



**Editorial/White Paper**

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Project:	<b>SEWAGE NETWORK</b>	Client:	<b>City of Johannesburg</b>
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**CASE STUDY : SEWAGE NETWORK**

**Date : 23 August 2006**

- Client** : City of Johannesburg.
- Application** : Remote monitoring of Sewage Pump Stations.
- Installation Base** : Cathodic Protection Sites : 22
- : Water Sites : 90
- : Sewage Sites : 48

**Background**

It is of utmost importance to the city to prevent any unnecessary sewage spillage to prevent health and safety risks as well as protecting the environment against raw sewage to be spilled.

**Sewage Pump Stations.**

City of Johannesburg has a large number of Sewage Pump Stations distributed all over the sewage recovery network, at low laying areas.

Normally sewage gets gravitated from the consumer point, to the Pump Station. The Pump Station will then pump the waste through a pipeline network to purification plants, also situated at strategic points in the city.

Sewage Pump Stations are normally equipped with sumps to enable some storage buffering capabilities and prevent pumps from running continuously.

**Monitoring**

However, although the Sewage Pump Stations are installed all over the city, spillages do occur if the stations don't operate properly. This can happen due to power failures, pump trips, blockages, electric motor failures, vandalism, or a number of other reasons.

Due the long relationship with City of Johannesburg, SSE was requested to design, manufacture, install and commission a complete tele-control monitoring system that will interface the Pump Station and report all alarms to 24 hour manned central control room.

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## The Telemetry System

SSE developed and installed a complete tele-control system to monitor these stations. SSE has installed 48 telemetry stations. The following are monitored at all sites:

### Household Signals:

#### Digital Inputs:

- 1) Mains Failure (Power)
- 2) Phase Failure
- 3) Door (Intruder) Alarm.
- 4) Pump Trip signals.
- 5) High Level Alarm.
- 6) Overflow alarm.
- 7) Auto/Manual switch status.

#### Analogue Signals:

- 1) Telemetry Station Standby Battery Voltage.
- 2) Sump level.

#### Access Control:

- 3) Identification Tag.

All Telemetry data gets communicated through a GSM Cell phone network for the low laying stations and through an analogue radio network system for all the other stations to the 24 hour manned master SCADA System located at the head-office of City of Johannesburg.

## Typical Outstation Installation

The SSE-RTU-11 with comprehensive lightning protection was used in the remote stations. All data gets send through to a 24 hour manned master station SCADA computer. Data gets displayed and logged on a complete hot standby Adroit SCADA System.



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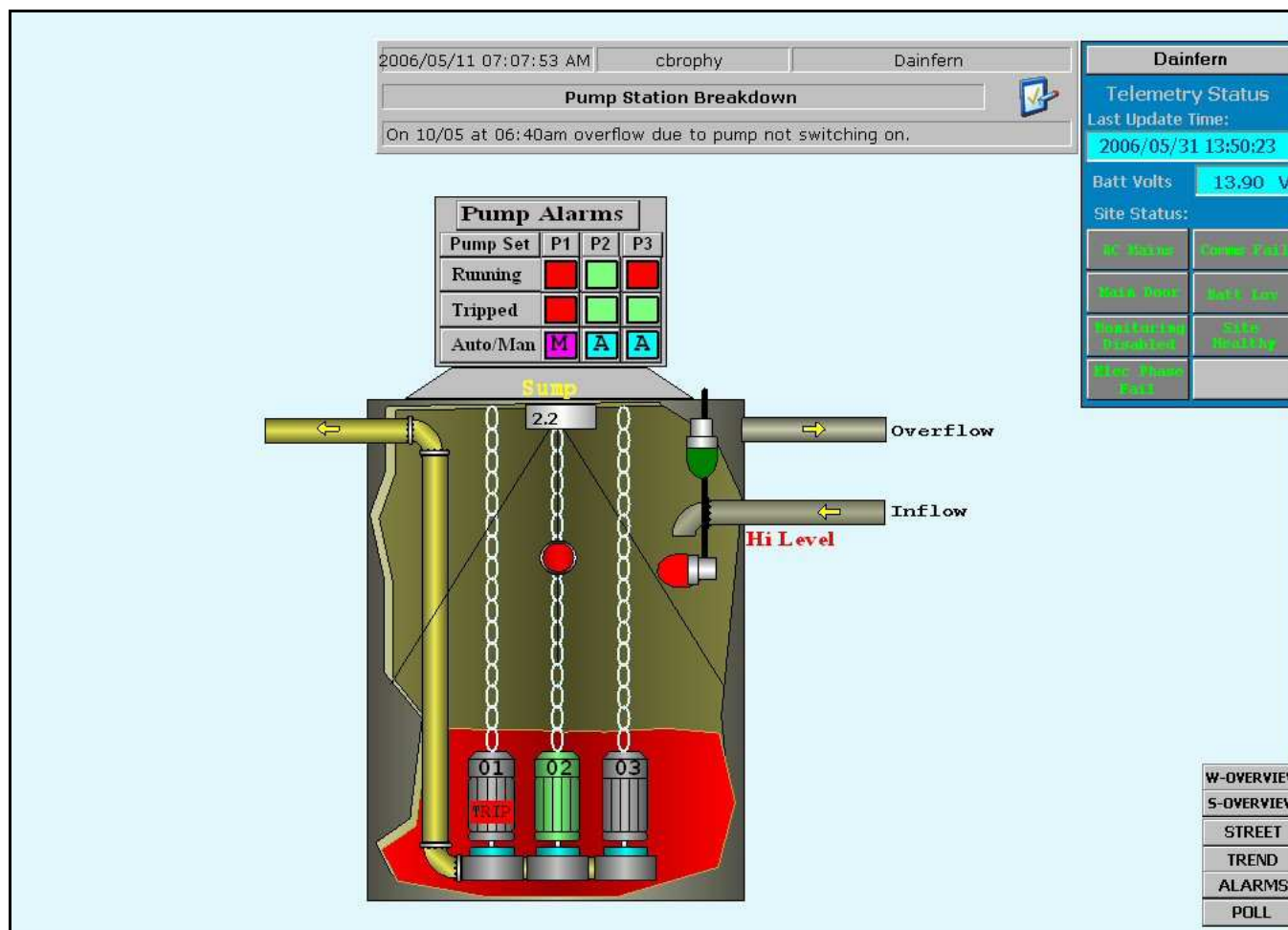
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## Master Station

The MIMIC screen example of one of the Sewage Pump Stations, as seen in the control Room.



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