

## PART 14: TELEMETRY

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## 14.1 REFERENCED DOCUMENTS

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There are no referenced documents at this stage for this Part of the Engineering Code of Practice.

## 14.2 INTRODUCTION

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This Part discusses what must be considered by any developer installing telemetry as part of a pump station or as a standalone monitoring site that will be maintained or owned by the Council. The design requirements of the telemetry system are covered in general terms only. Electrical design and installation requirements are not covered in this Part.

All installations must meet the requirements of the other sections of this Engineering Code of Practice including Part 6: Wastewater and Part 7: Water Supply.

## 14.3 QUALITY ASSURANCE REQUIREMENTS & RECORDS

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Provide the information detailed in Part 3: Quality Assurance and the *Construction Standard Specifications (CSS)*, during design and throughout construction.

### 14.3.1 Electrical Drawings

Where telemetry is installed either as part of the electrical installation in a pump station or at a standalone site the connections need to be shown up to and including the connectors on the telemetry equipment (with the manufacturers numbering) as part of the as built drawings. This includes all I/O and power supply connections to all telemetry equipment.

Electrical drawings are to be delivered both in hard copy and electronic (.dxf or .dwg ) format.

### 14.3.2 Asset Information

Asset information is to be supplied for inclusion into councils Asset Management System. A form is available from Council showing the required information to be supplied.

## 14.4 SYSTEM DESIGN AND REQUIREMENTS

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The specific telemetry system design will need to be approved by Council prior to being installed.

### 14.4.1 Telemetry RTUs

Council has installed a DATRAN Telemetry system supplied and manufactured by QTech Data Systems.

New sites will use the DATRAN II eXcel range of RTUs and expansion modules.

### 14.4.2 Communication Equipment

The system uses a variety of communication methods depending on site location and type. These include radio, dialup, network connection delivered by Telecom ADSL.

Where radio communications are used the developer will ensure there is sufficient radio signal strength (minimum -80 dBm) to ensure reliable operation.

### 14.4.3 Power Supply Requirements

The RTU equipment (and some instrumentation) is to have battery back up to cover periods of mains power failure. This can be either by a separate power supply or part of a DC electrical controls supply.

This supply can be either 12 or 24 VDC as applicable for the equipment.

If the telemetry equipment is to have its own separate power supply it will be a minimum of a 100 watt power supply.

Backup battery size will be determined by the mains supply availability and can be affected by:

- Likely power outage time, planned and unplanned
- Whether the site has a standby generator
- Whether the site utilises a street lighting supply (as could be the case for some monitoring sites)
- Whether the site is solar powered.

See Part 6: Wastewater/Sewer and Part 7: Water Supply of the Engineering Code of Practice to get details of electrical requirements including battery backup of the instruments.

### 14.4.4 Rolleston Base Station

As well as at the field station there needs to be system configuration undertaken at the Rolleston Base Station. This is to be done by a QTech Data Systems Approved Integrator in consultation with SDC staff.

### 14.4.5 What is to be monitored or controlled

The actual I/O to be monitored will depend on the type of site but in general terms the following is to be monitored.

#### Digital (contact) inputs

- Pump run and fault conditions for each pump
- Pump is selected for auto operation (from auxiliary contacts on the AOM switch)
- Phase failure
- High and low pressure switches
- Pulses from any flowmeter to allow the telemetry system to accumulate flow totals
- Fault signals out of any instrumentation

**Analog Inputs**

- Water Pressure (including water reticulation pressure at sewer pump stations)
- Well water level, at either sewer or water sites
- At sewer sites where the groundwater level is likely to rise above the in ground reticulation a monitoring bore and level transducer (pressure transducer) is to be installed adjacent to the wet well to a level at least equal to the bottom of the wet well.
- Any other instruments that are required by other parts of this document.

**Control outputs**

- High Pressure Latch Reset. There is a routine that looks at the high pressure switch and does a number of reset attempts before creating an alarm. An output is required from the telemetry into the electrical controls for this.
- Water pumps that extract water from wells need to have a remote control output from the telemetry that operates only when the pump is selected for Auto.