

SECTION 2100

STANDARD DETAILS FOR SEWER

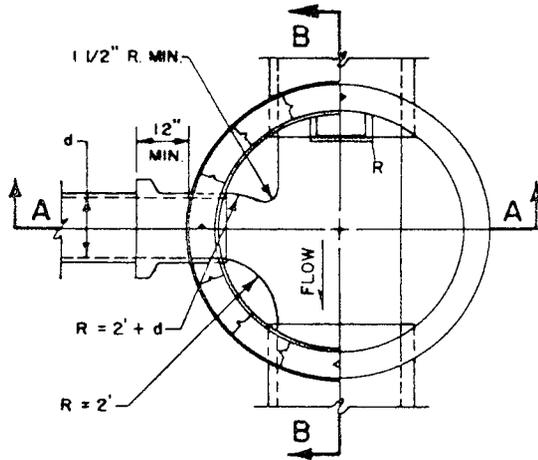
DWG. NO.	TITLE
2101	MANHOLE TYPE "C"
2102	MANHOLE TYPE "E"
2107	CONCRETE MANHOLE COVER TYPE "C"
2110	MANHOLE FRAME AND COVERS
2111	MANHOLE ADJUSTMENT RING
2116	VERTICAL DROP AT MANHOLE
2118	SERVICE LINE CONNECTIONS AT MANHOLE
2125	SERVICE LINE DETAILS
2134	SEWER SERVICE REPLACEMENT DETAIL
2135	RISER DETAILS RIGID PIPE MAIN
2136	RISER DETAILS FLEXIBLE PIPE MAIN
2140	ENCASEMENT DETAILS
2145	SEWER LINE DEAD-END MARKER
2150	SAMPLING AND METERING MH, 6' X 8' RECTANGULAR
2151	SAMPLING AND METERING MANHOLE, 8' DIAMETER
2160	SANITARY SEWER AIR RELEASE VALVE DETAIL
2162	VACUUM SEWER STANDARDS - STANDARD DETAILS
2163	VACUUM SEWER STANDARDS VALVE AND PIT INSTALLATION WITH LIFT IN VACUUM SERVICE LATERAL
2164	VACUUM SEWER STANDARDS TYPICAL VACUUM BRANCH LINE CONNECTION
2165	VACUUM SEWER STANDARDS 3" VALVE AND PIT INSTALLATION WITH INTERNAL BREATHER
2167	VACUUM SEWER STANDARDS SINGLE BUFFER TANK, 30 GAL PER MINUTE MAX. FLOW
2168	VACUUM SEWER STANDARDS DUAL BUFFER TANK 60 GALLON PER MINUTE MAX. FLOW
2169	VACUUM SEWER STANDARDS VACUUM DIVISION VALVE STEM NUT AND SOCKET DETAIL
2170	VACUUM SEWER STANDARDS VACUUM DIVISION VALVE - VALVE BOX
2171	VACUUM SEWER STANDARDS VACUUM VALVE PIT - TYPE "A"
2172	VACUUM SEWER STANDARDS VACUUM VALVE PIT - TYPE "B"
2173	VACUUM SEWER STANDARDS BLOCKING AND SEEPAGE COLLAR DETAILS
2174	VACUUM SEWER STANDARDS SERVICE WYE INSTALLATION ON EXISTING VACUUM MAIN
2180	VACUUM SEWER STANDARDS CASING DETAIL FOR BORE AND JACK

**GENERAL NOTES**

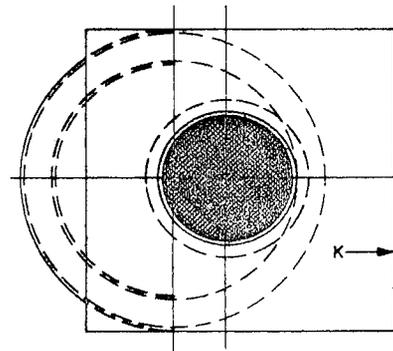
1. USE TYPE "C" MANHOLE FOR DEPTHS OF LESS THAN 6' MEASURED FROM INVERT TO RIM.
2. CONTRACTOR HAS OPTION TO CONSTRUCT TYPE "C" MANHOLE IN LIEU OF TYPE "E" MANHOLE FOR DEPTHS OF 6' OR MORE.
3. DESIGN APPLIES TO 4' TO 6' I.D. MANHOLES.
4. MANHOLE GREATER THAN 18' IN DEPTH SHALL ONLY BE CONSTRUCTION PRECAST CONCRETE SECTIONS.
5. USE NON-SHRINK GROUT FOR JOINTS, FILLETS AND PENETRATIONS.
6. COMPACT ALL BACKFILL AROUND MANHOLE TO 95%.
7. POSITION MANHOLE OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.

**CONSTRUCTION NOTES**

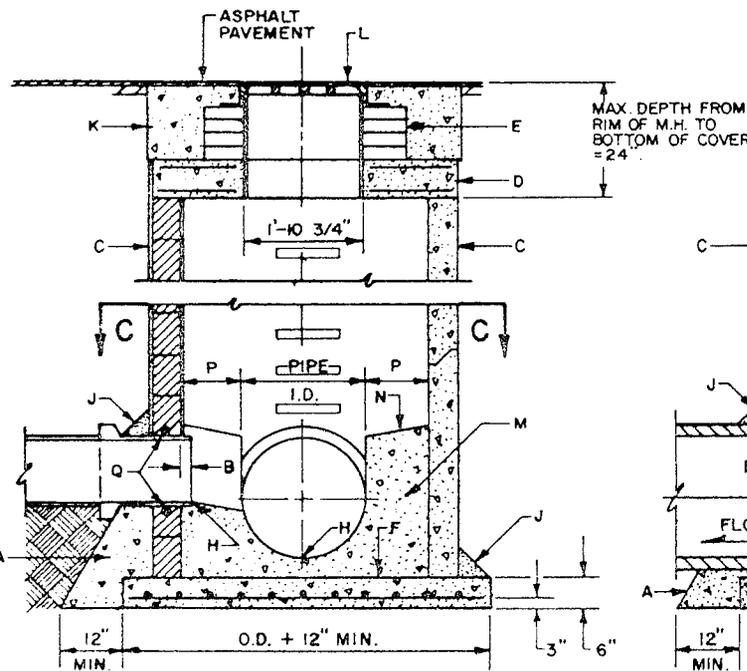
- A. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE OF MANHOLE TO BELL OF FIRST JOINT AND SHALL CRADLE PIPE TO SPRING LINE NOT APPLICABLE FLEXIBLE PIPE.
- B. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRINGLINE OF PIPE.
- C. MANHOLE MAY BE CONSTRUCTED OF CONCRETE BLOCK, GR. MS BRICK, POURED CONCRETE OR PRECAST REINFORCED CONCRETE IF BLOCK OR BRICK PLASTER INSIDE AND OUT WITH 1/2" MORTAR. SEE DWG. 2118 FOR DETAILS.
- D. PRECAST CONCRETE COVER, SEE DWG. 2107.
- E. USE MAX., 4 COURSES GR. MS BRICK ON UNPAVED STREET FOR FUTURE ADJUSTMENT OF MANHOLE FRAME TO PAVEMENT GRADE PLASTER INSIDE WITH 1/2" MORTAR.
- F. CONCRETE BASE TO BE POURED IN PLACE USING NO. 4 BARS AT 6" O.C. EA. WAY FOR MANHOLE DEPTH OF 16' OR GREATER. NO. 4 BARS AT 12" O.C. EA. WAY FOR MANHOLE LESS THAN 16' IN DEPTH.
- H. INVERT ELEVATION OF STUB OR LATERAL AS SHOWN ON PLANS.
- J. 6" GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
- K. USE A 5' X 5' CONCRETE PAD IN ALL AREAS.
- L. FRAME AND COVER, SEE DWG. 2110.
- M. CONCRETE, SEE SECTION 101.
- N. SLOPE 1" PER FT. FROM PIPE CROWN.
- P. SHELF TO BE 9" WIDE MIN.
- Q. APPROVED WATERSTOP TO BE COMPATIBLE WITH TYPE OF PIPE.
- R. STEPS TO BE INSTALLED AS PER SPEC. SECTION 920.
- S. EMD (IN UNPAVED AREAS).
- T. IN UNPAVED AREAS SET FRAME TO GRADE AND SLOPE TOP OF PAD.



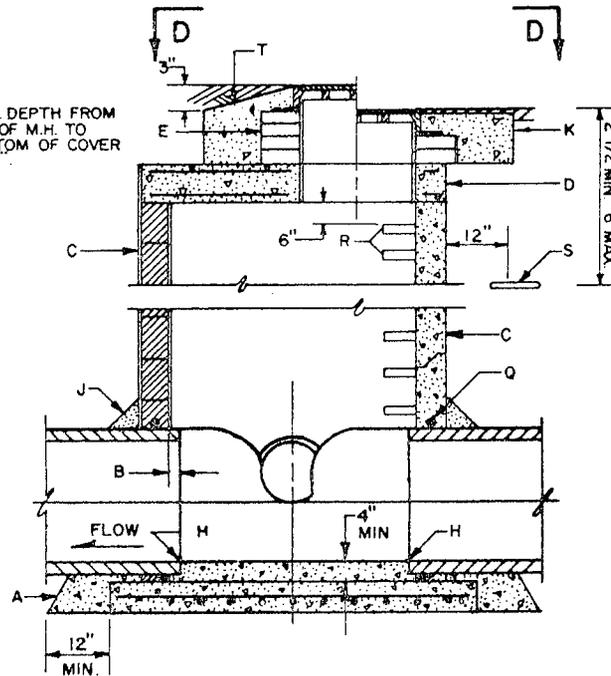
PLAN AT C-C



PLAN AT D-D



CROSS SECTION A-A



CROSS SECTION B-B

REVISIONS
11-14-91

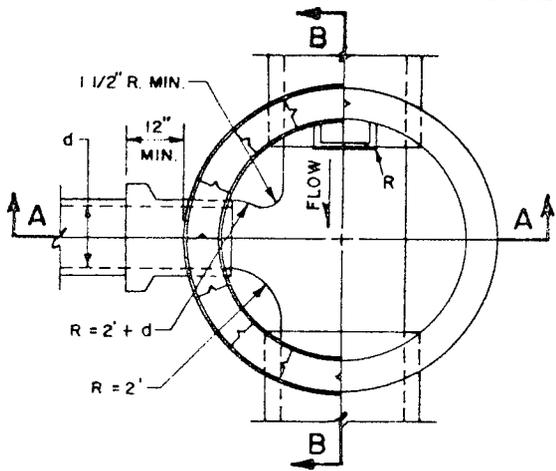
CITY OF ALBUQUERQUE	
SEWER	
MANHOLE TYPE "C"	
DWG. 2101	AUG. 1986

**GENERAL NOTES**

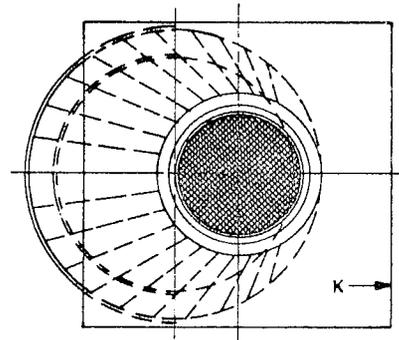
1. TYPE "E" MANHOLE NOT TO BE USED FOR DEPTHS LESS THAN 6' MEASURED FROM INVERT TO RIM.
2. MANHOLE GREATER THAN 18' IN DEPTH SHALL BE OF PRECAST CONCRETE SECTIONS ONLY.
3. DESIGN APPLIES TO 4' AND 6' I.D. MANHOLES.
4. USE NON-SHRINK GROUT FOR JOINTS, FILLETS AND PIPE PENETRATIONS.
5. COMPACT ALL BACKFILL AROUND MANHOLES TO 95%.
6. POSITION MANHOLE OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.

**CONSTRUCTION NOTES**

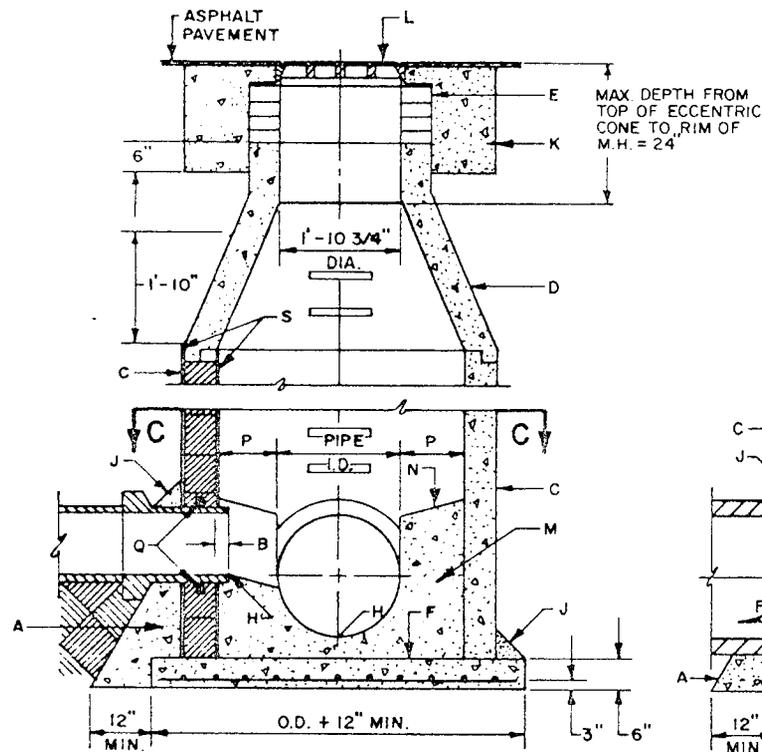
- A. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE OF MANHOLE TO BELL OF FIRST JOINT AND SHALL CRADLE PIPE TO SPRING LINE NOT APPLICABLE FLEXIBLE PIPE.
- B. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRINGLINE OF PIPE.
- C. MANHOLE MAY BE CONSTRUCTED OF CONCRETE BLOCK, GR. MS BRICK, POURED CONCRETE OR PRECAST REINFORCED CONCRETE, IF BLOCK OR BRICK PLASTER INSIDE AND OUT WITH 1/2" MORTAR, SEE DWG. 2118 FOR DETAILS.
- D. PRECAST REINFORCED CONCRETE ECCENTRIC CONE. THE CONTRACTOR SHALL PROVIDE SHOP DWGS. FOR APPROVAL.
- E. USE MAX., 4 COURSES GR. MS BRICK ON UNPAVED STREET FOR FUTURE ADJ. OF FRAME TO PAVEMENT GRADE PLASTER INSIDE WITH 1/2" MORTAR.
- F. BASE TO BE POURED IN PLACE USING NO. 4 BARS AT 6" O.C. EA. WAY FOR MANHOLE DEPTH OF 16' OR GREATER NO. 4 BARS AT 12" O.C. EA. WAY FOR MANHOLE LESS THAN 16' DEEP.
- H. INVERT ELEVATION OF STUB OR LATERAL AS SHOWN ON PLANS.
- J. 6" GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
- K. USE A 5' X 5' CONCRETE PAD IN ALL AREAS.
- L. MANHOLE FRAME AND COVER, SEE DWG. 2110.
- M. CONCRETE, SEE SECTION 101.
- N. SLOPE 1' PER FT. FROM PIPE CROWN.
- P. SHELF TO BE 9" WIDE MIN.
- Q. APPROVED WATERSTOP TO BE WITH TYPE OF PIPE.
- R. STEPS TO BE INSTALLED AS PER SPEC. SECTION 920.
- S. EMD (IN UNPAVED AREAS).
- T. IN UNPAVED AREAS SET FRAME TO GRADE AND SLOPE TOP OF PAD.



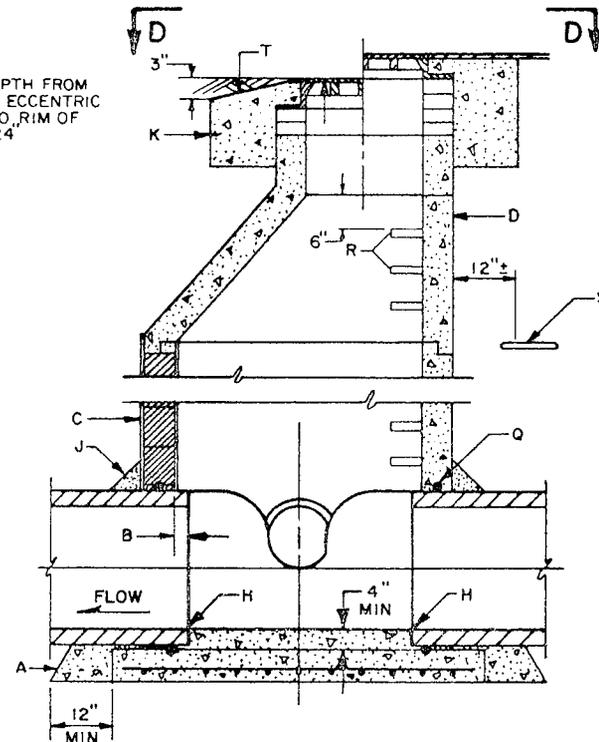
PLAN AT C-C



PLAN AT D-D



CROSS SECTION A-A



CROSS SECTION B-B

REVISIONS
11-14-91

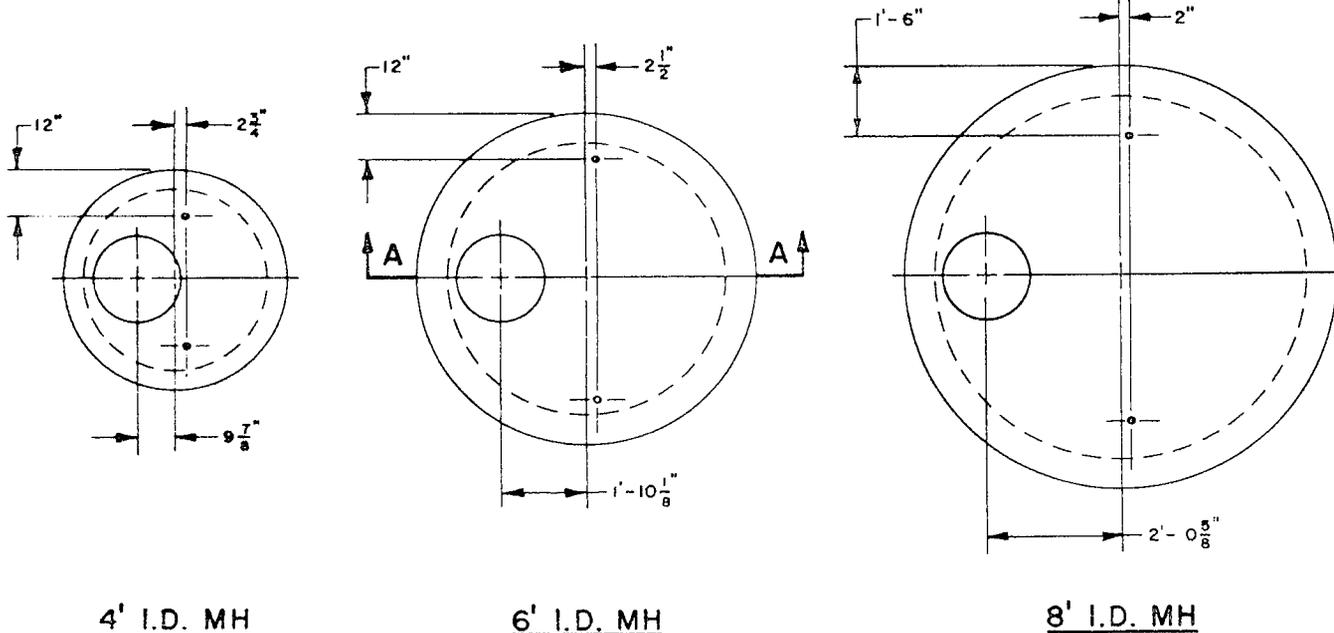
CITY OF ALBUQUERQUE	
SEWER	
MANHOLE TYPE "E"	
DWG. 2102	AUG. 1986

**GENERAL NOTES**

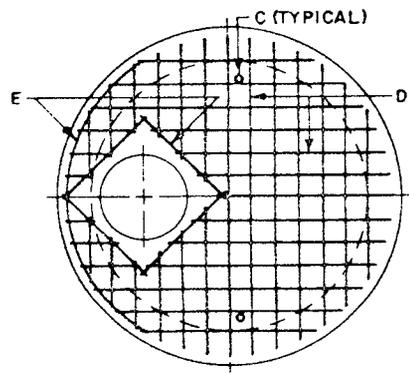
1. ALL MANHOLES 20' DEEP OR DEEPER WILL REQUIRE AN INTERMEDIATE LANDING IN THE MANHOLE BARREL. TYPE "C" MANHOLE COVERS SHALL BE USED AS INTERMEDIATE LANDINGS.
2. INTERMEDIATE LANDINGS SHALL BE LOCATED AT THE MID POINT + OR - 2 FEET OF THE HEIGHT OF THE MANHOLE. AT NO TIME SHALL AN INTERMEDIATE LANDING OR A SIZE ADJUSTMENT TOP BE INSTALLED CLOSER THAN 8' UP FROM THE INVERT OF THE MANHOLE.

**CONSTRUCTION NOTES**

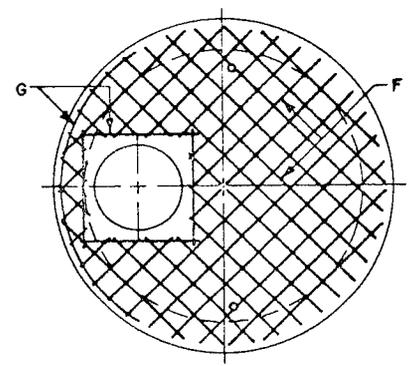
- A. PRECAST REINFORCED CONCRETE MANHOLE COVER.
- B. ALL BARS TO HAVE 1-1/2" MIN. COVER.
- C. 1" PIPE SLEEVE VERTICALLY THROUGH COVER.
- D. TOP MAT NO. 4 BARS 6" O.C. EA. WAY FOR 4, 6, AND 8 FT. I.D. MANHOLES.
- E. NO. 4 BARS.
- F. BOTTOM MAT NO. 4 BARS 6" O.C. EA. WAY FOR 4 AND 6 FT. I.D. MANHOLES, NO. 8 BARS 8" O.C. EA. WAY FOR 8 FT. I.D. MANHOLES.
- G. NO. 4 BARS FOR 4 AND 6 FT. I.D. MANHOLES.
- H. WHEN PRECAST MANHOLE SECTIONS ARE USED, COVER SHALL BE MODIFIED TO SHAPE OF APPROPRIATE SIZE T AND G JOINT.
- I. CONCRETE, SEE SECTION 101.



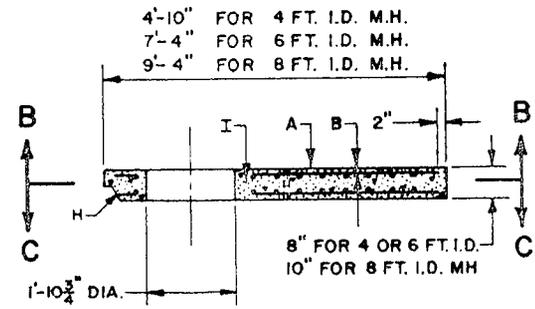
PLAN



SECTION B-B  
TOP MAT



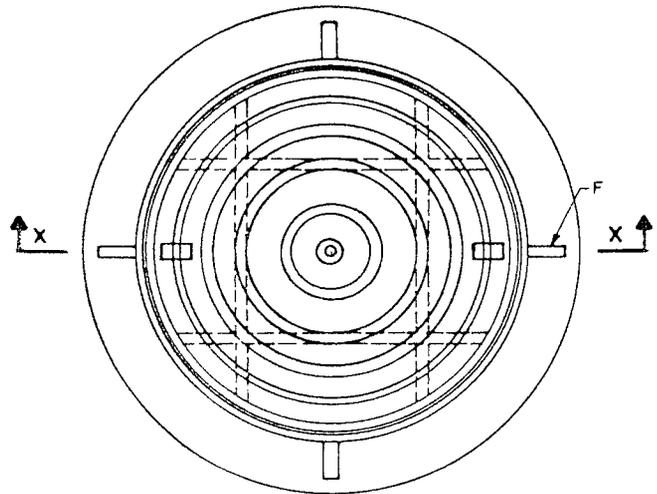
SECTION C-C  
BOTTOM MAT



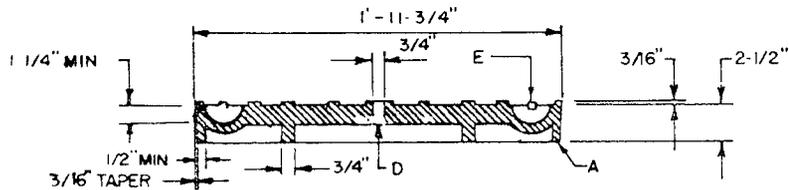
SECTION A-A

REVISIONS
11-14-91

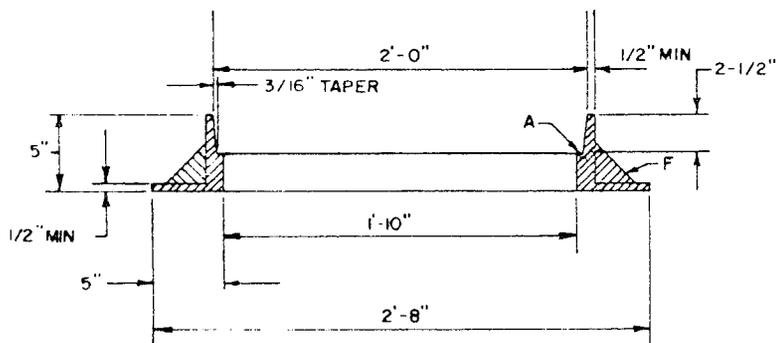
CITY OF ALBUQUERQUE	
SEWER	
CONC. MH COVER TYPE "C"	
DWG. 2107	
AUG. 1986	



PLAN

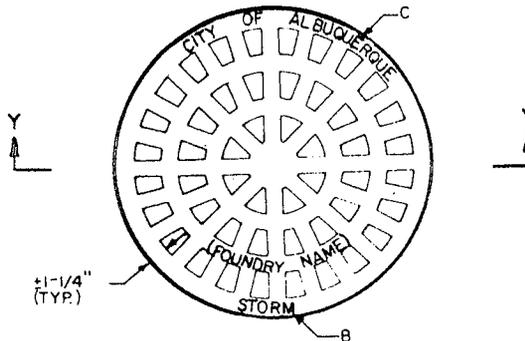


SOLID COVER (180 LB.)

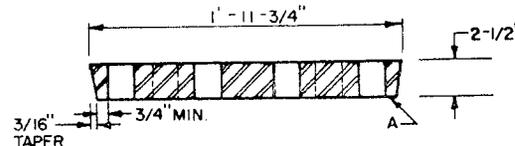


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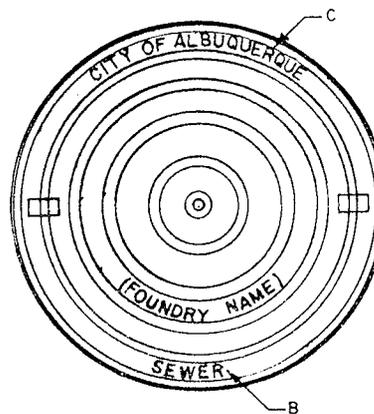
SECTION X-X



PLAN



SECTION Y-Y  
VENTED COVER (135 LB.)



LETTERING PLAN

**GENERAL NOTES:**

1. STANDARD CAST IRON M.H. FRAME AND COVER WEIGHTS: COVER = 180 LBS., FRAME = 145 LBS. TOTAL = 325 LBS. (TOLERANCE = ± 5%)
2. REFERENCE SPEC. SECTION 130.

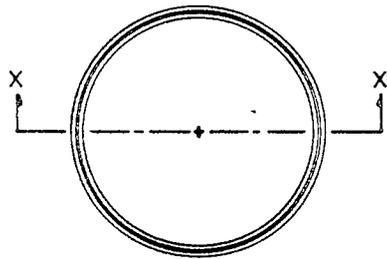
**CONSTRUCTION NOTES:**

- A. MACHINED OR GROUND BEARING SURFACES.
- B. "SEWER", "WATER", OR "STORM" CAST ON COVER TO IDENTIFY SANITARY SEWER, WATER OR STORM DRAINAGE SYSTEMS RESPECTIVELY.
- C. LETTER SIZE TO BE 1" MIN. IN HEIGHT, TYPICAL.
- D. VENT HOLE REQUIRED.
- E. MONOLITHIC CAST IRON OR STEEL ROD INSERTS AT MANUFACTURER'S OPTION. IF INSERT IS PROVIDED IT MUST HAVE 3/16" MIN. COVER AND 3/4" END EMBEDMENT IN CASTING.
- F. GUSSETS OPTIONAL IF REQUIRED BY MANUFACTURER.

CITY OF ALBUQUERQUE	
SEWER	
MANHOLE FRAME AND COVERS	
DWG. 2110	
AUG. 1986	REVISIONS

GENERAL NOTES

1. ADJUSTMENT RING MADE FROM STANDARD ALUMINUM CASTING, ALLOY 319.
2. I.D., O.D. AND DEPTH SHALL BE MACHINED TO REQUIRED DIMENSIONS.
3. DUE TO VARYING EXISTING FRAME AND COVER SIZES, ALL DIMENSIONS MUST BE FIELD VERIFIED PRIOR TO MACHINING.
4. ALL EDGES OF RING SHALL BE LIGHTLY GROUND AFTER MACHINING TO REMOVE SHARPNESS AND BURRS.
5. COAT ALL SURFACES OF RING WITH CLEAR ACRYLIC RESIN AFTER MACHINING.

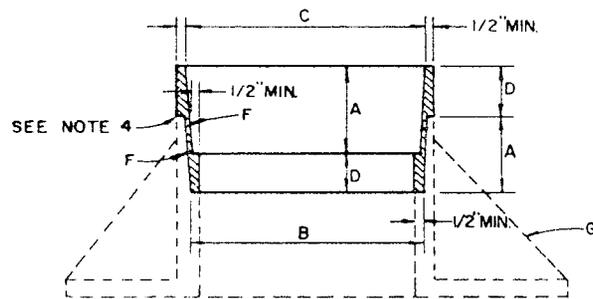


COMMON C.O.A.  
MH FRAME SIZES

A	B	C	D
2 3/4	23 1/2	23 5/8	
2 1/2	23 5/8	23 3/4	
2 3/8	23 3/8	23 3/4	
2	23 1/4	23 7/8	
2 1/4	23 3/4	23 7/8	
2 3/8	23 3/4	23 7/8	
2 1/2	23 3/4	23 7/8	
2 5/8	23 3/4	23 7/8	
2 3/4	23 3/4	23 7/8	
2 1/2	23 3/8	24	
1	24 7/8	25	1 1/4

CONSTRUCTION NOTES

- A. DIMENSION=DEPTH OF EXISTING COVER EDGE.
- B. DIMENSION=RING O.D.=FRAME ID AT SEAT.
- C. DIMENSION=RING I.D.=FRAME O.D. AT RIM.
- D. DIMENSION=HEIGHT OF RING ADJUSTMENT.
- E. EXISTING FRAME AND COVER SHALL BE CLEANED AND REUSED.
- F. TAPER=1/2X(C-B).
- G. EXISTING FRAME.



SECTION X-X

NOT TO SCALE  
VERTICAL SCALE EXAGGERATED FOR CLARITY

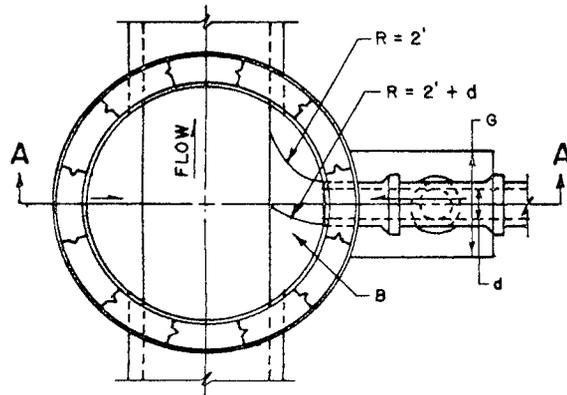
REVISIONS

CITY OF ALBUQUERQUE

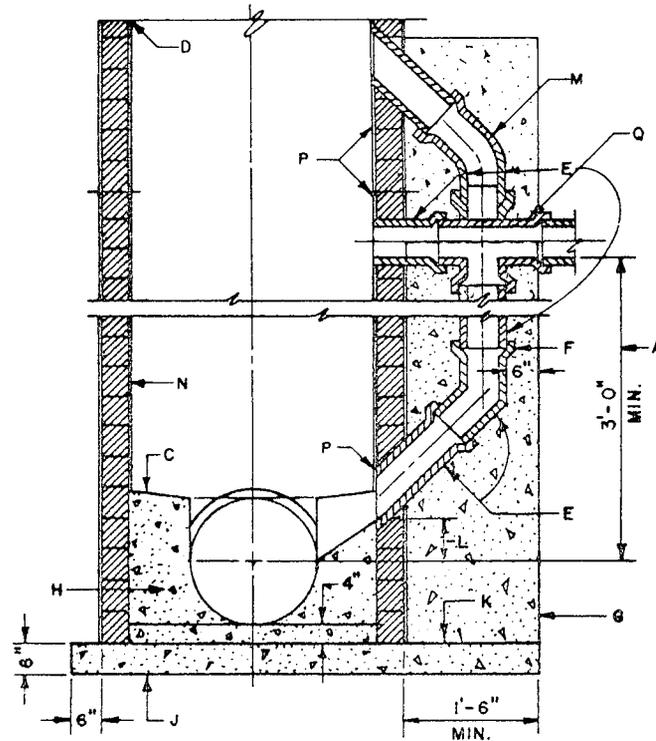
SEWER  
MANHOLE COVER  
ADJUSTMENT RING  
DWG.2111

AUG. 1986

CONSTRUCTION NOTES



FLOOR PLAN



SECTION A-A

- A. VERTICAL DROP.
- B. FORM THE INVERT IN SHELF.
- C. SLOPE, 1' PER FT.
- D. MANHOLE TYPE FOR UPPER PORTION WILL BE SPECIFIED ON DESIGN PROFILE.
- E. USE I.D. OR P.V.C. (SDR 35) PIPE THROUGHOUT DROP.
- F. USE BELL AND SPIGOT 45° SHORT OR LONG RADIUS BEND.
- G. CONCRETE SUPPORT WIDTH EQUALS PIPE O.D. PLUS 6" MIN EACH SIDE.
- H. CONCRETE, SEE SECTION 101.
- J. REINFORCED CONCRETE BASE. SEE CONSTRUCTION NOTE F. OF DWG. 2101, 2102.
- K. FOR NEW DROP ON EXISTING MANHOLE CONSTRUCT 3 X 3 CONCRETE BASE BEFORE CONSTRUCTING DROP SUPPORT.
- L. 4" ABOVE SPRING LINE OR AS SHOWN ON PLAN.
- M. 8" MIN. DIAMETER. 2-22 1/2° OR 1-45° ELBOW.
- N. INTERIOR OR DROP MANHOLE MUST BE COATED WITH APPROVED SEALER IN ACCORDANCE WITH SPEC. SECTION 920.4.
- P. CORE DRILL FOR ALL WALL PENETRATIONS ON EXISTING MANHOLES.
- Q. CROSS OR TEE. A TEE MAY BE USED ONLY WHEN THE VERTICAL HIGH IS INSUFFICIENT FOR THE VERTICAL PIPING ABOVE THE SEWER LINE TO ENTER THE BARREL OF THE MANHOLE.

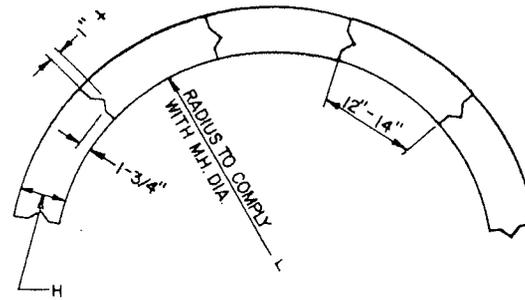
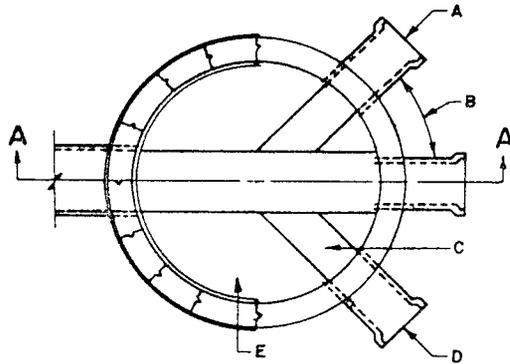
CITY OF ALBUQUERQUE	
SEWER	
VERTICAL DROP AT MH	
DWG. 2116	
AUG. 1986	
REVISIONS	
11-14-91	

GENERAL NOTES

1. ALL CONCRETE SHELF SLOPES TO BE ONE INCH PER FT.
2. ONE FOURTH INCH PER FT. MIN SLOPE FOR 4" OR 6" SERVICE LINE.
3. NEW SERVICE CONNECTIONS TO EXISTING MANHOLE'S MUST BE CORE DRILLED.
4. 8" OR LARGER SERVICE CONNECTIONS MUST BE MADE TO A MANHOLE.

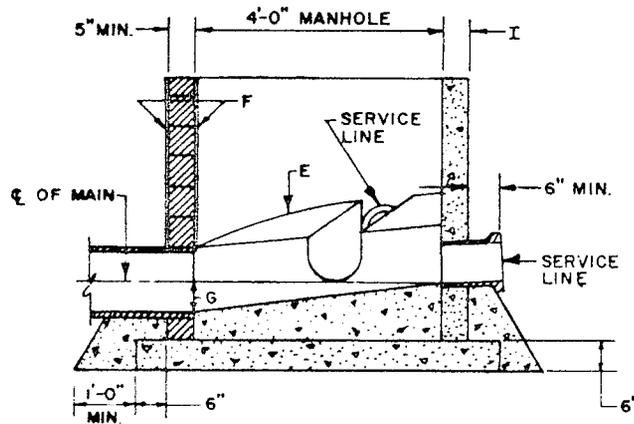
CONSTRUCTION NOTES

- A. CAST IRON SERVICE STUB.
- B. VARIABLE WITH MAX. ANGLE OF 90°.
- C. FORM INVERT IN SHELF.
- D. BELL END.
- E. CONCRETE, SEE SECTION 101.
- F. PLASTER INSIDE AND OUTSIDE WITH 1/2" MORTAR.
- G. INVERT ELEVATIONS OF SERVICE LINES SHALL BE THE SAME AS THE SPRING LINE ELEVATIONS OF THE SEWER MAIN.
- H. MIN. 5" BLOCK FOR 4' I.D. M.H., 8" BLOCK OR DOUBLEWALL OF 2-5" BLOCKS FOR 6' OR 8' DIAMETER MANHOLE'S
- I. PRECAST WALL THICKNESS:  
 4' I.D. M.H. - 5" MIN.  
 6' I.D. M.H. - 7" MIN.  
 8' I.D. M.H. - 9" MIN.



TYPICAL CONCRETE BLOCK DETAIL

SERVICE LINE AT DEAD END OR CUL-DE-SAC



SECTION A-A

REVISIONS
11-14-91

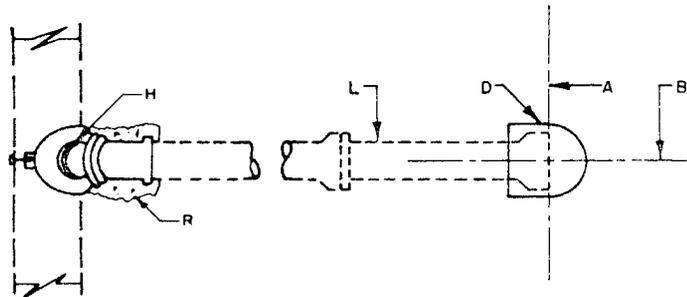
CITY OF ALBUQUERQUE	
SEWER SERVICE LINE CONNECTIONS AT MANHOLE	
DWG. 2118	
AUG. 1966	

GENERAL NOTES

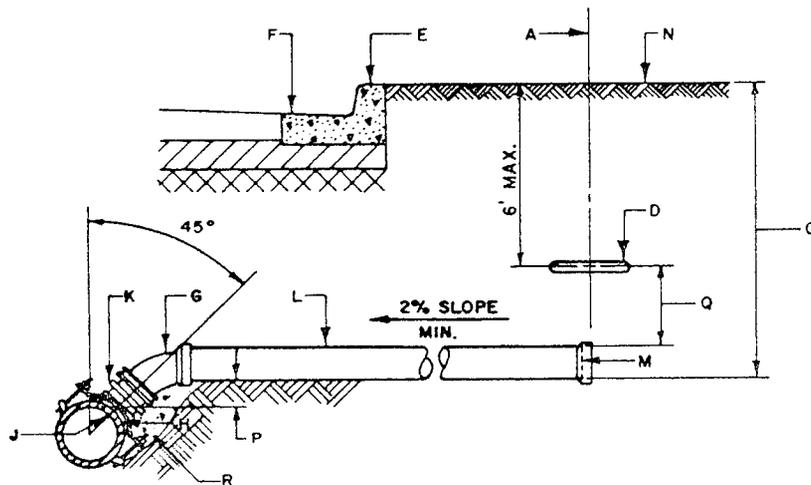
1. ALL SERVICE LINES SHALL CONFORM TO THE PLUMBING CODE OF THE CITY OF ALBUQUERQUE.

CONSTRUCTION NOTES

- A. RIGHT-OF-WAY LINE.
- B. CENTER LINE SERVICE LINE.
- C. MIN. OF 4FT. TO 6FT. FROM INVERT TO TOP OF CURB AT RIGHT-OF-WAY LINE. MIN. DEPTH WILL DEPEND ON THE DEPTH OF THE MAIN SEWER LINE, THE MIN. SERVICE LINE SLOPE, THE DEPTH OF THE LOT BEING SERVED, LOCATION OF THE HOUSE ON THE LOT, AND THE GRADE OF THE LOT.
- D. ELECTRONIC MARKER DISC., COLOR CODED GREEN, PLACED ONLY IF SERVICE HOOK-UP IS POSTPONED.
- E. STAMP OR CHISEL 3" SIZE "S" ON TOP OF CURB OVER LOCATION OF SERVICE LINE, MIN. 1/4" DEEP.
- F. CURB AND GUTTER.
- G. 22.5° OR 45° BEND.
- H. CORE DRILLED, USING FOWLER QUIK-WAY DRILL SYSTEM, OR PILOT HOLE CUTTER SYSTEM OR APPROVED EQUAL.
- J. SERVICE LINE SHALL NOT PROTRUDE INTO SEWER MAIN.
- K. SANITARY SEWER TAPPING TEE, USING PIONEER OR GENERAL ENGINEERING CO. SADDLES OR APPROVED EQUAL. DO NOT OVER TIGHTEN SADDLE BOLTS WHICH WOULD PREVENT FREE PASSAGE OF REQUIRED MANDREL.
- L. SERVICE LINE, (C.I. SOIL PIPE, SERVICE WEIGHT).
- M. PLUG OR CAP.
- N. GROUND LEVEL.
- P. SAME ELEVATION OR HIGHER.
- Q. APPROXIMATELY 6" BUT DEPTH OF BURIAL SHALL NOT BE MORE THAN 6'.
- R. BACKFILL UNDER SERVICE WITH MIN. 1 CUBIC FOOT OF P.C. CONCRETE ("SACKCRETE" OR EQUAL ALLOWABLE THIS INSTALLATION).



SERVICE LINE PLAN



CROSS SECTION

CITY OF ALBUQUERQUE	
SEWER	
SERVICE LINE DETAILS	
DWG. 2125	
AUG. 1986	

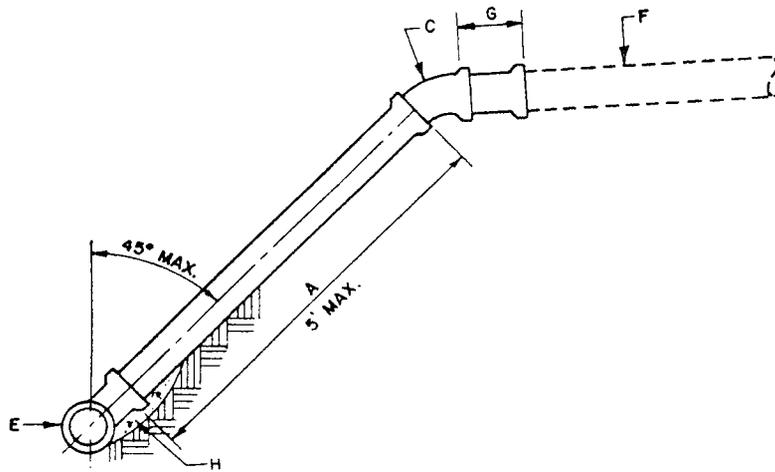
REVISIONS
11-14-91

GENERAL NOTES:

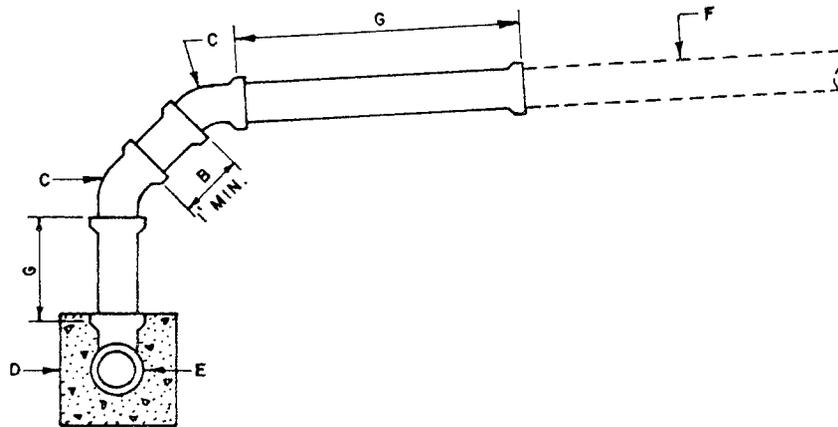
1. IF DISTANCE A IS 5' OR LESS, ROTATE MAIN SERVICE TEE AND RECONNECT SERVICE AS PER DETAIL I. IF A IS GREATER THAN 5' INSTALL RISER AS PER DETAIL II.
2. WHERE DEPTH IS INSUFFICIENT TO ALLOW RE-CONNECTION AS SHOWN IN DETAIL I OR II, RE-CONNECT SERVICE AS DIRECTED BY ENGINEER.

CONSTRUCTION NOTES:

- A. VARIABLE WITH A MAX. OF 5'.
- B. 1' MIN., 1.5' MAX.
- C. ELBOWS, 45° DEFLECTION MAX.
- D. INSTALL CONCRETE CRADLE ON TEE AS PER DWG. 2135, RIGID PIPE ONLY.
- E. SERVICE TEE.
- F. EXIST. SERVICE LINE.
- G. VARIABLE LENGTH.
- H. BACKFILL UNDER SERVICE WITH MIN. 1 CUBIC FOOT OF PC. CONCRETE ("SACKCRETE" OR EQUAL ALLOWABLE IN THIS INSTALLATION.)

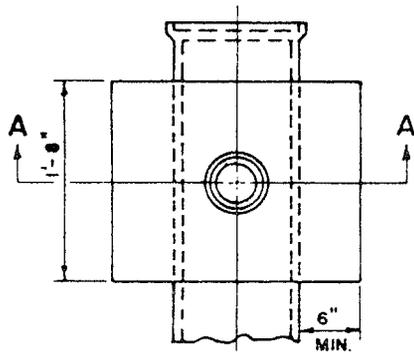


DETAIL I

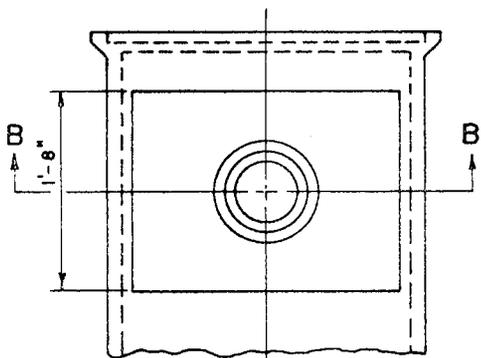


DETAIL II

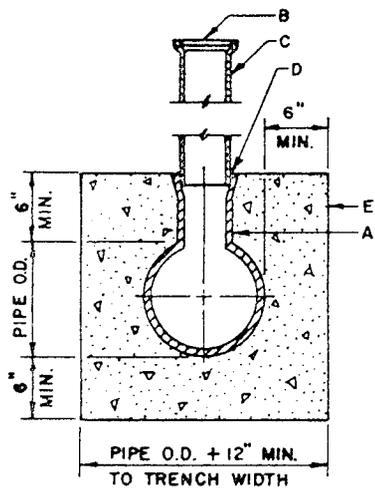
CITY OF ALBUQUERQUE	
SEWER SEWER SERVICE REPLACEMENT DETAIL	
DWG. 2134	
AUG. 1988	
REVISIONS	



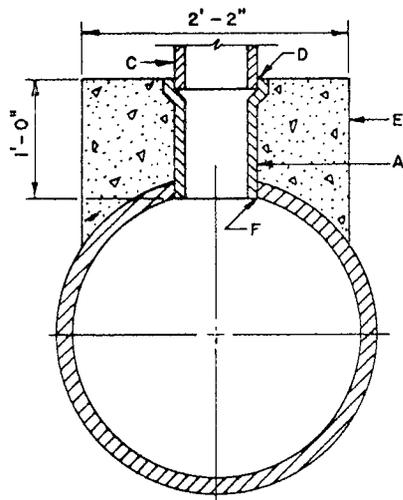
PLAN  
FOR 8" TO 24" PIPE



PLAN  
FOR GREATER THAN 24" PIPE



SECTION A-A



SECTION B-B

**GENERAL NOTES:**

1. RISERS WILL BE USED WHERE SEWER IS OVER 14 FT. IN DEPTH OR WHERE WATER TABLE IS ABOVE SEWER LINE. TOP OF RISER SHALL BE 10 FT. BELOW THE PAVEMENT OR GROUND SURFACE WHEN SEWER MAINS ARE INSTALLED DEEPER THAN 14 FT. OR SHALL BE 2 FT. ABOVE WATER TABLE.
2. BRACE RISER PIPE SECURELY BEFORE BACK-FILLING. LAY EACH JOINT OF RISER PIPE AS BACKFILLING PROGRESSES. CAREFULLY TAMP BACKFILL AROUND EACH JOINT OF RISER PIPE. EXTREME CARE MUST BE TAKEN IN ORDER TO PREVENT SHOVING OF PIPE OUT OF PLUMB.
3. ELECTRONIC MARKER DISK SHALL BE PROVIDED OVER RISER AT A DEPTH OF APPROX. 4 FT. TO LOCATE PIPE.

**CONSTRUCTION NOTES:**

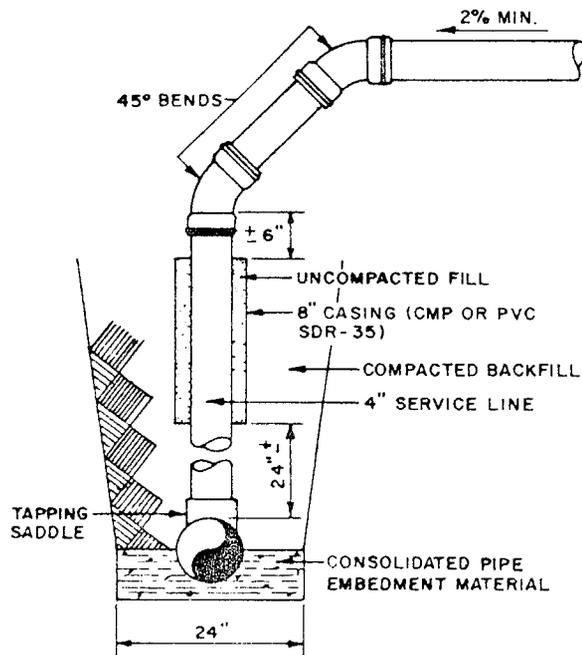
- A. TAPPING TEE, FOR CONNECTION TO EXIST. LINES WHERE NO EXIST. TEE IS AVAILABLE OR STD. PIPE TEE FOR NEW CONSTRUCTION. SEE NOTE K, DWG. 2125.
- B. PROVIDE CONC. OR CLAY PLUG.
- C. 4" OR 6" RISER, (C.I.P.)
- D. WATER TIGHT GASKET PRESSURE RING JOINT.
- E. CONC. CRADLE & SUPPORT.
- F. CORE DRILLED TAP.

REVISIONS	CITY OF ALBUQUERQUE
	SEWER RISER DETAILS RIGID PIPE MAIN
	DWG. 2135

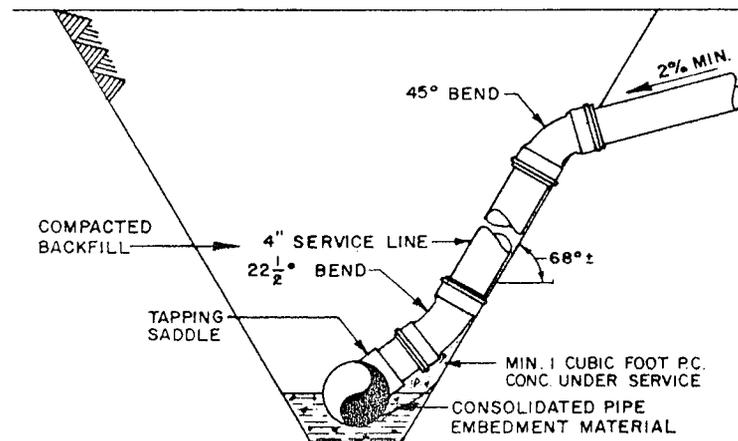
AUG. 1986

GENERAL NOTES

1. THESE DETAILS REFER ONLY TO INSTALLATIONS ON FLEXIBLE PIPE MAINS. REFER TO OTHER APPROPRIATE STANDARDS FOR RIGID PIPE MAINS.
2. DETAIL "A" SHALL BE USED WHEN A TRENCH BOX, SHORING OR OTHER MEANS OF EXCAVATION BRACING IS USED, OTHERWISE IT SHALL BE THE CONTRACTOR'S OPTION TO USE EITHER DETAIL "A" OR DETAIL "B".
3. REFER TO SPECIFICATION SECTION 905 FOR MATERIAL REQUIREMENTS.
4. TRENCH SLOPES SHALL BE AS PER THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.



DETAIL "A"



DETAIL "B"

REVISIONS
11-14-91

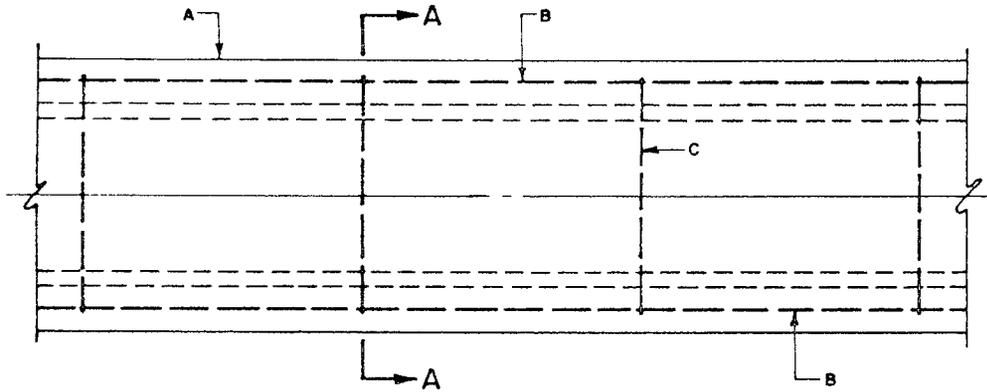
CITY OF ALBUQUERQUE
SEWER RISER DETAILS FLEXIBLE PIPE MAIN DWG. 2136
AUG. 1966

**GENERAL NOTES:**

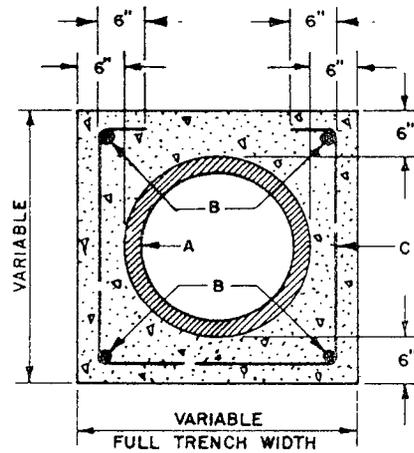
1. WHERE A WATER LINE PASSES BENEATH OR LESS THAN 18 IN. ABOVE AN EXIST. SEWER LINE, THE SEWER LINE SHALL BE ENCASED IN CONC. 6" THICK AS DETAILED, FOR AT LEAST 10FT. ON EACH SIDE OF THE WATER LINE, OR THE SEWER LINE SHALL BE D.I. OR C-900 PVC PIPE WITH PRESSURE-TYPE JOINTS FOR AT LEAST 10FT. ON EACH SIDE OF THE WATER LINE. THIS SHALL ALSO APPLY WHERE A PARALLEL WATER LINE IS LESS THAN 10FT. HORIZONTALLY AND LESS THAN 2FT. ABOVE THE SEWER LINE.

**CONSTRUCTION NOTES:**

- A. SANITARY SEWER LINE AS SHOWN ON PLANS.
- B. 4-NO. 4 BARS, CONT. WITH 3" CLEARANCE.
- C. NO. 4 BARS, AT 36" O.C.



PLAN  
CONCRETE ENCASEMENT



SECTION A-A

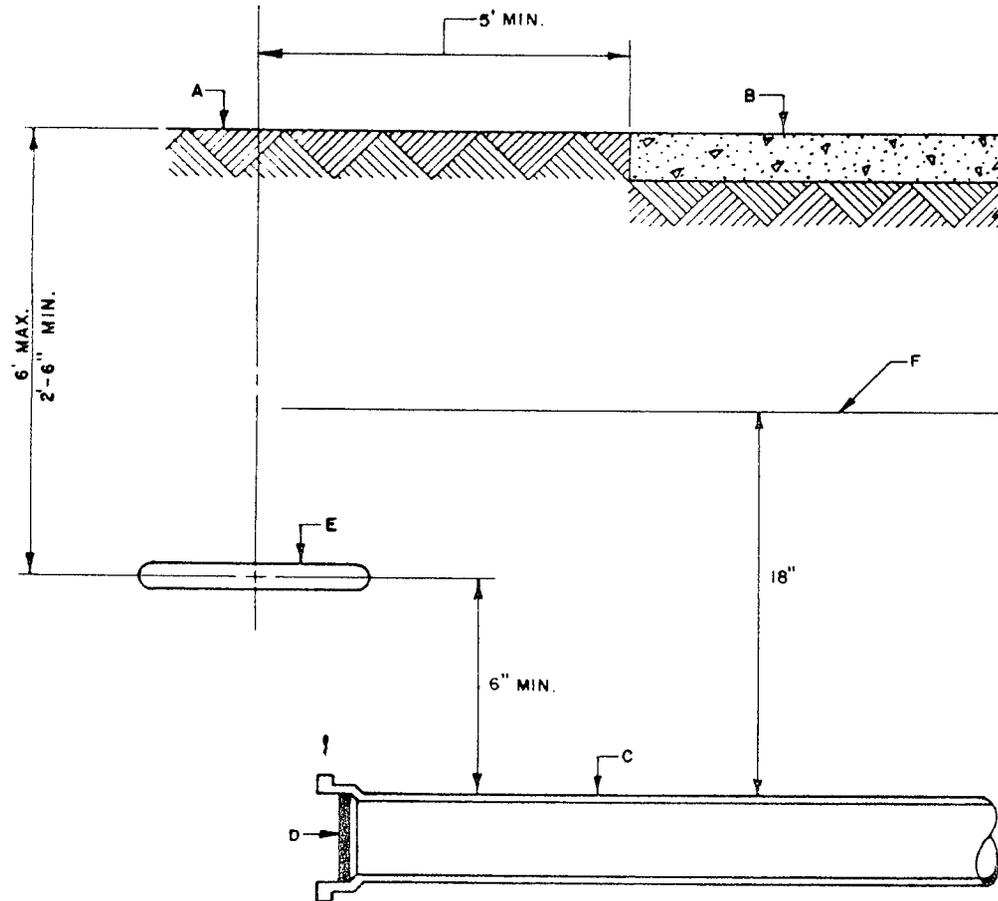
	CITY OF ALBUQUERQUE
REVISIONS	SEWER ENCASEMENT DETAILS
	DWG. 2140
	AUG. 1986

GENERAL NOTES

1. PRIOR TO BACKFILLING, INVERT ELEVATION AND LOCATION WILL BE MEASURED. THIS INFORMATION WILL BE RECORDED ON AS-BUILT DWGS.

CONSTRUCTION NOTES

- A. EXISTING GROUND.
- B. NEW PAVING.
- C. SEWER LINE.
- D. PLUG.
- E. ELECTRONIC MARKER DISK, COLOR-CODED GREEN.
- F. WARNING TAPE TO BE INSTALLED ON ALL SEWER LINES.



ELEVATION

CITY OF ALBUQUERQUE			
<table border="1"> <thead> <tr> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td>11-14-91</td> </tr> </tbody> </table>	REVISIONS	11-14-91	<p>SEWER SEWER LINE DEAD-END MARKER DWG. 2145</p>
REVISIONS			
11-14-91			
AUG. 1986			

PLAN AT C-C

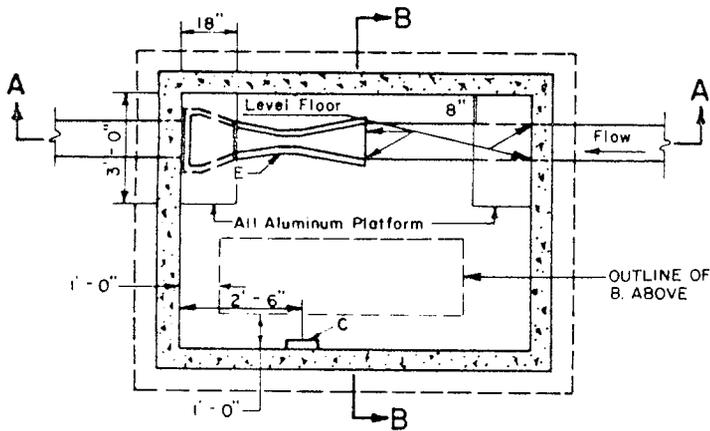
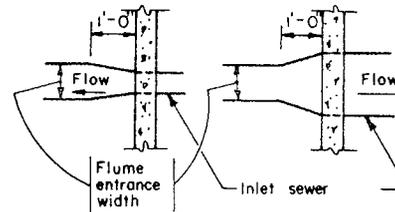


TABLE 1

Pipe Size	Required Inlet Slope
4 in.	0.0060 ft./ft.
6	0.0050
8	0.0040
10	0.0028
12	0.0022
15	0.0015
18	0.0012

NOTE

WHEN THE INLET SEWER IS SMALLER OR LARGER, IN DIAMETER THAN THE FLUME ENTRANCE WIDTH, A SMOOTH TRANSITION SHALL BE PROVIDED CHANGING FROM THE INLET SEWER DIAMETER TO THE FLUME ENTRANCE CHANNEL WIDTH OVER THE FIRST FOOT INSIDE THE MH.



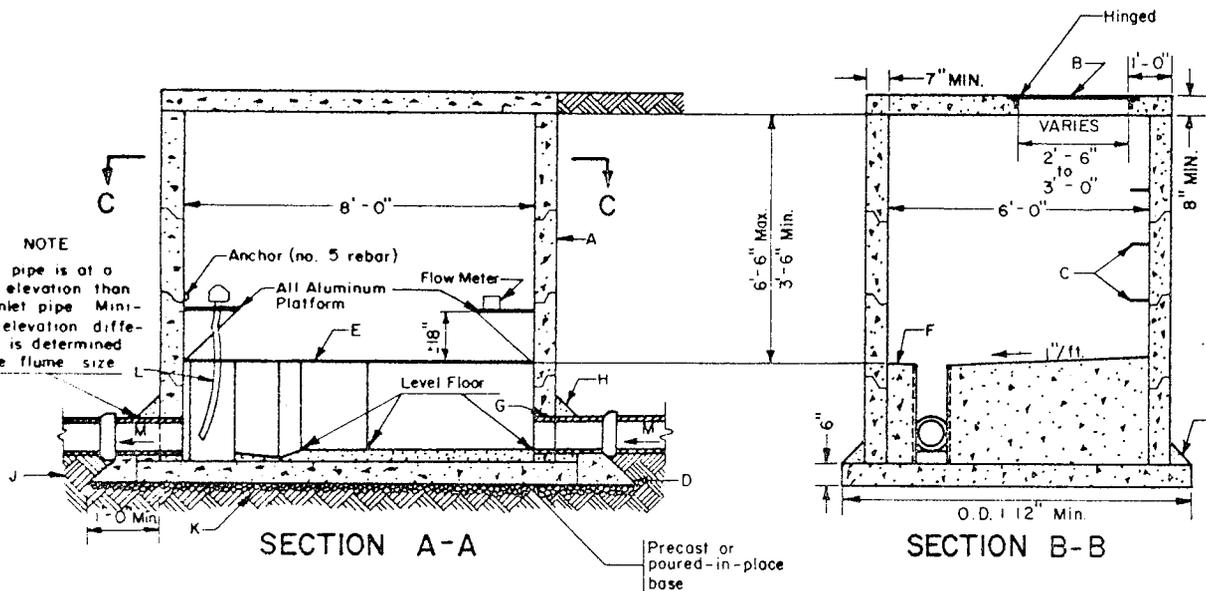
GENERAL NOTES

1. THIS DESIGN IS APPLICABLE FOR MANHOLES 6.5 FT. & LESS IN DEPTH MEASURED FROM FLOOR TO CONCRETE COVER. DEPTHS GREATER THAN 6.5 FT. WILL REQUIRE THE 8' DIAMETER, ROUND MANHOLE PER DWG. NO. 2151.
2. INDUSTRIAL MANHOLE SHALL BE LOCATED ON PRIVATE PROPERTY OUTSIDE OF CITY RIGHT-OF-WAY. CITY PERSONNEL SHALL HAVE ACCESS TO THE MANHOLE AT ALL TIMES OF THE DAY OR NIGHT.
3. NOT ALL INSTALLATIONS WILL REQUIRE THE ALUMINUM PLATFORMS. SAMPLER AND FLOW METERING APPARATUS TO BE PROVIDED BY THE INDUSTRIAL USER. FINAL DECISIONS RELATIVE TO THE REQUIREMENT FOR MONITORING EQUIPMENT AND THE SPECIFIC TYPE OF FLUME WILL BE MADE BY THE PRETREATMENT UNIT, WASTE WATER DIVISION (873-7004) FOR EACH INDIVIDUAL CASE.
4. A PARSHALL FLUME OR PALMER BOWLUS FLUME SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THIS DETAIL. THE FLUME MUST BE SIZED TO ACCURATELY MEASURE ALL ANTICIPATED FLOW LEVELS. PRIOR TO INSTALLATION THE FLUME SIZE, AND TYPE MUST BE APPROVED BY THE PRETREATMENT UNIT, WASTE WATER DIVISION.
5. IN ORDER TO CONTROL VELOCITIES AT A LEVEL THAT ALLOWS FOR ACCURATE FLOW MEASUREMENT. SLOPES ON THE INLET SEWER LINES FOR 20 FT. OUTSIDE THE MANHOLE MUST BE AS SPECIFIED IN TABLE 1 FOR THE VARIOUS SIZE LINES. OUTLET SEWER LINES MUST BE DESIGNED TO CONVEY THE MAXIMUM DESIGN FLOWS WITHOUT CREATING A SURCHARGED CONDITION IN THE FLUME.

CONSTRUCTION NOTES

- A. ALL MANHOLE BASES, RISER SECTIONS AND FLAT SLAB TOP SECTIONS SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH SPEC. SECTION 920.4.2.
- B. FRAME AND COVER FOR NON-TRAFFIC AREAS SHALL BE NEENAH R.6661 VII OR EQUAL FOR TRAFFIC OR PARKING AREAS. IT SHALL BE NEENAH R.6663 OH OR EQUAL.
- C. MANHOLE STEPS PER CITY OF ALBUQUERQUE SPEC. SECTION 920.4.7.
- D. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE THE MANHOLE TO BELL OF FIRST JOINT AND SHALL CRADLE PIPE TO THE SPRING LINE.
- E. PREFABRICATED MONITORING FLUME TO BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND SHALL BE MANUFACTURED BY MANNING. PLASTI-FAB OR APPROVED EQUAL. A PARSHALL FLUME OR A PALMER BOWLUS FLUME SHALL BE INSTALLED AS DIRECTED BY THE PRETREATMENT UNIT, WASTE WATER DIVISION 873-7004.
- F. CONCRETE FILLETS. FILLETS TO MATCH TOP OF FLUME AND SLOPE ONE INCH PER FOOT.
- G. MANHOLE PIPE CONNECTIONS TO BE PER ASTM C 923. STANDARD SPEC. FOR RESILIENT CONNECTORS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES. RESILIENT CONNECTORS TO BE A LOK OR APPROVED EQUAL.
- H. 6 IN. GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
- J. BACKFILL PER SECTION 501.
- K. 2 IN. GRAVEL CRUSHED STONE LEVELING COURSE.
- L. FLUME OUTLET END ADAPTER, PLASTI-FAB OR APPROVED EQUAL.
- M. SLOPE PER TABLE 1.

NOTE  
Outlet pipe is at a lower elevation than the inlet pipe. Minimum elevation difference is determined by the flume size.



CITY OF ALBUQUERQUE

SEWER SAMPLING & METERING MANHOLE  
6' x 8' RECTANGULAR

REVISIONS
6-1-87
11-14-91

DWG. 2150

AUG. 1986

GENERAL NOTES

PLAN AT C-C

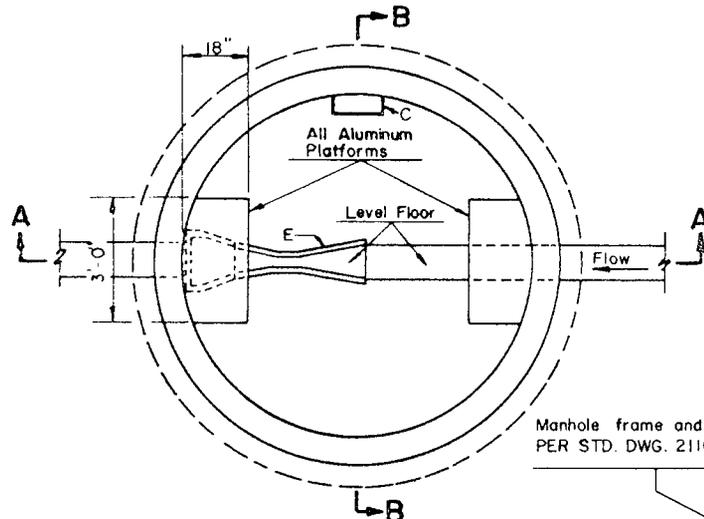
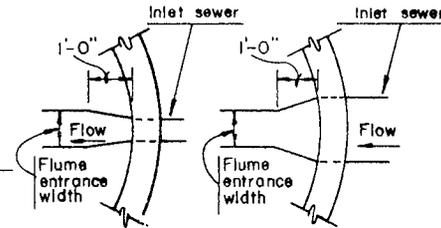


TABLE I

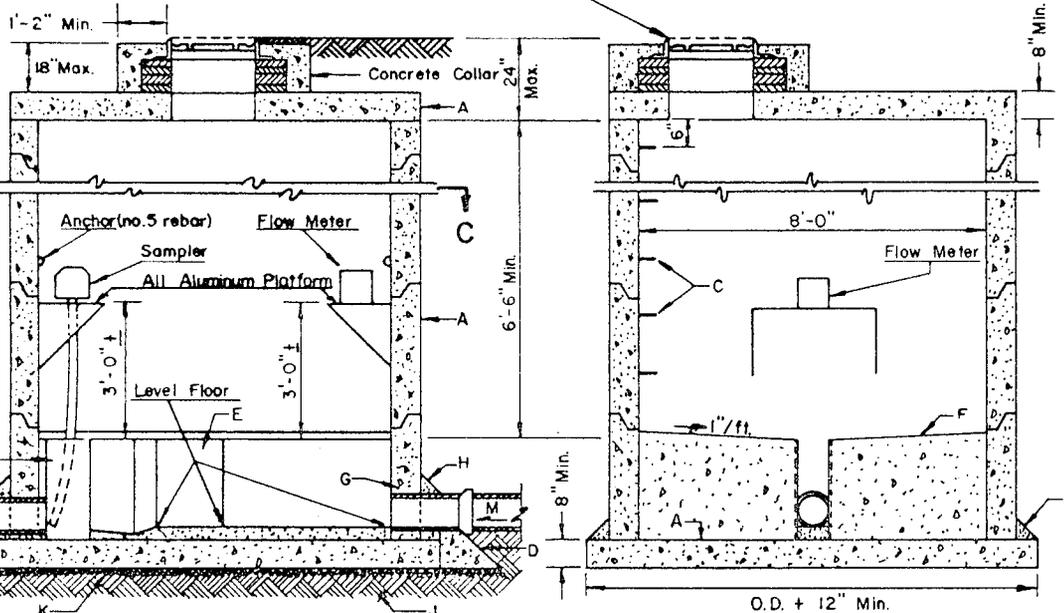
Pipe Size	Required Inlet Slope
4 in.	0.0060ft./ft.
6	0.0050
8	0.0040
10	0.0028
12	0.0022
15	0.0015
18	0.0012

NOTE

WHEN THE INLET SEWER IS SMALLER OR LARGER, IN DIAMETER THAN THE FLUME ENTRANCE WIDTH, A SMOOTH TRANSITION SHALL BE PROVIDED CHANGING FROM THE INLET SEWER DIAMETER TO THE FLUME ENTRANCE CHANNEL WIDTH OVER THE FIRST FOOT INSIDE THE MH.



Manhole frame and cover PER STD. DWG. 2110



NOTE  
Outlet pipe is at a lower elevation than the inlet pipe. Minimum elevation difference is determined by the flume size.

SECTION A-A

SECTION B-B

1. THIS DESIGN IS ONLY APPLICABLE FOR MANHOLES GREATER THAN 6.5 FT. IN DEPTH MEASURED FROM FLOOR TO CONCRETE COVER. DEPTHS 6.5 FT. WILL REQUIRE THE 6 FT. X 8 FT. RECTANGULAR MANHOLE DESIGN PER STANDARD DWG. NO. 2150.
2. INDUSTRIAL MANHOLE SHALL BE LOCATED ON PRIVATE PROPERTY OUTSIDE OF CITY RIGHT-OF-WAY. CITY PERSONNEL SHALL HAVE ACCESS TO THE MANHOLE AT ALL TIMES OF THE DAY OR NIGHT.
3. NOT ALL INSTALLATIONS WILL REQUIRE THE ALUMINUM PLATFORMS, SAMPLER AND FLOW METERING APPARATUS TO BE PROVIDED BY THE INDUSTRIAL USER. FINAL DECISIONS RELATIVE TO THE REQUIREMENT FOR MONITORING EQUIPMENT AND THE SPECIFIC TYPE OF FLUME WILL BE MADE BY THE PRETREATMENT UNIT, WASTE WATER DIVISION (873-7004) FOR EACH INDIVIDUAL CASE.
4. A PARSHALL FLUME OR PALMER BOWLUS FLUME SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THIS DETAIL. THE FLUME MUST BE SIZED TO ACCURATELY MEASURE ALL ANTICIPATED FLOW LEVELS. PRIOR TO INSTALLATION THE FLUME SIZE, AND TYPE MUST BE APPROVED BY THE PRETREATMENT UNIT, WASTE WATER DIVISION.
5. IN ORDER TO CONTROL VELOCITIES AT A LEVEL THAT ALLOWS FOR ACCURATE FLOW MEASUREMENT, SLOPES ON THE INLET SEWER LINE FOR 20 FT. OUTSIDE THE MANHOLE MUST BE AS SPECIFIED IN TABLE 1 FOR THE VARIOUS SIZE LINES. OUTLET SEWER LINES MUST BE DESIGNED TO CONVEY THE MAXIMUM DESIGN FLOWS WITHOUT CREATING A SURCHARGED CONDITION IN THE FLUME.

CONSTRUCTION NOTES

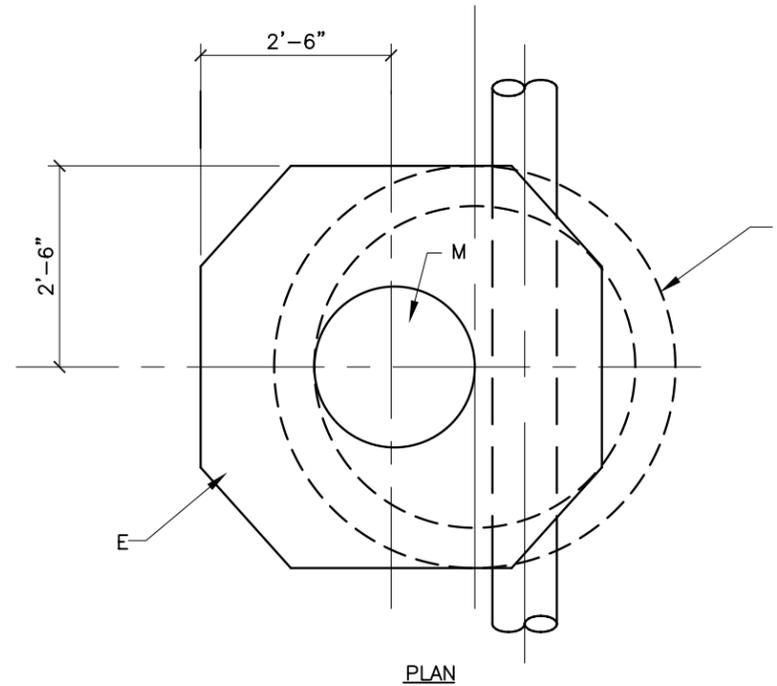
- A. ALL MANHOLE BASES, RISER SECTIONS, AND FLAT SLAB TOP SECTIONS SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH SPEC. SECTION 920.4.2.
- B. PRECAST CONCRETE GRADE ADJUSTMENT RINGS OR GRADE MS BRICK AS REQUIRED FOR GRADE ADJUSTMENT. WHEN USING BRICK, PLASTER INSIDE WITH 1/2" OF MORTAR.
- C. MANHOLE STEPS PER CITY OF ALBUQUERQUE SPEC. SECTION 920.4.7.
- D. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE THE MANHOLE TO BELL OR FIRST JOINT AND SHALL CRADLE PIPE TO THE SPRING LINE.
- E. PREFABRICATED MONITORING FLUME TO BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND SHALL BE MANUFACTURED BY MANNING. PLASTI-FAB OR APPROVED EQUAL. A PARSHALL FLUME OR A PALMER BOWLUS FLUME SHALL BE INSTALLED AS DIRECTED BY THE PRETREATMENT UNIT, WASTE WATER DIVISION (873-7004).
- F. CONCRETE FILLETS. FILLETS TO MATCH TOP OF FLUME SLOPE ONE INCH PER FOOT.
- G. MANHOLE PIPE CONNECTIONS TO BE PER ASTM C-923; STANDARD SPEC. FOR RESILIENT CONNECTORS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES. RESILIENT CONNECTORS TO BE A LOK OR APPROVED EQUAL.
- H. 6 IN. GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
- J. BACKFILL PER SECTION 501.
- K. 2 IN. GRAVEL CRUSHED STONE LEVELING COURSE.
- L. FLUME OUTLET END ADAPTER, PLASTI-FAB OR APPROVED EQUAL.
- M. SLOPE PER TABLE 1.

REVISIONS
6-1-87
11-14-91

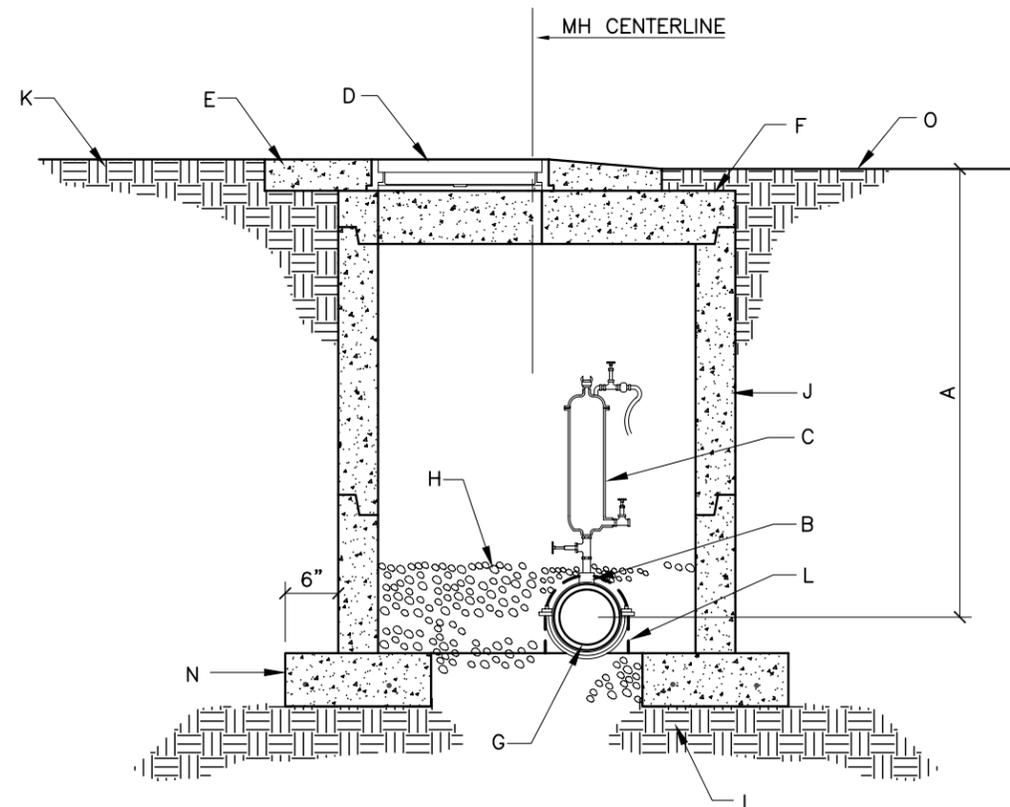
CITY OF ALBUQUERQUE

SEWER  
SAMPLING & METERING MANHOLE  
8 FOOT DIAMETER  
DWG. 2151

AUG. 1986



PLAN



SECTION

**GENERAL NOTES:**

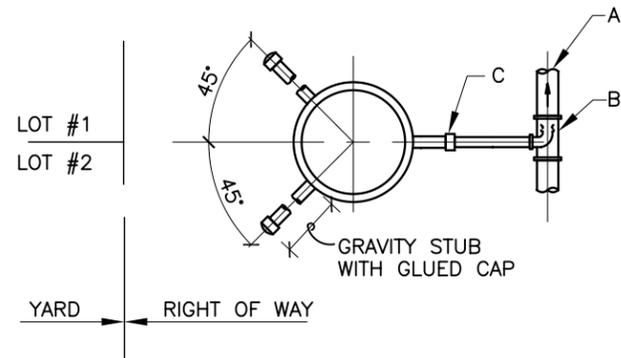
1. ALL COMPACTION FOR INSTALLATION OF ARV MANHOLE TO BE 95% OF MAXIMUM DRY DENSITY PER ASTM D 1557.
2. INTERIOR OF MANHOLE SHALL BE COATED IN ACCORDANCE WITH SECTION 920.4.6.2 OF THE SPECIFICATIONS.

**CONSTRUCTION NOTES:**

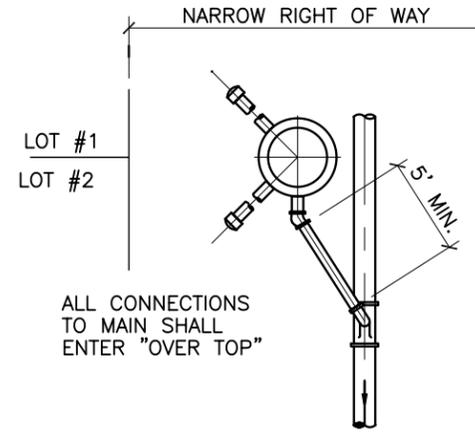
- A. SEE CONSTRUCTION PLANS FOR DEPTH REQ'D.
- B. 2" TAPPING SADDLE
- C. APCO SEWAGE AIR RELEASE VALVE OR APPROVED EQUAL, MODEL NO. PER CONSTRUCTION PLANS AND SPECIFICATIONS
- D. CAST IRON MANHOLE FRAME AND COVER; SEE C.O.A. STD. DWG. 2110.
- E. CONC. COLLAR PER C.O.A. STD. DWG. 2461.
- F. PRECAST CONCRETE FLAT TOP FOR MANHOLE WITH 2'-0" DIA. OPENING PER C.O.A. STD. DWG. 2107
- G. FORCE MAIN
- H. 12" DEEP 3/4" GRAVEL, ASTM C33, NO. 57 GRAVEL.
- I. COMPACTED SUBGRADE, OVEREXCAVATED TO 12" BELOW FOUNDATION.
- J. USE 4'-0" I.D. CONCRETE MANHOLE SECTIONS (PER SEC. 101, SAS CONCRETE  $f'_c=400$  psi @ 28 DAYS). ADDITIONAL SECTIONS MAY BE ADDED.
- K. FINISH GRADE IN PAVED AREAS
- L. SLOTTED OPENING 1" LARGER THAN FORCE MAIN WITH APPROVED GASKET. GROUT INTERIOR AND EXTERIOR OF OPENING.
- M. LOCATION OF LID.
- N. 2-CONCRETE ANTI-FLOATATION COLLAR HALVES. SEE STANDARD DWG. 2171, OR CAST-IN-PLACE CONCRETE OF SIMILAR DESIGN
- O. FINISH GRADE IN UNPAVED AREAS

REVISIONS	CITY OF ALBUQUERQUE
	SANITARY SEWER AIR RELEASE VALVE DETAIL
	DWG. 2160      JANUARY 2003

**NOTE:**  
EACH HOUSE GRAVITY  
LATERAL MUST BE  
DIRECTLY CONNECTED  
TO HOLDING TANK.



**PLAN SHOWING HOLDING TANK  
WITH TWO HOUSE CONNECTIONS**



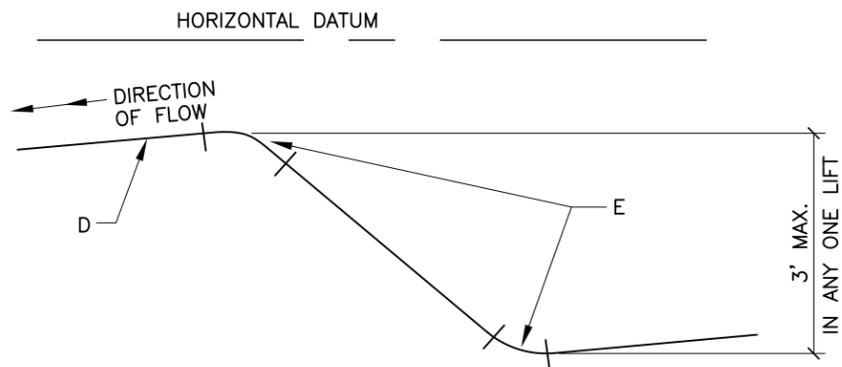
**VALVE PIT INSTALLATION  
IN NARROW RIGHT OF WAY**

**GENERAL NOTES:**

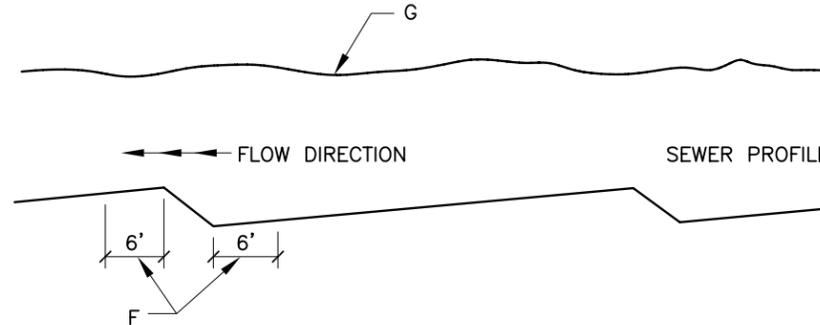
1. ONLY HOMES AND APARTMENTS WHOSE LOWER FLOOR ELEVATION ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. WITH MULTIPLE FLOOR APARTMENTS EACH FLOOR SHOULD BE SERVICED BY ITS OWN VACUUM VALVE PIT INSTALLATION.
2. NOT LESS THAN 20' BETWEEN SUCCESSIVE LIFTS.
3. LOWER PORTION OF VALVE PIT IS A WASTE HOLDING TANK.

**CONSTRUCTION NOTES:**

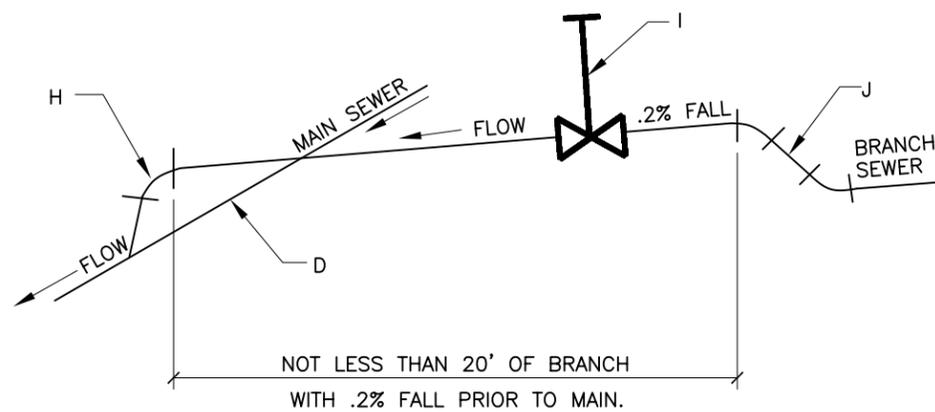
- A. 4", 6", 8" OR 10" VACUUM SEWER.
- B. 10"x10"x3" OR 8"x8"x3" OR 6"x6"x3" OR 4"x4"x3" D.W.V. WYE.
- C. 3" SCHD. 40 PVC.
- D. SLOPE: CONSULT DESIGN MANUAL
- E. LONG TURN 45° BENDS IN TWO POSITIONS.
- F. DO NOT MAKE ANY INLET CONNECTIONS IN THIS AREA.
- G. GRADE.
- H. ELL 90° AND WYE. IMPORTANT: WYE SHALL BE IN VERTICAL POSITION.
- I. DIVISION VALVE.
- J. LIFT.
- K. WYE AND ST. 45° IN VERTICAL POSITION.



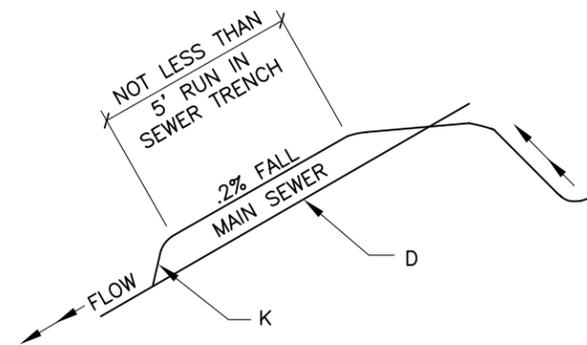
**LIFT DETAILS**



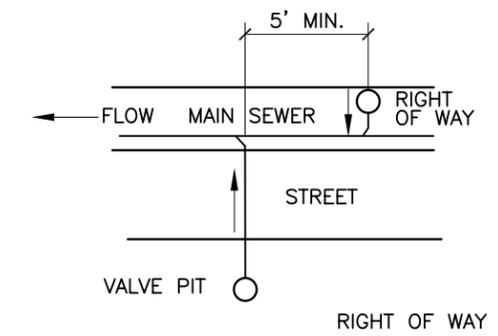
**RECOMMENDED POSITIONS FOR CONNECTIONS TO MAIN**



**DIAGRAMMATIC OF BRANCH  
CONNECTION TO MAIN**



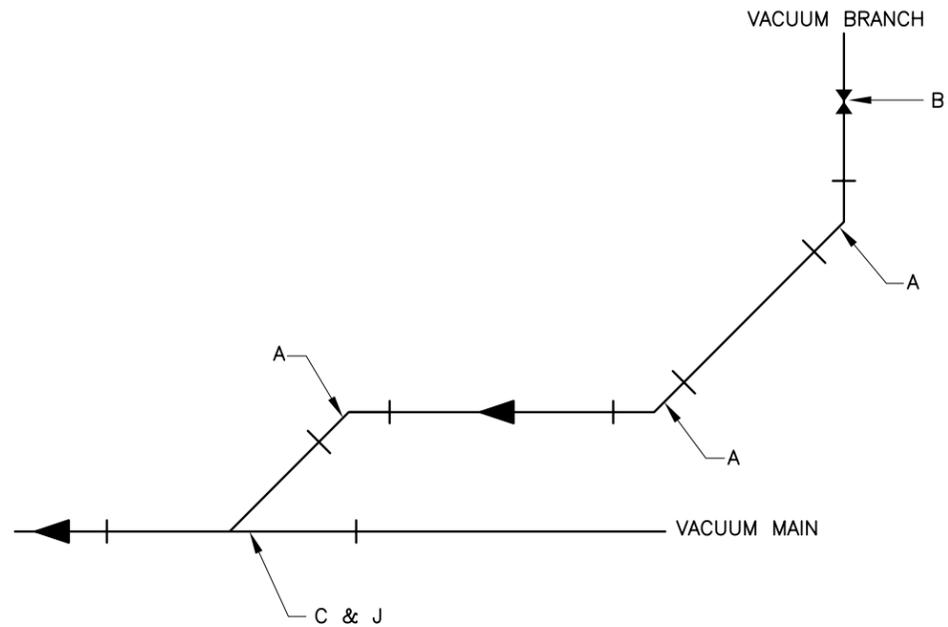
**ALTERNATE METHOD OF CONNECTING  
BRANCH OR VACUUM SERVICE LATERAL TO MAIN**



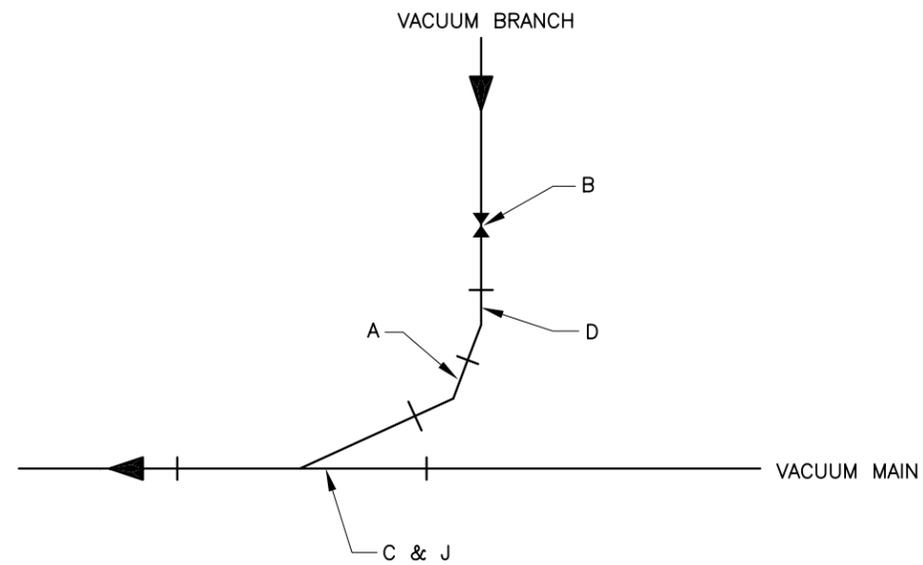
**SKETCH SHOWING MINIMUM  
SPACING OF VACUUM SERVICE LATERALS**

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS STANDARD DETAILS
	DWG. 2162 JANUARY 2003

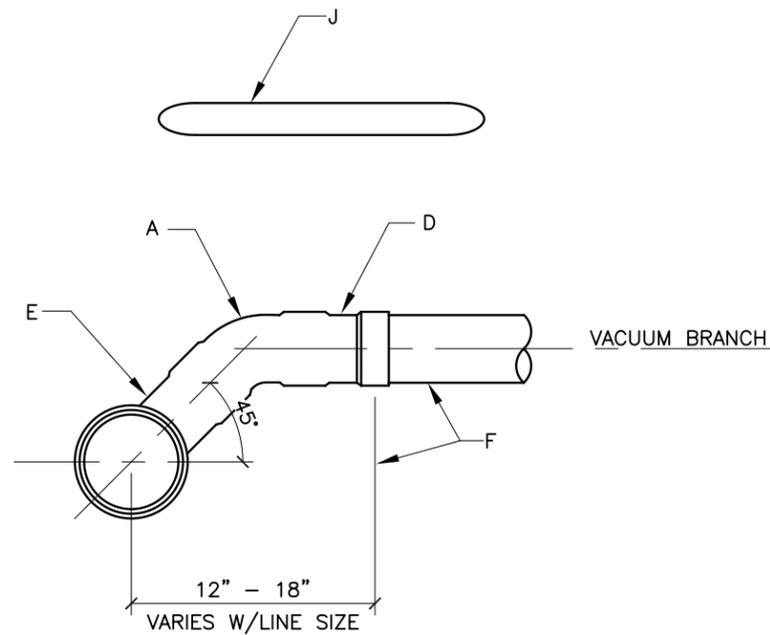
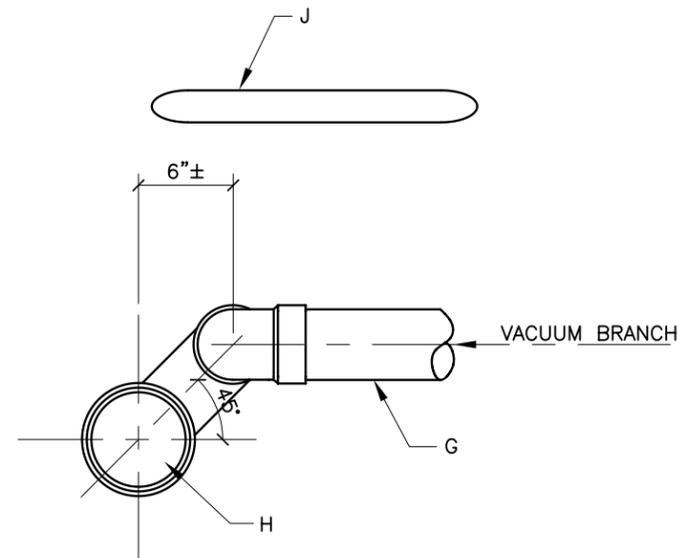




ALTERNATE "A"



ALTERNATE "B"



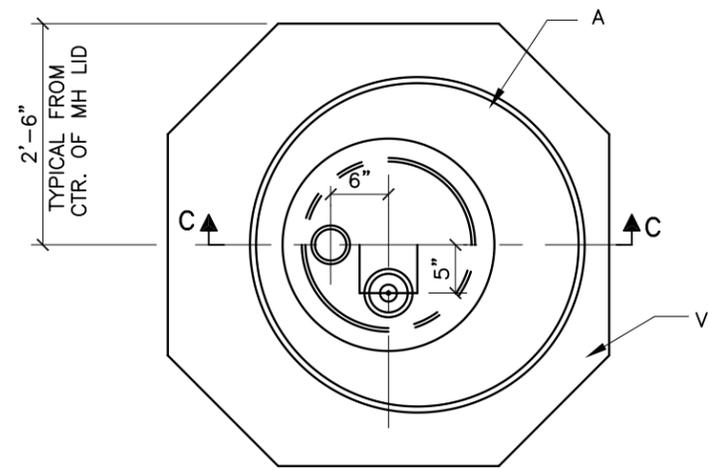
**GENERAL NOTES:**

- UNLESS SHOWN ON CONSTRUCTION DRAWINGS, DIVISION VALVES WILL NOT BE INSTALLED FOR SERVICE CONNECTIONS.

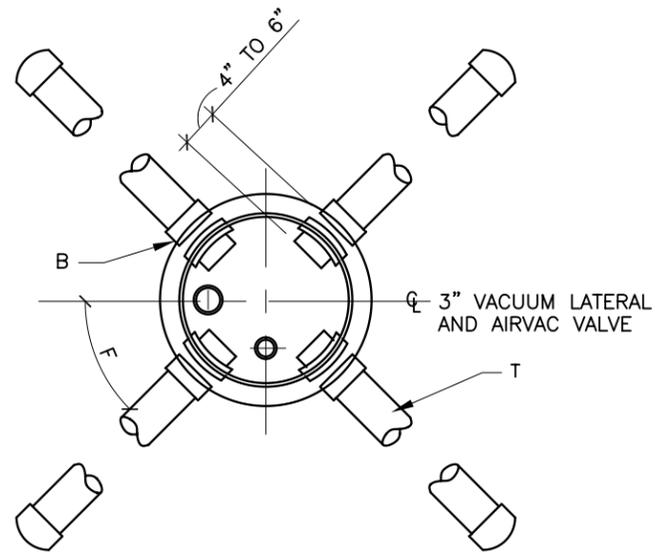
**CONSTRUCTION NOTES:**

- 45° ELBOW.
- DIVISION VALVE AS SHOWN ON CONSTRUCTION DWGS.
- REDUCTION WYE @ 45°.
- 22 1/2° ELBOW.
- MAIN LINE WYE @ 45°.
- BOTTOM OF BRANCH IS AT TOP OF MAIN.
- BOTTOM OF BRANCH IS 1" - 2" ABOVE TOP OF MAIN.
- VACUUM MAIN
- ELECTRONIC MARKER DISK 12" ABOVE TOP OF PIPE.

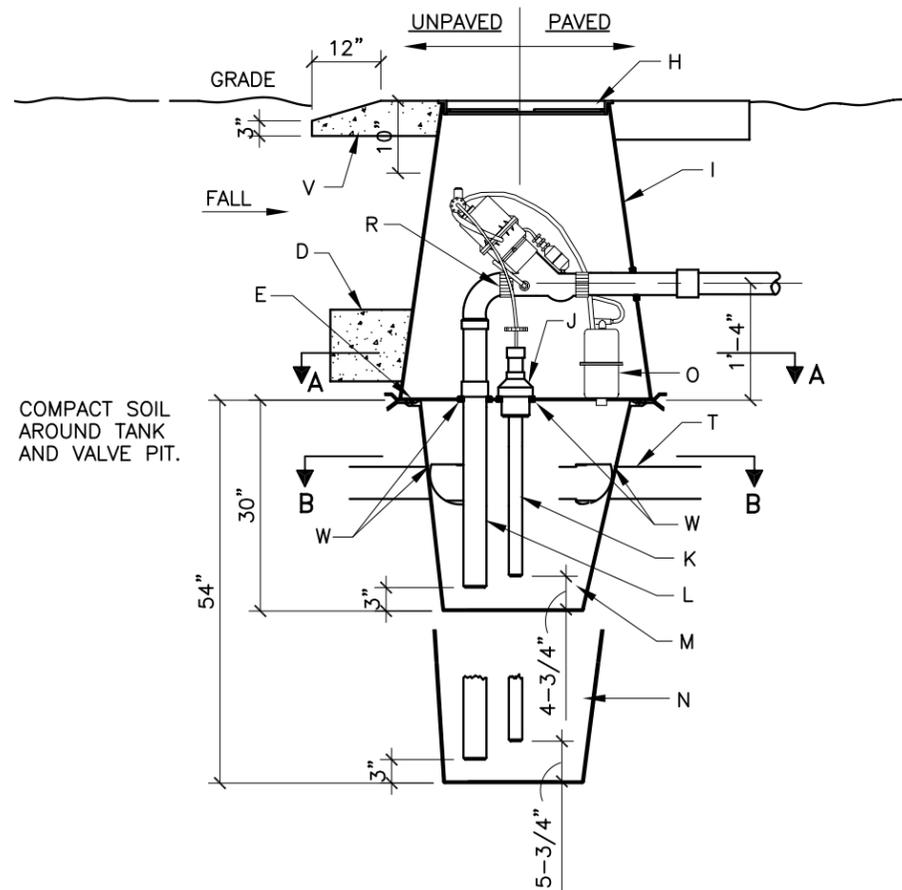
REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS TYPICAL VACUUM BRANCH LINE CONNECTION DWG. 2164 JANUARY 2003



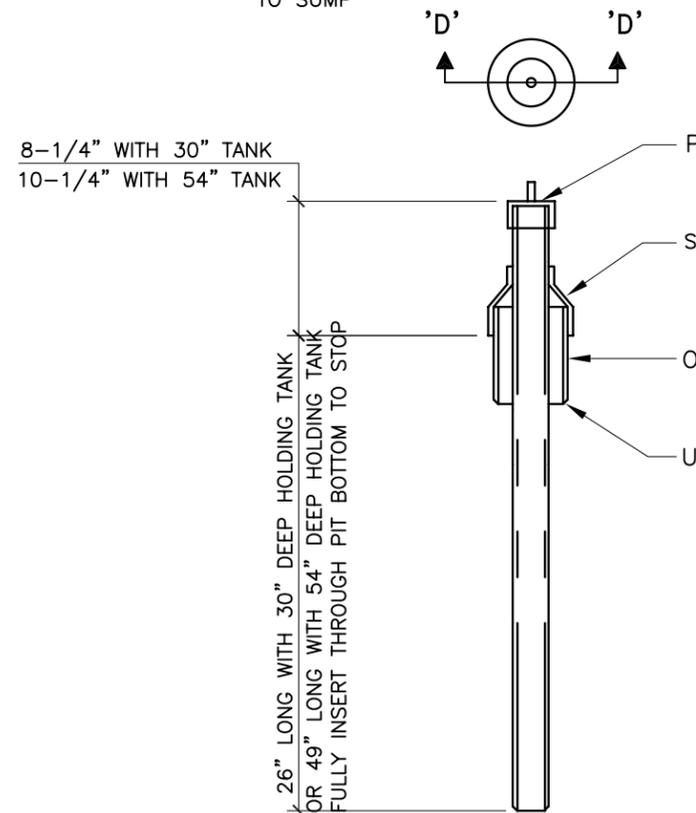
SECTION 'A-A'



SECTION 'B-B'  
SHOWING UP TO  
4 GRAVITY  
CONNECTIONS  
TO SUMP



SECTION 'C-C'



SECTION 'D-D'  
COMBINATION CLEAN OUT-SENSOR PIPE DETAIL

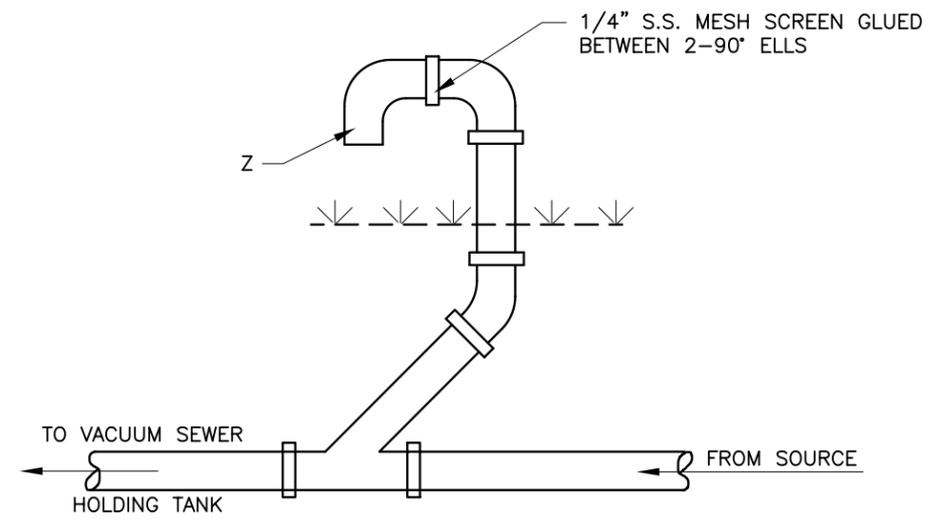
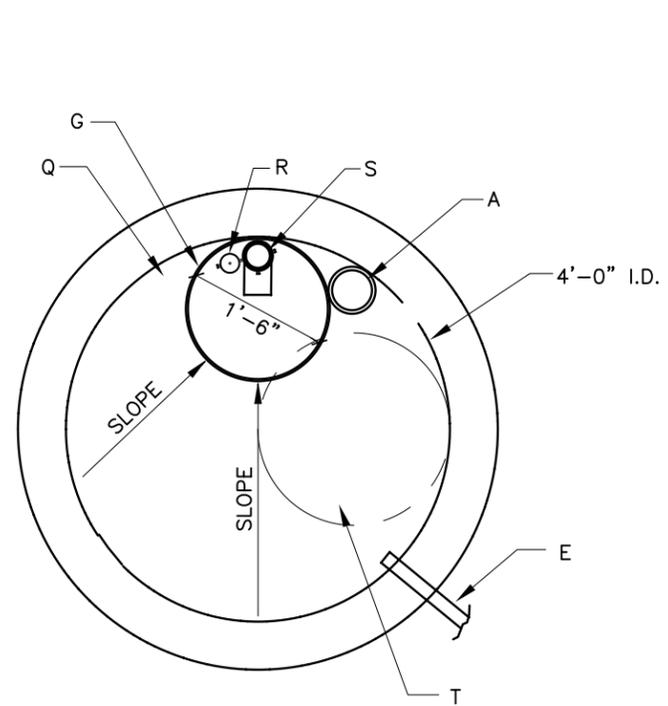
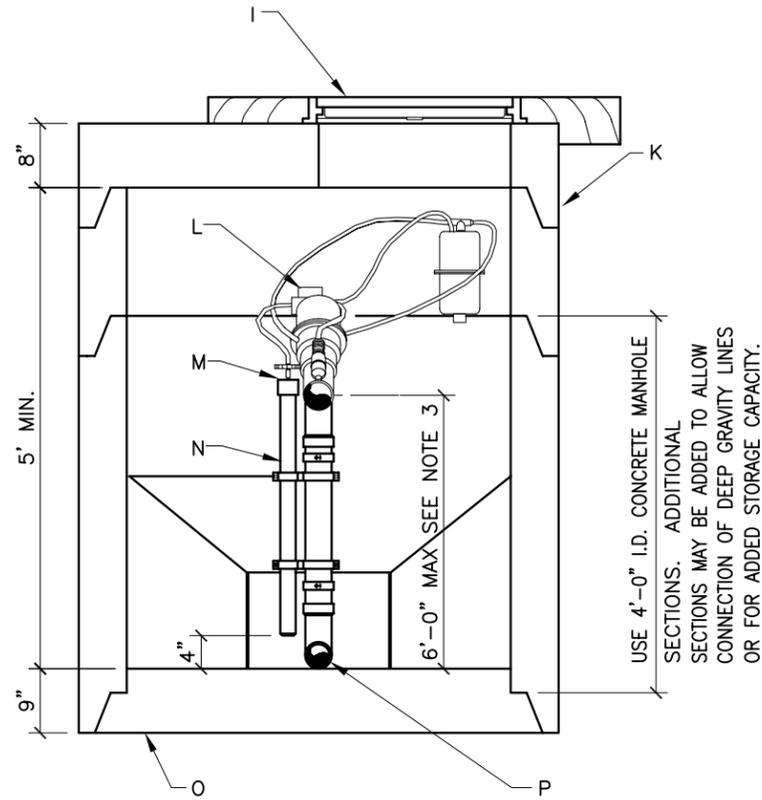
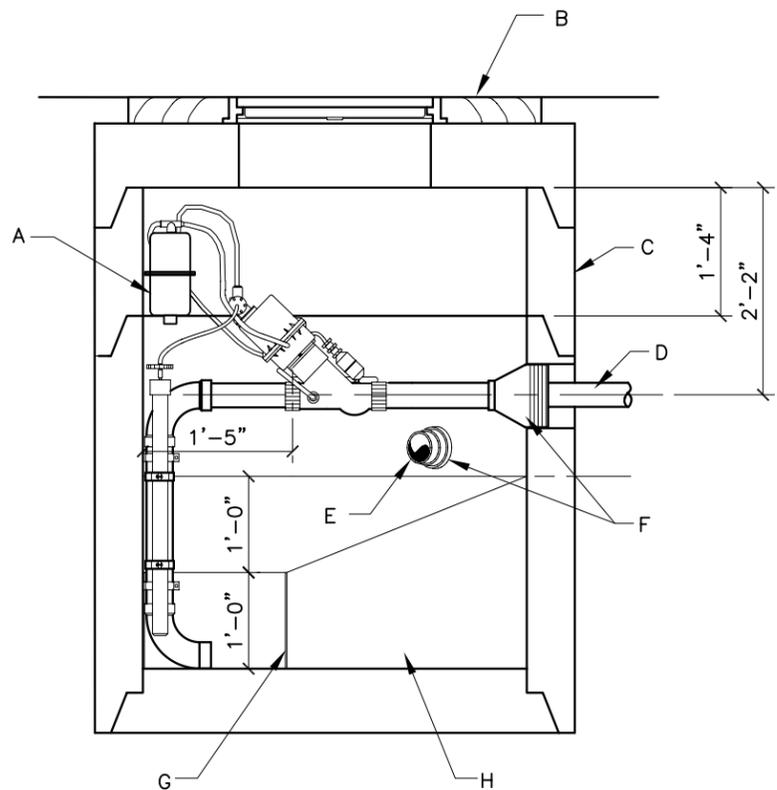
**GENERAL NOTES:**

1. THE FOLLOWING HOLES IN VALVE PIT AND SUMP TO BE FIELD CUT: 5" GRAVITY (SUMP)
2. ONLY HOMES OR APARTMENTS WHOSE LOWER FLOOR ELEVATIONS ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. WITH MULTIPLE FLOOR APARTMENTS, EACH FLOOR SHOULD BE SERVICED BY ITS OWN VACUUM VALVE PIT PKG.
3. FOR ANTI-FLOATATION RING, GRADE-LEVEL PAD, PIPING FROM VALVE PIT TO VACUUM MAIN AND GRAVITY SERVICE STUBS. VALVE TO BE INSTALLED BY OWNER. ALL OTHER INSTALLATION AND TESTING BY CONTRACTOR.

**CONSTRUCTION NOTES:**

- A. RTM MOLDED FIBERGLASS VALVE PIT BOTTOM WITH HOLES FACTORY CUT.
- B. GLUE HALF OF A SLIP COUPLING IN PLACE AT 4" TO 6" FROM END OF GRAVITY LINE TO ACT AS A STOP.
- C. NOT USED
- D. ANTI-FLOTATION RING (TYP), SEE PIT DETAILS.
- E. JOINT SEALED WITH NEOPRENE RUBBER O-RING. HOLDING TANK BOLTED TO VALVE PIT BOTTOM WITH 6 S.S. NUTS, BOLTS AND WASHERS.
- F. OFFSET 45 DEGREES TO AVOID CONFLICT BETWEEN PIPES
- G. NOT USED
- H. CAST IRON FRAME & SOLID LID RATED FOR H2O LOADING. NEENAH MODEL R-5900-F W/SOLID LID OR APPROVED EQUAL.
- I. SPIRAL WOUND, H2O LOADING RATED, FIBERGLASS VALVE PIT. 27" I.D. AT TOP, 36" I.D. AT BOTTOM.
- J. 4" CLEANOUT/SENSOR ASSEMBLY
- K. 2" SENSOR LINE.
- L. 3" SUCTION LINE.
- M. FIBERGLASS SUMP 30" DEEP. SUMP 30" I.D. AT TOP, 16" I.D. AT BOTTOM.
- N. FIBERGLASS SUMP 54" DEEP TO ALLOW CONNECTION OF DEEP GRAVITY LINES. DIAMETERS SAME AS 30" SUMP.
- O. SUMP BREATHER ASSEMBLY
- P. 2" AIRVAC PVC SENSOR CAP.
- Q. NOT USED
- R. 3" NO-HUB COUPLINGS.
- S. 2"x4" REDUCER COUPLING W/INDEX REMOVED.(GLUE JOINTS) 4" PVC GRAVITY STUB. EXTEND TO PROPERTY LINE
- T. UNLESS OTHERWISE DIRECTED AND GLUE CAP.
- U. END BEVELED.
- V. CONCRETE COLLAR PER C.O.A. STD. DWG. 2461.
- W. GROMMET

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS 3" VALVE AND PIT INSTALLATION WITH INTERNAL BREATHER DWG. 2165 JANUARY 2003



**VENT INLET DETAIL**

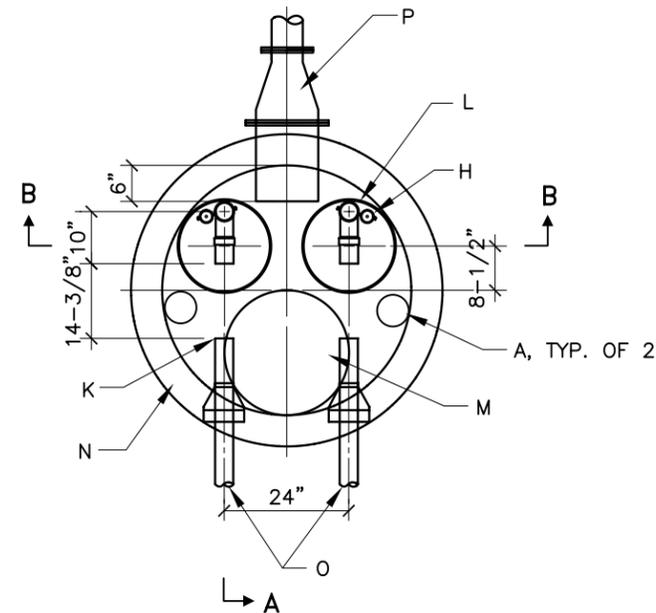
**GENERAL NOTES:**

1. ANY LIFT EXCEEDING 6' MUST BE ADDED TO HEAD LOSSES ON VACUUM MAIN AND SERVICE LINE TO DETERMINE IF SUFFICIENT VACUUM HEAD IS AVAILABLE.
2. ALL MATERIALS AND HARDWARE FOR INSTALLING VALVE, TO BE FURNISHED BY CONTRACTOR. ALL INSTALLATION AND TESTING BY CONTRACTOR, EXCEPT VALVE TO BE INSTALLED BY OWNER. ALL PVC FITTINGS TO BE GLUED EXCEPT WHERE NOTED. DRILL HOLE IN WALL FOR MOUNTING SCREW FOR SUMP BREATHER.

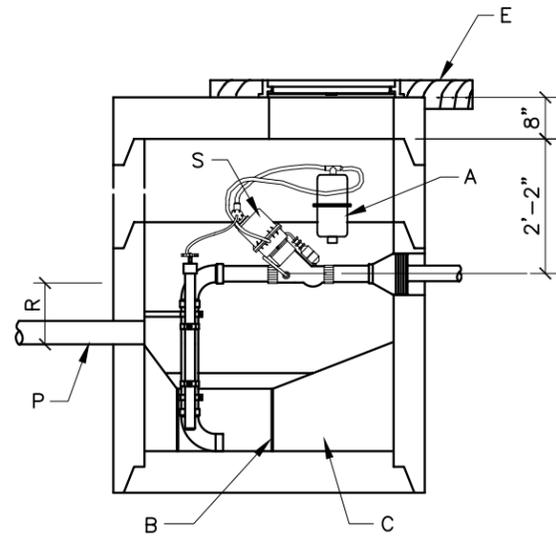
**CONSTRUCTION NOTES:**

- A. SUMP BREATHER ASSEMBLY
- B. CONCRETE COLLAR, PER C.O.A. STD DWG. 2461.
- C. CONCRETE MANHOLE SECTION.
- D. 3" VACUUM SERVICE LINE.
- E. GRAVITY INLET MUST BE LOCATED BETWEEN THE VACUUM SERVICE LINE AND THE START OF SLOPE TO SUMP. MIN. 4" GRAVITY SEWER WITH MATCHING DIAMETER VENT, MIN. 20' FROM TANK.
- F. STANDARD FLEXIBLE CONNECTIONS. ALL CONNECTIONS TO BUFFER TANK MUST BE WATER TIGHT.
- G. 1'-6" I.D. PVC PIPE 1'-0" LONG MAY BE USED TO FORM SUMP AREA.
- H. MASS CONCRETE.
- I. SEWER FRAME & COVER PER C.O.A. STD. DWG. 2110
- K. PRECAST CONCRETE FLAT TOP FOR MANHOLE WITH 2'-0" DIA. OPENING.
- L. 3" "D" MODEL VALVE. BY AIRVAC OR EQUAL.
- M. 2" PVC SENSOR CAP SUPPLIED WITH VALVE.
- N. 2" PVC SENSOR PIPE.
- O. PRECAST CONCRETE BOTTOM IN MANHOLE SECTION.
- P. 3" STREET ELL TOUCHING BASE OF SUMP WITH PLAIN END. NO CONNECTION.
- Q. VALVE AND PIPING REMOVED FOR CLARITY.
- R. SENSOR PIPE.
- S. VALVE CONNECTION.
- T. LOCATION OF LID.
- R. SENSOR PIPE.
- S. VALVE CONNECTION.
- T. LOCATION OF LID.
- Y. LOCATE VENT BY POLE OR FENCE FOR PROTECTION
- Z. VENT FABRICATED WITH 90° ELLS.; HEIGHT MUST BE ABOVE FLOOD WATER LEVEL, BUT BELOW FINISHED FLOOR LEVEL OF LOWEST RESIDENCE SERVED.

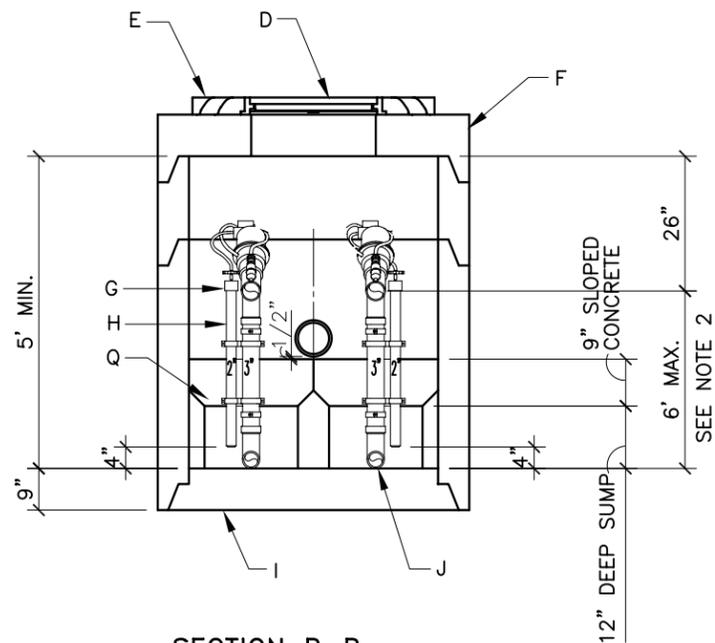
REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS SINGLE BUFFER TANK 30 GALLON PER MINUTE MAX. FLOW DWG. 2167 JANUARY 2003



PLAN



SECTION A-A



SECTION B-B

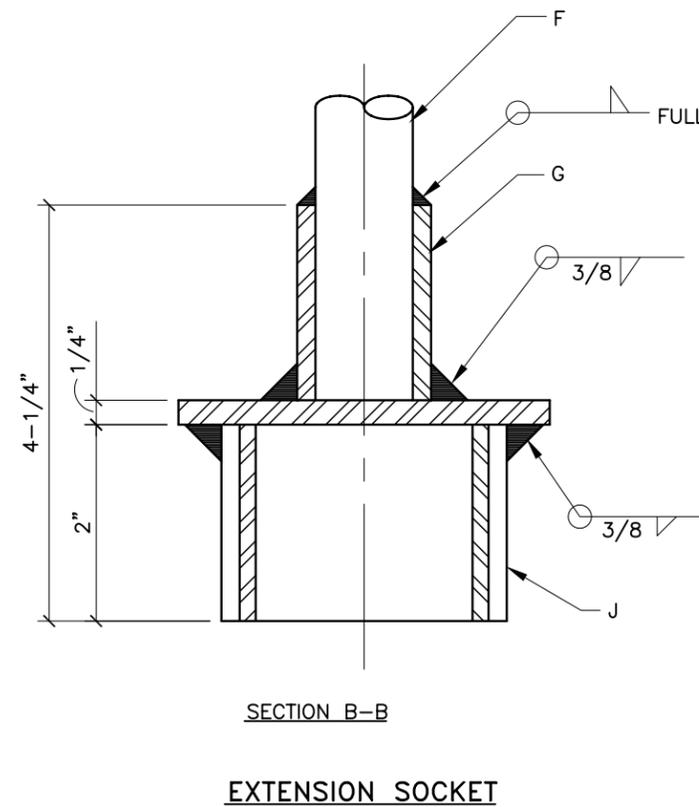
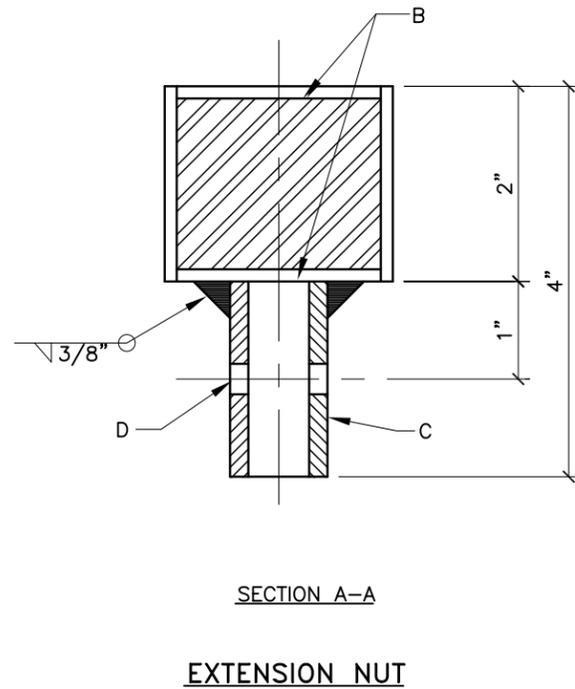
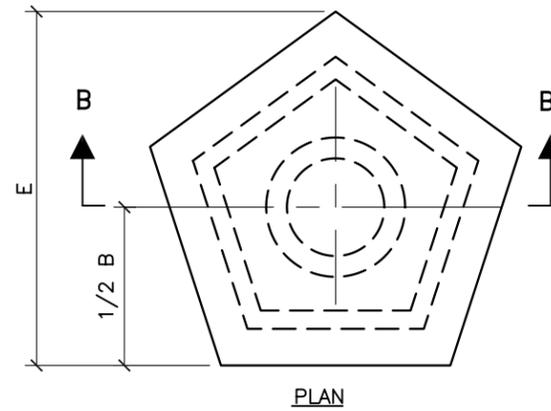
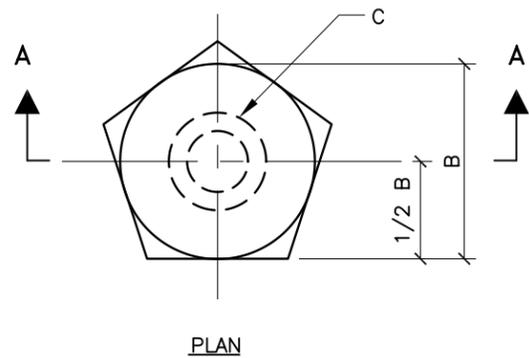
**GENERAL NOTES:**

1. ANY LIFT EXCEEDING 6' MUST BE ADDED TO HEAD LOSSES ON VACUUM MAIN AND SERVICE LINE TO DETERMINE IF SUFFICIENT VACUUM HEAD IS AVAILABLE.
2. ALL MATERIALS AND HARDWARE FOR INSTALLING VALVE, TO BE FURNISHED BY CONTRACTOR. ALL INSTALLATION AND TESTING BY CONTRACTOR, EXCEPT VALVE TO BE INSTALLED BY OWNER. ALL PVC FITTINGS TO BE GLUED EXCEPT WHERE NOTED. DRILL HOLE IN WALL FOR MOUNTING SCREW FOR SUMP BREATHER.

**CONSTRUCTION NOTES:**

- A. SUMP BREATHER ASSEMBLY (ONE PER VALVE).
- B. 1'-6" I.D. PVC PIPE 1'-0" LONG MAY BE USED TO FORM SUMP AREAS.
- C. MASS CONCRETE.
- D. SEWER MANHOLE FRAME & COVER PER C.O.A. STD. DWG. 2110
- E. CONCRETE COLLAR PER C.O.A. STD. DWG. 2461.
- F. PRECAST CONCRETE FLAT TOP FOR MANHOLE WITH 2'-0" DIA. OPENING.
- G. 2" PVC SENSOR CAP SUPPLIED WITH VALVE.
- H. 2" PVC SENSOR PIPE.
- I. PRECAST CONCRETE BOTTOM IN MANHOLE SECTION
- J. 3" STREET ELL TOUCHING BASE OF SUMP WITH PLAIN END. NO CONNECTION.
- K. VALVE AND PIPING REMOVED FOR CLARITY.
- L. 18" DIAMETER SUMP (2).
- M. LOCATION OF LID.
- N. USE 4'-0" I.D. CONCRETE MANHOLE SECTIONS ADDITIONAL SECTIONS MAY BE ADDED TO ALLOW CONNECTION OF DEEP GRAVITY LINES OR FOR ADDED STORAGE CAPACITY.
- O. 3" VACUUM SERVICE LINES MUST (EACH) CONNECT DIRECTLY TO A 6" MINIMUM SEPARATION AT MAIN. SERVICE LINES FITTED WITH STANDARD FLEXIBLE CONNECTORS AT THE HOLE IN THE MANHOLE SECTION TO INSURE THAT THE BUFFER TANK IS WATER TIGHT.
- P. MINIMUM 6" GRAVITY LINE WITH MATCHING VENT, MINIMUM 20' FROM BUFFER TANK. CONNECT 6" LINE TO 12" X 6" REDUCER. CONNECT REDUCER TO 12" PIPE ENTERING MANHOLE. CENTER 12" PIPE OVER CENTER DIVIDER WALL C. 12" LINE SHALL BE FITTED WITH STANDARD FLEXIBLE CONNECTORS AT THE HOLE TO INSURE THAT BUFFER TANK IS WATERTIGHT.
- Q. SHAPE SLOPED CONCRETE TO DISTRIBUTE FLOW EVENLY BETWEEN SUMPS.
- R. GRAVITY INLET MUST BE LOCATED BETWEEN THE VACUUM SERVICE LINE AND THE START OF SLOPE TO SUMP.
- S. 3" "D" MODEL VALVE, BY AIRVAC OR EQUAL, TO BE INSTALLED BY OWNER

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS DUAL BUFFER TANK 60 GALLON PER MINUTE MAX. FLOW DWG. 2168 JANUARY 2003



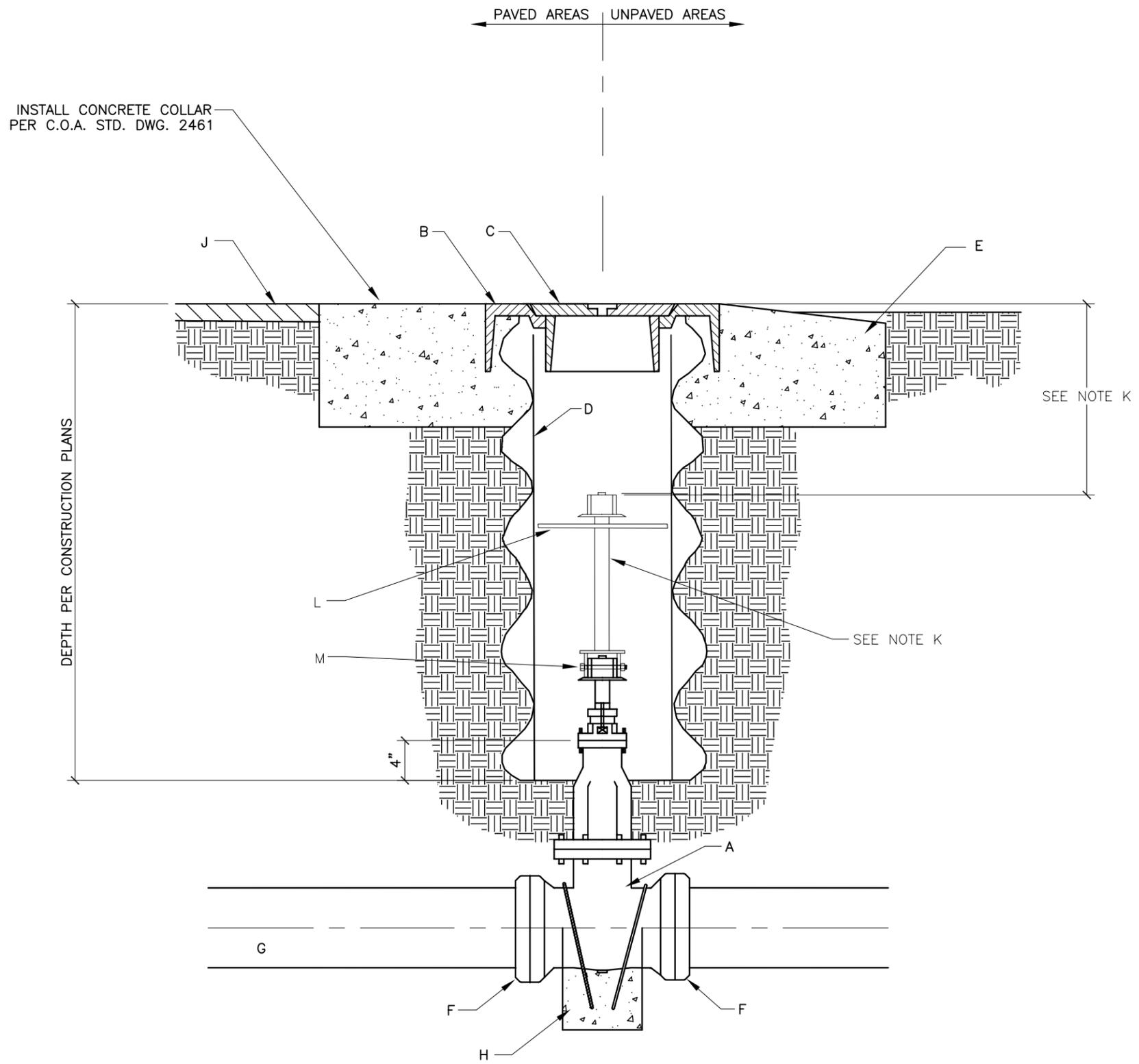
**GENERAL NOTES:**

1. THESE NUTS AND SOCKETS ARE A PART OF THE VALVE STEM EXTENSION, SEE VACUUM DIVISION VALVE BOX DWG. 2170

**CONSTRUCTION NOTES:**

- A. 2" LONG H.R. STEEL BAR, 2" x 2"
- B. 2" DIA. STEEL CIRCLE W/ PENTAGON CIRCUMSCRIBED ABOUT CIRCLE
- C. 1" DIAMETER, SCH 40 PIPE x 2" (1.315 O.D. x 1.049 I.D.)
- D. DRILL .312 DIAMETER HOLE THROUGH PIPE FOR .31 DIAMETER CLEVIS PIN/COTTER PIN.
- E. 3-1/4"
- F. 1" DIAMETER EXTENSION BAR, 6 FEET LONG. W/ T HANDLE.
- G. 1" DIAMETER, SCH 40 x 2" (1.315 O.D. x 1.049 I.D.)
- H. PENTAGONAL SHAPED x 1/4" H.R. STEEL PLATE 1/2" LARGER THAN TUBULAR SECTION BELOW
- J. 2" LONG H.R. STEEL PENTAGONAL SHAPED TUBULAR SECTION x .1875 WALL W/ 1/8" TOTAL CLEARANCE TO EXTENSION NUT.

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS VACUUM DIVISION VALVE STEM NUT AND SOCKET DETAILS DWG. 2169 JANUARY 2003



INSTALL CONCRETE COLLAR  
PER C.O.A. STD. DWG. 2461

**CONSTRUCTION NOTES:**

- A. RESILIENT COATED WEDGE GATE VALVE AS MANUFACTURED BY WATEROUS OR EQUAL. SUPPLY WITH 2"-5 SIDED NUT PER C.O.A. STD. DWG. 2169.
- B. RING
- C. COVER
- D. 10" DIA. RIBBED OR CORRUGATED PVC OR PE PIPE WITH SMOOTH INTERIOR, C-900.
- E. CONCRETE COLLAR. INSCRIBE CONCRETE SURFACE WITH SIZE OF VACUUM LINE AND DIRECTION OF FLOW (MIN. 2" LETTERING). IN PAVED AREAS, INSTALL COLLAR FLUSH WITH PAVEMENT. IN UNPAVED AREAS, SET RING 1" ABOVE GRADE AND SLOPE TOP OF CONCRETE DOWN TO 1" BELOW GRADE.
- F. MEGALUG, OR EQUAL, RESTRAINING GLAND.
- G. VACUUM MAIN LINE.
- H. VALVE ANCHORAGE PER CITY STD. DWG. 2333.
- J. ASPHALT PAVEMENT WHERE SPECIFIED
- K. VALVE EXTENSION SHALL BE INSTALLED ONLY WHEN INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER. WHEN INSTALLED, DEPTH TO OPERATING NUT SHALL BE MAXIMUM 24". EXTEND 12" MIN. WHEN EXTENSION IS REQUIRED.
- L. 9" DIA. X 1/4" STEEL PLATE CENTERING DISK. WELD NEAR TOP OF SHAFT WHEN EXTENSION IS REQUIRED.
- M. SECURE EXTENSION SOCKET TO VALVE NUT WITH 1/4" S.S. THRU-BOLT AND NUT

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS VACUUM DIVISION VALVE VALVE BOX
	DWG. 2170      JANUARY 2003

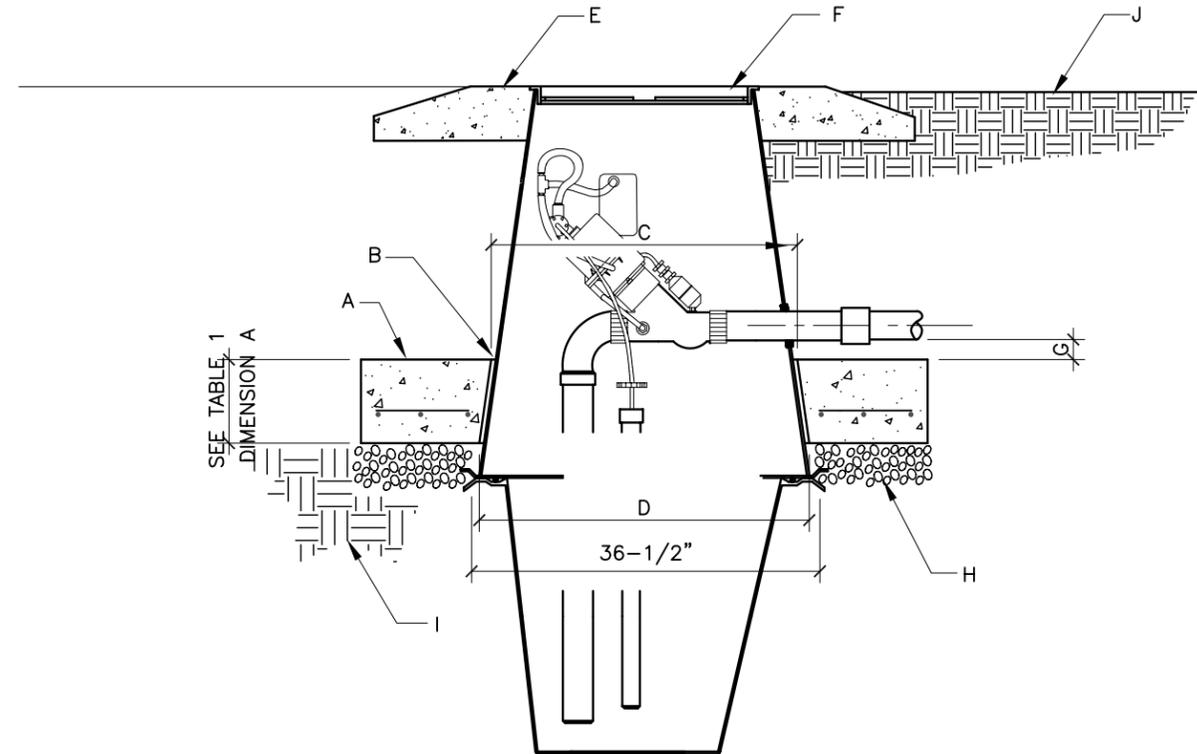


**GENERAL NOTES:**

1. ALL COMPACTION OF SUBGRADE AND BACKFILL FOR INSTALLATION OF VACUUM VALVE PIT TO BE 95% OF MAXIMUM DRY DENSITY PER ASTM D 1557.
2. AVOID EXCESSIVE EXPOSURE TO SUNLIGHT FOR OPEN VACUUM VALVE PITS. CLOSE & COMPLETE WITHIN 3 DAYS TO INSURE INTEGRITY OF RUBBER O-RING.
3. SEE C.O.A. STD. DWG. 2165 FOR ADDITIONAL DETAILS.

**CONSTRUCTION NOTES:**

- A. 62" SQUARE CONC. ANTI-FLOATATION COLLAR; WITH #4 REBAR @ 6" E.W. 3" FROM EDGE OF CONC. SEE TABLE 1 FOR THICKNESS. CONCRETE PER SEC. 101 HYDRAULIC STRUCTURAL CONCRETE,  $f'_c=4000$  psi @ 28 DAYS.
- B. CLEARANCE BETWEEN CONCRETE COLLAR AND FIBERGLASS PIT.
- C. 35" DIA. OPENING @ TOP OF SLAB.
- D. 35-1/2" DIA. OPENING @ BOTTOM OF SLAB.
- E. INSTALL CONCRETE COLLAR PER C.O.A. STD. DWG. 2461.
- F. CAST IRON MANHOLE FRAME AND COVER; SEE C.O.A. STD. DWG. 2165
- G. 1" CLEARANCE TO BOTTOM OF 3" LATERAL
- H. 3" THICK 3/4" GRAVEL, ASTM C33, NO. 57 GRAVEL.
- I. COMPACTED SUBGRADE
- J. FINISH GRADE

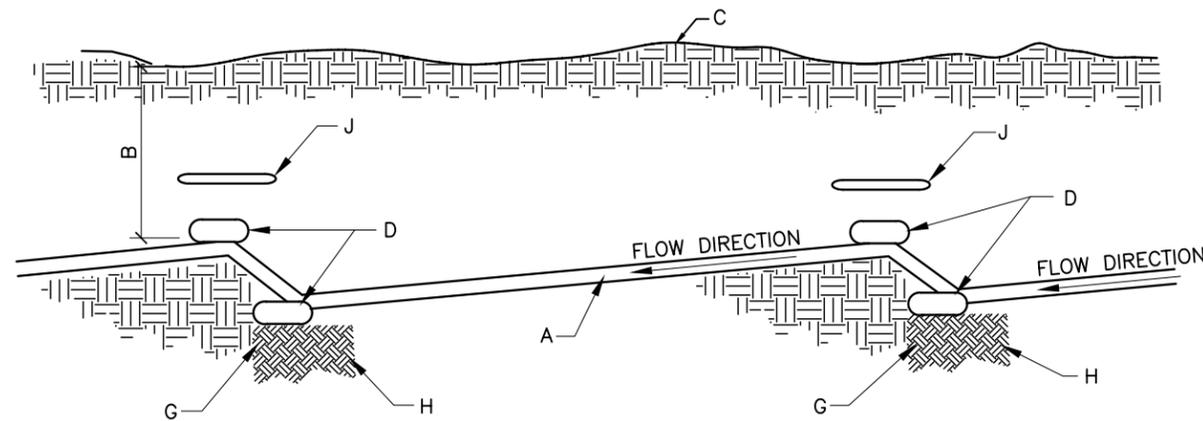


**TABLE 1**

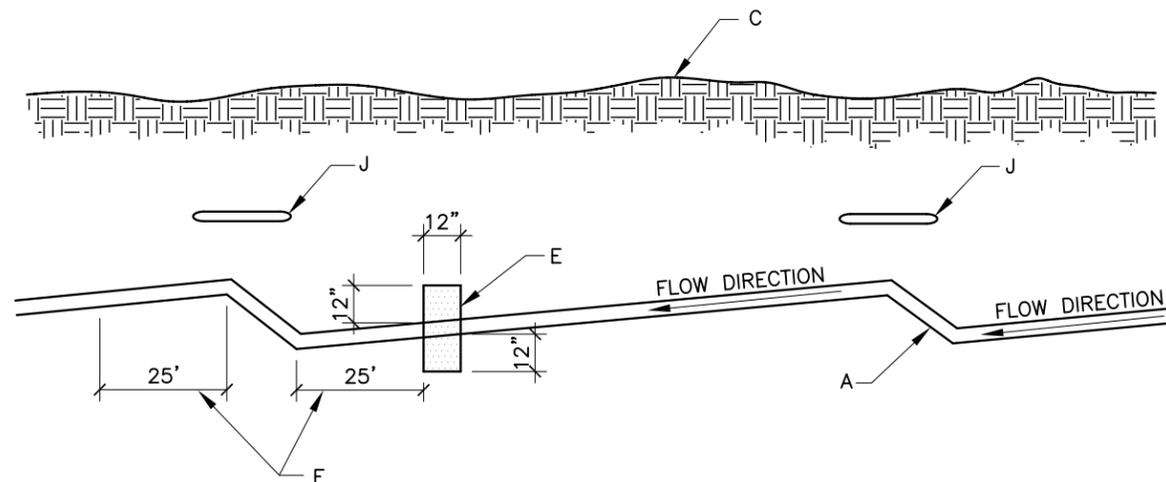
DESCRIPTION	DIM. A
30" SUMP PACKAGE	7 1/2"
54" SUMP PACKAGE	9 1/2"

(SEE STD. DWG. 2165)

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS VACUUM VALVE PIT - TYPE "B" FOR USE IN UNPAVED AREAS DWG. 2172      JANUARY 2003



**BLOCKING DETAIL**  
SEWER PROFILE



**SEEPAGE COLLAR DETAIL**  
SEWER PROFILE

**GENERAL NOTES:**

1. BENTONITE COLLAR TO BE INSTALLED EVERY 250' ALONG VACUUM SEWER RUN AND FORCE MAIN.
2. BENTONITE SEEPAGE COLLARS ARE FOR VACUUM SEWER MAINS AND FORCE MAINS INSTALLED IN MRGCD IRRIGATION RIGHT-OF-WAY OR AS SHOWN ON CONSTRUCTION DRAWINGS.
3. COST OF COLLARS IS INCIDENTAL TO PIPE CONSTRUCTION.

**CONSTRUCTION NOTES:**

- A. 4", 6", 8" OR 10" VACUUM SEWER.
- B. DEPTH PER PLANS
- C. FINISH GRADE
- D. 80 LB BAG OF REDI-MIX CONCRETE WITH CUT ON TOP.
- E. BENTONITE SEEPAGE COLLAR; SEE SPECS. BELOW
- F. MIN. DISTANCE FROM 45° BENDS
- G. UNDISTURBED EARTH
- H. 95% COMPACTED SUBGRADE
- J. ELECTRONIC MARKER DISK, 12" ABOVE TOP OF PIPE

**BENTONITE SPECIFICATIONS:**

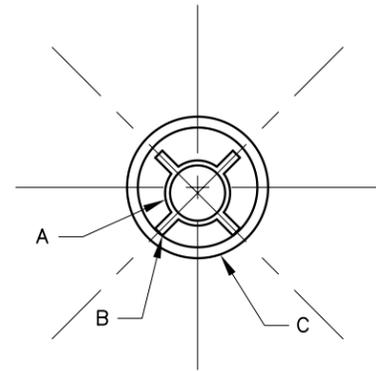
HYDROGEL BENTONITE  
BY WYO-BEN, INC. OR  
APPROVED EQUAL

BARREL YIELD	92
VISCOMETER READING AT 600 R.P.M.	39 +/- 5
WATER LOSS	13.5 +/- 1
% THRU 200 MESH SCREEN	80 +/- 2
WET SCREEN ANALYSIS RESIDUE ON U.S. SIEVE NO. 200	3.0 +/- .5
% MOISTURE	7 +/- 1
pH	9.1 +/- .1
GEL STRENGTH-10SEC.	18 +/- 2
GEL STRENGTH-10 MIN.	
PLASTIC VISCOSITY	14 +/- 2
YIELD POINT, LB/200 ft.	16 +/- 4

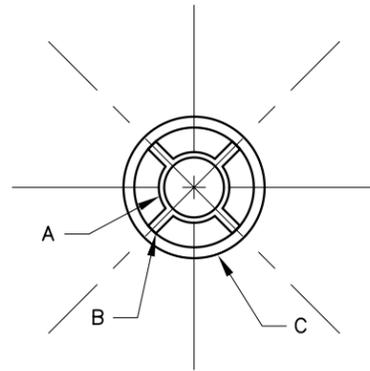
MIX 80 LBS. PER 100 GALLONS OF MAKE-UP WATER.

REVISIONS	CITY OF ALBUQUERQUE
	VACUUM SEWER STANDARDS BLOCKING AND SEEPAGE COLLAR DETAILS
	DWG. 2173      JANUARY 2003

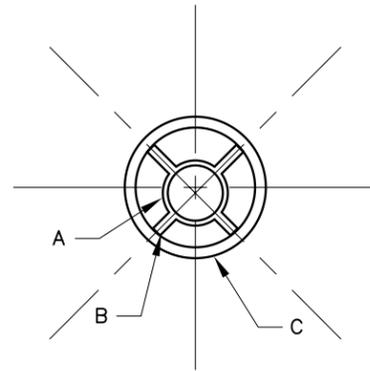




STANDARD

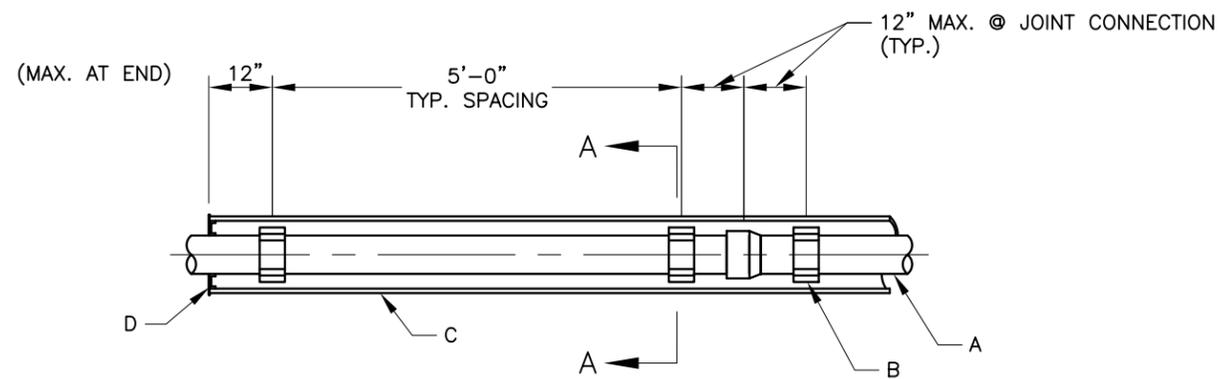


CENTERED



RESTRAINED

SECTION A-A



PLAN

GENERAL NOTES:

- SEE CONSTRUCTION PLANS AND SPECIFICATIONS FOR SKID TYPE AND SECTION CONFIGURATION (STANDARD, CENTERED AND RESTRAINED) AS SHOWN PER SECTION A-A.

CONSTRUCTION NOTES:

- CARRIER PIPE.
- PIPELINE SUPPORT SKID (SEE CONSTRUCTION PLANS AND SPECIFICATIONS FOR SIZES AND MODEL NUMBERS).
- STEEL CASING (SIZE AND THICKNESS PER CONSTRUCTION PLANS AND SPECIFICATIONS).
- CASING END SEAL; (SEE CONSTRUCTION PLANS AND SPECIFICATIONS FOR SIZES AND MODEL NUMBERS).

REVISIONS	CITY OF ALBUQUERQUE
	CASING DETAIL FOR BORE AND JACK VACUUM SEWER SYSTEM DWG. 2180      JANUARY 2003