

# APPLICANT: F I GRAHAM

## REPORT OF CATHY BEGLEY

Consent ID	Description	Table 3 Location	Table 5 Location
CRC072363	To divert, take and use water from Black Jack Stream at 12 litres per second for the irrigation of 25 ha. of crops and pasture within a 80 ha. area.	All other rivers and streams	Upstream of Waitaki Dam, but not upstream of the outlets of glacial lakes.
Activity Status			
<p><u>Rule 2, Table 3 WCWARP:</u> No allocation limit is specified for “all other streams”, and the minimum flow has been determined as the 1 in 5-year, 7-day low flow required in the WCWARP.</p> <p><u>Rule 6, Table 5 WCWARP:</u> The proposed annual volume is within the allocation limit for “Upstream of Waitaki Dam”, but not upstream of the outlets of the glacial lakes.</p> <p><b>Overall status: Any activity that complies with Rules 2 and 6 is a discretionary activity under Rule 15.</b></p>			

## 1 PROPOSAL

1. F I Graham (hereon in referred to as “the applicant”) applied for CRC072363 on 7 February 2007. This application seeks the ability to take and use up to 12L/s of water from Black Jack Stream for the irrigation of 25 ha. of crop and pasture within a larger 80 ha. command area as shown in the plan contained in Appendix A. It is anticipated that the applicant will use spray irrigation, predominantly k-line.
2. The applicant currently holds CRC001883 which allows them to take and use up to 17.5L/s from Millers Stream. The water taken from Millers Stream is then used to irrigate 45 ha. of land located between Millers Stream (to the south) and Black Jack Stream (in the north). It is possible that the water taken pursuant to this consent (CRC001883) will be used concurrently with water to be taken via this application and used to irrigate the crop and pasture located within the larger 80 ha. command area.

### 1.1 Timeline and Summary of Amendments made to the Applications

Timeline	CRC072363
Date of Lodging	7 February 2007
First Notifiable Date	7 February 2007
Public Notification	4 August 2007

3. As set out above, the application to take and use water was lodged in February 2007.
4. Between March 2007 and December 2009 the CRC made a number of requests for further information which sought to ensure that all necessary resource consent applications had been made and to clarify a number of matters associated with the applications. The applicant has provided further information on the following matters:
  - Providing a minimum flow for Black Jack Stream;

- An annual volume for the proposed take;
- An assessment of the effects of the use of water on the water quality within the Mackenzie Basin;
- An assessment of the effects of irrigation on landscape values within the Mackenzie Basin;
- Whether additional consents are required to enable the taking and use of water for stock water; and
- Providing derogation approval from Meridian Energy Ltd.

## 1.2 Water Source

5. The applicant seeks to take water from the Black Jack Stream which drains an unnamed range to the west of the stream. The stream has a fairly constant flow as it is fed by rainfall and numerous springs during the summer months. At the point of take it is approximately 0.5m wide with a gravel bed and grassed banks. The stream has several small branches in its upper catchment on the unnamed range, however, all these join together prior to the point at which the applicant proposes to take water. Black Jack Stream then joins Miller Stream, with Miller Stream then entering Gibson Stream which joins with Sutton Stream before discharging into Lake Aviemore.
6. Unfortunately there is very little information on Black Jack Stream in terms of aquatic values. However, it is noted that Gibson Stream runs subsurface prior to entering Lake Aviemore.

## 2 BACKGROUND INFORMATION

### 2.1 Farm Details

7. The applicant operates an 11,597 ha. property located on Te Akatarawa Road on the northern shores of Lake Aviemore, of which 407 ha. of the property is freehold with the remaining 11,190 ha. of the property being pastoral lease.
8. Te Akatarawa Station consists of approximately 407 ha. of “easy” freehold land, 616 ha. of low altitude “easy” land, 5,427 ha. of steep hill country, 4,811 ha. of very steep hill country and 366 ha. which cannot be grazed. This means that approximately 80% of the applicant’s property is located on very fragile soils that require careful grazing management. The 25 ha. to be irrigated under this application are located within the 407 ha. of freehold land. The areas that the applicant irrigates and proposes to irrigate are of considerable value, due to the fact that during the 1960’s the majority of Te Akatarawa Station’s productive river flats were flooded during the formation of Lakes Benmore and Aviemore.
9. In 2002, CRC001883 was obtained and enabled 45 ha. to be irrigated. Having this irrigation has changed the way in which the farm is operated. Prior to irrigation the majority of the farm’s income came from the sale of fine wool. Since irrigation, the applicant has been able to diversify and now the farm’s income comes from a mixture of fine wool and the sale of prime surplus stock. Having this diversification has provided the applicant with a greater level of certainty when setting budgets. It also ensures that there is less grazing pressure placed upon the large areas of steep and fragile soils.
10. The applicant notes that overall the stock numbers on the property have not changed as a result of irrigation. What has changed is that the number of young, fattening stock that has increased and the wool producing merino wether numbers decreasing. These changes have resulted in the farming operation being more economically and environmentally sustainable.
11. The stock numbers pre- and post-irrigation are shown in the table below:

Stock	Breeding Ewes	Wether	Mixed sex Hoggets	Cattle	Other
Pre-Irrigation	3,200	4,000	1,800	150	800 2tooth ewes
Post-Irrigation	4,000	2,800	2,700	160	700 Lambs (sold in the autumn)

12. Prior to 2002 the station could only be run as a traditional high country station. This meant having equal-sized ewe and wether flock and only breeding enough lambs to maintain the flock numbers. This resulted in having very few surplus stock available for either fattening or on-selling.
13. Since irrigation, the way the farm operates has changed, in that the applicant now has high quality feed available to feed younger sheep and ewes. This means that the applicant has been able to breed lambs on-farm that can either be on-sold to fattening farms or fattened on-farm and sold for export. From an economic perspective, this means that the applicant is less reliant upon a single income strand being wool. The existing irrigated area is also used to increase the growth rate in the replacement stock. Now the applicant is able to breed from their 2 tooth rather than having to wait until the breeding stock are at least 3 years old.
14. The area under the existing irrigation also provides the applicant with some certainty that they will have sufficient winter-feed to feed their stock over the winter months. This is due to the fact that hay and baleage can be made on this area and is a critical part of the farming operation.

## 2.2 Mackenzie Irrigation Company Shares held

Name: Frederick Ivon and Elizabeth Jane Graham, Leslie Arthur Green and Cook Allan Gibson Trustee Company Ltd.	Number
Property Shares	1
Irrigation Shares	25

15. Irrigation shares are required for the area to be irrigated as this consent is a new consent.

## 2.3 Derogation Approval

16. Derogation approval was obtained in standard format from Meridian Energy Limited on 10 September 2009.

## 3 COMMENTS ON SUBMISSIONS

17. A summary of the submissions is as follows:

Resource Consent	Submissions in support	Submissions in opposition	Neutral
CRC072363	2	12	2

18. Details of the submissions made in response to all applications that were publically notified in 2007 are contained in CRC Report 1, Appendix 5. I have reviewed this report and adopt it as a true and accurate summary of the submissions received.
19. Details of the submissions received made individually on these applications are as follows:

Submitter	Issues	Support/neutral/oppose
LINZ	The submitter has highlighted that some of the areas to be irrigated are subject to Crown Pastoral Lease. To enable the irrigation to occur the terms of the lease may need to be changed.	Neutral
Meridian Energy Ltd	The effects on water quality and flow metering requirements.	Oppose

Central South Island Fish and Game Council	Request a minimum flow of 1 in 5-year, 7-day low flow.	Oppose
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20. With respect to the LINZ submission, the applicant notes that the area to be irrigated is freehold wholly owned by the applicant.
21. As outlined above, Meridian Energy Ltd has provided derogation approval. The applicant holds sufficient MIC Shares to irrigate the 25 ha. of land. Further, the applicant is proposing that the take be metered in accordance with the WCWARP. With respect to whether or not the take will impact upon water quality, this aspect is addressed in section 4.4 of this evidence.
22. With respect to F & G's submission, the applicant is proposing a minimum flow of 80L/s to be measured on Sutton Stream. F & G have agreed that the proposed minimum flow is appropriate.

#### 4 CRC072363 – TO TAKE AND USE WATER - ASSESSMENT OF ENVIRONMENTAL EFFECTS

##### 4.1 Effects on other water users

Effects on other water users	
Comments	The CRC reporting officer for these applications agrees that effects on other water users are minor.

23. There are no other surface water abstractors from Black Jack Stream either up- or downstream of the proposed point of take. This is due to the fact that the land through which the Black Jack Stream flows (from its source to the confluence with Gibson Stream) is controlled by the applicant. Given this, the take from the Black Jack Stream will not impact upon any other water user or person who relies on this stream for other purposes, such as domestic and stock water.
24. However, in saying this, Black Jack Stream joins Gibson Stream approximately 1.8 km. downstream of the point of take. Gibson Stream then joins with Sutton Stream approximately 1.6 km. upstream of where it flows into Lake Aviemore. Waitangi Station are also applying to take up to 55L/s from Sutton Stream, 55L/s from Gibson Stream and up to 35L/s from Lake Aviemore to be used for irrigation and stock water purposes. I note that Table 3 row (xxii) of the WCWARP does not set a specific allocation limit for these waterways to ensure that where there are competing users for the resource, the effects on these users is "acceptable".
25. To ensure that the proposed take from Black Jack Stream does not impact upon Waitangi Station's take, a minimum flow of 80L/s is proposed. However, a minimum flow in itself will not protect other users who have a higher priority. To this end, the applicant proposes to establish a water users' group. I note that Mr Stewart (ECan Hydrologist) in his report *2B – Environmental flow and level regimes – hydrology report*, recommends that in order for impacts on the two users within the catchment to be minor, ramping or flow sharing should start whenever the flow in Sutton Stream reaches 135L/s, based on a combination of the rate of take from Sutton Stream of 55L/s and a minimum flow of 80L/s. As outlined above, the applicant is proposing a water users' group to ensure that they do not impact upon each other.
26. These proposed takes sit within the area defined as "Upstream of Waitaki Dam", but not Upstream of the outlets of the Glacial Lakes in Table 5 of the WCWARP. This table sets a cumulative allocation of 275 million m<sup>3</sup>/year for this area. Ms Bartlett in her *Report 3 – Annual Allocations to Activities (Rule 6 Table 5)* acknowledges that the granting of the applications subject to this hearing will not result in the cumulative allocation limit of 275 million cubic metres per year being exceeded.

27. Further, the applicant has gained derogation approval from Meridian Energy Ltd and as such the granting of the proposed takes will not impact upon its existing consents to take and use water within the catchment for power generation.

#### 4.2 Effects on in-stream values

Minimum flow requirements	
Proposed Environmental Flow Regime	All other rivers and streams
<b>Comments</b>	<p>A minimum flow of 80L/s as measured upstream of Waitangi Stations intake is proposed.</p> <p>The CRC reporting officer for these applications agrees that effects on ecosystems are minor.</p>

28. Table 3 of the WCWARP does not set a specific minimum flow regime for Black Jack Stream; rather it provides a formula by which a minimum flow is to be determined. This formula requires the minimum flow to be the 5-year, 7-day low flow and should be set at the downstream end of the catchment.
29. As outlined in Mr Boraman's evidence, it has been calculated that the 5-year, 7-day low flow for Sutton Stream (of which Black Jack is a tributary) is 80L/s. I understand that both Mr Stewart (the CRC hydrologist) and Mr Scarf (F & G and DoC's hydrologist) agree that 80L/s is acceptable. Further Mr Boraman has proposed a monitoring point for the minimum flow which is located upstream of the Waitangi Station intake.
30. When water is taken either directly from a water body without an appropriate fish screen in place, there is the potential for the aquatic values of that waterway to be adversely affected. With respect to this application, there is an existing intake structure on Black Jack Stream with an existing fish screen in place. The applicant is proposing a mitigation measure which would require them to "as far as is practicable" exclude fish from entering the intake. To this end, prior to the exercising of this consent, the applicant will have their existing fish screen audited and certified to ensure that their fish screen as far as is practicable excludes fish and is in general accordance with the report *Fish Screening: good practice guidelines for Canterbury, NIWA Client Report: CHC2007.092, October 2007*.

#### 4.3 Effects of inefficient water use

Reasonable and Efficient Use Seasonal Volumes and Land Use	
<b>Land Use</b>	Mixed (cropping, and pasture for fattening sheep and beef cattle)
<b>Area to be irrigated (hectares)</b>	25 ha. within an 80 ha. command area
<b>Method of application</b>	Spray
<b>Daily application depth</b>	3.2 mm
<b>Return period</b>	10 days
<b>Application depth</b>	32 mm
<b>Soil profile available water</b>	Otematata Soils 72 mm
<b>Effective Irrigation Season Rainfall</b>	190 mm
<b>Seasonal volume required (m<sup>3</sup>/year)</b>	150,000 m <sup>3</sup> /year

<b>Seasonal volume Schedule WQN9v2 (m<sup>3</sup>/year)</b>	156,250 m <sup>3</sup> /year
<b>Volume to be included in Table 5 (WCWARP) allocation</b>	150,000 m <sup>3</sup> /year
<b>Comments</b>	The proposed annual volume is based upon the applicant's Mackenzie Irrigation Company share holding. For spray irrigation 1 share = 600 mm/ha/year or 6,000m <sup>3</sup> /year. Schedule WQN9v2 is 156,250 m <sup>3</sup> /year, which is more than the proposed annual volume.

31. Traditionally two methods have been used to determine whether the use of water for irrigation is efficient. The first method is ensuring that the peak application rate is no more than half the water holding capacity of the soil. The second method is by the implementation of an annual volume using one of the two methods set out in Policy 16(c) of the WCWARP.
32. The applicant proposes that the water taken pursuant to this consent will be used in conjunction with CRC001883. This means that in total the applicant is able to take up to 29.5L/s (17.5L/s from Millers Stream and 12L/s from Black Jack Stream). The water taken will be used to irrigate in total 70 ha. within an 80 ha. command area. Therefore the applicant is not applying for any more than half the water holding capacity of the soil, and as such, the proposed take is considered to be an efficient use of water.
33. This application proposes an annual volume of 150,000 m<sup>3</sup>/year, which is based upon the applicants MIC shareholding. I note that, using the methodology set out in Policy 16(c)(ii), an annual volume of 156,250m<sup>3</sup>/year would be acceptable. The latter annual volume is based upon mean rainfall of 190 mm/ha/year and the soils requiring 815mm/ha/year. As the proposed annual volume is less than the volume determined under Policy 16(c)(ii) the use of water is considered to be efficient.
34. Policy 21 of the WCWARP requires all water takes to be metered. To ensure that this application is consistent with this policy, the applicant proposes to meter their take.

#### 4.4 Effects of the use of water on water quality

<b>Water Quality</b>	
<b>Comments</b>	<p>The CRC reporting officer for these applications is not currently satisfied that effects of water quality are minor.</p> <p>Cumulative effects on water quality have been addressed by Mackenzie Water Resources Limited (MWRL) and are summarized below.</p> <p>Local effects have also been addressed below</p>

35. The MWRL Water Quality Study states that the areas to be irrigated are located within the Lake Aviemore and Lake Waitaki Catchments. This study goes on to calculate N and P thresholds for the property.
36. The calculated nutrient mitigation requirement of the receiving environments determined in the MWRL Study has identified the N and P thresholds for the property. These are shown in the table below.
37. OVERSEER® has been run by a qualified person to model the N and P outputs from the proposed farming system. The results of the model have been incorporated into the table below. This table shows that the applicant can meet the property thresholds that are the most restrictive.

	<b>Nitrogen Threshold</b>	<b>Phosphorous Threshold</b>
MWRL Water Quality Study Property Thresholds	26,302	748
OVERSEER® outputs	25,569	293

38. The applicant is committed to implementing the “Mandatory Good Agricultural Practices” set out within the Farm Environmental Management Plan (FEMP) (see Appendix D). Implementing these practices ensures that the OVERSEER® results are validated. This, along with ensuring that the property thresholds of the WQS (set out in the table above) are not exceeded, will ensure that the cumulative effects of the use of water for irrigation on water quality are no more than minor.
39. Whilst the applicant is able to comply with the thresholds outlined within the MWRL Water Quality Study, this study also identified that the applicant still has to consider specific on-farm effects and the impacts these activities could have on the local receiving environment. This requires a specifically developed Farm Environmental Management Plan (FEMP) to identify and implement appropriate mitigation measures set out in the draft attached (see Appendix D).
40. At a workshop held in Twizel in August 2009, the applicants met with Ms Melissa Robson of GHD Limited. A “desktop” on-farm risk assessment was undertaken. This is considered to be the “starting point” of the FEMP.
41. The workshop identified potential on-farm risks specific to each farm along with possible mitigation measures. The on-farm risks identified during the desktop risk assessment need to be verified by an appropriately qualified person who has carried out a site visit. It is anticipated that this will occur should the application be granted.
42. For Te Akatarawa Station, the desktop risk assessment identified the following potential risks:
  - The large number of surface water bodies that flow through the property; and
  - Transpower’s tracking.
43. The applicant has committed to implementing the FEMP, including an on-farm risk assessment and appropriate mitigation, monitoring and auditing before the first exercise of this consent. The FEMP has been proposed as condition of consent and the draft FEMP is attached (see Appendix D).
44. Given that the N and P thresholds from the MWRL Study can be met, and the applicant’s commitment to addressing on-farm risks with the implementation of the FEMP, the effects of the use of water on water quality for both the local receiving environment and cumulative effects are considered to be minor.

#### 4.5 Effects on landscape values

<b>Effects on Landscape</b>	
<b>Comments</b>	<p>Landscape effects have been addressed by UWAG’s Landscape Architect, Mr Andrew Craig, who considers that this proposal will have a minor effect on landscape values.</p> <p>The CRC reporting officer for these applications considers the effects on landscape are uncertain and may therefore be more than minor</p>

45. Submissions have been received which state that the Mackenzie Basin as a whole is considered to be an “outstanding natural landscape”. These values could be impacted upon through the irrigation of land. The area to be irrigated is located approximately 3.5 km. to the north of Te Akatarawa Road and approximately 6.5 km. to the north of Otematata Kurow Road (across the Lake Aviemore) (SH 8).
46. Mr Andrew Craig will provide further evidence as to whether the irrigation of this area will impact upon the landscape values of the area and as such I do not propose to repeat his assessment here. Mr Craig has concluded that the general effects on the Mackenzie landscape of these applications will be significantly less than minor. Given this, the effects of the proposed takes on landscape values are considered to be minor.

#### 4.6 Effects on Tangata Whenua Values

<b>Effects on Tangata Whenua</b>

<b>Comments</b>	The CRC reporting officer for these applications considers the effects on Tangata Whenua are uncertain and may therefore be more than minor
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47. Te Runanga O Ngai Tahu submitted on all applications in the catchment, seeking that all applications be declined. The primary reasons for this were that the applications were considered to be inconsistent with the policies and objectives of the WCWARP, and also at odds with the cultural objectives of the RMA.
48. It is acknowledged that Te Runanga O Ngai Tahu have a significant relationship with the Waitaki Catchment, and as such, appropriate minimum flow conditions and management of water quality effects are proposed by the applicant to ensure that the potential effects on the environment, including tangata whenua values, are minor.

#### 4.7 Effects on People, Communities and Amenity Values

<b>Effects on People, Communities and Amenity</b>	
<b>Comments</b>	The CRC reporting officer for these applications considers there may be effects on people and communities may be more than minor.

49. The applicant has proposed an appropriate minimum flow condition for the water body from which they have applied to take and use water. A minimum flow is considered to adequately protect people, communities and amenity values within the rivers specific to each applicant.
50. The activities all occur within a rural setting, where the dominant land use is pastoral farming. And, given that the proposed activities all occur on private farmland the use of water is unlikely to adversely affect amenity values.
51. The WCWARP sets an annual allocation “cap” for agricultural and horticultural activities within defined areas (Table 5). The applicant has proposed an annual allocation limit for their own resource consents for the use of water, as well as implementing Farm Management Plans, which require existing irrigation systems to be audited and improved where possible, and new systems to be designed and installed by accredited personnel, and implementing initiatives to ensure that water is used wisely.
52. The primary objective of an annual allocation is to ensure that the water is used efficiently and effectively for the land use, soil type and climatic conditions. The applicant has proposed an annual volume that is considered to reflect reasonable and actual use and this is within the allocation limit defined by Table 5.
53. Therefore, given the applicant’s commitment to ensuring the efficient use of water on their properties, and that the take is within allocation limits set to protect in-stream values and other users, it is considered that effects on people and communities will be minor.

# APPENDIX A – RELEVANT PLANS

Area to be irrigated (includes area irrigated under CRC001883)



## APPENDIX B - PHOTOS

80 ha. command area



Black Jack Stream looking down stream



Flow of stream

Point of diversion

Inlet into Header Pond



Header pond



**Confluence of Black Jack Stream with Millers Stream**



Millers Stream

Black Jack Stream

## APPENDIX C - PROPOSED CONDITIONS

No.	Condition Code <sup>1</sup>	Details																								
<b>Duration</b>																										
1		Consent is granted for a term expiring on the 30 <sup>th</sup> of April 2025. <i>Clause 15.3(a)</i>																								
<b>Take</b>																										
2		Water may only be taken and / or diverted from Black Jack Stream located at or about map reference NZMS I39:956-250. <i>Clause 15.3(d)</i>																								
3		<p>Water may only be taken between 1 September and the following 30 April and only in accordance with the maximum rate, daily volume (being from 12.01am to 11.59pm) and annual volume (measured between 1 July and the following 30 June) set out in Table A. <i>Clause 15.3(d)</i></p> <p style="text-align: center;"><b>Table A – Maximum Rates &amp; Volumes</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Year</th> <th style="text-align: center;">Maximum rate of abstraction (litres / second)</th> <th style="text-align: center;">Maximum Daily Volume (cubic metres / day)</th> <th style="text-align: center;">Maximum Annual Volume (cubic metres / year)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 September 2009 to 30 April 2010</td> <td style="text-align: center;">12 l/s</td> <td style="text-align: center;">1,037 m<sup>3</sup>/day</td> <td style="text-align: center;">150,000 m<sup>3</sup>/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2010 to 30 April 2011</td> <td style="text-align: center;">12 l/s</td> <td style="text-align: center;">1,037 m<sup>3</sup>/day</td> <td style="text-align: center;">150,000 m<sup>3</sup>/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2011 to 30 April 2012</td> <td style="text-align: center;">12 l/s</td> <td style="text-align: center;">1,037 m<sup>3</sup>/day</td> <td style="text-align: center;">150,000 m<sup>3</sup>/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2012 to 30 April 2013</td> <td style="text-align: center;">12 l/s</td> <td style="text-align: center;">1,037 m<sup>3</sup>/day</td> <td style="text-align: center;">150,000 m<sup>3</sup>/annum</td> </tr> <tr> <td style="text-align: center;">1 September 2013 to 30 April 2014 and every year thereafter</td> <td style="text-align: center;">12 l/s</td> <td style="text-align: center;">1,037 m<sup>3</sup>/day</td> <td style="text-align: center;">150,000 m<sup>3</sup>/annum</td> </tr> </tbody> </table>	Year	Maximum rate of abstraction (litres / second)	Maximum Daily Volume (cubic metres / day)	Maximum Annual Volume (cubic metres / year)	1 September 2009 to 30 April 2010	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum	1 September 2010 to 30 April 2011	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum	1 September 2011 to 30 April 2012	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum	1 September 2012 to 30 April 2013	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum	1 September 2013 to 30 April 2014 and every year thereafter	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum
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<b>Use</b>																										
4		Water allocated in Table A of Condition (3) shall be used only for the spray irrigation of <b>for grazing sheep and beef cattle</b> to irrigate 25 hectares on the area of land shown on attached Plan A. <i>Clauses 15.3(d) &amp; 14(3)</i>																								
5		Water for irrigation shall only be used on or applied to land that is subject to a memorandum of encumbrance that complies with the requirements of the agreement entitled " <i>Agreement in Relation to the Allocation of Water for Irrigation</i> " between Meridian Energy Limited and the Mackenzie Irrigation Company Limited dated the 31 <sup>st</sup> of October 2006. <i>Clause 14.3</i>																								
6	WPO6	The consent holder shall take all practicable steps to: <ul style="list-style-type: none"> <li>(a) Ensure that the volume of water used for irrigation does not exceed that required for the soil to reach field capacity; and</li> <li>(b) Avoid leakage from pipes and structures; and</li> <li>(c) Avoid the use of water onto non-productive land such as impermeable surfaces and river or stream riparian strips.</li> </ul>																								
7		(a) If the irrigation system used to distribute water taken in terms of this permit is used to distribute effluent, fertiliser or any other added contaminant, a backflow preventer manufactured in accordance with AS 2845.1 (1998) or the American Society of Sanitary Engineers standards shall be installed within the pump outlet plumbing or within the mainline, to prevent the backflow of water into the bore.																								

<sup>1</sup> See Report 1, Appendix 6 for condition code and wording.

		(b) The backflow preventer shall be tested to the standard set out in AS 2845.3 (1993) or an equivalent method within one month of its installation and annually thereafter by a suitably qualified person. A test report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two weeks of each inspection.
<b>Fish Screen</b>		
8	Non-standard	(a) No water shall be taken in terms of this permit as referred to in condition 1 until a report is provided to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager demonstrating the existing fish exclusion measures have been designed and installed in accordance with Fish Screening: Good Practice Guidelines for Canterbury, NIWA Client Report 2007-092, October 2007. (Copy available on <a href="http://www.ecan.govt.nz">www.ecan.govt.nz</a> ). (b) The fish exclusion measures shall be maintained in accordance with Fish Screening: Good Practice Guidelines for Canterbury, NIWA Client Report 2007-092, October 2007.
<b>Minimum flow</b>		
9	WP07	<i>Name of waterbody:</i> Sutton Stream <i>Map reference:</i> NZMS 260 I39:967-215 <i>Minimum flow:</i> 80 litres per second <i>Flow graph:</i> See Report 2A
<b>Measuring &amp; Metering</b>		
10		The consent holder shall, six months prior to this consent being exercised, provide to the Canterbury Regional Council a certificate from the Consent Holder's solicitor certifying that the memorandum of encumbrance provided for in Condition (5) is registered on the computer registers for the land shown on Plan x, and any other evidence of registration as the Canterbury Regional Council may require (if any). <i>Clause 14.3</i>
11		The consent holder shall, before the first exercise of this consent:  a.  (i) install a water meter(s) that has an international accreditation or an equivalent New Zealand calibration endorsement suitable for use with an electronic recording device, from which the rate and the volume of water taken can be determined to within an accuracy of plus or minus five percent at a location(s) that will ensure the total take of water from Black Jack Stream is measured; and  (ii) install a tamper-proof electronic recording device such as a data logger that shall record (or log) the flow totals every 15 minutes and have the capacity to hold at least one season's (as specified in condition (3)) data of water taken as specified in clause (b) (i) , or which is telemetered, as specified in clause (b)(ii). <i>Clause 15.3(b)</i>  b. The water meter and recording device(s) shall be set to wrap the data from the measuring device(s) such that the oldest data will be automatically overwritten by the newest data (i.e. cyclic recording); and shall:  (i) store the entire season's data in each 12 month period from 1 July to 30 June in the following year, which shall be downloaded and stored in a commonly used format and provided to the Canterbury Regional Council upon request in a form and to a standard specified in writing by the Canterbury Regional Council; or  (ii) be connected to a telemetry system which collects and stores all of the data continuously with an independent network provider who will make that data available in a commonly used format at all times to the Canterbury Regional Council and the consent holder. No data in the recording device(s) shall be deliberately changed or deleted.  c. The measuring device shall be installed at a site likely to retain a stable rating (i.e. a man-made channel, concrete, steel or fibreglass pipe). Installation shall be in accordance with ISO 1100/1-1981 or equivalent and be undertaken by a suitably qualified person.

12		The water meter and recording device(s) shall be accessible to the Canterbury Regional Council at all times for inspection and/or data retrieval. <i>Clause 15.3(b)</i>
13		The water meter and recording device(s) shall be installed and maintained throughout the duration of the consent in accordance with the manufacturer's instructions. <i>Clause 15.3(b)</i>
14		All practicable measures shall be taken to ensure that the water meter and recording device(s) are at all times fully functional and have an accuracy standard of $\pm 5\%$ . <i>Clause 15.3(b)</i>
15		The consent holder shall, within one month of any water meter and recording device(s) being installed, or within one month of any water meter and/or recording device(s) being replaced, and at five-yearly intervals thereafter, and at any time when requested by the Canterbury Regional Council, provide a certificate to the Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that: <ul style="list-style-type: none"> <li>a. the water meter and recording device(s) has been installed in accordance with the manufacturers specifications; and</li> <li>b. data from the recording device can be readily accessed and/or retrieved in accordance with conditions (11), and (12)..</li> </ul>
16		The Canterbury Regional Council (Attention: RMA Compliance and Enforcement Manager) shall be informed immediately on first exercise of this consent by the consent holder
<b>Farm Environmental Management Plan</b>		
<b>Administrative Conditions</b>		
14	AD01	The Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, shall be informed immediately on first exercise of this consent by the consent holder
15	AD02	<i>Number of working days: 5</i> <i>Month 1: March</i> <i>Month 2: July</i> <i>Waterbody: Sutton Stream and tributaries</i> <i>Cross reference to Condition: 6</i>
17	AD04	Lapse date

# APPENDIX D – FARM MANAGEMENT PLAN



# APPENDIX E – DEROGATION APPROVAL



11 September 2009

Gillian Ensor  
Environment Canterbury  
PO Box 345  
Christchurch

Dear Gillian

**Application by FI Graham**

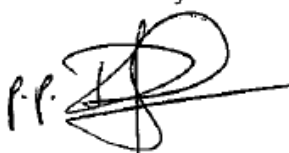
- 1 We write to you to outline the basis of Meridian Energy Limited (*Meridian*) providing its derogation approval of the application numbered CRC072363 by FI Graham. We refer to the letter to Ecan from Chapman Tripp dated the 26<sup>th</sup> of June 2008 setting out Meridian's position on derogation approvals generally.
- 2 Meridian has read and considered the application CRC072363 by FI Graham and provides derogation approval on the following basis:
  - 2.1 FI Graham shall only be entitled to divert, take and use water from Black Jack Stream (at location NZMS 260 139:956-250) at a maximum rate of 12 litres per second for the spray irrigation of 25 hectares identified in the application;
  - 2.2 The maximum daily volume shall not exceed 1,037 cubic metres per day and the maximum annual volume shall not exceed 150,000 cubic metres per annum and this shall be allocated as an agricultural and horticultural activity upstream of the Waitaki Dam under Rule 6, Table 5 of the Waitaki Catchment Water Allocation Regional Plan;
  - 2.3 the annual volume provided for in Clause 2.2 shall be time tranced in accordance with the following table:

**Table A – Maximum Rates & Volumes**

Year	Maximum rate of abstraction (litres/second)	Maximum Daily Volume (cubic metres/day)	Maximum Annual Volume (cubic meters/year)
1 September 2009 to 30 April 2010	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum
1 September 2010 to 30 April 2011	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum
1 September 2011 to 30 April 2012	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum
1 September 2012 to 30 April 2013	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum
1 September 2013 to 30 April 2014 and every year thereafter	12 l/s	1,037 m <sup>3</sup> /day	150,000 m <sup>3</sup> /annum

- 3 Any amendment or modification to the above will require further written derogation approval from Meridian. On the same basis any subsequent variation, transfer or replacement application that is relevant to the volume or location of the take may also require further approval.
- 4 This letter is not an affected party approval to the consent application under section 94 of the Resource Management Act. Meridian may choose to submit in support or oppose the application on grounds which do not relate to the derogation of its rights, or not to submit at all.
- 5 This letter does however record (subject to the above) that Meridian will not oppose the granting of the FI Graham application on the ground that it will reduce the quantity of water available under Meridian's existing consents.
- 6 Please advise if any basis for Meridian's approval outlined in paragraph 2 will not be met by the resource consent.

Yours sincerely



Mike Roan  
Markets and Production Director