



# Proposed Conditions of Consent

1. The construction, operation, closure and aftercare of the landfill (including all associated discharges of contaminants to land, water and air) shall be undertaken in general accordance with the resource consent application (dated xxxx), including any final further information that was provided through the consenting process which amended the proposal in the application. In the event of any conflict or inconsistency between the conditions of this consent and the above documents, then the conditions of this consent shall prevail.

## PART A – LANDFILL DESIGN CONDITIONS

2. All investigations, detailed design, and supervision of construction of the landfill development works shall be undertaken by a suitably experienced Chartered Professional Engineer (CPEng).
3. At least three months prior to commencing construction of the landfill development works, including for each stage of the landfill, the consent holder must submit detailed design drawings to the Otago Regional Council for review and approval.
4. The as-built drawings for each completed stage of the landfill development works shall be prepared by a suitably experienced Chartered Professional Engineer (CPEng) and submitted to the Otago Regional Council for review and approval within three months of completion of construction.

### Liner

5. The lining system for both the base and side slopes shall, as a minimum, comprise the following lining system:
  - a. Type 2 Lining system (from top to bottom)
    - 300 mm layer of leachate drainage material
    - Protection geotextile
    - 1.5 mm HDPE geomembrane
    - Geosynthetic clay liner (GCL)
    - 600 mm compacted soil with a coefficient of permeability  $k < 1 \times 10^{-8}$  m/s
6. The lining system for the batters which interface with the existing unlined landfill cells shall, as a minimum, comprise the following lining system:

- 300 mm layer of leachate drainage material
  - Liner protection layer
  - 1.5 mm HDPE geomembrane
  - Geosynthetic clay liner (GCL)
  - 600 mm compacted soil with a coefficient of permeability  $k < 1 \times 10^{-8}$  m/s
7. The Consent Holder may use an alternative lining system demonstrated to provide equivalent or better performance compared with the specified system. Use of an alternative lining system shall be subject to the approval of the Otago Regional Council.
  8. The leachate drainage system shall be designed to achieve leachate head not in excess of 300 mm at any point on the geomembrane liner.

### Final Capping

9. Final capping on all stages of the landfill shall comprise, from bottom to top, the following minimum layers:
  - a. 500 millimetres combination of intermediate soil cover and gas dispersion layers;
  - b. 300 millimetres growth media layer; and
  - c. 150 millimetres of topsoil (grassed).

### Stability

10. The detailed design of the landfill shall ensure that the temporary and permanent engineered cut and fill slopes, toe embankment, and the landfill with waste placement, achieve a factor of safety of at least 1.5 under static conditions.
11. The consent holder shall inspect the landfill surface and surrounds within seven days of any significant earthquake event (>1:50 year return period) and shall provide a report to the Otago Regional Council within one month of completion of such inspection, on any damage caused to the landfill by the earthquake, any necessary repairs, and timeframes for completion of repairs.

**Commented [CA1]:** Gerry: Replace the 1:50 year return period with "shaking >.xg whatever design shaking will be

## PART B – LANDFILL OPERATIONS CONDITIONS

### Waste acceptance

12. The consent holder shall retain an appropriately experienced person to supervise the operation of the landfill.
13. All persons depositing waste into the landfill shall hold a valid Waste Acceptance Agreement confirming the material meets the waste acceptance criteria in the consent conditions.
14. No waste, other than municipal solid waste (MSW), waste that meets the definition for a Class 1 landfill as per the WasteMINZ Technical Guidelines for Disposal to Land 2022, and hazardous wastes that meet the Ministry for the Environment Module 2: Hazardous Waste Guidelines – Class A shall be accepted for disposal.
15. Disposal of medical wastes shall be in accordance with NZS4304:2002 Healthcare Waste Management or subsequent amendments, and disposal of asbestos in accordance with the Asbestos Regulations 1998 or subsequent amendments.
16. The following wastes shall not be accepted for disposal:

- a. Liquid waste.
  - b. Wastes or substances classified as explosive, flammable, oxidising or corrosive under the Hazardous Substances and New Organisms Act 1996.
  - c. Waste marked with an asterisk on the NZ Waste List (L Code).
17. A notice shall be placed at the landfill entrance which identifies the wastes that are unacceptable at the landfill.
  18. Random inspections of incoming loads to the landfill for the presence of hazardous waste shall be undertaken at a minimum rate of 1 in 50 loads, or 10 loads per month, and tipping of all waste shall be supervised.
  19. The consent holder shall maintain a record of the quantities and types of waste accepted at the landfill. A copy of this record shall be provided annually to the Otago Regional Council.
  20. The Otago Regional Council shall be immediately notified if any waste delivery vehicle is turned away from the landfill that contains waste that does not comply with the waste acceptance criteria in the consent conditions.

#### Daily cover

21. Daily cover shall be placed over the entire working face (excluding areas of inert waste) by the end of each operating day and no refuse shall remain exposed overnight. Daily cover may include:
  - Soil or imported clays
  - Inert wastes received at the site
  - Shredded green waste, sawdust or mulch
  - Contaminated soils (compliant with site Waste Acceptance Criteria)
  - Ash
  - Stabilised biosolids

- Temporary membrane

Commented [CA2]: Gerry's suggestion

#### Intermediate cover

22. All areas where further waste will not be placed for three months, shall be covered with intermediate soil cover to a minimum depth of 300 millimetres, and grass cover.

#### Leachate management

23. The new landfill cells shall be designed and constructed with a:
  - a. Landfill liner to isolate leachate from the underlying strata, and which meets the minimum requirements of the WasteMINZ Technical Guidelines for Disposal to Land 2022 for a class 1 landfill.
  - b. Leachate collection system to remove leachate from the new landfill cells, and which meets the WasteMINZ Technical Guidelines for Disposal to Land 2022 for a class 1 landfill and configured to ensure the maximum head of leachate on the liner is no greater than 300mm over all areas of the liner under normal operating conditions, apart from the sumps.

- c. Groundwater collection system beneath or around the landfill liner which is sized and configured to ensure effective sub-liner drainage, with a separate sump from the leachate collection system.

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24. The consent holder shall ensure that the leachate collector pipes are able to be flushed.

25. On-site standby electrical supply shall be available provided to ensure the operation of the leachate collection system is not interrupted through loss of mains power supply.

26. Leachate conveyance and storage facilities shall be sealed to minimise odour.

### Stormwater management

27. Stormwater from the site shall be managed as following:

- a. Stormwater from the active landfill face will be discharged to the leachate management system as contaminated stormwater and then pumped to the Balclutha Wastewater Treatment Plant; and
- b. Stormwater from the other areas of the landfill site (sealed and unsealed roads; capped areas) will be discharged via drains to the two stormwater ponds for treatment prior to being discharged to the Clutha River / Mata-Au via a culvert.

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28. The landfill perimeter drain and stormwater ponds shall be designed and constructed to manage a 1% AEP (Annual Exceedance Probability) storm event.

29. The landfill perimeter drain and stormwater ponds shall regularly inspected and maintained.

### Odour

30. Beyond the boundary of the site, there shall be no odour caused by discharges from the landfill which, in the opinion of a suitably qualified and experienced enforcement officer when assessed in accordance with the Best Practice Guide for Assessing and Managing Odour' (Ministry for the Environment, 2016) is noxious, dangerous, offensive or objectionable.

31. Effective odour control procedures shall be implemented at the site including, but not limited to:

- a. Keeping the working surface of the daily refuse cell to a practicable minimum in accordance with condition xx.
- b. Applying daily cover in accordance with condition xxx.
- c. Managing known odorous wastes in accordance with specific procedures in the Landfill Management Plan, including but not limited to:
- Waste acceptance and pre-treatment criteria
  - Restrictions on the hours of delivery
  - Procedures for excavations and immediate covering of placed waste
- d. Ensuring equipment and materials for application of odour neutralising sprays are available for use, if required.

### Landfill Gas

32. The consent holder shall prepare a Landfill Gas Abstraction Report by a suitably qualified expert with appropriate experience in landfill gas abstraction, by 1 September 2025, that as a minimum:

- a. Provides an overall concept design of the gas abstraction system that would be installed which is capable of effectively abstracting and destroying (e.g. flaring, electricity generation) the landfill gas. This system shall be designed to effectively maximise recovery of LFG and minimise odour;
  - b. Provides detailed design of the gas abstraction wells to be located against the highwall;
  - c. Provides detailed design of any other gas abstraction infrastructure that is to be constructed within the next year after the due date of this report; and
  - d. Provides a timeline for the proposed works.
33. By 1 September 2025, and by every fifth year thereafter (the next being by 2030), the consent holder shall have a report prepared by an expert with appropriate experience in landfill gas abstraction, that as a minimum:
- a. Provides the calculated current and estimated future gas production at the landfill;
  - b. Outlines the current legislative requirements for landfill gas management in New Zealand;
  - c. Summarises all odour complaints received by the consent holder and the Otago Regional Council.
  - d. Summarises all of the consent holder's observations and assessments of landfill gas odour from the landfill;
  - e. Includes a detailed analysis of available information, that subsequently recommends whether collection and destruction of LFG is required to mitigate odour beyond the boundary or otherwise meet statutory responsibilities in regard to greenhouse gases. If the consent holder does not have enough information to make a conclusion, then the consent holder shall undertake the investigations required to gain such information;
  - f. Details what gas abstraction infrastructure has been installed since the previous report;
  - g. Includes an updated version of the Gas Abstraction Report required by condition xx if the consent holder considers that report to now be fundamentally inaccurate.

#### Dust

- 34. Beyond the boundary of the site there shall be no dust caused by discharges from the landfill operations on the site which, in the opinion of a suitably qualified and experienced enforcement officer, is noxious, offensive or objectionable.
- 35. Effective dust control procedures shall be implemented at the site including, but not limited to a water supply on the site to control dust at the working face, to dampen down unsealed access roads, and for fire control.

#### Wind-blown litter

- 36. The consent holder shall maintain in place infrastructure and procedures to ensure, as far as is practicable, that any waste is not blown from the lined area of the landfill, and that litter on the wider site is kept to minimum practicable levels through regular routine and as required litter pick-ups.

#### Vermin

- 37. The consent holder shall manage the landfill to control vermin (including but not limited to rodents and feral cats) and birds to minimum practicable levels and in addition to ensure neighbours are not likely to be adversely affected by such vermin and birds. Such

management shall include preparation of a Bird Management Plan by a suitably qualified person, and submitting the Bird Management Plan to the Otago Regional Council for review.

## PART C – MONITORING CONDITIONS

### Leachate monitoring

38. The consent holder shall install a flow meter on the landfill leachate pump station. The flow meter shall:
  - be at a location to ensure it will measure only leachate discharged from the landfill;
  - have an accuracy of  $\pm 10\%$ ;
  - be able to provide data in a form suitable for electronic storage;
  - be suited to the quality of the leachate;
  - be sealed and as tamper-proof as practicable;
  - be installed and maintained in accordance with the manufacturer's recommendations and good practice.
39. The flow meter shall record the quantity of leachate that flows out of the landfill leachate collection system off-site to the Balclutha Wastewater Treatment Plant. The flow shall be recorded at hourly intervals and include the daily total.
40. The leachate quantity and leachate level data shall be forwarded to the Otago Regional Council with the quarterly monitoring results.
41. Groundwater monitoring bores GW1 – GW12 shall be installed at least six months prior to landfill construction commencing, as shown on drawing xxxx, to enable monitoring for leachate contamination of groundwater. All monitoring bores shall be sealed to prevent ingress of surface water or contaminants.
42. Groundwater monitoring shall commence at least six months prior to landfill construction commencing, as shown on drawing xxx, to establish the baseline water chemistry and inform the development of monitoring trigger levels.
43. The consent holder shall, unless otherwise directed in writing by the Otago Regional Council, monitor the groundwater by sampling groundwater monitoring bores GW1 – GW12 and the leachate pump station quarterly for the following parameters:
  - water level
  - pH
  - conductivity
  - alkalinity
  - chloride
  - ammoniacal-N
  - nitrate-N
  - potassium
  - boron

- zinc

44. The results of the sampling required under condition 44 shall be provided to the Otago Regional Council as part of the quarterly and annual reporting requirement stated in conditions 59-60 of this consent.

### Stormwater monitoring

45. Stormwater discharged from the site boundary to the Clutha River / Mata-Au shall contain no more than 30 g/m<sup>3</sup> of suspended solids in 95% of samples in any consecutive twelve-month period where one sample is one half-hourly reading in NTU units of a nephelometric turbidity meter converted to its equivalent reading in g/m<sup>3</sup> units of suspended solids.

### Erosion and sediment control

46. Prior to commencing the landfill construction works, the consent holder shall prepare a Construction Erosion and Sediment Control Plan by a suitably qualified person and provide it to the Otago Regional Council for review and approval. The Construction Erosion and Sediment Control Plan shall include at least the following:

- a. Details of all principles, procedures and practices that shall be implemented to undertake erosion and sediment control to minimise the potential for sediment discharge from the site, including flocculation if required;
- b. The design criteria and dimensions of all key erosion and sediment control structures;
- c. A site plan of a suitable scale to identify:
  - The locations of waterways;
  - The extent of soil disturbance and any vegetation removal;
  - Any “no go” and/or buffer areas to be maintained undisturbed adjacent to watercourses;
  - Areas of cut and fill;
  - Locations of topsoil stockpiles;
  - All key erosion and sediment control structures;
  - The boundaries and area of catchments contributing to all stormwater impoundment structures;
  - The locations of all specific points of discharge to the environment; and
  - Any other relevant site information
- e. A construction timetable for the erosion and sediment control works and the bulk earthworks proposed;
- f. Timetable and nature of progressive site rehabilitation and re-vegetation proposed;
- g. Maintenance, monitoring and reporting procedures;
- h. Rainfall response and contingency measures including procedures to minimise adverse effects in the event of extreme rainfall events and/or the failure of any key erosion and sediment control structures;
- i. Procedures and timing for review and/or amendment to the CЕСSCP (e.g. if the highwall works plans change, the CЕСSCP will likely need to be amended to ensure it matches the works); and

- j. Identification and contact details of personnel responsible for the operation and maintenance of all key erosion and sediment control structures.

## PART D – LANDFILL MANAGEMENT PLAN CONDITIONS

47. The consent holder shall update the Landfill Management Plan and submit the Landfill Management Plan to the Otago Regional Council for review and approval within three months of the granting of this consent.

The Landfill Management Plan shall address how the following matters will meet any requirements, limits, or restrictions set out by the conditions of these resource consents:

- a. The stages and order of landfill development, including matters to be completed prior to each stage.
  - b. Construction and testing of the lining system.
  - c. Landfill gas, leachate, groundwater and stormwater management.
  - d. Erosion and sediment controls during construction and operation.
  - e. Types of waste to be accepted and those that are prohibited.
  - f. Waste acceptance control and monitoring of the types of waste accepted.
  - g. Methods of placing and covering waste, including highly odorous and special waste.
  - h. Management of the active landfill area.
  - i. Fire preparedness and response management.
  - j. Odour and dust management.
  - k. Noise management.
  - l. Litter management.
  - m. Plant and animal pest management, including bird control.
  - n. Monitoring procedures, including locations, parameters, frequency, detection limits and trigger levels.
  - o. Landfill inspections and maintenance.
  - p. Emergency management and contingency response procedures.
  - q. Complaints response procedures.
  - r. Record-keeping and reporting requirements.
  - s. Final landfill capping, post settlement height, shape and contours of the land.
  - t. Landfill closure and aftercare.
48. The Landfill Management Plan, once approved by the Otago Regional Council, shall be kept on site and shall be adhered to at all times.
49. The Landfill Management Plan shall be subject to review annually from the date the landfill begins placement of waste (unless the requirement for review is waived by the Otago Regional Council). The consent holder shall lodge a copy of the approved Landfill Management Plan with the Otago Regional Council and a hard copy shall be made available at the Landfill during office hours for use. Otago Regional Council may waive the



annual review requirement for that year if no amendments are required by the Otago Regional Council.

## PART E – REPORTING AND COMPLAINTS CONDITIONS

### Quarterly Report

50. The consent holder shall compile a quarterly report which includes at least the following:
- a. A brief identification and explanation of any non-compliances, trigger level exceedances, concerning trends, and any significant problems/challenges on site over the past quarter.
  - b. All available historical groundwater and stormwater data record updated to include all the data from the time this consent is granted, up to the reporting quarter. The raw monitoring data records shall be provided in electronic spreadsheet format (e.g. Excel);
  - c. A summary of any complaints received;
  - d. Further information/discussion as considered relevant by the consent holder.

### Annual Report

51. The consent holder shall compile an annual report on the operation of the landfill, which shall include as a minimum:
- a. Comment or information that demonstrates compliance with each condition of this resource consent;
  - b. A summary of the development of the landfill, including the status of landfilling operations on the site and work completed during the report period;
  - c. Any difficulties which have arisen in the preceding year and measures taken to address those difficulties;
  - d. Construction or development activities proposed for the next year of the landfill operation.
  - e. A summary of the monitoring results over the previous year including analysis and identification of any short and long term (10 years plus) trends, comments on the significance of the trends, and an outline of any subsequent planned actions.
  - f. A copy of all raw monitoring data from the current report period and all previous years shall be provided. The raw monitoring data records shall be provided in electronic spreadsheet format (e.g. Excel).
  - g. Reporting of rainfall data, including comment on the significance of the rainfall and how it affected the landfill management that year;
  - h. Reporting of measured leachate discharge from the site for the year, including monthly totals and comparison with recorded rainfall including monthly totals with analysis and comments on whether landfill management is successfully minimising leachate generation to the extent practical;
  - i. A summary of all complaints received over the past year, and any subsequent actions taken in response to those complaints.

The report period shall be 1 July to 30 June each year. The report shall be forwarded to the Otago Regional Council by 1 September each year unless otherwise agreed in writing with the Otago Regional Council.

### Complaints Management

52. Upon receiving a complaint, the consent holder shall:
  - a. Identify the nature of the complaint, the location, date and time of the alleged incident event(s);
  - b. Acknowledge receipt of the complaint to the complainant within 1 working day of receipt;
  - c. Respond to the complaint in accordance with any relevant Management Plan or condition; and
  - d. Advise the complainant of what steps have been taken in response to the complaint within 10 working days.
53. A record of all complaints received shall be kept by the consent holder. This record shall include:
  - a. The name and address of the person(s) who raised the complaints (unless they elect not to provide this) and time and nature of the complaint;
  - b. Where practicable, weather conditions at the time of the concern or complaint, including wind direction and cloud cover if the complaint relates to noise, dust or air quality;
  - c. Known activities occurring on site at the time and in the vicinity of the concern or complaint; and
  - d. Remedial actions taken (if any) and the outcomes of these.

## PART F – CLOSURE AND AFTERCARE CONDITIONS

54. At least 12 months prior to the landfill ceasing to accept waste for placement, the consent holder shall prepare and provide an Aftercare and Monitoring Plan to the Otago Regional Council for review. The objective of the Aftercare and Monitoring Plan is to describe the measures to be taken to stabilise the site and maintain environmental controls including stormwater, leachate and landfill gas collection and treatment. The Aftercare and Monitoring Plan shall be updated as necessary and any updates shall be certified by the Otago Regional Council.

The Aftercare and Monitoring Plan shall include details of:

- a. land ownership and liability for contamination;
- b. responsibilities for aftercare;
- c. final contours;
- d. capping and revegetation;
- e. operation and maintenance of stormwater systems;
- f. operation and maintenance of leachate management systems;
- g. operation and maintenance of landfill gas management systems;

- h. ongoing monitoring, including groundwater, surface water, leachate, landfill gas and site capping;
- i. future usage; and
- j. funding of aftercare.

The closed landfill shall be managed in accordance with the Aftercare and Monitoring Plan.

### Review

55. The Consent Authority may, in accordance with Sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent during the period of three months after receiving the Annual Report each year, as specified in condition 52 of this consent, for the purpose of:
- Determining whether the conditions of this consent are adequate to deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which becomes evident after the date of commencement of the consent;
  - Ensuring the conditions of this consent are consistent with any National Environmental Standards, relevant regional plans, and/or the Otago Regional Policy Statement;
  - Reviewing the frequency of monitoring or reporting required under this consent.