



**Waitaki**

DISTRICT COUNCIL

TE KAUNIHERA Ā ROHE O WAITAKI

## Outline Business Case

For remediation of the Hampden and Beach Road Closed Landfills  
and re-development of Palmerston Landfill

February 2022

**Document status**

| <b>Job #</b> | <b>Version</b> | <b>Approving Director</b> | <b>Date</b> |
|--------------|----------------|---------------------------|-------------|
| 2668         | Draft          | Alice Grace               | 24/01/2022  |
| 2668         | Final          | Alice Grace               | 11/02/2022  |
| 2668         | Final          | Alice Grace               | 16/03/2022  |

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## Executive Summary

This outline business case explores options for the remediation of three legacy waste disposal sites owned by Waitaki District Council (WDC). Two of the legacy waste disposal sites are on Beach Road, north of the Awamoa Road intersection, and the third site is the Hampden closed landfill. It also explores the feasibility of redeveloping Palmerston Landfill for the acceptance of commercial waste. This outline business case was informed by a feasibility study that addressed the viability of remediation options for Hampden and Beach Road, and the viability of redeveloping Palmerston Landfill.

### The case for change

The Beach Road sites are at risk of erosion from storm events and coastal processes. The road itself also requires ongoing repair as a result. There is a watermain on the landward side of the road that may also be impacted if coastal erosion progresses beyond the road alignment. The Hampden closed landfill is slipping towards the coast, accelerated by coastal erosion at the toe of the site. Both sites require remediation to reduce Council's liability exposure and risk from the uncontrolled discharge of contaminated material or public safety associated with site instability.

WDC owns a landfill at Palmerston that currently accepts low waste volumes from the local community. There may be an opportunity to off-set the cost of remediation for ratepayers through revenue from the acceptance of commercial waste at Palmerston Landfill, provided it is cost-effective to do so. This could include providing an interim disposal option for waste from the wider region which other regional disposal solutions are investigated. Palmerston Landfill could also provide a cost-effective in-district disposal option for remediation material from the Hampden and Beach Road sites.

### Palmerston re-development

The option to run Palmerston Landfill as a commercial operation with net revenue used to off-set remediation costs has been explored. Cost estimates have been prepared for the re-development of Palmerston Landfill for the acceptance of commercial waste, based on the anticipated environmental controls that would be required by Otago Regional Council for a modern landfill. The associated increase in operating costs has also been estimated. Sensitivity testing was completed to demonstrate the impact of higher or lower volumes of commercial waste being received, shorter or longer operating periods and higher or lower development costs. The assessment shows that the expenditure required to dispose of commercial waste material would exceed any revenue from gate fees, unless fees were set at a level that exceeds market rates. Therefore, this option is not considered commercially viable and has not been considered further.

Although disposal of commercial waste is not recommended, Palmerston Landfill is the most cost-effective disposal option for remediation material from Hampden and Beach Road and it is considered prudent for WDC to pursue this disposal option for remediation material. The Hampden material meets the current acceptance criteria and can be disposed at Hampden without further approval from ORC.

The Beach Road material has higher contamination levels than Hampden and would exceed the Palmerston acceptance criteria unless approval from ORC is obtained and pre-treatment is undertaken prior to placement at Palmerston Landfill. Note that other disposal options are also likely to require pre-treatment prior to disposal. In the next stage of this project, further investigation of the contamination levels and extent of contaminated material placement is recommended at Beach Road to confirm the type of pre-treatment required. Further discussions would be required with ORC to obtain approval for this material to be placed at Palmerston Landfill.

## Remediation options

Viable remediation options for Beach Road and Hampden from a technical and planning perspective and the associated costs have been identified. Remediation options for the legacy landfill sites are based around gradually increasing the amounts of waste extraction over different timeframes in response to ongoing coastal erosion and exposure of the contaminated material.

These remediation options have been assessed against strategic investment objectives and critical success factors and the highest scoring options were then shortlisted and combined into three overall remediation solutions. Options that removed all waste from the legacy disposal sites scored higher due to their long-term benefits in terms of protecting the environment and people. The options of retaining and abandoning Beach Road both scored highly and therefore both options were taken forward for further consideration.

The options carried forward for further assessment are listed below and their costs, advantages and disadvantages presented in table ES1 on the following page. The options are:

- Option 1: status quo – must be carried forward for comparison.  
Reactive removal of legacy waste from Hampden and Beach Road as coastal erosion progresses. Ongoing repairs and reinstatement of sections of Beach Road. Disposal of material at Palmerston Landfill until 2027 then out-of-district.
- Option 2: full removal of waste material at Hampden, full removal of waste material at Beach Road and reinstatement of Beach Road. Disposal of Hampden and Beach Road material at Palmerston Landfill.
- Option 3: full removal at Hampden, full removal of material at Beach Road and abandon Beach Road. Disposal of Hampden and Beach Road material at Palmerston Landfill.

Disposal of contaminated material from Beach Road at an out-of-district landfill would be required as a back-up if approval of pre-treatment and disposal at Palmerston Landfill is not received from ORC, noting this would significantly increase the cost of remediation.

## Preferred remediation solution

The preferred solution is Option 3. Option 3 has the lowest overall cost and ratepayer impact, followed by Option 1, the status quo. The cost to reinstate Beach Road makes Option 2 the most expensive option. Option 3 has the lowest cost because it removes all contaminated material from all three sites before August 2027 with disposal at Palmerston Landfill. Option 3 also removes the need for long-term management of this Council liability.

**Table ES1: Remediation option costs, advantages and disadvantages**

| Shortlist                           | Option 1     | Option 2      | Option 3     |
|-------------------------------------|--------------|---------------|--------------|
| <b>50-Year Total Cost</b>           | \$53 million | \$120 million | \$17 million |
| <b>50-Year NPV</b>                  | \$14 million | \$20 million  | \$8 million  |
| <b>Annual Rates Impact, Average</b> | \$610,000    | \$790,000     | \$540,000    |

| Shortlist            | Option 1  | Option 2   | Option 3  |
|----------------------|---|--|---|
| <b>Advantages</b>    | Spreads the capital cost over a longer period and is a continuation of the current management approach.   | Removing all contaminated material now removes ongoing monitoring and maintenance liabilities. Best solution to minimise long term effects on the environment. Full reinstatement of Beach Road keeps Beach Road open. | Most cost-effective solution. Removing all contaminated material now removes ongoing monitoring and maintenance liabilities. Abandoning this section of Beach Road is more cost effective than reinstating the road.  |
| <b>Disadvantages</b> | WDC will continue to have costs associated with the monitoring and management of these sites, including reactive repairs. Increased disposal costs for out-of-district disposal after Palmerston Landfill closes. | Significant upfront cost and ongoing maintenance required to repair Beach Road and reinstate coastal protection as the cliff face retreats along this section of Beach Road.   | Community may object to this section of Beach Road being abandoned. Council would need to work with the community to address their concerns and would need to engage technical and engagement specialists to support. |

## Elected member engagement

A workshop was held with elected members in February 2022 and this was followed up with a site visit to Beach Road. Council approved Option 3 for inclusion in the 2022/23 Annual Plan. The follow next steps are to be progressed for Option 3:

- Community consultation and a decision on the future of Beach Rd (confirmation to abandon post waste removal).
- Further testing of the Beach Rd sites to confirm the level of contamination and treatment requirements, with this forming part of the design and planning stage.
- Further engagement and feedback from ORC on Palmerston landfill options and requirements if up to 12,000 tonnes per annum of waste is accepted until consent expiry without upgrading the landfill to Class A requirements.

# 1 Introduction

Morrison Low and GHD were engaged to prepare a feasibility study and this outline business case for the remediation of three legacy waste disposal sites and feasibility of accepting commercial waste volumes into Palmerston Landfill, owned by Waitaki District Council (WDC). Two of the legacy waste disposal sites are on Beach Road, north of the Awamoa Road intersection, and the third site is the Hampden closed landfill. The outline business case, prepared by Morrison Low, is based on a modified NZ Treasury Better Business Case model. As an outline business case, this report covers the strategic assessment, options analysis, financial case, commercial case, and management case at an indicative level.

The feasibility study (separate report) has been completed as part of this project by GHD. The study identifies viable remediation options for Beach Road and Hampden from a technical and planning perspective and the associated costs. The feasibility study included initial engagement with MfE and ORC around likely compliance requirements and funding sources. The study also considers the engineering and planning requirements for accepting remediation material and commercial waste at Palmerston Landfill. If remediation material cannot be taken to Palmerston Landfill, then WDC will need to transport the material to an out of district landfill, such as the AB Lime Landfill in Southland. This information has been used as the basis for this outline business case.

Several meetings, a site visit and workshop were held with key WDC staff to understand the background issues associated with Beach Road, Hampden and Palmerston Landfill. The workshop was used to agree on the investment objectives, potential options, key considerations, risks, and cost assumptions. This business case reflects the outcome of the workshop and feasibility study as well as various reports referenced within the feasibility study.

WDC intend to consult with the community regarding likely remediation solutions and associated cost, and the consequential impact on rates as part of the Annual Plan process. A workshop with elected members will be undertaken in February 2022 to test options. Feedback from this workshop will be incorporated into the final version of this outline business case.

## 2 Strategic Assessment

This section presents the case for change. It outlines the issues and opportunities with current state and the strategic context for the remediation of the three legacy waste disposal sites, and concludes with the strategic objectives that will be used to assess options to address the issues and opportunities.

### 2.1 Current state

#### 2.1.1 Beach Road and Hampden

This outline business case is primarily related to the remediation of three legacy waste disposal sites located south of Oamaru on the coastline. Two of the sites are along Beach Road, north of the Awamoa Road intersection and the Hampden closed landfill, refer Appendix A maps. The Beach Road sites are located under the WDC road and there is a water supply pipeline adjacent to the road on the landward side. WDC has undertaken previous remediation works to protect the sites from erosion and prevent contaminated material entering the coastal environment. The Hampden closed landfill is slipping towards the coast and the capping material has cracked, creating an uneven, unstable surface and a safety issue for people walking near the site. Slips are also visible at the rear face. Coastal erosion of the toe of the landfill is contributing to slippage.

NIWA have undertaken an assessment of coastal erosion around NZ and the coastline where these sites are located has a high risk of erosion. This is not unknown to WDC as some sections of Beach Road have already been abandoned due to coastal erosion and the cliff face below Beach Road is subject to regular erosion during storm events. Rock protection measures have been installed at various sections along the coast to help stabilise and protect sections of the road. Further south, NZTA regularly install protection measures to prevent erosion of the coastal sections of State Highway 1 in this area. The rate of coastal erosion in the area is estimated by NIWA as 0.3m – 0.5m per year at Beach Road and 0.2m per year at Hampden. The NIWA report also suggests that most forms of coastal protection are ineffectual requiring significant ongoing maintenance.

The rate of erosion at Beach Road and instability of the Hampden landfill are key drivers to determine the best long-term solution to remediate these sites. While not the key focus of this work, implications on other council assets (roads and water supply pipes) have been considered when determining remediation options. At the northern Beach Road site, the contaminated material is located under the road to a depth of up to 8m and 15m at the cliff face. The other factor to consider at Beach Road is the 150mm water supply pipeline that runs along Beach Road. This is a relatively new WDC asset that is located approximately 15m inland (>20m at the contaminated landfill site) of the coast within a private property easement. While not directly affected by any remediation works, it needs to be protected. Any remediation works will need to be undertaken in a way to protect (were practical) neighbouring properties, water supply asset and any remaining road assets.

WDC has a duty of care to protect WDC assets and to protect the health and safety of the public. Where possible, it also wishes to maintain the amenity value of its beaches. It should be noted that although these sites were not WDC operated landfills, they reside on remnants of a recreational reserve and WDC Road Reserve, therefore WDC is responsible for the remediation work.

WDC face ongoing cost associated with the monitoring and maintenance of these contaminated sites. This is either from reactive maintenance responding to emergency events when material enters the coastal environment, or proactive removal of contaminated material and installing, maintaining and reinstating rock protection measures.

Council is seeking to consider whether the current reactive management approach is sustainable over the long term or whether there are more cost-effective solutions that better manage risk to council. The key questions are:

- Can the contaminated material be disposed at Palmerston or not and is it more cost-effective to remove all the contaminated material now while cost-effective disposal facilities are available within district at Palmerston Landfill?
- Is the loss of amenity value (waste material on the beach, and potential leaching of hazardous material) still acceptable to the community and what environmental compliance requirements will be imposed by regulatory bodies?

The feasibility study outlines the potential remediation options for Beach Road and Hampden, considering the status quo reactive maintenance alongside partial and full waste removal options.

### 2.1.2 Disposal options

The greatest cost associated with the remediation of Beach Road and Hampden is the disposal of contaminated material and associated haulage costs. WDC own and operate a landfill in the district, at Palmerston. If disposal at Palmerston is possible, it will be significantly less expensive than out-of-district disposal.



The following table shows the different cost for disposal out-of-district to AB Lime verse disposal within district to Palmerston Landfill. Disposal cost at Palmerston is based on the direct construction cost. Disposal cost at AB Lime is based on the gate rate of \$136/t plus levy and ETS. Disposal tonnage within the table is based of full legacy waste disposal volume of Beach Rd 12,600t and Hampden 31,500t. This clearly shows that the cost associated with haulage and disposal out of district is prohibitive.

**Table 1: Disposal Cost Comparison**

| Disposal Facility   | Disposal Cost | Levy (\$50/t) | Haulage Cost |
|---------------------|---------------|---------------|--------------|
| Palmerston Landfill | \$884,500*    | \$2,205,000   | \$2,961,000  |
| AB Lime             | \$5,997,600   | \$2,205,000   | \$11,360,160 |

\* this is the additional cost at Palmerston to dispose of material excluding on-going maintenance and monitoring cost.

### Palmerston Landfill Background Information

There is an opportunity to maximise the use of the remaining net void space (estimated at 119,700 m<sup>3</sup>) at Palmerston landfill and accept additional waste. The net revenue then used to offset the remediation costs. The feasibility study considered the opportunity and constraints around waste acceptance at Palmerston Landfill.

Palmerston Landfill currently only receives very small waste volumes, less than 500 tonnes per annum. The consents expire in August 2027. The existing consents will need to change with approval required from Otago Regional Council (ORC) to accept additional commercial waste, and ORC approval will be needed to dispose of all remediation material from Beach Road and Hampden. There is no guarantee that waste material will be able to be accepted at Palmerston Landfill after August 2027 when the consents expire. There have been initial discussions with ORC regarding consenting requirements, but further engagement will be required associated with the preferred option.

Initial test results of the material from Hampden closed landfill indicate that the material meets the waste acceptance criteria for Palmerston Landfill. The Hampden waste is the greatest volume of material to remove. Conversely, the initial test results of the contaminated material at Beach Road indicate that the material exceeds the waste acceptance criteria for Palmerston Landfill, so additional pre-treatment of the waste will be required. The placement of the remediation material at Palmerston Landfill will incur additional cost over current operational cost.

The Palmerston Landfill site and original design have capacity as either a Class B landfill (current consented operation) or upgraded to accept special waste with an amended consent.

As the landfill consent expires five years from now, a new consent could be sought to maximise the use of the available void space beyond the current consent expiry date. Alternatively, additional waste could be accepted for a shorter period, until current consent expiry.

The feasibility study estimated that upfront capital costs for receipt of additional commercial waste at Palmerston, based on available net void space of 120,000m<sup>3</sup> and disposal of 12,000t/yr would be approximately \$10.5 million or \$2.6 million per annum amortised over four years, with ongoing operating costs of \$500,000 per annum. In order to recover these costs, WDC would need to be charging commercial customers at least \$265/tonne plus waste disposal levy and ETS costs (\$360/tonne including waste disposal and ETS costs), assuming the site can be filled for four years.

This is unlikely to be commercially viable relative to alternative commercial waste disposal options. For example disposal at AB Lime in Southland is estimated at \$136/tonne plus waste disposal levy and ETS costs. Estimated haulage costs from Hampden and Beach Road to Southland are \$120/tonne. The combined haulage and disposal cost for AB Lime is less than the disposal cost at Palmerston.

Sensitivity testing was completed to demonstrate the impact of higher or lower volumes of commercial waste being received, shorter or longer operating periods and higher or lower development costs.

The feasibility study concluding that there would not be a net revenue gain from accepting additional waste, unless gate fees were set at a level that exceeds market rates. Therefore, this option has been discounted, as it is not considered commercially viable.

Alongside cost considerations, there is no guarantee that ORC will grant a consent variation to enable commercial waste to be accepted at Palmerston. It is increasing difficult to gain consent to extend landfill operations or establish new landfills.

It is considered more prudent for WDC to have space available at Palmerston Landfill for future use such as to take both known and unknown contaminated material from within the district.

## 2.2 Strategic context

Like other councils, it is likely that WDC will come under increased scrutiny around how closed landfills and legacy contaminated sites are managed. Consenting authorities (e.g. regional councils) are becoming more aware of the risk and cost associated with managing closed landfills and legacy contaminated sites. Sites that are near waterways or coastal environments that are subject to erosion from storm events are of higher concern. Sea level rise and climate change is impacting many of these sites with more frequent storm and erosion events. Consenting authorities are starting to apply a risk framework across these sites to prioritise funding and remediation works. The Fox River closed landfill breach that occurred in 2019 following heavy rain demonstrated to the consenting authorities that there is a need to address legacy landfills before they create environmental harm and negative publicity.

Coastal erosion and the impact on assets (roads, water supply pipelines, stormwater assets and other council facilities and assets located on the coast) is becoming more of a concern for local authorities, including WDC, due to climate change and the increased frequency and intensity of storm events. WDC's infrastructure strategy and investment planning will need to consider solutions around protection of assets versus managed retreat (loss of land and loss of assets). The high cost of asset protection may not match the value of the asset being protected and can potentially be unaffordable.

MfE have funds available through the Contaminated Site Remediation Fund (CSRF) and there may in future be central government funds available for climate change response. These funds could potentially help cover the cost associated with remediation of legacy waste disposal sites in coastal areas impacted by climate change. Although these funds may off-set council costs, initial feedback from MfE in relation to CSRF is that over the short term it is unlikely to cover the projects covered by this outline business case. It is reserved for more significant contamination site remediation and is over subscribed. MfE have no certainty regarding funding associated with climate change response, so at this stage cannot commit to funding.

## 2.3 Strategic objectives

The strategic priorities outlined in the previous two sections have been used to determine the investment objectives for the remediation of WDC's legacy waste disposal sites. These are outlined below and were agreed through a workshop with WDC staff:

- To comply with best practice environmental obligations (preserving amenity value and regulatory compliance).
- To protect health and safety of works, visitors, and the general public.
- To protect Council's critical assets (particularly roads and water supply).

### 3 Options Analysis

This section sets out the potential solutions for remediation of WDC’s legacy waste disposal sites at Beach Road and Hampden. Remediation options for each site developed in the feasibility study are presented and assessed against the strategic objectives (see Section 2.3). The remediation options are also assessed against the following critical success factors, that are common to all BBC assessments:

- Strategic fit and business needs
- Provides value for money
- Within supplier capacity and capability
- Potentially affordable
- Potentially achievable

#### 3.1 Remediation options

Remediation options are assessed as scoping options i.e. what different scales of investment are possible including status quo, minimum scope, intermediate scope or maximum scope.

From the feasibility study, the potential solutions identified to remediate the Beach Road and Hampden sites are as shown in the following table. Remediation options for all three legacy landfill sites are based around gradually increasing amounts of waste extraction, from status-quo options (that involve only maintenance and no active remediation), partial-remediation (involving the removal of the most at-risk or problematic waste mass) and full remediation (involving the complete removal of all waste materials).

**Table 2: Remediation options for Beach Road and Hampden**

| Option            | Status Quo                                      | Do Minimum   | Do More   | More Ambitious / Complete Solution  |
|-------------------|---|--|---|---|
| <b>Beach Road</b> | B1: Reactive repairs and ongoing maintenance.   | B2: Partial (minimum) remediation to allow improved and stabilised capping profile and improved coastal protection measures (~2,500m <sup>3</sup> ). | B3: Remove all legacy landfill material (~8,000m <sup>3</sup> across two sites). Reinstate Beach Road to pre-1972 alignment OR reinstate current alignment and provide erosion protection to 2.4km road.  | B4: Remove all legacy landfill material (~8,000m <sup>3</sup> across two sites) Abandon Beach Road and reprofile site for managed coastal retreat |
| <b>Hampden</b>    | H1: Reactive repairs and ongoing maintenance. . | H2: Additional capping improvements and erosion projection   | H3: Remove a 10m strip from front of landfill as it slips towards the coast and relocate coastal protection measures inland as per previous remediation work (long term incremental landfill remediation permitted under current Resource Consent) (~4,000m <sup>3</sup> ). | H4: Remove all legacy landfill material and reprofile site for managed coastal retreat (~21,000m <sup>3</sup> ).                                  |

In the feasibility study, it is noted that partial waste removal options can only delay the inevitable requirement to completely relocate all legacy coastal waste deposits at some future date. Complete waste removal is initially costly but negates ongoing monitoring and maintenance costs and reduce overall liabilities associated with managing legacy waste deposits within a retreating coastline environment. Asset reinstatement in this environment (e.g. road or water pipeline) can be costly with erosion continuing after reinstatement, noting the coastal erosion rate of 0.3 to 0.5 m/ year. These cost implications have been taken into account in the financial modelling presented in this outline business case.

### 3.2 Assessment of Beach Road Options

Table 3 presents the assessment of remediation solutions for Beach Road against the investment objectives and critical success factors.

Based on the costs provided within the feasibility study the most affordable solution for Beach Road is to remove all the contaminated waste from both sites now, then abandon this section of Beach Road. Given the rate of coastal erosion discussed in the feasibility study, the existing water supply pipeline would not be impacted by the abandonment of the road. While this is the most affordable solution it may not be unacceptable for the community to lose part of the road network. The more expensive but potentially more acceptable option for the community is to reinstate Beach Road along its 1972 alignment (as opposed to the current alignment) after the waste material has been removed.

**Table 3: Beach Road remediation options assessment**

| Remediation Options   | B1: Status Quo<br>Reactive repairs   | B2: Do<br>Minimum<br>Partial<br>removal of<br>waste        | B3: Do More<br>Full removal<br>of waste and<br>reinstate road    | B4: More<br>Ambitious<br>Full removal<br>of waste and<br>close road |
|---|--|--|--|---|
| <b>Investment objectives</b>  |  |  |  |   |
| To comply with best practice environmental obligations (preserving amenity value and regulatory compliance) | No   | Partial  | Yes  | Yes   |
| To protect health and safety of works, visitors, and the general public                                     | No   | Partial  | Yes  | Yes   |
| To protect Council's critical assets (particularly roads and water supply)                                  | No   | Partial  | Yes  | Partial   |
| <b>Critical success factors</b>   |  |  |  |   |
| Strategic fit and business needs  | No   | Partial  | Yes  | Partial   |
| Provides value for money  | Yes  | No   | Partial  | Yes   |
| Within supplier capacity and capability   | Yes  | Yes  | Yes  | Yes   |
| Potentially affordable  | Yes  | No   | No   | Yes   |
| Potentially achievable  | Yes  | Yes  | Partial  | Partial   |
| <b>Overall assessment</b>   |  |  |  |   |
| <b>Result</b>   | <b>Default</b>   | <b>Discount</b>  | <b>Possible</b>  | <b>Preferred</b>  |
| <b>Comments</b>   | Reactive approach to managing environmental obligations is not best practice | More efficient to remove all contaminated material at once | Potentially unaffordable due to added cost to keep Beach Rd open | Most cost effective   |

### 3.3 Assessment of Hampden Remediation Options

Table 4 presents the assessment of remediation solutions for Hampden against the investment objectives and critical success factors.

Based on the costs provided within the feasibility study the most affordable solution is to remove all the contaminated waste from Hampden closed landfill now while capacity exists at Palmerston Landfill. There is a large volume of material to remove from Hampden and the cost to dispose this volume of material out of district is significantly more. The underlying ground conditions at this site are such that the material will all need to be removed at some point in time and it will only get more expensive. The volume to be removed is significant as it requires up to 790 truck movements over a short period of time. This will require careful traffic management which is also best managed within a defined timeframe.

**Table 4: Hampden remediation options assessment**

| Remediation Options   | H1: Status Quo<br>Reactive<br>Repairs  | H2: Do<br>Minimum<br>Some removal<br>of waste                        | H3: Do More<br>More waste<br>removal   | H4: More<br>Ambitious<br>Full<br>removal of<br>waste          |
|---|--|--|--|---|
| <b>Strategic Investment Objectives</b>  |  |  |  |   |
| To comply with best practice environmental obligations (preserving amenity value and regulatory compliance) | No   | Partial  | Partial  | Yes   |
| To protect health and safety of works, visitors, and the general public                                     | No   | Partial  | Partial  | Yes   |
| To protect Council's critical assets (particularly roads and water supply)                                  | No   | Partial  | Partial  | Yes   |
| <b>Critical success factors</b>   |  |  |  |   |
| Strategic fit and business needs  | No   | No   | Yes  | Yes   |
| Provides value for money  | Partial  | Partial  | Partial  | Yes   |
| Within supplier capacity and capability   | Yes  | Yes  | Yes  | Yes   |
| Potentially affordable  | No   | Partial  | Partial  | Partial   |
| Potentially achievable  | Yes  | Yes  | Yes  | Yes   |
| <b>Overall assessment</b>   |  |  |  |   |
| <b>Result</b>   | <b>Default</b>   | <b>Discount</b>  | <b>Discount</b>  | <b>Preferred</b>  |
| <b>Comments</b>   | Reactive approach to managing environmental obligations is not best practice | Due to the nature of the landfill movement not an effective solution | Delayed removal means cost effective disposal locations may not be available when remediation required | Most cost effective and looks to protect adjoining properties |

### 3.4 Disposal Options

Disposal Options have been assessed as the service solution options, i.e. How can services be provided? What alternative ways could the services be delivered? In this case different disposal locations are assessed.

The disposal options for the remediation material, potential consenting requirements for acceptance of material at Palmerston Landfill and the costs associated with acceptance of this material at Palmerston Landfill have been covered under section 2.1.2 and within the feasibility study. The options considered are outlined in the table below. Based on the assessment undertaken, Option P3, acceptance of remediation material from Hampden and pre-treated remediation material from Beach Road is the preferred option taken forward for further assessment.

For Palmerston Landfill, it is technically feasible to accept remediation material from both Hampden and Beach Road and this is the lowest cost option. However, it may be more challenging to obtain approval for Beach Road material to be accepted at Palmerston Landfill, in which case out of district (to AB lime at \$136/t excluding levy) disposal is a backup option for this material.

**Table 5: Disposal options**

| Option                     | Status Quo  | Do Minimum  | Do More   | More Ambitious / Complete Solution  |
|----------------------------|---|---|---|---|
| <b>Palmerston Landfill</b> | P1: Local waste acceptance only, remediation material disposed out of district. | P2: Accept remediation material from Hampden only (for H3/ H4 options), Beach Road remediation material disposed out of district. | P3: Accept remediation material from Hampden and pre-treated remediation material from Beach Road (for H3/ H4 and B3/B4 options). | P4: Upgrade landfill to receive 12,000t/yr commercial waste plus accept remediation material (for H3/H4 and B3/B4 options). |

### 3.5 Other Long List Option Considerations

A typical BBC assessment will consider a long list of options against the following five dimensions:

- Scoping options – What different scales of investment are possible (status quo, minimum scope, intermediate scope, or maximum scope). Covered above under section 3.1.
- Service solution options – How can services be provided? What alternative ways could the services be delivered? (Different disposal locations) Covered above under section 3.2.
- Service delivery options – Who can deliver the services? Are there alternative service providers? In-house or out-source? Public or private provision? Or combinations of the above? Covered below under section 3.5.1.
- Implementation timing options – When can services be delivered? Immediate or deferred? Big-bang or phased delivery of services? Covered below under section 3.5.2.
- Funding options – How can it be funded? Client or third party? Capital or revenue? Covered below under section 3.5.3.

For this outline business case, the remediation options replace the scope and service solution options. These have been assessed against the strategic objectives and critical success factors as they would in a BBC long list assessment.

For the three remaining dimensions, we have considered what options might be available but not undertaken the full assessment as there is a clear preferred option in each case. This analysis is outlined in the following sections.

### 3.5.1 Service Delivery Options

The table below outlines the service delivery options. For the status quo WDC’s maintenance contractor(s) would continue to undertake reactive physical works as required. WDC’s contracted consulting firms that currently provide monitoring services would continue to provide this support.

For all other remediation options, the project would take two stages; detailed design and consenting then physical works based on the detailed design when consents have been obtained. The skill sets between the different stages are very different.

The detailed design for both the remediation works (waste removal) and cell development for placement at Palmerston Landfill along with consent application preparation and support is specialist work undertaken by engineering and planning consultancy services firms. The physical construction work is not technically difficult but does involve specific risks that need to be carefully managed. While not fully tested, there are several regional civil contractors that could undertake the work with close supervision. It is noted that the current environment with Covid-19 restrictions, increased volume of infrastructure projects, labour shortages, and increasing inflation is making it more challenging to deliver projects. The expected commencement date for physical works in 2024 when market conditions maybe more favourable. However, early engagement with potential civil contractors is advised.

**Table 6: Service Delivery Solutions**

| Service Delivery Option   | Overall Assessment   |
|---|--|
| <b>Status quo – reactive repairs by maintenance contractor</b>                    | Default option   |
| <b>WDC in-house design and physical works</b>                                     | Lack of in-house resource and expertise to support consenting and design requirements. Tendering physical works provides more competitive rates.   |
| <b>Let as a separate tender for design and separate tender for physical works</b> | Preferred option, need specific consenting and design expertise to deal with the contaminated material and Palmerston landfill work that are separate to civil contractor physical works expertise.  |
| <b>Let a design build contract for design and physical works</b>                  | Likely to be limited response from organisations or consortium that would respond to a design build contract covering all aspects of the work from consenting, to Palmerston Landfill design and remediation design requirements. Some aspects of the project are high risk. |

### 3.5.2 Implementation Options

The table below outlines the implementation options. The implementation option is very dependent on WDC securing funding and gaining consent to place the removed contaminated material within Palmerston Landfill. The largest cost component for this project is waste disposal and associated haulage. Palmerston Landfill’s current consents expire in August 2027 and as this is the cheapest disposal option, it is preferable to undertake the physical works before the consents expire or there are further constraints regarding available disposal facilities.

**Table 7: Implementation Options**

| Description of Option:                                    | Overall Assessment   |
|---|--|
| Status Quo – Reactive clean up as required                | Default option   |
| Remedial works prior to Palmerston consent expiry in 2027 | Preferred option, as disposal out of district is significantly more expensive  |
| Remedial works after Palmerston consent expiry in 2027    | There is no guarantee that the consents to operate Palmerston Landfill will be renewed past 2027. Disposal out of district is substantial more expensive and there could be further constraints regarding available disposal options |

### 3.5.3 Funding Options

The funding options are outlined in the following table. While the preferred option is to fund the project from a combination of central government funds via the MfE and rates, this option is not considered unlikely in the short term. The default option is for WDC to fully fund the project from rates, with this being the most likely outcome.

As outline in section 2.2, MfE have provide initial feedback that they are unlikely to fund this project in the short term, due to insufficient funds available within the CSRF which is over-subscribed and budget uncertainty relating to climate change funds. The remediation cost includes Levy payments on waste disposal as initial feedback from MfE is that this will need to be paid. However, it is suggested that WDC still apply to MfE for a levy exemption.

**Table 8: Funding Options**

| Description of Option:                          | Overall Assessment   |
|---|--|
| Status quo – fully rates funded                 | Default option   |
| Mix of central government funding & rates       | Preferred option, but might not be achievable                                    |
| No rates funding, central government funds only | Initial feedback is that MfE are unlikely to fund this project in the short term |

## 3.6 Shortlisted Options

The preferred remediation options from the assessment above have been combined and carried forward for further assessment. The combined options carried forward are:

- **Option 1:**  
Status quo (combining B1, H1 and P1) – must be carried forward for comparison
- **Option 2:**  
Full removal of waste material at Hampden (H3), full removal of waste material at Beach Road and reinstatement of Beach Road (B3). Disposal of Hampden and Beach Road material at Palmerston Landfill (P3)
- **Option 3:**  
Full removal at Hampden (H3), full removal of material at Beach Road and abandon Beach Road (B4). Disposal of Hampden and Beach Road material at Palmerston Landfill (P3)

## 3.7 Advantages and Disadvantages of Shortlisted Options

The table below provides a comparison of the advantages and disadvantages of the shortlisted options.



**Table 9: Advantages and disadvantages of shortlisted options**

| Option                                       | Description  | Advantage  | Disadvantage  |
|--|--|--|---|
| <p><b>Option 1</b><br/><b>Status Quo</b></p> | <p>The current approach to managing the legacy waste disposal sites is to undertake reactive repairs when erosion occurs, with repairs often having to be undertaken as emergency works to clean-up the discharged material. Under this approach all the material will eventually be removed but over a longer timeframe and in an uncontrolled way as and when erosion occurs. The contaminated material can be disposed at Palmerston under the current consent until 2027 but after that date it will need to be disposed out of district unless the consent at Palmerston is extended and expanded to allow disposal of material from both Beach Rd and Hampden.</p> | <p>Spreads the capital cost over a longer period and is a continuation of the current management approach.</p>   | <p>Contaminated material will continue to enter the marine environment and may trigger emergency response. WDC will continue to have costs associated with the monitoring and management of these sites and commit resources to oversee this. Cost effective disposal options at Palmerston Landfill may not be available after 2027, significantly increasing disposal cost when contaminated material has to be removed from the sites. Lack of suitable contractors when required.</p> |
| <p><b>Option 2</b></p>                       | <p>Removal of all contaminated material at Hampden closed landfill. Disposal of the contaminated material at Palmerston Landfill. At the same time removal of all the contaminated material from Beach Road with pre-treatment of the material prior to disposal at Palmerston Landfill. Reinstatement of the section of Beach Road where the contaminated material has been removed, returning the site to its pre-1972 alignment and installation of rock protection.</p>  | <p>Removing all contaminated material now removes ongoing monitoring and maintenance liabilities. Best solution to minimise long term effects on the environment. Full reinstatement of Beach Road after the contaminated material is removed and ongoing rock protection repairs to keep Beach Road open.</p> | <p>Significant upfront cost and ongoing maintenance required to repair Beach Road and reinstate coastal protection as the cliff face retreats along this section of Beach Road.</p>   |
| <p><b>Option 3</b></p>                       | <p>Removal of all contaminated material at Hampden closed landfill. Disposal of the contaminated material at Palmerston Landfill. At the same time removal of all the contaminated material from Beach Road and pre-treating the material prior to disposal at Palmerston Landfill. Then abandoning the Section of Beach Road where the contaminated material has been removed.</p>  | <p>This is the most cost effective solution. Removing all contaminated material now removes ongoing monitoring and maintenance liabilities. This is the best solution to minimise effect on the environment. Abandoning this section of Beach Road is more cost effective than reinstating the road.</p>       | <p>Community may object to this section of Beach Road being abandoned.</p>  |

### 3.8 Financial analysis of shortlisted options

A financial assessment of the shortlisted options has been carried out. The results are presented in Table 10 showing that Option 3 is the best long-term solution from a financial perspective. Direct financial costs, and not broader economic benefits, have been assessed for this outline business case.

Option 3 has the lowest overall cost and ratepayer impact, followed by Option 1, the status quo. The cost to reinstate Beach Road makes Option 2 the most expensive option. This is due to the on-going maintenance of protection measures required to keep Beach Road open, total cost over 50 years estimated as \$17 million.

In undertaking the financial analysis, the following assumptions were used:

- Discount rate of 6% and interest rate of 3.25%
- Assessment period of 50 years
- Excludes general inflation
- Annual cost escalation for monitoring of 5% reflecting increasing extent and complexity of monitoring as erosion progresses
- Annual cost escalation for maintenance of 10% reflecting increasing scope of works and difficulty as erosion progresses
- Cost information is based on GHD cost model presented in the feasibility study and information provided by WDC regard current maintenance and monitoring costs
- Status Quo option includes removal of a 10m strip from the coastal front of Hampden every 12 years (as per previous repairs). Beach Road emergency removal of all material by year 10 as well as ongoing monitoring costs and costs for repair of rock protection.

**Table 10: Financial assessment of shortlisted options**

| Shortlist                                      | Option 1 Status quo | Option 2 B3H4  | Option 3 B4H4 |
|--|---------------------|----------------|---------------|
| <b>Whole of Life Cashflow</b>                  | \$53 million        | \$120 million  | \$17 million  |
| <b>50-Year Total Cost</b>                      | \$53 million        | \$120 million  | \$17 million  |
| <b>Average Annual Cashflow<sup>1</sup></b>     | \$1 million         | \$0.9 million  | \$0.7 million |
| <b>50-Year NPV</b>                             | \$13.7 million      | \$19.7 million | \$7.8 million |
| <b>Capital Requirements over 50 years</b>      | \$20.4 million      | \$8.1 million  | \$7.9 million |
| <b>Annual Rates Impact Average<sup>2</sup></b> | \$0.6 million       | \$0.8 million  | \$0.5 million |

### 3.9 Preferred option

Based on the financial analysis and consideration of the advantages and disadvantages of the shortlisted options, the preferred option is Option 3, to remove all contaminated material at both locations with disposal to Palmerston Landfill before 2027, then abandon this section of Beach Road. This option has the lowest total cost over 50 years and lowest impact on rates. Due to the rate of coastal erosion along this section of Beach Road it is not considered feasible to reinstate Beach Road after the material has been removed. Community engagement on these options is recommended to determine what value the community place on keeping Beach Road open.

<sup>1</sup> Over first 20 years – as costs are heavily front loaded in options 2 and 3 a 50 year average annual cashflow is considered misleading

<sup>2</sup> Over first 20 years – costs are typically front loaded and a 50 year view would under-represent rates impact

If the status quo approach to managing these sites continues, WDC is likely to face additional cost for ongoing emergency repairs, clean up and monitoring. There is also the potential that the most cost-effective disposal solution at Palmerston Landfill is not available after 2027 when the existing consents expire.

## **4 Financial Case**

### **4.1 Financial costing**

The financial costs are based on the capital and operating costs identified in the GHD feasibility study. The cost assessment is based on a 50-year timeframe. Option 3, the preferred option, has a total cost of \$17 million with an annual rates impact of \$540,000.

Capital costs include all costs that we expect to be loan funded and include planning, design and physical works, haulage, disposal, and waste levy costs as applicable. For accounting purposes, it is possible that some or all these costs may be more appropriately categorised as being operational as they do not result in the creation of an asset.

### **4.2 Funding commitments**

Funding commitments for capital and operating expenditure are outlined in the Table 11 and 12 below.

Internal funding sources include general rates, targeted rates, user fees and charges, development contributions, loans, and transfers from reserves. The main funding source will be from general rates. User fees and charges would only have been applicable if it was recommended that Palmerston Landfill operate as a commercial landfill. This option has been discounted as there would not be a net revenue, as covered in section 2.1.2.

External funding sources include grants and subsidies, and private sector contribution. These are considered committed if a formal contract has been signed with the funding provider. WDC have had initial discussion with the MfE around potential funding sources for this remediation project. The initial feedback from MfE was that the project would not meet the criteria for funding under the CSFR. However, MfE indicated that it might be worth pursuing a funding application from a different fund (climate change response) as there is a growing need to address these types of contamination sites. In discussions with MfE they also confirmed that the waste disposal levy would need to be applied for disposal of remediation material from Beach Road and Hampden as no levy was paid for the waste disposal when initially disposed at the site under consideration. MfE could not give any certainty or details regarding funding options due to their own budget uncertainty. Even if unsuccessful it is recommended to apply to MfE for an exemption to levy payments and continue to monitor MfE information regarding funding rounds and apply if applicable.

Other potential funding sources are from community groups or private donors interested in protecting the environment, however this is considered unlikely for this project.

The likelihood of securing funding from uncommitted sources is considered likely as part of the Annual Plan budget approval process. This work is considered urgent to minimise environmental risks.

**Table 11: Capital funding sources**

| Funding source                              | Amount      | Committed/ uncommitted                      |
|---|-------------|---|
| Development Contributions (identify source) | N/A         |   |
| Reserves (identify source)                  | N/A         | Uncommitted                                 |
| Loans                                       | \$8 million | Uncommitted subject to Annual Plan approval |
| Grants e.g. MBIE, Lotteries Commission      | MfE Funding | Uncommitted                                 |
| Donations                                   | N/A         |   |
| Other                                       | N/A         |   |

**Table 12: Operating funding sources**

| Funding source   | Amount (per annum)  | Committed/ uncommitted   |
|------------------|---------------------|--|
| Rates            | \$540,000 (average) | Uncommitted subject to Annual Plan approval  |
| Fees and Charges | N/A                 | Only applicable if Palmerston Landfill operates commercially. Subject to Annual Plan approval. |
| Other            | N/A                 |  |

## 5 Commercial Case (Procurement Overview)

### 5.1 Compliance with client's procurement policy

The services required will be procured in compliance with WDC's Procurement Policy and align with 'All of Government' best practice procurement processes.

From a commercial perspective this project is not considered significant. There is a degree of urgency associated with the procurement of this work so the physical works can be completed prior to the Palmerston Landfill Consent expiry in August 2027.

### 5.2 Procurement approach

The proposed procurement approach will be to procure a design contract based on IPENZ/ACENZ Conditions of Contract for Consultancy Services followed by a physical works contract based on NZS 3910. The procurement process is low risk however there are site-specific health and safety risks that will need to be carefully managed. These are related to handling contaminated material, working within a coastal environment, erosion and unstable ground and traffic management.

**Stage 1 Consenting and Design** - The detailed design and consenting stage is expected to take six to twelve months and would involve the preparation of pricing schedules and design drawings for physical works.

**Stage 2 Physical Works** - The physical works tender will be based on work completed in Stage 1. The physical works tender is likely to be let with two separate work packages that could be awarded to separate contractors or the same contractor, depending on the capability and capacity of tenderers. One work package would be for the removal of waste and remediation/reinstatement at Beach Road and Hampden.

The second work package would be for Palmerston Landfill cell development and operations. The timing and programme of the physical works will depend on the final design and when consents can be obtained as well as programming the works during settled weather conditions, generally over the summer period. Physical works at Beach Road and Hampden are expected to take up to six months.

It is recommended to seek early engagement with potential contractors to determine market interest for this work and best approach to structuring the physical works contract. Physical works at Palmerston Landfill would depend on the agreed consent conditions, that will only be confirmed when ORC process an application. Further engagement will be required with ORC on the preferred solutions to provide an indication of the likely consent conditions and any effect on project costs and timeframes.

### 5.3 Market Interest

**Stage 1 Consenting and Design** – there are several engineering consulting firms with expertise in the design of remediation works and landfill cell development. A closed tender process to selected firms with the relevant experience could be considered.

**Stage 2 Physical works** - while there are specific risks involved with the removal of waste from legacy disposal sites, there is likely to be several local and regional contractors interested in tendering for this work.

An open tender process with early contractor involvement should be considered for this work. We do note current challenges relating to Covid-19 restrictions, high demand for infrastructure projects, labour shortages and high inflation that is impacting many projects. The physical works is not expected to commence until at least 2024 after completing the planning and design requirements. It is hoped that some of the current challenges may have less of an impact by then.

Formal market engagement is recommended as part of the procurement process for Stage 1 and Stage 2 of the remediation works.

## 6 Management Case

The management case outlines the project management strategy and planning arrangements, governance and project team structure, risk management and change management.

### 6.1 Project management framework

The project will be managed by WDC staff reporting through existing internal reporting structures that report to elected members on key milestones and raise any risks and issues as they occur. This project could fit within business-as-usual project management frameworks within WDC for capital works. Internal staff cost has not been included within project costs but external project management cost has been included within cost estimates.

The WDC Project Sponsor for this work would be a member of the Executive Team. The project falls under the solid waste team, Erik van der Spek, Recreation Manager, and the Project Manager could be Steve Clarke, Solid Waste Manager or a resource appointed from WDC's capital works team.

### 6.2 Project programme

The proposed indicative project programme is shown below. The priority is to achieve elected member approval and support for the preferred solution via the Annual Plan consultation process.

**Table 13: Proposed project programme**

| Key project milestone   | Estimated delivery date               |
|---|---------------------------------------|
| Workshop with elected members                                     | 15 February 2022                      |
| Preparation of final outline business case                        | End February 2022                     |
| Consultation with residents and iwi as part of the Annual Plan    | March to April 2022                   |
| Council decision on preferred solution                            | May to June 2022                      |
| Detail design and consent application process ORC                 | July 2022 to June 2023                |
| Commencement of physical works programme based on detailed design | 2023 to 2024 (TBC subject to consent) |

### 6.3 Stakeholder engagement and communication strategy

The key stakeholders involved in this project are shown in Table 14 below. While potential solutions are being developed, stakeholder engagement to date has been limited to MfE, and ORC. WDC staff meet regularly with the executive leadership team and elected members to discuss progress on the project.

Extended engagement and consultation will be undertaken as part of the Annual Plan process. Further direct engagement with parties directly impacted by the project will be required, particularly adjacent property owners. A stakeholder engagement and consultation plan would be prepared as part of the next phase of this project.

**Table 14: Stakeholder engagement plan**

| Stakeholder group                           | Involvement to date  | Proposed engagement approach   | Aware of project |
|---|--|--|------------------|
| Residents & ratepayers                      | None   | Annual Plan consultation process   | No               |
| Local iwi and Pacifica                      | None   | Annual Plan consultation process   | No               |
| Affected parties (adjacent property owners) | None   | Parties directly affected by the proposed works will require direct engagement regarding any potential impacts of the works, particularly adjacent property owners | No               |
| Waka Kotahi (NZTA) and Kiwi Rail            | None   | Traffic management requirements on State Highway during the project due to significant increase in truck movements   | No               |
| WDC internal stakeholders                   | Workshops, site visits, discussion regarding options as part of the feasibility study and this outline business case | Regular meetings   | Yes              |
| Elected members                             | Ongoing feedback on outline business case during development   | Regular meetings   | Yes              |
| Otago Regional Council                      | Conference calls   | Consenting process   | Yes              |
| Ministry for the Environment                | Teams meeting to discuss likely application of waste levy and potential funding sources.                             | Funding application  | Yes              |

### 6.3.1 Elected member engagement

A workshop was held with elected members in February 2022, and this was followed up with a site visit to Beach Road. Council approved Option 3 for inclusion in the 2022/23 Annual Plan. The follow next steps are to be progressed for Option 3:

- Community consultation and a decision on the future of Beach Rd (confirmation to abandon post waste removal).
- Further testing of the Beach Rd sites to confirm the level of contamination and treatment requirements, with this forming part of the design and planning stage.
- Further engagement and feedback from ORC on Palmerston landfill options and requirements if up to 12,000 tonnes per annum of waste is accepted until consent expiry without upgrading the landfill to Class A requirements.

## 6.4 Organisational change management

This project does not involve any change to roles, staff, or processes already in place within WDC.

## 6.5 Risk management framework

The key risks for this project are outlined in Table 15 below. A key risk is the consenting requirements from ORC which impact the available disposal options and related cost. ORC have advised that they would not provide a detailed assessment of requirements until an application is prepared for the preferred option. The other key risk is if WDC continue with the status quo approach, and the risk of environmental contamination and hazards to the public.

**Table 15: Key project risks**

| Risk  | Mitigation  |
|---|---|
| Consents not granted by ORC to dispose of contaminated material at Palmerston Landfill leading to higher haulage and disposal cost. | Proactive consultation with ORC around acceptable pre-treatment to enable disposal at Palmerston and whether this can then meet the existing consent conditions. Obtain guidance from ORC around interpretation of requirements.<br>Note, have commenced dialogue with initial meetings held with ORC as part of the feasibility study. |
| Resident objection to potential Beach Road closure  | Consultation on cost and risks associated with coastal protection.  |
| Public injury at Hampden or Beach Rd sites due to cracks in capping at Hampden or lose waste at Beach Rd                            | Fully remove all contaminated material to remove hazard. Regular site monitoring and reactive monitoring after storm events to schedule clean ups and repairs.  |
| Environmental contamination if works are not undertaken   | Fully remove all contaminated material to remove hazard. Regular site monitoring and reactive monitoring after storm events to schedule clean ups and repairs.  |
| Resident objection to addition use of Palmerston landfill.  | Consult with directly affected neighbouring properties regarding short term impact of additional truck movements, seek mitigation measures to resolve concerns  |
| Impact on rates and resistance to fund the project. Limited ability for WDC to fund the project.                                    | Consultation with on project cost and options. Continue to engage with MfE regarding funding options and levy exemption.  |

# Appendix A – Landfill Site Location Map



Paper Size A3  
 0 45 90 180 270 360  
 Metres

Map Projection: Transverse Mercator  
 Horizontal Datum: NZGD 2000  
 GNS NZGD 2000 New Zealand Transverse Mercator



LEGEND  
 ☆ Site Location  
 [Red Outline] Approximate Site Boundary



Waitaki District Council  
 Waitaki DC Closed Landfills FS

Job Number 12566144  
 Revision A  
 Date 13 Dec 2021

Landfill Site Locations **Figure 1**

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