



FORM B: CAPITAL APPLICATION

PROJECT NAME: LIFE OF MINE PLANNING FOR TRINITY METALS RWANDA OPERATIONS

PROJECT LEADER: Wisdom Magwagwa **CONS. ASS. NO.:** _____

DATE: 23-03-2024 **CA NO.:** _____

A	PROJECT DESCRIPTION
	<p>The scope of work discussed here is based on the observations and discussions during the site visit with Trinity.</p> <p>The proposal is as follows:</p> <ul style="list-style-type: none"> o Musha Mine <ul style="list-style-type: none"> · Level tramming trade-off (railbound vs rubber tyred) · Mine design criteria document · Revise mining layouts · Mine Schedule o Nyakabingo Mine <ul style="list-style-type: none"> · Trackless equipment selection · Mine design criteria document · Mining layout · Mine Schedule o Rutongo Mine <ul style="list-style-type: none"> · Masoro trade-off study (Haulage to Nyamyumba vs plant vs aerial cableway) · Nyamyumba below BV33 access trade-off (ramp vs shaft) · Mine design criteria document · Mining layout · Mine Schedule o Consolidated mining and processing schedule o Reporting o Site visits <ul style="list-style-type: none"> · 3 visits of 6 days (including travel) over a four month period.

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022

B	MOTIVATION		
Task 1: Project management, client liaison and data collection			
<p>A project leader will be appointed who will oversee the Bara scope of work and a project team will be formed and briefed on the project. The project manager will be responsible for all aspects of the scope of work awarded to Bara and for liaison with the Trinity representatives.</p>			
Task 2: Musha Mine			
Task 2.1 Level mucking and trammig trade-off			
<p>Musha Mine currently uses hand got methods to extract ore and the ore is transported along the underground levels and to surface either in bags or in wheelbarrows. As the mine progresses deeper mechanised means will be required to remove the ore from underground. A decline is currently being developed to access Levels 5 to 9 of the mine. The decline has been designed to accommodate rubber tyred articulated dump trucks, which will be used to truck the ore to surface. However, the means of mucking (loading) the blasted rock and transporting the ore along the underground levels from where it is tipped into ore passes, still needs to be decided upon. The options which have been considered for horizontal transport of rock underground include:</p>			
<ul style="list-style-type: none"> o Mucking options: 			
<ul style="list-style-type: none"> · Hand lashing · Rocker arm shovels · Bobcats · Rubber tyred LHDs 			
<ul style="list-style-type: none"> o Trammig options 			
<ul style="list-style-type: none"> · Wheel barrows · Trains (Locos and hoppers as at Rutongo and Nyakabingo) · Rubber tyred LHDs 			
<p>Bara will complete a trade-off study, to conceptual levels of accuracy, to compare the various options of mucking and trammig. The trade-off will consider the following criteria amongst others:</p>			
<ul style="list-style-type: none"> o Capital cost 			
<ul style="list-style-type: none"> o Operating cost 			
<ul style="list-style-type: none"> o Productivity (efficiency) 			
<ul style="list-style-type: none"> o Energy requirements 			
<ul style="list-style-type: none"> o Ventilation requirements 			
<p>On completion of the trade-off study the results will be presented to the Client team. On agreement of the Client the recommended option will be incorporated into the mine design criteria document and the mine design.</p>			
<p>It is envisaged that the findings of the trade-off study will be applicable to Rutongo and Nyakabingo as well and that this work will inform the future mine designs for these mines.</p>			
Task 2.2: Mine design criteria document			
Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022

A mine design criteria document will be drawn up which forms the blue print for the mine layout. This document will record the input parameters to the mine design including but not limited to:

- o Target production rate
- o Mining method
- o Level spacing
- o Excavation sizes
- o Pillar dimensions (if applicable)
- o Shift cycles
- o Equipment to be utilised
- o Cut-off grades
- o Expected dilution and losses (modifying factors)

The mine design criteria document will be circulated to the Client project team for comment and on agreement and acceptance of the document it will form the basis of the mine design.

Task 2.3: Mine Layout

The mining design will then be laid out in the DeswickCAD® suite of mining software. The layout will include the survey of the existing excavations with all layout work starting from this point. All development and stope excavations will be included in the mine design and layout, which will be focused on the areas where mineral resources are in the indicated or measured resource category or on priority areas demarcated by the geology department. The layout will form the basis on which a schedule will be developed. The mine layout will be exported in dxf file format, or any other required format, for distribution to the client.

Task 2.4 Mine Schedule

A life of mine mining schedule will be developed for the underground mine using DeswickCAD® scheduling software. The schedule will be generated based on the estimation of the following parameters:

- o Shift cycles and working times.
- o Cycle time calculations.
- o Mining productivities.
- o Estimated face advances for all excavation types.

The mining schedule will give detail of development meters for each excavation type (ore and waste development) waste tonnages as well as ore production. Volumes and grades in the schedule will be based on information provided by Trinity geological department.

The schedule will be reported in periods of months, quarters and years as required by Trinity. It is typical to have the first one or two years reported in months and after that either quarters or years.

Task 3: Nyakabingo Mine

Task 3.1 Selection of mining equipment

Nyakabingo Mine currently uses rail bound tramming on the mining levels making use of 1 T locos and 0.7 t mine cars hoppers). As the mine progresses deeper below BV22, mechanised means will be required to remove the ore from underground. A decline is currently being considered to access levels below BV22. The decline will be designed to accommodate rubber tyred articulated dump trucks, which will be used to truck the ore to surface. Bara will consider the options for loading and hauling of the ore from underground to surface including:

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022

- Loading with bobcats
- Loading with LHDs
- Trucking to surface (Various truck sizes).

Bara will complete a trade-off study, to conceptual levels of accuracy, to compare the various options of loading and hauling. The trade-off will consider the following criteria amongst others:

- o Capital cost
- o Operating cost
- o Productivity (efficiency)
- o Energy requirements
- o Ventilation requirements

On completion of the trade-off study the results will be presented to the Client team. On agreement of the Client the recommended option will be incorporated into the mine design criterion document and the mine design.

Task 3.2: Mine design criteria document

As per Task 2.2

Task 3.3: Mine Layout

As per Task 2.3

Task 3.4 Mine Schedule

As per Task 2.4

Task 4: Rutongo Mine

Task 4.1 Masoro Orebody logistics trade-off

The Masoro orebody lies approximately 1 km to the South West of the Nyamyumba. A haulage connecting Nyamyumba to Masoro on the Nyamyumba BV32 elevation (Z=1532m). This haulage has entered a zone of particularly poor ground conditions. The original tunnel was abandoned and a bye pass development was attempted. The bye pass has now also encountered the poor ground conditions and has been stopped. Trinity have considered abandoning the idea of connecting the two mines via an underground tunnel and treating Masoro as a stand-alone mining operation. The topography makes road access to Masoro difficult and will result in high capital and operating costs for haul road access if ore is to be trucked to Rutongo for processing. A number of options can be considered for the re-opening of the Masoro mine which include:

- o Establishing a plant and tailings facility on site, i.e. making Masoro a stand-alone mine.
- o Establishing underground access at Masoro and trucking ore to Rutongo for processing. An alternative sub-option to this option could be the use of an alternative transport system such as an aerial ropeway to transport ore from Masoro to Rutongo.
- o Continuing the underground connection on BV32, through the estimated 150m of very poor ground, and tramming Masoro ore to Rutongo underground.

Bara will conduct a trade-off study, to conceptual levels of accuracy, comparing these options and recommending the most cost-effective option. Criteria to be considered in the trade-off study include:

- o Capital cost

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022

- o Operating cost
 - o Environmental issues
 - o Productivity
 - o Implementation time
 - o Any other selection criteria proposed by Trinity.
- The trade-off study workings and findings will be reported in a Note for Record to Trinity and any feedback will be considered and the findings finalised.
- It is noted that Bara will require input from other parties including Trinity and their other consultants for inclusion in the trade-off study. Examples of the information that will be required from others are:

- o Plant capital and operating costs
- o Plant recovery and mass pull factors
- o Tailings facility capital and operating costs
- o Haul road construction costs (Local costs)
- o Underground development cost per metre

Task 4.2 Nyamyumba below BV33 Access trade-off

The lowest current workings at Nyamyumba are on the BV33 elevation (Z=1492m). There is expected to be significant extension of the orebodies below this elevation. It is expected that BV 33 will be the lowest adit into the mountain as the lower levels will be below the level of the valley. The plan is to establish a new processing plant close to the BV33 portal. BV 33 will function as a life of mine tramming haulage. In addition, access to the resources located below BV 33 needs to be developed from this elevation underground. Options of accessing ore below BV33 include the sinking of a sub vertical shaft, an inclined shaft or a trucking ramp from BV 33. The design of the access below BV 33 needs to take into consideration and be aligned with the selected tramming solution on BV 33. Bara will conduct a trade-off study, to conceptual levels of accuracy, comparing these options of access below BV 33 as well as the logistics arrangements on BV 33 (rail bound versus trackless) and propose an overall access and logistics solution for BV 33 and below. The logistic solution for BV 33 will also consider the proposed solution for Masoro (Task 4.1) so that if BV 33 is used to transport Masoro ore to the plant, these arrangements are considered in the plan. Bara is also aware that Rutongo Mines already possess a winder which could be used for the shaft options. The capacity of the winder will be checked to confirm its applicability to the requirements.

Task 4.3: Mine design criteria document

On completion of the trade-off studies and selection of go forward options for both Masoro and BV 33 and below, a mine design criteria document will be completed, as per Task 2.2.

Task 4.4: Mine Layout

As per Task 2.3

The mine layouts for Rutongo Mines will include both Nyamyumba and Masoro.

Task 4.5 Mine Schedule

Mining schedules will be developed for both Nyamyumba and Masoro.

Task 6: Reporting

A report will be produced which will include written descriptions of all aspects of the study work, with sketches where applicable, detail of calculations, and any other information which may be

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022



required to be included which has been generated as part of the study work. The report will be provided to Trinity in an agreed format (hard copy and/or electronic formats). In addition to the written report all mine layouts and schedules that are generated as part of the work will be provided in electronic format.

Task 7: Site visits

Trinity have requested that a mining engineer from Bara undertake a visit to the Trinity mines in Rwanda for the period of one week every six to eight weeks during the completion of this scope of work. During these visits the mines will be visited to assess progress on the ongoing mining projects and to engage with the mining teams. The progress on the life of mine plans will be presented and discussed. In particular the plans will be discussed with the site mining and technical services teams to ensure that there is alignment between the short and medium term planning taking place on site and the life of mine plans. Bara have allowed for three visits of six days for one engineer in our cost estimate. The dates for the site visits will be set to agree with the Trinity management schedule on commencement of this work.

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022

C COSTING SELECTED OPTION							
Task No	Project Task	Rate/Hour Hours	Project Leader 115 48	Principal Engineer 110	Senior Engineer 90	Drafting 62	Total cost US\$ (Excl. VAT)
1.0	Project management and administration						5,520
2.0	Musha Mine						
2.1	Level tramming trade-off (railbound vs rubber tyred)			8	16	4	2,568
2.2	Mine design criteria document			2	4		580
2.3	Revise mining layouts			2	8		940
2.4	Mine Schedule			2	8		940
3.0	Nyakabingo Mine						
3.1	Trackless equipment selection			8	8	4	1,848
3.2	Mine design criteria document			2	4		580
3.3	Mining layout			4	32		3,320
3.4	Mine Schedule			4	32		3,320
4.0	Rutongo Mine						
4.1	Masoro trade-off study (Haulage to Nyamyumba vs plant vs aerial cableway)						
4.1.1	Capital cost of proceeding with BV33 haulage			12		4	1,568
4.1.2	Operating cost of tramming ore via BV33			16		4	2,008
4.1.3	Capital and opex cost of pre-concentration plant			4			440
4.1.4	Capital cost of road and infrastructure for truck hauling			8		4	1,128
4.1.5	Operating cost of truck hauling			6			660
4.1.6	Aerial ropeway concept design			12		16	2,312
4.1.7	Capital cost and operating cost of aerial ropeway			4			440
4.1.8	High level implementation schedule for each option			16			1,760
4.1.9	Cashflow modelling of options			16			1,760
4.1.10	Trade-off selection matrix			16			1,760
4.1.11	Reporting Note for record			14		4	1,788
4.2	Nyamyumba below BV33 access trade-off (ramp vs shaft)						
4.2.1	Assess capacity of current winder			6		2	784
4.2.2	Conceptual shaft design			6		8	1,156
4.2.3	Conceptual inclined shaft design			5		8	1,046
4.2.4	Conceptual trackless ramp design			12		8	1,816
4.2.5	Review of designs to ensure integration with BV33 logistics arrangements			12			1,320
4.2.6	Shaft capital and opex estimates (Vertical and inclined shaft)			8			880
4.2.7	Ramp capital and opex estimates			10			1,100
4.2.8	High level implementation schedule for each option			16			1,760
4.2.9	Cost summary of all options			12			1,320
4.2.10	Selection of preferred option			8			880
4.2.11	Reporting (NFR)			16		8	2,256
4.3	Mine design criteria document			2	4		580
4.4	Mining layout				60		5,400
4.5	Mine Schedule				40		3,600
5.0	Reporting						
5.1	Monthly progress reports		12				1,380
5.2	Final report		40	24	24	16	10,392
6.0	Site visits						
	3 visits of 6 days (including travel)			144			15,840
	Disbursements (estimate)						
	Airfares (x3)						6,000
	Airtime, taxis etc (x3)						600
	Administration fee (7%)						6,535
	Total Cost Estimate		100	437	240	90	99,885
TOTAL COSTS INCLUDING CONTINGENCIES							
BUDGET IN 5-YEAR PLAN							
Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013				
Version	02	Date of last revision	20 June 2022				



VARIANCE	
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D	RISK ASSESSMENT
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Due to lack of a on-site Mining Engineer, Trinity is at risk of not optimizing their mining operations as well as long term planning and thus could incur extra costs as well as lose revenue due to incorrect decisions made.

E	PROJECT SCHEDULE
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Bara is available to initiate this work immediately and it is envisaged that the scope of work can be completed in a period of three months from commencement. To initiate the work, Bara would require a written instruction from Trinity to proceed and a company purchase order number generated by yourselves should your procurement procedures require this.


F	COMMENTS
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GROUP FINANCE	
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Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022



CEO	
DIRECTOR	

G	APPROVAL
CEO	 P. Ceem 25/03/2024
BOARD	N/A

NOTE: attach additional quotes or supporting documents if necessary

Ref Number	Fin 02/Form B	Date of Implementation	01 August 2013
Version	02	Date of last revision	20 June 2022