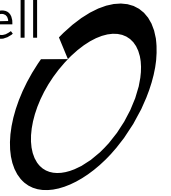


Appendix 6: Green Island Resource Recovery Precinct Landscape Effects Assessment

Boffa Miskell



Green Island Resource Recovery Park Precinct

Landscape Effects Assessment
Prepared for Dunedin City Council

29 February 2024






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Document Quality Assurance

Bibliographic reference for citation:

Boffa Miskell Limited 2024. *Green Island Resource Recovery Park Precinct: Landscape Effects Assessment*. Report prepared by Boffa Miskell Limited for Dunedin City Council.

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Status: [FINAL]	Revision / version: [0]	Issue date: 29 February 2024

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Executive Summary

As part of Dunedin's wider commitment to reducing carbon emissions and reducing waste going to landfill, the Dunedin City Council (DCC) has embarked on the Waste Futures Programme. The Waste Futures Programme includes provision of an enhanced kerbside recycling and waste collection service. To support implementation of this new service, the DCC is planning to make changes to the use of Green Island landfill site including developing an improved Resource Recovery Park Precinct (RRPP) and providing new waste transfer facilities.

The proposed RRPP comprises new large-scale buildings, as well as a range of other structures and access roads and will be integrated with some of the existing facilities. The main new buildings are an organics receivals building, materials recovery facility and a bulk waste transfer station.

Boffa Miskell were engaged to prepare a landscape and visual effects assessment to support the consent application for the proposed RRPP.

Landscape Context

The RRPP comprises an area of some 8ha, entirely within the Green Island Landfill Designation Area (D658).

The proposed RRPP will be located in an area that was once part of the upper reaches of the Kaikorai Estuary. Today, the RRPP Site (defined as the area within the yellow boundary identified in Figures 1-4 in the graphic supplement) is the location of the existing transfer station and within an area where natural character and landscape values are highly modified.

The footprint is located between the landfill extent and existing perimeter bunding and extensive vegetation that assists with visual containment and contributes to landscape and natural character. With the exception of the southeast corner and a small area to the northeast near the entrance, the outward orientated faces are largely planted with tall exotic trees.

The wider setting has a varied industrial, suburban, rural and coastal character. Abbotts Creek, Kaikorai Stream, Kaikorai Estuary and Pukemakamaka/Saddle Hill are key landscape features nearby, recognised as holding important values, including to mana whenua.

Natural character effects

The proposed RRPP will avoid any areas of outstanding natural character. The existing level of natural character at the site is highly modified due to the long history of reclamation, drainage and waste disposal which has considerably altered biotic and abiotic systems. Changes to natural character are very limited due to separation from riparian margins, management of potential contaminants, and will occur in the context of an established landfill.

Landscape effects

In landscape character terms, the development of the RRPP will avoid any outstanding natural features and landscapes and highly valued amenity landscapes.

The construction stage of the proposed development may generate some higher levels of effect; however this will be staged, with activity focused on different locations at different times, and temporary.

The level of physical change on landform and landcover within the RRPP footprint will be very low. The character of the RRPP Site will not change in terms of the nature of the land use but primarily comprises an increase in built form and activity. The proposed scale of buildings, within the underlying industrial zone have the potential to appear prominent and a high level of contrast with the scale of residential characteristics in the wider landscape. Effects are diluted as the mosaic of the different land uses and characteristics becomes increasingly apparent in the wider landscape such as other industrial areas with large scale structures nearby.

The distribution of the built form against the landfill embankment, the design detailing and colour, and existing and proposed planting, will assist the development with integrating the mass and height of the buildings into the landscape setting.

Overall, it is considered that on completion the proposal will generate **low** adverse (less than minor) effects on the landscape due to consistency of the activity with the existing established context of the designation and underlying industrial zone.

Visual Effects

The RRPP Site is located in a basin but is largely screened from close views by earth bunds and established trees around the landfill perimeter. The hilly character of the surrounding landscape means visibility is obscured by intervening landform from some locations, but elevated views are available from others.

'Worst case' views are those from private residential properties to the southeast that are close to the Site, where there is a gap in the tall perimeter vegetation.

Elsewhere, most elevated views are more open but distant from the RRPP Site and therefore encompass a broader overview of the landscape within which the RRPP will remain a small part.

The effective ongoing maintenance and management of the existing perimeter trees will be essential in mitigating potential adverse visual effects. The addition of planting on the southeast bund and at the RRPP Site entrance will also be required to reduce visual effects.

The underlying designation and industrial zoning anticipates this kind of land use on the RRPP Site. Therefore, once proposed mitigation planting has become established over 3-5 years, visual effects will reduce to **Low** and **Very low** for most properties on Clariton Ave with the exception of one property with an elevated viewpoint from which effects are assessed as

Low-moderate (and minor) within approximately 5 years but reducing to **Low** over time.

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Appendices

Appendix 1: Natural Character and Landscape Effects Assessment Method

Graphic Supplement

Bound separately

1.0 Introduction

1.1 Dunedin Waste Futures Programme

As part of Dunedin’s wider commitment to reducing carbon emissions and reducing waste going to landfill, the Dunedin City Council (DCC) has embarked on the Waste Futures Programme to develop an improved comprehensive waste management and diverted material system for Ōtepoti Dunedin. The programme aligns with DCC’s responsibility under the Waste Minimisation Act 2008 to ‘promote effective and efficient waste management and minimisation within its district’.

Improving Dunedin’s whole waste system includes enhancing collection services for reuse and recycling, and safe disposal of residual waste to landfill. The Waste Futures Programme includes provision of an enhanced kerbside recycling and waste collection service for Dunedin from July 2024. The new kerbside collection service will include collection of food and green (organic) waste. To support the implementation of the new kerbside collection service, the DCC is planning to make changes to the use of Green Island landfill site (Figure 1) in coming years including:

- Developing an improved Resource Recovery Park Precinct (RRPP) for food and green waste and to process recycling.
- Providing new waste transfer facilities to enable the safe disposal of any residual waste to landfill.

In addition, the DCC is planning for the ongoing operation and closure of the Green Island landfill, which is coming to the end of its operational life. The existing Otago Regional Council (ORC) resource consents, required to operate a landfill at Green Island, expired in October 2023. In March 2023, DCC applied to ORC for replacement resource consents to continue to use the landfill until it closes completely, and waste disposal can be transferred to a new landfill facility. These consent applications are in the process of being considered by ORC.



Figure 1: Green Island Landfill and Resource Recovery Park Precinct Site (Designation D658)

1.2 Resource Recovery Park Precinct (RRPP)

To meet the requirements of the new kerbside collection service the DCC is investing in improvements and expansion to the existing resource recovery area at Green Island landfill site. Proposed new facilities are shown on Figure 2 and include:

- Organic receivals building (ORB) and processing facilities to support the organic waste kerbside collection
- Materials recovery facility (MRF) to sort and bale items collected from kerbside mixed recycling bins
- Bulk waste transfer station (BWTS) to facilitate the compaction and trucking of waste to landfill

Additional facilities include new glass bunkers, staff offices, parking, and breakrooms and associated access roads and truck parking areas. Several existing facilities are to be retained including the rummage shop, public drop-off areas and the education centre.

The resource consents for the development and operation of the new facilities relate to ground disturbance, and discharges to land and air. The Green Island landfill site is subject to an operative designation (D658) in the Proposed Second-Generation Dunedin City District Plan (2GP) for the purpose of Landfilling and Associated Refuse Processing Operations and Activities.

The RRPP will be run by EnviroNZ on behalf of DCC and will start operating in July 2024 following construction of the ORB, which is currently underway. Resource consent to operate the ORB was granted by ORC in September 2023 under the existing landfill consents.

The other new RRPP facilities are planned to start operating from mid to late 2025.

1.3 Scope of the report

Boffa Miskell Limited (BML) has been engaged by Dunedin City Council (DCC) to undertake a Landscape and Visual Effects Assessment (LVEA) for the proposed Resource Recovery Park Precinct (referred to as the RRPP) at the existing designated Green Island landfill site. The LVEA forms one of a suite of technical assessments undertaken to support the consent application.

The LVEA assesses the landscape and visual effects of the temporary construction stages through to completion and to 3-5 years following completion when proposed landscape planting has become established.

1.4 Relevant Reports

This report relies on and should be read in conjunction with a previous Landscape Effects Assessment prepared by Boffa Miskell for the extended operation of the GIL.

- *Boffa Miskell Ltd, 2023: Green Island Landfill: Landscape Effects Assessment. Report prepared by Boffa Miskell Limited for Dunedin City Council.*

We also rely on information provided in:

- *Boffa Miskell Ltd, 2023: Green Island Landfill RRPP: Ecological Impact Assessment. Prepared by Boffa Miskell for Dunedin City Council.*
- *Boffa Miskell Ltd, 2023: Green Island Landfill RRPP: Assessment of Environmental Effects. Prepared by Boffa Miskell for Dunedin City Council.*

This report has also drawn information from the Dunedin Landscape Management Area Review: Landscape Assessment¹ which characterised and evaluated the landscape in Dunedin including in the vicinity of the RRPP Site and provided landscape objectives and management recommendations; and the Coastal Environment of Otago Natural Character and Outstanding Natural Features and Landscapes Assessment Dunedin City Section Report (28 April 2015).

1.5 Assessment Process

This assessment has been undertaken and peer reviewed by NZILA registered landscape architects, following the concepts and principles outlined in *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*² and its signposts to examples of best practice, including the quality planning landscape note³ and the UK guidelines for landscape and visual impact assessment⁴.

In summary, this assessment involved the following tasks:

- Familiarisation with the proposed RRPP design and layout;
- Refined desktop analysis of the landscape context;
- Coordinating the preparation of, and utilising a digital model of the main buildings (form, height and location) comprising the RRPP, added to the existing terrain and proposed landfill model together with point cloud data representing the intervening vegetation within the site boundary;
- Site visit to understand the RRPP Site and its context, including confirming potential viewing audiences and the nature of available views;
- Preparation of visual simulations of the RRPP, including mitigation planting 3-5 years following completion, from seven viewpoints; and
- An assessment of landscape, natural character and visual effects.

A full method is outlined in **Appendix 1** of this report.

Landscape, natural character and visual assessments are closely related and, in part, overlapping assessments. A brief explanation of the assessments made for this proposal is provided below.

¹ Boffa Miskell Ltd (2007) Dunedin Landscape Management Area Review: Landscape Assessment

² '*Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. (TTTM)

³ <https://www.qualityplanning.org.nz/node/802>

⁴ Landscape Institute (2013) Guidelines for Landscape and Visual Impact Assessment (GLVIA3), 3rd Edition.

1.5.1 Natural Character Assessment

The Green Island landfill is located outside the coastal environment however this assessment considers natural character insofar as this applies to freshwater bodies and their margins, (as defined in RMA Section 6(a)).

Natural character is described in terms of the natural elements, patterns and processes of such areas and how they are perceived and experienced. The level of natural character (naturalness) is determined by the level of human-induced modification, where the highest degree of natural character occurs where there is the least amount of modification.

This assessment describes and assesses the existing level of natural character of the relevant waterbodies and then assesses the effects of the proposed changes to the landfill on natural character.

1.5.2 Landscape Assessment

The assessment has identified the extent of the relevant landscape and described and analysed its character and values in terms of physical, sensory and associative attributes and how they combine. The condition of the landscape (i.e. the state of an individual area of landscape or landscape feature) is also described.

The assessment has considered the sensitivity of the physical landscape features to the proposed change, together with the magnitude of change.

1.5.3 Visual Assessment

Landscapes are experienced visually and therefore, visual effects are considered to be the consequences of change on landscape values, as experienced in views.⁵

The visual assessment considers where the proposal will be seen from (including the nature of the view), who will see it, and the nature and scale of visual change that would result from the proposal.

For the purpose of this assessment, access to private property has not been obtained, with visual effects assessed based on desktop analysis and the nearest available public viewpoint from which representative views were obtained.

1.5.4 Site Visit

Boffa Miskell Landscape Planner, Sue McManaway visited the site and surrounds on 29th June 2023 for the purposes of this assessment. The weather was variable but largely fine. Daylight hours were short with the sun low in the sky. Earlier visits to the Green Island Landfill and surrounding landscape were also undertaken by Sue McManaway in 2021 and 2022, prior to preparing the landscape and visual assessment of the proposed landfill closure.

During the site visit, representative viewpoints were confirmed for the purposes of preparing visual simulations and additional site context photos taken. Guidance was also provided around the landfill, and an opportunity to view the working face.

⁵ TTTM, pp61-62

2.0 Proposal Description

The RRPP facilities are described in detail in the RRPP Design Report (GHD, 2023a). Key aspects of the proposal are also set out in the Boffa Miskell AEE. Those aspects of most relevance to potential landscape and visual effects are summarised below.

The RRPP is an area of some 8ha, entirely within the Green Island Landfill Designation Area (D658) and located immediately northeast of the landfill extent. **Figures 1 and 2** in the Graphic Supplement show the location of the Designation Area and the proposed RRPP Footprint (the RRPP Site). The proposed layout of the RRPP is shown in **Figure 2** in the Graphic Supplement and represented in the figure below.



Figure 2: Site Context: Boffa Miskell

The RRPP is to be located on an area that has previously received waste, with an estimated thickness of waste of between 3m and 7m. The proposed RRPP will require considerable excavation of 2m to 2.5m deep under proposed building locations, to prepare the area for foundations. The final proposed ground levels will vary across the Site and will be raised in places by approximately 800mm. The RRPP comprises several key buildings, structures and access roads integrated with some of the existing structures. The most prominent of these are the MRF, BWTS and ORB. These have heights above the proposed ground level of approximately 15.4m, 14.7m and 12.57m, respectively and are the most visible elements of the proposed precinct.

Odour and noise are addressed in other technical reports (refer to the AEE for detail).

Materials Recovery Building

The purpose of the MRF building is to facilitate the effective sorting, processing, and recovery of recyclable materials. The existing MRF is located on Brighton Road.

The MRF footprint will be approximately 3000m² for the technical building and 1550m² for the apron. The main MRF roof ridge will be approximately 15.4m above proposed ground level. The roof over the MRF apron will have an approximate height of 10m.

There will be a one-way ring road around the MRF, including around the southern façade between the building and the southeast bund.

Bulk Waste Transfer Station

The purpose of the BWTS is to handle the receiving and loading of general waste for further transportation to appropriate disposal sites such as Smooth Hill.

The building footprint will be approximately 1940m² with the roof ridge approximately 14.7m above proposed ground level.

The north façade will be for domestic drop off (car and trailers) and the west façade for commercial drop off (trucks).

Organics Receiving Building

The purpose of the ORB is for the processing of food and green waste.

The ORB will comprise a single level building of approximately 580m² with the roof ridge approximately 12.57m above proposed ground level.

The ORB will be constructed first but will be provided with infrastructure and access which can be incorporated into the overall RRPP Site.

Workers and Office Facilities

These two buildings will support the operations and administrative functions of the site and will include facilities for staff working on site, and truck drivers. The building footprints will be approximately 300m² and 90m² respectively with the tallest of the two having a height of approximately 6.9m above proposed ground level.

Buildings Overview

The following table sets out the building footprints and heights of these buildings in relation to existing and proposed ground levels as set out in the drawings provided in the Design Report.

Building	Approximate area of footprint (m ²)	Existing Ground RL (masl)	Proposed Ground RL (masl)	Top of Building RL	Maximum Building Height (above proposed ground RL)
ORB	580 m ²	7.8m	8.0m	20.57m	12.57m
MRF	3,000m ² (Main building) 1550 m ² (Apron)	6.2m	7.0m	22.405m 17.0m	15.405m 10.0m
BWTS	1940 m ²	6.5m	6.8m	21.50m	14.70m

Office/ Facilities	300 m2 90 m2	6.5m	6.8m	13.715m	6.915m 6.36m
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Table 1: Proposed building heights and ground levels

Several other low-level ancillary buildings and structures make up the precinct, (refer to the GHD Design Report for detail) including:

- Space for truck wash bays, drop off and sorting pads;
- Educational facilities;
- Green waste drop-off;
- Composting facility – OPF Bunkers;
- Construction and demolition sort area;
- Glass bunkers;
- Parking; and
- Various other buildings/structures providing support services such as mechanical plant and hazardous waste storage

A number of the existing resource recovery facilities will be retained including:

- Main access road (from Brighton Road);
- Kiosk and weighbridge;
- Wheel wash facilities;
- Rummage store and recycling drop off area;
- Existing education centre; and
- Domestic Waste Transfer station (until replaced by the new BWTS).

The vehicle entrance will remain off Brighton Road. New internal circulation has been developed as part of the layout to direct movement around the Site and between facilities.

The proposed landfill closure is part of a separate application and not considered in this assessment.

2.1.1 Construction Stages

Initial site preparation will be undertaken requiring the construction areas to be cleared of existing vegetation. Vegetation that is an integral part of the visual screening of the Site will not be cleared or damaged. Earthworks will be undertaken to level or reshape the terrain to create a suitable foundation for the RRPP structures. During the construction phase, the RRPP will be completed in three main stages:

- Construction of the ORB and associated roading/civils by mid-2024;
- Construction of the balance of the RRPP facilities (with the exception of the BWTS) by mid-2025 i.e. the OPF, C&D pad, MRF and associated facilities; and

- Construction of the BWTS building and associated facilities will occur later, closer to the date of the landfill closure.

Typical heavy machinery might be utilised during construction. Operating hours during construction will be 7am – 7pm.

2.1.2 Following Completion

On completion, ongoing operation of the RRPP will include the use of machinery both within the buildings and externally and the movement of workers and a range of vehicles to, from, and around the Site. There will also be regular visitors primarily including members of the public dropping off waste as well as visitors to the educational facility.

The RRPP will only be accessible from the Brighton Road access. The publicly accessible areas of the RRPP, including the public-drop off areas, will be open between 8.00 am – 5.30 pm Monday – Saturday and 9.00 am – 5.30 pm Sunday.

The non-publicly accessible (operational) areas of the RRPP will be open 8.00 am – 5.30 pm Monday – Friday and at the weekends as required by the operator. The gates at the Brighton Road access will be locked after hours.

All areas of the RRPP will be closed Easter Friday, Christmas Day, and ANZAC day until 1pm.

Some parts of the site will be in operation 24/7. This will include the mechanical aeration plant of the OPF bunkers and general traffic/other activities as required by operational needs.

The RRPP will operate during the remaining operating life of the landfill and will continue to operate post closure and during the aftercare period of the landfill.

2.1.3 Mitigation as part of the Design

The largest building (MRF) has been located closest to the Clariton Ave neighbourhood and orientated parallel with an existing bund which will considerably screen views from the Clariton Ave properties to the ongoing daily operations within the RRPP Site.

The building will also generate landscape and visual effects (which are discussed in detail in **Section 5: Assessment of Effects**). However the use of neutral, recessive colours (e.g. Karaka Green) on the exterior building cladding (of all buildings, including the MRF) was identified early on to assist in mitigating effects through integrating the colours with the surrounding perimeter and estuary vegetation.

Perimeter landscape bunds and extensive screen planting around the site perimeter were implemented in the 1990's to provide visual screening to the existing landfill operations. They also screen much of the RRPP Site. While this planting is a mix of exotic as well as native vegetation, the extent and established nature of the planting contributes positively to natural character, particularly in terms of experiential aspects. A Vegetation Management and Restoration Plan (VMRP) is therefore proposed as part of the RRPP application in order to provide ongoing monitoring and management that will continue effective visual screening, and with potential long-term visions for the wider landfill designation area in mind. For example, it is intended that subject to consultation with neighbours and mana whenua, the VRMP will enable a gradual transition to predominantly native plantings over time, contributing further to natural character.

There is a gap in the height and extent of perimeter planting in the vicinity of the bund along the southeast boundary of the Site adjacent to Clariton Ave residents and a small section where the planting is noticeably thinner at the northeast corner of the Site in the vicinity of the entrance (refer to the **Site Context Plan, Figure 2**).

These existing 'gaps' mean that while the southeast bund will screen views from lower elevations into the Site as it stands, the proposed development (primarily the MRF building) will be visible from a range of elevated views from the southeast. Similarly, the section of thinner vegetation at the northeast corner enables views of the development (primarily the BWTS building) from the northeast.

In response to these identified views, additional planting is proposed to be implemented as part of the proposal, as set out in the General Arrangement with Mitigation Plan (see **Figure 5** in the Graphic Supplement). Details of this planting and timing is described further under **section 6 Recommendations**.

3.0 Relevant Statutory Provisions

The assessment of landscape, natural character and visual effects addresses the following relevant Resource Management Act 1991 (RMA) matters:

Section 6(a): Preserving the natural character of wetlands, streams, rivers and their margins

Section 7(c): Maintain and enhance amenity values

Section 7(f): Maintain and enhance the quality of the environment

The RRPP Site or its general location is not within the coastal environment nor part of any outstanding natural feature or landscape.

The wider landfill operational area which the proposed RRPP Site is within, is adjacent to Kaikorai Stream and its confluence with Abbotts Creek. The RRPP Site is separated from the waterways by existing perimeter bunding and vegetation which will remain and are not proposed to be developed. However, due to the proximity of the operational area and RRPP Site to these river margins, natural character matters are addressed.

It is noted that as the RRPP Site is located within designation D658. Therefore, there are limited provisions specific to the built form, landscape and visual effects of the buildings and associated site works and activities, as these activities are permitted by the designation.

Consents are being applied for with ORC and DCC. Overall, the proposal is considered a non-complying activity in respect of the ORC consent applications and a discretionary activity in respect of the DCC consent application.

Construction and operation of the RRPP within the designation area requires an outline plan of works from the DCC.

The following statutory documents are relevant to the assessment of this proposal:

- National Policy Statement for Freshwater

- National Policy Statement for Indigenous Biodiversity
- National Environmental Standards – NES Soil and NES Freshwater
- Partially Operative Otago Regional Policy Statement ('Otago RPS')
- Proposed Otago Regional Policy Statement ('Proposed RPS')
- ORC Regional Plans including relevant plan changes
- The Kāi Tahu ki Otago Natural Resources Management Plan 2005 (NRMP)
- 2GP

The above planning documents present a hierarchy whereby the provisions of regional and district plans are required by the RMA to give effect to the policy direction within the regional policy statement, which in turn are required to give effect to any relevant national policy statement. However, in the Otago region, the current regional plans in particular pre-date and do not yet fully give effect to the higher order policy contained in the National Policy Statement for Freshwater, Otago RPS, and an emerging Proposed RPS. The Proposed RPS is also subject to extensive submissions for which decisions have yet to be issued.

Key landscape policy directions identified within the following Regional and City Plans are summarised below.

3.1.1 Regional Plan: Water for Otago

The wider landfill operational area which the proposed RRPP Site is within, is adjacent to Kaikorai Stream and its confluence with Abbotts Creek. The RRPP Site is separated from the waterways by existing perimeter bunding and vegetation which will remain and are not proposed to be developed.

However, due to the proximity of the operational area and RRPP Site to these river margins, there are a number of provisions that relate to the preservation of the natural character of waterbodies and their margins and protection from inappropriate use and development (RMA Section 6.a) that require consideration. They primarily concern the protection of rivers and their margins from inappropriate use or development; and maintenance or enhancement of their amenity.

In particular, the Water Plan identifies Kaikorai Estuary wetland (which includes the section of Kaikorai Stream adjacent to the RRPP Site), as regionally significant (Schedule 9) and requires adverse effects on any regionally significant wetland be "*avoided*".

3.1.2 Dunedin City District Plan (2GP)

The RRPP Site is located with the wider Green Island Landfill Designation (D658) identified in Schedule A1.4.5 of the District Plan (2GP). The landfill site is designated for use for '*landfilling and associated refuse processing operations and activities*'.

The core of the RRPP Site has an underlying Industrial Zone while the fringes are within the Coastal Rural Zone. The northern part of the RRPP Site is adjacent to Kaikorai Stream which also includes overlays such as Wahi Tupuna and an Area of Significant Biodiversity (ASBV). Also surrounding the RRPP Site is a further Industrial Zoned area, Recreation Zones and General Residential 1 Zones. The RRPP Site is also close to an Amenity Route (Brighton Road).

Relevant general objectives and policies include avoiding, or adequately mitigating, any adverse effects on visual amenity and character (Objective 8A.2.1) from earthworks and maintaining and enhancing natural character of riparian margins (Objective 10.2.2).

3.2 Other

The Kāi Tahu ki Otago Natural Resources Management Plan 2005 (NRMP) policies express the cultural importance of water to Kāi Tahu and the importance of protecting and restoring the mauri of all water. The policies cover the protection and enhancement of existing wetlands as well as the reinstatement of wetlands that have been neglected.

4.0 Existing Environment

This section provides a description of the Site (the proposed RRPP footprint) followed by an analysis of the landscape and natural character attributes of the existing context at both a broad and local scale, as well as potential viewing audiences, providing the baseline for this assessment of landscape effects.

The extent of the map provided in the **Landscape Context and Zoning Plan (Figure 1** in the graphic supplement) represents the broad scale at which the receiving landscape has been considered. This plan also identifies the RRPP Site. The immediate landscape context is considered to include the wider area within the Landfill Designation and extends to properties on the west side of Brighton Road, from Clariton Ave to the Green Island Industrial Area as represented in the **General Arrangement Plan with Mitigation (Figure 5** in the graphic supplement)

Photographs (**Site Appraisal Photographs A - D**) were taken from within the RRPP Site to illustrate the current landscape character of the site. **Site Context Photographs (E – M)** were taken from outside the RRPP Site to represent the character of the local and wider landscape, and visibility of the RRPP Site from representative locations within the receiving landscape at the range of scales.

The locations of these photographs are shown in **Figure 4** of the Graphic Supplement.

4.1 Site Description

The proposed RRPP Site is located in the northeast corner of the Designated Landfill Area (D658) in Green Island (GIL), in an area that was once part of the upper reaches of the Kaikorai Estuary. The low-lying Site has an underlying Industrial Zone with Coastal Rural Zones on the northern and southern edges. Access to the Site is gained from Brighton Road.

The designation boundary adjoins State Highway 1 (Dunedin Southern Motorway) to the north, Kaikorai Stream and Estuary to the west, the Green Island Wastewater Treatment Plant to the southwest, and Brighton Road and Clariton Ave properties along the southeast and east boundary. The 8ha RRPP footprint is located within the designation, between the landfill extent and existing perimeter bunding and vegetation (see **Figures 1 and 2** in the Graphic Supplement).

The highest part of the landfill, currently reaches an elevation of approximately 25 masl. An application has been lodged which includes a proposal to increase the height to 31.5 masl.

The margins of Kaikorai Stream lie below the perimeter bunding to the north and west (refer to **Cross Section 4, Figure 6a** in the graphic supplement). These high earth embankments have been constructed around much of the perimeter of the landfill footprint to assist with the visual containment of the operation. With the exception of the southeast corner where vegetation is lower (see **Site Appraisal Photograph D**), the outward orientated faces are largely planted with tall, predominantly exotic trees which further assists with screening. The northeast section of these treed embankments provides an immediate backdrop to the RRPP Site, as shown below and in **Site Appraisal Photographs B and C** in the graphic supplement.



*Figure 3: Site Appraisal Photograph from within the RRPP Site showing modified surfaces and treed embankments:
Boffa Miskell*

Surfaces within the RRPP Site are highly modified as it is a location currently utilised for similar waste separation and transfer activities. Waste disposal first occurred at GIL in 1954 and it has been used for waste disposal since that time. Much of the existing landcover is asphalt and gravel surfaces and exposed earth, as well as several buildings and other structures consistent with an operating waste diversion and transfer site. Where vegetation occurs, it largely comprises grass and exotic trees.

A series of constructed ponds surrounded by vegetation are located immediately to the south of the RRPP Site but within the overall GIL designation and were created in recent decades on an area of former farmland.

The perimeter vegetation provides habitat for bird species and contributes to landscape and natural character. The presence of seagulls in the vicinity of the active landfill faces are a noticeable feature.

Neither the embankments nor the perimeter vegetation are proposed to be changed however there are areas where internal trees are required to be removed as part of the proposed development as shown in **Figure 7** in the Graphic Supplement and represented in Figure 4 below.

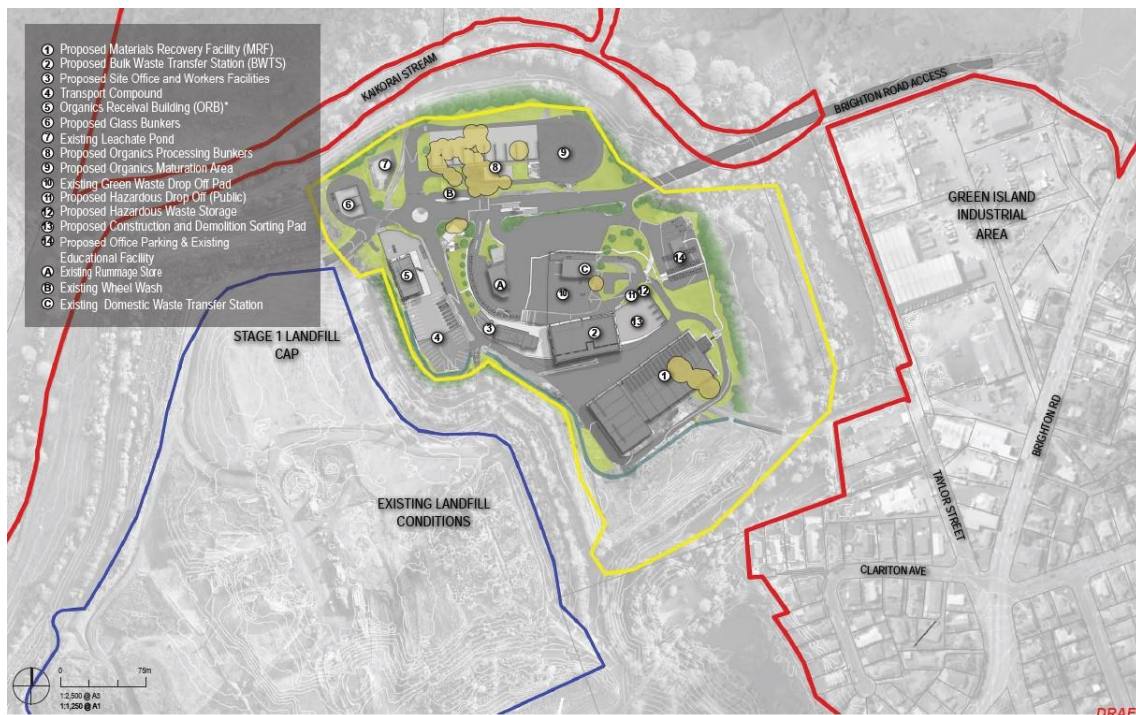


Figure 4: Existing vegetation and areas of tree removal within proposed Layout: Boffa Miskell

Additional planting is proposed as part of the proposal, as per the General Arrangement with Mitigation Plan (Figure 5 in the Graphic Supplement) and there may be infill and enhancement planting as per the proposed Vegetation Management and Restoration Plan.

4.1.1 Mana Whenua

Te Rūnanga o Ōtākou has mana whenua rights in relation to the RRPP site and the Kaikorai Estuary.

The Cultural Impact Assessment for the Green Island Landfill describes the Kaikarāe Estuary as part of an integrated cultural landscape for mana whenua. Associations include wāhi tupuna, interconnected ancestral places, landscapes and taoka, recorded archaeological sites, traditional travel routes and mahika kai practices.⁶

4.2 Broad Landscape Context

The GIL is located in the suburb of Green Island off State Highway 1 between central Dunedin, some 8km directly to the northeast, and the satellite town of Mosgiel, approximately 6km to the northwest.

Topographically, Green Island lies in a valley/basin landscape towards the southern end of the Kaikorai Valley, semi-enclosed by hills to the west, north and east.

⁶ Aukaha (March 2023) Cultural Impact Assessment, Green Island Landfill Operation, Closure and Aftercare (for Dunedin City Council on behalf of Te Rūnanga o Ōtākou), section 4.0.

Dunedin's Landscape Types and Landscape Character Areas (LCAs) were previously identified as part of the Dunedin Landscape Management Area Review⁷. Within this study, the Green Island landfill lies within the Volcanic Hills and Coast Landscape Type, on the fringes of the South Coast Hills. While the suburb of Green Island is largely within the Dunedin City urban area, and outside the scope of the study, the GIL, being on the margins of the Kaikorai Stream and Estuary, is broadly within the South Coast LCA and bordered to the north and west by the hills and ridgelines of the Taieri Slopes LCA.

The defining characteristics of the South Coast LCA are set out below⁸:

- *Shallow spur and gully seaward slopes with numerous small stream and extensively farmed;*
- *Kaikorai Lagoon is a key estuarine feature and important for mana whenua;*
- *The orientation of the working rural landscape of the upper slopes has a strong seaward focus and resulting coastal character;*
- *Views inland are often focused on the Saddle Hill landform, which remains prominent in its elevation above Brighton; and*
- *Extensive farming on coastal slopes*

The RRPP Site is not considered to be in the coastal environment nor form part of any significant or outstanding natural feature or landscape.

While the landscape is described below in terms of each of the three landscape dimensions – physical, associative and perceptual, it is not intended that they be considered separately. The landscape as a whole is greater than the sum of its parts.⁹

4.2.1 Physical

Landform

The RRPP Site and wider GIL is a low-lying area, comprising modified, reclaimed land situated on the margins of the Kaikorai Stream and Estuary. The RRPP Site is relatively level however the current landfill which contains the RRPP Site to the south rises to a maximum height of 25 masl.

The landform pattern of the surrounding local landscape comprises moderate to steeply undulating hills, valleys or basins, the typical elevation varying from sea level to over 180 masl on the nearest ridge to the southwest (B17Y). It includes the modified landform of the closed, capped Waste Management Landfill. The topography can be seen in **Figure 3** in the Graphic Supplement and is shown in Figure 5 below.

⁷ Boffa Miskell (2007) Dunedin Landscape Management Area Review: Landscape Assessment.

⁸ Ibid.

⁹ TTATM, p34

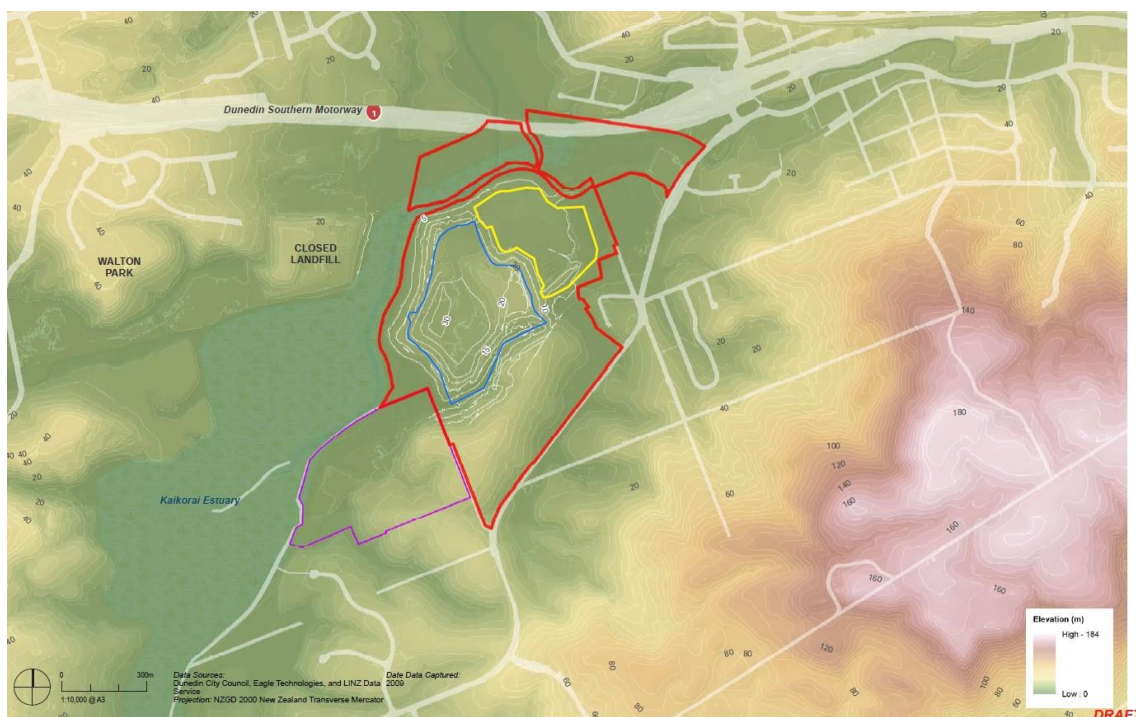


Figure 5: Landform Context: Boffa Miskell

Within a wider context there are the enclosing hills of Mornington and Corstophine to the east and the Chain Hills to the northwest. Abbots Hill to the north is a foothill to the higher, distant backdrop of Flagstaff and Swampy Summit. Pukemakamaka/Saddle Hill is a distinctive basalt landform to the west.

Ecological context

Kaikorai Valley, including the GIL Site, is part of the Dunedin Ecological District (ED) in the Otago Coast Ecological Region. Prior to European settlement, in the lower Kaikorai catchment, freshwater wetland and forest areas would have graded to intertidal / saltmarsh areas.

Today, land cover at the RRPP Site is modified, largely comprising grass and exotic trees. On the adjacent stream margins and around the estuary, much of the former indigenous vegetation has been replaced by weedy exotic species. Remaining indigenous vegetation is largely saltmarsh ribbonwood, pūrei and oioi.

Vegetation in the wider landscape is mainly residential garden plantings and grass fields with pockets of shrubland, small blocks of exotic forest and stands of large, generally exotic trees.

Landuse

Following European settlement, vegetation was cleared and farming became a dominant land use. The lagoon was also drained, and parts reclaimed, including for the landfill.

Today, suburbs surround the RRPP Site to the northwest, north and east with a combination of residential, commercial and industrial development as well as recreational open space and the closed, capped Waste Management landfill site.

To the south, the landscape has a varied character but is predominantly rural, characterised by open space, stands of large trees, shelterbelts, narrow gravel roads and farm buildings. There are also rural lifestyle and large lot residential properties and the denser, small coastal settlement of Waldronville between the Kaikorai Lagoon and the beach.

4.2.2 Associative

Associative means the intangible things that influence how places are perceived, such as shared and recognised values of a community, history, identity, creation stories, and activities specifically associated with a landscape.

Tāngata whenua have a holistic relationship with whenua that integrates physical, associative, and perceptual dimensions. As set out in landscape guidance, Te Tangi a Te Manu, while described under the heading of 'Associative', it is intended that consideration of tāngata whenua landscape attributes will overlap with the physical and perceptual.¹⁰ The cultural effects assessment letter (by Aukaha) will provide an assessment of the application in relation to cultural values.

While the RRPP Site is not considered to form part of any outstanding natural feature (ONF) or landscape, it is immediately adjacent to the Kaikorai Stream and Estuary which are associated with important values, the estuary being mapped in the 2GP as both an Area of Significant Biodiversity Value (C106 'Edge of Kaikorai Estuary, Estuary and Lagoon') and a Wāhi Tūpuna Mapped Area. The Estuary is also listed as a Regionally Significant Wetland by ORC (Site 68, 'Kaikorai Lagoon Swamp').

Saddle Hill (made up of the two peaks of Pukemakamaka and Turimakamaka) is a distinctive landform approximately 4 kilometres to the west of the RRPP Site, also considered to hold important values. The middle to upper slopes are identified as a Significant Natural Landscape (SNL). The double peak and uppermost slopes above the SNL are considered an ONF. One of the values attributed to Pukemakamaka/Saddle Hill is its iconic cone shape which is experienced from a very large visual catchment including the suburbs around the RRPP Site.



Figure 6: Site Context Photograph from Green Island Bush Road showing Pukemakamaka/Saddle Hill: Boffa Miskell

Mapped wāhi tūpuna (in the 2GP) in this landscape include Pukemakamaka/Saddle Hill, the Kaikorai Estuary and beach and the island of Green Island. An Archaeological Alert Layer has also been mapped around the Kaikorai Estuary, margins, mouth and along the coast.

Following European settlement, Kaikorai Valley became important to Dunedin's industrial history, with industries such as the freezing works, cement factories, wool and flour mills, often using and discharging into the Kaikorai Stream.¹¹ The area continues to be associated with a mix of industrial businesses and residential homes.

¹⁰ TTATM, p33

¹¹ <https://teara.govt.nz/en/otago-places/page-8>

Other landscape-related values associated with community identity and engagement include the community initiatives to restore vegetation, wetlands, and streams in the area such as the Kaikorai Estuary Restoration Project and Aroha Kaikorai Valley.

4.2.3 Sensory/Perceptual

The volcanic cone-shaped peaks of Pukemakamaka/Saddle Hill have a high degree of geomorphic legibility and form a key landmark in this landscape as well as featuring in the creation stories of mana whenua. Together with the Chain Hills to the north, these ranges contribute to the setting and skyline for the Green Island areas.

The Kaikorai Estuary is also a key landscape feature. While modified, it retains aesthetic values and legibility relating to the presence of water, natural tidal, estuarine and formative processes.

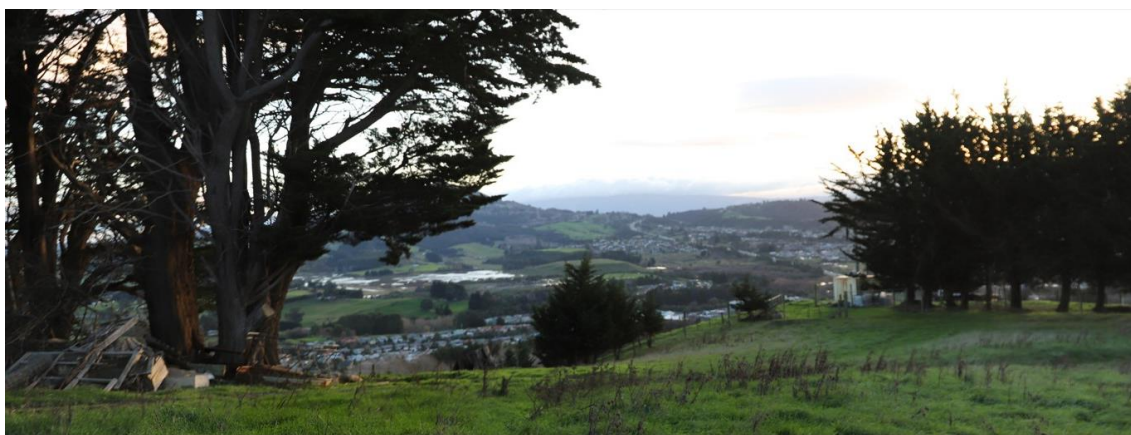


Figure 7: Site Context Photograph from Church Hill Road showing Kaikorai Estuary and Motorway: Boffa Miskell

The Dunedin Southern Motorway traverses this landscape, with potential for high numbers of transient viewers through this landscape. The RRPP Site is part of a basin contained immediately to the south by the landfill and then by the higher hills in the wider landscape, affording potential views as the surrounding slopes increase in elevation.

Views from these elevated areas around the RRPP Site also include potential views to the sea, the estuary and surrounding hills. The GIL has been part of the landscape and visual context of Green Island since it was first used for waste disposal in 1954. The extensive perimeter vegetation is also part of the visual landscape and has been since the 1990s.

4.2.4 Summary

The dominant character of the RRPP Site is as a modified waste separation and transfer area that is part of a working landfill, historically reclaimed from the estuary.

Today the surrounding area has a predominantly settled, suburban, rural and coastal character however there is an area of industrial development immediately adjacent the RRPP Site which is also a part of this landscape. Residential suburbs form the dominant land use in northerly aspects and more immediately to the southeast. To the south is the landfill while the landscape beyond has a varied character but predominantly rural, characterised by open space, stands of large trees, shelterbelts, narrow, gravel roads and farm buildings. There are also larger lot residential properties and the denser, small coastal settlement of Waldronville.

Abbotts Creek, Kaikorai Stream, Kaikorai Estuary and Pukemakamaka/Saddle Hill are key landscape features nearby, recognised as holding important values including to manawhenua.

4.3 Natural Character of Waterbodies

The wider landfill operational area which the proposed RRPP Site is within, is adjacent to Kaikorai Stream and its confluence with Abbotts Creek. The RRPP Site is separated from these waterways, however understanding natural character has relevance due to the proximity of the operational area and RRPP Site to these river margins.

The environments with the greatest natural character are those with comparatively low levels of human modification. Areas with high natural character are composed of natural elements appearing in natural patterns and underpinned by natural processes. Natural character is context and scale related.

The wider operational landfill area, including the RRPP Site was once part of the intertidal saltmarsh area of the Kaikorai Estuary but has been progressively drained, filled, and capped since being occupied by the current landfill. The estuary and stream's margins today are modified by roads, causeways, drainage channels and buildings as well as reclamation.

Vegetation patterns in and around the estuary are also modified with much of the former indigenous vegetation replaced by weedy exotic species. Nevertheless, the extensive and well established perimeter vegetation contributes to landscape and natural character in this area.

The margins of the Kaikorai Stream bordering the landfill and RRPP Site to the north are part of a Regionally Significant Wetland in the Regional Plan: Water; and an Area of Significant Biodiversity Value, and a Wāhi Tupuna of cultural significance to mana whenua in the 2GP.

Kaikorai Stream and Abbotts Creek are identified as having moderate ecological value in the Boffa Miskell Ecological Effects Assessment. The Kaikorai Lagoon is considered to have high ecological value.¹²

A 2015 Natural Character Assessment has rated the Kaikorai Estuary (Unit D49) as medium-low with the following comment:

*While providing important habitat for wildlife this unit has been significantly modified by human habitation and lacks perceptual naturalness of wild and scenic value.*¹³

4.4 Viewing Areas and Audience

The RRPP Site is located in a basin landform but is visually generally well contained from close views, largely screened by the form of the landfill itself and a combination of earth bunds and trees established for the purposes of screening as part of consenting the original landfill.

However, there is a gap in the screening vegetation at the southeast edge of the Site, in the vicinity of the bund nearest to Clariton Ave properties 15, 17, 19 and 21. The existing bund height ranges from approximately 4m to 6m in this location.

¹² BML (September 2023) Green Island Landfill RRPP: Ecological Effects Assessment, pp12-13

¹³ Coastal Environment of Otago Natural Character and Outstanding Natural Features and Landscapes Assessment, Dunedin City Section Report, 28 April 2015, prepared by Mike Moore et al.

There is some vegetation, including some taller trees and shrubs on the intervening designated flat land (referred to as 'the paddock') however it generally appears lower than, or a similar height to the bund depending on the angle of view. This allows the ridgeline of the Chain Hills to be seen above the bund in some views and retains some openness to the northwest aspect for some Clariton Ave properties.

Abbotts Creek and Kaikorai Estuary, the motorway and the Green Island Wastewater Treatment Plant provide some spatial separation between the Site and residential neighbours to the south, west and north.

The hilly character of the wider surrounding landscape means visibility is obscured by intervening landform from some locations, but elevated views are available from others.

The viewing audience is varied, with the RRPP Site surrounded by property in a range of public and private land ownership. The surrounding residential development is predominantly in the General Residential Zone which covers the majority of the middle to outer suburban areas of Dunedin and has been characterised by low density suburban residential living. Over time, the zone is likely to transition to a denser suburban form, accommodating more residents, under the 2GP.

Key viewing areas have been identified for assessment purposes and are summarised below.

It is useful to note that the landform and landcover varies within each of these areas so that the level of visibility changes, i.e. whilst views from these areas are possible, there are also locations within these viewing areas where views to the RRPP Site are not possible.

- Residential neighbours and streets immediately to the **southeast** within the Clariton Ave neighbourhood. The dwellings on Clariton Ave are the nearest residential properties to the RRPP Site.
- Light industrial area on Brighton Road, neighbouring the RRPP Site to the **east**.
- Residential properties and streets **east** of the RRPP Site opposite the industrial area, on the elevated eastern side of Brighton Road including parts of Burgess Street, Kirkland Street and District Road.
- Residential properties and streets on increasingly elevated slopes further **southeast**, including parts of Brooklyn Street, Elwyn Crescent, Trudi Place, Weir Street and Allen.
- Undulating, increasingly elevated and distant hills of grazed farmland and scattered vegetation with a low density of housing and sparse roading to the **southeast** (including Green Island Bush Road and Church Hill Road) and **southwest** (including Old Brighton Road).
- Residential properties and streets to the **west**, south of the motorway, including parts of Walton Park Ave, Blanc Ave and an area of undeveloped land (at the time of writing) zoned General Residential, located between Walton Park Ave and the RRPP Site.
- Residential properties and streets to the **northwest**, north of the motorway, in parts of the Fairfield neighbourhood including parts of Holyport Close.
- Residential properties and streets to the **north** and **northeast**, on slopes north of the motorway orientated towards the RRPP Site in the vicinity of Sunnyvale and Abbotsford, including parts of Main South Road, Thomson Street, Waldron Crescent, Will Street, and Paterson Street.
- Vehicles travelling on parts of the Dunedin Southern Motorway.

- Public open sports fields and recreation areas within these areas such as Shand Park, Walton Park and Sunnyvale Park.

4.4.1 Site Appraisal and Site Context Photographs

To assist the assessment of available views and understand the landscape context, panoramic photographs were taken on Site (**Site Appraisal Photographs A-D**) as follows:

- **Site Appraisal Photograph A** is taken from inside the Landfill Extent boundary on the existing (Stage 1) capped and grassed landfill looking northeast towards Sunnyvale and Abbotsford. The RRPP Site is located at a lower elevation, beyond the existing landfill vegetation that can be seen in the midground.
- **Site Appraisal Photograph B** is taken from inside the RRPP Site looking southeast towards the existing southeast perimeter bund with Clariton Ave screened beyond. The approximate viewpoint locations for VS2 (Trudi Place) and VS3 (Allen Road) can be identified amongst the residential properties clearly visible on the elevated slopes beyond.
- **Site Appraisal Photograph C** is taken from inside the RRPP Site looking northwest, showing the northeast edge of the Landfill Extent planted with internal screening vegetation to the left of the image.
- **Site Appraisal Photograph D** is taken from the top of the southeast bund inside the RRPP Site looking southeast towards Clariton Ave, showing the existing planting on the south side of the bund which is typically lower in height than most of the perimeter vegetation.

Site Context Photographs are taken from publicly available vantage points surrounding the RRPP Site. Available views occur at a range of distances and directions looking towards the RRPP Site (**Site Context Photographs D-L**):

- **Site Context Photograph E** is taken from Weir Street, looking northwest towards the RRPP Site. A small number of Clariton Ave/Brighton Road dwellings can be seen in the midground. Elements comprising the existing Site (signs, vehicles and structures) are also visible further beyond these properties, in the midst of some of the existing perimeter screening vegetation. Fairfield properties and the Chain Hills ridgeline can be seen in the distance.
- **Site Context Photograph F** is taken from Burgess Street, looking west towards the RRPP Site which is screened by perimeter screening vegetation. Structures from the industrial area off Brighton Road are visible in the middle distance with Pukemakamaka/Saddle Hill a key feature in the distance.
- **Site Context Photograph G and H** are taken from Church Hill Road and Green Island Bush Road respectively, looking northwest and west. The RRPP Site and landfill are below these viewpoints, towards the centre of the image with Pukemakamaka/Saddle Hill and the Chain Hills in the distance. The view comprises a mosaic of vegetation and land use, including the motorway, blocks of forestry and open pasture, rural and residential.
- **Site Context Photograph I** is taken from Old Brighton Road looking northeast towards the RRPP Site and landfill in the centre of the image. The closed, grassed Waste Management landfill is also in the middle distance, and together with the internal and

perimeter screening vegetation, partially screens the Site. From this distance and orientation, views are comprised of scattered dwellings on undulating rural hill slopes and glimpses of the suburb around Walton Park, within a mosaic of shelterbelts, open pasture and blocks of vegetation. The hill suburbs above Green Island are also visible in the distance above the Site.

- **Site Context Photograph J** is taken from Blanc Ave, looking east towards the RRPP Site. While the Site is located towards the centre of the image, visibility is largely curtailed by a combination of the established trees at the end of the street, the closed Waste Management landfill immediately beyond, and the existing Green Island landfill form and vegetation beyond that.
- **Site Context Photograph K** is taken from the Dunedin Southern Motorway, looking southeast towards the RRPP Site. From here middle-distance views towards the RRPP Site occur through gaps in intervening vegetation and amidst established boundary vegetation.
- **Site Context Photographs L and M** are taken from Pottinger Street and a more elevated viewpoint at Paterson Street respectively, looking southwest towards the RRPP Site. The RRPP Site is located in the middle distance in these images. From Pottinger Street, views are closer but comprise more intervening elements due to the lower viewing elevation and surrounding built form. The Paterson Street photograph represents a more elevated, clearer view from a similar orientation. The Site is partially discernible beyond the motorway and in the midst of the existing established landfill vegetation, at the base of the northeast landfill extent. The basin-like form and mixed rural, residential and industrial character of the wider landscape can be seen.

4.4.2 Visual Simulations

Six representative viewpoints (**Visual Simulation Photographs 1-6**) have been identified to simulate and assist in understanding the change anticipated within the RRPP Site from key representative, publicly accessible viewpoints. The locations of visual simulations are shown in **Figure 8** of the Graphic Supplement. Simulations have been prepared in accordance with NZILA Best Practice¹⁴ to show the anticipated change which will occur.

Distances shown are approximate distances from the RRPP Site (identified in yellow in the Figures in the graphic supplement) and the elevation provided includes 1.6m to take account of eye height. The viewpoints are summarised below:

Viewpoint 1 (Clariton Ave) Distance: 110m, Elevation: 8.2m + 1.6m

Viewpoint 1 (VS1) shows a view from Clariton Ave. While views will vary, the viewpoint has been selected to broadly represent views from this nearby residential neighbourhood. Properties on Clariton Ave are the closest residential neighbours to the RRPP Site and buildings which are located immediately beyond the bund and vegetation in the midground. As illustrated in the photograph, the nearest dwellings to the RRPP Site are set at a lower elevation than the road so visibility will differ for these homes compared to those at street level and 2-storey homes. A section of the skyline of the Chain Hills is currently partially visible from this viewpoint but is obscured and broken up in places by intervening vegetation.

Viewpoint 2 (Trudi Place) Distance: 530m, Elevation: 23.6m + 1.6m

¹⁴ Best Practice Guide: Visual Simulations BPG 10.2, NZILA

Viewpoint 2 (VS2) shows a view from Trudi Place which is representative of middle-distant, semi-elevated views from residential areas to the east, particularly those dwellings with living and outdoor areas orientated to the northwest or west. From here, the RRPP Site is located between and beyond intervening housing, with a potential open view above the bund where there is a gap in the existing perimeter vegetation. Adjacent housing will obscure or partially views from some properties. The Chain Hills skyline is visible in this photograph as a backdrop to the RRPP Site and wider Green Island suburbs. Pukemakamaka/Saddle Hill will also form a skyline feature in many views from this easterly area.

Viewpoint 3 (Allen Road) Distance: 750m, Elevation: 40.0m + 1.6m

Viewpoint 3 (VS3) shows a view from Allen Road which is representative of middle-distance and distant, elevated residential and rural views from the southeast. From here, the RRPP Site is located beyond intervening housing, with potential for open views above the bund where there is a gap in the extent of existing perimeter vegetation. Where dwellings are located below this viewpoint, such as those in the photograph below Allen Road and on Elwyn Crescent, adjacent housing will obscure or partially obscure views from some properties. Existing buildings within the Brighton Road Industrial Zone will also form part of the view for some. Pukemakamaka/Saddle Hill and the Chain Hills form the backdrop and skyline in this view.

Viewpoint 4 (Walton Park Ave) Distance: 800m, Elevation: 22.0m + 1.6m

Viewpoint 4 (VS4) shows a view from Walton Park Ave which is representative of distant views from residential areas to the west/northwest. The RRPP Site is located in the centre of the photograph, at the base of the landfill, in the midst of layers of vegetation and backdropped by rural hill slopes. The closed, former landfill appears to the right as a grassed terrace landform. Views from residential streets in the surrounding suburb are largely curtailed by intervening residential buildings and trees (as seen in **Site Context Photo J**) however there is potential for some public and private views from this area, as represented by **VP4**. Should the residential zoned block located between the motorway and the former landfill (in the foreground of this photograph) be developed, it will enable closer residential and public viewpoints (between approximately 300m to 800m away) at similar or lower elevations.

Viewpoint 5 (Sunninghurst/Holyport) Distance: 750m, Elevation: 24.0m + 1.6m

Viewpoint 5 (VS5) shows a view from the top of Holyport Close near Sunninghurst Reserve which is representative of middle-distance to distant, semi-elevated views from residential areas to the north. The Site is located beyond intervening housing and the motorway at this point, backdropped by rural hill slopes. Views of the RRPP Site are partially screened, broken up and backdropped by the layers of vegetation within the Designation.

Viewpoint 6 (Thomson Street) Distance: 600m, Elevation: 41.0m + 1.6m

Viewpoint 6 (VS6) shows a view from Thomson Street which is representative of middle-distance to distant, elevated views from residential areas to the north/northeast and illustrates the basin-like character of the landscape. The RRPP Site is located in the centre of the photograph, with houses and the motorway in the foreground, light industrial buildings to the left, Kaikorai estuary immediately to the right and the coast beyond. The volcanic slopes of Pukemakamaka/Saddle Hill form the skyline to the right. Views of the RRPP Site are partially screened, broken up and backdropped by the layers of vegetation within the Designation however there is a thinning of the perimeter vegetation in the vicinity of the Site entrance.

5.0 Assessment of Effects

Landscape and visual impacts result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities. All these impacts are assessed to determine their effects on character and quality, amenity as well as on public and private views.

In this study, the assessment of potential effects is based on a combination of the landscape's sensitivity and visibility together with the nature and scale of the development proposal.

Particular effects considered relate to the following:

- Natural Character effects;
- Landscape character effects;
- Visual effects from public and private locations; and
- Effects in relation to statutory provisions.

The principal elements of the proposal that will give rise to landscape and visual effects are:

- The daily activity of vehicles and plant;
- Physical changes to existing landform and vegetation, including proposed new vegetation; and
- Height, bulk and appearance of the buildings.

5.1 Natural Character Effects

Natural character is the term used to describe the degree of naturalness in an area, and encompasses the natural elements, patterns, processes including experiential characteristics and qualities within an environment. The natural character of freshwater bodies and their margins, is comprised of a number of key attributes which include:

- Abiotic systems - physical processes, geomorphology, topography, landform, and water quantity/quality;
- Biotic systems - species, communities, habitats, and ecological processes;
- Experiential attributes - the ways in which people, including tangata whenua, experience the natural elements, patterns and processes.

The degree of natural character present in an area is commonly described on a continuum with areas of very high natural character due to the lack of human induced modification. In other areas, there may be little natural character remaining due to extensive human modification.

The RRPP Site is separated from the margins of the nearest waterways (Kaikorai Stream and its confluence with Abbotts Creek) by existing perimeter bunding and vegetation (refer to the yellow RRPP Site boundary in **Figure 5** in the graphic supplement). However, natural character is considered as part of this assessment due to the proximity of the wider landfill operational area (refer to the red Landfill Designation boundary in **Figure 5** in the graphic supplement).

The existing level of natural character within the RRPP Site and adjacent landfill is highly modified, the long history of reclamation, drainage and waste disposal having considerably altered biotic and abiotic systems. Nevertheless, the existing well established perimeter vegetation contributes somewhat to natural character, primarily in regard to experiential aspects as well as supporting some habitat.

Natural character of the adjacent waterways and nearby Kaikorai Estuary is higher, particularly in regard to the birdlife that the estuary supports and scenic qualities present. As identified in **Section 4.3** above, the Kaikorai Estuary has been assessed as having Medium-Low natural character in the 2015 Natural Character Assessment¹⁵.

With regards to ecological matters that contribute to natural character, the Boffa Miskell Ecology Report finds that: ¹⁶

- No vegetation clearance within the existing landfill footprint is of ecological concern, as the areas that are proposed to receive landfill have already been cleared of their original vegetation, and any vegetation that may be cleared is generally comprised largely of exotic species (or deliberately planted indigenous species) and is of negligible ecological value.
- Operational stormwater from the RRPP will be intercepted prior to being discharged which is anticipated to buffer and attenuate any increase in flows and manage sediment and leachate.
- There are not expected to be any additional, detectable effects on Kaikorai Stream as a result of dewatering activities.
- That there will be no more than very low-low levels of effect (and some positive effects) on some aspects of food supply for black-backed gulls.

It is also noted that when considering the components that comprise a waterbody, neither the active bed or river margins will be impacted by the proposed RRPP as the development remains within the existing perimeter bunds and vegetation and their condition will not be further diminished.

Overall, it is considered the proposed development of the RRPP Site will not legibly reduce the abiotic or biotic aspects of natural character further on Site or within the wider context, particularly in terms of the adjoining waterbodies.

Effects on experiential aspects of natural character may be temporarily adverse during construction however these will be short term and temporary.

To assist with understanding effects on the experiential aspects of natural character following completion of the proposal, a Cross Section illustrating the relationship of the proposed development within the RRPP Site to the Kaikorai Stream is provided in **Section 4, Figure 6A** of the graphic supplement. The existing RRPP Site in this location comprises a mix of grass and pine trees, as well as access roads and compounds with hard surfacing.

The pine trees and a large proportion of the grass will be removed as a result of the proposed development. In terms of built form, it is the low profile components of the proposal (the glass and organic bunkers and maturation area and existing leachate pond) that are located at this northern edge of the RRPP Site, closest to the Kaikorai Stream. The proposal will also result in

¹⁵ Coastal Environment of Otago Natural Character and Outstanding Natural Features and Landscapes Assessment, Dunedin City Section Report, 28 April 2015, prepared by Mike Moore et al.

¹⁶ Boffa Miskell, (February 2024) Green Island Landfill RRPP Ecological Impact Assessment

increased hard surfacing and accessways in this area. The existing leachate pond and wheel wash will remain. The area will be busier than it is currently with a greater level of machinery and vehicles present.

Overall, it is considered that the degree of change will be low overall due to the existing level of modification and the low profile and low density of the proposed structures at this northern location. It is proposed that the adjacent layers of perimeter vegetation between the RRPP Site and Kaikorai Stream be maintained with potential for native succession planting as a result of the proposed VRMP (see **Section 6: Recommendations**).

As shown in **Section 4, Figure 6A**, Kaikorai Stream is located below the RRPP Site so that the angle of view, combined with the perimeter vegetation means views from the Stream margins to the increased activity will be largely screened. An awareness of an increase in activity as a result of the proposal may be possible, however it is noted that public access and opportunities for the public to experience the stream margins is currently limited to areas outside of the Green Island landfill site. Implementation of the proposed VMRP will provide for an increase in native species within the perimeter plantings, resulting in an increase in natural character at the wider scale overall.

On balance, natural character effects are assessed as **very low** with **positive** effects over time following implementation of the VMRP.

5.2 Landscape Effects

Assessing landscape effects of the proposed RRPP considers the extent and significance of change to the existing landscape characteristics and values that make up the RRPP Site, including its relationship to the landscape characteristics of the adjoining working landfill edge, industrial and residential edge and riparian open space edge.

In this context, the RRPP Site is located within a highly modified area that is part of the existing, designated GIL with an underlying Industrial Zone. The RRPP Site is not in the coastal environment and does not form part of any significant or ONF or landscape.

As noted in the landscape planning guidance document, Te Tangi a Te Manu, change in a landscape and 'visibility' of a proposal does not of itself, constitute an adverse landscape or visual effect.¹⁷

Summary of existing characteristics and values

The RRPP footprint will sit inside the existing operational landfill area and the perimeter bunding and vegetation, in a location currently utilised for and modified by similar waste separation and transfer activities.

The character of the wider basin-like landscape is a combination of residential streets and dwellings, particularly from west, north, east and southeast of the RRPP Site, as well as rural and increasingly coastal, characteristics to the south.

Abbotts Creek, Kaikorai Stream, Kaikorai Estuary and Pukemakamaka/Saddle Hill are key landscape features nearby, recognised as holding important values.

Summary of change

¹⁷ Te Tangi a Te Manu, p241

The appearance of the RRPP Site will change as a result of the development as it progresses through the removal of mainly internal vegetation and earthworks to the construction of the buildings and other structures, the establishment of proposed plantings and finally, use of, including movement around, the Site, as it becomes operational.

The new buildings will be a key change from a landscape and visual perspective. The proposal comprises four new key building groups set out loosely against the west to southeast edge of the footprint, adjoining the landfill and southeast bund. Building footprints range from approximately 400m² (for both office and workers facilities buildings combined) to 4550m² (for the MRF and apron combined). Heights range from 6.4m to 15.4m with the largest buildings located to the south. The existing access road will be retained and the network around the site extended to service the new buildings.

Physical effects on landform and landcover

While the RRPP Site is relatively level, earthworks will be required to accommodate the building works and associated vehicle infrastructure, excavating up to 2.5m for foundations and raising the final ground level around buildings by approximately 800mm in some areas. To achieve this, the existing vegetation within the RRPP footprint will be removed.

The core of the RRPP Site is currently largely in asphalt, gravel and disturbed ground however, there are areas to the north and east that are largely in grass and some established pine trees. In this context, any vegetation that may be cleared is comprised largely of exotic species. Despite some pine trees being removed as part of the development, pines will remain well represented amongst the perimeter vegetation within the wider landfill site that will be retained.

Opportunities for indigenous planting have been identified on the southeast bund which will enhance physical landscape elements and also help to mitigate visual effects as explained in more detail in section 5.3.

Implementation of a VMRP will provide opportunities for riparian ecological enhancement and lead to a more natural sequence of indigenous vegetation types in the area.

Effects on landscape character

The change to the RRPP Site is not a change in the nature of activity but primarily comprises an increased scale and coverage of proposed built form and the level of activity.

The level of activity will be most noticeable during the construction phase and particularly during construction of the MRF building and associated facilities during Stage 2 due to its closer proximity to residential boundaries. Staging the construction process as proposed will assist with reducing effects of construction on landscape character and changes will be temporary.

Following construction, the scale of the completed buildings will contrast with the character of the nearby residential character. However, their scale is consistent with adjacent industrial activities, and with the RRPP Site's underlying Industrial Zone and in fulfilling the purpose of the landfill designation. The scale can also be partly absorbed by the height of the existing tall trees around the RRPP Site.

One of the key features of the development that will assist with its integration with the surrounding landscape character is where the buildings have, as much as practicable, been able to be located to respond to the different character and sensitivities of the Site's frontages:

- Low level structures associated with the organic refuse will be located to the north of the RRPP Site, closest to the open space and riparian margins, where the underlying zone is rural, and the outdoor use is furthest from residential areas.

- With the exception of the ORB Building, the main new buildings are located within the underlying Industrial Zone.
- The main large buildings are broadly set towards the base high landfill embankment to the southwest which will contain and integrate the scale of the proposed built form into the landscape.
- The largest building, the MRF, will be located across the southern end of the RRPP Site, between the landfill embankment to the west and perimeter screening vegetation to the east, parallel with an existing 5-6m high perimeter bund.

This location is also the closest to a sensitive boundary with a residential area, creating a high degree of contrast in character. The benefit with this location and orientation is that the large building will form a wall that will largely screen the rest of the RRPP Site.

Architectural detailing, such as the 'pop-up' roof ridge that will be predominantly glazed, together with the glazing and vertical elements incorporated in the southern facade, has been intentionally designed to create visual interest and modulation, reducing the sense of height and breaking down the length and mass of this building.

Where there are layers of existing perimeter vegetation, this will considerably assist with integrating the proposed development, including the large-scale buildings, into the Site and will fit within a mosaic of vegetation characteristic of the wider rural landscape. The identified gap on the southeast bund will be planted as part of the proposal.

The coloursteel cladding is a typical material that might be anticipated with both large-scale industrial buildings and increasingly used in residential construction. A recessive, neutral colour (e.g. Karaka Green) is proposed as the primary and recessive colour to assist with integrating the built form with the surrounding vegetation. The neutral colour palette will be selected in consultation with Te Rūnanga o Ōtākou.

The 8ha size of the RRPP Site will also assist to distribute and absorb the coverage of built form, allowing large areas of open space to balance the scale of the buildings and flow between, creating a sense of permeability, visually connecting with the wider landscape.

5.2.1 Summary of Landscape Effects

The construction stage of the proposed development may generate some higher levels of effect; however this will be staged, with temporary activity focused on different locations at different times.

The level of physical change on landform and landcover within the RRPP footprint will be very low when considered in the context of the existing modified RRPP Site and adjacent landfill base. With implementation of the proposed VMRP there is an opportunity for a gradual increase in ecological connectivity over time and **positive** landcover effects.

The character of the RRPP Site will not change in terms of the nature of the land use but primarily comprises an increase in built form and activity. The proposed scale of buildings, within the underlying industrial zone have the potential to appear prominent and a high level of contrast with the scale of residential characteristics in the wider landscape. Potential adverse effects will primarily impact properties along the shared boundary off Clariton Ave, due to their proximity. Effects of prominence and the level of contrast on landscape character are diluted as the mosaic of the different land uses and characteristics becomes increasingly apparent in the wider landscape such as other industrial areas with large scale structures nearby.

Overall, it is considered that on completion the proposal will generate **low** adverse effects on the landscape.

The distribution of the built form against the landfill embankment, the design detailing and colour, and existing and proposed planting, will assist the development with integrating the mass and height of the buildings into the landscape setting, however the level of effect is reduced primarily due to the high level of existing modification on the RRPP Site and consistency of the activity with the purpose of the designation and underlying industrial zone.

5.3 Visual Effects

Visual amenity effects are influenced by a number of factors including the nature of the proposal, the landscape absorption capability and the character of the RRPP Site and the surrounding area. Visual amenity effects are also dependent on distance between the viewer and the proposal, the complexity of the intervening landscape and the nature of the view.

Landscape is dynamic and is constantly changing over time so that any change in view must be assessed within the context of the landscape which such change occurs.

During the construction phases, there is potential to see disturbed ground, stockpiled materials, large scale construction plant and heavy machinery, large scale buildings under construction and a high level of activity on the RRPP Site which may increase the level of visibility.

Adverse visual effects during construction are reduced through a staging process so that activity is focused in different locations over time and the existing perimeter vegetation will limit views. For example, construction of the ORB building during Stage 1 will be largely screened by existing perimeter vegetation. Construction of the MRF building and associated facilities will be considerably more visible due to the larger scale of building, lower level of screening and closer proximity to residential properties. Once in place, the MRF building will largely screen views from the southeast when the BWTS is under construction.

Overall, any increase in prominence and adverse visual effects as a result of construction will be temporary, the nature of the proposed resource recovery activity will essentially remain, and the construction footprint also remains within the existing modified landfill operation area and designation.

Once completed, it is the new buildings in particular that have the potential to be prominent in some views due to their scale and coverage. There may also be ongoing increased activity on the RRPP Site compared with the existing intensity of use.

Views are predominantly a mix of transient views obtained from people in vehicles passing in the vicinity of the RRPP Site such as the motorway, views from people on foot or bicycle in residential streets or in recreation areas such as Sunnyvale Park, and more 'fixed' private views from people in residential dwellings.

The existing landfill, the perimeter bunds and the established vegetation within the designation (including the vegetation north of the Site between Kaikorai Stream and the motorway) semi-enclose the RRPP Site and considerably influence the level of visibility and softening of views from different directions and elevations. The ongoing health and growth of the existing perimeter vegetation is therefore important to reduce visual effects which is why the monitoring and management of these trees is proposed in the VMRP.

There is a 'gap' in perimeter planting along the southeast bund. There is existing vegetation but typically lower, indigenous species so that while low views will largely be screened, the proposed new buildings will be exposed to a range of views from the southeast in particular.

Additional planting is therefore also required and proposed to be implemented as part of the RRPP development as set out in the General Arrangement with Mitigation Plan (see **Figure 5** in the Graphic Supplement).

Due to the number of dwellings in the surrounding area, seven representative viewpoints have been identified to assess effects on landscape values from key catchments (as set out in **section 4.4**). As noted in TTaTM¹⁸, while representative viewpoints are just that, and views and effects are not limited to those locations, viewpoints have been selected to illustrate where the greatest visibility is likely. Therefore, four of the seven viewpoints have been selected from viewing areas to the southeast. The location of representative viewpoints used to prepare visual simulations is provided in **Figure 8**.

There is no viewing area identified to the south as modelling indicates that the proposed development will be screened or barely visible from this orientation due primarily to the intervening topography including the landfill landform.

All viewing areas have been assessed in the context of the location of the RRPP Site within the designation and operational area of the GIL with an underlying industrial zone which reduces the level of visual effect overall.

An assessment of visual effects from these viewing areas and representative viewpoints, considering both public and private properties, is set out below.

Viewing Area: East, Industrial Area (Brighton Road)

The RRPP Site is bordered to the east by a wedge of light industrial properties, located between the Site and Brighton Road. They primarily consist of large, predominantly coloursteel, workshop and storage type buildings and plant in a range of colours as well as smaller office buildings, signage and open areas of stockpiled materials and vehicles and machinery. In the midst of these properties are a handful of residential scale dwellings which are also zoned for industrial land use.

Views to the proposed RRPP development from much of this area will be screened by layers of existing tall perimeter planting within the landfill boundary as illustrated in Cross-Section 2 in **Figure 6** of the Graphic Supplement. However, properties at the southern end between approximately 31 Brighton Road, south to the intersection with Clariton Ave, may have partial views to the RRPP Site due to the gap in planting at the southeast bund.

Overall, it is considered that there are **no adverse** visual effects from much of this eastern industrial area due to the level of visual screening, the existing industrial visual context and the private but largely non-residential viewing audience. There may be up to **very low adverse** visual effects from those residential properties in this catchment where close, partial views are available. Effects are reduced primarily due to the dominant industrial context in which the proposal will be seen. The proposed planting on the southeast bund will also soften the appearance of the building and increase the level of screening.

Visual effects from Brighton Road are considered to be very similar but views are publicly accessible and the viewing audience is typically transient. Visual effects are considered to range from **none** to **very low adverse** at most.

Viewing Area: East, Residential (e.g. Burgess Street)

¹⁸ Te Tangi a Te Manu, p242

Also to the east of the RRPP Site, and east of Brighton Road, are residential dwellings on gradually elevated slopes in the vicinity of Burgess Street (see **Site Context Photo F**) and nearby private lanes.

Views to the proposed RRPP development from dwellings at lower elevations, such as the east side of Brighton Road, will typically be screened by buildings in the industrial area opposite and by the existing tall perimeter planting within the landfill boundary. Dwellings at higher elevations to the north, such as in the vicinity of Burgess Street, will also be largely screened by the perimeter trees and built form in the foreground.

Glimpses of the proposed new MRF building may be possible from those dwellings at higher elevations that are further to the south off the private lanes. The bulk of the development will continue to be screened by the perimeter planting.

Overall, it is considered that visual effects from this area will range from **none** to **very low adverse** effects due to limited visibility, the industrial built form in the mid-ground, and distances typically greater than 350m from the viewing area to the nearest proposed building.

Viewing Area: Southeast, Clariton Ave

Properties on Clariton Ave are the nearest residential neighbours to the Site. Viewpoints 1a and 1b (**VP1a** and **VP1b** in the Graphic Supplement) have been selected as representative viewpoints for this viewing area.

Due to the proximity of this area to the RRPP Site and higher potential sensitivity to the proposed change, the properties within this viewing area have been refined and considered at a finer grain:

- *Those bordering the Site, on low-lying land below the lane (15, 17, 19, 21 Clariton Ave):*

These residential neighbours border the RRPP Site and sit approximately 115m from the nearest building (MRF). The RRPP Site, which includes the bund, is located in their north to northwest aspect (refer to the existing view from the boundary of the south paddock shown in **VS1a** in the Graphic Supplement).

While the proposed MRF building and apron will have a high degree of contrast with existing landscape elements in this existing view, they will be largely screened in views from these properties. The low elevation of these properties means the maximum benefit of screening by the bund and existing intervening vegetation is gained. Views will generally be angled upwards to the uppermost walls and roof of the building with occasional glimpses possible above the intervening bund and vegetation (refer to **VS1a** in the Graphic Supplement).

Additional planting is proposed on this intervening bund as set out in the General Arrangement with Mitigation Plan and Cross Sections (see **Figures 5, 6 and 6A** in the Graphic Supplement) and simulated at 5 and 10 years (refer to **VS1a**).

Care has been taken with the indicative plant selection and placement to balance successful screening with reduced shading effects and a sense of enclosure in adjacent residents' northerly aspect. The planting will predominantly comprise a mix of evergreen shrubs and trees however a mix of deciduous, taller trees is also proposed on the lower northern slopes to break up and largely screen the scale and mass of the building.

It is also proposed that this tall species mix be considered part of a staged process should there be a need to address concerns about enclosing the neighbours' northerly aspect. An option can be provided for the removal of these taller trees or maintenance

to lower heights once intervening lower evergreen vegetation is established after 5-10 years.

Overall, it is considered that adverse visual effects on these properties will be **low** without the proposed mitigation planting, reducing to **very low** within approximately 5 years and reducing further over time as the planting continues to mature.

- *Those above the lane and on Clariton Ave, close to and with a direct aspect largely comprising the Site (11, 13, 14, 23, 25 Clariton Ave).*

These residential neighbours are close to (but not bordering) the RRPP Site, the closest dwelling being some 150m from the nearest building. The proposed MRF building and apron will be in their north to northwest aspect so that views are likely from indoor and outdoor living areas.

The proposed MRF building and apron will have a high degree of contrast with existing landscape elements in these views. The building will also largely obscure the hills on the skyline beyond (see **VS1b** in the Graphic Supplement). Photographs from the representative viewpoint (refer to **VP1b**) show that sections of the skyline are currently visible but disrupted by existing trees. The elevation of these properties is relatively comparable with the RRPP Site so that the bund will screen slightly less of the building with potential for it to be more visible than for closer properties.

Views will generally be across to the mid to upper walls and roof of the MRF building. The relatively close, front on views have the potential to add a sense of enclosure to existing views although softened by existing vegetation (see **VS1b**).

The additional planting proposed on the intervening bund is set out in the General Arrangement with Mitigation Plan and Cross Sections (see **Figures 5, 6 and 6A** in the Graphic Supplement) and simulated at 5 and 10 years (refer to **VS1b**). Care has been taken with the indicative mix of shrubs, medium-sized and taller deciduous plant species and their placement to balance successful screening with reducing shading effects and sense of enclosure in the adjacent residents' northerly aspect.

Overall, it is considered that adverse visual effects on these properties will be **moderate-high** without the proposed mitigation planting due to the roof profile breaking the skyline, but reducing to **low** within approximately 5 years and reducing further to **very low** over time as the planting becomes increasingly established.

- *Those above Clariton Ave, close to and with an oblique aspect largely comprising the Site (12 Clariton Ave).*

This residential neighbour is close to (but not bordering) the RRPP Site, being approximately 200m from the proposed MRF building. The building will be in their northwest aspect so that views are likely from indoor/outdoor living areas, particularly from the upper floor balcony.

The proposed MRF building and apron will have a degree of contrast with existing landscape elements in these views. However, there is a broader visual context likely to be available from this property due to its additional elevation, encompassing a range of existing development including buildings in the Green Island Industrial Area. Due to the elevated angle of second-storey views, the intervening bund will screen less of the proposed MRF building than for other properties in this area. Potential views will be across to the mid to upper walls and roof of the MRF building, seen above and between vegetation.

The additional planting proposed on the intervening bund will partially screen and break up the appearance of the southeast building façade after 5 years with full screening likely within 10 years.

Overall, it is considered that adverse visual effects on this property will be **moderate** without the proposed mitigation planting, reducing to **low-moderate** at most within approximately 5 years. Effects will reduce further to **very low** at most, over time as the plantings continue to mature and their height increases.

- *Those nearby with an oblique aspect partially comprising the Site (7, 10 Clariton Ave).*

These residential neighbours are near (but not bordering) the RRPP Site, approximately 180m from the proposed MRF building. The building will be in their oblique northwest aspect so that there is potential for views from their upper floor indoor and outdoor living areas. However, the dwellings are not angled fully towards the RRPP Site.

The proposed MRF building and apron will have a degree of contrast with existing landscape elements in these views. However, there is broader visual context likely to be available from this property due to its additional elevation, angle and setback from the proposed building, including existing industrial built form. The level to higher elevation of property means the bund will screen less of the building. Views will be generally across to mid to upper walls and roof of MRF building in the northwest view, seen above and between vegetation and surrounding properties.

The additional planting proposed on the intervening bund will largely screen and break up the appearance of the building.

Overall, it is considered that adverse visual effects on this property will be **low-moderate** without the proposed mitigation planting, reducing to **low** at most, within approximately 5 years as the planting matures and further over time.

- *The wider Clariton Ave neighbourhood*

These residential neighbours are moderately distant from the nearest proposed building (MRF) on the RRPP Site however visibility is largely obscured due to intervening dwellings and/or not being primarily orientated towards the RRPP Site. The underlying industrial zoning of the Site within a designated landfill also applies within which development of this scale can be anticipated.

The proposed MRF building will have some degree of contrast with existing landscape elements in these views however they already incorporate other built form, although largely residential scale. The level to higher elevation of these properties means the intervening bund screens less of the MRF building so where views are possible, there is potential for more of the building to be visible.

The additional planting proposed on the intervening bund will soften and break up the appearance of the building where views are available.

Overall, it is considered that adverse visual effects on these properties will be **Low** without the proposed mitigation due to the existing screening by intervening properties. planting, reducing to **Neutral to Very Low** over time as the planting matures.

Viewing Area: Southeast, middle distance-distant, moderately elevated (e.g. between Trudi Place and Allen Road)

Southeast of Brighton Road, the topography becomes more undulating with the elevation gradually rising overall. Viewpoints 2 and 3 (**VP2 and VP3** in the Graphic Supplement) in Trudi Place has been selected as the publicly accessible representative viewpoint for this viewing area.

Views to the proposed development from dwellings at lower elevations such as the lower parts of Brooklyn Street, Elwyn Crescent and Allen Road will be screened by landform, buildings and vegetation. However, dwellings in higher elevations such as in the vicinity of Trudi Place (see **VP2**), and Weir Street as well as the higher parts of Brooklyn Street, Elwyn Crescent and Allen Road (see **VP3**), are likely to have views to the proposed development at the southeast boundary of the RRPP Site.

Typical views will be moderately distant to distant, approximately 350m to 750m from the proposed MRF building which enables a broader visual context. However views are also moderately elevated and in the north-northwest aspect so that as indicated by the simulation from the street in the upper part of Trudi Place and Allen Road (**VS2 and VS3**) there is potential visibility of the southern façades of buildings (primarily the MRF building) including from indoor and outdoor living areas. The higher the elevation of properties, more of the proposed buildings will potentially be visible, however the proximity of neighbouring buildings will also screen or partially obscure views for some.

The proposed large scale of the MRF building will contrast less with existing landscape elements in these views due to the wider visual context available which already incorporates other built form, including structures in the Brighton Road industrial area.

Planting the intervening bund with low-growing shrubs will have limited benefits as views get more elevated. Therefore, the proposed planting also includes medium-sized evergreen trees as well as taller deciduous species that are capable of reaching heights of 15m to break up and screen the scale and mass of the building.

Overall, it is considered that adverse visual effects on this viewing area will be **Low-Moderate** without the proposed mitigation due to the existing screening by intervening properties. Planting will reduce effects to **Low** at most, within approximately 5 years and further to **Very low** over time as the vegetation grows and becomes increasingly established.

Viewing Area: Southeast, distant, elevated (e.g. Green Island Bush Road and Church Hill Road)

There is a low density of dwellings on these elevated slopes, typically greater than 900m away, southeast of the Site.

Due to the greater elevation there will be potential for open views to a greater proportion of the Site such as in the vicinity of the loop in Church Hill Road (**Site Context Photo G**) and Green Island Bush Road (**Site Context Photo H**). There are also large areas where views are screened by landform.

However, at these long distances, the perspective 'flattens' the view so that it is more difficult to discern changes to height and the Site becomes a smaller part of a much larger, diverse landscape. At these longer distances, any views of the Site will form a smaller part of a much larger, diverse landscape so that the visible change will typically become less prominent.

While the proposed planting of shrubs and small trees on the southeast bund will have limited benefits as views get more elevated, together with the grouping tallest trees, capable of reaching 15m high, the proposed vegetation will provide a depth of planting that will break up the linearity of the building and integrate its distant appearance in these views.

Overall, visual effects are assessed as **Low** without the proposed mitigation, reducing to **Very Low** at most over time as the planting becomes established.

Viewing Area: Southwest, distant, moderately elevated to elevated (e.g. Jeffcoates Road and Old Brighton Road)

There are few dwellings on the elevated rural hill slopes to the southwest. The nearest are a loose cluster of houses in the vicinity of Old Brighton Road between Jeffcoates Road and Walton Park (**Site Context Photo I**) broadly orientated towards the Site, between approximately 1-2km away.

The RRPP Site is contained to the southwest by the adjacent landfill. The topography in this wider southwest viewing area varies from the Kaikorai estuary and valley floor to undulating slopes with large stands of exotic forest. Intervening local landform and the existing perimeter bunds and landfill adjacent to the Site, will largely screen views from these dwellings. Modelling indicates that glimpses of the roof and uppermost walls of the BWTS building may be visible above and between the existing perimeter vegetation.

Visual effects are assessed as **Very Low** regardless of the proposed mitigation planting due to the viewing distance and limited visibility.

Viewing Area: West, distant, level to moderately elevated (e.g. Blanc Ave, Walton Park Ave, Walton Park)

This viewing area comprises level to rising, elevated slopes, orientated east towards the RRPP Site and existing Green Island landfill, approximately 900m and more from the nearest building (ORB). It comprises the large recreation area of Walton Park, an established residential neighbourhood and the currently undeveloped residential zoned block between the motorway and former landfill.

Viewpoint 4 (**VP4** in the Graphic Supplement) at the end of Walton Park Ave has been selected as the publicly accessible representative viewpoint for this viewing area. While it is at a lower elevation than surrounding dwellings, it provides a good level of visibility compared with other publicly accessible locations in the area.

Views to the proposed development of the RRPP Site will largely be obscured from most dwellings and streets within the established neighbourhood, by adjacent houses. For those dwellings in the vicinity of Blanc Ave, existing tall trees will also add substantial screening while they remain (see **Site Context Photo J**). Should the trees be removed, modelling indicates that the proposed development will continue to be largely screened by the existing perimeter vegetation, bunds and landfill. Any glimpses will be seen in the context of the closed landfill in the foreground.

Views to the RRPP from the recreation area of Walton Park will be largely screened by the intervening, vegetated ridge of housing and the perimeter vegetation around the RRPP Site.

There are a small number of dwellings in the vicinity of **VS4** at the eastern edge of the established neighbourhood that overlook the adjacent undeveloped residential block and are likely to have similar relatively unobstructed views towards the RRPP Site.

Where these views are available, the existing perimeter vegetation, bunds and adjacent landfill will obscure most of the RRPP Site with the roofs and uppermost walls of the ORB, BWTS and MRF buildings partially visible above and between the existing perimeter vegetation similar to that shown in **VS4**. Where views are from a higher elevation, there is potential for an increase in visibility.

These distant views comprise a broad visual context including the grassed form of the existing closed landfill site in the foreground, clusters of residential housing in the background such as those around Trudi Place and the rural slopes and skyline beyond. Further built form and residential infrastructure can be anticipated in the intervening zoned land and would also become part of these views.

The Site's perimeter bunds and vegetation will also provide a similar level of screening from close viewpoints in this area that may become available from the undeveloped block.

Overall, visual effects from this viewing area are assessed as ranging from **Very Low** to **Low** regardless of the proposed mitigation planting, due to viewing distances and levels of visibility.

Viewing Area: Northwest, moderately distant to distant, moderately elevated (e.g. Holyport Close, Sunninghurst Drive, Sunninghurst Park)

Views to the Proposed Development from Fairfield will be possible from a limited number of dwellings, south of Main Road, primarily in the vicinity of Holyport Close and Sunninghurst Drive. Viewpoint 5 (**VP5** in the Graphic Supplement) in Holyport Close has been selected as the publicly accessible representative viewpoint for this viewing area.

Views to the proposed development from dwellings at lower elevations will be screened by adjacent buildings and the existing perimeter vegetation. However, dwellings in higher elevations such as higher parts of Holyport Close (see **VP5**), have potential for partial views and glimpses to the roofs and uppermost walls of the proposed development above the intervening trees as indicated by the simulation (**VS5**).

Typical views will be moderately distant to distant, approximately 600m and more from the nearest proposed building (ORB) which enables a broader visual context, reducing sensitivity.

Overall, visual effects from this viewing area are assessed as **Very Low** regardless of the proposed mitigation planting, due to viewing distances and limited visibility.

Viewing Area: Northeast, middle-distant to distant, elevated (e.g. Thomson Street, Paterson Street)

The RRPP Site is bordered to the north by vegetated open space and wetlands associated with the Kaikorai Stream, the Shand Park Dog exercise area to the northwest and the Dunedin Southern Motorway. North of the motorway is the Sunnyvale Park and Sports Centre, the elevation steadily rises with established residential suburbs covering these broadly southerly orientated slopes. Viewpoint 6 (**VP6** in the Graphic Supplement) in Thomson Street has been selected as the publicly accessible representative viewpoint for this viewing area due to its proximity and elevation.

Potential views to the proposed development from the Sunnyvale Park and the closest dwellings are at lower elevations such as Pottinger Street, Watson Street and Sunnyvale Lane (approximately 430m to 600m from the nearest proposed building). These views will largely be screened by the layers of intervening vegetation, including the perimeter vegetation around the RRPP Site, as well as other nearby dwellings.

However, properties in higher elevations in the vicinity of Sunnyvale such as dwellings on parts of Main South Road and Thomson Street (see **VS6**), and in the vicinity of Abbotsford, such as on Paterson Street (see **Site Context Photo M**) among other streets in these suburbs, will have potential for more open views to the proposed development. This is primarily due to the greater elevation and the thinning of perimeter vegetation near the RRPP Site entrance. These locations are further from the RRPP Site, typically more than 600m (Main South Road) from the BWT and MRF buildings with Thomson Street and Paterson Street some 700m and 1000m

away respectively. Undulating landform between Sunnyvale and Abbotsford and the proximity of neighbouring buildings will also screen or partially obscure views for some.

Views at these distances include a range of built form including the context of existing industrial buildings adjacent to the Site, so that visual sensitivity is reduced and the visible change appears less prominent.

As indicated by the simulation from Thomson Street (**VS6**) there is potential for visibility of the BWTS building and a glimpse of the MRF building behind. There are some tall trees to break up the mass and height of the BWTS building. Some activity on the RRPP Site such as the movement of vehicles may also be visible, primarily between trees in the vicinity of the entrance and around the BWTS building. Additional trees are proposed (as seen in the Landscape Plan) to thicken a small section of existing perimeter vegetation at the northeast corner near the entrance to the Site. Varying the colour of Buildings 1 (MRF) and 2 (BWTS) will also help reduce the sense of bulk and scale to ensure they are read as separate components and not one larger structure.

The dense layers of tall trees that surround and importantly, backdrop the Site, together with the landfill landform and hills beyond, will visually absorb and integrate the proposed large scale buildings into the Site and wider landscape. The use of recessive colours is also an important factor in softening the sense of scale of these buildings and helping to integrate them into this setting.

Visual effects from closer, elevated private viewpoints such as dwellings in the vicinity of Thomson Street are assessed as **Low-Moderate** without mitigation planting and **Low** over time once planting matures. As viewpoints get further from the Site, the visual context broadens and prominence reduces so that typical views in the vicinity of Paterson Street for example will be **Low**, reducing to **Very Low** as the proposed planting matures over time.

5.3.1 Table of Visual Effects

Viewing Area	Nature of view/Approx Distance (from property to nearest proposed building)	Rep. Visual Sim or Photo	Level of Effect (max): Without mitigation planting	Level of Effect (max): With mitigation planting, 3-5 years
East: Close to middle-distant				
Brighton Road	Largely screened; low-lying to level; west to northwest aspect; 150m		Very low	Very low
East: Middle-distant to distant				
e.g. Burgess Street	Largely screened; level to elevated; west aspect; 350m	SC Photo E	Very low	Very low
Southeast: Close to middle-distant (Clariton Ave)*				
*Refer to Figure 5 in the graphic supplement for street numbers				

Viewing Area	Nature of view/Approx Distance (from property to nearest proposed building)	Rep. Visual Sim or Photo	Level of Effect (max): Without mitigation planting	Level of Effect (max): With mitigation planting, 3-5 years
Below lane (15 to 21)	Low-lying; northwest aspect; 115m	VS1	Low	Very low
Above lane (11, 13, 14, 23, 25)	Level; northwest aspect; 150m	VS1	Moderate-High	Low
2 storey (12)	Level to slightly elevated; northwest aspect; 200m	VS1	Moderate	Low-Moderate
Oblique (7, 10)	Level to slightly elevated; oblique northwest aspect; 190m-230m	VS1	Low-Moderate	Low
Rest of Clariton Ave	Level to slightly elevated; northwest aspect (where views available); 200m to 330m	VS1	Low	Neutral to Very low
Southeast: Middle-distant to distant				
e.g. Trudi Place to Allen Road	Low-lying to moderately elevated; north to northwest aspect; 350m to 750m	VS2 and VS3	Low-Moderate	Low
Southeast: Distant				
e.g. Green Island Bush Road and Church Hill Road)	High elevation; northwest to west aspect; more than 900m	SC Photos F and G	Low	Very Low
Southwest: distant, moderately elevated to elevated				
e.g. Jeffcoates Road and Old Brighton Road	Moderately elevated to elevated; northeast aspect; more than 1km	SC Photo H	Very Low	Very Low
West: distant, level to moderately elevated				
e.g. Blanc Ave, Walton Park Ave	Level to moderate elevated; east to southeast aspect; more than 900m	VS4 and SC Photo I	Low	Low

Viewing Area	Nature of view/Approx Distance (from property to nearest proposed building)	Rep. Visual Sim or Photo	Level of Effect (max): Without mitigation planting	Level of Effect (max): With mitigation planting, 3-5 years
Northwest: moderately distant to distant, moderately elevated				
e.g. Holyport Close, Sunninghurst Drive	Moderately elevated; southeast aspect; more than 600m	VS5	Very Low	Very Low
Northeast, middle-distant to distant, level to elevated				
Sunnyvale e.g. Thomson St	Predominantly elevated; south to southwest aspect; more than 600m	VS6	Low-Moderate	Low
Abbotsford e.g. Paterson St	Predominantly elevated; southwest aspect; more than 1km	SC Photo L	Low	Very Low

5.3.2 Summary of effects from public vantage points

The RRPP Site is visually well-contained from most close views, screened by the landfill landform to the south and southwest and by extensive perimeter vegetation. As previously described, there are gaps in this vegetation which will increase potential visibility from the southeast and from the northeast. Therefore, the potential for adverse visual effects on public vantage points resulting from the proposed RRPP is largely limited to parts of Clariton Ave and to the more elevated areas in the east, north and west, however these are a greater distance away.

These public views from the street are generally transient and limited to intermittent, elevated sections of road, including residential streets and the motorway, that are otherwise largely screened by intervening landform, buildings or vegetation.

Adverse visual effects on road users of Clariton Ave (VS1) are assessed as Very low once mitigation planting has established. Adverse visual effects on road users in surrounding elevated areas as represented in VS2-6, are assessed as Very Low at most.

Other potential publicly accessible vantage points include recreational areas. There will be views to the MRF building from the uppermost parts of Elwyn Crescent Park. Most of the park is low-lying so that views will be screened. Therefore, adverse visual effects are considered to be low. Views will be largely screened from Walton Park, Shand Park and Sunnyvale Park. Adverse visual effects are considered to be none to very low at most from these locations.

Views will be also possible from short sections of the motorway (**Site Context Photograph K**), orientated towards the Site where views over roadside embankments and intervening layers of vegetation allow (approximately 350 metres to the north at the closest point). Views will be intermittent, at speed and amongst 4 lanes of traffic.

Views will be also experienced within the context of the wider landfill designation so that overall, once mitigation is established, views from surrounding public vantage points are considered to result in a range of adverse effects from Neutral to **Very Low**.

5.3.3 Summary of Visual Effects

The landfill, including the RRPP Site, has been part of the landscape and visual context of Green Island since it was first used for the disposal of waste in 1954.

The Site is located in a basin but is largely screened from close views by earth bunds and established trees around the landfill perimeter. The hilly character of the surrounding landscape means visibility is obscured by intervening landform from some locations, but elevated views are available from others. Views from elevated areas around the RRPP Site also include potential views to the sea, the estuary and surrounding hills and these will not be impacted.

'Worst case' views are those private residential properties to the southeast that are close to the RRPP Site, where there is a gap in the existing tall perimeter vegetation. In these views, the roofline of the MRF building will break the skyline of the distant hills. The greatest effect is considered to be those closest dwellings that are also slightly elevated or have 2 storeys so that the proposed new buildings have the potential to be more visible above the bund. Those properties that are immediately adjacent to the Site but lower lying, have the benefit of greater visual screening by the intervening bund and existing vegetation. The size of the nearest MRF building will screen most movement on the RRPP Site (such as moving vehicles) that might otherwise also draw the eye.

The effective ongoing maintenance and management of the existing perimeter trees will be essential in mitigating potential adverse visual effects. The addition of planting on the southeast bund and at the Site entrance is also required to reduce visual effects.

The underlying designation and industrial zoning anticipates this kind of land use on the RRPP Site. Therefore, once planting has become established over 3-5 years, visual effects will reduce to **Low** and **Very low** for most properties on Clariton Ave with the exception of one property at 12 Clariton Ave with an elevated viewpoint for whom effects are assessed as **Moderate-low** (and minor) at most within approximately 5 years but reducing to **Low** as vegetation matures further over time.

5.4 Effects in relation to Statutory Provisions

The Site is not identified as within the coastal environment or part of any ONF or landscape or highly valued amenity landscape within which statutory protection must occur. However, consideration of natural character is relevant insofar as this applies to freshwater bodies and their margins (RMA S6a) due to the location of the Site immediately adjacent to the Kaikorai Stream and Estuary.

While the Kaikorai Estuary is a Regionally Significant Wetland, an Area of Significant Biodiversity Value and a Wāhi Tupuna of cultural significance to mana whenua in the 2GP, the magnitude of change as a result of the proposed RRPP development is very low due to the existing use and management of the highly modified Site. Adverse effects in terms of natural character are therefore assessed as **very low** overall with an opportunity for **positive** effects in the future as a result of the proposed VRMP.

Designation D658

The Site is designated (D658) under the 2GP and under the Operative Dunedin City District Plan (Operative DP). The proposed development of the RRPP Site represents a continuation of the current purpose of the designation - for landfilling and associated refuse processing operations and activities.

Potential adverse effects on visual amenity and landscape character (Objective 8A.2.1) from earthworks will be reduced due to the high existing level of modification at the Site and the screening effect of the perimeter vegetation.

Natural character of the riparian margins (Objective 10.2.2) of Kaikorai Stream will be maintained. The proposed development remains within the existing perimeter bunds and vegetation and the abiotic and biotic condition of the stream will not be further diminished.

The proposed development is in the context of an existing designated landfill site with the greatest level of change occurring within the underlying Industrial Zone, further from the riparian edge.

Implementation of the proposed VMRP will provide for an increase in native species within the perimeter plantings over time, resulting in an increase in natural character at the wider scale overall.

6.0 Recommendations

Building colour

It is proposed that the exterior cladding of all buildings be finished in a neutral, recessive colour that integrates with the more natural surrounding areas near the perimeter of the RRPP Site and estuary e.g. Karaka Green. Varying the colour of Buildings 1 (MRF) and 2 (BWTS) will help reduce the sense of bulk and scale to ensure they are read as separate components and not one larger structure, primarily in views from the north. The neutral colour palette will be selected in consultation with Te Rūnanga o Ōtākou.

Vegetation Management and Restoration Plan

While the screening vegetation surrounding the landfill is currently comprised of a mix of exotic and native species, it is dominated by exotic tree species. The height, density and layers of vegetation contribute positively to landscape and natural character, reducing the potential significance of adverse natural character, landscape and visual effects, of both the activity and particularly the large-scale new buildings.

A VMRP is proposed as part of the RRPP consents to continue effective ongoing visual screening as well as with potential long-term visions for the wider landfill designation area in mind. It is envisaged that the VRMP will incorporate the RRPP mitigation planting (the additional screen planting) described below.

There is also an opportunity, as part of this VMRP, to prepare for a longer-term vision post-closure of the landfill, to enhance natural character and contribute to positive effects on the amenity and landscape values through gradually transitioning to native plantings.

Additional screening vegetation

Additional screening vegetation is also recommended to further reduce landscape and visual effects, as illustrated in the General Arrangement with Mitigation Plan and Cross Sections (Figures 5, 6 and 6A of the graphic supplement).

The southeast bund will be planted with a mix of evergreen and deciduous plants to balance the most effective screening options with reducing shading and sense of enclosure in winter. The southern slopes currently support a range of plantings that are proposed to be infilled with an indicative shrub mix including South Island Toetoe, Harakeke, Kapuka and Koromiko. Further plantings along the top and upper north slopes of the bund are proposed to comprise a mix of shrubs and medium-sized evergreen trees such as *Hoheria lyalii*, Purple Akeake and Five Finger that will grow to break up and screen views after 5 years without becoming so high as to add noticeable shading or a sense of enclosure to adjacent properties. The presence of existing plantings on the bund gives confidence that this additional vegetation can be established.

A cluster of taller trees will also be planted on the north side of bund in order to largely screen the building from elevated southeast viewpoints. An indicative composition of evergreen Lemonwoods is proposed in combination with taller deciduous Upright Elms and Chinese Poplars. The Elms and Poplars should be a minimum of 2-3m in height at time of planting. Being further from the neighbouring Clariton Ave properties and planted on the lower northern slopes, these trees will aid fast screening while minimising potential shading and sense of enclosure for adjacent properties.

However, it is also proposed that this tall species mix be considered part of a staged process with an option for their removal or maintenance to lower heights once intervening lower vegetation is established after 5-10 years. It is envisaged that this process be set out as part of the ongoing VMRP with options to be decided on in consultation with neighbours and mana whenua.

At the northeast corner of the RRPP Site, a further area of planting is recommended and shown in the Landscape Plan, which will also comprise a small group of tall trees. They should be a mix of native, evergreen species and quicker-growing, exotic, deciduous species that are a minimum of 2-3m in height at time of planting.

It is envisaged that detailed planting plans and species lists will form part of the VMRP and it is recommended they be finalised and planting implemented in the first planting season post-lodgement.

7.0 Conclusions

The proposed RRPP development comprises new facilities for receiving and processing organic waste in addition to the upgrade and replacement of existing recycling facilities as part of an improved comprehensive waste management and diverted material system for Dunedin.

The location is the current resource recovery area located at Green Island landfill and is entirely within the existing Designation Area (D658).

New services will include processing and composting of the collected food and green waste at a new Organics Reveal Building (ORB), and a new Materials Recovery Facility (MRF). A number of other buildings will be required as well as access roads and parking space.

A new Bulk Waste Transfer Station (BWTS) will also be constructed however this will be closer to the date of the landfill closure.

Natural character effects

The existing level of natural character within the RRPP Site and adjacent landfill is highly modified. Natural character of the adjacent waterways and nearby Kaikorai Estuary is higher, particularly in regard to the birdlife that the estuary supports and scenic qualities present. Those same scenic qualities are less apparent in the waterways immediately adjacent to the RRPP Site. The well-established perimeter vegetation also contributes somewhat to natural character, primarily in regard to experiential aspects as well as supporting some habitat.

It is noted that the proposed development remains within the existing perimeter bunds and vegetation and the condition of the nearby waterbodies will not be further diminished.

Effects on experiential aspects of natural character may be temporarily adverse during construction however these will be short term and temporary.

Views from the Stream margins to the increased activity will be largely screened. Overall, it is considered that the degree of change will be low overall due to the existing level of modification and the low profile and low density of the proposed structures at this northern location. It is proposed that the adjacent layers of perimeter vegetation between the RRPP Site and Kaikorai Stream be maintained with potential for native succession planting as a result of the proposed VRMP, resulting in an increase in natural character at the wider scale overall.

Natural character effects are assessed as **very low** with **positive** effects over time following implementation of the VMRP.

Landscape effects

Today the surrounding area has a varied industrial, suburban, rural and coastal landscape character. Abbotts Creek, Kaikorai Stream, Kaikorai Estuary and Pukemakamaka/Saddle Hill are key landscape features nearby, recognised as holding important values including to manawhenua.

The Site is not identified as within the coastal environment or part of any outstanding natural feature or landscape or highly valued amenity landscape. The Proposed RRPP will not compromise the landscape values associated with the nearby landscape features.

Construction will be staged and adverse landscape and visual effects will be temporary.

On completion, effects on landscape character and values will remain limited due to the management of potential contaminants, effective perimeter vegetation, proposed mitigation planting and consistency of the development with the existing activity and designation purpose of the Site.

'Worst case' views are those private residential properties to the southeast that are close to, and orientated towards the Site, where there is a gap in the perimeter vegetation. The effective ongoing maintenance and management of the existing perimeter trees and additional planting proposed will ensure the vegetation surrounding the Site continues to contribute to landscape and natural character and mitigates potential adverse visual effects so that they are no more than minor.

The underlying designation and industrial zoning anticipates the kind of land use that is being proposed on the RRPP Site so that overall, the adverse effects of the proposal are considered acceptable in terms of the existing landscape.

Appendix 1: Method Statement

22 June 2023

This assessment method statement is consistent with the methodology (high-level system of concepts, principles, and approaches) of 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. The assessment provides separate chapters to discuss landscape, visual and natural character effects where relevant, but is referred to throughout as a Landscape Effects Assessment in accordance with these Guidelines. Specifically, the assessment of effects has examined the following:

- *The existing landscape;*
- *The nature of effect;*
- *The level of effect; and*
- *The significance of effect.*

The Existing Landscape

The first step of assessment entails examining the existing landscape in which potential effects may occur. This aspect of the assessment describes and interprets the specific landscape character and values which may be impacted by the proposal alongside its natural character where relevant as set out further below. The existing landscape is assessed at a scale(s) commensurate with the potential nature of effects. It includes an understanding of the visual catchment and viewing audience relating to the proposal including key representative public views. This aspect of the assessment entails both desk-top review (including drawing upon area-based landscape assessments where available) and field work/site surveys to examine and describe the specific factors and interplay of relevant attributes or dimensions, as follows:

Physical –relevant natural and human features and processes;

Perceptual –direct human sensory experience and its broader interpretation; and

Associative – intangible meanings and associations that influence how places are perceived.

Engagement with tāngata whenua

As part of the analysis of the existing landscape, the assessment should seek to identify relevant mana whenua (where possible) and describe the nature and extent of engagement, together with any relevant sources informing an understanding of the existing landscape from a Te Ao Māori perspective.

Statutory and Non-Statutory Provisions

The relevant provisions facilitating change also influence the consequent nature and level of effects. Relevant provisions encompass objectives and policies drawn from a broader analysis of the statutory context and which may anticipate change and certain outcomes for identified landscape values.

The Nature of Effect

The nature of effect assesses the outcome of the proposal within the landscape. The nature of effect is considered in terms of whether effects are positive (beneficial) or negative (adverse) in the context within which they occur. Neutral effects may also occur where landscape or visual change is benign.

It should be emphasised that a change in a landscape (or view of a landscape) does not, of itself, necessarily constitute an adverse landscape effect. Landscapes are dynamic and are constantly changing in both subtle and more dramatic transformational ways; these changes are both natural and human induced. What is important when assessing and managing landscape change is that adverse effects are avoided or sufficiently mitigated to ameliorate adverse effects. The aim is to maintain or enhance the environment through appropriate design outcomes, recognising that both the nature and level of effects may change over time.

The Level of Effect

Where the nature of effect is assessed as ‘**adverse**’, the assessment quantifies the level (degree or magnitude) of adverse effect. Assessing the level of effect entails professional judgement based on expertise and experience provided with explanations and reasons. The identified level of adverse natural character, landscape and visual effects adopts a universal seven-point scale from **very low** to **very high** consistent with Te Tangi a te Manu Guidelines and reproduced below.



Landscape Effects

A landscape effect relates to the change on a landscape’s character and its inherent values and in the context of what change can be anticipated in that landscape in relation to relevant zoning and policy. The level of effect is influenced by the size or spatial scale, geographical extent, duration and reversibility of landscape change on the characteristics and values within the specific context in which they occur.

Visual Effects

Visual effects are a subset of landscape effects. They are consequence of changes to landscape values as experienced in views. To assess where visual effects of the proposal may occur requires an identification of the area from where the proposal may be visible from, and the specific viewing audience(s) affected. Visual effects are assessed with respect to landscape character and values. This can be influenced by several factors such as distance, orientation of the view, duration, extent of view occupied, screening and backdrop, as well as the potential change that could be anticipated in the view as a result of zone / policy provisions of relevant statutory plans.

Natural Character Effects

Natural Character, under the RMA, specifically relates to ‘*the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development*’. Therefore, the assessment of natural character effects only involves examining the proposed changes to natural elements, patterns and process which may occur in relevant landscape / seascape contexts.

As with assessing landscape effects, the first step when assessing natural character effects involves identifying the relevant physical and experiential characteristics and qualities which occur and may be affected by a proposal at a commensurate scale. This can be supported through the input of technical disciplines such as geomorphology, hydrology, marine, freshwater, and terrestrial ecology as well as input from tāngata whenua. An understanding of natural character considers the level of naturalness and essentially reflects the current condition of the environment assessed in relation to the seven-point scale. A higher level of natural character means the waterbody and/or margin is less modified and vice versa.

A natural character effect is a change to the current condition of parts of the environment where natural character occurs. Change can be negative or positive. The resultant natural character effect is influenced by the existing level of naturalness within which change is proposed; a greater level of effect will generally occur when the proposal reduces the naturalness of a less modified environment. In short, the process of assessing natural character effects can be summarised as follows:

- Identify the characteristics and qualities which contribute to natural character within a relevant context and defined spatial scale(s), including the existing level of naturalness;
- Describe the changes to identified characteristics and qualities and the consequent level of natural character anticipated (post proposal); and
- Determine the overall level of effect based on the consequence of change.



The Significance of Effects

Decision makers assessing resource consent applications must evaluate if the effect on individuals or the environment is less than minor¹⁹ or if an adverse effect on the environment is no more than minor²⁰. For non-complying activities, consent can only be granted if the s104D 'gateway test' is satisfied, ensuring adverse effects are minor or align with planning objectives. In these situations, the assessment may be required to translate the level of effect in terms of RMA terminology.

This assessment has adopted the following scale applied to relevant RMA circumstances²¹ (refer to diagram below), acknowledging low and very low adverse effects generally equate to 'less than minor' and high / very high effects generally equate to significant²².



¹⁹ RMA, Section 95E

²⁰ RMA, Section 95E

²¹ Seven-point level of effect scale. Source: Te tangi a te Manu, Pg. 15

²² The term 'significant adverse effects' applies to specific RMA situations, including the consideration of alternatives for Notices of Requirement and AEEs, as well as assessing natural character effects under the NZ Coastal Policy Statement.



About Boffa Miskell

Boffa Miskell is a leading New Zealand professional services consultancy with offices in Whangarei, Auckland, Hamilton, Tauranga, Wellington, Nelson, Christchurch, Dunedin, and Queenstown. We work with a wide range of local and international private and public sector clients in the areas of planning, urban design, landscape architecture, landscape planning, ecology, biosecurity, cultural heritage, graphics and mapping. Over the past four decades we have built a reputation for professionalism, innovation and excellence. During this time we have been associated with a significant number of projects that have shaped New Zealand's environment.

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