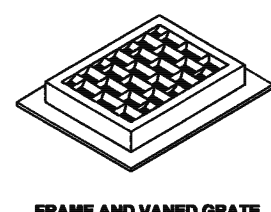
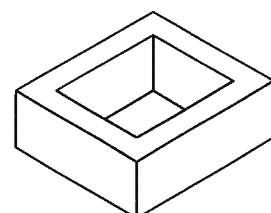


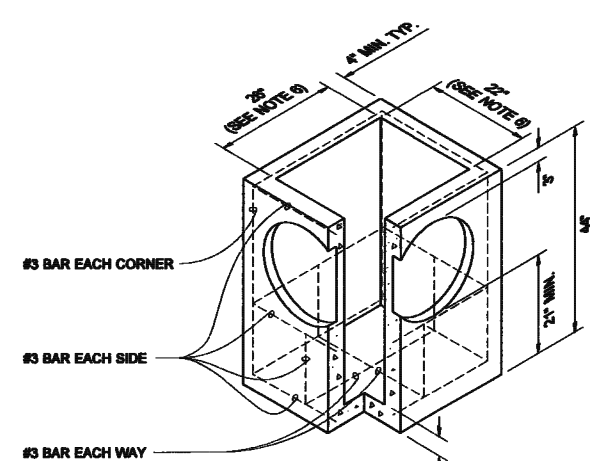
NE1/4, SECTION 28, T.28 N., R.4 E., W.M.



FRAME AND VANED GRATE



RECTANGULAR ADJUSTMENT SECTION



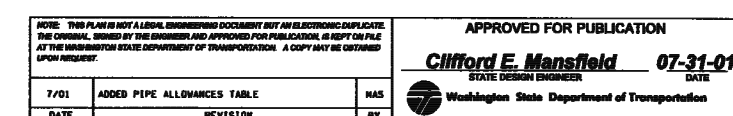
PRECAST BASE SECTION

NOTES:

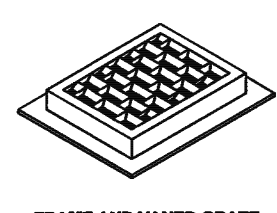
- As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used. Wire mesh shall not be placed in knockouts.
- The knockout diameter shall not be greater than 20". Knockouts shall have a wall thickness of 2" minimum to 2.2" maximum. Provide a 1/2" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Std. Spec. 9-04.3.
- The maximum depth from the finished grade to the pipe invert shall be 7'.
- Frame and grate may be installed with flange down or cast into adjustment section.
- The precast base section may have a rounded floor and the walls may be sloped at a rate of 1:24 or steeper.
- Opening shall be measured at the top of the precast base section.

PIPE MATERIAL	MAXIMUM HOLES DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CRISP # (Std. Spec. 9-04.2)	12"
SOLID WALL PVC (Std. Spec. 9-04.15(1))	15"
PROFILE WALL PVC (Std. Spec. 9-04.15(2))	15"
* CORRUGATED POLYETHYLENE STORM DRAIN PIPE	

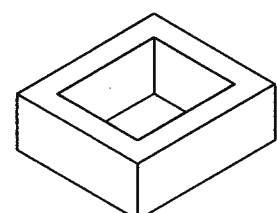
CATCH BASIN TYPE I STANDARD PLAN B-1



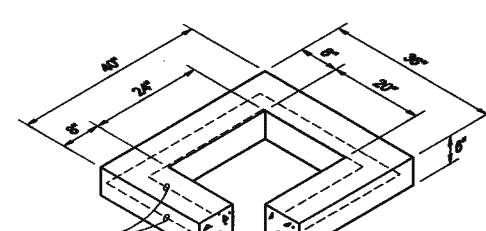
TYPE I CATCH BASIN



FRAME AND VANED GRATE



RECTANGULAR ADJUSTMENT SECTION

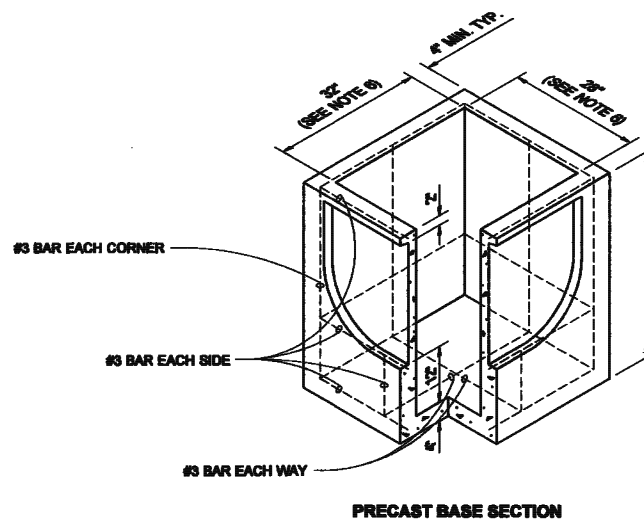


REDUCING SECTION

PIPE MATERIAL	MAXIMUM HOLES DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CRISP # (Std. Spec. 9-04.2)	12"
SOLID WALL PVC (Std. Spec. 9-04.15(1))	15"
PROFILE WALL PVC (Std. Spec. 9-04.15(2))	15"
* CORRUGATED POLYETHYLENE STORM DRAIN PIPE	

NOTES:

- As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used. Wire mesh shall not be placed in knockouts.
- The knockout diameter shall not be greater than 20". Knockouts shall have a wall thickness of 2" minimum to 2.2" maximum. Provide a 1/2" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Std. Spec. 9-04.3.
- The maximum depth from the finished grade to the pipe invert shall be 7'.
- Frame and grate may be installed with flange down or cast into adjustment section.
- The precast base section may have a rounded floor and the walls may be sloped at a rate of 1:24 or steeper.
- Opening shall be measured at the top of the precast base section.

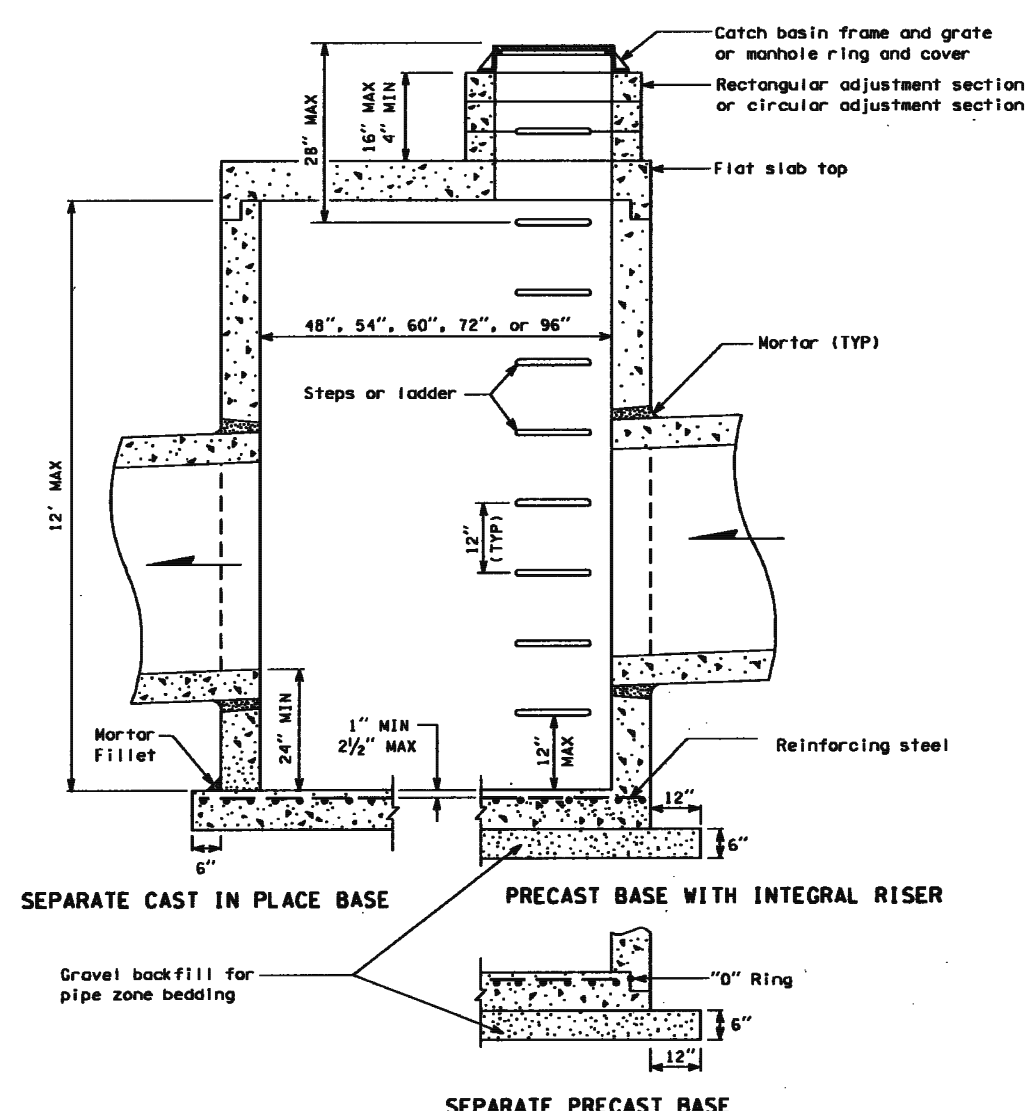


PRECAST BASE SECTION



CATCH BASIN TYPE 1L STANDARD PLAN B-1a

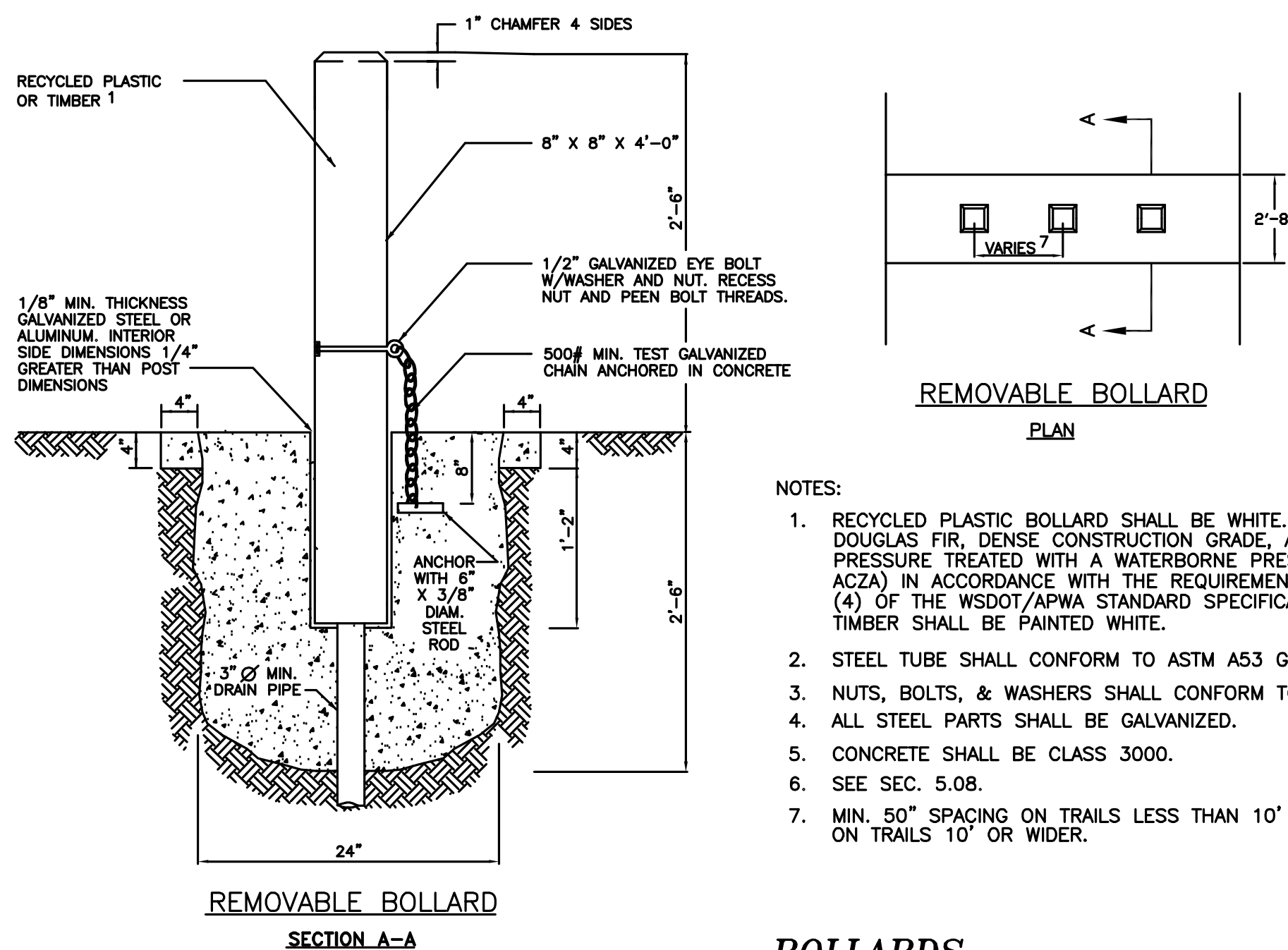
TYPE I-L CATCH BASIN



DIA	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	BASE REINFORCING STEEL IN EACH DIRECTION	
				INTEGRAL BASE	SEPARATE BASE
48"	4"	6"	36"	0.15	0.23
54"	4 1/2"	8"	42"	0.19	0.25
60"	5"	8"	48"	0.24	0.35
72"	6"	12"	60"	0.29	0.35

CATCH BASIN TYPE 2

TYPE II CATCH BASIN (48"Ø, 54"Ø, 60"Ø)

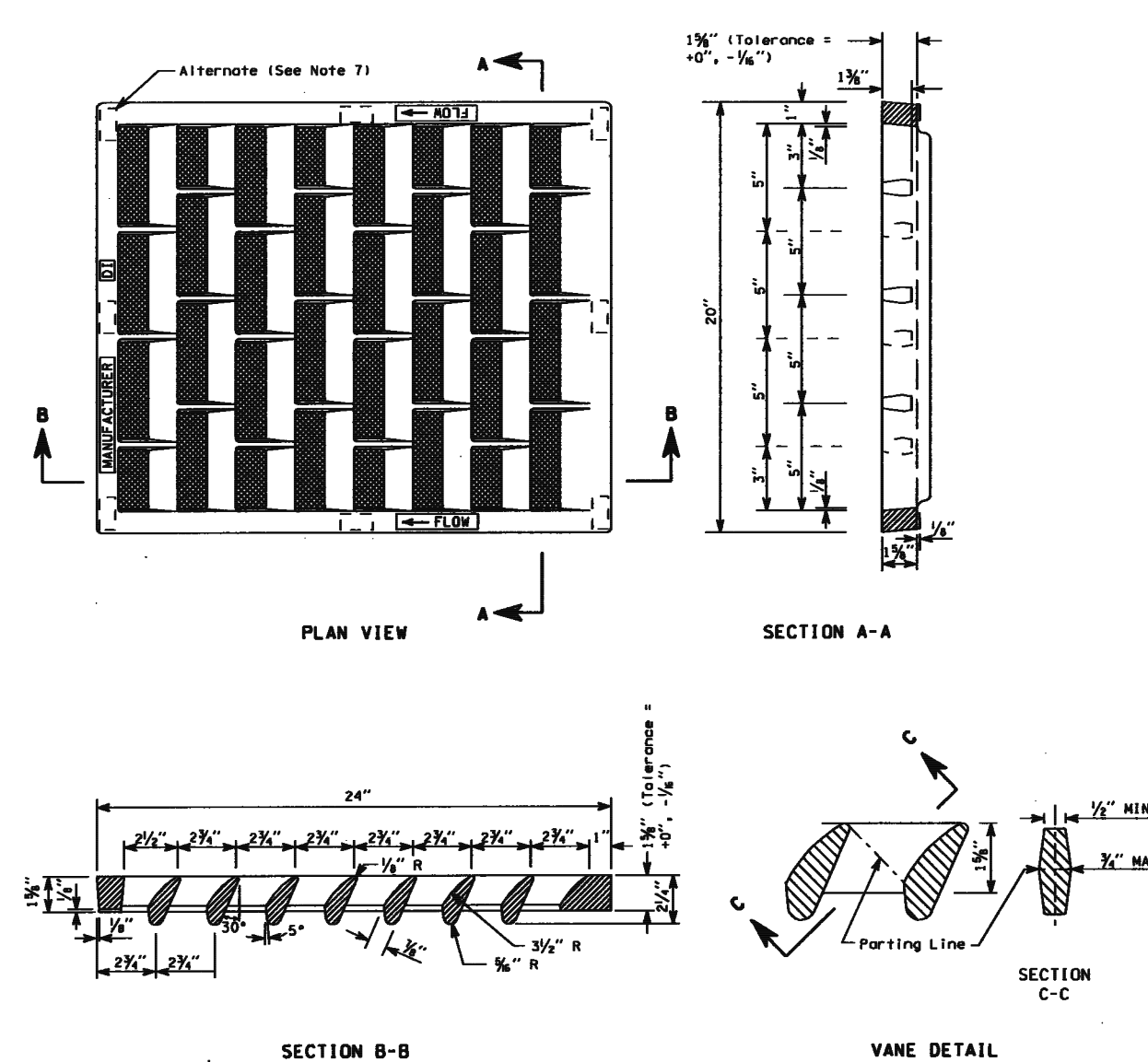


REMOVABLE BOLLARD PLAN

NOTES:

- RECYCLED PLASTIC BOLLARD SHALL BE WHITE. TIMBER SHALL BE DOUGLAS FIR, DENSE CONSTRUCTION GRADE, AND SHALL BE PRESSURE TREATED WITH A WATERBORNE PRESERVATIVE (ACA, CCA, ACZA) IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. 9-09.3 (4) OF THE WSDOT/APWA STANDARD SPECIFICATIONS. TOP 5" OF TIMBER SHALL BE PAINTED WHITE.
- STEEL TUBE SHALL CONFORM TO ASTM A53 GRADE A.
- NUTS, BOLTS, & WASHERS SHALL CONFORM TO ASTM A307.
- ALL STEEL PARTS SHALL BE GALVANIZED.
- CONCRETE SHALL BE CLASS 3000.
- SEE SEC. 5.08.
- MIN. 50" SPACING ON TRAILS LESS THAN 10' WIDE. 60" SPACING ON TRAILS 10' OR WIDER.

BOLLARDS

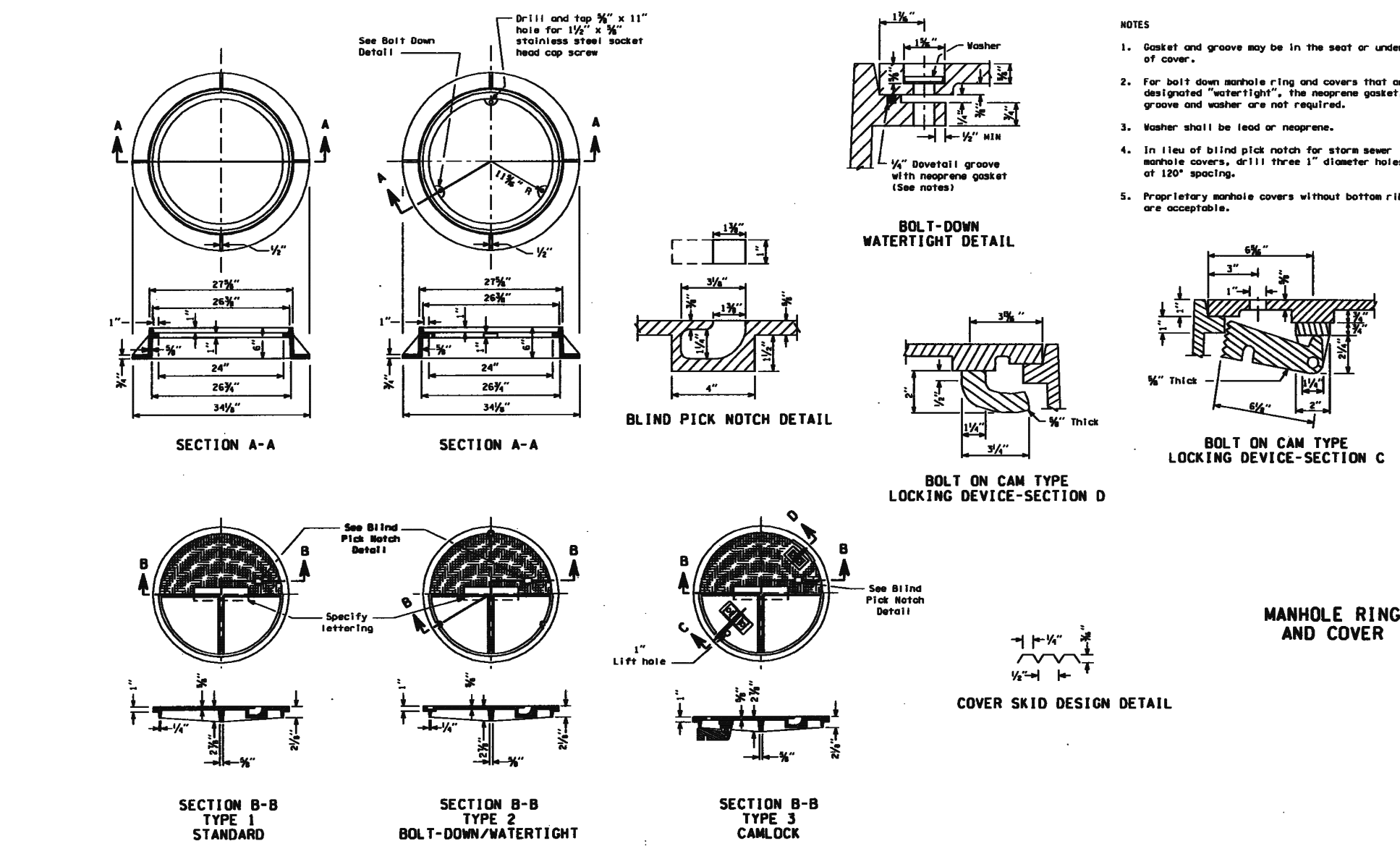


NOTES:

- The name of the manufacturer and direction of flow shall be embossed on the top surface of each grate. Lettering to be recessed 1/8".
- Dimensions shall have a ± 1/16" tolerance, except as noted.
- Edges shall have 1/2" radius, 1/2" chamfer or complete deburring.
- As an alternate, eight pods 1 1/2" x 3/4" x 1/4" integrally cast with the grate may be used.

VANED GRATE FOR CATCH BASIN AND INLET

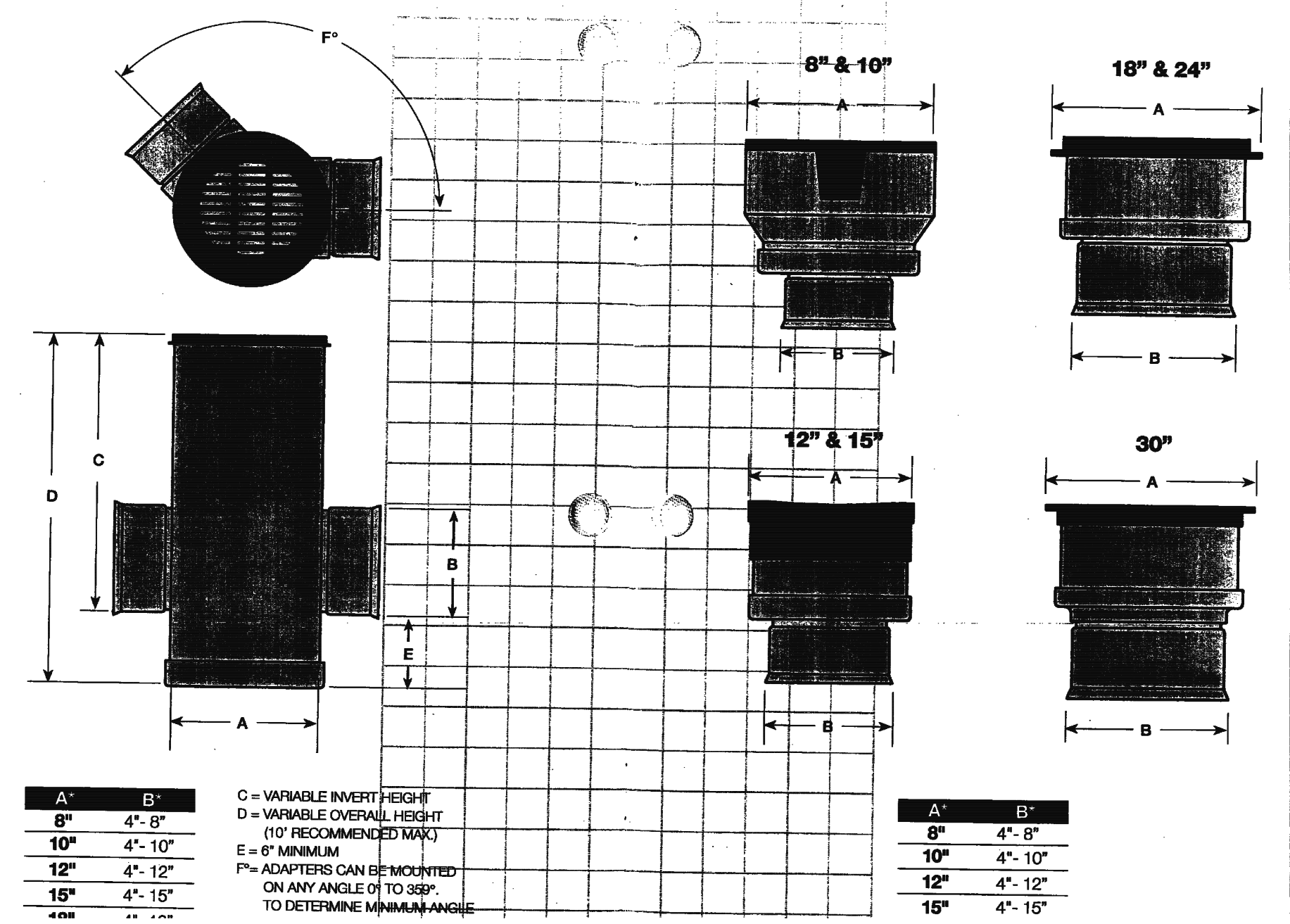
LOCKING VANED GRATE



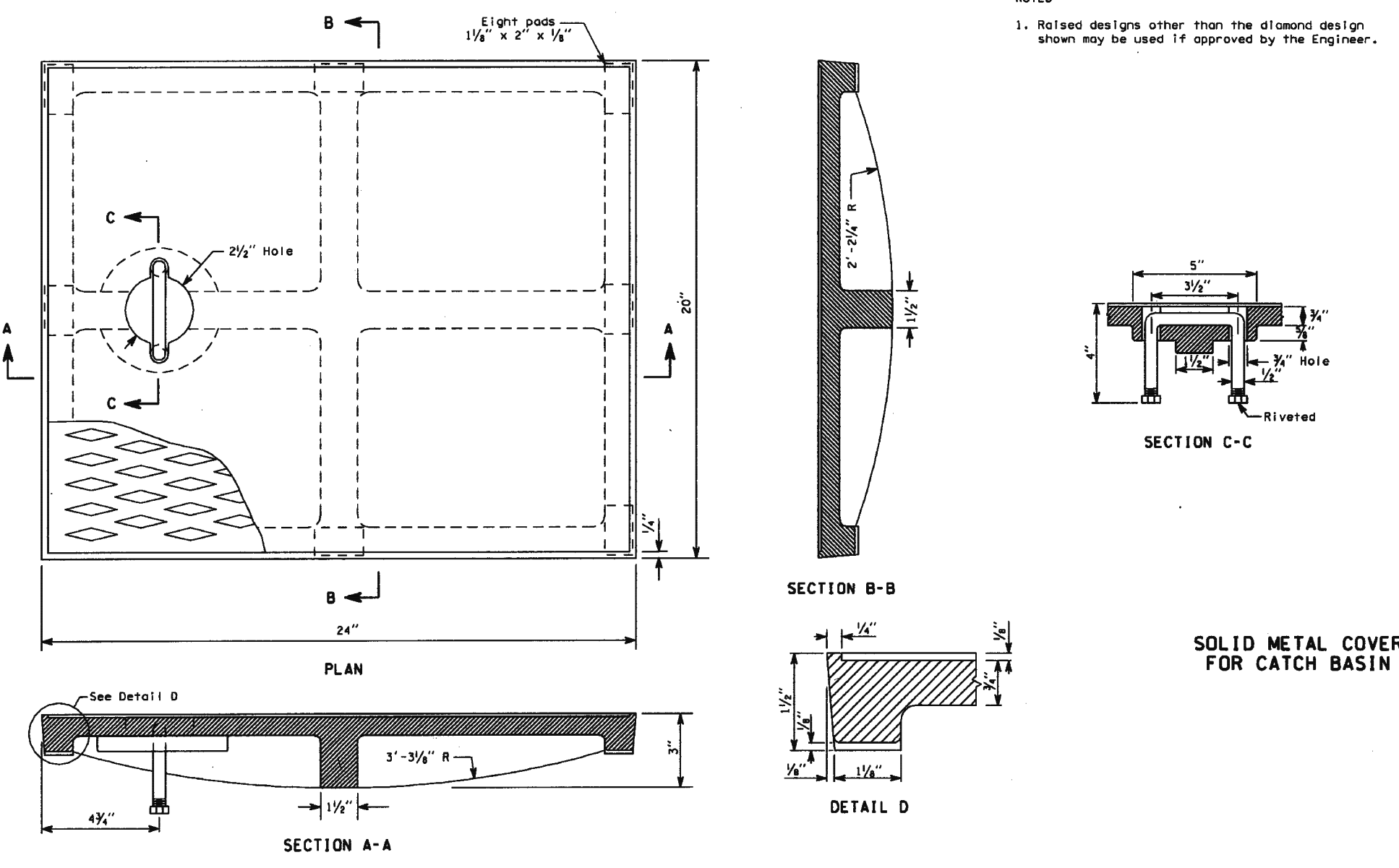
MANHOLE FRAMES AND COVERS

NOTES:

- Revised designs other than the diamond design shown may be used if approved by the Engineer.



STORM DRAIN CLEANOUT



SOLID, LOCKING LID



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 RENTON, WA 98055  
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PROJECT NO.: 04007  
 DRAWN BY: JGC  
 ISSUE DATE: 06-16-04  
 SHEET REV.: 08-10-04

DETAILS

04007DT02-C12.DWG  
**C12**