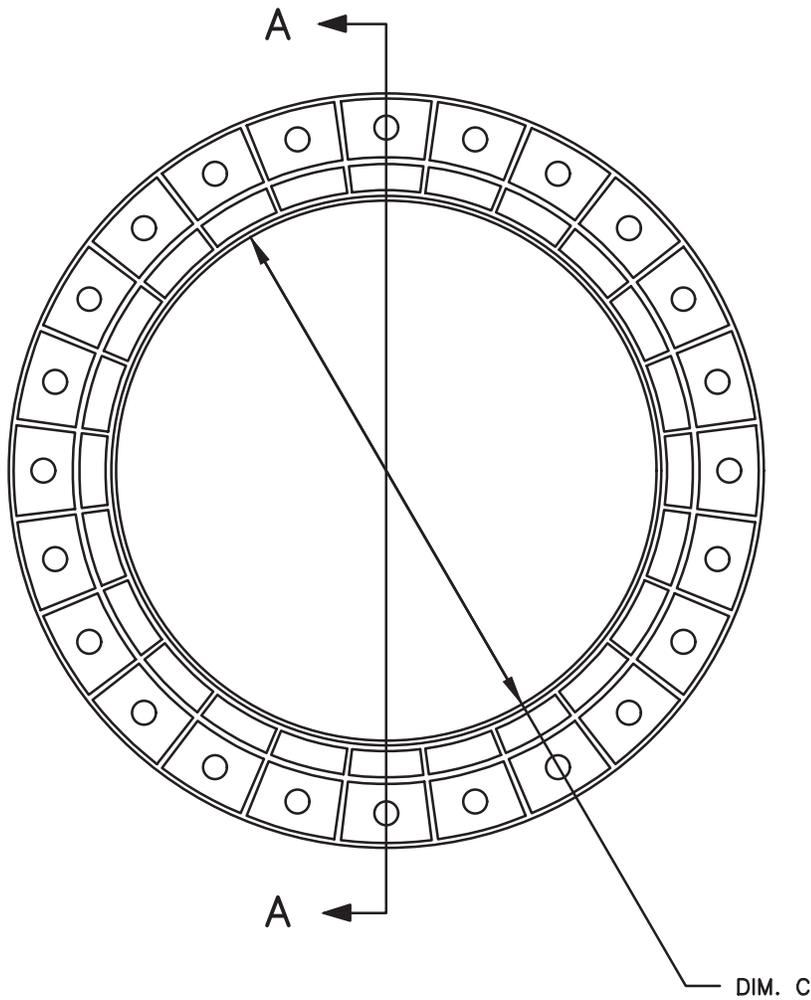


NOTE: BENCH MAY BE CONC. BRICK AND MORTAR.

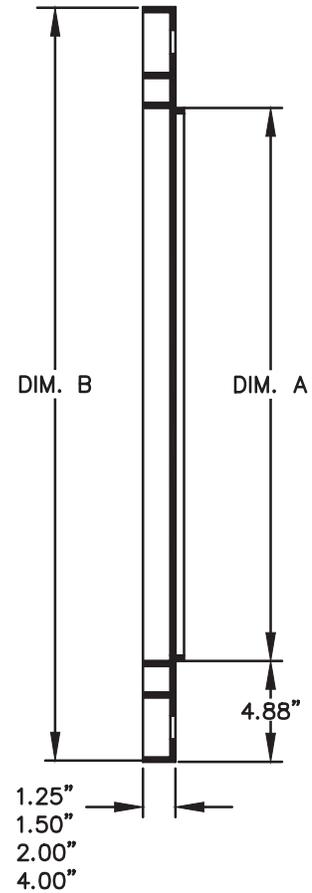
Not to Scale

NOTE: STONE BEDDING SHALL EXTEND TO THE OUTER BOUNDARY OF ALL UNDISTURBED AREAS SURROUNDING THE MANHOLE.

DATE April 2013	Spotsylvania County Department of Utilities	<h1>Standard Manhole</h1>	DRWG. NO. <h2>S1</h2>
REVISIONS March 2017			



PLAN VIEW



SECTION "A-A"

DIMENSION SCHEDULE

<u>CONE SIZE</u>	<u>DIM. A</u>	<u>DIM. B</u>	<u>DIM. C</u>
24"	23.75"	33.50"	23.25"
27"	26.75"	36.50"	26.25"
30"	29.75"	39.50"	29.25"
36"	35.75"	45.50"	35.25"

DESCRIPTION:

PLASTIC INJECTION MOLDED ADJUSTING RING

MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION #D1248-84

ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF 100% REGRIND MATERIAL

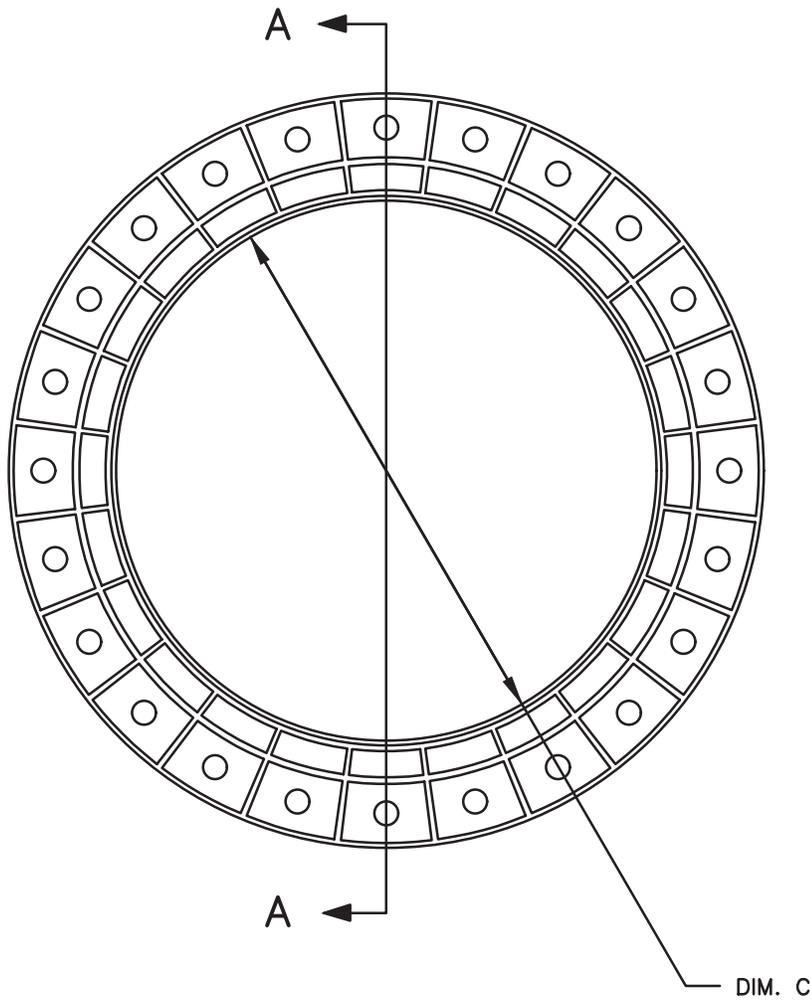
THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS

COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS

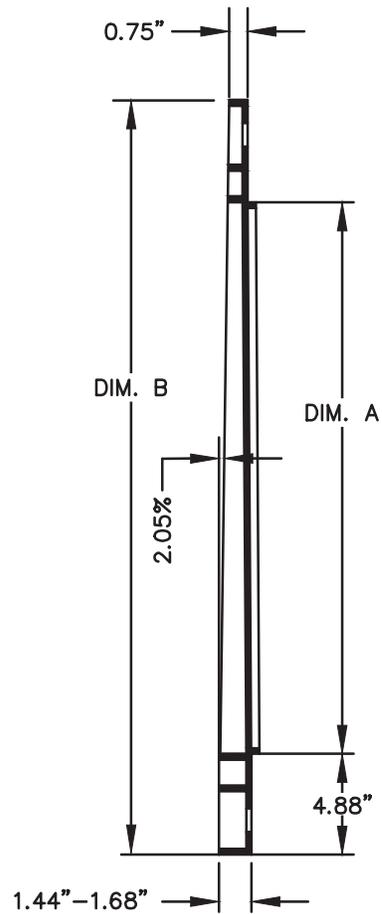
DIMENSIONS SHOWN ARE NOMINAL - ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

Not to Scale

DATE Oct. 2005	Spotsylvania County Department of Utilities	Polyethylene Manhole Adjustment Ring - Flat	DRWG. NO. S1-A
REVISIONS March 2017			



PLAN VIEW



SECTION "A-A"

DIMENSION SCHEDULE

<u>CONE SIZE</u>	<u>DIM. A</u>	<u>DIM. B</u>	<u>DIM. C</u>
24"	23.75"	33.50"	23.25"
27"	26.75"	36.50"	26.25"
30"	29.75"	39.50"	29.25"
36"	35.75"	45.50"	35.25"

DESCRIPTION:

PLASTIC INJECTION MOLDED ADJUSTING RING

MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION #D1248-84

ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF 100% REGRIND MATERIAL

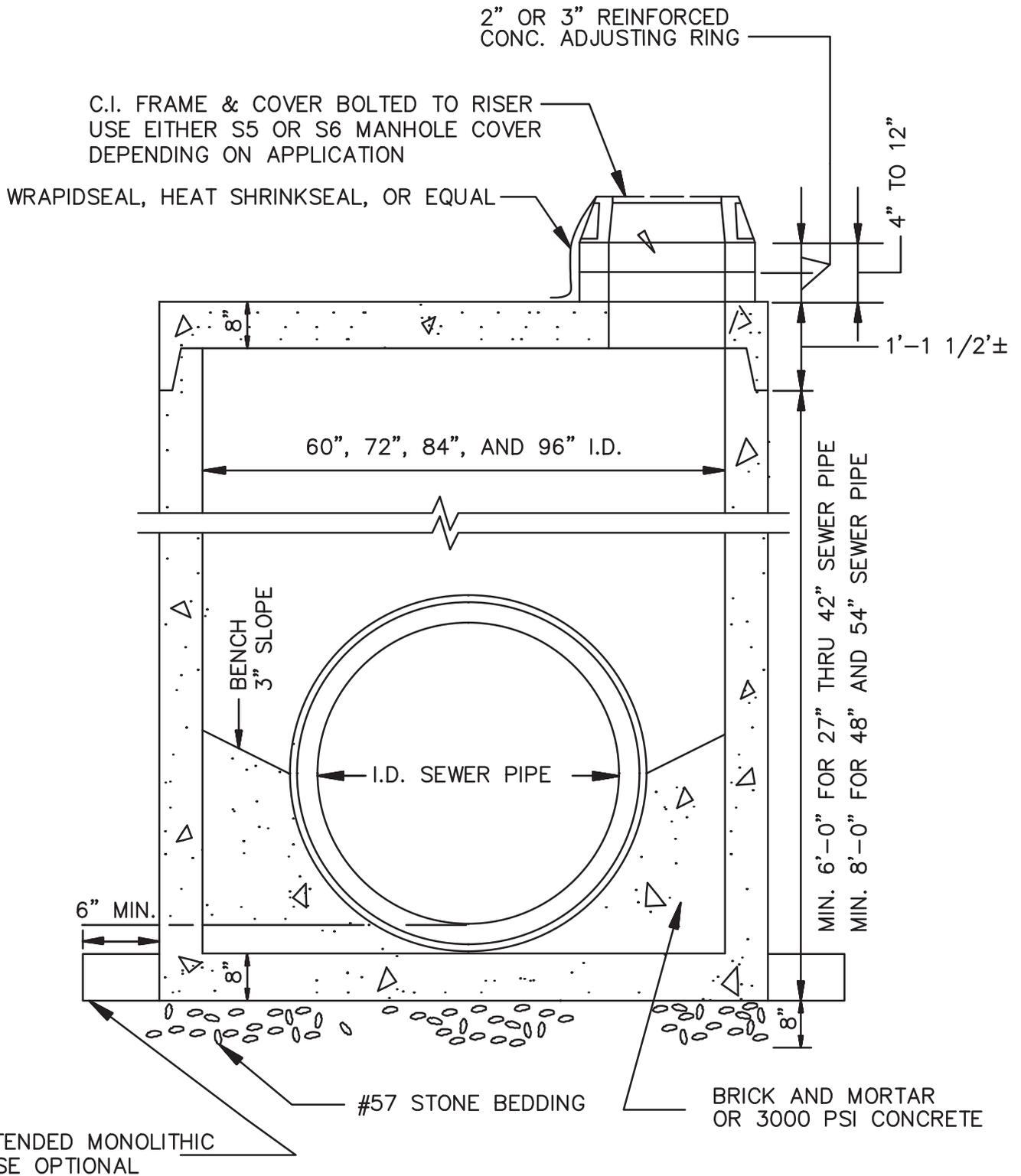
THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS

COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS

DIMENSIONS SHOWN ARE NOMINAL - ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

Not to Scale

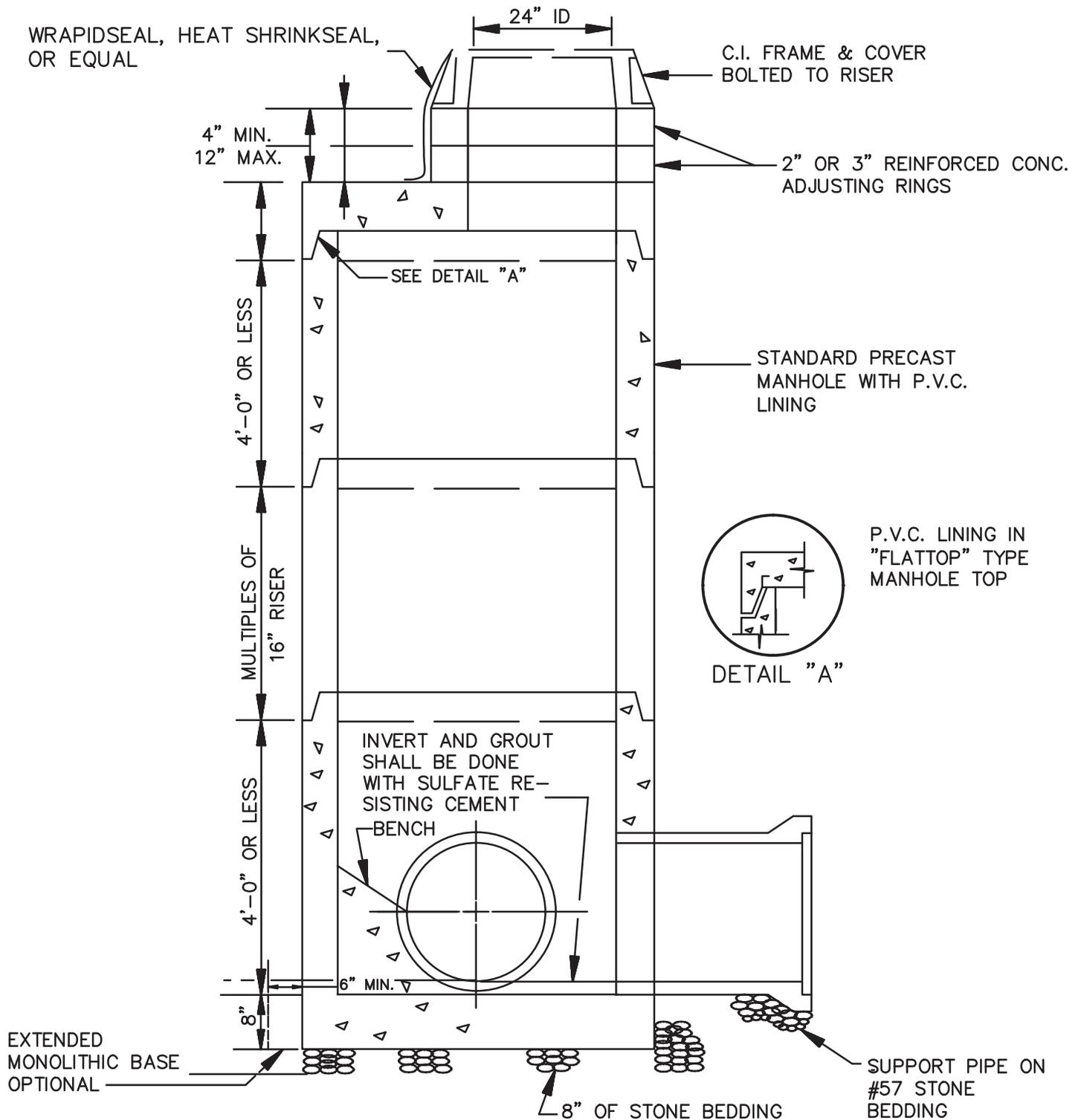
DATE Oct. 2005	Spotsylvania County Department of Utilities	Polyethylene Manhole Adjustment Ring - Wedge	DRWG. NO. S1-B
REVISIONS March 2017			



MANHOLE CONSTRUCTION SHALL
CONFORM TO ASTM C-478

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	<h1 style="text-align: center;">Deep Manhole 18' or Deeper</h1>	DRWG. NO. S2
REVISIONS March 2017			



NOTES:

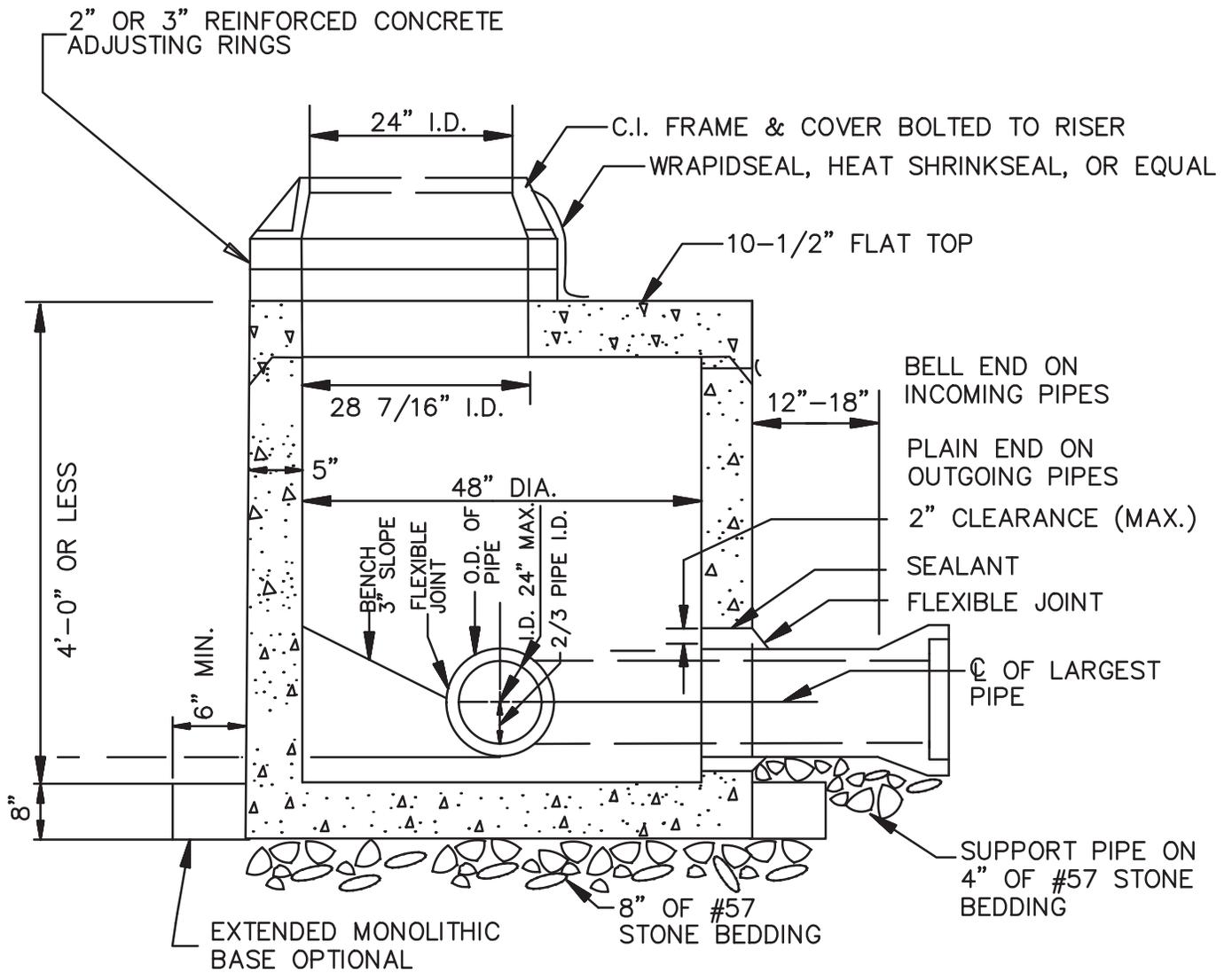
ACID-RESISTANT MANHOLES SHALL BE REQUIRED A MINIMUM OF 2000 FT. DOWNSTREAM OF FORCE MAIN DISCHARGE.

LINING SHALL BE PVC FABRIC EQUAL TO AMERON.

T-LOCK JOINTS SHALL BE WELDED ACCORDING TO LINER MANUFACTURER'S RECOMMENDATIONS.

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	<h1>Acid Resistant Manhole</h1>	DRWG. NO. <h1>S3</h1>
REVISIONS			

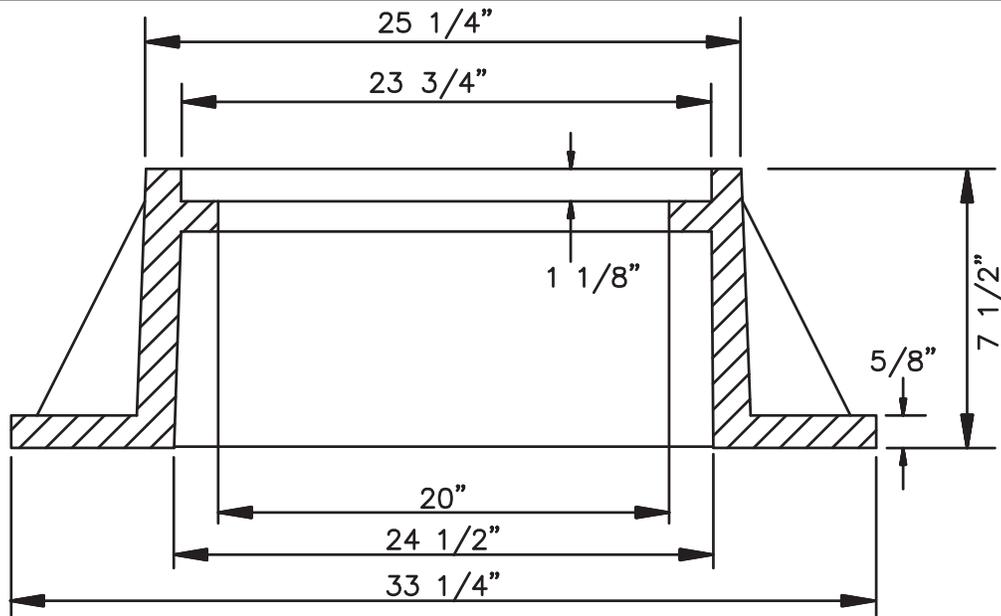


NOTES:

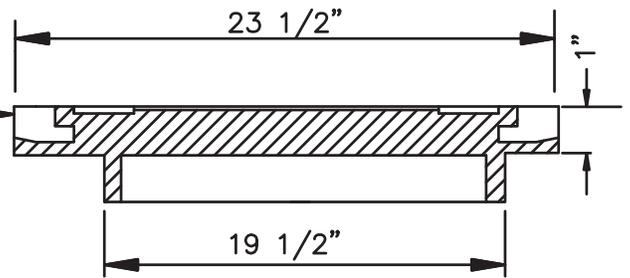
1. EXTEND STONE BEDDING TO UNDISTURBED AREAS SURROUNDING THE MANHOLE.
2. BENCH MAY BE CONCRETE OR BRICK AND MORTAR.
3. PROVIDE REINFORCEMENT FABRIC PER ASTM A-185 (0.12 IN/FT).
4. MANHOLE CONSTRUCTION PER ASTM C-478.
5. PROVIDE JOINT MASTIC PER MANUFACTURER'S RECOMMENDATIONS.
6. COAT MANHOLE INTERIOR WITH SIKAGARD 62 OR EQUAL.

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	<h1 style="margin: 0;">Shallow Manhole</h1>	DRWG. NO.
REVISIONS			<h2 style="margin: 0;">S4</h2>

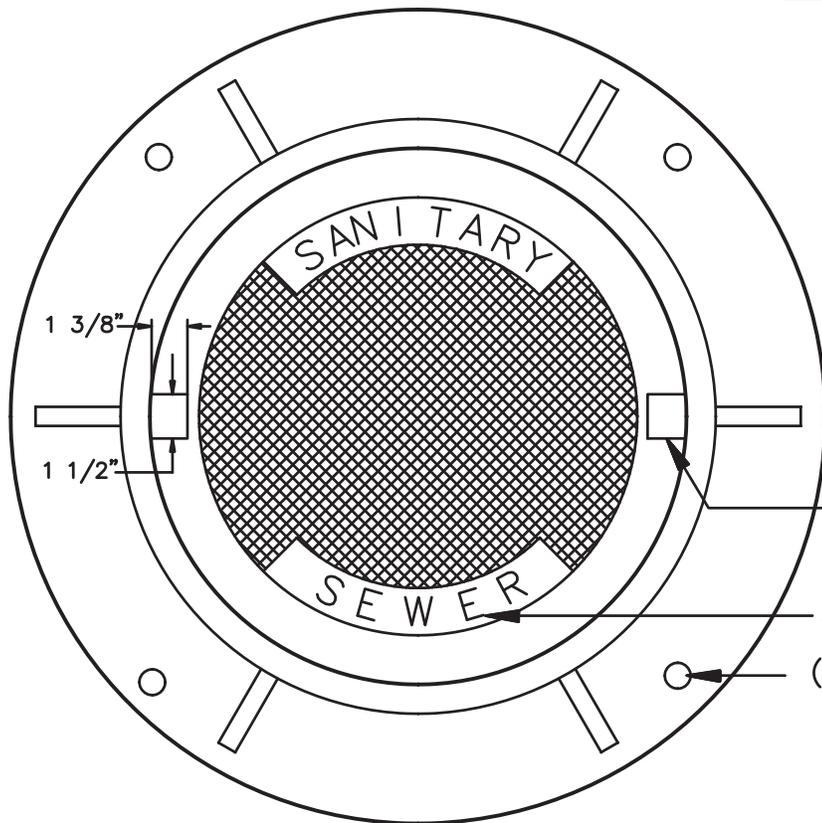


FRAME SECTION



COVER SECTION

(2) CLOSED PICKHOLES



PLAN VIEW

Not to Scale

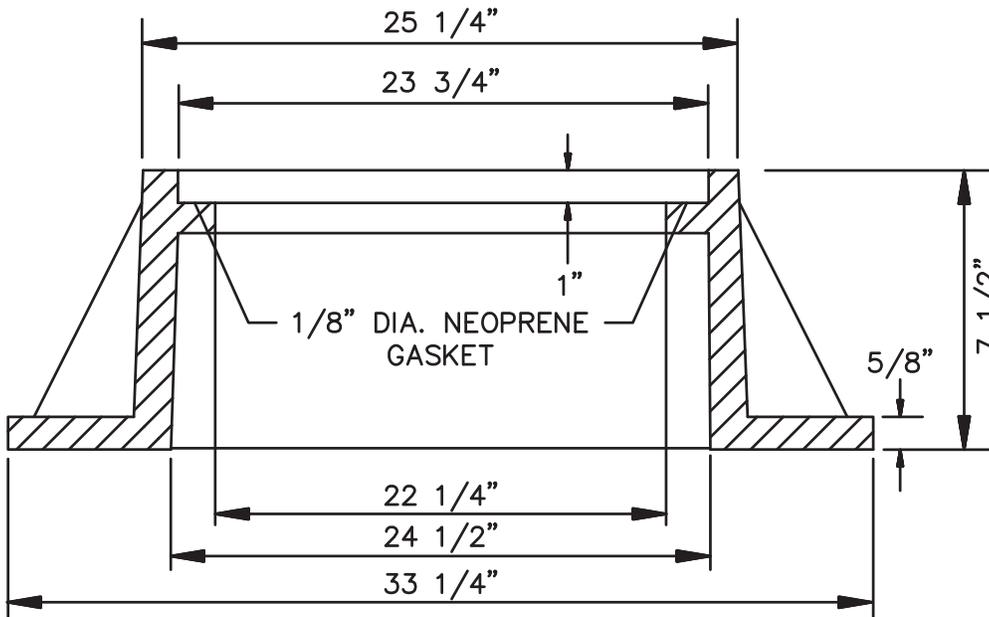
(2) CLOSED PICKHOLES

2" LETTERS (RECESSED FLUSH)

(4) 1" DIA. HOLES @ 32 3/4" DIA. BOLT CIRCLE

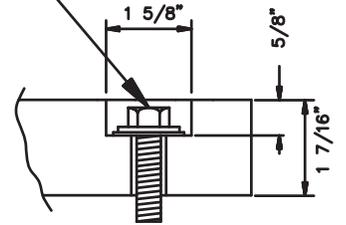
NOTE: FRAME AND COVER SHALL BE CAST IRON ASTM A-48 CLASS 35 SEATING SURFACE BETWEEN FRAME AND COVER SHALL BE MACHINED.

DATE April 2013	Spotsylvania County Department of Utilities	Manhole Frame and Cover	DRWG. NO.
REVISIONS March 2017			S5



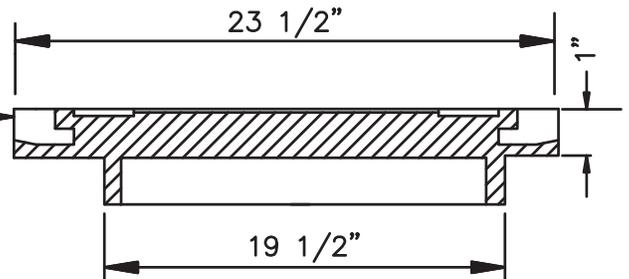
FRAME SECTION

1/2"-13 BOLT WITH
STEEL WASHER AND
RUBBER WASHER
(TYP. 4 PLACES)

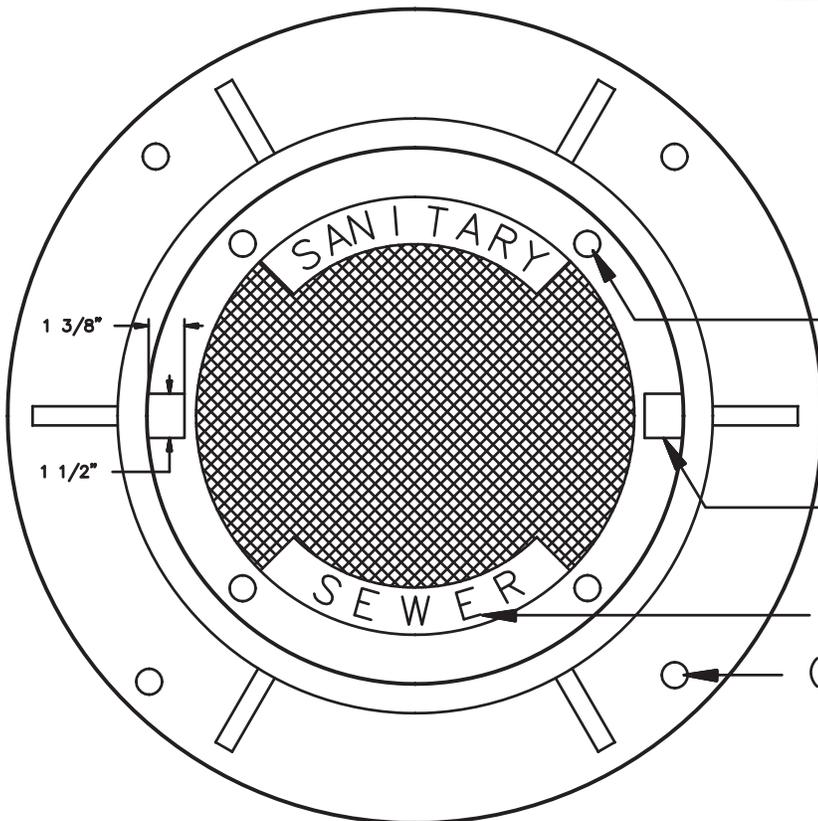


BOLT DETAIL

(2) CLOSED PICKHOLES



COVER SECTION



PLAN VIEW

Not to Scale

(4) 1/2" x 1 1/2" HEX SS
CAP SCREW W/ 1/2" ZINC
PLATED WASHERS

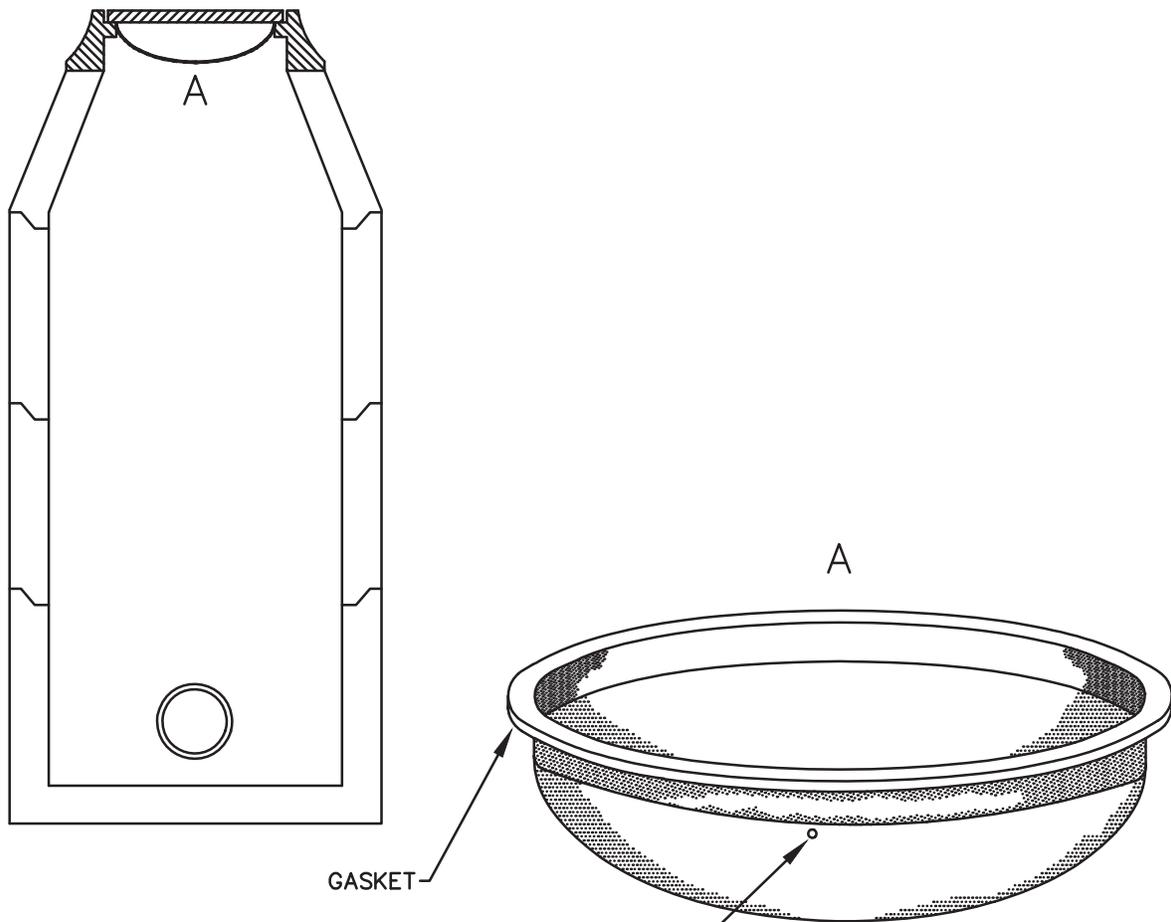
(2) CLOSED PICKHOLES

2" LETTERS (RECESSED FLUSH)

(4) 1" DIA. HOLES @ 32 3/4" DIA.
BOLT CIRCLE

NOTE: FRAME AND COVER SHALL
BE CAST IRON ASTM A-48
CLASS 35
SEATING SURFACE BETWEEN FRAME
AND COVER SHALL BE MACHINED.

DATE April 2013	Spotsylvania County Department of Utilities	Bolt Down (Vandal Proof) Manhole Frame and Cover	DRWG. NO.
REVISIONS March 2017			S6



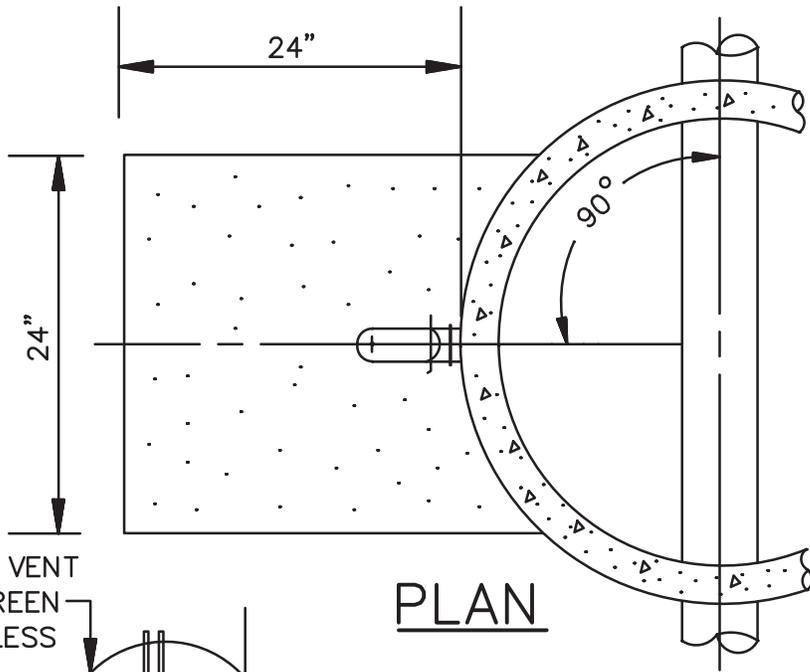
1/8" DIAMETER HOLE (FOR PRESSURE RELIEF) LOCATE HOLE NEAR TOP OF INSERT

NOTES:

1. THE MANHOLE INSERT WILL BE MADE OF NON-CORRODIBLE MATERIALS AND WILL NOT BE DAMAGED BY SEWER GASES OR ROAD OIL.
2. THE INSERT SHALL HAVE TWO NYLON STRAPS FOR LIFTING THE INSERT. THE STRAPS SHALL BE ATTACHED TO THE INSERT WITH STAINLESS STEEL RIVETS.
3. THE BOWL SHALL BE $\pm 1/8$ " THICK AND SHALL BE BETWEEN 6" AND 8" DEEP.
4. THE INSERT SHALL HAVE A GASKET TO SEAL BETWEEN THE INSERT AND THE LOOP OF THE MANHOLE FRAME.

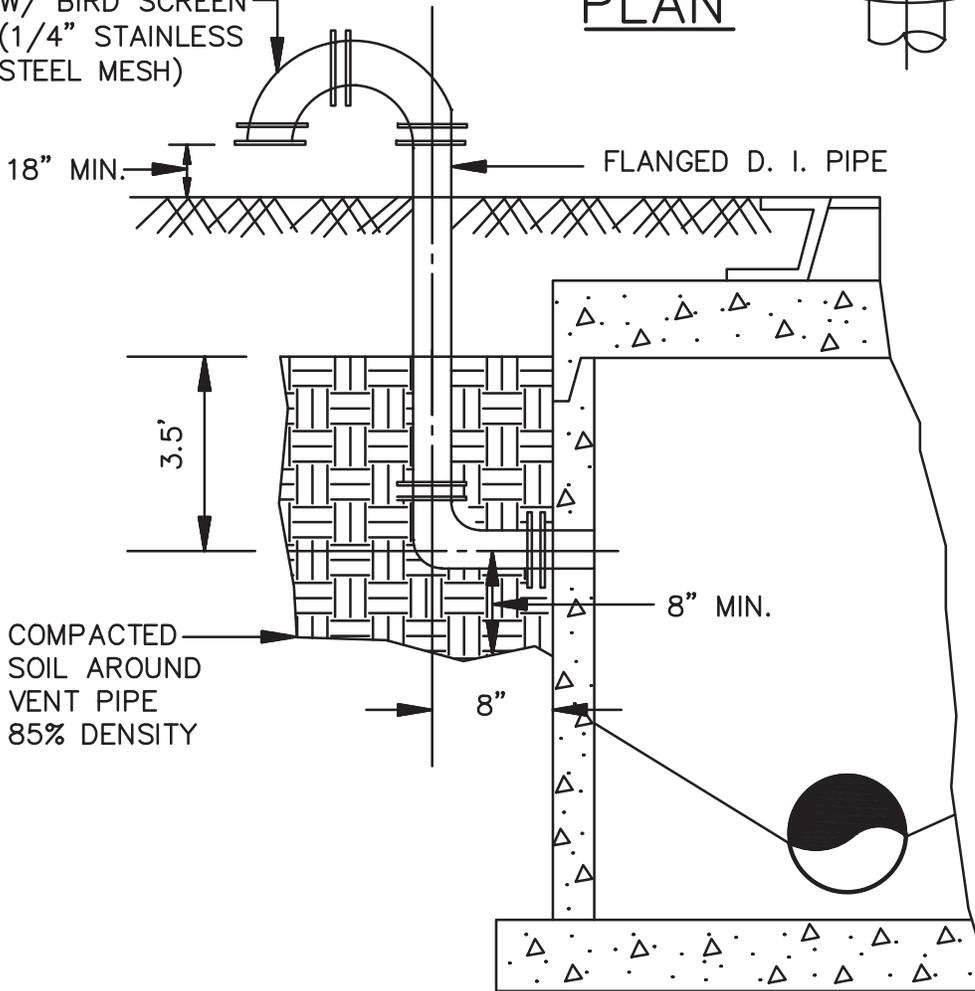
Not to Scale

DATE April 2005	Spotsylvania County Department of Utilities	<h2 style="margin: 0;">Waterproof Manhole Insert</h2>	DRWG. NO. <h2 style="margin: 0;">S6-A</h2>
REVISIONS March 2017			



PLAN

2", 4" & 6" VENT
W/ BIRD SCREEN
(1/4" STAINLESS
STEEL MESH)



SECTION

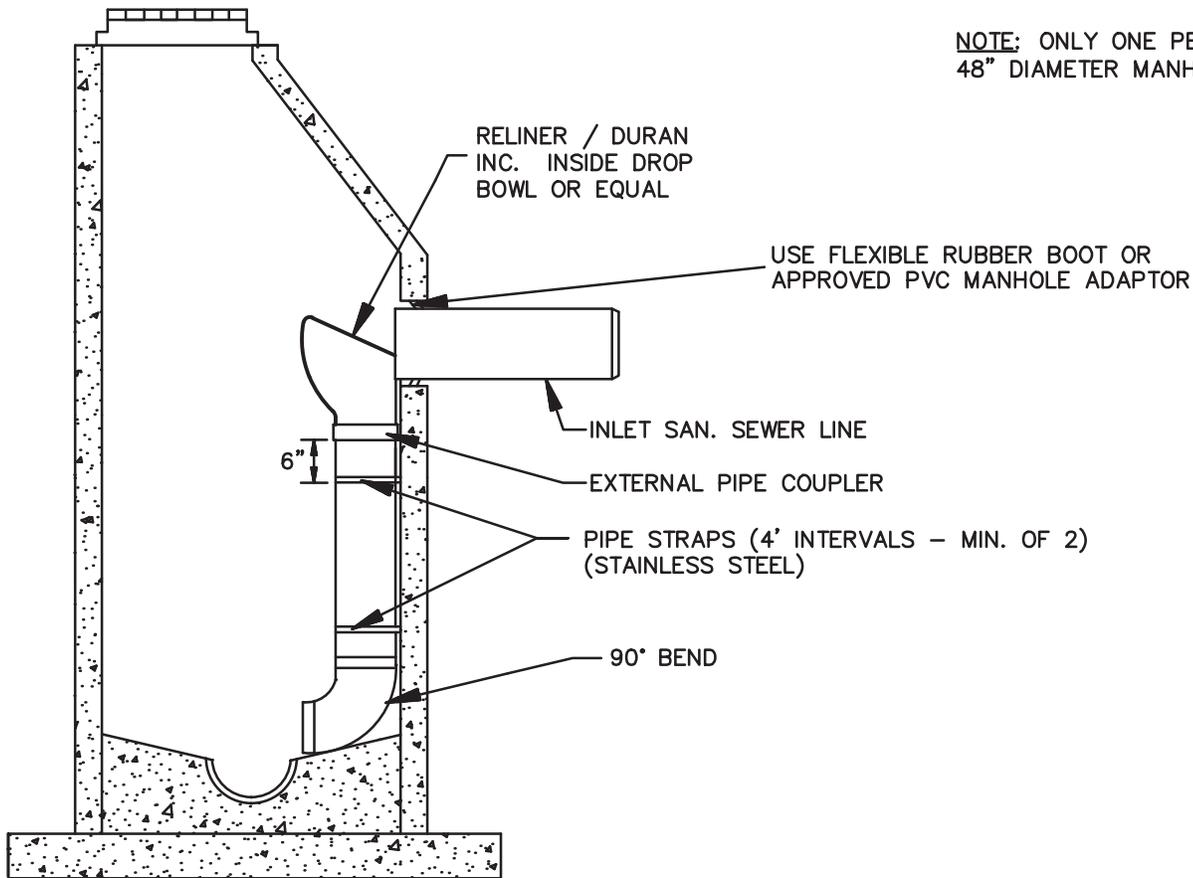
Not to Scale

NOTE: ALL VENT PIPE AND FITTINGS SHALL BE ASPHALT COATED 1 MIL THICK PER AWWA C151.

NOTE: WHERE MANHOLE IS LOCATED IN FLOOD PLAIN, AIR VENT SHALL BE SET AT LEAST 12" ABOVE 100 YEAR FLOOD ELEVATION.

DATE April 2013	Spotsylvania County Department of Utilities	<h1>Manhole Air Vent</h1>	DRWG. NO. S7
REVISIONS March 2017			

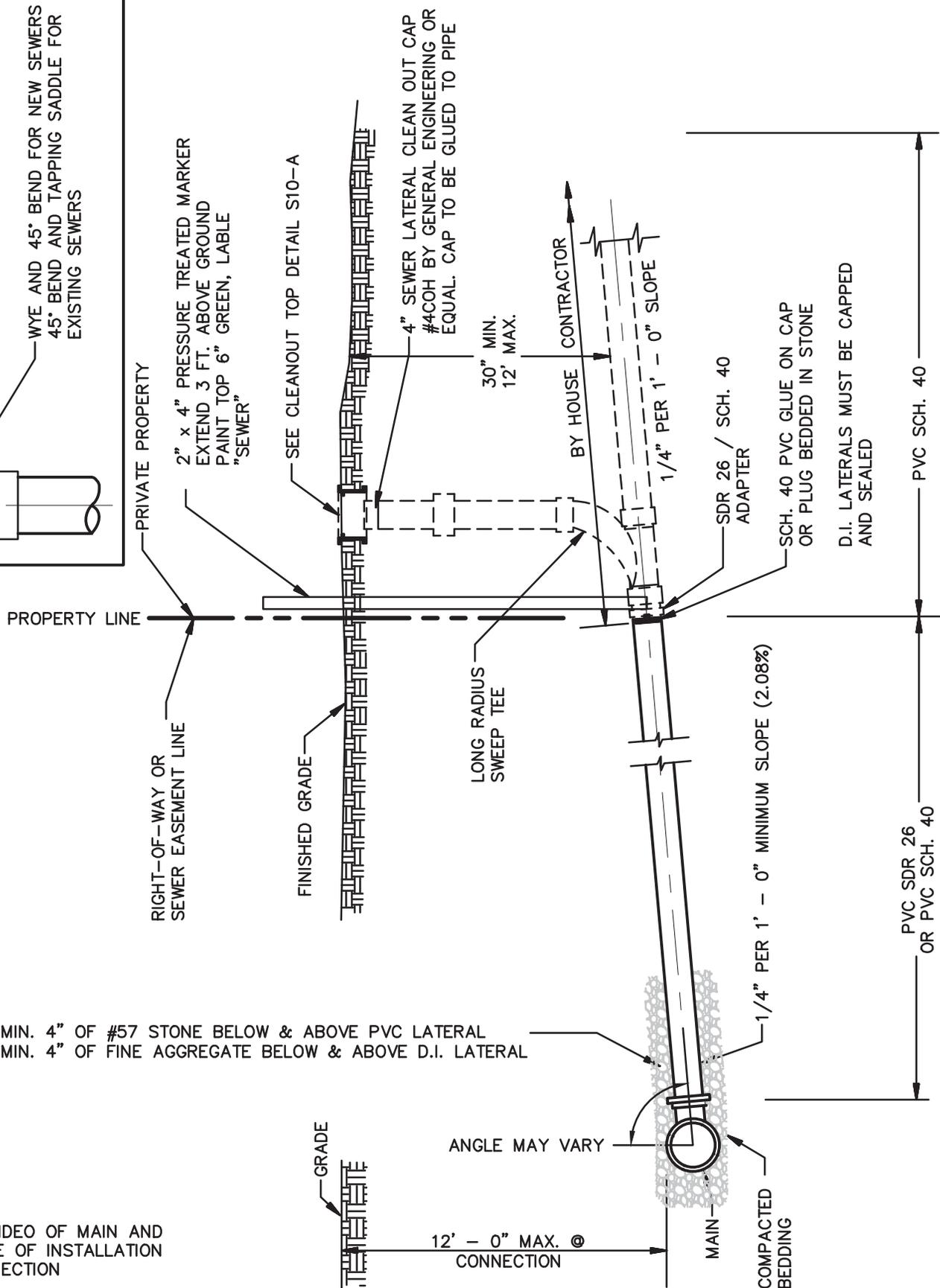
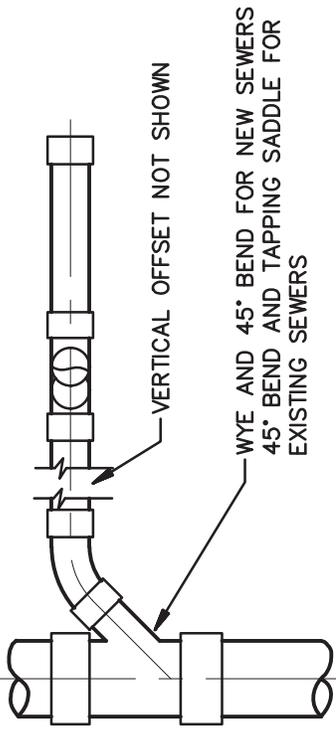
NOTE: ONLY ONE PER
48" DIAMETER MANHOLE.



- (A) CHAMFER ON ALL PIPE SIZES TO BE AT A 15 DEGREE ANGLE.
- (B) HEIGHT OF VERTICAL STACK WILL BE DETERMINED BY ENGINEER, BUT WILL NOT BE LESS THAN TWO FEET.
- (C) DROP STACK TO BE 8" OR THE SAME AS THE MAIN LINE SDR 26/35 P.V.C. PIPE CONNECTED TO DROP FITTING WITH STANDARD GASKETED JOINT.
- (D) VERTICAL STACK WILL BE STRAPPED TO MANHOLE AT PIPE JOINTS. STRAPS, BOLTS AND ANCHORS SHALL BE STAINLESS STEEL OR APPROVED MATERIAL NONCORROSIVE TO SEWER GASES.
- (E) SHAPE INVERT AS NEEDED TO PROVIDE SMOOTH TRANSITION FROM DROP CONNECTION DISCHARGE POINT TO SPRING LINE OF MANHOLE INVERT.
- (F) ELBOW AT BOTTOM OF THE STACK WILL BE A 90 DEGREE BEND POSITIONED IN THE DIRECTION OF THE FLOW IN MANHOLE WITH BENCH CONSTRUCTED TO CONFORM TO MANHOLE BENCH.

Not to Scale

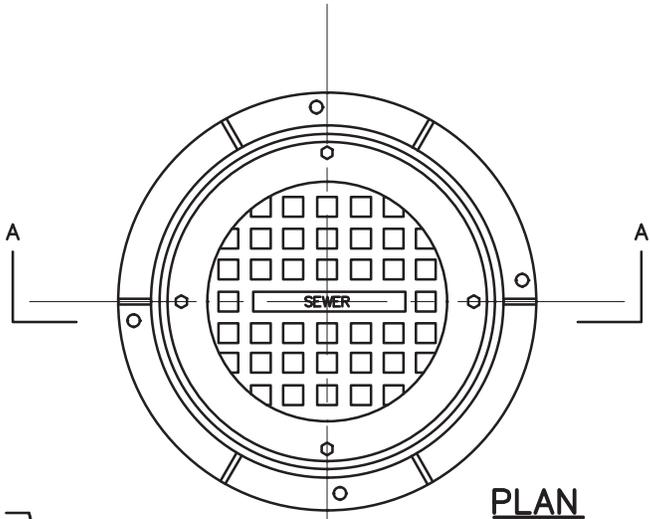
DATE April 2013	Spotsylvania County Department of Utilities	Drop Manhole Interior	DRWG. NO.
REVISIONS March 2017			S8



PROVIDE CCTV VIDEO OF MAIN AND LATERAL AT TIME OF INSTALLATION AND UPON CONNECTION

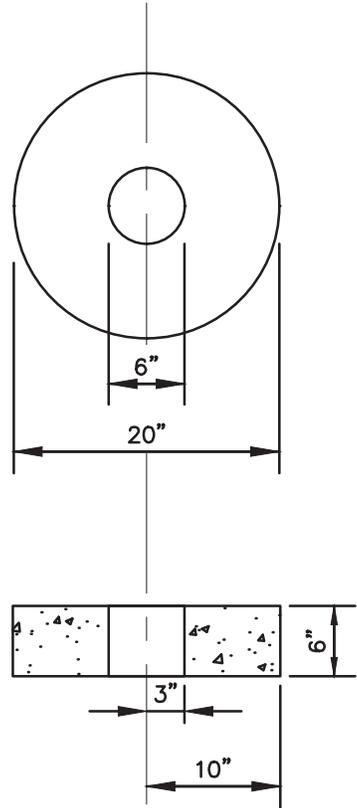
Not to Scale

<p>DATE April 2013</p>	<p>Spotsylvania County Department of Utilities</p>	<p>Lateral Service Connection</p>	<p>DRWG. NO. S10</p>
<p>REVISIONS August 2018</p>			

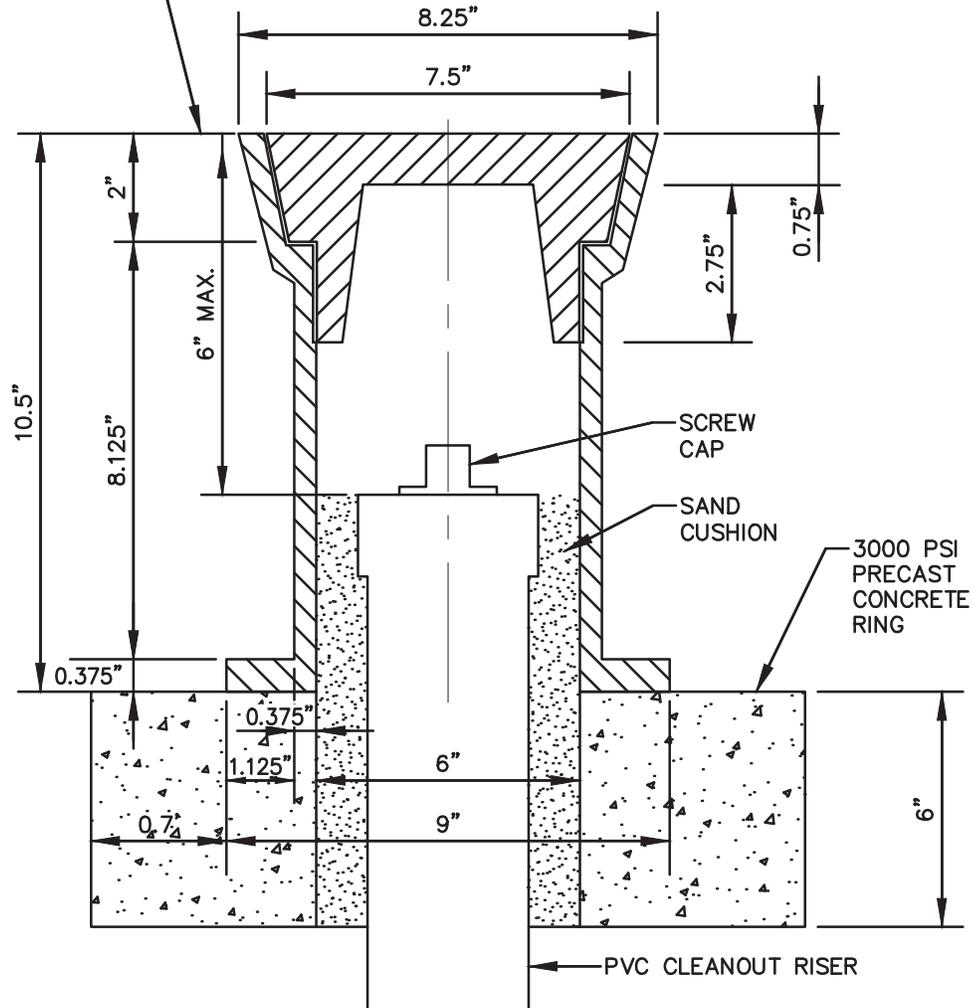


PLAN

CONCRETE RING



FINISHED GRADE OR PAVEMENT



SCREW CAP
SAND CUSHION
3000 PSI PRECAST CONCRETE RING

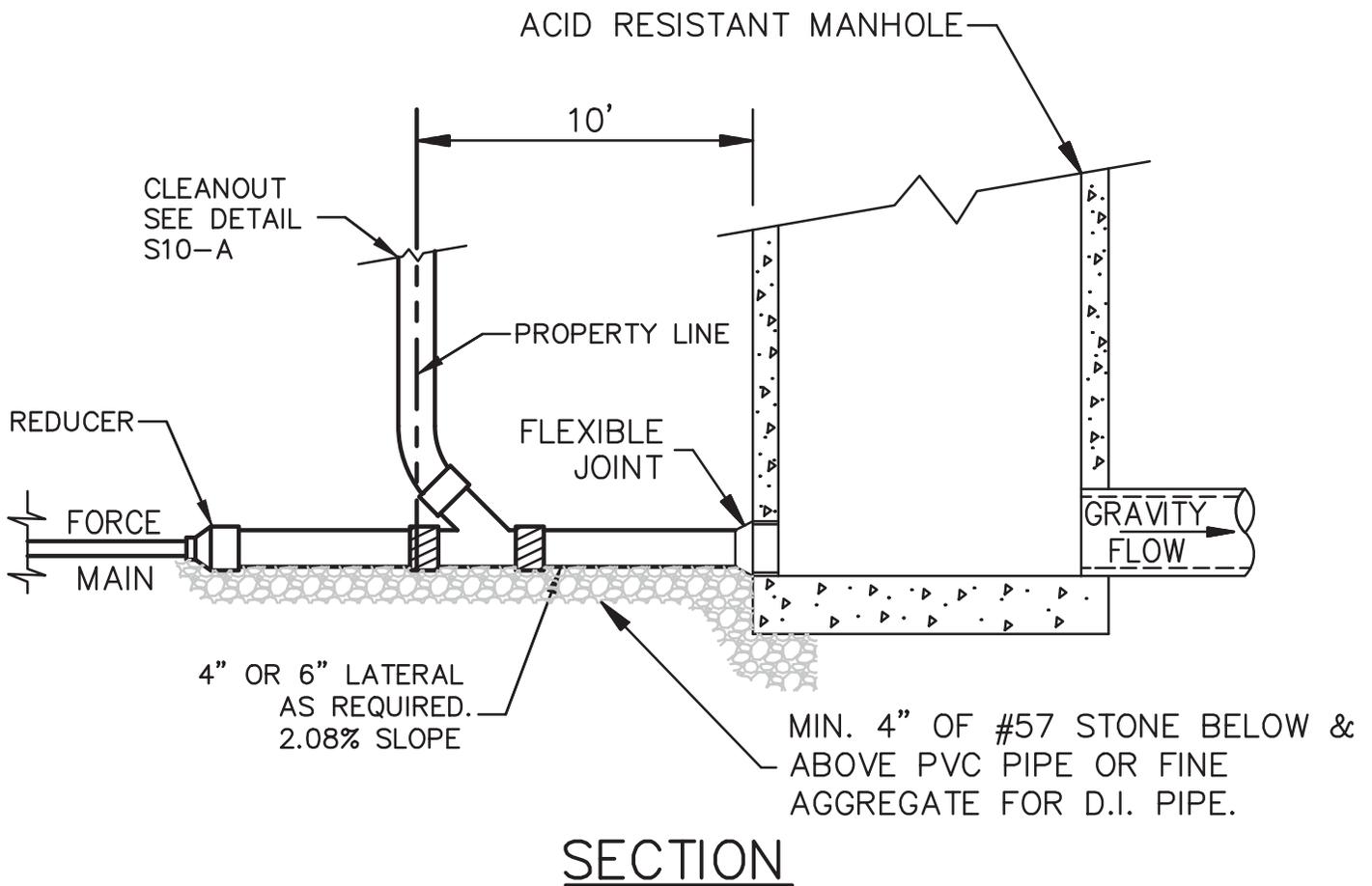
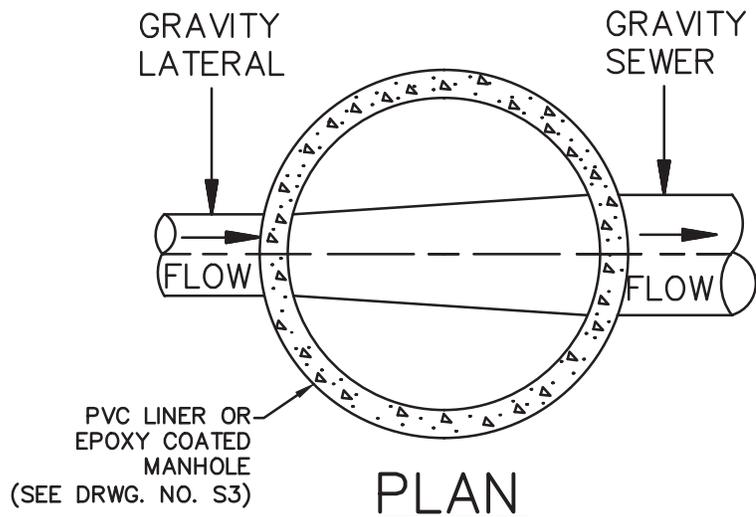
PVC CLEANOUT RISER

NOTE: CONCRETE RING NOT REQUIRED IN GRASS AREAS.

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	<h1>Cleanout Cover</h1>	DRWG. NO. S10-A
REVISIONS March 2017			

FORCE MAIN DIAMETER	GRAVITY SEWER DIAMETER
1 1/2"-3"	6"
4"	8"
6"	8"
8"	10"
10"	12"
12"	15"

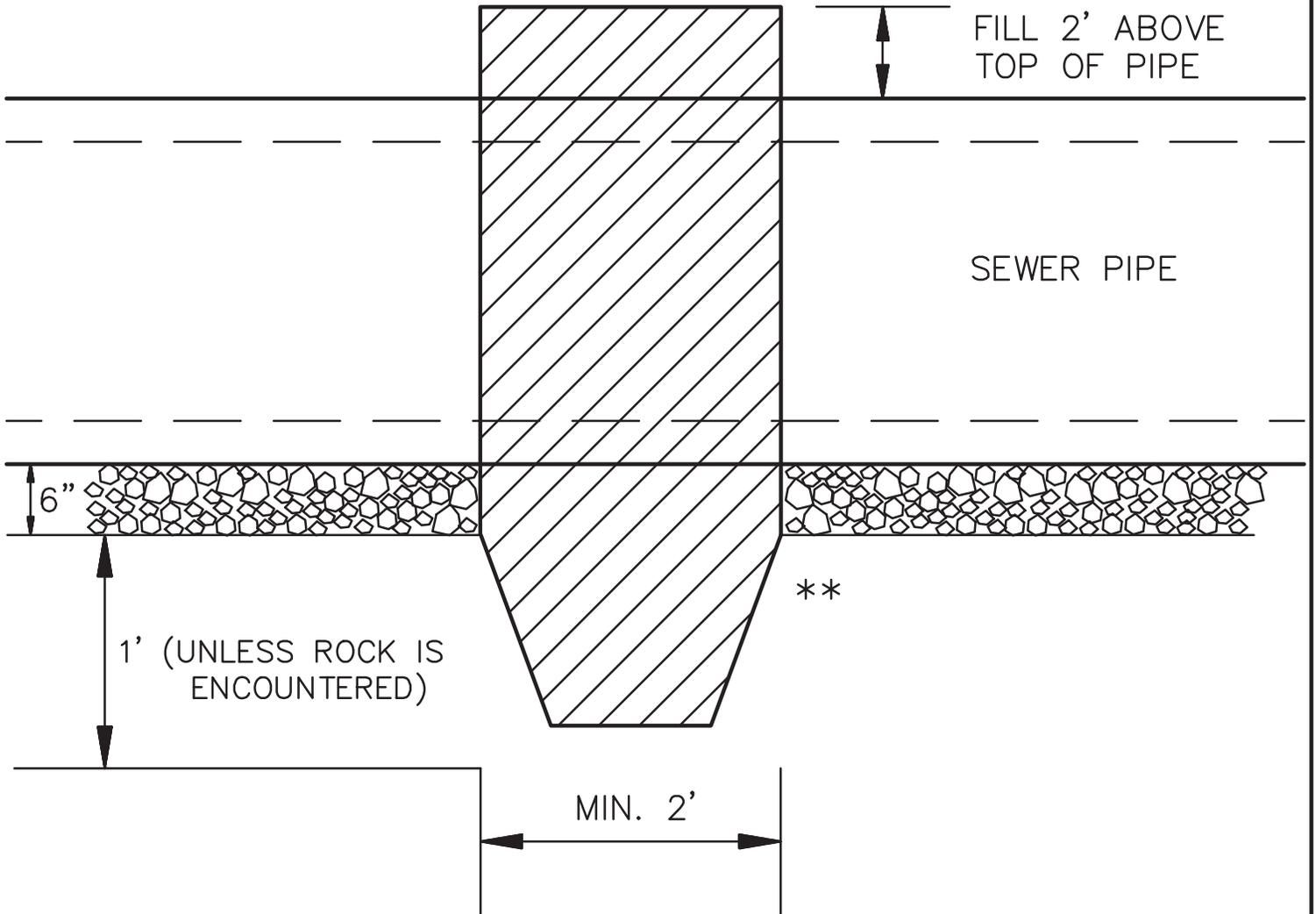


NOTE: PROVIDE MANHOLE VENT.

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	Force Main Discharge	DRWG. NO.
REVISIONS August 2018			S11

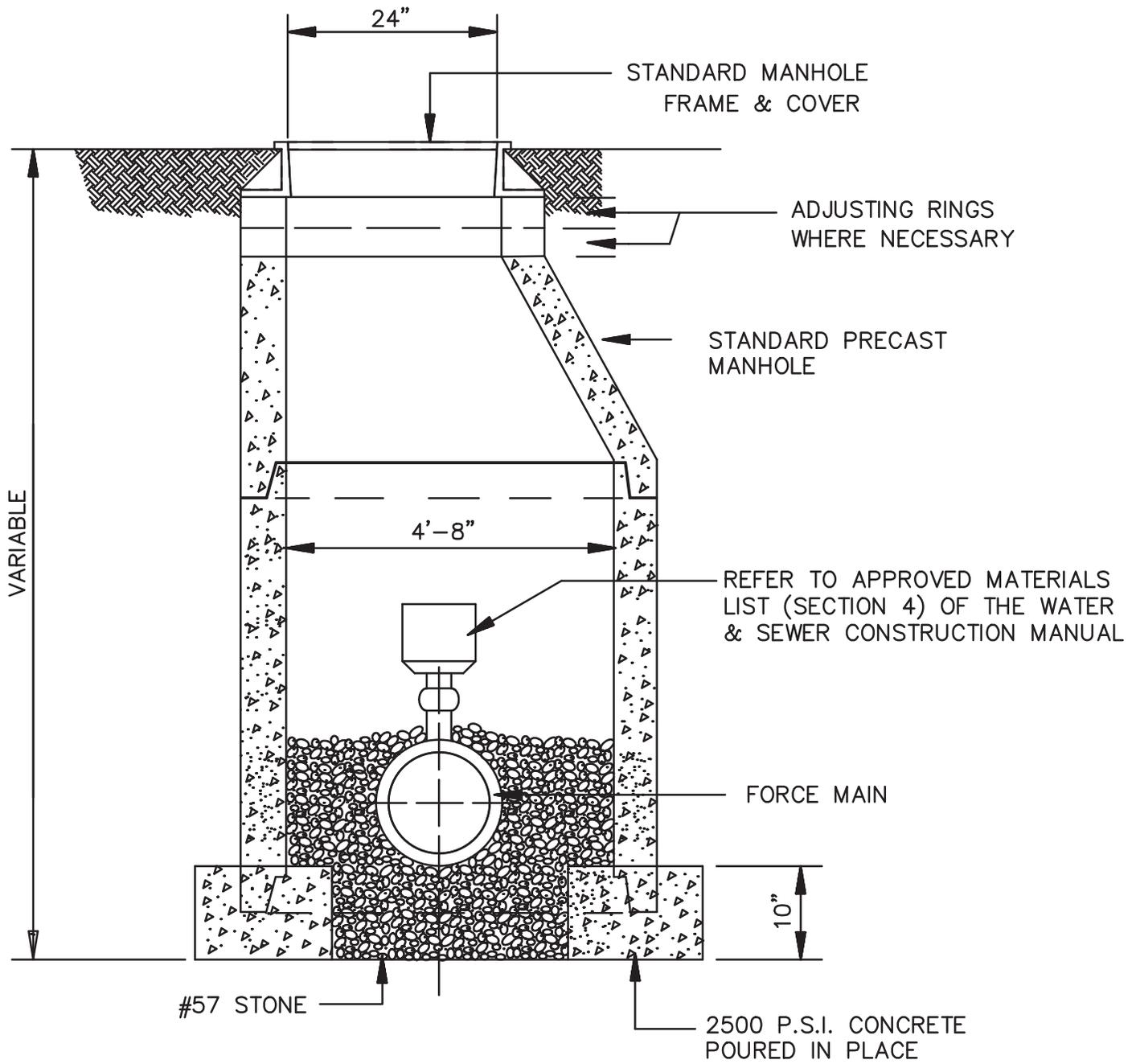
EXISTING GROUND ELEVATION



** CLAY DAM (MIN. IMPERVIOUSNESS= 10^{-3} CM/SEC)
*ALTERNATE MATERIALS INCLUDE SOIL MIXED WITH CEMENT AND CONCRETE.
(MATERIALS TO BE APPROVED BY ENGINEER PRIOR TO PLACING.)

Not to Scale

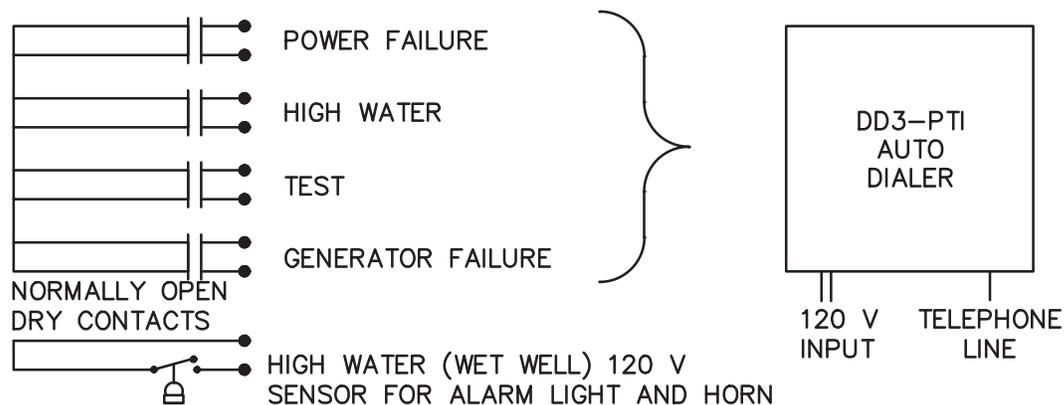
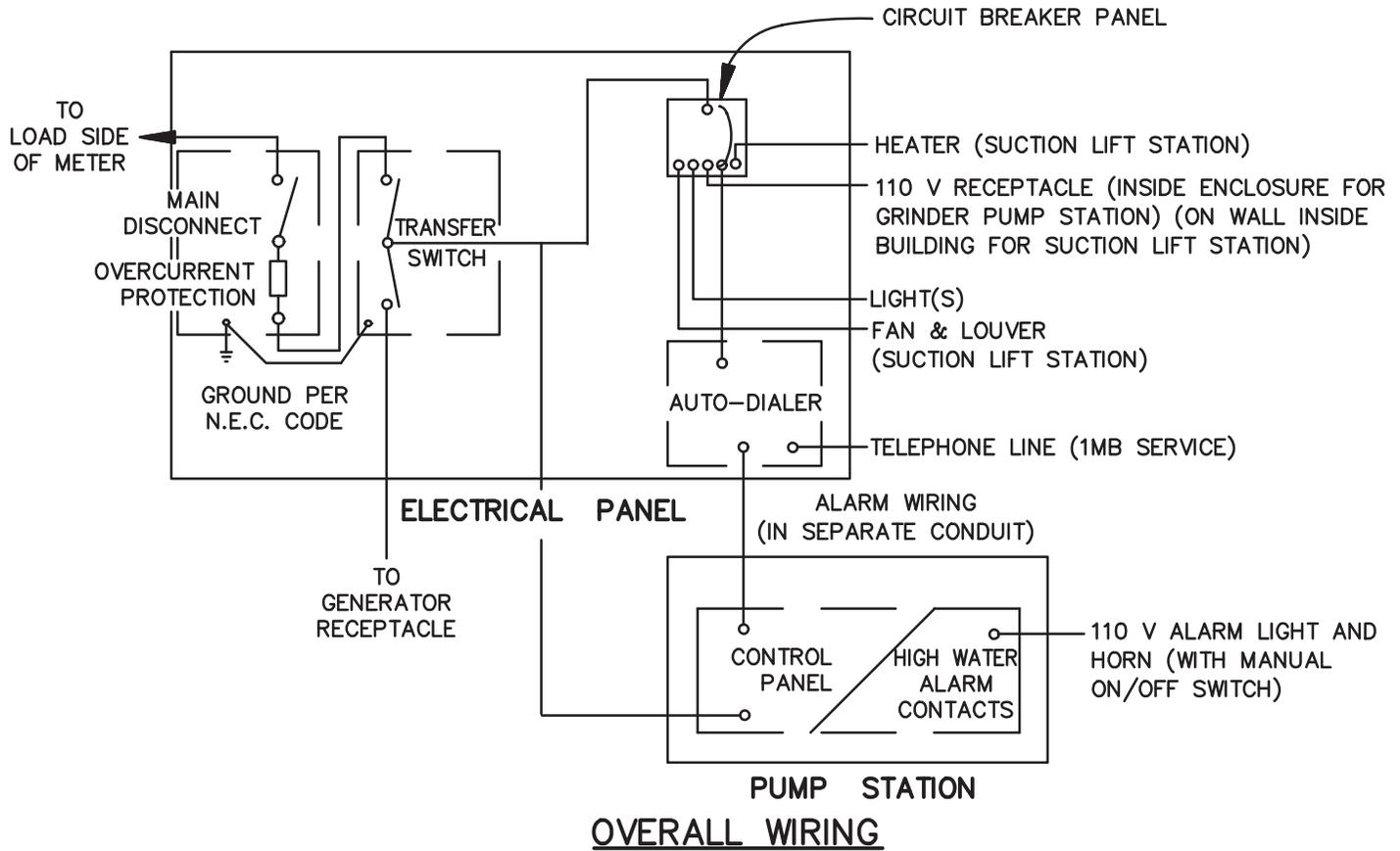
DATE April 2013	Spotsylvania County Department of Utilities	Clay Dam	DRWG. NO.
REVISIONS			S12



Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	Sewer Air Release/Vacuum Valve Setting	DRWG. NO. S14
REVISIONS			

SEE DETAILS:
S16, S17, S18 & S19

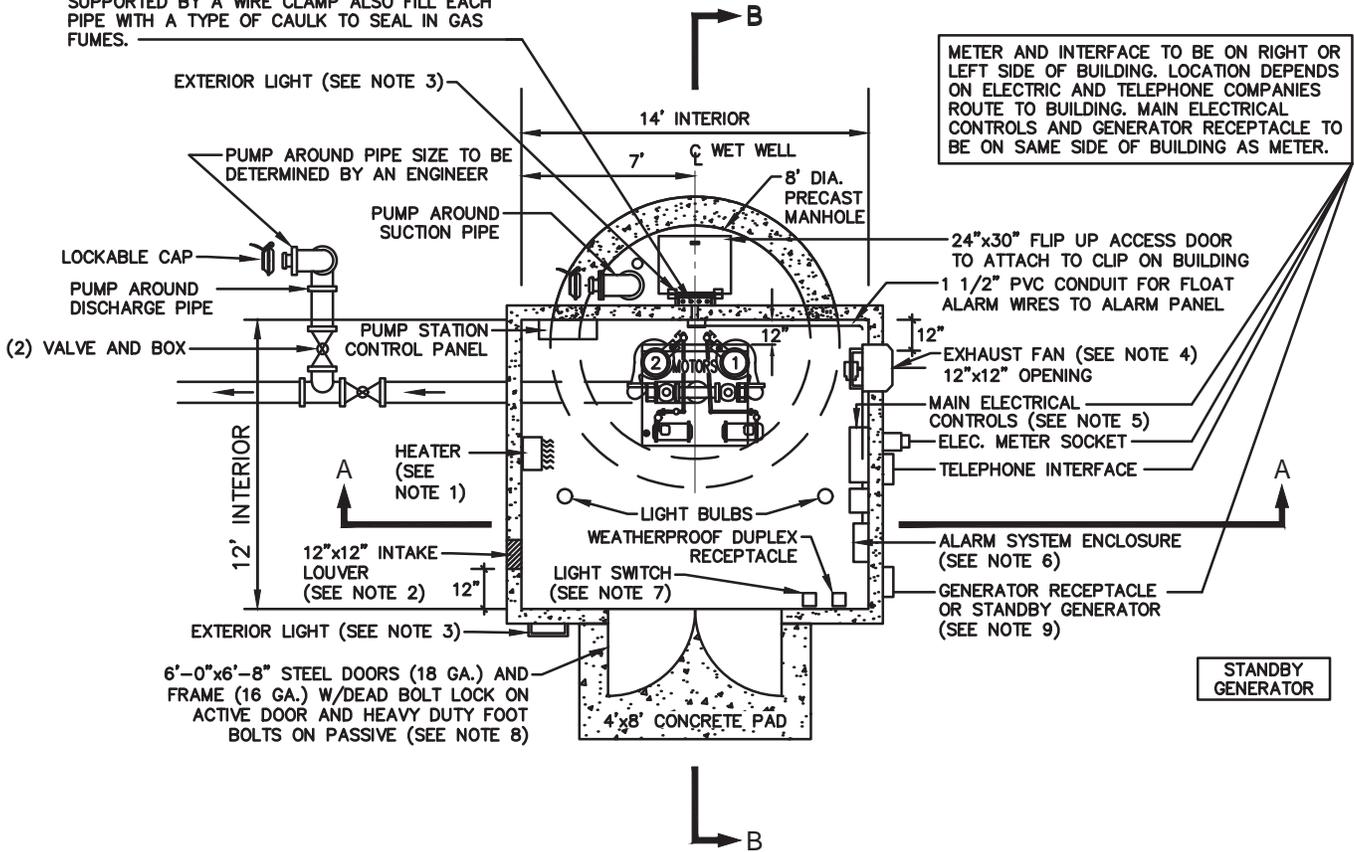


Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	Sewer Pump Station Typical Wiring Diagrams	DRWG. NO. S15
REVISIONS March 2017			

SEE DETAILS:
S15, S17, S18, & S19

WATERTIGHT PVC BOX WITH (4) 1/2" DIA. PIPES ONE FOR EACH FLOAT ALARM, CONNECTED TO A TERMINAL BLOCK AND EACH FLOAT BEING SUPPORTED BY A WIRE CLAMP ALSO FILL EACH PIPE WITH A TYPE OF CAULK TO SEAL IN GAS FUMES.



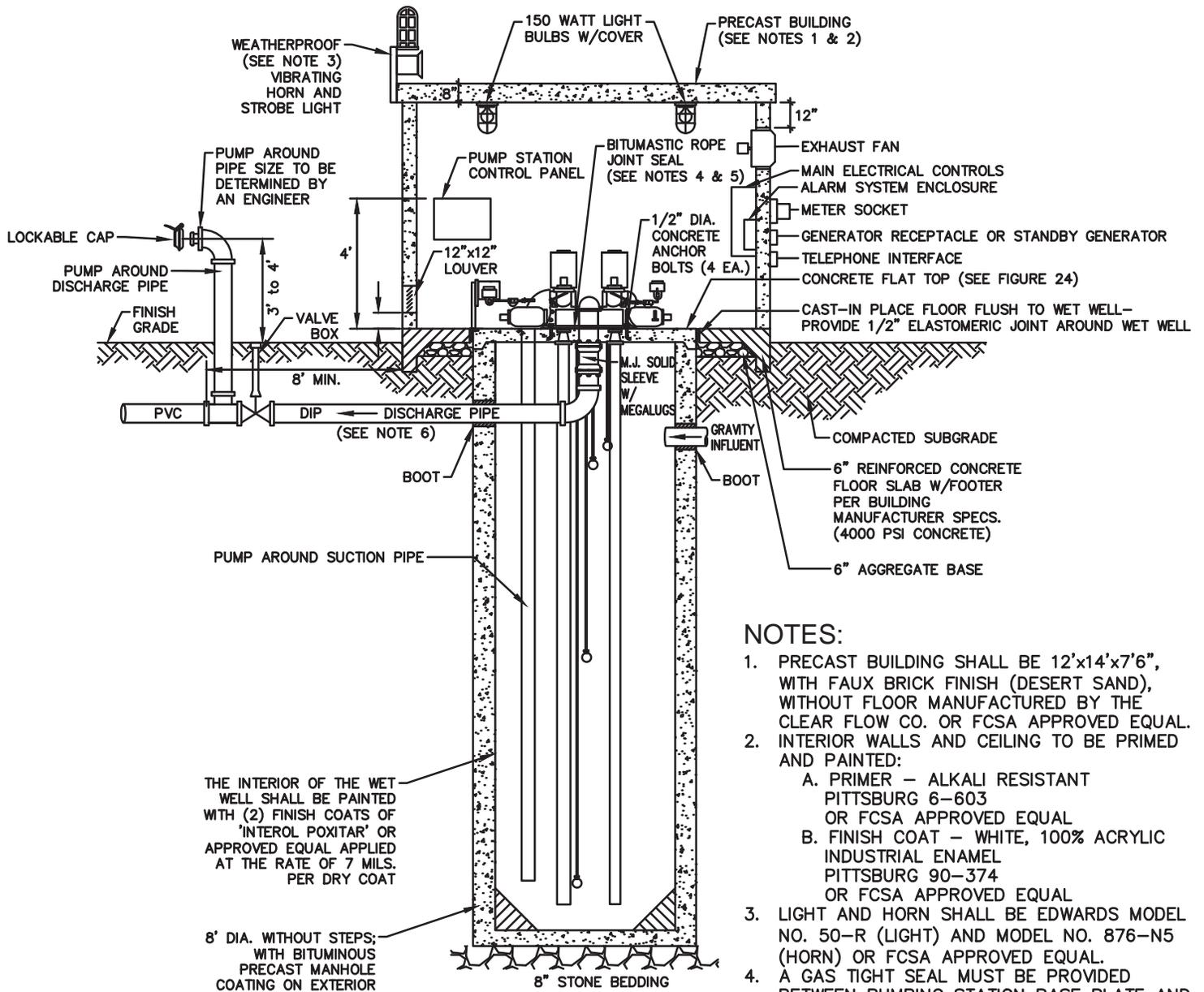
NOTES:

1. HEATER SHALL BE MARKEL MODEL F3422, OR FCSA APPROVED EQUAL. PROVIDE WITH INTEGRAL THERMOSTAT AND SURFACE MOUNT ACCESSORIES.
2. LOUVER SHALL BE RUSKIN MODEL L7445 (12"x12") OR FCSA APPROVED EQUAL. ELECTRIC OPERATOR FOR LOUVER SHALL BE INTERLOCKED WITH EXHAUST FAN.
3. EXTERIOR LIGHT SHALL BE AMERICAN ELECTRIC, MODEL E52-70C, OR FCSA APPROVED EQUAL.
4. EXHAUST FAN SHALL BE CHELSEA WDC CATALOG NO. WDC80XB-01, OR FCSA APPROVED EQUAL, CONTROLLED BY REMOTE WALL MOUNTED SWITCH. PROVIDE FAN WITH MOTORIZED DAMPER IN CONJUNCTION WITH FAN OPERATION.
5. MAIN DISCONNECT, DOUBLE THROW SWITCH. CIRCUIT BREAKER PANEL.
6. ALARM SYSTEM SHALL BE ADAS DIALOG AUTODIALER.
7. SWITCH TO OPERATE LIGHTS AND FAN SIMULTANEOUSLY/
8. LOCKSET TO BE KWIK SET 880-26D SINGLE CYLINDER WITH THUMB LATCH DEADBOLT.
9. GENERATOR RECEPTACLE SHALL BE RUSSELLSTOLL SCB7334-72, OR STANDBY GENERATOR. ALSO IF PUMP STATION EXCEEDS 500 GPM A STANDBY GENERATOR IS REQUIRED.

Not to Scale

DATE Oct. 2005	Spotsylvania County Department of Utilities	Sewer Pump Station Plan View	DRWG. NO. S16
REVISIONS March 2017			

SEE DETAILS:
S15, S16, S18 & S19

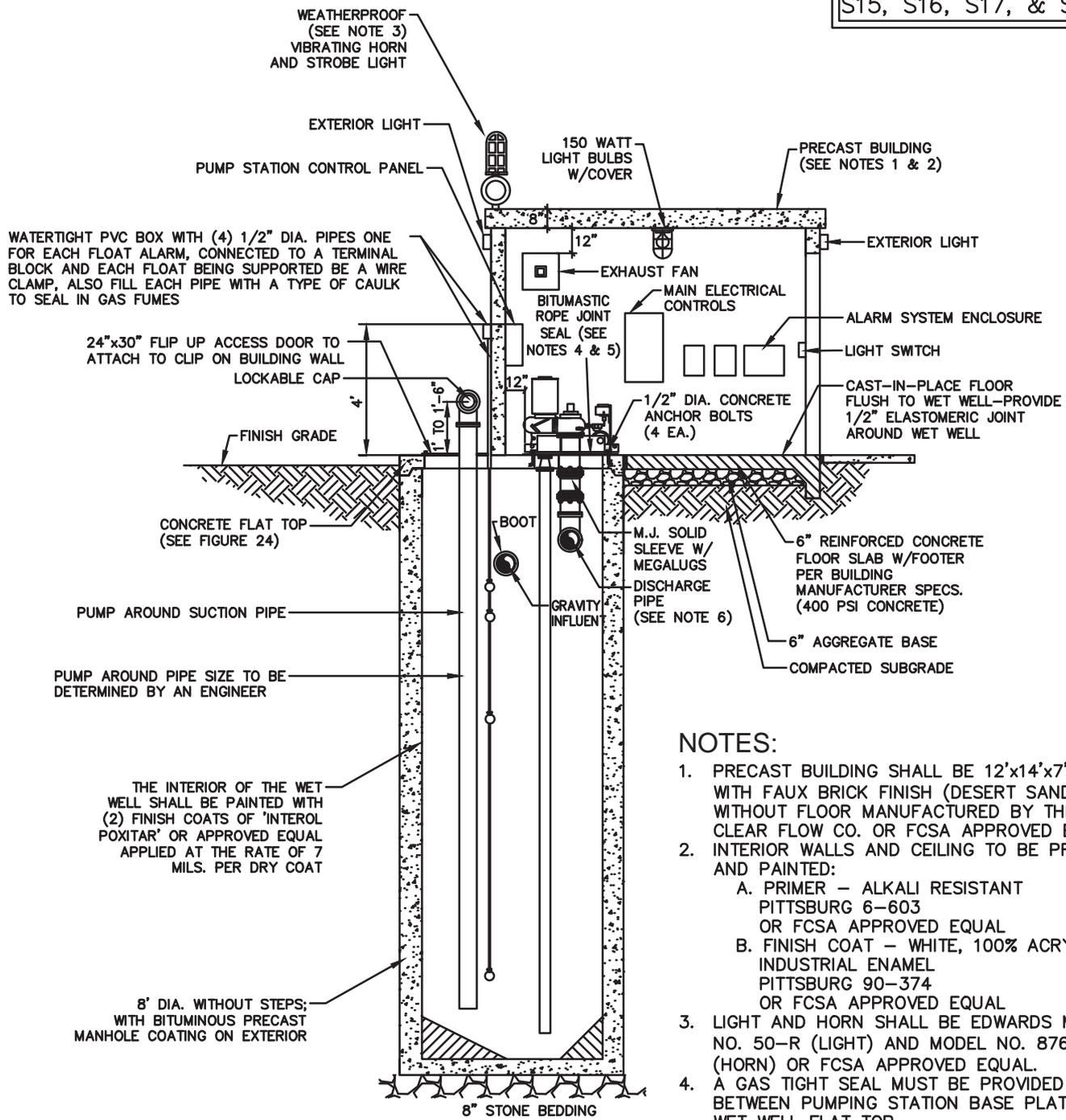


- NOTES:
1. PRECAST BUILDING SHALL BE 12'x14'x7'6", WITH FAUX BRICK FINISH (DESERT SAND), WITHOUT FLOOR MANUFACTURED BY THE CLEAR FLOW CO. OR FCSA APPROVED EQUAL.
 2. INTERIOR WALLS AND CEILING TO BE PRIMED AND PAINTED:
 - A. PRIMER - ALKALI RESISTANT PITTSBURG 6-603 OR FCSA APPROVED EQUAL
 - B. FINISH COAT - WHITE, 100% ACRYLIC INDUSTRIAL ENAMEL PITTSBURG 90-374 OR FCSA APPROVED EQUAL
 3. LIGHT AND HORN SHALL BE EDWARDS MODEL NO. 50-R (LIGHT) AND MODEL NO. 876-N5 (HORN) OR FCSA APPROVED EQUAL. A GAS TIGHT SEAL MUST BE PROVIDED BETWEEN PUMPING STATION BASE PLATE AND WET WELL FLAT TOP.
 4. A HYDROGEN SULFIDE INHIBITOR MUST BE APPLIED TO PUMPING STATION BASE PLATE BOTTOM AND ALL EXPOSED PIPES AND FITTINGS.
 5. FORCE MAIN DISCHARGE MUST NOT RUN UNDER THE WALL WITH ELECTRICAL PANELS, FRONT CONCRETE SLAB OR THROUGH THE ACCESS DOOR AREA.
 6. PROVIDE POSITIVE DRAINING FLOOR DRAIN INSIDE BUILDING. CONNECT TO PUBLIC SEWER SYSTEM IF POSSIBLE.
 7. YARD HYDRANT INSTALLATION REQUIRED WHEN PUBLIC WATER IS AVAILABLE.

Not to Scale

DATE Oct. 2005	Spotsylvania County Department of Utilities	Sewer Pump Station Cross Section View "A-A"	DRWG. NO. S17
REVISIONS March 2017			

SEE DETAILS:
S15, S16, S17, & S19

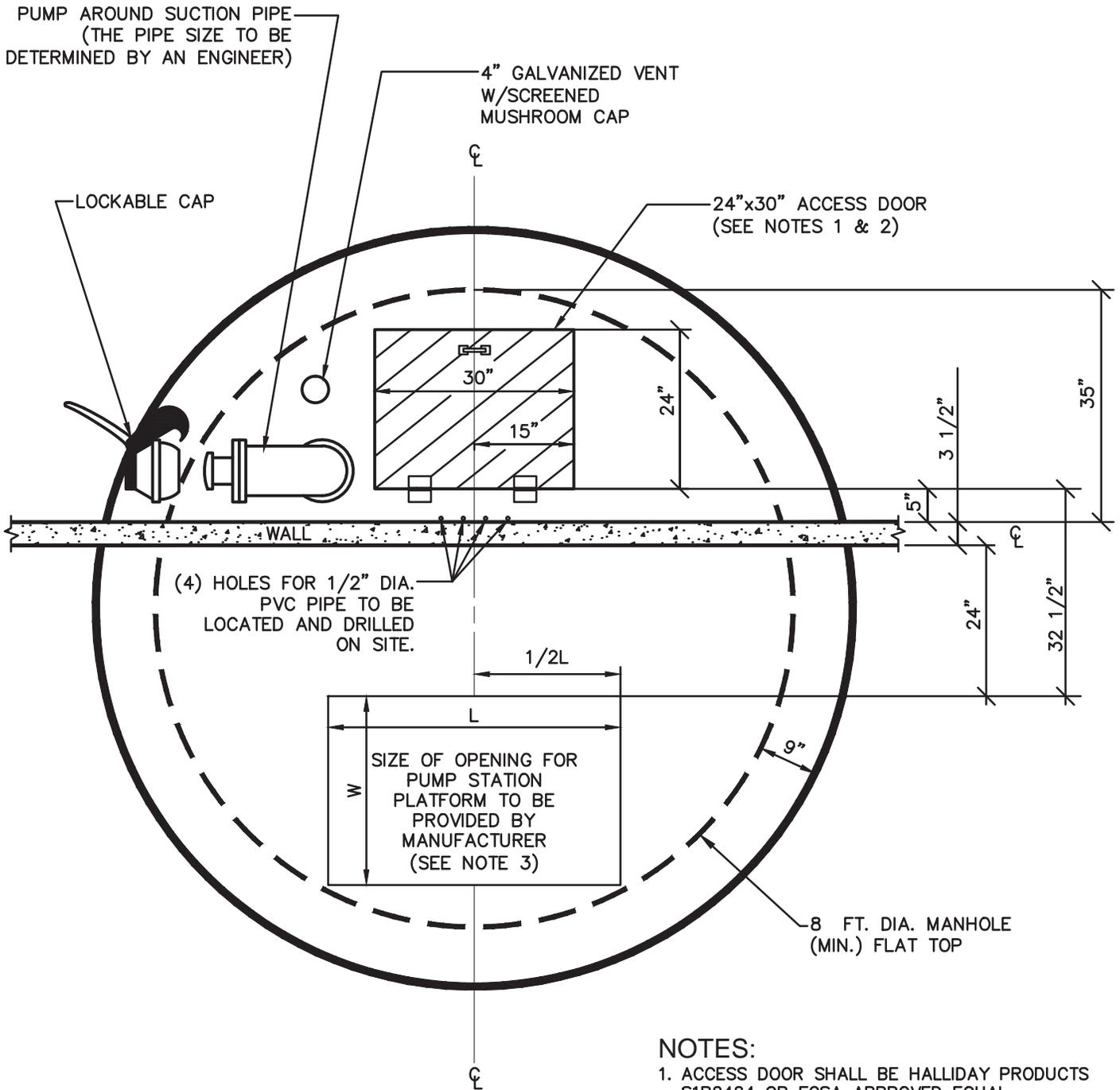


- NOTES:
1. PRECAST BUILDING SHALL BE 12'x14'x7'6", WITH FAUX BRICK FINISH (DESERT SAND), WITHOUT FLOOR MANUFACTURED BY THE CLEAR FLOW CO. OR FCSA APPROVED EQUAL.
 2. INTERIOR WALLS AND CEILING TO BE PRIMED AND PAINTED:
 - A. PRIMER - ALKALI RESISTANT PITTSBURG 6-603 OR FCSA APPROVED EQUAL
 - B. FINISH COAT - WHITE, 100% ACRYLIC INDUSTRIAL ENAMEL PITTSBURG 90-374 OR FCSA APPROVED EQUAL
 3. LIGHT AND HORN SHALL BE EDWARDS MODEL NO. 50-R (LIGHT) AND MODEL NO. 876-N5 (HORN) OR FCSA APPROVED EQUAL.
 4. A GAS TIGHT SEAL MUST BE PROVIDED BETWEEN PUMPING STATION BASE PLATE AND WET WELL FLAT TOP.
 5. A HYDROGEN SULFIDE INHIBITER MUST BE APPLIED TO PUMPING STATION BASE PLATE BOTTOM AND ALL EXPOSED PIPES AND FITTINGS.
 6. FORCE MAIN DISCHARGE MUST NOT RUN UNDER THE WALL WITH ELECTRICAL PANELS, FRONT CONCRETE SLAB OR THROUGH THE ACCESS DOOR AREA.
 7. PROVIDE POSITIVE DRAINING FLOOR DRAIN INSIDE BUILDING. CONNECT TO PUBLIC SEWER SYSTEM IF POSSIBLE.
 8. YARD HYDRANT INSTALLATION REQUIRED WHEN PUBLIC WATER IS AVAILABLE.

Not to Scale

<p>DATE Oct. 2005</p>	<p>Spotsylvania County Department of Utilities</p>	<p>Sewer Pump Station Cross Section View "B-B"</p>	<p>DRWG. NO. S18</p>
<p>REVISIONS March 2017</p>			

SEE DETAILS:
S15, S16, S17 & S18

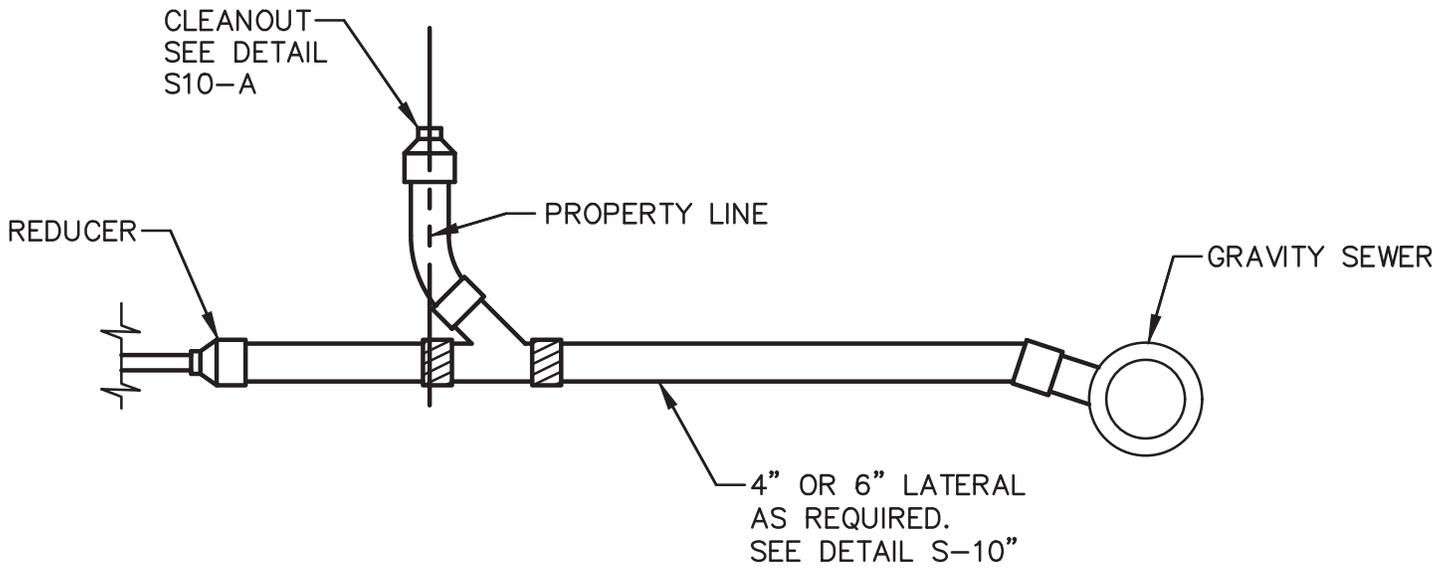


NOTES:

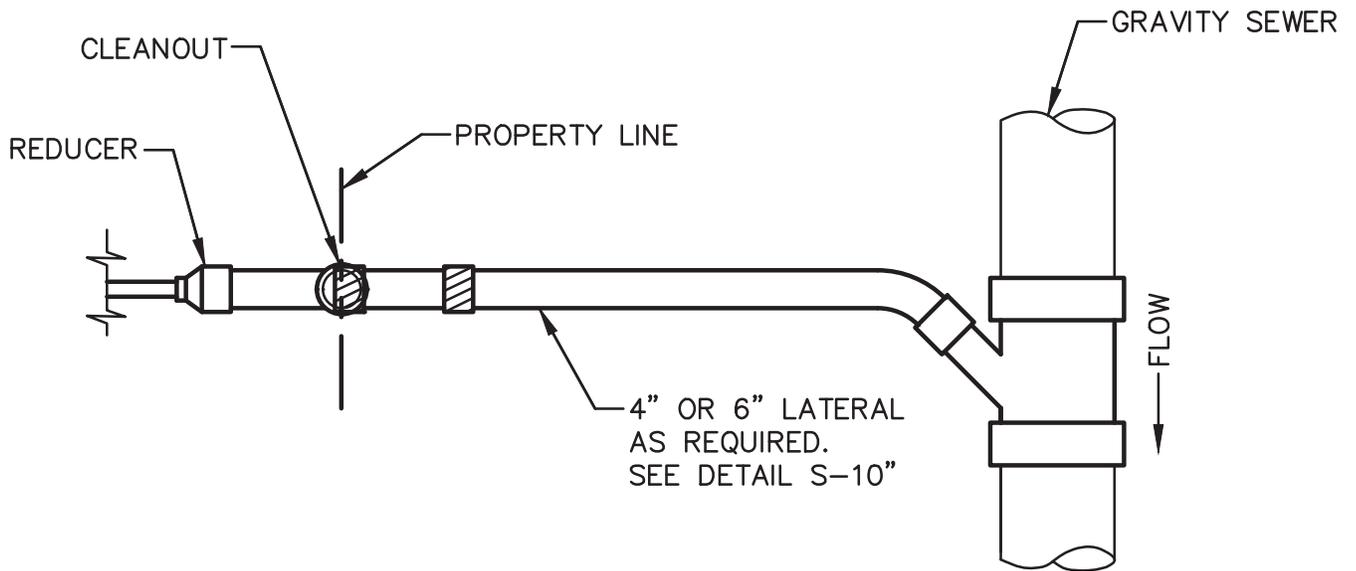
1. ACCESS DOOR SHALL BE HALLIDAY PRODUCTS S1R2424 OR FCSA APPROVED EQUAL.
2. ACCESS DOOR TO FLIP UP AGAINST REAR WALL AND HELD IN PLACE WITH A CLIP ASSEMBLY.
3. MANUFACTURER WILL NEED TO SPECIFY WHICH DIMENSION IS PARALLEL TO WALL AND WHICH ONE IS PERPENDICULAR TO WALL.

Not to Scale

DATE Oct. 2005	Spotsylvania County Department of Utilities	Sewer Pump Station Wet Well Cover	DRWG. NO.
REVISIONS March 2017			S19



SECTION VIEW



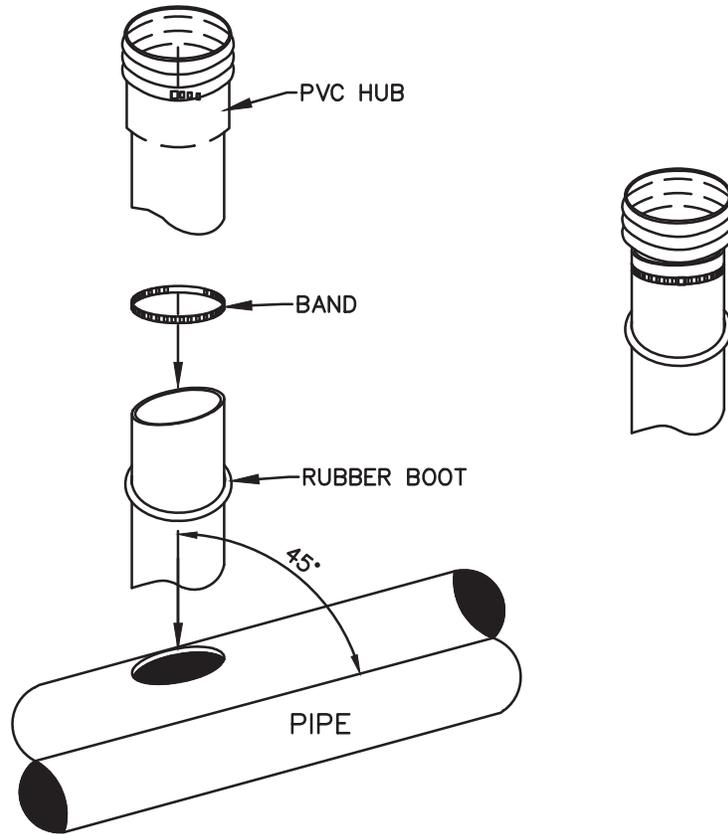
PLAN VIEW

NOTE:
PLACE CLEANOUT AT PROPERTY
LINE OR EDGE OF EASEMENT

Not to Scale

DATE April 2013	Spotsylvania County Department of Utilities	Low Pressure House Sewer Connection to Gravity Sewer	DRWG. NO. S20
REVISIONS March 2017			

NOTE:
 THIS METHOD OF CONNECTION SHALL NOT
 TAKE PRECEDENT OVER USING TEES. THE
 APPLICATION SHOWN HERE IS FOR
 TAPPING EXISTING MAINS ONLY.



INSTALLATION NOTES:

INSERT-A-TEE CAN BE CONNECTED TO PVC, PERMALOC, SPIROLITE, SLIP LINER, DUCTILE IRON, THIN WALL MAIN LINES, CONCRETE (MAINLINES AND MANHOLES), CLAY, AND ALL THICK WALLED MAIN LINES.

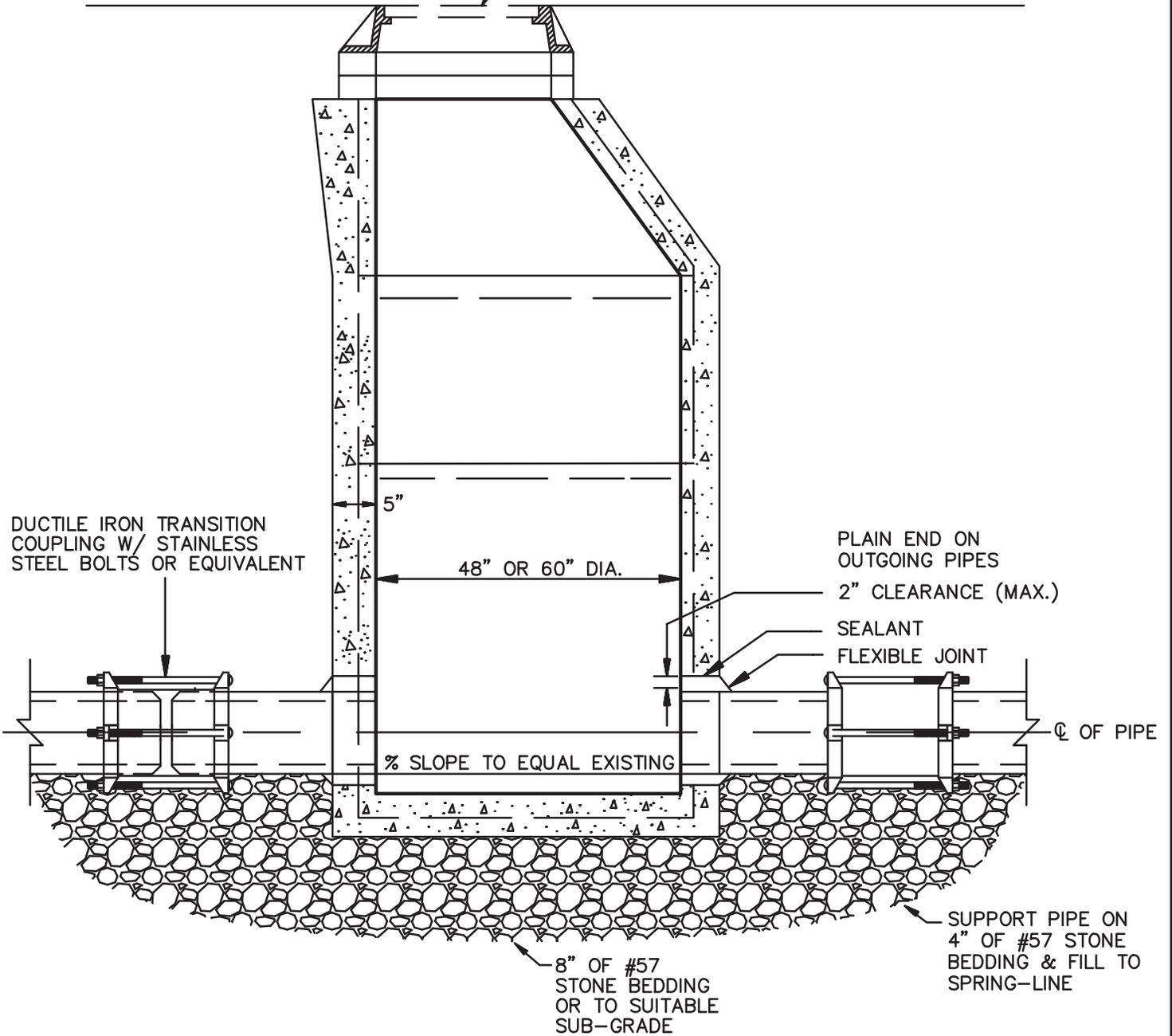
INSERT-A-TEE ASSEMBLY IS A THREE PIECE CONNECTION THAT IS COMPRESSION-FIT INTO THE CORED WALL OF THE MAIN LINE

ASSEMBLY CONSISTS OF SERVICE CONNECTIONS OF 4" THROUGH 12", AND FITS ALL MAIN LINE DIAMETERS, 6" OR LARGER.

Not to Scale

DATE March 2017	Spotsylvania County Department of Utilities	Insert-a-Tee	DRWG. NO. S21
REVISIONS			

REFER TO STANDARD
MANHOLE DETAILS S1 & S2



NOTE: INVERT NEEDS TO BE
PRE-POURED TO ALLOW FOR
EXISTING FLOW

Not to Scale

NOTE: STONE BEDDING SHALL
EXTEND TO THE OUTER BOUNDARY
OF ALL UNDISTURBED AREAS
SURROUNDING THE MANHOLE.

DATE
FEBRUARY 2018

Spotsylvania County
Department of Utilities

REVISIONS
FEBRUARY 2018

Cut-In Manhole

DRWG. NO.

S26