



**DUBBO  
REGIONAL  
COUNCIL**

## **TECHNICAL SCHEDULE**

**DRC-W303**

# **CCTV INSPECTION OF GRAVITY SEWERS**

**TECHNICAL SCHEDULE DRC-W303 – CCTV INSPECTION OF GRAVITY SEWERS**

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## DRC-W303: CCTV INSPECTION OF GRAVITY SEWERS

### GENERAL

#### DRC-W303.1 SCOPE

This Specification applies to the closed circuit television (CCTV) survey of nominated gravity sewers to enable assessment of structural and service condition and/or assessment of construction or remedial works.

Details of the individual gravity sewers to be surveyed are listed separately in the Contract Specific Scope of Work document.

The work required to be performed under this contract shall comply with the referenced documents in Clause dRC-W303.2, unless specified otherwise herein.

#### DRC-W303.2 REFERENCED DOCUMENTS

The following documents are referred to in this Specification. The latest version of the document including any published amendments shall apply unless noted otherwise. Where the Drawings or a project specific Specification are in conflict or inconsistent with these referenced documents or this Specification, then the details on the Drawings or project specific Specification shall apply.

##### **Australian Standards**

Works shall comply with the current versions all relevant Australian Standards.

##### **Water Services Association of Australia Standards**

WSA02	Sewerage Code of Australia
WSA05	Conduit Inspection and Reporting Code of Australia
N/A	WSAA Product Specifications

#### DRC-W303.3 STANDARDS

Performance of the Work Under Contract shall be undertaken in accordance with WSA05-2008 Conduit Inspection and Reporting Code of Australia, Second Edition, Version 2.2.

It is noted that a more recent version of this Code was released in 2013, however this is not used by the Principal at this time.

#### DRC-W303.4 GENERAL REQUIREMENTS

The Contractor shall comply with the general requirements for sewer maintenance activities and accessing sewer maintenance holes as detailed in Technical Schedule DRC-W301.

### **DRC-W303.5 SAFETY**

Refer to Technical Schedule DRC-W301 for details of safety requirements.

### **DRC-W303.6 CUSTOMER NOTIFICATION AND COMPLAINTS**

The Contractor is responsible for notifying customers where entry to private property is required, and also for handling and addressing any customer complaints. Refer to Technical Schedule DRC-W301 for details of customer notification and complaints requirements.

### **DRC-W303.7 QUALIFICATIONS OF CCTV OPERATORS**

CCTV operators and inspectors shall hold a Statement of Attainment in NWP331B *Inspect conduit and report on condition and features (for operators)* based on WSA 05-2008 and recognised qualifications in:

- Workplace health and safety
- Traffic control
- Confined space entry

Contractor's supervisors, reviewers or managers of the CCTV work, including those who prepare inspection reports supplied by qualified CCTV operators shall hold a Statement of Attainment in NWP331A *Supervise conduit inspection and reporting*.

### **DRC-W303.8 EQUIPMENT**

The CCTV camera used shall comply with the requirements of Clause 2.5 of WSA05-2008 and be capable of the following:

- Provision of a clear and concise viewing and recording of the internal surfaces of the sewers in all conditions (eg temperature, humidity)
- Pan and tilt type camera capable of turning at right angles to the pip axis over an entire vertical circle (minimum pan of 270° and rotation of 360°)
- Image capable of self-righting and lens capable of being kept clean
- Provision of accurate distance measurements relative to maintenance holes
- Completion of each survey from maintenance hole to maintenance hole

The CCTV camera shall be capable of, and provide linear measurement along the sewer as per the requirements and accuracy of Clause 2.7 of WSA05-2008.

### **DRC-W303.9 CLEANING REQUIREMENT**

Cleaning of the conduit is not to be carried out unless specified in the Contract, or directed by the Superintendent.

**DRC-W303.10 CLEANING (WHERE SPECIFIED)**

Where cleaning is specified cutting, cleaning and flushing of the sewers shall be continued until the sewers are adequately cleaned to enable a clear continuous, accurate and thorough inspection and assessment of the sewer's condition. Surfaces shall be free of all slimes and sediments to allow defects to be fully visible. Remnant root or debris remaining in the sewer main following cutting and cleaning cannot be used as a reason to abandon surveys and inspection from the opposite direction, unless approved by the Superintendent.

The Contractor shall note and record the details of all sewer main cleaning works, particularly including where tree roots have been encountered during cleaning (chainage and comments). These details should be either recorded on the CCTV inspection report, or as a separate register/document, as agreed with the Superintendent and shall be submitted at the same time as the CCTV footage and report.

Debris and other matter cleaned from the sewers and maintenance holes shall be removed appropriately and legally. The Contractor shall not leave debris and other matter onsite. All materials resulting from the cleaning operation shall be trapped in the downstream maintenance holes. The Contractor shall remove all trapped materials and dispose of them in a manner acceptable to the Environmental Protection Authority and other relevant local authorities. All costs associated with removal and disposal of the debris and other matter shall be borne totally by the Contractor.

**DRC-W303.11 CCTV INSPECTION**

The CCTV camera shall be operated in accordance with Clause 2.6 of WSA05-2008 including a maximum camera speed as follows:

- 0.10 m/s for sewers less than 200 mm diameter.
- 0.15 m/s for sewers greater than 200 mm but not greater than 300 mm diameter.
- 0.20 m/s for sewers exceeding than 300 mm diameter.

The CCTV inspection shall be carried out during low flow conditions to maximise the perimeter of sewer viewed. The maximum depth of flow shall (stated as a percentage of the internal sewer diameter) shall not exceed the following at the commencement of the inspection:

- 15% for sewers less than 150 mm diameter.
- 20% for sewers 150 mm or 225 mm diameter
- 25% for sewers 300 mm diameter or greater, but not greater than 600 mm diameter.
- 30% for sewers exceeding 600 mm diameter.

The reference point for the commencement of longitudinal distance measurement shall be the centre of the starting maintenance hole unless noted otherwise. If inspections are continued through a maintenance hole, the distance measurement shall be reset at the intermediate maintenance hole, and inspection treated separately unless the maintenance hole was not shown on the plans supplied by the Principal.

**DRC-W303.12 IMMEDIATE NOTIFICATION**

The Contractor shall immediately notify the Superintendent relating to the finding of the following defects within a sewer:

- Blockage due to tree roots.
- Rock in the line.
- Rock or other object penetration of sewer pipe wall.
- Longitudinal displacement.
- Object obstructions.
- Illegal connections.
- Infiltration.
- Sewer collapse and/or voids.
- Flow discoloration.
- Sewer pipe corrosion.

**DRC-W303.13 ABANDONMENT OF SURVEY**

If the survey is abandoned due to an obstruction in the line the Contractor shall complete the survey from the alternative maintenance hole.

If the survey is abandoned for any reason and cannot be completed from the alternative maintenance hole the Contractor shall advise the Superintendent as soon as possible. The Superintendent may direct that the line be cleaned.

**DRC-W303.14 CONTROL OF SEWAGE FLOWS**

It is the full responsibility of the Contractor to control sewage flows as necessary to enable the Work Under Contract to be successfully carried out. No spilling of sewage in any situation is acceptable and the Contractor will be held fully responsible and accountable. The Contractor shall be responsible for the full cost of clean-up and associated activities that may be required to rectify the effects of any spillage as well as any fines by EPA or other authorities.

No work is to be undertaken during conditions where the reticulation sewer is flowing under surcharge conditions.

If required, sewers may be plugged by the Contractor to prevent flow of sewage into the subject length of sewer. The Contractor must monitor the lines that have been plugged to ensure surcharging does not occur. The Contractor shall remove the plugs at the earliest possible time after the lines have been cleaned and ensure that all material has been removed from the downstream manhole.

The Contractor shall install a diversionary system if required after prior approval of the Superintendent. It must be designed with sufficient capacity and security to ensure surcharge does not occur. Bypass pumping and diversion of sewer flows shall be undertaken in accordance with Technical Schedule DRC-W308.

All costs associated with plugging and diversion systems are to be fully borne by the Contractor.

If the Contractor requires the Principal to shut down upstream pumping stations then a written request must be received by the Superintendent at least 24 hours prior to the intended commencement of the work.

### **DRC-W303.15 INSPECTION REPORT**

An inspection report for each inspected sewer shall be submitted to the Superintendent. The inspection report shall comply with the requirements of Clause 2.10 of WSA05-2008 and shall include:

- Written or computerized operators report detailing the observations (PDF format)
- Video record of the entire inspection (MPEG or AVI format)
- Photographs of features of interest (JPG format)
- Preliminary grading of the structural and service condition of the sewer

The inspection report shall be in WinCan 8 format.

The inspection report shall use the coding system as outlined in Clause 3 of WSA05-2008, including recording all mandatory information regarding the inspection particulars as set out in Clause 3.4.

File format of inspection reports and CCTV video files shall be confirmed with the Superintendent prior to commencement.

### **DRC-W303.16 RECORDING OF INFORMATION**

The Contractor shall record any errors in existing asset information observed during the works. Such issues may include location of maintenance holes, connections, pipe materials, diameters or other items. These errors shall be recorded in prominent text within the remarks section of the operators report.

### **DRC-W303.17 MEASUREMENT AND PAYMENT**

The rates tendered in the Schedule of Rates shall be deemed to be inclusive of all responsibilities and obligations of the Contractor under the Contract including accommodation, travel, site establishment, waste disposal, and reporting.

Measurement for payment shall be based on the sewer length in metres measured from the centre of maintenance hole to centre of maintenance hole.

If the survey is abandoned payment shall be made for the length completed at the Scheduled Rate per metre.

### **DRC-W303.18 PRACTICAL COMPLETION**

Practical Completion for the Contract will not be granted until all of the following requirements are achieved:

- The inspection works are complete except for minor omissions as agreed between the Superintendent and the Contractor.
- All reports, videos, photos and any other information under the Contract to be submitted has been received and is found to be satisfactory by the Superintendent and in conformance with the requirements of the Specification in the Contract.