

**TABLE OF CONTENTS**

**DIVISION ‘SAN’**

| <b>SECTION</b>   | <b>PAGE</b> |
|--|-------------|
| SAN-1 SCOPE OF WORK UNDER THIS CONTRACT.....                   | 1           |
| SAN-2 TEMPORARY CONVEYANCE REQUIREMENTS .....                  | 1           |
| SAN-3 CLOSE CIRCUIT TELEVISION CCTV INSPECTION REQUIREMENTS... | 2           |
| SAN-4 MEASUREMENT AND PAYMENT .....                            | 5           |

**LYNDALE AVENUE BRIDGE**  
**SPECIAL PROVISIONS**  
**DIVISION "SAN"**

**SAN-1**      **SCOPE OF WORK UNDER THIS CONTRACT**

Metropolitan Council Environmental Services (MCES) is the owner of the sanitary sewer interceptor that is shown on the plans below Minnehaha Creek. The main was installed in the 1920's after the existing arch bridge was constructed. MCES measured flow through a MH downstream from Lyndale Avenue between 9-23-2010 and 10-03-2010. During this time period, flows varied from 2,432 GPM to 3,948 GPM. See plan support documents on County's website for the results and original sewer plans.

Due to the age of the pipe and proximity to the bridge construction, the Contractor shall be required to provide a means of temporary conveyance of sewage during any driving or removal of piling (HP foundation piles and/or temporary steel sheet piling) when the face of the pile is within 15' of the outside wall of the sewer main.

**SAN-2**      **TEMPORARY CONVEYANCE REQUIREMENTS**

The Contractor shall comply with the following requirements before and during temporary conveyance of sewage.

1.      Verify the location and elevation of the sewer by exposing the top of it approximately 5' west and 5' east of the existing bridge.  
Note: No excavation within the creek will be allowed prior to June 15<sup>th</sup>.
2.      Develop and provide a temporary conveyance plan that will eliminate all flow through the sewer between the two manholes indicated on the plans. This plan must be reviewed and approved by the Engineer (and MCES) prior to any work in the vicinity of the sewer and include the following requirements:
  - a.      Installation of a duplex pumping system where each pump will have the capability of pumping all flows passing through the sewer with a minimum system capacity for each pump and piping of 8,000 GPM. Contractor shall be prepared to pump more than this quantity should flows in the sewer exceed the capacity of the installed pump during severe storm events.
  - b.      A separate force main for each pump.
  - c.      Each force main shall be installed such that the bottom of the mains, where they cross Minnehaha Creek, are at a minimum elevation of 844.

- d. Contractor personnel shall be onsite at all times when bypass pumping is occurring. The onsite person shall be completely familiar with the temporary conveyance system and have the tools and equipment onsite at all time to make any necessary repairs to any part of the system that fails.
  - e. A provision that will allow for immediate transfer to a backup power supply for the pumps should the primary power supply fail.
3. After each pumping event has begun and before driving or removal of piles begins, the existing sewer shall be televised, in accordance with the CCTV inspection specifications (SAN 2.0), to verify its existing condition.
  4. During driving of piles and removal of temporary piles within 15' of the outside wall of the sanitary sewer, vibration monitoring, in accordance with Division S, Section 45, shall be accomplished.
  5. Upon completion of driving or removal of piles, and before temporary conveyance of sewage is halted each time, the sewer shall be televised to verify that it has not been damaged.
  6. Prior to halting temporary conveyance of sewage, the Contractor shall make any required sewer main repairs that are noted by televising or other means.

If any damage is noted to the pipe prior to commencement of pile driving activities within 15' of the outside wall of the sanitary sewer, MCES shall be notified immediately and the Contractor shall not commence any pile driving within 15' of the sewer.

In addition to the above requirements, the Contractor shall provide a written plan to protect the sewer line. The plan shall include the following and be certified by a State of Minnesota Registered Engineer.

1. The means by which vibration of the sewer main will be minimized.
2. The means by which subsidence and/or lateral movement of the sewer main will be minimized.
3. Vibration monitoring around the pipe during construction activities that may cause vibrations.

### **SAN-3**

#### **CLOSE CIRCUIT TELEVISION CCTV INSPECTION REQUIREMENTS**

Contractor shall submit documentation that they have satisfactory, relevant and reasonable experience performing TV inspections and cleaning sewer mains by providing three (3) references to successfully completed contracts where more than 20,000 feet of sewer mainline pipes

per contract were cleaned and televised. At least one of these projects must have been completed within the past two (2) years. The determination of what constitutes "satisfactory, relevant and reasonable experience" shall be at the Engineer's discretion. The Engineer may investigate, as it deems necessary to verify the contractor's work experience.

All operators performing CCTV inspection shall hold a valid Pipeline Assessment Certification Program (PACP) certificate issued by National Association of Sewer Service Companies (NASSCO). Contractor shall also submit documentation that they have sufficient experienced personnel and equipment to provide cleaning and inspections outlined in these special provisions.

Prior to televising the sanitary sewer after sewage has been flowing through it, the main shall be cleaned in accordance with the following requirements:

1. The intent of cleaning is to remove foreign materials from the sewer main in order to allow for accurate CCTV inspection. It is recognized that there are some conditions such as broken pipe that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Engineer shall be notified and the Contractor will not be required to clean those, specific sewer sections.
2. High-Velocity Jet Equipment shall be used to clean the sanitary sewer. The equipment shall have a selection of high-velocity nozzles capable of producing a scouring action from 15 to 45 degrees. The equipment shall carry its own water tank. If cleaning water availability is inadequate the Contractor may be required to provide a water tank truck. Use of a water truck shall be considered incidental and no additional compensation shall be made.
3. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sanitary sewer. If cleaning of the entire section cannot be successfully performed from the upstream manhole, the equipment shall be set up and cleaning attempted from the other direction. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire pipe length, due to a major blockage, the Engineer shall be immediately notified and options reviewed for determining a new course of action.
4. All sludge, dirt, sand, rock, grease, and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole. Passing material to another downstream

manhole, which could cause line stoppage, accumulations of sand or other damage, shall not be permitted. A vacuum truck shall be used to remove accumulations of material at the downstream manhole.

5. All materials resulting from the cleaning operations are the responsibility of the Contractor to removed and disposed of off-site at the end of each workday. Under no circumstances will the Contractor be allowed to accumulate debris on the work site.

After the sanitary sewer has been cleaned, it shall be televised in accordance with the following requirements:

1. The sanitary sewer shall be visually inspected by means of closed-circuit color television (CCTV). The televising shall only be performed by experienced personnel in possession of a valid PACP Operators Certificate. Inspection observations shall be recorded in accordance with PACP standards.
2. The television camera and all other devices used for inspection shall be specifically designed and constructed for such inspection. The camera shall be capable of radial view for inspection of the top, bottom, and sides of the sewer. The camera shall be mounted on a self propelled transporter or on adjustable skids, to keep it in the center of the pipe. Lighting shall be supplied by a lamp on the camera, capable of being dimmed or brightened remotely from the control panel. The lighting system shall be capable of lighting the entire periphery of the pipe and give a neutral color to the image. The camera shall be operative in 100% humidity conditions and shall have a minimum of 650 lines of resolution and tested at 400 psi. The view seen by the televising camera shall be transmitted to the monitor, and other components of the video system shall be capable of producing a picture quality satisfactory to the Engineer; and if unsatisfactory, the equipment shall be replaced with equipment that is determined to be satisfactory by the Engineer.
3. The television camera shall be moved through the sewer at a uniform rate, stopping when necessary to insure proper documentation of the sanitary sewer condition. At no time shall the television camera be pulled at a speed greater than 30 feet per minute.

If, during the inspection operation, the television camera will not pass through the entire sanitary sewer section, the Contractor shall re-setup his equipment in a manner so that the inspection can be performed from the downstream manhole. If, again, the camera fails to pass through the entire sewer section, the Engineer shall be notified and options reviewed with the Engineer to determine other possible means for completion of the required inspection. All costs

- of re-setup due to an obstruction in the sewer that will not allow the camera to pass shall be considered incidental with no additional compensation allowed therefore. If the camera becomes submerged due to a sag in the pipe, a high velocity jet shall be utilized to pull water away from the camera lens.
4. The footage meter, for accurately recording the location of the television camera with respect to the reference manhole, shall be a direct reading, above ground, friction clamp device or other suitable equipment. Marking on the cable, or the like, which would require interpolation for depth of manhole, will not be allowed. The meter shall be capable of being manually re-zeroed for each new setup. Footage shall be shown on the video data view and recorded at all times.
  5. All data shall be collected in accordance with PACP standardized coding and reporting. MCES currently uses PipeTech inspection software PipeTech from Peninsular Technologies, which is the desired application but not required. If another software package is used, it shall meet the following requirements:
    - a. Software package shall be PACP V4.2 compliant.
    - b. A copy of the appropriate viewer shall be included with deliverables.
    - c. Data tables shall be exported to an Access database.

The Contractor shall provide the following after each time the sanitary sewer is televised:

1. Two (2) copies of CCTV inspection video on DVD -R or DVD + R format.
2. Two (2) printed copies of sanitary sewer inspection report and corresponding data in electronic format in either PipeTech or Microsoft Access 2003

#### **SAN-4 MEASUREMENT AND PAYMENT**

Payment at the Lump Sum bid for "Protection of MCES Sanitary Sewer" under Item No. 2503.601 shall be full compensation for all items required to protect the existing MCES sanitary sewer main. This shall include all materials, equipment, and labor required to provide the required plans, temporary conveyance system, cleaning, televising, vibration monitoring, and repairs to the sewer that are determined to be the result of the Contractor's work.