

Flaxbourne Community Irrigation- Brief summary

Setting

- Geology of the Waima (Ure) Valley comprises a shallow gravel layer (shallow aquifer), underlain by a fine grained layer (silt, some clay and sand), then a lower gravel layer (lower aquifer) above the bedrock.
- The river is in direct hydraulic connection with the shallow aquifer, losing and gaining water from the shallow gravel aquifer in different locations along the valley.
- Bore field development- two production bores (PW1 and PW2) and 6 monitoring wells.
- The FCIL production bores abstract groundwater from the lower gravel layer at around 25 m depth.

Works completed

- Pump testing undertaken in March and April 2018.
- Well field test completed (PW1 and PW2) at a combined rate of 130 L/s. Drawdown response was limited in both magnitude and extent.
 - magnitude - how much the water level dropped in the wells, and
 - extent - how far the drawdown effects spread away from the well

After 7 days of pumping the drawdown effects on up-gradient private wells were immeasurable.

- At the time of testing the aquifer could comfortably yield 130 L/s and would achieve the design yield of 250 L/s.

Result of testing

- The testing identified that the lower aquifer is semi-confined. This means that there is leakage of water through the fine grained layer from the shallow gravel (and river).
- Therefore, pumping of the lower aquifer will have an effect on the river and may manifest itself in terms of increased dryness of the river (duration and extent) than would occur naturally.
- The results of the analysis indicate that the aquifer is expected to achieve the design rate of 250 L/s even during summer months, provided that the system receives winter recharge, the abstraction is expected to be sustained.

Consenting

- The key issue is likely to be the effects on the surface water environment. While the effects are likely to be less than a direct surface water take, the groundwater abstraction may result in increased dryness in the river.
- A brief ecological assessment (based on only one site visit) was submitted in 2008 as part of the surface water consent. This may need to be updated, we recommend you seek further advice on this prior to lodgement.