

# TO THE MAYOR AND COUNCILLORS OF THE MACKENZIE DISTRICT COUNCIL

## Membership of the Asset and Services Committee:

Cr James Leslie (Chairman) Claire Barlow (Mayor) Cr Noel Jackson Cr Evan Williams Cr Russell Armstrong Cr Murray Cox Cr Graham Smith

Notice is given of the Meeting of the Asset and Services Committee to be held on Tuesday, September 1, 2015, at 9.30am

**VENUE:** Council Chambers, Fairlie.

BUSINESS: As per agenda attached

WAYNE BARNETT CHIEF EXECUTIVE OFFICER



# ASSET AND SERVICES COMMITTEE

Agenda for Tuesday, September 1, 2015

## APOLOGIES

## **DECLARATIONS OF INTEREST**

**VISITOR:** Road Safety Co-ordinator Daniel Naude will attend to present his report at 9.30am.

#### MINUTES:

Confirm and adopt as a correct record the minutes of the Asset and Services Committee meeting held on July 23, 2015, including those matters taken in public excluded.

Confirm and adopt as a correct record the minutes of the **Extraordinary** Asset and Services Committee meeting held on August 11, 2015, including those matters taken in public excluded.

## **REPORTS:**

- 1. Road Safety Coordination Report from Daniel Naude (attached).
- 2. Asset Manager's Monthly Report September (attached).
- 3. Sealing Past Houses Policy (attached).
- 4. Twizel Wastewater Treatment Upgrade (attached).

## PUBLIC EXCLUDED:

<u>Resolve</u> that the public, be excluded from the following part of the proceedings of this meeting namely:

1. Tender for the drive booster shed construction and pump installation (attached).

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
Tender for the drive booster shed construction and pump installation (attached).	Commercial Sensitivity	48(1)(a)(i)

Public excluded minutes Asset and Services July 23	Enable commercial negotiations	48(1)(a)(i)
Public excluded minutes Asset and Services August 11	Enable commercial negotiations	48(1)(a)(i)

This resolution is made in reliance on Section 48(1)(a)(i) 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, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as follows: *Tender for the Drive booster shed construction and pump installation under section 2(b)(ii)*, *Public excluded minutes July 23 and August 11 under section2(i)*.

ADJOURNMENTS: 10.30am - Morning Tea 12pm - Lunch

# MACKENZIE DISTRICT COUNCIL

## MINUTES OF A MEETING OF THE ASSET AND SERVICES COMMITTEE HELD IN THE COUNCIL CHAMBERS, FAIRLIE, ON THURSDAY, JULY 23, 2015, AT 9.47AM

#### PRESENT:

Cr Evan Williams (Deputy Chairman) Mayor Claire Barlow Cr Graham Smith Cr Murray Cox Cr Noel Jackson

#### IN ATTENDANCE:

Wayne Barnett Suzy Ratahi Geoff Horler Julie Jongen

### **APOLOGIES:**

Apologies were received Cr James Leslie and Cr Russell Armstrong

Cr Smith/Mayor

#### **DECLARATIONS OF INTEREST:**

There were no declarations of interest.

#### **MINUTES:**

<u>Resolved</u> that the minutes of the meeting of the Asset and Services Committee held on April 28, 2015, including those parts taken in public excluded, be confirmed as an accurate record.

## PUBLIC EXCLUDED:

#### Mayor/Cr Cox

<u>Resolved</u> that the public, be excluded from the following part of the proceedings of this meeting namely:

1. Mid-South Canterbury Road Maintenance Contract Collaboration

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
Mid-South Canterbury Road Maintenance Contract Collaboration	Enable commercial negotiations	48(1)(a)(i)

This resolution is made in reliance on Section 48(1)(a)(i) 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, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as follows: *Mid-South Canterbury Road Maintenance Contract Collaboration* (7)(2)(*i*)

#### ASSET MANAGERS MONTHLY REPORT

The purpose of this report was to update the Asset and Services Committee on the progress on various projects and also the normal operation of the department for the past month. The following matters were included in the discussion of this report:

<u>Resolved</u> that the report be received.

#### Mayor/Cr Smith

Cr Smith mentioned that the expenses didn't seem too high in regards to power, but it seems the estimates were more on the higher side. Geoff Horler confirmed that the Twizel water upgrade stage one is on target with the expected dates. The new generator has had a few issues which the supplier is continuing to look in to.

Cr Williams commented about the reduction of pipe sizes. Mr Horler said there are recommendations to increase pipe sizes but Council will need to await Bernie Haar's return from leave. He questioned why the usage of the sewage pond by the rowing club has stopped. The reason is there was no resource consent to use the pond, it has always been an unconsented pond and E-Can have requested there be no further usage of the pond.

The invoice from E-Can for the Twizel water consent was never sent to Council, this was received a few years after the consent came into being so Mr Haar negotiated the invoice payable to be reduced by half. A public meeting for Manuka Terrace water supply will be arranged when Mr Haar returns.

Twizel oxidation ponds will be more expensive than originally thought as they are going to be piped underground as opposed to above the ground.

Roading – Suzy Ratahi spoke on this report. There were considerable issues with frosts heavy on Braemar Rd, Glen Lyon Rd, Lilybank Rd and Manuka Terrace.

Cr Smith mentioned that ongoing drain clearing of our surface water tables and grading has certainly improved our roads over time.

Cr Cox questioned about the "one off" odour issue with the Tekapo sewage ponds. Mackenzie District Council are one of the few councils that allow contractors to put septic directly into the ponds. It is an area that needs to be looked into as to where else the waste could be discharged into the system.

Mr Horler mentioned E-Can will be looking at doing their review with the Orari-Opihi-Pareora Water Zone Regional Plan in 2018. Lake Opuha is very low for this time of the year, and will likely result in earlier water restrictions.

<u>SOLID WASTE</u> – Angie Taylor spoke on this. Looking forward to the new auto-sort recycling line opening up. The Mayor asked about the compost bins and if there will be more available. Ms Taylor replied that the uptake was great and all 50 bins have been issued with only one person on the waiting list for a bin.

Ms Taylor is doing an audit on kerbside waste to see what/where waste is coming from and then will try and do an education on reducing any specific waste issues.

Letters have been sent to residents in Albury that the Saturday waste collection service will no longer be available.

Cr Cox and Cr Jackson wanted to thank Envirowaste for their collections during the snow and hazardous road conditions.

### THERE BEING NO FURTHER BUSINESS THE CHAIRMAN DECLARED THE MEETING CLOSED AT 10.53am

CHAIRMAN:	
DATE:	
	Y

# MACKENZIE DISTRICT COUNCIL

## MINUTES OF A MEETING OF THE ASSET AND SERVICES COMMITTEE HELD IN THE COUNCIL CHAMBERS, FAIRLIE, ON TUESDAY, AUGUST 11, 2015, AT 11.30AM

#### PRESENT:

Cr James Leslie Cr Evan Williams Cr Murray Cox Cr Noel Jackson Cr Russell Armstrong

#### IN ATTENDANCE:

Wayne Barnett Suzy Ratahi Julie Jongen

#### **APOLOGIES:**

Apologies were received from Mayor Barlow, Cr Smith.

#### **DECLARATIONS OF INTEREST:**

There were no declarations of interest.

#### PUBLIC EXCLUDED:

Resolve that the public be excluded from the following part of the proceedings of this meeting namely:

CONTRACT 1226 (TDC CONTRACT 2191) ROAD RESURFACING 2015-2017

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
Contract 1226 (TDC Contract 2191) Road Resurfacing 2015- 2017	Enable commercial negotiations	48(1)(a)(i)

#### This resolution is made in reliance on Section 48(1)(a)(i) 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, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as follows: *Contract 1226, Road Resurfacing 2015-2017, (7)(2)(i)*

#### Cr Williams/Cr Armstrong

#### THERE BEING NO FURTHER BUSINESS THE CHAIRMAN DECLARED THE MEETING CLOSED AT 11.45am

CHAIRMAN:

DATE:

# MACKENZIE DISTRICT COUNCIL

**REPORT TO:** ASSETS AND SERVICES COMMITTEE

**FROM:** ASSET MANAGER

SUBJECT: ASSET MANAGER'S MONTHLY REPORT

**MEETING DATE:** 2<sup>nd</sup> SEPTEMBER 2015

**REF:** WAS 1/1

**ENDORSED BY:** CHIEF EXECUTIVE OFFICER

#### **REASON FOR REPORT**

To update the Assets and Services Committee on the progress on various projects and also the normal operation of the department for the past month.

#### **<u>RECOMMENDATION</u>**:

1. That the report be received.

BERNIE HAAR ASSET MANAGER WAYNE BARNETT CHIEF EXECUTIVE OFFICER

# ASSET MANAGEMENT

## PROJECT PROGRESS

The table below sets out the work progress and decisions required.

Item	Outcome
1) Twizel water Supply Upgrade.	
Filtec presently carrying out workshop fabrication in Auckland. Will re-establish on site at end of July. Transformer upgrade may be delayed as Alpine Energy having to deal with additional winter storm damage. Not critical until summer water demand occurs.	Filtec back on site. Old pressure tanks removed through roof and new equipment for WTP lowered through the roof. Refurbished Amiad filter has arrived back. New larger transformer to be installed by Alpine Energy at end of August.
2) Twizel Water –	
Cryptosporidium Testing Sampling / testing continuing. None detected to date. No action yet on approach to Rhoboro Downs owner. It is hoped that ECan action on stock water races will not affect	Sampling/testing on-going. Half way through the procedure and results all clear to date. When testing completed the DWA will be approached to have the Protozoa log credit requirement lowered to three (3).
3) Twizel Water Supply - Borefield	
Some wiring renewed. Full renewal as part of the borefield upgrade. Offer of service has been accepted. Cable provision is not urgent.	Request from Opus to MDC for any easement plans, cable location plans, etc to help with new route for cable from WTP to borefield transformer.
4) Twizel -	
Reticulation Modelling and AC Pipe Replacements.	
Copy of final report has been received from Christchurch office. The report has a section that mentions pipes on the AC pipes replacement programme that require to be upsized. Offer of service accepted. The template will need to cover issues such as laying position, cover for frost protection, etc.	Template expected to be completed by 31st August. The Year 1 work needs to miss the peak time activity in Mt Cook Street.

5) Twizel – The Drive Pressure	
Improvements.	
Pumps operating characteristics supplied in report. Pumps are being supplied separately and tenders close 30 June at MDC offices. Pump station design is underway. BH/GH confirmed that reserve status is Reserve (passive) and utilities are permitted. Has been checked with Planning. Site has not been a landfill site. Proposed programme has been issued. Acknowledged that time is very tight and Whitestone Contracting will be asked to price. Negotiations if necessary.	Pump Station cost way above initial estimate for various reasons. Whitestone for removal of the items. Opus to keep in mind the size of the project when adding these items to the contract documents.
6)Tekapo Reservoir – Recoat interior	
Geoff to report to Community Board stating reason for work not being carried out, and to get allocated money transferred for this financial year. Planning for work to be carried out – Reducing water usage, temporary storage, etc.	Report went to the Community Board. MDC can dump water to a water race and can control water demand through various measures. Opus to provide shutdown time for the work. The Contractor requires a week. If the water demand is controlled for 2 weeks this will allow for water shutdown, start up, lining work, and a couple of days float.
7) Fairlie Reticulation Renewals	v
	Locations decided. Opus to provide plans and documents. MDC will call tenders and supervise works
8)Fairlie Water Supply – New	
source. All piping and turbidimeter installed. Electrician to wire up turbidimeter and testing can start.	Installation complete and data being recorded.
Cello data logger will be downloaded once a month.	

## Twizel Oxidation Ponds

Separate report on the agenda.

## Long Term Plan

With the adoption of the Long Term Plan the total hours spent by the asset management

team on developing the 30 year infrastructure strategy, the AMPs and work associated with developing the LTP has exceeded 1600 hours.

## **ROADING**

## **General Maintenance**

The mild August weather allowed some maintenance metalling to be carried out, with high complaint areas on School and Nixons Road being treated with rotten rock material, these are areas that had been scheduled in previous seasons, but the onsite monitoring showed that gravel loss on the existing road was not yet at a point of requiring further work. Staff hope to see the same benefits received on Mount Nessing and Hamilton Road trial spots of; hard wearing, low dust generating, fines producing and a low grading return cycle. The section on both Mount Nessing and Hamilton Road performed well over this last cold winter with no obvious areas of concern for frost heave, despite the high clay contact. Occasionally in periods of wet weather the material has observed to become "sloppy" but the skid resistance of this wet material is still superior to a normal unsealed road. The main effect of this sloppy material is that road users experience a slightly dirtier car then normally expected.



**School Road** 



**Nixons Road** 

Council has entered into a further multiparty funding agreement to cover our shared service contract for resurfacing with Timaru District Council (TDC) and Waimate District Council

(WDC), there have been considerable efficiencies achieved through the joint letting of this resurfacing contract, with competitive tenders received from 3 contractors. Downers were the successful contractor and TDC, the Principal, has accepted their tender.

### Minor Improvements

Minor Improvements targeted for this financial year are as follows; O'Neill's Road Traction Seal with SH8 – Due to start September 2015 Lake Tekapo School Active Warning Signs – Signs to be installed Late September Early October Stoneleigh Road Site Benching – Obtaining Pricing Whiteman Road Site Benching – Obtaining Pricing Lilybank Road Curve Re-alignment – Obtaining Pricing Lilybank Road Traction seal joining existing seals RP2050-2300m – Obtaining Pricing

#### **Environmental Maintenance**

Total spend to the end of July is \$5,636.74 for minor gritting not associated directly with the June snow event and \$18,020.80 in gritting/tree clearance directly associated with the June snow event.

#### Goodman's Bridge

As indicated in the Long term Plan Goodman's bridge is up for removal, however this was met by some objection by the adjacent land owners. At the adoption of the Long Term Plan it was decided that when the bridge neared the end of its remaining useful life Council would request a full report from staff. This has come sooner than expected with both the beams and the deck requiring work to remain fit for vehicular traffic. This will come at considerable cost. At the time of writing this report Council staff had received an up-todate report from Dave Charters, Structural Engineer, on all bridges assessed this latest round. He noted in his inspection report "This Bridge now needs re-decking if it is to be retained in service. Deteriorated badly since last year. Beams cracked" Staff are currently assessing all options and will have a full report to the next Committee meeting.

#### **Collaboration Update**

The Road Maintenance Contract 1222 2015-2020 is now out to tender, a successful tenderers briefing was held in Timaru for all four Councils on Monday the 17<sup>th</sup> of August, where key drivers of the four contracts were outlines, Partnership, Value to Client and Contract quality, this was an interactive session with prospective tenderers asking questions clarifying the intent of the four contracts being tendered at the same time and general specification questions. All interested parties were required to attend the briefing to have their tender considered a conforming tender. Tenders are set to close midday on Wednesday the 9<sup>th</sup> of September. At the point the tender evaluation team of Andrew Dixon(TDC), Brian Fauth(ADC), Rob Moffat(WDC), Chairman Peter Hall (Opus) and MDC Roading Manager Suzy Ratahi will have an intensive few weeks assessing and scoring all submitted non-priced attributes and assessing the effectiveness and efficiencies offered in any Conditional Group tenders received. Total MDC cost to date for collaboration and benchmarking for the 2014/15 year was \$28,748.29. The running total for the 2015/16 year is \$2,657.35

## NZTA Approved Funding Levels

Mackenzie District Council Staff put forward a compelling case for a 36% increase in funding (on 2012 levels) to NZTA for the 2015-18 NLTP, based on sound practitioner knowledge of the network, and extensive data collection and modelling. NZTA Board have endorsed investment in our roading programme at 10% above the 2012 levels. This really is only a 7.75% increase as the 2.25% administration allocation paid to all Roading Authorities on top of their total approved programme has also been cut.

Further clarification of Mackenzie's approved funding level has been requested from NZTA. Staff prepare detailed analysis and modelling to support the funding requests, as is required by NZTA. It would seem reasonable that NZTA staff would study this information provided and produce detailed analysis of Mackenzie's request and supporting data.

A letter requesting this information was sent to the Transport Agency on the 25<sup>th</sup> of June 2015. A response to our letter was received on the 28<sup>th</sup> of July outlining NZTA's position. It should be noted that the condition indicators referred to in their letter reflects only the sealed road network, and this is based primarily on smoothness of the road, and doesn't take into account the increased cracking we have seen in the last 18 months. However, staff are working on obtaining further data on unsealed road condition rating by identifying using GPS and condition scoring all frost heave failures and also undertaking a "Roadroid" audit utilising smart phone technology to provide a condition assessment of our roads. They are given an International Roughness Index (IRI), which has a corresponding NAASRA count, which in turn is the currency NZTA talk. Staff will work with NZTA staff in assessing the needs of the unsealed network in an effort to better understand NZTA's key drivers to meet the national strategic direction for land transport as follows;

To drive improved performance from the land transport system by focussing on:

- Economic growth and productivity
- Road safety
- Value for money

## Amaglamated Roading Budgets Graph Showing Percentage Share



## **Unsealed Road Grading (Cumulative)**



## <u>UTILITIES</u> Budget Breakdown

## Water:

End of July the Operation and Maintenance expenditure. Electricity cost \$6,219 is on budget. Contractors \$21,437 is on budget. Water quality monitoring \$2,010 is on budget.

#### Wastewater:

End of July the Operation and Maintenance expenditure. Electricity cost \$2,185 is on budget. Contractor \$9,713 is on budget. Consent monitoring \$384 is on budget.

#### Storm water:

End of June the Operation and Maintenance expenditure. Contractor \$336 is on budget. Consent monitoring \$365 is on budget.

#### **General comments:**

The Twizel pump shed is on target to be completed at the end of September. Most of the treatment plant has been assembled. The final cut in will happen in the next two weeks. Then it will be the last minute touch ups to be completed.



Since the last report there has been breaks on the 80mm Kimbell main near Three Springs Rd. Also one on the 150mm AC main that goes to the old Meridian compound on State Highway 8, Twizel.

There has also been the usual small leaks to deal with in all the towns.

On Mackenzie Drive there has been a small issue with the blockage of the sewer line. After a lot of effort by Whitestone Contract and SJ Allens a piece of concrete was removed from the main which had been causing the problem.

## SOLID WASTE

## Education projects

## Enviroschools

St Josephs School in Fairlie are in the process of signing up to the Enviroschools programme with a view to starting in 2016. Enviroschools have released a report on the key findings from a nationwide census on the programme, a copy of this report is available for viewing.

## New recycling sort line

The new recycling sort line has been installed in the Twizel Resource Recovery Park and is now in operation. The new line is longer, enabling more staff to sort recycling at the same time and has a magnetic grab to extract tins and cans. The hopper has an automatic feed that allows a continuous flow of recycling onto the sort line compared to the previous system that required all staff to stop and stand back as a bucket of recycling was loaded.

After the first day of operation, the contractor estimated around double the amount of recycling was sorted compared to the time taken with the previous system, with less material going into rubbish.

There are several additions to the system still to come, these include custom designed bins for sorted material, a larger concrete pad around the hopper to allow easier loading and a cover over the hopper and loading area to provide shelter from wind and rain.





## Kerbside collections

Collection days are taking longer due to an increase in bin numbers and changes to safety features on the collection truck. The contractor has requested an earlier start time for collections over the summer period to allow more time to complete collections, particularly during very hot temperatures. During daylight savings collections will start at 7am, but will remain an 8am start over winter. Advertising to advice residents of this change is underway.

## Waste data

The Mackenzie is the first TA in the country to implement the new national waste data framework. The aim of this framework is to improve the data we collect on residual waste and provide consistent data collection throughout the country. The new data will allow us to compare the types and volumes of waste that is collected in the Mackenzie with other districts and also identify where education can be best targeted to reduce waste.

## Envirowaste contract

Tony Le Brun from Envirowaste has been in charge of managing our waste contract from the initial set up in October 2007. Tony has recently handed in his resignation and will be finishing in early September. Tony has always gone the extra mile to keep our waste services running and I would like Council to thank him for his support and wish him all the best for the future.



Waste carted to landfill from the Mackenzie District



# MACKENZIE DISTRICT COUNCIL

**REPORT TO:** ASSETS AND SERVICES COMMITTEE

SUBJECT: SEALING PAST HOUSES POLICY

**MEETING DATE:** 1<sup>st</sup> SEPTEMBER 2015

**REF:** WAS 2/1

**FROM:** ROADING MANAGER

**ENDORSED BY:** CHIEF EXECUTIVE OFFICER

#### PURPOSE OF REPORT:

To advise the Committee of the issues with the current Sealing Past Houses Policy.

#### **STAFF RECOMMENDATIONS:**

- 1. That the report be received.
- 2 That the Sealing Past Houses Policy be abandoned effective 1<sup>st</sup> September 2015 and Council staff be instructed to draft a new "Effective Dust Suppressant Policy" to be reviewed by the Assets and Services Committee.

SUZY RATAHI ROADING MANAGER WAYNE BARNETT CHIEF EXECUTIVE OFFICER

### **BACKGROUND:**

The Council adopted the existing policy in 2005, as there were a significant number of Rate Payers requesting Council deal with the dust nuisance outside their property. This Policy applies only to dwellings built or relocated before 2002. The dust nuisance warning placed on LIM reports since that date is considered due diligence by the Council to warn of possible dust problems.

The purpose of this policy was to enable rate payers effected by dust issues to apply for dust suppressant sealing adjacent to their property. This is funded on a cost sharing basis between land owner and Council. The \$10,000 formerly budgeted, which is consistent with the policy, hasn't met 50% of the cost as originally intended, and as the construction costs escalate it becomes less attractive for land owners to consider sealing as a viable option. As years have gone by the approximation of 50% funding between ratepayer and Council has changed, the construction costs have increased to a level where the costs are split with approximately 30% Council funded and 70% land owner funded. Further compounding this the need for revoking the policy is Councils limited roading budgets. Isolated patches of short sections of seal are expensive to maintain and renew, so additional areas of seal on an already restricted budget is not recommended.

The previous implementation of this policy had the desirable two fold effect:

- 1) It allowed Council to mitigate the issue when ratepayers truly wanted to deal with their dust issue by cost sharing the project.
- 2) It gave an incentive to property owners to ensure new constructions were situated at least 20 m back from road reserve and position houses in such a manner dust nuisance would be minimised. As new houses were not covered by the policy.

At the time of writing this report there had been no requests for further sealing in the last 3 years, there had been requests for information but the resounding feedback was that construction would be too expensive to undertake.

In the last 2 years Council staff have trialled rotten rock from a local source pit, which has had an effect in reducing dust complaints, it has been trialled on Hamilton Road and Mount Nessing road to great success. This season the material has been rolled out to School Road and Nixons Road, both areas of high dust nuisance complaints. This material has the added benefits of being a durable hardwearing surface and requires minimal grading.

Due to the lack of uptake in recent years, and reduction in non-essential works to minimise rating impact, Council currently has no budget allocated, so would have to fund from some other source if it was to receive a request that it wanted to approve.

## **ATTACHMENTS:**

The Sealing Past Houses Policy section of Council's Asset Management Schedule of Policies is included below.

## SEALING PAST HOUSES

#### Mackenzie District Council – Sept 2005

#### POLICY:

The Council shall carry out sealing past residential dwellings under the following conditions:

- 1 From 1 July 2006 the Council shall budget \$10,000 per year and carry out one dust seal per year. If more than one application is received they should be prioritised for future years.
- 2 Applications for sealing will be received up to 30 June of each year, to be considered for the following financial year.
- 3 Applications shall be assessed to determine the severity of the nuisance by using indicators like those listed below:
  - eye irritations
  - respiratory problems
  - stress
  - appliances breaking down
  - inability to have windows open
  - extra housework required
  - washing soiled on cloths line
  - roof water supply contaminated
- 4 The Policy shall apply only to dwellings built or relocated before 2002. The dust nuisance warning placed on LIM reports since that date is considered due diligence by the Council to warn of possible dust problems.
- 5 Preference shall be given to cases where the use of the road has rapidly changed, for example by changed land use.
- 6 In each instance the Council shall contribute to a maximum length of 200m of new seal. Any length required beyond this will be fully funded by the applicant.
- 7 All work that can be justifiably carried out under the subsidised roading programme will be funded this way using already budgeted maintenance funds. The Council will pay the full local share of this work.
- 8 The Council and the applicant will share the cost of all work that is over and above that which can attract a subsidy contribution, on a 50/50 basis. Council contribution to be capped at \$10,000 for any one request.
- 9 The chip seal shall be laid to the Council's sealed road specifications.
- 10 Some flexibility shall be given to repayment options for the private share in cases of genuine financial hardship.
- 11 The Council will take over all ongoing maintenance of the sealed road once it is complete, but reserves the right to seek contributions for any damage from any party where it can be proven, as it does on all roads now.

Note: The Council has approved the trialling of clay-rich wearing course aggregate to ascertain whether it can provide an intermediate type of dust suppressing treatment. If successful this form of treatment will be considered as a lower cost option to sealing.

#### **POLICY STATUS:**

n/a

#### **SIGNIFICANCE OF DECISION REQUESTED:**

n/a

#### **ISSUES AND OPTIONS:**

Before the implementation of this Policy, Council was noticing a significant number of requests for dust sealing or oiling of problematic roads, the introduction of this policy has made it clear to all interested parties what Council will contribute to a project. However, it also appears that land owners believe the costs of constructing a sealed surface to be prohibitive. Also the long term cost of maintenance of these sections of isolated seals are becoming unaffordable to Council.

In the last 3 years Council has received no formal requests for a cost sharing of sealing past houses. There are currently 8 isolated "Sealing Past Houses" sealed areas, ranging from 100m to 500m in length

The Committee has two options;

- 1. Continue to budget for "Sealing Past Houses" as an un-subsidised activity as per current policy and potentially receive further applications for isolated seals increasing the cost of roading maintenance in the Mackenzie.
- 2. Abandon the current policy and instruct staff to investigate a new "Effective Dust Suppressant Policy" which could look at what other Councils provide and how our local source material performs over time, such as, reduced grading and maintenance costs. As this works is effectively unsealed road metalling, it can be considered a fully funded activity. When a problematic road requires re-metalling, Council staff could consider utilising suitable materials to minimise dust nuisance, as has occurred on Nixon and School Road this season. If there is pressure from a landowner to achieve a dust free solution sooner Council could implement a cost sharing policy to increase priority of these areas. The policy would also need to look at how to prioritise and stem the potential increase in requests as well as the cost efficiencies of various cartage distances. All of these issues could be considered under a new policy.

#### **CONCLUSION:**

The existing Sealing Past Houses Policy has had the desired effect of minimising dust nuisance on sections of the network. However the flip side of this is that it has increased maintenance costs on these isolated sections. Council has already trialled sections of dust

mitigation to great success on the Ophua network and a new policy should be developed to reflect the benefits obtained in removal of complaints, reduced costs of construction and maintenance a long with lower whole of lifecycle costs of such surfaces.

Staff recommendation is that the change be effective from 1<sup>st</sup> September 2015 the current Policy be removed from the Asset Management Schedule of Policies.

# MACKENZIE DISTRICT COUNCIL

**REPORT TO:** ASSETS AND SERVICES COMMITTEE

FROM: ASSET MANAGER

SUBJECT: TWIZEL WWTP UPGRADE – ALTERNATIVE LAND DISPOSAL AND COSTS

**MEETING DATE:** 1<sup>st</sup> SEPTEMBER 2015

**REF:** WAS 15/5

**ENDORSED BY:** CHIEF EXECUTIVE OFFICER

#### **REASON FOR REPORT**

To provide the Assets and Services Committee with an update of the disposal options for the Twizel waste water treatment options in light of recent estimates based on the completed designs

#### **RECOMMENDATION:**

- 1. That the report be received.
- 2. That Option 1 be confirmed as the method of effluent disposal for the Twizel Oxidation Ponds

BERNIE HAAR ASSET MANAGER WAYNE BARNETT CHIEF EXECUTIVE OFFICER

## BACKGROUND

As the design for this project progressed to a more detailed stage Council's consultants were in a position to provide a more accurate estimate of the cost of this work and I understand you have already been advised that it was approximately double the original budget figure. As a consequence both the Chief Executive and the Utilities Manager meet with the BECA team in Christchurch to consider options to reduce this cost.

Originally open disposal basins were proposed but due to observed issues with freezing of the current disposal system it was decided to use an in ground pipe system to eliminate the potential for effluent freezing. This was a good option and is used for the Pukaki Visitor Centre disposal system and also for Otematata sewerage disposal. Advice at that time was that there would be little or no extra cost.

## ATTACHMENTS

#### BECA Report - Twizel WWTP Upgrade - Alternative Land Disposal Options and Costings 1 Background

A meeting was held between MDC and Beca on 30th July 2015 to address MDC's concerns about the cost estimate increase for the infiltration beds. The outcome of this meeting was that Beca would undertake further investigation into options which could reduce the overall capital cost of the upgrade. The options considered must allow for consent procurement without affecting negotiations for the sale and purchase agreement, or extending the project construction timeline past 1 January 2017.

The activities discussed in the meeting were as follows:

- Additional site survey to identify the ground level profile in the location of the proposed infiltration beds. This was carried out on August 7th.
- Geotechnical field investigations (carried out on August 11th and 12th delayed a week due to Whitestone being unavailable) as follows:
  - Trench and basin infiltration tests in the location of the proposed infiltration beds (completed)
  - Investigate the soil profile (completed).
  - Sample the soil for lab analysis of the size distribution to determine if there is enough gravel of a suitable size range for use in beds/trenches (samples collected but results not yet available).
- Revise the cost estimate for the infiltration beds based on the outcome of the field work above, and develop cost estimates for two additional options.
  - Open infiltration basins
  - Soakage trenches
- Issue a schedule of quantities for the options above for pricing by local contractors. This was not completed due to delays in obtaining the necessary sizing information for the revised schedule.
- If required, look into taking gravel from the Twizel River, once required quantity of imported material is established. Without the soil size distribution it is not possible to determine if this will be required. Preliminary investigations indicate that extraction of gravel from the river is a permitted activity only if the extraction area is less than 500 m<sup>2</sup>.

Even though some activities were not done, sufficient information was obtained to evaluate the options. This letter report summarises the evaluation of options and presents cost estimates for comparison.

## 2 Geotechnical Field Work

The proposed infiltration bed area has moved from the south-east corner of the site to the south-west corner in the time since initial investigations were carried out in 2013. To confirm the soil properties of the area, additional field testing was carried out on 11 and 12 August 2015. The purpose of this testing was to confirm the design infiltration rate for the infiltration options and hence their size and cost. The scope of the investigation comprised five test pits to 4 m depth, and infiltration testing in two test basins and one test trench.

It is noted that the area has a surface layer of silty gravel (low permeability) about 1m deep, underlain by free-draining gravels where the infiltration system will be positioned.

In summary, the infiltration found that the basin and trench located south of the ponds produced greater infiltration rates than the basin to the west (and the earlier test to the south east). The median of the six test results, adjusted by a factor of 10%, has been adopted for design. This gives design infiltration rate of  $1.75 \times 10-5 \text{ m/s}$  (63 mm/hr), which is significantly higher than the original design infiltration rate of  $4.31 \times 10-6 \text{ m/s}$  (15.5 mm/hr).

The investigation also recommended that as much of the proposed infiltration area as possible is located in the area where the more favourable infiltration rates were identified, to avoid the limiting effect of less permeable gravels in other areas. The base of the infiltration basins should be extended into the permeable gravel by about 300 mm depth to avoid the effect of any silt that has migrated down from the overlying silty gravel layer. Soil samples also were collected for laboratory analysis of the size distribution of the

gravels. At the time of writing the results of this analysis were not available. The full findings of this investigation are set out in Twizel WWTP Upgrade - Infiltration Investigation Report, CH2M Beca, August 2015. This report will be issued separately from this letter.

## **3 Options Description**

## 3.1 Overview

As a result of the increased design infiltration rate, the overall infiltration area required for all the options has reduced from 1.8 ha to approximately 0.4 ha. All other design factors have remained unchanged from Twizel WWTP Infiltration Bed Upgrade - Developed Design Report, CH2M Beca, July 2015 ('the Developed Design Report').

The other aspects of the upgrade, including channel modifications, inlet screening, and mechanical and electrical equipment, are assumed to be unchanged, except where stated in the descriptions of each option.

As the size distribution analysis for the gravels on site were not available, it has been assumed for all relevant options that the gravel placed will be 50% graded material from site and 50% imported local gravels.

Layout plans for all three options are shown on Drawing 6510257-CE-005, which is included as Appendix A.

The costs of all three options are discussed in Section 4.

## **3.2 Option 1 – Infiltration Basins**

The infiltration basin option was originally proposed for Twizel, but changed to closed infiltration beds to reduce the risk of basins overtopping due to frozen ground in winter impeding the permeability of the ground.

However further research indicates that infiltration basins can be used in cold climates provided the basins are well-maintained and vegetation is not allowed to grow on the base. The reason for this is that the vegetation acts as an anchor for ice layers, blocking the base and trapping the incoming wastewater on top of the ice. Without vegetation, the ice

layer tends to float on top of the incoming wastewater, allowing the liquid layer to continue to drain into the soil (USEPA 2006).

The main features of this option include:

- Infiltration area of 0.4 ha, as per the infiltration bed option.
- Secondary screening is not required, as the purpose of this is to protect the distribution pipe laterals, which are also not required.
- Surplus silty gravel overburden will be placed in 'landscaping mounds' in the south-west and south-east corners of the MDC-owned land.

The open basins might attract a perceived greater risk of odour than the sub-surface beds, and so may be less acceptable to stakeholders than the sub-surface options. However, the final effluent will be well-treated and there will be negligible risk of odour release. Odour emission data is available indicating that maturation pond odour is less than 10% of the odour from primary ponds. The open infiltration basin odour will be further reduced by the short period that final effluent will be held in the basins before infiltrating into the ground.

Open basins would have a maintenance advantage in the future as the surface layer can be readily removed if it becomes clogged with biofilm. It would be much more expensive to remediate similar clogging of a subsurface pipe system.

Another advantage of Option 1 is that it could be easily constructed in stages by excavating the first half of each basin, then extending them to the full length in the future without increasing pipework lengths or adding extra valves.

The basins will require security fencing (1.8m high) to prevent public access and contact with treated wastewater, which the sub-surface options will not.

## 3.3 Option 2 – Infiltration Beds

This option is essentially that discussed in the Developed Design Report, with the following modifications:

- The total bed base area has reduced from 1.8 ha to 0.4 ha.
- The gravel distribution layer has reduced from 600 mm to 500 mm.
- The beds will not be back-filled to ground level with re-graded site material. A nominal 500 mm layer of silty gravel will be laid over the pipes to prevent freezing of the pipes.
- Surplus silty gravel overburden will be placed in 'landscaping mounds' in the south-west and south-east corners of the MDC-owned land.

From a consenting perspective this option would avoid the perceived risk of odour from an open water surface.

## 3.4 Option 3 – Infiltration Trenches

This option is a variation on the infiltration bed system. The main advantage of trenches is that water is allowed to infiltrate through the sides of the trench as well as the base, as opposed to infiltration beds where all transfer to the soil is assumed to happen at the base of the bed. Using the sides for infiltration reduces the overall excavation required, but the 4 m spacing between trenches, required to allow access to each trench for maintenance, increases the total area required to approximately 1 ha. This can still be accommodated within the site but allows less space for future expansion.

The main features of the design are:

- Gravel depth of 1000 mm is required to allow water transfer through the trench sides.
- Total infiltration area is still approximately 0.4 ha, but total trenched area is 1.0 ha

As the trenches will be covered, the risk of odour from the system is low. It is also unlikely to be affected by freezing temperatures for the same reason.

## 4 Cost Estimates

## 4.1 Cost Comparisons

The full construction cost estimates for each option are summarised in Table 1.

Item	Option 1	Option 2	Option 3
	Inflitration Basins	Inflitration Beds	Inflitration Trenches
Site works	\$5,000	\$5,000	\$5,000
Modifications to existing	\$20,000	\$20,000	\$20,000
channel			
Supply and installation of GRP	\$25,000	\$25,000	\$25,000
channel covers			
New discharge from Pond 2B to	\$75,000	\$75,000	\$75,000
infiltration system.			
Construction of infiltration	\$215,000	\$245,000	\$180,000
system			
- Earthworks			
- Bunds			
- Pipes			
- Fencing			
Decommission Existing	\$60,000	\$60,000	\$75,000
Soakage Trench			
Mechanical equipment	\$95,000	\$150,000	\$150,000
- Flow meters			
- Screens			
- Valves			
- Wash water pump			
Power supply to site and	\$55,000	\$55,000	\$55,000
distribution board			
Subtotal	\$550,000	\$635,000	\$585,000
Preliminary and General	\$80,000	\$95,000	\$90,000
Margin	\$45,000	\$55,000	\$55,000
Subtotal	\$675,000	\$785,000	\$730,000
Design Fees	\$65,000	\$80,000	\$70,000
Contingency	\$100,000	\$115,000	\$110,000
Total	\$840,000	\$980,000	\$910,000

Table 1 - Capital Cost Estimates Comparison

It is noted that the original concept costing for the infiltration system was prepared in 2012 and inflation adjustments may not have been applied. Also, the concept costing did not include the improvements to the inlet works (automatic fine screen, covers and wash water pump). These items have a sub-total of between \$120,000 and \$175,000 depending on the option.

## 4.2 Staged Construction

If MDC wished to stage construction to defer expenditure, beds, basins or trenches could be initially installed over half of the total area, with the other half constructed at a later date. The approximate costs of each stage for each option are summarised in Table 2. Please note these are all in 2015 dollars and do not account for cost increases with inflation or other factors.

Item	Option 1 Infiltration Basins	Option 2 Infiltration Beds	Option 3 Infiltration Trenches
Stage 1	\$\$660,000	\$\$795,000	\$\$775,000
Stage 2	205,000	\$215,000	\$175,000
Total	\$865,000	\$1,010,000	\$950,000

 Table 2 - Staged Construction Cost Estimates

#### **5** Recommendation

Based on the cost estimates above, we recommend changing the land disposal design to Option 1 – Infiltration Basins, as it is the lowest-cost option and could be staged to bring costs within MDC's budget limits. Option 1 has the advantage of being visible so that the performance of the infiltration system can be readily monitored (as at Fairlie). Furthermore, should the surface layer become clogged this material could be readily removed to restore the infiltration rate. Based on experience of cold climate infiltration basins in Northern USA, the infiltration risks can be managed with relatively simple procedures.

If you have any further questions please do not hesitate to contact the undersigned.

Yours sincerely Humphrey Archer Senior Technical Director - Environmental Engineering on behalf of CH2M Beca Ltd



## CONSIDERATIONS

The attached BECA report considers the three options available to Council and their respective costs.

These are summarised below:

Option	Description	Estimate
Option 1	Infiltration Basins	\$840,000
Option 2	Infiltration Beds	\$980,000
Option 3	Infiltration Trenches	\$910,000

BECA have also completed some extensive research on the potential for the disposal fields to freeze over during the harsh winter months. That research indicates that provided the basins are designed correctly and kept free of vegetation this risk can be effectively managed. This research eliminates my operational concerns and see now that the original proposal to use infiltration basins can now be successfully implemented.

## CONCLUSION

BECA recommendation from the report:

Based on the cost estimates above, we recommend changing the land disposal design to Option 1 – Infiltration Basins, as it is the lowest-cost option and could be staged to bring costs within MDC's budget limits. Option 1 has the advantage of being visible so that the performance of the infiltration system can be readily monitored (as at Fairlie). Furthermore, should the surface layer become clogged this material could be readily removed to restore the infiltration rate. Based on experience of cold climate infiltration basins in Northern USA, the infiltration risks can be managed with relatively simple procedures.