



**SPECIAL PROVISIONS  
FOR  
SANITARY SEWER TEMPORARY BYPASS**

**Woodbury County  
IM-NHS-029-6(258)147--03-97**

**Effective Date  
July 21, 2015**

**THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

**120346.01 DESCRIPTION.**

Furnish, install, maintain, and remove a temporary wastewater diversion system to bypass wastewater around sewer segments under construction.

**120346.02 MATERIALS.**

**A. Pump.**

1. Provide dry or vacuum prime pump mounted at grade with suction pipe into upstream manhole. If submersible pumps are used, submit a plan for mounting inside the manhole.
2. Provide portable pumps.

**B. Electrical.**

Provide a control panel for each electrically driven pump. Each control panel enclosure shall be rated to protect internal components from weather and contamination. Each shall contain/be provided with:

1. A single connection point for the required power supply.
2. A main disconnect and main overcurrent device for overall protection of the control panel.
3. Control power source to supply power for all internal and external control devices/functions to perform the required pumping control.
4. Operator interface devices on the front of the control panel to allow operation of the pumping equipment.
5. A collective alarm contact closure output, rated 10 A at 120 VAC, to indicate any alarm/fail conditions occurring within the pump control panel. The panel shall include an automatic

alarm dialer with mobile phone service to relay alarm/fail conditions to Contractor's mobile phone.

**C. Instrumentation.**

Provide and install level control instrumentation in the manhole.

- Lead pump on.
- Lag pump on.
- High water alarm.
- Pumps off.

**120346.03 CONSTRUCTION.**

**A. General.**

1. Maintain continuous flow of wastewater at all times unless otherwise indicated. Provide all necessary equipment, temporary installations, and personnel to set up, test, and maintain diversion of wastewater around construction areas for the time necessary to accomplish the work. Operate and monitor the system during construction activities.
  - a. Convey all wastewater to acceptable downstream facilities.
  - b. Do not allow flow to back up or be restricted in any way.
  - c. Do not spill wastewater.
  - d. Design temporary conveyance systems to convey flows specified in tabulations.
2. Provide temporary power or fuel to operate bypass pumping equipment.
3. The Contractor shall be responsible for damages (including settled materials removal) caused by wastewater backup due to the Contractor's operations.
4. Provide redundant equipment (pumps, drive-units, power sources, etc.) on site.
5. Pressure piping system: provide a pressure system to convey the peak flow capacity listed herein. The complete system shall be in place and connected prior to start-up of the temporary conveyance system. Suitable valves shall be provided at the upstream and downstream end of each line for isolation purposes in the event of a rupture, leak or some other problem. Under normal conditions, these valves shall remain open.
6. See contract documents for site layout and flow tabulation.
7. Monitor the diversion system during construction. If a spill occurs and is related to a deficiency in the equipment or diversion system assembly, provide for cleanup.

**B. Submittals.**

1. Prior to beginning bypass, provide the following items related to the temporary wastewater bypass system:
  - Emergency Spill Response Plan.
  - Diversion Plan Check List.
  - Monitoring Plan. Shall include details on devices used, how maintained, how monitored, and response time in the event of a problem.
  - Pumping Schedule.
  - Equipment & Piping Schematic.
2. Adjustments to the approved bypass pumping schedule and schematics shall be permitted no less than 2 weeks prior to taking said sewer offline.

3. Submit a detailed proposed method for temporary diversion of sewage that follows the general guidelines defined in this spec. The proposed method shall include:
  - a. Suction pipe and valves for wastewater pump(s).
  - b. Manufacturer, type, capacity, hp, full load amperage, mounting details, and location of wastewater pump(s) including pump curve(s).
  - c. Size and material of discharge pipe and valve(s) from wastewater pump(s).
  - d. Electrical or gas power input connections to wastewater pump(s). Include information on physical characteristics and capacity of the connections.
  - e. Controls for wastewater pump(s).
  - f. Schedule for flow transfers and/or facility shutdowns.
4. For each bypass set-up, submit a detailed proposed method for temporary bypass of sewage. The proposed method shall include the method of bulk heading the existing pipe(s), connection to the existing pipe(s), size and material of the bypass pipe(s), and related operations and equipment. Submittals shall show the required redundancy and capacities of all equipment, etc. Submittals shall show all mains and laterals into the system and how each is being accounted for and diverted. Submittals shall show pipe support into temporary pipe discharge location(s).

**C. Service Representative.**

1. Provide qualified service representative to perform setup of the diversion system.
2. Provide one trip per month by a qualified service representative to perform a system check on the equipment.

**D. Quality Assurance.**

1. Contractor must have a minimum of 5 years experience with temporary diversion of wastewater and shall submit a list of three references at the Engineer's request.
2. Provide mechanical maintenance of the pumps as required during the equipment rental period.

**E. Execution.**

1. Develop an Emergency Spill Response Plan subject to the approval of the Engineer. The Plan shall have the minimum requirements:
  - a. One set of repair clamps/coupling for each temporary force main pipe size and type shall be stocked on-site prior to starting any pumping of wastewater to perform the work. Any use of these spare materials will require immediate replacement within one calendar day.
  - b. At minimum, evaluate the condition of the bypass piping system at the beginning and end of each work day. Continually monitor the bypass system during construction activities.
  - c. Provide an emergency contact person available 24 hours a day, 7 days a week.
  - d. A monitoring device shall be included in the diversion system to immediately notify responsible parties of possible system failure.
  - e. If a break or spill occurs, or if vandalism occurs that results in a spill, notify the Engineer within 1 hour. If the incident is due to vandalism, notify the local police and obtain a police report.
  - f. Contractor will have their emergency repair and cleanup respondents on site within 1 hour to assess the situation and initiate the appropriate action. The first response will be to stop the spill immediately. Depending upon the nature of the incident, the Contractor's responders may need to call in additional equipment and personnel.
  - g. Contractor's respondents will review the cause of the problem and will implement the appropriate corrective action. This corrective action may involve, but not necessarily be limited to, pumping wastewater into tanker trucks and hauling sewage to a downstream

- location until such time that repairs can be completed.
- h.** Depending on the nature of the situation, a spill may result in standing wastewater in places. Utilize appropriate equipment to pump or suction up the wastewater and dispose of it either by tanker truck or via the repaired system. This action will take place in a timely manner as logistics permit, but within 12 hours of the incident or a shorter time period if required by local or state authorities. Clean up shall be to the satisfaction of the Engineer and local or state authorities.
  - i.** If in an appropriate area to do so, lime or gypsum should be sprinkled on those areas of spilled wastewater to buffer any excess nitrogen that may have been absorbed.
  - j.** Issue a report to the Engineer on the date and time of the incident, the estimated amount of spillage, the cause of the incident, and the action taken including both the corrective action and the cleanup activities. Attach any police reports, if applicable.
- 2.** Develop a Diversion Plan Checklist subject to approval by the Engineer. The Plan shall have the following minimum requirements:
    - a.** Diversion Start Up Check List. Include notifications to the Engineer just prior to start up and provide a copy of completed check list showing that all conditions are met.
      - 1)** All equipment and materials necessary for the installation of the new facility are on site.
      - 2)** The bypass pipe was successfully hydrotested.
      - 3)** All required redundant back-up systems are in place and ready to function.
      - 4)** The Emergency Spill Response Plan has been approved and attendant has proper training and phone numbers.
      - 5)** Back-up repair couplings and/or clamps for each size and type used are on site.
      - 6)** The diversion set-up plan detailing the proposed method for temporary diversion of wastewater has been approved.
    - b.** Diversion Shutdown Check List. Include notifications to the Engineer just prior to shut down.
  - 3.** Notify the Engineer in writing a minimum of 5 working days in advance of a planned connection or shut down. Notify the Engineer verbally 48 hours in advance of the planned connection or shutdown.
  - 4.** Prior to bypassing wastewater, hydrotest the bypass pipe to 150 psi or two times the operating pressure, and hold for two hours. The test fails if leakage is observed or if the pressure drop exceeds 5 % of the test pressure over the 2-hour test period. This hydrotest shall be repeated for each subsequent downstream lining where the pipe is disassembled and later reassembled.
  - 5.** Do not begin the diversion of wastewater without the Engineer's approval and evidence of a completed startup checklist. Do not terminate pumping/diversion of wastewater without the Engineer's approval and evidence of a completed shutdown checklist. Coordinate with Engineer for scheduling.
  - 6.** The Engineer will cooperate in conducting any time duration testing necessary to confirm the length of shutdown time available.
  - 7.** Develop a Monitoring Plan with the following minimum requirements:
    - a.** At all times when any equipment, bulkheads or other devices are in the sewer, provide a system with the means to detect or determine that flow is not backing up abnormally and is hence moving properly through the sewer and/or temporary diversion piping. System shall be such that should a problem start, the Contractor is alerted by the system and can respond within 60 minutes to the site. Devices used shall be tested or checked daily and a log of such shall be maintained.

- b. Maintain the system and adequate access to spare parts as necessary to keep it functioning properly. Maintenance on the system shall be recorded in the log.
  - c. Reschedule as needed due to wet weather conditions at no additional cost to the Contracting Authority.
8. Upon completion of the work and flow transfer, the temporary diversion system shall be removed and all affected surface improvements shall be restored to a condition equal to or better than the condition existing prior to construction.

**120346.04 METHOD OF MEASUREMENT.**

Lump Sum Item.

**120346.05 BASIS OF PAYMENT.**

- A. Payment will be lump sum contract price.
- B. Payment is full compensation for temporary bypass work required for the project as let, including pumps, electrical/gas connection, monitoring of equipment, temporary forcemain connections, temporary manholes, and abandonment of temporary items.
- C. Payments for revisions after the letting will be paid for according to Article 1109.03, B. of the Standard Specifications.