Nelson City Council
te kaunihera o whakatū

AGENDA

Ordinary meeting of the

Works and Infrastructure Committee

Friday 28 September 2018
Commencing at 9.00a.m.
Council Chamber
Civic House
110 Trafalgar Street, Nelson

Pat Dougherty
Chief Executive

Membership: Councillor Stuart Walker (Chairperson), Her Worship the Mayor Rachel Reese, Councillors Luke Acland, Paul Matheson, Matt Lawrey, Gaile Noonan, Tim Skinner and Mike Rutledge (Deputy Chairperson)

Quorum: 4

Guidelines for councillors attending the meeting, who are not members of the Committee, as set out in Standing Order 12.1:

- All councillors, whether or not they are members of the Committee, may attend Committee meetings
- At the discretion of the Chair, councillors who are not Committee members may speak, or ask questions about a matter.
- Only Committee members may vote on any matter before the Committee

It is good practice for both Committee members and non-Committee members to declare any interests in items on the agenda. They should withdraw from the room for discussion and voting on any of these items.

Page No.

1. Apologies

An apology has been received from Councillor G Noonan

2. Confirmation of Order of Business

3. Interests

3.1 Updates to the Interests Register

3.2 Identify any conflicts of interest in the agenda

4. Public Forum

4.1 Genie Em - Litter in Nelson City

5. Confirmation of Minutes

5.1 16 August 2018 **9 - 13**

Document number M3687

Recommendation

That the Works and Infrastructure Committee

<u>Confirms</u> the minutes of the meeting of the Works and Infrastructure Committee, held on 16 August 2018, as a true and correct record.

6. Chairperson's Report

7. Wastewater and Stormwater/Flood Protection Asset Management Plans 2018 - 28 **14 - 18**

Document number R9670

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Wastewater and Stormwater/Flood Protection Asset Management Plans 2018 - 28 (R9670) and its attachments (A1611752; A1711433).

Recommendation to Council

<u>Adopts</u> the Wastewater and Stormwater/Flood Protection Asset Management Plans 2018-28 (A1611752; A1711433), amended to reflect the approved Long Term Plan 2018-2028.

8. Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan 19 - 22

Document number R9496

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan (R9496) and its attachment (A1998592).

Recommendation to Council

That the Council

<u>Approves</u> the Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan (A1998592).

9. Nelson Tasman Regional Landfill Business Unit Treasury Policy 24 - 33

Document number R9441

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Nelson Tasman Regional Landfill Business Unit Treasury Policy (R9441) and its attachment (A1963932).

Recommendation to Council

That the Council

<u>Approves</u> the Nelson Tasman Regional Landfill Business Unit Treasury Policy (A1963932).

10. Nelson Regional Sewerage Business Unit Business Plan 2018-19 34 - 60

Document number R9503

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Nelson Regional Sewerage Business Unit Business Plan 2018-19 (R9503) and its attachments (A1928704; A1995125); and

<u>Approves</u> feedback be given to the Nelson Regional Sewerage Business Unit through the Acting General Manager that further review of the draft NRSBU Business Plan 2018-19 is required so that it better complements Nelson City Council's Long Term Plan and the Council's environmental aspirations.

11. Wastewater Network Inflow and Infiltration Issues on Private Property 61 - 77

Document number R9502

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Wastewater Network Inflow and Infiltration Issues on Private Property (R9502) and its attachments (A2047807, A2059113, A2046065, A2021386, A2053953);

<u>Endorses</u> the public communication campaign to highlight the issue to private property owners to commence with urgency; and

<u>Endorses</u> the approach to re-direct obvious private stormwater inflows out of the sewer system and that these "quick-wins" (up to $500) be at the cost of private landowners.

12. Saltwater Creek Bridge 78 - 85

Document number R9717

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Saltwater Creek Bridge (R9717) and its attachment A2058621.

Recommendation to Council

That the Council

<u>Approves</u> an additional unbudgeted $300,000 to fund construction of the bridge in the 2018/19 financial year that will allow the award of a tender and enable work to commence this financial year.

13. Seafield Terrace remediation 86 - 108

Document number R9621

Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Seafield Terrace remediation (R9621) and its attachments (A2040890, A2038309, A2041411).

Recommendation to Council

That the Council

<u>Approves</u> the "Scaled-up do minimum" option as the preferred remedial solution as detailed in Report R9621 (Attachment A2038309) for Seafield Terrace noting a preliminary estimated capital cost of $925,000 with an expected 51% NZTA Funding Assistance Rate; and

<u>Notes</u> that design will commence in the current 2018/19 financial year with request for funding for consents and construction to be made through the 2019/20 Annual Plan; and

<u>Approves</u> unbudgeted expense of $50,000 in the 2018/19 financial year to commence design of the preferred option.

PUBLIC EXCLUDED BUSINESS

14. Exclusion of the Public

Recommendation

That the Works and Infrastructure Committee

<u>Confirms</u>, in accordance with section 48(5) of the Local Government Official Information and Meetings Act 1987, Dr Tom Shand and Mr Mark Foley of Tonkin & Taylor and Ms Kerry Anderson of DLA Piper remain after the public has been excluded, for Item 2 of the Public Excluded agenda (Seafield Terrace Remediation: Legal Considerations), as they have knowledge that will assist the Council;

<u>Notes</u>, in accordance with section 48(6) of the Local Government Official Information and Meetings Act 1987, the knowledge that Dr Tom Shand, Mark Foley and Kerry Anderson posess relates to the Seafield Terrace remediation.

Recommendation

That the Works and Infrastructure Committee

<u>Excludes</u> the public from the following parts of the proceedings of this meeting.

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	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Particular interests protected (where applicable)
1	**Works and Infrastructure Committee Meeting - Public Excluded Minutes - 16 August 2018**	Section 48(1)(a) The public conduct of this matter would be likely to result in disclosure of information for which good reason exists under section 7.	The withholding of the information is necessary: • Section 7(2)(a) To protect the privacy of natural persons, including that of a deceased person
2	**Seafield Terrace Remediation: Legal Considerations**	Section 48(1)(a) The public conduct of this matter would be likely to result in disclosure of information for which good reason exists under section 7. Releasing the advice exposes Council to legal risk not outweighed by any public interest in sharing the opinion	The withholding of the information is necessary: • Section 7(2)(g) To maintain legal professional privilege

Note:

- **This meeting is expected to continue beyond lunchtime.**
- **Lunch will be provided.**
- **Youth Councillors Estella Grant and Nathanael Rais will be in attendance at this meeting.**

Nelson City Council
te kaunihera o whakatū

Minutes of a meeting of the Works and Infrastructure Committee

Held in the Council Chamber, Civic House, 110 Trafalgar Street, Nelson

On Thursday 16 August 2018, commencing at 9.00a.m.

Present:	Councillor S Walker (Chairperson), Her Worship the Mayor R Reese, Councillors L Acland, M Lawrey, P Matheson, G Noonan, M Rutledge (Deputy Chairperson), and T Skinner
In Attendance:	Councillors I Barker, M Courtney, K Fulton, B McGurk, Chief Executive (P Dougherty), Group Manager Infrastructure (A Louverdis), Governance Adviser (J Brandt) and Youth Councillors (R Anderson and R Panting)
Apologies :	Nil

1. Apologies

2. Confirmation of Order of Business

There was no change to the order of business.

3. Interests

There were no updates to the Interests Register, and no interests with items on the agenda were declared.

4. Public Forum

4.1 Public Forum - Ben Bushell - Community Compost Nelson

Mr Bushell gave a presentation about how Community Compost Nelson had gone about developing a community composting system for food waste in Nelson.

Attendance: 9.07a.m. Councillor Lawrey joined the meeting.

Mr Bushell answered questions about collection charges, the sale of compost, and the hopes the organisation has for collaboration with Nelson City Council in supporting waste minimisation in Nelson.

5. Confirmation of Minutes

5.1 28 June 2018

Document number M3586, agenda pages 7 - 15 refer.

Resolved WI/2018/036

That the Works and Infrastructure Committee

Confirms the minutes of the meeting of the Works and Infrastructure Committee, held on 28 June 2018, as a true and correct record.

Matheson/Rutledge Carried

6. Chairperson's Report

6.1 Chairperson's Report

The Chairperson invited Group Manager Infrastructure, Alec Louverdis to give an update on the spillage of sulphuric acid into the stormwater system that had occurred earlier that day as a result of a traffic accident on Tahunanui Drive.

Mr Louverdis noted that the incident response was going well given the circumstances, and that the estuary had not been affected at the time.

The Chairperson tabled his Chairperson's Report (attached A2031510) and summarised his update on the Modellers Pond regarding the reduction of algae occurrence.

Discussion took place regarding the make up of the pond water, evaporation, ground water, tide influence, monitoring and returning the pond to the estuarine environment.

The meeting was adjourned from 9.35a.m. until at 9.43a.m.

Further discussion took place regarding the budget for the Modellers Pond and the Diatomix dosing trial. The Chief Executive, Pat Dougherty advised he would provide Members with further information on the budget following the meeting.

Attachments

1 A2031510 - Chairperson's Report - Modellers Pond Update

Attendance: Councillor Skinner left the meeting at 9.48a.m.

7. Solid Waste Asset Management Plan 2018 - 2028

Document number R9056, agenda pages 16 - 18 refer.

Senior Asset Engineer – Solid Waste, Johan Thiart presented the report, noting that there were no changes to the Asset Management Plan following the Long Term Plan process.

Resolved WI/2018/037

That the Works and Infrastructure Committee

Receives the report Solid Waste Asset Management Plan 2018 - 2028 (R9056) and its attachment (A1828548).

Rutledge/Noonan Carried

Recommendation to Council WI/2018/038

That the Council

Adopts the Solid Waste Asset Management Plan 2018 - 2028 (A1828548).

Rutledge/Noonan Carried

8. Water Supply Asset Management Plan 2018 - 2028

Document number R9032, agenda pages 19 - 27 refer.

Attendance: Councillor Skinner returned to the meeting at 9.50a.m.

Senior Asset Engineer – Utilities, Phil Ruffell presented his report and answered questions about the automated meter trial undertaken in Nelson; tracking water losses; communication with contractors; potential shared use of meters with Network Tasman; and the Three Waters Review.

Attendance: Councillor Matheson left the meeting from 9.56a.m. to 9.58a.m.

It was noted that officers would discuss the residential water meter renewals business case with Mr Steve Cross who had offered to review it.

Attendance: Councillor Acland left the meeting 10.19a.m.

It was noted that where the Water Supply Asset Management Plan 2018-2028 refers to the proposed renewal of residential water meters commending 'over a three year period from 2019/20', the year should read '2018/19'.

The meeting was adjourned at 10.29a.m. and reconvened at 10.49a.m.

Resolved WI/2018/039

That the Works and Infrastructure Committee

Receives the report Water Supply Asset Management Plan 2018 - 2028 and its attachments (A1620958 and A2021298).

Rutledge/Skinner Carried

Recommendation to Council WI/2018/040

That the Council

Adopts the Water Supply Asset Management Plan 2018-28 (A1620958), amended to reflect the approved Long Term Plan 2018 - 2028 including the renewal of existing residential water meters with manual read meters.

Skinner/Noonan Carried

9. Paxster Use on Nelson Footpaths

Document number R8928, agenda pages 28 - 42 refer.

Manager Roading and Utilities, Marg Parfitt presented her report.

Resolved WI/2018/041

That the Works and Infrastructure Committee

Receives the report Paxster Use on Nelson Footpaths (R8928) and its attachments (A1844004, A1990509 and A1990504).

Matheson/Noonan Carried

Recommendation to Council WI/2018/042

That the Council

Approves the use of Paxsters on selective routes for a period of 24 months and works with NZ Post to finalise exclusion zones as shown on Attachment A1990504 of Report R8928.

Matheson/Noonan Carried

Attendance: Councillor Lawrey left the meeting at 10.58am.

10. Exclusion of the Public

Resolved WI/2018/043

That the Works and Infrastructure Committee

<u>Excludes</u> the public from the following parts of the proceedings of this meeting.

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:

<u>Walker/Skinner</u> <u>Carried</u>

Item	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Particular interests protected (where applicable)
1	**Request for Leave of Absence**	Section 48(1)(a) The public conduct of this matter would be likely to result in disclosure of information for which good reason exists under section 7	The withholding of the information is necessary: • Section 7(2)(a) To protect the privacy of natural persons, including that of a deceased person

Attendance: Councillor Acland returned to the meeting at 11.03a.m.

The meeting went into public excluded session at 11.03am and resumed in public session at 11.06am.

There being no further business the meeting ended at 11.06am.

Confirmed as a correct record of proceedings:

_____ Chairperson _____ Date

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9670

Wastewater and Stormwater/Flood Protection Asset Management Plans 2018 - 28

1. Purpose of Report

1.1 To adopt the Wastewater and Stormwater/Flood Protection Asset Management Plans 2018-28 (AMP's).

2. Recommendation

That the Works and Infrastructure Committee

Receives the report Wastewater and Stormwater/Flood Protection Asset Management Plans 2018 - 28 (R9670) and its attachments (A1611752, A1711433).

Recommendation to Council

Adopts the Wastewater and Stormwater/Flood Protection Asset Management Plans 2018-28 (A1611752, A1711433), amended to reflect the approved Long Term Plan 2018-2028.

3. Background

3.1 Two workshops were held with Councillors (16 February 2017, 11 July 2017) to review the Draft Utilities Asset Management Plans and on 21 September 2017 Council resolved as follows:

Approves the Draft Utilities Asset Management Plans 2018-28 (Water Supply (A1620958), Wastewater (A1611752), Stormwater and Flood Protection (A1711433)) as the versions to inform the Long Term Plan 2018-28.

4. Discussion

4.1 The draft Wastewater and Stormwater/Flood Protection AMP's 2018-28 adopted by Council on 21 September 2017 have been amended to reflect the LTP 2018-28 as adopted by Council on 21 June 2018 and now require Council approval as final versions.

Changes made through Long Term Plan deliberations

4.2 The following paragraphs summarise relevant resolutions made at the LTP deliberations meeting that affect budgets within the AMP's 2018-28. These changes have been incorporated into the final documents and highlighted for the purposes of transparency (highlights will be removed prior to publishing).

4.2.1 An additional budget of $160,000 was approved for the Saxton Creek Bridge widening in year 2019/20.

4.2.2 Funding of $150,000 was included to upgrade the wastewater network at Elm Street in 2019/20 to allow for growth in the Hill Street North catchment.

4.2.3 Funding for the extension of the wastewater network from Daelyn Drive to Hill Street North was delayed by one year to 2019/20.

Changes made since the Draft Asset Management Plans were prepared

4.3 At the time the Draft AMP's were adopted as versions to inform the LTP 2018-28 a number of sections had not been finalised. Since the draft versions were adopted updates have been made to many sections but most particularly to the following areas:

- Financial summary
- Risk Management
- Future demand (growth projections)
- Asset management maturity
- Levels of service performance measures

Activity Management Plans 2021-31

4.4 Planning for the Activity Management Plans 2021-31 is underway. To ensure officers have a clear understanding of Council's expectations and key issues a number of workshops will be arranged with the Works and Infrastructure Committee over the next three years.

5. Options

5.1 The Wastewater and Stormwater/Flood Protection AMP's 2018-28 support Council in meeting its obligations under section 93 and Schedule 10 of the Local Government Act 2002 (LGA) and the recommended option is for Council to adopt these plans.

Option 1: Adopt	
Advantages	• Support Council to meet requirements of the LGA.
Risks and Disadvantages	• Nil
Option 2: Not Adopt	
Advantages	• Nil
Risks and Disadvantages	• Not adopting the AMP's would leave Council without a clear plan to mitigate risks and achieve levels of service.

6. Conclusion

6.1 The Wastewater and Stormwater/Flood Protection AMP's 2018-28 have been reviewed and amended to reflect all decisions made by the Council in the adopted LTP 2018-28.

Author: **Phil Ruffell, Senior Asset Engineer - Utilities**

Attachments

Attachment 1: A1611752 Wastewater Asset Management Plan 2018-2028 *(Circulated separately)* ⇨

Attachment 2: A1711433 Stormwater and Flood Protection Asset Management Plan 2018-2028 *(Circulated separately)* ⇨

Important considerations for decision making

1. Fit with Purpose of Local Government

The Wastewater and Stormwater/Flood Protection AMP's 2018-28 set out how Council will deliver agreed levels of service to the community in the most cost effective way.

2. Consistency with Community Outcomes and Council Policy

The AMPs have been developed to support the delivery of the following Council Community Outcomes:

- *Our infrastructure is efficient, cost effective and meets current and future needs*
- *Our communities are healthy, safe, inclusive and resilient*

3. Risk

Adopting the Wastewater and Stormwater/Flood Protection AMP's 2018-28 is a low risk as they have been through a thorough development process and reflects all of the relevant LTP decisions. Adopting the AMPs also helps Council mitigate risks by providing a clear plan to achieve levels of service, address relevant focus areas and set activity budgets for operations, maintenance, renewals and capital expenditure.

4. Financial impact

The Wastewater and Stormwater/Flood Protection AMP's reflect the decisions made by Council on the 21 June 2018 when the LTP 2018-28 was adopted and sets out budgets for both operational and capital expenditure. Funding is both directly from rates and indirectly through borrowing.

5. Degree of significance and level of engagement

This matter is of low significance because decisions arising from the Wastewater and Stormwater/Flood Protection AMP's 2018-28 which were considered to be significant were consulted on through the LTP.

6. Inclusion of Māori in the decision making process

No consultation with Māori was undertaken with respect to this report.

7. Delegations

The Works and Infrastructure Committee has the following Areas of Responsibility and Powers to Recommend to Council:

Areas of Responsibility:

- *Wastewater*
- *Stormwater and Flood Protection*

Powers to Recommend to Council:

- *Asset and Activity Management Plans falling within the areas of responsibility*

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9496

Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan

1. Purpose of Report

1.1 To receive and approve the Nelson Tasman Regional Landfill Business Unit (NTRLBU) Landfills Asset Management Plan (AMP).

2. Recommendation

That the Works and Infrastructure Committee

Receives the report Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan (R9496) and its attachment (A1998592).

Recommendation to Council

That the Council

Approves the Nelson Tasman Regional Landfill Business Unit Landfills Asset Management Plan (A1998592).

3. Background

3.1 The NTRLBU was established by Nelson City Council (NCC) and Tasman District Council (TDC) to manage and operate regional landfill facilities and the Terms of Reference require the NTRLBU AMP to be submitted to the two Councils for approval.

3.2 The NTRLBU commenced operating on 1 July 2017 and following a workshop on the 18 May 2018 attended by NTRLBU representatives, TDC and NCC officers, the NTRLBU resolved on 22 June 2018 as follows:

"Agrees that the 2018/19 Joint Landfill Asset Management Plan be forwarded to Nelson City Council and Tasman District Council for approval."

4. Discussion

4.1 The AMP provides analysis of the assets and services delivered by the NTRLBU to its customers, future demand, financial analysis of the NTRLBU operations and outlines how risk is managed. This AMP was developed within the context of the current Nelson Tasman Joint Waste Management and Minimisation Plan, April 2012 (JWMMP).

4.2 The AMP was developed to align with financial figures in the 2018/19 Business Plan approved by NCC on 3 May 2018 and was used to support the 2018/2028 Long Term Plan and includes the following details:

- Areas of focus for the activity during 2018-28;
- Levels of Service;
- The activity budgets for operations and maintenance, renewals and capital expenditure.

4.3 The AMP identifies the procurement of a new operations contract, longer term impact of the Emissions Trading Scheme compliance costs and the development of the landfill airspace following closure of the current landfill area at York Valley in around 14 years as issues that need to be considered in more detail.

4.4 These issues as well as issues relating to the emerging consensus across New Zealand society that the waste levy should be increased to generate funding for intervention by government to stimulate and direct the circular economy to achieve improved waste management outcomes, will need to be considered during annual AMP reviews.

4.5 The Draft JWMMP, approved by both Councils, is due to go out for consultation on 17 August 2018 and whilst similar to the existing JWMMP, it is possible that the hearing panel could decide that the new JWMMP needs to set specific targets for the region. If that is the case the AMP may need to be amended so that the implications of the targets set in the new JWMMP are considered and reflected in future Annual and Long Term Plans.

5. Options

5.1 Two options are considered – either approve or not approve the AMP. The preferred option is for Council to approve the AMP.

Option 1: Approve the AMP	
Advantages	• Give effect to the Deed of Agreement and demonstrates support for the joint committee.
Risks and Disadvantages	• Nil
Option 2: Not approve the AMP	
Advantages	• Nil
Risks and Disadvantages	• Not approving the AMP would leave Council without a clear plan to mitigate risks and achieve levels of service.

6. Conclusion

6.1 The AMP has been approved by the NTRLBU to be forwarded to the two Councils for approval.

Author: Johan Thiart, Senior Asset Engineer - Solid Waste

Attachments

Attachment 1: A2998592 RLBU Landfill AMP *(Circulated separately)* ⇨

Important considerations for decision making

1. Fit with Purpose of Local Government

The AMP sets out how Council will deliver agreed levels of service to the community in the most cost effective way.

2. Consistency with Community Outcomes and Council Policy

The AMP supports the delivery of the following Council Community Outcomes:

- *Our infrastructure is efficient, cost effective and meets current and future needs*
- *Our communities are healthy, safe, inclusive and resilient*

The decision to accept this AMP is consistent with the Deed of Agreement for establishment of the NTRLBU and is not considered to be inconsistent with any decisions of Council.

3. Risk

Adopting the AMP is a low risk as it has been through a thorough development process and reflects all of the relevant LTP decisions. Adopting the AMP helps Council mitigate risks by providing a clear plan to achieve levels of service, address relevant focus areas and sets activity budgets for operations, maintenance, renewals and capital expenditure.

4. Financial impact

There are no direct funding implications for NCC from the recommendation. Programmes and projects that will be implemented through the plan will be funded by the users of landfill services.

5. Degree of significance and level of engagement

This matter is of low significance because the AMP is consistent with the Business Plan approved by the two Councils and used to inform their respective 2018/2028 LTP's.

6. Inclusion of Māori in the decision making process

No consultation with Māori was undertaken with respect to this report.

7. Delegations

The Works and Infrastructure Committee has the following delegation:

Areas of Responsibility:

- *Solid waste including landfill and transfer stations.*

Powers to Recommend:

- *Asset and Activity Management Plans falling within the areas of responsibility.*

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9441

Nelson Tasman Regional Landfill Business Unit Treasury Policy

1. Purpose of Report

1.1 To receive and approve the Nelson Tasman Regional Landfill Business Unit (NTRLBU) Treasury Policy (Policy).

2. Recommendation

That the Works and Infrastructure Committee

Receives the report Nelson Tasman Regional Landfill Business Unit Treasury Policy (R9441) and its attachment (A1963932).

Recommendation to Council

That the Council

Approves the Nelson Tasman Regional Landfill Business Unit Treasury Policy (A1963932).

3. Background

3.1 On 22 June 2018 the NTRLBU considered a Policy developed by officers and resolved as follows:

"Approves submission of the Draft NTRLBU Treasury Policy 2018 to the Nelson City Council and Tasman District Council for approval."

4. Discussion

4.1 Having recently been formed the NTRLBU does not have a formal treasury policy. A Policy was developed with input from the Tasman District Council Corporate Services Manager, Nelson City Council Group Manager Corporate Services and PWC (both Councils' Treasury Adviser).

4.2 The Policy is based on the Nelson Regional Sewerage Business Unit Treasury Policy and provides for the settling of interest in the facilities on an equal and verifiable basis.

4.3 While the NTRLBU Terms of Reference that accompany the Deed of Agreement do not reference a treasury policy nor that it needs to be approved by the two Councils, the NTRLBU resolved, for consistency with the way in which both business units operate, to submit the Policy to the two Councils for approval.

Options

4.4 There are two options – Either approve or not approve the draft Policy. Officers' preferred option is for Council to approve the Policy.

Option 1: Approve the Treasury Policy	
Advantages	• Ensure that the approach for NTRLBU and NRSBU is consistent. • It is considered best practice to adopt a treasury policy.
Risks and Disadvantages	• Nil.
Option 2: Do not approve the Treasury Policy	
Advantages	• Nil
Risks and Disadvantages	• Inconsistent with the NRSBU approach. • Inconsistent with best practice.

5. Conclusion

5.1 A draft NTRLBU Treasury Policy has been developed by both Councils for the NTRLBU and is submitted for approval by the two Councils.

Author: Johan Thiart, Senior Asset Engineer - Solid Waste

Attachments

Attachment 1: A1963932 - NTRLBU Treasury Policy 2018 ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

The Policy supports Council in meeting its obligations under Local Government Act 2002.

2. Consistency with Community Outcomes and Council Policy

The Policy supports the delivery of the following Council Community Outcome:

- *Our infrastructure is efficient, cost effective and meets current and future needs*

Any decision to accept this Policy is consistent with the Deed of Agreement for the NTRLBU and is not considered to be inconsistent with any decisions of Council.

3. Risk

The risk of not having a Treasury Policy is that this is inconsistent with the other joint Councils Business Unit (NRSBU) and it is not best practice.

4. Financial impact

There are no direct funding implications for either Council from having a Treasury Policy.

5. Degree of significance and level of engagement

The NTRLBU Treasury Policy formalises the existing relationship between the Committee and both Councils relating to treasury functions.

6. Inclusion of Māori in the decision making process

No engagement with Māori has been undertaken in preparing this report.

7. Delegations

The Works and Infrastructure Committee has the following delegation:

Areas of Responsibility:

- *Solid waste including landfill and transfer stations.*

Powers to Recommend:

- *Asset and Activity Management Plans falling within the areas of responsibility.*

NTRLBU Treasury Policy

2018

Version: 1.1, 07May 2018

A1963932

Authors : Andrew Bishop, Management Accountant, Nelson City Council

: Nikki Harrison, Chief Financial Officer, Nelson City Council

Contents

1 Introduction

1.1 Purpose of Policy

The purpose of the Treasury Management Policy is to outline approved policy in respect of all Nelson Tasman Regional Landfill Business Unit (NTRLBU) treasury activity, to be undertaken by the Nelson City Council and the Tasman District Council. The formalisation of such policies enables the Treasury risks within the NTRLBU to be prudently managed.

As circumstances change, the policies and practices outlined in this document will be modified to ensure the treasury risks associated with the NTRLBU continue to be well managed. In addition regular reviews will be conducted to test the existing policy against the following criteria:

1) Industry "best practices".
2) The risk bearing ability and tolerance levels of the underlying revenue and cost drivers.
3) The effectiveness and efficiency of the Nelson City Council and the Tasman District Council Treasury Management Policies and function to recognise, measure, control, manage and report on the NTRLBU financial exposure to market interest rate risks, funding risks, liquidity risks and associated risks.
4) The operation of a pro-active treasury management function by the Nelson City Council in an environment of control and compliance.
5) In relation to the NTRLBU, the robustness of the Nelson City Council and the Tasman District Council Treasury Management Policies risk control limits and risk spreading mechanisms against normal and abnormal financial market movements and conditions.
6) Assist the NTRLBU in achieving strategic objectives relating to its stakeholders.

It is intended that the policy be distributed to all personnel involved in any aspect of the NTRLBU's financial management. In this respect, the General Manager and all staff at the NTRLBU and at the respective councils must be completely familiar with their responsibilities under this policy at all times.

The governance review and monitoring oversight responsibility rests with the NTRLBU Joint Committee.

1.2 Scope

This document identifies the policies of the Nelson City Council, the Tasman District Council and the NTRLBU in respect of treasury management activities in relation to the NTRLBU. This policy does not override the respective councils Treasury and related Liability Management and Investment policies.

This policy has not been prepared to cover other aspects of the NTRLBU'S operations particularly transactional banking management, systems of internal control and financial management. Other policies and procedures of the NTRLBU and council cover these matters. Planning tools and mechanisms are also outside the scope of this policy.

This policy comes into effect on 1 July 2018 and the policy will be formally reviewed on a three year basis.

2 Objectives

2.1 Statutory Objectives

2.1.1 All borrowing, investments and incidental arrangements will be approved by the NTRLBU Joint Committee and comply with the Local Government Act 2002; or by inclusion in the respective councils Annual Plan or Long Term Plan.

2.1.2 A resolution of the NTRLBU Joint Committee is not required for hire purchase, credit or deferred purchase of goods if:

a) The period of debt is less than 91 days(including rollovers); or

b) The goods or services are obtained in the ordinary course of operations on normal terms for amounts not exceeding in aggregate, an amount determined by resolution of the NTRLBU Joint Committee.

2.2 General Objectives

2.1.3 Manage all of the NTRLBU's investments within its strategic and commercial objectives and optimise returns within these NTRLBU objectives.

2.1.4 Through the Tasman District Council and the Nelson City Council, arrange and structure appropriate funding.

2.1.5 Through the Tasman District Council and the Nelson City Council, manage the NTRLBU borrowing programme to ensure funds are readily available at acceptable margins and costs.

2.1.6 Through the Nelson City Council, maintain liquidity levels and manage the overall cash position of the NTRLBU operations to meet known and reasonable unforeseen funding requirements.

2.1.7 Through the Nelson City Council, invest surplus cash in liquid and credit worthy investments.

2.1.8 Develop and maintain professional relationships with council staff.

2.1.9 In conjunction with the Tasman District Council and the Nelson City Council, ensure that all relevant statutory requirements of a financial nature are adhered to.

In meeting the above objectives the NTRLBU and the respective council Treasury management teams recognise that there are financial risks such as liquidity, funding, interest rate, credit and operational risks arising from treasury activities. The NTRLBU, Tasman District Council and the Nelson City Council are risk averse entities and do not want to incur additional risk from the NTRLBU related treasury activities. Accordingly the Tasman District Council and the Nelson City Council's finance functions, in relation to treasury activities, are a risk management function focused on protecting the NTRLBU's budgeted interest costs, stabilising NTRLBU cash flows and achieving its capital spend programme. The Councils will seek to prudently manage these risks. Accordingly, activity that is unrelated to its underlying cash flows or that may be construed as speculative in nature is expressly forbidden.

2.3 Borrowing

The NTRLBU's borrowing activity is largely driven by its capital expenditure programme. The NTRLBU does not borrow in its own name. The Tasman District Council and the Nelson City Council borrow in their name to fund the NTRLBU. The funding requirement is generally split 50/50 between the two councils. This borrowing is carried out and subject to the individual councils

borrowing policies. Borrowing limits are not expressly applied to the NTRLBU and borrowing is funded at the council level like other council activities.

2.3.1 The NTRLBU maintains two types of committed funding arrangements

1. Core funding arrangements with the Nelson City Council and the Tasman District Council
2. A working capital arrangement with the Nelson City Council.

These arrangements ensure the achievement of the liquidity ratio and debt funding requirements of the business plan. The liquidity and funding mechanisms are as follows;

- The committed core funding arrangements have a constant maturity term of no less than five years.
- The total core funding arrangements must be maintained at an amount of 110% of at least the existing debt borrowing amount.
- The Nelson City Council will manage the day to day working capital as a short term loan
- The NTRLBU will draw down and repay core funding in amounts of $2M ($1M per council) or more.
- The interest rate is fixed annually at 1 July and charged quarterly in arrears. The fixed annual rate is set at a margin above the prevailing 3-year market swap rate. The interest rate will be reviewed quarterly and moved for the following quarter if the 3 year swap rate has moved +/- 50bps (0.50%).
    - The Nelson City Council Treasury function will advise the NTRLBU and Tasman District Council of the calculated interest rate and margins as set out below.
    - Where the annual or quarterly review date falls on a non-business day the review will occur on the next business day.
    - The interest rate and margin will apply to both the core and working capital agreements.
    - The reset will be based on the swap mid rate at close of business (5.00 pm) displayed on the Reuters page NZDSM3NB3Y on the review date.
    - The margins the councils charge above the 3 year swap mid rate are the same for each council and is initially set at 120bps pa.
    - The margin is reviewed annually prior to 30th of June and any change is effective from 1 July in that year.
    - The margin is set on the basis of a quote from Westpac Bank-Nelson for Nelson City Council as an AA- credit-rated Council for a 3 year committed cash advance/MOCL bank facility including any commitment or other facility related fees.

2.4 Investments

The NTRLBU needs to invest its Landfill Post Closure Cost Provisions (LPCCP) to ensure funds are available when the provision is realised and pre-purchase Carbon Credits to mitigate exposure to future price increases for Carbon. It does not participate in other equity or investments with the exception of treasury instruments. Nelson City Council manages these treasury investments in accordance with the Nelson City Council investment policy.

- The LPCCP will be invested equally with the two Councils on call.

- The interest rate on the investment of the LPCCP shall be based on the swap mid-rate at close of business (5.00 pm) displayed on the Reuters page NZDSM3NB3Y on the review date. The review date shall be the same as for the loan facility in 2.3 above.

2.4.1 Investment of Post Closure Cost Provision

The NTRLBU will invest the funds set aside for Landfill Post Closure Costs equally with Nelson City Council and Tasman District Council.

2.4.2 Carbon Credit Policy – Emissions Trading Scheme

The objective of the carbon credit policy is to minimise the financial impact of movements in carbon credit prices under the Emissions Trading Scheme (ETS) on The Nelson Tasman Regional Landfill Business Unit (The Business Unit).
The objective requires balancing The Business Unit's need for price stability with the benefit of realising market opportunities to reduce costs if/when they arise.

The Business Unit recognises carbon price exposures as follows:

- Carbon liabilities related to the annual exposure of landfill emissions

The risk is managed under the following risk control limits.

Period	Minimum %	Maximum %
Committed*	80%	100%
Forecast		
0-1 years	0%	80%
1-2 years	0%	50%
2-3 years	0%	30%
3-5 years	0%	25%

* Exposures become committed on a monthly basis as obligations become known and returns are filed with the Ministry for the Environment.

Approved financial instruments include:

New Zealand Units (NZUs) and NZ Assigned Amount Units (NZAAUs) only.

- NZU: spot and forward contracts
- NZ-AAU: spot and forward contracts

Approved financial instruments are transacted with NZ registered banks per approved counterparties and approved legal documentation. Financial instruments must be transacted under Council approved legal documentation.

The actual annual carbon credit cost for The Business Unit should be no worse than the budgeted carbon credit cost for that year.

Transactions entered into based on this policy need to comply with the The Business Unit's delegation of authority policy with ultimate responsibility sitting with the Councils.

3 Management Responsibilities

3.1 Day to day treasury management for the NTRLBU is carried out by the Nelson City Council on behalf of the NTRLBU Joint Committee for both Councils. This includes regular financial reporting to the NTRLBU joint committee. This management is carried out in accordance with and under the Nelson City Council's policies and procedures.

3.2 The NTRLBU core debt, if required, is split evenly and funded by each council separately. This debt is reported and managed as part of each council's activities. This management including risk management is carried out under the respective councils own Treasury Policies.

3.3 The NTRLBU borrowing programme is included in the NTRLBU Strategic and Business Plans which are separately reviewed by each council and approved as part of their Annual Plan and Ten Year Plan process.

****

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9503

Nelson Regional Sewerage Business Unit Business Plan 2018-19

1. Purpose of Report

1.1 To approve feedback to the Nelson Regional Sewerage Business Unit (NRSBU) through the Acting General Manager on changes the Nelson City Council (NCC) requires to the draft 2018/19 Business Plan (Plan) that reflects/complements Nelson's Long Term Plan (LTP) and the Council's environmental aspirations.

2. Recommendation

That the Works and Infrastructure Committee

Receives the report Nelson Regional Sewerage Business Unit Business Plan 2018-19 (R9503) and its attachments (A1928704, A1995125); and

Approves feedback be given to the Nelson Regional Sewerage Business Unit through the Acting General Manager that further review of the draft NRSBU Business Plan 2018-19 is required so that it better complements Nelson City Council's Long Term Plan and the Council's environmental aspirations.

3. Background

3.1 The NRSBU was established by the Nelson City Council (NCC) and Tasman District Council (TDC) in July 2000. Its purpose is to manage and operate the wastewater treatment facility at Bell Island and the associated reticulation network efficiently and in accordance with resource consent conditions and to meet the needs of its customers.

3.2 The NRSBU Memorandum of Understanding (MoU) requires that a Business Plan be presented to the two Councils - specifically the MoU states that:

> *"11.3 Business Plan*
>
> *The business plan should state the activities and intentions of the Business Unit. It should outline how those activities relate to the objectives of the Business Unit as documented in the current strategic plan, the financial forecasts for the following three years, the performance targets for the coming year and any variations to charges proposed for that financial year.*
>
> *A draft of the business plan for the coming year shall be presented to the Councils annually by 31 December.*
>
> *After the Councils have had an opportunity to discuss and comment on the draft Plan the Board shall finalise the business plan, incorporating any changes agreed between the Councils and the Board and present the final business plan to the Councils by 20 March."*

3.3 A report was presented to the Works and Infrastructure Committee in March 2018 to receive the NRSBU Draft Plan (refer to Attachment 1). The Business Plan has been approved by TDC.

3.4 The Works and Infrastructure Committee noted that the draft Plan was an important document and Council engagement with the document was necessary to ensure that it complemented Council's LTP, in particular its high environmental aspirations and resolved as follows:

> *"Leaves the item Nelson Regional Sewerage Business Unit Draft Business Plan 2018/19 to lie on the table until a Joint Nelson City Council and Tasman District Council workshop is held to review the strategic direction and a further report be brought to a Works and Infrastructure meeting".*

3.5 On 4 July 2018 a joint NCC/TDC workshop was held. Key questions were posed as outlined in the workshop programme (refer to Attachment 2). The workshop failed to find common ground.

4. Discussion

4.1 The draft Plan is consistent with the financial programmes used to develop the current LTP's of the two Councils. It is however light on detail in terms of how the Plan will contribute to NCC's LTP goal of improved environmental outcomes, particularly around reduced discharge into the Waimea Estuary and increased re-use of treated wastewater.

4.2 In order to move this issue forward officers propose that the Works and Infrastructure Committee advise the NRSBU (through the Acting General Manager) that further work is required to the Plan, in particular the requirement that the Plan address Nelson's environmental aspirations of reduced discharge into the Waimea Estuary and increased re-use of treated wastewater, with the request that this be brought back to a future Works and Infrastructure Committee.

4.3 Feedback to the Acting General Manager needs to reflect clear articulated environmental outcomes and a timeframe for achievement. Policy 23 of the New Zealand Coastal Policy Statement sets the clear expectation that the discharge of treated wastewater is permitted only where specific processes are met.

4.4 The Council is also developing a programme of work to respond to national and regional initiatives in the coastal and marine areas through the Sustainable Seas National Science Challenge.

4.5 The Acting General Manager should reflect this Council's LTP's aspiration in the Business Plan specifically referencing:

- the need to reduce overflow into Tasman Bay; and
- the need to give regard to having a greater focus on the marine environment and impacts on ecology of Tasman Bay; and
- the need to give regard to the importance that water quality, biodiversity and estuary health are priorities over the next three years for Tasman Bay.

4.6 Any change to the Plan would need to be presented to the TDC.

5. Options

5.1 There are three options for consideration (as presented below):

Option 1: Do nothing	
Advantages	• None
Risks and Disadvantages	• Delay in finalising the Business Plan. • Currently TDC have received the Plan and NCC has not.
Option 2: Approve the Plan as it stands at present	
Advantages	• Aligns with TDC.
Risks and Disadvantages	• Current plan does not reflect and complement NCC's LTP, in particularly its high environmental aspirations. • Not the preference of the NCC.
Option 3: Send the current Plan back to the NRSBU for review	
Advantages	• Provides opportunity for the Plan to better reflect and complement Council's LTP, in particularly its high environmental aspirations.

Risks and Disadvantages	• Further delay to finalising the Plan • TDC may not approve any subsequent changes. • NRSBU will need to resubmit any revised plan to the TDC for approval.

6. Conclusion

6.1 The MoU requires that a draft Plan for the coming financial year be presented to both Councils annually for comment before the final Business Plan is presented to the Council's. The draft Plan has been approved by TDC. It was first considered by NCC in March this year, but left to lie on the table pending a joint workshop.

6.2 A workshop involving NCC and TDC councillors to consider better alignment with NCC's LTP was held but failed to find common ground.

6.3 In order to move this matter forward, officers recommend that the draft Plan be sent back to the NRSBU for review with a request that it be resubmitted back to Council for presentation to a future Works and Infrastructure before been presented to Council.

Author: Alec Louverdis, Group Manager Infrastructure

Attachments

Attachment 1: A1928704 NRSBU draft Business Plan 2018/19 ⇩

Attachment 2: A1995125 - Joint Nelson City Council and Tasman District Council Workshop Programme NRSBU ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

The decision in this report will assist in the provision of good quality environmental services in a cost effective way.

2. Consistency with Community Outcomes and Council Policy

The decision to request further works on the NRSBU Business Plan supports the community outcome "Our Unique natural environment is healthy and protected".

3. Risk

This report allows Council to comment on the NRSBU Business Plan and these comments will be considered by the Joint Committee. The risk of not providing feedback to the NRSBU will delay its ability to approve and implement actions in the Business Plan.

4. Financial impact

Any review of the NRSBU Business Plan to include specific environmental outcomes could have an impact on the NRSBU Asset Management Plan and subsequent Council LTP's.

5. Degree of significance and level of engagement

The NRSBU is a Joint Committee of the two Councils and its activities are included in the Long Term Plans and Annual Plans of each Council. Consultation is undertaken by both Councils in the preparation and adoption of these plans.

6. Inclusion of Māori in the decision making process

There has been no communication with Iwi in this regard. The Iwi representative on the Joint Committee resigned from the committee prior to the consideration of the Business Plan and has not yet been replaced.

7. Delegations

The Works and Infrastructure Committee has the following delegation:

Areas of Responsibility: Wastewater.

Powers to Recommend: Asset and Activity Management Plans falling within the areas of responsibility."

Nelson Regional Sewerage Business Unit

Business Plan

2018/2019

Nelson Regional Sewerage Business Unit (NRSBU)

Business Plan 2018/2019

Contents

Appendices

Prepared by: Johan Thiart
Senior Asset Engineer – Solid Waste

Reviewed by: Jeff Robinson
General Manager

Nelson Regional Sewerage Business Unit

Approved:

Cover photograph: Bell Island

1. PURPOSE

The purpose of the Nelson Regional Sewerage Business Unit Business Plan 2018/19 is to detail management goals and objectives to not only deliver the wastewater collection and treatment services to the region but to also improve the effectiveness and efficiency in the delivery of those services.

2. MEMORANDUM OF UNDERSTANDING REQUIREMENTS

The Memorandum of Understanding states that the NRSBU Board shall by 31 December each year supply to the Councils (Nelson City and Tasman District Councils) a copy of its Business Plan for the management of the Nelson Regional Sewerage Business Unit and the assets for the ensuing year, together with any variations to the charges proposed for that financial year.

The Memorandum of Understanding (MOU) was reviewed during 2015. The new MOU commenced on 1 July 2015 and shall terminate on 30 June 2025.

3. INTRODUCTION

This Business Plan 2018/19 outlines the projects and initiatives to be implemented during the year. It also outlines the associated funding required and the details on the performance targets and measures.

The Business Plan is aligned with the NRSBU Strategic Plan and the NRSBU Wastewater Asset Management Plan 2017. It incorporates the business objectives and performance targets (Section 4) and the three-year financial forecasts (Section 6). The following key pieces of information from these other documents are included in the appendices of this business plan;

Appendix A – Board Activity Schedule;

Appendix B - Targeted service levels established by the Asset Management Plan;

Appendix C - Internal business improvement plan;

Appendix D - The 10 year financial plan;

Appendix E - Schematic layout of the NRSBU operations.

4. MISSION STATEMENT

The NRSBU's mission statement is:

"To identify the long term wastewater processing and reticulation needs of our customers and to meet current and future needs in the most cost effective and sustainable manner."

5. STRATEGIC GOALS

The NRSBU aspires to achieve the following goals:

- Wastewater reticulation, treatment and disposal services meet customers' long term needs.
- The costs of wastewater reticulation, treatment and disposal services are minimised.
- Risks associated with the services provided are identified and mitigated to a level agreed with customers and owners.
- We engage the right people with the right skills and experience.
- The NRSBU operates sustainably and endeavours to remedy or mitigate any identified adverse environmental, social and cultural impacts.

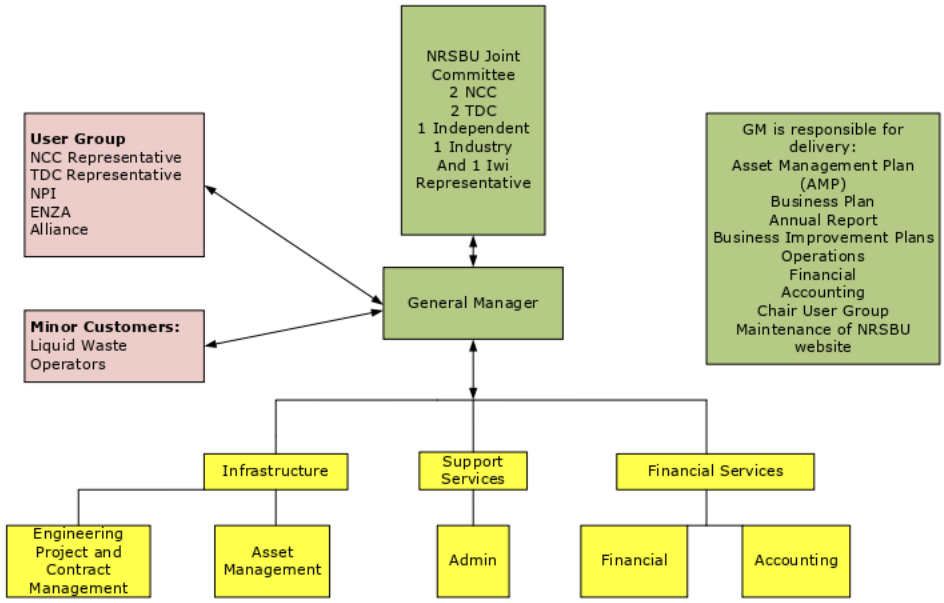
- Good relationships are maintained with all stakeholders.
- All statutory obligations are met.

The NRSBU functional activities are managed by the Nelson City Council and therefore the NRSBU functional activities shall comply with the requirements of the Nelson City Council Health and Safety Policy, and fully subscribe to the vision for a Zero Harm Culture.

All strategic goals are important and no one goal will be pursued at the expense of another.

6. NRSBU STRUCTURE AND BACKGROUND

The structure of the Nelson Regional Sewerage Business Unit is as follows:



The Nelson Regional Sewerage Business Unit was established in July 2000, replacing the former Nelson Regional Sewerage Authority established in the 1970s.

Following the adoption of a new Strategic Plan in August 2013 the 2017 Wastewater Asset Management Plan was developed and adopted on 15 September 2017. A draft of the long term financial plan based on the Asset Management Plan was provided to Tasman District Council and Nelson City Council respectively in July and October 2017 to enable them to consolidate the NRSBU long term plan into their strategic documents.

With the completion of significant upgrade programmes over the last few years the treatment plant now has adequate capacity to treat projected loads beyond 2025 without further significant capital investment. A review of the biosolids produced at the plant, as well as the capacity of the radiata pine plantations on Bell Island and Rabbit Island to receive biosolids, has demonstrated that the land available for the disposal of biosolids is also adequate for projected loads up to 2025.

7. BUSINESS OBJECTIVES AND PERFORMANCE MEASURES

The objectives outlined below describe the long term aims of the business unit. Performance measure targets and dates (where they are not specified below) are set annually in the Business Plan along with performance measures for projects identified in the Asset Management Plan. Performance will be reported quarterly to the Board and annually or six monthly, as appropriate, to the shareholding Councils.

Long Term Objectives	Key Performance Measures
Wastewater reticulation, treatment and disposal services meet customers' long term needs	
Sufficient reticulation, treatment and disposal capacity is available for loads received.	Loads do not exceed the capacity of the system components.
Intergenerational equity is maintained.	Loans are repaid over 30 years (the average life of the assets).
Customers are encouraged to engage with the organisation and are satisfied with the service.	All customer representatives attend at least 75% of customer meetings. Customer surveys show an average score of at least 5 out of 7 on satisfaction with services.
Levels of service are defined in all contracts and are met.	100% compliance with service level agreements by all major contractors.
The cost of wastewater reticulation, treatment and disposal services are minimised	
The costs of reticulation, treatment and disposal are minimised.	The operational costs of reticulation, treatment and disposal processes are benchmarked against costs incurred up to 30 June 2014. All capital projects are delivered within budget.
The economic lives of all assets are optimised.	Three yearly independent audit of asset management practices confirms this.
Customers understand the benefits of demand management and the costs, risks and environmental implications of increasing demand.	Combined loads do not exceed the capacity of the components of the system.
New technology choices are well understood and are proven to be reliable, sustainable and cost effective.	All significant technology choices are supported by cost benefit analysis, independent peer review, energy efficiency analysis, risk analysis and, where appropriate, by other users of those technologies.
Risks associated with the services provided are identified and mitigated to a level agreed with customers and owners.	

Long Term Objectives	Key Performance Measures
Risk management plans include all significant health and safety, environmental, cultural, social, economic and contractual risks.	No event, which impacts on agreed levels of service, occurs that has not been identified in the NRSBU risk management plans. Customer representatives review and approve the risk management plan annually and following any incidents which require activation of the plan.
Contingency plans adequately address emergency events.	Customer representatives review and approve the plans annually. Effectiveness of plans is reviewed and confirmed following incidents which require activation of the plan.
We engage the right people, with the right skills and experience.	
Those engaged with the NRSBU have the right skills, experience, and support to perform well.	Annual staff performance reviews include assessment of the skills and experience required in their role in NRSBU and their development needs are identified and met. Development and succession plans are in place. The Board reviews its performance at least annually.
Operation and maintenance manuals reflect best practice for the management of the plant and reticulation systems and are followed consistently.	An independent audit every three years confirms this.
NRSBU operates sustainably and endeavours to remedy or mitigate any identified adverse environmental, social or cultural impact	
NRSBU minimises adverse environmental, social and cultural impacts where this is economically viable.	That progress towards meeting energy efficiency targets reported on and reviewed annually in June. Current capacity to utilise beneficial application of biosolids to land is sustained. Beneficial economic and environmental reuse of treated waste water is maintained or increased. Environmental, social and cultural impacts are considered in all decision making.
Good relationships are maintained with all stakeholders	

Long Term Objectives	Key Performance Measures
Shareholders are satisfied with the strategic direction and the economic performance of the business unit.	All strategic and business plans are approved by shareholders. All budget projections are met.
Good relationships are maintained with all stakeholders including owners, iwi, customers, contractors, neighbours, and the wider community.	All complaints or objections are addressed promptly. All applications for resource consents are approved. Up to date information on activities and achievements are publically available.
All statutory obligations are met	
All statutory obligations are identified and met and are included in contracts with suppliers.	100% compliance with all statutory obligations.
All resource consent requirements are met.	100% compliance with all resource consents.

8. THREE YEAR RENEWAL EXPENDITURE FORECAST ($'000)

Renewal Plan ($,000)	Projected 2017/18	2018/19	2019/20	2020/21
Miscellaneous	20	20	20	20
Pump Stations and Rising Mains	50	85	67	42
Inlet, Aeration Basin, Clarifier and Ponds	172	188	318	190
Solids Handling	0	119	55	357
Rabbit Island	24	223	38	154
Roads	0	0	0	75
Consents	381	228	136	0
Total =	**647**	**635**	**1.049**	**1,014**

The renewal programme of NRSBU assets is developed around lifecycle and condition assessment. An iterative process is followed where the renewal programme is considered annually with inputs from the Operation and Maintenance operator and the review of remaining useful life of assets.

Condition assessment reports are commissioned where additional information is required to ensure optimal spend on renewals. This approach works well due to the relatively small number of different assets managed by the NRSBU.

The major components that will be considered for renewal during 2018/19 are:

- PLC Control upgrade at activated sludge and sludge facilities;
- Renewal of ATAD aerator;
- Renewal of aeration basin aerator;
- Sealing of road;
- Renewal of sludge storage tank.

9. NRSBU Capital Upgrade Plan ($'000)

The following table outlines the capital upgrades proposed over the next three years. This is followed by a commentary outlining more detail on each of the proposals.

Year	Description of Projects	Estimated Costs $'000
2018/19	Desludging oxidation ponds	1,520,000
	Treatment Plant Upgrade (Consent dependent)	2,500,000
2019/20	Modification Facultative Ponds	420,000
	Treatment Plant Upgrade (Consent dependent)	2,500,000
	Rabbit Island Biosolids Consent	240,000
	Regional Pipeline Upgrade	1,000,000
2020/21	Regional Pipeline Upgrade	6,500,000

Commentary on Upgrade Proposals for 2018/19

Desludging of Ponds: The desludging will be carried out over two financial years. The project is conditional on the outcome of a review of the performance of mixer upgrade in one of the three facultative ponds

Treatment Plant upgrade is conditional on the outcome of the conditions of consent associated with the discharge consent that is currently being applied for.

Modification of ponds is conditional on the review of the performance of improvements made to the final maturation pond.

The consent for the application of biosolids at Rabbit Island expires on 8 November 2020.

Regional Pipeline Upgrade: Conditional on a review of growth projections of wastewater generated in Nelson and Tasman.

10. FINANCIAL PLAN

Nelson Regional Sewerage Business Unit
Budget Summary for 2018 to 2021

	Projection	Budget		
	2017/2018 $'000	2018/2019 $'000	2019/2020 $'000	2020/2021 $'000
Income				
Contributors	7,533	7,633	7,947	8,266
Interest	0	0	0	0
Other Recoveries	174	174	174	174
Total Income	7,707	7,807	8,1212	8,440
Expenditure				
Operations and maintenance	3,226	3,283	3,290	3,197
Interest	563	619	777	1,004
Insurance	60	60	60	60
Depreciation	1,923	1,870	1,891	1,998
Total Operating Cost	5,772	5,832	6,018	6,259
Surplus/Deficit	1,935	1,975	2,103	2,181
Use of Funds				
Loan Repayment	1,276	1,235	1,256	1,455
Renewals	647	635	635	543
Owners' Distribution	1,935	1,975	2,103	2,181
Upgrades	1,027	4,020	4,160	6,500
	4,885	7,865	8,154	10,679
Sources of Funds				
Surplus/Deficit	1,935	1,975	2,103	2,181
Depreciation	1,923	1,870	1,891	1,998
New Loans	1,027	4,020	4,160	6,500
	4,885	**7,865**	**8,154**	**10,679**

LONG TERM FINANCIAL STRATEGY

The long term financial strategy (Appendix D) is a complete picture of the operations and maintenance costs and capital projects to be undertaken over the next 10 years. This strategy is based on the Nelson Regional Sewerage Business Unit Asset Management Plan 2017.

APPENDIX A

Nelson Regional Sewerage Business Unit

Board Activity Schedule 2017-2018

Date	Activity	Papers required
By 31 August 2018	Review draft Annual Report and Financial Statement.	Draft annual report and financial statement.
By 30 September 2018	Deliver annual financial statement to Councils.	Financial Statement.
By 15 December 2018	Review board planning/meeting timetable. Adopt draft business plan for presentation to Tasman District Council and Nelson City Council. Review and update Interests Register. Adopt business continuity plan.	Planning/meeting timetable. Business Plan. Interests Register. Draft business continuity plan.
By 31 March 2018	Present Annual Report and Business Plan to Tasman District Council and Nelson City Council.	Annual Report and Business Plan.

Date	Activity	Papers required
By 30 June 2018	Review board performance Review governance policy Review Demand Management Plan Receive report on Contingency Plan review by customer representatives. Receive report on Risk Management review by customer representatives. Review customer satisfaction survey results Annual review of Strategic Plan Adopt Energy Conservation Plan Review Audit Management Report	Checklist for board effectiveness. Governance Policy Draft Demand Management Plan. Report on Contingency Plan review by customer representatives. Report on Risk Management review by customer representatives. Customer survey report. Strategic plan. Energy Conservation Programme.

APPENDIX B

LEVELS OF SERVICE

The following levels of service are included in the Nelson Regional Sewerage Business Unit Asset Management Plan 2014 and compliance demonstrates progress towards achieving the Strategic Goals:

Environmental	Category	Level of Service
Treatment and Disposal	RMA Consent - Wastewater Discharge to Coastal Marine Area	100% compliance with consent conditions
	RMA Consent – Discharge of Contaminants to Air.	100% compliance with consent conditions
	RMA Consent - Discharge of Contaminants to Land	100% compliance with consent conditions
	Equipment Failure of critical components within the treatment and disposal system.	No equipment failures that impact on compliance with resource consent conditions.
Pump Stations	Odour complaints from pump stations	No odour complaints originating from pump stations
	Pump station wet weather overflows	No overflow events occurring for the contracted contributor flows
	Pump station overflows resulting from power failure	No overflow events occurring
	Pump station overflows resulting from mechanical failure.	No overflow events occurring
Pipelines	Reticulation Breaks	No reticulation breaks.
	Air valve malfunctions	No air valve malfunctions that result in overflows

Capacity	Category	Level of Service
Treatment & Disposal	Overloading system capacity	Treatment and disposal up to all contracted loads and flows
Pump Stations	Overloading system capacity	No overflows for all pump stations for the contributor flows
RELIABILITY	Category	Level of Service
Treatment & Disposal Pump Stations Pipelines	Equipment failure of critical components	No equipment failures that lead to non-compliance with resource consent conditions

Responsiveness	Category	Level of Service
Treatment & Disposal Pump Stations	Speed of response for emergency and urgent maintenance works	Achievement of response times specified in the maintenance contract
Pipelines	Speed of response for routine and programmable maintenance works	Achievement of response times specified in the maintenance contract

Key Customer Relationships	Category	Level of Service
Treatment & Disposal Pump Stations	Customer satisfaction	Agreed levels of service provided to all Customers
Pipelines		Robust charging structure is in place

Appendix C

BUSINESS IMPROVEMENT PLAN

This section describes initiatives to improve the efficiency and effectiveness of the Business Unit and is based on the Nelson Regional Sewerage Business Unit Strategic Plan and referenced to the 2017 Wastewater Asset Management Plan.

IP	Description	Resource Requirements	Progress
IP-1	Consolidate all natural disaster information and review 3 yearly.	In-house	Ongoing
IP-2	Renewal of effluent discharge permits.	In-house	Ongoing
IP-3	Develop sludge removal programme.	In-house	Ongoing
IP-4	Review long term plan.	In-house	2018-2020
IP-5	Review AMP.	In house	2018-2020
IP-6	Investigate use of gravity belt thickener for use to thicken secondary sludge..	In-house	2018/2021

APPENDIX D

10 YEAR PLANS

OPERATIONS, MAINTENANCE AND CAPITAL EXPENDITURE

NELSON REGIONAL SEWERAGE BUSINESS UNIT
10 Year Operations and Maintenance Plan ($,000)

	Proj	1	2	3	4	5	6	7	8	9	10
	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
Total Management	221	225	225	225	225	225	225	225	225	225	225
Total Financial	563	619	777	1004	1297	1465	1437	1412	1405	1389	1446
Depreciation	1923	1870	1891	1998	2128	2193	2193	2200	2215	2230	2237
Total Electricity	820	820	800	800	800	800	800	800	800	800	800
TP Maintenance	938	941	941	935	935	935	935	935	935	935	935
PS & RM Maintenance	245	244	244	244	244	244	244	244	244	244	244
Total Monitoring	184	206	254	184	256	184	184	186	244	254	186
Consultancy	75	75	75	75	75	50	50	50	50	50	50
Insurance	60	60	60	60	60	60	60	60	60	60	60
Rates & Rental	61	61	61	61	61	61	61	61	61	61	61
Water Charges	22	44	44	44	44	44	44	44	44	44	44
Forestry	42	42	20	4	4	4	4	4	4	4	4
Biosolids Disposal	630	623	623	623	623	623	623	623	623	623	623
Telephone/Computers	3	3	3	3	3	3	3	3	3	3	3
Total Expenses	**5787**	**5832**	**6018**	**6259**	**6754**	**6890**	**6862**	**6846**	**6912**	**6921**	**6917**

NELSON REGIONAL SEWERAGE BUSINESS UNIT											
10 Year Renewal Plan ($,000)	**Proj**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	17/18	**18/19**	**19/20**	**20/21**	**21/22**	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**	**27/28**
Miscellaneous	20	20	20	20	20	20	20	20	20	20	20
Pump Stations and Rising Mains	50	85	67	42	218	168	228	85	344	518	31
Inlet, Aeration Basin, Clarifier and Ponds	172	188	318	190	259	154	179	193	29	697	250
Solids Handling		119	55	63	336	52		8	15	153	105
Rabbit Island	24	223	38	154	47	186	67	233	7	798	
Roads				75		138					35
Consents	381		136								
Total =	647	635	635	543	881	717	494	539	415	2,187	441

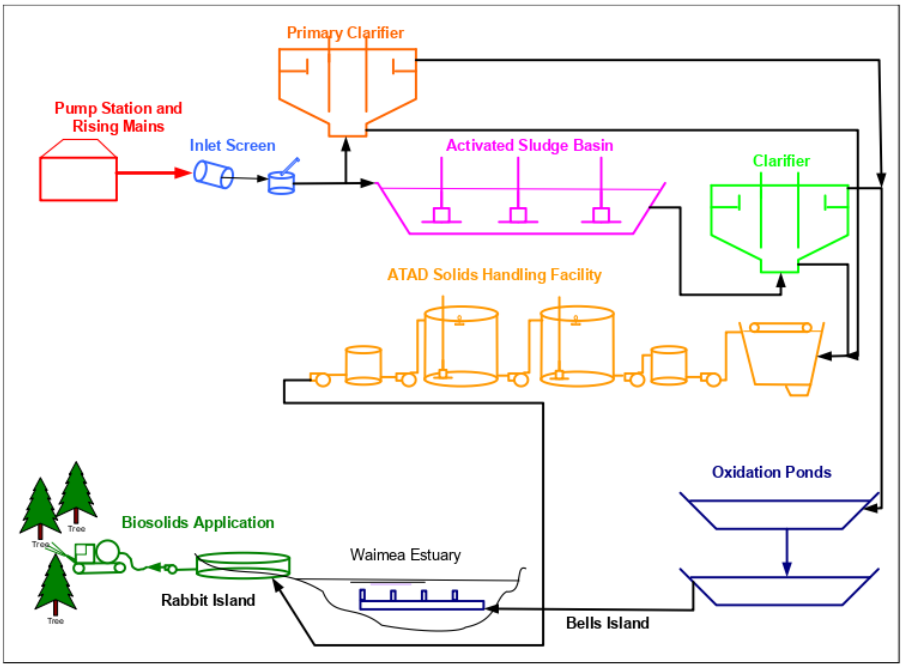
Note: More detailed review of expected life of solids handling facilities and electrical control and equipment are likely to affect the renewal programme.

The renewal programme beyond year 1 is indicative total cost only. Specific renewal items will be subject to condition and lifecycle assessment leading up to the development of the 2018/19 Business Plan.

Upgrade programme		
Year	**Description of Projects**	**Estimated Costs $**
2018/19	Desludging oxidation ponds	1,520,000
	Treatment Plant and Network Upgrade (Bell Island Discharge and Aberrational Discharge Consent dependent)	2,500,000
2019/20	Modification Facultative Pond (Consent dependent)	420,000
	Treatment Plant Upgrade (Consent dependent)	2,500,000
	Regional Pipeline Upgrade (Demand dependent)	1,000,000
	Rabbit Island Biosolids Consent Application	240,000
2020/21	Regional Pipeline Upgrade (Demand dependent)	6,500,000
2021/22	Regional Pipeline Upgrade (Demand dependent)	6,500,000
2024/25	Disposal of dried sludge	700,000
2025/26	Songer street upgrade (Demand dependent)	100,000
	Disposal of dried sludge	700,000
2026/27	Disposal of dried sludge	700,000
2030/31	Activated sludge management (2nd Secondary clarifier)	2,800,000

APPENDIX E

BELL ISLAND TREATMENT PLANT SCHEMATIC



Nelson City Council te kaunihera o whakatū

tasman district council

NRSBU Business Plan 2018/19 Workshop Programme

Commencing at 2pm
finishing at 4pm
Council Chambers, Civic House
Trafalgar Street, Nelson

Wednesday 04 July 2018

A1995125

1. Workshop Purpose

1.1 In recognising the importance of the Nelson Regional Sewerage Business Unit (NRSBU) 2018/19 Business Plan (Business Plan) as a key guiding document, Nelson City Council (NCC) has requested a round table with Tasman District Council (TDC) to discuss the Business Plan to ensure that it complements Nelson's Long Term Plan (LTP) and in particular their environmental aspirations.

2. Background

2.1 The Business Plan has been approved by TDC but not by NCC.

3. Workshop Outline

3.1. Presentations to the workshop will include:

3.1.1 Summary of consent application lodged with TDC by Rob Lieffering (Stantec);

3.1.2 Presentation of the environmental effects of treated wastewater discharge by Dr Paul Gillespie (Cawthron);

3.1.3 Summary of Treated Wastewater Re-use study by Alec Louverdis.

4. Key Questions

4.1. Does the existing Business Plan meet the expectations of both Councils?

4.2. Does the resource consent application meet the expectations of both Councils?

4.3. What message do the two Councils wish to give with respect to environmental best practice?

4.4. Is there an appetite from the two Councils to propose consent conditions as part of the current resource consent application with respect to achieving better environmental outcomes; eg a commitment to reduce discharge volume to the estuary by way of re-using treated wastewater.

5. Summary

5.1 At the conclusion of the workshop officers will summarise the direction provided.

6. Reference Documents

A1928704 - NRSBU 2018/19 Business Plan **3 - 22**

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9502

Wastewater Network Inflow and Infiltration Issues on Private Property

1. Purpose of Report

1.1 To agree on the appropriate way to address stormwater inflow from private properties into the Council wastewater network with a priority given to a public communications plan and addressing direct inflow where "quick fixes" (up to $500) are identified.

2. Summary

2.1 Reducing the inflow and infiltration of stormwater into the wastewater network is a priority for Council for the next ten years and addresses two of the top four priorities of the Long Term Plan 2018-28 (LTP), namely Infrastructure and Environment.

2.2 Overflows during high rainfall events from the wastewater network discharge diluted wastewater onto streets, property, rivers/streams, the Haven and Tasman Bay. This can lead to environmental, cultural and health issues. It also impacts on development and growth in the city by making the existing situation worse.

2.3 In order to reduce the number and quantity of wet weather overflows from the wastewater network the level of direct stormwater inflow and diffuse infiltration into the network must be reduced.

2.4 A review of wastewater flows to Council's pump stations shows a clear 'spike' of flow very soon after rainfall begins. This spike stops soon after the rain stops and is a result of direct inflow of stormwater into the wastewater network from downpipes and surface flows (usually through gully traps). Addressing these direct inflows will provide Council with the greatest impact on addressing wastewater overflows.

2.5 Currently Council is carrying out an investigation of all properties connected to the public network. Results of visual inspections and dye testing are being collected and analysed. Where downpipes are discharging directly to gully traps, owners will be advised and requested to remedy the issue urgently. The likely costs of remedial works will vary from several hundred dollars to potentially thousands for the more complex fixes.

2.6 This report highlights the immediate work that needs to commence, specifically the public communications campaign essential for Council to gain traction on addressing inflow from private properties into the wastewater reticulation network. This work alone should have a positive impact on reducing wastewater overflows. This report also covers the approach to require all private owners to address obvious urgent issues that can be undertaken at relatively low cost (around $500 or less), including raising gully traps.

2.7 It is expected that these "quick fixes" remedial interventions identified during the first round of inspections will have a significant impact on the reduction of overflows and this success will be reported back to Council.

2.8 In tandem with this work across the entire Nelson area, a targeted trial is underway in the Rutherford area (following a submission to Council's LTP) that will allow officers to better and more accurately identify the range of issues, possible remedial options and the quantum of costs for the large more complex fixes. This trial is expected to take 6-8 months and will guide the discussion with Council as to who undertakes these remedial works and who will cover the costs. A report will be presented to a future Works and Infrastructure Committee on the findings and options.

3. Recommendation

That the Works and Infrastructure Committee

Receives the report Wastewater Network Inflow and Infiltration Issues on Private Property (R9502) and its attachments (A2047807, A2059113, A2046065, A2021386, A2053953);

Endorses the public communication campaign to highlight the issue to private property owners to commence with urgency; and

Endorses the approach to re-direct obvious private stormwater inflows out of the sewer system and that these "quick-wins" (up to $500) be at the cost of private landowners.

4. Background

4.1 Stormwater inflow and infiltration into the wastewater network leads to overflows of diluted wastewater in heavy rain events. These overflows occur on both public and private property.

4.2 Monitoring wet weather flows into Councils wastewater pump stations shows strong peaks of flow soon after rainfall begins. These peaks are the result of direct inflow of stormwater from building roof areas and

hard surfaces into the wastewater network. When rainfall stops these peaks drop off and overflows from manholes in the network cease.

4.3 Through the LTP, Council approved a multi-year project to investigate and reduce the levels of wastewater overflows across the city.

4.4 At a workshop on 24 July 2018 Council was briefed on the progress made to date with property investigations, looked at examples of specific property issues, and discussed in broad terms options available to Council for addressing issues on private property and the merits of making some form of expert resource available to respond to queries from property owners.

4.5 A target of up to 40% reduction in number and volume of overflows over the next ten years was also suggested as appropriate at this early stage in the project. This figure has been taken from the Water NZ Inflow and Infiltration Control Manual as the reduction in peak wet weather flow that can be expected to result from removing all inflow defects plus sealing public sewers. Monitoring of the effectiveness of the inflow reduction programme is a key component to the programme and can be used to adjust the target reduction figure on an annual basis if necessary.

5. Discussion

5.1 In order to meet the target of a 40% reduction in number and volume of overflows over the next ten years addressing the inflow issue on public and private property is seen as a priority.

5.2 A comprehensive public communication programme has been developed to better inform and educate the Nelson ratepayers on the importance of addressing inflow and infiltration and of the benefits to the wider community and environment. Copies of the following documents are appended as attachments 1-5:

- Attachment 1: Contractor introduction letter
- Attachment 2: Explanatory hand-out to accompany contractor letter
- Attachment 3: Letter to property owners requesting remedial works be carried out
- Attachment 4: *Our Nelson* article
- Attachment 5: Web page content

5.3 The NCC Wastewater Bylaw No 224 does not permit the discharge of stormwater to the wastewater network without specific approval.

Public Property

5.4 Urgent issues in the public wastewater network that restrict flow will be remedied as they are found and non-urgent issues will be addressed as part of Council's future annual renewal programme.

5.5 Non-urgent issues target manholes across the network in both public and private property. While the volumes of water entering the network through manholes are likely to be smaller than those coming from roof and other areas on private property the large number of manholes could lead to a significant volume of water in total. However it is unlikely that this work alone will deliver the full reduction in overflow numbers and volume required.

Private Property

5.6 The visual investigation programme currently being undertaken by Council's contractors is designed to identify issues such as a downpipe discharging into a sewer gully trap or inadequate gully trap construction. Works to date show that approximately 25% of properties inspected have some of these issues that can lead to inflow into the wastewater network.

5.7 The targeted trial underway in the Rutherford area, using dye testing for a sample of 42 properties, show that there were 17 separate locations (40%) where stormwater was directed into the wastewater network. It is expected that this trial will better inform officers on the range of issues, the remedial options and their associated costs. However, on site issues identified through property inspections to date and typical remedial works required are as follows:

- Gully traps (not including overflow relief gullies) that are at ground level with no barrier to prevent surface water entering the dish. Solutions include installing a new gully trap riser section, fitting a waterproof barrier to the perimeter of the gully trap or renewing the gully trap. The cost of these solutions are expected to be in the range of $100-$500.

- Stormwater down pipes discharging directly to wastewater gully traps. Solutions depend on the individual property location but can range from diverting downpipe(s) to the stormwater network (if of adequate size) or to adjacent flat land if available on the property, installing a soak pit if possible or installing a rainwater tank. Costs for these solutions will vary between properties and the nature of the solution. The more complex solutions could cost between $5,000 – upwards of $10,000. All of these solutions will need to be installed in accordance with the NZ Building Code and subject to (where necessary) building consent approval.

- Stormwater reticulation connected to the wastewater network. Solutions and costs as per the above item.

5.8 Damaged private wastewater pipes. Solutions includes repairing or replacing wastewater pipes. As a large part of the city was developed prior to the 1970's when modern PVC pipes became common many private laterals were made from earthenware and are reaching the end of their service life. In order to reduce the subsurface infiltration of ground water into the wastewater network Council will need to develop a separate policy to specifically address this area. A report will be brought to a future Works and Infrastructure Committee meeting.

Finance

5.9 The LTP 2018-28 has a budget for inflow and infiltration reduction of $250,000 in 2018/19, $290,000 in 2019/20 increasing to $350,000 in 2020/21 and each year thereafter for the remainder of the ten year plan. This budget covers the cost of the contractor's investigations and any project management and administration costs. A part-time inflow and infiltration co-ordinator is now on board and is working on the project. A part-time community liaison officer adviser will soon be engaged to deal with the public interface. This fully commits the budget and any additional resourcing or funding required would result in the need to increase the budget through the next Annual Plan.

6. Options

6.1 The Rutherford area trial will allow officers to better and more accurately identify the range of issues, possible remedial options and the quantum of costs for the large more complex fixes. This will in turn guide the discussion with Council as to who undertakes these more complex remedial works and who will cover the costs. A report will be presented to a future Works and Infrastructure Committee in 2019 on the findings and options.

6.2 Addressing wastewater overflows is a key priority for this Council and not doing anything is not an option. This report proposes a targeted communications strategy and addressing "quick-wins" (up to $500) that will ensure Council can reduce inflows from private properties. These are expected to make an impact on this issue.

6.3 There are two options to be considered under this report:

- Option 1 - Commence with the targeted communications strategy and requiring private owners to remedy "quick-wins" (up to $500) at their cost. This will also allow officers the time to gain data on the range of issues, options and associated costs that will guide further discussion with councillors as to who pays for the remedial works where costs will exceed $500.

- Option 2 – Not proceed.

Option 1: Commence with campaign requiring private owners to remedy quick fixes	
Advantages	• Will give effect to one of Council's top priorities. • Will achieve reduction of inflows.
Risks and Disadvantages	• Push back from private owners. • Ongoing monitoring & enforcement required
Option 2: Don't commence	
Advantages	• None
Risks and Disadvantages	• Will not give effect to one of Council's top priorities.

7. Conclusion

7.1 Reducing the number and quantity of wet weather overflows from the wastewater network requires works to both public and private property and is a priority for this Council.

7.2 A targeted communications campaign is proposed that will allow quick wins (up to $500) to be identified and will also allow the collation of data (through a trial) that will form the basis of a further discussion with Council as to who pays for more complex remedial works.

7.3 Officers recommend that the targeted communications campaign commence with urgency and that quick fixes identified (up to $500) be remedied by property owners.

Author: **Phil Ruffell, Senior Asset Engineer - Utilities**

Attachments

Attachment 1: A2047807 - Contractor Introduction Letter ⇩

Attachment 2: A2059113 - Explanatory hand-out to accompany contractor letter ⇩

Attachment 3: A2046065 - Letter to property owners requesting remedial works be carried out ⇩

Attachment 4: A2021386 - Our Nelson article ⇩

Attachment 5: A2053953 - Web Page content ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

Reducing the levels of wastewater overflows from the network ensures Council meets the requirement in the Local Government Act 2002 for good-quality local infrastructure.

2. Consistency with Community Outcomes and Council Policy

The wastewater inflow and infiltration project has been developed to support the delivery of the following Council Community Outcomes:

- *Our infrastructure is efficient, cost effective and meets current and future needs*
- *Our communities are healthy, safe, inclusive and resilient*

3. Risk

Computer modelling has confirmed a direct link between stormwater being discharged to the wastewater network and overflows from that network during wet weather. Reducing the level of stormwater inflow into the network is considered to lead to a reduction in the levels of wastewater overflows. Option 1 is a mix of voluntary and regulated remedial works that is expected to deliver some of the 40% decrease in stormwater inflow over the next ten years. Requiring property owners to address inflow issues will lead to costs for those owners that will vary with the issue and the location of the property and services. Where costs are affordable property owners are likely to comply with straightforward encouragement. Where costs are higher the level of voluntary compliance is expected to reduce and enforcement may be required. It is possible that the target will not be met if property owners do not carry out the necessary works and wet weather overflows will continue. Failure to reduce wet weather overflows leads to wider adverse public reaction and some impact on the environment.

4. Financial impact

The LTP 2018-28 has a budget for the reduction of inflow and infiltration of $250,000 in 2018/19, $290,000 in 2019/20 increasing to $350,000 in 2020/21 and for each subsequent year out to 2027/28. This budget has to fund contractor investigations and project management costs. Once an additional advisory/enforcement role is resourced in 2018/19 the budget will be fully committed. Any additional resource and funding required will result in the need to increase the budget through the next Annual Plan.

5. Degree of significance and level of engagement

The proposed recommendation leads to a matter of low/medium significance for most people because the likely costs of remedial works is likely to be around $500/affected property. For some properties the proposed recommendation will be of high significance because the likely costs of remedial works will be greater than $500. Therefore public engagement will occur in the form of education material in Our Nelson and the Council website. An additional advisor resource to help with property owner enquiries is also proposed.

6. Inclusion of Māori in the decision making process

No consultation with Māori was undertaken with respect to this report.

7. Delegations

The Works and Infrastructure Committee has the following delegations to consider wastewater network inflow and infiltration issues:

Areas of Responsibility:

- *Wastewater*

Powers to Decide:

- *Nil*

Powers to Recommend:

- *Development or review of policies and strategies relating to areas of responsibility*

PO Box 645 Nelson 7040
P 03 546 0200
F 03 546 0239

4 September 2018

Contractors name
Telephone number
Email address
www.nelsoncitycouncil.co.nz

"Address2: Click or press F11"
"Address3: Click or press F11"
"Address4: Click or press F11"
"Address5: Click or press F11"

Dear Resident

STORMWATER INFLOW INTO WASTEWATER NETWORK

Nelson City Council is working on reducing Inflow and Infiltration. This is the term for rainwater and groundwater that enters the wastewater system through a variety of defects.

It can overwhelm the wastewater system, especially in heavy rain, and contribute to sewage overflows.

As part of the Inflow and Infiltration reduction project, Nelmac, on behalf of Nelson City Council, is doing a drainage infrastructure survey of properties in the area.

This involves a site visit to check the external sewer and storm water features on your property. This can include dye testing, using non-toxic dye and a small quantity of water to flush lines.

If you find this letter a visual inspection of your property has likely taken place.

Please find attached further information about Inflow and Infiltration and how we can all work towards reducing it.

Thank you for your assistance in helping us to carry out this important work. It is greatly appreciated.

Yours sincerely

David Light
Manager Utilities

Nelson City Council
te kaunihera o whakatū

03 546 0200
nelson.govt.nz

REDUCING INFLOW AT YOUR PLACE

What is it?

Inflow comes from sources on public and private property that allow rainwater to enter the waste water system through incorrect plumbing, cross connections and damaged or low-lying gully traps or manholes.

Too much Inflow, especially during severe weather events, can overwhelm the wastewater system, leading to overflows and the associated risks to health and damage to the environment.

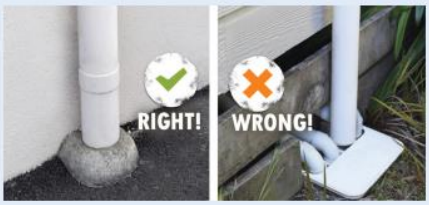
Get more information on the issue and how Council is working on it at nelson.govt.nz/inflow

How can I help?

Go outside your property and quickly check these three things; downpipes, gully traps and sumps.

Downpipes

Look at your roof, where do your downpipes go? They should connect into the storm water system not the sewer/wastewater system. If the downpipes are going into a gully trap, they need to be re-directed into the storm water system.



Gully trap

A gully trap only receive wastewater from your kitchen, bathroom and laundry. It connects to the wastewater network.

This gully trap has covers and a high surround that stops rainwater going into the wastewater system during periods of heavy rainfall

This gully trap will let rainwater into the sewer/wastewater system.

Sumps

A sump is a storm water feature that collects rainwater from external surfaces such as driveways and patios. The sump has to connect to the storm water system not the sewer/wastewater system.

The only way to test for a cross connection without calling a plumber or drain layer is to check for a foul odour that is stronger than a normal organic/vegetation smell.

For more information please contact Nelson City Council
Phone: 546 0200 Web: nelson.govt.nz/inflow

A2059113

PO Box 645 Nelson 7040
P 03 546 0200
F 03 546 0239

3 September 2018

Contractors name
Telephone number
Email address
www.nelsoncitycouncil.co.nz

"Address2: Click or press F11"
"Address3: Click or press F11"
"Address4: Click or press F11"
"Address5: Click or press F11"

Dear Salutation: click here or press F11

STORMWATER INFLOW INTO WASTEWATER NETWORK

Council has begun a city wide investigation of the wastewater network to reduce the amount of stormwater that is entering the network. This stormwater can overwhelm the wastewater system, especially in heavy rain, and contribute to sewage overflows onto streets and property.

The first stage of the investigation involved Council's contractors visiting every property in the city that has a connection to the wastewater network to make sure stormwater is not being directed to the network.

Where inspections identify that stormwater is able to enter the network the property owners are asked to carry out remedial works to ensure direct connections are removed immediately and repairs made to fittings to prevent future stormwater inflow.

Your property has been inspected and stormwater connections and or inadequate prevention of stormwater entry to the wastewater network have been identified. The attached report sets out the results of the inspection and the areas that need to be rectified.

Council would appreciate your urgent attention to these remedial works.

If you have any queries regarding the issues that have been identified or you would like to discuss options that you think are available to you, please contact *contractor's name* at *telephone number*.

Council will contact you over the next four weeks to check on progress and answer any further queries you may have.

Yours sincerely

David Light
Manager Utilities

Tackling Inflow and Infiltration issues (Our Nelson content)

Inflow and Infiltration (I&I) refers to rainwater and groundwater that enters the wastewater system through a variety of defects.

Inflow sources allow rainwater to enter the wastewater system directly from the surface through incorrect plumbing and cross connections.

Infiltration sources allows the groundwater to seep into the wastewater system through cracks or poor joints in pipes and manholes.

A certain amount of I&I is unavoidable and it is planned for in routine wastewater design. But too much I&I, especially during severe weather events, can overwhelm the wastewater system, leading to overflows and the associated risks to health and damage to the environment

This is not a new issue, Council has been working on addressing it for some years. It's worth noting that it doesn't only affect Nelson, cities all over the world are tackling the same issues.

Council has now prioritised making improvements on this issue and has allocated funding in the Long Term Plan to start inspecting private properties to pick up any I&I issues. This will give a fuller picture of the extent of the problem and Council will be better informed to develop a strategy to reduce it.

Evidence from similar projects in other areas show that these it unlikely to be a quick and easy fix. It will take many years to fully understand and address I&I in our city and finding solutions will be everyone's responsibility. Council will be looking to work together with property owners, much as we did when we successfully improved Nelson's air quality.

One of the easiest things you can do to help as a property owner is to check your gully traps aren't letting rainwater into the wastewater system.

There's information on what to look for as well as much more details about the issue on our website, nelson.govt.nz.

A2021386

Inflow and infiltration

Inflow and Infiltration (I&I) refers to rainwater and groundwater that enters the wastewater system through a variety of defects on public and private property.

Inflow sources allow rainwater to enter the wastewater system directly from the surface through incorrect plumbing, cross connections and damaged or low-lying gully traps or manholes.

Infiltration sources allow the groundwater to seep into the wastewater system through cracks or bad joints in wastewater pipes and manholes.

A certain amount of I&I is unavoidable and it is planned for in routine wastewater design. But too much I&I, especially during severe weather events, can overwhelm the wastewater system, leading to overflows and the associated risks to health and damage to the environment.

This is not a new issue, Council has been working on addressing it for some years. It's worth noting that it doesn't only affect Nelson, cities all over the world are tackling the same issues. The increased frequency of extreme weather events is adding to the issue.

Council has now prioritised making improvements on this issue and has allocated funding in the Long Term Plan to start inspecting private properties to identify any I&I issues. This will give a fuller picture of the extent of the problem and Council will be better informed to develop a strategy to reduce it.

Evidence from other towns and cities shows that this is unlikely to be a quick and easy fix. It will take many years to fully understand and address I&I in our city and finding solutions will be everyone's responsibility.

WHAT IS COUNCIL DOING?

Work has been happening to address I&I for some time. Council has already inspected its own properties for any issues and fixed anything that was discovered. There is also an extensive programme of renewals and repairs to the network in operation.

Nelmac has now been engaged to inspect privately owned properties throughout the city, looking for issues that

on how to proceed.

How can I help?

Go outside your property and check these 3 things; downpipes, gully traps, and sumps.

Downpipes

Look at your roof, where do your downpipes go? They should connect to the storm water system not the sewer/wastewater system. If the downpipes from your roof connect into a gully trap, then you will need to re-direct it into the storm water system.

What is a gully trap?

A gully trap is a plumbing feature that should only receive wastewater from your kitchen, bathroom and laundry. The gully trap connects to the sewer (wastewater) network which takes wastewater to the treatment plant for treatment. The top or surround of the gully trap should be above ground level and partially covered to stop storm water/rainwater and other foreign matter (such as landscaping bark) entering the wastewater network.

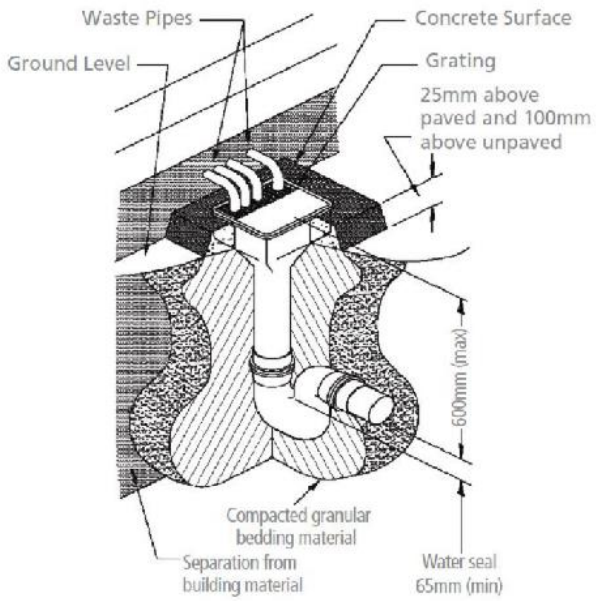
What should my gully trap look like?

A good gully trap has covers and a high surround that stops rainwater going into the wastewater system during periods of heavy rainfall

A faulty gully trap will let rainwater into the sewer/wastewater system.

What does the building code say about gully traps?

This diagram of a gully trap is from the New Zealand Building Code. The surrounds of the gully trap have to be 25mm above a paved surface or 100mm above an unpaved surface.



Sumps

A sump is a storm water feature that collects rainwater from external surfaces such as driveways and patios. The sump has to connect to the storm water system not the sewer/wastewater system.

The only way to test for a cross connection without calling a plumber or drain layer is to check for a foul odour that is stronger than a normal organic /vegetation smell.

What happens next?

Council will be considering options to reduce the amount of stormwater that is getting into the network from private properties. Once there is a clear plan to follow, Council will work with householders to assess requirements and set some timeframes for fixing any issues that are identified.

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9717

Saltwater Creek Bridge

1. Purpose of Report

1.1 To approve allocation of additional funds to enable the award of a construction contract for the replacement of the existing bridge across Saltwater Creek and allow commencement of work in the 2018/19 financial year.

2. Summary

2.1 The existing Saltwater Creek Bridge is a basic 1.1m wide structure that caters for traffic in one direction at a time. It is a bottleneck between two sections of wide cycle/walkway either side of the bridge. There are safety concerns with the existing structure relating to the narrowness of the bridge that has the potential to cause conflict between walkers and cyclists. There are also issues with very steep exit/entry grades onto the bridge. A weight restriction has been placed on the bridge limiting its capacity to ten people at any one time.

2.2 Additional funding of $300,000 is required to award a tender to allow construction work to commence and to maximise the UCF funding. A decision is needed as to whether to allocate this additional funding and proceed with the project.

3. Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Saltwater Creek Bridge (R9717) and its attachment A2058621.

Recommendation to Council

That the Council

<u>Approves</u> an additional unbudgeted $300,000 to fund construction of the bridge in the 2018/19 financial year that will allow the award of a tender and enable work to commence this financial year.

4. Background

4.1 The project was originally tendered in late 2017 and tenders came in over budget and no tender was awarded. The project was re-tendered in 2018 and three conforming tenders were received.

4.2 The project attracts Urban Cycle Funding (UCF) of $500,000 which is required to be spent by June 2019.

4.3 The current bridge is on a high-profile site at the northern entrance to Nelson and close to the Maitai River. The project to replace the bridge is part of a suite of works that attracts UCF funding and includes:

4.3.1 The Haven Road (Maitai to Rocks Road) shared path replacement. This is been managed by NZTA, attracted $2M UCF funding and will officially open on 30 September this year.

4.3.2 Saltwater Creek Bridge - $500,000 UCF funding – the subject of this report.

4.3.3 Tahunanui Cycle network – $500,000 UCF funding. The preferred route has been approved by this committee and detailed design has commenced. It is expected that work on the State Highway section will commence in 2018/19 with the council section proceeding the year after.

4.4 The current bridge is narrow (1.1m wide) and restricts access. The replacement bridge (refer to Attachment 1) will complete the link between the recently completed Maitai walkway and the Haven Road shared path about to be opened.

4.5 The new bridge is to be located slightly upstream of the existing bridge to cater for future modelled flood events and to allow path gradients down to the underpass to be eased. The new bridge design has strong architectural elements designed to match visual aspects of the Maitai River Walkway and Trafalgar Centre and will provide an appealing entry to the City.

4.6 It is expected that walking and cycling participation will increase on this high quality off-road link between the CBD and the Nelson waterfront.

5. Discussion

5.1 The construction contract has been tendered twice, the latest in 2018. The most recent tenders are in excess of the current budget and additional funding will be required to enable a tender to be awarded and for construction work to commence.

5.2 Prices from three reputable tenders have been received and a detailed tender evaluation has been undertaken by Stantec with a peer review by Tonkin and Taylor.

5.3 If the project does not proceed at this time, the UCF funding will be lost, and there will be a risk that suppliers will not tender a third time.

6. Financial

6.1 The budget for the project (including the proposed carry-over of $502,000 from 2017/18) is $902,000.

6.2 The preferred tenderers price is $810,000 and the Engineer's estimate (Stantec) is $680,000. The three prices received were for $810,000, $1.4M and $1.5M.

6.3 The tender evaluation was undertaken using NZTA's price quality evaluation and was undertaken by an NZTA accredited evaluator. The evaluation included calling references, a credit check, a check of the directors, a google search and a check against any court judgements. The credit check has been independently reviewed by Council's Finance department.

6.4 The preferred tenderer is Levin based and is a specialised bridge contractor that has done extensive work in the region (specifically in Tasman – notably the 80m long swing bridges across the Wairoa River as part of the Great Taste Trail). The Tasman District Council were complementary on Edifice's standard of work.

6.5 The budget summary for 2018/19 is shown below:

Preferred tender price	$ 811,000	
Contingency (30%)	$ 243,000	See item 6.6 below
Sub-total	$1,054,000	
Other costs	$ 146,000	Design, administration, consents (resource and building) and landscaping
Total	$1,200,000	
Less Budget	$ 902,000	Includes UCF funding
Shortfall	$ 298,000	Say $300,000

6.6 A 30% contingency has been included to cater for any potential geotechnical risk that may result from the piling and working adjacent to the State Highway.

6.7 The additional cost does not attract any further UCF/NZTA funding.

6.8 The bridge is one component of the project and accounts for around 30% of the actual scope and cost of the project.

7. Options

7.1 There are two options to consider – Proceed or Not Proceed. In order to make use of the UCF funding subsidy, option 1 "Proceed", with a 30% contingency is recommended.

Option 1: Proceed with construction	
Advantages	• Delivery of a high quality link between the CBD and waterfront for active travel modes. • Significant reduction in safety concerns regarding aspects of the current bridge and paths. • Aesthetically pleasing infrastructure in a gateway site which ties into the Maitai walkway. • Secures the UCF funding. • Will increase service levels at subsidised cost, in a location where this will be required at some point in the near future. • Significant construction spend as planned.
Risks and Disadvantages	• Perception that the project cost does not represent value-for-money.
Option 2: Reject tenders - cancel or hold project	
Advantages	• Budget savings
Risks and Disadvantages	• Loss of significant UCF funding • Continued use of substandard facility • Potentially negative media regarding not following through to construction. • Significant design and consenting costs spent with no benefit • Risk that work will be required later at greater cost and increased Council cost, with no UCF subsidy. • Tenders may not wish to tender a third time if the project is resurrected again.

8. Conclusion

8.1 The project has been underway for two years and significant money has been spent on the project to date.

8.2 The UCF fund has been extended specifically for this project to cater for construction in 2018/19 and will be lost if the project is put on hold. The subsidy from the UCF towards the construction represents good value to Council and the ratepayers.

8.3 Significant high quality infrastructure has been put in place on either side of the current bridge, with the result that the bridge is now the last link to complete the upgrade. In addition, there are safety and capacity concerns which need to be addressed.

8.4 Once constructed, the new bridge will form an impressive entry to the CBD path network, address safety and capacity issues, and provide a consistent high quality route for active travel modes.

Author: Warren Biggs, Major Projects Engineer

Attachments

Attachment 1: A2058621 - Saltwater Creek Bridge Concept ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

This project will link with existing shared path infrastructure and promote active transport participation rates and will provide good quality infrastructure.

2. Consistency with Community Outcomes and Council Policy

The bridge will appeal to walkers and cyclists thereby promoting greater uptake of active travel modes, supporting Nelsons' Active Travel Hierarchy and its Out and About policy. The following community outcomes will also be addressed with the new bridge:

"Our infrastructure is efficient, cost effective and meets current and future needs"; "Our communities are healthy, safe, inclusive and resilient"; "Our Council provides leadership and fosters partnerships, a regional perspective, and community engagement".

3. Risk

A detailed evaluation has been undertaken by Stantec engineering consultants and with the 30% contingency should allow for any potential unforeseen ground conditions that may be encountered on site.

4. Financial impact

The project qualifies for UCF fund up to end of June 2019. The increased tender prices will however need additional council funding.

5. Degree of significance and level of engagement

This matter is of low overall significance. However, it is a very visible high profile site and the bridge will be a significant piece of infrastructure from an aesthetic perspective. The design has also been consulted on with Friends of the Maitai, Nelson Civic Trust, Bicycle Nelson Bays and Nelson Walkers United.

6. Inclusion of Māori in the decision making process

Maori have not been consulted on with respect to this report but a Cultural Impact Assessment has been carried out during the design process.

7. Delegations

The Works and Infrastructure Committee has the following delegations to consider matters relating to Saltwater Creek Bridge:

Areas of Responsibility:

- *Roading network, including associated structures, bridges and retaining walls, walkways, footpaths and road reserve, landscaping and ancillary services and facilities, street lighting and traffic management control*

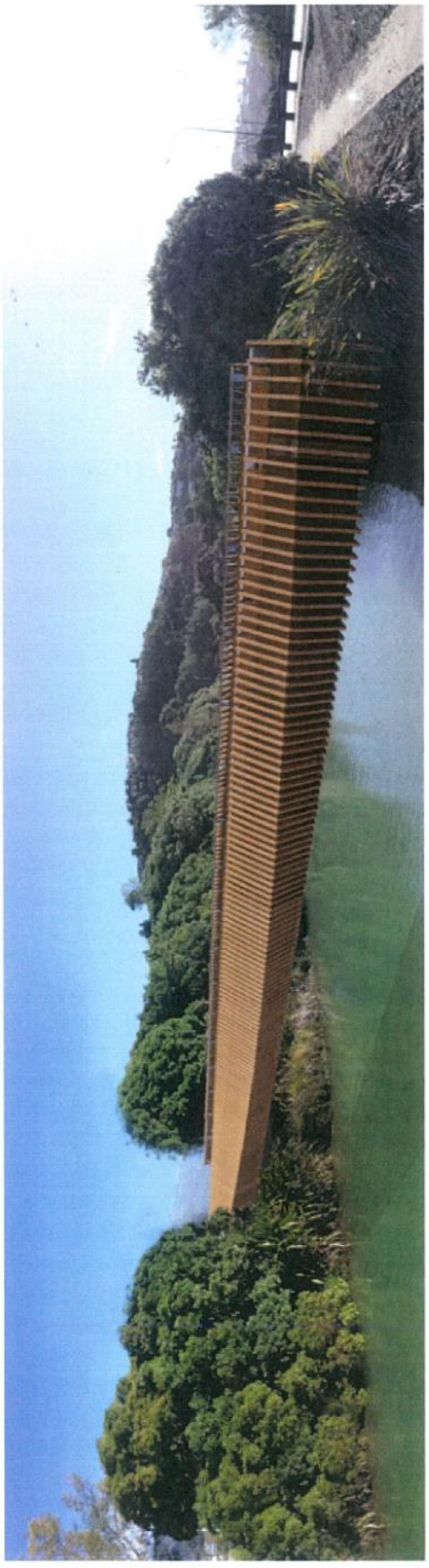
Powers to Decide:

- *Nil*

Powers to Recommend:

- *Any other matters within the areas of responsibility noted above.*

Unbudgeted expenditure is a Council decision.



A2058621

Nelson City Council
te kaunihera o whakatū

Works and Infrastructure Committee

28 September 2018

REPORT R9621

Seafield Terrace remediation

1. Purpose of Report

1.1 To agree on an approach to remediate Seafield Terrace.

2. Summary

2.1 Seafield Terrace was damaged during a storm event in November 2017 and a cyclone in February 2018. These events resulted in closure of the road, cutting off access for 32 households in Airlie Street (to which there is no alternative access road) and damaging utilities and other services located under and near Seafield Terrace.

2.2 Coastal risks to this road are expected to intensify in future due to climate change. The main impact will be sea level rise but there is also potential for an increased frequency and intensity of storm events.

2.3 Services damaged during the events have been temporarily relocated and reinstated. Road access has also temporarily been reinstated pending a final remediation option.

2.4 NIWA have been appointed to assess the nature of the events, likelihood of recurrence and to undertake coastal modelling with Tonkin & Taylor (T&T) appointed to assess a range of remediation solutions. Remediation costs range from between $408,000 and $8M. Of ten options considered, two options have been considered as possible solutions.

2.5 Deciding to remediate the road with rock protection now risks being out of step with the coastal hazard planning to be carried out as part of the development of the Nelson Plan, following the process recommended by Ministry for the Environment (MfE). This risk needs to be weighed up alongside the risk of not having a functioning road for the 32 households in Airlie Street, particularly in the case of an emergency requiring fire or police access, as well as delaying the opportunity to enhance this road for cyclists and pedestrians accessing the Cable Bay Walkway, the Horoirangi Marine Reserve, the beach and the Boulder Bank.

2.6 This report is to be read in conjunction with report R9709 in the public excluded section of the agenda.

3. Recommendation

That the Works and Infrastructure Committee

<u>Receives</u> the report Seafield Terrace remediation (R9621) and its attachments (A2040890, A2038309 and A2041411).

Recommendation to Council

That the Council

<u>Approves</u> the "Scaled-up do minimum" option as the preferred remedial solution as detailed in Report R9621 (Attachment A2038309) for Seafield Terrace noting a preliminary estimated capital cost of $925,000 with an expected 51% NZTA Funding Assistance Rate; and

<u>Notes</u> that design will commence in the current 2018/19 financial year with request for funding for consents and construction to be made through the 2019/20 Annual Plan; and

<u>Approves</u> unbudgeted expense of $50,000 in the 2018/19 financial year to commence design of the preferred option.

4. Background

Storm damage

4.1 There was a large north-westerly storm event in November 2017 and cyclone in February 2018. The November event resulted in some minor erosion along the edge of Seafield Terrace, however the February event caused major erosion. The location of the affected area is shown in Attachment 1.

4.2 The February storm (ex-cyclone Fehi) was an event with a joint probability of occurring once in 303 years. It resulted from a combination of a king tide (with the worst effects occurring two hours either side of high tide), the low pressure system created by the cyclone lifting the sea level, and strong north westerly winds generating waves on top of the sea surge from the Tasman sea. This combination of effects eroded the road berm and approximately one metre of the road carriageway width over a 200m length. The remaining carriageway width was impassable due to damage and debris.

4.3 The road which is between 4m and 5m wide has been temporarily reinstated to provide a gravel surface three metres wide, single lane

access for Airlie Street residents. There is currently no protection of the seaward edge.

4.4 Underground sewer pipes and telephone cables and overhead electricity poles were also damaged by the storms and have since been relocated inland of the temporary road.

Public meetings

4.5 Meetings were held with the residents on 21 April and 17 June. At the 17 June meeting residents noted they are willing to accept that access to Airlie Street will be closed on occasions, but are seeking a more permanent solution to their access.

4.6 Separate engagement with Airlie Street residents has commenced relating to a stormwater upgrade. That project has no direct bearing on the Seafield Terrace remediation.

Traffic Patterns

4.7 The average daily traffic measured in 2015 was 443 vehicles per day. In addition pedestrians accessing the Cable Bay walkway need to walk along Seafield Terrace and Airlie Street as there is no parking at the beginning of the walkway. Pedestrian demand is also driven by visitors and locals accessing the beach, Boulder Bank and Marine Reserve.

4.8 There are no footpaths along Seafield Terrace. Actual speeds have not been measured but residents have raised concerns about excessive speeds. The speed environment should be managed below 30km/h because of the high volume of pedestrians present. A width of between 4 and 5m exists and any detailed design could consider either a 5m road (no footpath) or a 3m road with a 2m shared path.

5. Discussion

Climate change

5.1 The most recent MfE guidance (Coastal Hazards and Climate Change — Guidance for Local Government) released in December 2017 states that in the near term (by 2050) a 0.2–0.4m of sea level rise is most likely. Sea-level rises of up to one metre are 'very likely' in the next 100–130 years.

5.2 T&T used the MfE's December 2017 guidelines to develop the best practice design, and assessed the difference in expected overtopping between the roads at current elevation, and raising the road by 0.5m and by 1.0m. These calculations show that not raising the road elevation will result in more frequent road closures for pedestrian and driver safety in the next 50 years.

Coastal hazards and climate change consultation

5.3 As part of the Nelson Plan process the Council will begin to engage with the community on coastal hazards in November 2018. This process is likely to follow the Dynamic Adaptive Policy Pathways Approach (DAPP) recommended in the MfE's December 2017 guidelines for decision making about coastal hazards. This process centres on community engagement, risk/vulnerability assessments and identification and evaluation of a wide range of different options (structural and non-structural) and use of a possible combination of them over time (pathways).

Risks associated with delaying Seafield Terrace remediation

5.4 Including Seafield Terrace remediation options in the planned community-wide process would ensure a fair and consistent approach across Nelson. However, this would mean that a decision is unlikely to be reached for at least several years as the engagement process that informs the Nelson Plan is expected to be prolonged. This needs to be added to the six months to two years required to gain approval for NZTA funding, to complete the design, apply for resource consent and carry out the necessary construction.

5.5 It is also important to note that the safety risks associated with Seafield Terrace are higher due to the much deeper water and exposure to surge waves from the Tasman Sea, as well as waves generated by north-westerly winds, than for sheltered estuary environments such as Monaco. This greater risk will need to be factored into the consideration of options over the short, medium and long term.

5.6 Risks are also greater than for many other areas in Nelson because Seafield Terrace is the only road access to 32 households in Airlie Street, including emergency services (especially fire response vehicles).

Nelson Infrastructure Strategy 2018–48

5.7 The Nelson Infrastructure Strategy 2018-48 (Strategy) includes an objective to increase resilience to natural hazards, and recognises the lifeline role of the road network. The preferred option for transport resilience to natural hazards is: 'structural inspections programmed in 2018 to inform a future resilience work schedule and the strategic infrastructure plan:

- Using lifeline route status as a factor when prioritising structure renewals and resilience capex works
- Considering if alternative routes or sole access is available to customers when prioritising structure renewals and resilience capex works.'

Opportunities and risks

5.8 There are opportunities as well as risks associated with remediation of Seafield Terrace.

5.9 The opportunities relate to the potential to:

- Enhance the gateway to the Cable Bay Walkway, the Horoirangi Marine Reserve, the beach and the Boulder Bank by creating a pedestrian and cycle friendly shared path; and
- Slow vehicle speeds down on Seafield Terrace (addressing a longstanding concern on Airlie Street residents). This could be achieved by either creating a 2m wide shared path for cyclists and pedestrians and a one lane 3m wide road; or by introducing traffic calming infrastructure within the road environment.

5.10 The risks are:

- The chosen option could set an expectation that Council will fund hard infrastructure solutions in other coastal areas which are affected by coastal erosion in future; and
- Progressing a 'hard infrastructure solution' ahead of the Nelson Plan community engagement and decision making processes on coastal hazards could impact on the perceived fairness and transparency of that process; and
- Protecting Seafield Terrace from coastal hazards could lead to more urban development in an area which is reliant on this route, increasing the number of vulnerable households in this area over the long term.
- A storm event greater than the design storm could occur during or immediately after constructing a revetment (sea wall) that severely damages it. Likelihood of storm events is covered in section 6 of this report.
- A solution which involves a 5m wide road and no footpath could encourage high vehicle speeds which will increase safety risks for pedestrians and cyclists. The original road width was between 4 and 5m.

NZTA funding

5.11 No specific budget has so far been allocated for Seafield Terrace remediation work. However, preliminary discussions with the New Zealand Transport Agency (NZTA) suggest it is likely that an application for a 51% funding contribution in the minor works category (< $1M) would be successful.

5.12 If the Council chooses an option which is >$1M the proposal would need to be included in the Regional Land Transport Plan (RLTP), considered in

terms of its relative priority compared to other projects in the RLTP. The business case would be assessed by NZTA using the criteria in the Investment Assessment Framework.

Resident feedback

5.13 The Mayor, Works and Infrastructure Committee Chair and senior management have been liaising with local residents regarding storm damage repair and future protection. Local residents' ideas for future proofing road access to Airlie Street have been considered in full in the T&T report.

Implementation and alignment with wider consultation

5.14 A 6–24 month implementation programme is anticipated depending on the chosen option because of the sensitive nature of the area and the consultation required to gain resource consent.

6. Options

6.1 Ten options were considered in the T&T report, including a number of suggestions from residents. These and their relative costs (including 30% contingency) are summarised in a table in Attachment 2. The table shows that costs for some of the options are very high (and have been discounted) and some are not practical.

6.2 To do nothing in terms of remediation is not deemed practicable as continued high tides and strong wave action will continue to erode and undermine the road putting both council assets and private utility operators' assets at risk and will result in repeated road closures for maintenance and/or repair.

6.3 Doing the minimum as outlined in the T&T report, even though considered an option, is not considered practicable because the road would remain susceptible to future inundation and erosion hazards and will only offer minor road protection with the small sized rock revetment protection. Large scale repairs are still expected after moderate storm events. This option has not been considered further.

6.4 Two options are deemed feasible (referred to as Option 2 and Option 4 in Attachment 3) and have been considered as viable options as detailed below. Both options are expected to have only minimal effect at the extremities of any proposed revetment structures, however these will be addressed in greater detail in the consent application.

- Option A: Scaled up do minimum design which retains the road at existing level, with rock revetment;
- Option B: Best practice design which allows for raising the road by on average 0.75m, with rock revetment. The raised height of the road will decrease frequency of road closure and damage to the road surface.

Preliminary Net Present Cost (NPC) over a 50 year period are shown in the table below, with details for each option expanded on below.

Option	**Preliminary Estimated Capital cost** **(Includes 30% contingency)**	**Estimated Council Contribution (49%) as subject to NZTA funding assistance**	**NPC over 50 years**	**Protection offered**
Option A:	$925,000	$453,000	$1,128,000	1/5 – 1/10 year event
Option B:	$2,000,000	$974,000	$2,045,199	1/ 100 year event

Option A: Scaled-up do-minimum design

6.5 This option consists of a six metre wide rock revetment structure similar to the 'best practice' engineering design that aims to protect the road from a 5–10 year Annual Return Interval (ARI) storm event. The reduced scale of this option means readily available rock sizes can be used, and it reduces upfront capital costs while still providing a level of future protection for the road and services.

6.6 This design would be safe to pedestrians in a 5–10 year ARI storm event. However, overtopping calculations indicate an average of 140 litres per second per lineal metre (l/s/m) of overtopping would occur during a 100 year ARI storm which would be dangerous to pedestrians and is likely to cause damage to the road. This means the road is likely to require closure during storm events greater than a 5–10 year ARI storm, and maintenance to the revetment and repairs to the road may be required following these events. Large scale damage can be expected in large storm events (with a 100 year ARI).

6.7 The scaled-up do-minimum option is the most practical and cost-effective option for Council to adopt in the short to medium-term. It provides some flexibility to change the approach over the longer term, depending on the outcome of the coastal hazards and climate change planning work.

Option B: Best Practice design

6.8 This option consists of a 16 metre wide structure using large rocks, and raising the existing road level approximately 0.75m.

6.9 The figures above assume sufficient prioritisation in the Regional Land Transport Plan and sufficient alignment with the Investment Assessment Framework to receive a 51% subsidy from NZTA.

6.10 This rock revetment is designed to protect Seafield Terrace from both inundation and erosion hazards during a 100 year ARI storm event. It would also minimise overtopping to 'safe levels' even when allowing for 50 years of sea level rise.

Options analysis

Option A: Scaled-Up Do-Minimum	
Advantages	• This option would use readily available rock sizes (reducing long lead in times) and reduce upfront capital costs upfront, while still providing a level of future protection for the road and services. • Road closures to repair damage would be less than the status quo option (these could be expected to be required once every three to five years). • Protection lowers risk of Airlie Street residents being cut off from emergency services. • Smaller footprint than the best practice option (6m rather than 16m wide) therefore less visually intrusive, less risk of interference with coastal processes, and potential for a more straightforward resource consent application process. • The capital required fits within the NZTA Low Cost/Low Risk works category, which would not require amendments to the Regional Land Transport Plan or the more complex NZTA approval pathway required for larger projects through the Investment Assessment Framework.
Disadvantages	• Potential alignment issues related to the community engagement on coastal hazards beginning in November 2018. However, this approach does focus on a short to medium solution, so is a better fit with the recommended adaptive planning approach than the best practice option. • Ongoing maintenance and road closures are likely to be required during storms with greater than a 10 year return period to avoid safety risks for pedestrians and drivers. • Not easily upgraded to Option B in the future as rock sizes are different for the two options.

Option B: Best Practice	
Advantages	• This option would minimise road closures during storm events, and for road repair/maintenance works. • Seafield Terrace would be able to withstand a 1:100 year storm event with minor repair maintenance. • Road closures to repair damage could be expected to be required only once every 20 years.
Disadvantages	• This approach does not align well with the community engagement on coastal hazards beginning in November 2018, as it predetermines the approach to be taken in this area. • Quarries in the area will need to specially cut the large rocks which will take several months. • This is the most expensive option, even when reduced maintenance costs are taken into account. • More complex approval pathway to gain NZTA 51% subsidy. • Complex resource consent process for a 16m wide structure. • Maintenance of the road in storm events > 1:100 will still be required.

7. Financial

7.1 Funding is unbudgeted and NZTA approval is required for funding assistance.

7.2 The estimate (with a 30% contingency) for Option A is just below the threshold of $1Million for NZTA's Low Cost/Low Risk category. If tenders come in higher than this estimate then discussions with NZTA as to funding and/or inclusion in the RLTP will need to be had.

8. Estimated timelines for implementation

8.1 Option A: Detailed design 2018/19; Resource consents, procurement, construction 2019/20.

8.2 Option B: Detailed design 2018/19; Resource consents and procurement, 2019/20; Construction 2020/21.

9. Conclusion

9.1 The storm events from November 2017 and February 2018 caused considerable damage to Seafield Terrace and associated infrastructure services, and there is a risk that Airlie Street residents will be cut off (including from emergency services) during and after another significant storm. The risk to the road from minor events remains high in its current state.

9.2 A decision is required on whether or not to progress remediation of Seafield Terrace now, or to delay this project in order to align with the completion of the Nelson-wide coastal hazards and climate change consultation and planning processes, as part of development of the Nelson Plan.

9.3 Due to the risks of delaying this project for several years, officers recommend the 'scaled up do minimum' approach to remediation of Seafield Terrace.

Author: **Margaret Parfitt, Manager - Transport and Solid Waste**

Attachments

Attachment 1: A2040890 - Aerial Proposed Foreshore Remediation Seafield Terrace ⇩

Attachment 2: A2038309 Seafield Terrace remediation options table ⇩

Attachment 3: A2041411 Seafield Terrace Drawings A and B options ⇩

Important considerations for decision making

1. Fit with Purpose of Local Government

This report considers how best to meet the current and future needs of the community for good-quality local infrastructure in a way that is most cost-effective for households and businesses. It considers what level of protection is appropriate to both present and anticipated future circumstances, particularly with regard to sea level rise.

2. Consistency with Community Outcomes and Council Policy

Our unique natural environment is healthy and protected — our open spaces are valued for recreation and we welcome the many visitors who want to experience our extraordinary natural environment - There is an opportunity to enhance the gateway to Cable Bay Walkway, Horoirangi Marine Reserve, the beach and the Boulder Bank by creating a pedestrian and cycle friendly shared path as part of this project

Our infrastructure is efficient, cost effective and meets current and future needs — Nelson relies on its good quality, sustainable, affordable and resilient infrastructure network - This report considers how to improve the resilience of the transport network, particularly for 32 households whose only road access is via Seafield Terrace.

Our communities are healthy, safe, inclusive and resilient — our community works in partnership to understand, prepare for and respond to the impacts of natural hazards - The safety of residents, as well as cyclists and pedestrians, are key factors to be considered when weighing up the options for remediation of Seafield Terrace.

Our Council provides leadership and fosters partnerships, a regional perspective, and community engagement — Council leaders are mindful of the full range of community views and of the generations that follow - This report considers the effects of sea level rise over time, and how to align as much as practicable with the upcoming community engagement regarding coastal hazards and climate change.

3. Risk

The proposed approach addresses both immediate risks (related to road safety and access to emergency services) and retains enough flexibility for Council to take a different approach in future, as sea levels rise.

The risk of precedent being set for other coastal locations if Council choses a remedial option for Seafield Terrace is deemed to be low as there are special circumstances with respect to Seafield Terrace, namely the need to provide access (including emergency access) to a fixed number of properties that have no alternative access.

4. Financial impact

All options incur a cost to Council and this is unbudgeted. The option chosen will dictate the cost to Council.

5. Degree of significance and level of engagement

This matter is of medium significance because of its high importance to a relatively small part of the community. The Mayor, Committee chair and senior management have been liaising with local residents regarding storm damage repair and future protection. Local residents' ideas for future proofing road access to Airlie Street were considered in full in the T&T report.

Further, formal consultation with all stakeholders will be carried out as part of the resource consent application process. Stakeholders include iwi, Department of Conservation, NZTA, Airlie Street residents and the wider community.

6. Inclusion of Māori in the decision making process

Formal consultation with iwi will be carried out as part of the resource consent application process, recognising:

- the importance of the Coastal Marine Area to iwi
- although there are no statutory acknowledgements over Seafield Terrace, there is an acknowledgement (Kohi te Wai Boulder Bank Scenic Reserve) immediately adjacent to the area
- there is a heritage site terrace (MS47: Kainga (Tototari) where the Boulder Bank meets hills at the Glen nearby (approximately located at 34 Seafield Terrace).

- **Delegations**

The Infrastructure Committee has the following delegations to consider Seafield Terrace remedial works.

Areas of Responsibility:

- *Roading network, including associated structures, bridges and retaining walls, walkways, footpaths and road reserve, landscaping and ancillary services and facilities, street lighting and traffic management control.*
- *Stormwater and Flood Protection*
- *Wastewater*

Powers to Decide:

- *Nil*

Powers to Recommend:

- *Any other matters within the areas of responsibility noted above.*

Unbudgeted expenditure is a Council decision.

Location requiring remediation
Glenduan
Weiti Creek
Airlie Street
Seafield Terrace
Atholl Street
Seafield Terrace Remediation
Nelson City Council
te kaunihera o whakatū
PO Box 645 Nelson 7040 New Zealand
PH 03 5460200
www.nelson.govt.nz
0 40 80 120 160 m
Scale 1:4,000
N
Date: 28/08/2018

A2040890

Seafield Terrace Remediation

Summary of Options	Benefits alignment	Total Rough order costs ($)
OPTIONS		
1. **Do Minimal using D50-150mm rock;** High maintenance. The road would remain susceptible to future inundation and erosion hazards but will offer minor road protection with the small size rock revetment protection. Large scale repairs are still expected after moderate storm events.	Weak	$408k NPC over 50 years $1.518 M
2. **Scaled Up Do Minimum using D50 – 740mm rock;** Rock revetment structure similar to the 'best-practice' engineering design that aims to protect the current road alignment from 5-10 year ARI storm events as opposed to a 100 year storm event. This option will require ongoing maintenance following moderate storm events and large scale damage can be expected in large storm events (100 year ARI). The benefit of this option is that it targets utilisation of a readily available rock size and also reduces capital costs upfront while still providing a level of future protection for the road and services. Capex aligns well under NZTA minor works category, under $ 1M, and avoids tangle with the NZTA Regional Land Transport Plan approval pathway NZTA will subsidize 51%.	Strong	$925k NPC over 50 years $1.128M

A2038309

Summary of Options	Benefits alignment	Total Rough order costs ($)
3. Refined Scaled Back best practice using D50 -1000mm rock This option includes refinement to the best-practice design in an attempt to reduce capital costs by reducing armour rock size to a material more readily available. Armour rock size can be reduced several ways but higher risk of damage and repair would need to be accepted. Less maintenance required than option 2. Drawbacks. Will probably trigger planning public hearing, and has a reasonable size footprint on the coastline. The estimated revetment width is 16m. The toe of the revetment will be slightly above mean high water springs. For NZTA 51% subsidy capex will need to follow the NZTA Regional Land Transport Plan approval pathway.	Medium	$1.696M NPC over 50 years $1.857M

A2038309

Summary of Options	Benefits alignment	Total Rough order costs ($)
4. Best Practice using D50 – 1400mm rock Designed using best practice guidance to protect Seafield Terrance from both inundation and erosion hazards during a 1%AEP (100 year ARI) storm event based on the recently updated NIWA storm tide frequency analysis (July 2018) and minimise overtopping to 'safe' levels including allowance for 50 years of sea level rise. Ministry for the Environment guidelines "Coastal Hazards and Climate Change Dec 2017" have been used in developing this design. Typically rock revetment design is undertaken for a minimum 50 year design life and a 1%AEP storm event i.e. rock size stable under 1%AEP wave height and crest level designed to limit overtopping to acceptable levels during the combined 1%AEP storm tide level and 1%AEP wave height. Note that a 1% AEP event has a 39% likelihood of being exceeded over 50 years. Joint-probability analysis of the 1%AEP storm tide and wave height presented by NIWA (2018) was adopted for the best-practice design. This event is smaller than the February 2018 storm event which is considered in excess of that which is typically the basis for design. Drawbacks are the cost and time to produce the large rock required (not readily available) and will probably trigger planning public hearing as environmental effects could be less than minor. The revetment footprint on the coastline is 16m wide. The toe of the revetment will be slightly above mean high water springs. For NZTA 51% subsidy capex will need to follow the NZTA Regional Land Transport Plan approval pathway	Medium	$1,986M NPC over 50 years $2,045M

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Summary of Options	Benefits alignment	Total Rough order costs ($)
5. Concrete Block Wall or Armour Units This option would involve the use of concrete instead of rock. This could take the form of a vertical concrete block wall or a revetment using concrete armour units such as tetrapods or xblocs. The use of concrete (both vertical wall and armour units) in this situation is expected to be 50-70% more expensive than rock. Vertical, impermeable walls also increase wave overtopping volume and frequency resulting in either the crest elevation needing to be higher than the baseline design crest elevation or accepting more frequent road closures. These options also have the disadvantage of aesthetically looking out of place in this beach environment.	Weak	$2.3 to 2.8M
6. Concrete Road Two concrete road options have been investigated following request from local residents to do so. These include a concrete piled road and a concrete road integrated with a rock revetment structure. The latter of these options is considered to be a concrete road surface protected on the seaward face with the 'best-practice' engineered design option. These options are both considered possible from an engineering perspective, however they are expected to be very costly. Concrete road surface with less protection than best practice revetment will cause scour and undermining of the concrete road. Repairs can be expensive.	Weak	Concrete road with best practice revetment $2.3M Concrete Piled road $7.6M

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Summary of Options	Benefits alignment	Total Rough order costs ($)
7. Road Realignment – One This option moves the road over approximately one road width and cuts into the toe of the hill. Construction would require approximately 3100 m3 of cut and 1200 m3 of fill. The road surface would move up out of the zone of wave action, however the road fill would still extend down to the beach and would require protection from storm waves. This is unlikely to provide a long term solution without a rock revetment and therefore would likely be expensive, as needs both earthworks and the revetment works.	Weak	$2.7M Includes rock revetment
8. Road Realignment – Two Move the road up out of the wave zone and create a large cutting into the hillside with no fill extending to the foreshore. Construction would require approximately 7800 m3 of cutting, with cut slopes up to 15 m high at 1V to 0.5H. To minimise cut heights the grade of the road has been initially set at approximately 1 in 6.5 (15%) which is steeper than normally used on NCC roads. Additional rock slope protection measures i.e. rock anchors and mesh will likely be required on the cut slope. However these measures could be reduced by incorporating the following: • A mid height catch bench • Trimming back the top of the cutting at a less steep batter slope • Incorporating an earth bund or catch fence at the toe of the slope Additional design work will be required to assess the extent of the rock slope protection measures and the potential impact of crossing the weak ground associated with the Flaxmore Fault.	Weak	$2.3M
9. Road Realignment – Three This road alignment looked to utilise the paper road from Athol Street to Airlie Street, by extending the existing ROW over the hill and down to Airlie Street. However the hill proved to be too steep. The road alignment was modelled at 20% grade (maximum allowable) but this still required a very large cut (over 10 m both sides) at the top of the hill. This option is not considered to be practical as it would cut off residential access.	Not Practical	

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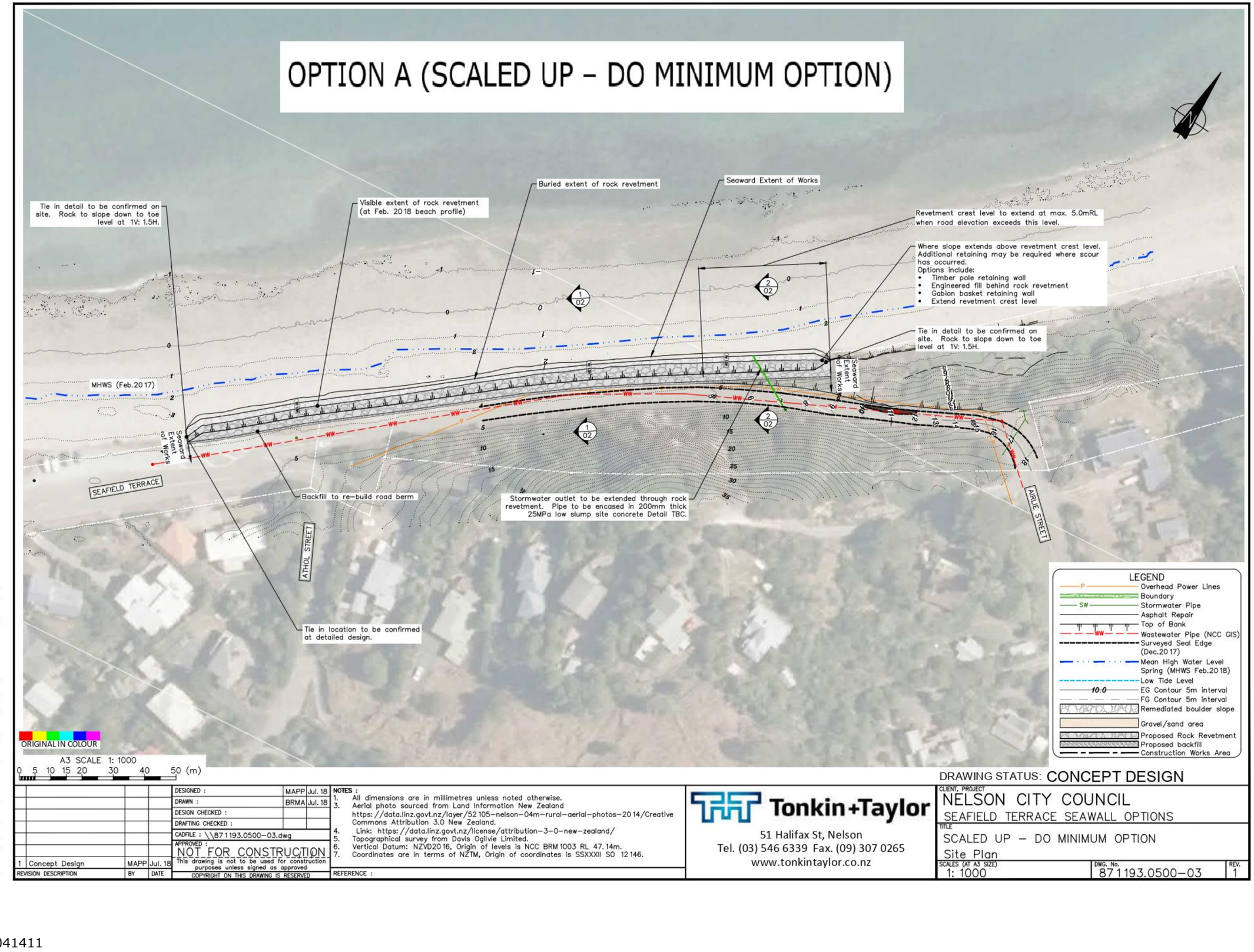
Summary of Options	Benefits alignment	Total Rough order costs ($)
10. Road Realignment – Four An additional road alignment was presented by NCC involving adaptation of a previously consented subdivision on the top of the hill to the south of Airlie Street. This subdivision was never followed through w due to local opposition (consent now lapsed). Subdivision concept plans outlined a proposed access road from the eastern end of Airlie Street to the subdivision and then a narrow width right of way (ROW) between lots. This option would involve connecting the northern end of Glen Road, before the intersection with Athol Street, with the eastern end of Airlie Street via a similar alignment to the previously This option has a high degree of geotechnical risk due to physical constraints including an active fault-line, steep landslip prone terrain upslope of existing residential development, storm water drainage issues. This option is expected to be a costly option with ~1.3km of new road. The complex underlying geological conditions along the proposed alignment means it is likely that construction in these conditions could add 50-100% to the road cost to allow for slope stability works such as rock anchors and mesh along cut slopes. There is also likely to be ongoing maintenance costs of a road along such an alignment with road blockages possible over time resulting from landslips, proposed subdivision access roads and ROW.	Weak	$4.2M to $8.4M subject to geotechnical requirements

A2038309


OPTION A (SCALED UP – DO MINIMUM OPTION)
Tie in detail to be confirmed on site. Rock to slope down to toe level at 1V: 1.5H.
Visible extent of rock revetment (at Feb. 2018 beach profile)
Buried extent of rock revetment
Seaward Extent of Works
Revetment crest level to extend at max. 5.0mRL when road elevation exceeds this level.
Where slope extends above revetment crest level. Additional retaining may be required where scour has occurred.
Options include:
• Timber pole retaining wall
• Engineered fill behind rock revetment
• Gabion basket retaining wall
• Extend revetment crest level
Tie in detail to be confirmed on site. Rock to slope down to toe level at 1V: 1.5H.
MHWS (Feb.2017)
Seaward Extent of Works
SEAFIELD TERRACE
Backfill to re-build road berm
Stormwater outlet to be extended through rock revetment. Pipe to be encased in 200mm thick 25MPa low slump site concrete Detail TBC.
ATHOL STREET
AIRLIE STREET
Tie in location to be confirmed at detailed design.
LEGEND
Overhead Power Lines
Boundary
Stormwater Pipe
Asphalt Repair
Top of Bank
Wastewater Pipe (NCC GIS)
Surveyed Seal Edge (Dec.2017)
Mean High Water Level Spring (MHWS Feb.2018)
Low Tide Level
EG Contour 5m interval
FG Contour 5m interval
Remediated boulder slope
Gravel/sand area
Proposed Rock Revetment
Proposed backfill
Construction Works Area
ORIGINAL IN COLOUR
A3 SCALE 1: 1000
0 5 10 15 20 30 40 50 (m)
DRAWING STATUS: CONCEPT DESIGN
DESIGNED : MAPP Jul. 18
DRAWN : BRMA Jul. 18
DESIGN CHECKED :
DRAFTING CHECKED :
CADFILE : \\871193.0500-03.dwg
APPROVED :
NOT FOR CONSTRUCTION
This drawing is not to be used for construction purposes unless signed as approved
1 Concept Design MAPP Jul. 18
REVISION DESCRIPTION BY DATE
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NOTES :
1. All dimensions are in millimetres unless noted otherwise.
3. Aerial photo sourced from Land Information New Zealand https://data.linz.govt.nz/layer/52105-nelson-04m-rural-aerial-photos-2014/Creative Commons Attribution 3.0 New Zealand.
4. Link: https://data.linz.govt.nz/license/attribution-3-0-new-zealand/
5. Topographical survey from Davis Ogilvie Limited.
6. Vertical Datum: NZVD2016, Origin of levels is NCC BRM 1003 RL 47.14m.
7. Coordinates are in terms of NZTM, Origin of coordinates is SSXXXII SO 12146.
REFERENCE :
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51 Halifax St, Nelson
Tel. (03) 546 6339 Fax. (09) 307 0265
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CLIENT, PROJECT
NELSON CITY COUNCIL
SEAFIELD TERRACE SEAWALL OPTIONS
TITLE
SCALED UP – DO MINIMUM OPTION
Site Plan
SCALES (AT A3 SIZE) 1: 1000
DWG. No. 871193.0500-03
REV. 1
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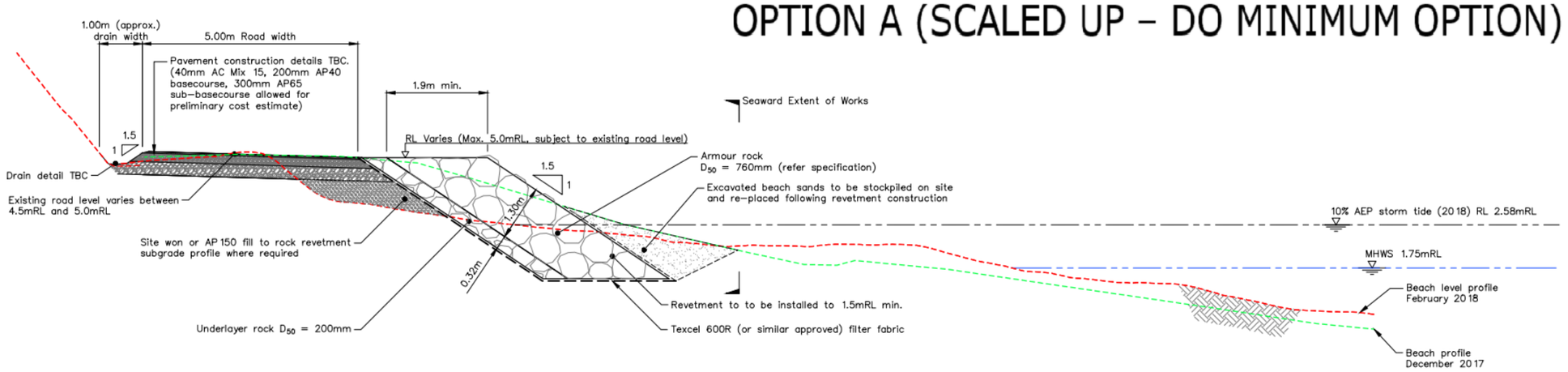
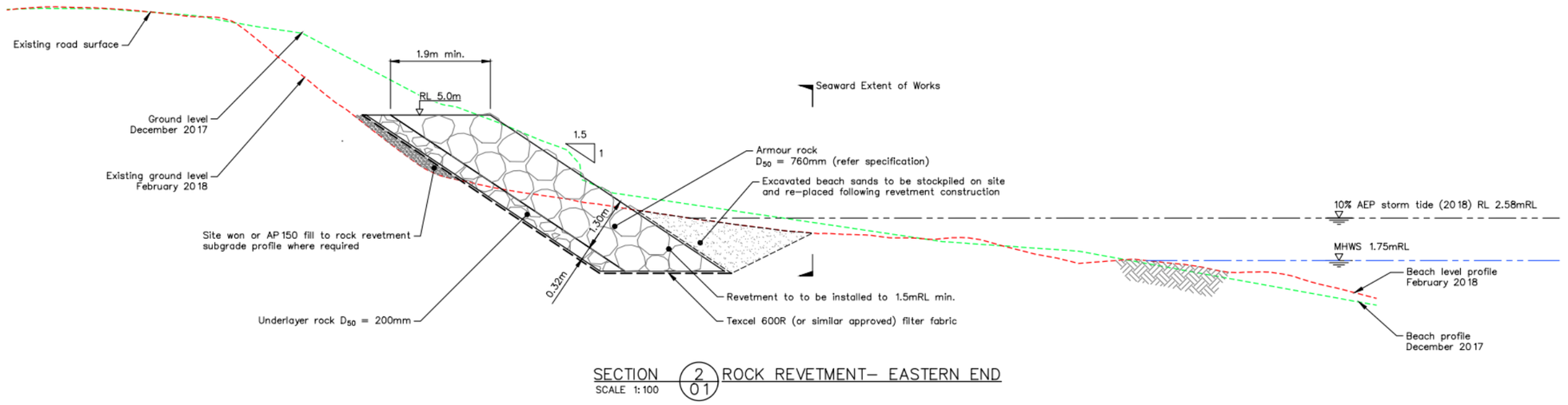
OPTION A (SCALED UP – DO MINIMUM OPTION)



SECTION 1/01 ROCK REVETMENT – WESTERN END
SCALE 1:100



SECTION 2/01 ROCK REVETMENT– EASTERN END
SCALE 1:100

ORIGINAL IN COLOUR

A3 SCALE 1:100
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REVISION DESCRIPTION	BY	DATE
1 Concept Design	MAPP	Jul. 18

DESIGNED :	MAPP	Jul. 18
DRAWN :	BRMA	Jul. 18
DESIGN CHECKED :		
DRAFTING CHECKED :		
CADFILE : \\871193.0500-04.dwg		
APPROVED : NOT FOR CONSTRUCTION		

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NOTES :
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2. Topographical survey from Davis Ogilvie Limited.
3. Vertical Datum: NZVD2016, Origin of levels is NCC BRM1003 RL 47.14m.

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CLIENT, PROJECT
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SEAFIELD TERRACE SEAWALL OPTIONS

TITLE
SCALED UP – DO MINIMUM OPTION
Typical Section

SCALES (AT A3 SIZE)	DWG. No.	REV.
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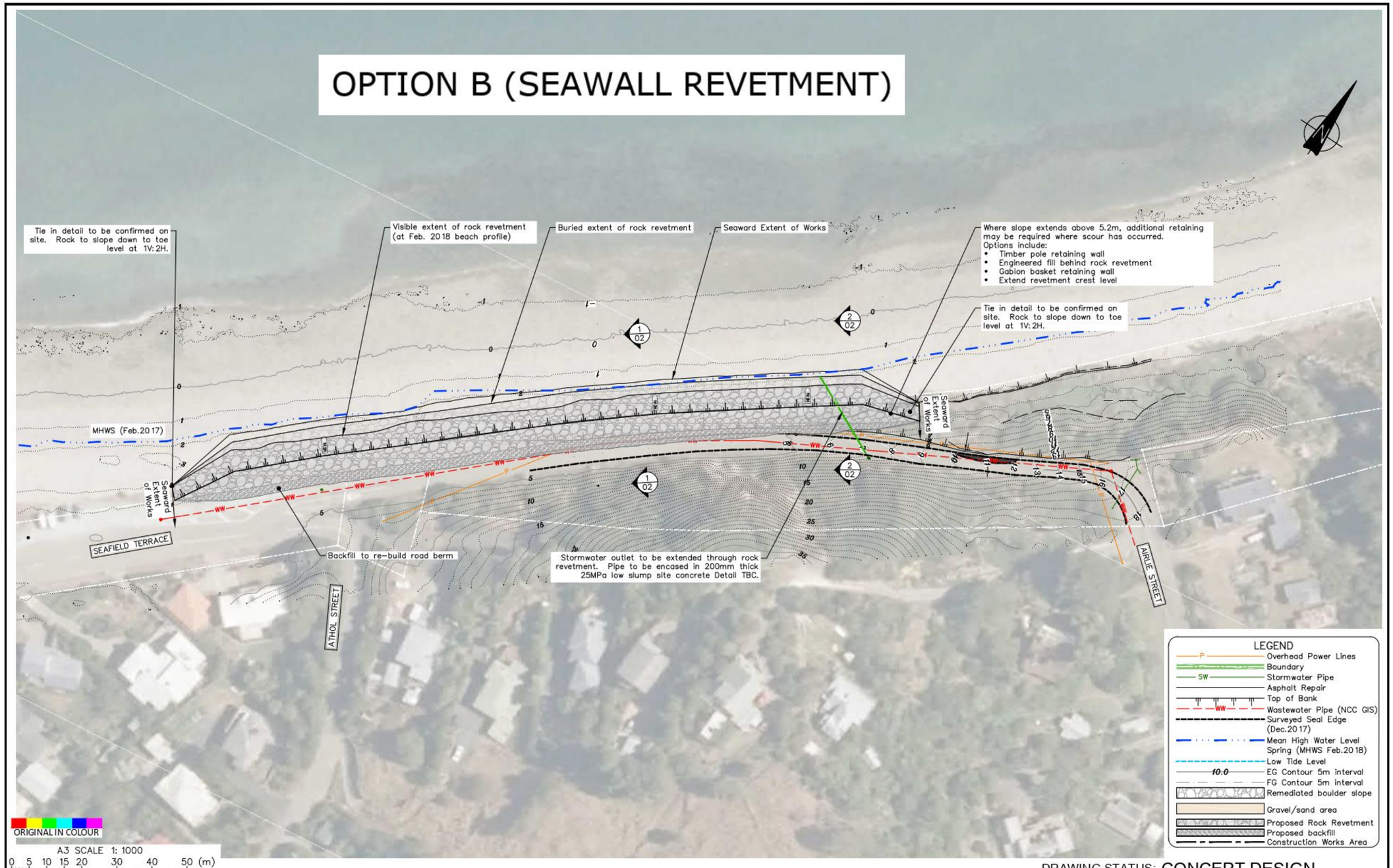

DRAWING STATUS: CONCEPT DESIGN

REVISION	DESCRIPTION	BY	DATE
3	Concept Design	MAPP	Jul. 18
2	Updated to NZVD2016	MAPP	May. 18
1	First Issue	MAPP	Feb. 18

DESIGNED : MAPP Jul. 18
DRAWN : BRMA Jul. 18
DESIGN CHECKED :
DRAFTING CHECKED :
CADFILE : \\871193.0500-01.dwg
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NOTES :
1. All dimensions are in millimetres unless noted otherwise.
3. Aerial photo sourced from Land Information New Zealand https://data.linz.govt.nz/layer/52105-nelson-04m-rural-aerial-photos-2014/Creative Commons Attribution 3.0 New Zealand.
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NELSON CITY COUNCIL
SEAFIELD TERRACE SEAWALL OPTIONS

TITLE
ROCK REVETMENT WORKS
Site Plan

SCALES (AT A3 SIZE) 1: 1000
DWG. No. 871193.0500-01
REV. 3

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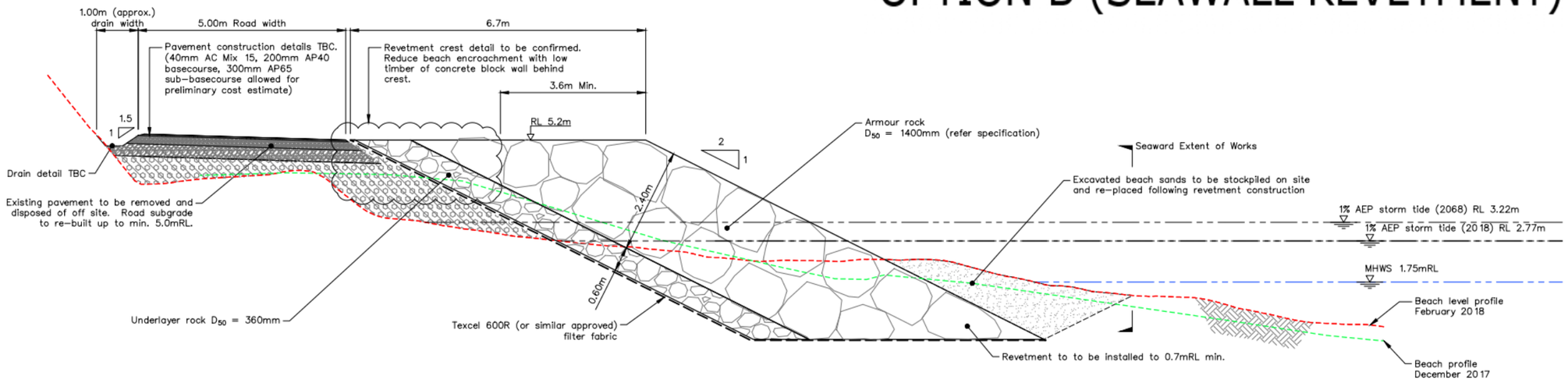
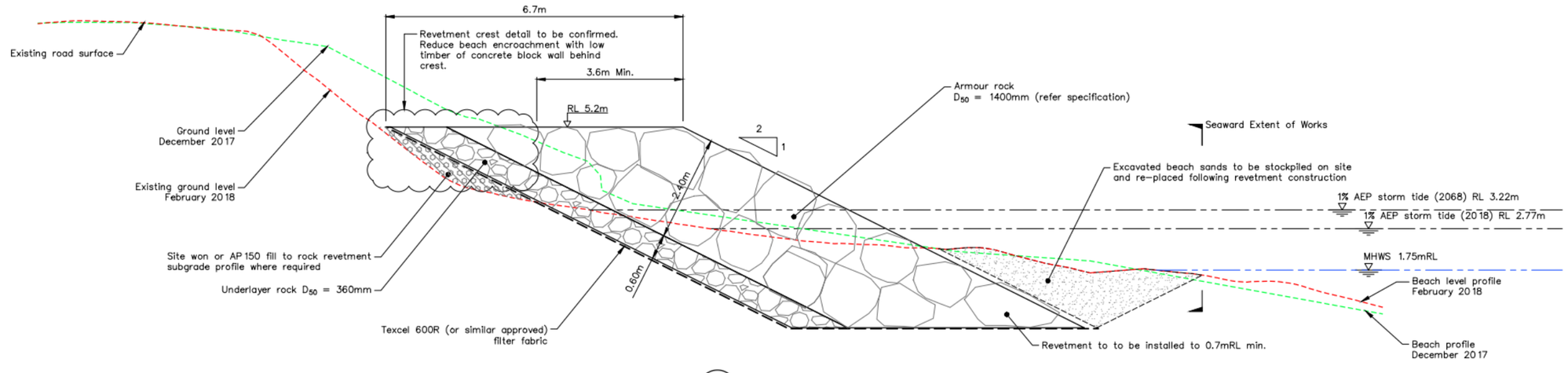
OPTION B (SEAWALL REVETMENT)



SECTION 1/01 SCALE 1:100 ROCK REVETMENT – WESTERN END



SECTION 2/01 SCALE 1:100 ROCK REVETMENT– EASTERN END

ORIGINAL IN COLOUR

A3 SCALE 1:100

0 1 2 3 4 5 (m)

DRAWING STATUS: CONCEPT DESIGN

REVISION	DESCRIPTION	BY	DATE
3	Concept Design	MAPP	Jul. 18
2	Updated to NZVD2016	MAPP	May. 18
1	First Issue	MAPP	Feb. 18

DESIGNED : MAPP Jul. 18
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DRAFTING CHECKED :
CADFILE : \\871193.0500-02.dwg
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CLIENT, PROJECT: NELSON CITY COUNCIL
SEAFIELD TERRACE SEAWALL OPTIONS
TITLE: ROCK REVETMENT WORKS
Typical Section
SCALES (AT A3 SIZE): 1:100
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REV.: 3

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