

**BEFORE A HEARINGS PANEL APPOINTED BY THE OTAGO REGIONAL COUNCIL**

**IN THE MATTER OF** the Resource Management Act 1991 (“the Act” or “the RMA”)

**AND**

**IN THE MATTER OF** Application RM24.143 by Dunedin City Council to establish  
and operate a resource recovery park.

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**STATEMENT OF EVIDENCE OF SAMANTHA ILES ON BEHALF OF OTAGO  
REGIONAL COUNCIL**

**CONTAMINATED LAND**

**23 October 2024**

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## **INTRODUCTION**

- 1 My full name is Samantha Jane Iles
- 2 I am employed by SLR Consulting New Zealand Limited (SLR Consulting) as a Principal Consultant – Environmental, based in Christchurch.
- 3 I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise, and I have considered and stated all material facts known to me which might alter or qualify the opinions I express.

## **QUALIFICATIONS**

- 4 I hold a Bachelor of Science (Technology) degree majoring in Chemistry, and Materials and Processing from the University of Waikato, and a Master of Science in Environmental Science from the University of Canterbury.
- 5 I have a total of nine (9) years' experience in laboratory, regulatory and consulting settings including four (4) years at the Canterbury Regional Council in the Contaminated Land and Waste Team.
- 6 I have worked for SLR Consulting (previously named 4Sight Consulting Limited) since May 2021 as a Senior Environmental Consultant, and since May 2023 as a Principal Consultant – Environmental. In my current role I undertake and oversee a wide range of services including preliminary and detailed site investigations, human health and environmental risk assessments, and remediation and validation projects involving soil, groundwater and surface water.

## **ENGAGEMENT AND SCOPE OF EVIDENCE**

- 7 In October 2023 and March 2024, I was engaged by the Otago Regional Council (ORC) to undertake a technical review of draft consent application documents (prior to application submission) and the subsequently submitted application documents provided by Dunedin City Council (DCC) for the establishment and operation of a Resource Recovery facility at the current Green Island Landfill.
- 8 I visited the site on 22 October 2024 to view the current site layout and surrounds.

9 I have been asked by the ORC to prepare evidence in relation of construction phase contaminated land management matters of the application.

10 In preparing this evidence I have reviewed the following documents

- (a) GHD Limited, 2024. DRAFT Construction Environmental Management Plan, Green Island Landfill Resource Recovery Part Precinct. 12 January 2024;
- (b) GHD Limited, 2024. DRAFT Erosion and Sediment Control Plan, Green Island Resource Recovery Park Precinct. 14 February 2024;
- (c) GHD Limited, 2024. DRAFT Contaminated Land Management Plan, Green Island Resource Recovery Park Precinct. 16 February 2024;
- (d) GHD Limited, 2021. Environmental Site Investigation Factual Report, Green Island Resource Recovery and Processing Precinct. 9 November 2021;
- (e) Boffa Miskell, 2024. Applications for Resource Consent and Assessment of Environmental Effects Prepared for Dunedin City Council, Green Island Resource Recovery Park Precinct. 15 March 2024 (relevant sections only); and
- (f) Resource Recovery Park Precinct – Draft ORC Conditions of Consent.
- (g) John and Helen Neill Submission on application RM24.143 dated 29 August 2024.

11 In giving this evidence, I am relying on the data (including analytical results) provided in the above reports.

## **BACKGROUND**

12 DCC propose to construct and operate a new Resource Recovery Park Precinct (RRPP) at the existing Green Island Landfill.

13 The Green Island Landfill began operating in 1954 in an unregulated and uncontrolled manner until the 1990s when DCC began management of the waste disposal activities. The landfill is still operational, and the proposed RRPP is to be located on a now closed portion of the landfill which received waste from the 1950s through to the late 1970s

- 14 The depth of waste in the location of the RRPP is reported to be between six (6) to eight (8) meters deep.
- 15 A consistent landfill cap does not appear to be present across the area of the proposed RRPP with the cover thickness varying from no cover to 1.2 m thick and of varying permeability.
- 16 Landfill gas measurements were highly variable across the site and measured at up to 80.5% methane (CH<sub>4</sub>) and 3.0 ppm hydrogen sulphide (H<sub>2</sub>S) with depleted oxygen concentrations recorded during each monitoring event.
- 17 Excavation of soils is required for the construction of building foundations and services for the new facility. Approximately 17,000 m<sup>3</sup> of contaminated material/soil is proposed to be excavated and will be transported directly to the Green Island Landfill tip face.

#### **APPLICATION AUDIT**

- 18 In April 2024, I prepared a Technical Audit Memo to respond to questions posed by ORC regarding the application. A copy of this Memo is provided as **Appendix A**. My assessment has not changed since preparing this Memo.
- 19 A key document relating to contaminated land matters is the Environmental Site Investigation (ESI) report prepared by GHD Limited. The ESI is not considered a Detailed Site Investigation in accordance with the *Ministry for the Environment (MfE) Contaminated Land Management Guideline No 1 – Reporting on Contaminated Sites in New Zealand (Revised 2021)*. However, it includes assessment of soil contamination, landfill gas and groundwater levels as relevant to the proposed development.
- 20 Results from the ESI have been used to inform controls to be implemented during earthworks to manage the risk to human health and the environment as documented in the suite of management plans.
- 21 Of particular note is the landfill gas monitoring requirements documented in Section 9 of the Construction Environmental Management Plan (CEMP).
- 22 The proposed controls include the use of a landfill gas meter and photo-ionisation detector prior to and during excavation and minor ground disturbance. Action levels and contingency measures are provided which are considered appropriate for the proposed works.

## **SUBMISSIONS**

23 I have reviewed the submissions received in relation to the application.

24 In particular, John and Helen Neill submitted that the disturbance of contaminated material should be minimised by staging the works and managing dust generation. I agree with these recommendations and consider that the management plans provided in the application provide sufficient procedures to appropriately manage this risk.

## **PROPOSED CONSENT CONDITIONS**

25 I have reviewed the proposed Conditions of Consent included in the ORC Officers Section 42A report and am in agreement.

## **CONCLUSION**

26 Overall, I consider that the technical information provided in relation to construction phase contaminated land matters is appropriate and contains sufficient controls to manage the risk to human health and the environment from construction of the proposed development.

### **Authored by:**



**Samantha Iles, CEnvP**  
Principal Consultant – Environmental

### **Reviewed by:**



**Emma Trembath**  
Technical Director – Environmental

23 October 2024

**Appendices**      Appendix A: Technical Memorandum

## **Appendix A**

Technical Memorandum – RM24.143 – Green Island Resource Recovery Park Precinct,  
Contaminated Land Technical Review. Prepared by Samantha Iles, SLR Consulting Ltd

**To:** Shay McDonald

**From:** Samantha Iles

**Company:** Otago Regional Council

**SLR Consulting New Zealand**

**cc:**

**Date:** 4 April 2024

**Project No.** 875.V15838.00002

**RE: RM24.143 – Green Island Resource Recovery Park Precinct  
Contaminated Land Technical Review**

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## 1.0 Introduction

SLR Consulting NZ (SLR) has been engaged by Otago Regional Council (ORC) to conduct a technical review of the resource consent application (including subsequent attachments) submitted by Dunedin City Council (the applicant, or DCC) for the development and operation of the Green Island Resource Recovery Park Precinct (RRPP) (referred to herein as the site).

As part of improvements to Dunedin's waste management and kerbside collection services, the applicant is proposing to develop a new RRPP facility at the existing Green Island Landfill which is coming to the end of its operational life.

SLR has prepared a number of Technical Memorandums in relation to the application. The Technical Memorandum herein relates to Contaminated Land Management.

## 2.0 Scope of the Review

### 2.1 Key Documents Reviewed

The following key documents, which were submitted as part of the application, have been reviewed in the development of this technical memo:

- GHD Limited, 2024. DRAFT Construction Environmental Management Plan, Green Island Landfill Resource Recovery Part Precinct. 12 January 2024;
- GHD Limited, 2024. DRAFT Erosion and Sediment Control Plan, Green Island Resource Recovery Park Precinct. 14 February 2024;
- GHD Limited, 2024. DRAFT Contaminated Land Management Plan, Green Island Resource Recovery Park Precinct. 16 February 2024;
- GHD Limited, 2021. Environmental Site Investigation Factual Report, Green Island Resource Recovery and Processing Precinct. 9 November 2021;
- Boffa Miskell, 2024. Applications for Resource Consent and Assessment of Environmental Effects Prepared for Dunedin City Council, Green Island Resource Recovery Park Precinct. 15 March 2024 (relevant sections only); and
- Resource Recovery Park Precinct – Draft ORC Conditions of Consent.

## 2.2 Scope

The scope of this review included:

- Review of the questions posed by ORC as detailed in Section 3.0 of this memorandum;
- Review of sections of the documents listed in Section 2.1 considered relevant to the questions posed by ORC (refer Section 3.0) for Contaminated Land Management; and
- Preparation of this technical memorandum.

## 3.0 Response

ORC posed the following questions which we respond to in turn:

- 1 Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?**

The supplied Environmental Site Investigation (ESI) report which includes a limited assessment of contaminated land risks across the site. It states that it does not constitute a full Detailed Site Investigation (DSI) of the site due to the lack of a full site history and limited sampling locations. The ESI includes assessment of soil contamination, landfill gas and groundwater levels as relevant to the proposed development. At the time of the investigation the final layout of the RRPP was not confirmed.

The ESI included the following:

- Test pits were excavated across the proposed development area to a depth of between 1.2 and 3.2 m below ground level (m bgl). Additionally, four boreholes were drilled for groundwater depth monitoring and four landfill gas monitoring wells were installed across the site;
- The landfill cap thickness varied across the site from 0.0 m (no cap) to 1.2 m thick;
- Waste material identified consisted of metal, glass, wood, plastic, brick, tyres, organics, string, paper, asphalt, wire and clothing;
- Hydrocarbon and organic odours were recorded in selected test pits;
- Landfill gas monitoring identified concentrations of methane ranging from 1.5 – 80.5% across the four monitoring rounds. Low oxygen levels were recorded in all wells in each monitoring event and hydrogen sulphide gas was detected in one well during one monitoring event;
- Water levels ranged from 1.83 – 3.84 m bgl which may have been influenced by pumping in the leachate trench at the time of measurements.

Contaminant concentrations in soil exceeded Green Island Landfill screening criteria however, Toxicity Characteristic Leaching Procedure (TCLP) testing of soil samples was not undertaken. Therefore, soil excavated for the proposed development can not be compared against the current landfill TCLP waste acceptance criteria. Excavated soil is proposed to be transported directly to the Green Island tip face for disposal. Section 3.5 of the Draft Contaminated Land Management Plan (CLMP) provides an assessment of the risk to the environment from disposing of the waste from the development area to the landfill tip face. The justification for disposal of this material includes:





- That the material is being retained on site, with no new contaminated materials being received at the landfill that had not already been accepted;
- The material had been in situ at the Green Island landfill for at least 50 years so leachate volumes and contaminants are likely to have peaked and begun reducing;
- The waste will be moved to a location with superior capping and leachate collection compared with the current in situ controls; and
- Any unanticipated gross contamination will be managed via the accidental discovery protocol.

SLR agree that the movement of the waste and soil from the current location to the tip face is unlikely to increase the risk to the environment. Whether the proposal is consistent with the Green Island Landfill waste acceptance criteria consent conditions is a compliance matter which is outside of the scope of this review.

**2 Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require and why. Please explain.**

The information provided is appropriate for the proposed activities with regard to contaminated land matters. No additional information is requested.

**3 If granted, are there any specific conditions that you recommend should be included in the consent?**

We have reviewed relevant sections of the proposed Draft Conditions of Consent (provided in Appendix 20 of the application) including:

- A: Schedule 1 General Conditions Relevant to All Consents: CEMP conditions 11 – 16; and
- F: Land Use Consent RM24 conditions 1 – 13.

The proposed conditions are considered appropriate. No further conditions are recommended.

**4 Are the (draft) CLMP, CEMP, and ESCP appropriate to manage adverse effects relating to the disturbance of a contaminated site for the construction of the RRPP? Please explain.**

Controls provided in the CLMP, CEMP and ESCP are considered robust and appropriate for the proposed site works. The following key points are noted:

*Unexpected Discovery Protocol*

An unexpected discovery protocol has been provided in Section 8 of the Construction CEMP and Section 9 of the CLMP. This includes a flow chart which clearly outlines the process to be followed if unexpected contamination is identified. There is a minor discrepancy between the information provided in the CEMP and CLMP. The CLMP is clear that the Council (assumed to refer to Otago Regional Council) should be notified and provided with copy of the report prepared by a suitably qualified and experienced practitioner (SQEP) within 24 hours of the find. This information should be updated in the CEMP to ensure consistency and avoid confusion.



### *Landfill Gas Monitoring and Mitigation*

Landfill gas monitoring and mitigation procedures are provided in Section 9 of the CEMP. This includes monitoring procedures and locations, action levels and corrective actions for if action levels are exceeded.

The monitoring and subsequent actions are considered appropriate for the proposed work given the concentrations of landfill gas recorded during monitoring and the proposed work to be completed.

### *Erosion and Sediment Control*

A draft ESCP was provided in the application. The ESCP is subject to change based on contractor preferred methodology and sequencing but includes general principals to be followed by the contractor. The controls in the draft ESCP are appropriate for the proposed activity.

## **4.0 Closure**

The consent application and additional information provided to support the application are considered adequate to manage the risks to human health and the environment for the proposed development.

Should you have any questions, please do not hesitate to contact the undersigned.

Regards,

**SLR Consulting New Zealand**



**Samantha Iles CEnvP**  
Principal Environmental Consultant



**Anna Lukey, CEnvP SC**  
Technical Director

