AFRICAN GOLD GROUP INC.

Kobada Property
Mali

Preliminary
Economic Assessment

BUMIGEME INC.
615 René-Lévesque Blvd West, Suite 750
Montréal, Québec
Canada H3B 1P5

Telephone: (514) 843-6565« ***E-mail: fbaril@bumigeme.com*** ***Fax: (514) 843-6508***

July 13,2011

TABLE OF CONTENTS

Page

1. INTRODUCTION 1
1.1 TERMS OF REFERENCE 1
1.2 LOCATION AND ACCESS 1
1.3 PREVIOUS WORK 2

2. GEOLOGY 3
2.1 INTRODUCTION 3
2.2 GEOGRAPHIC DATA 3
2.3 HARDWARE SOFTWARE 4
2.4 KOBADA MAIN GOLD ZONE 5
2.5 FIELD VISIT 5
2.6 HOLE KB07-050 OBSERVATION 6
2.7 RESOURCE CALCULATIONS 6
2.8 DISCUSSION 9
2.9 CONCLUSION 10

3. MINING 11
3.1 INTRODUCTION 11
3.2 PIT PARAMETERS 11
3.3 ULTIMATE PIT GEOMETRY 12
3.4 PIT DESIGN 13
3.5 CALCULATION OF IN PIT RESOURCES 14
3.6 DATA VALIDATION 27
3.7 DILUTION 28
3.8 PRODUCTION RATE 29
3.9 MINING EQUIPMENT 30
3.10 OPEN PIT INVESTMENT 31
3.11 OPEN PIT OPERATING COSTS 33

4. MINERAL PROCESSING AND METALLURGICAL TESTING 35
4.1 METALLURGICAL TESTING AT SGS LAKEFIELD 35
4.2 PROCESS DESIGN CRITERIA 37
4.3 PROCESS DESCRIPTION 39

5. INFRASTRUCTURES 47

6. HYDROLOGY 48

7. ENVIRONMENT 49

8. PROJECT DEVELOPMENT SCHEDULE 50

9. CAPITAL COST ESTIMATE 52
9.1 CONCENTRATOR CAPITAL INVESTMENT 52
9.2 INFRASTRUCTURES AND SERVICES 54
9.3 PERSONNEL ACCOMMODATIONS 55

10. OPERATING COST ESTIMATE 56
10.1 CONCENTRATOR OPERATION COSTS 56
10.2 LABOUR 56
10.3 MILL SUPPLIES AND MAINTENANCE COSTS 59
10.4 ENERGY 60
10.5 SUMMARY OF OPERATING COST OF THE CONCENTRATOR 62

11. ADMINISTRATION AND SERVICES 63
11.1 SALARY 63

12. PERSONNEL ACCOMMODATIONS OPERATING COST 66

13. SUMMARY OF CAPITAL COSTS (CAPEX) 67

14. SUMMARY OF OPERATING COSTS (OPEX) 68
14.1 SUMMARY OF OPERATING COST AT YEAR 6 AND AFTER. 68

15. PROJECT ECONOMICS 69
15.1 BASE CASE 69
15.2 SENSITIVE ANALYSIS 69

16. CONCLUSIONS AND RECOMMENDATIONS 71
16.1 PROJECT UPSIDE 71
16.2 RECOMMENDATIONS 71

17. CERTIFICATES OF AUTHORS AND CONSENTS 73

APPENDICES

APPENDIX A Spread Sheet Tables with detailed resource calculation
APPENDIX B Polygon Block with Gold Grade
APPENDIX C List of Main Equipment and Cost
APPENDIX D List and Cost of Laboratory Equipment and Supplies
APPENDIX E Spread Sheets of the Cash Flow – IRR vs Operating Cost Variation
APPENDIX F Spread Sheets of the Cash Flow – IRR vs Gold Prices Variation

TABLE OF CONTENTS (con'd)

Page

LIST OF TABLES

Table 1 Inferred Mineral Resources Kobada Project, Mali (WGM, 2008) 2
Table 2 Geological Results (received from Mr. Marchand) 11
Table 3 Overall Pit Inventory (Metric Tons and Average Grade) 26
Table 4 Relation Between Cut-Off Grade and average grade 27
Table 5 Overall Pit Inventory, after Dilution (Metric Tons and Average Grade) 28
Table 6 Production Rate 29
Table 7 Auxiliary Equipment Sizing and Selection 31
Table 8 Open Pit Mining Equipment and Auxiliaries 32
Table 9 Infrastructures and Maintenance Facilities 32
Table 10 Open Pit Capital Expenditure 33
Table 11 Manpower Requirement for Mining Operations 33
Table 12 Open Pit Mine Mobile Equipment Operating Cost 34
Table 13 Summary of Open Pit Mine Operating Cost 34
Table 14 EGRG Test Result Summary 36
Table 15 Gold Recovery in Cyanide Leach Tests 37
Table 16 Design Criteria 38
Table 17 Summary of the Capital Cost of the Concentrator (initial investment) 52
Table 18 Summary of Infrastructures and Services Capital Investment 55
Table 19 Manpower Requirement for the Concentrator 56
Table 20 Manpower Requirement for Laboratory 57
Table 21 Manpower Requirement for Maintenance 57
Table 22 Manpower Requirement for Expatriates Personnel 58
Table 23 Summary of Mill Supplies and Maintenance 60
Table 24 Energy Costs 62
Table 25 Concentrator Operating Cost 62
Table 26 Administration Personnel Salary 63
Table 27 Mining Camp Personnel Salary 64
Table 28 Operating Costs for Services 64
Table 29 Summary of Operating Costs 65
Table 30 Personnel Accommodations Operating Cost 66
Table 31 Summary of Capital Costs (CAPEX) 67
Table 32 Summary of Operating Costs (OPEX) 68
Table 33 Base Case Economics 69
Table 34 IRR vs Operating Cost Variation 70
Table 35 IRR vs Gold Price 70

TABLE OF CONTENTS (con'd)

Page

LIST OF FIGURES

Figure 1 Final Pit Design 15
Figure 2 Open Pit East View 16
Figure 3 Open Pit West View 17
Figure 4 Pit Elevation 380 18
Figure 5 Pit Elevation 360 19
Figure 6 Pit Elevation 340 20
Figure 7 Pit Elevation 320 21
Figure 8 Pit Elevation 300 22
Figure 9 Pit Elevation 280 23
Figure 10 Pit Elevation 260 24
Figure 11 Pit Elevation 240 25
Figure 12 Correlation Between the Cut Off Grade and the Average Grade 27

1. INTRODUCTION

1.1 TERMS OF REFERENCE

The Preliminary Economic Assessment of the Kobada permit is to evaluate the upside and economic potentials for a mining operation with a gravity gold recovery plant. The consulting group Bumigeme Inc. was commissioned to assemble the study, and was responsible for the mine concepts, the plant preliminary design and tailings disposal system along with process water supply. The plant design is based on gravimetric testing performed by SGS Lakefield in 2009 and 2010 for an arm's length mining company.

The study was done during the last quarter of 2010 and first quarter of 2011 and the economics are based on capital and operating costs estimated in Canadian dollars of Q1 2010 with exchange rates of C$ = 450 CFA and C$ = US$1.03.

The geological section of this report was written by an independent geological engineer Mr. Jacques Marchand, based on technical information provided by African Gold Group Inc. and a site visit from February 11 to 15, 2011.

No geotechnical studies were undertaken by Bumigeme nor was there any hydrology survey done of the area. The rain fall data was collected from Bumigeme's files for projects in this area as well as the Malian taxation system and the price of current commodities including fuel.

Wages for labour were taken from actual practice by Bumigeme, that is during field work related to the construction of a mining project in the area.

Cash flow and financial analysis are for a base case project with gold at US$1,100/oz and with sensitivity analysis at US$900, 1,000, 1,200 and 1,450 (second week of April 2011).

1.2 LOCATION AND ACCESS

The Kobada permit is located south west of Bamako approximately four hours drive from the capital. The road is paved from Bamako to Selingue and beyond Selingue there is a laterite surface in need of major upgrading and one bridge to be constructed over the Fie River for two hundred meters with the road bed raises at least 2 meters for 500 meters on each side (flood plain). The access to the mine site can be interrupted for 2 or 3 weeks per year because of flooding.

Material and equipment for project construction and mine operation will be shipped by boats to the Senegalese port of Dakar or Ivory Coast and then transported by road to the mine site.

1.3 PREVIOUS WORK

The area of Kobada has been the site of numerous exploration campaigns.

Since its acquisition by African Gold Group Inc., Zone 1 of the 41 km² Kobada Permit (arrêté A05-3065) has seen RC and diamond drilling activities. In 2008, WGM of Toronto prepared a N1-43 101 compliant inferred resources calculation (See Table 1 below).

Table 1
Inferred Mineral Resources
Kobada Project, Mali (WGM, 2008)

		No Assay Cutting		Assays Cut to 10 g Au/mt	
Cut-off Grade (g Au/mt)	**Tonnage (10^3 mt)**	**Avg Grade (g Au/mt)**	**Contained Ounces**	**Avg Grade (g Au/mt)**	**Contained Ounces**
0.3	18,381	1.25	738,080	1.11	657,386
0.5	8,482	1.99	542,804	1.72	470,461
1.0	5,569	3.02	540,933	2.53	452,320

In the fall of 2009, an arm's length mining company drilled and sampled the property and a 287 kg of RC cuttings representing the oxidized portion of the deposit were shipped to SGS-Lakefield (Ontario), for metallurgical research testing. The results from SGS-Lakefield have indicated that this oxidized ore (saprolite) responds very well to gravimetric treatment as well as to the cyanidation process.

2. GEOLOGY

This section has been prepared by Mr. Jacques Marchand, an independent geological engineer and a qualified person (QP).

Summary

For this PEA study, an evaluation of the resources contained in the Kobada deposit was undertaken by the independent geological engineer Mr. Marchand.

Using the horizontal polygon block method, the current calculation for the first 100 m of vertical depth has given the following at a cut-off grade of 0.10 g/t: 56,305,405 mt containing an average of 0.50 g/mt and a total of 902,797 ounces of gold. These resources are considered as "inferred".

2.1 INTRODUCTION

In relation to the resources calculation, the author (Mr. Marchand) has visited the property between the 11 and the 15 of February 2011. For this visit Mr. Marchand was accompanied by Dr. Kevin Downing, DSC Geo., Vice-President Exploration for AGG and on the last day by Mr. Michael A.J. Nikiforuk, President of AGG and Mr. Pierre Lalande, Geol., Director of AGG.

A day and a half was spent visiting the entire area of the Kobada main deposit, the new trenches made in 2010 and the visit to the north zone of the Kobada permit. The hole KB07-050 (core) has been observed. Other days were spent revising the database with Gilead Mushaija in charge of the data management at Kobada and then a first rough estimate of the resource was produced.

In addition, all the data available on AGG server was reviewed:

ftp://africangoldgroup.exavault.com

2.2 GEOGRAPHIC DATA

Datum:	UTM WGS 84 Zone 29
Actual magnetic declination:	5°21'W
Geoids' elevation:	31.371m
UTM azimuth:	359.917°

2.3 HARDWARE SOFTWARE

Apple, **MacBook Pro** (2008) on **Mac OS** 10.6.6; Microsoft **Excel** for calculation; Microsoft **Word** for text and report; **MapInfo**, **Discover**, **Vertical Mapper** and **Global Mapper** on **Windows XP** under the **Parallels** virtual environment, for the treatment of the georeferenced data, the sections and the gridding of the mineralization. **BaseCam** processed the **Garmin GPSmap76CSx** data and the **Canon S9** photos georeferences. All data are stored and transferred as GPX files and photos are post processed and stored in **iPhoto**.

2.4 KOBADA MAIN GOLD ZONE

Geographic	11°39'31" N 8°35'12" W
UTM	545047 m E 1288843 m N

The known dimension of the main gold zone is estimated to 70 m wide by 1.7 km long in a NNE direction and is strongly dipping to the ESE. The main part of the zone is known down to the elevation of 240 m.

According to Dr. Downing the gold is concentrated mainly within quartz gash veins running 270° with an abrupt dip mainly to the north inside the NNE structure. Other low mineralized quartz structures are running 20°/75° and others are flat.

2.5 FIELD VISIT

A field visit with Dr. Downing, of the main mineralized area permitted the observation of trenches, drilling locations and outcrops within an area of 8 km².

Geological mineralogical and structural observations were made and discussed.

A track log and waypoint verification of trenches and DDH localization was done.

Database Data vs Author Handheld GPS

Drillings	UTMx	UTMy	Elev	UTMx	UTMy	Elips Elev.	Δx	Δy	Δz
RPA10-064	54 5369	1 289 245	400	54 5373	1 289 242	409	4	-3	9
RPA10-050A	54 5374	1 289 164	400	54 5374	1 289 162	414	0	-2	14
RPA10-034	54 5118	1 289 017	403	54 5120	1 289 009	396	2	-8	-7

2.6 HOLE KB07-050 OBSERVATION

This cored diamond drill hole was drilled with an azimuth of 290 at an angle of -55°. It cuts about 7m of iron crust followed by 80m of saprolite. This is followed by about 120m of transition zone with several meters wide gold mineralized stockwork of quartz veins, bordered by hard iron bearing wall rocks. The fresh rock is a fine-grained graywake with 20% of hematite pseudo morph after coarse pyrite crystals; foliation is fine and at 30°AC. Some gold bearing quartz veins are surrounded by a dissemination of 25% altered pyrite crystals.

The saprolite shows in places up to 5% vesicular or nodules of hematite; this seems to be related to the alteration of the pyrite.

2.7 RESOURCE CALCULATIONS

Premise

There is no complete fully integrated drilling database; collar, survey, geological assays. The majority of drill information is available in an Excel spreadsheet but the entire data base needs to be completed and include commented and observations.

From the different databases, there is no constant nomenclature for the geology of the regolith and the protolith, but the work is progressing in this area.

Verification with different data has shown large differences especially in the elevation but also in the geological description; All_Drill_Collars.xls is not conforming to WGM data used for their resource calculation. It is also different from SWRPA's Export_COLLAR_copy.xls.

There is considerable difference in the DDH elevation reported by different exploration campaigns, up to 40 m in certain cases. There is no topographic survey to rectify the variances.

The new knowledge of the main mineralized structure was not consolidated in a report following the 2010 drilling. In fact there is no 2010 drilling report, just a database.

The Author understands:

That the evaluation was done in view of a scoping study for the economic evaluation of the project;

That the resource calculations will be performed for the oxide part of the body which is located between the lateritic crust surface and the transition zone to the fresh rock. This unit covers approximately the -10 to -120 m interval below the surface.

That for the mining reserve calculations the underline fresh rocks down to the 240m level will be included.

That the mining methodology under investigation is by open pit with gravimetric concentration of gold.

Methodology

To speed the process, we used the horizontal polygon block estimate.

The parameter settings used for the calculation are:

All DDH elevations are reset to 400 m;

Average grade is weighted over 20 m vertical related to the topographic interval.

No sample individual grade cutting is applied.

The lower part of the interval is used for the center of the block.

The grade of 0.1 g/t Au is used to define the mineralized envelope of the deposit.

External horizontal influence of the grade interval is limited to 40 m.

Polygon vertical influence is set to 20 m.

The specific gravity used is 1.9 g/m^3, which represents a 30/70 compromise between quartz at 2.5 (used by WGM) and saprolite at 1.6 (AGG internal test report from trenches).

Results

The average horizontal radius influence of an average grade interval, as define by a Voronoi polygon, is 25 m.

Table of Results for the First 160 m of Depth

Interval	Block Cut g/t	mt	Grade g/mt	Ounce	900$	% mt	%Ounce	$/mt
240-400	0.00	166,955,780	0.22	1,188,416	1,070 M	100%	100%	6.41
240-400	0.10	71,211,336	0.48	1,092,657	983 M	43%	92%	13.81
240-400	0.30	36,133,759	0.77	893,149	804 M	22%	75%	22.25
240-400	0.50	19,167,747	1.12	688,961	620 M	11%	58%	32.35

As a comparison we present the Watts, Griffis and McOuat Limited, 2008, 1 g Au/t grade shell, high-grade zone resource calculations by Indicator Kriging block method to 275 m of vertical depth. These evaluations covered about the same strike-length area of the current estimation:

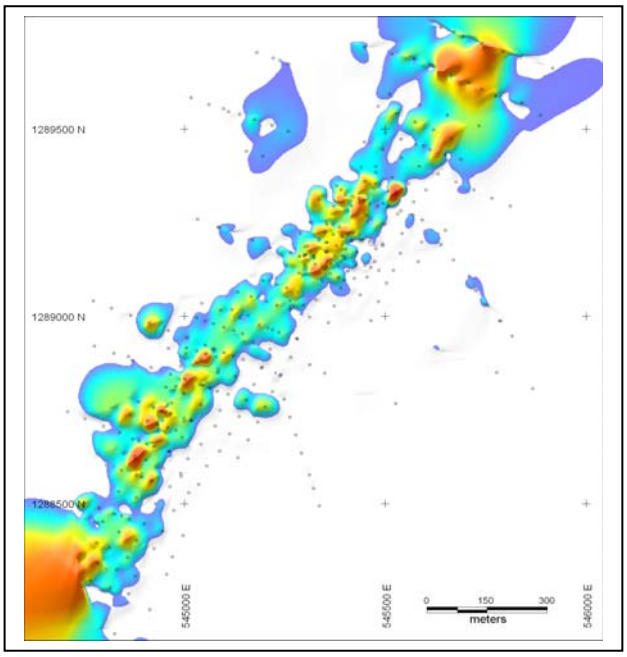
WGM	Cutting Grade Au g/mt	Ton	Grade Au g/mt	Ounce
No Interval	0.30	18,381,000	1.25	738,080
No Interval	0.50	8,482,000	1.99	542,804
No Interval	1.00	5,569,000	3.02	540,933

We also present the current calculation for the first 100 m of vertical depth to compare to the Watts, Griffis and McOuat Limited total depth calculation above:

Interval	Block Cut g/mt	Metric Tons	Grade g/mt	Ounce	900$	%mt	%Ounce	$/mt
300-400	0.00	132,368,519	0.23	976,893	879 M	100%	100%	6.64
300-400	0.10	56,305,405	0.50	902,797	813 M	43%	92%	14.43
300-400	0.30	29,412,238	0.79	750,473	675 M	22%	77%	22.96
300-400	0.50	16,041,398	1.14	590,492	531 M	12%	60%	33.13

2.8 DISCUSSION

Outline of the > 0.1 g/mt Au for the Kobada main zone.



The sulfides seem to be omnipresent around the mineralized zone either as pyrite in fresh rock, or altered as hematite pseudo morph in the saprolite or in hard iron bearing rocks in the walls of quartz veins.

The horizontal polygon method used here appeared adapted to the methodology proposed for the mining, as it will buffer the down grading effect of the oblique interception of most holes, but also will average the grade intrinsic preferred orientation.

There is a mineralization slight shift to the east below the 340 m elevation mark on the north part and below the 320 m in the south area. This might indicate a rake in the mineralization. Passing the 300 m level the mineralization is narrowing, indicating the passage to fresh rock and the absence of gold wall dispersion in the sulfide part of the body. In surface, the gold presents its most extended dispersion concordant to the interface, between the saprolite and the iron duricrust. The West trending of mineralized veins is perceptible in some area that shows a series of westerly trending mineralized blocks.

From the actual information, it will be necessary to recertify and completely restructure the drilling database. We verified that the complete revision is actually done by individuals that are in charge of the database.

From the Author's point of view, it appears that the elevation difference could be caused in part by the use of the ellipsoid height (handheld GPS) versus the orthometric (means sea level) data (surveyor or differential GPS special setting). This was clearly visible for the WGM GPS verification; WGM used the orthometric value that is 31 m lower than the AGG base which uses the GPS geoid elevation.

Considering the DDH elevation uncertainty previously mentioned, the Author's control, of three 2010 holes, has revealed a horizontal imprecision of around 5 m and about 10 m in elevation. This is a normal reproducibility error with handheld GPS. No specific holes from the problematic previous surveys were observed.

Considering the use of 20 m benches and the elevation problem the resource should be defined as ''Inferred''. This might be modified to ''Indicated'' by knowing the exact contour of the grid, by reducing the benches to 5 m and by having a topographic survey. Then it can be past to Measure by a better control of the grade from bulk sample and a comparison between different methods of analyses with different weights, to understand the already observed nugget effect.

2.9 CONCLUSION

The mineralized body is a kilometer long hectametric wide stockwork of decimetric quartz veins oriented to the NNE. From our current knowledge relative to the surface and to the drill information, the mining should be done by open pit and it will be very difficult to high-grade different sections.

For a rapid evaluation the Author has used an average 25 m radius influence, 20 m bench down up extension polygon method, considering that it will be efficient for the scoping study purpose. This method should compensate the lowering grade effect caused by the drill holes that are mostly sub parallels to the main mineralized structure, but the method is highly influenced by the elevation data and can also possibly slightly over estimate the grade.

The method used resulted in the definition of 0.9 M ounces of gold from 56 M metric tons at 0.5 g/mt Au in the saprolite horizon from the surface to 100 m deep.

Considering the use of 20 m benches and the elevation problem, the resource should be defined as ''Inferred''.

3. MINING

This section was prepared in collaboration with Gesmine, an engineering firm who specializes in pit design and mining ore reserves calculation.

3.1 INTRODUCTION

The project is located in the Birimian Greenstone Belt. Available geological information for nearby projects or mining operations (Siguiri, Kalana), indicates that the project is located in a peneplain plateau at an altitude of 400 to 450 meters above sea level (MASL), underlain by lateritic duricrust. Intermediate lateritic plateaus at elevation of 330 to 400 MASL are developed throughout the area. With this information and knowing that no surface topography was provided, Gesmine did not visit the site and considered a horizontal plan as a surface topography.

Eight (8) horizontal plans were received from AGG and Mr. Marchand, from 240 m to 380 m. Distance between plans is 20 m. The geological interpretation was projected to the bottom. That means that the average block size and grade for the 380 level represents the block from 380 m to 400 m. Consequently, the thickness of the overburden is zero or neglected for the resources estimate. The same will apply for the pit design. (see Table 2).

Table 2
Geological Results
(received from Mr. Marchand)

Levels	Cut (g/mt)	Tonnage	Grade (g/mt)	Ounces (1000)	Categories
240-400	0	166,955,780	0.22	1,188	Resources
240-400	0.1	71,211,336	0.48	1,093	Resources
240-400	0.3	36,133,759	0.77	893	Resources
240-400	0.5	19,167,747	1.12	689	Resources

These resources have been classified as inferred by the geologist.

3.2 PIT PARAMETERS

The parameters of the proposed pit are dictated mainly by the wall geometry and the production rate. The wall geometry depends on the geotechnical behaviour of the rock. Gesmine did not conduct any geotechnical study. The assumptions used in this report are based on the geology. The planned pit will have a depth of 160 m, in a saprolitic formation which does not require blasting, according to Bumigeme. Weathering can affect the wall angles.

From the available information, it is suggested here, before the geotechnical study, to consider the following configuration:

bench height:	10 m
ramp width:	18 m
ramp grade:	10%
berm width:	5 m
berm frequency:	every 20 m;
minimum working space required:	50 m;
bench face angle:	71°.
Overall pit angle:	Overall pit angle taking into account berms and one ramp access is about 36°. For more details, please see the final pit views at figures 2 and 3.

3.3 ULTIMATE PIT GEOMETRY

The ultimate pit geometry is mainly governed by the following factors: the geotechnic, the stripping ratio and the cut-off grade. Assumptions have been taken by Gesmine, regarding these factors.

3.3.1 Geotechnic

Geotechnic dictates the angle of the pit; no study has been made to date. Wall angles have been selected according to the general practice in similar rock type. It is reasonable to consider a face bench angle of 71°. The face angle represents the angle of one bench, not to be confused with the overall pit angle. This is detailed above.

3.3.2 Stripping Ratio

The stripping ratio represents the number of tonnes of waste to be removed in order to extract one ton of ore at a profit. This is governed by the grade of the ore, the price of the commodity, the capital expenditure and the operating cost.

3.3.3 Cut-Off Grade

The cut-off grade is the grade (g/mt) below which it is not economical to mine a block of ore. This might be because the grade of the block is too low, the amount of waste associated to the block is too high, the price of the commodity is too low or the

operation cost is too high. Three scenarios have been envisaged by Gesmine and Bumigeme:

Small pit with cut-off grade:	0.4 g/mt
Expanded pit with cut-off grade:	0.4 g/mt
Expanded pit with cut-off grade:	0.2 g/mt

The actual commodity price and the low stripping ratio allow to test these hypothesis. The first scenario was discarded because of the very low tonnage of ore, which will not support the initial investment.

Scenario 2 gave a pit shell near 15.6M mt of resources, grading 0.89 g/mt and a stripping ratio of 1.83 before dilution. Quick economic analysis shows that this scenario might be economically viable.

Scenario 3 gave a pit shell with nearly 40M mt of resources, grading 0.67 g/mt and a stripping ratio of 1.79 before dilution. Quick economic analysis shows that this scenario is far better than the previous one. This study will therefore be conducted using this scenario.

3.4 PIT DESIGN

The three above cited criteria (geotechnic, stripping ratio and cut-off grade) combined into the estimation model will help identify an optimized pit shell.

Geological interpretation was performed on horizontal plans. Gesmine received eight (8) horizontal plans spaced 20 m on Z coordinate, from level 240 to level 380. On each level plan, an interval grade was assigned to each polygon.

From the preliminary information, Gesmine suggests to mine the ore body by open pit method. Bench height will be 10 m.

Therefore, intermediate levels (10 m) were created between the provided levels (20 m). The intermediate levels will keep the same attributes (grade and polygon) as the provided levels.

Gesmine received two different geological interpretations. For the first one, each block was assigned an interval of grade, e.g. between 0.1 and 0.3 g/mt. In order to run the optimization, each block has been assigned the average grade, e.g. 0.2 g/mt as in the previous example. The optimized pit gave an overestimated grade.

For the second one, Gesmine received a new geological interpretation giving a specific grade for each block, e.g. 0.18 g/mt. The new data gave an optimized pit with more consistent results. These results are presented here.

The final pit design has a depth of 160 m with the bottom at 240 m. The dimensions at the surface are approximately 1,940 m by 470 m. The overall volume is estimated at 58 million cubic meters and the overall tonnage at 111 million tonnes.

3.5 CALCULATION OF IN PIT RESOURCES

The in pit resources have been calculated taking into consideration the above open pit parameters, the cut-off grade and the break-even strip ratio. Given the preliminary nature of this study, all the in pit resources have been considered in the economic assessment of the project. Gesmine did not breakdown the resources into different categories (measured, indicated and inferred).

The pit trace was designed on each plan, respecting the cut-off grade and the stripping ratio. The final pit design is presented in Figure 1. Figures 2 and 3 present east and west views. Figures 4 to 11 present eight plans level of the pit.

Figure 1
Final Pit Design

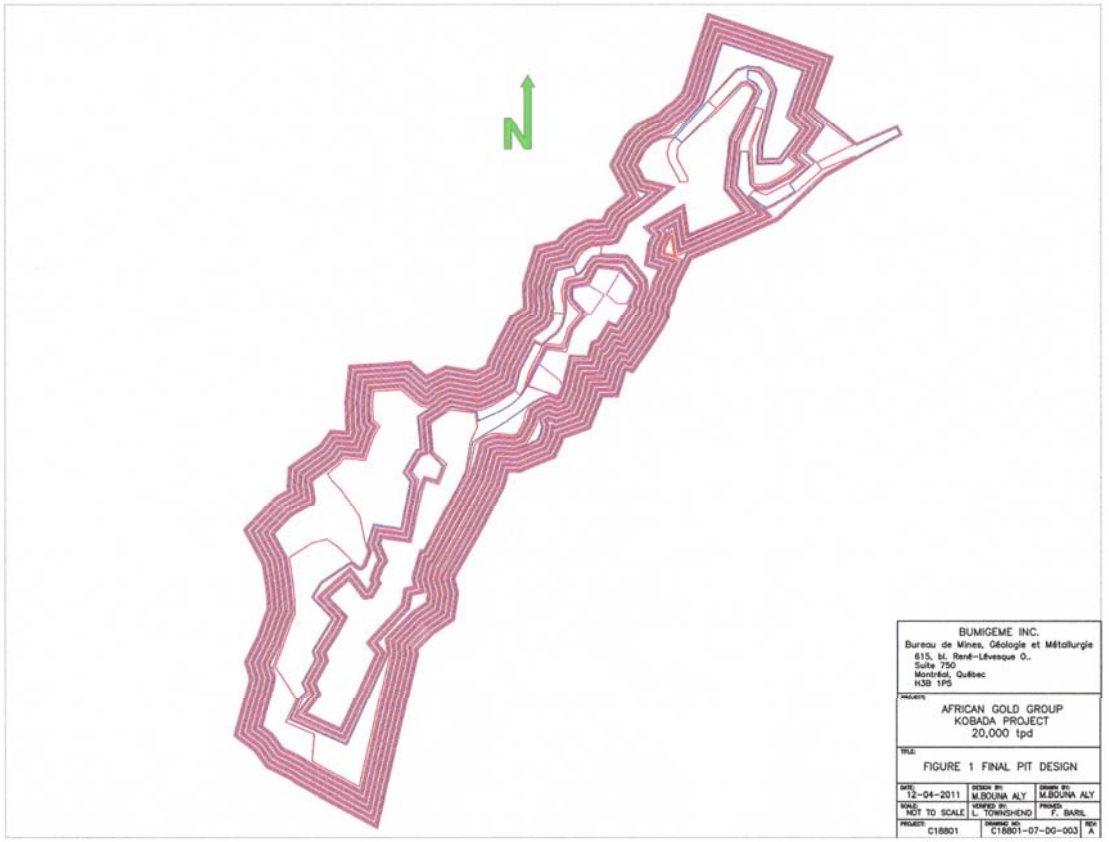


Figure 2
Open Pit East View

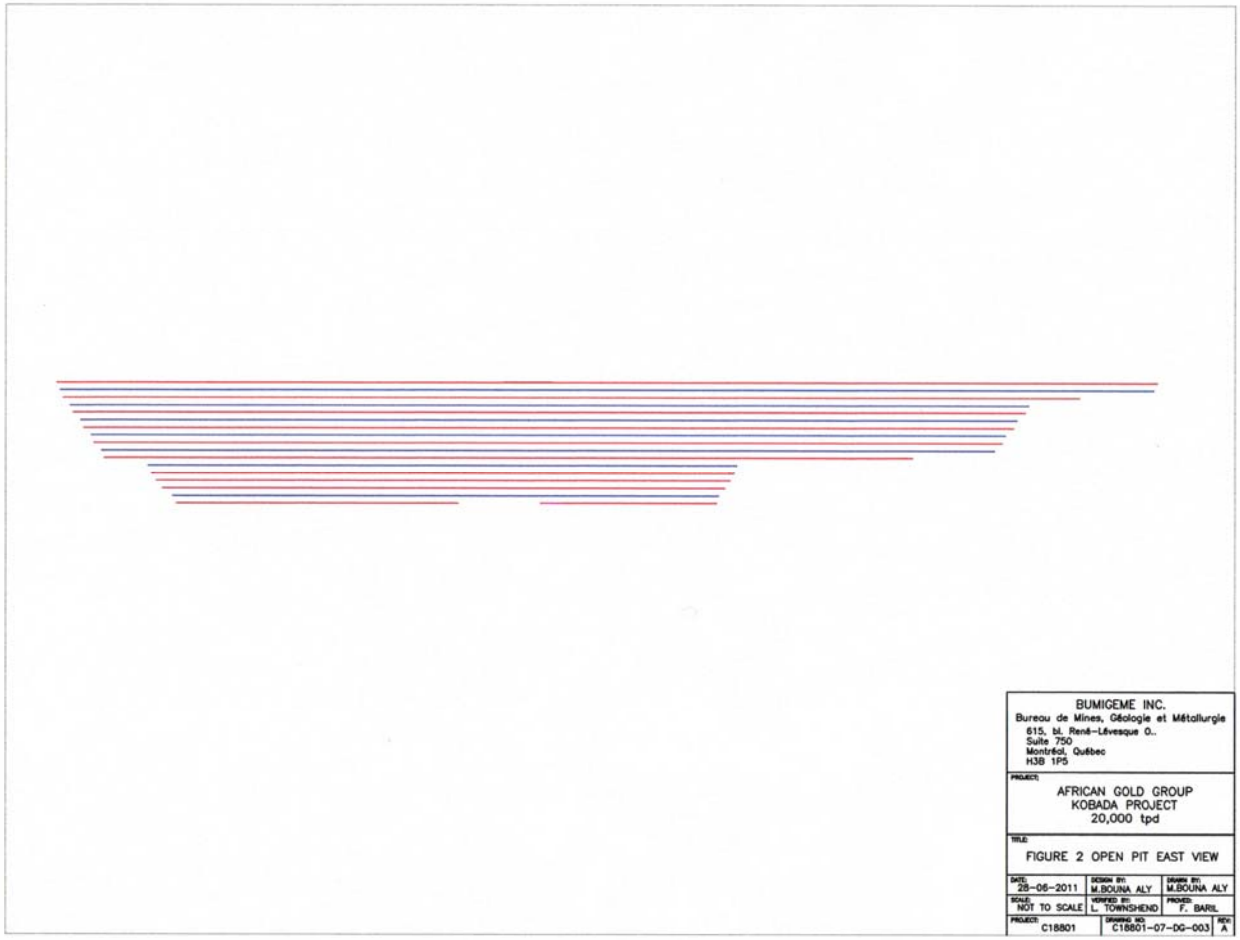


Figure 3
Open Pit West View

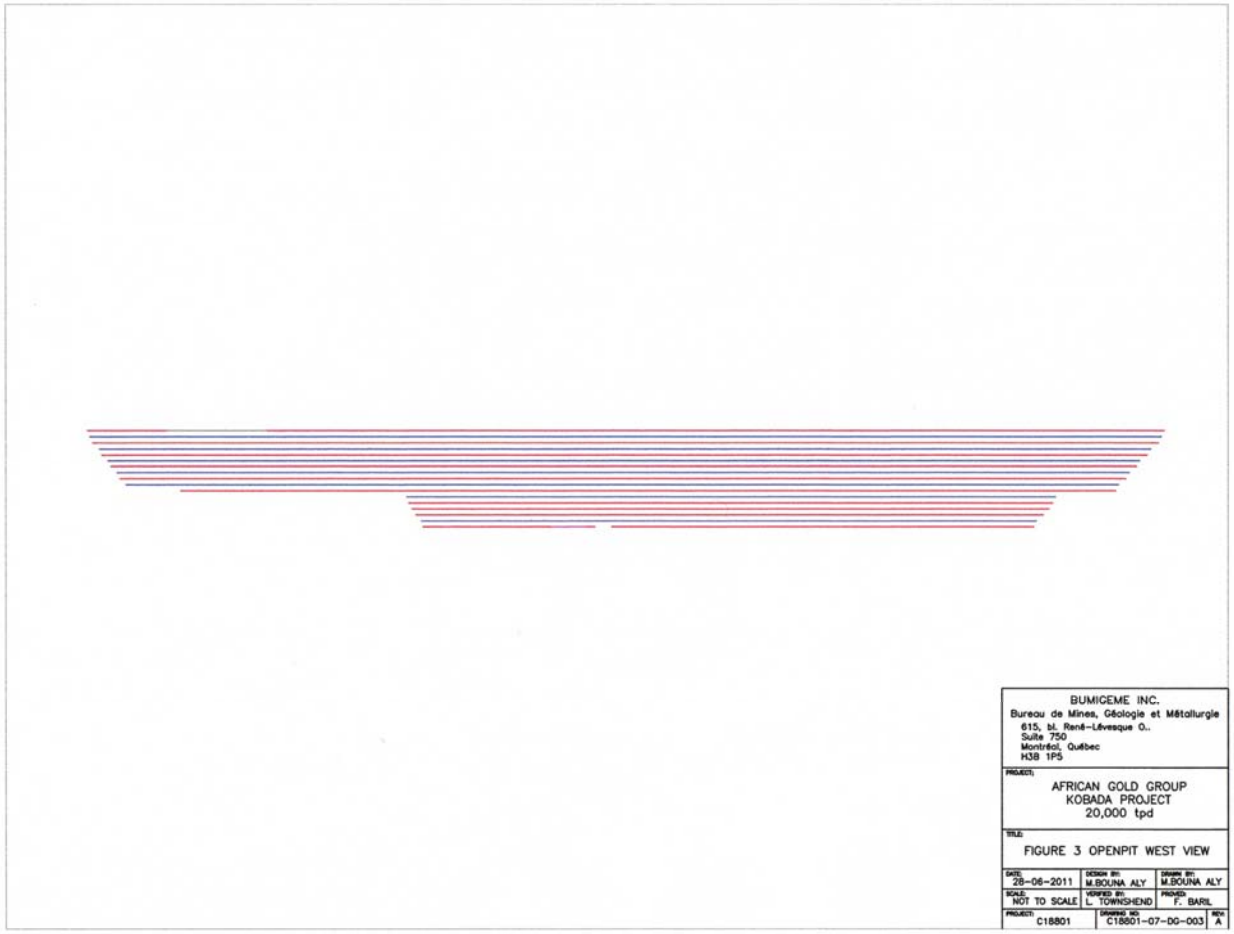


Figure 4
Pit Elevation 380

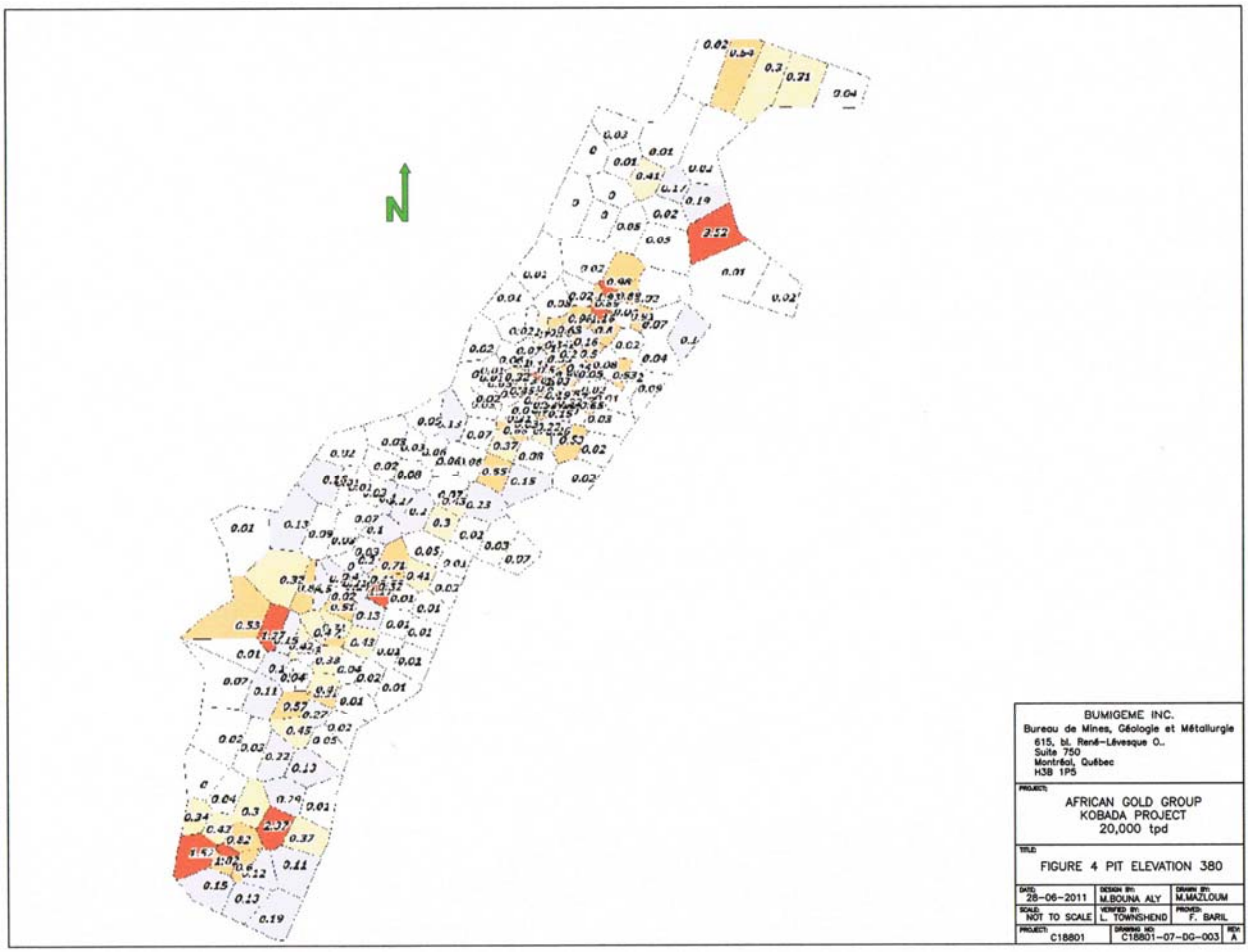


Figure 5
Pit Elevation 360

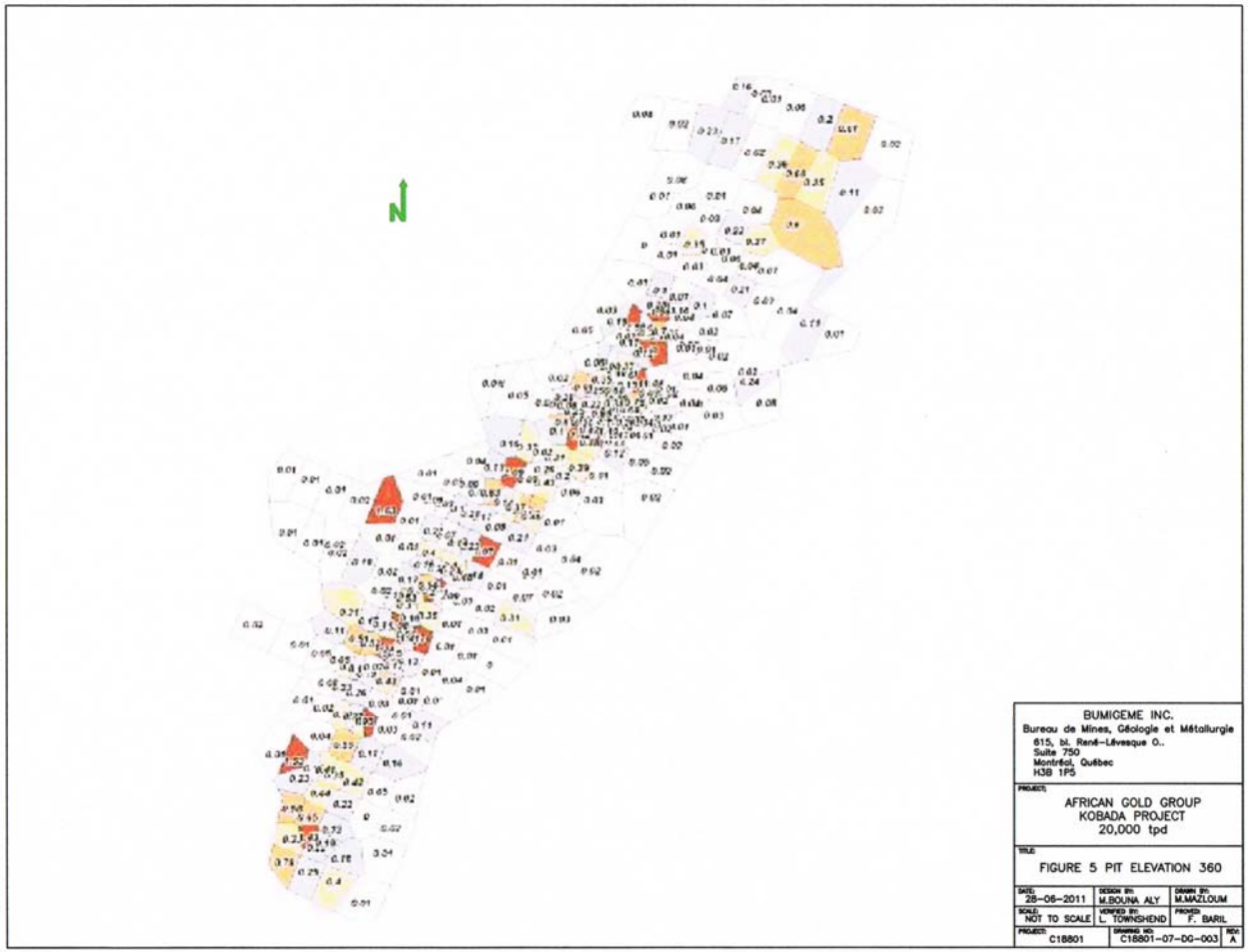


Figure 6
Pit Elevation 340

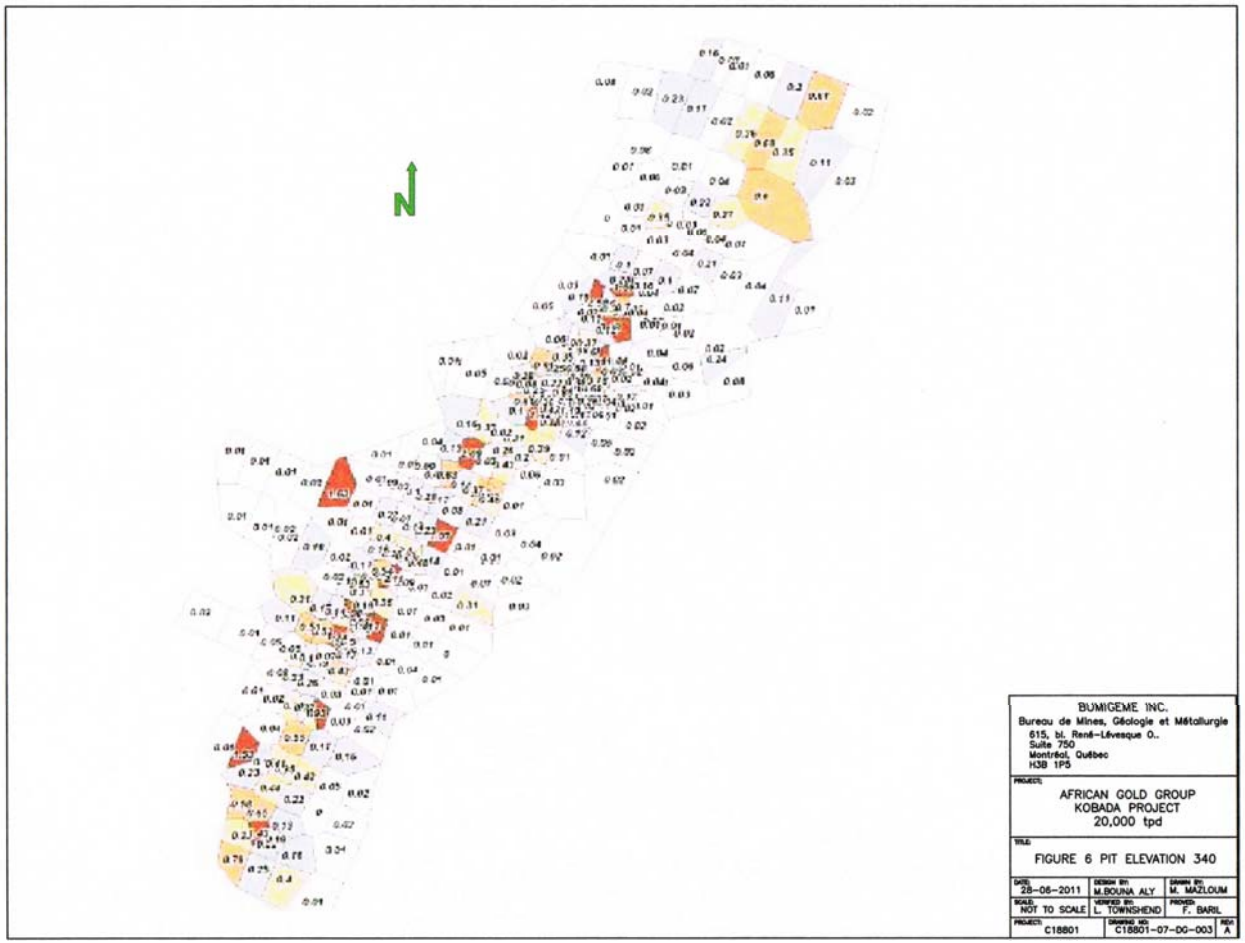


Figure 7
Pit Elevation 320

Figure 8
Pit Elevation 300

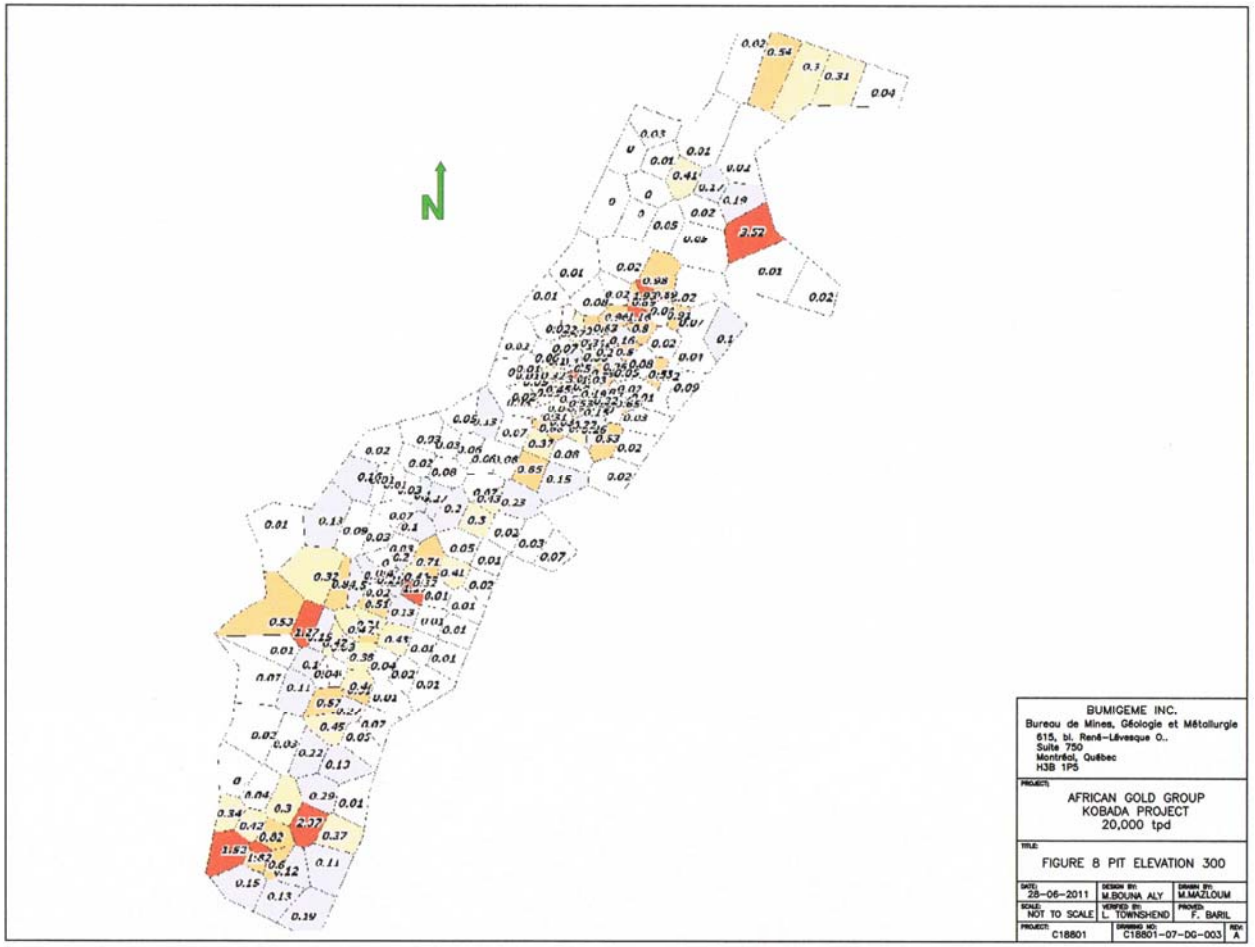


Figure 9
Pit Elevation 280

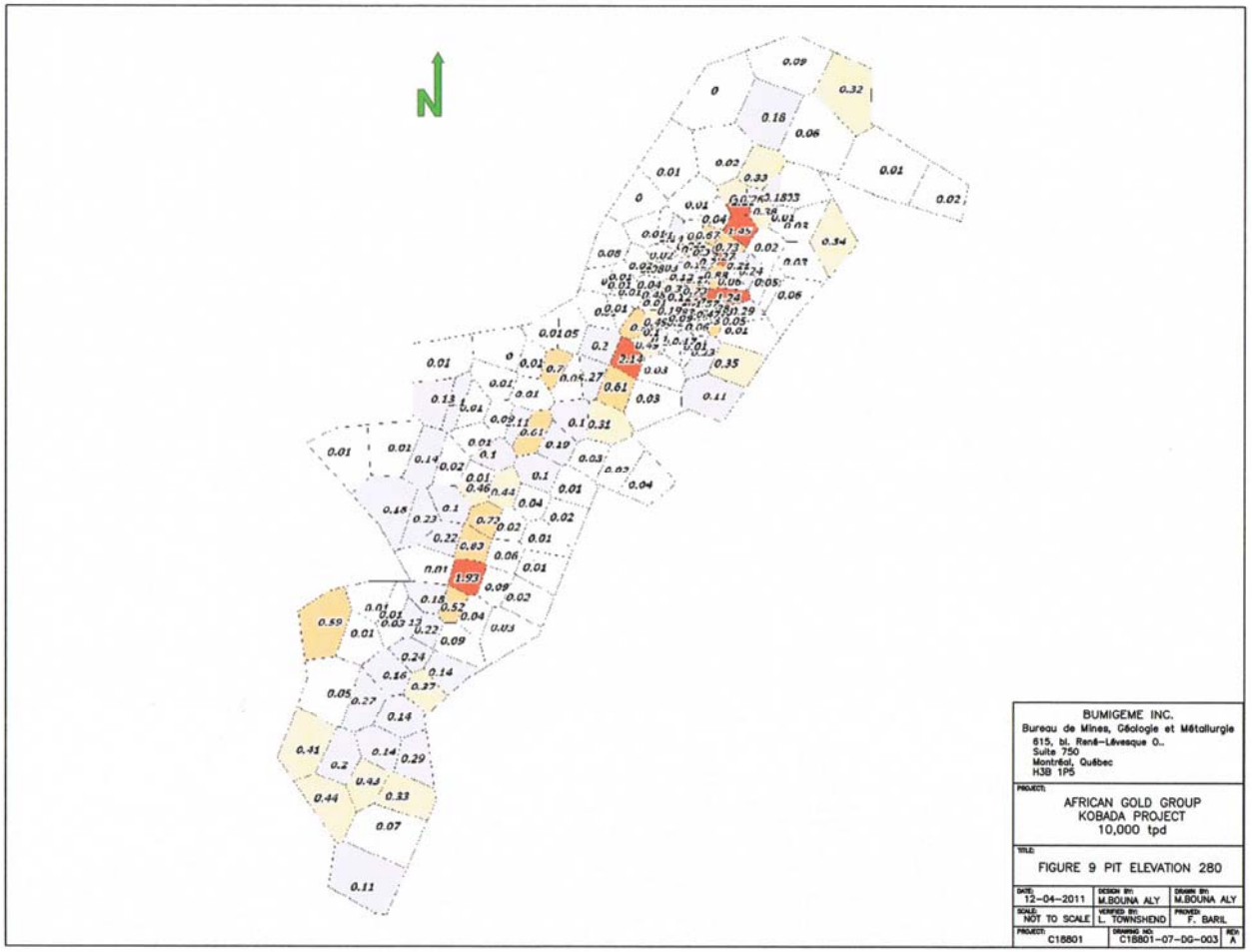


Figure 10
Pit Elevation 260

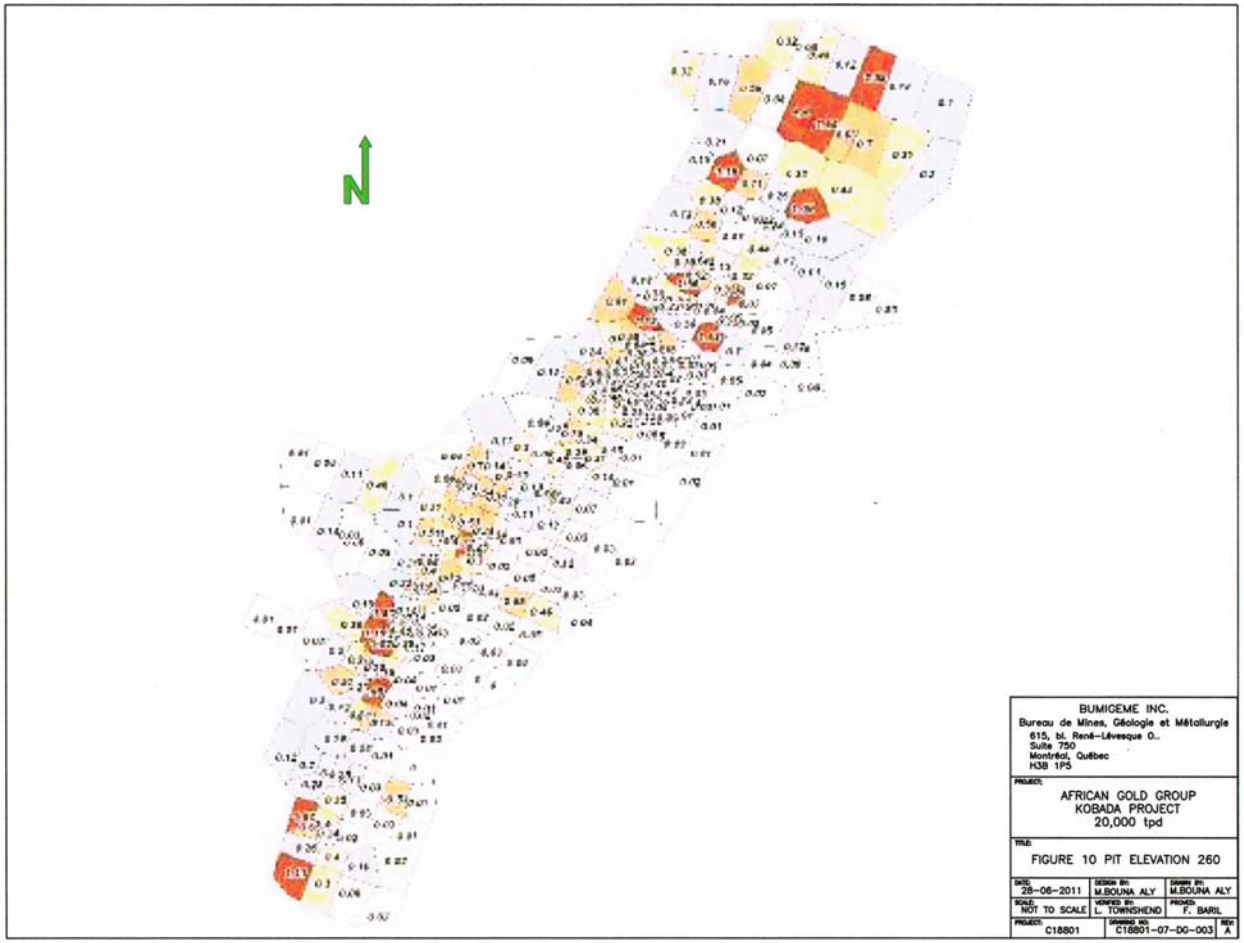
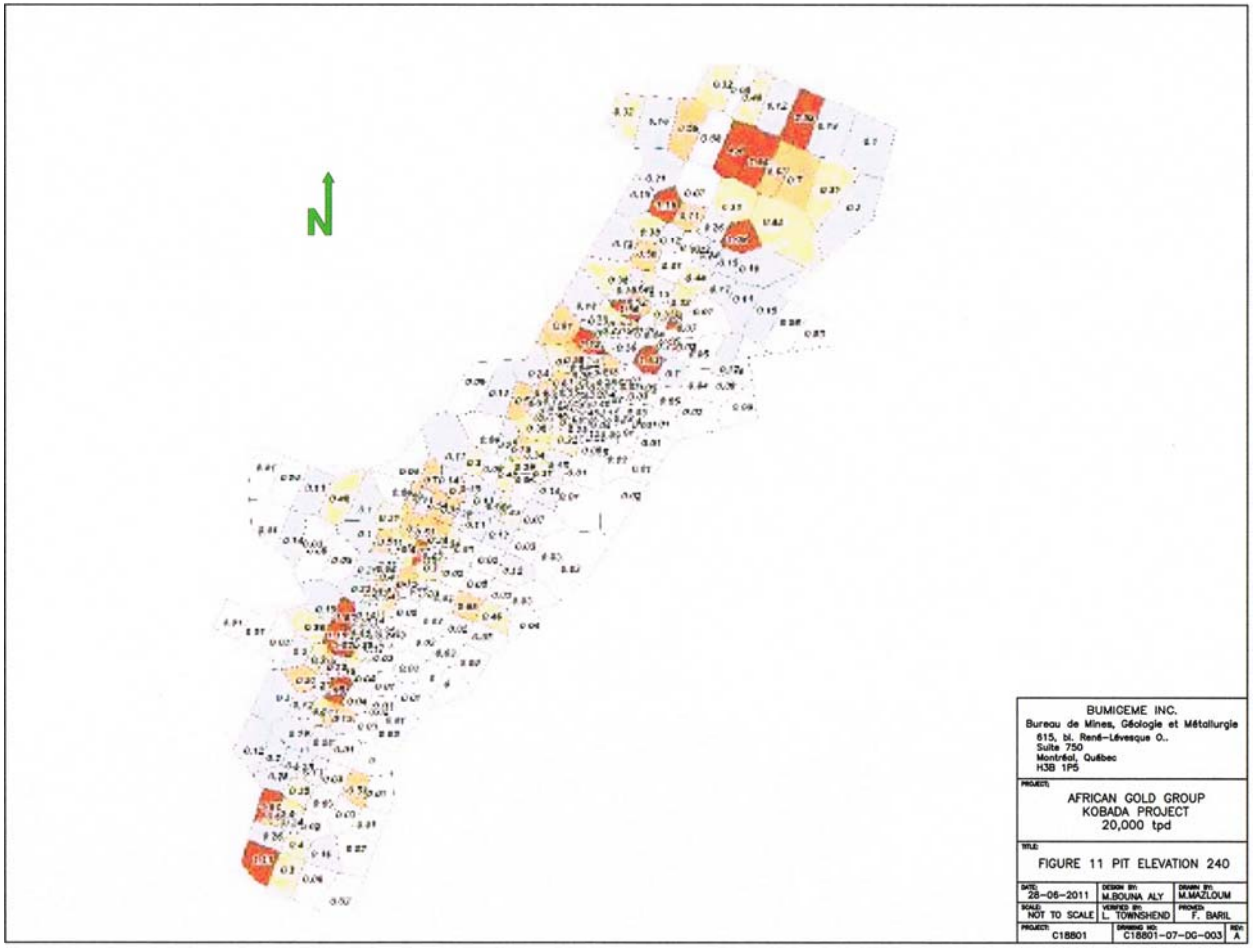


Figure 11
Pit Elevation 240



The overall pit inventory (tons and average grade) is shown in Table 3.

Table 3
Overall Pit Inventory (Metric Tons and Average Grade)

Level	Surfaces	Ore		Waste	Volume (10^3 m^3)			Tonnage and grade			Cumul Tonnage			Stripping
	Ore and	Surface & grade		surface	Total	Ore	Waste	Waste	Ore	Grade	Ore	Grade	Waste	
	Waste	m^2	g/t	(m^2)				(kt)	(kt)	(g/t)	(kt)	(g/t)	(kt)	Ratio
390	658,270	233,479	0,75	434,791	6,583	2,235	4,348	8,261	4,246	0,75	4,246	0,75	8,261	1,95
380	636,923	223,479	0,75	413,444	6,369	2,235	4,134	7,855	4,246	0,75	8,492	0,75	16,116	1,85
370	587,413	171,606	0,63	415,807	5,874	1,716	4,158	7,900	3,261	0,63	11,753	0,72	24,017	2,42
360	566,810	171,606	0,63	395,204	5,668	1,716	3,952	7,509	3,261	0,63	15,013	0,70	31,526	2,30
350	521,102	151,426	0,64	369,676	5,211	1,514	3,697	7,024	2,877	0,64	17,890	0,69	38,550	2,44
340	501,088	151,426	0,64	349,662	5,011	1,514	3,497	6,644	2,877	0,64	20,767	0,68	45,193	2,31
330	449,819	158,835	0,69	290,984	4,498	1,588	2,910	5,529	3,018	0,69	23,785	0,68	50,722	1,83
320	431,072	158,835	0,69	272,237	4,311	1,588	2,722	5,173	3,018	0,69	26,803	0,68	55,894	1,71
310	379,869	131,530	0,75	248,339	3,799	1,315	2,483	4,718	2,499	0,75	29,302	0,69	60,613	1,89
300	343,969	131,530	0,75	212,439	3,440	1,315	2,124	4,036	2,499	0,75	31,801	0,69	64,649	1,62
290	178,015	71,970	0,65	106,045	1,780	720	1,060	2,015	1,367	0,65	33,169	0,69	66,664	1,47
280	165,430	71,970	0,65	93,460	1,654	720	935	1,776	1,367	0,65	34,536	0,69	68,440	1,30
270	134,892	71,234	0,53	63,658	1,349	712	637	1,210	1,353	0,53	35,890	0,68	69,649	0,89
260	121,020	71,234	0,53	49,786	1,210	712	498	946	1,353	0,53	37,243	0,68	70,595	0,70
250	89,286	66,309	0,54	22,977	893	663	230	437	1,260	0,54	38,503	0,67	71,032	0,35
240	74,894	66,309	0,54	8,585	749	663	86	163	1,260	0,54	39,763	0,67	71,195	0,13
Total	**5,839,872**	**2,092,777**	**0,67**	**3,747,095**	**58,399**	**20,928**	**37,471**	**71,195**	**39,763**	**0,67**				**1,79**

3.6 DATA VALIDATION

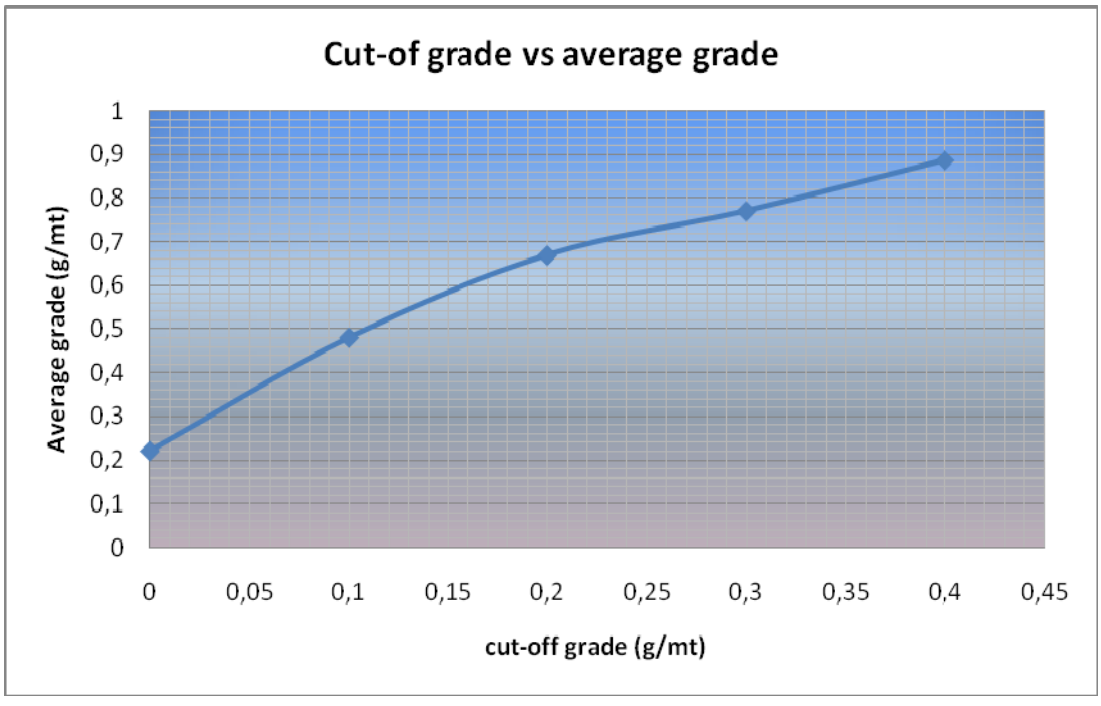
Table 4 shows the tonnages, grades and ounces for different cut-off grades. Estimates 1, 2, and 3 are resources estimates. Estimates 4 and 5 are in pit estimates.

Table 4
Relation Between Cut-Off Grade and average grade

Estimates	Levels	Cut (g/t)	Tonnage	Grade (g/t)	Ounces (1,000)	Categories
1	240-400	0.0	166,955,780	0.22	1,188	Resources
2	240-400	0.1	71,211,336	0.48	1,093	Resources
4	240-400	0.2	39,762,758	0.67	855	In Pit
3	240-400	0.3	36,133,759	0.77	895	Resources
5	240-400	0.4	15,628,339	0.89	446	In Pit

The following graph shows the correlation between the cut-off grade and the average grade.

Figure 12
Correlation Between the Cut Off Grade and the Average Grade



As expected, there is a good correlation between the cut-off grade and the average grade. At the present stage of the project, a 0.4 g/mt cut-off grade will result in an average grade of 0.9 g/mt. To improve this result, a more extensive understanding of the mineralization (more drilling) is needed.

3.7 DILUTION

The above-mentioned figures are before dilution. From the mineralization geometry, the geology and the size of mining equipment, it is expected to have 5% dilution. The grade of the diluting material is estimated at 0.1 g/mt.

The overall pit inventory (tonnes and average grade, after dilution) is shown in Table 5.

Table 5
Overall Pit Inventory, after Dilution (Metric Tons and Average Grade)

Ore tonnage before dilution (kt)	39,763
Grade before dilution (g/t)	0.67
Waste tonnage before dilution (kt)	71,195
Stripping ratio before dilution	1.79
Dilution	5%
Diluting tonnage coming from waste (kt)	1,988
Diluting grade (g/mt)	0.10
Ore tonnage after dilution (kt)	41,751
Average grade after dilution (g/mt)	0.64
Waste tonnage after dilution (kt)	69,207
Stripping ratio after dilution	1.66

The rest of the evaluation will take into account the effect of dilution as shown in Table 5.

3.8 PRODUCTION RATE

Mine production rate was estimated from Gesmine experience and from general reference books. The production rate is summarized in Table 6.

Table 6
Production Rate

Resources (mt)	41,750,896
Waste (mt)	69,206,672
Total (mt)	110,957,568
Expected Mine Life (years)	6
Expected Daily production (mt)	20,000
Stripping ratio	1.66
Expected Daily production (Waste) (mt)	33,152
Expected Daily production (Ore and Waste) (mt)	53,152
Time Schedule	
Weeks per year	52
Days per week	7
Hours per shift	12
Shifts per Day	2
Holiday per year	10
Number of hours per Day	24
Annual Scheduled operating days	354
Scheduled hours per year	8,496
Expected annual Ore production (mt)	7,080,000
Expected annual Waste production (mt)	11,735,874
Expected overall annual production (Ore and Waste) (mt)	18,815,874
Average hourly Mine Production (mt)	2,215
Overall job efficiency (mt)	90%
Peak Ore production to dumping points (mt)	2,461
Average mechanical availability	85%
Annual outage factor	95%

3.9 MINING EQUIPMENT

Mining equipment was sized and selected according to the production capacity. Good match for shovels and trucks was ensured. The selection of auxiliary equipment was done taking into account the dimensions of the pit and the production rate.

This operation will not require drilling and blasting, according to the available information. Gesmine did not visit the site to confirm this.

3.9.1 Loading Equipment

Daily production will be performed by 3 shovels (14.7 cubic yards capacity, equivalent PC 2000) and one wheel loader (equivalent WA 900). The loader will be utilized for ore stockpiles reclaim and to intervene when one shovel is down.

The total forecast for budgeted hours is estimated at 13,477 hours for the shovels and 3,095 hours for the loader. These numbers represent the number of hours needed to attain the annual production.

3.9.2 Hauling Equipment

Daily production will be performed by 12 trucks (100 mt capacity, equivalent CATT 777) and are a good match with the shovels.

The total forecast for budgeted hours is estimated at 50,814 for the hauling equipment. This number represents the number of hours needed to attain the annual production.

3.9.3 Auxiliary Equipment

As auxiliary equipment, it is expected to purchase 2 dozers (equivalent D275), one wheel dozer (equivalent WD 600), 2 motor graders (equivalent GD 825), 2 field repair trucks, 2 water trucks, and 6 supervisors and engineering staff pickup trucks. Auxiliary equipment needs are summarized in Table 7.

Table 7
Auxiliary Equipment Sizing and Selection

Auxiliary Equipment	Costing Hours (h)
Bulldozer D275 (2)	5,000
Wheeldozer WD 600(1)	3,500
Motor Grader GD 825 (2)	4,500
Field repair truck (2)	7,300
Supervisors and engineering staff pickup trucks (6)	12,000
Total	**32,300**

3.10 OPEN PIT INVESTMENT

From the above in pit resources calculation and mill capacity, the expected mine life is estimated at 6 years. The following budget estimates come from dealers in Montreal. The transportation to the mine site in Mali was estimated by Gesmine; all equipments are new. It is understood that the mineralization is still open in both directions, east and north, which might suggest an extension of the reserves. To make this project even more attractive, three options can be considered. Firstly, one can choose to purchase used equipments. This will reduce the initial investment by about 35%. Secondly, the equipments used for only 6 years, could be sold and this residual value can be introduced into the economic analysis. Finally, in the event where no cash flow is available now, one can consider contracting all the operations or part of it.

Open pit investment includes everything except the processing unit. It can be divided into three main components: clearing and site preparation, mining equipment and auxiliaries, building and infrastructures.

3.10.1 Clearing and Site Preparation

From the information received, but not confirmed by Gesmine, the site is a flat area, with almost no tree and no hard rock to blast. It is estimated that an area of some 600,000 m^2 has to be cleared, cleaned and levelled for the mine site and its infrastructures. This operation will cost approximately C$40,000.

3.10.2 Mining Equipment and Auxiliaries

Mining equipment investment is summarized in Table 8.

Table 8
Open Pit Mining Equipment and Auxiliaries

Mining Equipment and Auxiliaries	Unit Cost (C$)	Total Cost (C$)
Hydraulic shovel PC 2000 (3)	3,000,000	9,000,000
Loader WA 900	1,800,000	1,800,000
Truck CAT 777 -100 mt (12)	1,500,000	18,000,000
Bulldozer D275 (2)	850,000	1,700,000
Wheel dozer WD 600 (1)	800,000	800,000
Motor Grader GD 825 (2)	800,000	1,600,000
Field repair truck (2)	80,000	160,000
Supervisors and engineering staff pickup trucks (6)	55,000	330,000
Total Mining Equipment and Auxiliaries		**33,390,000**

3.10.3 Infrastructures and Maintenance Facilities

Infrastructures include items like access roads and fuel system. The estimated capital expenditure for this item is presented in Table 9.

Table 9
Infrastructures and Maintenance Facilities

Infrastructures and Maintenance Facilities	Total Cost (C$)
Communication and electric distribution	521,000
Fuel system	150,000
Maintenance facilities	303,000
Total Infrastructures and Maintenance Facilities	**974,000**

Total mining and auxiliaries for this project is estimated at C$34,404,000. (See Table 10).

Table 10
Open Pit Capital Expenditure

Cleaning and area preparation	40,000
Mining equipment and auxiliaries	33,390,000
Infrastructures and maintenance facilities	974,000
Total Open Pit Capital Expenditure	**34,404,000**

3.11 OPEN PIT OPERATING COSTS

Open pit operating costs can be divided into three major elements: supervision, labour and social benefits, mobile machinery, and undistributed overhead.

3.11.1 Supervision, Labour and Social Benefits

The personnel requirement for the mining operations is estimated at 105 persons

Table 11
Manpower Requirement for Mining Operations

	Number of Employees	Monthly Salary C$	Annual Salary C$
Mine superintendent	1	2,686	32,232
Shift bosses	4	5,419	65,028
Shovel operators	12	15,594	187,128
Compactor operators	3	3,899	46,782
Crane operators	3	3,899	46,782
Truck operators	30	38,985	467,820
Payloader operators	6	7,797	93,564
Grader operators	6	7,797	93,564
Bus drivers	6	7,797	93,564
Bulldozer operators	12	15,594	187,128
Geological engineer	1	2,318	27,816
Geological technicians	8	14,000	168,000
Mining engineer	1	2,318	27,816
Surveyors	6	7,797	93,564
Drivers	3	2,787	33,444
Draughtsman	3	4,064	48,762
Sub-Total	**105**	**142,750**	**1,712,994**

Those employees are Malian people and will be supervised by some experienced expatriates.

3.11.2 Mobile Machinery Operating Cost

The mobile machinery operation cost is calculated from the previously estimated budget hours per machinery type and the estimated cost per hour. The mobile machinery cost is summarized in Table 12.

Table 12
Open Pit Mine Mobile Equipment Operating Cost

Major Items of Machinery	Annual Costing Hours	Cost ($/h)	Annual Cost for Ore ($)	Annual Cost for Waste ($)
Shovel	13,744	150	2,061,671	2,061,671
Trucks	50,814	180	9,146,605	9,146,605
Front end loaders	3,095	110	340,497	340,497
Bulldozer	5,000	65	325,000	325,000
Wheeldozer	3,500	70	245,000	245,000
Motor grader GD 825 (2)	4,500	65	292,500	292,500
Field repair truck (2)	7,300	60	438,000	438,000
Supervisors and engineering staff pickup trucks (6)	14,000	40	560,000	560,000
Sub-Total	**101,954**	**740**	**13,409,273**	**13,409,273**

3.11.3 Summary of Open Pit Mine Operating Costs

The summary of open pit mine operating costs is shown in Table 13.

Table 13
Summary of Open Pit Mine Operating Cost

	Cost Per Ton Processed	Annual Cost $
Supervision, labor and social benefits	0.24	1,712,994
Mobile machinery	1.92	13,409,273
Total ($/ton)	**2.16**	**15,122,267**

4. MINERAL PROCESSING AND METALLURGICAL TESTING

4.1 METALLURGICAL TESTING AT SGS LAKEFIELD

Metallurgical test work was recently completed by SGS Lakefield (SGS) on a sample of oxide ore from the Kobada deposit. This testwork was carried out on behalf of an arm's length mining company. The test programme involved sample characterisation using head analysis and mineralogy and investigation of the amenability of the samples to gold extraction using gravity separation and cyanide leaching. The results of the tests are considered excellent, demonstrating the amenability of the KBD ore to gravity concentration or cyanide leaching. The following is a summary of the test work results which are available in the final report prepared by SGS Lakefield. (project number 12238-001, April 8, 2010).

A composite sample was selected from 127 separate intervals over 8 different drill holes and weighed a total of 287 kg. The individual intervals were selected to reasonably represent the entire deposit. The as-received composite sample was wet screened and cycloned to break down the clay aggregates and remove a slimes fraction. The oversize fraction was then filtered, dried and riffled into test charges. The slimes fraction (P80 11µm) made up 57% of the mass, assaying 0.13 g/mt Au, while containing just 4% of the gold. The remaining 43% of the mass, the oversize material, contained 96% of the gold and assayed 4.28 g/mt (as calculated from gravity test work).

A sample of approximately 1 kg of the deslimed KBD 'Oxide' was submitted for size fraction analysis for gold. The result produced a calculated head grade of 1.92 g/mt Au, higher than the value obtained from the duplicate fire assays of 1.07 g/mt but lower than that obtained from gravity test work. This is an indication of the presence of 'nugget' gold in the Kobada 'Oxide' ore. The majority of the gold was distributed in the plus 75 µm to minus 600 µm size fraction, 79.5% of the gold in 54% of the mass, with 10.4% of the gold reporting to the + 600 µm representing 10.9% of the mass.

The mineralogical study was conducted on 1 kg deslimed 'Oxide' sample ground at 150 µm for chemical composition determination and bulk mineralogy which was determined by qualitative X-Ray Diffraction (XRD) analysis, reflected light optical microscopy, and SEM-EDS analysis. The Kobada 'Oxide' ore sample mainly consisted of quartz, with moderate to minor amounts of goethite and minor trace amounts of mica, kaolinite, rutile, zircon and maghemite.

The gold deportment study identified 26 gold grains in the sample submitted, with over 97.6% found as liberated grains with an average size of 12 µm. The remaining 2.4% were attached or locked (mainly with goethite). The largest gold grains observed were approximately 30 µm. Native gold was the only gold mineral identified.

An Extended Gravity Recoverable Gold (EGRG) test on a 10-kg oversize or de-slimed sample provided a GRG number of 92.3. This is an exceptionally high result and indicates that approximately 90% of the gold in the sample could be recovered via gravity. It should be noted that the calculated head grade from this work is 4.28 g/mt Au indicating the as-received materiel head grade would be 1.93 g/mt Au rather than the assayed value of 1.07 g/mt Au. As can be seen in Table 14 below, most of the gold (82.6%) is recovered in stage 1 after no grinding, while 89.7% is recovered in grinding the sample to a P80 of 249 µm. The overall gold deportment by size indicated that 73% of the gold was contained in the + 150 µm fraction.

Table 14
EGRG Test Result Summary

Grind P80 (µm)	Product	Mass (%)	Grade Au (g/mt)	Au Recovery (%)
476	Stage 1 concentrate Sampled tails	0.80 2.10	469.00 0.96	82.60 0.47
249	Stage 2 concentrate Sampled tails	0.70 3.20	45.00 0.77	7.10 0.57
56	Stage 3 concentrate Final tails	0.60 92.70	18.00 0.31	2.60 6.60
	Total Knelson concentrate	2.06	191.0	92.30
	Calculated Head	**100.00**	**4.28**	**100**

Standard cyanide leach bottle roll tests on the deslimed samples ground to three different grind sizes showed good results as seen in Table 15. A total cyanide leach time of 24 hours was used in all tests. NaCN consumption was low, ranging from 0.04 kg/t for P80 of 68 µm to 0.18 kg/t for P80 of 460 µm, meanwhile gold recovery reaches 99.4 % for P80 grind size of 68 µm and only 75.6 % for a P80 of 460µm. This indicates that grinding finer not only lowers NaCN consumption but also gives higher recovery of gold.

Table 15
Gold Recovery in Cyanide Leach Tests

Test #	Grind P80 (µm)	Residue Grade Au (g/mt)	Au Recovery (%)	Consumption (kg/mt)	
				Na CN	CaO
CN-1	89	0.36	95.2	0.10	0.93
CN-2	68	0.03	99.4	0.04	1.15
CN-3	460	0.62	75.6	0.18	0.65

Recommendations for future test work:

To confirm the design parameters of the process

Test with fresh ore

Corroboration of the gold head assay using a standard gravity-cyanidation protocol

Variability of the ore samples

Communition tests to size the ball mill, jaw crusher, impact crusher

Quantity of ore recoverable by standards gravity circuit

Cyanide leaching parameters for gravity tables tails

Pilot plant test work on site

4.2 PROCESS DESIGN CRITERIA

The flowsheet has been developed based on the results of the test work conducted by SGS Lakefield and in conjunction with design parameters from another deposit in Mali that Bumigeme has had experience with.

The preferred process option is a combination of gravity recovery and intensive cyanidation. Nominal feed grade to the mill will be 0.64 g/mt Au (after dilution), although this is expected to vary over the course of operations due to the nature of the ore body. Two concentrates would be produced, high grade shaking tables concentrate and a leach precipitate. Both concentrates would be smelted to produce doré bullion on site.

The process flowsheet developed has many advantages compared to other options; the Capex and Opex needed are relatively lower and the environmental risk is reduced.

In the absence of a full suite of test work data the plant design adopted for the Preliminary Economic Assessment (PEA) is based on a number of assumptions regarding the metallurgical performance of the Kobada ore; assumptions of this nature are consistent with the level of definition available at this stage of project development

A preliminary process design criteria was developed. Table 16 below summarises the key design criteria for the study.

Table 16
Design Criteria

Parameters	Value
Daily throughput (tpd)	20,000
Days/year	350
Operating hours	24
Availability	90%
Head grade g Au/mt	0.64
Gravity recovery (oxide zones)	89.7%
Gravity recovery (sulphide zones)	82.5%
Leach residence time	24
ILR recovery	98%
Overall recovery (oxide zones)	87.9%
Overall recovery (sulphide zones)	80.8%
Scrubber	
Feed size (mm max)	150
Availability %	90
Hourly capacity tph/scrubber	232
Knelson concentrator	
Feed tonnage tph/concentrator	120
Concentrate tonnage (kg/h)	25
Concentrate removal	Batch

This data was used to size the equipment and to establish the capital cost of the project.

4.3 PROCESS DESCRIPTION

The process plant for the Kobada gold mine was designed to treat seven million tonnes of ore per year.

The process plant consists of four identical parallel circuits collectively capable of treating approximately 20,000 tonnes of ore per day. This quad-stream design not only allows for a degree of flexibility in plant operations but also facilitates the maintenance of a reasonable level of production in the event that a significant item of equipment fails. As such a failure would usually only affect one circuit; this latter consideration is important in a country, such as Mali, where local infrastructure support is virtually non-existent.

Each circuit will consist of the following sections:

Ore transportation

Scrubbing

Screening and classification

Desliming

Crushing and grinding

Gravity recovery and concentrating tables

Intensive Leach Cyanidation (ILR) and electro-winning

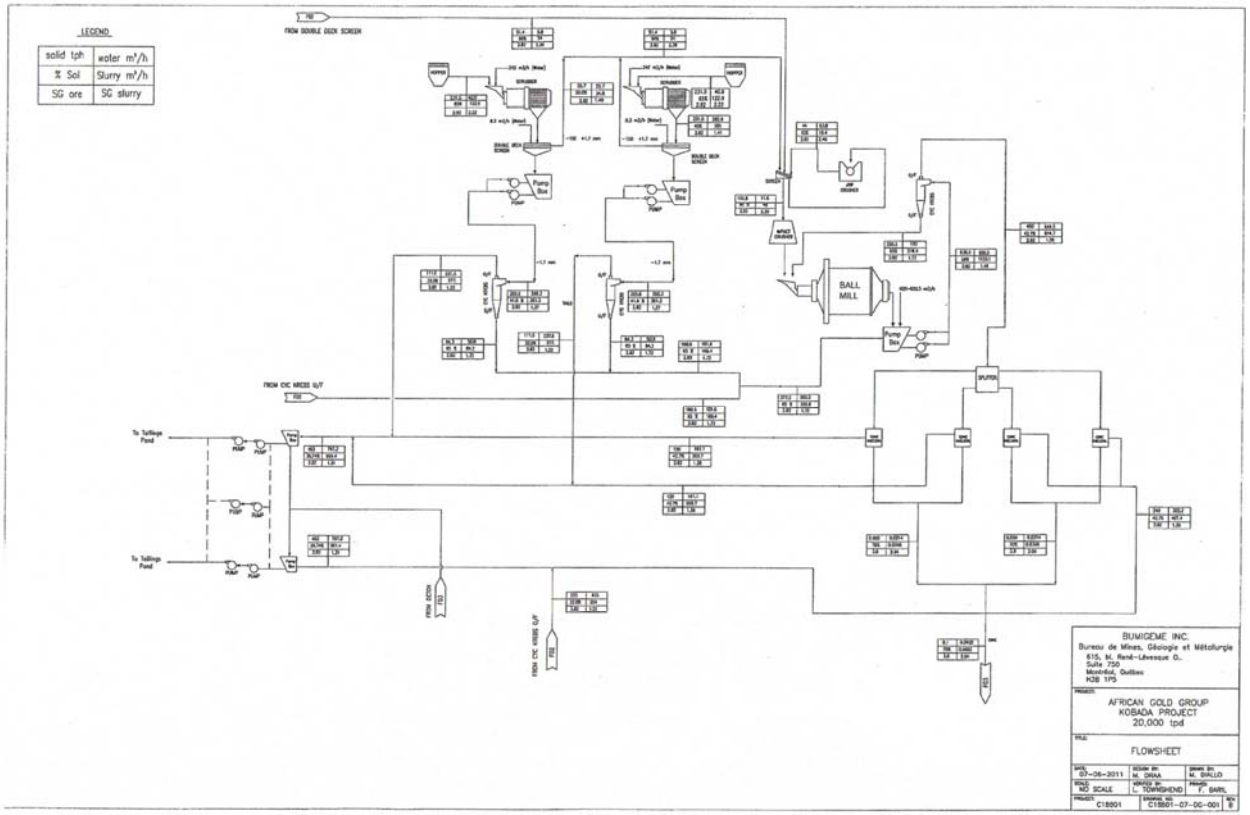
Cyanide destruction

Smelting.

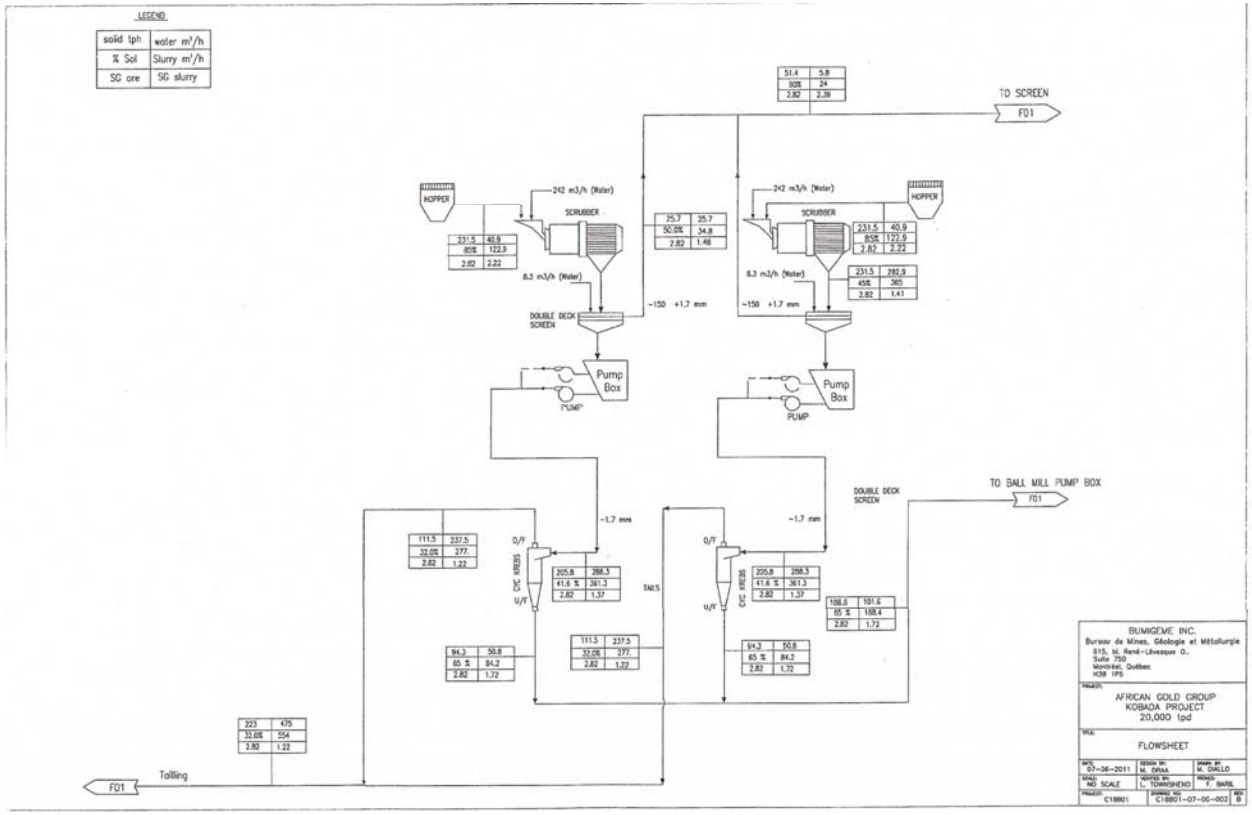
Process utilities will include water supply, tailings pond and reagents

See flowsheets C 18801-07-DG-001, C 18801-07-DG-002 and C 18801-07-DG-003 (next pages)

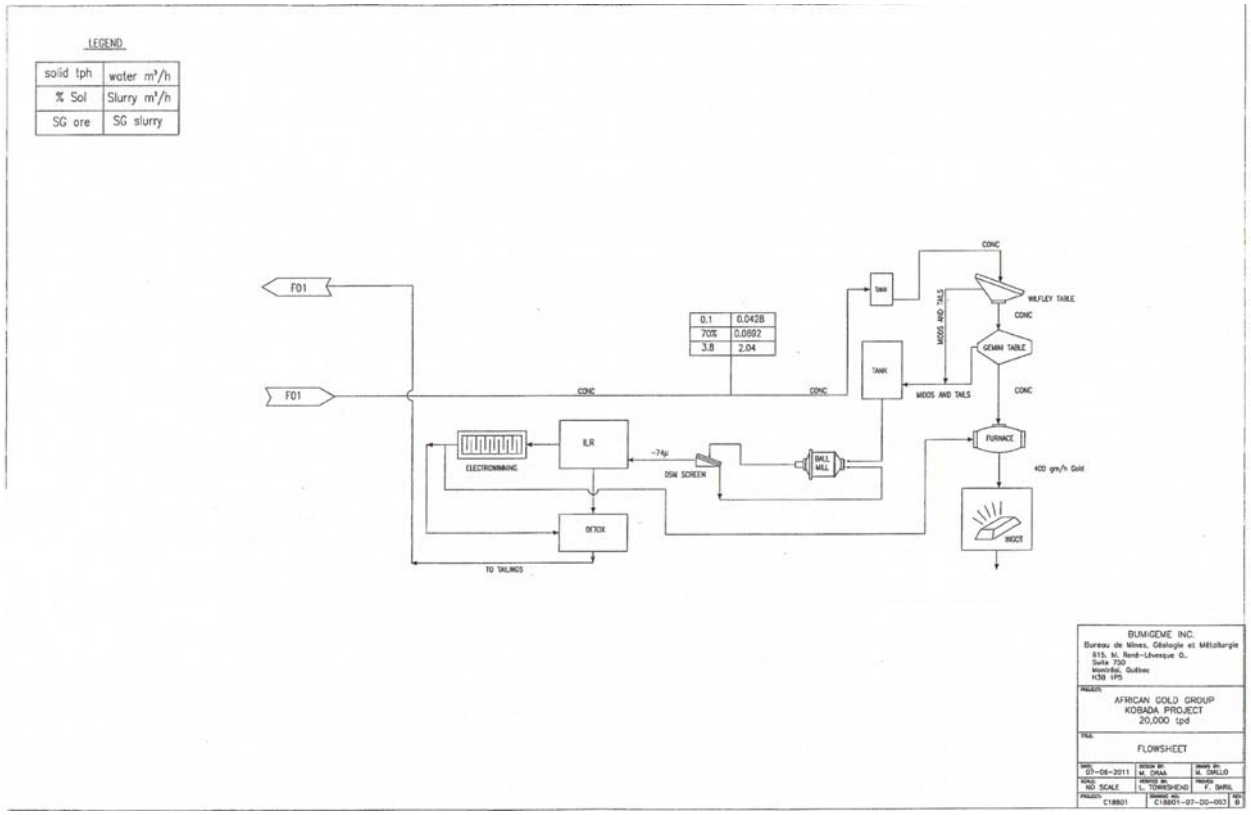
FLOWSHEET 1


LEGEND
solid tph
water m³/h
% Sol
Slurry m³/h
SG ore
SG slurry
BALL MILL
BUMIGEME INC.
AFRICAN GOLD GROUP
KOBADA PROJECT
20,000 tpd
FLOWSHEET

FLOWSHEET 2


LEGEND
solid tph
water m³/h
% Sol
Slurry m³/h
SG ore
SG slurry
TO SCREEN
F01
HOPPER
242 m3/h (Water)
SCRUBBER
8.3 m3/h (Water)
DOUBLE DECK SCREEN
-150 +1.7 mm
Pump Box
PUMP
-1.7 mm
O/F
U/F
CYC KREBS
TAILS
TO BALL MILL PUMP BOX
Tailing
BUMIGEME INC.
AFRICAN GOLD GROUP
KOBADA PROJECT
20,000 tpd
FLOWSHEET
07-06-2011
NO SCALE
C18801

FLOWSHEET 3


LEGEND
solid tph
water m³/h
% Sol
Slurry m³/h
SG ore
SG slurry
F01
F01
0.1
0.0428
70%
0.0692
3.8
2.04
CONC
CONC
CONC
TANK
WILFLEY TABLE
CONC
MIDDS AND TAILS
GEMINI TABLE
CONC
MIDDS AND TAILS
FURNACE
400 gm/h Gold
ELECTROMAGNETIC
ILR
-74µ
DSM SCREEN
BALL MILL
DETOX
INCOT
TO TAILINGS
BUMIGEME INC.
Bureau de Mines, Géologie et Métallurgie
615, bl. René-Lévesque O.
Suite 750
Montréal, Québec
H3B 1P5
AFRICAN GOLD GROUP
KOBADA PROJECT
20,000 tpd
FLOWSHEET
07-06-2011
M. DRAA
M. GRILLO
NO SCALE
L. TOWNSHEND
F. BARIL
C18801
C18801-07-DG-003
0

4.3.1 Ore Transportation

From the pit, the ore will be transported by trucks of 100 metric tons and dumped in four ore bins of approximately 150 metric tons capacity each. The four bins will be equipped with a stationary grizzly of 15 cm opening. The +15 cm fractions will be retained on the bars and broken by sledge hammers or rock breakers.

4.3.2 Scrubbing, Screening and Classification

Scrubbing is a crucial step for the liberation of gold from the clay. If the grains of gold are enveloped in clay, particularly the finer grains, the risk is high that they will not be recovered at the Knelson concentrator and they will be discarded in the tailings.

The ore from each bin will be withdrawn by an apron feeder to a belt conveyor that feeds 3 m diam. by 8.8 m long Sepro scrubber. There are four scrubbers in four parallel circuits of a nominal capacity of 5,000 mt per day each.

At the feed end of the scrubbers, the ore will be mixed with water to a density of 40-45% solids and the pulp is agitated in the scrubber during three to four minutes which is sufficient to break all the clay balls that could trap the gold nuggets.

From each scrubber, the pulp falls on a double-deck screen which separates it in two fractions, -1.7 mm, and -150 +1.7 mm.

The fraction -1.7 mm will be pumped to a hydro cyclone cluster to deslime the ore, in accordance with test work results which show 57% of the ore are fines and contain only 4% total gold. The overflow of the cyclone will be combined with the Knelson tails and sent to the tailings pond as a preliminary measure but could also be subsequently retreated as a second option. The hydrocyclones U/F will gravitate to a pump box and the pulp pumped to a cluster of six 500mm cyclones in closed circuit with a ball mill. The cyclones underflow feeds by gravity a ball mill of 3810x4877mm and the overflow goes by gravity to a splitter ahead of the Knelson concentrators. The ore is ground at P80 250um.

4.3.3 Crushing and Grinding

The -150 +1.7 mm fraction from the double-deck screen will pass through another screen (50 mm) where the oversize will be crushed in a jaw crusher to 80% passing 50 mm, and return back to the screen, while the – 50 mm will be crushed in an impact crusher to -6.35 mm then ground in a ball mill to 250 micron and pumped back to the double-deck screen through a splitter. In the absence of comminution test work, a

bond work index of 12.0 was assumed for the sizing of the ball mill. This value is typical for a similar orebody.

4.3.4 Gravity Recovery and Concentrating Tables

Gravity recovery will be conducted in four 48'' diameter Knelson concentrators. The feed will come from the 500mm diameter cyclones O/F. The gold concentrate from the Knelson concentrators will be stocked in a locked tank and will pass through a two-stage tabling (Wilfley table and Gemini table) to produce a super concentrate before smelting in the furnace. The rejects of the tabling stages will be stocked in a tank, grounded finer by a ball mill, screened and sent to the In Leach Reactor.

These four concentrators, by their centrifugal force and the density of the gold, recover a gold concentrate and reject a tailing with a minimum amount of gold (non-liberated or very fine gold). A recovery of 89.7% of the gold contained in the oxide ore zones is expected, based on the results of the test work conducted at SGS (first two stages).

The tailings of the Knelsons will be rejected to the tailings pond.

4.3.5 ILR and Electro-winning

The rejects from the concentrating tables will be screened and will report to the ILR for intensive leach cyanidation. This will be carried out in an ILR (In Leach Reactor) to dissolve gold in presence of sodium cyanide and sodium hydroxyl.

The In Leach Reactor works on the principles of the laboratory bottle roll tests to keep the solids in contact with a liquor. A horizontal drum rotates at low speed with a set of specially designed baffles and aeration system for maximum leach performance. Barren solids are washed and removed from the circuit via a dewatering cone and dewatering screen. Solids report to the reactor solids discharge sump, for further washing if necessary.

The pregnant solution is pumped to the electro-winning cell for Au recovery. The spent solution from the electro-winning discharge is returned to the reactor feed.

It is worth noting that cyanidation tests in the test work were conducted on 'whole ore' samples without any preliminary gravity separation to remove free gold prior to leaching and as such, the results of these tests are of limited use in the design of the ILR which uses rejects from the tables as a feed. In the bankable feasibility study, additional tests are recommended to optimize the process.

In the electro-winning cells, gold will be deposited on the cathodes as sludge and the barren solution will be circulated back to the electro-winning feed as long as the soluble gold values are superior to 10 ppm

Fully loaded cathodes will be periodically removed from the cells; the gold sludge will be washed off using high pressure washer and solution decanted off. The resultant sludge will be filtered and sent for smelting assuming that 98% of the gold will be dissolved in the IRL reactor, the overall gold recovery in the reactor will be 87.9 (89.7x0.98) in the oxide zones.

4.3.6 Smelting

The concentrate from the Gemini tables along with the sludge washed off the cathodes from the electro-winning cells, are dried and mixed with appropriate fluxes and melted in a fuel fired furnace.

4.3.7 Cyanide Detoxification

Calcium hypochlorite will be used to destroy the excess cyanide in the alkaline solution. The cyanide ion is oxidized to carbon dioxide and nitrogen gas. The carbon dioxide neutralizes in part the alkalinity, producing calcium carbonate precipitate.

The cyanide detoxification will be designed as a two-stage agitated reactors.

The discharge from the second detoxification tank will be pumped to the tailings pond.

4.3.8 Tailings Pond

The tailings pond will be located approximately at 2-3 km from the plant in a zone that is suitable for this purpose. Two pipelines of 18'' diameter will discharge the tails of the Knelson concentrators and the deslimed cyclone overflow by using two 200 hp SRL pumps in serie. The residues from the ILR reactor, after detoxification, will also be pumped to the tailings pond.

4.3.9 Process Utilities

4.3.9.1 *Water Supply*

Make up water will be supplied to the plant by a pipeline of 5 km (more or less) from the Niger River, at a rate of 1,000 m^3/h approximately by a two-stage vertical turbine pump of 400 hp

After settling, process water can be returned to the plant by another pipeline of the same dimensions using a second 2-stage vertical turbine pump.

Options to drill for clear water must be taken into account. Fresh water supply from wells must be cleaned to be used by the Knelson concentrators as well as for the seal water for the slurry pumps.

4.3.9.2 *Reagents*

The reagents that will be used within the process plant are:

Cyanide and caustic soda for intensive gold leaching (ILR)

Calcium hypochlorite for cyanide destruction

Flocculents for tailings ponds if necessary

Aside from compressed air, reagents will be delivered to site by road transport and will be transferred to the mixing tanks inside the processing plant fenced area. Once prepared, the reagents will be pumped to the feed tanks within the plant.

5. INFRASTRUCTURES

Infrastructure(s) to support the project include mine access road, main office, warehouse, mill office, and laboratory. All structures will be built with concrete blocks.

Other facilities such as shops and garage will be built with steel skeleton on a concrete pad with a steel roof. These open type constructions are popular in Africa and South America.

Local communications will be provided by cellular phone. A satellite system is the best way to provide communications between Mali and Canada.

Power will be supplied by diesel generators. A total power capacity between 8,500 and 9,000 kW has been estimated for the process plant power requirements and allowance for infrastructures (city, mine, lighting and services).

At this stage, there is not enough information to support the connection to the national high voltage grid but this option must not be overlooked. Bumigeme proposes that a study be undertaken to consider this possibility as well as the economics of using heavy gasoil (bunker C) instead of light gasoil.

6. HYDROLOGY

The actual requirements in fresh water by the plant, the city, etc. have not been determined at this stage. A hydrology and hydrogeology studies would provide an adequate knowledge based on the current situation in order to plan the proper way of how to manage the water in this area. As part of this program, the tailings management facility design should consider the control, recycling and management of water from the tailings as well as incidental rainfall, and run off water.

7. ENVIRONMENT

The project is "Environmentally Correct" as the process selected for the treatment of the gold ore is a gravimetric process and free of chemicals like cyanide, xanthates, acids, etc. However, Bumigeme suggests to install a high density leach reactor (Accacia or ILR type) to dissolve the gold recovered from the Knelson or Falcon concentrators. Those reactors use cyanide but only on a small quantity of ore (about 0.025% of the feed), and the cyanide is destroyed at the end of the process. So the final tailings are free of cyanide, and due to the scarcity of water in the area, the process water will be re-used at 100%.

The area is quite flat and the overburden material will be removed and stocked during the construction period, to be used as rehabilitation material at the end of the project.

The rehabilitation works will mainly consist in dismantling the buildings and, using the mining equipment, return the area to its original state by filling the pit with the waste (from the mine and rejects of the mill) and the material used to build the dams of the water reservoir and tailings pond.

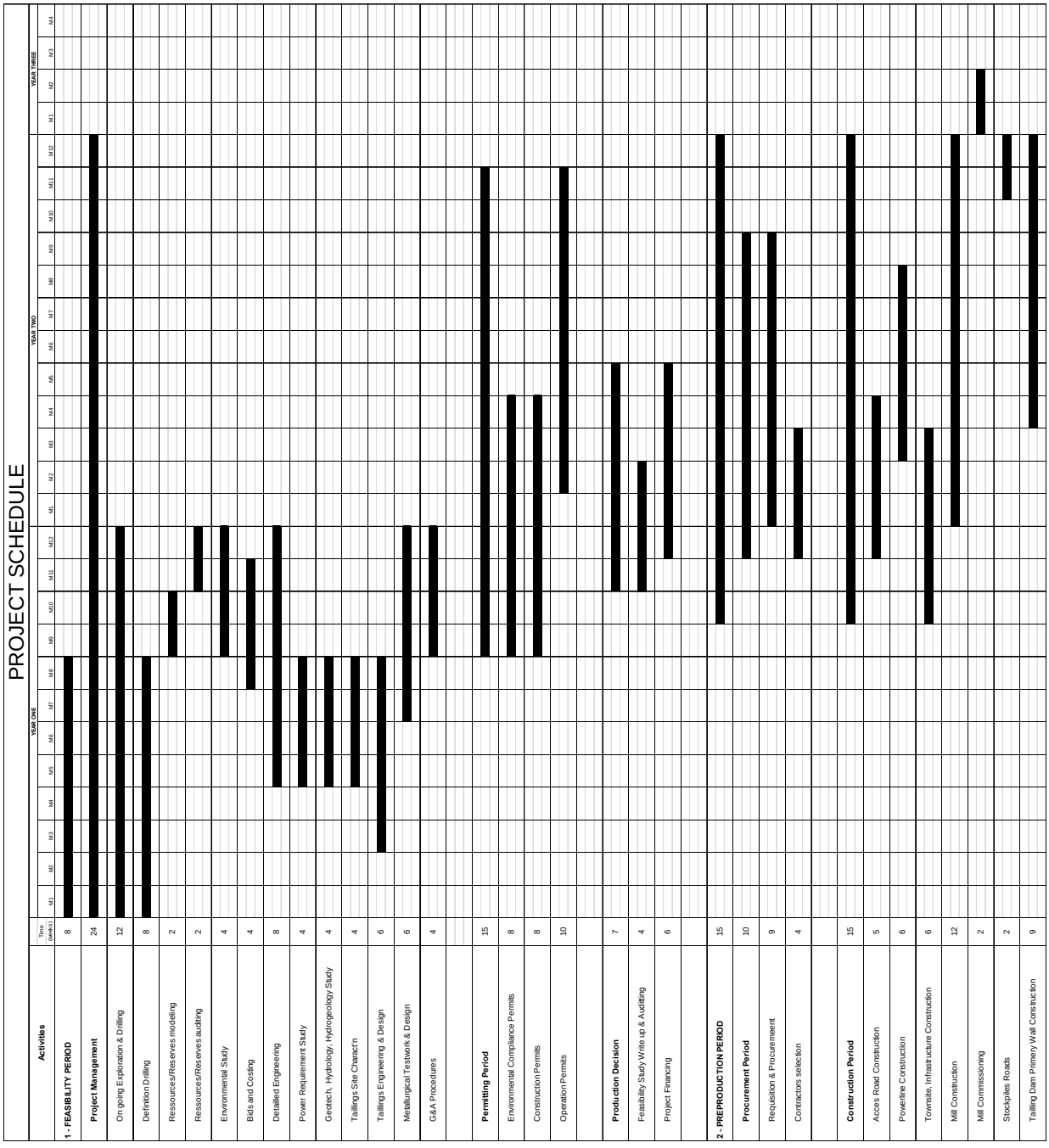
Because the ore is free of sulphides, at least for the first 120 meters, and the remaining 40 meters contain between 20 to 30% sulphides ores, we assume that there will be no ‘’Acid Mine Drainage’’ (AMD) problems with the effluents that could require follow-up for years after the end of operations. But this will have to be confirmed in a feasibility study.

The rehabilitation costs of the site will be low and will be done by spreading the overburden put aside at the beginning of the project, over the reshaped site and planting bushes or trees.

8. PROJECT DEVELOPMENT SCHEDULE

The preliminary project schedule is depicted on the following page. Two important phases were considered: a feasibility period of 8 months duration and a pre-production phase of 16 months duration. A site visit and a more detailed analysis of needs are required to scope the infrastructures and service requirements of the project

Project Development Schedule



9. CAPITAL COST ESTIMATE

9.1 CONCENTRATOR CAPITAL INVESTMENT

The concentrator will be mounted on a concrete pad of 60 m x 90 m. The security zone, where the Wilfley table, the Gemini table and the furnace are located, will occupy approximately 35% of the surface and will consist of a steel structure and brick walls. The rest of the equipment will be protected by a roof only.

Capital investment requirements for the concentrator include the equipment and their installation, civil, concrete and metallic structures. We have also included the cost of diesel generators to power the plant and the infrastructures, piping and instrumentation, EPCM and transportation to mine site.

The initial expenditure requirement for the processing plant is estimated at C$30,554,760 with the breakdown of costs shown in Table 17.

The costs of the equipments was estimated either from past projects realized by Bumigeme, or from direct quotations from suppliers and manufacturers.

It is worth noting that the equipment capital cost could be lowered if a significant amount of used equipment can be purchased.

Table 17
Summary of the Capital Cost of the Concentrator (initial investment)

Description	Cost (C$)
Equipment cost (Appendix C)	10,856,540
Metallic structure	700,000
Civil concrete	1,717,300
Piping	1,269,600
Instrumentation	2,000,000
Diesel generators (4x3000kVA + 1x3000kVA as spare)	8,000,000
Transformers, cables, breakers, etc.	1,180,000
Transportation to mine site	1,635,635
Equipment installation	2,195,685
Spare parts	1,000,000
Sub-Total:	**30,554,760**

At year 6, when the operation will reach level 300 where the ore will consist of a mix of oxides and sulphides, a second ball mill will be needed to grind this ore with a work index of 14.5 (assumed) instead of 12.0 for the oxide zone.

The size of the ball mill is calculated on the basis of the following parameters:

Work index:	14.5
Granulometry:	P_{80} 150 mesh
Desliming circuit:	no change
Percentage sulphides:	30%
Daily tonnage to grind:	157 mt/hr
Daily tonnage to grind:	173 st/hr

The power that will be needed to grind this ore from this zone is estimated at 10 kW/mt, this brings the power to 1,730 kWh or 2,300 hp. In the plant there will already be a ball mill with a 1,200 hp motor. The new ball mill will need a motor of approximately 1,200 hp.

The addition of the new ball mill will require the purchase of a new diesel group of 1,500 kVA with auxiliary equipment.

No modifications are anticipated in the crushers and in the concentrator departments but the overall recovery will drop from 87.9% to 80.8% (assumed as no metallurgical tests have been done on this mix of ore).

The Capex is estimated at C$2,900,000 as following:

New ball mill:	$	1,500,000
1,500 kVA diesel group:	$	560,000
Transformers, cables, etc.:	$	360,000
MCC, instrumentation:	$	480,000
Total:	$	2,900,000

This new investment will be made in years 4 and 5 before mining operation in year 6 due to the long delivery of the new ball mill equipment.

9.2 INFRASTRUCTURES AND SERVICES

Capital Investment

The infrastructures and services capital cost for the Kobada mining project in Mali and for an operation of 20,000 tpd of ore is estimated at $C29,016,650. The detailed costs of the main items are summarised in Table 18.

This capital investment will be used for:

- Dirt road to upgrade between Selingue and the mine site
- Bridge construction over the Fie River the span of the bridge is about 150 meters
- Moving the village of Kobada (about 700 persons) which will be to close to the pit when the project will be in production
- Site preparation
- Machine shop
- Garage and overhead crane
- Buildings
- Warehouse
- Dry
- Laboratory
- Fuel tank with pumps
- Sceptic system
- Guard and fence
- The tailings pond
- Landing strip for personnel and gold ingots transportation to Bamako

The dirt road between Selingue and the mine site is approximately 50 kilometers and the cost to upgrade it with dozers, graders, compactors, etc. is estimated at C$5.0M (50 km x C$100,000 per kilometer). The construction of a new bridge over the Fie river is estimated at C$2.5M. The moving of the village of Kobada and the resettlement of the people is estimated at C$7.0M (700 peoples at C$10,000 per person). Those three items could possibly be shared with the Malian government as those are of public interest. The construction of a landing strip for small planes is estimated at C$1.0M. A mining company in this area has built one for less than one million dollars.

Table 18
Summary of Infrastructures and Services Capital Investment

Description	Cost (C$)
Road repair	5,000,000
Bridge construction	2,500,000
Kobada village relocalisation	7,000,000
Landing strip	1,000,000
Site preparation	500,000
Laboratory (see Appendix D)	425,000
Main Office, Warehouse and Dry	1,200,000
Sceptic System	71,500
Guard house and fence	250,150
Tailings pond	5,000,000
Showers, toilet, etc (concentrator)	30,000
Garage and overhead crane	1,500,000
Office furniture	40,000
Spare parts (shovels, loaders, trucks, concentrator, etc.)	1,000,000
Pipes for tailings pond + site preparation and installation	3,500,000
Total	**29,016,650**

9.3 PERSONNEL ACCOMMODATIONS

A mining operation in Mali would necessarily have to give special consideration to accommodations and the first model that comes to mind is the modern thinking of commuters' camp in which the workers are housed and fed free of charge and work on a rotation schedule of 8 weeks in, with 3 weeks off.

Such schedule, comparable to existing mines in Africa, are made to measure from project to project but necessitate good comfortable accommodations and efficient transportation of the workers.

The establishment of a camp for say 60 persons would cost in the order of C$2,1 M or C$35,000 per man, based on similar camps in Canada (Hydro-Québec, mining companies, etc.).

10. OPERATING COST ESTIMATE

10.1 CONCENTRATOR OPERATION COSTS

The costs of the concentrator are based strictly on direct costs. These costs include labour, milling cost (reagents, wearing parts, maintenance, laboratory consumables), and energy. The costs of the supplies are based on Canadian prices plus the transportation to Mali. The labour costs have been estimated based on similar operations in Mali.

The working schedule is based on three eight–hour shifts per day, seven days a week and three hundred and fifty days a year.

10.2 LABOUR

The manpower necessary for the concentrator, laboratory and maintenance area is summarized in Tables 19, 20, and 21. Expatriate personnel is summarized in Table 22.

a) **Concentrator**

Based on the proposed processing plant capacity and design, fifty-seven Malians nationals will be needed for the operation of the concentrator for a total annual cost of C$415,928.

Table 19
Manpower Requirement for the Concentrator

Description	Quantity	Annual Salary (C$)
Mill superintendent	1	32,232
Mill foreman	1	20,253
Conveyor, screens operators	18	226,674
Scrubber operators	3	43,779
Knelson operators	3	43,779
Cleaning labours	6	60,366
Smelting foremen	2	32,506
Wilfley and Gemini tables operators	6	60,366
Smelting labourers	3	43,788
Metallurgists	2	54,282
Shift foremen	6	87,558
Tailings pond labourers	6	60,366
Sub-Total	**57**	**765,949**

b) **Laboratory Personnel**

Table 20
Manpower Requirement for Laboratory

Description	Quantity	Annual salary (C$)
Chief chemist	1	16,253
AA Technicians	3	36,963
Laboratory technicians	4	49,284
Accounting clerk	1	12,321
Sample men	6	43,236
Labours	2	14,412
Secretary	1	7,206
Sub-Total	**18**	**179,675**

c) **Maintenance Personnel**

Table 21
Manpower Requirement for Maintenance

Description	Quantity	Annual salary (C$)
Maintenance superintendents	2	55,632
Mechanic foremen	2	32,506
Mechanics and apprentices	18	185,778
Rubber specialists	3	24,354
Electricians	3	51,360
Lubricating labours	6	48,624
Shop foremen	2	20,642
Lathe machinists	3	43,470
Milling machine machinists	3	43,470
Motor rewinding technicians	3	43,470
Welders	6	61,926
Services planning	2	24,642
Store managers	2	24,642
Clerks and drivers	6	48,624
Secretaries	2	14,412
Housekeeping personnel	6	43,236
Sub-Total	**69**	**766,788**

d) **Expatriates Personnel**

Table 22
Manpower Requirement for Expatriates Personnel

KOBADA SITE	Bamako	1	Logistic manager
		1	Secretary
	Administration	1	General manager
		1	Secretary
		1	Chief accounting
		1	Purchasing agent
		1	Warehouse clerk
	Mine	1	Superintendant
		1	Production foreman
		1	Geologist
		1	Drauhgtman surveyor
	Plant	1	Superintendant
		1	Metallurgist
		1	Production foreman
		1	PC technician
	Maintenance shop	1	Supervisor
		1	Foreman
		2	Machinists
		2	Mechanics
	Electrical shop	1	Supervisor
		1	Electrician
	Garage	1	Supervisor
		1	Foreman
		1	Hydraulic mechanic
		2	Maintenance mechanics
	Mining city	1	Director
		1	Head cook
		1	Supplies clerk
		1	Logistic clerk
	Sub-Total	**32**	

Canada Head Office	1 1 1	Project manager Purchasing agent-accountant Secretary
Sub-Total	**3**	
Expatriates and Head Office	**35 x 150,000 C$**	**5,250,000 C$**

10.3 MILL SUPPLIES AND MAINTENANCE COSTS

The operating milling costs comprise reagents, wearing parts, maintenance, laboratory consumables. Table 23 presents these costs.

10.3.1 Reagents

The gravimetric process as such does not consume any reagents. Water used in the gravity concentrator plant will be sent to the tailings pond where it is estimated that 60% of this water would be available for recycling. However due to the presence of fine clays, it may be necessary to add flocculants to help clarify this water.

The cyanide and caustic consumption in the ILR plant would have to be re-evaluated based on test work using the Tailings produced by the Wilfley and Gimini tables as feed for the ILR plant. It will also be necessary to add some sodium hydroxide to the pregnant solution to obtain a pH 13.5 to be able to reduce the soluble gold content in the barren liquor to less than 10 ppm.

The consumption of the calcium hypochlorite will depend on the cyanide content of the waste liquor and tailings of the ILR plant which will be determined in further test work. The water will be recycled to the concentrator at 100% and concentration of fine particles might increase the viscosity of this water and become detrimental to the process.

From a similar operation, the reagents costs are estimated at C$2.0 M.

10.3.2 Wearing Parts

The main wearing parts are mainly those of the ball mill liners and the grinding balls consumption. The total yearly cost is estimated at C1,362,210.

10.3.3 Maintenance

The equipment in a concentrator is subjected to wear that necessitates the replacement of certain parts on a regular basis. The statistics published by mining operators estimate that annual cost at 5% of the capital cost.

10.3.4 Laboratory Consumables

The laboratory (assay office) consists of two sections: samples preparation and pyroanalysis. The cost of these consumables is estimated at C$770,000.

Table 23
Summary of Mill Supplies and Maintenance

Description	$C/Year
Reagents (flocculent, lime, cyanide, hypochlorite, caustic sodium)	2,000,000
Wearing parts	1,362,210
Maintenance (5%)	2,428,000
Laboratory chemicals	770,000
Miscellaneous	1,078,000
Total	**7,638,210**

10.4 ENERGY

The electricity will be produced by diesel generators.

Four generators of 3,000 kVA will supply the electricity to the concentrator and the support facilities. A fifth generator is required as stand-by.

The annual operating costs as detailed below, comprise three items: gasoil consumption, oil consumption and maintenance and spare parts.

10.4.1 Gasoil Consumption

At full capacity of the concentrator, the 4 generators (plus one as spare) will work at 75% of their capacity. At that rate, each one will consume 500 litres/h or 2,000 litres/h for the four groups (data given by the supplier)

The annual fuel consumption will be approximately 16,800,000 l, with a unit price of C$0.97 /l, the annual cost will be C$16,296,000. The cost is high at 0.22 per kWh and this is due to the cost of the fuel at C$0,97/liter. This fuel cost has been obtained from an actual operator.

Investigation should be done at the feasibility study stage, for the possible supply of Bunker C fuel in Mali, which is cheaper and would reduce the kWh cost.

10.4.2 Motor Oil

The consumption of motor oil is based on a consumption of 1 g/kWh. The total consumption is calculated to be 75,600 kg/year or 418 barrels and the annual cost is estimated at C$216,682. The unit cost of a barrel is estimated from similar operation and is estimated equal to 233,300 CFA or C$518.38/barrel.

10.4.3 Maintenance and Spare Parts

The cost of this item is estimated at C$297,880; it comprises the technician labour cost and accommodation during the shutdown for two weeks at C$1,300/day at each shut down (4 per year).

Spare parts for generators are estimated at C$45,000 per generator per year for the 3,000 kVA generator.

In summary the total cost of the power of a 20,000 tpd plant will be:

C$16,296,000 + C$216,682 + C$297,880 = C$16,810,562

(See section Table 24 which shows the breakdown of the different costs)

Table 24
Energy Costs

Description		Total (C$)
Fuel	16,800,000 l x C$0.97/l	16,296,000
Oil	418 barrels x C$518.38/barrel	216,683
Maintenance and spare parts		
1. Technician cost	C$1,300/day x 14 days x 4 shutdowns/year	72,880
2. Spare parts	C$45,000 x 5 generators	225,000
	Sub-Total	**297,880**
	Total	**16,810,562**
	Cost per kWh	**0.22**

10.5 SUMMARY OF OPERATING COST OF THE CONCENTRATOR

Table 25
Concentrator Operating Cost

Description	C$
Labour	
Concentrator personnel	765,949
Laboratory personnel	179,675
Maintenance personnel	766,788
Expatriate personnel	5,250,000
Milling cost	7,638,210
Energy	16,810,562
Sub-Total	**31,411,184**

11. ADMINISTRATION AND SERVICES

11.1 SALARY

This cost comprises the salary of the administration personnel, the mining camp personnel and the expatriates.

11.1.1 Administration Personnel

This personnel will total 31 and include all personnel not involved in the mining, processing, or engineering departments. The management of this department will be expatriates and their salaries will be based on international standards.

Table 26
Administration Personnel Salary

Description	Number of Employees	Annual Salary (C$)
PDG Assistant PDG General manager Assistant general manager	1 1 1 1	200,000
Assistant director	1	34,451
Operation director	1	32,722
Human Resource director	1	31,740
Assistant-DRH	1	13,660
Personnel manager	1	15,948
Accounting manager	1	25,354
Accountant	1	12,268
Accountant technician	1	7,206
Logistic and purchasing	1	7,245
Purchasing clerks	3	21,621
Pay managers	2	24,642
Store keeper	1	7,355
Store clerks	2	22,360
General controller	1	15,781
Environment director	1	25,512
Environment personnel	1	16,960
PC technician	1	27,141
Maintenance labors	6	62,298
Sub-Total	**31**	**604,264**

11.1.2 Mining Camp

Table 27
Mining Camp Personnel Salary

Description	Number of Employees	Annual Salary (C$)
Personnel manager	1	15,949
Head doctor	1	24,692
Nurses	3	43,545
Wise woman	1	14,515
Human resources	1	16,454
Health and safety	1	14,515
Pay roll	1	14,887
Secretary	1	7,206
Head cook	1	14,515
Cook and apprentices	4	40,792
Building maintenance	1	14,887
Cleaning services	4	30,000
Sub-Total	**20**	**251,957**
Total (11.1.1 + 11.1.2)		**856,221**

11.1.3 Services

Table 28
Operating Costs for Services

Description	C$/Year
Ingot transportation, insurance, gold refining	288,750
Local taxes, fire insurance, canteen	500,500
Communications, travelling expenses, office supplies	580,098
Miscellaneous	365,750
Total	**1,735,098**

11.1.4 Summary of Operating Cost for Administration and Services

Table 29
Summary of Operating Costs

Description	C$/Year
Salary	856,221
Services	1,735,098
Total	**2,591,319**

12. PERSONNEL ACCOMMODATIONS OPERATING COST

Assuming a crew of 32 persons, travelling, insurance, food, etc. yearly costs amount to C$1,236,000, as follows:

Table 30
Personnel Accommodations Operating Cost

Description		Total (C$)
Travelling	32 persons x 6 trips/year x 3,000 C$/trip	576,000
Food	32 persons x C$50.00 x 350 days/year	560,000
Miscellaneous	Insurance, per diem, etc.	100,000
	Sub-Total	**1,236,000**

13. SUMMARY OF CAPITAL COSTS (CAPEX)

Table 31
Summary of Capital Costs (CAPEX)

Description	C$
Mining	34,404,000
Concentrators	30,554,760
Infrastructures and services	29,016,650
Personnel accommodations	2,100,000
Sub-Total	**96,075,410**
EPCM (12.5%)	12,009,426
Miscellaneous (15%)	14,411,312
Sub-Total	**26,420,738**
Total CAPEX	**122,496,148**

14. SUMMARY OF OPERATING COSTS (OPEX)

Table 32
Summary of Operating Costs (OPEX)

Description	C$/Year
Mining	15,122,267
Concentrators	31,411,184
Administration and services	2,591,319
Personnel accommodations	1,236,000
Sub-total	**50,360,770**
Miscellaneous (15%)	7,554,116
Total OPEX	**57,914,886**
Operating Cost/mt	**8.27**

14.1 SUMMARY OF OPERATING COST AT YEAR 6 AND AFTER.

At year 6 the operating cost will be increased by $0.46 due to the addition of a new ball mill of 3.81 m diam. x 4.877 m long with a 1,200 hp motor.

The cost increase amounts to 0.46 /mt as follows:

Energy cost:	$0.24/mt
Supplies (balls, liners):	$0.10/mt
Miscellaneous:	$0.12/mt
Total	**$0.46/mt**

Total operating cost at year 6 and after: **$8.73/mt**

15. PROJECT ECONOMICS

15.1 BASE CASE

The project base case is for processing 7,000,000 mt per year in a gravity process plant recovering 87.9% for the first five years and 80.8% for the last year of the gold contained in 41,750,000 mt of lateritic material assaying 0.64 g/mt. The average operating cost is C$8.27/mt for the first five years with a CAPEX of C$122,496,148. During years 4 and 5, the CAPEX will be increased by $2.9M and the average operating cost at year 6 will be C$8.73/mt.

The project produces gold at the direct cost of CDN$457.19 per ounce.

The price of gold is kept constant at US$1,100/oz., with an exchange rate of C$1.00 = US$1.00.

A discount rate of 5% was taken for calculations of economic indicators and the borrowing rate at 8% for half of the project capital requirements, with reimbursement in five equal instalments.

The taxation in Mali offers a tax holiday of 5 years for mining industry and allows depreciation as fast as possible (5 years in this case). The taxation for remaining year is at 35%.

Table 33
Base Case Economics

EQUITY	IRR (%)	Pay Back Period	Net Present Value (M)
50%	90.6	14 months	216.9

15.2 SENSITIVE ANALYSIS

15.2.1 IRR vs Operating Costs

In order to determine the project sensitivity to the operating cost, the consultant measured the variation of the IRR in relation to a variation of operating cost and keeping the other variables constant. We calculated the IRR and other economic indicators assuming an operating cost variation between -25%, -15% and +15%, +25%. The results are shown in Table 34.

Table 34
IRR vs Operating Cost Variation

Operation Cost Variation (%)	Pay Back Period (month)	Net Present Value (M)	IRR (%)	IRR Variation (%)
-25	11	$286.7	114.9	+26.8
-15	12	$258.8	105.2	+16.1
Base	14	$216.9	90.6	-
+15	16	$175.0	75.7	-16.4
+25	18	$147.1	65.6	-27.6

The economics of the project are only slightly influenced by the operating costs. The details of the cash flow with various operating costs are shown in Appendix E.

15.2.2 IRR vs Gold Price

In order to determine the project sensitivity to the gold price, the consultant measured the variation of the IRR in relation to a variation of gold price and keeping the other variables constant. We calculated the IRR and other economic indicators assuming a gold price variation between $900/oz. and $1,450/oz. The results are shown in Table 35.

Table 35
IRR vs Gold Price

Gold Price Variation $US	Pay Back Period (month)	Net Present Value (M)	IRR (%)
$900	23	$103.2	48.8
$1,000	17	$160.1	70.1
$1,100	14	$216.9	90.6
$1,200	11	$273.7	110.7
$1,450	8	$415.8	160.1

The details of the cash flow with various gold prices are shown in Appendix F.

16. CONCLUSIONS AND RECOMMENDATIONS

The Kobada Gold Project with resources of 41,750,000 metric tons at 0.64g/mt and a treatment plant of 20,000 mt per day during 5.9 years is technically feasible and financially viable for gold at $900/oz. It has an Internal Rate of Return of 48.82%, a Net Present Value of $103,242,320 at an 5% discount rate and a Pay Back Period of 23 months. For the Base Case, Bumigeme has retained the price of $1,100/oz. for gold and this scenario shows an IRR of 90.57% and a Net Present Value of $216,902,291 at an 5% discount rate. The Pay Back Period is approximately 14 months.

At the worst case scenario no one predicts that the price of gold will go down below the level of $900/oz. which gives an Internal Rate of return of 48.8%, an NPV of $103,242,320 and a Pay Back Period of 23 months.

16.1 PROJECT UPSIDE

The Kobada project is relatively simple and easy to operate and therefore does not present any particular difficulties. In fact, due to the use of well known standard mine techniques which are used throughout the world, it is believed the Kobada project has more upside associated with it than downside risks.

i) Considering only the Kobada resources for this project, and knowing that it represents only a fraction of the resources identified by AGG Inc. in this area, the project upsides are important.

ii) The possibility of procuring good second-hand equipment and the possibility of reducing the operating costs create an exciting challenge to outperform this study and the relative budget forecasts.

16.2 RECOMMENDATIONS

To mitigate the inherent risks associated with this mining project, the consultant recommends the following:

Do more exploration and take more samples on a closer grid in order to increase the certainty of the ore grade, the volume and distribution. The consultant recommends to try and twin at least one test pit.

Perform a geotechnical survey to determine the soil technical characteristics, measure the angle of repose of the lateritic material, determine its permeability and suitability for dam material and evaluate its availability.

Perform a hydrology study including a statistical analysis of the rain fall to determine the 10, 20 and 50 year flood recurrence as well as for calculating the pit dewatering pumps requirement.

Complete a testing program with a pilot plant, to better define the gravimetric process (maximum size of ore to the Knelson concentrators; possible addition of secondary equipment like sluices or jigs to recover gold nuggets if any.

Refine the capital cost estimate by requiring competitive quotations for each piece of equipment as well as the possibility of buying used equipment in good condition.

Survey the project site area to acquire better topographic maps and more accurate location of sampling pits.

Do a market research inside Mali for contractors and equipment suppliers.

Verify port and material handling and transportation facilities between Senegal, Ivory Coast and Mali.

Verify the study premises on taxation, fuel rebate for the mining industry and duty exemptions and remittance.

17. CERTIFICATES OF AUTHORS AND CONSENTS

Jacques Marchand, P. Eng., Geological Engineer

Qualification Certificate

I, Jacques Marchand, P. Engineer P. Geologist hereby certify that :

a) I am a Canadian citizen residing at: 992 Ave. Brown, Québec, Province of Quebec, Canada, G1S 2Z5, Phone 1 418 652 8473, Mobil: 1 418 569 8473, email: marchaja@egeolog.com;

b) The certificate applies to the following entities: the **Issuer** "*African Gold Group Inc.*", the **Property** "*Kobada*" and the **Report** "*Preliminary Economic Assessment, July 13th 2011*";

c) I am graduate of Laval University Quebec, Canada, with the degree of bachelor in Applied Sciences (Geology 1976), and post-graduate courses for master degree at Laval University and at Université Libre de Bruxelles, Belgium. I have been practicing since 1977; I am a registered member with the Ordre des Ingénieurs du Québec (no 37722, I am a qualified person for purposes of National Instrument 43-101;

d) I have visited the Property and the region in preparation for the Report (between the 11 and the 15 of February 2011);

e) I am responsible for the Geology section of the Report (Item 2);

f) I am independent of the Issuer applying the following tests;

(a) I, nor any affiliated entity of me, is not, or by reason of an agreement, arrangement or understanding expects to become, an insider, associate, affiliated entity or employee of

i. the Issuer,

ii. an insider of the Issuer, or

iii. an affiliated entity of the Issuer;

(b) I, nor any affiliated entity of me, is not, or by reason of an agreement, arrangement or understanding expects to become, a partner of any person or company referred to in paragraph (a);

(c) I, nor any affiliated entity of me, owns not, or by reason of an agreement, arrangement or understanding expects to receive, any securities of the Issuer or of an affiliated entity of the Issuer or an ownership or royalty interest in the Property that is the subject of the Report;

(d) I, nor any affiliated entity of me, not received the majority of his or her income in the three years preceding the date of the Report from one or more of the Issuer and insiders and affiliated entities of the Issuer; or

(e) I, nor any affiliated entity of the me,

i. is not, or by reason of an agreement, arrangement or understanding expects to become, an insider, affiliate or partner of the person or company which has an ownership or royalty interest in a property which

has a boundary within two kilometres of the closest boundary of the property being reported on; or

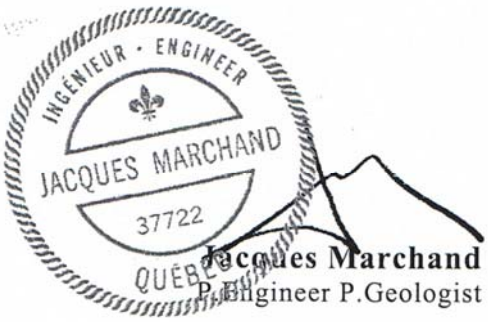
ii. has not, or by reason of an agreement, arrangement or understanding expects to obtain, an ownership or royalty interest in a property which has a boundary within two kilometres of the closest boundary of the property being reported on.

g) I have had no prior involvement with the Property that is the subject of the Report; and

h) that I have read the 43-101 National Instrument and Form 43-101F1, and the Report has been prepared in compliance with the 43-101 National Instrument and Form 43-101F1.

i) I am not aware of any material fact or material change with respect to the subject matter of the Report which is not reflected in the Report, the omission to disclose which makes the Report misleading;

Signed at Quebec, this July 13th , 2011.



Jacques Marchand
P. Engineer P.Geologist

Jacques Marchand
Ingénieur géologue Conseil

Quebec, July 15th 2011

Financial Markets Authorities

Object: **Consent of qualified person**
African Gold Group Inc. «AGG»

Sir, Madame,

I, Jacques Marchand, Professional Engineer, do hereby:

a) Consent to the public filing of the technical report;
b) **PRELIMINARY ECONOMIC ASSESSMENT,** dated July 13th 2011;
c) Consent to the use of extracts from, or a summary of, the technical report in public documents;
d) Confirm that I have read the written disclosure in the July 14th, 2011 press release and that it fairly and accurately represents the information in Item 2 of the technical report.

Dated at Québec, this 15th day of July 2011

Jacques Marchand Ing. Géol.

992 Brown, Québec, Québec, Canada G1S 2Z5
Tél : 1 418 652 8473, Fax 1 418 652 8473
Courriel : marchaja@egeolog.com

Mohamed Bouna Aly, P. Eng., Mining Engineer

CERTIFICATE OF AUTHOR

I, Mohamed Bouna Aly, Mining engineer, do hereby certify that:

1. I am a Mining engineer and Manager of GESMINE, Mineral Resources Engineering, a consulting firm based at 5532, Philippe Av. St-Hubert (Québec), J3Y 6H2.
2. I reside at 5532, Philippe Av., St-Hubert, Quebec, J3Y 6H2.
3. I am a graduate in Mining engineering from Ecole Polytechnique de Montréal, Quebec.
4. I am a member of the *Ordre des ingénieurs du Québec*. Licence No. 45110. I am also member of the *Canadian Institute of Mining, Metallurgy, and Petroleum*.
5. I have practiced my profession of Mining engineer continuously for 32 years since graduation. I supervised mining operations in Quebec as well as in Mauritania. I conducted mining projects related to project evaluation in Quebec, Saskatchewan, Senegal, Algeria, Mauritania, and Kirghizistan. I also intervened to improve open pit mining productivity in Quebec, Mauritania, and Mali. I finally audited a mining project on behalf of the African Development Bank.
6. I have read the definition of "qualified person" as defined in National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" as defined in the instrument.
7. I am responsible for the preparation of the section 3 of the report titled "KOBADA Property – Mali, Preliminary Economic Assessment" dated July 13, 2011. I did not visit the KOBADA property. This section covers the open pit mining aspect.
8. I am not aware of any material fact or material change with respect to the subject matter of this technical report that is not reflected in the report and whose omission would render the report misleading.
9. I am independent of the issuer applying all of the tests in Section 1.5 of National Instrument 43-101.
10. I have read NI 43-101 and Appendix 43-101A1, and certify that the technical report has been prepared so as to comply with them.

Signed at St-Hubert, July 13, 2011

Mohamed Bouna Aly, Eng.
Mining Engineer

CONSENT OF QUALIFIED PERSON

July 15th, 2011

Dears Sirs and Mesdames:

Re: Preliminary Economic Assessment (PEA) – Kobada Gold Project

I, Mohamed Bouna Aly, Eng. do hereby consent to the filing of the Preliminary Economic Assessment (PEA) report of the Kobada Gold Project, Mali West Africa, dated July 13, 2011, with any stock exchange or any regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public. I also confirm that I have read the written disclosure in the July 14, 2011 press release and that it fairly and accurately represents the information contained in the section 3 of the PEA report and related to the Kobada gold project.

Dated at Saint-Hubert, this 15th day of July 2011

Signed: Mohamed Bouna Aly, Eng.

Florent Baril, P. Eng., Metallurgical Engineer

CERTIFICATE OF AUTHOR

FLORENT BARIL, Eng., B.Sc

I, Florent Baril, B.Sc., Senior Metallurgical Engineer and President of:
Bumigeme Inc.
615, boulevard René-Lévesque Ouest, bureau 750
Montréal, Québec H3B 1P5

Do hereby certify that:

1. I reside at 624 Jean Deslauriers, Condo 17, Boucherville, Quebec J4B-8P5
2. I am a graduate from Laval University, Quebec with a B. Sc. Degree in Metallurgy (1954), and I have practiced my profession for over 50 years.
3. I am a member of the "Ordre des Ingénieurs du Québec" (O.I.Q) (Quebec Order of Engineers) (Membership Number 6972)
4. I am the Owner and President of Bumigeme Inc, a firm of consulting engineers, which has been incorporated in 1994.
5. I have visited the property and the region in preparation of the report.
6. I have read the definition of "qualified person" set out in the National Instrument 43-101 ("NI 43-101") and certify that as a result of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I have been involved in mining operations, engineering, construction and development, financial evaluation and senior management in the mineral industry and engineering for over fifty years.
7. I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report.
8. I am the author of sections 4 to 16 and I have collaborated to section 3 of the Preliminary Economic Assessment (PEA) report of the Kobada Gold Project, Mali West Africa, dated July13, 2011.
9. Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of African Gold Group or any associated or affiliated entities.
10. Neither I, nor any affiliated entity of mine own, directly or indirectly, nor expect to receive, any interest in the properties or securities of African Gold Group or any associated or affiliated companies.

Dated this 13th day of July, 2011
(Signed and Sealed)

Florent Baril, Eng.

Florent Baril, P. Eng., Metallurgical Engineer

CONSENT OF QUALIFIED PERSON

July 15th, 2011

Dears Sirs and Mesdames:

Re: Preliminary Economic Assessment (PEA) – Kobada Gold Project

I, Florent Baril, P. Eng. do hereby consent to the filing of the Preliminary Economic Assessment (PEA) report of the Kobada Gold Project, Mali West Africa, dated July 13, 2011, with any stock exchange or any regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public. I also confirm that I have read the written disclosure in the July 14, 2011 press release and that it fairly and accurately represents the information contained in the PEA report of the Kobada gold project.

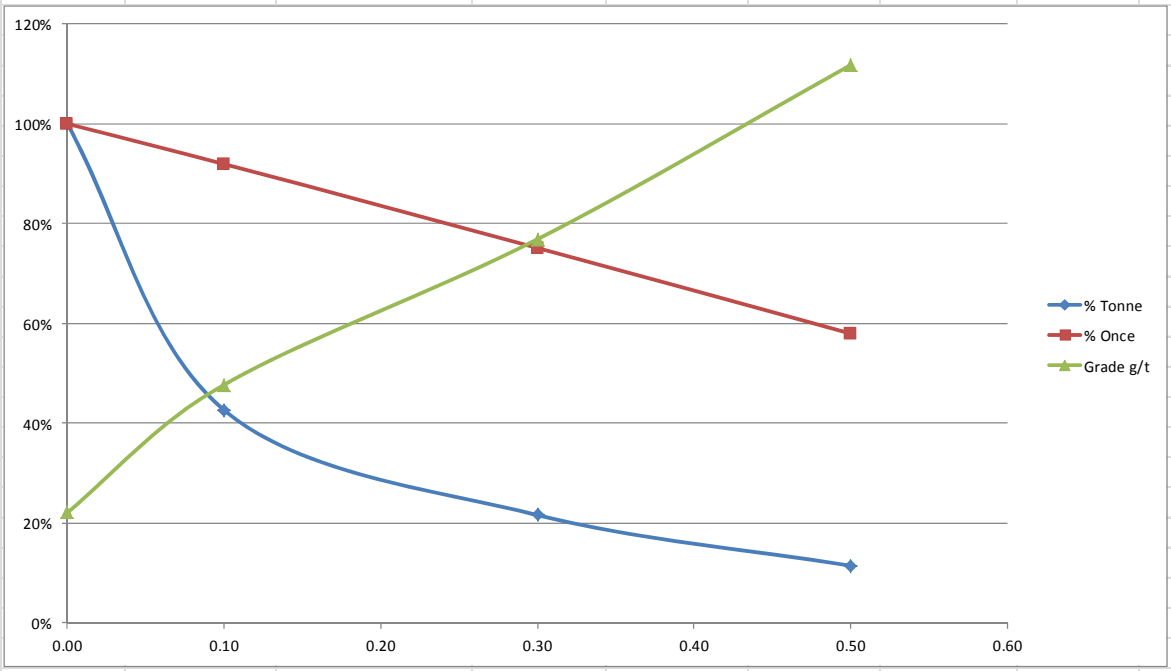
Dated at Montréal, this 15th day of July 2011

Signed: Florent Baril, P. Eng.

Appendix A

SPREAD SHEET TABLES WITH DETAILED RESOURCE CALCULATION

Interval	Cutoff g/t	Tonne	Grade g/t	Once	900 $	% Tonne	% Once	$/t
240-400	0.00	166,955,780	0.22	1,188,416	1,070 M$	100%	100%	6.41
240-400	0.10	71,211,336	0.48	1,092,657	983 M$	43%	92%	13.81
240-400	0.30	36,133,759	0.77	893,149	804 M$	22%	75%	22.25
240-400	0.50	19,167,747	1.12	688,961	620 M$	11%	58%	32.35

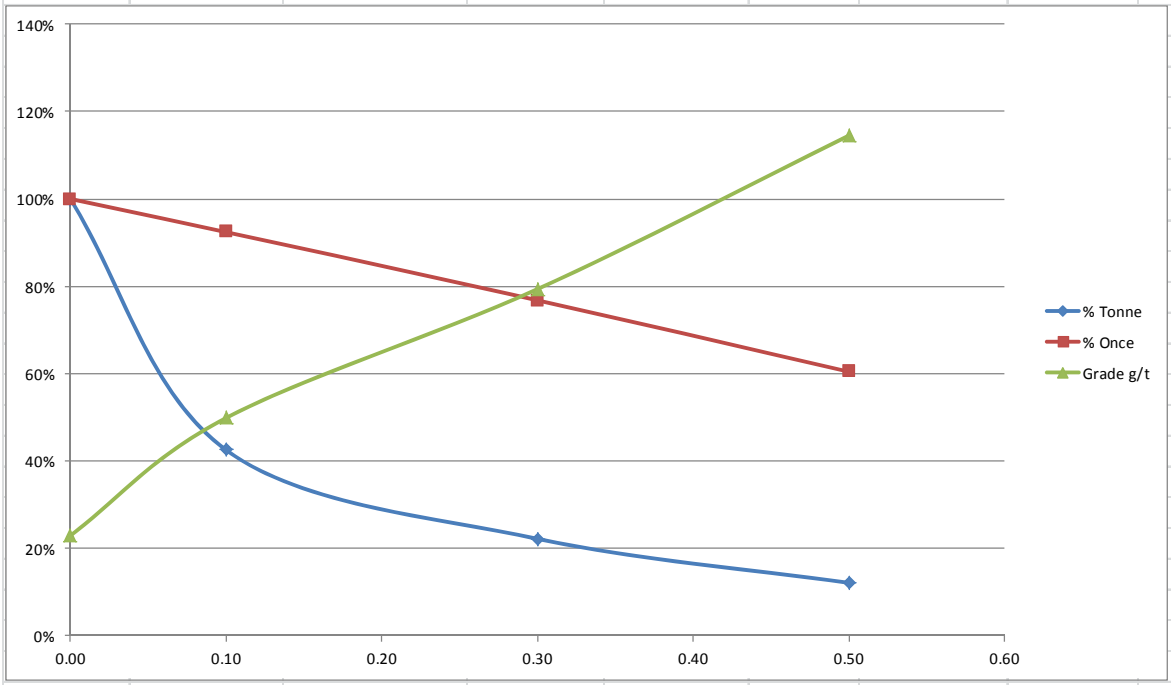


WGM								
	0.30	18,381,000	1.25	738,080				
	0.50	8,482,000	1.99	542,804				
	1.00	5,569,000	3.02	540,933				

APPENDIX A-2

	Coupe	Données															900 $/on		
	<0,1			>0,1			>0,3			>0,5			Total Au tonne	Total Au gramme	Total Au once			
Niveau	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once				g/t	$/t	$M
380-400	11536447	465296	14960	7869364	1370984	44078	3978385	1504233	48362	4225802	5501196	176867	27609998	8841708	284267	0.32	9.27	255.8
360-380	17198567	506739	16292	4794901	839736	26998	2824553	1007968	32407	3131231	2983905	95934	27949252	5338348	171631	0.19	5.53	154.5
340-360	17471861	489813	15748	5411196	945325	30393	2492615	913612	29373	2712488	2906347	93441	28088160	5255098	168955	0.19	5.41	152.1
320-340	17514213	477040	15337	5202346	961474	30912	1600266	642141	20645	3032501	3681702	118369	27349326	5762357	185263	0.21	6.10	166.7
300-320	12342027	365750	11759	3615361	620324	19944	2475020	908027	29194	2939375	3293260	105880	21371784	5187361	166777	0.24	7.02	150.1
280-300	10094622	321391	10333	3815595	675669	21723	2136288	801561	25771	1384707	1367168	43955	17431212	3165790	101782	0.18	5.26	91.6
260-280	5338308	207163	6660	2117324	370460	11911	1080030	423714	13623	853277	824715	26515	9388940	1826051	58709	0.19	5.63	52.8
240-260	4248400	145261	4670	2251490	421427	13549	378855	149727	4814	888365	870866	27999	7767110	1587281	51032	0.20	5.91	45.9
Total	95744444	2978454	95759	35077577	6205398	199508	16966012	6350983	204188	19167747	21429159	688961	166955780	36963993	1188416	0.22	6.41	1069.6

Interval	Cutoff g/t	Tonne	Grade g/t	Once	900 $	% Tonne	% Once	$/t
300-400	0.00	132,368,519	0.23	976,893	879 M$	100%	100%	6.64
300-400	0.10	56,305,405	0.50	902,797	813 M$	43%	92%	14.43
300-400	0.30	29,412,238	0.79	750,473	675 M$	22%	77%	22.96
300-400	0.50	16,041,398	1.14	590,492	531 M$	12%	60%	33.13



WGM								
	0.30	18,381,000	1.25	738,080				
	0.50	8,482,000	1.99	542,804				
	1.00	5,569,000	3.02	540,933				

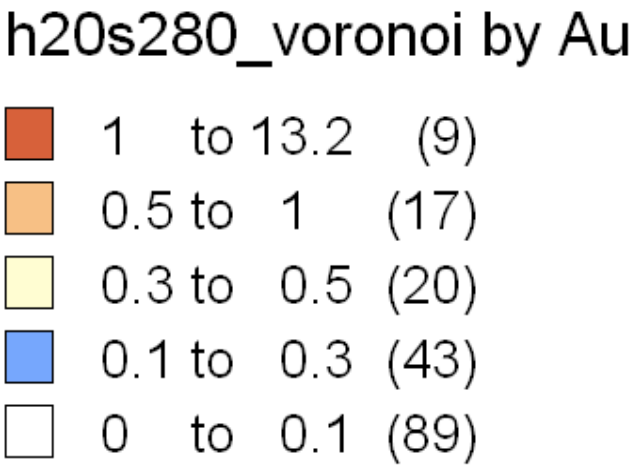
APPENDIX A-4

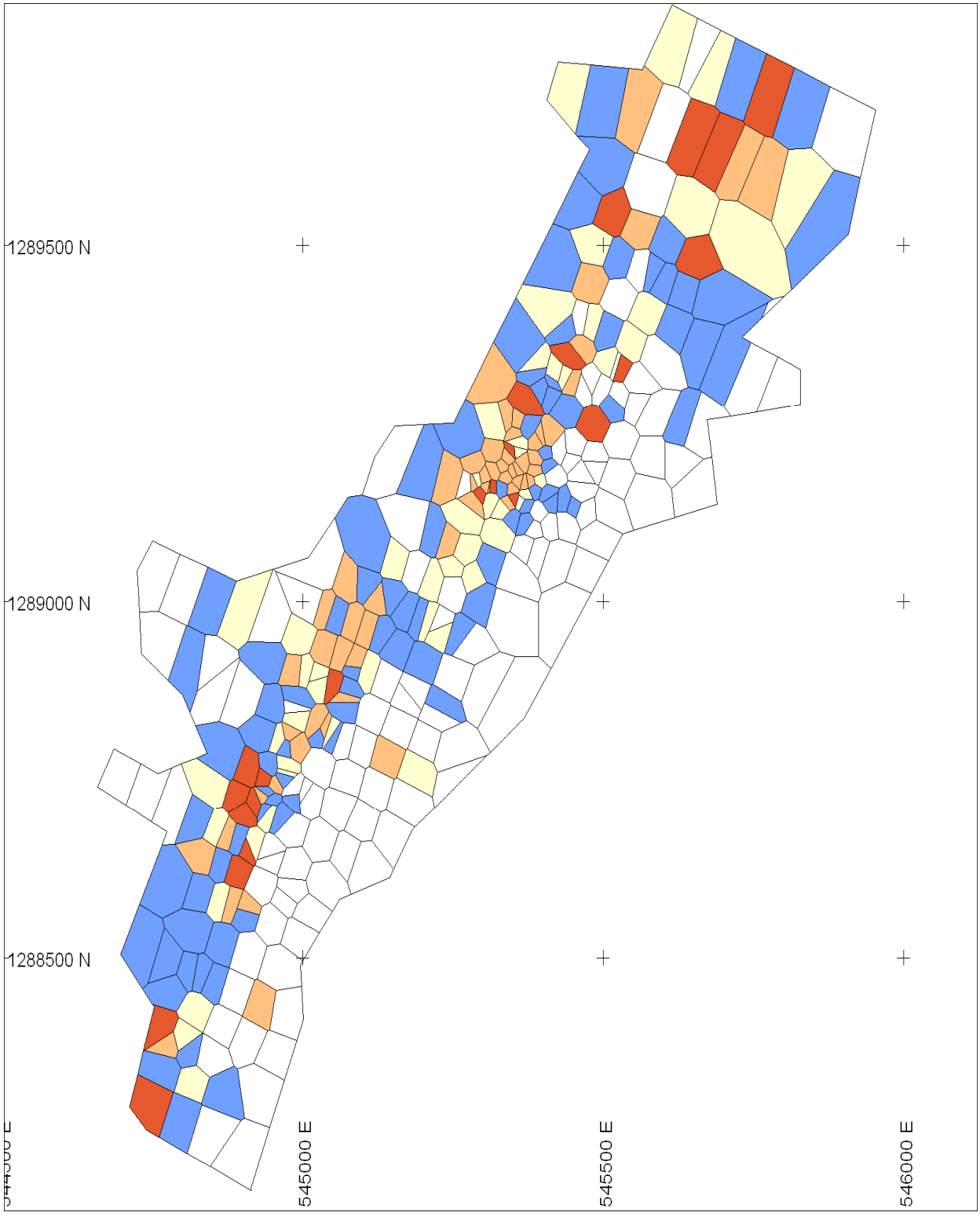
	Coupe	Données																900	$/on
	<0,1			>0,1			>0,3			>0,5			Total Au tonne	Total Au gramme	Total Au once			
Niveau	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once	Au tonne	Au gramme	Au once				g/t	$/t	$M
380-400	11536447	465296	14960	7869364	1370984	44078	3978385	1504233	48362	4225802	5501196	176867	27609998	8841708	284267	0.32	9.27	255.8
360-380	17198567	506739	16292	4794901	839736	26998	2824553	1007968	32407	3131231	2983905	95934	27949252	5338348	171631	0.19	5.53	154.5
340-360	17471861	489813	15748	5411196	945325	30393	2492615	913612	29373	2712488	2906347	93441	28088160	5255098	168955	0.19	5.41	152.1
320-340	17514213	477040	15337	5202346	961474	30912	1600266	642141	20645	3032501	3681702	118369	27349326	5762357	185263	0.21	6.10	166.7
300-320	12342027	365750	11759	3615361	620324	19944	2475020	908027	29194	2939375	3293260	105880	21371784	5187361	166777	0.24	7.02	150.1
Total	76063114	2304639	74096	26893167	4737843	152325	13370840	4975980	159981	16041398	18366410	590492	132368519	30384872	976893	0.23	6.64	879.2

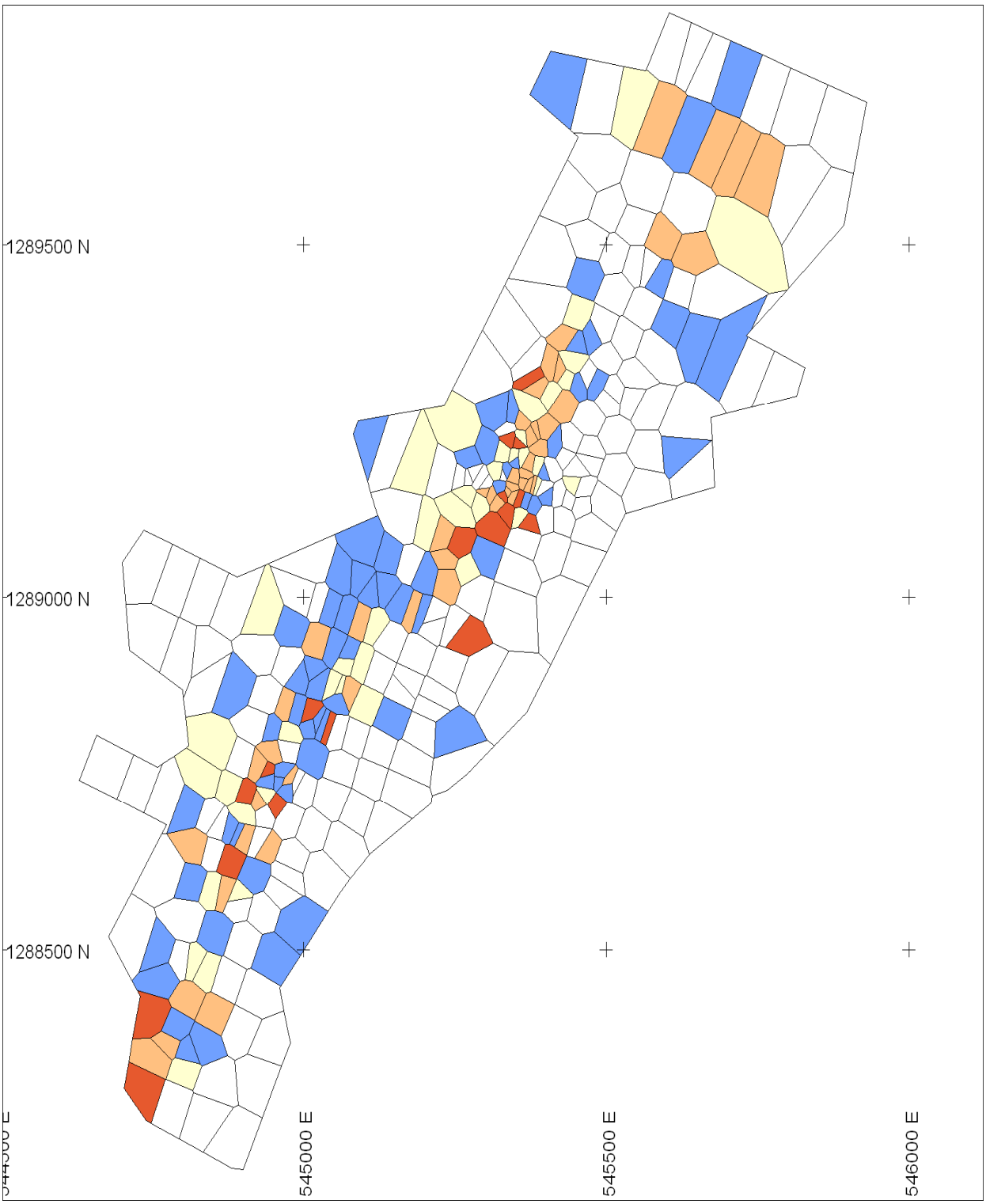
Appendix B

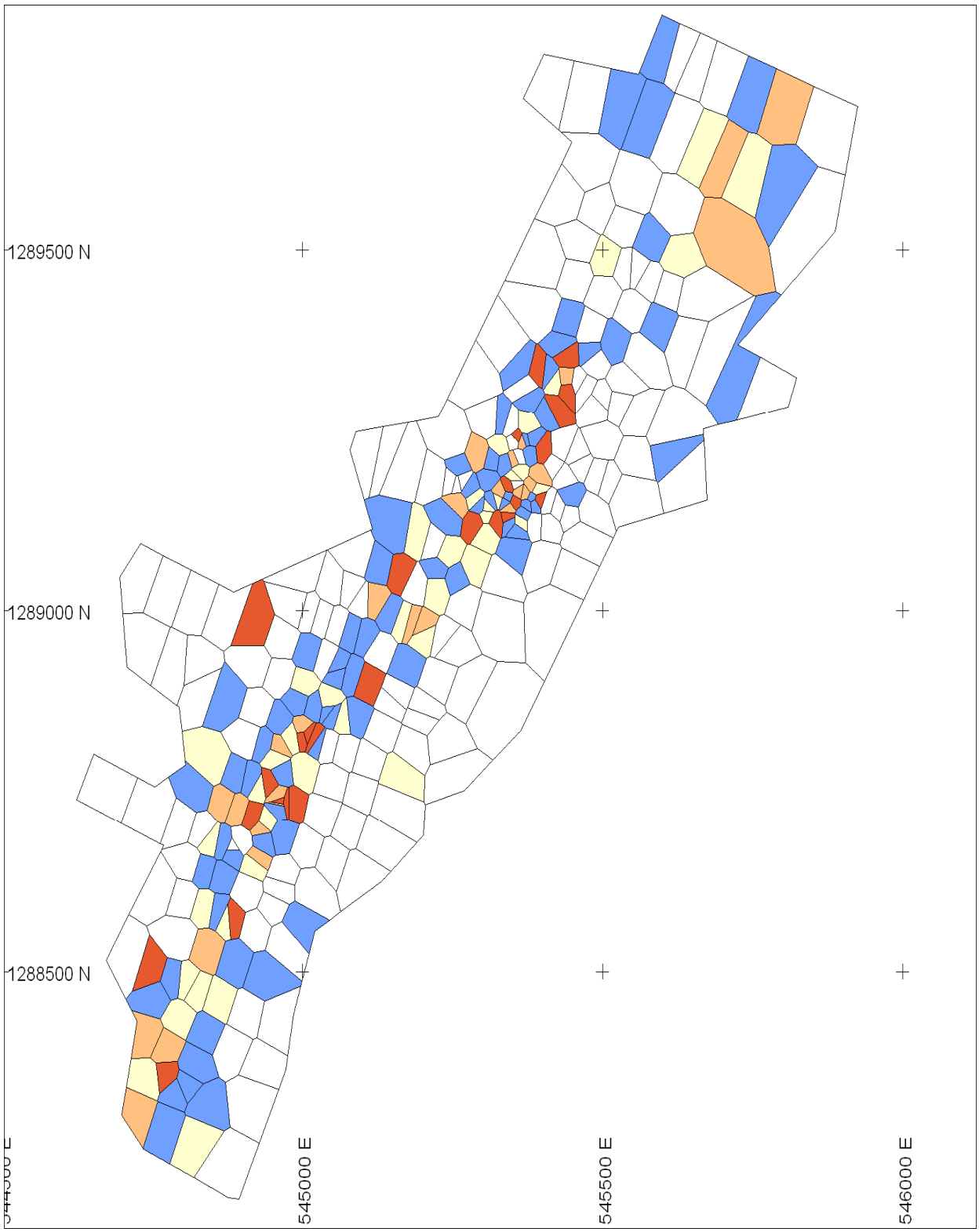
POLYGON BLOCK WITH GOLD GRADE

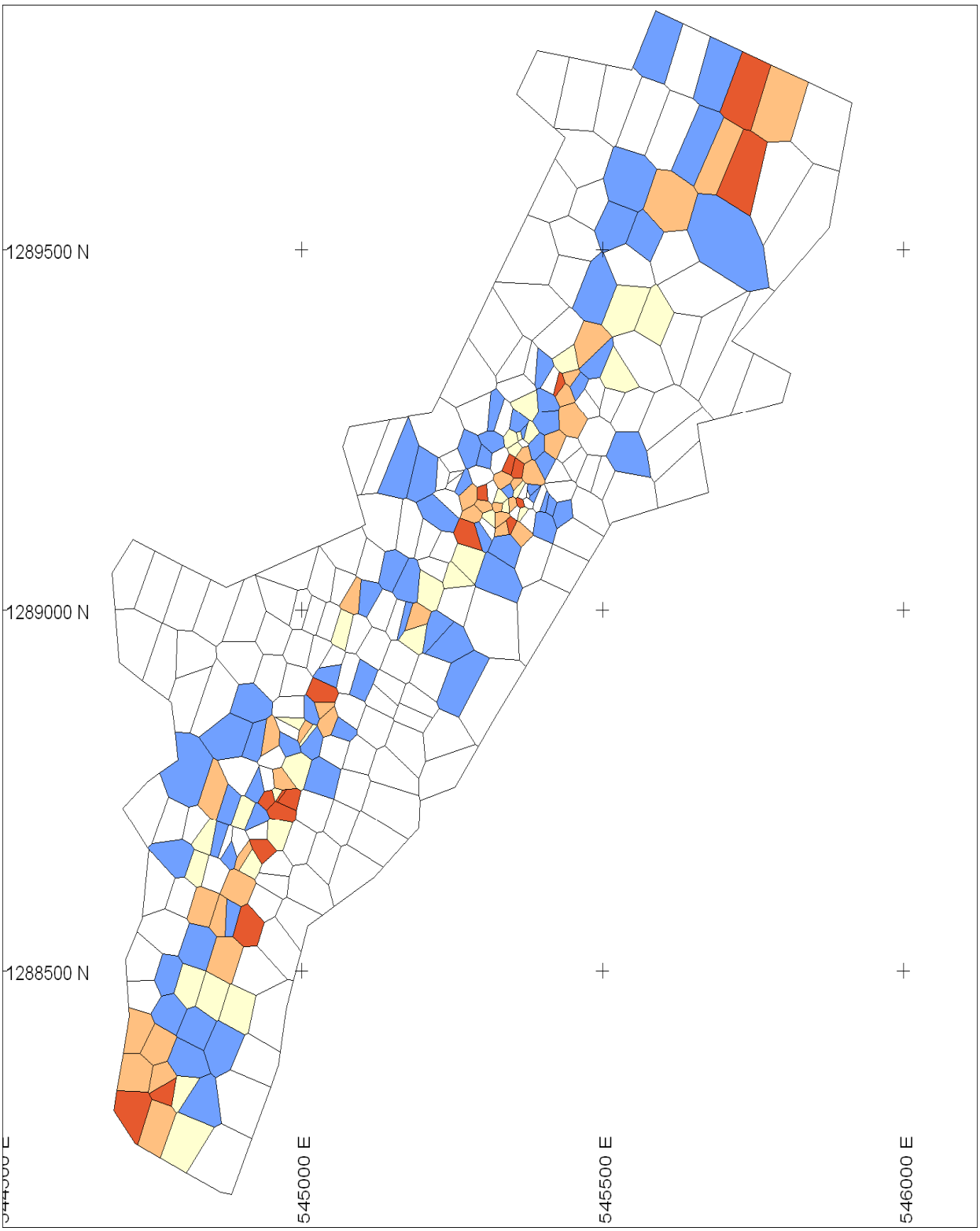
LEGEND POLYGON BLOCK WITH GOLD GRADE

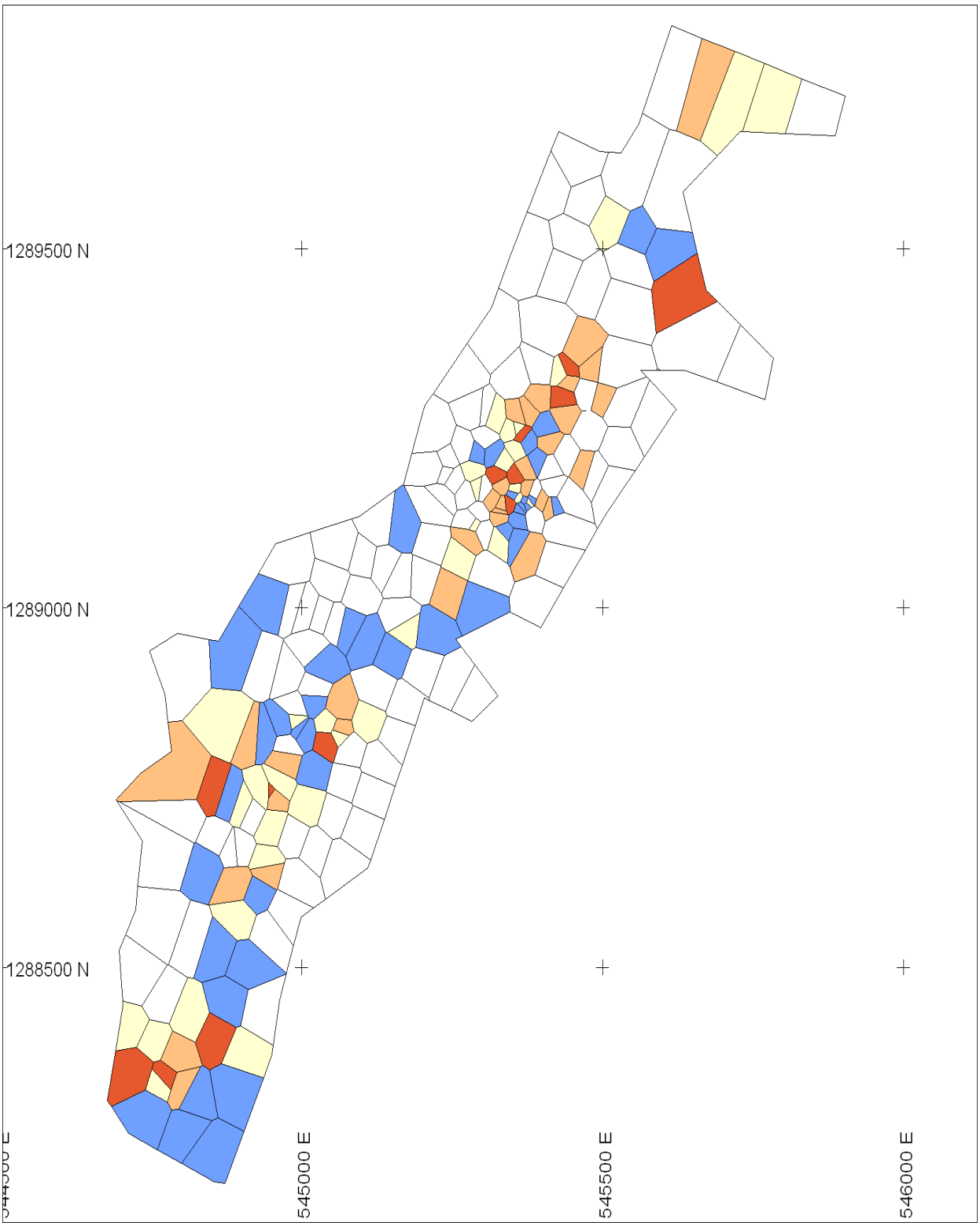


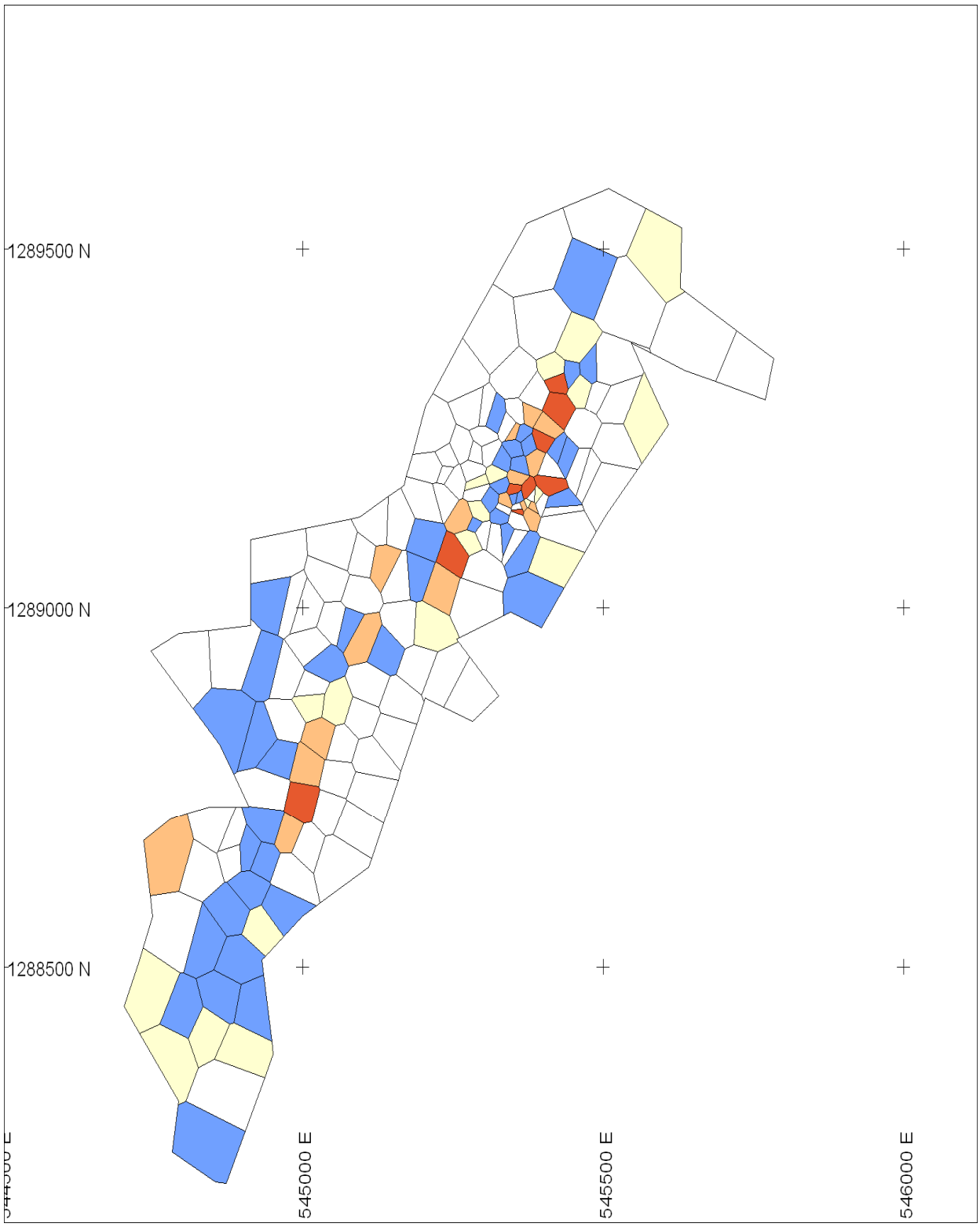

1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E

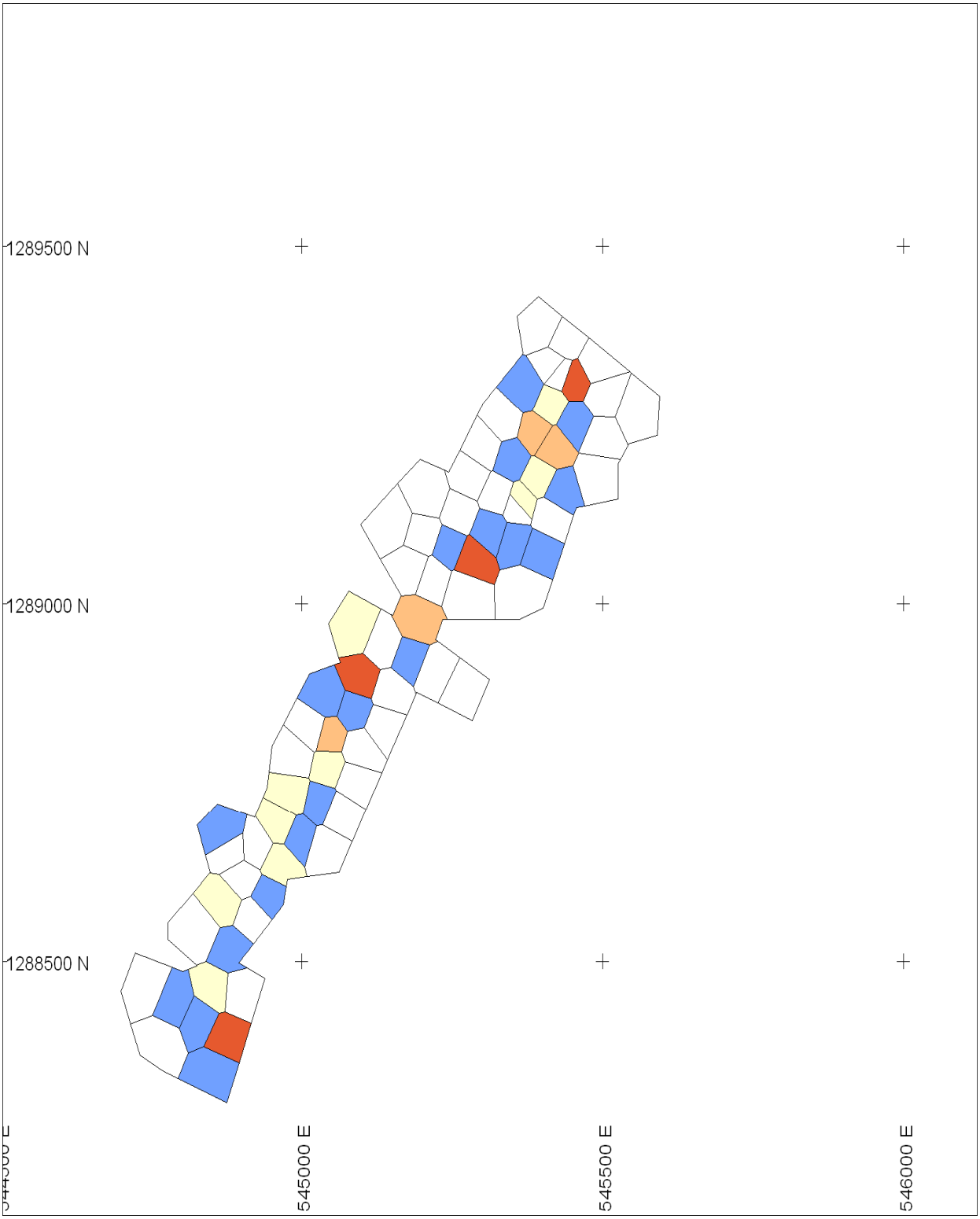

1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E

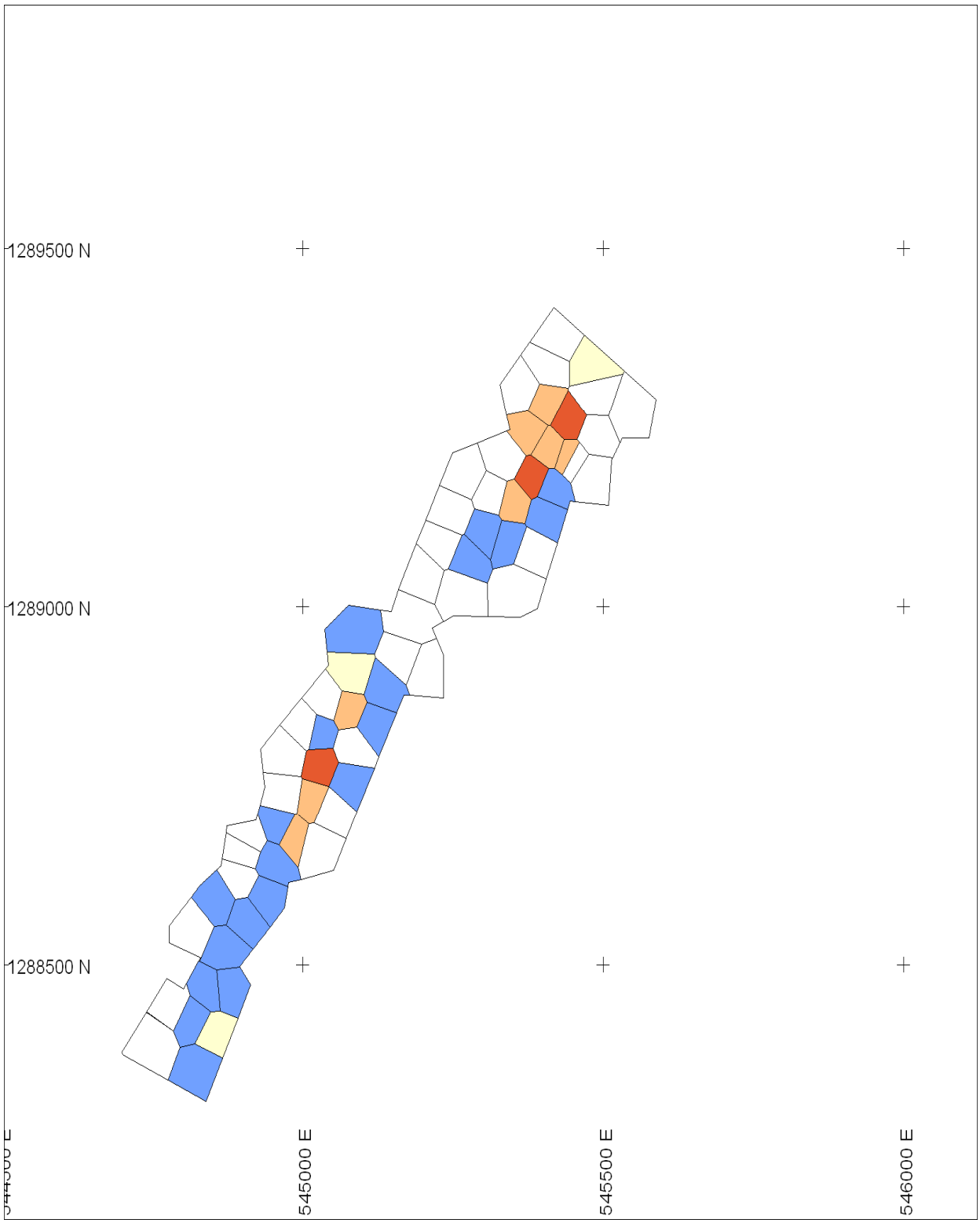

1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E


1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E


1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E


1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E


1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E


1289500 N
1289000 N
1288500 N
545000 E
545500 E
546000 E

Appendix C

LIST OF MAIN EQUIPMENT AND COST

APPENDIX C-1

KOBADA GOLD PROJECT-MALI

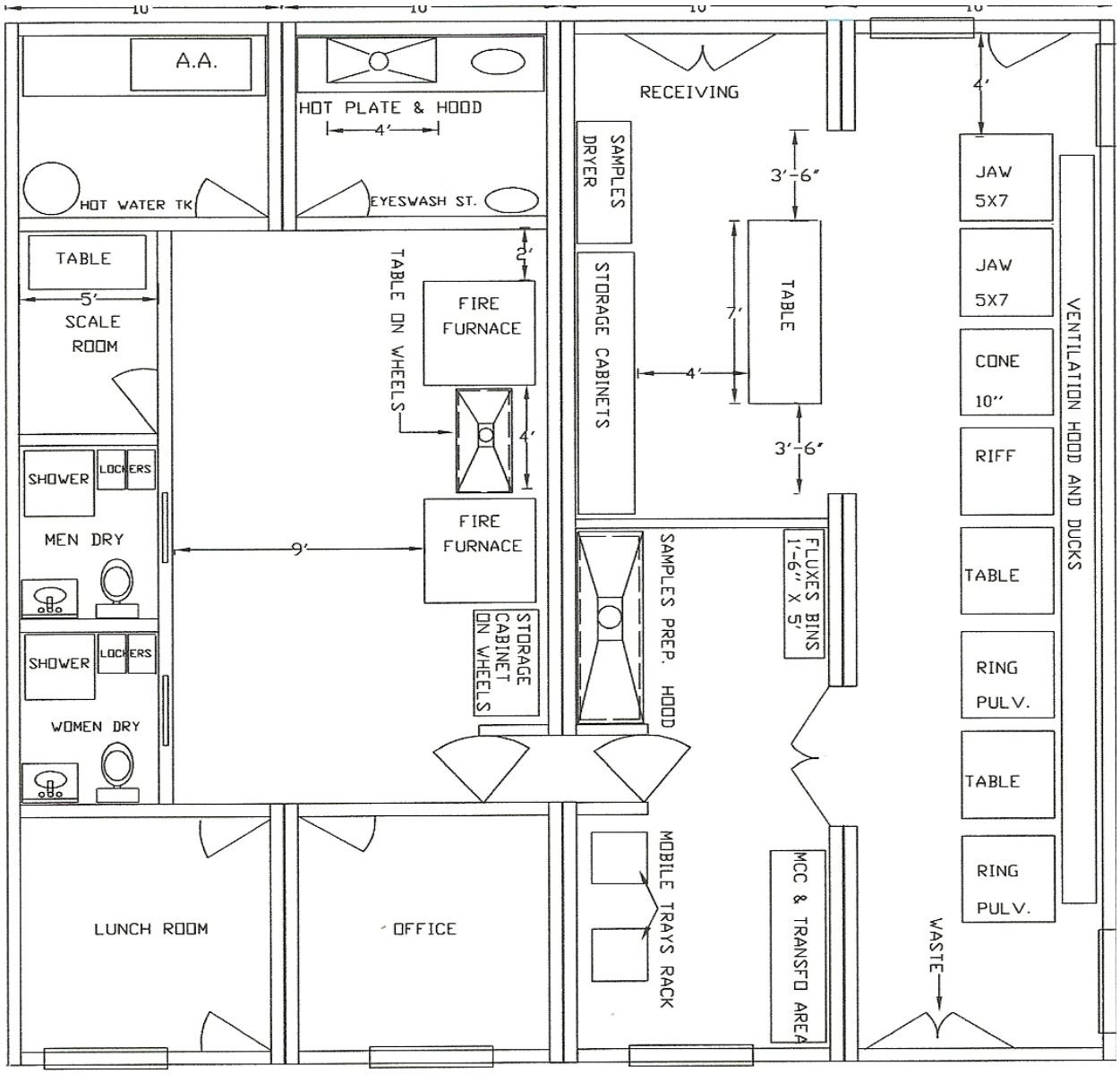
APPENDIX C : CONCENTRATOR EQUIPMENT LIST

Item N°	Quantity	Description	Capacity/Size	HP	Cost CA $
SCRUBBING AND SCREENING AND CLASSIFICATION					
1	4	Hopper	150 T		360,000
2	4	Grizzly	75 mm spacing		69,000
3	4	Apron feeder	762 mm x 4,575 mm	100	435,000
4	4	Belt conveyor to feed scrubber	20,000 mm x 900 mm,	80	300,000
5	4	Scrubber	3,000 mm 8,000 mm long	1200	3,000,000
6	4	Double Deck Screen	1,829 x4,877 mm	320	285,000
7	2	Belt conveyor to crushing area storage	21,000 x 600 mm	40	90,000
8	4	Pump Box (double section)	8.25 m3 per section		40,000
9	8	SRL centrifugal pumps	254 mm x 203.2 mm	500	400,000
10	12	Cyclones	500 mm		325,000
CRUSHING, GRINDING					
11	1	Screen	75 t/h, 50 mm opening	20	10,000
12	1	Belt conveyor from crushing storage to screen	21,000 mm x 600 mm	10	45,074
13	1	Belt conveyor from jaw crusher to screen	20,000 mm x 600 mm	10	43,280
14	1	Jaw crusher	Max feed size 150 mm, product output size 85-95% minus 50mm	100	200,000
15	1	Belt conveyor from screen to impact crusher	15,000 mm x 600 mm	10	42,438
16	1	Impact crusher	max input size 50 mm, output size 85-95% minus 6.30 mm	200	118,984
17	1	Belt conveyor from impact crusher to pump box	7,000 mm x 600 mm	10	21,536
18	1	Ball mill	3.810 mm x 4.877 mm	1200	1,500,000
19	2	SRL Centrifugal pumps	356 mm x 305 mm	200	72,000
20	6	Cyclones	500 mm		150,000
GRAVITY CONCENTRATION AND TABLINGS					
21	4	Knelson Concentrators	Model KC-QS48	400	1,500,000
22	2	Peristaltic pumps for Knelson concentrate	Model ASH 80 Allweiler, 11,3 m^3/h	40	35,500
23	1	Storage Tank	4 T		5,000
24	1	Wilfley Table	1,771 mm x 3,387 mm	5	30,000
25	1	Gemini Table	1,219 mm x 2,438 mm	5	30,000
ILR AND ELECTROWINNING					
26	1	DSM Screen	80% passing 74 micron		20,000
27	1	Regrind Ball Mill	1,219 mm x 1,828 mm	50	100,000
28	1	ILR System with concentrate storage tank and solution tank (Vendor package)	up to 12 t / batch,	30	660,972
29	2	Diaphragm Pump Transfer for ILR			3,000
30	1	Electrowinning Cells with rectifier (Vendor Package)	Capacity 3,53 m^3, 2000 amp, 0-9 V	30	135,721
SMELTING					
31	1	Fuel oil smelting furnace and accessories		20	179,035
CYANIDE DETOXIFICATION					
32	2	Tank For Detox	24 m^3		25,000
33	1	SRL Pumps	50 mm x 50 mm	10	5,000
TAILINGS PUMP					
34	6	Tailings pumps (2 lines)	300 mm x 250 mm	800	240,000
SERVICES AND MISCELLANEOUS					
35	2	Raw water pumps	vertical turbine pumps 1000 m^3/h	800	75,000
36	1	Fresh water tank	200 m^3		50,000
37	1	Process water tank	200 m^3		50,000
38	2	Process water pumps	vertical turbine pumps 1000 m^3/h	800	75,000
39	2	Air compressor compressor Quincy	500 m^3/h, 100 psi,	120	100,000
40	2	Fresh water pumps	150 mm x 200 mm	200	30,000
			TOTAL	7310	10,856,540

Appendix D

LIST AND COST OF LABORATORY EQUIPEMENT AND SUPPLIES

MODULAR ASSAY LABORATORY
WORKING GROUND FLOOR



APPENDIX D-2

LISTE DES ÉQUIPEMENTS, ACCESSOIRES ET CONSOMMABLES

Coûts initiaux	Quantité	Détails	# Cataglogue	Prix / 1	
Préparation		**Équipements**			
11,500.00 $	1	Concasseur Terminator - T.M.-Engineering	JCT#1	11,500.00 $	
24,500.00 $	2	Pulvériseurs Labtech ESSA LM2	LM22035	12,250.00 $	
9,000.00 $	1	Extracteur de poussière 3,000 cfm - Changzou First Dry	CT-C-II	9,000.00 $	
2,500.00 $	1	Compresseur d'air 10 HP		2,500.00 $	
9,500.00 $	1	Séchoir à échantillons électrique		9,500.00 $	
57,000.00 $					**57,000.00 $**
		Accessoires			
1,600.00 $	200	Pannes galvanisées (30 X 50 X 10 cm)		8.00 $	
400.00 $	1	Conduits d'air comprimée et fusils à air (4)		400.00 $	
8,000.00 $	1	Tables d'acier et hottes ventilées	Maison	8,000.00 $	
500.00 $	1	Quarteur 8" X 12" X 1/2"		500.00 $	
3,357.00 $	6	Bols LM2 B400	BOWA0400	559.50 $	
1,998.00 $	6	Rondelle LM2 B400	RINA0400	333.00 $	
1,413.00 $	6	Rouleau LM2 B400	ROLA0400	235.50 $	
936.00 $	6	Couvercle LM2 B400	LIDA0400	156.00 $	
18,204.00 $				**18,204.00 $**	
		Optionel pour échantillons de plus de 1 Kg à pulvériser			
5,390.00 $	2	Millmate LM2 complet	MIL02125	2,695.00 $	
1,611.00 $	2	Bols LM2 B2000	BOWA2000	805.50 $	
1,162.50 $	2	Disque B2000	DISA2000	581.25 $	
360.00 $	2	CouvercleB2000	LIDA2000	180.00 $	
330.00 $	20	Joint d'étanchéïté en uréthane pour couvercle B2000	LID0001555	16.50 $	
8,853.50 $					**8,853.50 $**

Préparation		Consommables et pièces de rechange			
		Pulvériseurs :			
255.00 $	20	Joint d'étanchéïté en uréthane pour couvercle B400	LID01035	12.75 $	
397.80 $	2	Rondelle d'espacement B125/B300/B400	SPA09665	198.90 $	
127.50 $	6	Manchon d'adaptateur pour coussinets	ADA01115	21.25 $	
175.10 $	2	Contrôle de pression d'attaches à air	Air01555	87.55 $	
246.50 $	2	Interrupteur à pression	sw101550	123.25 $	
1,414.40 $	4	Attaches de coussins gonflabes	air01060	353.60 $	
445.40 $	4	Coussinet	bea01070	111.35 $	
102.00 $	4	Coussinet	bea01110	25.50 $	
178.50 $	10	Chambre de coussinet	bea01100	17.85 $	
666.40 $	10	Contacteur 604059	con01530	66.64 $	
108.40 $	2	Crochet LM2	dis03520	54.20 $	
685.10 $	2	Moteur électrique LM2	mot04450	342.55 $	
63.45 $	5	Tubes de graisse haute température 400g	gre03955	12.69 $	
102.00 $	10	Ressort de pulvériseur	spr01145	10.20 $	
139.26 $	2	Relais de surcharge 7-10-amps	ove03855	69.63 $	
714.00 $	20	Encart de plateforme	pla01040	35.70 $	
85.00 $	100	Boyau à air en polyéthylène 4 mm	air01050	0.85 $	
1,181.50 $	10	Régulateur filtre	reg03635	118.15 $	
225.25 $	5	Tige de poulie	pul01120	45.05 $	
55.25 $	5	Joint d'étanchéïté 223002	sea01075	11.05 $	
51.00 $	5	Joint d'étanchéïté 223003	sea01080	10.20 $	
266.90 $	2	Valve solénoïde 380V/50Hz	val03860	133.45 $	
59.50 $	5	Ressort 350010	spr01150	11.90 $	
64.60 $	4	Contact normalement fermé	nor03850	16.15 $	
59.50 $	10	Ensemble d'écrous et boulons d'attache de coussin gonflable	air01065	5.95 $	
1,500.00 $	10	Sacs à échantillons en plastique 10" x 15" x 5 mil. (500)		150.00 $	
1,100.00 $	10	Sacs à échantillons en papier 6" x 4" (500)		110.00 $	
10,469.31 $					**10,469.31 $**

Préparation		**Concasseurs :**				
620.00 $	1	Moteur électrique 7.5 HP		JCTMa-380/3/50	620.00 $	
33.00 $	1	Mâchoires mobiles lisses		JCT105-S-CS upcharge	33.00 $	
33.00 $	1	Mâchoires stationnaires lisses		JCT106-S-CS up charge	33.00 $	
257.00 $	1	Alimentateur sécuritaire 10.5 "		JCHopper-Tall	257.00 $	
389.00 $	1	Mâchoires mobiles lisses		JCT105-S-CS	389.00 $	
389.00 $	1	Mâchoires stationnaires lisses		JCT106-S-CS	389.00 $	
19.70 $	1	Barre d'ajustement		jct095a	19.70 $	
5.50 $	10	Boulons et écrous		jct095b	0.55 $	
32.90 $	2	Tige filetée		jct095c	16.45 $	
7.60 $	2	Rondelles pour barre d'ajustement		jct095d	3.80 $	
8.10 $	2	Écrous pour tige d'ajustement		jct095e	4.05 $	
15.10 $	2	Adaptateur pour ligne principale au gabarit		jc234	7.55 $	
8.00 $	2	Tubes pour graissage de la pompe au gabarit		jc266	4.00 $	
331.00 $	1	Adaptateur pour l'excentrique principal		jct043	331.00 $	
148.50 $	2	Coussinets pour excentrique principal		jct027	74.25 $	
26.80 $	2	Rondelle d'espacement		jct044a	13.40 $	
26.80 $	2	Rondelle d'espacement		jct033b	13.40 $	
281.70 $	2	Coussinet propulseur auxiliaire		jct049a	140.85 $	
218.60 $	1	Coussinet propulseur		jct049a	218.60 $	
751.00 $	1	Tige excentrique		jct055	751.00 $	
38.90 $	2	Rondelle pour couvercle de l'adaptateur		jct026	19.45 $	
277.00 $	1	Tige inférireure mobile		jct077	277.00 $	
237.50 $	1	Manchon inférieur de tige décentrée A		jct077a	237.50 $	
237.50 $	1	Manchon inférieur de tige décentrée B		jct077b	237.50 $	
52.50 $	2	Joint d'étanchéïté		jct148a	26.25 $	
245.70 $	1	Boitier de contrôle de minuteur pour auto-lubrification		jc285a	245.70 $	
50.60 $	1	Valve solénoïde pour auto-lubrification		jc260	50.60 $	
48.90 $	1	Attache pour mâchoire mobile		jct069a	48.90 $	
32.55 $	1	Attache pour mâchoire stationnaire		jc107	32.55 $	
86.00 $	1	Plaque d'usure gauche		jc111	86.00 $	
86.00 $	1	Plaque d'usure droite		jc112	86.00 $	
191.00 $	1	Ensemble d'accessoires Terminator #1		jct kit #1	191.00 $	
12.00 $	1	Clé 3/8"		jct-kit tool #13	12.00 $	
95.00 $	1	Ensemble de rochet hexagonaux 3/8"			95.00 $	
600.00 $	1	Aspirateur, balais, porte-poussières, etc.			600.00 $	
5,893.45 $						**5,893.45 $**

Fours		Équipements			
405.00 $	1	Balance Radwag 2 décimales	PS210/C/2	405.00 $	
950.00 $	1	Élévateur à fourches Caruk #1		950.00 $	
850.00 $	1	Table d'addition de nitrate d'argent		850.00 $	
650.00 $	1	Table à cavité		650.00 $	
500.00 $	1	Station de concassage de scorie		500.00 $	
325.00 $	1	Ventilation pour station de concassage de scorie		325.00 $	
800.00 $	1	Table en acier		800.00 $	
800.00 $	1	Baldaquin pour ventilation		800.00 $	
80.00 $	1	Pinces pour coupelles		80.00 $	
350.00 $	1	Étagères pour coupelles		350.00 $	
150.00 $	1	Fourchettes à coupelles		150.00 $	
60.00 $	1	Grattoir		60.00 $	
600.00 $	1	Table de chargement		600.00 $	
80.00 $	1	Rateau de fours		80.00 $	
50.00 $	1	Houe longue		50.00 $	
50.00 $	1	Houe courte		50.00 $	
320.00 $	1	gabarit de descente		320.00 $	
250.00 $	1	Baldaquin pour ventilation		250.00 $	
140.00 $	1	Tige 8"		140.00 $	
60.00 $	1	Support pour baldaquin de ventilation		60.00 $	
5,000.00 $	1	Tuyau spiralé pour ventilation de 40 cm de diamètre		5,000.00 $	
3,000.00 $	1	Tuyau spiralé pour ventilation de 20 cm de diamètre		3,000.00 $	
400.00 $	5	Supports pour creusets		80.00 $	
1,840.00 $	8	Lingotières coniques		230.00 $	
200.00 $	1	Enclume pour perles		200.00 $	
50.00 $	1	Pinces à perles		50.00 $	
250.00 $	5	Support à culots (50 trous)		50.00 $	
18,180.00 $	1	Four pour fusion au gasoil Furnace Industries 25 PF		18,180.00 $	
19,960.00 $	1	Four pour coupellation au gasoil Furnace Industries 100 MFD		19,960.00 $	
20,000.00 $	1	Système de ventilation Torit pour 2 fours		20,000.00 $	
76,350.00 $					**76,350.00 $**

Fours		**Consommables et pièces de rechange**			
332.00 $	2	Tuile de four 610X610X25mm		166.00 $	
300.00 $	2	Tuile de four 560X480X22mm		150.00 $	
130.00 $	10	Ancre en céramique 75mm		13.00 $	
195.00 $	5	Gaine thermale interne 250x10mm		39.00 $	
195.00 $	5	Gaine thermale interne 250x15mm		39.00 $	
1,152.00 $					**1,152.00 $**
Laboratoire		**Équipements**			
1,600.00 $	1	Four à mouffle MFD		1,600.00 $	
405.00 $	1	Balance Radwag 2 décimales	PS210/C/2	405.00 $	
600.00 $	1	Ensemble de poids certifiés Radwag	KE-2-1	600.00 $	
1,000.00 $	100	Cabinets de laboratoire 100 pieds linéaires		10.00 $	
1,000.00 $	100	Dessus de comptoir		10.00 $	
5,000.00 $	1	Osmose inverse pour eau déionisée		5,000.00 $	
3,800.00 $	1	Four à mouffle Isotemp 1.26 pi3		3,800.00 $	
700.00 $	20	Éprouvettes de 5 ml jetables (500/boîte)		35.00 $	
500.00 $	10	Supports à éprouvettes		50.00 $	
500.00 $	1	Ensemble d'outils		500.00 $	
3,600.00 $	2	Plaque chauffante 18" x 24"		1,800.00 $	
1,200.00 $	200	Creusets de porcelaine "00"		6.00 $	
600.00 $	10	Supports à creusets de porcelaine		60.00 $	
1,000.00 $	1	pHmètre avec électrodes		1,000.00 $	
8,000.00 $	1	Hotte pour l'acide - Labconco	Fisher SCI	8,000.00 $	
6,000.00 $	1	Extracteur de vapeurs d'acide pour Labconco	Fisher SCI	6,000.00 $	
35,505.00 $					**35,505.00 $**

Spectrophotomètre - Microbalance - Bureau						
		Équipements				
28,000.00 $	1	Spectrophotomètre d'Absorption Atomique (SAA) Varian 240			28,000.00 $	
20,000.00 $	1	Microbalance CANH C-33 0.1 ug			20,000.00 $	
600.00 $	1	Plateau en marbre pour microbalance			600.00 $	
1,500.00 $	1	Système de ventilation pour SAA			1,500.00 $	
50,100.00 $						**50,100.00 $**
		Accessoires, pièces de rechange et consommables				
1,044.00 $	4	Cellule UV QRA2			261.00 $	
3,970.00 $	1	Sélecteur automatique de lampes			3,970.00 $	
9,020.00 $	1	Programme de contrôle des gaz pour SAA Varian 240 (option)			9,020.00 $	
1,410.00 $	1	Brûleur oxide nitreux - acétylène Mark 7			1,410.00 $	
1,410.00 $	1	Brûleur acétylène Mark 7			1,410.00 $	
640.00 $	1	Interrupteur au pied			640.00 $	
1,881.00 $	1	Ensemble Mark 7 de fournitures d'opération pour SAA Varian 240			1,881.00 $	
359.00 $	1	Écran plat Dell Ultrasharp de 22 pouces de largeur			359.00 $	
1,340.00 $	1	Ordinateur Dell 3.0 GHz Core Duo Optiplex 760			1,340.00 $	
238.00 $	1	Système de captation intégré des liquides			238.00 $	
382.00 $	1	Ensemble de nébuliseurs Pt-Ir			382.00 $	
46.00 $	1	Tige de nettoyage pour capillaires			46.00 $	
252.00 $	2	Billes d'impact (5/boîte)			126.00 $	
92.00 $	2	Tubes capillaires pour nébuliseur régulier			46.00 $	
10.00 $	2	O-ring 15/16X1 1/8 X3/32			5.00 $	
6.00 $	2	O-ring 1-7/16X5/8 od			3.00 $	
503.00 $	1	Lampe au deutérium Cary 100/300			503.00 $	
1,402.00 $	2	Lampe Cathode Creuse - Or			701.00 $	
1,000.00 $	1	Ordinateur de table (desktop)			1,000.00 $	
300.00 $	1	Imprimantes			300.00 $	
1,500.00 $	1	Imprimantes pour étiquettes			1,500.00 $	
26,805.00 $						
290,332.26 $	**GRAND TOTAL**				**Équipements**	**218,955.00 $**
				Pièces de rechange et accessoires		**26,368.26 $**
						245,323.26 $

Appendix E

SPREAD SHEETS OF THE CASH FLOW IRR-VS-OPERATING COST VARIATIONS

APPENDIX E-1

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)
Operating Cost Variation -25%

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			43,417,500 $	43,417,500 $	43,417,500 $	43,417,500 $	43,417,500 $	44,202,173 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	0.75	6.20 $	6.20 $	6.20 $	6.20 $	6.20 $	6.55 $
EBITDA (Earning before interest, tax depreciation)			87,926,693 $	87,926,693 $	87,926,693 $	87,926,693 $	87,926,693 $	72,238,159 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			58,527,618 $	59,507,587 $	60,487,556 $	61,467,526 $	62,447,495 $	69,338,159 $
Income tax		35%						24,268,356 $
Net income			58,527,618 $	59,507,587 $	60,487,556 $	61,467,526 $	62,447,495 $	45,069,803 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	70,777,233 $	71,757,202 $	72,737,171 $	71,967,140 $	73,547,109 $	47,969,803 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	67,406,888 $	65,085,897 $	62,833,103 $	59,207,544 $	57,626,085 $	35,795,806 $

IRR(TRI)	114.94%
NPV (actualization rate: (5%)	286,707,250 $

APPENDIX E-2

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)
Operating Cost Variation -15%

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			49,206,500 $	49,206,500 $	49,206,500 $	49,206,500 $	49,206,500 $	50,095,796 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	0.85	7.03 $	7.03 $	7.03 $	7.03 $	7.03 $	7.42 $
EBITDA (Earning before interest, tax depreciation)			82,137,693 $	82,137,693 $	82,137,693 $	82,137,693 $	82,137,693 $	66,344,536 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			52,738,618 $	53,718,587 $	54,698,556 $	55,678,526 $	56,658,495 $	63,444,536 $
Income tax		35%						22,205,587 $
Net income			52,738,618 $	53,718,587 $	54,698,556 $	55,678,526 $	56,658,495 $	41,238,948 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	64,988,233 $	65,968,202 $	66,948,171 $	66,178,140 $	67,758,109 $	44,138,948 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	61,893,555 $	59,835,104 $	57,832,347 $	54,444,920 $	53,090,252 $	32,937,163 $

IRR(TRI)	105.24%
NPV (actualization rate: (5%)	258,785,267 $

APPENDIX E-3

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)
Operating Cost Variation 0% (Base Case)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			73,454,193 $	73,454,193 $	73,454,193 $	73,454,193 $	73,454,193 $	57,504,101 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			44,055,118 $	45,035,087 $	46,015,056 $	46,995,026 $	47,974,995 $	54,604,101 $
Income tax		35%						19,111,435 $
Net income			44,055,118 $	45,035,087 $	46,015,056 $	46,995,026 $	47,974,995 $	35,492,666 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	56,304,733 $	57,284,702 $	58,264,671 $	57,494,640 $	59,074,609 $	38,392,666 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	53,623,555 $	51,958,913 $	50,331,214 $	47,300,983 $	46,286,502 $	28,649,198 $

IRR(TRI)	90.57%
NPV (actualization rate: (5%)	216,902,291 $

APPENDIX E-4

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)
Operating Cost Variation +15%

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			66,573,500 $	66,573,500 $	66,573,500 $	66,573,500 $	66,573,500 $	67,776,665 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1.15	9.51 $	9.51 $	9.51 $	9.51 $	9.51 $	10.04 $
EBITDA (Earning before interest, tax depreciation)			64,770,693 $	64,770,693 $	64,770,693 $	64,770,693 $	64,770,693 $	48,663,667 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			35,371,618 $	36,351,587 $	37,331,556 $	38,311,526 $	39,291,495 $	45,763,667 $
Income tax		35%						16,017,283 $
Net income			35,371,618 $	36,351,587 $	37,331,556 $	38,311,526 $	39,291,495 $	29,746,383 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	47,621,233 $	48,601,202 $	49,581,171 $	48,811,140 $	50,391,109 $	32,646,383 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	45,353,555 $	44,082,723 $	42,830,080 $	40,157,046 $	39,482,753 $	24,361,234 $

IRR(TRI)	75.67%
NPV (actualization rate: (5%)	175,019,316 $

APPENDIX E-5

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)
Operating Cost Variation +25%

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			72,362,500 $	72,362,500 $	72,362,500 $	72,362,500 $	72,362,500 $	73,670,288 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1.25	10.34 $	10.34 $	10.34 $	10.34 $	10.34 $	10.91 $
EBITDA (Earning before interest, tax depreciation)			58,981,693 $	58,981,693 $	58,981,693 $	58,981,693 $	58,981,693 $	42,770,044 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			29,582,618 $	30,562,587 $	31,542,556 $	32,522,526 $	33,502,495 $	39,870,044 $
Income tax		35%						13,954,515 $
Net income			29,582,618 $	30,562,587 $	31,542,556 $	32,522,526 $	33,502,495 $	25,915,528 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	41,832,233 $	42,812,202 $	43,792,171 $	43,022,140 $	44,602,109 $	28,815,528 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	39,840,222 $	38,831,929 $	37,829,324 $	35,394,421 $	34,946,920 $	21,502,591 $

IRR(TRI)	65.56%
NPV (actualization rate: (5%)	147,097,333 $

Appendix F

SPREAD SHEETS OF THE CASH FLOW IRR-VS-GOLD PRICE VARIATIONS

APPENDIX F-1

FINANCIAL ANALYSIS (Gold Price at $900)
Kobada Project (20,000 mt/d)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	900.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			113,959,100 $	113,959,100 $	113,959,100 $	113,959,100 $	113,959,100 $	101,027,955 $
Royalties		3.0%	3,418,773 $	3,418,773 $	3,418,773 $	3,418,773 $	3,418,773 $	3,030,839 $
CPS		2.7%	3,076,896 $	3,076,896 $	3,076,896 $	3,076,896 $	3,076,896 $	2,727,755 $
Net sales			107,463,431 $	107,463,431 $	107,463,431 $	107,463,431 $	107,463,431 $	95,269,362 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			49,573,431 $	49,573,431 $	49,573,431 $	49,573,431 $	49,573,431 $	36,333,132 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			20,174,356 $	21,154,325 $	22,134,294 $	23,114,263 $	24,094,232 $	33,433,132 $
Income tax		35%						11,701,596 $
Net income			20,174,356 $	21,154,325 $	22,134,294 $	23,114,263 $	24,094,232 $	21,731,536 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	32,423,970 $	33,403,939 $	34,383,909 $	33,613,878 $	35,193,847 $	24,631,536 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	30,879,972 $	30,298,358 $	29,702,113 $	27,654,221 $	27,575,300 $	18,380,431 $

IRR(TRI)	48.82%
NPV (actualization rate: (5%)	103,242,320 $

APPENDIX F-2

FINANCIAL ANALYSIS (Gold Price at $1,000)
Kobada Project (20,000 mt/d)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,000.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			126,621,222 $	126,621,222 $	126,621,222 $	126,621,222 $	126,621,222 $	112,253,284 $
Royalties		3.0%	3,798,637 $	3,798,637 $	3,798,637 $	3,798,637 $	3,798,637 $	3,367,599 $
CPS		2.7%	3,418,773 $	3,418,773 $	3,418,773 $	3,418,773 $	3,418,773 $	3,030,839 $
Net sales			119,403,812 $	119,403,812 $	119,403,812 $	119,403,812 $	119,403,812 $	105,854,846 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			61,513,812 $	61,513,812 $	61,513,812 $	61,513,812 $	61,513,812 $	46,918,616 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			32,114,737 $	33,094,706 $	34,074,675 $	35,054,644 $	36,034,613 $	44,018,616 $
Income tax		35%						15,406,516 $
Net income			32,114,737 $	33,094,706 $	34,074,675 $	35,054,644 $	36,034,613 $	28,612,101 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	44,364,352 $	45,344,321 $	46,324,290 $	45,554,259 $	47,134,228 $	31,512,101 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	42,251,763 $	41,128,636 $	40,016,663 $	37,477,602 $	36,930,901 $	23,514,815 $

IRR(TRI)	70.06%
NPV (actualization rate: (5%)	160,072,306 $

APPENDIX F-3

FINANCIAL ANALYSIS (Base Case - Gold Price at $1,100)
Kobada Project (20,000 mt/d)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,100.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	139,283,344 $	123,478,612 $
Royalties		3.0%	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	4,178,500 $	3,704,358 $
CPS		2.7%	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,760,650 $	3,333,923 $
Net sales			131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	131,344,193 $	116,440,331 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			73,454,193 $	73,454,193 $	73,454,193 $	73,454,193 $	73,454,193 $	57,504,101 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			44,055,118 $	45,035,087 $	46,015,056 $	46,995,026 $	47,974,995 $	54,604,101 $
Income tax		35%						19,111,435 $
Net income			44,055,118 $	45,035,087 $	46,015,056 $	46,995,026 $	47,974,995 $	35,492,666 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	56,304,733 $	57,284,702 $	58,264,671 $	57,494,640 $	59,074,609 $	38,392,666 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	53,623,555 $	51,958,913 $	50,331,214 $	47,300,983 $	46,286,502 $	28,649,198 $

IRR(TRI)	90.57%
NPV (actualization rate: (5%)	216,902,291 $

APPENDIX F-4

FINANCIAL ANALYSIS (Gold Price at $1,200)
Kobada Project (20,000 mt/d)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,200.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			151,945,466 $	151,945,466 $	151,945,466 $	151,945,466 $	151,945,466 $	134,703,940 $
Royalties		3.0%	4,558,364 $	4,558,364 $	4,558,364 $	4,558,364 $	4,558,364 $	4,041,118 $
CPS		2.7%	4,102,528 $	4,102,528 $	4,102,528 $	4,102,528 $	4,102,528 $	3,637,006 $
Net sales			143,284,575 $	143,284,575 $	143,284,575 $	143,284,575 $	143,284,575 $	127,025,816 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			85,394,575 $	85,394,575 $	85,394,575 $	85,394,575 $	85,394,575 $	68,089,586 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			55,995,499 $	56,975,468 $	57,955,438 $	58,935,407 $	59,915,376 $	65,189,586 $
Income tax		35%						22,816,355 $
Net income			55,995,499 $	56,975,468 $	57,955,438 $	58,935,407 $	59,915,376 $	42,373,231 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	68,245,114 $	69,225,083 $	70,205,052 $	69,435,022 $	71,014,991 $	45,273,231 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	64,995,347 $	62,789,191 $	60,645,764 $	57,124,364 $	55,642,103 $	33,783,582 $

IRR(TRI)	110.68%
NPV (actualization rate: (5%)	273,732,277 $

APPENDIX F-5

FINANCIAL ANALYSIS (Gold Price at $1,450)
Kobada Project (20,000 mt/d)

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment cost ($CND)		122,496,148 $						
Debt portion (50%)		61,248,074 $						
	Capital at the end		61,248,074 $	48,998,459 $	36,748,844 $	24,499,230 $	12,249,615 $	
	Capital payment		12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	12,249,615 $	
	New ball mill					1,750,000 $	1,150,000 $	
Production	Recovery for 5.9 years	87.90%						80.80%
	Ore grade (g/mt)	0.64						
	Reserves (mt)	41,751,000						
	Period (years)	5.90						
	Price ($CND/oz)	1,450.00 $						
	Annual production (mt)		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Annual production (g)		4,480,000	4,480,000	4,480,000	4,480,000	4,480,000	4,320,640
	Recovered ore (g)		3,937,920	3,937,920	3,937,920	3,937,920	3,937,920	3,491,077
	Recovered ore (oz)		126,621	126,621	126,621	126,621	126,621	112,253
Net sales before royalties			183,600,772 $	183,600,772 $	183,600,772 $	183,600,772 $	183,600,772 $	162,767,261 $
Royalties		3.0%	5,508,023 $	5,508,023 $	5,508,023 $	5,508,023 $	5,508,023 $	4,883,018 $
CPS		2.7%	4,957,221 $	4,957,221 $	4,957,221 $	4,957,221 $	4,957,221 $	4,394,716 $
Net sales			173,135,528 $	173,135,528 $	173,135,528 $	173,135,528 $	173,135,528 $	153,489,527 $
Operating cost			57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	57,890,000 $	58,936,230 $
	Annual production		7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	6,751,000
	Operation cost ($CND/mt)	1	8.27 $	8.27 $	8.27 $	8.27 $	8.27 $	8.73 $
EBITDA (Earning before interest, tax depreciation)			115,245,528 $	115,245,528 $	115,245,528 $	115,245,528 $	115,245,528 $	94,553,297 $
	Depreciation (5 years)		$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	$ 24,499,229.55	2,900,000 $
	Interest	8.0%	4,899,846 $	3,919,877 $	2,939,908 $	1,959,938 $	979,969 $	- $
Earning before tax			85,846,452 $	86,826,421 $	87,806,391 $	88,786,360 $	89,766,329 $	91,653,297 $
Income tax		35%						32,078,654 $
Net income			85,846,452 $	86,826,421 $	87,806,391 $	88,786,360 $	89,766,329 $	59,574,643 $
Depreciation			24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	24,499,230 $	2,900,000 $
Debt refunding			12,249,615 $	12,249,615 $	12,249,615 $	13,999,615 $	13,399,615 $	- $
CASH FLOW		61,248,073.88 $-	98,096,067 $	99,076,036 $	100,056,005 $	99,285,975 $	100,865,944 $	62,474,643 $
DISCOUNTED CASH FLOW		61,248,073.88 $-	93,424,826 $	89,864,885 $	86,432,139 $	81,682,817 $	79,031,106 $	46,619,541 $

IRR(TRI)	160.14%
NPV (actualization rate: (5%)	415,807,241 $