Before the Expert Panel appointed under the Fast-track Approvals Act 2024

Under	the Fast-track Approvals Act 2024
And	
In the Matter of	an application for approvals by NZSki Limited to upgrade existing infrastructure at the Remarkables Ski Area, including a new passenger transport lift, carparking areas, and expanding the ski field into the adjacent Doolans Basin

Statement of Evidence of **Marc Kristian Mejlhede Jensen** on behalf of NZSki Limited in response to Section 53 Comments

Wastewater

Dated: 3 November 2026

Lane Neave
Level 1, 2 Memorial Street
PO Box 7348
Queenstown
Solicitors Acting: Joshua Leckie/Charlotte Coyle
Email: joshua.leckie@laneneave.co.nz/
charlotte.coyle@laneneave.co.nz
Phone: 03 409 0321

lane neave.

INTRODUCTION

1. My name is Marc Kristian Mejlhede Jensen.

2. I am a Chartered Professional Engineer (CPEng), Chartered Member of Engineering New Zealand and Principal Civil Engineer with Stantec New Zealand, with over 14 years' experience in water, wastewater and sustainable engineering. My particular expertise includes wastewater treatment, onsite wastewater systems and treated wastewater disposal, and I have delivered more than 350 onsite wastewater projects. I hold NZQA Unit Standards 25124–25129 in onsite wastewater site assessment, system design and management, and am an accredited Site and Soil Assessor. I was Chair of Water New Zealand's Onsite Wastewater Management Systems Special Interest Group from 2022 to 2025.

3. I acted as Wastewater Lead for the Remarkables Ski Area Upgrade and Doolans Basin Expansion. I drafted the original Doolans wastewater concept report (**B-17**), which was subsequently developed and updated by Derek Chinn of Stantec. I was also an original author of the B-18 Remarkables Ski Area Upgrade and Doolans Basin Expansion – Wastewater Treatment and Disposal Feasibility Report (**B-18**) and prepared its supporting wastewater design flows and loads assessment titled Doolans' Expansion Wastewater – Confirming Wastewater Design Year V3 in Appendix A.

4. This statement is given as part of NZSki Limited's (**NZSki**) response to comments on the Remarkables Ski Area Upgrade and Doolans Expansion (**Project**) made under Section 53 of the Fast-track Approvals Act 2024 (**FTA**). This statement responds to specific comments raised by:

   (a) Dr Christopher Ronald James Kavazos, DOC s51 response, Appendix B – Expert Statement Freshwater in para. 175-179.

   (b) Dr Michael Greer, Otago Regional Council (**ORC**) s53 Response, Appendix 2: Surface water ecology and water quality technical expert advice in Section 3.1, Section 3.4.2.4, Section 3.4.3 and 3.7.3.2.

   (c) Queenstown Park Limited (**QPL**), Invitation to Comment: Reference FTAA-2605-1236, Wastewater page 2.

5. In preparing the feasibility assessment, I relied on the historical wastewater-flow, wastewater-quality and nutrient-load assessment reported in e3 Scientific's Wastewater Discharge Impact Assessment (**B-11**), prepared by Simon Bloomberg

and Jamie Lynds. My evidence addresses Stantec's wastewater flows, loads, treatment requirements and engineering feasibility.

6. The land and groundwater pathway, resulting instream contaminant concentrations and ecological effects are addressed by e3 Scientific and are outside my area of expertise.

7. I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. The reports I have prepared are within my area of expertise, except where I state that I am relying on material produced by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my reports.

SPECIFIC RESPONSE TO COMMENTS

Total Nitrogen (TN) Limit and Basis for 750 kg/year (proposed consent condition WW.8A)

8. I agree that the basis and intended status of the proposed 750 kg TN/year limit that is stated in H.02 Resource Consent Conditions, proposed condition WW.8A should be clearly explained. It is not a directly measured historical annual load and should not be described as Stantec's estimate of the existing or 2022 load.

9. Historical loads cannot be established precisely from the available records because the wastewater flow and concentration datasets are affected by limitations including metering uncertainty, by-wash[1] volumes, seasonal variability and the representativeness of the monthly compliance monitoring grab samples. I therefore assessed the likely loads using several wastewater-flow and strength scenarios. These included e3 Scientific's assessment, a first-principles assessment, comparisons with other ski-field wastewater, and an upper-bound public-toilet/no by-wash scenario.

10. From that assessment, I considered approximately 500–1,200 kg TN/year to be a reasonable range for the likely 2022 load and approximately 900 kg TN/year to be the most likely engineering estimate. The upper-bound scenario was used to test uncertainty and did not replace the adopted historical range.

11. The proposed 750 kg TN/year limit is approximately 150 kg/year below my most likely 2022 estimate and lies within the assessed historical range. In my opinion, it is therefore a conservative provisional consent limit.

[1] By-wash water is clean water that is discharged through the water and wastewater pipe network to prevent pipework from freezing.

12. The supporting design assessment estimated that approximately 620–1,630 kg TN/year could enter the treatment plant when the Remarkables ski field is fully developed and at maximum occupancy. Limiting the treated wastewater discharge to achieve 750 kg TN/year would therefore require nitrogen reduction as wastewater flows and loads increase.

Total Phosphorus (TP) Limit (proposed consent condition WW.8A)

13. I agree that the basis and intended status of the proposed 100 kg TP/year limit should also be clearly explained. As with total nitrogen, it is not a directly measured historical annual load. TP loads were derived using the same overall flows-and-loads methodology used to determine TN. This concluded that approximately 63–215 kg TP/year was a reasonable range for the likely 2022 load and approximately 155 kg TP/year was the most likely engineering estimate.

14. A value of 100 kg TP/year was adopted as a conservative provisional consent limit.

15. The supporting design assessment estimated that approximately 80–280 kg TP/year could enter the treatment plant when the Remarkables ski field is fully developed and at maximum occupancy. Limiting the treated wastewater discharge to achieve 100 kg TP/year will require increasing treatment as TP loads increase over time.

Monitoring and Review

16. Based on the evidence of Mr Bloomberg, I understand that additional wastewater monitoring has been completed during the 2026 ski season to confirm historical TN and TP loading and that this will be confirmed via further assessment work proposed in Condition WW.37A. I agree that this assessment of historical loading is appropriate.

17. The monitoring period will not directly measure a complete calendar-year load, but it will materially improve the information available for reconciling and testing the historical estimates. I consider that this information will materially inform the technical requirements of a new treatment plant that will meet the proposed consent conditions.

Ammoniacal Nitrogen and Treatment

18. The historical monitoring represents effluent from the existing primary treatment system, which has not been assumed to reduce ammonia or remove nitrogen. It should not be assumed to represent the nitrogen composition or concentration of the future effluent following treatment upgrading.

19. The treatment options I have assessed include nutrient-reduction processes incorporating nitrification and denitrification. With effective treatment, organic and ammoniacal nitrogen would be converted to oxidised nitrogen through nitrification, with a proportion of the oxidised nitrogen subsequently removed as nitrogen gas through denitrification. The nitrogen composition of the future effluent entering the rapid infiltration basins would therefore be materially different from the existing primary-treated effluent.

20. The upgraded treatment system is expected to reduce the ammoniacal nitrogen load entering the rapid infiltration basins and potentially reaching the Rastus Burn. The assumption that the full future TN load is ammoniacal nitrogen is therefore a conservative assumption with regard to ammoniacal nitrogen levels. It does not represent the expected effluent composition from a functioning nutrient-reduction plant.

Feasibility of Treatment Upgrade

21. I have engaged with reputable suppliers of treatment plants to understand if suitable options are available to meet the fluctuating seasonal loads and treated wastewater limits specified in proposed condition WW.8A. As a consequence of this investigation, I am satisfied that appropriate treatment technology is commercially available.

22. The supplier will be required to demonstrate that its process can meet the applicable TN and TP requirements under the specified alpine flow, loading and temperature conditions. Stantec can review those proposals against the consent requirements and wider engineering design basis, but supplier-level process design is not part of Stantec's present engagement.

Queenstown Park Limited and Remarkables Park Stud Farm Limited Response

23. I have read the comments of QPL dated 27 October 2026. QPL considers that appropriate treatment is more difficult or expensive to achieve in an alpine environment because of lower temperatures and suggests piping wastewater through its land to Queenstown Lakes District Council's (**QLDC**) network at Lake Hayes Estate for treatment at the Shotover Wastewater Treatment Plant (**WWTP**).

24. I accept that this would remove the treated effluent discharge from the Rastus Burn catchment and reliance on the Hanleys Farm pump station or the technically more difficult option of pumping directly into the rising main downstream of this pump station. Connecting to the QLDC Shotover WWTP was considered and discussed in B-18. The route suggested by QPL was not specifically assessed.

25. Conveyance down the ski field access road was assessed in B-18 in a pumped main and falling main arrangement, both to a low-altitude treatment plant (Option 6a) and to the QLDC network (Options 6b and 6c).

26. QLDC's feedback noted that ski field wastewater characteristics (high nitrogen, no carbon, peaky flows, aged effluent) are undesirable for a connection to the Shotover WWTP and that NZSki would need to join a queue of developers seeking connection. B-18 also identified that the Hanleys Farm pump station is nearing capacity and reported odour, landowner approvals, and cost as further constraints.

27. B-18 acknowledged that low-altitude treatment avoids the need for heating. However, the design team excluded these options because of considerable cost, septicity and the complicated siphons or pump stations required to reticulate to the base of the access road, together with the uncertainty of an available connection point and pipeline failure risk (landslides, erosion and ground movement). As feasible options existed in the Rastus Burn catchment, those options were progressed.

28. My evidence in B18 outlined practical and geotechnical challenges of a long falling main from the ski field to the bottom of the access road. Compared to the existing discharge route at the ski field this introduces a new risk of a release of raw wastewater to land and could release raw wastewater to land and watercourses, including the Rastus Burn. QPL's suggested route would face the same constraints and would convey wastewater to the Shotover WWTP.

29. Treated wastewater is discharged to land through the rapid infiltration basins, not directly to the Rastus Burn. QPL states it uses Rastus Burn water for stock, intends to use it for irrigation, and would longer term like to take water for domestic use. The wastewater discharge already occurs. The proposal would replace the existing primary treatment with secondary treatment with nutrient reduction, with total nitrogen and total phosphorus loads capped to be no greater than existing.

30. The treatment options I have assessed are not designed to treat the downstream surface water for domestic use. In my opinion, any future domestic supply from the Rastus Burn, as an alpine surface-water source, would require its own treatment appropriate to that use regardless of the wastewater discharge. Effects on Rastus Burn water quality, including microbial risk, are addressed in the evidence of Mr Bloomberg and Mr Hamer.

31. As set out at paragraph [21], treatment technologies are commercially available to meet the required performance under alpine operating conditions. QPL's suggestion does not change my conclusion that upgraded treatment at the ski field is the optimum option.

Overall Response

32. In my opinion, 750 kg TN/year is a reasonable provisional and conservative limit for wastewater design and consent development. It is below my most likely historical estimate for 2022 as the reference year. As flows and loads increase in the future, improved treatment will be required to achieve nitrogen and phosphorus reduction.

33. The final treatment design will be required to demonstrate that the applicable TN, TP limits and treated-effluent ammoniacal nitrogen requirements can be achieved under the expected alpine operating conditions.

34. My evidence is confined to wastewater engineering and does not assess the Project through a te ao Māori or Kā Rūnaka cultural lens as this is best completed by Kā Rūnaka.



Marc Kristian Mejlhede Jensen

3 November 2026