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1 OVERARCHING WORK OPERATIONS

The following Work Operations are common to all Bill of Quantities (BOQ) Items and are deemed to be included in the BOQ Items shown in the Schedule of Rates:

a) Establishment and disestablishment including cleaning up and making good, except to the extent that establishment and disestablishment are the subject of a separate specific BOQ Item in the Schedule of Rates
b) Provision of all Site facilities, except to the extent that the provision of any Site facilities is the subject of a separate specific BOQ Item in the Schedule of Rates
c) Provision of all labour, plant and equipment
d) Supply, delivery, handling and storage of all materials except for materials supplied by the Principal and except to the extent that supply, delivery, handling and storage of any materials is the subject of a separate specific BOQ Item in the Schedule of Rates
e) Provision of all supervisory and support staff
f) All costs associated with the operation of the Contractor’s Workplace Health and Safety obligations, Quality System, Environmental Management obligations, Traffic Management obligations, Community Liaison obligations, Public Utility Plant obligations, Works programming, road maintenance obligations and all other supervisory and coordination functions, except to the extent that such obligations and functions are the subject of separate specific BOQ Items in the Schedule of Rates
g) All costs incurred by the Contractor in complying with Commonwealth and State legislation and Local Government By-laws
h) All testing, except to the extent that testing is the subject of a separate specific BOQ Item in the Schedule of Rates
i) All costs associated with the Works with respect to security, interest, fees, charges, taxes, royalties, insurance and compensation
j) All overheads and profit, and
k) All other expenses associated with the Works not specifically listed above.

2 PROVISIONAL QUANTITIES AND PROVISIONAL ITEMS

Where nominated in the Schedule of Rates, via the suffix “P”, that Work Item shall be deemed to be Provisional and it shall be treated as specified below:

At the time of tendering, the Principal was unable to determine a definitive quantity for such items.

Where a Work Item Number contains a suffix “P” and the words “Provisional Sum” appear in the description of the item, the Contractor shall be paid in accordance with the requirements of Clause 22.2 of the Minor Works Contract Conditions and shall be supported with measurements and / or other evidence of cost.

Where a Work Item Number contains a suffix “P” and the words “Provisional Quantity” appear in the description of the item, the Contractor shall be entitled to be paid for that work with the applicable limits of accuracy for the quantities of plus 50% minus 50%.

Where a Work Item Number contains a suffix “P” and the words “Provisional Quantity, as directed” appear in the description of the item, the Contractor shall only be entitled to be paid for that work if the Superintendent will direct or mark out the extent of the work. The Contractor shall not proceed until the extent of the work is agreed.

Where a Work Item Number contains a suffix “P” and the words “Provisional Quantity, if ordered” appear in the description of the item, the Contractor shall only be entitled to be paid for that work if the Superintendent has directed the Contractor in writing to undertake that work. It shall be understood that the work represented by that Work Item may not be required under the Contract. Limits of accuracy do not apply to these Work Items.
3 SEWER CONDUIT SURVEY SPECIFICATION

3.1 General

All works shall be of professional quality and suitable for assessing the structural and serviceability condition of the asset. The following subsection details the general specification for the sewer conduit survey:

i. All of the Contractor’s Operators and Inspectors shall be qualified as per Water Services Association of Australia Conduit Inspection Reporting Code of Australia (Third Edition – 2013) (WSA 05) Clause 2.2
ii. All conduit cleaning shall be carried out in accordance with WSA 05
iii. All conduit surveys shall be conducted, scored and reported to as per WSA 05

3.2 Equipment Capability

i. The preferred method of sewer conduit cleaning is via mobile, jet vacuum, recycling cleaning units
ii. Cameras and scanners shall meet the minimum requirements of WSA 05 Clause 2.5, with a preference for all video and images to be high resolution and colour. The media shall be clear, well illuminated, in focus and not affected by smudging of the camera lens.
iii. The survey camera shall be able to pan, tilt and zoom
iv. The survey vehicle shall include a device able to measure the grade of each line (i.e. an inclinometer)
v. The media playback shall meet the minimum requirements of WSA 05 Clause 2.8 and shall be annotated with the asset number, date of inspection, live linear distance, operator observations and comments.
vi. All media recording is to be taken with the camera lens in the centre of the conduit in accordance with WSA 05 Clause 2.6
vii. CCTV surveying method is preferred however equivalent or superior survey methodologies would be considered on availability.

3.3 Survey Specification

i. Sewer conduits shall be cleaned to enable the survey equipment to pass through on a single run. All surveys to be carried out within 7 days of cleaning. Should the survey not be able to be carried out within 7 days of cleaning, a direction from the Superintendent shall be sought as to how to proceed. Should additional cleaning be required, it shall be at the tendered hourly rate, excluding the Contractor’s margin.
ii. Surveys must be taken in low flow conditions, with the Contractor being responsible for flow restriction measures between entry and exit manholes. Table 1 provides indicative detention times available within each network, with the shortest detention period being associated with the lowest part of the gravity sewer network.

TABLE 1 – Indicative Detention Times within each Sewer Catchment

<table>
<thead>
<tr>
<th>Inspection Zone</th>
<th>Maintenance Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catchment 1 Queen Street</td>
<td>3 - 5 hours</td>
</tr>
<tr>
<td>Catchment 2 Fairymead</td>
<td>5 – 6 hours</td>
</tr>
<tr>
<td>Catchment 3 Orr Street</td>
<td>2 - 4 hours</td>
</tr>
<tr>
<td>Catchment 4 Avoca</td>
<td>4 – 6 hours</td>
</tr>
<tr>
<td>Catchment 5 Thomas Thomsen</td>
<td>3 – 4 hours</td>
</tr>
</tbody>
</table>
Detention times will reduce during times of wet weather due to infiltration within the network. The Contractor shall liaise with Council’s Inspector, who will then liaise with Council’s Operations to facilitate the management of pump stations to create a survey window. Council’s Operations shall require a minimum of 48 hours’ notice prior to providing network assistance.

The order of operations shall generally be based upon the Contractor’s programme and more specifically, the site conditions encountered, to which the Contractor shall liaise closely with the Council’s Inspector.

iii. The preferential survey direction is from downstream to upstream. Where this survey direction is not possible due to assessment restrictions, the Contractor shall ensure detailed lateral section imaging is obtained and recorded. Lateral imaging shall ensure the camera axis is aligned with the laterals’ centre axis. Should the Contractor be unable to satisfy the requirement of a section of survey, the Contractor shall liaise with the Superintendent as to establish a direction on how to proceed.

iv. The Contractor shall contact the Inspector to request the approval to commence any Extra Over Cleaning (BOQ Item 2.6), to which a direction from the Inspector shall be provided. The number of subsequent hours required to complete the works are to be agreed on-site with the Inspector and shall be recorded within Contractor’s daily records – HOLD POINT

v. Should the Contractor encounter or suspect brittle sewer conduits or asbestos cement lined pipes, works shall cease immediately and a direction as to how are to proceed shall be sought from the relevant Inspector – HOLD POINT

vi. At commencement of each survey, after initial entry and display of header information, the Contractor shall image and assess the conduit connection by completing a full revolution at the chamber wall with the exception where the pipework prohibits movement.

vii. The survey 0.0m reference point shall be the beginning of the pipe soffit identified as reference point “P” in WSA 05.

viii. The Camera shall stop at all defects and shall include an in focus, close up image of the defect as per WSA 05. 

ix. Camera travel speed shall not exceed the rates outlined in WSA 05 Clause 2.6.2.

x. The grade of each sewer line shall be measured and included within the video playback and report

xi. When a conduit survey ends in a chamber the operator shall capture imagery of the chamber benching, walls and lid section.

xii. If a non-identified chamber is found during a survey, it shall be located using radio detection or equivalent method with high accuracy and marked on a map. The surface shall also be marked for later rectification. The minimum extent of information required to be captured has been outlined in Section 4 of this Technical Specification.

3.4 Sewer Conduit Inspection Deliverables

The Sewer Conduit Inspection Report shall initially be provided on a per-catchment basis, upon availability, prior to a complete Project package being provided. The Deliverable Package shall meet the minimum requirements of WSA 05 Clause 2.12 and shall include the following:

i. Complete WinCan VX digital project file.

ii. Each asset to have the following data (see attached Example Deliverable Package in Supporting Information):

   a. WinCan VX Database
   b. Survey video
   c. Condition report
   d. Images

iii. Survey report summarising the details of the assessment, providing relevant information and screenshots from the survey. The files must be named in the format: Asset Name (number)_inspection date(YYMMDD)_ Programmed inspection for survey. Sample: SP.01234_190120_Programed inspection

   a. Abandoned surveys on the same reach (from downstream chamber and upstream chamber) to be combined into one survey file through WinCan VX’s functionality.

iv. Microsoft Access (or equivalent) database with all conduit asset numbers and condition scores with details.

v. Folders with conduit survey data.

vi. Additional assets found with the following minimum information;
a. Asset type  
b. Inspection zone  
c. Physical address  
d. Unique identifier  
e. Pictures of location  
f. Marked map location  
g. Inspection data where possible

4 SEWER CHAMBER INSPECTION

4.1 General

All works shall be of professional quality and suitable for assessing the structural and serviceability condition of the asset. The following subsection details the general specification for the sewer chamber survey:

i. All operators and inspectors need to be qualified as per WSA 05 Clause 2.2  
ii. All conduit cleaning shall be carried out in accordance with WSA 05  
iii. All conduit surveys shall be conducted, scored and reported to as per WSA 05

4.2 Equipment Capability

i. The preferred survey equipment is Cleverscan, or a comparable alternative.  
ii. All video and still images will be in high resolution and colour. The media must be clear, well illuminated, in focus and not affected by smudging of the camera lens. The media must be annotated with asset number & date of survey.  
iii. Cameras and scanners shall meet the minimum requirements of WSA 05 Clause 2.5, with a preference for all video and images to be high resolution and colour. The media shall be clear, well illuminated, in focus and not affected by smudging of the camera lens.  
iv. The media playback shall meet the minimum requirements of WSA 05 Clause 2.8 and shall be annotated with the asset number, date of inspection, live depth of scanner, the Contractor’s observations and comments.

4.3 Survey Specification

i. Sewer chambers shall be cleaned to ensure all structural defects are clearly visible when surveyed. Should the survey not be able to be carried out within 7 days of cleaning, a direction from the Superintendent shall be sought as to how to proceed. Should additional cleaning be required, it shall be at the tendered hourly rate, excluding the Contractor’s margin.  
ii. Should the Contractor encounter a sewer chamber / maintenance structure where the hydrogen sulphide gas (H₂S) exceeds the levels for a safe working environment, works shall cease immediately and a direction as to how are to proceed shall be sought from the relevant Inspector. The relevant sewer chamber / maintenance structure shall be documented within the Contractor’s daily records – HOLD POINT  
iii. The survey shall record and inspect all components outlined within WSA 05 Clause 2.8.2 and shall include an additional relevant observations to the asset, for example; connections, step irons, chamber size and material.  
iv. Imaging and observations shall capture location and number of all connections.  
v. Still images shall be captured of the following:  
   a. The area surrounding the access chamber lid taken at a sufficient distance to depict general location of the chamber and any possible ponding areas  
   b. The lid and lid section with sufficient detail to conduct a condition assessment  
   c. The neck area of the converter slab/cone with sufficient detail to demonstrate the condition assessment  
   d. The chamber showing the entirety of the wall area with sufficient detail to conduct a condition assessment  
   e. The benching and connections with sufficient detail to conduct a condition assessment
f. Close up image of any defects

vi. The Contractor shall re-seal any covers to sewer chambers / maintenance structures with sikaflex / silicon upon completion of the inspection works. This is only required at locations where the existing cover is sealed. The number and locations of each re-sealed cover shall be recorded within the Contractor's daily records for payment.

4.4 Sewer Chamber Deliverables

The Sewer Chamber Inspection Report shall initially be provided on a per-catchment basis, upon availability, prior to a complete Project package being provided. The Deliverable Package shall meet the minimum requirements of WSA 05 Clause 2.12 and shall include the following:

i. Complete WinCan VX digital project file.

ii. Each asset to have the following data:
   a. WinCan VX Database
   b. Survey video
   c. Condition report
   d. Images

iii. A survey report summarising the details of assessment with relevant information and relevant screen shots. File naming for all submitted reports shall be in the format of: Asset Name (number) inspection date (YYMMDD)_Programed inspection for the survey. Sample: MH.01234_190130_Programed inspection

iv. Optional 3D model in step format of the chamber

v. One Microsoft Access (or equivalent) database with all chamber asset numbers and condition scores with details.

vi. Folder with chamber survey data as specified in Section 4.

vii. Additional assets found with the following minimum information;
   a. Asset type
   b. Inspection zone
   c. Physical address
   d. Unique identifier
   e. Pictures of location
   f. Marked map location
   g. Inspection data where possible

5 RE-INSTATEMENT

Work operations shall be carried out to the minimum dimensions necessary to accurately and safely complete the Works under Contract (WUC).

The Contractor shall limit its operations to legally accessible work areas defined in the Contract and / or as negotiated with adjacent land owners through separate Land Use Agreements.

Where the Contractor is required to disturb areas in order to access sewer infrastructure for inspection, the Contractor shall be responsible for the restoration of all surfaces and services to pre-existing conditions, generally in accordance with WSA 02 Clause 24.

A Provisional Re-instatement Sum has been made available within the Bill of Quantities, whereby the Superintendent can direct / agree re-instatement works, with the valuation and supporting documentation to be in accordance with Section 2 of this Technical Specification and Clause 22.2 of the Minor Works Contract Conditions.

Should the Contractor disturb areas, over and above that which is outlined in the Contract, or could reasonably be expected to complete the WUC, the Contractor shall be required to re-instate the additional disturbed area to the pre-construction standard at no expense to the Principal.