

Client Name: Mossel Bay Municipality (MBM)

Project Value: R4 500 000-00

Project Duration: January 2019 – June 2019

Location: Western Cape, South Africa

Project Description: Re-Solve / EAS JV was appointed by Mossel Bay Municipality to complete the installation of PRV chambers in Mossel Bay for the reduction of water losses via pressure reduction, leading to an overall reduction of discharge in the water demand network. Water meters were also installed inside the pressure chambers in order to observe the overall volume of water through the system, and also to monitor varying flow rates by means of remote logging devices. Four zones were identified inside Kwanonqaba, Mossel Bay where installations were to be implemented to serve each of the zones, namely Asla Park 1, Asla Park 2, Extension 13 and Extension 26.

1. Pre-Intervention State

Mossel Bay Municipality's water infrastructure was under excessive and unnecessary amounts of pressure, causing excessive water loss within the reticulation systems for Kwanonqaba. Logging data was studied on the networks before the activation of the PRV configurations. In summary:

- Asla Park 1 had a minimum night flow of 6.823 kl/h
- Asla Park 2 had a minimum night flow of 0.901 kl/h
- Extension 13 had a minimum night flow of 0.459 kl/h
- Extension 26 had a minimum night flow of 1.082 kl/h

2. Proposed Solution

- **Construction and Civil Works** – the construction and development of four PRV chambers, complete with bypass configurations and 2-step day/night pressure controllers.

- **Drafting plans and procedures** provided to the facility with a comprehensive operations and maintenance manual including troubleshooting scenarios. The maintenance personnel were also provided training for emergency conditions.

3. Post-Intervention State

The handovers were a great success and all the PRV chambers were successfully configured to the recommended pressures for water loss reduction. The flow rates recorded by flow loggers installed on each of the chambers' water meters, indicated a definite drop in water consumption rates and minimum night flow after PRV activation. The largest reduction in water consumption put the new flow rate at 15.8% of the original usage, or an 84.2% reduction.



Interior and Exterior View of Constructed PRV Chamber



View of the PRV Configuration with 2-step Controller and Solenoid Valve

4. Savings Achieved

The savings achieved can be summarised as follows:

- Asla Park 1 has a new minimum night flow of 4.805 kl/h (30% reduction in water losses)
- Asla Park 2 has a new minimum night flow of 0.406 kl/h (55% reduction in water losses)
- Extension 13 has a new minimum night flow of 0.136 kl/h (70% reduction in water losses)
- Extension 26 has a new minimum night flow of 0.171 kl/h (84% reduction in water losses)