Waimakariri District Council

Utilities and Roading Committee

Agenda

Tuesday 28 May 2024
9am

Council Chambers
215 High Street
Rangiora

Members:

Cr Paul Williams (Chairperson)
Cr Robbie Brine
Cr Niki Mealings
Cr Philip Redmond
Cr Joan Ward
Mayor Dan Gordon (ex officio)

WAIMAKARIRI
DISTRICT COUNCIL

AGENDA CONTENTS – UTILITIES AND ROADING COMMITTEE

The Chairperson and Members
UTILITIES AND ROADING COMMITTEE

A MEETING OF THE UTILITIES AND ROADING COMMITTEE WILL BE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 28 MAY 2024 AT 9AM.

Sarah Nichols
GOVERNANCE MANAGER

Recommendations in reports are not to be construed as Council policy until adopted by the Council

BUSINESS

Page No

1 APOLOGIES

2 CONFLICTS OF INTEREST

Conflicts of interest (if any) to be reported for minuting.

3 CONFIRMATION OF MINUTES

3.1 **Minutes of the meeting of the Utilities and Roading Committee held on Tuesday 16 April 2024.**

9 – 21

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of the meeting of the Utilities and Roading Committee held on 16 April 2024, as a true and accurate record.

3.2 **Matters arising (From Minutes)**

4 DEPUTATION/PRESENTATIONS

Nil.

5 REPORTS

5.1 **Zone Implementation Programme Addendum (ZIPA) Capital Works Programme - 2024/25 - Sophie Allen (Water Environment Advisor)**

22 – 86

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 240508073256.

(b) **Approves** the proposed 2024-25 Waimakariri District Council capital expenditure work programme, based on the Zone Implementation Programme Addendum (ZIPA) recommendations.

i. Biodiversity and amenity improvements in Waimakariri River tributaries – South Brook Townsend Fields project ($10,000)

ii. Terrestrial riparian plantings along the Kaiapoi River ($10,000)

iii. Inanga (whitebait) spawning habitat improvements – willow and gorse control ($15,000)

iv. Northbrook Trail - installation of three culverts ($30,000)

v. Waikuku Beach pond – native planting and interpretation signage ($5,000)

vi. Waimakariri Water Zone Committee Action Fund top-up -Bittern Inanga Rushland, O'Kairs Lagoon, Pohio Wetland and Hunters Stream projects ($30,000)

(c) **Notes** the works carried out in 2023-24 under the ZIPA capital expenditure programme.

i. Fish passage improvements on the North Brook tributary at Cotter Lane in Rangiora.

ii. Biodiversity improvements for the South Brook at Townsend Fields, Rangiora.

iii. Terrestrial planting along the Kaiapoi River.

iv. Improvements to inanga (whitebait) spawning areas located on land owned by New Zealand Transport Authority Waka Kōtahi along the Benzies Creek (a tributary of Saltwater Creek) with willow and blackberry removal, McIntosh Drain (WDC land) with native spawning plants planted, and Courtenay Stream true right bank (private landowner) with willow removal.

(d) **Circulates** this report to Council, Community Boards, WDC-Rūnanga liaison meeting and the Waimakariri Water Zone Committee for their information.

5.2 **Decision for Unused Water Take Consents – Kalley Simpson (3 Waters Manager), Caroline Fahey (Water and Waste Water Asset Manager) and Hayley Proffit (Water Safety and Compliance Specialist)**

87 – 106

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. TRIM 221118201029.

(b) **Approves** the recommendation of this report to surrender four existing unused water take consents currently held by Council, being CRC971820 (drinking water take at 93 Campions Road, Summerhill), CRC990931.1 (drinking water take at Coopers Creek, Oxford), CRC990502.1 (irrigation take at Number 7 Drain, Flaxton Road) and CRC167359 (construction and irrigation take at 120 Te Kohanga Drive, Pegasus).

(c) **Notes** that two of the water takes consents are associated with drinking water supply and the other two are associated with irrigation and construction/irrigation activities. These consents are considered redundant and have no planned use for the foreseeable future.

(d) **Notes** that due to a change in the Resource Management (Measuring and Reporting of Water Takes) Amendment Regulations 2020 (Regulations), these consents are considered non-compliant with the Regulations as they are unmetered even though Environment Canterbury (ECan) has in the past accepted Council not metering unused water takes.

(e) **Notes** that a decision is required as to whether to retain or surrender these unused water takes to avoid putting Council at risk of compliance and enforcement attention from ECan.

(f) **Notes** that the recommendation to surrender is based on consideration of the substantial cost involved with metering and the challenging process to successfully transfer an existing consent allocation to a new consent application in the unlikely scenario this would be required in the future. Power supplies that are connected to the sites will be decommissioned once the consents have been surrendered.

(g) **Notes** that staff do not believe there is any intention to remove or alter existing rules that control water take transfers as part of the Canterbury Land and Water Regional Plan change that has been signalled for 2027.

(h) **Circulates** this report to the Community Boards for information.

5.3 **July 2023 Flood Recovery Progress Update – Kalley Simpson (3 Waters Manager), Joanne McBride (Roading and Transport Manager) and Pat Towse (Flood Team Lead)**

107 – 120

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 240516078696.

(b) **Notes** that all 88 investigations have been triaged, scoped, and investigated, 25 are being reviewed for approval and 45 are complete.

(c) **Notes** that all 126 maintenance actions have been processed, 16 have works programmed, and 110 are complete.

(d) **Notes** that the Flood Team is in the process of being wrapped up and funding is included in the draft Long Term Plan for an Infrastructure Resilience Team, who will assist with progressing the remaining improvements works and implementing proposed future works.

(e) **Notes** that the total cost estimate for the flood recovery work is $4.055 million.

(f) **Notes** that the expenditure to date is $2,485,932 and the final forecast expenditure remains at $4.055 million.

(g) **Circulates** this report to all Community Boards for information.

5.4 **Rangiora Stormwater Annual Report 2021-2023 and Monitoring Programme Report 2022-2023 – Jason Recker (Stormwater and Waterways Manager) and Lorena Cardenas Corrales (3 Waters Compliance Officer)**

RECOMMENDATION *121 – 245*

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 240506071112.

(b) **Notes** that compliant results were achieved during wet weather events for Total Suspended Solids in all urban waterways and Total Ammoniacal Nitrogen; likewise, guideline values were met during dry weather sampling as an indicator of stream health components including values for dissolved oxygen, temperature, pH, Total Ammoniacal Nitrogen, TSS and Dissolved Reactive Phosphorus in all urban waterways.

(c) **Notes** that there were exceedances (non-compliances) during wet weather events of dissolved Copper and dissolved Zinc in some Rangiora waterways, and Dissolved Reactive Phosphorus and *E. coli* in most Rangiora waterways; and during dry weather sampling guidelines were exceeded for Dissolved Inorganic Nitrogen and *E. coli*, specifically in the North Brook, South Brook and No. 7 Drain for the former, and Middle Brook for the latter.

(d) **Notes** that follow up investigations are recommended in this report, which will be carried out by 3 Waters staff under existing budgets in 2023-24 and 2024-25.

(e) **Notes** that a Rangiora Stormwater Management Plan 2025-2040 is currently being drafted as required by CRC184601 for 1 January 2025, which will address exceedances and improvements presented in these reports.

(f) **Circulates** these reports to the Waimakariri Water Zone Committee and the Rangiora-Ashley Community Board.

6 CORRESPONDENCE

Nil.

7 PORTFOLIO UPDATES

7.1 **Roading – Councillor Philip Redmond**

7.2 **Drainage, Stockwater and Three Waters (Drinking Water, Sewer and Stormwater) – Councillor Paul Williams**

7.3 **Solid Waste– Councillor Robbie Brine**

7.4 **Transport – Mayor Dan Gordon**

8 MATTERS FOR INFORMATION

8.1 **23/21 Oxford Rural No.1 Water Main Renewals 2023/24 – Tender Approval Report – Separable Portion s B and C – Craig Freeman (Acting Water and Wastewater Asset Manager) and Shaun Fauth (Utilities Projects Team Leader)**

(Report No. 240507072248 to Management Team Meeting 13 May 2024)

246 – 258

RECOMMENDATION

THAT the Utilities and Roading Committee

(a) **Receives** the information in Item 8.1.

9 QUESTIONS UNDER STANDING ORDERS

10 URGENT GENERAL BUSINESS

11 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

In accordance with section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by section 6 or section 7 of that Act (or sections 6, 7 or 9 of the Official Information Act 1982, as the case may be), it is moved:

That the public be excluded from the following parts of the proceedings of this meeting:

11.1 Report from Management Team Operations 15 April 2024.
11.2 Report from Management Team Operations 29 April 2024.
11.3 Report from Management Team Operations 6 May 2024.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

Item No.	Subject	Reason for excluding the public	Grounds for excluding the public.
11.1	Report from Management Team Operations 15 April 2024.	Good reason to withhold exists under Section 7	As per Section 7(2)(h) of the Local Government Official Information and Meetings Act 1987, to "enable any local authority holding the information to carry on, without prejudice or disadvantage commercial activities"
11.2	Report from Management Team Operations 29 April 2024.	Report from Management Team Operations 29 April 2024.	For reasons of protecting the privacy of natural persons and enabling the local authority to carry on without prejudice or disadvantage, negotiations (including commercial and industrial) negotiations and maintain legal professional privilege as per LGOIMA Section 7 (2)(a), (g) and (i).
11.3	Report from Management Team Operations 6 May 2024.	Report from Management Team Operations 29 April 2024.	As per Section 7(2)(h) of the Local Government Official Information and Meetings Act 1987, to "enable any local authority holding the information to carry on, without prejudice or disadvantage commercial activities"

CLOSED MEETING

See Public Excluded Agenda (separate document)

OPEN MEETING

NEXT MEETING

The next meeting of the Utilities and Roading Committee will be held on Tuesday 18 June 2024 at 9am.

WAIMAKARIRI DISTRICT COUNCIL

MINUTES OF A MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBER, RANGIORA SERVICE CENTRE, 215 HIGH STREET, RANGIORA ON TUESDAY 16 APRIL 2024, AT 10.49AM.

PRESENT

Councillors P Williams (Chairperson), R Brine, N Mealings, P Redmond, J Ward and Mayor D Gordon

IN ATTENDANCE

Councillors B Cairns, T Fulton

J Millward (Chief Executive), C Roxburgh (Project Delivery Manager), K Simpson (Three Waters Manager), J McBride (Roading and Transportation Manager), J Recker (Stormwater and Waterways Manager), and A Smith (Governance Coordinator).

1 APOLOGIES

There were no apologies.

2 CONFLICTS OF INTEREST

No conflicts of interest were declared.

3 CONFIRMATION OF MINUTES

3.1 Minutes of the meeting of the Utilities and Roading Committee held on Tuesday 19 March 2024.

Moved: Councillor Mealings` Seconded: Councillor Brine

THAT the Utilities and Roading Committee:

(a) **Confirms** the circulated Minutes of the meeting of the Utilities and Roading Committee held on 19 March 2024, as a true and accurate record.

CARRIED

3.2 Matters arising (From Minutes)

There were no matters arising.

3.3 Notes of the Workshop of the Utilities and Roading Committee held on Tuesday 19 March 2024.

Moved: Councillor Redmond Seconded: Councillor Williams

THAT the Utilities and Roading Committee:

(a) **Receives** the circulated Notes of the Workshop of the Utilities and Roading Committee held on 19 March 2024.

CARRIED

4 DEPUTATION/PRESENTATIONS

Waimakariri Biodiversity Trust

Judith Roper-Lindsay (Chairperson) and Fiona Fan Petegem (Treasurer) were present to provide background information on the formation of the Trust and an update on the Trust's activities over the past year and looking ahead to projects for 2024.

The Trust was formed following discussion by the Waimakariri Water Zone Committee regarding the lack of assistance for members of the community to enhance indigenous biodiversity on a voluntary basis. The Trust has had a Charitable Trust status since mid-2022, with seven Trustees including Judith Roper-Lindsay currently Chairperson and Fiona van Petegem in the role of Treasurer. One Trustee had recently resigned, so currently there are seven Trustees. The Trust was initially granted $20,000 establishment funding from the WDC Land and Water Committee in 2022. There had been a further $20,000 operational funding granted in 2023 as part of the Zone Committee ZIPA allocation, which fell under the responsibility of the Utilities and Roading Committee.

F Petegem spoke on the Trust's deliverables, which included wages and expenses for a part-time coordinator; support for indigenous biodiversity projects in the district; mapping and detailing current biodiversity initiatives in the region; event coordination, including the preparation of communication material and communication with the various biodiversity groups in the district; responding to requests from private landowners for advice about, and help with, indigenous biodiversity, planting and restoration projects; and providing third-party ecological and/or hydrological advice to support planning.

J Roper-Lindsay highlighted the vision and purpose of the Trust, which was:

- to see vibrant, healthy indigenous ecosystems valued across the Waimakariri district.

- To provide the necessary information, education and resources to enable the community to protect, restore, create and sustainably manage indigenous biodiversity in the Waimakariri district.

It was important that the community understood the goals and were happy to get involved with projects. The Trust's first project was the Daikan wetland on Lower Sefton Road. The project was located at the headwaters of Saltwater Creek. Enviroschools were building links with specific schools on local projects and included Ashley School students getting involved in the Daikan project.

The Trust had also conducted a series of talks for the public to attend around the district, with speakers presenting on various topics. These had generated good attendance each night. The Trust had also been working with Waimakariri Irrigation to determine how the Trust could help its farmers with enhanced biodiversity work.

In 2024 the Trust would be seeking funding for another co-ordinator. Currently Lucy Baltrop worked part time in this role, and more resources were required for this role.

The Trust were building relationships with many groups including Ashley Rakahuri Rivercare Group, ComCol, Mainpower, Pest Free Waimakariri, and Christchurch Ecologists Group.

The Trust would continue to work with Waimakariri Irrigation Ltd and with the Council on biodiversity mapping and was also managing the Mainpower Waimakariri Biodiversity Fund with applications closing for on 29 April 2024.

The Trust had a website set up and was also active on Facebook and Instagram and had also started to produce leaflets for those who preferred to get information through that median.

The Trust were appreciative of the funding that had been granted to date, and would be submitting on the Natural Environmental Strategy, as part of the Council's Long-Term Plan process and seeking further funding for the Trust. The Trust had a good relationship with Council staff working in the biodiversity, fresh water and ecology areas and meet regularly to discuss projects and learn from each other. The technical advice from these staff members was much appreciated. J Roper-Lindsay noted that the Trust would be keen to be involved with the Council in developing a wetland on the Lineside Road property. This would help treat stormwater, assist with flooding issues and be a recreational site. This would be multi-functional, and the Trust supported the Council's purchase of the land.

J Roper-Lindsay thanked the committee for the opportunity speak.

Following a question from Mayor Gordon, it was confirmed that there would be an approach from the Trust through the 2024 – 2034 Council's LTP consultation process. It was acknowledged that it was currently a challenging time for securing funding and the Trust was submitting funding applications to several organisations.

Councillor Williams referred to planting along drains or waterways and the need to allow space between the plants for machinery to access the waterways for any required cleaning of the drains/waterways. He enquired if the education information that the Trust provided, regarding planting, included this advice. J Roper-Lindsay responded that most landowners were aware of the need for clearing of waterways and considering the practicalities involved. The Trust would also be working with ECan on this.

Councillor Redmond enquired who the other Trustees were and J Roper-Lindsay stated that the other members of the Trust were Felicity Wolfe, Sandra Stewart, Simon Rutherford, and Mark Lester.

Councillor Redmond referred to a previous comment regarding the Trust working with Enviroschools, and it was confirmed that they were currently working with Rangiora High School and Ashley School. The Trust Coordinator L Barltrop worked through the Enviroschools Coordinator at ECan.

The Chairperson thanked the Trust members for their presentation.

5 REPORTS

5.1 School Road Drainage Upgrade – J Recker (Stormwater and Waterways Manager) and K Simpson (Three Waters Manager)

This report follows on from a previous report presented to the Council on this matter, in December 2023. At that time further information was requested by the Council for properties with similar characteristics as 10 School Road, Woodend. The staff search identified one property which also featured a below ground garage at Aldersgate Street in Kaiapoi. There had been no history of drainage related service requests or flooding issues at the Aldersgate Street property however it lacked adequate stormwater pipework in the street. It would require an upgrade to meet the Council's Engineering Code of Practice standards. The Council was responsible for investigating flood related service requests to assess any potential deficiencies in the stormwater network. This matter was also to be included as a staff submission to the Council Long Term Plan process.

Councillor Williams questioned how the resident of Aldersgate Street mitigated their flooding during the recent flood events. Staff had visited the site during the 2019 flood event and observed that the property owners had their own pump to manage water off the property itself, there was no indication that there was any water coming off the road.

Following a question from Councillor Cairns, K Simpson advised that all service requests following flood events had been responded to and there had been no service request or civil defence reports following flood events.

Councillor Redmond noted that the property at 10 School Road was built in 1968 and enquired if the kerb and channel had been changed since that time. K Simpson responded that there would only have been minimal changes to the kerb and channel in front of the property since that time, however there had been a build-up of the kerb to allow for a crossing from the school to the Community Centre. This had been the only modification. Staff did not believe that this would have exacerbated the flooding issue in front of the property.

Councillor Mealing expressed concern that there were properties with flooding issues that Council staff were not being made aware of through the service request system. She enquired if it would be possible during future flooding events, for liaison with emergency services to receive notification on properties that were flooded, that may not be in the service requests system. K Simpson said there was now an improvement in the practices for future flooding events and staff were now not only checking both drainage, roading and civil defence service requests but also reviewed the civil defence event log to check that nothing had been missed. This practice was not in place during the 2014.

Councillor Williams also noted that there were potentially other properties that had flooding issues, but were not reported to the Council or a service request done. In some cases, property owners undertook their own mitigation for flooding. K Simpson said people were encouraged to submit service requests, however there were some property owners who did not submit these, as they did not want to have any flood issues noted on their property files. Some residents also assumed that the Council was too busy dealing with flooding issues throughout the district. C Roxburgh added that for known flooding areas in high rain events, council teams were sent out to capture what was happening in these areas. As noted previously, there were occasions where residents were mitigating any flooding issues themselves. There were systems in place to capture this information, and this was added into the system.

Moved: Mayor Gordon` Seconded: Councillor Redmond

THAT the Utilities and Roading Committee:

THAT the Council:

(a) **Receives** report No. 240314040024.

(b) **Notes** staff will bring a submission recommending an additional budget for consideration as part of the deliberations on the Long Term Plan, of $126,000 in the 2024/2025 financial year under the Stormwater LOS (PJ 101517.000.5123) budget, for the construction of the School Road Drainage Upgrade, giving a total budget of $541,000.

(c) **Notes** that the estimate for this work (including a 20% project contingency, and all associated fees) is $541,000, while the current budget allowance is $415,000.

(d) **Notes** that the additional budget for 2024/2025 will increase the Coastal Urban Drainage rate by approximately $2.88 or 1.2% per property from 2025/26 onwards.

(e) **Notes** that the overall rating impact on the district is an increase of 0.14%.

(f) **Notes** that a piped solution will improve the level of service in School Road meeting Waimakariri District Council's 1 in 5-year primary system requirement set out in the Engineering Code of Practice.

(g) **Notes** that the secondary flow path will be altered (subject to the approval of the 10 School Road property owner) to flow southwards over the crown of the road away from the east driveway of 10 School Road. This is

expected to prevent secondary flow overtopping the driveway in significant storm events meeting Waimakariri District Council's 1 in 50-year secondary system requirement set out in the Engineering Code of Practice.

(h) **Notes** that this upgrading approach is consistent with other drainage improvement works undertaken in the district and does not set a new precedent for other properties who do not meet the level of service set out in the Engineering Code of Practice.

CARRIED

Mayor Gordon supported the motion with the change in wording for recommendation (b) as there needed to be consideration by the Council during the LTP deliberations and considering the context of the wider budget as there were budget implications for including this project. Like colleagues, Mayor Gordon also had concerns if there were other deficiencies in the network and would like to know where these were. The sharing of information between agencies in these situations and then consideration by the Council if changes were needed, was a good point.

Councillor Redmond noted his previous reservations on this matter, however now supported this project going into the Long Term Plan process for the Council to consider. It was pointed out that this work would also benefit other properties in the area. Councillor Redmond highlighted that the Council had not made any changes to the kerb and channel outside 10 School Road since the property was built in 1968 or undertaken any work that would exacerbate what was occurring at this property. The current situation with flooding on this property, could be a result of higher rainfall events and these occurring more frequently.

Councillor Williams noted concern that there were other properties in the district in a similar situation however as there had not been service requests lodged, staff were not aware of all of these.

In reply, Mayor Gordon suggested that if there were other properties identified that were in a similar situation, it may be of benefit to the Council to have this information.

5.2 **July 2023 Flood Recovery Progress Update – K Simpson (Three Waters Manager), J McBride (Roading and Transport Manager) and P Towse (Flood Team Lead)**

K Simpson presented this report providing a progress update on the 2023 Flood Recovery work programme. There was a total of 88 investigations as a result of the 351 service requests received relating to the July 2023 storm event. Staff estimated that the Flood Team had completed 90% of the investigation work and expected that the remaining investigation work would be completed by the end of April 2024.

Staff were now working in the upper reaches of the Cam River and hoped to have this completed in the next month. There was work being undertaken at Waikuku Beach on a number of smaller projects and these were not expected to be completed until August 2024. Some improvement work projects would be carried over to the 2024/25 financial year.

Mayor Gordon asked if there was any information available now on the impact on any Silverstream properties on the proposed work at Mandeville. K Simpson noted that the work on the Ohoka Stream was not directly related to the Flood Recovery, however more related to the Mandeville Resergence project. The modelling work for the Mandeville Resergence project was looking at Stage 2, to determine any impact on the Eyre River diversion. Mayor Gordon noted that

there had been several requests for this information and would like this to be given a higher priority. Staff agreed to follow up on this.

Councillor Redmond sought clarification on the "submitted for review" reference in the table information in the report. K Simpson advised that this meant that the Flood Team had completed their investigations and prepared a report with recommendations which was then submitted to internal staff. Once reviewed and the recommendations agreed, this would confirm that there was either maintenance budget or planned future year budget available to make sure that the recommendations could be given effect to.

Regarding budget for the flood recovery work, K Simpson said the staff's prediction was that all the improvements work, as well as the investigation work would be completed within the cost estimate of $4.055million. Table 5 in the report indicated which work was complete, some of which was within the pricing phase. There were some phases of work that were still in the investigating and design phases that would not be completed in this financial year.

Regarding the Mandeville Resurgence Upgrade Project, Councillor Mealings expressed concern that there had not been a ground water scientist (hydrogeologist) engaged for the investigation work. noting that this was a poorly understood groundwater system which needed to be a better understood prior to any commitment to a major undertaking. K Simpson responded that there had not been a hydrogeologist engaged for this project as staff had a good understanding of the water flows in the area. The project was to improve the capacity of the primary system and post the 2014, 2022 and 2023 rain events, staff had a good understanding of the base load capacity that could occur for many months through this area. K Simpson did not believe that engaging a hydrogeologist would alter the design that staff were proposing for the area. Regarding information on the undercurrents, it was confirmed that information on this would be included in the staff report. Councillor Williams also referred to the Mandeville Resergence project, noting that residents had concerns regarding Stage 1 of this project and possible flooding of properties in the Ohoka Stream area. It was confirmed by staff that this matter would be included in the next staff report.

Regarding the Upper Sefton Road remedial work, Councillor Redmond sought clarification on the timeframe for when this would be complete. K Simpson responded that landowners had been advised that it was intended to have this work completed by the end of July 2024. This was one of the priority projects that staff were wanting to get completed as soon as possible.

Moved: Mayor Gordon` Seconded: Councillor Mealings

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 240404051729.

(b) **Notes** that all 88 investigations have been triaged and scoped, 8 are under investigation, 35 have works being reviewed for approval and 45 are complete.

(c) **Notes** that all 126 maintenance actions have been triaged, 3 are work in progress, 17 have works programmed, and 106 are complete.

(d) **Notes** that the total cost estimate for the flood recovery work is $4.055 million.

(e) **Notes** that the expenditure to date is $2,221,796 and the final forecast expenditure remains at $4.055 million.

(f) **Circulates** this report to all Community Boards for information.

CARRIED

Mayor Gordon acknowledged the significant amount of work that went into providing the information for this report and extended appreciation from the Council for these regular updates.

Regarding the Mandeville flood risks, Mayor Gordon said the community were very engaged with this topic and had concerns regarding the proposed Stage 1. There was an expectation that the Council were going to be able to relieve the flooding risks. It was important that there was continued communication with the community. Mayor Gordon believed the Councillors needed to get a better understanding of the work and of the information and this needed to be very clear that this was robust discussions before a decision was made. Mayor Gordon requested that staff arrange a site visit for the Councillors.

Any impact on properties in Silverstream was a concern with property owners and it was high on residents' agendas, due to previous flooding. Mayor Gordon supported the budget to allow for these projects to continue.

Councillor Mealings acknowledged the significant amount of work that staff had put into these flood related issues to date.

Councillor Williams reiterated the comments of the Mayor and supported having a site visit for Councillors in the near future.

Councillor Fulton said it was beneficial for the community members to be included in discussions regarding this matter and supported continued engagement, providing as much information as possible, to keep them informed.

5.3 **3 Waters Climate Change Risk Assessment – Kalley Simpson (3 Waters Manager)**

This report presented the findings from the three Waters Infrastructure Climate Change Impact Assessment work, which was undertaken as part of the recent update of the Activity Management Plans. The focus was to gain a better understanding of the potential impacts on the Council's Three Waters assets. Flooding was the main hazard which would have impact on infrastructure in the district. To build resilience into the infrastructure had been estimated to cost $42 million. Budget had been included in outer years, beyond the first ten years of the LTP, more as a placeholder signalling that the Council would need to build resilience in infrastructure into the future. The key work required was to integrate this resilience investment with business-as-usual renewals of assets into the future. This was a high-level indication of the work to be included in the budget, however there was still work to be undertaken.

Councillor Mealings noted that the rural Three Waters assets were excluded and why were these not included in the estimated budget. Rural drains, and stockwater assets would be part of future assessment work. It was intended to look at the roading assets and interdependency with these assets, so that there could be sound investment decisions made in the future.

Moved: Councillor Williams` Seconded: Councillor Ward

THAT the Utilities and Roading Committee:

(a) **Receives** Report No. 240404052230.

(b) **Notes** that while the majority of 3 Waters assets have low or very low asset risk exposure to climate hazards, about 7% are critical assets that have a high or medium asset risk exposure.

(c) **Notes** that the estimated investment to build resilience into Council's 3 Waters infrastructure is $41.9 million dollars to manage the predicted impacts of climate change which has been included in years 2034/35 to 2043/44.

(d) **Notes** that while budget provisions have been made in the outer year of the Long Term Plan for resilience investment, further work is required to refine these estimates and integrate any works with the future renewals programme.

(e) **Circulates** this report to the Council for information.

CARRIED

Councillor Williams noted that climate change was something that the Council needed to acknowledge.

Councillor Ward also acknowledged that the possible impact of climate change was something that the Council had to provide for and mitigate where possible.

In supporting this motion, Councillor Redmond encouraged colleagues to read the full report. He also believed it would be good for the media to be aware of this report and to highlight some of the points in it.

Councillor Mealings thanked staff for bringing this report to the Council, stating that this was good practice and was required of the Council under various legislation. It showed that the Council had foresight and was looking ahead to future proof its assets which was important for the residents of the district.

6 CORRESPONDENCE

Nil.

7 PORTFOLIO UPDATES

7.1 Roading – Councillor Philip Redmond

Focus areas for staff:

- Pre-winter maintenance repairs were underway including dig-outs and removal of heaves and shoves. This included holding repairs to get the Council through the winter when wider area repairs could be undertaken.
- Crushing in the gravel pits had been underway to provide a supply of material for the winter unsealed roads metalling programme, which had just begun.

Capital:

- The Waimakariri Gorge Bridge Deck Replacement was progressing. The scaffolding installation was nearing completion. The guardrail works had started along with replacement of the bridge deck panels. The first two panels had been installed and learnings from these installations were being applied as they go forward. Weather and wind created issues with lifting panels and had caused some delays. The main deck replacement work was being undertaken under night closures.

- The River Road Upgrade project was progressing. The widening works had been completed on the north side of the road and the focus had now moved to Kerb and Channel preparation on the south side of the road.
- Island Road / Ohoka Road Intersection upgrade work were continuing. Works were now largely complete on the south half of the intersection including the asphalt overlay, installation of the traffic signal pole foundations and installation of signalling boxes. Focus had now shifted to the north half of the intersection. This project is on track.
- The Kerb and Channel Renewal Contract was continuing. Pidgeon Contracting were currently working in Geddis Street. All of the stormwater works were now completed. The kerb and channel on the north side of the road was completed and footpath works were underway. The southern side kerb and channel was to follow and was due to be completed by mid-May 2024.
- Pedestrian refuge installations were due to start from mid-May to mid-June 2024. This included two refuges on Ivory Street and one on West Belt.
- Palmer Street Upgrade was continuing with EDR Contracting. The installation of the new stormwater main and the kerb and channel on the south side of the street were complete. Half of watermain works had also been completed. The kerb and channel on the north side of the road would follow and was due to be completed by mid-May 2024.
- Ashley Street Watermain Renewal and Kerb Replacement (between No 65 and Lovers Lane) would start on 22 April 2024.

Operational:

- Doubledays Footbridge remained closed. Repairs to the split pile had been completed and staff were now working with Structural Engineers on the pier cap repair methodology and timing.
- Pavement rehabilitation work on South Eyre Road had been completed and was sealed last week. Therefore, this programme of works was completed for the season.
- The installation of new sewer mains in Rangiora along King Street was nearing completion. Resurfacing of the Kings Street / High Street roundabout was completed over the weekend along with line markings. There were some minor works left to tidy up before this stage was fully completed.
- Smith Street remained closed to east bound traffic between Charles Street and Cass Street for the installation of a new water trunk main.

Development Related:

- South Belt was currently closed to westbound traffic from Martyn Street until mid-May 2024 with a detour via Bush Street and Johns Road.

Events:

- The Kaiapoi and Rangiora Anzac Services would be taking place again on 25 April 2024, with a closure of Raven Quay for the dawn service in Kaiapoi, followed by closures of Davie and Sewell Streets for the parade. Rangiora would see closures of Ivory/Ashley, High Street, Victoria Street and Percival Street for the parade and service.
- The Kaiapoi Riversong Event was taking place on Saturday, with a road closure in place on Raven Quay between Williams Street and Bowler Street in the afternoon.

Road Safety:

- The next Waimakariri District Road Safety Working Group meeting was to be held on Wednesday 17th April 2024.

Queen Street Trees
Regarding the issue of leaves in Queen Street, Mayor Gordon provided an update, advising that a meeting was held yesterday afternoon with residents and suggestion for a possible regular maintenance programme for Queen Street. Staff were working on this maintenance, though this did not involve the removal of the trees. There would be a briefing in the future.

Road Safety on rural single lane bridges
With reference to road safety, Councillor Fulton spoke on the rural one lane bridges in the district and if there was good understanding of the signage for these. Councillor Redmond suggested this could be a matter that could be highlighted in the media. It may be that visitors through the district were not familiar with the signage and the meaning of the red and black arrows.

Regarding the Waimakariri Gorge Bridge, it was suggested that there could be warning signage/lights installed before the approaches to the bridge to provide early warning.

7.2 **Drainage, Stockwater and Three Waters (Drinking Water, Sewer and Stormwater) – Councillor Paul Williams**

Water

- The UV treatment installation project continued to progress well, although was now behind programme. The units at McPhedrons Road water treatment plant had been installed and were being commissioned this week. The units for the Pegasus water treatment plant had been delivered to site ready for installation. Works to modify the pipework and pour slabs was underway at the other sites of South Belt, Darnley Square, Peraki Street and Domain Road. These works would continue into next financial year.

Wastewater

- The Rangiora Stage 8 sewer main had successfully been installed through the High Street / King Street intersection, which was a significant milestone for this project.

Drainage

- Staff were well prepared for the rainfall event last week and luckily less than 30mm fell across the district. There were a few service requests related to sump blockages due to leaf fall.
- There was a good turnout for the LTP drop-in meeting in Ohoka last week, which focussed on the Mandeville Resurgence Channel Upgrade project. There was some strong feedback on the Stage 1 works. Further consultation was required to present detailed plans for the proposed Stage 1 works and gain landowner input.

7.3 **Solid Waste– Councillor Robbie Brine**

Councillor Brine spoke on bin audits which were being undertaken again. These had been done in Arlington, South Rangiora and Kaiapoi. Of the 142 bins that were audited, there were 76 found to be contaminated and 61 that received some education advice. This was a disappointing result and with too much contamination, makes Kate Valley costs more expensive.

Covid was currently impacting on staff levels across all sectors of the refuse business.

Monday last week Councillor Brine attended a Kate Valley meeting. This included acceptance of a draft Statement of Intent, which was currently with staff to review. The Joint Standing Committee meetings were held that afternoon also. There was funding available to disperse to waste minimisation projects, that organisations made application to. This was then dispersed as was seen fit. It took some time to go through all the applications and staff were working on streamlining the process to make it more efficient and this would be reported back to the August meeting.

Councillor Fulton posed a question on the gas production that operated in Kate Valley, and Councillor Brine responded that there were four generators operating there. There were issues with what could be taken to the grid and there had been a hold up in getting a larger line into the grid, due to Mainpower's current resource consent application for the establishment of a wind farm in the area. Councillor Brine reminded members that Chairperson Gill Cox would be present for a Council briefing on the 1 May 2024 and Councillors were encouraged to direct any questions they may have to him prior to this visit.

7.4 **Transport – Mayor Dan Gordon**

Regarding the Government Police Statement, the Woodend Bypass was ranked as number three in the regional process. Mayor Gordon noted the Regional Land Transport Plan led to the National Land Transport Plan, and it was here that all projects were prioritised. Other local projects, the Eastern Link and Skewbridge were also on the list as priorities and with local advocacy it was hoped to get these projects recognised in the near future. Mayor Gordon noted that these processes were not synched and there needed to be a realignment of processes and it had also been suggested that there be a ten year process put in place which would make a significant difference. Mayor Gordon was a member of the Local Government NZ Transport Forum as a provincial representative and as part of this had been invited to the Road Controlling Authority Forum in Wellington next Tuesday.

Councillor Ward enquired about the cycleway from Kaiapoi to Pegasus. Mayor Gordon had spoken with government officials recently, suggesting it would be beneficial that a cycleway be included in a new stretch of road. It was noted that a cycle linkage had not been factored into this new stretch of the highway and there had not been any response to date following the Mayors discussion.

8 MATTERS FOR INFORMATION

8.1 **Proposal that the Tuahiwi Footpath be named "Johnno's Way" – Dominic Mansbridge (Project Engineer) and J McBride (Roading and Transport Manager)**

(refer to Report No. 240207016698 to the Kaiapoi-Tuahiwi Community Board Meeting 18 March 2024)

Moved: Councillor Redmond` Seconded: Councillor Ward

THAT the Utilities and Roading Committee

(a) **Receives** the information in Item 8.1.

CARRIED

Councillor Ward acknowledged that this now provided good walking access for residents from the early childhood centre and the School, and the urupa.

Mayor Gordon thanked the Councillors who were able to attend the function to open this footpath, including the Waiata Group. Both the Croft and Hamilton families were well represented at the function. This path was particularly important to the Runanga.

9 QUESTIONS UNDER STANDING ORDERS

There were no questions.

10 URGENT GENERAL BUSINESS

There was no urgent general business.

11 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

In accordance with section 48(1) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by section 6 or section 7 of that Act (or sections 6, 7 or 9 of the Official Information Act 1982, as the case may be), it is moved:

Moved Councillor Ward` Seconded Councillor Mealings

That the public be excluded from the following parts of the proceedings of this meeting:

11.1 Confirmation of Minutes from 19 March 2024.
11.2 Receiving of Briefing Notes from 19 March 2024.
11.3 Report from Management Team Operations 18 March 2024.
11.4 Report from Management Team Operations 25 March 2024.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

Item No.	Subject	Reason for excluding the public	Grounds for excluding the public.
12.1	Confirmation of Minutes from 19 March 2024.	Good reason to withhold exists under section 7	To carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations) LGOIMA Section 7(2)(i).
12.2	Receiving of Briefing Notes 19 March 2024.	Good reason to withhold exists under Section 7	As per Section 7(2)(i) of the Local Government Official Information and Meetings Act 1987, to "enable any local authority holding the information to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)", and that both this report and the recommendations remain Public Excluded owing to the commercial sensitivity of the proposed negotiations.
12.3	Report from Management Team Operations 18 March 2024.	Good reason to withhold exists under Section 7	As per Section 7(2)(i) of the Local Government Official Information and Meetings Act 1987, to "enable any local authority holding the information to carry on, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)", and that this report remains Public Excluded owing to the commercial sensitivity of the proposed negotiations, but the recommendations be made publicly available.

12.4	Report from Management Team Operations 25 March 2024.	Good reason to withhold exists under Section 7	As per Section 7(2)(i) of the Local Government Official Information and Meetings Act 1987, "The withholding of the information is necessary to enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities", and that the recommendations in this report be made publicly available but that the contents remain public excluded.

CARRIED

CLOSED MEETING

Resolution to resume in Open Meeting

Moved Councillor Williams Seconded Councillor Ward

THAT open meeting resumes and the business discussed with the public excluded remains public excluded.

CARRIED

OPEN MEETING

NEXT MEETING

The next meeting of the Utilities and Roading Committee will be held on Tuesday 28 May 2024 at 9am.

There being no further business, the meeting concluded at 10.52am.

CONFIRMED

_____
Chairperson
Councillor Paul Williams

_____
Date

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	WAT-10-14 / 240508073256
REPORT TO:	UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	28 May 2024
AUTHOR(S):	Sophie Allen – Water Environment Advisor
SUBJECT:	Zone Implementation Programme Addendum (ZIPA) Capital Works Programme – 2024-25

ENDORSED BY:

(for Reports to Council, Committees or Boards)

Department Manager | Chief Executive

1. SUMMARY

1.1 This report seeks approval for the proposed Waimakariri District Council (WDC) capital works programme for 2024-25 as developed from the Zone Implementation Programme Addendum (ZIPA), including;

i. biodiversity and amenity improvements for the South Brook at Townsend Fields, Rangiora ($10,000);

ii. terrestrial planting along the Kaiapoi River ($10,000);

iii. willow removal at an inanga (whitebait) spawning areas located on land owned by Waimakariri District Council, Environment Canterbury and a private landowner (Cam River Ruataniwha, Courtenay Stream true left bank and McIntosh Drain) $15,000;

iv. native planting and interpretation panels for the Waikuku Beach pond on the corner of Bridge Street and Park Terrace that is in the Taranaki Stream Catchment $5,000;

v. allocation of $30,000 to four Waimakariri Water Zone Committee Action Fund recipients as top-up funding (Bittern Inanga Rushland $11,700, Hunters Stream $5,000, O'Kair Lagoon $10,000 and Pohio Wetland $3,300).

1.2 ZIPA Capex projects from 2023-24 that have been completed on budget are:

i. Fish passage improvements on the North Brook tributary at Cotter Lane in Rangiora;

ii. Biodiversity improvements for the South Brook at Townsend Fields, Rangiora;

iii. Terrestrial planting along the Kaiapoi River,

iv. Improvements to inanga (whitebait) spawning areas located on land owned by New Zealand Transport Authority Waka Kōtahi along the Benzies Creek (a tributary of Saltwater Creek) with willow and blackberry removal, McIntosh Drain (WDC land) with

native spawning plants planted, and Courtenay Stream true right bank (private landowner) with willow removal.

1.3 Outstanding 2023-24 projects are:

i. Installation of walkway culverts for a riparian access along the North Brook, Rangiora for the North Brook Trail project. Due to a right of way easement for public access not in place yet, this budget is requested again in 2024-25 when this easement should be in place. No 2023-2024 carry-over budget is requested.

ii. Re-grading of the McIntosh Drain bank for improvements to the inanga (whitebait) spawning area. The bank regrading proposal of this project is on hold pending a re-alignment of the works in line with another proposal to rebatter a large section of this waterway. Therefore this budget has not been requested for 2024-25.

iii. Taranaki Stream Reserve additional planting budget. This native plant budget of $5,000 was not required in 2023-24, with sufficient Greenspace budget for planting works within this reserve.

1.4 There is a capital expenditure allocation of $100,000 per annum from 2021-31 in the Long Term Plan, from the Zone Implementation Programme Addendum (ZIPA) budget from the general rate.

1.5 Capital expenditure ZIPA projects are scoped and presented annually to the Utilities and Roading Committee for approval.

Attachments:

i. Selected funding applications for the Waimakariri Water Zone Committee Action Fund (TRIM 240515077713)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 240508073256.

(b) **Approves** the proposed 2024-25 Waimakariri District Council capital expenditure work programme, based on the Zone Implementation Programme Addendum (ZIPA) recommendations.

i. Biodiversity and amenity improvements in Waimakariri River tributaries – South Brook Townsend Fields project ($10,000)

ii. Terrestrial riparian plantings along the Kaiapoi River ($10,000)

iii. Inanga (whitebait) spawning habitat improvements – willow and gorse control ($15,000)

iv. Northbrook Trail - installation of three culverts ($30,000)

v. Waikuku Beach pond – native planting and interpretation signage ($5,000)

vi. Waimakariri Water Zone Committee Action Fund top-up -Bittern Inanga Rushland, O'Kairs Lagoon, Pohio Wetland and Hunters Stream projects ($30,000)

(c) **Notes** the works carried out in 2023-24 under the ZIPA capital expenditure programme.

i. Fish passage improvements on the North Brook tributary at Cotter Lane in Rangiora;

ii. Biodiversity improvements for the South Brook at Townsend Fields, Rangiora;

iii. Terrestrial planting along the Kaiapoi River,

iv. Improvements to inanga (whitebait) spawning areas located on land owned by New Zealand Transport Authority Waka Kōtahi along the Benzies Creek (a tributary of Saltwater Creek) with willow and blackberry removal, McIntosh Drain (WDC land) with native spawning plants planted, and Courtenay Stream true right bank (private landowner) with willow removal.

(d) **Circulates** this report to Council, Community Boards, WDC-Rūnanga liaison meeting and the Waimakariri Water Zone Committee for their information.

3. BACKGROUND

3.1 A report was presented on 29 January 2019 to Council, seeking a decision on the role of WDC in ZIPA implementation, staff resourcing, and funding of projects (refer to TRIM 181217148924).

3.2 A total of $100,000 per annum for capital works was approved by Council for 2019-21 on 28 May 2019 (refer to TRIM 190501061992).

3.3 A ZIPA role and budget allocation review was carried out in 2021 for the Long Term Plan 2021-31, which was presented to the Land and Water Committee at the 20 July 2021 meeting.

3.4 A total of $305,000 per annum was approved by Council for 2019-21 on 28 May 2019 (refer to TRIM 190501061992), of which $100,000 was capital expenditure. Due to COVID-19 pandemic budget revisions, the capital expenditure was reduced to $50,000 from 2020-21 until 2022-23, with a return to $100,000 from 2023-24.

4. ISSUES AND OPTIONS

4.1. $100,000 is allocated to capital expenditure (CAPEX) projects in the 2024-25 Financial Year (see Table 1),

Table 1: Summary of capital expenditure proposed for 2024-25 for WDC ZIPA works

CAPEX project	**ZIPA recommendation**	**Budgeted amount**
Biodiversity and amenity improvements in Waimakariri River tributaries – South Brook Townsend Fields project	1.26	$10,000
Terrestrial riparian plantings along the Kaiapoi River	1.27	$10,000
McIntosh Drain inanga spawning habitat improvements – willow (and gorse) control	2.11	$15,000

Cam River (Ruataniwha) inanga spawning habitat improvements – juvenile willow removal Courtney Stream inanga spawning habitat – juvenile willow removal		
Northbrook Trail - installation of three culverts	1.26	$30,000
Waikuku Beach Pond – native planting and interpretation signage	1.21	$5,000
Waimakariri Water Zone Committee Action Fund top-up (Bittern Inanga Rushland, O'Kairs Lagoon, Pohio Wetland and Hunters Stream projects – see Attachment i)	1.26	$30,000
TOTAL		**$100,000**

Biodiversity and amenity – South Brook Townsend Fields

4.2. WDC staff have been working since 2019 on improving a WDC-owned esplanade reserve on the South Brook beside the Townsend Fields Stormwater Management Area. Native planting has resulted in an eco-sourced riparian margin along the large areas on the south side, and some of the north side. This work will continue to be led by the WDC Greenspace Team and rangers in 2024-25. Public access signage has not been installed yet, with some health and safety issues to resolve first, such as large crack willows which need on-going arborist attention after wind events.

4.3. The surrounding area is undergoing development of urban housing, including the placement of a nearby retirement village. The area on the south side was cleared of some of the crack willows in August 2019, however there are still large crack willows that require gradual removal as native plants grow to provide riparian habitat.

4.4. Budget for plant maintenance, such as weeding around plants and weed control (e.g. blackberry) is available under the ZIPA operational budget for 2024-25.

Terrestrial plantings on the Kaiapoi River

4.5. The Greenspace team has produced a Kaiapoi River spatial planting plan, which incorporates both terrestrial and aquatic tidal plantings. This plan takes into consideration Kaiapoi town planning, Kaiapoi Regeneration Zone planning, and Environment Canterbury priorities.

4.6. WDC staff and Environment Canterbury (as landowner) have been progressively planting native species along the riparian margins and also intertidal flats of the Kaiapoi River since the Canterbury earthquake sequence as part of earthquake recovery, as well as for biodiversity and amenity improvements. The intertidal planting been completed by WDC staff, with successful establishment over time.

4.7. $10,000 is proposed be allocated in the 2024-25 year to continue the Kaiapoi River terrestrial riparian planting.

Cam River Ruataniwha, Courtenay Stream and McIntosh Drain - Inanga spawning habitat improvements

4.8. Aquatic Ecology Ltd (AEL) reviewed inanga spawning sites and quality of habitat in the Waimakariri District in reports from 2017, 2019, 2021 and 2023, with recommendations for management.

4.9. There are significant īnanga spawning sites in the District, such as in the Saltwater Creek, Cam River (Ruataniwha), Taranaki Stream, Courtenay Stream and McIntosh Drain.

Cam River Ruataniwha

4.10. The Cam River Ruataniwha has not received ZIPA budget before for inanga spawning area improvement works. Juvenile crack willow removal has been recommended by AEL below the Cam River Floodgate to prevent future shading of suitable spawning habitat (Figure 1). Permission has been granted from the River Engineering team at Environment Canterbury for this willow removal to be carried out. WDC has often carried out works such as native planting within the stopbanks of the Kaiapoi and Cam River Ruataniwha, working with the landowner Environment Canterbury due to the importance of these waterways to the community and mana whenua.

Figure 1: Inanga spawning habitat at the confluence of the Cam River with the Kaiapoi River. The willows for removal are on a section of part of the true left (yellow section with suitable habitat for inanga spawning if willow shading is removed).

Courtenay Stream

4.11. Juvenile crack willow regrowth on the true left upstream of the floodgate has been observed by WDC staff. This area has previously had willow removal for inanga spawning habitat improvements in 2019 – 20, however there is sufficient regrowth to revisit this area. The land is WDC owned and managed by Greenspace as NCF Reserve.

McIntosh Drain

4.12. Willow growth was removed in 2019-20 or 2020-21 and a gorse hedge was sprayed. Willow regrowth and juvenile willows that have spread need to be targeted again. Gorse will also be targeted if there is adjoining private landowner approval.

Northbrook Trail culvert installation and planting

4.13. The Spark family and Waimakariri Landcare Trust have initiated a project for a trail along a section of the North Brook, which was endorsed by the WDC Land and Water Committee on 16 November 2021 for support (TRIM211027173045). The first step to create the trail requires installation of 3 culverts over drains that feed into the North Brook. Legal access for the general public has not yet been finalised as a right of way easement, however would be required by WDC staff as a condition for release of the $30,000 budget for culvert installation. Due to this easement not in place during 2023-24, this budget is requested again for 2024-25. WDC staff have proposed to design and install the culverts under consent CRC195065 for Maintenance and Minor Works in Waterways.

4.14. Native riparian planting commenced in 2022 along the Northbrook Trail. Any remaining funds after culvert installation would be allocated to the existing native riparian planting programme managed by the Waimakariri Landcare Trust.

Waikuku Beach Pond

4.15. On the corner of Bridge Street and Park Terrace there is a pond on WDC-owned land (figure 2) that is part of the Taranaki Stream catchment. The pond is beside a playground with frequent use by the community. A budget of $3,000 for weed removal and native planting has been approved by the Woodend Sefton Community Board for biodiversity works in 2023-24 (TRIM 240430067679). Additional Greenspace and ZIPA Capex budgets have been proposed to meet the total project cost of $15,500 for weed removal and native planting (see restoration plan TRIM 240412058320). $5,000 is proposed from the ZIPA Capex budget in 2024-25 towards native planting costs and interpretation panels.

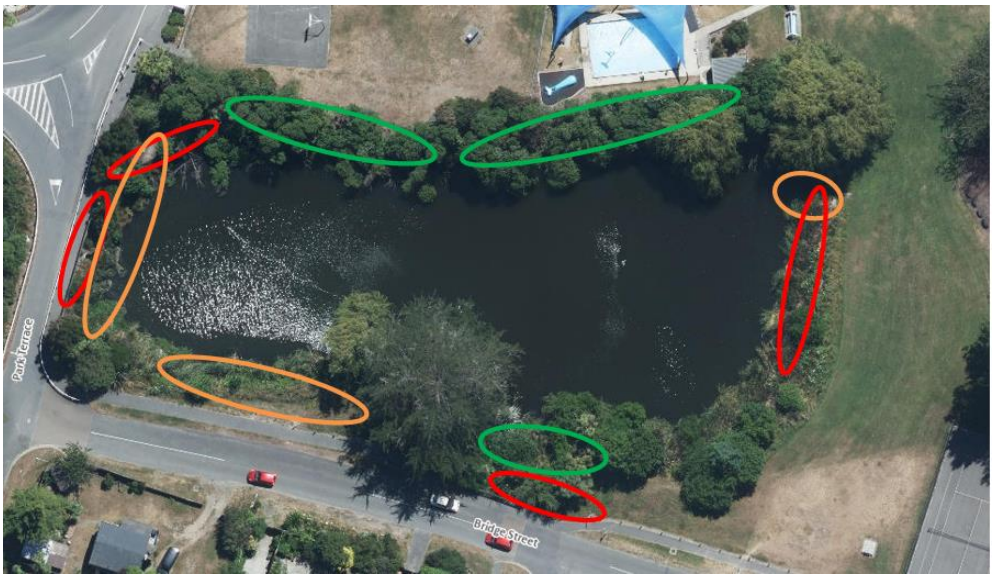


Figure 2. Waikuku Beach Pond showing viewing areas of the pond from footpaths (red), dense encroachment by grey willow (green) and areas of other problematic weeds (orange).

WWZC Action Fund top-up

4.16. The Waimakariri Water Zone Committee Action Fund was oversubscribed in the May 2024 funding allocation round. Successful projects were not able to be fully funded. WDC staff propose to top-up selected successful projects to enable these projects to be completed as scoped. WDC has proposed to Environment Canterbury that it will oversee the funding agreements with recipients and follow-up reporting and monitoring of the projects, however this approach of how funding could be distributed has not been confirmed yet. WDC will provide Environment Canterbury with the funds to distribute to recipients. WDC has proposed that funding agreements will acknowledge WDC as a partial funder. Progress reports would provided to WDC by Environment Canterbury for information.

4.17. Attachment i includes the funding applications and project details for the projects that the proposed to receive top-up funding and a summary is provided in Table 2.

Table 2: Action Fund Projects proposed for WDC ZIPA top-up funding

Project name	**Catchment**	**Action Fund funding requested by applicant**	**WWZC Action Fund allocation (funded by Environment Canterbury)**	**Proposed ZIPA budget top-up (WDC funding)**	**Total funding proposed**
Bittern Inanga Rushland – fencing and woody weed control	upper McIntosh Drain catchment, Kaiapoi	$35,000	$15,000	$2,461 top-up for fencing costs $9,239 for woody weed control ($11,700 total)	$26,700
Hunters Stream – stream restoration and native planting	A tributary of the Cust River	$13,775	$5,285	$5,000 for native planting costs	$10,285
O'Kairs Lagoon	upper McIntosh Drain catchment, Kaiapoi	$15,000 – but additional costs were included in the application	$15,000	$10,000 for woody weed control	$25,000
Pohio Wetland	upper McIntosh Drain catchment, Kaiapoi	$15,000	$11,700	$3,300 for woody weed control	$15,000

2023-24 Works Completed

4.18. 2023-24 works that have been successfully completed were either achieved on budget or under budget.

2023-24 Works Completed: Fish Passage

4.19. A rock ramp of cobbles and boulders has been created on a tributary of the North Brook (corner of Cotter Lane and Northbrook Road) which created a pooled area below the concrete apron, reducing a fast-flowing drop (see Figure 2). This concrete apron was believed to prevent some migratory species such as inanga from being able to move upstream, based on survey data from Aquatic Ecology Ltd and spotlighting data from WDC staff. Survey work to confirm if there is now inanga migration above the rock ramp will be carried out this winter.

Figure 2: The likely fish passage barrier on a North Brook tributary – Corner of Cotter Lane and Northbrook Road before (left) and after (right) works were carried out

2023-24 Works Completed: Inanga Spawning Area Improvements

4.20. Courtenay Stream had willow re-growth on the true right bank above the floodgate. Aquatic Ecology Ltd recommended that this was removed to prevent shading of inanga spawning habitat before the willows become large. WDC Greenspace rangers completed this work in summer 2023-24, with successful poisoning to prevent regrowth.

4.21. Benzies Stream (a tributary of Saltwater Creek) had willows along the inanga spawning reach. Aquatic Ecology Ltd recommended that these were removed to prevent shading of inanga spawning habitat. This land is owned by NZTA Waka Kōtahi who provided approval for the works to take place. WDC Greenspace rangers completed this work by drilling holes into the trunks for herbicide application in summer 2023-24, with the willows left *in situ* as there is no public access to the area. There was also some blackberry removed and/or poisoned with herbicide.

4.22. At McIntosh Drain, additional native planting works with inanga spawning suitable species were carried out directly upstream in the inlet of a recently-commissioned pump station, in addition to native planting required by resource consents. This created a denser spawning habitat of higher quality for inanga spawning. There is a proposal under discussion to widen the length of McIntosh Drain from Beach Road downstream to the pump station, therefore re-grading works above the Pump Station inlet structure area were not carried out.

Alignment with the Waimakariri Water Zone Committee Action Plan 2021-24

4.23. The Capex projects proposed in this report align with the WWZC Action Plan goals of:

4.23.1. Increased indigenous biodiversity in the zone.

4.23.2. Protection and enhancement of recreation in the zone.

4.23.3. Improved mahinga kai within the Waimakariri Water Zone.

Implications for Community Wellbeing

4.24. There are implications on community wellbeing by the issues and options that are the subject matter of this report. The ZIPA recommendations and budget allocations are to meet targets in the Canterbury Water Management Strategy for recreation and amenity, biodiversity and mahinga kai provision for example.

4.25. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Mana whenua

Te Ngāi Tūāhuriri hapū are likely to be affected by, or have an interest in the subject matter of this report. Ngāi Tūāhuriri representatives of the Waimakariri Water Zone Committee will be circulated this report, and it will be circulated at a WDC- Rūnanga monthly meeting.

5.2. Groups and Organisations

There are groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

5.2.1. Waimakariri Water Zone Committee – Updates on the progress of ZIPA projects are presented to the Waimakariri Water Zone Committee for comment and discussion.

5.3. Wider Community

The wider community is not likely to be affected by, or to have an interest in the subject matter of this report. The wider community was consulted on the role of WDC and budget allocation for the ZIPA in the draft Annual Plan public consultation in March-April 2019.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

There are no financial implications of the decisions sought by this report. Budget has already been approved in the Long Term Plan for 2021-31. No carry-over budget is requested for the 2024-25 budget from 2023-24 projects that have not been completed. This report is for more detailed specifics of the proposed projects for 2024-25.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do have sustainability and/or climate change impacts. The projects for planting of trees will help to sequester carbon. Fish passage remediation will aid the sustainable future of local fish populations that are migratory species.

6.3 Risk Management

There are no risks arising from the adoption/implementation of the recommendations in this report.

ZIPA capex spend is be reported on quarterly in a summary capital expenditure report to the Audit and Risk Committee. This provides governance with information of any risk of an under or overspend.

Health and Safety

There are no health and safety risks arising from the adoption/implementation of the recommendations in this report.

ZIPA capital expenditure project implementation will follow established health and safety processes. There are no new health and safety risks or hazards that have been identified.

7. CONTEXT

7.1. Consistency with Policy

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. Authorising Legislation

Resource Management Act (1991). All capital expenditure works requiring consent are anticipated to be covered by the 'Maintenance and Minor Works in Waterways' global consent (CRC195065, CRC195066, CRC195067) that WDC has been granted from Environment Canterbury, and the Waimakariri District Council consent RC19143 for works beside waterways.

7.3. Consistency with Community Outcomes

The Council's community outcomes are relevant to the actions arising from recommendations in this report.

7.4. Authorising Delegations

The Utilities and Roading Committee hold the delegation for the allocation of the ZIPA budget.

Application for funding – CWMS Action Plan Budget 2023/24 *(for the Waimakariri Water Zone)*

The purpose of the CWMS Action Plan Budget is:

- To allow Zone Committees to **focus on implementing their action plan and leverage other funding opportunities to achieve the CWMS priorities.**

The funding is administered, distributed, and monitored by Environment Canterbury.

Applicant details

Organisation (if applicable):	Air Charter Queenstown
Contact name:	Nicky Auld
Contact email:	
Contact phone number:	
Postal address:	
Other address:	
Are you GST registered? (if yes, please provide number)	
NZBN (NZ Business Number, if applicable)	

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

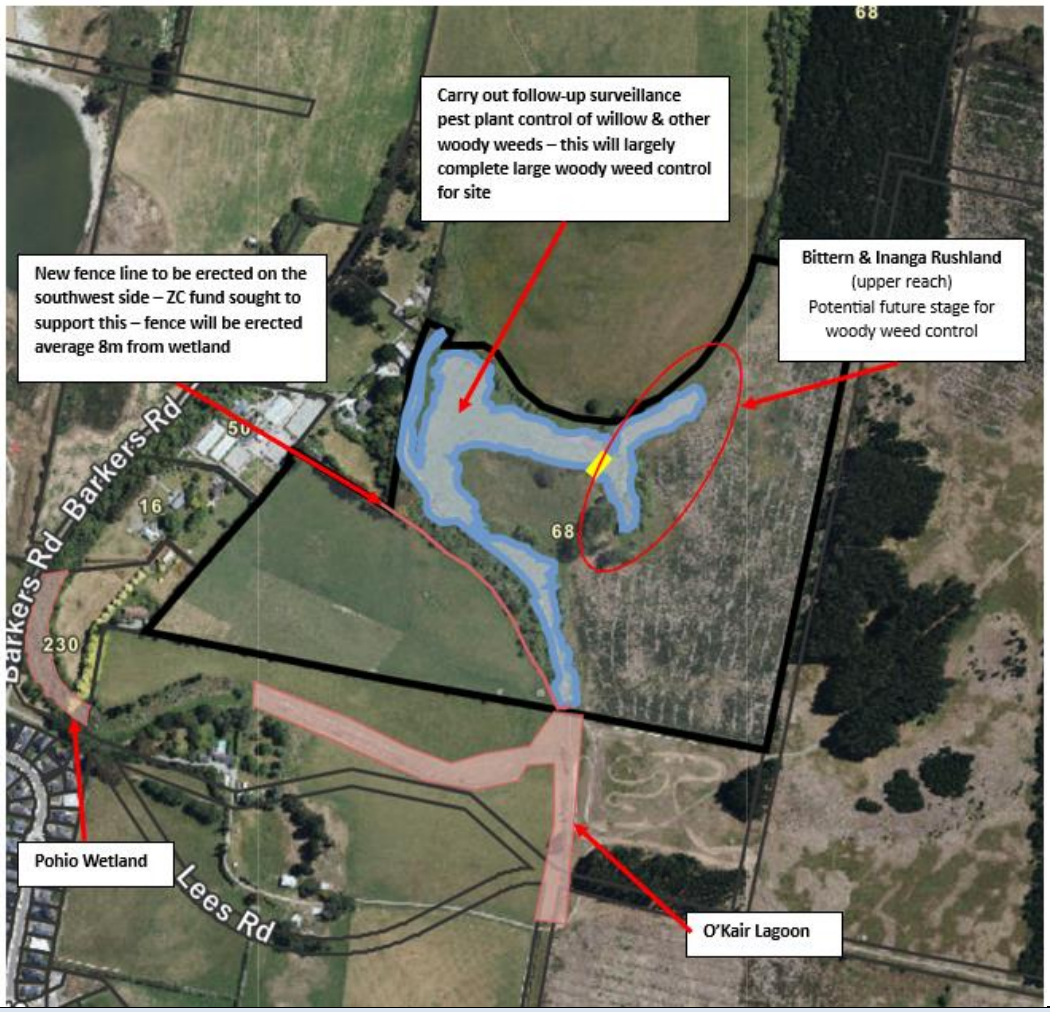
Project name:	*Bitten & Inanga Rushland* *Part of the North Kaiapoi Biodiversity Restoration Project*
CWMS zone where the activity will occur:	*Waimakariri Zone - Headwaters of the coastal MacIntosh's Drain*
Provide a brief project description (in two sentences):	

Undertake Stage 2 Ecological Restoration of the Bittern & Inanga Rushland

1. *To fence off southern side of this massive rushland – (large willows have already been poisoned (see photos in appendix) and will be cleared to enable new fence to be erected)*
2. *Carry on follow-up surveillance pest plant control of willow & other woody weeds (continuing on from earlier muti-year work undertaken using ECan IS grant, which had a great willow kill rate, however lots of young willows have since sprouted).*

Explain what the grant will be used for - what the money is mainly being spent on/what activities are involved in the project (in two sentences):

Fence off southern boundary of the rushland (North Canterbury Fencing quote $17,461) & continue willow control work in rushland itself (including smaller multi-stem willows in rushland and close to water)



Describe the problem or opportunity the project will address:

We are keen to fence a section off along the southwestern & small unfenced section of northern boundary. The line of massive Willow Trees are dying as a result of earlier ECan grant. They are falling on the proposed new fence line. Removing trees, cutting & clearing fence line is the next stage of the project. This will enable tractor access to install fence,

then hopefully can start to plant out a wee section the following year. It is critical to continue with killing the willow, poplars in this wetland before it takes hold and grows back. There are still some large trees which are still alive as well as a lot of younger saplings especially along the water's edge. These saplings grow at great speed also with the seedling grey willow needing to be controlled and killed. In the wind branches break off the trees and stab into the ground creating cuttings which then grow. It's a massive job to control them.

Describe the outcomes or impacts of this project:
Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.

- *Protect & enhance Inanga spawning ground (tidal toe habitat) and area directly above this is where adult Inanga live they just come down to the tidal toe to spawn and die.*
- *Endangered Bitten already visit this rushland and the next door O'Kair Lagoon, Waka Wetland and eat small fish and eels*
- *Suitable Mud fish habitat (doc survey done here, & ideally suited for mudfish)*
- *Significant areas of linking waterways, wetlands and swamps with multiple keen landowners already fencing, growing plants and planting areas of the MacIntosh's Drain catchment.*

List the key outputs of the project:
An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as deliverables in a funding agreement.

See map sent as an attachment

Funds would go towards paying a contractor to:

1. Fence off part of this massive (over 3ha) rushland – 320 – 350m fenceline

2. Carrying on with control of willows and woody weeds, especially Grey Willow, & willow regrowth

3. Landowner to continue chopping and cleaning up and clearing large trees along the proposed fence line.

4. Then start planting preparation & planting stock-proof sections of the rushland.

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:
Waimakariri – Waimakariri Water Zone Committee Action Plan 2021-2024 | Environment Canterbury (ecan.govt.nz)

Alternatively, contact the Zone Facilitator (Murray Griffin) who can email you a copy.

*Protect landscape native species values in upper catchment

*Weed control in Upper & Middle section of catchment

*Improve habitat of whole catchment (Whole North Kaiapoi Biodiversity Restoration Project Concept)

*Improve Habitat health of lowland spring fed tributaries

*Improve health of whole waterway “Ki Uta Tai”

Tell us when you can start the project and when you intend to have the project completed (timeline):

Once approved we can engage a contractor to carry out the fencing & Willow Control work. Willow control best undertaken when in leaf and when not too much water is in the rushland (easier for contractors)

Tell us why you think your project is feasible/realistic:

Fencing to be carried out in stages.

Most of the willows and woody weeds have been controlled by an earlier ECan grant. It is important to eliminate the remaining woody weeds, willows etc to ensure they don’t return and choke up this rushland again. Some willows were missed close to the water’s edge and have now grown rapidly.

Tell us about the project management, including leadership and financial oversight:

Project Manager: Nicky Auld, Dip Hort, Dip Parks & Gardens Tech. Working as a Landscape Designer, and have planned many successful Native Plant restoration projects.

List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:

Part of the extended family effort to undertake restoration work in this area – x3 Kaiapoi projects are all undertaken by extended family unit.

None at this stage, there will be an opportunely later on in the project to work with volunteers for planting, weed releasing and small scale cutting and pasting of woody weed.

Keen to work with:

1. CVNZ Christchurch office in future for large mass planting days

2. Trees that Count as they have supported us through gifting trees.

3. Trees for survival if they move down to Canterbury for school planting days.

How will you engage the community on the project:

Organising future community volunteer planting days.

Do you know of any cultural values associated with this site?	Yes

If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?	
The site is marked on the silent files See Ecan management plan form earlier grant	
Please provide an accurate location with grid references and a map (if relevant to your project – please *contact the Zone Facilitator who can assist with this if required*)**:**	
NZTM Grid Ref X (Easting): 1573959 **NZTM Grid Ref Y (Northing): 5199836**	
Who owns the land? *Attach evidence of permission from the landowner, or their representative (if you are undertaking a project on land that you do not own)*	
Air Charter Queentown Ltd	

Funding details

Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. For applications for less than $15,000 a simple budget is fine. We would like more detail if your application is for a larger amount e.g. more than $15,000 or more than $50,000. We have a budget template in the guidance document.

How much funding are you requesting?	35,000.00
If you are successful with this application, what components of your project will you spend the money on? **Please include below or attach your budget to your application.*	
Fencing &/or Willow, Poplar, Woody Weed Control. Any amount of funding would be greatly appreciated. See quote for fencing from North Canterbury Fencing - $17,461 Do not have a quote for woody weed control work at this stage but can obtain one on request.	
Have you applied to, or received funding from other organisations for this project? **If YES, please provide details below or note if it is included in your attached budget.**	No

The CWMS Action Plan Budget is seed funding or leverage for partnering and collaboration, so it is positive if you have received or are applying for other funding.	
Is the project receiving any other monetary or "in-kind" contributions (volunteer hours, resources, equipment, facilities) from your organisation or others? **If YES, please provide details below or note if it is included in your attached budget:**	Yes
In kind hours from family members helping fell large trees. Also kill a few seedling grey willows pointed out by Anna Veltman's site visit Our family (Pip Deans) has eco sourced and sown trays of flax, cabbage trees, carex secta which are ready to prick out and ready for the next years planting season. This is a massive project and will take many years to plant out.	

Working with Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project? **If yes, what was the funding/support for, and when did you receive it?**	Yes
Did receive funding support from Ecan's IS Fund for $10,000 in 2020 – 22 to undertake Stage 1 - the woody weed control for the larger willows in the rushland.	
Are you intending on applying to another Environment Canterbury fund/budget this financial year for this, or any other project? **If yes, what fund are you applying to?**	Not sure
Do you give permission for your application for the CWMS Action Plan Budget to be shared with the ECan staff who coordinate the Waitaha Wai Action to Impact Fund (we prefer to share information between the two to get best use of both)	Yes

Additional information you would like to provide?

Do you have supporting information you would like to provide (optional)?

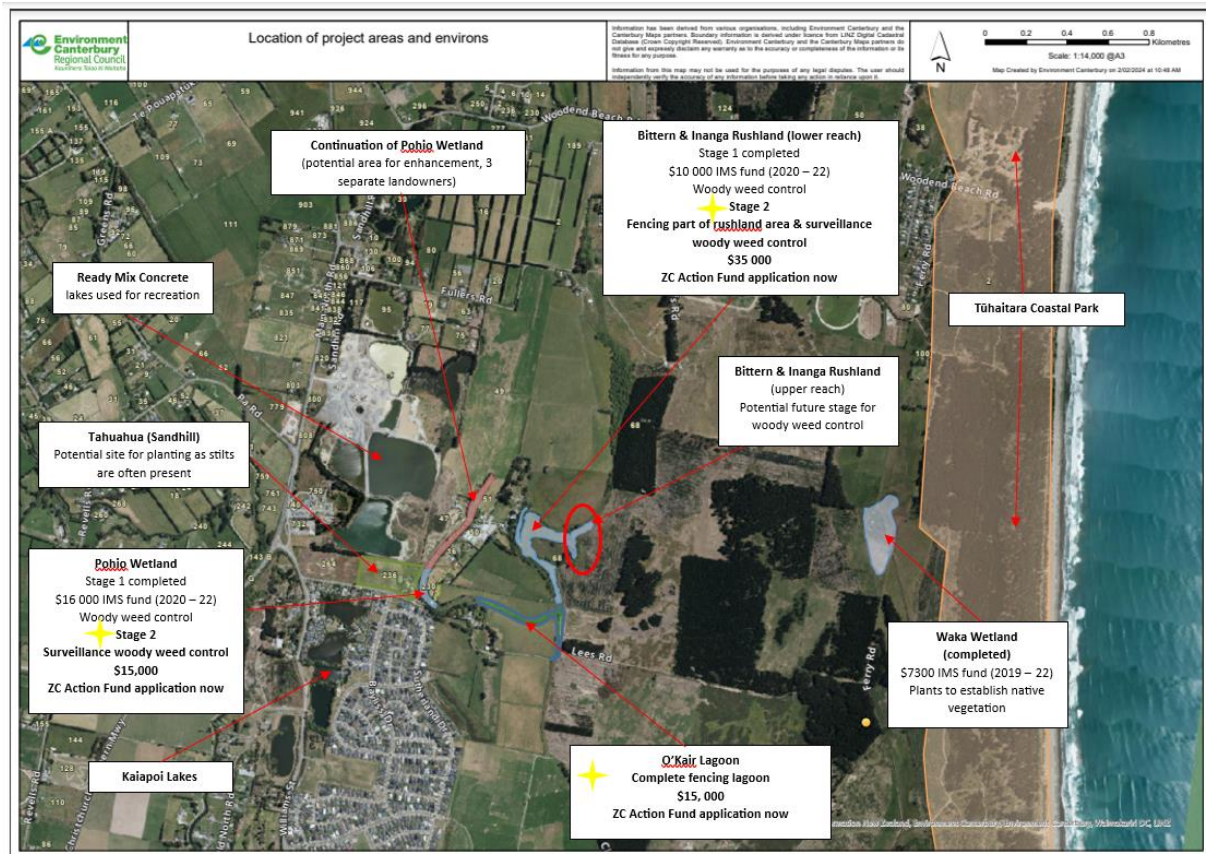
Please attach any supporting information with your application*.**

Once completed, please send this application form to Zone Facilitator, Murray Griffin, murray.griffin@ecan.govt.nz

The Zone Facilitator will keep in touch with you about timeframes, whether the Committee would like you to give them a presentation, and whether there are any questions.

Appendix

Map showing location of project area and environs for this application



Photos showing effect of Stage 1 woody weed control

FENCING QUOTE

INANGA MARSHLAND WETLAND

Date
23 Jul 2023

Quote Number
QU-1062

Reference
1062

GST Number
078-943-483

North Canterbury Fencing
142 Lees Road Kaiapoi
RD1
Christchurch New Zealand
GST No: 078-943-483

Inanga marshland wetland fencing project

Description	Quantity	Unit Price	Amount NZD
8 wire batten fence per meter swamp country Tie Downs 20x strains Some Deer posts for wet areas	1900.00	38.09	72,371.00
Stay/strainer assembly- Angle stay	114.00	155.00	17,670.00
Gateways	16.00	330.35	5,285.60
Line Clearing Labour	36.00	55.00	1,980.00
Line Clearing Machine	10.00	105.00	1,050.00
Fence line setup and markout	20.00	25.00	500.00
		Subtotal	98,856.60
		TOTAL GST 15%	14,828.49
		TOTAL NZD	**113,685.09**

Application for funding – CWMS Action Plan Budget 2023/24 *(for the Waimakariri Water Zone)*

The purpose of the CWMS Action Plan Budget is:

- To allow Zone Committees to **focus on implementing their action plan and leverage other funding opportunities to achieve the CWMS priorities.**

The funding is administered, distributed, and monitored by Environment Canterbury.

Applicant details

Organisation (if applicable):	Kapukariki / Hunters Stream
Contact name:	Jackie and Grant Freeman
Contact email:	
Contact phone number:	
Postal address:	
Other address:	
Are you GST registered? (if yes, please provide number)	**NO**
NZBN (NZ Business Number, if applicable)	**N/A**

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	Hunters Stream
CWMS zone where the activity will occur:	*Waimakariri*
Provide a brief project description (in two sentences):	
To restore the stream and embankment to a natural ecosystem, while incorporating the community, schools and land owners. We want to inspire other landholders who border the	

stream to continue this project on their own properties, so in the future Hunters Stream is fully planted, from its source until it flows into the Cust River.
Explain what the grant will be used for - what the money is mainly being spent on/what activities are involved in the project (in two sentences):
Plants for stream banks, tree guards, stakes, and fencing to exclude stock from the stream.
Describe the problem or opportunity the project will address:
This project will address the problem of a lack of indigenous flora and fauna in (our part of) Hunters Stream and address current and future water quality due to farming runoff into the stream.
Describe the outcomes or impacts of this project: *Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.*
The planting of native plants will restore an ecosystem and improve water quality for future generations. It will also bring well-being to the community, who will be invited to help plant the area, and then can enjoy well-being workshops in this new environment. Fencing off the area will exclude stock and allow the area to thrive for future generations for well-being and education.
List the key outputs of the project: *An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as deliverables in a funding agreement.*
3095 native plants planted along the stream and adjacent hill. Planted area fenced off from farm animals Protect banks from further erosion
Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan: *Waimakariri* – Waimakariri Water Zone Committee Action Plan 2021-2024 | Environment Canterbury (ecan.govt.nz) *Alternatively, contact the Zone Facilitator (Murray Griffin) who can email you a copy.*
This project increases biodiversity in the Waimakariri Water Zone. Since moving to this property 2019 years ago, we have planted at least 800 native plants on our property and have been removing pests (hare, rats, mice, feral cats & hedgehogs). We would like to plant more indigenous plants and hopefully this will result in an increase in aquatic biodiversity as well as terrestrial biodiversity. **This project improves Mahinga Kai within the Waimakariri Water Zone** There have been Tuna observed in our section of Hunters Stream we hope to improve their habitat by the planting of other mahinga kai species such a Ti kōuka/Cabbage tree, harakeke, toetoe and Pūkio/Carex Secta.

Tell us when you can start the project and when you intend to have the project completed (timeline):
Start April 2024 - Finish December 2024
Tell us why you think your project is feasible/realistic:
This is a project that we have already started by ourselves and we wish to see it through, with the help of Waimakariri Biodiversity Trust, Action Plan funding and the community, it is very feasible. Waimakariri Irrigation Limited is supplying us with 260 plants and we will be buying plants from our neighbour's nursery, as well as other local nurseries. We have researched the history of the area through the Cust Museum. We have also done a lot of our own native plantings and pest control, through trapping and weed control of gorse and broom.
Tell us about the project management, including leadership and financial oversight:
The project will be led by Grant and Jackie with support from the Waimakariri Biodiversity Trust.
List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:
Waimakariri Biodiversity Trust, Enviro schools- local schools
How will you engage the community on the project:
Contact with local schools and local landholders who border Hunters Stream through planting days, workshops and an educational study of the stream.

Do you know of any cultural values associated with this site? **If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?**	**YES**

Lucy will talk to them and see if they can help us. Put people's details in once known.
Please provide an accurate location with grid references and a map (if relevant to your project – please *contact the Zone Facilitator who can assist with this if required***):**
NZTM Grid Ref X (Easting): 1553613 **NZTM Grid Ref Y (Northing): 5201712**
Who owns the land? *Attach evidence of permission from the landowner, or their representative (if you are undertaking a project on land that you do not own)*
Land is owned by the applicants

Funding details

Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. For applications for less than $15,000 a simple budget is fine. We would like more detail if your application is for a larger amount e.g. more than $15,000 or more than $50,000. We have a budget template in the guidance document.

How much funding are you requesting?	$13300
If you are successful with this application, what components of your project will you spend the money on? **Please include below or attach your budget to your application.*	
Native Plants, guards, mats, stakes and fencing	
Have you applied to, or received funding from other organisations for this project? **If YES, please provide details below or note if it is included in your attached budget.** *The CWMS Action Plan Budget is seed funding or leverage for partnering and collaboration, so it is positive if you have received or are applying for other funding.*	**NO**
Is the project receiving any other monetary or "in-kind" contributions (volunteer hours, resources, equipment, facilities) from your organisation or others? **If YES, please provide details below or note if it is included in your attached budget:**	**Yes**
Waimakariri Dictrict Council, Waimakariri Biodiversity Trust, Waimakariri Irrigation Ltd	

Working with Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project? **If yes, what was the funding/support for, and when did you receive it?**	**NO**
N/A	
Are you intending on applying to another Environment Canterbury fund/budget this financial year for this, or any other project? **If yes, what fund are you applying to?**	**NO**

N/A	
Do you give permission for your application for the CWMS Action Plan Budget to be shared with the ECan staff who coordinate the Waitaha Wai Action to Impact Fund (we prefer to share information between the two to get best use of both)	**YES**

Additional information you would like to provide?

Do you have supporting information you would like to provide (optional)?

Bex Dollery - Restoration Plan is attached

Budget is attached

Once completed, please send this application form to Zone Facilitator, Murray Griffin, murray.griffin@ecan.govt.nz

The Zone Facilitator will keep in touch with you about timeframes, whether the Committee would like you to give them a presentation, and whether there are any questions.

Project budget template

INCOME		
Confirmed and 'in-kind' funding		
Source	***Project allocation***	***Amount $***
Waimakariri Irrigation Limited (WIL)	Drone Fly Over (quantity of plants, assessment of stream) Donating of 260 native plants	$0.00 $0.00
Waimakariri District Council	Plant Plan and consultation	$0.00
Waimakariri Biodiversity Trust	Aquatic study and consultation	$0.00
	Sub-Total	**$0.00**
Unconfirmed Funding*		
Source	***Project allocation***	***Amount $***
Canterbury Water Management Strategy (CWMS)		$13775
	Sub-Total	**$13775.00**
	TOTAL INCOME	**$13775.00**

*Unconfirmed funding is the shortfall amount your organisation is committing to seek from other sources

EXPENSES		
Provide detailed complete project delivery costs under the following or similar headings		
Expense item	***Unit price / quantity required***	***Amount $***
Pre-planting, weed/grass clearance	35 hours at $40/hr	$1400
Native Plants, planting year one	x 1500 at $4 each	$6000
Plant Guard, Coir mat, Stakes, Combo	x 1500 at $1.80 each	$2700
Maintenance Year One	32 hours at $40/hr	$1280
Fencing of stream, realignment of fence.	Materials, posts, wire, labour	$2395
	TOTAL EXPENSES	**$13775.00**

Bex Dollery - Restoration Plan for 409C Springbank Road, Hunters Stream

Introduction

Landowners Jackie and Grant Freeman are enthusiastic and motivated to support, enhance and maintain biodiversity in their property. They have a section of Hunters Stream which flows through the southern part of their land and would like to restore the health of the land and the stream by implementing riparian planting and providing an exemplar site to the wider community (Figure 1).

Figure 1. 409C Springbank Road land boundary shown in pink with Hunters Stream to the south and the restoration area shaded in yellow.

Currently, the land comprises some native plantings undertaken by the landowners with rank grass with some weed invasion such as willows. The landowners wish to restore their area as an incentive and example to surrounding neighbours and community and to involve community as much as they wish to be included in the project. The prime objectives for the planting scheme have been outlined as:

- Comprising **indigenous** specimens which are **local** to the area with a good chance of **survival**;
- Involvement of **community/schools** in the restoration and the biodiversity learnings at the site;
- The use of taonga plants and plants used for **mahinga kai** and **rōngoa**;
- Use of plants that promote **water quality,** particularly in regard to **sedimentation** prevention;
- Use of plants which provide habitat for **indigenous species**, both aquatic and terrestrial.

Site Details

The proposed restoration area comprises Hunters Stream whose headwaters lie further west. The waterway is a small stream and the variability in flow level can lead to variable water quality results along the length (Franklin, 2010). The site is located approx. 100 m a.s.l (-43.335511, 172.428188) and is situated within an agricultural, semi-improved grassland area with scattered trees. There is minimal indigenous vegetation apart from the plants planted by the landowners. The majority of the stream areas is dominated by exotic vegetation such as willow trees (*Salix sp*.). There are areas along the stream which are experiencing bank erosion from times of elevated flow levels (Figure 2).

The site lies within the Low Plains ecological district and at this location is described as containing less than 10% indigenous native vegetation cover and therefore, restoration efforts in the district are important and notable (Landcare Research/Manaaki Whenua, 2022; McEwan, 1987). The area is characterised by warm summer and cool winters with relatively low rainfall and strong nor westerly winds in autumn and spring (Macara, 2016). The soils of the area are mainly Pallic soils, Claremont (80%) and Timaru (20%) families. These soils are moderately deep and poorly-imperfectly drained soils comprising a stone-less silt profile texture which leads to dry conditions in summer and wet, often waterlogged, in winter. The pH is low-moderate (approx. 5.7) with the potential for runoff of surface water. Due to the physico-chemical composition, these soils have high structural vulnerability which could be one of the causes for the bank erosion in places (Landcare Research/Manaaki Whenua, 2022a).

Figure 2. Top plate showing a section of the stream with instream plants (macrophytes) and a regenerating willow on the bank. The bottom two plates show the surrounding grassland to the north (left) and farmland to the south (right).

The proposed area of the riparian restoration will include the banks of the length of the stream in the landowners' property and larger areas surrounding to the south (a total area of 0.82 ha, see Figure 3). The riparian planting on the north and south banks equate to approx. 0.1 ha respectively. A further 0.5 ha area to the south comprises an upper bank, grassed area and north of the stream is an upper bank area of 0.12 ha. It is anticipated that the upper bank on the south side will not be extensively planted. Therefore, only half of this area will have native plants intermingled with open areas for the benefit of amenity and those faunal edge dwelling species.

Figure 3. Hunters Stream riparian and lower bank planting (noted in blue, approx. 0.2 ha both north and south of stream) and upper bank planting (noted in yellow, approx. 0.5 ha south of stream and 0.12 ha north of stream, totalling 0.62 ha).

Restoration Plan

The aim of the restoration and enhancement scheme is to enhance the environment for native flora and fauna thereby creating mahinga kai and rōnga opportunities. Alongside this, it is anticipated that the planting will assist with improving water quality, both chemically and biologically, by reducing sediment runoff and creating in-stream habitat and debris for aquatic fauna.

Riparian planting is recommended on the bank margins and lower banks to assist with stabilisation and help to prevent erosion. Monocot plants which have fibrous roots can help to bind the banks and alleviate erosion whilst deeper rooting trees on the lower and upper banks will assist further in the erosion control. Having a range of heights in vegetation will create an amount of shade and organic material to ensure the aquatic invertebrate community remain healthy, and in turn, ensure healthy fish populations.

The plants chosen are suitable for the riparian planting zone (Figure 4). The marginal planting includes those plants which can tolerate being frequently inundated and occur next to the channel. For this project, it is assumed that this is the first 1 m from the waters edge. The lower bank plants are those which may occasionally be inundated and can tolerate both water logging and drier

periods. For this project this is taken to be the area adjacent to the margin and up to 4 m onto the bankside. The upper bank is the area >4 m from the waters edge and comprises plant species which prefer drier conditions.

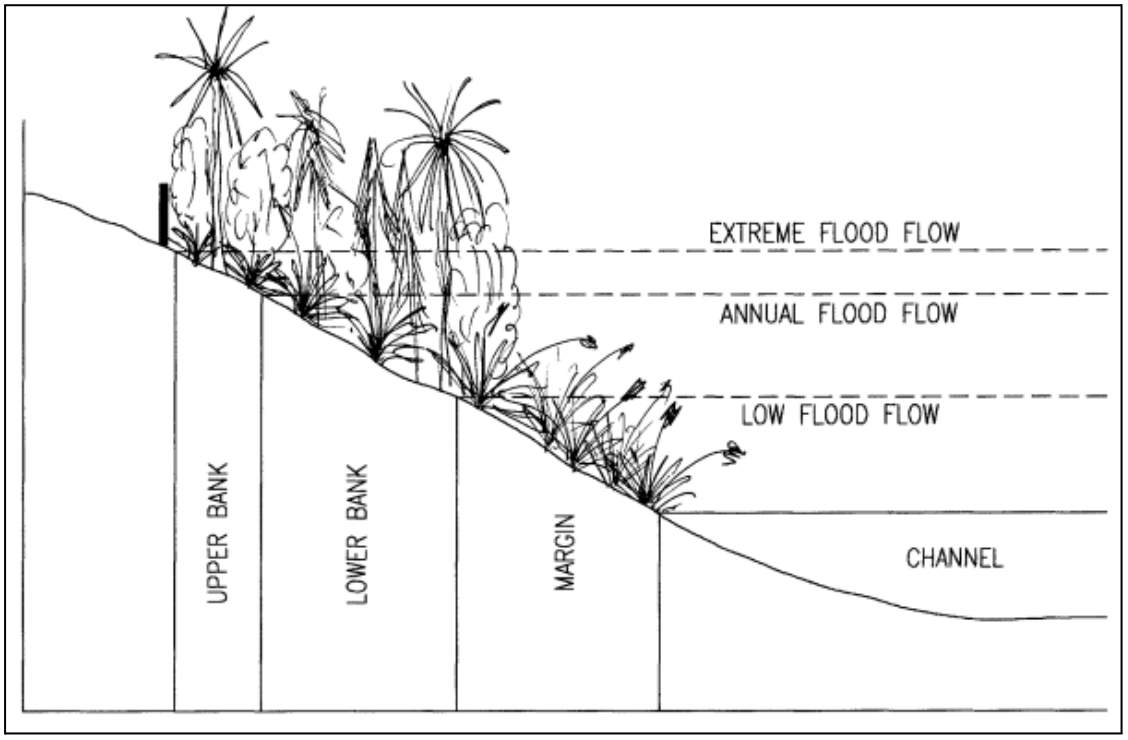


Figure 4. Diagram of riparian habitat showing marginal habitat (area which is often inundated and approx. 1 m wide), lower bank (occasionally inundated) and upper bank (sometimes inundated but rarely and normally only in floods) (Ecan, 2011).

Plant Selection

Detailed below are recommendations for each section of the site (Table 1). The plant list has been compiled taking into consideration the soil conditions, the location of the site, the objectives of the project and preferences and survival prospects of various floral species. The soils in the area are prone to both waterlogging and dry conditions and therefore require plants which can tolerate such conditions.

The Waimakariri Irrigation Limited organisation (WIL) has been working in the area with various landowners to support them in improving the health of Hunters Stream. The organisation has generously given time and resources undertaking a drone flyover of the area and donating 260 plants to the landowners. The plants are a mixture of toetoe (*Australis richardsonii*), harakeke (*Phormium tenax*) and tī kōuka (*Cordyline australis*) at RX90 grade.

Please note that due to the proximity of grazing land to the south of the stream, the use of toetoe (*Australis richardsonii*) has been limited to those plants already offered by WIL. This is because toetoe has the potential to make nitrates freely available, a nutrient which would degrade the quality of the watercourse (Franklin, 2014).

The total number of plants recommended is 3,355. However, this can exclude the amount offered by WIL to equal a total of 3,095.

Table 1. Suggested Species List based on an area of 500 m2 of marginal planting (250 m2 on either side of bank), 1,500 m2 of lower bank planting (750 m2 on either bank) plus 3, 700 m^2 of upper bank planting (2,500 m2 south of the stream and 1200 m2 on the north side).

Common Name	Latin Name	Spacing (m)	No. of plants	Comments	Ecosystem services
Margin – first 1 m strip of bank closest to the stream (250 m^2 on each bank)					
Pukio/Swamp sedge	*Carex virgata/secta*	1.5	204	80% of the site	Luxury uptake of nitrate. Erosion control, sediment trapping.
Sharp sedge	*Eleocharis acuta*	1	57	10% of the site	Erosion control, sediment trapping, filtration, grain.Cultural
Wiwi	*Juncus edgariae*	1	57	10% of the site	Erosion control, sediment trapping, filtration, grain.
		Total	**318**		
Lower Bank – Strip of 3 m above the marginal planting (750 m^2 on each bank)					
Sedge	*Carex maorica*	1.5	153	Randomly scattered throughout 20% site in wetter areas	Erosion control, Filtration, Fibre, Food, Shelter, Cultural
Harakeke	*Phormium tenax*	1.5	306	Scattered throughout 40% of site	Erosion control, filtration, fibre, mahinga kai, rōngoa, nectar.
Mikimiki	*Coprosma propinqua*	1.5	115	Scattered throughout 15% site	Erosion control, Shelter, Fruit (Bird), Fruit (Lizard)
Mānuka	*Leptospermum scoparium*	1.5	76	Scattered throughout 10% of site	Erosion control, Filtration, Timber, Fibre, Food, Shelter, and shade, Nectar (Bird), Nectar/Pollen (Lizard), Nectar (Insect), Fruit (Bird), Fruit (Lizard), mahinga kai, rōngoa
Tī kōuka, cabbage tree	*Cordyline australis*	1.5	115	Scattered throughout 15% site	Erosion control, filtration, fibre, mahinga kai, rōngoa, nectar.
Kahikatea/white pine	*Dacrycarpus dacrydioides*	2.5	10	Planted in clumps of 3/4 plants	Erosion control, Filtration, Timber, Food, Shelter, Shade, Fruit (Bird), mahinga kai, rōngoa, nectar
		Total	**775**		
Upper Bank – Areas above the lower bank (total of 3,700 m^2 for both banks)					
karamū	*Coprosma lucida*	1.5	377	Scattered throughout 20% of site	Erosion control, Shelter, Fruit (Bird), Fruit (Lizard)
Putaputaweta/ Marble leaf	*Carpodetus serratus*	1.5	377	Scattered throughout 20% of site	Erosion control, Filtration, Shelter, Shade, Nectar/Pollen (Lizard), Nectar (Insect), Fruit (Bird), Fruit (Lizard)
Tarata	*Pittosporum eugenioides*	1.5	377	Scattered throughout 20% of site	Erosion control, Shelter, Nectar (Insect, bird), fruit (bird)

Common Name	Latin Name	Spacing (m)	No. of plants	Comments	Ecosystem services
kaikōmako	*Pennantia corymbosa*	1.5	283	Scattered through 15% of site	Shown to reduce NOx gases arising from nitrogen addition to soil. Erosion control, Filtration, Timber, Fibre, Food, Shelter, Shade, Nectar (Bird), Nectar/Pollen (Lizard), Nectar (Insect), Fruit (Bird), Fruit (Lizard), Cultural
Pokaka	*Eleocarpus hookerianus*	1.5	94	Scattered throughout planted area	Erosion control, Filtration, Timber, Fibre, Food, Shelter, Shade, Nectar (Bird), Nectar/Pollen (Lizard), Nectar (Insect), Fruit (Bird), Cultural
Houhi	*Hoheria angustifolia*	1.5	377	Scattered through 20% of site	Erosion control, filtration, timber, shelter, shade, nectar (insects), cultural.
Kowhai	*Sophora microphyllum*	1.5	283	Scattered throughout 15% planted area	Erosion control, Filtration, Timber, Shelter, Shade, Fruit and nectar (Bird), Cultural
Totara	*Podocarpus totara*	1.5	94	Scattered throughout planted area	Erosion control, Timber, Food, Shelter, Shade, Fruit (Bird), Fruit (Lizard), Cultural
		Total	**2,262**		
		Total Plants	**3,355**		
		Total minus plants offered by WIL	**3,095**		

Restoration methodology

Site Preparation

Prior to planting and if weeds are present, it is recommended the site be cleared by mowing or other mechanical method. If acceptable, some form of weed suppressant would be beneficial. The usual form of chemical clearance would be at least one round of glyphosate, particularly targeting the area in which plants are to be planted (spot spraying). Two rounds would be ideal and applied by a suitably skilled and experienced person to ensure no spray drift and recognise any important native or non-native species. If not acceptable, additional manual maintenance may be required in the first 5 years.

If invasive, tall growing, woody weeds are present (such as gorse and broom), mechanical clearance can be undertaken, or goat grazing if the plants are young and the area is fenced with no other plantings within. Following manual removal, stumps could be painted with a systemic herbicide such as a high strength glyphosate.

Plant Introductions

- All plants will be sourced locally using specimens of local provenance (within Canterbury) where possible. It is recommended that the plants are small (1 year specimens and approx. 50 cm unless suggested otherwise by an appropriately qualified ecologist) to ensure maximum survival rates, allowing the plants to adapt to their new environment. For a closed canopy, it is recommended that plants are placed 1.5-2.5m apart (approximately 2500-4000 plants/ha).
- Where native plants naturally occur, these will be retained, identified and adequately protected during site preparation.
- Planting should occur in late autumn/winter (unless frosts are expected, and frost tender plants are used) to allow plants to grow roots which will enable them to survive in the dry summer period.
- Where possible, planting will take place when the weather is most suitable (avoiding hot or windy days).
- Plants should be soaked in water and left to drain immediately prior to planting.
- A hole twice the size of the plant container be dug with soil loosened at the bottom.
- Retain as much soil around the roots from the pot as possible when removing from container and gently untangle fibrous roots where necessary (not recommended for kanuka or

manuka). In general, no cutting or teasing of roots should occur as many native plants are sensitive to root disturbance.

- Place in hole and add soil, firming each layer and water thoroughly.
- Plants will benefit from having the collar buried up to 5cm below the adjacent soil surface creating a hollow which surrounding water can drain into.
- In areas where soil quality is degraded, ensure nutrient supply and water retention by adding a scoop of good quality compost. Fertiliser tablets can be used but are not recommended for dry sites as they will not be broken down under the conditions of the soil.

Protection of plants

In almost all areas of Canterbury some form of plant protection is required. Research has shown that plant guards that are flexible and can be sculpted around the base of the plant to form a complete seal are the best. Examples are those of the Combiguards® which comprise a flexible, this plastic that can be sealed with stones or mulch around the outside. However, these must be removed when the plant has outgrown them. To combat this, a cardboard tree guard can be used which does not need to be removed by hand and will naturally degrade. If this guard is used, a substantial weed mat is recommended to alleviate the trade-off for sealing the guard with the ground. If wind is allowed to enter the tree guard, soil and plant moisture will be impacted. Therefore, a good mulch or wool weed mat is recommended at the base of each planted specimen.

Due to the minimal native ground cover and rank grass invasion, if financially viable and in areas which will not be inundated by the stream high flows, it is recommended that mulch of at least 10 cm depth is spread across the upper bank planting area or around the base of each plant (making sure not to let the mulch touch the stem of the plant). The mulch will aid soil moisture retention and temperature fluctuation and also provide further buffer against weed encroachment whilst the plants get established. Further weed management will be required before the plants reach canopy closure and outcompete adventive weeds but this methodology will incur additional costs for the project.

Maintenance

The first 2-5 years are the most important whilst the plants establish a good root system and at this time, maintenance is important. Maintenance will include removing any weeds which are growing within tree guards and tall weeds outside of tree guards. Some trees may enjoy the shelter afforded by weeds but most restoration plantings begin with pioneer species which require full light.

Therefore, regular maintenance is required, especially in the growing seasons (spring and autumn for most weed species of drier habitats).

Maintenance is best undertaken manually through careful mowing and weed trimming. The tree guards afford some protection for the plants and act as indicators for where the desired plants are located. Spraying using herbicides can also be undertaken but must be done carefully. If systemic herbicides are used, be sure to only spray on calm days when spray drift would not be an issue. In many situations, the main weeds outcompeting native plants are exotic grasses such as cocksfoot (*Dactylis glomerata*). In this situation, a monocot targeted chemical such as Gallant may be appropriate but used with caution around native grasses and flax plants. Alternatively, light grazing for a short time to remove grass cuttings can be effective with careful management.

The need for maintenance should lessen as the canopy expands and closes between planted trees and shrubs. However, maintenance of the area will almost always be required to remove exotic and invasive species which threaten the survival of the native plants. In addition, there may be understory plants that are desired once the canopy has closed and created enough shade and weed exclusion.

Monitoring

It is advised that monitoring is undertaken for the first two years to identify plant survival and report any adjustments to the monitoring scheme where needed. In addition, further monitoring would be beneficial to assess the changes in both in-stream and terrestrial biodiversity as a result of the restoration. This would include floral surveys plus bird, lizard and aquatic species surveying.

References

Ecan, (2011). Riparian zones A guide to the protection of Canterbury's rivers, streams and wetlands. Ecan.

Franklin, H. M. (2010). *Understanding variation in water quality using a riverscape perspective.* (Masters dissertation, Canterbury University).

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McEwan, W.M. (1987). Ecological regions and districts of New Zealand. Department of Conservation, Wellington, New Zealand.

NZTCS (2022). New Zealand Threat Classification System. Accessed November 2022 at: https://nztcs.org.nz/

Application for funding – CWMS Action Plan Budget 2023/24 *(for the Waimakariri Water Zone)*

The purpose of the CWMS Action Plan Budget is:

- To allow Zone Committees to **focus on implementing their action plan and leverage other funding opportunities to achieve the CWMS priorities.**

The funding is administered, distributed, and monitored by Environment Canterbury.

Applicant details

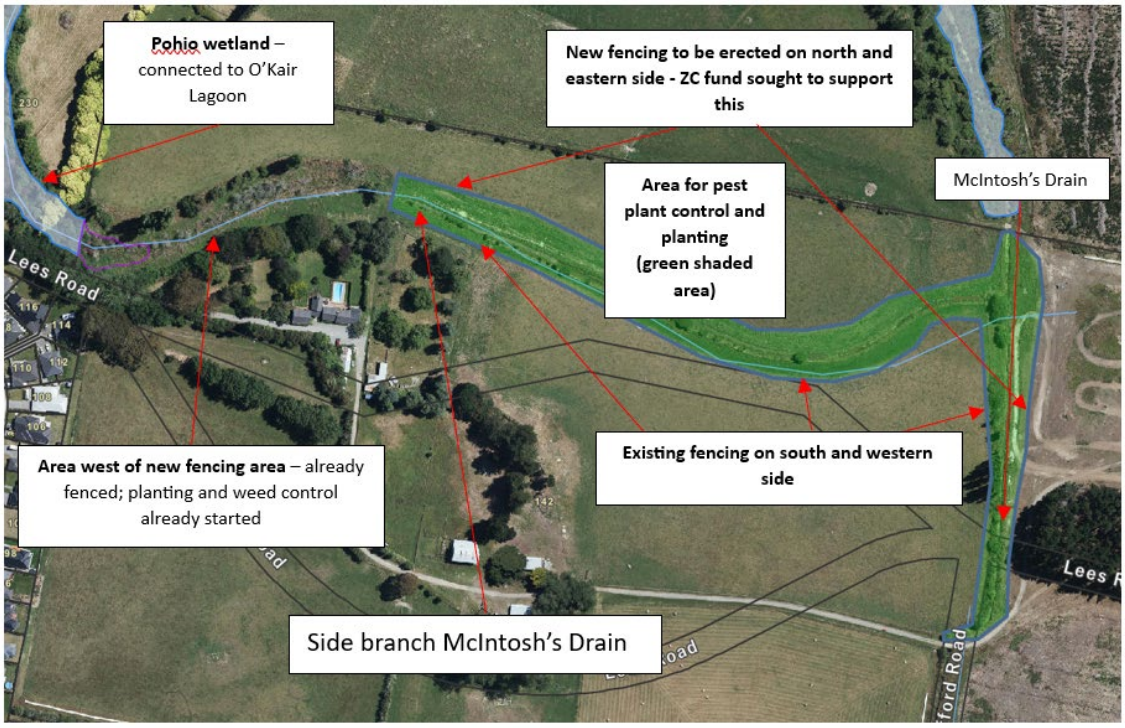
Organisation (if applicable):	**John Wakeman & Mel Stewart**
Contact name:	**John Wakeman**
Contact email:	
Contact phone number:	
Postal address:	
Other address:	
Are you GST registered? (if yes, please provide number)	**Yes**
NZBN (NZ Business Number, if applicable)	

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	*O'Kair Lagoon*
CWMS zone where the activity will occur:	*Waimakariri*
Provide a brief project description (in two sentences):	
Complete fencing off & planting the mainstem and side branch of the McIntosh's Drain waterway – that make up O'Kair Lagoon.	

Woody weed control of willows & other weeds in new proposed fencing & planting area, as well as the previously fenced and planted area of side branch of McIntosh's drain (see Map below).



Map: O'Kair Lagoon - proposed project

Explain what the grant will be used for - what the money is mainly being spent on/what activities are involved in the project (in two sentences):

Complete fencing-off a 1.4 ha of riparian buffer area around tributary to and an area of McIntosh's Drain.

Undertake pest plant control in the fenced off areas of O'Kair Lagoon.

See Appendix for:

- Diagram of O'Kair Lagoon fencing and planting area
- Black Map showing the area as it was in 1860s

Describe the problem or opportunity the project will address:

At present the area is not fully stock proof, and pest plant incursion is occurring, especially in the area of McIntosh's drain. Excluding stock by completing fencing out of the area with wide setbacks will provide an area for riparian protection and for enhancement by planting out with native plants.

This project & other neighbouring projects will link massive areas of neighbouring wetlands upstream on side branch and main stem of McIntosh's drain and wider environs (See 'Map showing location of project area and environs for this application' in Appendix).

Provide habitat for bittern which has be spotted in neighbouring wetland.

Provide spawning habitat for endangered whitebait & critical upstream of tidal toe adult whitebait habitat. This upstream habitat is where adult whitebait live, then when they spawn they go down to tidal toe. There are lots of eels present also.

Enhancement of the area will enhance habitat for many native birds, (bellbirds, ducks etc).

Describe the outcomes or impacts of this project:
Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.

This will further improve the whole health of this important catchment especially for whitebait and bittern, as well as providing new habitat for many native birds. It will also enhance the eel habitat.

List the key outputs of the project:
An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as deliverables in a funding agreement.

Outputs include:

- Install 660m of fencing
- Woody weed control of 1.4 ha of fenced off area
- Commence planting out of 1.4 ha riparian area (some planting has already commenced)
- Landowner family to plant 1100 plants (Mel Stewart has grown 1,100 plants from farm nursery for this project) (Pittoporum, Griselina, Cordyline australis (Cabbage Tree) Phormium tenax (Flax), Sophora microphylla (Kowhai), Coprsoma etc

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:
Waimakariri – Waimakariri Water Zone Committee Action Plan 2021-2024 | Environment Canterbury (ecan.govt.nz)

Alternatively, contact the Zone Facilitator (Murray Griffin) who can email you a copy.

*The project will help increase indigenous biodiversity in the zone through eliminating plant pest species and protect important waterways that have high value for inanga and eel.

*The project will also increase mahinga kai enhancement on the lower coastal plains by impoving habitat for mahinga kai species in the area (especially inanga and tuna habitat)

The project will also help protect and restore an area that was previously a backwater lagoon that was present when records were made back in the 1960s.

Improve health of whole waterway "Ki Uta Tai"

Tell us when you can start the project and when you intend to have the project completed (timeline):

Once the funding is approved, the fencing can be installed, then planting can take place during the winter and following years.
Tell us why you think your project is feasible/realistic:
Already fenced and planted the adjoining upstream waterway wetland area.
Tell us about the project management, including leadership and financial oversight:
John Wakeman is the project manager and Mel Stewart is the farm nursery manger
List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:
No
How will you engage the community on the project:
No

Do you know of any cultural values associated with this site? **If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?**	**NO**

Please provide an accurate location with grid references and a map (if relevant to your project – please *contact the Zone Facilitator who can assist with this if required*)**:**
NZTM Grid Ref X (Easting): 1573821 **NZTM Grid Ref Y (Northing): 5199635**
Who owns the land? *Attach evidence of permission from the landowner, or their representative (if you are undertaking a project on land that you do not own)*
John Wakeman

Funding details

Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. For applications for less than $15,000 a simple budget is fine. We would like more detail if your application is for a larger amount e.g. more than $15,000 or more than $50,000. We have a budget template in the guidance document.

How much funding are you requesting?	**$15,000**

If you are successful with this application, what components of your project will you spend the money on? **Please include below or attach your budget to your application.*	
Partial payment for fencing of 660m – see quote attached to application. Full quote North Canterbury Fencing $21 598.98 (attached to application). Seeking $15,000 to help in paying for fencing equipment and labour. Extra cost of $6,598.98 born by me the landowner.	
Have you applied to, or received funding from other organisations for this project? **If YES, please provide details below or note if it is included in your attached budget.** *The CWMS Action Plan Budget is seed funding or leverage for partnering and collaboration, so it is positive if you have received or are applying for other funding.*	**NO**
Is the project receiving any other monetary or "in-kind" contributions (volunteer hours, resources, equipment, facilities) from your organisation or others? **If YES, please provide details below or note if it is included in your attached budget:**	**YES**
Mel Stewart has started a farm nursery and is supplying some of the plants John Wakeman is carrying out woody weed and willow control work, planting prep, managing project. Wakeman Family is helping with planting the area	

Working with Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project? **If yes, what was the funding/support for, and when did you receive it?**	**YES**
• ECan gave us some native plants in 2024 which have been planted in the previously fenced and planted section of this project. • We received $7 300 of IS funding from ECan for project that ran from 2019 – 22) to help establish native vegetation at Waka Wetland. Project was completed successfully. (see 'Map showing location of project area and environs for this	

application' in Appendix for location of this project relative to this O'Kair Lagoon project)	
Are you intending on applying to another Environment Canterbury fund/budget this financial year for this, or any other project? **If yes, what fund are you applying to?**	**NO**
Do you give permission for your application for the CWMS Action Plan Budget to be shared with the ECan staff who coordinate the Waitaha Wai Action to Impact Fund (we prefer to share information between the two to get best use of both)	**YES**

Additional information you would like to provide?

Do you have supporting information you would like to provide (optional)?

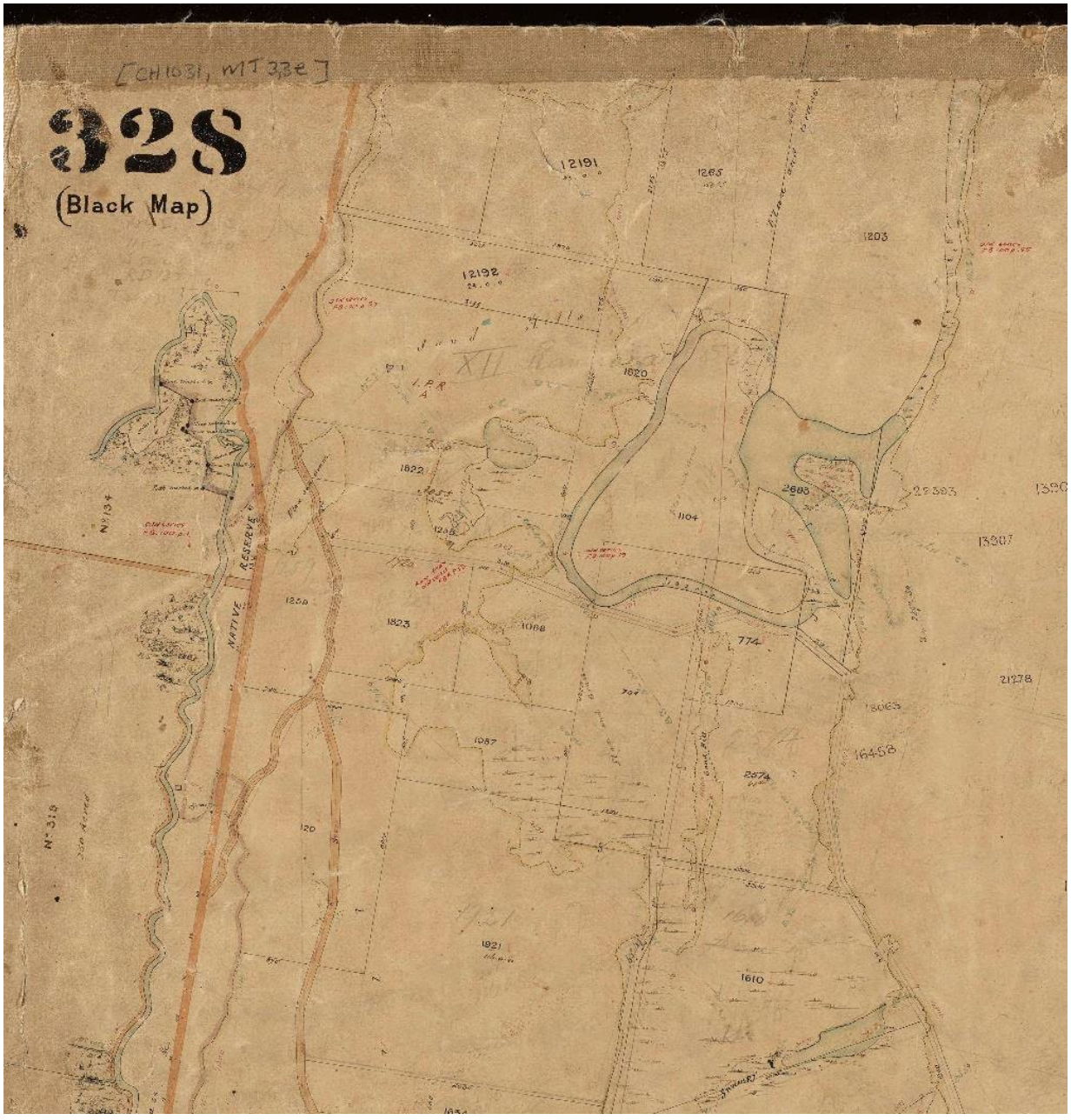
**Please attach any supporting information with your application*.

Once completed, please send this application form to Zone Facilitator, Murray Griffin, murray.griffin@ecan.govt.nz

The Zone Facilitator will keep in touch with you about timeframes, whether the Committee would like you to give them a presentation, and whether there are any questions.

Appendix

Black Map showing old lagoon area



Digitised Black Map showing old lagoon area

Diagram showing proposed fencing and planting area for O'Kair Lagoon

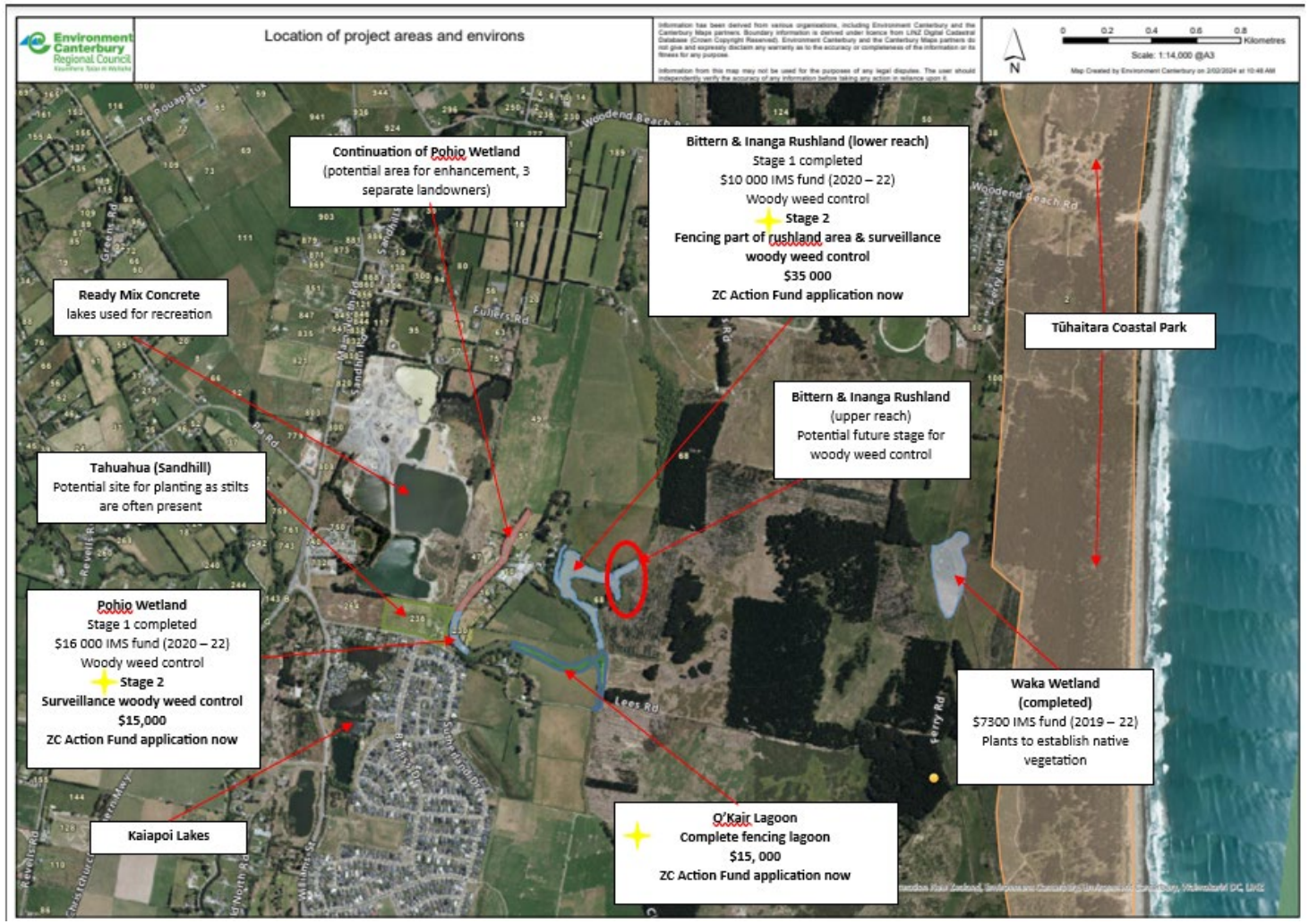
KAIAPOI BIODIVERSITY RESTORATION PROJECT
SITE NATME : O'Kair Lagoon
OWNER: John & Mel Stewart
Whitebait Tributary On or near the tidal toe (White bait spawning Area)

O'kair Lagoon Fencing Plan

O'Kair Lagoon Proposed Planting Area

Prepared by:
Nicky Auld
Dip Hort
Dip Parks & Gardens Tech

Map showing location of project area and environs for this application



FENCING QUOTE

OKAIR LAGOON FENCING

Date
23 Jul 2023

Quote Number
QU-1061

Reference
1061

GST Number
078-943-483

North Canterbury Fencing
142 Lees Road Kaiapoi
RD1
Christchurch New Zealand
GST No: 078-943-483

Okair lagoon fencing project

Description	Quantity	Unit Price	Amount NZD
sheep netting one hot wire per meter	662.00	21.06	13,941.72
Stay/strainer assembly- Angle stay	20.00	155.00	3,100.00
Gateways	3.00	330.00	990.00
Line Clearing + Machine	1.00	600.00	600.00
Fence line setup and markout	6.00	25.00	150.00
		Subtotal	18,781.72
		TOTAL GST 15%	2,817.26
		TOTAL NZD	**21,598.98**

Application for funding – CWMS Action Plan Budget 2023/24 *(for the Waimakariri Water Zone)*

The purpose of the CWMS Action Plan Budget is:

- To allow Zone Committees to **focus on implementing their action plan and leverage other funding opportunities to achieve the CWMS priorities.**

The funding is administered, distributed, and monitored by Environment Canterbury.

Applicant details

Organisation (if applicable):	
Contact name:	**Nicola Auld**
Contact email:	
Contact phone number:	
Postal address:	
Other address:	
Are you GST registered? (if yes, please provide number)	**No**
NZBN (NZ Business Number, if applicable)	

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	*Pohio Wetland Swamp (Part of the wider North Kaiapoi Biodiversity Restoration Project)*
CWMS zone where the activity will occur:	*Waimakariri Zone - Headwaters of the coastal MacIntosh's Drain*
Provide a brief project description (in two sentences):	

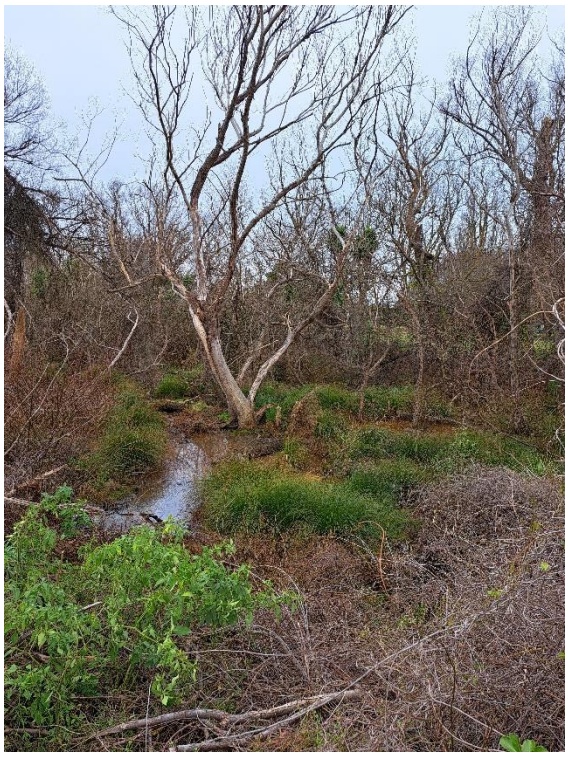
Undertake Stage 2 Ecological Restoration with follow-up surveillance pest plant control in the 1ha Pohio Wetland – as a continuation from earlier Stage 1 initial pest plant control work undertaken between 2020 - 2022 (with support from ECan's IS fund). Overall aim is to enhance the rich existing biodiversity of an extensive natural swamp.

Massive willow trees laden in ivy were killed in Stage 1, and now the regrowth of willow saplings and other weeds is intense and needs ongoing control (over several years) to ensure the protection of exiting & planted biodiversity.

Explain what the grant will be used for - what the money is mainly being spent on/what activities are involved in the project (in two sentences):

Follow-up willow and woody weed control of now mostly smaller-diameter regrowth that is occurring following the control of the larger canopy plants a few years ago – now that more light is penetrating to the undergrowth, regrowth of pest plants is accelerating.

Willow, elm and sycamore seedlings, ivy, blackberry and other woody weeds need to be controlled now, in order to continue the progress made to date – where native vegetation regrowth is noticeable as has also responded to the increase in light.



Photos of dead larger pest plants and diverse native understory regrowth

Describe the problem or opportunity the project will address:

The multi-year IS (Immediate Steps) grant provided by ECan has come to an end, where the result of the extensive willow and other woody weed control work is impressive, resulting in the natural regrowth of mainly carex secta, which has seeded and tripled in size due to more light entering the wetland as the massive willow trees die and fall over.

As part of Stage 1, my landowner contribution was felling numerous large dangerous Willow's, Pine, Sycamore Trees. This work was carried out by Tree Tech, which they turned into bark Mulch, which has been spread over some of the new planted area. The big willow trees were cut and left where they fell. (not suitable for mulch) Ben Deans then spent months cutting up the huge number of trunks, branch waste. Then he cleared them from the wetland site to enable the area to be fenced. (My Landowner contribution)

Extra work carried since completion of the grant:

1. The wetland now has been fenced & is stock proofed. The old road fence along Barkers Road has caved in. Unsure whether to replace this fence as there is no livestock, but people have been dumping rubbish to the wetland here.
2. Removed a lot of older Willow, elms, sycamore etc as well as tonnes of sprouting willow & other woody weeds & ivy etc. Arnold Pohio has spent a lot of time doing this.
3. Arnold Pohio has also planted a huge number of plants all over the wetland.
4. Arnold & I and family members have also planted a huge number of plants along the banks, plastic plant protector hats have been added over smaller plants. We spend a huge amount of time weed releasing plants & watering them. Many of these plants

have been relocated from the actual wetland seedling & from Arnold's properties flax collection & seedlings etc from his property.

5. ECan donated a large number of plants, and most of those have now been planted & watered over the summer.
6. Arnold's son Max has also been weedeating etc around young plants as regrowth of woody weeds is a major issue.
   There are massive areas of wetland banks still to plant and all these new planting areas requires a major ongoing weed control effort. (Clearing woody weeds, & then keeping on top of woody weed growth sprouting.)

Photo of new fence erected in 2021

To ensure continued progress that has been made to date with the wetland reverting back to largely indigenous vegetation, ongoing surveillance and eradication of pest plants is essential at this time. Stage 1 restoration work achieved control of the larger trees, much of the ivy and other smaller pest plants, but the funding was insufficient to control the smaller diameter pest plants. The sprouting of willow, elm and sycamore saplings is intense, along with ivy, and many other weeds which will overtake the native plants quickly if not controlled soon.

It's exciting to see the change in the wetland with the massive willows and elm trees gone. In floods the tide pushes up into this wetland making it an ideal whitebait spawning habitat (on the tidal toe with 5% salt). The area just above the tidal toe habitat is essential for the adult whitebait habitat as this is where they live for a few years until they head down stream (to the tidal tow) to breed.

Pohio Wetland is located within a wider back-dune wetland complex that stretches from the Ashley-Rakahuri to the Waimakariri and include Tutaepatu Lagoon – Waikuku Wetlands (a wetland of high ecological significance). Restoration here will also assist as it is in a known area of habitat values for Canterbury mudfish.

My idea of a North Kaiapoi Biodiversity Restoration Project Concept area (see Map 1 in Appendix) already has bellbirds, the odd tui and kereru, bitten, black stilts, pied stilts, spoonbills, ducks, egret etc. There is a lot of open water area within in a short flying distance of North End Sand, Kaiapoi Lakes, Waka Wetland, O'Kair Lagoon, Bitten and Inanga Rushland and the Woodend Beach and Tuhaitara Coastal Park areas.

Describe the outcomes or impacts of this project:
Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.

The 1.0 ha Pohio Wetland is now starting to revert back to indigenous vegetation.

We expect to see a reduced extent and density of pest plants within the wetland, and increased condition, extent and density of native vegetation.

This is a highly visible site on the corner of Lees and Barkers Road, and the change in this wetland is noticeable, and will hopefully inspire others to take on environmental action. For example, there is an additional 2.0 ha of wetland immediately adjacent and upstream of this location, running through 4 neighbouring properties. Again, see Map 1 in appendix.

Two upstream neighbours are interested in continuing the wetland restoration along Barkers Road.

A long-term resident of the area, Arnold Pohio, has been helping me restore the wetland.

A lot of time and money has been spent on this wetland to ensure its success by the landowner. These items are listed below.

- Chopping down, cutting up & removing massive Willow, Elm, Sycamore, Harthorne etc trees to enable new fencing. (These trees would have fallen on the fence).
- Fencing
- Removing willow saplings etc, from wet areas of wetland, to allow native carex secta & other many other native seedlings to thrive.
- Preparing planting sites (Clearing dead & living willows & woody weeds)
- Planting of 2000 plants approx (800 from ECan) some with protective plastic hats.
- Plant releasing & woody weed control

As the willows and woody weeds are removed and natural reversion of more native species occurs, the biodiversity values will also increase further. With climate change this wetland will become wetter as seen in a recent flood event. Happy to put up a sign if provided with one.

If this site forms part of a wider whole “North Kaiapoi Biodiversity Restoration Project Concept” area, I think in the future the whole community could get behind the concept which could grow to nearby landowners, and huge environmental action could take place in an area already booming in biodiversity.

List the key outputs of the project:
An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as deliverables in a funding agreement.

For professional pest management contractors to undertake surveillance of the 1 ha Pohio Wetland site, to identify and control pest plants present.

These include willow, elms, scyamore seedings, ivy, blackberry, etc.

A quote for this work has been received from Godfreys Pest Management Ltd, that has estimated it will require 4 people to do the slow work of cut and paste for a week.

Alternatively, also have a quote from Arnold Pohio’s son Max who is also a restoration contractor who works on a lot of Maori Land. We have discovered a lot of work is required for woody weed control around creating and clearing new planting areas and maintaining new plantings, as the willow and woody weed growth is intense.

If there is any money left over, it can be used to purchase native trees which will improve biodiversity.

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:
Waimakariri – Waimakariri Water Zone Committee Action Plan 2021-2024 | Environment Canterbury (ecan.govt.nz)

Alternatively, contact the Zone Facilitator (Murray Griffin) who can email you a copy.

*The project will help increase indigenous biodiversity in the zone through eliminating plant pest species and allow diverse native understory to flourish again.

*The project will also increase mahinga kai enhancement on the lower coastal plains by improving habitat for mahinga kai species in the area (especially inanga and tuna habitat)

The project will also help: -

- Protect landscape native species values in upper part of the catchment
- Weed control in Upper & Middle section of catchment
- Improve habitat of whole catchment (Whole North Kaiapoi Biodiversity Restoration Project Concept)
- New native habitat works well with neighbouring, 6 hectares of freshwater lakes of North End Sands Shingle Pit (Birds fly & live between the two different habitats. The Shingle Pit lakes providing a great feeding ground for birds (tuna, fish). Pohio Wetland & upstream habitat providing good nesting habitat etc.
- Improve Habitat health of lowland spring fed tributaries
- Improve health of whole waterway "Ki Uta Tai"

Tell us when you can start the project and when you intend to have the project completed (timeline):

This funding application is to continue work already started in the Stage 1 phase, so it is an established project and can start once further funding is in place.

Important
Given the nature of this stage of the project – requiring surveillance and plant pest control to be carried out in the middle of the wetland, it is best undertaken when water levels are at their lowest. Contractors prefer to undertake this work in the mid-late summer period (now – till late April 2024) and avoid winter and spring when water levels are significantly higher.

If the Zone Committee is able to support this funding application, a decision made soon, may allow the project to commence between now and early autumn. However, if approval is given later than this, the work would be best progressed later in summer 2024/25.

My preference is to carry out the work sooner if at all possible.

Tell us why you think your project is feasible/realistic:

We have implemented Stage 1 effectively and are demonstrating an on-going commitment to restoration work. We are very keen to undertake Stage 2 of the project, in order to ensure pest plants don't re-invade the wetland and undo the progress made to date.

Tell us about the project management, including leadership and financial oversight:

Project Manager: Nicky Auld (Landscape Designer) Dip Hort, Dip Parks & Gardens Tech, Worked for Boffa Miskell, and worked for 30 years, has designed and managed large scale restoration projects in Auck. I have also been supporting CVNZ Papakura Stream Restoration Project. I have had lots of support over the years with TFS farm plantings in Auckland & now our neighbours are also using TFS (school student planting days) planting up their wetlands and erosion prone land. I have helped the wider Wakeman family into retiring a paddock that became increasingly waterlogged after the Christchurch earthquakes, we called this "Waka Wetland" Or Wakeman Wetland & Ecan supplied a large number of plants.

List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:

Part of the extended family effort to undertake restoration work in this area – x3 Kaiapoi projects are all undertaken by extended family unit.

No wider community input at this stage, apart from ECAN as still planting their donated wetland and wetland fringe plants.

Have applied for Trees that Count but declined as not enough trees planted to enable funding.

But in future if funding allows, could work with CVNZ Christchurch office. Have mention this project and the wider North Kaiapoi Biodiversity Restoration Project to them before and have a great relationship with their Auckland office.

CVNZ have been working with landowners and stakeholders with the Papakura Stream Restoration Project with amazing results. They are working with the Papakura, Manurewa and Franklin Local Board and are supported by Trees for Survival (Nationwide School planting program) as well as connecting with Forest and Bird, South East Wildlink for pest control.

DoC has visited and carried out survey work at the neighbouring Bitten & Ingua Rushland site and Waka Wetland, and found a large number of eels, and provided traps to protect Black Stilt & other birds at Waka Wetland (a John Wakeman project).

How will you engage the community on the project:

Will discuss with neighbours to encourage them to think about undertaking similar projects in their part of the wider wetland area (see Map 1 in Appendix).

Health & Safety are important, and this is why any volunteer work would need be through the likes of CVNZ, TFS

Do you know of any cultural values associated with this site? **If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?**	**YES**

The site is within a Ngai Tahu silent file area and a possible wahi tapu site. No direct contact has been made at this stage.

Please provide an accurate location with grid references and a map (if relevant to your project – please *contact the Zone Facilitator who can assist with this if required*)**:**
NZTM Grid Ref X (Easting): 1573400.00 **NZTM Grid Ref Y (Northing):** 5199760.00   
Who owns the land? *Attach evidence of permission from the landowner, or their representative (if you are undertaking a project on land that you do not own)*
Nicola Auld

Funding details

Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. For applications for less than $15,000 a simple budget is fine. We would like more detail if your application is for a larger amount e.g. more than $15,000 or more than $50,000. We have a budget template in the guidance document.

How much funding are you requesting?	15,000.00
If you are successful with this application, what components of your project will you spend the money on?	

**Please include below or attach your budget to your application.*
All the money will be spent on pest plant control. ***Pest plant surveillance and control work:*** **Godfrey Pest Management quote** Four people to do the slow work of cut and paste for a week (45 hours x 4 people = 180 hours @ $65 per hour) = $11,700.00 Or Arnold's son Max to cut & paste, clearing of wetland, Pre planting & post planting woody weed control $15,000.00 If any funds left over will be spend on purchasing native trees. It would be great if further funds were allocated for following years to ensure the weed growth is controlled.

Have you applied to, or received funding from other organisations for this project? **If YES, please provide details below or note if it is included in your attached budget.** *The CWMS Action Plan Budget is seed funding or leverage for partnering and collaboration, so it is positive if you have received or are applying for other funding.*	**NO**
Seed funding for Stage 1 was from ECan's IS Fund. Anna Veltman and James Schaap from ECan has been out and are familiar with the whole North Kaiapoi Restoration Project idea and have recommended I apply to this fund.	
Is the project receiving any other monetary or "in-kind" contributions (volunteer hours, resources, equipment, facilities) from your organisation or others? **If YES, please provide details below or note if it is included in your attached budget:**	**YES / NO**
Landowner, family, and tenant, local resident Arnold Pohio have been spending many hours on this project. We will be continuing to grow, buy plants, plant and carry out woody weed, weed releasing, watering new plantings.	

Working with Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project? **If yes, what was the funding/support for, and when did you receive it?**	**YES**
Seed funding for Stage 1 was from ECan's IS Fund. This was for willow and woody weed control over three years (2020 – 2022) for this wetland. The funding ECan provided totalled $16,000, with our landowner contribution matching this - through erecting new fencing and providing in-kind labour for complementary pest plant control and some planting. This application was prepared by Zip Ploeg from ECan.	
Are you intending on applying to another Environment Canterbury fund/budget this financial year for this, or any other project? **If yes, what fund are you applying to?**	**NO**
Anna Veltman is on the look-out for other funding options for the "North Kaiapoi Restoration Project Concept".	
Do you give permission for your application for the CWMS Action Plan Budget to be shared with the ECan staff who coordinate the Waitaha Wai Action to Impact Fund (we prefer to share information between the two to get best use of both)	**YES**

Additional information you would like to provide?

Do you have supporting information you would like to provide (optional)?

Yes. There is a Wetland Action Plan for the wetland that was developed by ECan to support the restoration activities. This is attached as additional information.

I also have lots of photos of the site progress which I can send via a text if you have a mobile number.

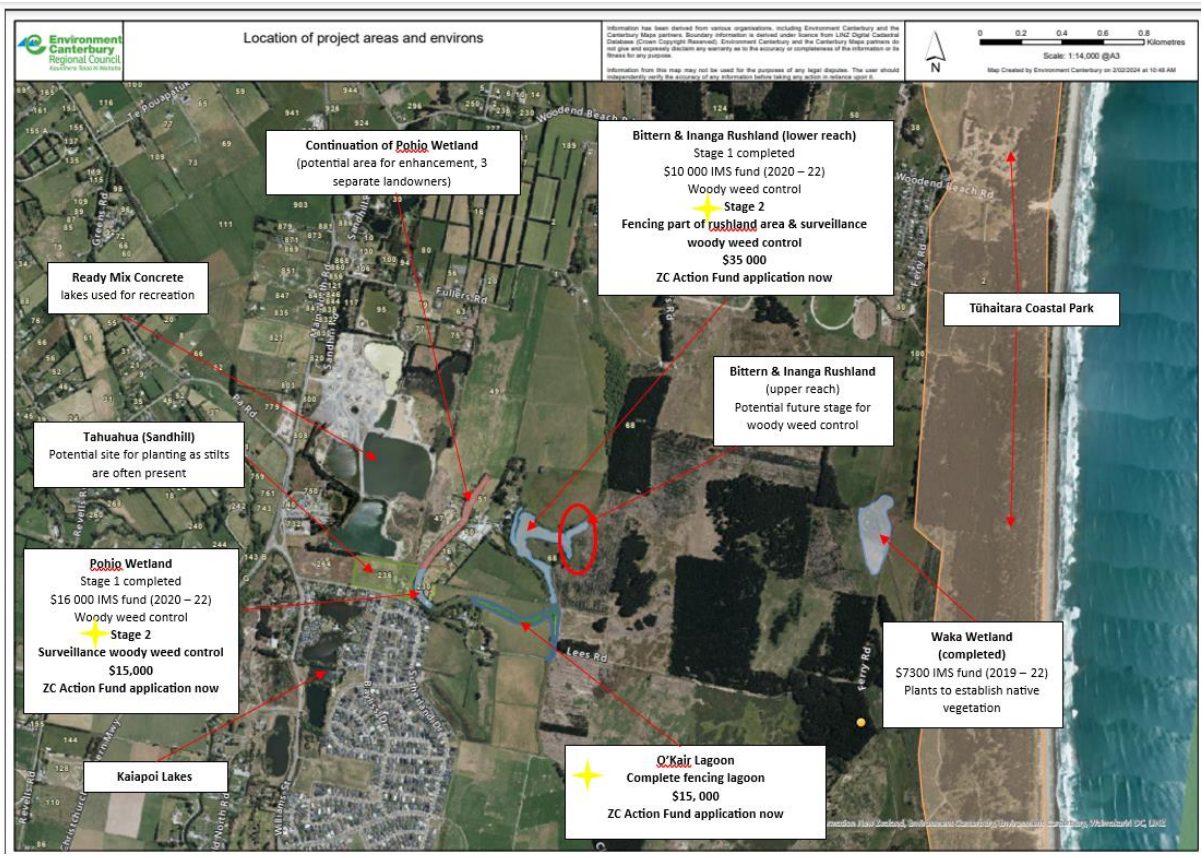
Please attach any supporting information with your application*.**

Once completed, please send this application form to Zone Facilitator, Murray Griffin, murray.griffin@ecan.govt.nz

The Zone Facilitator will keep in touch with you about timeframes, whether the Committee would like you to give them a presentation, and whether there are any questions.

Appendix

Map showing location of project area and environs for this application.



Photos from Stage 1 post-control

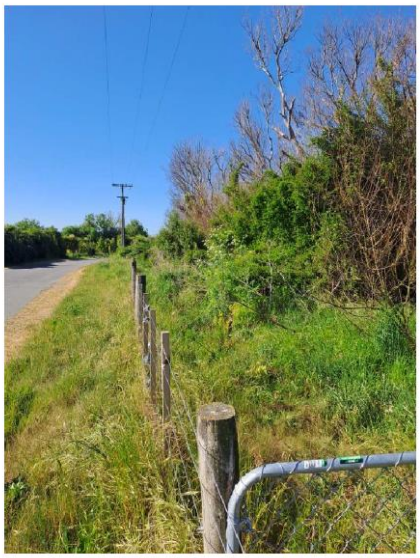


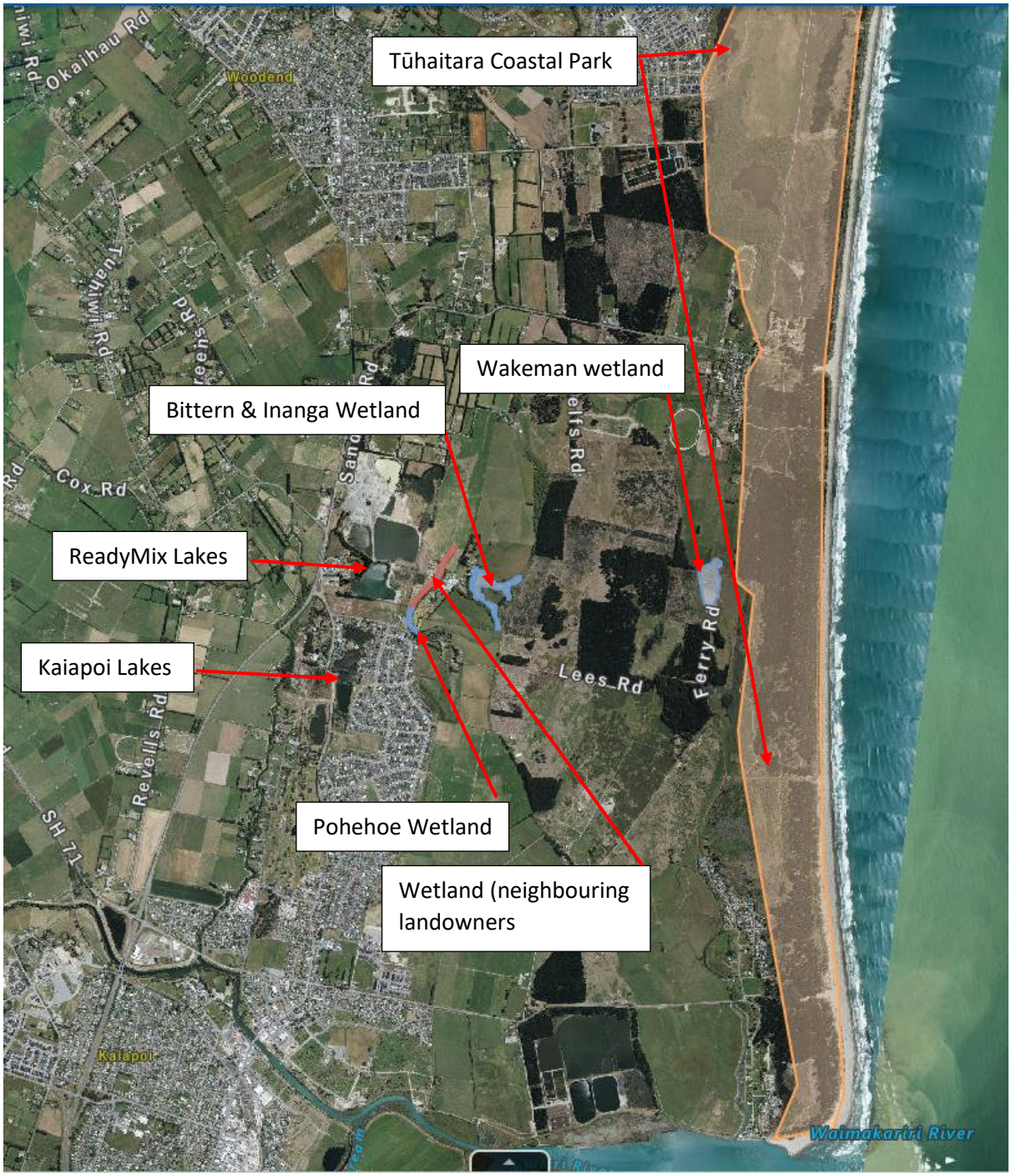
Figure 2: View of Site 1 looking north along Barkers Road.

Figure 3: View of Site 1 interior.

Figure 4: View of Site 1 from Barkers Road looking south towards Lees Road.

Figure 5: View of Site 1 from the corner of Barkers Road and Lees Road.

Figure 6: View of Site 1 from the corner of Barkers Road and Lees Road.


Tūhaitara Coastal Park
Wakeman wetland
Bittern & Inanga Wetland
ReadyMix Lakes
Kaiapoi Lakes
Pohehoe Wetland
Wetland (neighbouring landowners
Okaihau Rd
Woodend
Cox Rd
Lees Rd
Ferry Rd
Revells Rd
SH 1
Kaiapoi
Waimakariri River

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	WAT-03 /TRIM 221118201029
REPORT TO:	Utilities & Roading Committee
DATE OF MEETING:	28 May 2024
AUTHOR(S):	Hayley Proffit – Water Safety and Compliance Specialist Caroline Fahey – Water and Waste Asset Manager Kalley Simpson – 3 Waters Manager
SUBJECT:	Decision for Unused Water Take Consents
ENDORSED BY: **(for Reports to Council, Committees or Boards)**	Department Manager / Chief Executive

1. SUMMARY

1.1 The purpose of this report is to seek approval from the Utilities & Roading Committee to surrender four existing unused water take resource consents that are held by Council, being CRC971820, CRC990931.1, CRC990502.1 and CRC167359.

1.2 Two of the water takes consents are associated with drinking water supply and the other two are associated with irrigation and construction/irrigation activities. These consents are considered redundant and have no planned use for the foreseeable future.

1.3 Due to a change in the Resource Management (Measuring and Reporting of Water Takes) Amendment Regulations 2020 (Regulations) which requires all water takes which produce a flow greater than 20 l/s to be metered with daily reporting, these consents are now considered non-compliant with the Regulations.

1.4 Environment Canterbury (ECan) has in the past accepted Council not metering unused water takes, despite the legislative requirement that all takes need to be metered. However due to the change in the Regulations, it is now a legal requirement as of 3rd September 2022.

1.5 A decision is required as to whether to retain or surrender these unused water takes:

a. To retain them would require metering and monitoring equipment to be installed at the water takes.

b. To surrender would forfeit the ability to utilise these consents in the future.

c. To do nothing (i.e. retain and not meter) would put Council at risk of compliance and enforcement attention from ECan.

1.6 There is substantial cost involved with metering these water takes and as there is no planned use for these consents in the foreseeable future, and considering the challenging process to successfully transfer an existing consent allocation to a new consent

application, which has to be for the same activity and located in the same groundwater allocation zone, Staff recommends that these unused water takes be surrendered rather than retained. Some of the sites are currently still connected to the power supply which will need to be decommissioned after the consents have been surrendered.

1.7 A review and update to the Canterbury Land and Water Regional Plan (LWRP) has been signalled for 2027, however staff do not believe there is any intention to remove or alter existing rules that control water take transfers as part of this plan change. It is expected that the changes will address issues relating to incidental interception of groundwater in stormwater ponds which currently requires a consent for the take and use of groundwater, which also gets captured by the water metering regulations.

Attachments:

i. Implications of Court of Appeal Decision in AWA vs CRC and the next steps for Consents (19 August 2022) - TRIM 221114197088
ii. Aqualinc: Advice memo transfer of water take resource consents - TRIM 221114197096

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. TRIM 221118201029.

(b) **Approves** the recommendation of this report to surrender four existing unused water take consents currently held by Council, being CRC971820 (drinking water take at 93 Campions Road, Summerhill), CRC990931.1 (drinking water take at Coopers Creek, Oxford), CRC990502.1 (irrigation take at Number 7 Drain, Flaxton Road) and CRC167359 (construction and irrigation take at 120 Te Kohanga Drive, Pegasus).

(c) **Notes** that two of the water takes consents are associated with drinking water supply and the other two are associated with irrigation and construction/irrigation activities. These consents are considered redundant and have no planned use for the foreseeable future.

(d) **Notes** that due to a change in the Resource Management (Measuring and Reporting of Water Takes) Amendment Regulations 2020 (Regulations), these consents are considered non-compliant with the Regulations as they are unmetered even though Environment Canterbury (ECan) has in the past accepted Council not metering unused water takes.

(e) **Notes** that a decision is required as to whether to retain or surrender these unused water takes to avoid putting Council at risk of compliance and enforcement attention from ECan.

(f) **Notes** that the recommendation to surrender is based on consideration of the substantial cost involved with metering and the challenging process to successfully transfer an existing consent allocation to a new consent application in the unlikely scenario this would be required in the future. Power supplies that are connected to the sites will be decommissioned once the consents have been surrendered.

(g) **Notes** that staff do not believe there is any intention to remove or alter existing rules that control water take transfers as part of the Canterbury Land and Water Regional Plan change that has been signalled for 2027.

(h) **Circulates** this report to the Community Boards for information.

3. BACKGROUND

3.1 Council holds a number of water take resource consents for operational activities. The majority of these water takes are metered and monitored in accordance with their consent conditions. With a smaller subset of these water take consents are for water takes which have had no recent or current use and do not fully comply with their respective consent conditions.

3.2 With the water takes have not been used, Environment Canterbury (ECan) has in the past accepted this course of action of not metering the takes, despite the legislative requirement that all takes need to be metered.

3.3 However, with the enactment of the amended sections in the Resource Management (Measuring and Reporting of Water Takes) Amendment Regulations 2020 (Regulations) now requires a different approach. For water takes which produce a flow ≥ 20 litres/second, the take must now be metered with daily reporting. This was a legal requirement from 3rd September 2022.

3.4 The following water take consents currently do not comply with their consent conditions nor the Regulations, are not currently used and have no planned use for the foreseeable future.

3.5 CRC971820: 93 Campions Road, Summerhill.

This consent was last used to supply drinking water in 2011 but was no longer required once Summerhill was be supplied by the West Eyreton water supply bores and treatment plant. There is no longer any infrastructure near the intake, and no feasible scenario where the water take would be used again. The consent expires in 2032 and it is unlikely that Council, or any future operator of the water supply, will seek to renew the consent at that stage.

3.6 CRC990931.1: Coopers Creek, Mountain Road, Oxford

This consent was last used to supply drinking water in June 2018. Approval was received from Council in 2021 to abandon this drinking water supply water take. Abandonment was completed in October 2022, with there now being no physical way to deliver water from this take to the Oxford Rural No.2 water supply, therefore no value in this as a potential future water source. The consent expires in 2036 and it is unlikely that Council, or any future operator of the water supply, will seek to renew the consent at that stage.

3.7 CRC990502.1: Number 7 Drain, Flaxton Road.

The consented use is to take surface water for irrigation of up to 12 hectares. The consent was transferred to Council when purchasing the property for the Stormwater Management Area (SMA) at the intersection of Flaxton Road / Fernside Road (Southbrook Pond C) in 2009. The consent was retained in case the SMA required topping up over dry periods. In the 10+ years since the consent was obtained topping up has never been required. The consent expires in 2033.

3.8 CRC167359: 120 Te Kohanga Drive, Pegasus.

The consented use is for construction and irrigation purposes. Council records note that the consent was initially held by Todd Property Pegasus Town Limited, and the water take metered and monitored when used for construction purposes. The consent was transferred to the Council in 2016. With a lack of information available regarding what underground infrastructure is in place and no need to use it for irrigation, the water take

has not been used by the Greenspace department since coming into Council's ownership. Without further investigations it is currently unclear how much expense will be necessary to bring the take back into operation, in addition to the metering and monitoring requirements. There is no planned use for this water take in the foreseeable future and the consent expires in September 2024.

3.9 ECan has been in recent contact with Council regarding all the water take consents that are held by Council and staff are currently working with ECan to identify and work through the options for each consent. The two applicable options for each water take are either surrendering the water take entirely if they are no longer required; or metering and monitoring the water take to ensure the consent remains active and the consent conditions and the Regulations are complied with.

3.10 Council staff have considered whether retaining the unused water take consents would provide an opportunity to transfer the consent's unused water allocation to another existing consent. Advice on this matter was sought from an external resource management consultant employed by Aqualinc (TRIM 221114197096). The advice provided to Council commented that the current Canterbury Land and Water Regional Plan (LWRP) Rules would severely restrict the options available for consent transfer, in essence making consent transfer a non-viable option.

3.11 The most important restrictions include:

- For surface water takes the transfer must be within the same surface water catchment (Rule 5.133(3)).
- For Groundwater takes the transfer must be within the same groundwater allocation zone (Rule 5.133(4a).
- For stream depleting groundwater takes, the transfer is within the same surface water catchment (Rule 5.133(4c)(i)).
- The volume of water transferred is restricted to the annual average volume used in the preceding 5 years (as demonstrated by actual use records) (Rule 8.5.17 (1A)).
- There is no transfer of any allocation for any water permit that has not been used in the preceding 5 years (Rule 8.5.17 (2)).

3.12 It should also be noted that the LWRP Rule 8.5.17 (1A) in the proposed PC7 to the LWRP is still subject to legal appeal. Consequently, this Rule is not included in the operative LWRP. Council has been advised that any decisions regarding potential water permit transfers must give regard to both operative and proposed LWRP Rules, with more weighting on the parts of the proposed LWRP that have not been appealed.

3.13 The water use element of a consent also cannot be altered as part of the transfer. For example, if the consent to be transferred was for stock and domestic supplies, the transfer process could not alter that use to something else e.g., industrial use or for dust suppression.

3.14 The additional restriction was imposed following the Court of Appeal decision in AWA vs CRC (2022). This point is elaborated on further in the ECan Technical Advice Note (TRIM 221114197088). While the Note is informative, it was not intended to constitute formal legal advice.

3.15 In addition to the above, consent transfer applications will also need to address the concept of Te Mana o Te Wai, a central tenet in the National Policy Statement for Freshwater Management 2020.

Under this National Policy Statement, Te Mana o Te Wai imposes a hierarchy of obligations, with the first obligation of the health and wellbeing of the water prioritised over the second obligation, the health needs of people, and the third obligation, the ability of people and communities to provide for their social, economic and cultural wellbeing. This may also present difficulty for consent transfer in an over-allocated groundwater allocation zone.

3.16 A review and update to the Canterbury Land and Water Regional Plan (LWRP) has been signalled for 2027 however staff do not believe there is any intention to remove or alter existing rules that control water take transfers as part of this plan change. It is expected that the changes will address issues relating to incidental interception of groundwater in stormwater ponds which currently requires a consent for the take and use of groundwater, which also gets captured by the water metering regulations.

4. ISSUES AND OPTIONS

4.1. For the currently unmetered and monitored unused water take consents, a decision is required to either retain the consent and meter and monitor the water allocation; or to surrender the consent.

4.2. To do nothing with the existing consents, i.e. retaining and not metering would put Council at risk of compliance and enforcement attention from ECan. The only reason to do this is if there is likelihood that the LWRP change will alter the rules for transfer of water takes, however there is no reason to believe that will occur as part of the 2027 plan change.

To retain the consents:

4.3. Each water take without flow monitoring infrastructure in place will require budget for the purchase and installation of a flow meter and associated telemetry and other infrastructure upgrades if required.

4.4. The consent conditions also require that the flow meter's performance is verified by an ECan approved independent agent initially following install; and then at five yearly intervals and if otherwise required. Estimated costs are presented under report section 6.1 Financial Implications below.

4.5. The theoretical ability to transfer any unused water allocations is retained. However, the following points should be noted: Under the current LWRP Rules the transfers will have to occur within the same Groundwater Allocation Zone (Rule 5.133(3)) and for the same purpose (ECan Technical Advice Note), thus constraining the options for use.

4.6. Furthermore, the unused consent possibility of transfer is likely to be both very difficult and may create a non-compliance situation.

4.7. For all consents CRC971820, CRC990502.1, CRC990931.1 and CRC167359, there has been no water taken within the previous five years. This is likely inconsistent with LWRP Rule 8.5.17 and the transfer of the water permit would have non-complying status under the LWRP Rule 5.134.

4.8. The consent application for transfer of water permit would therefore require public notification and possibly a hearing. Staff view it as likely that the consent would not be

granted, with considerable expense required to reach this conclusion with absolute certainty.

4.9. There are also potential costs for consent transfer to consider, as noted under the ECan Fees and Charges Policy 1 July 2021. The potential costs are presented under report section 6.1 Financial Implications below.

4.10. In summary, to retain the consents and then transfer the use to another water take, the following actions would need to occur:

a. The Council would need to install a meter in the short term to meet its current requirements for any water take.

b. A source within the same allocation zone, with the same intended use would need to be identified. To transfer a surface water take for drinking water purposes, the Council would need to identify another surface water take in the same allocation zone that would also be used for drinking water purposes. There are no projects underway to identify any such sources.

c. The volume able to be transferred would be either zero, or close to zero (depending on how much flow data could be produced in the last 5 years), or the activity would be deemed to be 'non-complying'.

4.11. If the activity was deemed to be 'non-complying', a hearing would be required to try to transfer the take, and the advice received to date indicates that this decision would likely not be in the Council's favour, however a large amount of expense would be incurred to reach this decision.

To surrender the consents:

4.12. Surrendering a consent is practically achieved by applying to ECan, supplying the details of the consent to be surrendered on the dedicated ECan form and paying a modest processing fee. By doing so, the water allocation will no longer available for use, and also ineligible for transfer to another consent.

4.13. Much of the groundwater in the Waimakariri District falls within the bounds of the LWRP Ashley and Eyre Groundwater Allocation Zones, which are close to being over-allocated. There is a risk that any future decision made to apply for a new water take consent may not be granted by ECan.

4.14. Even though the ECan Technical Advice Note advises that applications for water takes in over-allocated groundwater zones may be prohibited if insufficient water has become available from other sources such as surrendered consents, the LWRP states that community drinking-water supplies and stockwater applications will be prioritised.

4.15. Council staff have observed that applications for drinking-water takes have been granted in the past, even within over-allocated groundwater zones, as this is explicitly allowed for in the LWRP.

4.16. As outlined under the "retain the consents" option above the ability to transfer unused water take consents is highly constrained by the LWRP Rules and therefore unlikely to be a feasible alternative.

4.17. In consideration of the points presented above, staff recommends that Council surrenders all four unused water take consents.

4.18. It is intended that power supplies that are connected to the sites will be decommissioned once the consents have been surrendered.

Implications for Community Wellbeing

There are not implications on community wellbeing by the issues and options that are the subject matter of this report.

4.2 The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Mana Whenua

Te Ngāi Tūāhuriri hapū are likely to be affected by, or have an interest in the subject matter of this report.

The Mahaanui Iwi Management Plan (IMP), Section 5.3 Wai Māori, lists 16 Ngā Take/ Issues of Significance. The following Issues of Significance are likely to be relevant to the subject matter of this report: WM1: Tāngata Whenua rights and interests, WM2: Value of water, WM3: Priorities for use, WM8: Water Quantity and WM11: Transfer of permits. The IMP indicates that mana whenua would not be supportive of actions that would prevent them from exercising their rights and responsibilities of mana whenua, rangatiratanga, kaitiakitanga and manaakitanga.

The over-allocation and over-abstraction of freshwater resources is seen to be negatively impacting on the first order priorities of safeguarding the mauri of the water and mahinga kai habitats. The transfer of unused allocations is also viewed as a significant concern for tāngata whenua, and inconsistent with the tāngata whenua perspective on how to sustainably manage the freshwater resources.

5.2. Groups and Organisations

There are not groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

5.3. Wider Community

The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. Financial Implications

The costs associated with transferring a water take consent are estimated to be:

Item	Estimated Cost
Physical meter installation on water take	$25,000-$50,000
ECan processing fees for consent transfer application	$20,000
Planning and legal advice for consent application hearing	$20,000-$50,000
Total Estimate	$65,000-$120,000

In addition, there are costs associated with ongoing maintenance of the equipment and managing of metering data. These costs have not been allowed for in the draft LTP.

There is no direct cost associated with surrendering of these consents. However, some sites are currently still connected to the power supply which will be disconnected after the consents have been surrendered. There will be a cost saving associated with disconnection of these sites from the power supply.

6.2. Sustainability and Climate Change Impacts

The recommendations in this report do have sustainability and/or climate change impacts.

The most sustainable approach to water management in the over-allocated Ashley and Eyre Groundwater Allocation Zones would be to surrender the unused consents. This approach is also consistent with giving effect to Te Mana o Te Wai, in respect to the National Policy Statement for Freshwater Management 2020 and the Water Services Act 2021 for those sources which are drinking-water sources.

6.3 **Risk Management**

There are risks arising from the adoption/implementation of the recommendations in this report.

- The failure to commit to a course of action (either surrending the consents or retaining and metering) may incur compliance and enforcement attention from ECan.

- Adopting the approach of retaining and possibly transferring the water take consents carries the following risks:

    - It would incur significant cost for each consent, with still a very low likelihood of gaining a favourable outcome for the Council.
    - It may compromise the relationship with Ngāi Tūāhuriri.

    In addition, this course of action is not consistent to giving effect to Te Mana o Te Wai. This may have compliance implications in respect to the National Policy Statement for Freshwater Management 2020 and the Water Services Act 2021 for those sources which are drinking-water sources

- Surrending the consents will forfeit the ability to use them should there be any changes to the existing rules to allow transfer of these water takes for other uses. However staff do not believe there is any intention to remove or alter existing rules that control water take transfers as part of the Canterbury Land and Water Regional Plan change that has been signalled for 2027.

6.4 **Health and Safety**

There are not health and safety risks arising from the adoption/implementation of the recommendations in this report.

7. CONTEXT

7.1. **Consistency with Policy**

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. **Authorising Legislation**

The Resource Management Act 1991 and Water Services Act are relevant in this matter.

7.3 **Consistency with Community Outcomes**

The Council's community outcomes are relevant to the actions arising from recommendations in this report.

- There is a healthy and sustainable environment for all.
- Core utility services are sustainable, low emissions, resilient, affordable; and provided in a timely manner.
- Effect is given to the principles of Te Tiriti o Waitangi.

7.4 **Authorising Delegations**

The Utillites & Roading Committee has the delegated authority to approve the recommendations from this report.

Technical Advice Note

Implications of Court of Appeal Decision in *AWA v CRC* [2022] and next steps for Consents

19 August 2022

Disclaimer: *This memo does not constitute legal advice and should not be relied on as such.*

On 20 July 2022, the Court of Appeal released its decision of *Aotearoa Water Action Inc v Canterbury Regional Council* [2022] NZCA 325. The key findings of that Court that affect consenting were:

- There is no reason, under s14 of the RMA, that the **take** [of water] must be read conjunctively with the **use** [of water]; but
- It does not necessarily follow that the Council can then grant a separate consent for a use and a separate consent for a take. This will depend on the relevant plan rule. A rule that uses the expression "take and use" indicates that the take and use of water must be considered conjunctively, while one that specifies the "take or use" indicates that separate consents can be envisioned.

This decision has implications for the ongoing implementation of the Canterbury Land and Water Regional Plan (LWRP)[1]. This Technical Advice Note outlines the approach Environment Canterbury will be taking to implementing the decision. It does not constitute legal advice and consent holders are encouraged to seek their own advice relevant to their own circumstances.

The LWRP rule framework

The LWRP envisions some situations where there is a take of water, but no associated use (or vice versa). These situations are addressed through provision of specific "take or use" rules (e.g. rules 5.121 (permitted) and 5.122 (discretionary) for the take or use of water from irrigation or hydroelectric canals, or from water storage facilities) to enable these activities to occur. Over the last decade of implementing the LWRP however, there have been applications lodged for other activities that appeared to also fit into a "take or use" classification (as they appeared to only require consent for either a take or a use), but which did not appear to be managed under the existing rules. This has included applications for:

- Stand-alone takes of water where there is no use (but typically with an associated discharge e.g. for:

[1] This advice is primarily written regarding implementation of the LWRP as that was the focus of the Court of Appeal decision. Implications for other plans are also briefly addressed below but may require further consideration based on the specific situation.

  - Stormwater treatment wetlands intercepting high groundwater levels;
  - On-going removal of 'nuisance' high groundwater levels (e.g. impacting on basements or other infrastructure);

- Stand-alone uses of water associated with existing (already consented) takes e.g.:
  - Same purpose, expansion of scope: expand existing uses while relying on existing consents to take and use water e.g. adding additional irrigation areas to existing irrigation consents within the allocation limit on that consent;
  - Different purpose, new use activity: change uses of water e.g. from irrigation to quarry dust suppression;
  - add extra uses (often to regularise activities such as unconsented dairy shed and stockwater takes that are occurring) – within the allocation limits on an existing water take and use (albeit for another purpose) consent;
- Miscellaneous situations, e.g.:
  - Where catchment plans have interacted with the LWRP to provide situations where catchment plan applied solely to the take of water (e.g. WRRP), and LWRP solely to the use of water;
  - Cross-jurisdictional situations where water was taken and used from another region subject to that region's plan requirements (e.g. West Coast) but was then used in Canterbury (e.g. Kiwirail Otira rail tunnel cleaning consents).

As these applications did not appear to be specifically for a "take and use", and as there was no specific "take or use" rule for these activities, they were addressed under the 'default' catch-all rule 5.6 of the LWRP (which was intended to cover unanticipated activities not managed under another rule). The Court of Appeal has now said that this approach is not correct in some of the circumstances highlighted above. Where an activity to take and/or use water is to be consented under the LWRP and is not managed under an activity specific rule (e.g. for community supply, dewatering etc.), it must be considered under the general "take and use" rules (i.e. rules 5.123 – 5.125 in the LWRP for takes and uses of surface water; 5.128 – 5.132 in the LWRP for takes and uses of groundwater, or a relevant sub-regional rule where it prevails over the regional-wide rules).

Repercussions for consents already granted under the old approach

Until the recent Court of Appeal decision, the High Court decision from 2020 was the 'law of the land', and supported the approach taken by Environment Canterbury regarding the use of rule 5.6 of the LWRP in the situations above.

While the Court of Appeal has now changed the approach that Environment Canterbury must take towards implementation of its plans going forward, Environment Canterbury has no power to revisit or cancel the grant of applications granted prior to the Court of Appeal decision. Resource consents granted under that approach are considered lawful unless they

are specifically challenged, and decision on those consents quashed by the Court (i.e. in the event there is a challenge to the grant of a consent under rule 5.6, if the challenge is successful the Court may or may not cancel the consent. This is likely to depend on the specific circumstances of the case).

As such, unless the consent is cancelled by the Court, applications to vary or 'renew' (i.e. applications made under s127, or affected by s124 through s124C) water permits granted under the previous approach should be processed under the relevant provisions of the RMA and LWRP. For example, an application to 'renew' an existing water permit for a 'stand-alone use' for dairy shed use, that is linked to an existing 'take and use' permit for irrigation, should be considered collectively as a combined take and use (affected by provisions of s124, s124A-C RMA) for all composite parts (i.e. as a take and use for irrigation and dairy shed use) under the relevant rule.

Repercussions for new activities / potential applications

In cases where there is allocation available (or where allocation can be made available, see below) there is unlikely to be an impediment to making an application for new activities. Rather than treating activities for a stand-alone "take" or "use", that is not already governed by a specific "take or use" rule (e.g. for takes from storage facilities), as discretionary under rule 5.6, those activities must be considered under the general "take and use" rule (i.e. rules 5.123 – 5.125 in the LWRP for takes and uses of surface water; 5.128 – 5.132 in the LWRP for takes and uses of groundwater, or a relevant sub-regional rule where it prevails).

In fully or over-allocated allocation zones however, it is typically prohibited under the Canterbury Land and Water Regional Plan (LWRP) to apply for a (consumptive) "take and use", and therefore no application can be made except for replacement of existing activities affected by the provisions of s124-124C (i.e. which are not increasing or changing in scope[2]).

In some situations, it may be possible for an applicant to surrender sufficient existing allocation to 'free up' space in an allocation block. Where this would bring the total cumulative allocation below the allocation limit, an application could then be made for the quantum of water available below the limit, subject to meeting the necessary conditions of the rule.

[2] The LWRP prohibits applications in fully or over-allocated water allocation zones for a 'take and use' of ground or surface water except for 'replacement' applications subject to the provisions of s124-124C. To be affected by s124-124C requires the activity to be the same as that already consented, e.g. where a consent for irrigation authorises a take and use at a particular rate and volume and over a particular area, an application can be made to replace that consent at the same rate, volume and area, but no application could be made to take the same quantum of water for a use over a larger area (or for a new use) as it would no longer be the same activity. As such, no application could be made until such time as the cumulative allocation was back below the limit set in the LWRP.

Site-to-site transfers (s136(2)(b)(ii))

In addition to the situations above, the Court of Appeal decision also appears to have repercussions for site-to-site transfers where the applicant *wishes to change the end use of water* (e.g. a transfer of an irrigation permit to another site for dust suppression).

While the LWRP rules provide for the transfer of a "take or use", the Court of Appeal has said "take and use" under the LWRP are inextricably linked and that, under the LWRP, it is not possible to apply for a stand-alone use or take (unless there is a specific "take or use" rule). While it is arguably possible to transfer a take, or a use, in isolation from the other aspect of an existing consent, in practice once transferred there is no mechanism to apply for the other component of an activity in a fully or over-allocated water allocation zone, i.e. if you applied to transfer a take to a new site, without the existing use, you couldn't then apply for a new use at the new site as it wouldn't be a replacement application affected by the provisions of s124-124C (as based on the Court of Appeal decision take and use are inextricably linked and s124-124C would apply to the activity as a whole, not the respective 'take' and 'use' components).

In practice therefore, most site-to-site transfers in over-allocated zones are effectively limited to transfers of both the take and use. The exception would be where the transfer would enable an activity managed under a "take or use" rule (or where it is not prohibited to apply for new allocation e.g. community supply).

Repercussions for applications in process

When considering applications for water permits already in process under the 'catch-all' rule 5.6, these will need to be reconsidered against the generic 'take and use' rules in the LWRP[3]. How those activities will need to be treated will depend on several factors.

The first step will be to determine if the application is for a new activity or whether it is considered a 'replacement' application (i.e. one where the take and use are affected by the provisions of s124-124C RMA).

Once that has been done, the possible resolutions will depend on where applications are situated, and the allocation status of the water resource. Table 1 (attached) provides an example of how this situation would resolve when activities currently being processed under rule 5.6 must now be considered under the region-wide take and use rules (i.e. rules 5.123 – 5.125 in the LWRP for takes and uses of surface water; 5.128 – 5.132 in the LWRP for takes and uses of groundwater). Where specific sub-regional rules prevail, these should be considered on a case-by-case basis.

[3] It is unlikely that any of these activities will fit under one of the specific 'take or use' rules, because if that had been the case, they should have already been classified under those rules. This should, however, be checked in each case.

In practice, most of these applications will need to be returned to an applicant so that they can re-consider their proposals to see if they can be structured or redesigned in such a way as to be able to be processed under the take and use rules as the scope of the application, if framed to be under rule 5.6, may not cover the required considerations under a "take and use" rule.

Other Regional Plans

This advice above is written regarding implementation of the LWRP and is not necessarily applicable to other Canterbury catchment-specific plans. These plans (e.g. the Waimakariri River Regional Plan (WRRP) or the Hurunui Waiau River Regional Plan (HWRRP)) have their own specific rules which need to be applied on a case-specific basis. The below discussion provides some guidance on how to apply those provisions considering the Court of Appeal decision.

The Hurunui and Waiau River Regional Plan (HWRRP) and the Waipara Catchment Environmental Flow and Water Allocation Regional Plan (Waipara Plan)

Like the LWRP, the HWRRP and the Waipara Plan include rules governing the "take and use" of water. In general applications should be therefore considered in the same way as the LWRP e.g. rule 6.1 of the the Waipara Plan refers to the *"take and use of groundwater"* [emphasis added], and as such take and use must be considered together.

This approach is complicated however, as some rules combine all four verbs (i.e. take, use, dam, divert) from section 14 of the RMA e.g. rule 2.3 of the HWRRP refers to the *"taking, diverting, using and discharging"* of surface water. In this situation, the rule should be read in a way that where consent is required for multiple activities (listed in the rule) to operate the proposal, then they should be applied for together under the rule. This includes situations where applicants may already hold one or more consents for part of a proposal (e.g. for an existing diversion or take), and want to change another aspect of the existing consent (e.g. a new use).

For example, if an activity required a resource consent for a take and discharge to operate e.g. for a stormwater wetland that intercepts groundwater), or a diversion and use (e.g. for in-stream hydroelectricity generation), then these activities should be applied for and considered together. Changes to part of an existing authorisation, e.g. an expansion of irrigated area without changing the take, would be required to be considered as a new application for the "take and use" of water, even though there is an existing take which is not changing.

Waimakariri River Regional Plan (WRRP) and the Opihi River Regional Plan (ORRP)

The WRRP seeks to manage *inter alia* water takes and uses affecting the Waimakariri River and its tributaries while the ORRP seeks the same for the Opihi River. Unlike the LWRP

however, the WRRP and ORRP separate the take and use activities into separate rules. For example:

- Rule 5.1 of the WRRP manages the taking of surface water or from hydraulically connected groundwater within the Waimakariri River Catchment "below Woodstock" but does not manage the use of water.

- Rule 5.2 manages the use (and diversion and damming) of water in the Waimakariri River or its tributaries, but does not manage the use of water outside these waterbodies.

Neither the WRRP or the ORRP manage the use of water outside the waterbodies. These uses were, prior to the LWRP, managed under a separate rule for the "use of water" the Natural Resources Regional Plan (NRRP). When the NRRP was replaced by the LWRP, the use rules were replaced by the current suite of "take and use" and "take or use" rules in the LWRP.

The LWRP states however that where the WRRP or ORRP manage the same activity, the specific catchment plan prevails. This creates an unusual situation where the WRRP and ORRP apply to the take and the in-stream use of water, but the LWRP applies to the out-of-stream use. This has, to date, been resolved by considering any out-of-stream use of water taken under the WRRP or ORRP under rule 5.6 of the LWRP.

In considering the application of the Court of Appeal decision this situation is factually different to the situation in *AWA v CRC* (which was specific to activities that would be covered by the "take and use" rules of the LWRP). In this situation the WRRP and ORRP have no equivalent "take and use" rules and do not cover out-of-stream uses at all. Equally the LWRP does not apply to takes managed under those plans (c.f. section 2.8 LWRP). As such, the LWRP "take and use rules" cannot apply and using rule 5.6 of the LWRP[4] to consider an out-of-stream "use" remains valid.

Pareora Catchment Environmental Flow and Water Allocation Regional Plan (PCFWARP) and the Waitaki Catchment Water Flow and Allocation Regional Plan (WCWARP)

Both the WCWARP and PCFWARP use "take or use" rules for consumptive takes of water. As such it is possible to continue to process separate take or use applications under these catchment plans.

[4] Where there is no relevant "take or use" rule in the LWRP

Table 1. Approach to dealing with applications in process under the LWRP for stand-alone 'takes' or 'uses' under rule 5.6 post Court of Appeal Decision in *AWA v CRC*. The table assumes there is no relevant 'take or use' rule and that the activity must be classified under the relevant region-wide 'take and use' rules (i.e. rules 5.123 – 5.125 in the LWRP for takes and uses of surface water; 5.128 – 5.132 in the LWRP for takes and uses of groundwater). Where sub-regional rules prevail over the regional take and use rules, these should be referred to in the first instance.

Proposal Type	Status of Allocation Zone	Potential Resolution
New application to 'take' water with no 'use'	Over allocated	If allocation from other water permit(s) can be surrendered to reduce allocation sufficiently below the plan limit, to accommodate the new allocation for the proposed take, then application can proceed. Applicant will need to demonstrate the amount to be taken will not have adverse effects. Priority of this take is per first in, first served. If insufficient allocation available (i.e. from surrenders) to accommodate the new take then the application would be **prohibited** under the operative plan rules and must be returned.
	Fully allocated	If allocation from another water permit can be surrendered to reduce allocation sufficiently below the plan limit, to accommodate the new allocation for the proposed take, then application can proceed. Applicant will need to demonstrate the amount to be taken will not have adverse effects. Priority of this take is per first in, first served. If insufficient allocation available (i.e. from surrenders) to accommodate the new take then the application would be **prohibited** under the operative plan rules and must be returned.
	Under allocated	If there is sufficient allocation available, application can proceed on the basis that it is an application to 'take and use' water. Applicant will need to demonstrate the amount to be taken will not have adverse effects. Priority of this take is per first in, first served.

New application for a new, additional, or expanded 'use' within an existing 'take' allocation.	Over allocated	As existing 'take and use' consents are linked under the Court of Appeal decision, if the existing use is not continuing then it cannot be considered a 'replacement' application (affected by s124-124C) and must be considered afresh. If surrendering existing allocation from the existing (or other) water permit(s) is sufficient to reduce allocation below the plan limit to accommodate the new allocation, then application can proceed. Applicant will need to demonstrate the amount to be taken will not have adverse effects and that it is reasonable for the end use. Priority of this take is per first in, first served. If insufficient allocation available (i.e. from surrenders) to reduce allocation below the allocation limit then application is **prohibited** and must be returned.
	Fully allocated	If surrendering existing allocation from the existing (or another) water permit should be sufficient to reduce allocation below the plan limit in order to accommodate the new allocation, then application can proceed. Otherwise application is **prohibited** and must be returned.
	Under allocated	If there is sufficient allocation available, application can proceed on the basis that it is an application to 'take and use' water. Applicant will need to demonstrate the amount to be taken for the new use is reasonable and will not have adverse effects. Priority of this take is per first in, first served.

Memorandum

To:	Hayley Profitt & Colin Roxburgh	**Of:**	Waimakariri District Council
From:	Matt Bubb	**Date:**	29 September 2022
Subject:	**Transferring of Water Allocation**		

Introduction

Aqualinc Research Limited has been asked to provide commentary on the potential for WDC to transfer existing consents to abstract and use water to other sites.

The first section of this memo will deal with the main principles involved with transfers in this area, and the second will comment specifically on the situation for the following consents:

- CRC971820 Summerhill intake
- CRC990931.1 Coopers Creek intake
- CRC000882 Ohoka Road, Dudley Stream
- CRC990502.1 No.7 Drain, Flaxton Road
- CRC167359 Shallow bore in Pegasus

Rules for transferring allocation in these locations

The transferring of water allocation in the areas Aqualinc has been asked to review, are covered by Rules 5.133 and 5.134 of the operative ECan Land and Water Regional Plan (LWRP). In addition to these, regard will also need to be given to Rule 8.5.17 as amended as part of Plan Change 7 to the LWRP. Additional restrictions have also been imposed recently because of interpretations of the Court of Appeal decision in AWA v CRC (2022). With regard to the AWA v CRC Appeal decision, the following notes reflect the situation at the time of drafting this memo. If there is a further appeal, or a legal challenge to the way ECan are implementing their interpretation of that decision, then this may have some impact upon the options available for transfers. This could have an impact upon what transferred water could be used for.

For the sake of simplicity and clarity, the following notes provide a summary of the main aspects of the transfer rules that may affect whether WDC consents can be transferred.

If a more detailed assessment is required, this can be provided upon request.

The following bullet points highlight the most important restrictions in terms of deciding whether there is potential for WDC to transfer consents:

- For surface water takes the transfer must be within the same surface water catchment (Rule 5.133(3)).
- For Groundwater takes the transfer must be within the same groundwater allocation zone (Rule 5.133(4a).

- For stream depleting groundwater takes, the transfer is within the same surface water catchment (Rule 5.133(4c)(i)).
- The volume of water transferred is restricted to the annual average volume used in the preceding 5 years (as demonstrated by actual use records) (Rule 8.5.17 (1A)).
- There is no transfer of any allocation for any water permit that has not been used in the preceding 5 years (Rule 8.5.17 (2)).
- The water use element of a consent cannot be altered as part of the transfer. For example, if the consent to be transferred was for stock and domestic supplies, the transfer process could not alter that use to something else e.g. industrial use or for dust suppression (Court of Appeal decision in AWA v CRC (2022).

There are additional matters for consideration, although assessing each consent against the above list should provide a quick assessment of whether there is any potential for transfers.

Aqualinc understands that some of the consents held by WDC may not have been used in the last 5 years. Where this is the case, it is likely to be very difficult to transfer allocation. This is because the status of the transfer will become 'non-complying' under Rule 5.134. Although the status of non-complying does not make securing a consent impossible, it is supposed to set the bar relatively high for securing such a consent.

Plan change 7 specifies that consents should have been used in the last 5 years, and that the volume transferred should not exceed the average used over those 5 years. Aqualinc's recent experience is that ECan want to claw back allocation wherever possible and are putting a great deal of weight upon the volumes of water that have been used historically. Added to this, a transfer application will also need to deal with the concept of Te Mana o te Wai, which requires that the health and wellbeing of the water body comes before all other considerations. It may to be problematic to show that proposed transfers put the health and wellbeing of the water body first in situations where the consent to be transferred has not been used in recent years.

Commentary on specific consents

CRC971820 – This is a consent to take and use groundwater for a public water supply at 93 Campions Road, Summerhill. The maximum rate of take is 7 l/s, with a maximum volume taken per day of 605m^3. There is no condition specifying a maximum annual volume.

Although classified as a groundwater take, this abstraction is hydraulically connected to the Ashley River. The options available to transfer this consent will depend upon the degree of hydraulic connection to the river. Given the proximity of the river, it is likely that the consent would be treated as if it were a surface water take. As such, any transfer would have to be within the Ashley River catchment as required by Rule 5.133(4c)(i).

This consent has not been used in the last 5 years. This will make a proposed transfer a non-complying activity.

CRC990931.1 - This is a consent to take and use surface water from Coopers Creek for a public water supply at Mountain Road, Oxford. The maximum rate of take increases over time, with a maximum take of 60l/s after 1 January 2027. There is no condition specifying a maximum annual volume.

The consent can be used concurrently with consent CRC011642 (now CRC166592). What the water is used for is not specifically stated on the consent, although the consent this is tied to (CRC011642, which is now CRC166592) is for community drinking water supply purposes.

Any proposed transfer would need to be within the same surface water catchment as required by Rule 5.133(3).

This consent has been used in the last 5 years, although not since 3/8/2018. If a transfer was to occur without it being a non-complying activity, this will have to occur before 3/8/2023 i.e. 5 years from when the consent was last used. We understand that there was no flow meter on this take, although there was below the storage tanks. Some work may be able to be done to prove that the volumes recorded were from this surface water consent.

The volume able to be justified under Rule 8.5.17 (1A) will reduce the closer we get to 3/8/2023 (approximately 10 months from the date of drafting this memo).

Without reliable data, or if more allocation was required for transfer than the average metered over the last 5 years, then a transfer application will be non-complying.

CRC000882 – This is for the take and use of groundwater to enhance surface flows in Dudley Stream in Kaiapoi. The maximum rate of take is 5l/s, with a maximum daily volume of 432m^3.

Any transfer would need to be within the Eyre Groundwater Allocation Zone, as required by Rule 5.133 (4a), and what the water was used for would need to remain the same i.e. enhancement of surface flows.

There is no flow meter in place and no historic water use data. This will make a proposed transfer a non-complying activity.

CRC990502.1 – This is a take of surface water from No. 7 Drain for the irrigation of 12ha. The maximum rate of take is 19l/s, with a maximum 10-day volume of 5,472m^3.

Any proposed transfer would need to be within the same surface water catchment, as required by Rule 5.133(3), and the water would need to be used for irrigation.

There is no flow meter in place and no historic water use data. This will make a proposed transfer a non-complying activity.

CRC167359 - This is for the take and use of groundwater for construction and irrigation at Pegasus. The rate of take is 23l/s, with a volume of up to 366m^3/day and 50,960m^3/year.

This is located within the Ashley Groundwater Allocation Zone.

Any transfer would need to be within the Ashley Groundwater Allocation Zone, as required by Rule 5.133 (4a), and what the water was used for would need to remain the same i.e. irrigation.

There is a flow meter in place, although no historic water use data. This will make a proposed transfer a non-complying activity.

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	RDG-22-04, DRA-16-05 / 240516078696
REPORT TO:	UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	28 May 2024
AUTHOR(S):	Kalley Simpson, 3 Waters Manager Joanne McBride, Roading and Transport Manager Pat Towse, Flood Team Lead
SUBJECT:	July 2023 Flood Recovery Progress Update
ENDORSED BY: (for Reports to Council, Committees or Boards)	General Manager / Chief Executive

1. SUMMARY

1.1 This report provides a progress update on the July 2023 Flood Recovery work programme, including investigation work and maintenance actions, and provides an overview of the physical works programme recommended by the investigations.

1.2 A total of 351 service requests have been received related to the July 2023 storm event, which have been triaged, grouped and classified into a total of 88 investigations, 126 maintenance actions and 31 customer advice actions[1].

1.3 As at 15 May 2024, all investigations have been triaged, scoped and investigated, 25 are in the approval stage and 63 have been completed. The Flood Team has effectively completed all of the investigation work, with the remaining 25 investigations currently being reviewed before final signed off.

1.4 A further 126 maintenance actions were also identified from the service requests following the July 2023 event. As at 15 May 2024, all have been started and processed, 16 have been programmed, and 110 have been completed.

1.5 Work on the following three key focus areas that experience extensive flooding has commenced:

- **Cam River / Ruataniwha** – Environment Canterbury have completed the maintenance work, including tree felling and vegetation clearance, on the lower Cam River from the Kaiapoi River up to Bramleys Road. Work on the upper Cam River above Bramleys Road is taking longer than expected and is currently up to near the confluence with the South Brook. It is now expected to complete the maintenance work up to Marsh Road by the end of May 2024. Localised stopbank improvement works to improve the upper Cam River / Ruataniwha system upstream of Bramleys Road has been completed.

- **Tuahiwi** – Council has completed heavy maintenance work, including trimming of vegetation from the banks and removal of sediment from the bed, along the main channel of the Tuahiwi Stream / Waituere between Church Bush Road to the Cam

[1] Note that the total number of service requests is greater than the number of investigations and maintenance tasks as an investigation or maintenance task can have multiple service requests associated with the work.

River, and vegetation clearing works on the Tuahiwi Stream / Waituere between Greens Road and Church Bush Road. Upgrading works on the diversion drain (between Greens Road and the Cam River) has been awarded, including upgrading the culvert at the upper end and regrading / widening the middle section above Pa Road. These works are planned to be completed by the end of July 2024.

- **Waikuku Beach** – Detailed assessment is underway to determine the cause of flooding from the Taranaki Stream which was higher than expected, although will take some months to complete. This work will be coordinated with Environment Canterbury and will look at factors such as the operation of the flood gate, upstream development, and the catchment hydrology, including any recharge from the Ashley River.

1.6 There are a total of 24 immediate works projects that are being progressed in the 2023/24 financial year to implement drainage improvements that have been identified as part of the investigation work. It is anticipated that some of this work will carryover into the 2024/25 financial year.

1.7 The total cost of the flood recovery work is $4.055 million, as approved by Council at the October 2023 Council meeting (refer Trim 230921147926). To date $1,974,998 (or approximately 49%) of the work has been completed and the final forecast expenditure remains at $4.055 million. As indicated above, it is anticipated that some of this spend with carryover into the 2024/25 financial year.

Attachments:

i. Flood Recovery July 2023 Event Tracking – As at 15th May 2024 (Trim 240516078693).

ii. Flood Recovery July 2023 Event Dashboard – As at 15th May 2024 (Trim 240516078694).

2. RECOMMENDATION

2.1. **THAT** the Utilities and Roading Committee:

a. **Receives** Report No. 240516078696.

b. **Notes** that all 88 investigations have been triaged, scoped, and investigated, 25 are being reviewed for approval and 45 are complete;

c. **Notes** that all 126 maintenance actions have been processed, 16 have works programmed, and 110 are complete;

d. **Notes** that the Flood Team is in the process of being wrapped up and funding is included in the draft Long Term Plan for a Infrastructure Resilience Team, who will assist with progressing the remaining improvements works and implementing proposed future works.

e. **Notes** that the total cost estimate for the flood recovery work is $4.055 million.

f. **Notes** that the expenditure to date is $2,485,932 and the final forecast expenditure remains at $4.055 million;

g. **Circulates** this report to all Community Boards for information.

3. BACKGROUND

3.1 The district experienced a significant rainfall event over the weekend of 22-24 July 2023, with the coastal area around Woodend receiving approximately 150mm of the rainfall over a 48 hour period.

3.2 A total of 351 service requests related to the July 2023 storm event were received. All service requests have been acknowledged and have been collated, triaged and categorised. This work has identified that there is a total of 88 investigations and 126

maintenance tasks that need to be undertaken to address the issues raised in the service requests (refer Table 1 below). There are also 31 service requests predominantly related to private drainage issues where advice is required to be provided to the customer.

Table 1 – Classification of Service Requests

Classification		No. SR	Investigations	Maintenance Tasks
Investigations	Recent (July 2022)	82	36	-
	Historical (pre 2022)	54	30	-
	New (July 2023)	25	22	-
Maintenance		159	-	126
Customer Advised		31	-	-
TOTAL[1]		**351**	**88**	**126**

[1] Note that the total number of service requests is greater than the number of investigations and maintenance tasks as an investigation or maintenance task can have multiple service requests associated with the work.

3.3 A Flood Team was established, predominantly comprising of external resources but with support from internal resources where there is existing project work underway related to the issue. The tracking system, used for the previous Flood Team investigation work, has again being used to ensure that each investigation is tracked through until completion.

3.4 The Flood Team is overseen by a Flood Recovery Project Control Group (PCG), comprised of relevant managers from the Utilities & Roading department. The PCG is updating the tracking spreadsheet fortnightly and reporting formally to the Utilities and Roading Committee monthly.

4. ISSUES AND OPTIONS

Key Focus Areas

4.1. The three key focus areas that experience extensive flooding that will require more detailed assessment, investigation and community and stakeholder are:

- Cam River / Ruataniwha
- Tuahiwi
- Waikuku Beach

Cam River / Ruataniwha

4.2. A report Cam River / Ruataniwha was presented to the previous Utilities & Roading Committee meeting in October (refer Trim 231005158212). Immediate maintenance works to remove fallen trees was completed in October. Environment Canterbury have completed the maintenance work, including tree felling and vegetation clearance, on the lower Cam River from the Kaiapoi River up to Bramleys Road. Work on the upper Cam River above Bramleys Road began in late February and is currently up to near the confluence of the South Brook. This work is taking longer than expected due to the amount of tree maintenance work required. It is now expected to complete the maintenance work up to Marsh Road by the end of May 2024.

4.3. Localised stopbank improvement works to improve the upper Cam River / Ruataniwha system upstream of Bramleys Road have been completed. This has included raising the accessway to 151 & 153 Bramleys Road to reduce the likelihood of breakout flow on the true right bank and raising the stopbank at 100 Topito Road to reduce the likelihood of breakout from on the true left bank.

4.4. Environment Canterbury have been re-surveying of the bed and banks of Cam River. The new survey information will be compared to the historical survey from the 1980s, to identify any areas that need immediate works, and also undertake modelling of the Cam River to determine if any larger scale upgrades are required. A report will be prepared on their

findings but this is not expected to be complete until the end of this calendar year. This information will feed into the proposed update of the Scheme Plan for the Cam River/ Ruataniwha.

Tuahiwi

4.5. Council has completed heavy maintenance work, including trimming of vegetation from the banks and removal of sediment from the bed, along the main channel of the Tuahiwi Stream / Waituere between Church Bush Road to the Cam River, and vegetation clearing works on the Tuahiwi Stream / Waituere between Greens Road and Church Bush Road.

4.6. Upgrading works on the diversion drain (between Greens Road and the Cam River) have been tendered and awarded. This works includes upgrading the culvert at the upper end to a box culvert and regrading / widening the middle section upstream of Pa Road. The culvert works will commence onsite once the box culvert is fabricated and are planned to be completed by the end of July. The drain regrading / widening works are currently being undertaken and will be completed by the end of May.

Waikuku Beach

4.7. Modelling works of the Taranaki Stream has commenced as part of the detailed assessment to determine the cause of higher than expected flooding in Waikuku Beach. This work will assess factors such as the operation of the flood gate, upstream development, flood storage within the Tutaepatu Lagoon area and the catchment hydrology, including any recharge from the Ashley River. A meeting with Environment Canterbury has been held as part of scoping the modelling work required. This modelling work will take some months to complete and it is not expected to know the outcome until August 2024.

Progress of Investigations

4.8. All of the 88 investigations have been triaged, scoped and investigated, and 25 are being reviewed and 63 are complete. The current status of these are summarised in the following table.

Table 2 – Progress of Investigations

Phase	Previous Report	Current Status[4]	Change
Triaging	0	0	-
Scoping	0	0	-
Under investigation (Flood Team)	8	0	-8
Review and approval (Asset Manager)	35	25	-10
Maintenance / immediate works programmed[1]	0	0	-
Improvement works proposed[2]	0	0	-
Completed[3]	45	63	+18
Total	**88**	**88**	**-**

[1] For the current financial year.

[2] Subject to future year budget process.

[3] Investigation complete, actions agreed. works programmed or budgeted, customer/s called back.

[4] As at 15 May 2024.

4.9. All investigation work was completed by the end of April 2024 by the Flood Team and is currently under review by Council staff or has been signed off as complete. Once signed off as complete, the physical works have been either programmed for this financial year or budgeted for future years and customers have been contacted to let them know the outcome of the investigation. Where the issue related to private drainage issues practical advice has been provided to the customer on onsite measures they could consider to put in place.

4.10. The following table provides a summary of the solutions identified by the investigations, which will be updated as the investigations are reviewed and approved.

Table 3 – Outcome of Investigations

Implementation Solutions	Previous Report	Current Status	Change
Not yet determined	52	25	-27
Physical Works FY23/24	25	40	+15
Future year capex	4	10	+6
O&M changes	0	0	-
No action/Customer Advice	5	13	+8
Total	86	88	-

4.11. The current expenditure for investigations is $646,681. The budget for the investigation costs is up to $450,000 drawing from the allocated fund of $600,000 for the Flood Team investigation work.

4.12. There are 35 investigations that have been previously investigated due to past flooding events. The budgets assigned to these investigations (FT04 to NS5) are to cover the costs associated with investigating the cause of flooding and confirm if the previous programmed works would address the flooding issues observed in the recent July 2023 event.

Progress with Maintenance Actions

4.13. Of the 126 maintenance actions all 126 have now been inspected. The current status of these is summarised in the following table.

Table 4 – Progress with Maintenance Actions

Phase	Previous Report	Current Status[2]	Change
To be started	0	0	-
Work in progress	24	24	-
Completed[1]	102	102	-
Total	**126**	**126**	**-**

[1] Inspection complete, maintenance required programmed, customer/s called back.

[2] As at 3 April 2024.

4.14. The current expenditure for maintenance actions is $200,469. The budget for the maintenance action costs is up to $150,000 drawing from the allocated fund of $600,000 for the Flood Team investigation work.

Progress with Immediate Works

4.15. There are a total of 24 immediate works that are being progressed in the 2023/24 financial year to implement drainage improvements that have been identified as part of the investigation work (refer Table 5 below).

Table 5 – Progress with Immediate Works

Project	Budget	Status
Broadway Ave, Waikuku Beach	$15,000	Complete
10 Beach Crescent, Waikuku Beach	$80,000	Report Review
Rotten Row, Waikuku Beach	$25,000	Report Review
Pegasus Main Street, Pegasus	$50,000	Report Review
Pearson Drain Improvements, Oxford	$330,000	Design
Helmore Street Bund, Rangiora	$75,000	Complete

Main North Road, Kaiapoi	$5,000	Complete
Tram Road, Clarkville	$100,000	Waiting Construction
Edmunds Road, Clarkville	$50,000	Complete
Revells Road, Tuahiwi	$50,000	Report Review
Greens Road, Tuahiwi	$200,000	Waiting Construction
Woodfields Road, Cust	$150,000	Pricing
South Eyre Road, Eyrewell	$20,000	Report Review
Washington Place, West Eyreton	$50,000	Pricing
Lower Sefton Road, Ashley	$100,000	Report Review
Upper Sefton Road, Ashley	$80,000	Design
North Eyre Road, Eyreton	$15,000	Complete
Poyntzs Road, Cust	$80,000	Design
Wilson Drive, Ohoka	$200,000	Completed
Bramleys Road, Tuahiwi	$100,000	Completed
Upper Cam River	$150,000	Under Construction
Siena Place, Mandeville	$30,000	Completed
Featherstone Ave, Kairaki	$90,000	Completed
306 Beach Road	$72,000	Completed
Total	**$2,117,000**	

4.16. Some of this spend will carryover into the 2024/25 financial year, particularly the projects that are still in the report review and design phase are delayed. The projects have been reported to the Audit & Risk Committee as part of the quarterly capital works programme report.

Proposed Future Works

4.17. There are 10 investigations that relate proposed future works that have capital works budgets in outer years. The works for Washington Place and Cust Road are currently being designed and will be completed next financial year, while the other projects which relate to improvements in Kaiapoi, Rangiora, Waikuku Beach and Mandeville are planned for outer years as shown in Table 6 below.

Table 6 – Proposed Future Works

Project	Budget	Construction
Washington Place, West Eyreton	$160,000	23/24 - 24/25
Cust Road, Cust	$300,000	24/25
Percival Street, Rangiora (Sewer)	$550,000	25/26
Cridland Street West, Kaiapoi	$2,000,000	25/26 - 26/27
Belmont Avenue, Rangiora	$480,000	27/28
10 Beach Crescent, Waikuku Beach (Stage 2)	$1,100,000	28/29
Mandeville Resurgence Channel (Stage 1 & 2)	$22,600,000	24/25 - 31/32
Taranaki Stream Pump Station	$6,250,000	34/35 - 35/36
Church Bush Road overflow diversion	TBC	TBC
MacDonalds Lane, Waikuku	TBC	TBC

Communications

4.18. The communications strategy document was prepared and endorsed by the Utilities & Roading Committee. The website has been updated to deliver the flood response progress to the public based on the progress as at 15th May 2024.

4.19. A programme of regular communications has been implemented to support the recovery programme. In particular, the following key activities will be undertaken, similar to the previous approach:

- A fortnightly dashboard and detailed tracking sheet published on the website.

- Personal phone calls or emails to submitters when investigations begin to understand the issue, with follow up communications to confirm the outcomes.

- Residents meetings, either street meetings or at community halls, will be held where appropriate. A residents' meeting has already been held in the West Eyreton Hall for the Washington Place flooding issue. Additionally, several street meetings have already been held for the Bramleys Road / Cam River flooding issue, the Threlkelds Road flooding issue and the Tram Road flooding issue.

- Close out emails or communications with submitters as appropriate when each investigation is complete.

Implications for Community Wellbeing

4.20. There are implications on community wellbeing by the issues and options that are the subject matter of this report.

4.21. Safe and reliable Roading and 3 Waters infrastructure is critical for wellbeing. 3 Waters infrastructure includes adequate drinking water, wastewater drainage and stormwater drainage for health and Roading infrastructure is required to provide safe egress and enable residents to access goods and services within the community.

4.22. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

Mana whenua

5.1. Te Ngāi Tūāhuriri hapū are likely to be affected by or have an interest in the subject matter of this report as it relates to impacts on waterways and rivers. Staff will update the Runanga at the executive meetings and where relevant on specific projects or consents engage with Mahaanui Kurataio Limited.

Groups and Organisations

5.2. A number of the issues in this report cross over with Environment Canterbury (Ecan) in terms of consenting, or in relation to rivers and natural waterways assets and services they maintain. Staff from Ecan and WDC are working to proactively coordinate where necessary.

5.3. There are some drainage related issues that also relate to water races and irrigation races. Where this is the case staff are coordinating with Waimakariri Irrigation Limited.

Wider Community

5.4. The wider community is likely to be affected by, or to have an interest in the subject matter of this report, as the wider community has been impacted by the recent flood event.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

Financial Implications

6.1. The Council has approved unbudgeted expenditure of up to $4.055 million in the current (2023 / 2024) financial year for emergency and immediate works responding to and recovering from the flooding.

6.2. The updated cost estimate and spend to date for the works associated with recovery from the flood is summarised below with the assessment of the funding source.

Table 7 – Financial Spend Summary

Area	Estimate	Spent to date	Forecast final expenditure
Roading	$1,950,000	$1,275,768	$1,950,000
Stormwater	$230,000	$106,775	$230,000
Land Drainage	$815,000	$26,236	$815,000
Rivers	$300,000	$113,683	$300,000
Wastewater	$160,000	$116,320	$160,000
Flood Response Investigations	$600,000	$847,150	$600,000
TOTAL	**$4,055,000**	**$2,485,932**	**$4,055,000**

6.3. At this stage it is expected that the final expenditure will be within the budget estimate approved by Council in October 2023. It is however anticipated that some of this spend will be carried over into the 2024/25 financial year.

Sustainability and Climate Change Impacts

6.4. The frequency and severity of flood events is likely to increase due to the impacts of climate change.

Risk Management

6.5. There are risks arising from the adoption/implementation of the recommendations in this report.

6.6. A risk-based approach has needed to be adopted around the management of any improvements works. Whole of life cost will be considered when agreeing the extent of works and the residual risk due to further rainfall events.

Health and Safety

6.7. There are health and safety risks arising from the adoption/implementation of the recommendations in this report.

6.8. Physical works will be undertaken to repair flood damage and as per standard process for any physical works, the contractor will be required to provide a Site Specific Health & Safety Plan for approval prior to work commencing on site.

7. CONTEXT

Consistency with Policy

7.1. This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

Authorising Legislation

7.2. The Land Transport Management Act is the relevant legislation in relation to Roading activities.

Consistency with Community Outcomes

7.3. The Council's community outcomes are relevant to the actions arising from recommendations in this report.

7.4. This report considers the following outcomes:

There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.
- Our District has the capacity and resilience to quickly recover from natural disasters and adapt to the effects of climate change.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

Transport is accessible, convenient, reliable and sustainable

- The standard of our District's roads is keeping pace with increasing traffic numbers.
- Communities in our District are well linked with each other, and Christchurch is readily accessible by a range of transport modes.

Core utility services are sustainable, resilient, affordable; and provided in a timely manner

- Harm to the environment from sewage and stormwater discharges is minimised.
- Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.
- Waste recycling and re-use of solid waste is encouraged, and residues are managed so that they minimise harm to the environment.

Authorising Delegations

7.5. Relevant staff have delegation to authorise unbudgeted emergency works where needed.

FLOOD RECOVERY FORTNIGHTLY STATUS REPORT
As at Wednesday, 15 May 2024

Fortnightly Report

Introduction
The district experienced a significant rainfall event over the weekend of 22-24 July 2023, with the coastal area around Woodend receiving approximately 150mm of the rainfall over a 48 hour period.

The purpose of this report is to update the Utilities and Roading Committee and Community Boards on the status of the drainage and sewer service requests and further investigations:

Report Format
This report will be prepared fortnightly and will include the following information
- This Dashboard showing:
  - General commentary
  - Dashboard metrics
  - Specific commentary on Key Focus Areas
  - An attached report on all the investigations

General Update
Maintenance Investigations are down to 16 that have been programmed to be completed, with 110 that have now been completed.
we have met a couple of milestones this month with the all of the Investigations being completed and submitted for review and only 25 left to review, giving us a 97% completion rate.

Tenders - Washington Place and Woodfields Road Box Culvert Procurement.
Both of these supply tenders for the procurement have been let and awarded, with the works packages to be tendered shortly.
Tender - Wilson Drive
This contract has now been completed.

Physical Works
From the outcome of the investigations there are currently 11 areas of Immediate Maintenance works that have been programmed in to be completed as soon as possible by CORDE our Maintenance Contractor.

Completed Wilson Drive Stormwater Upgrade

Key Metrics

Investigation Phase	As at 7 April	This report
Triaging	0	0
Scoping	4	0
Under investigation	8	0
Submitted for approval	36	25
Investigations completed	40	63
% of work Investigation completed	86%	97%
Total	**88**	**88**

Implementation Solutions	As at 7 April	This report
Not yet determined	47	25
Physical Works FY23/24	28	40
Future year capex	6	10
No action/Customer Advice	7	13
Total	**88**	**88**

Maintenance Actions Phase	As at 7 April	This report
To be started	0	0
Work in progress	3	0
Works programmed	17	16
Completed	106	110
Total	**126**	**126**

Key Focus Areas

Cam River	ECan maintenance work on the Cam River up to Bramleys Road has been completed. ECan have commenced the Maintenace of Bramleys Road to Marsh Road and are now working past Youngs Road. Localised stop bank improvement work has been completed upstream from Bramleys Road bridge.	**Works Underway**
Tuahiwi	Maintenance of Tuahiwi Stream from Greens Road to the Cam River, Te Pouapatuki Road drain are complete, with the Greens Road diversion programmed. A survey of the Greens Road diversion has been completed to inform the design for the upgrade of a Greens Road diversion culvert.	**Maintenance Completed/Under Investigation**
Waikuku Beach	A Waikuku modelling study is to be undertaken to determine the cause of flooding which was higher than expected. This work will look at factors such as the operation of the flood gate, upstream development, and the catchment hydrology, including any recharge from the Ashley River.	**Under Investigation**
Swindells Road, Waikuku Beach	Temporary pump tender awarded delivery expected in 6 weeks. Design of pipework improvements being finalised.	**Works Programmed**
Stalkers Road, Woodend Beach	The Stalkers Road Upgrade has now been completed	**Completed**
Cust Road, Cust	New larger soakpits have been installed, but were overloaded in the July 2023 event. Design for overflow pipe to the lower terrace has commenced.	**Future year capex**
Washington Place, West Eyreton	The Box Culverts have bee ordered due to the long lead times for supply, with the physical works being tendered shortly.	**Works Programmed**
Featherstone Ave, Kairaki	Issue with inflow and infiltration overloading the sewer. Urgent works to address main issues in campground completed. Additional remedial work on manholes and laterals in Featherstone Ave to be progressed.	**Works Programmed**
Cones Road, Ashley	Construction has started	**Works Underway**
Resurgence Flow, Mandeville	Council has approved Stage 1 and 2 recommendations to move forward to public LTP consultation. Public consultation drop-in session for LTP will be held on 11 April 2024 to inform LTP decisions.	**Future year capex**
Beach Crescent, Waikuku Beach	Install sumps and pipework to connect existing low points to a new pump chamber in the campground and install a discharge main through to the sand dunes for the discharge from a portable pump. Design is under review.	**Under Investigation**
Tram Road, Clarkville	Upsize 375mm on north side of Tram Road to a 750mm culvert. Design approved and tender documents are being prepared. Landowner discussions underway to confirm construction access.	**Waiting to be programmed**
Upper Sefton Road, Sefton	Investigation report under review. Site meeting to be organised after review of options are complete.	**Under Investigation**

Flood Recovery Tracking May 2024

As at 15 May 2024

Work package	Location	Report status	Investigation Outcome	% Completed
23I-01	228 Marsh Road & 2 Marshall Street, Rangiora	Submitted for Review		75
23I-02	12 & 14 Pascoe Drive, WOODEND	Submitted for Review		75
23I-03	1639 Poyntzs Road, HORRELLVILLE	N/A	Physical Works FY23/24	100
23I-04	138 Edmunds Road & 585 Tram Road, CLARKVILLE	N/A	Physical Works FY23/24	100
23I-05	19 B Newnham Street, RANGIORA	Submitted for Review		75
23I-06	165 Raddens Road, OHOKA	Approved	Physical Works FY23/24	100
23I-07	1758 North Eyre Road, EYRETON	N/A	Physical Works FY23/24	100
23I-08	242 Jeffs Drain Road, CLARKVILLE	Submitted for Review		75
23I-09	785 Tram Road, WAIMAKARIRI DISTRICT	Submitted for Review		75
23I-10	489 Woodfields Road, SWANNANOA	Submitted for Review		75
23I-11	97 & 97 A Threlkelds Road, OHOKA,	Submitted for Review		75
23I-12	153,157 & 180 Loburn Terrace Road, LOBURN NORTH	Approved	Physical Works FY23/24	100
23I-13	187 Terrace Road, CUST	Submitted for Review		75
23I-14	Waikuku Beach Road / Leggits Road, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
23I-15	236 & 269 Swannanoa Road, FERNSIDE	Submitted for Review		75
23I-16	196 Loburn Terrace Road, LOBURN NORTH	Approved	No Action/ Customer Advised	100
23I-17	60 Siena Place, MANDEVILLE	N/A	Physical Works FY23/24	100
23I-18	13 & 26 Collins Drive, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
23I-19	79 Park Terrace, WAIKUKU BEACH	Submitted for Review		75

23I-20	4, 6 & 8 Waikuku Beach Road, WAIKUKU BEACH & 1/57 Topito Road, TUAHIWI	Approved	Future Year CAPEX	100
23I-21	229 Island Road, KAIAPOI	Submitted for Review		75
23I-22	214 Greigs Road, CLARKVILLE	Submitted for Review		75
23I-23	964 Woodfields Road, CUST	N/A	No Action/ Customer Advised	100
23I-24	102 Topito Road, TUAHIWI	Approved	Physical Works FY23/24	100
23I-25	29 Reserve Road, WAIKUKU BEACH	Approved	Future Year CAPEX	100
23I-26	23 & 31 Queens Avenue, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
23I-27	3 B Charles Street, RANGIORA	N/A	No Action/ Customer Advised	100
23I-28	793 Browns Road, SWANNANOA	Submitted for Review		75
23I-29	152 Ohoka Road, KAIAPOI	N/A	No Action/ Customer Advised	100
23I-30	8 Rowse Street, RANGIORA	Approved	No Action/ Customer Advised	100
23I-31	102 Eders Road, WOODEND	N/A	No Action/ Customer Advised	100
23I-32	47 Upper Sefton Road, SEFTON	Submitted for Review		75
23I-33	82 & 110 Old North Road, KAIAPOI	Approved	Physical Works FY23/24	100
23I-34	198 Sladdens Farm Road, COOPERS CREEK	N/A	Physical Works FY23/24	100
23I-35	69 Old North Road, KAIAPOI	N/A	Physical Works FY23/24	100
23I-36	18 Evans Place, KAIAPOI	N/A	No Action/ Customer Advised	100
23I-37	105 Otaki Street, KAIAPOI	N/A	No Action/ Customer Advised	100
23I-38	2 Alpine Lane (Pvt), KAIAPOI	Submitted for Review		75
23I-39	43 Cam Road, KAIAPOI	N/A	Future Year CAPEX	100
23I-40	3 Allin Drive & Kings Avenue, WAIKUKU BEACH	N/A	Physical Works FY23/24	100
23I-41	10 Parkinson Place, WOODEND	Submitted for Review		75
23I-42	246 Revells Road, KAIAPOI	Submitted for Review		75
23I-43a	3307 South Eyre Road, EYREWELL	N/A	No Action/ Customer Advised	100

23I-43b	3359 South Eyre Road, EYREWELL	Approved	Physical Works FY23/24	100
23I-44	533 Lower Sefton Road, ASHLEY	Submitted for Review		75
23I-45	3 Railway Street, SEFTON	Submitted for Review		75
23I-46	67 & 77 Fairweather Crescent, KAIAPOI	Submitted for Review		75
23I-47	119 Greens Road, TUAHIWI	Approved	Physical Works FY23/24	100
23I-48	183 B Tuahiwi Road, TUAHIWI	N/A	No Action/ Customer Advised	100
23I-49	109 Te Pouapatuki Road, WOODEND	Approved	Physical Works FY23/24	100
23I-50	1/57 Topito Road, Tuahiwi	Submitted for Review		75
23M-066	127 Mairaki Road, Waimakariri District	Approved	Physical Works FY23/24	100
FT04	310 Beach Road, KAIAPOI	N/A	Physical Works FY23/24	100
23M-027 23M-081	Fullers Road, Kaiapoi	Submitted for Review		75
FT10	59 Main North Road, KAIAPOI	N/A	Physical Works FY23/24	100
FT17	15 Cridland Street West, KAIAPOI	N/A	Physical Works FY23/24	100
FT24	31 & 35 Broadway Avenue, WAIKUKU BEACH	N/A	Physical Works FY23/24	100
FT25	34 Kiwi Avenue, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
FT27	4 Swindells Road	N/A	Physical Works FY23/24	100
FT31	29, 30 & 31 Pegasus Main Street, PEGASUS	N/A	Future Year CAPEX	100
FT37	Church Street Reserve, OXFORD	Approved	Physical Works FY23/24	100
FT42	5 & 10 Wilson Drive. OHOKA	N/A	Physical Works FY23/24	100
FT44	1461 Main North Road (Sh1) (Wnd-Amb), WOODEND	N/A	Physical Works FY23/24	100
FT45	6 & 16 Macdonalds Lane, WAIKUKU	Approved	Future Year CAPEX	100
FT46	2, 4, 11, 14 & 28 Stalkers Road and 62 Ferry Road, WOODEND BEACH	N/A	Physical Works FY23/24	100
FT49	1838 & 1840 Cust Road. CUST	N/A	No Action/ Customer Advised	100
FT50	1689 & 1689 B Cust Road, CUST	N/A	Physical Works FY23/24	100
FT56	4123 South Eyre Road, EYREWELL	N/A	Future Year CAPEX	100

FT62	56 Featherstone Avenue, KAIRAKI	N/A	Physical Works FY23/24	100
H08	14 Blakeley Place & 13 Belcher Street, KAIAPOI	Approved	Physical Works FY23/24	100
H14	1140 & 1170 Woodfields Road and 50 Howsons Road, CUST	N/A	Physical Works FY23/24	100
H16	205 Cones Road / Fawcetts Road & 36 Max Wallace Drive, ASHLEY	N/A	Physical Works FY23/24	100
H18	79 Greens Road, TUAHIWI	Submitted for Review		75
H21	28 Belmont Avenue, RANGIORA	Submitted for Review		75
H24	32 Wetherfield Lane, MANDEVILLE	N/A	Future Year CAPEX	100
H27	376 Island Road, KAIAPOI	N/A	No Action/ Customer Advised	100
H30	308, 380 & 414 No 10 Road, EYRETON, 1124 & 1126 Tram Road, WAIMAKARIRI DISTRICT, 8 Wetherfield Lane, MANDEVILLE	N/A	No Action/ Customer Advised	100
H32	5 Washington Place, WEST EYRETON & 9 Earlys Road, CUST	N/A	Physical Works FY23/24	100
H41	301, 305 & 306 Tram Road, WAIMAKARIRI DISTRICT	Approved	Physical Works FY23/24	100
N08	15 & 29 Holland Drive, KAIAPOI	Approved	Physical Works FY23/24	100
N13	10 Beach Crescent, WAIKUKU BEACH	Submitted for Review		75
N18	29 & 53 Northside Drive, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
N19	16 Church Bush Road, TUAHIWI	Approved	Future Year CAPEX	100
N30	150 Bramleys Road, TUAHIWI	N/A	Physical Works FY23/24	100
N32	45 Queens Avenue, WAIKUKU BEACH	Approved	Physical Works FY23/24	100
NS1	51 Percival Street, RANGIORA	N/A	Future Year CAPEX	100
NS4	32 Wetherfield Lane, MANDEVILLE (FYI SR is actually for 380 No10 Road)	N/A	Future Year CAPEX	100
NS5	183 B & 255 Tuahiwi Road, TUAHIWI	N/A	Physical Works FY23/24	100

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	EXT-04-385 / 240506071112
REPORT TO:	UTILITIES AND ROADING COMMITTEE
DATE OF MEETING:	28 May 2024
AUTHOR(S):	Lorena Cardenas Corrales – 3 Waters Compliance Officer Jason Recker – Stormwater and Waterways Manager
SUBJECT:	Rangiora Stormwater Annual Report 2021-2023 & Monitoring Programme Report 2022-2023

ENDORSED BY:
(for Reports to Council, Committees or Boards)

General Manager

Chief Executive

1. SUMMARY

1.1. This report summarizes the key findings of two reports: the 2021-2023 Stormwater Annual Report and Stormwater Monitoring Programme 2022-2023 for Rangiora, both under Stormwater Discharge consent CRC184601, and presents full reports as Attachment i and Attachment ii.

1.2. The monitoring results have been used to develop a programme of works to target areas where elevated levels of contaminants have been identified during wet weather events. This includes specific, catchment-based maintenance and operational interventions along with targeted areas for further investigations.

1.3. For the Annual Report, the majority of the conditions of consent CRC184601 were assessed as compliant, including:

1.3.1. Reporting on development sites approved to discharge under the consent, on discharges occurring within community drinking water supply protection zones, flood modelling updates, stormwater systems vested to council.

1.3.2. Reporting on spills; stormwater sampling and data analyses, providing comparison on long-term trends to inform projects for the Stormwater Management Plan; amongst others.

1.3.3. Note that a consent condition is a certain standard, requirement or limitation specified in a resource consent. These are set by Environment Canterbury following the written decision to grant the consent, in this instance for stormwater discharges.

1.4. One area reported as non-compliant was maintenance works. This is due to a disconnect between the contract maintenance frequencies (written in 2019) and the consent maintenance Schedule 2 (approved in 2021). This is already being addressed in preparation for the next contract this year. This gap led to sump cleaning works being completed after the completion and submission of the report:

1.4.1. The sump cleaning works that were due to be delivered by 2023, were completed in April 2024, after the submission of this report to Environment Canterbury.

1.4.2. Additionally, internal clarification sought in May 2024 regarding Schedule 2 concluded that WDC does not need to report on the servicing of soakage chambers to Environmental Canterbury, but rather on the sumps that discharge

to the soakage chambers. These changes are being incorporated onto the 2023-24 financial year report.

1.5. For the Stormwater Monitoring Programme 2022-2023, **wet weather sampling** of the following contaminants showed compliant results for all urban waterways, in alignment with the guidelines set in the Canterbury Land and Water Regional Plan (CLWRP):

1.5.1. Total Suspended Solids (TSS); compliant in all sampling sites. The guideline value was also met for dry weather sampling. This is monitored as a guide for erosion and sediment contamination (e.g. construction sites).

1.5.2. Total Ammoniacal Nitrogen (TAN); compliant in all sampling sites. Guidelines were also met during dry weather sampling. Used as an indicator of pollution from agricultural run-off (e.g. fertilizers).

1.5.3. All the following water quality parameters monitored during **dry weather sampling** were also found to meet the guidelines set in the CLWRP. Despite these not being a compliance requirement, they are still monitored as an indicator of good ecosystem health in the streams, and included meeting guidelines for:

(i) Dissolved oxygen, Temperature and pH;

(ii) Total Ammoniacal Nitrogen and TSS; as above.

(iii) Dissolved Reactive Phosphorus (DRP); compliant results below the guideline. These are recorded as an indicator of wastewater overflows.

1.6. With regards to exceedances (i. e. non-compliances) during **wet weather events**, these were encountered for the following contaminants in specific stormwater sampling points discharging onto the following streams:

1.6.1. Dissolved Copper: North Drain, North Brook, Middle Brook;

1.6.2. Dissolved Zinc: North Drain, North Brook, Middle Brook;

1.6.3. Dissolved Reactive Phosphorus: all urban waterways, except Cam River;

1.6.4. and *E. coli*: all urban waterways except Cam River;

1.7. There were also exceedances for **dry weather** sampling, which are not requirements of compliance. This was the case for measurements in conductivity (Middle Brook, South Brook, No. 7 Drain), Dissolved Inorganic Nitrogen (North Brook, South Brook, No. 7 Drain) and *E. coli* (Middle Brook). The later, is being followed up with planned site-specific investigations.

1.8. Recommendations from the Annual Report 2021-2023 include: ensure maintenance timeframes are met for this financial year 2023-2024; include maintenance records of sumps discharging to soakage chambers; and improve data analyses for this financial year 2023-2024 to inform and prioritize actions and projects based on trends.

1.9. Recommendations from the Stormwater Monitoring Programme 2022-2023 include: to prioritise actions to reduce dissolved Zinc levels in the North Brook and Middle Brook; to undertake actions to reduce dissolved Copper for North Brook, Middle Brook and No. 7 Drain; to investigate:

(i) sources of *E. coli* in Rangiora waterways, in particular for Middle Brook and South Brook;

(ii) sources of Copper in Rangiora waterways; and

(iii) characterization of rural inputs of Dissolved Inorganic Nitrogen and Dissolved Reactive Phosphorus in Rangiora waterways.

1.10. For the first time, trend Analysis of water quality data from 2021-2023 stormwater sampling was undertaken against baseline sampling data from 2014-2017. A positive outcome is that these analyses could not identify a significant increasing trend of contaminants through time. The only statistically significant increase trend encountered was for Dissolved Zinc in North Brook. Further sampling and improvement of statistical analyses will further inform the monitoring report for 2023-2024.

1.11. These results and recommendations, alongside other information are being used in the preparation of the Rangiora Stormwater Management Plan (due for submission to Environment Canterbury 1 January 2025), where water quality improvement projects are being prioritised, costed and budget allocated with this information at hand.

Attachments:

i. CRC184601 Annual Report Stormwater Network Discharge Consent 2021-2023 (TRIM 240325047404)
ii. Rangiora Stormwater Monitoring Report 2022-2023 CRC184601 (TRIM 230919146639)

2. RECOMMENDATION

THAT the Committee:

(a) **Receives** Report No. 240506071112.

(b) **Notes** that compliant results were achieved during wet weather events for Total Suspended Solids in all urban waterways and Total Ammoniacal Nitrogen; likewise, guideline values were met during dry weather sampling as an indicator of stream health components including values for dissolved oxygen, temperature, pH, Total Ammoniacal Nitrogen, TSS and Dissolved Reactive Phosphorus in all urban waterways.

(c) **Notes** that there were exceedances (non-compliances) during wet weather events of dissolved Copper and dissolved Zinc in some Rangiora waterways, and Dissolved Reactive Phosphorus and *E. coli* in most Rangiora waterways; and during dry weather sampling guidelines were exceeded for Dissolved Inorganic Nitrogen and *E. coli*, specifically in the North Brook, South Brook and No. 7 Drain for the former, and Middle Brook for the latter.

(d) **Notes** that follow up investigations are recommended in this report, which will be carried out by 3 Waters staff under existing budgets in 2023-24 and 2024-25.

(e) **Notes** that a Rangiora Stormwater Management Plan 2025-2040 is currently being drafted as required by CRC184601 for 1 January 2025, which will address exceedances and improvements presented in these reports.

(f) **Circulates** these reports to the Waimakariri Water Zone Committee and the Rangiora-Ashley Community Board.

3. BACKGROUND

3.1. A Stormwater Network Discharge Consent for Rangiora township (CRC184601) was granted in May 2021.

3.2. The discharge consent requires WDC to report to Environment Canterbury with an Annual Report at the end of each financial year (condition 35); and to outline the results of the stormwater Monitoring Programme for that financial year, discussing findings and trend analysis from the sampling of contaminants undertaken in the urban waterways of Rangiora, in comparison to baseline monitoring sampling undertaken in 2014-2017. Due to the nature of the information, these requirements are presented in separate reports.

3.3. The Rangiora Annual Report 2021-2023 is the first Annual Report submitted to Environment Canterbury for consent CRC184601. Previous reports to this committee about this consent include the Rangiora Stormwater Monitoring Programme Annual report 2021-2022 in October 2023 (TRIM 230904136693).

3.4. The delay in Annual Report drafting, including the preparation of the Monitoring Programme report 2022-2023, is attributed to WDC staff capacity, which has now been increased within the 3 Waters team to facilitate the implementation of the consent. In addition, as this is the first annual report, time was taken to gain a comprehensive understanding of the consent requirements spanning from 2021 to 2023 and assemble the information from across Council. Hence, two financial years were reported within this first submission of the Annual Report.

3.5. The Rangiora Annual Stormwater Report 2021-2023 and Rangiora Stormwater Monitoring Programme Report 2022-23 were submitted on 16 of April 2024 to Environment Canterbury and Ngāi Tūāhuriri Rūnanga as per consent condition 35.

3.6. The delay in presenting this report to the committee after submission to the Regional Council and mana whenua, is explained by WDC prioritising meeting the requirements of consent with the regulatory authority as soon as practicable, while setting up new systems that will allow for the reporting of this financial year to be submitted to the committee in advance, including future reporting about this consent.

4. ISSUES AND OPTIONS

4.1. 3 Waters team has initiated implementation of the recommendations from the Annual Report 2021-2023, which include:

4.1.1. Incorporating maintenance records of sumps discharging to soakage chambers.

4.1.2. Improving trend analyses for 2023-2024 using data analyses tool (Time Trends, NIWA).

4.1.3. To meet maintenance timeframes for financial year 2023-2024.

4.2. After submission of this report to Environment Canterbury, an internal update was received with confirmation regarding the sump cleaning works for financial year 2022-2023, being completed by April 2024.

4.3. Additionally, further advice was sought internally, and further understanding was gathered with regards servicing to the soakage chambers. This item is not required to be reported to Environment Canterbury under Schedule 2, but rather the sumps connecting to the soakage chambers, which is covered by the contract (CON 19/43). This is not reflected in the recommendations from the Annual Report, however this reporting change is being addressed for Financial Year 2023-2024.

4.4. The recommendations from the Rangiora Stormwater Annual Report 2021-2023 are:

4.4.1. **CORDE and Delta**: To report back to WDC by the end of each financial year on maintenance works carried out as per Schedule 2 frequencies and requirements, with a clear description of the asset maintained, inspection date and frequency of maintenance aligned with the Schedule.

4.4.2. **WDC Roading Team, WDC Operations Team, Greenspace, Stormwater Engineer, 3 Waters Compliance Officer**: To improve CON 19/43 (Roading/CORDE) and CON 16/51 (Greenspace/Delta) to align better with stormwater maintenance works and compliance with this consent. Ensuring that work contracted meets the stormwater maintenance schedule and compliance requirements, identifying overlaps or gaps between contracts, amending contract conditions as required and ensuring a clear and consistent reporting system is set

up. In collaboration with Stormwater Engineer, 3 Waters Compliance Officer, WDC Operations, Roading and Greenspace teams.

4.4.3. **Stormwater Engineer**: To review the Delta maintenance contract and create a contract variation to ensure that all basins are included and being maintained as per Schedule 2 frequencies.

4.4.4. **3 Waters Compliance Officer**: To retrieve a snapshot of the maintenance works done in RAMM (sump cleaning) at the end of each financial year from Roading team.

4.4.5. **3 Waters Compliance Officer**: To propose an updated Schedule 2 in collaboration with WDC teams and ECan to streamline reporting on maintenance works and give a wider picture of all types of maintenance works, such as road sweeping and gross pollutant trap cleaning.

4.4.6. **WDC Roading Team, 3 Waters Compliance Officer**: To increase road sweeping frequencies in industrial areas, such as Southbrook, to improve stormwater quality in areas that need it most, in collaboration with WDC Roading team.

4.5. From the same report, recommendations specific to the Stormwater Monitoring Programme reporting are:

4.5.1. **Water Environment Advisor, 3 Waters Compliance Officer**: To seek approval for the revised first flush conditions from the Regional Manager Compliance at Environmental Canterbury.

4.5.2. **3 Waters Compliance Officer**: To improve trend analysis methodology, by upskilling on using Time Trends software (by NIWA) to analyse data, and the application of new statistical tests (Mann-Kendall test, as opposed to linear regression), which will allow for adjusting water quality data and contaminant concentrations for the rainfall depth specific to each sampling event. This is a more accurate approach to compare contaminant sampling results over time and understand trends over a time period (from 2014 to currently).

4.5.3. **3 Waters Compliance Officer, Lutra**: To audit the stormwater data app (Infrastructure Data) for data quality, to address solutions in collaboration with the App manager (Lutra), to facilitate a streamlined process for data download for the 2023-24 reporting onwards.

4.5.4. **Environment Canterbury**: To provide information to WDC on which discharge consents are currently active in Rangiora, and the latest compliance monitoring that has been undertaken as per their consent, to inform WDC in decision making of high-risk sites.

4.6. In 2023, all monitoring data was transferred to Infrastructure Data (ID) software, to aid with water quality data recording from the field, data visualization, data sharing and data analyses. We have found that the data analysis function is not supported with ID to the level of detail that is required by this consent, and therefore the 3 Waters Compliance Officer recommends the use of Time Trend by NIWA as the best available and free tool in New Zealand which supports the study and analyses of water quality data to the level required.

4.7. The recommendations from the Rangiora Stormwater Monitoring Programme Report 2022-2023 are:

4.7.1. Prioritise actions to reduce Dissolved Zinc levels in the North Brook due to high level of exceedances found in sampling sites. Actions are also recommended for the Middle Brook.

4.7.2. Investigate sources of Zinc in North Brook and Middle Brook, as recommended in 2021-2022.

4.7.3. Investigate sources of *E. coli* in Rangiora waterways, particularly investigate whether the source is rural run off.

4.7.4. Undertake actions to treat *E. coli* levels in Rangiora waterways, in particular for the Middle Brook and South Brook, due to high exceedances found during dry weather.

4.7.5. Undertake actions to reduce Dissolved Copper for the North Brook, Middle Brook and No. 7 Drain catchments (also recommended in 2021-2022).

4.7.6. Investigate sources of DRP in the North Brook, and initiate engagement with landowners and the community to tackle the problem at source, where possible.

4.7.7. Actions required to treat and identify sources of Dissolved Inorganic Nitrogen (DIN) in South Brook, as recommended in 2021-2022.

4.7.8. Actions required to improve the functioning of Pond C, including treatment of DRP levels and E. coli. This was also recommended in 2021-2022.

4.7.9. Expand data analysis of trends with more targeted analysis which include exploratory analyses to understand the distribution of data, and the use of Time Trends software to include rainfall adjustments and a more accurate analysis.

4.8. Although this report presents some results which are non-compliant with CRC184601 consent values for a range of contaminants, Environment Canterbury is aware that this non-compliance will take time for the Council to rectify. The Council proposed in the consent application for CRC184601 to achieve full compliance by the year 2040. The actions and details of these recommendations will be addressed with the Rangiora Stormwater Management Plan 2025-40. This will address budget requirements and define a process for prioritising stormwater water improvement projects.

4.9. The implications of addressing the non-compliances by 2040 include:

4.9.1. Site specific investigations targeting specific contaminant exceedances to further locate the source of contaminants.

4.9.2. The Stormwater Management Plan is currently being prepared to specifically target identified problem areas and exceedances. This plan includes prioritising stormwater treatment projects designed to address these issues and improve the quality of stormwater discharges and urban waterways.

4.9.3. Ensuring the next roading and drainage contract frequency requirements are aligned with the consent requirement frequencies outlined in CRC184601.

Implications for Community Wellbeing

There are no implications on community wellbeing by the issues and options that are the subject matter of this report. The implementation of the recommendations and the Stormwater Management Plan will improve the water quality in waterways which will ultimately benefit and enhance community wellbeing.

4.10. The Management Team has reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. **Mana whenua**

Te Ngāi Tūāhuriri hapū are likely to be affected by or have an interest in the subject matter of this report. The report was circulated to the hapū via MKL on 16 April 2024. WDC has not received any feedback to-date.

5.2. **Groups and Organisations**

There are groups and organisations likely to be affected by, or to have an interest in the subject matter of this report, such as the Waimakariri Water Zone Committee.

5.3. **Wider Community**

The wider community is not likely to be affected by, or to have an interest in the subject matter of this report.

6. OTHER IMPLICATIONS AND RISK MANAGEMENT

6.1. **Financial Implications**

The budget for Rangiora stormwater monitoring and follow-up investigations are already included in the Long-Term Plan.

Budgets for stormwater improvements to meet consent CRC184601 conditions are already allocated in the Long-Term Plan.

Staff plan to manage the maintenance and operations activities identified within existing budgets. Staff will monitor this expenditure and use it to help inform future annual plan and LTP budgets.

6.2. **Sustainability and Climate Change Impacts**

The recommendations in this report do have sustainability and/or climate change impacts. Improvements in Stormwater Management will aid in the sustainable management of our catchments and waterways for uses such as mahinga kai and recreation.

6.3 **Risk Management**

There are no risks arising from the adoption/implementation of the recommendations in this report.

6.3 **Health and Safety**

There are no health and safety risks arising from the adoption/implementation of the recommendations in this report. Health and Safety risks are actively identified and managed *in situ* during stormwater monitoring fieldwork.

7. CONTEXT

7.1. **Consistency with Policy**

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

7.2. **Authorising Legislation**

The Local Government Act 2002 sets out Council roles in managing stormwater infrastructure. The Resource Management Act 1991 sets out consenting requirements for stormwater discharges.

7.3. **Consistency with Community Outcomes**

The Council's community outcomes are relevant to the actions arising from recommendations in this report.

7.4. **Authorising Delegations**

Not applicable as this report is for information only.

Rangiora Stormwater Network Discharge Consent

Annual Report 2021-2023

Prepared by Waimakariri District Council for CRC184601
March 2024

Prepared for: Regional Leader - Compliance Monitoring and Te Ngāi Tūāhuriri Rūnanga

Prepared by: _____ Lorena Cardenas 3 Waters Compliance Officer

Reviewed by: _____ Sophie Allen Water Environment Advisor

Approved by: _____ Jason Recker Stormwater and Waterways Manager

on behalf of 3 Waters, Waimakariri District Council

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3	Sophie Allen	Review of final draft	22/03/2024
4	Lorena Cardenas	Submitted to SWM for approval	25/03/2024
5	Jason Recker	Review	2/04/2024
6	Kalley Simpson	Review	10/04/2024

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A list of appendixes is provided with this report submission, as follows:

1. Purpose of the Annual Report

In May 2021, Environment Canterbury Regional Council (ECan) granted the Rangiora Global Stormwater Network Discharge consent CRC184601 to the Waimakariri District Council (WDC). As per Condition 35, WDC must produce an Annual Report each year, to report on the previous 12-month period of consent activities undertaken. This Annual Report is provided to the Canterbury Regional Council, Attention: Regional Leader – Compliance Monitoring and Te Ngāi Tūāhuriri Rūnanga.

This first Stormwater Network Discharge Consent (SNDC) Annual Report for Rangiora covers two reporting periods from July 2021 to 30 June 2023. It also summarises information from the 2021-22 and 2022-23 Monitoring Programme Reports. This is due to resourcing reasons at council in preparation for the implementation of this consent, as outlined in the next section.

2. Introduction

The Territorial Authorities within the Canterbury region are required to submit Stormwater Network Discharge Consent Applications for all major towns in their district. The Waimakariri District Council (WDC) lodged an application for a Stormwater Network Discharge Consent (SNDC) for Rangiora township, which was approved in May 2021 (CRC184601).

As part of the conditions for consent, WDC is required to report to ECan for each financial year on a series of information outlined in Condition 35 of CRC184601. This includes a report on water quality based on our approved Stormwater Monitoring Programme for Rangiora.

The reporting period is the financial year of 1 July – 30 June. Since this consent was approved (May 2021), the reporting period came into effect on the 1 July 2021. WDC is therefore due to submit an Annual Report on the following years of 2021 – 2022 and 2022 – 2023.

Due to various reasons, including increasing Council's capacity to implement the consent, and the first time compiling an annual report for this consent, WDC has not been able to report fully on these conditions. Most of the information is recorded within Council. However, there are challenges that have been encountered in compiling the data such as:

a) interpreting the consent wording and what is required;
b) understanding with whom and within which department the information requested is stored;
c) compiling this information between WDC departments and setting up these systems;
d) onboarding staff to coordinate and develop the annual report.

In 2023, a water quality report (TRIM 220512075696) was provided to ECan, presenting the results for the WDC Rangiora Stormwater Monitoring Programme from 2021-2022. This Annual Report also includes information from that monitoring report. During the preparation of this report, information was requested and collected from our different Council departments between the dates of July 2021 and 30 June 2023.

A Stormwater Monitoring Programme report for 2022-2023 has also been prepared separately. This document is submitted separately under the title "Rangiora Stormwater Monitoring Programme Report 2022-2023" (Appendix 1). Other documents included within this report are supplied in the Appendices.

3. Background

Resource Consent CRC184601 condition 35 requires Waimakariri District Council to submit an annual report to both the Canterbury Regional Council and Te Ngāi Tūāhuriri Rūnanga.

The specific contents of this report are defined by Conditions 35(a) to (l). Information for compliance with these conditions is presented in the following sections. The structure and headings for this report are aligned with these consent conditions. Information on this is presented in order of appearance within Condition 35, from section 10 to section 19.

Additionally, information for further compliance is found outside of Condition 35. These have been included as part of this annual report, and are listed first, in order from sections 5 to 9.

Sections 12, 13 and 14 relate to results previously outlined in the Stormwater Monitoring Programme Report 2022-2023 (water quality report). Therefore, a summary and discussion are presented here, while all specific details are provided in the original report.

In addition to that, a WDC assessment is included at the beginning of each section, stating the evaluation by WDC in terms of compliance with the condition. Categories used to describe this include “compliant (information provided), no data to report, non-compliance, N/A (non-applicable)”.

Table 1 lists all the sections that relate to each consent condition. These headings have made clickable (*Control + click*) for easier navigation:

Table 1. Summary of conditions corresponding to sections in this report and where to find them

Condition	***Description***	***Section***	***Assessment***
Condition 14 and 21	List of Development sites approved to discharge under CRC184601 consent and a summary of sites discharging in accordance with this consent (Condition 35k)	5. List of development sites approved to discharge and summary of sites	Compliant
Condition 15	Stormwater discharges approved located within domestic and community drinking water supply protection zone (DWPZ) (Condition 15)	6. Stormwater discharges in drinking water protection zones (DWPZ)	Compliant
Condition 16	An update on the water quantity and flood modelling	7. Update on Water Quantity and Flood Modelling	Compliant
Condition 24	Update on the high-risk site assessment and management programme	8. Update on the high-risk site assessment and management programme	N/A (until January 2025)
Condition 26	Update on how WDC is ensuring compliance with condition 26, and whether there have been any spills of significance since the consent was granted	9. Spills of Significance and condition 26	Compliant

Condition 35	Provide an Annual Report including:		Compliant
35a, condition 22 and 23	Maintenance works undertaken	10. Maintenance works	Compliant; non-compliant; Data deficient (see section 10.8)
35b	Monitoring Programme Updates and list of changes made	11. Stormwater Monitoring Programme Updates 11.1 List of informal Changes between 2021-2023	Compliant
35c	Results of Monitoring in a suitable format to upload to CRC water quality database, including:	12. Results 12.2 Data in a suitable format (Appendix 3) 12.4 Monitoring Results (Appendix 1)	Compliant. See table 12.
35c-i	Name of the person who collected samples, date and time samples were collected	12.2 Data in a suitable format Appendix 3	Compliant
35c-ii	Rainfall Data associated with Stormwater sampling events, including: date, time, duration, rainfall depth of the storm event	12.3 Rainfall data for sampling events	Compliant
35d	Interpretation of any long term or site-specific trends in surface water quality, stormwater quality, ecology, or soil quality, including comparisons to previous years' monitoring and reference to monitoring data for the other environmental factors in the stream health sections	13. Interpretation of Trends	Compliant
35e	Interpretation of significance and possible reasons for any change in long term or site-specific trends	13.1 Interpretation of significance and reasons for changes	Compliant
35f	Report on the investigation undertaken and further actions and responses planned or undertaken in accordance with conditions 16 to 19	13.2 Investigations undertaken and responses planned	Compliant
35g	Discussion of Compliance with condition 8 (Receiving Environment Objectives) and	14. Discussion of compliance	Compliant

	condition 14 (Stormwater System Management); and results of investigations undertaken in accordance with condition 34 (Actions in response to monitoring), including but not limited to		
35g-i	i. documentation of and possible reasons for, trigger value exceedances, and further action taken or proposed in response to exceedances, including a timeline for future actions	14.1 Trigger value exceedances, actions and investigations	Compliant
35g-ii	ii. Documentation of service requests indicating any flooding of dwelling houses described in condition 8a	14.2 Service requests	Compliant
35g-iii	iii. A summary of any remedial or improvement works carried out to improve the quality of, or improve the management of quantify of stormwater discharges in that year, including any works planned or undertaken to address any flooding of dwelling houses described in condition 8a;	14.3 Remedial and improvement works	Compliant
35g-iv	iv. A summary of new stormwater systems vested to WDC during the preceding year which will discharge under this consent, and	14.4 New stormwater systems vested	Compliant
35g-v	v. a description of any future stormwater system proposals, including retrofitting of existing stormwater systems, to improve the management of stormwater within the Rangiora reticulated stormwater system;	14.5 Future Stormwater system proposals	Compliant
35g-vi	vi. Discussion of actions taken through management of stormwater discharges to protect and enhance mahinga kai species of value to Te Ngai Tuahuriri Runanga, and any enhancemenet of mahinga kai areas	14.6 Protecting and enhancing mahinga kai	Compliant

35h	Any updated information as a result of further site investigations, including but not limited to the extent of or changes to catchment boundaries, groundwater levels, and a discussion of the implications of the updated information	15. Sites investigations	Compliant
35i	Details of site audits undertaken of sites with pollution prevention plans that discharge under this consent, including a summary of compliance and whether corrective actions have been undertaken	16. Site Audits	Compliant
35j	A summary of sites that have been excluded from this resource consent in the last year, including an up-to-date version of the schedule of excluded sites	17. Sites Excluded from this consent in the last year	Compliant
35k	a summary of sites discharging in accordance with this consent for which erosion and sediment control plans were received by WDC in the last year, including a summary of sites where WDC have been advised that water treatment chemicals have been used and the date(s) of their use	5. List of development sites approved to discharge and summary of sites	Compliant
35l	report on breaches of the bylaw over the previous year which WDC is aware of	18. Breaches of the Bylaw	Compliant

4. Recommendations

To improve WDC reporting for 2023-34 and onwards, a list of recommendations and actions has been compiled and is presented as an improvement plant as follows:

Who	Task / Action	Timeframe
WDC Stormwater Engineer	To start recording and keep track of the frequency of inspection and servicing of soakage chambers.	Commence now and on-going
CORDE and Delta	To report back to WDC by the end of each financial year on maintenance works carried out as per Schedule 2 frequencies and requirements, with a clear description of the asset maintained, inspection date and frequency of maintenance aligned with the Schedule.	By July 2024
WDC Roading Team; WDC Operations Team and Greenspace; Stormwater Engineer; 3 Waters Compliance Officer	To improve CON 19/43 (Roading/CORDE) and CON 16/51 (Greenspace/Delta) to align better with stormwater maintenance works and compliance with this consent. Ensuring that work contracted meets the stormwater maintenance schedule and compliance requirements, identifying overlaps or gaps between contracts, amending contract conditions as required and ensuring a clear and consistent reporting system is set up. In collaboration with Stormwater Engineer, 3 Waters Compliance Officer, 3 Waters, Roading and Greenspace teams.	By July 2025
Stormwater Engineer	To review the Delta maintenance contract and create a contract variation to ensure that all basins are included and being maintained as per Schedule 2 frequencies.	By July 2025
3 Waters Compliance Officer	To retrieve a snapshot of the maintenance works done in RAMM (sump cleaning) at the end of each financial year from Roading team.	On 30 June 2024 and so on (at the end of each financial year)
3 Waters Compliance Officer	To propose an updated Schedule 2 in collaboration with WDC teams and ECan to streamline reporting on maintenance works and give a wider picture of all types of maintenance works, such as road sweeping and gross pollutant trap cleaning.	By July 2024
WDC Roading Team; 3 Waters Compliance Officer	To increase road sweeping frequencies in industrial areas, such as Southbrook, to improve stormwater quality in areas that need it most, in collaboration with WDC Roading team.	By November 2025
For the Stormwater Monitoring Programme reporting:		
Water Environment Advisor; 3 Waters Compliance Officer	To seek approval for the revised first flush conditions from the Regional Manager Compliance at Environmental Canterbury.	By July 2024

3 Waters Compliance Officer	To improve trend analysis methodology.	By June 2024
3 Waters Compliance Officer; Lutra	To audit the stormwater data app (Infrastructure Data) for data quality, to address solutions in collaboration with the App manager (Lutra), to facilitate a streamlined process for data download for the 2023-24 reporting onwards.	By June 2024
Environment Canterbury (ECan)	To provide information to WDC on which discharge consents are currently active in Rangiora, and the latest compliance monitoring that has been undertaken as per their consent, to inform WDC in decision making of high-risk sites.	By June 2024

5. List of development sites approved to discharge and summary of sites

WDC assessment: Compliant (information provided)

From 2021 to 2023, there is only one approval under sections 5 and 7.3 of the WDC Stormwater Drainage and Watercourse Protection Bylaw 2018 and Rule 5.93A of the Canterbury Land and Water Regional Plan, to discharge **construction and operational phase stormwater** into the WDC stormwater network.

Consent Reference	For works related to RC225258 & RC225257
Address	2 Todds Road, Rangiora
Holder name	Southbrook Holdings Limited
Date of discharge approval	7/12/2022
Expiry	7/12/2024
Duration	2 years
WDC Document reference	CRC184601 / 221205210022
Consent Type	Construction phase stormwater and operational phase stormwater
Stormwater Catchment Area	No.7 Drain
Notes	First approval granted under Rangiora Global Consent. Addresses removal of contaminated land first, before accepting any stormwater discharge

Table 2. Information of development authorised to discharge stormwater under CRC184601 in Rangiora 2021-2023. This includes both construction phase and operational phase stormwater.

5.1. Interpretation of Conditions

From Conditions 14 and 21, WDC is required to report on the following:

> *"List of all development/redevelopment sites including greenfield sites approved to discharge under this consent, and information relating to the quality and quantity mitigation required for that site (**Condition 14 and 21**)."*

In January 2024, the 3 Waters Compliance officer sought clarification from ECan on what this related to, with the answer being the above related to "**Operational phase stormwater**".

In addition to that, **condition 35k** requires WDC to provide the following:

> *"A summary of sites discharging in accordance with this consent for which erosion and sediment control plans were received by WDC in the last year, including a summary of sites where WDC have been advised that water treatment chemicals have been used and the date(s) of their use"*

The same clarification was sought, with ECan's response being the above relates to "**Construction Phase Stormwater**".

In view of the discussion above, this information provides answer to the consent requirement 35k, and the additional information requested under Condition 14 and 21.

5.2. Further commentary

It is noted that the number of stormwater approvals does not match the number of stormwater assets vested to WDC (see section *14.4 New Stormwater systems* vested). The reason for this is:

- Any new developments planning on discharging stormwater onto a receiving waterway, require a consent with ECan. Receiving waterways are shown on Plan CRC184601A as per consent documents. Any stormwater discharges planned for any of WDC network drains, as per Plan CRC184601A, require WDC written approval.
- For the latter, new developments are required to develop their stormwater systems in accordance with WDC CRC184601 conditions and best practices, with WDC development team reviewing, accepting, or requesting amends of such proposed plans.
- New private developments are required to maintain their stormwater systems for a 2 year "maintenance period", after which time, if there are no issues, the system can then be vested with council.
- Additionally, those Stormwater systems which have been vested to Council after the 2-year timeframe, require written approval from WDC to discharge under our network and our global consent.
- WDC received a series of requests from developers between 2022-2023, seeking approval to discharge stormwater under clause 5.93A of the CLWRP. From those requests, only one was approved, as presented in this section.
- Based on all the above, a list of 24 other active discharge consents discharging stormwater to water bodies, were identified within the Rangiora urban limits falling under ECan.
- All of the above provides further explanation for the discrepancy.

6. Stormwater discharges in drinking water protection zones (DWPZ)

WDC assessment: Compliant (information provided)

6.1. Context

Under Condition 15, WDC is required to not approve any stormwater discharges for any developments that fall within an ECan Community Drinking Water Protection Zone (CDWPZ), unless under (i), these developments have a reticulated water supply available.

It is noted, the following developments below do not present a stormwater discharge as such, rather they have a stormwater connection to our existing stormwater reticulated network.

6.2. Methodology

WDC has undertaken a search using the CDWPZ layer available from Environment Canterbury and has identified the following developments (Table 3). All resource consent decision letters were checked from our records for each development.

6.3. Results and information

Consent Code	Address	Applicant	Status	Date approved	Approved under condition
RC225001	269 West Belt	Helen Gwynne Andrews	Decision issued	2/11/2022	I (consent holder has made a reticulated water supply available to the property prior to discharge)
RC225173	276 King Street	Urban Arch Limited	Decision issued	3/05/2023	i (consent holder has made a reticulated water supply available to the property prior to discharge)
RC235162	46 Enverton Drive	David F Allaway & Estelle G Allaway	Decision issued	25/7/2023	i (consent holder has made a reticulated water supply available to the property prior to discharge)
RC235124	5-7 Lindon Street	Kainga Ora – Homes and Communities	Decision issued and under construction	11/09/2023	i (consent holder has made a reticulated water supply available to the property prior to discharge)
RC235123	61—65 Church Street	Kainga Ora – Homes and Communities	Decision issued and under construction	26/09/2023	i (consent holder has made a reticulated water supply available to the property prior to discharge)

Table 3. List of all developments identified between 2021-2023 that fall within a Drinking Water Protection Zone (DWPZ) in Rangiora

It is noted, for RC235162, 46 Enverton Drive, there was an existing connection to WDC drinking water supply and an existing stormwater connection to the kerb channel available, prior to submission and approval of this building consent.

6.4. Commentary

Since the approval of this consent in May 2021, there are no new development sites privately discharging stormwater within any community drinking water supply protection zones. All stormwater discharges from the identified developments are connected to WDC stormwater reticulated network. In addition to this, all developments that fall within a CDWPZ are required to connect to WDC existing water reticulation network as required by Condition 15.

7. Update on Water Quantity and Flood Modelling

WDC assessment: Compliant (information provided, nothing to report)

There have been no major updates to our existing Rangiora Urban Stormwater Model from 2021-2023.

However, there have been small updates undertaken on the model to account for new subdivision areas constructed between 2021 and 2023. This includes updates to the catchments and the network as well as the inclusion of any associated Stormwater Management Areas (SMAs). There have also been some technical and software updates.

The hydrological parameters used in WDC flood model come from a combination of NIWA rainfall data, Landcare soils, and parameters derived through high-level calibration undertaken a few years ago. The 2D infiltration parameters were derived from work undertaken by DHI Ltd using available soil parameters from ECan.

WDC uses the CCC Water and Wetlands Drainage Guide as a guideline. WDC models use parameters which have largely been developed in-house using data sources listed above.

8. Update on the high-risk site assessment and management programme

WDC Assessment: N/A (condition does not apply until 1 January 2025)

There has been no update to what was already established in our consent conditions between 2021-2023 as this condition does not apply until 1 January 2025.

WDC has begun implementing initial measures to meet this requirement for the financial year of 2024-2025. The initial measures include:

- Scoping a list of stormwater consents within Rangiora urban limits that will be assessed for potential exclusion under this consent, including:
    - Requesting a list of consents from ECan for Rangiora, and associated consent assessments
    - Undertaking a consent search within WDC internal records
- Preparation for the implementation of a Pollution Prevention Plan (PPP) as required under the Stormwater, Drainage and Watercourse Protection Bylaw (2018)
- Developing a Pollution Prevention Plans templates and processing procedures
- Initiating a test case (Southbrook Resource Recovery Park) to create a PPP to test processes.

There are other steps and actions not listed here as they are beyond the reporting requirements of 2021-2023. These actions will be reported in a future Annual Report.

8.1. Commentary

From our records, WDC identified a list of 24 other discharge consents that are currently active within the Rangiora urban limits. It is our understanding that these consents are monitored by ECan, with expiry dates beyond 2030 for all of them. A list of these consents is available on request.

The nature and responsibilities of these consents was discussed and clarified in a meeting with ECan on 2 February 2024. It is our understanding that, when ECan consents expire, if the discharge is into WDC Stormwater Network, these consents will fall under the current Rangiora Stormwater Network Discharge consent, after seeking written approval from council. However, if the discharge is into the receiving waterway or environment, as per Plan CRC184601A, these consent holders will need to apply for a new consent from ECan. The process for high-risk sites management will transfer gradually to WDC, starting in 2024 with testing our systems for processing Pollution Prevention Plans, and WDC criteria of medium-risk and high-risk sites.

Likewise, from the same meeting, an action was recorded by ECan to provide WDC with data relating all consents in Rangiora that currently are monitored by ECan and identified issues with compliance. The information above will inform WDC in our risk assessment and potential exclusion of high-risk sites.

9. Spills of Significance and condition 26

WDC assessment: 26a. Compliant (information provided); 26b. Compliant (information provided); 26c. N/A (Condition does not apply until 1 January 2025)

9.1. Requirements of condition 26 "Management of Spills"

WDC is ensuring compliance with condition 26a with the implementation of the WDC *Stormwater Drainage and Watercourse Protection Bylaw 2018*.

In the event of a spill, WDC has multiple teams responding, depending on the nature of the risk, from Civil Defence and Emergency Management, Roading, the Environmental Services Unit and 3 Waters.

These teams stay in communication during a spill event, follow up and ensure the contaminants are cleaned up and prevented from affecting the stormwater network. The response entails communicating with all parties, on-site assessments and organising the deployment of the appropriate clean-up method to mitigate contaminants. WDC is reviewing the current spill response to streamline how each team interacts with each other during a spill response.

For 2021-2023, WDC has documented the response to spill events in accordance with the conditions set up in the monitoring program. These are (as detailed in the Rangiora Stormwater Monitoring Programme Section 3.2):

> *Report on any spills that occurred over the previous year exceeding 5 litres that discharged via the reticulated stormwater system into the receiving environment, including the following information on each spill, if available:*
>
> *(i) Adherence to spill response timeframes set out in this programme section 3.2.1*
> *(ii) The time, date, location and estimated volume of spill;*
> *(iii) The cause of the spill;*
> *(iv) The type of hazardous substance(s) spilled;*
> *(v) Clean up procedures undertaken;*
> *(vi) Details of the steps taken to control and remediate the effects of the spill on the receiving environment;*
> *(vii) An assessment of any potential effects of the spill; and*
> *(viii) Measures to be undertaken to prevent a recurrence.*

See Tables 4 and 5 for a list of spill events responded to from 2021-2023 (TRIM 220215019302) that meet reporting requirements of Section 3.2.

In the event of detecting a spill with potential for stormwater runoff, WDC follows up with the site managers or site owners to ensure they remain accountable for cleaning up and installing appropriate sediment and erosion control measures that could enter the stormwater network. We have determined that proactive preparation and prevention before a rain event where a problem is identified, is most effective. WDC also receives notifications of any discharges or spills that are witnessed by members of the public. The same actions described above apply for this instance. These requests are received by WDC Customer Service team and directed to WDC 3 Waters team or other teams as a service request.

Date	**2/09/2022**
WDC Service Request number (or ECan pollution incidence response number if applicable)	HE2200473
Adherence to spill response timeframes set out in the monitoring programme section 3.2.1	Yes
The estimated time (and duration) of spill	N/A Natural source of oil and iron oxide
Location of spill (GPS and/or address)	21 Kowhai Avenue, Rangiora
Estimated volume of the spill	N/A Natural source of oil and iron oxide
The cause of the spill	Red and oily residue is believed by 3 Waters is from an iron pan layer in the soils in the area causing the discolouration.
The type of hazardous substance(s) spilled;	natural source of oil and iron oxide
Clean up procedures undertaken;	Boom used to soak up the oil. Oil was from Natural source, so not a spill response after event was investigated further.
Details of the steps taken to control and remediate the effects of the spill on the receiving environment;	N/A
An assessment of any potential effects of the spill;	N/A
Measures to be undertaken to prevent a recurrence.	N/A

Table 4. *Part 1*. List of spill events WDC responded to from 2021-2023 that meet CRC184601 requirement for reporting.

Date	**17/03/2023**
WDC Service Request number (or ECan pollution incidence response number if applicable)	N/A Trim 230321038729
Adherence to spill response timeframes set out in the monitoring programme section 3.2.1	Yes
The estimated time (and duration) of spill	Spill located at 9am, however it is believed to have been caused by vandals overnight
Location of spill (GPS and/or address)	47 White Steet
Estimated volume of the spill	5 L
The cause of the spill	Loader on construction site syphoned by vandals overnight. Diesel spilt on road in the process. Overnight rain may have increased likelihood this spill moved to stormwater network (North Brook Drain).
The type of hazardous substance(s) spilled;	Diesel fuel
Clean up procedures undertaken;	Spill kit used on area on diesel spill including absorbent matts and sawdust. V channel to stormwater network sump was blocked off. Bidim fabric was already in the sump from start of Job on 13/03/23. Mats were used in the water receiving environment to remove diesel sheen.
Details of the steps taken to control and remediate the effects of the spill on the receiving environment;	Same as previous box.
An assessment of any potential effects of the spill;	Moderate as small diesel spill and little displacement of diesel in receiving environment.
Measures to be undertaken to prevent a recurrence.	Loader with Diesel to be parked away from V channel and cameras were installed onsite.

Table 5. *Part 2*. List of spill events WDC responded to from 2021-2023 that meet CRC184601 requirement for reporting.

10. Maintenance works

WDC assessment: see each sub-section individually, and final section 10.8 for summary.

As part of consent condition 35a, WDC is required to report on maintenance works undertaken as below:

a. Maintenance works undertaken in accordance with conditions (22) and (23).

22

*Stormwater systems which form part of the Rangiora reticulated stormwater network, for which the WDC is responsible, shall be maintained in accordance with the "WDC Stormwater Maintenance Schedule", referenced as **CRC184601 – Schedule 2**.*

23

*WDC shall undertake all practicable measures to ensure that stormwater systems owned and operated privately, which discharge from the private system into the reticulated stormwater system and are covered under this resource consent, are **maintained in accordance with best practice** and to ensure that conditions (8) and (14) are given effect to.*

These are the details outlined in Schedule 2:

Waimakariri District Council

STANDARD STORMWATER MAINTENANCE SCHEDULE

Task	Minimum frequency of maintenance visit					
	Sumps			Swales		Infiltration and dry basins
	Key sumps	Non-key sumps	To soakage chambers	Urban	Rural-residential	
Removal of debris, and litter likely to adversely affect the operation of the system, within 10 working days of the maintenance visit	Yearly	Two Yearly	Yearly	6 monthly	Yearly	6 monthly
Removal of sediment likely to adversely affect the operation of the system, within 10 working days of the maintenance visit	Yearly	Two Yearly	Yearly	N/A	N/A	N/A
Removal of hydrocarbons that are visible over a total area of greater than 0.5 square metres (swales and basins) or a layer greater than 5 millimetres thick (sumps), within 10 working days of the maintenance visit	N/A	N/A	6 monthly	6 monthly	Yearly	6 monthly
Repair or stabilisation of erosion and scour, within 20 working days of the maintenance visit	N/A	N/A	N/A	6 monthly	Yearly	6 monthly
Replanting, where bare or patchy soil cover or sediment build up is greater than 10 square metres, or a total of five percent of the area of the device, whichever is the lesser, within 10 working days of the maintenance visit	N/A	N/A	N/A	6 monthly	Yearly	6 monthly
Weed control	N/A	N/A	N/A	6 monthly	Yearly	6 monthly

Figure 1. Stormwater Maintenance Schedule 2 for CRC184601.

10.1. Limitations of the Maintenance Schedule

It is noted, it is not possible for WDC to adequately report on the compliance with the Maintenance Schedule 2 at present for this Annual Report in Rangiora. Therefore, we are needing to adopt a more workable Maintenance Schedule 2 for future annual reports. For this purpose, a new proposed Maintenance Schedule has been created in collaboration with WDC teams in 3 Waters, Roading, Project Delivery Unit (PDU) and external contractors. This new Maintenance Schedule will be proposed for our stormwater network discharge consents coming up for our other towns (Oxford, Woodend, Kaiapoi).

However, for the purposes of reporting for the current consent, and given the current limitations, WDC reports as follows with the information that we have available to meet the current requirements set up in Schedule 2 to the best of our capabilities.

An example where the Maintenance Schedule is not fit for purpose is there are no swales as such in Rangiora. There are stormwater bubble-up systems in The Oaks subdivision, and open stormwater channels for non-urban areas in Rangiora. Therefore, the column "swales" does not apply. New stormwater systems have been added to the Contract CON 19/43 as developments were created. These specific stormwater retention systems are maintained at different frequencies within the Contract, which means they report under a separate schedule. These fall under the "dry basins" category of Schedule 2 and include the Oaks, Arlington Park and Ashley Bridge.

There is a total of 26 stormwater basins in Rangiora, which includes infiltration basins, dry ponds, wet ponds, constructed wetlands and soaking chambers (or soak pits), are all referred to as basins for simplicity. These are all maintained through different contracts and at different frequencies. From these 26 Stormwater basins, 20 are maintained by Delta. The rest are either maintained by WDC Greenspace rangers or CORDE contract CON 19/43 (overseen by the WDC Roading Team).

Additionally, there are other items not included in Schedule 2 which are important in improving the water quality of stormwater, such as road sweeping frequencies. This item will be discussed here even though it is not a requirement for consent. As part of our improvement for future consents and reporting, we will work to include road sweeping frequencies in our maintenance schedule.

Given the complexity of maintenance in the stormwater basins, WDC is still assessing options to simplify maintenance and streamline reporting.

10.2. Contractors

WDC contracts CORDE, Delta and Hydrovac Ltd to undertake various maintenance works in the Rangiora stormwater network. These contractors are managed from different units within our team, and so they report to WDC in different ways.

In the following pages, we present an explanation of what each contractor covers, and how this relates to the different categories set up in Schedule 2.

Contractor	**Items covered from Schedule 2**	**Items covered <u>not included</u> in Schedule 2**
CORDE	• Removal of debris and litter: a) Sumps (annually) b) Infiltration basins and specific stormwater retention systems (6 monthly)	• Road sweeping frequencies

Delta	• Regular checks on Drains, clearance and weeding • Removal of debris and litter: a) Trash grills b) Stormwater Management Areas (infiltration and dry basins) • Mowing and weed control: a) Swales b) Infiltration and dry basins • Removal of sediment (when necessary and scheduled): a) SMA (infiltration and dry basins)	
WDC Greenspace rangers	• Maintenance of SMA (wet ponds and wetlands)	
Hydrovac	• Removal of sediment (on request from WDC): a) Soakage chambers	

Table 6. Maintenance frequencies as per our current contract with the contractors. It is noted, our contractor frequencies match those set up on Schedule 2.

10.3. Delta: Maintenance of Drainage Channels and Stormwater Management Areas (SMA)

WDC Assessment: Compliant (information provided)

Delta is managed by the 3 Waters team and our Greenspace team under the Greenspace Maintenance Contract CON 16/51 (TRIM 240312038072). Delta is responsible for maintaining open drainage channels and Stormwater Management Areas (SMA) in Rangiora township. Their duties include inspecting the stormwater drains, removing debris and litter, and addressing any obstructions. Additionally, they conduct routine weeding and garden maintenance. Upon clearing the drains, all debris is removed from the site within 7 days. These works are undertaken regularly as needed, with frequent visits to the stormwater sites. They report back to Council in the form of spreadsheets, which we receive monthly (Appendix 2).

In general, stormwater grills (drains) and SMA are checked regularly for debris and litter, including after storm events. See Appendix 2 for details.

A list of Drain Channels and Stormwater Management Areas, and their locations is provided in Appendix 3.

Maintenance works for stormwater drain channels and SMA's undertaken by Delta are summarized in Table 7. Each month, all 48 drain channels were inspected throughout each year. However, maintenance works where not required every time, as they were dependent on the condition of the drain channel. Similarly, all 20 SMA's were visited each month across the two financial years. An exception is the Townsend Fields SMA, which was included in the Delta contract 2023, two years after development and subsequent vesting to WDC. Consequently, our count for 2021-2022 shows 19 SMAs visited monthly, while in 2022-2023, the number of assets went up to 20 SMAs were visited monthly.

It should be noted that the Delta report for September 2022 is missing. For further details please refer to Appendix 2.

	2021 (July 2021-June 2022)	**2022** (July 2022-June 2023)
Drain Channels = 48		
Drain Channels average frequency of visit (from Appendix 2)	Monthly (37 out of 48 assets, rotating each month)	Monthly (47 out of 48 assets, most months all 48 assets checked)
Total visits (total times an asset recorded a visit)	577	528
Total checks (times an asset was purposedly checked)	452 (9 visits per drain on average)	516 (10 visits per drain on average)
Total times drains cleared	88	52
Drains cleared on average each month	7	5
<u>Weeding</u> **Total gardening work** (number of times gardening was done at an asset)	48	49
Stormwater Management Areas (SMA) = 20		
SMA frequency of visit, check & clearance on average (from Appendix 2)	Monthly (15 out of 19 assets checked every month, with rotation)	Monthly (19 out of 20 assets where checked every month, most month all 20 assets)
Total times SMA mowed (weeding)	178	147
Total checks & litter cleared from trash grills	186	197
Gardening (weeding)	24	22
Other	Trash grills cleared: 3 *	

** Note: in 2021, 3 trash grills recorded extra checks and clearing, specifically prompted by WDC in addition to regular checks. This was the case for assets in Oxford Park West & East SMA/Acacia Ave (west and east of SW Reserve) and Ballarat Rd SMA (River Road SW Reserve).*

Table 7. Summary of frequency of visits, checks and clear works undertaken for Stormwater Drain Channels and Stormwater Management Areas from 2021-2023. Source: Delta reports to WDC. Average values are provided, with a full monthly breakdown per asset provided in Appendix 2.

<u>Clearing of Drains</u>

A specific breakdown of which assets where cleared each month, is provided in Appendix 2. Not all drains needed clearing each time despite the visit and check, possibly due to a lack of heavy rain events.

In 2021-2022, on average, 37 assets were visited each month, and on average, 7 were cleared every month. As mentioned above, not all assets required clearing each time. WDC is satisfied that the frequency of visit,

checks and clearance to each asset meets the frequencies required to maintain them in line with compliance standards. In March, 46 assets out of 48 total were visited, with 3 drains cleared. The lowest month was November, which registered 24 visits to assets, with 15 drains cleared.

In 2022-2023, Delta checked all 48 assets almost every month, except August 2022 and October 2022, when they checked 47 and 37 assets, respectively, with 17 and 7 drains cleared respectively. Some months recorded 48 checks of assets with 0 drains cleared (May and June 2023). On average, 46 drains were checked every month and 4 were cleared every month. August 2022 was the month with the highest number of drains cleared (17), followed by November 2022 (15 drains cleared) and July (10 drains cleared).

There is an increase of drains checks and visits from 2021-2022 to 2022-2023.

Frequencies

Based on the Stormwater Maintenance Schedule 2 (Figure 1), the frequency required for cleaning of debris/litter, hydrocarbons, repairing or stabilising scour, replanting, and weed control is 6 monthly .

Based on Table 7 results are undertaken at a frequency that meets or exceeds the frequency required by the Schedule.

Details as follows:

- Infiltration and dry basins, including stormwater drainage channels and SMAs, are visited at a frequency higher than 6 monthly; specifically at a monthly frequency.
- Drains are inspected on a monthly basis, with clearance conducted only when necessary. This approach is evident in the frequencies observed: in 2021, clearance occurred almost annually, in 2022 it was nearly biannually, and in 2023, clearance was conducted for three drains. This frequency is contingent upon rainfall events. Furthermore, the inspection frequency exceeds semi-annual intervals. Clearance is performed strictly based on the actual requirement, avoiding unnecessary intervention. WDC has not recorded any occurrences of hydrocarbons in drains or SMA's. However, in the event of such incidents, they would be promptly inspected and removed as outlined in Contract CON 19/43 (refer to section 10.4).
- There have not been any incidents recorded where discharges from WDC stormwater network have caused erosion or scour. Therefore, these works are not recorded.
- Weed control is undertaken at a frequency higher than 6 monthly (see Table 7)

10.4. CORDE: Sump Cleaning and Road Sweeping – CON 19/43

WDC Assessment: 2021-2022 Non-compliant (contractor did not meet frequencies);
2022-2023 Non-compliant (contractor did not meet frequencies)

CORDE are responsible for the maintenance of road reserves, with the specifications detailed in CORDE Contract CON19/43 (Road and Drainage Maintenance Contract). A portion of this contract includes maintenance of stormwater structures and channels, detritus removal, street cleaning, litter control, vegetation control, land drainage, public drains, and waterways. When works are completed our service provider invoices for a lump sum payment. For this payment, there are a series of requirements they need to meet.

Items from Schedule 2 that are covered by CORDE are:

- **Sump cleaning**. This includes key sumps and non-key sumps:
  - removal of debris, litter, and
  - sediment
- **Dry basins**, such as special SMA's at The Oaks, Arlington Park, Ashley Bridge.

A key sump (or critical sump) is a sump that requires regular maintenance due to getting blocked frequently, increased traffic flow, or increased flooding risk. A non-critical sump is a sump that does not meet any of the previously listed classifications.

The **frequencies** set up in the contract are:

- Key sumps and non-key sumps to be cleaned once a year, and to be kept functional at all times. The requirement frequency set up in the Maintenance Schedule 2 (Figure 1) is annually for key sumps, and every two years, for non-key sumps.
- Dry basins are to be maintained every 3 months. The maintenance Schedule 2 requires WDC to maintain dry basins every 6 months.

Based on the above, our contract frequencies have met the requirements of Schedule 2 for Maintenance works.

Another item not specified on Schedule 2 that is key for water quality, is the sweeping of roading channels. These frequencies are specified in the roading contract with CORDE as follows:

- Town centres – weekly sweeping
- Adjacent to CBD – 3 weekly sweeping
- All other areas in Rangiora – 6 weekly sweeping

In the following sections, we provide a summary of the maintenance works mentioned above, including sump cleaning, and sweeping of road channels.

10.4.1. Roading contract

Maintenance of stormwater structures and channels for WDC, is covered in item 7.1.1 of the contract CON19/43 with CORDE, which specifies:

Stormwater Structures and Channels

Item 7.1.1 Maintenance of Stormwater Structures and Channels includes the routine maintenance of stormwater structures and channels within the road reserve to meet the Contract Levels of Service (Refer to Appendix F for the RAMM list of culverts). The rate includes all work involved, including temporary traffic management, cleaning and the removal of surplus material and complying with resource consent conditions. It includes the removal of surplus material by handheld tools at the culvert inlet and outlet in rural areas, and the removal of debris from sump tops in urban areas to prevent flooding in between the regular mechanical sweeping rounds. The rate also includes the inspections and reporting on the stormwater systems at the Arlington Park Subdivision, New Arterial Road (Ohoka Road), The Oaks Subdivision and the Ashley River Bridge, as specified, and the maintenance of the kerb cut-outs in Pegasus.

10.4.2. Sump Cleaning 2021-2023

There is a total of 1,937 sumps in Rangiora. The inspections and clean-up of these sumps are managed using the geospatial asset and maintenance management system, RAMM. RAMM is utilised by both the WDC Roading Team and the maintenance contractor, CORDE. This platform enables real-time tracking of the maintenance program for both the contractor and WDC. See Figure 2.

While the contractual frequency for sump maintenance in our agreement with CORDE aligns with the requirements outlined in CRC184601, Schedule 2, it has not consistently been met.

Our contractors do not deliver their work based on financial years, rather based on their contract year, which runs from 1 November to 31 October.

A summary of 2021-23 for sump cleaning in Rangiora is presented in Table 8. Specific information on the sumps and cleaning frequency, is available on request in spreadsheet form. See Figure 2 for visual information on current sump cleaning status.

Sump cleaning work				
Financial year:	*July 2021 – June 2022*	*July 2022 – June 2023*		
1 Nov 2020-31 Oct 2021	**1 Nov 2021-31 Oct 2022**	**1 Nov 2022- 31 Oct 2023**	**1 Nov 2023- 31 Oct 2024**	
Completed.	Not completed, due to contractor resource constraints.	Not completed by the end of financial year, due to contractor resource constraints and staff shortage. 50% completed, as of October 2023*. 95% completed, as of April 2024. Awaiting data upload from contractor to confirm full completion of works.	Current Financial year at time of writing. Currently contractor working on this year's annual sump cleaning. Expected delivery by October 2024.	

Table 8. Summary of sump cleaning maintenance works from 2021-2023 in Rangiora. See Figure 2 for visual info on current sump cleaning status. * Note: sump cleaning was completed at 91% by 16th February 2024.

The contractor did not complete the contracted 2021-22 sump work according to contract CON19/43 due to resourcing issues. Measures undertaken to avoid this from happening again include carrying out sump audits and monitoring progress (Roading Team). The contractor was still working through the sump cleaning for the round of last financial year at time of writing. This work is currently completed at 91% by February 2024. In April 2024, the contractor communicated the completion of the 2022-2023 sump cleaning round and announced their start on 2023-2024 round. However, the data they provided does not match this information, and still shows at least 20 sumps to be completed. WDC is following up with the contractor. See Figure 2 for the latest status of sump cleaning (February 2024).

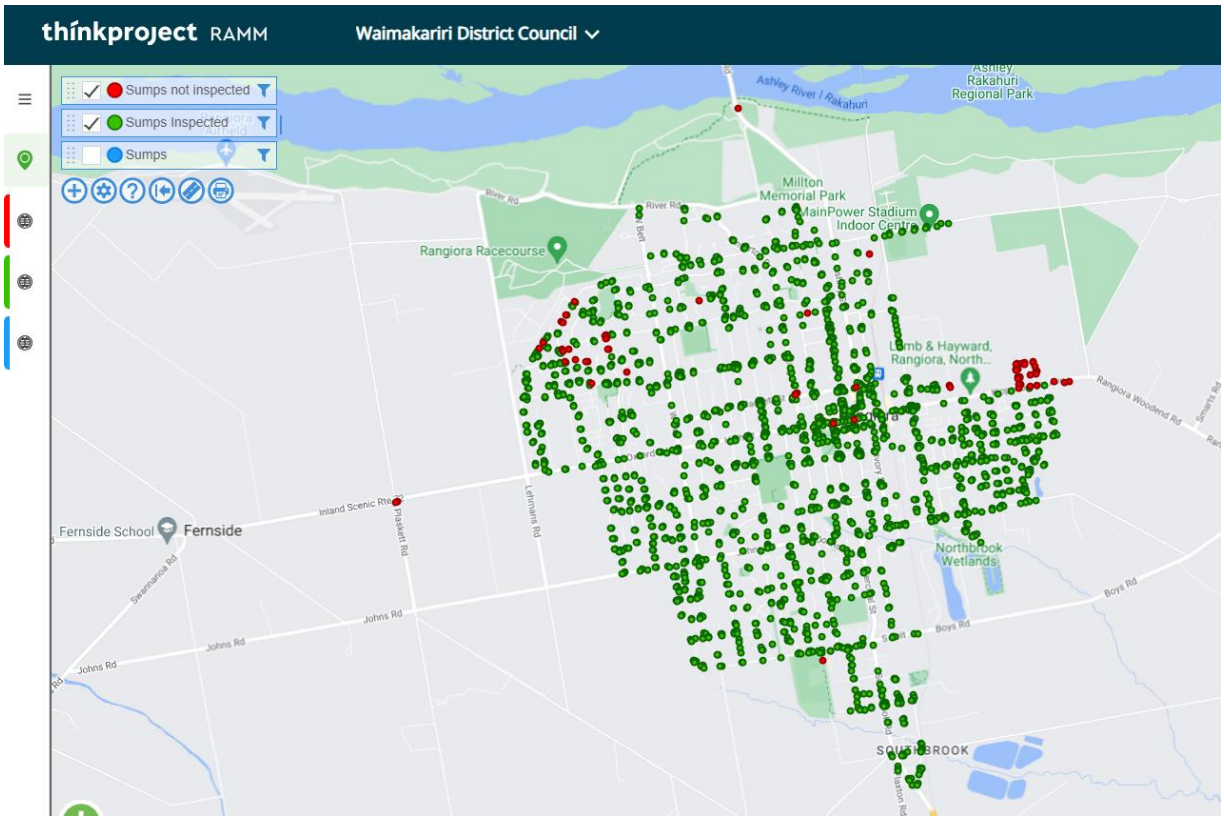

Figure 2. State of sump cleaning works completed in Rangiora area as of 16 February 2024. Source: RAMM.

Addressing the challenges

Improvement in this area remains a primary focus for WDC as we look ahead to the period spanning 2023-2024 and beyond. The Roading and 3 Waters Teams have been actively collaborating with the contractor to address the identified issues. The contractor has been duly informed of WDC's apprehensions.

The contract CON19/43 is scheduled for renewal in November 2024, with plans for a fresh round of public tender in 2025. WDC acknowledges the challenges experienced during this contract and commits to addressing them when the contract is put out to tender in 2025. Through this process, WDC has gained valuable insights and lessons.

10.4.3. Sweeping

Concerning stormwater quality, WDC identifies an area for potential enhancement in the sweeping of the road channels. Although not specifically mandated in our maintenance obligation per CRC184601 consent conditions in Schedule 2there is sufficient evidence supporting the relationship between road sweeping and improved quality of stormwater runoff.

An Envirolink report prepared by NIWA for Nelson City Council in 2011 (see section 19 for references) assesses street sweeping as an effective Best Management Practice for improving stormwater quality. Consequently, despite not being stipulated in our resource consent conditions, WDC has opted to include street sweeping in this section of our reporting.

Sweeping Frequencies

Under contract 19/43, the sweeping frequencies are established with CORDE as follows:

- Town centres – weekly (Figure 3)
- Adjacent to CBD – 3 weeks (Figure 4)
- All other areas in Rangiora – 6 weeks (Figure 5)

See Figures 3 to 5 below.

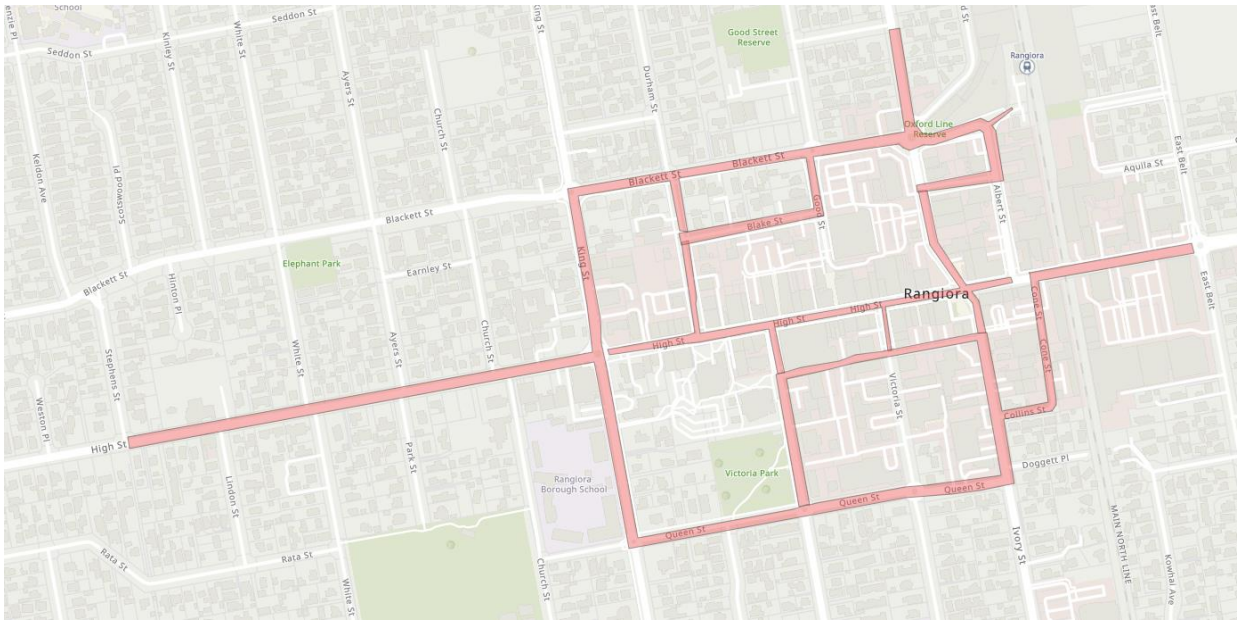

Figure 3. Detailed weekly Sweeping in Rangiora, for town Centre areas depicted in red. Source: RAMM.

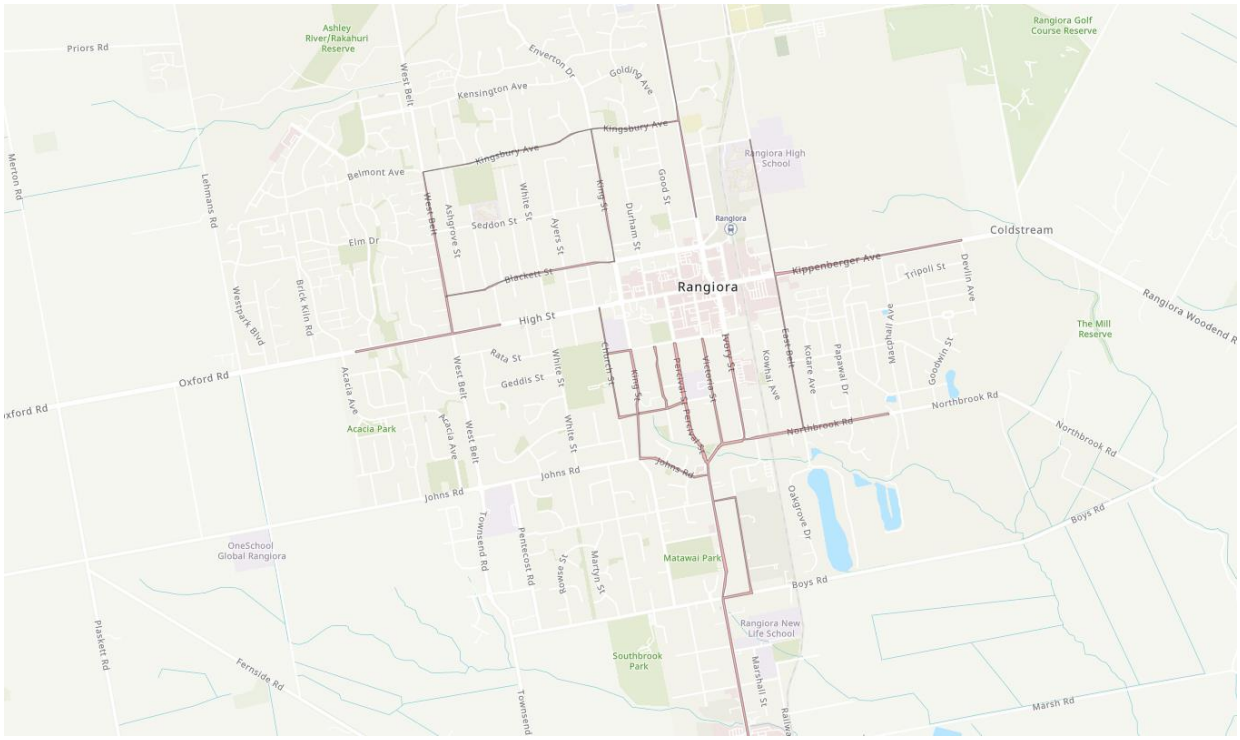

Figure 4. Detailed three-weekly sweeping in Rangiora, for areas adjacent to CBD depicted in red. Source: RAMM.

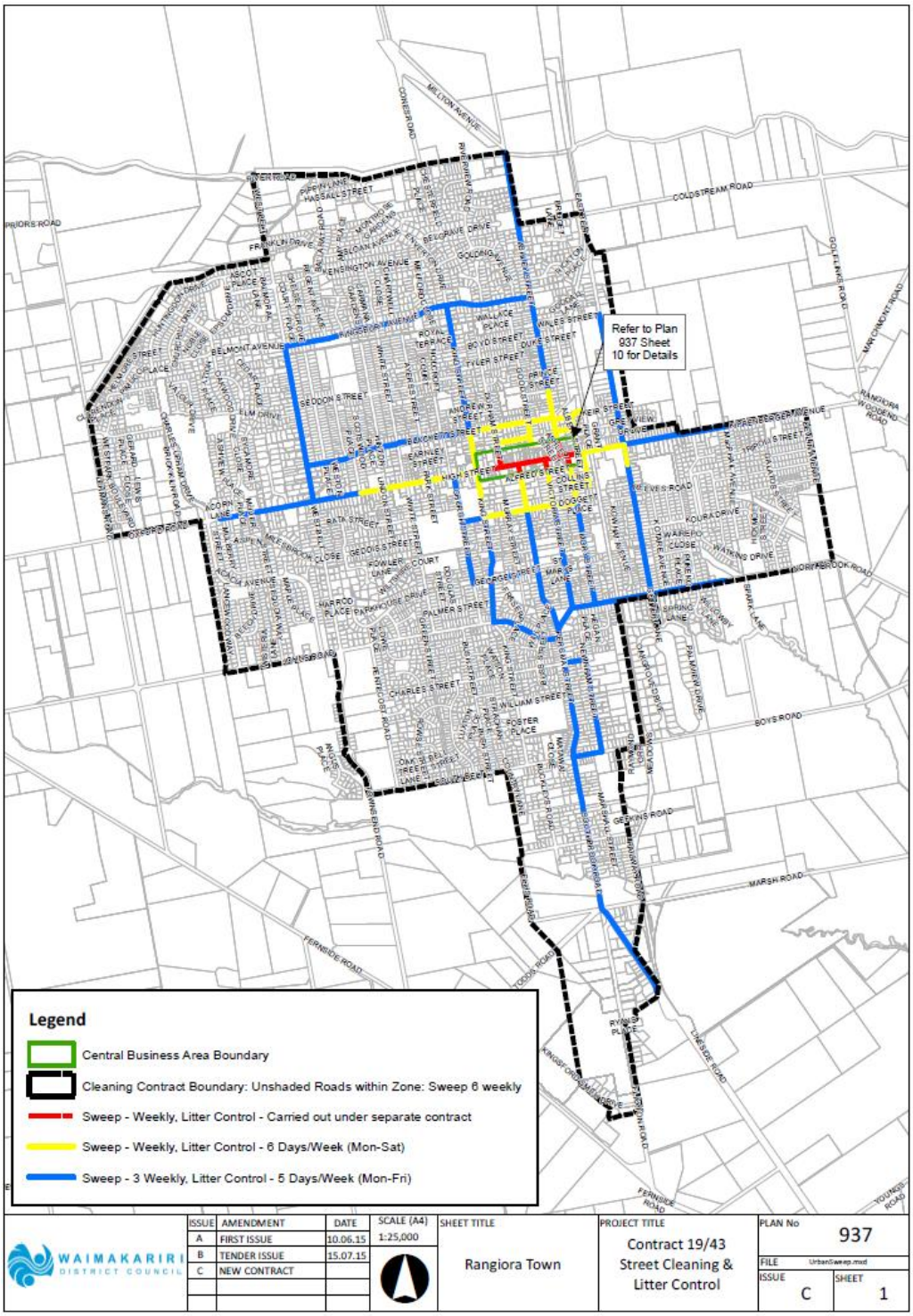

Figure 5. Summary of all sweeping frequencies in Rangiora, as per roading contract with Corde. Streets in yellow and red, depict weekly sweeping (as per Figure 3). Streets in blue, depict 3-weekly sweeping (a per Figure 4). All other streets contained within the town boundary, are on a 6-weekly sweeping frequency. Source: WDC internal records.

Sweeping summary

All sweeping in Rangiora township has been delivered from 2021-2023 as per contract 19/43 and frequencies stated in this section.

Further information regarding road sweeping is available on request.

TRIM 240325047404

Recommendations

It is recommended on this report and the Rangiora Stormwater Monitoring Programme Report 2022-2023, for WDC 3 Waters Compliance Officer to look at increasing sweeping frequencies for industrial areas such as Southbrook, in collaboration with Roading and 3 Waters teams. These actions would improve stormwater quality in this area.

10.5. Hydrovac: maintenance of soakage chambers

WDC Assessment: Data deficient.

The WDC Stormwater Engineer carries out regular inspections of soakage chambers and arranges for their servicing through Hydrovac as required.

The frequency required by Schedule 2 for the removal of debris/litter and sediment, is set up as yearly and 6 monthly, respectively. It is noted these two are separate items in Schedule 2, with different clean up frequencies. WDC does not differentiate between the nature of the material that is causing the chamber to not function up to best practice standards. Rather, our standard is that the chamber requires maintenance when a problem is identified with either of those materials in the chambers after a site visit. These regular inspections to the soakage chambers fall with the stormwater engineer responsibilities, however frequency is not recorded in our records. WDC is satisfied that these were undertaken in accordance with Condition 23.

The Stormwater Engineer carried out regular inspections of the soakage chambers. Despite the regular inspections, service is not always required. The standards followed to decide when a clean-up is required, is when debris, litter, sediment, or other substances (e.g. hydrocarbons), are identified to cause a problem to the stormwater flow or its quality. When issues are encountered, WDC contracts the servicing of the chambers, and the contractor undertakes the work within 10 days. It is noted not all chambers have been serviced annually, primarily because not all of them required servicing.

Despite these inspections, no records of servicing for soakage chambers in Rangiora between 2021 and 2023 were found. This lack of documentation was largely due to the previous absence of a requirement for such records and WDC's failure to adequately maintain them. Going forward, WDC will ensure that all maintenance and inspection records for soakage chambers are documented annually.

10.6. Summary: Requirements met from Schedule 2 - Frequency of Maintenance Visits

As outlined on previous sections, Table 9 represents a summary on how we are reporting on the maintenance schedule frequencies. This aligns with condition 22.

	Sumps			Swales		Infiltration and dry basins
	Key Sumps	Non-key sumps	To soakage chambers	Urban	Rural-Residential	
Removal of debris and litter (within 10 working days of the maintenance visit)	**Requirement**: Yearly. **WDC contract frequency:** Yearly, with CORDE. See table 8 for details.	**Requirement**: Two Yearly. **WDC contract frequency:** Yearly, with CORDE. See table 8 for details.	**Requirement:** Yearly. **WDC contract frequency:** As needed basis, regular checks from 3 Waters Stormwater Engineer, with servicing by Hydrovac Ltd. See section 10.5.	**Requirement:** 6 monthly. **WDC contract frequency:** N/A. See section 10.1	**Requirement:** Yearly. **WDC contract frequency:** N/A. See Section 10.1.	**Requirement:** 6 monthly. **WDC contract frequency:** Higher, with Delta. See section 10.3.
Removal of sediment	**Requirement**: Yearly. **WDC contract frequency:** Yearly, with CORDE. Removal of sediment from sumps undertaken with sump cleaning work. See table 8 for details.	**Requirement**: Two yearly. **WDC contract frequency:** Yearly, with Corde. Removal of sediment from sumps undertaken with sump cleaning work. See table 8 for details.	**Requirement:** 6 monthly. **WDC contract frequency:** As need basis, regular checks by Stormwater engineer. Work contracted with Hydrovac. See section 10.5.	N/A	N/A	N/A
Removal of hydrocarbons	N/A	N/A	N/A	**Requirement:** 6 monthly. **WDC contract frequency:** N/A. See section 10.1	**Requirement:** Yearly. **WDC contract frequency:** N/A. See section 10.1	**Requirement:** 6 monthly. **WDC contract frequency:** N/A. See section 10.3.
Repair or stabilization of erosion and scour						
Replanting where bare or patchy soil cover or sediment build up is greater than 10 m^2						
Weed Control						

Table 9. Summary of Maintenance works compliance, maintenance frequencies how this information is recorded in line with Schedule 2 from CRC184601.

10.7. Condition 23

This condition is met with WDC Development and Subdivisions team, by adhering to best practice when reviewing any developments and plans. This is also met by not acquiring any stormwater assets until after 2 years of proven functionality of the system.

10.8. Assessment Summary

WDC assessment:

Condition 35a. Non-compliant (information provided, contracts matching Schedule 2, not always delivered):

- contractor frequencies match those set up on Schedule 2;
- maintenance frequencies for Drain channels and SMA are met with monthly visits (which are higher frequencies than those required by Schedule 2 – 6 monthly);
- sump cleaning frequency matches Schedule 2
- annual sump cleaning not always delivered by contractor
- soakage chambers: data deficient (not enough information recorded)

Condition 22. Compliant
Condition 23. Compliant

11. Stormwater Monitoring Programme Updates

WDC assessment: compliant

There are no official changes made to the Rangiora stormwater monitoring programme between 2021-2023. There were only informal changes submitted to a ECan Water Quality Scientist for discussion. These were to adjust sampling locations to a more accurate representation, changes to the description of sites for a more accurate description and a relaxing of first flush criteria for stormwater sampling in order to facilitate more sampling opportunities.

The following changes to the Monitoring Programme are intended to be submitted for formal approval to the Regional Leader - Compliance Monitoring shortly.

11.1. List of informal Changes between 2021-2023

For full details, refer to document submitted on 21 September 2021 to ECan, "Proposed Stormwater Monitoring Programme".

List of changes made between 2021-2023:

- New maps, displaying further clarity of sampling sites, such as:
    - Visual Discharges:
        - RRSB046: changed to RRSB046A, to distinguish it as a discharge outlet, separate from the South Brook (at Townsend Fields)
        - RRSR026: changed to RRSR026A, to distinguish it as at the discharge outlet from Pond C, not downstream after a mixing zone
        - RRMB017: changed to RRMB017A, to distinguish it as a discharge outlet, separate from the Middle Brook (at Gefkins Road)

- New site descriptions, amended for accuracy, in sites such as:
    - Visual Discharges:
        - RRMB017A: edited to "Middle Brook at Gefkins Road"
        - RRER006: edited to "Goodwins (Horncastle) Stormwater Pond Outlet, Northbrook"
        - RRNB015: edited to "Northern branch of the North Brook **pipe outlet**, Cotter Lane"
        - RRMB022: edited to "Middle Brook, at **Clearbrook Lane**"
        - RRSB046A: edited to "South Brook, at Townsend Fields **Stormwater Management Area outlet**"
        - RRSB035: edited to "South Brook, **pipe outlet off Coronation Street**"
        - RRSB032: edited to "South Brook at Southbrook Road (**west** side at pipe outlet)"
        - RRSB030: edited to "South Brook, **pipe outlet** on west side of Railway Road"

    - Urban Impact:
        - RRNB044: edited to "North Brook, on Church St across from Dudley Park"

11.2. Meeting first flush criteria

On 9/06/2022 advice was received from ECan via email on meeting first flush requirements for Rangiora stormwater sampling. Due to the difficulty in meeting first flush requirements, these recommendations were adopted for all sampling starting from that date onwards. This change to the monitoring programme is recommended to be submitted to Environment Canterbury for formal approval.

Details adopted are as follows:

- Maintaining a minimum of 72h antecedent dry period prior to sampling
    - If necessary, this can be reduced to no less than 24h antecedent dry period to allow for contaminants to build up
- Rainfall depth criteria to minimum of 3 mm total rainfall depth
- Aim for sampling within 1-2h of the desired rainfall depth
- No less than 24h antecedent dry period to allow for contaminants to build up
- Document rainfall and dry conditions prior and during sampling to allow for interpretation of results

12. Results

This report compiles water quality information and results from the Stormwater Sampling in Rangiora from 1 July 2021 to 30 June 2023. For the first time, trend analysis was incorporated into these results. The trend analysis was undertaken with historical data from the baseline monitoring carried out from 2014-2017, prior to approval of the stormwater global consent CRC184601. Full details of water quality data, sampling results and trends are available in the Rangiora Stormwater Monitoring Programme Report 2022-2023 (TRIM 230919146639). This document is submitted with this Annual Report as Appendix 1. A 2021-2022 Stormwater Monitoring Programme Report was previously submitted to ECan in 2023 (TRIM 220512075696).

12.1. Consent Conditions

WDC assessment: Compliant (data provided in suitable format; .csv file attached to this consent)

Condition 35, requires WDC to provide an Annual Report including the following (conditions 35c, d and e):

c. *Results of the monitoring carried out in that year in accordance with condition (31), in **a format suitable for automated upload to the Canterbury Regional Council's** water quality database, including:*

i. *The name of the person(s) who collected the samples, the date and time the samples were collected; and*
ii. *The rainfall data associated with stormwater sampling events, including, but not limited to, date, time, duration and rainfall depth of the storm event.*

d. *Interpretation of any long term or site-specific trends in surface water quality, stormwater quality, ecology, or soil quality, including comparisons to previous years' monitoring and reference to monitoring data for the other environmental factors in the stream health sections of the monitoring programme;*

e. *Interpretation of the significance and possible reasons for any change in long term or site-specific trends;*

12.2. Data in a suitable format

All monitoring data from WDC is provided in Appendix 4. To have a suitable format for direct upload of laboratory results in future years to ECan, WDC has received SQ codes for each sampling sites.

However, at the request of Environment Canterbury, this has only been provided for sites with associated water quality data. Therefore, there is no SQ code for historical sites. Location coordinates for all WDC sampling sites have been provided to Environment Canterbury.

Appendix 4 is provided as an attachment csv file with this report submission and includes all WDC data available between 2021-2023 with name of person who sampled, date, time, and SQ code available.

SQ number	Monitoring site code	Site Description
SQ36781	RRND012	North Drain, Coldstream Road
SQ36784	RRNB045	North Brook, at Dudley Park, White Street pipe outlet
SQ36792	RRNB033	Northern branch of the North Brook, west side Kowhai Avenue
SQ36804	RRNB009	North Brook, outlet of the North Brook Ponds
SQ34187	RRMB017A	Middle Brook at Gefkins Road
SQ36802	RRSB030	South Brook, pipe outlet on west side of Railway Road
SQ36799	RRSS026	South-South Brook Stormwater Pond Outlet, Lineside Road
SQ36806	RRSR026A	South Rangiora, Stormwater Pond C Outlet, Flaxton Road
SQ36800	CRCR120	Cam River, on the southern side of Kippenberger Avenue
SQ30382	RRNB017	North Brook, on the northern side of Boys Road
SQ36473	RRNB036	North Brook, Lilybrook Park
SQ36787	RRNB044	North Brook, on Church St across from Dudley Park
SQ36788	RRNB055	North Brook, at Aspen Street Park
SQ36789	RRMB017	Middle Brook, Gefkins Road east of the Railway, upstream side of the bridge
SQ36790	RRMB029	Middle Brook, on the western side of Bush Street
SQ32914	RRSB046	South Brook, on the east side of Townsend Road
SQ30414	RRSR026	South Rangiora, No. 7 Drain immediately south of Fernside Road (allows for mixing zone)

Table 10. List of Rangiora sampling sites with equivalent Environment Canterbury code. All data ready to upload is attached in Appendix 4 with this report.

For condition 35c i, the sampling data collected includes the following:

- name of the person who collected the sample,
- date and time that the sample was collected.

12.3. Rainfall data for sampling events

WDC Assessment: Compliant (information provided)

All rainfall data has been documented for each sampling round. WDC has also documented rain events that have been missed, because of rain not meeting first flush requirements, or rain falling outside of normal working hours.

This information is documented in our data spreadsheet. WDC has a rain gauge in Ayers St, Rangiora, which has precipitation SCADA data that is available to WDC staff (with a 15-minute delay). However, this ease of staff access was only set up after February 2022. A summary of rainfall data associated with stormwater sampling events, is provided below:

Date	**15/12/2021**	**16/12/2021**	**10/02/2022**	**28/03/2023**	**28/06/2023**
Time	02:00pm	08:40am	08:50am	10:30am	8:50am
Antecedent dry weather	72h	72h	72h	72h (nominal 0.2 mm of rainfall fell)	72h (nominal 0.4 mm of rainfall fell)
Rainfall Depth (mm) ***sampling commenced***	24.40mm	50 mm	38.60mm	2.4mm	14.4mm
Rainfall Depth (mm) ***sampling finished***				6.4mm	14.4mm
Duration	14h	32h 40min	16h 50min (rain started 4pm on 9/02/2022)	1h 50min	11h 50 min
Event Description	Heavy rain. Part 1 of sampling (Part 2 completed next day)	Torrential Rain. Part 2 of sampling event. Very large rain event (too large to meet first flush criteria). Rain event had ceased by sampling start but discharge still occurring.	Torrential Rain. Too much rain for a first flush event (over 25mm rain). It was dry 3 days beforehand.	Moderate Rain. The only rain event occurring during work hours.	Heavy Rain. Rain ceased at about 3am on 28/06/23, but still sampled as needed sampling events. Outlets were flowing.
Type of Sampling	Visual Discharge, Major Network Discharges	Visual Discharge, Major Network Discharges	Urban Impact	Visual Discharge, Major Network discharges, Urban Impact	Urban Impact
Reporting Year	2021-22	2021-22	2021-22	2022-23	2022-23

Table 11. Rainfall and dry weather data associated with each sampling event, for Rangiora 2021-2023. Colours display different financial years. Event description standards: from Metservice. Rainfall depth source: SCADA (WDC Ayers St rain gauge)

Note on sampling undertaken below 3mm of rain and over 25mm of total rainfall

With regards to sampling undertaken outside of 3mm and 25mm of total rainfall, these sampling events occurred when WDC staff were setting up to receive the appropriate rainfall information to measure this in almost real time. This means that at times sampling was undertaken before knowing the exact rainfall depth for Rangiora itself. Tools available at the time were used to estimate rainfall depth, however most forecasts available would show the rainfall depth for Christchurch city, which is different than that of Rangiora. Priority was given to undertake sampling whenever there was a rain event. Therefore, sampling staff would learn about the exact rainfall depth after having undertaken the sampling. This was the case for sampling round on 10/02/2022.

In addition, advice was sought from Environment Canterbury on the difficulty of meeting first flush requirements for Rangiora Stormwater Sampling on 9/06/2022 (see *section 11.2, Meeting First Flush Criteria*). Adopting these recommendations from ECan assisted WDC to undertake sampling more effectively after that date. Before then, WDC staff rationalised that undertaking sampling outside of first flush conditions was preferable to no sampling being carried out due to a lack of sampling events.

In conclusion, having a more relaxed first flush criteria, setting up WDC staff access to nearly real time SCADA rain gauge data helped WDC staff to be more precise with our sampling for 2023-2024 financial year.

The sampling data presented in this report represents the highest quality information that WDC could offer using the tools and resources available at the time of data collection.

12.4. Monitoring Results

WDC Assessment: *as below and Appendix 1*

As mentioned above, all details from the Monitoring Programme between 2021-2023 are presented in two reports:

- Rangiora Stormwater Monitoring Programme Annual Report 2021-22
  - TRIM 230919146639 (previously submitted to ECan, not provided with this submission)
- Rangiora Stormwater Monitoring Programme Report 2022-2023
  - TRIM 230919146639 (attached with this submission, Appendix 1)

Here is a summary of monitoring results, also found in Appendix 1.

Contaminant			Notes
Wet weather sampling (urban impact and major outlets)			
Total Suspended Solids	Compliance		All sites were compliant for TSS in 2022-23 sampling. Note only one sampling round was carried due to weather and resource limitations. Only one major discharge outlet during a moderate rain event was non-compliant in 2021 financial year. Compliance was also met for all stream health sites (dry weather sampling).
Dissolved copper	Non-compliance		7 sites exceeded the guideline value during wet weather sampling
Dissolved zinc	Non-compliance		7 sites exceeded the guideline value during wet weather sampling
Dissolved Reactive Phosphorus	Non-compliance		Not met for all sites except Cam River. Actions recommended in the Rangiora Stormwater Monitoring Programme Annual Report 2022-2023.
E. coli	Non-compliance		Not met for all sites except Cam River, and some sites in North Brook on the latest sampling. Refer to the Rangiora Stormwater Monitoring Programme Annual Report 2022-2023 for comments and recommendations.
Total Ammoniacal Nitrogen	Compliance		
Dry weather sampling (Stream Health)			
Dissolved oxygen	Guideline met*		Not used for compliance. All following results are from Stream Health (dry weather sampling). ** if one low oxygen value is confirmed to be due to large groundwater inflows at the site - North Brook at Lilybrook Park (RRNB036)*
Temperature	Guideline met		
pH	Guideline met		
Conductivity	Guideline value not met		Not met for 3 sites, all other sites were met (Middle Brook, South Brook, No. 7 Drain)
Dissolved Inorganic Nitrogen	Guideline value not met		Guideline value exceeded for 6 sites (North Brook, Middle Brook, South Brook, No. 7 Drain)
Total Ammoniacal Nitrogen	Guideline met		
Total Suspended Solids	Guideline met		
Dissolved Reactive Phosphorus	Guideline met		
E. coli	Guideline not met		3 sites exceeded guideline values of *E. coli* (North Brook, Middle Brook, No. 7 Drain)

Table 12. Summary of compliance with CRC184601 guideline values in 2022-23

13. Interpretation of Trends

WDC Assessment: Compliant (information provided)

From consent conditions, this section covers the following:

a. *Interpretation of any **long term or site-specific trends** in surface water quality, stormwater quality, ecology, or soil quality, including **comparisons to previous years' monitoring and reference to monitoring data** for the other environmental factors in the stream health sections of the monitoring programme;*
b. *Interpretation of the significance and possible reasons for any change in long term or site-specific trends;*
c. *Report on the investigation undertaken and further actions and responses planned or undertaken in accordance with conditions (16) to (19).*

Trends have been interpreted as much as possible within the water quality report 2022-2023.

Here is a summary of significant trends encountered:

For Urban Impact

- **RRNB055: North Brook, at Aspen Street Park**
  - A trend was identified for Dissolved Zinc levels increasing at this location (R^2=0.7, n=9)
  - A tendency to increase for Dissolved Copper was found, however no significant differences were found. Dissolved Copper levels were above the guideline.
  - A non-significant, upward trend for Dissolved Reactive Phosphorus was identified. The R-squared value did not show statistical significance, but it was close (R^2=0.4, n=5). DRP values were above the guideline.

- **RRMB029: Middle Brook, western side of Bush Street**
  - A non-significant, increase trend was identified for Total Ammoniacal Nitrogen in this location, although not statistically significant (R^2=0.48, n=6), but close. The values were not above the guideline.

Other trends are possible, but analyses did not show significant differences. Further sampling over the next financial years will increase sample size and confidence in trend assessment. No other significant differences were found for contaminants over time, other than those reported above.

For Major Network Outlet

- Not enough data to assess trends for sites RRNB009, RRNB045, RRMB017A
- Not significant trends found for RRNB033, RRSB030

For Pond C (RRSR026)

- Not enough data to get significant trends

Due to time constraints and results not being a consent requirement, trends have not been analyzed for Stream Health results.

For other non-significant trends, refer to the Stormwater Monitoring Programme report 2022-2023.

13.1. Interpretation of significance and reasons for changes

WDC Assessment: Compliant (information provided)

Increases of dissolved zinc levels in the North Brook for this area are likely from urban runoff, including from road surfaces and roofs. Zinc can also come in particulate form from tyre wear and brake pads. Site RRNB055, North Brook, at Aspen Street Park is in a residential area. Historically, this site had high levels of Zinc due to a stock race discharging directly into the stream. Once the stockwater was removed in 2018, results improved.

Other specific findings of significance and changes have been discussed in the Stormwater Monitoring Programme Report 2022-2023.

It is noted that for dissolved zinc, significant differences were found over time at RRNB055 with much lower dissolved zinc levels, than for other sites with higher exceedances, such as RRMB029 (Figure 7). The absence of significant differences in dissolved Zinc values, which are higher, is believed to stem from the nature of the trend analysis conducted in this case. The trend analysis will be improved in the next annual report for accuracy. In terms of the high levels of Zinc found, this is explained with the Middle Brook being a much older catchment, which means older residential catchments containing corrugated iron and unpainted roofs, which causes spikes in Zinc as shown (Figure 7, Appendix 1).

This is thought to be the case for other contaminants, i. e. no significant differences were found from trends due to quarterly levels of contaminants closely resembling historical levels. This doesn't necessarily reflect or support the need to action. However, there is room for improving trend analysis for the next financial year. WDC is already exploring ways to increase the reliability of trend analysis. Increasing our sample size with continuous sampling and expanding on our data analyses will provide greater clarity with the results.

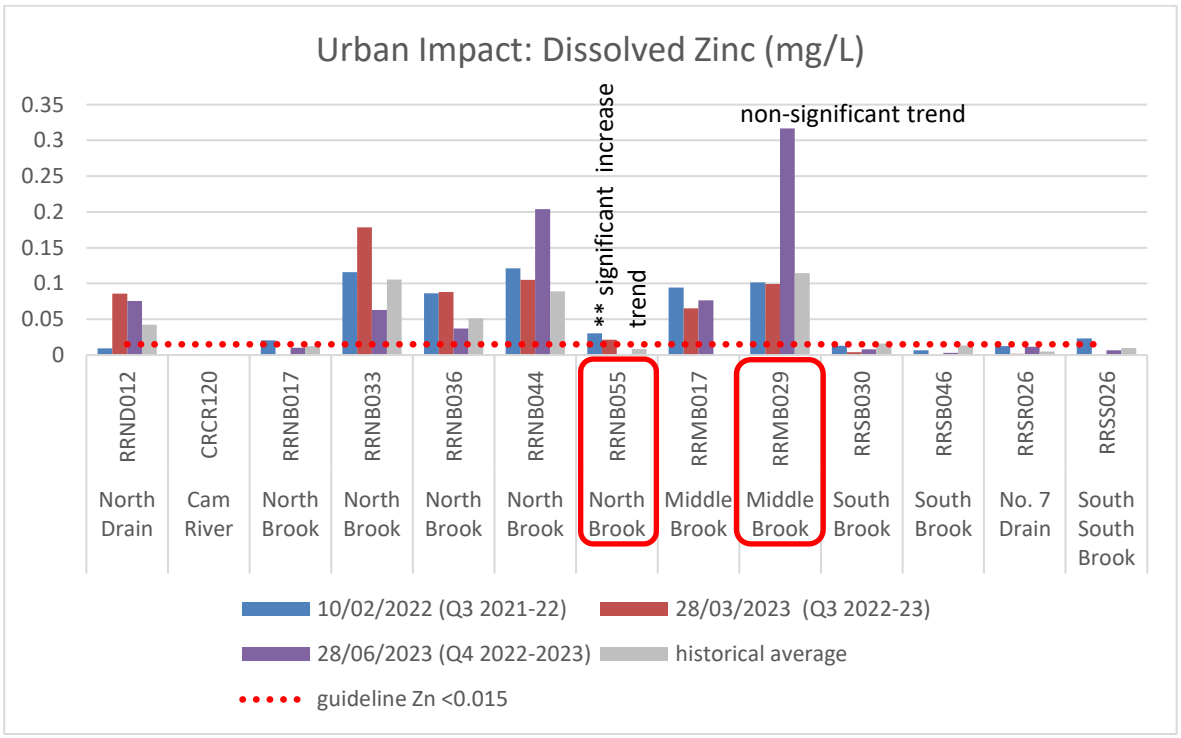

Figure 6. Dissolved zinc Levels from Urban Impact Sampling 2021-2023. From the two sites highlighted, the North Brook site presented significant differences in dissolved zinc levels through time, while the Middle Brook site did not show statistically significant differences over time after trend analyses, despite showing higher levels of dissolved Zinc.

13.2. Investigations undertaken and responses planned

WDC Assessment: Compliant (information provided)

Condition 35f states:

> *"Report on the investigation undertaken and further actions and responses planned or undertaken in accordance with conditions (16) to (19)."*

Antecedents

All investigations led and undertaken by WDC between 2021-2023, are tracked and documented below.

Date	**Winter 2021**	**27 July 2021 (and 2018)**
WDC contact person	Sophie Allen	Sophie Allen
Who	Koura Creek	McAlpines investigation - TSS, Zinc, copper, chromium and arsenic
Situation/Project	Sophie spotlighted the population of freshwater crayfish (wai koura) at Koura Creek. One large longfin eel was found in the waterway. Tried to relocate it downstream unsuccessfully. Sophie has observed a large drop in the wai koura population, likely due to predation pressure from the longfin. Trout gillnetting was carried out in 2019 which found none above the trout barrier. The trout barrier is unlikely to be able to be modified to exclude eels.	High sediment was observed during a rain event to be coming from McAlpines on Todds Road. Sophie took a sample on 27 July 2021. High levels of arsenic, copper, chromium and TSS were found - Also sampled in 2018.
Reference		TRIM 210805128931
Actions	Spotlighting was carried out again in 2023 - Koura population is still low and has not recovered. The eel was not seen but might still be living in that waterway. Continue to monitor eels and trout in Koura Creek.	Sophie referred this to Kiri Kirkwood and Shania Vargas at ECan to respond as a consent issue (with high-risk sites not covered by CRC184601 yet)
comments	Koura population has also been found to be genetically in-bred.	No outcome of these results was received from ECan or McAlpines back to WDC
recommendations	Translocate koura from other streams to increase genetic variability.	Need to follow up with ECan how compliance is tracking with McAlpines

Table 13. Part 1. List of Site investigations led by WDC and undertaken in Rangiora, from Consent CRC184601 approval in May 2021, until 30 June 2023. Please note we have also included other projects not led by WDC where we have been engaged.

Date	**1/11/2021**	**1/04/2021**	**31/01/2020**
WDC contact person	Sophie Allen (ECan-led project by Irai Weepu)	Sophie Allen	Kitty Waghorn
Who	Irai Weepu	North Brook low flows investigation	PDP
Situation/Project	Watercress- support for Irai Weepu and the Tuia team at ECan to look at enhancing watercress mahinga kai sites - November 2021 weeding was carried out of water speedwell and monkey musk. Watercress protection (no cleaning) sites along the Cam River above Bramleys Road Bridge were identified in the WDC Drainage Maintenance Management Plan.	North Brook flows were raised as being too low and dropping. This investigation confirmed that this is a trend.	WDC engaged PDP to carry out a soil sampling investigation to comply with conditions 5 and 6 of ECan CRC971142.3, which authorises the discharge of stormwater containing contaminants to land via a grass swale at the Southbrook Recovery Park (284 Flaxton Road, Southbrook, Rangiora)
TRIM references / Service request references	240228030719, 240228030722	210408056928	200131013083
Actions	This project was put on hold by ECan or Ngai Tuahuriri members as needing better scoping - before the project pause: better signage, improved bank access, as well as a repeat of the weeding were suggested as actions that WDC could support	Next stage is to examine how to improve flows or to just decide to leave as is	6 soil samples were collected in the associated swale areas and the associated ponding area
comments			Results showed that all analyses for heavy metals and PAH were below consent levels. This was identified as an acceptable low risk to the receiving environment by PDP as a result of stormwater discharge via the swales.
recommendations	Follow up with ECan Tuia team Irai Weepu, Arapata Rueben and John Cooke (WWZC reps) if this project will start up again		

Table 14. Part 2. List of Site Investigations led by WDC and undertaken in Rangiora, from before consent was approved in May 2021, until 30th June 2023. Please note we have also included other projects not led by WDC where we have been engaged.

14. Discussion of compliance

WDC Assessment: Compliant (information provided; WDC uses the guides stated in Condition 14).

Condition 35g requires WDC to provide the following:

d. *Discussion of compliance with **condition (8) (Receiving Environment Objectives)** and **condition (14) (Stormwater System Management),** and results of investigations undertaken in accordance with condition (34), including but not limited to:*

   i. *Documentation of, and possible reasons for, trigger value exceedances, and further action taken or proposed in response to exceedances, including a timeline for future actions;*

   ii. *Documentation of service requests indicating any flooding of dwelling houses described in condition (8)(a);*

   iii. *A summary of any remedial or improvement works carried out to improve the quality of, or improve the management of quantity of stormwater discharges in that year including any works planned or undertaken to address any flooding of dwelling houses described in condition 8(a); and*

   iv. *A summary of new stormwater systems vested to WDC during the preceding year which will discharge under this consent; and*

   v. *A description of any future stormwater system proposals, including retrofitting of existing stormwater systems, to improve the management of stormwater within the Rangiora reticulated stormwater system; and*

   vi. *Discussion of actions taken through the management of the stormwater discharges to protect and enhance mahinga kai species of value to Te Ngai Tuahuriri Runanga, and any enhancement of mahinga kai areas.*

In alignment with Condition 8, WDC keeps track of stormwater and flooding damage through various processes within the 3 Waters Operations team. This process occurs either via service requests from the public, or direct report from WDC staff. There are no reports of stormwater discharging directly to any dwellings or houses. No erosion or scour has been encountered or recorded with stormwater as the cause. When it comes to the receiving environment objectives to manage the quality of discharge, as presented in the Stormwater Monitoring Programme Report, WDC documents, analyses and reviews the results from the monitoring program, recommending actions to be taken. Results have been shared within the team. Projects to follow up on those actions, are being discussed as part of the Stormwater Management Program (SMP), to be presented by January 2025.

WDC is working with Ngāi Tūāhuriri Rūnanga to identify and protect wāhi tapu and wāhi taonga, such as via protections in the District Plan and Proposed District Plan for silent file areas, and tūranga tūpuna. Mahaanui Kurataiao Ltd produced a report in 2017 which identified wāhi tapu and wāhi taonga within the District as a basis for these layers in the Proposed District Plan. WDC has also engaged Ngāi Tūāhuriri Rūnanga (via MKL) to propose projects under CRC184601 Conditions 8d and e for inclusion in the Rangiora Stormwater Management Plan.

With regards to condition 14, WDC ensures compliance with Water Quantity and Quality conditions with due diligence undertaken by the Network Planning Team (who undertake stormwater modelling) and the Development Team (who apply consent conditions to developments and monitor the implementation of those consents). These teams work using The Christchurch City Council's Waterways, Wetlands and Drainage Guide, WDC's Engineering Code of Practice (which includes guideline document prepared by Auckland Council, currently referred to as GD01, formerly known as TP10) and the Stormwater Drainage and Watercourse Protection Bylaw 2018.

14.1. Trigger value exceedances, actions and investigations

WDC Assessment: Compliant (information provided)

Guidance value exceedances for contaminants are supplied in the stormwater monitoring programme reports for 2021-2022 and 2022-2023. It is noted that more data will continue to improve WDC analysis to determine where and how it is best to act and where to invest resources.

A series of recommendations were issued within the stormwater monitoring programme report 2022-2023 to act on exceedances of guidance values for:

- Dissolved Copper levels in the North Drain, North Brook, Middle Brook and South Rangiora (No. 7 Drain)
- Dissolved Zinc in the North Drain, North Brook and Middle Brook
- E. coli levels in North Drain, North Brook, Middle Brook and South Brook

These will be addressed in the Rangiora Stormwater Management Plan to be presented by 1 January 2025 to ECan, and with implementation after this date. Other projects are also already underway, which are outlined in condition 35ii.

14.2. Service requests

WDC Assessment: Compliant (information provided)

All flooding is documented by WDC (Figures 8 to 12), and reported on as quarterly performance measure to the Department of Internal Affairs. This measure is determined by service requests within our urban schemes that have had house flooding as a result of the Council stormwater system. There have been cases of house flooding in urban schemes over the past two years. However, these service requests were investigated and determined to be not as a result of the Council stormwater system (i.e. household flooding due to on-site drainage issues) for both 2021-2022 and 2022-2023. Therefore, there have been no service requests lodged indicating flooding of houses as per condition 8a.

Level of Service	Measure (from Annual Plan)	Target	Q1 Performance	Q1 Comments	Q2 Performance	Q2 Comments
Drainage						
System Adequacy The stormwater system is adequately sized and maintained. Rural drainage areas are adequately maintained.	**Urban Stormwater** a) The number of flooding events that occur as a result of overflow from the stormwater system that enters a habitable floor.	Nil in less than 50 year storm events.	Nil	There were no flooding events of habitable floor levels during the first quarter.	Nil	No habitable floor levels were inundated in less than a 50 year storm event. There were five garages flooded during the 15 December 2021 storm event, three in Kaiapoi and two in Waikuku Beach. This event was determined to have a return period in excess of the 50 year storm event over a 12 hour duration in the coastal area of the district.

Figure 7. *Part 1*. Summary of non-Financial Performance Measures - Drainage & Stockwater for 2021-2022. No actions required from these investigations. No actions required.

Level of Service	Measure (from Annual Plan)	Target	Q3 Performance	Q3 Comments	Q4 Performance	Q4 Comments
Drainage						
System Adequacy The stormwater system is adequately sized and maintained. Rural drainage areas are adequately maintained.	**Urban Stormwater** a) The number of flooding events that occur as a result of overflow from the stormwater system that enters a habitable floor.	Nil in less than 50 year storm events.	Nil	No habitable floor levels were inundated in less than a 50 year storm event. There were three garages flooded during the 12 February 2022 storm event, one in Kaiapoi, one in Waikuku Beach, and one in Cust. This event was determined to have a return period of about a 20 year storm event over a 24 hour duration in the coastal area of the district.	Nil	There were no flooding events of habitable floor levels during the fourth quarter.

Figure 8. *Part 2*. Summary of non-Financial Performance Measures - Drainage & Stockwater for 2021-2022. No actions required from these investigations. No actions required.

Level of Service	Measure (from Annual Plan)	Target	Q1 Performance	Q1 Comments
Drainage				
	Urban Stormwater a) The number of flooding events that occur as a result of overflow from the stormwater system that enters a habitable floor.	Nil in less than 50 year storm events.	Nil	There were no flooding events of habitable floor levels reported during the first quarter. There were four significant rainfall events in July which caused flooding across the district, the largest event occurred on the 26 July which was determined to have a return period of approximately 30 years over a 24 hour period. There were 41 garages / sheds that were reported as flooded and 4 habitable floor levels - two in rural areas (Greigs Road and Tram Road) and two in urban areas (Kinley Street, Rangiora and Queens Ave, Waikuku Beach). The flooding in the urban area related to private issues and not overflow from the public stormwater system.

Figure 9. *Part 1*. Summary of Non-Financial Performance Measures - Drainage & Stockwater for 2022-2023. No Actions required.

Level of Service	Measure (from Annual Plan)	Target	Q2 Performance	Q2 Comments	Q3 Performance	Q3 Comments
Drainage						
	Urban Stormwater a) The number of flooding events that occur as a result of overflow from the stormwater system that enters a habitable floor.	Nil in less than 50 year storm events.	Nil	There were no flooding events of habitable floor levels reported during this quarter.	Nil	There were no flooding events of habitable floor levels reported during this quarter.

Figure 10. *Part 2*. Summary of Non-Financial Performance Measures - Drainage & Stockwater for 2022-2023. No Actions required.

Level of Service	Measure (from Annual Plan)	Target	Q4 Performance	Q4 Comments	YTD Performance	YTD Comments
Drainage						
	Urban Stormwater a) The number of flooding events that occur as a result of overflow from the stormwater system that enters a habitable floor.	Nil in less than 50 year storm events.	Nil	There were no flooding events of habitable floor levels reported during this quarter.	Nil	No habitable floor levels were inundated in less than a 50 year storm event. There were four significant rainfall events in July which caused flooding across the district, the largest event occurred on the 26 July which was determined to have a return period of approximately 30 years over a 24 hour period. There were 41 garages / sheds that were reported as flooded and 4 habitable floor levels - two in rural areas (Greigs Road and Tram Road) and two in urban areas (Kinley Street, Rangiora and Queens Ave, Waikuku Beach). The flooding in the urban area related to private issues and not overflow from the public stormwater system.

Figure 11. *Part 3*. Summary of Non-Financial Performance Measures - Drainage & Stockwater for 2022-2023. No Actions required.

14.3. Remedial and improvement works

WDC Assessment: Compliant (information provided)

As described in section 14.2, there has been no flooding caused by stormwater, therefore no remedial or improvement works have been carried out.

There are projects that have been carried out by WDC related to stormwater, such as Enviroschools and Ecoeducate.

Another improvement has been the increased capacity within the 3 Waters team, with recruitment process of new staff initiated in 2022-2023, with the improvement in the quality and quantity of stormwater discharges as a key responsibility of their roles. However, the outcome of this investment will be seen in future years, as new staff started in November 2023.

14.4. New stormwater systems vested

WDC Assessment: Compliant (information provided)

A list of all new Stormwater assets vested to WDC in Rangiora from 2021-2023 was requested from our Asset Information Management Team. The result is a list which includes all Stormwater assets in Rangiora, which have been acquired by council after development.

This list is provided in Appendix 5.

14.5. Future Stormwater system proposals

WDC Assessment: Compliant (information provided)

The following table represents all future stormwater proposals to improve both quantity and quality of stormwater management in Rangiora.

It should be noted that the following projects are in alignment with the actions recommended in the stormwater monitoring programme report: North Drain Treatment, Middle Brook Treatment and Three Brooks Enhancement Work.

Project Name	Description	Start Year	Complete Year
North Drain Treatment	Investigate and implement SW treatment options for the North Drain catchment. Includes enhancement to landscaping and amenity of the drain.	2028	2031
Middle Brook Treatment	Investigate and implement SW treatment options for the Middle Brook Catchment	2028	2029
Network Discharge Consent Implementation Works	Implementation of water quality improvement works identified in the Rangiora Stormwater Management Plan	2026	2034
Blackett Street Piping	Pipe upgrade through Ashley Street roundabout.	2025	2027
Johns Road Stormwater Main	New pipe along Johns Road, from Townsend Road to east boundary of 163 Johns Road.	2025	2025
Wiltshire / Green Pipework Upgrade Stage 2	Design and construction of pipe upgrade from Parkhouse Drive to Green Street	2026	2027
Railway Drain Treatment	Stormwater treatment improvements at the northern end of Railway Drain.	2024	2026
East Belt to Cam River Connection	Primary and secondary flow connection from East Belt / Keir Street to the headwaters of the Cam River. To align with development of the northeast area of Rangiora.	2026	2027
Three Brooks Enhancement Work - North Brook / Geddis Street	Repair and replacement of timber lined drain. Section of Geddis Street drain between High Street and Geddis Street. Section of North Brook between West Belt and Elisabeth Street.	2026	2026
Three Brooks Enhancement Work - Middle Brook Tributary	Repair and replacement of timber lined drain and vegetation work. Section of Middle Brook tributary upstream of Bush Street.	2026	2027
Three Brooks Enhancement Project - North Brook Victoria to Newnham	Channel naturalisation and retaining wall replacement. Section of North Brook between Victoria Street and Newnham Street.	2027	2028
Three Brooks Enhancement Work - Middle Brook Martyn to Bush	Naturalisation and vegetation clearance in the Martyn Street / Bush Street area.	2029	2029
Three Brooks Enhancement - Middle Brook Bush to King	Replacement of retaining wall and timber lined drain and naturalisation / vegetation clearance work. Section of Middle Brook between Bush Street and King Street.	2030	2031
North Brook Retaining Wall - Janelle to White	Installation of timber retaining walls on both sides of the North Brook between Janelle Place and White Street.	2026	2027
North Drain Piping - Ashley to Edward	Piping of the North Drain adjacent to the Anglican Cemetery between Ashley Street and Edward Street.	2026	2027
Belmont Avenue Drainage Upgrades	Drainage upgrades in Belmont Avenue, Rangiora	2028	2028

Table 15. Future Capex stormwater projects in the WDC draft Long Term Plan 2024-34

Other works completed in 2024 include retrofitting of raingardens along East Belt. These are due for reporting in the 2023-2024 annual report.

14.6. Protecting and enhancing mahinga kai

WDC Assessment: Compliant (information provided)

A summary of actions is presented below, extracted from a previous table of actions presented:

Date	WDC contact person		Situation/Project	Actions
August 2021	Sophie Allen	Koura Creek	Sophie spotlighted the population of freshwater crayfish (wai koura) at Koura Creek. One large longfin eel was found in the waterway. Tried to relocate it downstream unsuccessfully. Sophie has observed a large drop in the wai koura population, probably due to predation pressure from the longfin. Trout gillnetting was carried out in 2019 which found no above the trout barrier (but trout have been caught in the past I think). The trout barrier is unlikely to be able to be modified to exclude eels.	Spotlighting was carried out again in 2023 - Koura population is still low and has not recovered. The eel was not seen but might still be living in that waterway. Keep an eye on eels and trout in Koura Creek.
November 2021	Sophie Allen (ECan-led project by Irai Weepu)	Irai Weepu	Watercress- support for Irai Weepu and the Tuia team at ECan to look at enhancing watercress mahinga kai sites - November 2021 weeding was carried out of water speedwell and monkey musk. Watercress protection (no drain cleaning) sites along the Cam River above Bramleys Road Bridge were identified in the WDC Drainage Maintenance Management Plan.	This project was put on hold by ECan or Ngai Tuahuriri members as needing better scoping - before the project pause: better signage, improved bank access, as well as a repeat of the weeding were suggested as actions that WDC could support

Table 16. Actions taken to enhance mahinga kai between 2021-2023

15. Sites investigations

WDC Assessment: Compliant (no info to report)

As far as we are aware, between 2021-2023, there have been no further investigations undertaken because of catchment boundary or groundwater levels changes. Therefore, there is no information to report.

16. Site Audits

WDC Assessment: Compliant (no info to report)

There have been no site audits undertaken yet. This is because the Pollution Prevention Plans (PPP) have not been implemented yet. At time of writing, PPP are in the trial stage.

There is no information to report between 2021-2023.

17. Sites Excluded from this consent in the last year

WDC Assessment: Compliant (no info to report)

No sites have been excluded yet from CRC184601. Therefore, there is no information to report between 2021-2023.

17.1. Comments

From our records, WDC identified a list of 24 private discharge consents that are currently active within the Rangiora Urban limits. It is our understanding that these consents are held and monitored by ECan, with expiry dates beyond 2030 for all of them. A list of these consents is available on request.

The nature and responsibilities of these consents was discussed and clarified in a meeting with ECan on 2 February 2024. It is our understanding that, when ECan consents expire, they will fall under our Rangiora Network Stormwater Consent. However, this process is to be led gradually starting in 2024, testing our system for Pollution Prevention Plans.

Likewise, from the same meeting, a data request was recorded by ECan to provide WDC with data relating all consents in Rangiora that currently fall within ECan.

All the above will inform WDC in our assessment and exclusion of high-risk sites.

18. Breaches of the Bylaw

WDC Assessment: Compliant (no info to report)

No information to report between 2021-2023. There probably have been breaches of the bylaw, but none that WDC is aware of.

19. References

Depree, C. (2011). Street sweeping: an effective non-structural Best Management Practice (BMP) for improving stormwater quality in Nelson? Report No. HAM2011-043. NIWA. https://envirolink.govt.nz/assets/Envirolink/934-NLCC51-Street-sweeping-an-effective-non-structural-best-practice-for-improving-stormwater-quality.pdf

Rangiora Stormwater Monitoring Programme Report 2022-23

Prepared by Waimakariri District Council for CRC184601
March 2024

Prepared for: Regional Leader - Monitoring and Compliance**,** Environment Canterbury and Ngāi Tūāhuriri Rūnanga, for consent CRC184601

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Approved by: _____ Jason Recker Stormwater and Waterways Manager

on behalf of 3 Waters, Waimakariri District Council

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1	Lorena Cardenas	Draft	March 2024
2	Sophie Allen	Review	March 2024
3	Lorena Cardenas	Final submitted for review/approval	28 March 2024
4	Jason Recker	Approval	5 April 2024
5	Kalley Simpson	Approval	10 April 2024

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1. Executive Summary

This report summarises the results and provides analysis and discussion for stormwater sampling in Rangiora as per the consent CRC184601 from 1 July 2022 – 30 June 2023.

For the first time, a preliminary trend analysis is provided, using historical data from Waimakariri District Council baseline survey data from 2014-2017.

As per the monitoring programme, there are 21 visual discharge inspection outlets (6 of which are also sampled for Total Suspended Sediment), 13 sites in receiving waters for urban contaminants, and 6 sites for stream health sampling.

Visual discharge inspections of outlets did not raise any issues such as odour or hydrocarbons present. The guidelines threshold for Total Suspended Solids (TSS) was not exceeded in any of the sites. This is different compared to 2021-2022, when site RRSR026A (Pond C outlet on the corner of Flaxton and Fernside Roads), exceeded the guideline threshold for Total Suspended Solids (TSS). RRSR026A had elevated levels of *E. coli*. A decreasing trend was not able to be identified. However, values of Dissolved Copper, Dissolved Zinc and Dissolved Reactive Phosphorus (DRP) were lower for 2022-2023, compared to 2021-2022.

Guideline values for 'Urban Impact', (which are compliance points under the Rangiora Stormwater Monitoring Programme), were not exceeded for TSS nor Total Ammoniacal Nitrogen. They were exceeded for Dissolved Copper, Dissolved Zinc, Dissolved Reactive Phosphorus (DRP) and *E. coli*. Guideline values were not exceeded for Total Ammoniacal Nitrogen (TAN). Urban Impact sampling was undertaken during a moderate wet weather event and a heavy rain event. Both rain events met the first flush criteria, with total rainfall depths of 6.4mm and 14.4mm.

For dry weather 'Stream Health' sampling, guideline values were not exceeded for TSS, pH, temperature, TAN, DRP, and dissolved oxygen (except a low value at the North Brook at Lilybrook Park (RRNB036) possibly due to low oxygen in groundwater inflows). Guideline values for Dissolved Inorganic Nitrogen (DIN) and *E. coli* where not met in North Brook, Middle Brook, South Brook, or the No. 7 Drain.

Recommendations to address contaminants and actions in waterways are presented in this report. Investigations into contaminants in groundwater inflows, and further characterisation of rural versus urban sources is also recommended. It is believed that some exceedances of *E. coli*, DRP and DIN, could be due to rural inputs, beyond the scope of the Consent.

Long term or site-specific trends in water quality were analysed, with some statistically significant trends encountered. There are limitations with data size and the type of analyses implemented (linear regression model). However, trends have been investigated where possible. Trend analyses will be improved for the next reporting period.

Annual stream sediment deposition sampling found that sediment depth cover was nil at selected sites in the Middle Brook; in the North Brook from nil to 300mm; South-South Brook presented sediment build up with a sediment depth of 100mm-400mm; No. 7 Drain had nil sediment depth cover with some patches of 30mm (it had been cleaned a few weeks prior sampling).

Stream health ecological sampling (every 3 years) and stormwater management area sediment sampling programmes (every 5 or 10 years depending on the basin) have been carried out in 2023-24.

There was one diesel spill of 5L reported at 47 White Street. A vehicle was vandalised with diesel siphoned off and some of this spilt onto the road. Rain washed this into the stormwater network and into the North Brook. WDC responded and deployed clean up measures.

2. Introduction

Resource consent CRC184601 requires Waimakariri District Council to submit an annual report to both to the Canterbury Regional Council and Te Ngāi Tūāhuriri Rūnanga which details compliance with the most recent Rangiora Stormwater Monitoring Programme and other consent requirements.

This report is required to detail results of the monitoring carried out for each section of the monitoring programme for a 12-month period.

This report is complemented with the following information, which is found in this report and in the Rangiora Stormwater Annual Report 2021-2023:

- A summary and discussion of results from each section of the monitoring programme
- Interpretation of any long term or site-specific trends in surface water quality, stormwater quality, ecology, or soil quality where data was available (Annual Report)
- Interpretation of the significance and possible reasons for any change in long term or site-specific trends where data was available (Annual Report)
- Discussion of compliance with the "urban impact" Receiving Environment Objectives.
- Documentation of, and possible reasons for exceedances, and further action taken in response to exceedances (Annual Report)
- A report on any spills that occurred exceeding 5 litres that discharged via the reticulated stormwater system into the receiving environment (this report, full details in Annual Report)

Although included within the Rangiora stormwater monitoring programme as a part of the consent, the stream health component is not assessed as a compliance component of the Rangiora Stormwater Network Discharge Consent. The stream health water quality results have been included in this annual report to provide context and allow for the analysis of trends over time.

This annual report does not include results from ecological surveys in Rangiora streams, stormwater basin monitoring or stream sediment monitoring as these were not required in the 2022/2023 year.

2.1. Rangiora Stormwater Monitoring Programme

The Rangiora Stormwater Monitoring Programme focuses on the Rangiora urban stormwater discharge impact on waterways. The programme covers monitoring of discharge points, receiving waters and stormwater ponds within the Rangiora urban limits.

Within the Rangiora urban limits, the main natural streams are; North Brook, North-North Brook, South Brook, Middle Brook, Cam River, Taranaki Stream, Crayfish (Kōura) Creek, the South-South Brook, and the No.7 Drain. These waterways receive stormwater discharge from the Rangiora urban stormwater network (other than Crayfish (Kōura) Creek which receives no stormwater discharges and is entirely spring flow) and are therefore considered to be receiving waters. The receiving waters have yearly baseflow, apart from the upper North Brook which is ephemeral. All the streams provide habitat for aquatic ecology. Taranaki Stream does not contain sampling sites on this financial year. A new sampling site has been added in Taranaki Stream as part of the new Bellgrove subdivision, within the new Stormwater Management Program.

Using the requirements in the Canterbury Land and Water Regional Plan (CLWRP), the WDC Rangiora stormwater monitoring programme includes:

"Urban Impact" Component:

1. **Visual Discharge Inspections** - to check for water clarity, oil, grease films, scums, foams, suspended materials, odour and erosion at the major discharge points.

2. **Major Discharge Inspections** – to sample TSS discharges from selected major discharge points.
3. **Urban Impact Inspections-** where dissolved metal samples, pH, Dissolved Reactive Phosphorus (DRP), E.coli and Total Ammoniacal Nitrogen are retrieved from the receiving waters, and sent to a laboratory for testing. For dissolved metals, this enables direct compliance assessment against the Schedule 5 water quality standards of the CLWRP and allow the effects of the discharges on the ecological health of the urban streams to be understood. For DRP, *E.coli* and Total Ammoniacal Nitrogen, these provides an indication of the rate of reduction of wastewater overflows during the consent term in association with the wastewater capacity upgrades which are currently underway.
4. **Stormwater Basin Monitoring –** This was not carried out in 2022-23, as it is required only every 5 or 10 years (industrial and residential basins respectively).
5. **Stream Sediment Monitoring -** This analysis, carried out for the first time in 2022-23, looked at sediment particle size and depth of fine sediment.

In addition to the specific monitoring of urban stormwater impacts, the WDC also monitors stream health.

"Stream Health" Component:

1. **Stream Health Inspection -** Water quality samples of dissolved oxygen, pH, temperature, Total Suspended Solids (baseline purposes), Total Ammoniacal Nitrogen, Dissolved Inorganic Nitrogen, *E.coli,* Dissolved Reactive Phosphorous and Specific Conductance (portable probe) sampled within the Rangiora streams.
2. **Ecological surveys in Rangiora streams-** This was not carried out in 2022-23, as it is required only every 3 years before 2025.

2.2. Sampling Sites

2.2.1. Discharge Inspections

All practicable major discharge points from the WDC stormwater network into the receiving waters are visually monitored.

21 observation points for discharge inspections are presented in the following list and Figure 1.

RRND012: North Drain, Coldstream Road.
RRNB057: North Brook, at Oxford Road.
RRNB049: North Brook, at Geddis Street.
RRNB045: North Brook, at Dudley Park, White Street pipe outlet.
RRNB039: North Brook, at Ward Park, drain inflow from Fraser Place
RRNB038: North Brook, at Ward Park, drain inflow from Ward Place
RRNB035: North Brook, drain inflow into eastern side of Lilybrook Park
RRNB033: Northern branch of the North Brook, west side Kowhai Avenue
RRNB015: Northern branch of the North Brook pipe outlet, Cotter Lane
RRNB009: North Brook, outlet of the North Brook Ponds
RRER006: Goodwins (Horncastle) Stormwater Pond Outlet, Northbrook Road
RRWR013: Oxford Park East SMA basin outlet (West Rangiora) on Johns Road
RRMB026: Middle Brook, at King Street.
RRMB022: Middle Brook, at Clearbrook Lane
RRMB017A: Middle Brook at Gefkins Road
RRSB046A: South Brook, at Townsend Fields Stormwater Management Area outlet.
RRSB035: South Brook, pipe outlet off Coronation Street.
RRSB032: South Brook at Southbrook Road (west side at pipe outlet)
RRSB030: South Brook, pipe outlet on west side of Railway Road.

RRSS026: South South Brook Stormwater Pond Outlet, Lineside Road
RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road
RRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMARRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMA

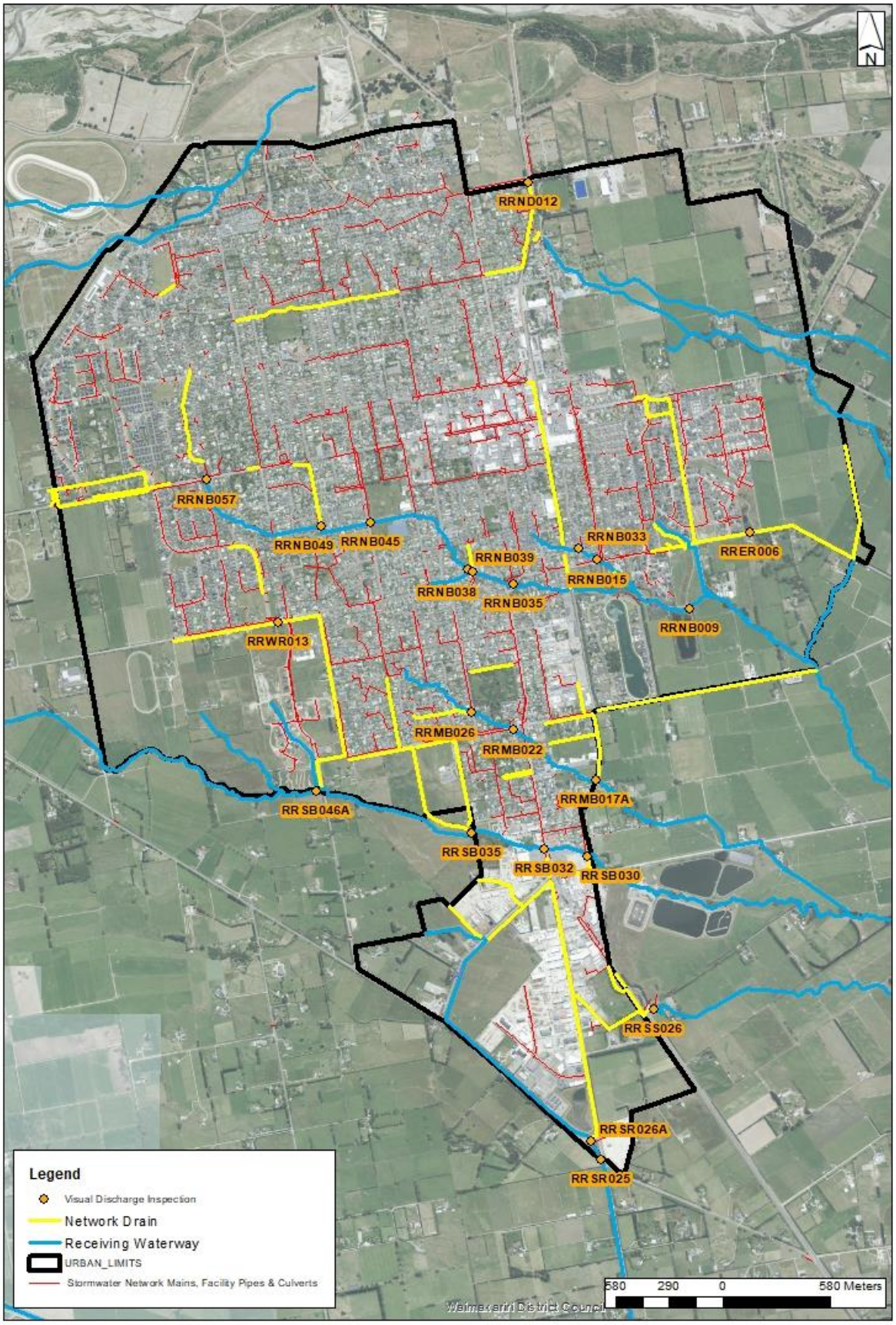

Figure 1: Discharge inspection locations

2.2.2. Major Network Outlets

Six Major Network Outlet total suspended solids (TSS) sample locations are presented in the following list and Figure 2. Sample site RRSR026A (outlet to Pond C, major Rangiora industrial discharges) which has an extended sampling regime is included in this list.

RRNB009: North Brook, outlet of the North Brook and East Rangiora SW Basins
RRNB033: Northern branch of the North Brook, west side Kowhai Avenue
RRNB045: North Brook, at Dudley Park, White Street (discharge from 600mm diameter pipe on White St)
RRMB017A: Middle Brook, Gefkins Road (sample Railway Drain discharge from Hegan Reserve bank)
RRSB030: South Brook, pipe outlet on west side of Railway Road (discharge from 525mm diameter pipe into stream)

RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road

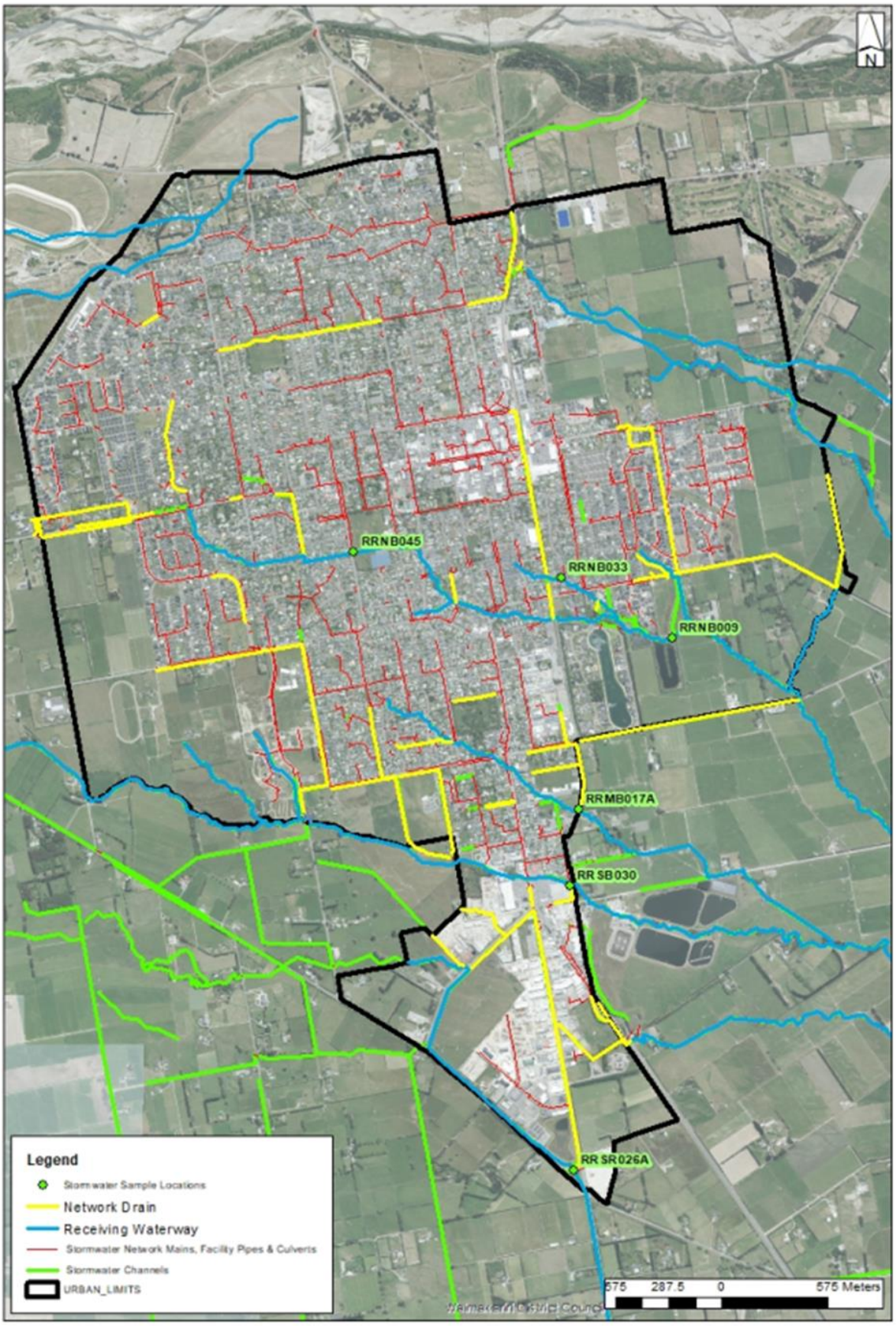

Figure 2: Sample locations for TSS and sample site RRSR026A at selected major discharge points

2.2.3. Urban Impact

The sample locations for urban impact monitoring are situated at either the beginning of the urban limits or the stream source, and a sample point at the downstream urban limit.

The Surface Water sample locations are listed and shown in Figure 3:

RRND012: North Drain, near Ashley River stop-bank
CRCR120: Cam River, on the southern side of Kippenberger Avenue
RRNB017: North Brook, on the northern side of Boys Road
RRNB033: North branch of the North Brook, on the western side of Kowhai Avenue
RRNB036: North Brook, Lilybrook Park
RRNB044: North Brook, on Church St across from Dudley Park
RRNB055: North Brook, at Aspen Street Park
RRMB017: Middle Brook, Gefkins Road east of the Railway, upstream side of the bridge
RRMB029: Middle Brook, on the western side of Bush Street
RRSB030: South Brook, on the west side of Railway Road
RRSB046: South Brook, on the east side of Townsend Road
RRSS026: South-South Brook, on the east side of Lineside Road
RRSR026: South Rangiora, No. 7 Drain immediately south of Fernside Road (allows for mixing zone).

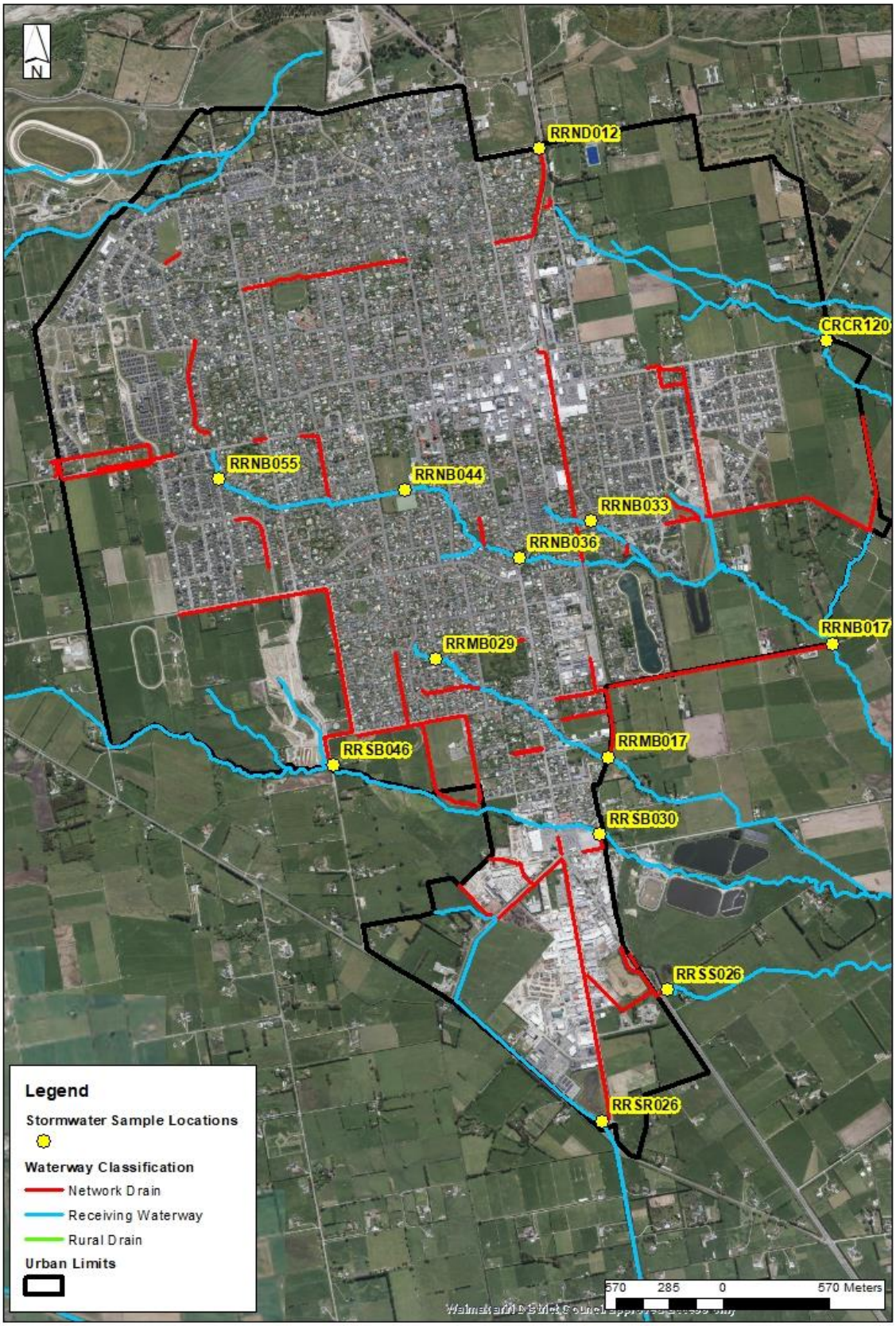

Figure 3: Sample locations for Urban Impact monitoring

2.2.4. Stream Health

The Stream Health monitoring component is for information and context only, with results unlinked to compliance conditions for the Rangiora Stormwater Network Discharge Consent.

The sample points are situated near either the beginning of the urban limits or the stream source, and a sample point near the downstream urban limit. The Stream Health sample locations are listed below and shown in Figure 4:

RRSR025: South Rangiora, downstream of Fernside / Flaxton Intersection SMA outlet
RRSB030: South Brook, on the west side of Railway Road
RRSB046: South Brook, on the East side of Townsend Road
RRMB017: Middle Brook, Gefkins Road, east of the Railway Line on upstream side of bridge
RRNB017: North Brook, on northern side of Boys Road
RRNB036: North Brook, Lilybrook Park

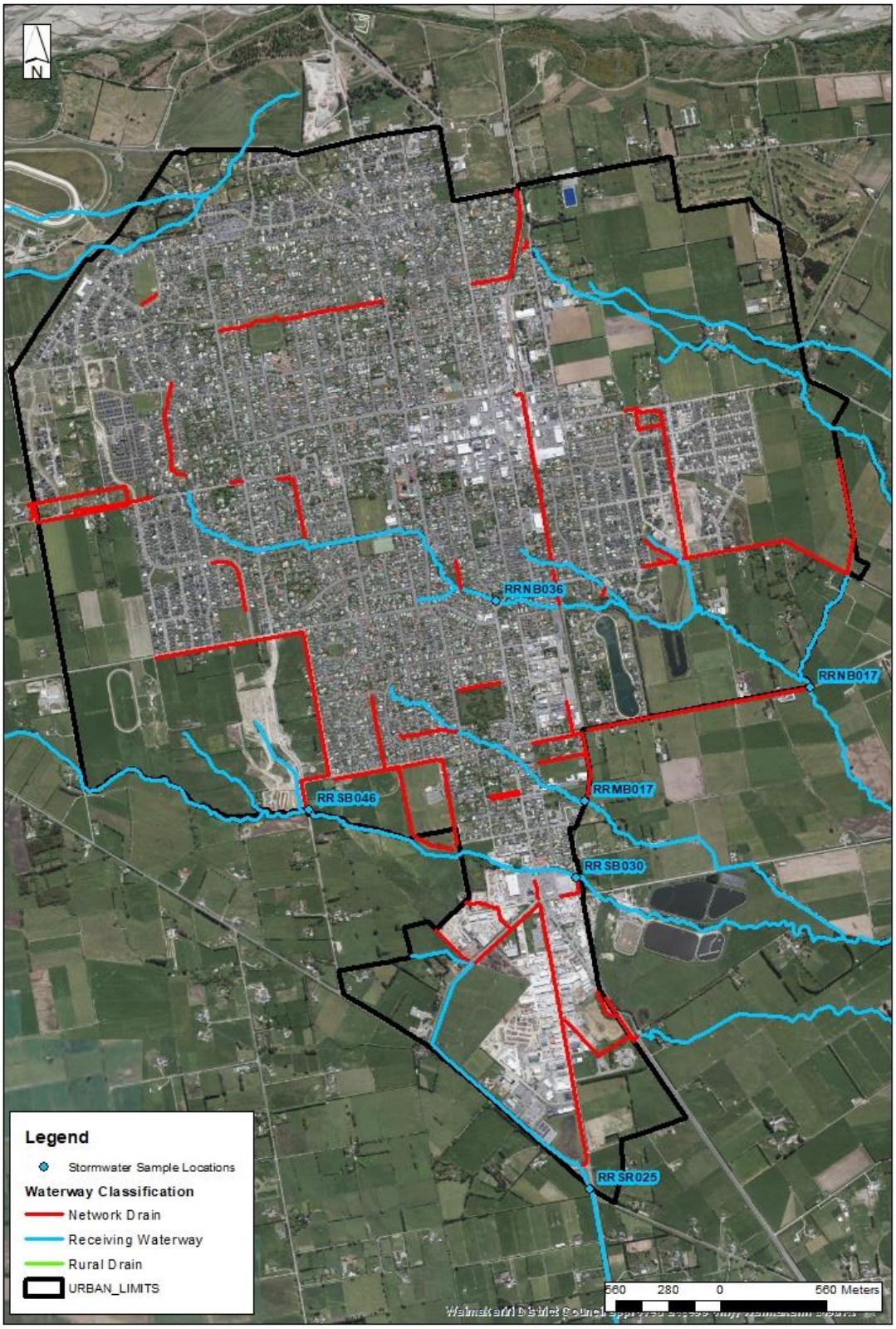

Figure 4: Sample locations for Stream Health

2.2.5. Stream sediment deposition and depth

Fine sediment cover and depth was measured in June 2023 at 6 sites in Rangiora as per the brief in TRIM 220513076614 (see Figure 5). This brief follows the protocols SAM1 and SAM6 of Clapcott et al. (2011).

A site on the North Brook at Dudley Park was intended to also be sampled but was dry at the time of sampling. This site is recommended to be replaced as it is regularly dry.

Figure 5. Map of sediment sampling sites 2021-2023 (June 2023)

3. Methods

An overview of sampling methods is provided in the CRC184601 Rangiora Stormwater Network Discharge Consent monitoring programme, and therefore is not repeated here for brevity.

A summary of sampling activity is provided in Table 1. Due to staff shortage and consent implementation issues, some scheduled sampling events did not occur during 2022/2023.

	2021-22			
	Q1	Q2	Q3	Q4
	Jul, Aug, Sep	*Oct, Nov, Dec*	*Jan, Feb, Mar*	*Apr, May, Jun*
Visual discharge inspections (quarterly) n=21	Monitoring programme had not commenced	15-16/12/2021	Not undertaken	Not undertaken
Major network outlet discharge (four times per year until 2025) n=6	Monitoring programme had not commenced	15-16/12/2021	Not undertaken - lack of first flush	Not undertaken - lack of first flush
Urban Impact (twice per year) (n=13)	Monitoring programme had not commenced		10/02/2022	Not undertaken - lack of first flush
Stream Health (quarterly)	Monitoring programme had not commenced	18/11/2021	31/03/2022	13/05/2022
Stream fine sediment deposition (annually)	Not undertaken in 2021-22			

Table 1. *Part 1*. Summary of Rangiora CRC184601 sampling undertaken in 2021-23

	2022-23			
	Q1	Q2	Q3	Q4
	Jul, Aug, Sep	*Oct, Nov, Dec*	*Jan, Feb, Mar*	*Apr, May, Jun*
Visual discharge inspections (quarterly) n=21	Not undertaken	Not undertaken	28/03/2023	Not undertaken
Major network outlet discharge (four times per year until 2025) n=6	Not undertaken	Not undertaken	28/03/2023	Not undertaken
Urban Impact (twice per year) (n=13)	Not undertaken		28/03/2023	28/06/2023
Stream Health (quarterly)	Not undertaken	Not undertaken	16/03/2023	23/05/2023
Stream fine sediment deposition (annually)	21/6/2023- 29/06/2023			

Table 2. *Part 2*. Summary of Rangiora CRC184601 sampling undertaken in 2021-23

Rainfall was monitored closely. All sampling attempts were also recorded by WDC. The challenges encountered to undertake sampling were:

- Staff shortage/availability
- Instrumentation failure (probes)
- Rain outside of working hours when no staff were able to undertake sampling.
- Rain too late in the afternoon and unable to take samples to the laboratory in time.

These issues have been addressed and continue to be addressed by:

- Employing a 3 Waters Compliance Officer to assist with monitoring and reporting as part of the role
- Resolving instrumentation issues with the WDC Water Unit
- WDC continues to explore and test out solutions for sampling outside of hours
- Relaxing first flush criteria with advice sought from Environment Canterbury directly

A full spreadsheet of sampling attempts and details is available on request.

Date	15/12/2021	16/12/2021	10/02/2022	28/03/2023	28/06/2023
Time	02:00pm	08:40am	08:50am	10:30am	8:50am
Antecedent dry weather	72h	72h	72h	72h (nominal 0.2 mm of rainfall fell)	72h (nominal 0.4 mm of rainfall fell)
Rainfall Depth (mm) ***sampling commenced***	24.40mm	50 mm	38.60mm	2.4mm	14.4mm
Rainfall Depth (mm) ***sampling finished***				6.4mm	14.4mm
Duration	14h	32h 40min	16h 50min (rain started 4pm on 9/02/2022)	1h 50min	11h 50 min
Event Description	Heavy rain. Part 1 of sampling (Part 2 completed next day)	Torrential Rain. Part 2 of sampling event. Very large rain event (too large to meet first flush criteria). Rain event had ceased by sampling start but discharge still occurring.	Torrential Rain. Too much rain for a first flush event (over 25mm rain). It was dry 3 days beforehand.	Moderate Rain. First flush met after the start of sampling. The only rain event occurring during work hours.	Heavy Rain. First flush * met. Rain ceased already about 3am of the 28/06/23, but still sampled as needed sampling events
Type Sampling Event	Visual Discharge, Major Network Discharges	Visual Discharge, Major Network Discharges	Urban Impact	Visual Discharge, Major Network discharges, Urban Impact	Urban Impact
Reporting Year	2021-22	2021-22	2021-22	2022-23	2022-23

Table 3: Summary of Rangiora CRC184601 rain events 2021-23. Note only the last two columns are for the reporting period sampled in this report. Rain events included from 2021-22 to allow comparison between data in graphs presented here.

** First flush conditions are defined as a rainfall event with rainfall no less than 3 mm and no greater than 25 mm, over 24 hours (CCC, waterways wetlands and drainage guide). Antecedent precipitation conditions should be considered, where a first flush storm needs to have a period of at least 72 hours of no measurable precipitation (Otago Regional Council).*

4. Results

4.1. Guideline values

Results for the 2022/2023 reporting year have been compared to the CLWRP guidelines and for trends over time within each waterway. This is the second year of sampling for CRC184601. Comparison has been made to 2021-22 results, baseline sampling results for Rangiora from 2014-17 (sourced from the Infrastructure Data app, TRIM 140728079529 and TRIM 230810122394) or other sampling results where possible. Trends have been analysed within catchments and over time where possible. Note that data available was not always sufficient to detect any significant trends. For this reason, available data for the 2023-2024 financial year has also been included in trend analysis, to increase the sample size. Data from 2023-2024 is not represented here. Despite this, another limitation is that not all sampling locations from the monitoring programme were sampled during baseline sampling. This means that not all sites have all data available for an effective trend analysis over time. To represent the historical data from the baseline sampling, the mean value was calculated for each site across time.

The Rangiora stormwater monitoring programme specifies that the Urban Impact and Major Discharge Outlet sampling should be undertaken in a first flush event. However, meeting first flush sampling criteria was difficult, resulting in sampling in conditions larger than first flush events.

Guideline values from the CLWRP are presented in Table 3. Hardness and Dissolved Organic Carbon were not measured in 2022-23, as are only required every 5 years for adjustment of results.

The following sections of this report look at each of the tested contaminants separately.

Table 4: Urban Impact monitoring surface water guideline values

Contaminant	Guideline	Guideline Source
Total Suspended Solids	<50 gm3	CLWRP
Dissolved Copper	< 0.0018 mg/L	CLWRP *spring fed – plains – Urban* Water 90% of the **ANZECC guideline**
Dissolved Zinc	< 0.015 mg/L	CLWRP *spring fed – plains – Urban* Water
pH	Shall be between 6.5 - 8.5	CLWRP, *section 16, schedule 5*
Dissolved Reactive Phosphorus	< 0.016mg /L	CLWRP, *section 16, schedule 5*
E. coli	95% of the samples should have less than 550 E. coli per 100 mL	CLWRP, *section 16, schedule 5*
Total Ammoniacal Nitrogen	Depends on pH level	CLWRP, *Table S5C, Schedule 5*
Hardness	5 yearly adjustment of Guideline Value	
Dissolved Organic Carbon	To characterise the waterway – adjust Guideline Value	

4.2. Trend Analysis

For the first time trend analyses was undertaken with the data available. This included historical data from 2014-2017, and data from the previous financial year 2021-22.

A linear regression model was used to represent data with a scatter plot graph, from which an R-squared test was calculated. This analysis was undertaken for all data available within each site, for each contaminant individually and checked for a significant linear trend over time. An R^2 value ≥ 0.5 was considered a significant trend. Anything below 0.5, was not considered a significant trend. In addition, any contaminants, and sites where an $R^2 \geq 0.4$ was identified, is recommended to be watched closely as WDC keeps increasing the dataset available with more stormwater sampling.

Values such as sampling size, where "n" equals the number of samples analysed, and the R^2 value, have been provided with trend analysis to provide an idea of how strong the results are based on sample size and correlation value found from the regression model, to allow for a more concise interpretation of results.

Due to time constraints for the preparation of this report, WDC acknowledges that no preliminary descriptive data analyses were undertaken. From this, an understanding of what statistical distribution each data set follows, has not been investigated. Rather, we have worked under the assumption that our contaminant data follows a linear distribution. WDC is aware of these limitations when it comes to using water quality data. We plan to implement a different approach for the 2023-24 reporting, such as the use of Time Trends software.

Other limitations are noted in terms of data size. Not all sites and contaminants were covered during baseline sampling. Also, not all sites were sampled in 2022-23 runs. All details are outlined individually in the following sections.

4.3. Historical Data (Baseline sampling)

In some instances, such as for the Urban Impact analysis, historical data available from the baseline sampling (2014-2017) was undertaken at sites that do not necessarily match the current sampling site in the monitoring programme.

For example, in the Middle Brook, site RRMB019 was sampled historically since 2014. However, the site was moved to RRMB017, also in the Middle Brook but a little downstream from the baseline sampling. To avoid comparing data to sites that are not the same in location, in these instances data has been skipped and considered as "no data available" from a historical data perspective.

The only exception to this is has been made with Pond C, were historical data from site RRSR026 (after a mixing zone) has been compared with consent monitoring data from RRSR026A (with no mixing zone). This decision has been made in an attempt to increase the dataset however it is not a true baseline.

4.4. Bar charts

All sampling data displayed in column graphs has been organised to display sampling sites from catchments upstream to downstream. These have been distributed in the X axis horizontally, to display information for an easier understanding and interpretation of results. Hence, data is visually represented for catchments in the following order: North Drain, Cam River, North Brook, Middle Brook, South Brook, No. 7 Drain and South-South Brook. See any of the figures in the following sections.

4.5. Visual discharge inspections

Note only one of quarterly inspections was carried out in 2022-23 (see Table 1), during which 11 of the 21 outlets were inspected due to time constraints. See Table 5 for a summary of which outlets were inspected and which ones were not.

Table 5. Summary of outlets where visual discharge inspections were undertaken in 2022-2023

	Sampled?
RRND012: North Drain, Coldstream Road.	No
RRNB057: North Brook, at Oxford Road.	No
RRNB049: North Brook, at Geddis Street.	No
RRNB045: North Brook, at Dudley Park, White Street pipe outlet.	No
RRNB039: North Brook, at Ward Park, drain inflow from Fraser Place	No
RRNB038: North Brook, at Ward Park, drain inflow from Ward Place	No
RRNB035: North Brook, drain inflow into eastern side of Lilybrook Park	No
RRNB033: Northern branch of the North Brook, west side Kowhai Avenue	Yes
RRNB015: Northern branch of the North Brook pipe outlet, Cotter Lane	No
RRNB009: North Brook, outlet of the North Brook Ponds	No
RRER006: Goodwins (Horncastle) Stormwater Pond Outlet, Northbrook Road	No
RRWR013: Oxford Park East SMA basin outlet (West Rangiora) on Johns Road	No
RRMB026: Middle Brook, at King Street.	Yes
RRMB022: Middle Brook, at Clearbrook Lane	Yes
RRMB017A: Middle Brook at Gefkins Road	Yes
RRSB046A: South Brook, at Townsend Fields Stormwater Management Area outlet	Yes
RRSB035: South Brook, pipe outlet off Coronation Street.	Yes
RRSB032: South Brook at Southbrook Road (west side at pipe outlet)	Yes
RRSB030: South Brook, pipe outlet on west side of Railway Road.	Yes
RRSS026: South South Brook Stormwater Pond Outlet, Lineside Road	Yes
RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road	Yes
RRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMARRSR025: South Rangiora, Outlet of Fernside/Flaxton Intersection SMA	Yes

Results of visual discharge inspections are presented in Table 6.

4.5.1. Colour and Suspended Sediment

There were instances in the 2022/2023 year that colour or suspended sediment from outlets into the Middle Brook, North Brook, South Brook and outlet from Pond C into the No. 7 Drain were identified as elevated during the discharge inspections (RRMB17A, RRMB022, RRMB026, RRNB033, RRSB032, RRSB035, and RRSR026A). Outlets into the Middle Brook (RRMB022), South Brook (RRSB035) and the Pond C outlet (RRSR026A) were also noted to be elevated in 2021-22.

4.5.2. Hydrocarbons

There were no instances in the 2022/2023 year that hydrocarbons (oil, grease or other) were observed during the discharge inspections.

4.5.3. Visible contaminants

There were minor instances in the 2022/2023 year that visible contaminants, such as rubbish, vegetation or debris, were observed during the discharge inspections. None of the instances required immediate action such as trash grille cleaning.

Table 6. Summary of Results from Visual Discharge Inspections in Rangiora for 2022-2023.

Date and time	Sampler	Sampling Point	Colour and Suspended Settlement	Rubbish	Hydrocarbons	Odours	Vegetation and Debris	Additional Site Observation of Stream Bed or Bank Erosion
28 March 2023 at 11:06 am	Angela Burton	RRMB017A	Slightly Murky, slightly coloured	Yes, unable to access safely. One small item	No	No	Aquatic weed	Bank erosion on true right near railway Bridge
28 March 2023 at 12:12 pm	Angela Burton	RRMB022	Slightly murky but no worse than stream	Beer can	No, a few bubbles	No	A few leaves	No
28 March 2023 at 12:24 pm	Angela Burton	RRMB026	Slightly murky	No	No, some small bubbles	No	Willow roots and minimal aquatic weed	No
28 March 2023 at 1:43 pm	Angela Burton	RRNB033	Murky	One bottle removed	Bubbles	No	Vegetation debris on grate unable to remove	No
28 March 2023 at 10:49 am	Angela Burton	RRSB030	No	Road cone downstream	No	No	Vegetation overgrowth within channel	No
28 March 2023 at 12:08 pm	Angela Burton	RRSB032	Slightly Murky,	No	Small amount of foam	No	No	No
28 March 2023 at 12:43 pm	Angela Burton	RRSB035	Slightly murky similar to stream	No	Bubbles on surface	No	No	No
28 March 2023 at 12:54 pm	Angela Burton	RRSB046A	---	---	---	---	---	Not discharging
28 March 2023 at 11:38 am	Angela Burton	RRSR025	Fairly clear	Nil visible	Nil visible	Nil	*Carex secta* on banks, aquatic weeds including monkey musk, *Potamogeton* spp.	---
28 March 2023 at 11:58 am	Angela Burton	RRSR026A	Murky with some suspended sediment visible	No	No	No	Aquatic weed	---
28 March 2023 at 11:23 am	Angela Burton	RRSS026	Green algae on top, no visible suspended solids	No	No	No	Algae	No flow from ponds

4.5.4. Odour

There were no instances in the 2022/2023 year that odour from outlets was identified as unusual during the discharge inspections.

4.5.5. Stream bed and bank erosion

Stream bank erosion was observed in the 2022/2023 reporting year below RRMB017A (on the true right bank of the Middle Brook at Gefkins Road near the Railway Bridge). This is not thought to be erosion caused by the stormwater outlet and was not significant enough to require remediation.

4.5.6. Additional information

Site RRSB046A in the South Brook, at Townsend Fields Stormwater Management Area outlet, was not discharging at the time of sampling.

4.6. Major network outlets

4.6.1. Sampling Sites

Note that only 4 of 6 total sites were sampled for TSS on this round due to time, weather and staff constraint (see Table 6).

Table 7. Summary of major network outlets sampled for TSS in 2022-2023 financial year.

	Sampled?
RRNB009: North Brook, outlet of the North Brook Ponds	No
RRNB033: Northern branch of the North Brook, west side of Kowhai Avenue	Yes
RRNB045: North Brook, at Dudley Park, White Street pipe outlet	No
RRMB017A: Middle Brook, Gefkins Road	Yes
RRSB030: South Brook, on the West side of Railway Road	Yes
RRSR026A: South Rangiora, Stormwater Pond C Outlet, Flaxton Road	Yes

Not all these sites were included in the baseline sampling, therefore not always there was enough historical data for comparison and trend analysis over time at each site.

4.6.2. Total Suspended Solids (TSS)

Note only one major network outlet discharge sampling round was undertaken (Table 1). Two sampling sites were also missed on this sampling due to staff, time and weather constraints.

Figure 6 shows the TSS sampling results for the major network outlets in the 2022-2023 reporting year (orange), in comparison to 2021-2022 reporting year (blue). Site RRSB030 (South Brook west of Railway Road) was found to be below the default detection limit of 3 g/m^3 with a laboratory estimate of 1.2 g/m^3.

All major network outlets sampled in the 2022-2023 reporting year met the guideline value of 50 g/m^3. This indicates that TSS concentrations are not generally elevated at these locations. TSS levels are not thought to be impacting negatively aquatic life. This result was the same in 2021-2022, except for RRSR026A (South Rangiora, Stormwater Pond C Outlet, Flaxton Road).

Compared to 2021-2022 results, all sites except for the northern branch of North Brook RRNB033 (west side of Kowhai Avenue) showed lower TSS values in 2022-23. Nevertheless, it is observed that the rainfall depth was also lower for this second round of sampling. In 2021-22, the rainfall depth was 24mm and 50mm, while it only rained 2.4mm for 2022-23 sampling.

In 2022-23, major network outlet sampling for RRNB045 and RRNB009 was not undertaken, therefore there's no data available for comparison at these sites. These sites were not part of the baseline sampling either.

At RRSR026A, TSS values measured 5 g/m^3 in 2022-23, as opposed to 55 g/m^3 in 2021-22. These results show that TSS were lower at Pond C, in comparison to 2021-22 and historical levels. This site was not sampled in 2014 for baseline monitoring to be able to provide comparison, however it was sampled five times during rain events between 2015-17, a bit below of the original site with a mixing zone (RRSR026), exceeding the guideline for three of those events. The mean value of this baseline sampling is represented in Figure 6 (grey bars). Sediment discharge from the Pond C outlet therefore has previously been identified to regularly exceeded the guideline value. It is likely that TSS from Pond C is affecting the ecology of the No. 7 Drain below the pond. Improvements to the functioning of Pond C are recommended to be carried out.

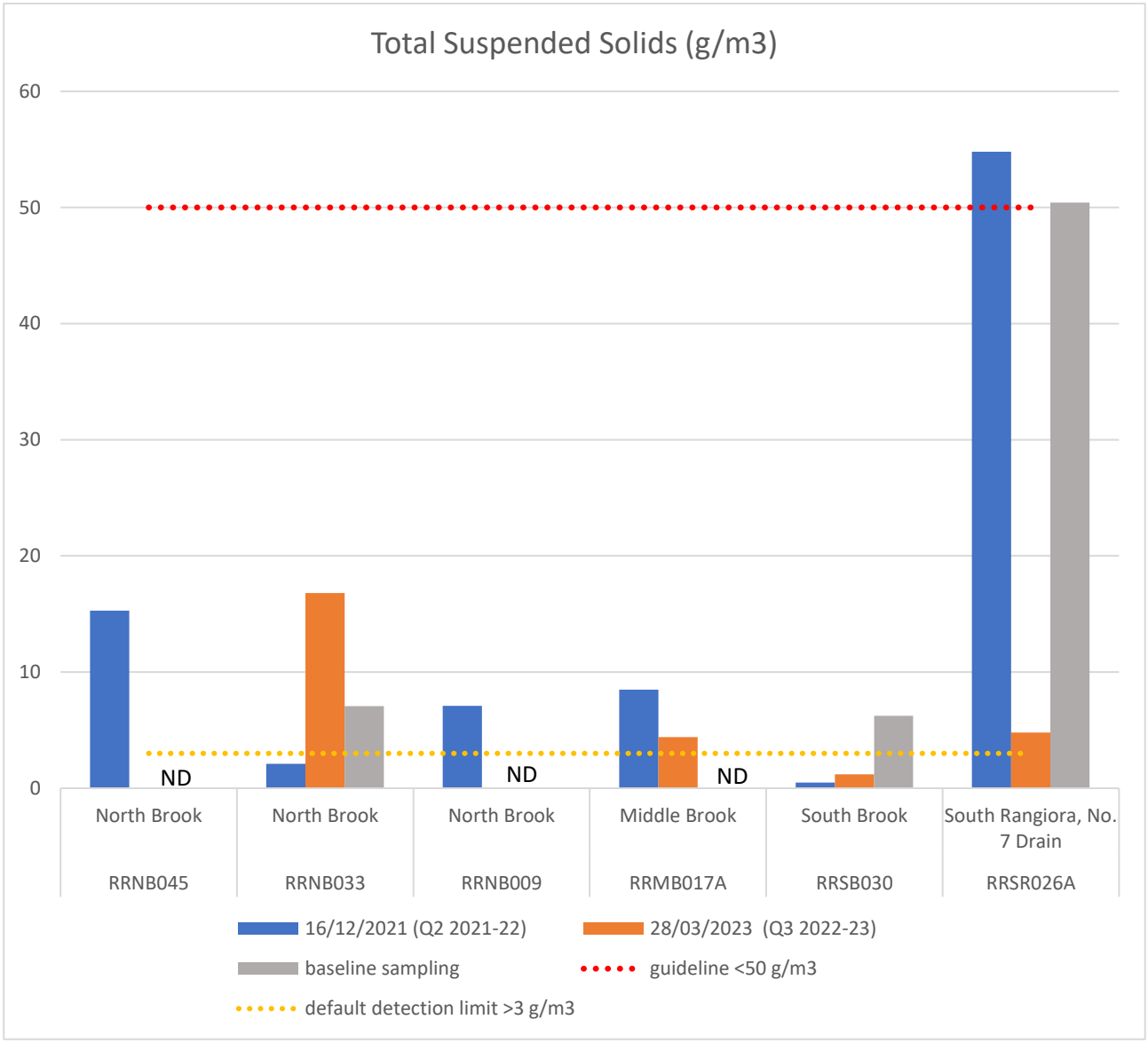

Figure 6. Total suspended solids for the Major Network Outlets 28/03/2023 Quarter 3 of 2022-2023 (orange). Results for previous financial year 2021-22 (blue) and baseline sampling mean results (grey) are included for comparison. ND = No Data. Where there are gaps, there is no data available due to a lack of sampling.

Trends

Trend analyses was undertaken for TSS with all the data available per each site. This included data from the 2021-22, 2022-23 and historical data (2014-2017). Historical data available for comparison was only available for the following sites: RRNB033, RRSB030 and RRSR026. The historical sampling site was sampled after a mixing zone, slightly downstream below from the current sampling outlet at RRSR026A. Despite this difference, data from these sites was used for comparison at Pond C due to limited data available.

There were no significant trends observed for the levels of TSS in the sampling locations over time.

4.6.3. Pond C Outlet

4.6.3.1. Dissolved Copper (Pond C Outlet)

Levels of Dissolved Copper in 2022-2023 were found to be 0.00072 g/m^3, below sampling for the previous financial year and below historical mean levels. In 2021, Pond C had higher levels of Dissolved Copper at 0.019 g/m^3. Historically, levels of Dissolved Copper were also higher. See Figure 7.

Note that historical sampling for Pond C outlet was undertaken below a mixing zone with the No. 7 Drain (RRSR026) during rain events, where the mean Dissolved Copper value was 0.004 mg/L. This sampling site can therefore only be used as an indication of historic levels but is not a true baseline. Also note, there are no guidelines for Pond C, as we are sampling directly in the outlet. WDC seeks a decreasing trend for this.

Trends

There was not a significant trend identified associated with the levels of Dissolved Copper at Pond C (R^2=0.06). The sample size was n = 7 for sampling events in 2015, 2016, 2017, 2021 and 2023.

More sampling is required to determine Dissolved Copper levels and how they could be impacting the ecosystem health in the No. 7 Drain.

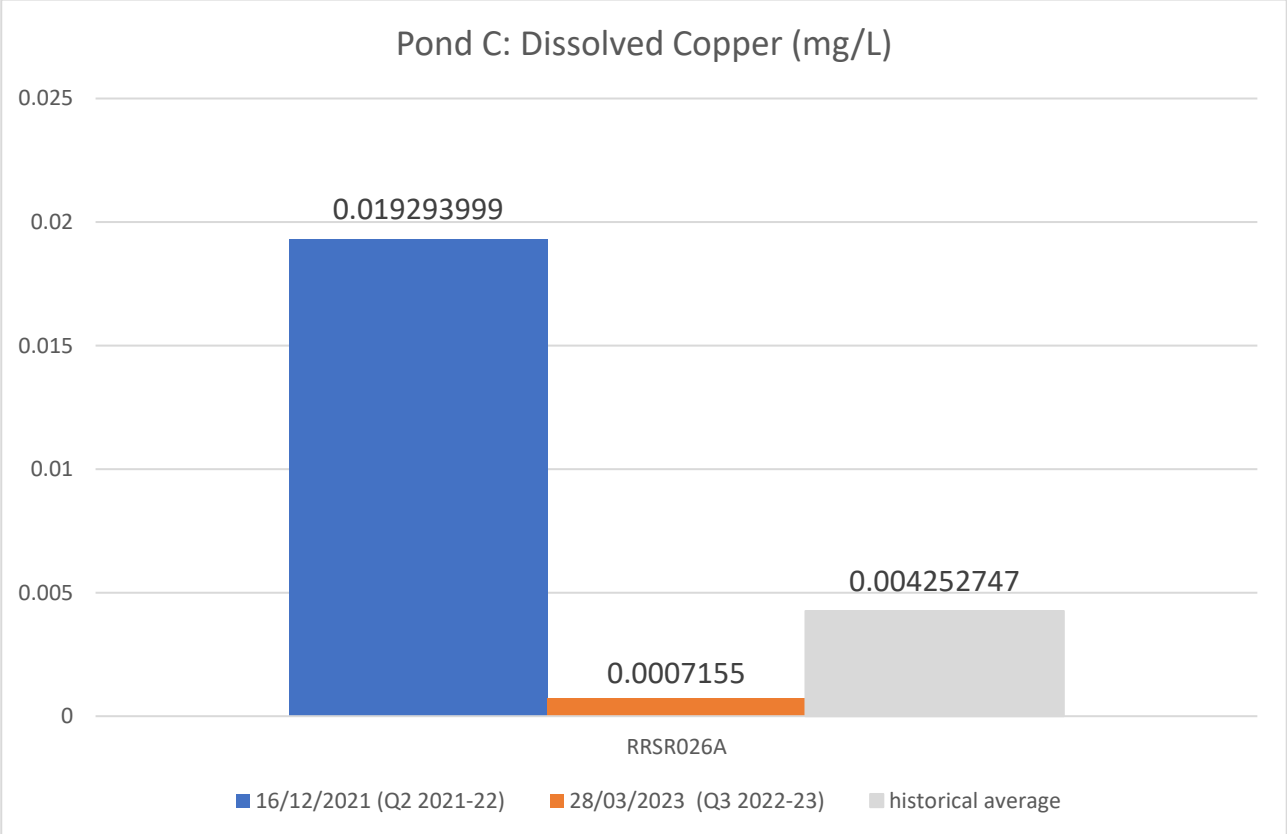

Figure 7. Dissolved Copper results at Pond C in 2022-2023 (orange), compared to previous financial year (blue) and mean historical values of dissolved copper (grey).

4.6.3.2. Dissolved Zinc (Pond C Outlet)

Values of Zinc were found to be 0.0036 mg/L at Pond C outlet in 2022-23. Compared to the previous financial year, values detected were lower than the previous sampling round. Compared to historical sampling (mean value), the Dissolved Zinc found for this financial year was also lower. See Figure 8 for details.

Trends

There were no significant trends found for Dissolved Zinc Levels over time at Pond C. Trend analysis was undertaken with the available data (n = 6) for the years 2015, 2016, 2017, 2021 and 2023.

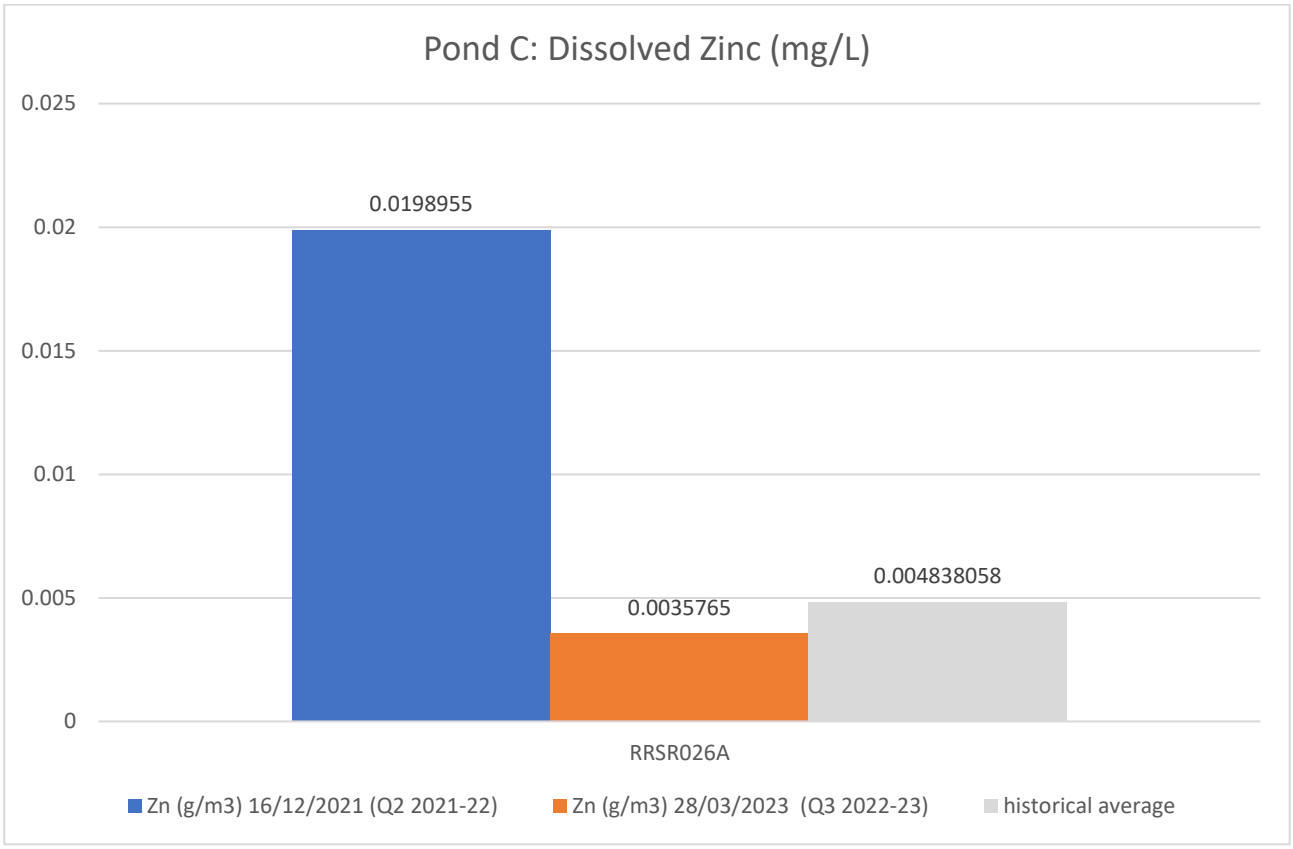

Figure 8. Dissolved Zinc results at Pond C in 2022-23 (orange), compared to previous financial year (blue) and historical levels (grey).

4.6.3.3. Total Ammoniacal-N (Pond C Outlet)

The Total Ammoniacal – N value of the Pond C outlet (RRSR026A) was found to be 0.048 mg/L. See Figure 9.

Results from 2021-22 showed a Total Ammoniacal Nitrogen value below the default detection limit of 0.01 mg/L. Total Ammoniacal Nitrogen from the Pond C Outlet was far below the guideline value required for 90% species protection, although the guideline value does not apply to this site (only seeking a decreasing trend). However, it is noted the levels have increased from 2021-22 to 2022-23. If an increasing trend was found, WDC staff could investigate potential sources of TAN to Pond C.

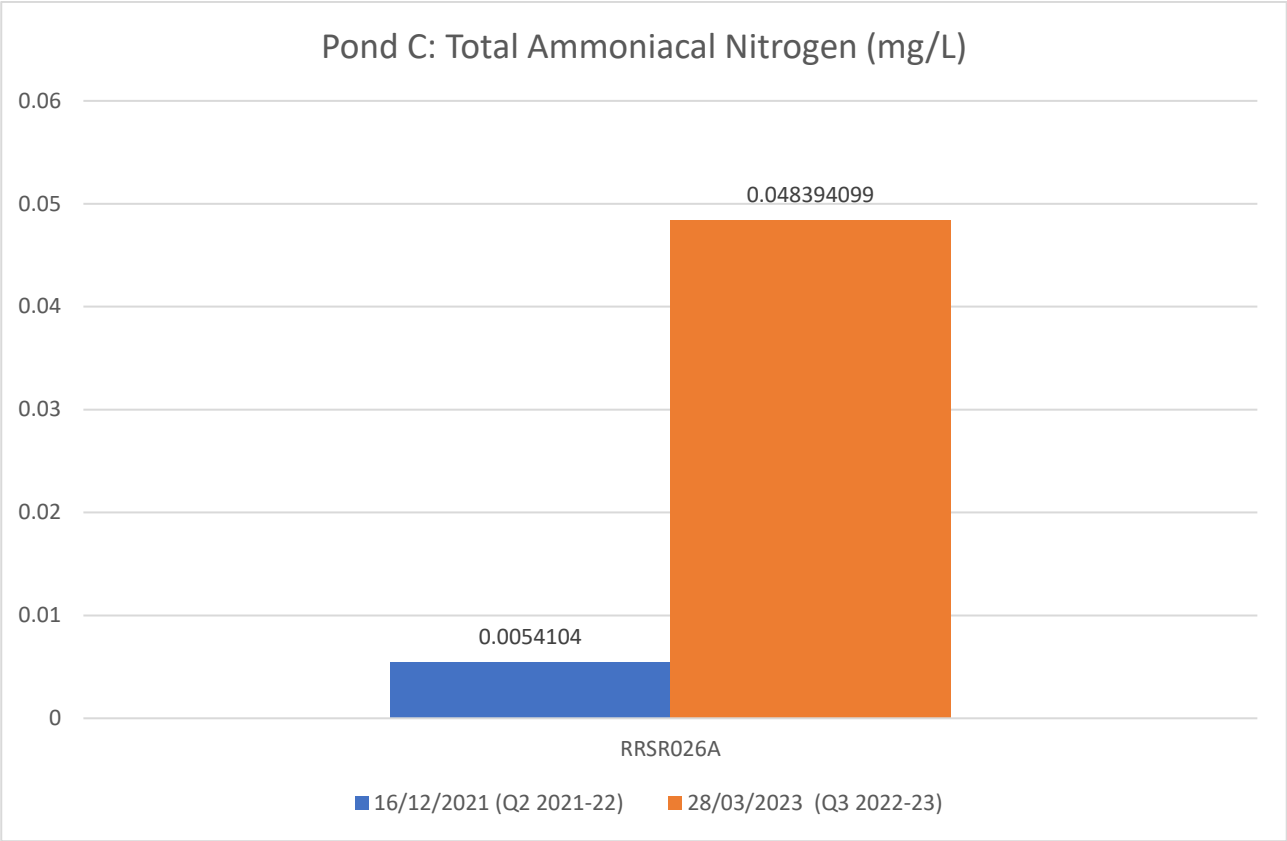

Figure 9. Total Ammoniacal Nitrogen levels found at Pond C in 2022-23 (orange), in comparison to previous financial year (blue). There is no historical data associated with this site.

Trends

Due to a sample size of n = 2, trend analyses could not be carried out. More sampling is required.

There will be an indication of Total Ammoniacal Nitrogen levels from to the upcoming 2023-2024 Stormwater Annual Report.

4.6.3.4. Dissolved Reactive Phosphorus (Pond C Outlet)

Sampling was undertaken in 2015, 2016, and 2017 at the Pond C outlet below a mixing zone (RRSR026) where the average (mean) Dissolved Reactive Phosphorus (DRP) value was below the detection level.

In 2022-2023, DRP levels were 0.015 mg/L. The DRP value found for DRP in 2021-2022 was 0.14 g/m^3. See Figure 10.

Trend analysis could not be undertaken due to a sample size of n = 2. More sampling is required to determine stronger trends in the future.

In general, reduction of DRP levels is likely required to provide ecosystem health in the No. 7 Drain.

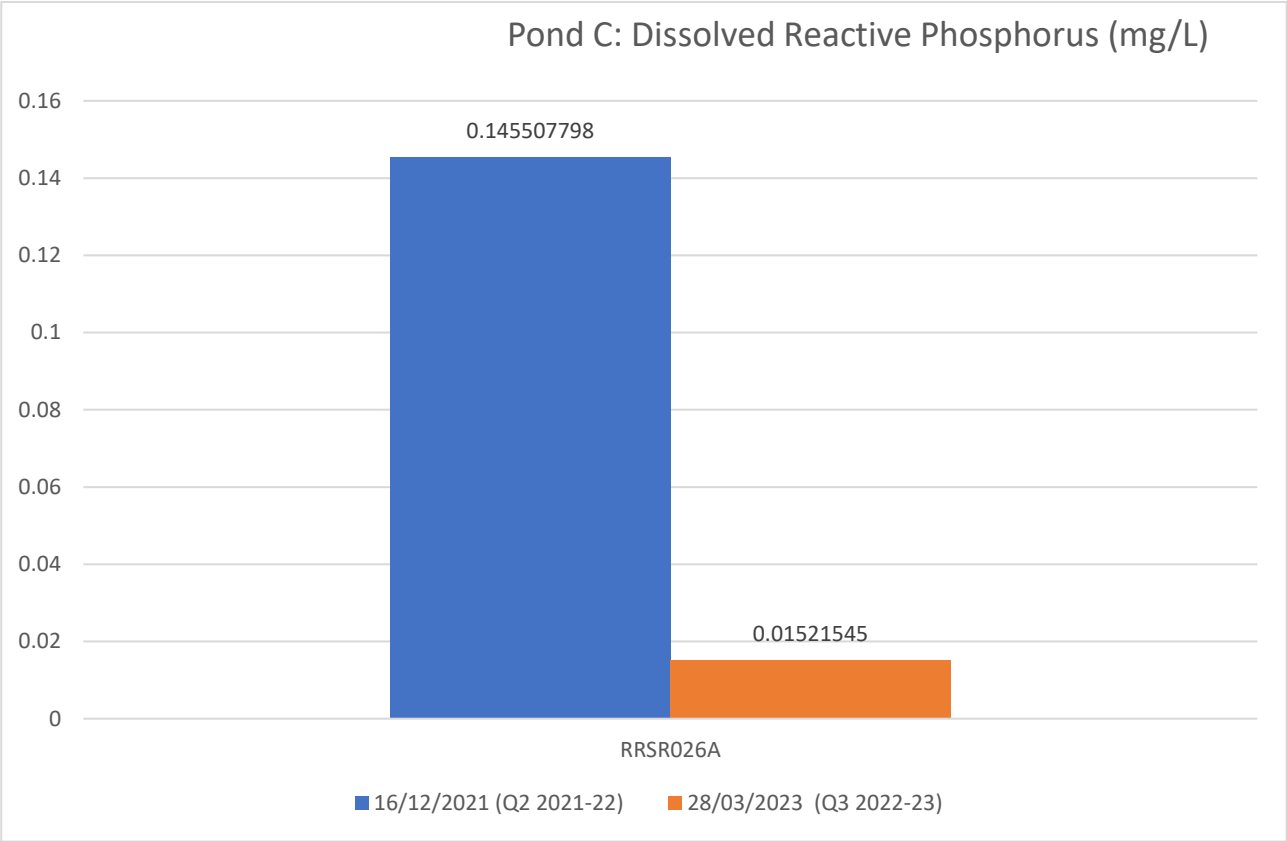

Figure 10. Dissolved Reactive Phosphorus results found at Pond C in 2022-2023 (orange) compared to the previous financial year (blue). Historical values are not shown as they were close to 0.

4.6.3.5. Escherichia coli (Pond C Outlet)

In 2022-2023, *E. coli* levels were found to be 1733 MPN/100 mL. See Figure 11.

There is no historical data available for Pond C to compare on *E. coli* levels. A statistically significant and reliable trend was unable to be determined due to the size of the data set (n = 2).

Reduction of *E.coli* levels are required to provide ecosystem health in the No. 7 Drain.

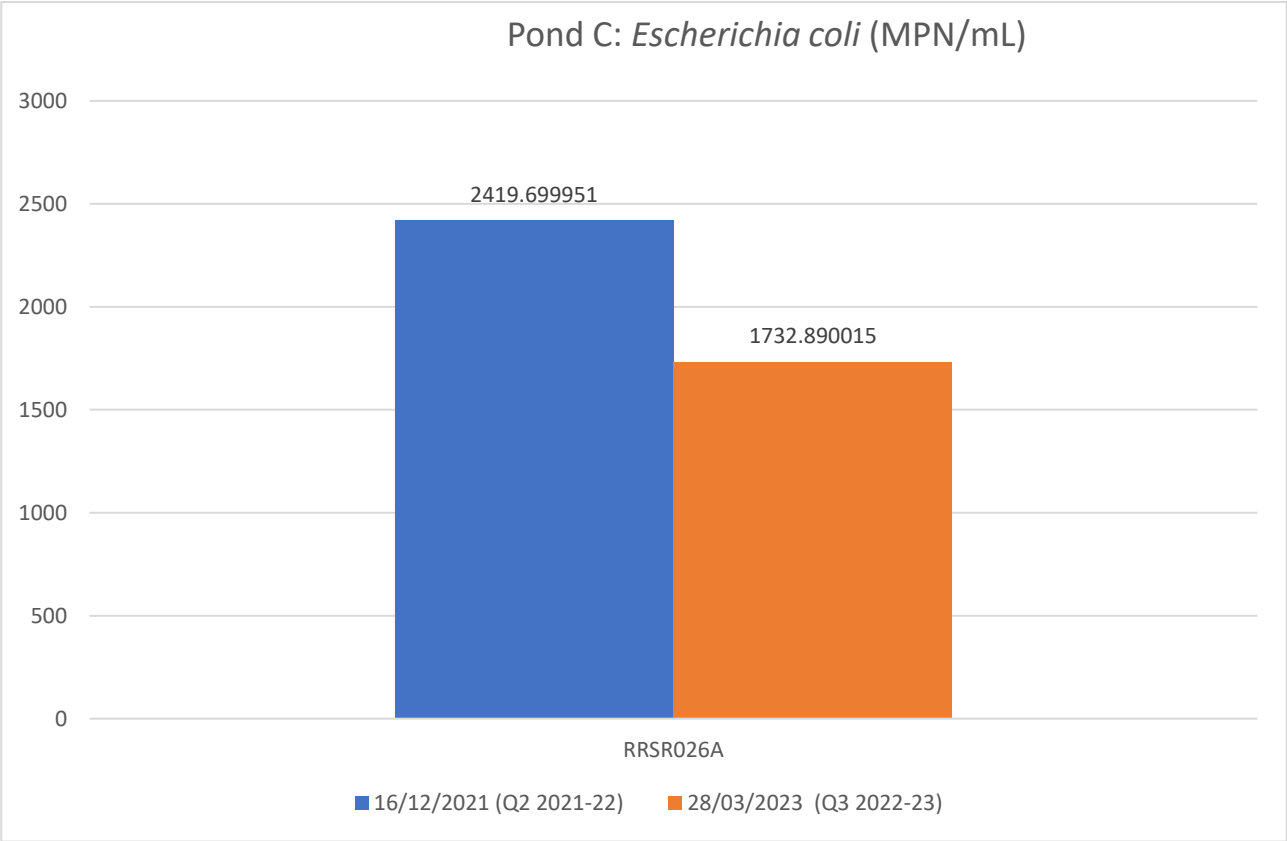

Figure 11. *E. coli* levels found at Pond C in 2022-2023 (orange), in comparison to previous financial year levels (blue). Historical values were below this sampling site with a mixing zone, and are not shown as it's not comparable.

4.7. Urban impact

4.7.1. Dissolved Copper

This contaminant is likely to be from urban sources, such as car brake pads and copper roofing.

Figure 12 shows the Dissolved Copper sampling results for the Urban Impact Sampling in the 2022/2023 reporting year (orange and yellow), compared to 2021-22 (blue).

It is observed that:

- 7 out of 13 sites exceeded the guideline of 0.0018 mg/L
- 7 out of 13 sites presented lower levels of Dissolved Copper than in 2021-22
- 2 out of 13 sites showed higher levels of Dissolved Copper than in 2021-22
- 3 out of 13 sites were not sampled, thus there is no data available for comparison

Dissolved Copper levels in the North Brook, Middle Brook and No. 7 Drain in particular, require attention, remediation, and mitigation to reduce the levels below the guideline value. The North Drain, South Brook, South-South Brook also had exceedances and should be watched for future trends. The Cam River has no exceedances of Dissolved Copper and does not require any action.

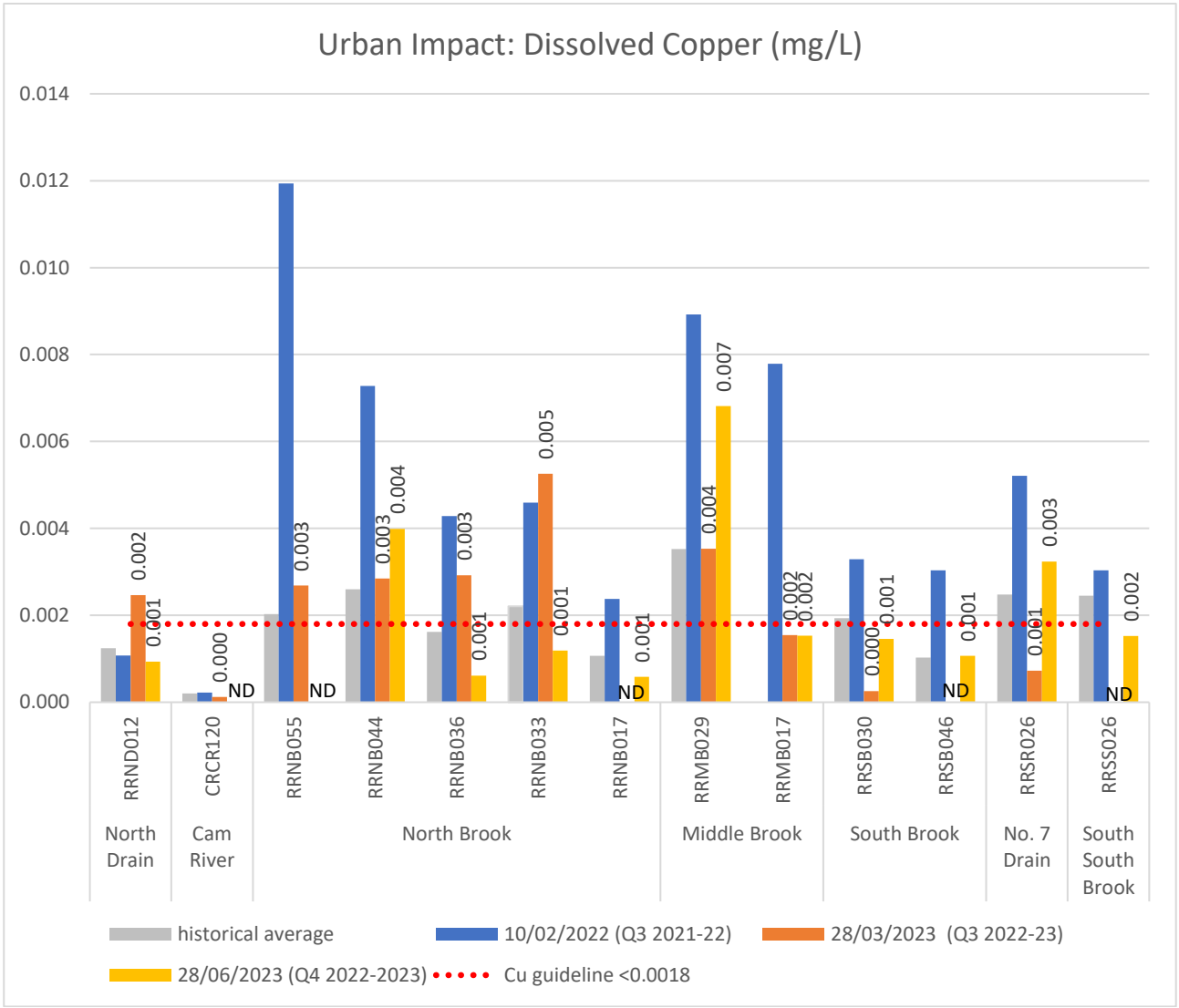

Figure 12. Urban Impact - Dissolved Copper sample results for financial year 2022-23 and 2021-22, in comparison to historical levels. ND = no data (data gaps where sampling was not undertaken).

It is noted in North Drain and two sampling sites in the North Brook (RRNB033, western side of Kowhai Ave, and RRNB036, Lilybrook Park), dissolved copper levels decreased on the second round of sampling of 2022-23 to below the guideline value.

In the North Brook, at site RRNB044 (Church St across Dudley Park), dissolved copper levels were higher in the last quarter of 2022-23. This could be due to a higher rainfall depth in sampling for Quarter 4. The North Brook will require actions towards improving Dissolved Copper levels.

Another point to note is the Middle Brook site RRMB029 (western side of Bush Street), where dissolved copper levels also increased in the last quarter 2022-23, compared to Quarter 3. The Middle Brook requires actions to decrease Dissolved Copper levels.

In the South Brook a site that requires attention is RRSR026 (No. 7 Drain, immediately south of Fernside Road (west side of Railway Road).

Figure 12 represents the results of all consent monitoring sampling, in comparison to historical data from the baseline sampling. From this, it is observed that:

- In general, sites in the North Brook, Middle Brook and South Brook which presented high exceedances of Dissolved Copper in 2021/22, shown lower levels of Dissolved Copper in 2022/23 sampling, despite some of them still not meeting the guideline values
- Only 1 site in the Middle Brook (RRMB017) had no historical equivalent to compare against.

Trends

Levels of Dissolved Copper in the North Drain (RRND012) increased in 2022-23 compared to 2021-22. During Quarter 4 of 2022-23 (28/6/2023 sampling round), guideline levels of Dissolved Copper were exceeded. In trend analysis, no clear trend is shown (n = 7, R^2 = 0.01).

In Cam River, CRCR120, levels stayed below the guideline historically and for all financial years. No significant trends were found.

It is noted in the North Brook, Dissolved Copper levels appeared visually to increase, despite no significant trend being identified. For sites RRNB044 (n = 8) and RRNB055 (n = 9), the R-square values were R^2=0.30 and R^2=0.36.

In the Middle Brook, there were not enough sample rounds on Dissolved Copper sampling to provide for a statistical significance. A non-statistically significant upward trend is shown for site RRMB029 (n = 11, R^2=0.2465).

In the South Brook, no clear or significant trend has been identified for Dissolved Copper, despite having good data sets over time for sites RRSR026 (n = 7) and RRSS026 (n = 9).

4.7.2. Dissolved Zinc

Zinc is an urban contaminant, from sources such as vehicle brake pads, tyres and galvanised roofs.

Figure 13 shows the Dissolved Zinc (Zn) sampling results for the Urban Impact sampling in the 2022/2023 reporting year.

The guideline value from the CLWRP for Dissolved Zinc is < 0.015 mg/L. Sampling sites on the North Drain, North Brook and Middle Brook were over the guideline value. In particular, the sites in North Drain RRND012,

North Brook sites RRNB033, RRND036, RRNB044 and Middle Brook sites RRMB017 and RRMB029, were elevated. All these sites also showed elevated levels of Zn in the baseline sampling (except for RRMB017, not sampled historically).

Specifically North Brook sites and Middle Brook Sites are recommended to be targeted to reduce Dissolved Zinc levels.

Trend analysis identified a statistically significant increase in levels of Dissolved Zinc only for site RRNB055, North Brook, Aspen Street Park (n = 9, R^2=0.7). No other trends were statistically significant. While the R-square value is below 0.5 for all other North Brook and Middle Brook sites, the linear trend is hinted as increasing for almost all, except sites RRMB017 and RRSB030 (decrease linear trend hinted).

Peak inputs of Dissolved Zinc in the North Brook and Middle Brook catchments appear to be from predominantly older residential catchments which have a prevalence of older iron roofing materials. The link between older roofing material and Dissolved Zinc inputs into the streams should be further investigated.
Cam River, South Brook, No. 7 Drain sites and North Brook RRNB017 were below the guideline value. RRND012 (North Drain) and RRSB030 (South Brook, Railway Road) were above the guideline value in some of the 2014 baseline sampling events and in 2015-2016 sampling. Trend analysis did not identify a significant decrease for the sites above, despite showing a decreasing line in the regression model. Further sampling over time is required to see if there is a decreasing trend at these sites.

In 2018, there was a stock water race closure at the end of Oxford Road (R3N1, TRIM 180516053605[v2]), which discharged intermittently into the headwaters of the North Brook. Hence, dissolved Zinc levels and other contaminants are thought to be from urban source.

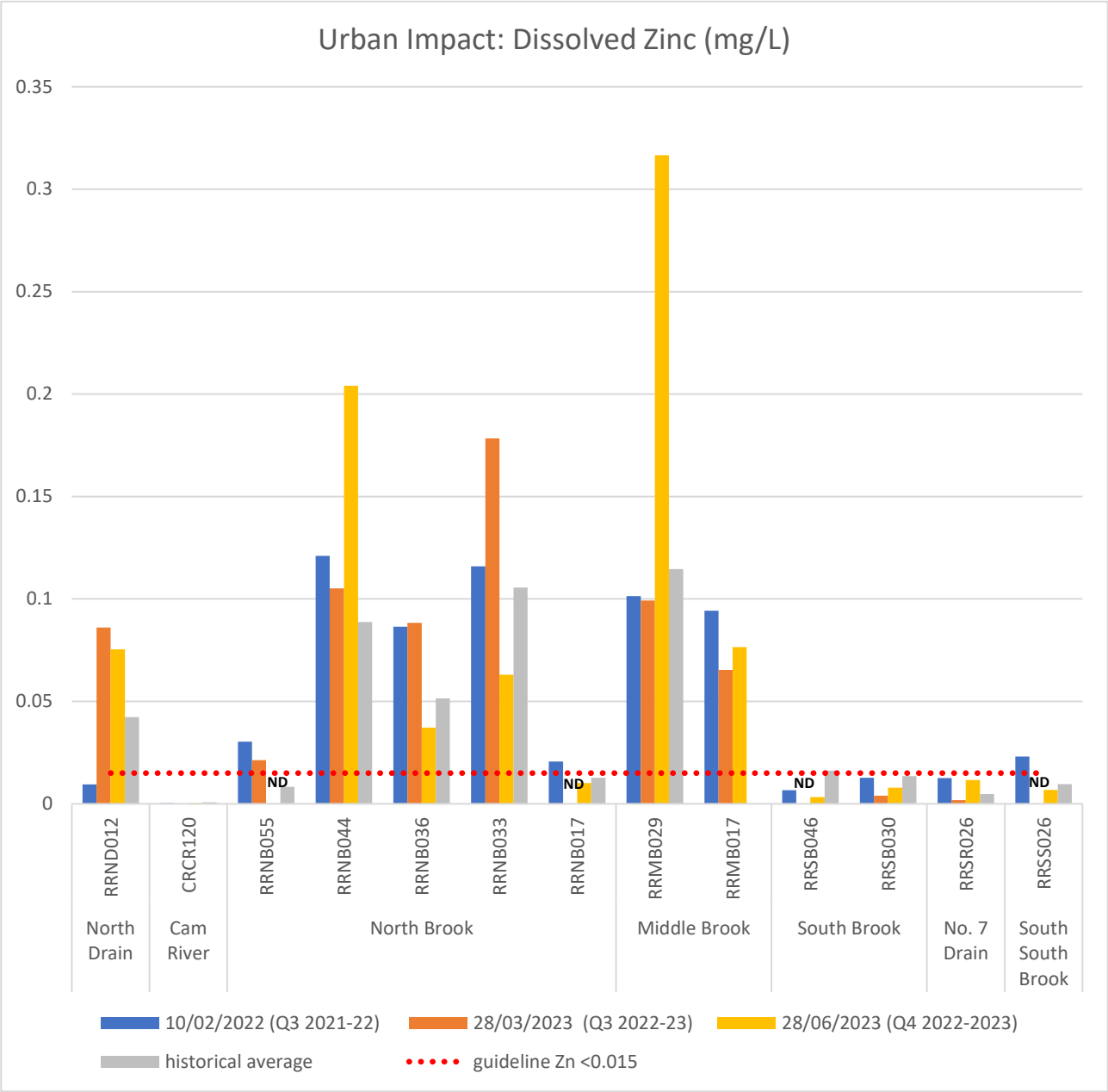

Figure 13. Urban Impact - Dissolved Zinc sample results for 2022-2023. Levels for 2021-22 and a historical mean 2014-17 are also shown. ND = no data (data gaps where sampling was not undertaken). Note: Cam River site presented values below the detection limit, with only data missing for 2022/23 Q3.

4.7.3. Hardness

Hardness samples are required periodically every 5 years. Samples were not taken in the 2022-23 year.

4.7.4. Dissolved organic carbon

Dissolved Organic Carbon samples are required periodically every 5 years. Samples were not taken in the 2022-23 year.

4.7.5. pH

The guideline for pH is between 6.5-8.5. In general, all sites were between the guideline, towards the acidic side. The exception was during Quarter 3, when sites in North Drain, Cam River and two North Brook sites showed pH values lower than 6.5 (Figure 14). In Quarter 4, only the Cam River site CRCR120 remained just below the guideline at 6.44. The Cam River site is primarily spring fed with low contaminant levels, so no further investigation action is recommended from this low pH reading at this unless the trend continues.

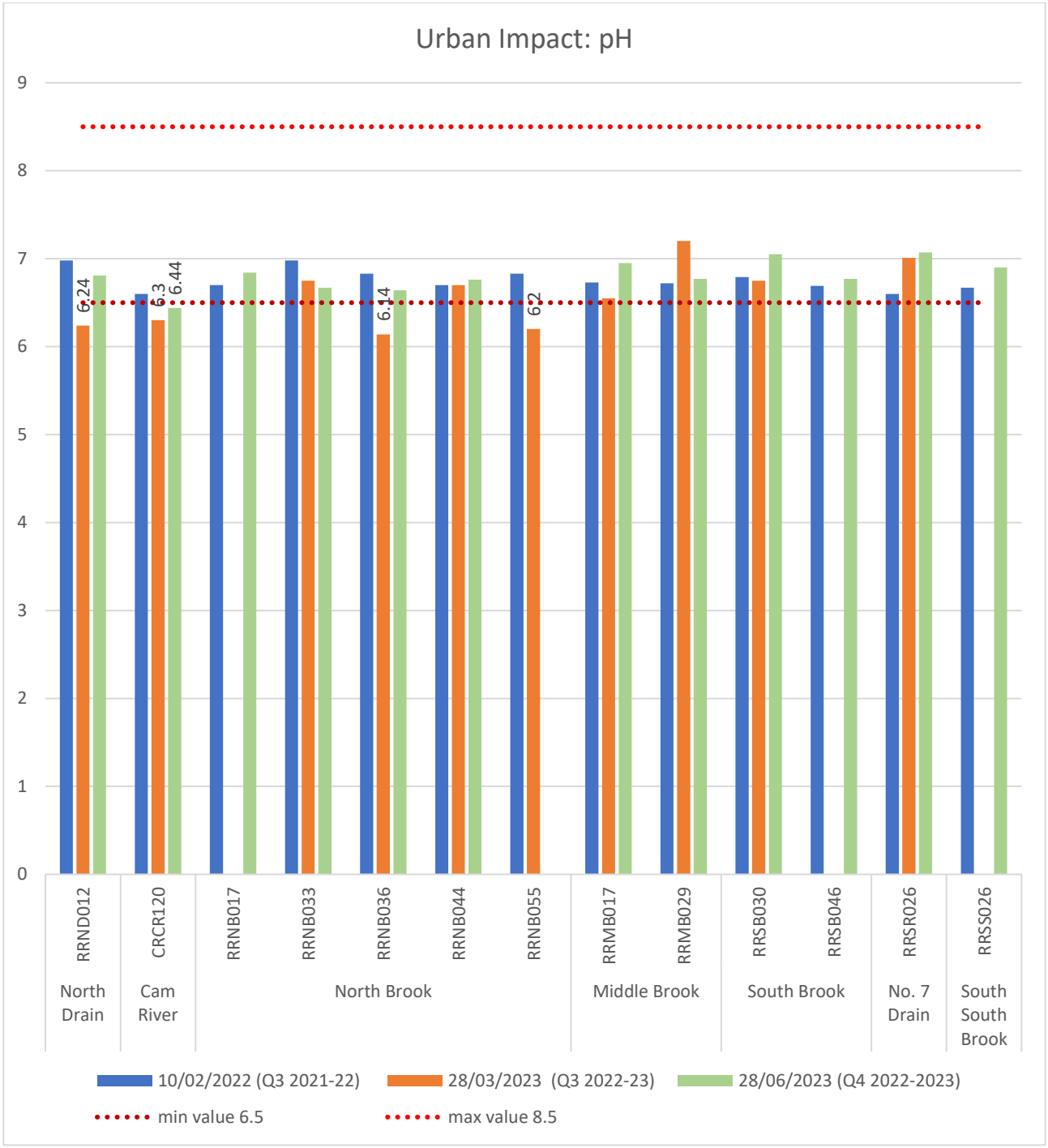

Figure 14. pH values from Urban Impact sampling 2022-2023, with 2021-22 results for comparison.

4.7.6. Escherichia coli (E. coli)

Figure 15 shows the E. coli results for the Urban Impact sampling in the 2022/2023 reporting year.

The guideline value derived from the CLWRP for E. coli is < 550 MPN / 100 mL. All sites, except Cam River sampling site (CRCR120) exceeded the guideline value for at least one of the stormwater sampling rounds at some point of the 2022-23 stormwater sampling. These results are similar to 2021-22. It is also noted, some sites historically showed high levels of *E. coli* in the baseline sampling (grey columns, Figure 16), such as North Drain, North Brook and South Brook.

It is noted, the counting protocol for *E. coli* changed at Hill Labs in 2021 and a full count stopped being provided. This means that samples with counts over 2240 MPN/100mL do not report on higher results. This explains why in figure 16 results are capped at 2240 MPN/100mL for all catchments with high counts of *E.coli*. This also means a comparison with historical results is not possible.

Actions to reduce sources of faecal contamination are likely to be required in all Rangiora catchments except the Cam River. Sources of faecal contamination could be rural as well as urban in catchments with headwaters in rural areas.

Trends

In the North Brook, no significant trends were identified from trend analysis. Sampling sites RRNB055, RRNB044, RRNB036 and RRNB033 showed high levels of E. coli during Quarter 3 of sampling. These values were not too different from 2021/22 or historical values. On the latest sampling in Quarter 4, sites RRNB036, RRNB033 and RRNB017, showed decreased levels of E. coli in comparison to previous sampling.

In the Middle Brook, trend analysis did not show significant differences. A reducing trend is indicated potentially from visual observation of data for site RRMB029 in the Middle Brook ($n = 6$, $R^2 = 0.11$). Inclusion of sampling results from the next financial year will further inform trends in the Middle Brook. Site RRMB017 remained around the same high values of *E. coli* through time, with no historical data available to compare it to.

In the South Brook, trend analyses did not show a significant decreasing trend for RRSB030 ($n = 6$, $R^2 = 0.17$). Despite the no significant results, the linear regression line is shown as decreasing. Further sampling is required to determine whether this trend prevails when data from 2023-2024 is included in the analysis.

Interestingly, for site RRSB048, which is not a current sampling site, *E. coli* data from 2014 ($n = 3$, three sampling rounds, $R^2 = 0.74$) showed a significant increase. This could be pointing to a historical source of *E. coli* contamination close to this area, which is likely from a rural source. Site RRSB048 is upstream from RRSB046, RRSB030, RRSR026 (No. 7 Drain) and RRSS026 (South-South Brook). More investigations on sources of *E. coli* on the three brooks are required.

In the South Brook, it is likely *E. coli* sources are from direct run-off from rural farms. Other sources of *E. coli* could be avian contamination from ponds and wetlands, or urban sources including domestic animals. Further investigations for cross-contamination and remediation works are required.

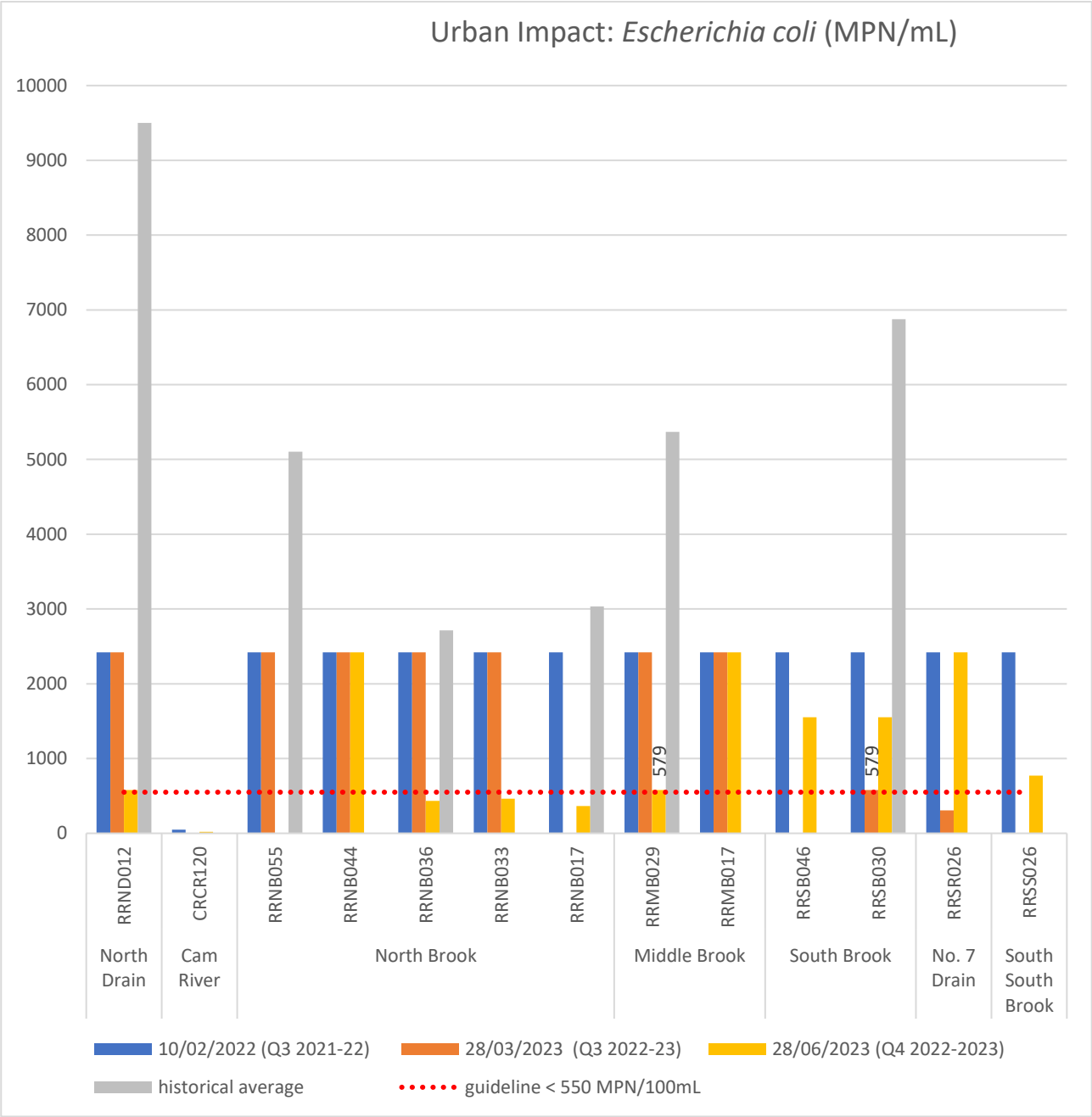

Figure 15. Urban Impact *E. coli* sample results for the 2022/2023 reporting year (orange and yellow). Data is presented compared to previous financial year (blue) and baseline monitoring data (grey). Note reporting method for *E. coli* has changed and samples beyond 2240 MPN/100mL are not reported. Results can't be compared with historical mean.

4.7.7. Dissolved Reactive Phosphorus

Figure 16 shows the Urban Impact Dissolved Reactive Phosphorus (DRP) sample results for the 2022-2023 reporting year.

The guideline value for DRP is 0.016 mg/L. Sources of DRP could be attributed to use of residential garden fertilisers, wastewater overflows, in groundwater inflows, and from airborne particulates settled onto impermeable surfaces during dry weather (e.g. from rural land west of Rangiora) and released as surface runoff during subsequent rainfall.

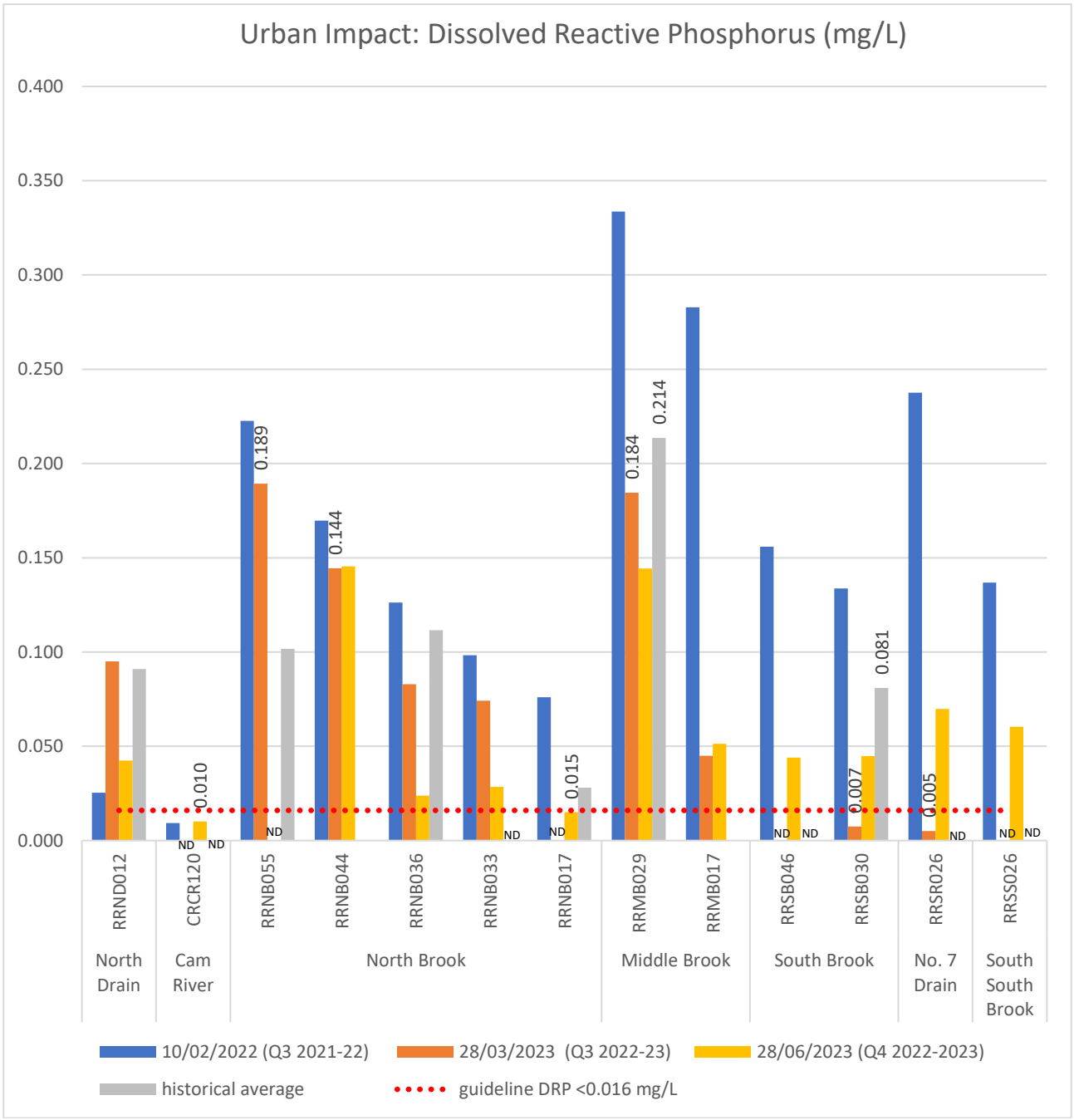

Figure 16. Urban Impact Dissolved Reactive Phosphorus sample results for the 2022/2023 reporting year, compared to the 2021/2022 and historical sampling results.

The Cam River sample site CRCR120 was under the guideline, with 0.010 mg/L. This result is followed closely by RRNB017, which was slightly under the guideline value with 0.015 mg/L. All other sites were above the guideline with at least one sampling round. The Cam River was not sampled during baseline sampling.

Actions to reduce DRP levels are required for the Middle Brook, North Brook and South Brook. Actions could focus on reducing any point sources identified (such as wastewater cross-connections), and reducing sediment inputs during wet weather, a key mechanism where phosphorus is transported into a waterway.

Sampling sites on the North Brook and Middle Brook had the highest concentrations, with site RRNB055 at 0.189 mg/L and site RRMB029 at 0.184 mg/L respectively. The first, showed significant trends in increasing DRP levels over time, while the later showed no significant trends. Details are outlined below.

In the North Brook, sites RRNB036, RRNB044 and RRNB055 showed high levels of DRP, with the highest value of DRP recorded at 0.189 mg/L during Quarter 3 at site RRNB055. This site also showed a potential trend for increasing levels of DRP over time (n=5, R^2=0.4, sampling from 2014, 2022, 2023).

For site RRNB033, despite the values being above the guideline, trend analysis revealed a significant decrease of DRP levels over time, however the same size is small (n = 3, R^2=0.75). The level of confidence in the reliability of this result is undetermined. Further sampling rounds (at least 5), will further inform this. For this site analysis, data was from 2022 and 2023, with no historical data available. All other North Brook sites showed no significant trends.

In the Middle Brook, 2022-23 sampling showed a decrease in DRP levels for site RRMB017. Trend analysis with a small sampling size, showed this as a significant decrease in DRP levels compared to last financial year results (n = 3, R^2=0.96). Once again, the confidence levels for this result are questionable due to sampling size. More sampling and trend analysis is required to include more data. Further upstream, at site RRMB029 levels of 0.184 mg/L of DRP were recorded. This was the second highest value recorded for DRP in sampling between 2021 and 2023. No significant trends were found for this. It is noted, historically this site has recorded levels of 0.57 mg/L on 14/5/2014.

In the South Brook, DRP levels were generally lower than 2021-22. This could be a result of sampling in different-sized rain events. Historically, site RRSB030 also recorded high DRP levels of 0.21 mg/L on 14/5/2014. There were no significant trends identified in the South Brook for DRP levels. However, interestingly, site RRSB048 (further upstream from RRSR026) already shows a significant increase of DRP from 2014 baseline sampling (n = 3, R^2=0.77). This could provide a starting point to initiate DRP investigations in the area and could provide insight as to whether a source of phosphorus is present there and being recorded downstream. These values are only indicative, as they are based on a sample size of 3.

4.7.8. Total Ammoniacal Nitrogen

The guideline values for Total Ammoniacal Nitrogen (TAN) are pH dependant. The highest pH value from Urban Impact sampling was adopted to retrieve a guideline (pH = 7.2). From this value, the guideline equivalent adopted for TAN was 1.99 mg/L.

All sampling recorded for TAN in 2022-23 was below the guideline. See Figure 17. No actions are recommended.

The highest value for TAN was site RRNB055 (North Brook at Aspen St), with a value of 0.74 mg/L. This site also presented the highest TAN levels in 2021-22 sampling. Refer to Figure 17 for results. The guideline values have not been represented, as they are much higher than the actual levels of Total Ammoniacal Nitrogen found, allowing for a better visual representation of 2022-23 sampling results.

The results suggest that there are limited wastewater overflows during rain events or other similar sources of TAN.

From trend analysis, it is noted that at site RRNB055 in the North Brook at Aspen St, a significant increase in TAN levels has been found over time (n = 5, R^2=0.56), however it is of very low magnitude and well under the guideline. This analysis included data from 2014, 2022 and 2023.

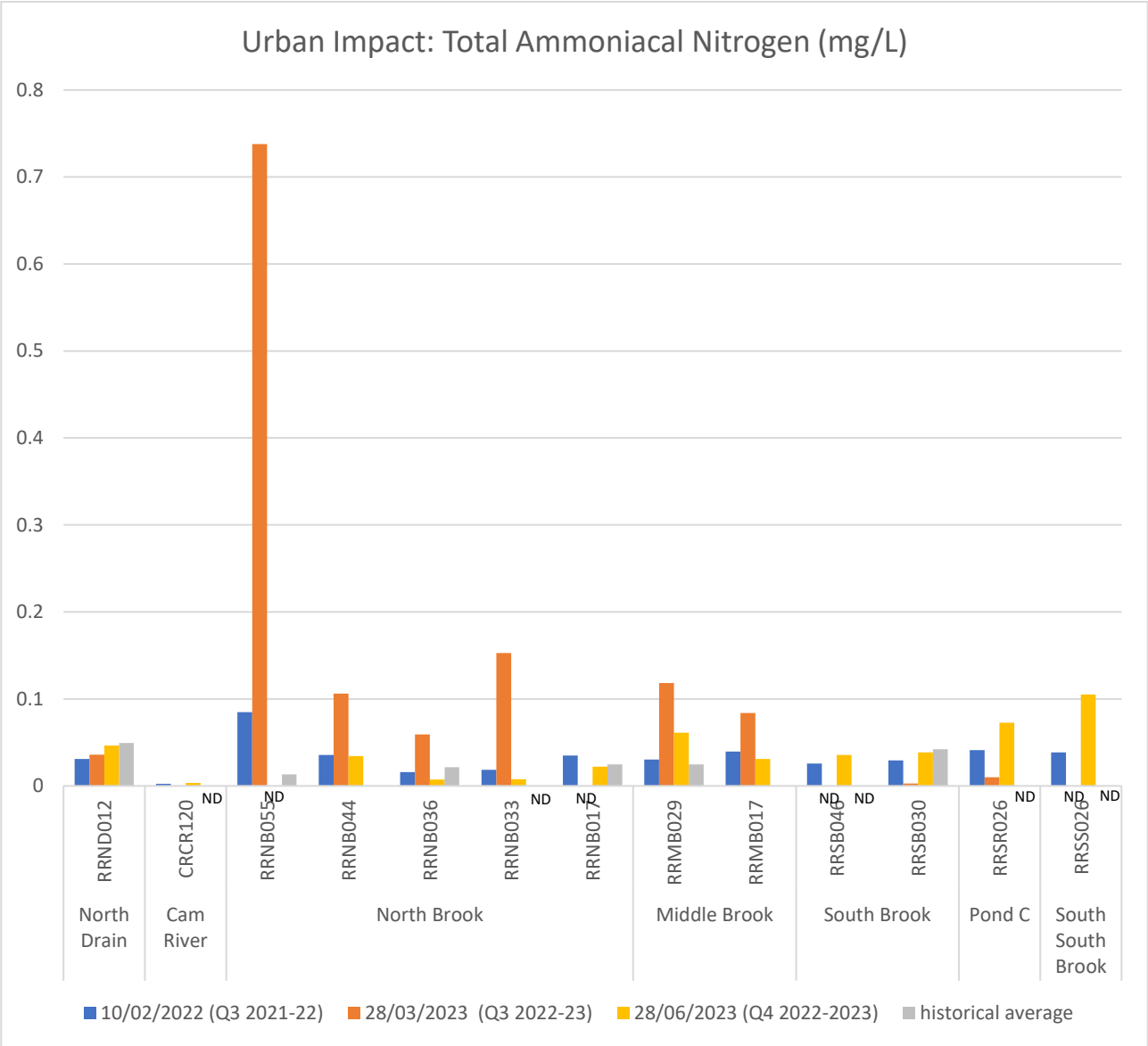

Figure 17. Urban Impact - Total Ammoniacal Nitrogen sample results for 2022-2023. Guideline value of 1.99 mg/L is not shown, to allow for better visualisation of the sampling results. ND = no data.

Other sites in the North Brook, also presented relatively higher levels of TAN, in comparison to 2021-22 and historical baseline sampling data.

In the Middle Brook, the highest TAN levels were detected in the third quarter of 2022-23, with values of 0.12 mg/L and 0.08 mg/L for RRMB029 and RRMB017 respectively.

From trend analysis, site RRMB029 in the Middle Brook showed a significant increase in TAN levels over time, with data from 2014, 2022 and 2023 (n = 6, R^2=0.48). Despite the R^2 being below 0.5 as stated in methods, this trend is close to meeting the criterion to be significant. Still, the TAN values from this sampling are well below the guideline.

In the North Drain (RRND012), TAN levels were higher in 2022-33 than in 2021-22, but not higher than from baseline sampling and did not exceed the guideline. The Cam River had levels of TAN below the detection limit in Quarter 3 (0.003 mg/L).

In the South Brook, all TAN levels were low, ranging from 0.002 mg/L to 0.10 mg/L as the maximum value recorded.

4.8. Stream Health

Although Stream Health monitoring is to provide context only, with no compliance in relation to consent CRC184601, it is helpful to compare results to established guideline values for surface water in New Zealand (see Table 4).

Table 8: Stream Health monitoring surface water guideline values

Contaminant	Guideline	Guideline Source
Dissolved Oxygen	>70%	CLWRP, *Spring-fed-Plains (Urban)*
pH	Shall be between 6.5 - 8.5	CLWRP, *section 16, schedule 5*
Temperature	<20ºC	*CLWRP, Table 1A, Spring-fed-Plains (Urban)*
Specific Conductance	< 175 µS cm^{-1}	Biggs (1988, 2000)
Dissolved Inorganic Nitrogen	< 1.5 mg/L	CLWRP, *section 16, schedule 5*
Total Ammoniacal Nitrogen	Depends on pH level	Refer CLWRP, Table S5C, Schedule 5
Dissolved reactive phosphorus	< 0.016 mg/L	CLWRP, Schedule 5
E. coli	< 550 MPN/100mL	CLWRP, Schedule 5
Total Suspended Solids	<50 gm3	CLWRP

4.8.1. Dissolved Oxygen

The Dissolved Oxygen (DO) sample results for 2021-2023 are presented in Figure 18. The guideline value for Dissolved Oxygen is >70%, from the CLWRP (for Spring-fed-Plains, Urban waterways).

During Quarter 4 (sampling undertaken on 23/5/2023, light blue columns in Figure 18), low levels of DO were recorded. This was identified as an instrumental error of the probe during sampling, which has been resolved.

Levels of DO were in general above the guideline for all sampling sites during more than one quarter. The exception to this was site RRNB036 in the North Brook at Lilybrook Park. This site recorded DO levels >60%. This was already reported on in the 2021-22 report. The explanation for these low levels of DO is that there is an identified inflow of spring water directly beside RRNB036. This groundwater likely has lower oxygen levels (as a natural phenomenon) and no further action is required.

The North Brook at Lilybrook (RRNB036) was also below the guideline value in the 2014 baseline sampling in dry weather but was above the guideline value during a moderate rain event.

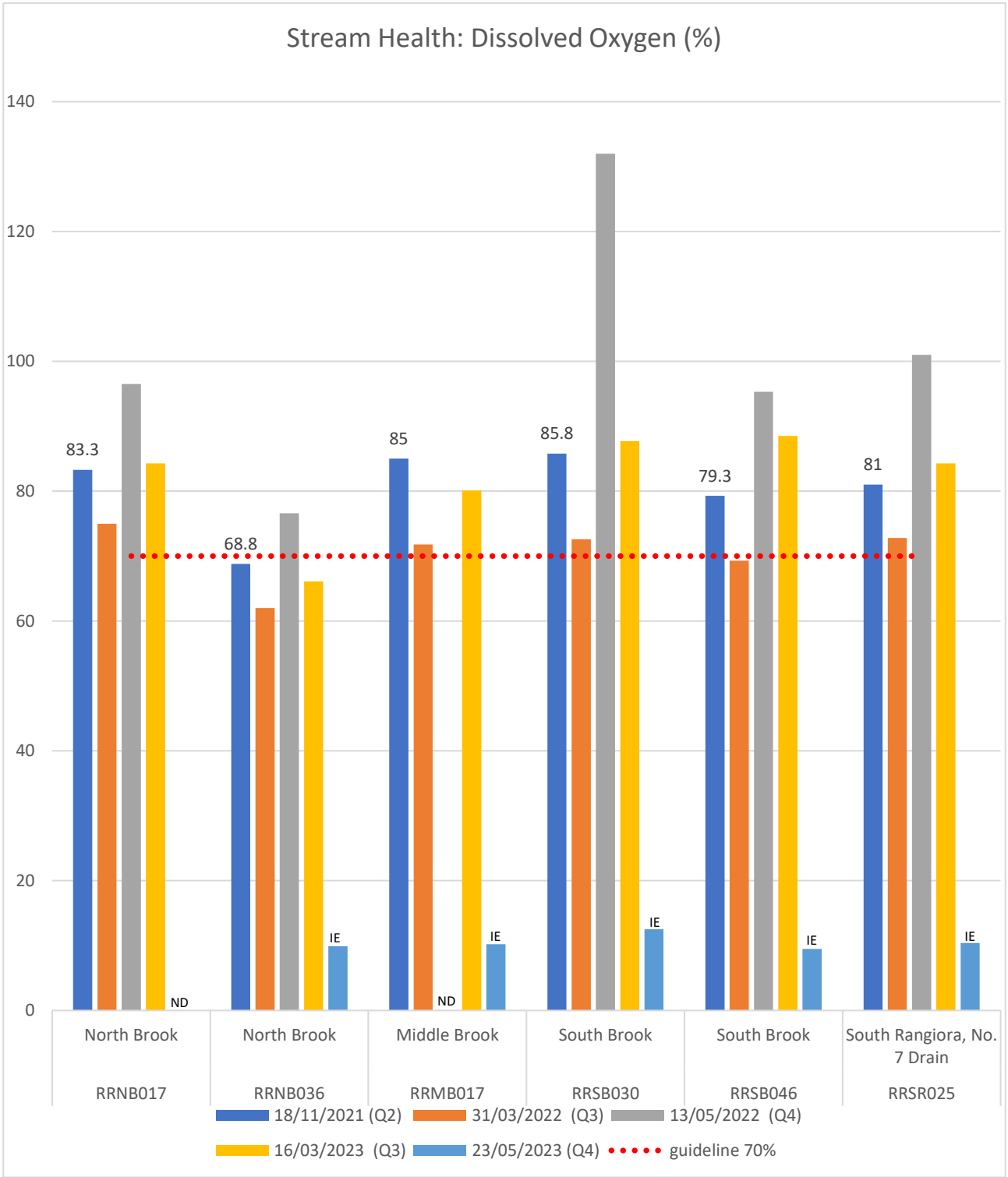

Figure 18. Stream Health - Dissolved Oxygen sample results for the 2022/2023 reporting year. Low DO levels are explained for instrumental error. IE = Instrumental Error. ND = No Data.

4.8.2. Temperature

The temperature sample results are presented in Figure 19. All samples were below the CLWRP guideline limit of 20^{o}C.

The highest temperature (15.3^{o}C) recorded was at site RRMB017 (Middle Brook at Gefkins Road) during 2021-2022. The lowest temperature (9.1^{o}C) was recorded at site RRSR025 (South Rangiora downstream of

the Fernside / Flaxton intersection) during 2022-23. There is no evidence of stormwater discharges affecting temperature, so therefore no actions are recommended to reduce temperature in the waterways sampled.

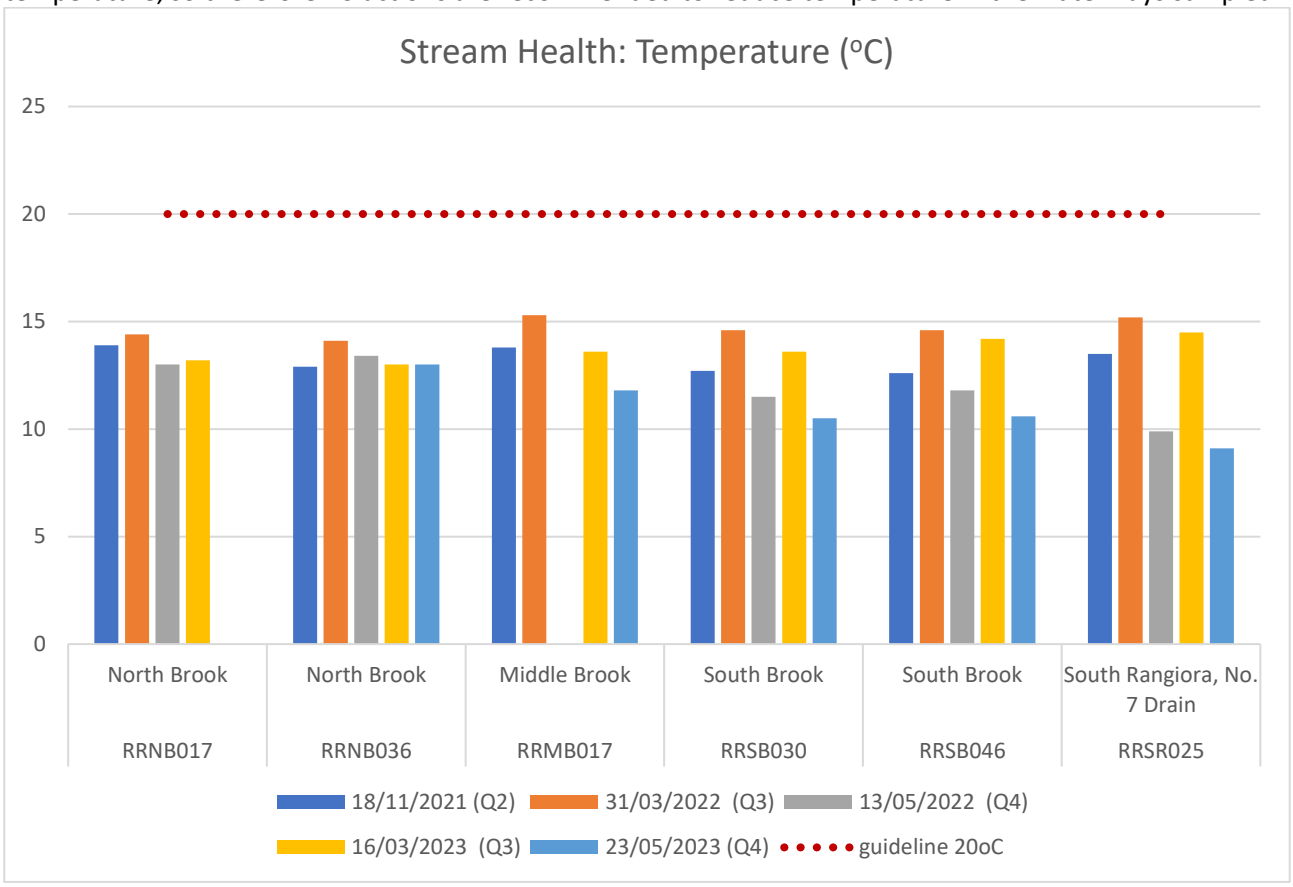

Figure 19. Stream Health - Temperature results for the 2022/2023 reporting year, with 2021-22 for comparison.

4.8.3. pH

Almost all pH results were within the guideline limits of between 6.5 – 8.5 (Figure 20), though tended to be slightly more acidic. This is in line with findings from the 2014 baseline sampling that also found all samples to meet pH guidelines. During Quarter 3 sampling (16/3/2023), pH values were lower than 6.5 in the Middle Brook (RRMB017), South Brook (RRSB030) and North Brook (RRNB036). The lowest value was recorded at RRMB017 (Middle Brook) at pH = 6.1. On the next round of sampling in Quarter 4 (23/5/2023), the pH values for all the sites mentioned before, were found to be well within the guideline again. Because of this, no actions are recommended. If lower pH persists in future sampling, it is recommended to double-check the calibration of the pH probe first, followed by an investigation of any land use nearby those sampling sites which may be causing it. Heavy metals in water with a low pH tend to be more toxic, as they become more soluble and bioavailable (Saalidong *et. al*, 2022). We know there are significant levels of dissolved Zinc in the North Brook, at Aspen Street Park site (RRNB055). Another explanation for low pH levels recorded could be instrumental error of the pH probe.

No further actions are recommended, as no direct evidence of negative effects of stormwater discharges on pH have been found. It is noted the pH can vary substantially diurnally, and that grab sampling may not have captured the fluctuations of pH values in the waterways.

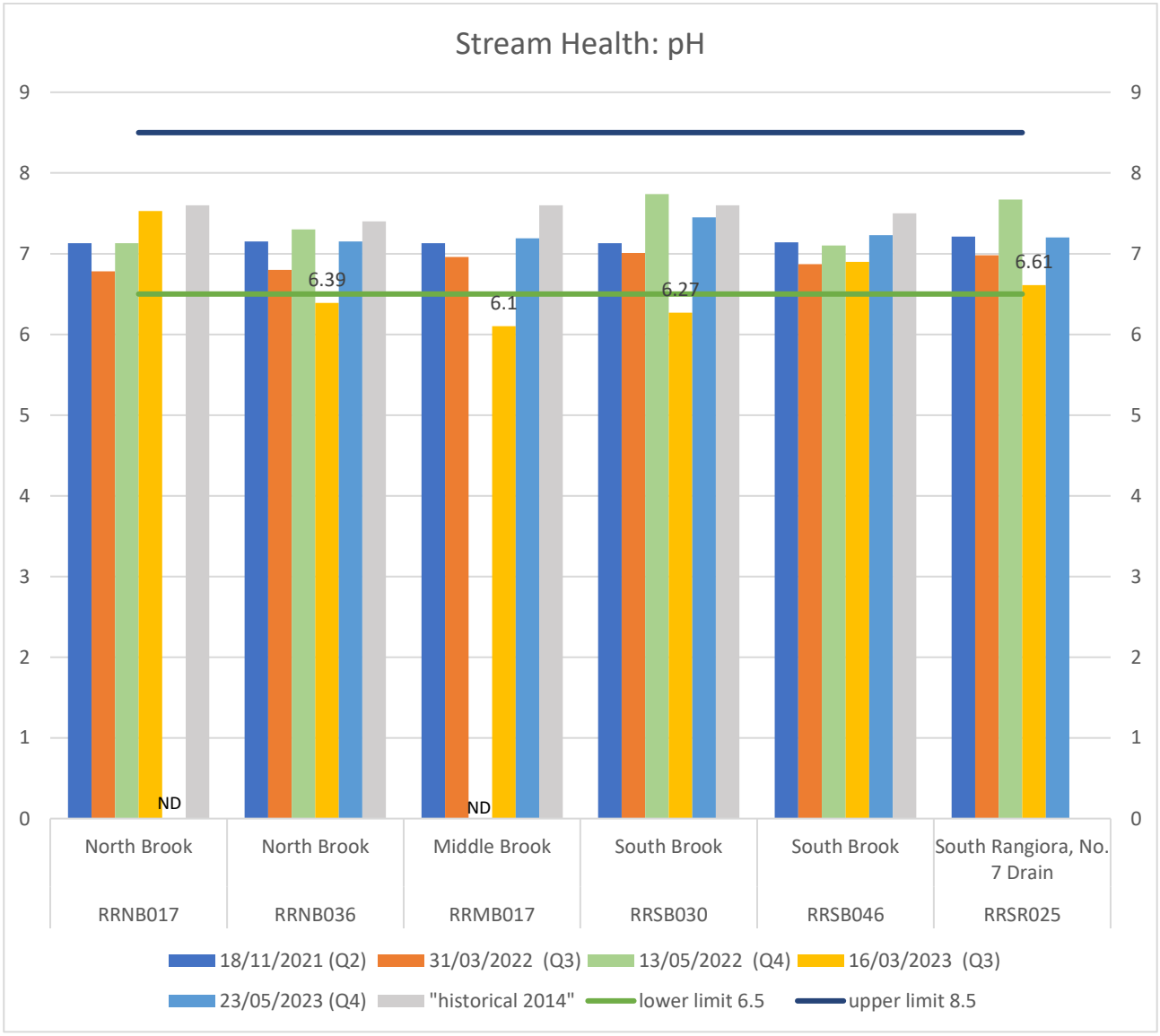

Figure 20. Stream Health - pH results for the 2022/2023 reporting year, with 2021-22 results for comparison. ND = No data.

4.8.4. Specific conductivity

Significant increases in conductivity may be an indicator that polluting discharges have entered the water.

According to the CRWLP, the conductivity guideline of <175 µS/cm was adopted as a limit. The following conductance results have been adjusted to 25°C (specific conductance).

The highest specific conductivities recorded were in Quarter 3 (sampling event 16/3/2023), with 203 µS/cm at RRSB046 (South Brook at Townsend Road), 188.4 µS/cm at RRSR025 (South Rangiora, No. 7 Drain) and 180 µS/cm at RRMB017 (Middle Brook, at Gefkins Road, east of the Railway Line). The first two sites were also over the guideline in Quarter 4 of 2022-23. See Figure 21.

This matches with the low pH levels registered at the same sampling event for the same locations as described in the previous section (see 4.8.3 or Figure 20). There could have been a minor contamination event at these sites in March 2023, or the probe could have been faulty for this sampling round. All conductivity levels resume to normal levels in the next round of sampling (Quarter 4, 23/5/2024).

More investigation is required before any action can be recommended, as some waterways can naturally have higher conductivity due to geology of the catchment, and it is not necessarily a sign of a polluting discharge. An analysis of trends over time is more useful.

Due to time constraints, and Stream Health not being a consent requirement, Stream health trends over time have not been calculated or included in this report.

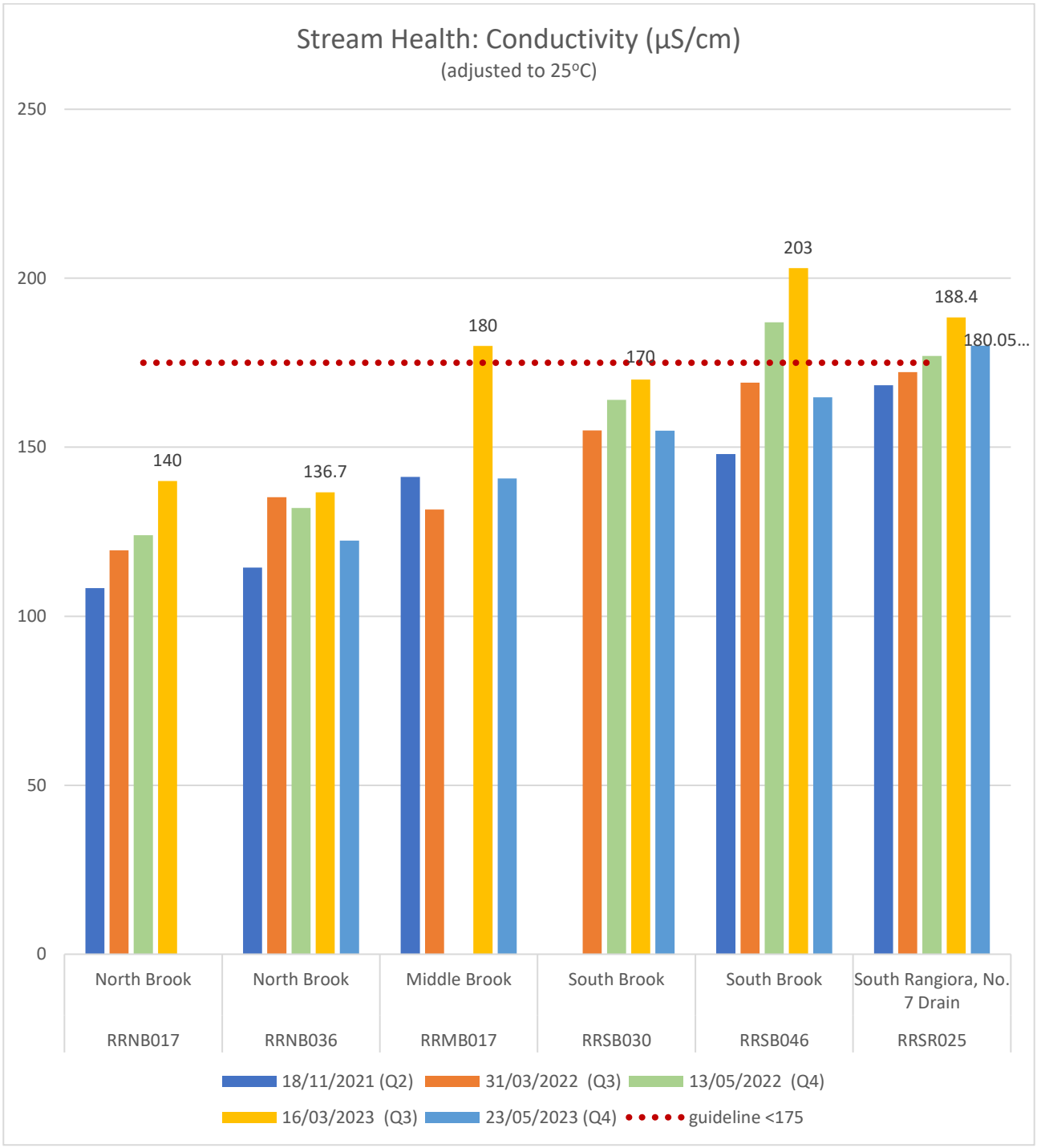

Figure 21. Stream Health - specific conductance sample results for the 2022/2023, with 2021-22 for comparison

4.8.5. Dissolved Inorganic Nitrogen

All sites had exceedances of the guideline value of 1.5mg/L Dissolved Inorganic Nitrogen (DIN) for at least one quarter, see Figure 19. Action is required to reduce DIN levels, however it is likely that DIN sources are both rural (direct discharge and via groundwater inflows) and urban. It is recommended to further characterise sources of DIN to target treatment appropriately.

In 2021-22 only one site did not exceed DIN levels (RRNB017, North Brook at Boys Road). However for 2022-2023 sampling this site recorded 2.5mg/L of DIN in Quarter 3, which exceeds the guideline value. This site was not sampled in Quarter 4 of 2022-23.

For all other sites exceeding the guideline value, it is observed that the DIN levels dropped under the guideline in Quarters 3 and 4 of 2022-23. This is the case for sites RRNB036 (North Brook) and RRMB017 (Middle Brook, Gefkins Road east of railway Road). The latter site presented the second highest values of DIN at 3mg/L during Quarter 3 of 2021-2022.

The highest DIN level registered was in the South Brook RRSB046, (east-side of Townsend Road), which was registered in Quarter 4 of 2021-2022 at 3.6mg/L. DIN dropped down below the guideline in the following sampling round (Quarter 2022-23). However, DIN levels increased again for the last round of sampling in Quarter 4, suggesting cyclical discharges of nitrogen in this area, likely from higher nitrate leaching of soils during winter months with more rainfall.

An investigation between WDC and Environment Canterbury is recommended to locate soils that have high nitrate leaching due to land management, to locate practices that could be improved.

No baseline monitoring for DIN was carried out in 2014, so no comparative data is available.

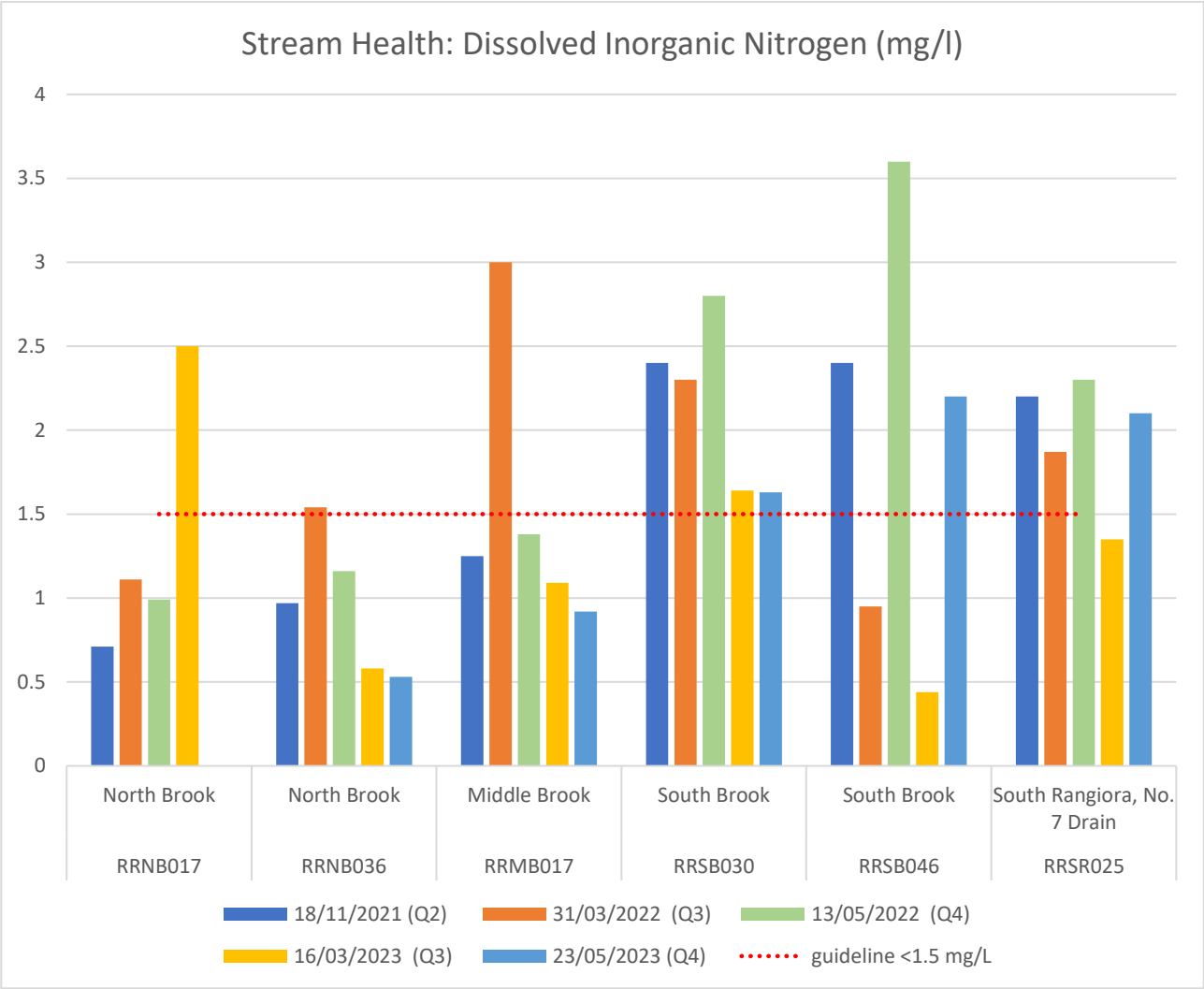

Figure 22. Stream Health - Dissolved Inorganic Nitrogen sample results for 2022/2023, with 2021/22 results for comparison

4.8.6. Total ammoniacal nitrogen

The Total Ammoniacal Nitrogen (TAN) value that provides 95% species protection is adjusted for pH. The pH values from section 4.7.3, were used to find the TAN guideline equivalent. As adjusted per schedule/table S5C of the CLWRP the guideline for TAN ranged from 2.09 mg/L to 2.33 mg/L.

All sampling recorded for Total Ammoniacal Nitrogen in 2022-23 during Stream Health sampling was below their respective guideline values. See Figure 21.

The highest TAN value found was 0.021 mg/L at RRSR025 (South Rangiora, downstream of Fernside/Flaxton Intersection SMA outlet).

Due to the low levels of TAN found, no actions are recommended. Baseline monitoring in 2014 also found low levels of TAN.

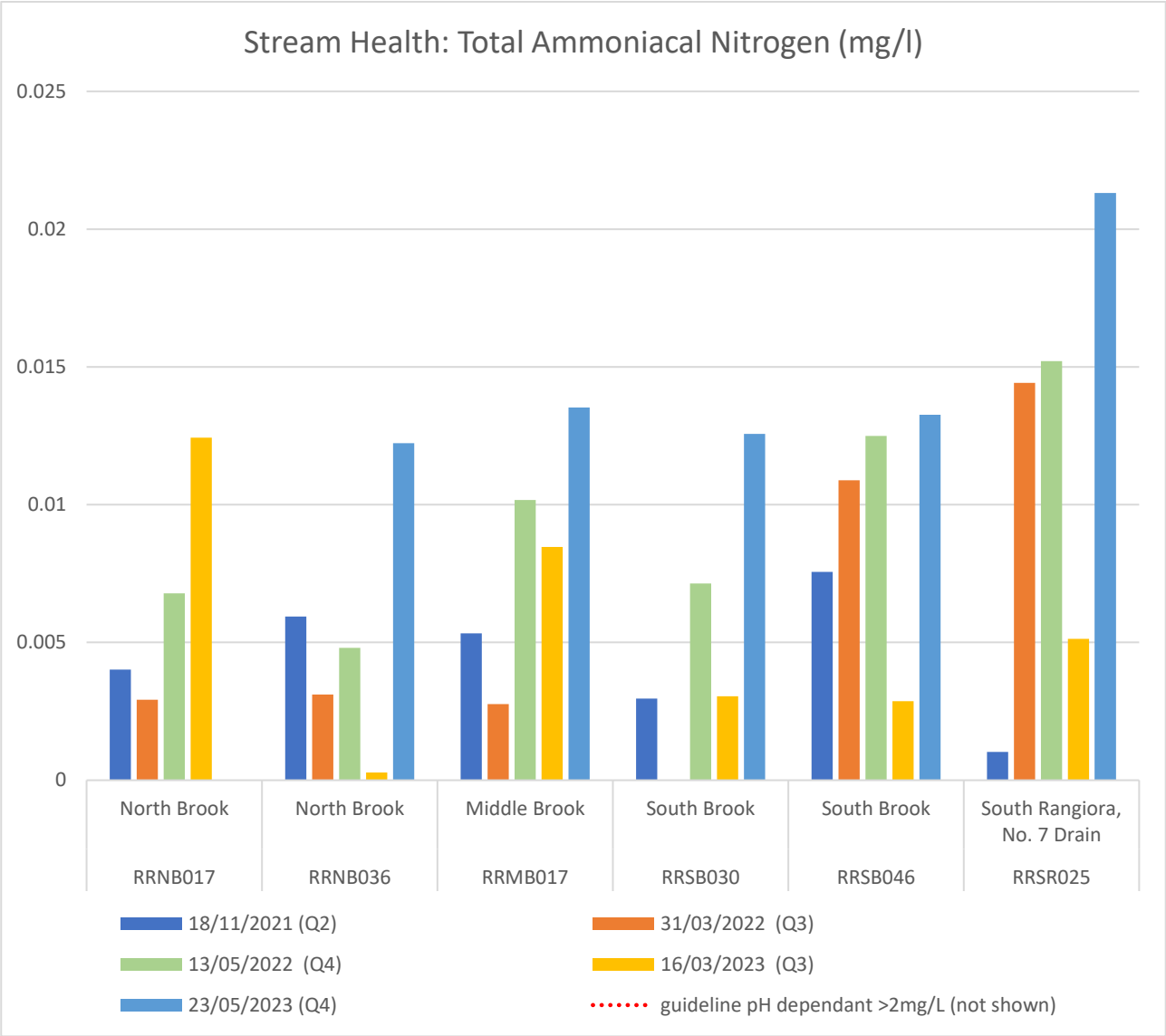

Figure 23. Stream Health Total Ammoniacal Nitrogen sample results for 2022/2023, with 2021-22 for comparison

4.8.7. Total Suspended Solids

All Stream Health sites were well below the guideline value of 50 g/m^3 (Figure 22). In 2022-23 all sites were found to be below the default detection limit of 3 g/m^3, except for the following:

- RRNB017, Quarter 3, North Brook, northern side of Boys Road, TSS = 4 mg/l
- RRSB030, Quarter 4, South Brook West side of Railway Road, TSS = 3.09 mg/L
- RRSB046, Quarter 3 and 4, South Brook, East side of Townsend Road, TSS = 3.2 mg/L and 3.29 mg/L
- RRSR025, Quarter 4, South Rangiora, Fernside / Flaxton intersection, TSS = 3.09 mg/L

Baseline sampling in 2014 did not identify any sites over the guideline value, even during rain events. 2021-23 sampling shows that it is likely that no action is required for TSS, except for a recommendation to investigate the discharge from Pond C on Flaxton Road, as reported in the Urban Impact section.

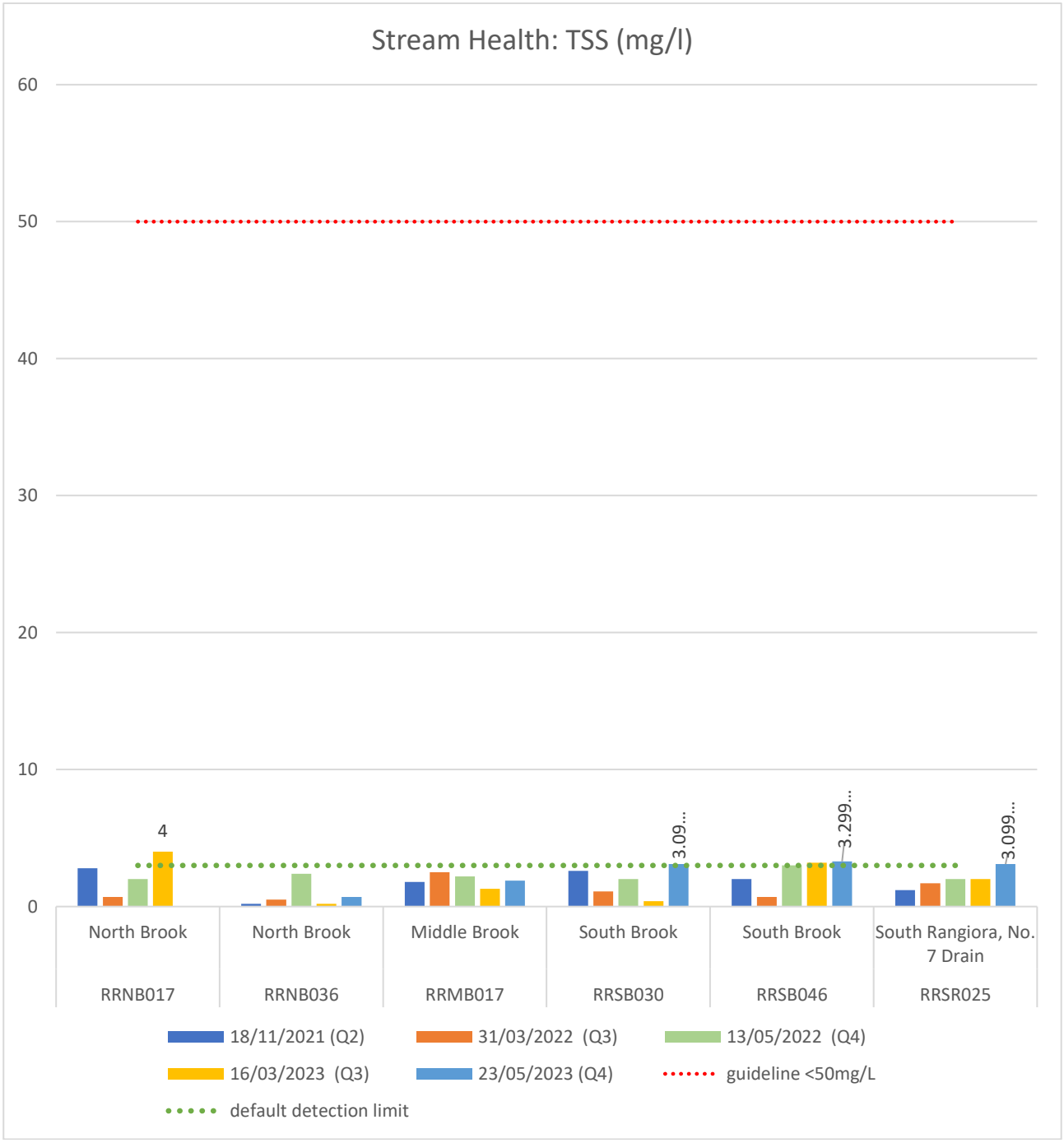

Figure 24. Stream Health - Total Suspended Solids sample results for 2022/2023, with 2021/22 for comparison

4.8.8. Dissolved Reactive Phosphorus

All sites were below the guideline value for Dissolved Reactive Phosphorus (Figure 23). Baseline sampling in 2014 also found all samples to be below the guideline value during dry weather. Although no sites were above the guideline value during dry weather, DRP guidelines were exceeded during wet weather sampling, therefore actions are still recommended to be undertaken to reduce DRP.

It is recommended to monitor closely in future sampling sites RRSR025 (Fernside Road / Flaxton Road), RRSB046 (South Brook, Townsend Road), RRMB017 (Middle Brook, Gefkins Road) and RRNB017 (North Brook, Boys Road). These values are below the guideline value, but close to exceeding it.

In Quarter 2 of 2021-22, RRSB030 was found to be below the default detection limit of 0.004 g/m^3. No other values were below the default detection limit in 2022-23.

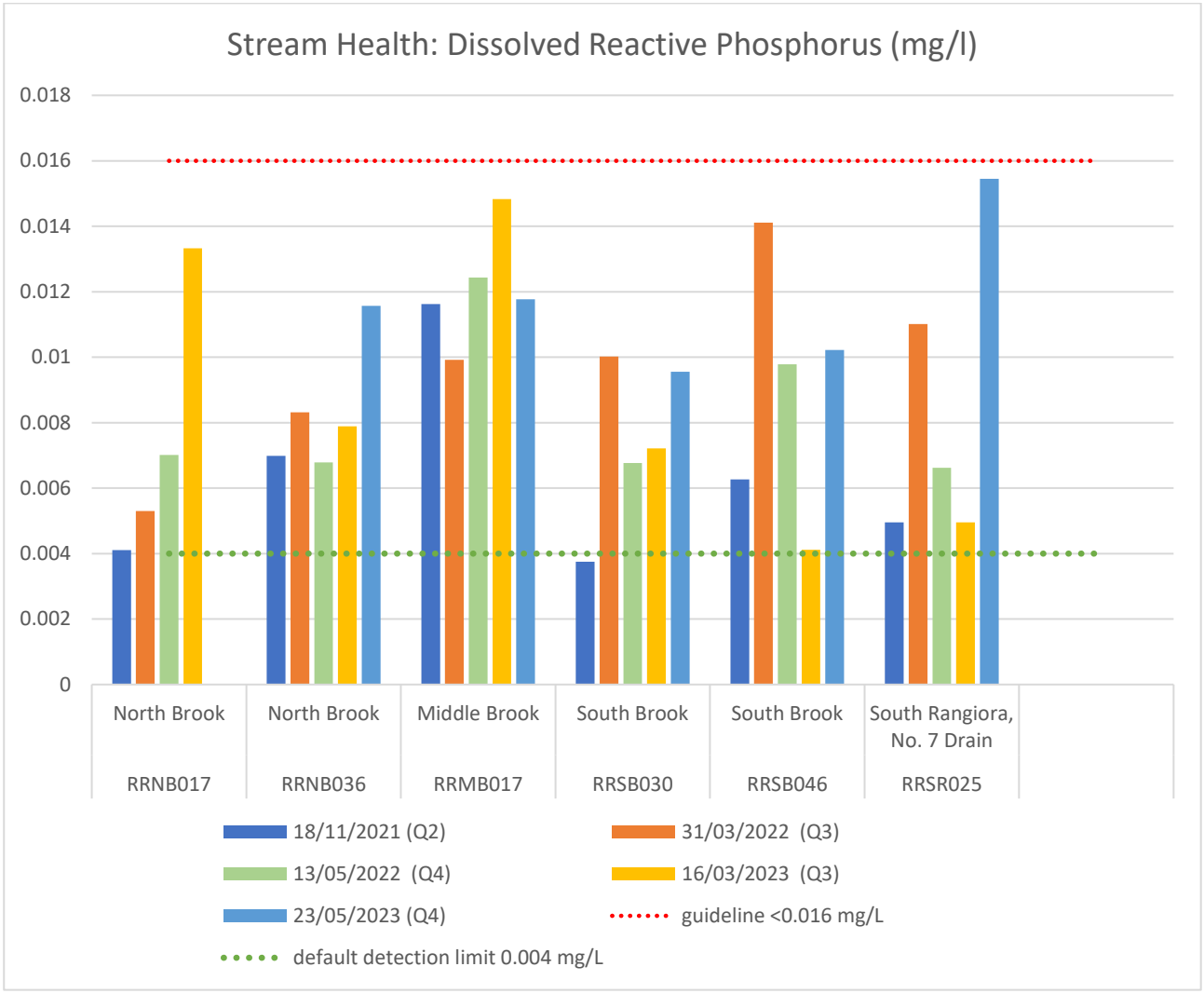

Figure 25. Stream Health - Dissolved Reactive Phosphorus sample results for 2022/2023, with 2021/22 for comparison

4.8.9. E. coli

E. coli is used as an indicator of possible sewage contamination as *E. coli* is commonly found in human and animal faeces.

Results from 2021-22 are represented in Figure 24 for comparison (2021-2022, Quarter 2 and Quarter 3 respectively; blue and orange bars).

In 2022-2023, only one site exceeded the guideline value of *E. coli* 550 MPN/100 mL. This was site RRMB017 (Middle Brook, Gefkins Road, east of Railway Line) with 686 MPN/100 mL during Quarter 3 (2023). The Middle Brook is spring fed with urban headwaters, which suggests urban sources of *E. coli*. This site also presented high levels of *E. coli* during 2021-22 dry weather sampling. Given these results were from dry weather, sources of *E.coli* could be from farmland areas or urban sources. Urban sources of faecal bacteria could be dogs, cats and birds (i.e. waterfowl), or human.

Actions are recommended to reduce faecal contamination in the Middle Brook.

It has been brought to WDC's attention that occasionally cattle trucks driving cross over the junction of Fernside Road / Flaxton Road, which is sampling site RRSR025 (No. 7 Drain). If this is correct, this raises the question of whether cattle trucks lost any effluent. It is noted how *E. coli* levels were high for this sampling site for Quarter 3 of the previous financial year. It is thought that waterfowl is a much more likely source of *E.coli* contamination in Pond C (RRSS025). More investigation is required to confirm source of contamination from *E. coli.* Investigations and actions are recommended.

While the North Brook did not exceed guideline levels for *E. coli* during 2022-23, site RRNB017 has exceeded the guideline value in the past, and *E. coli* levels for Quarter 4 of 2022-23 were just below the guideline value.

In the 2014 baseline sampling, rural inputs of *E. coli* were hypothesised for catchments with rural areas, which is supported by 2021-23 results. In general, there were *E. coli* levels below the guideline value during dry weather, but exceedances during rain events.

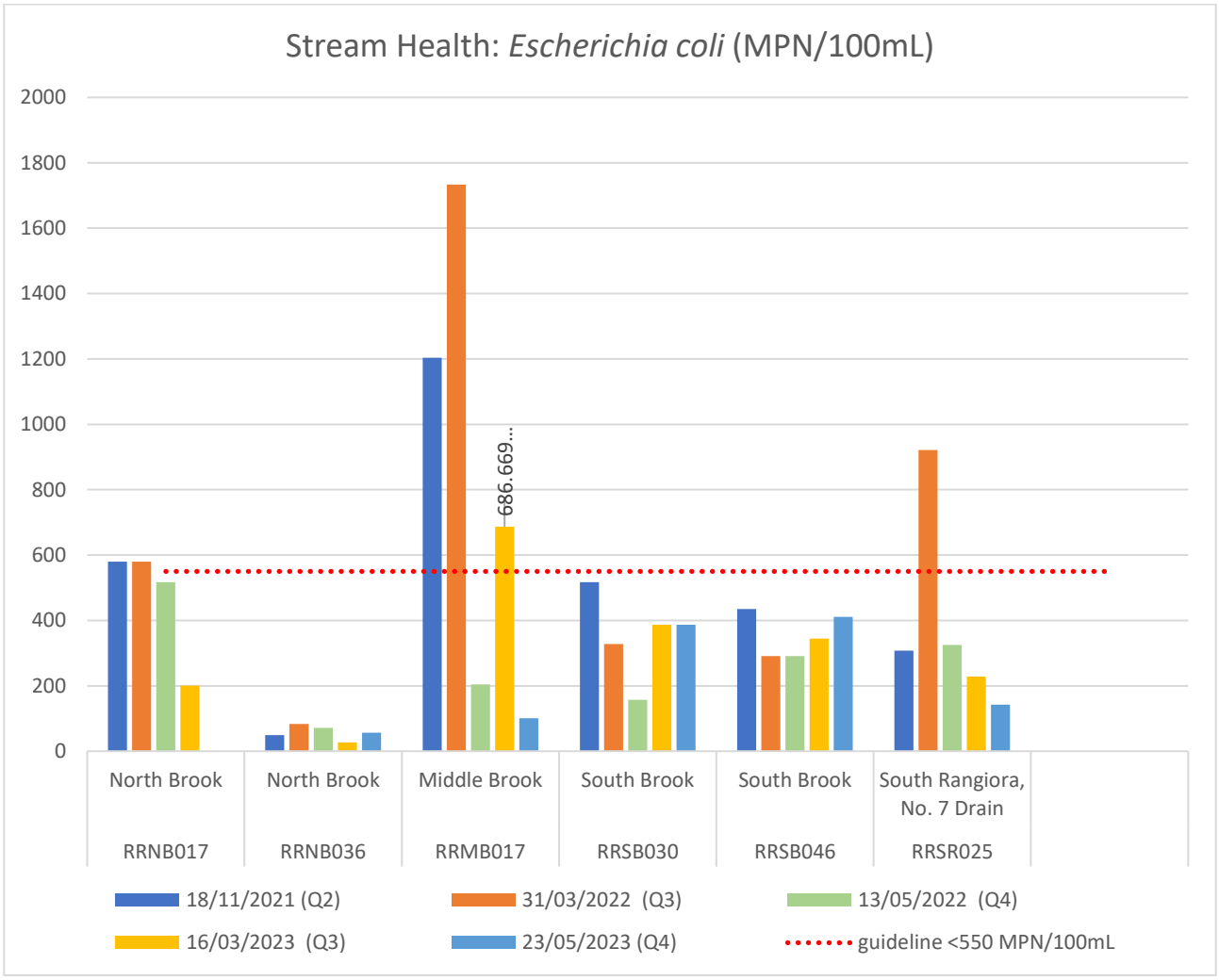

Figure 26. Stream Health - E. coli sample results for 2022/2023, with 2021-22 for comparison

4.9. Stream sediment depth and cover results

All stream reaches monitored were composed primarily of run habitat, with limited pools and riffles. In the Middle Brook at 44 South Belt, approximately 10% of the bed was covered with <2mm sediment, which was predominantly (95%) sand. Sediment depth was general nil, with a few patches of 10mm and 50mm in the transects. In the Middle Brook by Gefkins Road, at the edge of the urban boundary, the amount of sediment cover <2mm had increased to an estimated 30% cover that was predominantly silts and clays (80%). The sediment depth was generally nil in the higher flow areas with sides of lower flow with sediment of 20-150mm (and one outlier of 350mm).

In the North Brook at Ward Park there was an estimated 50% <2mm sediment cover (of which 50% was silt and clay, 50% sand). There are large boulders that have been added to the bed in this reach, so sediment depth can vary from nil on top of the boulders up to 300m in the pockets between the boulders. Downstream below North Brook Ponds the <2mm sediment cover was approximately covering 30% of the bed, however Cape Pond Weed obscured large portions of the bed which made assessment difficult. Approximately 80% of this sediment was silt and clay. The depth of sediment was usually nil in the flow, except for where pockets of the Cape Pond Weed have trapped sediment in their roots to a depth of 150mm. The North Brook at Dudley Park was dry at the time of the visit, and therefore not suitable for measurement of sediment depth or cover measurements.

The South-South Brook at Lineside Road (below the Pond A outlet) was 100% <2mm sediment, of which 100% was silt and clay. This waterway has had flows diverted away from it historically which has likely been a significant cause of the sediment build-up. The sediment depths measured ranged from 100mm-400mm.

The No.7 Drain had only 5% cover of sediment <2mm, of which 95% was sand, however the waterway had been mechanically cleaned of sediment within a few weeks prior sampling, with sediment removed and placed onto the banks. The bed sediment depth was generally nil, with patches along the wetted edge that were 50mm deep.

4.10. Spills reported

There was one spill of 5L into the Rangiora stormwater network reported to WDC staff in 2022-23. A vehicle was vandalised on 47 White St, with diesel siphoned off and some of this spilt onto the road. Rain washed this into the stormwater network, and into the North Brook. WDC deployed sawdust and absorbent mats from the spill kit around the spill and mats in the receiving environment. The stormwater sump was blocked off.

Another investigation on Kowhai Avenue in 2022-23 concluded that a reddish and oily discharge into the stormwater network was likely to be from naturally occurring iron-rich sediment and oils from peaty swamp deposits in the area, not due to pollution.

More information is available in the Annual Report 2021-2023 (Tables 4 and 5, section 9, TRIM 240325047404).

5. Discussion

Table 8: Summary of compliance with CRC184601 guideline values in 2022-23

Contaminant			Notes
Total Suspended Solids	Compliant		All sites were compliant for TSS in 2022-23 sampling. Note only one sampling round was carried due to weather and resource limitations. Only one major discharge outlet during a moderate rain event was non-compliant in 2021 financial year. Compliance also met for all stream health sites (dry weather sampling).
Dissolved copper	Non-compliant		7 sites exceeded the guideline value during wet weather sampling
Dissolved zinc	Non-compliant		7 sites exceeded the guideline value during wet weather sampling
Dissolved Reactive Phosphorus	Non-compliant		Not met for all sites except Cam River. Actions recommended.
E. coli	Non-compliant		Not met for all sites except Cam River, and some sites in North Brook on the latest sampling. Actions recommended.
Total Ammoniacal Nitrogen	Compliant		
Dissolved oxygen	Guideline met*		Not used for compliance. All following results are from Stream Health (dry weather sampling). ** if one low oxygen value is confirmed to be due to large groundwater inflows at the site - North Brook at Lilybrook Park (RRNB036)*
Temperature	Guideline met		
pH	Guideline met		
Conductivity	Guideline value not met		Not met for 3 sites, all other sites were met (Middle Brook, South Brook, No. 7 Drain)
Dissolved Inorganic Nitrogen	Guideline value not met		Guideline value exceeded for 6 sites (North Brook, Middle Brook, South Brook, No. 7 Drain)
Total Ammoniacal Nitrogen	Guideline met		
Total Suspended Solids	Guideline met		
Dissolved Reactive Phosphorus	Guideline met		
E. coli	Guideline not met		3 sites exceeded guideline values of *E. coli* (North Brook, Middle Brook, No. 7 Drain)

From Trend Analysis of Urban Impact sampling results, it is identified the following:

- **Site RRNB055: North Brook, Aspen Street Park**
    - **Levels of Dissolved Zinc have increased significantly over time.**
        - It is recommended to initiate a project targeting remediation of Dissolved Zinc levels in the North Brook at this site.
        - Investigation of Zinc sources is recommended around this area, so that it can be treated at source by physically covering materials that are causing Zinc contamination.
    - Levels of Dissolved Copper show a tendency to increase, however no significant differences were found over time.
        - More sampling will further inform any trends with Copper levels.
    - Levels of Dissolved Reactive Phosphorus show a tendency to increase over time, however no statistical significance was found yet, but statistically was very close to a significant change.
        - It is recommended to monitor these levels closely, as it is likely that the changes would be significant over time once results from 2023-24 sampling are included with better trend analysis – and provided that DRP levels stay at similar or higher levels than this financial year over the next year. This is yet to be determined with further sampling. Next financial year will further inform actions recommended for DRP levels if any.

- **Site RRMB029: Middle Brook, western side of Bush Street**
    - Levels of Total Ammoniacal Nitrogen show a clear increase of levels over time, not statistically significant at this stage but very close to statistical significance. The guideline values were not exceeded.
        - Due to a clear trend coming from a small sample that is close to statistical significance, it is recommended to monitor closely TAN levels and to add more information as it becomes available.
        - It is recommended to prepare and investigate nitrogen absorption projects in the Middle Brook, before nitrogen levels exceed guidelines and become an eutrophication problem.
    - There were not enough sample rounds on some contaminants such as Cu and Zn, to provide a statistically significant analysis.
        - It is recommended to increase the sample size and to expand WDC's projects list once more results are included.

From Major Network Outlets Sampling in Pond C:

- Levels of Dissolved Reactive Phosphorus (DRP) were very close to exceed the guideline.
    - Dissolved Reactive Phosphorus is a plant nutrient, which can contribute excessive plant and algae growth, damaging the ecological health of streams if it enters surface water.
    - Excess of phosphorus can originate on land from fertilizer or animal manure, where it can also leach onto groundwater.
    - Actions to start fixating phosphorus levels before they become a higher problem are recommended.
    - The design of a wetland with associated riparian planting to improve the water quality of No. 7 Drain and the discharge of stormwater from Pond C is recommended.
- *E. coli* levels were above the guideline, for at least 1.5 orders of magnitude.
    - The use of filtration solutions or biochar (BC) enhanced sand filtration systems, targeted at enhancing *E. coli* removal are recommended as a low-cost project to reduce *E. coli* levels in Pond C.

- Studies such as Zeng & Kand (2023) have found using activated BC-sand filtration systems increases the removal of *E. coli* because of the hydrophobic attraction between BC surface and *E. coli*.
- Using filtration systems to remove *E. coli* it is recommended to target these levels at Pond C

From Urban Impact Sampling Results:

- Dissolved Copper exceeded the guideline values in the North Drain, North Brook, Middle Brook and South Rangiora / No. 7 Drain
- Dissolved Zinc exceeded guideline values in the North Drain, North Brook and Middle Brook
    - A diligent sweeping of the roadside channels is recommended to WDC, working with contractors to improve water quality and minimize heavy metals in Stormwater run-off.
    - It is recommended to focus on the frequency of sweeping during dry periods (i.e. between storms), which is key to improve water quality in stormwater as found in a study undertaken by NIWA in 2011. There is also evidence available from CCC.
    - It is recommended that WDC researches previous work by CCC with contractors and road sweeping frequencies, to establish a road sweeping frequency that balances costs and diminishes the contaminant load, ultimately improving water quality outcomes.
    - The following are recommended to be included within the next Roading Contract between WDC – Corde (or any future contractor):
        - Focus where there is a high contaminant load:
            - Increase road sweeping frequency in industrial area above Pond C
            - Increase Sump cleaning in industrial areas, particularly those with businesses in the automotive field (see the Industrial Area above from Pond C).
        - Roadside channel sweeping:
            - Recommend hand sweeping of the roadside channel where vehicles are parked, or issue a parking notice the day before when sweeping is scheduled. This is recommended to increase efficiency.
            - It is recommended to adjust the frequency of road sweeping by WDC in the contract every 6 months, to meet changing activity needs.
            - The frequency recommended is:
                - For streets with high traffic volumes: weekly and a fortnight
                - Commercial streets: between fortnightly and monthly
                - Residential areas: between monthly and quarterly
        - Sump cleaning frequency:
            - Inspect and empty sumps as required every 6 months.
            - It is recommended to record the frequency that sumps need emptying, to build up a good picture of where the demands are needed most.
        - Resources:
            - WDC estimates that at a minimum, at least 2 sweepers are needed to maintain the entire network in Rangiora. It is recommended that WDC outsources a contractor that has at least 2 sweepers ready and available, to provide for the maintenance of the entire network in Rangiora Urban Area. This point is critical when new global stormwater consents get approved for new towns within the District.

- *E. coli* levels exceeded the guideline in the North Drain, North Brook, Middle Brook and South Brook during rain events
    - Investigations are required to isolate the source and to confirm the urban and/or rural origin of *E. coli* contamination.

- Filtration systems and/or devices required as recommended above. The same recommendations issued to address high levels of *E. coli* in Pond C apply here for these waterways.

There were data gaps in 2022-23. The current results and recommendations are issued based on best data available. It is anticipated that more information will become available when data from 2023-2024 is added to the data analysis. Therefore, results and priorities of required actions could change quickly.

The challenges encountered for this round of stormwater sampling were related to staff shortages and weather limitations. These issues have now been addressed with the employment of a new 3 Waters Compliance Officer role. Funding has also been allocated for a new Waterways Engineer role. This sets WDC in a better position to continue monitoring, reporting and remediating environmental results as they are encountered throughout the financial years.

As identified in the 2014 baseline monitoring report for Rangiora, contaminants such as DIN, DRP and E.coli have likely rural, as well as urban sources. The proportion of each source can be difficult to establish because of the upstream rural catchments present in some waterways, and the groundwater inflows into all catchments sourced from primarily rural recharge zones. Therefore, any actions to reduce these contaminants requires further investigations to identify urban sources first. *E. coli* and other faecal bacterial levels diminish after time underground, but nitrogen and phosphorus compounds can be carried long distances from where they have been leached from soils, depending on levels of denitrification for example.

Likely rural inputs for E. coli include from stock (sheep and cattle) and birds. Urban inputs could be from dogs, birds, and human sources. No wastewater overflows were reported to have occurred during the sampling events. Cross-connections of wastewater to stormwater discharge outlets is a possibility but has a low occurrence.

Options for stormwater treatment will be examined in the Rangiora Stormwater Management Plan, to be drafted before 1 January 2025.

6. Recommendations

A summary of recommendations based on the discussion above:

1. Prioritise actions to reduce Dissolved Zinc levels in the North Brook due to high level of exceedances found in sampling sites. Actions are also recommended for the Middle Brook.
2. Investigate sources of Zinc in North Brook and Middle Brook, as recommended in 2021-2022.
3. Investigate sources of *E. coli* in Rangiora waterways, particularly investigate whether the source is rural run off.
4. Undertake actions to treat *E. coli* levels in Rangiora waterways, in particular for the Middle Brook and South Brook, due to high exceedances found during dry weather.
5. Undertake actions to reduce Dissolved Copper for the North Brook, Middle Brook and No. 7 Drain catchments (also recommended in 2021-2022).
6. Investigate sources of DRP in the North Brook, and initiate engagement with landowners and the community to tackle the problem at source, where possible.
7. Actions required to treat and identify sources of DIN in South Brook, as recommended in 2021-2022.
8. Actions required to improve the functioning of Pond C, including treatment of DRP levels and *E. coli.* This was also recommended in 2021-2022.
9. Expand data analysis of trends with more targeted analysis which include exploratory analyses to understand the distribution of data, and the use of Time Trends software to include rainfall adjustments and a more accurate analysis.

7. References

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WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	CON202321-01 / 240507072248
REPORT TO:	Management Team
DATE OF MEETING:	13 May 2024
FROM:	Shaun Fauth, Utilities Projects Team Leader Craig Freeman, Acting Water & Wastewater Asset Manager
SUBJECT:	23/21 Oxford Rural No.1 Water Main Renewals 2023/24 –Tender Approval Report – Separable Portions B & C

SIGNED BY:
(for Reports to Council, Committees or Boards)

Department Manager | Chief Executive

1. SUMMARY

1.1 The purpose of this report is to seek approval for the award of Separable Portions B & C of Contract 23/21 Oxford Rural No.1 Water Main Renewals 2023/24 to the Council Water Unit for a price of $280,139.79, excluding GST.

1.2 The Water Unit were invited to price the works, as per the procurement plan approved by the Procurement PCG.

1.3 Separable Portion A was awarded to the Water Unit previously and is currently on track to be completed within the 2023/24 financial year. There was not sufficient budget to award Separable Portions B & C at that time. The work was instead planned to be re-priced, and constructed in 2024/25 (refer 231204194834).

1.4 Separable Portions B & C involve the supply and installation of 2,896m of 125mm OD PE water main along Woodstock Road, View Hill, and abandonment of the existing main.

1.5 Separable Portion A involved the supply and installation of 1,392m of 125mm OD PE Water Main, supply and installation of a new pressure reducing valve, and supply and installation of a 980m long lateral through private farmland. This work was required to be finished within 2023/24 to meet the agreement with the landowner (refer Attachment ii), and is all completed except for the lateral, which is programmed to be installed in June 2024.

1.6 The previous price submitted from the Water Unit for Separable Portions B & C in December 2023 was $288,579.14, which is comparable to the new price of $280,139.79. The Water Unit confirmed that all supply and installation rates would remain the same. The slight reduction in overall price is due to minor design changes following the construction of Separable Portion A.

1.7 Works are due to commence early in the 2024/25 financial year. The Water Unit are seeking approval now so that they can confirm their programme for 2024/25 and inform relevant suppliers and sub-contractors. There will be no expenditure against the contract in the current 2023/24 financial year.

1.8 The contract is funded from the Oxford No.1 Renewals budget (PJ 100044.000.5104), which has a total budget of $418,800 for 2024/25, of which $366,500 is available for this construction.

Attachments

i. Approved Procurement Plan - 231205195047

2. RECOMMENDATION

THAT the Management Team;

(a) **Receives** report No. 240507072248.

(b) **Authorises** Council staff to award Separable Portions B & C of Contract 23/21 Oxford Rural No.1 Water Renewals 2023/24 to the Council Water Unit for a price of $280,139.79.

(c) **Notes** that this contract is funded from the Oxford No.1 Renewals budget (PJ 100044.000.5104), which has a total budget of $418,800 for 2024/25, of which $366,500 is available for this construction.

(d) **Notes** that with a 10% construction contingency and all other project costs factored in the total expected project expenditure is $338,154 against the $418,800 budget.

(e) **Notes** that there will be a staff submission to defer the unspent budget to 2025/26 to be used for construction of a separate renewal, at McGraths Road, in that year.

(f) **Notes** that the procurement method of inviting the Water Unit to price these works has been approved by the Procurement PCG.

(g) **Notes** that the full contract works (Separable Portions A, B & C) were required to be completed in order to abandon a section of pipework within private property and existing reservoirs in Chalk Hill, as approved by Council in February 2022. This work was partially funded by the landowner on the agreement that the abandonment of the assets on private property be completed in the 2023/24 Financial Year.

(h) **Notes** that while Separable Portion A alone achieves the required portion of the work on the private property, the further renewals along Woodstock Road will still be needed to complete the full scope of work agreed in the above report and ensure adequate level of service to the scheme.

(i) **Circulates** this report to the Utilities and Roading Committee for their information.

3. BACKGROUND

3.1. An agreement has been made with a landowner to partially fund the abandonment of assets in private land by way of the renewal of water main along Woodstock Road, View Hill. This work was planned to take place under the Oxford Rural No.1 Water Renewals for 2023/24, with $320,000 budget allocated.

3.2. Early in the design stage it became apparent that the $320,000 would be insufficient to achieve the full scope of work in 2023/24. It was determined that the work should be split into the following portions, with their criticality as follows:

3.2.1. Separable Portion (SP) A – green line in Figure 1 below and upsizing Pressure Reducing Valve on Woodstock Road – critical to be completed in 2023/24 in order to abandon the assets on private property.

3.2.2. SP B – orange line – not critical to be completed but nearing renewal date.

3.2.3. SP C - red line – required in order to achieve level of service outcomes for the scheme but not needed in 2023/24 to fulfil the agreement with private property owner.

3.2.4. The dashed purple line indicates the pipework to be abandoned.

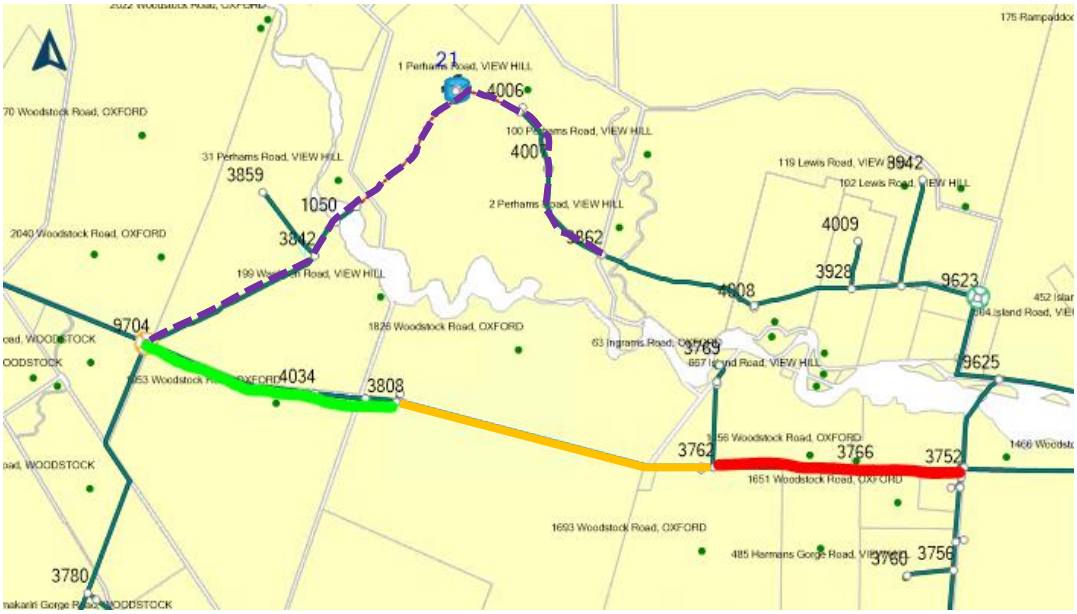

Figure 1 – pipeline sections to be renewed.

3.3. It was determined that Separable Portion A would be awarded and constructed in 2023/24, with Separable Portions B & C deferred to 2024/25.

3.4. The procurement approach of inviting the Council Water Unit to price this work was selected as it formed part of their proposed work programme for the 2023/24 and 2024/25 years, they regularly undertake works of a similar nature to this contract, and previous assessments have shown that the rates received reflect typical market value. A procurement plan was submitted to the Procurement PCG outlining the rationale for this, which was approved (refer Attachment i).

3.5. **Submission Process**

3.5.1. Submission Opening

One supplier was invited to price these works. The updated submission for Separable Portion B & C was received by email from Waimakariri District Council's Water Unit in May for $280,139.79.

The Water Unit had previously priced Separable Portions B & C in December 2023, for $288,579.14. All supply, installation and miscellaneous rates were the same in both iterations. The slightly lower total price received recently was due to the removal of two provisional items, which were identified as being no longer required following construction of Separable Portion A.

Portions of the work are proposed to be undertaken by sub-contractors to the Water Unit, including supply of materials, traffic management and pipe drilling. These components ranged approximately $20,000 to $70,000 in value and were each advertised to invited tenderers via Vendor Panel.

3.5.2. Tags, Arithmetic Errors and Alternative Submissions

The tender did not contain any tags or clarifications.

3.6. **Attribute and Price Evaluation**

3.6.1. The Water Unit regularly undertake works of a similar nature to this contract under the yearly water renewals programme. Previous assessments have shown that the rates received reflect typical market value. The comparison of the Water Unit price with the estimate is provided under Section 7.1.1.

3.6.2. The Water Unit provided a methodology and programme which were evaluated and accepted.

4. ISSUES AND OPTIONS

4.1. Option 1 – The Management Team accepts the tender from Waimakariri District Council's Water Unit for $280,139.79 for Separable Portions B & C of Contract 23/21. This is the recommended option.

4.2. Option 2 - The Management Team rejects the tender and the work is put to open market. This is not recommended, as the price received is within budget, considered typical market value and additional costs will be occurred if re-tendered.

5. IMPLICATIONS FOR COMMUNITY WELLBEING

5.1. There are implications on community wellbeing by the issues and options that are the subject matter of this report. Completing this work will reduce the reliance on aging infrastructure, improve resilience of quality water supply and mitigate any community wellbeing risks.

6. COMMUNITY VIEWS

6.1. **Mana whenua**

Te Ngāi Tūāhuriri hapū are not likely to be affected by, or have an interest in the subject matter of this report.

6.2. **Groups and Organisations**

There are not groups and organisations likely to be affected by, or to have an interest in the subject matter of this report.

6.3. **Wider Community**

The wider community is likely to be affected by, or to have an interest in the subject matter of this report. The community has an expectation of having access to safe and reliable drinking water at an affordable cost. By increasing the resilience of this part of the Oxford Rural No.1 scheme, this proposal will have positive impacts on the wider community.

7. OTHER IMPLICATIONS AND RISK MANAGEMENT

7.1. **Financial Implications**

7.1.1. The Engineer's Estimate for Separable Portion B & C, produced in November 2023, was $266,700. This included two provisional items which are no longer required. Without those items the estimate was $255,000.

7.1.2. The supplied price of $280,139.79 is 10% higher than this estimate. This difference is reflective mainly of traffic management costs being higher than was expected based off older contracts.

7.1.3. The available budget for 2024/25 versus the recommended tender price is summarised in the table below.

Budget name	**(Oxford Rural No. 1 Water Main Renewals 2024/25)**

PJ Number	(100044.000.5104)
Total Budget [a]	**$418,800**
Spent to date (including carry over) [b]	$0
Remaining PDU fees (Construction Supervision) [c]	$10,000
Other project commitments (design of McGraths Road water renewal for construction in 2025/26) [d]	$20,000
Total existing commitments [e] **(=b+c+d)**	**$30,000**
Recommended Tender [f]	$280,139.79
10% Construction Contingency [g]	$28,014
Total Proposed Tender [h] **(=f + g)**	**$308,154**
Total Forecast Expenditure [i] **(= e + h)**	**$338,154**
Remaining Budget [j] **(= a – i)**	**$80,646**

Note that there will be a staff submission to defer the remaining budget to 2025/26 in order to fund construction of the McGraths Road renewal construction in that year.

7.2. Sustainability and Climate Change Impacts

7.2.1. The recommendations in this report have sustainability and/or climate change implications. The existing pipe (that is to be abandoned) is susceptible to scour during heavy rain events. With the impact of climate change, the frequency of these rain events that may impact the pipe is expected to increase. By abandoning this vulnerable section of pipe, the risk to the supply during rain events is reduced, thereby making the supply more resilient to the impacts of climate change.

7.3. Risk Management

7.3.1. The normal risks associated with construction apply and these have been mitigated by the inclusion of a 10% construction contingency within the project budget.

7.3.2. This project went through a Safety in Design process to identify and eliminate Specific Risks involved in this project. All residual risks have been passed onto the Contractor to manage during construction.

7.4. Health and Safety

There are not health and safety risks arising from the adoption/implementation of the recommendations in this report. The Water Unit have the necessary skills and experience to manage health and safety on this project.

8. CONTEXT

8.1. Consistency with Policy

This matter is not a matter of significance in terms of the Council's Significance and Engagement Policy.

8.2. Authorising Legislation

The Local Government Act and Water Services Act are relevant in this matter.

8.3. Consistency with Community Outcomes

The Council's community outcomes are relevant to the actions arising from recommendations in this report.

Core utility services are sustainable, low emissions, resilient, affordable and provided in a timely manner.

8.4. Authorising Delegations

The Management Team has the delegated authority to approve this supplier selection on behalf of the Council.

Attachment 1

Approved Procurement Plan

Procurement Plan - 23/21 Oxford Rural No. 1 Water Renewals 2023/24

#VP2023-72

Planning

Summary

Procurement Category: Selected Tender

Estimated Value: $320,000.00

Department: Water and Sewer

Cost Centre:

Market Approach: Private

Procurement Background:

The project is to abandon the existing pipework which lies in the private property and install a new water main within the road reserve.

Scope of Work:

This project is divided into three separable portions which are as follow:
Separable Portion A:-
1. Install a 1390m of 125mm PE pipe, abandoning the existing 63mm PE.
2. Slip-line a 32mm PE water pipe inside the existing DN80 PVC pipe to provide a service connection to 199 Washpen Road.
3. Removal of existing DN50 PRV at Woodstock Road and replacing it with DN100 PRV.
4. Install details as required, service connections, and submission of as- builts.

Separable Portion B (provisional portion):-
1. Install a 1626m of 125mm PE pipe, abandoning the existing 63mm PE.
2. Install details as required, service connections, and submission of as-builts.

Separable Portion C (provisional portion):-
1. Install a 1283m of 125mm PE pipe, abandoning the existing DN40 PVC.
2. Install details as required, service connections, and submission of as-builts.

Anticipated output contract / award

Contract Type: Construction

Duration: 0 years, 9 months, 28 days

Original End Date: 30-Apr-2024

Extension Duration: 1 x

Maximum End Date: 30-Apr-2024

Roles

Role	Assignee
Procurement Officer	Jaskaran Singh

Timeline

Event	Date	Notes
Release Tender to Water Unit	30-Oct-2023	
Receive Price	20-Nov-2023	
Report to MTO	30-Nov-2023	
Award Work	06-Dec-2023	
Commence construction	16-Jan-2024	

Budget

Year	Cost	Notes
1	$320,000.00	100044.000.5104

Checklists

Overview

Requirement	Completed	Notes
Has need and scope been clearly defined?		
Have the correct budgets and codes been identified?		
Has the correct budget holder/approver been identified?		
Has open tender been considered?		

Planning

Requirement	Completed	Notes
Is the proposed timeline appropriate	19-Oct-2023	
Are all panel members listed	18-Oct-2023	As PM is to be decided yet, only Shaun Fauth has been listed as a member.
Have panel members signed the Conflict of Interest?	18-Oct-2023	Sent to Shaun to sign
is Lowest Price Conforming, or Price Quality Method proposed?	18-Oct-2023	NA as this is a Water Unit contract
What evaluation criteria are proposed?	18-Oct-2023	NA as this is a Water Unit contract
What evaluation weightings are proposed?	18-Oct-2023	NA as this is a Water Unit contract

Go to Market

Requirement	Completed	Notes

Risks

Risk to	Description	Likelihood	Consequence	Risk Value
Procurement	ID:100 - Tender Price	Likely	Moderate	48

Assessments

Initial Assessment Result: Not started

Value Risk Assessment Result: Not started

Procurement Plan Approval

Decision Maker	Decision	DateTime
Caroline Fahey	Approved	20-Oct-2023
Colin Roxburgh	Approved (Final)	25-Oct-2023
Caroline Fahey	Rejected	19-Oct-2023
Colin Roxburgh	Cancelled	

Evaluation Planning

Evaluation Teams

Teams
Shaun Fauth

Panel Members

Panel Member	Team
Shaun Fauth	Shaun Fauth

Mandatory Requirements

Evaluation Criteria