

CITY of TAMPA



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	MISCELLANEOUS FORCE MAIN DETAILS 1 of 2
2	MISCELLANEOUS FORCE MAIN DETAILS 2 of 2
3	CLEANOUT COVER DETAILS
4	JACK AND BORE DETAILS
5	LATERAL CONNECTIONS (NEW)
6	STANDARD DETAILS, MISC. GRAVITY
7	DOGHOUSE MANHOLE DETAILS
8	FIBERGLASS REINFORCED POLYESTER MANHOLE DETAILS
9	STANDARD MANHOLE 8 to 24

WASTEWATER DEPARTMENT

STANDARD DETAILS FOR

FY-II ANNUAL COLLECTION REPAIR SYSTEM CONTRACT

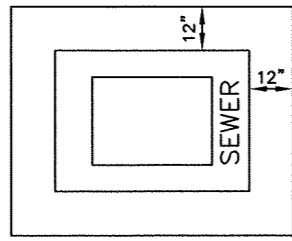
CONTRACT No.
II-C-00002

No.	DATE	REVISIONS
3		
2		
1		

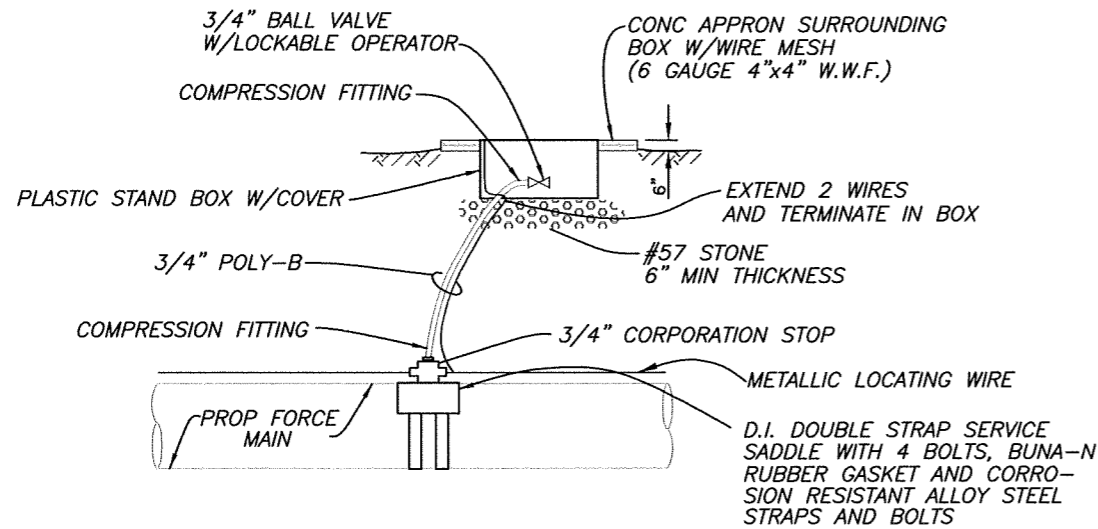
DES: WW
DRN: WW
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

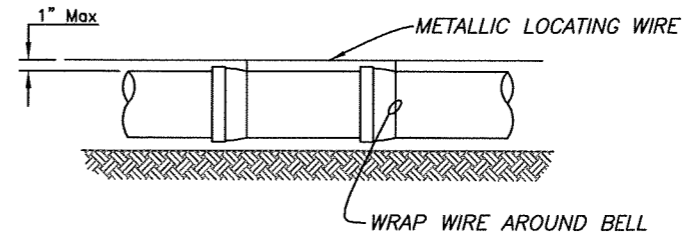
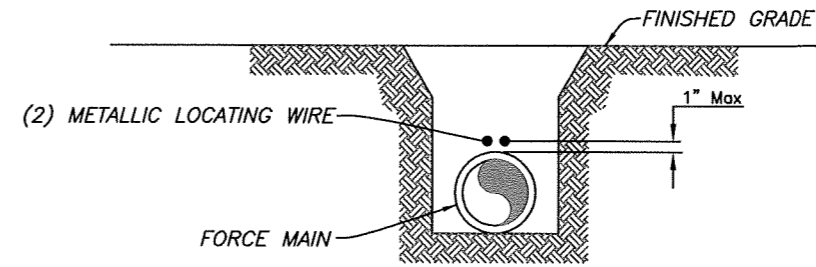
COVER AND INDEX SHEET



PLAN VIEW



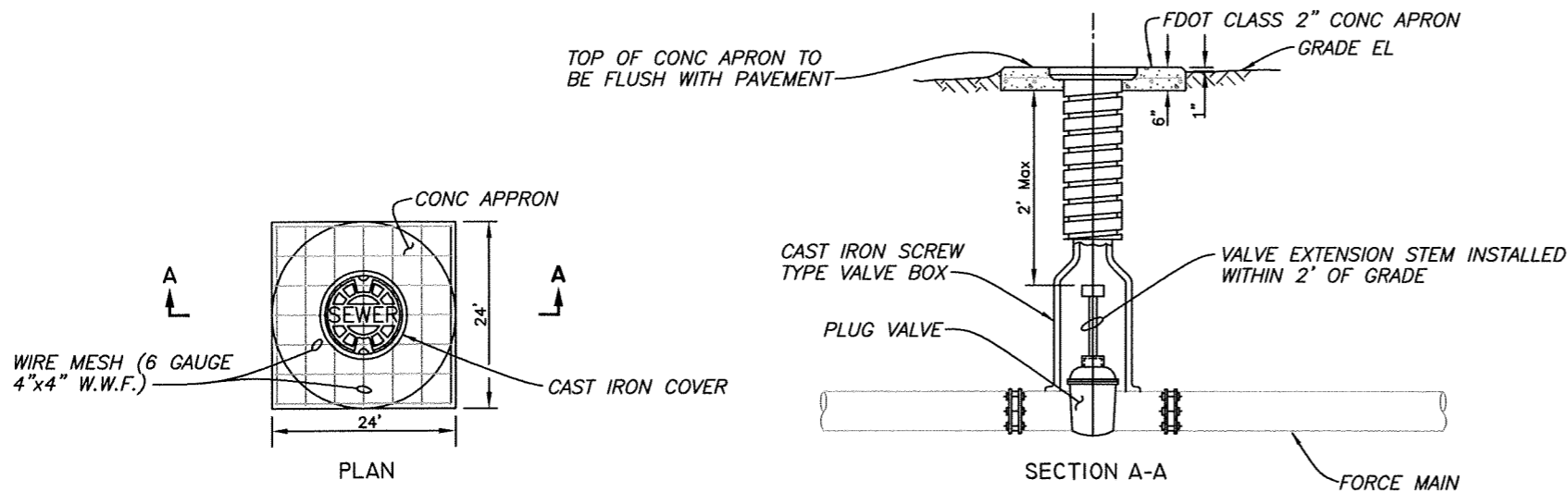
AIR RELEASE VALVE DETAIL
NOT TO SCALE



NOTES:

1. Pipe shall require 2 insulated metallic locating wire capable of detection by a cable locator and shall be buried directly above the centerline of the pipe. Wire shall be 8 gauge copper wire or 10 gauge copper clad steel wire. Thicker wire is allowed.
2. 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.
3. Use duct tape as necessary to hold wire directly on the top of the pipe.
4. For directional boring with HDPE a 1" conduit may be pulled back with the locating wire to ease installation and to prevent the wire from breaking.

PIPE LOCATING WIRE DETAIL
NOT TO SCALE



VALVE BOX DETAIL
NOT TO SCALE

IMPORTANT - FOR EACH OPERABLE VALVE:
 PROVIDE A BRASS IDENTIFICATION TAG EPOXIED 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.

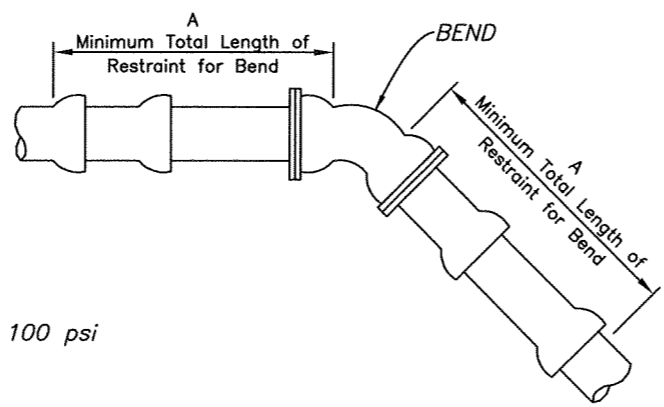
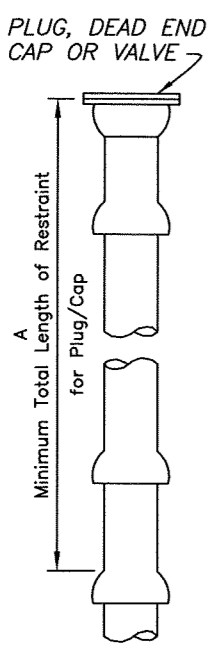
VALVE OPERATION DISK
NOT TO SCALE

B-----

User: SSEB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout- Aug 24, 2010 - 3:37pm CTB - WW.CTB

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS MISC. FM DETAILS 1 OF 2	W.O. -----
	3			DRN: MRL			SHEET
	2			CKD:			1
	1			DATE:			OF 9

User: S5E8 Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout- Aug 24, 2010 - 3:37pm CTB - WW.CTB



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, upper 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

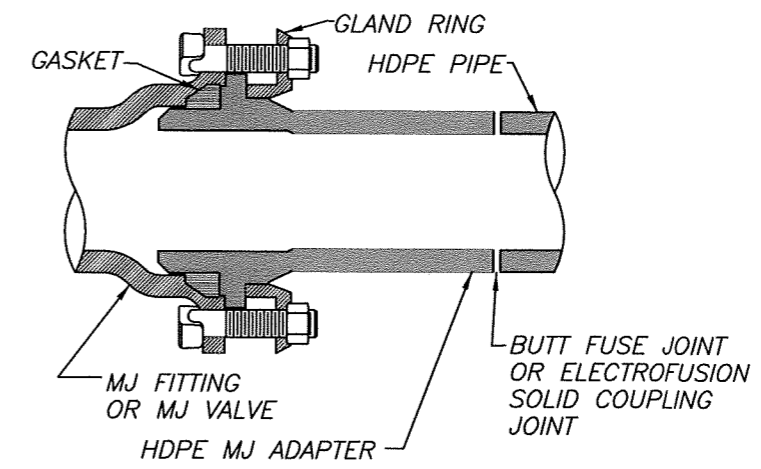
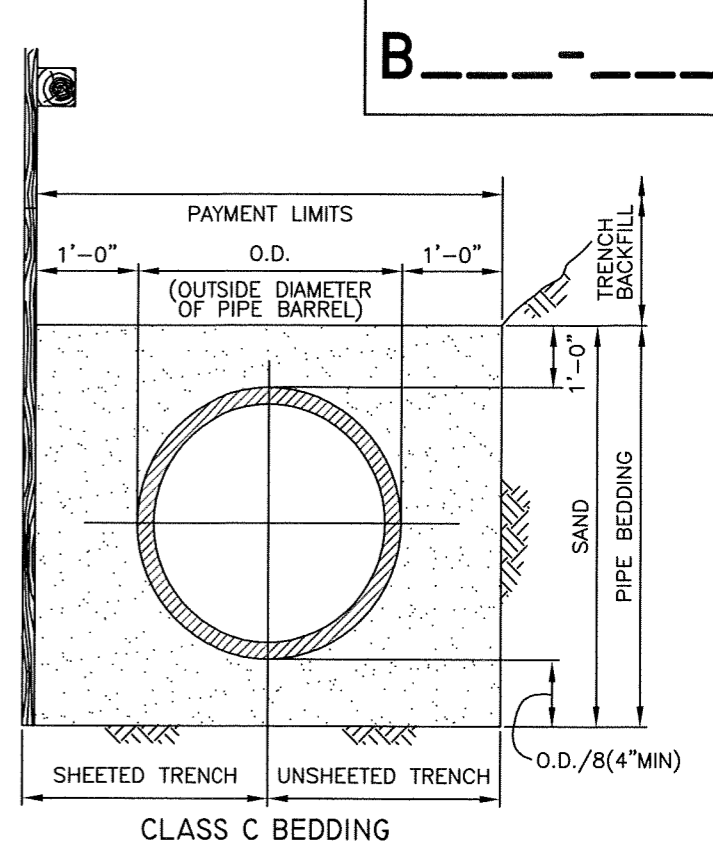
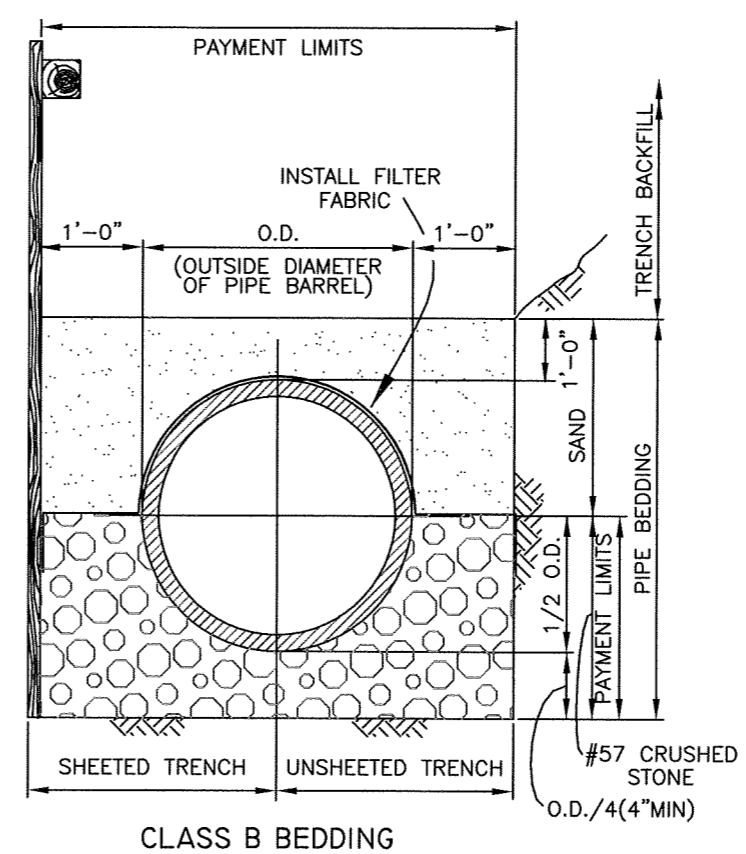
A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED
 * MINIMUM ONE PIPE JOINT UPSTREAM AND DOWNSTREAM OF EACH FITTING SHALL BE RESTRAINED

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
 (AWWA C900/C905 PVC PIPE)

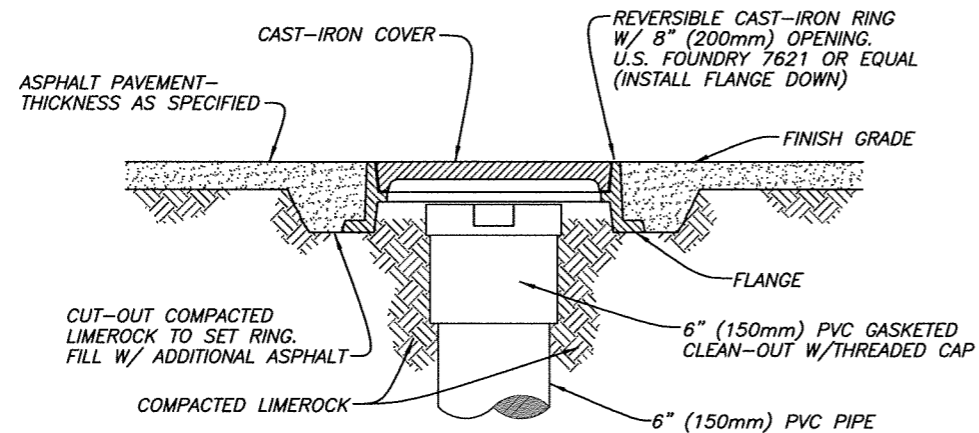


HDPE TRANSITION DETAIL
 NOT TO SCALE

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

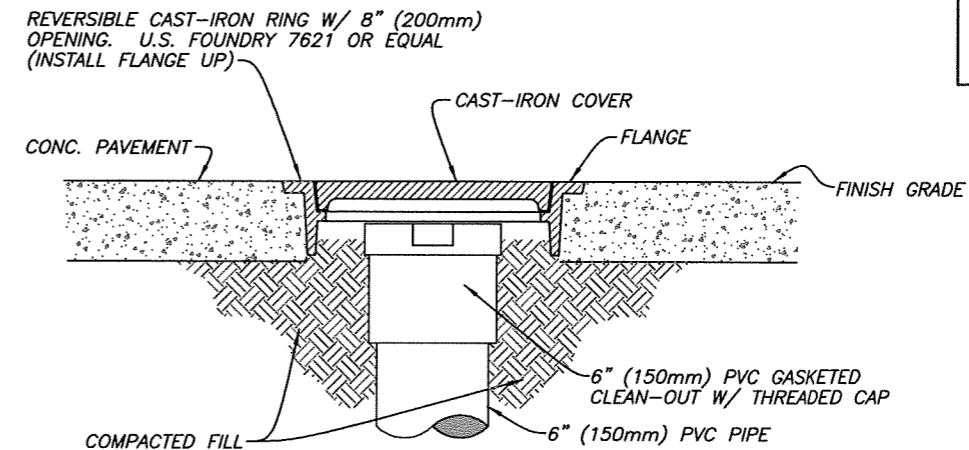
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS MISC. FM DETAILS 2 OF 2	W.O. -----
	3			DRN: MRL			SHEET
	2			CKD:			2
	1			DATE:			OF 9

B-----



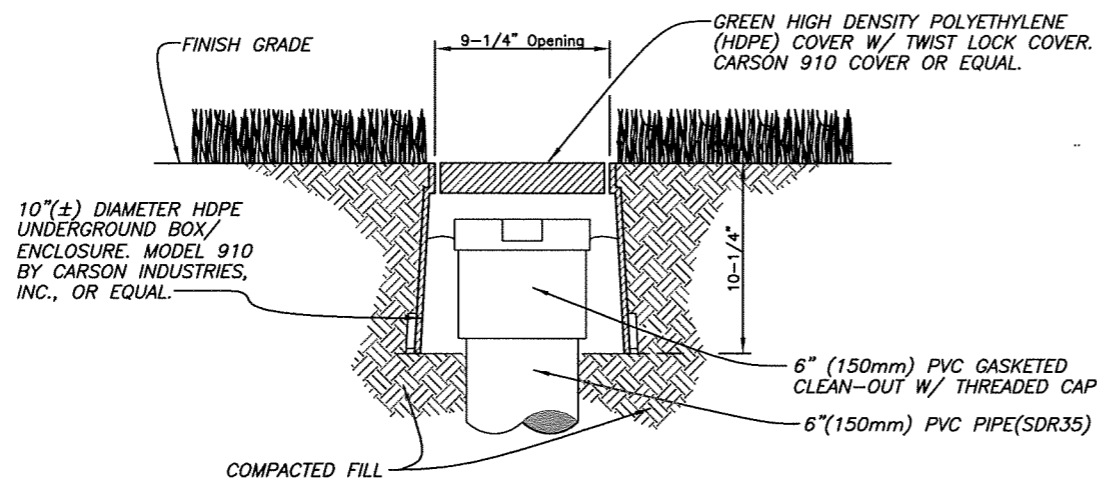
CLEAN-OUT W/ COVER FOR ASPHALT PAVED AREAS

Not to Scale



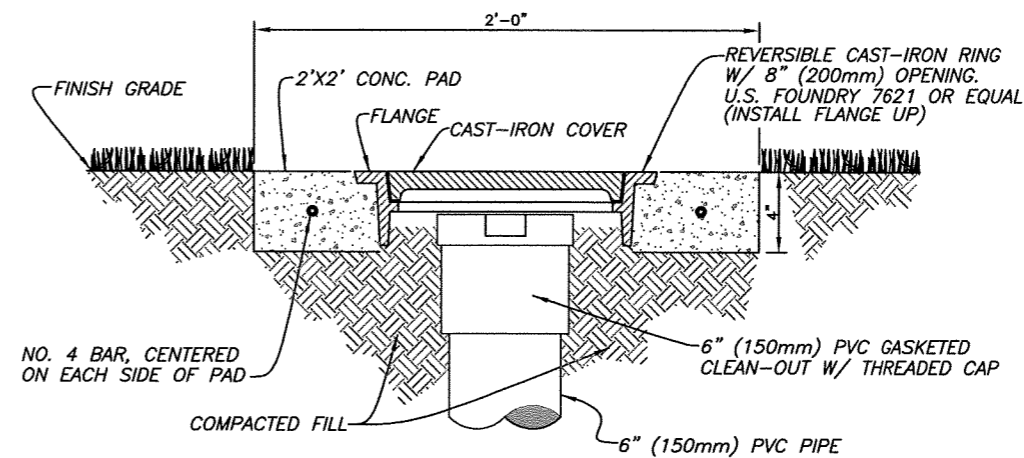
CLEAN-OUT W/ COVER FOR CONCRETE PAVED AREAS

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:

- 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.
- PVC cap may be provided with recessed nut.
- Cast iron cover shall be provided with an embossed letter "S" for identification, HDPE cover shall be marked "SEWER" for identification.
- Cast iron ring and cover, or HDPE box and cover, as well as the four (4) 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.
- 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

No.	DATE	REVISIONS
3		
2		
1		

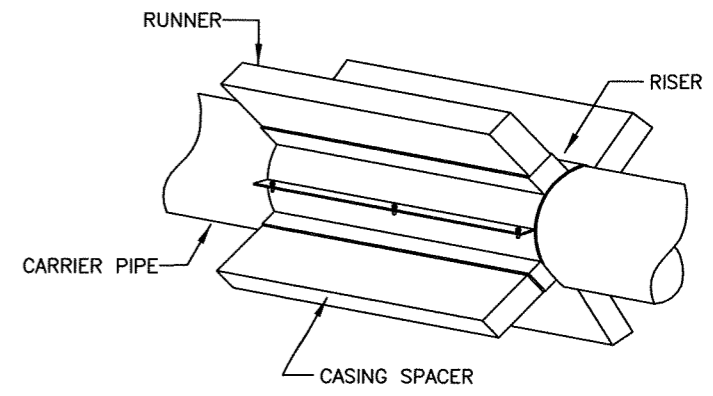
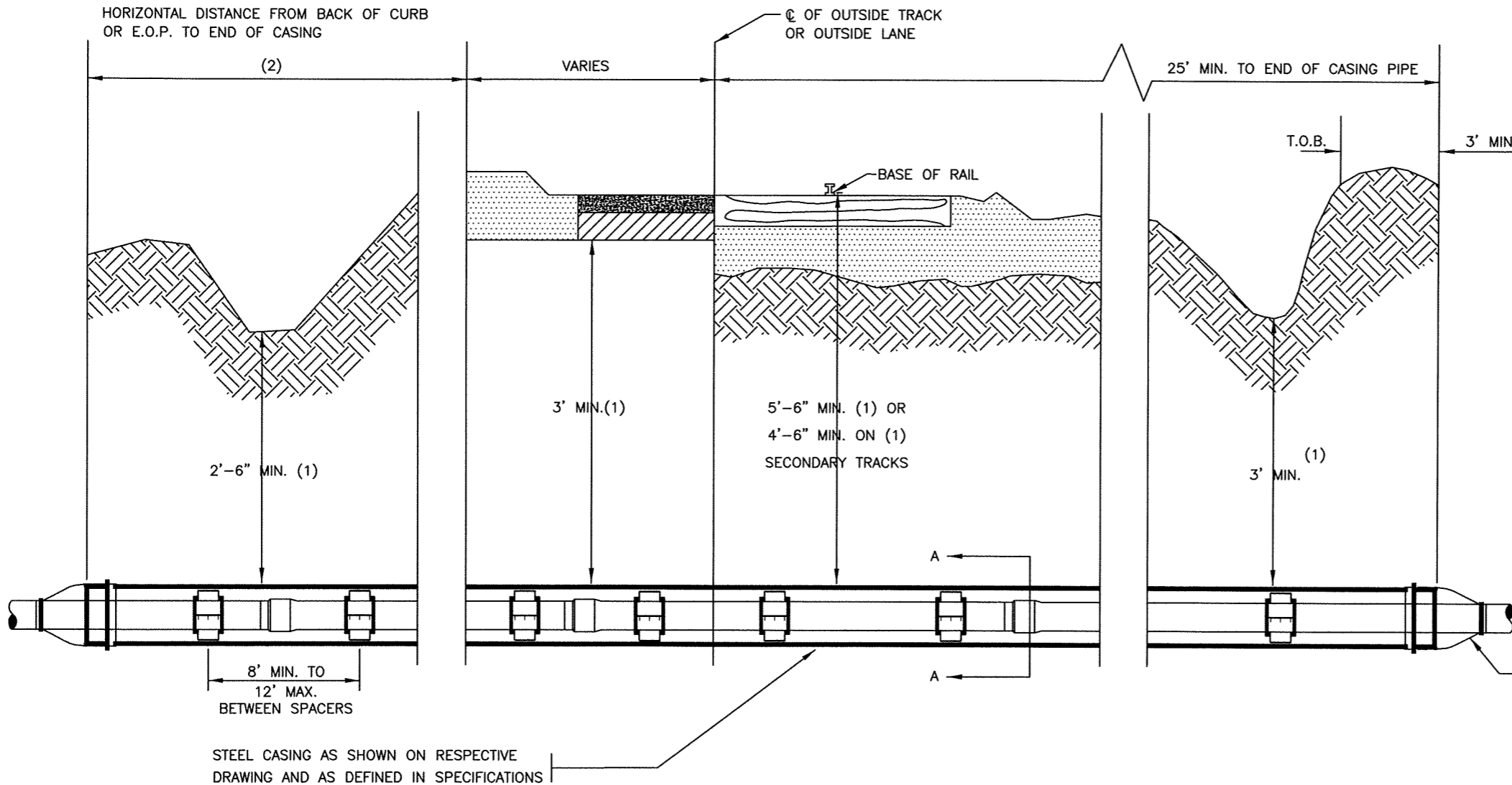
DES: DR
DRN: MRL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

STANDARD DETAILS
CLEANOUT COVER DETAILS

W.O. ---
SHEET
3
OF 9

User: S5EB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout- Aug 24, 2010 - 3:37pm CTB - MONOCHROME.CTB

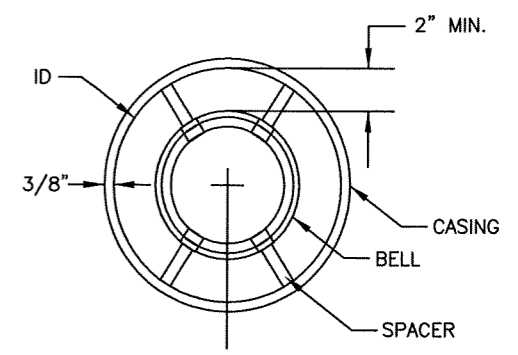


(CASCADE WATERWORKS MFG. CO.; ADVANCE PRODUCTS & SYSTEM, INC. OR APPROVED EQUAL).

RUBBER END SEAL SECURED WITH STAINLESS STEEL BANDS AT EACH END OF CASING PIPE. (ADVANCE PRODUCTS & SYSTEM, INC. END SEAL OR APPROVED EQUAL)

- NOTES:
- (1) VERTICAL DIMENSIONS TYPICAL FOR CASINGS
 - (2) WITH CURB: 6' STATE & 2' CITY/COUNTY ROADS MINIMUM
WITHOUT CURB: 8' STATE & 4' CITY/COUNTY ROADS MINIMUM
 - (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.

		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	30	36	42	48	54	60	66	72
MINIMUM INSIDE DIAMETER OF CASING PIPE (INCHES)		12	18	20	24	30	30	30	30	36	36	36	48	48	60	60	66	78	84	90	96	102

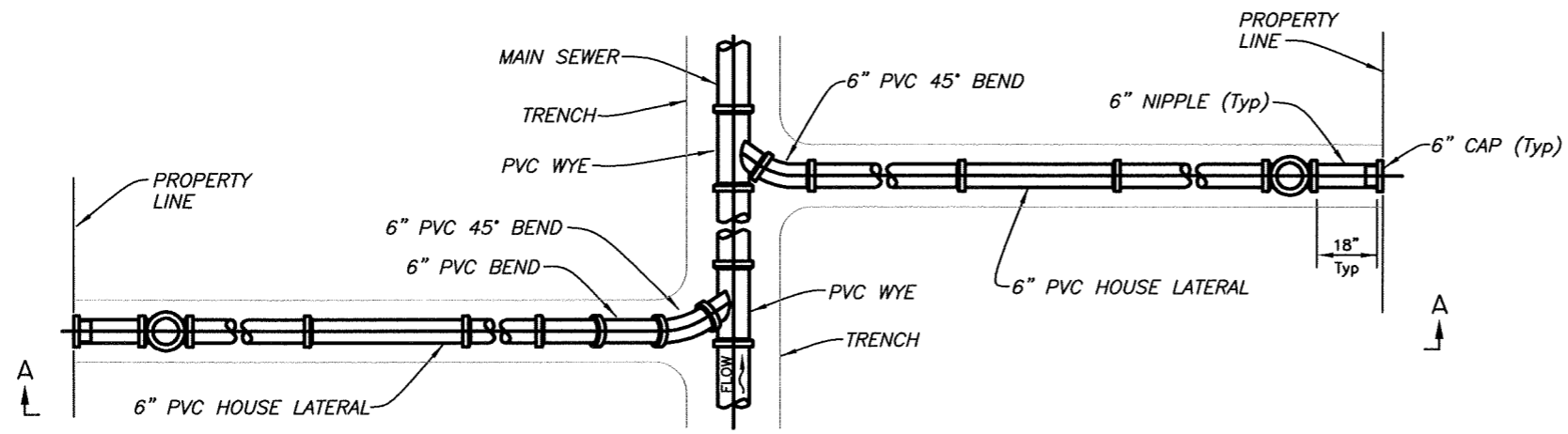


SECTION A-A

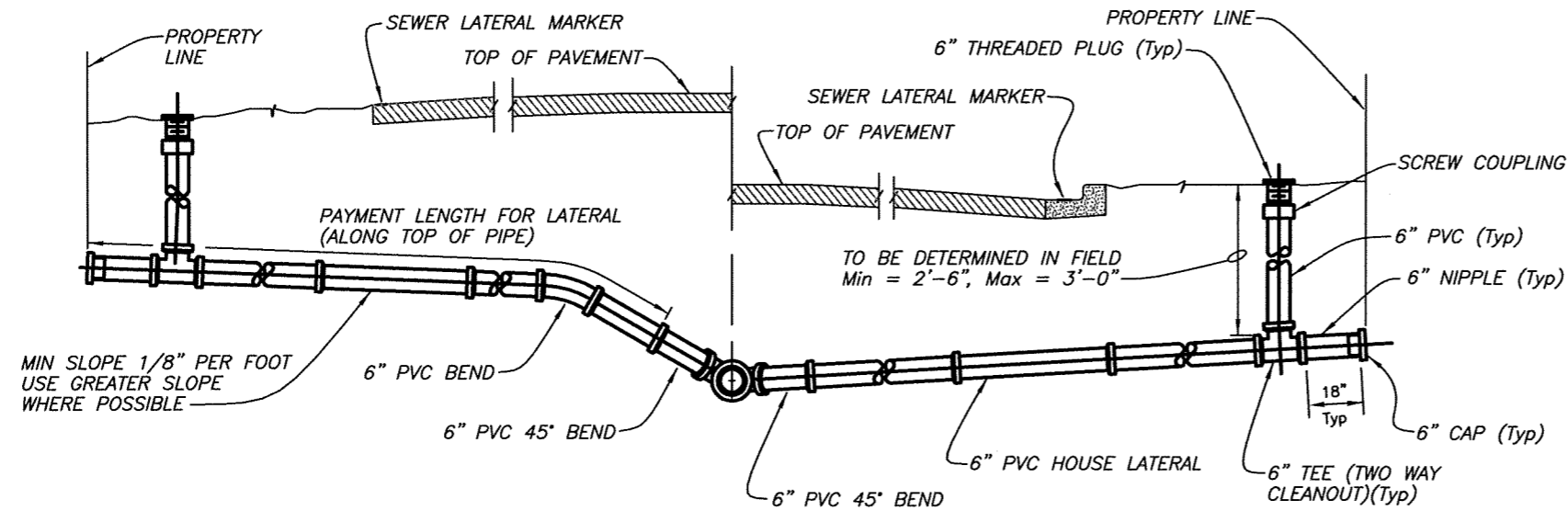
PRESSURE MAIN TO BE RESTRAINED WITH MANUFACTURERS RESTRAINED JOINTS THROUGH CASING. USE (3) SS CASING SPACER CENTERED ON EACH PIPE LENGTH. TIMBER SKIDS ARE OPTIONAL

JACK & BORE DETAILS
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: ##	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS JACK & BORE DETAILS	W.O. ---
	3			DRN: ---			SHEET
	2			CKD:			4
	1			DATE:			OF 9



PLAN



SECTION A-A

TYPE A HOUSE LATERAL DETAIL
NOT TO SCALE

NOTES:

1. The locations of house laterals by symbols on plans are approximate only and the actual location and slopes will be determined in the field by the contractor with the approval of the engineer.

2. The minimum diameter of all house laterals shall be 6 inches.

3. House laterals which pass under drainage ditches with less than 18" of cover or which have less than 30" of cover under pavement shall be Class 54 poly-lined DIP per specifications.

4. The department's standard regarding vertical perpendicular conflicts requires that there be a minimum of 18" clearance between house laterals and all crossing utilities. If, however, conditions dictate that it is impossible to meet this standard, the following notes are intended to address the most common conflict conditions.

A. The minimum clearance between house laterals and water lines shall be 6" under all circumstances. If the house lateral is below a water line and has between 6" and 18" of clearance or if the lateral is above the water line regardless of clearance, then a nominal 20' length of green AWWA Class 150 C900 PVC pipe shall be centered over/under the water line.

B. If the house lateral must pass over any utility other than a water line with less than 18" clearance, the lateral shall remain SDR 35 PVC pipe.

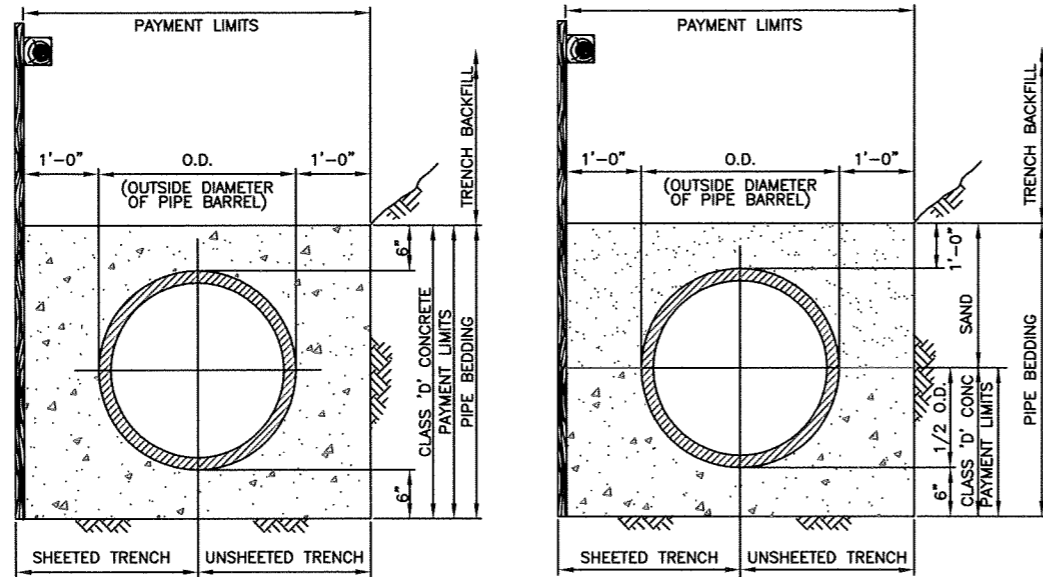
C. If the house lateral must pass under any utility other than a water line with less than 18" clearance, the lateral shall remain SDR 35 PVC pipe unless the utility poses a structural load too great for the PVC lateral as determined by the engineer, each conflict will be reviewed on a case by case basis.

5. Transitions from SDR 35 PVC to either C900 or ductile iron pipes shall be made with PVC rigid adaptors. Transitions from SDR 35 PVC to either existing clay or concrete pipes shall be made with Fernco flexile adaptors or equal.

User: SSEB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout - Aug 24, 2010 - 3:37pm CTB - MW.CTB

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS LATERAL CONNECTIONS (NEW)	W.O. ---
	3			DRN: MRL			SHEET
	2			CKD:			5
	1			DATE:			OF 9

B-----

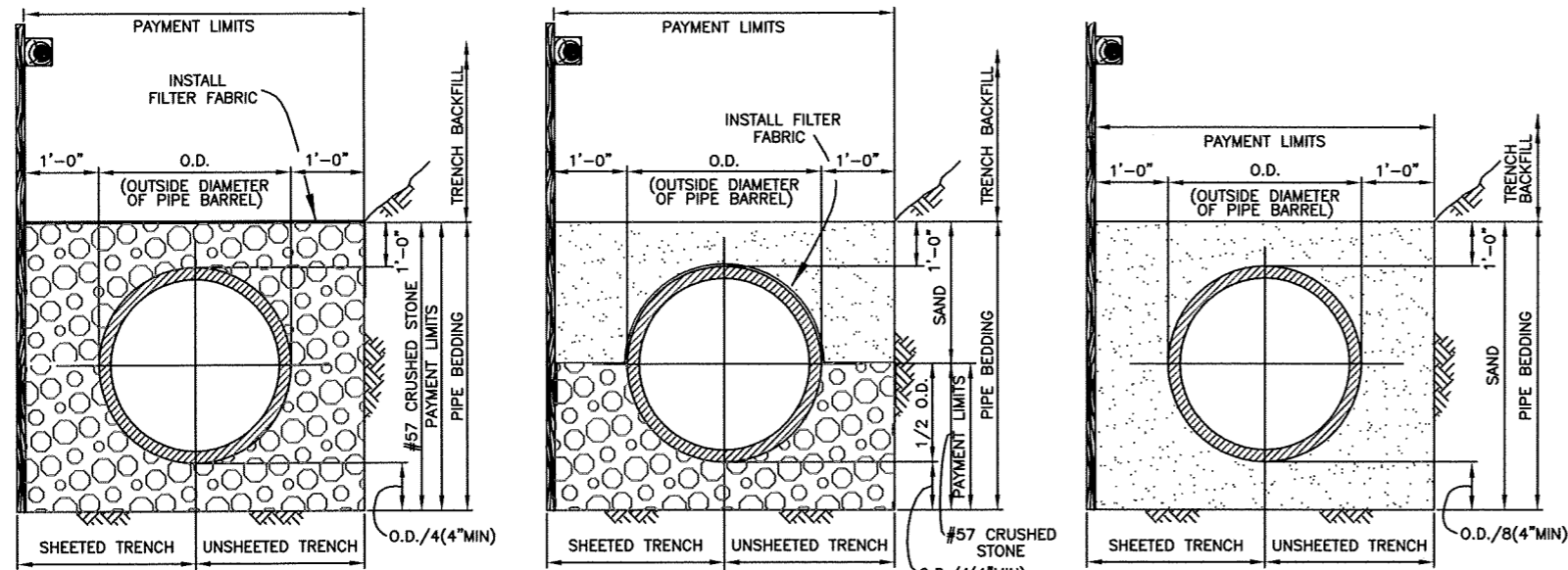


CONCRETE ENCASEMENT

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.

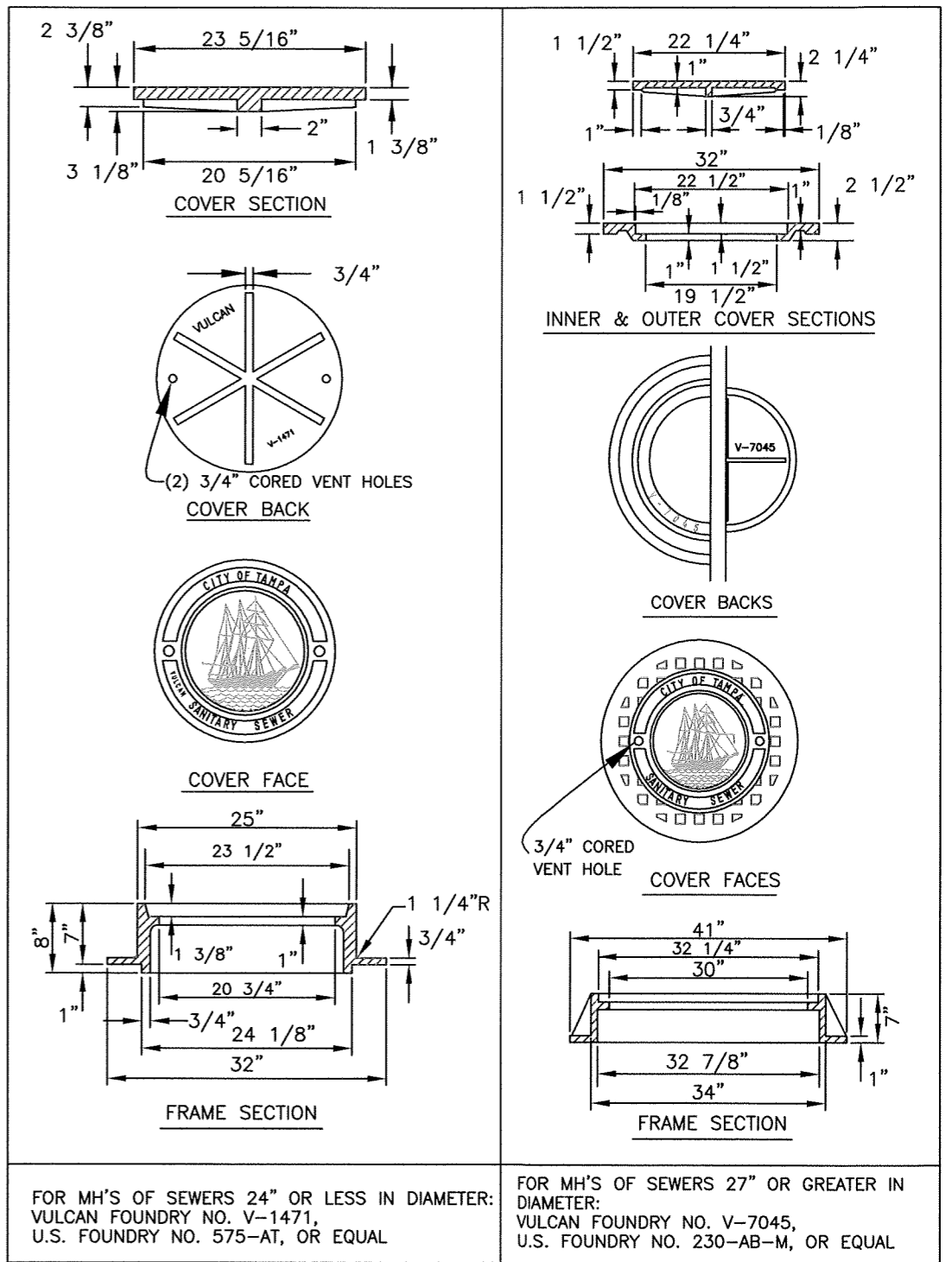


CLASS B-1 BEDDING

CLASS B BEDDING

CLASS C BEDDING

PIPE BEDDING DETAILS



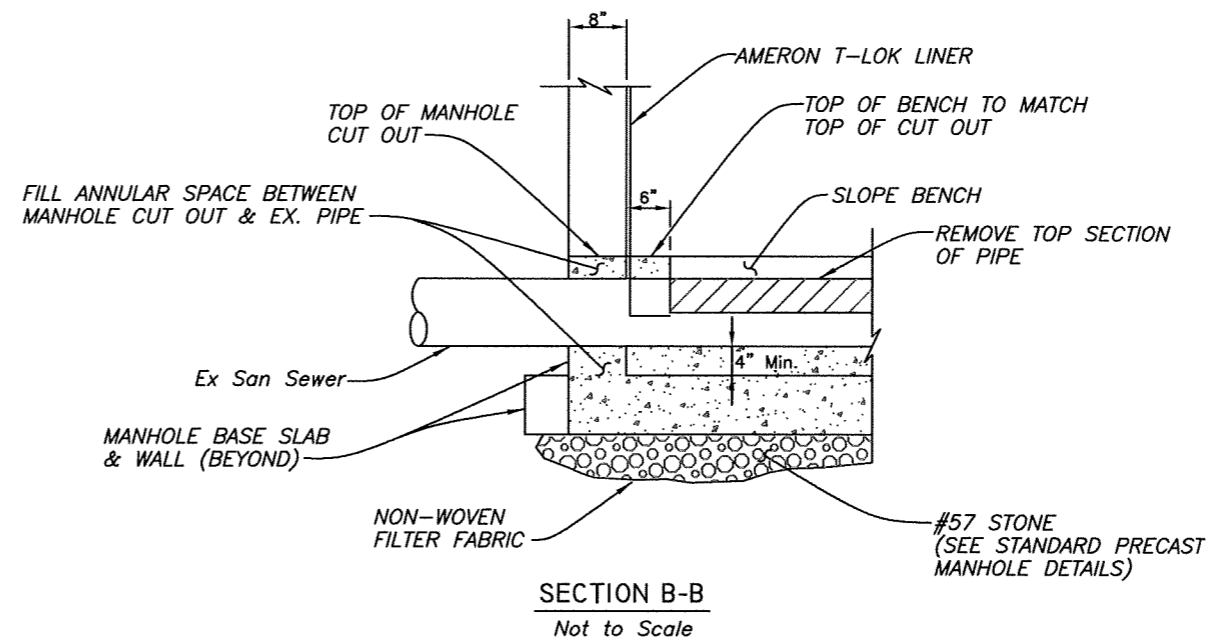
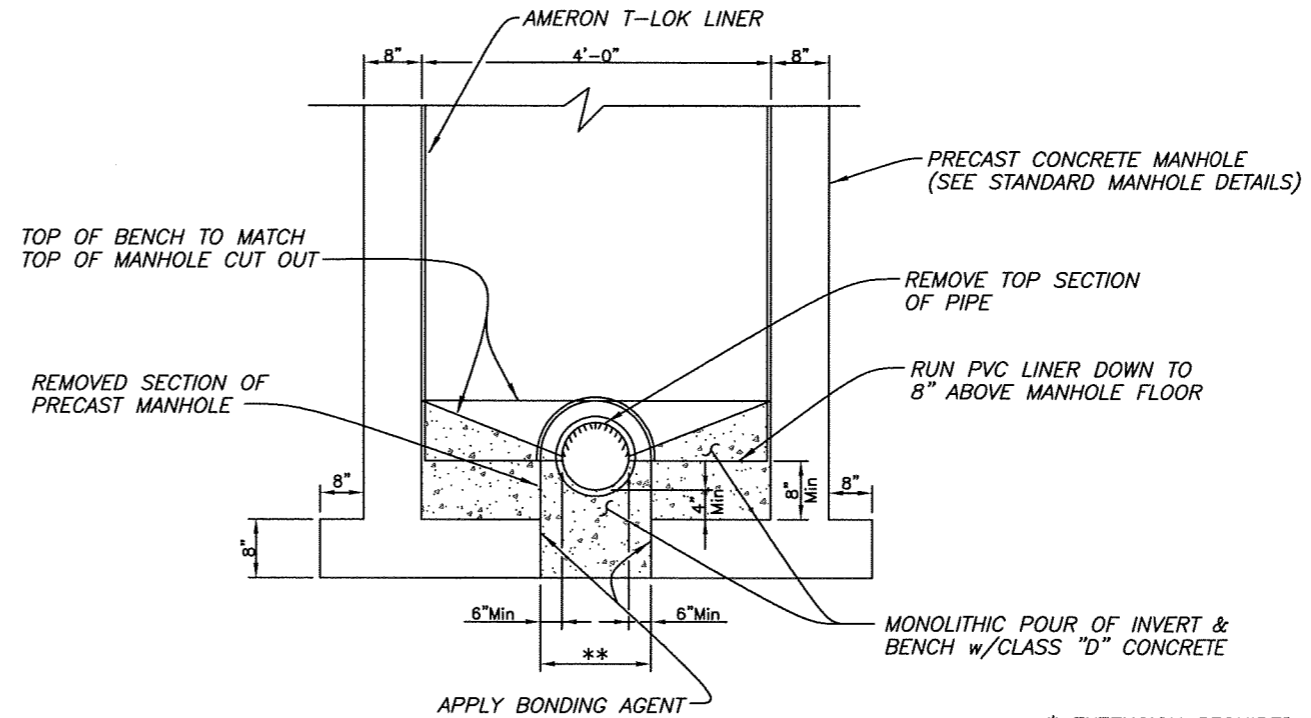
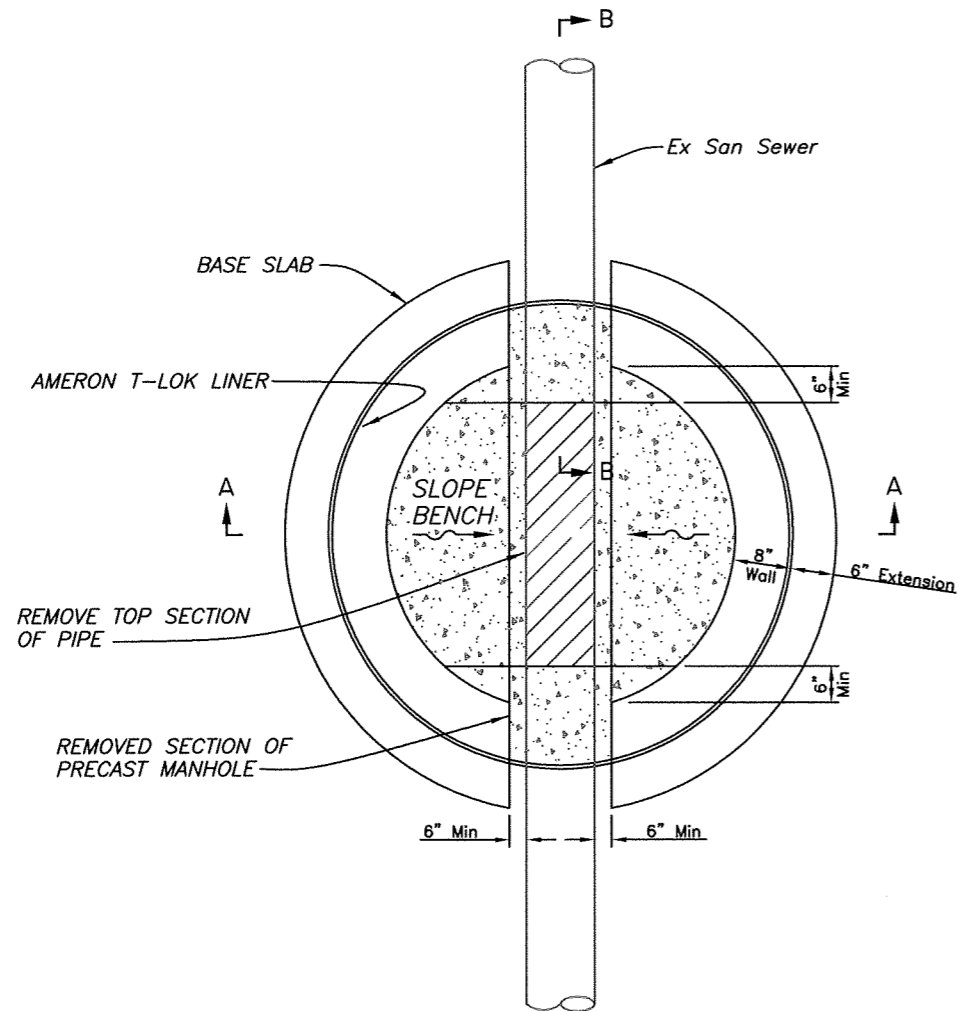
FOR MH'S OF SEWERS 24" OR LESS IN DIAMETER:
VULCAN FOUNDRY NO. V-1471,
U.S. FOUNDRY NO. 575-AT, OR EQUAL

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

User: SSEB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg
Layout: Aug 24, 2010 - 3:37pm CTB - WW.CTB

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: DR	CITY of TAMPA WASTEWATER DEPARTMENT	STANDARD DETAILS MISC. GRAVITY DETAILS	W.O. -----
	3			DRN: MRL			SHEET
	2			CKD:			6
	1			DATE:			OF 9



* EXTENSION REQUIRED FOR DOGHOUSE STYLE MANHOLES

** TYPICAL WIDTH OF OPENING IS 24" FOR AN EX. 8" PIPE

User: SSEB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout - Aug 24, 2010 - 3:37pm CTB - WW.CTB

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

No.	DATE	REVISIONS
3		
2		
1		

DES: DR
DRN: MRL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

STANDARD DETAILS
DOGHOUSE MANHOLE

W.O. ----
SHEET
7
OF 9

NOTES

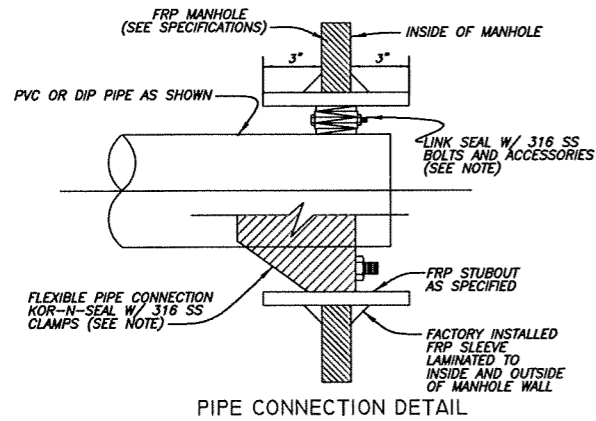
- FIBERGLASS REINFORCED POLYESTER (FRP) MANHOLES SHALL CONFORM TO ASTM D-3753 LATEST EDITION.
- THE MANHOLE BOTTOM SHALL BE INTEGRALLY JOINED TO THE BARREL SECTION AND SHALL BE A MINIMUM OF 1/2" THICK. TO ALLOW THE MANHOLE TO BE ANCHORED TO THE PRECAST BOTTOM SLAB, THE MANHOLE BOTTOM SHALL EXTEND 3 INCHES 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

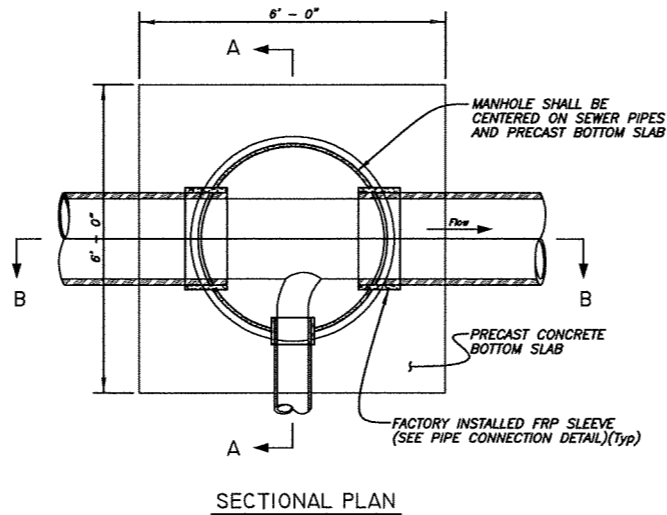
	ANCHOR BOLT SIZE		
	1/2"	5/8"	3/4"
MINIMUM PULL-OUT CAPACITY (LBS):	2130	2930	3870
MINIMUM EMBEDMENT DEPTH (IN):	3 1/2	4	4 3/4

* ABOVE DATA IS BASED ON 4000 PSI CONCRETE

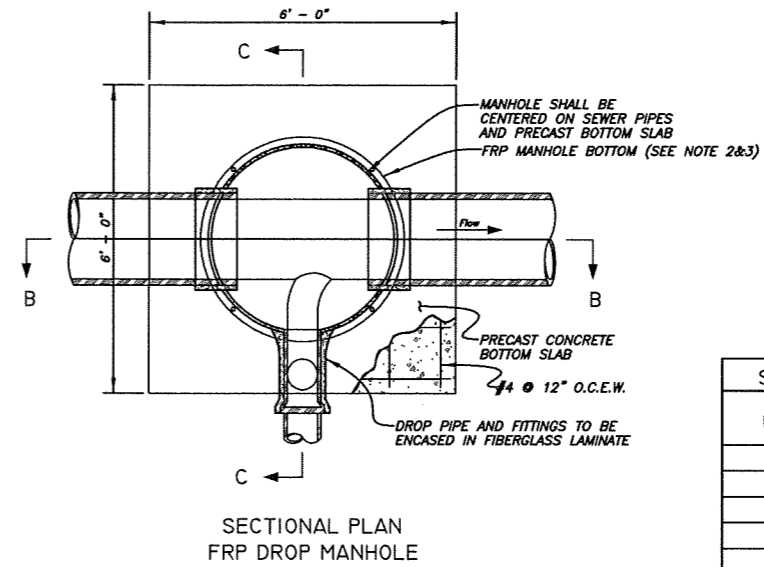
MANHOLE DEPTH (FT)	ANCHOR SIZE (IN)	NUMBER OF ANCHORS
0 - 5	1/2	4
5 - 10	1/2	8
10 - 15	5/8	8
15 - 20	3/4	8
20 - 25	3/4	8



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."

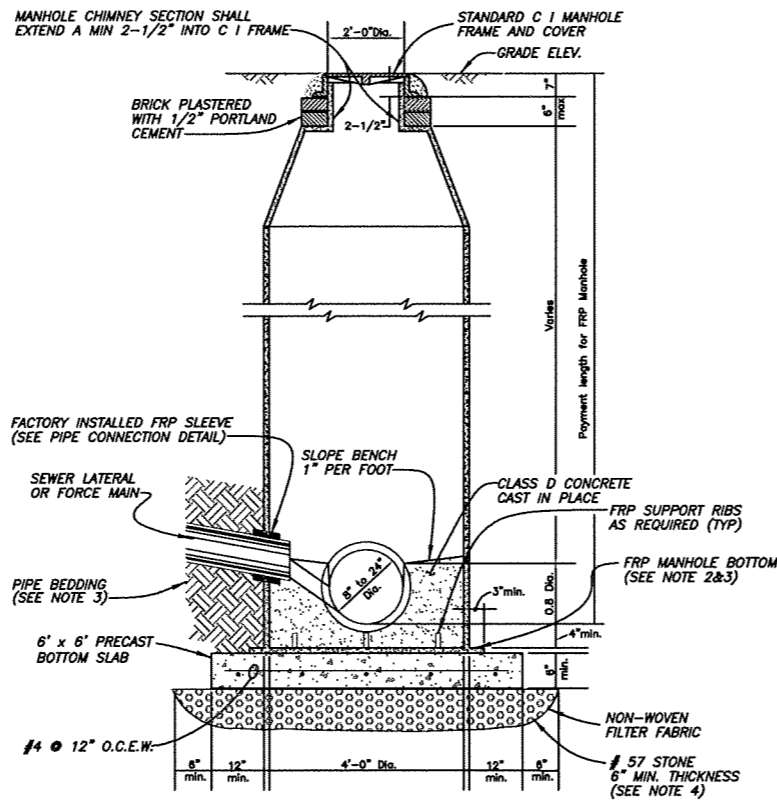


SECTIONAL PLAN

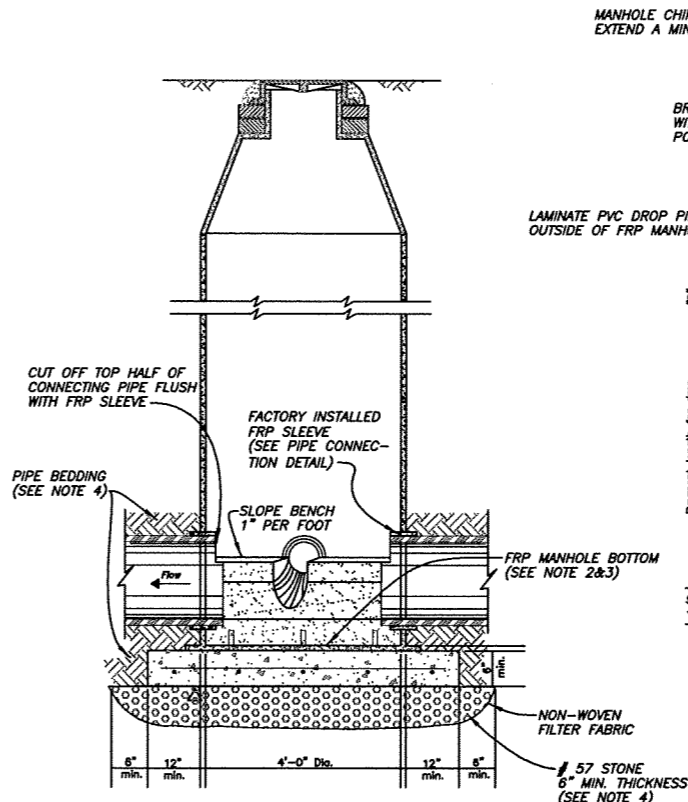


SECTIONAL PLAN FRP DROP MANHOLE

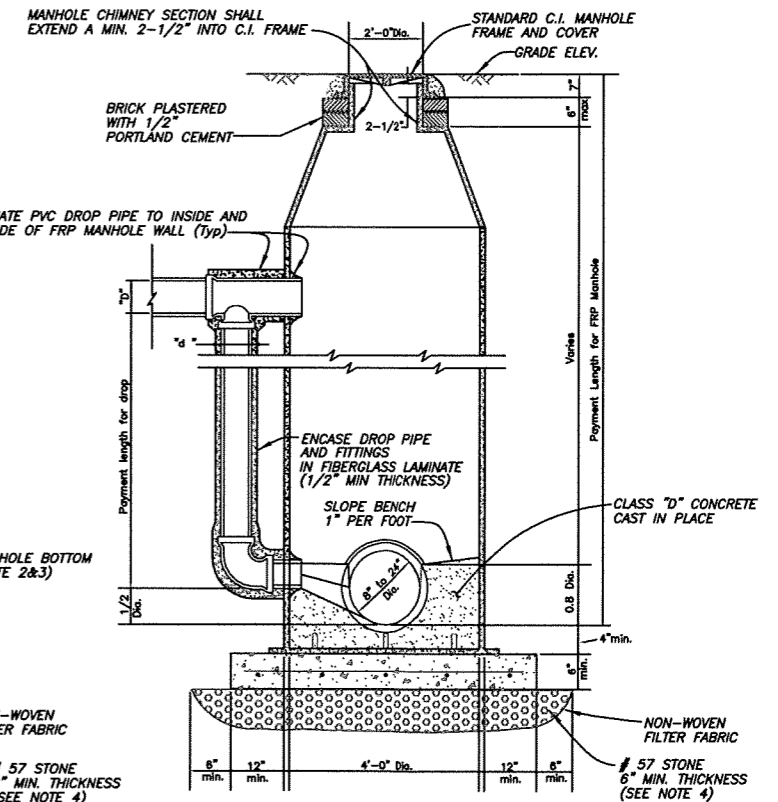
INLET PIPE DIAMETER "D"	DROP PIPE DIAMETER "d"
8"	8"
10"	8"
12"	10"
15"	12"
18"	15"
21"	18"
24"	18"
27"	18"



SECTION A-A



SECTION B-B



SECTION C-C

User: SSE8 Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout: Aug 24, 2010 3:37pm CTB - WW.CTB

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

No.	DATE	REVISIONS
3		
2		
1		

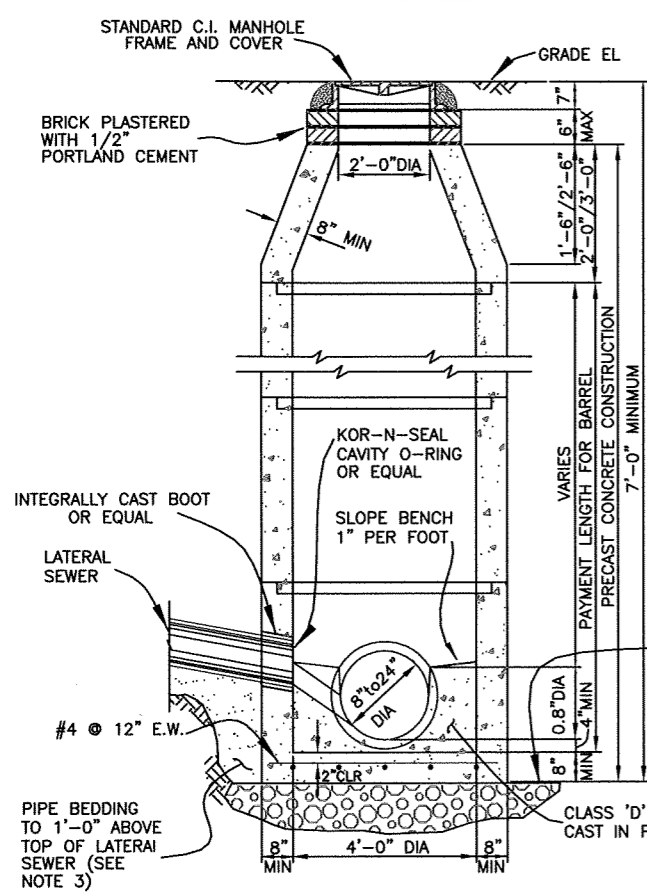
DES: DR
DRN: MRL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

STANDARD DETAILS
FIBERGLASS MANHOLE

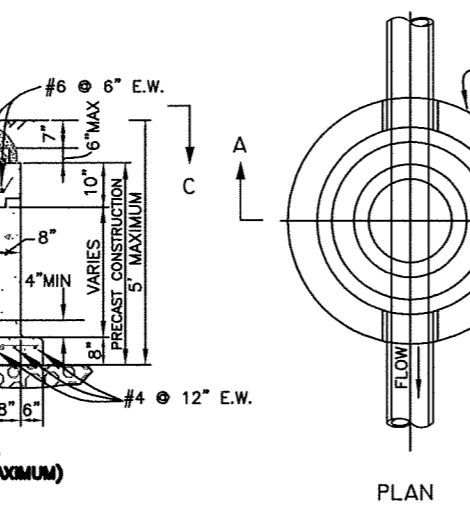
W.O. ---
SHEET
8
OF 9

User: SSEB Drawing Name: K:\Drafting\Standard\Details\CURRENT DETAILS\FY-11 Contract 11-C-00002 Std Details.dwg Layout- Aug 24, 2010 3:37pm CTB - WW.CTB



SECTION A-A

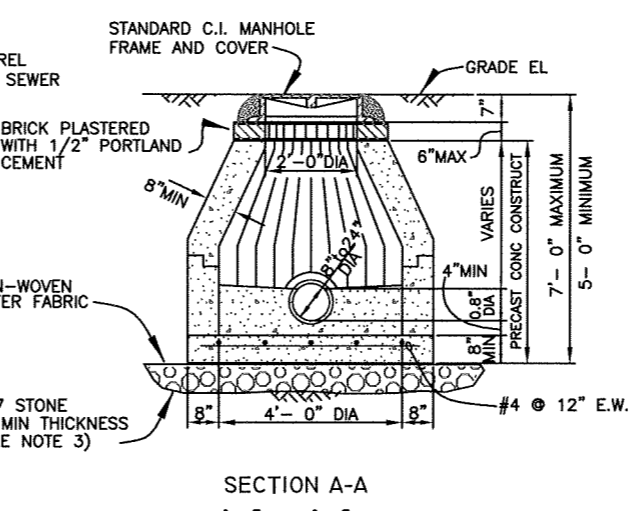
STANDARD MANHOLE - DEEP TYPE
FOR SEWERS 24" OR LESS IN DIAMETER



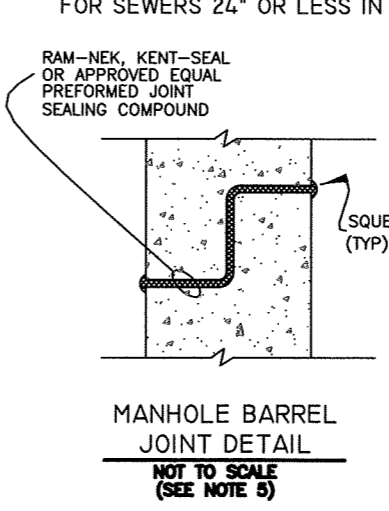
SECTION A-A
(SHALLOW TYPE 5' MAXIMUM)
STANDARD MANHOLE - SHALLOW TYPE
FOR SEWERS 24" OR LESS IN DIAMETER

NOTES

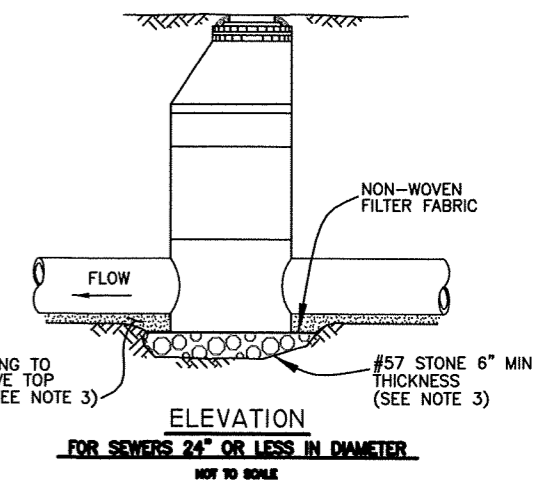
1. REINFORCING STEEL FOR ALL MANHOLES SHALL CONFORM TO ASTM-DES: C-48 AND PLACED AS DESCRIBED IN THE SPECIFICATIONS.
2. ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS OR OTHER CONTRACT DIVISIONS SHALL BE PROVIDED WITH WATER TIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.
3. SEE SPECIFICATIONS FOR MATERIALS 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.



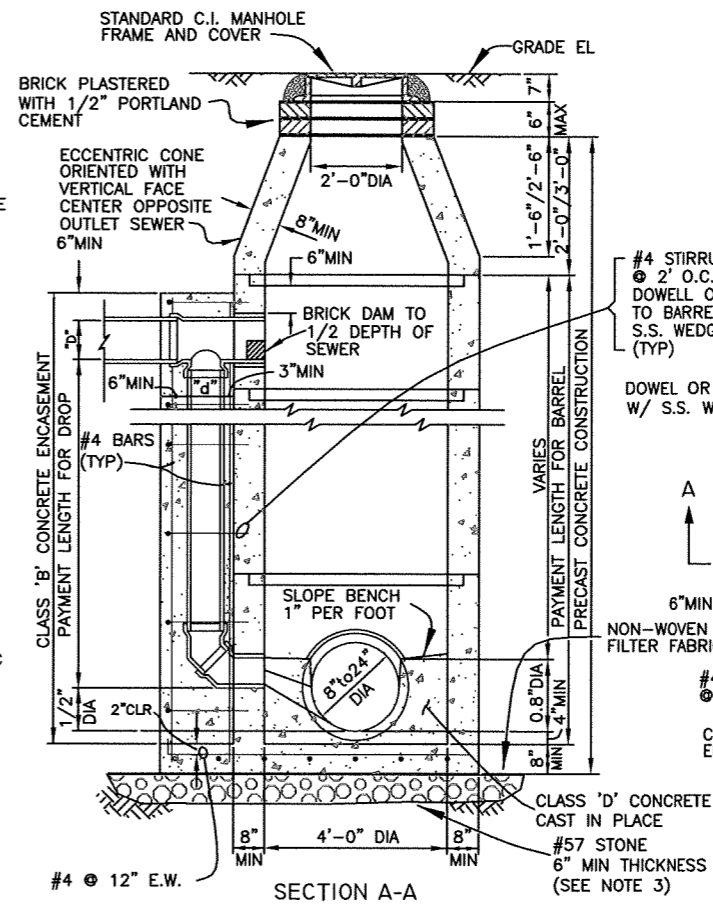
SECTION A-A
5'-0" TO 7'-0" DEEP
(SEE NOTE 4)



MANHOLE BARREL
JOINT DETAIL
NOT TO SCALE
(SEE NOTE 5)



ELEVATION
FOR SEWERS 24" OR LESS IN DIAMETER
NOT TO SCALE



SECTION A-A

STANDARD DROP MANHOLE
FOR SEWERS 24" OR LESS IN DIAMETER

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"

B - - - -

SECTIONAL PLAN

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

No.	DATE	REVISIONS
3		
2		
1		

DES: DR
DRN: MRL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

STANDARD DETAILS
STANDARD MANHOLE 8 TO 24

W.O. - - - -
SHEET
9
OF 9