

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications for resource consents to take and use water, disturb the Waitaki riverbed to install an intake and to disturb riverbeds and excavate slopes of greater than 21 degrees to install pipes - **CRC040427, CRC040428 and CRC040429**

BY Waihao Downs Irrigation Limited
Applicant

TO Environment Canterbury
Regional Council

BRIEF OF EVIDENCE OF JONATHON KIRK

**N A HORNSEY
PO BOX 17
LAKE TEKAPO**

Tel: 03 680 6838
Fax: 03 680 6851

1. My name is Jonathon Kirk. I am a farmer with irrigated and dry land near Waimate, but not in the Waihao Downs Scheme command area.
2. I am the original concept designer of the WDI project.
3. I have experience in the development of the new concepts in irrigation Kline, Effline and others.
4. I am submitting in support of the WDI because I believe this system could be of real benefit to the Waihao Downs community and it's environment and it could be built economically.
5. Farmers, like other professionals, take pride in their work and achievements. To most farmers the measure of success is not the result of their annual appointment with their accountant, as they have little control over this result, but the quality and condition of their livestock and or crops and the general farm environment, which they do have some control over.

6. Irrigation gives greater reliability and certainty to the outcomes sought from their investment in time and money.

7. The economic benefits to the farming community are quite well known from the results from other irrigation schemes. Changing from dry land to irrigation can approximately double the average production that is achievable. This area has good quality heavy soils with good water retention properties. However it is sheltered by the Hunter Hills to the east and it misses most of the easterly rains therefore it is drier than the area I farm. This gives rise to the additional benefits that could be obtained under irrigation and also the proximity of the Waitaki River as a water source to make building the WDI scheme attractive.

8. The concept came about as another farmer and I stood on the highest point of the Valley Road discussing how we could get water to a farm in the area. When we turned from looking south over the lush green productive area of the Morven Glenavy Irrigation Scheme to the dry struggling farm land to the north I said “you know Robin if we could get water over this hill we could irrigate all of this”.

9. To cut a long story short, I took some levels, did some calculations and drew a concept plan. This was originally for an open race scheme as part of the reticulation. However the problems of water control on the undulating topography soon became evident and the design changed to a fully piped system. The big problem for WDI was the delay this caused resulting in the WDI consent being called in as the WAB conducted its work. Mr Attewell has now fine tuned the design to what we are sure will be a very efficient scheme that we hope will gain a consent, so lets hope it does not simply dry up in the hot summer sun.

10. The beneficial effects of irrigation to the local and wider community are very evident to anyone driving on Highway 1 where it can be seen that the wealth created by irrigation is changing the already developed areas immensely. The first noticeable sign is green grass as opposed to brown or brownish. However look further and also noticeable is the trees grow better and there is more bird life and the farms are more diversified. At the moment dairying is the flavour of the month, but this will not always be so as opportunities for

11. What cannot be seen from the car window however is the activity below ground level. With the availability of adequate water, plants, animals and smaller creatures such as earthworms and microbes are not being constantly killed or inhibited each year by drought. This subterranean activity thrives under irrigation creating improved soil structure and better water retention, by speeding up the breakdown of old plant material to humus and further growing the topsoil - New Zealand's most valuable natural resource.

12. This brings me to the very interesting topic of carbon sinks (I won't go into this in depth it is such a huge subject with many opposing arguments as to whether or not it can be applied to farmed topsoil). But if for example you take the two extremes of a desert and a rainforest the answer as to which is the greatest carbon sink is obvious. Farmland sits between these two. The reason I have raised this is because very little is happening in the dryland soil, compared to the vibrant subsurface activity of irrigated land.

13. Incidentally have you noticed how the path on your back lawn seems to be sinking or the bottom wire of the old fences seem to disappear into the ground? Chemical analysis from the LUDF has found soil carbon levels have increased by 23% since irrigation has been used on this farm over the last 5 years; also nitrogen has been captured by the soil resulting in an 18% increase in nitrogen in the same period. 2 billion tons of carbon is currently absorbed by the global land mass (sequestered) a large part of which is farmed topsoil. I believe irrigation speeds this process up.

14. Water management is critical to any irrigation development, the old “pour it on till it runs into the neighbours or down through the soil structure” is no longer acceptable environmentally or economically, especially for a pumped scheme such as WDI when electricity costs are estimated to be in the region of \$200-300 a Ha / year.

15. There are many irrigation systems and high tech moisture measuring devices from fine tuned control down to basic systems that require a certain amount of skill to operate

efficiently. WDI plans to provide training and advice for the efficient operation of on farm irrigation, land management practice and environmental protection and enhancement as is outlined in the draft Farm Management Plan prepared by Dave Attewell.

16. At the end of the day a scheme such as WDI propose is very self-regulating as each farm will be metered and invoiced accordingly, providing a financial incentive to use the water wisely. Any breach of the rules will result in penalties, (e.g. days of water turned off) if prudent use of water is not adhered to.

17. I do hope the Commissioners will recommend WDI consent be approved and I thank-you for listening to my submission.

Jonathon Kirk

28 July 2008