Appendix "B"
Jefferson Parish
Department of Engineering
Sanitary Sewer "Force Main System" General Standard Notes*[1]

** These notes shall be referenced and shall be included, in their entirety, unedited and unabridged, in all Jefferson Parish Projects as follows:*

- *New subdivisions – attach these notes to plans as Appendix "B".*
- *All other projects – include these notes in Specification Booklets, which include any work related to the Parish Sanitary Sewer Force Main System. Insert a copy of these notes, on green paper, at the end of the "Sanitary Sewer Force Main System Technical Specification" Section of the Specification Booklet. Any Deviations and / or Variations from these General Standard Notes shall be tabulated under the heading of "Deviations from Jefferson Parish Sanitary Sewer Force main System General Standard Notes" and shall be included in the "Sanitary Sewer System Technical Specification Section of the Specification Booklet.*

1. NOTIFICATION

CONTRACTORS SHALL NOTIFY THE DEPARTMENT OF SEWERAGE AT 736-6661 AND THE DEPARTMENT OF ENGINEERING, INSPECTION DIVISION AT 736-6793, 48 HOURS PRIOR TO ANY FIELD WORK RELATING TO SANITARY SEWER FORCE MAINS, SANITARY SEWER VALVES, ETC. ALL SANITARY SEWER VALVES SHALL BE OPERATED BY PARISH PERSONNEL.

WHERE A TIE-IN TO A SEWER FORCE MAIN IS TO BE MADE BY A CONTRACTOR, THE DEPARTMENT OF ENGINEERING SHALL BE NOTIFIED 24 HOURS IN ADVANCE FOR THE INSPECTION OF THE TIE-IN. THE INSTALLATION AND THE TIE-IN OF ALL SEWER FORCE MAINS SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT OF ENGINEERING PRIOR TO BACKFILLING.

2. MATERIAL

ALL MATERIALS USED IN JEFFERSON PARISH'S SEWER FORCE MAIN SYSTEM SHALL BE IN TOTAL CONFORMANCE WITH THESE STANDARD NOTES, OTHER CURRENT JEFFERSON PARISH STANDARDS AND MATERIAL SPECIFICATIONS INCLUDING "**THE DEPARTMENT OF SEWERAGE ANNUAL MATERIAL SUPPLY CONTRACT SPECIFICATIONS**". IN ORDER TO SIMPLIFY "MATERIAL RELATED ISSUES" FOR THE ENGINEERS, CONSULTANTS, CONTRACTORS, SUPPLIERS, AND PARISH INSPECTORS EFFORTS HAVE BEEN MADE THROUGHOUT THESE STANDARDS TO MINIMIZE DISCREPANCIES BETWEEN THESE STANDARD NOTES

[1] Jefferson Parish Department of Engineering Sanitary Sewer Force Main System General Standard Notes, Originated - January 2002.

AND THE "**DEPARTMENT OF SEWERAGE ANNUAL MATERIAL SUPPLY CONTRACT SPECIFICATIONS**". IN CASE OF ANY DISCREPANCIES, "**THE DEPARTMENT OF SEWERAGE ANNUAL MATERIAL SUPPLY CONTRACT SPECIFICATIONS**" WILL GOVERN.

QUALIFIED MANUFACTURERS AND/OR PRODUCTS FOR MOST ITEMS (**THE DEPARTMENT OF SEWERAGE ANNUAL MATERIAL SUPPLY CONTRACT SPECIFICATIONS SHALL BE REFERENCED FOR ITEMS NOT INCLUDED IN THESE NOTES)** HAVE BEEN PROVIDED THROUGHOUT THESE NOTES. THESE QUALIFIED MANUFACTURERS AND/OR PRODUCT INFORMATION MAY BE MODIFIED SEMIANNUALLY MAINLY BASED ON REVISIONS TO "**THE DEPARTMENT OF SEWERAGE ANNUAL MATERIAL SUPPLY CONTRACT SPECIFICATIONS**". THESE MODIFICATIONS MAY OCCUR ONCE A YEAR OR ONCE EVERY TWO YEARS DEPENDING UPON EACH SPECIFIC CONTRACT PERIOD. NEW PRODUCTS MAY BE PRESENTED TO THE JEFFERSON PARISH ENGINEERING AND SEWERAGE DEPARTMENTS SIMULTANEOUSLY FOR EVALUATION. ANY PRODUCT FOUND TO MEET JEFFERSON PARISH STANDARDS WILL BE INCLUDED IN THESE STANDARDS WHEN SEMIANNUAL REVISIONS ARE MADE. FINAL DECISION FOR ACCEPTANCE OF ALL MATERIALS WILL BE MADE BY THE JEFFERSON PARISH DEPARTMENT OF SEWERAGE.

3. NON CONFORMANCE

THE DEPARTMENT OF ENGINEERING HAS THE RIGHT TO REJECT ANY AND ALL EQUIPMENT, OR WORK, WHICH DOES NOT CONFORM TO JEFFERSON PARISH STANDARDS AND SPECIFICATIONS. ANY WORK SO REJECTED SHALL BE REDONE BY THE CONTRACTOR AT HIS OWN EXPENSE.

4. VERIFICATION OF EXISTING UTILITIES PRIOR TO ORDERING MATERIALS

THE CONTRACTOR SHALL VERIFY THE SIZE AND MATERIAL OF ALL EXISTING UTILITIES BEFORE ORDERING MATERIALS. FOR EXAMPLE VARIATIONS IN OUTSIDE DIAMETER OF ASBESTOS CEMENT (AC) PIPE CAN CAUSE LEAKAGE IF A CORRECT COUPLING IS NOT USED. JEFFERSON PARISH WILL NOT REIMBURSE THE CONTRACTOR FOR ANY MATERIAL RE-STOCKING FEES.

5. DOMESTICITY

A. PURPOSE OF THIS SECTION

THIS SECTION INCLUDES INFORMATION AND PROVIDES ANSWERS TO SOME FREQUENTLY ASKED QUESTIONS REGARDING JEFFERSON PARISH DOMESTICITY POLICY.

B. **CLARIFICATION OF TERMS**

TERMS SUCH AS "DOMESTIC UNITED STATES OF AMERICA MANUFACTURE" AND/OR "MADE IN UNITED STATES" SHALL MEAN THAT EVERY COMPONENTS OF THESE PRODUCTS OR ITEMS ARE 100% MADE, MANUFACTURED, CAST, ASSEMBLED, ETC. IN THE UNITED STATES OF AMERICA.

C. **VALVES**

ALL DUCTILE IRON/CAST IRON VALVES SHALL BE OF DOMESTIC UNITED STATES OF AMERICA MANUFACTURE. NO DUCTILE IRON/CAST IRON VALVES MANUFACTURED OUTSIDE OF THE UNITED STATES OF AMERICA WILL BE ALLOWED.

D. **APPURTENANCES**

BY POLICY, DOMESTIC AS WELL AS GLOBALLY SOURCED (FOREIGN) APPURTENANCES {PIPE RESTRAINERS (MECHANICAL JOINT, PIPE TO PIPE, FLANGE ADAPTERS, BELL HARNESSES, ETC.), COUPLINGS, TAPPING AND REPAIR CLAMPS AND SLEEVES, SADDLES, ETC.} MAY BE PRESENTED TO THE JEFFERSON PARISH ENGINEERING AND SEWERAGE DEPARTMENTS SIMULTANEOUSLY FOR EVALUATION AS MENTIONED IN SECTION 3, ABOVE. ALL APPURTENANCES SHALL BE MANUFACTURED IN STRICT ACCORDANCE WITH THE LATEST APPLICABLE ANSI/AWWA AND ASTM STANDARDS FOR SANITARY SEWER FORCE MAINS. IN ADDITION TO THESE REQUIREMENTS, ALL GLOBALLY SOURCED APPURTENANCES SHALL BE MANUFACTURED AT AN SIX SIGMA OR ISO (INTERNATIONAL ORGANIZATION FOR STANDARDS) REGISTERED MANUFACTURER WITH THE LATEST CERTIFICATIONS FROM THESE ORGANIZATIONS.

E. **FITTINGS**

DOMESTIC AS WELL AS GLOBALLY SOURCED (FOREIGN) DUCTILE IRON FITTINGS SHALL BE ALLOWED. ALL FITTINGS SHALL BE IN STRICT ACCORDANCE WITH THE LATEST APPLICABLE ANSI (ANSI/AWWA C153/A21.53, ANSI/AWWA C110/A21.10, ANSI/AWWA C111/A21.11, ANSI/AWWA C104/A21.4, ETC.) AND ASTM STANDARDS FOR SANITARY SEWER FORCE MAINS. IN ADDITION TO THESE REQUIREMENTS, THE GLOBALLY SOURCED FITTINGS SHALL ALSO BE MANUFACTURED BY AN ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION) REGISTERED MANUFACTURER, WHICH MANUFACTURER SHALL HAVE

CURRENT ISO 9001 CERTIFICATION FOR STANDARDIZATION FOR FITTING PRODUCTS.

F. **ISO REGISTERED MANUFACTURER**

THESE MANUFACTURING FACILITIES MUST BE COVERED UNDER PERIODIC AUDITS BY THIRD PARTY ACCREDITATION BODIES FOR EVALUATIONS. THESE EVALUATIONS SHALL INCLUDE MANUFACTURING PROCESSES, QUALITY CONTROL, CORRECTIVE AND PREVENTIVE ACTIONS, AND DOCUMENT CONTROL. IN ADDITION, DISTRIBUTION CENTERS MUST BE AUDITED BY THIRD PARTY APPROVAL AGENCIES FOR PERIODIC CONFIRMATION TESTS AND SURVEILLANCE AUDITS. THESE PERIODIC CONFIRMATION TESTS AND SURVEILLANCE AUDITS SHALL DOCUMENT CONTINUATION OF PRODUCT APPROVALS OF EVERY SPECIFIC MANUFACTURING FACILITY BY AUDITING THE ENTIRE QUALITY SYSTEMS INCLUDING DESIGN, INFRASTRUCTURE, SYSTEM IMPLEMENTATION, DISTRIBUTION, TRAINING, QUALITY CONTROL AND ASSURANCE, AND DOCUMENT CONTROL. ALL FITTINGS AND APPURTENANCES MUST BE MANUFACTURED IN ACCORDANCE WITH NSF61.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND FURNISHING JEFFERSON PARISH WITH WRITTEN PROOF THAT ALL GLOBALLY SOURCED (FOREIGN) FITTINGS AND APPURTENANCES MEET THE AFOREMENTIONED ANSI/AWWA, AND ASTM STANDARDS. THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THAT THESE FITTINGS AND APPURTENANCES ARE MANUFACTURED AT AN ISO REGISTERED MANUFACTURER WITH CURRENT 9001 CERTIFICATION FOR FITTINGS AND APPURTENANCE PRODUCTS AND SHALL FURNISH JEFFERSON PARISH WITH WRITTEN PROOF OF THIS REGISTRATION AND CERTIFICATION. ALL WRITTEN PROOF SHALL BE FURNISHED IMMEDIATELY AFTER EXECUTION OF THE CONTRACT DOCUMENTS AND PRIOR TO ORDERING FITTINGS AND ANY APPURTENANCE PRODUCTS.

6. SANITARY SEWER FORCE MAINS

6.1 ***BADEPTH OF COVER*** - BACKFILL ALL TRENCHES WITHIN STREET RIGHT-OF-WAYS WITH RIVER SAND. APPROVED SELECT MATERIAL MAY BE USED FOR BACKFILL OF TRENCHES OUTSIDE STREET RIGHT-OF-WAYS.

6.2 ***BACKFILL*** - BACKFILL ALL TRENCHES WITHIN STREET RIGHT-OF-WAYS WITH RIVER SAND. APPROVED SELECT MATERIAL MAY BE USED FOR BACKFILL OF TRENCHES OUTSIDE STREET RIGHT-OF-WAYS.

6.3 ***PVC PIPE*** - POLYVINYL CHLORIDE (PVC) PRESSURE PIPE 4 INCHES THROUGH 12 INCHES IN DIAMETER SHALL MEET AWWA SPECIFICATION C-900, DR18. PVC PIPE 14 INCHES AND LARGER IN DIAMETER SHALL MEET AWWA SPECIFICATION C-905, DR25. PVC SEWER FORCE MAINS SHALL BE GREEN.

6.4 ***DUCTILE IRON PIPE*** - ALL DUCTILE IRON PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151, ANSI/AWWA A21.50/C150 AND SHALL THICKNESS CLASS 50 FOR ALL PIPES OR PRESSURE CLASS 350 FOR SIZES 3" – 18", PRESSURE CLASS 250 FOR SIZES 20" – 36" AND PRESSURE CLASS 200 FOR SIZES 42" – 54". ALL DUCTILE IRON PIPES THAT WILL HAVE LESS THAN 24" OF COVER SHALL BE MINIMUM THICKNESS CLASS 52 RESTRAINED JOINT PIPE. DUCTILE IRON PIPE SHALL HAVE A FACTORY APPLIED INTERIOR COATING/LINING OF "PROTECTO 401" CERAMIC EPOXY LINING AS PER MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR SANITARY SEWER APPLICATIONS AND FACTORY ASPHALTIC EXTERIOR COATING. POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 SHALL BE REQUIRED FOR ALL DUCTILE IRON PIPES.

6.5 ***STEEL CASINGS*** - JEFFERSON PARISH DEPARTMENT OF ENGINEERING MAY REQUIRE SANITARY SEWER FORCE MAINS TO BE INSTALLED IN STEEL CASINGS WHEN CROSSING MAJOR (*TO BE DEFINED BY THE DEPARTMENT OF ENGINEERING*) STREETS.

6.6 ***CASING SPACERS*** - WHEN PIPE IS INSTALLED IN CASINGS, COMMERCIALLY FABRICATED CASING SPACERS MUST BE USED TO PREVENT DAMAGE TO PIPE AND BELL JOINTS DURING INSTALLATION AND TO PROVIDE PROPER LONG-TERM LINE SUPPORT. USE OF WOODEN SKIDS WILL NOT BE PERMITTED. PIPES IN CASINGS SHALL BE RESTRAINED AND SHALL NOT REST ON BELLS. CASING SPACERS MUST PROVIDE SUFFICIENT HEIGHT TO PERMIT CLEARANCE BETWEEN BELL JOINTS AND CASING WALLS (ALL CASING PIPE SHALL HAVE AN INSIDE CLEAR DIMENSION AT LEAST 2" GREATER THAN THE MAXIMUM OUTSIDE DIMENSION OF THE CARRIER PIPE BELL OR MECHANICAL JOINT RESTRAINTS). SPACE BETWEEN THE CASING AND THE CARRIER PIPE SHOULD NOT BE BACKFILLED. JEFFERSON PARISH APPROVED END CASING SEAL WITH STAINLESS STEEL BANDS SHOULD BE USED TO SEAL THE ENDS OF THE CASINGS.

6.7 ***CANAL CROSSINGS*** - LONG-SPAN DUCTILE IRON PIPE SHALL BE USED AS PER MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR ALL CANAL CROSSINGS.

ALL EXPOSED FITTINGS AND JOINTS SHALL BE FLANGED WITH ***TORUSEAL*** "*OR APPROVED EQUAL"* GASKETS. UNDERGROUND FITTINGS AND JOINTS SHALL HAVE RESTRAINED MECHANICAL JOINTS. ALTERNATIVE DESIGNS MAY BE CONSIDERED IF JUSTIFIED BY SPECIAL FIELD CONDITIONS.

CANAL CROSSINGS SHALL BE SUPPORTED BY CONCRETE PILES UNLESS OTHERWISE PERMITTED BY THE JEFFERSON PARISH DEPARTMENT OF ENGINEERING.

6.8 ***CONFLICT BOXES***

PVC OR DUCTILE IRON SEWER FORCE MAINS INSTALLED WITHIN CONFLICT MANHOLES SHALL HAVE NO JOINTS. DUCTILE IRON PIPES, UP TO 12" IN DIAMETER, ARE AVAILABLE IN 18' AND 20' LAYING LENGTHS (LARGER DIAMETER PIPES ARE LIMITED TO 18' LAYING LENGTH). FLANGED DUCTILE IRON PIPE MAY BE USED FOR SPANS LONGER THAN 20'.

6.9 ***HDPE PIPE (AND FITTINGS)***

HIGH DENSITY POLYETHYLENE (PE) PIPE (AND FITTINGS) SHALL CONFORM TO CURRENT REQUIREMENTS OF ASTM D3350 AND ASTM D2337 AND ALL PERTINENT ASTM AND ANSI SPECIFICATIONS FOR SPECIFYING, INSTALLATION AND ACCEPTANCE (PRESSURE TESTING) OF SANITARY SEWER FORCE MAINS.

6.9.1 MATERIALS - MATERIALS USED FOR THE MANUFACTURE OF POLYETHYLENE PIPE AND FITTINGS SHALL BE PE 3408 (OR THE NEW DESIGNATION, PE3608/PE4710) HIGH DENSITY POLYETHYLENE MEETING CELL CLASSIFICATION 345464C FOR BLACK OR 345464E FOR STRIPES PER ASTM D 3350; AND SHALL BE LISTED IN THE NAME OF THE PIPE AND FITTING MANUFACTURER IN PLASTICS PIPE INSTITUTE (PPI) TR-4, *RECOMMENDED HYDROSTATIC STRENGTHS AND DESIGN STRESSES FOR THERMOPLASTIC PIPE AND FITTINGS COMPOUNDS*, WITH A STANDARD GRADE HDB RATING OF 1600 PSI AT 73°F. THE MANUFACTURER SHALL CERTIFY THAT THE MATERIALS USED TO MANUFACTURE PIPE AND FITTINGS MEET THESE REQUIREMENTS.

6.9.2 COMPATIBILITY OF PIPE AND FITTINGS - THE PIPE AND FITTINGS SHALL BE TOTALLY COMPATIBLE AND MEET THE PIPE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

6.9.3 POLYETHYLENE PIPE - POLYETHYLENE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C901 FOR SIZES 1-1/4" THRU 3" IPS DIAMETERS AND TO THE REQUIREMENTS OF ASTM D3035. PIPE 4" AND ABOVE SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F714 AND AWWA C906. POLYETHYLENE (PE) PIPE SHALL BE DUCTILE IRON PIPE SIZE (DIPS) DRISCOPLEX 4300" AS MANUFACTURED BY PERFORMANCE PIPE OR APPROVED EQUAL.

POLYETHYLENE (PE) PIPE SHALL BE SPECIFIED BY NOMINAL DUCTILE IRON PIPE SIZE AND SHALL MEET THE REQUIREMENTS OF STANDARD DIMENSION RATIO (SDR) SDR-17 FOR DIRECT BURIAL. PIPES USED FOR DIRECTIONAL BORES, STANDARD JACKING AND BORING, HIGHWAY AND RAILWAY CROSSINGS SHALL BE SDR-11 OR GREATER STRENGTH IF REQUIRED BY SPECIAL DESIGN.

6.9.4 **SERVICE IDENTIFICATION STRIPES** - PERMANENT IDENTIFICATION OF THE PIPING SERVICE SHALL BE PROVIDED BY CO-EXTRUDING COLOR STRIPES INTO THE PIPE OUTSIDE SURFACE. THE STRIPING MATERIAL SHALL BE THE SAME MATERIAL AS THE PIPE MATERIAL EXCEPT FOR COLOR. STRIPES PRINTED ON THE PIPE OUTSIDE SURFACE SHALL NOT BE ACCEPTABLE. IPS SIZED PIPES SHALL HAVE FOUR EQUALLY SPACED, LONGITUDINAL COLOR STRIPES. DIPS SIZED PIPES SHALL HAVE THREE EQUALLY SPACED PAIRS OF LONGITUDINAL COLOR STRIPES. THE STRIPE COLOR SHALL BE GREEN.

6.9.5 **POLYETHYLENE FITTINGS & CUSTOM FABRICATIONS** - POLYETHYLENE FITTINGS AND CUSTOM FABRICATIONS SHALL BE MOLDED OR FABRICATED BY THE APPROVED PIPE MANUFACTURER. ALL FITTINGS AND CUSTOM FABRICATIONS SHALL BE PRESSURE RATED FOR THE SAME INTERNAL PRESSURE RATING AS THE MATING PIPE. REDUCED PRESSURE-RATED (DE-RATED) FABRICATED FITTINGS ARE PROHIBITED.

6.9.6 **MOLDED FITTINGS -** MOLDED FITTINGS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D 3261AND SHALL BE SO MARKED.

6.9.7 **X-RAY INSPECTION** - THE MANUFACTURER SHALL SUBMIT SAMPLES FROM EACH MOLDED FITTINGS PRODUCTION LOT TO X-RAY INSPECTION.

6.9.8 **FABRICATED FITTINGS** - FABRICATED FITTINGS SHALL BE MADE BY HEAT FUSION JOINING SPECIALLY MACHINED SHAPES CUT FROM PIPE, POLYETHYLENE SHEET STOCK, OR MOLDED FITTINGS. FABRICATED FITTINGS SHALL BE RATED FOR INTERNAL PRESSURE SERVICE AT LEAST EQUAL TO THE FULL SERVICE PRESSURE RATING OF THE MATING PIPE.

6.9.9 **POLYETHYLENE FLANGE ADAPTERS** - FLANGE ADAPTERS SHALL BE MADE WITH SUFFICIENT THROUGH-BORE LENGTH TO BE CLAMPED IN A BUTT FUSION-JOINING MACHINE WITHOUT THE USE OF A STUB-END HOLDER. THE SEALING SURFACE OF THE FLANGE ADAPTER SHALL BE MACHINED WITH A SERIES OF SMALL V-SHAPED GROOVES (SERRATIONS) TO PROMOTE GASKETLESS SEALING, OR RESTRAIN THE GASKET AGAINST BLOWOUT.

6.9.10 **BACK-UP RINGS & FLANGE BOLTS** - FLANGE ADAPTERS SHALL BE FITTED WITH BACK-UP RINGS PRESSURE RATED EQUAL TO OR GREATER

THAN THE MATING PIPE. THE BACK-UP RING BORE SHALL BE CHAMFERED OR RADIUSED TO PROVIDE CLEARANCE TO THE FLANGE ADAPTER RADIUS. FLANGE BOLTS AND NUTS SHALL BE GRADE 2 OR HIGHER.

6.9.11 MJ ADAPTERS - MJ ADAPTERS 4" AND ABOVE SHALL BE PROVIDED WITH HEAVY DUTY BACK-UP RING KITS AND STAINLESS STEEL STIFFENERS.

6.9.12 JOINING

6.9.12.1 HEAT FUSION JOINING.

JOINTS BETWEEN PLAIN END PIPES AND FITTINGS SHALL BE MADE BY BUTT FUSION. JOINTS BETWEEN THE MAIN AND SADDLE BRANCH FITTINGS SHALL BE MADE USING SADDLE FUSION. THE BUTT FUSION AND SADDLE FUSION PROCEDURES USED SHALL BE PROCEDURES THAT ARE RECOMMENDED BY THE PIPE AND FITTING MANUFACTURER. THE CONTRACTOR SHALL ENSURE THAT PERSONS MAKING HEAT FUSION JOINTS HAVE RECEIVED TRAINING IN THE MANUFACTURER'S RECOMMENDED PROCEDURE. THE CONTRACTOR SHALL MAINTAIN RECORDS OF TRAINED PERSONNEL, AND SHALL CERTIFY THAT TRAINING WAS RECEIVED NOT MORE THAN 12 MONTHS BEFORE COMMENCING CONSTRUCTION. EXTERNAL AND INTERNAL BEADS SHALL NOT BE REMOVED.

6.9.12.2 BUTT FUSION OF UNLIKE WALL THICKNESS.

BUTT FUSION SHALL BE PERFORMED BETWEEN PIPE ENDS, OR PIPE ENDS AND FITTING OUTLETS THAT HAVE THE SAME OUTSIDE DIAMETER AND ARE NOT DIFFERENT IN WALL THICKNESS BY MORE THAN ONE STANDARD DR, FOR EXAMPLE, SDR 13.5 TO SDR 17, OR SDR 11 TO SDR 13.5. TRANSITIONS BETWEEN UNLIKE WALL THICKNESS GREATER THAN ONE SDR SHALL BE MADE WITH A TRANSITION NIPPLE (A SHORT LENGTH OF THE HEAVIER WALL PIPE WITH ONE END MACHINED TO THE LIGHTER WALL) OR BY MECHANICAL MEANS OR ELECTROFUSION. SDR'S FOR POLYETHYLENE PIPE ARE 7.3, 9, 11, 13.5, 17, 21, 26, 32.5 AND 41.

6.9.12.3 JOINING BY OTHER MEANS.

POLYETHYLENE PIPE AND FITTINGS MAY BE JOINED TOGETHER OR TO OTHER MATERIALS BY MEANS OF (A) FLANGED CONNECTIONS (FLANGE ADAPTERS AND BACK-UP RINGS), (B) MECHANICAL COUPLINGS DESIGNED FOR JOINING POLYETHYLENE PIPE OR FOR JOINING POLYETHYLENE PIPE TO ANOTHER MATERIAL, (C) MJ ADAPTERS OR (D) ELECTROFUSION. WHEN

JOINING BY OTHER MEANS, THE INSTALLATION INSTRUCTIONS OF THE JOINING DEVICE MANUFACTURER SHALL BE OBSERVED.

6.9.12.4 ID STIFFENER AND RESTRAINT.

A STIFFENER SHALL BE INSTALLED IN THE BORE OF THE POLYETHYLENE PIPE WHEN AN OD COMPRESSION MECHANICAL COUPLING IS USED AND WHEN CONNECTING PLAIN END PE PIPE TO A MECHANICAL JOINT PIPE, FITTING OR APPURTENANCE. EXTERNAL CLAMP AND TIE ROD RESTRAINT SHALL BE INSTALLED WHERE PE PIPE IS CONNECTED TO THE SOCKET OF A MECHANICAL JOINT PIPE, FITTING OR APPURTENANCE EXCEPT WHERE AN MJ ADAPTER IS USED.

6.9.12.5 BRANCH CONNECTIONS.

BRANCH CONNECTIONS TO THE MAIN SHALL BE MADE WITH SADDLE FITTINGS OR TEES. POLYETHYLENE SADDLE FITTINGS SHALL BE SADDLE FUSED TO THE MAIN PIPE PER SECTION **4.8.12.1** ABOVE.

6.9.13 INSTALLATION:

6.9.13.1 GENERAL.

WHEN DELIVERED, A RECEIVING INSPECTION SHALL BE PERFORMED AND ANY SHIPPING DAMAGE SHALL BE REPORTED TO THE MANUFACTURER WITHIN 7 DAYS. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D 2774, MANUFACTURER'S RECOMMENDATIONS AND THIS SPECIFICATION. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE A SAFE WORKING ENVIRONMENT IN ACCORDANCE WITH ALL APPLICABLE SAFETY CODES AND STANDARDS.

6.9.13.2 EXCAVATION.

TRENCH EXCAVATIONS SHALL CONFORM TO THE PLANS AND DRAWINGS, AS AUTHORIZED IN WRITING BY THE PROJECT ENGINEER OR HIS APPROVED REPRESENTATIVE, AND IN ACCORDANCE WITH ALL APPLICABLE CODES. THE CONTRACTOR SHALL REMOVE EXCESS GROUNDWATER. WHERE NECESSARY, TRENCH WALLS SHALL BE SHORED OR REINFORCED, AND ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE A SAFE WORKING ENVIRONMENT.

6.9.13.3 MECHANICAL JOINT & FLANGE INSTALLATION.

MECHANICAL JOINT AND FLANGE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURE. MJ ADAPTERS AND FLANGES SHALL BE CENTERED AND ALIGNED TO THE

MATING COMPONENT BEFORE ASSEMBLING AND TIGHTENING BOLTS. IN NO CASE SHALL MJ GLAND OR FLANGE BOLTS BE USED TO DRAW THE CONNECTION INTO ALIGNMENT. BOLT THREADS SHALL BE LUBRICATED, AND FLAT WASHERS SHOULD BE USED UNDER THE NUTS. BOLTS SHALL BE EVENLY TIGHTENED ACCORDING TO THE TIGHTENING PATTERN AND TORQUE STEP RECOMMENDATIONS OF THE MANUFACTURER. AT LEAST 1 HOUR AFTER INITIAL ASSEMBLY, FLANGE CONNECTIONS SHALL BE RE-TIGHTENED FOLLOWING THE TIGHTENING PATTERN AND TORQUE STEP RECOMMENDATIONS OF THE MANUFACTURER. THE FINAL TIGHTENING TORQUE SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

6.9.13.4 <u>FOUNDATION & BEDDING</u>.

PIPE SHALL BE LAID ON GRADE AND ON A STABLE FOUNDATION. UNSTABLE TRENCH BOTTOM SOILS SHALL BE REMOVED, AND A MINIMUM 6" FOUNDATION OR BEDDING OF COMPACTED GRANULAR MATERIAL SHALL BE INSTALLED TO PIPE BOTTOM GRADE. EXCESS GROUNDWATER SHALL BE REMOVED FROM THE TRENCH BEFORE LAYING THE FOUNDATION OR BEDDING FOR THE PIPE. A TRENCH CUT IN ROCK OR STONY SOIL SHALL BE EXCAVATED TO MINIMUM 6" BELOW PIPE BOTTOM GRADE, AND BROUGHT BACK TO GRADE WITH COMPACTED GRANULAR BEDDING. ALL LEDGE ROCK, BOULDERS AND LARGE STONES SHALL BE REMOVED.

6.9.13.5 <u>PIPE HANDLING</u>.

WHEN LIFTING WITH SLINGS, ONLY WIDE FABRIC CHOKER SLINGS CAPABLE OF SAFELY CARRYING THE LOAD SHALL BE USED TO LIFT, MOVE, OR LOWER PIPE AND FITTINGS. WIRE ROPE AND CHAIN ARE PROHIBITED. SLINGS SHALL BE OF SUFFICIENT CAPACITY FOR THE LOAD, AND SHALL BE INSPECTED BEFORE USE. WORN OR DAMAGED EQUIPMENT SHALL NOT BE USED.

6.9.13.6 <u>BACKFILLING</u>.

EMBEDMENT MATERIAL SOIL TYPE AND PARTICLE SIZE SHALL BE IN ACCORDANCE WITH ASTM D 2774. EMBEDMENT SHALL BE PLACED AND COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY IN 6" LIFTS TO AT LEAST 6" ABOVE THE PIPE CROWN. DURING EMBEDMENT PLACEMENT AND COMPACTION, CARE SHALL BE TAKEN TO ENSURE THAT THE HAUNCH AREAS BELOW THE PIPE SPRINGLINE ARE COMPLETELY FILLED AND FREE OF VOIDS.

6.9.13.7 <u>PROTECTION AGAINST SHEAR AND BENDING LOADS</u>.

IN ACCORDANCE WITH ASTM D 2774, CONNECTIONS SHALL BE PROTECTED WHERE AN UNDERGROUND POLYETHYLENE BRANCH OR SERVICE PIPE IS

JOINED TO A BRANCH FITTING SUCH AS A SERVICE SADDLE, BRANCH SADDLE OR TAPPING TEE ON A MAIN PIPE, AND WHERE PIPES ENTER OR EXIT CASINGS OR WALLS. THE AREA SURROUNDING THE CONNECTION SHALL BE EMBEDDED IN PROPERLY PLACED, COMPACTED BACKFILL, PREFERABLY IN COMBINATION WITH A PROTECTIVE SLEEVE OR OTHER MECHANICAL STRUCTURAL SUPPORT TO PROTECT THE POLYETHYLENE PIPE AGAINST SHEAR AND BENDING LOADS.

6.9.13.8 FINAL BACKFILLING.

FINAL BACKFILL SHALL BE PLACED AND COMPACTED TO FINISHED GRADE. NATIVE SOILS MAY BE USED PROVIDED THE SOIL IS FREE OF DEBRIS, STONES, BOULDERS, CLUMPS, FROZEN CLODS OR THE LIKE LARGER THAN 8" IN THEIR LARGEST DIMENSION.

6.9.14 TESTING

6.9.14.1 FUSION QUALITY

THE CONTRACTOR SHALL ENSURE THE FIELD SET-UP AND OPERATION OF THE FUSION EQUIPMENT, AND THE FUSION PROCEDURE USED BY THE CONTRACTOR'S FUSION OPERATOR WHILE ON SITE. UPON REQUEST BY THE OWNER, THE CONTRACTOR SHALL VERIFY FIELD FUSION QUALITY BY MAKING AND TESTING A TRIAL FUSION. THE TRIAL FUSION SHALL BE ALLOWED TO COOL COMPLETELY; THEN TEST STRAPS SHALL BE CUT OUT AND BENT STRAP TESTED IN ACCORDANCE WITH ASTM D 2657. IF THE BENT STRAP TEST OF THE TRIAL FUSION FAILS AT THE JOINT, THE FIELD FUSIONS REPRESENTED BY THE TRIAL FUSION SHALL BE REJECTED. THE CONTRACTOR AT HIS EXPENSE SHALL MAKE ALL NECESSARY CORRECTIONS TO EQUIPMENT, SET-UP, OPERATION AND FUSION PROCEDURE, AND SHALL RE-MAKE THE REJECTED FUSIONS.

6.9.14.2 LEAK TESTING.

HYDROSTATIC LEAK TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH PERFORMANCE PIPE TECHNICAL NOTE 802 LEAK TESTING. PNEUMATIC PRESSURE TESTING IS PROHIBITED.

6.10 FITTINGS

FITTINGS SHALL BE DUCTILE IRON FLANGED, MECHANICAL OR BOLTLESS RESTRAINED JOINTS MEETING ANSI/AWWA C110/A21.10 AND ANSI/AWWA

C111/A21.11, CLASS 250, OR ANSI/AWWA C153/A21.53.84, CLASS 350, COMPACT STANDARD. DUCTILE IRON FITTINGS SHALL HAVE A FACTORY APPLIED INTERIOR COATING/LINING OF "**PROTECTO 401" CERAMIC EPOXY LINING** AS PER MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR SANITARY SEWER APPLICATIONS AND FACTORY ASPHALTIC EXTERIOR COATING. POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 SHALL BE REQUIRED FOR ALL DUCTILE IRON PIPES AND FITTINGS.

FITTINGS SHALL BE MANUFACTURED IN THE UNITES STATES OF AMERICA OR BE MANUFACTURED BY STAR PIPE PRODUCTS, SIGMA, TYLER/UNION FOUNDRY, SIP OR NACIP WITH CURRENT ISO CERTIFICATION.

6.11 MINIMUM PIPE LENGTH

THERE SHALL BE A MINIMUM OF 24 INCHES OF STRAIGHT PIPE BEFORE, AFTER OR IN BETWEEN VALVES, FITTINGS, ETC.

6.12 PIPE AND FITTING JOINT STYLE:

6.12.1 DUCTILE IRON

DUCTILE IRON PIPES AND FITTINGS SHALL BE FLANGED (AERIAL/BRIDGE CROSSINGS), PUSH-ON, MECHANICAL, RESTRAINED MECHANICAL OR BOLTLESS RESTRAINED JOINTS MEETING ANSI/AWWA A21.51/C151 AND ANSI/AWWA A21.50/C150.

6.12.2 PVC

PUSH-ON JOINTS SHALL CONSIST OF AN INTEGRAL BELL WITH A FACTORY INSTALLED "LOCKED-IN" ELASTOMERIC GASKET. THE SPIGOT END OF EACH JOINT SHALL BE FACTORY BEVELED. ELASTOMERIC GASKET SHALL MEET THE REQUIREMENTS OF ASTM "D1869" AND "F-477". RESTRAINING SHALL BE ACCOMPLISHED BY USE OF DUCTILE IRON MECHANICAL JOINTS RESTRAINER GLANDS OR BELL RESTRAINT HARNESS WITH STAINLESS STEEL HARDWARE.

6.12.3 POLYETHYLENE

POLYETHYLENE PIPING SHALL BE CONNECTED TO OTHER TYPE PIPES BY THERMAL BUTT-FUSION, FLANGE ASSEMBLIES OR POLYETHYLENE

MECHANICAL JOINT ADAPTERS BASED UPON MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

6.13 RESTRAINED JOINTS

ALL VALVES, FITTINGS, PLUGS, REDUCERS, ETC., SHALL HAVE RESTRAINED JOINTS. UNLESS FIELD CONDITIONS AND / OR SPECIAL DESIGN CONDITIONS NECESSITATE, USE OF THRUST BLOCKING SHALL NOT BE PERMITTED. THRUST BLOCKS ARE PERMITTED ONLY WHEN ADEQUATE LENGTH OF PIPE CANNOT BE RESTRAINED DUE TO FIELD CONDITIONS AND/OR FOR TEMPORARY CONSTRUCTION. A MINIMUM OF 12' LONG STEEL SHEET PILE SHALL BE USED IN CONJUNCTION WITH THE JEFFERSON PARISH DETAILS (SEE JEFFERSON PARISH WATER STANDARD DRAWINGS) FOR THRUST BLOCKING. LENGTH OF RESTRAINED PIPES SHALL BE PER MANUFACTURER'S REQUIREMENTS. JEFFERSON PARISH WATER STANDARD DRAWINGS PROVIDE SOME MINIMUM LENGTHS FOR RESTRAINED PIPES IN OFFSETS. THESE MINIMUM REQUIREMENTS SHALL ONLY BE USED IF THE MANUFACTURER'S REQUIRED RESTRAINED LENGTHS, BASED ON SOIL TYPE, TRENCH TYPE, TEST PRESSURE, SAFETY FACTOR, DEPTH OF BURY, FITTING TYPE, NOMINAL SIZE, PIPE MATERIAL, ETC. ARE LESS THAN THESE MINIMUM REQUIREMENTS.

6.14 PAINT

EXPOSED SANITARY SEWER FORCE MAINS, SUCH AS AERIAL/BRIDGE CROSSINGS OVER DRAINAGE CANALS SHALL HAVE FACTORY APPLIED PRIMER WITH FIELD-FINISH BROWN PAINT. PRIMER AND PAINT MATERIAL SHOULD BE FULLY COMPATIBLE WITH THE EXTERNAL ENVIRONMENT AND IN FULL CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR THE INTENDED PURPOSE.

6.15 TAPPING SLEEVES

TAPPING SLEEVES FOR PVC, AC AND DUCTILE IRON SHALL BE MANUFACTURED OF 18-8 304 STAINLESS STEEL WITH STAINLESS STEEL FLANGE. TAPPING SLEEVES FOR PRE-STRESSED CONCRETE CYLINDER PIPE SHALL BE IN ACCORDANCE WITH AWWA MANUAL M-2. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL WITH ANTI-SEIZE COMPOUND OR HEAT TREATED TEFLON COATED COR-TEN. TAPPING SLEEVES SHALL BE MANUFACTURED BY ROMAC, CASCADE OR JCM.

6.16 TAPPING VALVES

TAPPING VALVES SHALL BE MANUFACTURED BY MUELLER, CLOW, M&H OR KENNEDY. VALVES SHALL HAVE AN OUTLET AND CONNECTION SUITABLE FOR MAKE UP, TAPPING SLEEVE AND ADJACENT PIPE.

6.17 COUPLINGS

DUCTILE IRON COUPLINGS SHALL HAVE A FACTORY APPLIED INTERIOR COATING/LINING OF "PROTECTO 401" CERAMIC EPOXY LINING AS PER MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR SANITARY SEWER APPLICATIONS.

G. LONG BODY TRANSITIONAL COUPLING

LONG BODY TRANSITIONAL COUPLINGS IN ACCORDANCE WITH THE FOLLOWING TABLE, SHALL BE USED FOR CONNECTING PROPOSED/NEW PIPES TO EXISTING PIPES OF DIFFERENT MATERIAL, FOR EXAMPLE, **"PVC C-900"** TO **"AC"** OR **"CAST IRON".** ONELY LONG BODY COUPLINGS SHALL BE USED TO PROVIDE RESTRAIN JOINTS. LONG BODY TRANSITIONAL COUPLINGS SHALL BE:

1. **ROMAC**
   - 501 STRAIGHT, TRANSITION, LONG BARREL COUPLING
   - XR501 EXTENDED RANGE COUPLING
   - RC501 REDUCING COUPLING

2. **FORD**
   - STYLE FC1 STRAIGHT COUPLING
   - STYLE FC2A TRANSITION COUPLING
   - STYLE FRC REDUCING COUPLING
   - STYLE FC2W LONG SLEEVE WIDE RANGE COUPLING

3. **SMITH-BLAIR**
   - SERIES 441A STRAIGHT AND TRANSITION COUPLING-STANDARD LENGTH
   - SERIES 443 TRANSITION SLEEVE COUPLING IN SIZES 10"-16"
   - SERIES 413 STEEL TRANSITION COUPLING IN SIZES 18"-36"

NOMINAL PIPE SIZE, INCHES.	TRANSITION COUPLING MINIMUM LENGTH, INCHES.
4, 6, 8	12
10, 12, 14, 16	18
18, 20, 24, 30, 36	24

H. **SPECIAL COUPLINGS**

1. **HYMAX SERIES 2000**

"HYMAX" SERIES 2000 TRANSITION COUPLINGS AS SUPPLIED BY TOTAL PIPING SYSTEMS SHALL BE FURNISHED WITH 2 STAINLESS STEEL NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND COATING. POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 (MINIMUM 8 MIL THICK) SHALL BE REQUIRED FOR ALL COUPLINGS.

2. **MACRO TWO BOLT EXTENDED RANGE COUPLING**

"MACRO" TOW-BOLT EXTENDED RANGE COUPLINGS AS SUPPLIED BY ROMAC INDUSTRIES, INC. SHALL BE FURNISHED WITH 2 STAINLESS STEEL NUTS AND BOLTS WITH ANTI-SEIZE COMPOUND COATING. POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 (MINIMUM OF 8 MIL THICK) SHALL BE REQUIRED FOR ALL COUPLINGS.

6.18 BOLTS AND NUTS

ALL BOLTS AND NUTS SHALL BE STAINLESS STEEL WITH ANTI-SEIZE COMPOUND OR HEAT TREATED TEFLON COATED COR-TEN.

6.19 VALVES:

THE CONTRACTOR SHALL SUBMIT VALVE SHOP DRAWINGS TO THE JEFFERSON PARISH SEWERAGE AND ENGINEERING DEPARTMENTS FOR THEIR APPROVAL BEFORE ORDERING THE VALVES.

6.19.1 GATE VALVES

ALL GATE SHALL HAVE CAST IRON OR DUCTILE IRON BODIES, BRONZE MOUNTED, 125 # DOUBLE BRONZE FACE DISC. VALVES SHALL CONFORM TO AWWA C500 AND HAVE A NON-RISING STEM, 2 INCH OPERATING NUT AND OPEN IN A COUNTER-CLOCKWISE DIRECTION (LEFT HAND OPENING). GATE VALVES SHALL HAVE A FACTORY APPLIED EPOXY COATING AND HAVE STAINLESS STEEL OR HEAT TREATED TEFLON COATED CORE-TEN BOLTS AND NUTS. NO CADIUM PLATED NUTS AND BOLTS ARE PERMITTED. GATE VALVES SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC., MUELLER COMPANY, M & H, KENNEDY, CLOW OR DZURICH. VALVES MUST BE OF DOMESTIC UNITED STATES OF AMERICA MANUFACTURE.

6.19.2 CHECK VALVES

CHECK VALVES 3 INCH TO 12 INCH IN SIZE SHALL BE M&H BRAND SWING CHECK VALVES, LEVER & WEIGHT FLANGED, CAST IRON OR DUCTILE IRON BODY, BRONZE MOUNTED, 125#, SHOPCOAT FINISH, COMPLIES WITH MSS-SP-71 TYPE II AND MIL. SPEC. MIL-V-18436 GROUP B, TYPE III, TRIM 2, BOLTED CAP, STYLE # 159-02. THE VALVE SHALL BE SUITABLE FOR DIRECT BURIAL AND SHALL HAVE FLANGED OR MECHANICAL JOINT ENDS. VALVES SHALL BE OF DOMESTIC UNITED STATES OF AMERICA MANUFACTURE.

6.19.3 COMBINATION AIR AND VACUUM RELEASE VALVE

THE VALVE SHALL CONTROL AIR IN SEWAGE SYSTEMS TO PROVIDE MAXIMUM FLOW EFFICIENCY AND SYSTEM PROTECTION. THE DESIGN SHALL PREVENT CONTACT BETWEEN THE SEWAGE AND THE SEALING MECHANISM AND ENSURE A DRIP TIGHT SEAL. THE VALVE SHALL BE 2" MNPT AS MANUFACTURED BY A.R.I. MODEL D-025 OR PRIOR APPROVED EQUAL.

6.20 LINES CONSTRUCTED ON PRIVATE PROPERTY

ALL SANITARY SEWER FORCE MAINS INSTALLED ON PRIVATE PROPERTY SHALL BE INSTALLED IN ACCORDANCE WITH JEFFERSON PARISH STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER FORCE MAINS CONSTRUCTED ON PRIVATE PROPERTY, SHALL REMAIN PRIVATE. IN SPECIAL CIRCUMSTANCES WHEN JEFFERSON PARISH MAY HAVE TO TAKE OVER THE MAINTENANCE OF ANY SANITARY SEWER FORCE MAINS, A 20 FOOT WIDE MINIMUM SERVITUDE, CENTERED ON THE MAIN, MUST BE DEDICATED TO JEFFERSON PARISH.

6.21 CLEARANCE

6.21.1 BETWEEN WATER LINES AND SANITARY SEWER LINES

WHEN SANITARY SEWER LINES ARE PARALLEL TO WATER LINES, THE CLEARANCE SHALL BE A MINIMUM OF 6 FEET (MEASURED HORIZONTALLY): WHEN SEWER AND WATER LINES CROSS, VERTICAL CLEARANCE SHALL BE 18 INCHES, WITH THE WATER LINE CROSSING ON TOP. IF THESE CONDITIONS CANNOT BE MET, DUE TO FIELD CONDITIONS, THE "10 STATE STANDARDS" ((PHONE (518) 439-7286, WEB SITE: WWW.HES.ORG)) GUIDELINES CAN BE FOLLOWED, WITH APPROVAL OF THE JEFFERSON PARISH ENGINEERING DEPARTMENT.

6.21.2 BETWEEN SANITARY SEWER FORCE MAINS AND ANY PRIVATE UTILITY LINES

MINIMUM CLEARANCE BETWEEN A SANITARY SEWER FORCE MAIN AND ANY PRIVATE UTILITY LINE SHALL BE 6 FEET (MEASURED HORIZONTALLY). PRIVATE UTILITIES SHALL BE INSTALLED IN PRIVATE SERVITUDES.

6.21.3 BETWEEN SANITARY SEWER FORCE MAINS AND BUILDINGS

SANITARY SEWER FORCE MAINS SHALL NOT BE INSTALLED CLOSER THAN 10 FEET (MEASURED HORIZONTALLY) FROM ANY BUILDING FOUNDATION, WALL OR BUILDING OVERHANG. THIS 10 FOOT CLEARANCE MAY BE REDUCED TO 6 FEET IN AREAS WITH COMMERCIAL ZONING WITH LIMITED RIGHT-OF-WAY AND WITH APPROVAL OF THE JEFFERSON PARISH ENGINEERING DEPARTMENT.

6.22 SEWER FORCE MAIN SYSTEM AS-BUILT PLANS/INFORMATION AND FINAL INSPECTION

THREE DAYS PRIOR TO TESTING OF ANY SEGMENT OF THE SFM SYSTEM AND PUTTING THE SFM INTO SERVICE, SFM AS-BUILT PLANS/INFORMATION SHOULD BE COMPLETED BY THE CONTRACTOR AND THREE (3) BLUE OR BLACK LINE COPIES SHOULD BE SUBMITTED (THROUGH THE A/E) TO THE DEPARTMENT OF ENGINEERING. AS-BUILT PLANS/INFORMATION SHOULD BE COMPLETED IN SUCH A WAY THAT IDENTIFY THE TYPE AND LOCATION OF VALVES, FITTINGS AND OTHER APPURTENANCES AS WELL AS THE PIPE TYPE, SIZE, LENGTH, ETC. AS-BUILT PLANS/INFORMATION SHOULD BE USED

AS A BASIS FOR THE FINAL INSPECTION AND PREPARATION OF FINAL AS-BUILT DRAWINGS.

THE REQUIREMENTS OF THIS SECTION IS SEPARATE FROM THE PARISH REQUIREMENTS FOR PROJECT AS-BUILT DRAWINGS (PLANS) WHICH INCLUDE THREE (3) BLUE OR BLACK LINE COPIES, A MYLAR SET, AND AN ELECTRONIC COPY OF THE COMPLETED AS-BUILT PLANS ON CD-ROM IN "PDF" AND "ACAD 2004" FORMAT.

THE ELECTRONIC COPY OF THE COMPLETED AS-BUILT PLANS SHALL BE A PROPERLY GEO-REFERENCED (REFERENCED TO STATE PLANE COORDINATES SYSTEM 1983, ZONE 1702, LOUISIANA SOUTH WITH X AND Y COORDINATES IN FEET) AUTO CAD DRAWING OF THE FINAL "MARK-UP" AS-BUILT WITH A LISTING OF THE X AND Y COORDINATES, FOR EACH FEATURE (VALVES, FITTINGS, REDUCERS, ETC…).

6.23 PRESSURE TESTING SANITARY SEWER FORCE MAINS

ALL NEW AND/OR MODIFIED SEGMENTS OF THE SANITARY SEWER FORCE MAIN SYSTEM SHALL BE TESTED TO A PRESSURE OF 50% ABOVE THE NORMAL OPERATING PRESSURE OR 100 P.S.I. WHICHEVER IS GRATER. THIS PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF TWO (2) HOURS WITH NO DISCERNIBLE PRESSURE LOSS. LEAKS SHALL BE REPAIRED BY REMOVING AND REPLACING FAULTY SECTIONS. THE PRESSURE TEST SHALL BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF THE JEFFERSON PARISH ENGINEERING DEPARTMENT. ONLY AFTER SATISFACTORY PRESSURE TESTING IS COMPLETED CAN THE SEGMENT BE TIED INTO THE EXISTING SANITARY SEWER FORCE MAIN SYSTEM OR A MANHOLE. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO MAKE A TIE-IN TO THE EXISTING SEWER SYSTEM WITHOUT DIRECT SUPERVISION OF THE JEFFERSON PARISH ENGINEERING DEPARTMENT. ALL COSTS ASSOCIATED WITH THE TESTING PROCEDURE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

6.24 PIPE INSTALLATION

THE INSTALLATION OF SANITARY SEWER FORCE MAINS AND OTHER RELATED APPURTENANCES SHALL BE STRICTLY IN ACCORDANCE WITH THESE JEFFERSON PARISH STANDARD NOTES, AND LATEST APPLICABLE AWWA STANDARDS SUCH AS AWWA C600 (INSTALLATION OF DUCTILE-IRON FORCE MAINS AND APPURTENANCES), AWWA C605 (UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR FORCE MAINS), ETC. AND THE MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.

IN ADDITION TO ANY PREVIOUSLY MENTIONED REQUIREMENTS FOR POLYETHYLENE ENCASEMENT, POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105/A21.5 (MINIMUM 8 MIL THICK) MAY BE REQUIRED FOR ALL "DUCTILE IRON FITTINGS" AND "APPURTENANCES" REGARDLESS OF ANY SPECIFIC COATING.

6.25 PIPE BEDDING

THE OBJECTIVE OF BEDDING IS TO PROVIDE A CONTINUOUS SUPPORT FOR THE PIPE AT REQUIRED LINE AND GRADE. THE BEDDING MAY OR MAY NOT BE COMPACTED, BUT IN ANY EVENT, THE PROJECTING BELLS OF THE PIPE SHOULD BE PROPERLY RELIEVED IN THE TRENCH BOTTOM SO THAT THE ENTIRE PIPE IS EVENLY SUPPORTED BY THE BEDDING. WHERE THE TRENCH BOTTOM IS UNSTABLE (ORGANIC MATERIAL, OR "QUICK" SAND OR SIMILAR MATERIAL), THE TRENCH BOTTOM SHOULD BE OVER-EXCAVATED AND BROUGHT BACK TO GRADE UTILIZING DUNNAGE BOARDS, GEOGRID, GEOTEXTILE FABRIC OR APPROVED BEDDING MATERIAL AND/OR ANY COMBINATION OF SAME.

SANITARY SEWER FORCE MAIN TRENCH DESIGN, PIPE BEDDING, AND BACKFILL SHALL BE PER "JEFFERSON PARISH WATER STANDARD DETAILS" SHEET.

TABLE OF CONTENTS

1. NOTIFICATION 1
2. MATERIAL 1
3. NON CONFORMANCE 2
4. VERIFICATION OF EXISTING UTILITIES PRIOR TO ORDERING MATERIALS 2
5. DOMESTICITY 2
   A. PURPOSE OF THIS SECTION 2
   B. CLARIFICATION OF TERMS 3
   C. VALVES 3
   D. APPURTENANCES 3
   E. FITTINGS 3
   F. ISO REGISTERED MANUFACTURER 4
6. SANITARY SEWER FORCE MAINS 4
   6.1 BADEPTH OF COVER 4
   6.2 BACKFILL 4
   6.3 PVC PIPE 5
   6.4 DUCTILE IRON PIPE 5
   6.5 STEEL CASINGS 5
   6.6 CASING SPACERS 5
   6.7 CANAL CROSSINGS 5
   6.8 CONFLICT BOXES 6
   6.9 HDPE PIPE (AND FITTINGS) 6
      6.9.1 MATERIALS 6
      6.9.2 COMPATIBILITY OF PIPE AND FITTINGS 6
      6.9.3 POLYETHYLENE PIPE 6
      6.9.4 SERVICE IDENTIFICATION STRIPES 7
      6.9.5 POLYETHYLENE FITTINGS & CUSTOM FABRICATIONS 7
      6.9.6 MOLDED FITTINGS 7
      6.9.7 X-RAY INSPECTION 7
      6.9.8 FABRICATED FITTINGS 7
      6.9.9 POLYETHYLENE FLANGE ADAPTERS 7
      6.9.10 BACK-UP RINGS & FLANGE BOLTS 7
      6.9.11 MJ ADAPTERS 8
      6.9.12 JOINING 8
         6.9.12.1 HEAT FUSION JOINING. 8
         6.9.12.2 BUTT FUSION OF UNLIKE WALL THICKNESS 8
         6.9.12.3 JOINING BY OTHER MEANS 8
         6.9.12.4 ID STIFFENER AND RESTRAINT 9
         6.9.12.5 BRANCH CONNECTIONS 9
      6.9.13 INSTALLATION 9
         6.9.13.1 GENERAL 9
         6.9.13.2 EXCAVATION 9
         6.9.13.3 MECHANICAL JOINT & FLANGE INSTALLATION 9
         6.9.13.4 FOUNDATION & BEDDING 10

6.9.13.5 PIPE HANDLING 10
6.9.13.6 BACKFILLING 10
6.9.13.7 PROTECTION AGAINST SHEAR AND BENDING LOADS 10
6.9.13.8 FINAL BACKFILLING 11
6.9.14 TESTING 11
6.9.14.1 FUSION QUALITY 11
6.9.14.2 LEAK TESTING 11
6.10 FITTINGS 11
6.11 MINIMUM PIPE LENGTH 12
6.12 PIPE AND FITTING JOINT STYLE: 12
6.12.1 DUCTILE IRON 12
6.12.2 PVC 12
6.12.3 POLYETHYLENE 12
6.13 RESTRAINED JOINTS 13
6.14 PAINT 13
6.15 TAPPING SLEEVES 13
6.16 TAPPING VALVES 14
6.17 COUPLINGS 14
G. **LONG BODY TRANSITIONAL COUPLING** 14
1. ROMAC 14
2. FORD 14
3. SMITH-BLAIR 14
H. SPECIAL COUPLINGS 15
1. HYMAX SERIES 2000 15
2. MACRO TWO BOLT EXTENDED RANGE COUPLING 15
6.18 BOLTS AND NUTS 15
6.19 VALVES: 15
6.19.1 GATE VALVES 15
6.19.2 CHECK VALVES 16
6.19.3 COMBINATION AIR AND VACUUM RELEASE VALVE 16
6.20 LINES CONSTRUCTED ON PRIVATE PROPERTY 16
6.21 CLEARANCE 17
6.21.1 BETWEEN WATER LINES AND SANITARY SEWER LINES 17
6.21.2 BETWEEN SANITARY SEWER FORCE MAINS AND ANY PRIVATE UTILITY LINES 17
6.21.3 BETWEEN SANITARY SEWER FORCE MAINS AND BUILDINGS 17
6.22 SEWER FORCE MAIN SYSTEM AS-BUILT PLANS/INFORMATION AND FINAL INSPECTION 17
6.23 PRESSURE TESTING SANITARY SEWER FORCE MAINS 18
6.24 PIPE INSTALLATION 18
6.25 PIPE BEDDING 19