

**BEFORE THE COMMISSIONERS**

**IN THE MATTER** of the Resource  
Management Act 1991

**AND**

**IN THE MATTER** of applications RM20.280  
and LUC-2020-405 by  
Dunedin City Council to  
develop a landfill at Smooth  
Hill, Dunedin.

**DUNEDIN CITY  
COUNCIL**

**Applicant**

**AND**

**OTAGO REGIONAL  
COUNCIL AND  
DUNEDIN CITY  
COUNCIL**

**Consent Authorities**

**AND**

**TE RŪNANGA O ŌTĀKOU  
Submitter**

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**PLANNING EVIDENCE OF YVONNE TAKAU  
ON BEHALF OF TE RŪNANGA O ŌTĀKOU**

**6 May 2022**

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## INTRODUCTION

1. My name is Yvonne Takau. I hold the qualifications of Bachelor of Commerce and Master of Planning (with Credit) from the University of Otago.
2. I am currently employed as a Planner at Aukaha, a consultancy based in Dunedin and owned by Te Rūnanga o Waihao, Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga. My work at Aukaha predominantly involves 3 Waters planning and working with mana whenua to prepare cultural reports such as cultural impact assessments for a variety of projects. I was the main author of the Cultural Impact Assessment (CIA) for the proposal being considered in this hearing.
3. I undertook a site visit to the Smooth Hill site on 23 August 2021 and am familiar with the application site and the area in which it is located.
4. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note and I agree to comply with it.
5. The key documents that I have referred to in preparing my evidence include:
  - (a) Boffa Miskell (2021) Smooth Hill Landfill Assessment of Environmental Effects for Updated Design;
  - (b) Aukaha (2021) Cultural Impact Assessment prepared for the Dunedin City Council Proposed Landfill - Smooth Hill;
  - (c) The section 42A reports for the two consent authorities;
  - (d) The evidence statements of witnesses for the applicant;
  - (e) Relevant district, regional, and national planning instruments, including the National Policy Statement for Freshwater Management 2020;
  - (f) Kāi Tahu ki Otago Natural Resource Management Plan 2005 (**NRMP**);
  - (g) The statement of evidence of Edward Ellison for Te Rūnanga o Ōtākou.

## **SCOPE OF EVIDENCE**

6. My evidence will cover the following matters:
  - (a) The process for establishing Smooth Hill as the location for the proposed landfill;
  - (b) The Cultural Impact Assessment (CIA) prepared for the proposal;
  - (c) The planning framework relevant to consideration of the proposal, with particular reference to matters that are relevant to consideration of mana whenua cultural values and interests;
  - (d) My assessment of the extent to which the proposal, including the consent conditions offered by the applicant, appropriately addresses the cultural values and concerns identified in the CIA.

## **THE APPLICATION AND DESIGNATION**

7. The application is discussed in depth in the evidence of Maurice Dale for the applicant, and in the section 42A Reports prepared for the two consent authorities by Hilary Lennox and Kirstyn Lindsay. There are no aspects of the description of the application that are in dispute between these planners, and I consider there is no need for me to reiterate the details of the application.
8. I am aware that the location of the proposed landfill has attracted opposition throughout the application process. As explained in Ms Lindsay's section 42A report, the site is subject to a designation (D659) for proposed landfilling and associated refuse processing operations and activities in both the operative and proposed Dunedin City District Plan. Therefore, no resource consents are required for the construction and operation of a landfill within the designated site.<sup>1</sup> However, for context, I note that Te Rūnanga o Ōtākou was involved in the site selection process that led to the designation, and Mr Ellison confirms the support of Te Rūnanga o Ōtākou for the Smooth Hill site.

## **THE CULTURAL IMPACT ASSESSMENT**

9. The applicant engaged with Te Rūnanga o Ōtākou, through Aukaha, on this

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<sup>1</sup> Evidence of Maurice Dale for the Dunedin City Council, paragraph 42.

application in early 2020 and requested a Cultural Impact Assessment (CIA). I have been involved with the application since this time.

10. Following the initial engagement, Aukaha and Te Rūnanga o Ōtākou (Te Rūnaka) worked in collaboration with the project team from Boffa Miskell and GHD Limited (consultants for the applicant), to complete the CIA, and to address concerns raised by Te Rūnaka and Aukaha in the process of preparing the CIA.
11. The CIA has four key functions:
  - a) It provides an account of the cultural values associated with the proposed landfill site and surrounding cultural landscape.
  - b) It provides information to Te Rūnaka about the proposal, its likely effects and the proposed mitigation measures.
  - c) It addresses the potential effects of the construction and operation of the landfill on those values.
  - d) It provides recommendations for mitigating effects on cultural values.
12. At the start of the CIA process, Te Rūnaka identified mana whenua values that were relevant to the application. These formed the foundation for the CIA, together with the relevant objectives and policies in the Kāi Tahu ki Otago Natural Resources Management Plan 2005 (NRMP). The mana whenua values that were identified are discussed in Mr Ellison's evidence.<sup>2</sup>
13. Aukaha then reviewed the suite of technical reports prepared for the application against the identified mana whenua values and relevant NRMP provisions, and the CIA was completed in August 2020.
14. After the applications were lodged with the two consent authorities, further information was requested under section 92 of the Resource Management Act 1991 (RMA).
15. As Ms Lindsay discusses in her evidence, the application was revised in May 2021 following the request for further information. The CIA was then updated to support those variations, particularly the reduced landfill footprint which avoided impacts on wetlands within the site.
16. The updated CIA noted that effects on wetland vegetation adjoining McLaren Gully Road could not be mitigated and an ecological off-set was

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<sup>2</sup> Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraphs 34 – 50.

proposed.<sup>3</sup> While the applicant has now realigned the proposed road carriageway to avoid any direct impact on wetlands located alongside McLaren Gully Road, the restoration of 0.49ha of wetland is proceeding as planned.<sup>4</sup>

17. Mr Ellison's evidence discusses the key areas of concern identified in the CIA. These were the areas where the application has the greatest potential to impact on cultural values. In summary, the key concerns identified were:
- a) Recognition of rakatirataka rights and kaitiakitaka obligations of mana whenua;<sup>5</sup>
  - b) The protection and enhancement of waterbodies and indigenous biodiversity, including remnant wetlands and the coast, and;<sup>6</sup>
  - c) The protection of archaeological and ancestral landscape values.<sup>7</sup>
18. Te Rūnaka has determined that the mitigation measures and significant reduction in the landfill footprint incorporated into the application by way of the variations, together with provision for ongoing monitoring and engagement with Te Rūnaka, is sufficient to manage the potential impacts on their values, as discussed by Mr Ellison in his evidence.
19. Thus, when the application was notified in September 2021, Te Rūnaka submitted in support of the application.

#### **RELEVANT PLANNING PROVISIONS**

20. The section 42A reports provide an assessment of the application against the higher order documents. In general, I agree with the assessment of Ms Lennox and Ms Lindsay, and I do not consider it is necessary to discuss the statutory direction in detail. Instead, I will highlight matters that I consider are of particular relevance to the mana whenua submissions.
21. **National Policy Statement for Freshwater Management 2020 (NPSFM 2020)** – Te Mana o Te Wai is a fundamental concept in the NPSFM 2020

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<sup>3</sup> Aukaha (2021), paragraph 4.4.2

<sup>4</sup> s42A report Attachment 3, Letter from Anderson Lloyd, dated 7 April 22; ORC s42A report, section 6.1.10.

<sup>5</sup> CIA, Section 9 and Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraphs 45 to 48.

<sup>6</sup> CIA, Sections 8.1 and 8.3 and Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraphs 35 to 44, 49 and 50.

<sup>7</sup> CIA, Sections 8.2 and Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraphs 35 to 39 and 45 to 48.

that "... [refers to the] *fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.*"<sup>8</sup>

22. The objective of the NPSFM 2020 is to ensure that natural and physical resources are managed in a way that prioritises:
  - (a) first, the health and well-being of water bodies and freshwater ecosystems.
  - (b) second, the health needs of people (such as drinking water).
  - (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.
23. Policy 1 of the NPSFM 2020 requires that Te Mana o te Wai is given effect to in freshwater management. I agree with Mr Dale that on the basis of Dr Morris and Dr Blakely's evidence, the health and well-being of the water bodies and freshwater ecosystems have been recognised and provided for through the proposed conditions.
24. Policy 2 of the NPSFM 2020 requires that tangata whenua are actively involved in freshwater management (including decision making processes), and Māori freshwater values are identified and provided for. I agree with Mr Dale that mana whenua have been actively engaged throughout the process and that proposed conditions will allow this to continue, by enabling Te Rūnanga o Ōtākou to provide input into the detailed management and monitoring in the Landfill Management Plan and associated ecological management plans.
25. Policy 3 of the NPSFM 2020 requires that freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments. I agree with Mr Dale that on the basis of the evidence of Mr Kirk, Mr Ingles, Dr Morris and Dr Blakely, the proposed conditions ensure that the management of freshwater is consistent with this policy.

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<sup>8</sup> National Policy Statement for Freshwater Management 2020, Part 1.3.

26. Policy 6 of the NPSFM 2020 requires that there is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted. I agree with Mr Dale that on the basis of the evidence of Mr Kirk, Mr Ingles, Dr Morris and Dr Blakely, the proposed conditions address and provide for wetland values as well as provide for restoration. I also note that the proposed landfill footprint and road realignment works avoid impacts on wetlands. Therefore, I consider that the application is consistent with this policy.
27. Policy 9 of the NPSFM 2020 requires that the habitats of indigenous freshwater species are protected. I agree with Mr Dale's assessment and consider that the application is consistent with this policy.

**Proposed Otago Regional Policy Statement 2021 (PORPS) –**

28. As discussed by Mr Ellison, a definition of what Te Mana o te Wai means in Otago was developed through a robust process which was informed by mātauraka (traditional knowledge) held by mana whenua about te taiao and wai māori.<sup>9</sup> As Mr Ellison states in his evidence,<sup>10</sup> water is a central element in mana whenua creation traditions and as such, mana whenua have a whakapapa relationship to freshwater. As kaitiaki, they seek to protect its mauri for current generations and the generations to come. In my opinion, the proposed conditions provide for this relationship and supports mana whenua as kaitiaki.
29. The mana whenua definition of Te Mana o te Wai is now incorporated as a freshwater objective in the PORPS, namely:

LF-WAI-O1 – Te Mana o te Wai

The mauri of Otago's *water bodies* and their health and well-being is protected, and restored where it is *degraded*, and the management of *land* and *water* recognises and reflects that:

1. *water* is the foundation and source of all life - na te wai ko te hauora o ngā mea katoa,
2. there is an integral kinship relationship between water and Kāi Tahu whānui, and this relationship endures through time, connecting past,

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<sup>9</sup> Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraph 52

<sup>10</sup> Evidence of Edward Ellison for Te Rūnanga o Ōtākou, paragraphs 35 - 37

present and future,

3. each *water body* has a unique whakapapa and characteristics,
  4. *water* and *land* have a connectedness that supports and perpetuates life, and
  5. Kāi Tahu exercise rakatirataka, manaakitaka and their *kaitiakitaka* duty of care and attention over wai and all the life it supports.
30. I agree with Mr Dale's assessment of the relevant PORPS provisions. I wish to highlight particular objectives and policies relevant to matters addressed in the CIA:
- a) MW-P2 – Treaty principles recognises the status of Kai Tahu as Treaty partner, and the kaitiaki role of mana whenua, and provides for their active involvement in resource management processes and decision-making;
  - b) MW-P3 – Supporting Kāi Tahu well-being requires that Kai Tahu cultural values and relationship with wai māori are safeguarded, and that mātauraka is incorporated in decision-making;
  - c) LF-WAI-P2 – Mana whakahaere provides similar direction to the policies above;
  - d) LF-WAI-P3 Integrated management/ki uta ki tai requires an integrated approach that recognises and sustains connections across a catchment.

#### **Otago Regional Plan: Water**

31. I agree with Mr Dale's assessment of the relevant provisions of the Regional Plan: Water for Otago.

#### **Kāi Tahu ki Otago Natural Resource Management Plan 2005 –**

32. I agree with Mr Dale's assessment of the relevant provisions of the NRMP. For the purpose of clarification, I note that Mr Dale expressed uncertainty regarding the interpretation of Wai Māori Policy 56 which states that mana whenua "...oppose the draining of wetlands." This policy relates to the historic loss of wetlands and to drainage which results in the complete or partial loss of wetlands. As discussed in relation to NPSFM Policy 6 it is my



opinion, that the reduction in the footprint of the landfill and the realignment of McLaren Gully Road together with the conditions proposed, (in particular, the proposed Receiving Waters Environment Monitoring Plan), will adequately address these concerns and therefore, I consider the application is not inconsistent with this policy.

### **ASSESSMENT OF EFFECTS ON CULTURAL VALUES**

33. Overall, I support Mr Dale and Ms Lindsay's assessment of the cultural values identified in the CIA and consider that they address the uncertainties addressed by Ms Lennox in her report. I will not repeat their assessment here but will discuss the direction in the planning framework for consideration of these values, and the extent to which this is appropriately addressed in the application and the applicant's proposed conditions.

#### Recognition of rakatirataka rights and kaitiakitaka obligations of mana whenua<sup>11</sup>

34. The NPSFM and PORPS provide direction as to how rakatirataka and kaitiakitaka should be recognised in resource management processes. As I have stated above in paragraphs 24, 29 and 30, policy 2 of the NPSFM 2020 requires that tangata whenua are actively involved in freshwater management, including the decision-making processes. MW-P3 of the PORPS, expresses that the natural environment must be managed to support Kāi Tahu well-being. This involves protecting Kāi Tahu values and relationships to Kāi Tahu resources, safeguarding the mauri of natural resources, and working with Kāi Tahu to incorporate their mātauraka in resource management. LF-WAI-O1 of the PORPS further requires that managing land and water in Otago, recognises and reflects the ability for Kāi Tahu to exercise their rakatirataka and duties as kaitiaki over wai and all the life it supports. LF-WAI-P2 also requires that Kāi Tahu rakatirataka is recognised and given practical effect to in respect of fresh water management.
35. I consider that the conditions proposed by the applicant allow for the exercise of rakatirataka and kaitiakitaka by Te Rūnanga o Ōtākou through engagement in the development of the Landfill Management Plan and engagement in the development of specific management plans for taoka

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<sup>11</sup> This relates to the values discussed in Mr Ellison's evidence under Rakatirataka and kaitiakitaka which starts at paragraph 45.

species, habitat restoration and freshwater and wetland monitoring. The ability to engage at this level, enables the active involvement of mana whenua in decisions about how the site is managed and allows them to fully exercise their duty as kaitiaki, as directed by the relevant policies of the NPSFM and PORPS discussed in paragraph 39 above.

The protection and enhancement of waterbodies and indigenous biodiversity, including remnant wetlands and the coast.<sup>12</sup>

36. As discussed by Mr Ellison, it is important to mana whenua and Kāi Tahu, that the interconnectedness of te taiao – including the land, wetlands, surface waterways and groundwater – is fully recognised and addressed in the way land is used and managed. This concern is also reflected in NPSFM Policy 3 and in LF-WAI-O1(4) and LF-WAI-P3 in the PORPS.
37. Policy 6 of the NPSFM requires that there is no further loss of wetland extent. The impact of the landfill on remnant wetlands was identified in the CIA as a concern; however, as I have already discussed, this concern has been addressed by the reduction in the proposed footprint of the landfill and the road realignment.
38. In my opinion, the mitigation measures proposed by the Council, particularly, those which deal with the prevention of leachate and contaminant discharges to groundwater and surface water, provide for the protection of wai māori, wetlands and taoka species. This is further strengthened by the landfill design which proposes that the landfill will largely be built into the natural topography of the site, allowing the use of the natural gully system and the natural containment of contaminants.
39. The Council has also proposed the development of freshwater and wetland monitoring management plans,<sup>13</sup> and the enhancement of wetland and riparian habitat, to protect the health and well-being of wetlands and of Ōtokia Creek and its tributaries. In my opinion, these proposed conditions are appropriate to provide for the matters identified in the CIA and discussed by Mr Ellison.

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<sup>12</sup> This relates to the values discussed in Mr Ellison's evidence under Whakapapa relationship with freshwater which starts at paragraph 35 and Mahika kai and taoka species which starts at paragraph 49.

<sup>13</sup> The proposed conditions of consent provide for the development of a Receiving Waters Environment Management Plan and a Freshwater and Wetland Monitoring and Management Plan.

In response to submissions concerned about the risk of bird strike due to the proximity of the site to Dunedin Airport, the applicant has proposed measures to mitigate this risk including possible use of lethal bird management measures. While I consider the other measures proposed are appropriate, I do not support provision for lethal measures, as this would not be consistent with the aspiration of Te Rūnaka to protect taoka species and indigenous biodiversity.

#### The protection of archaeological and ancestral landscape values

40. I note that the archaeological assessment concluded that there are no archaeological sites associated with mana whenua occupation within the project area, although there are several recorded sites in close proximity.<sup>14</sup> Further, there are no identified sites or place names listed on Kā Huru Manu (the Ngāi Tahu Atlas) within the project area.
41. Kā Huru Manu is the Ngāi Tahu Cultural Mapping Project which is dedicated to mapping the traditional Māori place names and associated stories within the Ngāi Tahu rohe (tribal area). The atlas is publicly available online and is administered by the Ngāi Tahu Archive Team alongside the 18 Ngāi Tahu Papatipu Rūnaka.

#### **PROPOSED CONSENT CONDITIONS**

42. Appendix 1 sets out my assessment of how the proposed conditions relate to the relevant recommendations in the CIA. Overall, I consider that the conditions are appropriate to address the concerns identified in the CIA and I support the proposed conditions of consent set out in Ms Lindsay's Section 42A Report. However, As discussed above, I do not support the applicant's proposed condition to use lethal measures to discourage birds from visiting the site.

#### **CONCLUSION**

43. As discussed by Mr Ellison, there are several interconnected mana whenua values which relate to the application and the application site. Mana whenua and Aukaha have worked alongside the Dunedin City Council to ensure that these values are protected in this application.

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<sup>14</sup> New Zealand Heritage Properties (2021) *Smooth Hill Landfill Archaeological Assessment*, Section 5.7.1

44. Te Rūnanga o Ōtākou understand that every community generates waste and must develop ways to properly manage those waste streams. After assessing the potential impacts on their values, Te Rūnanga o Ōtākou decided that mahika kai and the mauri of waterways and wetlands would be better provided for through a landfill at Smooth Hill than continued use of the Green Island landfill or shifting waste out of the district.
45. I have considered the relevant policy direction, including the direction in the National Policy Statement for Freshwater Management 2020 and the Proposed Otago Regional Policy Statement 2021 in relation to the values discussed by Mr Ellison. It is my opinion that the application is consistent with that direction and provides for mana whenua values and aspirations.



Yvonne Takau

6 May 2022

## APPENDIX 1: CIA RECOMMENDATIONS AND CONDITIONS PROPOSED

CIA Recommendations	How it's addressed in notified application
<p><b>Recommendations: Wai Māori</b></p> <p>That all practicable measures are taken to prevent discharges entering water, including preventing where possible leachate from entering groundwater and surface water.</p> <p>That stormwater quality is tested. If stormwater contains high concentrations of harmful leachate or contaminants, then it should not be allowed to infiltrate to groundwater or be discharged to Ōtokia Creek.</p> <p>That effects on mauri and whakapapa from contaminants entering water and altering the existing hydrology are offset by mitigation measures such as riparian planting and pest management. Proposed offsetting or mitigation management plans need to be provided to mana whenua for review and consultation prior to implementation. While these measures do not directly address the adverse effects on mauri, they will enhance the mauri of the area.</p> <p>That baseline monitoring is undertaken before any work can be undertaken. This will allow any effects to be identified and measured.</p> <p>That visual inspection monitoring, where proposed, forms part of an integrated water quality monitoring programme.</p>	<p><b>Stormwater Management:</b></p> <p>During development of Stage 1, the base of the landfill and stormwater control systems will be lower than the perimeter swale drain, and gravity drainage of stormwater is not possible. The preferred approach to management of stormwater during development of Stage 1 is to provide an outlet pipe through the landfill bund to allow stormwater to discharge to the wetland complex immediately downstream of the landfill. Stormwater will be kept separate from any waste and treated within the footprint of Stage 1 through a stormwater retention pond before discharge to the wetlands on the site. Once Stage 1 is complete the pipes will be sealed, and all stormwater will discharge to the perimeter swale drain.</p> <p><b>Groundwater:</b></p> <p>A groundwater monitoring system will be designed and installed as well as a collection manhole fitted with a submersible pump to extract water for storage in a non-potable water supply reservoir. The groundwater collection system will be designed to discharge groundwater to the Ōtokia Creek catchment. In the event that unacceptable changes in groundwater quality are identified the pump will allow groundwater to be redirected for treatment as leachate.</p> <p><b>Monitoring measures of surface water quality will include:</b></p> <ul style="list-style-type: none"> <li>• Daily visual inspection of systems including water clarity or colour downstream of the site when surface discharge is occurring.</li> </ul>

The proposed water quality monitoring within the tributary to Otokia Creek outside of the designated site is supported by mana whenua.

- Monitoring at on-site locations. Monitoring will occur only during periods of surface water discharge from the site. If continued periods of surface water discharge occur then monitoring will occur weekly.
- Weekly monitoring (while surface water flow occurs) downstream from the landfill at the location where the tributary to the Otokia Creek passes under McLaren Gully Road.
- Monitoring will commence at least 36 months prior to construction to establish baseline conditions. Given the ephemeral nature of the surface water system in the vicinity of the site an extended period is required to establish baseline conditions.
- At each location samples will be collected, and water flow measured. Samples will be analysed for a range of contaminants, including suspended solids and turbidity to assess the performance of sediment management.

**Pest Management:**

- Fencing the high value biodiversity sites within the designation boundary to exclude large pest animals (e.g. pigs and goats) from these areas.
- Preparation and implementation of a detailed Pest Control Programme which:
  - Establishes a rodent control network around the landfill site which will reflect industry best practice.
  - Establish a predator (mustelids, possum and rat) trapping network across the wider site to protect native species.
  - Control weeds as needed to enhance existing areas of biodiversity and allow new plantings to establish free of competition.

	<p>Prompt compaction of waste and application of cover soil.</p> <ul style="list-style-type: none"> <li>- Weed control in all plantings and high value habitats, and control of any weeds as required.</li> <li>- Control of the pig and goat population if needed to ensure there is no unacceptable damage to the site, high value habitats or new plantings. Also, ensure that these pests do not impact on neighbouring properties.</li> <li>- Control of the rabbit population.</li> <li>- Application of insecticides, in particularly severe cases of fly infestations.</li> </ul>
<p><b>Recommendations: Kaitiakitaka and Mauri</b></p> <p>Any ecological management plans are developed prior to the granting of resource consent.</p> <p>That any works are undertaken outside of the kārearea breeding season.</p> <p>Ensure landfill design elements and mitigation measures are controlled and regularly monitored so that degradation of the mauri of the ecosystem within, and beyond the site is avoided or eliminated.</p> <p>Best practice erosion and sediment control guidelines are adopted for all works connected to the Smooth Hill Landfill project (including design, construction maintenance, operation, and roading).</p> <p>Contractors undertaking the works should prepare an erosion and sediment control plan which details current best practice and confirms that the measures proposed are appropriate to the site.</p>	<p><b>Kārearea Management:</b></p> <p>The Draft Falcon Management Plan states that: if timing allows, in areas identified as potential falcon / kārearea habitat on site, enabling and construction works will be conducted outside of the falcon / kārearea breeding season (i.e. will take place between 1 June and 31 July). Enabling and construction works include tree felling / vegetation clearance, earthworks, and constructing roads and other infrastructure.</p> <p>If enabling and construction works in areas identified as potential falcon / kārearea habitat on site cannot take place outside of the falcon / kārearea breeding season (i.e. where the breeding season is broadly between 1 August and 31 May, inclusive), then the following management actions will be implemented to manage potential effects on falcon:</p> <ul style="list-style-type: none"> <li>• Pre-construction falcon / kārearea surveys</li> <li>• Establishing buffer / exclusion zones</li> <li>• Staff training and assignment of responsibilities for falcon / kārearea management</li> </ul> <p><b>Leachate Management:</b></p>

<p>Enhance water quality monitoring outside of the designated area as it relates to the tributary of Ōtokia Creek, including visual inspection when surface discharges are occurring.</p> <p>More information is required as to what measures are in place to mitigate mass leachate diffusion and subsequent influencing of ground and surface water in the Ōtokia Creek in the event of a natural hazard.</p> <p>Initiate wetlands and creek margins replanting programme.</p> <p>The applicant should consider a process of resourced and ongoing engagement with mana whenua, to enable input into and the exchange of information regarding any Falcon, Lizard and Environmental Management Plans including water quality management, rehabilitation, heritage and biodiversity monitoring.</p> <p>The applicant ensures that thorough analysis of alternative solutions has been undertaken, documented and disseminated to mana whenua and stakeholders.</p>	<ul style="list-style-type: none"> <li>• A low permeability liner system placed on the landfill base grade will be constructed progressively as the landfill stages are developed to contain leachate within the landfill and prevent it from entering the underlying soils or groundwater. In accordance with WasteMINZ guidelines, the liner will meet Type 1 or Type 2 as required for Class 1 landfills.</li> <li>• A stormwater management system that enables monitoring of stormwater from areas of intermediate cover or final cover and provides the ability to redirect any contaminated surface water to the leachate system if found to be contaminated.</li> <li>• A leachate collection system at the base of the landfill from where it will be removed off site for treatment and disposal.</li> <li>• Design and installation of an appropriate groundwater and surface water monitoring network to confirm the effectiveness of the system, including monitoring wells outside the waste boundary].</li> </ul> <p><b>Planting:</b></p> <p>The notified application states that:</p> <ul style="list-style-type: none"> <li>• The enhancement of wetland/riparian habitat is proposed in the vicinity of the landfill, recognising the existing degraded habitats that exist, and the potential impacts of the landfill on their values. DCC will work with mana whenua following lodgement of the applications, and in the long term, to ensure its concerns are addressed, including to confirm landfill operational and monitoring measures in the Landfill Management Plan, and to identify wetland/waterway enhancement opportunities.</li> </ul>
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	<p><b>Erosion and Sediment Control:</b></p> <p>Preparation of site-specific erosion and sediment control plan (ESCP) for each construction catchment which sit under the Water Management Plan (WMP) and includes:</p> <ul style="list-style-type: none"> <li>• design and construction of surface water drainage channels and discharge structures that ensure sufficient sediment settlement capacity and scour protection.</li> <li>• use of best practice soil stabilisation and sediment control measures to control discharges at source, such as silt fences, temporary diversion/contour swales, grassing, hydroseeding, protective matting etc.</li> <li>• Stage area limitation: Excavation will be carried out on an “as required” basis to limit the footprint of soil disturbance at any one time and following excavation, surfaces will be protected as soon as possible.</li> <li>• Localised control measures such as the use of filter socks or temporary silt dams in channels while works are under construction and there is potential for elevated sediment concentrations in runoff.</li> <li>• Regular surface water monitoring will be undertaken during construction to confirm and optimise sediment management efficacy.</li> </ul>
<p><b>Recommendation: Recognition of mana whenua</b></p> <p>That DCC consider a process of resourced and ongoing engagement with Te Rūnanga o Ōtākou, with particular regard to input into and reporting on environmental and ecological management plans, water management, closure and rehabilitation, heritage, biodiversity and monitoring.</p>	<p>As above, DCC have stated that they are committed to working in collaboration with mana whenua to develop all plans regarding the landfill management.</p> <p>Mana whenua will have the opportunity to input into annual reviews into the effectiveness of the Landfill Management Plan (LMP). They have also stated that Mana whenua will continue to be given the opportunity to join site visits undertaken by</p>

<p>That DCC consider a process of resourced and ongoing engagement with Te Rūnanga o Ōtākou, with particular regard to input into and reporting on environmental and ecological management plans, water management, closure and rehabilitation, heritage, biodiversity and monitoring.</p> <p>Mana whenua should be given the opportunity to review and comment on the effectiveness of Environmental Management Plans.</p> <p>Mana whenua should be given the opportunity to undertake ongoing monitoring alongside other specialists.</p> <p>Any Environmental Management Plans implemented must provide for ongoing monitoring to ensure the objectives of those management plans are being met.</p>	<p>specialists for the purposes of environment monitoring.</p>
<p><b>Recommendation: Haere whakamua, Tikaka, Utu</b></p> <p>Mana whenua request that the applicant develops, funds and adheres to an implementation strategy to enable an efficient shift to a zero waste future.</p> <p>This will require forward thinking, adaptability, innovation and accountability to the community to ensure that landfill solutions are phased out.</p> <p>The applicant ensures that thorough analysis of alternative solutions has been undertaken, documented and disseminated to mana whenua and stakeholders.</p>	<p>The AEE states: The WWMP 2020 includes implementation pathways aimed at achieving the Council’s zero waste future, and targets for waste minimisation and reduction of waste disposed to landfill by 2030. The success of these measures (and future measures beyond 2030) will determine the need for the use of the landfill beyond stage 2. Through the implementation of the plan, the Council will work closely with mana whenua as Treaty Partner and support their kaitiaki role. However, it is possible there will remain a long term need for a landfill to dispose of residual waste that cannot otherwise be diverted.</p>
<p><b>Recommendation: Hau</b></p>	<p><b>Air Quality management and monitoring:</b></p>

<p>Ensure mitigation measures are monitored, controlled and regularly reviewed.</p> <p>Ensure residential properties in proximity to the site are engaged with.</p>	<ul style="list-style-type: none"><li>• Progressive installation and appropriate construction quality assurance (CQA) of a low permeability basal and sidewall lining system which will reduce the likelihood of subsurface Landfill Gas (LFG) emissions beyond the landfill liner system (either on site or off site).</li><li>• Progressive installation of an active LFG collection, treatment and destruction system (i.e. gas extraction wells, pipework, manifolds, flares and/or engines) that is suitable for the quantity and quality of LFG emitted by the site as landfill development progresses.</li><li>• Installation of a destruction system using flaring (with the possible future generation of electricity once LFG quantities are sufficient).</li><li>• Design and installation of an appropriate LFG monitoring network to confirm the effectiveness of the system, including LFG monitoring boreholes/wells outside the waste boundary.</li><li>• Buildings and structures on-site (but outside the landfill footprint) will be designed and constructed to minimise the risk of LFG entry and accumulation.</li><li>• Subsurface services on-site will be designed and constructed in accordance with relevant standards in relation to LFG as applicable</li></ul> <p>DCC have stated that they will continue to engage with adjacent residential properties.</p>
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