

Water reticulation solutions for a Hawkes Bay dairy conversion



Project Description:

To provide stockwater and irrigation design then supply to a dairy conversion project including water storage, reticulation, irrigation and effluent management systems.

Project Summary:

In the sunny Hawkes Bay, established properties operated by two or three generations are not uncommon. These farming partnerships can be successful, knowledge shared and new innovative farm practices brought in by the younger family members.

The Watts & Sons' family farm is one such generational farming business. It's a team effort with grandparents Ian and Ilene Watts, Trevor and Angela Corbin (Ian and Ilene's daughter) and Trevor and Angela's daughter Sarah and fiancé Chris.

When the family farm partnership Watts & Sons decided to convert their 200ha sheep and dry stock farm to dairy it was a decision not taken lightly. This Hawkes Bay family had proven experience with sheep and beef but when it came to dairy they relied on the experience and skill of Trevor and Angela who ran successful dairy operations in the South Island.

Once the decision was made, they came to WaterForce Hawkes Bay for their water needs. The conversion presented an ideal opportunity for a fresh approach to the entire farm infrastructure.

The Watts family farm is mostly rolling hill country, which presents challenges in design over flatter farm platforms. WaterForce's specialist design team worked closely with Trevor prior to work commencing to achieve the excellent results in the design and layout of the services.

The design process began with a full GPS survey of the site by WaterForce, then imported into Irricad software. The Watts & Sons family requirements included cost-effective installation, future proofing and provision for sufficient backup services. Everything is recorded on the Irricad design software making future expansion and changes to the system through to locating services buried in ground a breeze with modern GPS locating equipment.

The water supply for the farm comes from a single bore with an existing submersible pump. Variable speed drive controls were provided for efficiency and to prolong bore and motor life. Four 30,000 litre Devan water tanks store the bore water. A total of eight tanks provide two days backup water supply should anything go wrong with the single water supply.

Approximately 30km of pipeline was laid throughout the farm to connect pumps, tanks, troughs and irrigation services.

Watts & Sons Family Farm Irrigation System



The irrigation system has been installed to cover the 70ha of the farm suitable for irrigation. Approximately 25ha of the irrigation area is also used for effluent disposal.

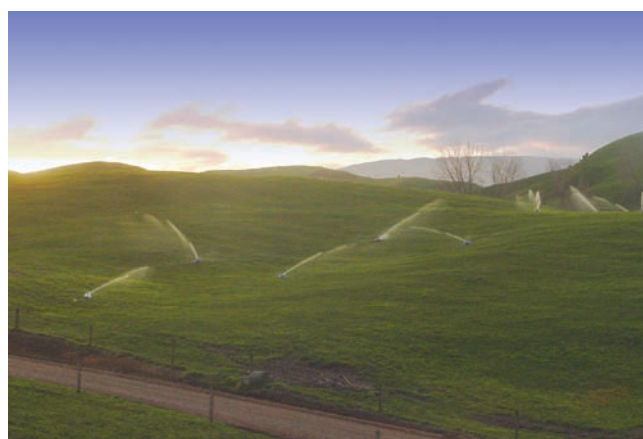
The Irripod sprinkler shift system was selected for both irrigation and effluent disposal. Being a flexible, low pressure application system the Irripod was an ideal solution to the Watts & Sons' farm operation.

The Irripod layout was designed by Richard Koorey, WaterForce's senior design engineer. Careful design is the key to a successful Irripod system. In the installation Irripod hydrants are located over the irrigation area. From the hydrants, a pipeline is run onto which the pods are connected in series. The pods are colour coded to assist the shifting operations and for easy location in the paddocks.

Senninger sprinklers were selected for the Irripod system. The Senninger sprinklers are high quality, high uniformity plastic impact sprinklers designed for irrigation and effluent disposal in pod systems.

The Irripod system has been supplied with an Irripod ATV tow trailer which enables the Irripod line to be caught, relocated and released without the farmer having to leave his/her vehicle. At the Watts & Sons' family farm, a total of 330 Irripods are run in three, eight hour irrigation shifts. At the end of each shift the sets of pods are relocated to the next location while the next group is put into operation.

For their effluent management the Watts & Sons partnership have selected a two pond system, sized for a one month storage capacity as per council regulations. Dairy effluent enters the first pond, passing into the second pond via a weeping wall to retain the solids in the first pond. The watery effluent in the second pond is pumped out of the second via a gantry-mounted self-cleaning intake screen designed to further filter the effluent. The effluent then passes through an Amiad SAF automatic self-cleaning filter (industrial grade) before the liquid is piped off to the Irripod effluent sprinkler system. The three stage filtration system designed for the farm will minimise potential blockages to the pipelines and



the small Irripod sprinkler nozzles ensuring trouble free operation of their effluent system.

The Watts & Sons' family dairy conversion project has run smoothly due to close involvement by all parties including the WaterForce design team, installation and contracting crews. WaterForce is proud to be involved with the Watts and Corbin families and looks forward to working with them as they continue with their dairy operation in the Hawkes Bay.

WaterForce

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