TRINITY METALS

RWANDA TUNGSTEN PROJECT
PHASE ONE: TECHNICAL AND COSTING STUDY
OPEN BOOK REIMBURSABLE PROPOSAL

1568-0000-BTND-001.01

Rev	Date	Description	By	Check	Appr
02	23/07/2025	Updated scope, reduced estimate hours & revised payment terms	HA	LT	HA
01	11/12/2024	Updated with new scope	LT	CR	LT
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1. INTRODUCTION

Obsideo offers experience in designing and implementing mineral processing and infrastructure projects. Experience pertaining to the management, design, and execution of major mineral processing projects include the Grootegeluk Medupi Expansion Project at Lephalale, the Tormin Mineral Sands Project in the Western Cape, the Bisie Ultra Fine Tin Project in the DRC, the Mpama South Tin Project in the DRC, the Khanye Colliery Greenfields Project and numerous other mineral processing plant projects and studies.

Obsideo has relevant experience in metal processing and MGS technology. Obsideo has successfully implemented and commissioned the Gakara Rare Earths Minerals Plant in Burundi, the Alphamin Mpama North Ultra Fine Tin Recovery Project in the DRC, as well as the new greenfields Mpama South Tin Concentrator. Both Tin projects in the DRC utilizes MGS technology.

Image 1 below shows the MGS ultra-fine tine recovery plant during construction as part of the Mpama South Tin project.

Image 1: Mpama South Tin Concentration Plant during construction

2. BACKGROUND

Nyakabingo Mine is located on a mountainous site approximately 14km northwest of Kigali in Rwanda. The mineral deposit at Nyakabingo consists of mineralised quartz with tungsten, which occurs as wolframite and ferberite and potentially increases quantities of scheelite. The majority of the current mining and ore concentration is done artisanally.

HCF International Advisers Limited and Trinity reached out to Obsideo Consulting to develop a proposal for the definite feasibility study. Due to the limited amount of test work, the proposal will be broken down into two phases, namely:

Phase 1: Consists of a technical and costing study to define the feasibility study's scope and generate preliminary CAPEX and OPEX estimates.

Phase 2: Consists of a definitive feasibility study of the processing plant and infrastructure, with the deliverables being aligned with an AACE Class 3 estimate with a CAPEX and OPEX accuracy of -5% to +15%.

This proposal covers the scope required for Phase 1 of the project.

3. SCOPE OF WORK

The scope of work consists of the conceptual engineering design and the development of the associated CAPEX and OPEX estimates compiled in a feasibility study report.

The design of the plant will be incorporating the following principles:

- Proven technology will be utilised, and
- Standardisation of equipment sizes will be used as far as possible to minimise spares holding and to assist with ease of maintenance. The equipment selection will be based on service providers available locally.

Upon the study's conclusion, the deliverables will be submitted to the client as a report detailing the process and supporting engineering design, 3D model, conceptual drawings, and associated capital and operational costs.

The following sections of this document describe the proposed engineering and costing methodologies to be followed:

3.1 Study Set-Up

A study kick-off meeting will be held to focus on achieving alignment amongst project team members. The objective is to clarify the execution strategy, share project values, clarify roles and responsibilities, identify critical activities, and align the scope of work, deliverables, and work processes.

3.2 Estimate plan

At the onset of the study, Obsideo will develop a CAPEX estimate plan for review. All parties involved need to signify agreement with the plan by signing this document, which will be used as the basis of the estimate methodology.

3.3 Estimate Preparation

A signed-off WBS will be developed before the commencement of the CAPEX estimate.

The CAPEX estimate will be prepared and compiled in accordance with the approved CAPEX estimate plan.

A priced estimate for first fills, strategic and commissioning spares, consumables, etc., will be developed and included with the CAPEX.

Engineering and other consultant costs and the owners' fees will be factored into the CAPEX and OPEX estimates. This will include a monte carlo simulation.

3.4 Process Engineering

The plant flow sheet and process design criteria will be confirmed at the project's onset based on test work already done.

3.4.1 Process Design Criteria

The interim process design criteria will be generated for the kick-off of this project, the interim design criteria will be used as the basis of design. The design criteria is subject to change based on the historical test work completed. The following documents will be used for the interim design criteria.

- Comp 1 Mineralogy
- Horizon Blue Investments (Pty) Ltd - New Tungsten Concentration Plan Cost Study for Nyakabingo Mine in Rwanda (12.2012)
- Preliminary Economic Assessment Study Tinco Rwanda 17028 Signed Review
- PSD_ALL 8 BATCHES OF NYAKABINGO DUMP MATERIALS
- Rwanda Tungsten Mass Balance
- Size by size analysis Nyakabingo tailings 2023
- Trinity Metals - Process Design Criteria

3.4.2 Process Design Deliverables

Process engineering based on the process design criteria and blow flow diagram includes the following:

- Process flow diagrams (PFD's)
- Mass balance;
- Water balance;
- Equipment list; and
- Process Description.

3.5 Mechanical Engineering

The mechanical engineering activities can be summarized as follows:

- Develop mechanical design criteria
- Develop a plant block plan in line with the PFD's and area topography;
- Selection of equipment in support of the PFD's;
- Updating of the Mechanical Equipment List with selected vendor details;
- Obtaining equipment preliminary drawings and pricing from the market;
- Vendor interfacing to ensure vendor information integration with design and construction; and
- Develop a basic 3D CAD plant model
- Conveyor design calculations and schedule including:
    - Drive details including:
        - Installed motor details (kW and speed)
        - Selected gearbox make and details (reducer type and reduction ratio)
        - High speed coupling details
        - Low speed coupling details
    - Holdback details;
    - Conveyor belt specifications;
    - Scraper details;
    - Troughing and transition idlers;
    - Impact idler details;
    - Return idlers details;
    - Pulley details;
- Platework conceptual 3D models;
- Platework BOQ; and
- Mechanical preliminary general arrangement drawings.

3.6 Piping Engineering

Pipe conceptual 3D models will be produced for critical pipes from where piping bills of quantities can be derived. Piping deliverables include:

- Development a piping design criteria;
- Piping classifications and schedules;
- In-line equipment schedules;
- Piping BOQs; and
- Piping preliminary general arrangement drawings for critical pipes, such as deposition piping, raw water piping, return water piping, etc.

3.7 Electrical Engineering

An overall single-line diagram will be generated to show the main power distribution.

The electrical design will include a containerised MCC mounted onto a support steel structure for bottom cable entry into the container. The support structure will be designed with sufficient access platforms at both the entry door and the emergency exit.

Electrical engineering deliverables will include the following:

- Development of an electrical design criteria
- Load list;
- Single line diagrams;
- Cable schedules;
- Pricing for bulk electrical equipment;
- Power requirement report including plant loads (load list), available power form utility and generator concept design;
- Database prices for the generator system are allowed for;
- Electrical BOQ including allowance for earthing.

3.8 Control and Instrumentation Engineering

The control and instrumentation scope of work will include educated assumptions on instrumentation placements to support the plant control strategy.

Instrumentation deliverables will include:

- Development of instrument design criteria;
- Instrument list input data/requirements;
- Instrumentation BOQ

3.9 Civil and Infrastructure Engineering

The civil engineering will consist of the following:

- Development of civil design criteria.
- Conceptual stormwater design surrounding the plant, workshop, parking, and office area.
- In line with the plant block plan and plant layouts, develop concept civil foundation/slab layouts;
- Hydrological desktop study and gap analysis
- Generate preliminary civil BOQ's.

3.10 Structural Engineering

The structural engineering associated with this scope of work consists of the following activities:

- Development of structural design criteria
- Produce structural steel 3D plant layouts; and
- Generate preliminary structural steel BOQ's.

3.11 Infrastructure Development

The following has been allowed for in this proposal

- Housing layouts, including amenities such as kitchen, change house, entertainment area etc.
- Offices.
- Control Room.
- Overall power reticulation.

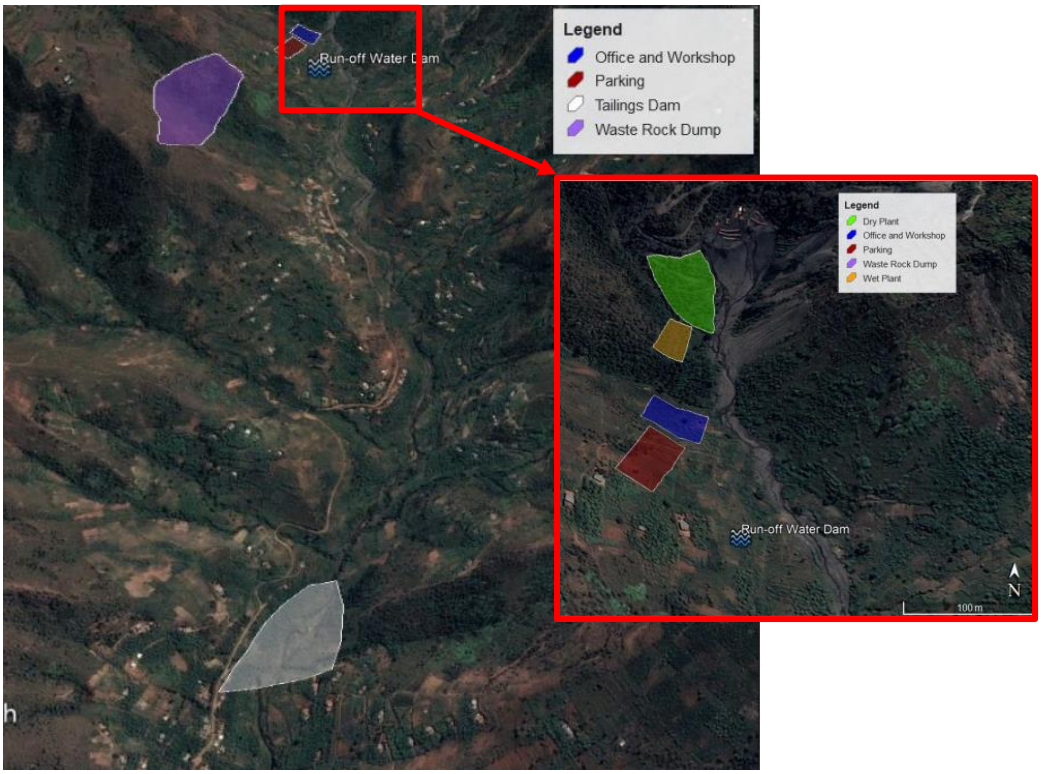
3.12 Travelling

Provisions have been made for the travelling and site visits. The hours were based on 5 individuals travelling to the site with a total travelling duration of 5 days. This remains valid and includes the historic site visit and the planned future visit at no additional costs.

4. BATTERY LIMITS

- The access road battery limit will start with the tie-off from the RN1.

- The supporting infrastructure development will be limited to within the areas shown below unless otherwise stated in this document



The following battery limits apply in terms of the processing facility:

Incoming:

- Feed Ore — ROM tip pad.
- Water — Suction of raw water supply pump.

Outgoing:

- Final Concentrate — Final product on stock pad.
- Final Tailings — Final dry tailings discharge.
- Slimes Discharge — Discharge of piping into the residue storage facility.

5. STUDY DURATION

The historic key milestones of the estimated time required to complete the study can be summarised as follows:

- Completion of preliminary process design - 4 weeks
- Obtaining of equipment pricing and drawings - 8 weeks
- Plant concept 3D model - 13 weeks
- Project CAPEX and OPEX - 15 weeks
- Study report - 17 weeks

Note: Included with revised submission is the latest activity list/schedule followed to close out Phase 1, targeted for 18 August 2025.

6. COSTS

The below cost estimate for the proposed scope of work can be summarised as follows:

TABLE 1: COSTING MATRIX

Discipline		Principle Design Engineer	Design Engineer	Senior Quantity Surveyor	Junior Quantity Surveyor	Project Manager	Project Planner	Senior Draftsman	Junior Draftsman	Admin
Description	**Rate (USD/h)**	75	71	51	32	80	60	54	34	27
Crushing and Screening		35	20					54	9	
Oversize Concentration		35	20					40	9	
Jigging		70	40					53	18	
Concentrate Crushing & Screening		35	20					32	9	
Spirals & Shaking Tables or MGS units		56	32					96	14	
HF Screening & MGS plant		49	28					31	12	
Final Product Cleaning		56	32					42	14	
Thickening & Dewatering		49	28	81	176	116	33	48	12	42
Plant Services		63	36					29	16	
Plant Supporting Offices & Workshops		21	12					40	5	
Water Supply & Treatment		28	16					23	7	
Infrastructure		14	8					20	4	
Overall Power reticulation		95	20					60	9	
Hydrological Study & Water Management		98						56		
Provision for Travelling		200								
Total Hours	**2 426**	**904**	**312**	**81**	**176**	**116**	**33**	**624**	**138**	**42**
Total Cost (USD)	**150 497**	**67 800**	**22 152**	**4 131**	**5 632**	**9 280**	**1 980**	**33 696**	**4 692**	**1 134**

7. PAYMENT TERMS

The following payment terms are proposed, and invoices will be submitted as follows:

- 60% at contract award with payment 7 (seven) days from invoice.
- 40% at completion and handover of the study report with payment 30 (thirty) days from invoice.

8. EXCLUSIONS

The following are excluded from this proposal:

- Mineral process test work;
- Geotechnical laboratory test work and shipping of samples;
- Topographical surveys;
- Cost estimation of logistics, imports, duties, and taxes;
- Mining design;
- Geohydrological studies (underground water);
- Tailings storage facility design;
- Waste rock stockpile design;
- Tailings dam and rock dump site design, including stormwater management surrounding the tailings dam and rock dump site;
- All environmental approvals and licencing by others;
- Traveling and VISAs;
- 3D scanning of existing infrastructure;
- Management and retrieval of information from the Department of Energy; allowance has been made for technical guidance only.
- ETAP & Protection studies
- Procurement, Fabrication, Logistics, Transport and Construction; and
- Duties and taxes;

9. LIMIT OF LIABILITY

Obsideo International is unable to accept responsibility for the loss of profits or consequential damages, whether direct or indirect, sustained by yourselves as a result of goods supplied or installations effected by us being defective or not conforming to specifications or as a result of incorrect or late delivery or installation or failure to deliver or install due to breakdown of machinery, labour disputes, war, riots, civil commotion, delay in transport, shortage of material or any cause whatsoever wholly or partially beyond our control.

Obsideo International's total liability in terms of this proposal, whether its servants, agents or consultants, to the Client arising out of the performance or non-performance of the Services, whether under the law of contract, tort or otherwise, shall be the re-performance of the Services already completed but limited to value of the contract. The calculation of the re-performance costs shall be as per the standard schedule of rates as appended to this proposal.

Obsideo International, its servants, agents and consultants shall be deemed to have been discharged from all liability whatsoever in respect of the Services, whether under the law of contract, tort or otherwise, at the expiration of one year from the completion of the Services unless otherwise provided in this proposal, and the Client shall not be entitled to commence any action or claim whatsoever against Obsideo International, its servants, agents or sub-consultants in respect of the Services after that date.

If the Services include giving to the Company an estimate of the likely costs for the Project or the provision of a report concerning the Project, Obsideo International warrants only that it will exercise the reasonable skill, care and diligence of a consulting engineer in the preparation of its professional opinion of those estimated costs or the provision of the report. Any estimates or opinions on or relating to estimated costs shall be verified by the Client independently and Obsideo International accepts no responsibility arising in any way whatsoever for error or omissions, nor does the Obsideo International accept any liability for any commercial decisions or actions arising from the opinions and valuation stated in the estimated costs or the report.

10. CONFIDENTIALITY

Any and all information contained in this document is considered confidential to Obsideo International and the client is to undertake not to distribute or communicate anything contained herein to any third party without our prior written consent.