GENERAL:

1. 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 COUNTY'S MINIMUM DESIGN STANDARDS AND SPECIFICATIONS AS APPLICABLE. IF F.D.O.T. MATERIAL IS SPECIFIED, IT SHALL IMPLY THAT THEIR CONSTRUCTION PROCEDURES SHALL BE FOLLOWED.
2. 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.
3. 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.
4. 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 IF "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.
5. ALL DEVIATIONS FROM PLANS ARE TO BE APPROVED BY ENGINEER IN WRITING PRIOR TO CONSTRUCTION AND FOR ALL INSPECTIONS AND TESTING.
6. THE ENGINEER MUST BE GIVEN A MINIMUM 48 HOURS NOTICE PRIOR TO START OF CONSTRUCTION AND FOR ALL INSPECTIONS AND TESTING.
7. CONTRACTOR IS RESPONSIBLE TO PREPARE COMPLETE AS-BUILT PLANS WITH INFORMATION RELATIVE TO LOCATIONS AND ELEVATIONS OF VALVES, SERVICES, FITTINGS, LENGTHS OF PIPE, TOP OF WATER MAIN ELEVATIONS, AND THE LIKE SHALL BE ACCURATELY RECORDED AND SUBMITTED TO THE DESIGN ENGINEERING FIRM PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL INFORMATION SHALL BE TAKEN BY A REGISTERED LAND SURVEYOR AND SHOWN ON A SEALED AS-BUILT PLAN ALONG WITH AN AUTOCADD DISK.
8. 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.
9. WALL REINFORCEMENT AND THICKNESS FOR PRECAST STRUCTURES SHALL BE IN ACCORDANCE WITH ASTM C478. MINIMUM WALL THICKNESS SHALL BE 8" AND MIN 6" BASE EXTENSION OUTSIDE OF MANHOLE WALL.
10. 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".
11. 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 BASE.
12. ALL JOINTS SHALL BE FURNISHED WATERTIGHT. NO PIPE SHALL BE COVERED UNTIL INSPECTED AND APPROVED BY THE ENGINEER AND OTHER APPLICABLE AUTHORITIES.
13. 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-99, METHOD "C".
14. 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.
15. CONTRACTOR TO CONTACT SUNSHINE STATE ONE-CALL OFFICE (1-800-432-4770) AND ALL LOCAL UTILITY COMPANIES FOR UNDERGROUND UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
16. EXISTING SECTION CORNERS AND OTHER LAND MARKERS OR MONUMENTS LOCATED WITHIN PROPOSED CONSTRUCTION ARE TO BE MAINTAINED BY THE CONTRACTOR AND / OR RESET AFTER CONSTRUCTION UNDER CERTIFICATION BY A REGISTERED SURVEYOR.
17. CONTRACTOR IS TO PREVENT INTRODUCTION OF DEBRIS OR DIRT INTO EXISTING STORM DRAIN AND / OR SANITARY SYSTEM AS A RESULT OF CONSTRUCTION ACTIVITIES. ALL LINES AND STRUCTURES SHALL BE CLEANED PRIOR TO FINAL INSPECTION AND ACCEPTANCE.
18. LOCATION OF DRAINAGE AND SANITARY SEWER STRUCTURES GOVERN, ADJUST PIPE LENGTHS AS REQUIRED.
19. THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" F.D.O.T. & B.C.T.E.D. STANDARDS SHALL BE USED CURRENT FOR THE SIGNAGE AND PAVEMENT MARKING REQUIREMENTS OF THE PROJECT.
20. ALL UNDERGROUND UTILITY MAINS AND STRUCTURES FOR WATER, SEWER, GAS, IRRIGATION, DRAINAGE, TELEPHONE, POWER, CABLE TV, AND OTHERS MUST BE INSTALLED, INSPECTED, TESTED, AND APPROVED PRIOR TO ANY SUBGRADE CONSTRUCTION.
21. ALL PERMANENT GRASS AREAS ARE TO RECEIVE A 4" MUCK BLANKET OR TOPSOIL TREATMENT.
22. ALL CURB AND GUTTER SHALL HAVE A LIMEROCK FOUNDATION OR "PAD" OF AT LEAST FOUR INCHES (4") THICKNESS, COMPACTED TO 98% OF MAXIMUM DENSITY PER AASHTO (T-180).
23. A MINIMUM 10' SEPARATION BETWEEN ALL UTILITIES SHALL BE MAINTAINED.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING APPROPRIATE SAFETY PRECAUTIONS DURING EXCAVATION AND TRENCHING OPERATIONS AS REQUIRED BY THE "TRENCH SAFETY ACT" AND THE O.S.H.A. PART "P".
25. ALL INSTALLATIONS, MATERIALS, AND WORKMANSHIP IN THE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE B.C.E.D. "MINIMUM STANDARDS".

PAVING:

1. A PROCTOR SHALL BE PERFORMED ON ALL SUBGRADE AND LIMEROCK BASE MATERIAL AND SUBSEQUENT CHANGES IN MATERIAL. LBR's, SIEVE ANALYSIS, ETC. SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO SCHEDULING DENSITY TESTS. ALL TESTS RESULTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD IN WRITING.
2. UNDERGROUND UTILITIES SHALL BE INSTALLED OR SLEEVING PROVIDED BEFORE ANY PAVEMENT CONSTRUCTION BEGINS, NO EXCEPTIONS.
3. FOR COMPACTED SUBGRADE, FOLLOW THE SPECIFICATIONS ON THE PAVING, GRADING, AND DRAINAGE DETAIL SHEET.
4. ALL PAVEMENT SUBGRADE MATERIAL SHALL HAVE AN LBR 40 AT 100% MAXIMUM DENSITY PER AASHTO T-99, METHOD "C" AND SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. SPECIFICATIONS, SECTION 120. THE ENGINEER SHALL SPECIFY THE LOCATION AND NUMBER OF DENSITY TESTS REQUIRED. A MINIMUM OF ONE DENSITY TEST OVER EVERY TRENCH AND ONE DENSITY TEST EVERY 7000 SQUARE FEET OF PROPOSED PAVEMENT, DEPENDING ON THE LENGTH. THE TEST RESULTS SHALL BE ACCEPTED BY THE ENGINEER PRIOR TO PLACEMENT OF BASE MATERIAL.
5. IF THE PLANS INDICATE A STABILIZED SUBBASE IS TO BE USED IT SHALL HAVE A MINIMUM LBR VALUE OF 40 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 TO PROVE THE IN PLACE CONDITION.
6. IF THE PLANS INDICATE A LIMEROCK BASE, THE CONSTRUCTION AND THE MATERIAL FOR THE LIMEROCK BASE SHALL CONFORM TO THE REQUIREMENTS OF F.D.O.T. SPECIFICATIONS, SECTION 200. THE LIMEROCK BASE SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AT OPTIMUM MOISTURE, AASHTO T-180. THE ENGINEER SHALL SPECIFY THE LOCATION AND NUMBER OF DENSITY TESTS REQUIRED. THE TEST RESULTS SHALL BE ACCEPTED BY THE ENGINEER PRIOR TO APPLICATION OF THE PRIME AND TACK COATS.
7. ALL GRADES SHOWN REFER TO FINISHED ASPHALT PAVEMENT UNLESS OTHERWISE NOTED.
8. FOR STABILIZING AT INTERSECTIONS, TURNOUTS, AND GRADED CONNECTIONS SEE STANDARD INDEX NO. 515. SEE TYPICAL SECTION FOR DEPTH AND LBR.
9. LIMEROCK BASES SHALL BE A MINIMUM OF EIGHT INCHES (8") THICK OR AS OTHERWISE SPECIFIED ON PLANS. LIMEROCK OF THE MIAMI FORMATION SHALL BE USED AND SHALL HAVE A MINIMUM CARBONATE CONTENT OF 60%, A MINIMUM CALCIUM AND MAGNESIUM CONTENT OF 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.
10. A TACK COAT SHALL BE USED BETWEEN PAVING COURSES AND A PRIME COAT SHALL BE USED ON THE FINISHED BASE.
11. 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 LIMEROCK BASE.
12. 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 ALL OTHER LOCAL CODES THAT MAY APPLY.
13. ASPHALT CONCRETE SHALL BE OF MINIMUM THICKNESS AS NOTED ON PLANS AND SHALL BE TYPE S-III OR AS OTHERWISE SPECIFIED ON THE PLANS.
14. RAISE OR LOWER SURVEY CONTROL POINTS TO FINAL GRADE OF PAVEMENT.

EARTHWORK:

1. 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 UNSUITABLE 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 UNSUITABLE 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.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO PREPARE THE SITE IN ACCORDANCE WITH THE OWNERS GEOTECHNICAL REPORT FOR SUBSURFACE EXPLORATION AND RECOMMENDATIONS.
3. THE ENTIRE WIDTH OF THE RIGHT-OF-WAY SHALL BE COMPLETELY DEMUCKED BEFORE CONSTRUCTION OF THE ROADWAY BEGINS. NO MATERIAL OF CLASSES A-5, A-7, OR A-8 SHALL BE ALLOWED. ALL MATERIAL SUPPORTING THE ROADWAY AND SHOULDERS SHALL BE STABILIZED TO HAVE A MINIMUM LBR OF 40. SUBGRADES SHALL BE COMPACTED TO 100% OF MAXIMUM DENSITY PER AASHTO T-99 METHOD "C".
4. 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 100% OF MAXIMUM DENSITY PER AASHTO T-99 METHOD "C".
5. 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.
6. 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. BACKFILL SHALL BE HAND TAMPED IN 12" COMPACTED LIFTS.
7. 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:

1. CATCH BASINS / INLETS / JUNCTION BOXES SHALL NOT BE LOCATED IN RESIDENTIAL DRIVEWAYS.
2. DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE UNLESS OTHERWISE SPECIFIED ON PLANS.
3. 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.
4. PRIOR TO BACKFILLING THE DRAINAGE SYSTEM, THE CONTRACTOR SHALL NOTIFY THE GOVERNING AGENCIES FOR INSPECTION.
5. BOTTOM OF ALL INLETS SHALL BE 12" BELOW THE LOWEST INLET INVERT, UNLESS OTHERWISE SPECIFIED.
6. CORRUGATED ALUMINUM PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-196. CORRUGATED ALUMINUM PIPE SHALL BE FABRICATED WITH HELICAL CORRUGATIONS WITH A MINIMUM OF TWO ANNULAR CORRUGATIONS FORMED INTO EACH END TO ACCOMMODATE A COUPLING BAND. REFER TO TABLE 1, SECTION 945 FOR THICKNESS OF METAL FOR PIPE.
7. HIGH DENSITY POLYETHYLENE (H.D.P.) COMPOSED OF CORRUGATED EXTERIOR AND SMOOTH INTERIOR SHALL BE IN ACCORDANCE WITH AASHTO M252 AND M294, TYPE 'S' AS MANUFACTURED BY HANCOR, INC. WITH SURELOC JOINTS OR A.D.S. WITH CLEATED BELL AND SPIGOT OR APPROVED EQUAL.
8. SEE LANDSCAPING PLANS FOR ADDITIONAL GRADING AND DRAINAGE INFORMATION FOR RECREATIONAL AMENITIES, POOL, POOL DECK, BERMING, ETC.
9. GRATE ELEVATION OF TYPE-10 / CURB AND GUTTER INLET STRUCTURES PROVIDED AT EDGE OF PAVEMENT.
10. SITE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS ENGINEER'S SUBSURFACE EXPLORATION AND RECOMMENDATION REPORT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND PREPARATION OF ALL EXISTING STORM DRAINAGE PIPE AND INLETS FOR TESTING AS REQUIRED FOR NEW CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO COMPLETELY INSPECT EXISTING STORM DRAINAGE SYSTEM IN ADVANCE OF ANY WORK AND NOTIFY THE ENGINEER OF ANY DEFICIENCIES. SHOULD CONTRACTOR COMMENCE WORK WITHOUT FIRST INSPECTING THE EXISTING STORM DRAINAGE SYSTEM, THEN THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED REPAIRS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF TEMPORARY TURBIDITY SCREENS AT OUTFALL PIPES AND LAKE FROM TIME OF CONSTRUCTION COMMENCEMENT UNTIL FINAL PAVING AND DRAINAGE INSPECTION.
13. ALL RAMPS, WALKS, AND PEDESTRIAN PATHWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION" LATEST EDITION. IN THE CASE OF ANY CONFLICTS BETWEEN THESE PLANS AND CODE, THE CODE WILL GOVERN.
14. TEMPORARY AND PERMANENT FIRE DEPARTMENT ACCESS ROADS SHALL BE FREE OF CONSTRUCTION MATERIALS, VEHICLES, ETC. DURING CONSTRUCTION.
15. YARD DRAINAGE SYSTEM MATERIALS SHALL BE BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.
16. ALL EXISTING STORM DRAINAGE PIPING AND INLETS DESIGNATED FOR REMOVAL SHALL BE COMPLETELY REMOVED.
17. MINIMUM PARKING LOT LONGITUDINAL AND CROSS SLOPES SHALL BE 0.50% AND 1.0%, RESPECTIVELY.
18. RESIDENTIAL PARCEL SIDEWALK TO BE CONSTRUCTED AT TIME OF BUILDING CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE PLAN.
19. ALL LANDSCAPE ISLANDS TO BE CURBED, UNLESS OTHERWISE NOTED ON THE PLAN.
20. ALL ELEVATIONS REFER TO N.A.V.D.
21. CONTRACTOR TO REFER TO ARCHITECTURAL (PLUMBING) PLANS TO CONFIRM LOCATIONS AND ELEVATIONS OF BUILDING STORM / ROOF DRAINAGE CONNECTIONS.
22. CONTRACTOR TO PROTECT NEW AND EXISTING TORMWATER PIPING, BROWARD COUNTY REQUIRES A VIDEO INSPECTION PRIOR TO FINAL ACCEPTANCE.

GATE VALVES:

1. GATE VALVES 4" AND LARGER SHALL BE MECHANICAL JOINT TYPE AND COMPLY WITH AWWA / ANSI STANDARD C509-01.
2. MECHANICAL JOINTS SHALL CONFORM TO AWWA / ANSI C111/A21.11-00
3. ALL GATE VALVES ARE TO BE IRON BODY, BRONZE MOUNTED, DOUBLE DISK, NON-RISING STEM, RESILIENT SEAT TYPE, OPENING LEFT (COUNTER CLOCKWISE). THE INTERIOR LINING SHALL BE FUSION BONDED EPOXY ACCORDING TO AWWA 550-01 AND AN EXTERIOR EPOXY COAT (BOTH 40 MILLS DFT.)
4. GATE VALVES 4" TO 12" SHALL HAVE A MAXIMUM WORKING PRESSURE OF 200 PSI AND BE TESTED AT 400 PSI. GATE VALVES SHALL BE RESILIENT SEATED MUELLER, CLOW RESILIENT WEDGE, M & H, OR APPROVED EQUAL, WITH RESTRAINT JOINTS.
5. GATE VALVES UNDER 4" IN SIZE SHALL BE BRONZE GATE VALVES CONFORMING TO MSS STANDARD PRACTICE SP-37. THEY SHALL BE DOUBLE DISK, NON-RISING STEM, OPEN LEFT (COUNTER CLOCKWISE) WITH OPERATING WHEEL. PEWTER AND POT METAL OPERATING WHEELS SHALL NOT BE PERMITTED. GATE VALVES SHALL MEET AWWA C500-02 STANDARDS.
6. VALVE BOXES SHALL BE CAST IRON EXTENSION TYPE WITH NOT LESS THAN 5-1/4" DIAMETER SHAFT AND WITH COVERS MARKED "WATER", PAINTED BLUE. USF 7500 OR APPROVED EQUAL.
7. GATE VALVES 18" AND LARGER WILL BE SUBSTITUTED WITH BUTTERFLY VALVES AS MANUFACTURED BY PRATT, DEZURIK, CLOW, OR APPROVED EQUAL.
8. BUTTERFLY VALVES ARE TO BE CAST OR DUCTILE IRON BODY; ALLOY CAST IRON OR DUCTILE IRON DISK; BODY MOUNTED ADJUSTABLE SEAT; ONE-PIECE STAINLESS STEEL SHAFT; SHORT OR LONG BODY TYPE; WITH THE VALVE CLASS, SHAFT SIZE AND OTHER SPECIAL REQUIREMENTS SELECTED IN ACCORDANCE WITH THE SPECIFIC DESIGN; AND ARE TO COMPLY WITH THE PROVISIONS OF AWWA C504-00, "RUBBER SEATED BUTTERFLY VALVES."
9. VALVE OPERATION IS TO BE APPROVED GEAR ACTUATORS, WITH SEALED ENCLOSURES FOR BURIED OR SUBMERGED SERVICE. POSITION INDICATORS WILL BE FURNISHED AS REQUIRED. UNITS ARE TO BE EQUIPPED WITH 2" ACTUATING NUTS, CAST IRON HANDWHEELS, OR CHAIN OPERATORS, WITH GALVANIZED STEEL CHAINS, AS APPROPRIATE FOR THE INSTALLATION. APPURTENANCES ARE TO BE FURNISHED BY THE VALVE MANUFACTURER.

WATER SYSTEM:

1. ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO BCWWS STANDARDS, THE LOCAL MUNICIPALITY AND APPLICABLE DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES STANDARDS. NO PHYSICAL CONNECTION OF NEW WATER MAINS TO ACTIVATE 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 UTILITY PROVIDING SERVICE.
2. ALL WATER MAINS SHALL BE DESIGNED FOR A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE COMPRESSION TYPE BELL AND SPIGOT JOINTS.
3. THE WATER SYSTEM SHALL BE HYDROSTATICALLY PRESSURE TESTED AND DISINFECTED PER AWWA / ANSI C600-05, C651-05 AND TESTED FOR A MINIMUM PERIOD OF 2 HOURS AT A MINIMUM STARTING PRESSURE OF 150 PSI IN ACCORDANCE WITH ANSI / AWWA STANDARD C600-05 WITH AN ALLOWABLE LEAKAGE AS DETERMINED BY THE FOLLOWING FORMULA:
4. Q = LD x SQUARE ROOT OF P / 148,000 WHERE:
   - Q = QUANTITY OF MAKEUP WATER IN GALLONS / HOUR
   - L = LENGTH OF PIPE SECTION BEING TESTED IN FEET
   - D = NOMINAL DIAMETER OF THE PIPE IN INCHES
   - P = AVERAGE TEST PRESSURE DURING HYDROSTATIC TEST IN PSI GAUGE
5. TEST PRESSURE SHALL NOT VARY MORE THAN 5 PSI THROUGHOUT THE TEST.THE MAXIMUM ALLOWABLE LEAKAGE SHALL BE BASED ON A MAXIMUM 2000 FEET WHEN THE LENGTH OF PIPE TESTED EXCEEDS 2000 FEET. THRUST BLOCKS AS SHOWN ON THE DETAIL SHEETS SHALL BE PROVIDED AT ALL BENDS UNLESS NOTED OTHERWISE ON PLANS. IF RESTRAINT JOINT PIPE ISSPECIFIED ON THE PLANS, IT SHALL BE INSTALLED TO MEET THE REQUIREMENTS OF THE PIPE MANUFACTURER AND THE UTILITY DEPARTMENT.NO CONCRETE THRUST BLOCKS WILL BE ALLOWED EXCEPT FOR FIRE HYDRANTS.
6. BACTERIOLOGICAL TESTING SHALL BE IN ACCORDANCE WITH AWWA / ANSI C651-05 LATEST REVISION.
7. PVC WATER MAIN PIPE (BLUE) SHALL MEET THE REQUIREMENTS OF AWWA C-900.97 "POLYVINYL CHLORIDE (PVC) PRESSURE PIPE", CLASS 150 PIPE SHALL CONFORM TO REQUIREMENT OF SDR 18.
8. ALL PVC 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 REQUIREMENTSOF ASTM D-3139.
9. PVC 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 NOT MORE THAN SIXTY (60) INCHES HIGH OR AS APPROVED BY THE ENGINEER.
10. CARE SHALL BE TAKEN DURING THE TRANSPORTING OF THE PIPE TO INSURE THAT THE BINDING AND TIE DOWN METHODS DO NOT DAMAGE OR DEFLECT THE PIPE IN ANY MANNER. PIPE BENT, DEFLECTED, OR OTHERWISE DAMAGED DURING SHIPPING WILL BE REJECTED.
11. PVC MAINS SHALL BE LAID WITH A MINIMUM OF 36" CLEAR COVER.
12. FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON PRESSURE CLASS 350 THROUGH 12". ALL FITTINGS SHALL BE CEMENT MORTAR LINED AND SEALED THE SAME AS PIPE IN ACCORDANCE WITH AWWA/ANSI C110/A21.10-98.
13. PVC AND D.I.P. PIPE SHALL BE DEFLECTED NO MORE THAN ONE HALF(1/2) THE MANUFACTURERS RECOMMENDATION.
14. JOINTS FOR BELL AND SPIGOT PVC/DIP PIPE AND FITTINGS SHALL BE MECHANICAL OR RUBBER GASKET (EITHER ON SPIGOT OR IN BELL)COMPRESSION TYPE AS SPECIFIED IN ACCORDANCE WITH AWWA/ANSI STANDARD C111/A21.11-00. SPECIAL FITTINGS AND JOINTS SHALL BE CONSIDERED FOR SPECIFIC INSTALLATION.
15. ALL WATER MAINS SHALL HAVE CONTINUOUS DETECTOR TAPE 18 INCHES BELOW GRADE ALONG ALL WATER MAINS. DETECTOR TAPE SHALL HAVE BLUE SIDE-UP. A 14 GAUGE MULTI STRAND WIRE SHALL BE ATTACHED TO ALL NON-CONDUCTIVE WATER MAIN TO FACILITATE FUTURE LOCATION. AN EXTRA 4' OF WIRE SHALL BE PROVIDED AT BLOWOFFS, FIRE HYDRANTS, ETC.
16. POLYETHYLENE ENCASEMENT/WRAP SHALL BE INSTALLED ON ALL IRON PIPESINCLUDING VALVES, FITTINGS, SLEEVES, HYDRANTS, ETC. POLYWRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE MINIMUM ANSI/AWWA C105/A21.5-99 STANDARDS.
17. DUCTILE IRON WATER MAIN SEALCOAT SHALL BE COAL TAR EPOXY OR ASPHALT.
18. DUCTILE IRON PIPE JOINTS SHALL BE PUSH-ON TYPE AND RESTRAINED A MINIMUM DISTANCE AS SPECIFIED IN RESTRAINEND DETAIL ON APPLICABLE DETAIL SHEET, USING MEGA-LUG OR APPROVED EQUAL USING TR-FLEX U.S. PIPE OR FLEX RING BY AMERICAN PIPE.
19. WATER MAIN STUBS FOR FUTURE EXTENSION INCLUDING ALL FITTINGS BACK TO TEE (IF STUB LENGHTS IS LEES THAN TWO PIPE LENGTH)LENGHTS WILL BE RESTRAINT JOINT PIPE FOR THE LAST TWO LENGTHS. (AS REQUIRED BY ENGINEER OR UTILITY DEPT.)
20. DUCTILE IRON PIPE SHALL BE CLASS 350 AND SHALL BE CEMENT LINED AND SEALCOATED IN ACCORDANCE WITH AWWA / ANSI STANDARD C151/A21.51-02. WATER MAINS SHALL BE LAID WITH A MINIMUM 30" CLEAR COVER. DUCTILE IRON FITTINGS SHALL BE CLASS 350 THROUGH 12" AND CLASS 250 IN SIZES 16" AND LARGER. ALL FITTINGS SHALL BE CEMENT LINED AND SEALCOATED THE SAME AS PIPE IN ACCORDANCE WITH AWWA / ANSI STANDARDS C104/A21.4-95 AND C153/A21.53-00. NEOPRENE GASKETS SHALL BE USED.
21. ALL WATER MAINS SHALL BE BEDDED AND BACKFILLED PER STANDARD TRENCH DETAILS.
22. CONTRACTOR IS RESPONSIBLE FOR THE EXISTING ON-SITE WATER SYSTEM UNTIL FINAL INSPECTION, CERTIFICATION AND APPROVAL BY THE UTILITY.
23. CONTRACTOR IS RESPONSIBLE WHETHER, OR NOT NOTED ON PLANS FOR RAISING OR LOWERING OF EXISTING GATE VALVE BOXES, METER BOXES, ETC. THAT MAY NEED ADJUSTMENT TO MEET PROPOSED FINISH GRADES.
24. ALL EXISTING WATER MAINS AND COMPONENTS DESIGNATED FOR REMOVAL ARE THE PROPERTY OF THE UTILITY. MATERIALS SHALL BE REMOVED FROM THE GROUND AS CAREFULLY AS POSSIBLE AND SALVAGED FOR UTILITY.SHOULD UTILITY REFUSE SAID WATER COMPONENTS, THEN THE CONTRACTOR WILL BE RESPONSIBLE FOR OFF-SITE DISPOSAL.
25. CONTRACTOR TO REFER TO ARCHITECTURAL (PLUMBING) PLANS TO CONFIRM LOCATIONS AND ELEVATIONS OF ALL WATER FIRE AND SEWER BUILDING CONNECTIONS.
26. DEVELOPER IS RESPONSIBLE TO DEDICATE UTILITY EASEMENTS TO THE UTILITY FOR ALL PUBLIC WATER MAINS THAT ARE TO BE ULTIMATELY OWNED AND MAINTAINED BY THE UTILITY. EASEMENTS TO BE GRANTED UPON THE CONCLUSION OF THE WORK FROM AS-BUILT PIPE LOCATIONS, UNLESS OTHERWISE REQUIRED BY THE UTILITY.
27. CONTRACTOR IS RESPONSIBLE TO DELIVER AS-BUILT WATER PLANS, MYLAR, AND COMPUTER DISK TO THE ENGINEER OF RECORD PRIOR TO FINAL CERTIFICATION TO THE UTILITY. AS-BUILTS SHALL BE SIGNED AND SEALED BY A REGISTERED FLORIDA SURVEYOR.
28. MAINTAIN A 10-FOOT HORIZONTAL CLEARANCE BETWEEN ALL UTILITIES AND BUILDING STRUCTURES, UNLESS OTHERWISE SHOWN ON THE PLANS.
29. LANDSCAPING SHALL NOT BE INSTALLED WITHIN 6' OF ALL WATER MAINS AND SERVICES OR WITHIN A 5' RADIUS OF ALL FIRE HYDRANTS, UNLESS APPROVED BY THE ENGINEER.
30. WATER MAINS SHALL BE DEFLECTED OVER DRAINAGE AT ALL CONFLICTS.
31. ALL WATER SERVICES SHALL TERMINATE A MINIMUM OR 5' FROM BUILDING.
32. UNDERGROUND WATER MAINS AND FIRE HYDRANTS SHALL BE INSTALLED AND OPERATIONAL PRIOR TO BUILDING CONSTRUCTION AS REQUIRED BY THE LOCAL FIRE DEPARTMENT AND THE SOUTH FLORIDA BUILDING CODE, LATEST REVISION.
33. ALL WATER MAIN INSTALLATIONS SHALL COMPLY WITH THE COLOR CODING REQUIREMENTS OF CHAPTER 62-555.320, F.A.C.

WATER SERVICE LINES:

1. WATER SERVICES SHALL BE POLYETHYLENE TUBING (PE 3408) COMPLYING WITH APPLICABLE REQUIREMENTS FOR PE, AWWA C902-01 HIGH MOLECULAR WEIGHT PLASTIC MATERIAL ASTM D-2666, 250 PSI RATING (CTS-OD) SDR 9. SERVICE PIPE SHALL BE INSTALLED AS A SINGLE RUN WITHOUT UNIONS.
2. JOINTS FOR TUBING SHALL BE OF THE COMPRESSION TYPE UTILIZING A TOTALLY CONFINED GRIP SEAL AND COUPLING NUT. STAINLESS STEEL TUBE STIFFENER INSERTS SHALL ALSO BE USED FOR TUBING SERVICES.
3. SERVICE LINES SHALL BE MARKED WITH 2" X 4" POST PAINTED BLUE.
4. ALL WATER SERVICES SHALL BE BEDDED AND BACKFILLED PER STANDARD TRENCH DETAIL.
5. PIPE DEFLECTION SHALL BE NO MORE THAN ONE HALF OF THE MANUFACTURER'S RECOMMENDATION.
6. MINIMUM COVER SHALL BE 24".
7. ALL WATER SERVICE LINES UNDER PAVED AREAS SHALL BE SLEEVED IN SCHEDULE 40 PVC AND SHALL BE OF ONE SINGLE LENGTH WITHOUT UNIONS.
8. FORD STAINLESS INSERTS ARE REQUIRED FOR PLASTIC PIPE.

WATER SERVICE FITTINGS:

1. METER VALVES (ASTM B-62 LATEST) SHALL BE FORD ANGLE STOPS MODEL #KV43-342W FOR SINGLE SERVICES AND FORD MODEL #UV63-42W FOR DOUBLE SERVICES OR APPROVED EQUAL.
2. CURB STOPS SHALL BE OF THE INVERTED KEY TYPE WITH TEE-HEAD SHUT OFF. CURB STOPS SHALL BE MADE OF BRASS ALLOY IN ACCORDANCE WITH ASTM SPECIFICATION B62-82A.
3. METER VALVES AND CORPORATION STOPS (FORD BALL CORP. NO. FC 202) SHALL BE OF BRONZE CONSTRUCTION IN ACCORDANCE WITH ASTM SPECIFICATION B62-82A WITH EPOXY COATED DUCTILE IRON BODY STAINLESS STEEL SERVICE SADDLES BY FORD.
4. INLET THREAD FOR METER VALVES AND CURB STOPS SHALL BE AWWA TAPER THREAD IN ALL SIZES IN ACCORDANCE WITH ANSI / AWWA STANDARD C800-89. OUTLET CONNECTIONS SHALL HAVE A COMPRESSION TYPE FITTING SAME AS VALVES.
5. CONTRACTOR TO REVIEW WATER DETAILS TO DETERMINE EXTENT OF JURISDICTION OF WATER SERVICE AND METER MATERIALS (METERS, ETC.) SUPPLIED AND INSTALLED BY UTILITY.

FIRE HYDRANTS:

1. ALL FIRE HYDRANTS SHALL COMPLY WITH AWWA / ANSI STANDARD C502-94 AND THE FOLLOWING DESIGN STANDARDS:
2. THE FIRE HYDRANTS SHALL BE OF THE COMPRESSION TYPE, OPENING AGAINST THE PRESSURE AND CLOSING WITH THE LINE PRESSURE WITH (1)-5 ," VALVE OPENING. THE HYDRANT SHALL BE EQUIPPED WITH (2)-2 " HOSE NOZZLES AND (1)-5," PUMPER NOZZLE.
3. 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 DISASSEMBLY BY USE OF A SHORT DISASSEMBLY WRENCH OR THE HYDRANT SHOE SHALL HAVE INTEGRAL CAST TIE BACK LUGS ON THE MAIN VALVE TO PERMIT THE MAIN VALVE ASSEMBLY AND VALVE SEAT TO BE REMOVED WITHOUT DIGGING EARTH OR DISASSEMBLING THE HYDRANT BARREL.
4. 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 RIBBED ABOVE AND BELOW THE SAFETY FLANGE OR HAVE AN EXTRA STRENGTH LOWER BARREL.
5. THE FIRE HYDRANT INTERNAL VALVE SHALL BE 5," MINIMUM. THE PENTAGONAL OPERATING NUTS AND THE CAP NUTS SHALL BE 1 " 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 BURY 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.
6. THE HYDRANT SHALL BE EQUIPPED WITH A 6" MINIMUM MECHANICAL JOINT BASE INLET UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
7. FIRE HYDRANTS SHALL BE MUELLER PAINTED TRAFFIC YELLOW OR AS OTHERWISE SPECIFIED ON PLANS, OR AS REQUIRED BY THE LOCAL UTILITY COMPANY.
8. REFER TO WATER DETAILS FOR OTHER REQUIREMENTS / INFORMATION RELATED TO FIRE HYDRANTS.

SANITARY SEWER:

1. ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO STANDARDS OF THE BROWARD COUNTY BUILDING DEPARTMENT, LOCAL MUNICIPALITY AND THE WATER RESOURCE DIVISION, BROWARD COUNTY DEPARTMENT OF NATURAL RESOURCE PROTECTION.
2. UNLESS OTHERWISE NOTED OR APPROVED, ALL GRAVITY MAINS AND SERVICES UP TO 5' OUTSIDE OF BUILDING SHALL BE 8" UNPLASTICIZED POLYVINYL CHLORIDE (PVC) NONPRESSURE PIPE CONFORMING TO ASTM D3034 AND SDR 35 WITH INTEGRAL WALL BELL AND SPIGOT JOINTS FOR PUSH-ON RUBBER GASKET TYPE JOINT SEALS CONFORMING TO ASTM D1869, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 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.
4. 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.
5. CONNECTION OF PVC PIPE TO MANHOLES SHALL BE MADE WITH "KOR-N-SEAL" MANHOLE COUPLINGS CORRESPONDING TO THE SIZE AND TYPE OF SEWER PIPE OR OTHER ADAPTERS AS MAY BE APPROVED BY THE UTILITY.
6. INFLUENT AND EFFLUENT SEWERS SHALL BE GROUTED IN PLACE USING A TYPE II WATERPROOF EXPANDING GROUT ACCEPTABLE TO THE ENGINEER. ALL OPENINGS AND JOINTS SHALL BE SEALED WATERTIGHT. REFER TO GENERAL NOTES FOR NON-SHRINK GROUT.
7. LIFT HOLES THROUGH PRECAST STRUCTURES ARE NOT PERMITTED.
8. A FLOW CHANNEL SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM, REFER TO DETAILS.
9. 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.
10. THE LID AND FRAME SHALL BE CAST OF CLOSE-GROUND GRAY 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 FILLING WILL BE ALLOWED. CASTING PATTERNS SHALL CONFORM TO THOSE DESIGNATED BY THE GOVERNING UTILITY.
11. THE LID SHALL HAVE THE WORDS "(PREFERABLY AS REQUIRED BY THE UTILITY)" 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.
12. MINIMUM COVER ON SANITARY SEWER PIPE SHALL BE 36" ABOVE PVC PIPE, AND 30" ABOVE D.I.P.
13. ALL MANHOLE LIDS SHALL BE PROVIDED WITH WATERTIGHT POLYETHYLENE MANHOLE INSERTS AS APPROVED BY THE UTILITY DEPARTMENT.
14. INSIDE SURFACES OF MANHOLES TO BE TREATED WITH TWO COATS KOPPERS BITUMASTIC 300-M OR EQUAL, MINIMUM DRY THICKNESS 16 MILS. MANHOLES SHALL BE CURED TWENTY-ONE (21) DAYS BEFORE COATING. MANHOLES SHALL BE PAINTED AT FACTORY PRIOR TO DELIVERY OR ONSITE WITH ONE COAT (BLACK) OUTSIDE OR AS REQUIRED BY THE UTILITY. FIRST COAT TO BE RED, SECOND COAT TO BE BLACK, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
15. THE ENGINEER AND UTILITY SHALL INSPECT INSIDE OF MANHOLE AFTER EACH APPLICATION / COAT OF PAINT.
16. UPON COMPLETION OF THE WORK A LAMPING INSPECTION SHALL BE MADE OF THE COMPLETED SYSTEM ALONG WITH AN INFILTRATION AND / OR EXFILTRATION TEST. AFTER ALL TESTING INCLUDED IN THIS CONTRACT HAS BEEN COMPLETED; THE CONTRACTOR WILL PROVIDE A TELEVISED INSPECTION OF THE SEWER LINES PRIOR TO BEING ACCEPTED FOR USE AND A SECOND TELEVISED INSPECTION AND LAMPING PRIOR TO RELEASE OF ONE-YEAR MAINTENANCE BOND.
17. MANHOLE JOINTS WILL BE SEALED WITH RAMNEK OR APPROVED EQUAL AND ANTI-HYDRO CEMENT INSIDE AND OUT.
18. ALL SANITARY SEWER GRAVITY MAINS AND SERVICES SHALL BE BEDDED AND BACKFILLED PER STANDARD TRENCH DETAIL.
19. ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF THE GOVERNING AUTHORITY.
20. A MINIMUM OF 10-FOOT HORIZONTAL CLEARENCE IS REQUIRED BETWEEN ALL UTILITY PIPE AND BUILDING STRUCTURES, UNLESS OTHERWISE SHOWN ON THE PLANS.
21. LANDSCAPING SHALL NOT BE INSTALLED WITHIN A MINIMUM OF 6' OF ALL SANITARY SEWER MAINS AND LATERALS.
22. ALL SEWER LATERALS SHALL TERMINATE AT THE PROPERTY LINE AND / OR A MINIMUM OF 5' FROM BUILDING, UNLESS OTHERWISE SPECIFIED ON THE PLANS. APPROPRIATE CLEANOUT TYPE PER LOCATION IN OR OUT OF PAVEMENT SHALL BE INSTALLED BY THE CONTRACTOR
23. SERVICE LATERALS SHALL HAVE CLEANOUTS INSTALLED AT A MAXIMUM OF 75' SPACING. CLEANOUTS IN PAVEMENT SHALL HAVE TRAFFIC BEARING LIDS.
24. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETELY INSPECT THE EXISTING SANITARY SEWER SYSTEM AND / OR LIFT STATION, IF APPLICIABLE, IN ADVANCE OF ANY WORK AND NOTIFY THE ENGINEER IN ADVANCE OF ANY DEFICIENCIES. SHOULD THE CONTRACTOR COMMENCE WORK WITHOUT FIRST INSPECTING THE EXISTING SANITARY SEWER MAINS AND / OR LIFT STATION, THAN THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS.
25. CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXISTING ON-SITE SANITARY SEWER COLLLECTION SYSTEM UNTIL FINAL INSPECTION, CERTIFICATION, AND APPROVAL BY THE GOVERNING AUTHORITY. CONTRACTOR TO INCLUDE THE COST OF CLEANING, REPAIRING, AND TESTING EXISTING SEWER MAINS AND LATERALS AS REQUIRED FOR NEW CONSTRUCTION.
26. THE CONTRACTOR IS RESPONSIBLE FOR ANY FINAL GRADE ADJUSTMENTS OF EXISTING MANHOLES AND CLEANOUTS TO MEET PROPOSED FINISH GRADE CONDITIONS.
27. DEVELOPER IS RESPONSIBLE TO DEDICATE UTILITY EASEMENTS TO THE UTILITY FOR ALL PUBLIC SEWER MAINS AND MANHOLES THAT ARE TO ULTIMATELY OWNED AND MAINTAINED BY THE UTILITY. EASEMENTS TO BE GRANTED UPON CONCLUSION OF THE WORK FROM AS-BUILT PIPE LOCATIONS.
28. CONTRACTOR IS RESPONSIBLE TO DELIVER AS-BUILT SEWER PLANS, MYLAR, AND COMPUTER DISK TO THE ENGINEER PRIOR TO FINAL CERTIFICATION TO THE GOVERNING AUTHORITIES. AS-BUILTS SHALL BE SIGNED AND SEALED BY A REGISTERED FLORIDA SURVEYOR.

SANITARY SEWER, POTABLE, AND RECLAIMED WATER SEPARATION NOTES:

1. THE FOLLOWING STATEMENTS MUST BE INCLUDED ON ALL PLANS FOR SEWAGE COLLECTION / TRANSMISSION SYSTEMS AND/OR RECLAIMED WATER MAINS TO MEET THE MINIMUM REQUIREMENTS OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THE BROWARD COUNTY DEPARTMENT OF NATURAL RESOURCES PROTECTION.
2. VERTICAL CROSSINGS:
   SANITARY SEWER SYSTEMS AND/OR RECLAIMED WATER MAINS SHALL CROSS UNDER POTABLE WATER MAINS WHENEVER PHYSICALLY POSSIBLE. SANITARY SEWER SYSTEMS AND/OR RECLAIMED WATER MAINS CROSSING BELOW POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE.
3. HORIZONTAL SEPARATIONS:
   WHEREVER IT IS PHYSICALLY POSSIBLE:
   1. SANITARY SEWER SYSTEMS SHALL HAVE A MINIMUM OF A 10-FOOT HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN IN PARALLEL INSTALLATIONS.
   2. RECLAIMED WATER MAINS SHALL HAVE A MINIMUM OF A 5 FOOT CENTER TO CENTER (ABSOLUTE MINIMUM OF 3 FOOT OUTSIDE TO OUTSIDE OF PIPE) HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN AND/OR A SANITARY SEWER SYSTEM IN PARALLEL INSTALLATIONS.
   3. WHEREVER EITHER ARE NOT PHYSICALLY POSSIBLE, THEN THE POTABLE WATER MAIN SHALL BE LAID AT THE MAXIMUM PHYSICAL HORIZONTAL SEPARATION DISTANCE POSSIBLE, AND EITHER LAID:
      A) IN A SEPARATE TRENCH
      B) ON AN UNDISTURBED EARTH SHELF WITH A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES PROVIDED BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE, THUS CONFORMING TO THE MINIMUM VERTICAL CROSSINGS PARAGRAPH.
4. CONFLICTS:
   WHEREVER IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM VERTICAL OR HORIZONTAL SEPARATION STANDARDS, THEN ALL PIPING MATERIAL SHALL BE DUCTILE IRON PIPE (D.I.P.). ALL D.I.P. SHALL BE CLASS 50 OR HIGHER. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN AND SITE CONDITIONS. ADDITIONALLY, ALL JOINTS ON THE POTABLE WATER MAIN, WITHIN 20 FEET OF THE CONFLICT, SHALL BE MECHANICALLY RESTRAINED. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF 6 INCHES SHALL BE PROVIDED BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE.

INSPECTIONS:

1. SUBGRADE (DENSITY TESTS SHALL BE APPROVED PRIOR TO THE PLACEMENT OF LIMEROCK).
2. LIMEROCK BASE (DENSITY TESTS AND AS-BUILTS MUST BE SUBMITTED WITH A CERTIFIED LETTER FROM THE GEOTECHNICAL FIRM TAKING THE TEST INDICATING THAT THE TEST CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS PRIOR TO THE PLACEMENT OF ASPHALT
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE GOVERNING AUTHORITIES IN WRITING AT LEAST 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION AND PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
   1. DELIVERY OF MATERIALS
   2. CLEARING AND EARTHWORK OPERATIONS
   3. STORM SEWER:
      A. LAMPING
      B. STRUCTURE INSPECTIONS
   4. PAVEMENT:
      A. SUBGRADE INSPECTIONS
      B. BASEROCK INSPECTIONS
      C. DENSITIES
      D. ASPHALT PAVEMENT
   5. WASTEWATER:
      A. PRESSURE TESTING / FLUSHING
      B. SANITARY SEWER LAMPING
      C. MANHOLE PAINTING
      D. LIFT STATION START-UPS
   6. WATER:
      A. PRESSURE TESTING
      B. PIGGING / FLUSHING
      C. TIE-INS / DISINFECTION / SWABBING / VISUAL
   7. WALK THROUGH:
      1. PRELIMINARY / FINAL

REVISIONS:
1. 2. 3. 4. 5. 6. 7. 8.

CLIENT:
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PROJECT:
REGANZANI TOWNHOMES
POMPANO BEACH FLORIDA

TASK:
GENERAL NOTES

GGB Engineering
CIVIL AND FORENSIC ENGINEERS • LAND PLANNERS
•CONSTRUCTION MANAGERS
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DATE:	SCALE:
JUNE, 2025	N.T.S.
DESIGNED BY:	DRAWN BY:
B.J.R.	A.R.

PROJECT NO.
25-0386

SHEET
C-002.1

BRIAN J. ROSE LICENSE No. 71549 STATE OF FLORIDA PROFESSIONAL ENGINEER

Brian Rose

This document has been digitally signed and sealed by Brian J. Rose, P.E. On the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

DRC

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08/06/2025