



# Scoped Amendment - Macassa Mine December 16, 2021

Emergency Egress for Near Surface Portal



**KIRKLAND LAKE GOLD**

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## 1 LETTER OF TRANSMITTAL

December 16, 2021

Mr. Brian McMahon, Director of Mine Rehabilitation  
Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)  
933 Ramsey Lake Road, Level B-6  
Willet Green Miller Centre  
Sudbury, Ontario, P3E 6B5

Dear Mr. McMahon:

As directed by NDMNRF, Kirkland Lake Gold Inc. (KL Gold) is pleased to submit an update to the February 2018 filed Closure Plan for the Macassa Mine originally filed on October 2019. This amendment serves to capture the following:

- i. The construction of an emergency egress to support the near-surface portal.

This amendment and its associated appendices, together with the filed Closure Plan and subsequent Amendments, constitutes the entire Closure Plan, and is being submitted for filing under Part VII of the *Mining Act*. It is understood that KL Gold is solely responsible for ensuring that the rehabilitation measures proposed in the plan are carried out in accordance with this Closure Plan, including any future changes or amendments filed with the Director, consistent with the intent of the *Mining Act*.

It is the intent of KL Gold to review and revise as necessary the closure cost aspects on a regular basis to meet government requirements.

In accordance with Schedule 2 of Ontario Regulation 240/00, I hereby authorize Natasha Dombrowski (ndombrowski@kl.gold) to act on behalf of KL Gold in future dealings with your Ministry, and other regulatory agencies, in all matters pertaining to the Closure Plan and this Scoped Amendment.

The undersigned is authorized, as an agent of the Macassa Mine.

Respectfully,  
Kirkland Lake Gold Inc.

A handwritten signature in black ink, appearing to read 'Mohammed Ali'.

Mohammed Ali  
Vice President - Environment

## 2 CERTIFICATION

### 2.1 Certification of Proponent

I (We) hereby certify that:

- (a) the attached closure plan complies in all respects with the *Mining Act* and this Regulation, including the Code;
- (b) the proponent relied upon qualified professionals in the preparation of the closure plan, where required, under the *Mining Act* and this Regulation, including the Code;
- (c) the cost estimates of the rehabilitation work described in the attached closure plan are based on the market value cost of the goods and services required by the work;
- (d) the amount of financial assurance provided for in the attached closure plan is adequate and sufficient to cover the cost of the rehabilitation work required in order to comply with the *Mining Act* and this Regulation, including the Code;
- (e) the proponent has complied with any written direction regarding Aboriginal consultation provided by the Director pursuant to subsection 8.1 (2);
- (f) the attached closure plan constitutes full, true and plain disclosure of the rehabilitation work currently required to restore the site to its former use or condition or to make the site suitable for a use the Director sees fit in accordance with the *Mining Act* and this Regulation, including the Code. O. Reg. 240/00, s. 12 (2); O. Reg. 307/12, s. 7 (1); O. Reg. 226/21, s. 7 (2).

DocuSigned by:  
  
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\_\_\_\_\_  
Duncan King  
Vice President, Mining

DocuSigned by:  
  
8C237107ABA44A4...  
\_\_\_\_\_  
David Soares  
Chief Financial Officer

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## **2.2 Certification by Professionals**

No change from latest filed Closure Plan

Macassa Mine Scoped Amendment  
Emergency Egress



## 3 PROJECT INFORMATION

### 3.1 Proponent Information

#### **Project Name**

Macassa Mine, Teck-Hughes, Kirkland Minerals, Lake Shore properties

#### **Project Address**

Kirkland Lake Gold Inc.  
1350 Government Road West  
P.O. Box 370  
Kirkland Lake, ON  
P2N 3J1

#### **Proponent**

Kirkland Lake Gold Inc.  
1350 Government Road West  
P.O. Box 370  
Kirkland Lake, ON  
P2N 3J1  
Tel: (705) 567-5208  
Fax: (705) 568-6444

#### **Authorized Contact Person**

Natasha Dombrowski  
Kirkland Lake Gold Inc.  
1350 Government Road West  
P.O. Box 370  
Kirkland Lake, ON  
P2N 3J1



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## **3.2 Land Tenure Information**

No change from latest filed Closure Plan

### 3.3 Site Plan

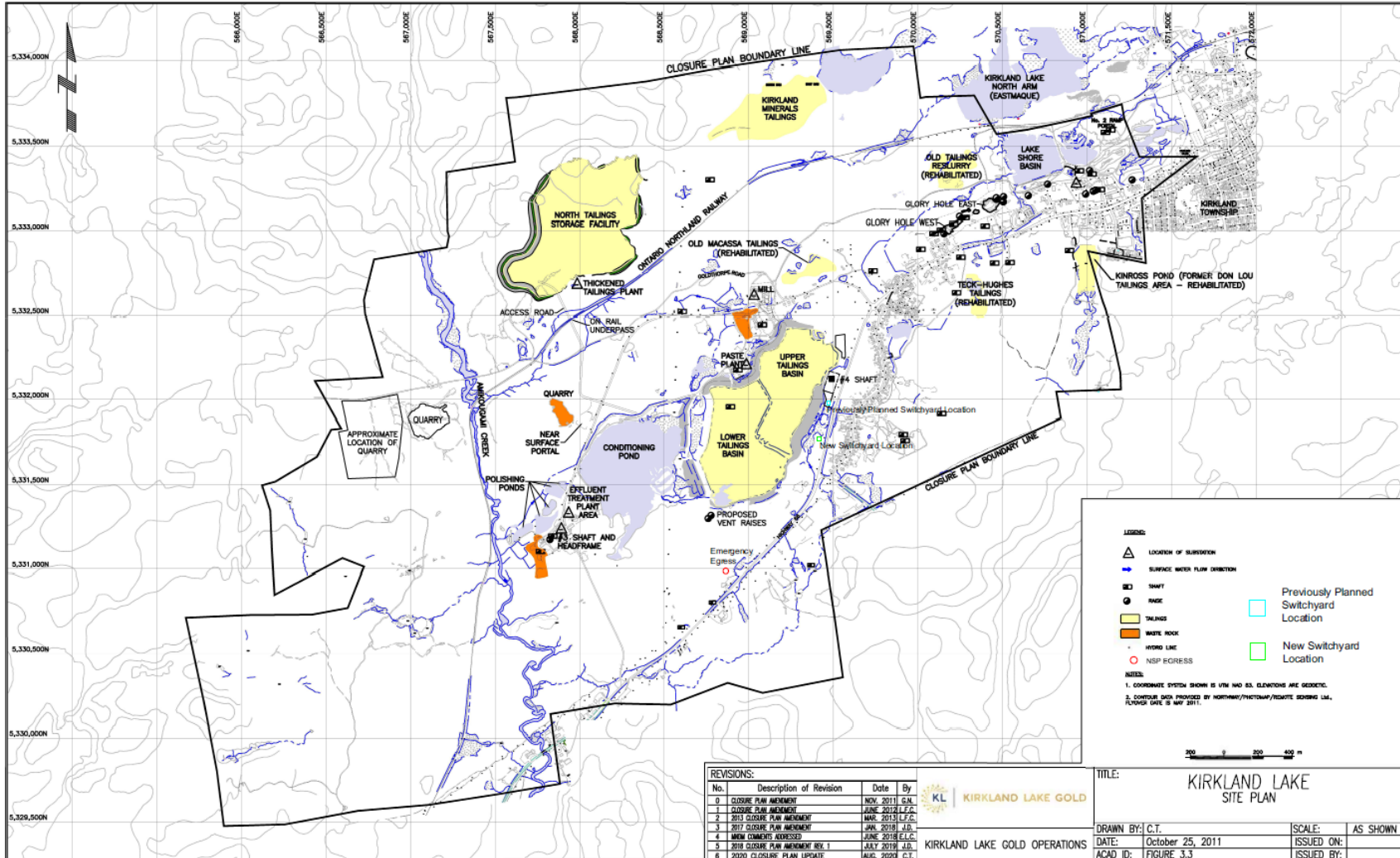


FIGURE 3-3 SITE PLAN

### 3.4 Underground Development

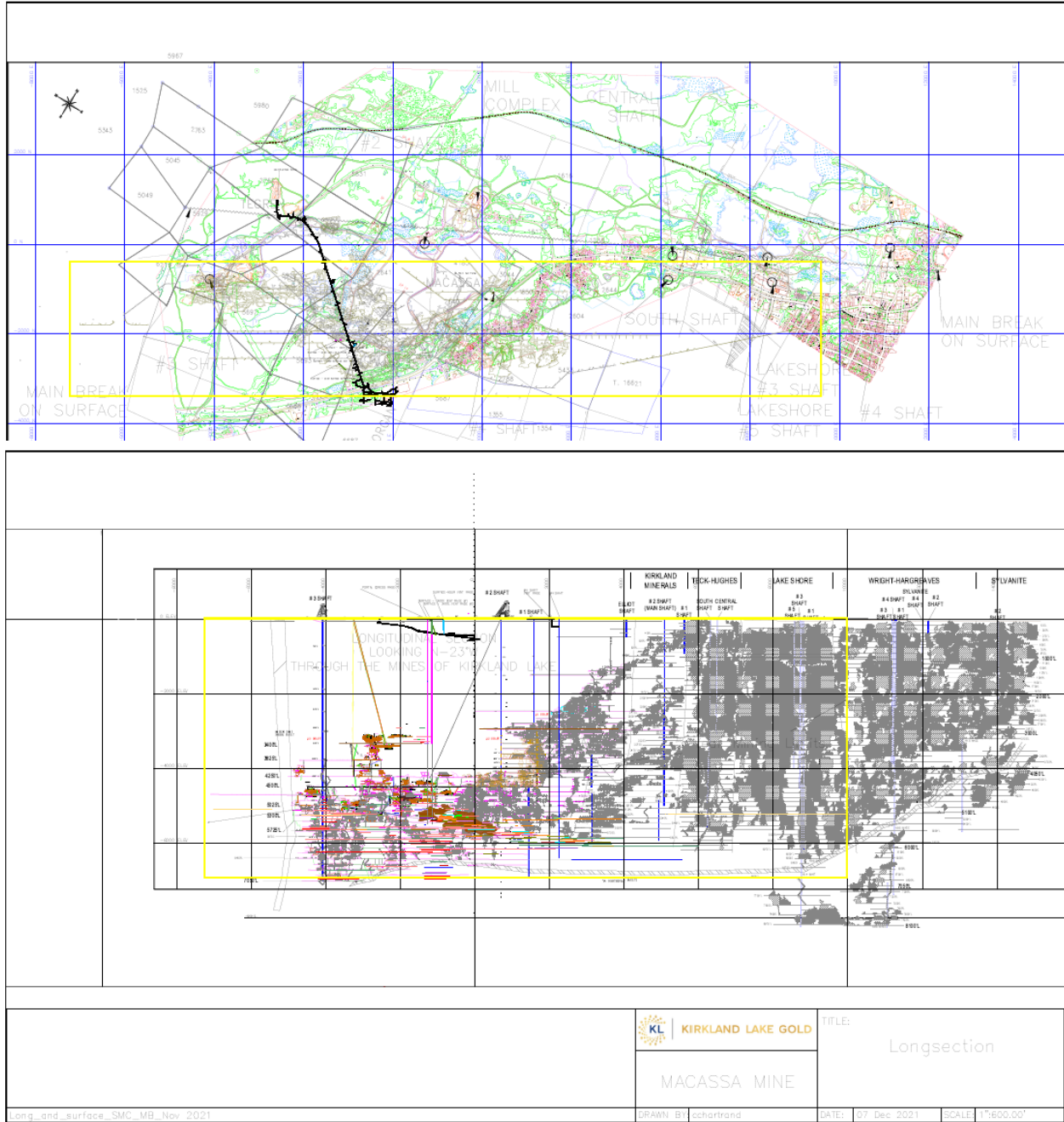


FIGURE 3-4 5 YEAR MINE PLAN

Macassa Mine Scoped Amendment  
Emergency Egress



## 4 CURRENT PROJECT SITE CONDITIONS

No change from latest filed Closure Plan

## 5 PROJECT DESCRIPTION

### 5.1 Project Summary

No change from latest filed Closure Plan

### 5.2 Geology and Minerology

No change from latest filed Closure Plan

### 5.3 Mining Activities

#### 5.3.4 OPENINGS TO SURFACE

The construction of an emergency egress for the Near Surface Portal will provide an alternate exit from underground in the event of an emergency. The 8'x7' square raise will start underground at a depth of approximately 300ft and will open to surface, as shown in the following figures.

A 500ft access road from the site to the egress location will also be constructed in order to maintain and access the area. This will involve clearing approximately 0.07ha of trees. A structure will be placed over the opening and a fence installed to prevent access to the public.

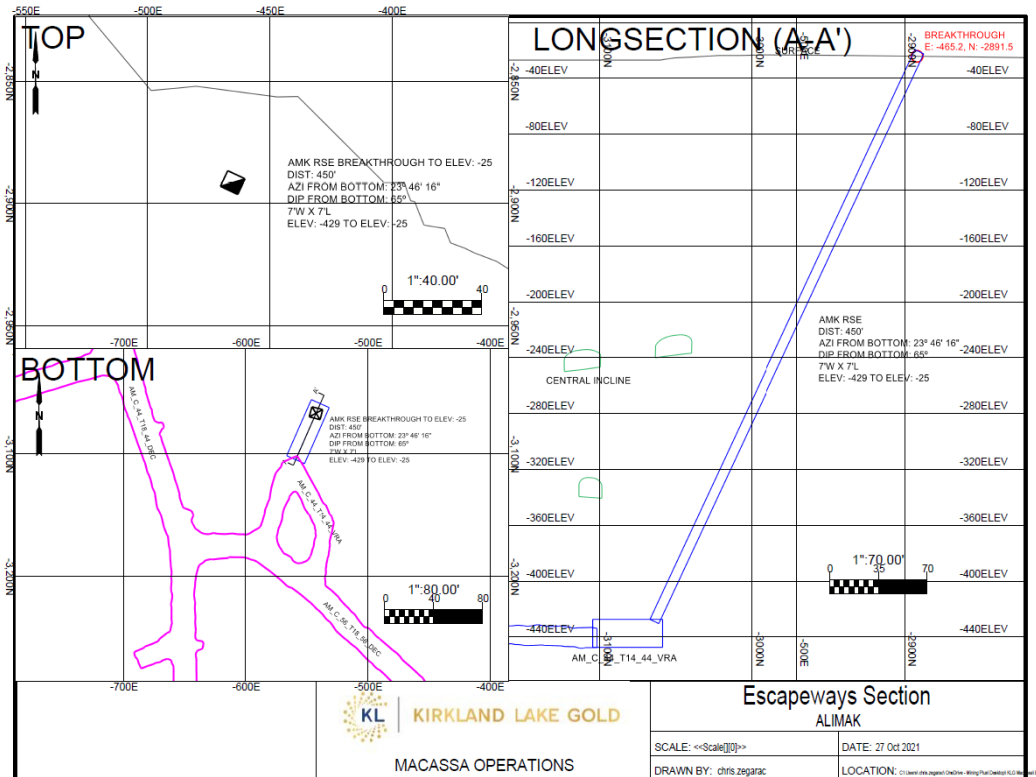


FIGURE 5-3.1 EGRESS SECTION

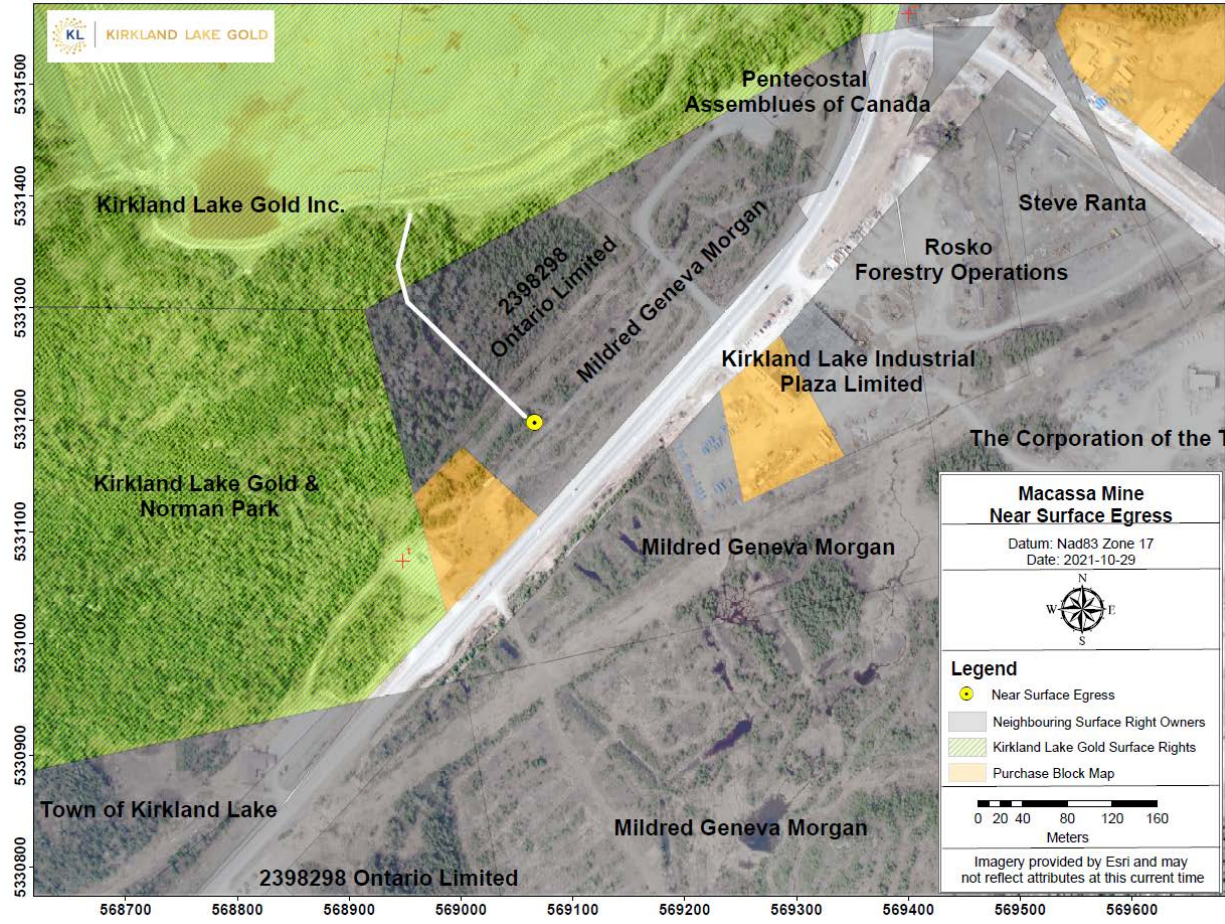


FIGURE 5-3.2 NEAR SURFACE EGRESS LOCATION

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## **5.4 Processing**

No change from latest filed Closure Plan

## **5.5 Building and Infrastructure**

No change from latest filed Closure Plan

## **5.6 Tailings**

No change from latest filed Closure Plan

## **5.7 Material Handling**

No change from latest filed Closure Plan

## **5.8 Waste Management and Treatment**

No change from latest filed Closure Plan

## **5.9 Water Management and Treatment**

No change from latest filed Closure Plan

## **5.10 Chemical and Fuel Storage**

No change from latest filed Closure Plan

## **5.11 Project Schedule**

No change from latest filed Closure Plan

## 6 PROGRESSIVE REHABILITATION

No change from latest filed Closure Plan

## 7 REHABILITATION MEASURE – TEMPORARY SUSPENSION

No change from latest filed Closure Plan

## 8 REHABILITATION MEASURES – STATE OF INACTIVITY

No change from latest filed Closure Plan

## 9 REHABILITATION - CLOSE OUT

### 9.1 Shafts, Raises and Open Stopes

To prevent inadvertent access, mine openings will be permanently sealed upon closure. The Mining Act (O.Reg. 240/00) requires that reinforced concrete caps be certified by a qualified professional engineer. The concrete cap standard specified by NDMNRF, has a typical design life of 50 years. KL Gold has been constructing concrete caps to exceed this standard and will have an expected design life of 100 years. Where feasible, some shafts, raises, and stopes, will be backfilled instead of capped.

- Raises:** Raises are vertical or steeply inclined openings in underground workings that are not usually equipped with a hoist or conveyance equipment. Raises are used for mine air ventilation, ore and waste rock movement and for internal movement of personnel using ladders installed in the raise.

TABLE 9-1 HAZARD REHABILITATION METHOD FOR MACASSA

Property	Hazard	Rehabilitation Measures Proposed					Physical Monitoring Requirement	Proposed Construction Status
		Cover/Overburden	Backfill Type and Volume	Cap Type	Vent Pipe Type	Fencing Length		
Macassa	M-NSP Emergency Egress	N/A	N/A	Concrete Reinforced Cap	Standard	N/A	Visual	Closure

### 9.2 Adit and Decline Portals

No change from latest filed Closure Plan

### 9.3 Other Mine Openings

No change from latest filed Closure Plan



## **9.4 Mine Workings**

No change from latest filed Closure Plan

## **9.5 Buildings and Infrastructure**

No change from latest filed Closure Plan

## **9.6 Machinery, Equipment and Storage Tanks**

No change from latest filed Closure Plan

## **9.7 Transportation Corridors**

No change from latest filed Closure Plan

## **9.8 Concrete Structures**

No change from latest filed Closure Plan

## **9.9 Petroleum Products, Chemicals and Waste**

No change from latest filed Closure Plan

## **9.10 Polychlorinated Biphenols (PCB's)**

No change from latest filed Closure Plan

## **9.11 Waste Management Sites**

No change from latest filed Closure Plan

## **9.12 Contaminated Soils**

No change from latest filed Closure Plan

## **9.13 Tailings Areas**

No change from latest filed Closure Plan

## **9.14 Waste Rock and Stockpiles**

No change from latest filed Closure Plan

## **9.15 Tailings, Water and Other Impoundment Structures**

No change from latest filed Closure Plan

## **9.16 Decant Structures**

No change from latest filed Closure Plan

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## **9.17 Watercourses**

No change from latest filed Closure Plan

## **9.18 Re-vegetation**

No change from latest filed Closure Plan

## **9.19 Schedule**

No change from latest filed Closure Plan

## 10 MONITORING

No change from latest filed Closure Plan

## 11 EXPECTED SITE CONDITIONS

No change from latest filed Closure Plan

## 12 COST ESTIMATE

### 12.1 Summary of Work Packages

No change from latest filed Closure Plan

### 12.2 Shaft and Raises

#### Macassa

On the Macassa property, there will be eight caps replaced in Year 0 at a cost of \$318,977 and one shaft depression will be backfilled. Cap costs are calculated based on size and installation with the bulk of the costs due to the installation. Replacement costs for caps have also been included in Year 100.

### 12.3 Adit and Decline Portals

No change from latest filed Closure Plan

### 12.4 Mine Openings

No change from latest filed Closure Plan

### 12.5 Mine Workings

No change from latest filed Closure Plan

### 12.6 Buildings and Infrastructure

No change from latest filed Closure Plan

### 12.7 Machinery, Equipment, and Tanks

No change from latest filed Closure Plan

### 12.8 Transportation Corridors

No change from latest filed Closure Plan

### 12.9 Concrete Structures

No change from latest filed Closure Plan

## **12.10 Petroleum Products, Chemicals, and Waste**

No change from latest filed Closure Plan

## **12.11 PCBs**

No change from latest filed Closure Plan

## **12.12 Waste Management Sites**

No change from latest filed Closure Plan

## **12.13 Contaminated Soils**

No change from latest filed Closure Plan

## **12.14 Tailings Impoundment Areas**

No change from latest filed Closure Plan

## **12.15 Waste Rock and Stockpiles**

No change from latest filed Closure Plan

## **12.16 Tailings, Water, and Other Impoundment Structures**

No change from latest filed Closure Plan

## **12.17 Decant Structures**

No change from latest filed Closure Plan

## **12.18 Watercourses**

No change from latest filed Closure Plan

## **12.19 Revegetation**

The re-vegetation effort will be carried out in Year 1 once demolition is completed. This emergency egress road covers approximately 700 m<sup>2</sup>. For this re-vegetation, the estimate carries approximately \$637 for seeding and touch-ups for all areas at a rate of \$0.91 per m<sup>2</sup>.

## **12.20 Re-vegetation**

No change from latest filed Closure Plan

## **12.21 Engineering**

No change from latest filed Closure Plan

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## **12.22 Monitoring**

No change from latest filed Closure Plan

## **12.23 Short-term Care**

No change from latest filed Closure Plan

## **12.24 Long-term Care**

No change from latest filed Closure Plan

## **12.25 Miscellaneous**

No change from latest filed Closure Plan

## 13 FINANCIAL ASSURANCE

### 13.1 Form and Amount of Financial Assurance

Ontario Regulation 240/00 requires that closure plans specify the form and amount of financial assurance to be provided by a proponent. The amount of financial assurance in the filed closure plan is \$13,276,652.

This scoped amendment pertaining to the near surface portal emergency egress will increase the overall financial assurance by \$40,614.

In addition, there is outstanding financial assurance for the near surface portal of \$35,769, which was approved by NDMNRF in 2020.

This results in a total additional financial assurance of \$76,383 that will be provided by KL Gold in the form of a rider. The total financial assurance held by NDMNRF will be \$13,353,035.

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## 14 CONSULTATION WITH ABORIGINAL PEOPLES

No change from latest filed Closure Plan

# Appendix XIII

## Cost Estimate

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## Kirkland Lake Gold - Closure Plan Amendment - Cost Estimate

KCB Opinion of Probable Costs			
	Year	2053	2054
	Years in Future	32	33
<b>12.2 Shafts and Raises</b>			
12.2.1 Macassa			
	No. 3 Shaft Cap	-	-
	Drop Raise Cap	-	-
	No. 1 Shaft Cap	-	-
	No. 2 Shaft Cap	-	-
	No. 4 Shaft Cap	-	-
	No. 4 shaft Vent raise	-	-
	Elliot Shaft Cap	-	-
	Near Surface Portal Emergency Egress	-	-
12.2.2 Lakeshore			
	No.1 Shaft Cap	-	-
	Shopping Mall West Raise (207W Raise) Cap	-	-
	Shopping Mall Raise 1 (West Raise) Cap 1 (Rehabilitated)	-	-
	Shopping Mall Raise 1 (West Raise) Cap 2 (Rehabilitated)	-	-
	Shopping Mall Raise 2 (East Raise) Cap (Rehabilitated)	-	-
	200 Vent Raise Cap	-	-
	200 Sand Pass Raise Cap	-	-
	201 Sand Pass Raise Cap	-	-
	No. 5 Shaft Cap	-	-
	No. 3 Shaft Cap	-	-
	205 Vent Raise Cap	-	-
	Minaer Shaft Cap	-	-
12.2.3 Teck-Hughes			
	Central Shaft Cap (Rehabilitated)	-	-
	South Shaft Cap	-	-
12.2.4 Kirkland Minerals			
	No. 2 Central Shaft Cap	-	-
	Vent Raise Cap	-	-
12.2.5 Other Areas			
	Amalgamated Kirkland No. 1 Shaft Cap	-	-
	Morgan Shaft Cap	-	-
12.2.6 Backfill Openings			
	Backfill for shaft, adit, decline, and working requirements (12 Hazards Rehabilitated)	-	-
<b>12.3 Adits and Decline Portals</b>			
12.3.1 Macassa			
	No. 3 Shaft Adit Cap	-	-
	Near Surface Portal (Decline Ramp)	-	-
<b>12.4 Mine Openings</b>			
12.4.1 Macassa			
	Blast Quarry Walls to 1H:1V	-	-
	Quarry	-	-
	Quarry	-	-
<b>12.5 Mine Workings</b>			
12.5.1 Lakeshore			
	Site Preparation	-	-
	Hydraulic Structure Between Lakeshore and Eastmaque (2,900 m <sup>3</sup> of material dredged)	-	-
	Flood control berm	-	-
	Fence Removal (1,900 m)	-	-
	Backfill 207W stope at mall (Rehabilitated)	-	-
12.5.2 Teck-Hughes			
	Fencing Installation and Replacement	-	-
	Fencing Maintenance	5,000	5,000
<b>12.6 Buildings and Infrastructure</b>			
12.6.1 Building Decommissioning - Lump Sum (see Appendix X)			
	Central Lab Decommissioning	-	-
	No.4 Shaft Headframe Decommissioning	-	-
	No.4 Shaft Hoistroom and Ancillary Infrastructure Decommissioning	-	-
	Core Shack Expansion Decommissioning	-	-
	Shop Expansion Decommissioning	-	-
	Thickened Tailings Plant	-	-
	Paste Plant Expansion	-	-
<b>12.7 Machine and Fixed Equipment Scrapping Costs - Lump Sum</b>			
<b>12.8 Transportation Corridors</b>			
12.8.1 Scarpify and revegetate			
12.9 Concrete Structures (included in 12.5)			
<b>12.10 Petroleum Products, Chemicals and Waste</b>			
12.10.1 Fuel, oil, and ETP chemical removal			
12.11 PCBs (none)			
<b>12.12 Waste Management Sites</b>			
12.12.1 Removal of underground tanks and pumps from septic system			
<b>12.13 Contaminated Soils</b>			
12.13.1 Contaminated Soils Study			
<b>12.14 Tailings Impoundment Areas</b>			
12.14.2 Macassa Upper and Lower Tailings Basin			
	Clearing and Grubbing	-	-
	Dam Recontouring- (rockfill buttress constructed)	-	-
	Outlet Works	-	-
	Re-Vegetation	-	-
12.14.3 Kirkland Mineral Tailings			
	Clearing and Grubbing	-	-
	Dam Recontouring	-	-
	Re-vegetation	-	-
12.14.4 Macassa North Tailings Storage Facility			
	Active Closure (Decant water return line and seepage collection operation)	-	-
	Spillway Widening	-	-
	Pipeline Removal	-	-
	Tailings Recontouring and Water Management	-	-
	Access Road Removal, Ditching Changes, and Arch Culvert Removal	-	-
	Re-vegetation	-	-
<b>12.15 Waste Rock and Stockpiles (included in 12.20.1)</b>			
<b>12.16 Tailings, Water, and Other Impoundment Structures</b>			
12.16.1 Macassa			
	Decant Structures (included in 12.14 and 12.16)	-	-
	Watercourses (included in items where applicable)	-	-
<b>12.19 Re-vegetation</b>			
12.19.1 Macassa			
12.19.2 Near Surface Portal Emergency Egress Access Road			
<b>12.20 Engineering</b>			
12.20.1 Physical Stability Monitoring			
	General Engineering (15% of NPV for Closure Work) - Credit given to rehabilitated items	-	-
<b>12.21 Monitoring</b>			
12.21.1 Surface Water			
12.21.2 Groundwater			
12.21.3 Biological			
12.21.4 Physical Stability - Structural			
12.21.5 Physical Stability - Dam Safety	12,000	12,000	
12.21.6 Physical Stability - Shaft Cap Monitoring			
<b>12.22 Short-Term Care</b>			
12.22.1 Maintain Roads, Ditches, Spillways, Operate WWTP, Maintain Tailings Dam Slopes, beaver dam removal			
<b>12.23 Long-Term Care</b>			
12.23.1 Same as short term care		11,000	11,000
<b>12.24 Miscellaneous</b>			
12.24.1 Annual Reports to MENDM		5,000	5,000
12.24.2 Decommissioning Electrical Costs		-	-
12.24.3 Lump Sum to Support Lease Reversion Back to Crown		-	-
12.24.4 Clay Placement on Closure Lake		-	-
<b>Total</b>		<b>33,000</b>	<b>33,000</b>

Kirkland Lake Gold - Closure Plan Amendment - Cost Estimate

Table with columns for 'KCB Opinion of Probable Costs', 'Year' (2055-2088), and rows for various cost categories like 'Shafts and Raises', 'Buildings and Infrastructure', 'Machine and Fixed Equipment Scrapping Costs', etc.

