SPECIFICATION FOR TEMPORARY BYPASS$ PUMPING SYSTEMS
(As provided by Godwin Pumps)

1 SCOPE

Under this item the Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area for the duration of the project.

(1.2) The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor who can demonstrate to the engineer that he specializes in the design and operation of temporary bypass pumping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by his firm within the past three years. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

2 REQUIREMENTS FOR SUBMITTING BIDS

(2.1) The Contractor shall prepare with the vendor a specific, detailed description of the proposed pumping system and submit it and the vendor's references with his bid proposal. Bid proposals without an acceptable detailed plan for the temporary bypass pumping system shall be rejected.

(2.2) The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.

3. The plan shall include but not be limited to details of the following:

(3.1) Staging areas for pumps;
(3.2) Sewer plugging method and types of plugs;
(3.3) Number, size, material, location and method of installation of suction piping;
(3.4) Number, size, material, method of installation and location of installation of discharge piping;
(3.5) Bypass pump sizes, capacity, number of each size to be on site and power requirements;
(3.6) Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);
(3.7) Standby power generator size, location;
(3.8) Downstream discharge plan;
(3.9) Method of protecting discharge manholes or structures from erosion and damage;
(3.10) Thrust and restraint block sizes and locations;
(3.11) Sections showing suction and discharge pipe depth, embedment, select fill and special backfill;
(3.12) Method of noise control for each pump and/or generator;
(3.13) Any temporary pipe supports and anchoring required;
(3.14) Design plans and computation for access to bypass pumping locations indicated on the drawings;

(3.15) Calculations for selection of bypass pumping pipe size;
(3.16) Schedule for installation of and maintenance of bypass pumping lines;
(3.17) Plan indicating selection location of bypass pumping line locations.

4. EQUIPMENT

(4.1) All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.

(4.2) The Contractor shall provide the necessary stop/start controls for each pump.

(4.3) The Contractor shall include one stand-by pump of each size to be maintained on site. Back-up pumps shall be on-line, isolated from the primary system by a valve.

(4.4) Discharge Piping - In order to prevent the accidental spillage of flows all discharge systems shall be temporarily constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the engineer.

5 SYSTEM DESCRIPTION

(5.1) Design Requirements:

A. Bypass pumping systems shall have sufficient capacity to pump a peak flow of _mgd. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be repaired. Bypass pumping system will be required to be operated 24 hours per day.

B. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.

C. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performances of work.

D. The Contractor shall make all arrangements for bypass pumping during the time when the main is shut down for any reason. System must overcome any existing force main pressure on discharge.

(5.2) Performance Requirements:

A It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing sewer downstream of his work.

B The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

C. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.

D. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.

E. The Contractor shall protect water resources, wetlands and other natural resources.

6 FIELD QUALITY CONTROL AND MAINTENANCE

(6.1) Test:

A The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The engineer will be given 24 hours notice prior to testing.

(6.2) Inspection:

A. Contractor shall inspect bypass pumping system every two hours to ensure that the system is working correctly.

(6.3) Maintenance Service:

A. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.

(6.4) Extra Materials:

A. Spare parts for pumps and piping shall be kept on site as required.

B. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

7 PREPARATION:

(7.1) Precautions

A. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the City and the Engineer. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor.

B. During all bypass pumping operation, the Contractor shall protect the Pumping Station and main and all local sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the Pumping Station and main and all local sewer lines caused by human or mechanical failure.

8 INSTALLATION AND REMOVAL

(8.1) The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures only at the access location indicated on the Drawings and as may be required to provide adequate suction conduit.

(8.2) Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

(8.3) When working inside manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.

(8.4) The installation of the bypass pipelines is prohibited in all saltmarsh/wetland areas. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to pre-construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals for placement of the temporary pipeline within public ways from the City.