

WATER WELL #6 REDEVELOPMENT GENERAL SPECIFICATIONS

SCOPE OF WORK:

The work to be done hereunder includes the furnishing of all labor, materials, transportation, tools, supplies, equipment, and appurtenances, unless hereinafter specifically excepted, necessary for the repair and redevelopment of the City's #6 Water Well. The general work consists of flow testing prior to pump removal, pump removal, cleaning of the well, pump re-installation, well disinfection, and final flow testing.

EXISTING WELL AND PUMP:

The existing well is 10" diameter and approximately 150' deep, completed into limestone. The casings lengths are approximately 50'. Each is equipped with a vertical turbine well pump with a vertical hollow shaft motor as shown on the attached information sheet.

PRE-FLOW TESTING:

Prior to pump removal, a pumping test shall be conducted to demonstrate the well and pump's operating condition. The test shall be made by pumping to atmosphere through a calibrated orifice at four different flow rates for 15 minutes each rate. The shut-off head pressure shall also be determined. During the entire pumping period, the contractor shall maintain accurate records of the pumping rate, discharge pressure, and the drawdown achieved in the well. The contractor shall provide all necessary fittings and required temporary discharge piping. All points of discharge must be approved by the owner.

PUMP REPAIR:

The existing well pump and motor shall be removed from the well using care not to damage the pump base or well casing and stored on-site at a place chosen by the City. The entire setting including bowl assembly, column pipe, line shaft and discharge head shall be replaced per the following specifications. The vertical hollowshaft motor shall be re-used. The contractor shall be responsible to make whatever adaptations are required to fit the new discharge head to 1) the existing piping and 2) the existing motor.

Pump Bowl:

New bowl assemblies, shall be ASTM A48 class 30 cast iron with all internal water passageways enameled for maximum efficiency and long life. Impellers shall be ASTM B145 bronze, semi-enclosed type, with smooth surfaces and shall be fastened to the stainless steel impeller shaft by means of stainless steel collets. No rubber bowl bushings of any type will be allowed. The bowl assembly shall be as regularly manufactured by the J-Line Pump Company, Memphis, Tennessee, Model 8 MS, 5-stage, 1760 rpm, rated 280 gpm @ 135' TDH.

Column Pipe:

The column pipe shall be ASTM A53 schedule 40 steel pipe. The pipe shall have butt joints to insure proper alignment. It shall be screw coupled using appropriate couplings with aligning spiders and neoprene rubber inserts. It shall consist of 10' intermediate lengths and 5' lengths off the bowl assembly and discharge head.

Lineshaft:

The lineshaft and lineshaft couplings shall be turned, ground, and polished stainless steel with ends faced and threaded. It shall consist of 10' intermediate lengths, 5' length off the bowl, and appropriate length off the discharge head, through the stuffing box that will allow for coupling in the discharge head.

Discharge Head:

The discharge head shall be cast iron with suitable centering ring to receive a vertical hollow shaft motor. The discharge flange shall be faced and drilled to match 150 lb. ANSI, 6" connections. The design shall permit the vertical hollow shaft motor driveshaft to be coupled above the stuffing box. The cast iron stuffing box shall be of deep bore type with a minimum of six rings of packing. The packing gland split type and secured in place with ASTM A193- 8 stainless steel studs and brass nuts. The stuffing box bearing shall be bronze ASTM505, Alloy C83600. The discharge head shall be as regularly manufactured by J-Line Pump Company, Memphis, Tennessee, standard-duty, high profile.

WELL TELEVISION VIDEO INSPECTION

After removal of all pumping equipment and prior to the Redevelopment Procedures, the City shall require the well to be fully televised with color video inspection equipment. Such televising shall encompass the entire well depth. All televising work shall be recorded on a CD or thumb drive.

REDEVELOPMENT PROCEDURE:

The well shall be redeveloped while the pump is removed from the well. After the pump has been removed, appropriate air surge equipment shall be installed. This equipment shall consist of a minimum one (1) 1-1/4" air pipe surrounded by a minimum 4" eductor pipe, flexible discharge hose and special valving arrangement at the top to permit air lift pumping of the well while surging. The surge equipment will be used in conjunction with an air compressor rated a minimum 185 cfm @ 100 psi Two (2), one hundred (100) gallon charges of muriatic acid shall be added to the well via a tremie pipe on successive days (100 gallons each day). The acid shall be added slowly so as to avoid the material from "boiling" over the top of the well. The acid shall have a contact time of 6 hours. During this time, the materials shall be discharged from the well using the surge equipment into a tank supplied by the contractor, and then allowed to drain back into the well. After the six hour time period, the spent materials shall be discharged into the tank, neutralized as required, and discharged onto the adjacent grounds. Prior to re-installing the pump, a small volume of granular calcium hypochlorite shall be mixed and installed in the well for disinfection purposes. The material shall be pumped from the well during the post pumping test.

POST FLOW TESTING:

After the repaired pump is installed in the well, a final pumping test shall be conducted to demonstrate the well and pump's operating condition. The test shall be made by pumping to an atmosphere through a calibrated orifice at four different rates, similar to those completed in the pretesting, for 15 minutes each rate. The shut-off head pressure shall also be determined. During the entire pumping period, the contractor shall maintain accurate records of the pumping rate, discharge pressure, and the drawdown achieved in the well. The contractor shall provide all necessary fittings and required temporary discharge piping. All points of discharge must be approved by the owner.

QUALIFICATIONS:

The Owner reserves the right to reject proposals from any bidder termed as not qualified to perform this type of work. The only sub-contracting allowed on this project will be the video televising of the well. All remaining well rehabilitation work must be completed by the bidder and cannot be sub- contracted. All service personnel shall be full- time employees of the successful contractor. All bidders shall, at the request of the owner, submit a list of five installations successfully serviced in the past year having a well diameter of equal or greater size. All materials must be AWWA and Ohio EPA approved for use in public water supply wells.

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