

MEETING OF THE REGULATION HEARING COMMITTEE

TO THE CHAIRPERSON AND MEMBERS OF THE
COMMITTEE

MEMBERSHIP OF THE COMMITTEE

Cr A G Neill (Chairperson)
Cr R I R Little
Cr R A Budd

A meeting of the Committee will be held on
Friday, 27 January 2006 at 9.00 a.m.

VENUE: Executive Meeting Room
Fifth Floor
Aoraki Building
Environment Canterbury
58 Kilmore Street
CHRISTCHURCH

BUSINESS: As per Order Paper attached

Dr Bryan Jenkins
CHIEF EXECUTIVE

**RECOMMENDATIONS IN REPORTS ARE NOT TO BE TAKEN
AS COUNCIL POLICY UNTIL ADOPTED BY COUNCIL**

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COMPLIANCE WITH LOCAL GOVERNMENT ACT 2002 DECISION-MAKING REQUIREMENTS

Except as below, a statement of compliance and a completed decision checklist is required for any agenda item on a council committee or the council recommending that a decision be made. This will be the responsibility of the person signing off the agenda item.

The compliance statement and checklist will not be used for:

- Recommendations that information be received or that the Council make a decision.
- Decisions taken under the Resource Management Act 1991 or the Biosecurity Act 1993 in relation to resource consents, decisions required when following the procedures set out in Schedule 1 of the Resource Management Act 1991, other permissions, submissions on plans, or references to the Environment Court.
- Decisions taken to proceed with enforcement procedures under various primary or secondary legislation or regulations, including procedures under the Resource Management Act 1991, the Biosecurity Act 1993, the Local Government Act 2002, and Environment Canterbury Bylaws.
- Administrative and personnel decisions that are entirely internal to Environment Canterbury.
- Other decisions where the procedures to be followed are set out in Legislation.

COMPLIANCE STATEMENT

The council committee (or the council) must formally certify that:

- (a) It is satisfied that it has sufficient information about the options and their benefits and costs, in terms of the region's social, economic, environmental and cultural well-being and the effects on community outcomes, bearing in mind the significance of the decisions.
- (b) It is satisfied that it knows enough about and has given adequate consideration to the views and preferences of affected and interested parties bearing in mind the significance of the decision.

INFORMATION CHECKLIST

(a)	A Statement of the Proposed Decision
(b)	A Statement of the Objective of the Proposed Decision and the Issue or Problem being addressed
(c)	A list of all reasonably practicable options, (including doing nothing).
(d)	For each option in (c): An evaluation of the Benefits and Costs, in terms of the region's social, economic, environmental and cultural well-being.
(e)	For each option in (c): A statement of the extent to which community outcomes would be promoted or achieved in an integrated and efficient manner.
(f)	For each option in (c): A statement of the Impact, if any, on Environment Canterbury's capacity to undertake its statutory responsibilities
(g)	If the Proposed Decision is a significant decision in relation to land or a body of water, a statement of how Maori values have been taken into account
(h)	A Statement of significant inconsistencies, if any, with any Existing Policy, Plan or Legislation arising from the Proposed Decision.
(i)	A statement how the views and preferences of affected or interested persons have been given adequate consideration during the definition of the problem or issue, the objective, the assessment of options and the development of the proposed decision, including the particular contribution of Maori to the decision-making process.

Notes:

The significance of proposals and decisions determines how much time, money and effort is put into exploring and evaluating options and obtaining the views of affected and interested parties. The significance of proposals and decisions is determined through reference to criteria contained in the policy on significance.

The policy on significance together with Section 76 of the Local Government Act 2002 set out the Council's requirements in relation to decisions. Some decisions can only be made through the Long-Term Council Community Plan, or after the Special Consultative Procedures set out in the Act have been used, (refer to the policy on significance and the Act).

All decisions of Environment Canterbury are subject to the decision-making requirements of section 76 of the Act unless inconsistent with specific requirements of other legislation.

ENVIRONMENT CANTERBURY

REGULATION HEARING COMMITTEE

ORDER PAPER

1. APOLOGIES
2. MINUTES OF PREVIOUS MEETING – to be tabled
3. MATTERS ARISING

MATTERS FOR DECISION BY THE COMMITTEE

4. RESOURCE CONSENT APPLICATIONS FOR CONSIDERATION
5. APPOINTMENT OF COMMISSIONERS TO HEAR AND DECIDE RESOURCE CONSENT APPLICATIONS
6. QUESTIONS
7. EXTRAORDINARY AND URGENT BUSINESS
8. NEXT MEETING – to be confirmed
9. CLOSURE

4. RESOURCE CONSENT APPLICATIONS FOR CONSIDERATION BY THE COMMITTEE

The following resource consent applications are submitted for consideration and decision by the Committee without formal hearing.

Applications	Permit No.	Page No.
Lyttelton Port Company	CRC960556.1	3 - 24
Diggalink Limited	CRC052882	25 - 43
G and V A Prendergast	CRC051914	44 - 67
R E and J A Harwood	CRC054136	68 - 90

Report endorsed by:

Leo Fietje, Principal Consents Advisor.

Recommendation

That the Committee acting pursuant to a delegation of the Council of 22 October 2004, having had regard to the requirements of Section 104 of the Resource Management Act 1991, grants consent, pursuant to Section 105 of the said Act, to the applications subject to the conditions and expiry dates, and for the reasons stated.

5. APPOINTMENT OF COMMISSIONERS TO HEAR AND DECIDE RESOURCE CONSENT APPLICATION

5.1 C D AND C L STARKEY – CRC062165

Application

To install a bore for domestic and stockwater purposes at 171 McHughes Road, Mandeville.

It is Council policy to appoint a Commissioner when applications are lodged by Council staff.

Council staff have satisfied themselves the Commissioner recommended has the necessary criteria, including technical ability and availability to carry out the duties required.

Report prepared by Donald Fraser, Consents Hearings Officer.
Endorsed, Don Rule, Consents Operations Manager.

Recommendation

That the Committee appoint John Iseli as a Commissioner in respect of resource consent application CRC062165 by C D and C L Starkey with the full powers of the Council as a consent authority to:

- (a) *decide whether the resource consent application shall be processed with or without notification;*
- (b) *determine any preliminary matters associated with the resource consent application; and*
- (c) *decide the resource consent application with or without a hearing.*

5.2 NGAI TAHU PROPERTY LIMITED – CRC052033, CRC054498 AND CRC054501

Applications

CRC052033 - to take and use water from the Waimakariri River, at Browns Rock, approximately 3.6 kilometres downstream of the Waimakariri Gorge Bridge, at or about map reference NZMS 260 L35:3600-5840, at a maximum rate of 3.96 cubic meters per second for the spray irrigation of 5,659 hectares of pasture, of which 2,830 hectares shall be for grazing sheep and beef, and 2,829 hectares shall be for the purpose of grazing dairy cows.

CRC054498 – to disturb the bed and bank of the Waimakariri River, at Browns Rock, approximately 3.6 kilometres downstream of the Waimakariri Gorge Bridge, to install and maintain a water intake structure and irrigation canal to facilitate the taking of water. The disturbance is proposed at or about map reference NZMS 260 L35:3600-5840, immediately downstream of the Waimakariri Irrigation Limited intake.

CRC054501 – to discharge unused and sediment laden water from irrigation canals to soakholes within the proposed irrigation area, at a maximum rate of 500 litres per second per soakhole, located between map references NZMS

260 L35:4450-5650 and NZMS 260 L35:6550-5370, as shown on the following map.

A hearing is scheduled for 22 – 24 February 2006.

The Commissioners recommended have satisfied Council staff they have the necessary criteria including technical ability and availability to carry out the duties required.

Report prepared by Donald Fraser, Consents Hearings Officer.
Endorsed, Don Rule, Consents Operations Manager.

Recommendation

- (a) *That the Committee appoint Philip Milne and Dr Brent Cowie as Commissioners to hear and decide resource consent applications CRC052033, CRC054498 and CRC054501 by Ngai Tahu Property Limited with the full powers of the Council as a consent authority.*
- (b) *That the Committee appoint Philip Milne and Dr Brent Cowie to deal with any preliminary matters associated with (a).*

5.3 FREWS CONTRACTING LIMITED – CRC054440

Application

To discharge contaminants to air from the storage, handling and processing of bulk materials, and the movement of vehicles on unsealed surfaces.

The activities involved will include: crushing of concrete; screening of soil, compost, gravel and other materials; chipping and shredding of demolition timber; and storage of green waste, sawdust, bark, mushroom compost, garden soil and soil blends.

This application relates to the establishment of a contracting base at 57 West Coast Road, Yaldhurst, Christchurch.

The discharges will occur at this address at or about map reference NZMS 260 M35:697-436. The requested duration of consent is 35 years.

A joint hearing with the Christchurch City Council will be scheduled to hear and decide the consent application. A joint Commissioner has been requested.

The Commissioner recommended has satisfied Council staff he has the necessary criteria including technical ability and availability to carry out the duties required.

Report prepared by Donald Fraser, Consents Hearings Officer.
Endorsed, Don Rule, Consents Operations Manager.

Recommendation

- (a) *That the Committee appoint Robert Batty as a Commissioner to hear and decide resource consent application CRC054440 by Frews Contracting Limited with the full powers of the Council as a consent authority.*

- (b) *That the Committee appoint Robert Batty to deal with any preliminary matters associated with (a).*

IN THE MATTER OF The Resource Management Act 1991

AND

IN THE MATTER OF an application to change the conditions of the following resource consent held by Lyttelton Port Company Ltd:

CRC960556.1– to discharge dust (including phosphate, fertiliser, gypsum, sulphur and cement) into air from bulk cargo handling at Lyttelton Harbour.

REPORT OF JACQUI TODD

1. My name is Jacqui Todd. I have been employed by Environment Canterbury since December 1999. I was employed as a Consents Investigating Officer for three years, and am now a Senior Compliance Monitoring Officer. I hold a Bachelor of Science (with honours) in Zoology from Otago University and a Postgraduate Diploma in Resource Studies from Lincoln University.
2. This report is prepared under the provisions of Section 42A of the Resource Management Act 1991 ('the RMA'). This section allows Council officers to provide a report to the decision maker on applications for resource consents, and allows the decision maker to consider the report at the hearing. Section 41(4) of the Act allows the decision makers to request and receive advice from any person who makes a report under Section 42A "*any information or advice that is relevant and reasonably necessary to determine the application*". This report will provide the decision maker with information and advice related to:
 - The background of the application;
 - Details of the notification of the application and submissions received;
 - An outline of the legal and planning provisions relevant to the application;
 - A recommendation on the proposed changes to consent conditions;
 - Details of Council policy relevant to the application; and
 - Comments in relation to the matters specified in Part II of the RMA.

BACKGROUND

3. Resource consent CRC960556 was granted in 1997. A copy of the consent is included in Appendix 1. At the time the consent was granted the main cargoes unloaded were phosphate, gypsum, sulphur and grain. Nauru phosphate was considered to be the product most likely to create dust during handling. The decision makers acknowledged the potential for this dust to have nuisance effects. However they considered that the unloading areas were relatively remote from the commercial and residential areas of Lyttelton.

4. Since the consent was granted the situation has changed in relation to the types of cargo unloaded. Nauru phosphate is no longer produced. There are now a number of other bulk cargo products handled at Lyttelton Port which have proven to be very dusty, such as soya bean meal and clinker. This has caused problems with dust on a number of occasions, including a major incident with clinker dust in April 2003 where clinker dust was blown into Lyttelton township. It is now apparent that dust from bulk cargo unloading can travel beyond the port area and have nuisance effects in the commercial and residential areas of Lyttelton.
5. Given that adverse dust effects have occurred which were not anticipated when the consent was granted, Environment Canterbury considered reviewing the consent after the clinker dust incident in 2003. However Lyttelton Port Company (LPC) voluntarily opted to make changes to try and avoid adverse effects beyond the port property boundaries. This involved making changes to the Bulk Cargo Environmental Control Procedures (Draft copy included in Appendix 2.), and proposing changes to the conditions of the existing consent.

NOTIFICATION

6. The application to change the consent conditions was publicly notified on 23rd July 2005 in the Christchurch Press. The closing date for submissions was 19th August 2005. The application was notified as follows:

Resource consent application:

This application is made under section 127 of the Resource management Act 1991:

Consent holder: Lyttelton Port Company Limited
(Known as Lyttelton Port of Christchurch)

Address: Private Bag 501, Norwich Quay,
Lyttelton – Attn: Mike Day.

CRC960556.1 - *to change the conditions of resource consent CRC960556.*

Resource consent CRC960556 authorises the discharge of dust (including phosphate, fertiliser, gypsum, sulphur and cement) into air from bulk cargo handling at Lyttelton Port, Lyttelton.

The consent holder is proposing to change all six conditions of the existing consent and replace them with more stringent conditions. This is in response to issues arising from the handling of bulk cargo products, including the discharge of clinker dust in April 2003. The intent of the proposed changes is to achieve improvements in the management of dust emissions from bulk cargo and reduce the discharge of fugitive dust to an acceptable level.

The application includes an assessment of environmental effects.

Submissions

7. There were 3 submissions received on the consent application. There are no submitters who wish to be heard in support of their submission, and therefore this application will be put before the Regulation Hearing Committee.
8. Mr Douglas Couch did not oppose or support the application. He requested that no traces of contamination be allowed to fall into the coastal water and lower the water

quality below the shellfish gathering standard. Mr Couch withdrew his request to be heard after further information was supplied by LPC detailing how they intend to address this effect.

9. Ravensdown Fertiliser Co-operative Ltd submitted in support of the application. They referred to their management plan which included measures to minimise the risk of dust nuisance when unloading fertiliser.
10. Te Hapu o Ngati Wheke Incorporated submitted in support of the application but expressed some concern about the impacts on water quality in the Coastal Marine Area. They requested that best practice be followed to minimise the risk of discharges into the water.

DESCRIPTION OF THE ACTIVITY

11. The discharge to air arises from bulk cargo unloading at the Port. Products unloaded include phosphate, fertiliser, gypsum, sulphur and cement. As discussed in LPC's AEE, bulk cargo unloading is one of the Port's core activities involving large and small businesses with varying amounts of bulk cargo. As it is not practical for each customer to hold separate consents, they operate under this consent, held by the Port company. Use of the consent is subject to conditions contained in a Deed between LPC and each company.
12. The majority of the bulk cargo ships berth and unload at the No 2 Wharf in the Inner Harbour, with the No 3 Wharf as an alternative. A site plan for the inner harbour is included in Appendix 3. Bulk cargo ships typically occupy a berth for three days.

LEGAL AND PLANNING MATTERS

The Resource Management Amendment Act 2005

13. The Resource Management Amendment Act 2005 (RMAA05) commenced on 10 August 2005. Section 131 of the Amendment Act determines that the 2005 amendments do not apply to applications received prior to 10 August 2005 (with some exceptions which do not affect the decision on this application). Therefore this application is to be dealt with under the Resource Management Act 1991 as it was prior to the commencement of the RMAA05.

The Resource Management Act 1991 (the Act)

Section 127 Change of consent condition

14. Under Section 127 (1) the holder of a resource consent may apply for a change of a condition of the consent other than any condition as to the consent duration. Sections 88-121 of the RMA apply to the application with all necessary modifications as if –
 - (a) *The application were an application for a resource consent for a discretionary activity; and*
 - (b) *The references to a resource consent and to the activity were references only to the change or cancellation of a condition and the effects of the change or cancellation respectively."*
15. For the purpose of determining who is adversely affected by the change the local authority must consider every person who made a submission on the original application and may be affected by the change.

CONSULTATION

16. Prior to the notification of the application LPC held a public meeting to outline the proposed condition changes. They also consulted with Environment Canterbury staff and the companies who carry out bulk cargo unloading under this consent.

SENSITIVITY OF THE RECEIVING ENVIRONMENT

17. The bulk cargo unloading occurs in the inner harbour of Lyttelton Port and dust can be blown into the commercial and residential parts of Lyttelton, particularly during south to south-westerly wind conditions. I consider both the commercial and residential parts of the township to be highly sensitive receiving environments in relation to dust deposition.
18. Lyttelton Port falls within the Coastal Marine Area, within the area classified as the Operational Area of the Port in the Regional Coastal Environment Plan.

MITIGATION MEASURES

19. The condition changes proposed by the consent holder are compared to the existing conditions in the table below. The proposed changes are supported by Environment Canterbury Compliance and Enforcement Staff who have dealt with Port related complaints in the past.

CRC960556.1

PROPOSED CONDITION CHANGES

Existing Condition	Change proposed by Lyttelton Port Company
(1) The duration of this permit shall be 35 years.	Delete – duration does not need to be specified in a condition.
<p>(2) The best practicable option shall be adopted by the consent holder to minimise the amount of bulk cargo dust discharged into the air from the transfer of bulk cargo materials between the ship and the wharf and/or land based transport, including undertaking the following measures:</p> <p>(a) The use of water sprays to dampen bulk cargo where appropriate;</p> <p>(b) The use of suction sweepers to clean the wharf area;</p> <p>(c) Minimising cargo handling and transfer distance insofar as is reasonably practicable;</p> <p>(d) Covering trucks carrying bulk cargo where appropriate;</p> <p>(e) The unloading of Nauru phosphate shall only be undertaken when the wind velocity (as measured at the existing weather station on the Lyttelton Port Company signal tower) is less than thirteen metres per second (m/s).</p>	<p><i>Replace with:</i></p> <ol style="list-style-type: none"> 1. At all times suspended or deposited particulate matter from bulk cargo handling shall not cause an objectionable or offensive effect beyond the property boundary shown on the attached plan CRC960556.1 (LPC C-A3-3764 A). 2. In addition to condition 1 the consent holder shall adopt all practicable measures to ensure compliance with condition (1). Without limitation these shall include where appropriate: <ol style="list-style-type: none"> (i) The use of water sprays to dampen bulk cargo; (ii) The use of baffled hoppers; (iii) The use of suction sweepers to clean the wharf area; (iv) Minimising cargo handling and transfer distance; (v) Covering trucks carrying bulk cargo; (vi) Visual monitoring for dust effects within Lyttelton township (vii) Regular assessment of wind conditions.
(3) Prior to exercising this permit, the consent holder shall prepare a management plan for the control of bulk cargo dust. Such plan shall be provided to the Canterbury Regional Council. The plan shall detail the specific actions to be taken in order to comply with Condition 2 of this permit and to minimise the discharge of bulk	3. (a) Within two months of the commencement of this consent, the consent holder shall submit a management plan for the control of bulk cargo dust to the Environment Canterbury Team Leader Compliance Monitoring (Industrial/urban) or other Canterbury Regional Council officer with the same or similar technical

<p>cargo dust into air. The plan shall designate a person or persons who is or are directly responsible for the supervision of bulk cargo dust control and for carrying out of the actions specified in the plan. The name/names of such person/persons shall be provided to the Canterbury Regional Council.</p>	<p>expertise and qualifications. The plan shall be certified by the Team Leader or other Canterbury Regional Council officer as adequately setting out the specific actions to be taken in order to comply with Condition 1 of this permit.</p> <p>(b) The plan may be amended or revised during the period of this consent as appropriate to reflect improvements or changes to the available best practicable option. Any such amendment shall be submitted for certification by the Team Leader Compliance Monitoring (Industrial/urban) or other Canterbury Regional Council officer with the same or similar technical expertise and qualifications as meeting the requirements of 3(a) above, as applicable.</p>
<p>No existing condition.</p>	<p>4. All discharges to air to which this consent relates shall, from 2 months after the commencement of the condition, comply with the latest version management plan that has been provided to the Canterbury Regional Council and has been certified in accordance with 3(a) and/or 3(b) above.</p>
<p>No existing condition.</p>	<p>5. A person or persons who is or are directly responsible for the supervision of bulk cargo dust control and for carrying out of the actions specified in the plan shall be designated for each shipment and the name/names of such person/persons shall be provided to the Canterbury Regional Council prior to bulk cargo handling commencing.</p>
<p>(4) The Canterbury Regional Council may annually, on the last working day of May, serve notice of its intention to review the conditions of this permit for the purposes of:</p> <ul style="list-style-type: none"> (a) dealing with any adverse effect on the environment which may arise from the exercise of the permit; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; <p>or</p>	<p>Retain this condition.</p>

(c) complying with the requirements of a relevant rule in an operative regional plan.	
(5) Charges set in accordance with section 36 of the Resource Management Act 1991, shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.	Delete – no longer needed
(6) The lapsing provisions of section 125 of the Resource Management Act 1991 shall have no application until the expiry of 10 years from the date of commencement of this permit.	Delete – no longer needed

ASSESSMENT OF ACTUAL OR POTENTIAL EFFECTS

20. In accordance with section 127 of the RMA the assessment of effects is limited to the actual or potential effects as a result of the condition changes.

Dust Effects

21. LPC have proposed new consent conditions designed to avoid nuisance effects on Lyttelton township as a result of dust/particulate discharges from bulk cargo unloading. The key changes proposed to address this effect are:
- The requirement to avoid any offensive or objectionable dust/particulate effects from bulk cargo handling. This is more stringent than the existing condition which only requires the consent holder to undertake the best practicable option to *minimise* dust effects, rather than avoid them.
 - A modified management plan which outlines the procedures to be followed to ensure that the consent conditions are complied with. The procedures include:
 - a requirement to stop operations if objectionable or offensive effects are likely (i.e *before* nuisance effects occur).
 - an assessment as to whether operations should stop when wind conditions exceed 13 m/s.
 - measures to be undertaken to minimise the risk of dust entering the coastal marine area.
 - A provision to allow for modification of the management plan to take into account improvements or changes in best practice to minimise adverse effects.
22. The proposed conditions are more stringent than the existing conditions in that they require adverse dust effects to be avoided rather than minimised. The modified procedures represent a shift towards identifying when adverse effects are likely to occur and stopping operations before they occur, rather than stopping operations at a later stage when adverse effects are already occurring.
23. Given that the proposed conditions are more stringent, and include detailed procedures to try and avoid any adverse effects occurring, I consider that there will be no adverse effects as a result of the change of conditions, and that any effects of the changes are likely to be positive.

Effects on water quality

24. Two submitters expressed concern about the potential for dust discharges from the cargo unloading to enter the surrounding coastal marine area.
25. I note that any discharge of dust and washdown water directly from the wharf area is beyond the scope of this consent, and is covered under resource consent CRC960557¹. However any discharge of dust to air during bulk cargo unloading, which then drops into the coastal water is within the scope of this consent

¹ CRC960557 authorises the discharge of wharf stormwater and washwater containing bulk cargo dust into coastal water at Lyttelton Harbour.

application.

26. LPC provided an assessment of this effect in response to submitters concerns. They advise that it is not possible to accurately quantify potential deposition rates of dust on coastal water. They note that the emission rate of particulate matter will vary greatly according to the nature of the product and weather conditions at the time of unloading. Their own visual observations suggest that amounts of dust entering the water are negligible. Given the difficulties in quantifying or monitoring dust entering the water, they suggest that it is more appropriate to focus on implementing good practice dust controls to minimise the discharge to coastal waters.
27. After considering the concerns of submitters LPC added procedures to the management plan to minimise this risk. These measures include the use of baffled hoppers and screens, regular wharf cleaning, and ensuring decks of trucks and tailgates are tight, and loads well covered.
28. This is a difficult effect to assess, and water quality monitoring is not considered practical given the size of the receiving environment. Environment Canterbury has received some complaints about dust blowing into the harbour as a result of bulk cargo unloading. However the complaints are infrequent, and appear to have reduced in recent years. There are no known instances of adverse effects on coastal water quality as a result of dust from bulk cargo unloading.
29. Therefore while it is acknowledged that dust may enter the water on some occasions, we are not aware of it being a significant issue. Given this, I consider that the measures proposed by LPC are a reasonable precaution to take, and I do not consider that any additional mitigation measures are necessary at this time. If this effect proves to be greater than anticipated LPC would have the option of addressing the issue further, and Environment Canterbury could consider a review of the consent conditions.

PLANS AND POLICY STATEMENTS

30. Section 127 of the Act requires Section 104 matters to be considered for consent condition reviews. Matters to be considered under Section 104 include any relevant regional policy statements, any relevant objectives, policies, rules or other provisions of a plan or proposed plan, and any other matters the consent authority considers relevant and reasonably necessary to determine the application.

Regional Policy Statement

Chapter 9 Water

31. Chapter 9 deals with water, including water quality issues. Issue 3 recognises the potential for the discharge of contaminants to adversely affect coastal waters, and associated policies require the setting of water quality standards in plans and resource consents. Water quality standards in the Regional Coastal Environment Plan are discussed later in this report.
32. Chapter 11 of the Regional Policy Statement deals with the Coastal Environment. The relevant objectives and policies seek to protect and enhance the coastal environment while still providing for appropriate use and development. The proposed condition changes are consistent with these objectives and policies in that they aim to mitigate potential adverse effects from bulk cargo unloading, while still allowing port operations to continue.
33. Chapter 12 deals with settlement and the built environment. Objective 2 and Policy 4

recognise the importance of the sustainable management of a number of resources in the region, including the Port of Lyttelton.

34. Chapter 13 addresses air quality issues, including adverse effects from localised discharges of contaminants into air. Objectives and policies in this chapter aim to avoid, remedy or mitigate adverse effects on people, including effects from dust discharges.
35. The main aim of the proposed condition changes is to address the potential for dust effects beyond the port property boundary. This is consistent with the objectives and policies in Chapter 13.

The New Zealand Coastal Policy Statement

36. The New Zealand Coastal Policy Statement was taken into account when the original consent was granted. It was considered that the activities at Lyttelton Port were consistent with Principles 1 and 2 of the New Zealand Coastal Policy Statement which recognised that some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the *'social, economic and cultural well-being of people and communities'*, and that *'functionally, certain activities can only be located on the coast in the coastal marine area.'*
37. A number of policies were also considered, and while it was acknowledged that some adverse effects could occur as a result of the discharges to air, the decision makers were satisfied that appropriate mitigation measures could be implemented to ensure that the activity was still consistent with the New Zealand Coastal Policy Statement.
38. Given that the proposed changes aim to improve on existing conditions, I consider that the proposed changes are consistent with the relevant principles and policies of the New Zealand Coastal Policy Statement.

Proposed Canterbury Natural Resources Regional Plan (NRRP)

39. Chapter 3 of the NRRP sets out policies and objectives relating to air.
40. Objective AQL1 states that localised discharges of contaminants to air should not result in significant adverse effects on the environment.
41. Policy AQL6 aims to avoid dust nuisance. This is to be done by location away from sensitive areas, promotion of best practicable options, and avoiding encroachment of sensitive activities on existing activities discharging dust into air. Given that the site is zoned for Port use it is consistent with this policy.
42. Proposed condition <1> requires that the discharge not cause offensive or objectionable dust effects beyond the port property boundary. This is consistent with Objective AQL1 and Policy AQL6.

The Regional Coastal Environment Plan

43. The Regional Coastal Environment Plan (RCEP) was made operative on 30 November 2005. The plan acknowledges the importance of Lyttelton Port as the principal commercial port in the region and recognises the need to provide for the operations and the development of the Port.
44. Chapter 4 deals with Tangata Whenua and the Coastal Environment. Specific concerns of Ngai Tahu are recognised, including effects on water quality and mahinga kai. Concerns about the effects on coastal water quality were taken into

account by LPC and the management plan includes procedures to minimise the risk of contaminants entering the coastal water.

45. Some areas of particular value to Tangata Whenua are identified in Schedules 1, 2 and 3 of the RCEP. Lyttelton Port is not identified in the plan as an area of particular value to Tangata Whenua.
46. Chapter 6 covers the Natural Character and Appropriate Use of the Coastal Environment. Areas of significant natural in the plan. Lyttelton Port is not recognised in the plan as an area of significant natural value, or an area of high natural, physical, heritage or cultural value.
47. Objective 6.3 and associated policy 6.4 note that the RMA provides for physical resources as well as natural resources, and recognise the need to protect commercial ports to allow them to function.
48. Chapter 7 of the RCEP addresses water quality issues in the Coastal Marine Area. It recognises that the coastal waters are the receiving environment for a number of activities, including *'contaminants from loading and discharge of cargoes and from other industrial activities in the ports of Lyttelton and Timaru'*.
49. Objective 7.1 aims to *'enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the quality of water in the Coastal Marine Area.'* Policy 7.2 establishes water quality classes for different parts of the CMA, and classifies the operation Areas of the Port of Lyttelton as water managed for the maintenance of aquatic ecosystems (Class Coastal AE Water). The operational Area of the Port is excluded from most of the water quality standards for Class Coastal AE Water. The standard states that *'in the Operational Area of the Port, there shall be no significant adverse effects on aquatic life or any significant loss of indigenous biological diversity'*.
50. LPC have proposed measures to minimise the risk of contaminants entering the coastal water, and this aim is considered to be consistent with the relevant objectives and policies in Chapters 4 and 7 of the RCEP.

National Environmental Standards (NES)

51. The Ministry for the Environment (MfE) has instigated a process of improving New Zealand's air quality. The process requires that, by 2013, the concentration of a number of air quality parameters must be below certain stated maximums. S17(1)(a) of the regulation states that Regulations 17A to 17C apply if *"the concentration of PM₁₀ in the airshed already breaches its ambient air quality standard;"*
52. Given that the proposed discharge is not into such an airshed, NES Regulations 17A to 17C do not apply.

PART II OF THE ACT

53. Under sections 127 and 104(1) of the Act, the consent authority must consider applications to change consent conditions *"subject to Part II"* of the Act.

Section 5 - The Purpose of the Act

54. The purpose of the Act is to "promote the sustainable management of natural and physical resources."
55. Under Section 5(2) of the Act "sustainable management" means *"managing the use, development, and protection of natural resources in a way or at a rate, which enables*

people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) Safeguarding the life supporting capacity of air, water, soil and ecosystems; and*
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.”*

56. The proposed condition changes are considered to be consistent with the purpose of the Act, particularly section 5 (c).

Section 6 - Matters of National Importance

57. The consent authority is directed to **recognise and provide for** a number of matters set out in Section 6 of the Act including:

- (a) the preservation of the natural character of the coastal environment (including the coastal marine areas, wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development; and*
- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*

58. Mitigation measures are proposed to minimise the effects on the coastal marine area, and therefore the proposed condition changes are not inconsistent with Section 6 of the RMA. Matters pertaining to section 6(e) of the Act are discussed below.

Section 7 - Other Matters

59. The consent authority is directed to **have particular regard** to a range of matters set out in Section 7 of the Act, including 7 (f) '*maintenance and enhancement of the quality of the environment*'.

60. Given that the proposed condition changes aim to avoid adverse effects on air and water quality they are considered to be consistent with Section 7.

Section 8 - Principles of the Treaty of Waitangi (te Tiriti o Waitangi)

61. Section 8 of the Act requires the consent authority to **take into account** the principles of the Treaty of Waitangi (te Tiriti o Waitangi). Te Whakatau Kaupapa (Tau *et al.*, 1990) is the Ngai Tahu resource management strategy for the Canterbury region. This document has been referred to and the area of the proposed discharge does not occur within a silent file area, nor does it occur in the proximity of the location of an identified site of historical significance.

62. The principles of the Treaty of Waitangi form the basis of developing a relationship of partnership and communication. Accordingly, Te Hapu o Ngati Wheke Rapaki Runanga and Te Runanga o Ngai Tahu were notified directly about this consent review. Te Hapu o Ngati Wheke Rapaki Runanga made a submission in support of the proposed condition changes, but did request that effects on the coastal waters be taken into account. LPC amended their procedures in response and provided an assessment of the effect on coastal waters.

RECOMMENDATION

Recommendation to Grant or decline

63. Under Section 105 1(b) of the RMA the Council may grant or refuse a consent for a **discretionary** activity, and (if granted) may impose conditions under Section 108. There are no restrictions under Section 105 for discretionary activities.
64. The proposed conditions were developed after consultation with ECan Compliance and Enforcement staff. The condition changes adequately address the concerns staff had in relation to previous incidents where dust from bulk cargo unloading caused adverse effects in the township. We are satisfied that the Draft Environmental Control Procedures represent best known practice at this time to minimise dust effects, and there is provision for the procedures to be updated in the future to take into account changes in best practice.
65. The proposed condition changes are considered to be an improvement on existing conditions in that they seek to identify where adverse effects are likely to occur, and put procedures in place to ensure that the activity ceases before such effects actually occur. Therefore it is recommended that the application be granted with the condition changes as proposed by Lyttelton Port Company (attached).

Consent Duration

66. The consent duration cannot be changed for an application to change consent conditions.

RECOMMENDED CONDITIONS

1. At all times suspended or deposited particulate matter from bulk cargo handling shall not cause an objectionable or offensive effect beyond the property boundary shown on the attached plan CRC960556.1 (LPC C-A3-3764 A).
2. In addition to condition 1 the consent holder shall adopt all practicable measures to ensure compliance with condition (1). Without limitation these shall include where appropriate:
 - (i) The use of water sprays to dampen bulk cargo;
 - (ii) The use of baffled hoppers;
 - (iii) The use of suction sweepers to clean the wharf area;
 - (iv) Minimising cargo handling and transfer distance;
 - (v) Covering trucks carrying bulk cargo;
 - (vi) Visual monitoring for dust effects within Lyttelton township
 - (vii) Regular assessment of wind conditions.
3. (a) Within two months of the commencement of this consent, the consent holder shall submit a management plan for the control of bulk cargo dust to the Environment Canterbury Team Leader Compliance Monitoring (Industrial/urban) or other Canterbury Regional Council officer with the same or similar technical expertise and qualifications. The plan shall be certified by the Team Leader or other Canterbury Regional Council officer as adequately setting out the specific actions to be taken in order to comply with Condition 1 of this permit.

(b) The plan may be amended or revised during the period of this consent as appropriate to reflect improvements or changes to the available best practicable option. Any such amendment shall be submitted for certification by the Team Leader Compliance Monitoring (Industrial/urban) or other Canterbury Regional Council officer with the same or similar technical expertise and qualifications as meeting the requirements of 3(a) above, as applicable.
4. All discharges to air to which this consent relates shall, from two months after the commencement of the condition, comply with the latest version management plan that has been provided to the Canterbury Regional Council and has been certified in accordance with 3(a) and/or 3(b) above.
5. A person or persons who is or are directly responsible for the supervision of bulk cargo dust control and for carrying out of the actions specified in the plan shall be designated for each shipment and the name/names of such person/persons shall be provided to the Canterbury Regional Council prior to bulk cargo handling commencing.
6. The Canterbury Regional Council may annually, on the last working day of May, serve notice of its intention to review the conditions of this permit for the purposes of:
 - (a) dealing with any adverse effect on the environment which may arise from the exercise of the permit; or
 - (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or
 - (c) complying with the requirements of a relevant rule in an operative regional plan.

REFERENCES:

Tau, Te M., Goodall, A., Palmer, D. & Tau R., 1990. *Te Whakatau Kaupapa – Ngai Tahu Resource Management Strategy for the Canterbury Region*. Aoraki Press, Wellington, New Zealand. 78p.

- 1) The duration of this permit shall be 35 years.
- 2) The best practicable option shall be adopted by the consent holder to minimise the amount of bulk cargo dust discharged into the air from the transfer of bulk cargo materials between the ship and the wharf and/or land based transport, including undertaking the following measures:
 - (a) The use of water sprays to dampen bulk cargo where appropriate;
 - (b) The use of suction sweepers to clean the wharf area;
 - (c) Minimising cargo handling and transfer distance insofar as is reasonably practicable;
 - (d) Covering trucks carrying bulk cargo where appropriate;
 - (e) The unloading of Nauru phosphate shall only be undertaken when the wind velocity (as measured at the existing weather station on the Lyttelton Port Company signal tower) is less than thirteen metres per second (m/s).
- 3) Prior to exercising this permit, the consent holder shall prepare a management plan for the control of bulk cargo dust. Such plan shall be provided to the Canterbury Regional Council. The plan shall detail the specific actions to be taken in order to comply with Condition 2 of this permit and to minimise the discharge of bulk cargo dust into air. The plan shall designate a person or persons who is or are directly responsible for the supervision of bulk cargo dust control and for carrying out of the actions specified in the plan. The name/names of such person/persons shall be provided to the Canterbury Regional Council."
- 4) The Canterbury Regional Council may annually, on the last working day of May, serve notice of its intention to review the conditions of this permit for the purposes of:
 - (a) dealing with any adverse effect on the environment which may arise from the exercise of the permit; or
 - (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or
 - (c) complying with the requirements of a relevant rule in an operative regional plan.
- 5) Charges set in accordance with section 36 of the Resource Management Act 1991, shall be paid to the Canterbury Regional Council for the carrying out of its functions in relation to the administration, monitoring and supervision of resource consents and for the carrying out of its functions under section 35 of the Act.
- 6) The lapsing provisions of section 125 of the Resource Management Act 1991 shall have no application until the expiry of 10 years from the date of commencement of this permit.

APPENDIX 2 ENVIRONMENTAL CONTROL PROCEDURES (DRAFT)

APPENDIX 3

SITE PLAN OF THE INNER HARBOUR



Resource and Environmental
Management Ltd

INVESTIGATING OFFICER REPORT FOR ENVIRONMENT CANTERBURY

APPLICATION FOR DISCHARGE OF STORMWATER TO LAND AT WEEDONS

CRC052882

DIGGALINK LIMITED

IN THE MATTER of the Resource
Management Act 1991

AND Resource Consent Application
CRC052882 for Diggalink Ltd

Prepared by:

Miles Rowe

Consultant Planner

Resource and Environmental Management Limited

For:

Regulatory Hearings Committee

Environment Canterbury

19 January 2006

1 INTRODUCTION

Resource and Environmental Management Limited has been engaged by the Environment Canterbury to prepare this Investigating Officer Report in accordance with section 42A of the Resource Management Act 1991 (RMA).

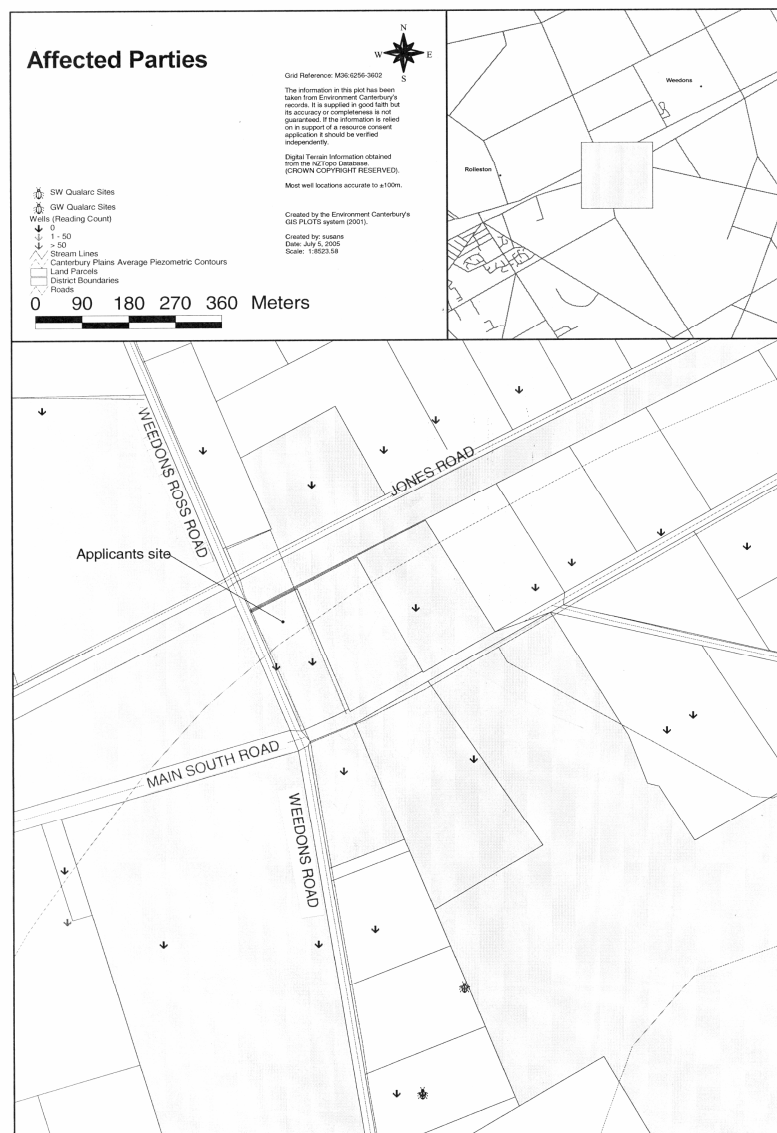
This application is to be decided by the Regulatory Hearings Committee as several submissions had been received, but a hearing of the application is not required.

1.1 Application Proposal

Diggalink Ltd (the “Applicant”) has applied for a resource consent to discharge stormwater to land from hardstanding areas, including buildings, roading and driveway areas associated with the proposed development of a machinery hire, sales and spares business. Glasson Potts Fowler Limited (GPF) has prepared the application and assessment of environmental effects (AEE) for this proposal.

The site is located on property on the northeastern corner of Weedons Ross Road and State Highway 1, as shown on Figure 1. The site is near the small settlement of Weedons, approximately midway between Templeton and Rolleston.

Figure 1: Application Site



To the north of the site is the Main South Railway Line. There are two stock water races bordering the site that flow in a southeast direction before being piped to the south beneath SH 1. The site is generally flat but a fossil fluvial gully several metres deep bisects the site. This gully only carries runoff during storm events. The site is currently used for sheep grazing. There is an existing shed on the site, which is intended to be used for the proposed activity. The surrounding environment consists mostly of pastoral farming, with a landscape supply business on the adjoining site.

1.1.1 Stormwater System

The applicant proposes to develop a site stormwater system associated with a machinery hire, sales and spares business. The site stormwater system is divided into three parts, each with its own treatment and discharge system.

- Roof stormwater from the existing shed and two proposed buildings, covering an area of approximately 1045m², is to be discharge to ground via traditional soakage chamber, which consists of a cavity lined with filter fabric and back filled with gravel.
- Light vehicle public driveway and carpark, covering an area of approximately 938m², is to be discharged to a planted rain garden. The rain garden will cover an area of approximately 800m² and be constructed in a one-metre deep trench, lined with filter fabric on the side walls and backfilled with screened soil and covered with a layer of mulch.
- Heavy equipment driveway, parking, refuelling and storage area will be directed to a *Humeceptor STC3* oil and sediment trap before discharging to an adjacent soakage swale basin. The *Humeceptor STC3* has a total holding capacity of 3410 litres and is able to trap 1020 litres of oil and 1930 litres of sediment. The 6m wide and 40m long soakage swale basin will be planted with grass and have a volume of 80m³.

It is noted that the Applicant originally proposed an API separator and bypass sump for the heavy equipment area, which would have resulted in the stormwater during the first-flush being treated through the API separator and all stormwater above the first-flush being discharged directly to the swale basin via the bypass sump. The Applicant has replaced the API separator and bypass sump with the *Humeceptor STC3* stormwater system, which has sufficient capacity to treat all stormwater from the heavy equipment area.

Runoff exceeding the capacity of the rain garden and swale basin is to be directed over the grassed area adjacent to the treatment areas. This secondary flow path is the gully down the centre of the site, which joins with a swale beside SH 1 before passing through culvert beneath SH 1. No site stormwater is to be directed to the stock water races bordering the property.

Refuelling facility on the site will store up to 2000 litres of fuel. Oil and other contaminants may also be stored on the site. All hazardous substances are to be stored within bunded facilities where spills and ruptures can be fully contained.

Contaminants in the stormwater from the light vehicle and heavy equipments areas may consist of suspended sediments; total petroleum hydrocarbons (TPH) from fuels and oils associated with site operations; trace metals (e.g. zinc, lead, copper, chromium) from vehicles and roads; biochemical oxygen demand (BOD) from soil,

organic matter and plant detritus; nutrients such as nitrogen from vehicle exhausts; pathogens from faecal matter; and litter.

Suspended solids, TPH, and litter are likely to be the main contaminants, with the other potential contaminants only consisting in trace concentrations.

1.2 Consent Sought & Submissions

A full description of the consent sought is:

CRC052882 - to discharge contaminants into land in circumstances, which may result in these contaminants (or any others contaminants emanating as a result of natural processes from that contaminant) entering water. The discharge is storm water runoff from proposed driveways, parking, a refuelling area, machinery storage area and roofs at a proposed machinery hire, sales and spares business. The site is located at the corner of Weedons Ross Road and State Highway One (SH1), Weedons, at or about map reference NZMS 260 M36: 6235-3622. The discharge may include contaminants such as suspended sediment, heavy metals, nutrients, hydrocarbons, micro-organisms and toxic organics.

The applicant has requested a consent duration of 35 years. The Applicant has also sought a land use consent from Selwyn District Council for activities on the site.

The Applicant has consulted with six of the neighbouring property owners and was able to obtain written approval from three of them. The Applicant and Council staff agreed that the effects of the activity would be no more than minor. However, as the applicant was unable to obtain the written approval of all potentially affected landowners, notice of the application has been served on the affected parties (limited notification). The potentially affected landowners are: A & C Ryan; G & K Price; G & J Doyle; L & C Manion; and W & F Fletcher. Transit NZ were also considered affected and served notice, as the administrators of the culvert under SH 1

Two submissions were received in opposition to the proposal from G & K Price and L & C Manion, with the latter requesting to be heard at a hearing.

Issues raised by submitters were:

- Increased levels of contaminants, with the refuelling and parking areas of particular concern (G & K Price)
- Concern in infilling of the gully through the centre of the property. All stormwater channels and gully should be retained or piped prior to any infilling (L & C Manion).

The issues raised by L & C Manion, relating to the filling of the gully on the property are beyond of the scope of the discharge permit sought from Environment Canterbury. However, the Applicant has negotiated with the submitter on this matter and infilling of the gully and associated effects are to be addressed on the consent sought from Selwyn District Council. As a result, Mr Manion has withdrawn his request to be heard and a hearing of the application is not required.

2 STATUS OF THE APPLICATIONS, MATTERS TO BE CONSIDERED AND DECISIONS ON APPLICATIONS

2.1 Status of the Applications

Section 15 of the RMA prohibits the discharge of contaminants or water into water or the discharge of contaminants into land (in circumstances which may result in that contaminant entering water), unless allowed by a rule in a regional plan, proposed regional plan, a resource consent, or regulations.

Chapter 4 (Water Quality) of the PNRRP was notified on 3 June 2004 and submissions have been received, including submissions on the chapter rules. Therefore, the chapter and rules are not yet operative due to the early stage of the Plan's development. However, Rule WQL 57 *Discharge of a contaminant onto or into land* is 'effective' in terms of the proposed discharge to land being treated as a discretionary activity under.

A discretionary activity is to be decided in accordance with section 104B of the RMA. That is, the consent may be granted or refused by the Council and, if granted, may impose conditions under section 108.

2.2 Matters to be Considered on Resource Consent Applications

In respect of an application for a discharge permit, section 105 of the RMA requires that the Consent Authority must have regard to the nature of the discharge and the sensitivity of the receiving environment to adverse effects; the applicant's reasons for the proposed choice; and any possible alternative methods of discharge, including discharge into any other receiving environment.

The nature of the discharge and the sensitivity of the receiving environment to adverse effects are discussed in more detail in section 5 of this report, but in summary, the effects of the proposed activity can be managed such that its adverse effects on groundwater quality are avoided, remedied or mitigated to the greatest extent practicable.

The construction of buildings and hardstand surfaces creates the need for stormwater to be discharged from those surfaces. The site does not have a reticulated stormwater system and the Applicant's proposed choice to discharge stormwater to land via infiltration is the best option available to treat and dispose of the stormwater. An alternative option would have been to discharge all stormwater to overland flow via the natural gully running through the site. Runoff from this gully passes through a culvert under the Main South Road. However, direct discharge into this gully is only likely to transfer the stormwater problem onto neighbouring (downstream) sites.

3 PURPOSE AND PRINCIPLES OF THE RESOURCE MANAGEMENT ACT 1991(SECTIONS 5, 6, 7 & 8 OF THE RMA)

Section 5 of the RMA defines the purpose of this Act, namely the promotion of sustainable management of natural and physical resources; and defines the term "sustainable management". The method of applying section 5 involves an overall broad judgement of whether a proposal would promote the sustainable management of natural and physical resources. This recognises that the Act has a single purpose. Such an approach allows for the comparison of conflicting considerations, the scale or degree of them, and also their relative significance or proportion in the final outcome.

Section 6 of the RMA relates to matters of national importance, which must be recognised and provided for by the Council to manage the use, development and protection of natural and physical resources. I am of the opinion that there are no matters of national importance that need to be considered for this application.

Section 7 of the RMA specifies matters to which the Council shall have particular regard to in managing the use, development, and protection of natural and physical resources. The provisions of section 7 that are particularly relevant to this application include:

7(b) The efficient **use and development of natural and physical resources:**

7(f) Maintenance and enhancement of the **quality of the environment.**

A proposal may provide an efficient use of a resource if it enables people to provide for their social and economic well-being, but only to the extent that it:

- i. Does not impair the social well-being and health of other people and the community;
- ii. Avoids, remedies, or mitigates adverse effects on the environment; and
- iii. Maintains and enhances amenity values and the quality of the environment.

The treatment and mitigation measures proposed in the application should maintain the quality of the environment; and avoid, remedy or mitigate adverse effects on the environment. In particular, the proposal should not result in any significant effects on the surround land or groundwater quality that are greater than for the existing land use.

Section 8 of the RMA requires that the principles of the Treaty of Waitangi to be taken into account by the Consent Authority. The application area does not involve any Statutory Acknowledgement areas. Details of the application were sent to the Iwi authority and no issues were raised.

4 POLICY AND PLANNING PROVISIONS

4.1 Regional Policy Statement for Canterbury Regional Council (RPS)

The RPS became operative on 26 June 1998. Of particular relevance to this application are the issues, objective and policies contained within Chapter 9 relating to water. Many of these objectives and policies are aimed at surface water rather than groundwater and addressing the effects from the depletion of water, such as water takes. Therefore, many of the objectives and policies are not relevant to this proposal.

Objective 3

Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the water quality in Canterbury's water bodies and coastal waters, while:

(a) safeguarding the existing value of water bodies for efficiently providing sources of drinking water for people;

The proposed site is located approximately 6 km southwest of the Christchurch groundwater recharge zone. Eleven groundwater bores are located within 500m of the site, for commercial, domestic and agricultural uses. The top of the screen for these bores are located at around 48 to 54m below ground level. The effect of the discharge on potable water supplies should be minor based on the proposed level of treatment and volume of discharge.

Policy 9

To manage point and non-point source discharge and set water quality conditions and standards and terms in plans, and conditions on resource consents, that achieve (a) to (h) of Objective 3. Adverse effects of discharges on existing water quality should be avoided, remedied or mitigated and, where appropriate, degraded water quality should be enhanced.

The type of treatment proposed in the application, along with recommended conditions attached to this report, is consistent with Policy 9.

Policy 12

Activities which could result in a release of hazardous substances should not be located in areas where water resources are vulnerable to contamination unless adequate precautionary measures are implemented to avoid that contamination.

The storage and use fuels and oil, including the refuelling station in the heavy equipment area will be contained within a bunded facility

Policy 13

Where numerical or narrative water quality standards for a contaminant have not been specified for a water body or coastal water, the granting of a consent for point source discharges of the contaminant into the water body or the coastal water should not preclude existing reasonable uses of the water body or the coastal water.

The potential adverse effects of these activities on groundwater quality are expected to be minor provided the applicant adheres to the recommended conditions (attached). It is considered that the effect of the discharge on groundwater quality will not preclude any existing uses from occurring.

Overall, the proposal is consistent with the objectives and policies relating to water in the RPS.

4.2 Proposed Canterbury Natural Resources Regional Plan (PNRRP)

As noted previously, Chapter 4 (Water Quality) of the Proposed Canterbury Natural Resources Regional Plan is still in an early stage of development and cannot be treated as operative. Consideration should be given to the provisions of the Plan but it should not be given much weighting at this time.

Policy WQL6 deals with point source discharges onto or into land which affect soil or groundwater quality. The relevant parts of Policy WQL6 are reproduced below.

(1) A point source discharge of a contaminant onto or into land is to be managed as follows:

(a) before allowing a point source discharge of a contaminant onto or into land where a contaminant may enter groundwater, ensure that:

- (i) measures are or will be applied to avoid the production of the contaminant, or to reuse, recover, and recycle materials to minimize the volume and concentration of the contaminant in the discharge; and*
- (ii) the discharge to an existing waste treatment and discharge system, or network is not a practical alternative; and*

(b) if, after the application of Policy WQL6(1), a point source discharge onto or into land is to be authorised, the discharge shall be applied in a way and at a rate that:

(i) does not exceed the infiltration capacity of the soil or subsoil at the site of the discharge; and

(ii) does not exceed the capacity of physical properties, or chemical and biological processes in the soil or subsoil, to reduce the contaminant concentration in the soil drainage water and to minimise the concentration of any contaminant entering groundwater; and

(iii) will not result in the accumulation of a contaminant in the soil which will limit the future use of the land.

5 ACTUAL AND POTENTIAL EFFECTS

5.1 Stormwater Contaminants

The applicant has provided a brief assessment of the effects of the contaminants in the discharge, based on several guideline documents. The types of contaminants expected to be present in the stormwater discharge are:

- **Suspended Solids** from soil, organic particles, and breakdown of products of the built environment. Not a significant contaminant of groundwater but can clog treatment devices. It is also common for other contaminants (for example, many species of heavy metals) to become associated with sediments by adsorption. In such a situation, removing or reducing sediment loads has the effect of reducing other contaminants in the discharge.
- **Total Petroleum Hydrocarbons** typically derived from vehicle traffic (particularly oil leaks) and plant operation, and accidental spillages. In small leaks and spills, the volatile fraction of the hydrocarbon will be removed naturally via evaporation into the atmosphere. They may also be adsorbed to sediments. Low levels of contamination can taint potable water.
- **Trace Metals**, including zinc, lead, copper, and chromium, mainly from vehicle exhaust emissions, brake linings, tyre wear and galvanised roof cladding. Metals are persistent and accumulate in sediment. Can cause public health issues in elevated levels.
- **Biochemical Oxygen Demand** from particulate organic matter such as decaying vegetation, soil matter and microbial growths, as well as bitumen, oil and tyre rubber.
- **Nutrients** such as nitrogen (dissolved NO_x from vehicle exhausts and animal faeces) and phosphorus (fertilisers and organic decay). Elevated nitrogen levels in groundwater are a significant health issue.
- **Bacterial Pollution**, including pathogen, from animal faeces. Some bacteria die-off would be expected from exposure to UV light (sunlight).
- **Litter** which may impact on visual and amenity values but has little or no effect on groundwater.

The table below details the expected annual contaminant loadings (kg/yr) for industrial development on the site, with a comparison to the expected annual contaminant loadings from the existing rural land use.

Contaminant	Industrial Development	Existing Use
Sediments	46	Low
Petroleum Hydrocarbons	0.7	NA
Heavy metals		
Zinc	0.56	0.05 – 0.45
Copper	0.07	0.05 – 0.11
Lead	0.1	0.01 – 0.04
BOD	10	NA
Nutrients		
Total Nitrogen	3	3 – 19
Total Phosphorus	0.36	0.03 – 0.67

The table shows that the proposal will mobilise sediment and is likely to increase the loadings of some contaminants, but is unlikely to result in any significant contaminant concentrations, especially when compared to the typical rural situation.

5.2 Effects on Groundwater and Contamination of Soil

Site stormwater is divided into three components, each with a separate treatment and disposal system. These three components of the treatment were described in Section 1.1.1.

Roof Stormwater will only contain a very low level of contamination and its discharge to a traditional soakage chamber should be more than adequate to deal with the discharge.

Light vehicle driveway and carpark stormwater will contain minor levels of contaminants and will be directed to a rain garden, with treatment provided by filtration through the soil medium, together with bio-retention provided by the plants and organic / mulch layer. The secondary flowpath for overflow is the natural gully on the site.

The ability for filtration from the rain garden, covering about 800m², is approximately 81m³/day of stormwater, which is almost the volume of stormwater generated by a 10-year average return interval 72-hour rainfall event. Therefore, overflow runoff to the secondary flowpath is expected to occur very infrequently. The overflow from these long duration events would eventually reach the culvert beneath the Main South Road and while the volume would be large but the discharge rate would be low (as opposed to shorter duration events of lower volume but higher peak discharge) and the downstream effects is unlikely to be significantly different from the existing undeveloped land.

The Applicant has proposed a maintenance programme for the rain garden, including maintaining the vegetation in a healthy and uniform state, digging over of soil to prevent surface clogging, the removal of accumulated sediment (>30mm depth), and periodically replacing garden mulch. This maintenance programme is reflected in the recommended conditions attached to this report. In addition, the conditions (agreed to by the Applicant) require 5-yearly sampling of soil from the rain garden for a range of trace metals, with the removal and replacement of soil exceeding specified contaminant concentrations.

Heavy equipment stormwater (driveway, parking, refuelling/storage) is expected to contain the highest levels of contamination due to the activities that will take place in this area. The primary treatment will involve a *Humeceptor STC3* oil and sediment

separator, with secondary treatment and discharge to a soakage swale basin. Overflow runoff is to the natural gully on the site, as for the light vehicle area.

The *Humeceptor* system has greater capacity and performance than the API oil/water separator that was originally proposed. An API separator only captures hydrocarbons but the *Humeceptor* operates like a large sump, where it reduces the velocity causing suspended sediment to settle to the floor of the chamber, while hydrocarbons rise to the surface and become trapped above the level of the decant outlet.

The API separator was intended to only deal with the first-flush from the heavy equipment area, therefore, flows above 2.5 litres per second would bypass the system. However, with the *Humeceptor* system, all stormwater passes through the treatment train. At input flows of up to 18 litres per second, the *Humeceptor STC3* is reported to be able to settle 75% of suspended solids and trap 98% of hydrocarbons. High flows above 18 litres per second will begin to overtop the bypass weir but the system will continue to remove some suspended sediment and hydrocarbons. In addition, high flows will not cause re-entrainment of any of the trapped sediment or hydrocarbons.

After passing through the *Humeceptor*, the stormwater is discharge to the soakage swale basin with a capacity of 80m³. The volume of the soakage basin is sufficient to deal with the first flush of 25mm from 2333 m² of the heavy equipment area, with surplus capacity. The system design is based on a 10-year 6-hour duration critical storm event. This was used by the Applicant as it is the 'standard' duration storm used by Selwyn District Council in their subdivision consents.

The Applicant considers the effects of the proposed system on groundwater to be minor based on the following reasons:

- Groundwater takes in the area take their supply at depth (between 34 and 57 m bgl). The substantial overlying beds of clay rich gravels clearly provide substantial natural protection even if percolation was to percolate straight down the site;
- The use of swale/infiltration trench, rain garden, oil/sediment separator (*Humeceptor*) and swale basin are all-proven technologies for stormwater treatment;
- All potential stormwater methods adopted are designed for replaceable filtration media to minimise the migration of contaminant into the highly permeable gravels of the site.

Bore logs from the site and surrounding bores show strata containing gravels, sands and clay bound gravel but other than one of the bore logs on the Applicant's site, it is not known if there are substantial confining beds or that semi-confining beds are continuous over the area. Nevertheless, the depth to the screens on the surrounding bores and low concentration of contaminants in the discharge are mitigating factors.

The Applicant has not provided any background data as to the quality of groundwater in the area but it is noted that a qualarc site exists 700m SSE of the site with nitrate-nitrogen levels of between 5.7 to 7 mg/L. However, the proposed activities on the site have a low predicted concentration of nutrients in the discharge and this should have a resulting minimal effect on groundwater quality. In addition, some nutrients will be taken up by plants in the rain garden, soakage basin and overland flow area.

The proposed activities on the site have a low predicted concentration of bacterial contamination in the discharge. Some bacteria will die off with time, especially when

exposed to sunlight. The potential to contaminate potable water supplies is minimal, with a resulting very low risk to human health. This level of risk may in fact be less risk than that from the existing rural activities on the site.

The majority of hydrocarbons contaminants should be removed in the *Humeceptor*. Hydrocarbons and trace metals will also be adsorbed onto sediment particles, and their consequent settling in the *Humeceptor* or soakage basin. The conditions (agreed to by the Applicant) require regular inspection and removal of hydrocarbons and sediment from the *Humeceptor* and 5-yearly sampling of soil from the soakage basin for a range of trace metals, with the removal and replacement of soil exceeding specified contaminant concentrations. These measures will eliminate any long-term effects on land or groundwater contamination.

6 RECOMMENDED CONDITIONS

If consents are granted, section 108 of the RMA provides that a consent may be granted on any conditions that the consent authority considers appropriate.

The recommended conditions of consent are set out in **Schedule 1**, attached to this report. The Applicant has agreed to the conditions in Schedule 1 being imposed on the consent.

7 CONCLUSION AND RECOMMENDATION

The consent sought by the Applicant is a discretionary activities that may be granted or refused by a Consent Authority and if granted may impose conditions under section 108.

I consider that the application proposal is consistent with the relevant objectives, policies and other provisions contained within the Regional Policy Statement, Proposed Natural Resources Regional Plan and the Resource Management Act 1991.

Given the proposed treatment system and mitigation measures, it is concluded that the effects of the stormwater discharge to land, particularly effects on groundwater quality will be minor and that any such effects can be avoided, remedied, or mitigated by the recommended conditions, which have been accepted by the Applicant.

My recommendation is that the discharge permit (CRC052882) sought by Diggalink Ltd should be granted, subject to conditions recommended attached in Schedule 1 of this report, for a term of 35 years.



Miles Rowe

Date: 19 January 2006

Resource and Environmental Management Limited

8 SCHEDULES AND APPENDICES

Schedule 1: Recommended Conditions

Schedule 1: Recommended Conditions

Conditions for CRC052882

1. The discharge shall only be stormwater into the ground at numerous locations centred around map reference NZMS 260 M36: 623-361, within Pt Lot 1 DP 47768 Blk XV Rolleston SD, as shown on the concept plan (drawing no. 8395-07A) attached to this consent, from the hardstanding areas of the:
 - light vehicle driveway, carpark and paths;
 - heavy equipment area, including heavy vehicle driveway, parking, refuelling and storage area;
 - building roofs.

Note: The API separator and Bypass Sump shown on the concept plan (drawing no. 8395-07A) has been modified in the application to a Humeceptor STC3 (or equivalent) treatment system.

2. The site stormwater catchments, including the grass overflow areas, shall be designed so that no runoff enters the stock water races that border the site.
3. The light vehicle driveway, carpark and paths shall be designed such that the stormwater shall discharge to a planted rain garden, covering 800m² and constructed in a one metre deep trench of reworked native soil, and then into the ground after passing through a medium of sand and soil covered in bark, as shown on the plan "Raingarden" (drawing no. 8395-06A), attached to this consent.
4. The rain garden shall be inspected and maintained, including:
 - ensuring that the vegetation is in a healthy and uniform state;
 - digging over of soil, if required, to prevent surface clogging;
 - the removal of settled sediment in areas where it has accumulated to a depth of more than 30mm;
 - The replacing of garden mulch at intervals not exceeding 3 years.
5. Stormwater from the building roofs shall be directed by sealed downpipe system to ground soakage via a soakage pit, as shown on the plan "Roof Stormwater Soakpit" (drawing no. 8395-08A), attached to this consent.
6. The heavy equipment driveway, parking, refuelling and storage area shall be designed such that stormwater is treated through a *Humeceptor STC3* oil and sediment separator (or equivalent), with 3,410 litre total holding capacity, before discharge to a grass-covered swale soakage basin having a minimum capacity of 80m³.
7. The *Humeceptor STC3* (or equivalent) and sumps shall be inspected at least once every six months and any visible hydrocarbons, sediment and litter shall be removed.
8. The swale soakage basin shall be established in a continuous grass cover and regularly mowed to maintain a height of sward between 50 and 150 mm height. Grass shall be replanted where erosion or die-off has resulted in bare or patchy soil cover. All litter shall be removed immediately and disposed of in an appropriate facility.
9. Stormwater runoff in excess of the capacity of the stormwater systems under conditions 3 to 6 shall be directed to grass overland soakage areas beyond the rain garden and swale soakage basin within the undeveloped portion of the site, as shown as "overflow" on the concept plan (drawing no. 8395-07A) attached to this consent.

10. There shall be no refuelling, lubrication, mechanical repairs, or storage and use of fuel and other hazardous substances outside the stormwater collection catchment for the heavy equipment area.
11. All fuel and oil dispensers are to be fitted with non-return valves and contained within bunded facilities having sufficient capacity to contain the total volume of fuel and oil stored within the bunded facility.
12. In the event of a spillage of fuel or other contaminants, emergency response procedures shall be undertaken to prevent contaminants entering the stormwater system. Such measures shall include, but not be limited to, sealing off stormwater sumps, and soaking up liquid spills with absorbent material.
13. Notwithstanding Condition 12, the Consent Holder shall visually inspect the stormwater system (sumps, *Humeceptor STC3* and soakage swale basin) following a contaminant spill in excess of 10 litres into the stormwater system, and shall immediately remove any contaminants present. The Consent Holder shall inform Canterbury Regional Council within 24 hours of any such incident and shall provide the following information:
 - a. The date, time, location, and estimated volume of the spillage;
 - b. The cause of the spillage, details of the steps taken to control and remediate the effects of the spill on the receiving environment, and measures to be undertaken to prevent a reoccurrence.
14. The Consent Holder shall collect a representative sample the stormwater discharge as it exits the *Humeceptor STC3*, prior to entering the soakage swale basin, on at least one occasion every year when a discharge is occurring from the *Humeceptor STC3* (or equivalent). The stormwater sample shall be analysed for the following determinants for compliance with the corresponding concentration limits:

Determinant	Concentration Limit (milligrams per litre)
Total Suspended Solids	100
Total Petroleum Hydrocarbons	15

15. If any of the concentrations of the stormwater monitoring under Condition 14 are exceeded, the Consent Holder shall:
 - a. Notify Canterbury Regional Council immediately following receipt of the analytical results from the laboratory;
 - b. Implement all necessary measures to reduce the contaminant concentrations in the discharge;
 - c. Outline in writing to the Canterbury Regional Council, within one week of the receipt of the analytical results from the laboratory, the measures proposed to address and reduce any future exceedances and the timeframe in which this will occur.
16. At least once every five years, the Consent Holder shall collect two representative soil samples: a composite of soil and accumulated sediment from the bed of the rain garden; and a composite of soil and accumulated sediment from the lowest point of the swale soakage basin at a depth of between 0 – 30mm. The soil samples shall be analysed for the following determinants for compliance with the corresponding maximum soil

concentrations:

Determinant	Maximum Soil Concentration (milligrams per kilogram dry weight soil)
Total Lead	300
Total Chromium	600
Total Nickel	35
Total Copper	140
Total Zinc	300
Total Cadmium	3
Benzo(a)pyrene	5.7

17. If any of the concentrations of the soil monitoring under Condition 16 are exceeded, the Consent Holder shall:
 - a. Notify Canterbury Regional Council immediately following receipt of the of the analytical results from the laboratory;
 - b. Undertake further testing to determine the extent of the soil contamination (spatially and vertically) and remove any contaminated soil and accumulated sediment and replaced this with uncontaminated soil.
 - c. Provide a report to Canterbury Regional Council within one month of contaminated soil being removed under Condition 17.b, detailing:
 - i. the extent of the soil contamination;
 - ii. the volume of soil material removed and replaced;
 - iii. field testing during the removal of contaminated soil;
 - iv. any other site works required to meet the ongoing compliance of this consent, including the reestablishment of grass or plants over the replaced soil;
 - v. the measures proposed to address and reduce any future exceedances, including any additional stormwater treatment.
18. Within one week of the receipt of the analytical results from the laboratory of the stormwater and soil monitoring under Conditions 14 and 16, the Consent Holder shall provide to Canterbury Regional Council, the results of the monitoring, the name of the person taking the samples, and the date and time of the sampling.
19. The collection of samples under Conditions 14 and 16 shall be taken by a suitably qualified and experienced person. All samples required by this consent shall be analysed using the most appropriate scientifically recognised and current method by a laboratory that is certified for that method of analysis by an accreditation authority, such as International Accreditation New Zealand (IANZ).
20. Any sediment or contaminants removed in accordance with Conditions 4, 7 and 17.b shall be disposed of at an appropriate facility.
21. The Consent Holder shall keep a record of the maintenance and remediation of the site's stormwater system, including the disposal of sediment and other contaminants. Copies of these records shall be provided to Canterbury Regional Council upon request.
22. Prior to the development of the Diggalink Excavator Sales and Spares site, the Consent Holder shall submit to the Canterbury Regional Council:

- a. An outline of the activities to be undertaken on-site
 - b. Design plans relating to the stormwater treatment and disposal systems; and
 - c. All assessments and calculations undertaken to ensure compliance with the conditions of this consent.
23. A certificate signed by the person responsible for designing the system or a competent person shall be submitted to the Canterbury Regional Council within one month of development of the site to certify that the system is constructed and installed in accordance with the conditions of this consent.
24. The Canterbury Regional Council may, on any of the last five days of March or September each year, serve notice of its intention to review the conditions of the consents for the purposes of:
- a. Dealing with any adverse effect on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage; or
 - b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
 - c. To assess the appropriateness of imposed compliance standards, monitoring determinants, monitoring regimes, and monitoring frequencies, and to alter these accordingly.

APPLICATION CRC051914

BY G & V A PRENDERGAST FOR A DISCHARGE PERMIT TO DISCHARGE CONTAMINANTS TO LAND

PART 1 **ADVICE TO DECISION-MAKERS**

1.0 INTRODUCTION

1.1 Background

G & V A Prendergast (the applicants) have retrospectively applied for a resource consent to discharge domestic sewage effluent to land at a property on Hollands Road, Tinwald from a domestic dwelling. Appendix one of this report contains a site location map and Appendix two of this report contains a site layout map.

Dr Anthony Taylor & Ms Helene Faass of Irricon Consultants Ashburton Ltd (the consultant) have designed the effluent treatment and disposal system and have submitted the assessment of environmental effects (AEE) of the activity on the environment on behalf of the applicant.

1.2 Notification

The notification decision-maker was not satisfied that the effects of the proposed discharge to land were likely to be less than minor.

The application was publicly notified in the Ashburton Guardian on 19 November 2005, with the following wording:

“CRC051914: To discharge domestic sewage to land at a property located at Hollands Road, Tinwald, situated at or about map reference NZMS 260 K37: 0737-9953. The maximum volume to be discharged is one cubic metre per day. The contaminants in domestic sewage are known to include organic material, nitrogen, phosphorus, heavy metals and micro-organisms. The requested duration of consent is 35 years. The system has already been installed and is currently operating.”

1.3 Submissions

Submissions closed on 16 December 2005. One submission was received. This was made by Mr G W McCormick and Mr D P Fisher and was in support of the application. The submitters did not wish to be heard at a hearing.

2.0 DESCRIPTION OF THE PROPOSED ACTIVITY

The consultant has provided the following description of the proposed activity:

2.1 Location

- The discharge will occur at Hollands Road, Tinwald.
- The legal description for the site is Lot 2 DP 57928.
- The discharge site is located at or about map reference NZMS 260 K37:0737-9953

2.2 Type and Amount of Contaminant Discharged

- The discharge shall be only domestic sewage effluent from a single domestic dwelling.
- The maximum volume of effluent discharged shall not exceed 1000 litres per day.

2.3 Structures Used

- The wastewater will be collected in a multi chamber septic tank for pre-treatment. The septic tank contains a propriety filter and a pump chamber. The capacity of the septic tank is 6000 litres. Wastewater is pumped from the septic tank into a gravel filled disposal trench.
- The trench has a minimum area of 30 square metres. Appendix three of this report contains a cross-section of the trench design.
- The trench contains 400 millimetres of clean gravel (15-20 mm diameter) below the effluent disposal pipe.
- The maximum wastewater loading rate to the trench is 33.3 millimetres per day if the wastewater flow reaches 1000 litres per day. The applicant has proposed to service the treatment and disposal system at least twice per year. The servicing will include:
 - (i) Measuring the depth of solids and scum in the sewage treatment system.
 - (ii) Pumping out the sewage tank if the solids and scum layers combined are greater than two thirds of the depth of the sewage treatment system.
 - (iii) Checking the effluent filter and cleaning it if necessary.
 - (iv) Checking that the pump and float switches are working reliably.
 - (v) At the ends of the disposal pipes, flushing the lines until water runs clear then pressure testing.

2.4 Duration

- A consent duration of 35 years has been requested.

3.0 LEGAL AND PLANNING MATTERS

3.1 The Resource Management Act (RMA) 1991

Section 15(1)(b) of the Resource Management Act states that:

“No person may discharge any contaminant onto or into land in circumstances which may result in that contaminant...entering water...unless the discharge is expressly allowed by a rule in a regional plan and in any relevant proposed regional plan, a resource consent or regulations.”

The discharge contains contaminants that have the potential to contaminate groundwater and therefore it requires authorisation.

Section 104 of the RMA states that subject to Part II, when considering an application for a resource consent and any submissions received, the consent authority shall have regard to a number of matters. These matters are set out in the following sections.

3.2 Regional Plans

3.2.1 The Transitional Regional Plan (TRP)

The application does not comply with condition 3 of the Transitional Regional Plan because the discharge may not be treated so that the final discharge contains less than 1000 faecal coliform bacteria per 100mL sample. The TRP defines the final discharge point as being the

outside perimeter of the trench. The consultant has provided no evidence to satisfy me that the final discharge will have a faecal coliform concentration of less than 1000cfu/100mL.

Therefore the application is considered to be a discretionary activity under the Transitional Regional Plan.

3.2.2 The Proposed Natural Resources Regional Plan (PNRRP)

This plan was notified on 3 July 2004. The application was receipted by Environment Canterbury on 18 January 2005, however I understand it was originally mistakenly lodged with the Ashburton District Council on 13 October 2004. A building consent application was also lodged with the Ashburton District Council. The consultant has not advised of the date when this application was lodged. If the building consent was lodged prior to the PNRRP notification date (3 July 2004) then this activity can only be assessed under the Transitional Regional Plan conditions. If it was lodged after the PNRRP notification date then the activity should also be considered under the rules of the PNRRP. As the consultant has provided no evidence to show that a building consent application was lodged with the District Council before 3 July 2004, I have assumed that a consent is required under the PNRRP.

Under the PNRRP rules, the application does not comply with Rule WQL8 or Rule WQL9 (Discharge of contaminants onto or into land from an individual on-site sewage and wastewater treatment and land application system) for the following reasons:

- The discharge will occur in an area where the land is located over an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data is less than six metres from the ground surface (Condition 10a Rule WQL8)
- The land application system does not consist of the treatment material specified in condition 14 of Rule WQL 8.

Based on these considerations, the activity was assessed against Rule WQL57 (Discharge of a contaminant onto or into land).

The application complies with Rule WQL57 as the discharge does not occur within a Community Drinking Water Supply Protection Zone.

The proposal is therefore a discretionary activity and requires a resource consent under Rule WQL57 – (Discharge of a contaminant onto or into land – discretionary activity).

In summary, under the Transitional Regional Plan and the Proposed Natural Resources Regional Plan, the discharge of the septic tank effluent is a discretionary activity hence resource consent is required.

4.0 CONSULTATION

The applicant's have not provided any details on any consultation undertaken with any party regarding the activity. I note that the application was publicly notified and there were no submissions in opposition.

5.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The consultant has provided a description of the affected environment in the application. I have audited this description under the following headings:

- Soils

- Groundwater
- Surface waters

5.1 Soils

- The consultant has stated that the site is flat. After checking Environment Canterbury's GIS database, I agree with the consultant that the site is relatively flat.
- The consultant excavated an auger hole on the site to determine the soil type. The consultant advised that the auger hole revealed 350 millimetres of friable Temuka silt loam, overlying 350 millimetres of yellowish-grey firm silty clay, overlying at least 400 millimetres of grey silty clay with mottle and grey sandy loam. At the level the discharge is made (750mm below ground level) the subsoil is grey sandy loam.

From Environment Canterbury's GIS database, I note there are two wells with borelog data within 400 metres of the site. This information is summarised as follows:

- From borelog data for well K37/2247 that is located approximately 80 metres west of the applicant's site, the soil profile shows claybound gravels and claybound sandy gravels to a depth of five metres.
- From borelog data for well K37/0530 that is located approximately 224 metres northwest of the applicant's site, the soil profile shows 490 millimetres of brown clay, overlying 2810 millimetres of blue sandy gravels, overlying 6300 millimetres of brown clay and gravels.

I note that the maximum application rate for primary treated effluent being discharged into weakly structured sandy loam as specified in the New Zealand Standard (AS/NZS1547:2000) is 35mm/day. As the borelogs show similar categories of soils to that in the consultants auger hole, an application rate of 33.3mm/day is consistent with the NZ Standard's recommendations..

However, I also note that Environment Canterbury's GIS database has shown the soils at the site to be Wakanui deep and moderately deep silt loam. Wakanui soils are known as being slow to medium draining (from Soil Bureau – Bulletin 14). Based on this, the soil at the site could be conservatively categorised as category 3 (moderately well drained loams) or category 4 (imperfectly drained clay loams). In this case a maximum application rate of 10-25mm/day may be more appropriate.

Given the distance the local borelogs are from the site and that the soil types on the database are general categories the consultant's description of soils at the site appears reasonable.

I further note that the disposal system is currently installed and is operating and I am unaware of any problems the system has had with ponding at the application rate of up to 33.3mm/day.

5.2 Groundwater

- The consultant has stated that groundwater flows in the northwest to southeast direction. From looking at piezometric contours on Environment Canterbury's GIS database for this area, I agree that the groundwater is likely to flow in a northwest to southeast direction.

- The consultant has stated that the highest recorded groundwater level surrounding the site is –6.4m. This level was taken from an onsite well.

Environment Canterbury's GIS database indicates that there are 15 wells within one kilometre of the site that have recorded highest groundwater depths readings. The highest groundwater level recorded within a kilometre of the site is –0.001 metres below ground level at well K37/0162, located approximately 140 metres southeast of the applicant's site. Another reading at this height was recorded in well K37/0164, located approximately 450 metres south of the applicant's site.

Consultation with Environment Canterbury Groundwater Scientist Grant Davey concluded that there are a good length of records in the area and these show ground water levels to be generally above 1.5m from the surface (see Appendix four showing a graph of groundwater levels in the area). The only reservation Mr Davey has is that the wells have not been located on the ground so they may not appear exactly where the map shows them to be.

- The consultant has stated that the proposed discharge site complies with all separation distances to wells as described in the Transitional Regional Plan and the proposed Natural Resources Regional Plan.

After checking Environment Canterbury's GIS database I agree with the consultant that the discharge site complies with the separation distances to wells as described in both the Transitional Regional Plan and the proposed Natural Resources Regional Plan.

- The consultant has stated the existing nitrate nitrogen concentration in groundwater surrounding the site is 2.9mg/L based on information from Environment Canterbury's qualarc site SCY00658 located 50 metres from the road boundary.

I agree that the groundwater quality sample site the consultant has used to base the surrounding nitrate nitrogen levels on is relevant to the applicant's property. This site is located 160 metres to the southwest of the site. The nitrate nitrogen level has been recorded once at that site (in 2004) and was, as the applicant stated, 2.9mg/L. There are no other groundwater quality samples within a kilometre of the disposal site. I note this concentration is well below the New Zealand Drinking Water Standard 2005 of 11.3 mg/L. However, I note that this site has only been sampled once and may not accurately reflect nitrate nitrogen levels at the site today.

5.3 Surface Waters

- The consultant states that there are no wetlands or surface waterbodies within 20 metres of the proposed discharge.

Environment Canterbury's GIS database indicates that the nearest surface water body, named as Carters Creek/Laghmor Creek, lies approximately 340 metres to the west of the property. The Ashburton River is also located approximately 470m to the east of the applicant's effluent disposal site.

5.4 Additional Information

I note nearby consent CRC052663 was recently granted non-notified by this council. This was for a similar activity located approximately 300 metres west of the Prendergast's disposal site (across the road from the Prendergast's). Irricon Consultants prepared the design for CRC052663 and I note that an aerated treatment system to drip line disposal was proposed. I further note that the consultant proposed

to mound the drip lines 300mm above ground level in order to mitigate against the high groundwater levels in the area.

6.0 ASSESSMENT OF ACTUAL AND POTENTIAL EFFECTS

The consultant has identified the actual and potential effects on the environment under the following headings:

- Adverse effects of the discharge on groundwater quality;
- Adverse effects of the discharge on surface water;
- Adverse health effects on people and communities;
- Odour effects

I consider the consultants list of effects to be a comprehensive list. In auditing this list I have relied on expertise within the Council, my experience with auditing consents for other similar activities and direction from the objectives and policies of the Canterbury Regional Council Policy Statement and Proposed Natural Resources Regional Plan.

6.1 Adverse effects of the discharge on groundwater quality

6.1.1 Effects of pathogens entering groundwater

Applicant's Assessment

- (a) The consultant has not stated the likely concentration of faecal coliform levels at the base of the disposal system nor have they provided any information as to how the standard required by condition 3 of the TRP will be achieved.
- (b) The consultant has stated that the distance between the base of the disposal system and the highest groundwater level surrounding the site is 85 metres.

The consultant has concluded that the discharge will have a minimal effect on the environment.

Audit of Applicant's Assessment

- (a) The consultant has not stated the likely concentration of faecal coliform levels at the base of the disposal system and has provided no evidence on the likely concentration of faecal coliforms in the effluent when it enters groundwater. This information was requested in a letter dated 10 February 2005.

I understand that effluent passing through a trench which includes 600mm of grade 2A filtering sand at a maximum loading rate of 50mm/day is likely to reach the TRP standard of less than 1000 faecal coliforms per 100mL sample. This is based on research by Jenssen and Siegrist (1990). I note that the applicants proposed trench disposal system contains 400mm of clean gravel which is 15-20mm in diameter and I am aware that this gravel does not fit within the grade 2A sand sizing envelope.

I accept that the gravel trench may provide some treatment, but I am unsure of the level and reliability of treatment.

- (c) With regards to groundwater levels at the site, comments from Environment Canterbury groundwater scientist Grant Davey (detailed in section 5.2) state that groundwater is within 1.5 metres of the ground surface. Therefore I consider that the effluent disposal trench could also become saturated with groundwater at

times. I am aware that an investigation by Gunn (1997) indicated that unsaturated soil conditions are required to ensure effective removal of micro-organisms.

As the consultant has provided no information as to how far untreated sewage travels before it reaches <1cfu/100mL (NZ Drinking Water Standard) I am not satisfied that the well separation distances specified in the TRP & NRRP are appropriate to ensure neighbouring wells are able to obtain potable drinking water.

Conclusion:

Recommended Conditions:

If the Hearing Committee is of a mind to grant this consent as proposed I recommend the following conditions in order to mitigate the effects on groundwater:

- 1)
 - (a) The disposal system shall have an area of at least 30 square metres
 - (b) The disposal system shall be filled with clean gravel (15-20mm diameter) for a depth of at least 400 millimetres deep below the level of the distribution pipe.
 - (c) A low pressure dosing system shall be used such that sewage effluent is evenly discharged over the disposal system at a rate not exceeding 33.3 millimetres per day.

- 2) At the date of granting of this consent the effluent disposal site shall not be within:
 - (a) 1,000 metres up-gradient (in relation to the direction of groundwater flow) and 200 metres in any other direction of any bore from which more than 20 cubic metres per day of water is taken for community supply purposes; and
 - (b) 200 metres up-gradient (in relation to the direction of groundwater flow) and 50 metres in any other direction of any bore from which less than 20 cubic metres per day of water is taken for community supply purposes; and
 - (c) 50 metres up-gradient (in relation to the direction of groundwater flow) and 30 metres in any other direction of any bore not used for community supply purposes.

Optional Conditions:

If the Hearing Committee is of a mind to grant this consent but does not consider the level of treatment proposed by the applicant is sufficient, they may wish to consider the following optional conditions in order to mitigate the effects of the proposed discharge on groundwater:

1. The disposal system shall be filled with graded sand, classified within the envelope 2A on the attached diagram – “Sorting V Mean Grain Size”, for a depth of at least 600 millimetres deep below the level of the distribution pipe.
2. The land application system shall be mounded X millimetres above ground level. (This is to ensure the treatment material remains unsaturated at all times.)
3. The sewage treatment and disposal system shall ensure that the concentration of faecal coliform bacteria in the sewage effluent at the base of the trench land application system, shown on Plan CRC051914B shall be less than 1000 colony forming units per hundred-millilitre sample.

6.1.2 Effects of nitrates entering groundwater

Applicant's Assessment

I note the comments made in section 5.2 regarding nitrate nitrogen levels.

The consultant has not stated the likely increase in nitrate concentrations in groundwater due to the discharge.

Audit of Applicant's Assessment

I agree if nitrate levels remain as low today as they were when the qualarc site was sampled, it is likely that effects on groundwater due to the nitrates in the proposed discharge could be no more than minor. However, I do note that the site has only been sampled once as discussed in section 5.2.

Mr Leo Fietje (Principal Consents Advisor, Environment Canterbury) has advised that due to the large volumes of groundwater available within the Canterbury Plains area, that groundwater is able to dilute sewage effluent chemicals such as nitrates to non-detectable concentrations within a short distance of the source (Fietje, 1991).

6.2 Adverse effects of the discharge on surface water

Applicant's Assessment

The consultant states that there are no surface waterbodies within 20 metres of the proposed disposal site and therefore there will be no effects on surface water quality from the proposed discharge.

Audit of Applicant's Assessment

Given that the disposal system proposed is located on relatively flat land and it is approximately 340 metres southwest to the nearest surface water body (based on Environment Canterbury's GIS database) and groundwater flows in a southeast direction I consider that contamination of surface waters from the discharge is unlikely. Comments from Ecan water quality scientist Shirley Hayward indicate that it is unlikely that the discharge will have any impact on the Ashburton River located 470m east.

6.3 Adverse effects on public health from above-ground pathogen transfer

Applicant's Assessment

The consultant states that there will be no ponding of effluent on the ground surface. He states that this will be prevented by dispersal into trench with sand.

Audit of Applicant's Assessment

I refer to section 5.1 regarding local soils.

As the system is currently installed and I am not aware of any problems with ponding at the site at the proposed application rate of 33.3mm/day, I consider that ponding of effluent on the ground surface is unlikely and adverse effects on public health from above-ground pathogen transfer will be less than minor.

However, I note that this consent is for 35 years and the system has only been operating for approximately one year.

6.4 Effects on Odour

Applicant's Assessment

The consultant states that there will be no adverse odour effects from the discharge.

Audit of Applicant's Assessment

Given the maintenance proposed by the applicant and that the discharge is below ground, I agree with the consultant that there is likely to be no adverse odour effects from the discharge beyond the boundary of the applicant's property.

7.0 ADDITIONAL MITIGATION MEASURES

A summary of the application is provided in section 2 of this report. Of the measures itemised there, I consider that most, in one form or another, are appropriate for attachment as conditions to the consent if it is granted.

In addition to these matters, I consider it appropriate to attach the following additional conditions to this consent if it is granted:

- A standard lapsing condition
- A standard review condition

8.0 CONSIDERATION OF ALTERNATIVES

The consultant has not considered any alternatives, and I note that there is no sewerage scheme in the area.

9.0 POLICIES AND OBJECTIVES

9.1 Regional Policy Statement (RPS)

The Regional Policy Statement (CRC 1998), Chapter 9 Water, contains the following Objective and Policies that are relevant to this application:

Objective 3

"Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the water quality in Canterbury's water bodies...while:

- Safeguarding the existing value of water bodies for efficiently providing sources of drinking water for people...
- Maintaining, and where appropriate, enhancing amenity values".

Policy 9

"To manage point and non-point source discharge and set water quality conditions and standards and terms in plans, and conditions on resource consents, that achieve... Objective 3. Adverse effects of discharges on existing water quality should be avoided, remedied or mitigated and, where appropriate, degraded water quality should be enhanced".

Policy 10

"In relation to water quality, natural character and cultural and amenity values, to investigate and provide for water bodies which should be sustained as far as possible in their natural state. Progressively improve degraded water bodies and degraded coastal waters. To achieve this, water quality standards should be established where needed to resolve competing demands for

Canterbury's water bodies and coastal waters. Over the next ten years priority for standard setting should be given to the following water resources:

- Ashburton River and Catchment.
- Christchurch – West Melton Groundwater..."

Policy 11

"Promote land use practices which maintain and where appropriate enhance water quality".

I am not satisfied that the application is consistent with the above objective and policies, due to the potential for contamination of groundwater. However, I note that the application has been notified and there were no submissions in opposition to the proposed discharge.

9.2 Regional Plans

If the Proposed Natural Resources Regional Plan is being considered in the decision for this consent then Chapter 4 Water Quality, contains the following Objective and Policies that are relevant to this application:

Objective WQL2 – (2)(b)(i)

"In semi-confined, unconfined, and other confined aquifers or parts of these aquifers, where the water quality is affected by human activities, the groundwater quality shall meet the following values:

- For nitrate-nitrogen, the maximum concentration shall not increase by more than two milligrams per litre above the maximum concentration measured between 1996 and 2001, and reported in 2002, and the maximum concentration shall not exceed 11.3 milligrams per litre;
- The water quality shall remain within the Guideline Value for any aesthetic determinand listed in the Drinking Water Standards for New Zealand 2000, except for natural exceedances of the Guideline Value. If the water quality does not meet the Guideline Value, as a result of human activities, the water quality shall be improved so that the Guideline Value is achieved;
- The median concentration of *Escherichia coli* shall be less than one organism per 100 millilitres of water; and
- Any other inorganic or organic determinand of health significance or pesticide (excluding nitrate nitrogen or *E.coli*.) listed in the Drinking Water Standards for New Zealand 2000 shall not be detected at a concentration greater than one tenth of the Maximum Acceptable Value for that determinand. ..."

Policy WQL6 –(2)(a)

"Subject to Policy WQL6, where a dwelling or premises is serviced by an individual onsite sewage effluent treatment and disposal system, and the system is installed after 3 July 2004, the system shall be located, constructed, operated and maintained to ensure that:

- (i) the effluent is effectively treated before it is discharged so that adverse effects on groundwater quality beyond the property boundary are avoided; and
- (ii) the separation distance between the discharge and any other sewage system or a well is sufficient to allow for the natural decay or attenuation of pathogenic micro-organisms in the contaminant plume so that the discharge will not be a significant risk to drinking water quality.

To avoid adverse effects on water quality from the cumulative effects of discharges into land from individual onsite wastewater treatment and disposal systems by requiring the installation of a treatment system for sewage effluent where there is insufficient distance between individual discharges, wells or groundwater to allow for the natural decay or attenuation of pathogenic minor-organisms in the contaminant plumes."

I am not satisfied that the application is consistent with the above objective and policies, due to the potential for contamination of groundwater. However, I note that the application has been notified and there were no submissions in opposition to the proposed discharge.

10.0 PART II MATTERS

10.1 Purpose of the RMA

I have referred to s.5 of the RMA and consider that this application may conflict with this section of the act with regards to “protecting natural and physical resources in a way, or at a rate, which enables people and communities to provide for their ...health and safety..” as the application has the potential to affect drinking water quality.

10.2 Matters of National Importance

I am satisfied that the application is consistent with s.6 matters of the RMA.

10.3 Other Matters

I consider that the application may not be consistent with s.7 matters of the RMA. In particular section 7(f) with regards to maintaining and enhancing the quality of the environment.

10.4 Principles of the Treaty of Waitangi (Te Tiriti o Waitangi)

Section 8 of the Resource Management Act requires the consent authority to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). This discharge lies within the rohe of Te Runanga O Arowhenua. Te Runanga O Arowhenua did not make a submission opposing the application during the notification period. Prior to notification the Runanga advised they do not oppose the application but would seek a 10 year duration.

11.0 OTHER RELEVANT MATTERS

11.1 Decisions of the Environment Court

I am not aware of any decisions of the Environment Court that have direct relevance to this proposal.

11.2 Previous Council Decisions

As mentioned in section 5.4 this council has granted non-notified a resource consent for a similar activity near the site (CRC052663). I note that in that application the applicant proposed a system that treated to less than 1000cfu/100mL and the drip line disposal system was mounded in order to increase the separation distance between the discharge and groundwater.

I am also not aware of any previous council decisions within the last two and a half years that have granted resource consent for trench disposal systems that do not contain at least 600 millimetres of grade 2A sand treatment material.

12.0 CONCLUSIONS AND RECOMMENDATIONS

I have audited the applicant's information, and have considered all relevant matters under s104 of the Act. The following paragraphs summarise the main issues discussed throughout

this report to highlight the matters to be considered by the Committee in their decision-making.

I bring to the attention of the Committee that I have serious concerns that the faecal coliform concentrations at the base of the gravel disposal trench are likely to be higher than 1000 faecal coliforms per 100ml sample therefore the separation distances to wells in the TRP and PNRRP may not be sufficient to ensure drinking water quality water is obtainable from wells in the area.

In deciding whether to grant this application it should be considered whether the proposal is consistent with the relevant policies and objectives of the RPS and the PNRRP, and whether the potential adverse effects and risk to groundwater in the area can be sufficiently mitigated by the proposed conditions. I bring to the Committee's attention the points raised in section 9 of the report where the proposed application may not be consistent with some of the policies and objectives in the RPS and PNRRP. The Committee will need to decide the weight to be attached to these policies and objectives in their decision making.

In deciding whether to grant this application, the Committee will also need to consider section 1.3.5 of the PNRRP which outlines a number of factors that must be taken into account when considering the duration of any resource consent to be granted. The Committee needs to have regard to the matters set out in this section in considering whether the period of 35 years is appropriate for this consent application. Given my concerns relating to the treatment of effluent and the separation distance to groundwater, the Committee may consider a shorter term for the consent appropriate. In addition, I advise the committee of recommended condition 11 which states that sewage effluent disposal via trench land application system shall cease within six months of a connection to a reticulated sewerage system being available. The full wording for this condition is included in section 14.0 of this report. I note the applicant has proposed this condition in the application form.

If the Committee considers the effects of the discharge as proposed are acceptable, I have listed a number of conditions in Section 14.0 of this report, which the Committee may wish to adopt. In addition, if the Committee does not consider the effects of the discharge as proposed are acceptable and are in a mind to modify the proposal before granting consent, I have proposed optional conditions that the committee may wish to consider.

Signed: _____

Date: _____

Gillian Goodwin
Consents Investigating Officer

Reviewed: _____

Date: _____

13.0 REFERENCES

- Canterbury Regional Council (1991). *Transitional Regional Plan*. Canterbury Regional Council. Christchurch, New Zealand.
- Canterbury Regional Council (1998). *Regional Policy Statement*. Canterbury Regional Council. Christchurch, New Zealand.
- Environment Canterbury (2004). *The Proposed Natural Resources Regional Plan – Chapter 4 Water Quality*. Canterbury Regional Council. Christchurch, New Zealand.
- Fietje, L. (1991). *General Authorisation for Sewage Tank Effluent Disposal – Technical Support Document*. Canterbury Regional Council.
- Gunn, I. (1997). *On-site wastewater systems and bacterial reduction in subsoil disposal areas: a review*. On-Site NewZ Special Report 97/2.
- Jenssen, P.D. & Siegrist, R.L. (1990). *Technology assessment of wastewater treatment by soil filtration systems*. *Wat. Sci. Tech.* Vol 22: No 3/4 pp83-92.
- Ministry of Health (2005). *Drinking-Water Standards for New Zealand 2005*. Ministry of Health. Wellington, New Zealand.

14.0 RECOMMENDED CONDITIONS:

I have prepared a list of conditions below using the mitigation measures proposed by the applicant. These have been sent to the applicant and consultant for consideration and any comments they make will be tabled at the Committee meeting.

1. Contaminants discharged shall be only domestic sewage effluent from a single dwelling with a maximum of three bedrooms.
2. The sewage treatment and disposal system shall not include chlorine disinfection.
3. The volume of sewage effluent discharged shall not exceed one cubic metre per day.
4. Sewage effluent shall be discharged only into land at a property on Hollands Road, Tinwald, at or about map reference NZMS 260: K37:0737-9953, as shown on Plan CRC051914A and Plan CRC051914B which form part of this consent.
5. The domestic sewage effluent shall be treated in a multi-chamber septic tank or an alternative system, which provides the same or better quality sewage effluent, to a trench disposal system. The treatment system shall have a proprietary effluent filter installed.
6.
 - (a) The disposal system shall have an area of at least 30 square metres
 - (b) The disposal system shall be filled with clean gravel (15-20mm diameter) for a depth of at least 400 millimetres deep below the level of the distribution pipe.
 - (c) A low pressure dosing system shall be used such that sewage effluent is evenly discharged over the disposal system at a rate not exceeding 33.3 millimetres per day.
7. The sewage effluent shall be discharged via the system shown on Plan CRC051914B, which forms part of this consent.
8. The discharge shall not result in any sewage effluent being visible at the land surface.
9. At the date of granting of this consent the effluent disposal site shall not be within:
 - (a) 1,000 metres up-gradient (in relation to the direction of groundwater flow) and 200 metres in any other direction of any bore from which more than 20 cubic metres per day of water is taken for community supply purposes; and
 - (b) 200 metres up-gradient (in relation to the direction of groundwater flow) and 50 metres in any other direction of any bore from which less than 20 cubic metres per day of water is taken for community supply purposes; and
 - (c) 50 metres up-gradient (in relation to the direction of groundwater flow) and 30 metres in any other direction of any bore not used for community supply purposes.
10. There shall be no discharge of effluent within:
 - (a) 20 metres of any surface water body
 - (b) 50 metres of the south-eastern property boundary, and 30 metres from any other property boundary.

11. Sewage effluent disposal via a trench land application system shall cease within six months of a connection to a reticulated sewerage system being available. For the purpose of this condition, "available" means:
- (a) A sewerage pipeline network system passes within 30 metres of the property boundary; and
 - (b) The network operator will accept the discharge
- 12.
- (a) The sewage treatment and land application system shall be serviced at least twice per year by a person competent in the maintenance of such systems.
 - (b) The servicing shall include, but not be limited to:
 - (i) Measuring the depth of solids and scum in the sewage treatment system
 - (ii) Pumping out the sewage tank if the solids and scum layers combined are greater than two thirds of the depth of the sewage treatment system
 - (iii) Checking the effluent filter and cleaning it if necessary
 - (iv) Checking that the pump and float switches are working reliably
 - (v) At the ends of the disposal pipes, flushing the lines until water runs clear then pressure testing
 - (c) Following every service a written report shall be prepared and kept by the consent holder. In addition, the consent holder shall also keep written records of all repairs made to any part of the sewage treatment and land application system.
 - (d) The consent holder shall forward a copy of the written report to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager on request.
13. The Canterbury Regional Council may, once per year, on any of the last five working days of January or July serve notice of its intention to review the conditions of this consent for the purposes of:
- (a) 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; or
 - (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
14. The lapsing date for the purposes of section 125 shall be 31 March 2011.

Optional Conditions

If the Committee considers the proposal unacceptable in its current form, the Committee could consider some of the following conditions (shown in bold) to reduce the adverse effects of the proposal on groundwater:

- I. **The disposal system shall be filled with graded sand, classified within the envelope 2A on the attached diagram – “Sorting V Mean Grain Size”, for a depth of at least 600 millimetres deep below the level of the distribution pipe. (Suggested as a replacement to condition 6(b)).**
- II. **The land application system shall be mounded X millimetres above ground level.**

Comment: If the discharge passes through 600mm of sand that falls within the “2A” envelope (i.e. having a grain-size range of 0.105-0.69 mm), and has a maximum loading rate of 50mm/day, it appears that the discharge from the bottom of the sand trench is likely to have a concentration no higher than 100 faecal coliforms per 100ml (Jenssen & Siegrist (1990), Fietje, (1991)).

It should be noted that “2A” sand is unlikely to decrease the concentration of nitrogen in the discharge.

- III. **The sewage treatment and disposal system shall ensure that the concentration of faecal coliform bacteria in the sewage effluent at the base of the trench land application system, shown on Plan X shall be less than 1000 colony forming units per hundred-millilitre sample.**

Comment: If the effluent disposed meets the standard of less than 1000cfu/100mL sample, it is likely that the well separation distances stated in the TRP and NRRP will be adequate in terms of protecting drinking water.

- IV. **The sewage treatment and disposal system installed shall be certified by a person suitably qualified and competent in the design and operation of such treatment and disposal systems, as complying with condition (7) and capable of meeting the standard specified in condition (III).**
- V. **A copy of the certificate shall be forwarded to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, within ten working days following the granting of this resource consent.**

APPENDIX ONE – SITE LOCATION MAP - PLAN CRC051914A

APPENDIX TWO – SITE LAYOUT MAP – PLAN CRC051914B

APPENDIX THREE – CROSS SECTION OF THE TRENCH DESIGN – PLAN CRC051914C

APPENDIX FOUR – LOCAL GROUNDWATER DATA FROM ECAN’S WELLS DATABASE

APPLICATION CRC054136

BY R E & J A HARWOOD FOR A DISCHARGE PERMIT TO DISCHARGE CONTAMINANTS TO LAND

1.0 INTRODUCTION

1.1 Background

R E & J A Harwood (the applicants) have applied for a resource consent to discharge domestic sewage effluent to land at a property on Whitecliffs Road, Glentunnel. Appendix one of this report contains a site location map and Appendix two of this report contains a site layout map.

Mr Gordon Kenning of Biocycle South Limited (the consultant) has designed the effluent disposal system and has submitted the assessment of environmental effects (AEE) of the activity on the environment on behalf of the applicant.

The proposed discharge is located within the protection zone for a community water supply gallery, which serves the Hororata Township. The notification decision maker was not satisfied that the effects on the environment from the proposed discharge were less than minor due to the gallery being a public water supply. The decision maker decided that the owners of the gallery (Selwyn District Council) would not be the only affected party and therefore obtaining their written approval was not sufficient, and because the applicant did not provide any additional evidence to show that the plume of discharge would not contaminate the water in the public galley, the application was publicly notified. Appendix three contains a map showing the location of the discharge site in relation to the public supply protection zone.

1.2 Notification

The application was publicly notified in the Central Canterbury News on 29 June 2005, with the following wording:

“CRC054136: To discharge contaminants from treated domestic sewage into land at 122 Whitecliffs Road, Whitecliffs, Central Canterbury. The land is situated at or about map reference NZMS 260 L35: 2319-4690. The maximum volume to be discharged to land will be one cubic metre per day. The contaminants in treated domestic sewage are known to include organic material, nitrogen, phosphorus, heavy metals and micro-organisms. The requested duration of consent is 35 years.”

1.3 Submissions

Submissions closed on 27 July 2005. One submission was received. This was made by Mr B Musson and was in support of the application. The submitter did not wish to be heard at a hearing.

1.4 Re-Notification

It was drawn to our attention, by a member of the public, that the site address in the notification wording published inaccurately described the location of the proposed discharge and that the applicant's property is closer to Glentunnel than Whitecliffs. After discussion with

the consultant it was decided that the application should be re-notified with the correct address.

The application was re-notified in the Central Canterbury News on 2 November 2005, with the following wording:

“CRC054136: To discharge contaminants from treated domestic sewage into land at 122 Whitecliffs Road, Glentunnel. The land is situated at or about map reference NZMS 260 L35: 2319-4690. The maximum volume to be discharged to land will be one cubic metre per day. The contaminants in treated domestic sewage are known to include organic material, nitrogen, phosphorus, heavy metals and micro-organisms. The requested duration of consent is 35 years.”

1.5 Submissions

Submissions closed on 30 November 2005. Again, only one submission received. This was made by Mr B Musson and was in support of the application. The submitter did not wish to be heard at a hearing.

1.6 Additional Information

When the application was notified the consultant was proposing to discharge the effluent via a septic tank and sand trench system. After the submissions had closed the consultant amended the design to include an aerated treatment package and drip irrigation system. The decision maker deemed that the change in design would not require the application to be re-notified as it is considered the amended proposal will have a lesser effect on the environment compared to the original proposal. Refer to section 2.3 of this report for details of the systems.

2.0 DESCRIPTION OF THE PROPOSED ACTIVITY

The consultant has provided the following description of the proposed activity:

2.1 Location

- The discharge will occur at Whitecliffs Road, Glentunnel.
- The legal description for the site is RS 15100X
- The map reference for the site is at or about map reference NZMS 260 L35:2319-4690
- The property is 1019 square metres in area (0.1 hectares)

2.2 Type and Amount of Contaminant Discharged

- The discharge shall be only domestic sewage effluent from a domestic dwelling with a maximum of two bedrooms and garage with a sleepout with a maximum of one bedroom.
- The maximum volume of contaminants discharged shall not exceed 1000 litres per day.

2.3 Structures Used

The consultant originally proposed the following disposal system:

- The wastewater will be collected in a multi chamber septic tank for pre-treatment. The septic tank contains a propriety filter and a pump chamber. The capacity of the septic tank is 5400 litres. Wastewater is pumped from the septic tank into a sand disposal trench.
- The trench has a minimum area of 30 square metres. The trench contains 600 millimetres of grade 2A sand as the treatment material. There is a soakage shaft at the base of the trench that will be excavated down into free-draining gravels and filled with 20-30 washed tailings.
- The maximum wastewater loading rate to the trench is 33.3 millimetres per day.

As of 16 January 2006, the consultant has amended the proposal to include an aerated treatment package and a drip irrigation disposal system. The disposal system now includes the following:

- The wastewater will be collected in a “Biocycle” multi chamber aerated treatment package for pre-treatment. The aerated treatment package contains a propriety filter and a pump chamber. The capacity of the septic tank is 8000 litres. Wastewater is pumped from the aerated treatment package into a drip line irrigation disposal system.
- The disposal field includes 250 metres of subsurface irrigation tubing, made up of five lines, 50 metres long each. The tube lines will be placed at a minimum of one metre intervals and buried to 150 millimetres below ground level then covered in topsoil.
- The maximum wastewater loading rate to the irrigation system is 4.0 millimetres per day.
- The applicant has proposed to service the treatment and disposal system at least two times per year. The servicing will include:
 - (i) Measuring the depth of solids and scum in the sewage treatment system.
 - (ii) Pumping out the sewage tank if the solids and scum layers combined are greater than two thirds of the depth of the sewage treatment system.
 - (iii) Checking the effluent filter and cleaning it if necessary.
 - (iv) Checking that the pump and float switches are working reliably.
 - (v) Checking that the irrigation lines are working reliably.

2.4 Separation from sensitive locations

- There are no wetlands or waterbodies (including open drains) within 20 metres from the proposed disposal site.
- There are no existing private wells within 50 metres down-gradient (in terms of the direction of groundwater flow) or 30 metres in any other direction of the disposal trench.

I note that the Glentunnel River Gallery (well number L35/0215), a public water supply owned by Selwyn District Council, is located approximately 85 metres south of the disposal system. This gallery is located beneath the valley floor of the Selwyn River, at a depth of six metres below ground level. The proposed disposal site is located on a river terrace, elevated several metres above the valley floor. The public gallery supplies drinking water to the Hororata Township.

2.5 Duration

- A consent duration of 35 years has been requested.

3.0 LEGAL AND PLANNING MATTERS

3.1 The Resource Management Act (RMA) 1991

Section 15(1)(b) of the Resource Management Act states that:

“No person may discharge any contaminant onto or into land in circumstances which may result in that contaminant...entering water...unless the discharge is expressly allowed by a rule in a regional plan and in any relevant proposed regional plan, a resource consent or regulations.”

The discharge contains contaminants that have the potential to contaminate groundwater and surface water and therefore it requires authorisation.

Section 104 of the RMA states that subject to Part II, when considering an application for a resource consent and any submissions received, the consent authority shall have regard to a number of matters. These matters are set out in the following sections.

3.2 Regional Plans

3.2.1 The Transitional Regional Plan

The consultant has stated that the application complies with all conditions of the General Authorisation for Sewage Tank Effluent Disposal within the Transitional Regional Plan.

I note that the application does not comply with condition 4 of the Transitional Regional Plan because the discharge will occur within 1000 metres up-gradient (in terms of direction of groundwater flow) and 200 metres in any other direction from a Public Supply Bore that is less than 70 metres deep and drawing water from an unconfined aquifer, and abstracting greater than 20 cubic metres per day of water used for domestic purposes.

Therefore the application is considered to be a discretionary activity under the Transitional Regional Plan.

3.2.2 The Proposed Natural Resources Regional Plan

This plan was notified on 3 July 2004. As the application was receipted by Environment Canterbury on 9 May 2005, the status of the discharge is affected by the notification of this plan.

The application does not comply with Rule WQL8 or Rule WQL9 (Discharge of contaminants onto or into land from an individual on-site sewage and wastewater treatment and land application system) for the following reason:

- The discharge will occur in an area where the land is located over an unconfined or semi-confined aquifer, where the highest groundwater level, which can reasonably be expected at the point of discharge based upon relevant and available groundwater data is less than six metres from the ground surface
- The proposed discharge will occur closer than 50 metres from the down-gradient property boundary in the direction of groundwater flow and 30 metres from the any other property boundary

Based on these considerations, the proposal was assessed against Rule WQL57 (Discharge of a contaminant onto or into land).

The application does not comply with Rule WQL57 as the discharge occurs within a Community Drinking Water Supply Protection Zone.

The proposal is therefore a non-complying activity and requires a resource consent under Rule WQL61 – (Discharge of a contaminant onto or into land – non-complying activity).

In summary, under the Proposed Natural Resources Regional Plan, the discharge of the sewage effluent is a non-complying activity hence resource consent is required.

4.0 CONSULTATION

I draw to the committee's attention that the application was notified and no submissions in opposition were made.

The applicants have provided the written approval of the neighbour on the eastern side of their property, which is closer than five metres to the disposal field. Whitecliffs Road runs along the southern boundary, therefore I do not consider any further written approvals are required as a result of the proximity of the disposal field to the southern property boundary.

There has been no consultation carried out with Selwyn District Council, the owners of the public supply gallery located approximately 85 metres from the disposal field, however, I note that they did not submit on the application when it was notified.

5.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The consultant has provided a description of the affected environment in the application. I have audited this description under the following headings:

- Soils
- Groundwater
- Surface waters

5.1 Soils

- The consultant has stated that the site is flat. After checking Environment Canterbury's GIS database, I agree with the consultant that the site is relatively flat.
- The consultant excavated a test hole on the site to determine the soil type. The consultant advised that the excavated test hole revealed 280 millimetres of topsoil, overlying 730 millimetres of claybound gravels, overlying at least 1010 millimetres of free draining gravels.

From Environment Canterbury's GIS database, the soil at the applicant's site is Ruapuna stony silt loam, bouldery phase.

From Environment Canterbury's GIS database, there are four wells with borelog data within one kilometre of the site. This information is summarised as follows:

- From borelog data for well L35/0215 which is located approximately 85 metres south of the applicant's site, the soil profile shows river gravels and boulders to a depth of six metres.
- From borelog data for well L35/0214 which is located approximately 280 metres south of the applicant's site, the soil profile shows 6.69 metres of gravel and boulders, overlying 310 millimetres of claybound gravels, overlying

1500 metres of gravels and boulders, overlying 10.5 metres of water-bearing gravel and sand.

- From borelog data for well L35/0846 which is located approximately 240 metres northeast of the applicant's site, shows one metre of topsoil, overlying 500 millimetres of rocks, overlying three metres of grey clay, overlying 2.5 metres of claybound gravels, overlying seven metres of sandy gravels.
- From borelog data for well L35/0144 which is located approximately 450 metres southeast of the applicant's site, the soil profile shows two metres of clay with a few stones, overlying 700 millimetres of big stones, with some clay, overlying 1.8 metres gravel and clay, overlying 2.2 metres free gravels.

From this information I agree with the consultant's assessment of the soils and subsoils at the proposed disposal site and consider the site to be moderately free-draining.

5.2 Groundwater

- The consultant has stated that groundwater flow would generally be in the west to east direction. John Weeber and Grant Davey (groundwater scientists, Environment Canterbury) have advised that the groundwater will flow in an easterly to south-easterly direction.
- The consultant has stated that groundwater is greater than six metres below the ground surface.

Environment Canterbury's GIS database indicates that there are no wells within one kilometre of the site that have recorded highest groundwater depths. Well L35/0846 located approximately 240 metres to the northeast of the applicant's site had an initial groundwater level reading of 11.10 metres below ground level. Well L35/0144 located approximately 450 metres southeast of the applicant's site had an initial groundwater level reading of 9.14 metres below ground level. The highest groundwater level recorded within two kilometres of the site was 4.28 metres below ground level at L35/0390, located approximately 1.4 kilometres southwest of the applicant's site.

Consultation with John Weeber and Grant Davey concluded that air photos indicate the site is elevated on a river terrace above the Selwyn River. The groundwater levels in wells on the valley floor are high, within a few metres of the ground surface, but given that the site is elevated a few metres above the valley floor, it is considered that groundwater could be around six metres or more below the ground surface.

- The consultant has stated that the proposed discharge site complies with all separation distances to wells as described in the Transitional Regional Plan and the proposed Natural Resources Regional Plan.

Environment Canterbury's GIS database indicates the presence of the Community Drinking Water Supply Gallery L35/0215, located approximately 85 metres from the disposal site. Both the Transitional Regional Plan and the proposed Natural Resources Regional Plan state that sewage discharges should not take place within 1000 metres up-gradient in the direction of groundwater flow and 200 metres in any other direction of a community supply bore.

- The consultant did not state what the current groundwater quality of the area is.

I note that the nearest water quality sample site to the applicant's property is at the public supply gallery, approximately 85 metres to the south of the site. The nitrate

nitrogen level recorded in one sample in 1975 was 0.5 mg/L. I note this sample was taken 30 years ago. There are no other groundwater quality samples within six kilometres of the disposal site. I note this concentration is well below the New Zealand Drinking Water Standard 2000 of 11.3 mg/L.

There is no local data for faecal coliform concentrations in the groundwater.

5.3 Surface Waters

- The consultant states that there are no wetlands or surface waterbodies within 20 metres of the proposed discharge.

Environment Canterbury's GIS database indicates that the nearest surface water, a tributary of the Selwyn River, lies approximately 80 metres to the south of the property.

6.0 ASSESSMENT OF ACTUAL AND POTENTIAL EFFECTS

The consultant has identified the actual and potential effects on the environment under the following headings:

- Adverse effects of the discharge on groundwater quality;
- Adverse effects of the discharge on surface water;
- Adverse health effects on people and communities;
- Odour effects

I consider the consultants list of effects to be a comprehensive list. In auditing this list I have relied on expertise within the Council, my experience with auditing consents for other similar activities and direction from the objectives and policies of the Canterbury Regional Council Policy Statement and Proposed Natural Resources Regional Plan.

6.1 Adverse effects of the discharge on groundwater quality

6.1.1 Effects of pathogens entering groundwater

Applicant's Assessment

The consultant states that the 280 millimetres of topsoil will treat the effluent to a high quality and lead to approximately 90% of the discharge water being evaporated and only 10% of the water seeping into the ground.

Audit of Applicant's Assessment

I agree with the consultant that during the summer there can be up to approximately six millimetres per day of evaporation from the topsoils, however this rate is likely to be lower during the winter months. Information we have received from the manufacturers of the "Biocycle" wastewater treatment system has indicated that the effluent 300 millimetres from the point of discharge will contain less than 1000 faecal coliforms per 100 millimetre sample.

I also agree that most soils have some natural ability to purify effluent (Jenssen, 1988) and this is generally considered to occur in the topmost, organic layer of the soil, i.e. where the effluent is discharged from a drip irrigation system. I am aware that Crane and Moore (1984) reference studies that indicate 92-97% removal of bacteria from human effluent in the first centimetre of soil below the discharge depending on the nature of the soil. In a study carried

out by Noonan in 1995, primary oxidation pond effluent was applied at a rate of 32 millimetres every four days during a period of high rainfall, onto a silt loam soil, and the results indicated a reduction in faecal coliforms of 2-3 orders of magnitude in the topsoil alone, compared with the original effluent. I note that the application rate proposed to this subsurface irrigation system is significantly less than this at 4 millimetres per day, however I also note that the soils at this site may provide a lesser degree of treatment due to their free-draining nature.

I am also aware that an investigation by Gunn (1997) indicated that unsaturated soil conditions are required to ensure effective removal of micro-organisms. Given that there is likely to be approximately six metres of unsaturated soils separating the drip irrigation system from groundwater, the effluent is likely to receive significant treatment in the unsaturated zone before the effluent enters groundwater.

I note that the separation distance to a public drinking water supply gallery is less than specified in the Transitional Regional Plan 1991 and the Proposed Natural Resources Regional Plan 2004. These distances have been determined to ensure that on-site sewage discharges are not likely to contaminate groundwater to the extent that the discharge would prevent nearby public supply bores from being able to access potable water. I also note that the Selwyn District Council gallery is only six metres deep. I have concerns that due to the close proximity of the gallery, the discharge may contaminate the groundwater abstracted from that gallery. However, I do note that the applicant has changed to a drip irrigation system and therefore the plume of contamination is likely to be reduced.

I also note that due to the close proximity of the disposal system to the property boundaries, should any neighbour wish to install a bore on their property in the future, the separation distances may not be maintained and the groundwater may not be potable. However, advice from Leo Fietje (Principal Consents Investigating Officer, Environment Canterbury) suggests that in cases where drip irrigation systems are used, the separation distance required between the irrigation lines and neighbouring properties need only be five metres. I note that the only neighbour whose property lies within five metres of the disposal field (Mr Musson) has provided his written approval, and that he also submitted in support of the application.

Carl Hanson (Groundwater quality scientist, Environment Canterbury) was consulted for the original application, when the applicant was proposing to install a sand trench with soakage shaft. He considered that the water in the public gallery could be at risk from any discharge of contaminants at a distance of 85 metres. He accepts that the sand trench would provide some treatment, but he was unsure of the level and reliability of treatment. He suggested that considering it is a very shallow public water supply, a separation distance of several hundred metres would be appropriate. Now that the applicant has proposed to use a drip irrigation disposal system, I accept that this risk has been reduced.

It was noted that if the water in the public supply bore was treated before being used for drinking water, then any contamination from the discharge may be removed. I approached Selwyn District Council regarding this matter and they confirmed that the water from the gallery is treated by UV light before use.

I note that the water in the gallery is treated to remove pathogens before it is used, however given the proximity of the proposed discharge site, I am not certain that there is no potential for the discharge from the applicant's disposal system to contaminate the public drinking water supply.

In light of these comments I recommend the following conditions of the consent:

- (i) The sewage treatment and land application system shall ensure that the concentration of faecal coliform bacteria in the sewage effluent in the subsoil

- 300 millimetres below the drippers, shall be less than 1000 colony forming units per 100 millilitre sample.
- (ii) There shall be no discharge within 1.5 metres of the eastern property boundary, 2.5 metres of the southern property boundary and five metres from any other property boundary.
 - (iii) There shall be no discharge within 85 metres of the public supply gallery L35/0215.

6.1.2 Effects of nitrates entering groundwater

The consultant has not stated the existing or likely increase in nitrate concentrations in groundwater due to the discharge.

Mr Leo Fietje (Principal Consents Investigating Officer, Environment Canterbury) has advised that due to the large volumes of groundwater available within the Canterbury Plains area, that this groundwater is able to dilute sewage effluent chemicals such as nitrates to non-detectable concentrations within a short distance of the source (Fietje, 1991). However, I do note that there is only a short separation distance to the public supply gallery L35/0215 and that the public drinking water is not treated in a way that removes nitrates.

It is generally considered that denitrification will occur in the in-soil treatment and plant uptake of nitrogen will reduce the amount of nitrates from the discharge that could potentially be leached to groundwater, particularly when using a low application rate, drip irrigation system.

Given that there have been no high nitrate levels recorded in the area and the applicant is proposing to use to a low application rate, drip irrigation system, I do not consider it likely for there to be more than minor adverse effects from nitrates on groundwater quality.

In light of these comments I recommend the following condition of consent:

- (i) There shall be no discharge within 85 metres of the public supply gallery L35/0215.

6.2 Adverse effects of the discharge on Surface Water

Applicants Assessment

The consultant states that there are no surface waterbodies within 20 metres of the proposed disposal site and therefore there will be no effects on surface water quality from the proposed discharge.

Audit of Applicants Assessment

Given that the disposal system proposed is located on relatively flat land and it is approximately 80 metres to the nearest surface water body (based on Environment Canterbury's GIS database), and that the final discharge occurs below ground level with a relatively low application rate, I consider that across ground contamination of surface waters from the discharge is unlikely.

I recommend that a condition be included in the consent stating that there shall be no discharge of effluent within 20 metres of any surface water.

6.3 Adverse effects on public health from above-ground pathogen transfer

Applicants Assessment

The consultant states that there will be no ponding of effluent on the ground surface.

Audit of Applicants Assessment

I note that the consultant performed an on-site test pit, which revealed free-draining soils from the base of the proposed sand trench. I also note that the proposed application rate is relatively low given the free-draining nature of the soils. Therefore, I consider that ponding of effluent on the ground surface is unlikely and adverse effects on public health from above-ground pathogen transfer will be less than minor.

I recommend that a condition be included in the consent stating that there shall be no ponding of effluent on the ground surface. I also recommend that a maintenance condition be added to the consent.

6.4 Effects on Odour

Applicants Assessment

The consultant states that there will be no adverse odour effects from the discharge.

Audit of Applicants Assessment

Given the maintenance proposed by the applicant and that the discharge is below ground, I agree with the consultant that there is likely to be no adverse odour effects from the discharge beyond the boundary of the applicant's property.

I recommend that a maintenance condition be added to the consent.

7.0 ADDITIONAL MITIGATION MEASURES

A summary of the application is provided in section 2 of this report. Of the measures itemised there, I consider that most, in one form or another, are appropriate for attachment as conditions to the consent if it is granted.

In addition to these matters, I consider it appropriate to attach the following additional conditions to this consent if it is granted:

- A standard lapsing condition
- A standard review condition

I have prepared a list of conditions using the mitigation measures proposed by the applicant; refer to section 14.0 of this report. These have been sent to the applicant and consultant for consideration and any comments they make will be tabled at the Committee meeting.

8.0 CONSIDERATION OF ALTERNATIVES

The consultant has not considered any alternatives, but I note that there is no sewerage scheme in the area and the proximity to the public supply bore would not permit the use of a trench disposal system.

9.0 POLICIES AND OBJECTIVES

9.1 Regional Policy Statement (RPS)

The Regional Policy Statement (CRC 1998), Chapter 9 Water, contains the following Objective and Policies that are relevant to this application:

Objective 3

“Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the water quality in Canterbury’s water bodies...while:

- Safeguarding the existing value of water bodies for efficiently providing sources of drinking water for people...
- Maintaining, and where appropriate, enhancing amenity values”.

Policy 9

“To manage point and non-point source discharge and set water quality conditions and standards and terms in plans, and conditions on resource consents, that achieve... Objective 3. Adverse effects of discharges on existing water quality should be avoided, remedied or mitigated and, where appropriate, degraded water quality should be enhanced”.

Policy 11

“Promote land use practices which maintain and where appropriate enhance water quality”.

I note that the proposal may be inconsistent with these policies as I am unsure of the potential for contamination of a public drinking water supply. However, I consider the risk is likely to be low, given the treatment and disposal system proposed and the fact that Selwyn District Council treat the water with UV light. I also note that the application has been notified and there were no submissions in opposition to the proposed discharge.

9.2 Regional Plans

The Proposed Natural Resources Regional Plan, Chapter 4 Water Quality, contains the following Objective and Policies that are relevant to this application:

Objective WQL2 – (2)(b)(i)

“In semi-confined, unconfined, and other confined aquifers or parts of these aquifers, where the water quality is affected by human activities, the groundwater quality shall meet the following values:

For nitrate-nitrogen, the maximum concentration shall not increase by more than two milligrams per litre above the maximum concentration measured between 1996 and 2001, and reported in 2002, and the maximum concentration shall not exceed 11.3 milligrams per litre”.

Policy WQL6 –(2)(a)

“Subject to Policy WQL6(1), where a dwelling or premises is serviced by an individual onsite sewage effluent treatment and disposal system, and the system is installed after 3 July 2004, the system shall be located, constructed, operated and maintained to ensure that:

- (i) the effluent is effectively treated before it is discharged so that adverse effects on groundwater quality beyond the property boundary are avoided; and
- (ii) the separation distance between the discharge and any other sewage system or a well is sufficient to allow for the natural decay or attenuation of pathogenic micro-organisms in the contaminant plume so that the discharge will not be a significant risk to drinking water quality”.

Policy WQL6 – (3)(a)(i)

“Avoid adverse effects on water quality from the cumulative effects of discharges into land from individual onsite sewage effluent treatment and disposal systems by requiring the installation of a network and treatment system for sewage effluent where the density of existing or proposed systems, are or are likely to:

- (i) adversely effect the quality of water in wells used for drinking water supply or other purposes:
- (ii) be significant sources of contaminants in groundwater in the proximity of a settlement, or in an area where the quality of the groundwater does not meet Objective WQL2(2)(b)”.

I note that the proposal may be inconsistent with these policies as I am unsure of the potential for contamination of a public drinking water supply. However, I consider the risk is likely to be low, given the treatment and disposal system proposed and the fact that Selwyn District Council treat the water with UV light. I also note that the application has been notified and there were no submissions in opposition to the proposed discharge.

10.0 PART II MATTERS

10.1 Purpose of the RMA

I have referred to s.5 of the RMA and I consider that the proposal may conflict with the purpose of the Act, which discusses the “*protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their... health and safety*”. However, I consider the risk to public health and safety is likely to be low, given the treatment and disposal system proposed and the fact that Selwyn District Council treat the water with UV light.

10.2 Matters of National Importance

I am satisfied that the application is consistent with s.6 matters of the RMA.

10.3 Other Matters

I am satisfied that the application is consistent with s.7 matters of the RMA.

10.4 Principles of the Treaty of Waitangi (Te Tiriti o Waitangi)

Section 8 of the Resource Management Act requires the consent authority to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). This discharge lies within the rohe of Te Taumutu Runanga. Environment Canterbury emailed Te Taumutu Runanga regarding the proposal, they did not respond to the email, nor did they make a submission opposing the application during the notification period.

11.0 OTHER RELEVANT MATTERS

11.1 Decisions of the Environment Court

I am not aware of any decisions of the Environment Court that have direct relevance to this proposal.

11.2 Previous Council Decisions

I am aware of a previous application that proposed the use of a drip irrigation system that was located within the protection zone of a public supply bore (e.g. CRC060181). However, in this case the disposal system was located over 700 metres from the public supply bore, on the edge of the protection zone and therefore posed a lesser risk of contamination. I also note that the owner of the public supply bore (Waimakariri District Council) was consulted and they provided their written approval. The application was granted non-notified.

12.0 CONCLUSIONS AND RECOMMENDATIONS

I have audited the applicants' information, and have considered all relevant matters under s104 of the Act. The following paragraphs summarize the main issues discussed throughout this report to highlight the matters to be considered by the Committee in their decision-making.

I bring to the attention of the Committee that faecal coliform concentrations 300 millimetres from the base of the disposal system are likely to be no higher than 1000 faecal coliforms per 100ml sample, however the soils are free draining and there is only a separation distance of 85 metres to a public drinking water supply.

I note that Carl Hanson (Groundwater quality scientist, Environment Canterbury) has raised concerns regarding the effects of any discharge on groundwater given the proximity to a shallow public drinking water supply.

In deciding whether to grant this application it should be considered whether the proposal is consistent with the relevant policies and objectives of the RPS and NRRP, and whether the potential adverse effects and risk to groundwater in the area can be sufficiently mitigated by the proposed conditions. I bring to the Committee's attention the points raised in section 9 of the report where there is some uncertainty as to whether the proposed application is consistent with some of the policies and objectives in the RPS and NRRP. The Committee will need to decide the weight to be attached to these policies and objectives in their decision making.

In deciding whether to grant this application, the Committee will also need to consider section 1.3.5 of the Proposed Canterbury Natural Resources Regional Plan which outlines a number of factors that must be taken into account when considering the duration of any resource consent to be granted. The Committee needs to have regard to the matters set out in this section in considering whether the period of 35 years is appropriate for the consent applications. Given the concerns of Carl Hanson relating to the separation distance to a public drinking water supply, the Committee may consider a shorter term for the consent.

The Committee may also wish to consider including a reticulation condition whereby sewage effluent disposal via sand trench land application systems shall cease within six months of a connection to a reticulated sewerage system being available. It should be noted that the applicant proposed this in their application form. The full wording for this condition is included in section 14.0 of this report.

If the Committee considers the effects of the discharge are acceptable, I have listed a number of possible conditions in Section 14.0 of this report, which the Committee may wish to adopt.

Signed: _____

Date: _____

Rosie Miles
Consents Investigating Officer

Reviewed: _____

Date: _____

13.0 REFERENCES

- Canterbury Regional Council (1991). *Transitional Regional Plan*. Canterbury Regional Council. Christchurch, New Zealand.
- Canterbury Regional Council (1998). *Regional Policy Statement*. Canterbury Regional Council. Christchurch, New Zealand.
- Crane, S.R. & Moore, J.A. (1984). *Bacterial Pollution in Groundwater: A Review*. *Water, Air & Soil Pollution* 22: 67-83.
- Environment Canterbury (2004). *The Proposed Natural Resources Regional Plan – Chapter 4 Water Quality*. Canterbury Regional Council. Christchurch, New Zealand.
- Fietje, L. (1991). *General Authorisation for Sewage Tank Effluent Disposal – Technical Support Document*. Canterbury Regional Council.
- Gunn, I. (1997). *On-site wastewater systems and bacterial reduction in subsoil disposal areas: a review*. On-Site NewZ Special Report 97/2.
- Jenssen, P.D. (1988). *Design criteria for wastewater infiltration systems. Alternative Waste Treatment Systems*. R. Bhamidimarri ed. Elsevier.
- Ministry of Health (2000). *Drinking-Water Standards for New Zealand 2000*. Ministry of Health. Wellington, New Zealand.
- Noonan, M. (1995). *Evidence presented at a Resource Consent hearing for Leeston Southbridge Sewage Treatment and Disposal System*. March 1995.

14.0 RECOMMENDED CONDITIONS:

I have prepared a list of conditions below using the mitigation measures proposed by the applicant.

- 1) Contaminants discharged shall be only domestic sewage effluent from a dwelling with a maximum of two bedrooms and a dwelling with a maximum of one bedroom.
- 2) The sewage treatment and disposal system shall not include chlorine disinfection.
- 3) The volume of sewage effluent discharged shall not exceed one cubic metres per day.
- 4) Sewage effluent shall be discharged only into land at a property on Whitecliffs Road, Glentunnel, at or about map reference NZMS 260: L35:2319-4690, as shown on Plan CRC054136A and Plan CRC054136B which form part of this consent.
- 5) (a) The domestic sewage effluent shall be treated in an aerated treatment system or an alternative system, which provides the same or better quality sewage effluent discharged, to a drip irrigation land application system.
(b) The treatment system shall have a proprietary effluent filter installed.
- 6) (a) The land application system shall include at least 250 metres of drip irrigation tubing.
(b) The drip irrigation tubing lines should be at least one metre apart.
(c) The drippers on the tubing shall be spaced at a maximum of 0.6 metres apart.
(d) The sewage effluent loading rate shall not exceed 4.0 millimetres per day evenly dosed in fixed quantities over the land application system.
(e) The drip irrigation tubing shall be covered with between 100 and 150 millimetres of soil.
- 7) The sewage effluent shall be discharged via the system shown on Plan CRC054136B, which forms part of this consent.
- 8) The sewage treatment and land application system shall ensure that the concentration of faecal coliform bacteria in the sewage effluent in the subsoil 300 millimetres below the drippers, shall be less than 1000 colony forming units per 100 millilitre sample.
- 9) (a) The sewage treatment and disposal system installed shall be certified by a person suitably qualified and competent in the design and operation of such treatment and disposal systems, as complying with condition (7) and capable of meeting the standard specified in condition (8).
(b) A copy of the certificate shall be forwarded to The Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, within ten working days following the installation of the treatment system.
- 10) The discharge shall not result in sewage effluent being visible at the land surface.

- 11) There shall be no discharge of effluent within:
- (a) 20 metres of any surface water body
 - (b) 1.5 metres of the eastern property boundary, 2.5 metres of the southern property boundary and five metres from any other property boundary.
 - (c) 85 metres of gallery L35/0215
- 12) The consent holder shall keep written records of all inspections, maintenance and repairs made to any part of the sewage treatment and disposal system. These records shall include information that demonstrates compliance with condition (13) of this consent and a copy of the records shall be forwarded to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, on request.
- 13) (a) The sewage treatment and disposal system shall be serviced at least twice per year by a person competent in the maintenance of such systems. Following every service a written report shall be prepared and kept by the consent holder. The consent holder shall forward a copy of the written report to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager, on request.
- (b) The servicing shall include, but shall not be limited to;
- (i) Measuring the depth of solids and scum in the sewage treatment system
 - (ii) Pumping out the sewage tank if the solids and scum layers combined are greater than two thirds of the depth of the sewage treatment system
 - (iii) Checking the effluent filter and cleaning it if necessary
 - (iv) Checking that the pump and float switches are working reliably
 - (v) Checking that the irrigation lines are working reliably
- 14) Sewage effluent disposal via a drip irrigation land application system shall cease within six months of a connection to a reticulated sewerage system being available. For the purpose of this condition, "available" means:
- (a) A sewerage pipeline network system passes within 30 metres of the property boundary; and
 - (b) The network operator will accept the discharge
- 15) The Canterbury Regional Council may, once per year, on any of the last five working days of January or July serve notice of its intention to review the conditions of this consent for the purposes of:
- (a) 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; or
 - (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
- 16) The lapsing date for the purposes of section 125 shall be 31 March 2011.

APPENDIX ONE – SITE LOCATION MAP - PLAN CRC054136A

APPENDIX TWO – SITE LAYOUT MAP – PLAN CRC054136B

APPENDIX THREE – MAP OF PUBLIC SUPPLY PROTECTION ZONE