

In the matter of The Resource
Management Act 1991

and

In the matter of Applications CRC092413,
CRC092809 & CRC092810
by the Waimakariri
District Council for a
stormwater management
system to discharge
stormwater to water.

**Decision of hearing commissioner
Michael Conrad Freeman**

Date and location of hearing

30 & 31 July 2009 at the Waimakariri District Council, Rangiora

Appearances

Applicant

- Peter Marks, Special Projects Manager, Waimakariri District Council
- Gerard Cleary, Manager Utilities and Roading, Waimakariri District Council
- Cedric Carranceja, Solicitor, Buddle Findlay
- Warren Bird, Environmental Engineer, Opus International Consultants Limited, Including evidence from Nigel Edger, Senior Geotechnical Engineer, Opus International Consultants
- Alice Bradley, Resource Management Consultants, Opus International Consultants
- Stephen Baker, Senior Resource management Planner, Opus International Consultants

Submitters

- Bryan Sulzberger, Property owner on Flaxton Road, Chairman of the Central Drainage Advisory Group.
- MA & BL Clarke Family Trust, Property owner upstream of drainage works area
- Te Ngāi Tūāhuriri Runanga, Andrea Lobb, Mahaanui Kurataiao Limited

Reporting officers

- Belinda Whyte, Consents Investigating Officer, Environment Canterbury
- Anita Warnock, Consents Investigating Officer, Environment Canterbury

1. Background and hearing process

- 1.1 The following is a brief description and background to the proposal. The details are contained in the application and in the evidence presented at the hearing. I will not repeat those details here.
- 1.2 The Waimakariri District Council (WDC) proposes to develop a new stormwater management system for the Southbrook industrial area. The area is approximately 76 ha in size and is located just south of Rangiora, bounded by Fernside Road, Flaxton Road and Todds Road.
- 1.3 The proposed stormwater system involves discharging stormwater into the Flaxton Road Drain which would then be diverted into a stormwater treatment system which would then discharge back into the Flaxton Road Drain at the downstream boundary of the development area.
- 1.4 The development proposal involves the following resource consent applications:
 - Discharge permit (CRC092413) to discharge stormwater into water
 - Land use consent (CRC092809) to excavate land over an unconfined aquifer, to disturb soil and vegetation in the riparian margin, to disturb the beds of watercourses, and to install structures in the beds of watercourses.
 - Water permit (CRC092810) to permanently dam and divert water.
- 1.5 I undertook an unaccompanied site visit early on the morning of 31 July 2009.
- 1.6 After the adjournment of the hearing on 31 July and in response to a minute/direction I issued on 4 August 2009 (attached in Appendix1) the applicant's further information was received by ECan on 5 November 2009. The reporting officers responded on 26 November 2009 with comments on the applicant's proposed consent conditions and provided an addendum section 42A officers report. I requested some further technical clarification from the applicant on 1 December 2009 on a number of proposed consent conditions.
- 1.7 A right of reply, including responses to my queries, was received from the applicant on 16 December 2009. Submitters were asked if they wished to respond to the applicant's responses to my queries and no submitter indicated a wish to respond. I issued a second minute on 21 December (attached in Appendix 1) questioning what appeared to be a small error in

the applicant's right of reply and the applicant responded on 24 December 2009. I also requested that if any other party wished to respond to the applicant's response that they should signal that. No such requests were received. I closed the hearing on 18 January 2010.

2. Notification and submissions

- 2.1 The resource consent applications were publicly notified on 16 May 2009 in The Press and the Northern Outlook.
- 2.2 There were seven submissions, one of which was outside the timeframe for submissions but a waiver was granted by Environment Canterbury (ECan). Of these submissions four were in opposition, two were in support and one is neither in support or opposition.
- 2.3 I have read and/or heard all of the submissions.

3. Summary of the evidence heard and the hearing

The applicant's representatives

- 3.1 **Mr Marks** summarised the background to the applications. He explained the identification by the WDC of a need for more commercial/industrial land in the vicinity of Rangiora, the investigation and planning work undertaken to identify the site and the proposed method for stormwater management and treatment. He summarised the principal design elements of the stormwater system and the proposal by the WDC to establish a stormwater bylaw to assist in ensuring that those parties responsible for individual site stormwater discharges complied with a number of proposed requirements relating to the quality and quantity of stormwater.
- 3.2 Mr Marks also outlined extensive consultation processes undertaken with the public, property owners, Te Ngāi Tūāhuriri Runanga and a number of organisations. He also provided comprehensive comments on the section 42A reports and submissions. The key points raised by Mr Marks in these comments are as follows:
 - He considered that many of the reporting officer recommended conditions are unreasonable, and includes a number of detailed comments on specific consent conditions proposed by the reporting officers.
 - He considered that the system design details should not be audited by ECan reporting officers.
 - He outlined how specific submission issues have been or should be addressed.

- 3.3 **Mr Cleary** provided a succinct overview report in which he highlighted the following key viewpoints:
- The economic and social benefits that would be associated with the development of the business zone.
 - The importance of the stormwater bylaw to meet the needs of the WDC and ECan.
 - Concerns about the level and reasonableness of testing and monitoring requirements of some ECan discharge permits.
 - The extent of monitoring conditions proposed by the reporting officers.
- 3.4 **Mr Carranceja** provided a legal perspective on issues relating to ‘effects-based’ versus ‘prescriptive’ resource consent conditions. His key concern appeared to be that he considered that a number of conditions proposed by the reporting officers were ‘prescriptive’ and unnecessary in the light of ‘effects-based’ conditions that provided flexibility to a consent holder to determine how to comply. He suggested that any conditions which “...purport to prescribe the method for complying with the environmental performance standards should be deleted...”.
- 3.5 Mr Carranceja also expressed the view that the conditions proposed by the reporting officers to restrict roofing materials are *ultra vires*. Finally, Mr Carranceja indicated his agreement with the WDC expert witnesses’ concerns about some conditions.
- 3.6 **Mr Bird** provided a comprehensive technical report on the background to the stormwater treatment system including both water quality and quantity design considerations. He explained in detail the expected level of contaminant treatment and the storm design modelling. This included clarifying the calculations behind concluding that the 12 hour storm is the critical duration storm event. He also clarified how he had modified his modelling in response to concerns identified by ECan’s technical adviser, such as incorporating an allowance for climate change.
- 3.7 He reiterated concerns about some consent conditions proposed by the reporting officers and concluded by emphasising his professional opinion that the proposed stormwater system would preserve base flows while avoiding increases in peak flows. He also provided additional stormwater modelling results at the hearing to clarify issues relating to water quality and pre and post development hydrographs for various 2% annual exceedence probability rain events.
- 3.8 Mr Bird also provided the evidence of Mr Nigel Edger, Senior Geotechnical Engineer, Opus International Consultants. Mr Bird explained that Mr Edger was not available to present his evidence in person. Mr Edger’s evidence related to concerns about the conditions proposed by the reporting officer on the integrity of the proposed wetland treatment pond clay liner. He suggested alternatives to the testing and maintenance conditions suggested by the reporting officer.

- 3.9 **Ms Bradley** discussed the existing ecological values of the Southbrook drains and the implications of the proposed discharge on water quality and ecosystems. Ms Bradley estimated the concentrations of specific contaminants in the Flaxton Road Drain downstream of the proposed discharge point based on annual loads. She evaluated the effects of the discharge with reference to the WAIM TRIB water quality standards specified in the Waimakariri River Regional Plan (WRRP) and concluded that it is “...unlikely that the stormwater discharge will negatively affect the current life-supporting capacity of the Flaxton Road Drain or the Cust River.”
- 3.10 Ms Bradley also discussed the ecological implications of the proposed flow diversions and the loss of habitat that would be caused by closing off the existing streams that currently run across the proposed development area. She concluded that with appropriate design the diversion channels could create habitats comparable to those that currently exist.
- 3.11 **Mr Baker** provided a comprehensive report on the adverse effects associated with the proposed development from a planning perspective. He expressed concerns about the appropriateness of various conditions proposed by reporting officers including the suggestion that an operation and maintenance plan be provided and audited. He reiterated the view that the WDC consider that flexibility should be available to determine the operational detail provided that specific environmental standards are complied with. Mr Baker highlighted issues associated with the maintenance of flows in the streams and agreed that the specific mitigation measures suggested by the reporting officers are appropriate.
- 3.12 Mr Baker considered that the conditions proposed by the reporting officers related to stormwater arising during construction were inappropriate because the WDC intention is to limit the application to operational stormwater discharges. He considered that erosion and sediment control during individual site construction to be a matter that each individual site owner needed to address at the time of construction.
- 3.13 Mr Baker addressed issues relating to stockpiling excavated material and the relevant reporting officer’s recommended conditions that would restrict long-term stockpiling. His analysis concluded that long-term stockpiling would be a permitted activity and that conditions that would limit it should not apply. He agreed that the approach of bundling up the consents to the most restrictive category of non-complying, was appropriate. He finished his report by undertaking an analysis of the application in terms of the specific statutory considerations and concluded that both of the section 104D tests would be satisfied, i.e., his opinion was that the adverse effects would not be greater than minor and that the proposal is not contrary to the relevant planning provision objectives and policies.

The submitters

- 3.14 **Mr Bryan Sulzberger** said that he is mainly in favour of the development but that he has significant concerns about the proposed splitting of stream flows

and is specifically concerned about the possibility that the stream/drain flows along Flaxton Road prior to the proposed wetland treatment system could be significantly reduced and result in stagnant waters. He suggested that a length of the Flaxton Road stream/drain be ‘underpinned’ with a concrete pipe system to enable a small flow of water to be maintained.

- 3.15 **Mr Murray Clarke** spoke on behalf of the MA & BL Clarke Family Trust. His original concerns related to proposed bunds that he considered may cause the Flaxton Drain to overflow and possibly exacerbate flooding. However, those bunds have now been removed from the design. Mr Clarke expressed concerns that he did not consider that there is an overall catchment management plan for the wider area.
- 3.16 Mr Clarke considered that the application included misleading comments about aspects of the proposal being best practice. At the hearing he withdrew his written accusation that the application contained false statements. Mr Clarke stated that he agreed with concerns identified in the section 42 reports.
- 3.17 **Ms Andrea Lobb** acknowledged the opportunities provided by the WDC for consultation on the development proposal and was in general agreement with the overall design of the stormwater treatment system. Ms Lobb noted that agreement had been reached between the applicant and Te Ngāi Tūāhuriri Runanga on various matters such as consultation on landscaping and the use of native fish species in stream restoration work.
- 3.18 Ms Lobb noted that there was only one issue where there was not agreement and that relates to the one direct discharge proposal into the Flaxton Road Drain prior to the wetland treatment pond. Ms Lobb indicated that Ngāi Tahu considered this approach to be a situation specific “trade-off situation”. She concluded by stating that the proposal was not opposed if appropriate conditions were incorporated as agreed with the WDC.

The reporting officers

- 3.19 The reporting officers prepared a comprehensive section 42A report with input from six experts on specific technical issues. This report was a critical reference document prior to, and at, the hearing. In addition to the main report, an additional section 42A report was provided at the hearing which was prepared subsequent to discussions with the applicant’s representatives. I commend both the WDC representatives and the reporting officers for having those discussions prior to the hearing.
- 3.20 The original section 42A report raised a significant number of technical issues, planning matters and specific concerns about adverse effects. A significant number of these issues were resolved before the commencement of the hearing as clarified in the additional section 42A report. I will very briefly outline the key outstanding issues identified by the reporting officers:

- Status of the stormwater discharge - the reporting officers considered the application to be non-complying.
- Appropriate stormwater treatment plant design to take account of climate change predictions.
- Demonstration that modelling appropriately identifies critical duration storm events.
- Conditions that would address the issue of acceptable contaminant loads.
- The extent and frequency of monitoring, including determination of a mixing zone.
- Base flow and stream flow diversion issues.
- Wetland design and maintenance.

3.21 These and other issues will be considered in some detail in the next section.

4. The principal issues, evaluation and main findings

- 4.1 In summarising and evaluating the principal issues I have considered the original application and the associated assessment of environmental effects, the further information provided in response to section 92 requests, all submissions made in response to the applications, the section 42A reports and all the evidence provided at and subsequent to the hearing. I have considered the further information provided by the applicant after the adjournment of the hearing and the comments on that information provided by the reporting officers.
- 4.2 The principal issues or actual or potential adverse effects have been discussed in some detail in the section 42A reports, in the evidence provided by the applicant and the submitters, and in the information provided by all the parties after the adjournment of the hearing. These key issues are considered in the following paragraphs.

Prescriptive or outcome resource consent conditions

- 4.3 Mr Carrenceja's submissions on the suggested choice between 'prescriptive' and 'effects-based' conditions, were useful but, with respect, only to a point. I do not accept that any condition that prescribes a method to achieve an outcome is "...unnecessary, unreasonable, unduly restrictive and inefficient." I agree that there can be many situations where both prescriptive and performance standard conditions would be unnecessary. However, I am quite confident that from a legal, technical and duty of care perspective, there are, and will continue to be, circumstances where

prescriptive conditions are essential. The critical issues are the level of agreement between parties, the actual or potential adverse effects, the ability to readily monitor performance, and the need for an assurance that a specific outcome would be achieved. Clearly there are many situations where applicants recognise the appropriateness of having prescriptive conditions and offer such conditions such as the height of a building or a specific method to reduce odours. Such prescription can provide a high level of certainty about outcomes and certainty about measures that must be taken.

- 4.4 Mr Carrenceja does not appear to acknowledge that there are sometimes situations where a performance standard alone cannot provide a sufficient level of assurance that a specific environmental outcome will be achieved. Some situations are readily monitored to assess whether or not a standard is being complied with. However, some environmental effects are very difficult to monitor. Stormwater discharges and the consequential effects are frequently an example of this.
- 4.5 In theory, I agree that a consent holder should generally have flexibility to determine how to achieve a performance or environmental standard. However, in my experience the degree of flexibility needs to be a function of the potential adverse effects and certainty of the outcome. For example, the easier it is to check that an outcome is being achieved and the more insignificant the potential adverse effects are, the more flexibility a consent holder should have about what methods to use. Conversely, the more difficult it is to check the environmental outcome, and the more significant the potential adverse effects are, the greater degree of certainty needed by a consent authority that a method will achieve the outcome sought. If the degree of uncertainty about potential adverse effects becomes too great then of course it may not be appropriate to grant a consent application.
- 4.6 There are situations where a suite of carefully worded certification conditions can provide an appropriate level of assurance and be used instead of a prescriptive method. However, such conditions need to be carefully worded, have a clear certification standard and specify the certifier qualifications.
- 4.7 I consider that in this situation with no certification suite being offered not having any prescriptive conditions would be a breach of my responsibility under section 104 to “have regard to... any actual and potential effects on the environment of allowing the activity...”. In any event, the conditions proposed by the applicant in the 4 November 2009 response include a combination of effects-based and prescriptive conditions. I am satisfied that these conditions with some modifications satisfy RMA requirements.

Water quality and mixing zones

- 4.8 As indicated at the hearing, from my experience the classical approach to setting water quality standards and mixing zones as used in the WRRP implicitly assumes , with the exception of “natural perturbations”, a steady

state discharge and a relatively steady state receiving water. This conceptual model does not explicitly take account of stormwater discharges that are generally not steady state. While the concept of “natural perturbations” is generally used to try and take account of situations such as stormwater discharges, it still leaves a considerable challenge to adequately apply classical steady state mixing zone concepts to non-steady state stormwater discharges.

- 4.9 At the hearing it became clear that Mr Baker’s estimate of the water quality effects was based on the dilution of estimated annual contaminant loads evenly throughout the year. I expressed concerns that this would not result in an accurate indication of the likely receiving water concentrations that would occur during and shortly after significant stormwater discharge events. Clearly the estimated contaminant loads are not going to be discharged evenly throughout a 12 month period. Therefore the actual contaminant concentrations would at times be significantly higher than Mr Baker estimated them to be. As a consequence of my concerns I requested that the applicant undertake an alternative assessment of the mixing zone in the Flaxton Road Drain.
- 4.10 The applicant’s response included a re-assessment of a mixing zone using the formula in Rule WQL6 in the Proposed Natural Resources Regional Plan. I am reasonably satisfied with this suggested approach. I do highlight the fact that stormwater discharges are not readily amenable to mixing zone assessments given the wildly difference scale of discharges that can occur from even substantial treatment systems. For example, I consider that an event related exception would need to be added to the applicant’s suggestion so that there is clarity for all parties that it is not expected that for example, full compliance with the applicable water quality standard is expected at the downstream mixing zone edge during all possible storm events. The design criteria proposed by the applicant is a 2% AEP threshold. I agree that this is appropriate and consistent with best practice.
- 4.11 The applicant and the reporting officers disagreed about the frequency and timing for monitoring the wetland pond quality and the quality of the receiving waters before and after receiving the discharge. I appreciate the reporting officers’ rationale for suggesting more initial monitoring and I understand the applicant’s reluctance to undertake monitoring when there may be limited site development. After considering both perspectives I consider that both concerns could be met by changing the timing requirements to require a period of more frequent monitoring a number of years after construction of the wetland pond. I think it would make the conditions overly complicated to try and tie that frequency with a specific level of development, which would be difficult to define precisely. I accept the applicant’s indication that they expect the site to be significantly developed within five years of construction. Therefore I consider that the most useful time for more frequent monitoring would be for the subsequent five years. After that period the monitoring frequency could reduce down to twice yearly. This would not result in a significantly greater amount of

monitoring but it would be more targeted to the period of initial substantial development.

- 4.12 Similarly, there was disagreement on the most appropriate frequency for sediment and ecological monitoring. I consider that a similar approach is appropriate, i.e., to time the most frequent monitoring to occur between five and ten years after the construction of the stormwater system.
- 4.13 There were also significant issues associated with the most appropriate method for determining receiving water quality trigger values. The applicant has proposed specific trigger values for clarity and total petroleum hydrocarbons and proposed that trigger values for lead, copper, zinc and benzo(a)pyrene be determined by a suitably qualified person after the grant of a consent. I do not consider that such an important condition should be determined after any decision to grant. The choice of trigger values is important and should be determined as part of the main decision process.
- 4.14 I requested additional information in relation to these matters that has enabled me to assess the trigger values subsequently proposed by the applicant. The applicant has made the point that the Flaxton Road Drain at times does not meet ANZECC water quality guidelines. I have reviewed the data provided as part of the application, the calculations of Mr Bird, the ANZECC guidelines referred to and the guidelines proposed in the letter from Mr Baker dated 24 December 2009.
- 4.15 I had some difficulties lining up the original calculation of Mr Bird with the subsequently suggested trigger values. To assist in placing the various numbers in context I have prepared the following table.

	Estimated Quality of discharge (mg/l)	Original estimated receiving water quality (mg/l)	Subsequently proposed trigger values (mg/l)	ANZECC guideline		Kingett Mitchell WQ data (highest values from sites)(mg/l)
				95% species protection (mg/l)	90% species protection	
Lead	Not specified	Not calculated	0.008	0.0034	0.0056	<0.003
Zinc	0.10	0.06	0.11	0.008	0.015	<0.005 - 0.020
Copper	0.02	0.01	0.016	0.0014	0.0018	0.003 - 0.021

- 4.16 I was not able to identify a consistent approach by the applicant to determining an appropriate approach to establishing trigger values. For example, it appears that the proposed trigger for zinc is higher than the originally estimated discharge quality. It does appear that the proposed triggers are based on performance expectations rather than being effects based. While the treatment potential is important, I consider that in the context of the RMA an effects based approach should be the over-riding

consideration. Therefore I have used the available information together with my own knowledge to develop a clear effects-based approach.

- 4.17 To do this I have considered the purpose of the trigger values. My understanding is that they are to identify concentrations in the receiving water that indicate that a potential for significant adverse effects in the context of the stormwater treatment system. To that end I think it is preferable to have trigger values based on potential adverse effects rather than solely the estimated treatment effectiveness. Assessing the effects of stormwater discharges is considerably more challenging than for other more 'steady state' discharges. While water quality guidelines like the quoted ANZECC guidelines are usually applied to steady state situations, they can still be used as a reference point. The duration of exposure to a contaminant is a critical determinant of the actual effects.
- 4.18 Taking all these matters into account I consider that trigger values based on the ANZECC guidelines would be more appropriate. However, they would need to recognise the periodic nature of a stormwater discharge, the background situation, the nature of the proposed stormwater treatment system and the response requirements if the trigger values are exceeded. Therefore, taking account of the limited information available to me, I consider that trigger values calculated as twice the 90% species protection ANZECC guidelines would be an appropriate balance of the above factors. I considered that the 80% species level guidelines would not have adequately recognised the intermittent nature of stormwater discharges.
- 4.19 These values (mg/l) lead = 0.011, zinc = 0.030, copper = 0.0036 are effects based and recognise the short-term and intermittent nature of discharges from the treatment pond. I emphasise that these values are simply triggers that would indicate a need for an assessment. They are not water quality standards. If any of these triggers are exceeded then I am confident that an assessment by a specifically qualified person would identify the significance of the situation in accordance with the balance of the proposed conditions. I appreciate that the trigger value for copper is lower than many of the results from the water quality monitoring undertaken by Kingett Mitchell. However, this would be taken into account in any report and does signal that some further work into the cause of these relatively high concentrations should be undertaken by WDC and/or ECan.
- 4.20 I am satisfied that with trigger values for clarity, total petroleum hydrocarbons, lead, zinc and copper, a trigger value for benzo(a)pyrene is not needed.
- 4.21 A related issue is determining the storm events that the trigger values would apply to. For example, the wetland pond would not provide effective treatment for very large infrequent storm events e.g., those occurring less frequently than a 2 percent annual exceedence probability. Therefore to provide a simple 'window' for sampling, the evidence available to me indicates that an appropriate simple sampling window would be for rainfall events between 10 and 25 mm over a 24 hour period. Sampling during such

events will provide a robust indication of the performance of the stormwater treatment system for significant rainfall events.

- 4.22 There was some debate between the applicant's representatives and the ECan reporting officers about the most appropriate approach to minimising the discharge of hazardous substances from sites. The applicant proposed that 'high risk' activities or industries would only be allowed if the WDC approved discharges from such sites. The reporting officers argued that this would not provide adequate certainty and that such activities should go through a consent process. I consider that the issue can be addressed by requiring for any such site, that a specifically qualified person certify that all practicable measures have been taken to prevent hazardous substances entering the stormwater system.
- 4.23 I therefore conclude that with the changes outlined above, that the effects on water quality would be less than minor.

Stream diversions, flow distributions and minimum flows

- 4.24 The proposal to close off and re-route an existing spring-fed stream away from the site creates a number of issues and some unique challenges for the development proposal. It is proposed to close off the existing stream in the development area and divert the flows around the site distributing flows into a new channel along Todds Road and Fernside Road and to the existing Flaxton Road Drain to ensure that there is sufficient flow into the wetland treatment pond to maintain the biological status of the pond.
- 4.25 The WRRP specifies a minimum flow of 60 litres per second at the Main Drain Road Culvert downstream from the Flaxton Road Drain. The reporting officers' main outstanding concern is that at times of low flow during the summer the water proposed to be diverted into the wetland treatment system (28 l/s) would not all be discharged back into the Flaxton Road Drain downstream of the wetland treatment pond. This is because of the combined effects of evaporation and evapotranspiration.
- 4.26 I appreciate the additional information provided by both the applicant's representative, Steve Baker (letter dated 4 November 2009) and the reporting officer, Anita Warnock (addendum report dated 26 November 2009). It was extremely useful to have both perspectives of this issue. It appears to me that the core issue is whether the acknowledged, albeit small, adverse effect on stream flows (estimated at just less than 1 l/s during peak summer) should mean that the effect should be addressed by a requirement to add 'make-up' water to the stream. While the effect is relatively small I consider that there will be times where it could be significant both in terms of the length and duration of low flow periods and the frequency and duration of restrictions for downstream water permit holders. Therefore I consider that a requirement for the provision of 'make-up' water at appropriate times is justified.

- 4.27 The issue only arises when evaporation and evapotranspiration occur at significant rates and when low river flows occur. Therefore it is highly unlikely that there would be a significant issue outside the spring/summer period and therefore unnecessary to require 'make-up' water outside the period October to March inclusive (outside this period evapotranspiration rates are relatively low).
- 4.28 I understand the concern of the applicant that a requirement to provide make-up water means that it is likely that a bore permit and groundwater permit application would need to be made with no absolute certainty about the outcome of the process. I appreciate that concern but note the fact that the groundwater zone is estimated (on ECan's website as at January 2010) as a white zone (less than 80% of the allocation limit) and the amount of water needed for make-up water would be a relatively small amount. If the applicant experiences difficulties in obtaining make-up water within an appropriate period of time there are a number of other options available.
- 4.29 I note that there would be a number of alternatives open to the applicant to address this issue. These could include sources of water other than groundwater and/or investigating methods to minimise the frequency or duration of low flows in the catchment. For example, this could even extend to promoting the discharge of roof stormwater in the catchment into the ground (via sealed systems that exclude any contaminants) to improve base flows of groundwater.
- 4.30 I appreciate the suggestion by the applicant that one course of action would be to delay the processing of this application and to require a make-up water permit application to be made. I have a number of reservations about this suggestion. As outlined above I do not consider that there is only one possible method available to the applicant to obtain an authorised supply of make-up water or indeed that that is the only way to address the issue. Nor do I consider that it is appropriate to delay any further what has been a fairly protracted consent process. I think it is preferable to provide all parties with certainty about this issue.
- 4.31 I appreciate the investigating officer's suggestion about monitoring wetland inflows and outflows and requiring the difference to be made-up. However, I am concerned that this degree of monitoring would be quite demanding and expensive. My preference would be for a simple operational requirement such as when the minimum flow provision applies during the October - March period, then a minimum amount of make-up water must be added. There is a risk that at times the actual amount of evaporation and evapotranspiration from the pond may not be as significant as one litre per second. However, to create an exact matching condition is likely to result in a very significant monitoring and implementation expense for the WDC.
- 4.32 The WDC would have a number of options open to it both short and long-term if it considers that there would be an alternative method to address this issue. In the meantime, I am satisfied that the above approach would address the issue and enable the WDC to progress the development proposal.

If over time the WDC can undertake measures that would address the issue via other means, then an application to change a condition could be made.

- 4.33 I therefore conclude that with the changes outlined above the effects on stream flows would be less than minor.

Wetland operation and maintenance

- 4.34 A significant difference of opinion appears to exist between the applicant's representatives and the reporting officers on issues relating to the operation and maintenance of the wetland pond treatment system. The key issues appear to relate to the treatment effectiveness of the wetland system and the factors that could affect that performance, specifically the detailed design of the pond but also factors such as the scale of rainfall events and operation/maintenance programme. This overall issue also appears to be related to the difference of opinion between the applicant and the reporting officers about the level of 'up the pipe' oversight is appropriate for a consent authority.

- 4.35 Once such a wetland stormwater treatment system is constructed it is generally extremely difficult to cost effectively check the performance of such a system during significant rainfall events. For example, it is generally not practicable to establish routine monitoring programmes to check the quality of all discharges from such a treatment system, particularly if a critical event might not occur for many years. In these types of situations it is generally more appropriate to ensure that there is a high level of confidence about the likely performance rather than to rely solely on post authorisation assessment of performance.

- 4.36 I agree with the WDC representatives that the detailed wetland operation and maintenance programme would not normally be a matter for consent authority monitoring. However, as indicated above there are situations where a degree of oversight is needed to provide an assurance that performance will be maintained. The critical issue in my view is determining the minimum level of monitoring that is required to provide the consent authority with an appropriate level of assurance.

- 4.37 The Right of Reply from the applicant proposed a modified approach to the wetland pond start-up provisions. I have generally accepted the approach proposed by the applicant. The reporting officers suggested that additional stormwater treatment requirements be imposed on all properties including existing developments. For the limited period involved, I do not consider that it would be justifiable to impose retrospective on-site treatment for existing developments. I am satisfied that there will be a number of factors that will apply to ensure that the WDC completes the construction as quickly as practicable and therefore the period when the wetland system would not be fully operational will be relatively short.

- 4.38 The suite of proposed conditions provided by the applicant on 4 November are a reasonable balance between technical design specification and

performance specification. I therefore conclude that with the changes outlined above that the adverse effects related to wetland management would be less than minor.

Flooding issues, modelling and climate change

- 4.39 A critical issue for this proposed development is the extent to which it could have adverse flooding effects. The evidence of submitters served to highlight that the whole area can at times be subject to flooding and people in the area are understandably concerned about development proposals that may affect flooding. I heard very detailed evidence from Mr Bird, and Mr Simpson via the reporting officers raised a number of specific issues.
- 4.40 Mr Bird presented a number of additional modelling runs at the hearing to address concerns raised by the reporting officers about the need to take account of climate change predictions and to better compare flow hydrographs pre and post- development at a range of flow duration events including the critical 2% AEP 12 hour rainfall event. This modelling indicated that the post-development flow hydrograph peak is less than the pre-development scenario.
- 4.41 Ms Whyte's addendum section 42A report provided at the hearing outlined her thoughts on the need for monitoring the volume of discharges from the pond to check to ensure that post development flow rates did not exceed pre-development rates. Ms Whyte expressed concerns that some form of monitoring would be needed to check the effects of the system on the quantities of flood waters discharges. However, Ms Whyte acknowledged that there would be some significant technical difficulties in establishing such a monitoring system, and in establishing a monitoring network that would enable an assessment of all flow events in the area to determine the specific influence of the development and the wetland pond system.
- 4.42 I have significant reservation about attempting to establish a wetland flow monitoring system to check the flow discharge rates. There would be significant difficulties in setting up such a system. Then there would be a major problem of trying to ensure all appropriate monitoring systems were operational for a storm event that may only occur with an annual exceedence probability of 1%. Finally without a comprehensive rainfall and drain flow monitoring system there would be difficulties in determining the cause of any discrepancies in flows. Therefore I do not consider that such monitoring would be justified in the circumstances. Instead, I have been satisfied by the auditing of the applicant's proposal and the detailed prescriptive conditions that have been proposed by the applicant.
- 4.43 These detailed design and performance conditions provide a high level of assurance that the installed system must comply with design criteria that have been carefully audited and provide a high level of assurance that the system will perform as predicted.

- 4.44 I therefore conclude that the adverse effects relating to flooding would be less than minor.

Tangata whenua values

- 4.45 After considering the overall proposal, including the submission from Te Ngāi Tūāhuriri Runanga, the further information provided by the WDC, the conditions that I consider are appropriate and my specific conclusions that individual adverse effects would be less than minor, I consider that there would be no significant adverse effects on tangata whenua values.

5. Statutory provisions

Status of the applications and key sections of the Resource Management Act

- 5.1 The applicant and the reporting officer appear to disagree on the ‘classification’ of the stormwater discharge. The reporting officers consider that because the advice from Michele Stevenson is that she cannot determine whether the discharge will meet the water quality standards specified in the WRRP, that the application should be considered as a non-complying activity.
- 5.2 Mr Baker has concluded on the basis of Ms Bradley’s calculations that the water quality standards would be met. However, as indicated at the hearing and as outlined in paragraph 4.9, I have concerns about Mr Baker’s original method of estimating the impacts of the proposed discharge on water quality. I do not consider that a methodology of annualising loads from storm events into the Flaxton Drain throughout the year is an appropriate way to determine potential short-term concentrations of contaminants in a receiving water body. However, the initial approach by the applicant has been modified by the further information supplied on 5 November 2009 and has proposed a mixing zone based on the simple calculation in Rule WQL6 in the PNRRP.
- 5.3 In any event, the disagreement about the status of the proposed stormwater discharge is not critical because both parties appear to agree that there is at least one other resource consent application that is a non-complying activity and that the ‘bundling’ principle means that the overall determination framework must therefore include a consideration under section 104D.
- 5.4 The following is an outline of the key RMA sections that are applicable to this proposal.
- 5.5 Section 104(1) of the RMA applies to all of these applications and requires that the consent authority must, subject to Part 2, have regard to:
- “a) any actual and potential effects on the environment of allowing the activity; and*
 - b) any relevant provisions of -*
 - (i) a national policy statement;*
 - (ii) a New Zealand Coastal Policy Statement;*

- (iii) a regional policy statement or proposed regional policy statement;*
- (iv) a plan or proposed plan; and*
- c) any other matter the consent authority considers relevant or reasonably necessary to determine the application.”*

5.6 Section 104(B) of the RMA also applies to all of the applications and states that:

“After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority-
(a) may grant or refuse the application, and
(b) if it grants the application, may impose conditions under section 108.”

5.7 Section 104D of the RMA states that:

“104D. Particular restrictions for non-complying activities
(1) Despite any decision made for the purpose of section 93 in relation to minor effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either -
(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(b) applies) will be minor; or
(b) the application is for an activity that will not be contrary to the objectives and policies of -
(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or
(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or
(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.
(2) To avoid doubt, section 104(2) applies to the determination of an application for a noncomplying activity.”

5.8 Section 105(1) of the RMA applies to discharge permit application CRC092413 and states that:

“If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—
(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
(b) the applicant's reasons for the proposed choice; and
(c) any possible alternative methods of discharge, including discharge into any other receiving environment.”

5.9 Section 107 of the RMA applies to discharge permit application CRC092413 and states that:

“(1) Except as provided in subsection (2), a consent authority shall not grant

a discharge permit [or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—

- (a) The discharge of a contaminant or water into water; or*
- [(b) A discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or*
- (ba) The dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,—*

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

- (c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:*
- (d) Any conspicuous change in the colour or visual clarity:*
- (e) Any emission of objectionable odour:*
- (f) The rendering of fresh water unsuitable for consumption by farm animals:*
- (g) Any significant adverse effects on aquatic life.*

(2) A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A that may allow any of the effects described in subsection (1) if it is satisfied—

- (a) That exceptional circumstances justify the granting of the permit; or*
- (b) That the discharge is of a temporary nature; or*
- (c) That the discharge is associated with necessary maintenance work—*

and that it is consistent with the purpose of this Act to do so.”

5.10 I have had regard to the matters specified in sections 104(1), 104D, 105(1) and 107 and am satisfied that the proposal is in accordance with the current best practice for stormwater treatment and discharge to surface water.

5.11 I am satisfied that the applicant considered various options for the development proposal and that other options have significant disadvantages. I am satisfied that granting the discharge permit application would not result in any of the adverse effects specified in section 107(1)(c-g).

5.12 Detailed analyses of the relevant objectives of the Canterbury Regional Policy Statement (CRPS) and the WRRP have been provided in the main section 42A report and in the evidence of Mr Baker. It is not necessary for me to repeat all the provisions of the CRPS and the WRRP here. The key objectives and policies of the WRRP are detailed in Appendix 2.

- 5.13 Both the reporting officers and the applicant's planning representatives agree, subsequent to the changes proposed by the applicant that the proposed development is consistent with, and certainly not contrary to, all the relevant objectives and policies in the CRPS, and the WRRP. I have examined the relevant objectives and policies of the CRPS and the WRRP (see Appendix 2), in particular, the provisions of the WRRP, Objective 5.1 and Policy 5.1 (water quantity), and Objective 6.1 and policies 6.1 and 6.2 (water quality), and Objective 7.1 and Policy 7.1 (beds of rivers). I am satisfied that the proposed activity will not be contrary to those objectives and policies. I am therefore satisfied that the requirement of section 104D(1)(b) is met.
- 5.14 I conclude, as detailed in section 4 of this report and in the context of consideration of the objectives and policies of the CRPS and WRRP, that provided that there is full compliance with all the proposed conditions (with changes outlined in section 6), the overall adverse effects of the proposed activity on the environment will be less than minor. I am therefore satisfied that the requirement of section 104D(1)(a) is met.

6. Proposed conditions

- 6.1 I have decided that these resource consent applications can be granted, subject to carefully formulated conditions. I was generally satisfied with the final suite of proposed consent conditions. However, there were some conditions that I had reservations about. I have highlighted the most significant of these matters in section 4 of this decision.
- 6.2 I have deleted the provision for a monitoring management plan to develop trigger criteria for downstream monitoring of water quality. I am satisfied that there are established effects-based guidelines that should be used as the basis for trigger values and that it is not necessary or appropriate to develop such trigger values after a consent decision. The substantive issue regarding the most appropriate values to use is examined in section 4 of this decision.
- 6.3 I have made a number of relatively minor changes to some of the conditions proposed by the applicant in the final right of reply in an effort to remove any uncertainty and to simplify the requirements. The key changes are outlined below.
- 6.4 I have changed the proposed condition that would have purported to provide the power for an agreement between a consent holder and another party to allow discharges from sites into the stormwater system. I understand the need for flexibility but a more certain method to achieve this would be for a certificate to be provided to Environment Canterbury that certifies that all practicable measures have been implemented to prevent hazardous substances entering the site stormwater system.
- 6.5 I have modified the requirements for pre-treatment to make it clear that pre-treatment only needs to be installed for new developments where it is

practicable and that they do not have to achieve a 75% reduction in total suspended solids. I have accepted the applicant's argument that the wetland pond is the primary treatment system.

- 6.6 I have changed the accidental discovery condition to make it clear that the Upoko Runanga of Tuahiwi has the authority without the need for an archaeologist, to determine whether or not satisfactory action has been taken subsequent to the discovery of Koiwi Tangata (human bones) or taonga (treasured artefacts). In addition, the condition has been changed to ensure that in the event that no response is received from the Upoko within five working days, the consent holder can request a qualified archaeologist to determine whether appropriate action has been taken.
- 6.7 I have deleted or changed the vast majority of references to "suitably qualified" persons and replaced them with specific qualification requirements. I have left the reference in relation to the requirement for a 'suitably qualified person' to undertake the calibration of the flow measuring device. As far as I am aware there is currently no specific qualification that could be referred to. I understand that Environment Canterbury staff working on water meter requirements may address this issue over the next few months. In the meantime, I am satisfied that in this specific situation the current wording is adequate.
- 6.8 As noted in section 4, I have included a requirement for 'make-up' water but have made it a simple requirement to add a minimum of 1 litre per second to the wetland pond or the Flaxton Road Drain immediately upstream of the pond during the spring/summer period whenever the minimum flow restrictions apply.
- 6.9 I have extended the lapse date to 31 March 2015 to provide more time for the WDC to undertake the work and to line up the month with ECan's administrative procedures.

7. Decision and reasons

Part 2 Matters

- 7.1 In considering these applications, I have considered the relevant principles outlined in sections 6, 7 and 8 of the RMA as well as the overall the purpose of the RMA as specified in section 5.

Section 5

- 7.2 This section of the RMA defines sustainable management. I consider that the application is consistent with the definition in the RMA, noting particularly that the provision of a stormwater treatment system for the new business zone:

- (a) will allow residents of the wider area to provide for their social and economic wellbeing,
- (b) will not compromise the reasonable needs of future generations, nor will it result in adverse effects on the life supporting capacity of water or ecosystems, and
- (c) the adverse effects of the development can be avoided or mitigated through appropriate conditions.

Section 6

- 7.3 Section 6 of the RMA lists seven matters of national importance that must be recognised and provided for in this decision. The only matter that I consider has particular relevance to this proposal is that specified in section 6(e):

“(e)The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.”

- 7.4 I heard evidence from Ms Lobb that Te Ngāi Tūāhuriri Runanga did not oppose the development provided that appropriate conditions were imposed. Therefore taking into account my conclusions under sections 4, 5 and 6 of this decision, I consider that granting the resource consent applications for this proposal would be consistent with the requirements of section 6 of the RMA.

Section 7

- 7.5 Section 7 of the RMA lists matters that I must have particular regard to. The matter of particular relevance to the present applications appears to be section 7(f) of the RMA:

“(f) Maintenance and enhancement of the quality of the environment:”.

I consider that the final proposal with modified conditions would, on balance, maintain and for some matters may result in a small enhancement of the environment in this catchment.

Section 8

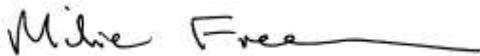
- 7.6 Section 8 of the RMA states that “...all persons exercising functions and powers ... shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).”
- 7.7 The information provided to me as outlined in paragraph 7.4 above strongly indicates that granting the applications would not be inconsistent with the Principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

Duration

- 7.8 The applicant has applied for a duration of 35 years for all consent applications and the reporting officers agree that that duration is appropriate. I have considered the matters specified in section 1.3.5 of Chapter 1 of the PNRRP, and agree that given my conclusions that the adverse effects of the development proposal will be less than minor and the long-term nature of the proposed infrastructure, a duration of 35 years is appropriate for all three consents.

Decision

- 7.9 For the reasons detailed in this report (sections 4, 5, 6 & 7) and under sections 104, 104D, 105, 107 and 108 of the Resource Management Act 1991, I grant resource consent applications CRC092413, CRC092809 and CRC092810, for durations of 35 years, subject to the following specific attached conditions which form part of this decision.



Mike Freeman
Dated 26 January 2010

CRC092413 Discharge of Stormwater.

Limits	
1	<p>The discharge shall only be stormwater generated from:</p> <ul style="list-style-type: none"> (a) Roofs; (b) Hardstand areas on individual lots; (c) Roads and access ways; (d) Pervious areas; and (e) The construction phase of the stormwater system; <p>within the 76 hectare Southbrook Pond C Catchment, located at Flaxton Road, Fernside Road and Todds Road, Rangiora, shown on attached Plans CRC092413A and CRC092413B, which form part of this consent.</p>
Construction	
2	<p>All operational personnel involved with the construction of the Southbrook Pond C stormwater system shall be made aware of, and have access to, all consent documents, conditions and schedules applicable to the construction, maintenance and operation of the Southbrook Pond C stormwater system.</p>
3	<p>During construction, all practicable measures shall be undertaken to minimise exposed surfaces and discharges of sediment-laden stormwater.</p>
4	<p>During and after construction, all exposed surfaces shall be stabilised once earthworks are complete or if the exposed surfaces are not to be earth-worked for a period of 14 days or more. For the purpose of this condition, stabilised means an area inherently resistant to erosion such as rock (excluding sedimentary rocks), or rendered resistant to erosion by the application of aggregate, geotextile, vegetation or mulch. Where vegetation is to be used on a surface that is not otherwise resistant to erosion, the surface is considered stabilised once 80 percent vegetation cover has been established.</p>
5	<p>No sediment-laden stormwater from construction of the Southbrook Pond C Catchment stormwater system shall be discharged off-site, or into any water body.</p>
6	<p>All practicable measures shall be undertaken to prevent tracking of soils onto the surrounding road network.</p>
7	<p>The consent holder shall prepare an Erosion and Sediment Control Plan (ESCP) prior to construction of the Southbrook Pond C catchment stormwater system. This plan shall be provided to the Canterbury Regional Council upon request.</p>
8	<p>Erosion and sediment control measures shall be in place at all times during the construction of the Southbrook Pond C Catchment stormwater system in accordance with the ESCP. These measures shall consist of, but not be limited to, the following:</p> <ul style="list-style-type: none"> (a) Stabilised site exit points; (b) Silt fences; and (c) Protection of sump inlets.

9	<p>(a) Erosion and sediment control measures shall be designed, constructed and maintained in accordance with the Environment Canterbury 2007 “Erosion and Sediment Control Guidelines for the Canterbury Region”, Report No. CRCR06/23.</p> <p>(b) Erosion and sediment control measures shall be inspected during construction at least weekly to ensure that they are functioning appropriately.</p>
10	<p>Records of all inspections and maintenance undertaken in accordance with Condition (9) shall be kept and provided to the Canterbury Regional Council upon request.</p>
11	<p>If the consent holder abandons construction work, they shall first take adequate preventative and remedial measures to control sediment discharges, and shall maintain those measures for so long as necessary to prevent sediment discharge from the site.</p>
<p>Hazardous substances</p>	
12	<p>The discharge shall not include stormwater arising from a site which conducts or operates an activity or industry listed in the attached Schedule WQL3A, which forms part of this consent, unless:</p> <p>(a) a stormwater discharge permit has been obtained for stormwater discharges from such a site, or</p> <p>(b) a certificate is provided to the Canterbury Regional Council, Attention RMA Compliance and Enforcement Manager, at least 10 working days before any discharge occurs from such a site, signed by a suitably qualified person that certifies that all practicable measures have been taken on that site to prevent hazardous substances entering stormwater.</p> <p>For the purposes of this condition:</p> <p>“suitably qualified person” means a person who is either a Chartered professional engineer (CPEng) or a person who has a post-graduate tertiary science qualification and at least five years professional experience in the general field of water pollution prevention. A copy of the suitably qualified person’s qualifications shall be provided to the Canterbury Regional Council with any certificate.</p> <p>“all practicable measures” includes the following:</p> <p>(a) Designated hazardous substance handling, storage and use areas, excluding gas bottles and tanks, shall be:</p> <p>(i) Designed and constructed such that any spills of hazardous substances, or wash down of such spills are unable to enter the stormwater collection areas; and</p> <p>(ii) Contained within a bunded area, if they are stored outside without roofs, which has the ability to contain a volume of 10 percent greater than the volume being stored;</p> <p>(b) Hazardous substances spill kits suitable for containing spills that could reasonably be expected to occur on each lot shall be kept on that lot in an accessible location; and</p> <p>(c) In the event of a spill of fuel or any other contaminant, all practicable measures shall be undertaken as soon as possible to:</p> <p>(i) Prevent the spilled hazardous substance being discharged onto or into land, or into the communal stormwater system;</p>

	<ul style="list-style-type: none"> (ii) Remove the hazardous substance using the spill kits; and (iii) Determine if the contaminant has entered the communal stormwater system, including sumps, pipes and the wetland pond.
13	<p>All practicable measures shall be taken to ensure that for all site developments that occur after the commencement of this resource consent :</p> <ul style="list-style-type: none"> (a) Designated hazardous substance handling, storage and use areas, excluding gas bottles and tanks, shall be: <ul style="list-style-type: none"> (i) Designed and constructed such that any spills of hazardous substances, or wash down of such spills are unable to enter the stormwater collection areas; and (ii) Contained within a bunded area, if they are stored outside without roofs, which has the ability to contain a volume of 10 percent greater than the volume being stored; (b) Hazardous substances spill kits suitable for containing spills that could reasonably be expected to occur on each lot shall be kept on that lot in an accessible location; and (c) In the event of a spill of fuel or any other contaminant, all practicable measures shall be undertaken as soon as possible to: <ul style="list-style-type: none"> (i) Prevent the spilled hazardous substance being discharged onto or into land, or into the communal stormwater system; (ii) Remove the hazardous substance using the spill kits; and (iii) Determine if the contaminant has entered the communal stormwater system, including sumps, pipes and the wetland pond.
14	<p>In the event of a spill of fuel or any other hazardous substance entering the communal stormwater system, the consent holder shall inform the Canterbury Regional Council within 24 hours of becoming aware of a spill event the following information:</p> <ul style="list-style-type: none"> (a) The date, time, location and estimated volume of the spill; (b) The cause of the spill; (c) The type of hazardous substance(s) spilled; (d) Clean up procedures undertaken; (e) Details of the steps taken to prevent the discharge of contaminants to the wetland pond; (f) Details of the steps taken to remediate the effects of the spill on the receiving environment; (g) An assessment of any potential effects of the spill; and (h) Measures to be undertaken to prevent a reoccurrence and the timeframe for such measures.
15	<p>The discharge of roof stormwater from new buildings constructed after the date of granting of this consent shall not arise from galvanised roof materials.</p>
Stormwater system	
16	<p>All stormwater from the Pond C Catchment shall be discharged into a communal</p>

	stormwater system, as shown on attached Plan CRC092413C, which forms part of this consent. Any new stormwater systems which collect stormwater from roads, car parks, driveways and paths shall be designed so that, where practicable, stormwater only enters the stormwater pond after passing through catch pits and sumps.
17	Stormwater from the wetland pond shall be discharged into the Flaxton Road Drain, at or about map reference NZMS 260 M35:7774-6307.
18	All stormwater from the intersection of Flaxton Road and Fernside Road shall be treated by swales and discharged into the Flaxton Road Drain, downstream of the wetland pond, as shown on attached Plan CRC092413D, which forms part of this consent.
19	Stormwater from Site 14, as shown on attached Plan CRC092413B, shall only be discharged into the Flaxton Road Drain, upstream of the wetland pond via stormwater treatment systems installed in accordance with Condition (22).
Stormwater treatment design	
20	The first 15 millimetres of any storm event, from the Pond C Catchment shall be discharged into the wetland pond.
21	The stormwater system shall treat and dispose of stormwater generated within the Southbrook Pond C catchment from all events up to and including a two percent annual exceedence probability (AEP) storm event of any duration.
22	Pre-treatment stormwater systems shall be installed where practicable for developments constructed after the date of the commencement of this consent and shall: <ul style="list-style-type: none"> (a) consist of catch pit sumps, and (b) swales, and/or rain gardens, designed and constructed in accordance with <ul style="list-style-type: none"> (i) the Auckland Regional Council's Stormwater Management Design Guidelines Manual Technical Publication 10, with particular reference to Figures 7-3 and 7-4 of TP10 which are attached to and form part of this consent, or (ii) an equivalent design manual. If an equivalent manual is used, a copy of that manual shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, at least one month prior to construction of the pre-treatment stormwater system, or (c) proprietary stormwater treatment systems.
23	The wetland pond and associated diversion channel and outfall structures shall: <ul style="list-style-type: none"> (a) Be designed and constructed in general accordance with attached Plans CRC092413E, CRC092413F, CRC092413G and CRC092413J, which form part of this consent; (b) Be designed and managed to ensure that it can accept and treat the Water Quality Volume, calculated as the volume of water captured during the first 15 millimetres of any storm event, of 9,283 cubic metres; (c) Be banded bathymetric in design, incorporating a series of deep pools, which shall not be isolated from shallow pools; (d) Have pools that constitute the following percentage of the total wetland wet pool

	<p>area:</p> <ul style="list-style-type: none"> (i) Dead storage banded bathymetry at 0.5-1 metre depth: 40% (ii) Dead storage at 0-0.5 metre depth: 60% <ul style="list-style-type: none"> (e) Have a sediment fore-bay with a volume of at least 2785 cubic metres; (f) Have a maximum water level of 15.38 metres Reference Level (RL) for a 2% AEP storm event of any duration; (g) Have a maximum volume of 36,500 cubic metres for a 2% AEP storm event; (h) Have a freeboard of 300 millimetres; (i) Have side batters no greater than one vertical to three horizontal, except where the inlet and outlet structures are in transition into the side batters; (j) Have a clay liner of at least 300 millimetres thickness with a maximum permeability rate through the liner of 1.0×10^{-7} metres per second. (k) Maintain a minimum water level within the dead storage areas of the wetland pond of 100 millimetres; (l) Be planted with native wetland species, in accordance with the wetland pond planting plan provided in attached Plan CRC092413H, within the first growing season following construction; (m) Only be planted with grass on the embankments in general accordance with attached Plan CRC092413H provided in the consent application; (n) Have a perimeter maintenance access track; and (o) Unless otherwise specified in this consent, be constructed in accordance with the Auckland Regional Council's Stormwater Management Devices: Design Guidelines Manual (Technical Publication 10); (p) Have an outlet designed and constructed in general accordance with attached Plan CRC092413I, which forms part of this consent, specifically including: <ul style="list-style-type: none"> (i) A submerged outlet; (ii) Flap gates or similar to prevent flow back into the wetland pond from the Flaxton Road Drain; (iii) A device or devices to prevent "piping" along the outlet pipe, such as water stops or similar measures; (iv) Appropriate protection to prevent erosion and scour, including, but not limited to: <ul style="list-style-type: none"> (a) Rocks, and riprap with bidim geotextile at the outlets; (b) Reinforced concrete at the sump outlet; (c) Reinforced concrete at the high flow outlet channel structure; (v) Have a high flow outlet channel with a top level of 14.72 metres R.L.; and (vi) Have an outlet channel downstream of the outlet structure constructed at 14.00 metres R.L.
24	The total combined flow of stormwater from the wetland pond, and bypass channel shall not be discharged at a post-development flow-rate that exceeds the equivalent pre-

	development flow-rate for the 10 year and 50 year (10% and 2% AEP) storm events at the culvert beneath the Flaxton Road / Fernside Road intersection. These flow rates are 3.9 and 6.0 cubic metres per second respectively.
25	The embankment, water stops (if applicable) and outlet pipe shall be constructed in accordance with Auckland Regional Council's Dam Safety Guidelines: Guidelines for Construction, Maintenance and Monitoring (Technical Publication 109)(available on the Auckland Regional Council website), and best practice engineering.
26	Secondary flow paths shall be provided within the roads of the Pond C Catchment.
27	The discharge shall not cause erosion or scour of the bed or banks of Flaxton Road Drain.
28	The areas of the wetland pond to be vegetated, in general accordance with attached Plan CRC092413H which forms part of this consent, shall be at least 80 percent vegetated prior to any discharge of stormwater into the wetland pond.
29	There shall be no discharge of stormwater through the wetland pond until the stormwater system has been certified in accordance with Condition (32) except for the filling of the pond for testing, plant maintenance and maintaining the pond liner integrity, provided that the stormwater is pre-treated in accordance with Condition (22)(a) and (b), or (c) or the stormwater is from a site with a stormwater collection system constructed prior to the grant of this consent. (This condition does not prevent the use of clean base flow to be used for this purpose provided other conditions are complied with.)
Infiltration rate	
30	<p>(a) Following construction of the stormwater system, and prior to filling of the wetland pond, the consent holder shall calculate the permeability rate of the clay liner using at least three double ring infiltrometer tests (taking into consideration that this test over-estimates permeability by 40 percent); and this infiltration rate shall be used to assist in determining compliance with Condition (23)(j).</p> <p>(b) This permeability rate testing shall be supervised by a Chartered Professional Engineer (CPEng).</p>
31	<p>(a) Upon filling of the wetland pond, the consent holder shall confirm the permeability rate of the pond liner by using a "falling head test" as follows:</p> <p style="padding-left: 40px;">(i) All flows in the Flaxton Road Drain shall be allowed to bypass the wetland pond; and</p> <p style="padding-left: 40px;">(ii) The stage drop over time of water in the wetland pond shall be recorded;</p> <p>(b) The reduction in water level shall be used to assist in determining compliance with Condition (23)(j).</p>
Certification	
32	<p>Within three months of completion of construction of the stormwater system the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager:</p> <p style="padding-left: 40px;">(a) A certificate signed by the Chartered Professional Engineer (CPEng) responsible for designing or reviewing the design of the stormwater system, or</p>

	<p>any other CPEng with stormwater system construction experience to certify that the stormwater system has been constructed in accordance with Conditions (16) to (29) of this consent. This person must also sign a statement confirming that they are competent to certify the engineering work and provide evidence that they hold a current Annual Practicing Certificate; and</p> <p>(b) The signed certificate specified in Condition (32)(a) shall be accompanied with all the relevant supporting technical information, as-built construction plans, photographs and calculations. The certificate shall include copies of the tests undertaken in accordance with Conditions (30) and (31) and confirm the permeability rate of the clay liner in accordance with Condition (23)(j).</p>
<p>Operations, Inspection and Maintenance</p>	
<p>33</p>	<p>(a) A Stormwater Management Plan (SMP) shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within six months of the commencement of this consent;</p> <p>(b) The SMP shall set out how the stormwater system will be operated, maintained and monitored to enable compliance with this consent, and shall include, but not be limited to:</p> <ul style="list-style-type: none"> (i) A detailed site drainage plan; (ii) Procedures to minimise contaminants entering the stormwater system; (iii) Maintenance procedures; (iv) Response procedures to exceedence of trigger values; and (v) Spill response procedures; <p>(c) In the event that there are any changes to the operation, maintenance and monitoring requirements of this consent, the SMP shall be revised to ensure ongoing compliance with this consent;</p> <p>(d) Any updated SMP shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, prior to implementing any changes to stormwater system operations; and</p> <p>(e) The stormwater system shall be operated in accordance with the most current version of the SMP.</p>
<p>34</p>	<p>Roads within the development shall be mechanically swept at least every six weeks.</p>
<p>35</p>	<p>The consent holder shall ensure that the stormwater systems are inspected and maintained as follows:</p> <ul style="list-style-type: none"> (a) The inspection of kerbs, channels and sumps, including interiors, grates, covers and outlet pipes, and pre-treatment devices every six months; (b) The inspection of culverts and pipes annually; (c) The immediate removal of any visible hydrocarbons, accumulated sediment, litter or debris; and (d) Repair of any scouring or erosion within ten working days of the inspection.
<p>36</p>	<p>The grass within any swales shall be maintained in a healthy and uniform state. Maintenance shall include, but not be limited to:</p> <ul style="list-style-type: none"> (a) The removal of weeds where coverage exceeds 20 percent of the swale area;

	<p>(b) Replanting of grass where erosion or die-off has resulted in bare or patchy soil cover; and</p> <p>(c) Maintenance of grass length between 50 and 250 millimetres length.</p>
37	The vegetation within any rain gardens shall be maintained in a healthy and uniform state.
38	<p>Inspections and maintenance of the wetland pond shall include, but not be limited to:</p> <p>(a) Inspection of the wetland pond, including pool areas, fore-bay, inlets and outlets, at least once every three months;</p> <p>(b) The immediate removal of any visible hydrocarbons, litter or debris;</p> <p>(c) Removal of sediment in the fore-bay and pool areas when accumulated to half of the depth from the normal pond level when originally constructed;</p> <p>(d) Repair of any scouring or erosion within ten working days of the inspection;</p> <p>(e) Maintenance of healthy vegetation, including the removal of weed vegetation and replanting where erosion or die-off has resulted in bare or patchy soil cover;</p> <p>(f) Maintenance of a minimum water level within the dead storage areas of the wetland pond of 100mm;</p> <p>(g) Following the removal of sediment from the fore-bay and pond areas, a “falling head test” shall be undertaken in accordance with Condition (31), and compared to the rate of seepage that was obtained following the post-construction seepage test. The seepage rate shall be equal to or less than 110% of the rate first measured post-construction, if such a test shows that the permeability rate exceeds this rate, an assessment, including additional monitoring if appropriate, shall be supervised by a suitably qualified person, as defined in Condition (12), to determine:</p> <p style="padding-left: 40px;">(i) The actual and potential effects on the environment as a result of exceeding the permeability rate; and</p> <p style="padding-left: 40px;">(ii) Whether additional mitigation measures or remediation is required;</p> <p>(h) The consent holder shall provide within two months of the permeability test a report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manger, which details the permeability rate, and the actions taken in accordance with Condition (38)(g) if the permeability rate is exceeded.</p>
39	Any material removed, including sediment, hydrocarbons and other contaminants, in the exercising of this consent, shall be disposed of at a facility authorised to receive such material.
Monitoring and performance	
40	The discharge shall not result in any conspicuous oil or grease films, scums or foams downstream of the discharge point.
41	<p>Representative samples shall:</p> <p>(a) Be collected:</p> <p style="padding-left: 40px;">(i) For the first five years and the years subsequent to the tenth year following construction, two times per year, unless there are insufficient suitable rainfall events. There shall be at least two weeks between</p>

	<p>sampling.</p> <p>(ii) In the sixth, seventh, eighth, ninth and tenth year following construction, testing shall occur for four rainfall events unless there are insufficient rainfall events. At least two tests shall occur between December and March (summer) and two tests between June and September (winter), unless there are insufficient rainfall events. There shall be at least two weeks between sampling.</p> <p>(b) Be collected approximately 24 hours after the same rainfall event commences, from:</p> <p>(i) The outlet from the wetland pond;</p> <p>(ii) Within the clean water diversion channel, 10 metres upstream of the outlet from the wetland pond; and</p> <p>(iii) Within Flaxton Road Drain, 43 metres downstream of the wetland pond discharge point.</p> <p style="padding-left: 40px;">For the purposes of this consent condition, a rainfall event shall be defined as an event of not less than 10 millimetres and not greater than 25 millimetres depth in a 24 hour period, as measured at a rain gauge within six kilometres of the site.</p> <p>(c) Be collected using either a grab sampling or fixed sampling method;</p> <p>(d) Be analysed for the following contaminants using the most appropriate method by a laboratory that is accredited for that method by an accreditation authority, such as International Accreditation New Zealand:</p> <p style="padding-left: 40px;">Total suspended solids (in milligrams per litre)</p> <p style="padding-left: 40px;">Total lead (in milligrams per litre)</p> <p style="padding-left: 40px;">Total zinc (in milligrams per litre)</p> <p style="padding-left: 40px;">Total copper (in milligrams per litre)</p> <p style="padding-left: 40px;">Total petroleum hydrocarbons (in milligrams per litre)</p> <p>(e) Be analysed in the field for water clarity, using the black disc or equivalent method (the outlet discharge does not require a water clarity analysis);</p> <p>(f) Be collected, or field analysed, by a person who has at least a tertiary science or engineering qualification that required the equivalent of at least one year of full-time study and has at least two years professional work experience post-qualification.</p>										
42	<p>The samples collected from the downstream site within the Flaxton Road Drain shall be compared to the trigger values below:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Clarity</td> <td>Decrease of 20 percent or greater compared to the upstream site</td> </tr> <tr> <td>Total petroleum hydrocarbons</td> <td>5 milligrams per litre</td> </tr> <tr> <td>Total lead</td> <td>0.011 milligrams per litre</td> </tr> <tr> <td>Total zinc</td> <td>0.030 milligrams per litre</td> </tr> <tr> <td>Total copper</td> <td>0.0036 milligrams per litre</td> </tr> </table>	Clarity	Decrease of 20 percent or greater compared to the upstream site	Total petroleum hydrocarbons	5 milligrams per litre	Total lead	0.011 milligrams per litre	Total zinc	0.030 milligrams per litre	Total copper	0.0036 milligrams per litre
Clarity	Decrease of 20 percent or greater compared to the upstream site										
Total petroleum hydrocarbons	5 milligrams per litre										
Total lead	0.011 milligrams per litre										
Total zinc	0.030 milligrams per litre										
Total copper	0.0036 milligrams per litre										
43	<p>The sample collected from the wetland pond outlet shall be compared to the following</p>										

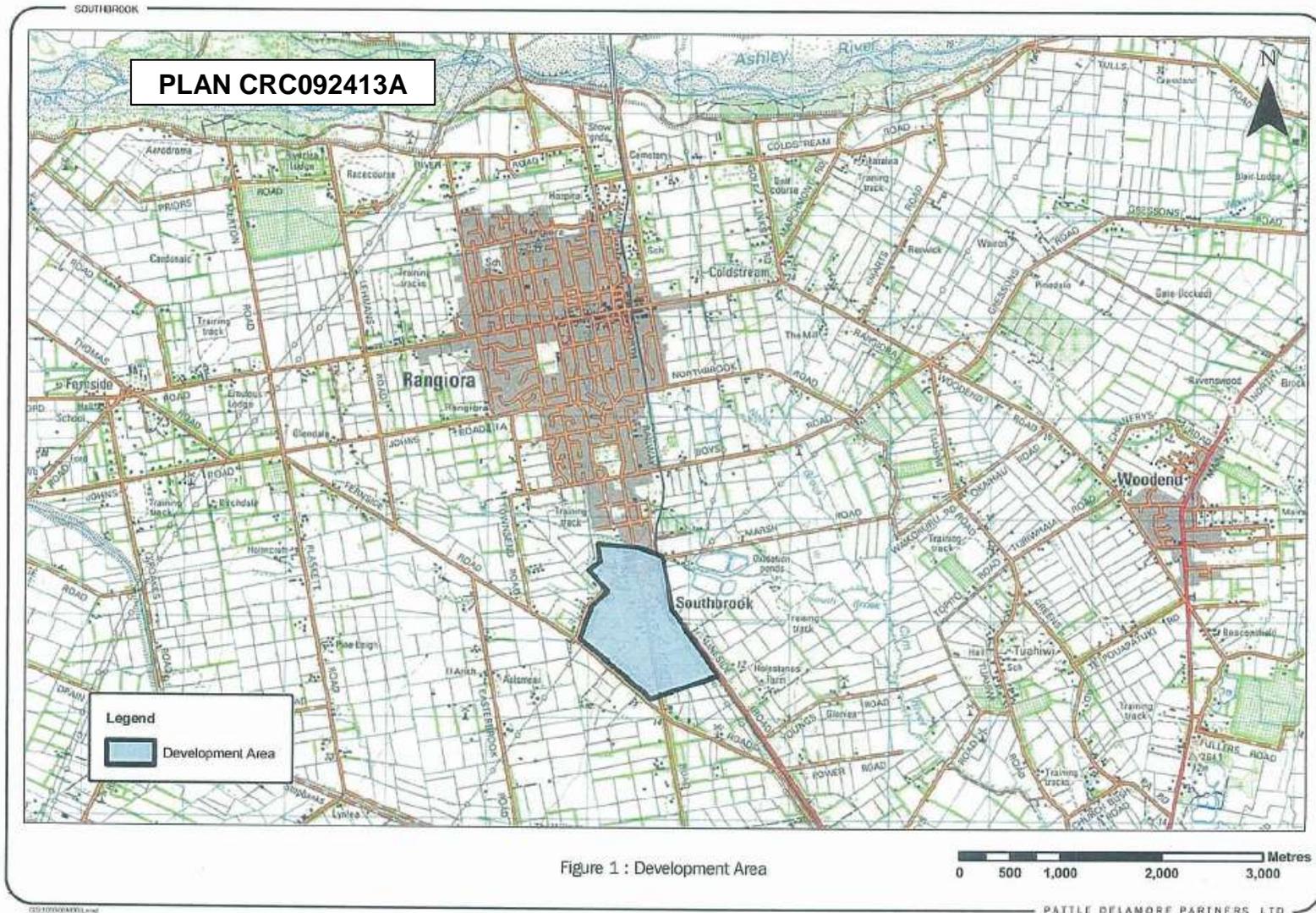
	<p>trigger value:</p> <p style="padding-left: 40px;">Total Suspended Solids 60 milligrams per litre</p>
44	<p>Should any of the samples taken and analysed in accordance with Condition (41) exceed any of the trigger values specified in Conditions (42) or (43):</p> <p style="padding-left: 20px;">(a) An assessment, including additional monitoring if appropriate, shall be undertaken or supervised by a person with at least a post-graduate tertiary qualification related to aquatic ecology and at least three year's professional experience, to determine:</p> <p style="padding-left: 40px;">(i) If the exceedances are a result of the stormwater discharge from the wetland pond;</p> <p style="padding-left: 40px;">(ii) The actual and potential effects on the environment from the exceedances; and</p> <p style="padding-left: 40px;">(iii) Whether additional mitigation measures or remediation are appropriate.</p> <p style="padding-left: 20px;">(b) The consent holder shall provide, within three months after the sampling has been undertaken, a report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, which details recommended proposed actions, if any, and timeframes for completion of such actions to be undertaken.</p>
45	<p>Composite sediment samples shall:</p> <p style="padding-left: 20px;">(a) Be undertaken once between three to twelve months and once during each of the third and fifth years following construction of the stormwater system, then as follows:</p> <p style="padding-left: 40px;">(i) Once per year for the following five years; then</p> <p style="padding-left: 40px;">(ii) Once every two years thereafter.</p> <p style="padding-left: 20px;">(b) Be made up of five samples within a five square metre area</p> <p style="padding-left: 20px;">(c) Be collected from within:</p> <p style="padding-left: 40px;">(i) The clean water diversion channel, 10 metres upstream of the inlet into the wetland pond; and</p> <p style="padding-left: 40px;">(ii) The Flaxton Road Drain, 43 metres downstream of the discharge point.</p> <p style="padding-left: 20px;">(d) Be collected from a depth of between zero to 20 millimetres below the bed surface.</p> <p style="padding-left: 20px;">(e) Be collected between September and December (inclusive).</p> <p style="padding-left: 20px;">(f) Be collected by a person who has at least a tertiary science or engineering qualification that required the equivalent of at least one year of full-time study and has at least two years professional work experience post-qualification.</p> <p style="padding-left: 20px;">(g) Be analysed using the most appropriate method by a laboratory that is accredited for that method by an accreditation authority, such as International Accreditation New Zealand;</p> <p style="padding-left: 20px;">(h) Be analysed for the following contaminants, in milligrams per kilogram dry weight:</p> <p style="padding-left: 40px;">Total lead</p> <p style="padding-left: 40px;">Total zinc</p>

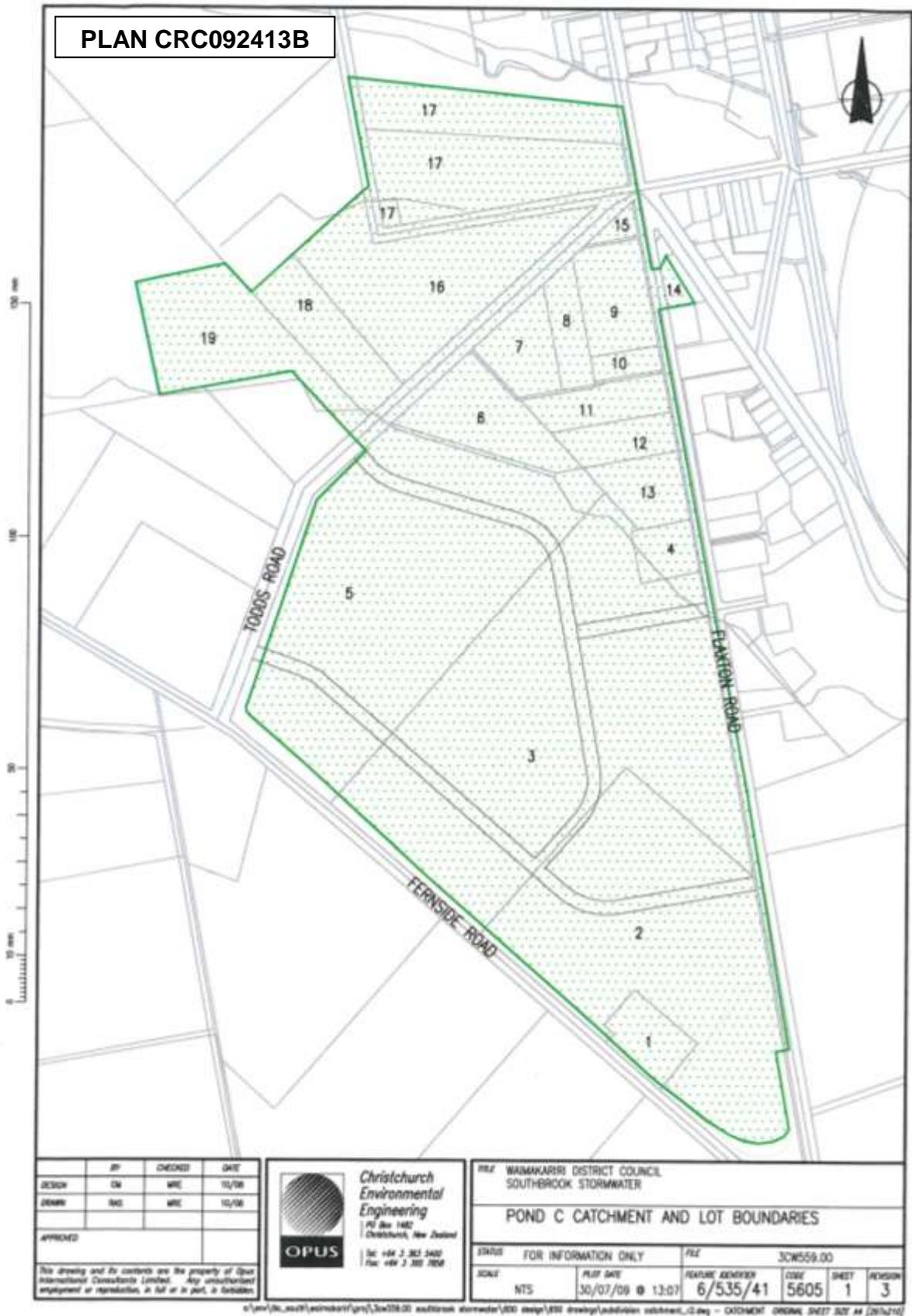
	<p style="text-align: center;">Total copper Total Polycyclic Aromatic Hydrocarbons Benzo(a)pyrene</p> <p>(i) Be compared to the following trigger values, in milligrams per kilogram dry weight:</p> <table style="margin-left: 40px;"> <tr> <td>Lead</td> <td style="text-align: right;">50</td> </tr> <tr> <td>Zinc</td> <td style="text-align: right;">200</td> </tr> <tr> <td>Copper</td> <td style="text-align: right;">65</td> </tr> <tr> <td>Total Polycyclic Aromatic Hydrocarbons</td> <td style="text-align: right;">4</td> </tr> <tr> <td>Benzo(a)pyrene</td> <td style="text-align: right;">0.43</td> </tr> </table> <p>(j) If the trigger values in Condition (45)(i) are exceeded at any time then the sampling frequency shall be once per year until the results of that sampling demonstrate results that are less than the trigger values. Then the sampling frequency shall revert to that specified in Condition (45)(a)</p>	Lead	50	Zinc	200	Copper	65	Total Polycyclic Aromatic Hydrocarbons	4	Benzo(a)pyrene	0.43
Lead	50										
Zinc	200										
Copper	65										
Total Polycyclic Aromatic Hydrocarbons	4										
Benzo(a)pyrene	0.43										
46	<p>Ecological sampling shall:</p> <p>(a) Be undertaken once between three to twelve months and once during each of the third and fifth years following construction of the clean water diversion drain, then as follows:</p> <ul style="list-style-type: none"> (i) Once per year for the following five years; then (ii) Once every two years thereafter. <p>(b) Be undertaken between September and December (inclusive);</p> <p>(c) Be undertaken within:</p> <ul style="list-style-type: none"> (i) The clean water diversion channel, 10 metres upstream of the outlet from the wetland pond; and (ii) The Flaxton Road Drain, 43 metres downstream of the discharge point <p>(d) Include, but not be limited to:</p> <ul style="list-style-type: none"> (i) Three replicate macroinvertebrate samples per site; (ii) Estimation of macrophyte and periphyton cover; (iii) Assessment of substrate composition; and (iv) Determination of the depth of fine sediment, defined as sediment of a size less than two millimetres in diameter, on the streambed. <p>(e) Be undertaken at least two weeks after any period of high flows. For the purposes of this consent, “high flows” are defined as a rainfall event of at least 15 millimetres depth, as measured at a rain gauge within six kilometres of the site.</p> <p>(f) Be undertaken in general accordance with the methodology specified in the following publication: Stark JD, Boothroyd IKG, Harding JS, Macted JR, Scarsbrook MR. 2001. Protocols for Sampling Macroinvertebrates in Wadeable Streams. New Zealand Macroinvertebrate Working Group Report No. 1.</p>										

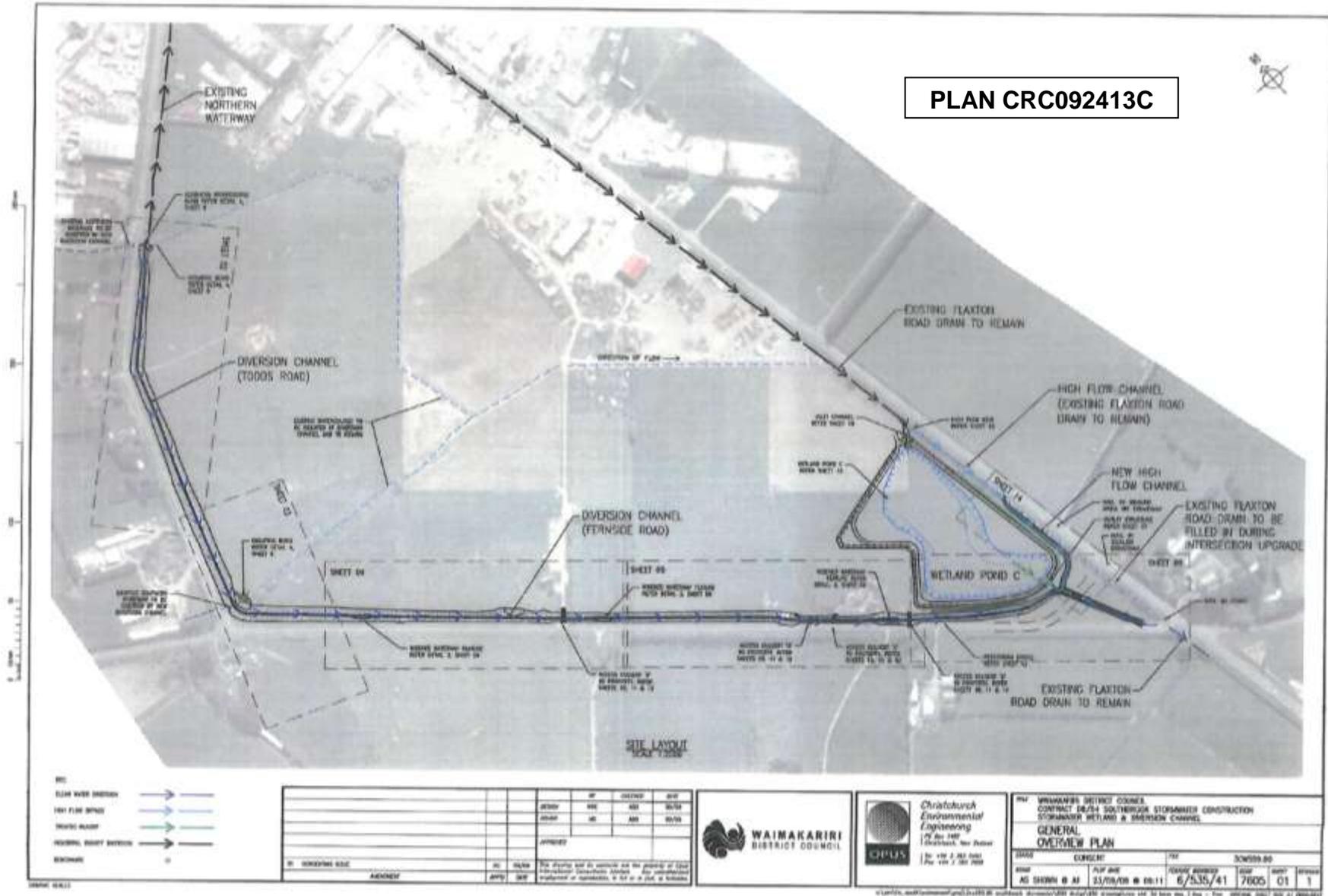
	<p>Prepared for the Ministry for the Environment. Sustainable Management Fund Project No. 5103, 57 p.</p> <p>(g) Be undertaken by a person who has at least a post-graduate tertiary qualification related to aquatic ecology and at least one year's professional experience ; and</p> <p>(h) Be interpreted by a person with at least a post-graduate tertiary qualification related to aquatic ecology and at least three year's professional experience.</p>
Recording and Reporting	
47	<p>A Monitoring Management Plan (MMP) shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within two months of granting of this consent, detailing how conditions (41) to (46) will be complied with.</p> <p>The MMP shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> (a) The variables to be sampled or monitored; (b) Locations where monitoring will be undertaken; (c) Methods for undertaking monitoring, including frequency and timing; (d) Details on how the monitoring results will be analysed and compared with the trigger levels, baseline data and previous monitoring results; (e) Reporting procedures; and (f) A timetable for reporting to the Canterbury Regional Council.
48	<p>The MMP prepared in accordance with Condition (47) shall be prepared by a person with at least a post-graduate tertiary qualification related to aquatic ecology and at least three year's professional experience.</p>
49	<p>The consent holder shall keep records of all inspections and maintenance undertaken in accordance with this consent and shall provide a maintenance report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by 31 March each year. This report shall cover the preceding 12 month period and shall include the following information:</p> <ul style="list-style-type: none"> (a) The date and details of inspections of the stormwater system, including the name of the person undertaking these activities; (b) The date and details of any maintenance work; (c) The results of any 'falling head test' undertaken in accordance with Condition (31); and (d) Written confirmation of the location of any disposal of material outlined in Condition (39).
50	<p>The results of the analyses undertaken in accordance with Conditions (41), (45) and (46) shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within three months of undertaking the sampling.</p>
51	<p>The consent holder shall keep records of monitoring undertaken in accordance with Conditions (41) to (46) and shall provide a monitoring report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by 31 March each year sampling has been undertaken. This report shall cover the preceding 12 month period and shall include the following information:</p>

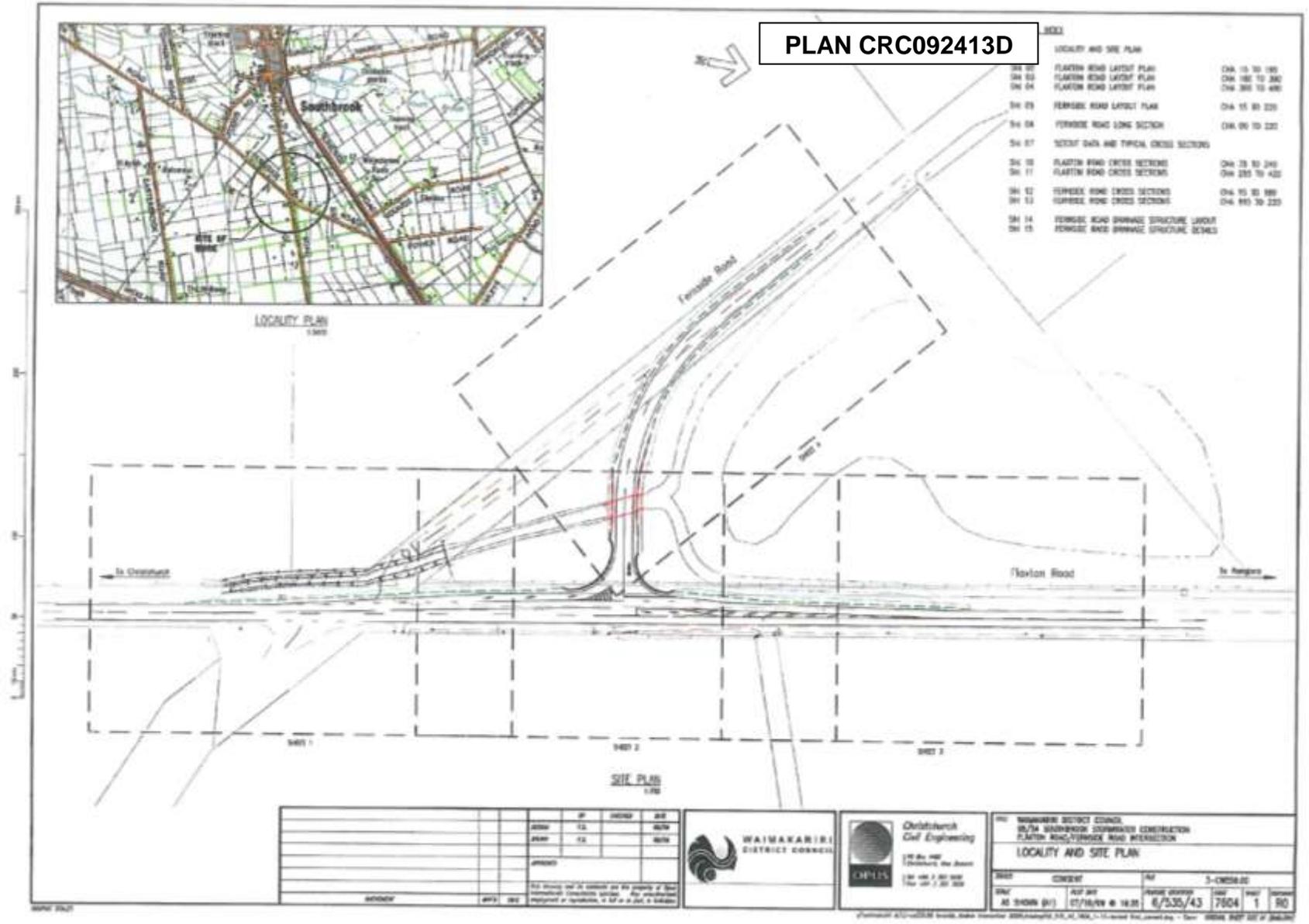
	<ul style="list-style-type: none"> (a) The name of the person who collected the samples, the date and time the samples were collected, and the location of the sampling; (b) Daily rainfall during the 12 month period; (c) The weather and flow conditions at the time of sampling; (d) The rainfall data associated with sampling events, including, but not limited to, date, time, duration and rainfall depth of the storm; (e) The laboratory analysis results; (f) An assessment against the appropriate trigger levels; (g) Any reports supplied under Condition (48) and relevant updates; (h) An assessment of the actual and potential effects, including but not limited to, qualitative pond treatment performance, and water and habitat quality comparisons between sites; (i) An qualitative assessment of the effectiveness of the stormwater treatment system; (j) Recommendations on any further monitoring, mitigation or stormwater treatment changes that may be required to investigate or address any significant adverse effects that may have been identified; and (k) Details of the action that the consent holder has done or proposes to do in response to any recommendations in the annual report.
52	The monitoring report in accordance with Condition (51) shall be prepared by a person who is either a Chartered Professional Engineer (CPEng) or a person who has a post-graduate tertiary science qualification and at least three years professional experience in the general field of water pollution prevention or aquatic ecology.
Administration	
53	The lapsing date for the purposes of Section 125 of the Resource Management Act 1991 shall be 31 March 2015.
54	<p>The Canterbury Regional Council may, once per year, on any of the last five days of April or October, serve notice of its intention to review the conditions of this consent 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 this 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; or (c) Requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent, such as updating the list of contaminants to be monitored and associated trigger values.

CRC092413 plans

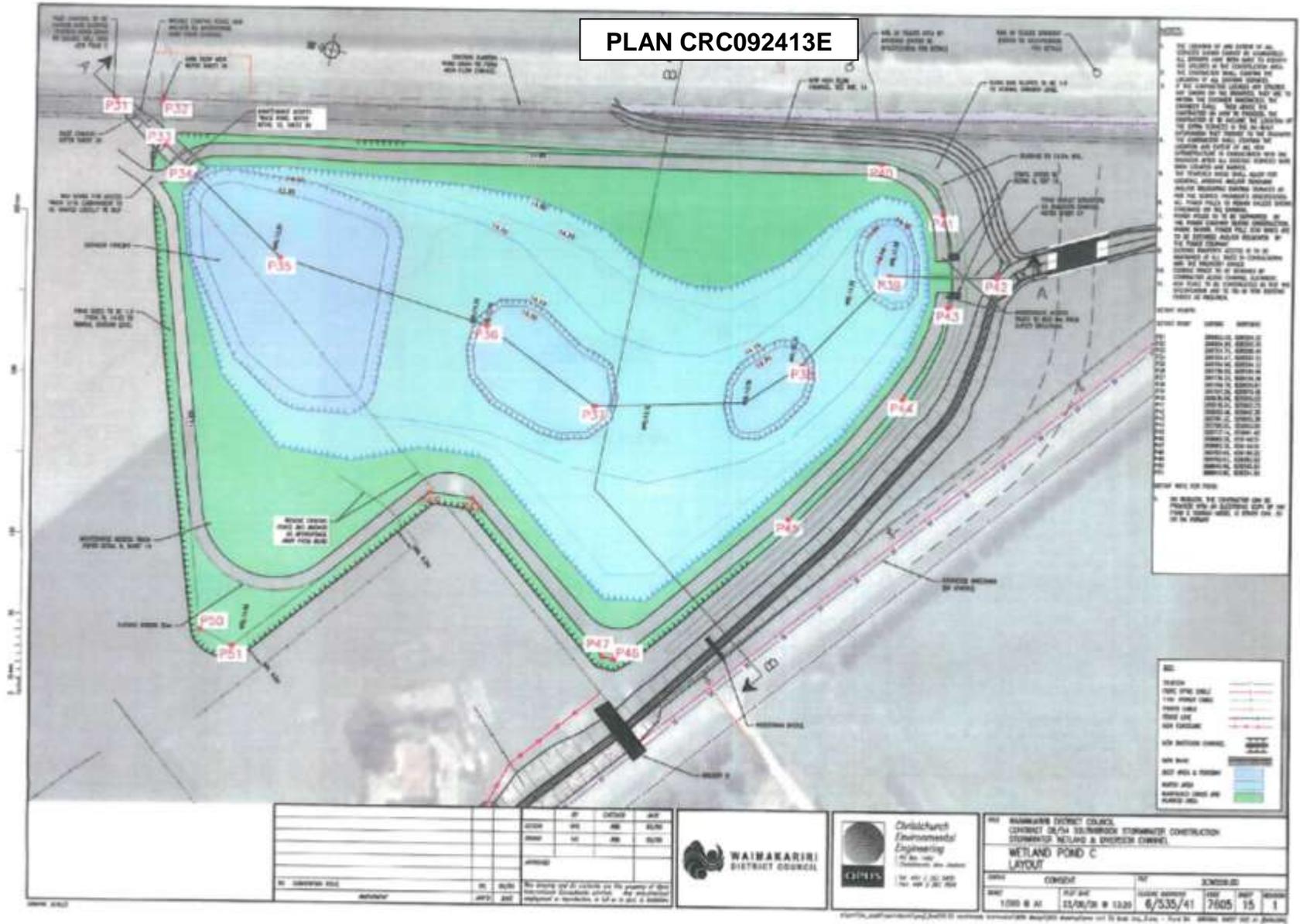


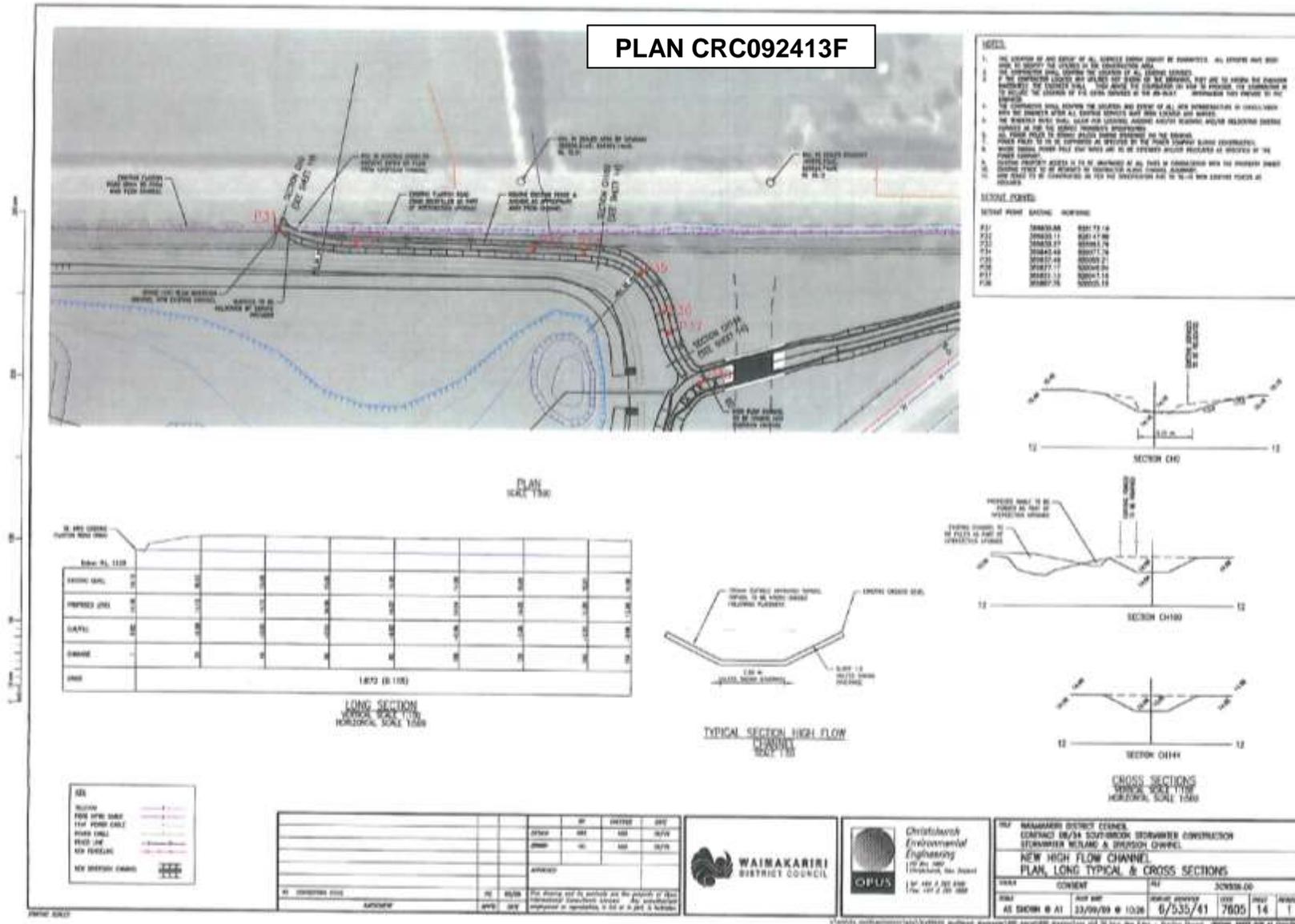


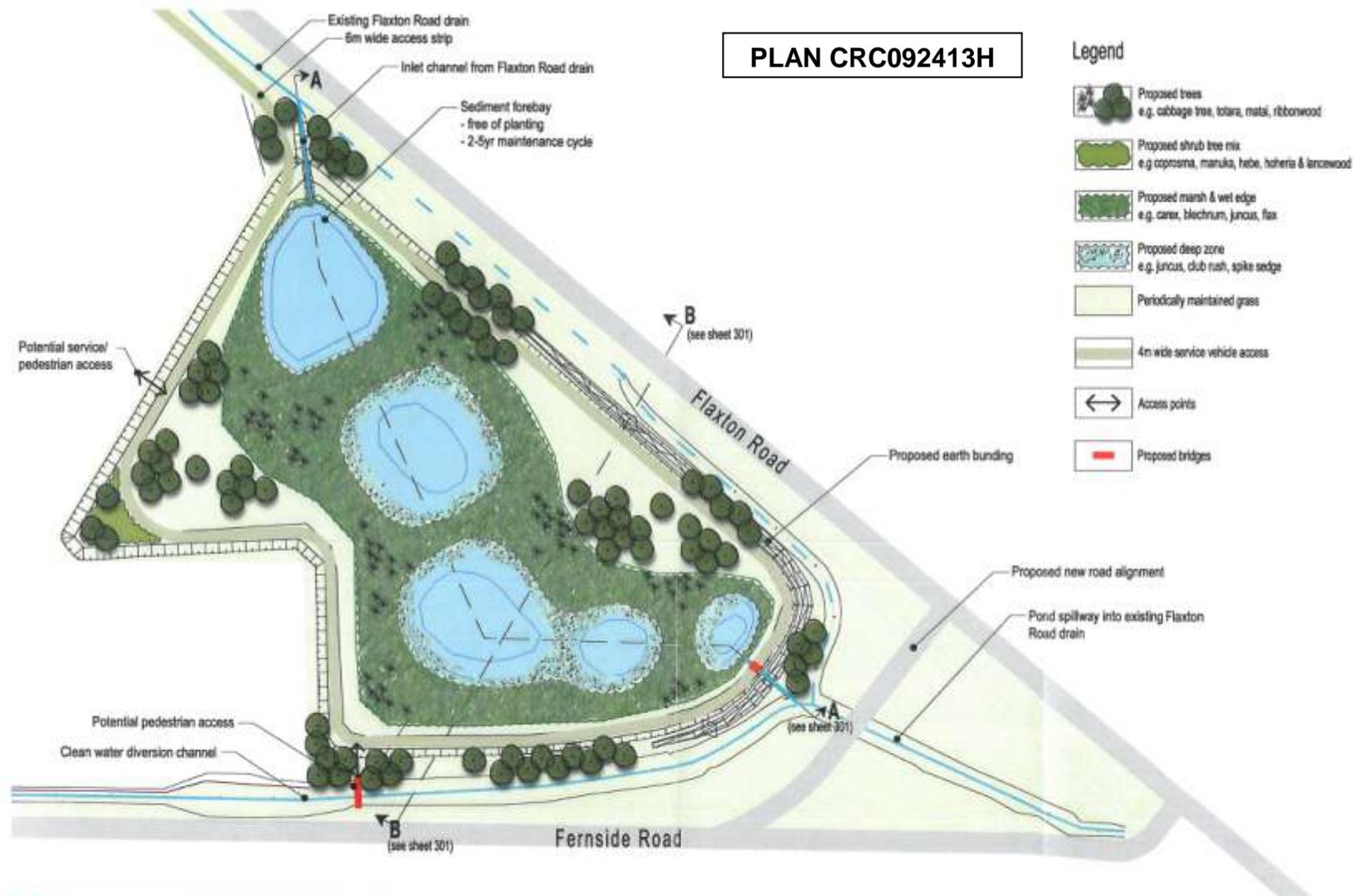


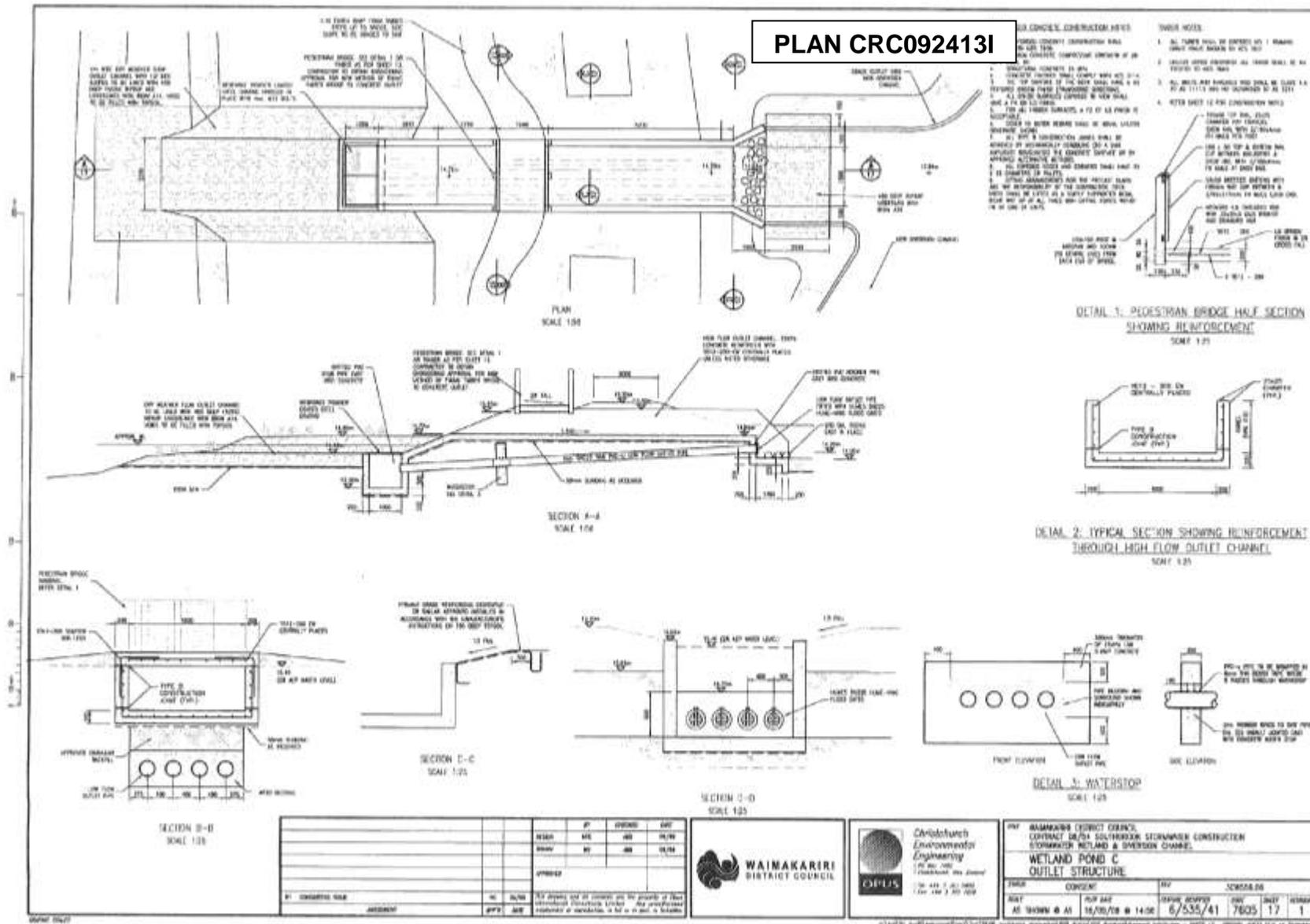


Decision on WDC Flaxton Road Drain stormwater discharge resource consent applications









SCHEDULE WQL3A

Description of activity or industry
<u>Asphalt or bitumen manufacture or bulk storage – manufacturing asphalt or bitumen, or bulk storage of these products, (excludes single-use site used by a mobile asphalt plant).</u>
<u>Battery manufacture or recycling – assembling, disassembling, manufacturing or recycling batteries (excludes sites used to store batteries for retail sale).</u>
<u>Drum and tank reconditioning or recycling.</u>
<u>Dry cleaning plants - where dry cleaning is carried out and solvents are stored.</u>
<u>Electrical transformers – manufacture, use, repair or disposal of electrical transformers or other heavy electrical equipment.</u>
<u>Inorganic fertiliser manufacture – manufacturing or bulk storage of agriculture fertiliser.</u>
<u>Smelting or refining, commercial production of metal products – fusing or melting metalliferous ores or refining the metal.</u>
<u>Gasworks – manufacture of town gas from coal or oil feedstocks.</u>
<u>Landfill sites</u>
<u>Metal treatment or coating – including polishing, anodising, galvanising, pickling, electroplating, heat treatment using cyanide compounds and finishing, curing works or commercially finishing leather.</u>
<u>Workshops , maintenance and servicing of transport plant, engines, railway workshops</u>
<u>Pesticide manufacture (including animal poisons, insecticides, fungicides and herbicides) – commercially manufacturing, or formulating proprietary pesticides.</u>
<u>Petroleum or petrochemical industries or storage, including oil production and operating a petroleum depot, terminal, blending plant or refinery, and facilities for recovery, reprocessing or recycling petroleum based materials and bulk storage above and below ground.</u>
<u>Scrap yards –including automotive dismantling or wrecking yard or scrap metal yard.</u>
<u>Tannery, fellmongery or hide curing, wool scouring or washing or commercially finishing leather.</u>
<u>Sites used to store, collect, and dispose of waste including land disposal of wastes, but not the use of biosolids as soil conditioners.</u>
<u>Wood processing and treatment and preservation and bulk storage of treated timber.</u>

**TABLE 9-1 OF AUCKLAND REGIONAL COUNCIL TECHNICAL PUBLICATION
#10**

Table 9-1 Design criteria		
Design parameter	Swale	Filter strip
Applicable longitudinal slope	1% - 5%	1% - 5%
Maximum velocity	0.8 m/s (WQ storm)	0.4 m/sec (WQ storm)
Maximum water depth above vegetation (WQ storm)	100 mm	25 mm
Manning coefficient	See equations in Section 9.6.2	
Maximum bottom width	2 m	NA
Minimum hydraulic residence time	9 minutes	9 minutes
Maximum catchment area served	4 hectares	4 hectares
Minimum length	30 m	sufficient to attain residence time
Maximum side slope	3H:1V (shallower if possible for mowing purposes)	NA
Maximum drainage flowpath	NA	50 m
Maximum longitudinal slope of contributing area	NA	5% unless energy dissipation is provided
Maximum lateral slope	0%	2%

FIGURE 7-3 OF AUCKLAND REGIONAL COUNCIL TECHNICAL PUBLICATION #10

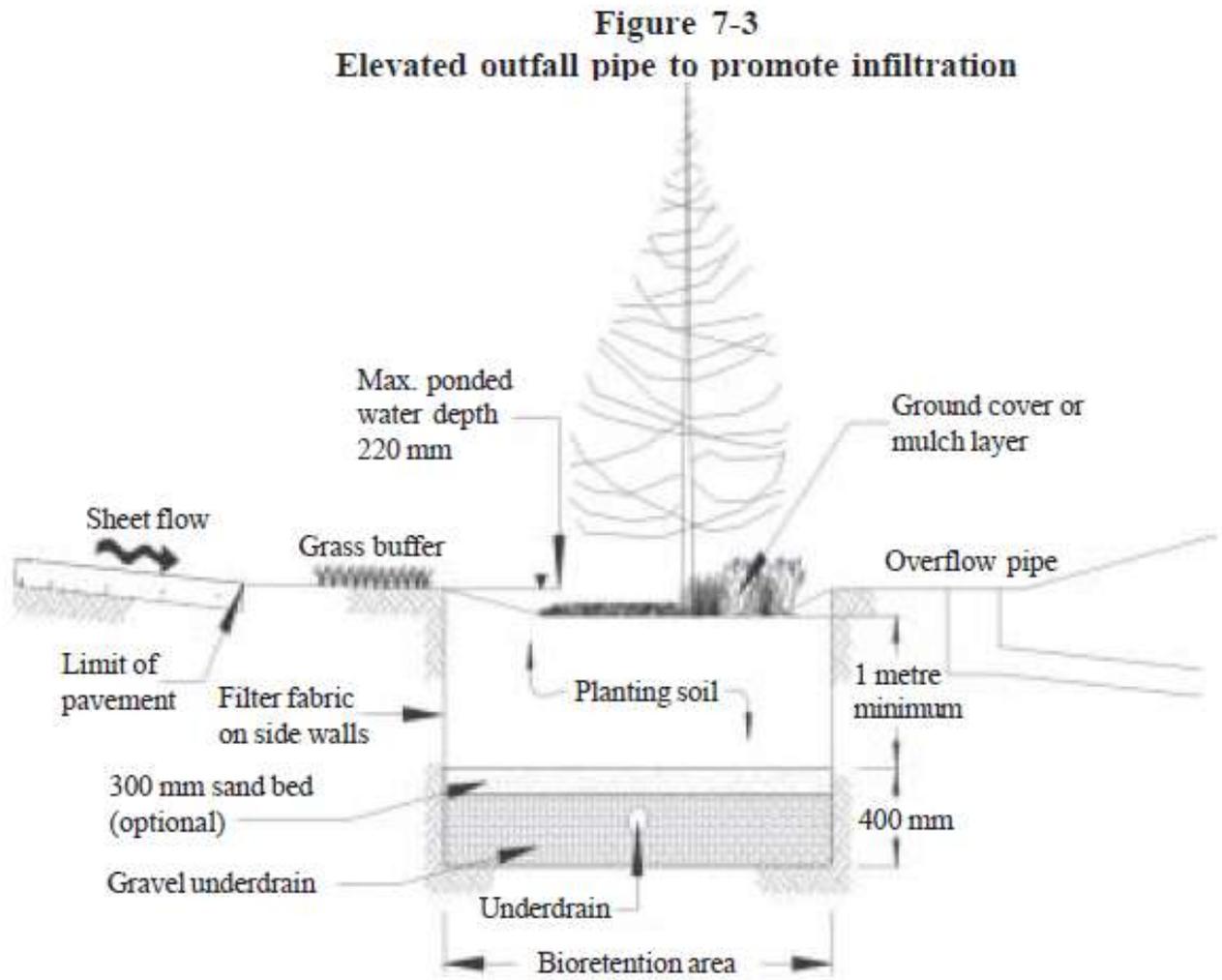
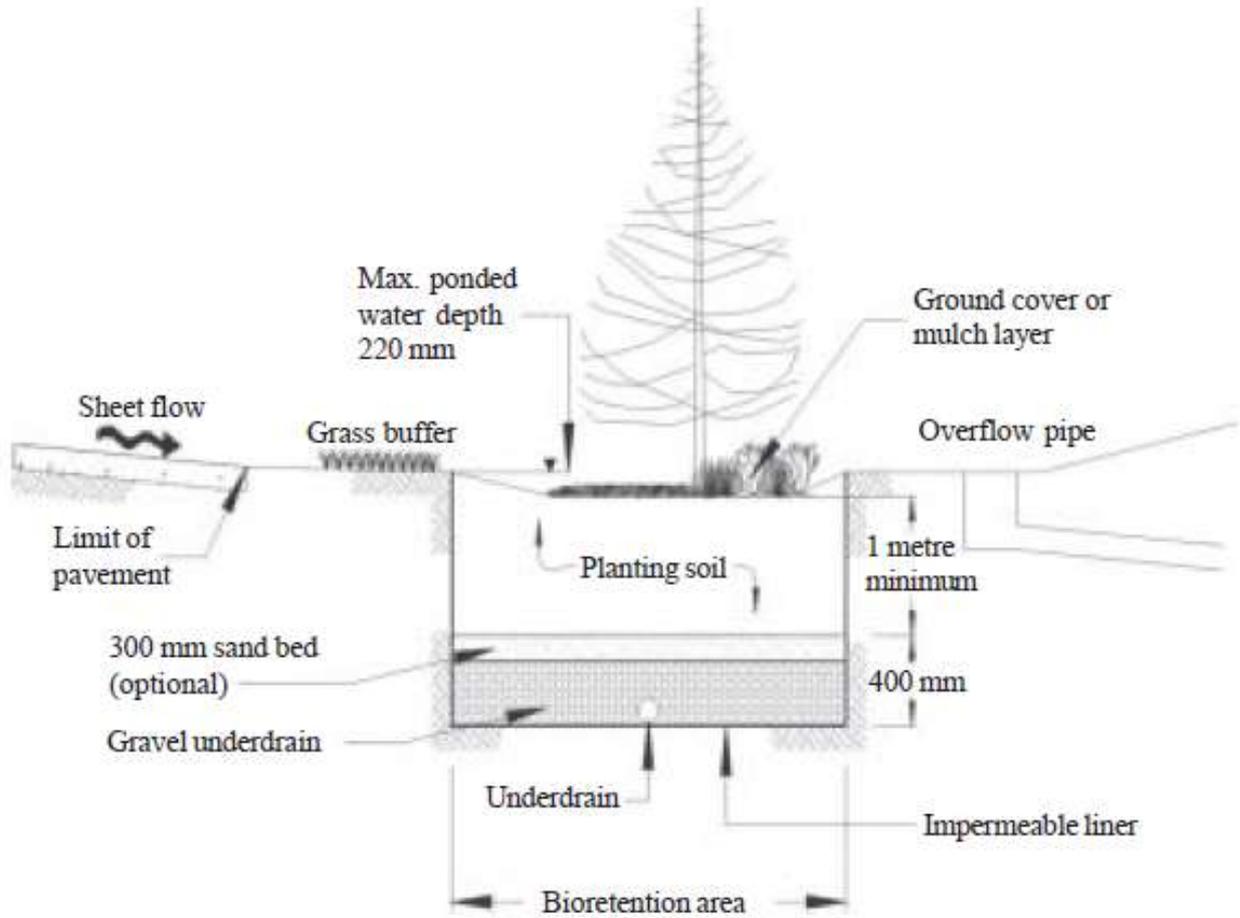


FIGURE 7-4 OF AUCKLAND REGIONAL COUNCIL TECHNICAL PUBLICATION #10

**Figure 7-4
Outfall pipe located at the bottom of the raingarden**



CRC092809 Land Use Consent to excavate land over an unconfined aquifer, to disturb soil and vegetation in the riparian margin, to disturb the bed and to install structures in the bed of watercourses.

1	The location of the works shall be at or about map reference NZMS 260 M35:7762-6336, on the properties legally described as Lot 2 DP 301523, Lot 3 DP 301523, Pt RS 1257 and Lot 2 DP 349798, as shown on attached location plans CRC092413A and CRC092413C, which form part of this consent.
2	<p>The works shall be limited to:</p> <ul style="list-style-type: none"> (a) Excavation of land to create a wetland pond with a series of deep pools and shallow margins over an area of approximately 3.2 hectares. (b) Excavation of land to construct a new clean water diversion channel, up to 4 metres deep and approximately 1.3 kilometres long. (c) Excavation of land to construct a new diversion channel, up to 4 metres deep and approximately 110 metres long (Flaxton Road Drain diversion). (d) Vegetation and soil disturbance in the riparian margin where the stream diversions are to take place, over a total area of approximately 3,500m². (e) Installation of structures including two weirs, three box culverts for the construction of a crossing over the drain alongside Fernside Road, a new bridge or culvert for crossing Flaxton Road Drain and an outlet structure from the wetland pond to the Flaxton Road Drain.
3	The works shall be undertaken in accordance with attached design plans CRC092413C, CRC092413D, CRC092413E, CRC092413F, CRC092413G, CRC092413H, CRC092413I, and CRC092413J, which form part of this consent.
4	Construction works shall only be undertaken during the hours of 7.00am to 6.00pm Monday to Saturday. Works shall not be carried out on Sundays or public holidays.
5	Bridges and culverts on the new clean water diversion channel shall be designed to pass the 10% Annual Exceedence Probability storm flow without surcharge.
6	The structures shall be maintained in good working order.
7	In the event of any damage to the structures or the new clean water diversion channel the consent holder shall maintain the flood carrying capacity of the Flaxton Road Drain and/or the new clean water diversion channel and take all practicable measures to minimise erosion.
8	All practicable measures shall be undertaken to minimise wind erosion from areas of exposed soil (including stockpiles).
9	<p>The consent holder shall adopt the best practicable options to minimise soil disturbance, prevent soil erosion and prevent sediment from flowing into any surface water, including, but not limited to:</p> <ul style="list-style-type: none"> (a) All disturbed areas shall be revegetated or otherwise stabilised as soon as practicable following completion of each section of works.

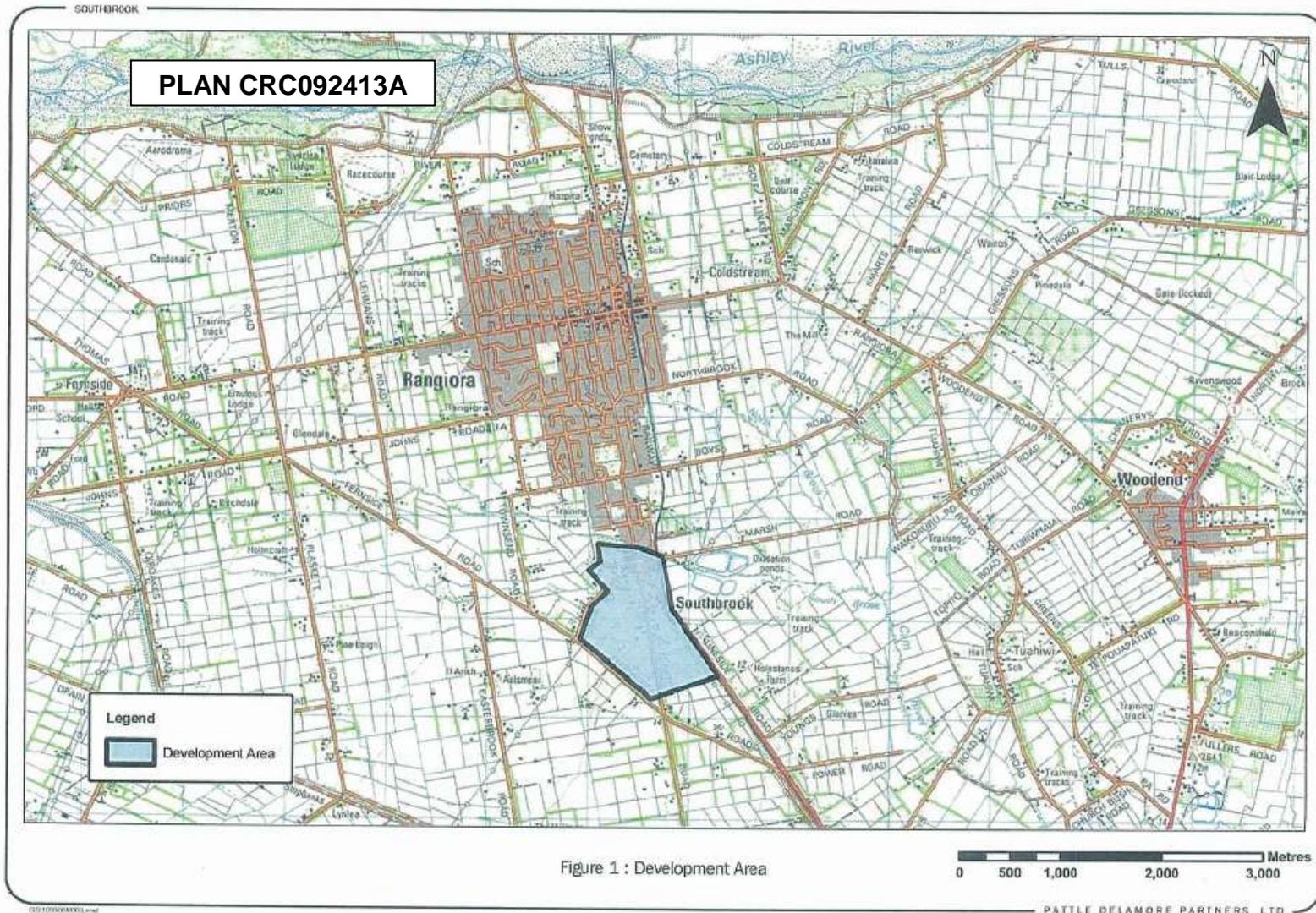
	<p>Stabilisation shall be undertaken in a progressive manner as works are completed, and where works are to be suspended for seven days or more.</p> <p>(b) Earthworks shall be staged in manageable sections. Each section shall be stabilised against erosion as soon as practicable and in a progressive manner as earthworks are completed.</p> <p>(c) Clean runoff shall be diverted away from working areas.</p> <p>(d) Excavated material shall be stockpiled at least 20 metres from any watercourse.</p> <p>(e) A 15 metre wide vegetated buffer zone shall be maintained between earthworks and flowing water. Where this is not practical, the consent holder shall install sediment fences.</p> <p>(f) Water shall not be diverted down the new clean water diversion channel until all areas of exposed soil have been stabilised and riparian plantings are established.</p>
10	<p>Erosion and sediment control measures shall be constructed and maintained in accordance with the methodology set out in the Environment Canterbury Erosion and Sediment Control Guidelines (Report R06/23, February 2007).</p> <p>Note: Chapters 6 and 7 of these guidelines are of particular relevance to this consent</p>
11	<p>All practicable measures shall be taken to minimise the use of machinery in water, including but not limited to:</p> <p>(a) installing all structures in the clean water diversion channel prior to diverting flow down the new channel;</p> <p>(b) dewatering the work site where groundwater is intercepted by excavations; and</p> <p>(c) use of a temporary culvert system to convey the flow in Flaxton Road Drain during the removal of the bridge and ford, as shown on Details 5 and 6 on attached plan CRC092413K which forms part of this consent.</p>
12	<p>The consent holder shall ensure that if fish are stranded in pools or channels they are relocated to a nearby flowing watercourse as soon as practicable. The fish recovery operation shall be undertaken by an aquatic ecologist with a tertiary degree in a biological science and previous experience with fish recovery or a person nominated by the Department of Conservation or the North Canterbury Fish and Game Council.</p>
13	<p>Machinery shall be free of plants and plant seeds prior to use in the riverbed.</p>
14	<p>No cut vegetation, debris, or other excavated material, shall be placed in any surface water body, or in a position such that it may enter any surface water body.</p>
15	<p>The new clean water diversion channel and wetland pond shall be planted in general accordance with attached Plan CRC092413H which forms part of this consent. In particular, the consent holder shall ensure the new clean water diversion channel has native riparian vegetation, deep shaded pools, and areas of rip-rap or boulders, in at least</p>

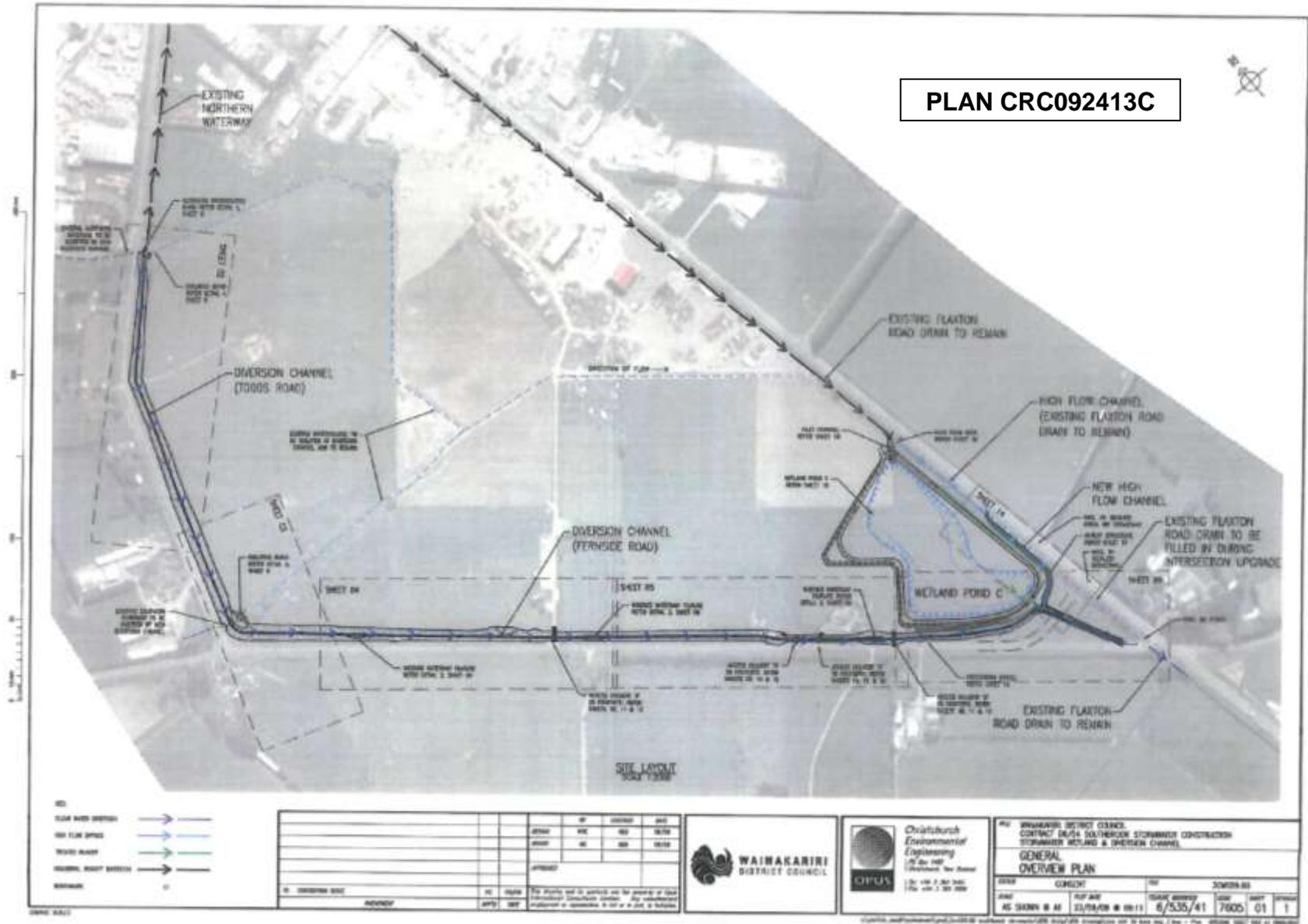
	three locations that extend at least 30 metres along Fernside Road.
16	<ul style="list-style-type: none"> (a) All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery. (b) There shall be no storage of fuel or lubricants, refuelling, or lubrication of vehicles and machinery within 20 metres of a watercourse or exposed groundwater. (c) Fuel shall be stored securely or removed from site overnight
17	All machinery and mobile plant operated on the site must maintain a minimum clearance distance of 4 metres from the Islington – Southbrook A transmission line conductors at all times.
18	<p>In the case of any tower supporting any conductor, no person may excavate or otherwise interfere with any land:</p> <ul style="list-style-type: none"> (a) at a depth greater than 300mm within 6 metres of the outer edge of the visible foundations of the tower; or (b) at a depth greater than 3 metres, between 6 metres and 12 metres of the outer edge of the visible foundation of the tower; or (c) in such a way as to create an unstable batter.
19	Excavated or other material must not be deposited under or near the Islington – Southbrook A transmission line so as to reduce the vertical distance from the ground to the conductors to a distance less than 7.5 metres vertically.
20	The consent holder must ensure that the discharge of dust and/or particulate matter from the earthworks within the site do not create any dust hazard or nuisance to Transpower's Islington - Southbrook A transmission line, including support structures.
21	<p>To prevent the spread of Didymo or any other aquatic pest, the consent holder shall, for all vehicles and machinery that come into contact with water, prior to their use in the vicinity of a different waterway:</p> <ul style="list-style-type: none"> (a) Thoroughly clean machinery and vehicles, including tyres, with detergent or bleach. This shall involve spraying, scrubbing or soaking the underside of the vehicle and machinery and any other parts of the vehicle that have had contact with river water. The cleaning solution shall be left for at least one minute before being rinsed off with clean water (i.e., from a town supply). Detergent, bleach or rinse water shall not discharge into surface water; or (b) Leave vehicles and machinery to dry completely to the touch and then leave at least a further 48 hours before being used in a different waterway. <p>Note: Additional information is available on the Biosecurity New Zealand website http://www.biosecurity.govt.nz.</p>
22	The consent holder shall take all practicable measures to ensure that populations of pasture-grazing birds utilising the wetland pond do not cause nuisance to nearby land owners and/or occupiers. A site management plan shall be prepared which includes measures for dealing with nuisance populations of pasture grazing birds, and measures to be taken in response to complaints received by neighbouring land owners and/or

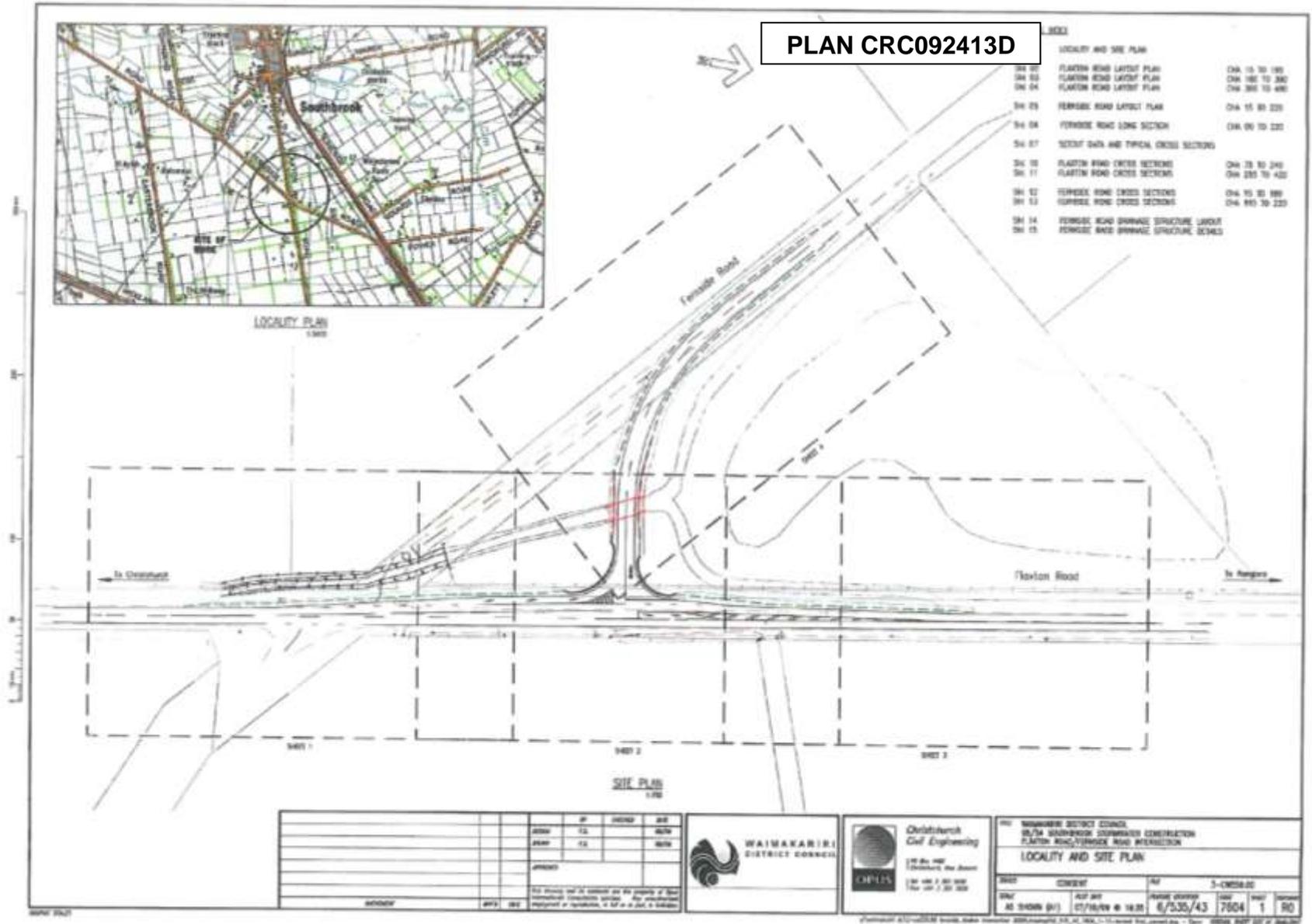
	occupiers. The site management plan shall be submitted to the Canterbury Regional Council, attention: RMA Compliance and Enforcement Manager on request.
23	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
24	<p>(a) In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the consent holder shall immediately:</p> <ul style="list-style-type: none"> (i) Cease earthmoving operation in the affected area until the affected area has been marked off; and (ii) Advise the Canterbury Regional Council (0800324636) of the disturbance; and (iii) Advise the Upoko Runanga of Tuahiwi, or their representative (contact information can be obtained from the Canterbury Regional Council (0800324636), and the New Zealand Historic Places Trust (phone (03) 3652897), of the disturbance. <p>(b) Work may recommence:</p> <ul style="list-style-type: none"> (i) If the Upoko Runanga of Tuahiwi, or their representative(s) has provided a certificate in writing to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within five working days of earthworks recommencing that appropriate action has been undertaken in relation to the culturally sensitive material discovered or (ii) If the certification specified in condition (b) (i) above is not provided within five working days after the notification of the discovery, work may recommence if an archaeologist (i.e., a person with a post graduate degree in archaeology, and who is a member of the New Zealand Archaeological Association) provides a signed certificate that states in that person's professional opinion appropriate action has been undertaken in relation to the discovered culturally sensitive material. <p>Note: This condition is in addition to any agreements that are in place between the consent holder and the Upoko Runanga (Cultural Site Accidental Discovery Protocol) or the New Zealand Historic Places Trust. This condition does not replace other legal responsibilities, such as those under the Historic Places Act.</p>
25	The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.
26	The lapsing date for the purposes of section 125 shall be 31 March 2015.
	<p>CRC092809 Advice Notes:</p> <ol style="list-style-type: none"> 1. Transpower NZ has a right to access its existing assets situated on the site under s23 Electricity Act 1992. Any development must not preclude or obstruct this right of access. It is an offence under s163(f) Electricity Act to intentionally obstruct any person in the performance of any duty or in doing any work that the person has the lawful authority to do under s23 of the Electricity Act. 2. All land use activities, including the construction of new buildings/structures, earthworks, the operation of mobile plant and/or the construction of fences on the

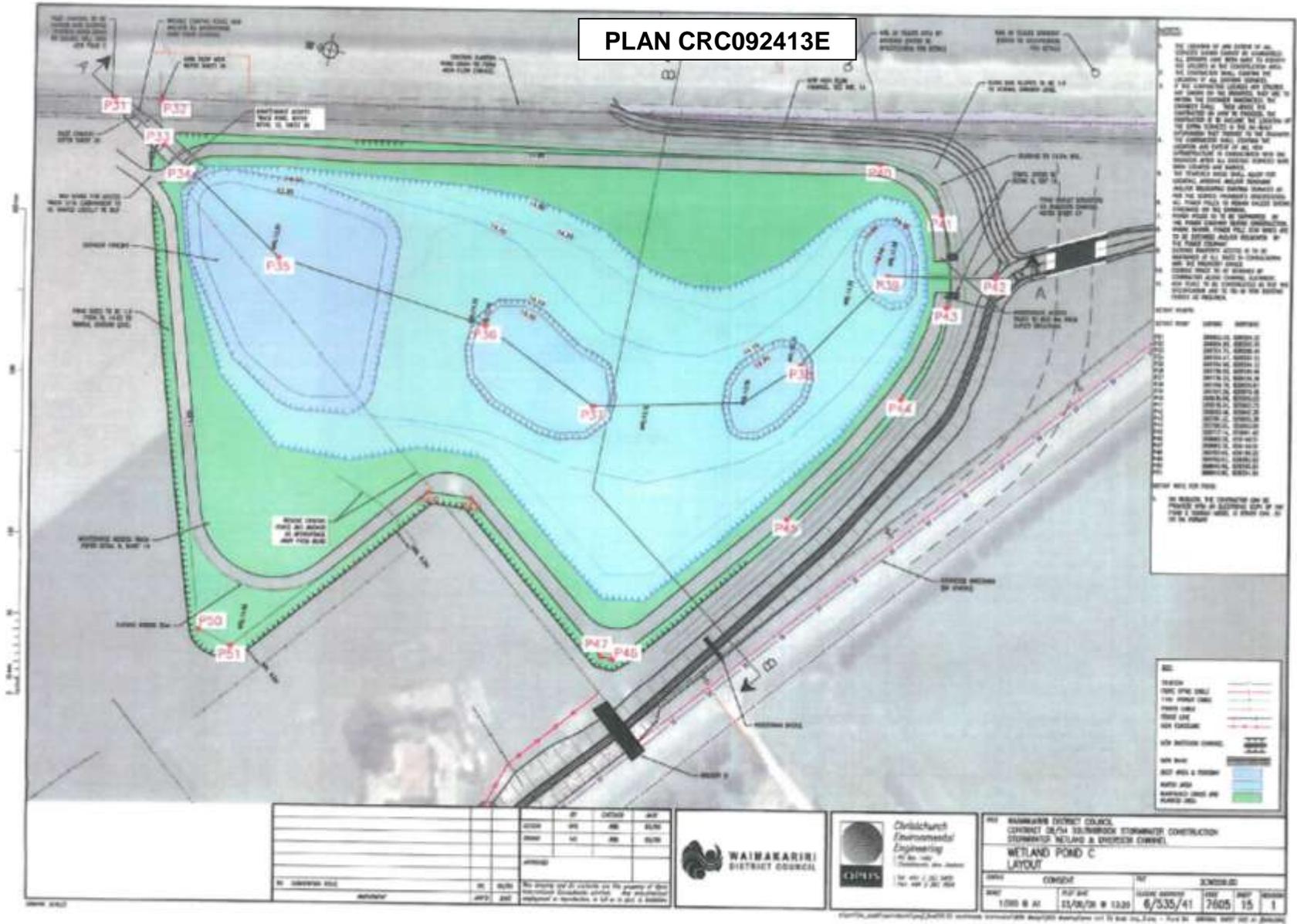
	<p>site must comply with the New Zealand Code of Practice for Electrical Safe Distances 34:2001 (NZECP 34:2001).</p> <p>3. All new trees/vegetation planted in the vicinity of any transmission line are limited to those which at a mature height will not encroach upon the relevant growth limit zone [or notice zone] for the line, as defined in the Electricity (Hazards from Trees) Regulations 2003.</p>
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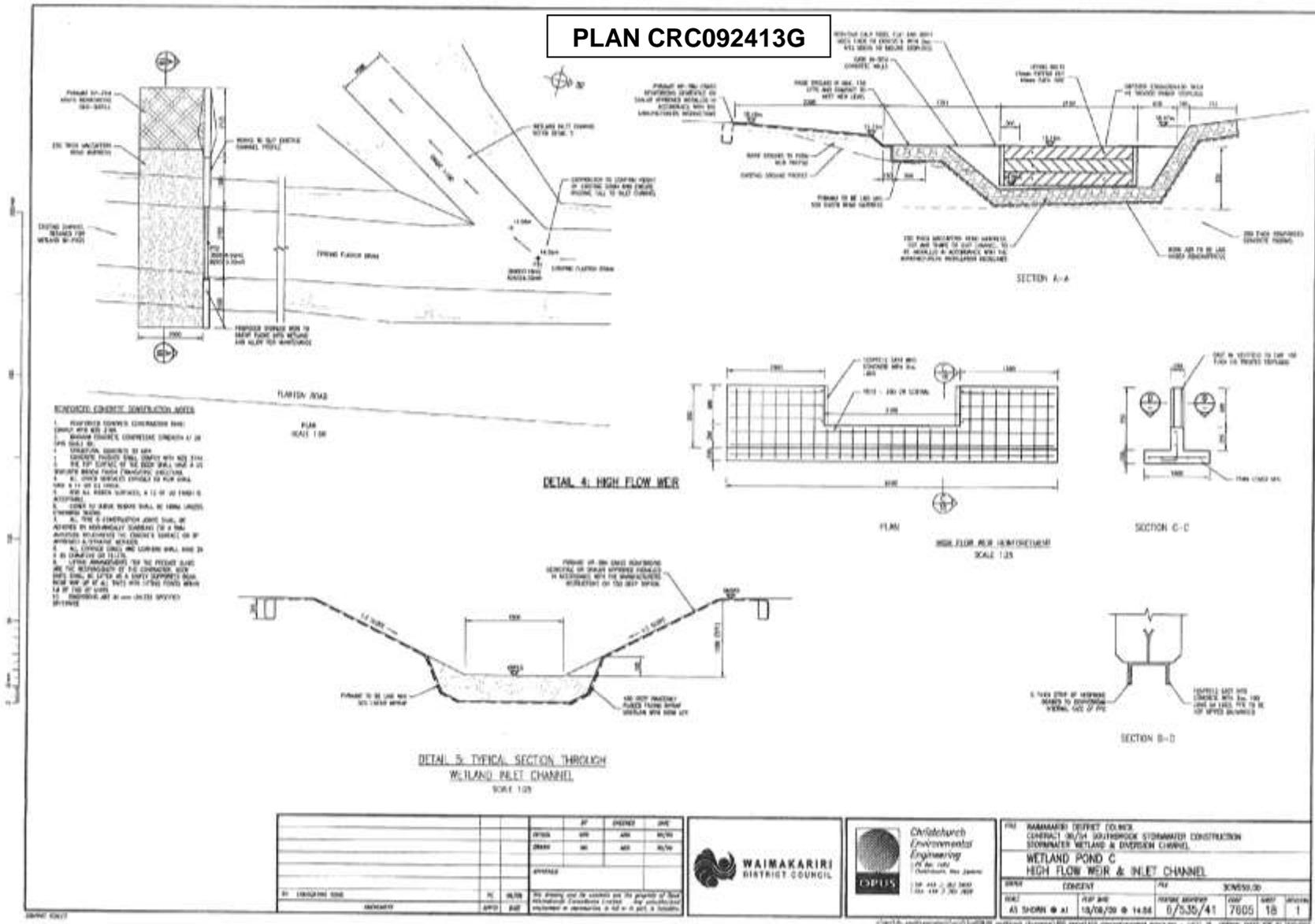
CRC092809 Plans

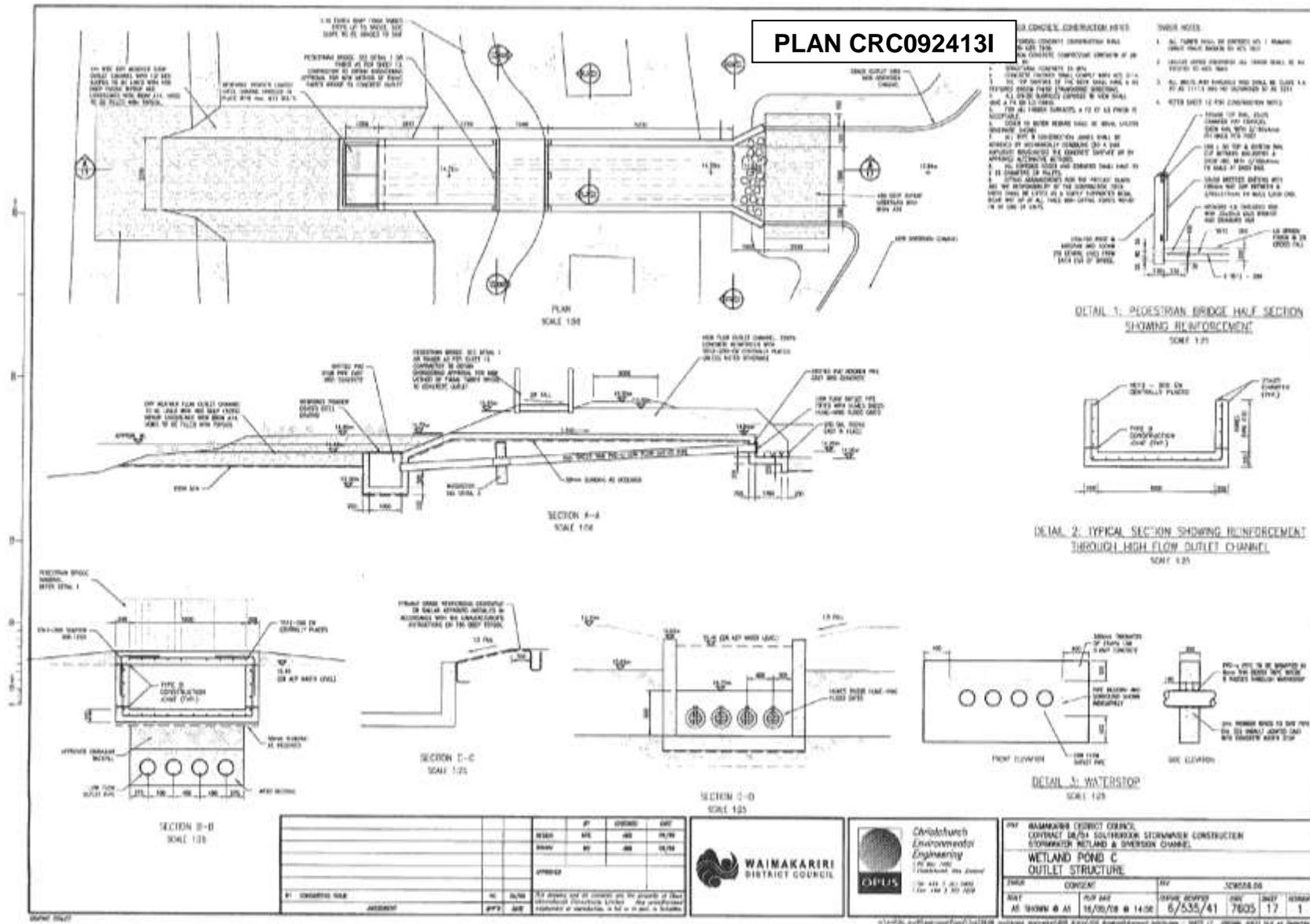




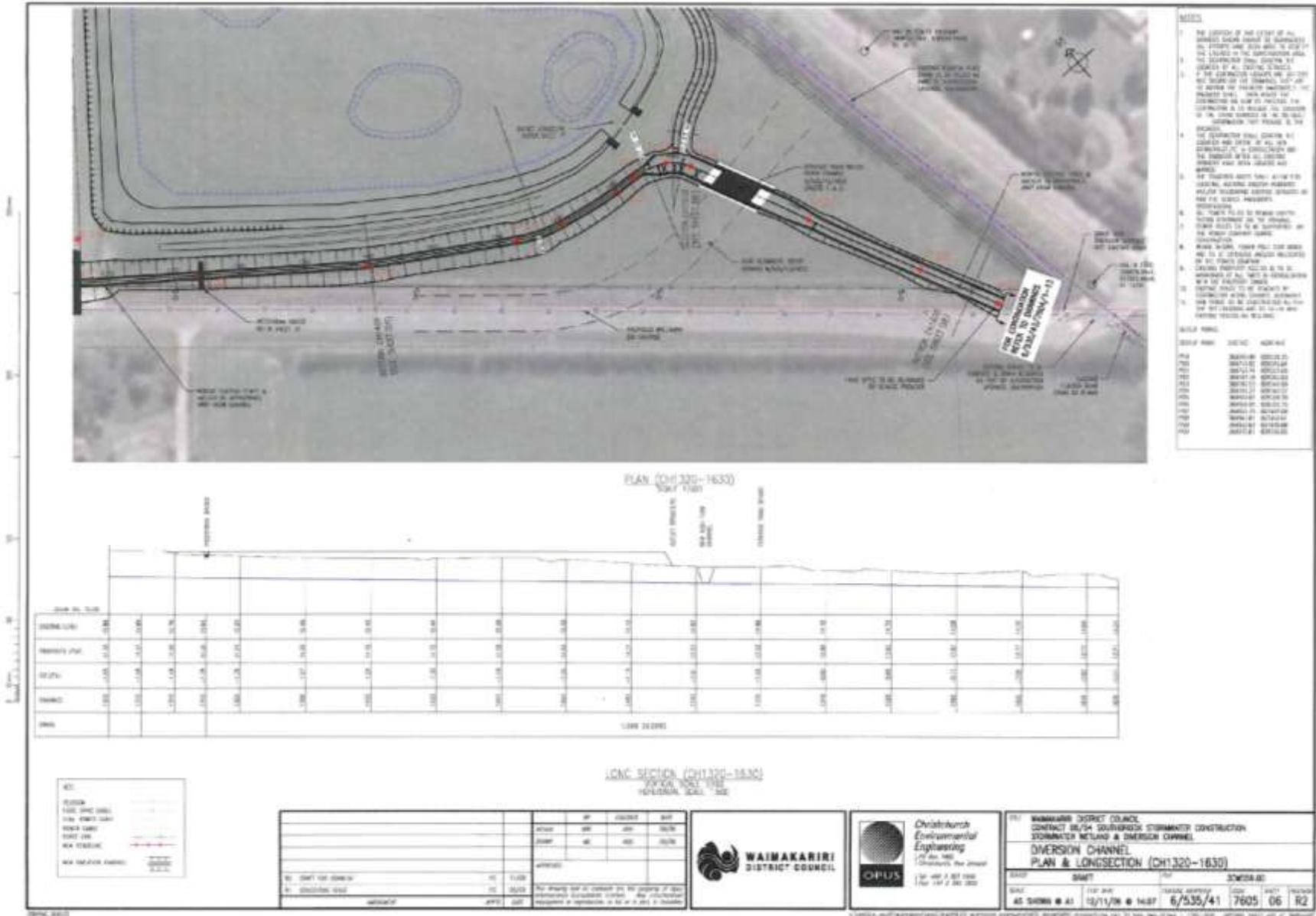








PLAN CRC092413J



CRC092810 Water Permit to dam and divert water.

1	The location of the damming and diversion shall be at or about map reference NZMS 260 M35:7762-6336, on the properties legally described as Lot 2 DP 301523, Lot 3 DP 301523, Pt RS 1257 and Lot 2 DP 349798, as shown on attached location plans CRC092413A and CRC092413C, which form part of this consent.
2	<p>The scope of this consent shall be limited to:</p> <ul style="list-style-type: none"> (a) Diversion of two streams (Northern and Southern waterways) flowing through the subject land into a new clean water diversion channel. (b) Diversion of Flaxton Road Drain to flow into the proposed wetland pond, and realignment of the Flaxton Road Drain at the Flaxton Road/Fernside Road intersection. (c) Damming water in a new wetland pond.
3	The damming and diversion shall be undertaken in accordance with attached design plans CRC092413C, CRC092413D, CRC092413E, CRC092413F and CRC092413G, CRC092413I, and CRC092413J which form part of this consent.
4	<p>Where the northern waterway flow is to be diverted, at map reference NZMS 260 M35:7697-6407, the consent holder shall take all practicable measures to ensure the flow is split as follows, except in the event of a flood event equal to or greater than a 10% Annual Exceedence Probability occurring:</p> <ul style="list-style-type: none"> (a) A base flow of 35L/s shall be maintained flowing north along Todds Road to the Flaxton Road Drain; (b) The remaining flow shall be diverted south along Todds Road down the new clean water diversion channel.
5	Whenever the flow in the No 7 Drain, as estimated by the Canterbury Regional Council from measurements at the Main Drain Road culvert site, at or about map reference NZMS 260 M35:781-608, for any 24 hour period ending at noon on any one day during the period October to March inclusive, is at or less than 60 litres per second the consent holder shall ensure that at least 1 litre per second of water, from a source other than a river or drain in the catchment of the No 7 Drain, is added to the wetland pond or the Flaxton Road Drain within 100 metres upstream of the wetland pond, continuously during the following 24 hour period.
6	Whenever the flow in the No 7 Drain, as estimated by the Canterbury Regional Council from measurements at the Main Drain Road culvert site, at or about map reference NZMS 260 M35:781-608, for any 24 hour period ending at noon on any one day is between 60 litres per second and 190 litres per second, the consent holder shall ensure that the rate at which water is diverted into the wetland pond is not more than 19 litres per second greater than the rate at which water is discharged from the wetland pond during the following 24 hour period, in accordance with associated consent CRC990502.
7	(a) The consent holder shall, prior to exercising this consent, install a water level measuring device at the following locations:

	<ul style="list-style-type: none"> (i) immediately downstream of the outlet from the wetland pond, at or about map reference NZMS 260 M35:7769-6310; and (ii) immediately upstream of the inlet into the wetland pond from the Flaxton Road Drain, at or about map reference NZMS 260 M35:7768-6333; and <p>(b) The measuring device shall be installed in a location that will enable the determination of the continuous rate of flow and volume of water to within an accuracy of 10 percent.</p> <p>(c) For the first three years of exercising this consent, the consent holder shall continuously record the water levels at both sites as specified in Condition 7(a).</p> <p>(d) Every year thereafter, the consent holder shall only record the water levels at both sites for the period October to March (inclusive) when the Flaxton Road Drain is on flow restriction (as detailed in Condition (5)).</p> <p>(e) The measuring device shall, as far as is practicable, be installed at a site likely to retain a stable relationship between flow and water level. The measuring device shall be installed in accordance with the manufacturer's instructions.</p> <p>(f) The flow at the measuring sites shall be gauged at least every three months whilst this consent is being exercised, and at any other time when required as determined by a site inspection, to be carried out at least once every month.</p> <p>(g) Gaugings and site inspections shall be carried out in accordance with the following manuals: Hydrologists Field Manual (NIWA 1991) and Procedure for Rating a Flow Station (NIWA 1993) or any equivalent publication.</p> <p>(h) The level of water in the Flaxton Road Drain shall be recorded by electronic means, at not greater than fifteen minute intervals in a tamper-proof recording device such as a data-logger, kept for that purpose. The recorded data shall not be changed or deleted by any person, unless twelve months have passed since the date of recording.</p> <p>(i) The measuring and recording devices described in clauses (b) and (h) shall be available for inspection at all times by the Canterbury Regional Council.</p> <p>(j) All data from the recording device described in clause (h), and the corresponding relationship between the water level and flow, shall be provided to the Canterbury Regional Council on request, and shall be accessible and available for downloading at all times by the Canterbury Regional Council.</p> <p>(k) Within one month of the commencement of this consent, at two-yearly intervals thereafter, and at any other time when requested by Canterbury Regional Council, the consent holder shall calibrate the measuring device and provide to the Canterbury Regional Council:</p> <ul style="list-style-type: none"> (i) a certificate signed by a suitably qualified person certifying the current accuracy of the measuring and recording devices, and also certifying that data from the recording device described in clause (f) can be readily accessed in accordance with clause (g); and (ii) supporting information containing details of the calibration test.
8	<p>The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of dealing with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage.</p>
9	<p>The lapsing date for the purposes of section 125 shall be 31 March 2015.</p>

CRC092810 Plans

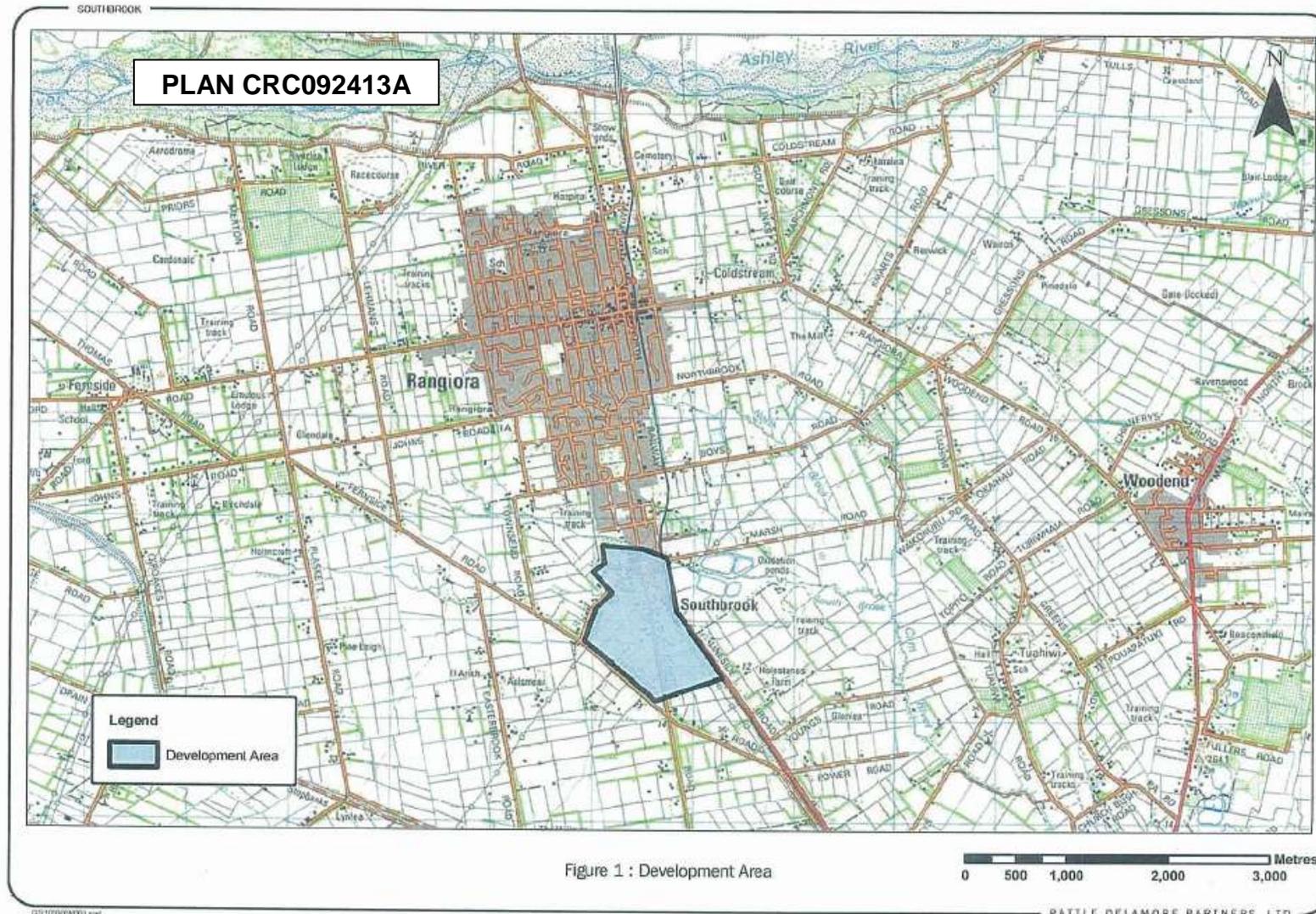
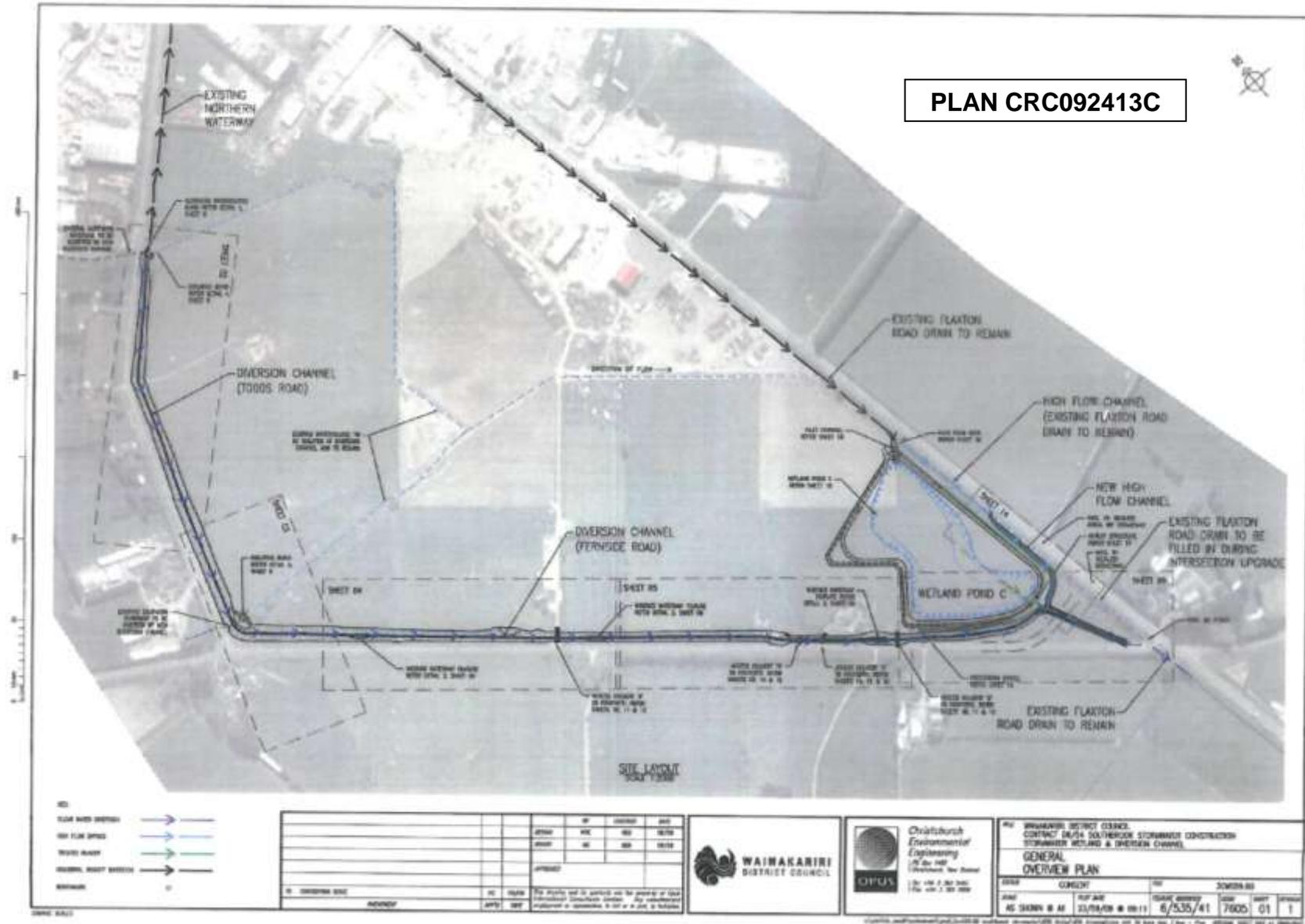
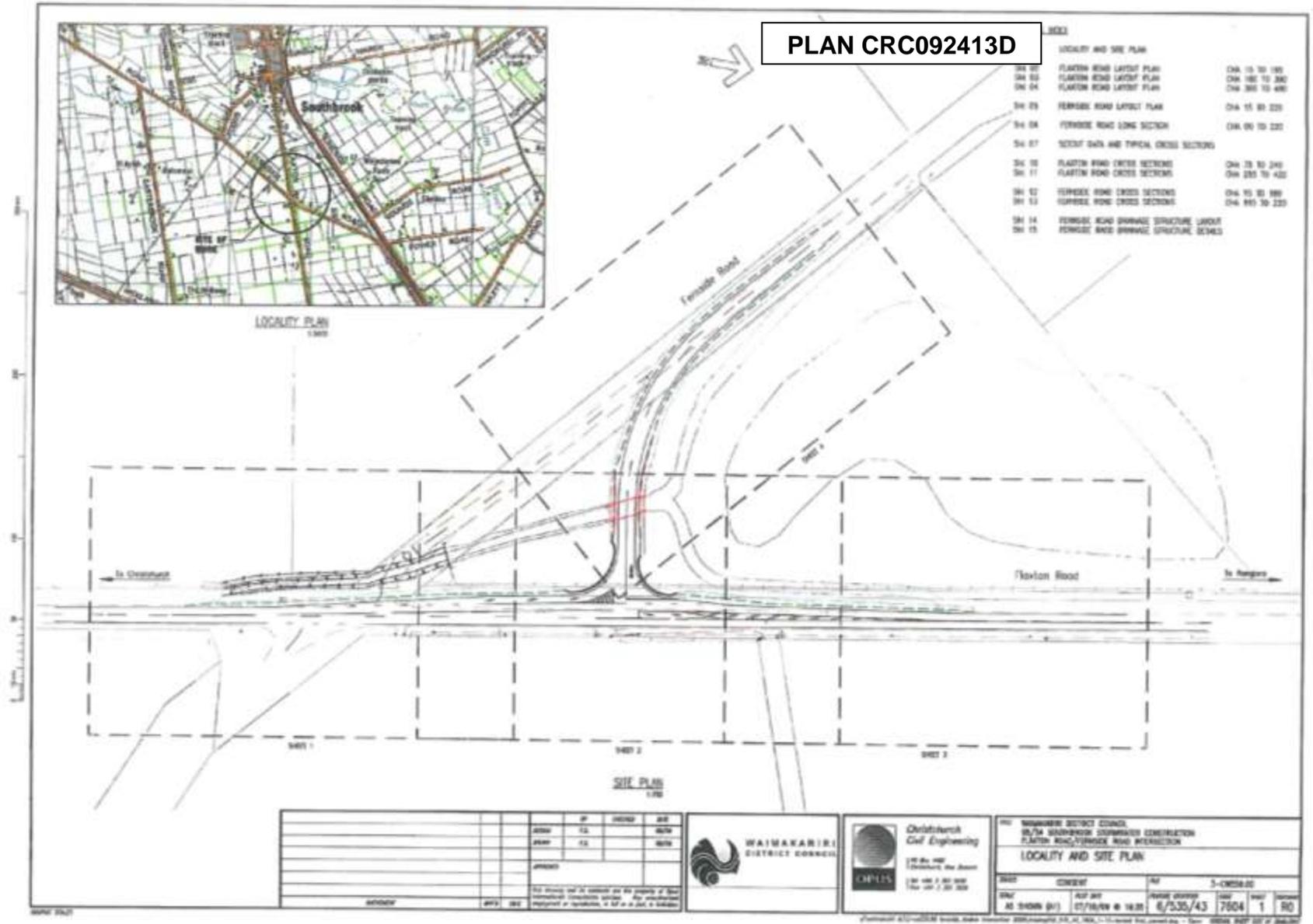
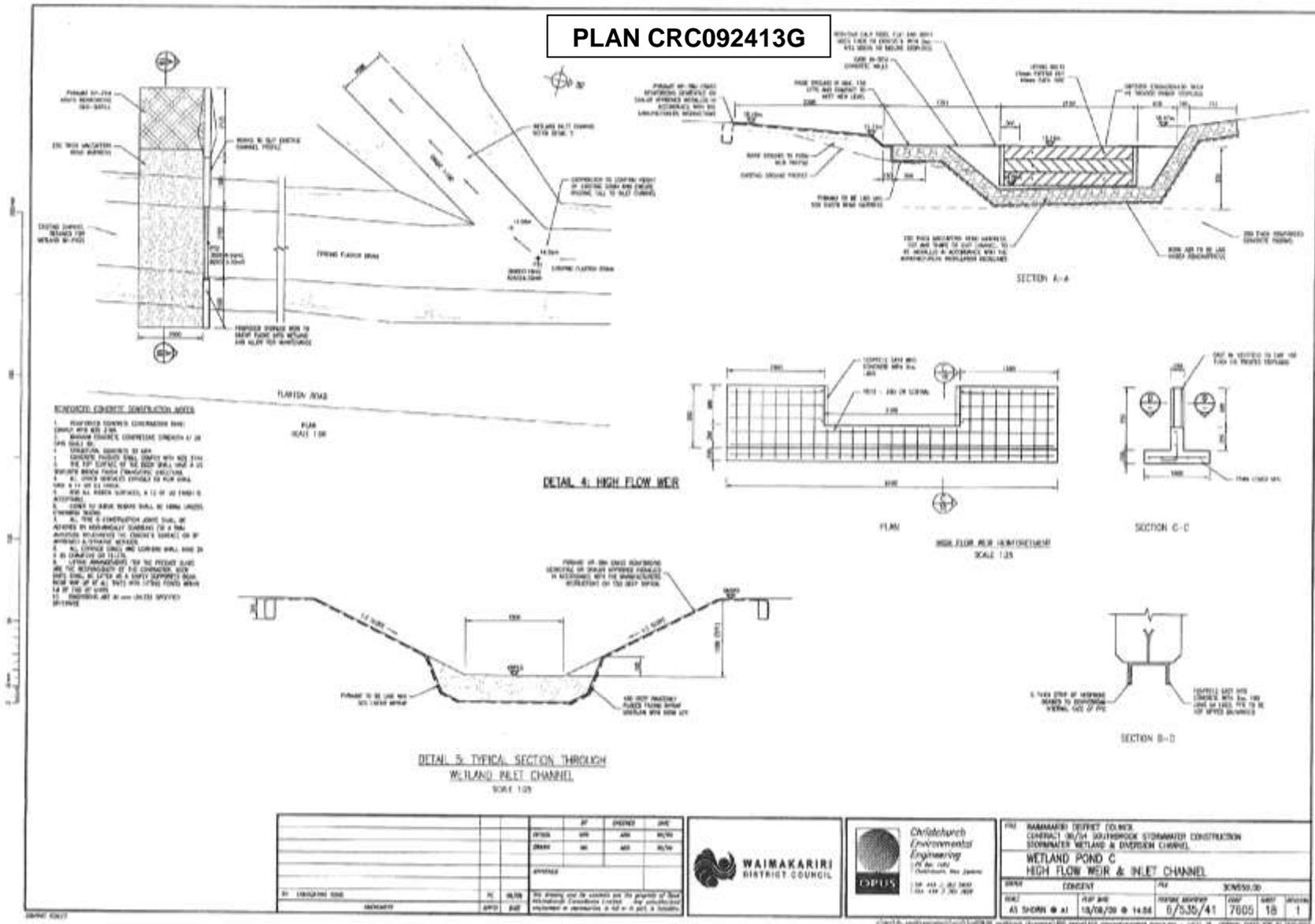


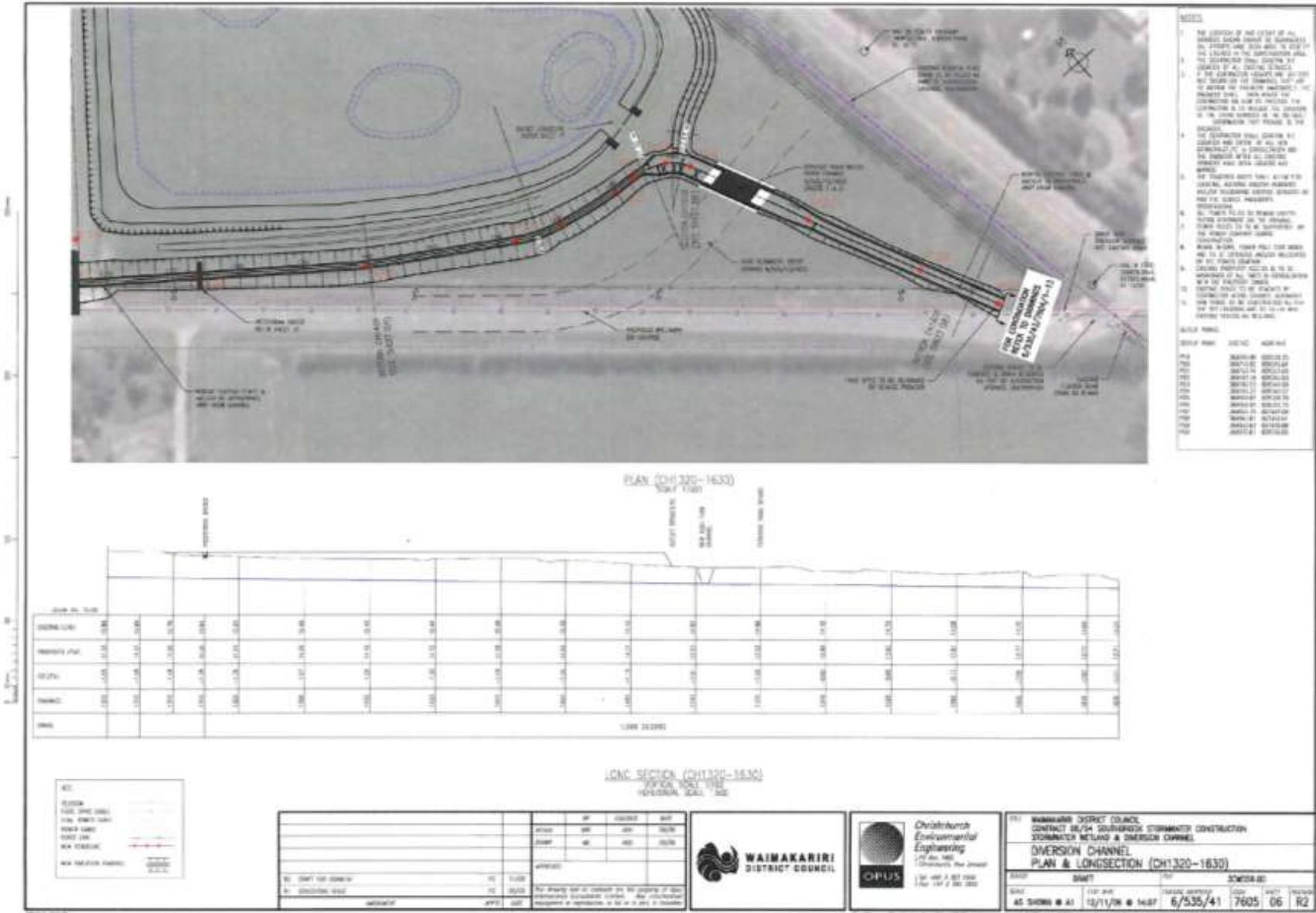
Figure 1 : Development Area







PLAN CRC092413J



Appendix 1 Minutes issued



Resource Management Act 1991

Canterbury Regional Council

Resource consent applications CRC092413, CRC092809 & CRC092810 by the Waimakariri District Council for a proposed stormwater discharge system

Minute/direction of Commissioner Michael Conrad Freeman

1. The purpose of this minute is to record the key requests made at the adjournment of the hearing of resource consent applications CRC092413, CRC092809 and CRC092810 in Rangiora on Friday 31 July 2009.
2. The applicant is requested to provide the following further information:
 - a) An alternative method for estimating the potential quality of stormwater that would discharge from the proposed wetland treatment system that is event based rather than based on averaging contaminants over a 12 month period.
 - b) An alternative method for calculating a proposed zone of non-compliance for the Flaxton Road Drain.
3. The applicant is requested to meet with the section 42A reporting officers and discuss proposed resource consent conditions in the light of the above requests and matters raised during the hearing process, including possible conditions that would clarify the wetland maintenance parameters and the fundamental wetland operational or design specifications that would provide an assurance that the proposed wetland would perform as proposed.
4. After undertaking the additional technical assessments and discussing resource consent conditions with the reporting officers, the applicant is requested to provide a revised set of proposed conditions that includes 'track changes' that show where there are any outstanding differences of view about appropriate conditions between the applicant and the reporting officers.
5. The applicant is requested to provide a copy of consent CRC990807 that is the subject of a transfer from John & Andrew McIntosh to the Waimakariri District Council, once the transfer process is complete. Note – the Environment Canterbury website currently lists M B & J G Searle as the current holders of consent CRC990807.

Mike Freeman
4 August 2009



Resource Management Act 1991

Canterbury Regional Council

Resource consent applications CRC092413, CRC092809 & CRC092810 by the Waimakariri District Council for a proposed stormwater discharge system

Minute/direction of Commissioner Michael Conrad Freeman

1. I have received the right of reply from the applicant and responses to requests for further information. That response provided further information related to my request for specific trigger values for lead zinc, copper and benzo(a)pyrene.
2. The applicant has proposed a number of trigger values for the receiving water. However, there appears to be an error with this proposal. The source of the proposed numbers is a proposal by Mr Bird in his evidence to the hearing. However, Mr Bird proposed trigger values for the discharge quality while Mr Baker on behalf of the applicant proposes applying those values to the receiving water.
3. The applicant is requested to provide the following further information:
 - a) Clarification on whether the proposed trigger values are proposed to apply to the discharge or the receiving water.
 - b) The detailed information used to estimate the quality of the stormwater prior to treatment. This should specifically include a reference to key New Zealand published information on stormwater quality, e.g., by Dr Bruce Williamson.
 - c) If the proposed trigger values are proposed to be applied to the receiving water, an explanation of why trigger values based on ANZECC guidelines would not be more appropriate.

Mike Freeman
21 December 2009

Appendix 2 Key water quantity and water quality objectives from the Waimakariri River Regional Plan

Objective 5.1

Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the rivers, lakes and wetlands in the Waimakariri River Catchment, and from hydraulically connected groundwater while:

- (a) safeguarding their existing value for efficiently providing sources of drinking water for people and their animals;
- (b) safeguarding the life-supporting capacity of the water, including its associated: aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation;
- (d) safeguarding their existing value for providing mahinga kai for Tangata Whenua;
- (d) protecting wahi tapu and other wahi taonga of value to Tangata Whenua;
- (e) preserving the natural character of rivers, lakes and wetlands and protecting them from inappropriate use and development;
- (f) protecting outstanding natural features, and landscapes from inappropriate use and development;
- (g) maintaining and enhancing amenity values; and
- (h) protecting the significant habitat of trout and salmon.

Policy 5.1

Set and maintain water flow, water level and water allocation regimes and control the taking, use, diversion, discharge and damming of surface water, and the taking of water from hydraulically connected groundwater, while achieving (a) to (h) of Objective 5.1, so that:

- (a) above Woodstock (Figure 4 and Map 1):
 - (i) the range or rate of change of levels or flows of water in or entering lakes Blackwater, Grace, Grasmere, Hawdon, Letitia, Marymere, Mavis, Minchin, Pearson, Rubicon, Sarah, and Vagabonds Inn are preserved in their natural state;
 - (ii) the natural flows, including flow patterns and variability, in the Waimakariri River and tributaries are protected;
 - (iii) the natural water levels in wetlands are protected;
- (b) below Woodstock (Figure 4 and Map 1):
 - (i) the braided character of the Waimakariri River, aquatic ecosystems and habitats, wetlands, amenity based on the river, and groundwater recharge from the river, are protected;
 - (ii) the aquatic ecosystems and habitats, wetlands and amenity based on the Kaiapoi-Cam-Cust, Otukaikino Creek, Styx, Kowai and upper Eyre River systems, are protected.

Objective 6.1

Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the rivers, lakes and wetlands in the Waimakariri River Catchment while:

- (a) safeguarding their existing value for efficiently providing sources of drinking water for people and their animals;
- (b) safeguarding the life-supporting capacity of the water, including its associated: aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation;
- (c) safeguarding their existing value for providing mahinga kai for Tangata Whenua;
- (d) protecting wahi tapu and other wahi taonga of value to Tangata Whenua;
- (e) preserving the natural character of rivers, lakes and wetlands and protecting them from inappropriate use and development;
- (f) protecting outstanding natural features and landscapes from inappropriate use and development;
- (g) maintaining and enhancing amenity values; and

- (h) protecting the significant habitat of trout and salmon.

Policy 6.1

Set and maintain water quality standards for, and control the discharge of contaminants into, surface water bodies in the Waimakariri River Catchment as outlined in Figure 6 and defined in Map 2 to:

- (a) protect the natural state of the water in lakes and rivers upstream of the confluence of the Waimakariri River with the Otukaikino Creek;
- (b) ensure water quality is suitable for drinking water for animals, contact recreation, fisheries, fish spawning, aquatic ecosystems and is not altered in those characteristics that have a direct bearing upon the aesthetic values of water or Tangata Whenua cultural values, in the mainstem of the Waimakariri River downstream of the confluence of the Waimakariri River with the Otukaikino Creek;
- (c) ensure water quality is suitable for drinking water for animals, fisheries, fish spawning, aquatic ecosystems and is not altered in those characteristics that have a direct bearing upon the aesthetic values of water, in the Kaiapoi River, Styx River, Otukaikino Creek downstream of the Groynes picnic area, and their tributaries; and
- (d) ensure that, in the Otukaikino Creek and its tributaries at, and upstream of, the Groynes picnic area:
 - (i) water quality is suitable for drinking water for animals, fisheries, fish spawning, and aquatic ecosystems;
 - (ii) the natural water quality with respect to organisms of public health significance is maintained; and
 - (iii) water quality is suitable aesthetically and visually for contact, and other forms of, recreation.

Policy 6.2

Promote land management practices in:

- (a) the Waimakariri River Catchment which assist in achieving water quality standards; and
- (b) the catchment of the Groynes picnic area of the Otukaikino Creek which improve water quality at the picnic area to a level suitable for contact recreation.

Objective 7.1

Enable present and future generations to gain cultural, social, recreational, economic, health, and other benefits from river and lake beds in the Waimakariri River Catchment while:

- (a) safeguarding the existing value of rivers and lakes for efficiently providing sources of drinking water for people and their animals;
- (b) safeguarding the life-supporting capacity of the water in the beds of rivers and lakes, including its associated: aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation;
- (c) safeguarding the existing value of rivers and lakes for providing mahinga kai for Tangata Whenua;
- (d) protecting wahi tapu and other wahi taonga of value to Tangata Whenua;
- (e) preserving the natural character of rivers, lakes and wetlands and protecting them from inappropriate use and development;
- (f) protecting outstanding natural features and landscapes from inappropriate use and development;
- (g) maintaining and enhancing amenity values;
- (h) protecting and where appropriate enhancing the habitat and heritage values of river and lake beds;
- (i) protecting and where appropriate enhancing the flood carrying capacity of rivers;
- (j) protecting the banks of rivers and lakes, and the stability and performance of essential structures in their beds; and
- (k) protecting the significant habitat of trout and salmon.

Policy 7.1

Control in the bed of any river or lake in the Waimakariri River Catchment:

- (a) the use, erection, reconstruction, placement, alteration, extension, removal, or demolition of any structure or part of any structure in, on, under, or over the bed;**
 - (b) the excavation, drilling, tunnelling, or other disturbance of the bed;**
 - (c) the introduction or planting of any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed;**
 - (d) the deposition of any substance in, on, or under the bed;**
 - (e) the reclamation or draining of the bed; and**
 - (f) the disturbance, removal, damage, or destruction of any plant or part of any plant (whether exotic or indigenous) or the habitats of any such plants or of animals in, on, or under the bed;**
- so that (a) to (k) of Objective 7.1 are achieved and in particular:**
- (i) the flood hazard to adjacent land is not increased;**
 - (ii) disturbance to protected wildlife and their breeding habitat, and indigenous vegetation is minimised;**
 - (iii) salmon spawning sites are not disturbed;**
 - (iv) wetlands are protected;**
 - (v) the braided character of the Waimakariri River where it exists is sustained;**
 - (vi) the natural patterns, colours and textures of the riverbed areas are maintained;**
 - (vii) above Woodstock, defined in Figure 4 and Map 1, river and lake beds are kept free of weeds and other exotic vegetation; and**
 - (viii) below Woodstock, defined in Figure 4 and Map 1, the present natural character of river beds is at least maintained.**