

## WATERWORK

ALL WATERWORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DRAWINGS OF THE LAKE COUNTY DEPARTMENT OF UTILITIES, 105 MAIN STREET, PAINESVILLE, OHIO 44077 AND THE DETAILS SHOWN ON SHEET 1036. THE COST OF ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, EXCAVATION, BEDDING, AND BACKFILL FOR THE WATERWORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR EACH WATERWORK ITEM. THE REPLACEMENT OF PAVEMENT, LANDSCAPING, AND ALL OTHER WORK EXCEPTING THE "WATERWORK" ITSELF, SHALL BE STIPULATED IN THE CONTRACT SPECIFICATIONS.

ALL PERMITS, FEES AND LAKE COUNTY CHARGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THEIR ASSOCIATED COST SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE PERTINENT WATERWORK ITEMS.

### ITEM SPECIAL – WATER MAIN AND SERVICE BRANCHES

- A. DESCRIPTION – THIS WORK CONSISTS OF CONSTRUCTING AND RECONSTRUCTING WATER MAINS AND SERVICE BRANCHES, INCLUDING FIRE HYDRANTS, WATER METERS, SERVICE STOPS, VALVES, FITTINGS AND BOXES. THE WORK ALSO INCLUDES FURNISHING ALL MATERIALS, EXCAVATION, BEDDING, LAYING PIPE, HORIZONTAL BORING, JOINTING, HYDROSTATIC TESTING, STERILIZING, BACKFILLING, RESTORATION OF DISTURBED FACILITIES AND SURFACES, DISPOSAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIALS, AND OTHER ITEMS NECESSARY TO COMPLETE THE WORK.
- B. CONSTRUCTION AND MATERIAL SPECIFICATIONS – ALL WATER MAINS AND APPURTENANCES SHALL BE IN ACCORDANCE WITH "COUNTY OF LAKE, OHIO – LAKE COUNTY REGIONAL SEWER DISTRICT NO.1 – STANDARD WATERLINE CONSTRUCTION AND MATERIAL SPECIFICATIONS," (FEBRUARY 15, 1983 OR THE MOST CURRENT SPECIFICATION REVISION) AND AS MODIFIED HEREIN. A COPY OF THE SPECIFICATIONS IS ON FILE IN THE OFFICE OF THE LAKE COUNTY SANITARY ENGINEER, LAKE COUNTY ADMINISTRATION CENTER, 105 MAIN ST., PAINESVILLE, OHIO.
- C. OWNERSHIP – ALL WATER MAINS, SERVICE CONNECTIONS AND APPURTENANCES WITHIN THE DEDICATED RIGHTOF-WAY ARE OWNED, OPERATED AND MAINTAINED BY THE LAKE COUNTY DEPARTMENT OF UTILITIES.
- D. INSPECTION – ALL WORK ON WATER MAINS AND APPURTENANCES SHALL BE INSPECTED BY, APPROVED BY, AND COORDINATED WITH THE LAKE COUNTY DEPARTMENT OF UTILITIES PRIOR TO BEING PLACED IN SERVICE. THE CONTRACTOR SHALL NOTIFY THE LAKE COUNTY DEPARTMENT OF UTILITIES AT LEAST THREE WORKING DAYS PRIOR TO INITIATING ANY WORK ON THE WATER MAINS AND APPURTENANCES.
- E. BACTERIOLOGICAL TESTING AND STERILIZATION – THE CONTRACTOR SHALL SUPPLY ALL EQUIPMENT, MATERIALS AND LABOR NECESSARY TO STERILIZE THE PROPOSED WATER MAINS AND APPURTENANCES FOR SAMPLE COLLECTION IN ACCORDANCE WITH THE WATER MAIN CONSTRUCTION AND MATERIAL SPECIFICATIONS AND AWWA STANDARD C650 SECTION 7.3. BACTERIOLOGICAL SAMPLES SHALL BE COLLECTED BY THE LAKE COUNTY DEPARTMENT OF UTILITIES IN AN APPROVED CONTAINER. WATER IN THE MAIN TO BE DISINFECTED SHOULD HAVE A TURBIDITY ACCEPTABLE TO THE LAKE COUNTY DEPARTMENT OF UTILITIES. ALL TESTS ARE TO BE PERFORMED BY THE LAKE COUNTY LABORATORY OR LAKE COUNTY DEPARTMENT OF UTILITIES – APPROVED LABORATORY. THE PROCEDURES FOR BACTERIOLOGICAL TESTING ARE AS FOLLOWS:
1. BACTERIOLOGICAL TESTING TO BE PERFORMED BY LAKE COUNTY PERSONNEL ONLY AFTER PRESSURE TEST AND ALL OTHER TEST REQUIREMENTS ARE COMPLETED SATISFACTORILY.
  2. DISINFECTION OF WATER MAINS PER LAKE COUNTY "RULES AND REGULATIONS" IS FIFTY PARTS PER MILLION (50 P.P.M.) CHLORINE FOR 24 HOURS.
  3. CONTRACTOR SHALL SCHEDULE WITH LAKE COUNTY TO FLUSH MAIN UNTIL THE SYSTEM WATER AND SYSTEM CHLORINE RESIDUAL ARE PRESENT AT THE CHECK POINT TO THE SATISFACTION OF THE DEPARTMENT OF UTILITIES. THE RESIDUAL SHOULD BE 0.2 MG/L CHLORINE OR HIGHER.
  4. CONTRACTOR SHALL SCHEDULE WITH LAKE COUNTY LABORATORY AFTER STEP 3 AND THEN LET THE WATER STAND IN THE MAIN UNDISTURBED FOR 24 HOURS WITH NO ACTIVITY ON THE MAIN.
  5. AFTER 24 HOURS, LAKE COUNTY PERSONNEL CHECK CHLORINE RESIDUAL.
  6. IF CHLORINE RESIDUAL IS STILL SATISFACTORY, THEN LAKE COUNTY PERSONNEL WILL TAKE THE FIRST (OF TWO) BACTERIOLOGICAL SAMPLES AND FORWARD TO LAKE COUNTY LABORATORY FOR ACCEPTABILITY.

7. CHECK WITH LAKE COUNTY LABORATORY AFTER THIS TIME PERIOD (24 HOURS) FOR THE FIRST SAMPLE ACCEPTABILITY. AND IF APPROVED. PROCEED WITH STEP #8. (CONTACT LAKE COUNTY DEPARTMENT OF UTILITIES FOR REMEDIAL PROCEDURE IF DISAPPROVED).
  8. LAKE COUNTY PERSONNEL WILL CHECK WATER MAIN AGAIN TO SEE IF CHLORINE RESIDUAL IS STILL PRESENT.
  9. IF CHLORINE RESIDUAL IS STILL PRESENT, PROCEED WITH STEP #10.
  10. LAKE COUNTY PERSONNEL WILL TAKE SECOND BACTERIOLOGICAL SAMPLE AND FORWARD TO LAKE COUNTY LABORATORY.
  11. WAIT ANOTHER 24 HOURS AND CHECK WITH LAKE COUNTY LABORATORY FOR SECOND SAMPLE ACCEPTABILITY. (CONTACT LAKE COUNTY DEPARTMENT OF UTILITIES FOR REMEDIAL PROCEDURE IF DISAPPROVED).
  12. IF SECOND SAMPLE IS APPROVED BY LAKE COUNTY LABORATORY. PROCEED WITH STEP #13.
  13. LAKE COUNTY LABORATORY WILL ISSUE A WRITTEN REPORT THAT WATER MAIN IS SAFE AND ACCEPTABLE FOR SERVICE.
  14. NEW WATER MAIN WILL BE MADE OPERATIONAL ONLY BY LAKE COUNTY DEPARTMENT OF UTILITIES PERSONNEL.
- F. SEQUENCE OF CONSTRUCTION – THE CONTRACTOR SHALL SCHEDULE THE WORK ON THE WATER MAINS AND APPURTENANCES TO MINIMIZE THE NUMBER AND DURATION OF INTERRUPTIONS TO WATER SERVICE. ALL WATER SERVICE INTERRUPTIONS SHALL BE SCHEDULED WITH THE LAKE COUNTY DEPARTMENT OF UTILITIES DURING OFF PEAK WATER DEMAND PERIODS AND SHALL NOT EXCEED A PERIOD OF TWO (2) HOURS. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION PLANS TO THE LAKE COUNTY DEPARTMENT OF UTILITIES FOR REVIEW AND APPROVAL PRIOR TO ANY WORK ON THE WATER MAINS. THE CONTRACTOR SHALL NOTIFY ALL CUSTOMERS AFFECTED BY THE WATER MAIN SHUT DOWN TWO (2) WORKING DAYS PRIOR TO THE PROPOSED SHUT DOWN.
- G. METHOD OF MEASUREMENT:

1. WATER MAIN AND FITTINGS – THE UNIT PRICE PER FOOT OF WATER MAIN AND FITTINGS (DUCTILE IRON PIPE) SHALL INCLUDE THE COST OF CLEARING AND GRUBBING, EXCAVATION, REMOVING ROCK AND WATER, SHEETING AND SHORING, BEDDING, BACKFILLING, DISPOSAL OF WATER MATERIALS, PROTECTION OF STRUCTURES, UTILITIES OR OTHER FACILITIES AND FOR FURNISHING, LAYING, CUTTING, JOINT RESTRAINT, TESTING, CORROSION PROTECTION, STERILIZING, IDENTIFICATION TAPE, GASKETS, JOINTING MATERIALS, NUTS, BOLTS, ZINC PROTECTION CAPS, MECHANICAL JOINT GLANDS OR ANY OTHER SIMILAR ACCESSORIES, LIMESTONE BEDDING FOR PIPE AND BLOCKING SUPPORT FOR FITTINGS, FLUSHING AND PAINTING AL DUCTILE IRON PIPE AND FITTINGS FURNISHED UNDER THIS CONTRACT IN ACCORDANCE WITH ALL LAKE COUNTY RULES AND REGULATIONS.

EACH WATER MAIN FITTING SHALL BE RESTRAINED USING EBAA IRON MEGALUG JOINT RESTRAINT SYSTEM OR APPROVED EQUAL. THRUST BLOCKING WILL BE USED IN CONJUNCTION WITH RESTRAINT SYSTEM AT ALL HYDRANTS AT THE DIRECTION OF THE LAKE COUNTY DEPARTMENT OF UTILITIES.

HYDRANT FITTINGS INCLUDING HYDRANT TEES AND BENDS SHALL BE PAID FOR IN THE UNIT PRICE BID FOR "HYDRANT ASSEMBLIES" AND NO SEPARATE PAYMENT SHALL BE MADE FOR THESE FITTINGS.

PAYMENT FOR WATER MAINS WILL BE MADE ON A LINEAL FOOT BASIS AS MEASURED HORIZONTALLY ALONG THE CENTERLINE OF THE WATER MAIN, COMPLETE, TESTED AND READY FOR SERVICE.

PAYMENT FOR HORIZONTAL BORING WILL BE MADE ON A LINEAL FOOT BASIS AS MEASURED HORIZONTALLY ALONG THE CENTERLINE OF THE CASING PIPE. INCLUDING BORING PITS, CASING BORING, BORING AND JACKING, INSTALLATION OF THE WATER MAIN, COMPLETE TESTED AND READY FOR SERVICE.

2. HYDRANT ASSEMBLIES – THE UNIT PRICE BID FOR HYDRANT ASSEMBLIES OF THE TYPES NOTED ON THE PLANS SHALL INCLUDE THE NECESSARY EXCAVATION AND BACKFILL INCLUDING GRANULAR BACKFILL WHEN REQUIRED. THE FURNISHING AND PLACING OF EACH HYDRANT ASSEMBLY, TOGETHER WITH THE NECESSARY FITTINGS, NUTS, BOLTS, ZINC PROTECTION CAPS, GATE VALVE AND BOX, HYDRANT INLET PIPE AND EXTENSION, DEWATERING, SHEETING OR SHORING, PIPE BEDDING AND PIPE BACKFILL, DISPOSAL OF WASTE MATERIALS, PROTECTION OF STRUCTURES, UTILITIES, SERVICE CONNECTIONS OR OTHER FACILITIES. THRUST BLOCKING, JOINT RESTRAINTS, CRUSHED STONE FILL, TESTING, FLUSHING, STERILIZING AND PAINTING OF ALL HYDRANT ASSEMBLIES, TOGETHER WITH ALL LABOR, EQUIPMENT, TOOLS, AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SHOWN, SPECIFIED OR AS DIRECTED BY THE ENGINEER. PAYMENT FOR HYDRANT ASSEMBLIES WILL BE MADE ON A UNIT BASIS FOR THE VARIOUS TYPES OF HYDRANT ASSEMBLIES COMPLETE, TESTED AND READY FOR SERVICE.

3. VALVES – THE UNIT PRICE FOR BUTTERFLY VALVES, TAPPING SLEEVE AND VALVE. AND GATE VALVES SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF VARIOUS VALVES, COMPLETE WITH VALVE BOXES OR VALVE CHAMBERS, BYPASS VALVES, BOLTS, NUTS, ZINC PROTECTION CAPS, GASKETS, JOINTING MATERIALS, CORPORATION STOPS, STERILIZATION AND TESTING CONNECTIONS, AND OTHER ACCESSORIES TOGETHER WITH ALL LABOR, EQUIPMENT, TOOLS AND MATERIALS NECESSARY TO INSTALL ALL THE VARIOUS SIZES AND TYPES OF VALVES SHOWN ON THE PLANS, AS SPECIFIED OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE MADE ON A UNIT BASIS FOR EACH VARIOUS TYPE OF VALVE INSTALLED AS DIRECTED BY THE ENGINEER.

4. LONG AND SHORT SERVICE CONNECTIONS – PAYMENT FOR "LONG SERVICE CONNECTION" WILL BE ON A UNIT BASIS INCLUDING FURNISHING ALL LABOR, MATERIAL AND EQUIPMENT TO TAP THE NEW WATER MAIN, INSTALL NEW CORPORATION STOP, INSTALL NEW COPPER WATER SERVICE LINE UNDER ROADWAY, INSTALL NEW CURB STOP AND CURB BOX AND CONNECT THE NEW COPPER SERVICE LINE TO THE EXISTING OR RELOCATED WATER METER, INCLUDING A NEW METER VAULT. THIS ITEM SHALL APPLY TO SERVICE CONNECTIONS WHICH ARE ON THE OPPOSITE SIDE OF THE ROADWAY FROM THE WATER MAIN. PAYMENT FOR "SHORT SERVICE CONNECTION" WILL BE ON A UNIT BASIS SIMILAR TO THE PROCEEDING PARAGRAPH ABOVE EXCEPT THIS ITEM SHALL APPLY TO SERVICE CONNECTIONS ON THE SAME SIDE OF THE ROADWAY AS THE WATER MAIN.

5. WATER METER AND BOX RELOCATED – THIS ITEM SHALL INCLUDE FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT TO RELOCATE THE EXISTING WATER METER AND PROVIDE NEW WATER METER BOXES IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, INCLUDING EXCAVATION, DEWATERING, SHEETING, BACKFILL, NEW CAST IRON FRAMES AND COVERS ALL OTHER MATERIALS AND/OR EXPENSE WHETHER SPECIFICALLY MENTIONED OR NOT. PAYMENT WILL BE MADE ON A UNIT BASIS FOR EACH METER AND BOX RELOCATED, TESTED AND READY FOR SERVICE.

6. HYDRANTS REMOVED AND DISPOSED OF – THE UNIT PRICE BID FOR REMOVING AND DISPOSING OF EXISTING HYDRANTS SHALL INCLUDE ALL EXCAVATION, BACKFILLING, DISPOSING HYDRANTS AND PLUGGING THE EXISTING WATER MAINS IF THE WATER MAIN IS NOT BEING ABANDONED.

7. VALVE ADJUSTED TO BELOW GRADE – THE UNIT PRICE BID FOR ADJUSTING EXISTING VALVES TO BELOW GRADE FOR WATER MAINS TO BE ABANDONED SHALL INCLUDE ALL EXCAVATION, BACKFILL, COMPACTION AND LABOR DEEMED NECESSARY FOR REMOVING THE VALVE BOX AND ADJUSTING THE VALVE STEM TO THREE (3) FEET BELOW FINISHED GRADE.

8. METER BOX ADJUSTED TO GRADE – INCLUDES ALL EQUIPMENT, MATERIAL, LABOR, EST. TO ADJUST TO GRADE ALL EXISTING WATER METER BOXES NOT BEING RELOCATED.