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CANADA

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Auld Creek FTAA Pre-Application – Technical Supporting Studies
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Dear Simon,

Green Road presents this summary of the professional services that are planned to support the comprehensive assessment of geoenvironmental hazards and potential effects on water quality for approvals under the Fast-track Approvals Act (FTAA) 2024.

INTRODUCTION

The Auld Creek Project (the Project) is a proposed gold-antimony development located in the Reefton Goldfield on New Zealand's West Coast, which covers an approximate 1 km strike length between the township of Reefton and the Globe Progress Mine. The project area includes multiple historic workings and hosts New Zealand's largest gold–antimony resource. Rua Gold holds 95% of the mineral tenure in the district and is actively drilling multiple targets, with resource definition ongoing. The current resource is 110,000 oz at 5.2 g/t AuEq, with internal 2025 estimates indicating 3.9 Mt @ 4.9 g/t Au & 1.4% Sb (137 koz Au & 16 kt Sb, ~255 koz AuEq) (Rua Gold, 2025).

Project permitting is being advanced and Rua Gold plans to submit a FTAA application, supported by commissioned background environmental studies. This includes an environmental monitoring program initiated in late 2025 and a detailed work program to understand future geoenvironmental hazards and potential effects on water quality and quantity studies. A Project Definition Study to undertake a conceptual options assessment for project infrastructure locations, and underground and above-ground mine layouts was also completed in late 2025. Infrastructure and transport options have since been further developed to determine a preferred site location and layout.

GREEN ROAD

Green Road is a group of companies with common values and aspirations that provide simple, creative, and sustainable solutions to the resources industry. Green Road is comprised of five consultancies and one sample storage company, which include:

- **Mine Waste Management (MWM):** environmental geochemistry.
- **Mine Closure Management (MCM):** mine closure planning support.
- **Geocontam Risk Management (GRM):** contaminated sites management.
- **Green Road Projects (GRP):** project management and coordination, project controls, project administration, and site supervision support.

- **Hydro Geochem Group (HGG):** hydrochemistry, hydrogeology, and water management.
- **Resource Stack (RS):** sample storage and management solutions.

Green Road will provide services to support the assessment of environmental effects (AEE) for the FTAA application. The project teams will involve resources from MWM, HGG, MCM, and GRM.

OBJECTIVES

Table 1 outlines a summary of the objectives of the respective work streams for each entity.

Table 1: Summary of Green Road Group's Scope of Works.

ENTITY	SCOPE OF WORK
MWM	Baseline Water Quality Report Sample and Analysis Plan – Water Quality Water Quality Objectives Broad-brush Risk Assessment (BBRA) Geoenvironmental Hazards Factual Report Column Leach Test Factual Report Integrated Waste Landform Design Philosophy Report Water Quality Source Term Report Water Treatment Report
GRM	Preliminary Site Investigation (Contaminated Sites Assessment)
HGG	Hydrology Assessment Report Groundwater Characterisation Program Groundwater Assessment Report Water and Load Balance Model (WLBM) Report
MCM	MWSF Cover System and Net Percolation Assessment Closure planning support for the BBRA

DETAILED SCOPE OF WORKS

Mine Waste Management Limited

Baseline Water Quality Report

A robust water quality dataset will be required to understand baseline conditions and support the water quality model, along with other components of the AEE for the FTAA. Ecologists will require these data for guidance on the establishment of water quality objectives for the project area.

Analysis will include:

- Review and compilation of data available from OceanaGold for the Globe Progress Mine that is relevant to this project (e.g., DC01 water quality/quantity data).
- Review of the current water sampling plan to ensure suitable data are being collected to support the Water and Load Balance Model.
- Identification of any potential monitoring gaps.
- Interpretation of surface water and legacy site surface water quality data to characterise background conditions.

Water Quality Objectives

Support will be provided for interdisciplinary discussions on water quality and quantity objectives to be included in water and load balance models (WLBM) and to consider cumulative effects influenced by historic discharges and active mine closure projects.

Broad-brush Risk Assessment (BBRA)

MWM will support and facilitate a BBRA to identify key risks for the project such that the risk is addressed as part of the application through detailed studies, or where uncertainty is present, the risk is addressed by management plans and adaptive management processes. The BBRA will involve Rua Gold personnel and third-party consultants.

Geoenvironmental Hazards Factual Report

A report will be prepared to summarise the following key components:

- A summary of general background information including a literature review for the Project relating to geology and geochemistry.
- A summary of previous work and acid base accounting (ABA) data available for the project including any relevant data from the Globe-Progress Mine that is adjacent to the Project area.
- Quantify the acidity generating potential and geochemical properties of waste rock through a geochemical sampling program of representative material selected by MWM.
- Provide management recommendations.

Column Leach Test Factual Report

The Column Leach Test Report will summarise the following:

- Shake flask extraction data – to understand water quality from the materials (for modelling purposes).
- Column leach testing – to understand longer term geochemical risks from these materials through determining the seepage/surface water quality that could be generated by these materials.

Integrated Waste Landform Design Philosophy Report

MWM will prepare a design philosophy report for the integrated waste (rock and tailings) landform (IWL). This report will provide design objectives based on industry best practice construction techniques to prevent the oxidation of sulfides and minimise the mobilisation of any oxidation products and nitrogenous compounds by water. It will address geochemical risks; it will not address geotechnical risks, which will be covered by other studies.

Source Term Report

The objective of this task is to develop the source terms for various mine domains and water components of the proposed WLBM during operations and closure as required, to include:

- Baseline surface water quality (average data unless flow rate / concentration data are available).
- Groundwater quality.
- Tailings / process water quality.
- Water quality associated with the IWL runoff and seepage (and other similar structures).
- Underground workings (operational and closure).

Water Treatment Report

A water treatment report is required for mine-impacted waters during operations and at closure. Operational water management/treatment will be assessed once the project description is finalised and the WLBM has been developed. It is proposed that a conceptual passive treatment system is designed for the PCOC for the post-closure phase of the project. During operations, an active water treatment plant may be required, although this is subject to further studies.

Geocontam Risk Management Limited

Preliminary Site Investigation

The Project will require a contaminated land assessment to identify pre-existing contamination sources and ensure future potential disturbance of the land can be undertaken in a manner that does not pose a risk to human health and/or ecological receptors. The first stage of the contaminated sites assessment process is to prepare a Preliminary Site Investigation (PSI) report.

The scope of work for the PSI will include a review of available data, reports and other literature including findings of previous relevant environmental investigations, a site visit to ground truth any assumptions from the desktop review, review of the mine plan and design to understand potential future contamination risks, preparation of a PSI report to address the project objectives, and development of a Conceptual Site Model (CSM).

The CSM will identify all key domains and site features that may provide a source of contamination, and the associated contaminants of potential concern, the primary and secondary transport pathways within and/or across the geologic, hydrologic, and atmospheric media, and receptors such as human health, and sensitive ecologic receiving environments.

Hydro Geochem Group Limited

Hydrology Assessment Report

The hydrology report will be used to inform future hydrological and environmental modelling and potential effects of mining activities on the existing environment and downstream water resources. Development of a hydrological baseline will require collation and analysis of existing data and reports, and recommendations for development of ongoing hydrological monitoring that will be used to inform subsequent water resources, and environmental reporting.

The developed baseline dataset will also be used to interpret results from the WLBM with respect to potential effects on catchment and downstream flow regimes. Once the WLBM has been completed, assessment of potential impacts on existing hydrological regime will be made.

Groundwater Characterisation Program and Assessment Report

Potential groundwater related environmental effects from the Project will be defined and assessed. Hydrogeology related risks for the Auld Creek Project are broken down into two categories:

- Engineering risks, and
- Environmental risks (potential effects) which include water quality and water quantity.

The magnitude of these potential effects will inform the assessment of overall environmental risks and engineering controls required, comprising:

- A Groundwater Characterisation Program to collect the required data to conceptualise and understand the hydrogeological setting. The workplan will consider two project areas separately: the Auld Creek Underground Mine and the Mine Waste Storage Facility (MWSF) and infrastructure area (i.e., Devils Creek valley bottom).
- A Groundwater Technical Assessment Report, based on a 3D numerical groundwater model focused on the proposed Auld Creek Underground Mine. Primary objectives of this model will include quantification of dewatering volumes and assessment of the potential effects of dewatering on nearby surface water bodies (i.e., stream depletion). The model will quantitatively assess the potential groundwater effects that may arise as a result of the Project. The report will include the model assumptions and basis for design; documentation of the modelling work completed, including model set up, justification of boundary condition selection and parameter values; presentation of model results and scenarios; and discussion of model limitations and sensitivity analysis results. The report will also include an assessment of groundwater related risks for MWSF(s) to support the WLBM. The primary focus will be quantifying potential seepage losses from the MWSF(s) to the adjacent creek.

Water and Load Balance Model Report

A GoldSim based mine WLBM will be developed for the Project. Objectives of the model will be to:

- Simulate flow and key water quality parameters.
- Support water management and treatment planning and design.
- Forecast water quality at agreed downstream locations to support environmental assessments (operational and closure phases).

The model will include:

- Development of a conceptual site model, based on the agreed mine plan, which will provide a framework for understanding the hydrological and water quality at the Project.
- Contaminant load model using source terms provided by MWM.
- Representation of relevant mine water management infrastructure, such as water treatment plant, passive treatment systems, etc.
- Inputs from other tasks where relevant, including groundwater studies, source term report and cover assessment studies.
- Simulation of current, operations, and closure/post closure conditions.

Mine Closure Management Limited

Conceptual Cover System Design

MCM has provided a conceptual cover system design and the associated water ingress rates through a rehabilitation cover for the MWSF(s) at the Project. A conceptual Base Case water store-and-release (WS&R) cover system was developed as well as an enhanced water store-and-release (EWS&R) cover system using anticipated available rehabilitation materials.

Risk Assessment Support

Closure planning advice and input will be provided to the BBRA to include a review of available technical information prior to the workshop, and follow-up advice. It is anticipated that a Mine Closure Plan (MCP) will subsequently be required as part of the FTAA application.

MANAGEMENT APPROACH

Mine impacted waters can be affected by acid and metalliferous drainage (AMD). The associated management of AMD and the potential risks is based on national and international guidance (Table 2). These documents have been referred to in the associated technical studies proposed for this project and will be relied on to inform the decision-making process on how to manage AMD.

Table 2: Standards and Guidelines for AMD Management

STANDARD/GUIDELINE	RELEVANCE
AMIRA, 2002	Acid Rock Drainage (ARD) test handbook.
CMER, 2018	Centre for Mineral Environmental Research – New Zealand (Cavanagh et al., 2018).
DFAT, 2016	Australasian leading practice sustainable development program for the mining industry - preventing acid and metalliferous drainage.

STANDARD/GUIDELINE	RELEVANCE
ICMM, 2019	Integrated mine closure, good practice guide.
INAP, 2014	Global Acid Rock Drainage Guide (GARD Guide) – created by the International Network for Acid Prevention
INAP, 2020	Rock placement strategies to enhance operational and closure performance of mine rock stockpiles.
INAP, 2024	AMD source control for mine rock stockpiles.
MEND, 2009	Prediction manual for drainage chemistry from sulfidic geologic materials.

Potential risks associated with AMD are managed through a hierarchy of controls, (Management Steps), which is in alignment with international guidance documents (e.g., INAP, 2014; DFAT, 2016):

1. Determine the closure objectives for the mine.
2. Understand the source hazards.
3. Engineering Control: Prevent oxidation of sulfide minerals.
4. Engineering Control: Minimise the mobilisation of stored oxidation products.
5. Engineering Control: Control and treatment of AMD-impacted waters.
6. Complete an assessment of the potential effects with controls in place
7. Monitor performance to facilitate adaptive management.

The hierarchy of control (i.e., management steps) is shown visually in Figure 1. The following comments are provided:

- It is essential that closure objectives are understood to ensure that the appropriate engineering controls are in place to achieve these closure goals, and to ensure that all stakeholders, regulators, and partners understand what represents closure success.
- Performance monitoring is required to ensure the project is on track to achieve these closure objectives. If monitoring data suggest there is variance that could compromise closure objectives, then the engineering controls need to be reviewed and adjusted to ensure that successful closure can be achieved (i.e., adaptive management). This process is shown in Figure 1.

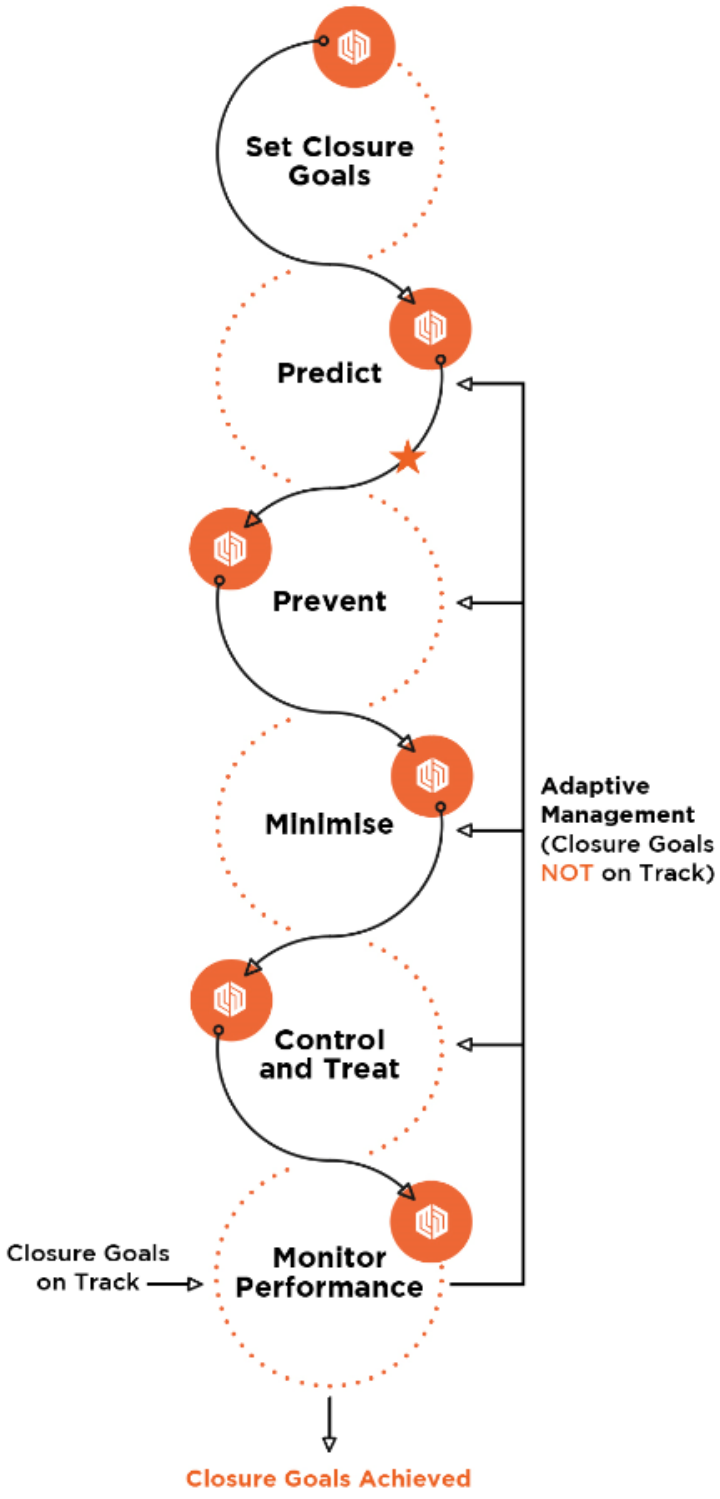

Figure 1: AMD Management Steps.

CLOSING REMARKS

The Green Road Group of companies supports sustainable mining practices and has extensive experience in New Zealand and internationally. The studies proposed within this document will ensure the potential geoenvironmental hazards are identified and are managed to minimise effects to the downstream environment thereby ensuring closure objectives can be achieved.

Mine Waste Management Limited

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