

**The Enclosed Document Is Provided For Your Convenience.**

**Please Email ALL Questions:**  
**[MailTo:ContractAdministration@TampaGov.net](mailto:ContractAdministration@TampaGov.net)**

**Please Let Us Know If You Plan To Bid**

City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456

CITY of TAMPA



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
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2	MISCELLANEOUS FORCE MAIN DETAILS 1 of 2
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WASTEWATER DEPARTMENT

STANDARD DETAILS FOR

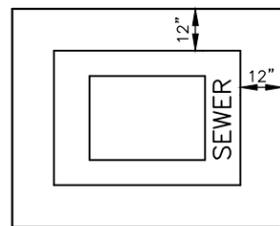
WASTEWATER COLLECTION  
SYSTEM REPAIR - FY2014

CONTRACT  
No. 14-C-00010

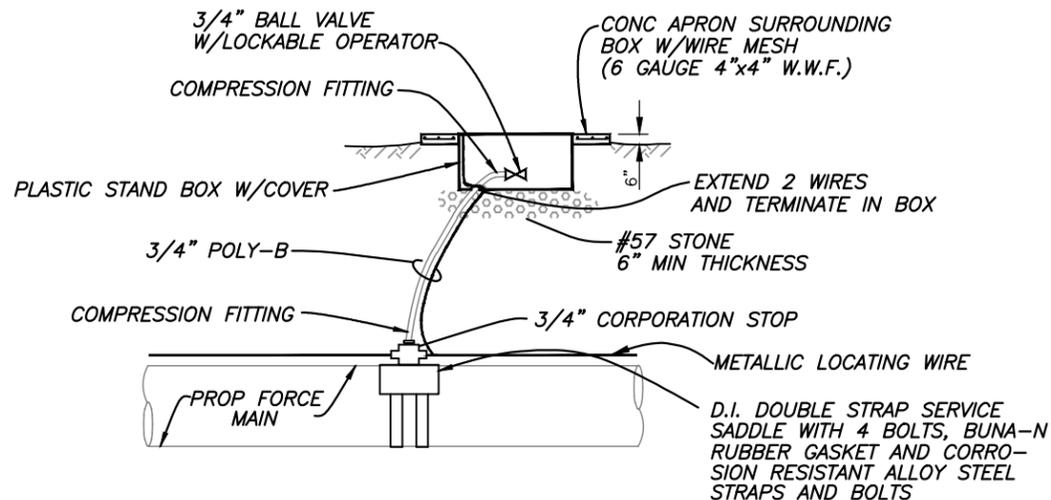
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Layout: Cover Plotted: 10/14/2013 7:38:47 AM CTB: MW-TOSHIBA.CTB Default LW: 25mm

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS COVER	W.O. ----
	3			DRN: BL			1
	2			CKD:			OF 10
	1			DATE:			

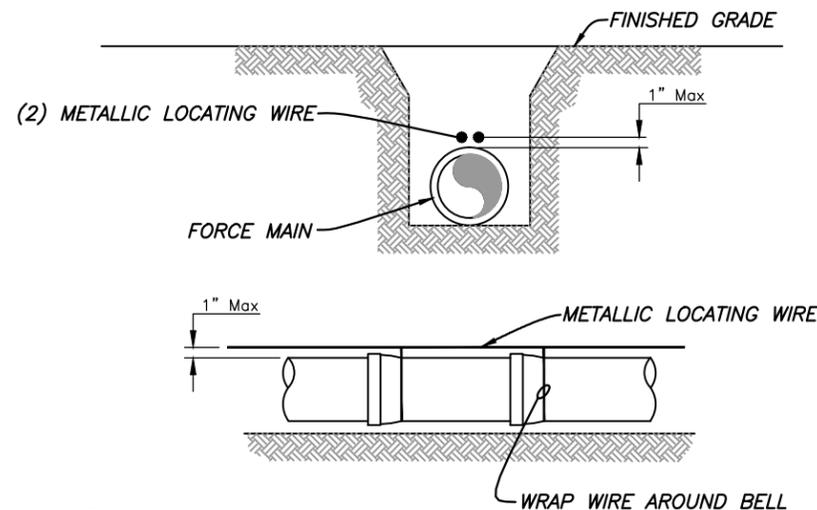
User: sse8 Drawing Name: K:\WW\_Projects\2014\2014\_Wastewater Collection System Repair FY2014.Dwg\Wastewater Collection System repair FY2014.dwg  
 Layout: Misc. FM Details 1 of 2 Plotted: 10/14/2013 7:38:50 AM CIB: WW-TOSHIBA.CTB Default LW: 25mm



PLAN VIEW



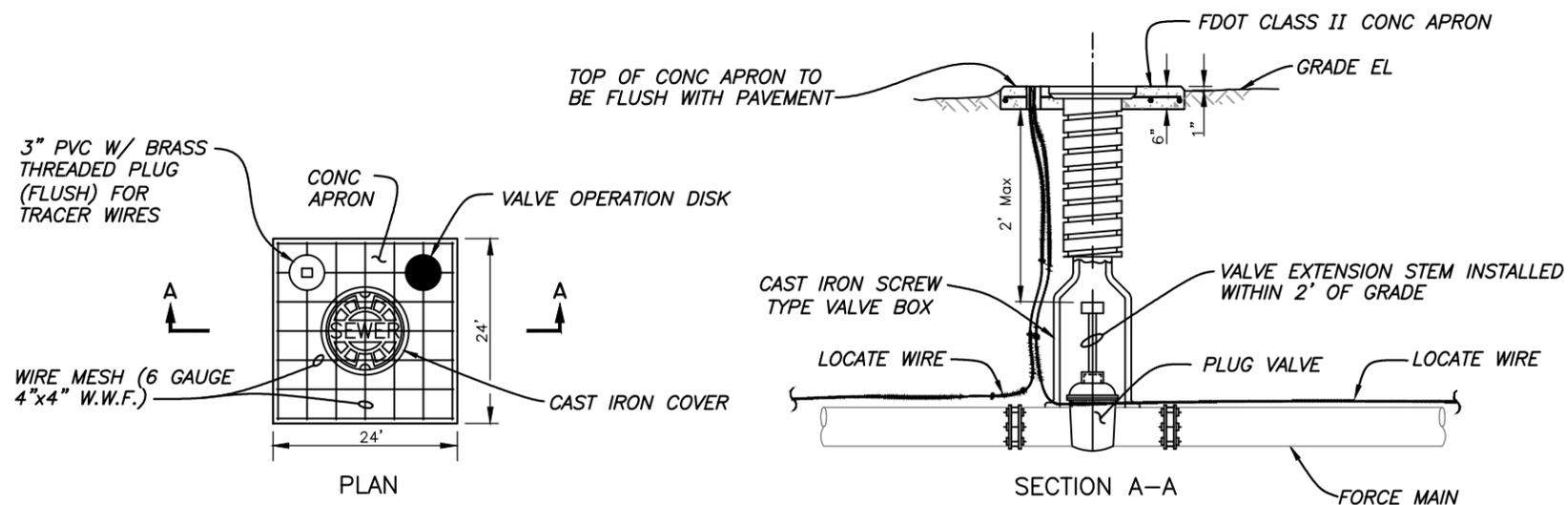
AIR RELEASE VALVE DETAIL  
Not To Scale



NOTES:

1. Pipe shall require 2 green insulated metallic locating wires capable of detection by a cable locator and shall be buried directly above the centerline of the pipe. Use duct tape as necessary to hold wire directly on top of pipe.
2. Direct bury pipe shall have (2) 12 gauge insulated solid copper wires. Directional drilled pipe shall have (2) 8 gauge insulated solid copper wires or (2) 10 gauge insulated copper clad steel wires. For directional drilled HDPE pipe a 1" conduit may be pulled back with the locating wires to ease installation and to prevent the wires from breaking.
3. Wire insulation must be suitable for buried service. HDPE or HMWPE are acceptable insulation materials. Nylon insulation is not acceptable.
4. Wires must be spliced together with wire connectors suitable for buried service. Connectors shall be corrosion and moisture proof such as DBR Kit by 3M, Snakebite by Copperhead Industries or equal. Twisting the wires and sealing with electrical tape alone is not acceptable.
5. All tracer wires must pass a continuity test in the presence of a City inspector. No pipe will be accepted by the City until a continuity test passes.
6. Locating wire shall terminate at the top of each valve box and air release valve. Wire shall be capable of extending 24" above top of box in such a manner so as not to interfere with valve operation.

PIPE LOCATING WIRE DETAIL  
Not To Scale



VALVE BOX DETAIL  
Not To Scale

**IMPORTANT - FOR EACH OPERABLE VALVE:**

PROVIDE A BRASS IDENTIFICATION TAG ANCHORED TO THE CONCRETE APRON THAT IS A MINIMUM 2" IN DIAMETER AND 1/8-INCH THICK. THE TAG SHALL BE ENGRAVED WITH "SEWER", SIZE OF VALVE, TYPE OF VALVE, AND DIRECTION AND NUMBER OF TURNS TO OPEN.

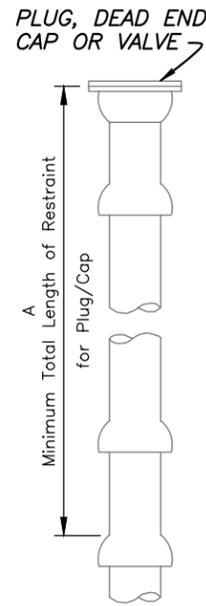
FOR EXAMPLE, A 4-INCH PLUG VALVE ON A WASTEWATER FORCE MAIN THAT REQUIRES 1/4 TURNS TO THE LEFT (COUNTERCLOCKWISE) TO BE FULLY OPEN WOULD REQUIRE THE FOLLOWING ON AN IDENTIFICATION TAG:

SEWER  
4" P.V.  
1/4 T.O.L.

VALVE OPERATION DISK  
Not To Scale

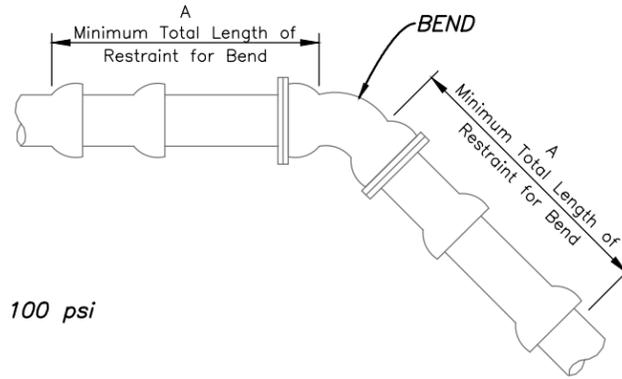
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	<b>STANDARD DETAILS</b> MISC. FM DETAILS 1 OF 2	W.O. -----
	3			DRN: BL			SHEET
	2			CKD:			2
	1			DATE:			OF 10

User: sse8 Drawing Name: K:\WW\_Projects\2014\2014\_Wastewater Collection System Repair FY2014\Drawings\Wastewater Collection System Repair FY2014.dwg  
 Layout: Misc. FM Details 2 of 2 Plotted: 10/14/2013 7:38:55 AM CTE: MW-TOSHIBA.CTB Default Lin: 25mm



**NOTES:**

1. These tables are based on:
  - a. Maximum test pressure of 100 psi
  - b. Class "C" pipe bedding
  - c. Poor soil conditions
  - d. PVC pipe
  - e. For vertical offsets, shallower vertical fitting has a minimum cover of 3 feet.
2. Restraining devices for PVC pipe shall be by Megalug (Series 2000 PV) or equal, meeting ASTM F1674.
3. Any additional fittings within the restrained section shall be restrained accordingly.
4. One standard length of PVC pipe (20 feet) shall be laid on either side of the fitting where possible.



**HORIZONTAL OFFSET:**

FITTING TYPE	RESTRAIN "A" (LF) *								
	4"	6"	8"	10"	12"	16"	18"	20"	24"
11-1/4"	1*	2*	2*	2*	3*	3*	3*	4*	4*
22-1/2"	2*	3*	3*	4*	5*	6*	6*	7*	8*
45°	4*	5*	7*	8*	9*	11*	13*	14*	16*
90°	9*	12*	15*	18*	21	27	29	32	37
PLUG / CAP / ISOLATION VALVE	26	36	47	56	66	85	94	102	119

A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED

\* MINIMUM ONE PIPE JOINT UPSTREAM AND DOWNSTREAM OF EACH FITTING SHALL BE RESTRAINED

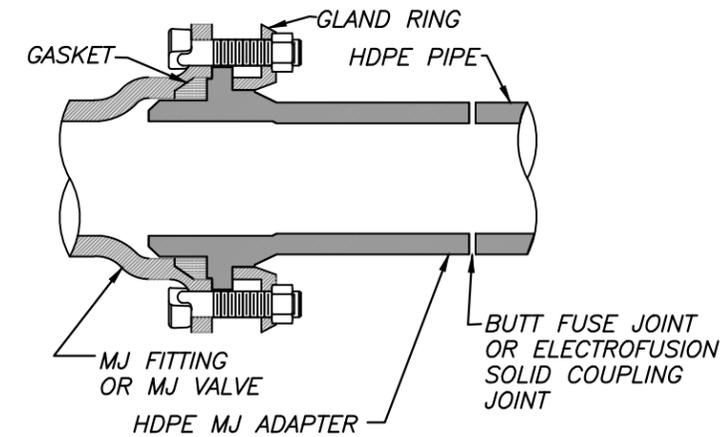
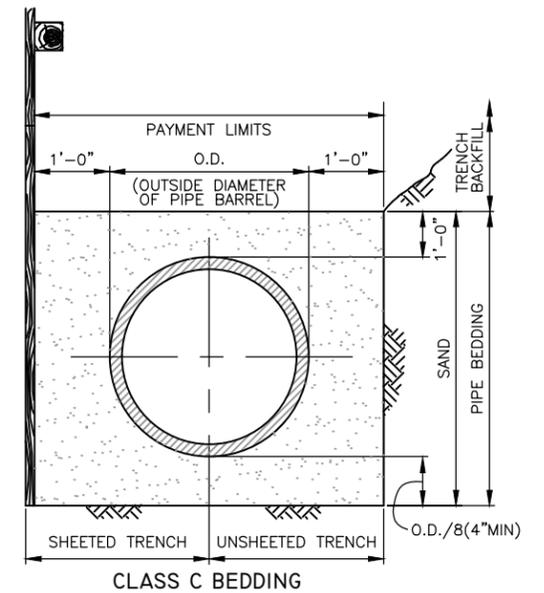
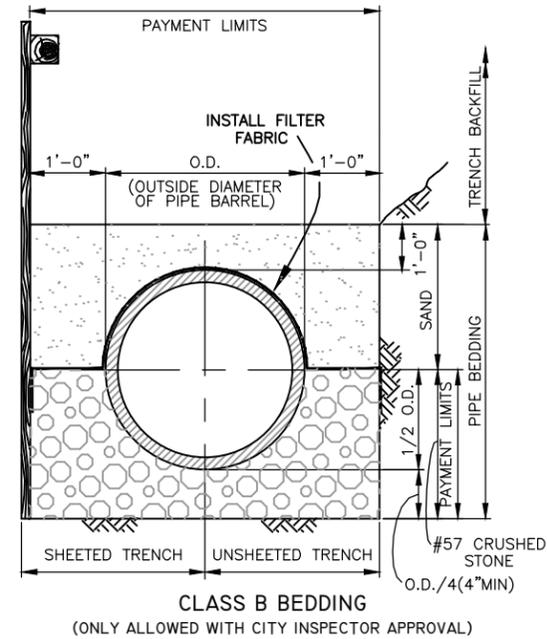
**VERTICAL OFFSET:**

FITTING TYPE	RESTRAIN "A" (LF) *								
	4"	6"	8"	10"	12"	16"	18"	20"	24"
11-1/4"	3*	4*	5*	6*	7*	9*	10*	11*	12*
22-1/2"	5*	8*	10*	12*	14*	17*	19*	21	24
45°	11*	15*	20	23	28	35	39	43	50

A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED

\* MINIMUM ONE PIPE JOINT UPSTREAM AND DOWNSTREAM OF EACH FITTING SHALL BE RESTRAINED

**FITTING RESTRAINT DETAIL**



**HDPE TRANSITION DETAIL**  
Not To Scale

NOTE:  
Schematic shown for standard MJ fitting and plug valves.

No.	DATE	REVISIONS
3		
2		
1		

JACINTO CARLOS FERRAS, P.E. #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

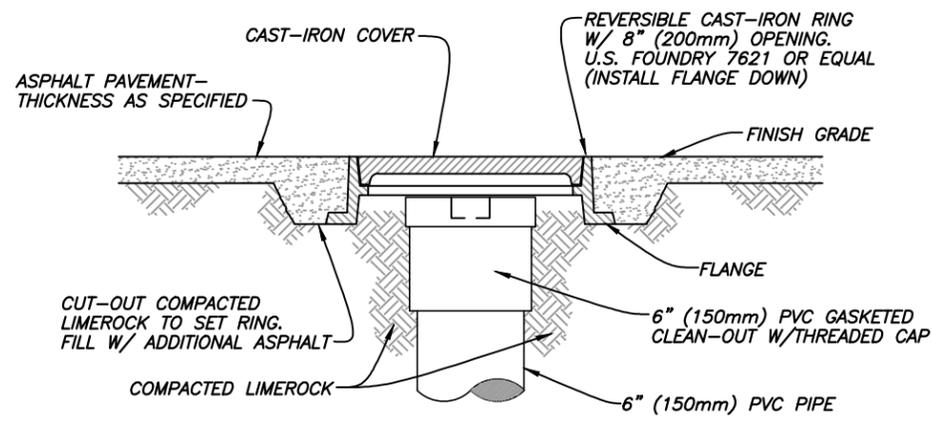
DES: DR  
DRN: BL  
CKD:  
DATE:

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

**STANDARD DETAILS**  
MISC. FM DETAILS 2 OF 2

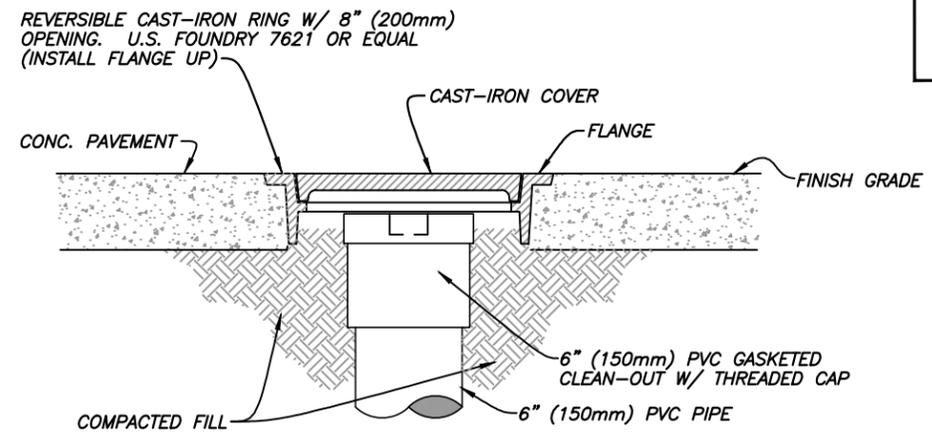
W.O. ----  
SHEET  
**3**  
OF 10

User: sse8 Drawing Name: K:\WW Projects\2014\2014 Wastewater Collection System Repair FY2014.Dwg\Wastewater Collection System repair FY2014.dwg  
 Layout: Cleanout Cover Details Plotted: 10/14/2013 7:39:00 AM CIB: WW-TOSHIBA.CTB Default LWT: 25mm



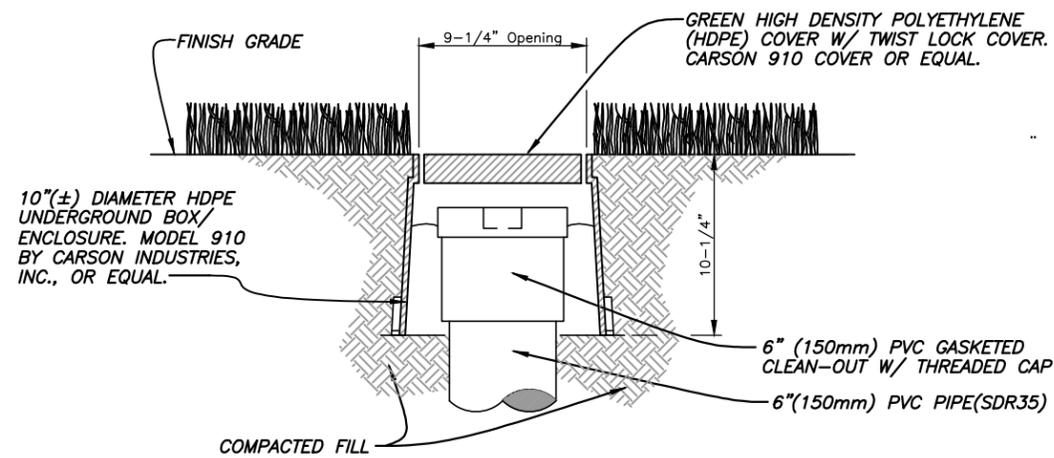
CLEAN-OUT W/ COVER FOR ASPHALT PAVED AREAS

Not to Scale



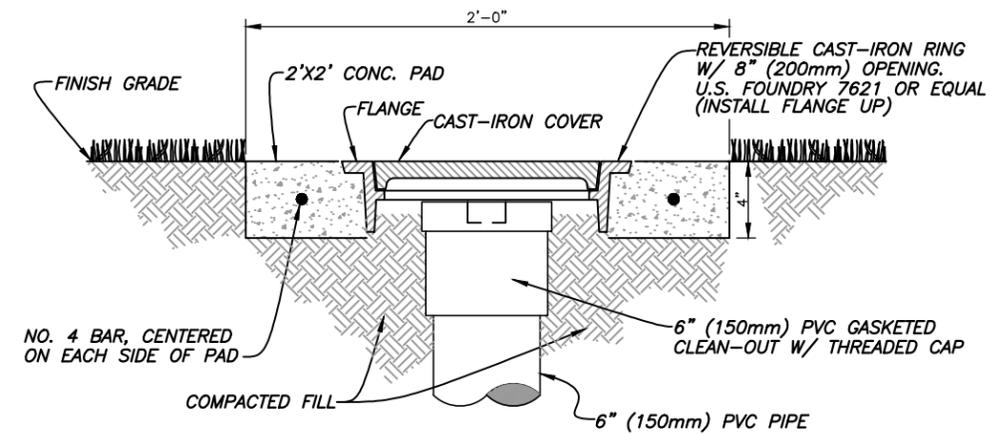
CLEAN-OUT W/ COVER FOR CONCRETE PAVED AREAS

Not to Scale



CLEAN-OUT W/ COVER FOR GRASS (NON-VEHICULAR TRAFFIC) AREAS

Not to Scale



CLEAN-OUT W/COVER FOR GRASSED AREAS W/VEHICULAR TRAFFIC

Not to Scale

NOTES:

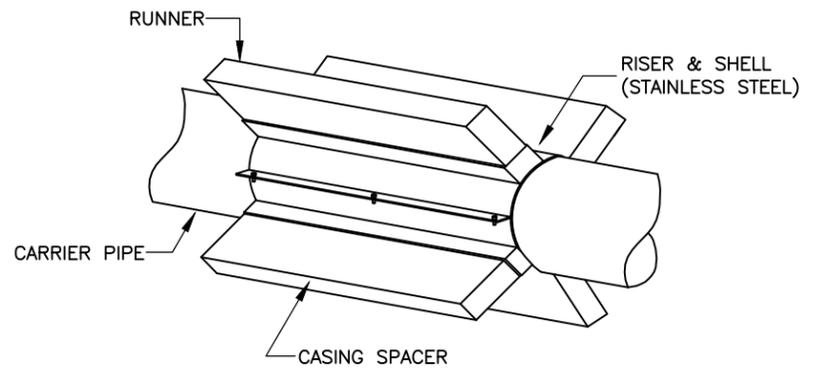
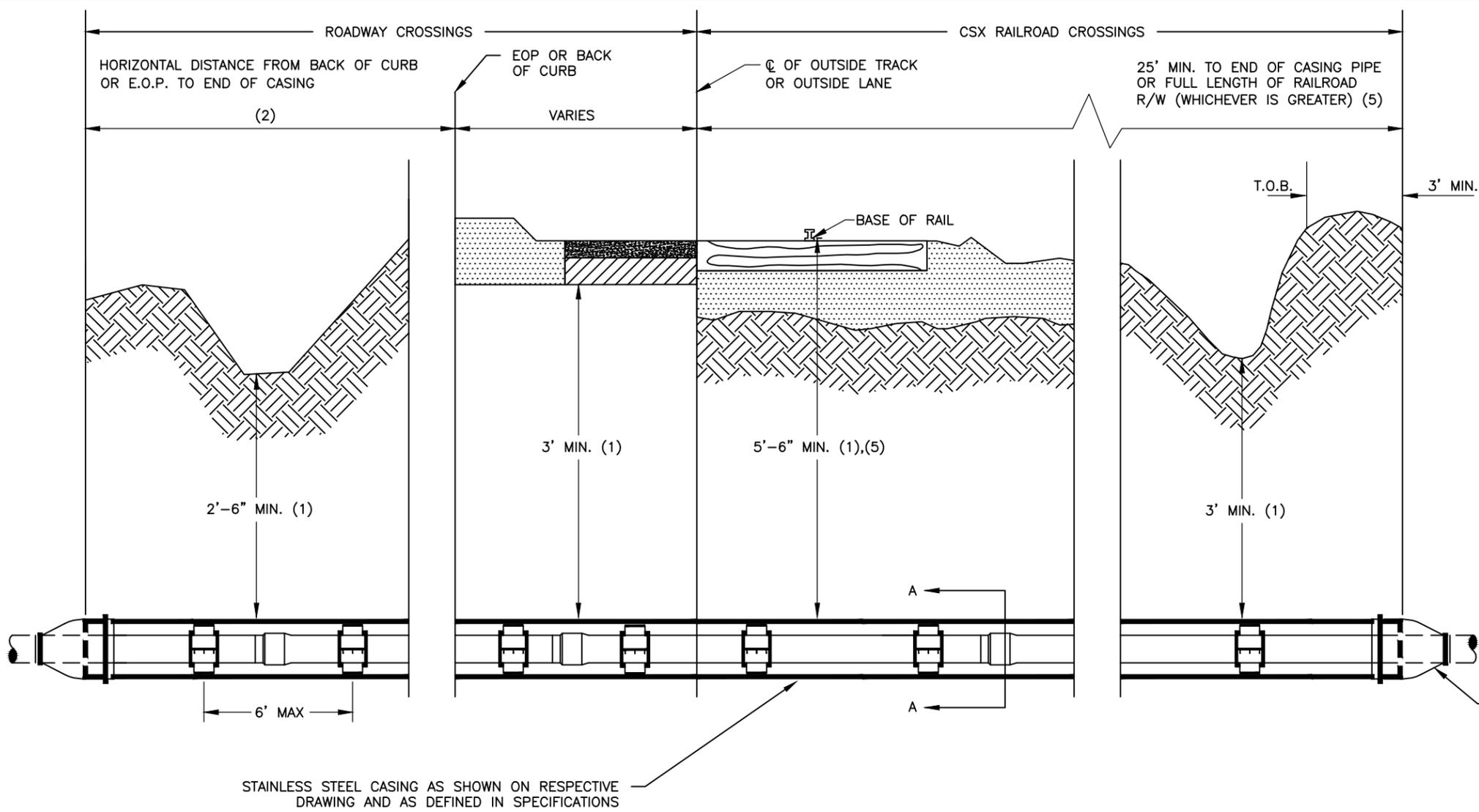
1. Contractor shall adjust the clean-out and cast iron ring and cover or HDPE box and cover so that the cover is seated securely and the top of the cover is flush with the finish grade. The PVC cap of the clean-out shall be no more than 4 inches deeper than the finish grade.
2. PVC cap may be provided with recessed nut.
3. Cast iron cover shall be provided with an embossed letter "S" for identification, HDPE cover shall be marked "SEWER" for identification.
4. Cast iron ring and cover, or HDPE box and cover, as well as the four (4 sf) square feet of material (concrete or asphalt around the clean-out), are part of the clean-out installation and cost shall be included within the unit price for clean-out with no additional payment.
5. All clean-outs on this project shall be one of the four types shown on this sheet. Field conditions will determine which type.

CLEANOUT COVER DETAILS

Not to Scale

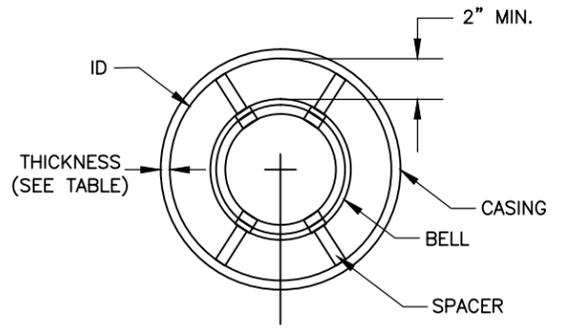
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	<b>CITY of TAMPA</b> WASTEWATER DEPARTMENT	STANDARD DETAILS CLEANOUT COVER DETAILS	W.O. ----
	3			DRN: BL			SHEET
	2			CKD:			4
	1			DATE:			OF 10

User: sse8 Drawing Name: K:\WW Projects\2014\2014 Wastewater Collection System Repair FY2014\Drawings\Wastewater Collection System repair FY2014.dwg  
 Layout: Jack & Bore Details Plotted: 10/14/2013 7:39:04 AM CTEB: WW-TOSHIBA.CTB Default LW: 25mm



(CASCADE WATERWORKS MFG. CO.;  
 ADVANCE PRODUCTS & SYSTEM, INC.  
 OR APPROVED EQUAL).

RUBBER END SEAL SECURED WITH STAINLESS STEEL BANDS AT EACH END OF CASING PIPE. (CASCADE WATERWORKS MFG. CO. MODEL CCES END SEALS, ADVANCE PRODUCTS & SYSTEM, INC. END SEAL OR APPROVED EQUAL)



SECTION A-A

CARRIER PIPE TO BE INSTALLED NEAR THE CENTER OF THE CASING PIPE. CASING SPACERS SHALL BE SIZED SO THAT CARRIER PIPE IS COMPLETELY SUPPORTED ON ALL SIDES AND CANNOT MOVE.

- NOTES:
1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
  2. EXTEND 5' BEYOND CURB OR E.O.P. UNLESS ADDITIONAL DISTANCE IS REQUIRED BY ANOTHER AGENCY HAVING JURISDICTION OVER THE RIGHT OF WAY WHERE THE PIPELINE IS INSTALLED.
  3. CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTM-139, GRADE B.
  4. CASING PIPE SHALL BE SLOPED TO ONE END.
  5. SEE CSX'S DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS FOR PIPELINE OCCUPANCIES FOR MORE DETAILS AND REQUIREMENTS

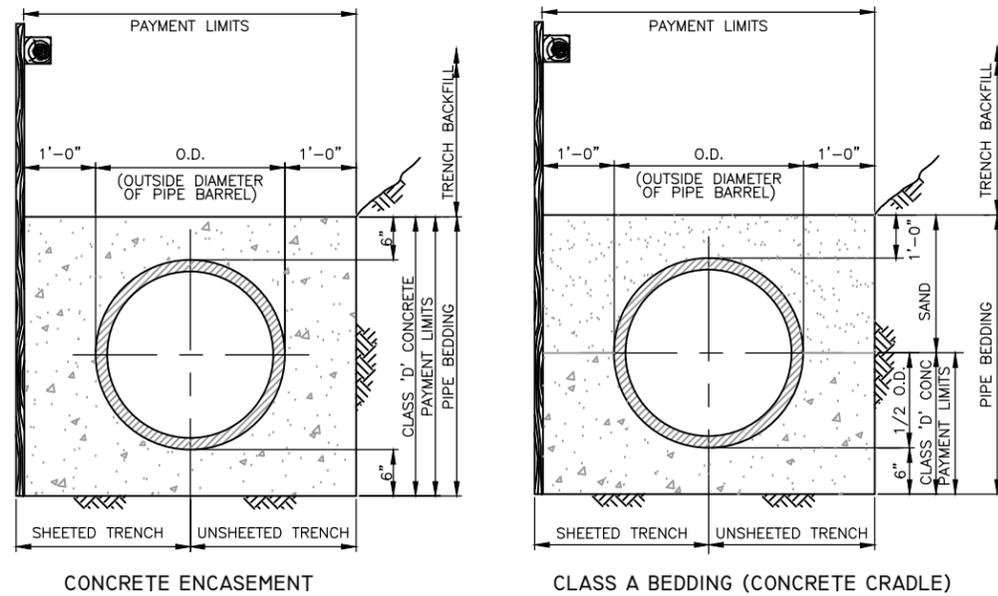
CORRESPONDING CARRIER AND CASING PIPE SIZES													
NOMINAL INSIDE DIAMETER OF CARRIER PIPE (INCHES)	4	6	8	10	12	14	15	16	18	20	21	24	27
MINIMUM INSIDE DIAMETER OF CASING PIPE (INCHES)	12	18	20	24	30	30	30	30	36	36	36	48	48
MIN. CASING THICKNESS CITY, COUNTY & FDOT	$\frac{3}{8}$ "										$\frac{1}{2}$ "		
MIN. CASING THICKNESS RAILROADS (5)	$\frac{3}{8}$ "		$\frac{1}{2}$ "		$\frac{9}{16}$ "			$\frac{3}{4}$ "					

**JACK & BORE DETAILS**  
 Not to Scale

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	<b>CITY of TAMPA</b> <b>WASTEWATER DEPARTMENT</b>	<b>STANDARD DETAILS</b> <b>JACK &amp; BORE DETAILS</b>	W.O. ----
	3			DRN: BL			SHEET
	2			CKD:			5
	1			DATE:			OF 10



User: sse8 Drawing Name: K:\WW\_Projects\2014\_Wastewater\_Collection\_System\_Repair\_FY2014\Drawings\Wastewater\_Collection\_System\_Repair\_FY2014.dwg  
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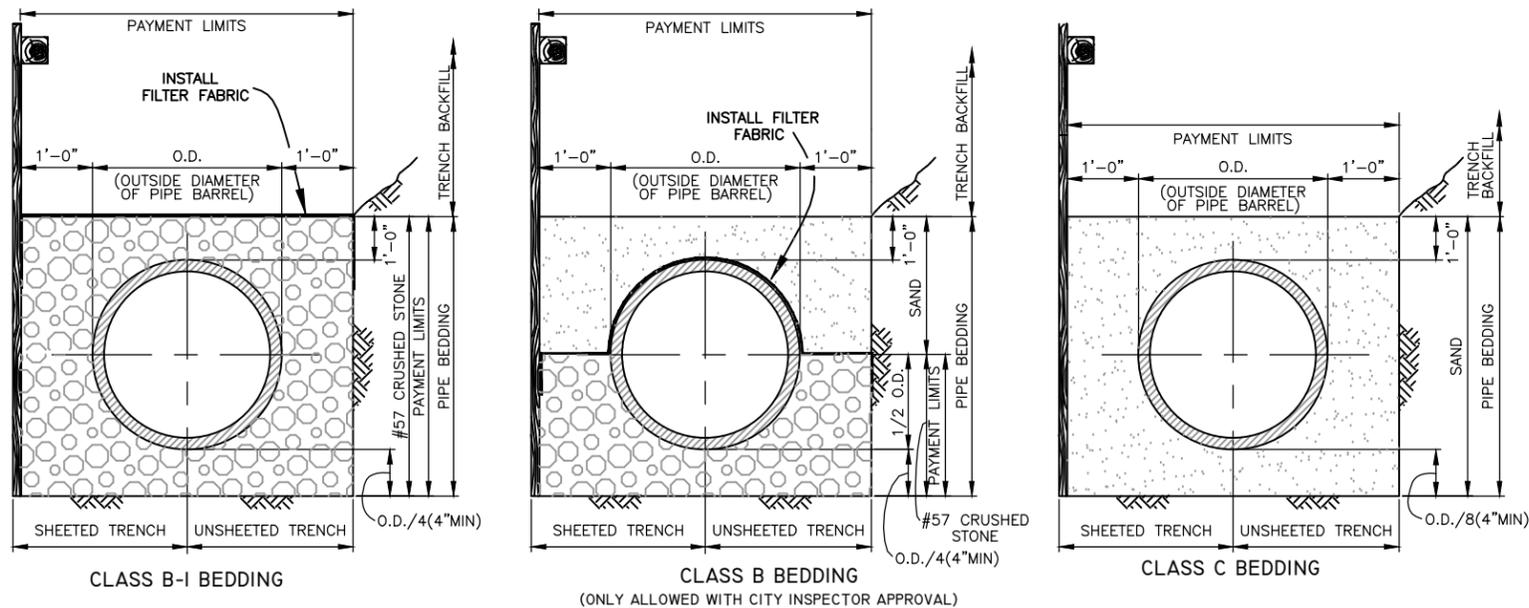


CONCRETE ENCASUREMENT

CLASS A BEDDING (CONCRETE CRADLE)

**NOTES:**

1. ALL TYPES OF PIPE BEDDING SHALL EXTEND TO UNDISTURBED EARTH AT SIDES AND BOTTOM OF THE TRENCH.
2. SAND AND CRUSHED STONE PIPE BEDDING SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SPECIFICATIONS.

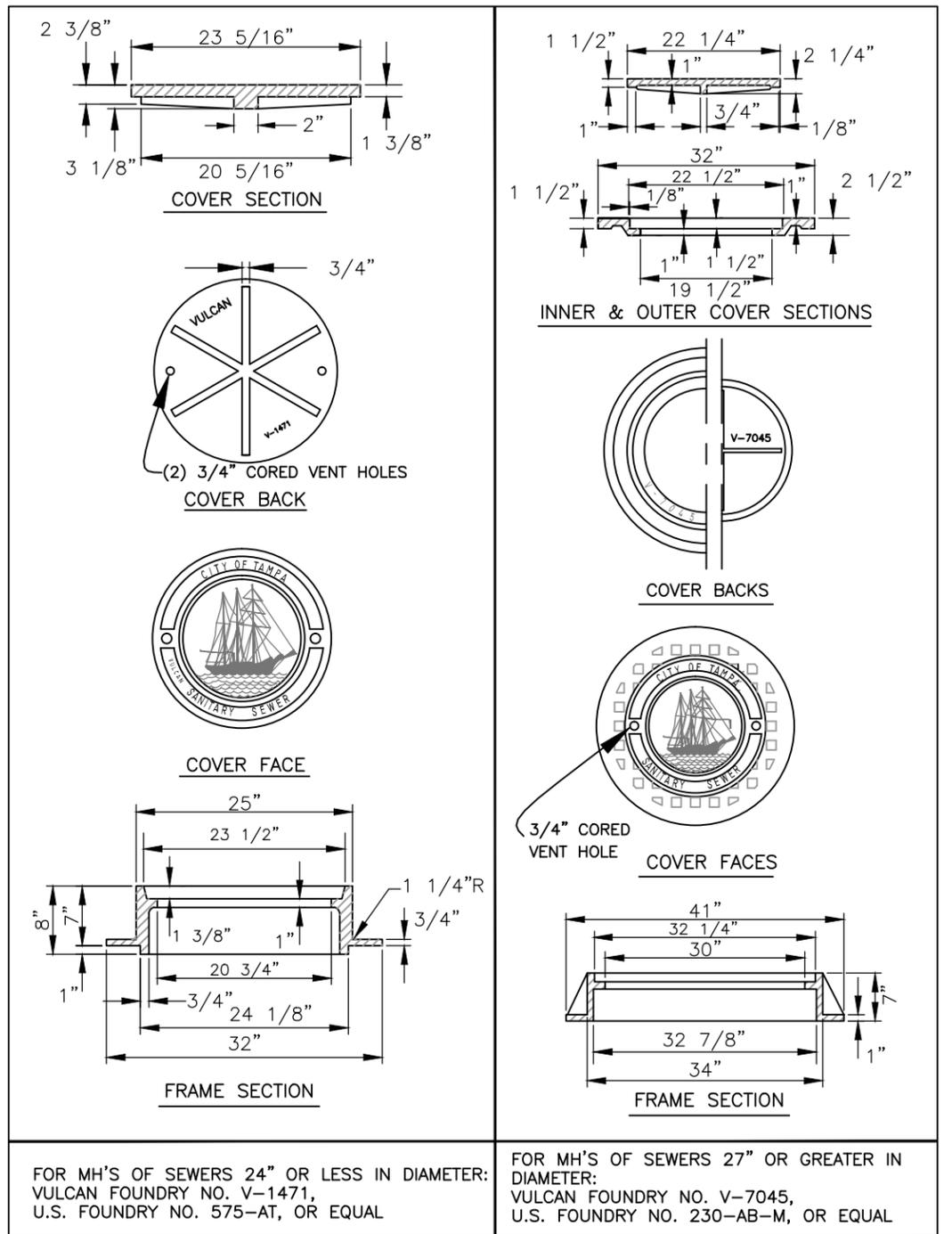


CLASS B-I BEDDING

CLASS B BEDDING  
(ONLY ALLOWED WITH CITY INSPECTOR APPROVAL)

CLASS C BEDDING

**PIPE BEDDING DETAILS**  
N.T.S.



FOR MH'S OF SEWERS 24" OR LESS IN DIAMETER:  
 VULCAN FOUNDRY NO. V-1471,  
 U.S. FOUNDRY NO. 575-AT, OR EQUAL

FOR MH'S OF SEWERS 27" OR GREATER IN DIAMETER:  
 VULCAN FOUNDRY NO. V-7045,  
 U.S. FOUNDRY NO. 230-AB-M, OR EQUAL

**HEAVY DUTY CAST IRON MANHOLE**  
**FRAME & COVER DETAILS**  
N.T.S.

JACINTO CARLOS FERRAS, P.E. #49454  
 DESIGN DIVISION HEAD  
 WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

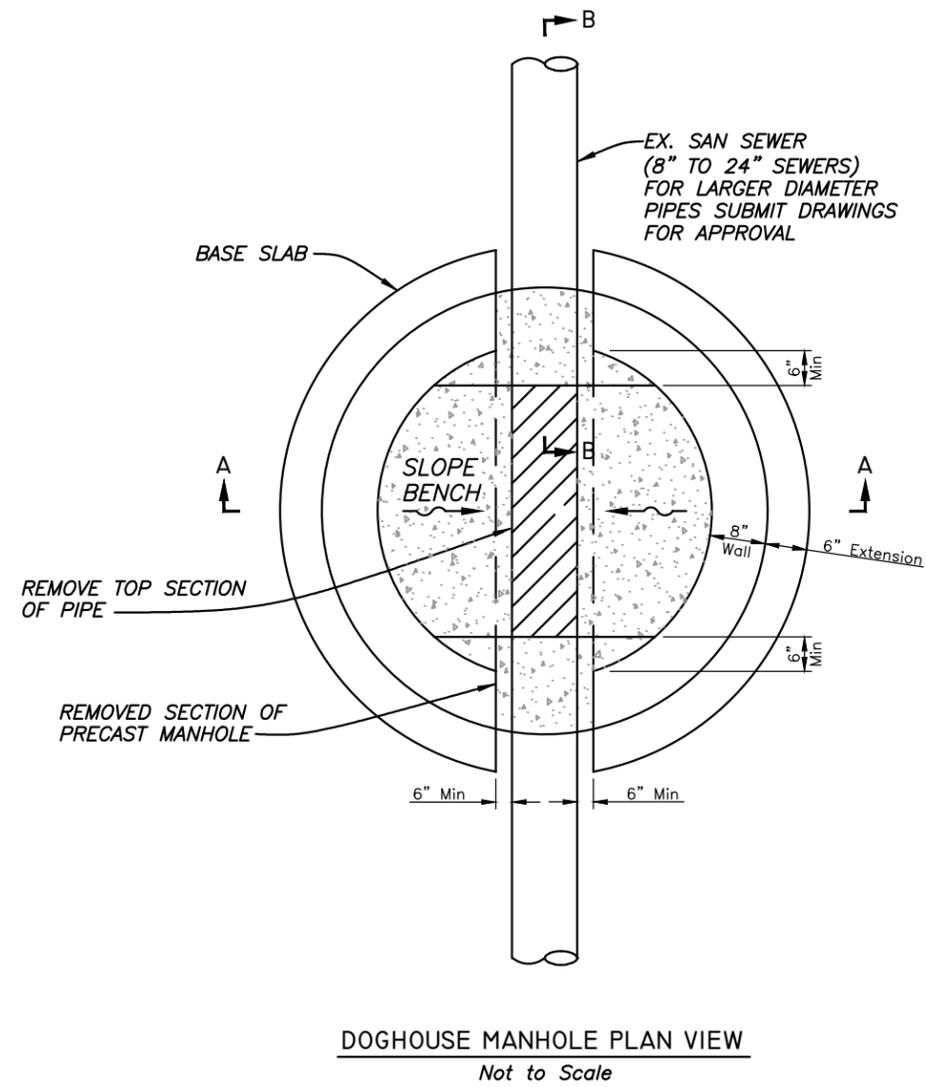
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 DRN: BL  
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 DATE:

**CITY of TAMPA**  
 WASTEWATER DEPARTMENT

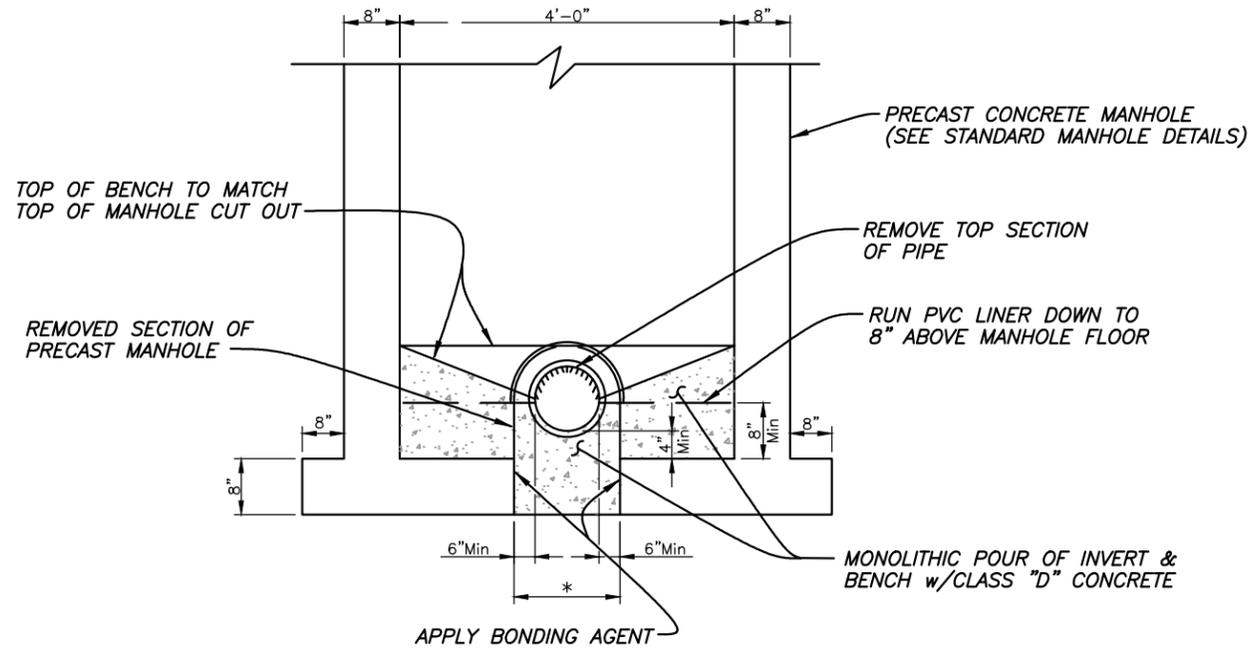
**STANDARD DETAILS**  
**MISC. GRAVITY DETAILS**

W.O. ---  
 SHEET  
**7**  
 OF 10

User: sse8 Drawing Name: K:\WWL Projects\2014\2014 Wastewater Collection System Repair FY2014.dwg Wastewater Collection System repair FY2014.dwg  
 Layout: Doghouse Manhole Plotted: 10/14/2013 7:39:20 AM CTB: WW-TOSHIBA.CTB Default LW: 25mm

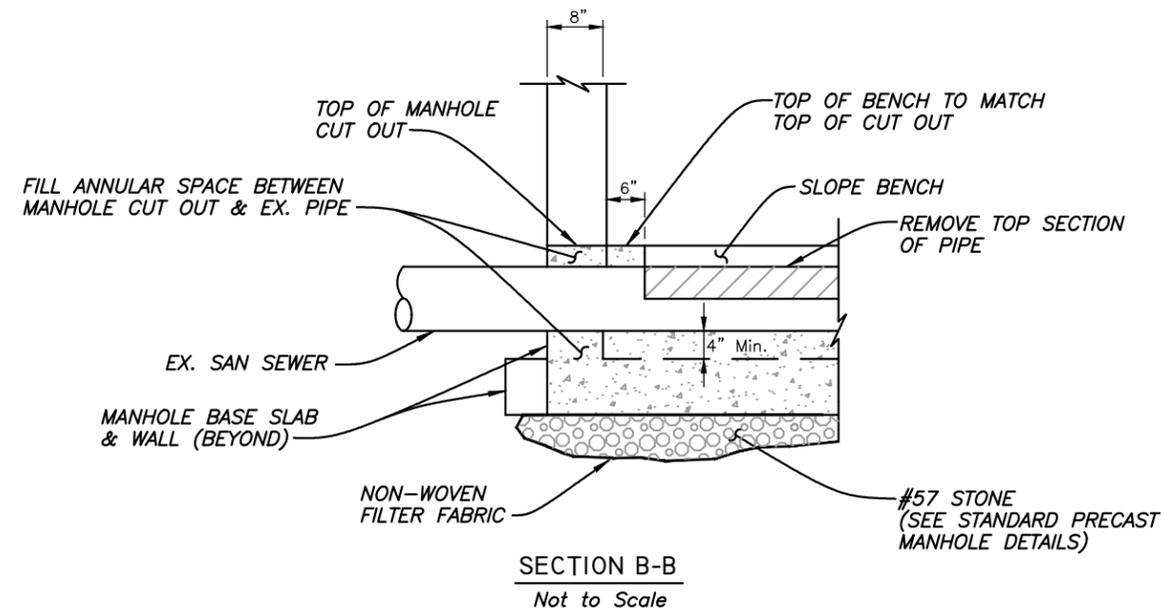


**DOGHOUSE MANHOLE PLAN VIEW**  
Not to Scale



**SECTION A-A**  
Not to Scale

\* TYPICAL WIDTH OF OPENING IS 24\"/>



**SECTION B-B**  
Not to Scale

JACINTO CARLOS FERRAS, P.E. #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: DR  
DRN: BL  
CKD:  
DATE:

**CITY of TAMPA**  
WASTEWATER DEPARTMENT

**STANDARD DETAILS**  
**DOGHOUSE MANHOLE**

W.O. ----  
SHEET  
**8**  
OF 10

User: sse8 Drawing Name: K:\WW\_Projects\2014\2014\_Wastewater Collection System Repair FY2014.Dwg Wastewater Collection System repair FY2014.dwg  
 Layout: Fiberglass Manhole Plotted: 10/14/2013 7:39:25 AM CTB: WW-TOSHIBA.CTB Default LW: 25mm

**NOTES**

- FIBERGLASS REINFORCED POLYESTER (FRP) MANHOLES SHALL CONFORM TO ASTM D-3753 LATEST EDITION.
- THE MANHOLE BOTTOM SHALL BE INTEGRALLY JOINED TO THE BARREL SECTION AND SHALL BE A MINIMUM OF 1/2" THICK. TO ALLOW THE MANHOLE TO BE ANCHORED TO THE PRECAST BOTTOM SLAB, THE MANHOLE BOTTOM SHALL EXTEND 3 INCHES BEYOND THE OUTER EDGE OF THE BARREL.
- FRP MANHOLES SHALL BE ANCHORED TO THE PRECAST CONCRETE BOTTOM SLAB WITH HILTI 316 STAINLESS STEEL KWIK BOLT II WEDGE ANCHORS OR APPROVED EQUAL. THE SIZE, NUMBER OF ANCHORS, EMBEDMENT DEPTH, ETC. SHALL BE AS INDICATED IN TABLE "A" AND SHALL BE BASED ON THE DEPTH OF THE MANHOLE. THE DEPTH OF THE MANHOLE SHALL BE MEASURED FROM THE RIM ELEVATION TO THE BOTTOM OF THE MANHOLE. THE ANCHORS SHALL BE INSTALLED A MINIMUM OF 1-1/2" FROM THE OUTER EDGE OF THE ANCHORING FLANGE AND SHALL BE EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE MANHOLE.
- SEE SPECIFICATIONS FOR MATERIALS REQUIREMENTS AND PLACEMENTS AND COMPACTION OF PIPE AND STRUCTURE BEDDING.
- ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS OR OTHER CONTRACT DIVISIONS SHALL BE PROVIDED WITH WATERTIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.

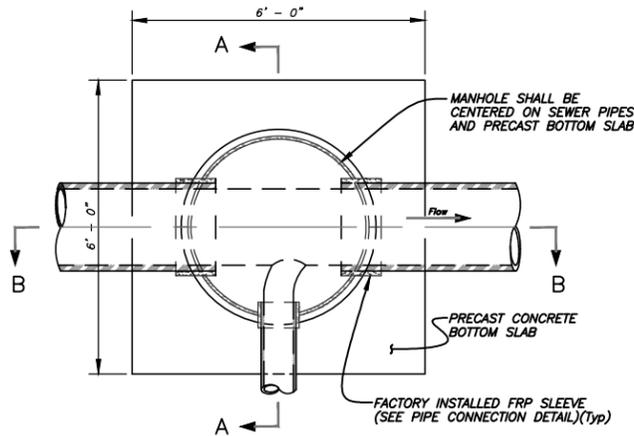
**TECHNICAL DATA FOR HILTI 316 S.S. KWIK BOLT II**

	ANCHOR BOLT SIZE		
	1/2"	5/8"	3/4"
MINIMUM PULL-OUT CAPACITY (LBS):	2130	2930	3870
MINIMUM EMBEDMENT DEPTH (IN):	3 1/2	4	4 3/4

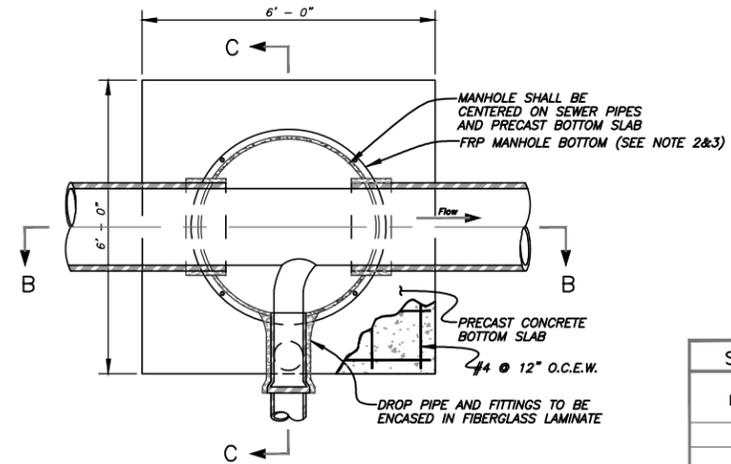
\* ABOVE DATA IS BASED ON 4000 PSI CONCRETE

**TABLE "A"**

MANHOLE DEPTH (FT)	ANCHOR SIZE (IN)	NUMBER OF ANCHORS
0 - 5	1/2	4
5 - 10	1/2	6
10 - 15	5/8	6
15 - 20	3/4	6
20 - 25	3/4	8



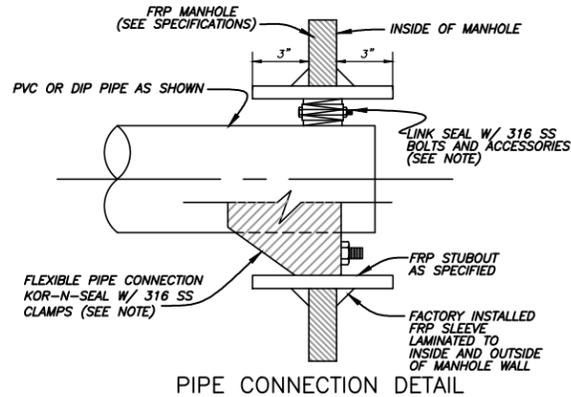
SECTIONAL PLAN



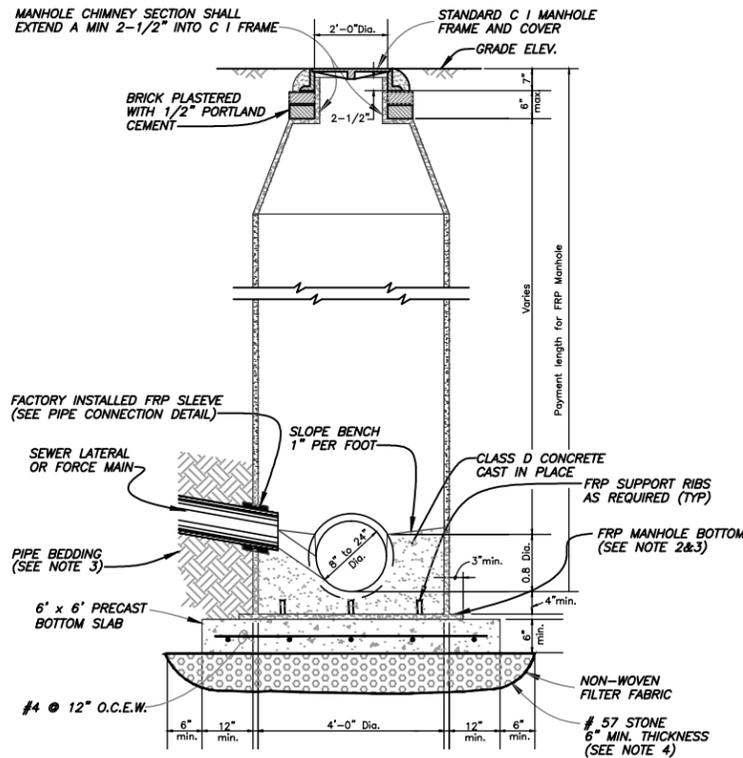
SECTIONAL PLAN  
FRP DROP MANHOLE

**SCHEDULE FOR DROP MANHOLE**

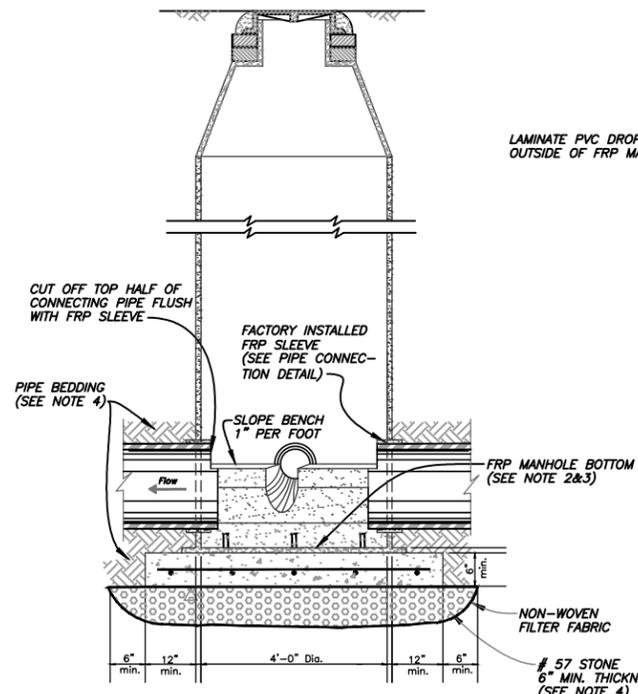
INLET PIPE DIAMETER "D"	DROP PIPE DIAMETER "d"
8"	8"
10"	8"
12"	10"
15"	12"
18"	15"
21"	18"
24"	18"
27"	18"



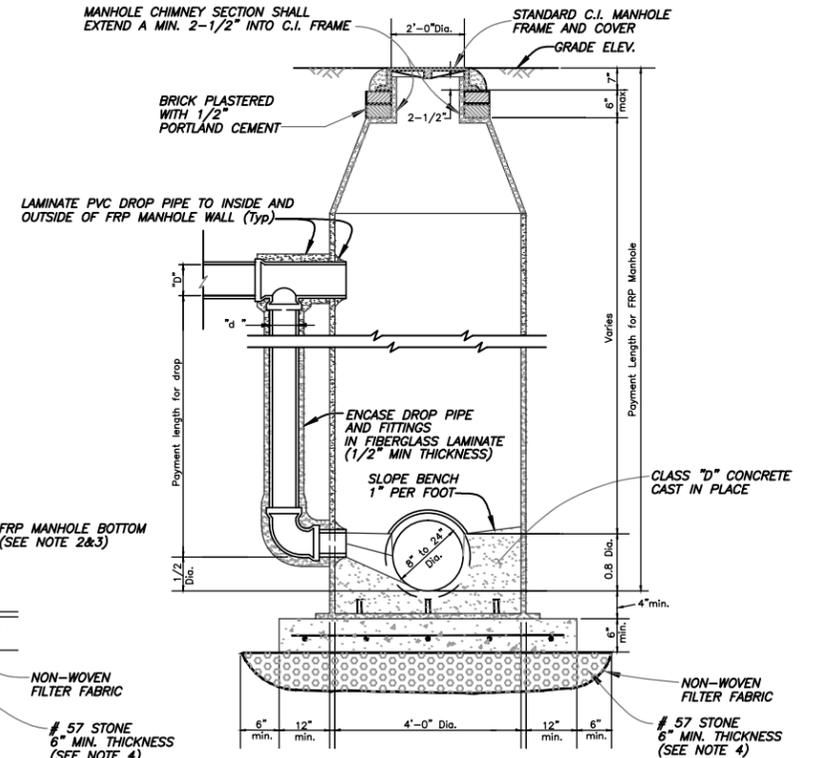
**NOTE:**  
 FORCE MAIN PIPE CONNECTIONS TO FRP MANHOLES SHALL BE MADE WITH "LINK SEAL."  
 GRAVITY SEWER PIPE CONNECTIONS SHALL BE MADE WITH "KOR-N-SEAL."



SECTION A-A



SECTION B-B



SECTION C-C

No.	DATE	REVISIONS
3		
2		
1		

DES: DR  
 DRN: BL  
 CKD:  
 DATE:

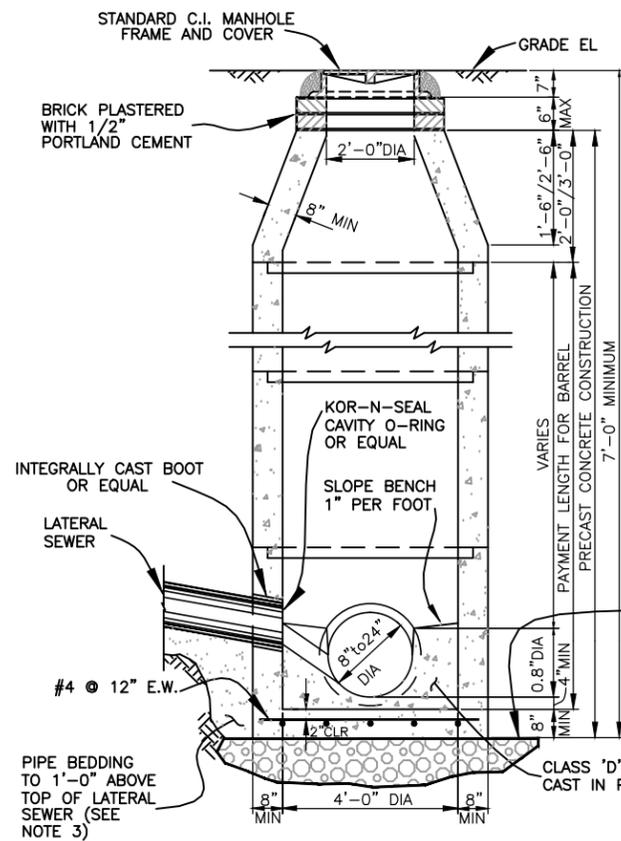
**CITY of TAMPA**  
 WASTEWATER DEPARTMENT

**STANDARD DETAILS**  
**FIBERGLASS MANHOLE**

W.O. ----  
 SHEET  
**9**  
 OF 10

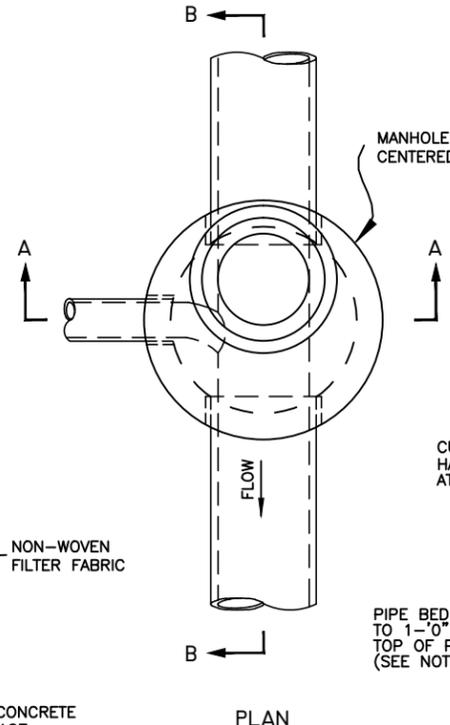
JACINTO CARLOS FERRAS, P.E. #49454  
 DESIGN DIVISION HEAD  
 WASTEWATER DEPARTMENT

User: sse8 Drawing Name: K:\MW\_Projects\2014\2014\_Wastewater\_Collection\_System\_Repair\_FY2014\DWG\Wastewater\_Collection\_System\_Repair\_FY2014.dwg  
 Layout: Standard Manhole 8 to 24 Plotted: 10/14/2013 7:39:30 AM CIB: MW-TOSHIBA.CTB Detail LM: 25mm

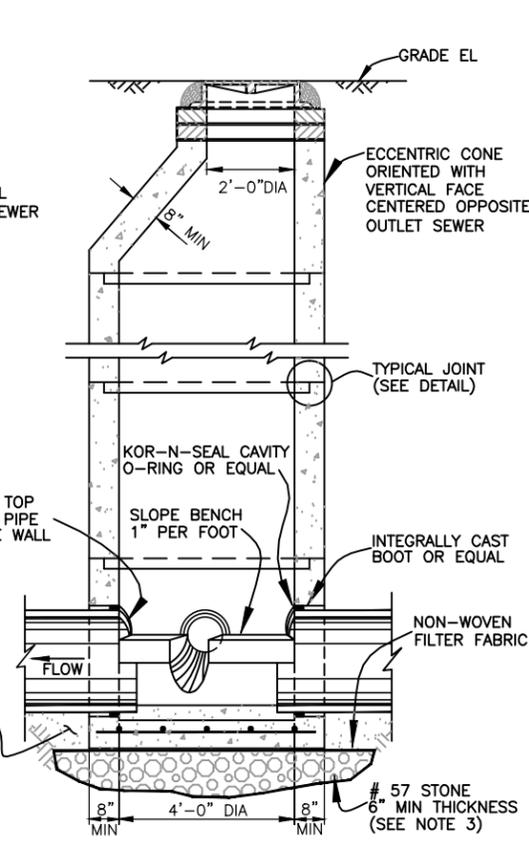


SECTION A-A

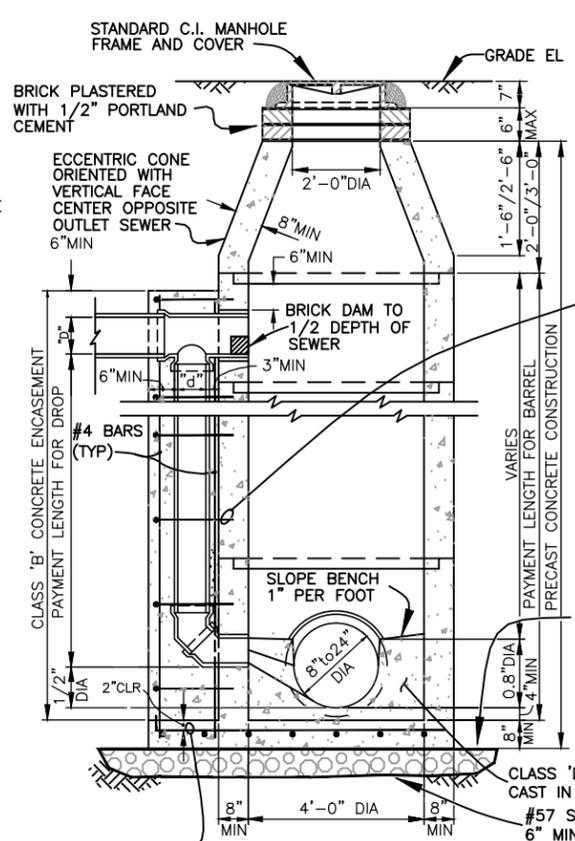
STANDARD MANHOLE - DEEP TYPE  
FOR SEWERS 24" OR LESS IN DIAMETER  
N.T.S



PLAN

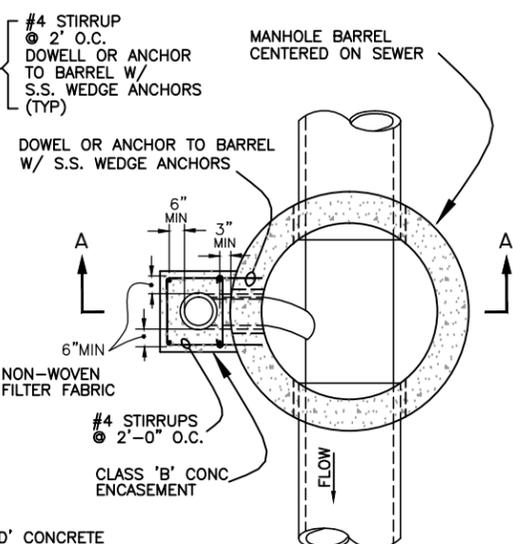


SECTION B-B

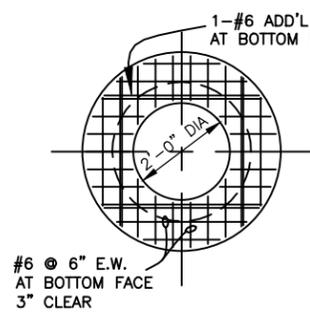


SECTION A-A

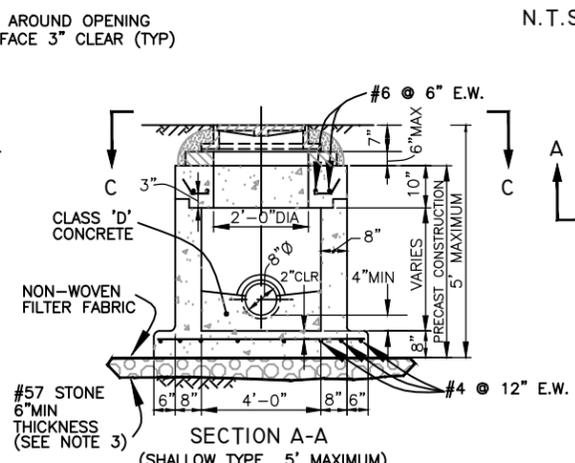
STANDARD DROP MANHOLE  
FOR SEWERS 24" OR LESS IN DIAMETER  
N.T.S



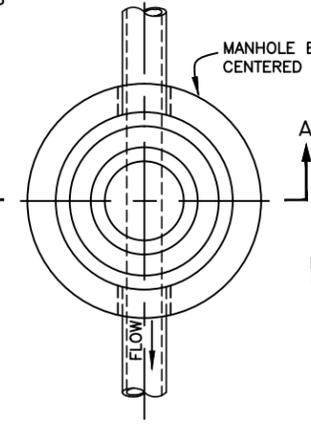
SECTIONAL PLAN



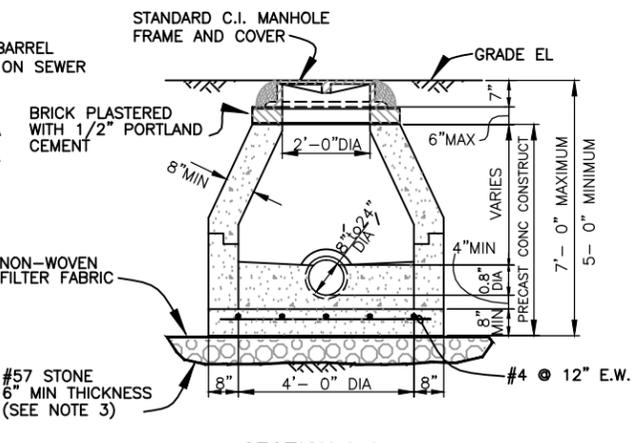
CONCRETE SLAB DETAIL  
SECTION C-C



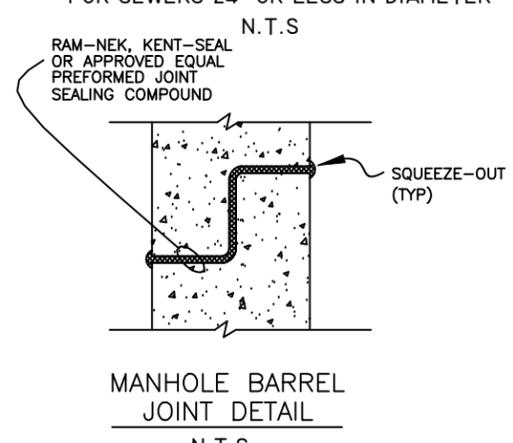
STANDARD MANHOLE - SHALLOW TYPE  
FOR SEWERS 24" OR LESS IN DIAMETER  
N.T.S



PLAN

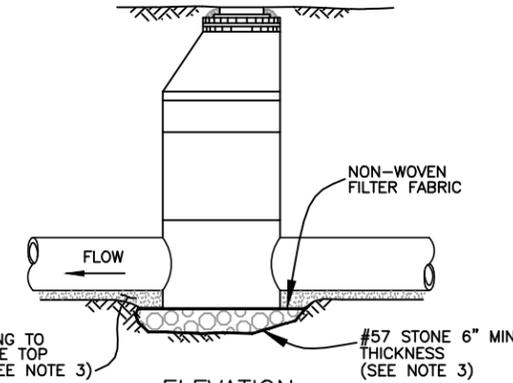


SECTION A-A  
5'-0" TO 7'-0" DEEP  
(SEE NOTE 4)



MANHOLE BARREL  
JOINT DETAIL  
N.T.S  
(SEE NOTE 5)

SCHEDULE FOR DROP MANHOLE	
INLET PIPE DIAMETER "D"	DROP PIPE DIAMETER "d"
8"	8"
10"	8"
12"	10"
15"	12"
18"	15"
21"	18"
24"	18"



ELEVATION  
FOR SEWERS 24" OR LESS IN DIAMETER  
N.T.S

- NOTES
1. REINFORCING STEEL FOR ALL MANHOLES SHALL CONFORM TO ASTM-C478 AND PLACED AS DESCRIBED IN THE SPECIFICATIONS.
  2. ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS OR OTHER CONTRACT DIVISIONS SHALL BE PROVIDED WITH WATER TIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.
  3. SEE SPECIFICATIONS FOR MATERIALS REQUIREMENTS AND PLACEMENTS AND COMPACTION OF PIPE AND STRUCTURE BEDDING.
  4. STANDARD SHALLOW-TYPE MANHOLES WITH DEPTHS BETWEEN A MAXIMUM OF 7'-0" AND A MINIMUM OF 5'-0" MUST HAVE A CONCRETE CONE FOR THE TOP SECTION.
  5. ALL MANHOLE JOINTS MUST BE SEALED WITH AN ACCEPTABLE JOINT SEALING COMPOUND REGARDLESS OF WHETHER AN O-RING GASKET IN A PREFORMED GROOVE IS USED.
  6. FILTER FABRIC SHALL BE NON-WOVEN FABRIC PER D.O.T. SPECIFICATION SECTIONS 514 AND 985 AND SHALL BE WRAPPED ENTIRELY AROUND THE #57 STONE.

JACINTO CARLOS FERRAS, P.E. #49454  
DESIGN DIVISION HEAD  
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: DR  
DRN: BL  
CKD:  
DATE:

CITY of TAMPA  
WASTEWATER DEPARTMENT

STANDARD DETAILS  
STANDARD MANHOLE 8" TO 24"

W.O. ---  
SHEET  
10  
OF 10