

SECTION 613

SEWER LINE CLEANING

A. INTENT

The intent of sewer line cleaning is to remove foreign materials from sewer lines and restore the sewer to a minimum of 95% of the original carrying capacity and as required for proper inspection of the pipe and joints. Since the success of the other phases of the work depends a great deal on the cleanliness of the lines, the importance of this phase of the operation is emphasized. The City recognizes there are some conditions such as broken pipes and major blockages that prevent cleaning from being accomplished, or where additional damage would result if cleaning was attempted or continued. Should the contractor encounter such conditions, they will not be required to clean those specific sections without the express written permission of the Engineer. If in the course of normal cleaning operations damage does result from preexisting and unforeseen conditions such as broken pipe, the Contractor will not be held responsible.

The contractor shall also submit a written report of the sewer cleaning. This report shall identify the sewer segments cleaned and the type and volume of debris removed from the sewers. All reports shall be made by NASSCO certified technicians.

Neither the sewers being inspected on this contract nor the sanitary sewers tributary to them have a history of industrial waste disposal. PCB's should not be encountered and, therefore, no testing of the sediments or solids will be required.

All cleaning work shall be in conformance with specification guidelines from the National Association of Sewer Service Companies (NASSCO) dated November 2014.

B. CLEANING EQUIPMENT

1. Hydraulically Propelled Equipment: The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure removal of grease. If sewer cleaning balls or other equipment that cannot be collapsed are used, special precautions to prevent flooding of the sewers and public or private property shall be taken at the Contractor's expense.

2. High-Velocity Jet (Hydrocleaning) Equipment: All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all sizes of lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.
3. Mechanically Powered Equipment: Bucket machines shall be in pairs with sufficient power to perform the work efficiently. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat-treated steel. To ensure safe operation, the machines shall be fully enclosed and have an automatic safety clutch or relief valve.

C. USE OF CITY WATER

Water is only available from select hydrants as the City's Water Department may designate. Water may not be available from City hydrants during cold weather months. The contractor shall secure permission from the Water Department, obtain all necessary permits, and notify the Engineer and Fire Department before obtaining water from fire hydrants. The Contractor shall make his own arrangements and pay all costs for water, connecting to hydrants, and transporting the water to the construction work. Upon payment of the fees, the City will furnish one hydrant meter setting with vacuum breaker, backwater valve and control valve. The City of Wauwatosa water department will set the meter, but the Contractor shall be responsible for the meter setting and valves at each location water is drawn. If the meter setting needs to be moved, the Contractor shall contact the water department at least 24 hours in advance to have them move it. By using the meter setting, cross connections to and contamination of the City's water supply is minimized. The water department will bill the contractor based on the actual metered amount of water used.

Hoses from hydrants shall not extend across roadways, which are open to traffic, unless they are properly protected from any wheel loads. Water main breaks caused by pressure surges introduced into the system from wheel loads or improper use of hydrants shall be repaired at the expense of the Contractor.

Use only special hydrant-operating wrenches to open hydrants. Hydrant valves must be opened "full", since "cracking" the valve causes damage to the hydrant. If any hydrants are damaged, the Contractor will be held responsible and shall notify the appropriate agency and the Engineer and the Water Department

Superintendent so that all damage can be repaired as quickly as possible. Fire hydrants shall be completely accessible to the Fire Department at all times. Upon completion of the work, the Contractor shall remove all temporary piping and facilities.

D. CLEANING PRECAUTIONS

During sewer cleaning operations, the contractor shall take satisfactory precautions in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, the contractor shall take precautions to insure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. When possible, the contractor shall utilize the flow of sewage in the sewer to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the contractor shall conserve water and not use it unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

E. SEWER CLEANING

The Contractor shall light clean all sewers using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be made by the Contractor and based on the conditions of lines at the time the work commences. The equipment and methods selected shall be satisfactory to the Engineer. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines and manholes.

If cleaning of an entire section requires a significant portion of the cross-sectional area of the pipe to be cleaned, the contractor shall use appropriate methods to successfully complete the job. This is determined by NASSCO standards as follows:

- Up to 12" diameter 25% of the cross-sectional area blocked
- 13-24" diameter 15% of the cross-sectional area blocked
- Above 24" diameter 10% of the cross-sectional area blocked

When this becomes necessary, the City will pay the Contractor under the bid item for heavy cleaning.

If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed that a major blockage exists and the cleaning effort shall be abandoned with the express written permission of the Engineer.

The Contractor shall conduct a post-cleaning CCTV inspection such that the Engineer can verify cleaning has been successfully accomplished. If the segment is scheduled to be televised as part of this contract, this inspection may serve as fulfillment of the CCTV requirement for this segment. The televising shall be performed under specifications outlined in Section 614 of the Contract Documents and under NASSCO's specifications.

F. ROOTS, DEPOSITS, AND GREASEREMOVAL

The contractor shall remove roots, deposits, and grease in sections where t intrusion or accumulation is greater than 5% of the cross sectional area, but no greater than 50% of the cross sectional area. Since the locations of removal are unspecified, the contractor shall use their judgment to determine whether or not removal is necessary, the contractor shall also inform the Engineer prior to beginning any root cutting or debris or grease removal. The contractor shall use special attention during the cleaning operation to ensure a minimum 95%complete removal of roots or accumulations from the joints. Typical procedures may include, but not be limited to, the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners equipped with root cutters or root rippers, and shall be incidental to the root removal bid item(s). The Contractor may NOT use chemical root treatments or chemical removers without the express written permission of the Engineer. The contractor shall document all locations in the pipe segment where roots, deposits, or grease were removed and the respective procedures used.

Any specific areas with roots, deposits, or grease accumulation greater than 50% of the cross sectional area shall have removal work paid under the heavy cleaning bid item.

G. MATERIAL REMOVAL

The contractor shall remove all sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted. The contractor shall use a vacuum truck to remove heavy accumulations of material at their own expense.

H. DISPOSAL OF MATERIALS

All solids or semisolids resulting from the cleaning operations shall be removed from the site and disposed of at a site chosen by the contractor and at the contractor's expense. All materials shall be removed from the site no less often that at the end of each workday. Under NO circumstances will the Contractor be

allowed to accumulate debris or other materials, waste or otherwise, on the site of work beyond the stated time, except in totally enclosed containers and as approved in writing by the Engineer.

I. BYPASSING SEWAGE

Inspections shall be scheduled during low flows where necessary to provide quality inspections. Where the flow in the sewer is such that the camera is more than 25% under water, the Contractor shall either restrict the flow in the sewer or use a jet to draw the sewage down in front of the camera as incidental to the cost of performing the work. Where flow conditions are such that satisfactory televising cannot be performed and restricting the flow will cause backup problems, the Contractor shall provide for the flow of sewage around the section or sections of pipe to be inspected. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The contractor shall furnish the Engineer a detailed bypass plan for approval before commencing bypass operations.

J. FINAL ACCEPTANCE

Acceptance of sewer line cleaning shall be made upon the successful completion of the post-cleaning television inspection and shall be to the satisfaction of the Engineer. If the post-cleaning television inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to re-clean and re-inspect the sewer line until the cleaning is shown to be satisfactory to the Engineer.