

# ASSOCIATED NOTES

## TO TAKE AND USE GROUNDWATER

### 1. FOR TAKE AND USE OF GROUNDWATER (*Takes less than 600 cubic metres per day*)

For your application to be accepted, an assessment must be included with your Application for Resource Consent. This form is a guide to help you complete PART B: ASSESSMENT OF EFFECTS.

Please note that this form is not appropriate for:

1. Takes greater than 600 cubic metres per day (average rate of 7 litres per second); or
2. Takes in the Woolston-Heathcote, West Melton-Yaldhurst, Waipara, and Banks Peninsula areas
3. Takes in Red and Yellow groundwater allocation Zones. For a list of the red and yellow zones refer to - <http://www.ecan.govt.nz/Our+Environment/Water/Groundwater/Groundwater+Allocation/>

### 2. ABOUT ASSESSMENTS OF EFFECTS ON THE ENVIRONMENT

This assessment is required so that you and others can understand what happens to the environment when groundwater is taken and used. You need to know this so you can decide:

- whether your proposal is likely to get consent;
- what you can do to stop or reduce adverse effects on the environment;
- who is likely to be affected by your proposal, and therefore who you should consult with.

#### (a) What happens to your assessment

When the Council receives your assessment, staff check it for completeness and accuracy. You have to pay for this check, so it helps if your assessment is as complete and accurate as possible. If you believe your proposal will not cause any harm to the environment, you need to explain why you think that, so staff can make an informed decision on your application.

#### (b) Preparing an assessment

If you would like more information on preparing an Assessment of Effects on the Environment, call the Council's Customer Services Section on either:

353 9007 or 0800 EC INFO (0800 32 4636)

Customer Services also have a list of consultants who may be able to help you with your assessment.

### 3. LEGAL AND PLANNING MATTERS

#### The Resource Management Act (RMA)

No one may take any water (Section 14(1)(a) of the RMA), unless the take is:

- For "an individual's reasonable domestic needs" (Section 14 subsection (3)(b)(i) RMA),
- For "the reasonable needs of an individual's animals for drinking water" (Section 14 subsection (3)(b)(ii) RMA),
- Permitted by a rule in a plan (being the Transitional Regional Plan (TRP) and a rule in a proposed plan (being the Proposed Regional Natural Resources Regional Plan (PNRRP)),
- Permitted by a resource consent.

### The Transitional Regional Plan (TRP)

A take not exceeding 20 cubic metres per day is permitted without a consent, provided the bore is more than 50 metres from any waterway or neighbour's bore. (TRP General Authorisation for water, Condition 3).

A take not exceeding 100 cubic metres per day is permitted without a consent, as long as the size of the property is greater than 20 hectares and the bore is more than 100 metres from any waterway or other neighbour's bore (TRP General Authorisation for water Condition 4).

### Proposed Regional Natural Resources Regional Plan (PRNRRP)

Chapter 5, Water Quantity, of the PNRRP, Rule WQN14 permits the take and use of water not exceeding five litres per second.

#### Summary of Consent Requirement

1. Takes not exceeding 20 cubic metres per day and not exceeding 5 litres per second may be permitted as either domestic or stock water use.
2. Takes not exceeding 20 cubic metres per day and not exceeding 5 litres per second may be permitted as long as the bore separation distance is 50 metres.
3. Takes not exceeding 100 cubic metres per day and not exceeding 5 litres per second may be permitted as long as the property is greater than 20 hectares in size and the bore separation distance is 100 metres.

All other takes require consent.

#### EXCEPTIONS

*Yaldhurst/West Melton area.* The abstraction of groundwater in this area is excluded from the permitted activities listed above and is a discretionary activity.

The area bounded by Intake Road, Station Road, Hoskyns Road through to Main South Road, Carmen Road, Russley Road, Ryans Road, Guys Road and a line 1,000 metres (one km) north of, and parallel to, the Old West Coast Road.

#### For testing purposes

- Up to 100 litres per second may be extracted from a single bore for aquifer testing provided that the abstraction shall be for a period of no longer than 72 cumulative hours per year.

#### For construction site de-watering

- Groundwater may be abstracted from any de-watering system less than 10 metres deep for de-watering of construction sites.

If you want to take water for any reasons or circumstances other than those listed above, you require a resource consent.

## 4. CONSULTATION

Consultation with potentially affected people is recommended as good planning practice but is not mandatory.

## 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

To effectively determine if your proposed activity has any adverse effects on people, other resource users or the natural and physical environment, it is essential that you accurately confirm the locations and extent of the following features within 1500 metres of your bore(s):

- All other bores whether consented or domestic or community supply
- Surface waterways (whether flowing or not) including water races
- Your proposed area of irrigation
- Any other areas of irrigation authorized by other consents

Please note the Environment Canterbury database of bore locations is only as accurate as the information past applicants have provided to us. Establishing the correct location and therefore distance between bores is very important in accurately assessing the drawdown effects on other groundwater users.

Therefore, please provide a map that accurately shows the location of your bore and all recorded bores within 1500 metres. Please confirm the location of the bores on this map and mark any that you know are no longer used, or that are not included, or are not correctly located. Please use arrows to clearly show the correct location of any bores that are shown in the wrong place. This will be used to correct our bore and GIS records.

Additionally, establishing the correct locations of surface waterways and accurately describing them in terms of habitat quality ("clean spring-fed, abundant trout" or "ephemeral drain or swale") is very important in accurately assessing the potential for depletion effects on surface waterways.

*Please Note: The processing of your application may be delayed if the signed verified map is not enclosed. Your consent, if granted on the basis of incorrect information, may be reviewed at your cost or may even be cancelled if deliberately misleading information is provided.*

**6. ASSESSMENT OF ACTUAL AND POTENTIAL EFFECTS**

Assessments of effects of groundwater abstractions can be complex, as effects cannot easily be measured. Frequently analytical numerical modelling is required. For higher rates of abstraction, a technical assessment of effects is required. Our Customer Services Section can provide contact details for suitably qualified and experienced consultants. Even small takes in some areas can have adverse effects on neighbouring bores. If a technical assessment is required you will be contacted by an Investigating Officer.

The technical assessment of interference effects on other groundwater users must meet the requirement of Policy WQN20 and Schedule WQN10 of Chapter 5 of the Proposed Natural Regional Plan (3 July 2004) *“existing bore(s) should not have it’s protected available drawdown reduced due to the direct cumulative interference effects from other bores, unless the effect is mitigated.”*

Your assessment of effects must be based upon the maximum rates and volumes you have specified.

**6.1 EFFECTS OF INEFFICIENT WATER USE**

Schedule WQN11: Daily stock water requirements

Table WQN26: Daily stockwater requirements

**Stock type Litres/head/day**

| Stock type                  | Litres/head/day |
|-----------------------------|-----------------|
| Dairy cattle – in lactation | 70              |
| - dry                       | 45              |
| Beef cattle                 | 45              |
| Calves                      | 25              |
| Horses - working            | 55              |
| - grazing                   | 35              |
| Breeding ewes               | 3               |
| Sows                        | 25              |
| Pigs                        | 11              |
| Poultry - per 100 birds     | 30              |
| Turkey - per 100 birds      | 55              |

For the purposes of determining stockwater requirements for rules WQN1, WQN3, WQN13 or WQN28 the total daily amount shall be determined by establishing the number of each stock per type, multiplying the number of stock on the property by the litres per head per day for each of the different stock types and summing these. This result may be multiplied by a factor of 1.2 to allow for peak demand and for some potential loss from the system.

An example is set out in the table below:

| Land use            | Stock type | Numbers | Litres/head/day | Total L/day | Total x1.2 L/day |
|---------------------|------------|---------|-----------------|-------------|------------------|
| Sheep and beef      | Sheep      | 1780    | 3               | 5340        |                  |
|                     | Beef       | 660     | 45              | 29700       |                  |
| <b>Total demand</b> |            |         |                 | 35040       | 42048            |

## 7. STANDARD CONDITIONS FOR GROUNDWATER TAKES

If your consent is granted, it will include standard conditions similar to these.

1. Water shall only be taken from bore (number), \_\_\_\_\_ millimetres diameter and \_\_\_\_\_ metres deep, at or about map reference NZMS 260 (map no.) (easting, northing) at a rate not exceeding (rate) litres per second, with a volume not exceeding (volume) cubic metres in any consecutive (irrigation return period).
2. Water shall be used only for irrigation of crops and pasture for grazing \_\_\_\_\_ as described in the application, on the area of land shown in attached plan.
3. The consent holder shall, within 12 months of the commencement of this consent, install, or provide for the installation of:
  - (a) an easily accessible straight pipe, of a length at least 15 times the diameter of the pipe, or
  - (b) a water flow measurement device which will measure the rate at which water is taken to within an accuracy of plus or minus five percent, as part of the pump outlet plumbing or within the mainline distribution system.
4. If required by notice in writing by the Canterbury Regional Council
  - (a) a water flow measurement and recording device that will measure the volume at which water is taken to within an accuracy of plus or minus five percent, shall be installed as part of the pump outlet plumbing or within the mainline distribution system; and
  - (b) the measuring and recording device shall be used to measure the volume of water abstracted per specified time interval. The volume shall be recorded either electronically or in a log kept for that purpose. The measuring and recording device and the records of abstraction shall be available for inspection on request by the Canterbury Regional Council for at least 12 months from the date of recording; and
  - (c) the measuring and recording device shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions, if any.
5. The consent holder shall take all practicable steps to:
  - (a) ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and
  - (b) avoid leakage from pipes and structures; and
  - (c) avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.
6.
  - (a) The irrigation system used in association with taking water from bore \_\_\_\_\_ shall not be used to distribute effluent, fertiliser or any other added contaminant, unless a reduced pressure zone backflow preventer is installed within the pump outlet plumbing or within the mainline to prevent the backflow of water into the bore.
  - (b) The backflow preventer shall be tested within one month of its installation and annually thereafter by a suitably qualified person. A test report shall be provided to the Canterbury Regional Council within two weeks of each inspection.

### ADMINISTRATIVE CONDITIONS

*Note: The RMA sets out a procedure for reviewing consents in certain circumstances. The RMA sets a default period of time after which a consent lapses and ceases to have effect if it is not exercised. This is five years unless there is a condition in the consent specifying a different lapsing period. These conditions are placed on all consents.*

7. The Canterbury Regional Council may, once per year on any of the last five working days of March and November serve notice of its intention to review the conditions of this consent for the purpose of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
8. The lapsing date for the purposes of section 125 shall be five years from the date of grant of the consent.

### CALCULATIONS/CONVERSIONS

- To convert gallons per minute (gpm) to litres per second (L/s), multiply by 0.075  
e.g. 600gpm x 0.075 = 45 L/s
- To convert gallons per hour (gph) to litres per second (L/s), multiply by 0.0013  
e.g. 25000 gph x 0.0013 = 32.5 L/s
- Calculate the volume of water applied per day based on the pumping schedule as follows: Rate (L/s) x Hours x 3.6  
e.g. 32.5 L/s x 23hrs x 3.6 = 2691 cubic metres/day

## DEFINITIONS

### APPLICATION RATE

The amount of water to be applied to ensure 'optimal' crop growth. This amount should relate to how much water you have applied for.

### CUMULATIVE EFFECTS

Cumulative drawdown effects on water availability can be created by the overlapping of localised drawdown where there is a concentration of bores at varying depths. This may result in a decrease in water levels over time.

### DRAWDOWN

Abstraction of groundwater from a bore creates a cone-shaped depression in groundwater levels, which can affect nearby bores depending on: separation distance between wells, abstraction rates, aquifer characteristics, and regional water levels.

### EVAPOTRANSPIRATION

The amount of moisture lost as direct evapotranspiration from the soil surface, and transpired by the plant - for Canterbury this ranges from 4-5mm/day.

### RETURN PERIOD

The amount of time before 'paddock one' must be irrigated again to maintain necessary soil moisture content, during 'design' rates of evapotranspiration. Also known as the irrigation return period.

### WATER HOLDING CAPACITY

The amount of water available to the plant is described by its water-holding capacity, and is a function of soil type and plant root depth.

A typical shallow soil (e.g. stoney) would hold about 80 mm to root depth. A typical medium soil (e.g. silt loam) would hold about 120 mm to root depth. A typical deep soil would hold about 150 mm to root depth.

### WRITTEN APPROVALS

There may be persons that you know could be adversely affected by the proposed activity. You may seek approval before lodging the application, but it is Environment Canterbury which must decide which persons may be adversely affected and whether approval is required if the application is not to be publicly notified (advertised).

Discussing the proposed activity with neighbours and other interested persons prior to submitting your application may help to make processing faster and cheaper.