

WATER WORKS

EACH BID PROPOSAL MUST BE ACCOMPANIED BY A COPY OF THE BIDDERS OR THEIR INTENDED WATER MAIN SUBCONTRACTORS CURRENT SEWER/WATER BUILDERS LICENSE WHICH HAS BEEN ISSUED BY THE LAKE COUNTY DEPARTMENT OF UTILITIES.

ALL WATER MAINS WITHIN THE PROJECT AREA BELONG TO LAKE COUNTY AND FALL UNDER THE CONTROL OF THEIR WATER DEPARTMENT.

ANY AND ALL CONSTRUCTION OF WATER MAIN FACILITIES REQUIRED BY THIS PROJECT IS TO BE GOVERNED BY THE DRAWINGS AND SPECIFICATIONS FOR THIS JOB WHICH, IN THE EVENT OF A DISCREPANCY, SUPERCEDE THE LAKE COUNTY STANDARD WATERLINE SPECIFICATIONS.

THE CONTRACTOR SHALL SCHEDULE WITH THE LAKE COUNTY WATER DEPARTMENT AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY WORK ON THEIR SYSTEMS.

INSPECTION SERVICES SHALL BE PERFORMED BY THE LAKE COUNTY WATER DEPARTMENT. THE COST OF INSPECTION SHALL BE INCLUDED AS PART OF THIS CONSTRUCTION PROJECT AT A RATE OF \$275.00 PER EIGHT-HOUR DAY. THE COST FOR LAKE COUNTY INSPECTION FEES AND OTHER FEES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR OTHER WATERLINE ITEMS.

ALL WATER MAINS ON THIS PROJECT SHALL BE LAID AT THE ELEVATIONS AND GRADES SHOWN ON THE DRAWINGS. HIGH POINTS IN THE WATER MAIN MUST OCCUR AT THE STATIONED HYDRANT TEE LOCATIONS.

HYDRANTS DESIGNATED FOR REMOVAL SHALL BE REMOVED UNDER LAKE COUNTY WATER DEPARTMENT SUPERVISION. SPECIAL CARE IN REMOVAL AND HANDLING OF EXISTING HYDRANTS SHALL BE MAINTAINED AT ALL TIMES AND REMOVAL OF EXISTING HYDRANTS IS TO BE DONE BY EXCAVATION OF HYDRANT ASSEMBLY ONLY.

ALL REMOVED HYDRANTS SHALL BECOME THE PROPERTY OF THE LAKE COUNTY WATER DEPARTMENT. REMOVED HYDRANTS ARE TO BE STORED ON THE JOB SITE FOR PICK-UP BY THE LAKE COUNTY WATER DEPARTMENT. CONTACT AQUARIUS SERVICE CENTER TO SCHEDULE PICK-UP.

THE LAKE COUNTY WATER DEPARTMENT SHALL PROVIDE WATER FOR FILLING THE NEW WATER MAIN WITHOUT COST TO THE CONTRACTOR FOR THE INITIAL FILLING OPERATION. ALL WATER FOR ANY FLUSHING OPERATIONS SHALL BE PAID FOR BY THE CONTRACTOR AT A RATE OF \$2.60 PER 2.8 CUBIC METERS OF WATER USED.

THE PROPOSED WATER MAIN SHALL HAVE 1.5 METERS MINIMUM COVER OVER THE TOP OF PIPE AT ALL PLACES.

ALL WATER SERVICE CONNECTIONS WHICH ARE BROKEN BY THE CONTRACTOR SHALL BE REPAIRED BY THE LAKE COUNTY WATER DEPARTMENT OR THE CONTRACTOR, ALL AT THE CONTRACTOR'S EXPENSE. ALL RECONNECTED WATER SERVICE CONNECTIONS SHALL BE TAPPED INTO THE MAIN AND DOCUMENTED AS SUCH. ALL NEW SERVICE CONNECTIONS SHALL BE MINIMUM 19 mm TYPE K COPPER, REGARDLESS OF THE EXISTING SERVICE CONNECTION MATERIAL.

LOCATION OF STERILIZATION AND TESTING CONNECTIONS AT VALVES SHALL BE AS DIRECTED BY THE LAKE COUNTY WATER DEPARTMENT AND ALL COSTS ASSOCIATED WITH PLACING AND UTILIZING SAID STERILIZATION AND TESTING CONNECTIONS SHALL BE INCLUDED IN THE PRICE BID PER LINEAL METER OF THE WATER MAINS.

ALL WATER MAIN PIPE SHALL BE DUCTILE IRON PIPE, ANSI A21.51, THICKNESS CLASS 56, WITH PUSH-ON JOINTS, CEMENT LINES ANSI A21.4 .

FITTINGS TO BE DUCTILE IRON MECHANICAL JOINTS ANSI 21.11 UNLESS OTHERWISE SHOWN ON THE PLANS. ALL DUCTILE IRON FITTINGS SHALL BE STANDARD FULL BODY LENGTH.

ALL BOLTS UTILIZED ON THE WATER MAIN IMPROVEMENTS SHALL HAVE ZINC PROTECTOR CAPS. COST OF FURNISHING AND PLACING ZINC PROTECTOR CAPS SHALL BE INCLUDED IN THE UNIT BID PRICES FOR OTHER WATER MAIN ITEMS OF WORK.

BACKFILL OF WATER MAIN TRENCHES SHALL BE IN ACCORDANCE WITH WATER WORK DETAIL SHEET 191.

ALL HYDRANTS PROVIDED SHALL BE 1.68 METERS BURY DEPTH (BURY LINE TO BOTTOM OF HYDRANT SHOE) WITH EXTENSIONS PROVIDED TO THE WATERMAIN DEPTH SHOWN IN THE PLANS.

ALL PROJECT HYDRANTS SHALL HAVE A FIELD COAT OF APPROVED PAINT APPLIED BY THE CONTRACTOR.

THE WILLOUGHBY FIRE PREVENTION BUREAU IS TO BE NOTIFIED WHEN WATER WORK IS STARTED. AN ACCEPTANCE TEST IS REQUIRED ON ALL NEW FIRE SERVICE MAINS. WHEN REQUESTING WITNESS FOR TEST, NOTIFY THE FIRE PREVENTION BUREAU 48 HOURS PRIOR TO DATE AND TIME DESIRED.

SERVICE RECONNECTIONS TO EXISTING METER VAULTS SHALL BE MADE BETWEEN THE NEW MAIN AND THE EXISTING VAULT. WHERE EXISTING VAULTS ARE ENCOUNTERED IN DRIVE APRONS, THEY SHALL BE EXPOSED AND A FIELD DECISION MADE AS TO WHETHER THE VAULT CAN BE RELOCATED TO THE TREELAWN. IF SUCH WORK IS REQUIRED, PAYMENT WILL BE MADE ON A TIME AND MATERIALS BASIS FOR EXTRA WORK.

ITEM SPECIAL - MISCELLANEOUS METAL WORK

WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OR THESE SPECIFICATIONS.

(B) IN GENERAL, THE WORK SHALL INCLUDE THE REPLACEMENT OF ANY VALVE BOXES, COVERS, MANHOLE RINGS AND COVERS, WATER SERVICE STOP BOXES, BRONZE BOLTS, MANHOLE STEPS, EXTENSION STEMS AND BRACE STRUCTURAL MEMBERS AND OTHER SIMILAR ITEMS DETERMINED BY THE ENGINEER AS BEING UNSUITABLE.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 36. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO THE U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL-FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIAL.

ALUMINUM, EXCEPT OTHERWISE REQUIRED, SHALL BE ALUMINUM ALLOY EQUIVALENT TO SPECIFICATION 5063, RIVETS AND SCREWS SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 6061-16 AND EXTRUDED SHAPES SHALL BE 6063-T5; ALL AS MANUFACTURED BY THE ALUMINUM COMPANY OF AMERICA, OR EQUAL.

BRASS SHALL BE A COMMERCIAL GRADE CONFORMING TO THE "STANDARD SPECIFICATIONS FOR BRASS PLATE, SHEER, STRIP AND ROLLED BAR" ASTM DESIGNATION B 36-7L, ALLOY NO. 3.

COPPER-SILICON ALLOY OR "EVERDUR" SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR COPPER-SILICON ALLOY PLANT, SHEET, STRIP AND ROLLED BAR FOR GENERAL PURPOSES"; ASTM DESIGNATION B97-70, TYPE B.

STAINLESS STEEL AND FASTENERS SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR HOT ROLLED AND COLD-FINISHED STAINLESS AND HEAT RESISTANT BARS", ASTM DESIGNATION A 276-72, TYPE 304. ALL WROUGHT IRON SHALL MEET THE REQUIREMENTS OF THE "SPECIFICATIONS FOR WROUGHT IRON PLATES", ASTM DESIGNATION A42-66.

CAST IRON VALVE BOXES AND COVERS SHALL BE GRAY IRON CASTINGS, WHICH IN APPEARANCE AND DIMENSION TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH IS NOT A PRIMARY OR MAJOR CONSIDERATION. VALVE BOXES AND COVERS SHALL BE ASTM DESIGNATION A-48 WITH NO SPECIFIC REQUIREMENT AS TO CLASS. CHEMICAL COMPOSITION SHALL NOT BE CONSIDERED, BUT THE MATERIAL SHALL BE GOOD QUALITY AND OF SUCH CHARACTER AS SHALL MAKE THE METAL OF THE CASTING STRONG, TOUGH AND OF EVEN GRAIN. THE METAL SHALL BE MADE WITHOUT ANY ADMIXTURE OF CINDER IRON OR OTHER INFERIOR METAL.

WORKMANSHIP AND FINISH SHALL CONFORM SUBSTANTIALLY TO THE DIMENSIONS ON THE CONTRACT DRAWINGS OR FURNISHED DRAWINGS. THE CASTINGS SHALL BE FREE FROM INJURIOUS DEFECTS, CRACKS, GAS HOLES, FLAWS AND EXCESSIVE SHRINKAGE. ADDITIONAL INSPECTION MAY BE MADE AT THE PROJECT OR WORK SITE. INSPECTION SHALL BE VISUAL INSPECTION FOR APPEARANCE AND SURFACE SMOOTHNESS IN COMPARISON WITH SAMPLES ACCEPTED AS STANDARD.

SAMPLE CASTINGS FROM EACH PATTERN, WHEN REQUIRED BY THE ENGINEER, SHALL BE SUBMITTED BY THE MANUFACTURER FOR THE PURPOSE OF ESTABLISHING STANDARDS OF APPEARANCE AND DIMENSIONAL TOLERANCES. THE MANUFACTURER SHALL CERTIFY THAT HIS PRODUCT CONFORMS TO THESE SPECIFICATIONS. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMEP TEST.

NO CASTING SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH COATING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUTSIDE IN ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATION - 77-V-51A OR JOINT ARMY-NAVY SPECIFICATION JAN-P-450. OTHER METHODS OF COATING AND TYPES OF COATING MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IN ADDITION TO THE SHOP COAT, THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, AND ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES INDICATED ON THE DRAWINGS.

RIMS AND COVERS

(A) ALL CAST IRON MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAIL SHOWN ON THE CONTRACT DRAWINGS SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OF POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATIONS AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURE OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF FINISHED METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF ANY WORK TO BE FURNISHED UNDER THIS ITEM IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAT TAR PITCH, USING INTERTOL 50 OR BITUMASTIC 50, OR APPROVED EQUAL.

MEASUREMENT

THE MISCELLANEOUS METAL WORK SHALL BE METAL WORK ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DETAILED DRAWINGS APPROVED BY THE DIRECTOR. IN COMPUTING THE WEIGHTS, IF NOT DETERMINED BY WEIGHING, ONE (1) CUBIC METER OF CAST IRON SHALL BE ASSUMED TO WEIGH SEVEN THOUSAND TWO HUNDRED (7,200) KILOGRAMS, AND ONE (1) CUBIC METER OF STEEL SHALL BE ASSUMED TO WEIGH SEVEN THOUSAND EIGHT HUNDRED FIFTY (7,850) KILOGRAMS. THE WEIGHT OF CAST IRON SHALL BE USED FOR CAST IRON VALVE BOXES AND COVERS AND ANY CAST IRON SECTIONS OF VALVE BOXES AND COVERS. WHERE PLASTIC PIPE IS USED AS THE EXTENSION, THE PIPE SHALL BE INCLUDED IN THE CAST IRON WEIGHT WITH NO SEPARATE ALLOWANCE FOR LENGTH OR WEIGHT.

PAYMENT

THE UNIT PRICE STIPULATED PER KILOGRAM FOR MISCELLANEOUS METAL WORK SHALL INCLUDE THE FURNISHING, ERECTING, MACHINING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF ALL MISCELLANEOUS METAL WORK, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK:

ITEM SPECIAL - MISCELLANEOUS METAL WORK 1,500 KG.

CALC. BY:
CHECKED BY:

WATER WORK NOTES

LAK-640-3.444

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