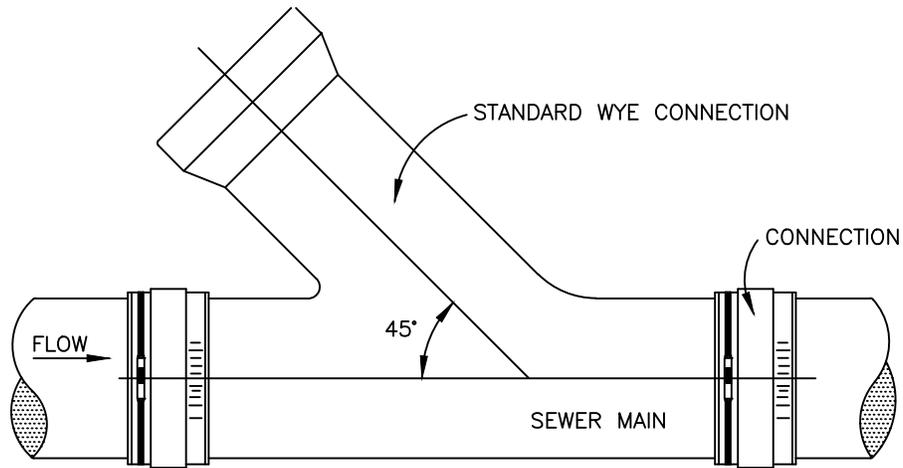


SECTION 400

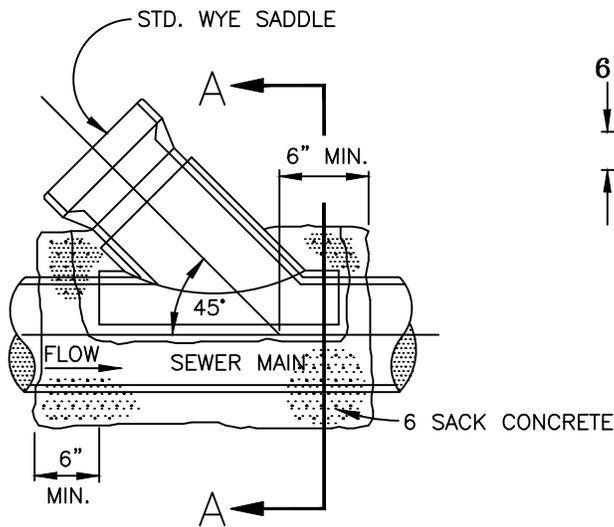
SEWER AND SANITATION

<u>PLAN NO.</u>	<u>DESCRIPTION</u>
400	SEWER LATERAL CONNECTIONS TYPES A AND B
401-1	TYPICAL SEWER LATERAL HOUSE CONNECTIONS
401-2	TYPICAL SEWER LATERAL NOTES
402-1	PRECAST CONCRETE SEWER MANHOLE
402-2	PRECAST CONCRETE SEWER MANHOLE NOTES
403	STANDARD SEWER DROP MANHOLE WITH CLEAN OUT
404	SEWER DROP MANHOLE WITH CLEAN OUT
405	MANHOLE FRAME AND COVER
406	V.C.P. PIPE BEDDING DETAILS
407	P.V.C. PIPE BEDDING DETAILS
408-1	CLEAN OUT STRUCTURE
408-2	CLEAN OUT STRUCTURE NOTES
409-1	SEWER CHIMNEYS
409-2	SEWER CHIMNEYS NOTES
410	STEEL CASING PIPE
411	CONCRETE ENCASEMENT TYPE A,B AND C
412	GAS FLAP
413	TAPPING SLEEVE FOR PVC/HDPE PIPE LINER
414-1	TRENCHLESS PIPELINE DESIGN CRITERIA
414-2	TRENCHLESS PIPELINE DESIGN CRITERIA NOTES

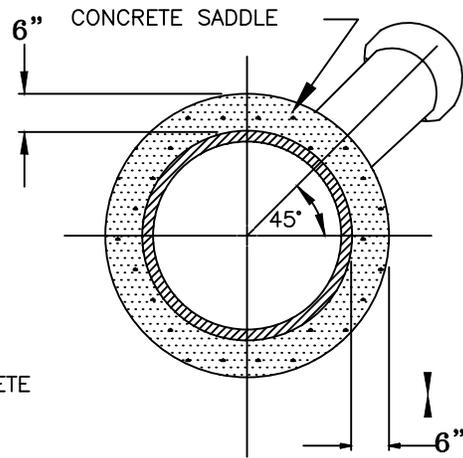


SEWER LATERAL CONNECTION TYPE A
(CUT- IN WYE)

USE 4" WIDE MINIMUM
STAINLESS STEEL COUPLING
TO BE USED AT CONNECTION
TO SEWER MAIN.



PLAN



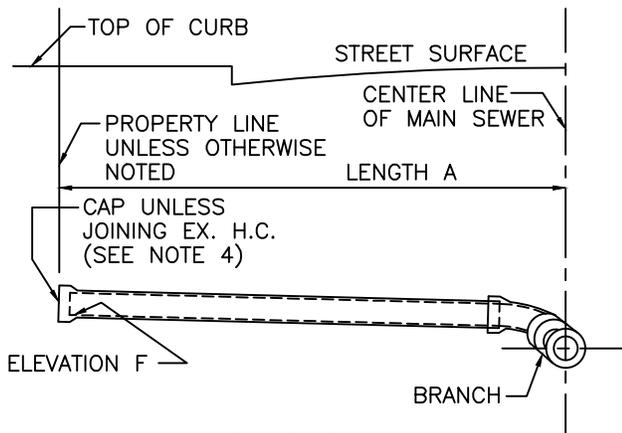
SECTION A-A

SEWER LATERAL CONNECTION TYPE B
(SADDLE INSTALLATION)

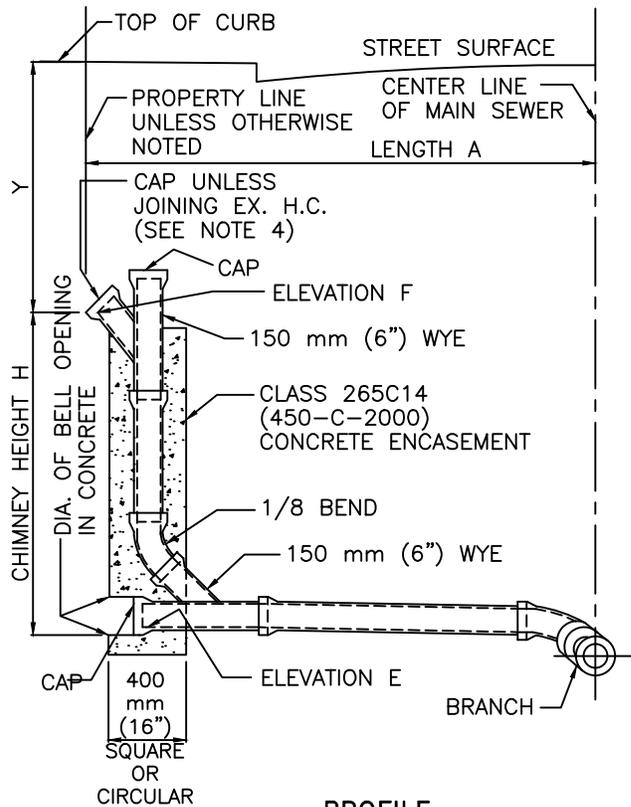
NOTES:

1. TYPE B REQUIRES SPECIAL APPROVAL AND IS TO BE USED ONLY ON LARGE MAINS WITH HEAVY FLOWS AND WILL BE CORED.
2. ALL LATERALS ARE PRIVATE TO THE MAIN LINE LIMIT.

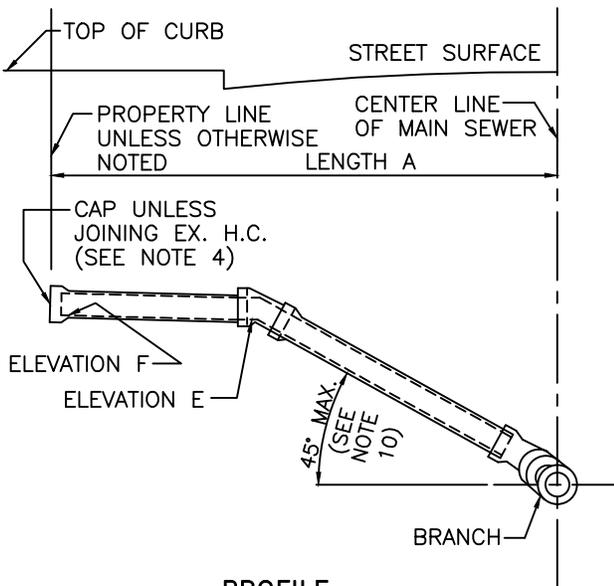
REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 400
	SEWER LATERAL CONNECTIONS TYPES A AND B	
	 APPROVED BY: MARK LEWIS R.C.E. 49335 CITY ENGINEER	DATE: 04/01/15
		SHEET: 1 OF 1



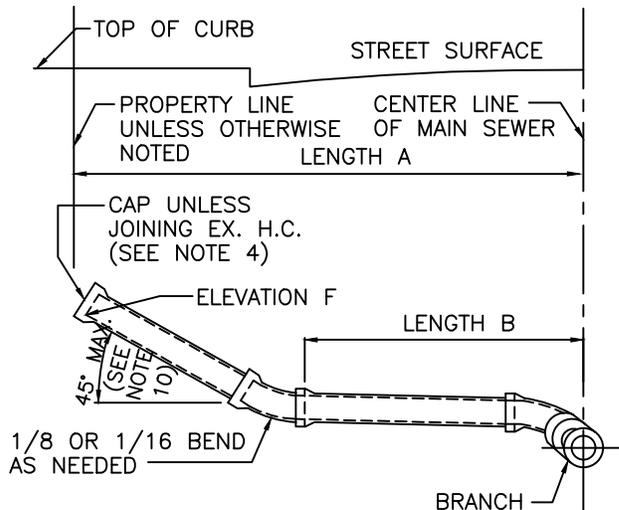
**PROFILE
TYPE A**



**PROFILE
TYPE B**



**PROFILE
TYPE C**



**PROFILE
TYPE D**

REVISIONS	CITY OF FOUNTAIN VALLEY		STANDARD PLAN NO. 401-1
	TYPICAL SEWER LATERAL HOUSE CONNECTIONS		
	APPROVED BY:  49335 CITY ENGINEER		DATE: 04/01/15
			SHEET: 1 OF 2

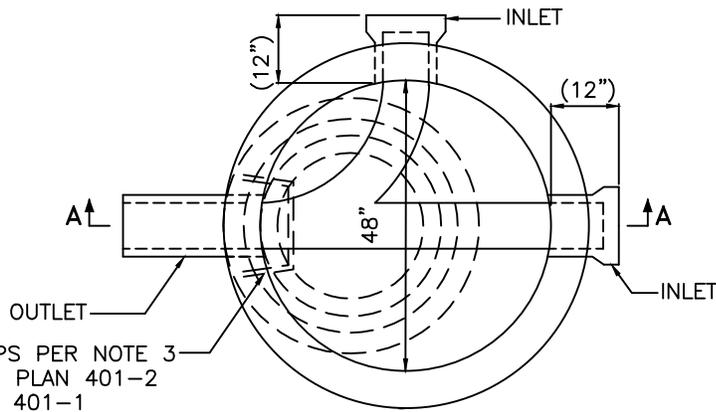
NOTES:

1. EXCEPT AS OTHERWISE INDICATED ON THE PROJECT PLANS, ALL HOUSE CONNECTION SEWERS SHALL BE TYPE "A" AND SHALL BE CONSTRUCTED ON STRAIGHT LINES AND GRADES BETWEEN CONTROL POINTS AND ELEVATIONS.
2. DIMENSIONS
 - A. Y=6 FT (1.85 M)
 - B. LENGTHS "A" AND "B"—SEE PROJECT PLANS
 - C. HEIGHT "H"—SEE PROJECT PLANS
 - D. ELEVATIONS "E" AND "F"—SEE PROJECT PLANS
3. ALL HOUSE CONNECTION SEWER PIPE SHALL BE 6" UNLESS OTHERWISE INDICATED AND MUST BE V.C.P WHERE HOUSE CONNECTION IS IN THE CITY RIGHT OF WAY. HOUSE CONNECTIONS NOT IN THE CITY RIGHT OF WAY MAY BE ANY OF THE FOLLOWING:
 - A. VC PIPE
 - B. PE PIPE
 - C. ABS SOLID WALL PIPE
 - D. ABS COMPOSITE PIPE
 - E. PVC PLASTIC PIPE

PROVIDED THAT CHANGES FROM ONE TYPE OF MATERIAL OR SIZE TO ANOTHER SHALL BE MADE ONLY BY MEANS SUITABLE ADAPTERS APPROVED BY THE ENGINEER.
4. THE UPPER END OF THE HOUSE CONNECTION SHALL BE SEALED BY INSTALLING A CAP AND SEALING THE CAP WITH 1" THICK TYPE "F" MORTAR AROUND THE CIRCUMFERENCE OF THE CAP.
5. EXCEPT AS CONTROLLED BY ELEVATIONS INDICATED ON THE PROJECT PLANS, THE MINIMUM SLOPE FOR ALL PIPE SHALL BE 2 PERCENT (S=0.002).
6. THE FIGURE IN THE A CIRCLE ON THE PROJECT PLANS ADJACENT TO A HOUSE CONNECTION SEWER STATION INDICATES THE DEPTH IN FEET BELOW THE EXISTING TOP OF CURB TO WHICH THE INVERT OF THE UPPER END OF THE HOUSE CONNECTION SEWER SHALL BE CONSTRUCTED. IF NO DEPTH IS INDICATED THE INVERT OF THE UPPER END SHALL BE THE ELEVATION SHOWN ON THE PROFILE. WHERE NEITHER DEPTH NOR ELEVATION IS INDICATED THE INVERT SHALL BE 6 FT. BELOW THE TOP OF THE EXISTING CURB.
7. BRANCHES SHALL BE EITHER TEES OR WYES AND SHALL BE ROTATED UPWARD FROM THE HORIZONTAL TO AN ANGLE OF 22-1/2 DEGREES TO 45 DEGREES WHEN TEES ARE USED. BENDS ARE NOT REQUIRED BUT MAY BE USED AT THE OPTION OF THE CONTRACTOR. WHEN THE BRANCH ROTATION DOES NOT CONFORM TO THE SLOPE OF THE HOUSE CONNECTION SEWER, PULLED JOINTS MAY BE USED FOR ADJUSTMENTS.
8. THE MAXIMUM DEFLECTION AT EACH JOINT FOR 4" AND 6" VITRIFIED CLAY PIPE HOUSE CONNECTION SEWERS SHALL BE 4 DEGREES, WHICH IS EQUAL TO A PULL OF 9/16" FOR A 6" PIPE AND 3/8" FOR A 4" PIPE. (PULL IS DEFINED AS THE SEPARATION OF THE ABUTTING PIPE ENDS ON THE CONVEX SIDE OF THE CURVE MEASURED AT THE OUTSIDE PIPE BARREL).
9. CONNECTION OF A BUILDING SEWER SMALLER THAN 6" TO A 6" HOUSE CONNECTION SEWER SHALL BE MADE USING AN APPROVED INCREASER-TEE OR AN INCREASER FOLLOWED BY A TEE.
10. ALL HOUSE CONNECTION SEWERS OR PORTIONS THEREOF CONSTRUCTED ON A SLOPE EXCEEDING 45 DEGREES SHALL BE ANCHORED PER ORANGE COUNTY STANDARDS.
11. HOUSE CONNECTION SEWERS CONSTRUCTED PURSUANT TO A HOUSE CONNECTION PERMIT SHALL CONFORM TO ALL APPLICABLE STATUTES AND ORDINANCES.

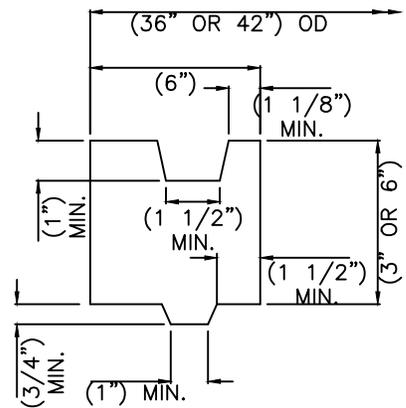
DIMENSIONS SHOWN ON THE PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 401 - 2
	TYPICAL SEWER LATERAL NOTES	
		
	APPROVED BY: MARK LEWIS R.O.E. 49335 CITY ENGINEER	
	DATE: 04/01/15	SHEET: 2 OF 2

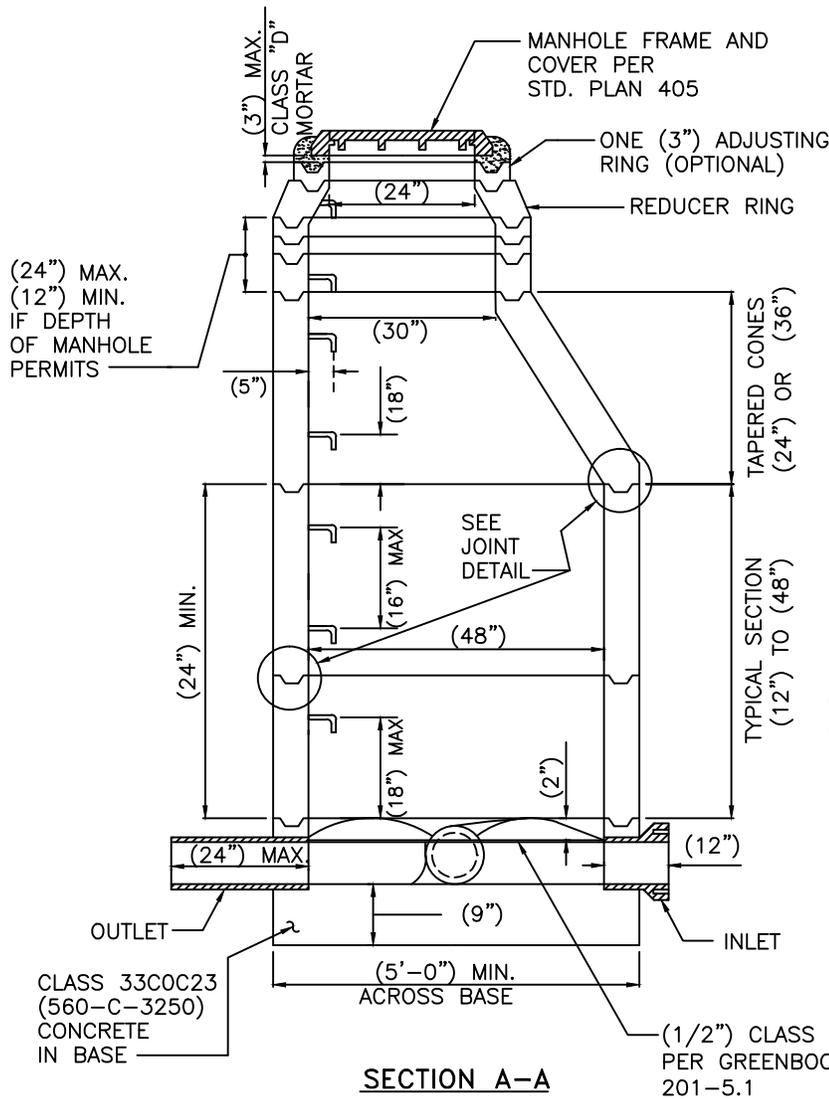


STEPS PER NOTE 3
STD. PLAN 401-2
AND 401-1

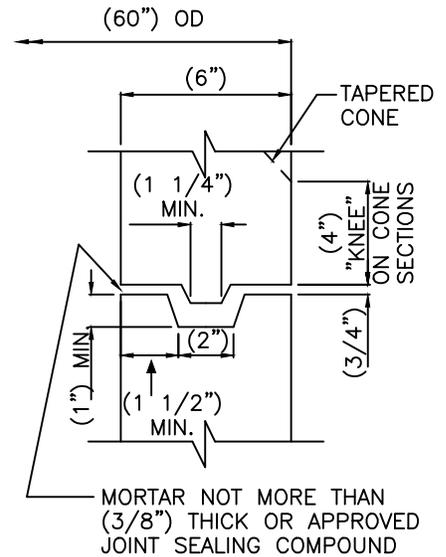
PLAN
SHOWING BASE



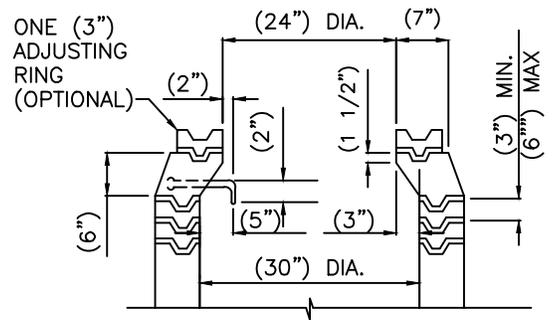
ADJUSTING RING DETAIL



SECTION A-A



JOINT DETAIL
NON-REINFORCED



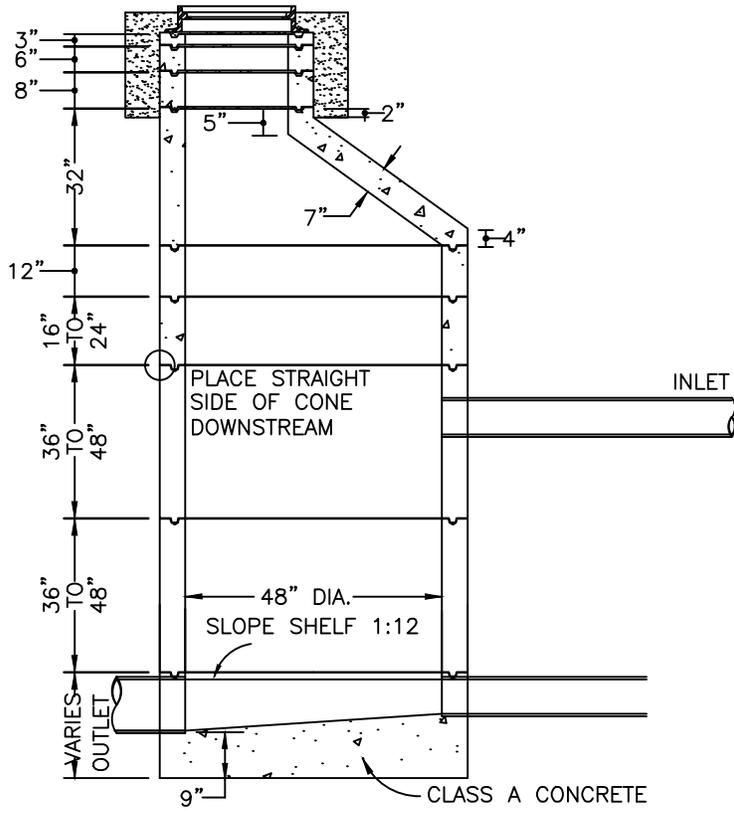
REDUCER RING AND ADJUSTING RINGS

REVISIONS	CITY OF FOUNTAIN VALLEY		STANDARD PLAN NO. 402-1
	PRECAST CONCRETE SEWER MANHOLE		
	APPROVED BY:  MARK LEWIS R.C.E. 49335 CITY ENGINEER	DATE: 04/01/15	

NOTES

1. EXCEPT AS NOTED HEREON, THE PRECAST UNITS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASTM C 478. AS AN ALTERNATE CURING METHOD, THE UNITS MAY BE CURED USING SATURATED STEAM FOR A MINIMUM OF 12 HOURS FOLLOWED BY 6 DAYS OF WATER CURING OR MEMBRANE CURING. IF THE UNITS ARE CURED BY THE ALTERNATE METHOD, THEY SHALL NOT BE SHIPPED PRIOR TO 8 DAYS AFTER CASTING NOR UNTIL THE CONCRETE HAS ATTAINED A STRENGTH OF 25 MPA (3500 PSI)
2. RISER SECTIONS MAY BE REINFORCED OR UNREINFORCED. REINFORCED SECTIONS SHALL BE REINFORCED IN ACCORDANCE WITH ASTM C 478 AND SHALL HAVE A MINIMUM WALL THICKNESS 5". UNREINFORCED RISER SECTION SHALL HAVE A MINIMUM WALL THICKNESS OF 6".
3. THE 24"x48" ECCENTRIC CONES MAY BE REINFORCED OR UNREINFORCED. IF REINFORCED, THE WALL THICKNESS SHALL BE NOT LESS THAN 5". IF REINFORCED, THE WALL THICKNESS SHALL NOT BE LESS THAN 6".
4. JOINTS SHALL BE TONGUE AND GROOVE. JOINTS FOR REINFORCED STRUCTURES SHALL CONFORM WITH ASTM C 478 SECTION 14.
5. PRECAST UNITS SHALL BE ASSEMBLED USING CLASS "B" MORTAR.
6. IF 30" DIAMETER MANHOLE FRAME AND COVER IS REQUIRED, IT SHALL BE INSTALLED WHERE THE REDUCER RING IS SHOWN IN THE SECTION.
7. FOR REINFORCED PRECAST STRUCTURES, ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 2" OF COVER OVER THE STEEL ON THE INSIDE FACE.
8. THE TOP OPENING OF THE MANHOLE SHALL BE PLACED DIRECTLY OVER THE OUTLET OF THE STRUCTURE EXCEPT AS OTHERWISE NOTED ON PLANS.
9. CONCRETE BASE AND STUB WALLS SHALL BE POURED IN ONE OPERATION TO A POINT 2" ABOVE THE INLET AND OUTLET PIPES. ALL PIPES SHALL BE RIGIDLY SUPPORTED BY TEMPORARY PIERS OR OTHER METHODS DURING THE OPERATION. CONCRETE SHALL SET FOR 24 HOURS BEFORE PLACING PRECAST UNITS.
10. COAT INTERIOR PER ORANGE COUNTY SANITATION DISTRICT'S LATEST REQUIREMENTS.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO.
	PRECAST CONCRETE SEWER MANHOLE NOTES	402-2
	APPROVED BY:  MARK LEWIS R.C.E. 49335 CITY ENGINEER	SHEET: 2 OF 2
	DATE: 04/01/15	

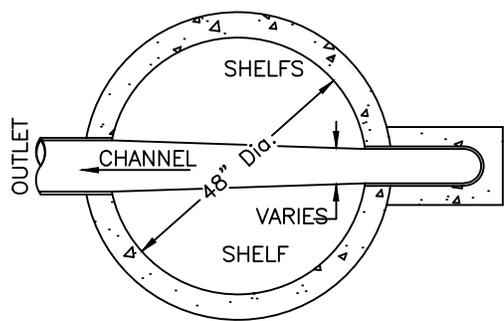


SECTION

NOTES:

MANHOLE FRAME AND COVER TO BE ALAHAMBRA FOUNDRY A-1270 OR APPROVED EQUAL.

COAT INTERIOR PER ORANGE COUNTY SANITATION DISTRICT'S LATEST REQUIREMENT.



PLAN

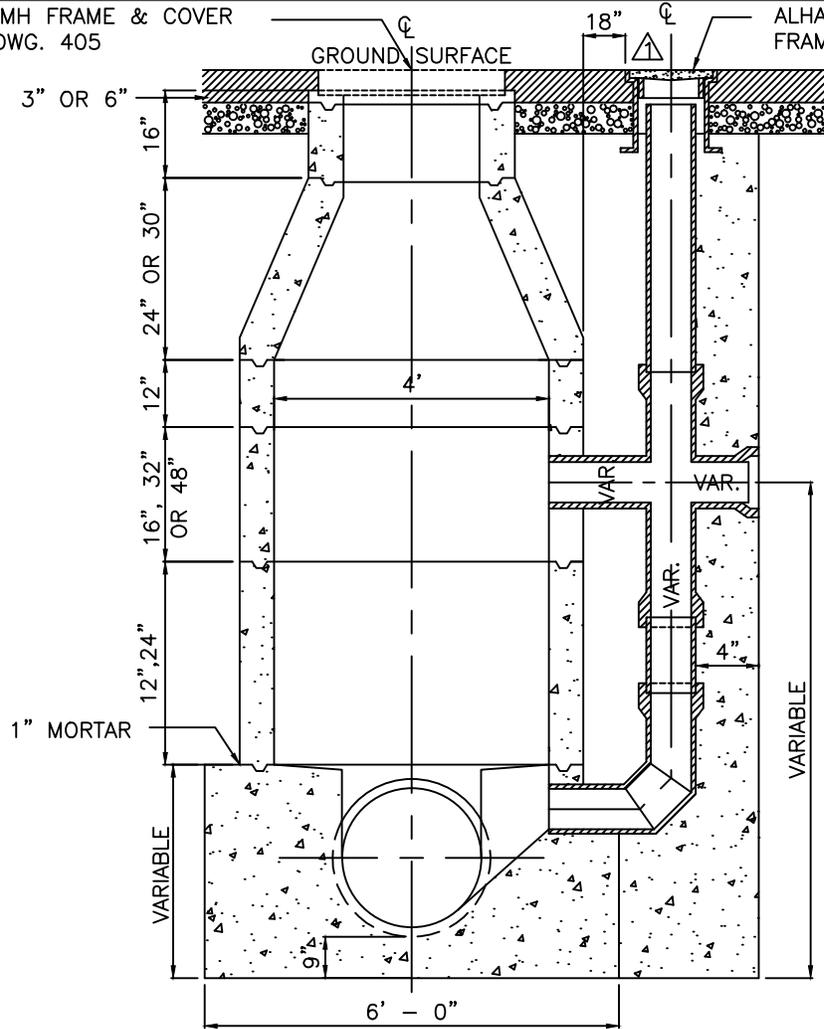
NOTES:

FOR 24" PIPE AND LARGER THE TOP HALF OF THE PIPE SHALL BE REMOVED TO THE CONTOUR OF THE INSIDE OF THE MANHOLE AND THE BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CEMENT MORTAR.

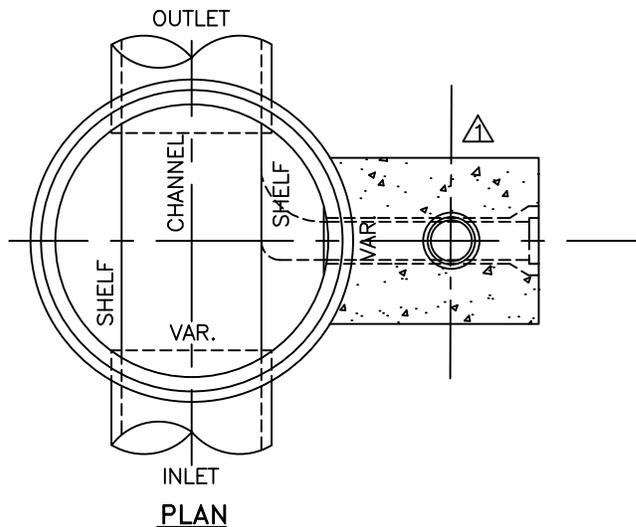
REVISIONS	CITY OF FOUNTAIN VALLEY		STANDARD PLAN NO. 403
	STANDARD SEWER DROP MANHOLE WITH CLEAN OUT		
	 APPROVED BY: MARK LEWIS R. C. E. 49335 CITY ENGINEER		
		DATE: 04/01/15	SHEET: 1 OF 1

STD. MH FRAME & COVER
 STD DWG. 405

ALHAMBRA A-1240
 FRAME AND COVER



CLASS "A" CONCRETE
 SECTION



REVISIONS

CITY OF FOUNTAIN VALLEY

STANDARD
 PLAN NO.

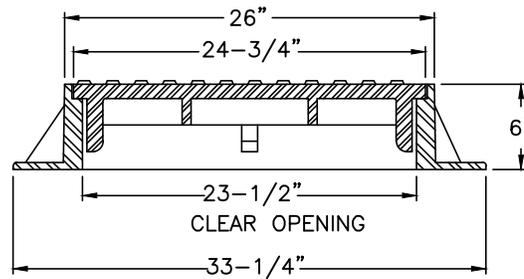
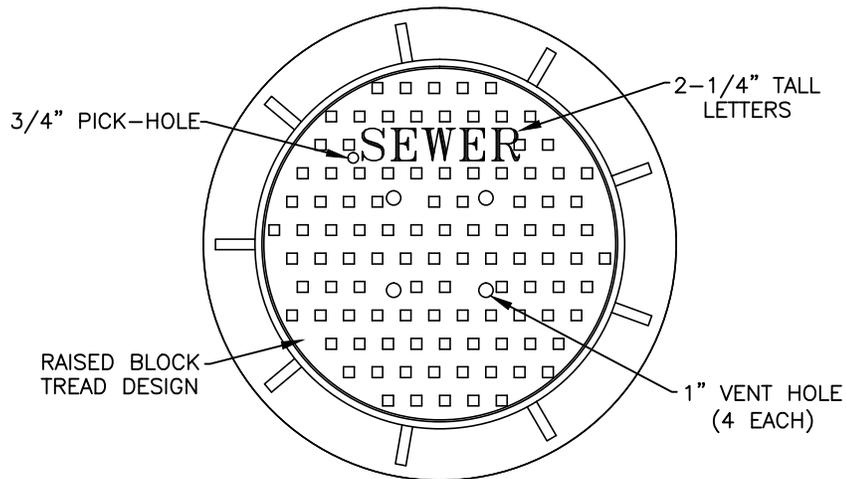
SEWER DROP MANHOLE WITH CLEAN OUT

404

APPROVED BY:  49335
 CITY ENGINEER

DATE: 04/01/15

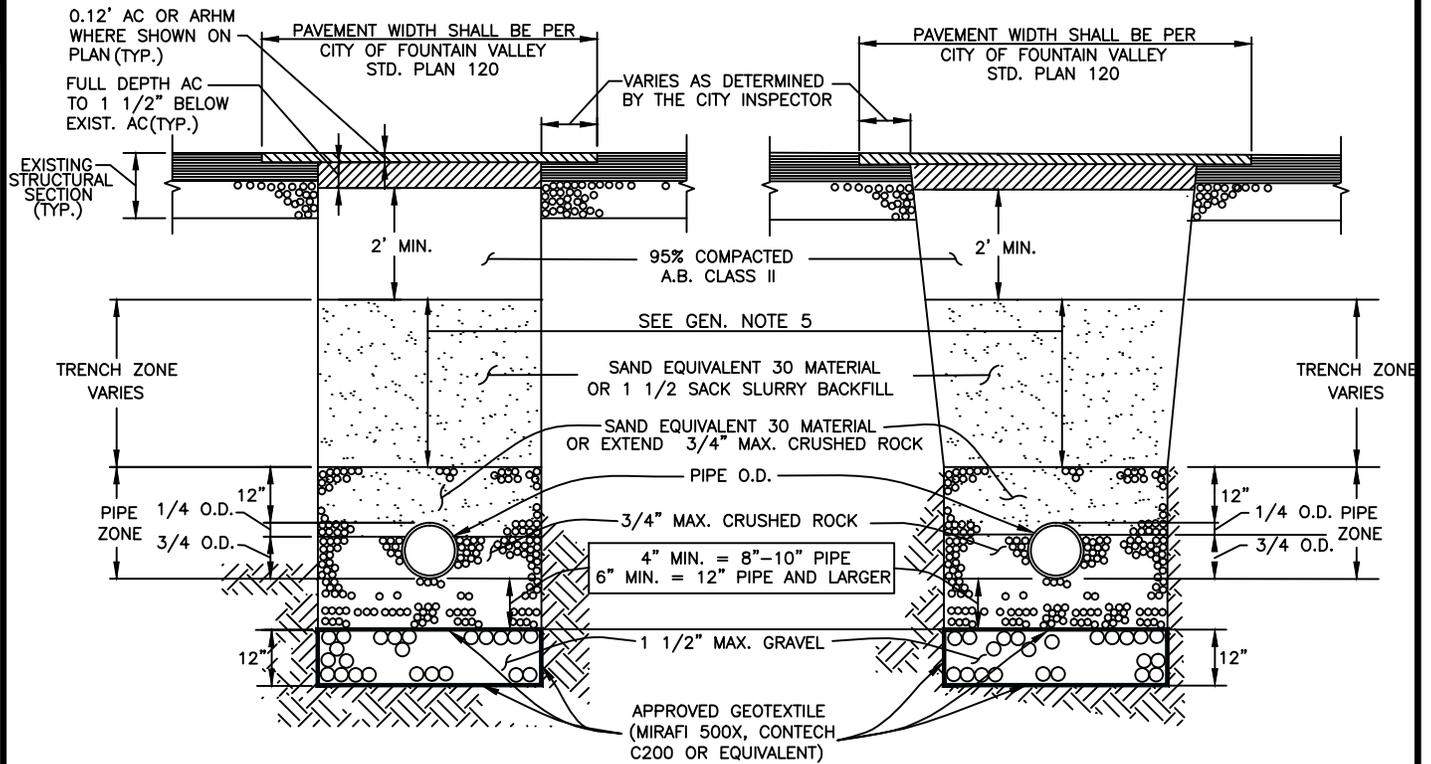
SHEET: 1 OF 1



NOTES:

1. THE CAST IRON USED SHALL CONFORM WITH THE ASTM A-48 CLASS 35B.
2. THE FRAME AND COVER SHALL BE COATED WITH ASHALTUM OR BITUMINOUS PAINT AFTER TESTING AND INSPECTION.
3. COVERS SHALL BE CAST WITH "SEWER" AND SHALL BE APPROXIMATELY 58 mm (2-1/4") HIGH WITH 13mm (1/2") LINE WIDTH AND PLACED IN THE TOP CENTER OF THE COVER. ALL LETTERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE COVER.
4. FOUNDRY IDENTIFYING MARK, HEAT, AND DATE SHALL BE CAST ON THE BOTTOM OF THE COVER AND ON THE INSIDE OF THE FRAME.
5. IMPORTED COVERS SHALL HAVE THE COUNTRY OF ORIGIN MARKING IN COMPLIANCE WITH THE FEDERAL REGULATIONS.
6. WEIGHT OF FRAME AND COVER SHALL BE 200 kg (440 POUNDS). ACTUAL WEIGHTS SHALL BE WITHIN A RANGE OF 95% TO 110%
7. THE MANHOLE FRAME AND COVER SHALL BE INSPECTED BY THE ENGINEER PRIOR TO SHIPMENT TO THE JOB SITE.
8. THE PROOF-LOAD FOR TEST METHOD B OF THE STANDARD SPECIFICATIONS IS 25,100 kg (55,300 POUNDS).
9. COVERS FOR MANHOLES LOCATED IN EASEMENTS, ALLEYS, PARKWAYS AND ALL OTHER PLACES EXCEPT PAVED STREETS SHALL BE PROVIDED WITH SOCKET SET SCREW LOCKING DEVICES. DRILL AND TAP TWO HOLES TO A DEPTH OF (1") AT 90 DEGREES TO PICK HOLE (3/4" x 3/4") STAINLESS STEEL SOCKET SET SCREW WITH (3/8") RECESSED HEX HEAD.
10. MANHOLE FRAME & COVER SHALL BE ALHAMBRA 1270 OR APPROVED EQUAL.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 405
	SEWER MANHOLE FRAME AND COVER	
	APPROVED BY: MARK LEWIS R.C.E. 49335 CITY ENGINEER	DATE: 04/01/15
	SHEET: 1 OF 1	



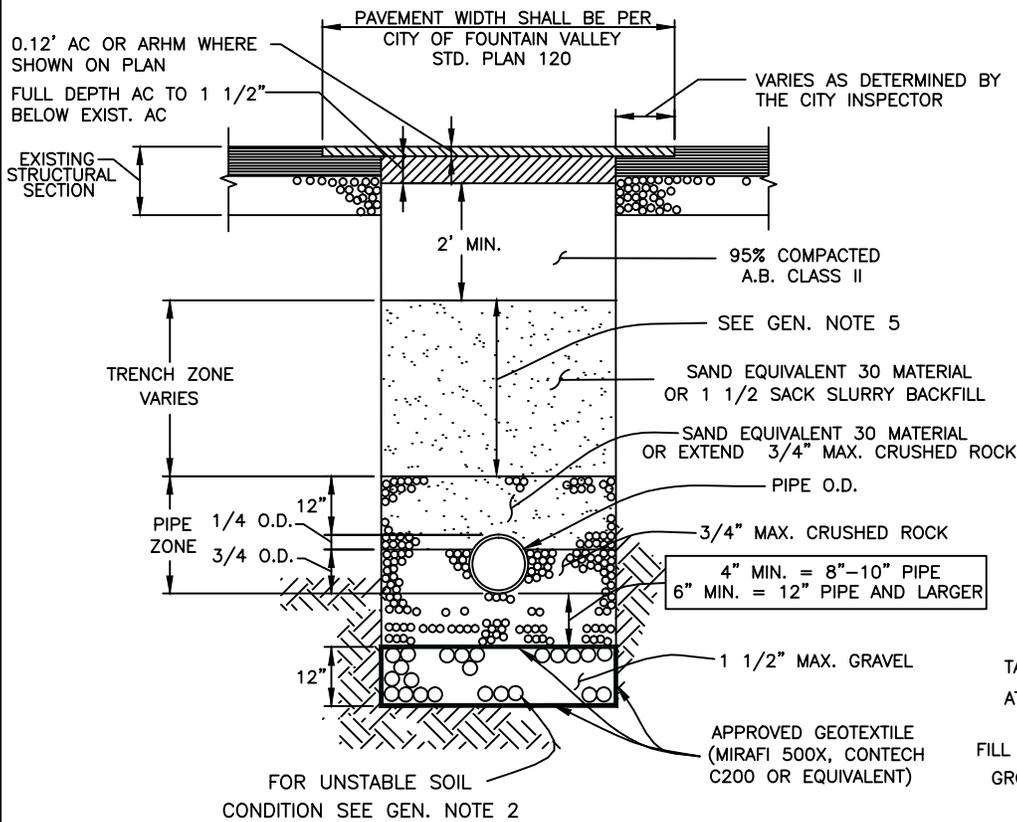
TYPICAL NORMAL BEDDING

OVER WIDTH BEDDING

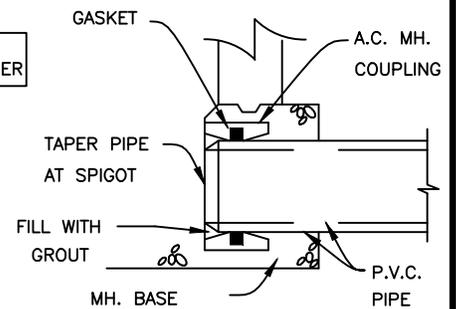
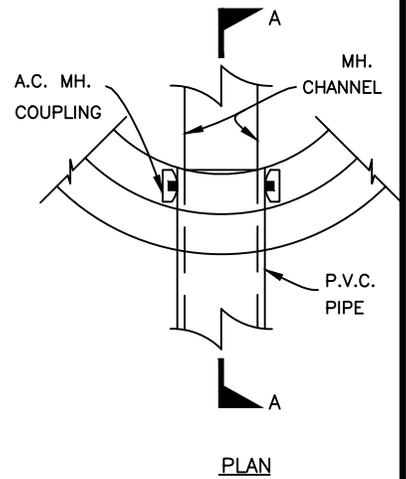
GENERAL NOTES:

1. TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMITS FOR TYPICAL NORMAL BEDDING.
 - (A) MAX. TRENCH WIDTH SHOULD BE O.D. PIPE OR BELL PLUS 16" MAX. EACH SIDE OF PIPE.
 - (B) MIN. TRENCH WIDTH SHOULD BE O.D. PIPE OR BELL PLUS 12" MIN. EACH SIDE OF PIPE.
2. OVERWIDTH BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAXIMUM WIDTH SPECIFIED ABOVE.
3. OVERWIDTH BEDDING—MAXIMUM TO BE DETERMINED IN FIELD BY THE PUBLIC WORKS INSPECTOR ON THE BASIS OF OVERWIDTH EXCAVATED.
4. IF UNSTABLE SOIL IS ENCOUNTERED, PUBLIC WORKS INSPECTOR TO DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK.
5. IN LIEU OF THE SAND EQUIVALENT 30 MATERIAL IN THE PIPE ZONE, THE CONTRACTOR MAY EXTEND THE 3/4" MAX. CRUSHED ROCK TO THE TOP OF THE PIPE ZONE.
6. CONCRETE ENCASEMENT SHALL BE USED WHERE COVER IS UNDER 4' OR OVER 20' SEE STD. PLAN 411.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 406
	V.C.P. PIPE BEDDING DETAILS	
	 APPROVED BY: MARK LEWIS R. O. E. 49335 CITY ENGINEER	DATE: 04/01/15
	SHEET: 1 OF 1	



TYPICAL NORMAL BEDDING



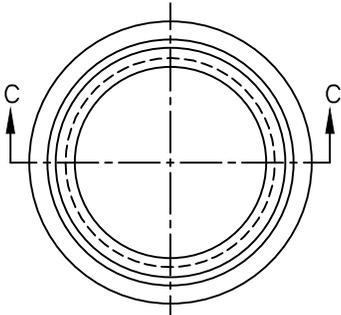
SECTION A-A

MANHOLE CONNECTION DETAILS

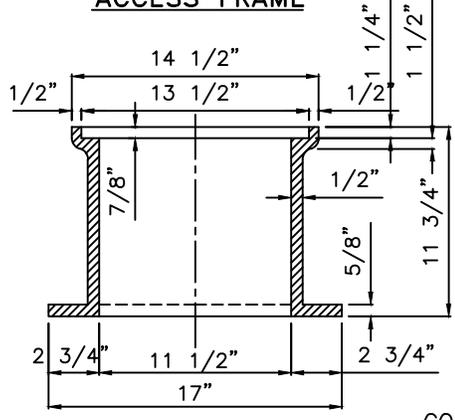
GENERAL NOTES:

1. CONCRETE ENCASEMENT PER STD. PLAN 411 SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAX. WIDTH (PIPE O.D. + 8").
2. IF UNSTABLE SOIL IS ENCOUNTERED, CITY PUBLIC WORKS INSPECTOR WILL DETERMINE DEPTH OF REMOVAL AND SIZE OF FOUNDATION ROCK.
3. IN LIEU OF THE SAND EQUIVALENT 30 MATERIAL IN THE PIPE ZONE, THE CONTRACTOR MAY EXTEND THE 3/4" MAX. CRUSHED ROCK TO THE TOP OF THE PIPE ZONE.
4. SEE STD. PLANS 405 AND 402-1 & 402-2 FOR MANHOLE DETAILS.
5. CONCRETE ENCASEMENT SHALL BE USED WHERE COVER IS UNDER 4' OR OVER 20' SEE STD. PLAN 411.

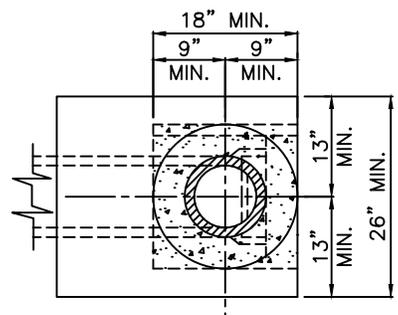
REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO.
	P.V.C. PIPE BEDDING DETAILS	
		407
APPROVED BY:	MARK LEWIS R.C.E. 49335 CITY ENGINEER	SHEET: 1 OF 1
	DATE: 04/01/15	



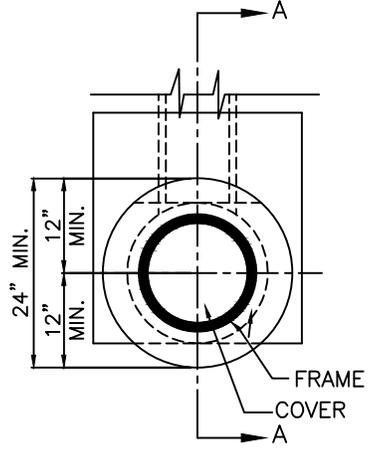
ACCESS FRAME



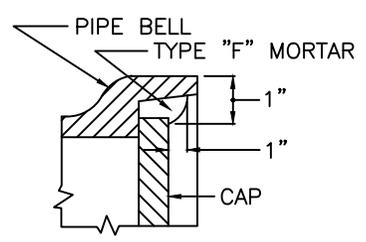
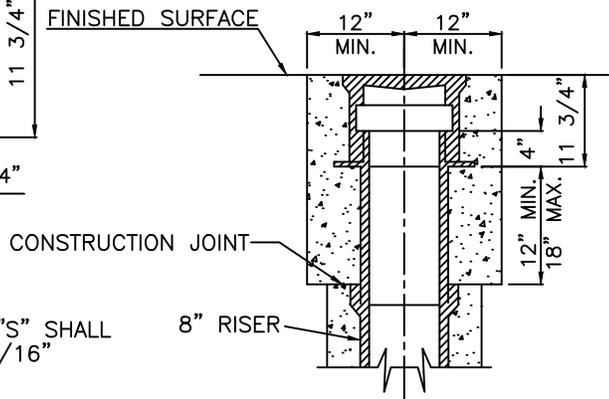
SECTION C-C



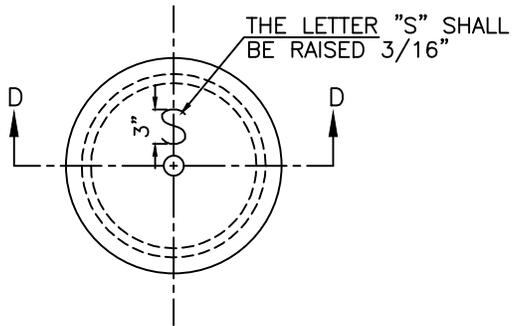
SECTION B-B



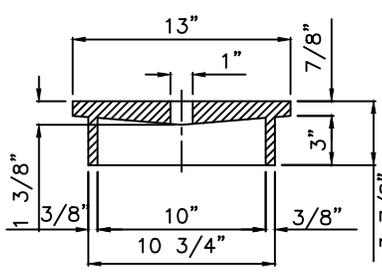
PLAN



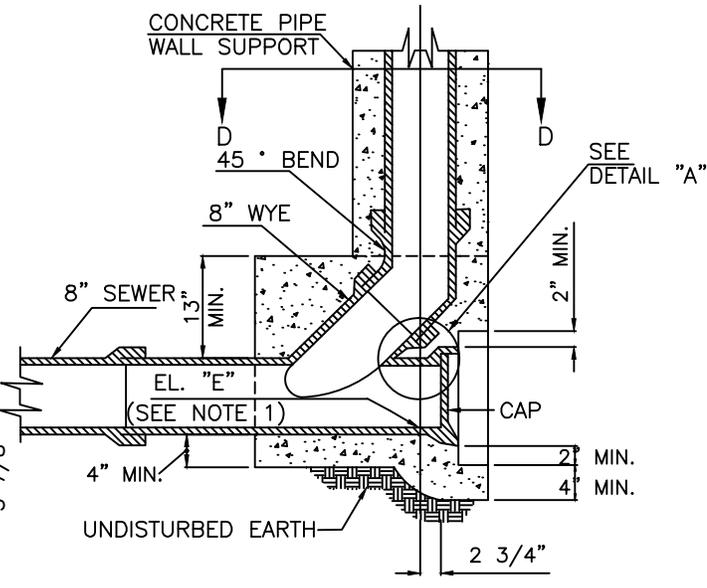
DETAIL "A"



ACCESS COVER



SECTION D-D



SECTION A-A

REVISIONS

CITY OF FOUNTAIN VALLEY

CLEAN OUT STRUCTURE

STANDARD PLAN NO.

408-1

APPROVED BY:  MARK LEWIS R.C.E. 49335
CITY ENGINEER

DATE: 04/01/15

SHEET: 1 OF 2

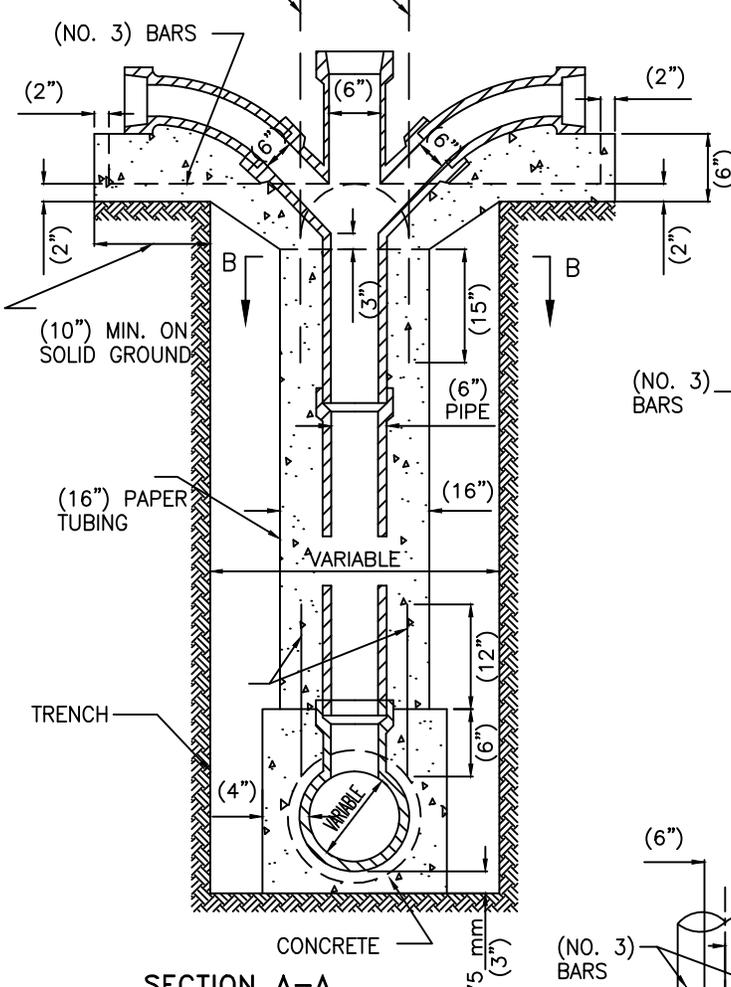
NOTES:

1. SEE PROJECT PLANS FOR VALUES OF DIMENSIONS "D" AND ELEVATION "E".
2. PIPE AND FITTINGS, EXCEPT AS OTHERWISE SHOWN HEREON, SHALL BE OF THE SAME MATERIAL AS THE SEWER, UNLESS APPROVED ADAPTERS ARE UTILIZED AND MAY BE ANY OF THE FOLLOWING:
 - A. VC PIPE
 - B. PE PIPE
 - C. ABS SOLID WALL PIPE
 - D. ABS COMPOSITE PIPE
 - E. PVC PLASTIC PIPE
3. PIPES AND FITTINGS SHALL BE PROPERLY ALIGNED AND MAINTAINED WHILE CONCRETE IS BEING PLACED AND ALLOWED TO HARDEN. JOINTS FOR PIPES AND FITTINGS SHALL BE MADE PRIOR TO PLACING CONCRETE. CONCRETE FOR BEDDING, ENCASEMENT, AND WALL SUPPORT FOR PIPES AND FITTINGS SHALL BE PLACED UNIFORMLY AROUND THE PIPE AND FITTINGS AS SHOWN HEREON TO MAINTAIN PROPER ALIGNMENT, AND SHALL BE CLASS 420-C-2000.
4. THE ACCESS FRAME, COVER AND CAP SHALL BE CAST IRON. THE FINGER HOLES MAY BE DRILLED OUT OR MAY BE BLOCKED OUT PRIOR TO CASTING; THEY SHALL NOT BE PUNCHED OUT.

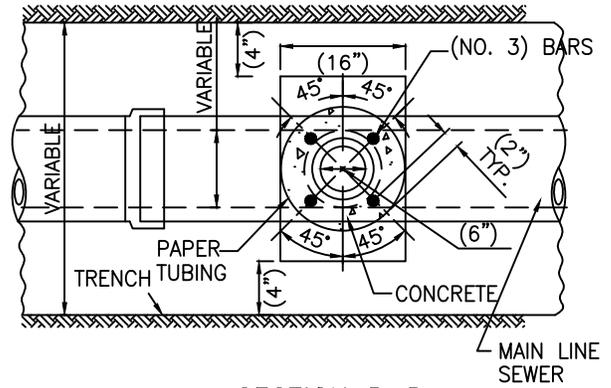
THE CONTRACTOR, AT HIS OPTION, MAY PLACE EITHER CIRCULAR OR SQUARE CONCRETE PIPE WALL SUPPORTS AS SHOWN HEREON.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO.
	CLEAN OUT STRUCTURE NOTES	408-2
	APPROVED BY:  MARK LEWIS R.C.E. 49335 CITY ENGINEER	DATE: 04/01/15 SHEET: 2 OF 2

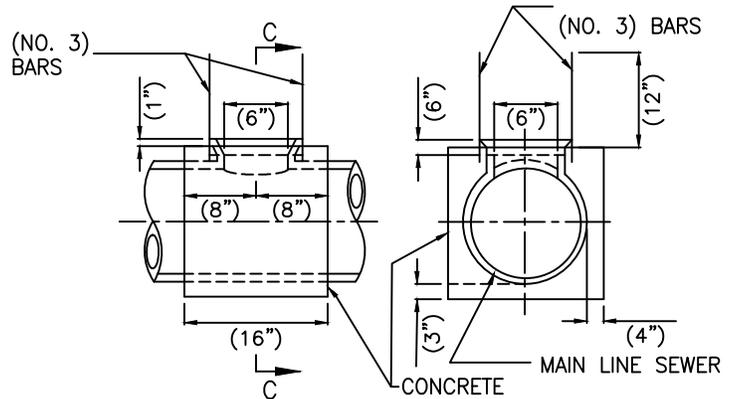
BARS ARE TO BE LEFT VERTICAL AND BENT IN PLACE WHEN BEAM IS FORMED



SECTION A-A



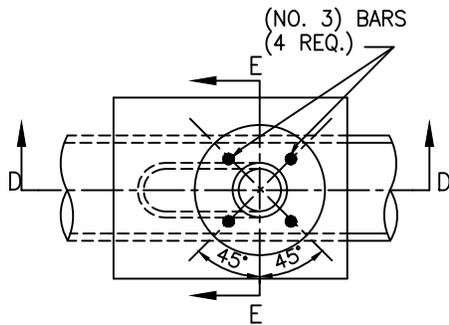
SECTION B-B



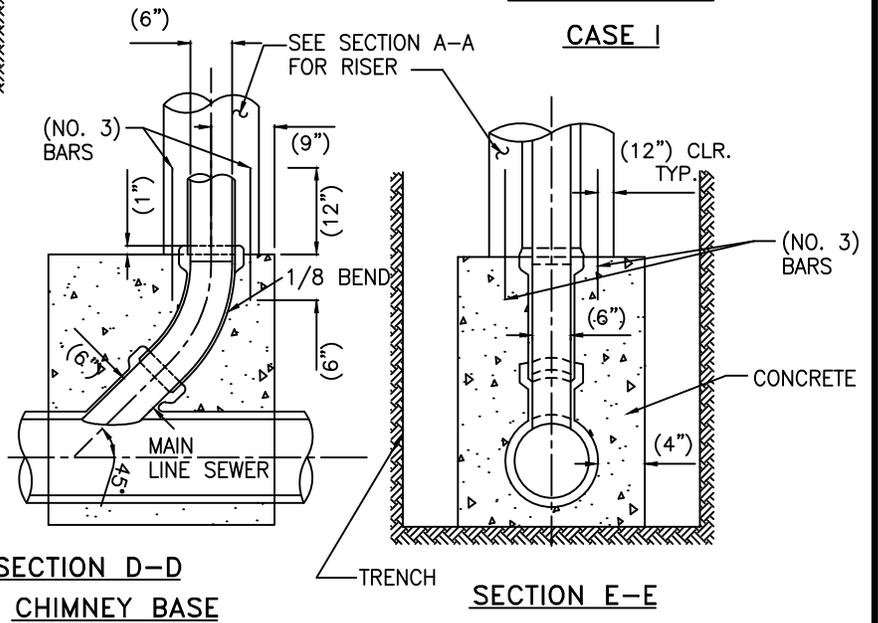
ELEVATION

SECTION C-C

CHIMNEY BASE



SECTION B-B



SECTION D-D
CHIMNEY BASE

SECTION E-E

CASE II

REVISIONS

CITY OF FOUNTAIN VALLEY

SEWER CHIMNEYS

STANDARD
PLAN NO.

409-1

APPROVED BY:  MARK LEWIS R. C. E. 49335
CITY ENGINEER

DATE: 04/01/15

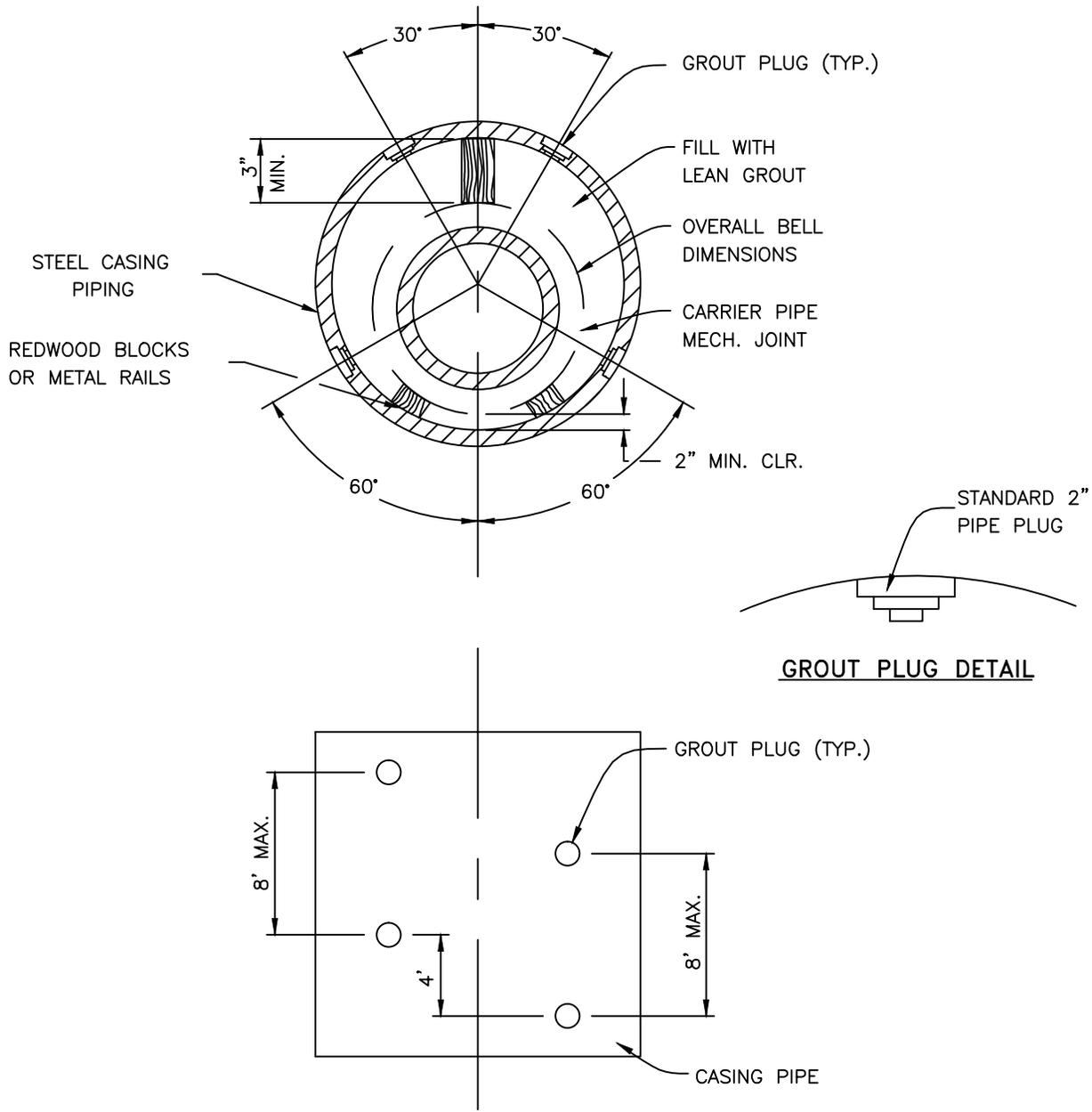
SHEET: 1 OF 2

NOTES:

1. THE UPPER END OF THE CHIMNEY PIPE SHALL BE AT LEAST 8 FT. (2.5 M) BELOW GRADE OF THE LOWER CURB.
2. NO CONNECTION SHALL BE MADE DIRECTLY TO THE TOP OF THE CHIMNEY PIPE.
3. WHERE ONE HOUSE LATERAL IS TO BE JOINED TO THE CHIMNEY PIPE, USE A SINGLE WYE AND FACE WYE TOWARDS PROPERTY TO BE SERVED.
4. WHERE TWO OR MORE HOUSE LATERALS ARE TO BE JOINED TO THE CHIMNEY PIPE, INSTALL WYE BRANCHES AS FOLLOWS:
 - A. FOR TWO HOUSE LATERALS, ONE SERVING EACH SIDE OF THE STREET, USE A DOUBLE WYE BRANCH.
 - B. FOR TWO HOUSE LATERALS SERVING THE SAME SIDE OF THE STREET, USE TWO SINGLE WYES STACKED WITH BRANCHES FACING THE PROPERTIES SERVED.
 - C. FOR THREE OR FOUR HOUSE LATERALS, USE TWO DOUBLE WYE BRANCHES OR ONE DOUBLE AND ONE SINGLE WYE BRANCH STACKED.
5. EACH DOUBLE OR SINGLE WYE BRANCH AND EIGHT BEND SHALL BE SUPPORTED BY A CONCRETE BEAM AS SHOWN.
6. FOR CHIMNEY BASE, 6 IN. (150 mm) TEE BRANCH OR WYE SHALL BE INSTALLED VERTICALLY ON TOP OF THE MAIN LINE SEWER AS SHOWN. THE CHIMNEY BASE MUST BE POURED AND SET WITH DOWELS AS SHOWN 24 HOURS BEFORE THE CHIMNEY CONCRETE IS POURED.
7. ALL CONCRETE SHOWN SHALL BE (520-C-2500).
8. CASE I SHALL BE FOR VITRIFIED CLAY PIPE ONLY.
9. CASE II SHALL BE FOR ALL ALLOWABLE PIPE MATERIALS..
10. FOR ABS PIPE USE SOLVENT WELDED JOINTS ONLY.
11. A CAP SHALL BE INSTALLED AT THE OPENING OF THE PIPE RISER AND AT EACH UNCONNECTED BRANCH, SEALED AROUND ITS CIRCUMFERENCE WITH 1 IN. (25 mm) THICK TYPE "F" MORTAR.

DIMENSIONS SHOWN ON THE PLAN FOR METRIC AND ENGLISH UNITS ARE NOT EXACTLY EQUAL VALUES. IF METRIC UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE METRIC VALUES WITH THE EXCEPTION OF REINFORCED BAR SIZES FOR WHICH ENGLISH (IMPERIAL) BAR SIZES MAY BE SUBSTITUTED FOR METRIC BAR SIZE. IF ENGLISH UNITS ARE USED, ALL VALUES USED FOR CONSTRUCTION SHALL BE ENGLISH VALUES.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO.
	SEWER CHIMNEYS NOTES	409-2
	APPROVED BY:  MARK LEWIS R.C.E. 49335 CITY ENGINEER	SHEET: 2 OF 2
	DATE: 04/01/15	

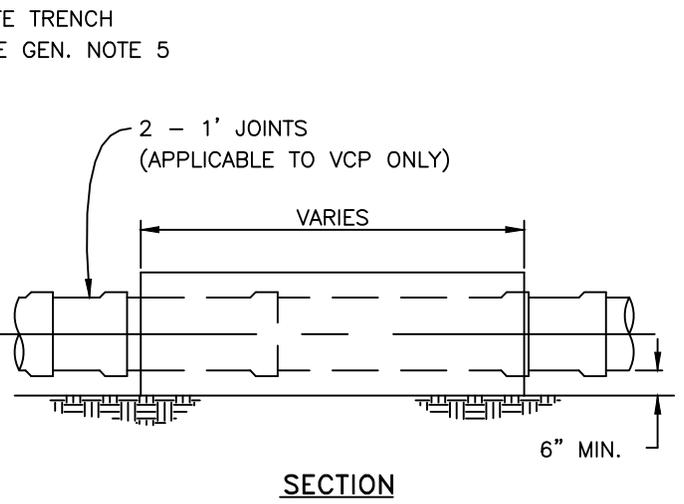
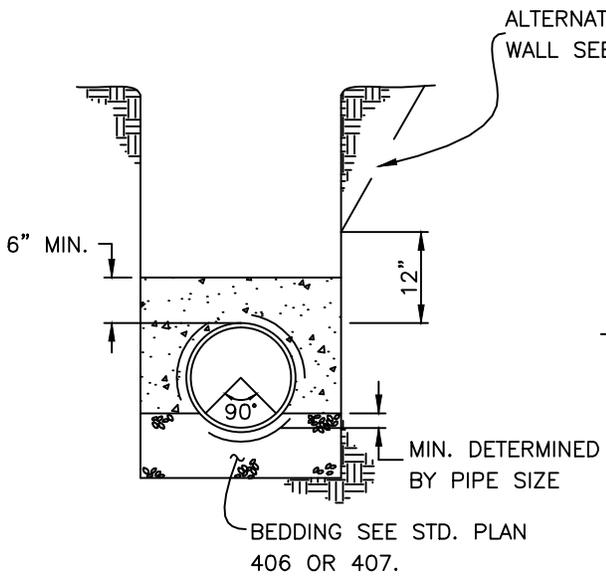
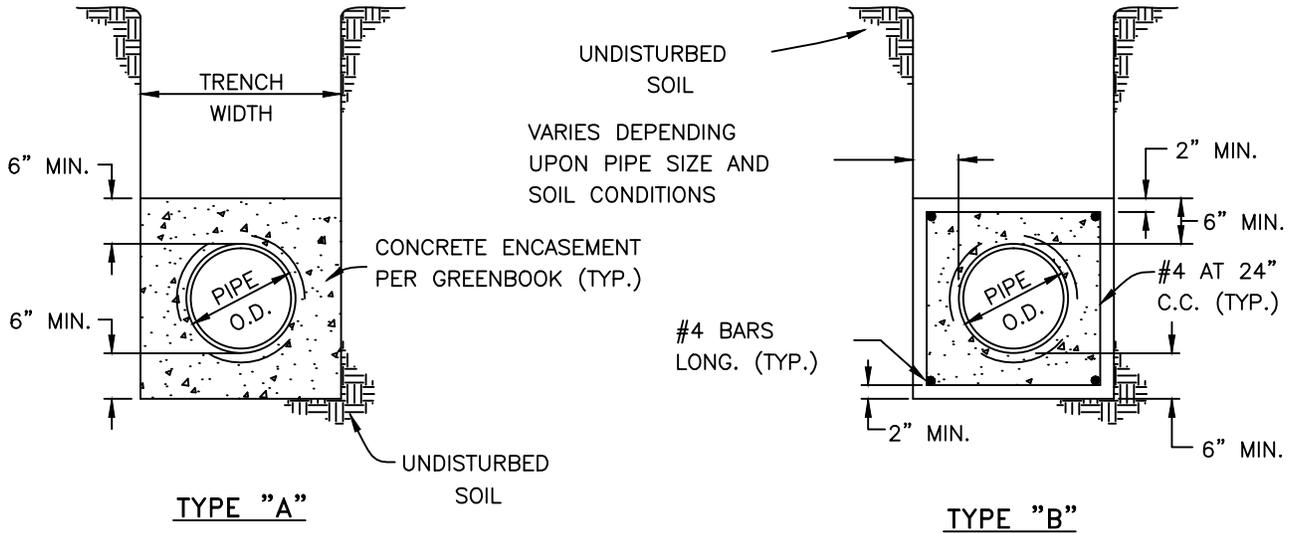


GROUT PLUG DETAIL

GENERAL NOTES:

1. ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
2. PERIPHERY OF CASING TO BE PRESSURE GROUTED.
3. CARRIER PIPE SHALL BE AIR TESTED PRIOR TO FILLING CASING WITH GROUT.
4. UPSTREAM AND DOWNSTREAM ELEVATIONS OF CARRIER PIPE TO BE VERIFIED PRIOR TO FILLING CASING.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 410
	STEEL CASING PIPE	
	APPROVED BY: MARK LEWIS R.O.E. 49335 CITY ENGINEER	
	DATE: 04/01/15	SHEET: 1 OF 1



GENERAL NOTES:

1. CONCRETE ENCASEMENT SHALL BE USED WHEN COVER IS UNDER 4' OR OVER 20'.
2. ENCASEMENT TO BE PLACED AGAINST UNDISTURBED NATURAL GROUND OR FILL COMPACTED TO 90% RELATIVE DENSITY.
3. NO. 4 STEEL REINFORCING BARS SHALL BE USED AS SPECIFIED.
4. TYPE OF CONCRETE ENCASEMENT TO BE USED WILL BE SHOWN ON PLANS OR AS SPECIFIED BY THE PUBLIC WORKS INSPECTOR TO MEET UNFORESEEN FIELD CONDITIONS.
5. WHERE SLOPE TRENCHES ARE USED, WALLS WILL NOT BEGIN TO SLOPE CLOSER THAN 12" FROM THE TOP OF THE PIPE.
6. ENCASEMENT CONCRETE TO BE PER GREENBOOK.
7. CONCRETE ENCASEMENT SHALL NOT BE PLACED AROUND A.C. PIPE.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 411
	CONCRETE ENCASEMENT TYPE A, B, AND C	
	APPROVED BY:  MARK LEWIS R.C.E. 49335 CITY ENGINEER	
	DATE: 04/01/15	SHEET: 1 OF 1

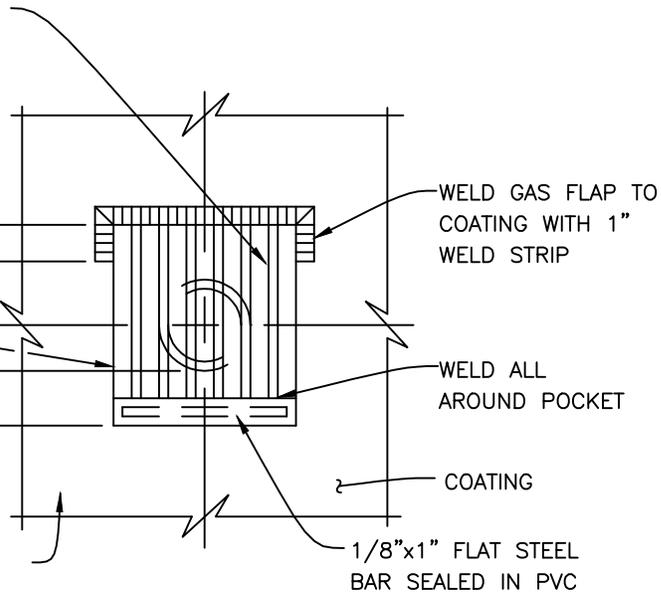
T-LOCK RIBS OUTSIDE
ON THE GAS FLAP.

4" TYP.
ALL AROUND

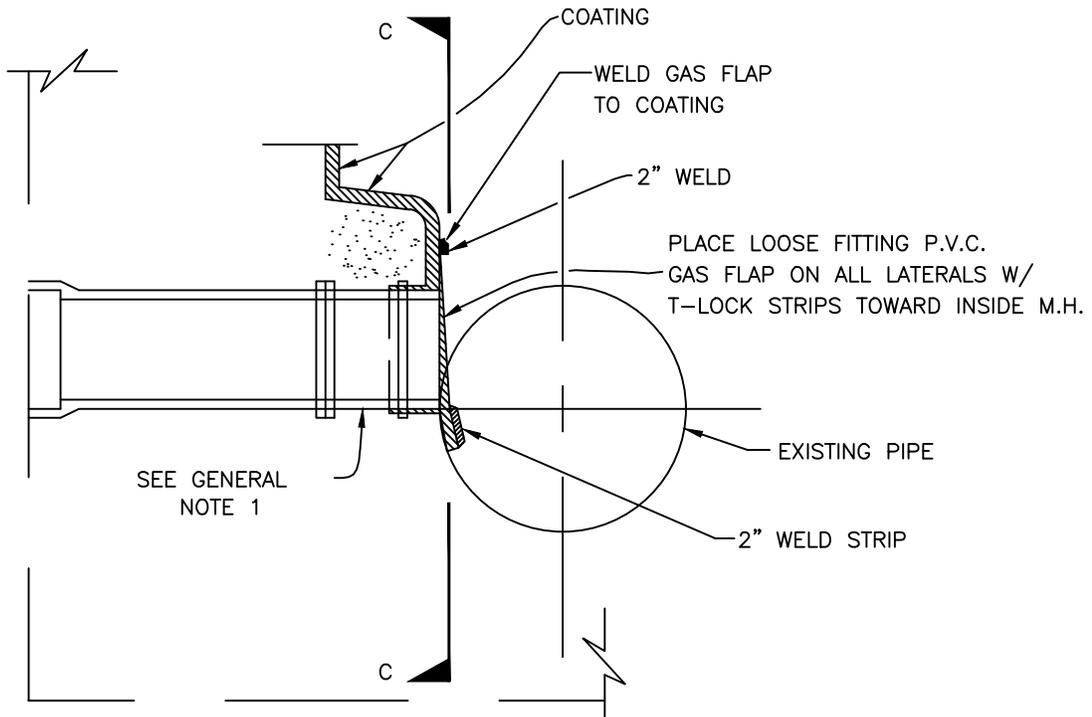
GAS FLAP

4"

SEE GENERAL
NOTE 2



SECTION C-C



SEE GENERAL
NOTE 1

GENERAL NOTES:

1. FOR INSTALLATION AT EXISTING M.H., REMOVE INTERFERING CONCRETE AT END OF EACH LATERAL AND EXTEND PIPE AS SHOWN. GROUT IN PLACE. EXTEND COATING OVER GROUT AND INSTALL GAS FLAP AS SHOWN.
2. COATING SHALL MEAN SANCON (100) OR APPROVED EQUAL, NO LESS THAN 125 MIL. THICK.

REVISIONS

CITY OF FOUNTAIN VALLEY

STANDARD
PLAN NO.

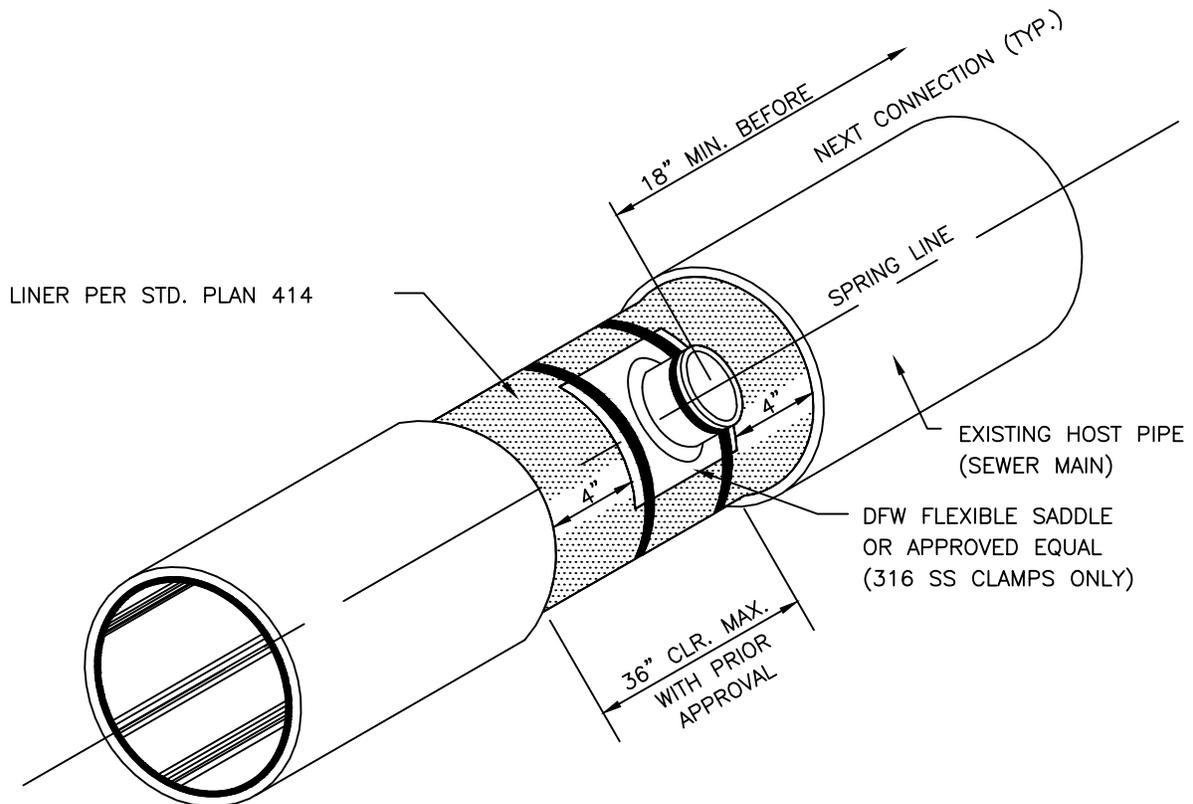
GAS FLAP

412

APPROVED BY:  MARK LEWIS R.C.E. 49335
CITY ENGINEER

DATE: 04/01/15

SHEET: 1 OF 1



LINER PER STD. PLAN 414

GENERAL NOTES:

1. TO BE USED ONLY WHEN A LATERAL (4"–6") IS TO BE CONNECTED TO AN EXISTING SEWER MAIN (8"–15") THAT HAS BEEN LINED PER SECTION 500 OF THE GREEN BOOK.
2. FOR CONTINUATION OF LATERAL SEE STD. PLAN 507.
3. LATERALS SHALL BE SPACED APART BY A MIN. OF 18" ON CENTER UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
4. THE HOLE FOR THE LINER TAPPING SLEEVE FOR THE SEWER LATERAL SHALL BE MADE BY CORE DRILLING. THE HOLE SHALL BE CLEANLY MACHINED AND IF NECESSARY WORKED BY HAND WITH A RASP OR SANDED TO ACCOMPLISH A TRUE AND NEAT OPENING FOR THE SADDLE. (REMOVE AND SAVE ALL CORINGS AND DELIVER TO PUBLIC WORKS INSPECTOR.)
5. THE CONNECTION SHALL BE CONCRETE ENCASED PER GREENBOOK AFTER APPROVAL BY THE PUBLIC WORKS INSPECTOR TO WITHIN 18" MIN. ABOVE AND 6" MIN. AROUND THE MAIN.
6. THE CONTRACTOR SHALL KEEP ALL CHIPS, DIRT, MORTAR, AND CONCRETE OUT OF THE SEWER SADDLED, AND SHALL PERFORM A CLEANING AND BALLING OF THE REACH SADDLED IF DIRECTED TO DO SO BY THE PUBLIC WORKS INSPECTOR.
7. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED PIPE AS DIRECTED BY THE PUBLIC WORKS INSPECTOR.
8. CONNECTION SHALL BE BETWEEN SOFFIT AND SPRING LINE OF MAIN UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
9. CONTRACTOR SHALL EXPOSE LINER BY USING A PIPE CUTTER TO SNAP EXISTING VCP TO A CLEAN STRAIGHT EDGE.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO. 413
	TAPPING SLEEVE FOR PVC / HDPE PIPE LINER	
	 APPROVED BY: MARK LEWIS R.O.E. 49335 CITY ENGINEER	SHEET: 1 OF 1
	DATE: 04/01/15	

1. THE CITY SHALL SELECT ONE OF THE FOLLOWING SEAMLESS, JOINTLESS, TIGHT FITTING LINER SYSTEMS LISTED BELOW FOR THE REHABILITATION OF THE EXISTING SEWER LINE.

LINER SYSTEMS ALLOWED:

TRADE NAME	GREENBOOK SECTION*	PROCESS
INSITUFORM	500-1.4 TYPE A	CURED-IN-PLACE LINER (CIPP LINER)
INLINER	500-1.4 TYPE B	CURED-IN-PLACE LINER (CIPP LINER)
U-LINER	500-1.7	DEFORMED AND RE-FORMED HDPE PIPE LINER
NUPIPE	500-1.10 TYPE A	FOLDED AND RE-FORMED PVC PIPE LINER
AM-LINER	500-1.10 TYPE B	FOLDED AND RE-FORMED PVC PIPE LINER

*SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), MOST CURRENT EDITION.

2. INSTALLATION OF THE SEWER LINING SHALL BE PERFORMED BY A CONTRACTOR LICENSED BY THE MANUFACTURE/OWNER OF THE PROCESS. CONTRACTORS ARE REQUIRED TO SUBMIT COPIES OF SUCH LICENSES WHEN OBTAINING A PERMIT FOR RIGHT-OF-WAY ENCROACHMENT.

TABLE A: MINIMUM PIPE LINER WALL THICKNESS:

NOMINAL ID OF ORIGINAL/ HOST PIPE* (INCHES)	8	10	12	15
DIMENSION RATIO (DR)	32.5	32.5	32.5	32.5
LINER THICKNESS (INCHES)	.246	.308	.369	.462

*ID'S NOT LISTED NEED CITY ENGINEERS APPROVAL.

3. CURED-IN-PLACE LINER (CIPP) DESIGNS SHALL USE MINIMUM OF 15% EXTRA THICKNESS TO COMPENSATE FOR RESIN MIGRATION/SEAL FACTOR TO FILL JOINTS, CRACKED OR DETERIORATED PIPELINES UNLESS A HIGHER % IS REQUIRED BY THE MANUFACTURER TO MAINTAIN THE MINIMUM WALL THICKNESS SPECIFIED IN TABLE A.
4. THE CONTRACTOR SHALL FIELD VERIFY THE PIPE DIAMETER AT THE MANHOLES AND LENGTHS PRIOR TO ORDERING LINER MATERIALS.
5. THE CONTRACTOR SHALL USE HIGH-VELOCITY HYDRAULIC (HYDRO-CLEANING) EQUIPMENT TO CLEAN THE PIPELINES BEFORE THE PRE-LINING VIDEO INSPECTION.
6. THE CONTRACTOR SHALL USE A VACUUM TRUCK TO PICK-UP ALL DEBRIS BEFORE IT CAN CONTINUE DOWN STREAM AND INTO SEWER MAINS WHICH ARE NOT TO BE REHABILITATED.
7. CCTV INSPECTION SHALL BE PERFORMED UTILIZING A ROTATING-LENS VIDEO CAMERA SYSTEM.
8. ALL ORIGINAL VIDEO TAPES SHALL BE SUBMITTED TO THE CITY.
9. THE PRE-LINING VIDEO INSPECTION AND RECORDING PERFORMED SHALL STOP AT EACH LATERAL AND THE HEAD ROTATED TO LOOK UP THE LATERAL TO IDENTIFY IF THE LATERAL IS ACTIVE, PLUGGED OR HAS ROOTS THAT COULD INTERFERE WITH THE COMPLETE REINSTATEMENT.
10. THE PRE-LINING AND POST-LINING VIDEO WILL BE PERFORMED WHILE THE UPSTREAM LINES ARE PLUGGED OR BYPASSED. THE LINE SHALL BE DRY EXCEPT FOR FLOW FROM THE LATERALS IN THE SECTION OF THE LINE BEING TELEVIEWED.

REVISIONS	CITY OF FOUNTAIN VALLEY		STANDARD PLAN NO. 414-1
	TRENCHLESS PIPELINE DESIGN CRITERIA		
			
	APPROVED BY: MARK LEWIS R.C.E. 49335 CITY ENGINEER	DATE: 04/01/15	

11. WHEN A PROTRUDING LATERAL IS ENCOUNTERED DURING THE PRE-LINING VIDEO TAPE, THEN PRIOR TO INSERTION OF THE LINER, SAID PROTRUSION SHALL BE CUT-OFF AS CLOSE TO FLUSH WITH THE MAINLINE PIPE'S INTERIOR AS PRACTICABLE.
12. ALL PLUGGED SERVICE CONNECTIONS IDENTIFIED IN THE PRE-LINING VIDEO TAPE SHALL NOT BE OPENED UNLESS SPECIFICALLY DIRECTED BY THE CITY INSPECTOR.
13. THE LATERAL OPENING CUTS SHALL CONFORM TO THE SHAPE AND SIZE OF THE INSIDE DIAMETER OF THE EXISTING SERVICE CONNECTION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING POINT REPAIRS IDENTIFIED IN THE PRE-LINING VIDEO PRIOR TO INSERTION OF THE LINER.
15. THE LINING MATERIAL SHALL BE CONTINUOUS AND OF SUFFICIENT LENGTH TO EXTEND THE ENTIRE REACH (FROM ENTRY TO END OR EXIT POINT) TO BE REHABILITATED. NO JOINTS OR LAPS WILL BE PERMITTED BETWEEN MANHOLES.
16. ONE 8 INCH LONG CURED SAMPLE SHALL BE TAKEN FROM THE DOWN STREAM MANHOLE AND CHECKED BY THE CITY INSPECTOR TO VERIFY THE MINIMUM WALL THICKNESS.
17. THE CONTRACTOR SHALL PREVENT THE LINER FROM EXTENDING INTO SEWER MAINS WHICH ARE NOT TO BE REHABILITATED.
18. THE CURED LINER SHALL HAVE A SMOOTH FINISH INSIDE. ANY ROUGHNESS THAT MAY AFFECT THE HYDRAULIC CONDITIONS SHALL BE REMOVED BY SANDING OR TRIMMING THE "FINS" OR FOLDS. THE CONTRACTOR MAY EITHER APPLY A SEALANT COMPATIBLE WITH THE MATERIAL TO AREAS WHERE SANDING HAS TAKEN PLACE OR RELINE FROM MANHOLE TO MANHOLE AS DIRECTED BY THE CITY INSPECTOR.
19. AFTER INSTALLATION THE LINER SHALL BE CUT-OFF IN THE MANHOLE. THE FINISHED LINER SHALL NOT PROTRUDE INTO THE MANHOLE OVER 2". IF THE MANHOLE HAS BEEN LINED THROUGH THE TOP HALF OF THE LINER PIPE MAY BE CUT-OFF EVEN WITH THE TOP OF THE SHELF LEAVING THE CHANNEL LINED.
20. ALL NEW LATERALS/SERVICE CONNECTIONS SHALL BE MADE PER STANDARD PLAN 400, 401.

REVISIONS	CITY OF FOUNTAIN VALLEY	STANDARD PLAN NO.
	TRENCHLESS PIPELINE DESIGN CRITERIA NOTES	414-2
	APPROVED BY:  MARK LEWIS R.O.E. 49335 CITY ENGINEER	SHEET: 2 OF 2
	DATE: 04/01/15	