

**BONDS AND INSPECTIONS:**

**INSPECTIONS:**

- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND THE CITY OF COCONUT CREEK AT LEAST 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
- 1. CLEARING AND FILLING.
- 2. STORM DRAINAGE SYSTEM LAMPING.
- 3. SUBGRADE (PROCTORS) AND DENSITY TESTS SHALL BE APPROVED PRIOR TO THE PLACEMENT OF LIME/ROCK.
- 4. LIME/ROCK BASE (PROCTORS) AND DENSITY TESTS AND AS-BUILTS MUST BE SUBMITTED WITH A CERTIFIED LETTER FROM THE ENGINEER OF RECORD INDICATING THEY CONFORM WITH THE APPROVED PLAN PRIOR TO THE PLACEMENT OF ASPHALT.
- 5. ASPHALTIC CONCRETE.
- 6. FINAL.
- 7. THE CONTRACTOR SHALL CONTACT THE ABOVE AGENCIES FOR INSPECTIONS OF ALL UTILITIES:

- A. WATER:
  - 1. PRESSURE TESTING
  - 2. FILLING/PIGGING/FLUSHING
  - 3. TE-INS/DISINFECTION/SWABBING/VISUAL/BACTERIOLOGICAL SAMPLES
- B. WASTEWATER:
  - 1. PRESSURE TESTING/FLUSHING
  - 2. PRESSURE AND LAMPING
  - 3. MANHOLE PAINTING
  - 4. LIFT STATION START-UPS
- C. ROADWAYS:
  - 1. SUBGRADE INSPECTIONS
  - 2. BASE/ROCK INSPECTIONS
  - 3. DENSITIES
- D. STORM SEWER:
  - 1. LAMPING
  - 2. STRUCTURE INSPECTIONS
- E. WALK THROUGH:
  - 1. PRELIMINARY/FINAL

**WATER AND SEWER SEPARATION NOTES:**

SANITARY SEWERS AND FORCE MAINS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS AND FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE, WHENEVER POSSIBLE.

WHERE SANITARY SEWERS & GRAVITY SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES VERTICAL DISTANCE, THE GRAVITY SEWER SHALL BE DUCTILE IRON PIPE (DIP) AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 12 INCHES MUST BE MAINTAINED AT ALL CROSSINGS. MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATER AND FORCE MAIN.

ALL CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUITADISTANT FROM THE POINT OF CROSSING (PIES CENTERED ON THE CROSSING).

WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

A MINIMUM 10 FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH. SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

ALL DIP SHALL BE CLASS 51 OR HIGHER. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18" IN PARALLEL INSTALLATION, THE WATER MAINS SHALL BE CONSTRUCTED OF D.I.P. AND THE GRAVITY SEWER SHALL BE CONSTRUCTED OF PVC SD-26 OR C-900 WITH A MINIMUM VERTICAL CLEARANCE OF 12".

**WATER NOTES:**

ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO STANDARDS OF THE CITY OF COCONUT CREEK. NO PHYSICAL CONNECTION OF NEW WATER MAINS TO EXISTING WATER MAINS SHALL BE MADE UNTIL SUCH TIME THAT THE NEW MAINS ARE CONFIRMED TO BE BACTERIOLOGICALLY SAFE AND THE HEALTH DEPARTMENT RELEASE HAS BEEN OBTAINED. TEMPORARY CONNECTIONS OF NEW MAINS TO ACTIVE MAINS FOR THE PURPOSE OF FILLING AND FLUSHING SHALL BE MADE BY A METHOD DEEMED ACCEPTABLE TO THE CITY OF COCONUT CREEK.

ALL WATER MAINS SHALL BE DESIGNED FOR A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE COMPRESSION TYPE BELL AND SPIGOT JOINTS.

THE WATER SYSTEM SHALL BE HYDROSTATICALLY PRESSURE TESTED AND DISINFECTED PER AWWA/ANSI C600/05 AND TESTED FOR A PERIOD OF 2 HOURS AT NOT LESS THAN 150 PSI IN ACCORDANCE WITH ANSI/AWWA STANDARD C600-05 WITH AN ALLOWABLE LEAKAGE AS DETERMINED BY THE FOLLOWING FORMULA:

$$L = \frac{500P^2}{1000 + P} \quad \text{AWWA C600-05}$$

WHERE:

- L = ALLOWABLE LEAKAGE IN GALLONS/HOUR
- P = PIPE LENGTH IN FEET
- D = NOMINAL DIAMETER OF PIPE IN INCHES
- P = AVERAGE TEST PRESSURE IN PSI

TEST PRESSURE SHALL NOT VARY MORE THAN 5 P.S.I. THROUGHOUT THE TEST. REPUMPING OF LINE DURING PRESSURE TEST IS NOT ALLOWED. IF RESTRAINT JOINT PIPE IS SPECIFIED ON THE PLANS IT SHALL BE INSTALLED TO MEET THE REQUIREMENTS OF THE MANUFACTURER. THE CITY OF COCONUT CREEK WILL CONDUCT THE TEST LENGTH SHALL BE LESS THAN OR EQUAL TO 2000 FT. REPUMPING OF LINE DURING PRESSURE TEST IS NOT ALLOWED.

ALL PIPE SHALL BE SUITABLE FOR USE AS A PRESSURE CONDUIT. PROVISIONS MUST BE MADE FOR EXPANSION AND CONTRACTION AT EACH JOINT WITH AN ELASTOMERIC RING. THE BELL SHALL CONSIST OF AN INTEGRAL WALL SECTION WITH AN ELASTOMERIC RING WHICH MEETS THE REQUIREMENTS OF ASTM F-477 STANDARD SPECIFICATIONS FOR ELASTOMERIC SEALS (GASKETS FOR JOINTING PLASTIC PIPE). THE WALL THICKNESS IN THE BELL SECTION SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-3139.

DIP PIPE SHALL BE DELIVERED TO THE JOB SITE FROM THE FACTORY AND STORED AT THE JOB SITE IN PALLETIZED UNITS OR BUNDLES TO PREVENT UNNECESSARY DEFLECTION PRIOR TO INSTALLATION. EACH PALLETIZED UNIT SHALL BE SIZED TO LIMIT THE STACKING OF PIPE TO NOT MORE THAN SIXTY (60) INCHES HIGH OR AS APPROVED BY THE ENGINEER.

CARE SHALL BE TAKEN DURING THE TRANSPORTING OF THE PIPE TO INSURE THAT THE BUNDLING AND THE DOWN METHODS DO NOT DAMAGE OR DEFLECT THE PIPE IN ANY MANNER. PIPE BENT, DEFLECTED, OR OTHERWISE DAMAGED DURING SHIPPING WILL BE REJECTED.

D.I.P. MAINS SHALL BE LAID WITH 30" CLEAR COVER.

FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON PRESSURE CLASS 350 OR THICKNESS CLASS 5THROUGH 12" AND CLASS 350 IN SIZES 16" AND LARGER. ALL FITTINGS SHALL BE CEMENT LINED AND SEALED THE SAME AS PIPE IN ACCORDANCE WITH AWWA/ANSI C110/A-21-10-03.

ALL WATER MAINS SHALL HAVE CONTINUOUS DETECTOR TAPE 18 INCHES BELOW FINAL GRADE. DETECTOR TAPE SHALL HAVE BLUE SIDE-UP. A 14 GAUGE MULTI STRAND WIRE SHALL BE ATTACHED TO ALL PVC WATER MAIN TO FACILITATE FUTURE LOCATION. AN EXTRA 4 FEET OF WIRE SHALL BE PROVIDED AT ALL BLOWOFFS AND FIRE HYDRANTS, ETC. THE WIRES SHALL BE LAID CLEAR OF VALVES. THE WIRES SHALL BE TESTED FOR CONDUCTIVITY AT THE PRESSURE TEST.

DUCTILE IRON PIPE (DIP): SHALL CONFORM TO ANS/AWWA C151/A21.51-02. MINIMUM THICKNESS CLASS SHALL BE CLASS 51 DUCTILE IRON. PUSH-ON JOINTS SHALL CONFORM TO ANS/AWWA C111/A21.11-00. GASKETS SHALL BE NEOPRENE. THE LINING SHALL BE CEMENT MORTAR CONFORMING TO ANS/AWWA C424/A21.4-03 AND OUTSIDE COATING OF EITHER COAL TAR EPOXY OR ASPHALT SHALL BE APPLIED. POLYETHYLENE WRAP SHALL BE INSTALLED WHERE REQUIRED. ALL WATER MAINS 12" OR ABOVE MUST BE DIP.

ALL WATER MAINS SHALL BE BEDDED AND BACKFILLED PER STANDARD TRENCH DETAIL. D.I.P. NOT TO BE DEFLECTED MORE THAN ONE-HALF OF MANUFACTURER'S RECOMMENDATION.

BACTERIOLOGICAL TESTING SHALL BE IN ACCORDANCE WITH AWWA C-651-05.

- MAXIMUM DISTANCE BETWEEN SAMPLING POINTS SHALL BE AS FOLLOWS:
  - TRANSMISSION MAINS: EVERY 1200 FT.
  - BRANCH MAINS: EVERY 1000 FT.
  - ISOLATED MAINS: LESS THAN 1000 FT. 2 SAMPLE POINTS GREATER THAN 1000 FT.
  - 3 SAMPLE POINTS.

POLYETHYLENE ENCASEMENT/WRAP SHALL BE INSTALLED ON ALL IRON PIPES INCLUDING VALVES, FITTINGS, SLEEVES, HYDRANTS, ETC. POLYWRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE MINIMUM ANS/AWWA C105/A21.5-05 STANDARDS.

DUCTILE IRON WATER MAIN SEALCOAT SHALL BE COAL TAR EPOXY OR ASPHALT.

JOINTS SHALL BE PUSH-ON DUCTILE IRON AND RESTRAINED USING TR-FLEX U.P. PIPE OR FLEX RING BY AMERICAN PIPE.

CITY TO BE ADVISED IN WRITING AT LEAST 48 HOURS PRIOR TO THE FOLLOWING:

- MET CONNECTIONS
- PRESSURE TESTS
- FILLING/FLUSHING
- CHLORINATION
- BACTERIOLOGICAL SAMPLES

**PIPE MARKINGS:**

ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320(21)(B), F.A.C., USING BLUE AS A PREDOMINANT COLOR. UNDERGROUND PLASTIC PIPE WILL BE SOLID-WALL BLUE PIPE. PIPE WILL HAVE A CO-EXTRUDED BLUE EXTERNAL SHEATH OR WILL BE WHITE OR BLACK PIPE WITH BLUE STRIPES INCORPORATED INTO OR APPLIED TO. THE PIPE WALL AND UNDERGROUND METAL OR CONCRETE PIPE WILL HAVE BLUE STRIPES APPLIED TO THE PIPE WALL. PIPE STRIPES DURING MANUFACTURING OF THE PIPE WILL HAVE CONTINUOUS STRIPES THAT RUN PARALLEL TO THE AXIS OF THE PIPE. TAPE OR PAINT IS USED TO STRIKE PIPE DURING INSTALLATION OF THE PIPE. THE TAPE OR PAINT WILL REMAIN INTACT DURING AND AFTER INSTALLATION OF THE PIPE. IF TAPE OR PAINT IS USED TO STRIKE PIPE DURING INSTALLATION OF THE PIPE, THE TAPE OR PAINT WILL BE APPLIED IN A CONTINUOUS LINE THAT RUNS PARALLEL TO THE AXIS OF THE PIPE AND THAT IS LOCATED AT LEAST 10 FEET ABOVE THE TOP OF THE PIPE. THE TAPE OR PAINT DIAMETER OF 24 INCHES OR GREATER. TAPE OR PAINT WILL BE APPLIED IN CONTINUOUS LINES ALONG EACH SIDE OF THE PIPE AS WELL AS ALONG THE TOP OF THE PIPE. ABOVEGROUND PIPE WILL BE PAINTED BLUE OR WILL BE COLOR CODED OR MARKED LIKE UNDERGROUND PIPE.)

**FIRE HYDRANTS:**

ALL FIRE HYDRANTS SHALL COMPLY WITH AWWA/ANSI STANDARD C502-05 AND THE FOLLOWING DESIGN STANDARDS: THE WATER DISTRIBUTION MAINS AND FIRE HYDRANTS SHALL BE INSTALLED, ACCEPTED, COMPLETED AND IN SERVICE PRIOR TO COMMENCEMENT OF CONSTRUCTION.

THE FIRE HYDRANTS SHALL BE OF THE "COMPRESSION TYPE", OPENING AGAINST THE PRESSURE AND CLOSING WITH THE ONE PRESSURE WITH A 2 1/4" WALKER OPENING. THE HYDRANT SHALL BE EQUIPPED WITH 2 - 2 1/2" HOSE NOZZLES AND 1 - 4 1/2" PUMPER NOZZLE.

FIRE HYDRANTS SHALL BE FURNISHED WITH A SEALED OIL OR GREASE RESERVOIR LOCATED IN THE BONNET SO THAT ALL THREADED AND BEARING SURFACES ARE AUTOMATICALLY LUBRICATED WHEN THE HYDRANT IS OPERATED. THE HYDRANT WILL BE DESIGNED FOR USE BY THE USE OF A SMOOTH CASKER'S WRENCH OR THE HYDRANT SHOE SHALL HAVE INTEGRAL CAST BACK LUGS ON THE MAIN VALVE TO PERMIT THE MAIN VALVE ASSEMBLY AND VALVE SHAFT TO BE REMOVED WITHOUT DIGGING EARTH OR DISASSEMBLING THE HYDRANT BARREL.

FIRE HYDRANTS SHALL BE FURNISHED WITH A BREAKABLE FEATURE THAT WILL BREAK CLEANLY UPON IMPACT. THIS SHALL CONSIST OF A TWO PART BREAKABLE SAFETY FLANGE WITH A BREAKABLE STEM COUPLING. THE UPPER AND LOWER BARRELS SHALL BE FLUTED AND REBBED ABOVE AND BELOW THE SAFETY FLANGE OR HAVE AN EXTRA STRENGTH LOWER BARREL.

THE FIRE HYDRANT INTERNAL VALVE SHALL BE 5 1/4" MINIMUM. THE PENTAONAL OPERATING NUTS AND THE CAP NUTS SHALL BE 1 1/2" POINT TO FLAT. DRAIN VALVE OUTLETS FOR THE HYDRANTS SHALL BE PLUGGED OR OMITTED. THE HYDRANTS SHALL OPEN, COUNTER CLOCKWISE AND THE DIRECTION OF OPENING SHALL BE CAST ON THE TOP. THE BURJ LENGTH, MEASURED FROM THE BOTTOM OF THE CONNECTING PIPE TO THE GROUND LINE, AT THE HYDRANT SHALL BE THREE FEET SIX INCHES (42") MINIMUM OR AS REQUIRED BY PLAN.

THE HYDRANT SHALL BE EQUIPPED WITH A 6" MINIMUM MECHANICAL JOINT BASE INLET UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

THE BONNETS OF THE FIRE HYDRANTS WILL BE COLOR CODED BY THE INSTALLING CONTRACTOR IN ACCORDANCE TO THE ABOVE SPECIFICATIONS. FIRE DEPARTMENT PERSONNEL ARE REQUIRED TO WITNESS THE FLOW TESTS. THE FIRE AND ENGINEERING DEPARTMENTS WILL BE NOTIFIED 48 HOURS PRIOR TO THE FLOW TEST. FIRE DEPARTMENT PERSONNEL WILL BE REQUIRED TO WITNESS THE TESTING. RESULTS FROM THE FLOW TEST SHOULD BE DOCUMENTED BY THE CONTRACTOR OF RECORD AND TO BE SUBMITTED TO THE CITY OF COCONUT CREEK FIRE AND ENGINEERING DEPARTMENTS.

FIRE HYDRANTS SHALL BE LOCATED NO LESS THAN 4 FEET AND NO MORE THAN 7 FEET FROM THE EDGE OF THE PAVEMENT OF THE ADJACENT ROADWAY, NO LESS THAN 8 FEET FROM ANY PHYSICAL FEATURE WHICH MAY OBSTRUCT ACCESS OR VIEW OF ANY HYDRANT UNLESS OTHERWISE APPROVED BY CUPID. GUARD POSTS AROUND FIRE HYDRANTS ARE REQUIRED WHEN HYDRANTS ARE PLACED WITHIN 6 FEET OF ALL DRIVEWAYS, TURN RADII, OR PARKING AREAS. THE HYDRANT SHALL RECEIVE A FACTORY COAT OF EPOXY TRAFFIC (YELLOW) WITH A 40 MIL DFT.

**SANITARY SEWER:**

UNLESS OTHERWISE NOTED OR APPROVED, ALL GRAVITY MAINS AND SERVICES SHALL BE UNPLASTICIZED POLYVINYL CHLORIDE (PVC) NON PRESSURE PIPE CONFORMING TO ASTM D3034 AND SDR 26 WITH INTEGRAL GASKET BELL AND SPIGOT JOINTS FOR PUSH-ON RUBBER GASKET TYPE JOINT SEALS CONFORMING TO ASTM D1869.

PVC FITTINGS SHALL BE OF MONOLITHIC CONSTRUCTION OF THE TYPE SPECIFIED BY THE MANUFACTURER OF THE PIPE BEING USED. NO SOLVENT WELDS OR THREADED JOINTS WILL BE PERMITTED. ALL JOINTS SHALL BE COMPRESSION GASKET TYPE.

THE JOINING OF PIPE ON THE JOB SHALL BE DONE IN STRICT ACCORDANCE WITH THE PIPE MANUFACTURER'S INSTRUCTIONS AND SHALL BE DONE ENTIRELY IN THE TRENCH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

CONNECTION OF PVC PIPE TO MANHOLES SHALL BE MADE WITH "SCH-40" SAND COLLARS CORRESPONDING TO THE SIZE AND TYPE OF SEWER PIPE.

INFLUENT AND EFFLUENT SEWERS SHALL BE GROUDED IN PLACE USING A TYPE II WATER-PROOF, EXPANDING GROUT ACCEPTABLE TO THE ENGINEER. ALL OPENINGS AND JOINTS SHALL BE SEALED WATERTIGHT. REFER TO GENERAL NOTES FOR NON SHRINK GROUT.

LIFT HOLES THROUGH PRECAST STRUCTURES ARE NOT PERMITTED.

A FLOW CHANNEL SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. REFER TO DETAILS.

OUTSIDE DROP CONNECTIONS WILL BE REQUIRED WHEN THE VERTICAL DISTANCE BETWEEN PIPE INVERTS EXCEEDS TWO FEET (2'). DROP CONNECTIONS, WHERE REQUIRED, SHALL BE CAST MONOLITHICALLY WITH THE MANHOLE ELEMENTS AS SHOWN ON DETAILS.

THE LID AND FRAME SHALL BE CAST OF CLOSE-GROUND GREY IRON CONFORMING TO ASTM A-48, CLASS 30 AND SHALL BE OF UNIFORM QUALITY, FREE OF BLOW HOLES, POROSITY, CRACKS, AND OTHER OBVIOUS VISUAL DEFECTS. THE COMBINED WEIGHT OF THE FRAME AND LID SHALL NOT BE LESS THAN 420 POUNDS, AND THE LID SHALL WEIGH A MINIMUM OF 160 POUNDS. THE SEATING SURFACES BETWEEN FRAMES AND COVERS SHALL BE MACHINED TO FIT TRUE. NO PLUGGING OR FILING WILL BE ALLOWED. CASTING PATTERNS SHALL CONFORM TO THOSE DESIGNATED BY THE CITY.

THE LID SHALL HAVE THE WORDS "CITY OF COCONUT CREEK SANITARY SEWER" CAST IN ALL MANHOLE COVERS. CASTINGS SHALL BE CLEANED AND COATED WITH A COAL-TAR PITCH VARNISH WHICH IS TOUGH WHEN COLD BUT NOT TACKY OR BRITTLE. PICK TYPE LIFTING HOLES WILL BE CAST INTO LIDS, BUT SHALL NOT GO CLEAR THROUGH THE LID.

MINIMUM COVER ON SANITARY SEWER SHALL BE 48" TO TOP OF PIPE, UNLESS OTHERWISE APPROVED.

ALL LIDS SHALL BE PROVIDED WITH WATERTIGHT POLYETHYLENE MANHOLE INSERTS AS APPROVED BY THE CITY OF COCONUT CREEK UTILITIES DEPARTMENT.

TWO COATS OF KOPPER 300-M EPOXY TAR COATING, FIRST RED, SECOND ONE BLACK, SHALL BE APPLIED TO THE INSIDE OF ALL MANHOLES AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION (OR FILM THICKNESS OF 16 MILS OF KOPPER 300-M OR EQUAL). ONE COAT OF BLACK KOPPER 300-M EPOXY TAR COATING SHALL BE APPLIED TO THE OUTSIDE OF THE MANHOLE. THE INTERIOR COAT SHALL BE APPLIED AFTER SEWER LAMPING OF LINES. THE APPLICATION OF EACH COAT SHALL BE AN INSPECTION AND SHALL BE SCHEDULED A MINIMUM OF 48 HOURS PRIOR TO TESTING.

UPON COMPLETION OF THE WORK A LAMPING INSPECTION SHALL BE MADE OF THE COMPLETED SYSTEM ALONG WITH AN INFILTRATION AND EXFILTRATION TEST. AFTER ALL TESTING HAS BEEN COMPLETED, THE CONTRACTOR WILL MAKE A TELEVISION INSPECTION AT HIS EXPENSE OR MAY CHOOSE OUTSIDE AN COMPANY BEFORE THE LINES ARE ACCEPTED FOR USE AND BEFORE RELEASE OF MAINTENANCE BOND.

THE EXTERIOR OF ALL SANITARY SEWER MANHOLES SHALL BE WATERPROOFED.

MANHOLE JOINTS WILL BE SEALED WITH RAMNEX OR APPROVED EQUAL AND ANTI-HYDRO CEMENT INSIDE AND OUT.

ALL SANITARY SEWER GRAVITY MAINS AND SERVICES SHALL BE BEDDED AND BACKFILLED PER STANDARD TRENCH DETAIL.

ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF COCONUT CREEK.

MANHOLES SHALL BE PRECAST IN ACCORDANCE WITH ASTM-C-478. MINIMUM THICKNESS SHALL BE EIGHT (8) INCHES. A MINIMUM SIX (6) INCH BASE EXTENSION OUTSIDE THE WALL OF THE MANHOLE IS REQUIRED. MANHOLES SHALL NOT BE LOCATED AT OR CLOSE TO FINAL GRADE LOW POINTS.

PROVIDE A MINIMUM SIX (6) INCH BED OF WASHED 3/4" INCH ROCK FOR ALL SUB-AQUEOUS GRAVITY SEWER PIPES.

THE INSTALLED SEWERS SHALL UNDERGO TELEVISION INSPECTION AT TWO (2) TIMES. THE FIRST SHALL BE PRIOR TO THE FINAL ACCEPTANCE BY THE CITY AND THE OTHER SHALL BE JUST PRIOR TO THE RELEASE OF THE ONE-YEAR MAINTENANCE BOND.

CITY SHALL INSPECT INSIDE OF MANHOLE AFTER EACH APPLICATION/COAT OF PAINT.

CONTRACTOR TO PROVIDE A MINIMUM SIX (6) INCH BED OF 3/4" WASHED ROCK FOR ALL SUB-AQUEOUS GRAVITY SEWER PIPE.

**EARTHWORK:**

THE CONTRACTOR'S BID FOR EARTHWORK SHALL INCLUDE THE EXCAVATION, REMOVAL AND DISPOSAL OF ALL MATERIALS, OF WHATEVER CHARACTER WITHIN THE LIMITS OF CONSTRUCTION. ALL TOPSOIL THAT IS SUITABLE FOR LANDSCAPING OR GRASSING OPERATIONS, MAY BE STOCKPILED NEARBY FOR SUCH USE IF APPROVED BY OWNER. WHERE MUCK, ROCK, CLAY, OR OTHER MATERIAL WITHIN THE LIMITS OF CONSTRUCTION IS.

UNSATURABLE IN ITS ORIGINAL POSITION, THE CONTRACTOR SHALL EXCAVATE SUCH MATERIAL IN ITS ENTIRETY AND BACKFILL WITH SUITABLE MATERIAL WHICH SHALL BE COMPACTED IN PLACE TO CONFORM TO THE REQUIRED GRADES AND SECTIONS AS SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE UNSATURABLE MATERIAL PRESENT ON-SITE AND INCLUDE THE REMOVAL AND

REPLACEMENT OF SAME IN HIS BID PRICE. THE CONTRACTOR SHALL MAKE HIS OWN ESTIMATE ON THE VOLUME OF MATERIAL ACTUALLY REQUIRED TO OBTAIN THE CROSS SECTIONS OR GRADES AS SHOWN ON THE PLANS.

THE ENTIRE WIDTH OF THE RIGHT-OF-WAY AND UTILITY/DRAINAGE EASEMENTS SHALL BE COMPLETELY DEMOLISHED TO THE FULL DEPTH BEFORE CONSTRUCTION BEGINS. NO MATERIAL OF CLASSES A-1-4, 7, OR 8 SHALL BE ALLOWED TO REMAIN. MATERIAL SUPPORTING THE ROADWAY SHALL BE STABILIZED TO HAVE A MINIMUM LBR OF 40. SUBGRADES SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY PER AASHTO T-180.

WHEREVER EXCAVATIONS FOR UTILITIES ARE MADE BELOW THE GRADES INDICATED ON THE PLANS, GRANULAR MATERIAL, FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL SHALL BE USED TO RESTORE THE AREA TO THE PROPER GRADE, AND SHALL BE COMPACTED TO OPTIMUM MOISTURE DENSITY AT OPTIMUM MOISTURE PER AASHTO T-180.

AREAS TO BE COMPACTED SHALL BE MOISTENED AND COMPACTED BY EITHER ROLLING, TAMPING, OR ANY OTHER METHOD APPROVED BY THE ENGINEER, IN ORDER TO OBTAIN THE DESIRED DENSITY. THE ENGINEER SHALL INSPECT ALL COMPACTED AREAS PRIOR TO FURTHER CONSTRUCTION OPERATIONS.

PRIOR TO BACKFILLING AROUND STRUCTURES THE AREAS SHALL BE CLEAN OF ALL TRASH AND DEBRIS OF ANY DESCRIPTION, UNLESS DIRECTED BY THE ENGINEER TO BE LEFT IN PLACE, SUCH AS SHEETING AND BRACING.

BACKFILLING PITS AND TRENCHES: BACKFILL MATERIAL SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE IN TWELVE (12) INCH MAXIMUM LAYERS, EACH LAYER BEING THOROUGHLY COMPACTED, UNTIL ONE (1) FOOT OF COVER EXISTS ABOVE THE CROWN OF THE PIPE. THE REMAINING TRENCH PORTION UP TO THE PAVEMENT BASE SHALL BE BACKFILLED IN LAYERS NOT EXCEEDING EIGHT (8) INCHES WITH EACH LAYER BEING COMPACTED TO ONE HUNDRED (100) PERCENT AND TESTED AT INTERVALS OF ONE HUNDRED (100) FEET MAXIMUM BEFORE PLACING SUCCEEDING LAYERS. SWALE AREAS SHALL BE COMPACTED TO NINETY-EIGHT (98) PERCENT OF MAXIMUM, AND TESTING SHALL BE AT THE CITY ENGINEERING INSPECTOR'S DISCRETION. ALL MATERIALS SHALL BE ABLE TO PASS THROUGH A SIX-INCH RING. LABORATORY TESTING FOR THE OPTIMUM MOISTURE AND MAXIMUM SOIL DENSITY SHALL CONFORM TO THE SPECIFICATIONS OF AASHTO T-99-02 (STANDARD PROCTOR). RESTORATION OF THE ROADWAY SHALL BE IN ACCORDANCE WITH THE CITY'S UTILITY AND ENGINEERING STANDARDS MANUAL AS APPLICABLE. AT THE CONTRACTOR'S OPTION, WITH THE APPROVAL OF THE ENGINEER OF RECORD, AND WITH THE CITY PROJECT ENGINEER'S APPROVAL, AFTER THE CONTRACTOR BACKFILL HAS REACHED THE CENTERLINE OF THE NEWLY INSTALLED PIPE OR CONDUIT, THE REMAINING TRENCH BACKFILL MAY BE PLACED TO ONE (1) FOOT ABOVE THE GROUND WATER LEVEL, WITHOUT INTERIM COMPACTING, PROVIDED THAT THE WATER IS ALLOWED TO RISE TO ITS NATURAL LEVEL AND THEN BE PUMPED DOWN TO THE PIPE INVERT, AT LEAST TWICE.

THE EXISTING ELEVATIONS SHOWN HEREON ARE FOR THE PURPOSE OF INDICATING THE GROUND ELEVATION ONLY AT THE POSITION SHOWN AND IN NO WAY SHOULD INDICATE ELEVATION AT ANY POINT OTHER THAN THAT SHOWN.

**DRAINAGE NOTES:**

DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE.

REINFORCED CONCRETE PIPE SHALL MEET THE REQUIREMENTS OF F.D.O.T. STANDARD SPECIFICATIONS SECTION 941. CONCRETE PIPE SHALL BE CLASS III OR AS SHOWN ON THE PLANS. PIPE GASKETS SHALL MEET F.D.O.T. STANDARD SPECIFICATIONS SECTION 942.

PRIOR TO BACKFILLING THE DRAINAGE SYSTEM, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, AND THE CITY OF COCONUT CREEK FOR INSPECTION.

BOTTOM OF ALL INLETS SHALL BE 18" BELOW THE LOWEST INLET INVERT OR MINIMUM 30" FOR P.R.B. CATCH BASINS/INLETS/JUNCTION BOXES SHALL NOT BE LOCATED IN DRIVEWAYS.

DRAINAGE STRUCTURES SHALL BE CLEANED PRIOR TO ACCEPTANCE BY THE CITY.

**PAVING NOTES:**

UNDERGROUND UTILITIES SHALL BE COMPLETED OR SLEEVING PROVIDED BEFORE ANY LIME/ROCK BASE CONSTRUCTION BEGINS.

ALL PAVEMENT SUBGRADE MATERIAL SHALL HAVE A LBR OF 40 AT 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE PER AASHTO T-180, METHOD "D". THE ENGINEER SHALL SPECIFY THE LOCATION AND NUMBER OF DENSITY TESTS, MAXIMUM EVERY 7000 S.F. OF PAVEMENT REQUIRED OR AT ONE DENSITY TEST OVER EVERY TRENCH. THE TEST RESULTS SHALL BE ACCEPTED BY THE ENGINEER PRIOR TO PLACEMENT OF BASE MATERIAL.

IF THE PLANS INDICATE A STABILIZED SUBBASE IS TO BE USED IT SHALL HAVE A MINIMUM LBR VALUE OF 40. 12" THICK COMPACTED TO A MINIMUM SDR DRY DENSITY AS PER AASHTO T-180 AND SHALL BE IN ACCORDANCE WITH F.D.O.T. SECTION 160. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT TO THE ENGINEER FOR APPROVAL THE MATERIAL TO BE USED FOR THE SUBBASE AND THEIR PROPORTIONS, AND LABORATORY LBR. BEFORE DELIVERY TO THE SITE. QUALITY CONTROL LBR'S MAY BE REQUIRED BY THE ENGINEER.

IF THE PLANS INDICATE A LIME/ROCK BASE, THE CONSTRUCTION AND THE MATERIAL FOR THE LIME/ROCK BASE SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. SPECIFICATIONS, SECTION 200. THE LIME/ROCK BASE SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE PER AASHTO T-180, METHOD "D". THE ENGINEER SHALL SPECIFY THE LOCATION AND NUMBER OF DENSITY TESTS REQUIRED. MAXIMUM EVERY 7000 S.F. OF PAVEMENT REQUIRED OR AT ONE DENSITY TEST OVER EVERY TRENCH. THE TEST RESULTS SHALL BE ACCEPTED BY THE ENGINEER PRIOR TO THE APPLICATION OF PRIME AND TACK COATS.

ALL GRADES SHOWN REFER TO FINISHED ASPHALT PAVEMENT UNLESS OTHERWISE NOTED.

LIME/ROCK BASES SHALL BE EIGHT INCHES (8") THICK. LIME/ROCK OF THE MIAMI FORMATION SHALL BE USED AND SHALL HAVE A MINIMUM CARBONATE CONTENT OF 70% LIQUID LIMIT 35, PLASTICITY 6 AND A MINIMUM LBR OF 100. BASE MATERIAL SHALL BE COMPACTED TO A DENSITY OF NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.

A PRIME COAT SHALL BE USED ON THE FINISHED ROCK BASE AND A TACK COAT BETWEEN PAWING COURSES.

THE PRIME AND TACK COAT CONSTRUCTION AND MATERIALS FOR THE PRIME AND TACK COATS SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. STANDARD SPECIFICATIONS, SECTION 300. THE PRIME AND TACK COATS SHALL BE APPLIED PRIOR TO CONSTRUCTION OF THE ASPHALT SURFACE COURSE AND SHALL BE SANDED AND ROLLED IN ACCORDANCE WITH SECTION 300. APPLICATION RATES SHALL BE 0.25 GAL/SY FOR LIME/ROCK BASE.

ASPHALTIC CONCRETE SURFACE COURSE SHALL BE AS SHOWN ON THE PLANS. THE MATERIALS FOR THE ASPHALT CONCRETE SURFACE COURSE SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. STANDARD SPECIFICATIONS, SECTION 331 AND BROWARD COUNTY.

SURFACE COURSE SHALL BE 1-1/2" THICK. STAGE CONSTRUCTION WILL BE REQUIRED. STAGE I (BOTTOM COURSE) SHALL BE 3/4" THICK TYPE III-3, STAGE II (TOP COURSE) SHALL BE 3/4" THICK TYPE III-3. PRIME AND TACK COATS SHALL BE APPLIED PRIOR TO CONSTRUCTION IS COMPLETED OR AS DIRECTED BY THE CITY OF COCONUT CREEK.

RAISE ALL P.C.P. OR P.R.M. SHOWN ON THE PLAT TO FINAL GRADE IF THEY ARE LOCATED IN PAVEMENTS OR CONCRETE. (PER SECTION 8810.7.5 OF THE SUBDIVISION CODE).

BASE AND SUBGRADE DENSITY TESTS SHALL BE CONDUCTED FOR A MAXIMUM 7000 SQUARE FEET OF FINISHED PAVEMENT.

PROCTORS SHALL BE PERFORMED ON ALL SUBGRADE AND LIME/ROCK BASE MATERIAL AND SUBSEQUENT CHANGES IN MATERIAL. LBR'S, SEVE ANALYSIS, AND DENSITIES SHALL BE SUBMITTED TO THE CITY.

ALL REPAIRS TO EXISTING PAVEMENT SHALL BE SAWCUT AND THE EDGES PRIOR TO RELAYING THE ASPHALT. UTILITY PIPING OR WIRING LESS THAN FOUR (4) INCHES IN DIAMETER REQUIRES A SCHEDULE 40 PVC CASING PIPE WITH SAND BACKFILLS UNDER PAVED AREAS ONLY.

**GENERAL NOTES:**

ALL CONSTRUCTION, MATERIAL, INSTALLATION, AND TESTING SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION TOGETHER WITH THE CITY'S MINIMUM DESIGN STANDARDS AND SPECIFICATIONS AS APPLICABLE. IF THERE ARE ANY CHANGES TO THE CITY'S STANDARD SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE UTILITY OWNERS TO RESOLVE UTILITY CONFLICTS AND UTILITY ADJUSTMENTS, AS REQUIRED.

CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL UTILITIES AND OTHER PROPERTY AND SHALL BE RESPONSIBLE FOR ANY DAMAGES INCURRED DURING CONSTRUCTION AND SHALL REPAIR SAID DAMAGES AT HIS EXPENSE.

THE ENGINEER WILL HOLD A PRE-CONSTRUCTION MEETING PRIOR TO THE START OF ANY CONSTRUCTION AND INCLUDE A REPRESENTATIVE FROM THE RESPECTIVE ENGINEERING AND UTILITY DEPARTMENTS, THE CONTRACTOR, OWNER, AND OTHER APPLICABLE AGENCIES.

THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. THE LOCATIONS OF THE EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY "OTHER" UTILITIES (NOT SHOWN ON THE PLANS) EXIST WITHIN THE AREA OF CONSTRUCTION. SHOULD THERE BE "OTHER" UTILITIES, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE UTILITY OWNERS TO RESOLVE UTILITY CONFLICTS AND UTILITY ADJUSTMENTS, AS REQUIRED.

ALL DEVIATIONS FROM PLANS ARE TO BE APPROVED BY ENGINEER IN WRITING PRIOR TO CONSTRUCTION AND FOR ALL INSPECTIONS AND TESTING.

THE ENGINEER MUST BE GIVEN A MINIMUM 48 HOURS NOTICE PRIOR TO START OF CONSTRUCTION AND FOR ALL INSPECTIONS AND TESTING.

COMPLETE AS-BUILT INFORMATION RELATIVE TO LOCATIONS AND ELEVATIONS OF VALVES, SERVICES, FITTINGS, LENGTHS OF PIPE, TOP OF WATER MAIN ELEVATIONS, AND THE LINES SHALL BE ACCURATELY RECORDED AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL INFORMATION SHALL BE TAKEN BY A PROFESSIONAL MAPPER AND SURVEYOR AND SHOWN ON A SEALED AS-BUILT PLAN.

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THE CONTRACTOR SHALL BE RESPONSIBLE AT ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION FOR THE PROTECTION OF EXISTING AND NEWLY INSTALLED UTILITIES AND IMPROVEMENTS FROM DAMAGES, DISRUPTION OF SERVICE OR DESTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUCH MEASURES AS NECESSARY TO PROTECT THE HEALTH, SAFETY, AND WELFARE OF THOSE PERSONS HAVING ACCESS TO THE WORK SITE.

WALL REINFORCEMENT AND THICKNESS FOR PRECAST STRUCTURES SHALL BE IN ACCORDANCE WITH ASTM C478. MINIMUM WALL THICKNESS SHALL BE 8" AND A MINIMUM 6" BASE EXTENSION OUTSIDE OF MANHOLE WALL.

MORTAR USED TO SEAL THE PIPE INTO THE WALLS OF THE PRECAST STRUCTURES WILL BE NON-SHRINK GROUT AND WILL NOT CAUSE LEAKAGE IN OR OUT OF THE STRUCTURES. THE MAXIMUM OPENING THROUGH WALLS FOR PIPES SHALL BE THE MAXIMUM REQUIRED OUTSIDE DIAMETER PLUS 6".

NO PIPE SHALL BE COVERED UNTIL INSPECTED AND APPROVED BY THE ENGINEER AND OTHER APPLICABLE AUTHORITIES.

ALL PIPE SHALL BE LAID IN A DRY TRENCH; ALL MUCK OR OTHER UNSTABLE MATERIAL ENCOUNTERED IN TRENCH BOTTOM SHALL BE REMOVED AND BACKFILLED WITH GRANULAR MATERIAL, COMPACTED TO 100% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.

SHOP DRAWINGS FOR ALL STRUCTURES AND MATERIALS TO BE USED ON THE PROJECT SHALL BE SUBMITTED TO THE DESIGN ENGINEER AND THE RESPECTIVE ENGINEER AND UTILITY DEPARTMENTS FOR APPROVAL PRIOR TO CONSTRUCTION OR INSTALLATION.

ALL ELEVATIONS REFER TO THE NAVD 88 (NORTH AMERICAN