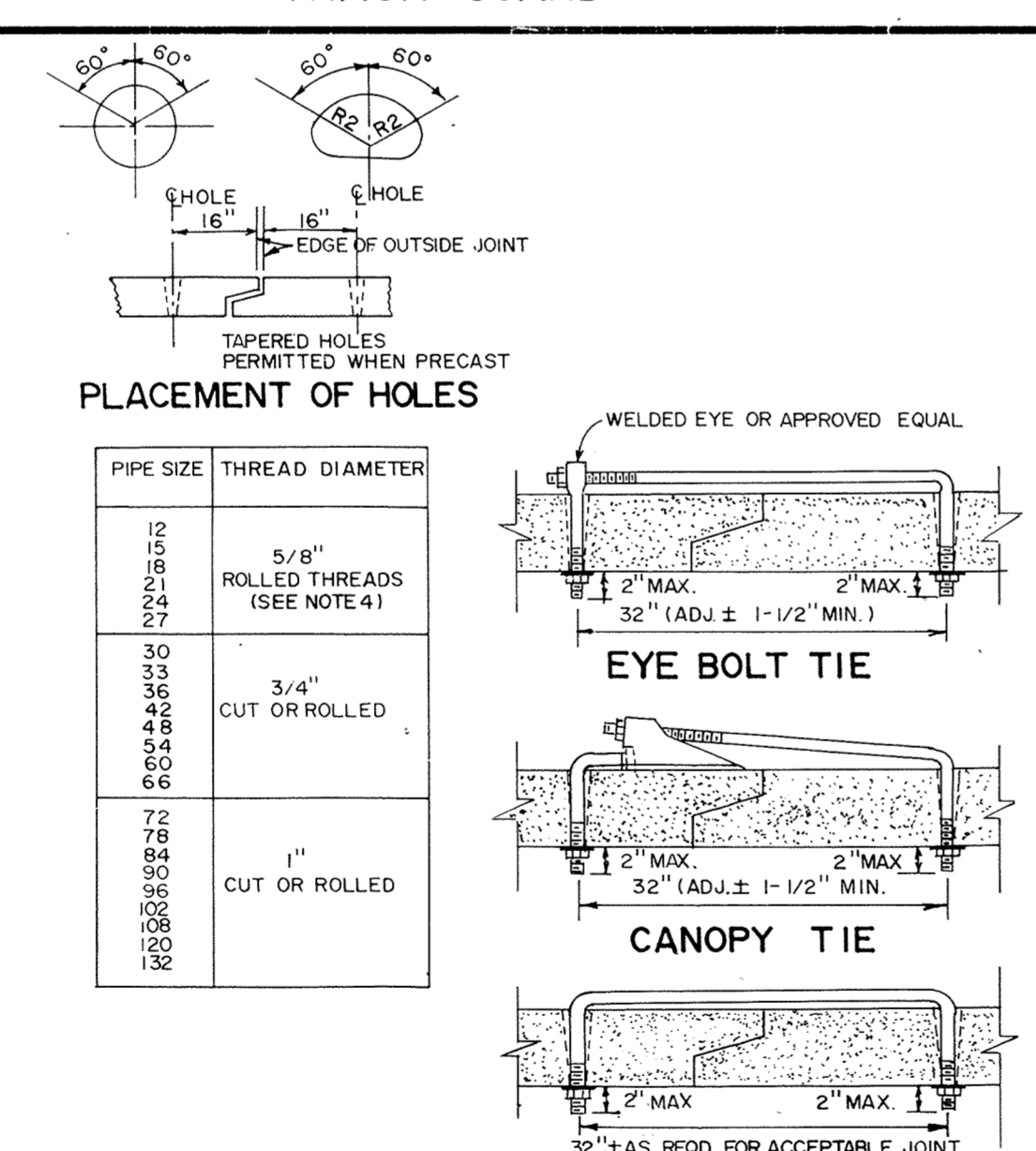
RIP-RAP INSTALLATION

TRASH GUARD

STANDARD MANHOLE CASTING

SLAB-TOP MANHOLE

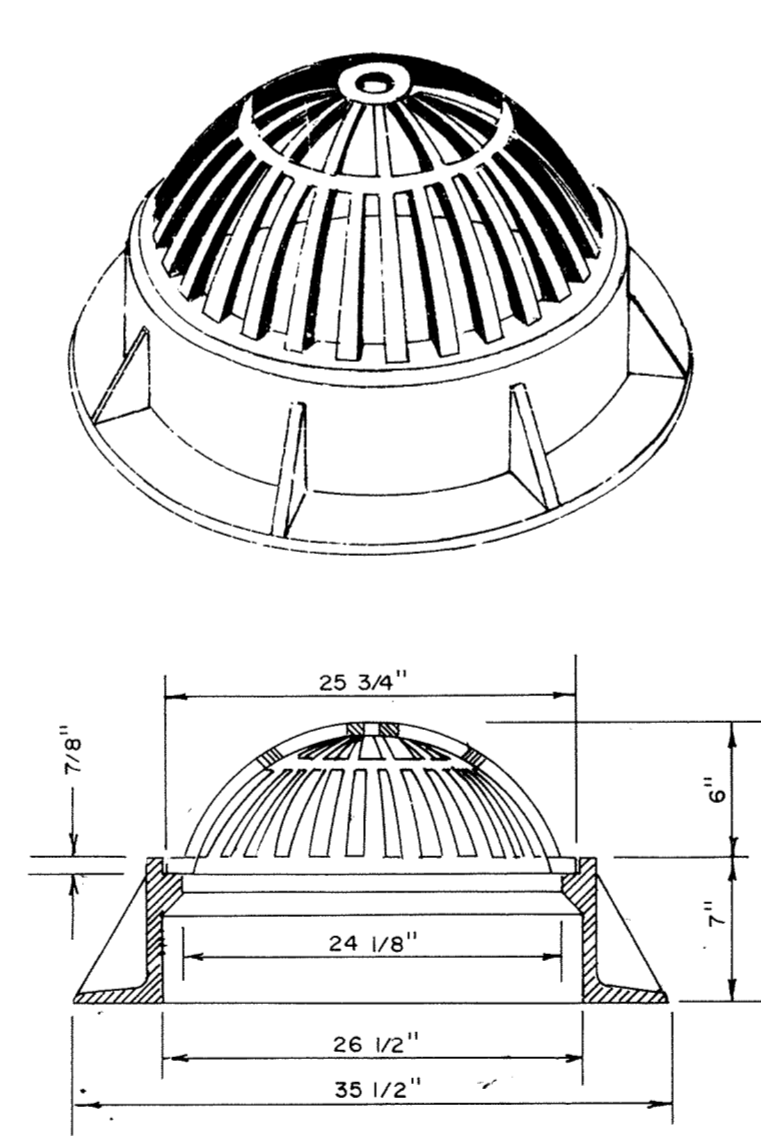
STANDARD MANHOLE



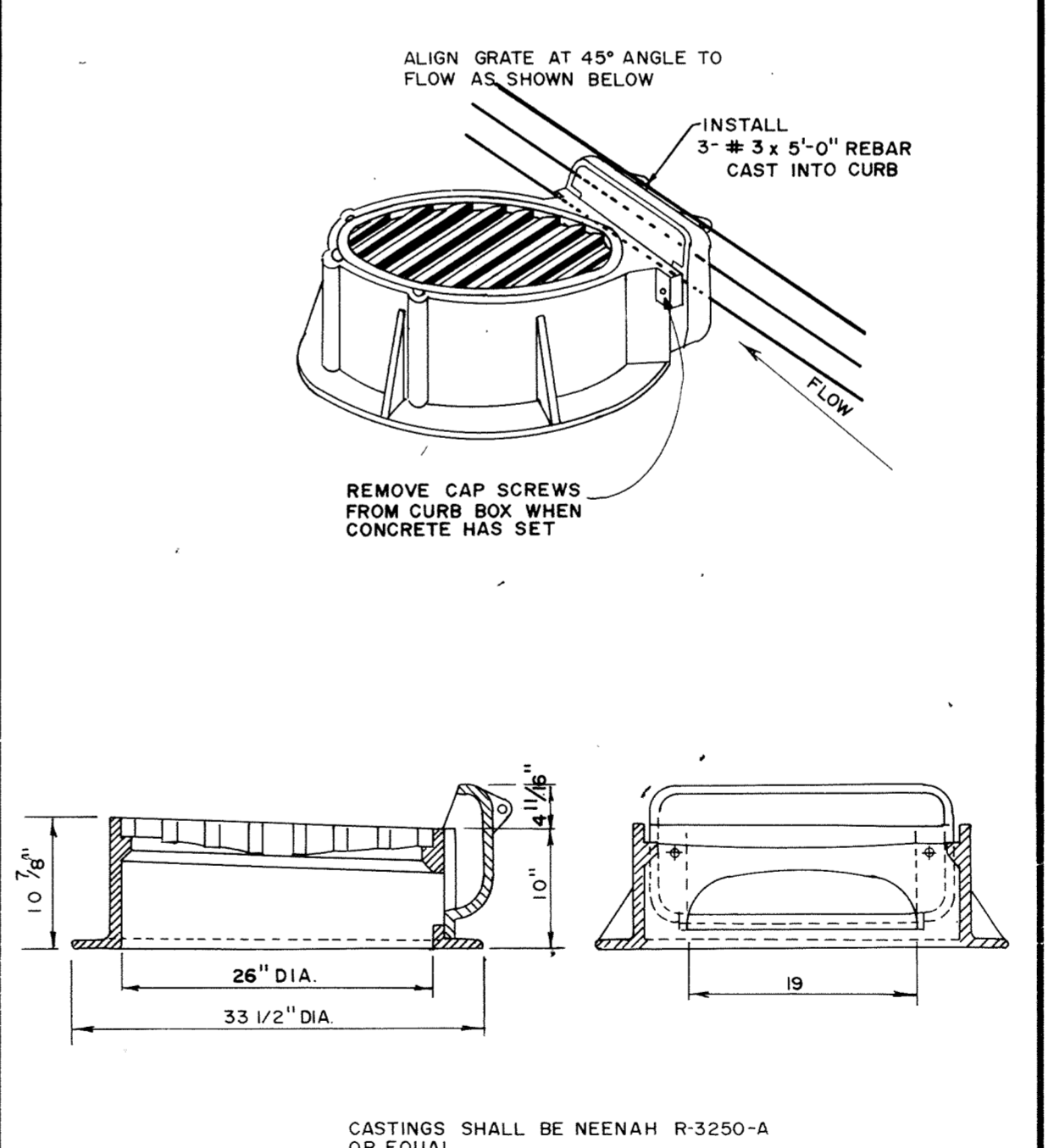
NOTES:

- 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

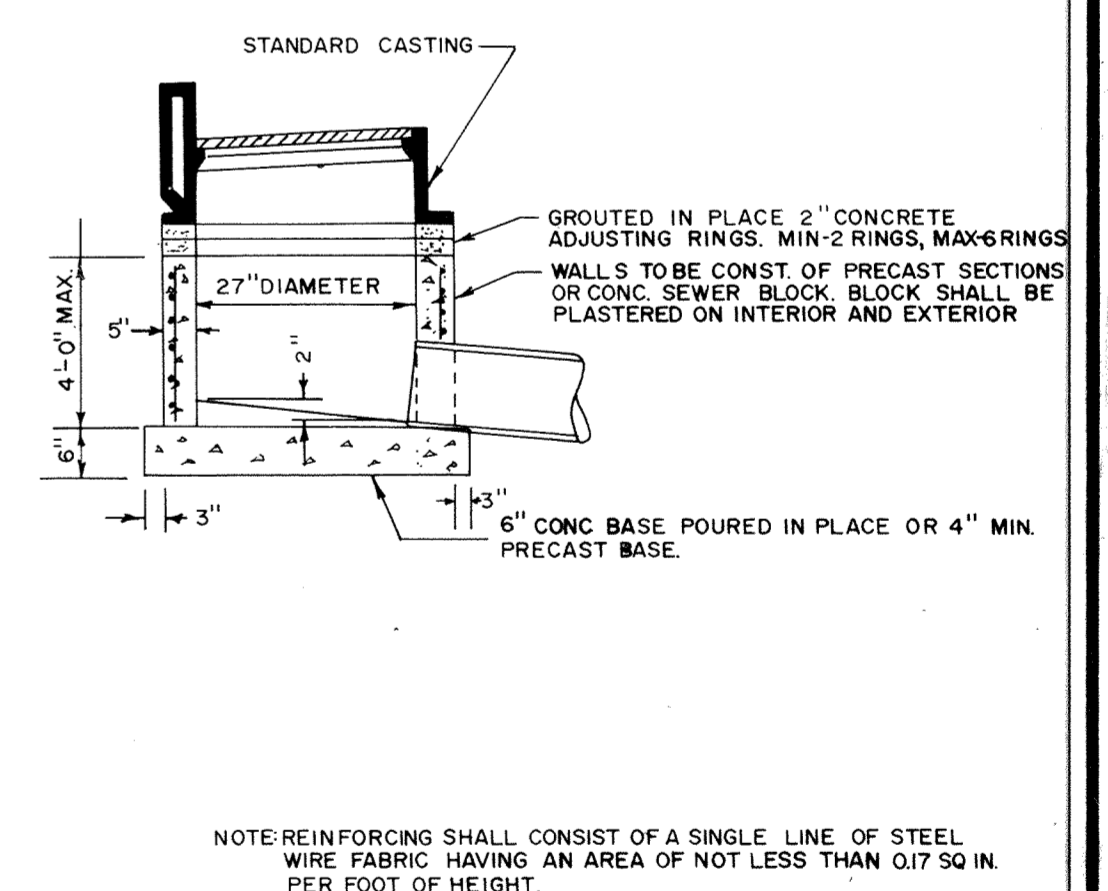
CONCRETE PIPE JOINT TIES



BEEHIVE CASTING



STANDARD INLET CASTING



SHALLOW CATCH BASIN

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

DATE	DESCRIPTION	DESIGNED	CHECKED

REVISIONS

DRAWN MLI

GRAPHIC SCALE

0 HORIZ NONE

0 VERT.

CITY OF ELK RIVER
 ELEMENTARY SCHOOL UTILITIES
 STORM SEWER DETAILS

DATE AUG, 1991 SHEET 14 OF 14 SHEETS PROJECT NO. 230-125