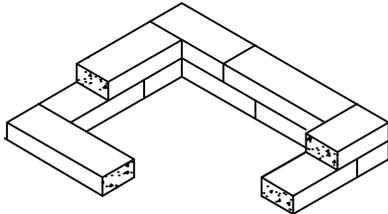
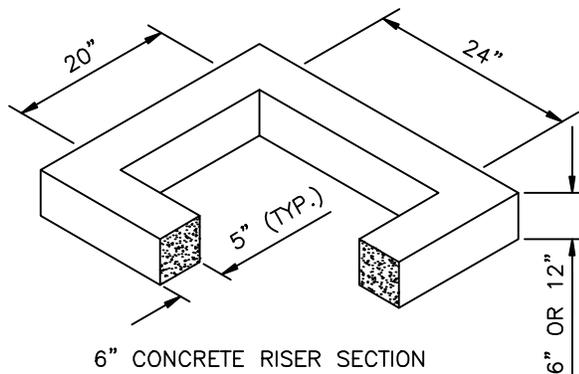


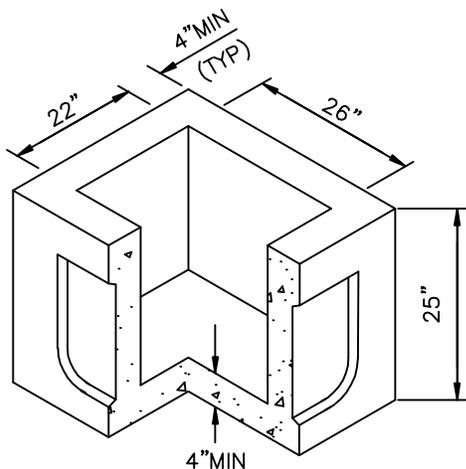
FRAME AND GRATE, SEE APPLICABLE STANDARD DETAILS



2"x4"x8" SOLID BRICK USED FOR FINAL ADJUSTMENT TO GRADE, 6" HIGH MAX.



6" CONCRETE RISER SECTION



PRE-CAST BASE SECTION  
(MEASUREMENT AT THE TOP OF THE BASE)

**NOTES:**

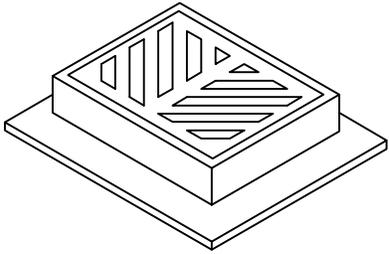
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2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC (WWF) HAVING A MINIMUM AREA OF 0.12 SQUARE INCH PER FOOT. WWF SHALL COMPLY TO ASTM A497. WWF SHALL NOT BE PLACED IN KNOCKOUTS.
3. THE BOTTOM OF THE PRE-CAST BASE SECTION MAY BE ROUNDED.
4. PRE-CAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTSIDE DIAMETER PLUS CONCRETE INLET WALL THICKNESS. KNOCKOUTS MAY BE ROUND OR "D" SHAPED AND MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17".
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRE-CAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.
8. FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WSDOT/APWA SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.



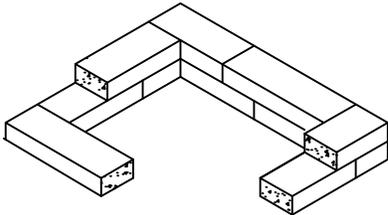
APPROVED BY	L. OLIVE
DATE	07/31/2008
REF STAN SPEC	

DEPARTMENT OF PUBLIC WORKS <b>STANDARD DETAIL</b>
<b>CONCRETE INLET</b>

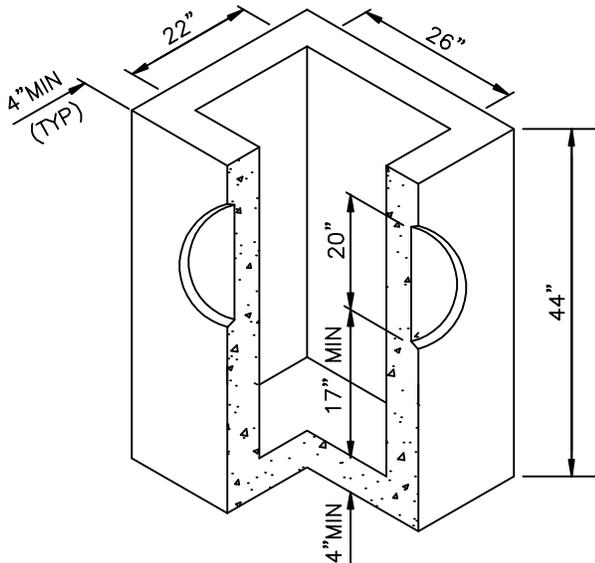
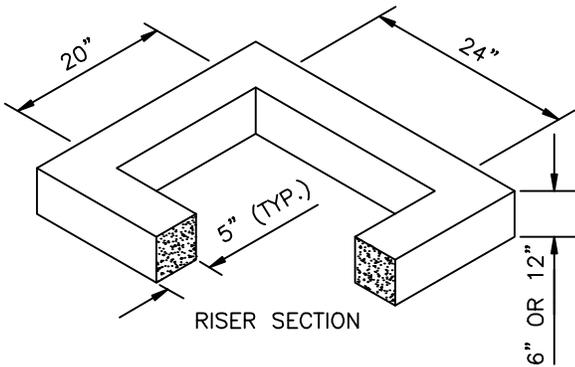
STANDARD DETAIL NUMBER
<b>SD-010</b>



FRAME AND GRATE (OR SOLID COVER),  
SEE APPLICABLE STANDARD DETAILS



2"X4"X8" SOLID BRICK USED FOR FINAL  
ADJUSTMENT TO GRADE, 6" HIGH MAX.



**NOTES:**

1. CONCRETE INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 & C890 UNLESS OTHERWISE SHOWN ON THE PLANS OR NOTED IN THE STANDARD SPECIFICATIONS. ALL CONCRETE SHALL BE CLASS 4000.
2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC (WWF) HAVING A MINIMUM AREA OF 0.12 SQUARE INCH PER FOOT. WWF SHALL COMPLY TO ASTM A497. WWF SHALL NOT BE PLACED IN KNOCKOUTS.
3. THE BOTTOM OF THE PRE-CAST BASE SECTION MAY BE ROUNDED.
4. PRE-CAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTSIDE DIAMETER PLUS CATCH BASIN WALL THICKNESS. KNOCKOUTS MAY BE ROUND OR "D" SHAPED AND MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20".
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRE-CAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.
8. FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WSDOT/APWA SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.



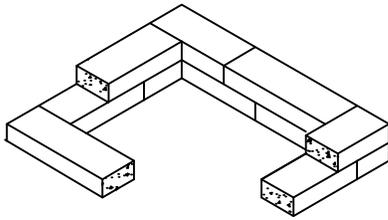
APPROVED BY	L. OLIVE
DATE	07/31/2008
REF STAN SPEC	

DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**

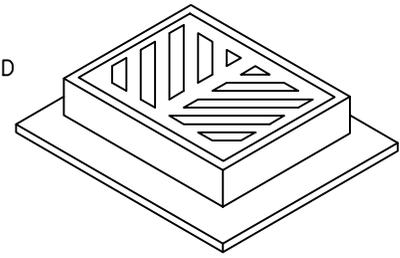
CATCH BASIN TYPE 1

STANDARD DETAIL  
NUMBER

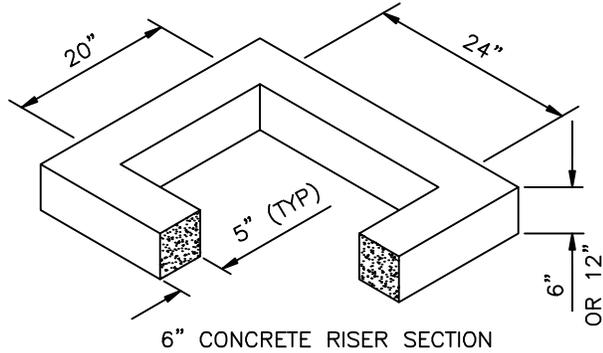
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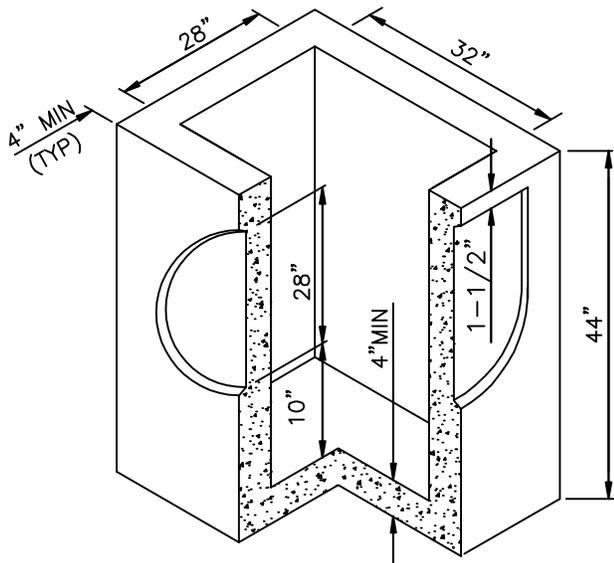
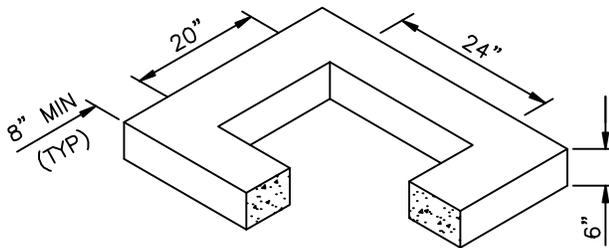
FRAME AND GRATE (OR SOLID COVER), SEE APPLICABLE STANDARD DETAILS



2"x4"x8" SOLID BRICK USED FOR FINAL ADJUSTMENT TO GRADE, 6" HIGH MAX



6" CONCRETE RISER SECTION



PRE-CAST BASE SECTION  
(MEASUREMENT AT THE TOP OF THE BASE)

**NOTES:**

1. CONCRETE INLET TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 & C890 UNLESS OTHERWISE SHOWN ON THE PLANS OR NOTED IN THE STANDARD SPECIFICATIONS. ALL CONCRETE SHALL BE CLASS 4000.
2. REINFORCING SHALL BE EQUIVALENT TO WELDED WIRE FABRIC (WWF) HAVING A MINIMUM AREA OF 0.12 SQUARE INCH PER FOOT. WWF SHALL COMPLY TO ASTM A497. WWF SHALL NOT BE PLACED IN KNOCKOUTS.
3. THE BOTTOM OF THE PRE-CAST BASE SECTION MAY BE ROUNDED.
4. PRE-CAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTSIDE DIAMETER PLUS CATCH BASIN WALL THICKNESS. KNOCKOUTS MAY BE ROUND OR "D" SHAPED AND MAY BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 28".
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRE-CAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.
8. FRAME AND GRATE SHALL BE IN ACCORDANCE WITH WSDOT/APWA SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. EDGE OF REDUCING SECTION OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

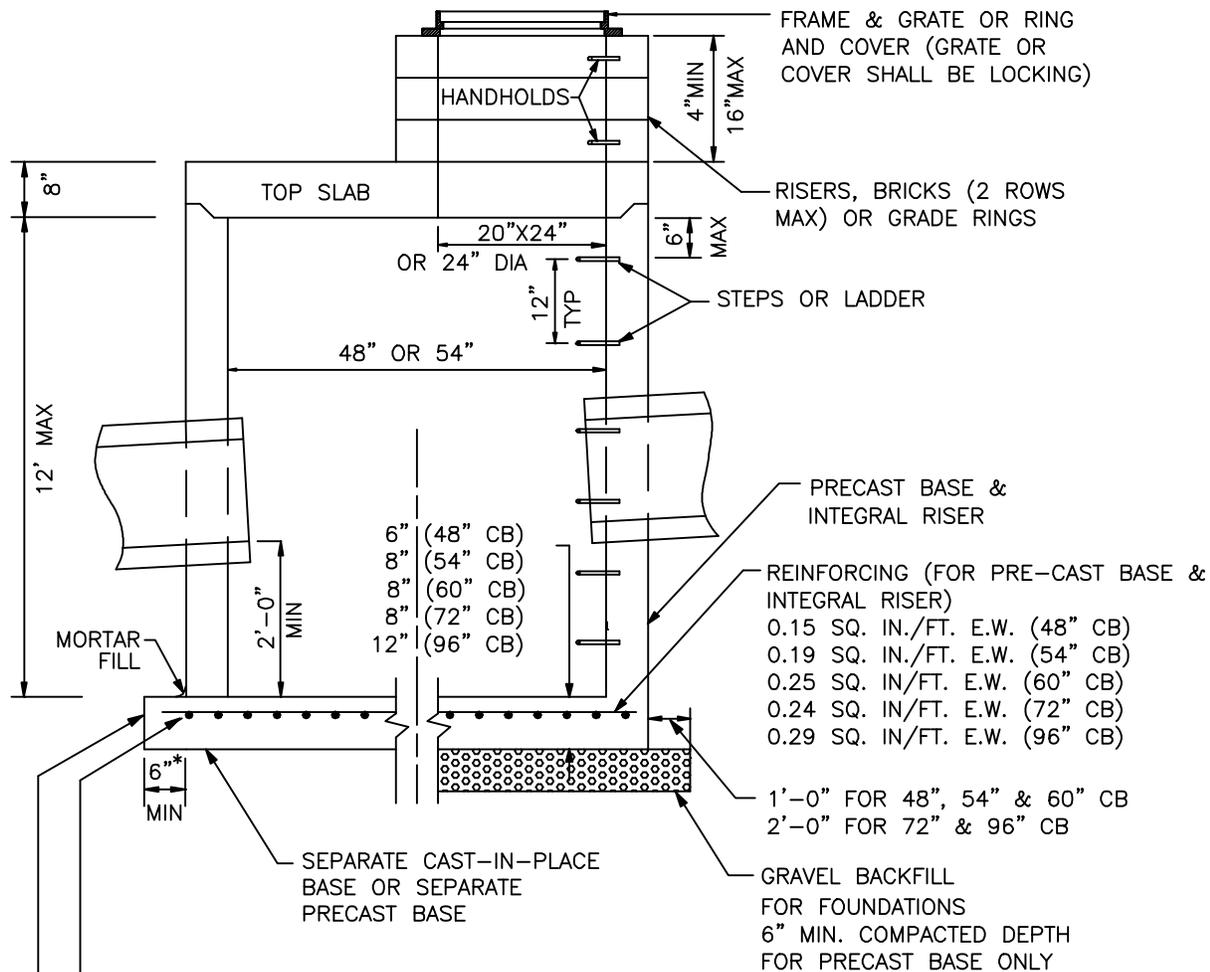


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REF STAN SPEC	

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**STANDARD DETAIL**

CATCH BASIN TYPE 1L

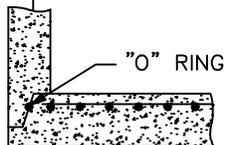
STANDARD DETAIL NUMBER  
**SD-030**



\* FOR SEPARATE CAST-IN-PLACE ONLY

REINFORCING STEEL (FOR SEPARATE BASES ONLY)

0.23 SQ. IN./FT. E.W. (48" CB)  
0.19 SQ. IN./FT. E.W. (54" CB)  
0.25 SQ. IN./FT. E.W. (60" CB)  
0.35 SQ. IN./FT. E.W. (72" CB)  
0.39 SQ. IN./FT. E.W. (96" CB)



PRECAST BASE JOINT

### NOTES:

- HANDHOLDS IN RISER OR ADJUSTMENT SECTION SHALL HAVE A 3" MINIMUM CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MINIMUM CLEARANCE. NO STEPS ARE REQUIRED WHEN "B" IS 4' OR LESS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MINIMUM OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE FINISHED GRADE.
- MINIMUM SOIL BEARING STRENGTH SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
- MORTAR SHALL BE PLACED BETWEEN EACH LEVEL OF ADJUSTING RINGS, TOP OF TOP SLAB, AND BOTTOM OF IRON RING.
- SEE THE STANDARD SPECIFICATIONS FOR MORE REQUIREMENTS.



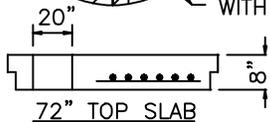
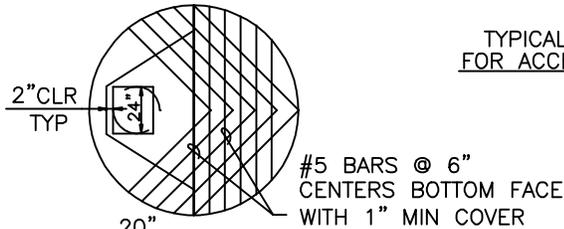
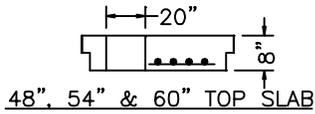
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DATE	07/31/2008
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DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**

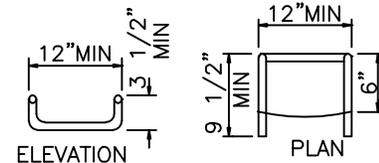
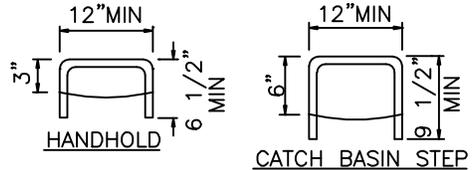
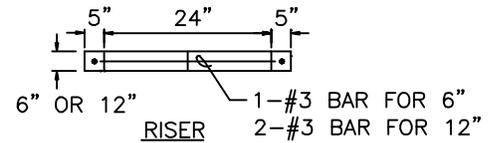
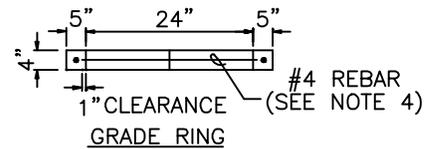
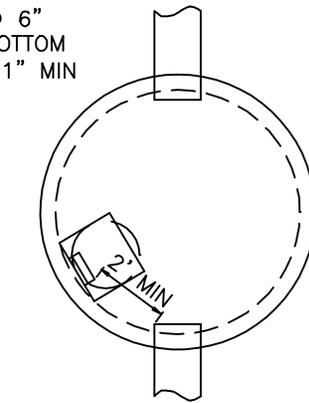
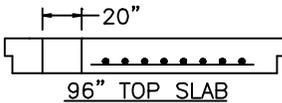
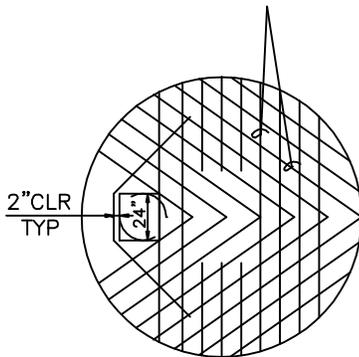
CATCH BASIN TYPE 2  
48", 54", 60", 72" & 96"

STANDARD DETAIL NUMBER

**SD-040**



-#6 BARS @ 7" CENTERS  
BOTTOM FACE WITH 1"  
MIN COVER



DROP RUNG CATCH BASIN STEP

\* ALL STEPS COPOLYMER  
PROPYLENE

**NOTES:**

1. PROPRIETARY CATCH BASIN HANDHOLDS AND STEPS ARE ACCEPTABLE, PROVIDED THAT THEY CONFORM TO SEC. R, ASTM C478, AASHTO M-199 AND MEET ALL WISHA REQUIREMENTS.
2. CATCH BASIN STEP/HANDHOLD LEGS SHALL BE PARALLEL OR APPROXIMATELY RADIAL AT THE OPTION OF THE MANUFACTURER, EXCEPT THAT ALL STEPS IN ANY CATCH BASIN SHALL BE SIMILAR. PENETRATION OF OUTER WALL BY A LEG IS PROHIBITED.
3. HANDHOLDS AND STEPS SHALL HAVE "DROP" RUNGS AS SHOWN ON DETAIL OR PROTUBERANCES TO PREVENT SIDEWAYS SLIP.
4. SLAB OPENING MAY BE 24" X 20" OR 24" DIAM.
5. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCH PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497.
6. LADDERS OR STEPS SHALL EXTEND TO WITHIN 16" OF BOTTOM OF CATCH BASIN. IF LADDERS ARE USED THEY SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC PER STD. DETAIL SS-040
7. HANGING LADDERS SHALL BE PERMANENTLY FASTENED AT TOP BY HANGING ON STEP OR BY BOLTING OR EMBEDDING IN CONCRETE. EACH SHALL BE EMBEDDED AT BOTTOM IN BASE.
8. ADDITIONAL SAFETY FEATURES MAY BE REQUIRED IN VERY DEEP OR UNUSUAL STRUCTURES.



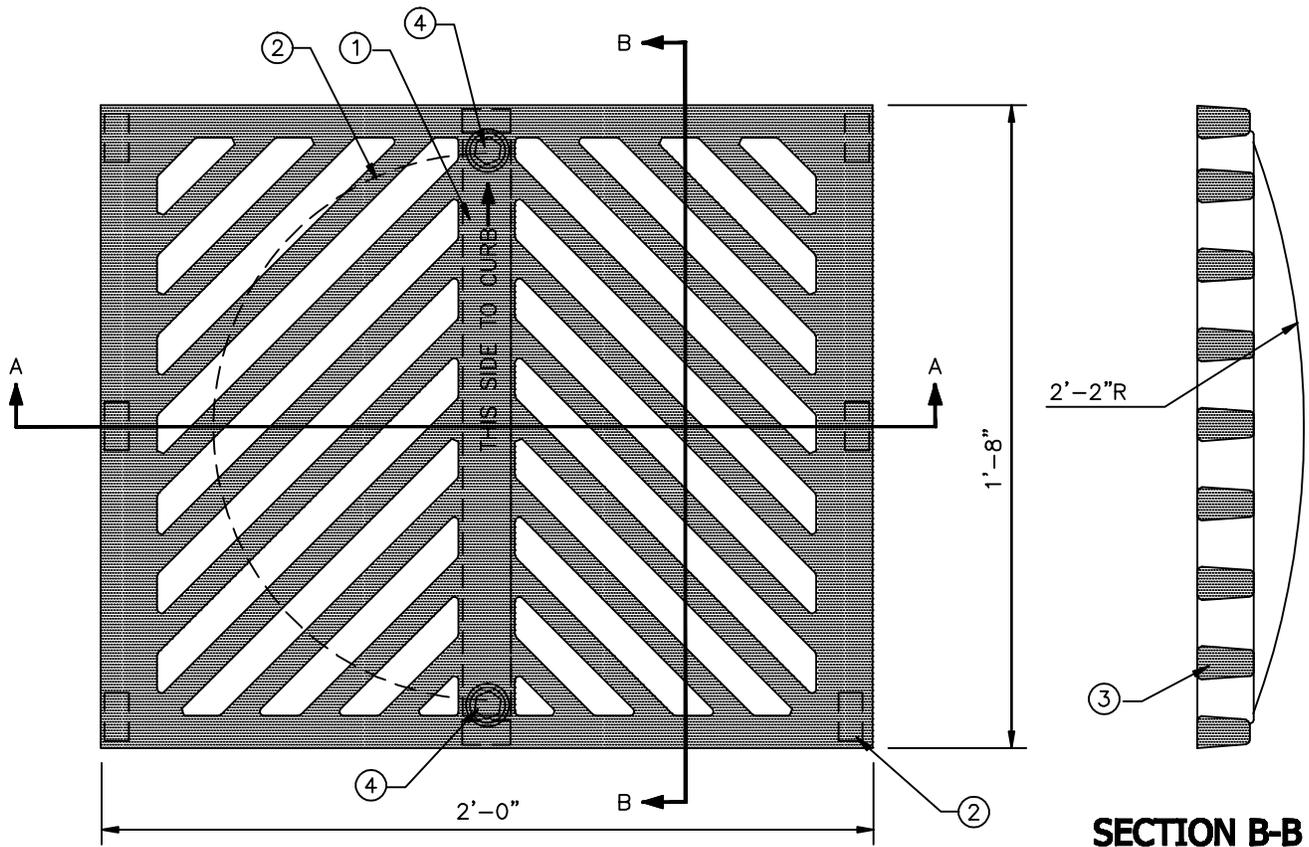
APPROVED BY	L. OLIVE
DATE	07/31/2008
REF STAN SPEC	

**DEPARTMENT OF PUBLIC WORKS**  
**STANDARD DETAIL**

**CATCH BASIN LADDER, STEP,  
AND TOP SLAB DETAILS**

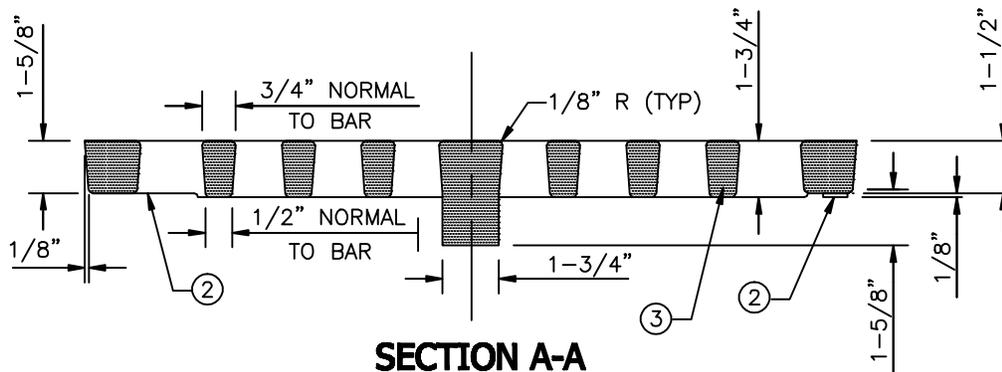
STANDARD DETAIL  
NUMBER

**SD-050**



**PLAN**

**SECTION B-B**



**SECTION A-A**

**NOTES:**

- ① FOUNDRY NAME, THIS SIDE TO CURB W/ARROW AND (DI) FOR DUCTILE IRON SHALL BE EMBOSSED ON TOP OF GRATE WITH 1/16" RECESSED LETTERS.
- ② SEATING OF GRATE SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING: A. 8 INTEGRALLY CAST PADS (1-1/2"x3/4"x1/8"). B. MACHINE BOTTOM SURFACE OUTSIDE A 17" DIA.
- ③ MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06. ALL CASTINGS SHALL HAVE A BITUMINOUS COATING.
- ④ LOCKING GRATE CASTED HOLES SHALL BE CASTED TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL SOCKET HEAD CAP SCREWS SO THAT NO PART OF HEAD PROTRUDES ABOVE TOP OF CASTING.
- ⑤ GRATE TO BE USED WITH FRAME SHOWN IN STANDARD DETAIL SD-090.



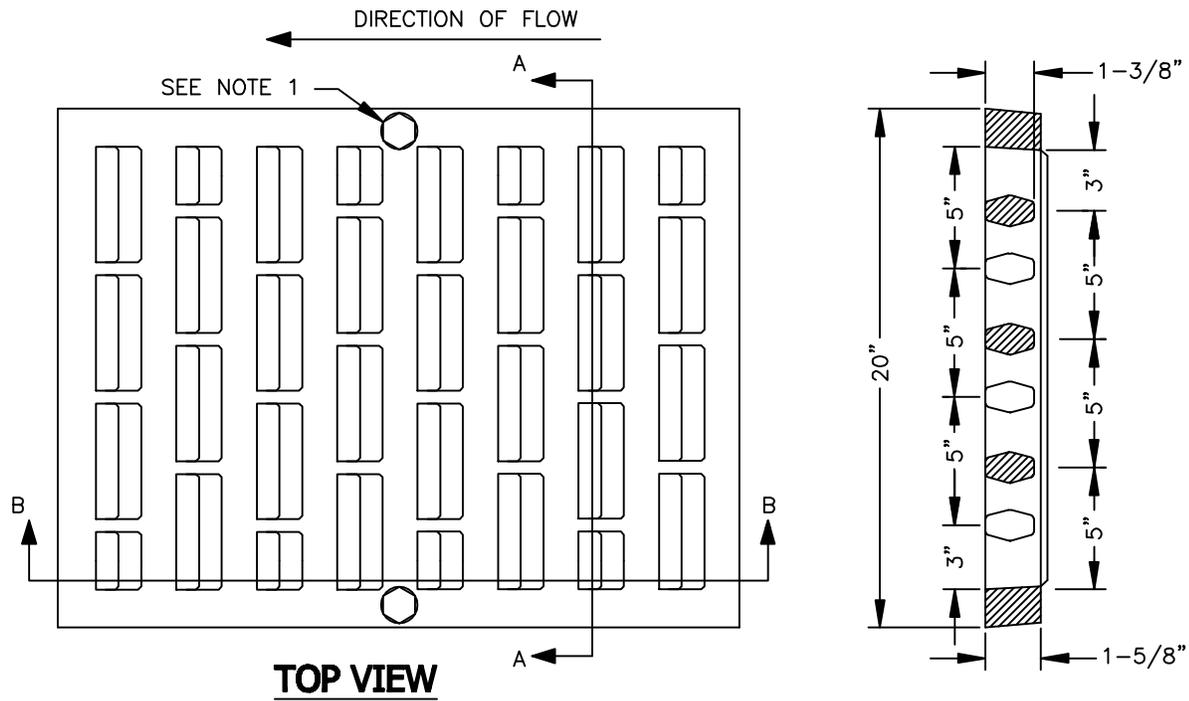
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DATE	07/31/2008
REF STAN SPEC	

DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**

**STANDARD GRATE CATCH BASIN INLET**

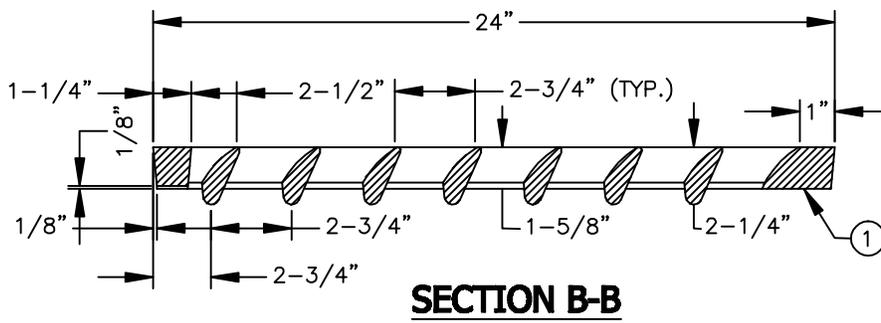
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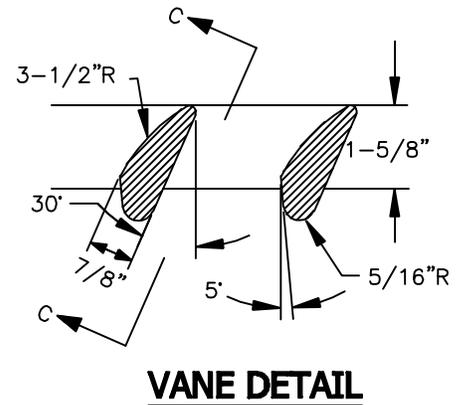


**TOP VIEW**

**SECTION A-A**



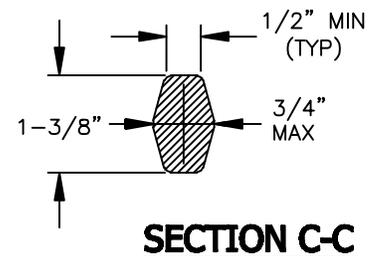
**SECTION B-B**



**VANE DETAIL**

**NOTES:**

1. USE WITH TWO LOCKING BOLTS 5/8" DIA STAINLESS STEEL TYPE 304 SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. SELF-LOCK VANED GRATE IS NOT ACCEPTED.
2. MATERIAL SHALL BE DUCTILE IRON ASTM A536, GRADE 80-55-06, WITH BITUMINOUS COATING.
3. WELDING IS NOT PERMITTED. EDGES SHALL HAVE 0.125" RADIUS, 0.125" CHAMFER OR COMPLETE DEBURRING.
4. USE A BI-DIRECTIONAL VANED GRATE IN SAG VERTICAL CURVES.



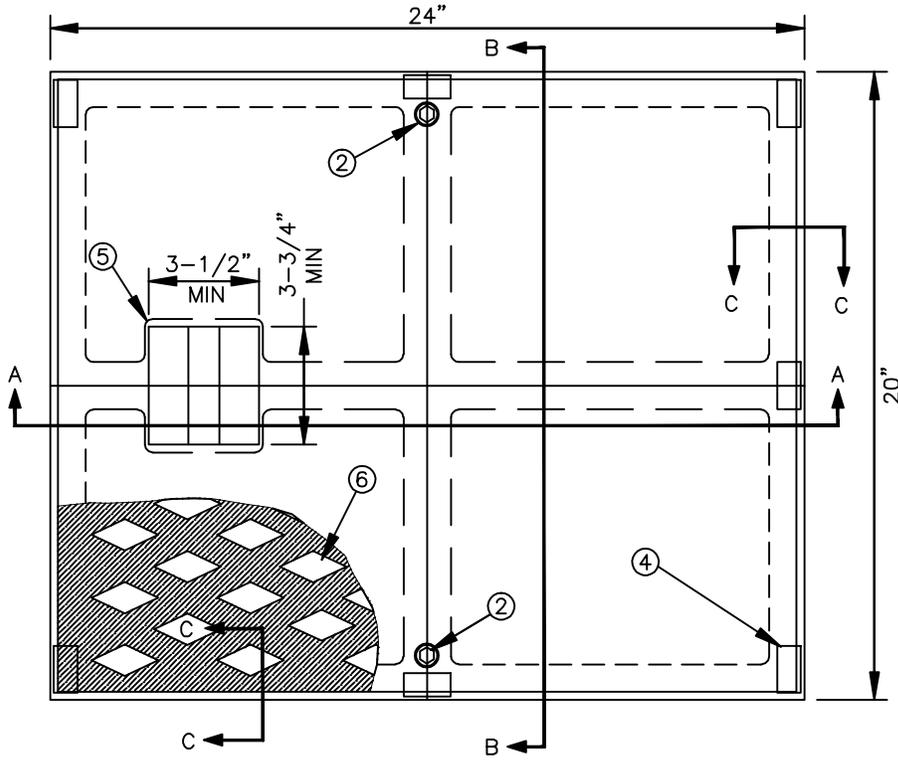
**SECTION C-C**



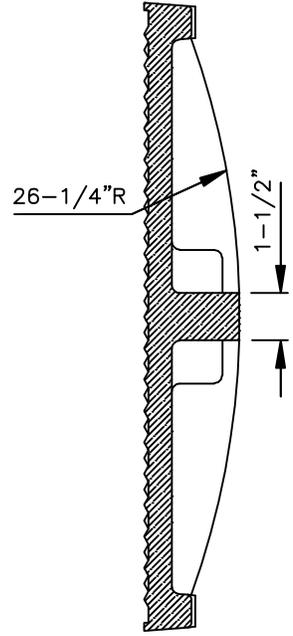
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REF STAN SPEC	

DEPARTMENT OF PUBLIC WORKS  
STANDARD DETAIL  
  
VANED GRATE

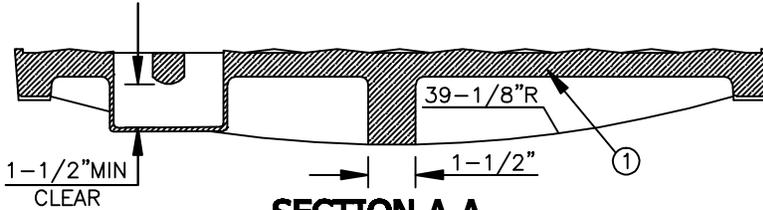
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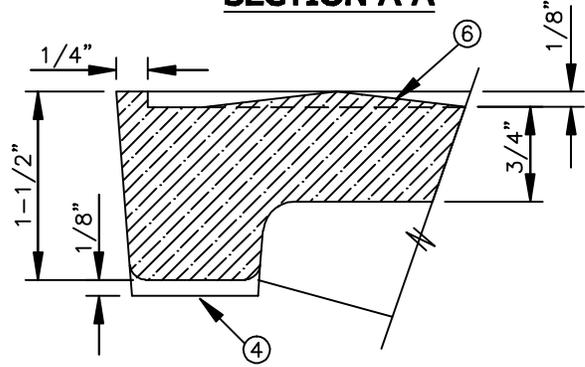
**TOP VIEW**



**SECTION B-B**



**SECTION A-A**



**SECTION C-C**

**NOTE:**

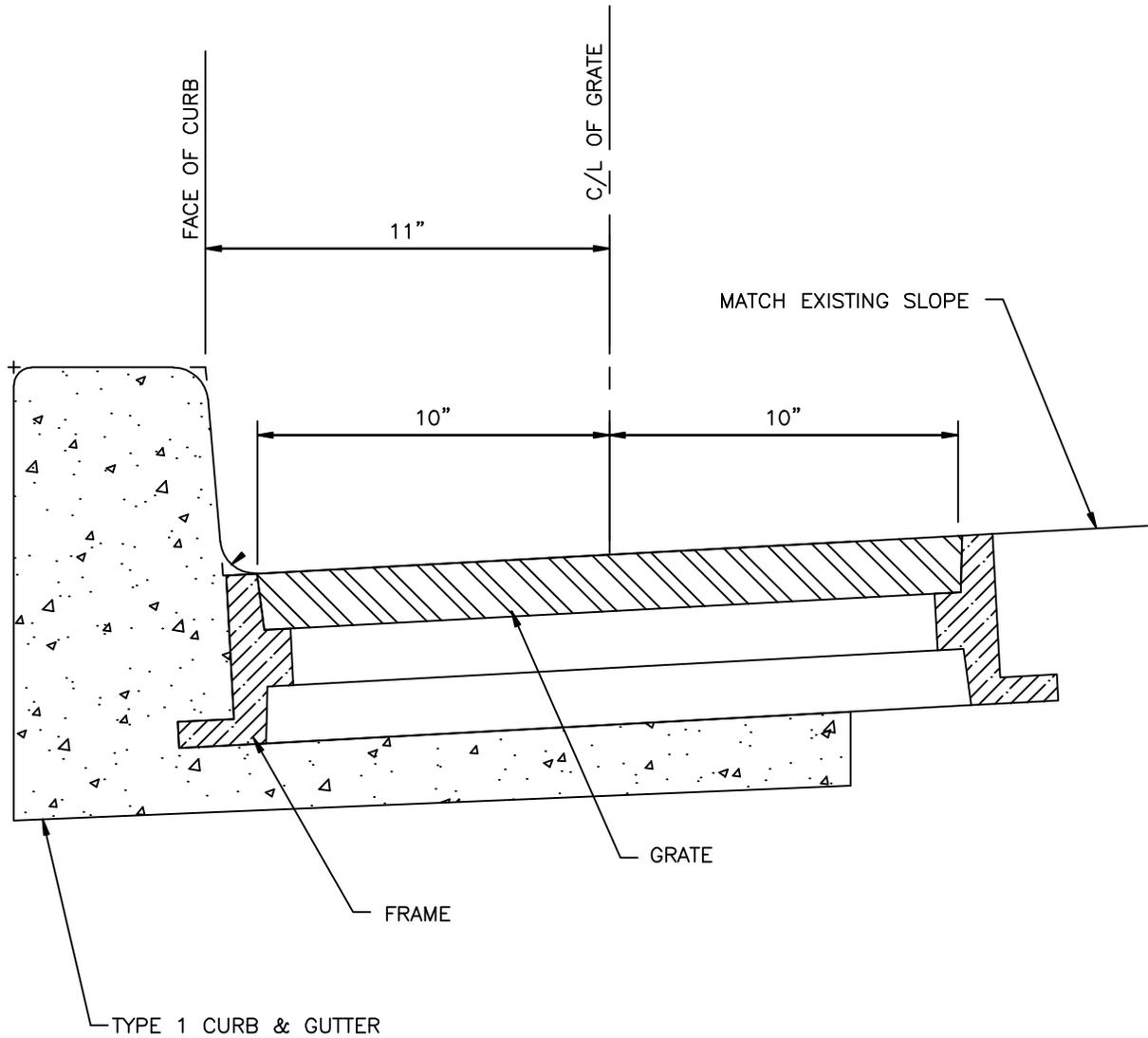
- ① MATERIAL USED SHALL BE DUCTILE IRON PER ASTM-A536, GRADE 80-55-06, WITH BITUMINOUS COATING.
- ② LOCKING HOLES TO BE PROVIDED IN CASTING TO ALLOW FOR TWO 5/8" DIA STAINLESS STEEL, SOCKET HEAD CAP SCREWS. NO PART OF SCREW WILL PROTRUDE ABOVE GRATE.
- ③ GRATE TO BE USED WITH FRAME SHOWN IN STD DETAIL SD-090.
- ④ GRATE SEATING: 8 INTEGRALLY CAST PADS.
- ⑤ CAST POCKET LIFT HANDLE.
- ⑥ NON-SKID DIAMOND PATTERN APPROX 2-1/2"x1"x1/8" HIGH



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DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**  
 SOLID COVER

STANDARD DETAIL NUMBER  
**SD-080**



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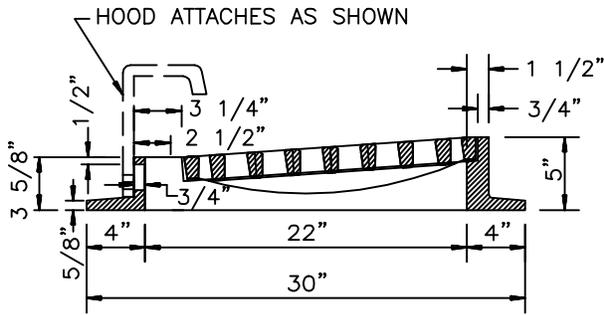
DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**

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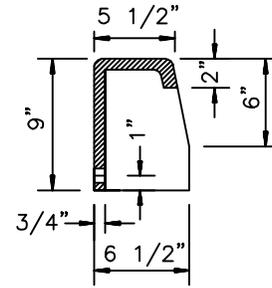
TYPICAL FRAME AND GRATE INSTALLATION

STANDARD DETAIL  
NUMBER

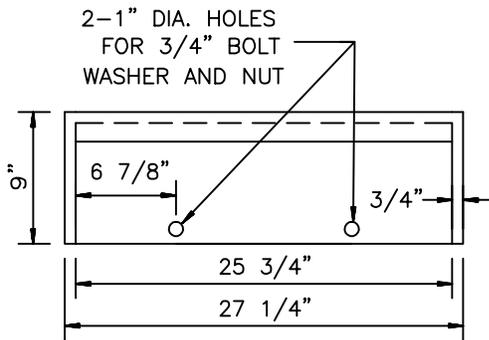
SD-090



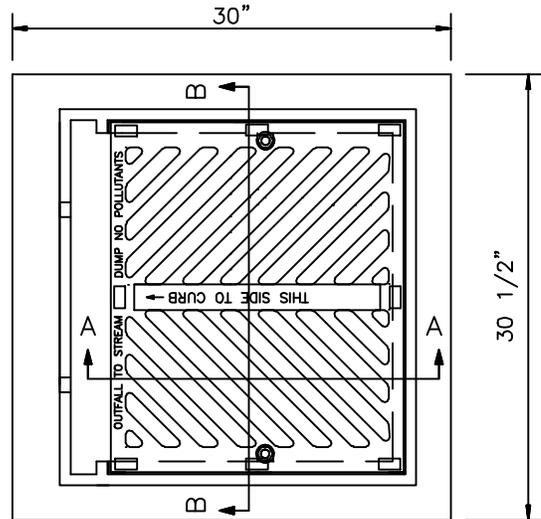
**SECTION A-A**



**HOOD DETAIL - SECTION**

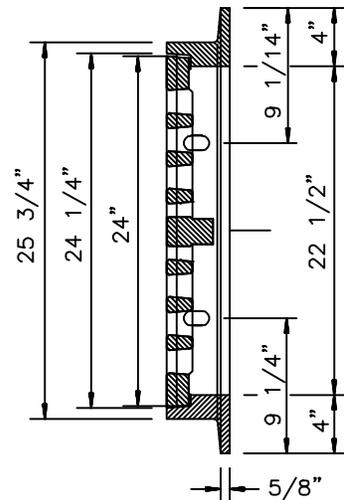


**HOOD DETAIL - FRONT**



**NOTES:**

1. GRATE SHALL EITHER BE STANDARD GRATE OR VANED GRATE.
2. GRATE SHALL BE LOCKED DOWN WITH (2) 5/8" STAINLESS STEEL SOCKET HEAD CAP SCREWS.
3. LEVELING PADS 1 1/2" X 3/4" X 1/8" SHALL BE USED.
4. FRAME SHALL BE CAST IRON ASTM A48 CL. 30.
5. INSTALL 3/16" NON-SKID DIAMOND PATTERN ON TOP SURFACE OF HOOD.
6. BOLT, WASHER, AND NUT SHALL BE GALVANIZED OR CORROSION RESISTANT.
7. FOR INSTALLATION ON ARTERIALS. FOR NON-ARTERIALS, ALTERNATE THROUGH CURB INLET FRAMES FOR 18" X 24" GRATES MAY BE INSTALLED.



**SECTION B-B**

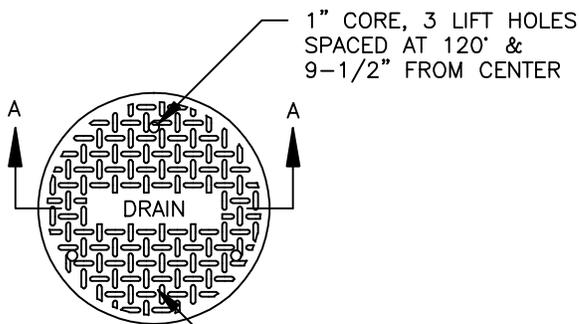


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DEPARTMENT OF PUBLIC WORKS  
STANDARD DETAIL

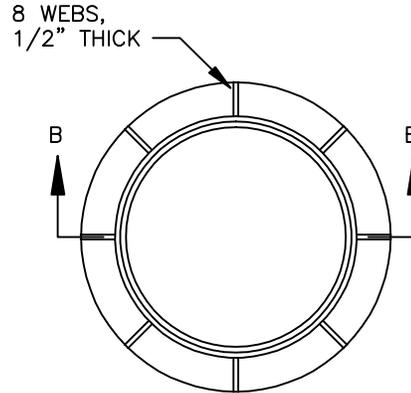
THROUGH CURB INLET FRAME

STANDARD DETAIL NUMBER  
**SD-100**

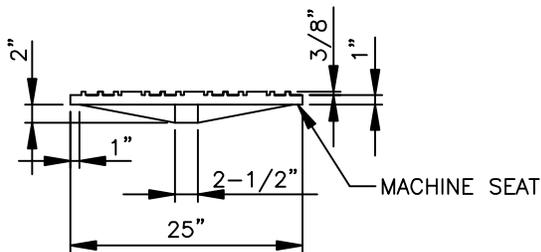


**PLAN**

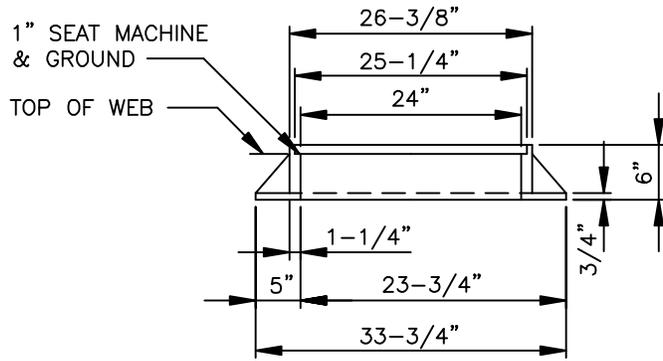
NON-SKID PATTERN  
TO BE CAST INTEGRAL  
ON TOP OF COVER  
(SEE NOTE 4)



**FRAME PLAN**



**SECTION A-A**



**SECTION B-B**

**COVER NOTES:**

1. USE WITH THREE LOCKING BOLTS 5/8" DIA STAINLESS STEEL TYPE 304 SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. DRILL HOLES SPACED 120° TO MATCH HOLES IN RING.
2. COVER MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
3. APPROXIMATE WEIGHT OF COVER IS 150 LBS.
4. TRAFFIC RATING: H-20.

**RING NOTES:**

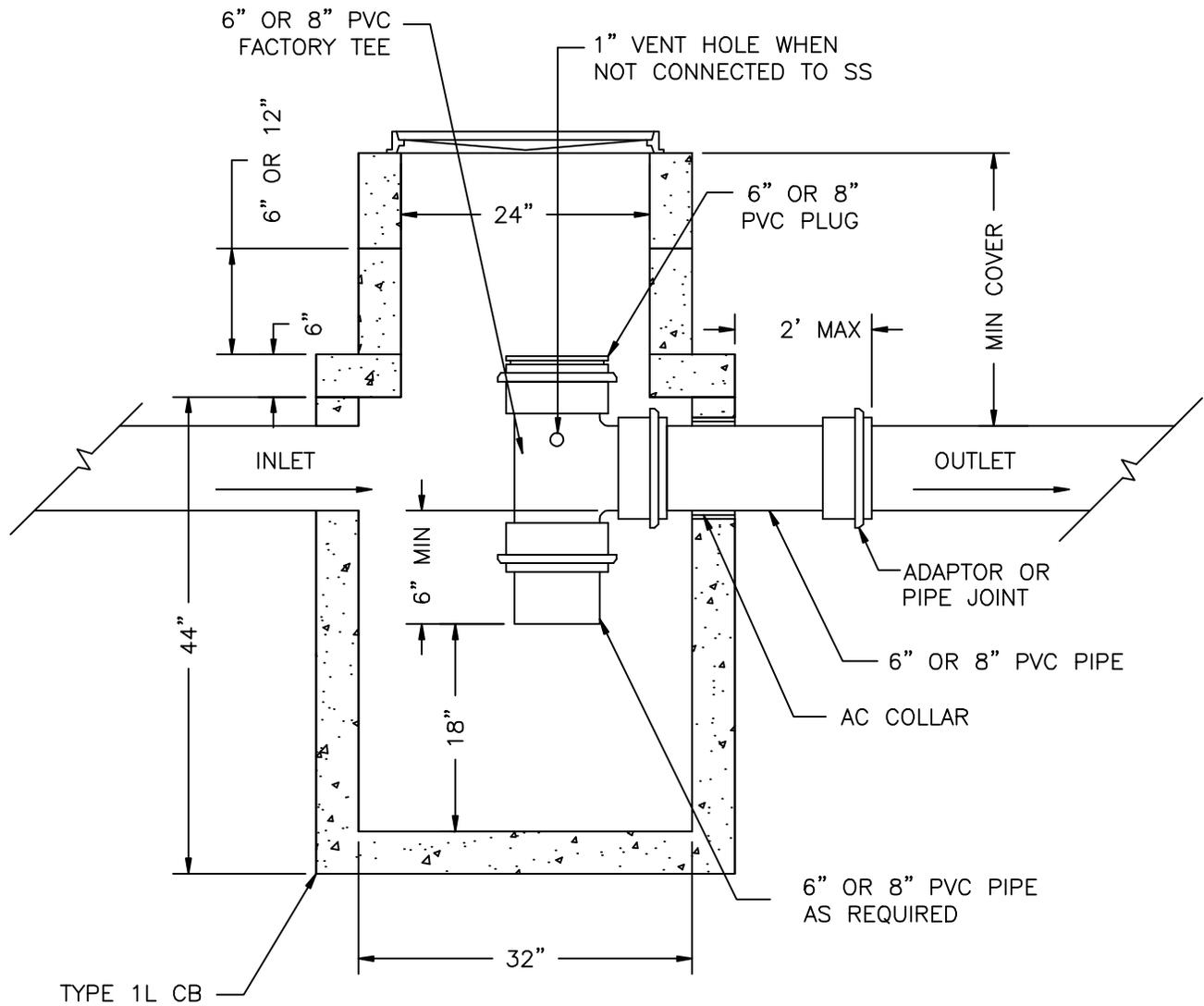
1. DRILL THREE 5/8" HOLES THROUGH RING SPACED AT 120°.
2. RING MATERIAL IS GREY IRON, ASTM A-48 CLASS 30.
3. APPROXIMATE WEIGHT OF RING IS 215 LBS.
4. TRAFFIC RATING: H-20.



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**STANDARD DETAIL**  
24" BOLT-LOCKING MANHOLE  
RING & COVER

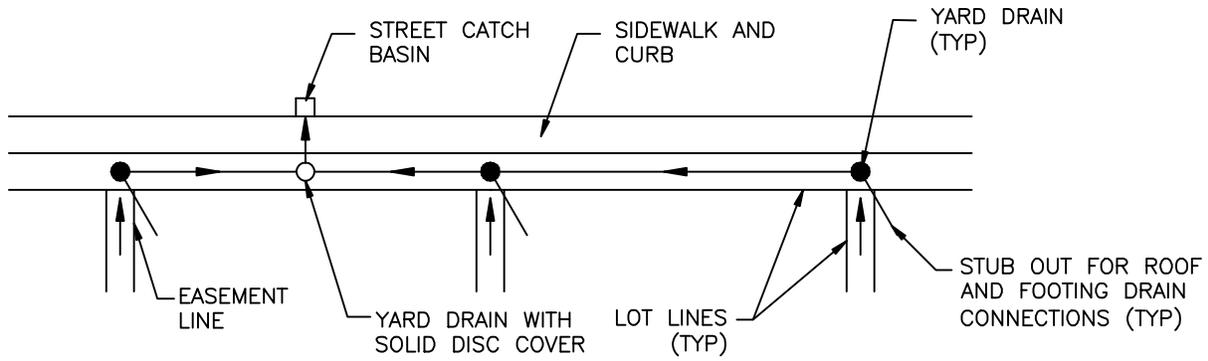
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NUMBER  
**SD-110**



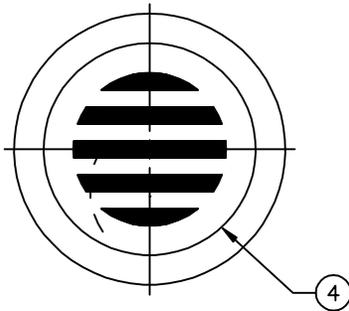
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REF STAN SPEC	

DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**  
 STANDARD OIL/WATER SEPARATOR

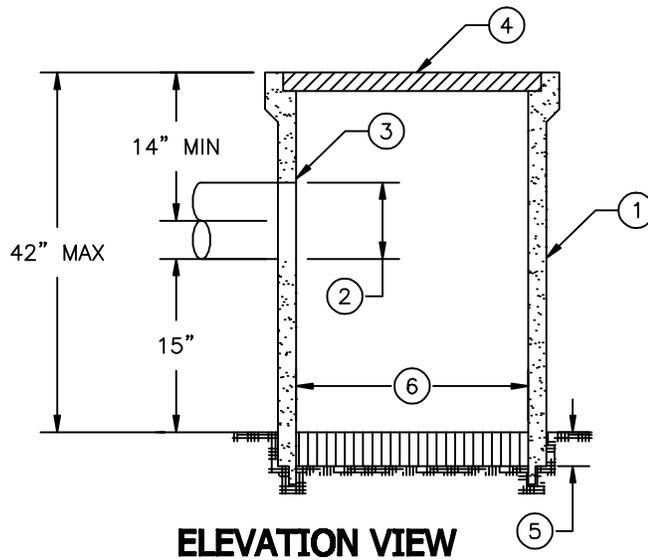
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**SD-120**



**TYPICAL LOT PLACEMENT**



**PLAN VIEW**



**ELEVATION VIEW**

**NOTES:**

- ① YARD DRAINS TO BE CONSTRUCTED FROM CONCRETE PIPE IN ACCORDANCE WITH ASTM C14 UNLESS OTHERWISE SHOWN ON THE PLANS OR NOTED IN THE SPECIFICATIONS.
- ② CUTOUT HOLE SIZE IS EQUAL TO OUTLET PIPE OUTSIDE DIAMETER PLUS YARD DRAIN WALL THICKNESS
- ③ CONNECTION TO OUTLET PIPE TO BE MORTARED AND MADE FLUSH WITH INSIDE OF THE YARD DRAIN WALL.
- ④ CAST IRON BELL GRATE. FITS INTO BELL RECESS AND EXTENDS FLUSH WITH FACE OF BELL. THE GRATE SHALL HAVE SLOTS (HOLES) THAT CONSTITUTE 50 PERCENT OPEN AREA FOR DRAINAGE. INLET BELL SURFACE SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- ⑤ WASHED DRAIN ROCK 6" MIN. THICK.
- ⑥ VARIES 12" OR 18" PER PLANS.

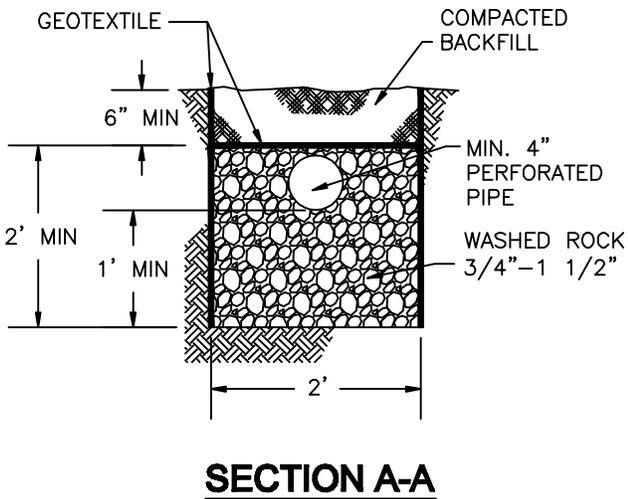
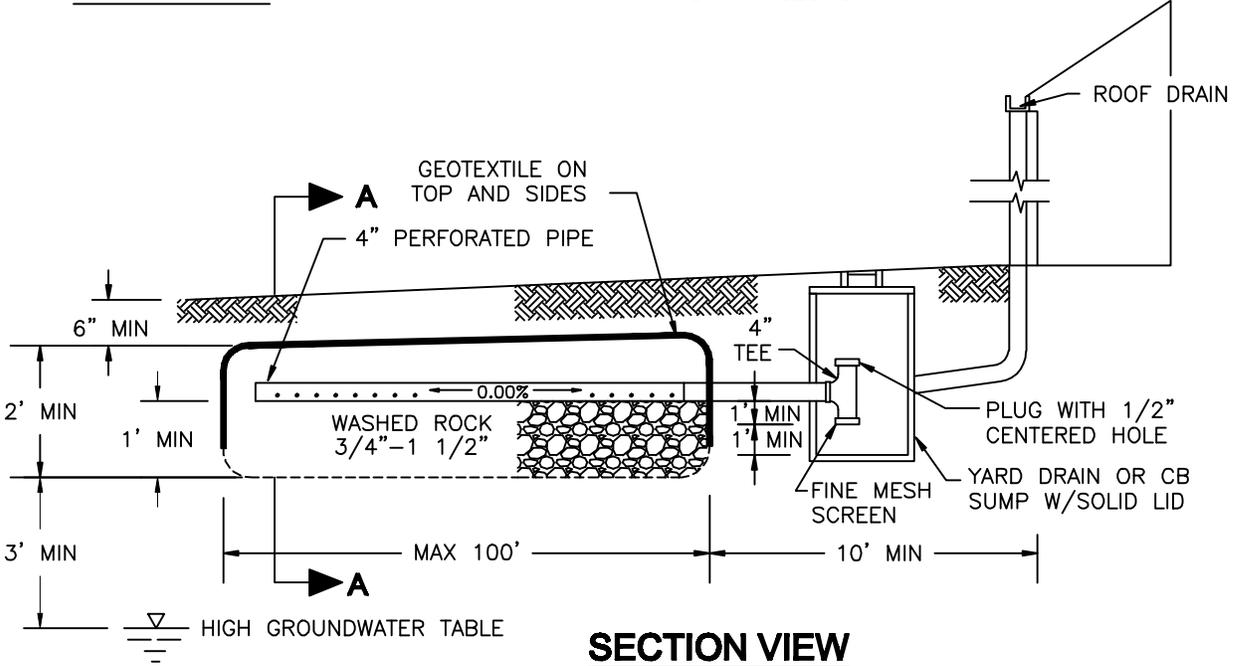
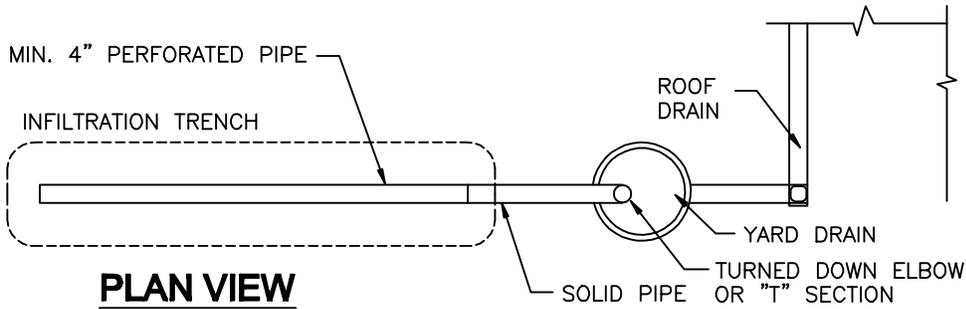


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DEPARTMENT OF PUBLIC WORKS  
**STANDARD DETAIL**

YARD DRAIN CONNECTIONS

STANDARD DETAIL NUMBER  
**SD-130**



**NOTES:**

1. TRENCHES SHALL BE A MINIMUM OF 10' FROM BUILDING, PROPERTY LINES, AND EASEMENTS.
2. THE FOLLOWING MINIMUM LENGTH (LINEAR FEET) PER 1,000 SQUARE FEET OF ROOF AREA BASED ON SOIL TYPE MAY BE USED FOR SIZING DOWNSPOUT INFILTRATION TRENCHES.
 

COURSE SAND & COBBLES	20 LF
MEDIUM SAND	30 LF
FINE SAND, LOAMY SAND	75 LF
SANDY LOAM	125 LF
LOAM	190 LF
3. MINIMUM SPACING BETWEEN ADJACENT TRENCH WALLS MUST BE 6 FEET.
4. INFILTRATION TRENCHES SHALL NOT BE BUILT ON SLOPES GREATER THAN 25 PERCENT.
5. SLOPES GREATER THAN 25 PERCENT HAVE A MINIMUM SETBACK OF 50' FOR INFILTRATION TRENCHES.



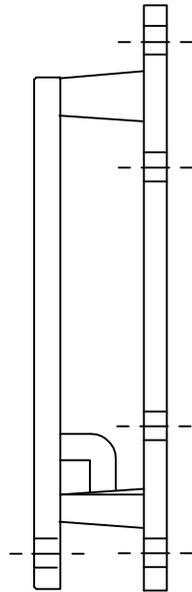
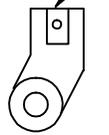
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DATE	07/31/2008
REF STAN SPEC	

**DEPARTMENT OF PUBLIC WORKS**  
**STANDARD DETAIL**  
 RESIDENTIAL ROOF DRAIN INFILTRATION  
 TRENCH

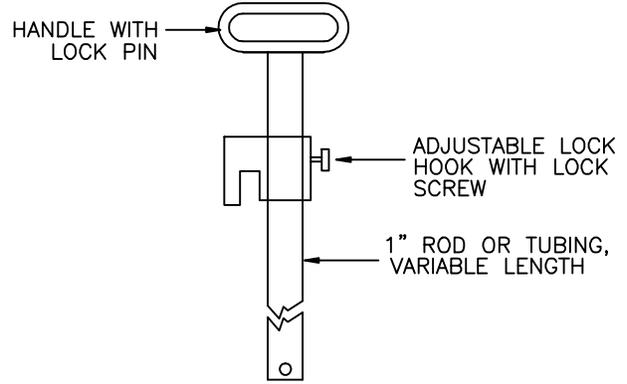
STANDARD DETAIL  
 NUMBER  
**SD-140**



LIFT HANDLE SHALL BE ATTACHED PER MANUFACTURER'S RECOMMENDATIONS

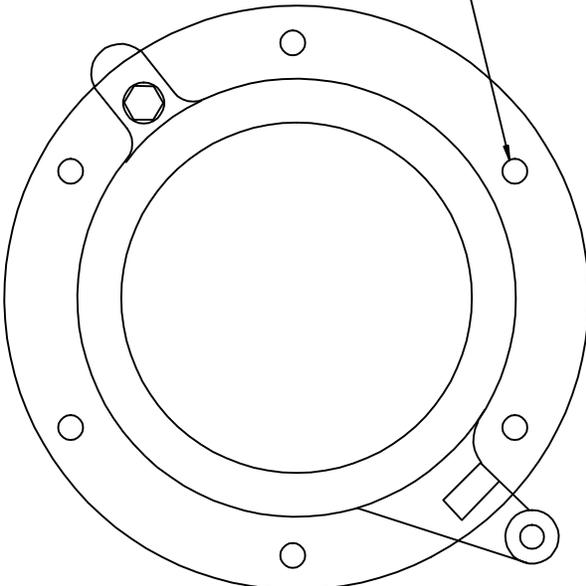


**SIDE**

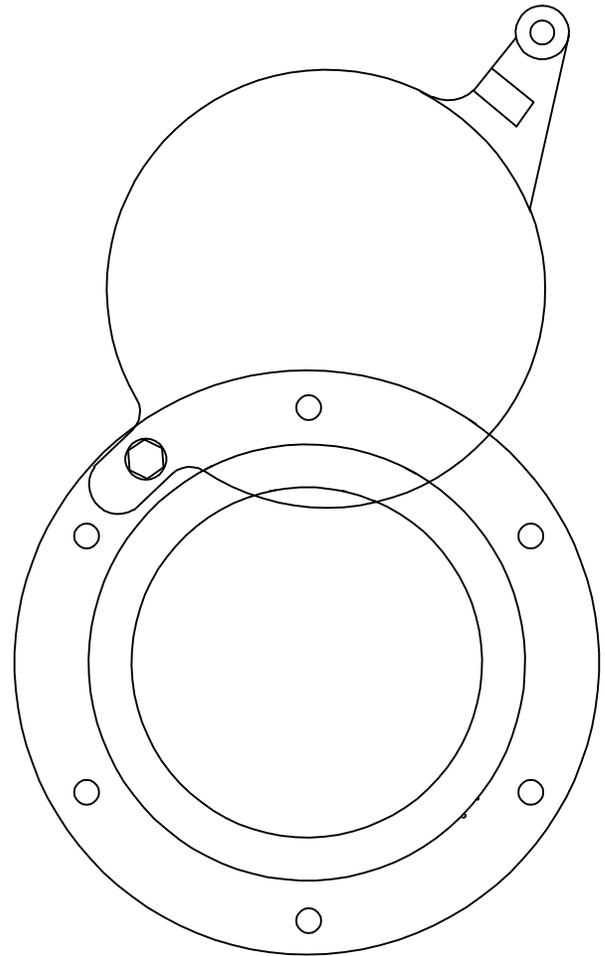


**LIFT HANDLE**

SIX EVENLY SPACED HOLES ON 10 3/4\" BOLT CIRCLE FOR BOLTING TO FLANGE CONNECTION



**FRONT**



**MAXIMUM OPENING OF GATE**

**NOTES:**

ALTERNATES ARE ACCEPTABLE PROVIDED MATERIAL SPECIFICATIONS ARE MET AND FLANGE BOLT PATTERN MATCHES.



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DEPARTMENT OF PUBLIC WORKS <b>STANDARD DETAIL</b>
SHEAR GATE ASSEMBLY

STANDARD DETAIL NUMBER
<b>SD-160</b>