

SECTION 11306 - PACKAGED PUMP STATIONS

PART 1 - GENERAL

SUMMARY

This Section specifies the Work required for packaged pump stations. The Work shall include all required excavation and backfill, the disposal of any excavated material, dewatering, site improvements, construction of the concrete foundation and top slabs, valve vault, wet well, entrance hatches, pumps, valves, piping, painting, ventilation equipment, instrumentation, electrical power wiring, station testing and all other appurtenances shown on the Drawings or specified in this Section.

The following type of packaged pump stations are specified:

Submersible Wastewater Pump Station

Products Supplied But Not Installed Under This Section. Anchor bolts shall be installed under Section 03315, Concrete Work, in accordance with certified prints furnished by the equipment manufacturer.

Related Work Specified Elsewhere

Section	03315	Concrete Work
Section	11310	Centrifugal Sewage Pumps

SYSTEM DESCRIPTION

Performance Requirements. Factors of design and construction which affect operation, maintenance and durability will be considered in the final selection of the pump stations. No station will be considered which does not meet with the approval of the Michigan Department of Environmental Quality. All structural steel plate and beams shall be ASTM A-7 and A-36. The station shall be designed to support all external loads. The station size shall not be less than that shown on the Drawing.

SUBMITTALS

Shop Drawings and Guarantees. Furnish Shop Drawings and Guarantees covering the items included under this Section of the work.

Operation and Maintenance Instructions. The station manufacturer shall submit to ENGINEER, through CONTRACTOR, four copies of a manual giving operation and maintenance instructions.

Test and Inspection Reports. Furnish the written reports required for the tests and inspections specified under this Section of the Work.

QUALITY ASSURANCE

Reference Standards. Performance and material requirements shall meet specific Reference Standards referred to hereinafter under individual items.

Tests. Testing shall be accomplished as specified hereinafter under individual items.

DELIVERY, STORAGE AND HANDLING

Packing, Shipping, Handling and Unloading. Fabricated assemblies shall be shop-assembled and properly match-marked for ease of field erection and shipped in the largest sections permitted by carrier regulations. All components must be erected immediately upon receipt from the manufacturer or stored in strict conformance with storage recommendations, including lubrication, furnished by the equipment manufacturer.

PART 2 - PRODUCTS

MANUFACTURERS

Submersible wastewater pump station shall be the product of one of the following manufacturers, or equal:

Flygt Corporation

Gorman-Rupp

MATERIALS

General. The wet well shall have an inside diameter and height as shown on the Drawings. Wet well shall be furnished complete with access opening, vent, inlet and outlet sleeved piping connections, electrical connections, showdown angles and anchor bolts into base slab and corner fillets. Wet well shall be one of the following types.

Concrete Wet Well. The base slab shall be installed as detailed on the Drawings. Concrete for the base slab shall be Class A as specified under Section 03315, Concrete Work. Any excavation below the required elevation shall be filled with Class C concrete. Edges of the base slab shall be formed.

CONTRACTOR shall construct the wet well and valve vault using reinforced concrete culvert pipe or box meeting ASTM Specifications C76, Class and size shall be as shown on the Drawings.

Joints in reinforced concrete pipe shall be equal to ASTM C443, with compression type rubber gasket. Rubber gaskets shall meet the physical requirements of ASTM C361. Lubricant shall be supplied by the manufacturer to be used on the groove and on the tongue in making up joints, and the joints shall be coupled in accordance with the pipe manufacturer's recommendations. The complete wet well shall be watertight.

The roof slab shall be constructed as detailed on the Drawings, using Class A concrete. This Work shall include necessary wet well grouting with Class C concrete.

The precast sections shall be provided with all necessary openings for the installation of incoming piping, and pump discharge piping. Suitable wall sleeves shall be furnished and installed, and the space between the pipe and the sleeve shall be sealed.

Backfill around the submersible pump well shall be sand-gravel MDOT Class II, compacted to 95 percent of maximum density. Soil Density by ASTM D1557.

Wall Sleeves and Castings. At all points where pipes must pass through the walls of the wet well, CONTRACTOR shall furnish and install suitable sleeves. The space between the pipe and the sleeve shall be sealed.

SOURCE QUALITY CONTROL

Shop Tests. The prefabricated wastewater pump stations shall be shipped from the point of assembly, fully pretested and ready for installation. Test records shall document the performance of the station, operating over the complete range from pump shutoff to maximum capacity. Certified test records and pump curves shall be submitted to ENGINEER and approved prior to the shipment of the pumps to the Project.

All tests shall be conducted in accordance with the standards of the Hydraulic Institute.

PART 3 - EXECUTION

INSTALLATION

Exposed metal, cast iron/ductile iron surfaces shall be suitably prepared and primed.

REPAIR/RESTORATION

Site improvements shall include all new landscaping and site improvements as shown on the Drawings and the repair areas disturbed by the construction work around new or existing structures or piping in accordance with Division 2, Sitework.

FIELD QUALITY CONTROL

Installation Check. In addition to the installation check outlined in the General Equipment Stipulations of the General Requirements, a qualified factory representative shall place the station in operation, make necessary adjustments, conduct a complete functional check, including pump performance tests, and, upon completion of this final installation check, furnish ENGINEER and OWNER the information listed on the Installation Checkout and Testing Report.

Performance Test. After the pump station has been erected, performance tests shall be conducted. The purpose of these performance tests shall be to demonstrate that the units have been properly erected and that they and their appurtenant equipment will operate satisfactorily and meet the specified conditions and guarantees of CONTRACTOR. For the purpose of these tests OWNER will furnish the electricity and lubricating oil necessary for testing and the water for a test load when these items are available.

The measurement of the quantity of water pumped may or may not be included in the performance test. The performance tests shall be conducted under the supervision of ENGINEER with the cooperation of CONTRACTOR's factory representative. It is intended that these tests shall be carried out by operating each pumping unit through out the range specified for a continuous period of at least two hours, or until it is shown to the satisfaction of ENGINEER that all of the equipment is in perfect condition and will meet the requirements specified. Throughout these tests of the pumping equipment, the motors and pumps must run smoothly without vibration or heating; otherwise the test shall be stopped and not again undertaken until the unit shall have been put into condition to comply with the requirements for smoothness of operation. Results of this test will be listed on the Installation Checkout and Testing Report.

END OF SECTION 11306