Otago Regional Council

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## Section 42A Staff Recommending Report

Application RM23.185
Dunedin City Council

***The recommendation in the staff report represents the opinion of the writers and it is not binding on the Hearing Commissioners. The report is evidence and will be considered along with any other evidence that the Hearing Commissioners will hear.***

Shay McDonald
**Senior Consents Planner**

25 February 2025

## Executive Summary

Dunedin City Council has applied for resource consents under the Otago Regional Plans for Water, Waste, and Air, and the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 to authorise the continued operation, closure, and aftercare of the Green Island Landfill in Dunedin. A consent duration of 35 years is sought for all consents, except for Water Permit RM23.185.02, for which a six-year term is sought.

The overall activity status of the application is discretionary.

The application was publicly notified on 16 November 2024. Four submissions were received, three of which took a neutral position, and one in support.

After assessing the actual and potential effects of the proposed activities, considering submissions, and considering all of the matters in section 104 of the Resource Management Act 1991, my recommendation is that consent be granted, subject to the recommended conditions of consent that are appended to this report. I recommend that consent is granted for the durations requested by the Applicant, except for Land Use Consent RM23.185.07 for which I consider that an unlimited term is appropriate. The reasons for my recommendation are set out in this report.

This report refers frequently to the RM23.185 s95 Notification Report dated 12 November 2024 and should be read in conjunction with that report.

## Report Author

My name is Shay Maree McDonald, and I am a Senior Consents Planner at Otago Regional Council. I have three years' experience working in the resource management sector, with all of this time being at Otago Regional Council.

I hold the qualification of Bachelor of Science with Honours in Chemistry from the University of Otago. I am an Associate Member of the New Zealand Planning Institute and am certified as an RMA decision maker through the Making Good Decisions Programme (2023).

I began processing Resource Consent Application RM23.185 on behalf of Otago Regional Council after the first s92 request for information was issued, although I have been involved with the application since the pre-application stage. I previously processed the related application RM24.143 (recently granted) for the construction and operation of the Resource Recovery Park Precinct, located at the Green Island Landfill, and have previously processed application RM23.571 (granted in 2023) for the construction of the Organics Receivals Building, also located at the Green Island Landfill.

I have visited the site on four occasions, the first occasion being in April 2023 and the most recent visit being 4 February 2025.

Otago Regional Council

Shay McDonald
**Senior Consents Planner**

## Abbreviations

| | |
|---|---|
| CIA | Cultural Impact Assessment |
| DCC | Dunedin City Council |
| GIL | Green Island Landfill |
| GIWWTP | Green Island Wastewater Treatment Plant |
| HHERA | Human Health and Environmental Risk Assessment |
| Jacobs | Jacobs New Zealand Limited |
| LDMP | Landfill Development Management Plan |
| LFG | Landfill Gas |
| LFGRA | Landfill Gas Risk Assessment |
| NES | National Environmental Standard |
| NES-AQ | Resource Management (National Environmental Standards for Air Quality) Regulations 2004 |
| NES-F | Resource Management (National Environmental Standards for Freshwater) Regulations 2020 |
| NLP | Northern Leachate Pond |
| NPS-FM | National Policy Statement for Freshwater Management 2020 |
| NPS-IB | National Policy Statement for Indigenous Biodiversity 2023 |
| NRMP | Kāi Tahu ki Otago Natural Resource Management Plan 2005 |
| NZCPS | New Zealand Coastal Policy Statement 2010 |
| OPF | Organics Processing Facility |
| ORB | Organics Receival Building |
| ORC | Otago Regional Council |
| ORPS 2019 | Otago Regional Policy Statement 2019 |
| $PM_{10}$ | Particulate matter that is less than 10 micrometres in aerodynamic diameter |
| P-ORPS 2021 | Proposed Otago Regional Policy Statement 2021 including Proposed Otago Regional Policy Statement – Freshwater Instrument Components 2021 |
| RMA | Resource Management Act 1991 |
| RPA | Regional Plan: Air for Otago |
| RPW | Regional Plan: Water for Otago |
| RPWaste | Regional Plan: Waste for Otago |
| RRPP | Resource Recovery Park Precinct |
| SBBG | Southern Black-Backed Gull |
| SLR | SLR Consulting New Zealand Limited |
| SNA | Significant Natural Area |
| VRMP | Vegetation Restoration and Management Plan |

Otago Regional Council

# OTAGO REGIONAL COUNCIL
# SECTION 42A REPORT

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|---|---|
| **ID Ref:** | **1249070055-45080** |
| **Application No(s):** | **RM23.185** |
| **Prepared For:** | **Hearing Commissioner** |
| **Prepared By:** | **Shay McDonald – Senior Consents Planner** |
| **Date:** | **25 February 2025** |
| **Subject:** | **Section 42A Recommending Report – Application RM23.185 by Dunedin City Council for various consents relating to the continued operation, closure, and aftercare of the Green Island Landfill.** |

## 1. Purpose

This report has been prepared under Section 42A of the Resource Management Act 1991 (RMA) to assist in the hearing of the application for resource consents made by Dunedin City Council. Section 42A enables local authorities to require the preparation of a report on an application for resource consent and allows the consent authority to consider the report at any hearing. The purpose of the report is to assist the Hearing Commissioner in making a decision on the application.

The report assesses the application in accordance with Sections 104 and 104B of the RMA and makes a recommendation as to whether the application should be granted, and a recommendation on the duration of the consent and appropriate conditions.

This report contains the recommendations of the Senior Consents Planner and is not a decision on the application. The recommendations of the report are not binding on the Hearing Commissioner. The report is evidence and will be considered along with any other evidence that the Hearing Commissioner will hear.

## 2. Summary of the Application

### 2.1 Overview

**Applicant:** Dunedin City Council

**Applicant's agent:** Anderson Lloyd Limited

**Site address or location:** Green Island Landfill, located at 9, 114, 140, and 170 Brighton Road, Green Island; Green Island Wastewater Treatment Plant, located at 9 and 174 Brighton Road, Green Island.

**Legal description:** Refer Appendix A

**Record of title number and owner:** Refer Appendix A

**Map reference approximate site midpoint:** E1399304 N4912786

**Consent(s) sought:**

- RM23.185.01: Discharge Permit to discharge waste, hazardous waste and leachate onto land, in a manner that may result in contaminants entering groundwater.
- RM23.185.02: Water Permit to take and use groundwater and connected surface water from the Kaikorai Stream through a leachate collection trench and to take and use groundwater and leachate from groundwater bores, landfill gas wells and a leachate collection trench.
- RM23.185.03: Water Permit to divert surface water and stormwater from working and non-working areas of the landfill, including from a defence against water.
- RM23.185.04: Water Permit to permanently divert surface water in the Kaikorai Stream and Brighton Road Stream.
- RM23.185.05: Discharge Permit to discharge surface water and stormwater to the Kaikorai Stream.
- RM23.185.06: Discharge Permit to discharge contaminants (landfill gas, combustion emissions from landfill gas flares and engine, dust, and odour) to air.
- RM23.185.07: Land Use Consent to place a defence against water along the Kaikorai Stream for the purpose of diverting floodwaters.
- RM23.185.08: Land Use Consent to disturb a contaminated site for the purpose of undertaking capping works and installation and maintenance of landfill infrastructure.

**Consent term sought:** 35 years for all consents, except Water Permit RM23.185.02 for which a six-year term is sought.

**Purpose:** Continued operation, closure, and aftercare of the Green Island Landfill.

**Information requested:** 3 May 2023 and 29 January 2024.

**Notification decision:** The application was publicly notified on 16 November 2024.

**Submissions:** Four

**Site visit:** I have visited the Green Island Landfill on 4 April 2023, 22 October, 8 November 2024, and 4 February 2025.

**Key issues:** It is considered that the key issues with this application are:

- Adverse odour effects.
- Significant leachate mounding within the landfill.
- Residual uncertainty about the contribution of the landfill to adverse water quality effects.

**Specialist advice:**

SLR (previously 4Sight Consulting) were engaged to audit the landfill design, geotechnical, groundwater, surface water, ecology, and landscape reports. Jacobs were engaged to audit the air quality report.

***James Elliot***, Technical Director Land Quality and Remediation; ***Dominic Trani***, Technical Director Geotechnics and Mine Waste Engineering; ***Tim Baker***, Technical Discipline Manager Hydrology and Hydrogeology; ***Pete Wilson***, Principal Consultant Ecology and Marine Science; ***Elizabeth Morrison***, Principal Ecologist; ***Rachael Annan***, Technical Director Landscape Planning; and ***Tracy Freeman***, Principal Air Quality Specialist have prepared evidence and will be available to answer questions at the hearing.

## 2.2 Description of Application

The proposed activities are thoroughly described in Section 3 of the RM23.185 s95 Notification Report (**s95 Report**) dated 12 November 2024 and in the application documents. At the request of the Commissioner, none of that information is repeated here.

To the best of my knowledge, there have been no substantial changes made to the proposal since the application was notified.

## 2.3 Application Documents

The Applicant has provided the following documentation with the application:

- Green Island Landfill Closure Assessment of Environmental Effects, prepared by Boffa Miskell Limited, version 2, dated 09 October 2024, including Appendices 1-21
    - Appendix 1: Records of Title
    - Appendix 2: General Arrangement Plan
    - Appendix 3: Design Report
    - Appendix 4: Landfill Development Management Plan (LDMP)
    - Appendix 5: Groundwater Report
    - Appendix 6: Surface Water Report
    - Appendix 7: Air Quality Report
    - Appendix 8: Bird Risk Assessment Report
    - Appendix 9: Draft Southern Black Backed Gull Management Plan
    - Appendix 10: Geotechnical Investigation Report
    - Appendix 11: Liquefaction and Stability Report
    - Appendix 12: Ecological Impact Assessment Report
    - Appendix 13: Landscape, Natural Character, and Visual Effects Report
    - Appendix 14: Economic Report
    - Appendix 15: Social Impact Assessment Report
    - Appendix 16: Cultural Impact Assessment Report
    - Appendix 17: Draft Conditions of Consent
    - Appendix 18: List of Proposed Updates to Landfill Development Management Plan
    - Appendix 19: Engagement Collateral
    - Appendix 20: Interim Human Health and Environmental Risk Assessment

    - Appendix 21: Landfill Gas Risk Assessment
- Response to s92(1) request for further information, Tranche 1, received 30 June 2023
- Response to s92(1) request for further information, Tranche 1, received 31 July 2023
- Response to s92(1) request for further information, Tranche 3, received 30 August 2023
- Response to s92(1) request for further information, Tranche 4, received 29 September 2023
- Response to s92(1) request for further information, Tranche 5, received 09 October 2024.

### 2.7 Section 124 Timeframes

The resource consents authorising the operation of the Green Island Landfill expired on 1 October 2023. This application RM23.185 was lodged on the 17 March 2023, which was more than six months prior to the expiry date. As such, s124 enables the ongoing operation of the Green Island Landfill in accordance with the existing consents.

## 3. Notification and Submissions

### 3.1 Notification Decision

Council made a decision on 12 November 2024 that the application would be publicly notified. Public notice was given on Saturday 16 November 2024.

### 3.2 Submissions Received

Submissions were received from the following persons:

***Table 1:*** *Summary of Submissions*

| Submitter | Submission Points | To be heard? |
|---|---|---|
| Colin Roy Venables and Carol June Venables | **Neutral** with respect to the application. Concerns relate exclusively to odour. These concerns are based on the existing odour effects of the landfill as experienced by the submitters at their property on Brighton Road. The Submitters seek a 'massive improvement' in odour control, and request that the Applicant ensure that there is no odour beyond the landfill boundary. If this cannot be achieved the Submitters take the position that the landfill should be closed. | Yes |

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| Colin L Weatherall | **Supportive** of the application. Mr Weatherall states that he supports the continued use of the landfill but goes on to list a series of potential community impacts which include odour, environmental, operational noise, leachate control now and in the future, and future use of the landfill for city activity. Mr Weatherall ultimately concludes that he reserves his position pending completion of this s42A report and other documentation. | Yes |
| Otago Fish and Game Council | **Neutral** with respect to the application. The Submitter is the statutory manager of sports fish and game bird resources in Otago and has been involved with Kaikorai Stream for several decades. The Submitter's concerns relate to the potential for offsite leachate migration and the impacts on ecological health and recreational values in the Kaikorai Stream and Lagoon. The Submitter seeks relief in the following five areas to address these concerns: (1) clarification of uncertainties regarding the leachate trench and updates to assessments which evaluate risk associated with leachate, (2) enhanced monitoring protocol for groundwater and ecological health, (3) condition to lower leachate head, (4) design of new section of leachate trench to incorporate resilience to seismic events, (5) any implementation of adaptive management is contingent upon meeting specific | Yes |

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| | principles to ensure that adequate evidence and monitoring are in place. | |
| Te Rūnanga o Ōtākou | **Neutral** with respect to the application. The Submitter states that loss of leachate to Kaikarae Stream and Estuary would have more than minor impacts on the mauri of Kaikarae Stream and Estuary and the aspirations of Te Rūnanga o Ōtākou to provide health habitat for mahika kai and taoka species. The Submitter seeks that the Applicant, in conjunction with mana whenua, investigate the migration of leachate into the Kaikarae Stream and Estuary, investigate the cumulative impacts of leachate on the Kaikarae Stream and Estuary, and develop measures to avoid of mitigate the effects of leachate on the environment. The submitter supports the proposed conditions of consent that implement the recommendations of the CIA. | Yes |

## 4. Description of the Environment

A detailed description of the site and the receiving environment is provided in Section 4 of the s95 Report and in the application documents. At the request of the Commissioner, this description is not duplicated here.

For the purpose of the s104(1)(b) assessment, one clarification is made regarding the proximity of the GIL to the coastal environment. This is not new information; rather it is a clearer way of presenting information.

The site is located well above the landward boundary of the coastal marine area and is therefore not located within the coastal marine area. However, a mapped coastal protection area (CPA22) extends into the Kaikorai Lagoon Swamp adjacent to the landfill. Additionally, the Kaikorai Estuary, located downstream of the site, would be located within the 'coastal environment', as set out in Policy 1 of the

NZCPS (discussed in Appendix B). The proximity of the site to the CMA and the less definitive 'coastal environment' is shown in Figure 1.

In summary, while the site is not located within the coastal environment, and the impacts of the activity are not directly upon the coastal environment, there is potential for indirect effects on the coastal environment, specifically upon the tidal Kaikorai Estuary.


**Figure 1 The site (turquoise outline), the Regionally Significant Wetland Kaikorai Lagoon Swamp (yellow shading), Coastal Protection Area CPA22 (red hashed shading), the river mouth as set by the RPC (red line), and the CMA boundary as set by the RPC (blue line). Source: Otago Maps.**

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## 5. Status of the Application

As set out in the s95 Report, resource consents are required under the following planning instruments:

- Regional Plan: Water for Otago (**RPW**)
- Regional Plan: Waste for Otago (**RPWaste**)
- Regional Plan: Air for Otago (**RPA**)
- Resource Management (National Environmental Standards for Freshwater Regulations) 2020 (**NES-F**)

There are no changes to the rule assessment that was undertaken for the purpose of notification.

One minor correction is noted: RPW rule 12.B.3.1, which enables the discharge of stormwater to water, was described in the s95 Report as a discretionary activity, when in it is in fact a restricted discretionary activity. However, as the same discharge of stormwater to water is also a discretionary activity under regulation 45B(5) of the NES-F, this error did not result in an incorrect activity status for this activity, nor for the overall bundled status of the proposal.

| Activity | Planning Instrument and Rule | Activity Status | Notes |
|---|---|---|---|
| Discharge waste, hazardous waste, and leachate to land, in circumstances which may result in contaminants entering groundwater.<br><br>*To replace resource consents 94262-V1, 94693-V1, 3839A-V1.* | RPWaste 7.6.1(1) and (2) | Discretionary | Contaminants are directly discharged to land and thereafter (in the case of leachate) to groundwater. |
| | RPwaste 6.6.1(1) and (2) | Discretionary | Contaminants (from the small amounts of hazardous wastes that are acceptable in a Class 1 landfill) are directly discharged to land and thereafter (in the case of leachate) to groundwater. |
| | RPW 12.B.4.1 | Discretionary | Landfills are an industrial or trade premises. Contaminants are discharged to land. |
| | RPW 12.B.4.2 | Discretionary | Landfills are an industrial or trade premises. Hazardous |

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| | | | substances (as acceptable in Class 1 landfills) are discharged to land. |
| Take groundwater and connected surface water through the leachate collection trench, and take groundwater from groundwater bores, landfill gas wells.<br><br>*To replace resource consents 4139-V1 and 3839-V1.* | RPW 12.2.4.1 | Discretionary | Groundwater is taken from bores and LFG wells that are more than 100 m from a connected perennial surface waterbody and this water is not allocated as surface water or part surface water under policy 6.4.1A(a)-(c). Chapter 12 rules apply. |
| | RPW 10A.3.1.1 | Controlled | The water permit being replaced expires before 31 December 2025, and the groundwater is taken from the leachate collection trench, and potentially bores and LFG wells, that are within 100 m of a connected perennial surface waterbody and this water is therefore allocated as surface water under policy 6.4.1A.<br>The rules in Chapter 10A apply.<br>All relevant entry conditions of this rule can be met. |
| | NES-F 45B(4) | Discretionary | The taking and use of groundwater will occur within 100m of the natural inland wetlands along the Kaikorai Stream, and there is a hydrological |

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| | | | connection between the take and the wetlands, and the take is likely to change the water level range or hydrological function of the wetlands. |
| Divert surface water and stormwater from working and non-working areas of the landfill, and from the defence against water.<br><br>*To replace resource consents 3839C-V1 and 3840A-V1* | RPW 12.3.4.1 | Discretionary | Cannot meet provisions (a) or (f) of permitted activity rule 12.3.2.1 and is not otherwise provided for in the RPW. |
| | NES-F 45B(4) | Discretionary | The diversion of surface water and stormwater will occur within 100 m of the natural wetlands along the Kaikorai Stream and may potentially change the water level range or hydrological function of the wetlands. |
| Permanent diversion of surface water in the Kaikorai Stream and Brighton Road Stream.<br><br>*To replace resource consents 4140 and 4185.* | RPW 12.3.4.1 | Discretionary | The diversion is historic, is not otherwise provided for by the RPW, and requires ongoing authorisation. |
| | NES-F 45B(4) | Discretionary | The diversion, although historic, is within 100 m of natural inland wetlands along the Kaikorai Stream and is likely to change the hydrological function of those natural inland wetlands. |
| Discharge of surface water and stormwater to the | NES-F 45B(5) | Discretionary | The discharge meets all requirements of regulation 45B(5)(a)- |

| | | | |
|---|---|---|---|
| Kaikorai Stream for the purpose of the operation and closure of a Class 1 landfill<br><br>*To replace resource consent 3840C-V1.* | | | (d) and is therefore a discretionary activity. |
| | RPW 12.B.3.1 | Restricted Discretionary | The discharge of stormwater to water is not otherwise provided for by permitted or controlled activity rules. |
| | RPW 12.B.4.1 | Discretionary | The discharge of surface water, that is not defined as stormwater in the RPW, from an industrial or trade premises, requires resource consent. |
| Discharge of landfill gas, combustion emissions from landfill gas flares and engines, dust, and odour into air, including from the ORB and from the GIWWTP, and including from truck movements within the site.<br><br>*To replace 94524-V1* | RPWaste 7.6.1(3) | Discretionary | The discharge of contaminants (LFG, products of combustion, dust, odour) to air from operating landfills is a discretionary activity. This rule applies to discharges from the GIL site only. |
| | RPA 16.3.5.9 | Discretionary | The discharge of odour from the ORB and products of combustion from the LFG engine and flare located at the GIWWTP (industrial or trade processes) are not covered by the RPWaste because they are not landfilling and they are instead discretionary activities under the RPA. |
| | RPA 16.3.15.5 | Discretionary | Discharges of $PM_{10}$ occurring after 31 August 2013 are |

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| | | | discretionary activities. This rule applies to the discharge of $PM_{10}$ at the GIWWTP. |
| Placement of a defence against water between the landfill and Kaikorai Stream for the purpose of diverting floodwaters. | NES-F 45B(1) and (2) | Discretionary | Vegetation clearance and earthworks for construction of the perimeter road will in some cases be closer than 10 m from natural inland wetlands along the Kaikorai Stream. |
| | RPW 14.3.2.1 | Discretionary | The raising of the perimeter road is for the purpose of flood mitigation; therefore, the road bund is a defence against water. |
| Disturbance of land at a contaminated site for undertaking capping works and installation and maintenance of landfill infrastructure, including the drilling of land to install monitoring wells and LFG wells.<br><br>*To replace resource consent RM21.474.01.* | RPWaste 5.6.1(1) and (5) | Discretionary | The GIL is a contaminated site. Disturbing land on such a site is a discretionary activity. Any discharges of dust or other contaminants to air that occur during the disturbance are also discretionary activities. |

As discussed in Section 5.2 of the s95 Report, the activities were bundled with a discretionary activity status for the purpose of making a notification decision. This was considered necessary to enable a holistic assessment of the proposal and to reflect that the taking of the two 'types' of water are in practice the same activity.

However, as noted in the s95 Report, for the purpose of making a substantive decision on the applications, the controlled activity should not be bundled with the other activities, as to do so would be contrary to the statutory limitations applicable to making decisions on applications for controlled

activities. The application to take and use groundwater that is partially allocated as surface water is a controlled activity and must be granted, irrespective of any decision made on the other activities. It is acknowledged that granting this activity and no others would be of no practical benefit to the Applicant.

## 6. Section 104 Evaluation

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. These matters are subject to Part 2, the purpose and principles, which are set out in Sections 5 to 8 of the Act.

The remaining matters of Section 104 to be considered when assessing an application for a resource consent are:

(a) the actual and potential effects on the environment of allowing the activity;

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

(b) any relevant provisions of a national environmental standard, other regulations, a New Zealand coastal policy statement, a national policy statement, a regional policy statement or proposed policy statement, a plan or proposed plan; and

(c) any other matter the Council considers relevant and reasonably necessary to determine the application.

### 6.1 S104(1)(a) – Actual and potential effects on the environment of allowing the activity

Section 104(1)(a) of the RMA requires the council to have regard to any actual and potential effects on the environment of allowing the activity. This includes both the positive and the adverse effects.

#### 6.1.1 Positive Effects

The application states that the proposal will have the following positive effects:

- Potentially positive ecological effects on avifauna, terrestrial ecology values and fauna habitat.
- Moderate positive social benefit as a result of the continuation of waste services for businesses and residents of Dunedin.
- Significant positive benefits for the community as a result of the closure of the landfill. This includes opportunities for environmental enhancements and public recreational use around the edge of the site.

I agree that the proposal is likely to result in these positive effects.

#### 6.1.2 Adverse Effects

A detailed assessment of adverse effects can be found in Section 6 of the s95 Report. This assessment is not repeated here. Rather, updates to the previous assessment, discussion of issues raised by submitters, and recommendations as to consent conditions are provided below utilising the same

headers that were used in the s95 Report. The below sections rely on the expert evidence which is appended to this report as Appendices D-J.

#### 6.1.2.1 General Matters

The Permitted Baseline

There are no changes to the permitted baseline assessment undertaken for the s95 Report.

The Existing Environment for Reconsenting

The receiving environment was described in the s95 Notification Report and addressed above and is not repeated here. For the avoidance of doubt, the receiving or 'existing' environment used in this assessment of effects does not include the activities occurring under expired consents via s124. The assessment was undertaken on the basis of the hypothetical scenario that no contaminants were emanating from the landfill into land, water, or air, noting that this is a difficult baseline to quantify, given the observable and measurable state of the environment includes these discharges, which cannot simply be 'turned off'.

Throughout this report and the appended policy assessment, where reference is made to water quality or specific freshwater values being 'maintained' this means the activity in question will not cause a noticeable or measurable change in that water quality or freshwater value. This is not the same as saying that no adverse effects are occurring, nor is it including the effects of activities occurring under s124 in the baseline of this comparative assessment. Rather, it is a reflection of the degraded state of the freshwater receiving environment, and a recognition that the contribution of the landfill to that adverse effect is unlikely to cause a measurable change in that water quality or value. This is not a very high bar.

Draft Conditions

A set of recommended consent conditions is attached as Appendix C. The comprise the Applicant's proposed consent conditions (version October 2024) as well as the recommended conditions as set out in the expert evidence Appendices D-J. For ease of comparison, the conditions are presented in the format in which they were provided by the Applicant, rather than in the standard ORC format. At the Commissioner's request, a tracked change version, rather than a clean version, is appended.

As an administrative note, in the event that consents are granted, individual consent documents will be produced for each of RM23.185.01-08, each of which will contain specific conditions relevant to the particular activity, as well as all of the general conditions.

#### 6.1.2.2 Landfill Design

The landfill design aspects of the application were audited by James Elliot of SLR. Expert evidence written by Mr Elliot, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix D.

New information

No new information has been provided by the Applicant since the application was notified, nor was any information requested. I would note that a site visit and an additional meeting between landfill design

experts has taken place since the close of submissions. These were helpful in reaching a degree of agreement in relation to the management of leachate management at the site, although time constraints have prevented any new information from the Applicant being incorporated into this report.

Summary of Evidence

Protecting groundwater and surface water from leachate contamination and protecting people from the adverse effects of landfill gas are the principal environmental performance objectives for landfill design. Protecting the environment and persons from landfill fires is another important consideration.

Mr Elliot evidence covers five key areas: landfill rehabilitation, leachate management, landfill gas management, stormwater management, and landfill fires. Mr Elliot considers that the Applicant has provided technical information pertaining to landfill design that is generally robust and clear about uncertainties and assumptions. Nonetheless, there are a number of matters for which specific recommendations are made to reduce the risk posed by the landfill. These are summarised in Table 2.

Submissions

Three submissions concerned with elements of landfill design were received.

- The submission from Otago Fish and Game Council is primarily concerned with understanding and mitigating the risk posed by the potential offsite migration of leachate on ecological and human health. In relation to landfill design, the submission seeks:
    - A condition to lower the leachate head in accordance with WasteMINZ guidelines.
    - The design of the new leachate collection trench incorporates resilience against seismic events, along with modifications and monitoring procedures for existing infrastructure.

- The submission from Te Rūnanga o Ōtākou is primarily concerned with avoiding adverse effects on mana whenua values. In relation to landfill design, the submission seeks that measures are developed to avoid or mitigate the impacts of leachate on the environment.

- Colin Weatherall submitted on various matters, including leachate control – now and in the future, and the closure of the landfill and future use for city activity. No specific observations, complaints, requests, or recommendations were provided in the submission, so I am unable to comment further at this time. I would invite Mr Weatherall to speak to these issues at the hearing.

The concerns of these submitters are adequately addressed in Mr Elliot's evidence.

Recommended Consent Conditions

Mr Elliot has made a number of recommendations as to information that should be included in consent conditions. Where I have sufficient information to do so, I have translated these recommendations into conditions. Please refer to Appendix C. Where I consider that the Applicant would be best placed to propose appropriate wording, for example, in situations where Mr Elliot has recommended that the Applicant proposed timebound milestones for a series of actions, I have inserted a placeholder

condition. It would be helpful if the Applicant could consider these recommended conditions and respond with suggested wording in their evidence.

***Table 2*** *Recommendations of Mr Elliot*

| Risk | Recommendation |
|---|---|
| Landfill rehabilitation – progressive capping is essential | |
| The final landfill cap grade includes areas with a grade of 2%, which is well below the minimum grade called for in WasteMINZ of 5%. A low grade is associated with risks of surface ponding and increased rainfall infiltration, increasing leachate generation. Where waste placement in a given area is complete, the final cap should be completed as soon as possible. | Revise cap contour to achieve a minimum grade of 4% across the 2.5 ha area that currently has a proposed grade of 2%. All other areas still to be capped should achieve a minimum grade of 5%.<br><br>Prepare timebound milestones for the progressive capping of the landfill. |
| The final cap is a barrier that seals the landfill and prevents percolation of rainfall through the waste. | Update consent condition to reflect the cap profile in paragraph 42 of this evidence. Update relevant landfill plans to reflect the cap profile. |
| Commissioning of LFG infrastructure should minimise the time that waste is without gas collection. | Provide, to the consenting authority, timebound milestones for the commissioning of the new LFG flare, and other LFG management infrastructure including vertical LFG wells. |
| Leachate management – reduce leachate generation rates, reduce leachate head, capture as much leachate as possible. | |
| The significant leachate head within the landfill is a risk for offsite leachate migration, will be impeding landfill gas collection and generation rates, and is not consistent with best practice. | Actively reduce leachate head within the landfill, initially on a trial basis, and thereafter on an ongoing basis as indicated by the trial outcomes. The scope and findings of the trial should be subject to review by ORC.<br><br>In the event that impacts to the environment from elevated leachate levels in the waste mass are detected, then a long-term target leachate head, based on a Hydrogeological Assessment or equivalent, is to be derived as a practicable target leachate head which reduces the potential impact to the environment for consideration by ORC.<br><br>Horizontal leachate collection drains should be installed within the waste mass and used to improve leachate removal wherever possible. |
| The leachate collection trench does not fully encircle the landfill perimeter. The shallow surface drain along the southern boundary of the | Extend the leachate trench, as described in the application. This should be subject to detailed |

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| landfill may not capture all leachate seepage emanating from the valley. | design by suitably qualified and experienced engineers.<br><br>The condition requiring the Annual Monitoring Report should be updated to include the details of any upgrades to the LFG management systems. |
| The culvert linking the southeastern and eastern constructed wetlands is damaged and leachate is seeping into this culvert. | Implement, as a priority, remedial measures to repair the culvert linking the southeastern and eastern constructed wetlands.<br><br>*It is noted that the application states this repair would be completed by March 2025. At the February 2025 site visit, repair works did not appear to have been started.* |
| The NLP discharges to the Kaikorai Stream in high rainfall events. | Manage levels in pond to reduce the likelihood of overflow events.<br><br>Undertake periodic monitoring of the northern leachate pond to understand the quality of water which may be discharged to the environment during prolonged rainfall events. |
| LFG – odour, greenhouse gas emissions, risks to human health | |
| The LFGRA is not informed by a robust data set or adequate conceptual model. The risk of subsoil migration of LFG is low, but should be better understood. | Prepare an updated LFGRA utilising a more robust data set, conceptual site model, and assessment of risk.<br><br>Prepare a LFG management plan which includes a LFG monitoring programme. This should be driven by the outcomes of the LFGRA and industry best practice. |
| LFG treatment capacity is insufficient to manage the future LFG collection rates. The existing flare and LFG engine have significant downtime. | Increase LFG treatment capacity to ensure that all captured LFG can be treated now and in the future, even during periods of downtime of the flare or engine. |
| Minimise the time any waste is without LFG collection | Expand the LFG network both vertically and laterally.<br><br>Provide to the consenting authority detailed timing of expansion works relating to the LFG collection network compared to waste placement in each area. |

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| | Ensure that as the LFG collection network is expanded (laterally and vertically) the design of expansion infrastructure ensures that LFG is collected throughout the full vertical profile of placed waste (e.g. through slotted or perforated vertical pipework) and laterally with horizontal pipe work.<br><br>Ensure that where practical and appropriate, horizontal LFG collection wells are incorporated into the LFG collection system to enable capture of LFG at the earliest opportunity, particularly where vertical gas wells are not consider practical or where there is a time lag between waste placement and installation of vertical wells.<br><br>LFG extraction pipework should be connected to the LFG extraction system as soon as is practicable, noting that care must be taken not to introduce oxygen into the waste mass.<br><br>Provide to the Consent Authority as-built construction reports and surveys demonstrating the location, extent, and nature of the upgrades in the Annual Monitoring Report.<br><br>Revise existing condition 24 of the discharge permit authorising discharges to air, to specify a more conservative trigger for LFG surface emissions through the final cap. It is suggested that this limit be 1,000 ppm or less.<br><br>Update advice note under condition 25 of the discharge permit authorising discharges to air to require monitoring of surface emissions and subsurface geology during falling or low atmospheric pressure conditions.<br><br>Condition 10 of the discharge permit authorising discharges to air should be revised to specify a shorter timeframe than two years for the installation of LFG collection wells following placement of waste. It is recommended that six months be adopted. |

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| | The condition requiring the Annual Monitoring Report should be updated to include the details of any upgrades to the LFG management systems. |
| Stormwater Management – separate clean, dirty, and contaminated waters; minimise ingress of surface water into waste body. | |
| Current practice has runoff from intermediate capped areas is treated as leachate. | Runoff from intermediate capped areas must be treated as leachate, and the LDMP updated to reflect this practice. |
| More contaminated waters should not mix with less contaminated waters. | Ensure that to the extent practicable, different types of surface runoff are separated, to reduce the potential for contamination of runoff water, and to reduce the volume of leachate and sediment runoff. |
| Landfill Fires – human health and environmental risks | |
| The risk of landfill fires should be thoroughly understood and documented. | Prepare a Landfill Fire Risk Assessment which includes consideration of the potential for subsurface fires.<br><br>Update the Fire Management Plant to include the management of battery-related fire, including the provision for such a fire to be extinguished by dumping in a dedicated fire-safe area away from the waste mass and other infrastructure.<br><br>Compile and provide the results and monitoring records relating to the thermal monitoring of the active tip face (via the fixed-mount thermal imaging camera) within the Annual Monitoring Report.<br><br>Include a monitoring requirement for the detection of odours that may be indicative of subsurface fires. |

Conclusions

Within the constraints posed by the age and unfavourable location of the Green Island Landfill, there are avenues available for improved landfill management that would reduce the risk posed to the environment and persons. These include reduction of the leachate head, increased ability to capture and treat LFG, and increased understanding of the risk posed by landfill fires, and to a lesser extent given the shallow groundwater and low permeability soil, subsoil migration of LFG.

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse effects of the proposal can be managed appropriately, in terms of landfill design.

**6.1.2.3 Stability Effects**

The geotechnical aspects of the application were audited by Matthew Adamson of SLR. Expert evidence written by Dominic Trani, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix E.

New information

No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Summary of evidence

As set out in the evidence of Dr Trani, there are no areas of disagreement in relation to the potential adverse geotechnical effects. Several recommendations in regard to more sophisticated analysis and advanced field/laboratory testing and instrumentation monitoring are made; however, these are simply recommendations for improvement and are not deemed critical to this assessment of effects. In concluding comments Dr Trani states:

*"Overall, the approach taken by GHD for slope stability and liquefaction assessment have provided an understanding of the associated risks, anticipated ground displacements and movements. The cross-sections are understood to represent critical conditions, satisfy the target slope factors of safety together with the displacement tolerance limits outlined by GHD for all SLS and ULS load cases with appropriate groundwater conditions considered. Remedial measures have been recommended by GHD which minimise the level of adverse effects on people and the environment and are considered reasonably acceptable."*

Submissions

One submission was received which speaks to concerns about seismic resilience:

- Otago Fish and Game Council consider that seismic events are a realistic scenario that need to be planned for. They request that:
    a) The proposed new section of leachate trench be designed with resilience to the expected deformations under an ULS seismic event; and
    b) Mitigation and monitoring procedures be put in place for existing subsurface drainage infrastructure to limit adverse effects on persons and the environment to within acceptable tolerance levels.

These concerns are adequately addressed in Dr Trani's evidence.

Recommended Consent Conditions

Dr Trani recommends that the proposed new section of leachate trench be designed with resilience to the expected deformations under a ULS seismic event. This aligns with Mr Adamson's earlier technical review. This is captured in the suite of recommended consent conditions, attached as Appendix C.

Conclusions

There is a good level of agreement between the Applicant and independent reviewer Dr Trani in relation to the anticipated adverse geotechnical effects. Subject to the recommended consent conditions being adopted, I am satisfied that the adverse effects of the proposal can be managed appropriately.

**6.1.2.4 Flooding and Sea Level Rise Effects**

The assessment in the s95 Report relied on the expert opinion of Tim Baker of SLR. Expert evidence written by Mr Baker, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix F.

New Information

No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Summary of Evidence

As set out in the evidence of Mr Baker, there are no areas of disagreement in relation to the potential adverse effects from climate change-induced flooding, sea level rise, or the diversion of flood flows by the defence against water (perimeter berm). Adverse effects are expected to be negligible.

Relevant Submissions

No submissions identified effects relating to flooding, or the diversion of flood flows away from the landfill, as a concern.

Recommended Consent Conditions

The consent conditions proposed by the Applicant are considered appropriate and are included in the suite of recommended conditions attached as Appendix C.

Conclusions

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse effects of the proposal can be managed appropriately, in terms of flooding and sea level rise.

**6.1.2.5 Effects on Groundwater**

The groundwater aspects of the application were audited by Tim Baker of SLR. Expert evidence written by Mr Baker, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix F.

New information

No new information has been provided by the Applicant since the application was notified, nor was any information requested. I would note that a site visit and an additional meeting between groundwater experts has taken place since the close of submissions. These were helpful in reaching a degree of agreement in relation to the groundwater monitoring well network, although time constraints have prevented any new information from the Applicant being incorporated into this report.

Summary of Evidence

The primary issue is the potential for leachate, which is present within and indistinguishable from groundwater, to migrate offsite and enter surface water. There are two lines of evidence which provide a basis for these concerns:

1. The leachate collection trench does not fully encircle the site, and its base is located in the Upper Kaikorai Estuary Member (UKEM). While this trench likely intercepts a reasonable proportion of shallow leachate, there is potential that deeper leachate could migrate outwards from the site, below the base of the trench but above the underlying mudstone.
2. Typical leachate indicators (ammoniacal-nitrogen, boron, arsenic, iron, PFAS) are observed in some deep wells located outside the leachate trench. The application suggests that naturally low oxygen and reduced conditions in the estuarine sediments could be the reason for the elevated ammoniacal nitrogen and iron, and that the presence of boron and elevated chloride reflect the marine influence. Mr Baker agrees that these are potential explanations; however, the presence of arsenic and PFAS compounds does suggest an anthropogenic influence on groundwater at these locations.

Submissions

Two submissions were received which spoke to concerns about groundwater, either specifically or in relation to groundwater acting as a conduit to surface water.

- The Otago Fish and Game Council submission raises the following concerns:
    a) Clarification on the effectiveness of the leachate trench in preventing the off-site migration of leachate;
    b) That monitoring protocols are enhanced to assess off-site leachate migration in groundwater;
    c) The inclusion of additional monitoring wells to improving monitoring coverage;
    d) The implementation of adaptive management be contingent upon meeting specific principles that ensure adequate evidence and monitoring are in place to effectively manage uncertainties and mitigate environmental risks associated with leachate management.

- The Te Rūnanga o Ōtākou submission raises the following concerns:
    a) That all possible measures are taken to preventing leachate from entering groundwater;
    b) Whether the monitoring network is adequate; and
    c) Whether elevated levels of ammoniacal-nitrogen, boron, and zinc (all leachate indicators) are attributable to natural estuarine conditions, or another source.

The concerns of these submitters are adequately addressed in Mr Baker's evidence.

I would note also that the submission of Colin Weatherall lists "leachate control now and in the future" and "environmental" as items that he would like to discuss with the Commissioner. It is therefore possible that Mr Weatherall would like to be heard in relation to the discussion in this section.

Recommended Consent Conditions

As set out in his evidence, Mr Baker's key recommendations are:

1. additional deep monitoring wells are installed at specific locations (lines 1 and 3, and a cluster of wells near the western sedimentation pond) and the map referenced in conditions is updated to include these; and
2. metals and boron are monitored quarterly rather than annually; and
3. groundwater monitoring data is compared to updated trigger levels derived from the most recent five years' data.

Mr Baker is otherwise supportive of the groundwater and surface water monitoring and adaptive management conditions proposed by the Applicant.

I agree with all of Mr Baker's recommendations as to consent conditions. I agree that the additional wells and the modifications to the Applicant's proposed conditions are appropriate and are essential to establish whether and to what extent leachate is migrating from the landfill into the surface water receiving environment. The suite of recommended consent conditions in Appendix C reflects this.

I note that the drilling of new monitoring wells is an activity that may require authorisation by a separate resource consent. While this application RM23.185 would enable the Applicant to drill additional gas wells or groundwater monitoring wells in contaminated soils within most areas of the site, it would not enable the drilling of groundwater monitoring wells within 10 m of a natural inland wetland, or between 10-100 m from a natural inland wetland, if that drilling would result in any drainage of the wetland.[1] For this reason, I have recommended a new consent condition (General Condition 39) as follows, to ensure that new wells are constructed and monitoring commences in a timely manner:

*The Consent Holder must:*

*a) lodge an application to drill the new groundwater monitoring wells specified in General Condition 40 and Attachment A to this schedule, by 31 August 2025, if this is required to comply with the Resource Management (National Environmental Standards for Freshwater Management) 2020, or any other relevant standard or rule;*

*b) construct the new wells as soon as reasonably practicable following the granting of any consent obtained in accordance with part (a) of this condition; and*

*c) commence groundwater monitoring from the new wells in the quarterly monitoring cycle immediately subsequent to the completion of well construction.*

I acknowledge that unless and until the Applicant explicitly agrees to this condition, parts (b) and (c) of this condition are *ultra vires.*

<u>Ultra vires condition and alternative recommendation</u>

To cover all reasonably possible scenarios, I have considered a scenario where the Applicant will not agree to the condition above (or a minor variation thereof). In this case, I would recommend that instead of the installation of additional groundwater wells and monitoring to demonstrate whether or not adverse effects from leachate are occurring, the Applicant must instead move straight to General Condition 52 and install engineering measures to avoid or significantly minimise the offsite migration

[1] NES-F regulation 45B(2) and (3).

of leachate, as if this migration had been confirmed. This is because the existing monitoring well network is not adequate, and surface water monitoring on its own will not likely be sufficient to detect and quantify any leachate effects;[2] hence, the only other reasonable option is to move straight to implementation of the measures that would be required in the event that the groundwater monitoring confirmed effects from offsite leachate migration.

Conclusions

There remains uncertainty about whether, and to what extent, leachate may be migrating offsite and entering surface water; however, there are two lines of evidence that suggest that this is reasonably likely scenario. Consent conditions are recommended which will ensure that the monitoring well network is expanded, additional information is obtained and interpreted, and measures to avoid or mitigate the effects of leachate are implemented, if adverse effects are observed.

It is my understanding that the condition I have proposed above and the general monitoring approach recommended by Mr Baker are acceptable to the Applicant. In my opinion, the monitoring approach is the most pragmatic option in the circumstances and is preferable to the immediate adoption of new engineering solutions to manage leachate, which are likely to be extremely expensive. On this basis, the rest of this report, the policy assessment, and the recommended consent conditions are set out as if the Applicant has agreed to the condition proposed above.

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse groundwater effects of the proposal can be managed appropriately.

**6.1.2.6 Effects on Surface Water**

The surface water aspects of the application were initially audited by Claire Conwell of SLR. Dr Conwell has since left SLR, and expert evidence written by Pete Wilson for the purpose of this hearing is appended to this report as Appendix G.

New information

No new information has been provided by the Applicant since the application was notified, nor was any information requested. I would note that a site visit and an additional meeting between surface water experts have taken place since the close of submissions. These were helpful in reaching a degree of agreement in relation to the future surface water monitoring, although time constraints have prevented any new information from the Applicant being incorporated into this report.

Summary of evidence

In his evidence, Dr Wilson sets out the current state of the receiving environment, distinguishing between Kaikorai Stream and Kaikorai Estuary. Upstream of the landfill, the stream is generally considered degraded, with poor water quality. However, except for *E. coli* (below national bottom line) and clarity (worst 50% of streams), all reported parameters are in the best 50% of lowland urban streams in New Zealand. The mid and upper sections of the estuary have elevated levels of mud and sediment nitrogen. Elevated levels of zinc are present in the mid-section of the estuary, where it is more sheltered and depositional.

[2] Evidence of Dr Wilson, paragraph 48

There are two discharges of relevance to surface water quality effects. Firstly, the discharge of stormwater,[3] which may contain sediment and presumably other contaminants bound to sediment. Secondly, the diffuse discharge of leachate into surface water, potentially resulting from the migration of hydrologically connected leachate-contaminated groundwater beneath the trench.

Dr Wilson identifies three surface water quality issues that warrant further consideration:

1. Potential leachate migration

Dr Wilson considers that this primarily dealt with via the additional groundwater monitoring recommended by Mr Baker. If groundwater monitoring confirms offsite leachate migration, Dr Wilson recommends a targeted surface water monitoring approach that focusses on the areas where leachate is likely entering the environment. Dr Wilson notes that the diffuse nature of the leachate discharge and the degraded state of the stream and estuary would likely make measuring the effects of leachate migration difficult in surface water.

2. Contribution of discharges to a degraded system

The Applicant's assessment of effects of stormwater discharges from the landfill on the Kaikorai Stream and Estuary is based on whether contaminant concentrations are higher downstream of the landfill than upstream. Both the stream and estuary are degraded environments, with a range of catchment derived pressures. Dr Wilson states that where there is evidence of upper catchment stress to downstream receiving environments, the state of water quality (in downstream receiving environments) should not be further degraded and, instead, should be improved where possible. As such, there are limitations to the Applicant's assessment which is predicated on the ability to detect changes in water quality from discharges in an already degraded environment. Dr Wilson suggests that it would be more appropriate to assess the contribution of the proposed discharges to the contaminant loads in the receiving environment.

The key issues in the Kaikorai Estuary are elevated muddiness, sediment nutrient enrichment, and in the mid-harbour, elevated levels of zinc. The effects of the discharges on sediment loads in the stream or estuary cannot be assessed because the application did not include monitoring data for total suspended solids. Dr Wilson notes that this a key stressor on the environment and should be included in future monitoring. Nitrates and ammoniacal nitrogen data would indicate that the risk to aquatic species (toxicity effects) from stormwater discharges is low, but discharges still contribute to nitrogen load and nutrient enrichment. Dr Wilson recommends specific limits for nitrates and ammoniacal nitrogen to continue to avoid toxicity. Dr Wilson also recommends a specific limit for zinc to manage zinc loads within the estuary.

In general, Dr Wilson concludes that the stormwater discharges from the landfill do contain nutrients and zinc (and presumably suspended sediment) that will contribute to some extent to the state of the

[3] Stormwater in this report is runoff from pervious surfaces that may contain elevated levels of sediment but does not contain leachate.

Kaikorai Estuary. Based on the identified issues in the Kaikorai Estuary (muddiness, nutrient enrichment, and elevated zinc), the overarching recommendation from Dr Wilson is that it would be beneficial to reduce the inputs of these where possible.

3. Cumulative effects.

Given the degraded state of Kaikorai Stream and Estuary, and the range of catchment derived pressures, it is appropriate to consider how the stormwater discharges (and the leachate discharges, if occurring) contribute to contaminant loads within this environment, rather than simply focussing on whether they further degrade water quality. In conclusion, cumulative effects have not been satisfactorily addressed to date, but the additional monitoring will inform the revision to the HHERA in three years' time, which will contribute to a better understanding of the degree to which the landfill contributes to cumulative effects. Three years additional data will provide data certainty of the risk to human health and the environment.

Submissions

Two submissions were received which spoke to concerns about surface water:

- Te Rūnanga o Ōtākou have requested that the Applicant, in collaboration with mana whenua, should investigate the potential migration of leachate into the Kaikorai Stream and the cumulative impacts leachate has on the Kaikorai Stream and Estuary.
- Otago Fish and Game Council raise a number of concerns relating to surface water quality as a result of potential offsite migration of leachate, and the uncertainty of the HHERA.

The concerns of these submitters are adequately addressed in Dr Wilson's evidence.

I would note also that the submission of Colin Weatherall lists "leachate control now and in the future" and "environmental" as items that he would like to discuss with the Commissioner. It is therefore possible that Mr Weatherall would like to be heard in relation to the discussion in this section.

Recommended Consent Conditions

Dr Wilson supports the additional groundwater monitoring conditions recommended by Mr Baker. Additionally, Dr Wilson recommends that:

- Metals are sampled quarterly at all surface water locations.
- The suite of metals sampled is increased to include zinc and copper.
- Total suspended solids should be added to the quarterly monitoring programme to understand the potential effects of sediment in the stormwater discharges upon muddiness in the estuary.
- *E. coli* and enterococci are added to the quarterly monitoring schedule.
- Specific limits are set for parameters being monitored. These should be based on the ANZG 80% DGV or the historic operating limits, whichever is lower. Historic data indicates that such limits are achievable. These are not intended to be compliance limits; rather, they are action limits which, if exceeded would trigger a response, such as re-testing or other investigations. These are included as Attachment 1 of Dr Wilson's evidence.
- The HHERA should be reviewed and updated within three years of consent being granted.

- A surface water adaptive management plan should be developed if groundwater monitoring indicates that offsite migration of leachate is occurring.

I agree with all of Dr Wilson's recommendations as to consent conditions. I agree that the inclusion of limits for all parameters is sensible, will ensure that effects do not drift upwards from the anticipated levels, and will enable easier interpretation of results by site staff and by any compliance officer. The suite of recommended consent conditions attached as Appendix C includes Dr Wilson's recommended conditions.

Conclusions

In summary, Dr Wilson considers that stormwater discharges and sediment are generally well managed in accordance with best practice. Where data is available, contaminants of concern are typically below relevant guideline levels, which protects against toxicity effects in aquatic species, but does not preclude contribution to contaminants loads in the receiving environment. Leachate discharges, if occurring, are presumably of small volume. In the short-term during continued landfilling, water quality within the receiving environment is likely to be maintained. Longer-term, following landfill closure and the progressive conversion of landfill catchments to cleaner catchments, water quality may improve. However, ongoing monitoring is required to ensure that:

- Actual effects are as expected;
- To understand the impact that leachate may be having;
- On-site issues can be detected and remediated;
- There is an improved understanding of the contribution to cumulative effects water quality, human health, and ecological effects within the catchment.

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse surface water effects of the proposal can be managed appropriately.

**6.1.2.7 Ecological Effects**

The assessment in the s95 Report relied on the expert opinion of Elizabeth Morrison of SLR. Expert evidence written by Ms Morrison, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix H.

New Information

No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Summary of Evidence

As set out in the evidence of Ms Morrison, there are no significant areas of disagreement in relation to the potential adverse effects on avifauna, terrestrial ecology, or aquatic ecology. As a brief summary:

- Avifauna – Food supply for birds (from the landfill) will reduce over time, which will have a low adverse effect, but the closure of the landfill will have a positive effect on avifauna utilising the nearby estuary, as a result of the decreased contaminants inputs after closure. Consent conditions are recommended in relation to the protection of nesting native birds during any

vegetation removal considered as part of the VRMP. Overall, negligible adverse effects on avifauna are expected.

- Terrestrial ecology – Continued operation of the landfill will have minimal impact on fauna due to low habitat values and landfilling occurring within areas previously cleared of native vegetation. Consent conditions are recommended to ensure that the habitat value provided by existing large exotic trees is considered when developing the VRMP.
- Aquatic ecology and significant wetland areas – it is unlikely that the health of significant areas of stream or wetland will be adversely impacted, and freshwater species present within the stream and estuary are generally tolerant freshwater communities (able to tolerate some level of pollution). No specific ecological monitoring conditions are recommended, but the recommendations of Mr Baker and Dr Wilson are supported.

Adverse ecological effects range from low to very low.

Relevant Submissions

Two submissions were received which spoke to concerns about biodiversity or ecology, both primarily in relation to uncertainty about leachate effects.

- Te Rūnanga o Ōtākou seek that the Applicant, in collaboration with mana whenua, investigate and manage potential leachate effects and management of these effects, such that the mauri of Kaikarae Stream and Estuary is protected and the aspirations of Te Rūnanga o Ōtākou to provide healthy habitat for mahika kai and taoka species are supported.
- Otago Fish and Game Council seek clarification as to the potential leachate effects and updates to the HHERA to support their goal of rehabilitation of Kaikorai Stream and Estuary to support the maintenance and enhancement of fish and game resources in Otago for the recreational interests of anglers and hunters.

These concerns are generally addressed in the groundwater and surface water sections.

Recommended Consent Conditions

As set out in her evidence, Ms Morrison recommends that:

- The conditions recommended by Mr Baker and Dr Wilson are adopted.
- A condition specifically requires implementation of the VRMP within an agreed timeframe.
- A condition requiring the Applicant to avoid disturbance of native nesting birds as part of any tree removal that may occur as part of the implementation of the VRMP.
- Completion reports for planting should be included within the annual monitoring report.
- An adaptive management plan is developed in the event that the additional groundwater monitoring demonstrates that leachate is migrating beyond the trench. This should be in accordance with the recommendations of Dr Wilson.

These recommendations are accepted and included within the suite of recommended consent conditions attached as Appendix C.

Conclusions

There will be no direct impacts on terrestrial or aquatic ecology from the continued operation and closure of the landfill. No new areas of native vegetation or watercourses will be impacted by the proposed activities. In general, adverse ecological effects will be low to very low, noting that further information is required to understand the potential cumulative effects of any leachate loss. The consent conditions recommended by Mr Baker and Dr Wilson are supported by Ms Morrison in this regard. Ms Morrison does note that while the closure of the landfill will contribute to water quality improvement, the wider catchment issues may mean it could be many years before the aspirations of the submitters in relation to catchment improvements could be achieved.

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse effects of the proposal can be managed appropriately.

**6.1.2.8 Effects relating to Bird Hazards and Pests**

There is no change from the assessment provided in the s95 Report. Adverse effects relating to bird hazard will be addressed via the SBBG Management Plan to ensure there is no increased risk to aviation hazard associated with the continued operation and closure of the GIL. Adverse effects relating to other pest plants and animals will be managed by the LDMP and by professional pest control operators.

No new information has been provided by the Applicant since the application was notified, nor was any information requested.

No submissions have been received that raise concerns about bird hazard or nuisance effects from birds or other pests.

The Applicant has proposed consent conditions requiring implementation of the SBBG Management Plan and requiring management of pest plants and animals. These conditions are considered appropriate and are included in the suite of recommended conditions attached as Appendix C.

Subject to the recommended consent conditions being adopted, I am satisfied that the adverse bird hazard and pest effects of the proposal can be managed appropriately.

**6.1.2.9 Effects on Air Quality**

The assessment in the s95 Report relied on the expert opinion of Tracy Freeman of Jacobs. Expert evidence written by Ms Freeman, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix I.

<u>New Information</u>

No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Since the notification decision was made on this application, a decision was issued for related application RM24.143 – construction and operation of the RRPP.[4] Resource consents authorising construction activities were granted for a term of ten years; consents for operational activities were

[4] Decision issued by Independent Commissioner Myles McCauley 11 December 2024

granted for 35 years. The decision found that the construction and operation of the RRPP is likely to have less than minor adverse odour effects in isolation and minor adverse odour effects in combination with other sources. These effects would be relatively localised, affecting nearby sensitive receivers located in the Clariton Avenue and nearby Brighton Road areas. The construction and operation of the RRPP will occur concurrently with the continued operation and closure of the landfill.

Considering cumulative effects from the perspective of this application, on its own the landfill will have more than minor adverse effects upon a wider range of sensitive receptors than were considered by the RRPP. The findings of the RM24.143 decision indicated that any additional contribution of odour from the RRPP will not significantly alter the odour experience for any sensitive receptors who may be subject to cumulative odours with the landfill.

Summary of Evidence

Ms Freeman adopts her previous Technical Review Letter as her main evidence.[5] The primary air quality effect of concern is odour. Ms Freeman remains of the opinion that offsite odours may be offensive or objectionable on some occasions, despite the implementation of the additional mitigation measures that were set out in the application. Ms Freeman considers that this opinion is supported by the Venables' submission, as well as by the updated odour complaints data.

There are no changes to the dust or landfill gas assessment that was provided in Section 6.11 of the s95 Report. In summary, it is unlikely that dust will cause any adverse effects beyond the site boundary, and there is low potential for offsite effects resulting from landfill gas, or the contaminants produced by the combustion of landfill gas, subject to recommended consent conditions being adopted.

Submissions

Two submissions relating to air quality were received.

- Colin and Carol Venables state that they are regularly adversely affected by odour and that they have made numerous complaints to this effect. Mr and Mrs Venables seek a "massive improvement" in odour control at the landfill and take the position that any odour beyond the site boundary should result in closure of the landfill.

- Colin Weatherall submitted on various matters, including potential community impacts from odour. No specific observations, complaints, or recommendations were provided in the submission.

These concerns are adequately addressed in the evidence of Ms Freeman.

Recommendations and conditions of consent

Ms Freeman considers that the conditions proposed by the Applicant are largely appropriate but recommends a limited number of additions and modification. In summary these are:

[5] RM23.185 – Dunedin City Council – Technical Audit Responses – October 2024 Update; Air Discharges" dated 30 October 2024

a) Field odour monitoring and adaptive management of on-site operations and mitigation measures in response to monitoring outcomes, using the same wording accepted by DCC for the RRPP consents.
b) Amendment of the landfill surface methane monitoring condition to clarify the anticipated methodology and increase the monitoring frequency until landfill closure, consistent with the wording in the consents for Southern Landfill.
c) Monitoring of biogas hydrogen sulphide composition and gas flow rates at the engine and flare.
d) Clauses added to the Annual Monitoring Report requirements to ensure that outcomes of (a) to (c) above are included in the report.
e) Annual independent review of odour management, monitoring and complaints to ensure that the landfill operates with as little emission of odour as possible.

I agree that these changes provide greater certainty that discharges will be managed to avoid or minimise adverse effects and will allow for early detection and remediation of any issues. These conditions are incorporated into the suite of recommended consent conditions attached as Appendix C.

Conclusions
Even with best practice management measures, it is not possible to eliminate odours at any landfill. However, subject to the recommended consent conditions being adopted, I am satisfied that the potential adverse air quality effects can be managed appropriately.

**6.1.2.10 Landscape, Natural Character, and Visual Effects**
The assessment in the s95 Report relied on the expert opinion of Rachael Annan of SLR. Expert evidence written by Ms Annan, provided after close of submissions and for the purpose of this hearing, is appended to this report at Appendix J.

New Information
No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Note:
A meeting between landfill design experts was recently held, at which the possibility of increasing the landfill cap gradient was discussed, for reasons of improved stormwater and leachate management. Although time constraints have prevented the Applicant providing any new information that could be included in this report, it is my understanding that the Applicant is considering increasing the final cap gradient in some areas, but *this would not change the maximum final height of the landfill from the 31.5 m amsl that was proposed in the application.* Ms Annan's evidence has been prepared on the basis that if any changes to cap grade are proposed by the Applicant the final landfill height will be no more than 31.5 m amsl, after accounting for settling of waste.

Summary of Evidence
As set out in the evidence of Ms Annan, there are no areas of disagreement in relation to the potential adverse landscape effects, which are considered to be low to very low. Within the context of agreement as to the actual and potential adverse effects, Ms Annan proposes some modifications to the VRMP

consent conditions, to account for the fact that the VRMP will not be produced until after consents are granted. This is discussed in more detail below.

Relevant Submissions
One submission was received which spoke to landscape management:

- Te Rūnanga o Ōtākou supports the proposed conditions of consent that implement the recommendations of the cultural impact assessment. In relation to landscape matters, this includes the preparation of the VRMP in consultation with Te Rūnanga o Ōtākou.

Recommended Consent Conditions
In recommending modifications to the consent condition that requires preparation of the VRMP, Ms Annan seeks balance, noting that the VRMP serves several purposes. In particular, Ms Annan notes that replacing established exotic planting with native planting should not unnecessarily compromise vegetative screening, and that the scenic value afforded and/or habitat provision of established exotic planting should also be addressed. Ms Annan also recommends that a condition requires implementation of the VRMP, not just its preparation. Ms Annan's recommended changes can be found at paragraph 18 of her evidence.

I agree that the proposed modifications enhance the VRMP conditions and will ensure that the landscape, ecological, and cultural effects are given equivalent importance. I also agree that a condition requiring the implementation of the VRMP is required. The suite of recommended consent conditions attached as Appendix C includes Ms Annan's recommendations.

Conclusions
Subject to the recommended consent conditions being adopted, I am satisfied that the adverse landscape effects of the proposal can be managed appropriately.

**6.1.2.11 Effects on Human Health**
No new information has been provided by the Applicant since the application was notified, nor was any information requested.

Based on the expert evidence of Mr Elliot, Mr Baker, Dr Wilson, and Ms Freeman, potential adverse effects on human health are likely to be minimal, subject to the recommended consent conditions set out in other sections of this report being adopted.

**6.1.2.12 Effects on Mana Whenua Values**
Te Rūnanga o Ōtākou provided a submission on the application. The contents of this submission, and the consent conditions recommended to address mana whenua concerns, have been discussed in Sections 6.1.2.2, 6.1.2.5, 6.1.2.6, 6.1.2.7, and 6.1.2.10.

I would invite Te Rūnanga o Ōtākou to provide feedback on the adequacy of the recommended consent conditions at addressing adverse cultural effects.

**6.1.2.13 Other Community Effects**

The Social Impact Assessment (**SIA**) considers:

- Health and wellbeing – Changes in the surrounding environment as a result of the proposal could have an impact on the health and wellbeing of the surrounding population.
- Economy, businesses and employment – Impacts on the local and regional economy. Consideration is also given to value of surrounding properties.
- Amenity and character – Changes to amenity can impact people's way of life, and what people value about their community including their fear and aspirations for its future.
- Fears and aspirations – The community's perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

New information

No new information has been provided by the Applicant since notification, nor was any information requested.

Submissions

One submission concerned specifically with community effects was received:

- Colin Weatherall indicated in his submission that he would like to be heard on various matters, including potential community impacts from the landfill, both during the proposed continuation of landfilling and closure. No specific observations, complaints, or recommendations were set out in the submission, so I am unable to comment further at this time.

I would note that the remaining three submissions could all be construed as relating to 'community effects' in that they relate to potential adverse effects that could impact upon the wider community, and not just themselves as individuals or entities. However, the specific concerns of these submissions have been adequately addressed in other sections of this report.

Recommended consent conditions

The Applicant has proposed several conditions that relate to the formation and management of a Community Liaison Group for the purpose of facilitating ongoing engagement between the consent holder and community on the operation and closure of the landfill. These conditions are considered appropriate and have been included in the suite of recommended consent conditions attached to this report as Appendix C.

Conclusions

Subject to the recommended consent conditions outlined in this section and in preceding sections 6.1.2.2 to 6.1.2.12 being adopted, I am satisfied that the potential adverse community effects can be managed appropriately.

**Summary – Actual and Potential Effects**

Taking into consideration both the positive and adverse environmental effects, the actual and potential effects on the environment are considered on balance to be acceptable and will be well managed in accordance with consent conditions.

## 6.2 S104(1)(ab)

The Applicant has not proposed or agreed to offset or compensate for any residual adverse effects that may result from the proposal, nor do I consider that any such measures are necessary.

## 6.3 S104(1)(b) Relevant Planning Documents

The relevant planning documents in respect of this application are:

- National Policy Statement for Freshwater Management 2020
- New Zealand Coastal Policy Statement 2010
- National Policy Statement for Indigenous Biodiversity 2023
- Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007
- Resource Management (Measuring and Reporting of Water Takes) Regulations 2010 and Amendment Regulations 2020
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020
- Resource Management (National Environmental Standards for Air Quality) Regulations 2004
- Operative Otago Regional Policy Statement
- Proposed Otago Regional Policy Statement
- Regional Plan: Water for Otago
- Regional Plan: Waste for Otago
- Regional Plan: Air for Otago

The following planning documents are not considered to be relevant to this application and are not discussed any further in this report:

- National Policy Statement for Greenhouse Gas Emissions from Industrial Process Heat 2023
- National Policy Statement for Highly Productive Land 2022
- National Policy Statement for Renewable Electricity Generation 2011
- National Policy Statement on Electricity Transmission 2008
- National Policy Statement on Urban Development 2020
- Resource Management (National Environmental Standards for Commercial Forestry) Regulations 2023
- Resource Management (National Environmental Standards for Telecommunications Facilities) Regulations 2016
- Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009
- Resource Management (National Environmental Standard for Marine Aquaculture) Regulations 2020
- Resource Management (National Environmental Standard for Storing Tyres Outdoors) Regulations 2021
- Resource Management (National Environmental Standards for Greenhouse Gas Emissions from Industrial Process Heat) Regulations 2023

### 6.3.1 National Policy Statement for Freshwater Management 2020

The National Policy Statement for Fresh Water Management 2020 (**NPS-FM**) provides direction to local authorities and resource users regarding activities that affect the health of freshwater and sets out the national objective and policies for freshwater management under the RMA.

The NPS-FM came into force on 3 September 2020, replacing the previous NPS-FM 2014. Part 2 of the NPS-FM sets out the national objective for future freshwater management and 15 separate policies that support this objective.

Section 104 of the RMA has been amended to include section 104(2F) which provides that when considering an application and any submissions received, a consent authority must not have regard to clause 1.3(5) or 2.1 of the NPSFM 2020 (which relates to the hierarchy of obligations in the NPSFM 2020). Subsection (2F) applies despite subsection (1)(b)(iii) and any other provision of the RMA.

The amendment to section 104 applies to applications for a resource consent that is lodged with a consent authority before commencement of the amendments if the consent authority has not served notice of its decision on the application.

As a result, clause 1.3(5) and clause 2.1 (the objective) of the NPSFM 2020 has not been assessed.

The policies in the NPS-FM are relevant when considering an application for an activity which may adversely affect freshwater. The NPS-FM applies to all freshwater (including groundwater) and, to the extent they are affected by freshwater, to receiving environments. In this case, the proposed activities occur within a freshwater environment, specifically the Kaikorai Stream and Kaikorai Lagoon Swamp.

The policies of relevance are set out and assessed in Appendix B.

### 6.3.2 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement (**NZCPS**) sets out objectives and policies written to achieve the purpose of the Resource Management Act 1991 in relation to the coastal environment of New Zealand. The Kaikorai Lagoon Swamp is a Regionally Significant Wetland with hydrological connection to Kaikorai Stream and the downstream Kaikorai Estuary, which is a tidally influenced lagoon. The Green Island Landfill is terrestrially located, and there is no occupation of, or direct discharges of contaminants into, any coastal waters; however, given the proximity and hydrological connection to coastal waters, and the proposed discharge of stormwater and potentially leachate into connected freshwater, it is appropriate to have regard to the NZCPS. The objectives and policies of relevance are set out and assessed in Appendix B.

### 6.3.3 National Policy Statement for Indigenous Biodiversity 2023

The National Policy Statement for Indigenous Biodiversity (**NPSIB**) came into force on 4 August 2023 and applies to Aotearoa's indigenous biodiversity in the terrestrial environment. Indigenous Biodiversity is defined in the NPSIB as the living organisms that occur naturally in New Zealand, and the

ecological complexes of which they are part, including all forms of indigenous flora, fauna, and fungi, and their habitats.

The NPSIB sets out a single objective: to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity after the commencement date. It is applicable to Significant Natural Areas (**SNA**) but it also applies outside of SNAs. The objective is followed by 17 policies. The objective and policies of relevance are set out and assessed in Appendix B.

### 6.3.4 Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007

Regulations 7 and 8 of the National Environmental Standard for Sources of Human Drinking Water need to be considered when assessing discharge permits or water permits that have the potential to affect registered drinking water supplies that provide 501 or more people with drinking water for 60 or more calendar days each year.

Regulations 11 and 12 of the NES require the Consent Authority to place an emergency notification condition on relevant consent holders if it is assessed that the activity could pose a risk to the drinking water supply in the case of an unintended event (e.g. a spill or other accident). If the Consent Authority considers that such a risk exists, a condition must be placed on the consents that requires the consent holder to notify the drinking water supplier if such an event occurs. Regulation 11 states that Regulation 12 applies to activities with the potential to affect registered drinking water supplies that supply 25 or more people with drinking water for 60 or more days of a calendar year.

This application involves the discharge of contaminants to water. There are two registered drinking water supplies within the Kaikorai Stream catchment supplying more than 501 people with drinking water. However, these surface water supplies are located several kilometres upstream of the Green Island Landfill site and as such the proposal does not have the potential to affect these water supplies. There are no registered groundwater supply points within a ten-kilometre radius of the site. In summary, neither regulation 7 nor 8 preclude the granting of consent and there is no requirement to place an emergency notification condition upon the discharge permit.

### 6.3.5 Resource Management (Measuring and Reporting of Water Takes) Regulations 2010 and Amendment Regulations 2020

These regulations apply to holders of water permits which allow freshwater to be taken at a rate of 5 litres/second or more. Permit holders are required to, in a manner specified by the regulations, measure their water use at a specific location, verify their water measuring device, keep records, and provide records to Council. The 2020 amendments to the regulations introduced measuring and reporting requirements, to be implemented in a staged fashion starting with larger water takes through to progressively smaller water takes, down to 5 L/s. The minimum requirements in the regulations apply directly to the holders of qualifying water permits, and override any less stringent consent conditions, from the date that the regulations first apply to the consent. While these regulations do not require Council to impose specific conditions on a qualifying water permit, Council is required to enforce the regulations. To ensure that the Consent Holder is clear about their water metering and reporting

obligations, consent conditions that reflect the minimum requirements of these regulations are routinely applied to resource consents.

In this case, because leachate and groundwater are indistinguishable at the point that water is taken, the rate and volume of leachate abstracted via the trench is equivalent to the rates and volumes of 'water' taken. The maximum proposed rate of take is 20 L/s and the average is 5 L/s. The amendment regulations apply to takes of 20 L/s or more from a date two years after the regulations took effect.[6] Consent conditions are recommended that give effect to these regulations. Although the mechanism by which water is taken is not typical, to the best of my knowledge, there is no reason why these conditions would be unable to be complied with. Leachate flow rates are currently recorded continuously in each pump station, and pump stations already telemeter data to the landfill engineer and operator. Should the Applicant wish to provide records to Council at a frequency other than the daily records required by these regulations, the Applicant may apply separately for an exemption.

### 6.3.6 Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F)

The NES-F 2020 regulations came into force on 3 September 2020 and were amended in December 2022. The NES-F sets requirements for a range of farming activities and other activities relating to freshwater and natural inland wetlands.

This proposal includes the taking of groundwater and connected surface water, diversions of water, and discharges of water within and within 100 m of natural inland wetlands, as well as earthworks and vegetation clearance within 10 m of natural inland wetlands. More information on these activities can be found in the s95 Report. These activities are regulated by regulation 45B of this NES-F which states, in part (6):

*A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—*
*(a) satisfied itself that the landfill or cleanfill area—*
*will provide significant national or regional benefits; or*
- *i. is required to support the quarrying activities regulated under regulation 45A; or*
- *ii. is required to support urban development regulated under regulation 45C; or*
- *iii. is required to support the extraction of minerals regulated under regulation 45D; and*

*(b) satisfied itself that—*
- *i. there is no practicable alternative location for the landfill or cleanfill area in the region; or*
- *ii. every other practicable alternative location in the region would have equal or greater adverse effects on a natural inland wetland; and*

*(c) applied the effects management hierarchy.*

The significant regional benefits provided by the Green Island Landfill are described throughout the application and the supporting reports. It is the only Class 1 landfill in the district that can currently accept municipal solid waste and hazardous waste, including waste from local residential and

[6] These regulations took effect on 3 September 2020.

commercial sources from Dunedin City, its environs, and two DCC waste transfer facilities in Waikouaiti and Middlemarch. It is one of only three Class 1 landfills in the Otago Region. The continued operation of the landfill will ensure that Dunedin maintains its ability to dispose of municipal waste locally until the Smooth Hill Landfill can accept waste, ensuring that Dunedin retains full control and stewardship over the waste it generates. Utilising the existing landfill and associated infrastructure is a cost-effective use of an existing asset which has remaining capacity, is readily accessible, and is co-located with the under-construction RRPP. I agree that these are regionally significant benefits.

There are no practicable alternative locations for waste disposal. The other two Class 1 landfills in the Otago Region – Victoria Flats in Queenstown Lakes District, and Mt Cooee in Clutha District – do not have capacity to receive Dunedin's waste. The nearest Class 1 landfill with capacity to receive Dunedin's waste is the AB Lime Landfill near Winton.[7]

The effects management hierarchy has the same meaning given in Clause 3.21 of the NPS-FM and means:

***effects management hierarchy****, in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that:*

*(a) adverse effects are avoided where practicable; then*

*(b) where adverse effects cannot be avoided, they are minimised where practicable; then*

*(c) where adverse effects cannot be minimised, they are remedied where practicable; then*

*(d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; then*

*(e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; then*

*(f) if aquatic compensation is not appropriate, the activity itself is avoided*

There will be no loss of stream or wetland extent. The very small amount of water (approximately 0.5 L/s) that may be abstracted from the stream via the leachate interception trench is insignificant in relation to the mean flow and mean annual low flow of the stream and will not result in any loss of river extent.

The values of Kaikorai Lagoon Swamp are:
- A1 Habitat for nationally or internationally rare or threatened species or communities;
- A2 Critical habitat for the life cycles of indigenous fauna which are dependent on wetlands;

[7] Out of Otago alternatives do not need to be considered. *Meridian Energy Ltd v Central Otago DC* [2010] NZRMA 477 (HC) at [93] and [148]

- A4 High degree of wetland naturalness;
- A5 Wetland scarce in Otago in terms of its ecological or physical character;
- A6 Wetland which is highly valued by Kai Tahu for cultural and spiritual beliefs, values and uses, including waahi taoka and mahika kai.

Kaikorai Stream supports a range of mana whenua values, as listed in Schedule 1D of the RPW and as set out in the CIA and submission by Te Rūnanga o Ōtākou.

As described in sections 6.1.2.5 to 6.1.2.7 of this report, the adverse effects of the proposal on the values of Kaikorai Stream and the areas of natural inland wetland and Regionally Significant Wetland will be avoided, where possible. There will be no direct effects on terrestrial or freshwater ecology. As set out in the evidence of Ms Morrison, and to some extent the evidence of Ms Annan, after implementation of mitigation measures to avoid or minimise adverse effects, the proposal will have minimal (not more than minor) residual adverse effects on ecology and natural character.

Noting that there are limitations to the ability to completely avoid adverse effects given the location of the landfill, where effects cannot be avoided they will be minimised. Recommended consent conditions set out numerous measures that will serve to minimise adverse effects, including some of particular significance such as the extension of the leachate interception trench, and requirements to reduce the leachate head within the landfill.

Although water quality is not specifically listed as a value of this wetland area, I consider that it is an important factor underlying the listed values. As set out in the evidence of Dr Wilson, although there remains some uncertainty about the degree to which the landfill contributes to water quality effects within the fresh and estuarine water receiving environment, historic data indicates that contaminants of concern are generally below relevant guidelines levels protective of water quality and ecological health, both within onsite sediment ponds and within the surface water receiving environment sampling locations. While sediment is a contaminant of concern and has not been historically monitored, the sediment retention ponds represent best practice management of sediment in stormwater, and these are expected to be effective. Dr Wilson's evidence states that it is unlikely that the discharges from the landfill alone would result in measurable changes in benthic communities in the estuary.

Any diffuse discharge of leachate, if occurring, is likely to be small in volume, and will reduce over time, particularly after landfill closure and completion of final capping. The lack of discernible effects, i.e. the inability to detect change downstream of the landfill versus upstream, while not evidence of no effects, does support a conclusion that effects are not significant. Regardless, recommended monitoring conditions will enable this activity to be better understood and, if offsite migration is confirmed, conditions then require the implementation of measures to avoid or further minimise adverse any effects. This is in addition to other important mitigation measures, including extending the leachate collection trench, and taking steps to reduce the leachate head within the landfill.

Acknowledging that there will be some delay between granting of consent and the implementation of some of the more extensive new mitigation measures and collecting enough new groundwater data, it is noted that water quality is expected to be maintained over this period, and for the duration of the

continued landfilling i.e. the proposed activities is unlikely to cause a measurable change in water quality or any wetland values supported by water quality. I would not consider residual adverse effects (after avoiding and minimising) to be more than minor.

The stream and wetland have important mana whenua values. Via the submissions process, Te Rūnanga o Ōtākou indicated that any discharge of leachate into the stream or estuary would have more than minor adverse effects on mauri. This is accepted. However, at this time, where there is not definitive evidence that these more than minor adverse effects are occurring, I consider that the most appropriate action is to gather further information, over a relatively short-term period, and then to implement measures to avoid or minimise effects if offsite leachate migration is confirmed. In my opinion, this is preferable to requiring measures to offset effects from the outset, and also preferable to requiring the Applicant to immediately implement expensive and invasive mitigation measures on the basis of uncertain information.

Considering the proposal as a whole, and assuming the recommended consent conditions are adopted, the adverse effects of the proposal will be managed in accordance with the effects management hierarchy.

In my opinion, NES-F regulation 45B(6) does not preclude the granting of these consents.

**6.3.7 Resource Management (National Environmental Standards for Air Quality) Regulations 2004**

In October 2004 the New Zealand Government introduced a set of National Environmental Standards for Ambient Air Quality (**NES-AQ**). This NES was subsequently amended in 2005 and 2011. These standards replace the previous Ambient Air Quality Guidelines (NZAAQG) for $PM_{10}$, $SO_2$, $NO_2$, $O_2$ and CO. In effect, the new standards convert the ambient air quality guidelines into standards and stipulate a maximum number of allowable exceedances of the concentration limits. For sulphur dioxide, the standards stipulate an absolute maximum concentration limit.

The proposal includes the discharge of contaminants (dust, landfill gas, products of combustion, odour) to air within an airshed that is deemed – in accordance with Regulation 17(4) of this NES-AQ – to be polluted.

- Regulation 17 requires Council to decline a resource consent to discharge PM10 where the discharge would at any time increase the concentration of $PM_{10}$ (calculated as a 24-hour mean under Schedule 1) by more than 2.5 micrograms per cubic metre in any part of a polluted airshed other than the site on which the consent would be exercised.
- Regulation 20 requires Council to decline a resource consent to discharge carbon monoxide, or oxides of nitrogen, or volatile organic compounds into the air, if the discharge is likely, at any time, to cause the concentration of the relevant gas in the airshed to breach its ambient air quality standard, and if the discharge is likely to be a principal source of that gas in the airshed.
- Regulation 21 requires Council to decline a resource consent to discharge sulphur dioxide into the air if the discharge is likely, at any time, to cause the concentration of the sulphur dioxide in the airshed to breach its ambient air quality standard.

The relevant site boundary is the landfill and the GIWWTP, because discharges to air from the LFG engine and flare occur directly from the GIWWTP and these are not separately authorised by resource consent. Modelling indicates that none of the ambient air quality standards will be breached, and these findings are supported by Ms Freeman. Council is not required by Regulation 17, 20, or 21 to decline this application.

Landfill gas will be controlled and collected in accordance with Regulation 26 and will be flared in accordance with Regulation 27.

This application is consistent with the relevant regulations of the NES-AQ.

### 6.3.6 Otago Regional Policy Statements and Regional Plans

The RPSs provide an overview of the resource management issues for the Otago Region and the ways of achieving integrated management of its natural and physical resources. There are currently two regional policy statements in play in the Otago Region:

- Otago Regional Policy Statement 2019 (**ORPS 2019**) fully operative; and
- Proposed Otago Regional Policy Statement (**P-ORPS 2021**), which was first notified on the 26th of June 2021 and on 30 September 2022 for the freshwater instrument components. On 30 March 2024 the ORC notified its decisions on the submissions on P-ORPS 2021. There are several appeals that relate to the P-ORPS 2021. Freshwater planning provisions are appealed to the High Court; non-freshwater planning instruments are appealed to the Environment Court.

As of 8 January 2025, all appeals on the freshwater provisions of the P-ORPS 2021 have been resolved, except for LF–WAI–O1 – Te Mana o te Wai. Non-freshwater provisions remain under appeal. Recognising that the P-ORPS 2021 has a different emphasis from the ORPS 2019, there are a number of provisions in the P-ORPS 2021 that have no clear equivalent in the ORPS 2019, and vice versa. However, in general I consider that:

- Significant weight should be given to the provisions of the P-ORPS 2021 that are beyond appeal (or were not appealed) over equivalent provisions in the ORPS 2019.
- Less weight should be given to the provisions of the P-ORPS 2021 that remain subject to appeal, except where they clearly align with higher order documents, such as the NPS-FM and NPS-IB, and except when there is no equivalent provision in the ORPS 2019, in which case additional weight can be placed on the P-ORPS 2021 provisions.

The relevant regional plans are the:

- Regional Plan: Water for Otago (**RPW**)
- Regional Plan: Waste for Otago (**RPWaste**)
- Regional Plan: Air for Otago (**RPA**)

The current regional plans pre-date and do not yet fully give effect to the higher order documents, being the ORPS 2019, P-ORPS 2021, NPS-FM, and NPS-IB. As such, more weight is given to equivalent provisions in the higher order documents.

In the interest of ensuring this report is easier to read, the detailed assessment against the relevant provisions of the NZCPS, NPS-FM, NPIS-IB, ORPS 2019, the P-ORPS 2021, and the RPW, RPWaste, and RPA, and the Kāi Tahu ki Otago Natural Resource Management Plan 2005 (see Section 6.4 below) is provided in Appendix B. Key overall findings are summarised below:

***Table 3*** *Summary of consistency with statutory documents*

| Provision | Finding |
|---|---|
| **National Policy Statement for Freshwater Management 2020 (NPS-FM)** | |
| Policies 1 | Inconsistent in the short term but consistent in the long term |
| Policy 12 | Inconsistent |
| All other relevant policies | Consistent |
| **New Coastal Policy Statement (NZCPS)** | |
| All relevant policies | Consistent |
| **National Policy Statement for Indigenous Biodiversity 2023 (NPSIB) – amended October 2024** | |
| All relevant policies | Consistent |
| **Otago Regional Policy Statement 2019 (ORPS 2019)** | |
| Policies 3.1.6 and 5.4.1 | Partially consistent, and increasingly consistent over time |
| All other relevant provisions | Consistent |
| **Proposed Otago Regional Policy Statement (P-ORPS 2021) and Proposed Otago Regional Policy Statement – Freshwater Instrument Components 2021** | |
| AIR-O1, AIR-O2, AIR-P3, AIR-P4, AIR-P6 | Partially consistent, and increasingly consistent over time |
| LF-WAI-O1, LF-FW-P7 | Partially consistent |
| All other relevant provisions | Consistent |
| **Regional Plan: Water for Otago (RPW)** | |
| Policy 7.B.1 | Partially consistent |
| All other relevant provisions | Consistent |
| **Regional Plan: Waste for Otago (RPWaste)** | |
| Objective 3.3.2 and 3.3.3 | Inconsistent in the short term but consistent in the long term |
| All other relevant provisions | Consistent |
| **Regional Plan: Air for Otago (RPA)** | |
| Objective 6.1.2, policy 8.2.8 | Partially consistent, and increasingly consistent over time |
| All other relevant provisions | Consistent |
| **Kāi Tahu ki Otago Natural Resource Management Plan 2005** | |
| All relevant provisions | Consistent |

## 6.4 Section 104(1)(c) - Any other matters

### 6.4.1 Kāi Tahu ki Otago Natural Resource Management Plan 2005

The Kāi Tahu ki Otago Natural Resource Management Plan 2005 (**NRMP**) is considered to be a relevant other matter for the consideration of this application. This is because the regional plans have yet to be amended to take into account this Plan and this Plan expresses the attitudes and values of the four Papatipu Rūnaka: Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga.

An assessment of the application in the context of the objectives and policies of the NRMP is provided in the CIA which was prepared for this application. Assessment against the most relevant policies in provided in Appendix B. A summary of the findings is included in Table 3.

### 6.4.3 Consideration of Alternatives

Statutory context for consideration of alternatives of relevance to this application is provided by Schedule 4 part (6)(1)(d)(ii), s104(1)(c) and s105(1)(c) of the RMA, as well as by Regulation 45B(6)(b) of the NES-F. Additionally, where a proposal concerns a matter of national importance, as set out in s6, consideration of alternatives is a necessary part of whether a proposal will result in sustainable management. In this case, the following matters of national importance are of relevance to this application:

*"(a) 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*
*…*
*(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
*…*
*(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*
*…"*

The Applicant has had regard to the following alternatives:

1. *Alternative waste disposal options until the Smooth Hill Landfill is ready to accept waste.*
   Options considered were waste incineration and disposal of waste at an out-of-district location (Southland). These alternatives were found to be significantly more expensive, unacceptable to mana whenua, and would result in the DCC losing its ability to control the full waste cycle. Disposal at another Class 1 landfill within the region is not possible because the two landfills that exist – Victoria Flats in Queenstown Lakes District, and Mt Cooee in Clutha District – do not have capacity to receive Dunedin's waste and are therefore not feasible alternatives.

2. *Alternative options for landfilling at the Green Island Landfill.*

Options considered were extension of the landfill footprint to the south across the main sewer to the GIWWTP and three different options for filling within the current landfill footprint. The extension across the main sewer was considered unacceptable. The remaining three options presented similarly in terms of effects, but the selected option presented the best balance between potential effects, cost, and flexibility to respond to changing waste demands prior to the commissioning of the Smooth Hill Landfill.

3. *Alternative discharge methods for the discharges to land and water, as well as alternative receiving environments.*
   Options considered for the discharge of waste to land included creation of a new lined landfill cell. However, as waste has already been placed across the full extent of the landfill footprint, there are no areas where a liner could be placed on the estuarine sediments. In terms of the stormwater discharges, best practice methodology is already used. Leachate enters and becomes indistinguishable from groundwater. Ultimately it was concluded that there are no practicable alternative discharge methods and no alternative receiving environments.

This application essentially seeks authorisation for two overarching activities: the continued disposal of waste at the landfill, and closure of the landfill. While alternatives to the continued disposal of waste at this location do exist and have been considered, it is important to remember that the historic waste at the site continues to generate stormwater, leachate, and landfill gas, which require ongoing management, irrespective of any future waste disposal. This ongoing management is part of this application. Excavating and removing all historic waste has not been considered as a potential option but would likely be completely unacceptable from a financial and effects management perspective. Therefore, while there are alternatives to the first activity – continued disposal of waste, there are no realistic alternatives to closure and management of post-closure effects.

Taking into account the actual and potential adverse effects of the proposal, including the residual uncertainty, I agree that continued landfilling at the Green Island Landfill is preferable to the alternative options of incineration and out-of-district disposal. Accepting that the landfill must remain in its current location, I also agree that there are no feasible alternative discharge methods and there are no alternative receiving environments for the discharges to land and water. To the best of my knowledge, there are no other reasonable alternatives that the Applicant has failed to consider.

## 7. Section 104(2A) Value of Investment

When considering an application affected by Section 124 of the Act, the Council must have regard to the value of the investment of the existing Consent Holder. The Applicant has not provided details on the value of their investment in relation to the continued landfilling and closure of the Green Island Landfill, but it is expected that this would be significant.

## 8. Section 104(6)

Section 104(6) provides discretion for the consent authority to decline an Application on the grounds that there is inadequate information to determine the application.

(6) A consent authority may decline an application for a resource consent on the grounds that it has inadequate information to determine the application.
(7) In making an assessment on the adequacy of the information, the consent authority must have regard to whether any request made of the applicant for further information or reports resulted in further information or any report being available.

While there is a degree of residual uncertainty about the extent to which the landfill is contributing to cumulative effects within the freshwater receiving environment, based on the expert opinions appended to this report I am satisfied that the effects are sufficiently understood so as to enable consent to be granted, subject to conditions. The Applicant has provided all information requested of them, and I am satisfied that there is no additional information that could reasonably be requested and provided at this time that would alter my recommendation. Recommended conditions of consent require numerous management and mitigation measures be implemented, including some very substantial measures, such as the extension of the leachate interception trench, which will all serve to constrain effects to acceptable levels. Where residual uncertainty exists, recommended monitoring conditions will ensure that effects are understood with greater certainty. If monitoring demonstrates that additional mitigation measures are required to protect the environment, conditions require that these be implemented. I am satisfied that such additional measures exist and are available to the Applicant.

## 9. Section 124B Applications by Existing Holders of Resource Consents

The following criteria must be considered when a person who holds an existing resource consent makes an application to use a natural resource and that is affected by Section 124, and the consent authority receives one or more other applications to use some or all of the natural resource to which the existing consent relates, and that could not be exercised until the expiry of the existing consent.

The application affected by s124 is entitled to priority over any other application and the consent authority must determine that application before any other applications.

There are no such competing applications.

## 10. Sections 105 and 107

### 10.1 Section 105

Section 105(1) states that for a discharge permit that the Consent Authority shall have regard to:

a) the nature of the discharge, the sensitivity of the receiving environment, and
b) the applicant's reasons for the proposed choice; and
c) any possible alternative methods of discharge including discharge into any other receiving environment.

The nature of the discharge and sensitivity of the receiving environment were discussed in the application, in the s95 Report, and in this report. Consideration of possible alternative methods of discharge and the possibility of discharging into any other receiving environment have been discussed

in the application and in Section 6.4.3 of this report. There are no practicable alternative methods of discharge, and no alternative receiving environments.

## 10.2 Section 107

**Section 107(1)**
Section 107(1) of the Act states that a discharge permit shall not be granted if, after reasonable mixing, the contaminant or water discharged is likely to give rise to all or any of the following effects in the receiving waters, either by itself or in combination with the same, similar, or other contaminants or water:

c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material; or
d) Any conspicuous change in the colour or visual clarity; or
e) Any emission of objectionable odour; or
f) The rendering of fresh water unsuitable for consumption by farm animals; or
g) Any significant adverse effects on aquatic life.

As set out in the evidence of Dr Wilson, both Kaikorai Stream and Kaikorai Estuary would be considered degraded environments, with a range of catchment-derived pressures. Historic monitoring demonstrates that, in general, metal concentrations and ammoniacal nitrogen within the sediment ponds are below the ANZG (2018) toxicant default guideline values for marine and freshwater at the 80% species protection level. Dr Wilson states that given the degraded state of the stream and estuary, this is likely to provide protection for most species present, and that the receiving waters would not be unsuitable for consumption by farm animals. Sediment has not been monitored historically; however, sediment retention ponds represent best practice for the removal of sediment from stormwater. As set out in the evidence of Ms Morrison, the adverse effects on aquatic life will be low, to very low.

While there remains a degree of uncertainty about the extent to which the landfill contributes contaminants to the receiving environment, in particular the potential for diffuse discharges of leachate, the data that is available does not suggest that the landfill would be a significant contributor of contaminants to the stream or estuary, nor would any discharges of contaminants be likely to cause any of the s107(1) effects, either on their own or in combination with other contaminants. Furthermore, over the life of the consents, there will be a reduction in leachate and sediment generation at the landfill, which will contribute to gradual improvement in the receiving environment.

**Section 107(2)**
While it is not my assessment that the landfill will contribute to any of the effects listed in s107(1) within the receiving environment, I acknowledge that:

- There is a degree of uncertainty in the available data;
- Collecting additional data will take some time;
- There will be a period of three years before the extension of the leachate trench is completed;
- There is evidence of some declining water quality trends within Kaikorai Stream upstream of the landfill.

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Therefore, out of an abundance of caution I provide an assessment against s107(2). This subsection states that a consent authority may grant a discharge permit to do something that would otherwise contravene s15 that may allow any of the effects described above in 107(1) if it is satisfied:

a) that exceptional circumstances justify the granting of the permit; or
b) that the discharge is of a temporary nature; or
c) that the discharge is associated with necessary maintenance work—
and that it is consistent with the purpose of this Act to do so.

As explained in Section 6.4.3 of this report, there are no practicable alternative locations, methods, or receiving environments for the landfill and associated discharges of contaminants, but there is an ongoing requirement to dispose of Dunedin's waste. I would consider that this constitutes 'exceptional circumstances' for the purpose of 107(2). Not granting these consents would not result in a better environmental outcome. There is no ability to 'turn off' the discharges; leachate will continue to be generated in waste, and stormwater will continue to run off the surface of the landfill.

Recognising that waste disposal is a necessary activity, it would be consistent with the purpose of the Act to enable the continuation of landfilling at the Green Island Landfill until the modern Smooth Hill Landfill is commissioned. This is because it is an efficient use of existing infrastructure and presents the smallest economic, social, and cultural burden upon the Dunedin community, considering the available alternative options (out-of-district disposal). The adverse effects of the continued operation will be avoided or minimised to the extent practicable, and generally would ensure that the life-supporting capacity of soil, water, air, and ecosystems is safeguarded, and that natural and physical resources are able to meet the needs of future generations. Adverse effects will reduce over the life of the consent, particularly following closure of the landfill.

**Section 107(2A)**
A recent amendment (in force from 25 October 2024) to s107 (insertion of subsection 2A) has been made. Section 107(2A) states:

*(2A)*
*A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or 15A that may allow the effects described in subsection (1)(g) if the consent authority—*

*(a) is satisfied that, at the time of granting, there are already effects described in subsection (1)(g) in the receiving waters; and*
*(b) imposes conditions on the permit; and*
*(c) is satisfied that those conditions will contribute to a reduction of the effects described in subsection (1)(g) over the duration of the permit.*

Noting again that it is not my assessment that the landfill will contribute to any of the effects listed in s107(1) within the receiving environment, I have provided an assessment against subsection 2 out of an abundance of caution.

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Based on the expert evidence of Ms Morrison and Dr Wilson, significant adverse effects on aquatic life are not already occurring the receiving waters, and are not likely to occur as a result of the proposed activities.

### 10.3 Summary

Neither s105(1) nor s107(1) preclude the granting of consent.

## 11. Part 2 of the RMA

Under Section 104(1) of the RMA, a consent authority must consider resource consent applications "subject to Part 2" of the RMA, specifically, sections 5, 6, 7 and 8.

Section 5 identifies the purpose of the RMA as the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Sections 6, 7 and 8 outline the principles of the Act. Section 6 sets out a number of matters of national importance which need to be recognised and provided for, section 7 identifies a number of “other matters” to be given particular regard by the council, and section 8 requires the council to take into account the principles of the Treaty of Waitangi.

The Court of Appeal has clarified how to approach the assessment of “subject to Part 2” in section 104(1). In *R J Davidson* the Court of Appeal found that decision makers must consider Part 2 when making decisions on resource consent applications, where it is appropriate to do so. The extent to which Part 2 of the RMA should be referred to depends on the nature and content of the planning documents being considered.

Where the relevant planning documents have been prepared having regard to Part 2 of the RMA, and with a coherent set of policies designed to achieve clear environmental outcomes, consideration of Part 2 is not ultimately required. In this situation, the policies of these planning documents should be implemented by the consent authority. The consideration of Part 2 "would not add anything to the evaluative exercise" as "genuine consideration and application of relevant plan considerations may leave little room for Part 2 to influence the outcome". However, the consideration of Part 2 is not prevented, but Part 2 cannot be used to subvert a clearly relevant restriction or directive policy in a planning document.

Where it is unclear from the planning documents whether consent should be granted or refused, and the consent authority has to exercise a judgment, Part 2 should be considered.

I have assessed the proposal against each national and regional policy statement, and each of the relevant regional plans and find that the proposal is generally consistent with the vast majority of the

relevant provisions of each of these documents, and not contrary to any provisions. On this basis, and considering also the actual and potential effects of the proposal, I consider that it is relatively clear that consent should be granted.

However, the planning framework, being the NPS-FM, NPS-IB, ORPS 2019, P-ORPS 2021, RPW, RPWaste, and RPAir, does not provide a coherent set of policies designed to achieve a clear environmental outcome. Each of the documents has been introduced at a different time and with different emphasis. Furthermore, the P-ORPS 2021 remains subject to High Court appeals (one remaining freshwater provision) and Environment Court appeals (a large number of non-freshwater provisions) that have not been resolved. Accordingly, out of an abundance of caution, I have considered Part 2.

Section 5

Recognising that waste disposal is a necessary activity, it would be consistent with the purpose of the Act to enable the continuation of landfilling at the Green Island Landfill until the modern Smooth Hill Landfill is commissioned. This is because it is an efficient use of existing infrastructure and presents the smallest economic, social, and cultural burden upon the Dunedin community, considering the available alternative options (out-of-district disposal). The adverse effects of the continued operation will be avoided or minimised to the extent practicable and will ensure that the life-supporting capacity of soil, water, air, and ecosystems is safeguarded, and that natural and physical resources are able to meet the needs of future generations.

Section 6

Matters of national importance of particular relevance to this application are:

*(a) 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:*

*(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

*(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*

The proposal recognises and provides for the preservation of natural character of the coastal environment, rivers, and wetlands. Areas of significant indigenous vegetation and significant habitats of indigenous fauna are protected, with no direct effects anticipated. The relationship of Māori and their culture and traditions are recognised and provided for, through the implementation of the recommendations of the CIA.

Section 7

The proposal has had particular regard to kaitiakitanga, the efficient use and development of natural and physical resources, and the maintenance of the quality of the environment, and the effects of climate change.

Section 8
The principles of the Treaty of Waitangi have been taken into account via acceptance of the recommendations of the CIA and through the submission process.

In my opinion, the proposal will achieve the purpose and principles of Part 2.

## 12. Section 108 and 108AA of the RMA

Should the decision maker choose to grant the application, the conditions attached as Appendix C are recommended in accordance with Sections 108 and 108AA of the Act.

These comprise the Applicant's proposed consent conditions (version October 2024) as well as the recommended conditions as set out in the expert evidence in Appendices D-J. For ease of comparison, the conditions are presented in the format in which they were provided by the Applicant, rather than in the standard ORC format. At the Commissioner's request, a tracked change version, rather than a clean version, is appended.

In addition to the recommendations of the relevant experts, I also recommend the following changes/additions:

- General condition 4 – I recommend that the timeframes for certification of documents are extended, to ensure that there is sufficient time for an ORC compliance officer to review the documents, or to engage an external specialist to review the document. I have doubled the timeframes proposed by the Applicant. This is consistent with the corresponding general condition on the RM23.143 consents.

- General condition 4 – I recommend that the condition enabling the implementation of non-certified documents does not apply to the detailed design of the extended section of leachate interception trench on the basis that this is a significant project and a key mitigation measure. A non-certified design should not be implemented simply because a short certification window has elapsed. Furthermore, the extension of the leachate trench will require significant planning and lead-in times that would not be significantly impacted by a longer certification time.

- New condition 3 on Discharge Permit RM23.185.01 – this condition is recommended to ensure that there is a definitive end point for landfilling at the Green Island Landfill, and that filling does not continue to capacity if the Smooth Hill Landfill is available to receive waste. This is because the Smooth Hill Landfill will provide for better containment of leachate.

- New Condition 5 on Water Permit RM23.185.02 – this condition aligns with the requirements of the Resource Management (Measuring and Reporting of Water Takes) Regulations 2010 and Amendment Regulations 2020.

## 13. Recommendation

**Controlled Activity**

- Under s104A I recommend that the application for the taking and use of groundwater allocated as surface water is **granted**. The conditions recommended on Water Permit RM23.185.03 relate only to the matters of control listed in RPW rule 10A.3.1.1.

**Proposal as a whole**

- My primary recommendation is that under section 104B this consent application is **granted** subject to the consent conditions attached as Appendix C. The reasons for this have been discussed in this report.

- I acknowledge that this recommendation relies on the Applicant adopting a condition that ORC would not otherwise be able to impose. In the scenario that the Applicant does not agree to this inclusion of this consent condition (or a minor variation thereof) my secondary recommendation is that consent be granted subject to the Applicant implementing engineering solutions to avoid or substantially minimise the offsite migration of leachate. This would be achieved by bypassing the consent conditions that recommend additional groundwater monitoring in the new wells and proceeding immediately to General Condition 52.

## 14. Term of Consent (s123)

The application seeks a term of 35 years all consents, except for Water Permit RM23.185.02 to take and use groundwater and connected surface water, for which a six-year term is sought.

***I recommend a 35-year term for Discharge Permit RM23.185.01*** for the following reasons:

- Leachate will continue to be generated and emanate from the waste onto land and into groundwater for a period exceeding 35 years.
- Consent conditions require implementation of all reasonably practicable mitigation measures to manage the effects of this activity.
- A review condition will enable adoption of the best practicable option, in the event that new technology or methods become available.

***I recommend a six-year term for Water Permit RM23.185.02*** for the following reasons:

- RPW policy 10A.2.3 directs that this be so.

***I recommend a 35-year term for Water Permit RM23.185.03*** for the following reasons:

- Stormwater will continue to be generated and require diversion and management for a period exceeding 35 years.
- Consent conditions require implementation of all reasonably practicable mitigation measures to manage the effects of this activity.
- A review condition will enable adoption of the best practicable option, in the event that new technology or methods become available.

***I recommend a 35-year term for Water Permit RM23.185.04*** for the following reasons:

- The historic diversion of Kaikorai Stream and Brighton Road Stream cannot revert to their original flow paths because of the landfill presence.

- This diversion requires ongoing authorisation, but there are no changes to the flow paths and there are no new effects requiring management.

***I recommend a 35-year term for Discharge Permit RM23.185.05*** for the following reasons:

- Stormwater will continue to be generated and require management for a period exceeding 35 years.
- Consent conditions require implementation of all reasonably practicable mitigation measures to manage the effects of this activity.
- A review condition will enable adoption of the best practicable option, in the event that new technology or methods become available.

***I recommend a 35-year term for Discharge Permit RM23.185.06*** for the following reasons:

- Landfill gas and odour will continue to be generated and require management for a period exceeding 35 years.
- Consent conditions require implementation of all reasonably practicable mitigation measures to manage the effects of this activity.
- A review condition will enable adoption of the best practicable option, in the event that new technology or methods become available.

***I recommend an unlimited term for Land Use Consent RM23.185.07*** for the following reasons:

- It is only the construction, or in this case alteration of an existing structure, that requires authorisation. The structure itself does not require ongoing authorisation once constructed.
- The defence against water structure is not located on the bed of a river and as such does not contravene s13. Therefore s123(2) enables an unlimited term to be granted.
- Any alteration or reconstruction of the defence against water would require a new resource consent.

***I recommend a 35-year term for Land Use Consent RM23.185.08*** for the following reasons:

- Maintenance of the landfill cap and landfill infrastructure to ensure adequate and ongoing management of leachate, landfill gas, and stormwater will be required beyond closure. This will involve disturbance of soils at a contaminated site.

In reaching the above recommendations, the following relevant factors as distilled from case law were also considered:

- The duration of a resource consent should be decided in a manner which meets the RMA's purpose of sustainable management;
- Whether adverse effects would be likely to increase or vary during the term of the consent;
- Whether there is an expectation that new information regarding mitigation would become available during the term of the consent;
- Whether the impact of the duration could hinder implementation of an integrated management plan (including a new plan);

- That conditions may be imposed requiring adoption of the best practicable option, requiring supply of information relating to the exercise of the consent, and requiring observance of minimum standards of quality in the receiving environment;
- Whether review conditions are able to control adverse effects;
- Whether the relevant plan addresses the question of the duration of a consent;
- The life expectancy of the asset for which consents are sought;
- Whether there was significant capital investment in the activity/asset; and
- Whether a particular period of duration would better achieve administrative efficiency.

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## Appendix A: Legal Descriptions

## Appendix B: Policy Assessment

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## Appendix C: Recommended Consent Conditions

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## Appendix D: Evidence of James Elliot (Landfill Design)

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## Appendix E: Evidence of Dominic Trani (Geotechnical Engineering)

## Appendix F: Evidence of Tim Baker (Groundwater and Flood Hazard)

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## Appendix G: Evidence of Peter Wilson (Surface Water)

## Appendix H: Evidence of Elizabeth Morrison (Ecology)

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## Appendix I: Evidence of Tracy Freeman (Air Quality)

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## Appendix J: Evidence of Rachael Annan (Landscape)