

Millers Flat Potable Water System



WaterForce



Project Description:

To provide a potable water supply to 85 properties including pumping, filtration, reticulation, fire hydrants and tank farm.

Client: Millers Flat Water Company Ltd

Contractor: WaterForce

Design and supply, installation of tank farm, pumping and water treatment, installation of insulated pipe across Millers Flat bridge over the Clutha River.

Sub-contractor: Stracon

Installation of system pipe work, system commissioning.

Installation: 1 Feb 2010 - 11 May 2010

Designer: Wayne Bell

Project Manager: Kate Jones

Project Summary:

Millers Flat is a small town (permanent population near 200) in Central Otago. It is located 17kms south of Roxburgh on the Clutha River. Fruit growing is the main industry in the area with a high number of orchards located in the region.

The Millers Flat Water Company Ltd (MFWC) was formed in late 2008 by residents who were unhappy with water supplies from rain, bore and river water. The water had high mineral contents (magnesium, calcium and iron). Development had stalled in the town after 1998, when any new septic tank system had to be at least 50m from a bore. As a result MFWC was determined to ensure that its community had a secure, safe drinking water supply to promote growth in Millers Flat.

The new water supply was made possible through the Drinking Water Assistance programme implemented by the Ministry of Health. These programmes were

introduced nationally, to help small towns supply safe drinking water to residents. With 80% of the scheme (total project cost \$780,000) being paid for under the programme, the remaining 20% was paid for by the shareholders of the scheme. The scheme is to remain privately owned by the Millers Flat Water Co.

Design Brief:

Potable Water Requirements:

90 connections @ 1000 litres per day each

120 Permanent population

45 School

300 Campground

465 People @ 200 litres per day each

183,000 litres per day total

2.11 litres per second

Fire Service Requirements: 14 Fire Hydrants

System specification:

- The system comprises of a 4kW Lowara submersible priming pump and a 5.5kW Lowara booster pump which fills the tanks via a rising/falling main.
- The 4kW pump is 'direct on line' (DOL); the 5.5kW booster pump is on a variable speed drive (VSD) which has a pump control card fitted, this is the main controller for the system.
- The system is started and stopped via a float switch in the centre NE tank which sends a signal via Salcom polling telemetry radios.

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- If the level in the tank falls below the one metre differential the pump system will flow limit so the flow rate does not exceed 3.7 litres per second at a set pressure of 730kPa.
- The reticulation network in the township has been designed in a ring main formation to achieve even flow and pressure through out the town.
- Each lot is supplied with an 'Acuflo' toby connection complete with isolation valve, dual check valve and water meter.

Product Specification:

Bore pit and water treatment plant
Old Punt Road – Lions Park, Millers Flat

Bore Pit

- 4kW Lowara submersible pump
- Water meter – Khrono Optiflux 2100 mag flow meter 50mm with IFC100
- Bore pit and lid
- Riser column, isolation valves and unions for service

Pump/Water Treatment Plant

- 3x jumbo cartridge filters
- 2x ultraviolet sterilisation units, Trojan Pro 30
- 5.5kW Lowara booster pump
- Designed flow rate of 3.7 litres per second

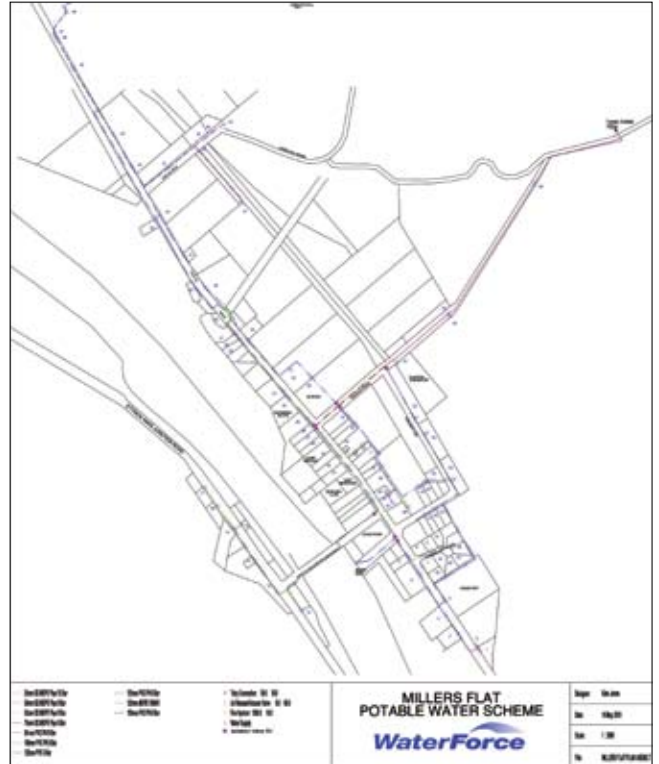
Tank Farm, School Road

- 6x 30,000 litre tanks, 180,000 litres storage
- 8kms of pipe work in the system

Some of the features of this system design are:

- Alarming in case of failure
- All faults are linked to the auto dialler which sends text messages to three MFWC board members notifying them of any faults.
- VSD fault, low water level at tank farm, Salcom radio link failure.
- UV unit has failed, pressure differential across jumbo filters has exceeded 5psi
- Submersible pump fail to run

The system has been designed with further extension in mind – room for one more UV unit, spare pumping capacity and room for more storage tanks if required.



Each property has a water meter plus the system has a water meter at the bore to measure overall water usage so that rates can be allocated easily.

Project Outcome

With the schemes introduction, positive reaction by the township and investors has seen renewed interest in property and new sections about to come on the market. Two new houses have been built already as a result of the new water scheme after a lapse of new building for 18 years.

Bruce Abbott, Chairman of the MFWC commented that, “The Drinking Water Assistance Programme has been a success for Millers Flat. This scheme has really changed people’s lives in our town”. Positive comments have also been received from the locals about good system pressure, nice taste and clean water compared with their previous supplies.

The project ran smoothly due to close involvement by all parties and stakeholders including the WaterForce design team, installation & contracting teams and the MWFC. Waterforce is proud to be involved with this project – ensuring quality water supply to a historic central Otago town.

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0800 4 FORCE (4 36723)