Memorandum

To: Shay Macdonald (Otago Regional Council)

From: Mitchell Daysh (on behalf of Matakanui Gold Limited)

Date: 5 February 2026

Re: Further Information Response Part 1 – Bendigo-Ophir Gold Project Fast-track Application

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INTRODUCTION

The purpose of this memorandum is to provide responses on behalf of Matakanui Gold Limited ("**MGL**") to the request for further information requested by Otago Regional Council ("**ORC**") on 8 January 2026[1] in relation to the fast-track application for the Bendigo Ophir Gold Project ("**BOGP**" or "**Project**") which was submitted to the Environmental Protection Authority on 31 October 2025.

This response relates to further information related to planning and general matters and provides a response to Questions 1 to 7 from ORC. MGL will provide a response to Question 8 (which relates to further assessment for the proposed gold smelting furnace) through an additional memorandum.

For completeness, each of the further information requests being responded to are provided in full (in italics) below and are followed by our responses.

QUESTIONS

With respect to planning and general matters, the request for further information seeks the following:

1. *Please provide NZTM2000 coordinates and / or a map to show the approximate location of any culverts or other instream structures that are proposed to be installed within watercourses on the site. A land use consent has been sought to install four culverts in the beds of Shepherds Creek and Rise and Shine Creek, as well as flow control devices and coffer dams but only the culvert in Rise and Shine Creek has been identified.*

[1] ORC reference: RMFT25.007.

MGL confirms that only one culvert is proposed to be installed on the bed of the Rise and Shine Creek at the location shown in *A.10 Project Description* (Figure 3-32) which includes coordinates. The reference to four culverts in *H.01 RMA Rules Assessment* (pages 58 & 78) is incorrect and should be disregarded. As such, land use consent is only sought to install a single culvert in the bed of Rise and Shine Creek.

With respect to cofferdams, an initial cofferdam is proposed that will form the starter embankment for the Shepherds Tailings Storage Facility. This is shown in *B.21 Shepherds Tailing Storage Facility Technical Report* (Figure 14 – Starter Embankment Layout) at approximately NZTM E1319731 N5017166. In addition, the proposed reclamation of approximately 3.1 km length of Shepherds Creek to establish the Shepherds Service corridor will effectively result in the diversion of Shepherds Creek at various stages from above the TSF and down to the processing plant area. This will involve the placement of several sequential cofferdams in the bed of Shepherds Creek. While the specific locations cannot be determined until detailed design they will generally be placed between E1321610 and N5015739 at the uppermost point of the TSF (Point A) and E1315592 N5019299 below the process plant area (Point B). These locations are illustrated in Figure 1 below.

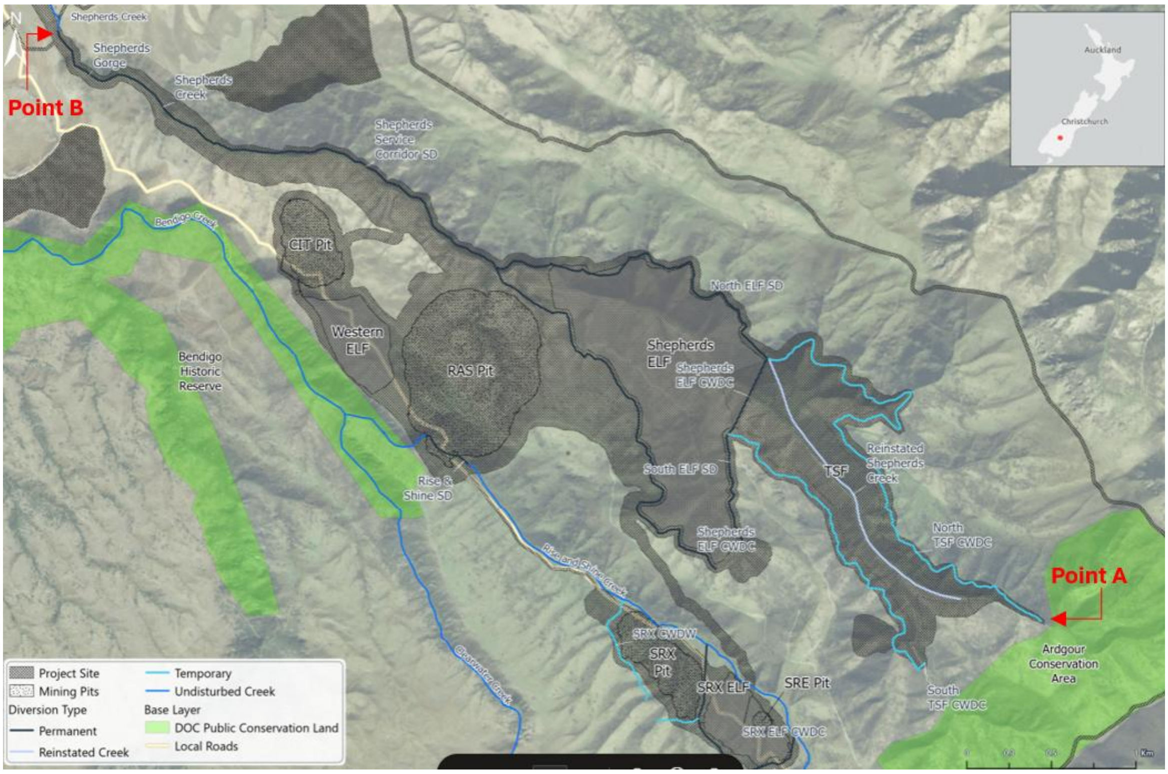

Figure 1: Shepherds Creek Potential Cofferdam Locations

With respect to flow control devices, MGL notes a more accurate term is 'flow monitoring devices', which relates to small structures proposed to monitor flows in the Shepherds and Rise and Shine Creeks downstream of the Project Site as part of the proposed flow augmentation strategy for the BOGP (further outlined in *B.43 BOGP Flow Augmentation Strategy*). These flow monitoring devices will be installed at the following compliance monitoring sites:

> SC-01 in Shepherds Creek – at approximately E1315705 N5019151; and

> RS-03 in Rise and Shine and Clearwater Creeks – at approximately E1316566 N5018027 (as part of the proposed Water Monitoring Concession Area).

In addition, as outlined in *B.43 BOGP Flow Augmentation Strategy* and *A.10 Section 3 – Project Description* (page 196), three flow augmentation sites are proposed to augment flows as required in Shepherds Creek and Rise and Shine Creek at points upstream of the Project Site. These sites will include a pipe outlet structure and in-line flow meter (to record augmentation volumes and flow rates) in the bed of Shepherds Creek and Rise and Shine Creek at the following locations:

> Site 1 in Shepherds Creek – at approximately E1321473 N5015861;

> Site 2 in Rise and Shine Creek – at approximately E1319993 N5015061; and

> Site 3 in Rise and Shine Creek – at approximately E1318531 N5016205.

The locations of these sites are also shown in Figure 2 below.

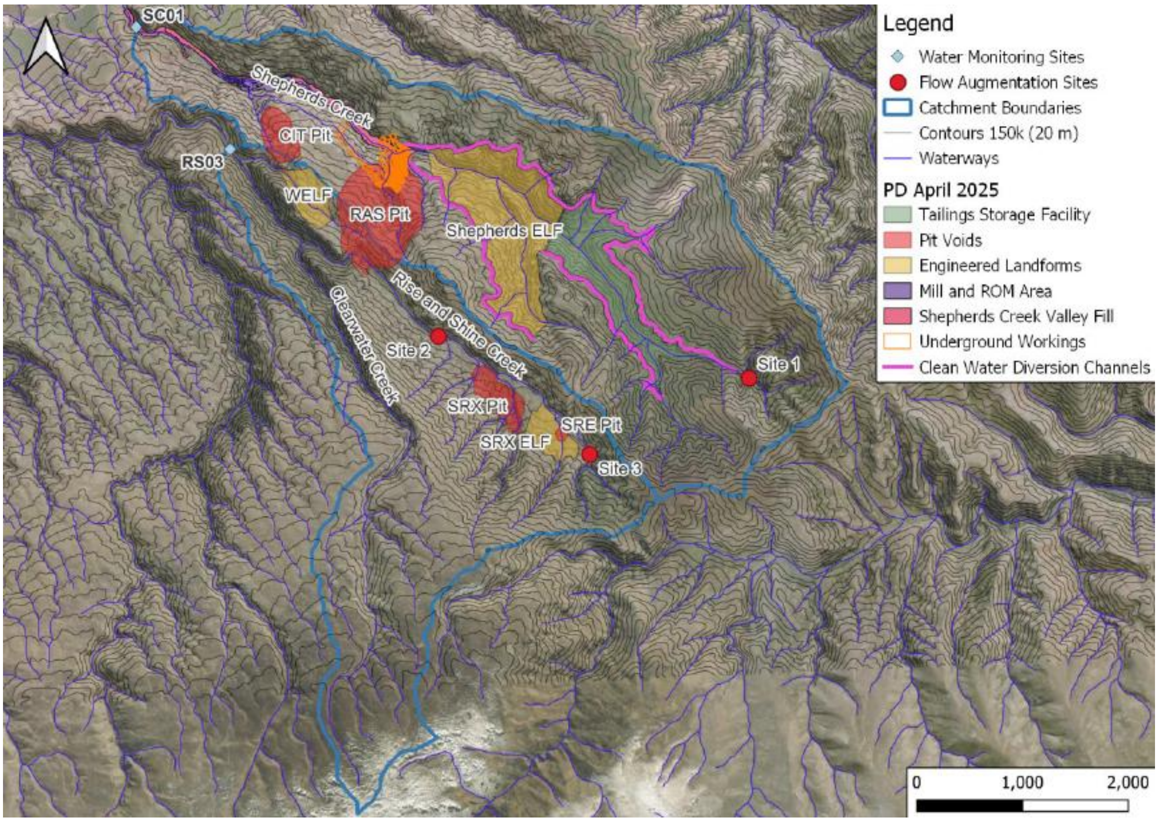

Figure 2: **Flow Augmentation Sites 1 to 3**

2. *Other than the permit to discharge water from the active water treatment plant or from any passive treatment system, are any other consents likely to be required for the trial or implementation of these treatment measures? For example, is any of the treatment infrastructure likely to be sited on the bed of a river?*

As discussed in *A.10 Section 3 - Project Description* (page 199), both the active Water Treatment Plant ("**WTP**") and Passive Treatment System ("**PTS**") are proposed to be located within the processing plant area footprint (where there is access to power, water and storage for reagents) at the bottom of the Shepherds Creek catchment. The processing plant area is located downstream of the TSF, Shepherds Silt Pond and Shepherds Seepage Collection Sump.

However, as discussed in *A.10 Section 3 – Project Description* (page 168) and shown in *C.36 – Proposed Stream Diversions Figure*, a large portion of Shepherds Creek is required to be reclaimed to establish the Shepherds Service Corridor (which will accommodate the processing plant area) and several key mine components - including the upstream Shepherds ELF and TSF and associated Shepherds Silt Pond and Shepherds Seepage Collection Sump. This will involve the permanent diversion of Shepherds Creek away from this area.

The active and passive treatment systems will therefore not be sited in the bed of Shepherds Creek as the watercourse will have been permanently diverted away from this area by the time any treatment facilities are required.

While the trialling or implementation of active and passive treatment measures cannot be confirmed until further studies are completed at the detailed design stage, consents for these activities are not anticipated to be required. MWM notes that for any active or passive treatment trials undertaken at the Project Site, any effluent could be diverted back into the mine water circuit (or the operational WTP for PTS trials). This will ensure any effluent discharges from the trials do not enter receiving watercourses. While MWM and Process Flow can provide further details on the likely trials required, these are broadly anticipated to involve:

- Laboratory water treatability trials;
- Small scale pilot trials conducted during the operational phase with effluent returned to the mine water circuit;
- Commissioning the WTP, which will be undertaken during the operational phase of the BOGP, enabling effluent to be returned to the mine water circuit (if water quality standards are not achieved); and
- Commissioning the PTS, which will be undertaken during the operational phase of the WTP, enabling effluent to be sent to the WTP (if water quality standards are not achieved).

However, if any consents are eventually required, they will be applied for at the time and are likely to be minor in scale and able to be processed on a non-notified basis.

With respect to the Rise and Shine Creek, partial passive water treatment is also required to treat SRX Pit Lake overflow (before it discharges to the Rise and Shine Creek) to ensure water quality objectives are met in the downstream receiving waters. While Section 9.5 of the *G.01 Water Management Plan* (page 66) notes that the final location and design of the PTS will be determined once the Project is operational and actual water quality results can be used, the likely location is within the SRX Pit (i.e. outside the bed of Rise and Shine Creek).

MWM also note that additional studies / works will need to be undertaken to confirm the final PTS details and whether secondary contaminants (e.g., ammoniacal nitrogen, hydrogen sulfide) will be an issue as these contaminants can be generated by anaerobic PTS processes. Any discharges of these secondary contaminants will likely also require consents that will be sought at the time if required. This is discussed in Section 7.5 of *G.01 Water Management Plan* which states that future compliance monitoring will need to be undertaken for certain contaminants once passive treatment commences, noting baseline conditions will be first established.

3. *Achievement of the surface water quality outcomes relies heavily on active and passive water treatment processes that are not yet fully designed and have not been trialled on site. Please explain the reasoning for not including in consent conditions the requirement to undertake trials, complete detailed design of any water treatment plant, and implement water treatment processes with time or event-based milestones.*

While the final design of the active and passive water treatment processes has not been confirmed in the substantive application documents, there have been numerous consented goldmines in New Zealand and there are a range of well-tested and proven techniques available to treat mine-impacted water from gold mining operations appropriately. As such, MGL can select the most appropriate method / technology when required following the completion of further studies in the detailed design stage. However, Section 4 of *B.41 BOGP Post Closure Active Water Treatment Plant Order of Magnitude Study* (pages 21-31) provides an initial overview of the types of available active treatment technologies for sulphate and metals removal that could be implemented. This includes, but is not limited to, biological processes, membrane treatment including reverse osmosis, ion exchange, electrocoagulation, treatment and extraction of rare earth elements and chemical treatment and mineral precipitation.

Regardless of the specific water treatment process or method that is selected and ultimately implemented by MGL, the requirement to achieve the proposed surface water quality compliance limits at key downstream monitoring locations will ensure that any potential adverse effects on downstream receiving waters can be appropriately managed.

Furthermore, the objectives of the *G.01 Water Management Plan* for the operational management phase (pages 16-17) include ensuring studies are undertaken using empirical site data to develop the WTP (that are validated by water treatability studies) and develop the PTS to confirm treatment processes and efficiencies. Section 4.5 of *G.01 Water Management Plan* (page 25) also states that while order of magnitude studies in *B.41 BOGP Post Closure Active Water Treatment Plant Order of Magnitude Study* indicate that active and passive water treatment can achieve closure water quality objectives, further feasibility studies are required to confirm treatment performance and the ability to transfer from active to passive treatment.

4. *What discharge quality limits will apply to a discharge from a future active water treatment plant to avoid reliance on dilution by Shepherd Stream flows to achieve compliance at surface water compliance point SC01.*

As discussed in Section 6.4 of *A.13 Section 6 – Assessment of Environmental Effects* (pages 284-289), the operation of the BOGP will result in the partial loss of creek flows within the Shepherds Creek and Rise and Shine Creek catchments (and downstream Bendigo Creek catchment) if no augmentation of the flows in these streams is undertaken. As such, MGL proposes to maintain flows within both Shepherds Creek and Rise and Shine Creek through the augmentation of flows within these watercourses at locations upstream of the Project Site.

During the post-closure phase of the BOGP, flows in Shepherds Creek and Rise and Shine Creek are expected to be restored to pre-mining (or greater) levels due to enhanced catchment flow recruitment and the presence of porous flow reservoirs (the TSF, ELFs and RAS pit lake) that result from the proposed rehabilitation of the landscape within the Project Site.

The compliance limits proposed by Greg Ryder in *B.07 Recommended Water Quality Compliance Limits for the BOGP* at SC01 are considered appropriate to manage potential adverse environmental effects in Shepherds Creek throughout the duration of the Project (regardless of base flows). Both the proposed augmentation during mining operations and the expected increase in baseflows during the post-closure phase are considered legitimate measures to ensure the compliance limits at SC01 can be achieved. It is also noted that the increased flows and resulting dilution of contaminants is a characteristic of the receiving environment which has been taking into account by Ryder (2025) when determine ging the proposed compliance limits.

The final location of the future active WTP in Shepherds Creek is not confirmed as it will be subject to further studies and detailed design. However, as noted throughout this response memorandum it will likely be within the footprint of the processing plant area.

As such, MGL proposes an additional compliance monitoring site that will be located no more than 50 m downstream of the eventual WTP discharge point (to provide a zone of reasonable mixing) to ensure the discharge of effluent will meet the relevant water quality compliance limits proposed in *B.07 Recommended Water Quality Compliance Limits for the BOGP*.

MGL can provide a recommended condition for this additional compliance monitoring site if that would assist ORC. Alternatively, MGL propose to discuss any condition requirements (including sampling frequency etc) as part of future conditions workshops with ORC and the other administering agencies.

5. *Please explain whether installation of a liner, for example a compacted clay or geomembrane liner, in the tailings storage facility was considered and if so, why this option was not progressed.*

Engineering Geology Limited ("**EGL**") confirms the need for an engineered liner was assessed during the evaluation of potential TSF locations. A compacted clay or geomembrane liner is typically used in TSFs to limit seepage and prevent potential contaminants from entering the surrounding environment and may be selected where the geochemical characteristics of the tailings require additional mitigation. However, where natural environmental conditions already achieve this purpose, an engineered liner does not offer any additional material benefit and is therefore not required. This is the case at TSF (and is also the case at many other TSFs for other projects).

The TSF is situated in the Shepherds Valley, an incised valley formed within schist rock terrain. It is the lowest valley in the surrounding area, and at depth the schist rock forms a tight, low permeability foundation that limits seepage. As a result, rainfall infiltrating into the schist rock within this valley naturally drains toward the valley floor and reports to Shepherds Creek. The natural groundwater level in the sides and the head of the valley acts to constrain and prevent seepage from the TSF through the sides and head of the valley. The only direction that seepage from the TSF can occur is down valley.

The formation of the TSF within this valley enables effective collection and management of tailings seepage water during operations and in closure. The TSF will incorporate a series of underdrains installed along the valley floor and along the upstream side of the embankment forming the TSF to intercept seepage. This underdrainage system will collect most seepage generated from the tailings. Any residual seepage that migrates past the TSF embankment will be intercepted downstream beneath the Shepherds ELF through toe underdrainage well before it reaches potential downstream receptors (i.e. the Ardgour Terrace and Lindis Aquifer). The quantity of seepage from the TSF is expected to reduce over time because as the tailings consolidate, their permeability reduces, and tailings discharge will cease during closure stages.

The permeable gravels of the Ardgour Terrace and Lindis Aquifer are located more than 4 km downstream of the TSF. Any potential long, slow seepage pathways that may occur deep within the tight, low permeability schist rock are a low risk to the Ardgour Terrace and Lindis Aquifer due to the significant contrast in permeability between the schist and the downstream gravels, as well as the limited TSF footprint relative to the overall schist groundwater system.

Testing undertaken by Mine Waste Management[2] on the TZ4 and RSSZ materials to be processed into tailings confirms that all samples are classified as Non-Acid Forming ("**NAF**"), and acid rock drainage will not occur. While other contaminants are present in the TZ4 and RSSZ materials, these can be effectively managed through collection, treatment and monitoring measures. These findings, combined with the natural topographical, geological and hydrogeological characteristics of the TSF location – which as discussed above enables the effective collection and management of tailings seepage - supports the decision to not progress with the option to install an engineered liner at TSF.

6. *Please describe any contingency measures or adaptive management processes or engineering solutions that are proposed to be implemented if either the performance monitoring or compliance monitoring described in the Water Management Plan G.01 indicates that mine-impacted seepage may be bypassing collection systems and migrating offsite via groundwater.*

Performance monitoring programs have been developed and are proposed in *G.01 Water Management Plan* to understand water quality and provide early warning of potential risks for receiving waters (such as at compliance monitoring locations). Adaptive management processes will be informed by this performance monitoring program data.

It is also noted that the water management risk assessment in Section 10 of *G.01 Water Management Plan* (page 73) identifies the uncontrolled discharge of mine-impacted seepage water during the operational and closure phases of the BOGP and outlines a range of mitigation measures / controls, including:

- Development of a detailed water balance modelling by mine stage to understand net percolation rates;

[2] Section 3.3 and 3.4 of *B.06 Mine Impacted Water Overview Report* prepared by Mine Waste Management.

- Detailed groundwater modelling as part of detailed design for the TSF / ELFs to understand effects on seepage rates;
- Robust construction QA / QC required to ensure ELF Design Criteria are achieved;
- Construction QA / QC for seepage control systems (underdrains, toe bunds, sumps, etc);
- Record keeping of 'as built' designs in accordance with Building (Dam Safety) Regulations 2022;
- Installation of active water treatment plant to treat MIW seepage during the operational phase of the Project;
- Development of passive treatment systems for sub-surface seepage (e.g., permeable reactive barrier technologies);
- Performance monitoring; and
- Development of adaptive management processes.

There are many global examples where tried and tested methods to enhance seepage collection from mine waste storge facilities have proven successful. These same options will likely prove successful for the BOGP, and subject to further studies and detailed design, could include one or a combination of shallow interception trenches / drains, interception wells, permeable reactive barriers or grout barrier walls. The performance monitoring data will inform management requirements using adaptive management principles.

7. *Please define or otherwise distinguish between 'closure', 'at closure', 'during closure', and 'post-closure', and explain whether any of these terms are used interchangeably.*

MGL recognises that these closure term variations are used throughout the substantive application and acknowledges that further clarification of the various closure terminology would be helpful. MGL considers the following closure definitions (described in Section 3.24 of *A.10 Section 3 – Project Description* (pages 224-233)) are most appropriate:

- **Active closure**, defined as when all mining activities are completed and rehabilitation activities are in progress (including profiling to final landforms, decommissioning of infrastructure, construction of water treatment facilities and capping of the ELFs and TSF); and
- **Passive closure**, defined as when the final site closure arrangements are in place and the active WTP (or PTS) continues to operate, with ongoing site monitoring to ensure it is a long-term stable landform.

With respect to the closure terms used in the substantive application documents, the terms can refer to either the active or passive closure stage, or alternatively, both stages more broadly.

This is dependent on the specific reference in the substantive application, and MGL can provide further specifics on a case-by-case basis as required.

However, at a high level most uses of ‘closure’, ‘at-closure’, ‘post-closure’ and ‘during-closure’ are used interchangeably and refer to the active and passive closure stages more broadly (i.e. when mining operations with the Project Site cease).

8. *Please confirm if the gold smelting furnace will be diesel or electric powered. Report A.15 (p. 403) states that the National Policy Statement for Greenhouse Gas Emissions from Industrial Process Heat 2023 and the Resource Management (National Environmental Standards for Greenhouse Gas Emissions from Industrial Process Heat) Regulations 2023 are not relevant on the basis that the smelting furnace will be electric powered. However, Report A.10 (p. 159) and Report H.01 (p. 65) state that the smelting furnace will be diesel powered. If diesel powered, please explain whether a restricted discretionary resource consent is required under regulation 10 of the Resource Management (National Environmental Standards for Greenhouse Gas Emissions from Industrial Process Heat) Regulations 2023.*

MGL will provide a response to this further information request in a separate memorandum shortly.