GEOSOLVE

GEOTECHNICAL WATER RESOURCES PAVEMENTS

GeoSolve Ref: 240480.09
26 May 2026

Otago Regional Council
By Email

Technical Audit – NZSki Limited (RM26.075)

In accordance with our agreement, we have undertaken an audit of technical information submitted by NZSki as part of their pre-application consultation with ORC for their fast track proposal to develop the Remarkables Ski Area

The following report has been reviewed: *Remarkables Ski Area Doolans Expansion Reservoir Concept Report by Stantec, rev 4 dated April 2026.*

ORC provided some queries, which we have provided a response to.

Q:	Is there sufficient information available to determine the effects as a result of a dam breach? If no, what additional information would be required?
R:	Stantec note that the dam is not a classifiable dam under the Building (Dam Safety) regulations. We would agree with that categorisation based on the concept design proposed. Therefore, there is no legal requirement for the applicant to undertake a potential impact classification (PIC) including a dam breach analysis for the dam. However, the applicant does indicate that the above assessment will be carried out at a future date to inform the design of the dam. The probability of dam breach will be extremely low due to the applicant's proposed compliance with the Building (Dam Safety) Regulations 2022 and NZSOLD guidelines and the potential effects of such a scenario have been considered at a high level (see section 5.3). The quantity of water involved is relatively low due to the nature of the dam. I would consider that the applicant has provided sufficient information to determine these effects given the remote location of the pond and the low probability of a dam breach for a dam designed in accordance with NZSOL guidelines.
Q:	Is the assessment provided in the report robust, including the information relied upon, the methodology used, and any uncertainties or assumptions made?
R:	The report is at a relatively high level and provides a concept design for the dam and pond. Therefore, there are potentially some uncertainties as to the final design of the pond and dam. However, from a geotechnical and dam design perspective,

	what is proposed seems reasonable and robust given the likely shallow rock at the site. There are a number of design items that have been deferred to a future date. (These are listed in section 9 and 10 of the report and discussed below). A site visit with geological mapping to assess any rock slope instability or rockfall hazard has not been carried out. However, the proposed design will not exacerbate these issues and deferring until the next design stage is considered acceptable. Geotechnical investigation has also been deferred. From a design perspective this is reasonable as there is likely to be shallow rock and the dam is proposed to be lined with underdrainage, hence investigations are unlikely to change the concept design significantly. We note that surface water management (i.e. drains/swale design, sediment control measures etc) are considered in another design report and there may be effects of these measures e.g. scour, sedimentation. Overall, there are quite a few uncertainties, however the overall concept design seems reasonable and is considered unlikely to change significantly after the proposed additional work.
Q:	Is the assessment fit for purpose? Are there any matters not addressed by the assessment that would be relevant in your view? What additional information would be required?
R:	Overall the assessment is fit for purpose for a resource consent. There is not a well-developed earthworks plan for the scheme and the report notes that there may be excess cut material that requires disposal. This is something that ideally should be considered at this stage of the project as there could be ecological, water quality and other effects of disposing of soil that should be considered by the applicant.
Q:	If granted, are there any specific conditions that you recommend should be included in the consent?
R:	1. The dam shall be designed, constructed, operated and maintained in accordance with current industry best practice, including the **New Zealand Dam Safety Guidelines (NZSOLD)**. 2. At least [20] working days prior to the commencement of construction, the consent holder shall provide to the Consent Authority: a) Detailed design drawings and specifications for the dam, including (but not limited to) i. embankment design ii. spillway capacity and configuration

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b) A design report prepared by a **Chartered Professional Engineer (CPEng)** with experience in dam engineering.

3. The consent holder shall ensure that construction of the dam is supervised by a suitably qualified and experienced engineer.
4. Within [20] working days of completion of construction and prior to first filling, the consent holder shall provide a **Completion Report** prepared by a Chartered Professional Engineer confirming that:
   a) the dam has been constructed in general accordance with the certified design, and
   b) any departures from design are minor and do not compromise dam integrity or performance, and
   c) the dam is safe to operate for its intended purpose.
5. Within [20] working days of completion of construction and prior to first filling the consent holder shall supply **as-built drawings** of the dam, including key dimensions and levels, certified by a Chartered Professional Engineer.
6. The consent holder shall develop and implement an Operation and Maintenance Plan for the dam, which shall include:
   a) routine inspection requirements (including after significant rainfall events)
   b) maintenance procedures
   c) sediment and vegetation management
   d) procedures for identifying and responding to defects (e.g. seepage, erosion, cracking)

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Applicability

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Yours faithfully,



Colin Macdiarmid
Principal Geotechnical Engineer (CPEng)
GeoSolve Limited

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