

## ORC NOTIFICATION RECOMMENDATION REPORT

File No: 940692360-1727  
Application No: RM24.143  
Prepared for: Staff Consents Panel  
Prepared by: Shay McDonald – Senior Consents Planner  
Date: 19 July 2024

**Subject: Application RM24.143 by Dunedin City Council to undertake various activities for the purpose of constructing and operating the Resource Recovery Park Precinct, Green Island.**

### 1. Purpose

To report and make recommendations under sections 95A-G of the Resource Management Act 1991 (the Act) on the notification decision for the above application.

### 2. Background Information

**Applicant:** Dunedin City Council

**Applicant's Agent:** Boffa Miskell

**Site address or location:** Green Island Landfill, located at 9,114, 140, and 170 Brighton Road, Green Island

#### **Legal descriptions of the site, Record of Title, Owner:**

- 9 Brighton Road
  - Part Section 45-47 Green Island Bush Survey District and Section 54 and 63 Block VII and Section 119 Block VII Dunedin & East Taieri Survey District
  - OT11B/1241
- 9 Brighton Road
  - Part Section 45-47 Green Island Bush Survey District
  - OT368/19
- 9 Brighton Road
  - Section 1 Survey Office Plan 24047
  - OT15C/1016
- 9 Brighton Road
  - Lot 6-7 Deposited Plan 572543 and Section 1 Survey Office Plan 24040
  - 1040235
- 9 Brighton Road
  - Part Section 120 Dunedin & East Taieri Survey District and Part Section 53 Block VII Dunedin & East Taieri Survey District and Closed Road intersecting Sections 86,87,98,102 and 103 Block V Lower Kaikorai Survey District
  - OT16D/1193
- 9 Brighton Road
  - Section 103 Block V Lower Kaikorai Survey District and Part Section 85-87, 98 Block V and Part Section 99-101 Block V and Part Section 102 Block V Lower Kaikorai Survey District
  - OT16D/1194
- 9 Brighton Road

- Lot 2, 4 Deposited Plan 572543 and Lot I Deposited Plan 20826
- 1040233
- 114 Brighton Road
  - Part Section 38-40, Part Section 44 and Part Section 156 Green Island Bush Survey District
  - OT7C/934
- 140 Brighton Road
  - Part Lot 4 Deposited Plan 4550
  - OT12C/261
- 170 Brighton Road
  - Lot I Deposited Plan 20582
  - OT12C/262
- 170 Brighton Road
  - Section 81 Block VII Dunedin & East Taieri Survey District
  - OT15A/266
- All lands owned by Dunedin City Council

**Map reference of approximate midpoint of RRPP (NZTM2000):** E1399447 N4913122

**Consent(s) sought:**

- RM24.143.01 Land Use Consent to disturb a contaminated site for construction of the Resource Recovery Park Precinct
- RM24.143.02 Discharge Permit to discharge contaminants to air associated with the disturbance of contaminated land for the construction of the Resource Recovery Park Precinct
- RM24.143.03 Discharge Permit to discharge odour and dust to air from composting activities and from industrial and trade processes directly associated with the operation of facilities at the Resource Recovery Park Precinct
- RM24.143.04 Water Permit to divert stormwater from working and non-working areas of the Resource Recovery Park Precinct within or within 100 metres of a natural inland wetland.
- RM24.143.05 Discharge Permit to discharge treated stormwater from the Resource Recovery Park Precinct to water within Kaikorai Stream within or within 100 metres of a natural inland wetland.

**Purpose:** Construction and operation of the Resource Recovery Park Precinct

**Related consents:**

- RM23.571.01-02 which authorise the construction of the Organics Processing Facility.
- RM23.185 application to replace the Green Island Landfill consents.

**Section 124 timeframes:**

- This is an application for a new activity and so section 124 does not apply.

## 2.1 Key issues/risks

The key issues/risks with the application are:

- The discharge of odour to air during the operation of the Resource Recovery Park Precinct – cumulative effects with discharge of odour from the Green Island Landfill.

At this stage there are no principal issues in contention that need to be raised.

## 2.2 Summary

I recommend the application be limited notified to the parties listed in Table 1 of this report. This is because:

- The proposal will have at least minor adverse odour effects on the parties listed in Table 1, and these persons own or occupy land that is considered to be adjacent to the land on which the activities will occur;
- With the exception of the odour effects on the abovementioned parties, adverse effects on the environment and on persons will be less than minor; and
- There are no special circumstances that apply to the proposal.

### 3. Description of Activity

#### 3.1 Background information and overview of application

Dunedin City Council (**DCC, the Applicant**) has applied for resource consents to authorise the construction and operation of the Resource Recovery Park Precinct (**RRPP**) located within the area of land designated as the Green Island Landfill. The consents applied for were described in Section 2 of this report.

Katrina Roos of Boffa Miskell has provided a description of the proposal within the application titled *Green Island Resource Recovery Park Precinct Applications for Resource Consent and Assessment of Environmental Effects Prepared for Dunedin City Council* dated 15 March 2024. This description is adopted for this report. The key points of the activity are explained below.

- The Applicant has embarked on a Waste Futures Programme to develop a comprehensive waste management and diverted material system for Dunedin. This system includes provision of an enhanced kerbside recycling and waste collection service to commence from July 2024.
- To meet the requirements of the new kerbside collection service, which will include general waste and residential organic (food and garden) waste, the DCC is proposing to construct and operate the RRPP at the Green Island landfill site.
- The proposed resource recovery facilities to be developed at the RRPP include:
  - An organics receipt building (**ORB**) in which organic waste is received and shredded on site.<sup>1</sup>
  - A organics processing facility (**OPF**) including composting bunkers and maturation area.
  - A materials recovery facility (**MRF**) to sort and bale items collected from kerbside mixed recycling bins.
  - A bulk waste transfer station (**BWTS**) to facilitate compaction and trucking of general waste to landfill.
  - A construction and demolition (**C&D**) sorting pad adjoining the BWTS.
  - A hazardous waste drop-off and storage building, separated into a public-facing drop-off zone and a staff-only zone for sorting and storing.
  - Glass bunkers for sorting and storage of glass prior to transport offsite.
  - Ancillary facilities such as staff offices and facilities, car parking, access and service roads, and truck parking areas.

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<sup>1</sup> Construction of the ORB is authorised by RM23.571.01 and RM23.571.02. Operation of the ORB is authorised by the current Green Island landfill consents 3840A V1, 3840B V1, 3840C V1, 94524 V1 and will be authorised by consents which replace these, should consent be granted for RM23.185.

- Existing facilities including the rummage store, public drop-off area for general waste, garden waste, and recycling, and the education centre, will be retained and incorporated into the RRPP.
- The proposed distribution of the RRPP features on the site is shown in Figure 1.
- The OPF and MRF are planned to commence operations in mid to late 2025 while the construction and operation of the BWTS is dependent on the closure date of the Green Island Landfill, currently anticipated to be 2029/2030.
- The RRPP will be located entirely within the area designated as the Green Island Landfill.<sup>2</sup> Although the RRPP and the landfill will share some leachate and stormwater infrastructure, the landfill and RRPP will operate independently of each other. That is to say, the RRPP activities will be independently authorised by resource consents which do not rely on the landfill consents in any way.<sup>3</sup>
- Resource consents are required under:
  - The Regional Plan: Water for Otago (**RPW**)
  - The Regional Plan: Waste for Otago (**RPWaste**)
  - The Regional Plan: Air for Otago (**RPA**)
  - The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (**NES-F**)
- Activities requiring authorisation by resource consent include construction-phase activities, being the disturbance of contaminated land and associated discharge of contaminants to air, as well as operational-phase activities, being diversions of surface and stormwater within 100 m of a natural inland wetland, discharges of stormwater to water within 100 m of a natural inland wetland, and discharges of odour and dust to air.
- This report assesses the adverse environmental effects associated with the activities described in the bullet point above.
- This report does not assess the adverse visual effects that the construction and operation of the RRPP structures may have on persons. This is because these effects do not relate to any activity for which resource consent is sought from Otago Regional Council.
- The RRPP will be operated by EnviroNZ on behalf of DCC.
- The Applicant has applied for a 35-year term for each resource consent.

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<sup>2</sup> Designation D568 in the DCC Second Generation Plan.

<sup>3</sup> The exception is the operation of the ORB, which is entirely authorised by the landfill consents.

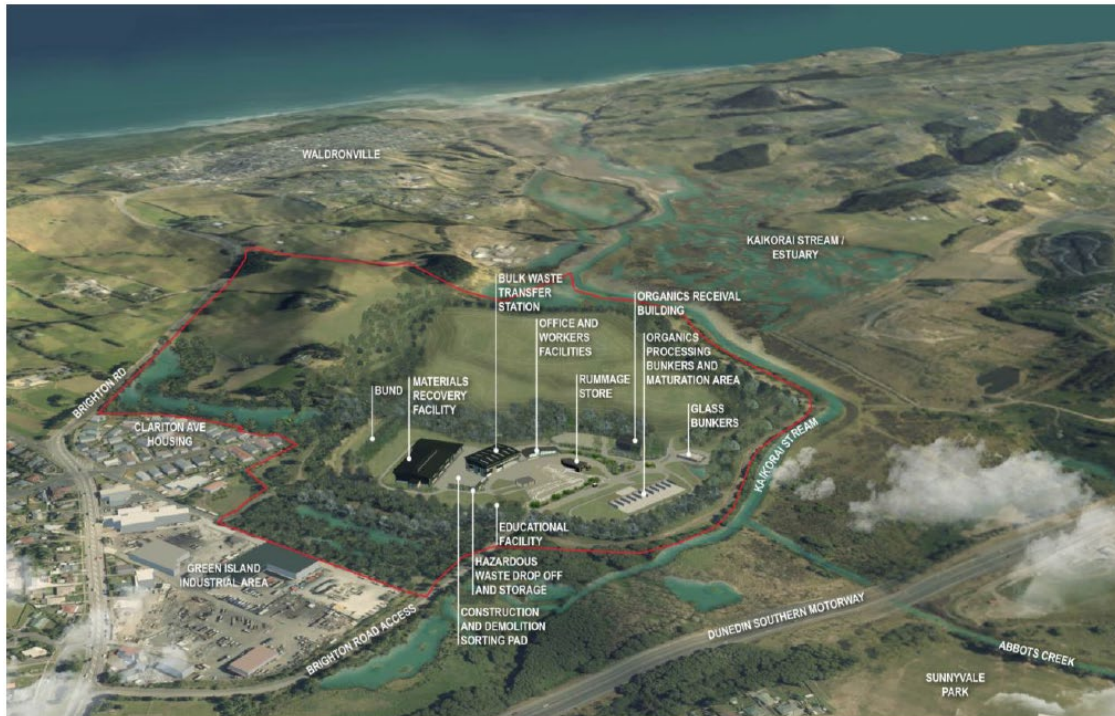


Figure 1 Proposed RRPP facilities located within the area designated as the Green Island Landfill. Source: Application RM24.143.

### 3.2 Construction of the RRPP

The construction of the RRPP will be completed in stages. The OPF and MRF will be completed first, and the BWTS will be completed later, with timing to align with the closure of the Green Island Landfill and the requirement to transfer waste to the Smooth Hill.

The application contains the following plans in draft form which together set out the way in which adverse construction-phase effects will be avoided, or monitored, mitigated, or remedied:

- Construction Environmental Management Plan (**CEMP**)
- Erosion and Sediment Control Plan (**ESCP**)
- Contaminated Land Management Plan (**CLMP**)

#### Disturbance of contaminated land and associated discharge of contaminants to air

- The RRPP facilities are located over an area of historic waste placement at the landfill. Waste was placed in this area between the 1950-1970s. An environmental site investigation (**ESI**) was undertaken in this area in 2021.
- The depth of waste is estimated at 6-8 metres (**m**).
- Landfill capping materials (soil and fill) overlie this waste at varying thicknesses, typically between 0.2-1.5 m thick depending on the area.
- The ESI identified the following contaminants of concern:
  - Heavy metals
  - Polycyclic aromatic hydrocarbons (**PAHs**)
  - Total petroleum hydrocarbons (**TPHs**)
  - Semi-volatile organic compounds (**SVOC**)

- Asbestos
- Landfill gas
  
- Installation of gravel raft and concrete foundations for the MRF, BWTS, and office and staff facilities buildings will require excavations of up to 2.5 m below ground level (**bgl**). The base of all service infrastructure trenches will be excavated to a depth of no greater than 1 m bgl.<sup>4</sup>
  
- Excavations are likely to encounter waste.
  
- Dust and landfill gas may be discharged to air as a result of the excavations and disturbance of contaminated soils.<sup>5</sup>
  
- Landfill gas monitoring and photo-ionisation detector (**PID**) monitoring will be undertaken in accordance with procedures meeting EPA guidance during construction activities.
  
- An area of approximately 9,500 square metres (**m<sup>2</sup>**) of contaminated land will be disturbed during construction of the buildings, and approximately 17,000 cubic metres (**m<sup>3</sup>**) of contaminated soil will require disposal.
  
- All excavated soils will be disposed of within the operational portion of the Green Island Landfill.
  
- All imported fill will be clean fill.

### **Stormwater management**

- Construction works will generally be undertaken during dry weather periods.
  
- Erosion and sediment controls will be constructed and implemented in accordance with the Auckland Council's Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Regions Guidance Document 2016/005 (**GD05**).
  
- These controls will be used to manage stormwater during works such that erosion and subsequent sedimentation are avoided or minimised so that contaminants are not transported out of the works area where they may enter waterbodies.
  
- It is noted that stormwater in this context includes any water that flows over or around the works area.
  
- Stormwater that runs off from areas outside the active works area will be diverted around the works areas and directed to the existing stormwater management system (discussed later in this report).
  
- Stormwater flow generated from exposed surfaces within the works area will be treated as leachate (this is discussed in the *leachate management* section immediately below this section).

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<sup>4</sup> Disturbance of a contaminated site.

<sup>5</sup> Discharge of hazardous waste to air on a contaminated site.

### **Leachate management**

- Construction works will generally be undertaken during dry weather periods.
- Erosion and sediment controls will be in place during construction works to minimise the amount of water that flows across the exposed works area. Perimeter and internal bunds will retain flows within the work site.
- Silt fences/socks will be used upstream of bunds to remove sediment prior to pumping to the leachate collection system.
- All surface water run-off from the exposed works area will be treated as leachate. Any significant water buildup around the bunds will be removed as quickly as practicable, either via sucker truck or via discharge into the leachate collection system.
- Any water removed from excavations will be treated as leachate and be discharged to the leachate collection system. Small amounts of water that arise in excavations may be allowed to soak back into the underlying waste.

### **3.3 Operation of the RRPP**

This section briefly summarises the way in which surface water and groundwater are managed at the wider landfill site because the general management approach also applies to the RRPP. Specific information about the management of stormwater and leachate at the RRPP is then covered. Information about the design of the buildings is provided in such detail that the surface water and leachate management systems and air quality management systems can be understood. Beyond providing for these functions, the design of the buildings is not a matter that can be considered in the Otago Regional Council (**ORC**) consenting process.

#### **Wider landfill site surface water and groundwater management**

- Surface runoff water on the site is managed in catchments. These catchments have varied over time as the landfill form has developed. Water within each catchment is managed separately.
- Within each catchment, surface runoff water is split into three categories, with each category being managed separately:
  - Clean – non-contaminated water or water potentially containing low concentrations of sediment can flow directly into the natural environment. This water is overland flow from the landfill margins, covered sides of the landfill, and from capped landfill surfaces. Runoff is collected in perimeter drains which discharge into Kaikorai Stream directly via open swales and culverts, or indirectly via sedimentation ponds to the south-west and east of the site.
  - Stormwater – non-contaminated water but potentially containing elevated sediment concentrations. This water is runoff from areas with exposed earthworks or actively/recently capped catchments. It is directed to a sedimentation pond for treatment prior to discharge into the natural environment.
  - Leachate – contaminated stormwater, or potentially contaminated stormwater, resulting from contact with waste or leachate. This may

infiltrate into the landfill if it is within an active filling area or be collected and diverted to a leachate drain or channel (or the northern leachate pond) which are served by a leachate pump station and pump leachate to the Green Island Wastewater Treatment Plant (**GIWWTP**).

- The landfill and existing resource recovery area are almost completely encircled by a leachate collection system. This system consists of a trench that creates a hydraulic barrier which collects groundwater/leachate and impedes groundwater/leachate migration offsite. This is achieved through continuous dewatering of the trench via a series of pump stations, which pump the impacted groundwater via a rising main to the GIWWTP.
- The overarching surface runoff water management principle is that any water that encounters waste is treated as leachate and cannot be discharged to the natural environment.
- These basic surface water and leachate management principles as used at the landfill will also be applied to the RRPP.
- At the RRPP, stormwater and leachate will be handled by fully separated discharge systems.
- The overarching approach for the RRPP is that where there is risk that an activity could cause contamination of water, then that activity is undertaken under roofed areas (to avoid interaction with stormwater) or contaminated runoff is directed to the existing leachate collection system.

#### **Stormwater management at the RRPP**

- Areas subjected to more typical stormwater contamination, such as those areas associated with roads and vehicle movements, will be directed to stormwater treatment systems.
- Stormwater will be treated prior to discharge into the environment via a system of sumps, filters (Enviropods), underground pipes, and open grass swales.
- Once collected, stormwater will be piped to either the existing landfill Northern Leachate Pond (**NLP**) or Eastern Sedimentation Pond (**ESP**) for further retention and removal of sediments.<sup>6</sup>
- Stormwater will be managed in three catchments – catchments A-C.
- Catchment A includes the OPF bunkers and maturation area and potential extension areas, wheel wash areas, glass bunkers, mechanical plant, and roading.
- Stormwater from catchment A will be diverted into the NLP. In the short term, prior to closure and capping of the landfill, the NLP will continue to act as a leachate pond, accumulated water will trickle to Pump Station 5 of the existing leachate system

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<sup>6</sup> The northern pond is currently used as a leachate pond and discharges to the leachate collection system. Once the landfill is closed and capped this pond will no longer receive leachate and will instead retain stormwater for discharge into Kaikorai Stream via a culvert.



under low-flow scenarios and overflow into Kaikorai Stream in high rainfall scenarios.

- Longer term, once the NLP stops receiving leachate, the connection to the leachate system will be removed, and the pond will discharge into Kaikorai Stream via a culvert.
- Catchment B includes worker facilities, BWTS building, hazardous waste storage (roof only for stormwater) and associated drop-off area, the existing educational facility, and construction and demolition (C&D) pad site.
- Currently stormwater in this catchment discharges directly into the constructed eastern wetland. It is proposed to divert the open drain to the ESP prior to its discharge into Kaikorai Stream via the constructed wetland.
- Catchment C includes the MRF building and apron, ORB, and the transport compound. This catchment will collect rainfall runoff from roofs and from paved and compacted gravel areas, directing these into a swale which discharges into the ESP and thereafter into Kaikorai Stream.

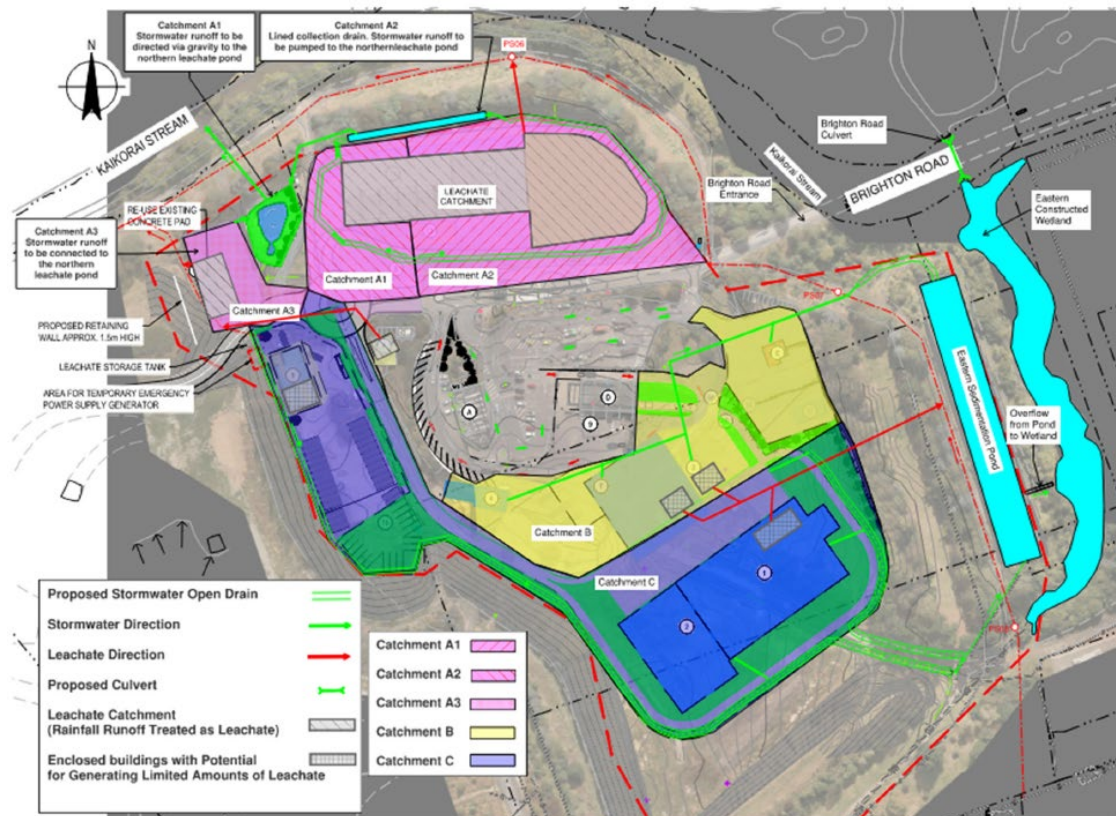


Figure 2 Proposed stormwater management plan for the RRPP including stormwater catchments. Source: Appendix 3 to RM24.143 application.

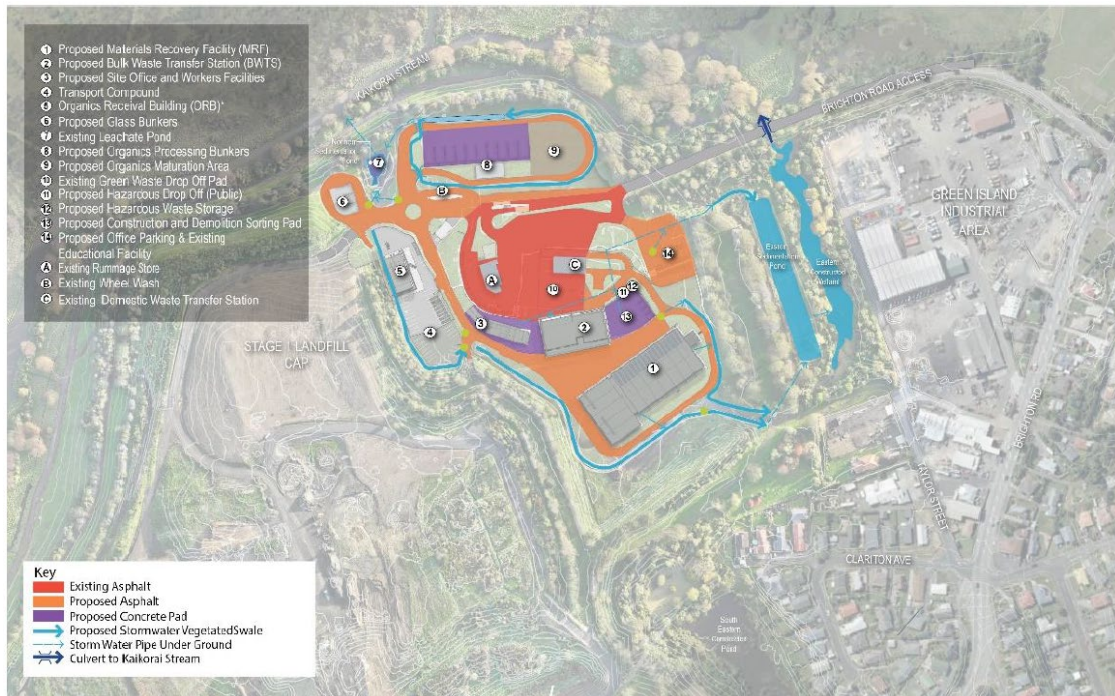


Figure 3 Overview of proposed stormwater management system. Source: RM24.143 application.

### Leachate management at the RRPP

- All leachate generated by the RRPP will be collected and conveyed through a new system of underground drains and pipes to one of three existing pump stations for direct pumping to the GIWWTP.<sup>7</sup>
- No leachate from the RRPP will discharge to the existing landfill leachate collection trench.
- No leachate will discharge to ground via percolation.
- All areas will be on concrete slab/hardfill to ensure that no leachate can seep into groundwater.
- The same three catchments A-C that were described for stormwater management are used for leachate management.
- During high rainfall events pump station 6 (**PS6**) may be unable to accommodate combined leachate flow from the existing trench and the OPF bunkers/maturation areas.
- To manage this, the Applicant proposes three 30,000 litre (**L**) connected balance tanks be installed. All leachate flows will be pumped to these tanks.
- During typical flow scenarios leachate from the tanks will drain to the PS6 sump.
- During high rainfall events a float switch will close the drain to PS6, and leachate will be stored in the tanks. Calculations confirming the tank sizing is appropriate are included in the application.

<sup>7</sup> Pump stations 5, 6, and 7.

- Overall, the presence of the RRPP will result in a reduction in uncontrolled leachate percolation through the site to landfill groundwater due to the increase in hard surfaces and the installation the new leachate drains/pipes.

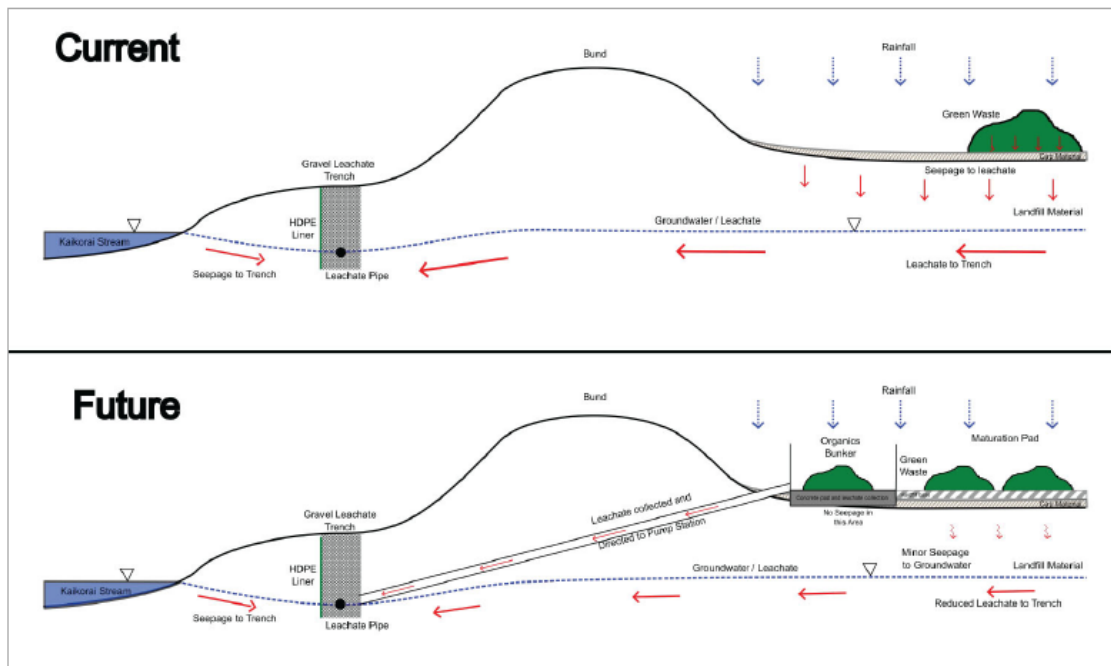


Figure 4 Conceptual model for the RRPP site. Source: Appendix 4 to application RM24.143.

### Composting

- The proposed composting system is a Reversing Aerated Static Pile Compost System, successfully implemented at the EnviroNZ Hampton Downs Facility near Hamilton.
- This is a two-stage system.
- Six bunkers are proposed initially, with four additional bunkers potentially being added in the future.
- Stage 1 involves shredded and blended green waste and organic waste being transferred into an aerated bunker. Each bunker can hold approximately 330 m<sup>3</sup> (130 tonnes) of material and may take up to four days to fill.
- During filling of the bunkers, air is forced upwards (positive aeration mode, operated manually) through aeration holes in the bottom of the bunker to ensure that the aeration holes don't become clogged.
- After filling is complete, the bunkers are switched to automated operation with reversing aeration mode, controlled by a computerised system which adjusts the volume and direction of air flow based on information it receives from temperature probes within the bunkers. This is a continuous process that will occur at any time of day.
- The automated reversing aeration system ensures that a relatively uniform environment exists throughout the pile, and that all parts of the pile reach a



minimum temperature of 55 degrees Celsius for at least three days to ensure pathogen destruction.

- When the bunkers are under negative aeration the foul air is discharged via a biofilter to treat odour.
- Material will remain in the bunkers for at least 21 days. Material may be moved from bunker to bunker during this period if required to redistribute moisture content within a pile. These inter-bunker movements will not occur before day nine for any pile. The end of Stage 1 is confirmed when a satisfactory Solvita score is achieved.<sup>8</sup>
- Stage 2 involves material being moved to the OCS maturation pads. The moving process may take a few hours.
- During the maturation and curing process, the microbial activity decreases and so does the temperature within the pile.
- Manual activities such as shredding organic material or green waste, moving material into or between bunkers or to the maturation pads, or screening of compost, will only occur between 8:00 AM and 5:00 PM Monday to Friday. Work outside these hours will only occur if required to ensure that the composting operation doesn't result in adverse effects.

#### **Air quality management**

- During the operational phase, dust generation will be minimised through vehicle speed management, sweeping drop off areas, sprinkler use on unsealed surfaces, and dampening of dusty loads during tipping.
- Excessively dusty loads will not be accepted at the site.
- Measures for avoiding and minimising operational odours were considered at the design phase. The MRF, BWTF, ORB, and hazardous waste buildings have roller doors that will be closed except as required to deliveries, removals, and operations.
- A misting system within the BWTS will mitigate odour effects and minimise dust from the BWTS.
- The composting system at the OPF is a high temperature aeration system for the fast processing of putrescible waste.
- Ongoing management of odour and dust will be achieved through control of odorous waste, odour monitoring, housekeeping, and contingency measures, all of which will be outlined in a Composting Facility Management Plan.

### **3.4 Application Documents**

The Applicant has provided the following documentation with the application:

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<sup>8</sup> The Solvita test indicates whether the active composting phase is complete.

- Application, titled *Green Island Resource Recovery Park Precinct Applications for Resource Consent and Assessment of Environmental Effects*, including appendices 1-20, prepared by Boffa Miskell Limited, dated 15 March 2024.
- Responses to s92(1) request for further information, dated 10 May 2024 and 1 July 2024.

#### 4. Description of the Environment

The site and the surrounding environment are adequately described within the application and this description is not duplicated here. The description in the application is adopted for this report. The key features of the site and surrounding environment are outlined below.

##### 4.1 General

- The RRPP is located within the Green Island landfill site as defined by the existing designation (D568) in the DCC 2<sup>nd</sup> Generation District Plan (**2GP**).
- It is located in the suburb of Green Island approximately 8 kilometres (**km**) southwest of Dunedin.
- Prior to landfill development the site would have been characterized by low lying (1 -2 m above sea level) estuary flats and wetlands.
- Waste was originally disposed of directly onto the estuarine muds and up against the southern Kaikorai Estuary edge where the pre-existing landform rises gently to a hillside.
- Waste disposal on the eastern area of the site ceased in the late 1970's and the area has subsequently been capped. The RRPP is on this capped area.
- The surrounding area is a combination of industrial, rural and residential land. There is an existing commercial industrial park to the east of the site along Brighton Road.
- The site is generally bound by State Highway 1 to the north, the Kaikorai Stream and Lagoon to the north and west, the Clariton Avenue residential area to the South and Brighton Road industrial area to the east.
- The Green Island landfill site is not identified in ORC or DCC mapping systems as being located in an area of natural hazard risk.
- The site is identified on the ORC Hazardous Activities and Industries List (**HAIL**) as HAIL.00502.01 as category G3: Landfill Sites.



Figure 5 RRPP (yellow) extent within landfill design (red). Source: RM24.143 application.

## 4.2 Surface and Groundwater

### Groundwater

- Groundwater flow patterns are strongly influenced by both the landfill construction and existing leachate collection trench and associated pumping.
- Rainfall on the landfill and existing resource recovery area that does not run off to the stormwater collection system percolates through the landfill material to the base where it accumulates and groundwater leachate.
- There is no recognised aquifer beneath the site.
- Downward migration of groundwater is inhibited by the low permeability underlying geology.
- Mounding of leachate within the waste and above the low permeability layers result in a shallow groundwater leachate flow toward the outer perimeter of the landfill and resource recovery area.
- The landfill and resource recovery area are almost completely encircled by the leachate collection trench. Continuous dewatering of the trench creates a hydraulic barrier, impeding offsite migration of groundwater and leachate.
- The estuary side of the trench is lined with high-density polyethylene (**HDPE**) which reduces, but does not fully prevent, seepage of water into the trench from Kaikorai Stream.

- Water levels in the trench are typically maintained at -0.8 to + 0.2 m above mean sea level (**AMSL**), which is lower than typical stream and estuary water levels of 2.0 m to 2.5 m AMSL.
- The collected leachate/groundwater is pumped via a series of pump stations to the GIWWTP, located 200 m to the south of the landfill.

### Surface Water

- The nearest natural surface waterbodies to the site are the Kaikorai Stream and Kaikorai Lagoon Swamp, located to the north and west of the site.
- The Kaikorai Lagoon Swamp is fed by four tributaries, with the main two being Abbotts Creek and Kaikorai Stream. Kaikorai Stream is the larger of the two.
- Downstream of the confluence of Abbotts Creek and Kaikorai Stream, in the general vicinity of the Green Island Landfill, Kaikorai Stream discharges into the Kaikorai Lagoon Swamp.
- The Kaikorai Lagoon Swamp is identified in the RPW as a Regionally Significant Wetland and an area of significant biodiversity value. It is also identified in the DCC 2GP as a Wāhi Tupuna of cultural significance for mana whenua.
- Areas of the Kaikorai Lagoon Swamp, the Kaikorai Stream, and its margins that coincide with the northern and western boundaries of the landfill site are also a natural inland wetland as defined in the National Policy Statement for Freshwater Management 2020 (**NPS-FM**).
- The Kaikorai Lagoon Swamp includes areas of significant indigenous vegetation and significant habitats of indigenous fauna.
- The RRPP does not overlap with these areas, but stormwater from the wider landfill site discharges to Kaikorai Stream.
- Surface water quality in the Kaikorai Stream catchment has been substantially impacted by past and current land use practices, including heavy industrial, landfilling, quarrying, and agricultural activities.

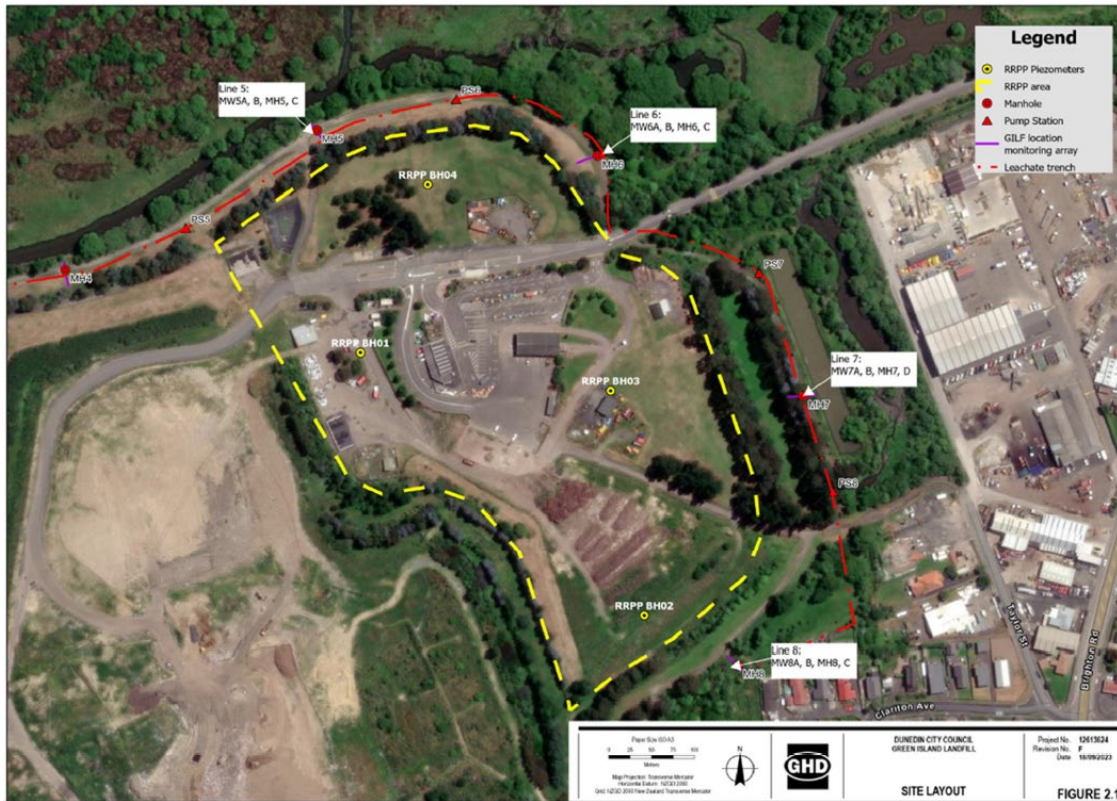


Figure 6 Leachate interception trench. Source: Appendix 2 to RM24.143 application.

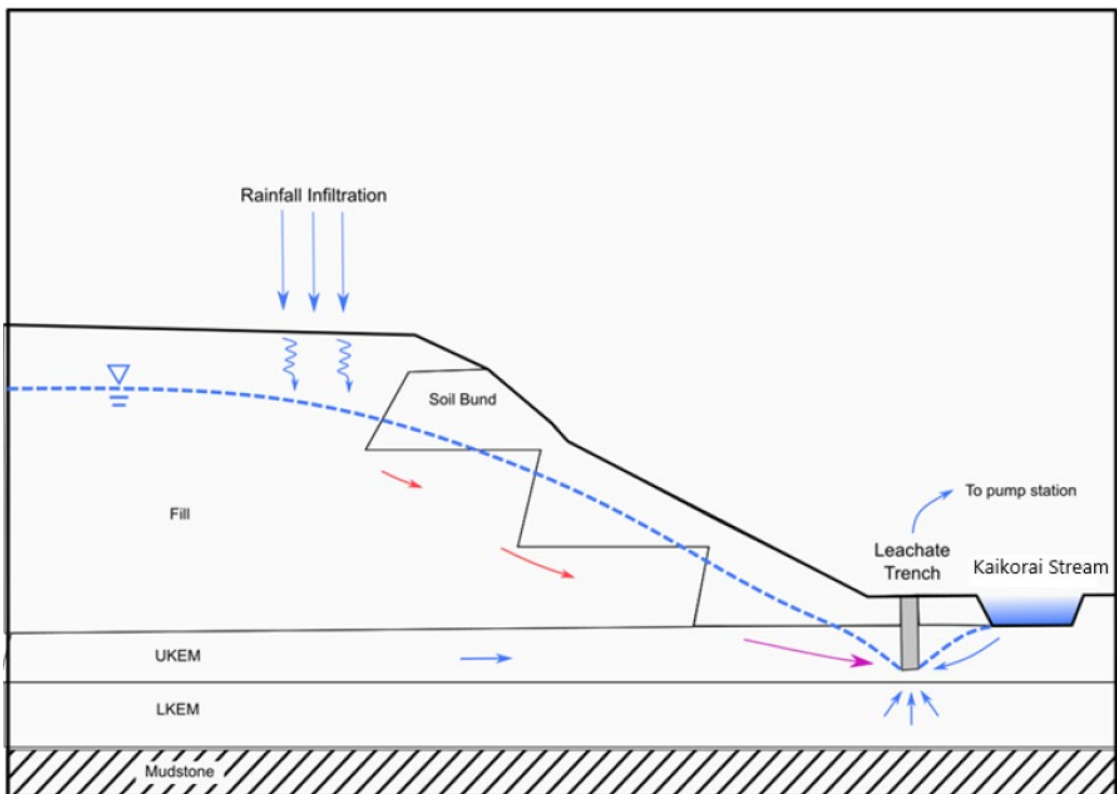


Figure 7 Schematic diagram of leachate system. Source: Appendix 2 to RM24.143 application.





Figure 8 Location of the RRPP (green outline) within the Green Island Landfill (brightened area). Source: Appendix 7 to application RM24.143.



Figure 9 Extent of the Regionally Significant Wetland Kaikorai Lagoon Swamp (yellow shading) in relation to the Green Island Landfill (blue outline). Source: Otago Maps.

#### 4.3 Natural Character

- The Green Island Landfill and the proposed RRPP are located broadly within the South Coast Landscape Character Area, bordered to the north and west by hills and ridgelines of the Taieri Landscape Character Area.<sup>9</sup>
- The RRPP site is not within the coastal environment, nor does it form part of any significant or outstanding natural feature or landscape.
- The RRPP is immediately adjacent to the Kaikorai Stream and Estuary which are associated with important values, being mapped in the DCC 2GP as an Area of Significant Biodiversity Value and a Wāhi Tūpuna Mapped Area, and by ORC as a Regionally Significant Wetland.

<sup>9</sup> Boffa Miskell (2007) Dunedin Landscape Management Area Review: Landscape Assessment

- The RRPP site is separated from the waterways by existing perimeter bunding and vegetation which will remain and are not proposed to be developed. The extensive and well-established perimeter vegetation contributes to landscape and natural character in the area.
- The wider landfill site including the proposed RRPP area was once part of the intertidal saltmarsh area of the Kaikorai Estuary but has been progressively drained, filled, and capped since being occupied by the current landfill.
- The estuary and stream's margins today are modified by roads, causeways, drainage channels, buildings, and reclamations.

#### 4.4 Air Quality and Sensitive Receptors

- There are 22 gazetted airsheds within the Otago Region. The site is located within Otago Airshed 2.
- Airshed 2 includes Mosgiel, Milton, South Dunedin, Green Island, and Palmerston.
- Where an airshed includes more than one town or region, all towns/regions within the airshed are assumed to have the air quality of the worst reading within that airshed. Monitoring for Airshed 2 is done in Mosgiel. Therefore, air quality within Airshed 2 is as per Mosgiel air quality.
- The Resource Management (National Environmental Standards for Air Quality) Regulations 2002 (**NESAQ**) set ambient air quality standards for contaminants within airsheds. These regulations require Council to monitor air quality for contaminant concentrations within airsheds if it is likely that an ambient air quality standard will be breached.
- Based on monitoring undertaken in Mosgiel over the last five years, Airshed 2 is deemed to be polluted.
- The Clariton Ave residential area to the south, comprises the closest residential properties to the site, being approximately 200 m southeast of the existing transfer station facilities, and 120 m east of the current landfill footprint.
- Other residential areas are located to the east of Brighton Road, and to the north and west within Sunnyvale and Fairfield. Those residential properties are located at greater distances and separated from the landfill site by a combination of Brighton Road, the State Highway 1 corridor, the Kaikorai Stream and Lagoon, and rural and open space land.
- Undeveloped and rezoned land also exists around the Green Island landfill site which will add additional residential dwellings in future, being at 102 Walton Park Avenue on the opposite side of the lagoon, and 27 Weir Street to the south-east, Elwyn Crescent and Trudi Place.
- Receptors sensitive to changes in air quality have been identified in the surrounding areas. These have been grouped into clusters. Within each cluster a representative

sensitive receptor has been identified. These are shown as R1-R11 in Figure 10. Distances to sensitive receptors are shown in Figure 11.

- The Green Island Landfill has its own Automatic Weather Station (**AWS**). This shows that, for the period 1 March 2022 to 28 February 2023:
  - The predominant lower wind speeds (less than 3 metres per second (**m/s**)) are from the northeast occurring 14.3% of the time.
  - Calms (winds less than 0.5 m/s) occur 0.3% of the time.
  - Stronger winds (more than 5 m/s) are from the southwest quarter.
  - In spring, the prevailing winds are from the east northeast, with a significant component coming from the west and west southwest.
  - In summer, the prevailing winds are from the east northeast.
  - In autumn, the prevailing winds are from the northeast, with very few winds coming from the southwest quadrant.
  - In winter, the prevailing winds are from the northeast, with very few winds coming from the southwest quadrant.



Figure 10 Location of RRPP (blue outline), Green Island Landfill (red outline), and groups of sensitive receptors (R1-R11). Source: Appendix 12 to application RM24.143.

Receptor Name	Address	Closest Distance to RRPP (m)	Direction Relative to the RRPP	Closest RRPP Odour Source
R1	Watson Street, Green Island	300	North northeast	OPF Maturation
R2	Shand Park	410	East	OPF Maturation
R3	27 Brighton Road	290	East	MRF
R4	Clariton Ave, Green Island	130	Southeast	MRF
R5	Proposed residential area, Green Island	330	Southeast	MRF
R6	17 Allen Road South, Waldronville	660	South southeast	MRF
R7	51 Allen Road South, Waldronville	680	South	MRF
R8	Brighton Road, Waldronville	840	South southwest	MRF
R9	Blanc Ave, Fairfield	880	West	OPF
R10	Proposed residential area, Fairfield	440	West	OPF
R11	Te Kura Kaupapa Maori O Otepoti	340	North northwest	OPF

*Notes:*

- Distance and direction is on the closest odour source.
- Receptors R6 to R10 the closest odour source is the Green Island Landfill.

Figure 11 Distances between sensitive receptors and nearest RRPP element. Source: Appendix 12 to application RM24.143.

#### 4.5 Cultural Landscape

The Cultural Impact Assessment (CIA) prepared for the Green Island Landfill Application includes a cultural values assessment, in which key mana whenua values that could be affected by the proposed activities are identified. These values are:

- Wai Māori (freshwater) values
  - Mana
  - Mauri
  - Whakapapa
  - Rakatirataka and Kaitiakitaka
  - Tapu
  - Utu

- Taoka
- Mahika Kai and biodiversity values
  - Mana
  - whakapapa
  - wāhi tūpuna
  - mauri
  - utu
  - mahika kai
  - taoka
- Wāhi Tūpuna (ancestral landscapes of significance)
  - Mana
  - Whakapapa
  - Rākaihautu
  - Matamata
  - Wāhi Tūpuna
  - Mauri
  - Utu
  - Oraka
  - Tapu
  - Tikaka
  - Tapatapa
  - Kaika
  - Ara Hikoi
  - Ara Tawhito
  - Mahika Kai
  - Taoka

## **5. Status of the Application**

### **5.1 Disturbance of contaminated site and associated discharge to air**

The Hazardous Activities and Industries List (**HAIL**) describes activities that have the potential to contaminate land. The HAIL database has 'Landfill Sites' as category G3. This category applies to the whole Green Island Landfill. While this does not necessarily mean that the whole landfill site is contaminated, areas where waste has been placed would likely be meet the definition of a contaminated site as defined in the RPWaste.

The proposed RRPP is located over an area of historic waste placement at the landfill.

The RPWaste provides for various land use and discharge activities on contaminated sites as discretionary activities.

Rule 5.6.1 of the RPWaste states:

#### *5.6.1 Hazardous wastes at contaminated sites*

1. *The disturbance of land; or*
2. *The discharge of hazardous waste into water; or*
3. *The discharge of hazardous waste onto or into land in circumstances that may result in that hazardous waste (or any other hazardous waste emanating as a result of natural processes from that hazardous waste) entering water; or*
4. *The deposit of any hazardous waste, in, on or under land; or*
5. *The discharge of hazardous waste into air at or from a contaminated site;*

*is a discretionary activity.*

There is no permitted activity pathway available. Therefore, resource consents are required for the following construction-phase activities.

#### **5.1.1 Disturbance of a contaminated site**

The construction of the RRPP will involve the disturbance of approximately 9,500 m<sup>2</sup> of contaminated land during construction of the buildings and other RRPP infrastructure. This is a **discretionary** activity under the RPWaste.

#### **5.1.2 Discharge of hazardous substances to air**

The disturbance of the contaminated site is likely to result in the discharge of landfill gas to air as waste will be encountered in excavations. Landfill gas is a by-product of the decomposition of waste in landfills, and primarily comprises methane with smaller quantities of other hazardous gasses such as hydrogen sulphide and carbon monoxide. For the purpose of this rule, landfill gas is considered to be the residue of a hazardous substance that has been disposed of in the landfill. This discharge is a **discretionary** activity under the RPWaste.

### **5.2 Diversion of stormwater**

#### **RPW**

Stormwater will be diverted from working and non-working areas of the RRPP into swales and pipes, which convey the stormwater to the various retention ponds and/or the constructed wetland, as described in Section 3.3. of this report.

Chapter 12.3 of the RPW provides for the diversion of water, both within and outside of natural watercourses, as permitted, restricted discretionary, discretionary, and non-complying activities. This chapter also prohibits the diversion of water in specific situations. In this case, the diversion is not prohibited, nor does it comply with any of the permitted or restricted discretionary rules, on the basis that the diversion may result in a change in water level range of hydrological function of a Regionally Significant Wetland. This is because the water is diverted into retention ponds and/or the constructed wetland, which prevents water entering the Regionally Significant Wetland in the manner that it would have done so had the diversion not occurred.

Therefore, discretionary activity rule 12.3.4.1(i) applies, which states:

*Except as provided for by Rules 12.3.1.1 to 12.3.3.1 and except in the Waitaki catchment, the damming or diversion of water is a discretionary activity.*

The diversion of stormwater from working and non-working areas of the RRPP is a **discretionary** activity under the RPW.

#### **NES-F**

Subpart 1 of the NES-F sets out standards for activities relating to freshwater in, or within a 100 m setback of, natural inland wetlands. This subpart regulates vegetation clearance, earthworks, and the taking, use, damming, diversion, or discharge of water in or within 100 m of natural inland wetlands. The activity status for these activities depends on the purpose for which they are undertaken, and this subpart provides different rules for a range of

specifically listed purposes.<sup>10</sup> In this case, the proposal to construct and operate the RRPP best fits under ‘other activities’ because it does not have another status under this subpart. Regulation 54 therefore applies, and this states:

54 *non-complying activities*

*The following activities are non-complying activities if they do not have another status under this subpart:*

- a) *vegetation clearance within, or within a 10 m setback from, a natural inland wetland:*
- b) *earthworks within, or within a 10 m setback from, a natural inland wetland:*
- c) *the taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland if—*
  - i. *there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and*
  - ii. *the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland:*
- d) *the discharge of water into water within, or within a 100 m setback from, a natural inland wetland if—*
  - i. *there is a hydrological connection between the discharge and the wetland; and*
  - ii. *the discharge will enter the wetland; and*
  - iii. *the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.*

The diversion of stormwater/surface runoff water from working and non-working areas of the RRPP will occur within a 100 m of a natural inland wetland. There is a hydrological connection between the diversion and the wetland because the diverted water would enter the wetland if it were not diverted. The diversion is likely to change the water level range or hydrological function of the wetland because the water is diverted into retention ponds and/or the constructed wetland, which prevents water entering the areas of natural inland wetland in the manner that it would have done so had the diversion not occurred.

The diversion of stormwater within 100 m of a natural inland wetland is a **non-complying** activity under Regulation 54(c) of the NES-F.

### **5.3 Discharge of stormwater to water**

#### **RPW**

Water is discharged from the ESP and the eastern constructed wetland to the Kaikorai Stream and ultimately the Kaikorai Lagoon Swamp. Kaikorai Stream is hydrologically connected to Kaikorai Lagoon Swamp. Overflow from the NLP also discharges to the stream and swamp during times of high rainfall.

The RPW provides for discharges of stormwater to land and to water as permitted, restricted discretionary, and discretionary activities. In this case, restricted discretionary rule 12.B.3.1 applies, which states:

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<sup>10</sup> Restoration, wetland maintenance, and biosecurity of natural inland wetlands; scientific research; construction and maintenance of wetland utility structures; construction, maintenance, and operation of specified infrastructure and other infrastructure; quarrying; landfills and clean fills; urban development; mineral extraction and ancillary activities; sphagnum moss harvesting; arable and horticultural land use; natural hazard works; drainage of natural wetlands; other activities.



*Except as provided for by Rules 12.B.1.8 and 12.B.1.9, the discharge of stormwater to water, or onto or into land in circumstances where it may enter water, is a restricted discretionary activity.*

The discharge is not provided for by rule 12.B.1.8 because the discharge is to a Regionally Significant Wetland and the discharge is not provided for by rule 12.B.1.9 because the discharge does not occur directly from a road.

The discharge of stormwater into Kaikorai Stream and Kaikorai Lagoon Swamp is a **restricted discretionary** activity under the RPW.

The matters to which discretion is restricted under this rule are not repeated here because they are of limited relevance to this application. This is because this discharge is also a non-complying activity under the NES-F.

#### **NES-F**

For the same reasons as described in section 4.2.1, Regulation 54 applies to the discharge of water from the ESP, the eastern constructed wetland, and the NLP into Kaikorai Stream and Kaikorai Lagoon Swamp.

Stormwater will be discharged into Kaikorai Stream and ultimately into the areas of natural inland wetland which surround the stream. The stream and areas of natural inland wetland that surround the stream are hydrologically connected; therefore, the discharge and the wetland areas are hydrologically connected. The discharge ultimately enters the wetland and is likely to change the water level range or hydrological function of the wetland.

The discharge of stormwater to water within a natural inland wetland is a **non-complying** activity under Regulation 54 of the NES-F.

#### **5.4 Discharge of contaminants to air from composting**

Composting of organic matter will be undertaken at the RRPP. The RPWaste provides for discharges of contaminants to land, water, and air that occur as a result of the composting of organic materials as permitted and discretionary activities. In this case, there will be no discharge of contaminants to land or water, because the composting will be undertaken on impermeable surfaces and all leachate will be collected and pumped directly to the GIWWTP. However, the composting activity will result in the discharge of contaminants (dust and odour) to air.

The relevant rule is 7.6.13, which states:

##### *7.6.13 Composting (discretionary activity)*

- 1. The discharge of any contaminant into or onto land;*
- 2. The discharge of any contaminant or water into water; or*
- 3. The discharge of any contaminant to air,*

*when occurring as the result of the composting of organic material other than in accordance with Rule 7.6.12 is a discretionary activity.*

The discharge activity cannot comply with the conditions listed in rule 7.6.12 because the composting will not be undertaken on the property from which the organic material is

sourced. This is because organic waste will be collected from the wider Dunedin area and transported to the RRPP for processing. Consent is not required under part (1) or (2) of this rule because there will be no discharge of composting leachate to land or to water. As described in section 3.3 of this report, all composting leachate will be collected and conveyed through a new system of underground drains and pipes to one of three existing pump stations for direct pumping to the GIWWTP.

The discharge of odour and dust to air from the proposed composting is a **discretionary** activity under the RPWaste.

### 5.5 Discharge of contaminants to air from industrial or trade processes

Discharges of contaminants to air will also occur from RRPP activities other than composting. These include discharges of dust and odour from the MRF, BWTS, and other buildings. These aspects of the RRPP are best captured as ‘*industrial and trade processes*’ on ‘*industrial or trade premises*’, both of which are defined in the RPA.

The relevant rule is 16.3.5.9, which states:

#### 16.3.5.9 Other discharges from industrial or trade processes – discretionary activity

*Except as provided for by Rules 16.3.5.1 to 16.3.5.8 and 16.3.6.1, 16.3.6.2, 16.3.7.1, 16.3.9.2, 16.3.10.1, 16.3.10.2, 16.3.11.1, 16.3.13.1 and 16.3.13.2, or prohibited by Rule 16.3.3.1, the discharge of contaminants into air from industrial or trade processes is a discretionary activity.*

The discharge of dust and odour to air from the RRPP (non-composting operations) is not provided for or prohibited by any of the rules listed in 16.3.5.9. This is because these rules provide for discharges from the processing of specific types of materials at specific types of trade or industrial premises, none of which are relevant to the RRPP.

The discharge of odour and dust to air from the non-composting trade and industrial processes is a **discretionary** activity under the RPA.

### 5.6 Permitted Activities

The dewatering of excavations during the construction phase will be undertaken in accordance with RPW permitted activity rule 12.2.2.6. A description of this activity being permitted is provided within the application, but a certificate of compliance is not sought.

### 5.7 Consents Not Required

Resource consents for the construction and operation of the ORB are not required because the construction is authorised by resource consents RM23.571.01 and RM23.571.02 and the operation of the facility is authorised by the existing landfill consents.

### 5.8 Overall Activity Status

Overall, the application is considered to be a **non-complying** activity.

## 6. Assessment of Adverse Environmental Effects

### The Permitted Baseline

The Consent Authority may disregard an adverse effect if a rule in a plan or national environmental standard permits an activity with that effect. In this case:

- There is no permitted activity rule for the diversion of water where that diversion would affect the hydrological function of a Regionally Significant Wetland, nor is there any rule permitting the discharge of stormwater from a reticulated system into such a wetland. Further, the NES-F does not provide a permitted activity pathway for diversions and discharges water associated with ‘other activities’ which occur in proximity to natural inland wetlands.
- There are no permitted activity rules within the RPWaste that provide for the disturbance of a contaminated site or the discharge of hazardous waste to air on a contaminated site, nor is there any permitted activity rule within the RPA for the discharge of contaminants to air from trade and industrial premises of this type.
- The RPWaste provides for discharges of contaminants to air from composting as a permitted activity, but not in situations where the material to be composted predominantly comes from offsite locations. In this case, all material will be imported to site.

For the reasons outlined above, the permitted baseline is not considered relevant to this proposal and is not given further consideration in the below assessment of adverse environmental effects.

### **The Receiving Environment**

The receiving environment is the environment beyond the subject site upon which a proposed activity may have effects. The receiving environment includes the current and reasonably foreseeable future state of the environment as it may be modified by permitted activities and by the implementation of resource consents that have been granted at the time the application is being considered. It does not include the environment as it might be modified by the implementation of future resource consents yet to be granted, nor does it include unlawful activities, even if these are already occurring.

In this case, the receiving environment is the wider landfill site, including its designation and implemented resource consents; groundwater; surface water, including artificial and natural watercourses and wetlands as well as their natural, physical, and cultural values; ambient air quality beyond the RRPP site and the receptors beyond the RRPP site that are sensitive to changes in ambient air quality.

#### **6.1 Effects on Groundwater**

Adverse effects on groundwater are considered for the following activities:

- The disturbance of a contaminated site during the construction of the RRPP.
- Operation of the RRPP including management of leachate.

The application contains the following technical reports which discuss groundwater quantity and quality effects, or provide information for the assessment of groundwater quantity and quality effects:

- Technical report, *Waste Futures Green Island Resource Recovery Park Precinct Design and Operations Report*, prepared by GHD, dated 19 February 2024, (**the Design Report**).
- Technical report, *DCC Resource Recovery Park Precinct Groundwater Technical Assessment*, prepared by GHD, dated 29 February 2024, (**the Groundwater Report**).

- Management Plan, *Draft Construction Environmental Management Plan*, prepared by GHD, dated 12 January 2024, **(the Draft Construction EMP)**.
- Management Plan, *Draft Erosion and Sediment Control Plan*, prepared by GHD, **(the Draft ESCP)**.
- Management Plan, *Draft Contaminated Land Management Plan*, prepared by GHD, dated 16 February 2024, **(the Draft CLMP)**.
- Technical report, *Environmental Site Investigation Factual Report*, prepared by GHD, dated 9 November 2021, **(the ESI)**.
- Management Plan, *Site Environmental Management Plan*, prepared by EnviroNZ, dated February 2024, **(the Draft Site EMP)**.
- Management Plan, *Draft Stormwater Management Operation and Maintenance Plan*, prepared by EnviroNZ, dated 28 February 2024, **(the Draft SMOMP)**.
- Management Plan, *Draft Composting Facility Management Plan*, prepared by EnviroNZ, dated February 2024, **(the Draft Composting Management Plan)**.

The proposed RRPP design requires installation of gravel raft building foundations to a maximum depth of 2.5 m bgl. Excavations are expected to encounter historic waste materials. No new introduction of contaminants to groundwater is expected to occur because the leachate generated by this historic waste already discharges to groundwater. Therefore, the construction of the RRPP is not expected to have any adverse effect on groundwater quality.

Groundwater level data recorded in RRPP monitoring bores suggest that dewatering of some of these excavations will likely be required. The ‘water’ that accumulates will be combined groundwater and leachate. All inflows will be treated as leachate and be pumped out of the excavations and discharged directly to the leachate pump stations or reticulated and discharged to the landfill area to percolate into groundwater beneath the site, ultimately being collected by the same leachate collection system. The Groundwater Report describes modelling that was undertaken to predict inflow rates into excavations. Inflows of up to 0.2 L/s are anticipated for the largest of the planned excavations. Based on these rates, the proposed dewatering is expected to be a permitted activity. Construction-phase groundwater quantity effects are not assessed further in this report.

There will be no adverse impacts on groundwater quality or quantity during the operational phase of the RRPP because there will be no discharge of leachate to land or to the leachate collection trench; rather, all leachate will be piped directly to a rising main and pumped to the GIWWTP. No consents are required for this activity and no further assessment is provided in this report.

On behalf of Council, a technical audit of the groundwater quantity and quality effects was undertaken by Tim Baker of SLR Consulting. Mr Baker agrees with the description of the construction-related effects on groundwater and agrees that there will be no effect on groundwater quality or quantity beyond the landfill footprint because all leachate collected during dewatering will either be pumped to GIWWTP or recirculated within the landfill. Mr Baker also agrees that there will be no adverse effect on groundwater quality or quantity from the operation of the RRPP, and that no specific groundwater monitoring is required beyond that undertaken for the operation of the wider landfill.<sup>11</sup>

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<sup>11</sup> Monitoring undertaken as required by existing resource consents for the Green Island Landfill and as proposed by the application to replace these consents RM23.185.

I accept this expert opinion and adopt it for the purpose of this adverse effects assessment. The proposed construction and operation of the RRPP will not have adverse effects on groundwater quality or quantity.

## 6.2 Effects on Surface Water and Aquatic Ecology

Adverse effects on surface water quantity and quality and on aquatic ecology are considered for the following activities:

- The disturbance of a contaminated site during the construction of the RRPP.
- Operation of the RRPP including management of leachate.

All leachate generated at the RRPP will be collected and piped directly through a new system of underground drains and pipes to one of three existing pump stations for direct pumping to the GIWWTP. No leachate will discharge into the existing landfill leachate collection trench. All areas where leachate will be generated will be on concrete slab/hardfill to ensure that no leachate seeps into groundwater. As such, there are not expected to be any surface water quality effects relating to leachate, and these are not discussed further in this section. Adverse effects relating to stormwater discharges are discussed below.

The application contains the following technical reports which discuss surface water quantity and quality effects, or provide information for the assessment of surface water quantity and quality effects:

- Technical report, *Waste Futures Green Island Resource Recovery Park Precinct Design and Operations Report*, prepared by GHD, dated 19 February 2024, (**the Design Report**).
- Technical report, *Waste Futures Green Island Resource Recovery Park Precinct Stormwater Management Plan and Assessment of Effects*, prepared by GHD, dated 19 February 2024 (**the Stormwater Report**).
- Technical report, *DCC Resource Recovery Park Precinct Groundwater Technical Assessment*, prepared by GHD, dated 29 February 2024, (**the Groundwater Report**).
- Management Plan, *Draft Construction Environmental Management Plan*, prepared by GHD, dated 12 January 2024, (**the Draft Construction EMP**).
- Management Plan, *Draft Erosion and Sediment Control Plan*, prepared by GHD, (**the Draft ESCP**).
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- Technical report, *Environmental Site Investigation Factual Report*, prepared by GHD, dated 9 November 2021, (**the ESI**).
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- Management Plan, *Draft Stormwater Management Operation and Maintenance Plan*, prepared by EnviroNZ, dated 28 February 2024, (**the Draft SMOMP**).
- Management Plan, *Draft Composting Facility Management Plan*, prepared by EnviroNZ, dated February 2024, (**the Draft Composting Management Plan**).
- Technical report, *Green Island Landfill Resource Recovery Park Precinct Ecological Impact Assessment*, prepared by Boffa Miskell, dated 12 February 2024 (**the EIA**).

### Surface water effects – construction of RRPP

Poorly controlled earthwork activities can result in erosion of soils and subsequent discharges of sediment to land and water. As outlined in the various construction

management plans provided with this application, erosion and sediment controls will be implemented during the construction phase to avoid or minimise erosion and subsequent mobilisation and discharge of sediment/contaminants. All control measures will be in accordance with GD05 which is considered to represent best-practice within the industry.

Construction activities will be undertaken during dry weather wherever possible. Where there is any overland flow of stormwater this will be diverted around the work areas as clean water. Any rain that falls onto the exposed works areas will be retained in the exposed area by bunds and will be treated as leachate. No contaminated flows resulting from construction activities will be directed to the receiving environment.

Overall, the Applicant finds that construction-phase effects on surface water quality are expected to be less than minor.

On behalf of Council, a technical audit of the contaminated land disturbance activities was undertaken by Samantha Iles of SLR Consulting. With respect to cumulative effects on water quality, Ms Iles considers that the controls provided in the CLMP, CEMP and ESCP are robust and appropriate for the proposed site works. I accept this expert assessment and consider that it supports the Applicant's conclusions as to the level of adverse effect on surface water quality during construction of the RRPP.

#### Surface water effects – operation of RRPP

During the operational phase of the RRPP, ongoing discharges of stormwater to the Kaikorai Stream and Kaikorai Lagoon Swamp have the potential to adversely affect water quality and water quantity.

In terms of water quantity effects, the site development will result in more stormwater runoff, as compared to the current situation, because of the increased area of building footprints and sealed surfaces. The Stormwater Report describes the predicted increases in stormwater flows during a specific rainfall event. This is shown in Figure 12. As part of the assessment undertaken for the Stormwater Report, the capacity of the ESP was reviewed, and found to be sufficient to accommodate the additional flows. The ESP flows into the constructed wetland, which provides additional attenuation before discharging into Kaikorai Stream.

Scenario	Flow Rate (L/s) for 50-year event 30 mins rainfall		
	Eastern Sediment Pond South Connection	Eastern Sediment Pond North Connection	Northern Leachate Pond
Pre-Development	80	0	22
Post-Development	121	66	40
Additional Runoff	41	66	18

Figure 12 Additional stormwater discharges, attributable to the RRPP, to three different discharge points. Source: Appendix 3 to RM24.143 application.

The Stormwater Report also considers the anticipated increase in stormwater runoff volumes in the context of the Kaikorai Stream flows. Figure 13 shows the additional RRPP flows in the context of the mean flow of the Kaikorai Stream downstream of the confluence with Abbots Creek, as this is where the additional flows are introduced.

Location	Mean flow	Mean Annual Low Flow
Upstream of Abbots Creek confluence	227 L/s	49 L/s
Downstream of Abbots Creek confluence	368 L/s	81 L/s

Figure 13 Kaikorai Stream flow data. Source: Appendix 3 to RM24.143 application.

Overall, the application finds that surface water quantity effects will be less than minor.

In terms of water quality effects, the Stormwater Report suggests that there is increased risk of contaminant mobilisation in stormwater because of increased vehicle movements and activities. The Applicant proposes to manage this risk through installation of pre-treatment catchpit devices in the proposed sumps for each stormwater catchment for the removal of particulates, prior to stormwater entering the NLP (for Catchment A) or the ESP and constructed wetland (for Catchments B and C). Further settling of sediments will occur in the attenuation ponds and wetland. The Stormwater Report states that the levels of sediment and other contaminants within the stormwater at the point that it is discharged to the Kaikorai Stream are expected to be low, and potentially better than the current situation at the site pre-development.

The Stormwater Report also states that the levels of contaminants in the discharge are likely to be lower than many other roads that contribute stormwater to the same receiving environment, because stormwater from these other roads is typically not treated before entering the environment. Therefore, the contribution to cumulative water quality effects within the catchment is expected to be low.

Overall, the application finds that surface water quality effects will be less than minor.

On behalf of Council, a technical audit of the surface water quantity and quality effects was undertaken by Claire Conwell of SLR Consulting. With respect to cumulative effects on water quality, Dr Conwell states that if the proposed stormwater treatment process is maintained and performs to intended operational design, stormwater discharging from the RRPP will not result in any change to receiving water quality. With respect to water quantity effects, Dr Conwell states that:

*“...I agree that the increase in runoff will not have any adverse effect on flood levels in the Kaikorai Stream. The 9,800 m<sup>2</sup> stormwater catchment areas of the proposed RRPP is very small compared to the overall contributing catchment to flows in the Kaikorai Stream so is unlikely to have a measurable effect on flood levels.”*

In terms of cumulative effects, Dr Conwell considers that the effects of the RRPP are unlikely to be discernible above those effects contributed by other activities in the upper catchments. Dr Conwell agrees with the Applicant that no additional surface water monitoring, other than that which will be provided for the main landfill, is required to manage the effects of the RRPP.

I accept this expert assessment and consider that it supports the Applicant’s conclusions as to the level of adverse effect on surface water quantity and quality during construction of the RRPP.

#### Aquatic ecology effects

The EIA outlines the key risks to freshwater ecological values as depletion of the Kaikorai Stream from groundwater drawdown, increased stormwater volumes from increased

impervious surfaces, sediment and contaminant discharge to Kaikorai Stream during both the construction and operational phase.

The EIA assigns and assesses ecological values of the receiving environment. Kaikorai Stream, Abbots Creek, Kaikorai Lagoon were assessed as having moderate, moderate, and high ecological values, respectively. The EIA then assesses the adverse effects of the proposed RRPP on the freshwater ecology of Kaikorai Stream, finding that there is a no change scenario (no effect) on Kaikorai Stream with respect to groundwater drawdown, increased stormwater discharge volumes, and the discharge of sediment and contaminants to Kaikorai Stream. The EIA concludes that no additional ecological effects management is required for the RRPP proposal.

On behalf of Council, a technical audit of ecological effects was undertaken by Elizabeth Morrison of SLR Consulting. Ms Morrison considers that the assessments and field surveys of ecological values are suitably robust, that the EIA identifies the relevant risks to aquatic ecology posed by the RRPP, and that the proposed conditions for erosion and sediment control and stormwater management and monitoring are adequate to manage any ecological effects of the proposal.

I accept this expert assessment and consider that it supports the Applicant's conclusions as to the level of adverse effect on aquatic ecology during construction and operation of the RRPP.

Overall, adverse effects of the RRPP proposal on surface water quantity, surface water quality, and aquatic ecology are expected to be less than minor.

### 6.3 Effects relating to Birds

Consents are required for operational aspects of the RRPP. Birds may be attracted to certain components of the RRPP, particularly the BWTS and the OPF.

The application contains the following technical reports which discuss bird management:

- Technical Report, *Green Island Resource Recovery Park Precinct Bird Hazard Report*, prepared by Avisure, dated February 2024 (**the Avisure Hazard Report**).
- Management Plan, *Draft Southern Black Backed Gull (SBBG) Management Plan Dunedin and Environs*, prepared by Avisure, dated November 2023 (**the SBBG Management Plan**).
- Management Plan, *Site Environmental Management Plan*, prepared by EnviroNZ, dated February 2024, (**the Draft Site EMP**).

Organic waste is currently disposed of at the Green Island Landfill and this practice has provided a food source for bird populations, causing some bird populations, such as the Southern Black-Backed Gulls (**SBBG**) and Red-billed Gulls to grow. Changes in waste management practices across Dunedin City, including the closure of the Green Island Landfill,<sup>12</sup> the opening of the Smooth Hill Landfill,<sup>13</sup> as well as the new kerbside organic collection service and the development and operation of the RRPP will significantly reduce the putrescible waste available as food to birds. As the bird population redistributes to look for food, this could change the hazard birds present to aircraft flying to and from the Dunedin International Airport, located approximately 16 km away.

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<sup>12</sup> RM23.185

<sup>13</sup> RM20.280



Any bird hazard effects will be addressed primarily via the SBBG Management Plan which was commissioned by DCC as required by conditions of Discharge Permit RM20.280.01 relating to the operation of the proposed Smooth Hill landfill. This management plan considers the impact of the construction and operation of the RRPP. Therefore, any adverse effects relating bird hazard that are attributable to the RRPP are considered to be adequately addressed elsewhere. I do not consider that it is appropriate to reassess these here.

Consent conditions proposed by the Applicant require the RRPP activities to be undertaken in accordance with the Avisure Hazard Report and the SBBG Management Plan.

#### 6.4 Effects on Natural Character

Landscape effects, in particular landscape effects associated with the proposed changes in built form at the RRPP site, and the visual effects that manifest from these, are not assessed in the application, nor are they assessed in this report. This is because these effects do not relate to any resource consent sought from ORC. Adverse natural character effects, however, are directly related to the following activities, for which consent is sought from ORC:

- The discharge of stormwater to the Kaikorai Stream.

Natural character effects are considered insofar as they relate to freshwater bodies and their margins, because the Otago Regional Policy Statements and Regional Plan: Water for Otago contain provisions requiring adverse effects on any regionally significant wetland to be ‘avoided’, with remediation or mitigation allowed where the activity relates to nationally or regionally significant infrastructure. Other provisions require the natural character of Otago’s lakes, rivers, and their margins to be protected from inappropriate use and development, to maintain or enhance amenity values associated with rivers, lakes, and their margins, and to give priority to avoiding, rather than remedying or mitigating, adverse effects on the natural character of any lake or river or its margins.

The application contains the following technical reports which discuss natural character effects:

- Technical report, including Graphics Supplement, *Green Island Resource Recovery Park Precinct Landscape Effects Assessment*, prepared by Boffa Miskell, dated 29 February 2024 (**the Landscape Report**).

The Landscape Report states that natural character is:

*“...the term used to describe the degree of naturalness in an area, and encompasses the natural elements, patterns, and processes including experiential characteristics and qualities within an environment.”*

The Landscape Report goes on to note that the natural character of freshwater bodies and their margins is comprised of key attributes including abiotic systems, biotic systems, and experiential attributes.

The Landscape Report finds that the existing level of natural character within the RRPP site and the adjacent landfill is highly modified; the long history of reclamation, drainage, and waste disposal having considerably altered abiotic and biotic systems. Nonetheless, the report considers that the existing well-established perimeter vegetation contributes

somewhat to natural character, primarily in regard to experiential aspects, as well as supporting some habitat. The natural character of the adjacent waterways and nearby Kaikorai Estuary is found to be higher, particularly in regard to the birdlife that the estuary supports and the scenic qualities present.

The Landscape reports makes the following findings with respect to effects of the RRPP on natural character:

- The proposed RRPP site development will not legibly reduce the abiotic or biotic aspects of natural character further on the site or within the wider context, particularly in terms of the adjoining waterbodies.
- Effects on experiential aspects may be temporarily adverse during construction but these effects are expected to be short-term and temporary, and no more than low-moderate in magnitude (minor).
- Effects on experiential aspects following completion of the proposal are expected to be very low (less than minor) with positive effects over time following implementation of the proposed Vegetation Management and Restoration Plan.

On behalf of Council, a technical audit of natural character effects was undertaken by Rachael Annan of SLR Consulting. Ms Annan agrees with the conclusions as to the nature of the effects on natural character during construction, namely, that these are temporary and adverse. Ms Annan agrees that the construction activity will be over a shorter timeframe, during which time there will be increased ongoing operational use which may afford an associated shift in experiential aspects of natural character associated with the adjacent Kaikorai Stream. On balance, Ms Annan notes that public access is not provided through this area, which reduces the impact on experiential aspects of natural character. With respect to adverse natural character effects in the long-term, Ms Annan agrees that these will be less than minor.

I accept this expert assessment and consider that it supports the Applicant's conclusions as to the level of adverse effect on natural character during construction and operation of the RRPP. While the temporary (during construction) adverse effects on natural character may be minor upon the environment, I do not consider that there are any persons affected to this degree because there are limited opportunities for the public to experience the natural character of the stream and estuary in the vicinity of the site and proposed works.

Overall, adverse effects of the RRPP proposal on natural character are expected to be minor during construction and less than minor thereafter.

## **6.5 Effects on Air Quality**

Adverse effects on air quality are considered for the following activities:

- Discharge of dust, landfill gas, and odour to air during the disturbance of a contaminated site for the construction of the RRPP.
- Discharges of dust and odour to air during the operation of the RRPP.

The application contains the following technical reports which discuss air quality effects:

- Technical report, *Green Island Resource Recovery Park Precinct – Air Quality Assessment*, prepared by PDP, dated February 2024, (**the Air Quality Report**).
- Management Plan, *Draft Construction Environmental Management Plan*, prepared by GHD, dated 12 January 2024, (**the Draft Construction EMP**).

The construction and operation of the RRPP will result in the discharge of hazardous waste (landfill gas) and contaminants (dust and odour) to air. The Air Quality Report identifies discrete receptors that are considered sensitive to these discharges. In the context of this assessment, the term ‘sensitive receptors’ is defined as a location where people or surroundings may be particularly sensitive to the effects of air pollution. In general, this receptor type includes residential properties, hospitals, schools, indoor facilities used by the public, and public outdoor locations such as parks, reserves, or sports fields. Of specific relevance to this proposal are residential properties, and outdoor locations including parks. The discrete sensitive receptors identified in the Air Quality Report are listed in Figure 11. Receptors relevant to this application that are not considered sensitive are industrial premises.

#### Context for this assessment

As described earlier in this report, the RRPP will be located entirely within the area designated as the Green Island Landfill. For the avoidance of doubt, this report does not assess the air quality effects attributable to the landfill, because the operation of the landfill is not part of this application.<sup>14</sup> Rather, the air quality effects of the landfill are treated as the baseline air quality upon which the RRPP effects will be considered. This is because these effects are part of the existing environment. Available information would indicate that the landfill could be having more than minor adverse odour effects beyond the site boundary and this level of effect will continue at least until closure of the landfill. It is also important to note that the landfill activities will include operation of the ORB – the odour effects of which have not been assessed anywhere and which will persist beyond closure of the wider landfill. Where the RRPP will result in odour effects, these are considered cumulatively with the landfill baseline effects.

#### **6.5.1 Construction effects**

The earthworks that will be undertaken for the construction of the RRPP will occur over an area of historic waste disposal. This may result in the discharge of dust and hazardous substances, such as landfill gas, to air and may also result in adverse odour effects.

#### Dust

The Draft Construction EMP sets out the controls that will be utilised to minimise adverse air quality effects during construction. Best practice measures for minimisation of dust include using water for dust suppression and avoiding works during strong winds when ground conditions are dry. Dust levels will be monitored during works to avoid any discharge of dust beyond the site boundary.

#### Landfill Gas

Landfill gas may be discharged during excavation works. Landfill gas monitoring will be in accordance with EPA guidance. Work zones will be defined around excavations and areas where hot work is being undertaken. Gas monitoring in these zones will occur at the commencement of work and at least three times per day to ensure ground gases are not creating a hazardous or potentially explosive atmosphere.

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<sup>14</sup> These effects will be assessed in RM23.185 which is currently under application.

### Odour

As the excavations will encounter buried waste, odour may be discharged from the work areas. Odour will be controlled through minimisation of the open excavation areas and loading of excavated material directly onto trucks for transport to the landfill working face where it will be covered as soon as practicable. Odour monitoring will be undertaken each day of construction during bulk earthworks. Where odour of specific tone and intensity is detected, additional investigation and corrective actions will be taken.

### Technical audit

On behalf of Council, a technical audit of air quality aspects of the application was undertaken by Tracy Freeman of Jacobs New Zealand Limited. In her report, Ms Freeman considers that the proposed construction odour monitoring and mitigation measures are appropriate but notes the magnitude of the potential adverse effects on the environment or persons would depend on the cause of the odour, whether it was possible to adequately mitigate that odour, and how long it takes to complete the mitigation action. Ms Freeman considers that the proposed management of dust will be sufficient to ensure that adverse dust effects are less than minor.

Further clarification from Ms Freeman was sought to address the apparent uncertainty in the level of adverse odour effect. Ms Freeman clarified that for any reasonably foreseeable construction activities/scenarios, the proposed mitigations are likely to be adequate to ensure that adverse odour effects experienced by sensitive receptors during construction would not be more than minor. Ms Freeman considers that specific receptors within the R3 and R4 clusters identified in the Air Quality Report (see Figure 14 for specific properties) are the only receptors that could be affected by construction odours. On this basis, I conclude that odour effects on the identified receptors within the R3 and R4 clusters will be no more than minor, and adverse effects on any other sensitive receptors will be less than minor. I also conclude that adverse effects on the wider environment will be less than minor. This includes any users of nearby industrial premises – because these receptors are not classed as sensitive to odour effects, as well as any users of the public roads between receptors R3 and R4 – because these users will be transient and therefore are not present long enough for effects to be considered minor or more than minor.

### **6.5.2 Operational effects**

There is the potential for odour to be discharged from the MRF, the BWTS, and the OPF. It is noted that odour emissions from the ORB may also occur.<sup>15</sup> Dust emissions may occur from the MRF and BWTS.

#### Source of Odour – MRF and BWTS

The MRF building will facilitate the sorting, processing, and recovery of recyclable materials at a rate of up to five tonnes per hour on business days only, with work hours generally limited to one ten-hour day time shift. The BWTS will handle the receiving and loading of all general waste and has been designed to process 50,000 tonnes of waste per year. Odour emissions may occur from both of these buildings via open doors and mechanical ventilation. The odour may be of two types: background odour associated with refuse and odour associated with specific highly odorous loads. It is noted that highly odorous loads will

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<sup>15</sup> Discharges of odour from the ORB will be included in the wider landfill application RM23.185 but are described here for the purpose of understanding the full composting process as well as the contribution of the ORB to cumulative effects.

not be accepted at the site, but on occasion loads containing odorous material may be deposited.

The Air Quality Report sets out odour control measures that will be implemented during typical MRF and BWTS operations as well as specific measures for highly odorous loads. These include waste acceptance criteria, staff odour training, collection of washdown waste into leachate collection pipes, setting of maximum residence times for putrescible wastes, and installation of a misting system for odour and dust suppression within the MRF and BWTS buildings. These measures are based on mitigation measures that have successfully been implemented at other EnviroNZ operational sites.

#### Source of Odour – Composting

The amount of odour that is associated with a composting operation is dependent to a large degree on the raw materials that are used and also the control of the process. The RRPP will only receive food waste and green waste. Animal waste will not be received, other than small amounts of meat, fish, and dairy products that may be received as part of the kerbside organic collection scheme. Organic material (a mixture of food scraps and green waste) will be received at the ORB and shredded. Blending with additional shredded green waste will occur on the same day if required to achieve a suitable mix for composting or to reduce odour. This mixture will be taken to the OPF. The OPF is designed to process 20,000 tonnes of organic waste per year.

The composting of material will occur via a two-stage process. Phase 1 occurs in the aerated static pile bunkers. Six bunkers will be built initially, with provision for an additional four bunkers if required. The shredded organic material will be transferred to the aerated bunkers where the active stage of composting will occur. Phase 1 will take a minimum of 21 days. During this time, material may be moved from bunker to bunker as required to redistribute moisture content and speed up composting. At the completion of Phase 1, as indicated by an acceptable Solvita test, the material will be moved to the maturation pads to commence the second stage of the process. During maturation and curing the organic material continues to slowly decompose into humus over a period of months.

#### Odour assessment

To understand the potential odour emissions from the RRPP, the Air Quality Report considers site investigations undertaken at another EnviroNZ waste transfer station and MRF which are of a similar design and scale, and where there are odour and dust controls in place that are similar to those proposed for the RRPP, as well as site investigations at the Hampton Downs composting facility in the Waikato where the same type of composting method is currently operational. The Air Quality Report considers whether the potential odours could be offensive or objectionable beyond the site boundary by using the FIDOL assessment tool.<sup>16</sup>

The FIDOL assessment considers the potential cumulative impacts of the RRPP odour and the landfill odour. Where separation distances are noted, these are measured from the nearest source of odour within the RRPP, rather than from the RRPP boundary. In terms of cumulative impacts with landfill odours, the Air Quality Report notes that a receptor must be downwind of both the RRPP and the landfill at the same time to be affected.

To understand the frequency of odour effects, the Air Quality report utilises wind speed and direction frequency data as measured at the landfill and primarily focuses on low wind

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<sup>16</sup> FIDOL stands for frequency, intensity, duration, offensiveness, and location.

speeds (below 3 m/s) because it is at these low speeds when odour dispersion is poor and effects may manifest. The frequency analysis finds that low wind speeds in the direction of nearby receptors would be considered infrequent at receptors R1, R2, R3, R5, R6, R9, R10, and R11 and moderately frequent at receptors R4, R7, and R8.

With respect to the intensity criteria, it is noted that odours associated with rubbish and compost can have a strong intensity and could be considered offensive or objectionable. The Air Quality Report concludes that weak transient rubbish odours may be experienced up to 100 m from the source and that composting odours are not usually detected more than 150 m to 200 m from a site. The report also notes that intensity is related to wind conditions and dilution between source and receptor. Given the nearest receptor to the composting operation is 300 m away, the nearest to the BWTS is 210 m away, and the nearest to the MRF is 140 m away, the authors conclude that odours are expected to be weak at or beyond the site boundary.

The duration of time that a receptor would be exposed to odour depends both on the time that the wind blows in a specific direction and the duration of the odour-emitting activity. For the RRPP, the Air Quality Report states that the duration of odour will typically be short and intermittent. For the BWTS and the MRF the greatest potential for odour will be during the hours of operation. For the OPF, under normal operations odour effects would be short and intermittent; however, some movements of material could take several hours, and the duration of the odour event could be extended.

Odour associated with refuse and composting of organic waste would generally be considered offensive by a member of the public if observed inside the facility or adjacent to an active composting bunker. Given the distance to nearest receptors and taking into account dilution effects as well as mitigation measures for particularly offensive odours, the Air Quality Report concludes that odour is unlikely to be at an intensity that would be considered offensive at these receptors.

The final FIDOL factor is location. The closest receptor is 300 m from the composting operation, 210 m from the BWTS, and 140 m from the MRF. The Air Quality Report considers that at these distances it is unlikely that any odour from the RRPP will be detectable.

In terms of cumulative effects with the landfill odour, the Air Quality Report states that odours from the RRPP are not necessarily additive with odour from the landfill due to the way the human nose perceives odour. Even where a receptor is downwind of both the landfill and the RRPP, the combined effects are more likely to result in an increase in the frequency of the odour (if it is intense enough to be detected) rather than an increase in duration. It is noted also that the staged construction of the RRPP and the planned closure of the landfill mean that the concurrent operation of the landfill and the BWTS is likely to be less than a few months.

#### Dust assessment

Dust may be discharged to air when loads of refuse are deposited into the BWTS or the C&D pad, and also during loading of refuse. Release of dust within the semi-confined BWTS building is unlikely to result in any offsite effects. However, dust generated at the C&D bunkers does have the potential for offsite effects if appropriate mitigation measures are not implemented. Dust control measures are proposed in the Air Quality Report, and these include inspection of loads prior to acceptance, requirement for vehicles offloading refuse to do so into the BWTS (except for C&D or green waste), sealing of site access areas, misters

on the roof and doorways of the BWTS, regular cleaning, restriction of vehicle speeds, and dampening of loads where required. The Air Quality Report assessed dust related effects via the FIDOL method and found that even without the implementation of the proposed mitigation measures, sensitive receptors will be unaffected by dust. The report also concludes that there will not be any combined dust effects of the RRPP with the landfill.

Overall, the Air Quality Report concludes that there is a low likelihood of offsite odour and dust from the RRPP being offensive or objectionable at nearby receptors.

#### Technical audit

As noted earlier, a technical audit of the air quality aspects of the application was undertaken by Tracy Freeman of Jacobs New Zealand Limited. Ms Freeman considers that relevant sensitive receptors have been identified, the odour assessment tools utilised in the Air Quality Report are in line with best practice, and that all relevant air emission sources have been identified and assessed.

With respect to dust effects, Ms Freeman agrees with the assessment in the Air Quality Report and considers that dust effects, including cumulative dust effects, at sensitive receptors will be less than minor.

Ms Freeman states that all relevant odour emission sources appear to have been identified and that the combination of the FIDOL analysis, experience from other sites, and consideration of the proposed odour mitigation measures is a valid and robust method for assessing the adverse air quality effects of the proposal, noting that the experience at other sites is not able to be independently verified by Jacobs. Ms Freeman generally agrees with the findings of the Air Quality Report that there is a low likelihood of offsite odour from the RRPP being categorised as offensive or objectionable, and that if odours are detected at sensitive receptors, these odours are likely to be weak, infrequent, and of short duration. Ms Freeman states that composting odours will have a markedly different odour character to landfill odours and should be easily differentiated. On their own, the operational RRPP activities are unlikely to cause an odour that would be considered offensive or objectionable at any sensitive receptor.

However, the RRPP odours do not occur in isolation, because the Green Island Landfill is a background source of odour. Landfill-related odours from Green Island are known to cause occasional odour nuisance and complaint for nearby residents. It is noted again here that the landfill includes the ORB, which will continue to generate odour beyond closure of the wider landfill. While the contribution of the RRPP to cumulative odour effects is likely to be small, Ms Freeman notes that the combination with other background sources of odour can change the frequency, intensity, duration, or offensiveness of the odour experience. Combined effects are more likely to increase the frequency of odour occurrences at nearby receptors, rather than the intensity or offensiveness. Ms Freeman states:

*“If compost-related odours are noticeable on regular occasions at sensitive receptors near the RRPP that also experience odours from the landfill, then there is a risk that the increased frequency of odours could increase the overall objectionable odour experience for those receptors.*

*Based on the FIDOL assessment for the BWTS, MRF and OPF and the field surveillance experience from similar sites, Jacobs mostly agrees with the conclusions in the AQA – that the presence of any weak, infrequent and short-duration odours from the BWTS, MRF or OPF are*

*unlikely to change the overall risk of offensive or objectionable odours for nearby residents due to operations from the landfill.*

*However, there is a lower degree of certainty in this conclusion for residents in the Brighton Road and Clariton Avenue areas (represented by Receptors R3 and R4 in the AQA Figure 4), as these areas are already moderately affected by landfill odours and may be more sensitive to any increased frequency of unpleasant odours. R3 is 290 m from the MRF, 350 m from the BWTS, and 450 m from the OPF. R4 is 130 m from the MRF, 210 m from the BWTS, and 360 m from the OPF. Therefore, odours from the RRPP should not be detectable at locations R3 or R4 based on the findings in the AQA. Nevertheless, if odour from the RRPP is noticeable further downwind than predicted in the AQA, these locations have the potential to be affected by odour from the RRPP, at least to a minor degree, due to cumulative impact with the landfill odours.”*

That is to say, the RRPP contribution to offsite odour effects is expected to be small and is unlikely to change the nature or magnitude of the odour effect already experienced by most sensitive receptors to a noticeable degree i.e. there will be no contribution to cumulative odour effects for most receptors. There is agreement between Applicant and Council experts in this regard. However, where the Air Quality Report considers that this applies to all sensitive receptors, Ms Freeman disagrees on the basis that there is uncertainty inherent in the assessment, particularly with respect to the radius within which composting odours may be considered offensive or objectionable. Uncertainty also exists around the magnitude of the odour effects associated with the operation of the ORB, as these have not previously been assessed anywhere and will be an additional and persistent source of odour on top of the existing landfill odour. If this uncertainty is realised, then there would be some offsite odour effects from the RRPP. Ms Freeman considers that this uncertainty impacts upon specific receptors within R3 and R4, but no others, and that the magnitude of this effect would be at least minor.

Because the Air Quality Report did not list the individual receptors within in each cluster, confirmation was sought from Ms Freeman as to the exact list of receptors within the R3 and R4 receptor clusters that she considered to be affected by odour. Ms Freeman confirmed the following:

- R4 is as shown in the Air Quality Report, but:
  - excludes 33 and 35 Brighton Road, and 9 Taylor Street, because the properties at these addresses are industrial in nature and are not considered sensitive; and
  - includes 10 Taylor Street, because this is a residential dwelling and is closer to the RRPP than any other receptor.
- R3 only includes two residential properties 25 and 27 Brighton Road. No receptors east of Brighton Road are considered affected.

The affected receptors are shown in Figure 14, with the green outline representing the modified R3 cluster and the yellow outline representing the modified R4 cluster.



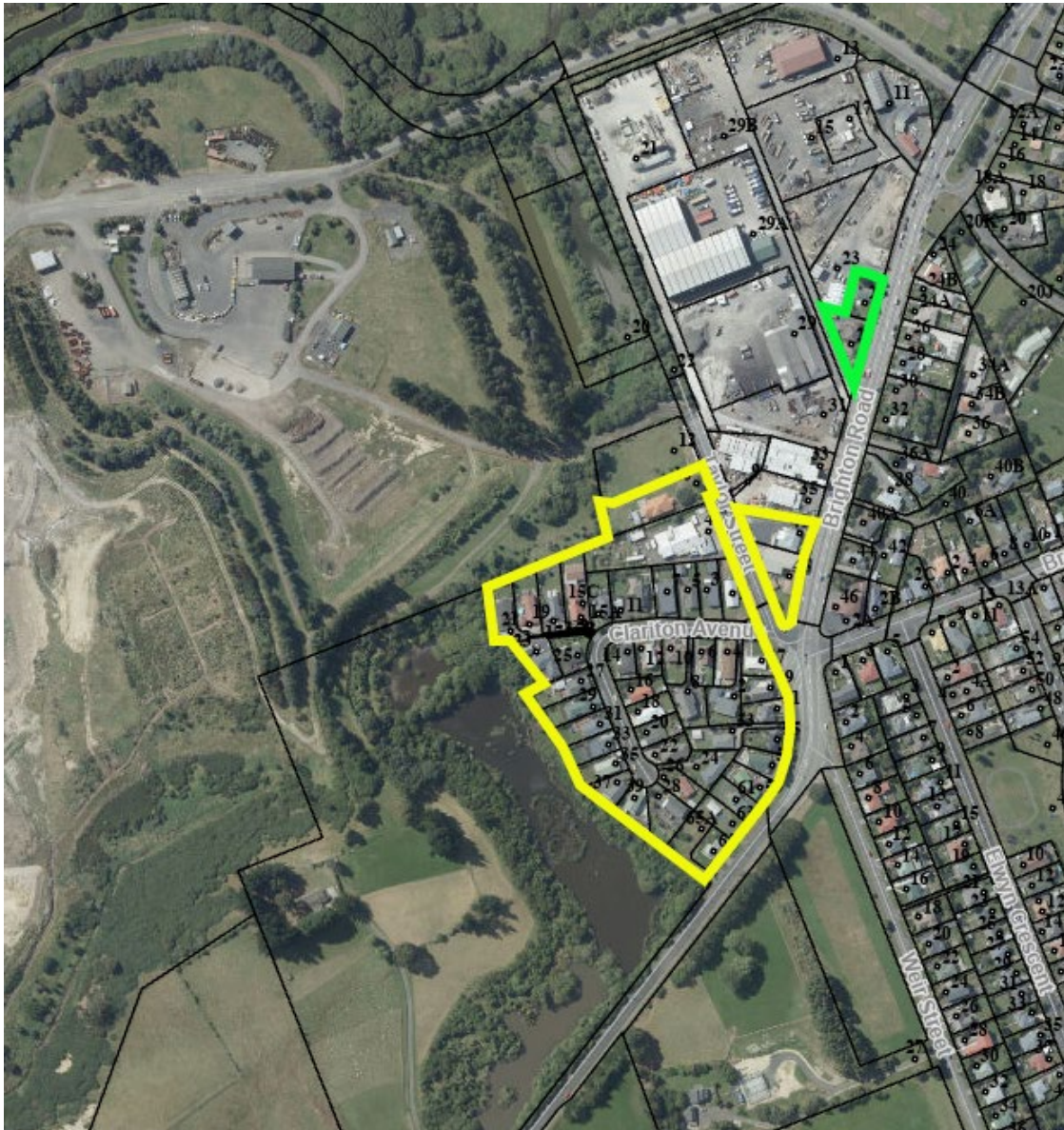


Figure 14 Sensitive receptors identified as affected by RRPP odour to at least a minor degree. Modified R3 (green outline) and modified R4 (yellow outline). Source: Otago Maps.

I note that the RRPP is not proposed as a short-term facility – this application proposes waste transfer and composting operations for several decades. Odours from the landfill would be expected to persist at existing levels at least until closure, and odour effects from the ORB beyond that, so the cumulative impacts are not of short duration. Offensive or objectionable odours can have a significant impact on amenity values, particularly in residential areas. In my opinion, a conservative approach to adverse odour effects is warranted, and for this reason I prefer the assessment of Ms Freeman over the assessment of the Applicant and adopt it for the purpose of this report.

#### Conclusions as to adverse effects

Taking into account the expert opinions, and adopting a conservative approach where these opinions differ, I conclude that the construction and operation of the RRPP will have the following adverse effects:

Odour

- At least minor adverse effects on the modified R3 and R4 receptor clusters as shown in Figure 14.
- Less than minor (negligible) adverse effects on receptors R1, R2, R3 to the east of Brighton Road, and R5-R11.
- Less than minor adverse (negligible) effects on the wider environment beyond these receptors. This includes the industrial properties which are not considered sensitive as well as public roads and spaces between R3 and R4. This is because the users of these spaces will be transient.

#### Dust

- Less than minor (negligible) adverse effects on the environment and on persons.

### 6.6 Effects on Mana Whenua Values

A letter prepared by Aukaha, written on behalf of Te Rūnanga o Ōtākou, was submitted with the application. This letter outlines that Te Rūnanga o Ōtākou are the kaitiaki Rūnanga whose takiwā includes the Kaikarae Estuary, and that Te Rūnanga o Ōtākou represents the rakatira and are kaitiaki of all natural resources within the Kaikarae Estuary.

Aukaha on behalf of Te Rūnanga o Ōtākou refer to the recommendations made in the CIA that was prepared for the Green Island Landfill application.<sup>17</sup>

The CIA includes a cultural values assessment, in which key mana whenua values that could be affected by the proposed activities are identified. These values are:

- Wai Māori (freshwater) values
- Mahika Kai and biodiversity values
- Wāhi Tūpuna (ancestral landscapes of significance)

The CIA then sets out an impact statement, where the impacts of the proposal on the identified cultural values are identified. The CIA makes a series of recommendations to ensure that the cultural values are protected and also identifies how the Applicant's proposed conditions address the potential cultural impacts.

Only mana whenua have the expertise to identify values, sites, histories, and processes of cultural significance. Te Rūnanga o Ōtākou are the "suitably qualified persons" able to speak to the impacts of the proposal on cultural values in this location. Given the Applicant has incorporated all relevant recommendations of the CIA into their application, I infer that the proposal will have less than minor adverse effects on cultural values.

Te Rūnanga o Ōtākou have provided affected party approval for the proposal. Adverse effects on this party are therefore disregarded.

## 7. Notification and Written Approvals

### 7.1 Section 95A Public Notification

#### Step 1: Is public notification mandatory as per questions (a) – (c) below?

(a) Has the applicant requested that the application be publicly notified? **No**

(b) Is public notification required by Section 95C? **No**

Has further information been requested and not provided within the deadline set by

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<sup>17</sup> RM23.185

Council? **No**

Has the applicant refused to provide further information? **No**

Has the Council notified the applicant that it wants to commission a report but the applicant does not respond before the deadline to Council's request? **No**

Has the applicant refused to agree to the Council commissioning a report? **No**

- (c) Has the application been made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977? **No**

**Step 2: Is public notification precluded as per questions (a) – (b) below?**

(a) Is public notification precluded by a rule in the plan or a NES? **No**

(b) Is the application for one or more of the following activities but no other activities:

(i) A controlled activity? **No**

(ii) *[repealed]*

(iia) A restricted discretionary, discretionary or non-complying activity but only if the activity is a boundary activity? **No**

(iii) *[repealed]*

**Step 3: Does the application meet either of the criteria in (a) or (b) below?**

(a) Is the application for a resource consent for one or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification? **No**

(b) Will the activity have or be likely to have adverse effects on the environment that are more than minor in accordance with Section 95D? **No**

For the purpose of s95D(a)(ii) I have considered which properties are adjacent to the land on which the activity will occur. I do not consider that 'adjacent' should be limited to those properties which are directly adjoining the site. Adjacent land cannot be neatly constrained by the legal boundaries between close-set residential properties, and it would be more appropriate to consider groups of similarly located properties.

I consider that adjacent properties are those located within the boundary set by the yellow line in Figure 15. The RRPP activities will occur on Lot 1 DP 20582 (blue line). The properties, or clusters of properties (in the case of Clariton Avenue, Taylor Street, and properties on the west of Brighton Road) within the yellow line are all located a similar distance from the site boundary and, when taking into account the characteristics of the site, including topography, vegetation, and the presence of features such as the natural and constructed waterbodies and wetlands, the properties identified as adjacent are considered to form part of the context of the site.

After disregarding the adverse effects on persons who own or occupy:

- (1) the land on which the activity will occur; and
- (2) any land adjacent to that land

I find that adverse effects on the environment will not be more than minor.

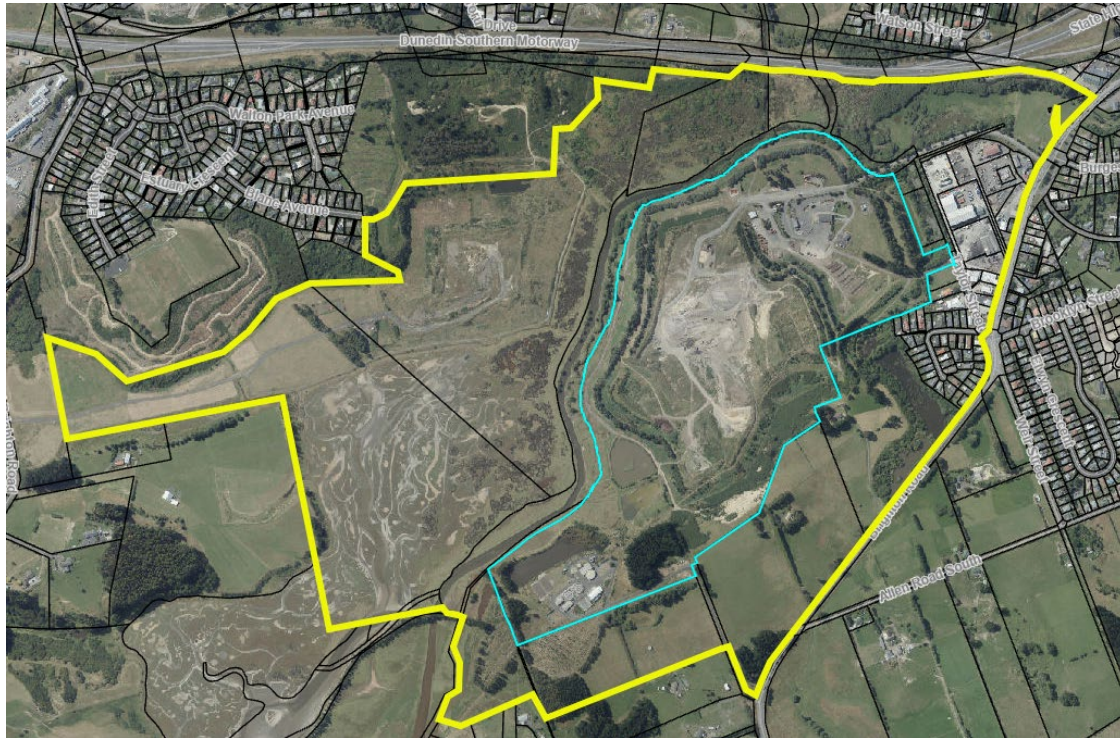


Figure 15 Adjacent land is the land within the yellow boundary.

**Step 4: Do special circumstances exist in relation to the application that warrant the application being publicly notified?**

**No** – in my opinion, there is nothing unusual or exceptional about this proposal to construct and operate the RRPP, nor is there any residual uncertainty about the nature, magnitude, or spatial extent of the adverse effects that would make public notification desirable.

**7.2 Section 95B Limited Notification**

**Step 1**

**Section 95B(2)** Are there any affected groups or persons identified under Section 95B(2):

- (a) Protected customary rights groups? **No**
- (b) Customary marine title groups? **No**

**Section 95B(3)(a)** Is the proposed activity on or adjacent to, or may it affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11? **No**

**Section 95B(3)(b)** Is a person to whom a statutory acknowledgement is made an affected person under Section 95E? **No**

**Step 2**

**Is Limited Notification precluded under Section 95B(6)?**

- (a) Is the application for a resource consent for one or more activities, and each activity is subject to a rule or national environmental standard that preclude limited notification? **No**
- (b) Is the proposal a Controlled Activity that requires consent under the District Plan (other than a subdivision of land)? **No**

**Step 3**

**Having regard to Section 95E of the Resource Management Act, identify persons who**

**would be adversely affected by the proposed activity by effects that are minor or more than minor, but not less than minor and give reasons why affected parties were identified.**

The following parties have been identified to be affected parties due to effects on them that are minor or more than minor, but not less than minor for the reasons stated below.

*Table 1 Parties that are affected by RM24.143.*

<b>Affected Party</b>	<b>How they are affected</b>	<b>Why effect is minor or more than minor</b>
<p>Owners and occupiers of the following residential properties (specific receptors within receptor clusters R3 and R4 and as shown in Figure 14):</p> <p>25 Brighton Road 27 Brighton Road 41 Brighton Road 45 Brighton Road 2 Taylor Street 4 Taylor Street 10 Taylor Street 2 Clariton Avenue 3 Clariton Avenue 4 Clariton Avenue 5 Clariton Avenue 6 Clariton Avenue 7 Clariton Avenue 8 Clariton Avenue 10 Clariton Avenue 11 Clariton Avenue 12 Clariton Avenue 13 Clariton Avenue 14 Clariton Avenue 15 Clariton Avenue 16 Clariton Avenue 17 Clariton Avenue 18 Clariton Avenue 19 Clariton Avenue 20 Clariton Avenue 21 Clariton Avenue 22 Clariton Avenue 23 Clariton Avenue 24 Clariton Avenue 25 Clariton Avenue 26 Clariton Avenue 27 Clariton Avenue 28 Clariton Avenue</p>	<p>Odour effects.</p>	<p>Full reasoning is provided in section 6.4 of this report. To summarise:</p> <p>Odours from the RRPP do not occur in isolation because the Green Island Landfill is a background source of odour. Additionally, there is uncertainty inherent in the assessment of operational odour effects, particularly with respect to the radius within which odour may be considered offensive or objectionable. This uncertainty impacts upon specific receptors within the R3 and R4 receptor clusters such that, when considered cumulatively with landfill odours, adverse effects on these parties would be at least minor.</p> <p>Modified receptors R3 and R4 comprise the residential dwellings identified in the list to the left.</p> <p>Occupiers of these dwellings are considered to be</p>

<p>29 Clariton Avenue 31 Clariton Avenue 33 Clariton Avenue 35 Clariton Avenue 37 Clariton Avenue 39 Clariton Avenue 47 Brighton Road 49 Brighton Road 51 Brighton Road 53 Brighton Road 55 Brighton Road 57 Brighton Road 59 Brighton Road 61 Brighton Road 63 Brighton Road 65 Brighton Road 67 Brighton Road</p>		<p>affected because they will directly experience these odour effects during their occupation.</p> <p>Owners of these properties are considered to be affected because they would experience these effects in the event that they occupied the properties that they own. Given the proposed duration of the activity, it is not unreasonable to assume that owners may return to occupy these properties during the consent term, and I therefore consider that they are affected in the same way and to the same magnitude as the current occupiers.</p> <p>Other than adverse odour effects, these parties are not affected by any other aspect of this proposal to a minor or more than minor degree.</p>
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The following parties were not considered to be affected parties to the application as effects on them will be less than minor or because they have provided written approval to the proposal:

Table 2 Parties not considered affected by RM24.143.

<b>Party</b>	<b>Why they are not affected</b>
<p>Owners and occupiers of the land identified in the application as sensitive</p>	<p>These receptors are not affected by odour to a minor or more than minor degree, nor are they affected by any other aspect of this proposal to a minor or more than minor degree.</p>

<p>receptors R1, R2, R3 east of Brighton Road, R5-R11</p>	
<p>Adjoining and adjacent (see Figure 15) landowners and occupiers other than those identified as receptors R1-R11</p>	<p>Adverse odour effects on the owners and occupiers of these properties are considered to be less than minor because the nature of the use of these properties means these persons are not considered to be sensitive to the odour discharge.</p> <p>These parties are not considered to be affected by any other aspect of the proposal to a minor or more than minor degree.</p>
<p>Department of Conservation (DoC) in their role as the agency responsible for the protection of New Zealand's natural and historic heritage</p>	<p>Adverse effects on water quality and quantity within the Kaikorai Stream and Kaikorai Lagoon Swamp are less than minor. Insofar as they relate to water quality and quantity effects, adverse effects on aquatic ecology will also be less than minor. The proposed activities will not adversely impact upon any known items or sites of historic heritage. DoC is not considered to be an affected party to this application.</p>
<p>Otago Fish and Game Council in their role as the agency overseeing the effective management of the country's sports fish resources.</p>	<p>Adverse effects on water quality and quantity within the Kaikorai Stream and Kaikorai Lagoon Swamp are less than minor. Insofar as they relate to water quality and quantity effects, adverse effects on aquatic ecology will also be less than minor. On this basis, no further consideration was given as to the presence or prevalence of sports fish within these waterbodies. Otago Fish and Game Council is not considered to be an affected party to this application.</p>
<p>Nearby groundwater and surface water users</p>	<p>Resource consents are held by Waste Management Limited to take and use groundwater and surface water, and to divert and discharge surface water from and into the Kaikorai Stream for the purpose of water management and residual landfill operations at the Fairfield Landfill during its closure phase. These activities occur downstream of the RRPP. The contribution of the RRPP to adverse surface and groundwater quality and quantity effects within the catchment is negligible. There are no other nearby consented uses of ground or surface water. This consent holder is not considered to be affected to a minor or more than minor degree.</p> <p>Permitted uses of ground and surface water are not recorded; however,</p>

	<p>there are no nearby bores registered as being for domestic or stock water supply, nor are there likely to be any permitted surface water abstractions in this area which is serviced by the DCC town water supply. Recreational uses of the Kaikorai Stream and Kaikorai Lagoon Swamp downstream of the RRPP are possible; however, given the anticipated adverse effects of the RRPP on surface and groundwater quantity and quality, these uses will not be restricted or adversely impacted.</p> <p>Therefore, there are no water users considered affected by this proposal.</p>
Aukaha on behalf of mana whenua	<p>Written approval was provided by Aukaha on behalf of mana whenua. Therefore, adverse effects on this party are disregarded.</p>

**Have all persons identified as affected under Step 3 provided their written approvals?**  
**No**

**Step 4 Further notification in special circumstances**

Do special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under Section 95E as not being affected persons)?

**No** – Special circumstances for limited notification may be considered where there is a rule precluding notification, but a special or unique situation exists that would make notification to specific parties desirable. There is no such situation that applies to this application.

**7. NOTIFICATION RECOMMENDATION:**

In accordance with the notification steps set out above, it is recommended that the application proceed on a **limited notified** basis.



Shay McDonald  
**Senior Consents Planner**  
 19 July 2024



## Decision on Notification

### *Sections 95A to 95G of the Resource Management Act 1991*

**Date:** 22 July 2024

**Application No:** RM24.143

**Subject:** *Decision on notification of resource consent application under delegated authority*

### **Decision under Delegated Authority**

The Otago Regional Council decides that this resource consent application is to be processed on a **limited notified**<sup>18</sup> basis in accordance with sections 95A to 95G of the Resource Management Act 1991.

The above decision adopts the recommendations and reasons outlined in the Notification Recommendation Report above in relation to this application. I have considered the information provided, reasons and recommendations in the above report. I agree with those reasons and adopt them.

This decision is made under delegated authority by:



.....  
Peter Christophers  
**Acting Team Leader Consents Coastal**

22 July 2024

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<sup>18</sup> Once all identified affected parties have provided their unconditional written approval to the application. If these approvals are not provided then the application will proceed by limited notification.