Carterton District Council

Infrastructure & Service Committee Meeting

Wednesday 15th March 2017

Committee Members: Councillor's M Ashby, J Greathead, R Keys, B Deller and Mayor Booth.

CARTERTON
DISTRICT COUNCIL

AGENDA

Agenda for the meeting of the Carterton District Council Infrastructure and Services Committee, to be held in Hurunui-o-Rangi Meeting Room at Carterton Events Centre, Holloway Street, Carterton on Wednesday 15 March 2017 at 9.30am

1. **Apologies**
2. **Conflict of Interest Declaration**
3. **Public Forum**
4. **Notification of General Business / Late Items**
5. **Roading Managers Report** - *page 1 – 2* — *Warwick Potts*
6. **Proposed Pedestrian Crossing Response Report** – *page 3 – 11* — *Dave Gittings*
7. **Swimming Complex Review** - *page 12 – 13* — *Brian McWilliams*
8. **Operations Managers Report** – *page 14 – 16* — *Garry Baker*
9. **Waste Water Consent Update Report** – *page 17 –22* — *Greg Boyle*
10. **Progress with Kaipatangata Water Supply Consent and Impact of Recent Storm Event** – *page 23 – 30* — *Stu Clark*
11. **General Business**

Brian McWilliams
Parks & Reserves Manager

7 March 2017

Roading Report to End February 2017

1. PURPOSE OF THE REPORT

For the Committee to receive an update on the roading activities during January-February 2017.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Council's Significance and Engagement Policy.

3. ACTIVITIES UPDATE

3.1 Dakins Road

We are continuing to work with Greater Wellington Regional Council to address the issue of the Ruamahanga River cutting into the bank and undermining the road. The options for protecting the road are being addressed through the development of the Te Kauru Floodplain Management Plan. The road will need to be moved at some stage and we are currently investigating the potential purchase of adjoining land.

3.2 Ponatahi Culvert

Work has commenced on the culvert. This has been delayed by rain. The completion date is expected to be 20 April 2017.

3.3 Hinau Gully Bridge redeck

Plans for a new concrete deck have been received to replace timber deck that partially failed last year. The temporary repair is holding well.

The replacement will require the bridge to be closed for 12 days, and will involve repainting the beams. We will endeavour to have the closure during the school holidays to minimise disruption for the nearby property owners.

3.4 Vehicle Dimensions and Mass (VDAM)

The Ministry of Transport has introduced new weight limits for Class 1 vehicles of 45 or 46 tonnes, dependent on vehicle length. At this stage bridges that are restricted to the Max 50 vehicles are also restricted to the 45/46T vehicles.

The design loadings for these bridges are currently being reviewed. This work is funded by the New Zealand Transport Agency.

3.5 Parkvale Mushroom Factory

There have been safety issues with the entrances to Parkvale Mushroom factory on Kokotau Road. There is an existing sign warning of concealed entrances for east bound traffic. We are proposing a new sign for west-bound traffic in red 'CAUTION Right Turning Traffic Restricted Vision'.

3.6 Stubs Lane

A design and estimate for sealing the lane and adjoining private carpark areas has been completed. The next phase is to determine the willingness of the owners to pay their share.

RECOMMENDATION

That the Committee:

1. **Receives** the report.

Warwick Potts
Roading Projects Engineer

22 February 2017

NZTA's proposed pedestrian crossing – Carterton Medical Centre

1. PURPOSE OF THE REPORT

For the Committee to consider a response to the New Zealand Transport Agency (NZTA) on its proposed pedestrian crossing.

2. SIGNIFICANCE

The matter for decision in this report is not considered to be of significance under the Council's Significance and Engagement Policy.

3. PROPOSED CROSSING

The safety of pedestrians crossing the State Highway in Carterton, in the vicinity of the Medical Centre, has been an issue for some time. In response to community concerns the Council became involved in discussions with NZTA on options for a safe crossing. The Agency has now developed plans and has invited Carterton District Council to comment on the proposal for a raised pedestrian crossing. See letter and proposed plans in **Attachment 1**.

NZTA is seeking feedback on the installation of a zebra-style crossing which incorporates an elevated profile in conjunction with the zebra crossing.

4. RESPONSE TO NZTA

Advice from the Council's roading engineer is:

- The raised crossing will make the crossing more conspicuous for traffic, but there is likely to be increased noise, particularly with trucks at night. Given there are few residences in the vicinity this may not be an issue.
- Bicycles – with the short length of the kerb extensions and the width between the islands, there should be no concerns for cyclists.
- Parking – there appears to be little change to the current parking except for the loss of one park in front of the medical centre. This is due to the no-stopping line being extended to 13.3m from the crossing. The minimum length of no-stopping is 6m and the desirable length is 15m. If a 5.5m parking bay was retained, a no-stopping length of 7.8m could be obtained.

Based on this advice a draft response to NZTA from Carterton District Council is in **Attachment 2**. If the Committee supports the letter it will be forwarded to the Agency.

5. RECOMMENDATION

That the Committee:

1. **Receives** the letter.
2. **Endorses** the response to NZTA in Attachment 1

Dave Gittings
Planning and Regulatory Manager

Attachment 1: Proposal from NZTA

Attachment 2: Proposed response from Carterton District Council

Attachment 1

TRANSPORT AGENCY
WAKA KOTAHI

Level 5, The Majestic Centre
100 Willis Street
PO Box 5084
Lambton Quay
Wellington 6145
New Zealand
T 64 4 894 5200
F 64 4 894 3305
www.nzta.govt.nz

16 February 2017

Jane Davis
Carterton District Council
28 Holloway St
Carterton 5713

Dear Hamish

Proposed Pedestrian Crossing – High St (State Highway 2), Carterton

In response to a community request to improve community access to the Carterton Medical Centre, we have investigated the installation of a pedestrian crossing on High Street, State Highway 2 (SH2), just south of Victoria Street. As part of this investigation a review of pedestrian and traffic movements in this area has been completed. We want to share the results of our investigation and seek your feedback on the option recommended as the most appropriate for this location.

The current crossing facility is an uncontrolled crossing type with kerb build outs that assist in reducing the crossing distance across State Highway 2.

The national "Guidelines for the Selection of Pedestrian Facilities" has been used to determine an appropriate new crossing facility, taking into account the location, traffic volumes and number of pedestrians crossing, as outlined in the SH2 Carterton Crossing Review report.

The option being put forward for your feedback is a zebra-style pedestrian crossing including a raised hump. This option is consistent with other existing crossing points along High Street, and therefore is the most appropriate solution given the existing constraints in the surrounding environment.

It is important to note that international research shows that the installation of a zebra crossing has the potential to **adversely** affect pedestrian safety with an increase in pedestrian related crashes of around 29%. To counter this, the installation of an elevated profile (hump) in conjunction with the zebra crossing, has shown potential reductions in pedestrian related crashes of up to 80%. This type of zebra crossing under the new guidelines is therefore required to have a raised hump, making it more conspicuous.

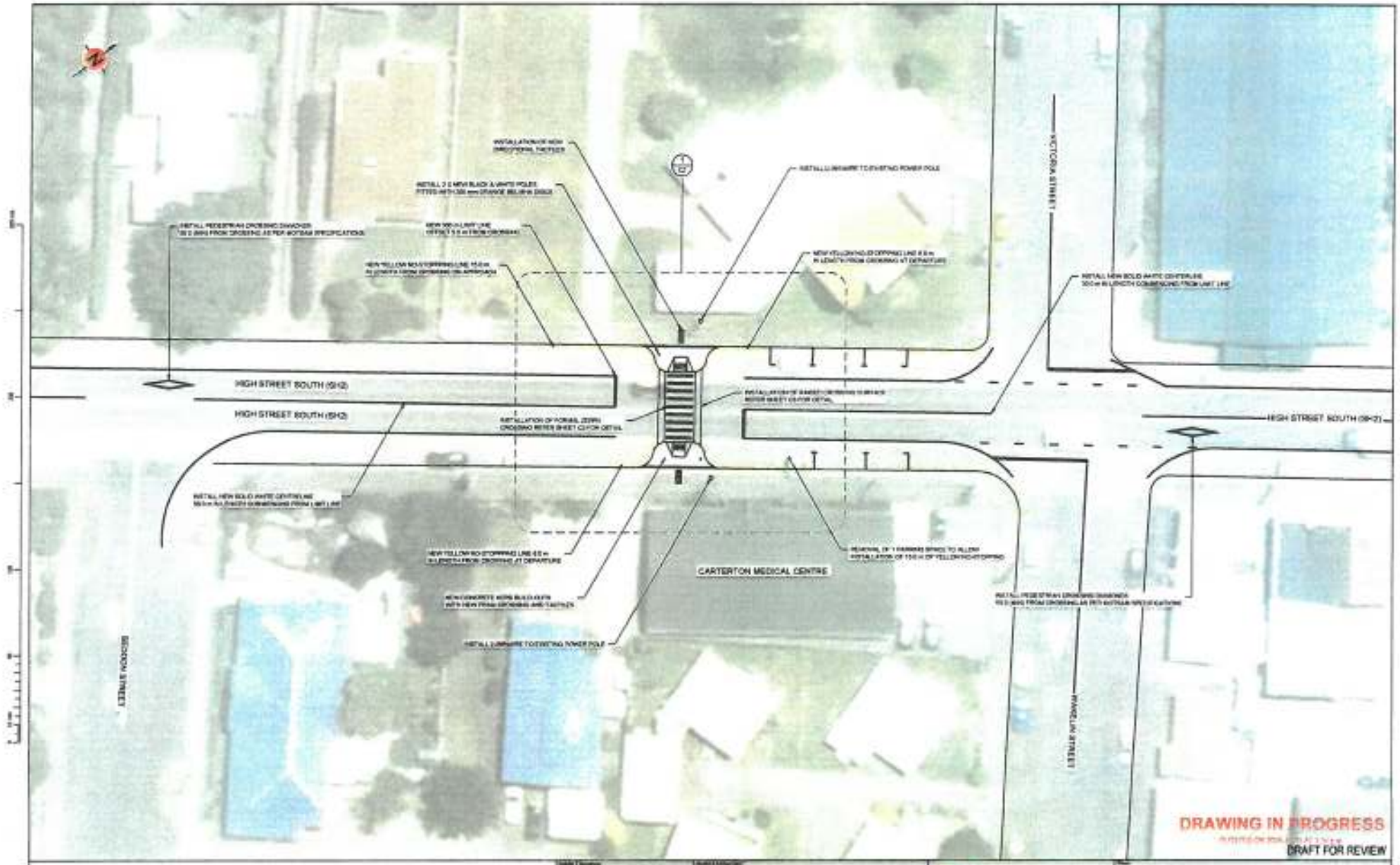
The attached concept drawing shows an appropriate design for a zebra crossing with a raised road profile (hump). Installing a raised table or hump however, does run the risk of increased noise for nearby residents as vehicles travel over the hump.

Before a decision on a pedestrian crossing is confirmed, we welcome your feedback on this proposal. Please contact Steve James, Senior Safety Engineer on 021 245 3876 or steve.james@nzta.govt.nz by Wednesday March 15th, 2017.

Yours sincerely

M. Owen

Mark Owen
Regional Performance Manager, Wellington



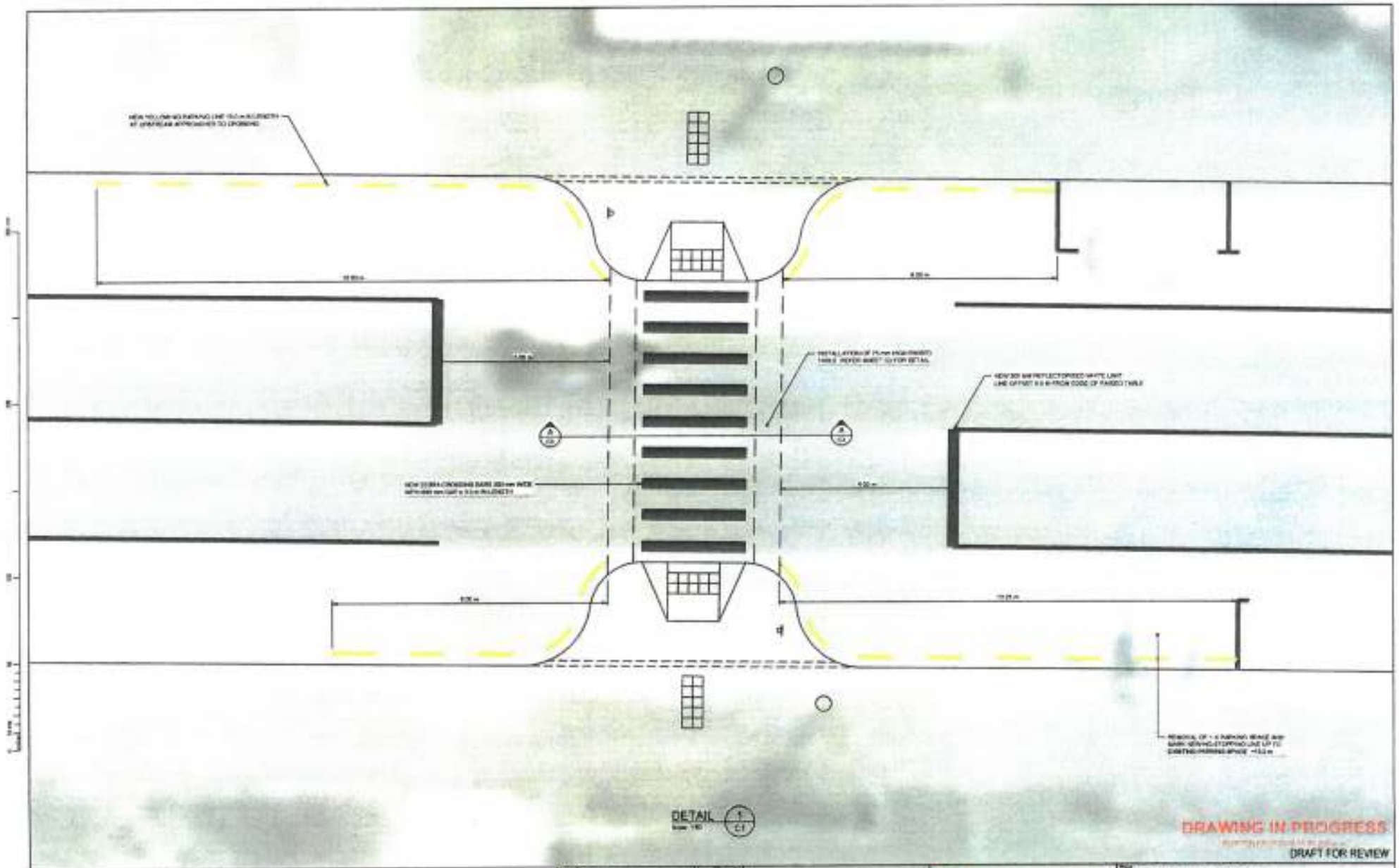
NZ TRANSPORT AGENCY

OPUS
Wellington Office

NEW ZEALAND TRANSPORT AGENCY
NETWORK SAFETY IMPROVEMENTS
SH2 CARTERTON

CARTERTON PEDESTRIAN CROSSING
PLAN

S-CJ113.51 | CJ1 | B



OPUS
Wellington Office

NZ TRANSPORT AGENCY

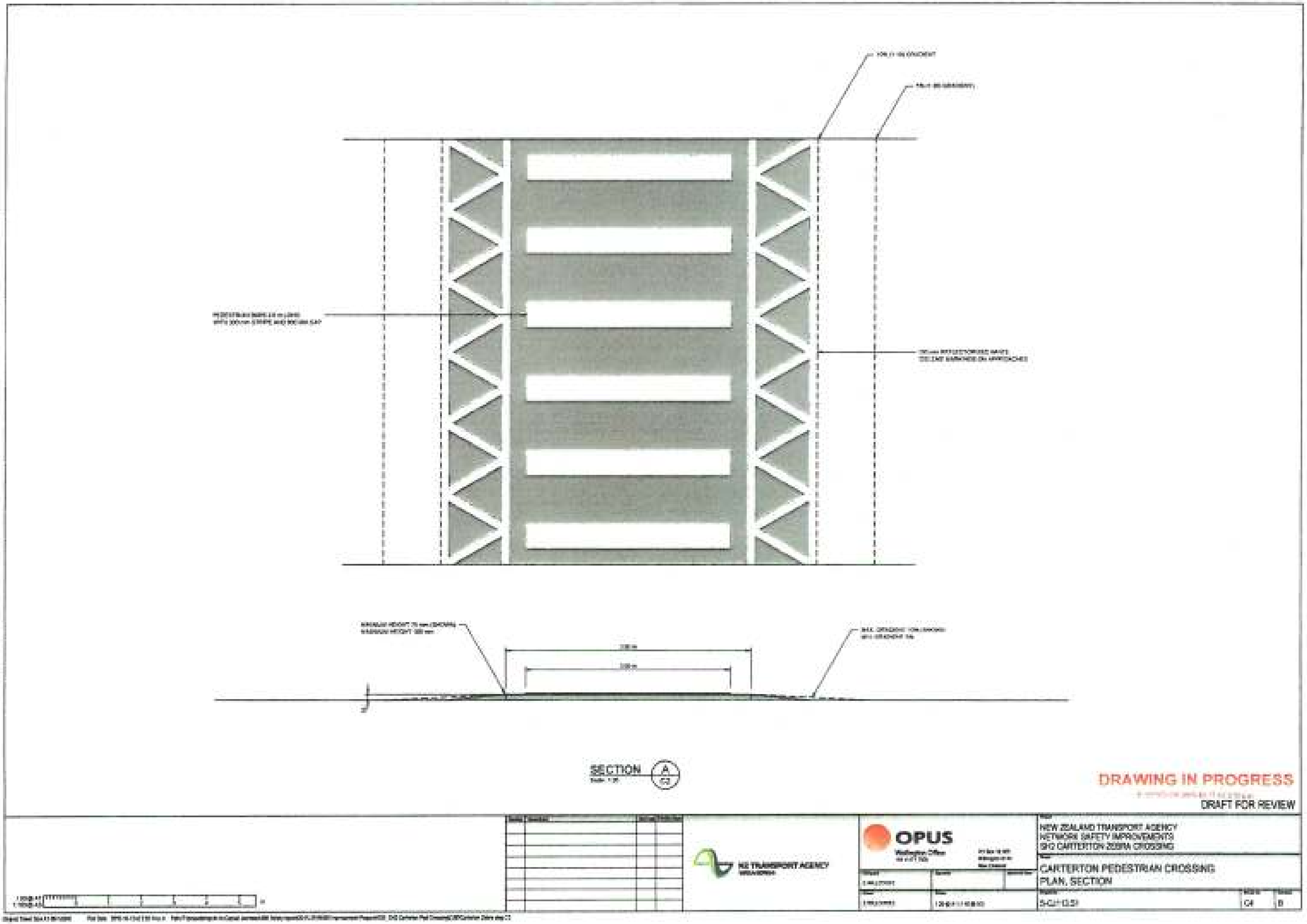
NEW ZEALAND TRANSPORT AGENCY
NETWORK SAFETY IMPROVEMENTS
SH2 CARTERTON

CARTERTON PEDESTRIAN CROSSING
DETAIL

5-C2113.51

C2

B


SECTION
A
C2
DRAWING IN PROGRESS
DRAFT FOR REVIEW
NZ TRANSPORT AGENCY
OPUS
NEW ZEALAND TRANSPORT AGENCY
NETWORK SAFETY IMPROVEMENTS
SH2 CARTERTON ZEBRA CROSSING
CARTERTON PEDESTRIAN CROSSING
PLAN, SECTION
C4
B

DRAWING IN PROGRESS

DRAFT FOR REVIEW

		NZ TRANSPORT AGENCY	OPUS Wellington Office	NEW ZEALAND TRANSPORT AGENCY NETWORK SAFETY IMPROVEMENTS SH2 CARTERTON
				CARTERTON PEDESTRIAN CROSSING VISUALISATION
				5-CJ113.51 C4 B

22 February 2017

Steve James
Regional Performance Manager
New Zealand Transport Agency
Level 5, the Majestic Centre
100 Willis Street
P.O Box 5084
WELLINGTON 6145

Dear Steve

Proposed pedestrian Crossing – High St (State Highway 2), Carterton

Thank you for your letter dated 16 February 2017 on the proposed pedestrian crossing installation outside the Carterton Medical Centre crossing State Highway 2.

Carterton District Council is delighted on the decision to go ahead with the crossing and fully endorses NZTA's proposal. We note the potential to adversely affect pedestrian traffic has been countered by the raising of the crossing promoting greater visibility and look forward to its installation.

The Council's Infrastructure and Services Committee considered the proposed crossing and noted the following:

- The raised crossing will make the crossing more conspicuous for traffic, but there is likely to be increased noise, particularly with trucks at night. Given there are few residences in the vicinity this may not be an issue.
- Bicycles – with the short length of the kerb extensions and the width between the islands, there should be no concerns for cyclists.
- Parking – there appears to be little change to the current parking except for the loss of one park in front of the medical centre. This is due to the no-stopping line being extended to 13.3m from the crossing. The minimum length of no-stopping is 6m and the desirable length is 15m. If a 5.5m parking bay was retained, a no-stopping length of 7.8m could be obtained.

Upon confirmation of the decision to proceed could you please advise Council of a tentative date for completion.

Regards,

Dave Gittings
Planning and Regulatory Manager
Carterton District Council

39228

7 March 2017

Swimming Complex Review

1. PURPOSE OF THE REPORT

To update the Committee on progress with the Carterton Swimming Club proposal to work alongside the Council to investigate joint opportunities for the adjoining facilities.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Council's Significance and Engagement Policy.

3. BACKGROUND

3.1 Council's Swimming Complex

The Council's swimming complex, on Pembroke Street, was first established in 1911. It was modernised in 1968 with subsequent improvements being provided in regard to treatment and filtration. Today it consists of three outdoor uncovered pools:

- a main pool of some 35 metres in length
- a learners' pool
- a toddlers' pool, partially covered.

Other improvements have been made in recent times, including the lining of the main pool (to minimise leakage), new pumps and a new chlorine dosing unit.

The facility caters for the general public, schools and is mainly used for recreational use.

The infrastructure is typical of an outdoor pool built and renovated in the last century using standard filtration and water circulation systems of that time although with improvements as mentioned above.

The pool complex is managed by the Council's Parks Department. An external contractor, Russell Geange Swimming and Academy, manages the day-to-day swimming activities.

One outstanding issue the pool complex has is the seismic strength of the changing facilities.

3.2 Carterton Swimming Club

An indoor pool sits alongside of the Council's facility and is owned and operated by the Carterton Swimming Club Incorporated (CSC) which is a registered Charitable Trust.

It was established circa 1980s. The facility is covered and heated (of size 25m by 8m incorporating 3 training lanes) and is used for learn to swim classes including school swimming and community key holders. The CSC uses the pool for club and competitive training purposes every day, all of the year around.

The CSC Trust rents the facility to a local training coach Russell Geange Swimming Academy (RGSA) who operates and manages the pool including the learn to swim and training classes.

The facility is stand alone in nature and there is no shared infrastructure between it and the Council's pools, and is sited on Council owned land. The current facility is in need of significant improvements.

4. UPGRADES TO THE POOLS

In 2016 the Council consulted the community, as part of the 2016/17 Annual Plan process, on options for addressing the outstanding issues associated with its changing facilities. The final Annual Plan included a project to work in partnership with the Swimming Club to investigate shared facilities.

5. REVIEW UPDATE

Since the adoption of the Annual Plan a Memorandum of Understanding has been signed by both the Carterton Swimming Club and Carterton District Council. The MOU provides for a Project Advisory Group to be set up to progress this project. The Project Advisory Group is now established and consists of Bill Sloane representing the swimming club, Russell Keys (Deputy Mayor) and Brian McWilliams, Parks and Reserves Manager.

The Project Advisory Group's next step is to complete a review of both the indoor pool owned and operated by the Carterton Swimming Club and the outdoor facilities owned and operated by the Carterton District Council. A project Manager, Jo Gillanders, has been contracted to lead this review. She is currently preparing a project plan. Ms Gillanders will oversee the investigations and prepare a draft report for consideration by the Advisory Group, then the Club and Council. A final report will then be presented to the Council and the Carterton Swimming Club Committee.

6. RECOMMENDATION

That the Committee:

1. **Receives** the report.

Brian McWilliams
Parks and Reserve Manager

7 March 2017

Operations Report to End February 2017

1. PURPOSE OF THE REPORT

For the Committee to receive an update on the Operations team's activities during January-February 2017.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Council's Significance and Engagement Policy.

3. WATER SUPPLY

3.1 Water use investigation

The Council is joining up with BRANZ along with several other Councils in a two year project to investigate how water is used in homes, to deliver robust information specific to New Zealand households. As well as understanding how, when and where water is used, it will also investigate socio-demographic, appliances/water end-uses, housing typologies and sizes and other households and regional characteristics.

This project will develop robust figures so the building and water industry can:

- Understand how, when and where water is used – end-use, outdoor and peak use.
- Explore the influence of demographic and climate variations on patterns of use.
- Investigate where and what water efficiency opportunities exist.
- Engage with councils, service providers and consumers.
- Support engineering calculations, models and forecasts.
- Enable informed discussions on water metering and demand management.
- Provide regional benchmarks for residential per capita consumption.
- Understand just how water conscious New Zealand actually is.

- Raise awareness of how water is used at home.

The overall outcomes of this research is increased water awareness – informing water efficiency programmes and driving behavioural and attitudinal changes to water use at home. Through demand management programmes and education, this will also prepare for, and enable longevity of water availability in times of shortage (i.e. drought, flooding or earthquake fault).

The information gained will assist our work to prepare a water conservation plan, which will be a condition of the new water supply consent.

3.2 Kaipatangata Water Supply

On the Saturday 18 February we had heavy rain in the hills of the Kaipaitangata catchment. It resulted in significant damage to the water supply infrastructure. Details are provided in a separate report to the Committee.

Staff responded incredibly well and the damage was repaired quickly.

4. WASTEWATER IRRIGATION

The irrigation season had been going well until the rain around mid-February. It was touch and go to whether we had to discharge to the Mangatārere Stream but this fortunately has been avoided.

During the rain the Mangatārere Stream was very high and the un-named stream next the wetlands overflowed flood water into the wetland.

5. SOLID WASTE

The Solid Waste Services Operations contract is on Tender Link and tenders will close 27 March 2017.

Consultation material is currently being developed to engage the Carterton community on future alternative waste collection options. We are working with Masterton and South Wairarapa District Councils on both the operations contract and the community engagement material.

6. WATER AND WASTEWATER MAINS REPLACEMENT

The water and wastewater mains replacement at Waingawa was delayed due to location of a fibre optic cable. This cable has been located and work will be completed by 10 March 2017.

High Street South water main renewal will start 20 March and will be completed by 30 June 2017

7. RECOMMENDATION

That the Committee:

1. **Receives** the report.

Garry Baker
Operations Manager

7 March 2017

CARTERTON WASTEWATER PROJECT – CONSENT APPLICATION UPDATE AND GOVERNMENT FUNDING OPPORTUNITY

1. PURPOSE OF THE REPORT

To update the Committee on progress towards re-consenting the Carterton wastewater treatment plant (WWTP) and disposal activities, and to present to the Committee an opportunity for government funding assistance for the upgrade.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Council's Significance and Engagement Policy.

3. SUMMARY

The resource consents for the Carterton WWTP and effluent irrigation scheme expire in October 2017. The deadline for submitting new consent applications to enable continued exercise of the current consents while the application is being processed is 14 April 2017. A multi-discipline project team has progressed investigations and developed a preferred option that will now form the basis of Carterton District Council's (CDC's) consent application. The final stages of investigations and consent documentation are near completion.

4. BACKGROUND

The Carterton WWTP operates under a suite of short –term resource consents issued in 2013, covering discharges to air, land, water and groundwater. In addition, irrigation of treated effluent on Daleton Farm was consented in 2014. All consents are short-term, expiring 14 October 2017, with the target date for applications to be made to renew the consents no later than 14 April 2017.

Investigations and consultation towards development of a preferred option for future treatment and disposal of Carterton's municipal wastewater have progressed over the past four years. A key element of that has been the need to reduce adverse effects of the discharge on the receiving environment, namely the Mangatarere Stream. Concerns regarding the effects of past effluent discharge led to the short-term consents issued in 2013. At that stage, the method of wastewater treatment and disposal was confined to the tertiary WWTP processes located on the designated site fronting Dalefield Road. The three stage treatment

process was followed by seasonal disposal of a relatively small proportion of the final effluent on approximately 3.0ha of land adjacent to the WWTP, and a larger proportion to an unnamed drain discharging to the Mangatarere Stream. The Daleton Farm property, purchased in 2012, was unconsented and undeveloped. As now, discharge to stream was conditional on higher flow rates in Mangatarere Stream.

Early in 2014, Council adopted a long term vision of removing all effluent discharges to water. Since then the optimised development of Daleton farm has become the primary focus of investigations as a step towards this, and underpinning option development for the 2017 consent renewal process. The first stage of deficit irrigation, over an area of approximately 20ha via a "smart" centre pivot irrigator, was consented and installed in 2014.

Other developments since 2014 have included:

- UV high flow upgrade completed in October 2014
- Land use consents obtained 2014/15 – Earthworks, dripline & windspeed
- Amenity wetlands channel excavations completed in 2014 and drylands planting commenced
- Cover fitted to anaerobic digester 2014
- Existing pond storage capacity increased 2014
- Shelter belt planted 2014 -eastern boundary
- Dripline installed April 2015
- Inflow and Infiltration programme established and implemented
- Back-up aeration capacity installed 2015
- No stream discharge Dec –May inclusive

5. PREFERRED OPTION

The wastewater strategy, preferred option and cost estimates were fully reported to Council at its meeting of 14 December 2016. The preferred option centres on optimisation of Daleton farm for wastewater treatment, reuse, and managed discharge to the Mangatārere Stream. Optimisation of Daleton Farm aims to ensure:

- doubling of the irrigation area
- reduction in the number of days discharging to stream from approximately 240 days currently to less than 50 days
- discharge volume to land doubled from approximately 18% currently to 35%
- balancing of storage volume and irrigable area

- that peak flows can be buffered in storage and irrigated when conditions are such the environmental impact would be no more than minor
- that the discharge point is selected to minimise potential environmental effects
- that the preferred option is achievable and affords maximum certainty for CDC, GWRC and the community over sustainability, environmental protection, effects mitigation, economic and cultural considerations, and risk management of the issues attaching to those considerations.

The key elements and order of priority of the preferred option include:

a. Construction of a three-cell sequential batch reservoir. Now timed for the 2018/19 construction season, the reservoir will have a combined capacity of 200,000 cubic metres. Additional storage is an essential precursor to additional land irrigation. The reservoir has been sized to the land area available for irrigation at Daleton Farm. In addition, it will enable a managed discharge to the stream when stream flows are high. The three-cell design will also achieve enhanced effluent quality through the sequential "fill – rest – empty" regime.

b. Relocation of the point of discharge into the Mangatārere Stream: The current outfall discharges into an unnamed tributary of the Mangatārere Stream adjacent to the wastewater treatment plant. It is proposed to re-locate the point of discharge downstream to the true left bank of the Mangatārere Stream just upstream of the State Highway 2 bridge, in conjunction with construction of the above reservoir. Flows in the Mangatārere Stream, measured at the SH2 bridge (i.e. close to the proposed point of discharge), are substantially higher than those at the point where the tributary joins the Mangatārere Stream.

c. Discharge to the stream only in high stream flow events: It is proposed that tertiary treated wastewater will discharge to the Mangatārere Stream only in stream flows at or above three times median flow and in stream flows above two times median flow during times of exceptionally high inflows to the WWTP which are unable to be irrigated to land or stored in the reservoirs

d. Installation of a second centre-pivot irrigator and additional non-pivot irrigation equipment: This will enable land irrigation of a further 20-30 hectares of Daleton Farm.

All components of the upgrading works are scheduled to be in place by mid-2020. The key components and draft programme for that include:

- Complete detailed design of reservoir – commenced 2016/17. Complete 2017/18
- Refurbish treatment wetlands – current 2016/17
- Obtain consent – 2017/18
- Construct substitute ephemeral channel – 2017/18

- Install power supply – 2017/18
- Construct reservoir - 2018/19
- Construct discharge pipeline - 2019/20
- Construct SBR sludge pond and pipeline to sludge thickener/digester – 2019/20
- Add chemical dosing & filtration UV Plant – 2021/22
- Construct 2nd pivot - 2020/21
- Develop amenity wetlands – on-going.

Compared with the current discharge regime, the combination of a higher standard of tertiary treatment, on-site storage, irrigation to land 5-7 months of the year, storage up to 6 months of the year, high-stream flow-only discharge over approximately one month of the year, and re-located discharge point, will mean improved water quality in the short term in the Mangatārere Stream receiving environment (as measured by chemical composition, periphyton growth and macroinvertebrate health). The effects of the improved discharge are assessed to be negligible.

Aspects of the current discharge regime will be required to continue for a short period until all of the components are in place. For example:

- Until the re-located Mangatārere Stream discharge outfall and pipeline are operational, winter time discharge from the wastewater treatment plant will continue to be from the existing treatment wetland via the existing outfall into the unnamed tributary of the Mangatārere Stream (i.e. until the end of the 2018/2019 summer);
- Until the second centre pivot is installed, treated wastewater can only be irrigated to the existing 20-hectare irrigation area, which will increase volumes required to be treated and held within the Sequential Batch Reservoirs compared with the ultimate design intention. This means that, for a short period, it may be necessary to manage volumes held within the site by discharge via the existing outfall to the unnamed tributary (as currently).

Beyond 2021/22, works associated with Stage 3 of the strategy are more modest, with the exception of a proposed large storage reservoir (800,000m3) notionally scheduled for the 2041-45 period. Investigations of potential land suitable for the construction of the reservoir precede that.

The consenting framework was also reported to Council's 14 December 2016 meeting. The preferred option forms the basis of the consent application, as the 'best practicable option". The assessment of effects of the activity on the environment, and how they will be avoided, remedied or mitigated, have been drawn from the preferred option.

6. FRESHWATER IMPROVEMENT FUND

Separate to, but in parallel with, the above detailed investigations and consenting processes is Central Government's recent announcement regarding the availability of a Freshwater Improvement Fund (FIF). The fund sits on the back of the Government's freshwater reforms, in particular its proposals in respect of its river "swimmability" target (90% of rivers swimmable by 2040).

Under the fund, the Government has committed $100M over 10 years, of which approximately $24.5M is available in the first round. Applications for the first round close 13 April 2017 – the same date the above consent applications will be submitted (14 April is Good Friday). That leaves just four weeks from the date of this meeting (15 March 2017) to complete a marathon-like application that contains strict eligibility criteria, but otherwise is a very good match with the Carterton wastewater project objectives and implementation timetable. Further, application feedback is available only if applications are submitted at least three weeks before the closing date – i.e. by 23 March 2017.

Eligible projects must exceed $400,000 in value, with FIF funding available at the rate of 50% of the total qualifying cost over five years. So for the prosed Carterton project, with a forecast improvement cost of approx. $6.5M over the next five years, FIF funding could amount to $3.25M.

An early hurdle is that the fund is targeted at "vulnerable" catchments that have are showing signs of stress but have not yet reached a so-called "tipping point". None of the main rivers or streams in the Wairarapa are classified as "vulnerable" under the Minister for the Environment's criteria. Applications for projects in areas not identified as vulnerable but otherwise meet all eligibility criteria will, however, also be assessed as a second priority.

The eligibility criteria are:

1 The project must contribute to improving the management of New Zealand's freshwater bodies.

2 The project must meet one or more of the following:

- achieve demonstrable co-benefits such as:
- improved fresh, estuarine or marine water quality or quantity
- increased biodiversity
- habitat protection
- soil conservation
- improved community outcomes such as to recreational opportunity or mahinga kai
- reduction to current or future impacts of climate change

- reduced pressure on urban or rural infrastructure
- increase iwi/hapu, community, local government, or industry capability and capacity in relation to freshwater management
- establish or enhance collaborative management of fresh water
- increase the application of mātauranga Māori in freshwater management
- include an applied research component that contributes to improved understanding of the impacts of freshwater interventions and their outcomes.

3 The minimum request for funding is $200,000 (excluding GST).

4 The fund will cover a maximum of 50 per cent of the total project cost.

5 The project will be funded for a maximum period of up to five years after which the project objectives will have been achieved or the project will be self-funding.

6 The project must achieve benefits that would not otherwise be realised without the fund or are not more appropriately funded through other sources.

7 The effectiveness of the project and its outcomes will be monitored, evaluated and reported.

8 An appropriate governance structure in place (or one will be established as part of the project).

9 The applicant must be a legal entity.

A draft application is currently under preparation.

7. RECOMMENDATIONS

That the Committee:

1. **Receives** the report.

2. **Notes** the update report on consenting progress for the Carterton Wastewater treatment plant.

3. **Notes** that the Carterton Sustainable Wastewater Project may qualify for funding under the recently announced Government Freshwater Improvement Fund, and that an application for the first funding round is currently being prepared.

Greg. Boyle

PROJECT MANAGER

7 March 2017

Progress with Kaipatangata Water Supply Consent and Impact of Recent Storm Event

1. PURPOSE OF THE REPORT

For the Committee to receive an update on the progress with the water supply consent application, and information about the impacts of the recent storm event.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Council's Significance and Engagement Policy.

3. KAIPATANGATA RESOURCE CONSENT APPLICATION

Consent to take water from Kaipatangata Stream expired March 2013. The Council lodged an application with the regional council in 2012 for the continued abstraction from the stream. The original consent still applies until the new consent is granted.

Under the existing consent the following maximum abstraction rates are:

- 5,000m^3/day
- 60 l/s when stream below 100l/s (Mean Annual Low Flow – MALF)

Under the application the maximum abstraction is:

- 4,000m^3/day
- 50% stream flow
- No take below stream flow 100l/s

The application was notified and there were four submissions lodged. Discussions with these submitters and the regional council have continued over the past four years, with more information gathered and mitigation measures agreed. Of the agreed mitigation measures three are underway or are programmed for the current financial year. These are:

- The construction of a fish passage over the weir

- The installation of a wetland
- Water conservation measures started, including leak detection.

In late 2016 the Council sought from Greater Wellington Regional Council, and was granted, an additional summer monitoring period to further assess the low flow implications and effects of a modest summer / low flow water take from the Kaipatangata Stream. To date, and especially following the storm event (see below), appropriate low flow conditions for sufficient duration have not occurred.

Nevertheless, the consultant ecologist Brett Stansfield is currently scheduled to be on site during the week of 13 March and will take whatever measurements are possible, with the expectation that ideal conditions will have occurred by that time. Flow monitoring will need to be in place to maximise the information from those surveys.

Officers are anticipating the consent will be granted once the additional monitoring information has been provided to the regional council.

4. IMPACT OF THE STORM EVENT 17/18 FEBRUARY 2017

On 17/18 February 2017 the Kaipatangata catchment experienced a short duration, high intensity rainfall event that had devastating effects. The charts and pictures in **Attachment 1** provide illustration of this event.

Rainfall records were taken from Greater Wellington Regional Council recorders at the Waiohine Gorge and Mangatārere Stream at Valley Hill. These two sites span the Kaipatangata Catchment and the records are similar enough to give a reasonable confidence that the rainfall at the recording sites was similar at the Kaipatangata Stream.

With reference to the first of the attached illustrations, the chart with multiple lines on it, the first point to note is that based on the on-line GWRC rainfall records, the event was not a particularly intense one. The lines which have the same curved shape and which are labelled 1.58,2,5,10...etc. are the return interval events. So for example, an event with the intensity of the yellow line could be expected (on average) once every 10 years. The green line is the logged actual event data, which appears to be no more than a 1 in 5 year event, (grey line is the 1 in 5 year return intensity which the actual event line is either on or below).

Yet the flows and damage experienced indicate that this was an event which occurs much less frequently. Two possible explanations for this are: the rainfall history leading up to the event; or the short duration intensity (the GWRC records only log down to hourly intervals). So if the logged hourly rainfall occurred evenly over the hour, that is very different than if it occurred mainly over say a 20minute or 30minute period.

The sheet labelled event size compares the previous rainfall history from 1 January 2017 to the 18 February 2017 event (marked with red circle), to a typical winter time rainfall history during 2016 chosen at random: 1 July to 18 August 2016. Although the scales are different, other than the single hourly peak for the 18 February event, the previous rainfall histories are

not too dissimilar. The initial conclusion is therefore that it was not the medium term previous rainfall which made this event so damaging.

The other possibility is that it was the short duration intensity which was the issue. In hydrology, the peak flow which will come out of a catchment as the response to rainfall events is considered to be the most intense event that will occur when all parts of the catchment are contributing to the flow, in other words the time that it takes a drop of rain falling on the furthest reaches of the catchment to reach the point of interest, (in this case the water intake structures and dam).

The third sheet, labelled "Estimated Tc" shows the long narrow Kaipatangata Catchment and standard calculations based on this shape and slope estimate the time of concentration to be some 20-30 minutes. If the peak rainfall experienced in this event, some 27mm, occurred not over 1 hour as logged by the GWRC recorders, but over 30 minutes, then that would make it a 1 in 30 year event. If it occurred over 20 minutes that would make it a 1 in 80 year event, and if over less than 20 minutes it would be a greater than 1 in 100 year event. The quantity would not have changed, but the intensity (quantity in unit time) would.

The initial conclusion, then, is that it was the short term intensity which was the likely cause of the significant flow and damage, as the same event passed over NZET offices on the Saturday and the extreme short duration intensity was noticed and actually photographed as it was so heavy. The would however have been exacerbated by the fact that there was a similar event only some 20 hours prior and the ground would have had a high level of residual saturation from that prior event.

Inspection of the flow recorder at the Kaipatangata water treatment plant shows a flow of 2392L/s (2.3m^3/s -not particularly high), was recorded at 1522 on 18 Feb and then the reading was static at that value. Assuming a flood flow velocity of 4m/s and based on the observed channel width and flood height a more realistic maximum flow at the WTP weir would have been in the order of 84m3/s. The peak flow recorded at the Mangatārere Stream at SH2 was 237m3/s of which under normal conditions, the Kaipatangata would comprise approx. 1/3. The Mangatārere Stream at the Gorge flow gauging site recorded 150m3/s at 1545 on the 18th February before its flow measuring capacity was destroyed. The Waiohine River at the gorge also recoded a maximum flow of 140m3/s at 1530 on the 18th February.

5. DAMAGE CAUSED BY THE STORM EVENT

The primary damage occurred to the water intake structures. Two concrete intake structures were washed away and had to be replaced, one low weir has been replaced and the measuring weir opposite the main treatment plant has washed away. Officers will work with Greater Wellington Regional Council on a replacement of the measuring weir. Once supply is back on line the timber debris will be cleared and then the metal taken out of the dam.

Other items to note are:

- The dam performed a very useful task in keeping many of the larger logs and a substantial quantity of the gravels retained from passing further downstream. It

almost certainly would have also provided some attenuation of flows, even if only to reduce the upstream velocity as the flood waters entered the large ponding area. This reinforces the value of retaining the dam, if for this reason alone.

- The dam face was inspected at a distance by NZET using a drone on 1 March 2017. As it had retained some extremely large logs, (refer upper photo on the last page of **Attachment 1**), there was a risk that some of these could have struck the dam with some velocity and weakened it structurally. There was fortunately no evidence of this, although a closer inspection will be carried out once the debris has been cleared away and flows have reduced.
- Had the proposed fish ladders been installed, it is very likely that they would have been totally obliterated by this event.
- The river banks around the water treatment plant were also inspected. The timber tank reservoir, especially, is built on an elevated platform of fill material and is located immediately adjacent to the stream banks. Although a small area of localised scour was evident (see bottom right photo in **Attachment 1**), this was well removed from the reservoir platform and, other than the flow measuring weir which was destroyed, (bottom left photo), appears to be the only damage which occurred in this section of the stream.

RECOMMENDATION

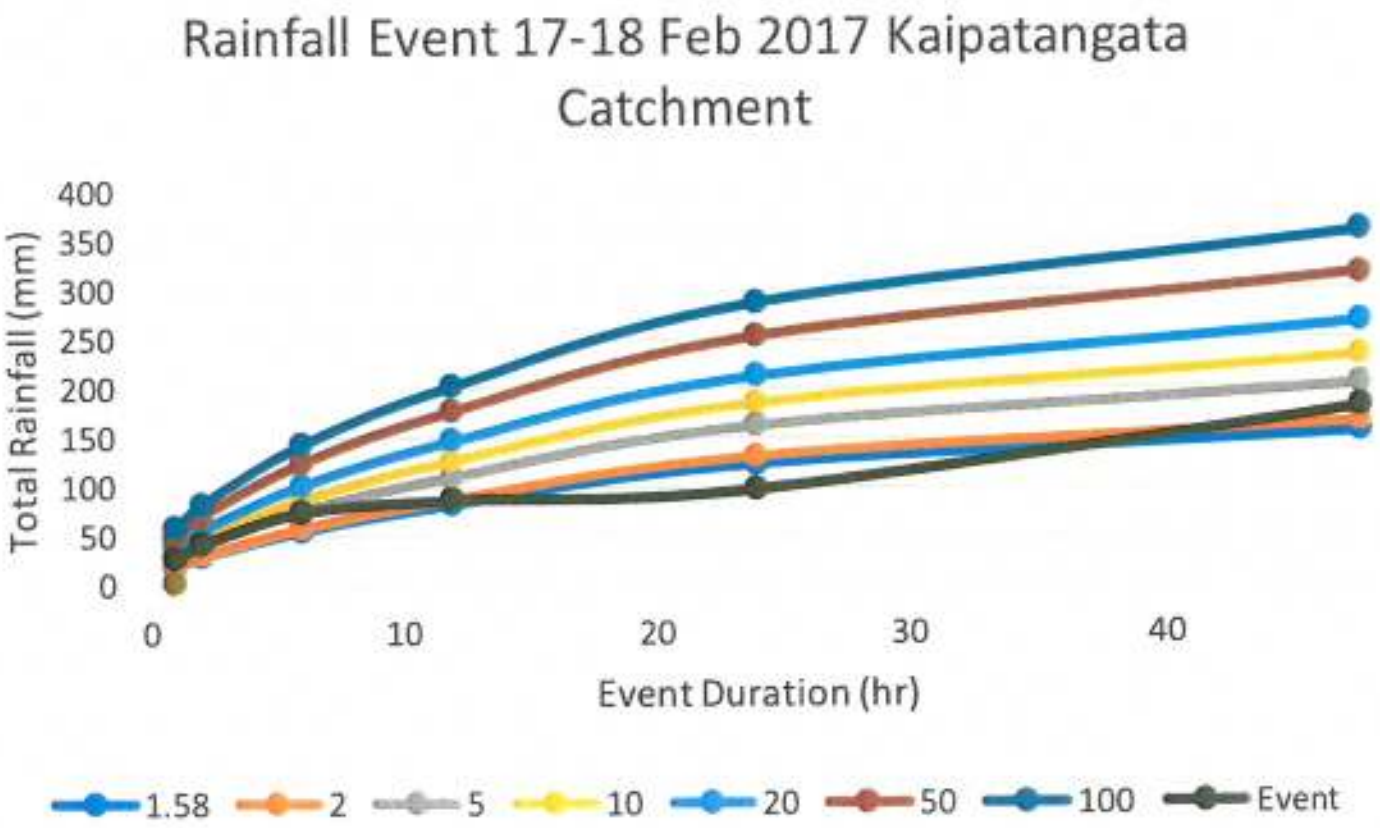
That the Committee:

1. **Receives** the report.

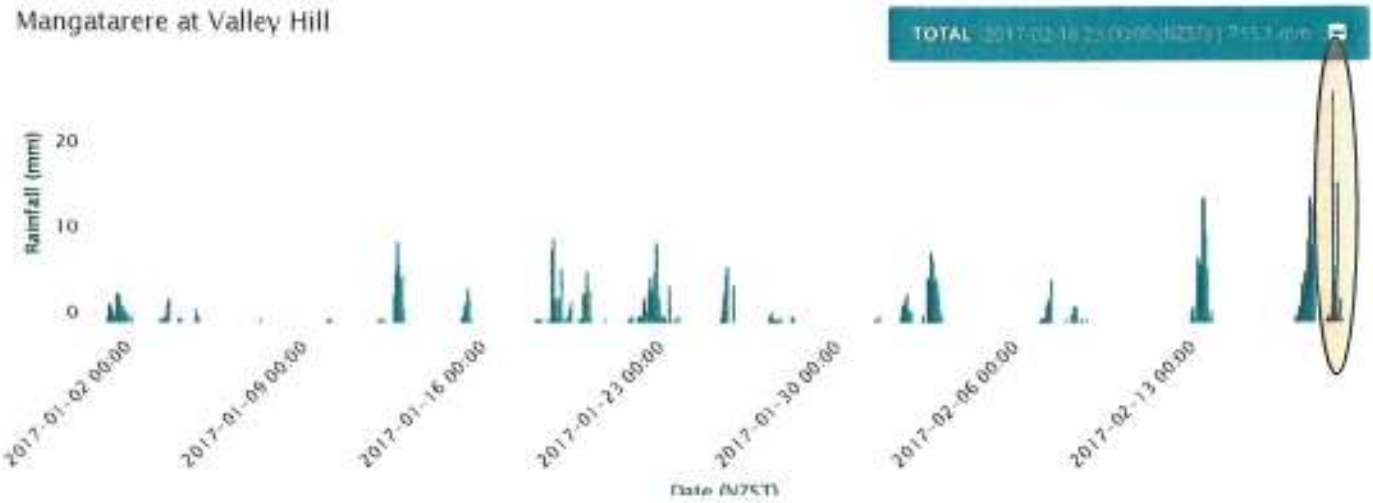
Garry Baker
Operations Manager

Stu Clark
Water Services Adviser

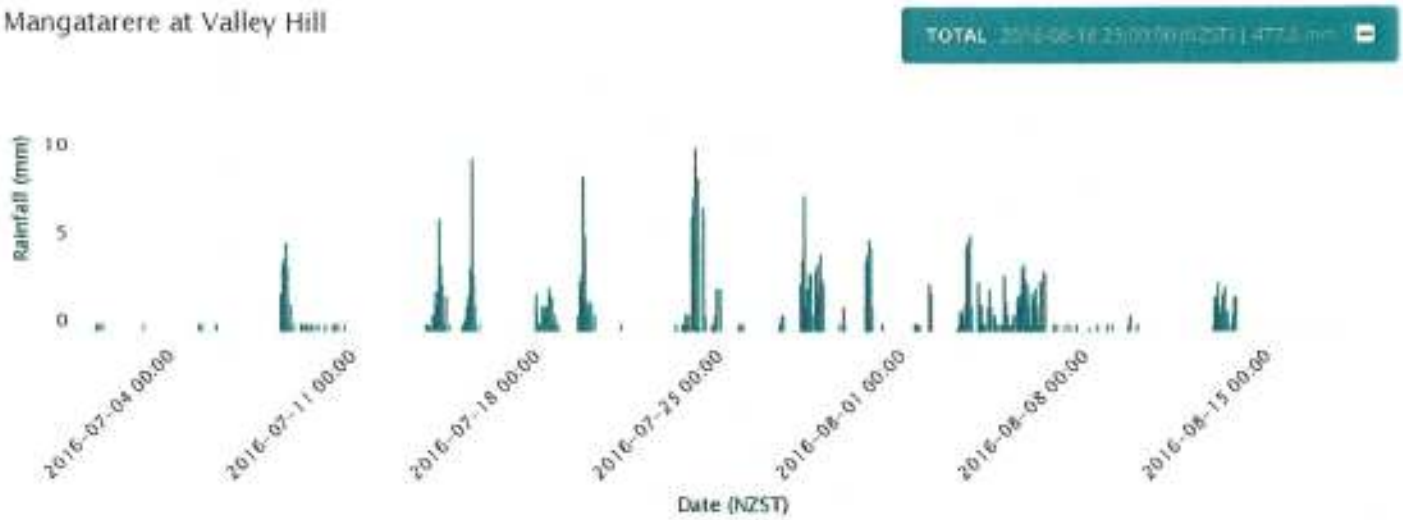
Attachment 1: Storm event charts and pictures


Rainfall Event 17-18 Feb 2017 Kaipatangata Catchment
Total Rainfall (mm)
400
350
300
250
200
150
100
50
0
0
10
20
30
40
Event Duration (hr)
1.58
2
5
10
20
50
100
Event

Mangatarere at Valley Hill

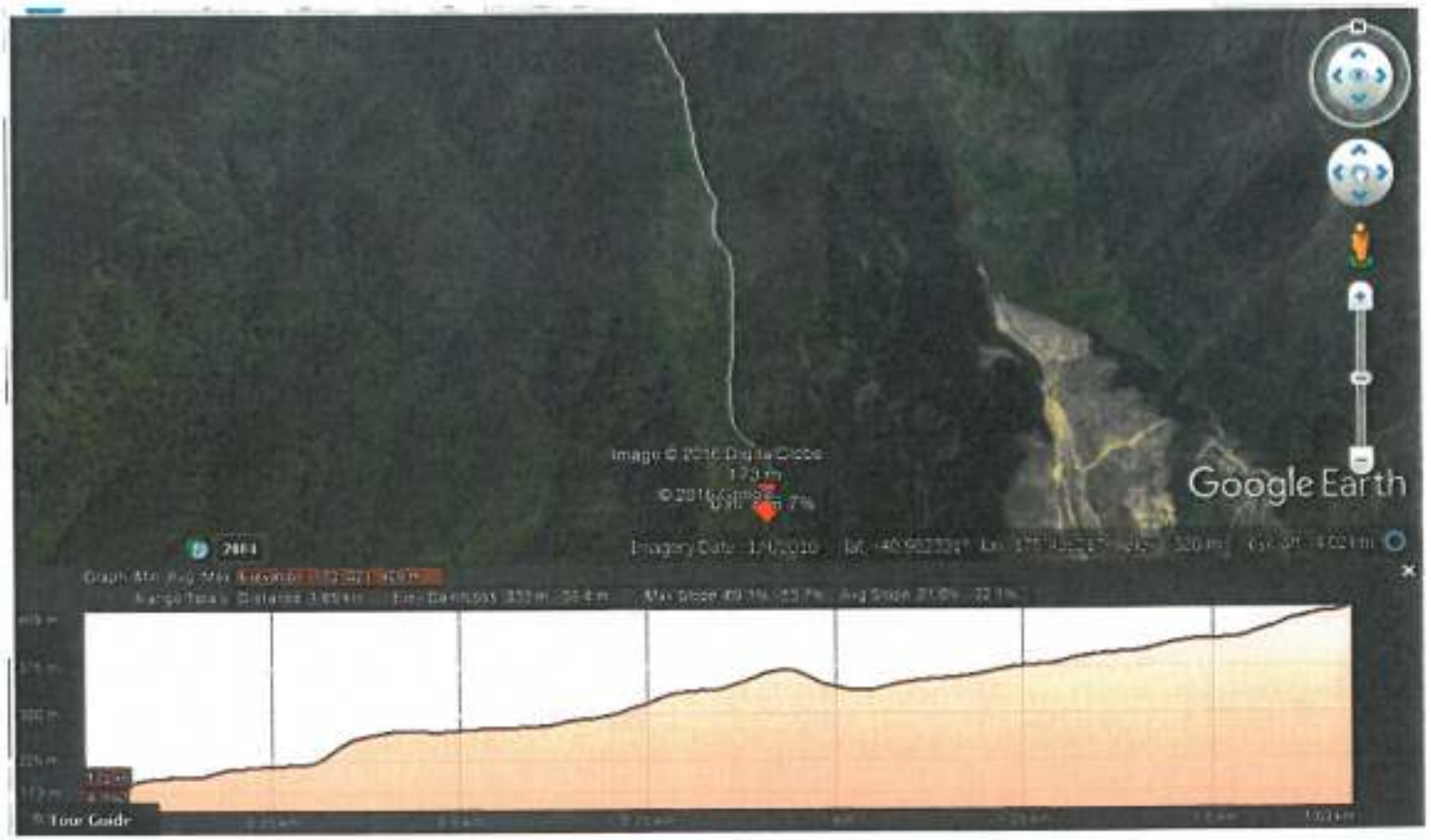


Mangatarere at Valley Hill



Results for Kaipatangata Catchment
Download this file as CSV
Depth-Duration-Frequency results (produced on Saturday 4th of March 2017)
Sitename: Kaipatangata Catchment
Coordinate system: NZMG
Easting: 2715151
Northing: 6022064
Rainfall depths (mm)

		Duration									
ARI (y)	aep	10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	6.1	9.4	12.2	19.0	28.5	54.4	81.7	122.9	153.3	174.5
2.00	0.500	6.7	10.3	13.4	20.8	31.0	58.8	87.9	131.5	164.1	186.8
5.00	0.200	8.8	13.6	17.6	27.4	40.3	74.6	110.0	162.2	202.4	230.4
10.00	0.100	10.5	16.4	21.2	32.9	48.0	87.4	127.6	186.3	232.5	264.6
20.00	0.050	12.6	19.5	25.2	39.2	56.7	101.7	147.1	212.8	265.6	302.3
30.00	0.033	13.9	21.6	27.9	43.3	62.3	111.0	159.7	229.8	286.7	326.3
40.00	0.025	14.9	23.2	30.0	46.5	66.7	118.0	169.2	242.5	302.6	344.4
50.00	0.020	15.8	24.5	31.7	49.2	70.3	123.8	176.9	252.8	315.5	359.1
60.00	0.017	16.5	25.6	33.1	51.4	73.3	128.7	183.4	261.6	326.4	371.5
80.00	0.012	17.7	27.5	35.6	55.2	78.4	136.7	194.3	276.0	344.3	391.9
100.00	0.010	18.7	29.0	37.6	58.3	82.6	143.4	203.1	287.7	358.9	408.5



Channel length 1.69km

Average slope 21%

Estimated Tc 20-30min