SMOOTH HILL LANDFILL DRAFT CONDITIONS

ORC Conditions of Consent

Lapse date 10 years from the date the consents are granted.

A. General conditions

1. The construction, operation, and aftercare of the landfill and road upgrades, including all associated discharges of contaminants to land, water, and air, shall be undertaken generally in accordance with the following documents, except where modified by other conditions of this consent. In the event of differences or conflict, between the measures in the documents and the conditions, the conditions shall prevail:

    a. [insert references to final consent documents]

    b.

2. Pursuant to Section 128 of the Resource Management Act 1991 the consent authority may in [insert month] each year serve notice of its intention to review the conditions of this consent for the purposes of:

    a. dealing with any adverse effect on the environment which may arise from the exercise of this consent; or

    b. requiring the adoption of the best practicable option to reduce any adverse effect on the environment.

B. Conditions to be met during detailed design, construction, and operation

<u>General</u>

3. All investigations, detailed design, and supervision of construction of the initial landfill development works, works for each stage of the landfill, and road upgrades shall be supervised by a suitably experienced Chartered Professional Engineer (CPEng).

4. The detailed design of the initial landfill development works, works for each stage of the landfill, and road upgrades shall be provided to the ORC for review and approval that the detailed design compiles with this consent at least 3 months prior to construction commencing.

5. The completed initial landfill development works, works for each stage of the landfill, and road upgrade works shall be certified by the suitably experienced Chartered Professional Engineer (CPEng) that they have been completed in accordance with the detailed design approved by ORC within 3 months following completion.

<u>Land Stability</u>

6. The detailed design of the landfill shall include slope stability analysis to verify that the landfill will be stable in the short (construction/operation) and long-term (closure/post closure). This

shall include geotechnical stability analysis of the proposed sub-grade arrangement for each stage based on the proposed excavation/filling arrangement.

The analysis shall adopt the following relevant factors of safety (FOS) adopted for landfill industry practice, with justification provided for any deviations from these values.:

Condition	**Required Factor of Safety**
Static Stability with Elevated Leachate (permanent)	1.5
Seismic Serviceability Limit State	1.0
Seismic Ultimate Limit State	1.0

7. The detailed design of the landfill shall include stability analysis to verify the placement of waste achieves waste stability in the short (construction/operation) and long-term (closure/post closure) and ensures the interface friction angle at the base of the landfill between the waste and liner protects against a base slide failure or a potential circular slip failure through the base. This shall include:

   a. Veneer slope stability analysis of the proposed liner and capping arrangements for each stage.

   b. Waste stability analysis of the proposed landfill stages

   The analysis shall utilise site specific parameters where possible for the various materials, and/or publicly available material data where site-specific information is not available. Where publicly available material data is used, a verification programme shall be included as part of the detailed design documentation provided to ORC for review and approval to verify that the construction materials align with any assumptions made as part of the slope stability analysis.

Water Quantity

8. The landfill perimeter drain, other permanent drainage diversion channels and culverts, and attenuation basin shall be designed and constructed to manage a 1% AEP (Annual Exceedance Probability) storm event. Diversion channels shall be designed such that if this capacity is exceeded the preferential (secondary) flow path is, as far as practicable, away from the landfill. Suitable scour protection shall be placed within the landfill perimeter drain where design flows exceed 0.8m/s to prevent scouring.

9. All stormwater shall be discharged to the Ōtokia Creek as follows:

   a. Stormwater collected within the area of stage 1 of the landfill development shall be discharged via a pipe through the toe bund to the Ōtokia Creek, until which time stage 1 is completed.

   b. Except as provided by (a) above, stormwater from gullies upstream of the attenuation basin, the perimeter swale drain, and landfill operational areas (other than open sections of the landfill), upper facilities area, and final cap shall be directed to the attenuation basin for infiltration to ground, and discharge to the Ōtokia Creek.

10. The take of groundwater from the groundwater collection system shall only be used for non-potable water supply, and the quantity taken for this purpose shall not exceed 50m^3/day. Any groundwater that is not taken for this purpose shall be discharged to the Ōtokia Creek.

11. The quantity of water taken from the groundwater collection system for non-potable water supply, quantity of leachate taken from the leachate collection system shall be recorded instantaneously, and reported annually to ORC.

12. The landfill perimeter drain, other permanent drainage diversion channels and culverts, attenuation basin, and groundwater collection system shall regularly inspected and maintained in perpetuity.

Water Quality

13. The landfill shall be designed and constructed with a:

    c. Landfill liner to isolate leachate from the underlying strata, and which meets the minimum requirements of the WasteMINZ *Technical Guidelines for Disposal to Land 2018* for a class 1 landfill.

    d. Leachate collection system to remove leachate from the landfill, and which meets the WasteMINZ *Technical Guidelines for Disposal to Land 2018* 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.

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

14. Leachate shall only be discharged onto or into land within the landfill liner extent shown on drawing 12506381-01-C201.

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

16. Groundwater monitoring bores GW1 – GW6 shall be installed at least 18 months prior to waste being accepted as shown on drawing 12506381-C309 to enable monitoring for leachate contamination of groundwater. All monitoring bores shall be sealed to prevent ingress of surface water or contaminants.

17. Groundwater monitoring shall commence at least 18 months prior to waste being accepted at monitoring bores GW1 – GW6, and surface water monitoring at locations SW1 – SW7 shown on drawing 12506381-C309 shall commence at least 36 months prior to landfill construction commencing to establish the baseline water chemistry and inform the development of monitoring trigger levels. Sampling of groundwater and surface water shall occur at least every 3 months for the parameters set out in Attachment 1 for those locations.

18. Monitoring trigger levels shall be developed for those parameters set out in Attachment 1 to detect leachate leakage effects on groundwater, and leachate, suspended solids, and turbidity on surface water quality, when monitored at the following locations:

    a. The monitoring bores shown as GW1 – GW6 on drawing 12506381-C309.

    b. The groundwater collection system prior to discharge to the Ōtokia Creek, or abstraction for non-potable water supply.

c. The sediment retention pond for stage 1 prior to discharge to the Ōtokia Creek

d. The surface water monitoring points shown as SW1 – SW7 on drawing 12506381-C309.

The baseline water chemistry data collected under condition 17 shall be used to establish typical ranges for each parameter in **Attachment 1** and establish trigger values for these ranges. Proposed trigger levels shall be provided to ORC for approval that the trigger levels are suitable to detect any leachate in advance of waste being accepted.

19. During operation of the landfill the monitoring of groundwater and surface water outlined in the table below shall occur and be assessed against the trigger levels established under condition 18, and the results reported to ORC. Where there is any exceedance of the trigger levels caused leachate or sediment, the specified actions shall be implemented.

Monitoring Point	**Frequency**	**Parameters**	**Actions where trigger levels are exceeded**
Sub-liner groundwater drainage system prior to discharge to the Ōtokia Creek or abstraction for non-potable water supply.	Continuous	• Electrical conductivity • pH • Ammonia	The low-flow outlet from the attenuation basin shall be closed immediately following any exceedance being detected in the event that leachate contaminated stormwater is flowing from the basin to the Ōtokia Creek. The manhole outlet from the groundwater collection system shall be closed immediately following any exceedance being detected, and groundwater redirected to the leachate collection system. The outlet from the sediment retention pond for stage 1 shall be closed immediately following any exceedance being detected. All known downstream groundwater and surface water abstractors within the McColl Creek catchment, and Te Rūnanga o Ōtākou are notified of any exceedance no later than 1 day following the exceedance being detected. An investigation is undertaken into potential causes is completed no later than 1 week following the exceedance being detected. A report is provided to Te Rūnanga o Ōtākou, and ORC no later than 2 weeks following the exceedance being detected outlining actions to be taken to
	Monthly	As set out in Attachment 1	
Groundwater monitoring wells as GW1 – GW6	Quarterly.	As set out in Attachment 1	
Sediment retention pond within stage 1 prior to discharge to the Ōtokia Creek, (until which time no direct discharge from stage 1 occurs)	Continuous (when flows occur)	• Electrical conductivity • pH • Ammonia	
Surface water monitoring points shown as SW1 – SW6	Weekly (when flows occur). If continued periods of surface water discharge occur, then monitoring will occur weekly.	As set out in Attachment 1 In addition, the following will be monitored: • Flow rate • Suspended solids • Turbidity	
Surface water monitoring point shown as SW7 (located at the Ōtokia Creek culvert).			
Tributary of the Ōtokia Creek immediately	Daily visual inspection	Visual inspection of water clarity and colour.	

downstream of the landfill northern site boundary.	(when flows occur)		prevent further leachate contamination and outlining proposed follow up monitoring. Where there is any exceedance of trigger levels for suspended solids or turbidity, sediment controls shall be adjusted so that the site does not contribute a disproportionate sediment load downstream in comparison to the catchment above McLaren Gully Road.

20. The construction and operation of the landfill shall not cause there to be a conspicuous change in water quality, objectionable odour, water unsuitable for consumption by farm animals, or significant effect on aquatic life in the Ōtokia Creek downstream of the discharge of stormwater from the landfill site.

21. Suitable scour protection shall be placed on the spillway of the attenuation basin to prevent scour.

22. The vehicle wash bay shall be designed, constructed, and operated to ensure water used passes through sumps with oil and sediment traps with the capacity to cater for the proposed discharge of water. Discharges from the vehicle wash bay shall be directed to a sediment retention pond prior to discharge to the Ōtokia Creek.

23. The wheel wash shall be designed, constructed, and operated to ensure used water passes through sediment traps and flocculation ponds of capacity to cater for the proposed discharge, prior to being recycled to the wheel wash. Excess discharges from the wheel wash shall be directed to the landfill attenuation basin.

24. Stormwater, erosion and sediment control management measures shall be implemented during the construction and operation of the landfill, and construction of the road upgrades, which ensure:

    a. The area of soil surfaces exposed at any one time is minimised.

    b. Cut off drains are installed upslope of exposed soil surfaces to intercept stormwater and minimise flow over exposed soil.

    c. All stormwater from exposed soil surfaces within the landfill footprint is directed to and treated in sediment retention ponds, prior to discharge to the landfill attenuation basin or Ōtokia Creek.

    d. Temporary measures such as silt fences, sediment traps, sediment retention ponds, and temporary cover and stabilisation are installed to minimise the transport of sediment from exposed soil surfaces and stockpile areas.

    e. Completed earthworked areas are stabilised with vegetation or other means as soon as practicable.

25. All erosion and sediment control measures shall take into account site specific conditions and be designed and implemented to in accordance with Auckland Council Publication GD05 – *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region – June 2016* for the sizing of ponds, and Environment Canterbury *Erosion and Sediment Control*

Toolbox, or other best practice guidelines, for the identification of the most appropriate control measures taking into account site specific conditions. Sediment control ponds will be designed to manage a 10% AEP (Annual Exceedance Event) storm event, with provision to pass a 1% storm event. Scour protection shall be placed at the outlet of sedimentation ponds to prevent scour.

Air Quality

26. Municipal Solid Waste shall be accepted for disposal only if it has been transported to the landfill in sealed truck and trailer units or bins.

27. An automatic weather station shall be maintained on site which records wind speed and direction, temperature, relative humidity, and rainfall.

28. No composting activity shall occur on the site.

29. To minimise odour emissions during handling of odorous wastes the following measures shall be implemented:

    a. Requiring delivery of highly odorous loads (including biosolids and offal) to be pre-booked, to ensure the following preparations are made including cover material is available at the pit location.

    b. Wastewater biosolids shall be treated with stabilised lime or an alternative that performs to an equivalent or higher standard of treatment for odour, prior to delivery to the site. Loads not complying shall be refused entry and only accepted after treatment.

    c. Holding deliveries of unexpected highly odorous loads until preparations identified in (a) above are in place to enable disposal.

    d. Potentially odorous loads shall be covered as soon as practicable and in any event not later than one hour following placement.

30. All waste shall at least be covered at the end of each working day with:

    a. compacted soil cover to a minimum depth of 150 millimetres; or

    b. construction and demolition waste to a minimum depth of 150 millimetres; or

    c. alternative materials that perform to an equivalent or higher standard to 150 millimetres soil cover.

31. No waste shall remain exposed overnight.

32. 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 established by hydroseed.

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

34. There shall be no objectionable odour, or nuisance deposits of particulate matter at any building used for residential activity as a result of any of the consent holder's activities on the site.

35. A detailed Landfill Gas Risk Assessment (LFGRA) shall be completed prior to construction of the landfill to confirm potential landfill gas related risks at the site, including potential sources of landfill gas, emission pathways, receptors of emissions from the site, and management measures. The detailed LFGRA should further consider / investigate organic mudstone / lignite as a source of ground gas at the site. The LFGRA required under this condition shall be

reviewed and updated at least every 5 years, or more regularly if there are changes to the location of potential receptors.

36. The landfill shall be designed and progressively constructed with a:

    a. Landfill liner to reduce fugitive subsurface emissions of landfill gas, and which meets the minimum requirements of the WasteMINZ *Technical Guidelines for Disposal to Land 2018* for a class 1 landfill.

    b. Leachate collection system to remove leachate from the landfill, and which meets the minimum requirements of the WasteMINZ *Technical Guidelines for Disposal to Land 2018* for a class 1 landfill, and provides leachate pumping systems in accordance with relevant standards in relation to landfill gas (e.g. *AS/NZS 2381.1.1:2005*).

    c. Landfill gas collection and destruction system suitable for the anticipated rate and quantity of landfill gas emitted by the landfill, which addresses the risks identified by the LFGRA in condition (35) above, and meets the minimum requirements of the WasteMINZ *Technical Guidelines for Disposal to Land 2018* for a class 1 landfill, and Resource Management (National Environmental Standards for Air Quality) Regulations 2004.

37. A landfill gas monitoring bore network shall be installed around the perimeter of the landfill at least 6 months prior to waste being accepted to enable detection of landfill gas escaping laterally from the landfill and identify its location, and which addresses the risks identified by the LFGRA in condition (35) above and meets the minimum requirements of the EPA Victoria (2015) Best Practice Environmental Management guidelines.

38. Monitoring of gas emissions in the landfill gas monitoring bore network shall commence at least 6 months prior to waste being accepted to establish background ground gas data and inform the development of monitoring trigger levels.

39. Monitoring trigger levels shall be developed for those parameters relevant to detect landfill gas escape, when monitored at the following locations:

    a. The landfill gas monitoring bore network.

    b. The surface of the final landfill cap.

    The baseline gas data collected under condition 38 shall be used to establish typical ranges for each parameter and establish trigger values for these ranges. Proposed trigger levels shall be provided to ORC for approval that they are suitable to detect landfill gas in advance of waste being accepted.

40. During operation of the landfill, landfill gas concentrations shall be measured at least monthly in each of the perimeter monitoring bores, and at least every 3 months at the surface of the final landfill cap, and assessed against the trigger levels, and reported to ORC. Where there is any exceedance, a report will be provided to Te Rūnanga o Ōtākou, and ORC no later than 2 weeks after any exceedance is detected outlining detailed actions to be taken to reduce landfill gas detected and outlining proposed follow up monitoring.

41. During operation of the landfill, a walkover site inspection shall be undertaken at least monthly by the landfill operator. Any evidence of actual or potential landfill gas leaks, odour, cracks in the landfill surface, gas bubbles, leaks in the gas extraction system, or vegetation damage, shall be investigated. Remedial action shall be undertaken as soon as practicable where necessary to minimise fugitive emissions.

42. The landfill gas collection and destruction system shall be restored as soon as practicable in the event of a malfunction or fault.

43. On-site standby electrical supply shall be provided to ensure the operation of landfill gas flare equipment is not interrupted through loss of mains power supply.

44. A final capping layer, shall be constructed as each stage of the landfill is completed. The final cover layer shall comprise the following minimum layers, from bottom to top;

    a. 600 millimetres of compacted cohesive soils with a permeability coefficient of not more than 1 x 10^{-7} metres per second; and

    b. 300mm growth media layer; and

    c. 150 millimetres of topsoil (grassed).

Ecology

45. There shall be no clearance of indigenous vegetation earthworks, or landfill operations in West Gullies 1, 2, 3, and 4 as identified in the *Smooth Hill Ecological Impact Assessment Report, Boffa Miskell, May 2021*, and **Attachment 2** to this consent.

46. To the extent possible, there shall be no clearance of indigenous vegetation or earthworks in wetland areas (pūrei / Yorkshire fog – cocksfoot) - rautahi sedgeland on either side of McLaren Gully Road as identified in the *Smooth Hill Ecological Impact Assessment Report, Boffa Miskell, May 2021*, and **Attachment 2** to this consent.

    Note: Condition 49 below requires the implementation of a Vegetation Restoration Management Plan for those wetlands that cannot be avoided.

47. A Falcon Management Plan based on the *Draft Smooth Hill Falcon Management Plan* prepared by Boffa Miskell Ltd, dated May 2021 shall be prepared by a suitably qualified ecologist prior to the commencement of construction, to ensure effects on any eastern falcons nesting at the site during construction of stages 1 – 4 of the landfill are avoided or minimised. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. As a minimum the plan shall include:

    a. Background information on falcons.

    b. Responsibilities for falcon management.

    c. Mitigation measures.

    d. Monitoring.

    e. Review and updating of the plan.

    The plan shall be provided to ORC for approval that it meets the requirements in this condition prior to construction commencing. The plan shall be implemented for the duration of any landfill construction works.

48. A Lizard Management Plan based on the *Draft Smooth Hill Lizard Management Plan* prepared by Boffa Miskell Ltd, dated May 2021 shall be prepared by a suitably qualified ecologist prior to the commencement of construction, to ensure effects on any lizards during the construction of stages 1 – 4 of the landfill are avoided or minimised. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. As a minimum the plan shall include:

    a. Background information on the lizards that may be present.

    b. Responsibilities for lizard management.

    c. Mitigation measures.

d. Enhancement of lizard habitat for translocated lizards.

e. Monitoring.

f. Review and updating of the plan.

The plan shall be provided to ORC for approval that it addresses the requirements in this condition prior to construction commencing. The plan is to be implemented for the duration of any landfill construction works.

49. A Vegetation Restoration Management Plan based on the *Draft Smooth Hill Vegetation Restoration Plan* prepared by Boffa Miskell Ltd, dated May 2021 shall be prepared by a suitably qualified ecologist prior to the commencement of construction, to mitigate for the loss of wetland vegetation by construction of the road upgrades, and potential changes to the vegetation structure of wetlands downstream of the landfill from changes to ground and surface water supply, so that that there is 'no net loss' of natural inland wetland habitat. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. As a minimum the plan shall include:

a. Background information on the wetlands present.

b. Responsibilities for wetland management.

c. Mitigation and offsetting measures which ensure:

i. Enhancement of the existing degraded swamp wetland comprising 0.47ha by weed control, fencing, planting, and pest control, including planting of a 0.4ha buffer of indigenous dryland vegetation around the wetland.

ii. Enhancement of no less than 0.49ha of existing wetland vegetation within the landfill site at the base of West Gully 3 and West Gully 4 by weed control, fencing, infill planting, and pest control.

iii. Wetland enhancement under (i) and (ii) above shall include planting of ecologically appropriately species(eco-sourced specimens free from weeds); fencing to exclude wandering stock and feral browsing animals; and weed and predator control throughout the life of the landfill to achieve zero or near-zero density of mammalian predators and weedy tree shrub, and vine species.

d. Monitoring

at 2 and 5 years following the implementation of ecological mitigation measures to ensure that any plantings of indigenous species have been successful, and that the availability and quality of habitats for indigenous fauna are overall of a similar or better than the habitats found in the existing environment.

e. Implementation timeframes.

f. Review and updating of the plan.

The plan shall be provided to ORC for approval that it addresses the requirements in this condition, prior to construction commencing. The plan is to be implemented during the construction of the landfill and road upgrades, and operation of the landfill.

50. A Bird Management Plan, based on the *Draft Smooth Hill Bird Management Plan* prepared by Boffa Miskell Ltd and Avisure, dated May 2021, shall be prepared by a suitably qualified ecologist prior to commencement of construction, to reduce the attractiveness of the landfill to birds, particularly black backed gulls, and keep bird numbers to very low levels. As a minimum the plan shall include:

- Background information covering the attraction of birds to landfills and bird strike risk with aircraft.
- Responsibilities for bird control, including appointment of a Bird Control Officer.
- Liaison with, and sharing of information with Dunedin Airport on bird management.
- Bird control measures.
- Maintaining registers of the use of bird control measures and their effectiveness.
- Bird monitoring.
- Review and updating of the plan.

The plan shall be provided to ORC for approval that it addresses the requirement in this condition prior to operation of the landfill commencing. The plan is to be implemented for the duration of the operation of the landfill. The plan shall be reviewed and updated every 6 months for the first 3 years of operation, and annually thereafter.

51. A Plant and Animal Pest Control Programme shall be prepared prior to the commencement of construction, to ensure adverse effects on vegetation, avifauna, and herpetofauna from exotic pest plant species, and mammalian pests (rodents and mustelids) due to construction and operation of the landfill operation are minimised. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. The programme shall be provided to ORC prior to construction, and shall be implemented during construction and operation of the landfill.

Archaeology

52. An archaeologist shall be retained to provide advice, recording, and reporting on any archaeological material encountered during the construction of the landfill and road upgrade works.

53. Every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during the construction of the landfill and road upgrade works.

54. Prior to the commencement of the construction of the landfill and road upgrade works, an archaeological site briefing shall be delivered to all contractors undertaking earthworks that may affect archaeology. The briefing shall outline:

    a. The history of the site and its archaeological potential.
    b. The standing archaeological remains to be retained.
    c. The role of the archaeologist and requirements for archaeological involvement.
    d. What sort of archaeological features could be expected and what they might look like.
    e. What to do if a possible archaeological site is found and the archaeologist is not on site.
    f. The process required to record and investigate these archaeological deposits should any be discovered.

55. The following shall occur where suspected archaeological material is encountered during construction of the landfill and road upgrade works:

    a. Work shall cease within 25 metres of a suspected burial find, and 10 metres of any other find and the project archaeologist alerted to determine whether it is archaeological material.
    b. Where any suspected archaeological material is Maori in origin, HNZPT and Te Rūnanga o Ōtākou. (via Aukaha) shall be notified of the discovery to enable appropriate cultural

procedure's and tikanga to be undertaken. Materials are not to be removed until such time as HNZPT and iwi have responded.

c. Where human remains are uncovered, NZ Police, HNZPT and Te Rūnanga o Ōtākou (via Aukaha) shall be notified of the discovery to enable appropriate cultural procedures and tikanga to be undertaken. Remains are not to be removed until such time as the Police, HNZPT and Aukaha have responded.

d. An archaeological authority shall be obtained from HNZPT prior to any modification of an archaeological site.

e. All archaeological material shall be recorded by an archaeologist prior to work recommencing.

f. A report on any archaeological material that is encountered shall be provided to HNZPT within one year of the completion of any works affecting an archaeological site.

Waste Acceptance

56. An appropriately experienced person shall be retained to supervise the operation of the landfill.

57. Waste shall only be discharged onto, or into, land within the landfill liner extent shown on drawing 12506381-01-C201.

58. All persons delivering waste to the landfill shall hold a valid Waste Acceptance Agreement confirming the material meets the waste acceptance criteria in the consent conditions.

59. No waste, other than municipal solid waste (MSW) and hazardous wastes that meet the Ministry for the Environment Module 2: Hazardous Waste Guidelines – Class A shall be accepted for disposal.

60. 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.

61. 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), except solid wastes that meet the leachability limits in the Ministry for the Environment Module 2: Hazardous Waste Guidelines – Class A; asbestos labelled, packaged, and disposed of in accordance with the Asbestos Regulations 1998; and small quantities of waste containing potentially hazardous components that can be reasonably expected to be contained in the municipal waste stream.

62. A notice shall be placed at the landfill entrance which identifies the wastes that are unacceptable at the landfill.

63. Random inspections of incoming loads for the presence of hazardous waste shall be undertaken at a minimum rate of 1 in 50 loads, and tipping of all waste shall be supervised.

64. Records shall be maintained of the quantities and types of waste accepted, and load inspections, and provided annually to ORC.

65. ORC 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.

Complaints

66. A Complaints Log shall be maintained during construction and operation of the landfill and road upgrades to record the receipt and management of all complaints, including those regarding objectionable or offensive odour or dust. The following details shall be recorded:

    a. Type, date, and time of complaint.

    b. Name and address of complainant (if available).

    c. Location from which the complaint arose.

    d. Wind direction at the time of complaint (if relevant)

    e. The likely cause of the complaint.

    f. The action taken as a result of the complaint.

    g. The feedback to the complainant.

    The Complaints Log shall be made available to ORC on request.

Annual Reporting

67. The landfill operator shall compile an annual report on the operation of the landfill, including:

    a. the status of landfilling operations on the site and work completed during the preceding year;

    b. any problems, which have arisen in the preceding year and measures taken to address those;

    c. activities proposed for the next year of the landfill operation;

    d. collated summaries and analyses of all monitoring and other data required under these consents.

    The report shall be forwarded to Te Rūnanga o Ōtākou and to the ORC annually unless otherwise agreed in writing with ORC or Te Rūnanga o Ōtākou.

C. Landfill Management Plan (LMP)

68. The detailed design, construction, and operation of the landfill shall be in accordance with the provisions of a LMP, based on the *Draft Smooth Hill Landfill Management Plan* prepared by Boffa Miskell Ltd, dated May 2021, and developed in consultation with Te Rūnanga o Ōtākou. The Plan shall be provided to ORC for approval that it addresses the requirements of this condition at least three months prior to construction commencing. The LMP shall include procedures, including monitoring and contingency actions, to ensure the detailed design, construction, operation, and aftercare of the landfill results in compliance with the conditions of these consents, and achieves the following objectives:

    General:

a. Operate the landfill in compliance with the resource consent requirements.

b. Appropriately trained staff are retained to operate the landfill.

c. The landfill is constructed and operated safely in accordance with all Health and Safety regulations.

d. The design and construction of the landfill adopts appropriate Quality Assurance and Quality Control procedures.

e. Ensure infrastructure failure or damage, including that caused by extreme events such as weather and earthquakes, are promptly detected and remedied to ensure its operation, and to protect the receiving environment.

Land stability:

a. Seismic risks for the stability of the landfill are minimised.

b. Risks of slope failure for the landfill are minimised.

c. The landfill base grade slopes are stable for construction and in the long term.

d. Placement of waste in the landfill ensures waste and landfill stability.

Groundwater and surface water flows:

a. The ingress of stormwater into open and closed sections of the landfill is minimised.

Groundwater and surface water quality:

a. Leachate containment is optimised through the use of a high performance landfill liner, and leachate collection and storage system, that minimises migration into the underlying soil, groundwater, and surface water.

b. The risks of excessive liner hydration are minimised.

c. Protection of the landfill liner from waste tipping and compaction activity.

d. Leachate transport occurs with an incident contingency plan which meets the Ministry of the Environment Code of Practice for Transport of Hazardous and Liquid Waste.

e. The ingress of stormwater into open and closed sections of the landfill are minimised to avoid excessive leachate generation.

f. Stormwater that comes into contact with waste is directed to the leachate collection system.

g. Sediment runoff from the site is effectively controlled so that that site does not contribute a disproportionate sediment load downstream in comparison to the catchment above McLaren Gully Road.

h. Spills of fuels, hazardous substances, or other contaminants are promptly contained and remediated.

i. Monitoring bores are regularly maintained to prevent the ingress of contaminants.

j. Erosion and cracking of the landfill cap is minimised.

Air quality:

a. As small as practicable working landfill face is maintained to minimise odour.

b. Potentially highly odorous waste deliveries are identified prior to disposal.

c. All waste is covered with appropriate daily and intermediate cover material to minimise odour.

d. Adequate water supply for dust suppression is maintained.

e. Control odours and dust so that there is no odour or particulate matter that causes an objectionable effect at any building used for residential activity in existence at the date consent is granted.

f. Control landfill gas through the progressive installation and operation of a landfill gas collection system in the active landfill areas.

g. The destruction of recovered landfill gas by combustion or electricity generation.

h. The escape of fugitive landfill gas is minimised.

i. Erosion and cracking of the landfill cap is minimised.

j. Ensure the health and safety of people on and beyond the site who may be at risk of being exposed to landfill gas emissions.

Terrestrial and freshwater ecology:

a. Prevent clearance of indigenous vegetation and wetlands, and vehicle and machinery movements in areas of indigenous vegetation and wetlands outside the landfill operational footprint.

b. .

c. Disturbance of nesting eastern falcons are avoided or minimised in accordance with a Falcon Management Plan.

d. Areas of suitable lizard habitat within the site are maintained in accordance with a Lizard Management Plan.

e. Loss of wetland vegetation is mitigated and offset in accordance with a Vegetation Restoration Management Plan.

f. The attractiveness of the landfill to birds is reduced, and bird numbers are kept to very low levels in accordance with a Bird Management Plan.

g. Weed encroachment into indigenous vegetation communities, and populations of animal pests within the site are kept to below current levels in accordance with a Plant and Animal Pest Control Programme.

Waste acceptance:

a. All landfill users are aware of the Waste Acceptance Criteria and acceptance procedures.

b. All waste received complies with the Waste Acceptance Criteria specified in the consent conditions.

c. Prevent the disposal of hazardous waste that does not comply with the Waste Acceptance Criteria specified in the consent conditions.

d. Accurate records of all waste accepted at the landfill, load inspections, and disposal locations are maintained.

e. All waste being transported to the landfill is securely contained to prevent the escape of solid material or liquid from the vehicle.

f. The landfill site is securely fenced, and gates closed outside of opening hours.

Noise:

a. Noise from the landfill site complies with the designation conditions and is minimised where practicable.

General amenity and public health and safety:

a. Ensure the health and safety of people on and beyond the site.

b. All waste received complies with the Waste Acceptance Criteria specified in the consent conditions.

c. The landfill site is securely fenced, and gates closed outside of opening hours.

d. Prevent landfill fires from occurring.

e. Adequate water storage for fire-fighting is maintained.

f. Ensure that adequate fire control equipment is present on site and operable at all times.

g. Maintain a Fire Plan in conjunction with Fire and Emergency New Zealand (FENZ).

h. A small as practicable working landfill face is maintained.

i. All waste is covered with appropriate daily and intermediate cover material.

j. Prevent windblown litter outside the site boundaries.

k. Maintain a clean and tidy site.

l. Prevent the establishment of vermin and nuisance insect populations.

Communications and complaints:

a. Maintain a complaints management, investigation, and reporting system.

b. All complaints shall be promptly investigated and responded to.

a.

69. The landfill shall be operated at all times in accordance with the current provisions of the LMP.

70. The consent holder shall annually complete a review of the LMP in consultation with Te Rūnanga o Ōtākou to ensure that management practices result in compliance with the conditions of these consents. Any proposed revisions shall be forwarded to the ORC for approval.

D. Advice Notes

a. Any new or modified culverts for the upgrade of McLaren Gully Road and Big Stone Road are to comply with the requirements of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020), or otherwise obtain resource consent under the regulations. Where resource consent is required, the advice of a suitable qualified freshwater ecologist should be sought to ensure appropriate provision for freshwater fish passage.

DCC Conditions of Consent

Lapse date 10 years from the date the consents are granted.

A. General conditions

1. The construction of the road upgrades shall be undertaken generally in accordance with the following documents, except where modified by other conditions of this consent. In the event of differences or conflict, between the measures in the documents and the conditions, the conditions shall prevail:

   a. [insert references to final consent documents]

   b.

B. Conditions to be met during detailed road design and construction

General:

2. All investigations, detailed design, and construction of the road upgrades shall be supervised by a suitably experienced Chartered Professional Engineer (CPEng).

3. The detailed design of the road upgrades shall be provided to the DCC for review and approval that the detailed design complies with this consent prior to construction commencing.

4. The completed road upgrade works shall be certified by the suitably experienced Chartered Professional Engineer (CPEng) that they have been completed in accordance with the detailed design approved by DCC.

5. The detailed design of the road, including cut and fill slopes shall be informed by geotechnical investigations and be in accordance with the road design standards contained in the Dunedin City Council *Code of Subdivision and Development 2010.*

Ecology:

6. To the extent possible, there shall be no clearance of vegetation or earthworks in wetland areas (pūrei / Yorkshire fog – cocksfoot) - rautahi sedgeland on either side of McLaren Gully Road as identified in the *Smooth Hill Ecological Impact Assessment Report, Boffa Miskell, May 2021*, and **Attachment 2** to this consent.

Note: Condition 8 below requires the implementation of a Vegetation Restoration Management Plan for those wetlands that cannot be avoided.

7. A Lizard Management Plan based on the *Draft Smooth Hill Lizard Management Plan* prepared by Boffa Miskell Ltd, dated May 2021 shall be prepared by a suitably qualified ecologist prior to the commencement of construction, to ensure effects on any lizards during the construction of the road upgrades are avoided or minimised. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. As a minimum the plan shall include:

   a. Background information on the lizards that may be present.

   b. Responsibilities for lizard management.

   c. Mitigation measures.

   d. Lizard habitat enhancement.

e. Monitoring.

f. Review and updating of the plan.

The plan shall be submitted to DCC for approval that it addresses the requirements of this condition prior to construction commencing. The plan is to be implemented for the duration of any road construction works.

a.

8. A Vegetation Restoration Management Plan based on the *Draft Smooth Hill Vegetation Restoration Plan* prepared by Boffa Miskell Ltd, dated May 2021 shall be prepared by a suitably qualified ecologist prior to the commencement of construction, to mitigate for the loss of wetland vegetation by construction of the road upgrades, so that that there is 'no net loss' of natural inland wetland habitat. The plan shall be developed in consultation with Te Rūnanga o Ōtākou. As a minimum the plan shall include:

a. Background information on the wetlands present.

b. Responsibilities for wetland management.

c. Mitigation and offsetting measures which ensure:

i. Enhancement of no less than 0.49ha of existing wetland vegetation within the landfill site at the base of West Gully 3 and West Gully 4 by weed control, fencing, infill planting, and pest control.

ii. Wetland enhancement under (i) above shall include planting of ecologically appropriately species (eco-sourced specimens free from weeds); fencing to exclude wandering stock and feral browsing animals; and weed and predator control throughout the life of the landfill to achieve zero or near-zero density of mammalian predators and weedy tree shrub, and vine species.

d. Monitoring

at 2 and 5 years following the implementation of ecological mitigation measures to ensure that any plantings of indigenous species have been successful, and that the availability and quality of habitats for indigenous fauna are overall of a similar or better than the habitats found in the existing environment.

e. Implementation timeframes.

f. Review and updating of the plan.

The plan shall be provided to DCC for approval that it addresses the requirements of this conditions prior to construction commencing. The plan is to be implemented during the construction of the road upgrades.

Landscape:

9. Where practicable, all completed road cut and fill batters are to be hydroseeded with grass as soon as possible and not later than completion of the road upgrade works.

Archaeology

10. An archaeologist shall be retained to provide advice, recording, and reporting on any archaeological material encountered during the road upgrade works.

11. Every practical effort should be made to avoid damage to any archaeological site, whether known, or discovered during the road upgrade works.

12. Prior to the commencement of the road upgrade work, an archaeological site briefing shall be delivered to all contractors undertaking earthworks that may affect archaeology. The briefing shall outline:

    a. The history of the site and its archaeological potential.

    b. The standing archaeological remains to be retained.

    c. The role of the archaeologist and requirements for archaeological involvement.

    d. What sort of archaeological features could be expected and what they might look like.

    e. What to do if a possible archaeological site is found and the archaeologist is not on site.

    f. The process required to record and investigate these archaeological deposits should any be discovered.

13. The following shall occur where suspected archaeological material is encountered during road upgrade works:

    a. Work shall cease within 25 metres of a suspected burial find, and 10 metres of any other find and the project archaeologist alerted to determine whether it is archaeological material.

    b. Where any suspected archaeological material is Maori in origin, HNZPT and Te Rūnanga o Ōtākou. (via Aukaha) shall be notified of the discovery to enable appropriate cultural procedure's and tikanga to be undertaken. Materials are not to be removed until such time as HNZPT and iwi have responded.

    c. Where human remains are uncovered, NZ Police, HNZPT and Te Rūnanga o Ōtākou. (via Aukaha) shall be notified of the discovery to enable appropriate cultural procedures and tikanga to be undertaken. Remains are not to be removed until such time as the Police, HNZPT and Aukaha have responded.

    d. An archaeological authority shall be obtained from HNZPT prior to any modification of an archaeological site.

    e. All archaeological material shall be recorded by an archaeologist prior to work recommencing.

    f. A report on any archaeological material that is encountered shall be provided to HNZPT within one year of the completion of any works affecting an archaeological site.

<u>Transportation</u>

14. A Construction Traffic Management Plan shall be prepared by a transportation engineer that includes measures to ensure the safe, effective, and efficient interaction of construction activity with other road users, and specifically address the following matters:

    a. Delivery of heavy or outsized loads, such as excavators, to avoid peak periods on State Highway 1.

    b. Management of the interactions of construction traffic and other road users.

    c. Minimising the impact on existing users of McLaren Gully Road and Big Stone Road users such as residents and other commercial activities.

The Construction Traffic Management Plan shall be provided to Waka Kotahi NZ Transport Agency (NZTA) for review, and then submitted to the Dunedin City Council for approval that it addresses the requirements of this condition prior to commencement of the road upgrade works.

15. The road upgrade works must be undertaken in accordance with the approved Construction Traffic Management Plan.

Noise

16. The road upgrade works shall be limited to between 7.30am – 6pm Monday to Saturday (inclusive). No works may occur outside of these times, on Sundays, or public holidays, except where emergency works are required to protect public health and safety.

17. Noise from the road upgrade works must comply with the recommended noise limits outlined in Rule 4.5.4.1 Construction of Dunedin City Council's 2nd Generation District Plan.

18. A minimum separation distance of 40 metres shall be maintained between road construction equipment and the residential dwellings located at 108 and 109 McLaren Gully Road, if those houses are occupied during the work.

19. A Construction Noise Management Plan (CNMP) shall be prepared by an acoustic specialist which addresses the requirement of Appendix E of addresses NZS6803: 1999 *Acoustics – Construction Noise*, and which includes measures to mitigate noise transmission from construction activity to the existing residential dwellings, if those houses are occupied during the work.

20. The CNMP shall be submitted to the Resource Consent Manager, Dunedin City Council, for approval that it addresses the requirement of this condition at least 2 weeks prior to commencement of the road upgrade works.

21. The road upgrade works must be undertaken in accordance with the CNMP.

ATTACHMENT 1 TO ORC RESOURCE CONSENTS

Table 1 below sets out the monitoring parameters to detect leachate leakage effects on groundwater quality; and leachate, suspended solids, and turbidity on surface water when monitored at the following locations in accordance with condition 19:

a. The groundwater monitoring bores shown as GW1 – GW6 on drawing 12506381-C309.

b. The groundwater collection system prior to discharge to the Ōtokia Creek, or abstraction for non-potable water supply.

c. The sediment retention pond for stage 1 prior to discharge to the Ōtokia Creek.

d. The surface water monitoring points shown as SW1 – SW7 on drawing 12506381-C309.

Parameters to be monitored at each location are identified with a "X" in the table. Trigger levels for each parameter are to be established in accordance with conditions 17 and 18.

Table 1 – Water Quality Monitoring Parameters

	Monitoring Location			
Parameter	Groundwater monitoring bores GW1 – GW6	Groundwater Collection System Prior to Discharge to the Ōtokia Creek	Sediment Retention Pond for Stage 1 Prior to Discharge to the Ōtokia Creek	Surface Water Monitoring Points SW1 – SW7
Aluminium	X	X		X
Ammoniacal Nitrogen	X	X		X
Arsenic	X	X		X
Boron	X	X		X
Cadmium	X	X		X
Calcium	X	X		X
Chloride	X	X		X
Chromium	X	X		X

Dissolved Reactive Phosphorus	X	X		X
Iron	X	X		X
Lead	X	X		X
Magnesium	X	X		X
Manganese	X	X		X
Nickel	X	X		X
Nitrate Nitrogen	X	X		X
pH	X	X	X	X
Potassium	X	X		X
Silica	X	X		X
Sodium	X	X		X
Sulphate	X	X		X
Total Kjeldahl Nitrogen	X	X		X
Zinc	X	X		X
Total VOC	X	X		X
Total SVOC	X	X		X
Electrical conductivity		X	X	
Ammonia		X	X	
Flow rate				X
Suspended solids				X
Turbidity				X