



FORM B: CAPITAL APPLICATION

PROJECT NAME: Definitive Feasibility Study for Nyakabingo Wolfram Processing Plant
PROJECT LEADER: Ronald Toledo **CONS. ASS. NO.:** _____
DATE: January 25, 2025 **CA NO.:** _____

A	PROJECT DESCRIPTION
<p>The DFS aims to evaluate the technical, economic and environmental feasibility for the Nyakabingo Wolfram processing plant. The objective of the study is to deliver a comprehensive analysis of all critical project aspects. The scope of work for the DFS consists of the conceptual engineering design and the development of the associated CAPEX and OPEX estimates compiled in a feasibility study report.</p> <p>The design of the plant will be incorporating the following principles:</p> <ul style="list-style-type: none"> • Proven technology will be utilized, and • Standardization of equipment sizes will be used as far as possible to minimize spares holding and to assist with ease of maintenance. The equipment selection will be based on service providers available locally. <p>Upon the study's conclusion, the deliverables will be submitted as a report detailing the process and supporting engineering design, 3D model, conceptual drawings, and associated capital and operational costs.</p>	



B	MOTIVATION
<p>This study is critical for ensuring the project's success and sustainability, aligning with best practices and stakeholder expectations. This study is essential before committing to the construction and operation of the plant and to provide a detailed plan and assurance of project viability.</p>	

Ref Number		Date of Implementation	
Version		Date of last revision	

C	SELECTED COSTING OPTION			
EQUIPMENT LIST	QUANTITY	UNIT	UNIT PRICE	PRICE (USD)
Costing				
Phase 1 cost study	1	PC	\$ 163,394	\$ 163,394
Phase 2 cost study	1	PC	\$ 215,267	\$ 215,267
Metallurgical Testwork	1	PC	\$ 21,070	\$ 21,070
Contingency (Travel costs, additional testwork)	1	PC		\$ 35,729
Sub Total				
Taxes and Assessment				
				TOTAL
				\$ 435,460

D	RISK ASSESSMENT
-	Fund delay – will cause the overall study schedule and construction of the plant. <ul style="list-style-type: none"> o Secure commitments from funding source (shareholders).
-	Cost overruns – technical studies costs may exceed initial estimates. <ul style="list-style-type: none"> o Add a 15% contingency in the budget. o Monitor and control expenditures during the study.
-	Inadequate data (testwork) – capital may be spent on studies based on incomplete or inaccurate testwork data <ul style="list-style-type: none"> o Consultant to conduct a thorough review of the existing testwork data and advise if a more comprehensive testwork is needed such as pilot scale tests.
-	Poor project management <ul style="list-style-type: none"> o Hire an experienced consulting team with a track record in handling DF studies on the same commodity.


Ref Number		Date of Implementation	
Version		Date of last revision	

CEO	<p>Approved: </p> 
BOARD	

NOTE: attach additional quotes or supporting documents if necessary

Ref Number		Date of Implementation	
Version		Date of last revision	

E	PROJECT SCHEDULE
- Study will take 72 weeks to complete from date of commencement.	

F	COMMENTS
HOD	Ronald Toledo – Group Metallurgist <i>RAP Toledo</i> January 25, 2025
GENERAL MANAGER/GM	<i>J. M. M. G. M.</i> 
GROUP FINANCE CONTROLLER	<i>[Signature]</i> 10/02/2025
GROUP LEGAL COUNSEL & COMPLAINEE OFFICER	<i>Tristan Minyati</i>
GROUP SUPPLY CHAIN MANAGER	<i>Jeoma Sande</i> 14/2/2025
COO	Shane Ryan <i>Shane Ryan</i>
CFO	<i>[Signature]</i> <i>A.S. de Loupi</i>

G APPROVAL			
Ref Number		Date of Implementation	
Version		Date of last revision	



obsideo
international

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
01	11/12/2024	Updated with new scope	LT	CR	CR
00	28/11/2024	Issue to client	LT	CR	CR
P2	15/10/2024	Draft		LT	CR

TABLE OF CONTENTS

1.	INTRODUCTION	3
2.	BACKGROUND	4
3.	SCOPE OF WORK	4
3.1	STUDY SET-UP	4
3.2	ESTIMATE PLAN.....	5
3.3	ESTIMATE PREPARATION	5
3.4	PROCESS ENGINEERING	5
3.4.1	PROCESS DESIGN CRITERIA	5
3.4.2	PROCESS DESIGN DELIVERABLES	6
3.5	MECHANICAL ENGINEERING	6
3.6	PIPING ENGINEERING.....	7
3.7	ELECTRICAL ENGINEERING	7
3.8	CONTROL AND INSTRUMENTATION ENGINEERING	7
3.9	CIVIL AND INFRASTRUCTURE ENGINEERING	8
3.10	GEOTECHNICAL ENGINEERING	8
3.11	STRUCTURAL ENGINEERING	8
3.12	INFRASTRUCTURE DEVELOPMENT.....	8
3.13	TRAVELLING	9
4.	BATTERY LIMITS.....	9
5.	STUDY DURATION	10
6.	COSTS	11
7.	PAYMENT TERMS	12
8.	EXCLUSIONS	12
9.	LIMIT OF LIABILITY.....	13
10.	CONFIDENTIALITY	13

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 developing piping and instrumentation diagrams to support the plant control strategy.

Instrumentation deliverables will include:

- Development of instrument design criteria;
- Instrument list;
- Instrument cable list;
- Process automation system diagram / Topology / PCS Block diagram
- Pricing for process control system;

- 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 Geotechnical Engineering

- Gap analysis, scoping study, and summary report on the existing geotechnical work.
- Time allowance for a geotechnical engineer to travel to the site and supervise test pit sampling for additional geotechnical work.
- Compilation of test work report with design recommendations.

3.11 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.

3.12 Infrastructure Development

The following has been allowed for in this proposal

- Housing layouts, including amenities such as kitchen, change house, entertainment area etc.
- Reverse osmosis water treatment facilities.
- Ablution facilities and sewage treatment plant.
- Storerooms.
- Workshops.
- Offices.
- Control Room.
- Laboratory
- Weight bridge.

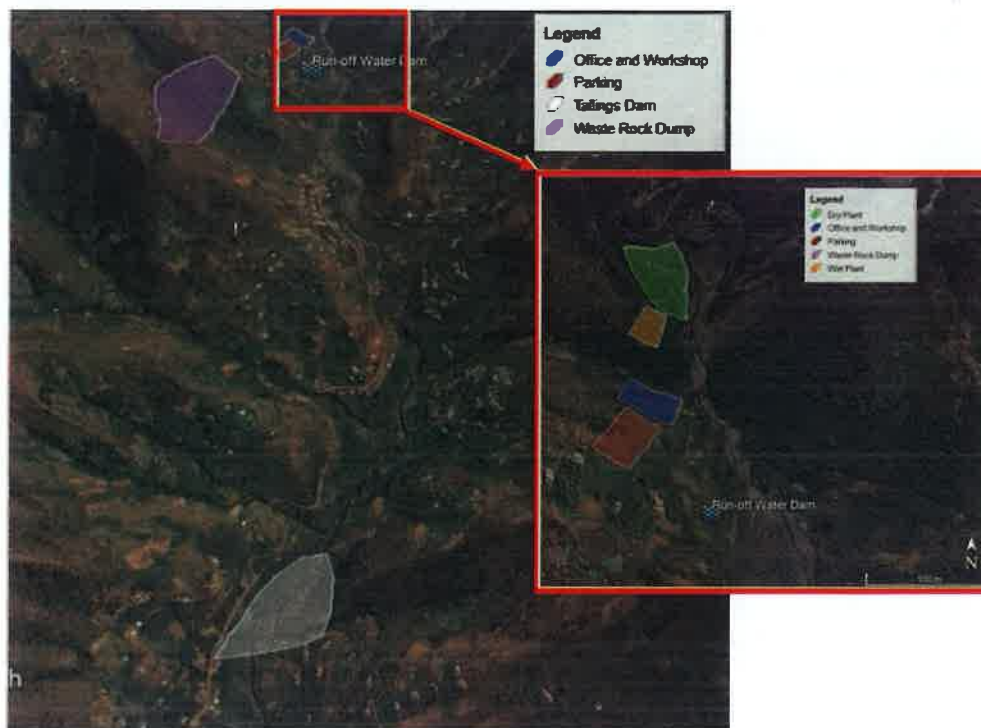
- Roads.
- Overall power reticulation.
- Fencing.
- Security gate.

3.13 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.

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

Outgoing:

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

5. STUDY DURATION

The preliminary 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: The number of weeks specified for each study milestone is referenced from the commencement date.

6. COSTS

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

TABLE 1: COSTING MATRIX

Discipline	Rate (USD/h)	Principle Design Engineer	Design Engineer	Senior Quantity Surveyor	Junior Quantity Surveyor	Project Manager	Project Planner	Senior Draftsman	Junior Draftsman	Admin
Crushing and Screening	75	71	51	32	80	60	54	34	27	
Oversize Concentration	35	20					54	9		
Jigging	35	20					40	9		
Concentrate Crushing & Screening	70	40					53	18		
Spirals & Shaking Tables or MGS units	35	20					32	9		
HF Screening & MGS plant	56	32					96	14		
Final Product Cleaning	49	28					31	12		
Thickening & Dewatering	56	32					42	14		
Plant Services	49	28					48	12		
Plant Supporting Offices & Workshops	63	36	81	176	116	33	29	16	42	
Water Supply & Treatment	21	12					40	5		
Camp Site	28	16					23	7		
Roads & Other Infrastructure	14	8					20	4		
Hydrological Study & Water Management	95	20					103	9		
Geotechnical Desktop Study	98						56			
Geotechnical Report	42									
Provision for Travelling	99									
	200									
Total Hours	2 610	312	81	176	116	33	667	138	42	
Total Cost (USD)	163 394	78 375	4 131	5 632	9 280	1 980	36 018	4 692	1 134	

7. PAYMENT TERMS

The following payment terms are proposed:

Tax invoices will be submitted as follows:

- 30% at project go ahead
- 50% at plant concept 3D model
- 20% at completion and handover of the study report

Invoices are to be paid in full 30 (thirty) days from the date of 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.



obsideo
international

TRINITY METALS

NYAKABINGOTUNGSTEN PROJECT PHASE TWO: DEFINITIVE FEASIBILITY STUDY OPEN BOOK REIMBURSABLE PROPOSAL

1568-0000-BTND-002.01

Rev	Date	Description	By	Check	Appr
00	11/02/2024	Issue to client	LT	CR	CR
P2	07/12/2024	Draft		LT	CR

Table of CONTENTS

1. INTRODUCTION	4
2. BACKGROUND	5
3. FEASIBILITY STUDY OBJECTIVE	5
4. FEASIBILITY STUDY METHODOLOGY	5
5. SCOPE OF WORK	6
5.1 SCOPE OF FACILITY	6
5.1.1 PROCESS DESCRIPTION	6
5.1.2 PLANT AREA LAYOUT	6
5.1.3 PLANT THROUGHPUT	7
5.2 SCOPE OF SERVICES	8
5.2.1 SCOPE FOR THE FEASIBILITY STUDY	8
5.2.2 METALLURGY	8
5.2.3 ENVIRONMENTAL	8
5.2.4 WASTE DISPOSAL	8
5.2.5 ENERGY CONSUMPTION	8
5.2.6 MINING & MINERAL RESOURCES	9
5.2.7 ENGINEERING & INFRASTRUCTURE	9
5.2.8 HYDROLOGICAL STUDY	9
5.2.9 RISK MANAGEMENT	10
5.2.10 CAPITAL EXPENDITURE	10
5.2.11 PROJECT EXECUTION PLAN (PEP)	10
5.2.12 HUMAN RESOURCES	10
5.2.13 PROCUREMENT OPERATING PLAN	10
5.2.14 OPERATIONAL READINESS	10
5.2.15 PROJECT APPROVAL	11
6. ASSUMPTIONS	11
7. COSTS	12
8. BATTERY LIMITS	13
9. INFORMATION REQUIRED	14
10. EXCLUSIONS	14

11.	STUDY SCHEDULE.....	15
12.	LIMIT OF LIABILITY	15
13.	CONFIDENTIALITY	16

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 accurate 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 2 of the project.

3. FEASIBILITY STUDY OBJECTIVE

The study objective is to engineer and optimise the proposed design as developed during phase 1 of the project and improve the accuracy of the CAPEX and OPEX to -5% + 15%. The study's deliverables will be done under AACE Class 3 estimate guidelines. The details regarding these deliverables will be addressed in a subsequent section of the document.

4. FEASIBILITY STUDY METHODOLOGY

Engineering for the selected option from the concept study will be developed to AACE class 3 estimate, and the key outputs will be the design criteria, GA and Design drawings, Piping & Instrumentation Diagrams (P&IDs), HAZOP reviews, bulk services designs, infrastructure layouts class 3 CAPEX & OPEX estimate, business case, project execution planning.

The design criteria will be signed off upfront as a major milestone before commencing with engineering designs.

5. SCOPE OF WORK

5.1 SCOPE OF FACILITY

5.1.1 Process Description

The final process description will be developed during phase 1 of this project; however, for the purpose of this document, the following processing flow description was used for the costing. A Frontend loader will feed the primary double-deck screen which will be in a closed crushing circuit for the oversize. Further screening stages will then produce different grain size fractions for the following beneficiation steps. A 10-30mm fraction will go to the dry sorting plant which will consist of a suitable X-Ray transmission sorting machine producing a waste and a product fraction. Depending on the grain size the other fractions from the screen will either go to Jig's (1-10mm) for a first beneficiation stage or directly go to the fine wet gravity plant (0-1mm). Products from Jig and sorter machinery will go to a crusher/mill circuit with screens which will produce feed for the fine wet gravity plant. Thickeners and filter presses or belt filters will be used to reduce the raw water requirements of the processing plant. Figure 1 shows the block flow diagram of the proposed process.

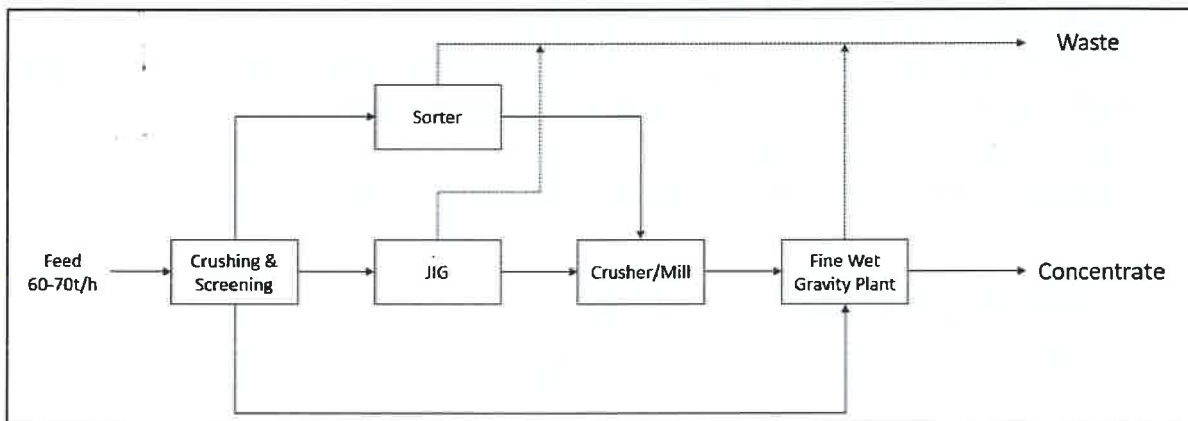


FIGURE 1: BLOCK FLOW DIAGRAM

5.1.2 Plant Area Layout

The drawing below shows the area's layout with key processing areas indicated.

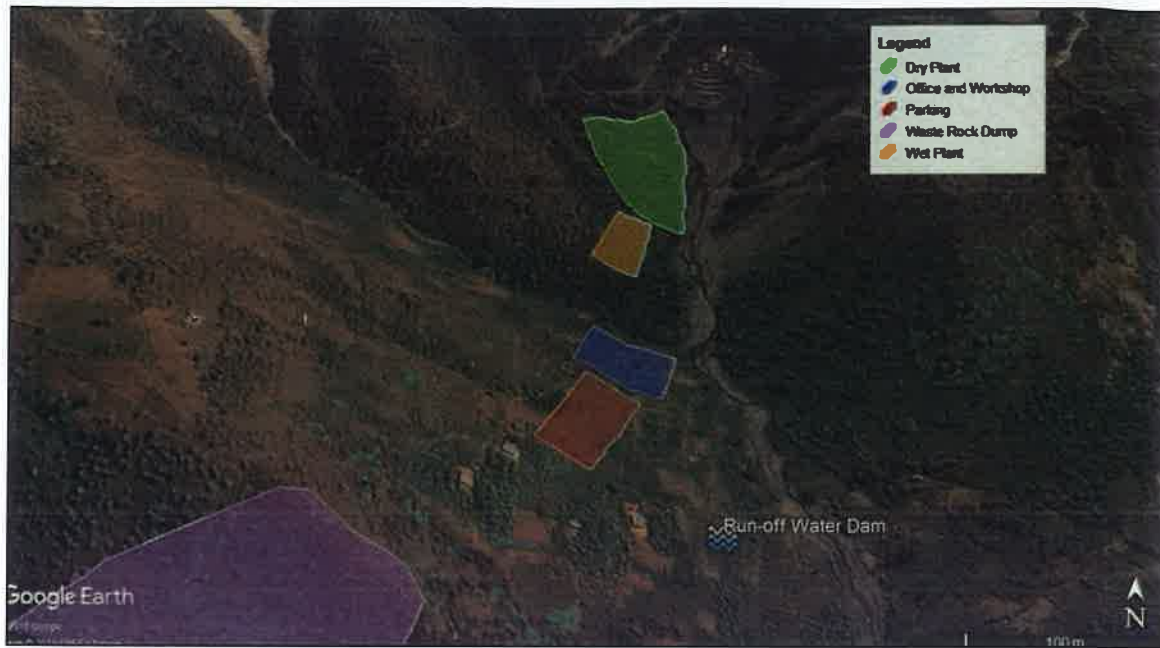


FIGURE 2: PLANT BLOCK PLAN

5.1.3 Plant throughput

The plant throughput per plant area is shown in Table 1.

TABLE 1: PLANT THROUGHPUT

Description	Unit	Value
Head Feed Rate	t/h	50
Run of Dump treated per year	t	350 400
Run of Dump treated per month	t	29 200
Head Feed Grade	%	0.30
Hours per day	h/d	20
Days per year	d/y	365

5.2 SCOPE OF SERVICES

5.2.1 Scope for the Feasibility Study

The proposal included the DFS to be developed using data from phase 1. The focus of the work will be on the following chapters:

5.2.2 Metallurgy

- Design criteria and basis of design
- Flowsheets
- Datasheets
- Design drawings
- P&IDs
- Input into the capital and operating cost estimate
- Input into the environmental specialist works
- Drafting of Metallurgical chapter for DFS report

5.2.3 Environmental

- Incorporate current environmental impact assessment into the design
- Undertake environmental gap analysis between EMP/IWUL/Waste licences in place and the Feasibility study Block plan
- Undertake specialist work and application for amendments to current permits (if necessary)
- Incorporate the existing environmental chapter into the DFS report

5.2.4 Waste Disposal

- Development of waste management storage and disposal design
- Incorporate the 3rd party design report for the tailing and rock dump storage facility into the draft DFS report.

5.2.5 Energy Consumption

- Develop energy load requirements
- Develop energy consumption parameters
- Power supply and reticulation
- Assessment of the availability of the power supply to the mine
- Supply point/substation prelim design (SLD, Basic layout and datasheets of primary equipment)

- Update power requirements from Utility.
- Technical support in discussions with the power utility
- Prelim design of generator plant, including Datasheets for costing.

5.2.6 Mining & Mineral Resources

- Review of current data - Gap analysis
- Update to mining chapter

5.2.7 Engineering & Infrastructure

- Design criteria and basis of design for civil, structural, mechanical, platework, piping, electrical, instrumentation and control as well as supporting infrastructure.
- Flowsheets.
- General Arrangements (GA) layouts and DFS Design drawings.
- Block plans.
- P&IDs.
- Fire detection and suppression designs.
- TSF, stormwater, and raw water supply designs, including overland pipe design.
- Data sheets and equipment lists.
- Earthworks and Bulk services supply of water and electricity and waste treatment facilities
- Site preparation, temporary facilities and laydown areas.
- Drafting of engineering chapter for the DFS report.

5.2.8 Hydrological Study

- Information gathering (BFS Phase) - gaps identified as part of the technical and costing study
- Flood line Determination
- Flood line Analysis
- 3D modelling from survey information and Stormwater run-off calculations.
- Division of infrastructure area in terms of dirty and clean areas and positioning of stormwater infrastructure.
- Hydrological Calculations and Stormwater Management Plan.
- Stormwater infrastructure elements design (PCDs, Silt Traps, Silt Retention Ponds, Berms, Channels, Culverts, etc.).
- Static Water Balance
- Engineering Drawings
- Bill of Quantities
- Drafting of hydrological study in the DFS report

5.2.9 Risk Management

- Development of a risk register and risk management plan.
- Risk workshops – Both Qualitative and Quantitative assessments.
- Hazard and Operability (HAZOP) review.
- Drafting of risk management chapter for DFS report.

5.2.10 Capital Expenditure

- Development of the Work Breakdown Structure (WBS).
- Development of a Basis of Estimate.
- Development of CAPEX and OPEX estimates for implementation (at least class 3)
- Detailed Quantitative Risk Assessment (QRA).
- Development of a techno-economic financial model and business case for project approval.
- Drafting of Financial chapter for DFS report.

5.2.11 Project Execution Plan (PEP)

- Development of a detailed PEP for the implementation phase.
- Development of basis of schedule.
- Development of a level 5 implementation schedule – developed to task level.
- Construction management and methodology.
- Develop relevant discipline management plans to govern processes during execution i.e. Controls Management, Change Management etc.

5.2.12 Human Resources

- Development of the human resources plan and labour plan
- Drafting of Human Resources chapter for DFS report

5.2.13 Procurement Operating Plan

- Development of procurement operating plan.
- Drafting scope of work documents.

5.2.14 Operational Readiness

- Development of operational readiness plan.
- Development of operational readiness schedule for the implementation phase.
- Drafting of Operational Readiness chapter for DFS report

5.2.15 Project Approval

- Preparation of DFS report and investment memorandum

6. ASSUMPTIONS

The following assumptions apply:

- The selected flowsheet from Phase 1 will not change. Only technology options within the selected option and scenario will be evaluated.
- Tie-ins will remain as planned in previous studies.
- All metallurgical test work will be completed before the FS commences
- No further geotechnical drilling or test work is required for the design.

7. COSTS

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

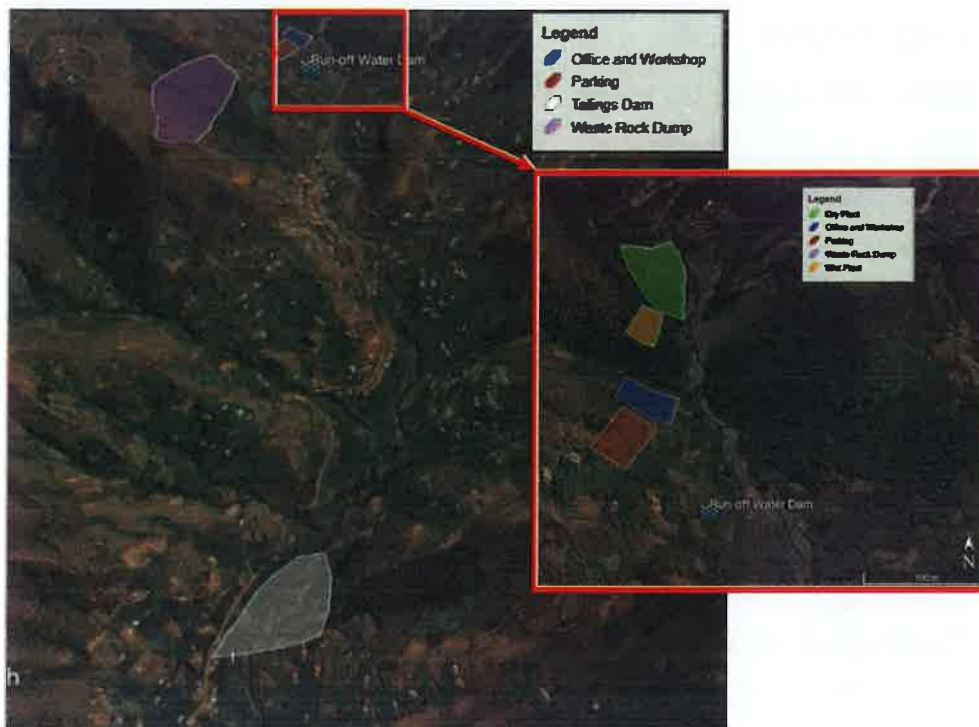
TABLE 2: COSTING MATRIX

Discipline	Rate (USD/h)	Principle Design Engineer	Design Engineer	Senior Quantity Surveyor	Junior Quantity Surveyor	Project Manager	Project Planner	Senior Draftsman	Junior Draftsman	Admin
Description		75	71	51	32	80	60	54	34	27
Crushing and Screening		55	18					65	16	
Oversize Concentration		55	18					48	16	
Jigging		100	36					52	32	
Concentrate Crushing & Screening		55	18					47	16	
Spirals & Shaking Tables or MGS units		96	33					89	26	
HF Screening & MGS plant		89	30					56	22	
Final Product Cleaning		76	27					53	26	
Thickening & Dewatering		79	27	97	246	247	75	84	22	80
Plant Services		93	33					17	29	
Plant Supporting Offices & Workshops		31	9					23	10	
Water Supply & Treatment		48	15					14	13	
Camp Site		24	6					80	6	
Roads & Other Infrastructure		218	15					57	13	
Hydrological Study & Water Management		151						127		
Provision for Travelling		200								
Total Hours	3 469	1 370	285	97	246	247	75	812	247	80
Total Cost (USD)	215 267	102 750	20 235	4 947	7 872	19 789	4 500	43 848	8 398	2 160

8. BATTERY LIMITS

The following battery limits apply:

- 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 the stock pad. |
| • Final Tailings | Final dry tailings discharge. |
| • Slimes Discharge | Discharge of piping into the residue storage |

9. INFORMATION REQUIRED

The client requires the following information:

- Metallurgical test work;
- Soft copies of all study work done to date;
- Topographical survey; and
- Geotechnical survey.

10. EXCLUSIONS

The following are excluded from our proposal:

- Laboratory test work of representative samples to verify process parameters as required to develop the PDC;
- Shipping costs;
- Permitting;
- Topographical survey;
- Sampling and testing of water;
- Geohydrological studies (underground water);
- Tailings storage facility design;
- Waste rock stockpile design;
- Environmental authorisation and environmental studies;
- Detail design (part of next phase);
- Traveling and VISAs;
- Procurement (next phase);
- Fabrication (next phase);
- Construction (next phase);
- Any third party expenditure;
- Independent Risk Practitioner;
- Independent HAZOP facilitator;
- Costs for bonds subject to commercial requirements;
- Any other deliverables not specifically included in this document;
- Management and retrieval of information from the Department of Energy; allowance has been made for technical guidance only.
- All scope descriptions and deliverables in Section 5.2 shown in grey; and
- VAT.

11. STUDY SCHEDULE

The total duration of the study is estimated as 14 weeks from the receipt of a purchase order and the client information as specified.

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

- Completion of preliminary process design - 2 weeks
- Obtaining of equipment pricing and drawings - 3 weeks
- Plant concept 3D model - 9 weeks
- Project CAPEX and OPEX - 12 weeks
- Study report - 14 weeks

Note: The number of weeks specified for each study milestone is referenced from the commencement date.

12. LIMIT OF LIABILITY

Obsideo Project & Technical Services 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 Consulting'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, 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, 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 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

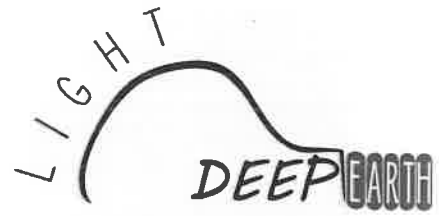
relating to estimated costs shall be verified by the Client independently and Obsideo accepts no responsibility arising in any way whatsoever for error or omissions, nor does Obsideo accept any liability for any commercial decisions or actions arising from the opinions and valuation stated in the estimated costs or the report.

13. CONFIDENTIALITY

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

QUOTE

NUMBER: QUO0001621
REFERENCE: OB24-01 NYAKABINGO ROM
DATE: 22/11/2024
DUE DATE: 23/11/2024
PROJECT NUMBER: OB24-01 (Nyakabingo ROM)
OVERALL DISCOUNT %: 0.00%
PAGE: 1/1



Unearthing Mineral Excellence

FROM
LIGHTDEEPEARTH (PTY) LTD

TO
OBSEDO PROJECT & TECHNICAL SERVICES

VAT NO: 4470279284

CUSTOMER VAT NO: 4010284620

PHYSICAL ADDRESS:
21 Roger Dyason Road
Pretoria West
Gauteng
South Africa
0183

POSTAL ADDRESS:
Postnet Suite 103
Private Bag X8
Elarduspark

PHYSICAL ADDRESS:
Irene Corporate Corner
17 Via Salara Crescent
Irene X179
0157

CUSTOMER PO NUMBER:

Description	Quantity	Excl. Price	Disc %	VAT %	Excl. Total	Incl. Total
XRF - X-Ray Fused Bead Analysis	8.0	R 550.00	0.00%	15.00%	R 4,400.00	R 5,060.00
XRF Pro Trace - XRF Minors	8.0	R 600.00	0.00%	15.00%	R 4,800.00	R 5,520.00
PMA (fines) - PMA (fines)	2.0	R 5,800.00	0.00%	15.00%	R 11,600.00	R 13,340.00
PMA (Normal) - Qemscan Particle Mineral Analysis	4.0	R 5,000.00	0.00%	15.00%	R 20,000.00	R 23,000.00
XRD - XRD (s.q)	6.0	R 800.00	0.00%	15.00%	R 4,800.00	R 5,520.00
M.Ast - Metallurgical Assistant	110.0	R 440.00	0.00%	15.00%	R 48,400.00	R 55,660.00
Tech - Technician	170.0	R 800.00	0.00%	15.00%	R 136,000.00	R 156,400.00
S.Tech - Senior Technician	20.0	R 1,200.00	0.00%	15.00%	R 24,000.00	R 27,600.00
P.Eng - Principle Engineer	38.0	R 2,200.00	0.00%	15.00%	R 83,600.00	R 96,140.00

Total Discount: R 0.00
Total Exclusive: R 337,600.00
Total VAT: R 50,640.00
Sub Total: R 388,240.00

Full terms and conditions can be supplied on request

Bank: Nedbank
Account Name : LightDeepEarth
Account Number : 114 764 2419
Branch : Centurion
Branch Code : 198765
Swift Code : NEDSZAJJ

Grand Total: R 388,240.00

BALANCE DUE
R 388,240.00

