


**CITY OF SALEM**  
**DEPARTMENT OF PUBLIC WORKS**  
**STANDARD DRAWINGS**  
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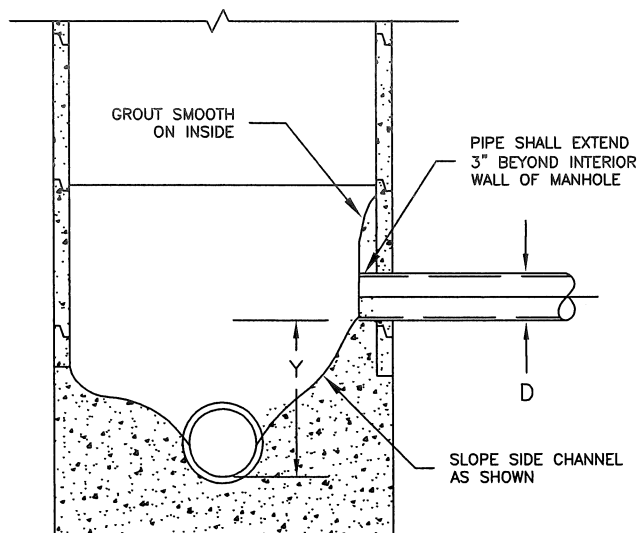
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<b>Plan No.</b>	<b>Title</b>	<b>Date</b>
<b>Sewers and Drains</b>		
101	Manhole	04-16-2015
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1. CONCENTRIC CONE ALLOWED ONLY WHEN SPECIFIED.
2. WATERTIGHT FLEXIBLE PIPE-TO-MANHOLE CONNECTIONS SHALL BE INSTALLED ACCORDING TO MANUFACTURES SPECIFICATIONS.
3. ADJUST MANHOLE FRAME AND LID PER STD PLAN 104.
4. WATER TIGHT JOINTS (GROUT JOINTS SMOOTH AT MANHOLE INTERIOR).
5. POSITION MANHOLE LID OVER OUTLET PIPE.
6. ALL SECTIONS MUST MEET OR EXCEED ASTM C 478.
7. FLAT-TOP MANHOLE ACCEPTABLE ALTERNATE (SEE STD. PLAN NO. 211)
8. SEE STD. PLAN No.107. LOCK-DOWN MANHOLE COVERS PER STD. PLAN No.117 REQUIRED WHEN MANHOLES ARE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY.
9. ALL MANHOLES SUBJECT TO VACUUM TESTING.
10. SEE PROJECT PLANS FOR MANHOLE SIZE.
1. FOR ALTERNATE MANHOLE CONFIGURATION, PROVIDE 8 FT OF HEAD ROOM WHENEVER POSSIBLE.



4	Added external seals	2/15	JAP	<div>CITY OF SALEM DEPARTMENT OF PUBLIC WORKS  STANDARD PLAN MANHOLE</div>					
3	Removed table, changed max fall	12/13	KAK						
2	Changed note on alternate config.	8/99							
1	Allowed low profile cone section	8/99							
No.	Description	Date	By	Appr					
REVISION									
APPROVED	<div> CITY ENGINEER</div>		4/2015	DRAWN BY	JAP	5/2014	NO. 101		
				CHECKED BY	DEW	5/2014			

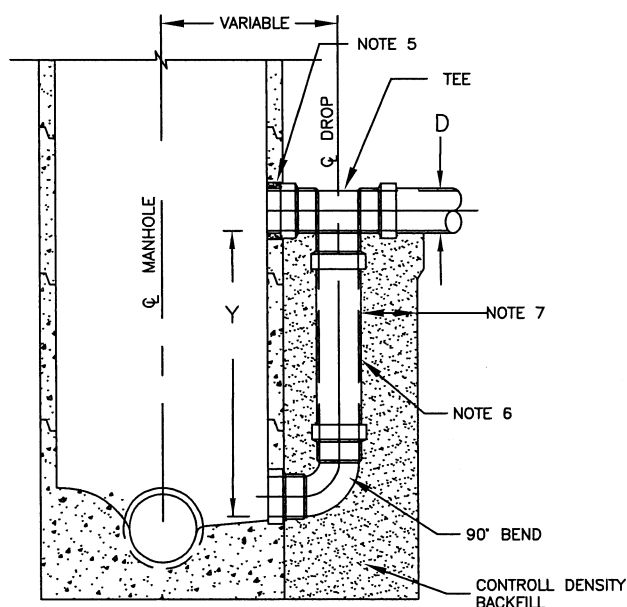


TYPE 'A'

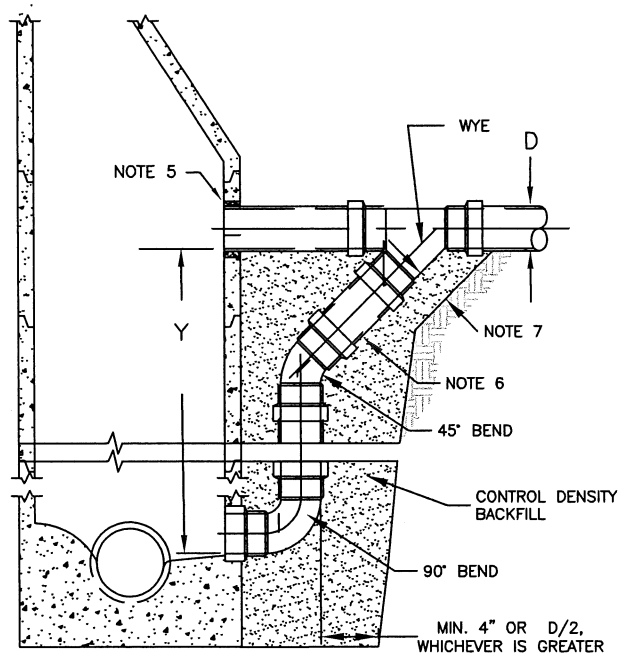
TABLE		8"	10"	12"
INLET PIPE 'D'				
TYPE 'A'	Y LIMITATIONS	$Y \leq 24"$	$Y \leq 24"$	$Y \leq 24"$
TYPE 'B'		$24" < Y \leq 30"$	$24" < Y \leq 57"$	$24" < Y \leq 65"$
TYPE 'C'		$Y < 30"$	$Y < 57"$	$Y < 65"$

NOTES:

1. SEE STANDARD PLAN 101 FOR ADDITIONAL MANHOLE DETAILS.
2. TYPE 'C' DROP MAY BE REQUIRED IN LIEU OF TYPE 'B' IN LOCATIONS WHERE Q IS OVER ONE-HALF PIPE FULL OR VELOCITY EXCEEDS 5 fps (STEEP GRADE).
3. ALL PIPE IS P.V.C.
4. CONSTRUCTION OF ADDITIONAL MANHOLE IS REQUIRED WHEN COMBINATION OF INLET PIPE SIZE AND "Y" DIMENSIONS ARE OUTSIDE PARAMETERS OF ABOVE TABLE.
5. WATER TIGHT BOOT.
6. PIPE DIAMETER TO MATCH INLET PIPE DIAMETER.
7. 4" CLEAR MIN., 3 SIDES.



TYPE 'B'



TYPE 'C'

DETAILS SUBJECT TO PRIOR APPROVAL BY CITY ENGINEER

5	Removed 15" from table	12/13	KAK	
4	Added note 4	10/01	IDF	
3	Corrected Y dimension	4/01	IDF	
2	Details revised significantly	8/99	JC	
1	Convert to CAD DWG.	8/99	JC	
No.	Description	Date	By	Appr

REVISION

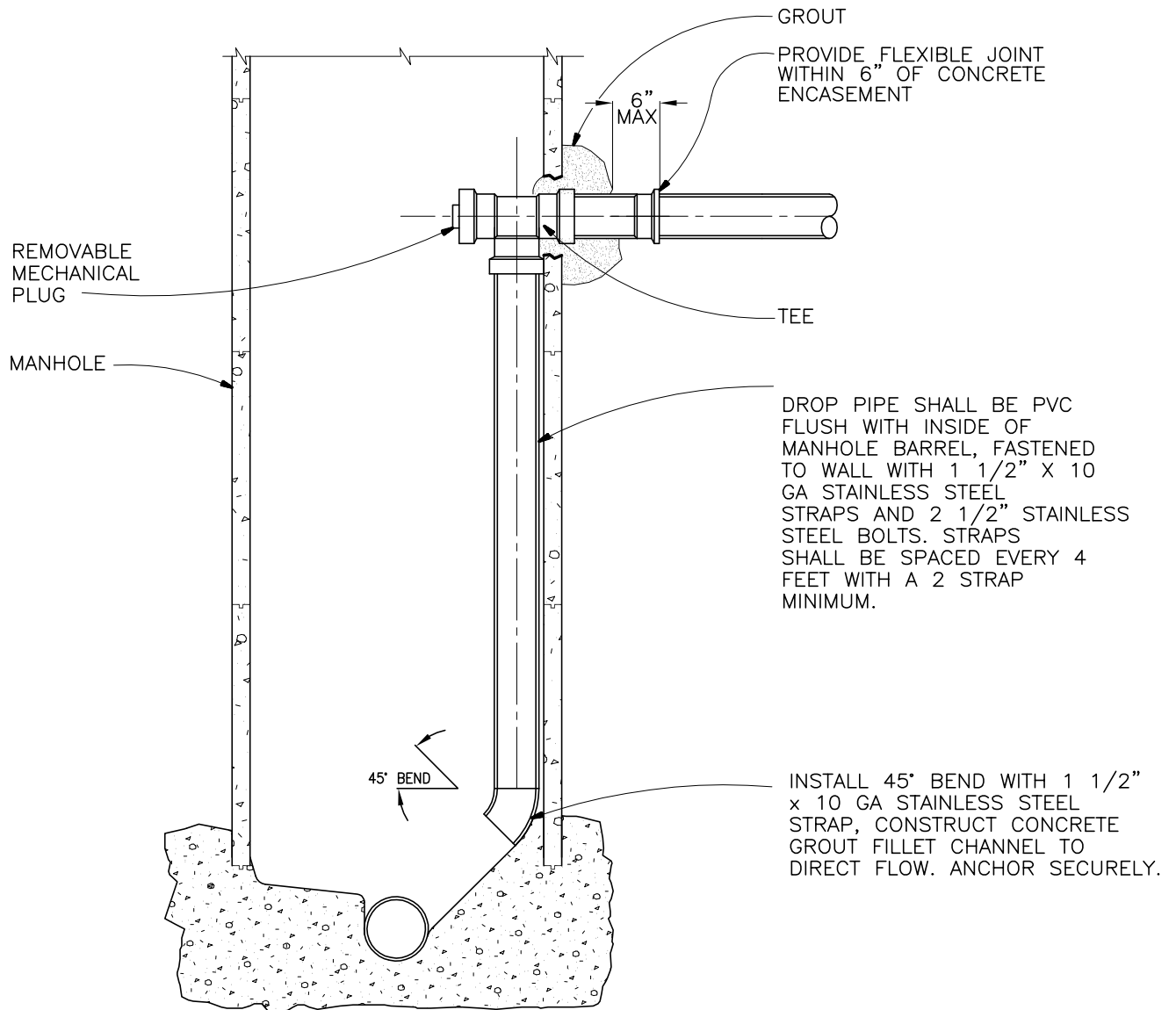
APPROVED	<i>James B. Smith</i>	3/2015		
	CITY ENGINEER			

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN  
DROP MANHOLE DETAILS

DRAWN BY	KAK	05/14
CHECKED BY	CJS	05/14

NO. 102



**NOTE:**

1. ONLY ONE INSIDE DROP CONNECTION ALLOWED PER MANHOLE.
2. MINIMUM MANHOLE DIAMETER WITH DROP CONNECTION SHALL BE 48-INCHES.
3. MAXIMUM DROP PIPE DIAMETER SHALL BE 8-INCHES.
4. SEE STANDARD PLAN 101 FOR OTHER MANHOLE DETAILS.
5. POSITION MANHOLE LID TO MAXIMIZE THE HORIZONTAL CLEAR DISTANCE FOR MAINTENANCE PERSONNEL.

Approved Karl O. Guster 9-15-99  
City Engineer Date

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

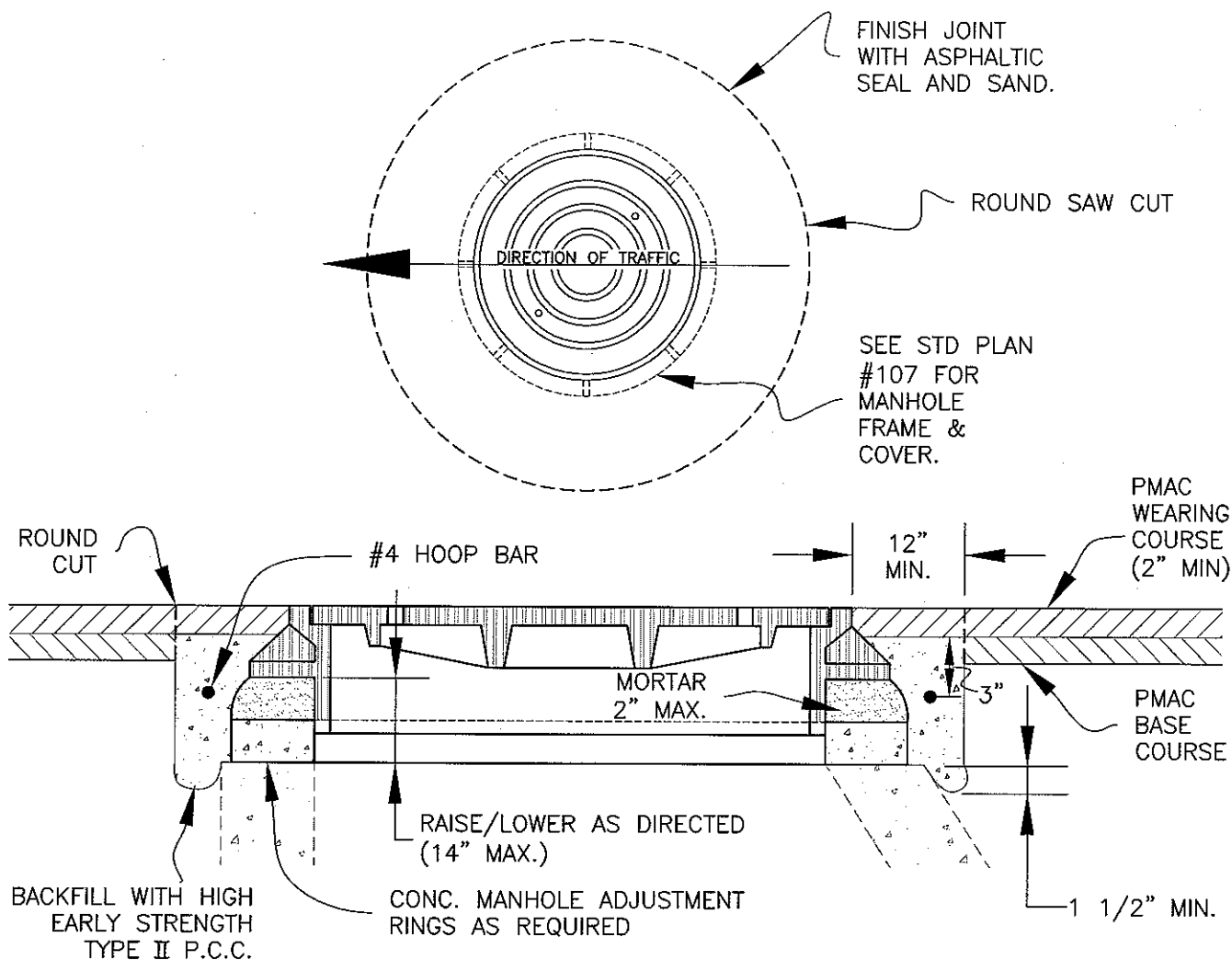
STANDARD PLAN  
INSIDE DROP  
MANHOLE

No.	Description	Date	By	Appr
1	Convert to CAD DWG.	8/99	JC	
2	Details revised significantly	8/99	JC	
REVISION				

DRAWN BY J.C.

CHECKED BY K.G.

NO. 103



1. PRIOR TO PAVING, LOWER MANHOLE BY REMOVING FRAME/COVER AND ADJUSTMENT RINGS (AS NECESSARY). PLACE STEEL PLATE OVER MANHOLE. STEEL PLATE SHALL BE CAPABLE OF H2O TRAFFIC LOADING.
2. ROUND SAW CUT EXCAVATION AROUND MANHOLE 12" MINIMUM FROM MANHOLE FRAME. SAW CUT SHALL BE CIRCULAR (NO SEGMENTAL CUTS).
3. RAISE MANHOLE FRAME AND COVER TO GRADE AND PROFILE BY INSTALLING CONCRETE RINGS AND LEVELING MORTAR.
4. BACKFILL WITH HIGH EARLY STRENGTH P.C.C. TO FINISH GRADE OF PMAC BASE COURSE. COMPACT SUBGRADE AS SPECIFIED PRIOR TO PLACEMENT OF P.C.C..
5. COVER MANHOLE WITH STEEL PLATE. STEEL PLATE SHALL OVERLAP SAW CUT 24" MINIMUM, AND SHALL BE CAPABLE OF H2O TRAFFIC LOADING.
6. APPLY TACK COAT TO EXPOSED CONCRETE SURFACES PRIOR TO PAVING.
7. AFTER P.C.C. HAS CURED (2500 PSI IN 24 HOURS), PLACE PMAC WEARING COURSE AS SHOWN

APPROVED

*James L. Sand*  
CITY ENGINEER  
DATE 1/5/12

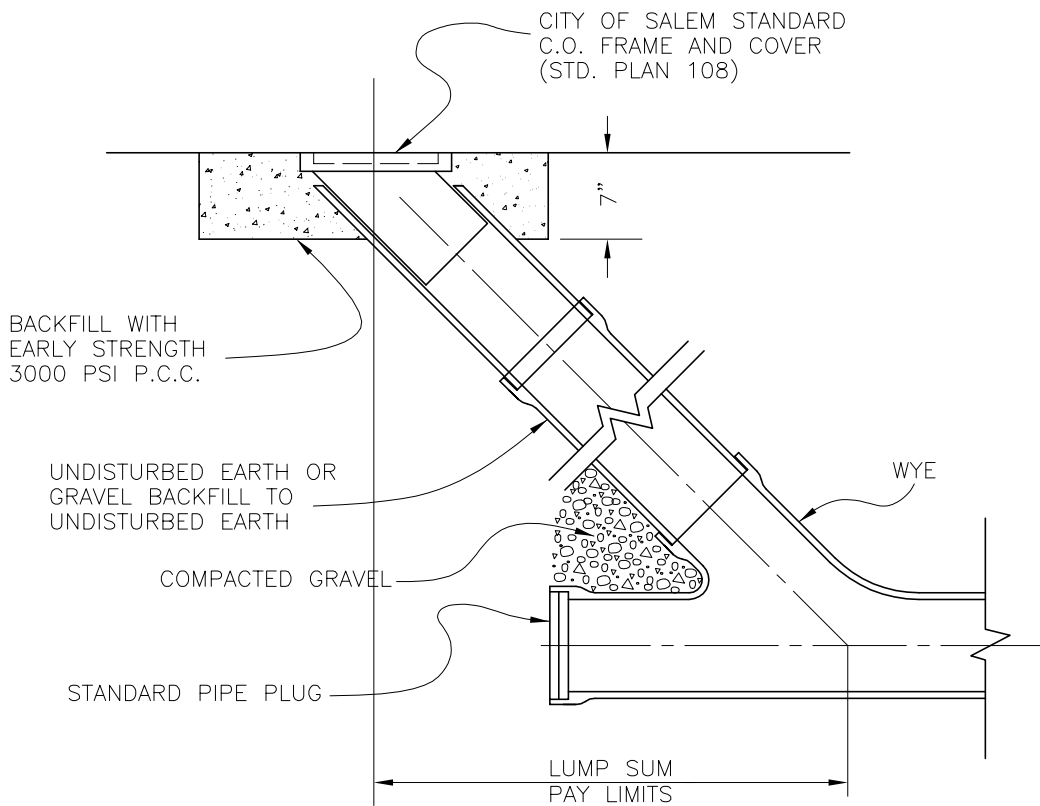
ROUND SAW CUT/P.C.C.	JAK	12/11
SQUARE OR ROUND SAW CUT	JHC	9/99
DESCRIPTION	BY	DATE
REVISION		

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN  
MANHOLE ADJUSTMENT SEQUENCE  
(AFTER FINAL PAVING)

DRAWN BY	JAK	7/11
CHECKED BY	BAV	7/11

NO.104



Approved

*Karl O. Gueber*  
City Engineer

1-7-98  
Date

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

SANITARY SEWER CLEANOUT

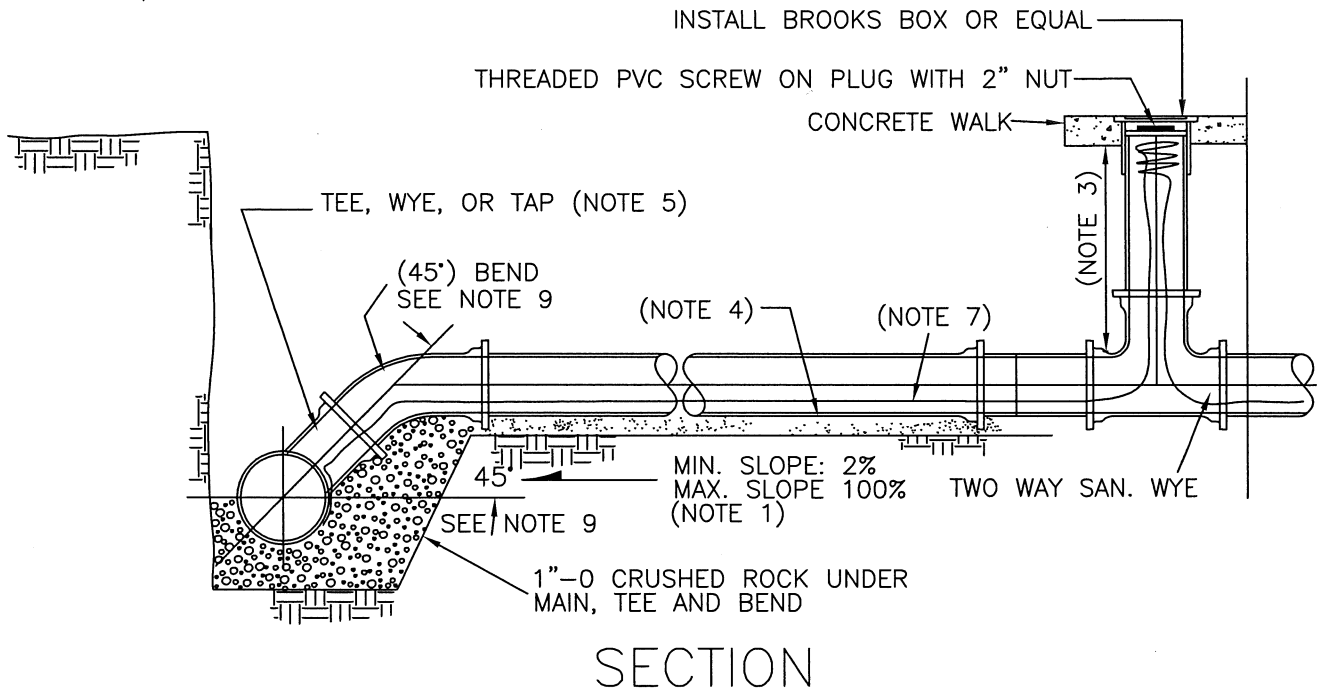
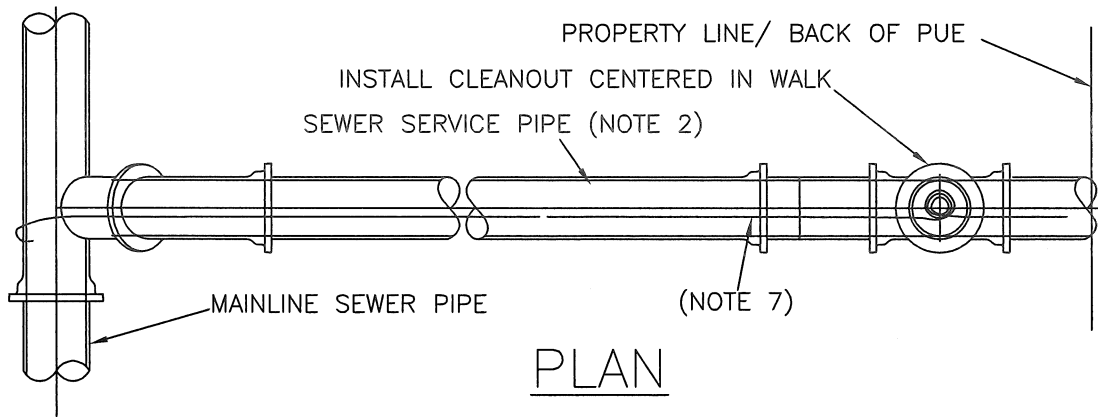
	CONVERT TO CAD DWG.			
No.	Description	Date	By	Appr

REVISION

DRAWN BY GS

CHECKED BY D.W.

NO.105



1. WHEN SLOPE EXCEEDS 20% USE ANCHOR BLOCKS. WHEN SLOPE EXCEEDS 100%, AND WITH SPECIFIC APPROVAL OF THE ENGINEER, USE DEEP CONNECTION RISER PER STD. PLAN No.114. SLOPE MAY BE DECREASED TO 1% MINIMUM WITH SPECIFIC APPROVAL OF THE ENGINEER.
2. FOR APPROVED MATERIALS SEE SCS 402.
3. MINIMUM DEPTH AT PROPERTY LINE 4 FEET.
4. BEDDING FOR SERVICE LINES SHALL BE MIN. 4-INCHES OF 1"-0 CRUSHED ROCK.
5. TAPPING OF SEWER MAINS TO BE DONE BY CITY FORCES.
6. FOR UNUSED STUBS, MARK END OF SERVICE WITH WHITE PAINTED 2 x 4 STAKE. USING BLACK INDELIBLE MARKER, INDICATE DEPTH AND TYPE (SS FOR SANITARY), (SD FOR STORM DRAIN). (SEE SCS 402.3.07)
7. INSTALL A CONTINUOUS 12 GAUGE, GREEN, INSULATED COPPER TRACER WIRE ADJACENT TO BUILDING SEWER BETWEEN THE SEWER MAIN AND CLEANOUT AT BUILDING. COIL 5' OF TRACER WIRE INSIDE OF SIDEWALK CLEANOUT AND EXTEND TO END OF SERVICE.
8. ADJACENT SERVICE LINES TO HAVE 18" MINIMUM HORIZONTAL SEPARATION AT THE MAIN.
9. WITH SPECIFIC APPROVAL OF THE ENGINEER, ANGLE AND BEND MAY BE REDUCED TO 22 1/2'.

**CITY OF SALEM**  
**DEPARTMENT OF PUBLIC WORKS**

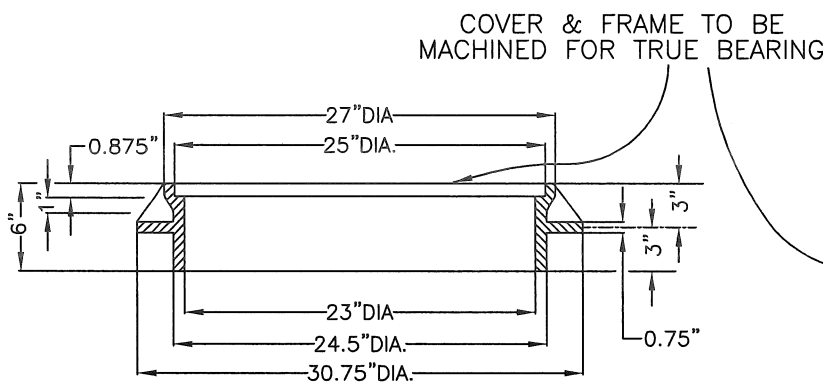
STANDARD PLAN

**SANITARY SEWER SERVICE**

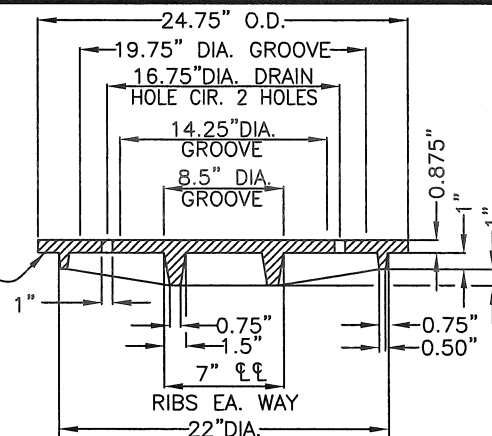
**NO.106**

2	REVISED NOTE 7	2/2015	
1	REVISED NOTE 1,2,4 & 6	5/2004	
No.	DESCRIPTION	DATE	BY
REVISION			
APPROVED	<i>James L. Brown</i>	4/2015	
	CITY ENGINEER	DATE	

DRAWN BY	DTN	5/2004
CHECKED BY	DEW	5/2004

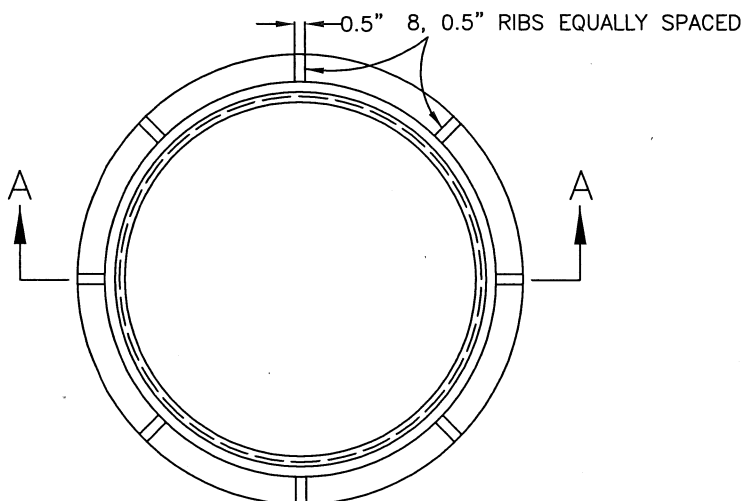


SECTION A-A

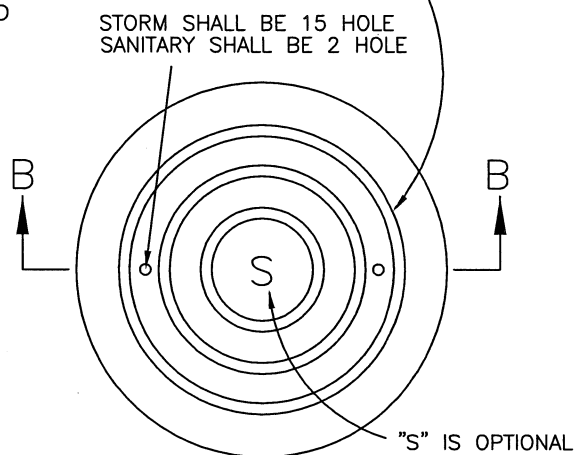


SECTION B-B

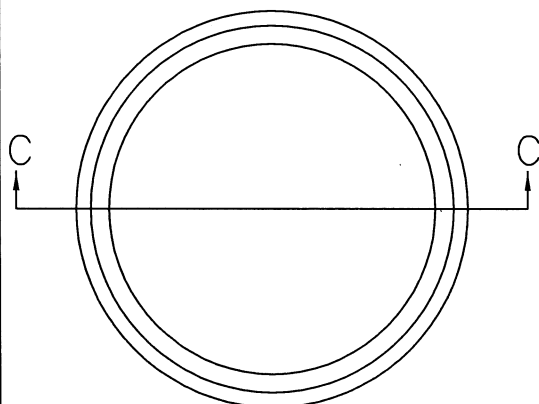
GROOVES—WIDTH 1", DEPTH 0.25"



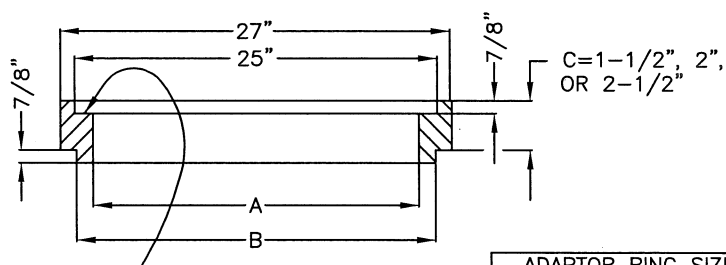
MANHOLE FRAME



MANHOLE COVER



ADAPTOR RING



MACHINE FINISH  
FOR TRUE BEARING

SECTION C-C

ADAPTOR RING SIZES		
	24"	25"
A	22-1/2"	23"
B	23-3/4"	24-3/4"

1. MATERIAL: ASTM A-48B CLASS 30 CAST IRON
2. STEEL PIVOTED EXPANDABLE MANHOLE RISER BY AMERICAN HIGHWAY PRODUCTS OR APPROVED EQUAL IS ALSO ACCEPTABLE.

3	ADDED NOTE FOR HOLES	07/14	JK
2	ADD PIVOTED EXPANDABLE RISER	10/01	IDF
1	CONVERT TO CAD DWG.		
No.	DESCRIPTION	DATE	BY
REVISION			
APPROVED	<i>[Signature]</i>	DATE	
	CITY ENGINEER		

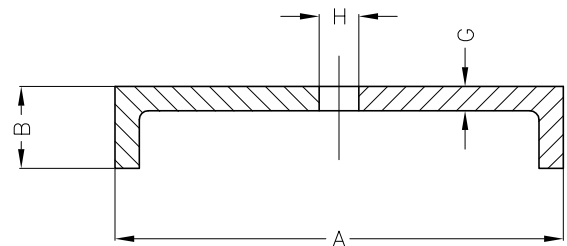
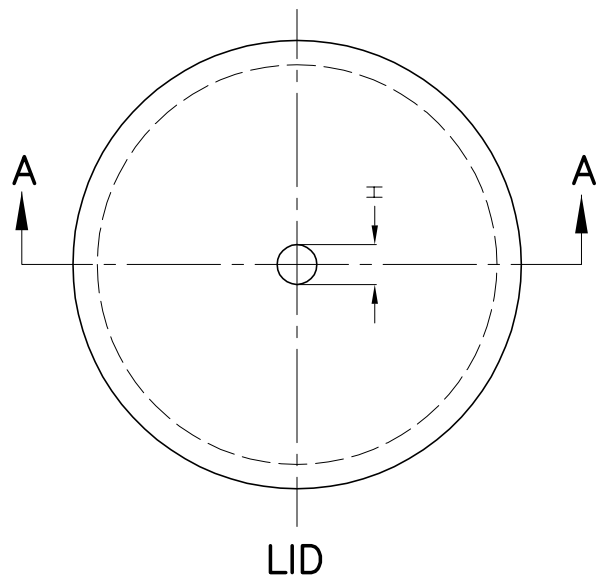
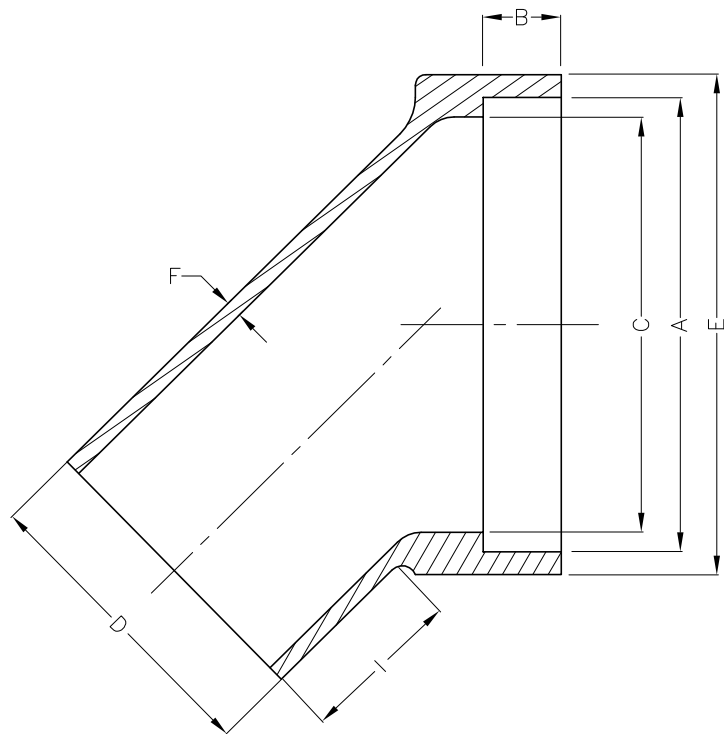
**CITY OF SALEM**  
**DEPARTMENT OF PUBLIC WORKS**

STANDARD PLAN  
**MANHOLE CASTING DETAIL**

DRAWN BY	JAP	3/2002
CHECKED BY	DEW	3/2002

**NO.107**





SECTION A-A

LID DIMENSIONS				
SIZE	A	B	G	H
6"	8 9/16"	1 1/2"	1/2"	3/4"
8"	10 11/16"	1 1/2"	1/2"	3/4"

FRAME DIMENSIONS							
SIZE	A	B	C	D	E	F	I
6"	8 3/4"	1 1/2"	8"	5 7/8"	9 5/8"	5/16"	3 1/4"
8"	10 7/8"	1 1/2"	9 5/8"	7 7/8"	11 3/4"	5/16"	3 1/4"

MATERIAL: ASTM A-48 CLASS 30 CAST IRON.

Approved

City Engineer

1-7-98  
Date

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

## 45° CLEANOUT FRAME & LID

	CONVERT TO CAD DWG.			
No.	Description	Date	By	Appr

REVISION

DRAWN BY GS

CHECKED BY D.W.

NO.108

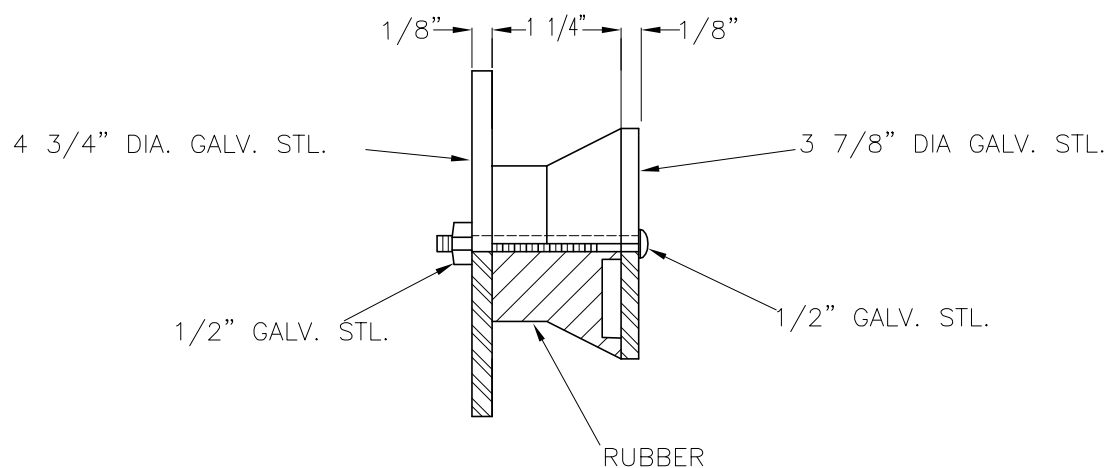
WIRE

WOOD BLOCK

CONCRETE PLUG WITH RUBBER GASKETS

WIRE

The technical drawing consists of two parts. The top part is a cross-sectional view of a drainage pipe. It shows a concrete pipe with a grate on top. Inside the pipe, there is a smaller, shaded rectangular structure, likely a filter or a collection chamber. The bottom part of the drawing is a plan view of the pipe layout. It shows a long, straight pipe with several manholes indicated by small circles. The pipe is shown in a perspective view, with the top and bottom edges of the pipe and the manholes clearly visible.



*Karl O. Guntzer*  
City Engineer

1-7-98  
Date

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

PLUG FOR NEW SAN. SEWER

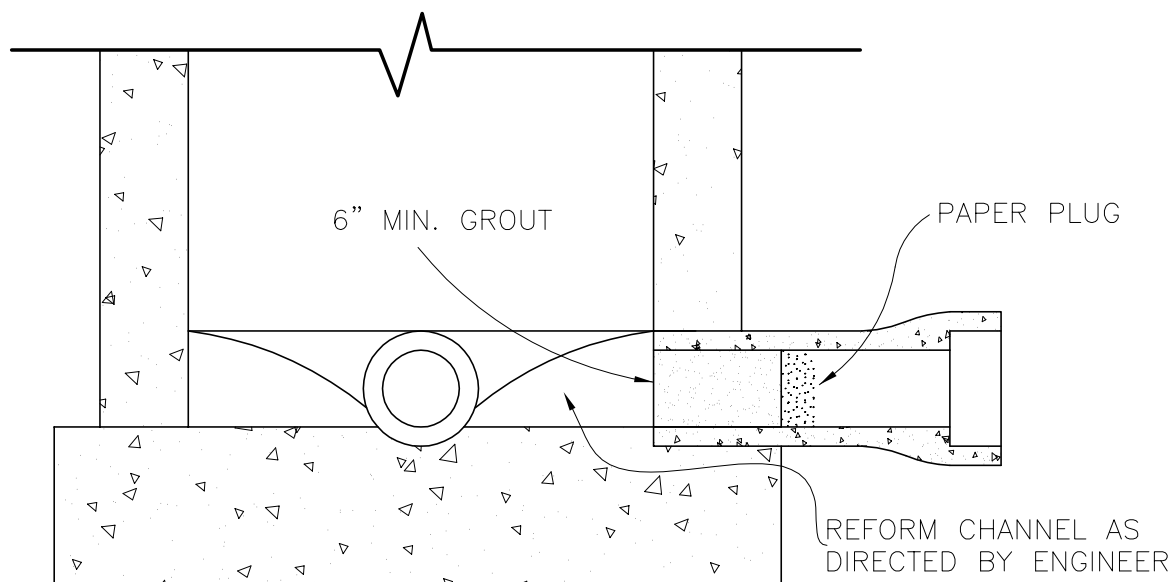
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No.	Description	Date	By	Appr

REVISION

DRAWN BY GS

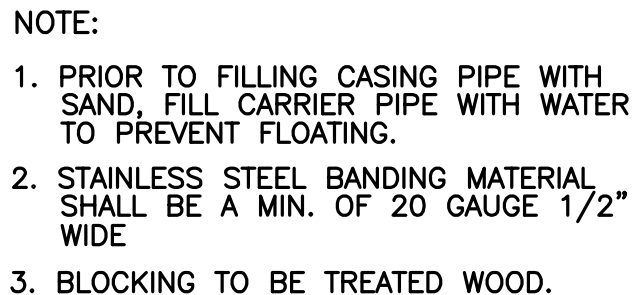
CHECKED BY D.W.

NO.109



Approved Karl O. Guntz 9-15-99  
City Engineer Date

NO.110



# CASING DETAILS

NO SCALE

Approved Karl O. Guster 9-15-99  
City Engineer Date

	CONVERT TO CAD DWG.			
No.	Description	Date	By	Appr
REVISION				

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

## STANDARD PLAN CASING DETAIL

DRAWN BY GS
CHECKED BY D.W.

NO.112

Figure 1 is a plan view of a square footing. The footing is 48 inches square, with a central circular pile cap. The footing is reinforced with No. 4 bars in a grid pattern. Dimensions shown include 8 inches from the footing edge to the trench, 12 inches from the trench to the pile cap, and 4 inches from the footing edge to the trench. The trench is labeled "TRENCH" and the pile cap is labeled "A".

Technical drawing showing a cross-section of a concrete wall and floor assembly. The wall is 8" thick and contains NO. 4 BARS. The floor is 8" thick and contains CONCRETE 3000 P.S.I. A SEWER PIPE is shown passing through the wall and floor. Dimensions are given in inches: 8" for wall thickness, 4" for floor thickness, and 8" for the distance from the wall to the pipe centerline.

## SPACING FOR ANCHOR BLOCK FOR ALL SIZES

SLOPE %	MINIMUM SPACING (FT)
0-19.99	NO ANCHOR REQUIRED
20-34.99	35
35-50.99	25
51-MORE	15' OR SPECIAL DESIGN

1. FOR 4" SEWER PIPE, ANCHOR BLOCK IS REQUIRED AS SHOWN EXCEPT NO REINFORCEMENT IS REQUIRED
2. FOR PIPE LARGER THAN 12", ANCHOR BLOCK SHALL BE OF SPECIAL DESIGN.
3. ANCHOR BLOCK SHALL ALWAYS BE LOCATED ALONG THE BARREL OF THE PIPE AND NOT AT THE JOINT.
4. OTHER PIPE SLOPE ANCHOR SYSTEMS WILL BE CONSIDERED FOR APPROVAL UPON REQUEST TO ENGINEER.

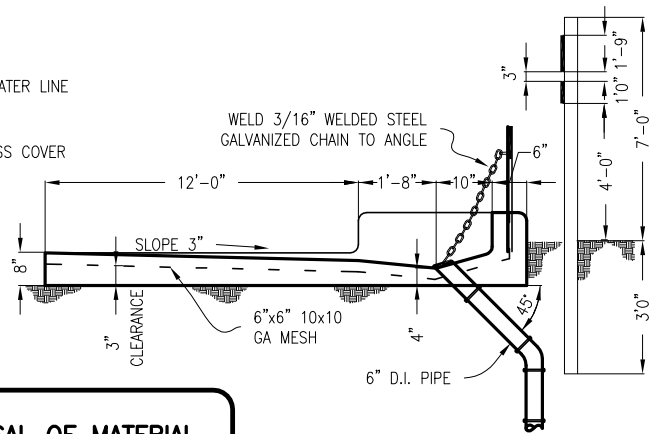
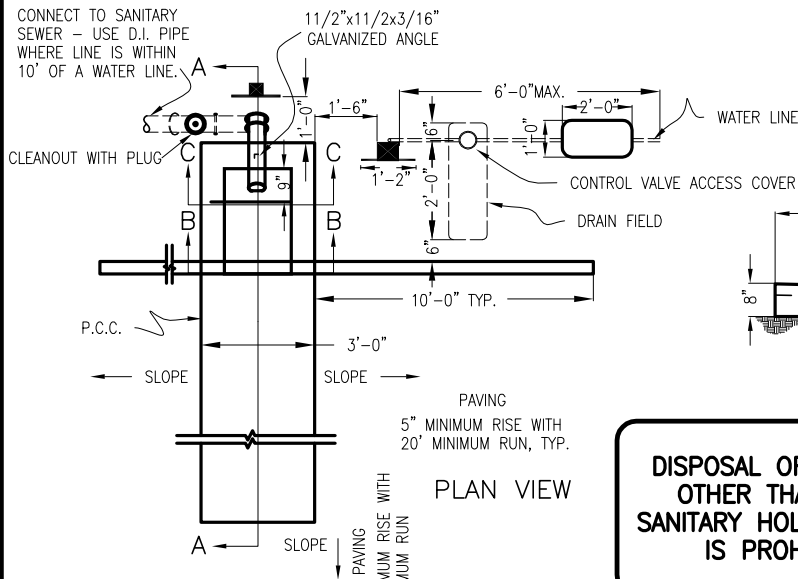
CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

	CONVERT TO CAD DWG.			
No.	Description	Date	By	Appr.
REVISION				

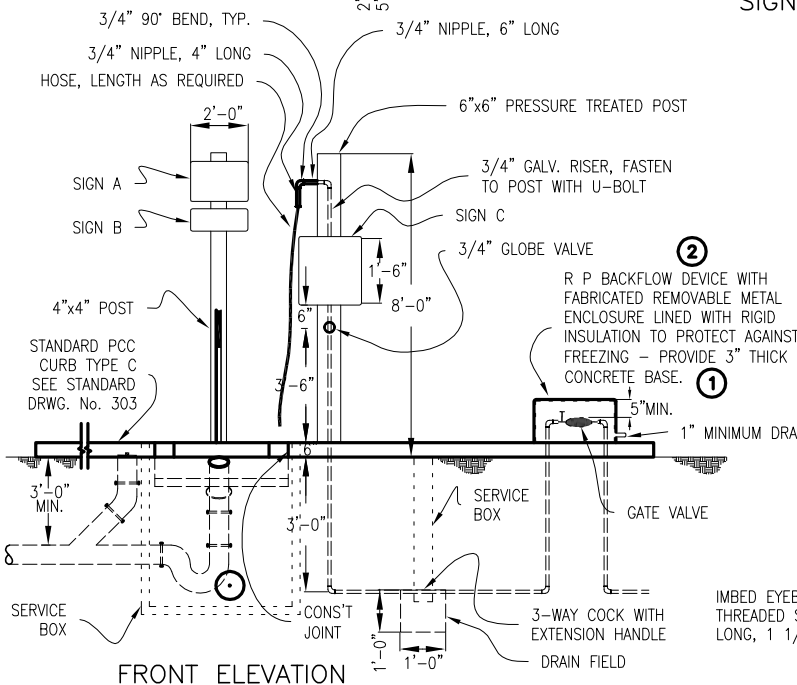
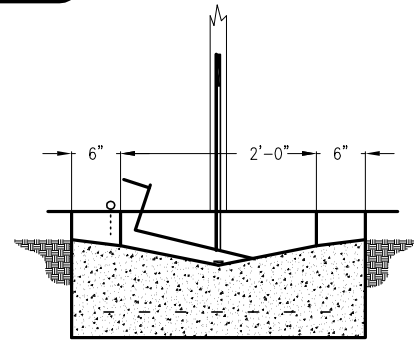
NO.113



CONNECT TO SANITARY  
SEWER - USE D.I. PIPE  
WHERE LINE IS WITHIN  
10' OF A WATER LINE.



SIGN B



### HOLDING TANK DISPOSAL INSTRUCTIONS

1. CONNECT YOUR HOSE TO HOLDING TANK.
2. PLACE END SECURELY IN DRAIN OPENING AFTER LIFTING COVER.
3. OPEN TRAILER TANK DRAIN VALVE.
4. FLUSH AWAY ANY SPILLAGE ON CONCRETE INTO DRAIN.
5. CLOSE COVER.

SIGN A

### DANGER

NON-POTABLE WATER

UNSAFE TO DRINK

SIGN C

- ① PRIMED TRAP PER UPC.
- ② DEVICE SHALL BE TYPE APPROVED BY OREGON HEALTH DEPARTMENT.
- ③ CENTER OF SLAB SHOULD BE LEFT OPEN TO ALLOW GROUND HEAT TO ENTER BOX.

Approved

*Karl O. Grueter*  
City Engineer

9-15-99  
Date

No.	Description	Date	By	Appr.
	CONVERT TO CAD DWG.			
	REVISION			

CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS

STANDARD PLAN

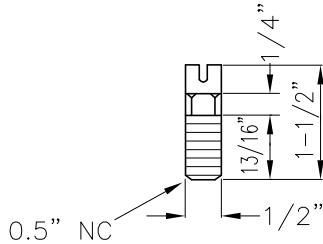
TRAILER DUMP STATION

DRAWN BY J.C.

CHECKED BY K.G.

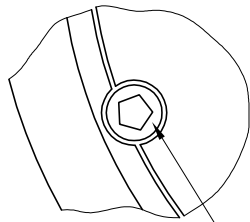
NO. 116

HEX FOR WRENCH OR SLOT  
TOP FOR SCREWDRIVER



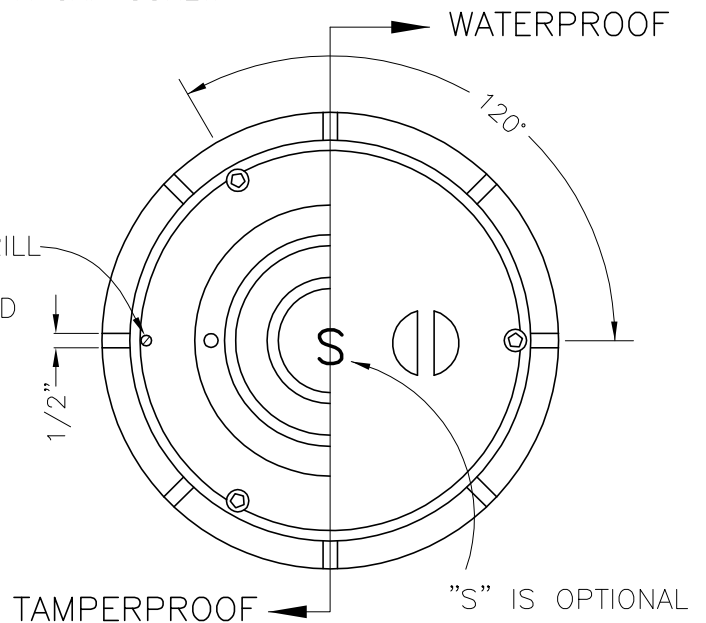
### STUD DETAIL

1 STUD REQUIRED PER COVER  
STUD TO BE 60° COUNTER-  
CLOCKWISE FROM A CAP SCREW.

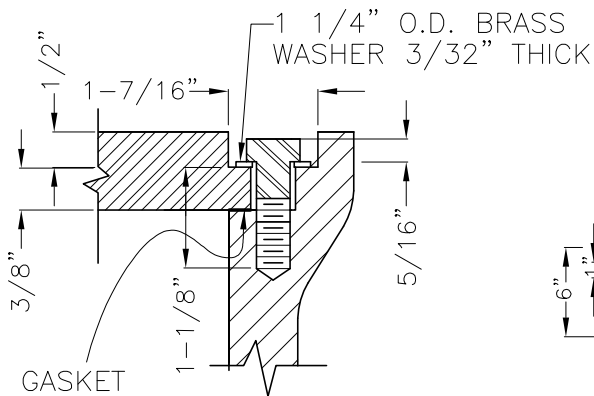


1/2"-13-1" LONG BRASS OR  
BRONZE PENTAGON-HEAD CAP  
SCREW

LOCATING STUD. DRILL  
25/64" HOLE AND  
TAP FOR 1/2" STUD  
(SEE NOTE 3)

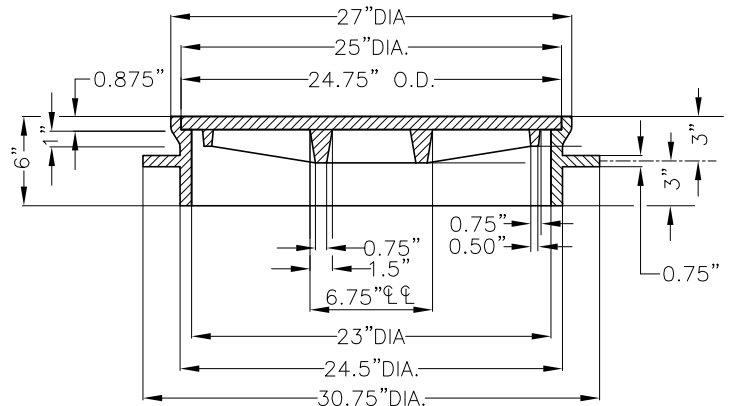


### PLAN



### X-SECTION

### CAP SCREW DETAIL



NOTE:

1. BEARING SURFACES TO BE MACHINED.
2. COVER USED OUTSIDE VEHICLE TRAVELED AREAS SHALL BE ALUMINUM.
3. LOCATING STUD NOT REQUIRED WITH ALUMINUM LIDS.

Approved

*Karl O. Guster*  
City Engineer

2-1-00  
Date

**CITY OF SALEM  
DEPARTMENT OF PUBLIC WORKS**

No.	Description	Date	By	Appr.
	REVISED NOTES	1-00	J.D.F.	
	CONVERT TO CAD DWG.			
REVISION				

STANDARD PLAN  
**TAMPERPROOF/WATERPROOF  
MANHOLE FRAME AND COVER**

DRAWN BY G.S.

CHECKED BY D.W.

**NO.117**