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**BYLAW NO. 2**

**UNDERGROUND WATER**

**1990**

**Incorporating Change Number 2 to the  
Transitional Regional Plan.  
Operative 19 June 2000.**

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**Environment  
Canterbury**  
Your regional council

# CANTERBURY REGIONAL COUNCIL

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This Bylaw forms part of the Transitional Regional Plan for the Canterbury Region,  
October 1991.

Report R00/4  
ISBN 1 - 86937 - 378 - 2  
1 June 2000.







## **Prepared under the Resource Management Act 1991**

I hereby certify that this is a correct copy of Bylaw No. 2 of the Canterbury Regional Council Transitional Regional Plan incorporating Change Number 2 to the Plan modified by the direction of the Environment Court (Decision No. C83/2000) and incorporating Minor Changes made in accordance with Clause 16 of Part I of the First Schedule of the Resource Management Act 1991.

This Change Number 2 to the Plan was approved at a meeting of the Canterbury Regional Council on 1 June 2000 to be made operative on 19 June 2000.

R B Johnson  
CHAIRMAN  
CANTERBURY REGIONAL COUNCIL

1 June 2000

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## **INTRODUCTION**

The purpose of this bylaw is to ensure that the groundwater resources of the Canterbury Region are managed wisely.

The bylaw allows the Regional Council to regulate where bores can be located and what the dimensions of a bore can be. The bylaw requires that the bore driller take records of the underground strata as bores are drilled and make this information available to the Council. This information helps the Council build up a picture of how the groundwater system works.

The bylaw also allows the Regional Council to control activities that could pollute groundwater.

This bylaw was made pursuant to Section 4 of the Water and Soil Conservation Amendment Act 1973 by special order made by resolution passed at the meeting held on 3 August 1990 and confirmed as a subsequent Council meeting held on 5 October 1990.

**CANTERBURY REGIONAL COUNCIL**  
**Bylaw No. 2**  
**Underground Water, 1990**

**1. OPERATION OF BYLAW**

- 1.1 This bylaw shall apply within the whole of the Canterbury Regional Council's region.  
1.2 This bylaw shall come into effect on 13 October 1990.

**2. INTERPRETATION**

In this bylaw unless inconsistent with the context –

**“ACT”** means the Water and Soil Conservation Act 1967 and Amendments.

**“AUTOMATIC LEAK DETECTION SYSTEM”** means any system that automatically alerts the operator to a potential leakage problem by either raising an audible and/or flashing alarm or by virtue of its operation prevents use of the equipment.

**“AUTOMATIC SHUT-OFF SYSTEM”** means a system:

- (a) applying when product delivery lines are pressurised; and
- (b) where there is a rigidly anchored emergency shut-off valve installed in the supply line at the base of each individual dispenser; and
- (c) where the shut-off valve contains a device designed to close automatically in the event of either severe impact or exposure to fire.

**“BORE”** means every device for, or means of, tapping underground water; but does not include a natural spring or natural watercourse unless something has been done to it by any person which increases the amount of underground water tapped by it.

**“BROMINATED HYDROCARBONS”** means tribromomethane and chlorodibromomethane.

**“BUND”** means an enclosure around an above-ground tank or tanks that:

- (a) is capable of containing the maximum credible loss from the largest single tank should there be an accidental spillage due to overfilling or a failure of the tank(s) or its fittings; and
- (b) is constructed of such materials as to be impervious to the product stored; and
- (c) is able to be visually monitored; and
- (d) has a drain point.

**“CHLORINATED HYDROCARBONS”** means any compound containing carbon, hydrogen and chlorine, and includes: trichloroethene, tetrachloroethene, 1,1,1-trichloroethane, tetrachloromethane, bromodichloromethane and trichloromethane.

**“COMMUNITY POTABLE WATER SUPPLY WELL”** means an operational water supply well serving a minimum of 25 persons for a minimum of 60 days per year.

**“CONTAINER”** means anything capable of containing liquids and includes:

- (a) any tank, equipment, device, or other facility; and
- (b) any vehicle or portable tank;

but excludes watercraft in or on water, or aircraft.

**“COUNCIL”** means the Canterbury Regional Council.

**“DIESEL”** means a refined petroleum distillate having a viscosity and distillation range intermediate between those of kerosene and light lubricating oil, whether or not it contains additives, intended for use as a fuel in internal combustion engines ignited by compression.

**“LEAK DETECTOR”** on a pressure pipework system means a system that monitors the pressurised pipework and raises an alarm if a leak is detected.

**“LEAK TESTING”** means a process that is carried out by UL (Underwriters' Laboratory) approved or equivalent methods to determine if a pipe or container has a leak or maintains its integrity, i.e., its ability to retain hydrocarbon products.

Leak testing of tanks shall be by UL (Underwriters' Laboratory) approved or equivalent methods only.

**“MANAGER”** means the Manager-Operations Rural Services, of the Council, or any officer of the Council authorised by the Manager to act on his or her behalf.

**“MAKE”** in relation to any bore includes drill, dig, bore or construct.

**“NON-RETURN VALVE” (OR “CHECK VALVE”)** means a valve that under normal operation permits flow in one direction only.

**“OVERFILL PROTECTION DEVICE”** means a device fitted to the fill point on an underground tank such that once the product reaches a certain level in the tank it restricts the fill point to reduce the flow of product into the tank to a trickle. When the level in the tank falls below the set level it resets itself.

**“OWNER”** in relation to any bore means the owner of any land on which any bore has been made or is proposed to be made, or the occupier of any such land where the occupier is not the owner.

**“PERMIT”** means a permit in writing under and in accordance with this bylaw.

**“PERSON”** means a corporation sole and also a body of persons whether corporate or unincorporate.

**“PETROLEUM COMPOUNDS”** means any compound derived from refined hydrocarbon oil, and includes: petrol, diesel, heating oil, aircraft oil, kerosene, waste oil and any compound containing benzene, toluene, xylenes, or ethylbenzene, but excludes liquefied petroleum gases.

**“PRESSURE PIPING SYSTEM”** means a pressurised system between the tank and the dispensing unit. A pump is located at or in the tank which supplies product to the dispensing unit under pressure. The pipe is always under a positive pressure. A leak detection system is incorporated to detect any loss of pressure in the system.

**“SAFE SUCTION PIPEWORK SYSTEM”** means a non-pressurised system between the tank and the dispensing unit. A pump is located at or under the dispenser with a check valve (non-return valve) located under the pump. In the event of a hole developing in the pipe the fuel in the pipe will preferentially drain back to the tank. The pipe is always under a negative pressure.

**“SECONDARY CONTAINMENT SYSTEM”** means a system where a container or pipe is fully enclosed (as far as practicable) within an outer container or pipe. There is an interstitial space between the containers.

Secondary containment systems are those that require a UL (Underwriters' Laboratory) or equivalent approval.

**“SPILL CONTAINER”** means a device fitted to and containing the fill point of a tank that:

- (a) will contain a minimum of 15 litres spillage at the fill point resulting from
  - (i) minor coupling leaks, or
  - (ii) delivery hose drainings; and
- (b) is chemically resistant and impervious to hydrocarbons; and
- (c) prevents the ingress of water and debris.

**“STOCK RECONCILIATION”** means a process of accounting for product transactions whereby the apparent volume taken from a tank based on the change in levels (also taking into account the effects of deliveries to the tank) within the tank is compared with the volume dispensed through the meters.

**“TIMBER TREATMENT CHEMICALS”** means any chemical used to treat timber and includes: copper/chromium/arsenic formulations, boron, light organic solvent preservatives and antisapstain chemicals.

**“UNDERGROUND TANK”** means a tank capable of storing hydrocarbon products which is installed below the surface of the ground and entirely covered with backfill, and as defined in the Dangerous Goods Regulations 1958 or replacement Regulations for Class 3 products, and where the tank complies with any of the standards listed in Appendix D of the 1992 Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems 1992.

**“UNDERGROUND WATER”** means natural water which is below the surface of the ground, the bed of the sea, or the bed of any lake or river or stream, whether the water is flowing or not and, if it is flowing, whether it is in a defined channel or not; and includes all natural water which has been, by means of a bore, brought above the surface from below the surface of the ground, the bed of the sea, or the bed of any lake or river or stream.

Other expressions used in this bylaw shall have the same meaning as in the Act.

### **3. MAKING, ALTERING OR INSTALLING BORES**

- 3.1 No persons shall make or alter or cause or allow to be made or altered any bore without first obtaining a permit to do so from the Council.

- 3.2 Every application for any such permit shall be in writing addressed to the Council and shall be in a form approved by the Council.
- 3.3 Upon application being made to it in accordance with the provisions of Clause 3.2 above the Council may:
  - (a) Issue a permit subject to such conditions or restrictions as the Council thinks fit for the purpose of controlling, regulating or limiting the location dimensions depth and lining of any bore; or
  - (b) Subject to the provisions of Section 5 of the Water and Soil Conservation Amendment Act 1973 refuse to issue a permit.
- 3.4 Every person to whom a permit under this bylaw has been granted shall produce the same for inspection when required to do so by the Manager.
- 3.5 The holding of a permit for making, altering or installing any bore under the provisions of this bylaw does not relieve the holder from the obligation to obtain a water right as required under Section 21 of the Water and soil Conservation Act 1967 or Section 23 of that Act.

#### **4. RECORDS**

- 4.1 Every person who owns or makes a bore shall upon request of the Manager keep and provide records in a manner prescribed by the Council.
- 4.2 Borehole records shall contain such information as the Council may require and may include the items and be in the form set out in Appendices A and B.
- 4.3 Every person having in his possession any records kept in accordance with Clause 4 of this bylaw shall allow the Manager to have reasonable access to these records and to take copies of or extracts from such records.

#### **5. INSPECTION OF BORE**

Every person having control of a bore shall allow the Manager to have reasonable access to that bore for the purposes of inspecting the bore and the material taken during the installation of the bore, and taking any specimen of any such material or of the water from the bore.

#### **6. FITTING OF APPARATUS**

Every person having control of a bore shall allow the Council to fit to the bore such measuring or recording apparatus as the Council may require.

#### **7. CONTROL OF WASTEFUL USE**

No person having control of a bore shall allow underground water to run to waste or to be used in an inefficient manner and shall furnish each bore or bores with effective valves and fittings which shall be protected from damage and maintained in good working order.

#### **8. MAINTENANCE**

- 8.1 Every person having control of any bore shall keep it in good repair to the satisfaction of the Manager.
- 8.2 Every person having control of a bore that is not in use for the purpose of taking water shall to the satisfaction of the Manager, seal, and keep it sealed in such a manner as to prevent the escape of water at any level.
- 8.3 Where in the opinion of the Council it is necessary to remove or seal or fill part or all of a bore the Council may by notice in writing to the person having control of that bore direct what action must be taken to remedy the situation and advise that person of the reasons for such action.
- 8.4 Every person having control of a bore shall ensure that it is located or constructed in such a manner so that surface waters cannot flow into the bore or down the bore casing.

## **9. CONTROL OF PILE DRIVING, DREDGING ETC.**

Every person intending to carry out any work such as boring, drilling, pile driving, dredging or digging to a depth below ground level exceeding 8 metres, or extracting any pile, pipe, casing or cylinder which extends to a depth below ground level exceeding 8 metres shall give fourteen days' written notice of such intent to the Council and if it appears to the Council that such work could affect the supply or purity of underground water, the Council may, by written notice to the person proposing to carry out such work, prohibit the carrying out of such work either absolutely or subject to such conditions as the Council thinks fit.

## **10. POLLUTION OF UNDERGROUND WATER**

### **10.1A Permitted Activities**

The following uses, erections, reconstructions, placements, alterations or extensions of any containers, or part of any containers, for the purpose of storing, transferring or using petroleum compounds, chlorinated hydrocarbons, brominated hydrocarbons, or timber treatment chemicals; in, on, under, or over land, are Permitted Activities:

- (a) the use of any container, or part of any container, that was in place prior to 14 October 1995;
- (b) the repair or replacement of any pipes, taps, valves, hoses or other fittings that are attached to a container;
- (c) the use, erection, or placement, of any electricity transformer that replaces, on the same site, an existing electricity transformer of an oil holding capacity greater than 1000 litres;
- (d) the use, erection, reconstruction, placement, alteration, or extension, of any vehicle or portable tank that has remained stationary for a continuous period of not more than 90 days;
- (e) the use, erection, reconstruction, placement, alteration, or extension, on or over land, of any container, or part of any container, of a volume less than 2500 litres, for the purpose of storing, transferring, or using diesel;
- (f) the use, erection, reconstruction, placement, alteration, or extension of an underground tank, or part of any underground tank for the purpose of storing, transferring, or using petroleum compounds where the following conditions are met:
  - (i) the fill point shall be fitted with a spill container; and
  - (ii) the tank shall be fitted with an overfill protection device; and
  - (iii) the tank shall have a secondary containment system; and
  - (iv) pipework shall be equipped with:
    - (1) a safe suction pipework system which incorporates a non-return valve installed below each dispenser pump; or
    - (2) for any pressure piping system, product lines shall be equipped with a leak detection device that is activated immediately any leak is detected in piping downstream of the pump and is connected to an automatic shut-off system that will restrict flow in the pipework when a leak is detected, the automatic closing feature shall be checked at the time of installation and at least annually thereafter by manually tripping the hold-open linkage; or
    - (3) secondary containment of the pipework, excluding tank fill lines and vent pipes;and
  - (v) the tank and its pipework shall be constructed of fibreglass or cathodically protected steel, or steel protected from corrosion with an inert wrapper; pipework may also be constructed of flexible piping material; and
  - (vi) the erection, reconstruction, placement, alteration, or extension shall be certified at the design stage by a suitably qualified and competent person as:
    - (1) complying with Clause 10.1A.(f) of this rule; and
    - (2) being in accordance with the Department of Labour 1992 Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems and any subsequent amendments to this Code of Practice.

Such certification shall be forwarded to the Regional Council not less than 7 working days prior to the works commencing.

At the completion of the works, the works shall be certified by a suitably qualified and competent person as having been carried out in accordance with the plans and specifications, and as built drawings of the tank and records of the certification and any site analysis shall be kept by the site owner and made available to the Regional Council on request;

and

- (vii) leak testing of the tank and its pipework shall be carried out and certified as being free of leaks by a suitably qualified and competent person on completion of erection, reconstruction, placement, alteration, or extension of the tank.

Where the underground pipework is of steel or jointed with screwed or flanged joints leak testing shall be carried out at least every 5 years. For all other installations the whole system shall be leak tested after 10 years and thereafter at least every 5 years.

If requested, a copy of the most recent certification and stock reconciliation shall be provided to the Regional Council;

and

- (viii) any tank placed at a new location shall be placed further than 100 metres from any existing community potable water supply well and further than 20 metres from any other existing water supply well, unless:

- (1) in respect to "other water supply wells" the properties with a well within 20 metres from the tank are connected to a reticulated water supply capable of supplying the equivalent amount and quality of water for meeting the property occupier's normal needs; or

- (2) the agreement in writing of the owner of the well is first obtained and a copy provided to the Regional Council;

and

- (ix) any new tank shall be erected or placed further than 20 metres from any river, lake or permanent spring; and

- (x) no re-use shall be made of any tank that has been placed underground for a combined period longer than 20 years or the life of the manufacturer's warranty period for the tank, whichever is the greater;

- (g) Except as provided for by paragraph (d) and (e) of this rule, the use, erection, reconstruction, placement, alteration, or extension of an above ground tank, or part of any above ground tank for the purpose of storing, transferring, or using Petroleum Compounds where the following conditions are met:

- (i) the tank shall either have:

- (1) a secondary containment system; or

- (2) a bund with a capacity of at least 110% of the volume of the tank, or where there is more than one tank, at least 110% of the volume of the largest tank; and a stormwater management plan that ensures that no less than 100% of the volume of the largest tank can be held within the bund at all times;

and

- (ii) the erection, reconstruction, placement, alteration, or extension shall be certified at the design stage by a suitably qualified and competent person as complying with Clause 10.1A. (g) of this rule.

Such certification shall be forwarded to the Regional Council not less than 7 working days prior to the works commencing.

At the completion of the works, they are to be certified by a suitably qualified and competent person as having been carried out in accordance with the plans and specifications and as built drawings of the tank and records of this certification and any site analysis shall be kept by the site owner and made available to the Regional Council on request;

and

- (iii) Any such bund shall only be put into service after the person certifying the installation is satisfied that it is leak-tight at the time of commissioning the installation.
- (h) the use, erection, reconstruction, placement, alteration or extension of any container, or part of any container, of a volume of 1000 litres or less.

#### **Clause 10.1B Permitted Activity**

The demolition and/or removal of any container, or part of any container, used for the purpose of storing, transferring or using petroleum compounds, chlorinated hydrocarbons, brominated hydrocarbons, or timber treatment chemicals; in, on, under, or over land, is a Permitted Activity.

#### **Clause 10.1C Discretionary Activities for which Discretion is Restricted**

Except as provided for as a Permitted Activity by Clause 10.1A, the use, erection, reconstruction, placement, alteration or extension of any container, or part of any container, for the purpose of storing, transferring or using petroleum compounds, chlorinated hydrocarbons, brominated hydrocarbons, or timber treatment chemicals; in, on, under, or over land, is a Discretionary Activity for which the Regional Council has restricted its discretion.

##### **10.1C.1. Restriction of Discretion**

The Regional Council restricts its discretion to the following matter when granting a consent in accordance with this rule and in imposing conditions in accordance with Section 108 of the Resource Management Act 1991:

The potential adverse effects of a spillage or discharge of hazardous substances on the quality of groundwater and permanent surface water and the associated values of those water bodies.

##### **10.1C.2. Assessment Criteria**

In assessing the above matter for which discretion is restricted the Regional Council will have regard to the following:

- (a) the extent to which the use, erection, reconstruction, placement, alteration or extension of an underground container, or part of any underground container for the purpose of storing, transferring, or using Petroleum Compounds meets the conditions under which such an activity would be exempted from this rule;
- (b) the extent to which the proposed activity poses a risk to the environment, and in particular:
  - (i) the proximity of the container to permanent surface water, underground aquifers and water supply wells; and
  - (ii) the sensitivity of the surrounding natural and physical environment to the adverse effects of a spill or release of hazardous substances; and
  - (iii) the nature of the hazardous substances held in the container; and
  - (iv) the extent to which the potential adverse effects on the quality of groundwater and permanent surface water can be avoided or mitigated, including through monitoring of the activity, site layout, site management, spill contingency planning, spill monitoring, and maintenance programmes.

##### **10.1C.3. Notification**

In accordance with Section 94(1A)(b) of the Resource Management Act 1991, an application for a resource consent that is sought in accordance with this rule may be considered without notification or the need to obtain the written approval of affected persons.

- 10.2 Other than by dispensation granted by the Council, no person shall allow to remain on or in the ground any matter or thing which affects or is liable to affect detrimentally the quality of underground water either directly or indirectly.
- 10.3 Every person having control of a bore shall take such steps as are necessary to ensure that no pollution of any sort can enter the underground water system because of the existence of that bore and the Council may, by notice in writing to the person having control of the bore or the owner of the bore, require that person or owner to carry out such works as may be specified in the notice for the purpose of preventing the danger of pollution.

**11. JOINT OWNERSHIP**

Where two or more persons maintain a bore or have control of any bore, they shall be severally liable for any breach of this bylaw.

**12. PENALTIES**

Every person who commits any breach of this bylaw shall be liable to the penalties as set out in Section 8 of the Water and Soil Conservation Amendment Act 1973.

**13. DISPENSATION**

- 13.1 Every application for a dispensation from observance of any of the provisions of this bylaw shall be in writing, signed by the applicant. Any dispensation granted by the Council shall be in writing and may be granted upon such terms, conditions or restrictions as the Council thinks fit.
- 13.2 The costs incurred by the Council in administering and investigating dispensation applications, and monitoring compliance with any dispensation terms, conditions or restrictions, shall be recovered in full from the dispensation applicant and holder respectively.

## **APPENDIX A**

### **RECORDS FOR THE MAKING, ALTERING OR INSTALLING OF BORES**

All such records shall contain:

- (a) Location of bore by map reference
- (b) Owner's name
- (c) Driller's name
- (d) Date and method of drilling
- (e) Description of strata encountered and depth at which encountered below ground level or other suitable datum level
- (f) Level of the static head (i.e. stationary water level after bore fully developed and when not being pumped) together with date and time of measurement and level datum used
- (g) Depth of bore
- (h) Length, diameter, thickness and material of casing
- (i) Position, type, length, diameter and mesh or slot size of screen or screens
- (j) Description of method by which water is extracted including description of piping arrangement and diameter and method by which pump is attached to bore
- (k) Quantity of water available in litres per minute together with date and time at which measurement was made and method of measurement
- (l) Maximum water use per hour and per day and methods of measurement
- (m) Maximum drawdown level together with date and time of observations, quantity of water being drawn and level datum used
- (n) Such other relevant information or data as the Manager may from time to time require to be kept.

NEW ZEALAND WATER WELL DATA FORM

SHEET No. _____	GRID REF _____	G.S. WELL No. _____	WATER AUTHORITY _____	WATER USE _____	AREA _____
CATCHMENT		WATER AUTHORITY		PERMIT No. _____	
Well depth (m) _____	Measured diameter (mm) _____	Wellhead altitude (m) a.m.s.l. _____	LOCATION SKETCH		
Yield m <sup>3</sup> /day _____	Drawdown (m) _____	Specific l/min/metre capacity m <sup>3</sup> /day _____			
Driller _____	Drilling date _____	Well status _____			
Owner _____	Address _____				
Pump Type _____	Well Type _____	Type of development _____			
Screen Type _____	Slot sizes _____	Set at _____			
Source of information on well location, log, etc. _____					
STATIC WATER LEVELS (m below surface)			Date _____		
HIGHEST _____	MEAN _____	RANGE _____	FREQUENCY OF MEASUREMENT _____		
AQUIFER CHARACTERISTICS			PERIOD OF MEASUREMENT _____		
Transmissivity (m <sup>2</sup> /day) _____			Storage coefficient _____		
Permeability (m/day) _____			Specific yield _____		
TEMPERATURE (°C) _____			Date _____		
TEST PUMPING			RECOVERY		
Drawdown (metres) _____	After time (min) _____	Residual Drawdown (m) _____	After Time (min) _____	REMARKS	
OTHER DATA			Pump Test _____		
			Chemical Analysis _____		
			Geophysical Data _____		
			Lithological Log _____		
			Isotope Data _____		
			Card Type _____		

Compiled by \_\_\_\_\_ Date \_\_\_\_\_ Checked by \_\_\_\_\_ Date \_\_\_\_\_

REDUCED LEVEL IN METRES above+ below- m.s.l.	GRAPHIC LOG	DEPTH IN METRES Below ground surface	LITHOLOGY  Reduced level of surface  ^ = drillwater gain v = drill water loss	COLOUR		STATIC WATER LEVEL	CASING	SCREEN	Approximate yield (litres/min) (m <sup>3</sup> /day)	Specific capacity (litres/min/metre) (m <sup>3</sup> /day)
				(a) Related to ground surface	(b) Related to m.s.l.					

ETA



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