Workshop Briefing Paper

QUEENSTOWN LAKES DISTRICT COUNCIL

Project/Bundle	**Shotover Disposal Field (001314)**
Purpose	**Workshop on Short List Options for the Long-Term Discharge**
Date	**19 February 2026**

1.0 Purpose/Desired Outcome

1.1 Briefing for Information and Q&A/Feedback.

2.0 Background

2.1 The Shotover Watse Water Treatment Plant (SWWTP) was established in the 1970s. Before 2017 wastewater treatment at the SWWTP was basic, consisting of an aerated septage treatment lagoon (oxidation ponds) and treated wastewater was disposed directly to the lower Shotover River.

2.2 In 2017 the Stage 1 plant upgrade works were completed which included the addition of a Modified Ludzack-Ettinger (MLE) treatment train. The MLE process provides superior wastewater treatment to the oxidation ponds. At the time, approximately 80% of the wastewater was treated through the MLE process, with the balance of flows being treated within the oxidation ponds.

2.3 The two treated wastewater streams were then blended before receiving UV sterilisation and disposal through the dose and drain (DAD) field. The DAD disposal field was consented and installed in 2019. The intent at the time was to remove the direct discharge of treated wastewater to the Shotover River.

2.4 However, performance of the DAD disposal field steadily deteriorated since 2020, and the field no longer operates as it was designed to do.

2.5 On the 31st of March 2025, QLDC exercised Emergency Powers under the Resource Management Act to divert the treated wastewater away from the DAD, through a historical channel directly to the Shotover River. A retrospective Resource Consent for this work has been submitted to the Environment Court under the direct referral process. The Resource Consent seeks a short-term approval to December 2030, until the replacement, long term disposal option has been constructed and is operational.

2.6 The SWWTP has been upgraded with a second MLE plant in 2025, which avoids the need for raw waste to be treated through the oxidation ponds. The second MLE and clarifier has been in operation since September 2025 and demonstrates a significant increase in nutrient removal post implementation.

2.7 The Project Team commenced development of a new long-term disposal solution for treated effluent produced at the SWWTP in October 2024.

2.8 A long List of options was presented in early 2025 and a Multi Criteria Analysis (MCA) workshop was undertaken to determine a short list of options from the long List presented.

2.9 Four short list options were selected from the MCA assessment workshop, these were as follows, with further details provided in the presentation pack:

Option A – Land flow path and discharge to the Kawarau River.

Option B - Subsurface wetland on Delta with discharge to the Kawarau River.

Option C – Hybrid soak holes on Frankton Flats. *

Option D – Hybrid well point injection on Frankton Flats. *

**Both options C and D include a discharge to the Kawarau River.*

2.10 After a new Council of elected members was formed in late 2025, a briefing session was held in December 2025 to provide Councillors with the background of the Shotover Wastewater Treatment Plant and disposal field, and to outline the process underway in selection of a recommended option for the disposal field replacement. Specifically, the workshop presented the short-listed options along with the technically recommended Option A – Land flow path and discharge to the Kawarau River, for discussion.

3.0 Current Situation

3.1 Following the December workshop, Councillors indicated that they wished to understand in more detail:

- 3.1.1 The impact of legislative changes including the Wastewater Environmental Performance Standards (WEPS) and what standards would apply to any treated wastewater that might be disposed of to land and the costs to meet those standards,
- 3.1.2 Options for treatment enhancement/betterment,
- 3.1.3 Land availability for disposal in the Wakatipu basin,
- 3.1.4 QLDC's strategy for wastewater management in the Wakatipu basin,
- 3.1.5 Iwi engagement undertaken and planned going forward,
- 3.1.6 And the consenting and communications strategy.

3.2 The project team have undertaken further investigation and analysis to verify that the options on the short list represent the most suitable options available. Further work has been done to provide Councillors with sufficient information to inform a decision in March 2026.

3.3 This information is provided in several detailed reports append to the briefing documentation ahead of the February workshop, and summarised below.

4.0 Additional Short-Listed Option – Option E Land Only Disposal

4.1 Following the December 2025 briefing with Council, further engagement with iwi partners, and findings from the short list options assessment peer review, the project team responded to the feedback provided and has short listed the most suitable land only disposal option for Councils consideration as part of the decision-making process.

4.2 'Option E' has been assessed via the MCA process, as with the remaining options, and has been put forward in acknowledgement that none of the previous options contained a land only discharge.

4.3 Option E consists of conveyance and discharge to the Crown Range Terraces.

4.4 Of all areas assessed, the Crown Range Terraces provide adequate connected land area, at the lowest level of constraint for an exclusively land-only disposal option (from a technical assessment).

4.5 To meet the full 2060 peak wet weather flow, of 60,000 m3 per day (24 Olympic Swimming Pools) almost 300ha of low/moderate rate infiltration land is required. There are very limited locations where this land availability exists, smaller parcels exponentially increase conveyance costs and operational costs if discharges are distributed to different areas.

4.6 Option E costs are significant and are in the order of $550-650M. This is an order of magnitude higher than the remaining short-listed options. There is also significant risk surrounding land acquisition, lease options etc. with landowners, that would likely result in not achieving the enforcement order deadline in 2030.

5.0 WEPS Impact Assessment

5.1 The newly implemented Wastewater Environmental Performance Standards (WEPS), effective from December 2025, influence both the short-term and long-term consenting pathways for discharges from the Shotover Wastewater Treatment Plant.

5.2 Although the short-term consent application for discharge to the Shotover River was submitted prior to the standards taking effect—and is therefore not legally bound by them—the WEPS are still expected to be used by the consent authority as a benchmark.

5.3 For the long-term discharge solution, WEPS will formally apply unless an exception applies. A key potential exception is the "pristine water" provision, which may exempt discharges to the Kawarau or Shotover Rivers if they meet Band A water quality under the National Policy Statement for Freshwater Management (NPS-FM).

5.4 Initial data suggests this is likely, though further monitoring for dissolved oxygen, cyanobacteria, and periphyton is required before confirmation by the consent authority (ORC).

5.5 Where WEPS do apply, they introduce stringent requirements relating to dilution capacity, mixing zone performance, and periphyton-related nutrient limits.

5.6 The Kawarau River is expected to fall within the moderate dilution category, while the Shotover River—particularly under low-flow conditions—sits in the low to very-low dilution range.

5.7 The current WWTP performance generally aligns with most WEPS thresholds, especially following recent upgrades, but key parameters such as total nitrogen, total phosphorus,

and ammoniacal nitrogen may require further optimisation or process augmentation depending on the final assessed dilution and periphyton risk categories.

5.8 Subsurface irrigation components of Options C and D fall under WEPS land-discharge criteria, though nutrient loads appear likely to comply with slow-infiltration limits once land-class verification is completed.

5.9 Option E is expected to fall within the requirements of the WEPS.

6.0 Enhanced Treatment Options

6.1 This report evaluates options for enhancing nutrient and virus removal at the Shotover Wastewater Treatment Plant (WWTP).

6.2 Recent upgrades to the Shotover WWTP have already improved nitrogen and phosphorus removal, but achieving tighter limits would require additional treatment processes.

6.3 Among the nutrient-removal options assessed, large-scale process changes such as converting the plant into a 5-stage biological nutrient removal (BNR) system or a full membrane bioreactor (MBR) configuration are considered too costly and disruptive to be feasible options for plant augmentation.

6.4 More feasible options include supplementary carbon dosing, alum dosing for phosphorus reduction, and installing ammonia analysers—together estimated at $680k to $1.4M.

6.5 There are also available plant augmentation options available to achieve a reduction in virus load following a Quantitative Microbial Risk Assessment (QMRA). The plant could add either high-power UV disinfection or tertiary membrane ultrafiltration. UV reactors capable of achieving a 2-log virus reduction are estimated to cost between $3.6M and $7.7M, whereas a full membrane filtration system would be in the order of $30–55M and is therefore less cost-effective.

6.6 To contextualise Shotover's proposed long-term consent limits, the plants' current performance generally aligns with international benchmarks, and that major enhancements (particularly for micropollutant removal) would involve significant capital investment.

7.0 Dose and Drain (DAD) Field Assessment

7.1 As part of the short list options refinement, the 'Dose and Drain' (DAD) disposal field has been further assessed in respect of its performance, causes of failure, and future feasibility to supplement a long-term discharge short list option.

7.2 The DAD system experienced significant operational issues, including clogging of the gravel media by suspended solids and biological growth, shallow groundwater conditions that frequently rose to or above ground level, and limited aquifer capacity on the Shotover delta.

7.3 These constraints caused ponding, wastewater breakout, and elevated nutrient concentrations (especially ammoniacal nitrogen) in groundwater and along the riverbank of both the Shotover and Kawarau Rivers. Monitoring showed that the delta provides minimal inground treatment, with downgradient groundwater nutrient levels often comparable to the treated wastewater itself.

7.4 Hydrogeological investigations in 2025 confirmed that the delta contains interbedded fine sands and silts that restrict vertical flow, creating seasonal and spatial variability.

7.5 Modelling indicates that while the DAD could potentially be remediated, its feasible discharge capacity would only be in the range of 3,000–5,000 m^3/day under low groundwater conditions (far below both current and future WWTP flows) and essentially unworkable during spring high-flow periods when groundwater levels rise. As a result, the DAD cannot operate as a reliable, continuous disposal method without significant risk of surface breakout and environmental effects.

7.6 The DAD could potentially be used in a limited, seasonal "dual-discharge" configuration alongside a primary discharge to the Kawarau River, providing supplemental disposal during low river flows and potentially improving combined dilution.

8.0 Outfall Assessment

8.1 As part of any discharge to the Kawarau River, an outfall structure is required to ensure adequate mixing and dilution occurs in accordance with the limits prescribed by the consent authority (following consent application).

8.2 Two alternative outfall structures (a rock outfall and a submerged diffuser outfall) have been assessed for discharging treated wastewater from the Shotover WWTP into the Kawarau River as part of the long-term disposal solution.

8.3 Both options must accommodate projected 2060 flows of up to 59.6 ML/day and achieve regulatory dilution performance under the Wastewater Environmental Performance Standards (WEPS) should it apply.

8.4 The rock outfall is a land-based, rock-filled channel on the Shotover delta that conveys effluent to the river edge, providing aeration and some land contact but only limited mixing in the near-bank area. In contrast, the diffuser option involves a submerged, multi-port discharge located in the deeper part of the river channel, designed to rapidly mix effluent and achieve ≥50-fold dilution within 100 m.

8.5 The rock outfall is the recommended option for its ease of construction, lower capital cost, and simpler maintenance. However, it may increase the likelihood that a low-dilution WEPS category would apply—potentially driving tighter discharge limits and higher treatment costs. The diffuser outfall, while more expensive ($8.4–$12.8 M vs $3.8–$4.3 M) and technically complex due to river-bed installation and hydraulic modelling needs, offers significantly improved mixing, reduced visual impact, better resilience to high flows.

8.6 During the consent application process, should it be determined that the rock outfall will not achieve the expected performance to adhere to the proposed limits, there is the ability to revert to the diffuser option and amend the consent application accordingly (viewed unlikely).

9.0 Consenting Strategy

9.1 The enforcement order details two key deadlines in respect of the long-term consent solution. These include lodgment of the consent application by May 2026, and implementation of the long-term solution by December 2030.

9.2 A consenting strategy has been prepared with consideration to the above constraints along with the ability to secure long-term approvals for the disposal solution.

9.3 With the new planning bill expected to become law in 2026, there is a risk, should the consenting application process be delayed, that options under the RMA process are no longer available – e.g. direct referral. While a transition period is envisaged, it is not yet clear if the direct referral process will exist as it does now throughout the transition period or in the new planning legislation when it becomes law.

9.4 As it stands, there are three consenting routes that are available under the RMA: (1) a standard two-stage process via the consenting authority (ORC), (2) direct referral to the Environment Court, and (3) fast-track consenting.

9.5 While the standard pathway offers a familiar process, it carries a high risk of appeal, which could delay the project well beyond statutory deadlines. Fast-track consenting is expensive, less participatory, and not necessarily faster.

9.6 After evaluating timing risks, anticipated public and stakeholder interest, and the complexity of the application, direct referral to the Environment Court is the preferred and recommended consenting pathway, as it provides a single-stage decision-making process, accommodates full stakeholder participation, reduces delay risks, and maximises the likelihood of meeting the 2030 implementation deadline.

9.7 Early and ongoing engagement with mana whenua is of critical importance, along with key agencies, stakeholders, and the community.

9.8 A structured engagement programme will be developed to ensure cultural values, environmental concerns, and operational considerations are incorporated into option refinement and consent preparation. This includes tailored engagement with iwi, ORC, DOC, Queenstown Airport, recreational users, and surrounding landowners.

9.9 Once a preferred disposal option is selected, the consenting strategy will be updated with option specific recommendations and refined assessments to support drafting and lodgement of the full consent application.

10.0 Engagement Plan

10.1 A draft engagement plan has been prepared that outlines how QLDC will communicate with the community, stakeholders, and internal staff as the Council progresses toward selecting and confirming the preferred long-term wastewater disposal solution for Shotover. The plan sets out the intended communication channels (such as media announcements, town-hall/open-house events, website updates, social media, story map updates, Let's Talk Kōrero Mai, FAQs, and internal "lunch & learn" sessions) and identifies the collateral needed to support these activities.

10.2 Feedback is sought from Councillors on the plan and the engagement activities proposed, as much of the engagement will be undertaken by Councillors within the community once the decision is made in March.

10.3 It is critical that the public is well informed, understands the rationale behind the chosen disposal solution, and knows what to expect next as the project moves into design and consenting stages. Councillors are key to conveying this messaging and information to the public, garnering trust from the community that the right solution has been selected.

11.0 Next Steps

11.1 Consultants are continuing environmental investigations in the Shotover Delta and the Kawarau River to inform the affects-based assessment for the consent application. These investigations will continue throughout the low flow conditions in February /March to provide the last pieces of the puzzle in finalising the environmental assessments.

11.2 A Council decision paper is being prepared and will be provided to Council by the end of February.

11.3 The first of its kind, mana to mana hui is scheduled with elected members and Rūnaka leaders 11 March 2026, which will provide valuable insight to iwi concerns and their views ahead of the Council decision 19 March 2026.

11.4 The business case will then be completed following the selection of the preferred option, targeting approval ahead of the consent application.

11.5 In parallel, preliminary design continues to progress to enable consent applications to be made. Consent submission is targeted prior to the end of May 2026 to comply with the enforcement order deadline.

11.6 Upon granting of Consents, detailed design will be completed, followed by procurement, construction and hand over.

12.0 Ends

12.1 Questions and Feedback invited.