



CITY OF ORANGE CITY POTABLE WATER STANDARD CONSTRUCTION DETAILS

FOR INFORMATION OR TO REQUEST ADDITIONAL
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CITY OF ORANGE CITY STANDARD CONSTRUCTION DETAILS

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POTABLE WATER DESIGN NOTES

1. ALL SINGLE RESIDENTIAL WATER SERVICES SHALL BE 1", DOUBLE RESIDENTIAL SERVICES SHALL ALSO BE 1", AND COMMERCIAL SERVICES SHALL BE 1" OR 2". NO 1 1/2" SERVICES ARE ALLOWED. POLYETHYLENE TUBING SHALL BE USED, IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS: POLYETHYLENE TUBING SHALL BE CTS 3408 HIGH DENSITY TUBING, BLUE IN COLOR, AND RATED FOR A MINIMUM OF 200 P.S.I. WITH SDR OF 9 (CTS). THE TUBING SHALL HAVE A VIRGIN HIGH DENSITY POLYETHYLENE CENTER FOR WHICH THE MANUFACTURER SHALL FURNISH A CERTIFICATE OF PURITY. THE TUBING SHALL HAVE UV PROTECTION AND SHALL NOT BE AFFECTED BY DIRECT SUNLIGHT. THE TUBING SHALL COMPLY WITH OR EXCEED THE APPLICABLE STANDARDS OF A.S.T.M. D1248, D3350, D2239, D2737, N.S.F. 14 AND A.W.W.A. C901 AND SHALL COME WITH A LIFETIME WARRANTY. ACCEPTABLE MANUFACTURERS: ENDOT ENDOPURE.
2. WATER VALVES SHALL BE PLACED AT ALL STREET INTERSECTIONS AND AT MAXIMUM SPACINGS OF 1,000.0 FEET.
3. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
4. APPROVED WATER VALVE TYPES ARE THE FOLLOWING:
 - A. RESILIENT SEATED GATE VALVES EQUAL TO OR LESS THAN 24" DIAMETER (AWWA C-515)
 - B. BUTTERFLY VALVES GREATER THAN 24" (AWWA C-504)
 - C. TAPPING VALVES WITH MECHANICAL TAPPING SLEEVE
5. TYPICALLY, A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED AT EVERY INTERSECTION. MAIN SIZES SHALL BE DETERMINED BY THE ENGINEER BASED REQUIRED FIREFLOW. MINIMUM MAIN SIZE IS 6". OTHER FIRE HYDRANTS SHALL BE LOCATED EVERY 500' OF TRAVELWAY AND/OR MEETING THE LATEST NFPA CODE HOSE LAY ALONG THE STREET FOR ALL RESIDENTIAL BUILDINGS. ALL BUILDINGS WITH FIRE PROTECTION SPRINKLER SYSTEM, THE FIRE DEPARTMENT CONNECTION (FDC) MUST BE WITHIN 50.0 FEET OF UNOBSTRUCTED DISTANCE TO AN APPROVED FIRE HYDRANT LOCATION BY THE FIRE MARSHALL AND OR PUBLIC UTILITIES ENGINEER. HYDRANT SPACING IN COMMERCIAL/INDUSTRIAL ZONES SHALL COMPLY WITH CURRENT NFPA STANDARDS.
6. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
7. ALL WATER MAINS SHALL BE NSF AND/OR AWWA APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES (3.0 FEET) AND A MAXIMUM DEPTH OF 48 INCHES (4.0 FEET) FROM FINAL GRADE EXCEPT AT LOCATIONS OF UTILITY CROSSINGS OR WITH SPECIAL APPROVAL WHEN IT IS DETERMINED TO BE IN THE BEST INTEREST OF THE CITY.
8. WATER MAINS SHALL BE C-900 PVC OR C-905 CL 150 (COLOR "BLUE") OR D.I.P. PRESSURE CLASS 350 STANDARD CEMENT LINED UNLESS OTHERWISE APPROVED BY THE CITY.
9. WATER DISTRIBUTION SYSTEM SHALL BE DESIGNED TO COMPLY WITH THE CITY'S LATEST FIRE (WATER) FLOW CODE. ALL DEDICATED FIRE LINES SHALL BE INDEPENDENT OF ALL OTHER DOMESTIC WATER SERVICES.
10. MEGALUGS, BOLTLESS RESTRAINED JOINTS OR GRIPPER GASKETS SHALL BE USED ON ALL RESTRAINED JOINT INSTALLATIONS. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES USING TORQUE WRENCHES PER MANUFACTURERS RECOMMENDATION.
11. WATER SERVICES SHALL BE NORMALLY DOUBLE 1" SERVICES LOCATED AT SIDE LOT LINES. INSTANCES WHERE SERVICES NEED TO BE OFFSET, 1" SINGLE SERVICES SHALL BE SPECIFIED. THESE SERVICES MAY BE OFFSET A MAXIMUM OF 2.0' FROM SIDE LOT LINES.
12. THE CITY REQUIRES DOUBLE WATER SERVICE INSTALLATIONS WHEREVER FEASIBLE. WHEN DESIGN CONFLICTS EXIST, SINGLE WATER SERVICES MAY BE ALLOWED. THIS MAY APPLY AT STORMWATER INLETS, FIRE HYDRANTS, FPL TRANSFORMERS, ETC. AND OTHER LOCATIONS DEEMED APPROPRIATE BY THE CITY.



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POTABLE WATER DESIGN NOTES CONT'D

13. ALL PROPOSED POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AT LEAST 2 BUSINESS DAYS PRIOR TO BEGINNING FLUSH OF THE MAINS AND PRIOR TO THE COMMENCEMENT OF PRESSURE TESTING.
14. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION THE PROPOSED LOCATIONS OF ALL WATER MAINS MEASURED FROM THE BACK OF CURB (OR EDGE OF PAVEMENT, IF NO CURB IS USED).
15. LANDSCAPE PLANS SHALL CLEARLY DEPICT THE DESIGN LOCATION OF PLANTINGS RELATIVE TO THE LOCATION OF PUBLIC UTILITIES AND STORMWATER INFRASTRUCTURE IN ORDER TO EVALUATE POTENTIAL CONFLICTS.
16. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
17. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
18. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610 F.A.C.. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
19. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.
20. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
21. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
22. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS. THE INSTALLATION OF LINE STOPPING DEVICES ON PRESSURE MAIN (POTABLE WATER AND FORCE MAIN) MAY BE REQUIRED ON ANY REQUESTED UTILITY OUTAGE AT THE DISCRETION OF PUBLIC UTILITIES DEPARTMENT TO MINIMIZE INTERRUPTION TO EXISTING UTILITY CUSTOMERS.



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EDPOTABLE WATER CONSTRUCTION NOTES

1. THE CITY'S PUBLIC UTILITIES DEPARTMENT (386) 775-5447 SHALL BE GIVEN A MINIMUM OF 2 BUSINESS DAYS ADVANCE NOTICE (NOT INCLUDING HOLIDAYS OR WEEKENDS) PRIOR TO BEGINNING ANY POTABLE WATER SYSTEM CONSTRUCTION.
2. DEWATERING SHALL BE PROVIDED TO KEEP GROUNDWATER ELEVATION A MINIMUM OF 6 INCHES BELOW WATER MAIN BEING LAID.
3. ALL WATER MAINS SHALL BE LAID ON A FIRM FOUNDATION WITH ALL UNSUITABLE MATERIAL (MUCK, ROCK, COQUINA, ETC.) REMOVED AND REPLACED WITH CLEAN GRANULAR MATERIAL.
4. TRENCHES SHALL BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE CITY WITH A MINIMUM COMPACTION OF 98% IN PAVED AREAS AND 95% IN UNPAVED AREAS IN ACCORDANCE WITH AASHTO T-180.
5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT TRENCH COMPACTION TESTS IS PROVIDED AT POINTS 1 FOOT ABOVE THE PIPE AND AT 1 FOOT VERTICAL INTERVALS TO FINISH GRADE, AT A MINIMUM SPACING OF EVERY 300 FEET.
6. 3" METALLIZED PIPE LOCATION TAPE SHALL BE LOCATED BETWEEN 15" AND 24" BELOW FINISHED GRADE OR AS SPECIFIED BY MANUFACTURER FOR ALL PVC LINES. MARKER TAPE SHALL BE USED ON ALL DUCTILE IRON PIPE, AS WELL.
7. ALL WATER SERVICE ENDINGS SHALL BE MARKED WITH A 2" X 4" LUMBER (PRESSURE TREATED) EXTENDING 4 FEET ABOVE GRADE, WITH WATER SERVICES SECURED 12" MAXIMUM ABOVE THE GROUND. ALL SERVICES SHALL BE LOCKED AT THE TIME OF FINAL INSPECTION BY THE CONTRACTOR IN THE PRESENCE OF THE CITY INSPECTOR OR CITY PERSONNEL, AFTER THEY HAVE BEEN INSPECTED AND VERIFIED TO OPERATE PROPERLY.
8. AT ALL WATER MAIN TEES AND CROSSES, VALVES SHALL BE INSTALLED ON ALL LEGS EXCEPT ONE.
9. ALL WATER VALVES SHALL BE ADJUSTED TO FINISHED GRADE AND THE CAPS PAINTED BLUE TO MAKE THEM PLAINLY VISIBLE.
10. UPON FINAL ACCEPTANCE OF NEW WATER SYSTEMS, WATER VALVES SHALL BE COMPLETELY OPENED BY PUBLIC UTILITIES PERSONNEL. AT NO TIME SHALL CONTRACTOR OPERATE ANY EXISTING VALVES.
11. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED TO MAKE THEM EASILY ACCESSIBLE TO FIRE PERSONNEL IN CASE OF A FIRE. THE PRIMARY HYDRANT PORT SHOULD ALWAYS FACE THE STREET.
12. AS STANDARD PRACTICE, WATER MAINS SHALL BE INSTALLED 4 FEET OFF THE BACK OF CURB OR AS APPROVED BY THE CITY.
13. ALL WATER MAINS SHALL BE NSF AND/OR AWWA APPROVED FOR POTABLE WATER USE, AND SHALL HAVE A MINIMUM COVER OF 36 INCHES (3.0 FEET) AND A MAXIMUM DEPTH OF 48 INCHES (4.0 FEET) FROM FINAL GRADE EXCEPT AT LOCATIONS OF UTILITY CROSSINGS OR WITH SPECIAL APPROVAL WHEN IT IS DETERMINED TO BE IN THE BEST INTEREST OF THE CITY.
14. WATER MAINS SHALL BE C-900 PVC OR C-905 CL 150 (COLOR "BLUE") OR D.I.P. PRESSURE CLASS 350 STANDARD CEMENT LINED UNLESS OTHERWISE APPROVED BY THE CITY.
15. UPON CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE SYSTEM, IT SHALL BE THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE SYSTEM IS PROPERLY CERTIFIED AND ACCEPTED BY THE DEPARTMENT OF HEALTH AND AS-BUILTS ARE PROVIDED TO THE CITY PRIOR TO ANY PUBLIC USE OF THIS SYSTEM.
16. IN AREAS WHERE RECLAIMED WATER IS NOT AVAILABLE THE CONTRACTOR SHALL BE REQUIRED TO (UPON SATISFACTORY COMPLETION OF THE PRESSURE TEST) TRANSFER THE WATER FROM THE POTABLE WATER LINES TO THE RECLAIMED WATER LINES FOR UTILIZATION IN THEIR PRESSURE TESTS
17. ALL POTABLE WATER MAINS SHALL USE A RESTRAINT JOINT METHOD IN COMPLIANCE WITH THE DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) GUIDELINES. IN THE EVENT THAT PVC PIPE IS SPECIFIED, THE RESTRAINT



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- JOINT SHALL BE MODIFIED IN ACCORDANCE WITH THE RECOMMENDED ADDITIONAL RESTRAINT LENGTH REQUIRED FOR PIPE WRAPPED WITH POLYETHYLENE.
18. MEGALUGS, BOLTLESS RESTRAINED JOINTS OR GRIPPER GASKETS SHALL BE USED ON ALL RESTRAINED JOINT INSTALLATIONS. MINIMUM DEPTH OF BURY ON PIPES NOT MEETING REQUIRED COVER REQUIREMENTS SHALL FOLLOW THE MOST RECENT DIPRA THRUST RESTRAINT DESIGN GUIDELINES USING TORQUE WRENCHES PER MANUFACTURERS RECOMMENDATION.
 19. WATER SYSTEMS SHALL BE PRESSURE TESTED AT 150 PSI STATIC PRESSURE FOR A PERIOD OF 2 HOURS PER AWWA STANDARDS.
 20. ALL WATER SERVICES SHALL BE MARKED WITH A "S" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT.
 21. ALL WATER VALVES SHALL BE MARKED WITH AN "X" SAW CUT INTO THE CURB OR BY METAL TABS SET INTO THE PAVEMENT. BLOW-OFFS SHALL BE MARKED SIMILARLY, AS WELL. REVERSE TAPPING VALVE SHALL BE MARKED WITH AN "X ↑" SAW CUT INTO THE CURB OR PAVEMENT WITH THE ARROW POINTING TO THE DIRECTION OF THE PRESSURE MAIN RUN.
 22. ALL TAPPING OF MAINS SHALL BE PERFORMED BY THE CITY AND BILLED IN ACCORDANCE WITH THE ADOPTED FEE RESOLUTION. SCHEDULING OF THESE CONNECTIONS OR TAPPINGS SHALL REQUIRE A MINIMUM OF 2 BUSINESS DAYS, DIRECTED TO THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE THE WORK DIRECTLY WITH THE PUBLIC UTILITIES DEPARTMENT. SUBSEQUENTLY, THE CONNECTION SHALL BE SCHEDULED TO COMMENCE BETWEEN 8:00 A.M. AND NOON ON THE APPROPRIATE DAY.
 23. LARGE COMMERCIAL WATER AND RECLAIMED WATER METERS GREATER THAN 3" TAKE A MINIMUM OF 6 WEEKS FOR DELIVERY AFTER FEES ARE PAID TO THE CITY. IN ADDITION ALL METERS AND VAULTS 3" AND GREATER SHALL BE INSTALLED BY THE OWNER/ DEVELOPER/ CONTRACTOR. THE FEE COLLECTED BY THE CITY IS FOR MATERIALS ONLY. ALL METERS, 2" AND LESS, SHALL BE INSTALLED BY THE CITY.
 24. THE CITY REQUIRES DOUBLE WATER SERVICE INSTALLATIONS WHEREVER FEASIBLE. WHEN DESIGN CONFLICTS EXIST, SINGLE WATER SERVICES MAY BE ALLOWED. THIS MAY APPLY AT STORMWATER INLETS, FIRE HYDRANTS, FPL TRANSFORMERS, ETC. AND OTHER LOCATIONS DEEMED APPROPRIATE BY THE CITY.
 25. ALL PROPOSED POTABLE WATER MAINS SHALL BE FLUSHED, DISINFECTED, PRESSURE TESTED AND BACTERIOLOGICALLY CLEARED FOR SERVICE WHEN APPROPRIATE IN ACCORDANCE WITH THE LATEST AWWA STANDARDS AND THE FLORIDA DEPARTMENT OF ENVIROMENTAL PROTECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE CITY'S DESIGNATED SITE INSPECTOR WHO SHALL COORDINATE WITH CITY PERSONNEL AT THE WATER TREATMENT PLANT AT LEAST 2 BUSINESS DAYS PRIOR TO BEGINNING FLUSH OF THE MAINS AND PRIOR TO THE COMMENCEMENT OF PRESSURE TESTING.
 26. THE CONTRACTOR SHALL BE REQUIRED TO PIG ALL POTABLE MAINS 6" AND LARGER IN DIAMETER AND PRIMARY DISTRIBUTION MAINS LOCATED ON COLLECTOR AND ARTERIAL ROADWAYS. ALL PIGS SHALL BE NEW. NO FOAM PIGS ARE ALLOWED. LAUNCHING AND EXTRACTION POINTS SHALL BE DETERMINED BY THE CONTRACTOR. ALL PIGGING OPERATIONS SHALL BE WITNESSED BY A PUBLIC UTILITIES REPRESENTATIVE OR A CITY UTILITY INSPECTOR.
 27. WITH RESPECT TO TIE-IN CONNECTIONS, THE CITY RESERVES THE RIGHT TO REQUIRE CONNECTIONS TO BE PERFORMED DURING PERIODS OF LOW FLOW (MIDNIGHT TO 6:00 A.M.) IN ORDER TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS. THE INSTALLATION OF LINE STOPPING DEVICES ON PRESSURE MAIN (POTABLE WATER AND FORCE MAIN) MAY BE REQUIRED ON ANY REQUESTED UTILITY OUTAGE AT THE DISCRETION OF PUBLIC UTILITIES DEPARTMENT TO MINIMIZE INTERRUPTION TO EXISTING UTILITY CUSTOMERS.



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28. THE PHYSICAL TAKING OF EACH AND EVERY WATER SAMPLE FOR BACTERIOLOGICAL TESTING SHALL BE OBSERVED BY THE CITY'S DESIGNATED SITE INSPECTOR. THIS SHOULD NOT IMPACT THE PROJECT SINCE THE CONTRACTOR MUST ALREADY COORDINATE FLUSHING ACTIVITY WITH THE INSPECTOR. ALL SAMPLE FORMS SHALL BE COMPLETELY FILLED OUT BY THE SAMPLING COMPANY AND TESTING COMPANY IN ORDER TO BE ACCEPTED. WHEN THE PUBLIC UTILITIES OFFICE RECEIVES POTABLE WATER CLEARANCE REQUEST REQUIRING SIGNATURE THE CITY'S DISTRIBUTION SUPERVISOR AND/OR DESIGNATED SITE INSPECTOR WILL BE CONTACTED TO INDEPENDENTLY VERIFY THAT THE SYSTEM IS IN PROPERLY FUNCTIONING ORDER (i.e. ALL VALVES, HYDRANTS, AND WATER SERVICES ARE ACCESSIBLE AND OPERABLE). SIMULTANEOUSLY, THE CITY MAY ALSO TAKE A RANDOM BACTERIOLOGICAL SAMPLE WITHIN THE NEW SYSTEM TO VERIFY THAT WATER IS SAFE FOR CONSUMPTION. ONCE THE DISTRIBUTION SUPERVISOR AND/OR DESIGNATED SITE INSPECTOR HAVE VERIFIED THAT THE SYSTEM IS IN PROPER FUNCTIONING ORDER AND THAT THE BACTERIOLOGICAL SAMPLE INDICATES THE WATER IS SAFE FOR CONSUMPTION, THE PUBLIC UTILITIES OFFICE WILL THEN SIGN OFF ON THE WATER CLEARANCE REQUEST.
29. ALL WORK PERFORMED ON THE POTABLE WATER FACILITIES OWNED OR PROPOSED TO BE OWNED BY THE CITY SHALL BE CONSTRUCTED BY A STATE CERTIFIED UNDERGROUND UTILITY CONTRACTOR OR GENERAL CONTRACTOR LICENSED IN THE STATE OF FLORIDA AND REGISTERED WITH THE CITY.
30. FOR CONSTRUCTION PURPOSES, THE PLANS SHALL DIMENSION THE PROPOSED LOCATIONS OF ALL WATER MAINS MEASURED FROM THE BACK OF CURB (OR EDGE OF PAVEMENT, IF NO CURB IS USED).
31. NEWLY CONSTRUCTED POTABLE WATER SYSTEM EXTENSIONS MAY NOT BE USED PRIOR TO FINAL TESTING, CLEARANCE AND ACCEPTANCE BY THE CITY OF ORANGE CITY. THIS INCLUDES CONSTRUCTION WATER REQUIRED FOR SEWER LINE CLEANING OR RELATED USES.
32. FIRE HYDRANTS MAY NOT BE INSTALLED WITHIN 20' OF ANY ELECTRICAL TRANSFORMER.
33. ALL H.D.P.E. PIPE UTILIZED FOR WATER, FORCE MAIN AND/OR RECLAIMED WATER MAIN EXTENSIONS SHALL BE S.D.R. 11 WITH #10 COPPERHEAD TRACER WIRE UNLESS SPECIFICALLY NOTED OTHERWISE. THE HDPE PIPE SHALL BE SIZED TO MATCH THE EXTERNAL DIAMETER OF THE PVC OR DIP PIPE TO WHICH IT IS ATTACHED.
34. ALL VALVES 2" AND LARGER SHALL BE STANDARD 2" RESILIENT SEATED GATE VALVES (CORP STOPS ARE NOT ACCEPTABLE).
35. ALL P.V.C. PIPE SHALL BE STORED IN SUCH A WAY AS TO PREVENT WARPING, DEFLECTION, OR ANY DEFORMATION. FITTINGS SHALL BE P.V.C. AND MANUFACTURED OF THE SAME DESIGN AS THE P.V.C. PIPE.
36. PVC FITTINGS 4-INCH THROUGH 36-INCH SHALL BE P.V.C. (OR D.I.P.WITH PROTECTO 401) INJECTION-MOLDED OR FABRICATED AS SPECIFIED, MADE OF MATERIALS MEETING OR EXCEEDING THE REQUIREMENTS OF CELL CLASS 12454-B MATERIAL AS DEFINED IN ASTM D1784. FABRICATED FITTINGS SHALL BE MANUFACTURED WITH PIPE THAT MEETS OR EXCEEDS AWWA C-905 STANDARD, AND SHALL BE FIBERGLASS REINFORCED TO A PRESSURE RATING OF 165 PSI. ALL P.V.C. OR MECHANICAL JOINT FITTINGS MUST COMPLY WITH OR EXCEED ANSI/AWWA C907, UNI-B-14 STANDARDS AS THEY APPLY TO THE APPROPRIATE SIZE RANGE AND METHOD OF MANUFACTURE.
37. NO USED, RE-USED, RUSTED, SECOND HAND, OR ANY MATERIAL THAT IS NOT NEW SHALL BE USED IN ANY UTILITY IMPROVEMENT PROJECTS WITHIN THE CITY'S SERVICE AREA.
38. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
39. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF



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AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.

40. NEW OR RELOCATED, UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610 F.A.C.. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
41. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY- OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
42. NEW OR RELOCATED, UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
43. AT THE UTILITY CROSSINGS, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610 F.A.C. AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY- OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
44. WATER MAINS SHALL BE C-900 PVC OR C-905 CL 150 (COLOR "BLUE") OR D.I.P. PRESSURE CLASS 350 STANDARD CEMENT LINED UNLESS OTHERWISE APPROVED BY THE CITY.
45. IN ADDITION TO THE CONTINUOUS TRACER WIRE INSTALLED DIRECTLY ON TOP OF THE PIPE, ALL WATER MAINS AND RECLAIMED MAINS SHALL BE INSTALLED WITH ELECTRONIC MARKERS SO THAT A MARKER WILL BE LOCATED AT ONE HUNDRED FOOT (100') INTERVALS ALONG THE PIPELINE LENGTH. MARKERS SHALL ALSO BE PLACED AT CHANGES IN DIRECTION, TEES, OR OTHER POINTS OF CONNECTION AND AS DIRECTED BY THE ENGINEER. MARKER BALLS SHALL BE PLACED IN A POSITION DIRECTLY ABOVE THE PIPE AND HAND BACKFILLED ONE (1) FOOT ABOVE THE BALL TO PREVENT DAMAGE OR MOVEMENT DURING SUBSEQUENT BACKFILLING. DEPTH OF BURIAL SHALL NOT BE LESS THAN ONE AND ONE HALF FEET (1½') NOR MORE THAN TWO FEET (2'). MARKER BALLS SHALL CONSIST OF A PASSIVE DEVICE CAPABLE OF REFLECTING A SPECIFICALLY DESIGNATED REPULSE FREQUENCY TUNED TO THE UTILITY BEING INSTALLED. BALLS SHALL BE FOUR INCHES (4") IN DIAMETER WITH A HIGH DENSITY POLYETHYLENE SHELL. MARKER BALLS SHALL BE COLOR CODED IN ACCORDANCE WITH AMERICAN PUBLIC WORKS ASSOCIATION'S UTILITY LOCATION AND COORDINATING COUNCIL STANDARDS.



STANDARD CONSTRUCTION DETAIL
POTABLE WATER CONSTRUCTION NOTES

PUB. 6/14

FILE NAME
W2.DOC

DETAIL REF:
W-2

City of Orange City Public Utilities Department

List of Approved Products

Potable Water

Fire Hydrant (5 ¼" Barrel)1

MANUFACTURER	MODEL #
Mueller (Preferred)	A423 Super Centurion 250
American Darling (Approved Equal)	5 ¼" B-84-B5
Clow (Approved Equal)	Medallion # F-2545 SS

Air Release Valves

MANUFACTURER	MODEL #
Val-Matic	Series 38

Gate Valves and Tapping Valves – Resilient Seated (AWWA C509 and C515) 24" or Smaller (Valve wedge to be complete enclosed with EPDM rubber)

MANUFACTURER	MODEL #
American AVK Co.	Series 3, 18, 25, 45, 55, & 66
Clow	Model 2638 and 2639
Mueller	A-2360, A-2361, T-2360 & T-2361
American Flow Control	Series 2500



STANDARD CONSTRUCTION DETAIL
POTABLE WATER APPROVED PRODUCTS

FILE NAME
W3.DOC

DETAIL REF:
W-3

City of Orange City Public Utilities Department

List of Approved Products

Potable Water

Joint Restraint – DIP and PVC

MANUFACTURER	MODEL #
EBBA Iron Inc.	Series 1100/1500/1600 2000/2500/2800
Star Pipe	Stargrip Series 1000/1100/1200 3000/ 4000
Sigma	One-Lock SLD; One-Lock SLC; PV-Lok for PVC
Smith-Blair	Cam-Lock (111 & 120) ; Bell-Lock (115 & 165)

Water Service Materials

Polyethylene Tubing – (Blue with UV Protection (SDR-9) 1” & 2” only)

MANUFACTURER	MODEL #
Endot Endopure	Endotrace w/#10 Copperhead Tracer Wire

Corporation Stop 1”

MANUFACTURER	MODEL #
Ford	F-1100-4

Curb Stop – Straight Ball Meter Valve w/ Barrel Locks

MANUFACTURER	MODEL #
Ford	B-94-324W (Single Service) B-91-223W (Double Service)

“U” Branch (1” x ¾”)

MANUFACTURER	MODEL #
Ford	U-48-43-6.5



STANDARD CONSTRUCTION DETAIL
POTABLE WATER APPROVED PRODUCTS

FILE NAME
W3.DOC

DETAIL REF:
W-3

PUB. 6/14