

ISSUE DATE JANUARY 1ST, 2008

SECTION 1

GENERAL NOTES



GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY SUNSHINE STATE ONE CALL (1-800-282-8881) PRIOR TO CONSTRUCTION OPERATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT EXISTING UTILITIES FROM DAMAGE. EXPLORATORY EXCAVATION MAY BE REQUIRED PRIOR TO CONNECTION TO EXISTING UTILITIES. IF EXISTING VALVES OR FITTINGS ARE NOT RESTRAINED, THEN THE CONTRACTOR IS RESPONSIBLE TO RESTRAIN EXISTING UTILITIES IN ACCORDANCE WITH UTILITY REQUIREMENTS.
2. PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AREAS WITHIN AND ADJOINING THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED BY ERECTION OF TREE PROTECTION BARRICADES AND/OR SILT BARRIERS. SILT BARRIERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.
3. THE REQUIREMENTS OF THE CHARLOTTE COUNTY UTILITIES (CCU) STANDARD SPECIFICATIONS AND STANDARD DETAILS SHALL GOVERN ALL UTILITY WORK. WHERE A CONFLICT EXISTS IN THE REQUIREMENTS OF A REFERENCED MATERIAL OR INSTALLATION STANDARD, THE REQUIREMENTS OF CHARLOTTE COUNTY UTILITIES (C.C.U.) SHALL PREVAIL. WHERE THE REQUIREMENTS OF A STATE OR LOCAL AGENCY HAVING JURISDICTION ARE MORE STRINGENT, THOSE REQUIREMENTS SHALL PREVAIL.
4. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE, AT ALL TIMES, ONE CURRENT COPY OF CHARLOTTE COUNTY UTILITIES STANDARD SPECIFICATIONS, ONE CURRENT COPY OF CHARLOTTE COUNTY UTILITIES STANDARD DETAILS AND ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS AND SPECIAL PROVISIONS, AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
5. CONTRACTOR IS RESPONSIBLE FOR CHECKING ACTUAL SITE CONDITIONS BEFORE STARTING CONSTRUCTION.
6. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE COMMENCING WORK.
7. CONTRACTOR SHALL OBTAIN ALL REQUIRED COUNTY AND STATE PERMITS BEFORE COMMENCING WORK.
8. THE CONTRACTOR SHALL CONTACT ALL CONCERNED UTILITIES MINIMUM 48-HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS - THE CONSTRUCTION MANAGEMENT OFFICE OF CHARLOTTE COUNTY PUBLIC WORKS @ (941)575-3628 AND CCU @ (941) 764-4515.
9. NO FIELD CHANGES OR DEVIATION FROM DESIGN CAN BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY CCU.
10. CONTRACTOR MUST ADHERE TO FEDERAL REGISTER VOL. 58, NO. 9, RULES AND REGULATIONS, PAGE 4552 AND THE 10. O.S.H.A. TRENCH SAFETY ACT.
11. ALL RESTORATION TO BE COMPLETED WITHIN 21 CALENDAR DAYS OF DISTURBANCE UNLESS PERMISSION IS GRANTED BY CHARLOTTE COUNTY UTILITIES TO EXTEND THIS TIME LIMIT.
12. ALL DISTURBED OR DAMAGED AREAS TO BE RESTORED TO THE SAME OR BETTER CONDITION THAN THAT PRIOR TO THE START OF CONSTRUCTION.
13. ALL PORTIONS OF TRENCH WITHIN 7.5' OF EXISTING EDGE OF PAVEMENT SHALL BE COMPACTED TO 98% T-180, 95% OTHERWISE.

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GENERAL NOTES CONTINUED:

14. ALL VALVES SHALL BE INSTALLED OUTSIDE OF THE PAVEMENT UNLESS PRIOR APPROVAL BY THE CCU UTILITY ENGINEER.
15. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL MARK LOCATIONS OF UTILITIES BY PAINTING AND/OR FLAGGING THE UTILITY ALIGNMENT. INCIDENTAL FITTINGS REQUIRED TO RESOLVE CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES SHALL BE DETERMINED IN THE FIELD, UNLESS OTHERWISE SHOWN ON THE PLANS. ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTAL CONFLICTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE OF THE PROPOSED UTILITY.
16. CONTRACTOR SHALL NOTIFY UTILITY USER 48 HOURS IN ADVANCE IF WATER, GAS, SEWER, TELEPHONE, ELECTRIC, ETC. IS TO BE TEMPORARILY INTERRUPTED IN ORDER TO CONSTRUCT IMPROVEMENTS.
17. ALL WATER AND SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE UTILITY AND CONSTRUCTION STANDARDS OF CCU.
18. ANY CONSTRUCTION WITHIN THE FLORIDA DEPARTMENT OF TRANSPORTATION OR CHARLOTTE COUNTY RIGHT-OF-WAY SHALL CONFORM TO FLORIDA DOT CONSTRUCTION STANDARDS.
19. WHEN LAYING PIPE, OR DIRECTIONAL BORING FUSIBLE PVC PIPE, ALL LETTERING SHALL BE IN AN UPRIGHT VERTICAL POSITION SO IT CAN BE READ FROM THE TOP.
20. ALL SPIGOT ENDS OF PVC PIPE SHALL BE HOMED INTO BELL ENDS WITHIN 1/2" OF THE MANUFACTURER'S INSERTION MARK. IF PIPE IS CUT, THE INSERTION MARK WILL BE REPLACED FROM NEW END OF PIPE AS IT WAS ON THE ORIGINAL PIPE.
21. ALL STAINLESS STEEL WILL BE 316 AUSTENITIC, NON-MAGNETIC UNLESS OTHERWISE NOTED

AS-BUILTS AND RECORD DRAWINGS:

1. AS - BUILT AND RECORD DRAWINGS SHALL BE IN ACCORDANCE WITH THE CURRENT CCU MINIMUM DRAWING REQUIREMENTS FOR WATER, SEWER AND RECLAIMED WATER LINE PROJECTS.

CONSTRUCTION IN STREETS AND ROAD RIGHT-OF-WAYS:

1. OPEN ROAD CUTS REQUIRE PRIOR APPROVAL OF THE CITY, COUNTY, STATE OR ANY OTHER AGENCY WHICH MAY HAVE JURISDICTION.
2. ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH FLORIDA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND STANDARDS.
3. ALL AREAS IN EXISTING RIGHT-OF-WAYS DISTURBED BY CONSTRUCTION SHALL BE RESTORED EQUAL TO OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE PERMITTING AGENCY.
4. STREET OR HIGHWAY RESTORATION TO BE DONE AS PER LOCAL OR STATE AGENCY HAVING JURISDICTION.

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CONSTRUCTION IN STREETS AND ROAD RIGHT-OF-WAYS CONTINUED:

5. THE CONTRACTOR SHALL COMPLY WITH ALL RULES AND REGULATIONS OF THE STATE, COUNTY OR CITY AUTHORITIES REGARDING CLOSING OR RESTRICTING THE USE OF PUBLIC STREETS OR HIGHWAYS. STREETS MUST BE OPENED TO TRAFFIC BY THE END OF THE BUSINESS DAY.
6. TRAFFIC CONTROL ON ALL COUNTY AND STATE HIGHWAY RIGHT-OF-WAYS SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND REQUIREMENTS OF THE STATE AND ANY OTHER LOCAL AGENCY HAVING JURISDICTION.
7. A MAINTENANCE OF TRAFFIC PLAN TO BE SUBMITTED BY THE CONTRACTOR TO THE CHARLOTTE COUNTY TRAFFIC ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
8. ROAD RESTORATION IS TO BE PERFORMED AS PER CHARLOTTE COUNTY PUBLIC WORKS, FLORIDA DEPARTMENT OF TRANSPORTATION OR ANY OTHER GOVERNING AGENCY.
9. CHARLOTTE COUNTY PUBLIC WORKS SHALL BE NOTIFIED 48-HOURS IN ADVANCE OF ALL ROAD CUTS.
10. ALL DISTURBED SWALE OR CANAL GRADES TO BE RESTORED TO THE SAME OR BETTER THAN THOSE EXISTING PRIOR TO CONSTRUCTION, UNLESS SPECIFIED OTHERWISE.
11. ALL AREAS TO BE RESODDED OR HYDRO-SEEDED SHALL VERIFY TYPE AND LOCATIONS WITH CHARLOTTE COUNTY PUBLIC WORKS PRIOR TO EXECUTION.
12. IN THE ABSENCE OF APPLICABLE SPECIFICATIONS THE "FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" LATEST ADDITION, SHALL APPLY.

TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC:

1. ALL WORK IN STREETS AND HIGHWAYS SHALL BE SUBJECT TO THE REGULATIONS AND REQUIREMENTS OF THE APPROPRIATE AGENCIES. WORK THAT MAY AFFECT TRAFFIC ON ANY COUNTY STREET, ROADWAY, BIKE PATH OR SIDEWALK WILL REQUIRE THE PREPARATION AND SUBMITTAL OF A MAINTENANCE OF TRAFFIC (MOT) PLAN TO THE COUNTY TRANSPORTATION ENGINEER. THE MOT PLAN MUST BE SUBMITTED BY THE CONTRACTOR ONE (1) WEEK PRIOR TO THE START OF THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE IN FULL COMPLIANCE WITH THAT POLICY WHEN THE ROADWAY IS TO BE CLOSED OR TRAFFIC DETOURED.
2. NOT MORE THAN ONE BLOCK OF EXCAVATION SHALL BE OPEN PER CREW AT ANY ONE TIME AND THIS DISTANCE MAY BE REDUCED IF IT CAUSES EXCESSIVE INTERFERENCE WITH TRAFFIC. EXCAVATED OR OTHER MATERIAL STORED ADJACENT TO OR PARTIALLY UPON A ROADWAY PAVEMENT SHALL BE ADEQUATELY MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY AT ALL TIMES. NECESSARY ACCESS TO ADJACENT PROPERTY SHALL BE PROVIDED AT ALL TIMES. EXCAVATION SHALL BE CONDUCTED IN A MANNER TO CAUSE THE LEAST POSSIBLE INTERRUPTION TO TRAFFIC. WHERE TRAFFIC MUST CROSS EXCAVATIONS, THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES AT STREET INTERSECTIONS AND DRIVEWAYS.
3. ALL TRAFFIC CONTROL SIGNS AND DEVICES, BARRICADES, FLASHERS AND SIMILAR DEVICES SHALL BE FURNISHED AND MAINTAINED IN WORKING CONDITION AT ALL TIMES BY THE CONTRACTOR. THE CONTRACTOR SHALL PROTECT THE WORK THROUGHOUT ITS LENGTH BY THE ERECTION OF SUITABLE BARRICADES AND HANDRAILS, WHERE REQUIRED.

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TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC CONTINUED:

THE CONTRACTOR SHALL FURTHER INDICATE THIS WORK AT NIGHT BY THE MAINTENANCE OF SUITABLE LIGHTS OR FLARES, ESPECIALLY ALONG OR ACROSS THOROUGHFARES. WHEREVER IT IS NECESSARY TO CROSS A PUBLIC WALK, THEY SHALL PROVIDE A SUITABLE SAFE WALKWAY WITH HAND RAILINGS. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL LAWS OR ORDINANCES COVERING THE PROTECTION OF SUCH WORK AND THE SAFETY MEASURES TO BE EMPLOYED THEREIN. THE CONTRACTOR SHALL CARRY OUT THEIR WORK SO AS NOT TO DENY ACCESS TO PRIVATE PROPERTY. ALL UTILITY ACCESS MANHOLES, VALVES, FIRE HYDRANTS AND LETTER BOXES SHALL BE KEPT ACCESSIBLE AT ALL TIMES.

- 4. PAVEMENT MARKINGS DAMAGED DURING THE PROJECT SHALL BE REMOVED AND REPLACED PROMPTLY BY THE CONTRACTOR.

EROSION CONTROL NOTES:

GENERAL:

THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, TOOLS, MATERIALS AND SERVICES NEEDED TO PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES. THESE MEASURES SHALL CONFORM TO THE PLANS AND SPECIFICATIONS AND ALL STATE AND LOCAL REQUIREMENTS.

EARTH MOVING ACTIVITIES:

- A. THE CONTRACTOR SHALL EXERCISE CARE TO PRESERVE THE NATURAL LANDSCAPE AND SHALL CONDUCT CONSTRUCTION OPERATIONS SO AS TO PREVENT ANY UNNECESSARY DESTRUCTION, SCARRING OR DEFACING OF THE NATURAL SURROUNDINGS IN THE VICINITY OF THE WORK AREA. EXCEPT WHERE CLEARING IS REQUIRED FOR PERMANENT WORK, FOR APPROVED CONSTRUCTION ROADS OR FOR EXCAVATION OPERATIONS, ALL TREES, NATIVE SHRUBBERY AND VEGETATION SHALL BE PRESERVED AND SHALL BE PROTECTED FROM DAMAGE WHICH MAY BE CAUSED BY THE CONTRACTOR'S CONSTRUCTION OPERATIONS AND EQUIPMENT.

- B. GRADED AREAS ARE TO BE SEEDED AND/OR SODDED WITHIN TWENTY-ONE (21) DAYS FOLLOWING EARTH MOVING PROCEDURES. IF THE TIME OF YEAR IS NOT CONDUCIVE FOR PERMANENT SEEDING, TEMPORARY MULCH AND/OR SEEDING SHOULD BE USED.

MAINTENANCE:

- A. REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT BEFORE THE END OF EACH WORK DAY.

- B. SEDIMENT SHALL BE REMOVED FROM SUMP AREAS. THE SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, IN OR ADJACENT TO A STREAM OR FLOOD PLAIN

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DIRECTIONAL BORING:

1. POLYETHYLENE PIPE WILL BE IN ACCORDANCE WITH AWWA STANDARD C 906-90 FOR POLYETHYLENE PRESSURE PIPE AND FITTINGS. POLYETHYLENE PIPE SHALL BE SDR 11 PE-3408 WITH O.D. EQUAL TO DUCTILE IRON PIPE.
2. FUSIBLE PVC WILL BE IN ACCORDANCE WITH AWWA C900 & C905, NSF-16 AND ASTM CELL CLASSIFICATION 12454.

PROTECTIVE COATING (EXTERNAL) SECTION:

ALL EXPOSED MAINS SHALL BE PAINTED AS FOLLOWS:

TYPE	COLOR
POTABLE WATER	FED. SAFETY BLUE
FIRE LINE	SAFETY RED
SEWER MAINS	FED. SAFETY GREEN
REUSE	PURPLE

TRENCH EXCAVATION AND BACKFILL:

1. MATERIAL SUITABLE FOR BACKFILL IN A PROPERLY DEWATERED TRENCH SHALL NOT BE EXPANSIVE NOR HAVE HIGH ORGANIC CONTENT, SHALL BE FREE OF DEBRIS, LUMPS AND CLODS, AND SHALL MEET THE FOLLOWING REQUIREMENTS:
 - A. MAXIMUM LIQUID LIMIT SHALL NOT EXCEED 12 AS DETERMINED BY ASTM D423
 - B. MAXIMUM PLASTICITY INDEX SHALL NOT EXCEED 35 AS DETERMINED BY ASTM D424.
 - C. NOT MORE THAN 10% OF WEIGHT SHALL BE FINER THAN 74 MICRON (NO. 200) U.S. STANDARD SIEVE.

BROKEN CONCRETE SHALL NOT BE USED. FILL MATERIAL CONTAINING LIMEROCK SHALL HAVE SUFFICIENT SAND TO FILL THE VOIDS IN THE LIMEROCK. NO STONES OR ROCKS LARGER THAN THREE INCHES IN DIAMETER WILL BE PERMITTED IN ANY BACKFILL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES OR IN THE UPPER SIX INCHES OF ALL BACKFILL AND FILLS SHALL NOT CONTAIN ANY STONES OR ROCKS LARGER THAN ONE INCH IN DIAMETER. EXISTING BACKFILL MATERIAL MAY BE USED, ONLY IF IT MEETS THE ABOVE-MENTIONED REQUIREMENTS.
2. READY-MIX FLOWABLE FILL, OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED AS AN ALTERNATIVE TO COMPACTED SOIL WITH THE APPROVAL OF THE ENGINEER OR IF SHOWN ON THE PLANS. APPLICATIONS FOR THE MATERIAL INCLUDE BEDDINGS, ENCASEMENTS, CLOSURES FOR TANKS AND PIPES, AND GENERAL BACKFILL APPLICATIONS FOR TRENCHES AND ABUTMENTS. FLOWABLE FILL CAN BE DESIGNED TO BE EXCAVATEABLE, PUMPABLE OR FOR APPLICATIONS WHERE STRENGTH IS MORE IMPORTANT THAN EXCAVATABILITY. IF FLOWABLE FILL IS SPECIFIED, ULTIMATE COMPRESSIVE STRENGTH MUST BE LESS THAN 200 PSI AT 28 DAYS.

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TRENCH EXCAVATION AND BACKFILL CONTINUED:

- FOUNDATION MATERIAL OR BEDDING ROCK SHALL BE USED FOR BEDDING OF PIPE AND/OR MANHOLES AS INDICATED ON THE DRAWINGS. CRUSHED STONE SHALL CONSIST OF HARD, DURABLE, SUB-ANGULAR PARTICLES OF PROPER SIZE AND GRADATION, AND SHALL BE FREE FROM ORGANIC MATERIAL, WOOD, TRASH, SAND, LOAM, CLAY, EXCESS FINES AND OTHER DELETERIOUS MATERIALS. THE STONE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33, SIZE No. 57 (3/4 INCH ROCK) AND BE GRADED WITHIN THE FOLLOWING LIMITS:

U.S. SIEVE SIZE	PERCENT FINER
BY WEIGHT	
1 1/2 INCH	100
1 INCH	95-100
1/2 INCH	25-100
No. 4	0-10
No. 8	0-5

SAND FOR BEDDING POLYVINYL CHLORIDE (PVC) PIPE SHALL BE A DRY SCREENED SAND. SAND SHALL BE GRADED SAND WITH 100 PERCENT PASSING 1 3/8 INCH SIEVE AND NOT MORE THAN FIVE PERCENT PASSING A No. 200 SIEVE.

ALL PIPE BEDDING MATERIAL SHALL BE NEW. EXISTING PIPE BEDDING MATERIAL MAY NOT BE USED.

- FOUNDATION STABILIZATION MATERIAL SHALL BE REQUIRED AS SPECIFIED IN THE PLANS OR AS DIRECTED BY CHARLOTTE COUNTY UTILITIES. WHEN, IN THE OPINION OF CHARLOTTE COUNTY UTILITIES, THE EXISTING MATERIAL IN THE BOTTOM OF THE TRENCH IS UNSUITABLE FOR SUPPORTING THE PIPE, EXCAVATE BELOW THE FLOW LINE OF THE PIPE, AS DIRECTED BY THE COUNTY. BACKFILL THE TRENCH TO SPECIFIED GRADE WITH FOUNDATION STABILIZATION MATERIAL. IF THE TRENCH IS PROPERLY DEWATERED, SUITABLE BACKFILL MATERIAL MAY BE USED FOR STABILIZATION. CRUSHED ROCK SHALL BE USED WHEN A DRY TRENCH CANNOT BE OBTAINED. PLACE THE FOUNDATION STABILIZATION MATERIAL OVER THE FULL WIDTH OF THE TRENCH AND COMPACT IN LAYERS NOT EXCEEDING SIX INCHES DEEP TO THE REQUIRED GRADE.
- BACKFILLING OF TRENCHES WILL NOT BE ALLOWED UNTIL THE WORK HAS BEEN REVIEWED BY CHARLOTTE COUNTY UTILITIES. ANY WORK COVERED UP OR CONCEALED WITHOUT THE KNOWLEDGE OR CONSENT OF CHARLOTTE COUNTY UTILITIES MAY BE REQUIRED TO BE UNCOVERED OR EXPOSED AT NO COST TO THE OWNER.

LOCATION OR USE OF FILL DENSITY	PERCENTAGE OF MAXIMUM DENSITY
BACKFILL BENEATH PAVED AREAS, ROADWAYS OR DRIVEWAYS & WITHIN 7.5 FEET OF EDGE OF PAVEMENT.	98% AASHTO T-180
BACKFILL BENEATH STRUCTURES, HYDRAULIC STRUCTURES.	98% AASHTO T-180
BACKFILL NOT BENEATH PAVED AREAS OR STRUCTURES.	95% AASHTO T-180
BACKFILL AROUND STRUCTURES BUT NOT BELOW PAVED AREAS.	95% AASHTO T-180

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TRENCH EXCAVATION AND BACKFILL CONTINUED:

IF MORE STRINGENT COMPACTION REQUIREMENTS ARE GIVEN IN ANY OTHER DOCUMENTATION APPLICABLE TO THE WORK BEING PERFORMED, THOSE REQUIREMENTS WILL APPLY.

DENSITY TESTS REQUIRED FOR EACH 12" LIFT AT A MINIMUM OF ONE TEST PER 200 FEET OF TRENCH.

MAGNETIC LOCATION TAPE WITH A MINIMUM WIDTH OF TWO AND ONE HALF (2 1/2) INCHES IS TO BE LAID DIRECTLY ABOVE THE PIPE AND EIGHTEEN (18) INCHES BELOW THE GROUND SURFACE. TAPE IS TO BE OF COLOR AND MARKING TO CORRESPOND TO THE PIPING LAID. TAPE ENDS ARE TO BE SPLICED TOGETHER TO PRODUCE A CONTINUOUS LENGTH OF LOCATION TAPES.

ALL WELL POINT HOLES THAT WILL BE UNDER PARKING, DRIVING OR ROADWAY SURFACES SHALL BE BACKFILLED WITH CONCRETE IMMEDIATELY AFTER PULLING THE WELL POINTS. ALL OTHER WELL POINT HOLES SHALL BE BACKFILLED WITH FDOT No. 89 STONE IMMEDIATELY AFTER PULLING THE WELL POINTS UNLESS SPECIFIED OR DIRECTED TO DO OTHERWISE.

TAPPING SLEEVES / VALVES:

1. TAPPING SLEEVE SHALL BE STAINLESS STEEL WITH STAINLESS STEEL FLANGE.
2. ALL TAPPING VALVES ARE TO BE EPOXY LINED AND WITH RESILIENT WEDGE OR SEAT.

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WATER REQUIREMENTS

POTABLE WATER MAINS AND RECLAIMED (RE-USE) WATER MAINS:

1. PVC PIPE SHALL MEET THE REQUIREMENTS OF:
 - 4" TO 12" AWWA C-900
 - 14" TO 36" AWWA C-905
 - 3" OR LESS ASTM B-1785, SCHEDULE 40 OR 80
 THE APPROPRIATE CLASS SHALL BE AS FOLLOWS: COLORED BLUE FOR WATER, AND PURPLE FOR REUSE; CLASS 150 DR18 - RESIDENTIAL AND ALL NON-COMMERCIAL AREAS AND ALL STREET CROSSINGS (OPEN-CUT, DIRECT BURY); AND CLASS 200 DR14 - ALL COMMERCIAL AND INDUSTRIAL AREAS.
2. DUCTILE IRON PIPE SHALL BE CEMENT LINED, CLASS 51, AND PRESSURE RATED AT 350 PSI. MECHANICAL JOINT OR PUSH-ON JOINT SHALL MEET ALL THE REQUIREMENTS OF THE FOLLOWING ANSI/AWWA C111/A 21.11 (FOR RUBBER GASKET JOINTS): ANSI/AWWA C150/21.50 (FOR THICKNESS DESIGN) AND ANSI/AWWA C151/A 21.51 REQUIRED TO RESOLVE THE (FOR DUCTILE IRON PIPE MOLDS). A CEMENT LINED DUCTILE IRON PIPE MAY BE USED ON ALL TYPES OF WATER MAINS.
3. FITTINGS FOR DUCTILE IRON AND ALL PVC PIPE WILL BE CEMENT LINED DUCTILE IRON, MECHANICAL JOINT, 350 PRESSURE RATED, AND SHALL COMPLY WITH ANSI/AWWA C11/A 21.10 OR C153/A 21.53 AND C111/A 21.11 OR U.S. PIPES "PERMAFUSE" EPOXY. ALL MJ FITTINGS ARE TO BE RESTRAINED WITH MEGA LUGS, OR GRIPPER RINGS. NO PVC FITTINGS PERMITTED.
4. P.E. PIPE SIZES 1/2" THROUGH 3 1/2" SHALL CONFORM TO AWWA C-901 STANDARDS. P.E. PIPE SIZES 4" THROUGH 63" SHALL CONFORM TO AWWA C-906 STANDARDS.
5. INSTALLATION OF WATER MAINS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C900 (MANUAL M23) FOR PVC PRESSURE PIPE AND C600 FOR DUCTILE IRON PIPE.
6. ALL GATE VALVES ARE TO BE EPOXY LINED AND WITH RESILIENT WEDGE OR SEAT SIZES THRU 10".
7. BACKFILL & COMPACTION: AS PER STANDARD DETAIL FOR WATER SYSTEMS.
8. FIRE PROTECTION: MATERIALS SHALL MEET AWWA B-502 OR 503.
9. BACKFLOW PREVENTOR ASSEMBLIES SHALL CONFORM TO AWWA M-14 STANDARDS.
10. ALL WATER METER COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
11. ALL MAINS TO HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM OF 48 INCHES COVER.
12. ALL MAINS LARGER THAN 12" WILL BE SWABBED FOR DEBRIS.
13. BOLLARDS SHALL BE USED TO PROTECT FIRE HYDRANTS AND BACKFLOW PREVENTION DEVICES AS DIRECTED BY CCU.

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SEWER SPECIFICATIONS

GRAVITY SEWER:

1. ALL SEWER LINES BETWEEN MANHOLES SHALL BE ABSOLUTELY STRAIGHT AND TRUE; NO CURVATURE SHALL BE TOLERATED. DEVIATION FROM LINE OR GRADE SHALL NOT BE MORE THAN 1/2 INCH FOR LINE AND 1/2 INCH FOR GRADE AT ANY SINGLE POINT.
2. PIPE LAYING SHALL PROCEED UPGRADE WITH SPIGOT ENDS POINTING IN DIRECTION OF FLOW.
3. TRENCH BOTTOM SHALL FORM A CONTINUOUS AND UNIFORM BEARING AND SUPPORT FOR THE PIPES.
4. GRAVITY MAINS EXTENDING FROM MANHOLES FOR FUTURE SERVICE SHALL EXTEND 20LF FROM MANHOLE, (ONE LENGTH OF PIPE).

SEWER FORCE MAINS:

(SEE LOW PRESSURE SEWER MAIN DETAILS FOR LOW PRESSURE SEWER REQUIREMENTS, IF APPLICABLE)

1. PVC PIPE SHALL MEET THE REQUIREMENTS OF AWWA C900 OR C905. THE APPROPRIATE CLASS SHALL BE AS FOLLOWS; COLORED GREEN AND THE WORD "SEWER" PRINTED CONTINUOUSLY IN A CONTRASTING COLOR ON IT; CLASS 150 DR18 - ALL FORCE MAINS IN RESIDENTIAL; AND ALL NON-COMMERCIAL AREAS AND UNDER ALL STREET CROSSING. CLASS 200 DR14 - ALL COMMERCIAL AND INDUSTRIAL AREAS.
2. DUCTILE IRON PIPE SHALL BE EPOXY LINED, CLASS 51, OR PRESSURE RATED AT 350. MECHANICAL JOINT OR PUSH-ON JOINT SHALL MEET ALL THE REQUIREMENTS OF THE FOLLOWING ANSI/AWWA C111/A 21.11 (FOR RUBBER GASKET JOINTS); ANSI/AWWA C150/21.50 (FOR THICKNESS DESIGN) AND ANSI/AWWA C151/A 21.51 (FOR DUCTILE IRON PIPE MOLDS).
 - A. EPOXY LINED DUCTILE IRON PIPE WILL BE USED ON ALL TYPES OF SEWER FORCE MAINS.
 - B. EPOXY LINING WILL BE CHEMICALLY CURED, TWO COMPONENT MATERIALS APPLIED TO THE SAND BLASTED SURFACES OF PIPE AND FITTINGS, 40 MILS D.F.T. MINIMUM WILL BE APPLIED TO ALL DUCTILE IRON PIPE AND FITTINGS. A 2500 VOLT (MIN.) TEST WILL BE CONDUCTED TO ENSURE TOTAL COVERAGE.
3. ALL FITTINGS WILL BE EPOXY LINED DUCTILE IRON, MECHANICAL JOINT, 350 PRESSURE RATED, AND SHALL COMPLY WITH ANSI/AWWA C110/A 21.10 OR C153/A21.53. ALL MJ FITTINGS ARE TO BE RESTRAINED WITH MEGA LUGS, OR GRIPPER RINGS.
4. INSTALLATION OF SEWER FORCE MAINS SHALL BE IN ACCORDANCE WITH ANSI/AWWA C900 (MANUAL M23) FOR PVC PRESSURE PIPE AND C600 FOR DUCTILE IRON PIPE. (LATEST REVISION) SEWER FORCE MAIN IS TO BE INSTALLED LEVEL OR APPROVED BY C.C.U.
5. ALL GATE VALVES ARE TO BE EPOXY LINED AND WITH RESILIENT WEDGE OR SEAT, SIZES THRU 10".
6. ALL ECCENTRIC PLUG VALVES WILL BE EPOXY LINED AND CONSTRUCTED OF A CAST IRON BODY, 4" TO 54" (FIG. 118, F OR M, RS16 (4" + 6"), RS17 (8" AND UP)).
7. ALL MAINS TO HAVE A MINIMUM COVER OF 36 INCHES AND A MAXIMUM OF 48 INCHES.
8. EPOXY LINED PLUG VALVES ARE REQUIRED FOR ALL APPLICATIONS OTHER THAN HOT TAPPING.

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