



## **A. Plan Set Notes**

### **a. General**

- 1.** ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE SIGNED COPY OF THE PLANS AND THE STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.
- 2.** CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARDS, SPECIFICATIONS, PERMITS, BONDS, ETC. WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
- 3.** IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER/DEVELOPER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.
- 4.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE GOVERNING AGENCIES AT LEAST 48 HOURS PRIOR TO START OF ANY CONSTRUCTION. IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AGENCIES 48 HOURS PRIOR TO RESTART.
- 5.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE FIRE DEPARTMENT OF ALL STREET CLOSING AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
- 6.** THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND DETERMINE THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PROCEEDING WITH CONSTRUCTION. ALL WORK PERFORMED IN THE AREA OF PUBLIC UTILITIES SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS OF THESE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ANY EXISTING UTILITY (INCLUDING DEPTH) WHICH MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL PROTECT, AT HIS OWN EXPENSE, ALL EXISTING UTILITIES AND BE RESPONSIBLE FOR THEIR REPAIR IF THEY ARE DAMAGED DURING CONSTRUCTION. ALL KNOWN EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLANS. THE ACTUAL LOCATION MAY VARY FROM THE PLANS, ESPECIALLY IN THE CASE OF UNDERGROUND UTILITIES. WHENEVER CONTRACTOR DISCOVERS A DISCREPANCY IN LOCATIONS HE SHALL CONTACT THE ENGINEER IMMEDIATELY.
- 7.** ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

- 8.** PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY IF NEEDED AND SUCH ACCESS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- 9.** THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- 10.** ALL EXCAVATIONS SHALL MEET CURRENT OSHA GUIDELINES AND BE IN CONFORMANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS. ALL EXCAVATION IS UNCLASSIFIED.
- 11.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ALL MATERIALS DISTURBED WITHIN DEDICATED RIGHT- OF- WAYS AND ALL MATERIALS AND WORKMANSHIP SHALL MEET THE CONSTRUCTION STANDARDS OF THE APPROPRIATE GOVERNING AGENCY.
- 12.** THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF ONE OR TWO YEARS FROM THE DATE OF ACCEPTANCE OF THE IMPROVEMENTS BY THE APPROPRIATE GOVERNING AGENCY. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE CONTRACTOR TO THE SATISFACTION OF THE APPROPRIATE GOVERNING AGENCY AT NO EXPENSE TO THE AGENCY.
- 13.** THE CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE CONSTRUCTION STAKES. THE CONTRACTOR SHALL PRESERVE THE STAKES FOR HIS USE. ANY CONSTRUCTION STAKING WHICH IS QUESTIONABLE AS TO CORRECTNESS SHALL BE LEFT IN PLACE UNTIL SUCH TIME AS THE OWNER CAN VERIFY THE CORRECTNESS OF SAID STAKING. SHOULD THE STAKES BE FOUND CORRECT, THE COSTS FOR CHECKING SHALL BE AT THE CONTRACTOR'S EXPENSE. IF CONSTRUCTION STAKING IS OBLITERATED, DESTROYED, OR OTHERWISE RENDERED USELESS DUE TO NEGLIGENCE OR CARELESSNESS BY THE CONTRACTOR OR HIS EMPLOYEES, SAID STAKING SHALL BE REPLACED OR CORRECTED AT THE CONTRACTOR'S EXPENSE.
- 14.** COMPACTION TESTING SHALL BE PROVIDED BY THE CONTRACTOR. IF RETESTING IS REQUIRED DUE TO FAILURES, THE COST OF RETESTING SHALL BE AT THE CONTRACTOR'S EXPENSE.
- 15.** THE CONTRACTOR SHALL KEEP ACCESS OPEN TO ALL PROPERTIES ADJACENT TO THE SITE.
- 16.** WATER SHALL BE USED AS A DUST PALLATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. COST ASSOCIATED WITH DUST CONTROL IS CONSIDERED INCIDENTAL TO THE WORK.

- 17.** ALL PIPE DEFLECTIONS REQUIRE HIGH DEFLECTION COUPLINGS OR APPROVED FITTINGS. BENDS IN THE BARREL OF THE PIPE SHALL NOT BE ALLOWED.
- 18.** BEFORE STARTING ANY CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ANY AND ALL UNDERGROUND FACILITIES/UTILITIES WHICH MAY BE AFFECTED BY THIS PROJECT.
- 19.** REFER TO RECORDED PLAT FOR GEOMETRY.

b. Water System

**1.** ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE MERIDIAN METROPOLITAN DISTRICT (MMD) STANDARDS, MATERIALS, SPECIFICATIONS AND STANDARD DRAWINGS. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE DISTRICT ENGINEER. THE CONTRACTOR SHALL NOTIFY THE DISTRICT ENGINEER AND MERIDIAN METROPOLITAN DISTRICT AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

**2.** ALL WATER MAINS INSTALLED SHALL CONFORM TO MERIDIAN METROPOLITAN DISTRICT MATERIALS SPECIFICATIONS:

DUCTILE IRON -	4" & 20" CLASS 51
	MS - 1 6" THROUGH 16" CLASS 50/ WITH POLY WRAP

POLYVINYL CHLORIDE (PVC) BLUE BRUT	4" CLASS 200 (DR 14) MS - 2 6" THROUGH 12" CLASS 150 (DR 18)
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**3.** ALL PIPES SHALL HAVE A TRACER WIRE ATTACHED DURING CONSTRUCTION TO THE TOP OF EVERY LENGTH OF INSTALLED PIPE. THE TRACER WIRE SHALL BE MULTI-STRAND 12 GAUGE COPPER WIRE, AND SHALL BE PERMANENTLY AFFIXED TO THE TOP OF THE PIPE USING NYLON PIPE STRAPS AT 50 FOOT INTERVALS. THE TRACER WIRE SHALL ALSO BE PERMANENTLY CONNECTED TO ALL FIRE HYDRANT TEES, METALLIC PIPE BENDS, MAIN VALVES OR OTHER METALLIC FITTINGS, WITH SUCH CONNECTION NOT INTERFERING WITH CONDUCTIVITY OF THE TRACER WIRE. ALL POINTS OF CONNECTION SHALL BE PROTECTED FROM CORROSION BY AN EPOXY OR SILICONE COATING. TRACER WIRE SHALL TERMINATE AT A TEST PORT (TEST STATION) LOCATED AT EACH PROPOSED FIRE HYDRANT. SPLICES TO WIRE WILL REQUIRE THE USE OF 3M SPLICE KITS. ALSO INSTALL 6 INCH WIDE DETECTABLE ALUMINUM FOIL PLASTIC BACKED TAPE INDICATING BURIED WATER LINE BELLOW. INSTALL 12 TO 18 INCHES BELOW SURFACE GRADE. TAPE MUST BE BLUE IN COLOR AND BE MANUFACTURED BY THORTEC OR EQUAL.

**4.** ALL FITTINGS SHALL BE MADE FROM GRAY-IRON OR DUCTILE IRON AND FURNISHED WITH MECHANICAL JOINT ENDS. ALL FITTINGS SHALL HAVE A PRESSURE RATING OF 250 PSI AND SHALL BE WRAPPED WITH AN 8-MIL MINIMUM THICKNESS POLYETHYLENE MATERIAL PER AWWA STANDARD C105 (MS-3).

**5.** THERE SHALL BE A MINIMUM COVER OF 5 FEET OVER ALL WATER MAINS UNLESS INDICATED OTHERWISE ON THESE PLANS.

**6.** FIRE HYDRANTS SHALL BE WATEROUS PACER 150 OR MUELLER CENTURION, OPEN LEFT, AND THE THREADED HOSE CONNECTIONS SHALL BE 2 ½" NOMINAL DIAMETER WITH 4½ THREADS PER INCH ON THE STEAMER NOZZLE, IN COMPLIANCE WITH SOUTH METRO FIRE PROTECTION DISTRICT REQUIREMENTS. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS, OPEN RIGHTVALVES, AND MATERIALS NECESSARY TO INSTALL THE HYDRANT COMPLETE AND IN PLACE.

- 7.** ALL FIRE HYDRANTS ARE TO BE PAINTED WATEROUS HYDRANT COLOR MERIDIAN TAN #4168.
- 8.** ALL BENDS, TEES, FIRE HYDRANTS, BLOW-OFFS AND PLUGS AT DEAD END MAINS SHALL BE PROTECTED FROM THRUST BY USING CONCRETE THRUST BLOCKS PER MERIDIAN METROPOLITAN DISTRICT STANDARDS.
- 9.** NOT MORE THEN ONE CONNECTION SHALL BE MADE TO EXISTING MAINS UNTIL ALL TESTING IS COMPLETE AND PASSING.
- 10.** CHLORINATION AND FLUSHING: ALL WATER MAINS SHALL BE INSTALLED AND CHLORINATED PER MERIDIAN METROPOLITAN DISTRICT STANDARDS. THE LINES SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C-651. "DISINFECTING WATER MAINS." THE PREFERRED METHOD IS TO USE SUFFICIENT CHLORINE TABLETS TO PRODUCE A 25 MG/L SOLUTION. THESE TABLETS SHOULD BE ADHERED TO THE TOP OF THE PIPE SECTION WITH PERMATEX #1 HARD SET GASKET MAKER CHLORINATION OF 16-INCH AND LARGER PIPE REQUIRES A CHLORINE SLURRY. THE CHLORINATION OF ANY FINISHED PIPELINE SHALL BE DONE PRIOR TO HYDROSTATIC TESTING.
- 11.** HYDROSTATIC TESTING: ALL WATER MAINS SHALL BE TESTED PER THE REQUIREMENTS OF MERIDIAN METROPOLITAN DISTRICT STANDARDS. ALL WATER MAIN PIPE SHALL BE FIELD PRESSURE TESTED TO A MINIMUM OF 150 PSI. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE MERIDIAN METROPOLITAN DISTRICT ENGINEER. ALLOWABLE LEAKAGE FOR EACH SECTION OF PIPE BETWEEN LINE VALVES SHALL NOT EXCEED THE LEAKAGE RATE SET FORTH BELOW,

PIPE SIZE (INSIDE DIAMETER)	ALLOWABLE LEAKAGE PER 1,000 FEET (GAL/HR)	
	DUCTILE IRON PIPE (D.I.P.)	POLYVINYL CHLORIDE (P.V.C.)
4 INCHES	0.37	0.33
6 INCHES	0.55	0.50
8 INCHES	0.74	0.66
12 INCHES	1.10	1.00
16 INCHES	1.47	
20 INCHES	1.84	

- 12.** ALL VALVES SHALL BE OPEN RIGHT AND ARE TO BE LOCATED ON PROPERTY LINE EXTENSIONS EXCEPT FOR TAPPING TEES WHERE AN ADDITIONAL VALVE SHALL BE PLACED ON THE TAPPING TEE. OTHER VALVE LOCATIONS MAY BE REQUIRED AS SHOWN ON THE PLANS.
- 13.** WHEN IT IS NECESSARY TO LOWER OR RAISE WATER LINES AT STORM DRAINS AND OTHER UTILITY CROSSINGS, A MINIMUM CLEARANCE OF 1.5 FEET (18 INCHES) SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF PIPES.

- 14.** THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES ONE (1) SIGNED COPY OF THE APPROVED PLANS.
- 15.** COMPACTION OF ALL TRENCHES MUST BE ATTAINED BY THE CONTRACTOR AND THE COMPACTION TEST RESULTS SUBMITTED TO THE DISTRICT ENGINEER.
- 16.** ALL BENDS SHALL BE RESTRAINED PER THE RESTRAINING TABLE.
- 17.** METER LOCATIONS SHALL BE DETERMINED AND APPROVED BY THE DISTRICT ENGINEER. IT IS THE DEVELOPERS RESPONSIBILITY TO CONTACT THE MERIDIAN METROPOLITAN DISTRICT AT 303-790-0345.
- 18.** THE CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULE AND REGULATIONS. ALL TRENCHES SHALL BE OPEN CUT FROM THE GROUND SURFACE AND SHALL CONFORM TO THE MERIDIAN METROPOLITAN DISTRICT STANDARDS, TYPICAL TRENCH SECTION. ALL TRENCHES SHALL BE OPEN CUT FROM GROUND SURFACE AND SHALL NOT EXCEED A WIDTH OF 48-INCHES AT A POINT 12-INCHES ABOVE THE CROWN OF THE PIPE. ALL TRENCHES SHALL BE PROPERLY BRACED AND/OR SHORED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL OCCUPATIONAL SAFETY AND HEALTH (OSHA) REQUIREMENTS. SHORING SHALL BE REMOVED AS THE WORK AND BACKFILLING OPERATIONS PROGRESS.
- 19.** THE DISCHARGE FROM ANY TRENCH DEWATERING OPERATIONS SHALL BE DISCHARGED INTO NATURAL DRAINAGE CHANNELS OR OTHER STRUCTURES AS APPROVED BY THE ENGINEER. BY NO MEANS SHALL GROUND WATER BE ALLOWED TO BE DISCHARGED INTO THE SANITARY SEWER SYSTEMS.  
  
PIPE TRENCHES SHALL BE KEPT FREE FROM WATER DURING EXCAVATION, FINE GRADING, PIPE LAYING AND JOINTING. DEWATERING SUFFICIENT TO PROVIDE A COMPLETELY DRY TRENCH SHALL BE MAINTAINED DURING ALL PIPE LAYING AND JOINTING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF ANY NATURE RESULTING FROM THE DEWATERING OPERATIONS.
- 20.** BEDDING CONFORMING TO THE MERIDIAN METROPOLITAN DISTRICT REQUIREMENTS SHALL BE USED THROUGHOUT THE PROJECT (BEDDING SHALL BE PLACED 6" MINIMUM AROUND AND BELOW THE PIPE AND 12" MINIMUM ABOVE THE PIPE).
- 21.** EXCAVATED MATERIALS SHALL NORMALLY BE CONSIDERED SUITABLE FOR BACKFILL UNLESS ANOMALOUS CONDITIONS ARE DISCOVERED DURING EXCAVATION. NO RUBBISH, DEBRIS, ORGANIC MATERIALS, RUBBLE AND STONES LARGER THAN 3 INCHES IN DIAMETER SHALL BE USED IN THE BACKFILL. CLAYS WITH A PLASTICITY INDEX IN EXCESS OF 20 SHALL NOT BE USED FOR BACKFILL IN TRENCHES LOCATED IN APPROVED STREETS. BACKFILL (ABOVE BEDDING MATERIAL) WITHIN STREET RIGHT-OF-WAY OR UNDER PAVEMENT SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR AS DETERMINED BY AASHTO METHOD T-99. BACKFILL NOT IN STREET RIGHT-OF-WAY OR UNDER PAVEMENT SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY TO THAT OF THE UNDISTURBED NATURAL GROUND BEFORE CONSTRUCTION.

- 22.** ONLY THE FOLLOWING FIRE HYDRANTS, VALVE BOXES AND JOINT RESTRAINTS LISTED BELOW SHALL BE ACCEPTED FOR CONSTRUCTION:

**FIRE HYDRANTS:**

WATEROUS PACER 150 OR MUELLER CENTURION (SEE NOTES 6 & 7)

**VALVE BOXES:**

TYLER SCREW - TYPE "C" CAST IRON VALVE BOX ASSEMBLY - SERIES 6860 WITH NO. 160 OVAL BASE

**MECHANICAL JOINT RESTRAINT DEVICES SHALL BE:**

FOR DUCTILE IRON PIPE (DIP):

MEGALUG 1100 SERIES  
UNI-FLANGE 1400 SERIES

POLYVINYLCHLORIDE (PVC) PIPE:

MEGALUG 2000 PV SERIES  
UNI-FLANGE 1500 SERIES

**PIPE JOINT RESTRAINT DEVICES SHALL BE:**

FOR DUCTILE IRON PIPE (DIP):

MEGALUG 1700 SERIES  
UNI-FLANGE 1300 SERIES

POLYVINYLE CHLORIDE (PVC) PIPE:

MEGALUG 1500 SERIES  
UNI-FLANGE 1300 SERIES

- 23.** ALL WATER MAIN VALVES SHALL BE OPEN RIGHT (RED TOP), AND THE PLANS SHOULD INDICATE THIS AT EACH VALVE LOCATION.
- 24.** EXISTING VALVES IN THE DISTRICT MAY ONLY BE OPERATED BY THE MERIDIAN METROPOLITAN DISTRICT PERSONNEL, (303-790-0345).
- 25.** PRIOR TO INSTALLATION OF WATER MAINS, ROAD CONSTRUCTION MUST HAVE PROGRESSED TO AT LEAST THE "SUB-GRADE" STATE. SUB-GRADE IS DEFINED AND AN ELEVATION OF NO MORE THEN SEVEN (7) INCHES BELOW THE FINISHED STREET GRADE.
- 26.** ALL VALVE BOXES AND HYDRANTS WILL BE SET TO THE FINAL FINISHED GRADE BY THE CONTRACTOR. ANY VALVE BOXES IN NON-PAVED LOCAIONS SHALL BE MARKED WITH A MARKER POST PER THE DISTRICT'S SPECIFICATIONS.
- 27.** BEFORE ANY TAPS ARE MADE, APPLICATION FOR SAID TAPS MUST BE RECEIVED AND APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT.
- 28.** ALL POLYVINYL CHLORIDE (PVC) PIPE IS TO BE DEPRESSURIZED PRIOR TO TAPPING.
- 29.** MERIDIAN METROPOLITAN DISTRICT SYSTEM IS A PRESSURE SUSTAINED SYSTEM AND IS NOT SUPPLIED BY GRAVITY FEED FROM DISTRIBUTION TANKS. WATER TRUCKS OR TOWERS ARE REQUIRED FOR CONSTRUCTION BACKFILL. PRESSURE IS SUSTAINED BY PUMPS AND SPECIAL CARE NEEDS TO BE TAKEN WHEN USING WATER. MAXIMUM WATER DRAW THROUGH A HYDRANT IS 150 GPM.

**30.** ALL WATER MAIN AND APPURTENANCES ARE TO BE CLEARLY STAKED WITH OFFSET STAKES PRIOR TO INSPECTION. TO ASSURE PROPER PLACEMENT OF PIPE, ANY AND ALL WATER EASEMENTS SHALL BE CLEARLY IDENTIFIED AS WELL.

**31.** "AS-BUILT" MYLAR DRAWINGS ARE TO BE REPRODUCIBLE COPIES 24"X 36" SIZE OF THE APPROVED CONSTRUCTION DRAWINGS. ANY FIELD CHANGES ARE TO BE NOTED. THE DRAWING(S) WILL STATE "AS-BUILT" IN LARGE BLOCK LETTERS. A PRINT OF THE MYLAR IS TO BE SIGNED, DATED AND STAMPED BY THE REGISTERED ENGINEER OR THE "AS-BUILT" PRINT MAY BE STAMPED AND SIGNED BY A COLORADO-REGISTERED PROFESSIONAL LAND SURVEYOR INSTEAD OF, OR IN ADDITION TO, A REGISTERED ENGINEER. THE SURVEYOR'S CERTIFICATION IS FOR SURVEY DATA ONLY AND A NOTE TO THIS EFFECT SHOULD BE INCLUDED BY THE LS SEAL.

"AS-BUILT" FIELD NOTES, FROM WHICH THE "AS-BUILT" DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED / SIGNED AND DATED BY THE REGISTERED LAND SURVEYOR.

**32.** THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING THE FOLLOWING:

- A. PROVIDE THE DISTRICT ENGINEERS A DEVELOPER'S WARRANTY, INCLUDING LIEN WAVERS AND ALL OTHER ASSURANCES THAT PAYMENT OF ALL SUPPLIES OF LABOR AND/OR MATERIAL HAS OCCURRED.
- B. PROVIDE THE DISTRICT ENGINEERS A BILL OF SALE, INCLUDING A DESCRIPTION OF THE FACILITIES.

**33.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR THE FOLLOWING:

- A. SUPPLYING THE DISTRICT ENGINEER WITH AN "ENGINEERS ESTIMATE" OF ALL COSTS ASSOCIATED WITH THE WATER INSTALLATION, PRIOR TO CONSTRUCTION.
- B. STREET CUTTING PERMITS FROM THE APPROPRIATE AUTHORITIES.
- C. RESTORATION OF DISTURBED STREET PAVEMENT AS REQUIRED BY GOVERNING AUTHORITIES.
- D. ALL COSTS ASSOCIATED WITH INSPECTION BY THE APPOINTED REPRESENTATIVES OF GOVERNING AUTHORITIES.
- E. TESTING OF COMPLETED WATER LINES AS REQUIRED BY APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT.

- F. COORDINATING WITH THE DISTRICT ENGINEER ANY AND ALL WATER OUTAGES NECESSARY FOR CONSTRUCTION WELL IN ADVANCE IN ORDER TO ALLEVIATE ANY UNEXPECTED OUTAGES, AND ALLOW THE DISTRICT MAINTENANCE CREWS TIME TO LOCATE AND OPERATE SAID VALVES.
  - G. A PERFORMANCE AND PAYMENT BOND GUARANTEEING PAYMENT BY THE CONTRACTOR OF ALL BILLS BEFORE FINAL PAYMENT UNDER THIS CONTRACT.
  - H. VERIFICATION OF ALL OTHER UNDERGROUND FACILITIES WHICH MAY BE AFFECTED BY THIS PROJECT AND REPAIR THEREOF IN CASE OF DAMAGE.
  - I. SCHEDULE A PRE-CONSTRUCTION MEETING TO INCLUDE AT LEAST THE CONTRACTOR, ENGINEER, OWNER OR OWNER'S REPRESENTATIVE, AND A REPRESENTATIVE FROM THE MERIDIAN METROPOLITAN DISTRICT. THE CONTRACTOR SHALL GIVE AT LEAST 48-HOURS NOTICE TO THE ATTENDEES PRIOR TO THE PRE-CONSTRUCTION MEETING AND PRIOR TO COMMENCING CONSTRUCTION.
  - J. "AS-CONSTRUCTED" MYLARS, ELECTRONIC FILES, FIELD NOTES AND CUT-SHEETS SHALL BE SUPPLIED TO THE DISTRICT ENGINEER PRIOR TO CONDITIONAL ACCEPTANCE OF THE WATER LINES.
- 34.** A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT IS REQUIRED ON ALL COMMERCIAL, SINGLE FAMILY AND MULTI-FAMILY DOMESTIC TAPS.
- 35.** ALL COMBINATION FIRE-LINE AND DOMESTIC TAPS MUST BE INSPECTED AND APPROVED BY THE DISTRICT ENGINEER PRIOR TO THE RELEASE OF THE WATER MAINS
- 36.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL(S) ASSOCIATED WITH THIS PROJECT AND THE GENERAL PUBLIC.
- 37.** SAFETY/CONSTRUCTION FENCING MUST BE PLACED ENTIRELY AROUND ANY OPEN EXCAVATION AT THE END OF EACH DAY.
- 38.** OBSERVATION OF CONSTRUCTION/WORK IN PROGRESS AND ON-SITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE DISTRICT OR DISTRICT ENGINEER, OF CONTRACTORS PERFORMANCE, OR OBLIGATIONS TO THE COMPLIANCE OF THE CONTRACT.
- 39.** MERIDIAN METROPOLITAN DISTRICT PERSONNEL ARE NOT RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE PROJECT SITE, NOR FOR THE COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATION RELATING THERETO. ALL SAFETY COMPLIANCE/ENFORCEMENT AT THE WORK SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

IN CASE OF AN EMERGENCY AFTER WORKING HOURS, CALL THE MERIDIAN METROPOLITAN DISTRICT AT 303-790-1498

c. Sanitary Sewer System

1. THE MERIDIAN METROPOLITAN DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS AND DRAWINGS SHALL BE THE MINIMUM REQUIREMENTS FOR THIS PROJECT.
2. PIPE SHALL BE POLYVINYL CHLORIDE (PVC) CONFORMING TO ASTM-3034 SDR-35 WITH ELASTROMERIC GASKETED JOINTS FOR SIZES 15-INCHES AND SMALLER, AND ASTM F-679 (WALL THICKNESS T-1) WITH ELASTROMERIC GASKETED JOINTS FOR SIZES 18-INCHES AND LARGER.
3. THE MAXIMUM DEFLECTION OF PVC PIPE, AFTER INSTALLATION AND BACKFILLING, SHALL NOT EXCEED 5% OF THE PIPE DIAMETER. THE MAXIMUM INDIVIDUAL PIPE LENGTH OF PVC PIPE SHALL BE 20-FEET, 10-FOOT LENGTHS WHERE PIPE IS LAID AT MINIMUM GRADE.
4. ALL DUCTILE IRON PIPE (DIP) SHALL CONFORM TO AWWA C-151 CLASS 51.
5. THE CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULES AND REGULATIONS. ALL TRENCHES SHALL BE OPEN CUT FROM GROUND SURFACE AND SHALL NOT EXCEED A WIDTH OF 48-INCHES AT A POINT 12-INCHES ABOVE THE CROWN OF THE PIPE. ALL TRENCHES SHALL BE PROPERLY BRACED AND/OR SHORED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL OCCUPATIONAL SAFETY AND HEALTH (OSHA) REQUIREMENTS. SHORING SHALL BE REMOVED AS THE WORK AND BACKFILLING OPERATIONS PROGRESS.
6. MERIDIAN METROPOLITAN DISTRICT "CLASS B" BEDDING SHALL BE USED THROUGHOUT THE PROJECT (BEDDING SHALL BE PLACED 6" MINIMUM AROUND AND BELOW THE PIPE AND 12" MINIMUM ABOVE THE PIPE). BEDDING MATERIAL SHALL CONFORM TO ASTM C-33 OR D-448 GRADATION No. 67 OR 6 RESPECTIVELY.
7. EXCAVATED MATERIAL SHALL NORMALLY BE CONSIDERED SUITABLE FOR BACKFILL UNLESS ANOMALOUS CONDITIONS ARE DISCOVERED DURING EXCAVATION. NO RUBBLE AND STONES LARGER THAN 3-INCHES IN DIAMETER, RUBBISH, DEBRIS, OR ORGANIC MATERIALS, SHALL BE USED IN BACKFILL. CLAYS WITH A PLASTICITY INDEX IN EXCESS OF 20 SHALL NOT BE USED FOR BACKFILL IN TRENCHES LOCATED IN APPROVED STREETS. BACKFILL (ABOVE CLASS B MATERIAL) WITHIN STREET AREAS SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR AS DETERMINED BY AASHTO METHOD T-99. BACKFILL NOT UNDER STREETS SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY EQUAL TO THAT OF THE UNDISTURBED NATURAL GROUND BEFORE CONSTRUCTION.
8. THE DISCHARGE FROM ANY TRENCH DEWATERING OPERATIONS SHALL BE DISCHARGED INTO NATURAL DRAINAGE CHANNELS OR OTHER STRUCTURES AS APPROVED BY THE ENGINEER. BY NO MEANS SHALL GROUND WATER BE ALLOWED TO BE DISCHARGED INTO THE SANITARY SEWER SYSTEMS.

PIPE TRENCHES SHALL BE KEPT FREE FROM WATER DURING EXCAVATION, FINE GRADING, PIPE LAYING AND JOINTING. DEWATERING SUFFICIENT TO PROVIDE A COMPLETELY DRY TRENCH, SHALL BE MAINTAINED DURING ALL PIPE LAYING AND JOINTING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF ANY NATURE RESULTING FROM THE DEWATERING OPERATIONS.

**9.** INFILTRATION AND EX-FILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF SEWER PER DAY FOR VITRIFIED CLAY PIPE (VCP), AND 50 GALLONS PER INCH OF PIPE DIAMETER PER MILE OF SEWER PER DAY FOR PVC PIPE.

**10.** EVERY SECTION OF PIPE SHALL BE TELEVISED AND TESTED USING A LOW-PRESSURE AIR TEST.

TESTING OF PVC PIPE LINES SHALL CONFORM TO UNI-BELL PLASTIC PIPE ASSOCIATION'S "RECOMMENDED PRACTICE FOR LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE", UNI-B-6-79.

**11.** IF LASERS ARE USED TO GIVE LINE AND GRADE FOR THE SEWER LINES, THEY MUST BE CHECKED EVERY 25-FEET FOR THE FIRST 100-FEET AND EVERY 50- FEET THEREAFTER.

**12.** THE CONTRACTOR SHALL HAVE ONE (1) SET OF PLANS APPROVED BY THE MERIDIAN METROPOLITAN DISTRICT ON SITE AT ALL TIMES.

**13.** THE CONTRACTOR SHALL NOTIFY THE DISTRICT ENGINEER AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION.

**14.** COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE DISTRICT ENGINEER PRIOR TO FINAL ACCEPTANCE.

**15.** SANITARY SEWER SERVICES SHALL BE WYES OFF OF THE MAIN LINE ON NEW CONSTRUCTION AND WYE SADDLES WITH STAINLESS STEEL STRAPS ON EXISTING MAINS.

**16.** ALL SANITARY SEWER MAINS AND APPURTENANCES ARE TO BE CLEARLY STAKED WITH OFFSET STAKES PRIOR TO INSPECTION TO ASSURE PROPER PLACEMENT OF PIPE. ANY AND ALL SANITARY SEWER EASEMENTS SHALL BE CLEARLY IDENTIFIED AS WELL.

**17.** "AS-BUILT" MYLAR DRAWINGS ARE TO BE REPRODUCIBLE COPIES 24"X36" SIZE OF THE APPROVED CONSTRUCTION DRAWINGS. ANY FIELD CHANGES ARE TO BE NOTED. THE DRAWING(S) WILL STATE "AS-BUILT" IN LARGE BLOCK LETTERS. A PRINT OF THE MYLAR IS TO BE SIGNED, DATED AND STAMPED BY THE REGISTERED ENGINEER OR THE "AS-BUILT" PRINT MAY BE STAMPED AND SIGNED BY A COLORADO-REGISTERED PROFESSIONAL LAND SURVEYOR INSTEAD OF, OR IN ADDITION TO, A REGISTERED ENGINEER. THE SURVEYOR'S CERTIFICATION IS FOR SURVEY DATA ONLY AND A NOTE TO THIS EFFECT SHOULD BE INCLUDED BY THE LS SEAL.

"AS-BUILT" FIELD NOTES, FROM WHICH THE "AS-BUILT" DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED / SIGNED AND DATED BY THE REGISTERED LAND SURVEYOR.

**18.** THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING THE FOLLOWING:

- A. PROVIDE THE DISTRICT ENGINEERS A DEVELOPER'S WARRANTY, INCLUDING LIEN WAVERS AND ALL OTHER ASSURANCES THAT PAYMENT OF ALL SUPPLIES OF LABOR AND/OR MATERIAL HAS OCCURRED.
- B. PROVIDE THE DISTRICT ENGINEERS A BILL OF SALE, INCLUDING A DESCRIPTION OF THE FACILITIES.

**19.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR THE FOLLOWING:

- A. SUPPLYING THE DISTRICT ENGINEER WITH AN "ENGINEERS ESTIMATE" OF ALL COSTS ASSOCIATED WITH THE SANITARY SEWER INSTALLATION, PRIOR TO CONSTRUCTION.
- B. STREET CUTTING PERMITS FROM THE APPROPRIATE AUTHORITIES.
- C. RESTORATION OF DISTURBED STREET PAVEMENT AS REQUIRED BY GOVERNING AUTHORITIES.
- D. ALL COSTS ASSOCIATED WITH INSPECTION BY THE APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT AND GOVERNING AUTHORITIES.
- E. TESTING OF COMPLETED SANITARY SEWER LINES AS REQUIRED BY APPOINTED REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT.
- F. A PERFORMANCE AND PAYMENT BOND GUARANTEEING PAYMENT BY THE CONTRACTOR OF ALL BILLS BEFORE FINAL PAYMENT UNDER THIS CONTRACT.
- G. VERIFICATION OF ALL OTHER UNDERGROUND FACILITIES WHICH MAY BE AFFECTED BY THIS PROJECT AND REPAIR THEREOF IN CASE OF DAMAGE.
- H. SCHEDULE A PRE-CONSTRUCTION MEETING TO INCLUDE AT LEAST THE CONTRACTOR, ENGINEER, OWNER OR OWNER'S REPRESENTATIVE, A REPRESENTATIVE OF THE MERIDIAN METROPOLITAN DISTRICT. THE CONTRACTOR SHALL GIVE AT LEAST 48-HOURS NOTICE TO THE ATTENDEES PRIOR TO THE PRE-CONSTRUCTION MEETING AND PRIOR TO COMMENCING CONSTRUCTION.
- I. JETTING AND TELEVISIONING ALL MAINLINE SANITARY SEWER MAINS UPON COMPLETION.

J. "AS-CONSTRUCTED" MYLARS, ELECTRONIC FILES, FIELD NOTES AND CUT-SHEETS SHALL BE SUPPLIED TO THE MERIDIAN METROPOLITAN DISTRICT PRIOR TO CONDITIONAL ACCEPTANCE OF THE SANITARY SEWER LINES.

**20.** THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL(S) ASSOCIATED WITH THIS PROJECT AND THE GENERAL PUBLIC WHERE THE PROJECT IS ON PUBLIC RIGHT-OF-WAY.

**21.** SAFETY/CONSTRUCTION FENCING MUST BE PLACED ENTIRELY AROUND ANY OPEN EXCAVATION AT THE END OF EACH DAY.

**22.** OBSERVATION OF CONSTRUCTION/WORK IN PROGRESS AND ON-SITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE DISTRICT OR DISTRICT ENGINEER, OF CONTRACTORS PERFORMANCE, OR OBLIGATIONS TO THE COMPLIANCE OF THE CONTRACT.

**23.** MERIDIAN METROPOLITAN DISTRICT PERSONNEL ARE NOT RESPONSIBLE FOR SAFETY IN, ON, OR ABOUT THE PROJECT SITE, OR FOR THE COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATION RELATING THERETO. ALL SAFETY COMPLIANCE/ENFORCEMENT AT THE WORK SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

d. Sanitary Sewer Manhole

1. ALL CONCRETE USED IN MANHOLE CONSTRUCTION SHALL DEVELOP 4000 PSI COMPRESSIVE STRENGTH AFTER 28 DAYS. TYPE II CEMENT SHALL BE USED AND AIR ENTRAINMENT IS REQUIRED. WHERE DIRECTED ON THE DETAILS, CONCRETE SHALL CONTAIN AN ANTIMICROBIAL ADDITIVE AND PROTECTIVE COATING ADDED FOR INTERIOR OF MANHOLE (TYPICALLY FORCE MAIN AND DROP MANHOLES).
2. ALL MANHOLES SHALL HAVE SEMI-CIRCULAR SHAPED INVERTS FOR SMOOTH FLOW. THE INVERT MAY BE FORMED DIRECTLY IN THE CONCRETE OF THE BASE.
3. PRE-CAST MANHOLE RISERS (BODIES), AND CONES SHALL CONFORM TO ASTM C-478. ALL MANHOLES SHALL HAVE ECCENTRIC CONES (NO FLAT TOPS).
4. ALL JOINTS IN PRE-CAST MANHOLES SHALL BE SEALED WITH A PREFORMED, FLEXIBLE SEALING COMPOUND CONFORMING TO FEDERAL SPECIFICATION SS-S-00210 (GSA-FSS), SUCH AS "RAM-NEK" OR EQUAL AND CEMENT GROUT SHALL BE USED ON ALL OUTSIDE JOINTS WHERE GROUNDWATER IS PRESENT
5. MANHOLE STEPS SHALL BE EXTRUDED ALUMINUM, CONFORMING TO FEDERAL SPECIFICATION QQ-A-200/8, OR POLYPROPYLENE REINFORCED PLASTIC, INSTALLED IN A STRAIGHT LINE VERTICALLY AND SPACED 16-INCHES MAXIMUM APART, STEPS SHALL BE PRE-CAST IN THE MANHOLE WALL.
6. MANHOLE RING AND COVER SHALL BE NOMINAL 24-INCH DIAMETER STANDARD PATTERN CAST IRON.
7. COVER SHALL BE THE DISTRICT STANDARD PATTERN. ALL CAST IRON CASTINGS SHALL BE OF GRAY CAST IRON, ASTM DESIGNATION A48 CLASS 35B. CASTINGS SHALL NOT BE PAINTED OR DIPPED. ALL ALUMINUM CASTINGS SHALL BE DIPPED IN POLYMERIC PAINT AND CONTRACTOR MUST HAVE WRITTEN DISTRICT APPROVAL PRIOR TO INSTALLATION.
8. AN APPROVED MANHOLE WATER STOP GASKET SHALL BE INSTALLED ON ALL PLASTIC PIPE ENTERING A MANHOLE.
9. ALL MANHOLE BASES SHALL BE CAST-IN-PLACE CONCRETE. USE OF PRE-CAST MANHOLE BASES IS NOT PERMITTED, UNLESS APPROVED BY THE DISTRICT ENGINEER.