

DIVISION 33 – UTILITIES
SECTION 33 01 30 – OPERATION AND MAINTENANCE OF SEWER UTILITIES

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. By-pass pumping of sanitary sewers.

1.02 SYSTEM DESCRIPTION

- A. The work covered by this section consists of furnishing all labor, equipment, tools, appliances, and materials necessary to perform all operations to implement a temporary pumping system for the purpose of diverting existing sewage flow around various sections of the work for the duration of the work and at other periods as determined by the Contractor to prevent sewage overflows and provide reliable sewer service to the users of the sanitary sewer system at all times. The Contractor shall maintain sewage flow in the construction area in order to prevent backup and/or overflow into upstream pipe segments and laterals, adjacent ditches, storm sewers, and waterways.
- B. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility.
- C. Bypass pumping system shall have sufficient capacity to pump the flow around the sanitary sewer section. The Contractor has the option of installing temporary flow metering equipment to verify existing flow.
- D. Plan Review – The Contractor shall submit to the Engineer for the Authority and Engineer's review, a bypass pumping system plan a minimum of seven (7) days prior to the commencement of bypass pumping operations. The plan shall include, at a minimum, detailed information on sequencing, set-up, operation, piping, pumps, etc.
- E. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle the flow, temporary discharge piping, and fittings to ensure that the total flow of the sewer can be safely diverted around the work.
 - 1. Pumps shall be selected per the results of the flow calculations and per site requirements as determined by the Contractor. The pumps and drives shall be rated for continuous duty and shall be capable of pumping the flow range without surging, cavitation, or vibration. Rotative components shall be statically and dynamically balanced and shall be suitable for use with raw unscreened sewage and trash. The pump shall be a self-contained unit, designed for temporary use, and shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. All pumps used must be constructed to allow dry running for long periods of time to accommodate the

- cyclical nature of sewage flows. Pumps shall be critically silenced to prevent excessive noise pollution during temporary bypass pumping. Contractor shall provide the necessary start/stop controls for each pump.
2. Plugs shall be inflatable plugs constructed of specially treated industrial fabric and reinforced neoprene. Plugs shall be equipped with steel pull rings and aluminum end clamps. All plugs shall be firmly attached to a stationary object at ground level by a steel cable in order to prevent loss of plug in the pipeline.
 3. Piping: In order to prevent the accidental spillage of flows, all discharge system must be constructed of rigid pipe with positive, leak-proof connections. Pipe 12-inches and larger shall be high density polyethylene pipe with fused joints for a leak-proof piping system.
- F. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of emergency or breakdown. One (1) standby pump for each size pump utilized shall be installed at the mainline flow bypassing location, ready for use in the event the primary pump fails.
- G. The bypass pumping systems shall be manned at all times, or provided with an alarm system with an autodialer, capable of storing, at a minimum, three (3) 24 hour phone numbers direct to a human. Alarm system shall be checked daily to confirm proper operation. The automatic dialing system shall provide call-out for the following alarms, at a minimum:
1. High wet well level
 2. Primary pump failure
 3. Secondary pump start
 4. Secondary pump failure
 5. Low fuel level
- H. The bypass pumping system shall be capable of bypassing the flow around the work area and of returning any amount of flow up to full available flow into the sanitary sewer system as necessary for satisfactory performance of the work.
- I. The bypass pumping system shall adhere to all local, state, and federal codes and regulations as required by the regulatory agencies having jurisdiction.
- J. The Contractor shall maintain flows around the work area in a manner that will protect and not cause surcharging of sewers, drains, damage or flooding to public and private property.
- K. The Contractor shall protect water resources, wetlands, and other natural resources during the work.
- L. The bypass pumping system shall provide provisions for avoiding damage to public and private property, preventing leakage from hoses and minimizing noise from pumps. The

pumping equipment shall be sound attenuated (66 dba @ 20 feet) for overnight operations.

- M. It shall be the responsibility of the Contractor to provide protection for the entire bypass pumping system including but not limited to piping, piping connections, pumps and ancillary equipment. Materials utilized for bypass pumping shall be appropriate for the intended operation and service. The Contractor shall be responsible for any damage caused by the Contractor's failure to provide adequate protection to the bypass pumping system.
- N. Temporary Installation and Operations: Equipment specified in this Section shall be installed in strict accordance with the manufacturer's instructions and recommendations. Installation shall include furnishing oil, fuel, grease, lubricants, tools, and spare parts that may be required to maintain the operation of the pump throughout the construction period, as recommended by the manufacturer. The Contractor shall be solely responsible for maintaining the temporary pumps and appurtenances. At the end of the construction period, the Contractor shall remove the pump and appurtenances. The temporary pumping system shall be placed in service a minimum of 24 hours before any work may begin. It shall remain operable until removal is approved by the Authority in writing.

1.03 SUBMITTALS

- A. Submit in accordance with requirements of Section 01 33 00.
- B. Submit by-pass pumping plan detailing, equipment sizing, layout, and controls.
- C. Product Data: Submit product data and material cut sheets for all components of the by-pass pumping system.

1.04 PROJECT/SITE CONDITIONS

- A. Project/Site Environmental Requirements
 - 1. It shall be the responsibility of the Contractor to notify the Pennsylvania Department of Environmental Protection in the event of a sanitary sewer overflow onto the ground or backup into a customer's building. The Contractor shall promptly clean any sanitary sewer overflow and remedy the situation causing the sanitary sewer overflow or backup. Any cost associated with such events, including, but not limited to, notification, cleaning, and fines, shall be the sole responsibility of the Contractor.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. The Contractor shall provide and maintain adequate pumping equipment, force mains, and other necessary appurtenances in order to maintain reliable sanitary sewer service in all sanitary sewers during the course of construction. The Contractor shall have backup

pump(s), force main(s) and appurtenances ready to deploy immediately. Appurtenances and discharge point shall be approved by the Authority.

PART 3 – EXECUTION

3.01 PREPARATION

- A. The Contractor shall provide bypass pumping of sewage and wet weather flows around each segment(s) of the Work area. The Contractor shall be responsible for all required bulkheads, pumping equipment, piping, etc., to accomplish the sequence of pumping. The Contractor shall cease bypass pumping operations and return flows to the pump station and/or pipe segment when directed by the Authority. During bypass pumping, no sewage shall be leaked, dumped, or spilled in or onto, areas outside of the existing sanitary sewer system. When bypass pumping operations are complete, pumps and piping shall be drained into the sanitary sewer prior to disassembly.

3.02 INSTALLATION

- A. The Contractor shall plug off and pump down the sewer manhole or pipe segment in the immediate work area and shall maintain the sanitary sewer system so that surcharging does not occur.
- B. The Contractor shall ensure that no damage will be caused to private property, Township, or state right-of-way as a result of bypass pumping operations. Ingress and egress to adjacent properties shall be maintained. Ramps, steel plates or other methods shall be deployed by the Contractor to facilitate traffic over surface piping.
- C. The Contractor shall complete the work as quickly as possible and satisfactorily pass tests, inspections and repair deficiencies prior to discontinuing bypass pumping operations and returning flow to the siphon structures.
- D. The Contractor shall immediately notify the Authority should a surcharge occur that results in an overflow of sewage. If the Contractor is unable to remedy the situation, then he should suspend or terminate the work until such time as the overflows have been controlled. Should such surcharge damage the materials, equipment, or adjacent property, it shall be corrected at no additional cost to the Authority. In the event that sewage accidentally drains into the drainage system or street, the Contractor shall immediately stop the overflow, notify the Authority and take the necessary action to clean up and disinfect the spillage to the satisfaction of the Pennsylvania Department of Environmental Protection. If sewage is spilled onto public or private property, the Contractor shall wash down, clean up and disinfect the spillage to the satisfaction of the Pennsylvania Department of Environmental Protection.
- E. The Contractor shall locate bypass pumping suction and discharge lines so as to not cause undue interference with the use of streets, private driveways and alleys. In cases where the suction and or discharge lines are required to be buried for vehicle / pedestrian traffic, cost for this work is incidental and includes complete restoration of any surface features disturbed.

- F. The Contractor shall not intentionally damage or remove portions of existing sanitary sewer structures for the purpose of installing bypass pumping system without specific approval from the Authority. If a structure is damaged, it shall be reconstructed or replaced to the satisfaction of the Authority at no additional cost to the Authority.
- G. The Authority shall not be responsible for damage to the bypass pumping system sustained by the Contractor directly or indirectly as a result of stormwater runoff within streets, ditches. The Contractor shall be responsible for damage that results directly or indirectly from the interference of stormwater runoff to bypass pumping equipment, piping and/or appurtenances.
- H. It is the intent of these specifications to require the Contractor to establish adequate bypass pumping as required regardless of the flow conditions.

3.03 CLEANUP AND REMOVAL

- A. The Contractor shall restore the bypass pump area and the bypass piping route to pre-bypass condition including any cleanup measures necessary due to fuel, coolant, oil, and sewage leaks. The Contractor shall document any cleanup measures that were necessary. The Contractor's bypass pumping plan shall ensure that all sewage in the bypass pumps, pipes, and fittings has been emptied into the sanitary sewer system.

END OF SECTION