

- NOTE:
1. JOINTS AND CONNECTIONS SHALL BE AS SPECIFIED UNDER CMS 604.06.
  2. MANHOLES MUST BE IN ACCORDANCE WITH ASTM C-478.
  3. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 5 INCHES AND REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.
  4. FINISH MANHOLE CHANNEL ACCORDING TO STANDARD DRAWING



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

TYPE "C" MANHOLE

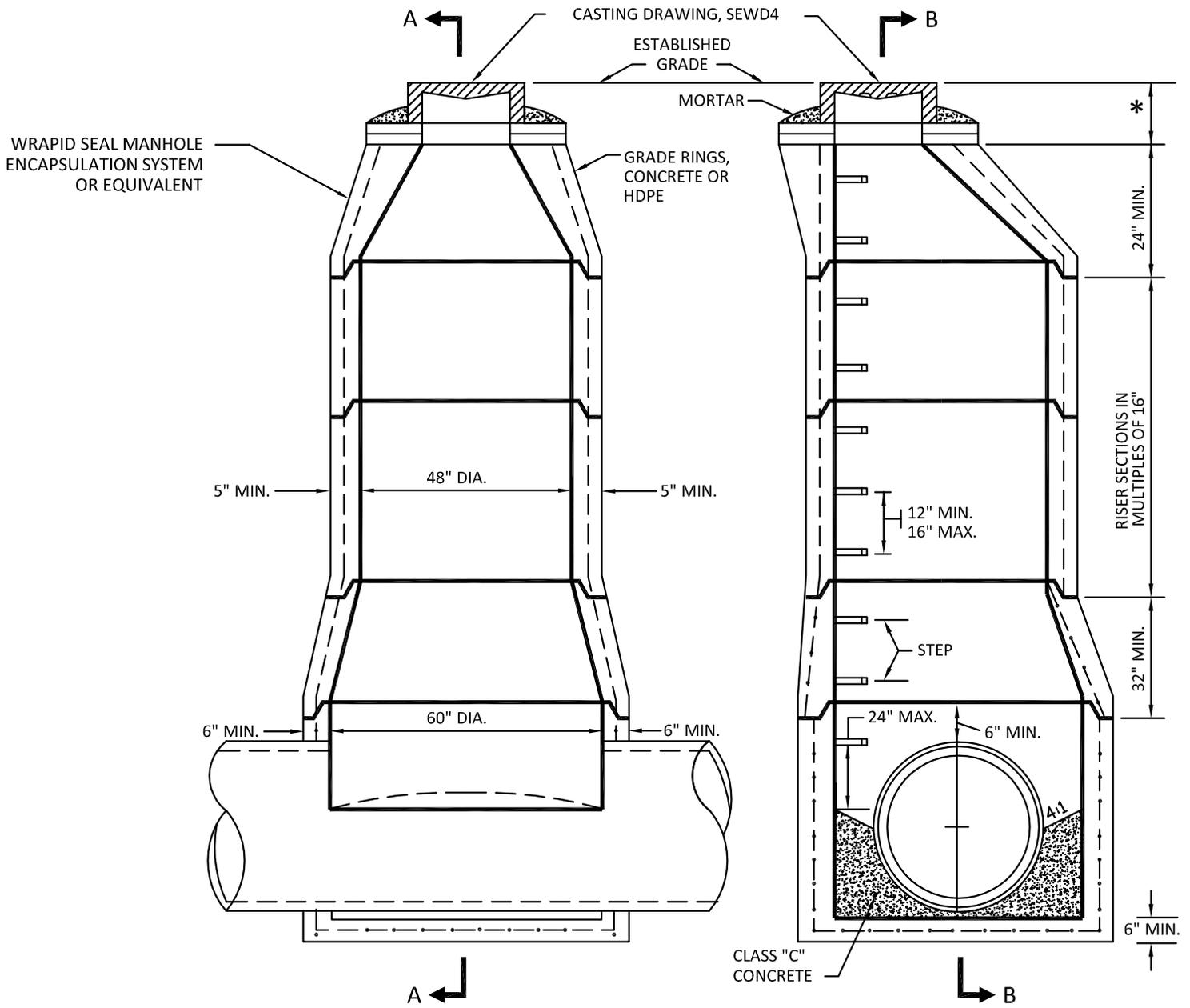
48" PRECAST BASE / 8-INCH THROUGH 27-INCH PIPE

UTILITIES

SEWD-1.0

Rev. 03/01/2012

\* MAXIMUM OF 18" FROM TOP OF MANHOLE COVER TO TOP OF PRECAST SECTION UNLESS OTHERWISE NOTED.



**SECTION B-B**

**SECTION A-A**

**NOTE:**

1. JOINTS AND CONNECTIONS SHALL BE AS SPECIFIED UNDER CMS 604.06.
2. MANHOLES MUST BE IN ACCORDANCE WITH ASTM C-478.
3. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 5 INCHES AND REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.
4. FINISH MANHOLE CHANNEL ACCORDING TO STANDARD DRAWING



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

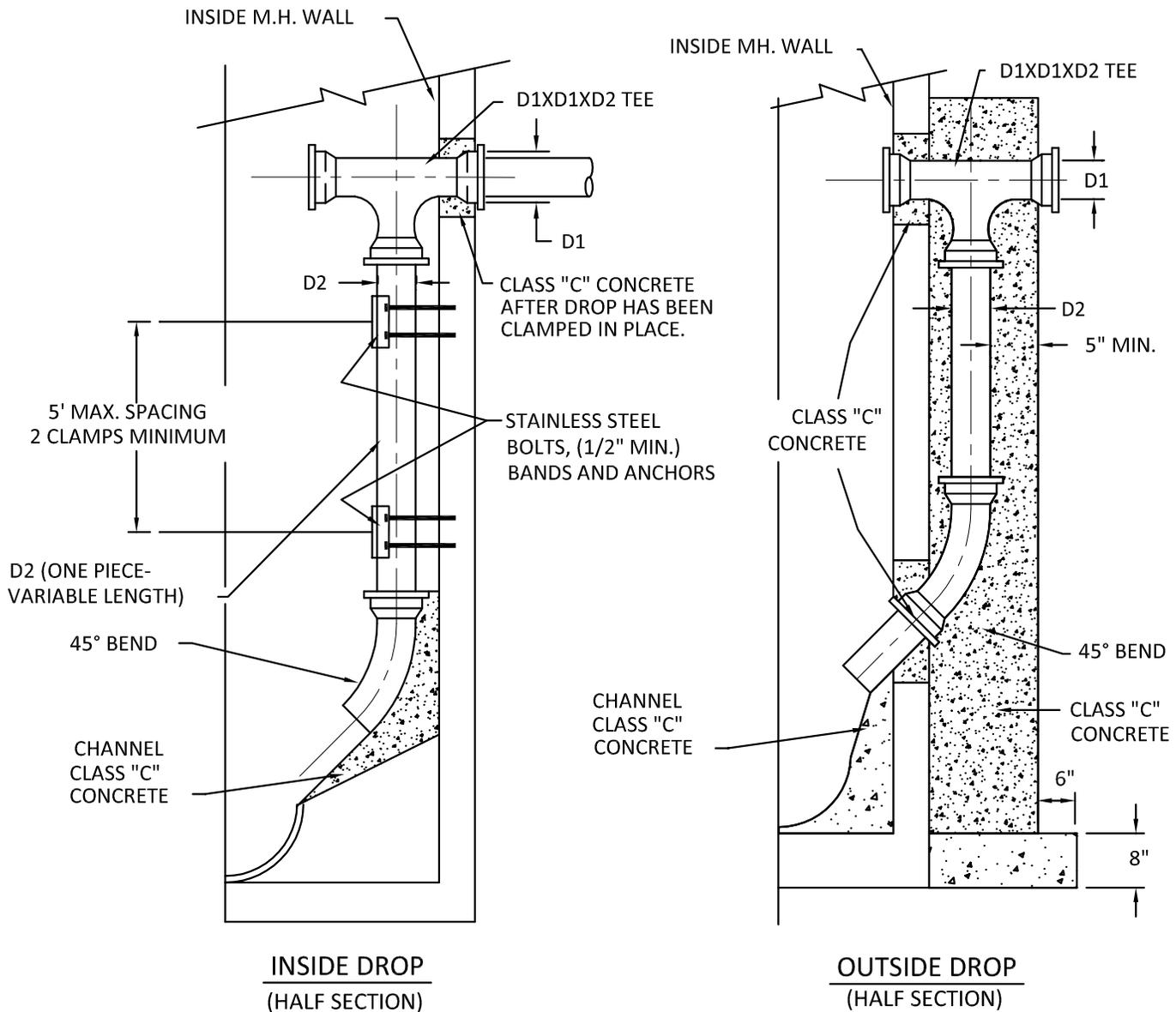
**TYPE "D" MANHOLE**

60-INCH PRECAST BASE / 30-INCH THROUGH 42-INCH PIPE

UTILITIES

**SEWD-2.0**

Rev. 03/01/2012



**NOTES:**

1. DROP IS REQUIRED WHEN INVERT DIFFERENTIAL IS 24" OR GREATER.
2. HEIGHT OF DROP PIPE IS TO BE AS SHOWN ON THE PLANS OR WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
3. ALL WORK AND MATERIALS REQUIRED TO CONSTRUCT THE INSIDE OR OUTSIDE DROP SHOULD BE INCLUDED FOR PAYMENT UNDER ITEM 604, MANHOLES, OR ITEM 901, PIPE SEWERS COMPLETE IN PLACE.
4. WHERE CALLED FOR, AND UNLESS OTHERWISE REQUIRED BY THE PLANS, THE OUTSIDE DROP WILL BE CONSTRUCTED WITH NEW MANHOLES.
5. MATERIALS FOR THE TEE, DROP PIPE AND BEND SHALL BE OF ONE TYPE AND BE ONE OF THE FOLLOWING - INSIDE DROP: CAST IRON, OR PVC. OUTSIDE DROP: C.I. SOIL, VIT. SEWER, OR PVC.
6. OUTSIDE DROP PIPES REQUIRE A 5" THICK (MINIMUM) CLASS "C" CONCRETE ENCASEMENT ON THREE SIDES OF PIPE AND TIED TO MANHOLE WALL WITH 5/8"- "U" RODS X 6" LONG @ 12".
7. INSIDE DROP MAY BE USED ON NEW CONSTRUCTION PROVIDED THAT 60" BASE AND RISER SECTIONS ARE USED.

PIPE DIAMETER	
D1	D2
8"	8"
10"	8"
12"	8"
15"	10"
18"	10"
21"	10"
21"	12"
24"	12"



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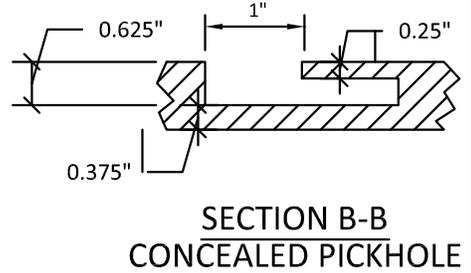
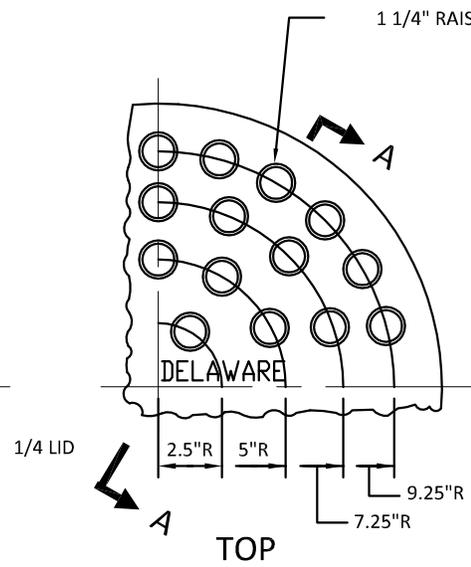
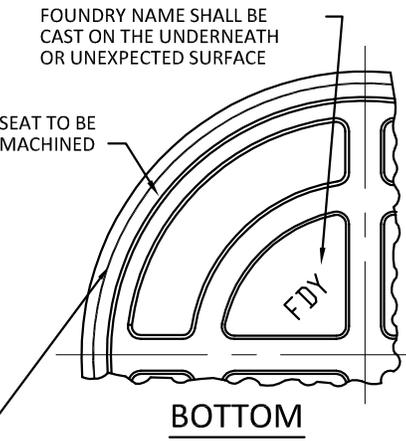
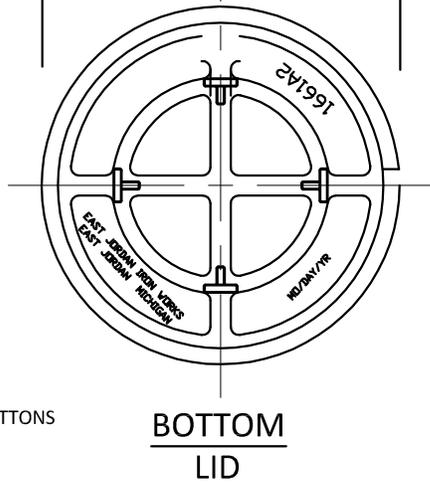
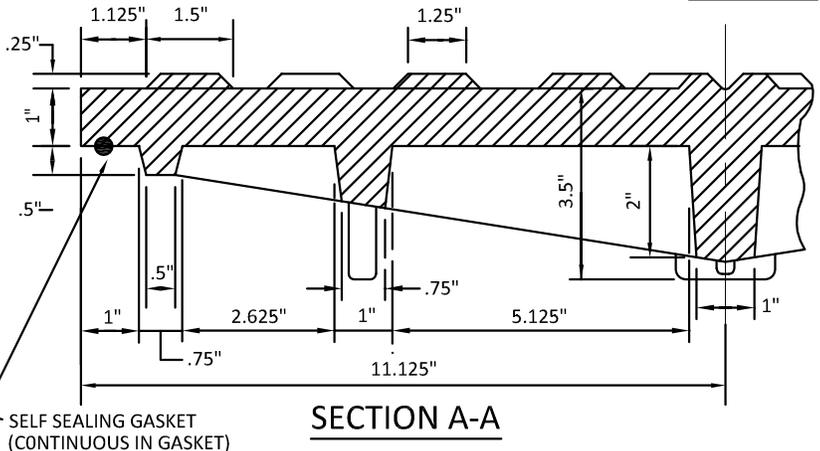
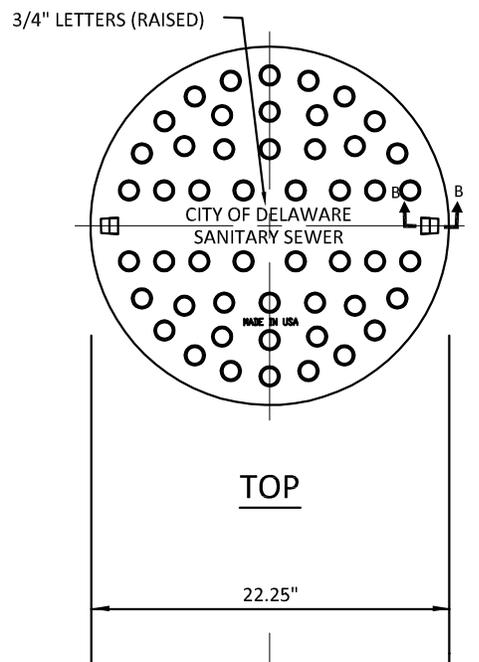
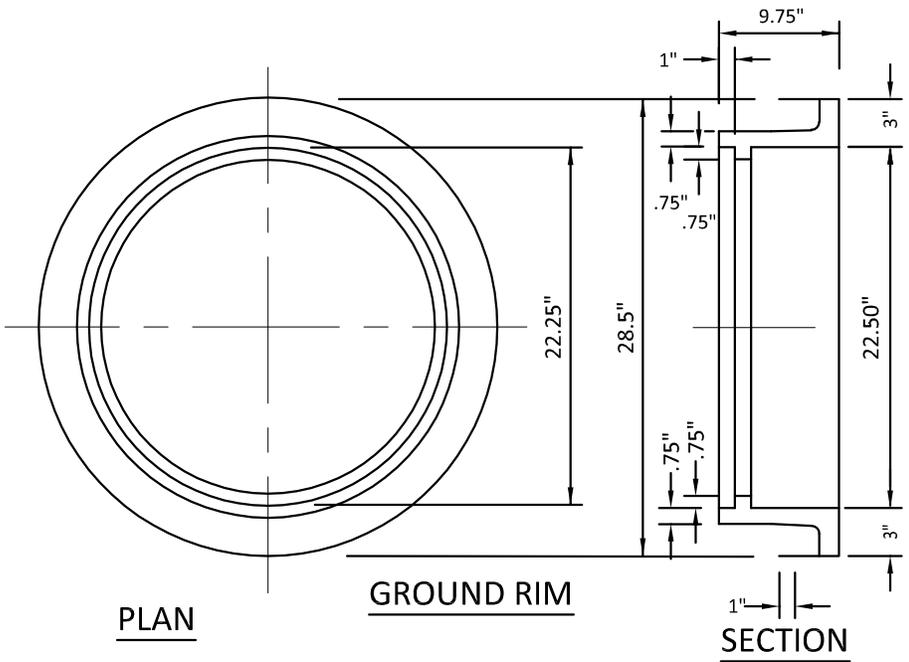
STANDARD DETAIL

INSIDE & OUTSIDE DROP PIPES FOR  
SANITARY SEWER MANHOLES

UTILITIES

SEWD-3.0

Rev. 03/01/2012



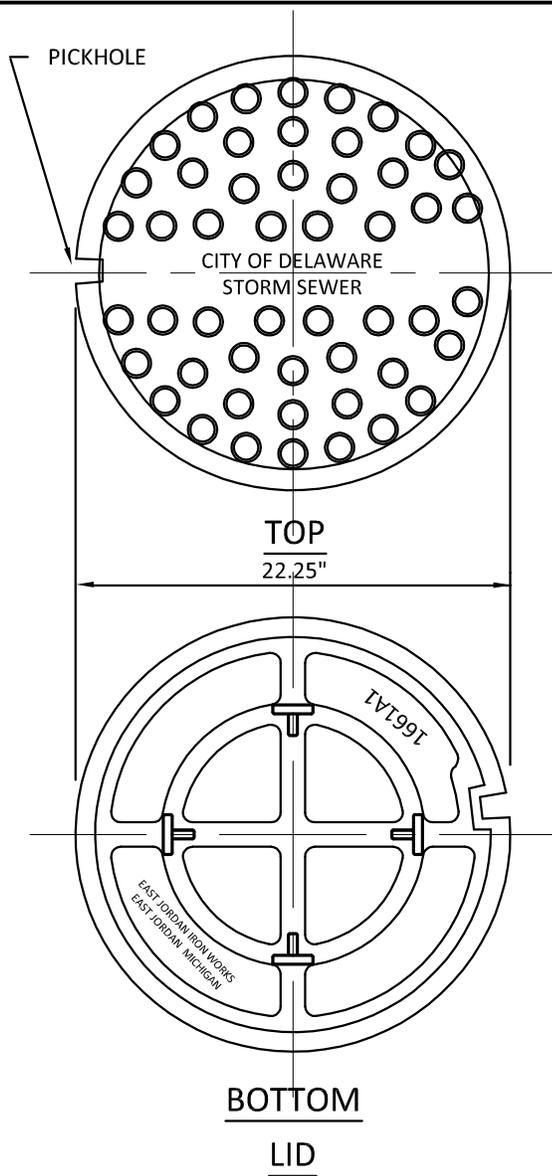
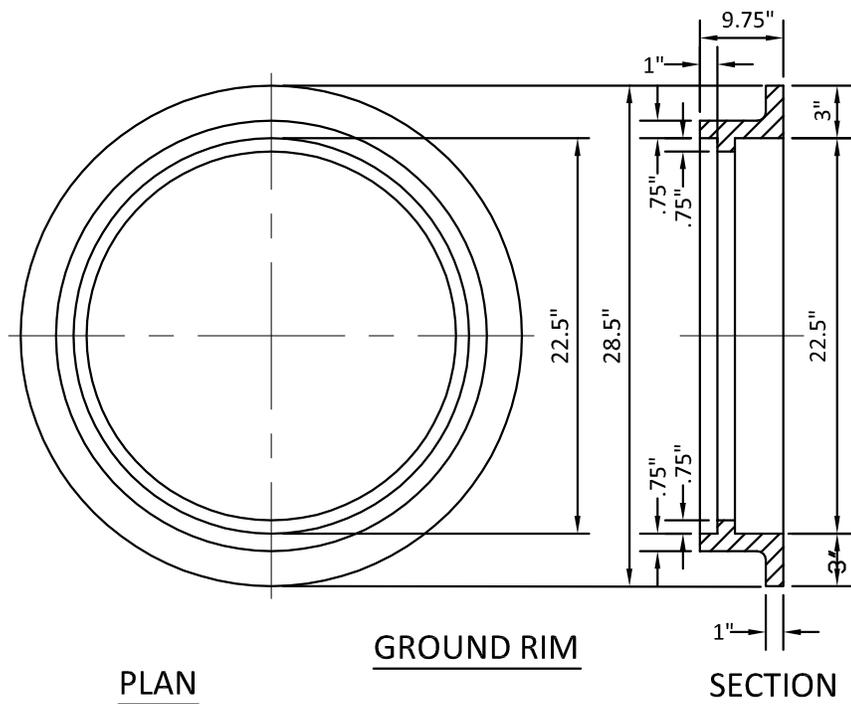
NOTE: DIMENSIONS SHOWN ARE EQUIVALENT DECIMALS OF 1/8 INCH FRACTIONAL SIZES. TOLERANCES SHALL BE ACCEPTED FOUNDRY STANDARDS AS OUTLINED IN THE IRON CASTINGS HANDBOOK PUBLISHED BY THE AMERICAN CAST METALS INSTITUTE. FRAMES, GRATES, AND COVERS SHALL MEET THE REQUIREMENTS OF 604.02.

APPROX. WEIGHT=355 lbs.

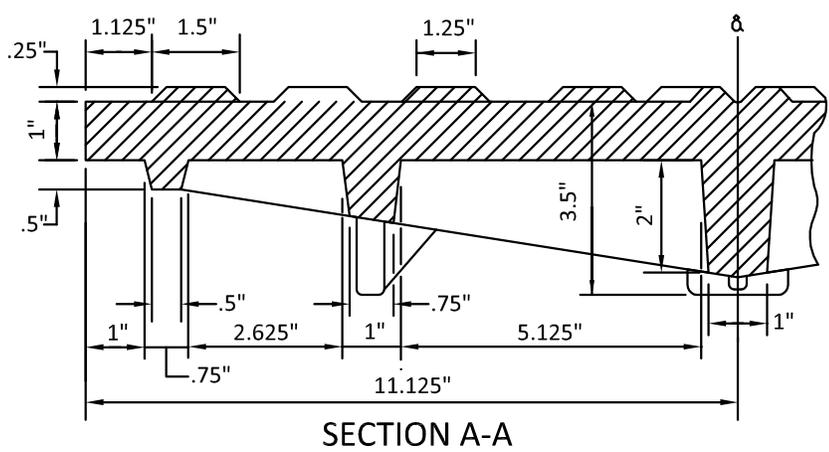


STANDARD DETAIL  
**MANHOLE FRAME & COVER CASTINGS**  
 (SANITARY SEWERS)

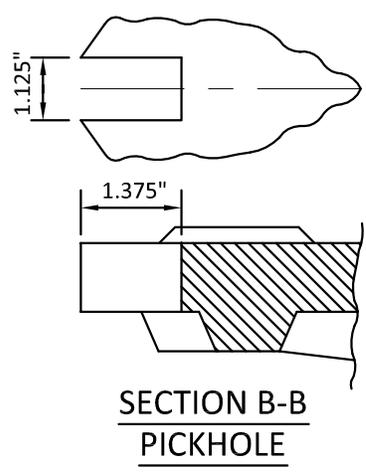
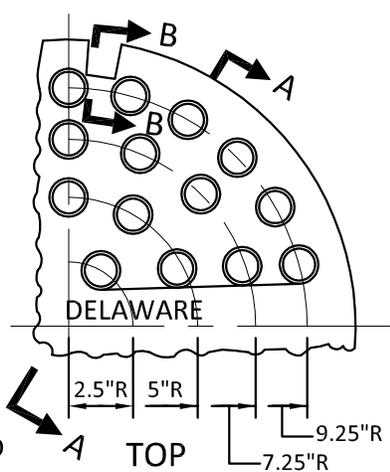
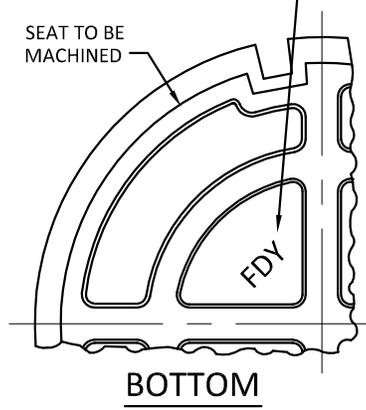
UTILITIES  
**SEWD-4.0**  
 Rev. 03/01/2012



APPROX. WEIGHT=245 lbs.



FOUNDRY NAME SHALL BE CAST ON THE UNDERNEATH OR UNEXPECTED SURFACE

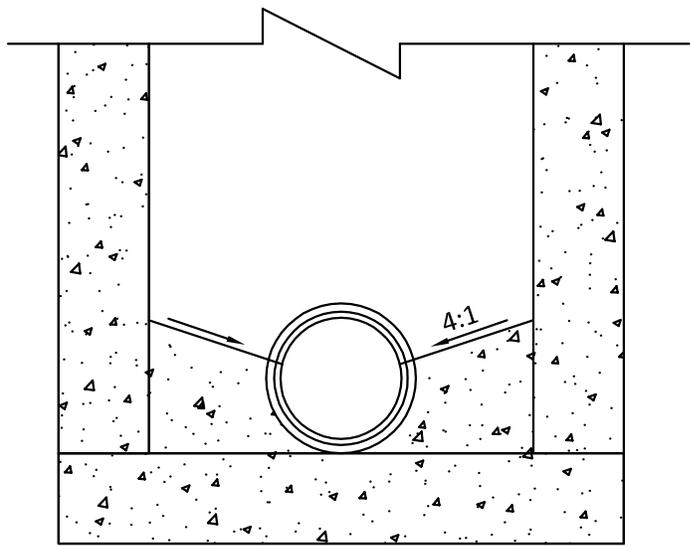
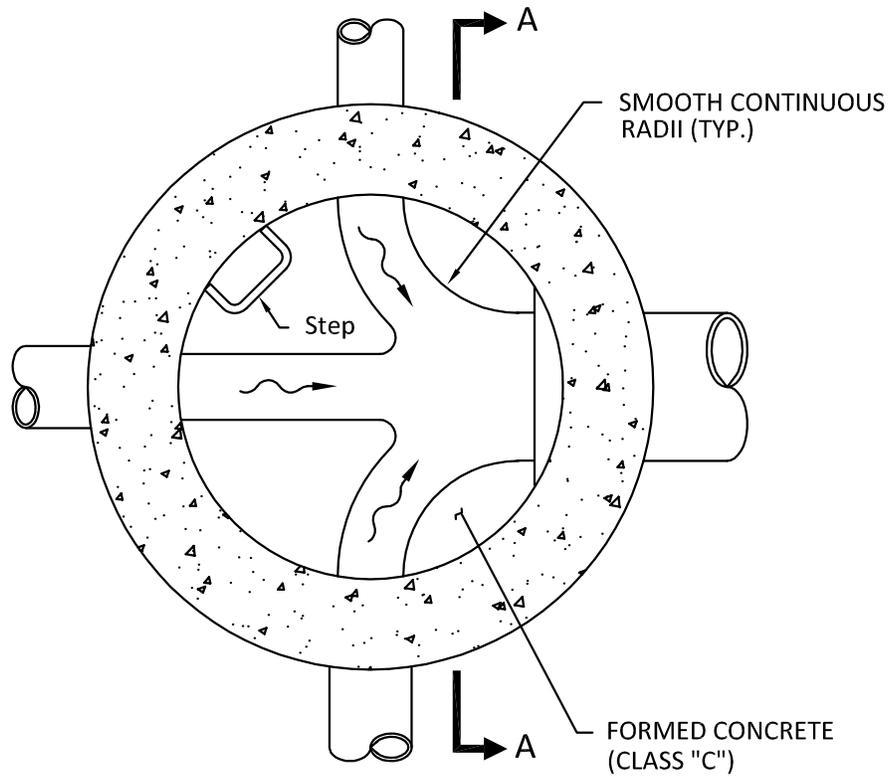


**NOTE:**  
DIMENSIONS SHOWN ARE EQUIVALENT DECIMALS OF 1/8 INCH FRACTIONAL SIZES. TOLERANCES SHALL BE ACCEPTED FOUNDRY STANDARDS AS OUTLINED IN THE IRON CASTINGS HANDBOOK PUBLISHED BY THE CAST METALS INSTITUTE. FRAMES, GRATES, AND COVERS SHALL MEET THE REQUIREMENTS OF 604.02.



STANDARD DETAIL  
**MANHOLE FRAME & COVER CASTINGS**  
(STORM SEWERS)

UTILITY  
**SEWD-5.0**  
Rev. 03/01/2012



SECTION A-A



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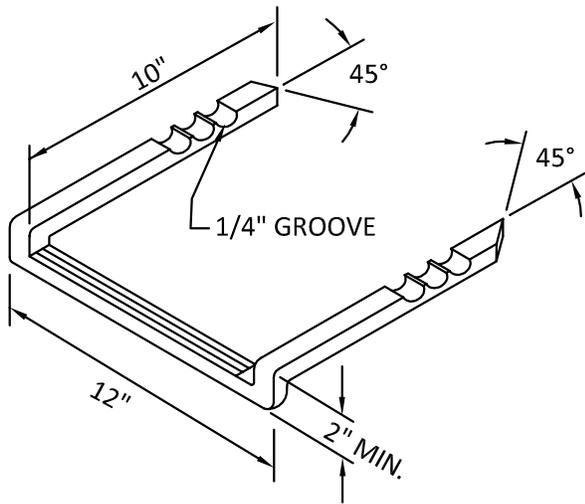
STANDARD DETAIL

PRECAST MANHOLE BASE  
CHANNELIZATION DETAIL

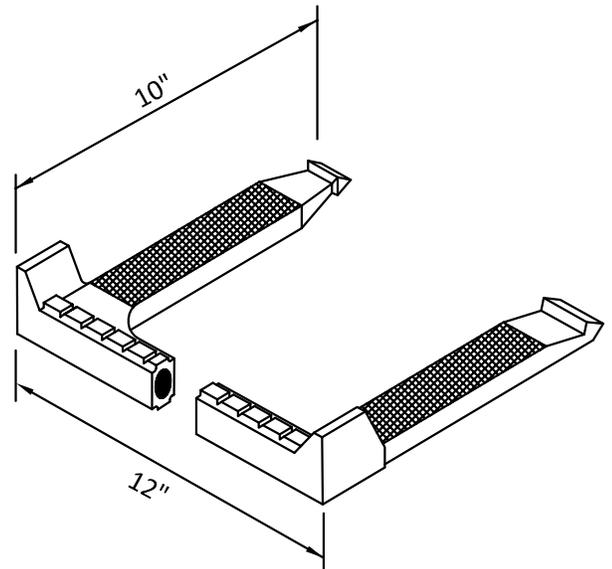
UTILITIES

SEWD-6.0

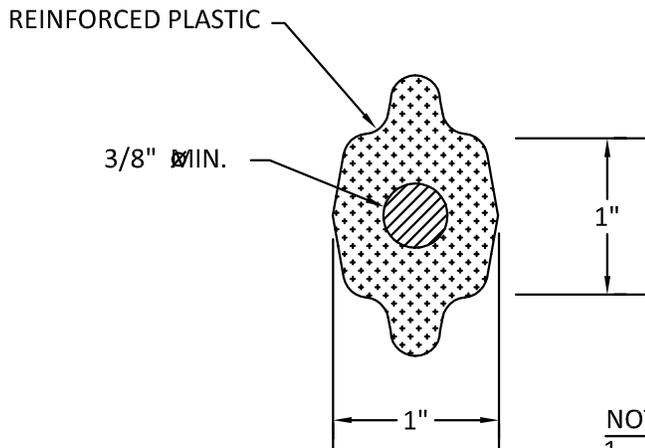
Rev. 03/01/2012



**ALUMINUM STEP**  
ITEM 711.30



**POLYPROPYLENE STEP**  
ITEM 711.31



**NOTE:**

1. STEPS SHALL MEET THE REQUIREMENTS OF ASTM C-478, AND SHALL BE INSTALLED WITH A UNIFORM VERTICAL SPACING OF 12-INCHES TO 16-INCHES".
2. STEPS SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1-INCHES FOR FERROUS METAL AND 3/4-INCHES FOR ALUMINUM.



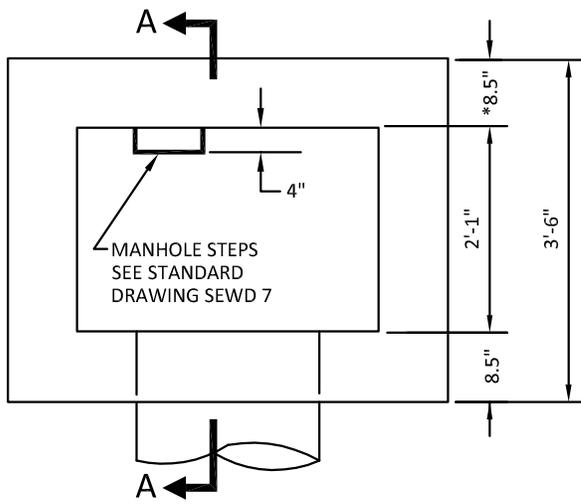
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL  
**MANHOLE STEPS**

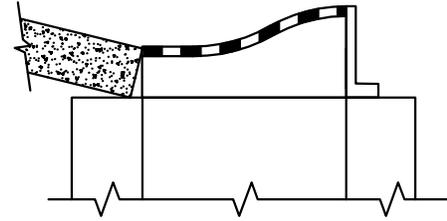
UTILITIES

**SEWD-7.0**

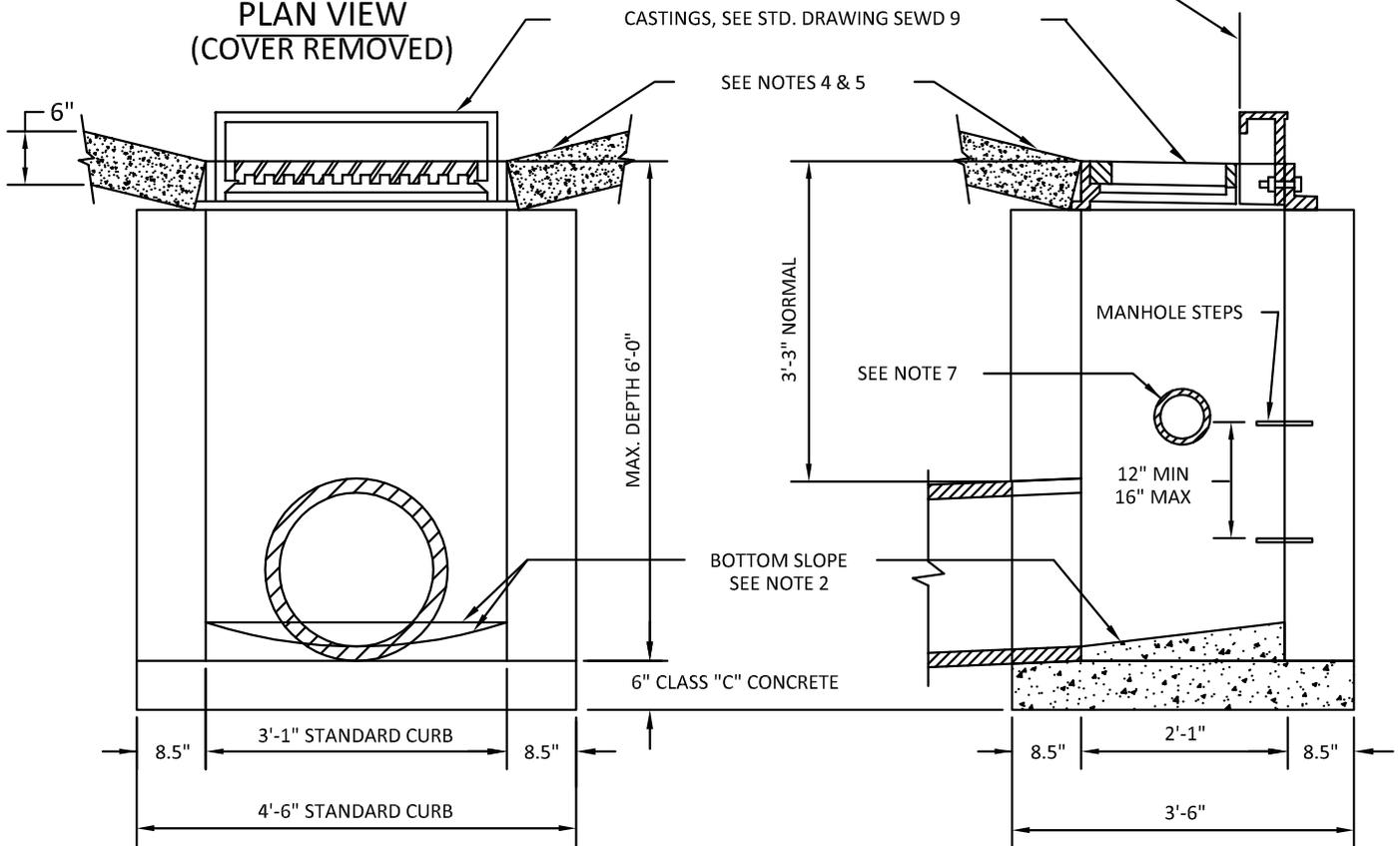
Rev. 03/01/2012



**PLAN VIEW  
(COVER REMOVED)**



**MOUNTABLE INLET  
(\* EXISTING AREAS ONLY)**



**ELEVATION**

**SECTION A-A**

**NOTE:**

1. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.
2. THE INLET BOTTOM SHALL BE SHAPED TO PROVIDE SLOPE OF 3" TO 4" TO OUTLET PIPE. THE CROSS SECTIONAL FORM OF BOTTOM AND LONGITUDINAL SLOPE IS TO BE ADAPTED TO LOCATION OF OUTLET PIPE AS DIRECTED.
3. OUTLET PIPE MAY BE LOCATED IN FRONT OR BACK AND SHALL BE DIRECTED TOWARDS THE CENTER OF THE INLET.
4. THE EXISTING GUTTER WITHIN THE AREA AROUND THE INLET WHERE CUT OUT, SHALL BE REPLACED WITH CLASS "C" CONCRETE OR ASPHALTIC CONCRETE PAVING AS ORDERED.
5. THE BACKFILLING WITHIN PROPOSED PAVED AREAS SHALL BE IN ACCORDANCE WITH ITEM 912.
6. WALLS MAY BE BRICK, PRECAST SOLID CONCRETE BLOCKS, CAST IN PLACE CONCRETE, CLASS "C", OR PRECAST CONCRETE.
7. PLACE 4" CURB DRAIN STUBS 30" BELOW TOP OF CURB OR AS DIRECTED.
8. MAXIMUM PIPE DIAMETERS ARE 18" INTO SIDE WALLS AND 24" INTO FRONT OR BACKWALLS.



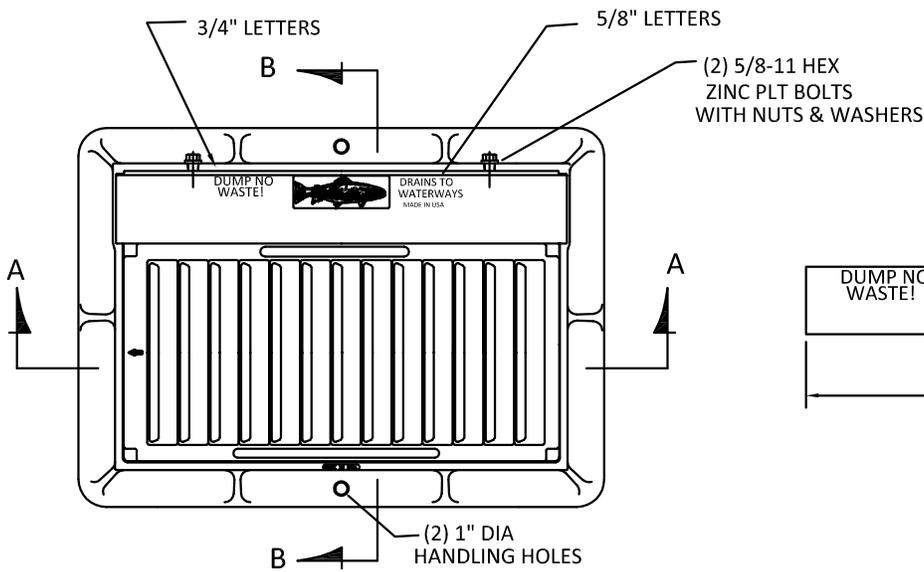
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL  
**CURB & GUTTER  
INLET**

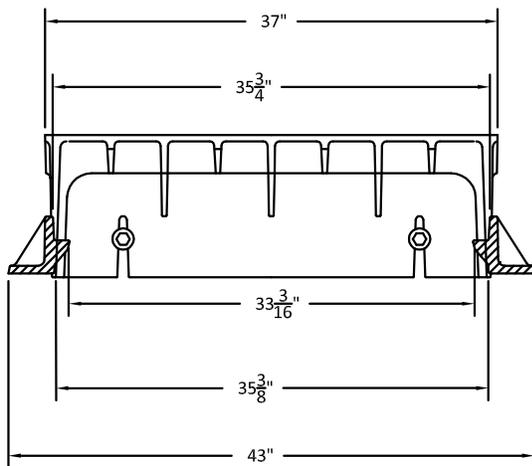
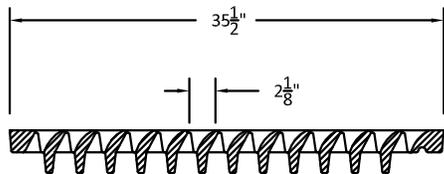
UTILITIES

**SEWD-8.0**

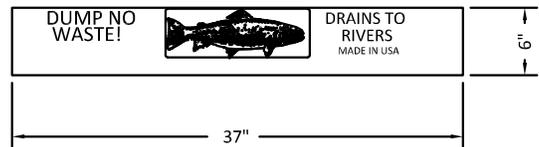
Rev. 03/01/2012



TOP VIEW

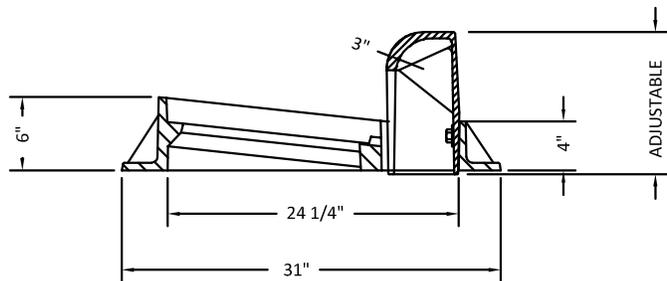


SECTION A-A



EAST JORDAN IRON WORKS  
7030 CATCH BASIN CURB INLET

HEAVY DUTY WITH TYPE M4 GRATE AND T1 BACK  
APPROXIMATELY 260 SQ INCHES IN OPEN AREA  
CURB BACK ADJUSTS FROM 3 1/4" TO 9"  
"DUMP NO WASTE!" AND FISH IMAGE



CURB ADJUSTMENT  
6" TO 10"

SECTION B-B



DEPARTMENT OF ENGINEERING SERVICES

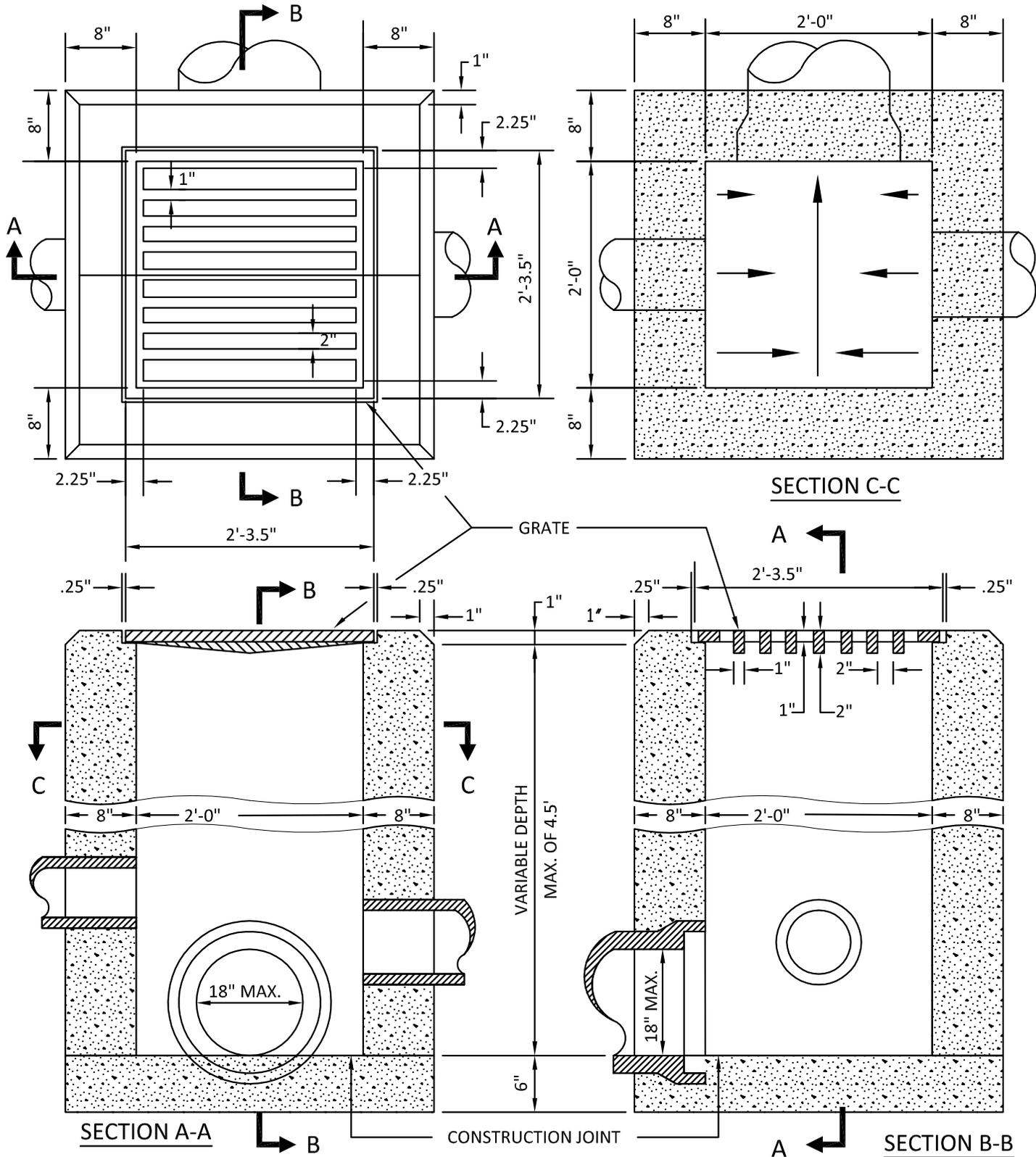
STANDARD DETAIL

CAST IRON FRAME & GRATE FOR  
CURB & GUTTER INLET (STD. CURB)

UTILITIES

SEWD-9.0

Rev. 03/01/2012

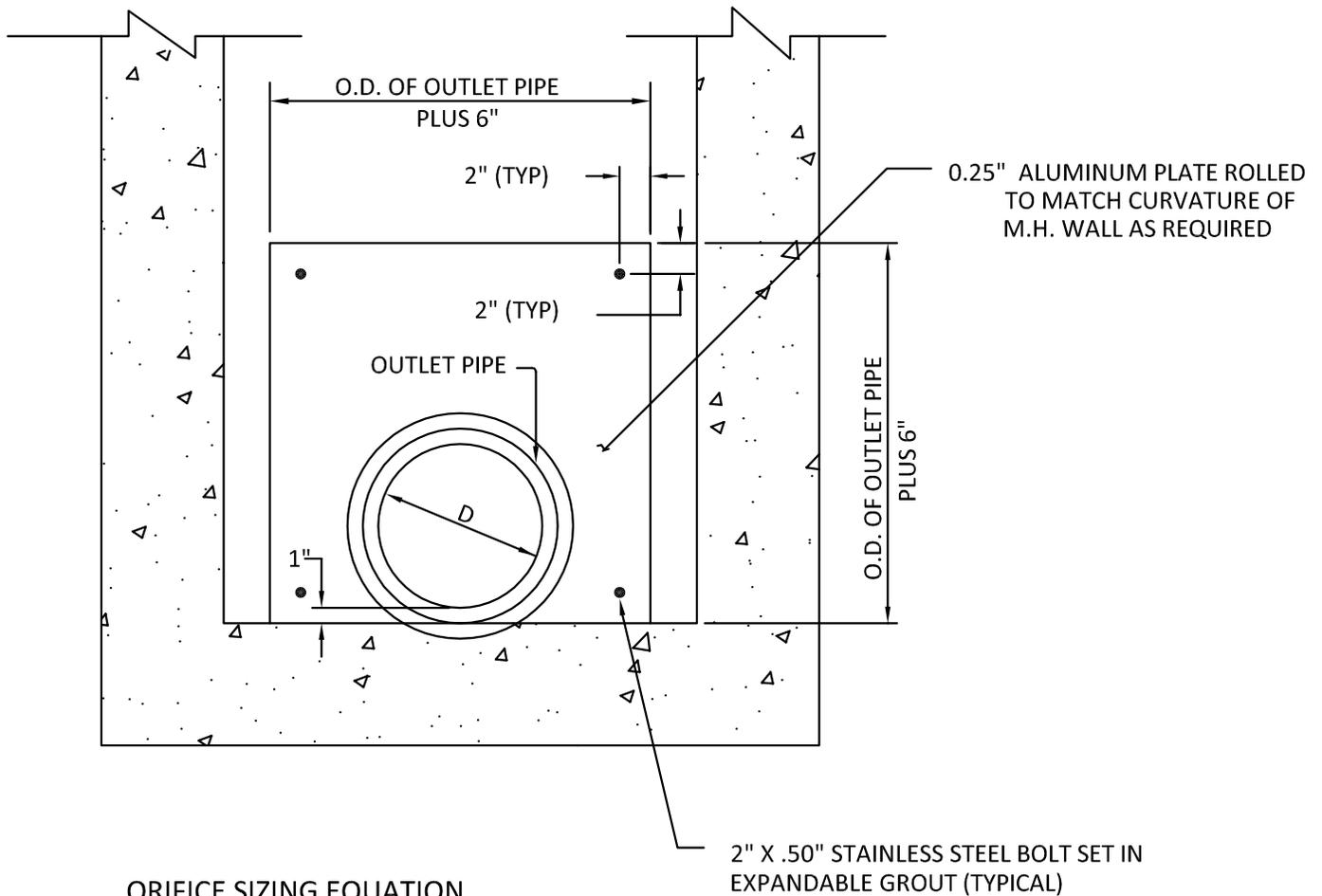


- NOTE:**
1. ALL BASINS TO BE PRECAST
  2. WALLS SHALL HAVE A MINIMUM THICKNESS OF 5 INCHES AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.



STANDARD DETAIL  
STANDARD 2-FT x 2-FT  
CATCH BASIN

UTILITIES
SEWD-10.0
Rev. 03/01/2012



ORIFICE SIZING EQUATION

$$Q = CA(2GH)^{0.5}$$

Q = PEAK DISCHARGE RATE, CFS

C = COEFFICIENT OF DISCHARGE.  
DIMENSIONLESS, (USE NOMINAL  
VALUE OF 0.60)

A = CROSS SECTIONAL AREA OF ORIFICE  
SQUARE FEET.

G = ACCELERATION DUE TO GRAVITY,  
32.16 FT/SEC/SEC

H = HEAD ON THE ORIFICE, FEET

2" X .50" STAINLESS STEEL BOLT SET IN  
EXPANDABLE GROUT (TYPICAL)

ORIFICE PLATE TO BE SET ON OUTLET PIPE  
WALL AT EACH BASIN INDICATED ON PLAN.

SEE PLANS FOR ORIFICE DIAMETER (D)



DEPARTMENT OF ENGINEERING SERVICES

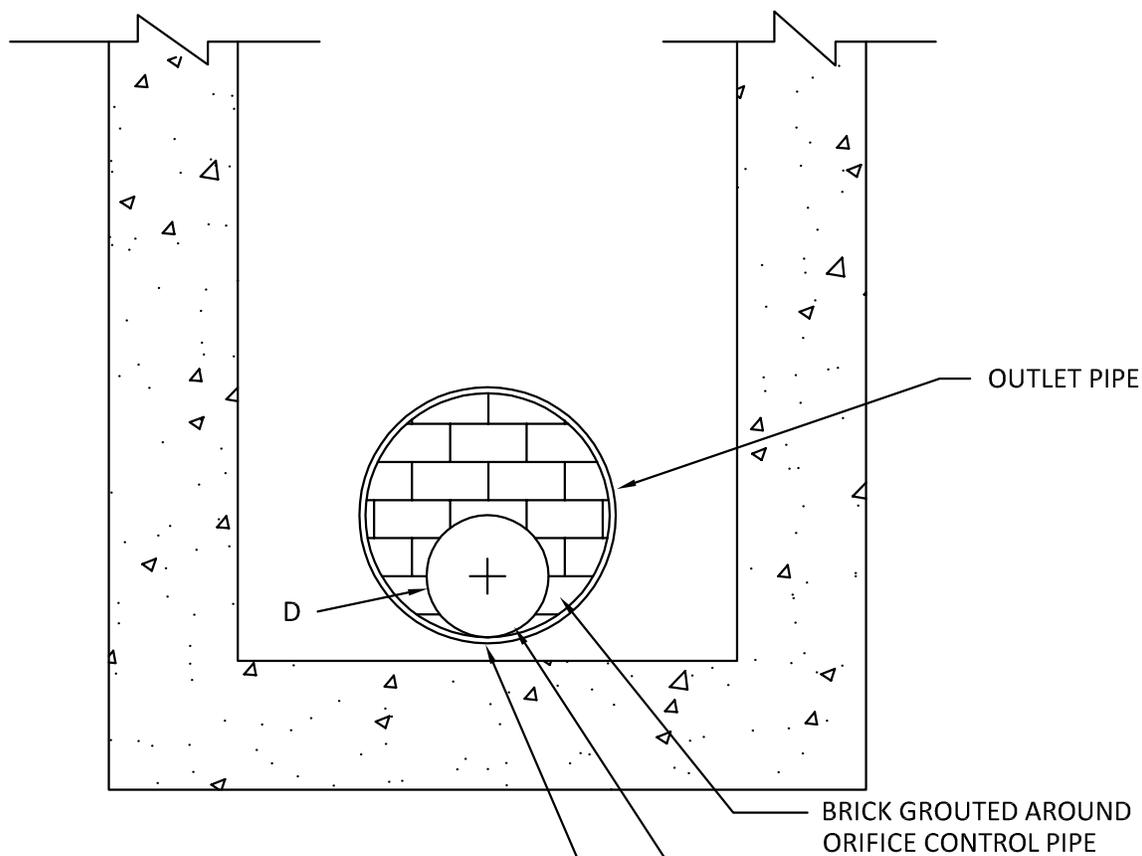
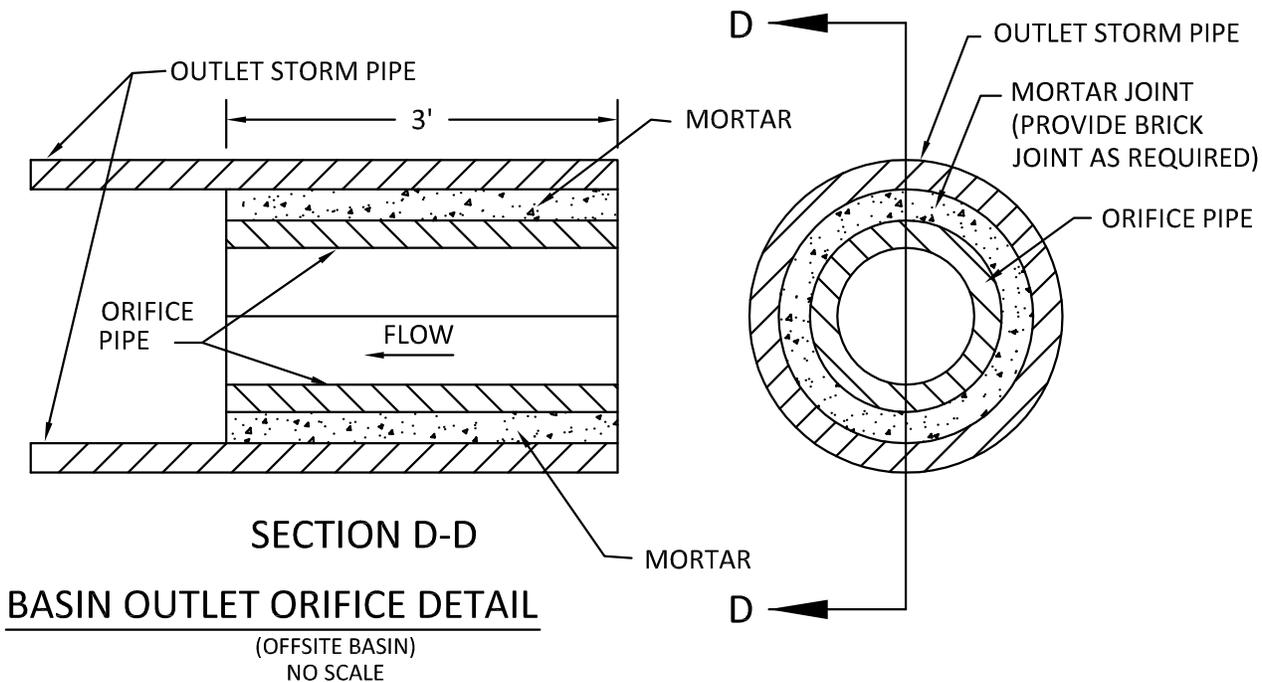
STANDARD DETAIL

OUTLET CONTROL ORIFICE  
PLATE

UTILITIES

SEWD-11.1

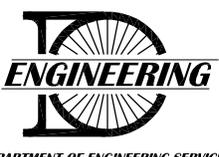
Rev. 03/01/2012



BOTTOM OF ORIFICE SHALL MATCH THE INVERT OF THE OUTLET PIPE (1" MINIMUM ABOVE BOTTOM OF CB OR MH).

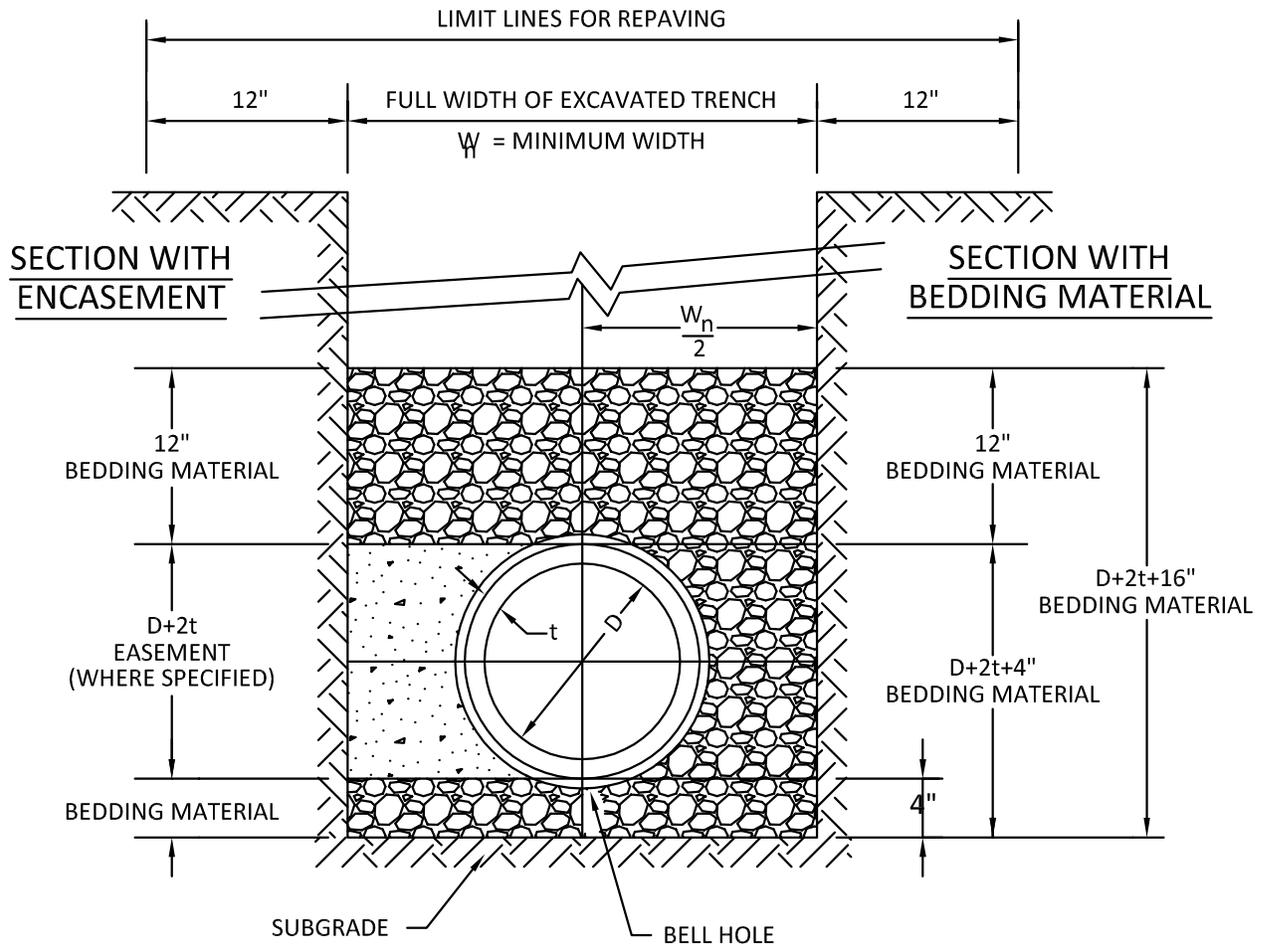
ORIFICE PIPE MINIMUM 6" LONG. SEE PLANS FOR DIAMETER (D)

ORIFICE PIPE TO BE SET ON OUTLET PIPE WALL AT EACH BASIN INDICATED ON PLAN.



STANDARD DETAIL  
OUTLET CONTROL  
ORIFICE PIPE

UTILITIES
SEWD-11.2
Rev. 013/01/2012



**NOTES:**

1. SECTION SYMMETRICAL ABOUT C/L
2. DIMENSIONS ARE EXPRESSED IN INCHES.
3. ENCASEMENTS TO BE CLASS "A" CONCRETE, ITEM 905.
4. ON SANITARY SEWER CONSTRUCTION TRENCH DAMS ARE REQUIRED AS SPECIFIED UNDER 901.11

D *	$W_n$ *
6	30
8	30
10	30
12	32
15	36
18	40
21	44

D *	$W_n$ *
24	48
27	52
30	56
36	64
42	72
48	80

\* INCHES



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

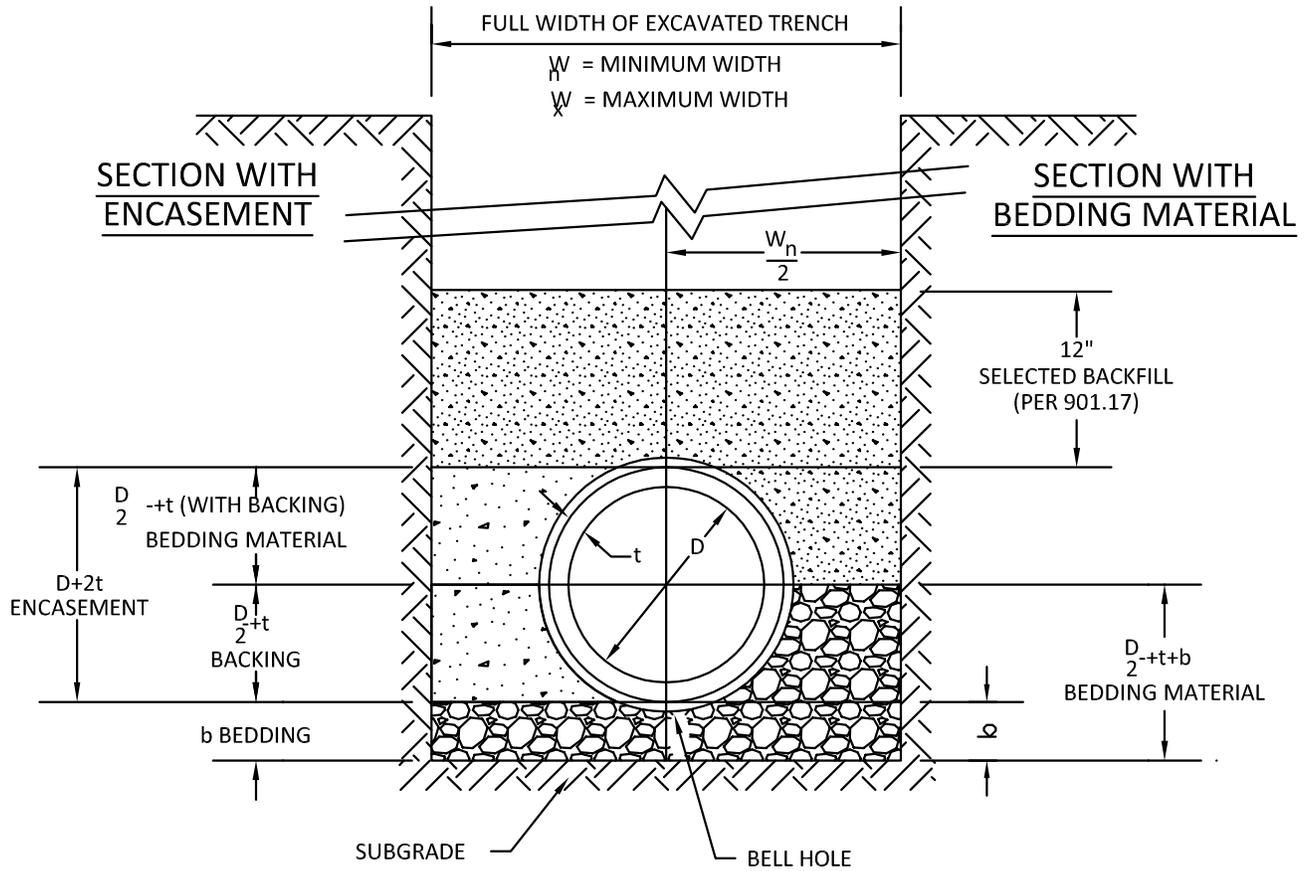
**TYPE 1 BEDDING**

FOR FLEXIBLE SEWER PIPE 6-INCHES TO 48-INCHES DIAMETER

UTILITIES

**SEWD-12.0**

Rev. 03/01/2012



NOTES:

1. SECTION SYMMETRICAL ABOUT C/L
2. \*DIMENSIONS ARE EXPRESSED IN INCHES.
3. BACKING OR ENCASEMENTS TO BE CLASS "A" CONCRETE, ITEM 905.
4. ON SANITARY SEWER CONSTRUCTION TRENCH DAMS ARE REQUIRED AS SPECIFIED UNDER 901.11.
5. PAYMENT FOR CONCRETE BACKING AND ENCASEMENT SHALL BE BASED ON MINIMUM TRENCH WIDTH ( $W_n$ ).

SMALL DIAMETERS  
b = 4"

D*	$W_n^*$	$W_x^*$
6	24	48
8	27	48
10	30	48
12	32	48
15	36	50
18	40	53
21	44	57
24	48	60
27	52	64

MID DIAMETERS  
b = 6"

D*	$W_n^*$	$W_x^*$
30	57	67
33	61	71
36	64	74
42	71	81
48	78	88
54	87	95
60	96	102
66	105	127

LARGE DIAMETERS  
b = 6"

D*	$W_n^*$	$W_x^*$
72	116	134
78	123	141
84	130	148
90	136	155
96	143	162
102	151	169
108	160	176



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

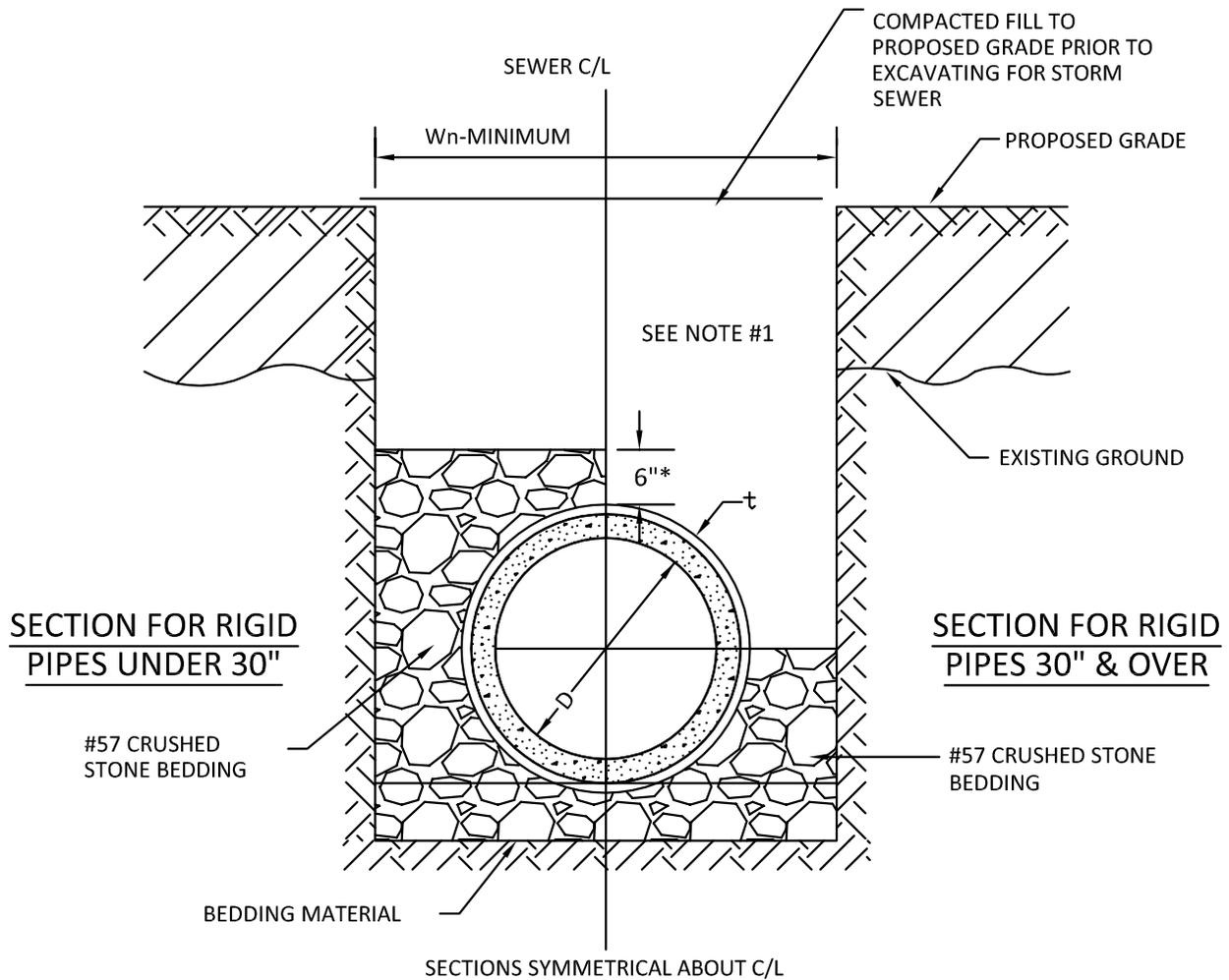
TYPE 1 BEDDING

FOR RIGID SEWER PIPE 6-INCHES TO 108-INCHES DIAMETER

UTILITIES

SEWD-13.0

Rev. 03/01/2012



\*12" FOR ALL FLEXIBLE PIPES REGARDLESS OF SIZE.

**NOTES:**

1. BACKFILL OF TRENCH FROM TOP OF #57 CRUSHED STONE BEDDING TO THE TOP OF TRENCH SHALL BE COMPACTED TO 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH SECTION 911. NO GRITS WILL BE ALLOWED.
2. THE COMPACTION REQUIREMENT WILL BE STRICTLY ENFORCED BY THE CITY.
3. THE C/L OF THE PROPOSED STORM SEWER SHOULD BE OFFSET FROM THE PROPERTY LINE.
4. THE COST OF THE #57 CRUSHED STONE BEDDING, COMPACTED FILL AND BACKFILL SHALL BE INCLUDED IN ITEM 901.
5. MINIMUM WIDTH OF TRENCH ARE AS SHOWN ON DRAWINGS SEWD-14 OR SEWD-15.



DEPARTMENT OF ENGINEERING SERVICES

**STANDARD DETAIL**

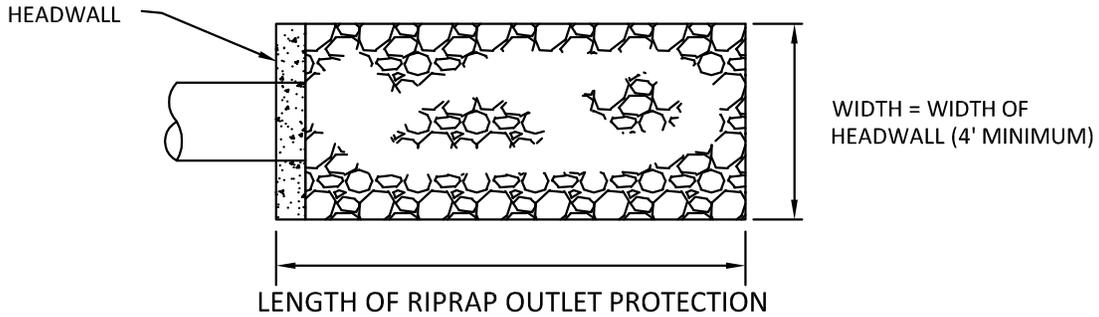
**TYPICAL TRENCH DETAIL**

FOR STORM SEWERS OUTSIDE R/W WITH COVER OF 30-INCHES OR LESS

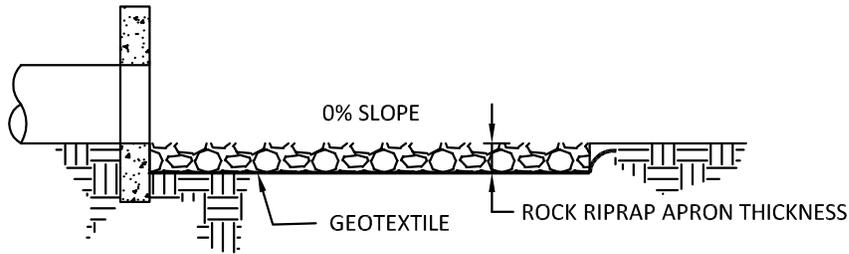
UTILITIES

**SEWD-14.0**

Rev. 03/01/2012



**PLAN VIEW**



**PROFILE**

1. THE SUBGRADE FOR THE FILTER AND RIPRAP SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES AS SHOWN ON THE PLAN.
2. THE RIPRAP SHALL CONFORM TO THE GRADING LIMITS AS SHOWN ON THE PLAN.
3. GEOTEXTILE SHALL BE WOVEN OR NONWOVEN MONOFILAMENT YARN AND SHALL MEET THE FOLLOWING:
  - ~ THICKNESS 20-60 MILS
  - ~ GRAB STRENGTH 90-120 LB.
  - ~ ASTM D-1777 AND ASTM D-1682
4. RIPRAP MAY BE PLACED BY EQUIPMENT BUT SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE.

TYPE OF ROCK OR RIPRAP	SIZE OF ROCK	
	50% BY WEIGHT	85% BY WEIGHT
TYPE D	> 6 IN.	3 - 12 IN.
TYPE C	> 12 IN.	6 - 18 IN.
TYPE B	> 18 IN.	12 - 24 IN.
TYPE A	> 24 IN.	18 - 30 IN.



DEPARTMENT OF ENGINEERING SERVICES

**STANDARD DETAIL**  
**ROCK CHANNEL PROTECTION**  
**DETAILS AND NOTES**

UTILITIES

SEWD-15.1

Rev. 03/01/2012

# ROCK CHANNEL PROTECTION

## GENERAL

ROCK CHANNEL PROTECTION IS USED TO CONTROL EROSION AT THE OUTLET OF CULVERTS AND STORM SEWERS, OR FOR LINING DITCHES OR STEEP GRADES.

ROCK CHANNEL PROTECTION IS REQUIRED AT ALL STORM PIPE OUTLETS. A MINIMUM DEPTH OF 18-INCHES IS REQUIRED THE WIDTH OF THE ENDWALL AND THE MINIMUM LENGTH IS 5-FEET. THE MINIMUM TYPE IS TYPE C.

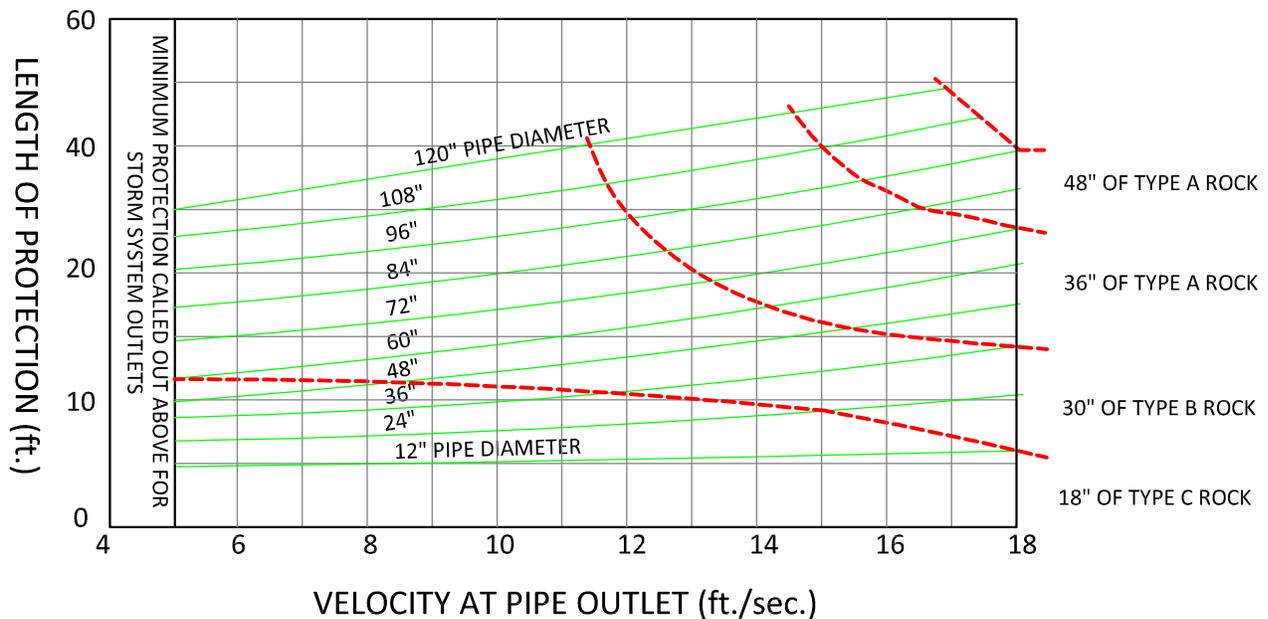
## TYPES

THERE ARE FOUR TYPES OF ROCK CHANNEL PROTECTION THAT ARE USED IN VARIOUS SITUATIONS. THE USE OF THE PROPER TYPE AT CULVERT AND STORM SEWER OUTLETS CAN BE DETERMINED FROM THE FIGURE BELOW. TYPE A IS GENERALLY USED BEYOND THE OUTLET OF THE LARGER CONDUITS HAVING OUTLET VELOCITIES IN EXCESS OF 12 FEET PER SEC. AND TYPE B OR TYPE C FOR CONDUITS HAVING LESSER VELOCITIES. THE TYPE AND QUANTITY OF ROCK CHANNEL PROTECTION PROVIDED IN THE PLANS SHALL BE BASED ON THE PIPE ALTERNATE REQUIRING THE LARGEST SIZE AND QUANTITY OF ROCK CHANNEL PROTECTION. TYPE C AND TYPE D MAY BE USED TO LINE ROADSIDE DITCHES, AS REQUIRED, WHERE THE DITCHES ARE OUTSIDE THE DESIGN CLEAR ZONE WIDTH OR LOCATED BEHIND GUARDRAIL. ITEM 670 SEEDING AND EROSION CONTROL WITH MATTING MAY BE USED IN DITCHES AND CHANNELS IN LIEU OF ROCK WHERE AVERAGE FLOW VELOCITIES ARE LESS THAN 10 FEET PER SECOND AND CHANNEL SLOPES ARE LESS THAN 10%.

## FILTER

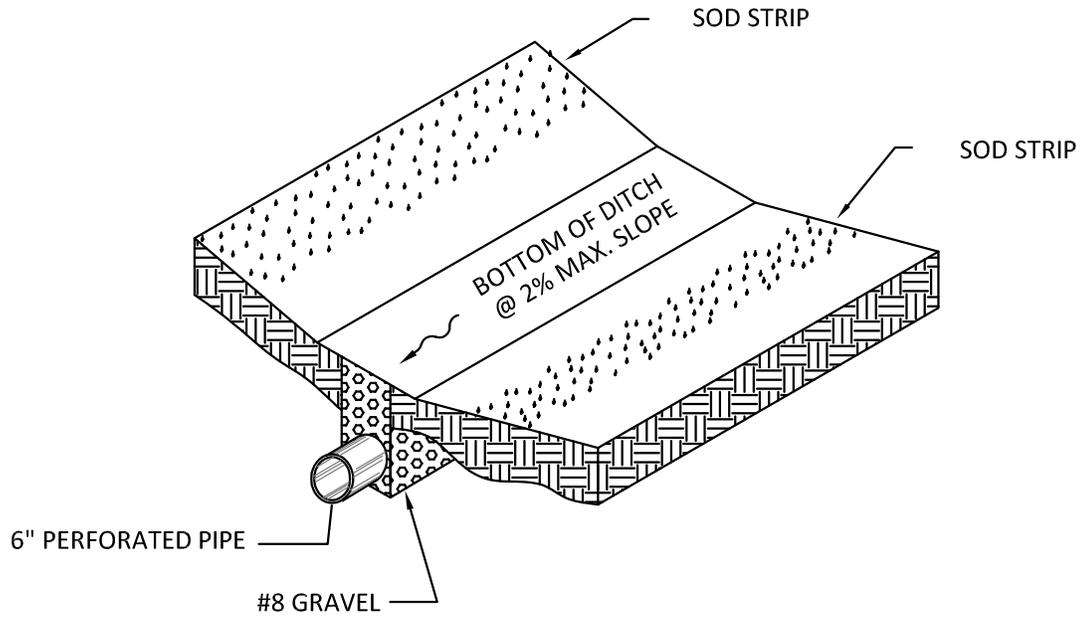
A FILTER SHALL BE PROVIDED UNDER ALL ROCK CHANNEL PROTECTION.

A FABRIC FILTER IS REQUIRED OVER GRANULAR FILTER MATERIAL WHERE THE PROTECTED SLOPE IS STEEPER THAN 3:1. THE COST OF THE FILTER SHALL BE INCLUDED IN THE UNIT PRICE BID OF ITEM 601 ROCK CHANNEL PROTECTION WITH FILTER.

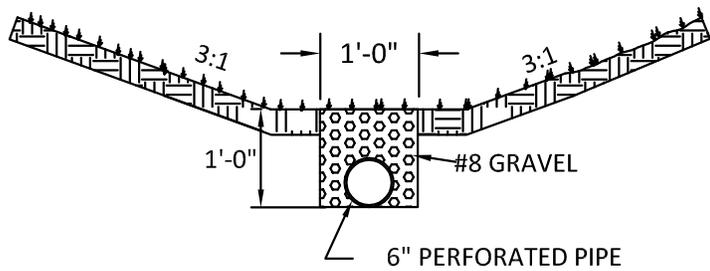


STANDARD DETAIL  
ROCK CHANNEL PROTECTION  
DETAILS AND NOTES

UTILITY  
SEWD-15.2  
Rev. 03/01/2012



ISOMETRIC VIEW



DITCH FRENCH DRAIN DETAIL



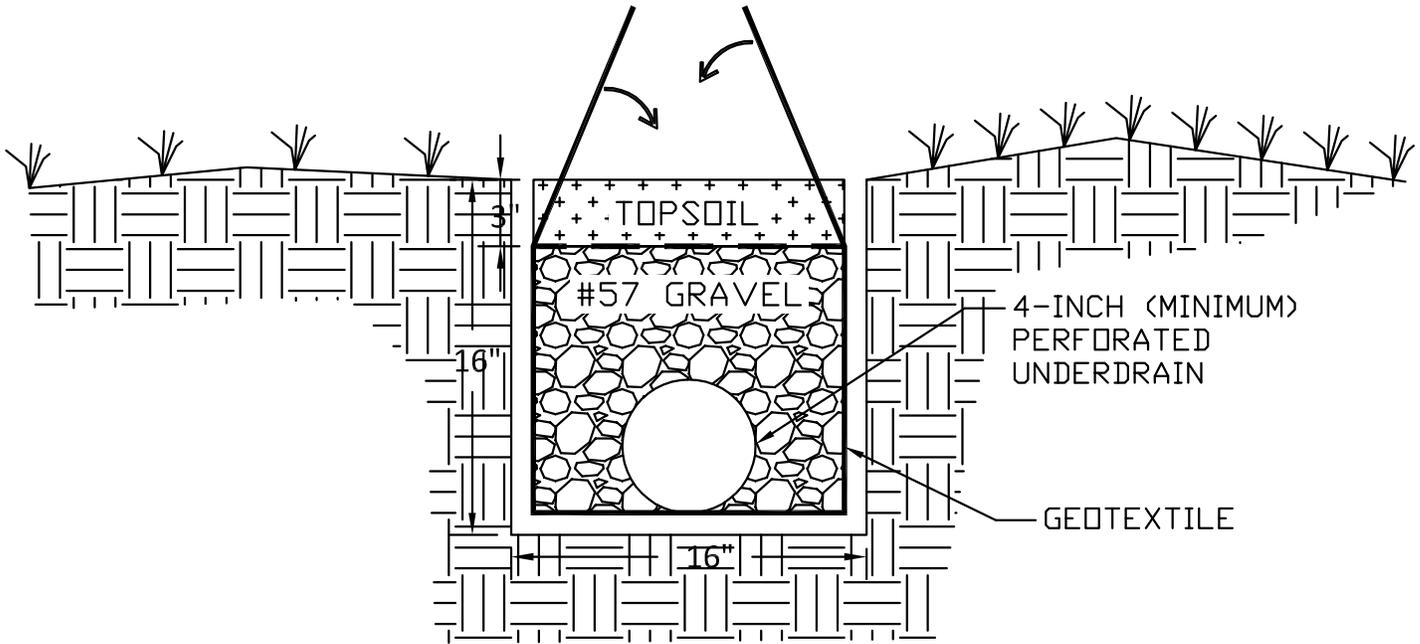
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL  
 DRAINAGE DETAIL  
 FRENCH DRAIN

UTILITIES

SEWD-16.1

Rev. 03/01/2012



**NOTES:**

- ALL SWALES WITH LESS THAN 3% RUNNING SLOPE SHALL HAVE AN UNDERDRAIN THE ENTIRE LENGTH OF THE SWALE. THE UNDERDRAIN SHALL TERMINATE IN A STORM STRUCTURE.
- ALL DRY DETENTION BASINS WITH A BOTTOM SLOPE OF LESS THAN 5% SHALL HAVE A SERIES OF UNDERDRAINS INSTALLED THAT OUTLET TO THE BASIN OUTLET STRUCTURE.
- THE UNDERDRAIN TRENCH IS TO BE BACKFILLED WITH 13-INCHES OF # 57 STONE
- TRENCH TO BE CAPPED WITH 3-INCHES OF TOPSOIL.
- TRENCH TO BE LINED WITH GEOTEXTILE PER THIS DETAIL
- GEOTEXTILE FABRIC TO BE TYPE A AND MEET THE FOLLOWING SPECIFICATIONS:
  - MINIMUM TENSILE STRENGTH                      85 lbs
  - MINIMUM PUNCTURE STRENGTH                      25 lbs
  - MINIMUM TEAR STRENGTH                      25 lbs
  - APPARENT OPENING SIZE:                      ≤0.3 mm



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

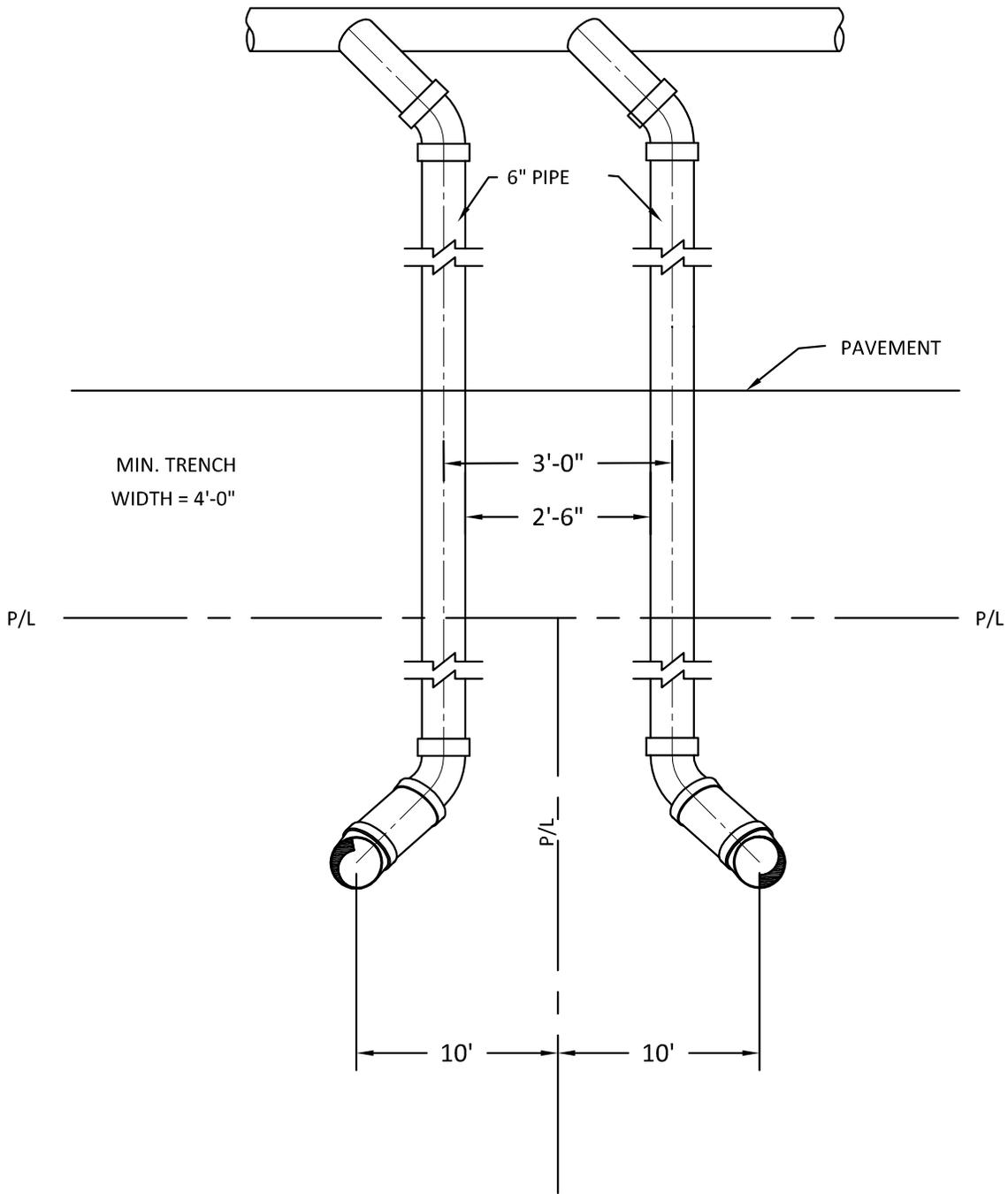
**UNDERDRAIN DETAIL**

(FOR USE UNDER SWALES AND DRAINAGE BASINS)

UTILITIES

**SEWD-16.2**

Rev. 03/01/2012



DEPARTMENT OF ENGINEERING SERVICES

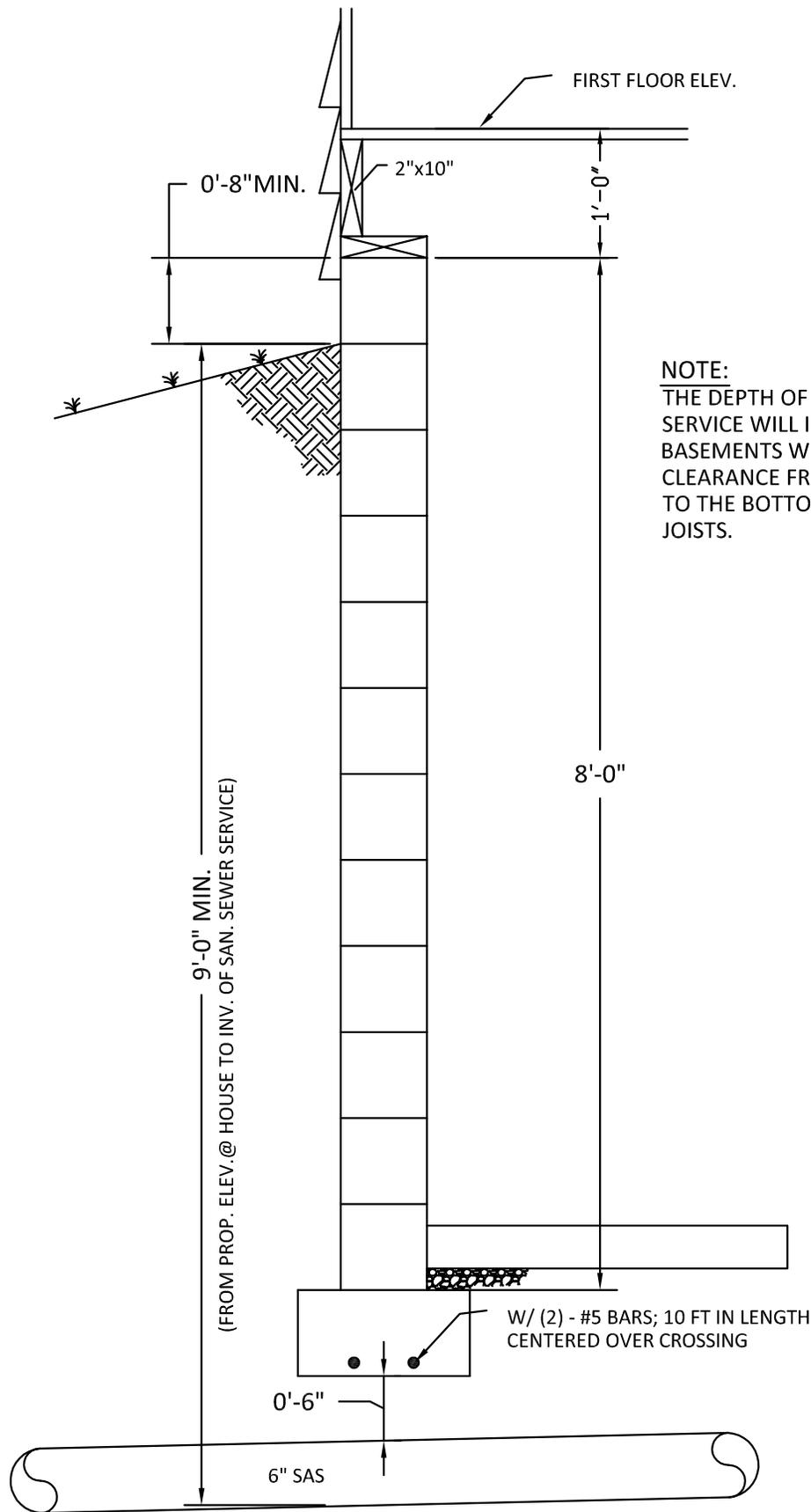
STANDARD DETAIL

SANITARY LATERAL STREET CROSSING  
(2 LATTERALS IN 1 TRENCH)

UTILITIES

SEWD-17.0

Rev. 03/01/2012



DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL

MINIMUM DEPTH OF  
SANITARY SEWER SERVICE

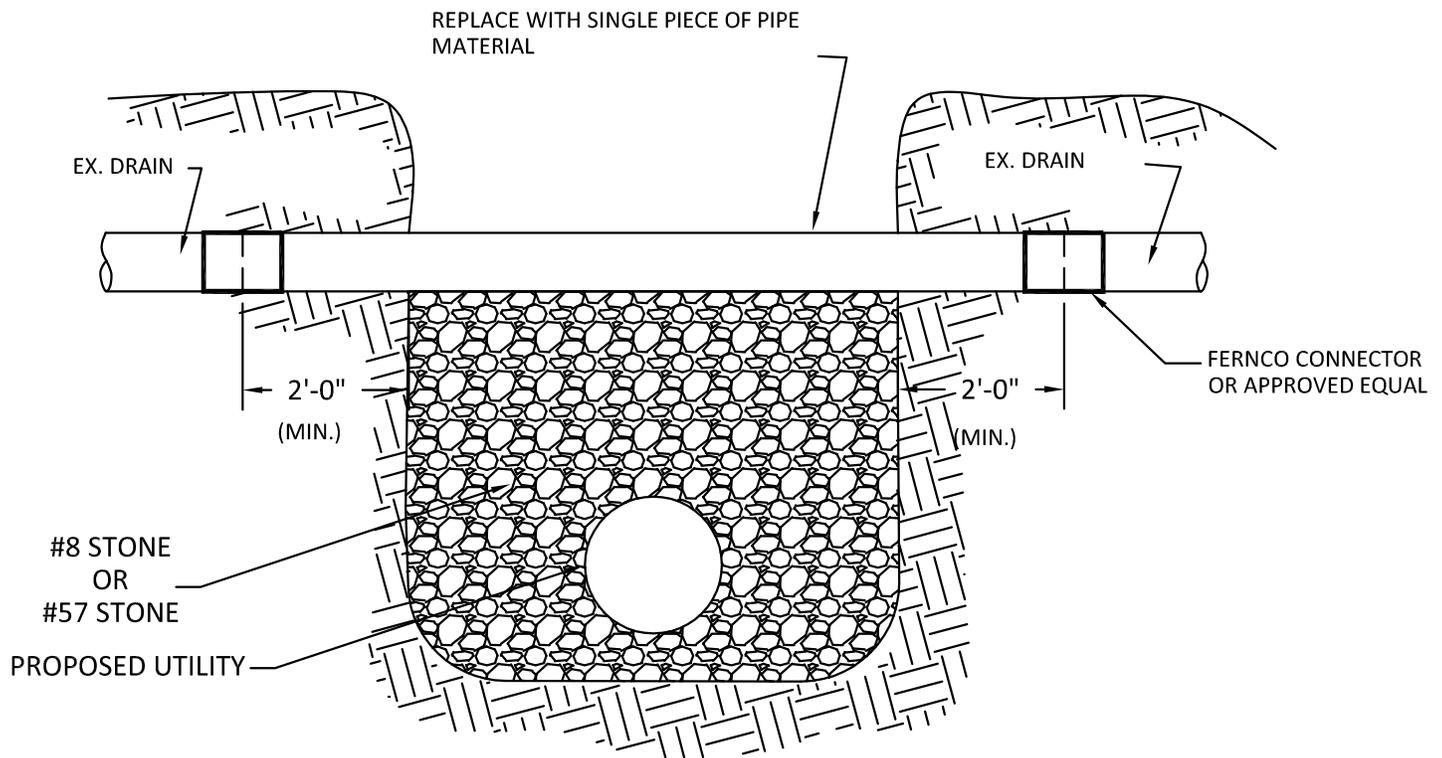
UTILITIES

SEWD-18.0

Rev. 03/01/2012

MINIMUM ROAD & CURB UNDERDRAIN REPLACEMENT MATERIAL SHALL BE:  
 PERFORATED CONCRETE: ITEM 706.06 (ODOTCMS)  
 CONCRETE DRAIN TILE : TILE 706.07 (ODOTCMS)  
 VITRIFIED CLAY: ITEM 706.08 (ODOTCMS) PERFORATED  
 PVC: ITEM 707.17 (ODOTCMS) HEAVY DUTY  
 CORRUGATED POLYETHYLENE SLOTTED DRAIN: ITEM 707.16  
 (ODOTCMS)

MINIMUM DRAIN TILE REPLACEMENT MATERIAL SHALL BE:  
 PVC: ASTM 2241, SDR 26  
 DUCTILE IRON: AWWA C151, CLASS 50  
 STEEL PIPE: ASTM 139-B  
 CONCRETE: ITEM 706.02 (ODOTCMS)  
 POLYETHYLENE: ITEM 707.16, S.S. 944  
 (ODOTCMS)



NOTES:  
 INSIDE DIAMETER OF REPLACEMENT PIPE SHALL BE EQUAL TO OR GREATER THAN INSIDE DIAMETER OF EXISTING TILE OR UNDERDRAIN.  
 REPLACEMENT MATERIAL USED SHALL BE EQUAL TO OR BETTER THAN THE EXISTING TILE OR UNDERDRAIN AS DIRECTED BY THE DEPARTMENT OF ENGINEERING SERVICES.  
 PROVIDE FERNCO FITTINGS OR APPROVED EQUIVALENT WHERE EXISTING TILE OR UNDERDRAIN HAS WATERTIGHT JOINTS. PROVIDE 30# FELT OR CONCRETE MORTAR OVER THE UPPER HALF OF THE JOINT WHERE OPEN JOINTS ARE ENCOUNTERED.  
 BACKFILL BETWEEN THE PROPOSED UTILITY AND THE REPLACEMENT TILE OR UNDERDRAIN SHALL BE No.8 OR No. 57 ANGULAR STONE.



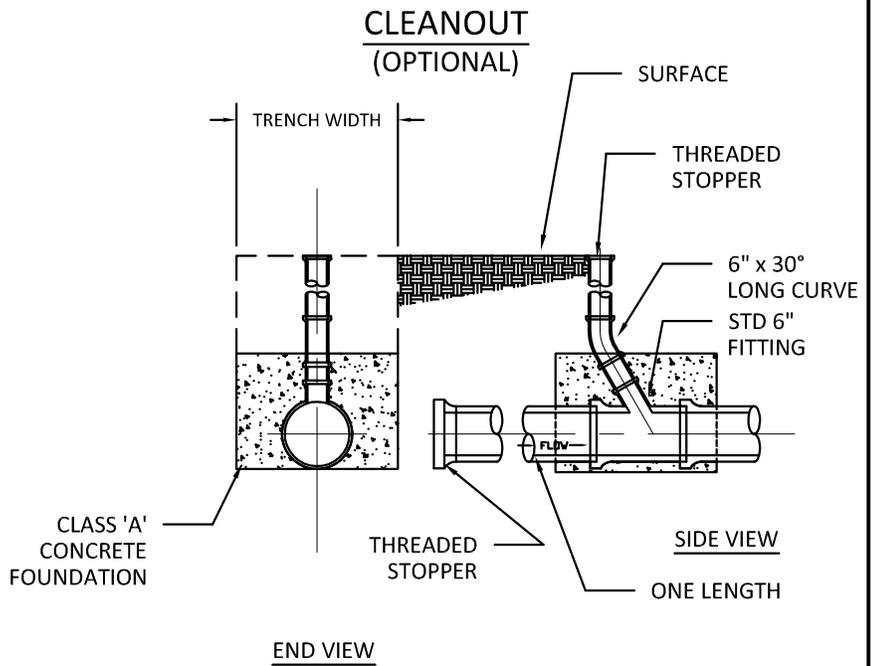
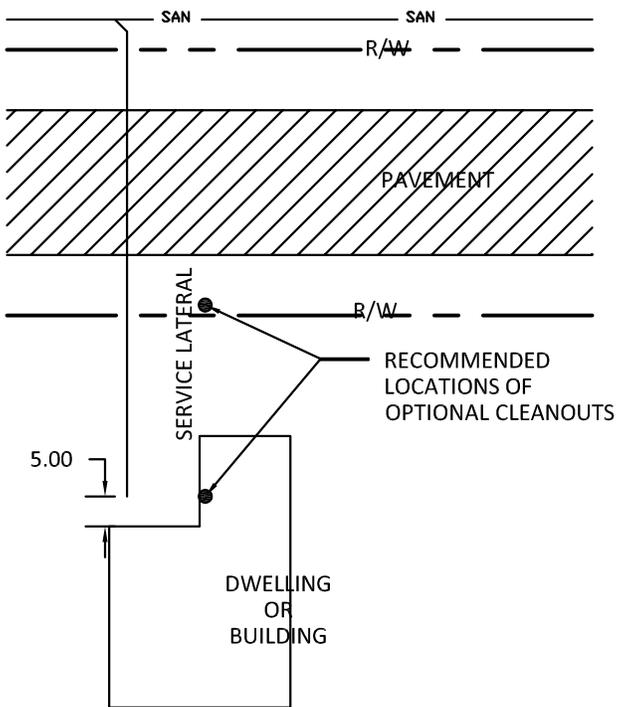
DEPARTMENT OF ENGINEERING SERVICES

STANDARD DETAIL  
 FIELD DRAIN TILE & UNDERDRAIN  
 REPLACEMENT

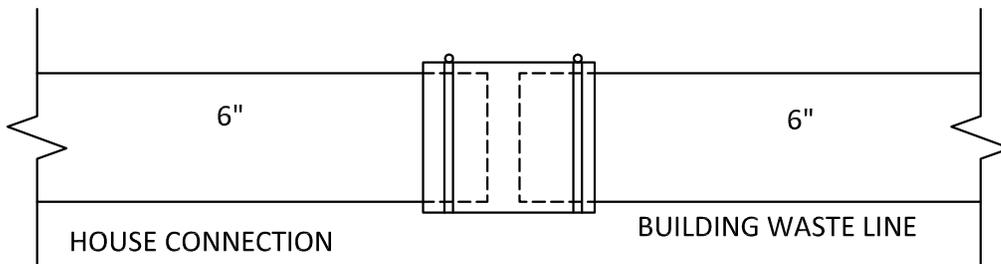
UTILITIES

SEWD-19.0

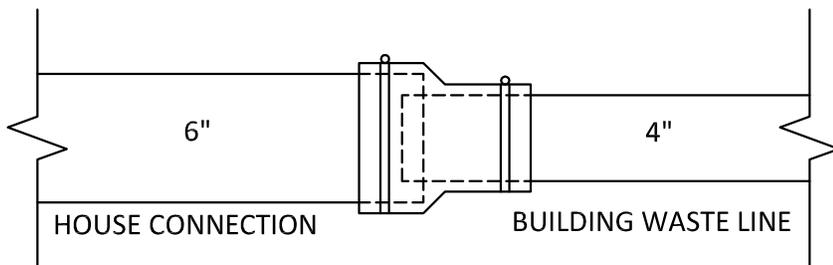
Rev. 03/01/2012



ALLOWABLE CONNECTION -  
SANITARY HOUSE CONNECTION TO BUILDING WASTE LINE



FLEXIBLE COUPLING



FLEXIBLE REDUCING COUPLING

COUPLING CLAMPS SHALL BE STAINLESS STEEL



STANDARD DETAIL  
TYPICAL SANITARY HOUSE CONNECTION  
SERVICE

UTILITIES  
**SEWD-20.0**  
Rev. 03/01/2012