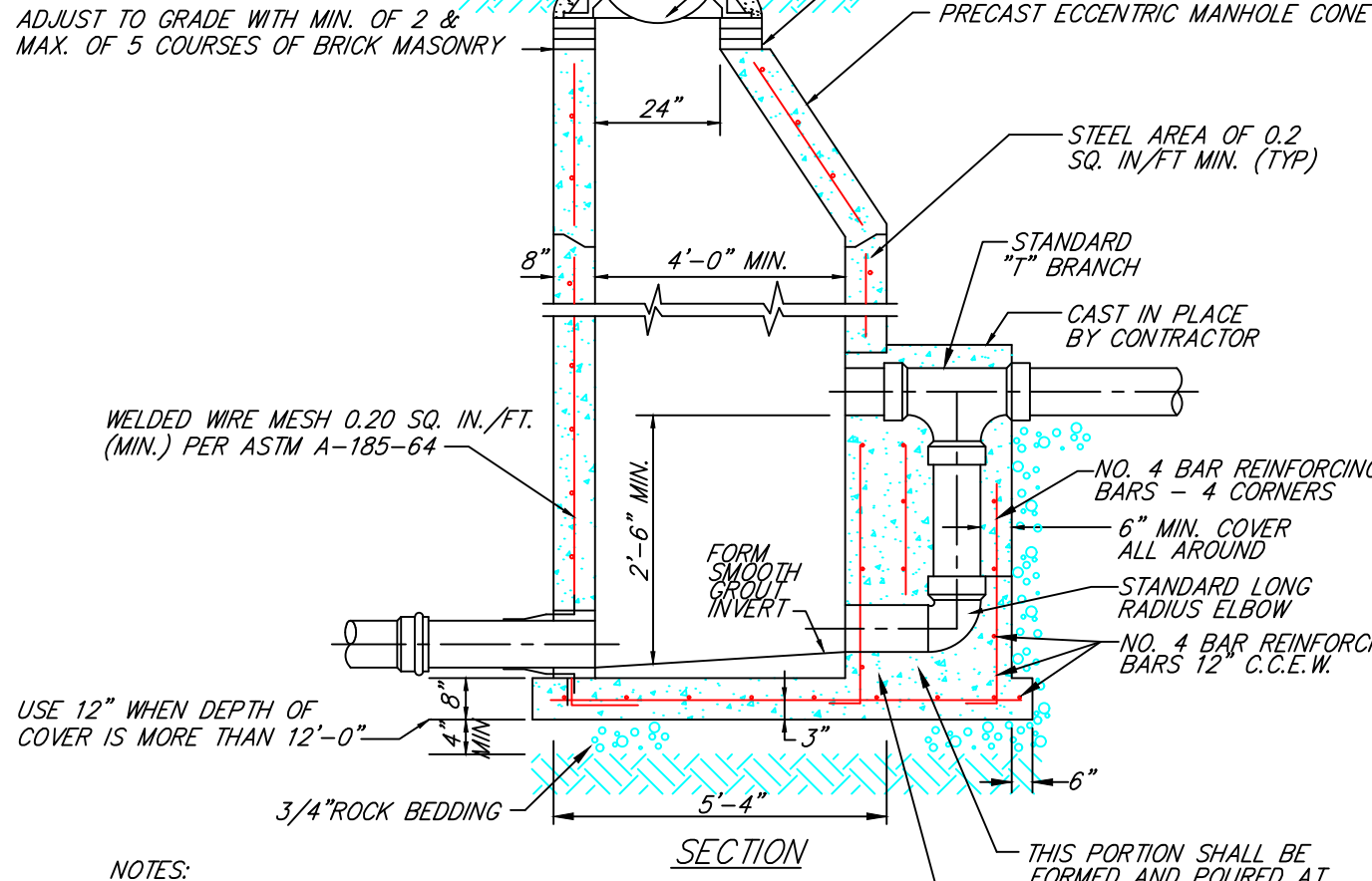
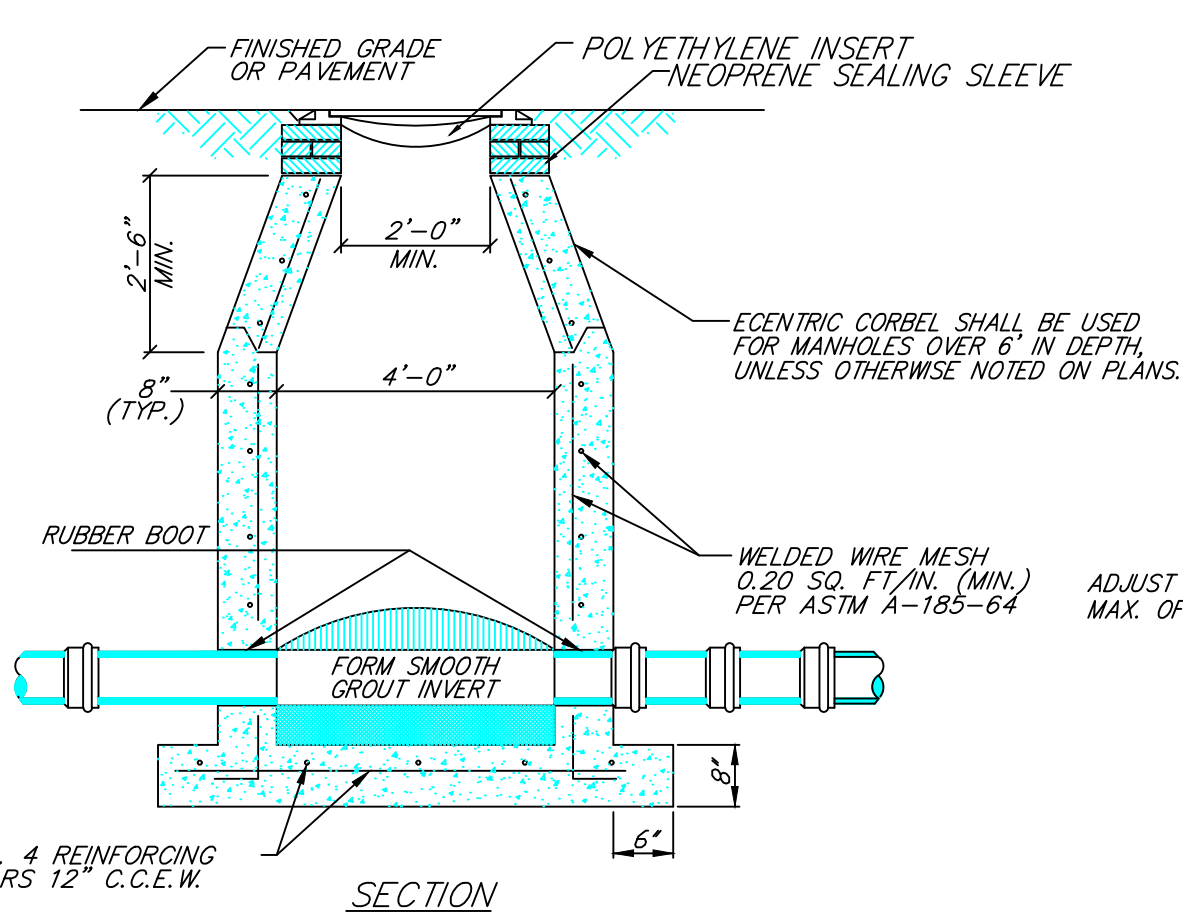


- NOTES:
1. MANHOLE FRAME AND COVER SHALL BE U.S.F. No. 420SU, COVER SHALL HAVE RAISED LETTERS "SANITARY SEWER" AND "CITY OF SUNRISE".
 2. PRECAST MANHOLE SHALL CONFORM TO ASTM SPEC. C-478, LATEST REVISION.
 3. MIN. OF 2 OR MAX. 5 COURSES OF 8" BRICK TO ADJUST MANHOLE FRAME TO FINISHED GRADE.
 4. ALL OUTSIDE SURFACES OF MANHOLES SHALL BE FULLY COATED WITH A MIN. OF 8 MILS OF KOPPER'S 300M OR APPROVED EQUAL. ALL INTERIOR SURFACES OF MANHOLES SHALL HAVE MAINSTAY COATING AS FOLLOWS:
 - 1/2" MIN. SPRAY APPLICATION OF MAINSTAY ML-72, MICROSLICA CEMENT MORTAR OR APPROVED EQUAL.
 - A MIN. APPLICATION OF 100 MIL SPRAY APPLICATION OF MAINSTAY DS-5, ULTRA HIGH BUILD EPOXY COATING OR APPROVED EQUAL.
 5. ALL CONCRETE USED IN MANHOLE CONSTRUCTION SHALL HAVE TYPE II CEMENT.
 6. STEEL SHALL BE GRADE 40 PER ASTM A-615.
 7. BASE SHALL BE POURED MONOLITHICALLY WITH MANHOLE WALL.
 8. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 3".
 9. IF LIFTING PINS ARE USED, HOLES SHALL BE COMPLETELY FILLED WITH NON-SHRINK GROUT.

SHALLOW MANHOLE

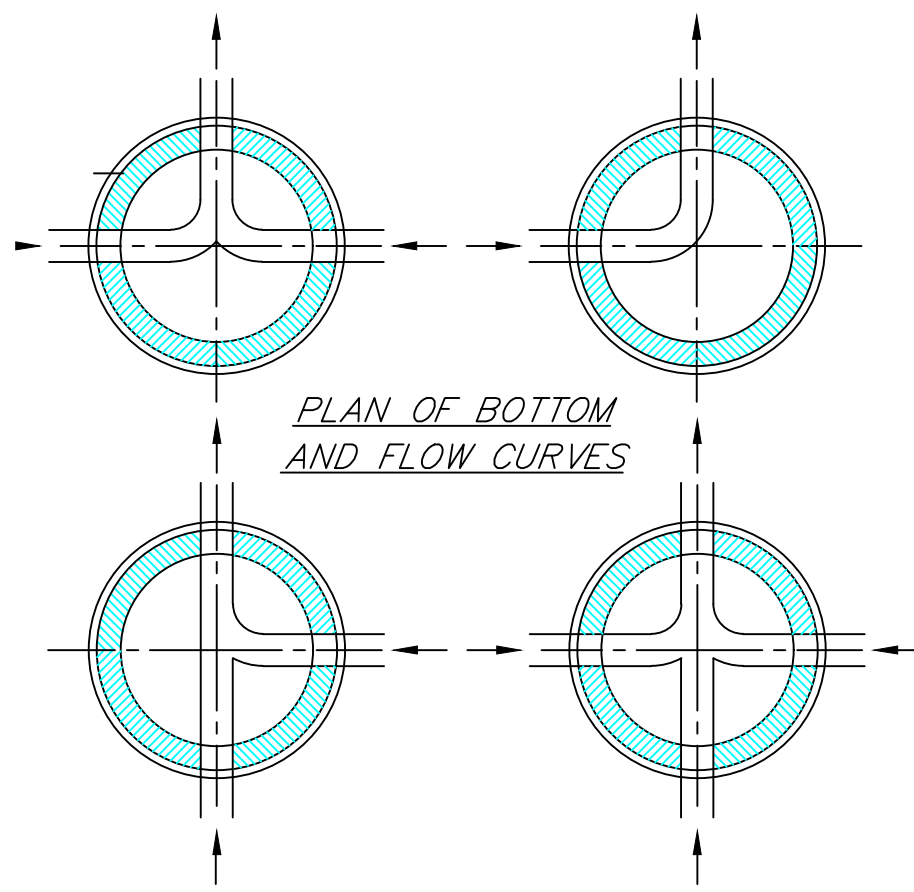
SCALE: NONE



- NOTES:
1. CONCRETE ENCASUREMENT FOR DROP CONNECTION TO BE POURED INTEGRALLY WITH BOTH MANHOLE SLAB AND WALL (UP TO ELBOW).
 2. DROP CONNECTION SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED 2'-6" OR MORE ABOVE THE MAIN INVERT CHANNEL.
 3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
 4. WHEN PVC IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT PVC FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.

TYPE "A" DROP MANHOLE (OVER 2'-6")

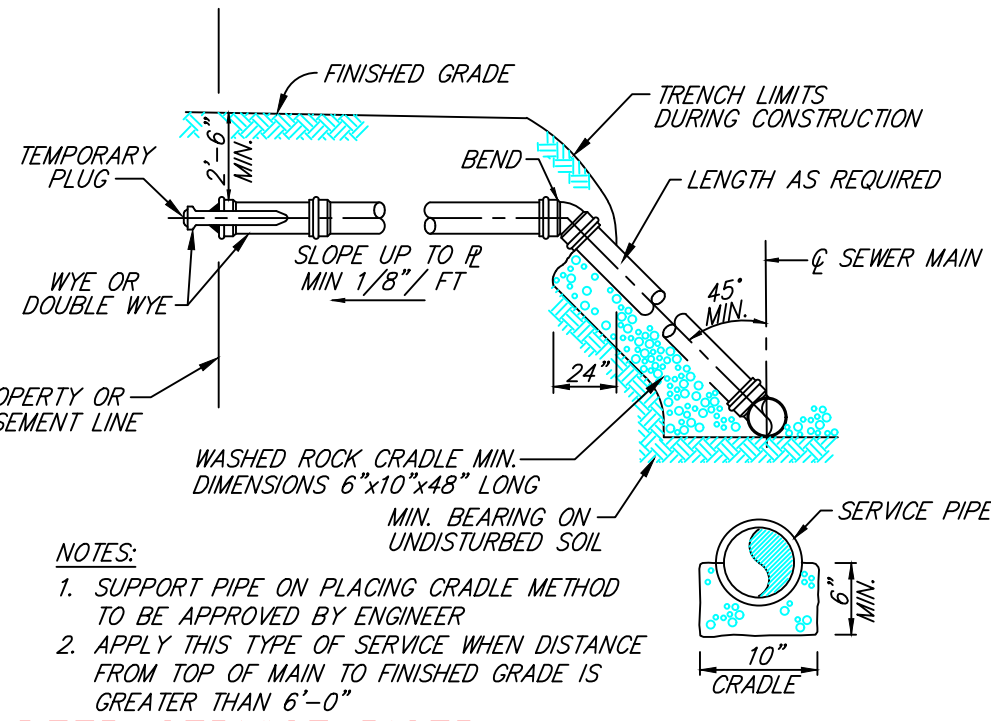
SCALE: NONE



- NOTES:
1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
 2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
 3. CHANNEL FOR FUTURE CONNECTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND AND COVERED WITH 1" MORTAR.
 4. A MIN. DROP OF 0.10' AND MAX. OF 1.0' BETWEEN ALL INFLUENT PIPES AND THE EFFLUENT PIPE SHALL BE PROVIDED.

INVERT CHANNEL FLOW DIRECTIONS

SCALE: NONE



- NOTES:
1. SUPPORT PIPE ON PLACING CRADLE METHOD TO BE APPROVED BY ENGINEER.
 2. APPLY THIS TYPE OF SERVICE WHEN DISTANCE FROM TOP OF MAIN TO FINISHED GRADE IS GREATER THAN 6'-0".

DEEP SERVICE RISER

SCALE: NONE

SANITARY SEWER SYSTEM NOTES

1. THE UTILITY PROVIDING SEWER SERVICE TO THIS PROJECT IS THE CITY OF SUNRISE, FLORIDA.
2. PRECAST CONCRETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND 64. ALL PRECAST MANHOLES SHALL BEAR THE STAMP OF A CERTIFIED ENGINEERING TESTING LABORATORY, SIGNED AND DATED, CERTIFYING THAT THEY MEET THE REQUIREMENTS OF ASTM C-478 FOR CONCRETE, STRENGTH, STEEL REINFORCEMENT AREA AND PLACEMENT, AND APPEARANCE WHEN MANUFACTURED. MANHOLES MUST BE INSPECTED BY THE CITY BEFORE UNLOADING.
3. MINIMUM WALL AND BASE THICKNESS FOR PRECAST MANHOLES SHALL BE 8 INCHES. BASE SECTIONS SHALL BE MONOLITHIC.
4. CONCRETE FOR PRECAST MANHOLES OR CAST IN PLACE MANHOLES SHALL HAVE NOT LESS THAN 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. CEMENT SHALL BE TYPE II ACID RESISTANT.
5. REINFORCING STEEL FOR MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615 AND A-305, LATEST REVISION. SPLICES SHALL HAVE A MINIMUM LAP OF 24 BAR DIAMETERS. MINIMUM COVER OVER REINFORCING STEEL SHALL BE 3 INCHES. GRADE 60 STEEL SHALL BE USED FOR THE TOP AND BOTTOM SLABS.
6. ALL OPENINGS IN PRECAST MANHOLES SHALL BE CAST AT THE TIME OF MANUFACTURE.
7. PRECAST MANHOLE SHOP DRAWINGS SHALL BE SUBMITTED TO THE CITY OF SUNRISE AND TO THE DEVELOPER'S ENGINEER AND APPROVED PRIOR TO FABRICATION.
8. ALL OUTSIDE SURFACES OF MANHOLES, WETWELLS AND VALVE PITS SHALL BE FULLY COATED WITH A MIN. OF 8 MILS OF KOPPER'S 300M OR APPROVED EQUAL. ALL INTERIOR SURFACES OF MANHOLES, WETWELLS AND VALVE PITS SHALL HAVE MAINSTAY COATING AS FOLLOWS:
 - 1/2" MIN. SPRAY APPLICATION OF MAINSTAY ML-72, MICROSLICA CEMENT MORTAR OR APPROVED EQUAL.
 - A MIN. APPLICATION OF 100 MIL SPRAY APPLICATION OF MAINSTAY DS-5, ULTRA HIGH BUILD EPOXY COATING OR APPROVED EQUAL.
9. ALL MANHOLES SHALL BE SET PLUMB TO LINE AND GRADE AND SHALL REST ON A FIRM, CAREFULLY GRADED SUBGRADE, WHICH SHALL PROVIDE UNIFORM BEARING UNDER THE BASE.
10. MANHOLE SECTIONS SHALL BE JOINTED WITH A MASTIC COMPOUND PROVIDING A WATER TIGHT BOND. THE REMAINING SPACE SHALL BE FILLED WITH CEMENT MORTAR AND FINISHED SO AS TO PRODUCE A SMOOTH CONTINUOUS SURFACE INSIDE AND OUTSIDE THE WALL SECTIONS. ALL EXTERIOR MANHOLE JOINTS SHALL THEN BE SEALED WITH A NEOPRENE SLEEVE, AS MANUFACTURED BY INFISHIELD, INC., OR APPROVED EQUAL.
11. ALL CONCRETE AND MORTAR USED IN MANHOLE CONSTRUCTION SHALL HAVE TYPE II CEMENT.
12. ALL SPACES AROUND PIPES ENTERING OR LEAVING MANHOLES SHALL BE COMPLETELY FILLED WITH EMBECO MORTAR (NON-METALLIC) OR BONSAL (NON-SHRINKING).
13. SANITARY MANHOLES AND LIDS SHALL BE CAPABLE OF WITHSTANDING AASHTO H-20 LOADING. THE WORDS "CITY OF SUNRISE" SHALL BE CAST INTO ALL SANITARY MANHOLE LIDS.
14. ALL GRAVITY SEWER PIPE SHALL BE PVC OR DUCTILE IRON. PVC PIPE SHALL CONFORM TO ASTM D-3034, SDR 26, LATEST REVISION, WITH MAXIMUM 13 FOOT LENGTHS AND PUSH-ON RUBBER GASKET JOINTS. DUCTILE IRON GRAVITY PIPE SHALL CONFORM TO THE SAME SPECIFICATIONS AS DUCTILE IRON PIPE (DIP) FORCE MAIN.
15. THE MINIMUM DESIGN SLOPES FOR GRAVITY SEWERS AS FOLLOWS:
 - FOR PVC: 8" - 0.31% 10" - 0.24% 12" - 0.10%
 - FOR DIP: 8" - 0.36% 10" - 0.28% 12" - 0.22%
16. THE CONTRACTOR SHALL TEST THE COMPLETED SEWER LINE TO DETERMINE ALIGNMENT AND TIGHTNESS OF THE JOINTS. TESTING SHALL BE LAMPED AND MUST SHOW A FULL CIRCLE OF LIGHT. INFILTRATION AND EXFILTRATION TESTING SHALL BE CONDUCTED. LEAKAGE SHALL NOT EXCEED 100 GALLONS PER INCH DIAMETER PER MILE PER DAY.
17. CLEAN OUTS SHALL BE INSTALLED AT MAXIMUM 75 FOOT INTERVALS ON ALL SEWER SERVICES EXCEEDING 75 FEET IN LENGTH.
18. ALL FORCE MAIN PIPE SHALL BE EPOXY-LINED DUCTILE IRON PIPE (DIP) UNLESS AN EXEMPTION IS SPECIFICALLY GRANTED BY THE CITY ENGINEER FOR THE USE OF PVC FORCE MAIN PIPE. ALL PIPE 8 INCHES AND LARGER SHALL BE CLASS 50 OR BETTER. FOUR (4) AND SIX (6) INCH DIAMETER DUCTILE IRON PIPE SHALL BE CLASS 52 OR BETTER. ALL PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA C151/A21.51-86 AND SHALL BE ASPHALT COATED OUTSIDE PER ANSI/AWWA C104/A21.4-90.
19. ALL FITTINGS FOR FORCE MAINS SHALL BE CAST IRON OR DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF ANSI/AWWA C110/A21.10-82.
20. ALL DUCTILE IRON PIPE (DIP) FORCEMAINS SHALL BE INSTALLED WITH A MINIMUM CLEAR COVER OF 30 INCHES.
21. WHEN PVC IS USED FOR FORCE-MAINS, A 14-GAUGE MULTISTRAND COPPER WIRE SHALL BE INSTALLED THE LENGTH OF THE PIPE. ALL PVC C-900 FORCEMAINS SHALL BE INSTALLED WITH A MINIMUM CLEAR COVER 36".
22. INSTALLATION AND TESTING OF FORCE MAINS SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SUNRISE SPECIFICATIONS.
23. CONNECTING TO THE EXISTING SYSTEM: ALL CONNECTIONS TO EXISTING FORCE MAINS SHALL BE MADE UNDER THE DIRECTION OF THE COMMUNITY DEVELOPMENT DEPT. - ENGINEERING INSPECTORS.

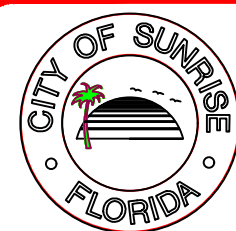
FORCE MAIN VALVES SEPARATING THE MAINS BEING INSTALLED FROM THE EXISTING MAINS SHALL BE OPERATED BY OR UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT REPRESENTATIVE ONLY.

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SYMBOL	NO.	DATE	REVISIONS	BY
	2	3/1/12	HEALTH DEPT. UPDATES	SD
	1	4/10/98	UPDATES DUE TO SPEC. REVISIONS	JF



CITY OF SUNRISE

APPROVED BY: _____

REGISTERED ENGINEER NO. _____
STATE OF FLORIDA

STANDARD
SANITARY SEWER
DETAILS AND NOTES

ORIGINAL ISSUE
DATE: 03/28/97

PROJECT
NUMBER

NOT TO
SCALE