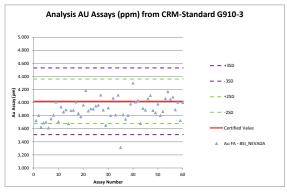
# **APPENDIX**

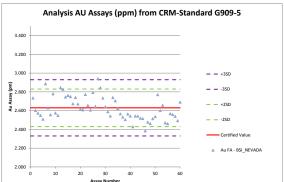
# A MINERAL RESOURCE ESTIMATE APPENDIX

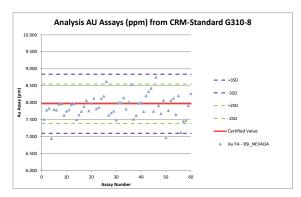
**QAQC ANALYSIS** 

#### 2013 SAMPLE SUBMISSION TO BSI LABORATORIES

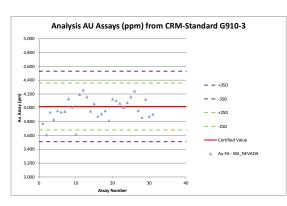
#### **DRILL CRM**

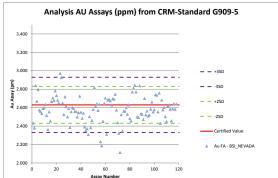


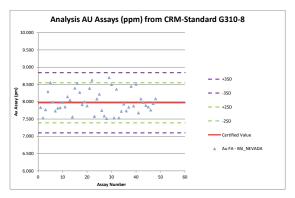




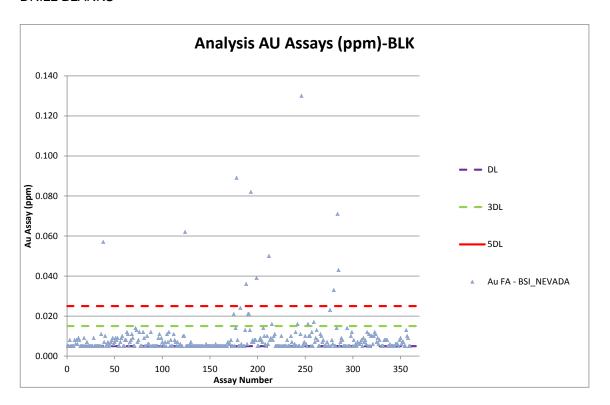
#### TRENCH CRM



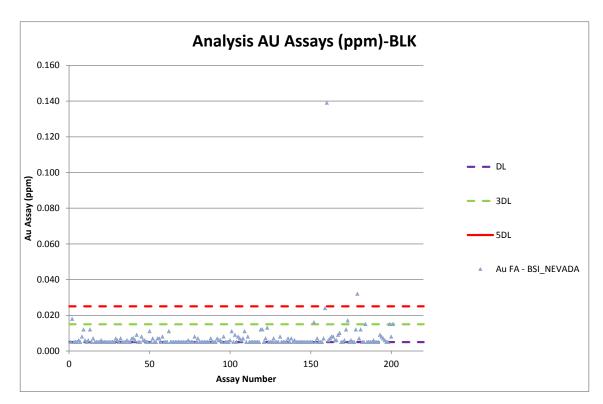




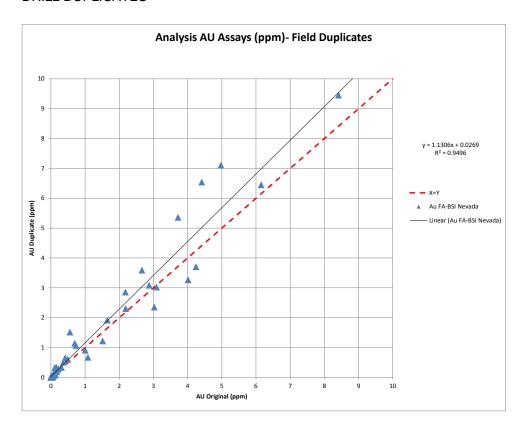
#### **DRILL BLANKS**



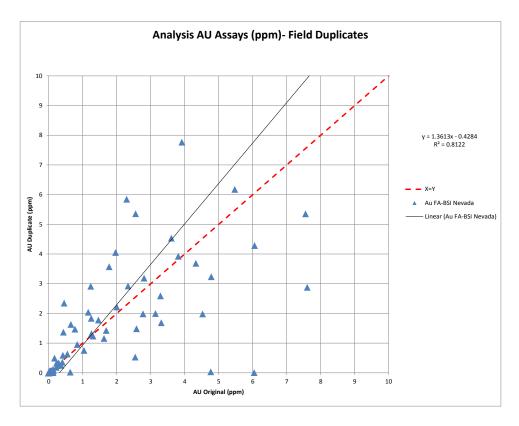
#### TRENCH BLANKS



### **DRILL DUPLICATES**



### TRENCH DUPLICATES



**COMPOSITE LENGTH ANALYSIS** 

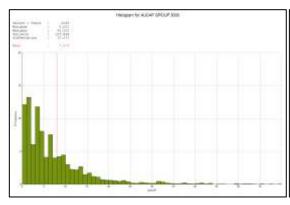
# Central Breccia Composite Length Analysis

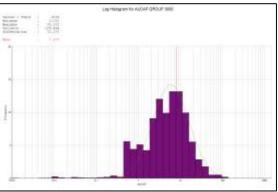
1M COMPS	FIELD	NSAMPLES M	MIN	MAX	MEAN	VARIANCE	STANDDEV	COVAR	% DIFF FROM MEAN	% SAMPLE REDUCTION (MINCOMP)
RAW	AUGT	315	0.000							
0% OF COMP	AUGT	286	0.008	33.58	3 1.80	13.44	3.67	2.03	-0.40%	0.00%
25% OF COMP	AUGT	286	0.008	33.58	3 1.80	13.44	3.67	2.03	-0.40%	0.00%
50% OF COMP	AUGT	285	0.008	33.58	3 1.81	13.48	3.67	2.03	-0.15%	0.35%
75% OF COMP	AUGT	282	0.008	33.58	3 1.82	13.61	3.69	2.03	0.51%	1.40%
100% OF COMP	AUGT	279	0.008	33.58	3 1.83	13.75	3.71	2.03	0.94%	2.45%
2M COMPS	FIELD	NSAMPLES M	MIN	MAX	MEAN	VARIANCE	STANDDEV	COVAR	% DIFF FROM MEAN	% SAMPLE REDUCTION (MINCOMP)
RAW	AUGT	315	0.000							
0% OF COMP	AUGT	146	0.010	18.66	1.78	8.63	2.94	1.65	-1.44%	0.00%
25% OF COMP	AUGT	146	0.010	18.66	3 1.78	8.63	2.94	1.65	-1.44%	0.00%
50% OF COMP	AUGT	141	0.010				2.98		0.25%	3.42%
75% OF COMP	AUGT	139	0.010	18.66	3 1.83	9.01	3.00	1.64	1.20%	4.79%
100% OF COMP	AUGT	138	0.010	18.66	5 1.84	9.07	3.01	1.64	1.65%	5.48%
3M COMPS	FIELD	NSAMPLES N		MAX	MEAN		STANDDEV		% DIFF FROM MEAN	% SAMPLE REDUCTION (MINCOMP)
RAW	AUGT	315	0.000							
0% OF COMP	AUGT	98	0.011						-1.89%	
25% OF COMP	AUGT	98	0.011						-1.89%	
50% OF COMP	AUGT	96	0.011						-0.67%	
75% OF COMP	AUGT	91	0.011						2.48%	7.14%
100% OF COMP	AUGT	89	0.011	14.58	3 1.87	7.65	2.77	1.48	3.13%	9.18%
4M COMPS	FIELD	NSAMPLES M		MAX	MEAN		STANDDEV		% DIFF FROM MEAN	% SAMPLE REDUCTION (MINCOMP)
RAW	AUGT	315	0.000							
0% OF COMP	AUGT	74	0.012						-2.21%	
25% OF COMP	AUGT	74	0.012						-2.21%	
50% OF COMP	AUGT	73	0.012						-1.28%	1.35%
75% OF COMP	AUGT	67	0.012						2.69%	9.46%
100% OF COMP	AUGT	65	0.012	12.13	3 1.90	5.85	2.42	1.27	4.90%	12.16%
5M COMPS	FIELD	NSAMPLES N	MIN	MAX	MEAN	VARIANCE	STANDDEV	COVAR	% DIFF FROM MEAN	% SAMPLE REDUCTION (MINCOMP)
RAW	AUGT	315	0.000	33.58	3 1.81	16.03	4.00	2.21		•
0% OF COMP	AUGT	62	0.012	7.55	5 1.72	3.70	1.92	1.12	-4.74%	0.00%
25% OF COMP	AUGT	60	0.012	7.55	5 1.76	3.77	1.94	1.10	-2.52%	3.23%
50% OF COMP	AUGT	58	0.012	7.55	1.79	3.87	1.97	1.10	-0.80%	6.45%
75% OF COMP	AUGT	53	0.012	7.55	1.88	4.14	2.03	1.08	3.69%	14.52%
7 0 70 O1 OOWII			0.0							

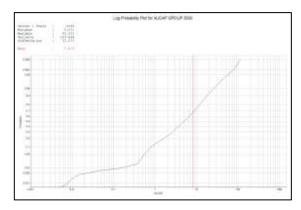
SRK Consulting Technical Appendix A HISTOGRAMS AND LOG PROBABILITY PLOTS

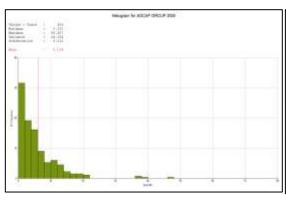
# America Deposit – America-Escondido Vein – GROUP 3000

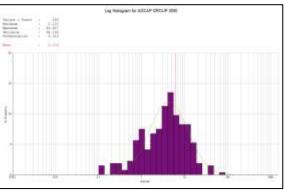
# Gold

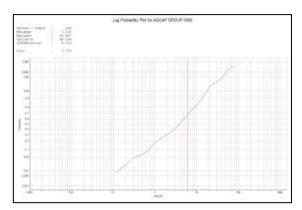






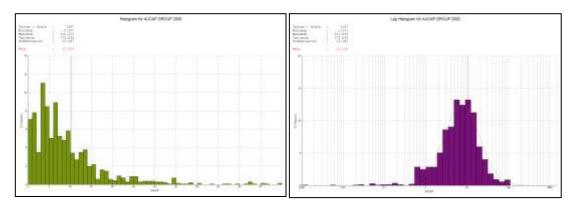


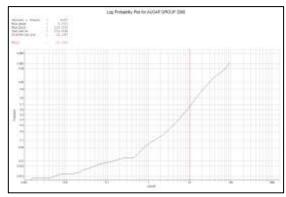


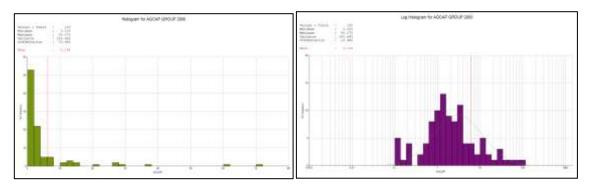


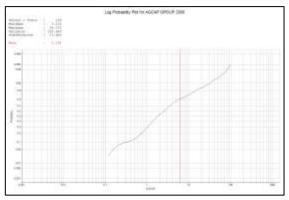
# America Deposit – Constancia Vein – GROUP 2000

# Gold



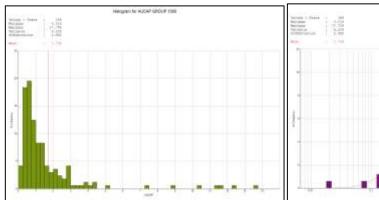


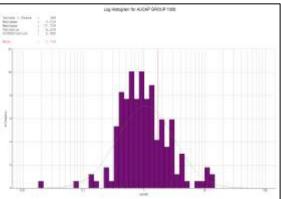


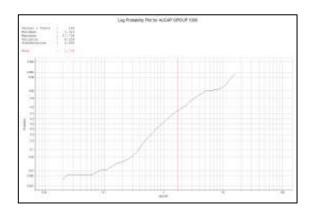


# Central Breccia Deposit – GROUP 1000

# Gold

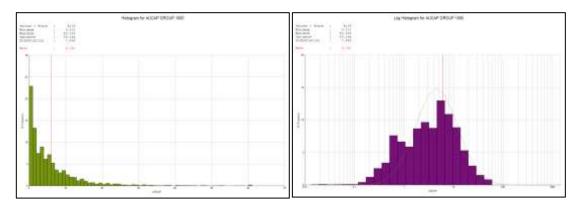


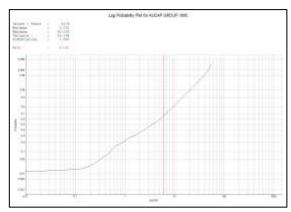


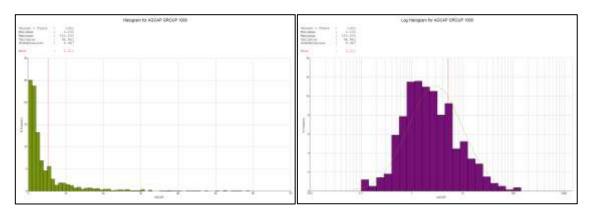


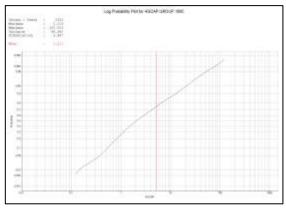
# La India Deposit – Main Domain – GROUP 1000

# Gold



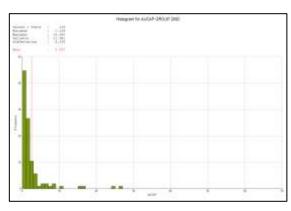


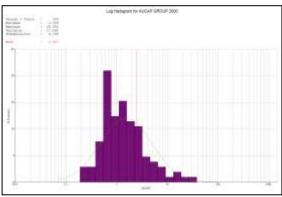


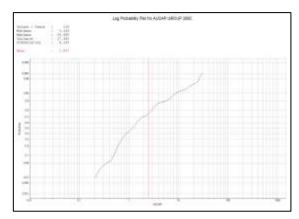


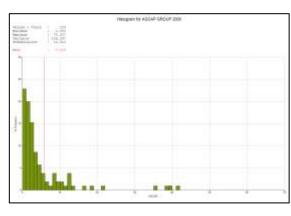
# La India Deposit – Hanging Wall Domain – GROUP 2000

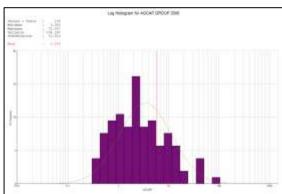
# Gold

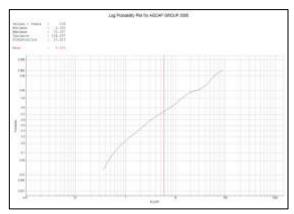






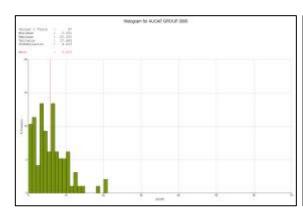


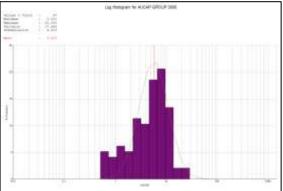


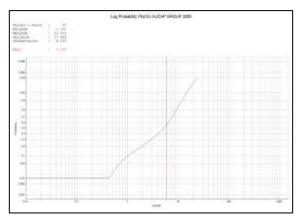


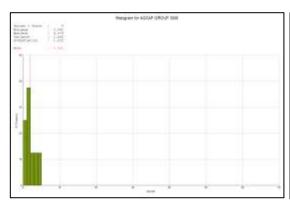
# La India Deposit – Breccia Zone Domain – GROUP 3000

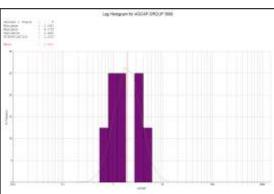
# Gold

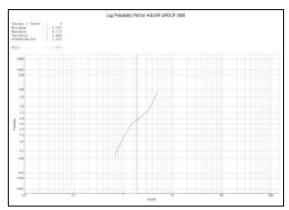






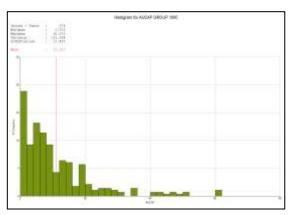


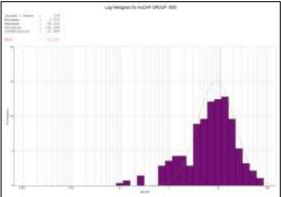


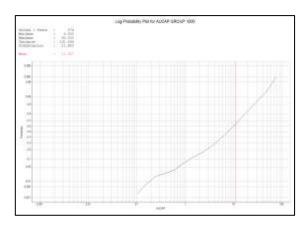


# Teresa Deposit – GROUP 1000

# Gold



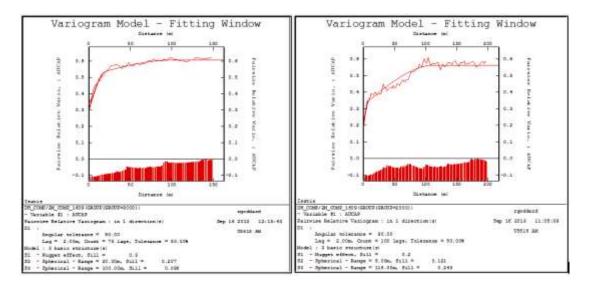




**VARIOGRAMS** 

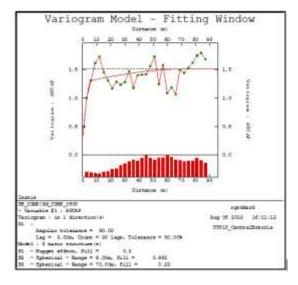
#### America Deposit

### America-Escondido (GROUP 3000) and Constancia (GROUP 2000) for Gold



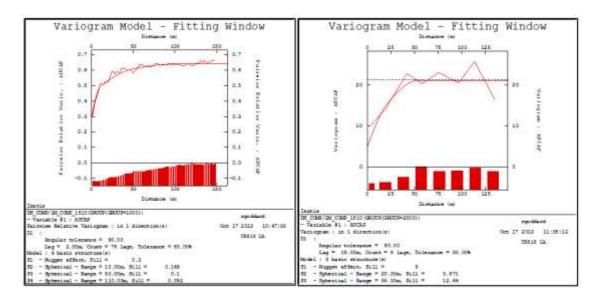
#### Central Breccia Deposit

#### Central Breccia (GROUP 1000) for Gold

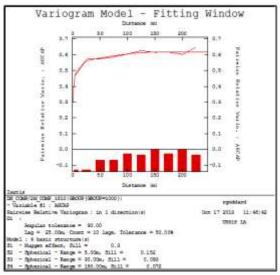


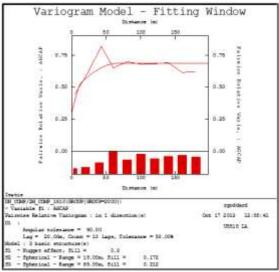
#### La India Deposit

#### La India Main (GROUP 3000) and La India Hanging Wall (GROUP 2000) for Gold



### La India Main (GROUP 3000) and La India Hanging Wall (GROUP 2000) for Silver

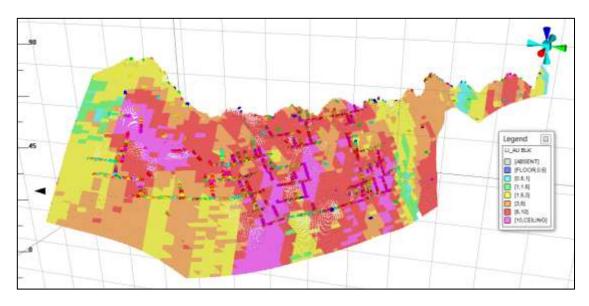


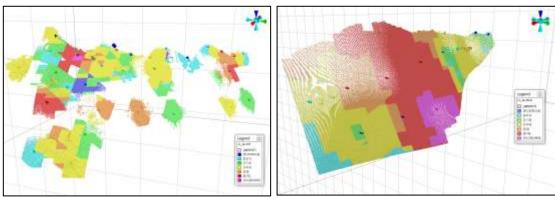


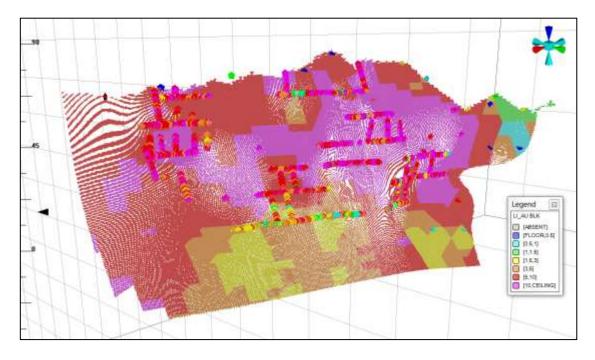
**BLOCK GRADE VISUAL VALIDATION** 

### America Deposit

Top down, left to right: America-Escondido HGC (KZONE 3500); America-Escondido WR (KZONE 3010); Constancia (KZONE 2510); Constancia (KZONE 2520).

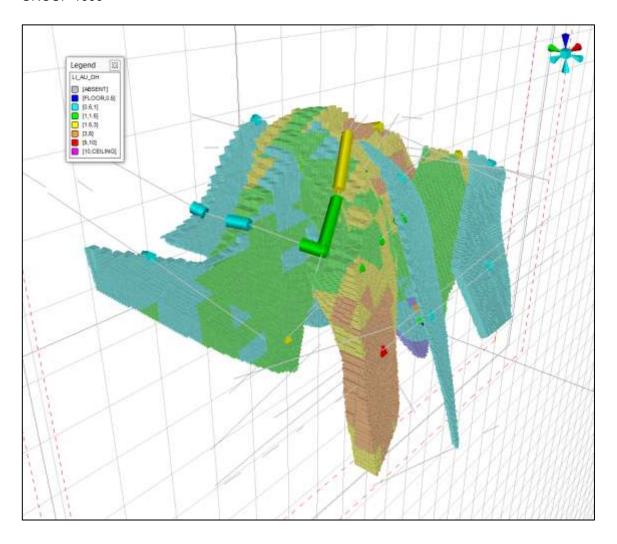






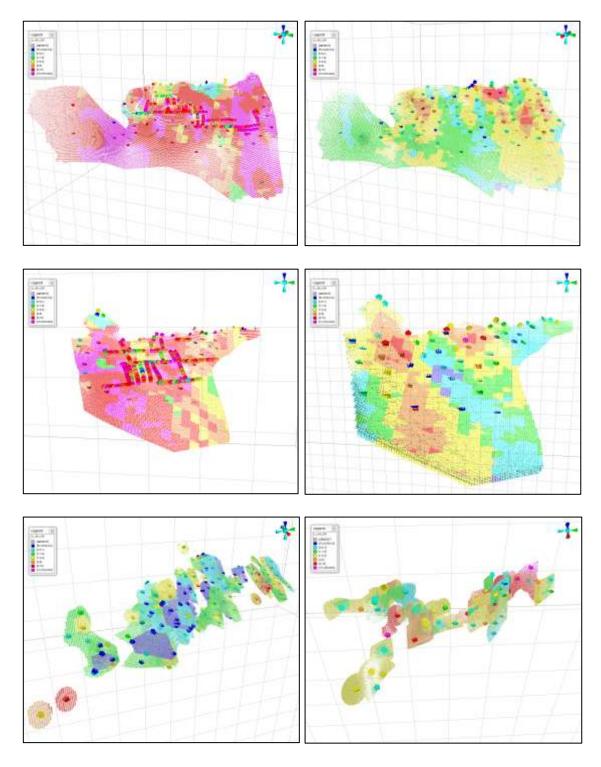
# Central Breccia Deposit

# GROUP 1000



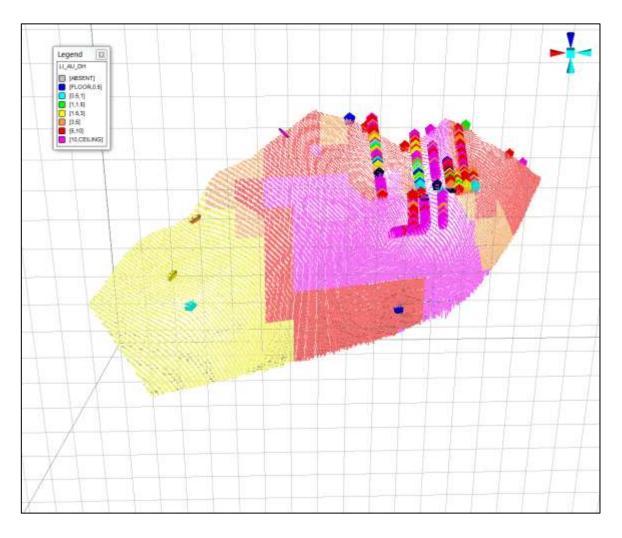
### La India Deposit

Top down, left to right: La India HGC (KZONE 130); La India Main WR (KZONE 230); La India HGC (KZONE 140); La India Main WR (KZONE 250); La India Main WR (KZONE 301-329); La India Hanging Wall WR (KZONE 410-530).



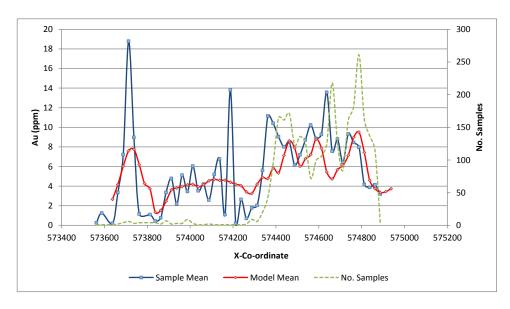
# Teresa Deposit

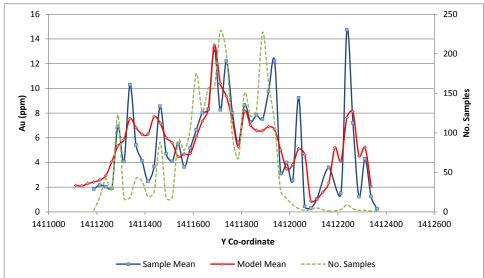
# GROUP 1000

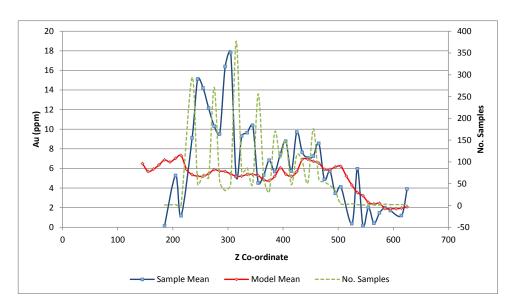


**VALIDATION PLOTS** 

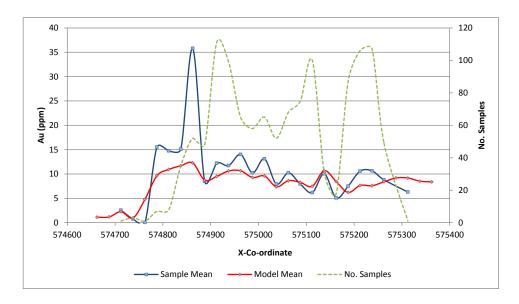
#### America Deposit – America-Escondido Vein – KZONE 3500

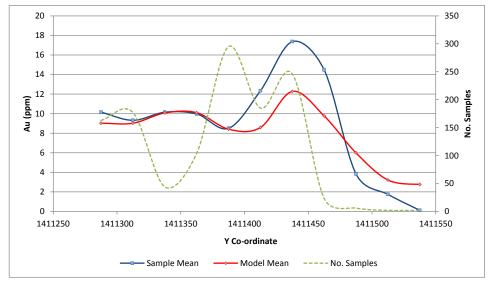


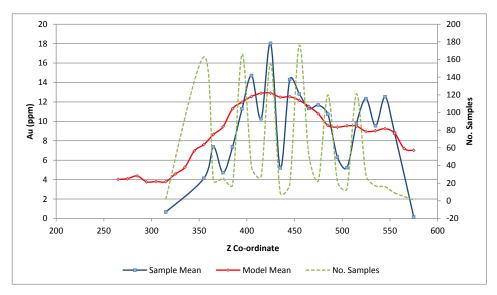




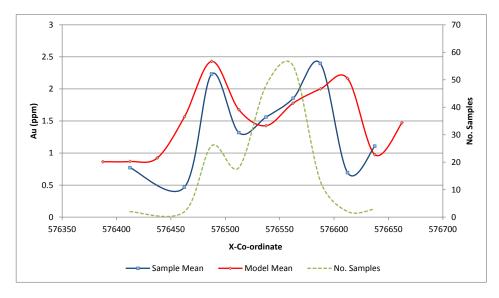
# America Deposit – Constancia Vein – KZONE 2520

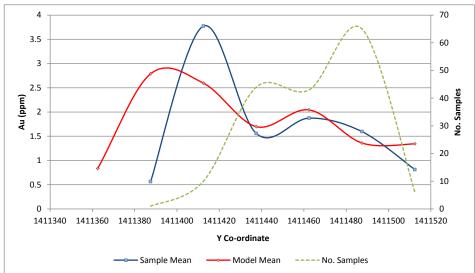


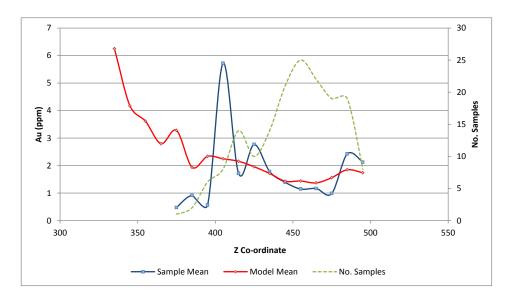




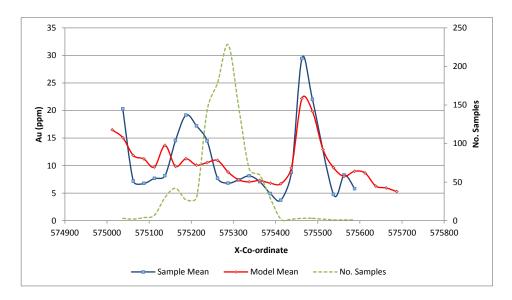
# Central Breccia Deposit – GROUP 1000

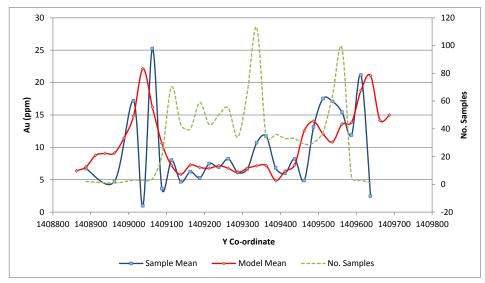


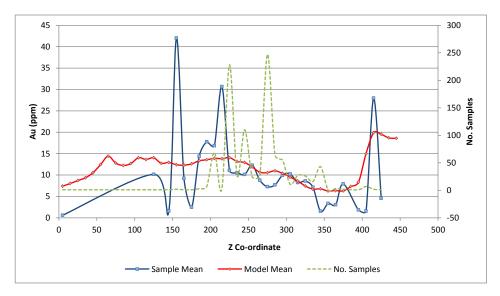




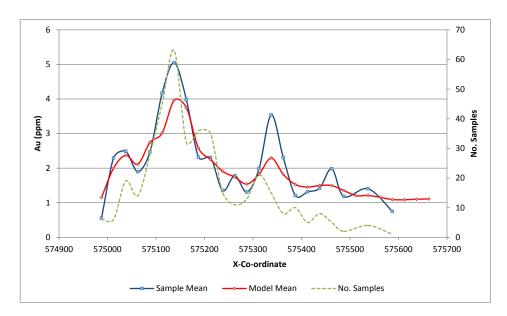
### La India Deposit – La India HGC – KZONE 130

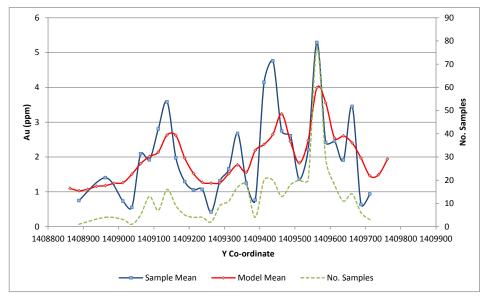


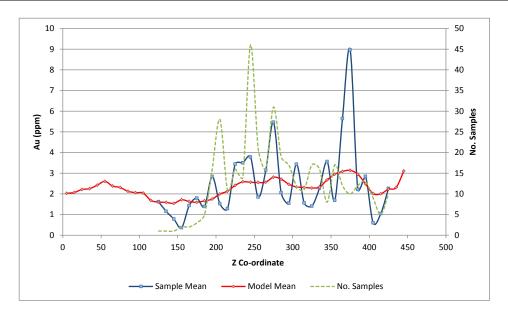




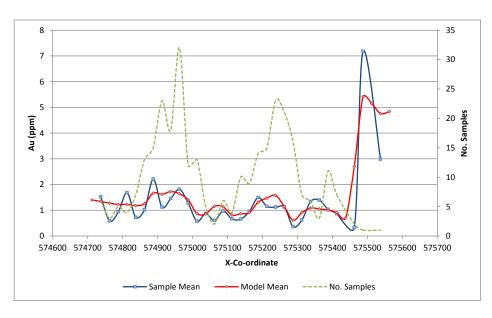
# La India Deposit - La India Main WR - KZONE 230

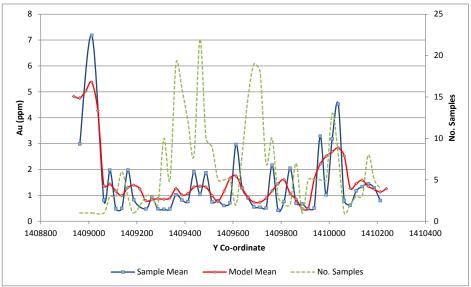


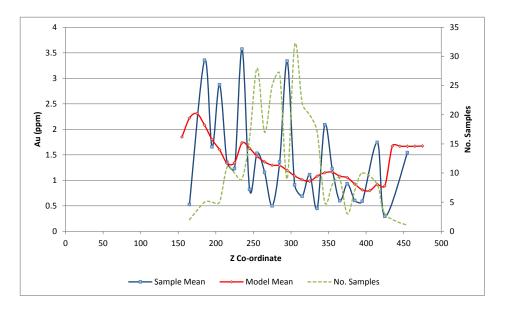




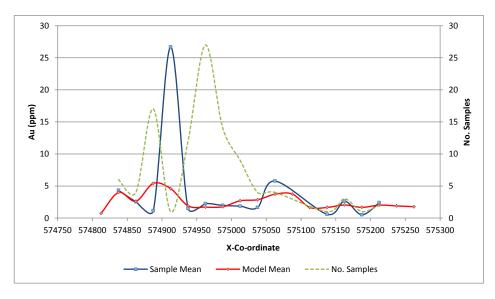
### La India Deposit – La India Main WR – KZONE 301-329

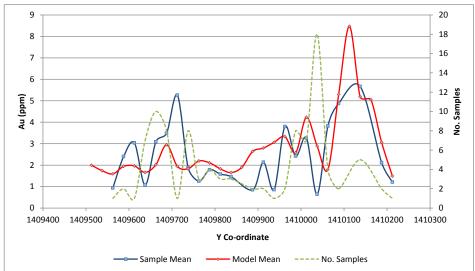


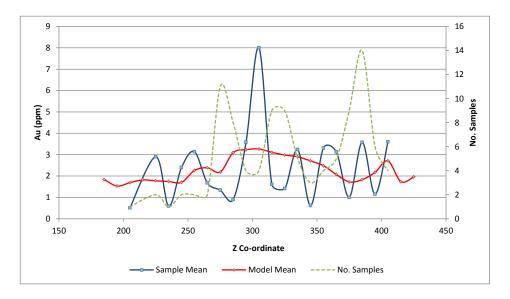




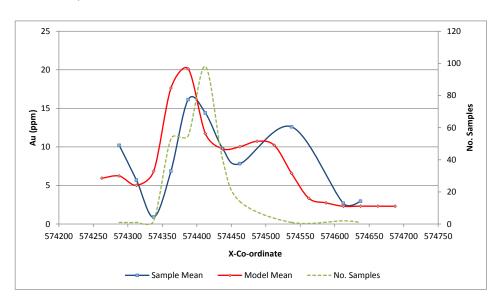
## La India Deposit – La India Hanging Wall WR – KZONE 410-530

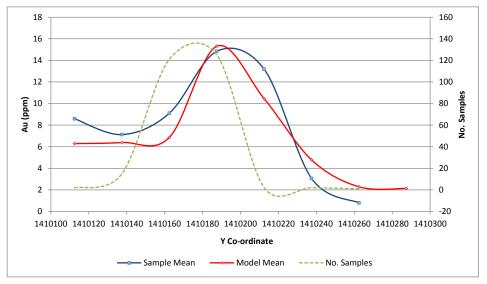


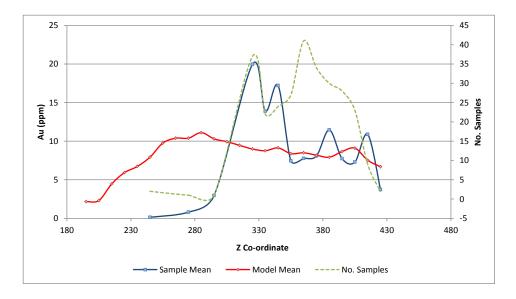




### Teresa Deposit - GROUP 1000







SRK Consulting Technical Appendix A STATISTICAL BLOCK GRADE VALIDATION

Statistical Validation Block Model to Declustered Mean Gold Grade (Single Domain Deposits)

Vein	Count	Composite Mean	Declust. Mean	Block Mean	% Difference AU	Absolute Difference AU (g/t)
Agua Caliente	125	8.69	5.80	5.80	-0.10	0.01
Arizona	238	5.17	3.90	4.20	5.90	0.24
Buenos Aires	76	8.13	6.10	6.00	-1.40	0.08
Cacao	572	0.92	0.80	1.00	21.80	0.22
Central Breccia	169	1.67	1.65	1.77	6.20	0.10
Espinito	457	9.15	6.20	6.10	-1.30	0.08
Guapinol	377	7.01	5.50	5.30	-4.00	0.21
San Lucas	839	5.97	4.00	4.00	0.90	0.04
Tatiana	68	4.76	4.30	6.10	29.10	1.78
Teresa	281	11.03	8.49	8.78	3.36	0.29

Statistical Validation Block Model to Declustered Mean Gold Grade (America Deposit)\*

KZONE	FIELD	ESTIMATION Composite METHOD Mean AU (g/t		Declustered Mean AU (g/t)	Block Estimate AU (g/t)	% Difference AU	Absolute Difference AU (g/t)
2010	AU	OK	1.68	1.47	1.40	-4.7%	0.07
2010	AUIDW	IDW	1.68	1.47	1.64	11.6%	0.17
2020	AU	OK	0.92	0.96	0.94	-2.0%	0.02
2020	AUIDW	IDW	0.92	0.96	0.93	-2.9%	0.03
2030	AU	OK	10.22	9.18	8.65	-5.8%	0.53
2030	AUIDW	IDW	10.22	9.18	10.72	16.8%	1.54
2040	AU	OK	1.79	1.79	1.75	-2.4%	0.04
2040	AUIDW	IDW	1.79	1.79	1.76	-1.4%	0.03
2050	AU	OK	1.47	1.43	1.43	-0.3%	0.00
2050	AUIDW	IDW	1.47	1.43	1.42	-0.4%	0.01
2060	AU	OK	2.81	3.05	3.00	-1.8%	0.05
2000	AUIDW	IDW	2.81	3.05	2.80	-8.2%	0.25
2510	AU	OK	2.81	4.04	4.94	22.2%	0.90
2510	AUIDW	IDW	2.81	4.04	5.04	24.8%	1.00
2520	AU	OK	10.92	8.77	9.02	2.9%	0.25
2520	AUIDW	IDW	10.92	8.77	9.83	12.1%	1.06
3010	AU	OK	2.60	2.24	2.48	-4.5%	0.24
3010	AUIDW	IDW	2.60	2.24	2.54	-2.1%	0.30
2000	AU	OK	0.59	0.59	0.59	0.1%	0.00
3020	AUIDW	IDW	0.59	0.59	0.59	0.1%	0.00
2020	AU	OK	0.95	1.01	0.96	-4.5%	0.05
3030	AUIDW	IDW	0.95	1.01	0.89	-11.4%	0.12
3500	AU	OK	8.19	5.68	5.65	-0.6%	0.03
3300	AUIDW	IDW	8.19	5.68	5.78	1.8%	0.10

<sup>\*</sup>Note that the raw composite mean has (where appropriate) been used in place of the declustered mean for optimal statistical comparison with the block estimate.

<sup>\*</sup>Elevated percentage discrepancy for KZONE 2510 as a limited high grade intercepts influence a relatively large proportion of the tonnage.

# Statistical Validation Block Model to Declustered Mean Silver Grade (America Deposit)

KZONE	FIELD	ESTIMATION Composite Mean AU (g/t)		Declustered Mean AU (g/t)	Block Estimate AU (g/t)	% Difference AU	Absolute Difference AU (g/t)	
2000	AG	OK	6.19	5.87	5.71	-2.7%	0.16	
	AGIDW	IDW	6.19	5.87	5.94	1.2%	0.07	
3000	AG	OK	6.03	5.83	5.92	1.5%	0.09	
	AGIDW	IDW	6.03	5.83	6.15	5.4%	0.32	

# Statistical Validation Block Model to Declustered Mean Silver Grade (La India Deposit)

GROUP	KZONE	FIELD	ESTIMATION METHOD	Composite Mean AU (g/t)	Declustered Mean AU (g/t)	Block Estimate AU (g/t)	% Difference AU	Absolute Difference AU (g/t)
	110	AG	OK	12.07	12.54	12.28	-2.1%	0.26
	110	AGIDW	IDW	12.07	12.54	12.11	-3.5%	0.43
	120	AG	OK	7.74	7.91	8.09	2.3%	0.18
	120	AGIDW	IDW	7.74	7.91	7.75	-2.0%	0.16
	130	AG	OK	15.34	16.13	18.71	16.0%	2.58
	130	AGIDW	IDW	15.34	16.13	18.72	16.1%	2.59
	140	AG	OK	12.73	14.00	17.05	21.8%	3.06
	140	AGIDW	IDW	12.73	14.00	16.30	16.5%	2.31
	210	AG	OK	4.17	4.23	4.04	-4.5%	0.19
	210	AGIDW	IDW	4.17	4.23	4.11	-2.8%	0.12
1000	220	AG	OK	3.63	3.15	2.77	-11.8%	0.37
1000		AGIDW	IDW	3.63	3.15	3.06	-2.9%	0.09
	230	AG	OK	4.59	4.00	4.09	2.2%	0.09
		AGIDW	IDW	4.59	4.00	4.09	2.1%	0.08
	240	AG	OK	3.15	3.38	3.44	2.0%	0.07
		AGIDW	IDW	3.15	3.38	3.59	6.3%	0.21
	250	AG	OK	6.25	6.20	6.34	2.2%	0.14
		AGIDW	IDW	6.25	6.20	6.42	3.5%	0.22
	260	AG	OK	7.67	7.15	7.19	0.6%	0.04
	200	AGIDW	IDW	7.67	7.15	6.93	-3.0%	0.22
	301 - 329	AG	OK	2.03	2.07	2.08	0.4%	0.01
	301 - 329	AGIDW	IDW	2.03	2.07	2.13	3.0%	0.06
2000	410 - 530	AG	OK	5.81	5.63	5.79	-0.4%	0.15
2000		AGIDW	IDW	5.81	5.63	5.78	-0.5%	0.14
	620	AG	OK	0.78	0.78	0.78	0.0%	0.00
		AGIDW	IDW	0.78	0.78	0.78	0.0%	0.00
3000	630	AG	OK	1.10	1.08	1.11	0.9%	0.01
3000	030	AGIDW	IDW	1.10	1.08	1.20	9.0%	0.10
	640	AG	OK	2.77	2.78	2.78	0.0%	0.00
	040	AGIDW	IDW	2.77	2.78	2.73	-1.7%	0.05

## **APPENDIX**

B PROCESS DESIGN - LYCOPODIUM MINERALS CANADA LTD, LA INDIA GOLD PROJECT PRE-FEASIBILITY STUDY



# CONDOR GOLD PLC

# LA INDIA GOLD PROJECT PRE-FEASIBILITY STUDY





5032-REP-00

July 2014

File Location: 16.04 Rev. A

А		ISSUED FOR			
REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED

# LA INDIA GOLD PROJECT

# PRE-FEASIBILITY STUDY

5032-REP-001

# **Table of Contents**

DISCLA	IMER		Page <b>I</b>
1.0	1.1 1.2 1.3 1.4 1.5	Introduction and Background Process Plant Plant Infrastructure Capital and Operating Costs Conclusions and Recommendations	1.1 1.1 1.2 1.3 1.4
2.0	PROJEC	CT BACKGROUND	2.1
3.0	PROCES 3.1 3.2 3.3	SS PLANT Summary Process Design Criteria Process and Plant Description 3.3.1 Run-of-Mine (ROM) Pad 3.3.2 Crushing Circuit 3.3.3 Grinding and Classification Circuit 3.3.4 Pre-leach Thickening 3.3.5 Leach and Carbon Adsorption Circuit 3.3.6 Elution and Goldroom Operations 3.3.7 Carbon Safety Screen 3.3.8 Cyanide Destruction Circuit 3.3.9 Tailings Disposal 3.3.10 Reagents 3.3.11 Services Process Control Philosophy	3.3 3.3 3.8 3.8 3.9 3.9 3.10 3.12 3.13 3.13 3.15 3.16
	3.5	<ul><li>3.4.1 General Overview</li><li>3.4.2 Drive Controls</li><li>Metallurgical Accounting</li></ul>	3.16 3.18 3.18
4.0	PLANT I	INFRASTRUCTURE	4.1
	4.1 4.2 4.3 4.4 4.5 4.6	Overview Site Roads Power Supply 4.3.1 Power Supply – Incoming 4.3.2 Plant Distribution Services Transformers and Switchgear 4.3.3 Emergency Power Supply 4.3.4 Mill Starting Load 4.3.5 Method of Supply Communication Systems Ventilating, and Air Conditioning (HVAC) Systems Building Fire Protection Systems	4.1 4.3 4.3 4.3 4.4 4.5 4.5 4.6 4.6
	4.7 4.8 4.9 4.10	Sewage Treatment Security System and CCTV Monitoring Plant Site and Administration Buildings Truckshop and Warehouse Facilities	4.6 4.6 4.7 4.7

# LA INDIA GOLD PROJECT

# PRE-FEASIBILITY STUDY

5032-REP-001

# **Table of Contents**

ige I.7
5.1
5.1
5.1
5.2
5.5
5.6
5.6
5.7
5.7 5.7
5.7
5.8
.0
5.9
10
11
11
12
5.1
3.1
3.3
3.3
6.4
6.4
3.5
3.5
3.5
3.5
6.6
6.6
6.6
5.7
5.7
8.6
8.6
'.1
'.1
'.1
.2
 2
'.2
'.3
'.3

# LA INDIA GOLD PROJECT

# PRE-FEASIBILITY STUDY

5032-REP-001

# **Table of Contents**

8.0 CON	CLUSIONS AND RECOMMENDATIONS	Page <b>8.4</b>
TABLES		
Table 1.1	Capital Cost Summary (USD\$, 2Q14, ±25%)	1.3
Table 1.2	Operating Cost Summary (US\$, 2Q14, ±25%)	1.3
Table 3.1	Summary of Key Process Design Criteria	3.4
Table 4.1	Load List Summary	4.4
Table 5.1	Capital Cost Estimate Summary (US\$, 2Q14, +/-25%)	5.2
Table 5.2	Capital Cost Estimate Basis	5.2
Table 5.3	Capital Cost by Plant Area and Facility	5.13
Table 5.4	Summary by Primary Discipline	5.18
Table 6.1	Summary of Process Operating Cost Estimate (US\$, 2Q14, +/-25%)	6.1
Table 6.2	La India Production Parameters	6.3
Table 6.3	Selected Employee Compensations Inclusive of Overheads	6.5
FIGURES		
Figure 4.1 Pro	ject Location	4.1
	cess Plant Location	4.2
•	erating Cost Distribution	6.2
riguio ori opi	Jaming Cook Distribution	0.2
APPENDICES		
• •	rocess Flow Diagrams	
	rocess Design Criteria	
	rocess Plant Site Drawings	
	echanical Equipment List	
	ectrical Single line Diagram	
	apital Cost Estimate	
• •	perating Cost Estimate	
, ,	ectrical Load List	
Appendix 9 11	Mtpa factored capital and operating cost estimates	

July 2014 Lycopodium Minerals Canada Ltd 5032\16.04\5032-REP-001\_A

#### **DISCLAIMER**

This report has been prepared for Condor Gold PLC. (Condor) by Lycopodium Minerals Canada Ltd (Lycopodium) as an independent consultant and is based in part on information furnished by Condor and in part on information not within the control of either Condor or Lycopodium. While it is believed that the information, conclusions and recommendations will be reliable under the conditions and subject to the limitations set forward herein, Lycopodium does not guarantee their accuracy. The use of this report and the information contained herein shall be at the user's sole risk, regardless of any fault or negligence of Lycopodium.

#### 1.0 EXECUTIVE SUMMARY

## 1.1 Introduction and Background

Condor Gold PLC ("Condor") plans to develop the La India Gold Project ("Project"), located in Nicaragua adjacent to the town of La India, approximately 130km north of Managua, into an operating mine and gold processing facility.

In May 2014 Condor retained Lycopodium Minerals Canada Ltd (Lycopodium) to undertake the process plant aspects of pre-feasibility study (PFS) to assess the viability of the Project and provide input into the NI 43-101 technical report being compiled by SRK Consulting Inc (Cardiff, UK).

Lycopodium's scope of work included providing preliminary design, capital costs, and operating costs for a 805,000 tpa (tonnes per annum) gold process plant and associated infrastructure. The mine design, mine operating costs, mine capital costs, reserve estimation, tailings management, hydrology, geotechnical and closure planning inputs are by SRK.

This report was prepared to provide Condor with sufficient information to determine the technical and economic feasibility of developing the Project, and to decide whether to proceed with a bankable feasibility study.

All amounts expressed in this report are in US dollars unless otherwise indicated.

#### 1.2 Process Plant

The plant is designed for the treatment of 805,000 tpa with 92% mill availability, with standby equipment in critical areas. The process plant design allows for fluctuations in mine production throughput. The ore is clean, of high hardness and extremely high abrasion, and with average life-of-mine (LOM) head grades of 3.0 g/t gold and 5.3 g/t silver. To accommodate for the variability in head grades, the plant is designed for head grades of 3.4 g/t gold and 5.8 g/t silver. The overall process flowsheet is based on a single stage SAG comminution and conventional Carbon in Leach (CIL) circuit.

The proposed process encompasses crushing the run-of-mine ore (ROM) with a primary jaw crusher, followed by a single stage SAG mill grinding in closed circuit with cyclones to achieve the target  $P_{80}$  target size of  $75_{\mu m}$ . The milled product will be thickened in a pre-leach thickener prior to being leached in the CIL circuit. A hybrid CIL circuit (1 leach tank, 6 adsorption tanks) will leach and adsorb gold from the milled ore onto activated carbon. An AARL (Anglo American Research Laboratories) elution circuit will recover gold from the loaded carbon, and electrowinning and smelting processes will produce doré bar at site.

Cyanide in the CIL tailings will be recovered via a cyanide recovery thickener, and detoxified using the SO2 / Air process prior to the tailings being disposed of in the sub-aerial tailings storage facility (TSF). Process water supply for the operations will be supplied by recycled water from the TSF, supplemented by mine dewatering. The process flow diagrams are included in Appendix 1, and process design criteria in Appendix 2, of this document.

#### 1.3 Plant Infrastructure

The Project consists of an open pit mine, gold processing plant and refining facility, located adjacent to the town of La India, in the La India District, approximately 32 km southwest of the town of Sebaco. The project is accessible from the capital city, Managua, either by the paved Leon-Esteli Road (Highway 26) at a distance of approximately 210km or by the Panamerican Highway via Sebaco, approximately 130km.

The project is well-served with respect to infrastructure, as the majority of mineralised areas are accessible to within a few hundred meters of the paved highway via dirt tracks, and an existing grid power line runs adjacent to the plant site.

The plant power will be connected as a tee-off to the existing 138 kV, 3-phase line, which runs along the Leon-Esteli Road, and is approximately 100m from the process plant. Other lower cost options are being investigated as well.

The port of Corinto, on the Pacific Ocean, is approximately 121km west of the project site, where equipment, reagents, and consumables will be imported.

The process plant site buildings include the main administration building, laboratory, plant kitchen and meals area, change house and ablutions building, process plant security gatehouse and main security gatehouse.

A truck maintenance facility will service the mining fleet with two truck bays. The main workshop/warehouse will house mechanical, electrical, instrumentation and general items.

Process plant tailings will be transported via a HDPE pipeline to the TSF, which is located approximately 700m east of the process plant. Reclaim water from the TSF will be returned to the process plant for reuse in the process via barge pumps.

A septic system will be utilized for sewage disposal.

Plant site general arrangement drawings are included in Appendix 3 of this document.

## 1.4 Capital and Operating Costs

Table 1.1 provides a summary of the capital cost estimate and only include the process plant and associated infrastructure within Lycopodium's scope. The costs are expressed in Q2 2014 USD. The estimates are considered to have an overall accuracy of +/-25% and are based on the Project being developed on an EPCM basis.

Major cost categories (permanent equipment, material purchase, installation, indirect costs) were identified and analyzed. To each of these categories a percentage contingency was allocated based on the accuracy of the data, and an overall contingency of 11.3% was subsequently derived.

Scope Main Area **Project Totals** Contingency **Total Project USD** USD USD Lyco Directs 100 Treatment Plant 31,649,965 3,901,534 35,551,499 200 Reagents & Plant Services 3,003,706 260,549 3,264,165 300 Infrastructure 274,062 2,359,383 2,633,446 **Lyco Directs Total** 4,436,055 41,449,109 37,013,054 Lyco Indirects 000 Construction Indirects 410,047 4,128,687 3,718,640 500 Management EPCM Costs 7,328,000 732,800 8,060,800 Lyco Indirects Total 11,046,640 1,142,847 12,189,487 48,059,694 5,578,903 53,638,597 **Grand Total** 

Table 1.1 Capital Cost Summary (USD\$, 2Q14, ±25%)

Exclusions are noted in Section 5.3.10.

A summary of the LOM operating costs is provided in Table 1.2. The operating costs have been calculated based on an annual throughput of 805,000 tpa of ore.

Table 1.2	Operating	Cost	Summary	(US\$.	2Q14.	+25%)

Cost Centre	USD\$/Year	US\$/t	US\$/oz Gold Equivalent
Power	6,897,275	8.57	84.41
Labour	1,977,072	2.46	24.20
Consumables	6,730,133	8.36	82.36
Maintenance Materials	509,837	0.63	6.24
Laboratory	256,135	0.32	3.13
Total	16,370,502	20.34	200.34

Operating costs were estimated by major category (power, labour, consumables etc.) and have been compiled from metallurgical testwork, supplier quotations, data from Condor, Lycopodium data, and first principles estimates.

For imported goods, prices have been converted using the following exchange rates:

CAD 1.00 USD 0.92

CORDOBA 25.00 =USD 1.00

Details of the capital cost and operating cost estimates are included in Appendix 6 and Appendix 7 of this document.

#### 1.5 **Conclusions and Recommendations**

The investigation and analysis carried out are considered appropriate to pre-feasibility level design. Further investigations are recommended as the project advances to a bankable feasibility study level.

- Additional test work is required to provide better definition of the abrasion index throughout the deposit. The abrasion index reported for La India is very high and it contributes considerably to the operating cost in terms of comminution media. The use of composite wear liners and chrome media should be investigated as a method for reducing media costs.
- Due to the relatively high cost of grid power in Nicaragua, it is recommended to explore other sources of power supply, including from neighbouring countries, and possible use of generator sets with fuel oil options.
- Because of the high comminution energy requirements of the ore, the project is highly sensitive to power cost. In future study, detailed investigation into determining the actual power cost is required (i.e. supply proposal or contract in place).
- It is recommended for the next phase that the base case process plant throughput be increased from 805,000tpa to 1Mtpa for improved economics and quicker payback,assuming that sufficient working room can be made available to provide feed from the mine. Factored estimates (± 35%) were prepared by Lycopodium for the 1Mtpa case which show a reduction in the operating costs from \$20.34 / tonne per to \$19.00 / tonne, and only a 7.5% increase in capital costs with a 24% increase in throughput. The factored estimates are provided in Appendix 9, 1Mtpa Factored Capital and Operating Cost Estimates.
- A potable water treatment plant is recommended to enable the onsite production of water for safety showers and drinking.

- Test results subsequent to the preparation of this study have indicated that mercury is not of concern for the La India project and all equipment related to the handling of mercury can have the holds removed and be omitted from future design.
- Additional comminution and metallurgical test work is recommended for the America, Mestiza, and Central Breccia vein systems for inclusion in subsequent studies.

#### 2.0 PROJECT BACKGROUND

In May 2014 Condor retained Lycopodium Minerals Canada Ltd (Lycopodium) to undertake the process plant aspects of pre-feasibility study (PFS) to assess the viability of the Project and provide input into the NI 43-101 technical report, compiled by SRK Consulting Inc (Cardiff, UK).

#### Lycopodium's scope incorporated:

- Preparation of a preliminary process plant and infrastructure design to support an 805,000 tpa facility.
- Development of a conceptual flowsheet and design criteria based on preliminary comminution testwork results and conventional copper concentrator design.
- Identification of equipment.
- Preparation of overall plant general arrangement drawing.
- Preparation of capital and operating cost estimates to an accuracy of +/-25%.
- Preparation of factored capital and operating cost estimates for a 1Mtpa facility.

#### SRK's scope included:

- Mine design, pit optimisation, open pit mining schedule
- Haul roads and bulk earthworks
- Tailings Storage Facility (TSF) design
- Surface water management.
- Ground water/bore fields.
- Hydrology and hydrogeology.
- Road re-alignment and HV powerline relocation.
- Closure planning.

#### Condors' scope included:

Owners cost

- Pre-production costs
- **Spares**
- Light vehicles
- Maintenance plant and tools
- Office equipment and Furniture
- IT and other hardware and software
- Working Captial
- **Duties and Taxes**

#### 3.0 **PROCESS PLANT**

#### 3.1 **Summary**

The plant is designed for the treatment of 805,000 tpa with 92% mill availability, with standby equipment in critical areas. The process plant design allows for fluctuations in mine production throughput. The ore is clean, of high hardness and extremely high abrasion, and with average life-ofmine (LOM) head grades of 3.0 g/t gold and 5.3 g/t silver. To accommodate for the variability in head grades, the plant is designed for head grades of 3.4 g/t gold and 5.8 g/t silver. The overall process flowsheet is based on a single stage SAG comminution and conventional Carbon in Leach (CIL) circuit.

Ore will be direct dumped into a ROM bin, which will then be fed to a jaw crusher via the primary apron feeder. The crushed rock will be conveyed to a surge bin. The surge bin will discharge via an apron feeder to the SAG mill feed conveyor and overflow to a dead stockpile as required. A front end loader (FEL) will reclaim ore to the SAG mill feed conveyor.

Grinding will be accomplished by a single stage SAG mill in closed circuit with cyclones to achieve the target grind size. The milled product will be thickened in a pre-leach thickener prior to the CIL circuit. A hybrid carbon-in-leach (CIL) circuit (1 leach tank, 6 adsorption tanks) will leach and adsorb gold from the milled ore onto activated carbon.

An AARL elution circuit will recover gold from the loaded carbon, and electrowinning and smelting processes will produce doré bar at site. Cyanide in the CIL tailings will be detoxified using the SO<sub>2</sub> / Air process prior to the tailings being disposed of in the subaerial tailings storage facility. Process water supply for the operations will be supplied by recycled water from the TSF, supplemented by mine dewatering.

#### 3.2 **Process Design Criteria**

The process design has been based on the following approaches:

- The feed rate and ore grades were provided by Condor.
- Key ore characteristics provided in the design criteria have been determined by testwork, or where absent, taken from similar ore types and Lycopodium experience. The quality and extent of testwork performed was more than sufficient for a PFS level study.
- Single stage primary crushing with a single toggle jaw crusher to produce a crushed product size of 80% passing (P<sub>80</sub>) 80 - 100mm. The jaw crusher feed hopper will be equipped with a static grizzly and a rock breaker.
- A crushed ore surge bin with a nominal capacity of 1 hour (105 t) with a discharge feeder supplying the SAG mill feed conveyor. Surge bin overflow will be conveyed to a dead

stockpile. Ore from the dead stockpile will be reclaimed by front end loader (FEL) to feed the mill during periods when the primary crusher is off line.

- Closed circuit single stage SAG mill, with space allowed for a pebble crushing circuit if required in future, to produce a P<sub>80</sub> grind size of 75<sub>µm</sub>. Space is allocated for a potential pebble crushing circuit to include feed and discharge bins to provide controlled crusher and SAG mill feed for steady operation.
- Pre-leach thickening to increase the slurry density feeding the hybrid carbon in leach (CIL) circuit to minimise CIL tankage and reduce overall reagent consumption.
- A CIL circuit incorporating one leach tank and six stages of adsorption tanks to allow for bypass of a stage while maintaining high recovery, low carbon inventory and maximum carbon loading.
- An AARL elution circuit with electrowinning and smelting to produce doré bars.
- Cyanide will be recovered via a cyanide recovery thickener by washing CIL tailings with tailings reclaim water.
- Cyanide destruction using the SO<sub>2</sub> / Air process.
- Tailings disposal in a sub-aerial valley infill TSF.

The key process design criteria listed in Table 3.1 form the basis of the detailed process design criteria and mechanical equipment list.

Table 3.1 Summary of Key Process Design Criteria

	Units	Primary	Source
Plant Capacity	tpa	805,000	Condor
Head Grade	g Au/t	3.40	Condor/SRK
Head Grade	g Ag/t	5.08	Condor/SRK
Design Gold Recovery	%	91	SRK
Crushing Plant Utilisation	%	75	Lycopodium
Plant Availability	%	92	Lycopodium
Bond Abrasion Index (Ai)		1.08	Testwork
Drop Weight (SMC) Axb		40	Testwork
Bond Ball Mill Work Index (BWi)	kWh/t	21.9	Testwork
SG		2.54	Testwork
Grind Size (P <sub>80</sub> )	μm	75	Testwork
Leach Circuit Residence Time	hrs	35	Testwork/Lycopodium
Leach Slurry Density	% w/w	48	Lycopodium

	Units	Primary	Source
Number of Leach Tanks		1	Lycopodium
Number of CIL Tanks		6	Lycopodium
Cyanide Consumption	kg/t	0.82	Testwork
Leach Lime Consumption	kg/t	0.93	Testwork
Elution Circuit Size*	t	5	Lycopodium
Cyanide Destruction Process		SO <sub>2</sub> /Air Process	Lycopodium

<sup>\*</sup> Based on 6 strips per week

The key issues considered for process and equipment selection are outlined below:

#### ROM Pad and Crushing Circuit

Stockpiled ore on the ROM ore pad will be used to provide a buffer between the mine and the plant.

The primary jaw crushing circuit has been sized on the basis of operating at 75% utilisation at a feed rate in excess of the mill feed requirement. Maximum feed size has determined the crusher size such that the unit will not be capacity constrained. Excess crushed ore will be stockpiled and reclaimed on the ROM pad using a Front End Loader (FEL) during periods of crusher maintenance. The primary jaw crusher will be equipped with a feed hopper, static grizzly and rock breaker, and will be capable of receiving ore from a FEL or directly from a haul truck.

A ROM ore grizzly aperture of 600 mm has been selected based on the maximum lump size. The grizzly will be required to minimise oversize material entering the ROM ore bin and causing downstream blockages. The grizzly will be inclined to be self-cleaning as far as possible. An apron feeder will draw material from the ROM hopper and feed the jaw crusher.

#### Grinding

After consideration of a number of alternate grinding circuit configurations, a single stage SAG mill in closed circuit with cyclones was selected to produce the target circuit  $P_{80}$  size of 75  $\mu$ m. Space for a pebble crusher is also included to provide contingency against high ore hardness. This circuit provides the simplest operation and maintenance while also reducing capital cost. SAG mill grinding saves considerably on grinding media consumption given the very high abrasiveness of the ore. Because of the high ore hardness, the typical energy inefficiencies of SAG milling become relatively minor. The operating requirements for single stage SAG circuits are well understood as there are many similar successful installations.

In order to maintain a stable operation of the single stage SAG circuit, a variable speed control on the SAG mill is required with a mill speed range between 60 - 80% critical speed nominated. In addition to standard charge weight and power control algorithms, the mill will be provided with noise monitoring to alarm low mill charge levels.

The lime silo will be located above a slaker and storage tank. Lime slurry will be pumped to the SAG mill. Lime is required to increase the pH of the slurry in the leaching circuit to ≥ 10 pH to reduce the generation of hydrogen cyanide.

#### **Pebble Crushing**

Space for a pebble crushing circuit has been allowed for in the design to provide contingency against the high ore hardness. The pebble crusher will be installed in the second year of operation, if required. In the event that the SAG mill generates excessive fines, up to 15% of the feed mass can be extracted from the mill discharge as pebbles and processed through the pebble crusher. Due to design limitations inherent in the pebble crusher, the crusher will operate intermittently and as such, feed and discharge bins will be included to provide consistent feed to the both the pebble crusher and the SAG mill.

#### Classification

Hydrocyclones have been selected for the classification duty to minimise the number of cyclones in the cluster and to reduce the potential for spigot blockages occurring from coarse SAG mill discharge material.

The cyclones will be operated at feed densities that maximise classification efficiency while reducing circulating load and overall circuit power consumption.

#### Pre-Leach Thickening

A high rate pre-leach thickener will be included to allow for operational flexibility in the grinding circuit while providing an optimized CIL circuit feed density of 48%. The afforded process buffer of approximately three to four hours will be useful in providing consistent feed to the CIL circuit.

#### Leach and Adsorption Circuit

The leach characteristics of the ore necessitate a 35 hour leach and a hybrid CIL circuit is proposed. A leach circuit configuration comprising one leach tank and 6 leach / adsorption (CIL) tanks with sparged air has been adopted to accommodate the leach time requirement while affording continuous high recovery in the event that one tank is offline. The leach tank has been provided in the design to maximise carbon loading and ensure that acceptable target solution tails grades can be met while reducing carbon inventory.

#### Cyanide Recovery Thickener

A high rate thickener will be included for washing the CIL tailings and recovering cyanide. Tailings reclaim water will be returned to the plant, for use in the milling circuit, via the cyanide recovery thereby washing the tailings, recovering a portion of the cyanide, and reducing the quantity of cyanide reporting to the cyanide destruction circuit.

#### **Elution**

The average daily movement of carbon was calculated based on the design gold and silver feed grade and maximum CIL extraction. Allowing for a six day per week operation, a five tonne carbon capacity AARL elution circuit was selected. A five tonne dilute hydrochloric acid wash column will also be provided for carbon washing ahead of the elution circuit.

Three parallel 12 cathode electrowinning cells with individual rectifiers will provide electrowinning of gold and silver in less than 12 hours. The sludging-type cells will allow for in cell removal of sludge and they will have an off-gas handling system complete with wet scrubbing. The sludge will be filtered in pressure filter pots and dried in an oven prior to smelting to produce doré bar. Lyco expects that the doré will consist of approximately 43% gold and 57% silver.

#### **Cyanide Destruction Circuit**

An  $SO_2$  / air cyanide destruction circuit will reduce weak acid dissociable cyanide ( $CN_{WAD}$ ) in the tailings stream of the plant to less than 30 ppm  $CN_{WAD}$  such that it is compliant with the environmental requirements of the project. Based on the cyanide detoxification studies performed to date, the plant tailings are expected to comply with the project's environmental requirements. It should be noted that nitrate and ammonia were not measured during the testwork, but will be verified during future phases of work.

#### Tailings Disposal

Following cyanide destruction, CIL tails will be pumped to the TSF. The tailings will be distributed within the facility using multiple spigots. The tailings facility will be located in a valley and will receive some catchment water. Effluent from the tailings facility will be discharged directly to the environment. Decant water from the TSF will be pumped back to the process plant for conservation and reuse in the system.

# 3.3 Process and Plant Description

The process and plant description should be read in conjunction with the process flow diagrams (PFD's) (00-F-001 to 00-F-016) provided in Appendix 1 and plant general arrangement drawings provided in Appendix 3.

#### 3.3.1 Run-of-Mine (ROM) Pad

Direct dump into the primary crusher will be used to the extent possible. A front end loader (FEL) will be used to reclaim excess ore from the various stockpiles to the ROM hopper feeding the primary crusher.

# 3.3.2 Crushing Circuit

ROM ore will be loaded into the ROM feed hopper by haul truck or FEL. A grizzly will be fitted to the ROM hopper to protect the downstream equipment from oversize material. A rock breaker will be provided to reduce oversize rock such that it will pass through the grizzly. ROM ore will be drawn from the hopper at a controlled rate by a variable speed apron feeder and discharge into a single toggle jaw crusher.

The crusher product will discharge onto a conveyor belt and be transported to the crushed ore surge bin. Allowance in the layout has been made for a future belt electromagnet which will be suspended above the conveyor which will remove magnetic tramp metal from the primary crushed ore.

Under normal operating conditions the crushing rate into the surge bin will exceed the rate of withdrawal of ore to the milling circuit. Crushed ore will overflow the surge bin and be directed on to a conveyor feeding a dead stockpile. When required, ore from the dead stockpile will be loaded by FEL onto the SAG mill feed conveyor to maintain mill feed when the crushing circuit is off line.

Grinding media will also be added by FEL into the crushed ore surge bin which will report to the SAG mill feed conveyor as required.

Crushed ore will be withdrawn from the surge bin at a controlled rate by a variable speed apron feeder and fed via the mill feed conveyor directly to the SAG mill. A weightometer will indicate the instantaneous and totalized mill feed tonnage.

The crushing circuit will be controlled locally. The FEL driver will ensure feed is maintained to the crushing circuit and will communicate with the operations supervisor using a two way radio to supply information on crusher feed operation.

The crushing circuit will be independently, sequentially interlocked for shutdown such that in the event of a single component failure, all components will be safely shut down automatically.

## 3.3.3 Grinding and Classification Circuit

The grinding circuit will consist of a SAG mill in closed circuit with hydrocyclones, with space allowed for the addition of a pebble crusher. Crushed ore will be fed directly to the SAG mill via the mill feed conveyor.

The SAG mill discharge trommel undersize will gravitate to the mill discharge hopper, and be diluted with process water, and pumped to the classifying hydrocyclone cluster.

The combined cyclone overflow stream, with a nominal pulp density of 38% w/w solids, will gravitate to pre-leach thickener where it will be thickened to 48% prior to being pumped to the CIL circuit. The cyclone underflow will be collected in the underflow launder and return to the feed chute of the SAG mill.

General maintenance lifts around the mill and cyclones will be done by the mobile site crane. The milling area layout will accommodate crane access for all heavy lifts. A liner handler will be provided for mill liner change-outs.

The mill floor slab will be sloped towards a drive-in collection sump. The mill hopper overflow and cyclone feed pump dump lines will be routed to discharge directly into the sump. The option to out load pebbles directly from the SAG mill to the drive in sump is also provided. This is necessary to facilitate start-up or to cater to stoppages. The solids in this sump will be cleared using a small front end loader or bobcat.

#### 3.3.4 Pre-leach Thickening

Cyclone overflow will gravitate to the trash removal screen. The trash screen will remove any coarse ore particles, wood fragments, organic material, plastics and lime slurry grits that could otherwise blind the inter-tank screens. The screen oversize (trash) will be collected in a bunker or bin, and the undersize (slurry) will gravitate to the high rate pre-leach thickener where it will be combined with flocculant in the feed well. Flocculant fed to the thickener will be diluted with water in a static mixer to ensure good dispersion throughout the feed stream. Thickener underflow will be pumped to the CIL circuit, and thickener overflow will report to the process water tank.

#### 3.3.5 Leach and Carbon Adsorption Circuit

The thickener underflow will be pumped to the leach distributor feed box passing through a two stage cross cut feed sampler along the way. The sampler will be used to take representative samples of the feed head grade for metallurgical accounting purposes. Lime slurry will be added to the SAG mill feed to ensure that the slurry pH is suitable for cyanidation, pH monitoring will take place in the first and last leach tanks.

The leaching and adsorption circuit will consist of one leach tank and six leach / adsorption tanks. The tanks will be interconnected with launders, and slurry will flow by gravity through the tank train. Each tank will be fitted with a dual impeller mechanical agitator to ensure uniform mixing and dispersion. Oxygen required for leaching will be provided by air sparging through the bottom of the agitator shaft into the slurry.

The adsorption tanks will each be fitted with an air swept woven wire intertank screen to retain the carbon. All tanks will be fitted with bypass facilities to allow any tank to be removed from service for agitator or screen maintenance.

Sodium cyanide solution will be metered into the leach feed distribution box, as required, to maintain the desired cyanide concentration in the circuit. Compressed air will be distributed to the CIL circuit and sparged down the shafts of the agitators to allow a high dissolved oxygen profile to be maintained in the circuit.

Fresh and regenerated carbon will be returned to the circuit at CIL Tank 6, and will be advanced countercurrent to the slurry flow by pumping (air lift) slurry and carbon from Tank 6 to Tank 5 to Tank 4, and so on. The intertank screen in each CIL tank will retain the carbon and allow the slurry to gravity flow to the next CIL tank. This counter-current process will be repeated until the carbon eventually reaches CIL Tank 1 at which point an air lift will be used to transfer loaded carbon to the loaded carbon recovery screen. The loaded carbon will be washed and dewatered on the recovery screen prior to reporting to the acid wash column. The recovery screen undersize will return to the CIL circuit.

Slurry from the last CIL tank (leach tails) will gravitate to the vibrating carbon safety via the tails sampler for metallurgical accounting. The safety screen will recover any carbon leaking through worn inter-tank screens or overflowing the tanks. Screen underflow will gravitate to the cyanide destruction circuit via the cyanide destruction distribution box.

Barren carbon returning to the adsorption circuit from the carbon regeneration kiln will be screened on the sizing screen to remove fine carbon and prevent associated gold losses. The sized and regenerated carbon will report to CIL Tank 6, or alternately to Tank 5.

The CIL tanks will be located in a bunded area with a sloping concrete floor. Any spillage from the circuit will report to one of two sumps and can be returned to the circuit or to the carbon safety screen ahead of the cyanide destruction circuit.

#### 3.3.6 Elution and Goldroom Operations

The following operations will be carried out in the elution and goldroom areas:

- Acid washing of carbon.
- Stripping of gold from loaded carbon using the AARL method.

- Electrowinning of gold from pregnant solution.
- Smelting of electrowinning product.

The elution and goldroom areas will typically operate one carbon batch per day - six days per week, with acid wash and elution occurring during day shift. If required, seven day per week operation will be possible as will two batch per day operation. The AARL elution circuit will consist of a rubber lined carbon steel acid wash column and a stainless steel elution column.

#### Acid Wash

Loaded carbon will be recovered on the loaded carbon recovery screen and directed to the acid wash column. Transfer and fill operations of the acid wash column will be controlled manually. All other aspects of the acid wash and the pumping sequence will be automated.

Acid washing of the carbon will commence after carbon transfer and drain down is complete.

The acid wash solution, 3% w/w HCl in fresh water, will be mixed in the dilute acid tank and transferred to the acid wash column. The acid wash process removes contaminants, primarily calcium, from the loaded carbon and prevents carbon fouling which reduces the effectiveness of the carbon. After the prescribed acid soak period, the carbon will be rinsed with fresh water. Three bed volumes of fresh water will be pumped through the column to displace any residual acid from the carbon. Dilute acid and rinse water will be neutralized and disposed of with the tailings. Acid-washed carbon will be transferred to the elution column for stripping.

#### Pre-Soak and Elution

Strip solution will be pumped from the stripping water tank through inline heater exchangers into the base of the elution column. Sodium hydroxide and sodium cyanide solutions will be pumped from the respective storage tanks into the stripping water tank.

The loaded carbon will be pre-soaked in the cyanide / caustic solution for 30 minutes to prepare the gold for elution. The carbon will then be eluted by hot strip solution which will pass out of the circuit to the pregnant solution tank. Outgoing strip solution will pass through the recovery heat exchanger to heat the incoming strip solution.

#### Electrowinning

Direct current will be passed through stainless steel anodes and stainless steel wool mesh cathodes to deposit gold and silver sludge on the cathodes. Three electrowinning cells, arranged in parallel will contain 12 cathodes each to provide a high cell pass efficiency to ensure a minimum gold tenor in the barren eluate.

Solution discharging from the electrowinning cells will return by gravity to the pregnant solution tank. The system will be configured to allow multiple pass electrowinning. Electrowinning will continue until the solution exiting the electrowinning cells is depleted of gold.

#### Goldroom

The electrowinning cells will be located within the security area of the goldroom. Rectifiers, one per cell, will be located in a non-secure area below the cells allowing maintenance access without breaching gold room security. Rectifier remote indication and controls will be located adjacent to the electrowinning cells for safety.

The electrowon silver and gold will be removed from the cathodes in-situ by washing with high pressure water. The resulting sludge will be filtered in laboratory style pressure filters and dried in an oven. The sludge will then be direct smelted with fluxes in a HFO fired furnace to produce doré bars. Slag from smelting operations will be returned to the milling circuit.

Fume extraction equipment will be provided to remove gases from the cells, oven and smelting.

#### Carbon Regeneration

After completion of the elution process, the barren carbon will be transferred from the elution column to the carbon dewatering screen to dewater the carbon prior to entering the feed hopper of the horizontal carbon regeneration kiln. Any residual water will be drained from the carbon in the kiln feed hopper before it enters the kiln. By design, only 75% of the carbon will be regenerated each cycle. The feed hopper will be designed to overflow after it has received 75% of the carbon in the elution cycle. The hopper overflow chute will be designed such that it can be blocked off if 100% of the carbon is to be regenerated. The overflow carbon from the hopper will gravitate directly to the carbon sizing screen. In the kiln, the carbon will be heated to 650 - 750°C for 20 minutes to allow regeneration to occur. Regenerated carbon from the kiln will be quenched and report to the carbon sizing screen. The screen oversize (regenerated and sized carbon) will return to the CIL circuit while the carbon fines will report to the carbon safety screen.

#### 3.3.7 Carbon Safety Screen

Tailings slurry from the final CIL tank will gravitate through the metallurgical sampler to the carbon safety screen. Recovered carbon will be collected in the fine carbon bin for potential return to the circuit. A two stage cross cut feed sampler will be used to take representative samples of the tails for metallurgical accounting purposes. The safety screen undersize, leached slurry will be forwarded to the cyanide destruction circuit.

#### 3.3.8 Cyanide Destruction Circuit

The carbon safety screen undersize slurry will report to the  $SO_2$  / air cyanide destruction circuit. The slurry will flow from the cyanide destruction distribution box to the first cyanide destruction tank. The cyanide destruction circuit will reduce the weak acid dissociable cyanide ( $CN_{WAD}$ ) concentration in the CIL discharge from a level of approximately 150 ppm to 30 ppm. The cyanide destruction circuit consists of two agitated tanks each with 1 hour residence time. The circuit can operate in either series (normal operation) or parallel configuration.

The detoxification process utilises  $SO_2$  and air in the presence of a soluble copper catalyst to oxidize cyanide to the less toxic compound cyanate (OCN). The  $SO_2$  source will be Sodium Meta-Bisulfite (SMBS). Copper sulphate pentahydrate will be added to supply the necessary copper in solution. Air will be sparged into the cyanide destruction tanks through the agitator shaft. Slaked lime will be added to neutralize the sulphuric acid formed in the reaction and maintain a level of approximately 9 pH.

Eh and pH instrumentation will be used to control dosing of SMBS and slaked lime respectively.

#### 3.3.9 Tailings Disposal

Tailings from the cyanide detoxification circuit and other miscellaneous waste streams from the process plant will combine in the tailings collection hopper. The tails stream will be pumped to the tailings storage facility for disposal.

#### 3.3.10 Reagents

#### Lime

Quicklime will be delivered to the site in bulk by pneumatic tanker and stored in the lime silo. The quicklime will be slaked in a vendor supplied package accompanying the silo. The slaked lime will be pumped to the SAG mill and the cyanide destruction circuit in a ring main. A dust collector will minimise dust emissions during silo filling.

#### Cyanide

Sodium cyanide will be delivered as briquettes in shipping containers containing approximately one tonne of cyanide each. The containers will be emptied into the cyanide mixing tank and combined with water to dissolve the cyanide to a target strength of 20% NaCN. Sodium hydroxide will be added to the mixing tank prior to cyanide addition to prevent HCN generation. The mixed cyanide solution will be transferred to the storage tank for dosing to the process. Cyanide will be delivered to the leach circuit using a ring main and dosed to the CIL tanks as required using a control valve and flow meter. A dedicated positive displacement pump will provide cyanide to the elution circuit. Empty cyanide containers will be returned to the vendor.

#### Caustic

Caustic (Sodium Hydroxide) will be delivered to site in bulk bags of pellets. Caustic bulk bags will be lifted by forklift to a small platform at the mixing level. Bags will be emptied by a beak breaker into the mixing tank via a rotary vane feeder to prevent splash back from the tank. Caustic will be transferred to the storage tank for dosing to the process.

#### Hydrochloric Acid

Concentrated hydrochloric acid (32% w/w) will be delivered to site in 1000 L isotainers. The concentrated hydrochloric acid will be transferred from the isotainer to the dilute acid mixing and storage tank by a peristaltic pump. Fresh water will be added to dilute the acid to 3% prior to transfer to the acid wash column. This batch process will repeat for each carbon wash cycle.

#### Activated Carbon

Activated carbon will be delivered in 500 kg bulk bags. Carbon will be added to the carbon quench vessel as required for carbon make-up to the CIL inventory. This addition point will allow removal of carbon fines prior to entering the CIL tanks.

#### **Grinding Media**

Grinding balls will be delivered to site in bulk or 200 L steel drums. The balls will be charged to the SAG mill by FEL via the SAG mill feed conveyor using a front end loader.

#### Flocculant

Flocculant for use in the pre-leach and cyanide recovery thickeners will be delivered to site in 25 kg bags. Flocculant will be added to the flocculant plant storage hopper manually. The vendor supplied flocculant mixing plant will automatically mix batches of flocculant and transfer the mixed flocculant to the aging tank after each mixing cycle is complete. Flocculant will be distributed to the thickeners using positive displacement dosing pumps.

#### Copper Sulphate

Copper sulphate will be delivered in 1 tonne bulk bags and will be added to the mixing tank using an electric hoist and bag breaker. Fresh water will be added to the mixing tank to dilute the copper sulphate. The solution will be metered to the cyanide destruction and flotation circuits directly from the mixing tank.

#### Sodium Metabisulphite

Sodium metabisulphite will be delivered in 1 tonne bulk bags and will be added to the mixing tank using an electric hoist and bag breaker. An air exhaust fan will draw dust and fumes away from this area as SO<sub>2</sub> gas is evolved and the dust can cause skin irritation. Fresh water will be used to mix the sodium metabisulphite. The solution will be pumped from the mixing tank to the storage tank for metering to the cyanide destruction circuit by dosing pump.

#### Diesel

Diesel fuel will be delivered to the plant site by truck and transferred into a storage tank for distribution. Diesel will be reticulated to the elution heater, carbon regeneration kiln, smelting furnace and vehicle filling station.

#### Reagents Storage

Sufficient stocks of reagents will be maintained on site (1 week minimum) to ensure that supply shipping interruptions do not restrict production.

#### 3.3.11 Services

#### Raw Water

Raw water for the project will be provided by a bored well (mine dewatering well) and pumped to the raw water tank. Raw water will be used for some reagent makeup, gland water, and to feed the stripping water treatment plant.

#### Fire Water

Fire water for the process plant will be drawn from the lower portion of the raw water tank. Suction nozzles for other raw water services fed from the raw water tank will be at an elevated level to ensure a fire water reserve always remains in the raw water tank.

The fire water pumping system will contain:

- an electric jockey pump to maintain fire ring main pressure
- an electric fire water delivery pump to supply fire water at the required pressure and flowrate and a diesel driven fire water pump, with integrated fuel tank, will automatically start in the event that power is not available for the electric fire water pump.

Fire hydrants and hose reels will be placed throughout the process plant, fuel storage and plant offices at intervals that ensure complete coverage.

#### Potable Water

Potable drinking water will be bottled service and trucked to site regularly. Raw water will be used for showers in the process plant area and a portion will be pumped to the mine service facilities.

#### **Process Water**

TSF decant water will provide the primary source of process water. Water from the mine dewatering will supply the process water tank make-up requirements. Raw water is also delivered to the process water tank for emergency situations.

The process water tank will receive overflow from the pre-leach and cyanide recovery thickeners. As such, the process water will contain cyanide and require appropriate containment. The process water tank will supply the grinding circuit, pre-leach and cyanide recovery thickeners, and select reagent and screen spray requirements.

Duty / standby raw water and process water pumps will be provided. Antiscalant will be added to condition the grinding water and reduce fouling of pipelines, spray nozzles and screen decks.

#### Plant, Instrument and Oxygen Plant Air Supply

Plant and instrument air for the process plant will be supplied by two equally sized high pressure screw compressors. The air will be dried before distribution with one air receiver supplying plant and instrument air. The primary crusher area will be supplied with an independent air compressor and small receiver.

#### 3.4 Process Control Philosophy

#### 3.4.1 General Overview

The La India processing plant will have a moderate level of automation and remote control facilities. Sufficient instrumentation will be provided to measure, control and record key process parameters, and minimise continuous operator intervention. Automated start-up and shutdown sequences and equipment interlocks will be included to increase operator safety and protect equipment.

The main control room, will house two PC based operator interface terminals (OIT). Both of the OITs will act as the control system supervisory control and data acquisition (SCADA) servers as well as configuration / operator stations. The control room will provide a central area from where the plant is operated and monitored and from which the regulatory control loops can be monitored and adjusted. All key process and maintenance parameters will be available for trending and alarming on the process control system (PCS).

The process control system that will be used for the plant will be a programmable logic controller (PLC) based SCADA system. The PCS will control the process interlocks and PID control loops for non-packaged vendor equipment. Control loop set-point changes for non-packaged equipment will be made at the OIT.

In general, the non-packaged process drives will report their ready, run and start pushbutton status to the PCS and will be displayed on the OIT. Local control stations will be located in the field in proximity to the relevant drives. These will, as a minimum, contain start and Lock-Off-Stop (LOS) pushbuttons which will be hard-wired to the drive starter. Drives related to tanks will generally be started remotely in the correct sequence after inspecting the equipment in the field.

The OITs will allow drives to be selected to Local or Remote or Maintenance modes via the drive control popup. Maintenance mode will only be selected by supervisors with appropriate security access (i.e. the control room operator should not be able to select Maintenance mode). Statutory interlocks such as emergency stops and thermal protection will be hardwired and will apply in all three modes of operation. All PLC generated process interlocks will apply in Local and Remote modes. Process interlocks will be disabled or bypassed in Maintenance mode with the exception of critical interlocks such as lubrication systems on the mill.

Local selection will allow each drive to be operated by the operator in the field via the local start pushbutton which is connected to a PLC input. Remote selection will allow the equipment to be started from the control room via the drive control popup. A PLC output will be wired to each drive starter circuit related to tanks for starting and stopping drives. Status indication of process interlocks as well as the selected mode of operation will be displayed on the OIT.

Vendor supplied packages will use vendor standard control systems throughout the project. Vendor packages will generally have limited interfaces with the PCS such that control and set-point changes may have to be adjusted locally. General equipment fault alarms from each vendor package will be monitored by the PCS system and displayed on the OIT. Fault diagnostics and troubleshooting of vendor packages will be performed locally.

Vendor control panels will be utilised for the following packages:

- Jaw crusher
- SAG mill
- Lime slaker
- Pre-leach thickener
- Cyanide recovery thickener
- Flocculant mixing system

- Elution heater
- Regeneration kiln
- Smelting furnace
- Air blower package
- Potable water treatment system and Compressed air systems

#### 3.4.2 Drive Controls

Each drive will be supplied from a Motor Control Centre (MCC) switchboard. All drive control circuits will be hardwired.

In the field, each drive will be provided with a stop / start push-button control station. The stop button will be of the LOS (Lock Off Switch) type.

Variable Speed Control units will be Variable Voltage Variable Frequency (VVVF) utilising Pulse Width Modulated (PWM) technology. These drives will be mounted in free standing cubicles. Each drive will be provided with an integral control panel for programming and operation at the VVVF unit for commissioning and emergency running.

#### 3.5 Metallurgical Accounting

A weightometer on primary crusher discharge conveyor will measure the primary crushed ore tonnage.

A weightometer on the SAG mill feed conveyor will determine mill feed tonnes.

Density and flow meters on the leach feed will allow the dry tonnage of solids to be determined as a cross check on the mill feed tonnage determined from the mill feed weightometer. In conjunction with the leach feed and tails samplers, the mass flow measurements will allow the gold recovered in the CIL to be calculated.

Routine sampling of the leach feed stream and the final leach tailings will ensure reliable composite shift samples for leach head grade and tails solution and residue grades.

Regular gold 'in circuit' surveys will allow reconciliation of precious metals in feed compared to doré production.

Reconciliation of the amount of reagents used over relatively long periods will be achieved by delivery receipts and stock takes. On an instantaneous basis, reagent usage rates of cyanide, elution and detoxification reagents to unit operations will be measured (L/min) and accumulated (m2) using flow meters.

#### 4.0 PLANT INFRASTRUCTURE

#### 4.1 Overview

The La India Gold project consists of an open pit mine, gold processing plant and refining facility, located adjacent to the town of La India, in the La India District, approximately 32 km southwest of the town of Sebaco. The project is accessible from the capital city, Managua, approximately 130km to the south, via the Panamerican Highway. Figure 4.1 shows the project location.

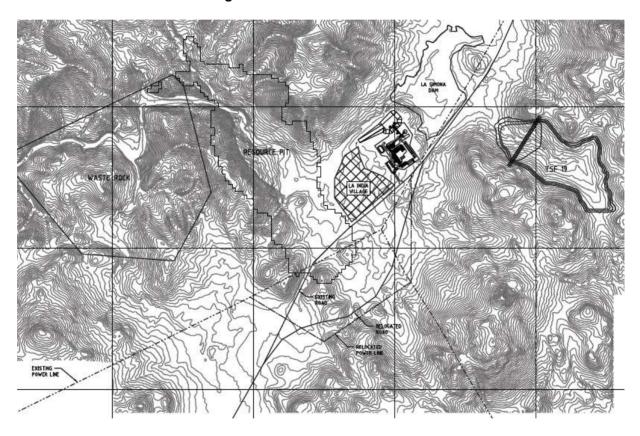


**Figure 4.1 Project Location** 

The process plant will be located east of the open pit, adjacent to the paved Leon-Esteli Road, Highway 26. The Port of Corinto, on the Pacific Ocean, is approximately 121km west of the project site, accessible by Highway 26. The process plant is within 100m from the paved highway. The site plan and corresponding process plant area general arrangement drawings are included in Appendix 3.

The process plant has been located and laid out in a manner to minimise the overall foot print, to facilitate the flow of process streams and provide ease of operator and maintenance access.

The process plant site will be located approximately 600m east of the mining resource pit, northeast of the village of La India, and northwest of Highway 26. The process plant fence line is approximately 100m northeast of the village of La India and 100m southwest of La Simona Dam. The tailings storage facility will be located approximately 700m east of the process plant. Highway 26 cuts between the process plant and tailings storage facility. Approximately 2km of this highway will need to be diverted in year 5 of operations due to encroachment of the open pit. The process plant and ancillary buildings will have a clearance of greater than 500 metres from the edge of the open pit for safety from explosive blasts. The crushing facility will have a clearance of approximately 450m from the La India village. See Figure 4.2 for process plant location.



**Figure 4.2 Process Plant Location** 

The maximum power demand for the process plant will be 6.6MW, and the average running load will be 5.2MW, supplied from a 138 kV, 3-phase power supply which runs along the Highway 26.

Site roads and a parking area will be allowed for in the design. Roads to the tailings area and a mining haul road will also be allowed for to bring ore from the pits to the primary crusher stockpile.

The process plant area will include a mine dry (shower and change facilities), lunch room, and maintenance shop.

The average raw water requirement for the new process plant will be 30 m³/h and the water will be provided from bore fields. This is also based on recycling waste streams generated at the concentrate treatment plant.

Security fencing and signage will be allowed for around the outer property boundary, to prevent incursion by wildlife and unwanted or unintended visitors to the site. In addition security fencing and gate access around the process plant area buildings will also be provided.

#### 4.2 Site Roads

The process plant onsite roads will be constructed of crushed waste rock and naturally available materials. The roads have been designed to connect the various process plant facility areas for operation and maintenance. Where possible, roads follow natural ground contours but profiling with cuts and fill are necessary in most locations to provide uniform grades.

#### 4.3 Power Supply

#### 4.3.1 Power Supply – Incoming

The plant will be supplied from a 138 kV, 3-phase power supply which runs along the highway through a disconnect switch in series with one 1200 A, SF6 circuit breaker shown in 138/4.16 kV single line diagram in Appendix 5.

#### 4.3.2 Plant Distribution Services Transformers and Switchgear

Voltage level: 138 kV and 4.16 kV (metered at 4.16 kV)

Quantity / Capacity of transformer: 1 x 8/10 MVA 138 kV/4.16 kV main transformer

(ONAN / ONAF) with delta configured primary and wye configured secondary which is grounded via a resistor

 The 4.16 kV facilities including switchgear and two 600 kVAR shunt capacitor banks together with station services, protection and control

Load Requirements:

Maximum demand 6.6 MW

Average Load 4.9 MW

Power factor 0.95 or better with power factor correction

Period of production 24 hours per day, continuous

Largest size motors SAG MILL - 1 x 3.9 MW @ 4.16kV

Largest motor starting current 1 x 750 Amp @ 4.16 kV (approx) for 30 seconds

Largest motor running current 1 x 633 Amp @ 4.16 kV

Largest motor methods of starting Adjustable Speed Drive

4.16 kV system neutral grounding Resistance grounded

480 V Neutral Grounding Solidly grounded

The process plant is expected to run continuously for 24 hours per day. The load list summary is detailed in Table 4.1.

Table 4.1 Load List Summary

Plant Areas	Avg. Demand Power
Area 120 Feed Preparation	159 kW
Area 130 Milling Switchroom A/C Loads	41 kW
Area 130 SAG MILL	3,507 kW
Area 140/160/170/180 Screening / CIL & Tailing, Reagent etc,	732 kW
Area 230 Water System and Area 250 Air System	344 kW
Area 100 Miscellaneous Facilities and Buildings	99 kW
PLANT TOTAL DEMAND	4,882 kW

#### Allowable Voltage Variation:

Voltage variation will not exceed ±10% on steady state and ±15% during large drive start-up. Voltage drops in excess of this could affect the operation of the process plant.

Allowable Frequency Variation: 60 Hz +2.5, -0.5

#### 4.3.3 Emergency Power Supply

Two diesel generating units will be provided to supply emergency power (Administration Building 150kW, Concentrator 500kW). The purpose of the diesel generators is to provide power for the following consumers:

- Administration building power
- Guard house

- 30% of area lighting
- Control room power
- SAG Mill Auxiliaries
- Thickener rake system
- Thickener underflow pumps
- Security systems
- Fire-detection system and dry-pipe fire-fighting system (main fire loop has diesel pump

#### 4.3.4 Mill Starting Load

The process plant will include one SAG mill.

The SAG Mill will be driven by 1 x 3,900 kW induction motor with an adjustable speed drive for soft starting. The maximum starting current would be about 1 - 1.3 times full load current (FLC).

The incoming power supply shall have the capacity to meet this step-load while the rest of the plant is in operation without exceeding the voltage and frequency limitations.

#### 4.3.5 Method of Supply

The local Power Authority is to confirm that their existing 138 kV power line and the nearest substation is capable of supplying the Project power requirement as explained above.

The scope of work would involve the following:

- Installation of overhead line take off structure at the proposed T-off point to the plant.
- Construction of 100 m of 138 kV line from the T-off point to the plant.
- Construction of 138 / 4.16 kV, 1 x 8/10 MVA transformer / substation at the mine site.

Discussions with the Power Authority may result in alternatives that better meet the requirements of both the Power Authority and Condor.

#### 4.4 Communication Systems

An integrated voice and data network infrastructure will be provided in the process plant. Telephone and voice mail system will provide voice functionality via this network. This system will be linked to the

main telephone switchboard for connection to outside lines. Radio sets will be provided for operations personnel.

#### 4.5 Ventilating, and Air Conditioning (HVAC) Systems

The ancillary buildings will require varying degrees of air conditioning and ventilation. The process plant facility will be entirely outdoors, and only the main control room and electrical switch rooms will be air conditioned. The goldroom will be ventilated only. The administration building, laboratory building, meals area, change house and gatehouses will be air conditioned. Ancillary buildings will require varying degrees of ventilation and air conditioning. Exhaust fans will be used to provide ventilation of the washroom areas. .

#### 4.6 **Building Fire Protection Systems**

Systems to be provided for personnel and property protection include: smoke/heat detectors and manual pull stations, fire extinguishers, fire hydrant coverage of all process plant area buildings, and internal fire hose coverage for all enclosed building areas.

Fire hose cabinets and external fire hydrants will be located so that all interior areas of the buildings are within reach of a fire hose stream.

A firewater header system will be provided at the site and will cover the accommodation complex, process plant and ancillary buildings, along with fire hose coverage throughout the facility, supplemented by hand held fire extinguishers. A separate stand pipe system will be installed to provide fire hose coverage throughout the reagent area, with hand held fire extinguishers. Fire hose coverage for the crusher will be provided by site fire hydrants supplemented by hand held fire extinguisher.

For electrical rooms ionization type smoke detectors will be provided, with hand held fire extinguishers.

A wet sprinkler system will be provided for the control room, as well as hand held fire extinguishers.

#### 4.7 **Sewage Treatment**

A septic system will be utilized for sewage disposal. Septic tanks will be located at the process plant, and near the open pit for mining operations. The septic tank sludge will be removed by vacuum truck at regular intervals.

#### 4.8 **Security System and CCTV Monitoring**

Process plant area access will be controlled and monitored 24 hours per day. The goldroom located in the process plant will not be continuously manned by security personnel but motion, vibration and/or temperature sensors will be provided to detect unauthorized intrusion. High security cameras will be located in the goldroom, and at the process plant gate house.

In addition to the high security system, an independent CCTV system will monitor the crusher and ore feeders, with the monitors located in the main control room. A video recorder will capture all relevant entry / exit details in high security areas and log all security alarms in chronological order. Security signals will be transmitted via secure dedicated cables with the system backed up by dedicated UPS (Uninterruptible Power Supply).

#### 4.9 Plant Site and Administration Buildings

A single-storey administration building, 39m x 19m, will be located near the main site entrance gate. The building will have a reception area, offices, meeting rooms, a main conference room, medical clinic, kitchenette and washrooms. The offices are for managers, engineers, geologists, and clerks. A parking lot and transport and pick-up area is located adjacent to the administration building.

A combined laboratory and plant office building, 46m x 12m, will be used to test metallurgical accounting samples from the process plant, mining and exploration operations.

A plant kitchen and dining hall, 17.4m x 6.4m, will include a seating area for up to 80 people with overhead fans, kitchen, and food storage.

The plant change house and ablutions building will be 17.4m x 6.4m. It will include separate male and female showers, bathrooms, and change room with lockers.

A main security gatehouse as well as a separate process plant security gatehouse will be included.

#### 4.10 Truckshop and Warehouse Facilities

A truck maintenance facility will service the mining fleet with two truck bays. The steel framed building will be 20m x 14m, with a tire yard located beside the truckshop.

The main workshop warehouse, 38.5m x 28.25m, will house mechanical, electrical, instrumentation and general items. The warehouse structure will be contiguous to the plant maintenance workshop. Internal offices will be supplied adjacent to the warehouse for warehouse and maintenance staff.

## 4.11 Pipelines

Process plant tailings will be transported via pipeline to the TSF, and distributed at the TSF via piping and discharge spigots.

Reclaim water from the TSF will be returned to the process plant for reuse in the process via barge pumps.

The tailings slurry and TSF water return pipelines will be 150mm diameter, constructed from HDPE (high density polyethylene) material, be approximately 700m (tailings) and 900m (water return) in length initially, run along the ground adjacent to each other in a 0.3m deep trench, except for the

portion that runs underneath the existing Highway 26. The tailings underflow pumps will be on emergency power in case of power failure to prevent sanding of the tailings line.

## 5.0 CAPITAL COST ESTIMATE

## 5.1 Introduction

The purpose of the capital cost estimate is to provide substantiated costs which can be utilised to assess the economics of the Project and to provide a control budget for the project during execution.

This cost estimate only includes the treatment plant and selected infrastructure as outlined in Table 5.2. Please refer to section 5.3.10 for a detailed list of exclusions and qualifications.

The Work Breakdown Structure (WBS) is based on the standard Lycopodium Minerals WBS for gold projects.

The estimate is based on executing the project on an EPCM basis as described in Section 7.0.

Major equipment pricing was based on competitive bids received from well established vendors. For minor equipment, quotations and actual equipment costs from other recent similar Lycopodium projects were utilized and are considered representative for the La India Project.

Unit rates for earthworks, concrete, steelwork, plate work, field erected tankage, buildings and labour were based on quotations from local Nicaraguan contractors.

No engineering work was completed except for preliminary process engineering, plant layout, conceptual mechanical engineering design, and conceptual electrical engineering design. The database quantities used for compiling the estimate were based on similar projects.

Lycopodium's capital costs include the process plant facility and corresponding buildings and roads. Capital costs for the mine, tailings storage facility, surface water management system, highway and powerline relocation will be estimated by SRK. Owner's costs will be estimated by Condor Gold PLC.

The capital costs are presented in US dollars as at the second quarter 2014 (2Q14) to an accuracy of +/-25%.

## 5.2 Capital Cost Estimate Summary

The pre-feasibility study capital estimates are based on a single stage crushing, SAG Mill circuit with a 2,300tpd throughput.

Table 5.1 summarises the capital cost estimate. The treatment plant and infrastructure described in Sections 5.3 serve as the basis for the capital cost estimate.

Additional estimate detail is provided in tables in Section 5.6.

Table 5.1 Capital Cost Estimate Summary (US\$, 2Q14, +/-25%)

Scope	Main Area	Project Totals USD	Contingency USD	Total Project USD
Lyco Directs	100 Treatment Plant	31,649,965	3,901,534	35,551,499
	200 Reagents & Plant Services	3,003,706	260,549	3,264,165
	300 Infrastructure	2,359,383	274,062	2,633,446
Lyco Directs To	otal	37,013,054	4,436,055	41,449,109
Lyco Indirects	000 Construction Indirects	3,718,640	410,047	4,128,687
	500 Management EPCM Costs	7,328,000	732,800	8,060,800
Lyco Indirects	Total	11,046,640	1,142,847	12,189,487
<b>Grand Total</b>		48,059,694	5,578,903	53,638,597

## 5.3 Estimate Basis

The capital cost estimates for each option are based on the following:

Currency : USD

Period : 2Q14

Accuracy : +/-25%

Implementation Strategy : EPCM engineer and horizontal packaging

The capital cost estimate has been prepared in accordance with the approach outlined in Table 5.2 below.

Table 5.2 Capital Cost Estimate Basis

Description	Basis
Project Definition Information	
Site	
Geographical Location	Actual site
Maps and Surveys	Available
Geotechnical testwork	Available
Process Definition	
Process Selection	Fixed for study
Design Criteria	Fixed for study
Flowsheets / Plant Capacity	Fixed for study
P&ID's	Not produced
Metallurgical Testing	Metallurgical Testwork Report by SRK
Mass Balances	Fixed for study

Description	Basis
Equipment List	Prepared for study (equipment selection - see below)
Process Facilities Design	
Equipment Selection	Budget quotation issued to vendors based on preliminary specifications and data sheets.
General Arrangement Drawings	Preliminary for study
Piping Drawings	Treatment plant - not produced Overland piping - sketches
Electrical Drawings	Preliminary Single Line Diagrams prepared for study
Specifications/Data Sheets	Preliminary specs and data sheets for major equipment.
Infrastructure Definition	
Existing Services	Known
Design Basis	Preliminary
Layout	Preliminary
Capital Cost Estimating Methodology	•
Earthworks	Quantities taken off by type of work and applied to current contractor rates for project site. Bulk earthworks for treatment plant were not modelled in CivilCAD. Estimated from plant site location and topographical data
Concrete	Material takeoffs from sketches / drawings and referencing against previous similar projects of comparable scale. Rates applied from current budget quotation requests issued to local contractors.
Structural Steel	Material takeoffs from sketches / drawings and referencing against previous similar projects of comparable scale. Rates applied from current budget quotation requests issued to local contractors
Platework	Material takeoffs from sketches / drawings and referencing against previous similar projects of comparable scale. Rates applied from current budget quotation requests issued to local contractors
Tankage Field Erect	Material takeoffs equipment list sizing and drawings from previous work. Rates applied from current budget quotation requests issued to local contractors
Mechanical Equipment	Budget quotations from reputable suppliers for major equipment. Selected items taken from database for current projects of comparable scale
Haul Roads	Not included, by SRK
Mining Fleet	Not included, by SRK
Conveyors	Structural estimated separately. Mechanicals worked up as per mechanical equip and installation hours. Pricing as per mechanical equipment and structural steelwork
Piping General	Factored off mechanical and plate work costs and benchmarked against projects of comparable scale
Overland Piping	Sketches developed from engineering calculations, take offs and referencing against previous similar projects
Electrical General	Budget quotations from reputable suppliers for major electrical equipment, instrumentation and control package. E&I supply and installation costs have been factored
Electrical HV	Budget prices from reputable suppliers based on preliminary specifications

Description	Basis	
Commodity Rates - General	Schedule of rates solicited from local contractors based on first pass bulk quantities and then assessed commercially prior to selection of the rates used in the estimate	
Installation Rates - General	Schedule of rates solicited from appropriate contractors based on site location and detailed list of inclusions. Installation rates include:	
	Works of a temporary nature	
	Supervision above trade level	
	Set-out and survey	
	<ul> <li>Site storage, offices, amenities, services.</li> <li>Consumables and tools</li> </ul>	
	Plant (including yard cranes)	
	<ul> <li>Scaffolding, hoarding and gantries, handrail etc.</li> </ul>	
	<ul> <li>Dewatering, dust suppression, weather and noise suppression</li> </ul>	
	Material handling	
	Security and safety	
	Accommodation costs	
	• Signs	
	• Testing	
	Printing, stationery and general overheads .	
	<ul> <li>Insurance</li> <li>Permits, fees and like</li> </ul>	
	<ul> <li>Commercial costs such as provision of bonds and securities</li> </ul>	
	contract finance etc.  Contractor's profit	
Freight General	Factored estimate based on percentage of supply cost	
Contractor Mobilisation / Demobilisation	Estimate of mobilisation costs made by contractors commensurate with scope of work and project location	
Site Establishment	Requirements estimated.	
Construction Facilities	Requirements estimated	
Fencing	Requirements estimated	
EPCM Costs	Factored	
Consultants (mining, geotechnical)	Not included, by SRK	
Site Survey / Soils Testing	Not included, by SRK	
Surveying QA	Not included, by SRK	
Owner's Costs	Excluded	
Vendor Representatives	Labour costs estimated at market rates for specific duration and expenses also allowed	
First fill reagents and consumables	Excluded	
Working Capital	Excluded.	
Spares	Excluded	
Owner's Project Team	Excluded	
Project Insurances and Permits	Excluded	
Sterilisation Drilling	Excluded	
Community Relations	Excluded	
Plant preproduction expenses (recruiting, relocation etc.)	Excluded	

July 2014 Lycopodium Minerals Canada Ltd 5032\16.04\5032-REP-001\_A

Description	Basis
Land Compensation	Excluded
Resettlement	Excluded
Training	Excluded
Owners Expenses	Excluded
Duties and Taxes	Excluded
Escalation	Excluded

The narrative below provides additional detail to that provided in Table 5.2.

## **Temporary Construction Facilities**

The estimate for temporary construction facilities was derived from in-house data of construction facilities, anticipated manning levels and the construction plan.

Included in the estimate for temporary construction facilities are:

- It is assumed that the Owner's and Engineer's site based personnel will use the permanent mine office during construction, which will be constructed early in the schedule. Contractors will provide their own offices and other facilities as part of their mobilisation.
- Container stores for instrumentation and other items required to be stored undercover.
- Permanent operations computers and servers, printers, etc. and office furniture and equipment for the Owner's and Engineer's site based personnel will be purchased early and used during construction
- Communications and on-site radio communications.
- Temporary water supply from bores into a header tank, septic tanks for sewage.
- Power via generators with distribution to the various temporary facilities.

#### 5.3.2 Preliminaries

## Mobilisation / Demobilisation

Costs for mobilisation / demobilisation of labour and equipment to / from the project site were adopted from budget quotation enquiries to contractors or adjusted from current tenders / contracts to reflect the project location.

## 5.3.3 Earthworks

#### Plant Site

Quantities for plant site earthworks, in-plant roads, culverts, etc. were derived from the plant layout drawings and the topographical map.

Bulk earthwork quantities were established by comparison of the plant layout drawings and the topographical map by the estimators.

Rates were derived from bids from local contractors. Rates were reviewed and benchmarked against other projects.

#### **TSF**

The TSF design is outside of Lycopodium's scope.

#### Haul Roads

Haul roads for mining are outside Lycopodium's scope.

## **ROM Pads**

Quantities for the ROM pad are limited to the detailed engineered fill and drainage works required around the primary crushing chamber. The bulk quantities for the ROM pad, constructed from mine waste, are not included in the scope and will be covered by SRK.

#### 5.3.4 Concrete

Quantities for concrete works were established using:

- General arrangement drawings.
- Detailed drawings and benchmarking from similar sized projects previously completed by Lycopodium.

A material take-off was carried out. Rates for the estimate were solicited from Nicaraguan contractors with experience of this kind of work, and capacity to perform the works. These rates were evaluated and a selection made based on cost and capability.

Rates and quantities were prepared on a composite per cubic metre basis which include detailed excavation and backfill. Mobilisation and Preliminaries and General costs were separated to reflect the contracting methodology.

## 5.3.5 Steelwork

Quantities for structural steel were established using:

- General arrangement drawings.
- Details from similar sized projects previously completed by Lycopodium.

A material take-off was carried out, with member sizing based on similar structures from Lycopodium's database.

Rates for this estimate were solicited from Nicaraguan contractors with experience of this kind of work, and capacity to perform the works. These rates were evaluated against similar projects and a selection made based on cost and capability.

Site installation hours were estimated using Lycopodium's database of experience, and installation hours solicited from contractors for this estimate. These rates were evaluated and a selection made based on cost and capability.

## 5.3.6 Platework / Tankage

Platework and tankage quantities were estimated using sizing provided in the mechanical equipment list. A preliminary design was undertaken for each tank to select appropriate plate thicknesses to develop tank tonnages. Lining materials, where applicable, were quantified separately.

Rates for this estimate were solicited from Nicaraguan contractors with experience of this kind of work, and capacity to perform the works. These rates were evaluated and a selection made based on cost and capability.

Installed costs and unit rates from a local contractor were used to estimate platework and field erected tankage costs.

## 5.3.7 In-plant Conveyors

Quantities of mechanical components required were assessed via a data sheet prepared for each conveyor based on the mechanical equipment list and the general arrangement drawings.

Budget pricing solicited for this estimate, and in-house database information, was used for the individual mechanical components. Installation hours were estimated from in-house experience.

Conveyor structural steel was estimated separately and included in the steelwork section of the cost estimate.

## 5.3.8 Mechanical Equipment

The quantities and size of the mechanical equipment was taken from the mechanical equipment list prepared for the study.

Budget quotations were sought from equipment vendors for major mechanical equipment based on data sheets prepared for the study. Quotations were requested from multiple vendors, including international vendors where appropriate. Technical evaluations and selections were made by engineering personnel.

Costs for all other items were derived from Lycopodium's current in-house database.

Equipment installation hours were estimated using Lycopodium's database of experience. For each individual item of equipment due allowance was made for the retrieval of equipment from the storage location, handling, placing, installation and commissioning of the equipment.

## Plant Pipework

The supply and installation estimate for in-plant piping was factored from historical project costs. These factors are a percentage of the mechanical equipment supply and installation costs, and are calculated by plant area (crushing, milling, CIL, etc.).

## **Overland Pipework**

Overland piping, e.g. tailings discharge lines, decant return water line, was estimated from first principles with quantity take-offs from the general arrangement drawings.

Budget pricing solicited for this estimate, and in-house database information, was used for individual pipelines. Installation hours were estimated from in-house experience.

#### Electrical / Instrumentation

Quotations for major electrical equipment and instrumentation items were obtained budget quotations and Lycopodium's current in-house database from recent similar projects.

Bulk E&I supply and installations costs were factored and benchmarked against similar sized Lycopodium built projects.

## Erection and Installation

In addition to the discipline by discipline assessment of erection / installation costs detailed above, allowance was made for construction cranage and miscellaneous equipment and construction costs such as site establishment, construction personnel meals, etc. Unit rates for equipment were solicited from local Nicaraguan contractors.

## Architectural / Buildings

Preliminary designs for the site buildings were produced and budget quotations from local contractors were received. The capital costs of the respective buildings were reviewed and benchmarked against Lycopodium's database for similar projects.

## **Transport**

All pricing solicited from the marketplace were obtained on the basis of delivery to the Port of Corinto, Nicaragua.

## Catering and Accommodation

The contractors' installation rates include the cost to cover meals and accommodation during construction.

## 5.3.9 Engineering Procurement and Construction Management (EPCM)

The EPCM costs were factored from the direct costs and benchmarked against similar sized projects executed by Lycopodium.

## **Pre-production Costs**

Pre-production costs for the process plant and administration are excluded.

## **Working Capital**

Working capital is excluded.

## **Vendor Commissioning**

Equipment requiring vendor representation for commissioning was identified. The estimate was developed by estimating the man-days required by the vendor representative to complete their works and applying a man-day rate and expenses.

#### Spares

Spares are excluded.

## Project Insurance

Project insurances are excluded from this estimate.

## Duties / Taxes / Fees

Duties / taxes / fees are excluded from this estimate.

## First Fill Consumables

First fills are excluded.

## 5.3.10 Qualifications / Exclusions

No allowance has been made in the estimates for:

- Financing costs or interest costs during construction.
- Future exploration costs.
- Sterilisation drilling.
- Sunk costs.
- Drill and blast if required for plant site earthworks.
- Rehabilitation activities at plant closure.
- Costs associated with mining, tailings storage facility, waste rock storage, surface water management system, highway and powerline relocation.
- Bulk fuel storage, as it is assumed this will be vendor supplied under a long term fuel supply agreement.
- Costs associated with the owners' project management team.
- Costs associated with the owners' project permits and approvals team.
- Costs associated with land compensation.
- Costs associated with resettlement.
- Owner's costs.
- Pre-production costs.
- Operating, Consumable or Insurance Spares.

- First Fill.
- Working Capital.
- Import Duties and Taxes.
- Sustaining Capital.

#### It should be noted that:

- The EPCM cost estimate excludes managing the supply and installation of the TSF or the mining development.
- The programming of the plant control system is included in the direct costs.
- All GST is excluded from the estimate.

## 5.4 Exchange Rates

The estimate has been presented in USD. Original costs were collected in USD. The following exchange rate, applicable as at 2Q14, has been used for the capital cost estimate:

CORDOBA 25.00 = USD 1.00

## 5.5 Contingency

The purpose of contingency is to make specific provision for uncertain elements of cost within the project scope. Contingencies do not include allowances for scope changes, escalation or exchange rate fluctuations. It should be noted that contingency is not a function of the specified estimate accuracy and should be measured against the project total that includes contingency.

An amount of contingency has been provided in the estimate to cover anticipated variances between the specific items allowed in the estimate and the final total installed project cost. The contingency does not cover scope changes, design growth, etc., or the listed qualifications and exclusions.

Contingency has been applied to the estimate as a deterministic assessment by assessing the level of confidence on a discipline basis, taking into consideration scope definition, material/equipment supply pricing, and installation costs.

The resultant contingency for the scope cover by this estimate is 11.3% of the Total Cost or \$5,926,623.

## 5.6 Detailed Capital Cost Estimate Breakdown

Table 5.3 shows the capital cost breakdown by plant area and facility. Table 5.4 shows the capital cost breakdown by primary discipline (major commodity).

Table 5.3 **Capital Cost by Plant Area and Facility** 

Main Area	Plant Area	Facility	Sub-Totals USD	Contingency USD	Total USD
100 Treatment					
Plant	101 Treatment Plant - General	101 Treatment Plant - General	-195,000		-195,000
		112 Bulk Site Earthworks	666,050	166,513	832,563
		117 Site Security Fencing	45,346	4,535	49,881
		118 Plant Piping	3,310,452	662,090	3,972,542
		119 Plant Electrical & Instrumentation	5,358,011	1,171,602	6,529,613
	101 Treatment Plant - General Tot.		9,148,859	2,004,740	11,189,598
	120 Feed Preparation	121 Primary Crushing	2,472,421	231,902	2,704,323
		125 Stockpiling	610,386	51,018	661,405
	120 Feed Preparation Total		3,082,807	282,920	3,365,727
	130 Milling	131 Reclaim	1,462,868	131,830	1,594,698
		132 Grinding	8,461,061	662,555	9,123,616
		133 Classification	245,782	17,709	263,491
	130 Milling Total		10,169,711	812,093	10,981,804
	140 Tailings	142 Pre-Leach Thickening	1,019,278	85,130	1,104,408
		144 Carbon Safety Screening	32,122	3,533	35,656
		145 Cyanide Detoxification	1,476,697	126,780	1,603,478
		146 Thickening	-	-	-
		147 Tails Pumping	97,211	7,820	105,031
	140 Tailings Total		2,625,308	223,264	2,848,572
	160 Leaching	161 CIL	4,044,605	366,331	4,410,936
		162 Carbon Recovery	46,032	3,659	49,691
		163 Trash Screening	177,380	13,323	190,703
	160 Leaching Total		4,268,017	383,314	4,651,331
	170 Desorption	171 Acid Wash / Elution	659,006	50,160	709,165
		172 Carbon Regeneration	273,380	19,350	292,730
	170 Desorption Total	Ĭ I	932,386	69,509	1,001,896
	180 Refining	181 Goldroom	698,954	69,204	768,158
		183 Electrowinning	545,646	46,359	592,004

Main Area	Plant Area	Facility	Sub-Totals USD	Contingency USD	Total USD
		185 Smelting	133,205	9,495	142,701
•	180 Refining Total		1,377,805	125,058	1,502,864
	190 Other Plant Areas	191 Other Plant Areas	9,072	635	9,707
	190 Other Plant Areas Total		9,072	635	9,707
100 Treatment Plant Total			31,649,965	3,901,534	35,551,499
200 Reagents &	210 Reagents	044.0	400.000	45.050	405.040
Plant Serv.		211 Cyanide	180,090	15,850	195,940
		212 Lime	156,617	11,956	168,573
		213 Flocculants	134,015	9,896	143,911
		214 Caustic	93,004	7,743	100,747
		216 Acid	75,996	6,677	82,674
		217 Sodium Metabisulphite	255,741	23,358	279,098
		218 Copper Sulphate	77,459	6,249	83,708
		220 Reagents Store	172,536	18,979	191,515
	210 Reagents Total		1,145,457	100,708	1,246,165
	230 Water Services	231 Water Services - General	19,920	2,191	22,111
		232 Raw Water	174,776	15,277	190,053
		234 Potable Water	72,974	6,642	79,615
		235 Gland Seal Water	12,960	907	13,867
		238 Fire Water	222,210	15,555	237,765
		240 Piperacks	283,887	31,228	315,114
		242 Water Treatment Plant	92,475	6,473	98,948
		232 Raw Water	15,120	1,058	16,178
		233 Process Water	153,133	12,842	165,976
	230 Water Services Total		1,047,454	92,173	1,139,628
	250 Air Services	251 Compressed Air	538,642	41,110	579,752
	250 Air Services Total		538,642	41,110	579,752
	260 Fuels	261 Fuel Storage & Distribution	74,284	6,497	80,780
	260 Fuels Total		74,284	6,497	80,780
	270 Electrical Services	272 Plant Sub Stations	197,869	19,970	217,839
	270 Electrical Services Total		197,869	19,970	217,839

Main Area	Plant Area	Facility	Sub-Totals USD	Contingency USD	Total USD
200 Reagents & Plant Services Total			3,003,706	260,459	3,264,165
300 Infrastructure	310 Environmental	312 Event Pond	34,654	7,497	42,150
	310 Environmental Total		34,654	7,497	42,150
	320 Utilities & Services	323 Water Bores	-	-	-
		324 Sewage Treatment	196,650	33,948	230,598
	320 Utilities & Services Total		196,650	33,948	230,598
	340 Tailings Dam	342 Tailings Pipeline	123,660	24,732	148,392
	-	345 Decant Return Pipeline	93,960	18,792	112,752
	340 Tailings Dam Total		217,620	43,524	261,144
	350 Plant Buildings	359 Crusher MCC	24,480	2,448	26,928
		360 Main MCC	24,480	2,448	26,928
		367 Primary Crusher Control Room	29,000	2,900	31,900
		368 Main Control Room	35,807	3,581	39,388
		369 Control/Titration Room	14,688	1,469	16,157
		370 Mine Security Gatehouse	-	-	-
		371 Plant Training Building	34,562	3,456	38,018
		372 Mining Shift Change Room	-	-	-
		373 Mining Administration Office	-	-	-
		374 Laboratory & Plant Office	448,927	44,577	493,504
		375 Plant Change House	-	-	-
		376 Plant Chop Kitchen & Dining	80,042	8,004	88,046
		377 Plant First Aid Clinic	57,017	5,702	62,719
		378 Plant Administration Building	337,335	33,734	371,069
		379 Plant Gatehouse	34,333	3,433	37,767
		380 Plant Security Gatehouse	-	-	-
		382 Emergency Response Vehicle Bldg	65,352	6,535	71,887
		383 Core Shed	94,800	9,480	104,280
		384 Mine Warehouse Building	-	-	-
		385 Mine Heavy Vehicle Workshop	-	-	-

Main Area	Plant Area	Facility	Sub-Totals USD	Contingency USD	Total USD
		386 Reagents Permanent Store	176,580	17,480	194,060
		387 Plant Workshop, Maint.			
		Warehouse & Office .	453,056	43,847	496,903
200	350 Plant Buildings Total		1,910,460	189,093	2,099,553
300 Infrastructure Total			2,359,383	274,062	2,633,446
Lyco Directs Total			37,013,054	4,436,055	41,449,109
000 Constr.		200 5 4 1	400.000	47.050	222.252
Indirects	001 Constr. Indirects - Contractors	002 Earthworks	189,000	47,250	236,250
		003 Concrete	299,000	32,890	331,890
		004 SMP	982,500	108,075	1,090,575
		005 Field Erected Tankage	298,154	26,834	324,987
		008 Buildings	165,000	16,500	181,500
	001 Construction Indirects - Contractors Total		1,933,654	231,549	2,165,202
	010 Construction Indirects -	044 Occasionation Francisco	405.000	40.500	445 500
	General	011 Construction Equipment	105,000	10,500	115,500
		013 General Freight & Transport	600,000	60,000	660,000
		015 Vendor Representatives	542,850	54,285	597,135
	010 Construction Indirects - General Total		1,247,850	124,785	1,372,635
	020 Site Construction Facilities	023 Laydown Areas (Hardstand)	23,392	2,339	25,731
		024 Construction Site Offices	23,200	2,320	25,520
	020 Site Construction Facilities Total		46,592	4,659	51,251
	040 Construction Operations	041 Construction Operating Costs	490,545	49,054	539,599
	040 Construction Operations Total		490,545	49,054	539,599
000 Construction Indirects Total			3,718,640	410,047	4,128,687
500 Management Costs	510 EPCM - Home Office	512 Process / Engineering	750,000	75,000	825,000
		513 Drafting	1,200,000	120,000	1,320,000

Main Area	Plant Area	Facility	Sub-Totals USD	Contingency USD	Total USD
		514 Projects	850,000	85,000	935,000
		515 Project Services	600,000	60,000	660,000
		517 Home Office Expenses	600,000	60,000	660,000
	510 EPCM - Home Office Total		4,000,000	400,000	4,400,000
	520 EPCM - Site	519 Site Support	150,000	15,000	165,000
		522 Construction Services	2,500,000	250,000	2,750,000
		527 Commissioning	658,000	65,800	723,800
	520 EPCM - Site Total		3,308,000	330,800	3,638,800
	540 Specialist Consultants	549 Hazop	20,000	2,000	22,000
	540 Specialist Consultants Total		20,000	2,000	22,000
500 Management Costs Total			7,328,000	732,800	8,060,800
Lyco Indirects Total			11,046,640	1,142,847	12,189,487
Grand Total			48,059,694	5,578,903	53,638,597

**Summary by Primary Discipline** Table 5.4

Main Area	Primary Discipline	Sub-Totals USD	Contingency USD	Total Project USD
100 Treatment Plant	A General	45,346	4,535	49,881
	B Earthworks	691,760	172,940	864,701
	C Concrete	2,073,608	228,097	2,301,705
	D Steelwork	3,662,045	402,825	4,064,870
	E Platework	1,262,972	137,939	1,400,912
	E Tankage	2,032,563	182,931	2,215,494
	F Mechanical	13,213,207	938,575	14,151,782
	G Piping H Electrical &	3,310,452	662,090	3,972,542
	Inst	5,358,011	1,171,602	6,529,613
200 Reagents & Plant Services	A General	-	-	-
	C Concrete	300,019	33,002	333,021
	D Steelwork	647,665	71,243	718,909
	E Tankage	577,892	52,745	630,637
	F Mechanical	1,478,129	103,469	1,581,599
300 Infrastructure	A General	-	-	-
	B Earthworks	28,174	7,043	35,217
	C Concrete	4,047	445	4,492
	F Mechanical	114,314	8,002	122,316
	G Piping	372,870	74,574	447,444
	M Buildings	1,839,979	183,998	2,023,977
000 Construction Indirects	A General	1,242,137	124,214	1,366,350
	B Earthworks	189,000	47,250	236,250
	C Concrete	299,000	32,890	331,890
	D Steelwork	670,000	73,700	743,700
	E Tankage	298,154	26,834	324,987
	F Mechanical	312,500	34,375	346,875
	P EPCM	542,850	54,285	597,135
	M Buildings	165,000	16,500	181,500
500 Management Costs	P EPCM	7,328,000	732,800	8,060,800
Grand Total		48,059,694	5,578,903	53,638,597

## 6.0 OPERATING COST ESTIMATE

The operating costs have been developed according to industry standards applicable to a gold processing plant producing doré. The operating costs include all process plant direct costs associated with the Project.

## 6.1 Operating Cost Estimate

Operating costs have been estimated by major category (power, labour, consumables etc.) and are based on a throughput capacity of 2,300 dry tonnes ore per day. The major contributors to operating cost are power and grinding media. Power costs present the biggest risk in variance to project operating costs. Confirming power costs and grinding media consumption should be a key part of the Feasibility Study.

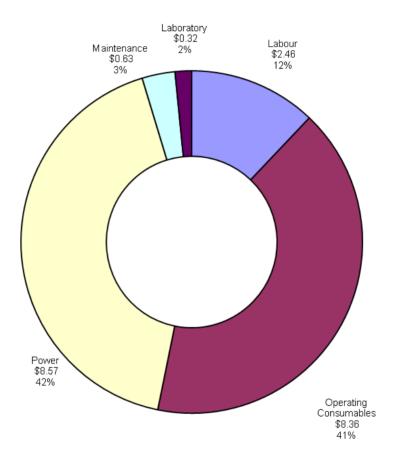
The contribution of the major operating cost categories to the total cost are presented in Table 6.1, and the distribution of cost categories are presented in Figure 6.1.

Table 6.1 Summary of Process Operating Cost Estimate (US\$, 2Q14, +/-25%)

Cost Centre	US\$/Year	US\$/t	US\$/oz Gold Equivalent
Power	6,897,275	8.57	84.41
Labour	1,977,072	2.46	24.20
Consumables	6,730,133	8.36	82.36
Maintenance Materials	509,837	0.63	6.24
Laboratory	256,135	0.32	3.13
Total	16,370,502	20.34	200.34

Throughput rate of 2,300 dry tonnes ore per day.

**Figure 6.1 Operating Cost Distribution** 



## 6.2 Design Production Parameters

The operating costs have been calculated based on the project design basis of 2,300 tpd of ore with an annual throughput of 805,000 tonnes of ore. Table 6.2 summarizes the designed production.

Table 6.2 La India Production Parameters

	Gold	Silver
Daily Throughput in Dry Tonnes Ore	2,300	
Annual Throughput in Dry Tonnes Ore	805,000	
Head Grades in Grams per Tonne	3.4	5.8
Overall Recovery %	91	70
Annual Metal Production in Ounces	80,086	105,090
Total Annual Production in Ounces of Gold Equivalent (\$Au/\$Ag = 65)	81,713	

## 6.3 Qualifications

Operating costs have been estimated by major category (power, labour, consumables etc.) and have been compiled from a variety of sources including:

- Metallurgical testwork.
- Suppliers' quotations.
- Advice and information supplied by Condor and SRK.
- Lycopodium data.
- First principle estimates.

The major contributors to operating cost are power, comminution media, and labour. These three items represent the biggest risk in underestimating or overestimating project operating costs. Mining costs are excluded from the operating cost as this is outside the scope of Lycopodium.

The following items have been excluded from the operating cost estimates:

- All mining and geology costs plant operating costs commence at the primary crusher dump pocket.
- All general and administrative and head office costs.
- All import duties.

- All taxes.
- First fills (capital cost).
- All sunk costs.
- Impact of foreign exchange rate fluctuations.
- Contingency allowance.
- Escalation from the date of the estimate (not listed in excel op costs).
- Land or other compensation costs.
- Site rehabilitation or closure costs.
- Licence fees or royalties.
- Government monitoring and compliance costs.
- Transportation and refining costs.
- Operation of the pebble crushing circuit (included for conceptual design purposes only).

A breakdown of the costs associated with each cost category is provided in the following sections and additional details are provided in Appendix 7, Operating Costs.

## 6.4 Exchange Rates and Estimate Date

Costs are presented in United States dollars and are estimated on a pricing basis as of the second quarter of 2014.

For imported goods, prices have been converted using the following exchange rates:

CAD 1.00 = USD 0.92

CORDOBA 25.00 = USD 1.00

## 6.5 Operating Cost Estimate Accuracy

The targeted accuracy of this operating cost estimate is  $\pm$  25%.

## 6.6 Power

Power will be provided from the Nicaraguan power grid via a substation owned by the local power authority. The unit cost of power provided for the study by Condor is US\$0.18 / kWhr.

The consumption of power has been determined from the installed power of the equipment in the Mechanical Equipment List and application of a load factor and utilisation factor for each load.

## 6.7 Labour

## 6.7.1 Wages and Salaries

Labour costs in the operating cost refer only to process plant labour. General and administration is not included.

Wages and salaries used for the study have been provided by Condor. These salaries were provided exclusive of overheads.

A summary of the salaries for select positions, including overheads, is provided in Table 6.3. The salaries shown in the table are inclusive of bonuses and overheads.

Table 6.3 Selected Employee Compensations Inclusive of Overheads

Position	Annual Cost US\$
Process Operator	24,785
Shift Supervisor	49,969
Technician	13,311
General Foreman	67,095
Tradesman	9,614
Metallurgist	66,555
Electrician	14,051
Trades Assistant	8,135

## 6.7.2 Plant Operations

The daily operation of the mill will be under the control of the General Foreman, with coverage provided by the Trainer. There will be four shift crews staffed by local labour, to cover back-to-back twelve-hour shifts. Processing plant labour is estimated to cost US\$ 1,427,085 per annum (72%), and maintenance US\$ 549,987 per annum (28%).

Each shift crew will include:

A shift supervisor who will direct the plant operation.

- One control room operator who will monitor the entire process and coordinate processes and procedures across the plant.
- One crusher operator who will be field based and will also oversee the stockpile reclaim area.
- One milling area operator who will be responsible for the grinding circuit.
- One CIL operator who will be responsible for the leaching circuit and reagents makeup.
- One gold room supervisor (covers two shifts).
- One elution and gold room operator (covers two shifts).
- One relief operator on to provide assistance where required to cover breaks, clean-up duties etc. This operator will also provide relief for annual leave or illness.
- One maintenance supervisor.
- Two tradesmen and two trades assistants to provide maintenance.
- One electrician and instrument technician.

## 6.7.3 Laboratory

Laboratory costs have been allocated on a per sample basis at an external laboratory. Sample collection, basic preparation, and the associated labour costs have been included in the operating cost estimate. Lycopodium has estimated the number and type of samples from first principles.

## 6.7.4 Metallurgy

The metallurgist, who will also have responsibility for metallurgical accounting, will monitor daily metallurgical performance of the plant. The Metallurgist will work closely with Geologists and Mining Engineers to ensure that the plant operates at maximum productivity.

## 6.7.5 Maintenance

The maintenance superintendent will control all aspects of plant, building and services maintenance.

The maintenance team will include electricians, technicians, tradesmen, and assistants. The maintenance team will be supplemented by appropriately skilled contract labour during major shutdowns or major repair tasks.

#### 6.8 **Consumables**

All consumables costs have been estimated based on vendor or Condor Gold supplied information. Reagent consumptions have been based on the following:

- Laboratory testwork results have been used for the consumption rate of the guick lime and the pricing has been supplied by vendor.
- The cyanide consumption rate has been based on laboratory testwork. The price has been supplied by vendor.
- Sodium metabisulphite consumption is based on Lycopodium experience and pricing has been supplied by vendor. It has been assumed that sodium metbisulphite (SBMS) will be delivered in bulk bag format.
- Liner consumption rates for the crusher and mill have been based on OMC calculations with input from SRK. Crusher wear component costs have been based on vendor quotations.
- Elution and gold room reagent consumption rates have been based on first principles calculation and Lycopodium experience. The prices of related items have been supplied by either vendor or Condor Gold.
- Diesel fuel consumption rates have been based on Lycopodium experience and the price has been based on vendor information supplied by Condor Gold.
- Antiscalent consumption rates have been based on Lycopodium experience and the price has been based on vendor quotation.
- Activated carbon consumption has been based on Lycopodium experience and the price based on vendor information.
- Raw water requirements in the plant will be met by water drawn from the mine dewatering bore(s). Bottled water will be purchased locally and delivered to site for consumption. Potable water is not produced onsite although it is a recommendation for future study.

#### 6.9 Maintenance Materials Costs

Maintenance materials costs have been estimated by applying a factor to the direct capital cost. This factor covers the cost of all maintenance materials and contract labour requirements with the exception of crusher wear parts, which have been included in the consumables allowance.

The factor applied is based on Lycopodium's database and experience and is the average cost over the life of the mine. As such, actual spares costs may be lower during the initial years but rise later. A factor of 3% has been used in all areas.

## 6.10 Mobile Equipment

The operating costs for mobile equipment have been estimated and include fuel, tyres and maintenance parts. The fuel costs have been included in the consumables cost centre whilst the other operating costs have been included in the overall maintenance materials cost centre. Crushed ore stockpile reclaim equipment costs are included in the mobile equipment costs while the associated labour is provided by the crusher operator.

## 6.11 General and Administration Costs

All general and administration costs are omitted from the operating cost calculated by Lycopodium. Omitted items include for example: office costs, first aid and safety personnel, business services such as accounting, consultants, contractors, and security, etc. These costs are developed by Condor and SRK under separate cover.

#### 7.0 PROJECT IMPLEMENTATION

#### 7.1 Introduction

This section describes the project implementation strategy proposed for the La India process plant and associated infrastructure and services only.

Project implementation affects all aspects of project development, particularly capital cost, schedule, and risk management. No business objective will take priority over health and safety. A Health and Safety Management Plan outlining the accountabilities and roles of Condor, the Engineer, and contractors will be drafted as part of the Feasibility Study.

The implementation strategy contemplates the development of the Project on an Engineering, Procurement and Construction Management (EPCM) basis. An experienced engineering firm (the Engineer) will be engaged to provide EPCM services associated with the development of the process plant and associated infrastructure and services. Specialist consultants will be engaged to address specific elements of the Project not within the core competency of the Engineer.

Responsibility for the execution and delivery of the various Project scope elements will be divided between the Engineer and Condor. The implementation approach requires close integration with and collaboration between Condor and the Engineer to ensure all aspects of the Project development are executed efficiently.

The implementation strategy provides an overall methodology for managing the Project through detailed design, procurement and construction, to commissioning. To meet the proposed schedule, the implementation strategy is structured into three stages.

- Detailed design and procurement of the treatment plant, support services and infrastructure.
- Construction treatment plant, support services and infrastructure, including earthworks, civils, architectural, structural, piping, electrical and instrumentation.
- Plant commissioning and handover.

Construction contracts will be tendered as horizontal packages, with contracts based on standard terms and conditions for the Project, as prepared by the Engineer.

#### 7.2 **Engineering and Design**

An Engineering Plan will be prepared by the Engineer defining the principles and execution guidelines that will be adopted by the Engineer's team during the design phase of the Project. The plan will identify the various engineering deliverables required at the tender, procurement, construction, commissioning, close-out, and handover stages of the Project.

## 7.3 Procurement and Contracts

A contracts and procurement plan (CPP) will be developed by the Engineer during the execution phase of the Project to address the supply and contract packages that will be tendered to achieve competitive pricing for both purchase orders and supply/construction contracts. The CPP will address the type of purchase order and contract terms for each package.

Equipment suppliers will be selected on the basis of previous history, ability to meet the design requirements and ability to meet the Project schedule.

Contractors for site works will be selected on the basis of their safety record, industrial relations record, previous experience on similar type projects, costs, schedule, availability and capability to perform the work.

Nicaraguan and Central American contractors and suppliers will tender for Project works as appropriate, and contracts will be awarded based on their ability to comply with the specified conditions. Direct negotiations with smaller local business groups on specific contract packages are planned to encourage local sourcing of Project requirements.

Construction contracts will be tendered as horizontal packages as outlined below, with contracts based on standard terms and conditions for the Project, as prepared by the Engineer.

## 7.4 Project Controls

A Project Controls Plan (PCP) will be developed by the Engineer during the execution phase of the Project to address cost control, planning, progress measurement, Project reporting, asset capitalisation and close-out.

The PCP will provide a framework of the work processes, work flows and information relating to standard Project controls and accounting interface activities, and will identify the systems and procedures that will be utilised during the execution of the Project.

## 7.5 Construction

The construction methodology proposed for the Project has the following aims:

- To provide a safe working environment.
- To achieve cost and schedule targets.
- To adopt a cost effective and fit for purpose construction methodology in contracting and site management based on tried and proven philosophies.
- To allow optimisation in constructability.

 To provide a management plan that complies with the requirements of both Condor and the Engineer's safety and environmental policies.

The Construction Management Team will manage and co-ordinate all site contractor activities to ensure control over cost, schedule and quality and overall site contract performance is in accordance with Project standard procedures.

## Commissioning

A commissioning plan will be prepared for the Project. This document will outline the plan for precommissioning, wet commissioning and performance testing of the process plant and associated infrastructure. Pre-commissioning and wet commissioning will be undertaken by the contactors and the Engineer.

Ore commissioning will be the responsibility of Condor's operations team with the assistance of the Engineer's senior commissioning personnel.

## **Project Close-out and Handover**

At the completion of all construction and commissioning activities, the Engineer will provide the following close-out information to Condor.

- As-built drawings.
- Piping and instrumentation diagrams (P&IDs).
- Electrical as built drawings.
- Commissioning data and records.
- Requirements for the discharge of bank guarantees and warranty administration.
- Project close-out report.
- Quality records

Drawings will be conveyed as DWG, DXF or other mutually acceptable electronic medium.

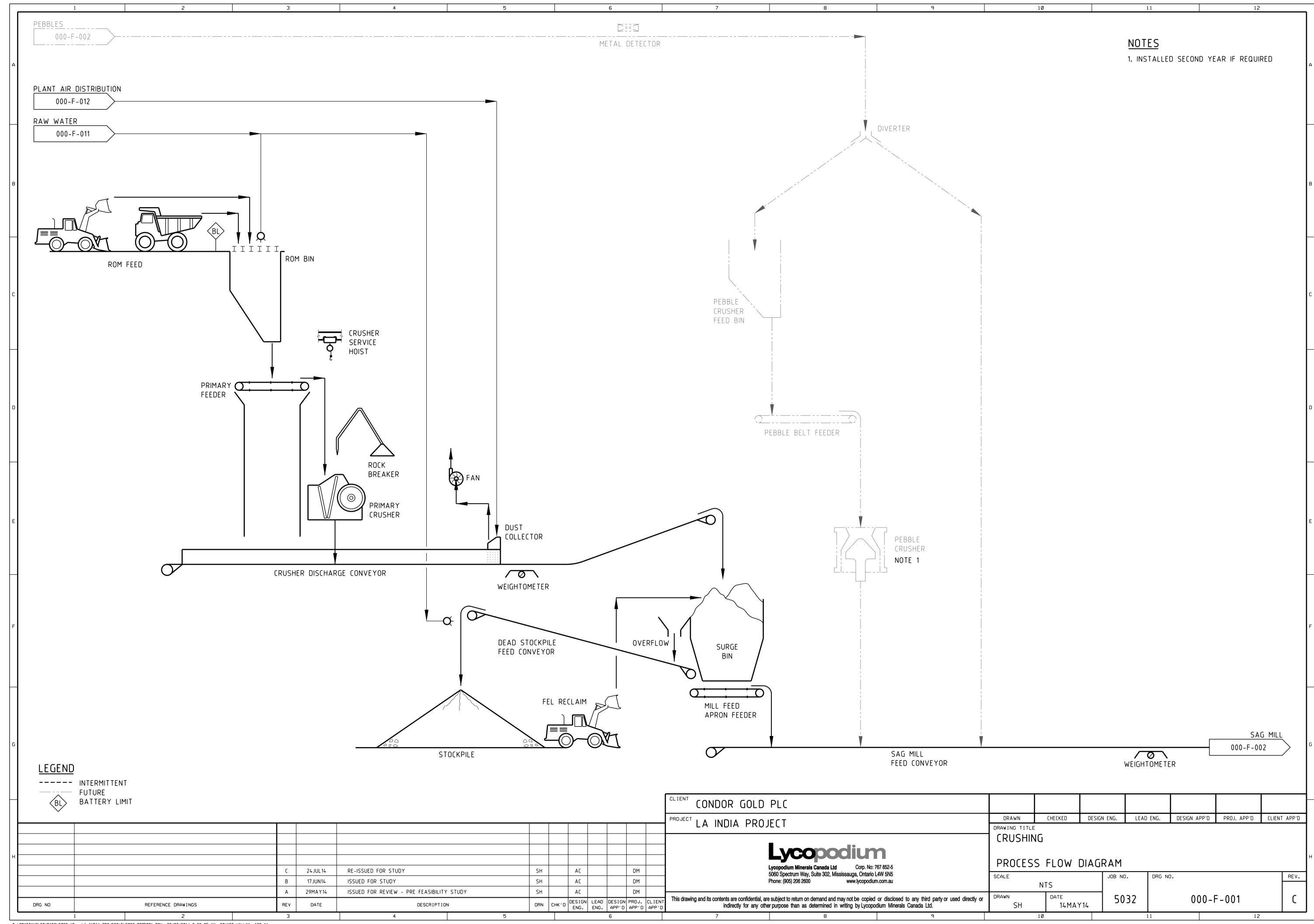
The Engineer will create and issue for Condor's sign-off a handover certificate reflecting the fact that the plant is complete and operational, has been commissioned, that all performance warranties have been achieved and is fully functional.

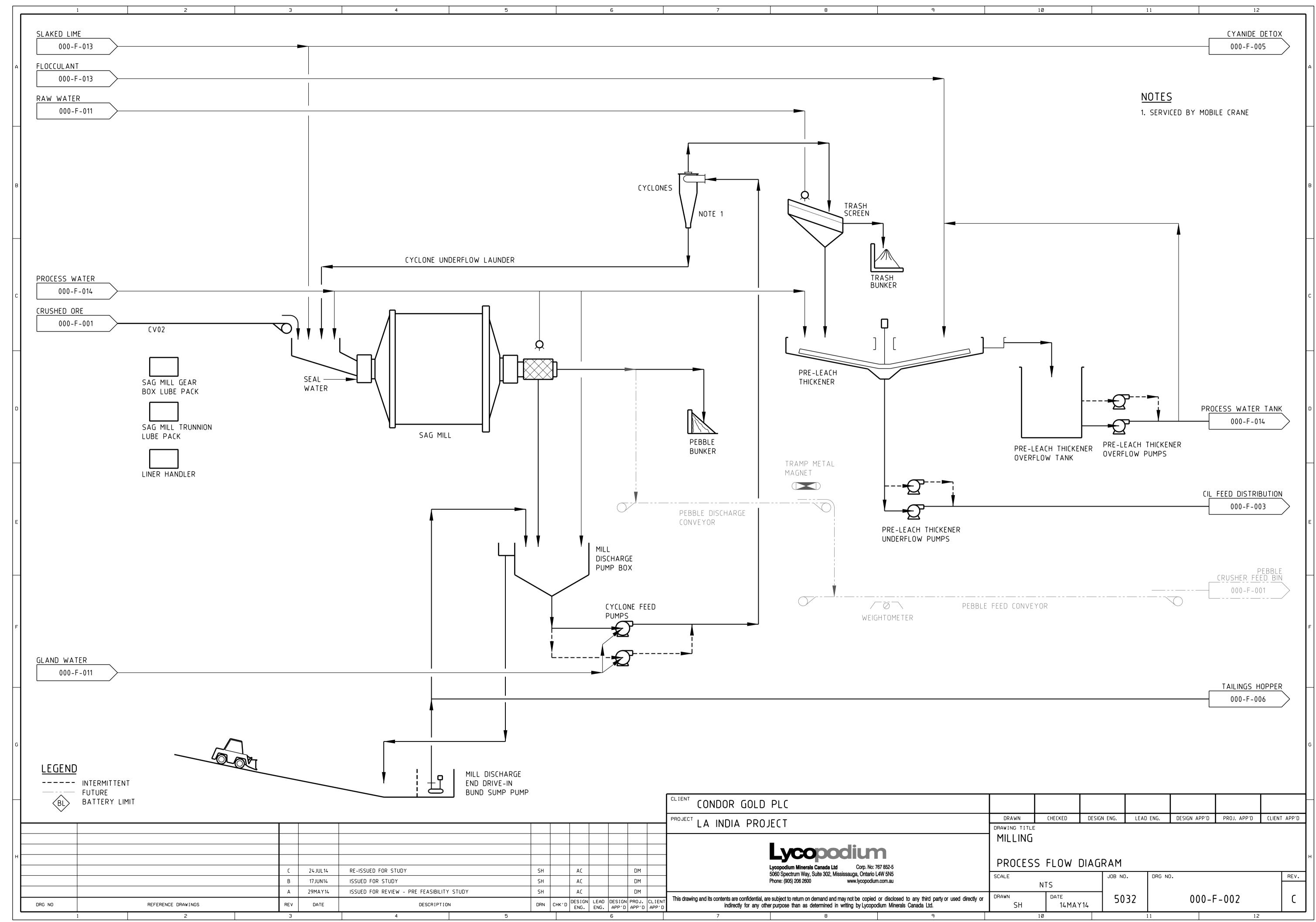
## 8.0 CONCLUSIONS AND RECOMMENDATIONS

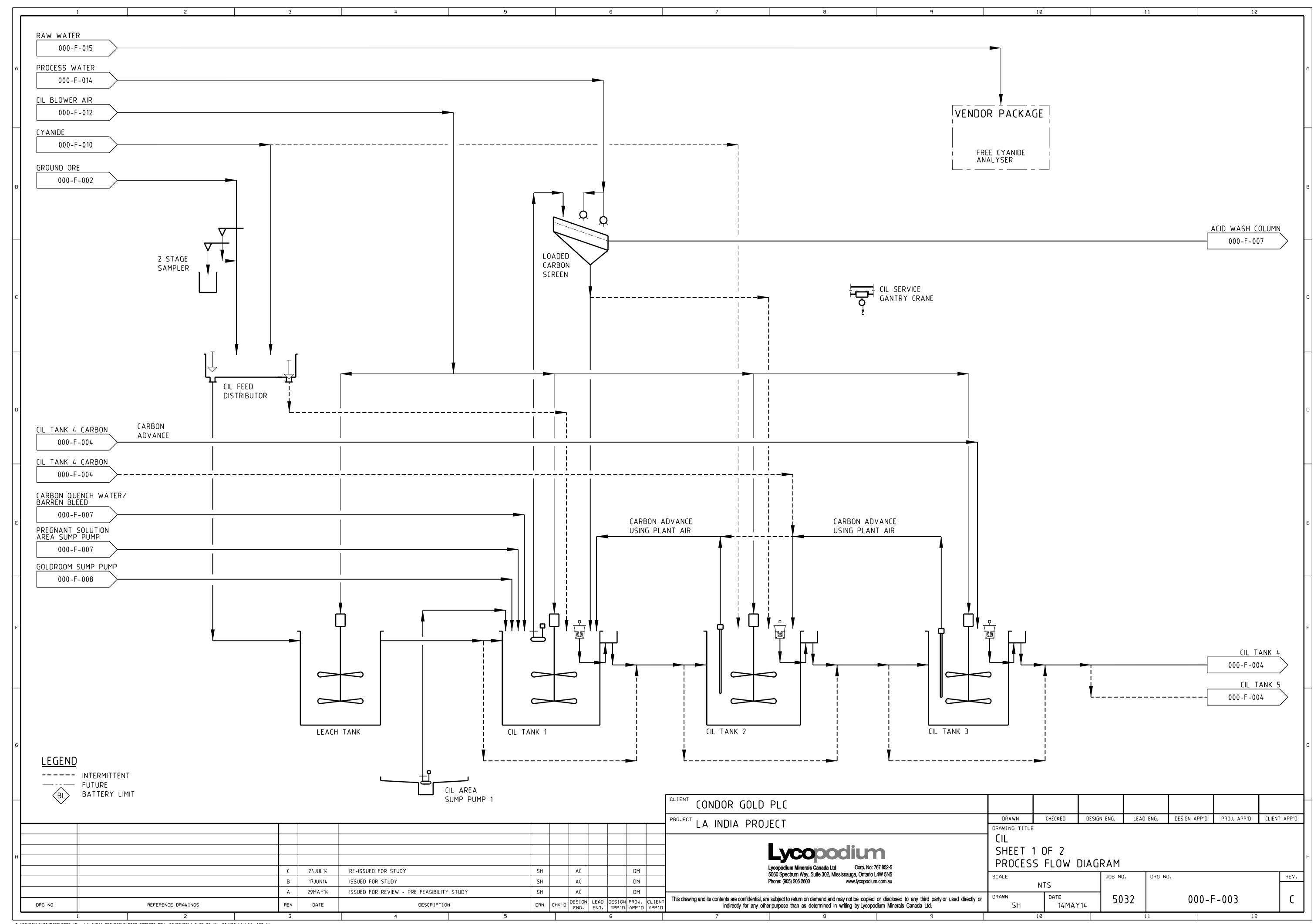
The investigation and analysis carried out are considered appropriate to pre-feasibility level design. Further investigations are recommended as the project advances to a bankable feasibility study level.

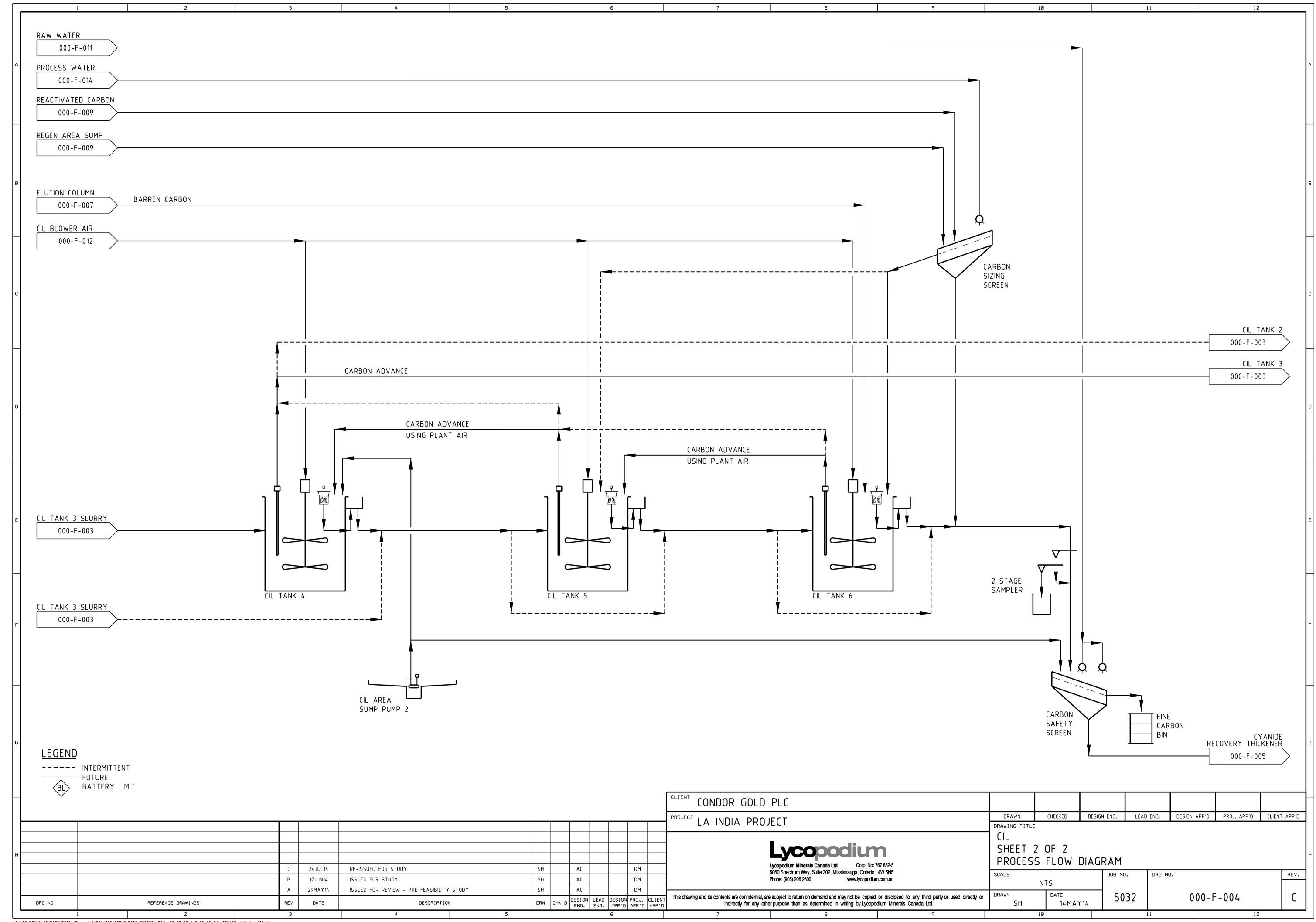
- Additional test work is required to provide better definition of the abrasion index throughout the
  deposit. The abrasion index reported for La India is very high and it contributes considerably
  to the operating cost in terms of comminution media. The use of composite wear liners and
  chrome media should be investigated as a method for reducing media costs.
- Due to the relatively high cost of grid power in Nicaragua, it is recommended to explore other sources of power supply, including from neighbouring countries, and possible use of generator sets with fuel oil options.
- Because of the high comminution energy requirements of the ore, the project is highly sensitive to power cost. In future study, detailed investigation into determining the actual power cost is required (i.e. supply proposal or contract in place).
- It is recommended for the next phase that the base case process plant throughput be increased from 805,000tpa to 1Mtpa for improved economics and quicker payback,assuming that sufficient working room can be made available to provide feed from the mine. Factored estimates (± 35%) were prepared by Lycopodium for the 1Mtpa case which show a reduction in the operating costs from \$20.34 / tonne per to \$19.00 / tonne, and only a 7.5% increase in capital costs with a 24% increase in throughput. The factored estimates are provided in Appendix 9, 1Mtpa Factored Capital and Operating Cost Estimates.
- A potable water treatment plant is recommended to enable the onsite production of water for safety showers and drinking.
- Test results subsequent to the preparation of this study have indicated that mercury is not of concern for the La India project and all equipment related to the handling of mercury can have the holds removed and be omitted from future design.
- Additional comminution and metallurgical test work is recommended for the America, Mestiza, and Central Breccia vein systems for inclusion in subsequent studies.

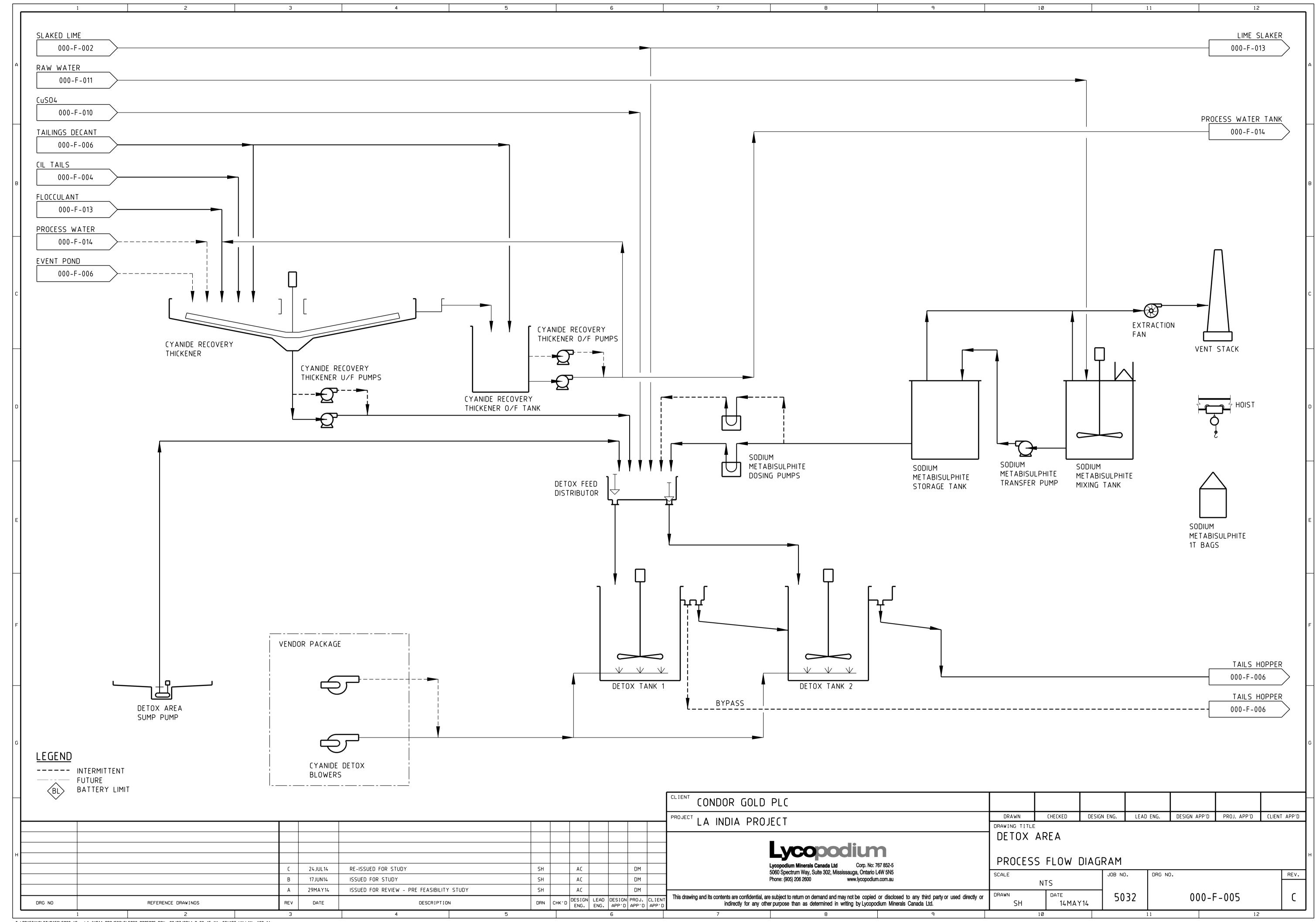
# **APPENDIX 1 PROCESS FLOW DIAGRAMS**

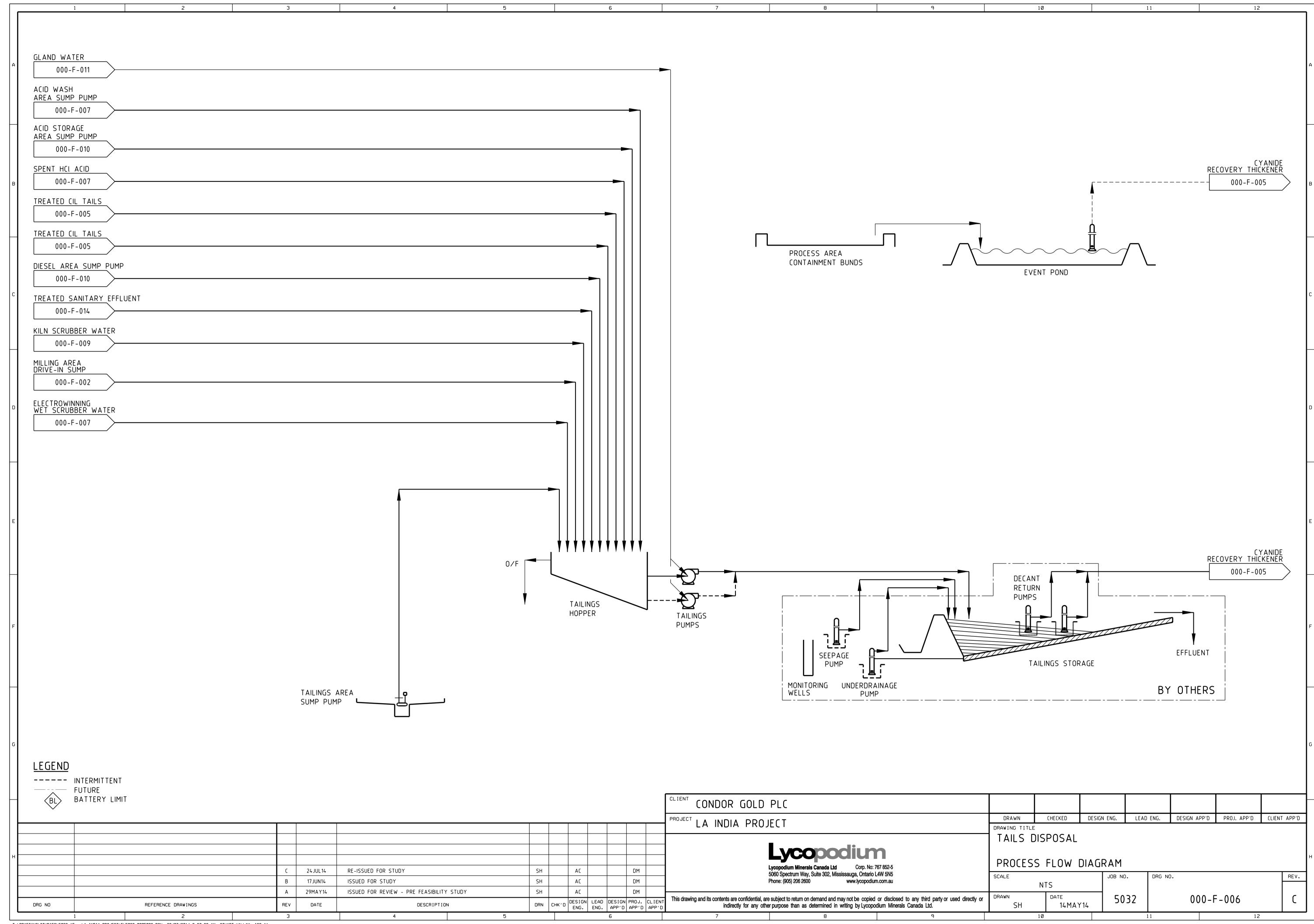


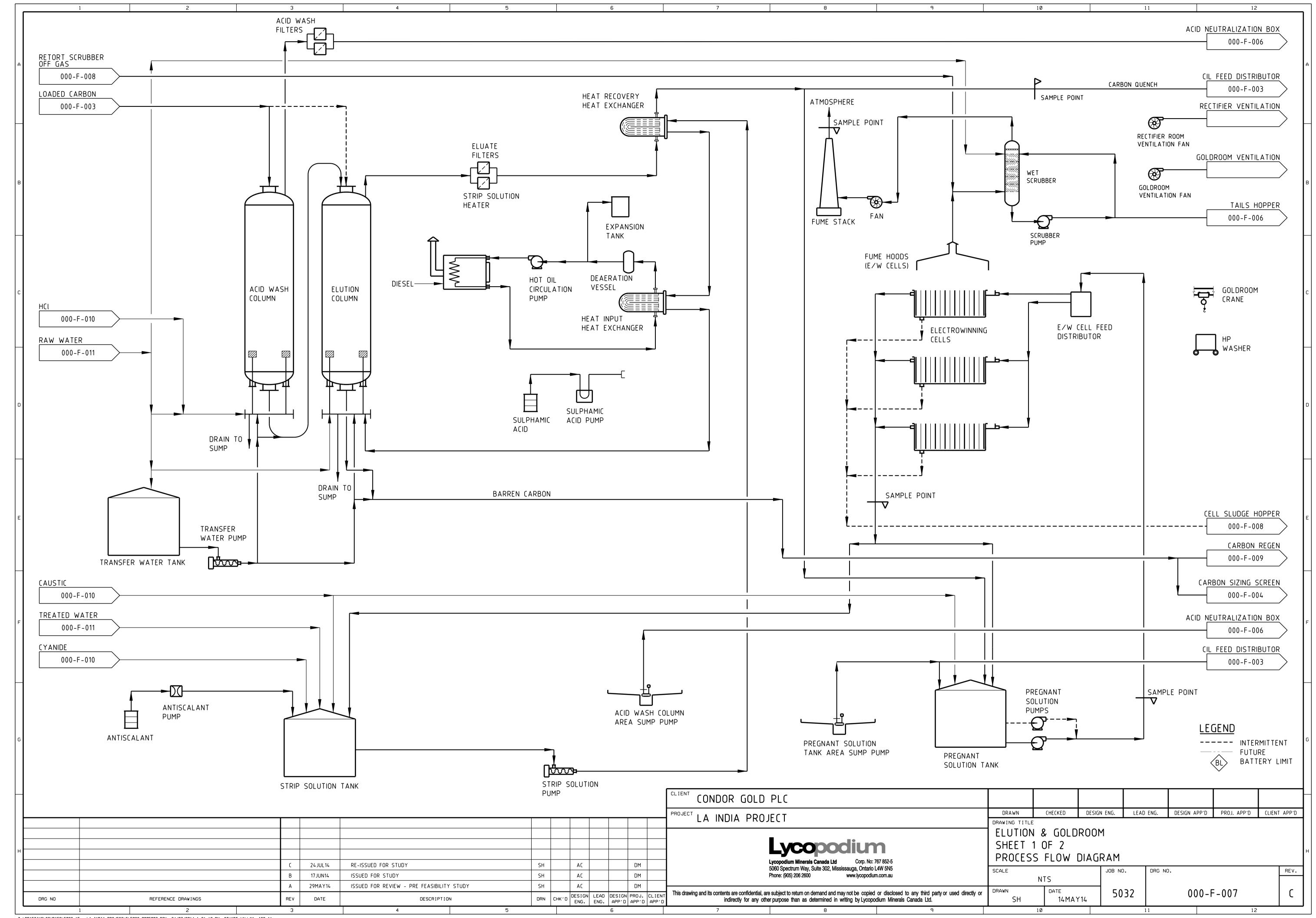


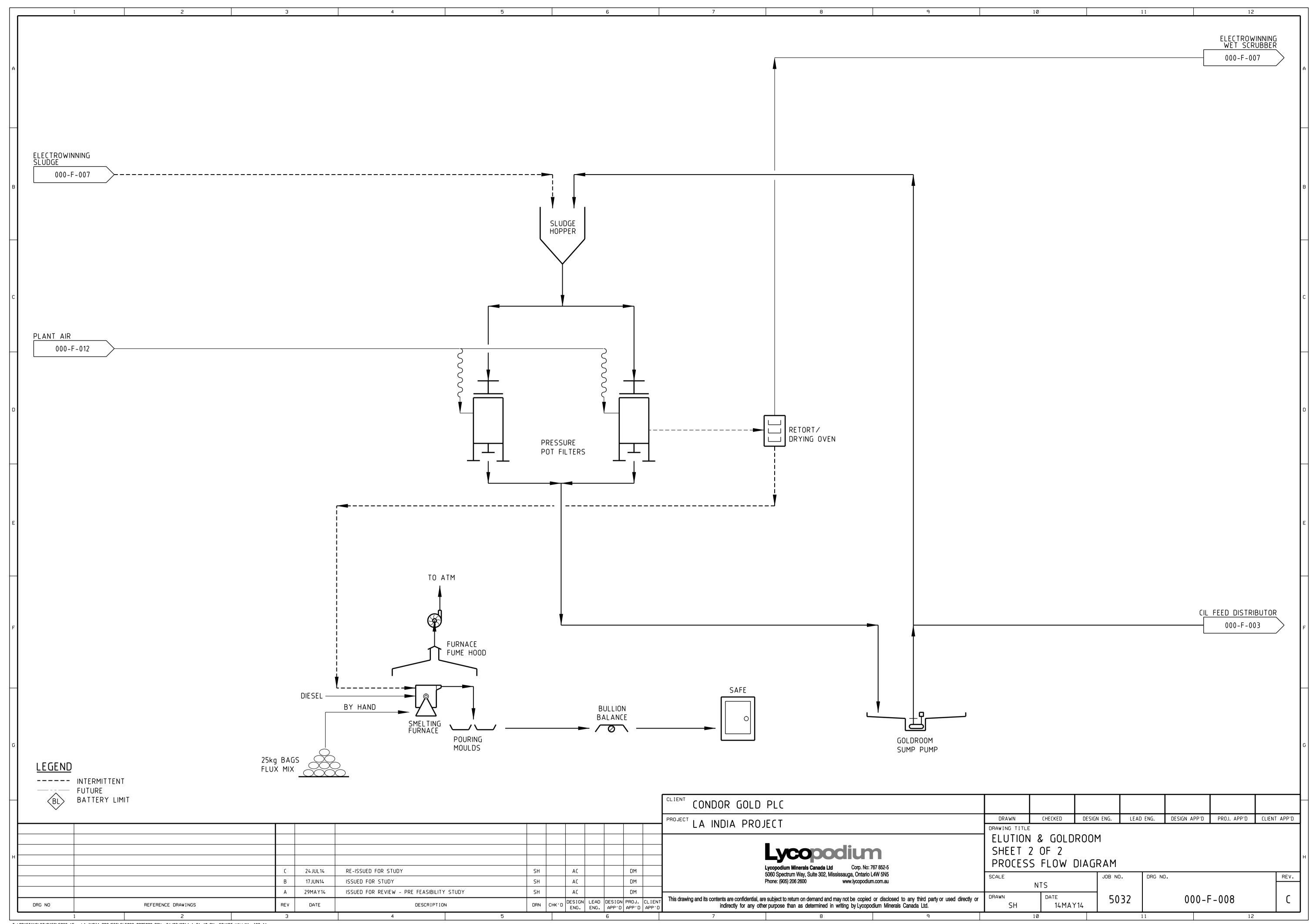


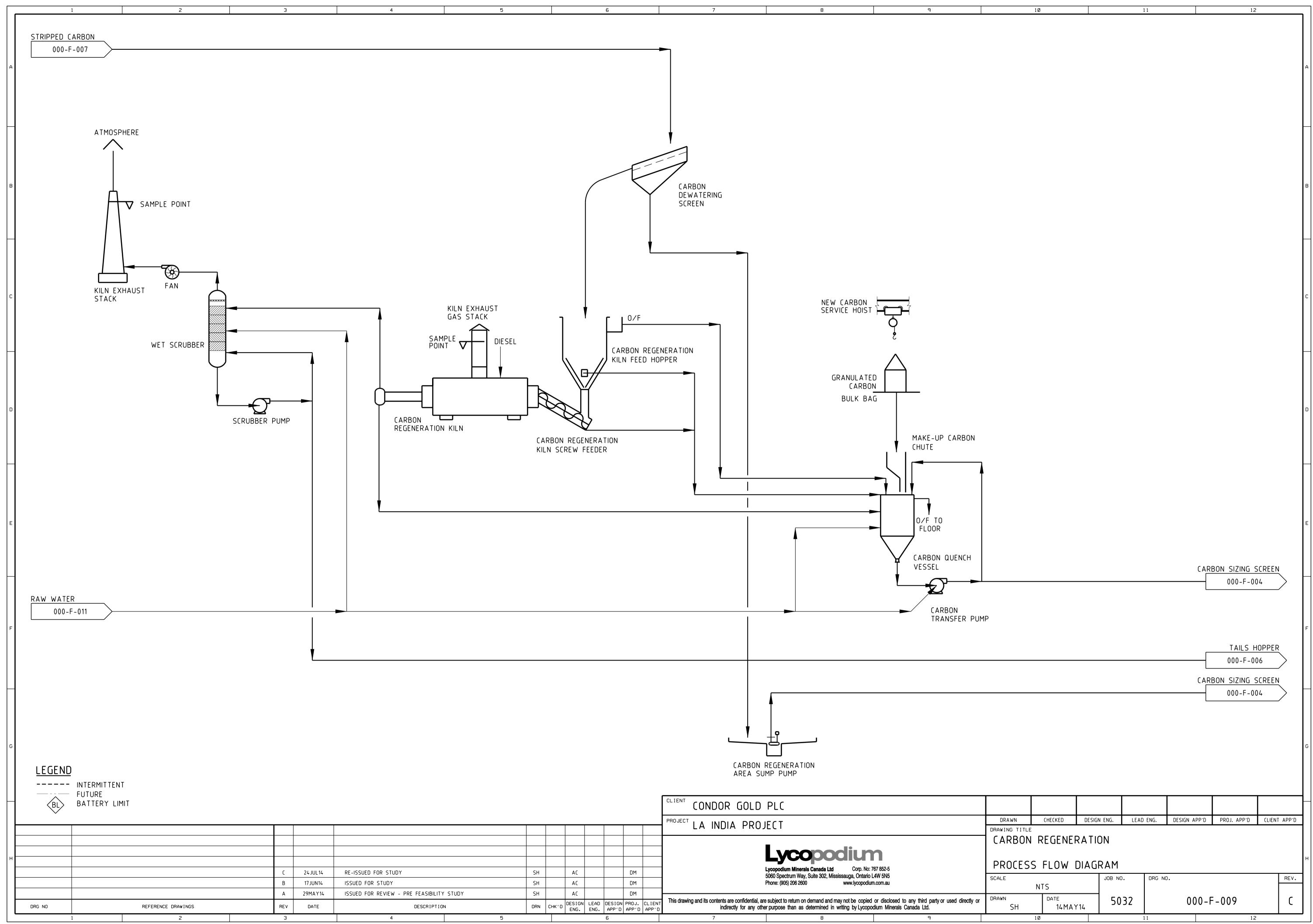


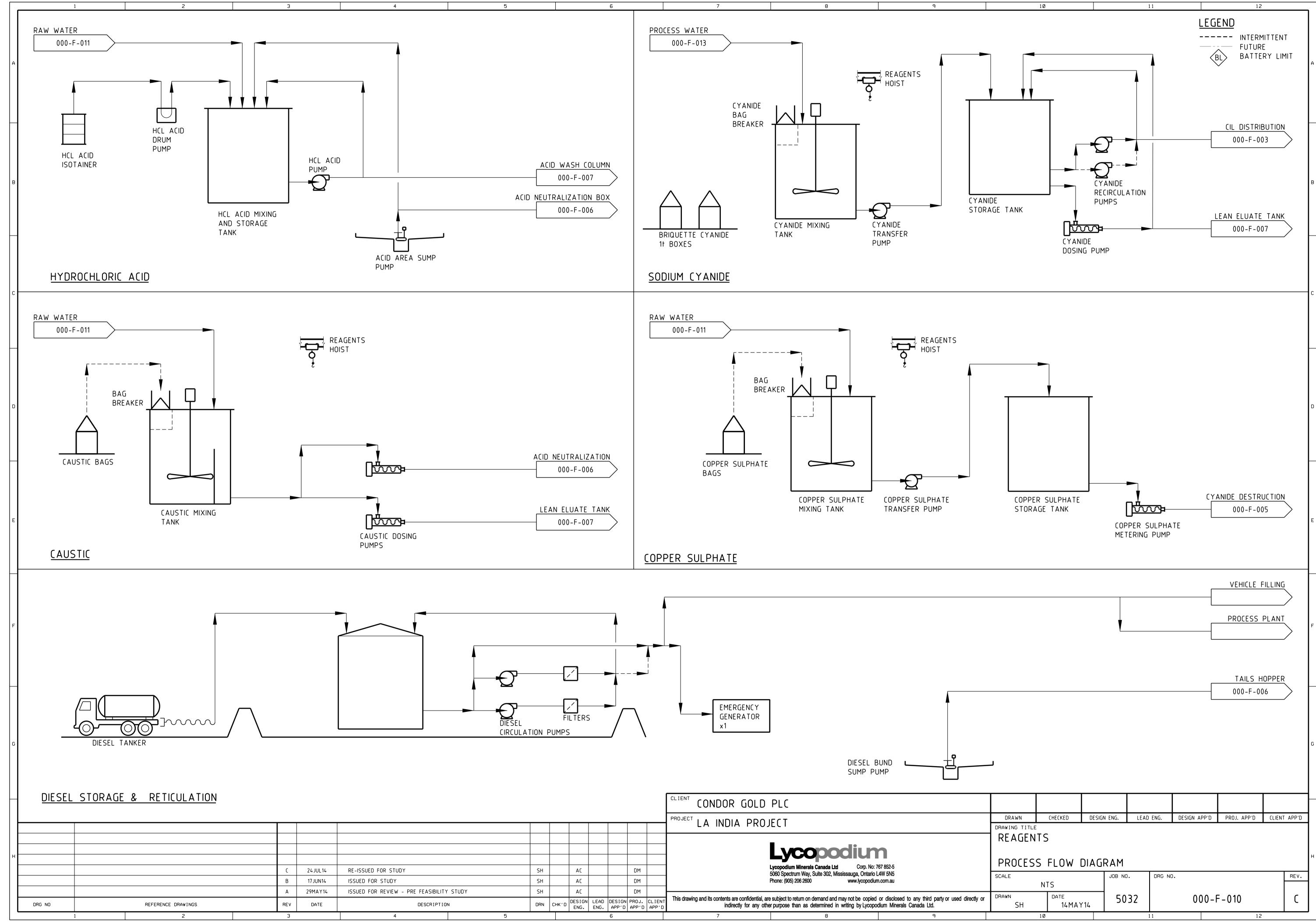


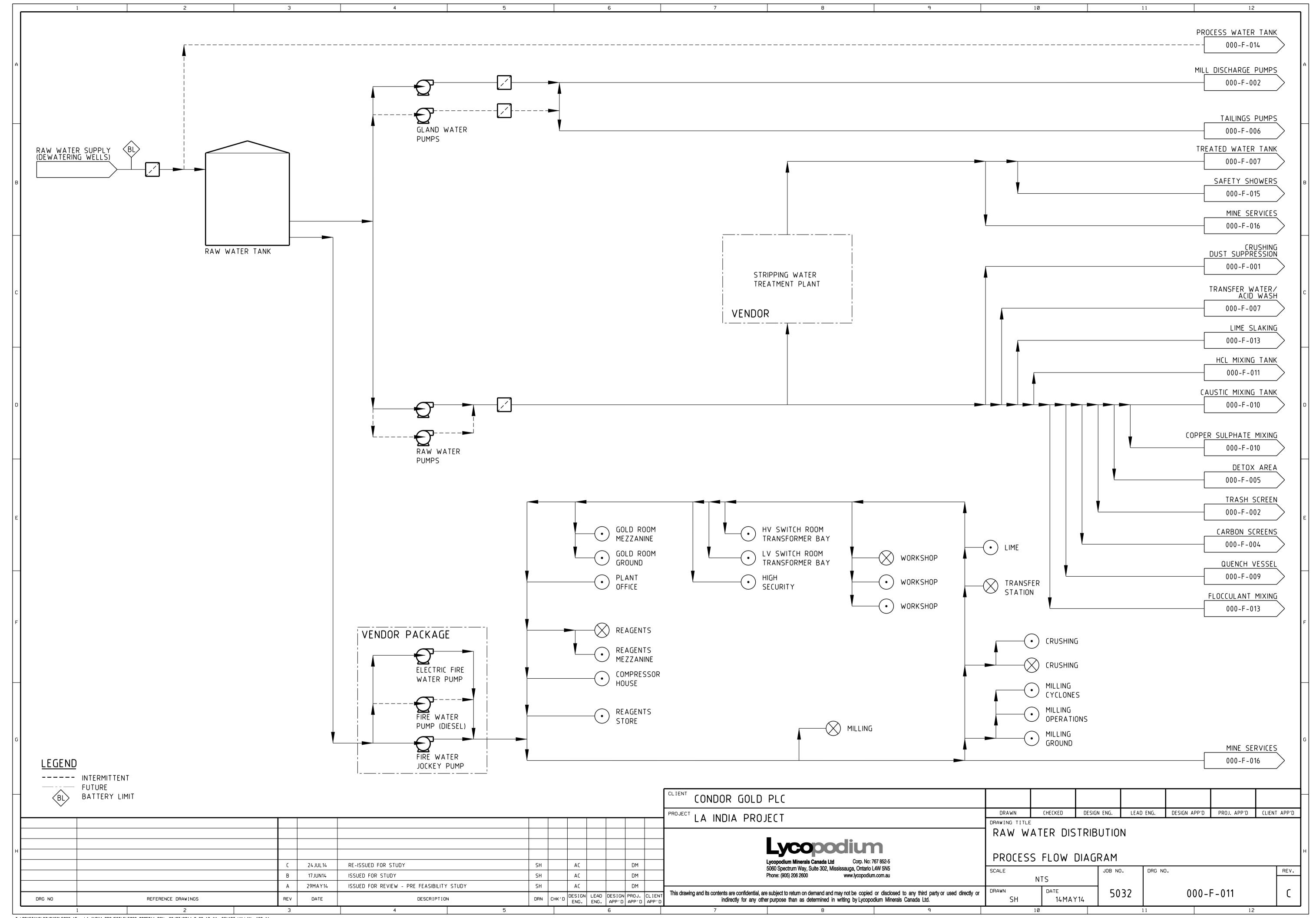


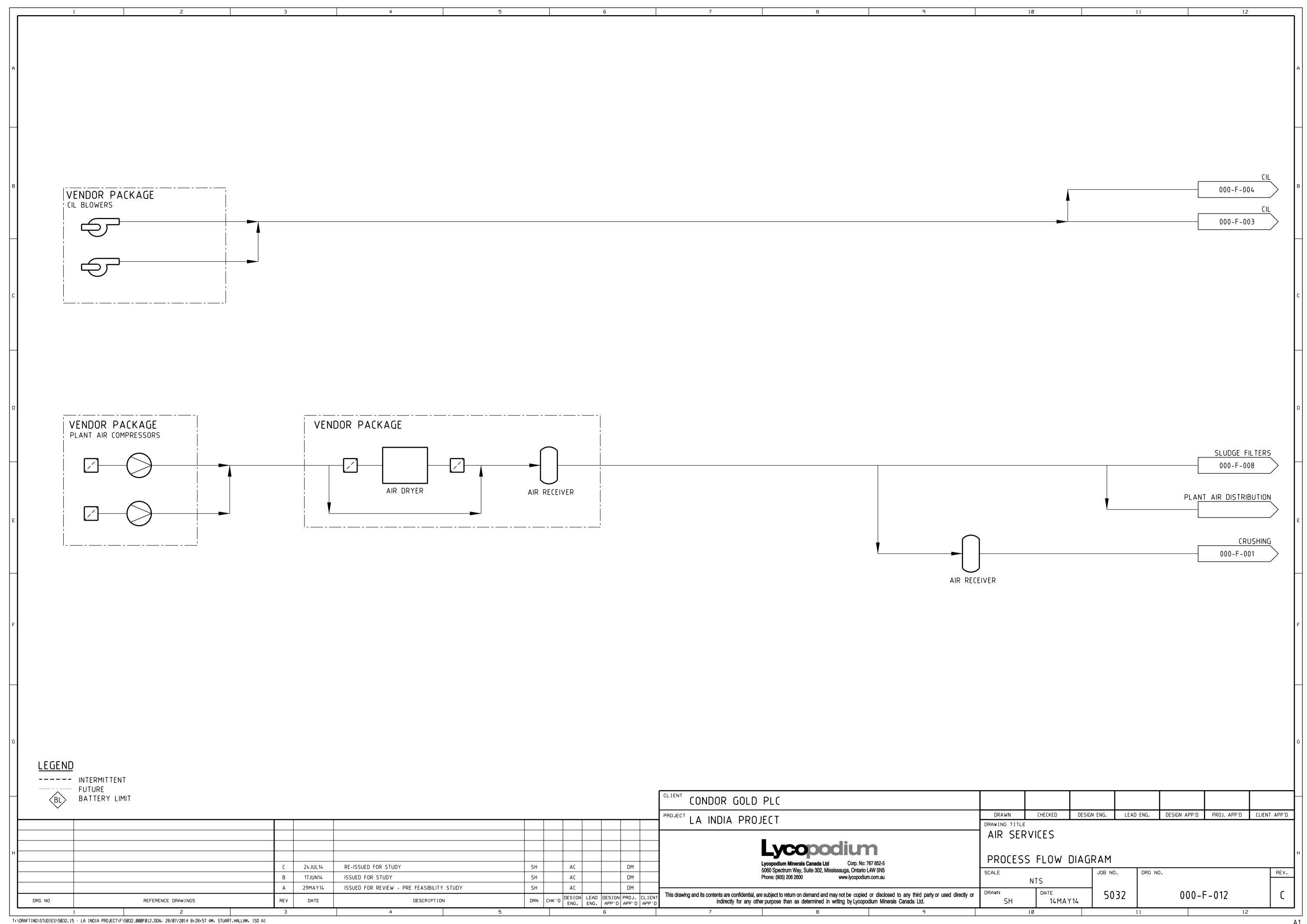


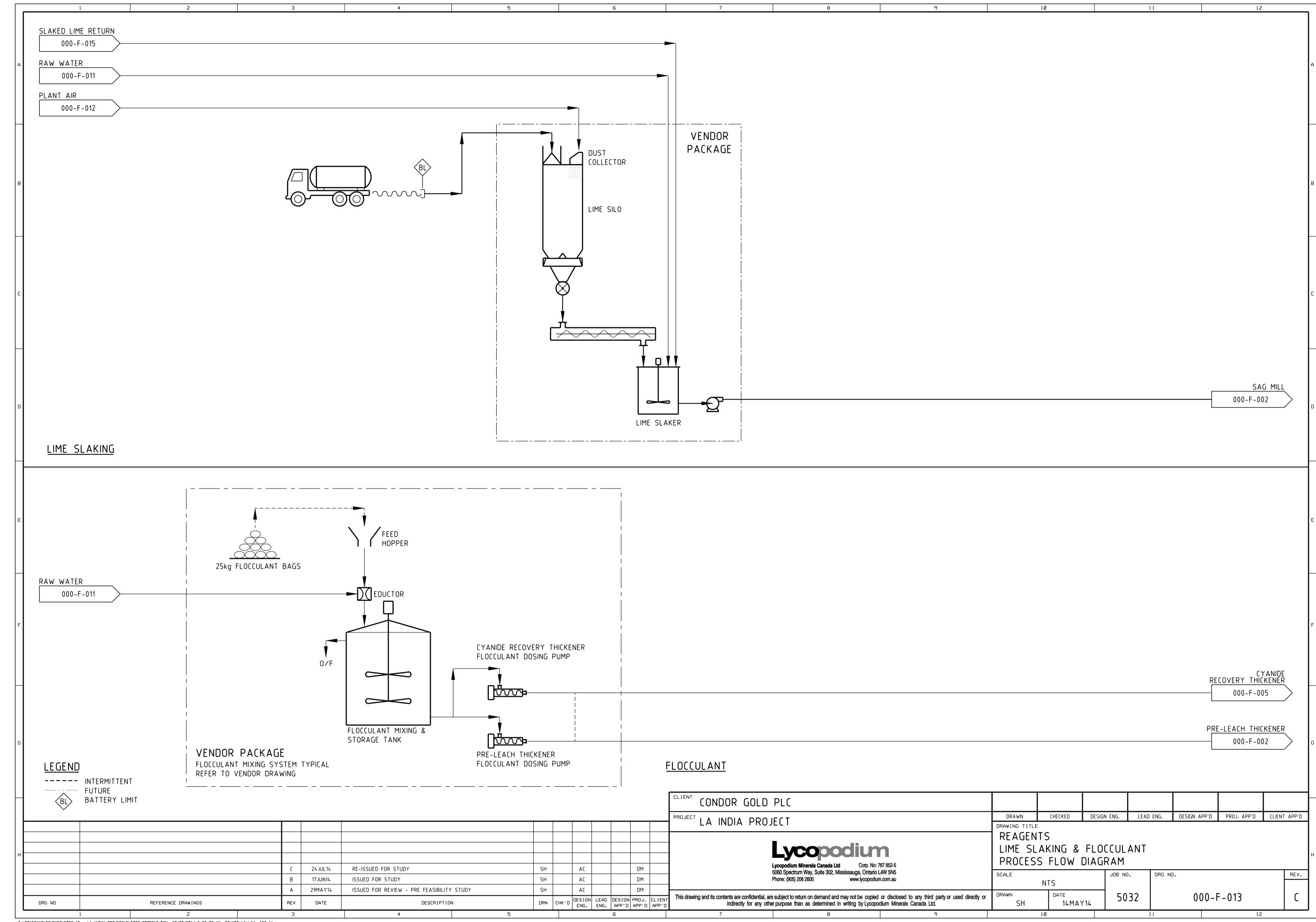


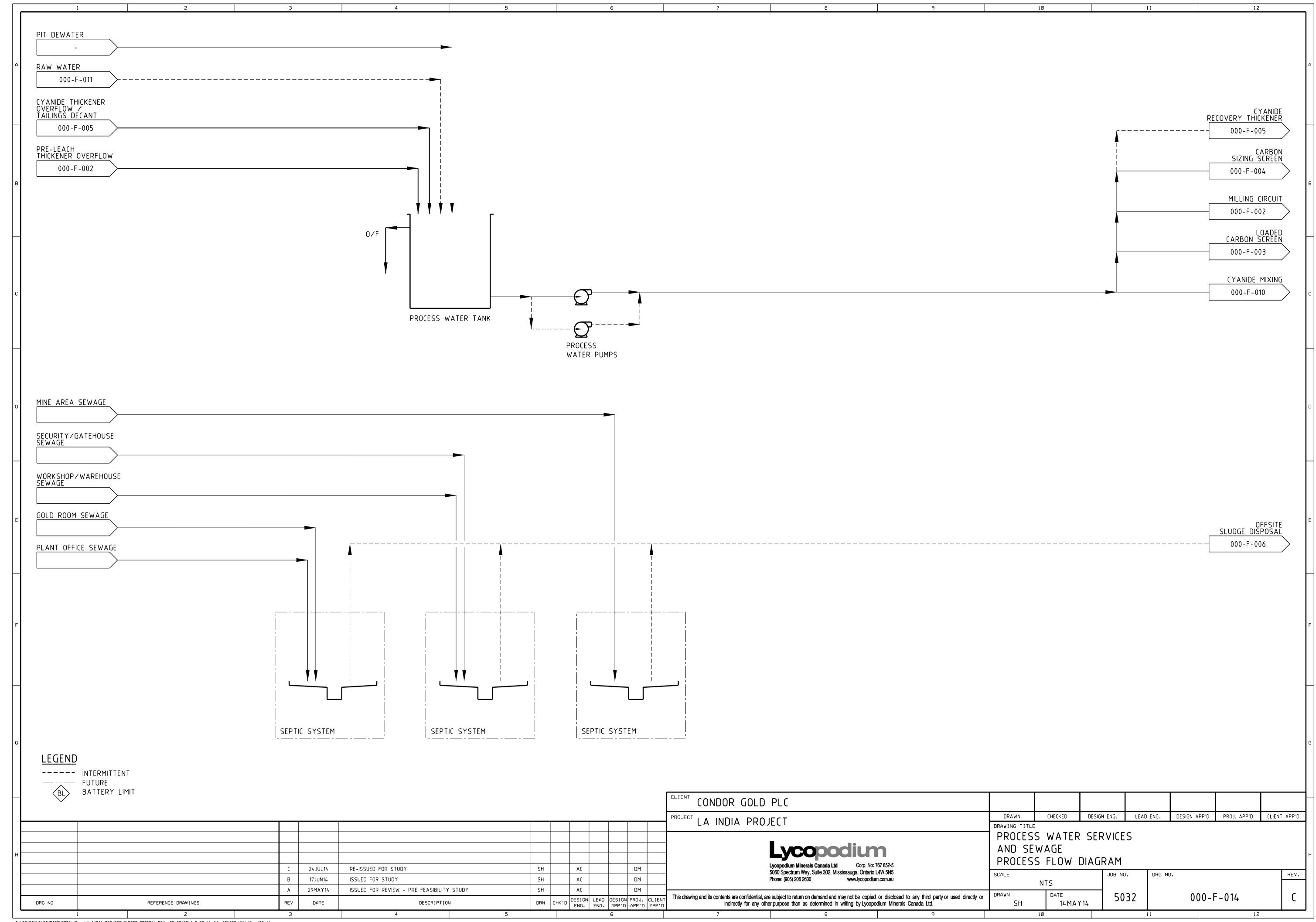


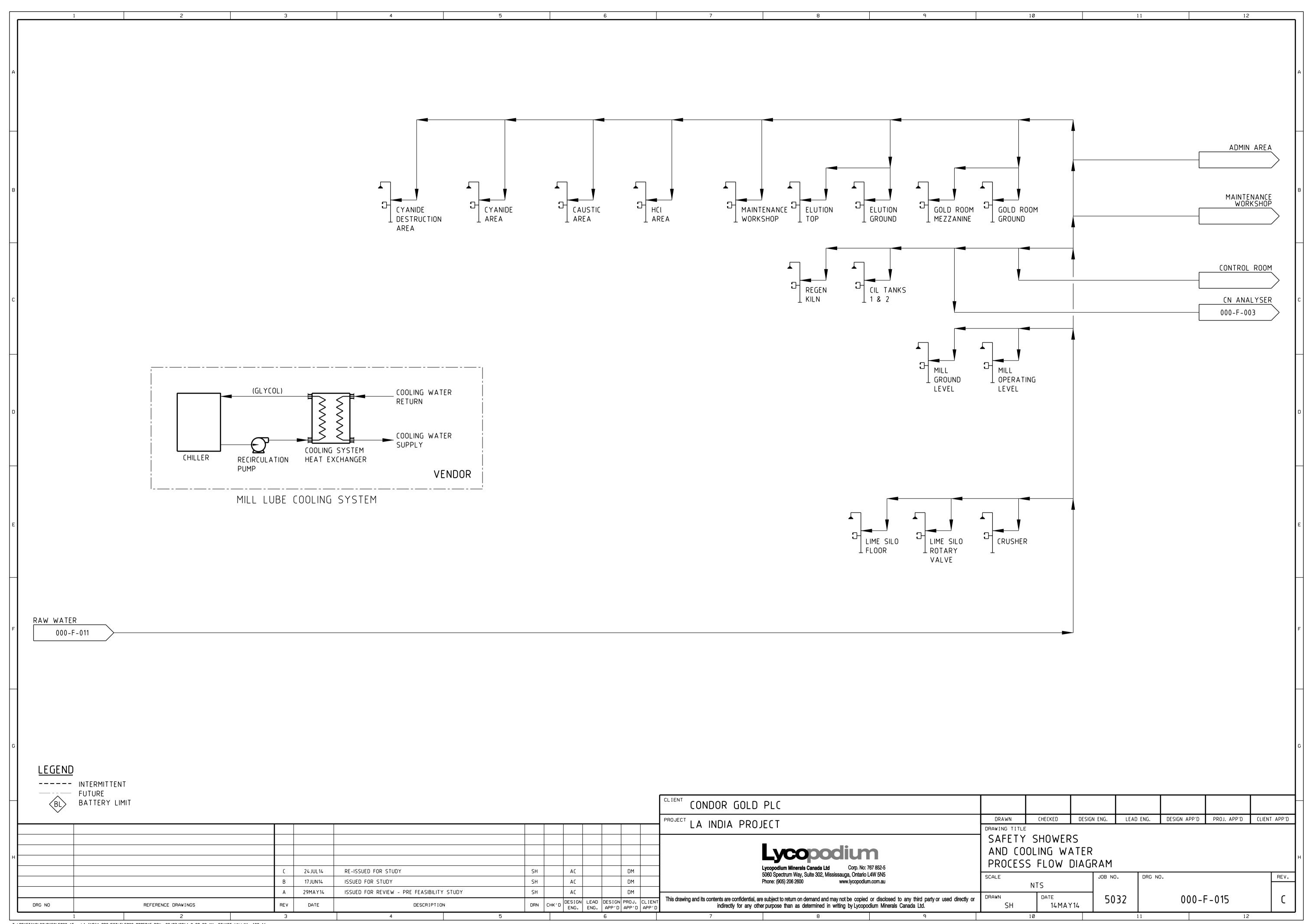


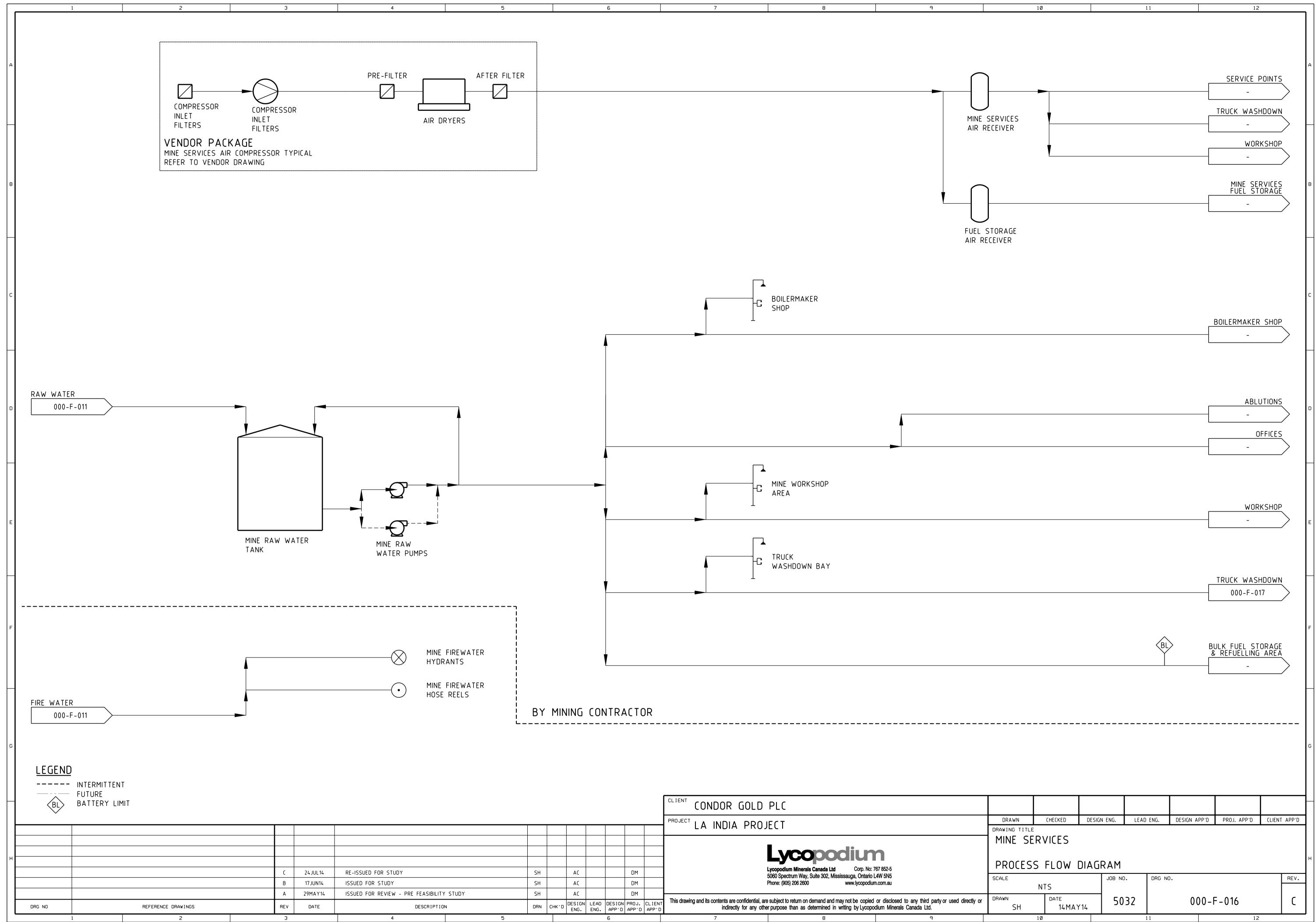


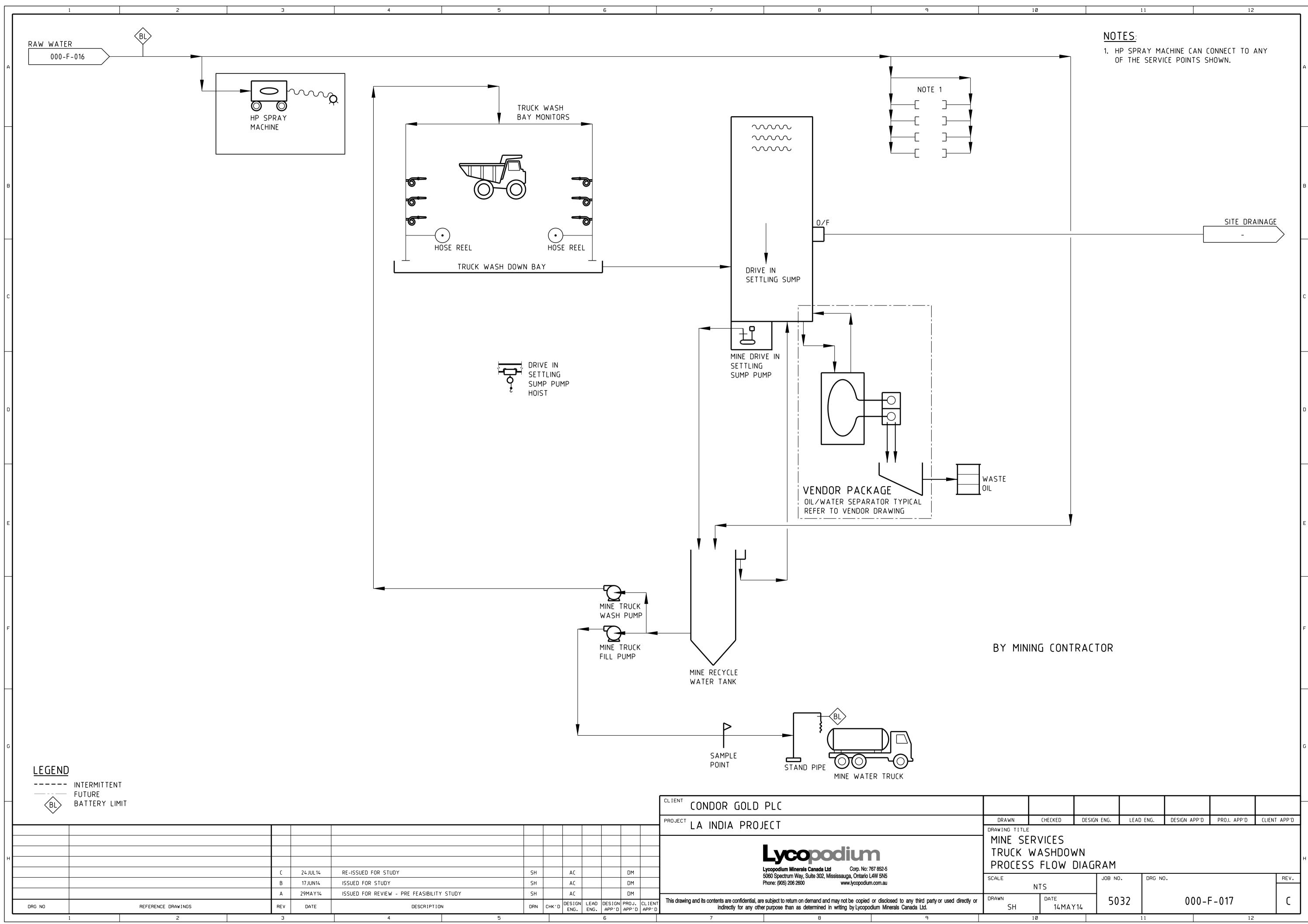












## **APPENDIX 2 PROCESS DESIGN CRITERIA**

# **Condor Gold PLC**

### LA INDIA GOLD PROJECT

### 2300 TPD PRIMARY THROUGHPUT

#### **PROCESS DESIGN CRITERIA**

PFS Study

July 17, 2014

Prepared By:



#### Job No:5032

D	17/07/2014	Re-Issued For Study	AC	BP	DM
B/C	06/06/2014	Issued For Study	AC	BP	DM
А	18/05/2014	Issued For Review	AC	BP	DM
REV NO	O. DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVAL	PROJECT APPROVAL



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
Document	PROCESS DESIGN CRITERIA	Job Number	5032	Checked	BP / DG

Client Reference Documents / Client Advice
Agreement of Meeting Between Owner and Lycopodium
Metallurgical Testwork
External Consultants (SRK, etc)
Lycopodium Experience
Generally Accepted Industry Practice
Calculated from given data
Vendor Recommendations or Standard Specifications
Assumption requiring verification Client Agreed Testwork Consult Lyco Industry Calc

Vendor

Assumed

Location (p Site Data	RISTICS	_	Units	Value	Rev	Source
Site Data	rocess plant)		70 km Nor	th of Managua in Nicaragua	Α	Client
	Mean Project Site Elevation		m	406	Α	Client
	Approximate Average Barometric Pr	essure	kPa	101.06	A	Client
	Maximum Temperature		°C	32.8	Α	Client
	Minimum Temperature		°C	17.5	Α	Client
	Average Daily Maximum		°C	30.0	Α	Client
	Average Daily Minimum		°C	21.4	A	Client
onfirm pan or lake?	Average Yearly Evaporation Average Annual Precipitation		mm mm	182.4 1239	A A	Client Client
	Maximum 24 hr Rainfall		mm	116.0	Ä	Client
2.0 ORE CHARACTE	RISTICS					
Ore	_					
	Ore source			India Open Pit - Primary Ore Blo		Client
	Throughput ROM - Plant		dry t/d	2,300	A A	Client
			dry t/a	805,000	A	Calc
	Ore grade - design	Au	g/t	3.40		Client
	Maintan desire	Ag	g/t %	5.80	A	Client
	Moisture - design		t/m <sup>3</sup>	5.0 1.60	A A	Assumed
	Bulk density Ore SG		VIII	2.54	Ā	Assumed Testwork
	35 h Leach Ag Extraction	Design	%	90.2	Â	Calc
	35 h Leach Au Extraction	Design	%	69.9	Â	Calc
	Ore Axb	Dooigii		40.0	В	Testwork
	Ore BWi		kWh/t	21.9	В	Testwork
	Abrasion Index			1.08	D	Testwork
0 OPERATING SCH			.,		ē	
	Scheduled working days		d/a h/a	<b>350</b> 8400	A D	Agreed Calc
CDITCHING BY 44	IT OBERATION					
CRUSHING PLAN	Operating hours per day		h	24	Α	Agreed
	Availability		%	75.0	Ā	Lyco
	Operating hours per year		h	6,300	A	Calc
	Feed rate	Nominal	dry t/h	128	Α	Calc
		Nominal	wet t/h	135	Α	Calc
	RAVITY PLANT OPERATION					
MILLING AND GR						Agreed
MILLING AND GF	Operating hours per day		h	24	Α	
MILLING AND GF	Availability		%	92.0	В	Agreed
MILLING AND GR	Availability Operating hours per year	Newtool	% h	<b>92.0</b> 7,728	B A	Agreed Calc
MILLING AND GE	Availability	Nominal Nominal	%	92.0	В	Agreed
MILLING AND GF	Availability Operating hours per year Feed rate		% h dry t/h	<b>92.0</b> 7,728 104.2	B A A	Agreed Calc Calc
.0 CRUSHING PLAN	Availability Operating hours per year Feed rate	Nominal	% h dry t/h wet t/h	<b>92.0</b> 7,728 104.2 110	B A A	Agreed Calc Calc
<b>0 CRUSHING PLAN</b> Ore will be crusher. R	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into	Nominal ently reclaimed by I the ROM Feed Bi	% h dry t/h wet t/h FEL to the ROM F n. Ore will be cru	92.0 7,728 104.2 110 Teed Bin feeding the primary jaw shed by a primary jaw crusher and	B A A	Agreed Calc Calc
.0 CRUSHING PLAN Ore will be crusher. R conveyed c while exce	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin an	Nominal ently reclaimed by lothe ROM Feed Bithe single stage SAd be conveyed to a	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru	92.0 7,728 104.2 110  Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bin	B A A	Agreed Calc Calc
0 CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped intoverland to a 0.5 hr surge bin. Feed to	Nominal ently reclaimed by lothe ROM Feed Bithe single stage SAd be conveyed to a	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru	92.0 7,728 104.2 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock	В А А А	Agreed Calc Calc Calc Calc
0 CRUSHING PLAN Ore will be crusher. R conveyed d while exce- breaker wil FEL Type	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped intoverland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and I be provided at the crusher to break o	Nominal ently reclaimed by lothe ROM Feed Bithe single stage SAd be conveyed to a	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru G mill will be dra dead stockpile fo	92.0 7,728 104.2 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bit r later reclaim by FEL. A rock Cat 988H or similar	B A A A	Agreed Calc Calc Calc Lyco
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O CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and be provided at the crusher to break o  R.O.M. size, 100% passing	Nominal ently reclaimed by lo the ROM Feed Bi the single stage SA did be conveyed to a versized feed.	% h dry t/h wet t/h FEL to the ROM F n. Ore will be cru G mill will be dra dead stockpile fo  mm mm	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir r later reclaim by FEL. A rock Cat 988H or similar 600 600x600	B A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed Agreed
O CRUSHING PLAN Ore will be crusher. R conveyed d while exce- breaker wil FEL Type Ore Grizzly ROM Bin	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin an I be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity	Nominal ently reclaimed by lothe ROM Feed Bithe single stage SAd be conveyed to a	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru GG mill will be dra dead stockpile fo	92.0 7,728 104.2 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir I later reclaim by FEL. A rock Cat 988H or similar 600	B A A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed
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O CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity seeder Type Capacity	Nominal entity reclaimed by to the ROM Feed Bithe single stage S/d be conveyed to a versized feed.  Live	% h dry t/h wet t/h FEL to the ROM F n. Ore will be cru Go mill will be dra dead stockpile fo  mm  mm  wet t	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir r later reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder	B A A A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed Agreed Lyco Lyco
O CRUSHING PLAN Ore will be crusher. R conveyed c while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to so crushed ore will overflow the bin and be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity seeder Type Capacity rusher	Nominal entity reclaimed by to the ROM Feed Bithe single stage S/d be conveyed to a versized feed.  Live	% h dry t/h wet t/h FEL to the ROM F n. Ore will be cru Go mill will be dra dead stockpile fo  mm  mm  wet t	92.0 7,728 104.2 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock  Cat 988H or similar 600 600x600 40  Apron feeder 135	B A A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed Agreed Lyco Lyco Calc
O CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and I be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity ceder Type Capacity rusher Type Throughput	Nominal entity reclaimed by to the ROM Feed Bithe single stage S/d be conveyed to a versized feed.  Live	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru kG mill will be dra dead stockpile fo  mm mm wet t  wet t/h	92.0 7,728 104.2 110  Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock  Cat 988H or similar 600 600x600 40  Apron feeder 135  C100 135	B A A A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed Agreed Lyco Lyco Calc Calc
O CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into overland to a 0.5 hr surge bin. Feed to so crushed ore will overflow the bin and be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity seder Type Capacity rusher Type	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h  FEL to the ROM F  Ore will be erru  G mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h	92.0 7,728 104.2 110  Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock  Cat 988H or similar 600 600x600 40  Apron feeder 135  C100 135 100	A A A A A A A	Agreed Calc Calc Calc Lyco Lyco Agreed Agreed Lyco Lyco Calc Lyco Calc Lyco Calc
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O CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to so crushed ore will overflow the bin and the provided at the crusher to break of R.O.M. size, 100% passing  Capacity seeder Type Capacity rusher Type Throughput Crusher CSS	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h FEL to the ROM F n. Ore will be eru G mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  wet t/h mm mm mm	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wriften bottom of the surge bin relater reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder 135 C100 135 100 150 88	B A A A A A A A A A A A A A A A A A A A	Agreed Calc Calc Calc Calc  Lyco Agreed Agreed Lyco Calc  Lyco Calc  Lyco Calc Lyco Calc Lyco Calc Lyco Lyco Lyco Lyco Lyco Lyco Lyco Lyc
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O CRUSHING PLAN Ore will be crusher. R conveyed of while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and be provided at the crusher to break of R.O.M. size, 100% passing  Capacity yeader Type Capacity rusher Type Throughput Crusher CSS  Installed Power ischarge Conveyor Capacity Capacity	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h FEL to the ROM F n. Ore will be eru G mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  wet t/h mm mm mm	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wriften bottom of the surge bin relater reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder 135 C100 135 100 150 88	B A A A A A A A A A A A A A A A A A A A	Agreed Calc Calc Calc Calc  Lyco Agreed Agreed Lyco Calc  Lyco Calc  Lyco Calc Lyco Calc Lyco Calc Lyco Lyco Lyco Lyco Lyco Lyco Lyco Lyc
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O CRUSHING PLAN Ore will be crusher. R conveyed of while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and I be provided at the crusher to break o  R.O.M. size, 100% passing  Capacity yeader Type Capacity rusher Type Throughput Crusher CSS  Installed Power ischarge Conveyor Capacity Capacity Capacity Capacity Crusher CSS	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h FEL to the ROM F n. Ore will be eru Go mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  mm mm kW  wet t/h	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw she by a primary jaw crusher and writer for the bottom of the surge bit of later reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder 135 C100 135 100 150 88 110	A A A A A A A A A A A A A A A A A A A	Agreed Calc Calc Calc Calc  Lyco Agreed Agreed Lyco Calc  Lyco Calc  Lyco Calc  Lyco Calc  Cyco Calc  Cyco Calc  Cyco Calc  Cyco Cyco Cyco Cyco Cyco Cyco Cyco Cy
.0 CRUSHING PLAN Ore will be crusher. R conveyed o while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 fr surge bin. Feed to so crushed ore will overflow the bin and to be provided at the crusher to break of R.O.M. size, 100% passing  Capacity  capacity  rusher  Type Capacity  Type Crusher CSS  Installed Power  ischarge Conveyor Capacity	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru GG mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  mm mm kW  wet t/h hours	92.0 7,728 104.2 110 104.2 110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder 135 C100 135 100 150 88 110 135	B A A A A A A A A A A A A A A A A A A A	Agreed Calc Calc Calc Calc Lyco Agreed Agreed Lyco Calc Lyco Calc Lyco Calc Lyco Calc Lyco Calc Lyco Calc Lyco Lyco Lyco Lyco Lyco Lyco Lyco Lyc
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O CRUSHING PLAN Ore will be crusher. R conveyed ( while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo  Primary C  Crusher D  Surge Bin Stockpile	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped intoverland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and be provided at the crusher to break of R.O.M. size, 100% passing  Capacity Capacity Type Capacity Type Throughput Crusher CSS  Installed Power ischarge Conveyor Capacity	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru kG mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  wet t/h  wet t/h  hours tonnes	92.0 7,728 104.2 110 110 Feed Bin feeding the primary jaw she by a primary jaw crusher and wr from the bottom of the surge bin relater reclaim by FEL. A rock Cat 988H or similar 600 600x600 40 Apron feeder 135 C100 135 100 150 88 110 135 0.5 55	A A A A A A A A A A A A A A A A A A A	Agreed Calc Calc Calc Calc Lyco Lyco Agreed Lyco Calc Cac Calc Cyco Calc Cyco Calc Cyco Calc Calc Calc Calc Calc Calc
O CRUSHING PLAN Ore will be crusher. R conveyed ( while exce- breaker wil FEL Type Ore Grizzly ROM Bin Primary Fo  Crusher D Surge Bin Stockpile	Availability Operating hours per year Feed rate  IT trucked to the ROM pad and subseque OM ore can also be direct dumped into verland to a 0.5 hr surge bin. Feed to ss crushed ore will overflow the bin and the provided at the crusher to break of R.O.M. size, 100% passing  Capacity yeader Type Capacity rusher Type Throughput Crusher CSS  Installed Power ischarge Conveyor Capacity	Nominal ently reclaimed by to the ROM Feed Bi the single stage S/d be conveyed to a versized feed.  Live  Nominal  P100 P80	% h dry t/h wet t/h  FEL to the ROM F n. Ore will be cru G mill will be dra dead stockpile fo  mm mm wet t  wet t/h  wet t/h  mm kW  wet t/h hours tonnes wet t/h dry tonnes	92.0 7,728 104.2 110 104.2 1110 Feed Bin feeding the primary jaw shed by a primary jaw crusher and wn from the bottom of the surge bir later reclaim by FEL. A rock  Cat 988H or similar 600 600x600 40  Apron feeder 135  C100 135 100 150 88 110 135 0.5 55 135	B A A A A A A A A A A A	Agreed Calc Calc Calc Calc  Lyco Agreed Lyco Agreed Lyco Calc Lyco Lyco Lyco Lyco Lyco Lyco Lyco Lyc

25/07/2014 5032-PDC-001\_D.xlsx Page 1 of 6



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
Document	PROCESS DESIGN CRITERIA	Job Number	5032	Checked	BP / DG

### 5.0 GRINDING The SAG mill will operate in closed circuit with classification cyclones to produce a leach feed stream that will gravity flow

SAG Mill	Type			Single Stage SAG w Grate Discharge	Α	Lyco
	Size	Diameter	m	6.71	Α	Lyco
		EGL	m	5.90	Α	Lyco
		Design Pinion Maximum	kW	3682	Α	Lyco
		Minimum Motor Power Required	kW	3876	Α	Lyco
	Speed		%Nc	60 - 80	В	Lyco
Ore param	neters for Mill D	Design				
		Axb		40	Α	Testwork
		Bwi	kWh/t	21.9	Α	Testwork
		Specific power	kWh/t	28.4	Α	Lyco
		Throughput	drv t/h	104	Α	Calc

Product size P<sub>80</sub> μm Ball Charge Volume 15 Maximum A A A A Lvco Mill feed F80 mm Lyco Lining Ball Size, max Polymet 125 Lyco mm Lyco SAG Mill Discharge % solids % w/w 75

Lyco

Lyco

Lyco

to the pre-leach thickener.

A pebble crusher is included as contingency in the design in case the grind size is too fine. In this case, the SAG mill trommel screen oversize is fed to a pebble crusher, which is installed with a surge bin before allowing for choke feeding of the crusher. For even feed distribution to the SAG mill the crusher will need to be trickle fed. Tramp metal removal followed by metal detection will be required on feed to pebble crusher. The pebble crusher will be installed in year 2 of operations if required.

Pebble Crusher HP100 or equivalent (fine cavity) Lyco A A A A A D Pebble Crushing Work Index Pebble Top Size kWh/t 1.5 50 Lyco F100 mm Lyco Pebble Crusher CSS Crusher Recycle 10 15 mm Lyco % of new feed Lvco Pebble Crusher Feedrate Crusher Feed Rate @ CSS dry t/h 16 **60** Calc Vendor dry t/h Crusher Feed Bin Capacity Lyco Crusher Operating Time % 26 Calc

#### Classifying

Cyclones					
Target product size	P80	micron	75	Α	Testwork
Circulating load, % of new mill feed		%	326%	Α	Lyco
Pulp density	feed	% solids	61%	Α	Lyco
	overflow	% solids	38%	Α	Lyco
	underflow	% solids	74%	Α	Lyco
	overflow	SG	1.32	Α	Calc
Operating Pressure		kPa	117	Α	Lyco
Size		mm	250	Α	Lyco
Operating	Duty		6	Α	Lyco
	Standby		2	Α	Lyco
Total por	ts on cluster		8	Α	Lyco

#### 7.0 TRASH SCREENING

Cyclone overflow will discharge to the trash screen. Trash screen undersize will gravitate to the pre-leach thickener. Trash will discharge to a container for further disposal. Pre-leach thickener underflow will be pumped to the leach feed distributor and thickener overflow will report to the process water tank. The thickener feed density will be 20% solids when processing North and Central material and drop to 15% solids when processing South material.

#### Trash Screen Type Screen deck

II asii su	reen					
	Type			Vibrating, single deck	Α	Lyco
	Screen deck			Polyurethane	Α	Lyco
	Aperture		mm	0.63 x 18	Α	Lyco
	Trash discharge			Bin	Α	Lyco
Pre-Leac	h Thickener					
	Type			High Rate	В	Lyco
	Slurry Feed Concentration		% solids	38	Α	Testwork
	Diluted Feed Concentration	(prior to internal dilution)	% solids	30	В	Lyco
	Design Basis Loading		t/m²hr	2.61	D	Testwork
	Thickener Diameter		m	13	В	Vendor
	Flocculant Dosage	Range	g/t	40-55	Α	Testwork
		Ave Consumption	g/t	48	Α	Lyco
	Underflow Density	Design	% solids	48	Α	Lyco
			SG	1.41	Α	Calc

25/07/2014 5032-PDC-001\_D.xlsx Page 2 of 6



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
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8.0 LEACH AND ADS	SORPTION						
	rcuit will consist of 1 leach tank + 6 CIL	tanks with counter	er current carbon a	advance.		Α	Lyco
	ill be sparged with air. The circuit is si			grade over LOM.		Α	Lyco
Leach feed	d will be sampled by a two stage sampl	er for metallurgica	al accounting.			В	Lyco
Leach Cir	cuit						
	Туре			Hybrid CIL 1 I		D	Lyco
	Number of CIL tanks Total Number of Tanks		#	7		A A	Lyco
	Total Number of Tanks		#	gAu/t	gAg/t	A	Lyco
	Solids head grade	Design		3.40	5.80	Α	Agreed
	Tail solids grade			0.33	1.74	Α	Testwork/Calc
	Tail solution grade Design slurry residence time	Target	hrs	<0.015	<0.015	A A	Industry Lyco
	Design carbon concentration tank 2		g/L	12		Â	Calc
	Design carbon concentration tanks 2	2-6	g/L	12		Α	Calc
Tank Size	Design total live volume (incl carbon	1)	m <sup>3</sup>	55		A A	Calc
	Design live volume per tank		m <sup>3</sup>	79	90	^	Calc
CIL Paran	neters Feedrate		an b	10		Α	Calc
	reedrate		tph % solids	48		A	Calc
			m³/h	15		Α	Calc
	WAD CN in CIL tails	Max	mg/L	20	10	Α	Assumed
	Loaded carbon		g Au/t	18		Α	Calc
			g Ag/t	28		A	Calc
	Barren carbon		g Au/t g Ag/t	10 50		A A	Assumed Assumed
			g right	30		^	Addition
	Carbon advance rate		t/d	4.2		Α	Lyco
			t/week	30	.0	Α	Calc
	Carbon Slurry Transfer Tank 2		h/d	6.	0	Α	Lyco
	•		m <sup>3</sup> /h	5	7	Α	Calc
	Carbon Slurry Transfer Tanks 3 -7		h/d	10	.0	Α	Lyco
			m³/h	3	4	Α	Calc
Carbon ad			t/m <sup>3</sup>		47	Α	la di cata i
	Carbon Bulk density, dry Carbon specific gravity		SG	0.4 1.		Ā	Industry Industry
	Carbon Size		36	1.68		Â	Industry
	Carbon Type			Pica G210-		Α	Lyco
	Total Carbon in Circuit		t	6		Α	Calc
	Consumption rate		kg/t ore	<b>0.0</b> 9		A A	Lyco
CIL Aerati	Consumption per day on		kg/day	9.	2	A	Calc
	Type			Blow	er Air	Α	Lyco
	Oxygen Uptake Rate	OU T 4	0.00			Α	
		CIL Tank 1 CIL Tanks 2-4	mg O₂/L/min mg O₂/L/min	0.04 0.03	0.04 0.03	A	Assumed Assumed
		CIL Tanks 2-4 CIL Tanks 5-6	mg O <sub>2</sub> /L/min	0.02	0.03	A	Assumed
		OIL TURNS 5 0	ing O <sub>2</sub> /Dillin	0.02	0.02		Addition
	Uptake Efficiency		%	3.5		Α	Lyco
	Oxygen % in Air		% w	23.		Α	Assumed
	Density of Air (0°C, 0% RH, and 101	.3kPa)	kg/m³	1.3	29	Α	Assumed
	Oxygen Addition Rate						
	.•	CIL Tank 1	Nm³/h/tank	18	31	Α	Calc
		CIL Tank 2-4	Nm³/h/tank	13	36	Α	Calc
		CIL Tanks 5-6	Nm <sup>3</sup> /h/tank	9	0	Α	Calc
		- Total Flowrate	Nm³/h	76	69	Α	Calc
Intertank	Type			Vertical,	Air Swent	Α	Lyco
	Aperture		mm	0.8		Ä	Lyco
Carbon S	afety Screen						•
	Туре			Vibrating,		A	Lyco
	Deck Aperture		mm	Polyure 1.0		A A	Lyco Lyco
Loaded C	arbon Recovery Screen			1.07	. 10		Lyco
	Туре			Vibrating,	Horizontal	Α	Lyco
	Deck			Polyur		A	Lyco
	Aperture		mm	0.73	116	Α	Lyco
Cyanide A	addition						
-	Total CN⁻ in Tails		mg/L	150		Α	Lyco/Testwork
	Rate of NaCN Consumption	Operating	kg/t ore	0.0		A	Testwork
	(48hr)	Design	kg/t ore	0.9	94	Α	Testwork
Lime Add							
	Consumption	Operating	kg/t ore	0.9		A	Testwork
	Available CaO, testwork	Design	kg/t ore %	1.4 90		D A	Lyco Assumed
	Available CaO, plant supply		%	9		Ā	Assumed

25/07/2014 5032-PDC-001\_D.xlsx Page 3 of 6



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
Document	PROCESS DESIGN CRITERIA	Job Number	5032	Checked	BP / DG

#### 9.0 ELUTION, ELECTROWINNING, CARBON REACTIVATION

transferred	ish column where acid washing will be p to the elution column for gold elution. ( a diesel fired furnace to doré bars.				A	Lyco
AARL Circ	uit Desian					
	No. of Strips		strip/week	6	Α	Lyco
	Carbon recovered from CIL		t/d	4.29	Α	Calc
			t/strip	5.00	Α	Calc
	Carbon Batch Volume		m <sup>3</sup>	9.1	Α	Calc
	Solution Flowrate		BV/h	2	Α	Lyco
			m <sup>3</sup> /h	18.2	Α	Calc
Acid Wash	Acid Type			HCL	Α	Lyco
	Delivered Acid Strength		% HCL w/w	32	A	Industry
	Wash Acid Strength		% HCl w/w	3.0	Α	Lyco
	Acid Soak Volume		BV	0.70	Α	Lyco
			m <sup>3</sup>	6.4	Α	Calc
	Acid Rinse Volume		BV	3.0	Α	Lyco
			m <sup>3</sup>	27.4	Α	Calc
	Acid Mix & Storage Tank Volume		BV	0.70	Α	Lyco
		Minimum	m <sup>3</sup>	6.4	Α	Calc
		Design live	m <sup>3</sup>	5.0	Α	Lyco
	Acid Required @ delivered conc		kg/strip	598	Α	Calc
	Carbon Transfer Water Required per	Batch	m <sup>3</sup>	25.0	Α	Calc
Solution P						
	Presoak Time		h	0.5	Α	Industry
	Cyanide Strength		% w/v	2.0	Α	Industry
	Cyanide Required		kg NaCN/strip	127.7	Α	Calc
	Caustic Strength		% w/v	2.0	Α	Industry
	Caustic Required		kg NaOH/strip	127.7	Α	Calc
	Eluate Volume		BV	0.70	Α	Industry
			m <sup>3</sup>	6.4	Α	Calc
Elution/Ele	ectrowinning					
	Elution Volume		BV	8.0	Α	Industry
	Elution Time		h	4.0	Α	Calc
	Elution Cooling		BV	2.0	Α	Industry
	Cooling Time		h	1.0	Α	Calc
	Elution Temperature		°C	120	Α	Lyco
	No of Electrowinning Cells		#	3 (800 series cells)	Α	Lyco
	Type of Cathode			Stainless Steel Wool Mesh	Α	Industry
	Electrowinning Time		h	7	Α	Lyco
	Cathode Size		m <sup>2</sup>	0.525	Α	Lyco
	Cathodes per Cell		#	12	Α	Lyco
	Cell Voltage		V	3	Α	Industry
	Current Density		A/m <sup>2</sup>	14	Α	Industry
	Current Efficiency		%	15	Α	Industry
	Mass of Metal Produced		kg/strip	20.7	Α	Calc
	Number of Rectifiers			3	Α	Lyco
	Selected Rectifier Size		A / cell	2,000	Α	Lyco
	Elution Heater	Type		Diesel	Α	Lyco
		Power	kW	1575	Α	Calc
	Barren soln gold grade	Target	mg/L	<5	Α	Industry
	Target Caustic in Pregnant Solution		% w/v	0.5	Α	Industry
	Additional Caustic		kg NaOH/strip	237	Α	Calc
Smelting	Consider and a large William Character 12 and	Land Paratasas		· · · · · · · · · · · · · · · · · · ·		
The sludge	from the cathodes will be filtered, dried	and direct smel	ted in a diesel fired	furnace.	Α	Lyco
Carbon De	watering Screen			API and a management		
	Type			Vibrating screen	Α .	Lyco
	Deck		mm	Polyurethane	A A	Lyco
Carbon Re	Aperture eactivation		mil	0.83 x 18	^	Lyco
	Design Note: The carbon hopper w carbon to be regenerated each elu				В	Lyco
	Kiln feed hopper capacity	anon cycle. The	t t	6.0	В	Lyco
	Kiln Type			Horizontal Rotary	A	Lyco
	Capacity	Minimum	kg/h	134	В	Calc
		willillium	°C		A	
	Operating Temperature			700		Industry
	Retention Time at Operating °C		min	20	Α .	Industry
	Operating Time		h/d Turno	24	Α .	Lyco
	Fuel		Туре	HFO	Α	Lyco
Carbon Siz	zing Screen Type			Vibrating, Horizontal	Α	Lyco
	Aperture		mm	0.83 x 18	A	Lyco
Cyanide wi	YERY THICKENER II be recovered from the CIL tailings by				В	Luga
into the grir Thickener	nding circuit to via the process water tar	nk. Thickener u	nderflow is forwarde	ed to the cyanide destruction circuit.	ь	Lyco
	Type			High Rate	В	Lyco
	Slurry Feed Concentration		% solids	48	В	Lyco
	Diluted Feed Concentration (prior to in	nternal dilution)	% solids	35	В	Lyco
	Design Basis Loading		t/m²hr	2.245	D	Testwork
			m	13	В	Vendor
	Thickener Diameter Flocculant Dosage	Range	m g/t	13 40-55	В	Vendor Testwork
	Thickener Diameter Flocculant Dosage	Range re Consumption				
	Thickener Diameter Flocculant Dosage		g/t	40-55	В	Testwork

25/07/2014 5032-PDC-001\_D.xlsx Page 4 of 6



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
Document	PROCESS DESIGN CRITERIA	Joh Number	5032	Checked	BP / DG

		air process to	destroy free and W	AD cyanide prior to disposal in the	e .	
tallings st	torage facility.	an process to	destroy free and vv	ND cyaniae prior to disposar in the	Α	Testv
tamingo	Inlet pH		pН	10.1	Α	Test
	Feed Solids		t/h	104	Â	Ca
	Feed Solids		%	50	Ä	Ly
	Design Inlet Total CN Concentration		mg/L	175	Â	,
				90	В	Ly
	Operating Inlet Total CN Concentration		mg/L		C	Ly
	Design Sodium Metabisulphite Addition		kg/kg TCN	8		Test
	Operating Sodium Metabisulphite Addition	1	kg/kg TCN	9.41	Α	Test
	Air sparge rate		Nm <sup>3</sup> /h/m <sup>3</sup>	1.5	Α	Indu
	Lime Addition		g/g TCN	4.4	Α	Test
	Target Discharge Total CN		mg/L	30.0	С	Agre
	Design Copper Sulphate Consumption		kg/kg TCN	1	Α	Ly
	Operating Copper Sulphate Consumption		kg/kg TCN	0.87	Α	Test
	Target pH		pH	8.6	Α	Test
	Total Residence Time (in series)		min	120	Α	Ca
	Residence Time per Reactor		min	60	Α	Test
	Gas Hold up Allowance		%	15	A	Indu
	# of Reactors		#	2	Α	Ly
	are designed and operated in series but can on the event of equipment failure.	operate in par	allel. The event por	nd is used as emergency storage	Α	Ly
INGS DISP	OSAL Storage Facility					
_	Туре			Valley Impoundment	Α	Cli
	Net Catchment Influx		m <sup>3</sup> /h	82	В	Calc
SENT STO	RAGE/MIXING					
Lime	otion - Lime is slaked and pumped to the SAG	mill food and	to the detay circuit		В	Ly
Consump		mili reeu and				
	Leach circuit		kg/h	97	A	C
			t/d	2.3	A	C
	Cyanide Treatment		kg/h	42	В	C
			t/d	1.0	В	C
	Total		t/d	3.3	В	C
	Chemical form			CaO - Quicklime	Α	Assı
	Physical Form		% CaO	90	Α	Assı
	Delivery/Packing			Bulk Tanker	Α	Assı
	Delivery size		t	35	Α	Assı
	Storage Method			Silo	Α	Ly
	Storage Capacity	Live	t	65	Α	L
	No allowance has bee	on made for e	ffluent treatment lim			
		en made for e		ie consumption	Α	L)
NaCN				•		L
	otion - Dry briquettes are added to the mix tan	k for dissoluti	on in water and trans	sferred to the storage tank for circ	ulation.	
				•		
	otion - Dry briquettes are added to the mix tan	k for dissoluti	on in water and trans	sferred to the storage tank for circ	ulation.	С
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN	k for dissolution	on in water and trans	sferred to the storage tank for circ 68	ulation.	Ly Ci Ci
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN	k for dissolution	on in water and trans kg/h kg/strip	sferred to the storage tank for circ 68 128	ulation. A A	C: C: C:
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength	k for dissolution	on in water and trans kg/h kg/strip kg/d	sferred to the storage tank for circ 68 128 1753 20%	ulation. A A A	C: C: Indi
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied	k for dissolution	on in water and tran: kg/h kg/strip kg/d w/v% NaCN	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes	ulation.  A A A A	C: C: Indi
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing	k for dissolution	on in water and trans kg/h kg/strip kg/d w/v% NaCN t / package	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes	ulation. A A A A A D	C: C: Indi Indi
	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied	k for dissolution	on in water and tran: kg/h kg/strip kg/d w/v% NaCN	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes	ulation.  A A A A	C C Ind
	otton - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissoluti	k for dissoluti Nominal Design	on in water and transkg/h kg/strip kg/d w/v% NaCN t / package m³/d ad dosed from the m	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank.	ulation. A A A A A A A A A A A A A A A A A A A	C: C: Indi Indi Indi C:
Consump	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN	k for dissoluti Nominal Design	on in water and transkg/h kg/strip kg/d w/v% NaCN t / package m³/d	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97	ulation. A A A A D	C C Indi Indi Indi
Consump	otton - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissoluti	k for dissoluti Nominal Design	on in water and transkg/h kg/strip kg/d w/v% NaCN t / package m³/d ad dosed from the m	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank.	ulation. A A A A A A A A A A A A A A A A A A A	C: C: Indi Indi C:
Consump	otion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissoluti	k for dissoluti Nominal Design	on in water and transky/h kg/strip kg/d w/v/% NaCN t / package m³/d ad dosed from the m kg/strip kg/d	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank.	aulation. A A A A A A A A A A A A A A A A A A A	C C C Indi Indi Indi C C
Consump	otton - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaCH Cyanide Makeup Total Solid NaCH	k for dissoluti Nominal Design	on in water and transkg/h kg/strip kg/d w/v% NaCN t / package m³/d dd dosed from the m kg/strip kg/d kg/d	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413	ulation. A A A A A A A A A A A A A A A A A A A	C C C Indi Indi Indi C C C C
Consump	stion - Dry briquettes are added to the mix tan CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength	k for dissoluti Nominal Design	on in water and transky/h kg/strip kg/d w/v/% NaCN t / package m³/d ad dosed from the m kg/strip kg/d	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20%	ulation.  A A A A A A A A A A A A A A A A A A	C C C Indi Indi Indi C C C C C C C C C Indi
Consump	stion - Dry briquettes are added to the mix tani CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied	k for dissoluti Nominal Design	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d ad dosed from the m kg/strip kg/d kg/d w/v% NaOH	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets	ulation. A A A A D A A A A A A A A A A A A A A	C C C Indd Ind Ind C C C C C C
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolutive Elution Solid NaOH Cyanide Makeup Total Solution Strength Physical form supplied Delivery/Packing	k for dissoluti Nominal Design	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d od dosed from the m kg/strip kg/d kg/d w/v% NaOH bags (kg)	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25	ulation. A A A A A A A A A A A A A A A A A A A	C. C. Indi Indi Indi C. C. C. C. C. Indi Indi
Consump	stion - Dry briquettes are added to the mix tani CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied	k for dissoluti Nominal Design	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d ad dosed from the m kg/strip kg/d kg/d w/v% NaOH	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets	ulation. A A A A D A A A A A A A A A A A A A A	C. C. Indi Indi Indi C. C. C. C. C. Indi
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolutive Elution Solid NaOH Cyanide Makeup Total Solution Strength Physical form supplied Delivery/Packing	k for dissoluti Nominal Design On in water ar Design	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d od dosed from the m kg/strip kg/d kg/d w/v% NaOH bags (kg)	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25	ulation. A A A A A A A A A A A A A A A A A A A	CC CC Ind Ind Ind C C C C Ind Ind
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solid NaOH	k for dissoluti Nominal Design on in water ar Design	on in water and transky/h kg/strip kg/d w/v% NaCN  t / package m³/d ad dosed from the m kg/strip kg/d kg/d w/v% NaOH  bags (kg) m³/d  HCI 32% /strip	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9	ulation. A A A A A A A A A A A A A A A A A A A	C C C C C C Indi
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solid NaOH	k for dissoluti Nominal Design on in water ar Design kg m°	kg/h kg/strip kg/d w/v% NaCN t / package m³/d d dosed from the m kg/strip kg/d kg/d w/v% NaOH bags (kg) m³/d HCI 32% /strip conc acid/strip	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9	ulation. A A A A A A A A A A A A A A A A A A A	C C C C C C C C C C C C C C C C C C C
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solution NaOH Consumption	k for dissoluti Nominal Design on in water ar Design kg m°	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d dd dosed from the m kg/strip kg/d kg/d w/v% NaOH bags (kg) m³/d tHCl 32% /strip conc acid/strip of acid supply	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9 598 0.516 1.16	ulation. A A A A A A A A A A A A A A A A A A A	CC CI Ind Ind Ind CC CC Ind Ind Ind Ind Ind Ind Ind
Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solid NaOH	k for dissoluti Nominal Design on in water ar Design kg m°	kg/h kg/strip kg/d w/v% NaCN  t / package m³/d dd dosed from the m kg/strip kg/d kg/d w/v% NaOH  bags (kg) m³/d  HCI 32% /strip cone acid/strip of acid supply Packaging	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9 598 0.516 1.16 IBC	ulation. A A A A D A A A A A A A A A A A A A A	CC
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Consump	otton - Dry briquettes are added to the mix tand CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solution NaOH Consumption	k for dissoluti Nominal Design on in water ar Design kg m°	kg/h kg/strip kg/d w/v% NaCN  t / package m³/d dd dosed from the m kg/strip kg/d kg/d w/v% NaOH  bags (kg) m³/d  HCI 32% /strip cone acid/strip of acid supply Packaging	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9 598 0.516 1.16 IBC	ulation. A A A A D A A A A A A A A A A A A A A	C C C Indd Ind Ind Ind Ind Ind Ind Ind Ind In
Consump	stion - Dry briquettes are added to the mix tani CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solution NaOH  Consumption  Delivery/Packing Solution Mix Strength Solution Mix Strength Solution Mix Strength	k for dissoluti Nominal Design on in water ar Design kg m <sup>3</sup> S.G	on in water and transky/h kg/strip kg/d w/v% NaCN t / package m³/d ad dosed from the m kg/strip kg/d kg/d w/v% NaOH bags (kg) m³/d HCI 32% /strip c one acid/strip of acid supply Packaging m³ %w/v	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9 598 0.516 1.16 IBC 1 3.0	ulation. A A A A A A A A A A A A A A A A A A A	C C C C Induction Inductio
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NaOH	otion - Dry briquettes are added to the mix tani CIL Solid NaCN Elution Solid NaCN Total Solid NaCN Total Solid NaCN Solution Strength Physical form supplied Delivery/Packing Total Solution NaCN Dry pellets added to mix tank for dissolution Elution Solid NaOH Cyanide Makeup Total Solid NaOH Solution Strength Physical form supplied Delivery/Packing Total Solution NaOH  Consumption  Delivery/Packing Solution Mix Strength  I Flux Silica Borax Sodium Nitrate	k for dissoluti Nominal Design on in water ar Design kg m* S.G	on in water and transky/h kg/strip kg/d w/v% NaCN  t / package m³/d  od dosed from the m kg/strip kg/d kg/d w/v% NaOH  bags (kg) m³/d  HCI 32% /strip cone acid/strip cone acid/strip of acid supply Packaging m³ %w/v  kg/1000oz kg/d kg/1000oz kg/d kg/1000oz kg/d	sferred to the storage tank for circ 68 128 1753 20% Dry Briquettes 1 7.97 ix tank. 365 48 413 20% Dry Pellets 25 1.9 598 0.516 1.16 IBC 1 3.0	ulation. A A A A D A A A A A A A A A A A A A A	C C C Indu Indu Indu Indu Indu Indu Indu Indu
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25/07/2014 5032-PDC-001\_D.xlsx Page 5 of 6



Client	CONDOR GOLD PLC	Date	17-Jul-14	Revision	D
Project	LA INDIA PFS			Prepared	AC
Document	PROCESS DESIGN CRITERIA	Joh Number	5032	Checked	BP / DG

5	odium Metabisulphite					
	SMBS solution is prepared in a	mixing tank and transfe	rred to a storage tai	nk for dosing.		
	Physical Form			Granular	Α	Industry
	Dosing Method			Dosing Pump	Α	Lyco
	Solution Strength		g/L	250	Α	Lyco
	Delivery Packaging			1t Bulk Bag	Α	Lyco
	Reagent Requirement		kg/h	59	С	Calc
(	Copper Sulphate Pentahydrate					
	Copper sulphate solution is pre	pared in a mixing/storag	e tank and dosed.			
	Physical Form			Granular	Α	Industry
	Dosing Method			Dosing Pump	Α	Lyco
	Solution Strength		g/L	250	Α	Lyco
	Delivery Packaging			1t Bulk Bag	Α	Lyco
	Reagent Requirement		kg/h	8.2	Α	Calc
14.0 WATER	SYSTEM					
F	rocess Water Tank	Demand	m³/h	233	В	Mass Balance
		Residence Time	hours	2	В	Lyco
		Tank Capacity	m <sup>3</sup>	466	В	Calc
F	aw Water (from mine dewater)	Nominal	m³/h	30	В	Mass Balance
		Design	m <sup>3</sup> /h	40	Α	Lyco
		Residence Time	hours	8	Α	Lyco
		Capacity	m <sup>3</sup>	320	В	Calc
F	ire Water Reserve	Capacity	m <sup>3</sup>	200	Α	Assumed
F	aw Water Tank	Total Capacity	m <sup>3</sup>	520	В	Calc
ı	Potable Water					
	Potable water for consumption	will be purchased locally	. Raw water is con	sidered sufficient for other pota	ble water ne	eds.
	Domestic Usage Rate		m3/d/person	0.2	Α	Industry
	Number of personnel		#	40	Α	Assumed
	Total Potable/Raw Water Cons	umed	m <sup>3</sup> /d	8	Α	Calc
	Total Potable Water Usage Ra	te	m <sup>3</sup> /h	0.3	Α	Calc

25/07/2014 5032-PDC-001\_D.xlsx Page 6 of 6 Crushing Circuit, Flowsheet 5027-F-001

Stream Name		ROM Ore Feed to Crusher	SAG Mill Feed	CaO Addition to SAG Feed	Dust Suppression Water	Pebble Crusher Feed Bin Rate	Pebble Crusher Discharge Bin Rate	CaO Addition to Detox
Stream No		1	2	3	4	5	6	7
Solids	t/h	127.8	104.2	0.10		0.00	0.00	0.042
Solution	t/h	6.7	5.5		8.0	0.0	0.0	0.21
Total Stream	t/h	134.5	109.6	0.10	8.0	0.00	0.00	0.250
% Solids	%w/w	95.0	95.0	100		90.0	90.0	20.0
Solids SG		2.54	2.54	2.24		2.24	2.24	3.35
Solution SG		1.00	1.00		1.00	1.00	1.00	
Volumetric Flow	m³/h		46.5	0.04		0.00	0.00	0.07
Slurry SG			2.36			1.99	1.99	

Milling Circuit, Flowsheet 5027-F-002

willing Circuit,	IOWSIICE	1 3027-1 -002																
Stream Name		New SAG Mill Feed	Total Mill Feed	SAG Mill Feed Dilution Water	SAG Mill Discharge Trommel Water	SAG Mill Discharge	Mill Discharge Hopper Dilution Water	Cyclone Feed Pumps	Gland Water to Cyclone Feed Pumps	Cyclone Overflow	Cyclone Underflow	Trash Screen Feed	Trash Screen Sprays	Pre-Leach Thickener Dilution Water	Pre-Leach Diluted Thickener Feed	Pre-Leach Thickener Overflow	Pre-Leach Thickener Underflow	Pre-Leach Thickener Underflow Gland
Stream No		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Solids	t/h	104.2	443.8	0.0	0.0	443.8	0.00	444	0.00	104.2	339.6	104.2	0.0	0.0	104.2	0.0	104	0.00
Solution	t/h	13.5	157.8	25.0	10.0	167.8	114.8	287	3.0	167.1	119.3	167	10.0	66.0	243	130.2	113	3.0
Total Stream	t/h	117.6	601.5	25.0	10.0	611.5	114.8	731.1	3.0	271.3	458.9	271	10.0	66.0	347	130.2	347	3.0
% Solids	%w/w	88.54	73.8	0.0	0.0	72.6		60.70	0.0	38.40	74.00	38.4	0.0	0.0	30.0	0.0	48.00	0.0
Solids SG		2.54	2.54			2.54		2.54		2.54	2.54	2.54			2.54		2.54	
Solution SG	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1.00	1.00	1	1.00	1	1.00
Volumetric Flow	m <sup>3</sup> /h	54.5	332.5	25.0	10.0	342.5	114.8	462.0	3.0	208.1	253.0	208	10.0	66.0	284.1	130.2	153.9	3.0
Slurry SG		2.16	1.81	1.00	1.00	1.79	1.00	1.58	1.00	1.30	1.81	1.30	1.00		1.22		1.41	1.00

06/06/2014

Leach,	Flowsheet 5027-F-003 / 004

Stream Name		Leach Feed	Carbon Recovery Screen Spray	Carbon Sizing Screen Spray	CIL Discharge	Safety Screen Spray Water	Final Leach Tails to Cyanide Thickener	Activated Carbon Feed	Loaded Carbon Transfer per Day
Stream No		1	2	3	4	5	6	7	8
Solids Solution Total Stream % Solids Solids SG	t/h t/h t/h %w/w	104 116 220 47.3 2.54	0 4.0 4 0	0 3.0 3 0	104 123 227.0 45.9 2.54	0.00 <b>5.0</b> 5 0.0	104 128 233 44.8 2.54	0.13 0.54 0.7 <b>20.0</b> 1.70	4.29 0 4.76 90.0 0.47
Solution SG Volumetric Flow Slurry SG	m³/h	1.00 156.9 1.40	1.00 4	1.00 3	1.00 163.9 1.39	1.00 5	1.00 169.4 1.37	1.00 0.54 1.09	1.00 9.1 0.50

yanide	Destruction,	Flowsheet	5027-F-	-005

Syanide Destruction, Flowsheet 5027-F-005									
	Cyanide Thickener Wash Water	Diluted Thickener Feed	Cyanide Thickener Overflow	Cyanide Destruction Feed	Solid Sodium Meta-bisulphite Addition	Solid Copper Sulphate Addition	Air to Cyanide Destruction Spargers	Final Tails to TSF	
	1	2	3	4	5	6	7	8	
t/h t/h t/h %w/w	0.0 65.1 65.1 0.0	104.2 193.5 298 35.0	0.0 89.3 89.3 0.0	104.2 104.2 208 <b>50.0</b>	0.059 0.059 100.0	0.01 0.008 100.0	Nm³/h 436	104.2 104.2 208.4 50.0	
m³/h	1.00 65.1	2.54 1.00 234.5	0.00 1.00 89.3	2.54 1.00 145.2				2.54 1.00 145.2 1.43	
	t/h t/h t/h %w/w	Cyanide Thickener Wash Water 1 1 t/h 0.0 t/h 65.1 t/h 65.1 9/6/W/W 1.00 1.00	Cyanide Thickener Wash Water Feed Thickener Feed 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Cyanide Thickener Wash Water   Diluted Thickener Wash Water   1   2   3	Cyanide Thickener Wash Water   Feed Thickener Wash Water   1 2 3 4 4	Cyanide Thickener Wash Water   Diluted Thickener Wash Water   Verlag   Pred   Pred	Cyanide Thickener Wash Water Feed   Diluted Thickener Wash Water Feed   Cyanide Thickener Overflow   Feed   Cyanide Destruction Meta-bisulphite Addition   Copper Sulphate Addition	Cyanide Thickener Wash Wash Water Feed Wash Water   1 2 3 4 5 6   7 7	

Tailings, Flowsheet 5027-F-006

Stream Name		Tailings Pump Gland Water	Tailings Sediment	Tailings Reclaim	Tailings Net Rain Catchment	Effluent
Stream No		1	2	3	4	5
Solids Solution Total Stream % Solids	10 t/h t/h %w/w	0.00 3.0 3.0 0.0	104.17 49.0 153.2 <b>68.0</b>	0.0 77.1 77.1 0.0	0.00 <b>82.0</b> 82.0 0.0	0.00 60.1 60.1 0.0
Solids SG Solution SG Volumetric Flow Slurry SG	m³/h	1.00 0.0 1.00	2.54 1.00 90.0 1.70	1.00 77.1	1.00 82.0 1.00	1.00 60.1 1.00

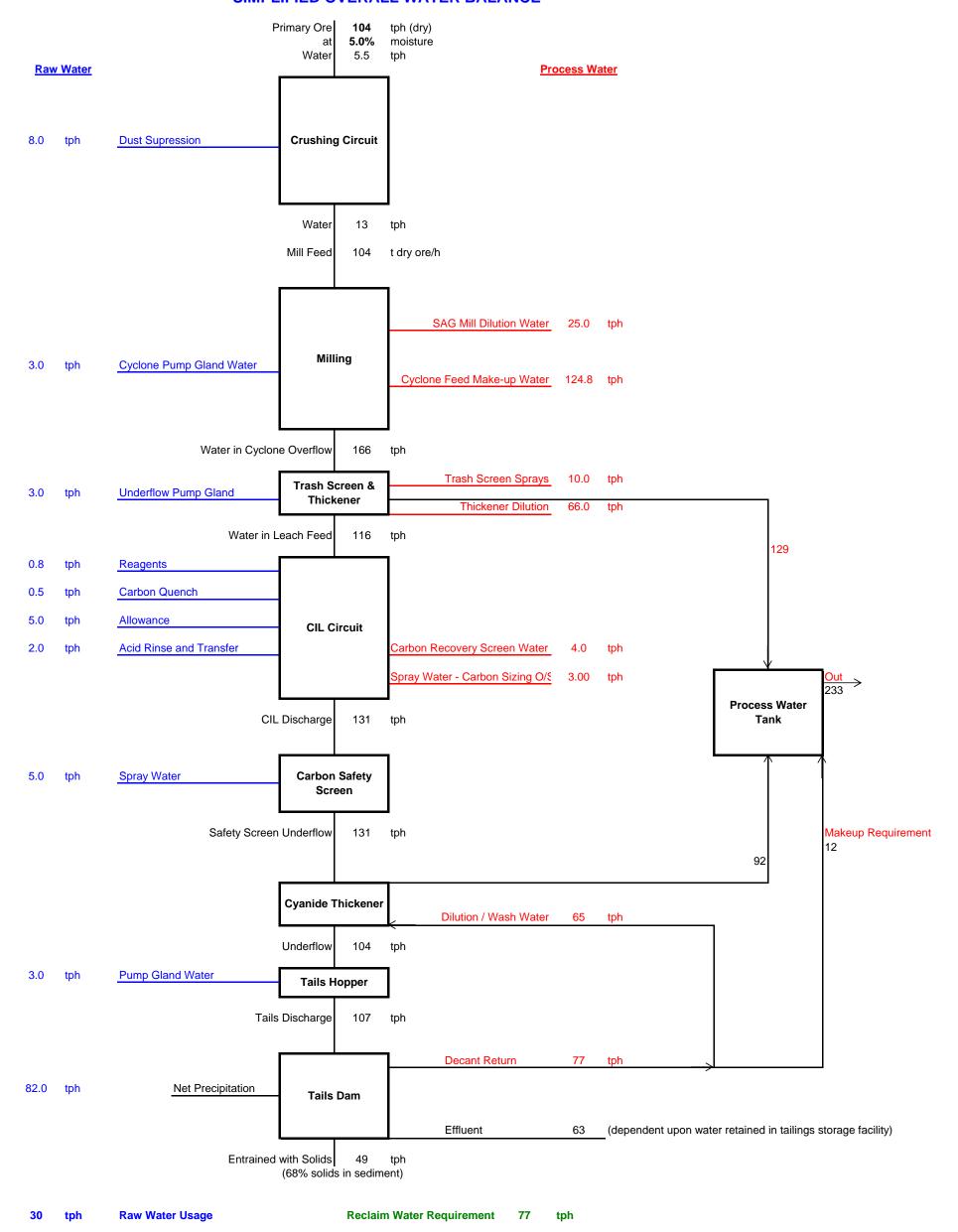
Elution, Flowsh	eet 5027-F-007						
Stream Name		Loaded Carbon per Batch	Total NaCN Addition	Caustic Addition	HCI Addition	Carbon Transfer + Acid Rinse	Total PM Produced (Au/Ag) @ EW
Stream No		1	2	3	4	5	6
Solids Solution Total Stream % Solids	t/h t/h t/h %w/w	4.29 0.48 4.76 <b>90.0</b>	0.073 0.29 0.365 0	0.015 0.06 0.074 0.0	0.02 0.22 0.24 0.0	1.99 2.0 0.0	0.0207 0 0.02 100.0
(Bulk) Density Solution SG Volumetric Flow Slurry SG	m³/h	0.47 1.00 9.12 1.0	1.00 0.365 1.00	1.08 0.07	1.00 0.24	1.00 2.0	0.00148

Carbon Regnera	tion, Flows	heet 5027-F-	-009
Stream Name		Kiln Feed	Carbon Quench Water Makeup
Stream No		1	2
Solids Solution Total Stream % Solids	t/h t/h t/h %w/w	0.134 0.015 0.15 <b>90</b>	0.00 0.536 0.536 0.0
Bulk Density Solution SG	t/m³	0.47 1.00	1.00
Volumetric Flow Slurry SG	m³/h	0.3 0.50	0.536 1.00

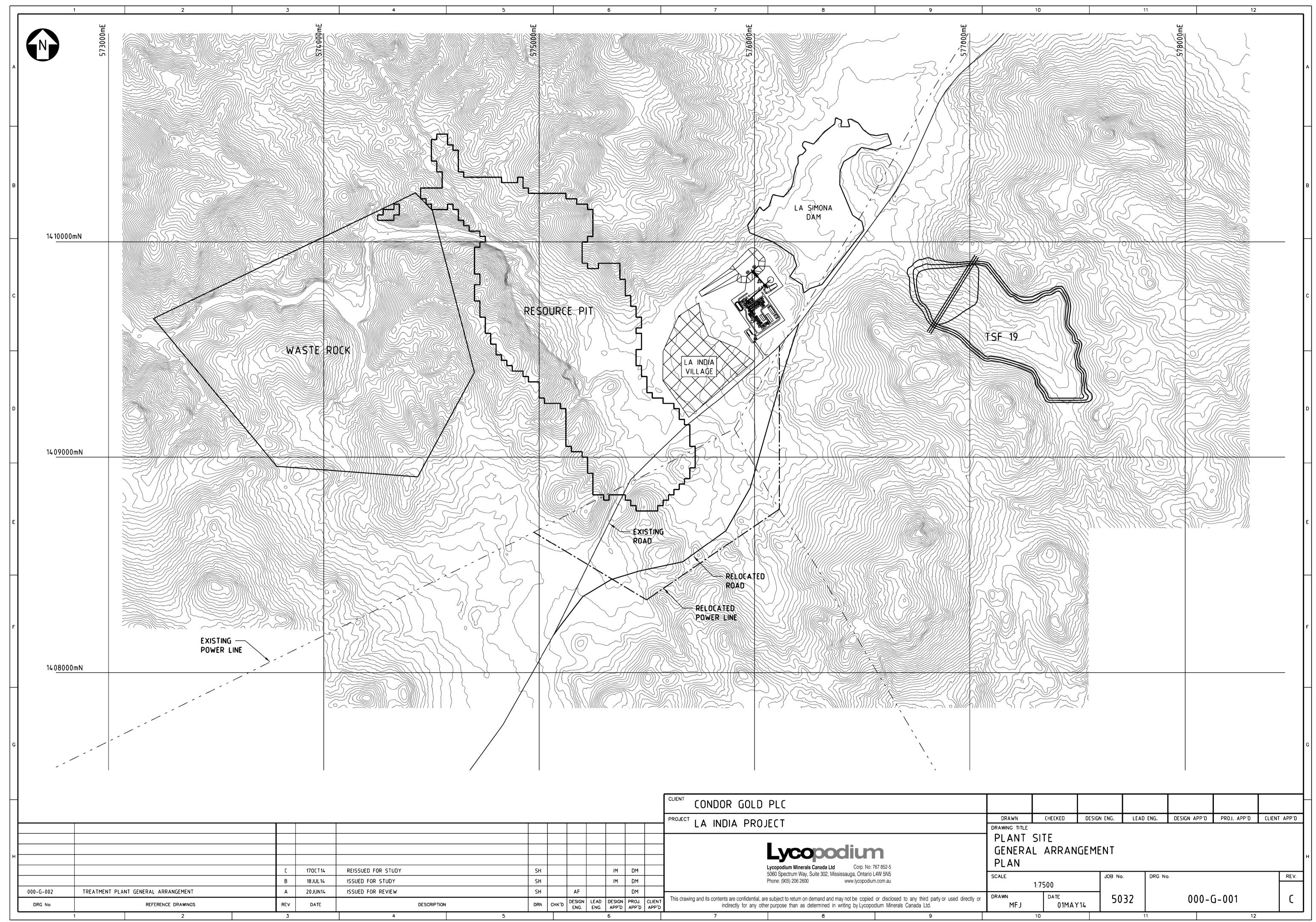
Reagents, Flowsheet 5027-F-010, 011, 012, 013

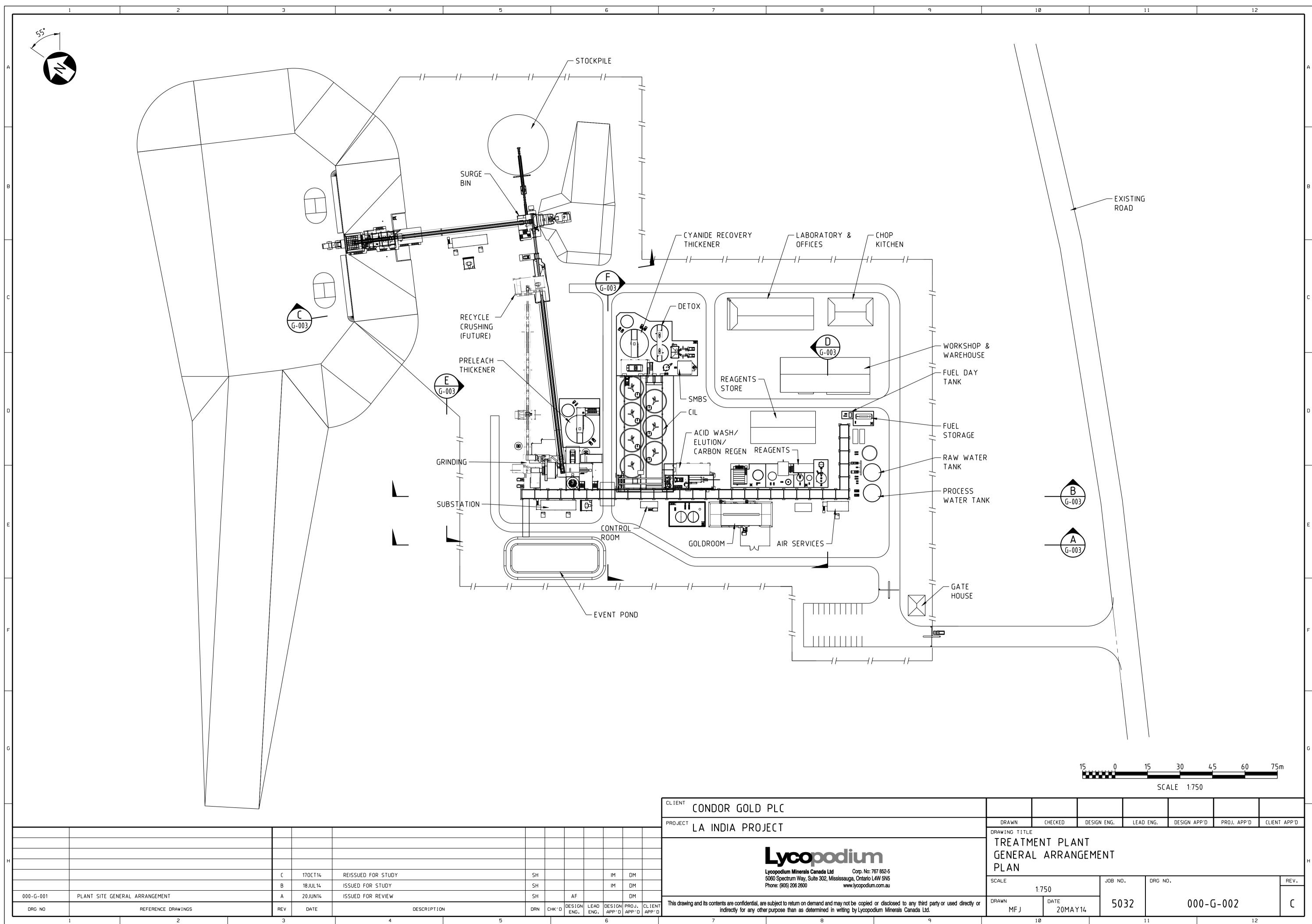
Stream Name		HCI Reagent @ 32% Requirement	Reagent	Caustic Reagent Requiremen t	Raw Water Allowance	Raw Water Requirement	Process Water Distribution
Stream No		1	2	3	4	5	6
Solids Solution Total Stream % Solids Solids SG	t/h t/h t/h %w/w	0.021 0.02 0.0	0.07 0.07 100 <b>1.60</b>	0.015 0.015 100.0 2.13	<b>5.0</b> 5	30 30	233 233 0.0
Solution SG Volumetric Flow Slurry SG	m³/h	1.16 0.02	0.05	0.01	1.00 5	1.00 30	1.00 233

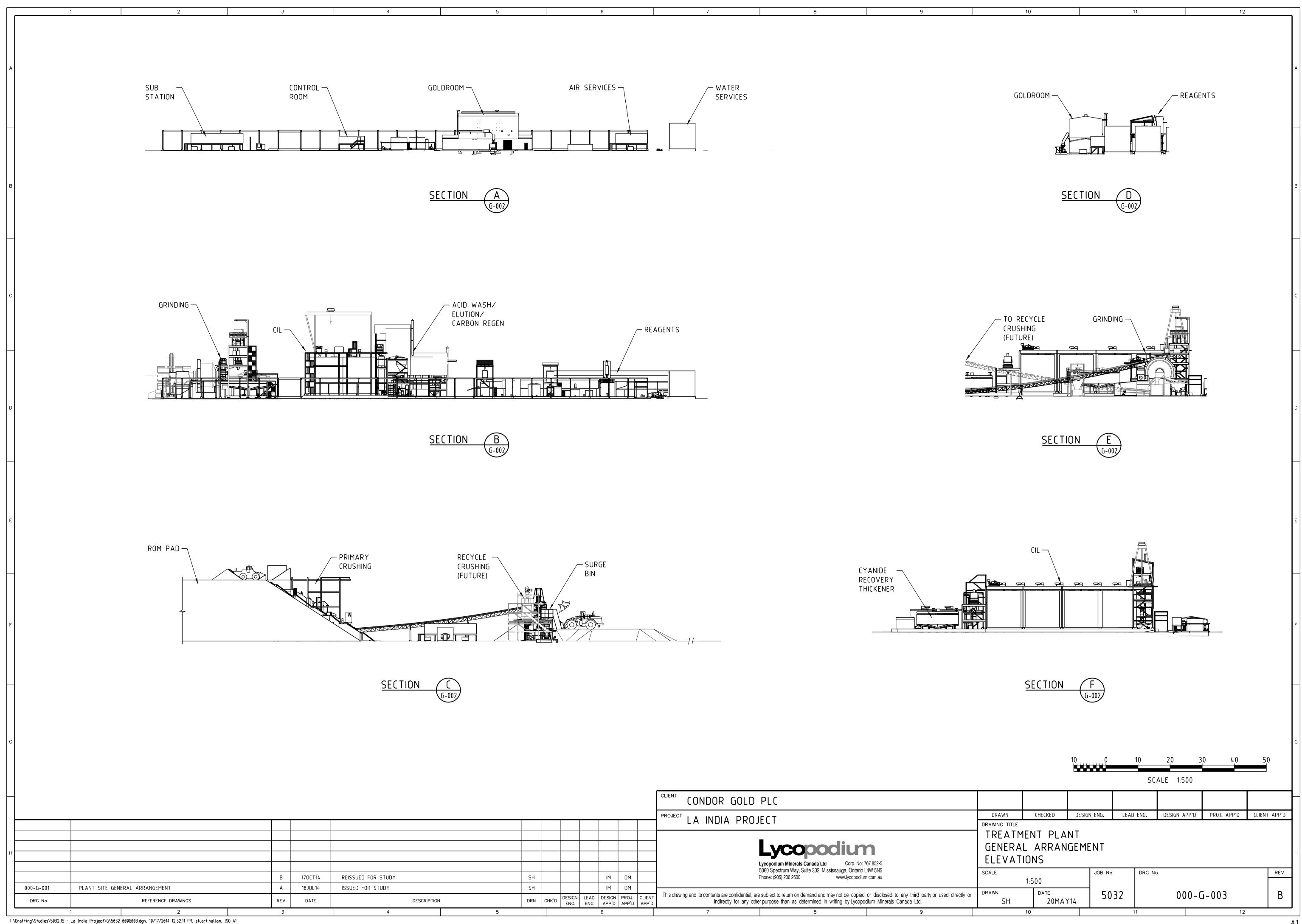
#### SIMPLIFIED OVERALL WATER BALANCE

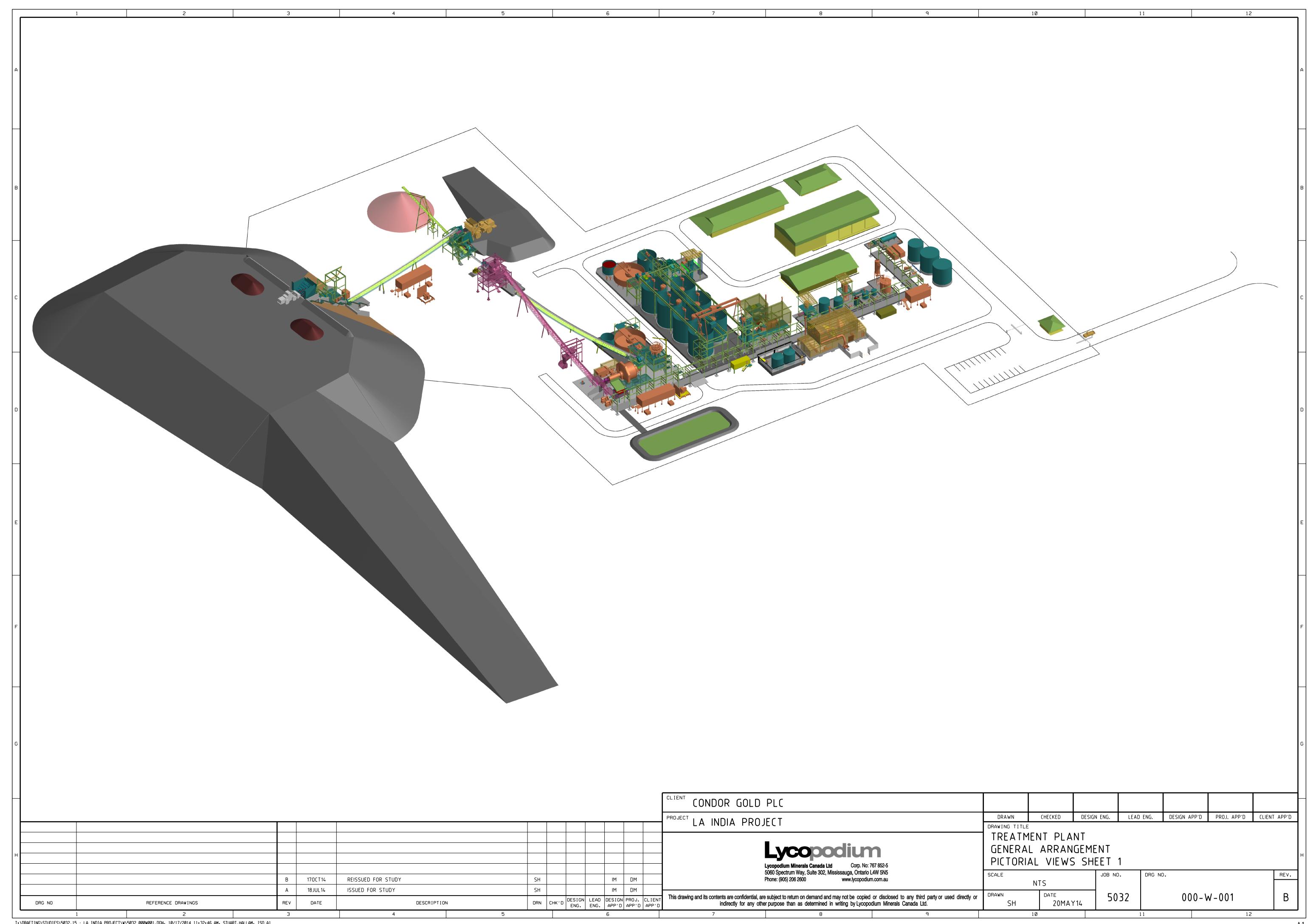


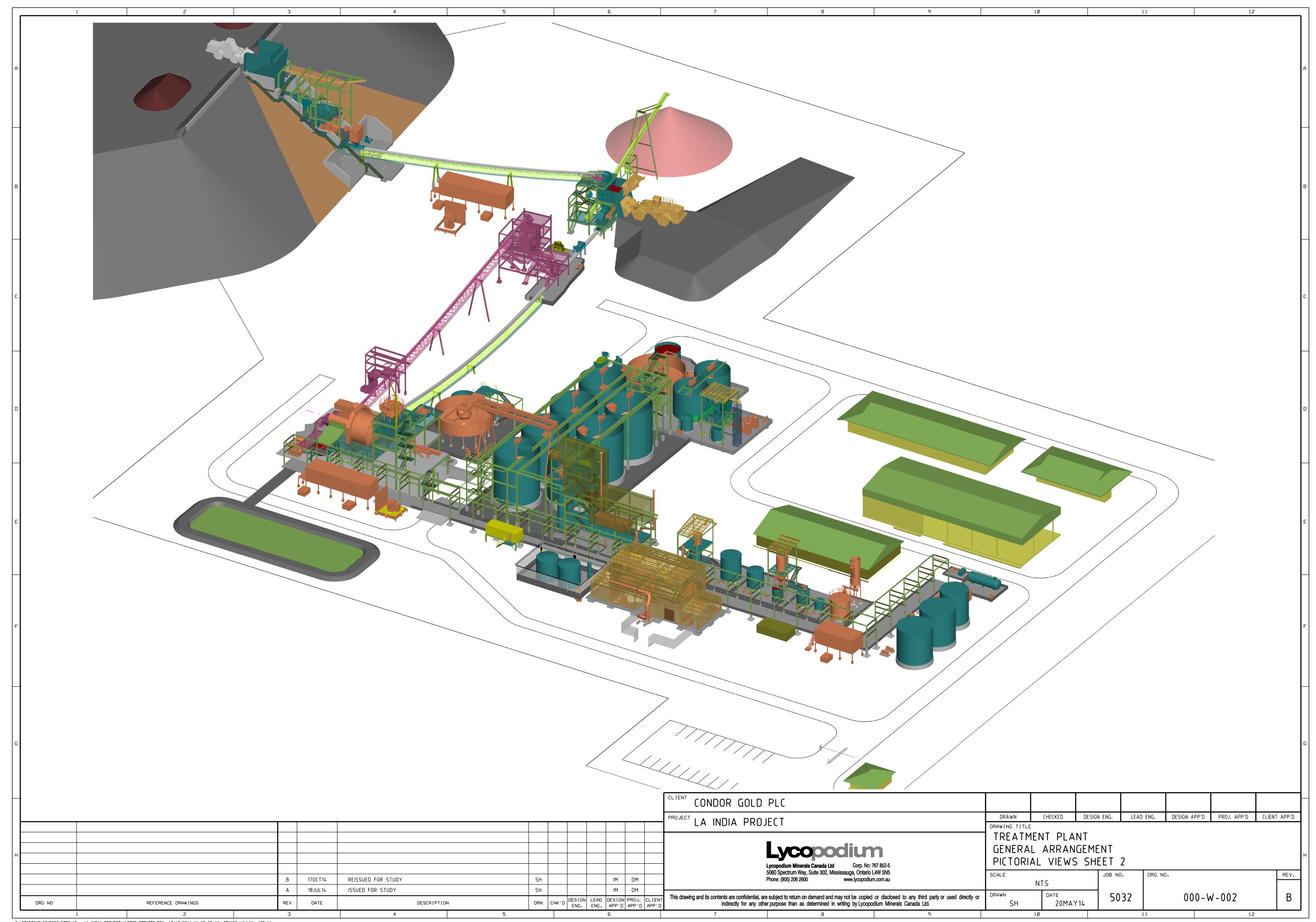
## **APPENDIX 3 PROCESS PLANT SITE DRAWINGS**











## **APPENDIX 4 MECHANICAL EQUIPMENT LIST**

	Fla Faulas	N	nind Endon	A Duty C/Dy		Connecto	Consider	Committee	Mail of Courts				Sec. (Date	BQR Package	DOD Darkers			Madel	Data il Dava	Fixed/ FII	UTURE KW KY
	Flow Equipn Sheet Identi	ment Num- ifier Iden	tifier Number	t Duty S/By Qty Qty	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments Spec / Data Sheet No		BQR Package Name	Recommended Supplier	Manufacturer	Model No.	N-		Inst. Ins
AREA NO. 120 - FEE	D PREPARATION	N												,							261
A New	-101 BN	۷ 0	1 121-BN-0	1	ROM BIN	E Platework	Bin	Bin	Mild Steel (16 mm bisalloy lined)			50m3 live, 80t (dry)									
A New	F-101 SC	0	1 121-SC-0	1	ROM BIN STATIC GRIZZLY BARS	E Platework	Frame	Frame				600 x 600mm slot									
C New	F-101 FE	E 0	1 121-FE-0	1	PRIMARY APRON FEEDER	F Mechanical	Feeder	Apron	Various	135 wtph, 1.6 t/m3 bulk density	161 wtph, 1.6 t/m3 bulk density	1524mm width x 9144mm length	1500mm i/s pan Metso AF5 (D4) Apron Feeder, 9m centres, Lift = 2.3m, c/w 19kW electromechanical drive	1020	APRON FEEDERS	METSO	METSO	AF5-D4	,	Variable	19.
A New	F-101 CH	н о	1 121-CH-0	1	ROM BIN APRON FEEDER DISCHARGE CHUTE & CHAIN CURTAIN	E Platework	Chute	Chute	Mild Steel (10 mm bisalloy lined)												
A New	F-101 CH	н о	2 121-CH-0	1	ROM BIN APRON FEEDER DRIBBLE CHUTE	E Platework	Chute	Chute	Mild Steel												
A New	F-101 CH	H 0	4 121-CH-0	1	PRIMARY JAW CRUSHER FEED CHUTE	E Platework	Chute														
D New	-101 CR	R 0	1 121-CR-0	1	PRIMARY JAW CRUSHER	F Mechanical	Crusher	Jaw (Single Toggle)	Various	135 wtph, 1.6 t/m3 bulk density	161 wtph, 1.6 t/m3 bulk density, P <sub>80</sub> 150mm	1000 x 760 feed opening	Metso C100 c/w manual CSS adjustment and lubrication MS-033	1230	JAW CRUSHER	TEREX	TEREX	JS3042		Fixed	112
D New	-101 HX	K 0	1 121-HX-0	1	PRIMARY JAW CRUSHER HYDRAULIC OIL HEATER	F Mechanical	Heater						incl in Jaw Crusher package MS-033	1230	JAW CRUSHER	TEREX	TEREX			Fixed	1.5
D New	F-101 PP	- 0	1 121-PP-0	1	PRIMARY JAW CRUSHER HYDRAULIC OIL PUMP	F Mechanical	Pump						incl in Jaw Crusher package MS-033	1230	JAW CRUSHER	TEREX	TEREX			Fixed	2.2
D New	F-101 PP	P 0	2 121-PP-0	1	PRIMARY JAW CRUSHER LUBE OIL PUMP	F Mechanical	Pump						incl in Jaw Crusher package MS-033	1230	JAW CRUSHER	TEREX	TEREX			Fixed	2.2
A New	F-101 CH	H 0	5 121-CH-0	i 1	PRIMARY JAW CRUSHER DISCHARGE CHUTE	E Platework	Chute		Mild Steel (10 mm bisalloy lined)												
													Transmin 100 30/20 Rockbreaker Boom c/w Sandvik BR1229 Hammer								
C New	F-101 RB	В 0	1 121-RB-0	1	ROCK BREAKER	F Mechanical	Rock Breaker		Manufacturer's Standard	UCS Range: TBA			and Hydraulic Power Pack 55kW Hydraulic Pump c/w 0.75kW Oil cooling fan & 3kW oil heater			TRANSMIN	TRANSMIN			Fixed	59.
C New	F-101 CV	v 0	1 121-CV-0	1	PRIMARY JAW CRUSHER DISCHARGE CONVEYOR	F Mechanical	Conveyor	Belt	Various	135 wtph, 1.6 t/m3 bulk density, 5% moisture	160 wtph, 1.6 t/m3 bulk density, 250mm max lump	1000mm belt width;	1000mm wide belt conveyor, Series 15 idlers, 0.5m/s design speed c/w							Fixed	112
C New	F-101 CN				CRUSHER SERVICE HOIST	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	size	70m long, 10.2m lift 5t	11kW drive	1090	CRANES & HOISTS	KONE	KONE			Fixed	10.5
-	-101 WE				PRIMARY JAW CRUSHER DISCHARGE CONVEYOR WEIGHTOMETER	F Mechanical	Weigher	Single Idler	Various			to suit 1000mm width, 268 wet tph	-	1500	WEIGHTOMETERS					Fixed	0.0
	-101 WE				PRIMARY CRUSHER DISCHARGE CONVEYOR DUST COLLECTOR &	F Mechanical	Dust Collector	Single Idler			15,000 Am <sup>3</sup> /h @ 1.6 kPa	and a second sec	MS-036	1540	SCRUBBERS	MARC	FKI	MS-500		Fixed	22.
	101 DC				FAN PRIMARY JAW CRUSHER DISCHARGE CONVEYOR HEAD CHUTE	+	Chute		Mild Steel (10 mm bisalloy lined)		1.0 KFd		MS-U36	1340	CONODDENS	MANO	TN			. mod	22.
	101 CH				SURGE BIN	E Platework	Bin	Rin	(.3 min bloadly lifet)			25m3 55 dos tono									
	-+-				<del> </del>	<del> </del>	Chuto	off				35m3, 55 dry tonne capacity									
	-101 CH				SURGE BIN OVERFLOW CHUTE		Chute						and the second s								
C New	-101 FE	0	2 121-FE-0	1	SURGE BIN APRON FEEDER	F Mechanical	Feeder	Apron	Various	135 wtph, 1.6 t/m3 bulk density	161 wtph, 1.6 t/m3 bulk density	914mm width x 7620m length	900mm i/s pan Metso AFS (D4) Apron Feeder, 7.5m centres, Lift = 0m, c/w 11kW electromechanical drive	1020	APRON FEEDERS	METSO	METSO	AF5-D4, 914 x 7620		Variable	7.5
C New	F-101 CH	H 0	B 121-CH-0	1	SURGE BIN APRON FEEDER DISCHARGE CHUTE	E Platework	Chute														
C New	101 CV	/ 0	2 121-CV-0	1	STOCKPILE FEED CONVEYOR	F Mechanical	Conveyor	Belt	Various	135 wtph, 1.6 t/m3 bulk density, 5% moisture	160 wtph, 1.6 t/m3 bulk density, 250mm max lump size	750mm belt width; 50m long, 12.5m lift	750mm wide belt conveyor, Series 15 idlers, 1.0m/s design speed c/w 15kW drive							Fixed	15.
A New	F-101 CH	н о	9 121-CH-0	1	STOCKPILE FEED CONVEYOR HEAD CHUTE	E Platework	Chute	Chute													
AREA NO. 130 - MIL	LING																				122.02 4,717
C New	-101 CV	/ 0	1 132-CV-0	1	SAG MILL FEED CONVEYOR	F Mechanical	Conveyor	Belt	Various		132 wtph, 1.6 t/m3 bulk density, 250mm max lump size	1000mm belt width; 70m long, 10.5m lift	1000mm wide belt conveyor, Series 15 idlers, 0.5m/s design speed c/w 11kW drive							Fixed	113
C New	-101 WE	E 0	2 132-WE-0	2 1	SAG MILL FEED CONVEYOR WEIGHTOMETER	F Mechanical	Weightometer	Single Idler	Various			To suit 1000mm width, 132 wtph		1500	WEIGHTOMETERS					Fixed	0.0
B New	F-102 CH	н о	2 132-CH-0	2 1	SAG MILL FEED CONVEYOR HEAD CHUTE	E Platework	Chute		Mild Steel (6 mm bisalloy lined)												
B New	F-102 CH	1 0	3 132-CH-0	3 1	SAG MILL FEED CHUTE	E Platework	Spout	Spout					incl with SAG Mill package MS-034	1420	SAG MILL	OUTOTEC	OUTOTEC				
																		2.Ot, 7 Axis Liner			
C New	F-102 ZM	и о	3 132-ZM-0	3 1	SAG MILL LINER HANDLER	F Mechanical	Liner Handler	-					7 axis McLellan 1500kg Reline Machine c/w 29.8kW hydraulic drive	1260	MILL RE-LINING EQUIPMENT	MCLELLAN	MCLELLAN	Handler cw/ Hydraulic Manipulator			
B New	-102 ZM	и о	4 132-ZM-0	1	SAG MILL LINER HANDLER HYDRAULIC POWER PACK	F Mechanical	Packaged	_					incl with SAG Mill Liner Handler package	1260	MILL RE-LINING EQUIPMENT	MCLELLAN				Fixed	30.
	-102 ZM				SAG MILL LINER BOLT REMOVAL TOOL		Equipment						Air Driven 41.5° Stroke Bolt Buster c/w Air Prep Assembly , 3200J Blow	1260	MILL RE-LINING EQUIPMENT					-	
	-102 CN				SAG MILL LINER BOLT REMOVAL TOOL SUPPORT MONORAILS 1		Crane/Hoist	Monorail	<u> </u>	-	_		Energy							-	
	-102 ML				SAG MILL	<del>                                     </del>	Mil	SAG	Manufacturer's Standard	104.9tph	127.8 dry (fresh) tph	Ø 6.71m x 5.9m EGL	Outotec 6.71m dia x 5.9m EGL, Grate Discharge SAG, 4,000kW installed MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Variable	4,000
	-102 IME				SAG MILL JACKING SYSTEM HYDRAULIC POWER PACK	E Machanical	Packaged	and	manuacurer s Standard	104.5ф11	127.0 dry (restr) qui	D U. / III X S. SIII EGE	power MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	2.2
	-102 ZM				SAG MILL MOTOR BEARING LUBRICATION SYSTEM	F Mechanical	Equipment						2.0 + (2x5.5) + (2x3) MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	19.
					<del> </del>		NII SC														
	-102 ZM				SAG MILL TRUNNION BEARING LUBRICATION SYSTEM		Misc						(3x2) + (2x15) + (2x3) MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	45.0
-	-102 ZM				SAG MILL MOTORS HEATING/ COOLING ANCILLIARIES	-	Fan	-	-				(4x15) + (2x4) + (4x11) + (2x1.2) MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	85.
<del></del>	-102 ZM				SAG MILL REDUCER/ PINION BEARING LUBRICATION SYSTEM	-	Misc Packaged	-					(2x2) + (2x2.2) + (3x11) MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	45.
	-102 ZM				SAG MILL INCHING DRIVE HYDRAULIC POWER PACK		Equipment	-					200 + 5.5 + 0.1 MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC			Fixed	205.
<del></del>	-102 ZM				SAG MILL GEAR GUARDS	E Platework	Misc.	-					MS-034A	1420	SAG MILL	OUTOTEC	OUTOTEC				
	-102 ST				SAG MILL TROMMEL COVER	-	Cover	-													
	F-102 CH				SAG MILL TROMMEL DISCHARGE CHUTE		Chute	Chute												-	
	-102 CH	1 0			PEBBLE DISCHARGE BYPASS CHUTE	E Platework	Chute	Chute													
	-102 ZM				PEBBLE DISCHARGE SCATS BUNKER	C Concrete	Bunker														
B New	-102 HP	P 0	1 132-HP-0	1	MILL DISCHARGE PUMP BOX	E Platework	Hopper	Hopper	<del>                                     </del>	525 m3/h @ 1.58 SG		13m3 - 90 sec retention									
C New	F-102 PP	0	3 132-PP-0	1	CYCLONE FEED PUMP 1	F Mechanical	Pump	Centrifugal Slurry	Various	437 m3/h @ 29mTDH water	524 m3/h @ 31.5mTDH water	8/6AH	436m³/hr @ 29m TDH water Warman 8/6 AH c/w 132kW motor	1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	8/6 AH	,	Variable	132
C New	F-102 PP	0	4 132-PP-0	1	CYCLONE FEED PUMP 2	F Mechanical	Pump	Centrifugal Slurry	Various	437 m3/h @ 29mTDH water	524 m3/h @ 31.5mTDH water		436m³/hr @ 29m TDH water Warman 8/6 AH c/w 132kW motor	1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	8/6 AH		Variable	132
C New	-102 CY	r o	1 132-CY-0	1   1	CLASSIFYING CYCLONES	F Mechanical	Classifier	Cyclone Wet		437 m3/h @ 29mTDH water	524 m3/h @ 31.5mTDH water	gMax 10-20 10total, 8 Duty, 2 Spare	c/w manually actuated knifegate valves MS-010	1100	CYCLONES	FLSMIDTH (KREBS)	FLSMIDTH (KREBS)	gMax10-20			
C New	-102 LA	۸ 0	1 132-LA-0	1	CYCLONE UNDERFLOW LAUNDER	E Platework	Launder	Launder	Mild Steel (12 mm rubber lined)				400NB Pipe launder 12mm rubber lined								
C New	-102 LA	۸ 0	2 132-LA-0	1 1	CYCLONE OVERFLOW LAUNDER	E Platework	Launder	Launder	Mild Steel (6 mm rubber lined)				250NB Pipe launder 6mm rubber lined								
C New	-102 PP	· 0	5 132-PP-0	i 1	SAG MILL AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various		50 m3/hr @ 10m TDH	65 SPR	Spindle Length 1800mm	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed	11.0
C Fut.	E-101 CV			2 1	PEBBLE TRANSFER CONVEYOR	F Mechanical	Conveyor	Belt	Various		33 dtph/ 35 wtph, 1.6 t/m3 bulk density, 5% moisture, 70 mm max lump size	600mm belt width; 83m long, 12.0m lift								Fixed	5.60
D Fut.	-101 MA		2 132-MA-0	2 1	PEBBLE TRANSFER CONVEYOR TRAMP MAGNET	F Mechanical	Magnet	Fixed	Various	-		Manually cleaned, to suit 600mm width, 35 wet tph, 70 mm lump	cross-belt magnet MS-028	1240	MAGNETS	WPE	ERIEZ	SE750 MC1		Fixed	11.00
	-101 CH				PEBBLE TRANSFER CONVEYOR TRAMP MAGNET DISCHARGE		Chute	Chute	Mild Steel	-		wuth, 35 wet tph, 70 mm lump	-							-	
	-101 ZM				PEBBLE TRANSFER CONVEYOR TRAMP METAL BUNKER	C Concrete	Bunker	-	Concrete	<u> </u>											
	F-101 MD				PEBBLE TRANSFER CONVEYOR METAL DETECTOR	+	Metal Detector	_	Various			To suit 600mm width, 35 wet tph		1250	METAL DETECTORS					Fixed	0.01
						F Mechanical		Chuto				our occinii wani, 35 wet tph		1230	WEIAL DETECTORS					. ixed	3.01
B Fut.	F-101 CH	1 0	7 132-CH-0	1 1	PEBBLE TRANSFER CONVEYOR DISCHARGE CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)	l <sup>-</sup>			1.	1	1	1					

Rev Status Flow Sheet	Equipment Identifier	Numerical Identifier	Equipment Du Number Qt	ty S/By	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments	Spec / Data Sheet No	BQR Package	BQR Package Name	Recommended Supplier	Manufacturer	Model No.	Detail Dwg V	rariable	TURE kW Inst.
B Fut. F-101	СН	08	132-CH-08 1	y Giy	PEBBLE CRUSHER SURGE BIN FEED CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)	1				Silectio	NO.	Name			NO.	140.	Speed	IIIot.
					<del> </del>	-	Chute	Chute	+				-	-								
B Fut. F-101	BN	01	132-BN-01 1		PEBBLE CRUSHER SURGE BIN	E Platework	Bin	Bin	Mild Steel (12 mm bisalloy lined)	]- [		10m3 live, 16 dry tonne capacity	-	-		1						
B Fut. F-101	СН	09	132-CH-09 1		PEBBLE CRUSHERS SURGE BIN OVERFLOW CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)	-			-									
B Fut. F-101	CH	10	132-CH-10 1		PEBBLE CRUSHER BYPASS CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)	-			-	-								
B Fut. F-101	FE	01	132-FE-01 1		PEBBLE CRUSHER FEEDER	F Mechanical	Feeder	Vibrating	Various		33dtph/ 35 wtph, 1.6 t/m3 bulk density, 5% moisture, 60mm max lump size		Vibrating Feeder c/w 2 x 1.5kW vibrating motors							· · · · · · · · · · · · · · · · · · ·	/ariable	3.00
B Fut. F-101	СН	11	132-CH-11 1		PEBBLE CRUSHER FEED CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)	-			-									
D Fut. F-101	CR	01	132-CR-01 1		PEBBLE CRUSHER	F Mechanical	Crusher	Cone	Various		25 (wet) thr capacity, 1.6 t/m3 bulk density, F80 = 40mm, P80 = 10mm	CH420 MF HC	-	MDS-058	1080	CONE CRUSHER	SANDVIK	SANDVIK	CH420 MF HC		Fixed 9	90.00
C Fut. F-101	ZM	15	132-ZM-15 1		PEBBLE CRUSHER HYDRAULIC POWER PACK	F Mechanical	Packaged Equipment	-	Various	-			incl in Pebble Crusher package, c/w 1.6kW heater, 2.2kW cooling fan	MDS-059	1080	CONE CRUSHER	SANDVIK	SANDVIK			Fixed	3.80
C Fut. F-101	ZM	16	132-ZM-16 1		PEBBLE CRUSHER LUBRICATION PACKAGE	F Mechanical	Packaged Equipment	-	-	-			incl in Pebble Crusher package	MDS-060	1080	CONE CRUSHER	SANDVIK	SANDVIK			Fixed	1.10
B Fut. F-101	СН	12	132-CH-12 1		PEBBLE CRUSHER DISCHARGE CHUTE	E Platework	Chute	Chute	Mild Steel (16 mm bisalloy lined)	-			-									
C Fut. F-101	cv	03	132-CV-03 1		PEBBLE CRUSHER DISCHARGE CONVEYOR	F Mechanical	Conveyor	Belt	Various		90 dtph/ 10 wtph, 1.6 t/m3 bulk density, 5% moisture, 60mm max lump size	600mm belt width; 40m long, 4.0m	n								Fixed	7.50
D Fut. F-101	WE	03	132-WE-03 1		PEBBLE CRUSHER DISCHARGE CONVEYOR WEIGHTOMETER	F Mechanical	Weigher	Single Idler	Various	-	modulo, comminax ramp acc	To suit 600mm width, 35 wet tph			1500	WEIGHTOMETERS					Fixed	0.01
B Fut. F-101	СН	13	132-CH-13 1	-	PEBBLE CRUSHER DISCHARGE CONVEYOR DISCHARGE CHUTE	E Platework	Chute	Chute	Mild Steel (12 mm bisalloy lined)													
							+							-								
					I																	
AREA NO. 140 - SCREENING																						
A New F-102	СН	01	141-CH-01 1		TRASH SCREEN FEED BOX	E Platework	Chute	Chute	Mild Steel (6 mm rubber lined)	-	255m3/h, 38% w/w, 1.30 t/m3	0.6m³	0.6m³ 6 sec residence time c/w weir									
D New F-102	sc	01	141-SC-01 1		TRASH SCREEN	F Mechanical	Screen	Vibratory (Wet)	Various	212m3/h, 38% w/w, 1.30 t/m3	255m3/h, 38% w/w, 1.30 t/m3	1.2 x 3.6m	min 4.25m², 1.2 x 3.6m vibrating screen c/w 2x3kW motors	MS-002	1480	VIBRATING SCREENS & GRIZZLY	JOEST	JOEST			Fixed	
A New F-102	ST	01	141-ST-01 1		TRASH SCREEN ISOLATION FRAME	E Platework	Frame	Isolation	Mild Steel	-			Fitted with vibration isolation springs refer to MDS-061									
A New F-102	СН	02	141-CH-02 1		TRASH SCREEN O/S CHUTE	E Platework	Chute	Chute	Mild Steel (6 mm rubber lined)	-			-									
A New F-102	СН	03	141-CH-03 1		TRASH SCREEN U/S CHUTE	E Platework	Chute	Chute	Mild Steel (6 mm rubber lined)	-			-									
A New F-102	LA	01	141-LA-01 1		TRASH SCREEN U/F LAUNDER	E Platework	Launder	Launder	Mild Steel (6 mm rubber lined)	-			3 parts A,B,C									
C New F-102	ZM	01	142-ZM-01 1	1	PRE-LEACH THICKENER FLOCCULANT STATIC MIXER	F Mechanical	Static Mixer	Static Mixer	Various	-			-									
A New F-102	BX	01	142-BX-01 1	+	PRE-LEACH THICKENER FEED BOX	E Platework	Box		Mild Steel (6 mm rubber lined)	-	255m3/h, 38% w/w, 1.30 t/m3	0.6m³	0.6m³ 6 sec residence time c/w weir	+								
					PRE-LEACH THICKENER		Classifier	Thickener		feed: 105dtph, 212m3/h, 38% sol, 48% solids		<del> </del>		MCOIO	1400	THICKENEDO	TENOVA DELICOR	TENOVA DEL KOD	10.0			
	TM	01	142-TM-01 1			F Mechanical	Packaged	Inickener	Various	underflow	-	12.2 m diameter		MS-013	1460	THICKENERS	TENOVA DELKOR	TENOVA DELKOR	12.2m dia.			
C New F-102	ZM	02	142-ZM-02 1		PRE-LEACH THICKENER HYDRAULIC POWER PACK	F Mechanical	Equipment	-	Various	-			incl with Thickeners package	MS-013	1460	THICKENERS	TENOVA DELKOR	TENOVA DELKOR			Fixed	
A New F-102	LA	01	142-LA-01 1		PRE-LEACH THICKENER O/F LAUNDER	E Platework	Launder	Launder	Mild Steel	-			-									
C New F-102	PP	06	142-PP-06 1		PRE-LEACH THICKENER U/F PUMP No.1	F Mechanical	Pump	Centrifugal Slurry	Various	155 m3/hr @ 12.8 m TDH Water	186 m3/hr @ 13.8 m TDH Water	6/4 AH	155m½hr @ 12.8m TDH water Warman 6/4 AH c/w 18.5kW motor		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	6/4 AH	v	/ariable	
C New F-102	PP	07	142-PP-07	1	PRE-LEACH THICKENER U/F PUMP No.2	F Mechanical	Pump	Centrifugal Slurry	Various	155 m3/hr @ 12.8 m TDH Water	186 m3/hr @ 13.8 m TDH Water	6/4 AH	155m <sup>3</sup> /hr @ 12.8m TDH water Warman 6/4 AH c/w 18.5kW motor		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	6/4 AH	V	/ariable	
C New -	тк	01	142-TK-01 1		PRE-LEACH THICKENER O/F TANK	Tankage	Tank	Vertical Open	Mild Steel	Residence 25min (of thickener o/f)	76 m³ / tank live volume	Diameter 4.8m x 5.4 m O/A	Open roof									
C New -	PP	08	142-PP-08 1		PRE-LEACH THICKENER O/F WATER PUMP	F Mechanical	Pump	Centrifugal Solution	Various	184 m3/h @ 1.0 S.G., 100g/m3 sols, 27 m TDH	225 m3/h @ 1.01 S.G., 30 m TDH	6X4	-		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman			Fixed	
				-			-							-								
AREA NO. 145 - DETOXIFIC	ATION / TAIL IN	igs.										1	L									
	BX		145-BX-04 1		CYANIDE RECOVERY THICKENER FEED BOX	E Distance de	David Control		Mild Coul (Course the San A	1	077-05-000	0.0-1	0.000					1				
		04			<del></del>	E Platework	Box	-	Mild Steel (6 mm rubber lined)	feed: 105dtph, 212m3/h, 38% sol, 48% solids	255m3/h, 38% w/w, 1.30 t/m3	0.6m³	0.6m³ 6 sec residence time c/w weir	-			<u>                                     </u>					
C New F-105	TM	03	145-TM-03 1		CYANIDE RECOVERY THICKENER	F Mechanical	Classifier	Thickener	Various	underflow		12.2 m diameter		MS-013	1460	THICKENERS	TENOVA DELKOR	TENOVA DELKOR	12.2m dia.			
C New F-105	ZM	02	145-ZM-02 1		CYANIDE RECOVERY THICKENER HYDRAULIC POWER PACK	F Mechanical	Packaged Equipment	-	Various	-			incl with Thickeners package	MS-013	1460	THICKENERS	TENOVA DELKOR	TENOVA DELKOR			Fixed	
C New F-105	PP	01	145-PP-01 1		CYANIDE RECOVERY THICKENER U/F PUMP No.1	F Mechanical	Pump	Centrifugal Slurry	Various	155 m3/hr @ 12.8 m TDH Water	186 m3/hr @ 13.8 m TDH Water	6/4 AH	155m³/hr @ 12.8m TDH water Warman 6/4 AH c/w 18.5kW motor		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	6/4 AH	٠ ٧	/ariable	
C New F-105	PP	00	145-PP-00	1	CYANIDE RECOVERY THICKENER U/F PUMP No.2	F Mechanical	Pump	Centrifugal Slurry	Various	155 m3/hr @ 12.8 m TDH Water	186 m3/hr @ 13.8 m TDH Water	6/4 AH	155m³/hr @ 12.8m TDH water Warman 6/4 AH c/w 18.5kW motor		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	6/4 AH	\	/ariable	
B New F-105	тк	01	145-TK-01 1		CYANIDE RECOVERY THICKENER O/F TANK	Tankage	Tank	Vertical Open	Mild Steel	Residence 25min (of thickener o/f)	76 m³ / tank live volume	Diameter 4.8m x 5.4 m O/A	Open roof									
C New F-105	PP	08	145-PP-08 1		CYANIDE RECOVERY THICKENER O/F WATER PUMP	F Mechanical	Pump	Centrifugal Solution	Various	184 m3/h @ 1.0 S.G., 100g/m3 sols, 27 m TDH	225 m3/h @ 1.01 S.G., 30 m TDH	6X4	-		1320	PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	MilMAX 6x4-16		Fixed	
B New F-105	тк	01	145-TK-01 1		DETOX TANK No. 1	Tankage	Tank		Mild Steel (6 mm rubber lined)	-	178 m³ / tank live volume	Diameter 6.1 m x 7.2 m O/A	Without roof, c/w internal O/F box									
C New F-105	тк	01	145-TK-01 1	-	DETOX TANK No. 2	Tankage	Tank		Mild Steel (6 mm rubber lined)		178 m³ / tank live volume	Diameter 6.1 m x 7.2 m O/A	Without roof, c/w internal O/F box									
		07		-	DETOX AGITATOR No. 1			Anitotor - Churpy Avial flor				1	Dual stage, RL impellers c/w gearbox drive	MS 004	1200	AGITATORS	MIXTEC	MIXTEC			Fixed	
D New F-105	AG		145-AG-07 1	-	<del> </del>	F Mechanical	Mixer		w Mild Steel (6mm rubber lined)				<u> </u>	MS-004	1280						Fixed	
D New F-105	AG	08	145-AG-08 1		DETOX AGITATOR No. 2	F Mechanical	Mixer	Agitator - Slurry, Axial flor	w Mild Steel (6mm rubber lined)			length	Dual stage, RL impellers c/w gearbox drive	MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	
B New F-105	BX	05	145-BX-05 1		DETOX FEED BOX	E Platework	Box		Mild Steel (6mm rubber lined)					-								
C New F-105	PP	17	145-PP-17 1		DETOX AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-	50 m3/hr @ 16m TDH	65 SPR	Vertical cantilever, 1800 mm spindle	ļ	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed	
B New F-106	HP	21	146-HP-21	1	TAILINGS HOPPER	E Platework	Hopper															
C New F-106	PP	22	146-PP-22 1		TAILINGS PUMP 1	F Mechanical	Pump	Centrifugal Slurry	Various		230m3/h, 60% solids w/w, 1.66 SG, 45.2m TDH	6X4	Single stage pumping		1320	PUMPS - CENTRIFUGAL SLURRY	WARMAN	WARMAN	6/4 AH	V	/ariable	
C New F-106	PP	23	146-PP-23	1	TAILINGS PUMP 2	F Mechanical	Pump	Centrifugal Slurry	Various		230m3/h, 60% solids w/w, 1.66 SG, 45.2m TDH	6X4	Single stage pumping		1320	PUMPS - CENTRIFUGAL SLURRY	WARMAN	WARMAN	6/4 AH	V	/ariable	
D Fut. F-106	PP	22	146-PP-22 1	1	TAILINGS PUMP 1	F Mechanical	Pump	Centrifugal Slurry	Various		230m3/h, 60% solids w/w, 1.66 SG, 45.2m TDH	6X4	Single stage pumping		1320	PUMPS - CENTRIFUGAL SLURRY	WARMAN	WARMAN	6/4 AH		/ariable	75.00
D Fut. F-106		23	146-PP-23	1	TAILINGS PUMP 2	F Mechanical	Pump	Centrifugal Slurry	Various		230m3/h, 60% solids w/w, 1.66 SG, 45.2m TDH	6X4	Single stage pumping		1320	PUMPS - CENTRIFUGAL SLURRY	WARMAN	WARMAN	6/4 AH			75.00
			146-PP-24 1	+	TAILINGS AREA SUMP PUMP	-	-				50m9/hr @ 12m TDH Water	65 SPR	50m³/hr @ 12m TDH water Warman 65SPR c/w 7.5kW motor	-				WARMAN	65SPR			-
C New F-106	PP	24	140-77-24 1		INLINGS AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-	SOUTH W 1211 I DH Water	to SPR	SOUTH WILLIAM WAITER WARMAN 655PH 6/W 7.5KW motor	-	1370	PUMPS - VERTICAL CANTILEVER	WAHMAN	WAHMAN	HASSO		Fixed	
					<u> </u>			ļ		ļ												
AREA NO.160 - LEACHING					<u> </u>																	
C New F-103	CN	01	161-CN-01 1		CIL AREA CRANE	F Mechanical	Crane/Hoist	Bridge Crane w/ Auxiliary Hoists	Mild Steel	-	-	10t			1090	CRANES & HOISTS	KONE	KONE			Fixed	
B New F-103	BX	01	161-BX-01 1		CIL FEED BOX	E Platework	Вох	-	Mild Steel (6 mm nat. rubber lined)	-	186m <sup>9</sup> /hr	0.5m³	0.5m³ approx 8 secs residence time									
D Fut. F-103	SA	01	161-SA-01 1		LEACH FEED SAMPLER	F Mechanical	Sampler	Cross Cut (2 in 1)	Mild Steel	-		Diameter 10.00 m x 11.0 m O/A	Without roof, c/w internal O/F box	T								
C New F-103	TK	01	161-TK-01 1	1	LEACH TANK	E Platework	Tank	Vertical Open	Mild Steel	-	790 m³ / tank live volume	Diameter 10.00 m x 11.0 m O/A	Without roof, c/w internal O/F box						10m dia. x 10m H			
C New F-103		01	161-TK-01 1	+-	CIL TANK 1	E Platework	Tank	Vertical Open	Mild Steel		790 m³ / tank live volume		Without roof, c/w internal O/F box	+					10m dia. x 10m H			
1 New   F-103		02				+		-	-			-	ļ	-								
C N=			161-TK-02 1	1	CIL TANK 2	E Platework	Tank	Vertical Open	Mild Steel	[	790 m³ / tank live volume	Diameter 10.00 m x 11.0 m O/A	Without roof, c/w internal O/F box						10m dia. x 10m H			
C New F-103		-			OU THUKA				1010		700 011 15		ner						40 5			
C New F-103 C New F-103 C New F-104	тк	03	161-TK-03 1		CIL TANK 3  CIL TANK 4	E Platework	Tank	Vertical Open	Mild Steel Mild Steel	-	790 m³ / tank live volume 790 m³ / tank live volume	<del> </del>	Without roof, c/w internal O/F box  Without roof, c/w internal O/F box						10m dia. x 10m H			

	Flow Equ Sheet Ide	uipment N lentifier Id	lumerical dentifier	Equipment Dut Number Qty	y S/By Qty	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments Spec / Data Sheet No	BQR Package No.	BQR Package Name	Recommended Supplier	Manufacturer	Model No.	Detail Dwg No.	Fixed/ Variable Speed FUTUR	RE kW kW
New	F-104	тк	05	161-TK-05 1		CIL TANK 5	_	Tank	Vertical Open	Mild Steel	Į.	790 m <sup>8</sup> / tank live volume	Diameter 10.00 m x 11.0 m O/A	Without roof, c/w internal O/F box	1				10m dia. x 10m H		Speed	
		тк	06	161-TK-06 1	1	CIL TANK 6	+	Tank	Vertical Open	Mild Steel	-	790 m³ / tank live volume		Without roof, c/w internal O/F box					10m dia. x 10m H			
New	F-103	LA	01	161-LA-01 1	+-+	INTERTANK LAUNDER 1	E Platework	Launder	Launder	Mild Steel			<del> </del>	Incldude 2 x launder gates								
		LA	02	161-LA-02 1		INTERTANK LAUNDER 2	E Platework	Launder	Launder	Mild Steel		-		Incldude 2 x launder gates								
New			03	161-LA-03 1		INTERTANK LAUNDER 3	E Platework	Launder	Launder	Mild Steel		-		Incldude 2 x launder gates	-							<del></del>
			04	161-LA-04 1		INTERTANK LAUNDER 4		Launder	Launder	Mild Steel				Incldude 2 x launder gates	-							
New			05	161-LA-05 1		INTERTANK LAUNDER 5	E Platework	Launder	Launder	Mild Steel			-	Inclidude 2 x launder gates	-							_
										<u> </u>	-	<u> </u>			-							
New	+		05	161-LA-05 1		INTERTANK LAUNDER 6	E Platework	Launder	Launder	Mild Steel	-	-	<u> </u>	Incldude 2 x launder gates	-							4
		LA	06	161-LA-06 1		CIL DISCHARGE LAUNDER	E Platework	Launder	Launder	Mild Steel	-		Included in tank	-	-							
New	F-103	sc	01	161-SC-01 1		INTERTANK SCREEN 1	F Mechanical	Screen	Intertank	Various	-	186m <sup>o</sup> /hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-103	SC	02	161-SC-02 1		INTERTANK SCREEN 2	F Mechanical	Screen	Intertank	Various	-	186m³/hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-103	sc	03	161-SC-03 1		INTERTANK SCREEN 3	F Mechanical	Screen	Intertank	Various	-	186m³/hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-104	SC	04	161-SC-04 1		INTERTANK SCREEN 4	F Mechanical	Screen	Intertank	Various	-	186m9hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-104	sc	05	161-SC-05 1		INTERTANK SCREEN 5	F Mechanical	Screen	Intertank	Various	-	186m³/hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-104	SC	06	161-SC-06 1		INTERTANK SCREEN 6	F Mechanical	Screen	Intertank	Various	-	186m <sup>a</sup> /hr	1.6 m dia x 6.080 m O/A length,	MPS 350 3.5m² Vertical Mechanically swept Screen	1220	INTERTANK SCREENS					Fixed	5.60
New	F-103	AL	11	161-AL-11 1		AIR LIFT No 1	E Platework							Ø 150 MS pipe construction.								
New	F-103	AL	12	161-AL-12 1		AIR LIFT No 2	E Platework							Ø 150 MS pipe construction.								
New	F-104	AL	13	161-AL-13 1		AIR LIFT No 3	E Platework							Ø 150 MS pipe construction.								
New	F-104	AL	14	161-AL-14 1	1	AIR LIFT No 4	E Platework							Ø 150 MS pipe construction.	1				1			
New	F-104	AL	15	161-AL-15 1	-	AIR LIFT No 5	E Platework							Ø 150 MS pipe construction.								
New		PP	16	161-PP-16 1		LOADED CARBON RECOVERY PUMP	-	Pump	Vertical Recessed Impelle	r Various		67 m3/hr @ 3.5m TDH	<u> </u>	Based on 6hr/day advance	1370	PUMPS - VERTICAL CANTILEVER	Warman	Warman	4/4 TC		Fixed	11.00
												5 11011 4 0.311 1511	17.0	Cook on onney counc	1070	Toma o vermose osimiceven		1	44.0		1 300	- 11.55
	+	CH	01	161-CH-01 1		CARBON RECOVERY SCREEN FEED CHUTE	+	Chute	Chute	Mild Steel (6 mm rubber lined)	-	67m3/h total flow rate, 0.7 x 18.5 mm aperture,	0.915 x 1.83mm, Aperture size	-	-							<del></del>
New		SC	07	161-SC-07 1		CARBON RECOVERY SCREEN	F Mechanical	Screen	Vibratory (Wet)	Various		polyurethane deck material	0.8 mm x 18.5 mm c/w 2 x 1.6	0.915 x 1.83mm, Aperture size 0.8 mm x 18.5 mm c/w 2 x 1.6 MS-002	1480	VIBRATING SCREENS & GRIZZLY	JOEST	JOEST			Fixed	3.20
New	F-103	ST	01	161-ST-01 1		CARBON RECOVERY SCREEN ISOLATION FRAME	E Platework	Frame	Isolation	Mild Steel	-	-	-	incl with screen								
New	F-103	CH	02	161-CH-02 1		LOADED CARBON RECOVERY SCREEN O/S CHUTE	E Platework	Chute	Chute	Mild Steel (6 mm rubber lined)	-	-	-	-								
New	F-103	СН	03	161-CH-03 1		LOADED CARBON RECOVERY SCREEN UNDERSIZE CHUTE	E Platework	Chute	Chute	Mild Steel (6 mm rubber lined)	-	-	-	-								
New	F-103	AG	01	161-AG-01 1		CIL TANK 1 AGITATOR	F Mechanical	Mixer	Agitator - Slurry, Axial flow	Mild Steel (6mm rubber lined)			Impeller dia. 3.9m x 9.5m shaft length	Dual stage, RL impellers c/w gearbox drive MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New	F-103	AG	02	161-AG-02 1		CIL TANK 2 AGITATOR	F Mechanical	Mixer	Agitator - Slurry, Axial flow	Mild Steel (6mm rubber lined)			Impeller dia. 3.9m x 9.5m shaft length	Dual stage, RL impellers c/w gearbox drive MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New	F-103	AG	03	161-AG-03 1		CIL TANK 3 AGITATOR	F Mechanical	Mixer	Agitator - Slurry, Axial flow	Mild Steel (6mm rubber lined)			Impeller dia. 3.9m x 9.5m shaft length	Dual stage, RL impellers c/w gearbox drive MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New	F-104	AG	04	161-AG-04 1		CIL TANK 4 AGITATOR	F Mechanical	Mixer	Agitator - Slurry, Axial flow	Mild Steel (6mm rubber lined)				Dual stage, RL impellers c/w gearbox drive MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New	F-104	AG	05	161-AG-05 1	+-+	CIL TANK 5 AGITATOR	F Mechanical	Mixer	Agitator - Slurry, Axial flow	Mild Steel (6mm rubber lined)				Dual stage, RL impellers c/w gearbox drive MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New			06	161-AG-06 1		CIL TANK 6 AGITATOR	-	Mixer	-	Mild Steel (6mm rubber lined)				Dual stage, RL impellers c/w gearbox drive MS-004	_	AGITATORS	MIXTEC	MIXTEC			Fixed	45.00
New				161-CH-05 1		CARBON SIZING SCREEN FEED CHUTE		-			-		length	Dual stage, PL Impeters of w gestion time in 5004	1200	AdilAtons	WIXTEG	MINTEG			T IXEG	45.00
-			05		+		+	Chute	Chute	Mild Steel	-	67m3/h total flow rate, 0.7 x 18.5 mm aperture,	0.915 v 1.83mm Anartura size		-			-				4
			08	161-SC-08 1		CARBON SIZING SCREEN	F Mechanical	Screen	Vibratory (Wet)	Various		polyurethane deck material		0.915 x 1.83mm, Aperture size 0.8 mm x 18.5 mm c/w 2 x 1.6 MS-002	1480	VIBRATING SCREENS & GRIZZLY	JOEST	JOEST			Fixed	3.20
			03	161-ST-03 1		CARBON SIZING SCREEN ISOLATION FRAME	E Platework	Frame	Isolation	Mild Steel	-	-	1280 mm x 2400 mm	Fitted with vibration isolation springs, refer to MDS-061								
New	F-104	CH	06	161-CH-06 1		CARBON SIZING SCREEN O/S CHUTE	E Platework	Chute	Chute	Mild Steel	-	-	-	-								
New	F-104	СН	07	161-CH-07 1		CARBON SIZING SCREEN U/S CHUTE	E Platework	Chute	Chute	Mild Steel	-	-	-	-								
New	F-104	LA	07	161-LA-07 1		CARBON SIZING SCREEN OVERFLOW LAUNDER	E Platework	Launder	Launder	Mild Steel	-	-	-	-								
New	F-103	PP	17	161-PP-17 1		CIL AREA SUMP PUMP 1	F Mechanical	Pump	Vertical Spindle	Various	-	50 m3/hr @ 16m TDH	65 SPR	Vertical cantilever, 1800 mm spindle	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed	11.00
New	F-104	PP	18	161-PP-18 1		CIL AREA SUMP PUMP 2	F Mechanical	Pump	Vertical Spindle	Various	-	50 m3/hr @ 16m TDH	65 SPR	Vertical cantilever, 1800 mm spindle	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed	11.00
Fut.	F-103	SA	02	161-SA-02 1		CIL TAILS SAMPLER	F Mechanical	Sampler	Cross Cut (2 in 1)	Mild Steel	-		Diameter 10.00 m x 11.0 m O/A	Without roof, c/w internal O/F box								
New	F-104	СН	08	161-CH-08 1	+-+	CARBON SAFETY SCREEN FEED BOX	E Platework	Chute	Chute	Mild Steel (6 mm nat. rubber lined)	-		-	-	+							
New			09	161-SC-09 1	++	CARBON SAFETY SCREEN	+	Screen	Vibratory (Wet)	Various	-	186 m3/h total flow rate, 1.0 x 18.0 mm aperture,	1.20 x 3.60m	Vibrating Horizontal 2 x 3kW vibrating motors MS-002	1480	VIBRATING SCREENS & GRIZZLY	JOEST	JOEST	<del>                                     </del>		Fixed	6.00
New		ST	04	161-ST-04 1	+-+	CARBON SAFETY SCREEN ISOLATION FRAME	-	Frame	Isolation	Mild Steel		polyurethane deck material			-							<del></del>
New										Mild Steel (plastic lined/epoxy	-	°	4450 mm W X 7035 mm L	Fitted with vibration isolation springs refer to MDS-061.	-							
			09	161-CH-09 1		CARBON SAFETY SCREEN O/S CHUTE	E Platework	Chute	Chute	painted)	ļ.	-		-								
New	F-104	BN	01	161-BN-01 1		FINE CARBON COLLECTION BIN	E Platework	Bin	Bin	Mild Steel	-	-	-	Forkliftable Skip bin	-							
New	F-104	СН	10	161-CH-10 1		CARBON SAFETY SCREEN U/S CHUTE	E Platework	Chute	Chute	Mild Steel (6 mm nat. rubber lined)	-	-	-	-								
New	F-104	LA	80	161-LA-08 1		CARBON SAFETY SCREEN U/S LAUNDER	E Platework	Launder	Launder	Mild Steel (6 mm nat. rubber lined)	-	-	-	Parts A,B,C,D								
New	F-104	ZM	04	161-ZM-04 1		CYANIDE ANALYSER	J Instrumentation & Control	Ore Size Analyse	r		-	-	-	Parts A,B,C,D							Fixed	3.00
NO. 170 - DE	SORPTION									-			-									121.83
New	F-109	СН	01	171-CH-01 1		CARBON DEWATERING SCREEN FEED CHUTE	E Platework	Chute	Chute	Mild Steel (rubber lined)	-	-	-	-								
New	F-109	sc	01	171-SC-01 1	1	CARBON DEWATERING SCREEN	F Mechanical	Screen	Vibratory (Wet)	Various	50 m3/h total flow rate, 0.7 x 18.0 mm aperture,	60 m3/h total flow rate, 0.7 x 18.0 mm aperture,	1.22 x 2.45	Vibrating Horizontal 2 x 2.4kW vibrating motors MS-002	1480	VIBRATING SCREENS & GRIZZLY	JOEST	JOEST			Fixed	4.80
New		ST	01	171-ST-01 1	+-+	CARBON DEWATERING SCREEN ISOLATION FRAME	E Platework	Frame	Isolation	Mild Steel	polyurethane deck material	polyurethane deck material	Aperture size 0.7 x 18mm 1696 mm W x 4460 mm L		+							
			-	171-CH-02 1	+	CARBON DEWATERING SCREEN O/S CHUTE	+	Chute		Mild Steel	1.		-		-							
			02		+		+	+	Chute		<del>                                     </del>		-						<del>                                     </del>			
			03	171-CH-03 1		CARBON DEWATERING SCREEN U/S CHUTE	E Platework	Chute	Chute	Mild Steel	<u> </u>	-	-	-	-							
New	F-109	HP	01	171-HP-01 1	4	CARBON REGENERATION KILN FEED HOPPER	E Platework	Hopper	Hopper	Mild Steel			18m3	part of Regen Kiln package MDS-53	1050	CARBON REGEN KILN	ANSAC	ANSAC	18m3			
New	F-109	RO	01	171-RO-01 1		CARBON REGENERATION KILN	F Mechanical	Kiln	Regeneration	Various		140 kg/h, horizontal, Diesel fired	HK510D	c/w burner, fan, diesel filters, drip tray, exhaust stack, control panel, 304 S/S exhaust stack, c/w control panel and motor starters	1050	CARBON REGEN KILN	ANSAC	ANSAC	HK510D		Variable	1.63
_	F 100	714	-	474 714 04	+	DECEMBIN CONTRACT		C4:		Madana			<del> </del>	3,200 m³/hr @ 500 Pa centrifugal fan fitted with stainless steel case, fan	+							
	F-109	ZM	01	171-ZM-01 1		REGEN KILN SCRUBBER	F Mechanical	Scrubber	-	vanous		-	-	impener -							Fixed 2.2	,
Fut.								1	In the second	1	1	T. Control of the Con	I .	I I	1	1		t and the second	1	1	- 1 - 1	(0)
	F-109	PP	02	171-PP-02 1		REGEN KILN SCRUBBER PUMP	F Mechanical	Pump	Centrifugal Solution				3.5 m dia x 2.6m H, 60 deg								Fixed 5.5	50

C New	Flow	Equipment Identifier	Numerical Identifier	Equipment Number	Duty S/By Qty Qty	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr.	Process Duty Point	Design Duty Point	Size	Notes/Comments Spec / Data Sheet No	BQR Package		Recommended Supplier	Manufacturer	Model No.		variable	FUTURE kV
					Qty Qty	T	-	1		(incl. Lining)				Sheet NO		Name	1			No.	Speed	Inst.
-	F-109	+	19	171-PP-19	1	CARBON TRANSFER PUMP	-	Pump	Centrifugal Slurry	Various		30m³/h @ 14.5 m TDH, 1.02 SG	2/2 TC	Centrifugal horizontal vortex impeller Warman TC pump		PUMPS - CENTRIFUGAL SLURRY	Warman	Warman	2/2 TC		Fixed	5.50
New	F-109		01	171-CN-01	1	CARBON LOADING HOIST	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	-	1.5 tonne, 12m lift, 14.5m travel		1090	CRANES & HOISTS	KONE	KONE			Fixed	5.50
New	F-109	PP	17	171-PP-17	1	CARBON REGEN AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-	50 m3/hr @ 16m TDH	65 SPR	Vertical cantilever, 1800 mm spindle	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed	24.50
New	F-107	СМ	01	171-CM-01	1	ACID WASH COLUMN	E Platework	Vessel	Pressure	Mild Steel (6 mm nat. rubber lined)	4.5 tonne carbon capacity, 10.86 m <sup>3</sup> total volume.	4.5 tonne carbon capacity, 10.86 m <sup>3</sup> total volume.	1.219 ID x 9.5.m	Rubber Lined Mild Steel	1000	ACID WASH & ELUTION COLUMNS	ALLOYTECH	ALLOYTECH				4.00
New	F-107	FL	01	171-FL-01	1	ACID WASH FILTER 1	F Mechanical	Filter	Cartridge	Polypropylene		18.2 m3/h, 560 micron aperture, 600 kPa	80 mm NB		1550	FILTERS						5.60
New	F-107	FL	02	171-FL-02	<del>                                     </del>	ACID WASH FILTER 2	F Mechanical	Filter		Polypropylene		18.2 m3/h. 560 micron aperture. 600 kPa	80 mm NB		1550	FILTERS						37.00
	-		-		ļ., ļ	ļ		-								ACID WASH & ELUTION COLUMNS		ALL OUTTON				37.00
New	F-107		02	171-CM-02	'	ELUTION COLUMN	E Platework	Vessel	Pressure	SS304L	4.5 tonne carbon capacity, 10.83 m³ total volume.	4.5 tonne carbon capacity, 10.83 m³ total volume.  18.2 m3/h capacity, 8 bar TDH, 1 SG, aperture 500		Insulated for Personnel Protection			ALLOYTECH	ALLOYTECH				
New	F-107	FL	03	171-FL-03	1	ELUATE FILTER 1	F Mechanical	Filter	Cartridge	SS316		μm @ 140 °deg C	DN 80 x 1000 L	Insulated for Personnel Protection	1550	FILTERS						
New	F-107	FL	04	171-FL-04	1	ELUATE FILTER 2	F Mechanical	Filter	-	SS316		18.2 m3/h capacity, 8 bar TDH, 1 SG, aperture 500 µm @ 140 °deg C	DN 80 x 1000 L	Insulated for Personnel Protection	1550	FILTERS						
New	F-107	тк	02	171-TK-02	1	TRANSFER WATER TANK	E Platework	Tank	Vertical Closed	Mild Steel	30m3	30m3 Live capacity	2.68m dia x 2.87 O/A	30m³ industrial poly tank								
New	F-107	PP	25	171-PP-25	1	TRANSFER WATER PUMP	F Mechanical	Pump	Helical Rotor	Various	-	18.2 m3/h @ 25 m TDH, 1.0 SG	-	Helical Rotor pump	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			Fixed	
New		VS	01	171-VS-01	1	ELUATE EXPANSION TANK	F Mechanical	Pressure Vessel	-	SS 304	3.7 m3 live capacity	3.7 m3 live capacity	0.9 m dia, 5.9 m O/A	AS 1210 pressure vessel								
New	F-107	нх	01	171-HX-01	1	STRIP SOLUTION HEATER	F Mechanical	Heater	Diesel Fuel Fired	Various	Elution - 900kW / Preheat - 1400kW (90mins)	1750kW design	1750kW rating, 135°C	Diesel fired oil heaters o/w modulating controller. Installed power shown includes for all ancillaries	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES	TM1750		Fixed	
New	F-107	FA	01	171-FA-01	1	STRIP SOLUTION HEATER BURNER FAN	F Mechanical	Fan	-	Various	-	-	-	included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES				
New	F-107	PP	26	171-PP-26	1	STRIP SOLUTION HEATER DIESEL PUMP	F Mechanical	Pump	-	Various		-	-	_								
New	F-107		01	171-SX-01	<del>                                     </del>	STRIP SOLUTION HEATER STACK	E Platework	Misc.	Fume Hood	Mild Steel (Galvanised)	l		Dia 450mm									
-		<del> </del>	-			ļ	+	-				-	Dia 450mm	-								
New	F-107	PP	27	171-PP-27	1	HEATER OIL RECIRCULATION PUMP	F Mechanical	Pump	Centrifugal Solution	Various	puris/fi		-	included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES			Fixed	
New	F-107	нх	02	171-HX-02	1	PRIMARY HEAT EXCHANGER NO.1	F Mechanical	Heat Exchanger	Plate and frame	SS 316 L	Eluant - 17m3/h / Oil - 60m3/h	-	1126 x 440 x 1712 mm	Plate Type, included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES				
New	F-107	нх	03	171-HX-03	1 1	RECOVERY HEAT EXCHANGER NO.1	F Mechanical	Heat Exchanger	Plate and frame	SS 316 L	Eluant - 17m3/h	-	621 x 440 x 1712 mm	Plate Type, included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES				
						<u> </u>		<u> </u>														
New	F-107	нх	04	171-HX-04	1	PRIMARY HEAT EXCHANGER NO.2	F Mechanical	Heat Exchanger	Plate and frame	SS 316 L	Eluant - 17m3/h / Oil - 60m3/h	-	1126 x 440 x 1712 mm	Plate Type, included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES				
New	F-107	нх	05	171-HX-05	1 1	RECOVERY HEAT EXCHANGER NO.2	F Mechanical	Heat Exchanger	Plate and frame	SS 316 L	Eluant - 17m3/h	-	621 x 440 x 1712 mm	Plate Type, included in Strip Solution Heater package	1300	PROCESS HEATING SYSTEM	CUSTOM FURNACES	CUSTOM FURNACES				
New	F-107	тк	03	171-TK-03	1	STRIP SOLUTION TANK	E Platework	Tank	Vertical Closed	Mild Steel	78 m3 (8.6 BV)	78 m3 (8.6 BV)	Dia 4.6m x 5.5m O/A	c/w roof, full wall insulated and clad								
New	F-107	PP	28	171-PP-28	1	STRIP SOLUTION PUMP 1	F Mechanical	Pump	Helical Rotor	Grey Cast Iron with 316SS Rotor	18.2 m3/h capacity, 75 m TDH, 1 SG	18.2 m3/h capacity, 75 m TDH, 1 SG		2% w/v NaOH and 2% CN, solution @ 100°C, 316 SS rotor and EPDM	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			Fixed	
New	F-107	TK	04	171-TK-04	<del>  .   .   .   .   .   .   .   .   .   .</del>	PREGNANT SOLUTION TANK		Tank				78 m3 (8.6 BV)	Dis 40 5 5- 0/A	stator required.								
-	-							-	Vertical Closed	Mild Steel	78 m3 (8.6 BV)	ļ	100 mm custion 65 mm	C/w roof, full wall insulated and clad								
New	F-107	<b>-</b>	30	171-PP-30		PREGNANT SOLUTION PUMP No.1	+	Pump	Centrifugal Solution	Various	18.2m3/h @ 34 m TDH, 1.0 SG	18.2m3/h @ 34 m TDH, 1.0 SG	discharge	2% w/v NaCN, 3% w/v NaOH @ 70°C, 316 SS impeller required	1330	PUMPS - SOLUTION	DYNAPUMPS	SULZER			Fixed	
New	F-107	PP	35	171-PP-35	1	PREGNANT SOLUTION PUMP No.2	F Mechanical	Pump	Centrifugal Solution	Various	18.2m3/h @ 34 m TDH, 1.0 SG	18.2m3/h @ 34 m TDH, 1.0 SG	100 mm suction, 65 mm discharge	2% w/v NaCN, 3% w/v NaOH @ 70°C, 316 SS impeller required	1330	PUMPS - SOLUTION	DYNAPUMPS	SULZER			Fixed	
New	F-107	PP	31	171-PP-31	1	STRIPPING WATER/ TREATED WATER TANK ANTI-SCALANT PUMP	F Mechanical	Pump	Diaphragm/Peristaltic	Various	30 m3/hr @ 10 m TDH	-	-	Diaphragm pump 220 v, owner supply	1330	PUMPS - SOLUTION					Fixed	
New	F-107	PP	32	171-PP-32	1	SULPHAMIC ACID PUMP	F Mechanical	Pump	Peristaltic	Various	-	1.8 m3/hr @ 8 m TDH	Suction / Discharge 25 NB BS4505 PN16	Peristaltic pump - part of strip solution heater package							Fixed	
New	F-107	PP	33	171-PP-33	1	ACID WASH COLUMN AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-		40SPR	Vertical cantilever, 1200 mm spindle	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	40SPR		Fixed	
New	F-107	PP	34	171-PP-34	1	PREGNANT SOLUTION AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-		40SPR	Vertical cantilever, 1200 mm spindle	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	40SPR		Fixed	
	1																					
EA NO. 180 - F	REFINING			+	ļ l	J								L								
New	F-107	BX	01	181-BX-01	1 1	ELECTROWINNING CELL FEED DISTRIBUTOR	E Platework	Distributor	Solution	Mild Steel	I.		Dia 0.7 m x 1 m O/A	2 way distributor.								
		<del> </del>	01			ELECTROWINNING CELL 1	-	+	Succession				Dia U.7 III X T III O/A		4400	ELECTROWINNING CELLS &		1/540/				
New	+		01	181-CL-01		ļ	+	Cell	Electrowinning	SS 304 / Poly lined	-	12 cathodes per cell		c/w lid anode baskets & facility for fume extraction	1120	RECTIFIER  ELECTROWINNING CELLS &	KEMIX	KEMIX				
New	F-107	RC	01	181-RC-01	1	ELECTROWINNING CELL 1 RECTIFIER	F Mechanical	Rectifier	Electrowinning		-		1500A		1120	RECTIFIER	KEMIX	KEMIX			Fixed	
New	F-107	CL	02	181-CL-02	1	ELECTROWINNING CELL 2	F Mechanical	Cell	Electrowinning	SS 304 / Poly lined	-	12 cathodes per cell		c/w lid anode baskets & facility for fume extraction	1120	ELECTROWINNING CELLS & RECTIFIER	KEMIX	KEMIX				
) New	F-107	RC	02	181-RC-02	1	ELECTROWINNING CELL 2 RECTIFIER	F Mechanical	Rectifier	Electrowinning		-		1500A		1120	ELECTROWINNING CELLS & RECTIFIER	KEMIX	KEMIX			Fixed	
New	F-107	CL	02	181-CL-02	1	ELECTROWINNING CELL 3	F Mechanical	Cell	Electrowinning	SS 304 / Poly lined	-	12 cathodes per cell	-	c/w lid anode baskets & facility for fume extraction	1120	ELECTROWINNING CELLS & RECTIFIER	KEMIX	KEMIX				
New	F-107	RC	02	181-RC-02	1	ELECTROWINNING CELL 3 RECTIFIER	F Mechanical	Rectifier	Electrowinning		-		1500A		1120	ELECTROWINNING CELLS & RECTIFIER	KEMIX	KEMIX			Fixed	
New	F-107	DU	01	181-DU-01	1	ELECTROWINNING CELL FUME DUCTING	E Platework	Ducting	Circular	SS 316	-	-	-	Also services drying ovens								
Fut.	F-107	ZM	01	181-ZM-01	1	ELECTROWINNING SCRUBBER	F Mechanical	Scrubber	Wet	Various		-	-	1,500 m³/hr @ 500 Pa centrifugal fan fitted with stainless steel case, fan impeller							Fixed	2.20
Fut.	F-107	PP	01	181-PP-01	1 1	ELECTROWINNING SCRUBBER PUMP	F Mechanical	Pump	Centrifugal Solution												Fixed	5.50
Fut.	+	+	01	181-FA-01	<del>                                     </del>	ELECTROWINNING FAN	+	Fan	Centrifugal (Single Stage)												Fixed	5.50
	F-107		-				+	-							4000	0.7710055 000 1///100 1440/1105						
			01	181-ZM-01	1	CATHODE WASH HP SPRAY MACHINE	F Mechanical	Water Monitor	Water Monitor	Various	-	25000 kPa @ 550 L/h	-	1 m3 capacity.1.15m dia x 1.2m h O/A MS construction epoxy lined,40mm	1060	CATHODE SPRAYING MACHINE					Fixed	24.50
New	-		-				+	1														4.00
	-		01	181-HP-01	1	GOLDROOM SLUDGE FILTER HOPPER	E Platework	Hopper	Hopper					top wash bar								
New	-	НР	01	181-HP-01 181-FL-01	1	GOLDROOM SLUDGE FILTER HOPPER GOLDROOM SLUDGE FILTER NO.1	E Platework F Mechanical	Hopper	Hopper	Various	20L cake volume/ batch			This capacity. I still us a 1-zero or and consuderior epoxy inequalities to wash bar  20L Pressure Filter	1190	GOLDROOM SLUDGE FILTER						5.60
New	F-108	HP FL	-		1 1 1	<del> </del>	+	+	Hopper	Various Various	20L cake volume/ batch 20 cake volume/ batch			top wash bar 20L Pressure Filter 20L Pressure Filter	1190	GOLDROOM SLUDGE FILTER  GOLDROOM SLUDGE FILTER						5.60 37.00
New New New	F-108	HP FL	01	181-FL-01	1 1 1 1	GOLDROOM SLUDGE FILTER NO.1	F Mechanical	Filter						top wash bar 20L Pressure Filter 20L Pressure Filter			ANSAC				Fixed	
New New New New	F-108 F-108	HP FL FL DR	01	181-FL-01	1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2	F Mechanical	Filter	Electric oven	Various			1045 x 1275 x 1310 mm (internal) x 9 trays	top wash bar 20L Pressure Filter 20L Pressure Filter	1190	GOLDROOM SLUDGE FILTER	ANSAC ANSAC				Fixed	
New New New New	F-108 F-108 F-108	HP FL FL DR	01 01 01	181-FL-01 181-FL-01 181-DR-01 181-ZM-03	1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1  GOLDROOM SLUDGE FILTER NO.2  DRYING OVEN	F Mechanical F Mechanical F Mechanical	Filter Filter Drier Misc.	Electric oven	Various Various	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal) x 9 trays	top wash bar 201. Pressure Filter 201. Pressure Filter Electric, calcine	1190 1170	GOLDROOM SLUDGE FILTER  GOLDROOM DRYING OVEN  GOLDROOM DRYING OVEN	ANSAC	ANSAC	TA300			
New New New New New New	F-108 F-108 F-108 F-108	HP FL FL DR ZM FC	01 01 01 03	181-FL-01 181-FL-01 181-DR-01	1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1  GOLDROOM SLUDGE FILTER NO.2  DRYING OVEN  DRYING OVEN TRAYS AND RACK	F Mechanical F Mechanical F Mechanical	Filter Filter Drier	Electric oven - Bullion Smelling	Various Various SS 316			1045 x 1275 x 1310 mm (internal) x 9 trays	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75	1190	GOLDROOM SLUDGE FILTER  GOLDROOM DRYING OVEN		ANSAC	TA300		Fixed	
New New New New New New New	F-108 F-108 F-108 F-108 F-108 F-108	HP FL FL DR ZM FC ST	01 01 01 03 01 04	181-FL-01 181-FL-01 181-DR-01 181-ZM-03 181-FC-01	1 1 1 1 1 1 1 1 1 5	GOLDROOM SLUDGE FILTER NO.1  GOLDROOM SLUDGE FILTER NO.2  DRYING OVEN  DRYING OVEN TRAYS AND RACK  BARRING FURNACE  BARRING FURNACE FUME HOOD	F Mechanical F Mechanical F Mechanical E Platework F Mechanical E Platework	Filter Filter  Drier  Misc.  Furnace	Electric oven - Bullion Smelting -	Various Various SS 316 Various SS 316	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal)	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75 Diesel fired -	1190 1170 1170 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108	HP FL FL DR ZM FC ST ZM	01 01 01 03 01 04	181-FL-01 181-FL-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04	1 1 1 1 1 1 5	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS	F Mechanical  F Mechanical  F Mechanical  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc	Electric oven  - Bullion Smelting	Various Various SS 316 Various SS 316 Carbon	20 cake volume/ batch	-	1045 x 1275 x 1310 mm (internal) x 9 trays	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75	1190 1170	GOLDROOM SLUDGE FILTER  GOLDROOM DRYING OVEN  GOLDROOM DRYING OVEN	ANSAC	ANSAC	TA300			
New	F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108	HP FL FL DR ZM FC ST ZM HP	01 01 01 03 01 04 04	181-FL-01 181-FL-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04 181-ZM-04	1 1 1 1 1 1 1 1 5 5 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS FILIX STORAGE HOPPER	F Mechanical  F Mechanical  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework	Filter Filter Drier Misc. Furnace Hood Misc Hopper	Electric oven  - Bullion Smelting - Hopper	Various Various SS 316 Various SS 316 Carbon SS 304	20 cake volume/ batch	-	1045 x 1275 x 1310 mm (internal)	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75 Diesel fired - Cascade Type -	1190 1170 1170 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108	HP FL FL DR ZM FC ST ZM HP	01 01 01 03 01 04	181-FL-01 181-FL-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04	1 1 1 1 1 1 1 1 5 5 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS	F Mechanical  F Mechanical  F Mechanical  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc	Electric oven  - Bullion Smelting	Various Various SS 316 Various SS 316 Carbon	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal)	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75 Diesel fired -	1190 1170 1170 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108 F-108	HP FL FL DR ZM FC ST ZM HP	01 01 01 03 01 04 04	181-FL-01 181-FL-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04 181-ZM-04	1 1 1 1 1 1 1 5 5 1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS FILIX STORAGE HOPPER	F Mechanical  F Mechanical  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc Hopper	Electric oven  - Bullion Smelting - Hopper	Various Various SS 316 Various SS 316 Carbon SS 304	20 cake volume/ batch	-	1045 x 1275 x 1310 mm (internal) x 9 trays 319 kg brass	top wash bar 20L Pressure Filter 20L Pressure Filter Electric, calcine 9 S/S trays per oven 800x800x75 Diesel fired - Cascade Type -	1190 1170 1170 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108	HP FL FL DR ZM FC ST ZM HP SL ZM	01 01 01 03 01 04 04 02	181-FL-01 181-PL-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04 181-ZM-04 181-HP-02	1 1 1 1 1 1 5 5 1 1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS FLUX STORAGE HOPPER BULLION BALANCE	F Mechanical  F Mechanical  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical  E Platework  F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc Hopper Weigher	Electric oven  - Bullion Smelting - Hopper Balance scale	Various Various SS 316 Various SS 316 Carbon SS 304 Various	20 cake volume/ batch	-	1045 x 1275 x 1310 mm (internal) x 9 trays 319 kg brass	top wash bar  20L Pressure Filter  20L Pressure Filter  Electric, calcine  9 S/S trays per oven 800x800x75  Diesel fired  -  Cascade Type  -  34kg electronic balance  TDR resistant, key and combination  -	1190 1170 1170 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108	HP FL FL DR 2M FC ST 2M HP SL 2M	01 01 01 03 01 04 04 02 01	181-FL-01 181-DR-01 181-DR-01 181-ST-04 181-ST-04 181-ST-04 181-SL-01 181-SL-01 181-SL-01	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS FLUX STORAGE HOPPER BULLION BALANCE GOLDROOM SAFE	F Mechanical F Mechanical F Mechanical E Platework F Mechanical E Platework F Mechanical E Platework F Mechanical F Mechanical F Mechanical F Mechanical F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc Hopper Weigher Safe	Electric oven  - Bullion Smelting - Hopper Balance scale	Various Various SS 316 Various SS 316 Carbon SS 304 Various Various	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal) x 9 trays 	top wash bar  20L Pressure Filter  20L Pressure Filter  Electric, calcine  9 S/S trays per oven 800x800x75  Diesel fired  -  Cascade Type  -  34kg electronic balance	1190 1170 1170 1180 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE GOLDROOM FURNACE GOLDROOM FURNACE	ANSAC ANSAC	ANSAC	TA300			
New	F-108	HP FL FL DR 2M FC ST 2M HP SL 2M ZM FA	01 01 01 03 01 04 04 02 01 05	181-FL-01 181-DR-01 181-DR-01 181-ZM-03 181-FC-01 181-ST-04 181-SL-01 181-SL-01 181-ZM-05	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1  GOLDROOM SLUDGE FILTER NO.2  DRYING OVEN  DRYING OVEN TRAYS AND RACK  BARRING FURNACE  BARRING FURNACE FUME HOOD  POURING MOULDS  FLUX STORAGE HOPPER  BULLION BALANCE  GOLDROOM SAFE  STRONG ROOM DOOR	F Mechanical F Mechanical F Mechanical E Platework F Mechanical E Platework F Mechanical E Platework F Mechanical F Mechanical F Mechanical F Mechanical F Mechanical F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc Hopper Weigher Safe Misc	Electric oven  - Bullion Smelting - Hopper Balance scale	Various Various SS 316 Various SS 316 Carbon SS 304 Various Various Mild Steel	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal) x 9 trays 	top wash bar  20L Pressure Filter  20L Pressure Filter  Electric, calcine  9 S/S trays per oven 800x800x75  Diesel fired  -  Cascade Type  -  34kg electronic balance  TDR resistant, key and combination  -  15000 m/hr © 1000 Pa centrifugal fan fitted with stainless steel case, fan	1190 1170 1170 1180 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE GOLDROOM FURNACE GOLDROOM FURNACE	ANSAC ANSAC ANSAC	ANSAC ANSAC WASHIAN	TA300  TA300  40SPR			
New	F-108	HP FL FL DR ZM FC ST ZM HP SL ZM FA	01 01 01 03 01 04 04 04 02 01 05	181-FL-01 181-DR-01 181-DR-01 181-ST-04	1 1 1 1 1 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1	GOLDROOM SLUDGE FILTER NO.1 GOLDROOM SLUDGE FILTER NO.2 DRYING OVEN DRYING OVEN TRAYS AND RACK BARRING FURNACE BARRING FURNACE FUME HOOD POURING MOULDS FLUX STORAGE HOPPER BULLION BALANCE GOLDROOM SAFE STRONG ROOM DOOR SMELTING FURNACE EXTRACTION FAN	F Mechanical F Mechanical F Mechanical E Platework F Mechanical E Platework F Mechanical E Platework F Mechanical F Mechanical F Mechanical F Mechanical F Mechanical F Mechanical	Filter Filter Drier Misc. Furnace Hood Misc Hopper Weigher Safe Misc Hood	Electric oven  - Bullion Smelting  - Hopper Balance scale Safe	Various Various SS 316 Various SS 316 Carbon SS 304 Various Warious Mild Steel Mild Steel	20 cake volume/ batch		1045 x 1275 x 1310 mm (internal) x 9 tays 319 kg brass 800 oz 0.6m²	top wash bar  20L Pressure Filter  20L Pressure Filter  Electric, calcine  9 S/S trays per oven 800x800x75  Diesel fired  -  Cascade Type  -  S4kg electronic balance  TDR resistant, key and combination  -  15000 m/hr @ 1000 Pa centrifugal fan fitted with stainless steel case, fan impelier	1190 1170 1170 1180 1180	GOLDROOM SLUDGE FILTER GOLDROOM DRYING OVEN GOLDROOM DRYING OVEN GOLDROOM FURNACE GOLDROOM FURNACE GOLDROOM SAFE & DOOR GOLDROOM SAFE & DOOR	ANSAC ANSAC ANSAC				Fixed	

Rev Status Flo	w Equipr	nent Numerical fier Identifier	Equipment Number	Duty Qty	S/By Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments	Spec / Data Sheet No	BQR Package No.	BQR Package Name	Recommended Supplier	Manufacturer	Model No.	Detail Dwg No.	Fixed/ Variable Speed	FUTURE kW kW Inst. Inst.
																					Speed	
AREA NO. 340 - TAILIN	IGS DAM																					46.60
D New F-1	10 PP	37	344-PP-37	1	DECANT RETURN PUMP	F Mechanical	Pump	Submersible	Various	98 m3/hr @ 30m TDH	118m3/hr @ 34m TDH	DN100 Discharge	Submersible, c/w 30 cable		1330	PUMPS - SOLUTION	DYNAPUMPS		<u> </u>		Fixed	30.00
D New F-11	10 PP	38	344-PP-38	1	UNDERDRAINAGE PUMP	F Mechanical	Pump	Submersible	Various	-	50 m3/hr @ 40m TDH	150mm	Submersible / Bore, c/w 60m cable		1330	PUMPS - SOLUTION	DYNAPUMPS				Fixed	11.00
D New F-11	-		344-PP-39	1	SEEPAGE PUMP	F Mechanical	Pump	Submersible	Various	-	15 m3/hr @ 40m TDH	80mm	Submersible / Bore, c/w 60m cable  Portable submersible here complies name also discal course carely also		1330	PUMPS - SOLUTION	DYNAPUMPS				Fixed	5.60
D New F-11	10 PP	40	344-PP-40	1	PORTABLE MONITORING BORE PUMP	F Mechanical	Pump	Submersible	Various	-	sample only, 30 m TDH	-	Portable submersible bore sampling pump c/w diesel power supply, c/w 30m cable	ļ	1330	PUMPS - SOLUTION	DYNAPUMPS					
			-						-													
C New F-1		01	232-TK-01		RAW WATER TANK	Toolsoon	Tank	Vertical Open	Mild Steel			9m dia. x 8m H		-								264.4
C New F-1			232-PP-41	1	RAW WATER PUMP 1	Tankage F Mechanical	Pump	Centrifugal Solution	Various		100 m3/hr @ 50 m TDH	Suction 150 NB ANSI, Dischar	9e Centrărinal		1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	30.00
C New F-11			232-PP-42		1 RAW WATER PUMP 2	F Mechanical	Pump	Centrifugal Solution	Various	-	100 m3/hr @ 50 m TDH	Suction 150 NB ANSI, Dischar			1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	30.00
D Fut. F-1			232-ZM-01	1	MILL WATER CHILLER SYSTEM	F Mechanical	Chiller		Various			100 NB ANSI	Chiller System. 2 x 9.5kW Compressors, 2 x 2.2kW Pump, 2 x 0.55kW								Fixed	24.50
C New F-11			235-PP-48	1	GLAND WATER PUMP 1	F Mechanical	Pump	Multi stage centrifugal	Various	-	15 m3/hr @ 90m TDH	Suction 65 NB ANSI, Discharg 40 ANSI	Paris.		1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	11.00
C New F-11	11 PP	49	235-PP-49		1 GLAND WATER PUMP 2	F Mechanical	Pump	Multi stage centrifugal vertical	Various	-	15 m3/hr @ 90m TDH	Suction 65 NB ANSI, Discharg 40 ANSI	Pe Centrifugal	<del> </del>	1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	11.00
D New F-11	11 PP	50	238-PP-50		1 FIREWATER PUMP - DIESEL	F Mechanical	Pump	Centrifugal Solution	Various	-	72 m3/hr @ 70 m TDH	-	mounted on a common skid with control system etc.		1330	PUMPS - SOLUTION	DYNAPUMPS	DYNAPUMPS				
C New F-1	11 PP	51	238-PP-51	1	FIREWATER PUMP - JOCKEY	F Mechanical	Pump	Centrifugal Solution	Various	-	1 m3/hr @ 70 m TDH	-	mounted on a common skid with control system etc.		1330	PUMPS - SOLUTION	DYNAPUMPS	DYNAPUMPS			Fixed	1.10
C New F-11	11 PP	52	238-PP-52	1	FIREWATER PUMP - ELECTRICAL	F Mechanical	Pump	Centrifugal Solution	Various	-	72 m3/hr @ 70 m TDH	-	mounted on a common skid with control system etc.		1330	PUMPS - SOLUTION	DYNAPUMPS	DYNAPUMPS			Fixed	37.00
C New F-11	11 FH	01	238-FH-01	16	FIRE HYDRANTS	F Mechanical	Misc	Fire Hydrant	Various	-	-	-			1150	FIRE FIGHTING EQUIPMENT						
C New F-1	11 HR	01	238-HR-01	20	HOSE REELS	F Mechanical	Misc	Fire Hose Reel	Various	-	-	-			1150	FIRE FIGHTING EQUIPMENT						
D Fut. F-0	11 ZN	02	234-ZM-02	1	WATER TREATMENT PLANT	F Mechanical	Safety Shower	-	SS 316	-	-	-	Operated by compressed air cylinder-Standby								Fixed	4.00
C New F-1	14 TK	01	233-TK-01	1	PROCESS WATER TANK	Tankage	Tank	Vertical Open	Mild steel	-	-	9m dia. x 8m H		ļ					<del></del>	ļ		
C New F-1	14 PP	53	233-PP-53	1	PROCESS WATER PUMP 1	F Mechanical	Pump	Centrifugal Solution	Various	125 m3/hr capacity, 40 m TDH	150 m3/hr @ 45 m TDH	Suction 125 NB ANSI, Dischart 80 NB ANSI			1330	PUMPS - SOLUTION	DYNAPUMPS	SULZER	<b></b>		Fixed	30.00
C New F-11	14 PP	54	233-PP-54		1 PROCESS WATER PUMP 2	F Mechanical	Pump	Centrifugal Solution	Various	125 m3/hr capacity, 40 m TDH	150 m3/hr @ 45 m TDH	Suction 125 NB ANSI, Dischart 80 NB ANSI	Centrifugal	ļ	1330	PUMPS - SOLUTION	DYNAPUMPS	SULZER			Fixed	30.00
A New	PC		312-PO-01	1	EVENT POND	B Earthworks	Pond	-	HDPE	-	-	800 m3	Double HDPE liner 1.5/1.0 mm									
C New	PP		312-PP-57		1 EVENT POND SUBMERSIBLE PUMP	F Mechanical	Pump	Submersible	Various	-	110 m3/hr @ 35 m TDH, 1.3 SG	150mm discharge	Submersible, 20mm max particle size		1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	30.00
D New F-11			251-CO-03	1	MINE AIR COMPRESSOR	F Mechanical	Compressor	Rotary screw	Various	-	300m3/min @ 700 kPag	-	BY OTHERS - MINING	MS-005	1070	COMPRESSED AIR & LP BLOWERS COMPRESSED AIR & LP	CAPS	INGERSOL RAND	ML 30	ļ	Fixed	37.00
D New F-1			251-FL-01	1	MINE AIR DRYER PRE FILTER	F Mechanical	Filter	-	Various	-	-	-	BY OTHERS - MINING	MS-005	1070	BLOWERS  COMPRESSED AIR & LP	CAPS	CONQUEST	G220U			
D New F-1			251-FL-02	1	MINE AIR DRYER PRE FILTER	F Mechanical	Filter	-	Various	-	-	-	BY OTHERS - MINING	MS-005	1070	BLOWERS COMPRESSED AIR & LP	CAPS	CONQUEST	G220U			-
D New F-1			251-DR-01		MINE AIR DRYER  MINE PLANT AIR RECEIVER	F Mechanical	Drier Pressure Vessel	Dessicant	Various  Mild Steel	-	-	3 m3	BY OTHERS - MINING BY OTHERS - MINING	MS-005	1070	BLOWERS COMPRESSED AIR & LP	CAPS	CONQUEST	HX1050K VR5000	<u> </u>	Fixed	6.10
D New F-1	-		251-VS-01 234-TK-01	-	MINE PAW WATER TANK	F Mechanical  E Platework	Tank	Vertical Closed	Mild Steel (Galvanised)		46m3	46m3 - dia. 2.95 m x 3.16m		MS-005	1070	BLOWERS	CAPS	CAPS	VHSUUU			
D New F-1	-		234-PP-58	1	MINE RAW WATER DISTRIBUTION PUMP 1	F Mechanical	Pump	Centrifugal Solution	Various		15 m3/hr @ 50m TDH	4010 02 250 11 2 2 1011	BY OTHERS - MINING		1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	5.60
D New F-1			234-PP-59		1 MINE RAW WATER DISTRIBUTION PUMP 2	F Mechanical	Pump	Centrifugal Solution	Various	-	15 m3/hr @ 50m TDH		BY OTHERS - MINING		1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			Fixed	5.60
A New F-1			234-ZM-01	1	MINE RAW WATER U/V STERILISER	F Mechanical	Misc						BY OTHERS - MINING									
C New F-115	5/116 ES	01	234-ES-01	18	SAFETY SHOWERS	F Mechanical	Safety Shower	-	SS 316	-	-	-										
C New	ES	02	234-ES-02	2	PORTABLE SAFETY SHOWERS	F Mechanical	Safety Shower	-	SS 316	-	-	-	Operated by compressed air cylinder-Standby									
AREA NO. 250 - AIR SEI	RVICES												mounted on a common skid with control system etc. VSD by others									680.1
D New F-1	12 00	01	251-CO-01	1	AIR COMPRESSOR 1	F Mechanical	Compressor	Rotary screw	Various	-	600m3/min @ 700 kPag	-	Packaged rotary screw c/w all instruments, filters and controls.	MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	INGERSOL RAND	ML 37		Fixed	37.00
D New F-1	12 CC	02	251-CO-02		1 AIR COMPRESSOR 2	F Mechanical	Compressor	Rotary screw	Various	-	600m3/min @ 700 kPag	-	Packaged rotary screw c/w all instruments, filters and controls.	MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	INGERSOL RAND	ML 37		Fixed	37.00
C New F-1	12 FL	01	251-FL-01	1	AIR DRYER PRE FILTER	F Mechanical	Filter	-	Various	-	-	-	-	MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	CONQUEST	G220U			
C New F-1	12 FL	02	251-FL-02	1	AIR DRYER PRE FILTER	F Mechanical	Filter	-	Various	-		-	-	MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	CONQUEST	G220U			
C New F-1			251-DR-01	1	AIR DRYER	F Mechanical	Drier	Dessicant	Various	-	-	-	To suit above compressor	MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	CONQUEST	HX1050K	ļ	Fixed	6.10
D New F-1	-		251-VS-01	1	PLANT AIR RECEIVER	F Mechanical	Pressure Vessel	-	Mild Steel	-		3 m3		MS-005	1070	COMPRESSED AIR & LP BLOWERS	CAPS	CAPS	VR5000			
C New F-10			252-BL-01	1	CYANIDE DETOX BLOWER 1	F Mechanical	Compressor	Rotary	-	ļ	1200 Nm3/h air @255kPag		w/ aftercooler	MS-005	1070	COMPRESSED AIR & LP BLOWERS COMPRESSED AIR & LP	CAPS	INGERSOL RAND	C400-C50MX2		Fixed	150.00
C New F-10	-		252-BL-02		1 CYANIDE DETOX BLOWER 2	F Mechanical	Compressor	Rotary	-		1200 Nm3/h air @255kPag		w/ aftercooler	MS-005	1070	BLOWERS  COMPRESSED AIR & LP	CAPS	INGERSOL RAND	C400-C50MX2		Fixed	150.00
C New F-1			252-BL-01	- 1	CIL LOW PRESSURE AIR BLOWER 1	F Mechanical	Compressor	Rotary	-		900 Nm3/h air @255kPag		w/ aftercooler	MS-005	1070	BLOWERS COMPRESSED AIR & LP	CAPS	INGERSOL RAND	C400-C50MX2		Fixed	150.0
C New F-1	12 BL	02	252-BL-02		1 CIL LOW PRESSUREAIR BLOWER 2	F Mechanical	Compressor	Rotary			900 Nm3/h air @255kPag		w/ aftercooler	MS-005	1070	BLOWERS	CAPS	INGERSOL RAND	C400-C50MX2		Fixed	150.00
AREA NO. 210 - REAGE	ENTS	+					+		-					<del> </del>								111.7
C New F-1		67	216-PP-67	1	HCL ACID DRUM PUMP	F Mechanical	Pump	Peristaltic	Various		5 m3/hr @ 10m TDH, 1.16 SG	Suction/ Discharge 50 NB	Peristaltic pump, EDPM hose, 32% HCl solution	-	1330	PUMPS - SOLUTION	DYNAPUMPS	ASCO			Fixed	0.75
D New F-11	10 TK		216-TK-01	1	HCL ACID MIXING AND STORAGE TANK	E Platework	Tank	Vertical Closed	HDPE		10 m3 Live capacity	BS4504 PN16 3.1m dia x 2.7 m high	c/w roof	<del> </del>	1210	HDPE TANKS	-					
C New F-1	10 PP	68	216-PP-68	1	HCL ACID WASH PUMP	F Mechanical	Pump	Centrifugal Solution	Various	-	18.2m3/h @ 25m TDH, 1.16 SG		Magdrive pump, PVDF construction, 32% HCl solution		1330	PUMPS - SOLUTION	DYNAPUMPS	ARGAL			Fixed	2.20
C New F-11	10 PP	69	216-PP-69	1	ACID AREA SUMP PUMP	F Mechanical	Pump	Air Op Diaphragm	Various	-		-	Air operated polyethylene/polypropylene pump, air supply 560 kPa instrument quality air.		1370							
C New F-1	10 TK	01	214-TK-01	1	CAUSTIC MIXING AND STORAGE TANK	E Platework	Tank	Vertical Closed	Mild Steel	-	14 m3 Live capacity	2.86m dia x 2.7 m high	c/w roof, baffles									
C New F-1	10 AG	01	214-AG-01	1	CAUSTIC MIXING TANK AGITATOR	F Mechanical	Agitator	Top Entry	Wet End: 316 SS Drive End Casing: Mild Steel	-	Batch size 8 t	Impeller dia.0.94m x 1.93m sha length	aft _	MS-004	1280	AGITATORS	MIXTEC	MIXTEC			Fixed	1.50
C New F-11	10 PP	70	214-PP-70	1	CAUSTIC DOSING PUMP	F Mechanical	Pump	Helical Rotor	Various	-	10 m3/hr @ 20 m TDH, 1.1 SG		20% w/v NaOH solution		1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			Variable	1.10
	10 CN	02	211-CN-02	1	CYANIDE BAG LIFTING HOIST	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	-	2.5t			1090	CRANES & HOISTS	KONE	KONE			Fixed	4.40
C New F-1			1	. T	0/44/05 040 0054//50		Bag Breaker		Mild Steel	1	1											
C New F-1	10 ST	01	211-ST-01	'	CYANIDE BAG BREAKER	E Platework	Day Dreaker			ļ												
			211-ST-01 211-TK-01	1	CYANIDE MIXING TANK	E Platework	Tank	Vertical Closed	Mild Steel	-	10 m3 live capacity	dia. 2.5 x 2.7m O/A Impeller dia 0.75m x 2.2m sha	c/w roof.									

Rev Status Flow Sheet	Equipment Identifier	Numerical Identifier	Equipment Number	Duty S/By Qty Qty	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments	Spec / Data Sheet No	BQR Package No.	BQR Package Name	Recommended Supplier	Manufacturer	Model No.	Detail Dwg Fit No.	able eed FUTURI	E kW kW
C New F-110		Identifier 71	Number 211-PP-71	dty Oty	CYANIDE TRANSFER PUMP	1	Type 2	Centrifugal Solution	(incl. Lining)		50 m3/hr @ 20m TDH, 1.1 SG	Suction 125 NB ANSI, Discharge		Sneet No	No.	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS	NO.		eed Inst	. Inst.
C New F-110	PP TK		211-PP-71 211-TK-02										20% w/v NaCN solution	-	1330	FUMPS - SULUTION	DINAPUMPS	UNUNDFUS		F	Ned	5.60
		02		1	CYANIDE STORAGE TANK		Tank	Vertical Closed	Mild Steel		15 m3 live capacity	<del> </del>		-								4
C New F-110		72	211-PP-72	1	CYANIDE DOSING PUMP		Pump	Helical Rotor	Various	-	1.5 m3/hr @ 25m TDH, 1.1 SG		Progressive cavity c/w EPDM stator, 316 ss rotor. 20% w/v NaOH solution	ļ	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			iable	0.37
C New F-110		73	211-PP-73	1	CYANIDE RECIRCULATION PUMP 1		Pump	Centrifugal Solution	Various	-	5m3/hr @ 42m TDH, 1.1 SG	Suction 50 NB ANSI, Discharge 32 NB ANSI			1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			ked	2.20
C New F-110	PP	74	211-PP-74	1	CYANIDE RECIRCULATION PUMP 2	F Mechanical	Pump	Centrifugal Solution	Various	-	5m3/hr @ 42m TDH, 1.1 SG	Suction 50 NB ANSI, Discharge 32 NB ANSI	20% w/v NaCN solution	ļ	1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS		F	red	2.20
C New F-110	PP	75	211-PP-75	1	CYANIDE AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-		40SPR	Vertical cantilever, 1200mm spindle		1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	40SPR	F	red	11.00
D New F-110	тк	01	211-TK-01	1	COPPER SULPHATE MIXING TANK	E Platework	Tank	Vertical Closed	SS316		7.5 m3 live capacity	dia. 2.2 x 2.5m O/A	c/w roof.									
D New F-105	CN	02	215-CN-02	1	COPPER SULPHATE BAG LIFTING HOIST	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	-	1.5t			1090	CRANES & HOISTS	KONE	KONE		F	red	3.70
C New F-110	AG	02	211-AG-02	1	COPPER SULPHATE MIXING TANK AGITATOR	F Mechanical	Agitator	Top Entry	Wet End: 316 SS Drive End Casing: Mild Steel	-		Impeller dia 0.7m x 2.0m shaft length	-	MS-004	1280	AGITATORS	MIXTEC	MIXTEC		F	ked	2.20
C New F-110	PP	71	044 PD 74				-	0.17.101.5				Suction 125 NB ANSI, Discharge 100 NB ANSI		-		DIMENS COLUTION	Diales Heb	ODUNDEOO.				
			211-PP-71	1	COPPER SULPHATE TRANSFER PUMP	F Mechanical	Pump	Centrifugal Solution	Various		50 m3/hr @ 20m TDH, 1.1 SG				1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS		F	red	5.60
D New F-110		02	211-TK-02	1	COPPER SULPHATE STORAGE TANK	E Platework	Tank	Vertical Closed	SS316	•	10 m3 live capacity	dia. 2.5 x 2.7m O/A	c/w roof.									4
C New F-110	PP	72	211-PP-72	1	COPPER SULPHATE DOSING PUMP	F Mechanical	Pump	Helical Rotor	Various	-	1.5 m3/hr @ 25m TDH, 1.1 SG		Progressive cavity c/w EPDM stator, 316 ss rotor. 20% w/v NaOH solution	-	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			iable	0.37
C New F-105	CN	02	215-CN-02	1	SMBS BAG LIFTING HOIST	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	-	1.5t		ļ	1090	CRANES & HOISTS	KONE	KONE		F	red	3.70
C New F-105	ST	01	215-ST-01	1	SMBS BAG BREAKER	E Platework	Bag Breaker		SS316													
C New F-105	тк	01	215-TK-01	1	SMBS MIXING TANK	E Platework	Tank	Vertical Closed	SS304	-	10 m3 live capacity	dia. 2.5 x 2.7m O/A	c/w roof.									
C New F-105	AG	01	215-AG-01	1	SMBS MIXING TANK AGITATOR	F Mechanical	Agitator	Top Entry	Wet End: 316 SS Drive End Casing: Mild Steel	-		Impeller dia 0.75m x 2.2m shaft length	-	MS-004	1280	AGITATORS	MIXTEC	MIXTEC		F	ked	2.20
C New F-105	PP	71	215-PP-71	1	SMBS TRANSFER PUMP	F Mechanical	Pump	Centrifugal Solution	Various		50 m3/hr @ 20m TDH, 1.1 SG	Suction 125 NB ANSI, Discharge	20% w/v solution	<del> </del>	1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			ked	5.60
		+					+							-	1330	r-umr's - sulutiun	DINAPOMPS	GHUNDFUS		F	ned .	5.60
		02	215-TK-02		SMBS STORAGE TANK	E Platework	Tank	Vertical Closed	Mild Steel		15 m3 live capacity	dia. 2.8m x 3.0 m H	c/w roof.	-		DUMP						4-
C New F-105		72	215-PP-72	1	SMBS DOSING PUMP No.1		Pump	Diaphragm/Peristaltic	Various	-	-	0.9 m3/hr @ 60m TDH	Iwaki LK-B65, mechanical diaphragm metering	ļ	1330	PUMPS - SOLUTION	IWAKI	IWAKI	LK-B65	-	iable	0.75
C New F-105	PP	73	215-PP-73	1	SMBS DOSING PUMP No.2	F Mechanical	Pump	Diaphragm/Peristaltic	Various	-	-	0.9 m3/hr @ 60m TDH	Iwaki LK-B65, mechanical diaphragm metering	ļ	1330	PUMPS - SOLUTION	IWAKI	IWAKI	LK-B65	Va	iable	0.75
C New F-105	PP	75	215-PP-75	1	SMBS AREA SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-		40 SPR	Vertical cantilever, 1200mm spindle	ļ	1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	40SPR	F	ked	11.00
C New F-105	FA	04	215-FA-04	1	SMBS EXTRACTION FAN	F Mechanical	Fan				300m*/hr @ 0.5kPa									F	ked	3.00
D New F-113	ZM	01	213-ZM-01	1	FLOCCULANT MIXING PACKAGE	F Mechanical	Packaged Equipment	-	-	-	20kg (dry) / hr, 8m3/h dosage rate @ 0.25%	-		MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC					
A New F-113	HP	01	213-HP-01	1	FLOCCULANT HOPPER	E Platework	Hopper	Hopper	Mild Steel	-	-	-		MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC					
C New F-113	FE	01	213-FE-01	1	FLOCCULANT SCREW FEEDER	F Mechanical	Conveyor	Screw	Various	-	200kg/hr	-		MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC			F	ked	1.10
C New F-113	BL	01	213-BL-01	1	FLOCCULANT BLOWER	F Mechanical	Blower	Centrifugal	Various	-	200m <sup>3</sup> /hr FAD	-		MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC			F	red	7.50
New F-113	ZM	03	213-ZM-03	1	FLOCCULANT WETTING HEAD	F Mechanical	Mixer	-	Various	-	45m³/hr @ 300kPa(g)	_		MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC					4
C New F-113	TK	01	213-TK-01		FLOCCULANT MIXING & STORAGE TANK	E Platework	Tank	Vertical Open	Mild Steel		10 m3 live capacity	dia. 2.4m x 3 m H	Without roof. Design (only) by flocculant mixing package vendor	-								4-
New F-113	<u> </u>	01	213-AG-01		FLOCCULANT MIXING & STORAGE TANK AGITATOR	F Mechanical	+	Top Entry	Wet End: 316 SS		10 IIS IVE Capacity	to suit	without tool. Design (only) by IDCCualit mixing package vehicle	MS-051	1160	FLOCCULANT MIXING SYSTEM	ROYMEC				ked	1.50
							Agitator		Drive End Casing: Mild Steel					M3-031								
C New F-113		77	213-PP-77	1	PRE-LEACH THICKENER FLOCCULANT DOSING PUMP	F Mechanical	Pump	Helical Rotor	Various	-	1.5-5 m3/hr capacity, 30 m TDH, 1.0 SG		Progressive cavity c/w EPDM stator, 316 ss rotor, 0.25% w/v conc	ļ	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH			iable	1.50
C New F-113	PP	78	213-PP-78	1	CYANIDE RECOVERY THICKENER FLOCCULANT DOSING PUMP	F Mechanical	Pump	Helical Rotor	Various	-	1.5-5 m3/hr capacity, 30 m TDH, 1.0 SG	Suction, Discharge 80 NB	Progressive cavity c/w EPDM stator, 316 ss rotor, 0.25% w/v conc	-	1330	PUMPS - SOLUTION	DYNAPUMPS	NETZSCH		Va	iable	1.50
C New F-113	HP	01	212-HP-01	1	LIME SILO	E Platework	Hopper	Hopper	Mild Steel			65 t	65 tonne live capacity via Bulk Loader	ļ								4
C New F-113	DC	01	212-DC-01	1	LIME DUST COLLECTOR	F Mechanical	Dust Collector	Insertable												F	red	2.20
C New F-113	FE	01	212-FE-01	1	LIME ROTARY FEEDER	F Mechanical	Rotary Valve	Rotary Valve												FI	ked	0.75
C New F-113	VB	01	212-VB-01	1	LIME BIN ACTIVATOR	F Mechanical	Bin Activator	Bin Activator												F	red	0.40
C New F-113	FE	02	212-FE-02	1	LIME SCREW FEEDER	F Mechanical	Conveyor	Screw					2.64 - 9.9 tph							Va	iable	0.37
New F-113	тк	01	212-TK-01	1	LIME MIXING & STORAGE TANK	E Platework	Tank	Vertical Closed	Mild Steel			dia. 4.5m x 4.57m H	45m3 live volume mixing tank									
C New F-113	AG	01	212-AG-01	1	LIME MIXING & STORAGE TANK AGITATOR	F Mechanical	Agitator	Top Entry	Mild Steel					MS-004	1280	AGITATORS	MIXTEC	MIXTEC		F	red	7.50
C New F-113	PP	02	212-PP-02	1	LIME PUMP	F Mechanical	Pump		Various				22.58m <sup>3</sup> /hr @78.5m TDH Water Warman 1.5/1AH c/w 15kW motor	1						F	red	15.00
+	-	-					·		_					1								
EA NO. 260 - FUELS		-					+	-	+					-						-		2.20
	TV	0.1	264 TV ^-		DI ANT DIESEI STOBAGE TANK	E Montroire	Took	Horizontal D. C.	Various		10.m2	10-0	Self-bunded, horizontal tank with self contained fuel	-								2.20
C New F-110		01	261-TK-01	-  -	PLANT DIESEL STORAGE TANK		Tank	Horizontal Bullet	Various		10 m3	10m3 capacity Suction/ Discharge 32 NB	dispensing/management system and light vehicle bowser	-		BURET		000		-		4-
C New F-110		80	261-PP-80	1	PLANT DIESEL DISTRIBUTION PUMP No.1	-	Pump		Various		2 m3/hr @ 25m TDH, 0.85 SG	AS2129 ANSI		ļ	1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS			red	1.10
C New F-110	PP	81	261-PP-81	1	PLANT DIESEL DISTRIBUTION PUMP No.2	F Mechanical	Pump	-	Various		2 m3/hr @ 25m TDH, 0.85 SG	Suction/ Discharge 32 NB AS2129 ANSI		-	1330	PUMPS - SOLUTION	DYNAPUMPS	GRUNDFOS		F	red	1.10
C New F-110	FL	01	261-FL-01	1	PLANT DIESEL DISTRIBUTION FILTER 1	F Mechanical	Filter	-	Various		23.16 l/min											
C New F-110	FL	02	261-FL-02	1	PLANT DIESEL DISTRIBUTION FILTER 2	F Mechanical	Filter		Various		23.16 l/min											
A NO. 320 - UTILITIES	& SERVICES (C	CONTINUED)																				7.40
New F-114	тк	01	324-TK-01	1	MSA SEWAGE SEPTIC PIT	F Mechanical	Misc		Various	-		1200L	Plastic tank, c/w 2 pumps and level instruments.		1430	SEWAGE FORWARDING PUMP STATIONS						
New F-114	PP	83	324-PP-83	1	LABORATORY ACID WASTE PUMP	F Mechanical	Pump	Submersible	Various					1	1330	PUMPS - SOLUTION				F	red	3.70
New F-114		84	324-PP-84	1	LABORATORY GENERAL WASTE PUMP	F Mechanical	Pump	Submersible	Various		-	<del> </del>		<del> </del>	1330	PUMPS - SOLUTION				-	ked	3.70
D New F-114		+	324-FF-64 324-TK-02	1	PLANT ADMIN OFFICE AREA SEWAGE SEPTIC PIT		-		-		-	12001	Plastic tank, olw 2 numne and lound instrument	-		SEWAGE FORWARDING PUMP					-	3.70
	-	02				F Mechanical	Misc	-	Various			1200L	Plastic tank, c/w 2 pumps and level instruments.	-	1430	STATIONS SEWAGE FORWARDING PUMP				-		4-
New F-114		03	324-TK-03	1	PROCESS PLANT SEWAGE SEPTIC PIT	F Mechanical	Misc		Various	-		1200L	Plastic tank, c/w 2 pumps and level instruments.	<del> </del>	1430	STATIONS						4
Fut. F-114	PP	86	324-PP-86	1	PROCESS PLANT SEWAGE FORWARDING PUMPS		Pump	Submersible	Various	1 m3/ hr @ 12 m	10 m3/ hr @ 15 m				1430	SEWAGE FORWARDING PUMP STATIONS				F	ked 5.60	
) Fut. F-114	TE	02	324-TE-02	1	PROCESS PLANT SEWAGE TREATMENT PLANT (STP)	F Mechanical	Sewage Treatme Plant	nt -	Various	-	50 m3/ day each	-	Containerised design		1440	SEWAGE TREATMENT PLANTS				F	ked 37.0	
EA NO. 360 - BUILDING	S - PLANT																					10.50
New F-XXX	CN	01	360-CN-01	1	WAREHOUSE/ WORKSHOP CRANE	F Mechanical	Crane/Hoist	Electric Hoist	Mild Steel	-	St, 7m Lift, 50 m travel, 28m Span	5t, 7m Lift, 50 m travel, 28m Span			1090	CRANES & HOISTS	KONE	KONE		F	red	10.50
							1															
	ACILITIES - GEN	NERAL					1	-						1						+		29.50
				1 1	I	L		1			L		L.	1			L			1		

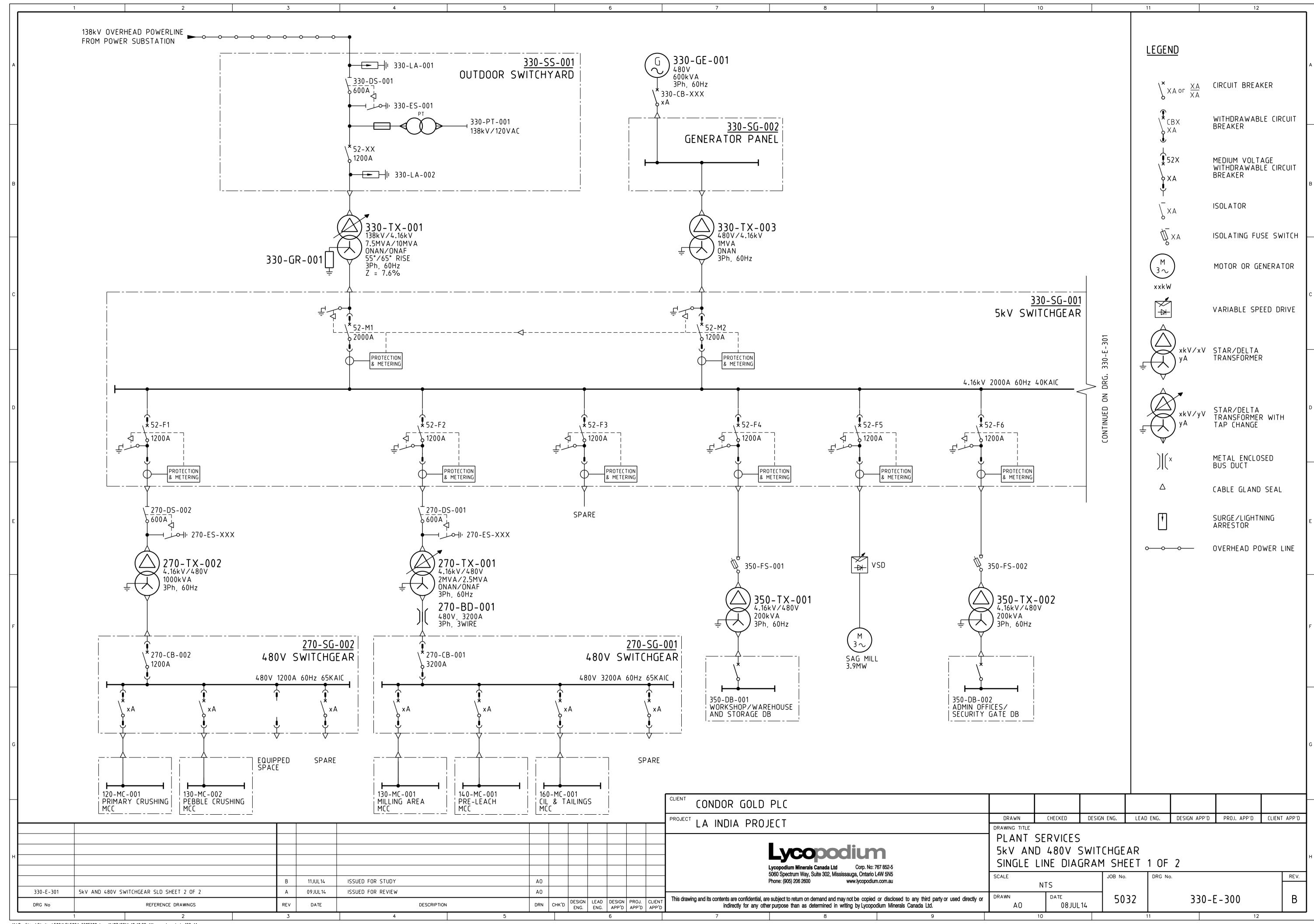


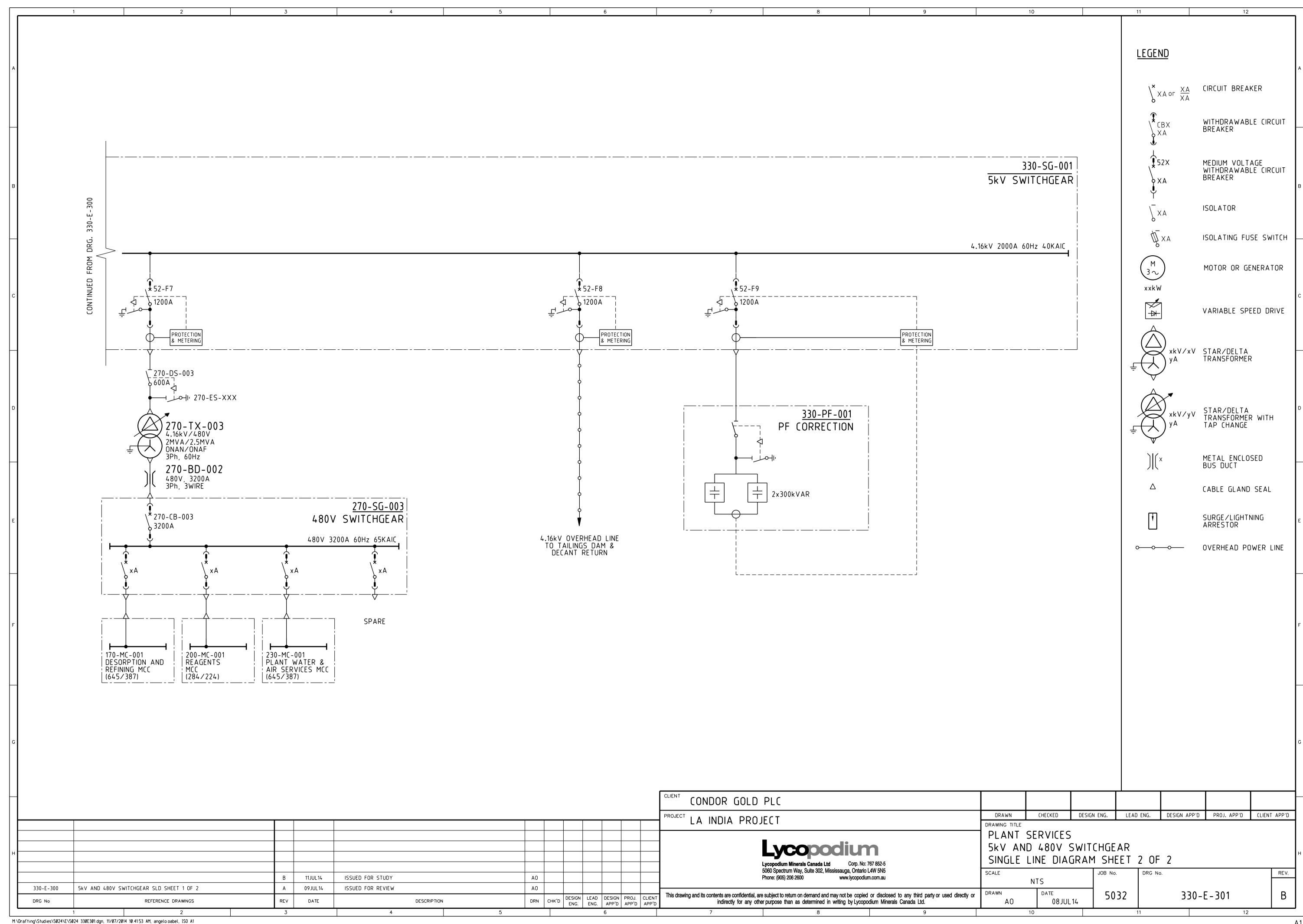
# CONDOR GOLD PLC LA INDIA GOLD PROJECT - PRE-FEASIBILITY STUDY

Mechanical Equipment List 0.8 Mtpa Revision: D Print Date: 22/07/2014

Rev	Status St		quipment dentifier	Numerical Identifier	Equipment Number	Duty Qty	S/By Qty	Equipment Name	Generic Type 1	Generic Type 2	Generic Type 3	Matl of Constr. (incl. Lining)	Process Duty Point	Design Duty Point	Size	Notes/Comments	Spec / Data Sheet No	BQR Package No.	BQR Package Name	Recommended Supplier	Manufacturer	Model No.	Detail Dwg No.	Fixed/ Variable Speed	FUTURE kW Inst.	kW Inst.
D	New F-	-017	тк	01	451-TK-01	1		TRUCK WASH WATER TANK	F Mechanical	Tank	Vertical Open	Poly	-	10 m³ live capacity, 15 m³ total capacity	2.5m dia. x 3m H	BY OTHERS - MINING										
	New F-		PP	01	451-PP-01	1		TRUCK WASH PUMP	F Mechanical	Pump	Centrifugal Solution	Cast Iron	-	48m³/hr @ 63m TDH	80-50-250	BY OTHERS - MINING		1330	PUMPS - SOLUTION	DYNAPUMPS	GOULDS	IC 80-50-250		Fixed		18.50
	New F-	i i	ZM	01	451-ZM-01	1		TRUCK WASH HIGH PRESSURE WASHER	F Mechanical	Misc		Manufacturer's Standard	-			BY OTHERS - MINING										
D	New F-	-017	PP	01	451-PP-01	1		TRUCK WASH SUMP PUMP	F Mechanical	Pump	Vertical Spindle	Various	-	48.6m³/hr @ 17.6m TDH water	65SPR	BY OTHERS - MINING		1370	PUMPS - VERTICAL CANTILEVER	WARMAN	WARMAN	65SPR		Fixed		11.00
D	New F-	-017	ZM	01	451-ZM-01	1		TRUCK WASH WATER MONITOR NO.1	F Mechanical	Misc						BY OTHERS - MINING										
	New F-	-017	ZM	01	451-ZM-01	1		TRUCK WASH WATER MONITOR NO.2	F Mechanical	Misc						BY OTHERS - MINING										
1	New F-	-017	ZM	01	451-ZM-01	1		TRUCK WASH WATER MONITOR NO.3	F Mechanical	Misc						BY OTHERS - MINING										
	New F-	-017	ZM	01	451-ZM-01	1		TRUCK WASH WATER MONITOR NO.4	F Mechanical	Misc						BY OTHERS - MINING										
	New F-	-017	ZM	01	451-ZM-01	1		OILY/WATER SEPARATOR	F Mechanical							BY OTHERS - MINING										
											· · · · · · · · · · · · · · · · · · ·														519.42	7,077.42

# **APPENDIX 5 ELECTRICAL SINGLE LINE DIAGRAM**





# **APPENDIX 6 CAPITAL COST ESTIMATE**

Prepared by : RJO Print Date : 30/10/2014 9:25 AM

Period: 2Q14 Currency : USD Accuracy : +/-% 25%

Condor Gold La India Gold Project 5032

# Rev A **Summ Prim Disc**

**CAPITAL COST ESTIMATE** 

Scope	Main Area CCC Code	PDisc. Prelim.	Supply Cost	Installation	Labour	Freight Cost	Sub-Totals USD	Contingency	Total Project
				Hours	Installation Cost			USD	USD
Lyco Indirects	000 Construction Indirects	A General	561,059	400	173,078	508,000	1,242,137	124,214	1,366,350
		B Earthworks	-	-	189,000	-	189,000	47,250	236,250
		C Concrete	299,000	-	-	-	299,000	32,890	331,890
		D Steelwork	-	-	670,000	-	670,000	73,700	743,700
		E Tankage	-	-	298,154	-	298,154	26,834	324,987
		F Mechanical	-	-	312,500	-	312,500	34,375	346,875
		P EPCM	-	-	542,850	-	542,850	54,285	597,135
		M Buildings	165,000	-	-	-	165,000	16,500	181,500
	500 Management Costs	P EPCM	4,170,000	28,920	3,158,000	-	7,328,000	732,800	8,060,800
Lyco Directs	100 Treatment Plant	A General	40,000	240	5,346	-	45,346	4,535	49,881
		B Earthworks	99,000	2,250	592,760	-	691,760	172,940	864,701
		C Concrete	1,341,923	66,517	731,684	-	2,073,608	228,097	2,301,705
		D Steelwork	2,183,110	49,179	1,229,469	249,466	3,662,045	402,825	4,064,870
		E Platework	768,171	16,620	415,502	79,299	1,262,972	137,939	1,400,912
		E Tankage	1,000,601	22,576	965,470	66,492	2,032,563	182,931	2,215,494
		F Mechanical	10,830,618	48,709	1,500,540	882,049	13,213,207	938,575	14,151,782
		G Piping	2,051,386	36,498	1,094,955	164,111	3,310,452	662,090	3,972,542
		H Electrical & Inst	4,246,793	36,734	918,361	192,856	5,358,011	1,171,602	6,529,613
	200 Reagents & Plant Services	A General	-	-	-	-	-	-	-
		C Concrete	202,701	8,847	97,318	-	300,019	33,002	333,021
		D Steelwork	394,375	8,409	210,234	43,056	647,665	71,243	718,909
		E Tankage	326,290	5,533	220,452	31,150	577,892	52,745	630,637
		F Mechanical	1,124,713	8,781	263,439	89,977	1,478,129	103,469	1,581,599
	300 Infrastructure	A General	-	-	-	-	-	-	-
		B Earthworks	6,432	-	21,742	-	28,174	7,043	35,217
		C Concrete	3,752	27	295	-	4,047	445	4,492
		F Mechanical	81,638	872	26,145	6,531	114,314	8,002	122,316
		G Piping	129,000	7,785	233,550	10,320	372,870	74,574	447,444
		M Buildings	986,872	32,014	606,821	246,286	1,839,979	183,998	2,023,977
Grand Total			31,012,436	380,911	14,477,665	2,569,594	48,059,694	5,578,903	53,638,597

### **Exclusions**

Mining Costs and mine service buildings Tailings Dam Surface Water Management System Owners Costs Road Diversion **HV Power Line Relocation HV Sub-Station** Import Duties and Taxes Construction Camp Sunk Costs Pre-Production Costs Mobile Plant and Light Vehicles Maintenance Equipment

Prepared by : RJO

Print Date : 30/10/2014 9:25 AM

Period : 2Q14 Currency : USD Accuracy : +/-% 25%

Village Relocation Operations Accommodation Geotechncial, Tailings, other EPCM costs

# CAPITAL COST ESTIMATE Rev A

Condor Gold La India Gold Project 5032

**Summ Prim Disc** 

Prepared by : RJO Print Date : 30/10/2014 9:26 AM

CAPITAL COST ESTIMATE Rev A Condor Gold La India Gold Project 5032

Period : 2Q14 Currency : USD Accuracy : +/-% 25%

**Summary Plant Area** 

Scope	Main Area	Plant Area	Supply Cost	Installation	Labour	Freight Cost	Project Totals	Contingency	Total Project
		CCC Code	2 2 1 2 1 2 2	Hours	Installation Cost		USD	USD	USD
Lyco Directs	100 Treatment Plant	101 Treatment Plant - General	6,242,180	75,723	2,585,712	356,967	9,184,859	2,004,740	11,189,598
		120 Feed Preparation	2,090,203	37,730	819,481	173,123	3,082,807	282,920	3,365,727
		130 Milling	8,292,703	54,414	1,216,846	660,162	10,169,711	812,093	10,981,804
		140 Tailings	1,711,186	33,695	805,586	108,536	2,625,308	223,264	2,848,572
		160 Leaching	2,649,295	54,935	1,413,391	205,331	4,268,017	383,314	4,651,331
		170 Desorption	758,640	4,199	111,767	61,979	932,386	69,509	1,001,896
		180 Refining	809,996	18,592	500,225	67,585	1,377,805	125,058	1,502,864
		190 Other Plant Areas	7,400	36	1,080	592	9,072	635	9,707
	100 Treatment Plant Total		22,561,603	279,323	7,454,088	1,634,274	31,649,965	3,901,534	35,551,499
	200 Reagents & Plant Services	210 Reagents	797,546	11,154	283,989	63,922	1,145,457	100,708	1,246,165
		230 Water Services	660,269	12,966	335,587	51,598	1,047,454	92,173	1,139,628
		250 Air Services	440,414	2,597	62,763	35,465	538,642	41,110	579,752
		260 Fuels	47,050	1,068	22,894	4,340	74,284	6,497	80,780
		270 Electrical Services	102,800	3,787	86,211	8,858	197,869	19,970	217,839
	200 Reagents & Plant Services	Total	2,048,079	31,570	791,444	164,183	3,003,706	260,459	3,264,165
	300 Infrastructure	310 Environmental	11,432	36	22,822	400	34,654	7,497	42,150
		320 Utilities & Services	80,000	3,675	110,250	6,400	196,650	33,948	230,598
		340 Tailings Dam	79,000	4,410	132,300	6,320	217,620	43,524	261,144
		350 Plant Buildings	1,037,262	32,576	623,181	250,017	1,910,460	189,093	2,099,553
	300 Infrastructure Total		1,207,694	40,697	888,552	263,137	2,359,383	274,062	2,633,446
Lyco Directs To	tal		25,817,377	351,591	9,134,084	2,061,594	37,013,054	4,436,055	41,449,109
Lyco Indirects	000 Construction Indirects	001 Construction Indirects - Contractors	464,000	-	1,469,654	-	1,933,654	231,549	2,165,202
		010 Construction Indirects - General	205,000	-	542,850	500,000	1,247,850	124,785	1,372,635
		020 Site Construction Facilities	29,500	400	9,092	8,000	46,592	4,659	51,251
		040 Construction Operations	326,559	-	163,986	-	490,545	49,054	539,599
	000 Construction Indirects Tot	al	1,025,059	400	2,185,581	508,000	3,718,640	410,047	4,128,687
	500 Management Costs	510 EPCM - Home Office	4,000,000	-	-	-	4,000,000	400,000	4,400,000
		520 EPCM - Site	150,000	28,920	3,158,000	-	3,308,000	330,800	3,638,800
		540 Specialist Consultants	20,000	-	· · · · -	-	20,000	2,000	22,000
	500 Management Costs Total		4,170,000	28,920	3,158,000	-	7,328,000	732,800	8,060,800
Lyco Indirects T			5,195,059	29,320	5,343,581	508,000	11,046,640	1,142,847	12,189,487
Grand Total			31,012,436	380,911	14,477,665	2,569,594	48,059,694	5,578,903	53,638,597
Orana Total			31,012,430	300,311	14,477,003	2,303,334	40,000,004	3,370,303	33,030,33

64.5%

0.8%

30.1%

5.3%

100.0%

# **Exclusions**

Mining Costs and mine service buildings Tailings Dam Surface Water Management System Owners Costs Road Diversion 11.6%

Prepared by : RJO Print Date : 30/10/2014 9:26 AM

Period: 2Q14 Currency : USD Accuracy : +/-% 25% CAPITAL COST ESTIMATE Rev A

**Summary Plant Area** 

Condor Gold La India Gold Project 5032

HV Power Line Relocation HV Sub-Station Import Duties and Taxes Construction Camp Sunk Costs Pre-Production Costs Mobile Plant and Light Vehicles Maintenance Equipment Village Relocation Operations Accommodation Geotechncial, Tailings, other EPCM costs Prepared by : RJO Print Date : 30/10/2014 9:28 AM Period : 2Q14

Currency : USD
Accuracy : +/-% 25%

#### Summary Plant Area & Facility

Condor Gold La India Gold Project 5032

100 Treatment Plant	Plant Area	Facility	Supply Cost Ins	stallation Hours	Labour Installation Cost	Freight Cost P		Contingency USD	
100 Hoddinont Hant	101 Treatment Plant - General	110 Treatment Plant - General	- 195,000	-	-		195,000		19
		112 Bulk Site Earthworks	99,000	2,250	567,050	=	666,050	166,513	83
		117 Site Security Fencing	40,000	240	5,346		45,346	4,535	4
		118 Plant Piping	2,051,386	36,498	1,094,955	164,111	3,310,452	662,090	3,97
	404 Toronto and Bland Community Total	119 Plant Electrical & Instrumentation	4,246,793	36,734	918,361	192,856 <b>356,967</b>	5,358,011 9,184,859	1,171,602 2,004,740	6,52 11,18
	101 Treatment Plant - General Total	121 Primary Crushing	6,242,180	<b>75,723</b> 31,309	<b>2,585,712</b> 645,773	137,295	2,472,421	2,004,740	2,7
	120 Feed Preparation	125 Stockpiling	1,689,353 400,850	6,420	173,708	35,828	610,386	51,902 51,018	2,7
	120 Feed Preparation Total	125 Stockpilling	2,090,203	37,730	819,481	173,123	3,082,807	282,920	3,3
	130 Milling	131 Reclaim	1,007,823	16,103	370,198	84,846	1,462,868	131,830	1.5
	100 Willing	132 Grinding	7,080,511	37,447	821,572	558,979	8,461,061	662,555	9,1
		133 Classification	204.369	864	25.076	16.337	245.782	17.709	2
	130 Milling Total	100 0100111011011	8,292,703	54,414	1,216,846	660,162	10,169,711	812,093	10,9
	140 Tailings	142 Pre-Leach Thickening	654,885	12,369	314,285	50,108	1,019,278	85,130	1,1
	9.	144 Carbon Safety Screening	19,036	450	11,250	1,836	32,122	3,533	
		145 Cyanide Detoxification	964,370	20,201	461,151	51,176	1,476,697	126,780	1,
		146 Thickening	-	-	=	-	-	-	
		147 Tails Pumping	72,895	675	18,900	5,416	97,211	7,820	
	140 Tailings Total		1,711,186	33,695	805,586	108,536	2,625,308	223,264	2,
	160 Leaching	161 CIL	2,465,424	54,031	1,388,303	190,879	4,044,605	366,331	4,
		162 Carbon Recovery	31,937	410	11,588	2,507	46,032	3,659	
		163 Trash Screening	151,935	495	13,500	11,945	177,380	13,323	
	160 Leaching Total		2,649,295	54,935	1,413,391	205,331	4,268,017	383,314	4
	170 Desorption	171 Acid Wash / Elution	521,946	3,596	94,127	42,934	659,006	50,160	
	470 Decembles Tatal	172 Carbon Regeneration	236,695	603	17,640	19,046	273,380	19,350	
	170 Description Total	Id04 Coldroom	758,640	4,199	111,767	61,979	932,386	69,509	1,
	180 Refining	181 Goldroom	413,220	11,198	251,611	34,123	698,954	69,204	
		183 Electrowinning	287,936 108,840	6,863 531	233,044	24,665 8,796	545,646 133,205	46,359 9,495	
	180 Refining Total	185 Smelting	809,996	18,592	15,570 <b>500,225</b>	67,585	1,377,805	125,058	1
	190 Other Plant Areas	191 Other Plant Areas	7,400		1,080	592	9,072		1
	190 Other Plant Areas Total	191 Other Plant Areas	7,400	36 <b>36</b>	1,080	592 592	9,072	635 <b>635</b>	
100 Treatment Plant Total	190 Other Flant Areas Total		22,561,603	279,323	7,454,088	1,634,274	31,649,965	3,901,534	35
200 Reagents & Plant Services	210 Reagents	211 Cyanide	118,082	2,307	54,172	7,835	180,090	15,850	- 00
200 Hoagonio a Fiant Confiden	2 To Roage No	212 Lime	101,549	1,296	46,944	8,124	156,617	11,956	
		213 Flocculants	102,325	804	23,730	7,960	134,015	9,896	
		214 Caustic	62,892	1,125	26,319	3,793	93,004	7,743	
		216 Acid	51,916	671	20,299	3,781	75,996	6,677	
		217 Sodium Metabisulphite	193,161	2,332	46,420	16,159	255,741	23,358	
		218 Copper Sulphate	59,096	445	12,339	6,024	77,459	6,249	
		220 Reagents Store	108,525	2,173	53,765	10,246	172,536	18,979	
	210 Reagents Total		797,546	11,154	283,989	63,922	1,145,457	100,708	1,
	230 Water Services	231 Water Services - General	12,000	720	7,920	-	19,920	2,191	
		232 Raw Water	93,112	1,929	73,655	8,009	174,776	15,277	
		234 Potable Water	40,300	1,327	30,514	2,160	72,974	6,642	
		235 Gland Seal Water	8,000	144	4,320	640	12,960	907	
		238 Fire Water	166,000	1,431	42,930	13,280	222,210	15,555	
		240 Piperacks	174,746	5,279	94,920	14,220	283,887	31,228	
		242 Water Treatment Plant	70,000	563 72	16,875	5,600 960	92,475 15,120	6,473 1,058	
		232 Raw Water 233 Process Water	12,000 84,112	1,502	2,160 62,293	6,729	15,120	1,058	
	230 Water Services Total	1200 i lucess water	660,269	1,502	335.587	51,598	1,047,454	92,173	1
	250 Air Services	251 Compressed Air	440,414	2,597	62,763	35,465	538,642	41,110	
	250 Air Services Total	JED 1 COMPICESCO 7 III	440,414	2,597	62,763	35,465	538,642	41,110	
	260 Fuels	261 Fuel Storage & Distribution	47,050	1,068	22,894	4,340	74,284	6,497	
	260 Fuels Total	I== : : doi otorago a Diotribation	47,050	1.068	22,894	4.340	74,284	6.497	
	270 Electrical Services	272 Plant Sub Stations	102,800	3,787	86,211	8.858	197,869	19.970	
	270 Electrical Services Total		102,800	3,787	86,211	8,858	197,869	19,970	
200 Reagents & Plant Service			,	-,	,	-,	,	,	
Total			2,048,079	31,570	791,444	164,183	3,003,706	260,459	3
300 Infrastructure	310 Environmental	312 Event Pond	11,432	36	22,822	400	34,654	7,497	
300 infrastructure	310 Environmental Total		11,432	36	22,822	400	34,654	7,497	
300 Infrastructure	320 Utilities & Services	323 Water Bores	-	-	-	-	-	-	
300 Infrastructure		324 Sewage Treatment	80,000	3,675	110,250	6,400	196,650	33,948	
300 Infrastructure				3.675	110,250	6,400	196,650	33,948	
300 Infrastructure	320 Utilities & Services Total		80,000			0.700			
300 infrastructure	320 Utilities & Services Total 340 Tailings Dam	342 Tailings Pipeline	47,000	2,430	72,900	3,760	123,660	24,732	
300 infrastructure	340 Tailings Dam		47,000 32,000	2,430 1,980	59,400	2,560	93,960	18,792	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline	47,000 32,000 <b>79,000</b>	2,430 1,980 <b>4,410</b>	59,400 <b>132,300</b>	2,560 <b>6,320</b>	93,960 <b>217,620</b>	18,792 <b>43,524</b>	
300 infrastructure	340 Tailings Dam	342 Tailings Pipeline 345 Decant Return Pipeline 359 Crusher MCC	47,000 32,000 <b>79,000</b> 12,000	2,430 1,980 <b>4,410</b> 480	59,400 132,300 9,600	2,560 <b>6,320</b> 2,880	93,960 <b>217,620</b> 24,480	18,792 <b>43,524</b> 2,448	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline 359 Crusher MCC 360 Main MCC	47,000 32,000 <b>79,000</b> 12,000 12,000	2,430 1,980 <b>4,410</b> 480 480	59,400 132,300 9,600 9,600	2,560 <b>6,320</b> 2,880 2,880	93,960 <b>217,620</b> 24,480 24,480	18,792 43,524 2,448 2,448	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline 359 Crusher MCC 360 Main MCC 367 Primary Crusher Control Room	47,000 32,000 79,000 12,000 12,000 25,000	2,430 1,980 <b>4,410</b> 480 480 100	59,400 132,300 9,600 9,600 2,000	2,560 <b>6,320</b> 2,880 2,880 2,000	93,960 <b>217,620</b> 24,480 24,480 29,000	18,792 43,524 2,448 2,448 2,900	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline  359 Crusher MCC 360 Main MCC 367 Primary Crusher Control Room 368 Main Control Room	47,000 32,000 79,000 12,000 12,000 25,000 22,060	2,430 1,980 <b>4,410</b> 480 480 100 682	59,400 132,300 9,600 9,600 2,000 10,733	2,560 6,320 2,880 2,880 2,000 3,014	93,960 217,620 24,480 24,480 29,000 35,807	18,792 43,524 2,448 2,448 2,900 3,581	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline  359 Crusher MCC 360 Main MCC 367 Primary Crusher Control Room 368 Main Control Room 369 Control/Titration Room	47,000 32,000 79,000 12,000 12,000 25,000	2,430 1,980 <b>4,410</b> 480 480 100	59,400 132,300 9,600 9,600 2,000	2,560 <b>6,320</b> 2,880 2,880 2,000	93,960 <b>217,620</b> 24,480 24,480 29,000	18,792 43,524 2,448 2,448 2,900	
300 infrastructure	340 Tailings Dam  340 Tailings Dam Total	342 Tailings Pipeline 345 Decant Return Pipeline  359 Crusher MCC 360 Main MCC 367 Primary Crusher Control Room 368 Main Control Room	47,000 32,000 79,000 12,000 12,000 25,000 22,060	2,430 1,980 <b>4,410</b> 480 480 100 682	59,400 132,300 9,600 9,600 2,000 10,733	2,560 6,320 2,880 2,880 2,000 3,014	93,960 217,620 24,480 24,480 29,000 35,807	18,792 43,524 2,448 2,448 2,900 3,581	

Condor Gold La India Gold Project 5032 CAPITAL COST ESTIMATE Rev A

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#### Summary Plant Area & Facility

Scope	Main Area	Plant Area	Facility	Supply Cost	Installation Hours	Labour Installation Cost	Freight Cost	Project Totals USD	Contingency USD	Sum Total USD
			373 Mining Administration Office	-	-	-	-	-	-	-
			374 Laboratory & Plant Office	250,474	5,369	79,453	119,000	448,927	44,577	493,504
			375 Plant Change House	-	-	-	-	-	-	-
			376 Plant Chop Kitchen & Dining	39,488	1,614	32,272	8,282	80,042	8,004	88,046
			377 Plant First Aid Clinic	24,790	1,240	24,790	7,437	57,017	5,702	62,719
			378 Plant Administration Building	139,675	7,610	152,200	45,460	337,335	33,734	371,069
			379 Plant Gatehouse	15,962	726	13,113	5,258	34,333	3,433	37,767
			380 Plant Security Gatehouse	-	-	-	-	-	-	-
			382 Emergency Response Vehicle Building	29,400	1,680	33,600	2,352		6,535	71,887
			383 Core Shed	60,000	1,500	30,000	4,800	94,800	9,480	104,280
			384 Mine Warehouse Buliding	-	-	-	-	-	-	-
			385 Mine Heavy Vehicle Workshop	-	-	-	-	-	-	-
			386 Reagents Permanent Store	112,000	2,754	55,620	8,960	176,580	17,480	194,060
			387 Plant Workshop, Main Warehouse & Offices	273,163	7,263	148,640	31,253	453,056	43,847	496,903
		350 Plant Buildings Total		1,037,262	32,576	623,181	250,017	1,910,460	189,093	2,099,553
	300 Infrastructure Total			1,207,694	40,697	888,552	263,137	2,359,383	274,062	2,633,446
yco Directs Total				25,817,377	351,591	9,134,084	2,061,594	37,013,054	4,436,055	41,449,109
_yco Indirects	000 Construction Indirects	001 Construction Indirects - Contractors	002 Earthworks	-	-	189,000	-	189,000	47,250	236,250
			003 Concrete	299,000	-	-	-	299,000	32,890	331,890
			004 SMP	-	-	982,500	-	982,500	108,075	1,090,575
			005 Field Erected Tankage	-	-	298,154	-	298,154	26,834	324,987
			008 Buildings	165,000	-	-	-	165,000	16,500	181,500
		001 Construction Indirects - Contractors								
		Total		464,000		1,469,654	-	1,933,654	231,549	2,165,202
		010 Construction Indirects - General	011 Construction Equipment	105,000	-	-	-	105,000	10,500	115,500
			013 General Freight & Transport	100,000	-	-	500,000		60,000	660,000
			015 Vendor Representatives	-	-	542,850	-	542,850	54,285	597,135
		010 Construction Indirects - General Tot	al	205,000		542,850	500.000	1,247,850	124,785	1,372,635
		020 Site Construction Facilities	023 Laydown Areas (Hardstand)	17,500	240	5.892	500,000	23.392	2.339	25.731
		020 Site Constituction Facilities	024 Construction Site Offices	12,000	160	3,200	8.000	23,200	2,339	25,520
		020 Site Construction Facilities Total	024 Collstituction Site Offices	29,500	400	9.092	8,000	46,592	4,659	51,251
		040 Construction Operations	041 Construction Operating Costs	326,559	-	163,986		490.545	49.054	539,599
		040 Construction Operations Total	041 Constituction Operating Costs	326,559		163,986		490,545	49.054	539,599
		040 Construction Operations Total		320,333		103,900	-	430,343	40,004	333,333
	000 Construction Indirects Total	al		1,025,059	400	2.185.581	508.000	3,718,640	410.047	4.128.687
	500 Management Costs	510 EPCM - Home Office	512 Process / Engineering	750,000	-	-	-	750.000	75.000	825,000
	ood management occio	o to El olir Florido o inico	513 Drafting	1,200,000	_	_	_	1,200,000	120,000	1,320,000
			514 Projects	850,000	_	_	_	850,000	85,000	935,000
			515 Project Services	600,000	_	_	_	600,000	60,000	660,000
			517 Home Office Expenses	600,000	_	_	_	600,000	60,000	660,000
		510 EPCM - Home Office Total		4,000,000			-	4.000.000	400.000	4.400.000
		520 EPCM - Site	519 Site Support	150,000	-	-	-	150.000	15,000	165,000
			522 Construction Services	-	25,000	2,500,000	_	2,500,000	250,000	2,750,000
			527 Commissioning	_	3,920	658,000	-	658,000	65,800	723,800
		520 EPCM - Site Total		150.000	28,920	3,158,000	-	3,308,000	330,800	3,638,800
		540 Specialist Consultants	549 Hazop	20,000	-	-	_	20.000	2.000	22,000
		540 Specialist Consultants Total	<u> </u>	20,000			-	20.000	2,000	22,000
	500 Management Costs Total			4,170,000	28,920	3.158.000	-	7.328.000	732.800	8.060.800
yco Indirects Total				5,195,059	29,320	5,343,581	508,000	11,046,640	1,142,847	12,189,487
Frand Total				31,012,436	380,911	14,477,665	2,569,594	48,059,694	5,578,903	53,638,597

CAPITAL COST ESTIMATE Rev A

Condor Gold La India Gold Project 5032

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# Summary Plant Area & Disc

Scope	Main Area	Plant Area CCC Code	PDisc. Prelim.	Supply Cost	Installation Hours	Labour Installation	Freight Cost	Project Totals USD	Contingency USD	Total Project USD
		355 5545			Houre	Cost		002	002	552
Lyco Directs	100 Treatment Plant	101 Treatment Plant - General	A General	40,000	240	5,346	-	45,346	4,535	49,881
			B Earthworks	99,000	2,250	567,050	-	666,050	166,513	832,563
			F Mechanical	- 195,000	-	-	-	- 195,000	-	- 195,000
			G Piping	2,051,386	36,498	1,094,955	164,111	3,310,452	662,090	3,972,542
			H Electrical & Inst	4,246,793	36,734	918,361	192,856	5,358,011	1,171,602	6,529,613
		120 Feed Preparation	B Earthworks	-	-	16,034	-	16,034	4,009	20,043
			C Concrete	276,745	13,338	146,719	-	423,464	46,581	470,045
			D Steelwork	404,960	9,218	230,441	46,862	682,263	75,049	757,312
			E Platework	339,516	5,786	144,647	40,742	524,906	56,752	581,658
		100 150	F Mechanical	1,068,982	9,388	281,640	85,519	1,436,140	100,530	1,536,670
		130 Milling	B Earthworks	-	-	9,676	-	9,676	2,419	12,095
			C Concrete	456,990	18,621	204,832	-	661,821	72,800	734,622
			D Steelwork E Platework	857,625 265,623	18,553 3,589	463,823 89,730	98,652 24,513	1,420,100 379,866	156,211	1,576,311 421,652
			F Mechanical	6,712,465	3,569 13,651	448,785	536,997	7,698,247	41,785 538,877	8,237,125
		140 Tailings	A General	0,712,403	- 13,031	440,700	550,997	7,090,247	330,077	0,237,123
		170 Tallings	C Concrete	233,538	- 11,152	122,670	-	356,208	39,183	395,391
			D Steelwork	180,475	4,332	108,295	20,096	308,866	33,975	342,842
			E Platework	55,215	1,080	27,000	4,159	86,374	9,501	95,876
			E Tankage	325,618	3,382	135,128	10,974	471,720	42,455	514,175
			F Mechanical	916,340	13,750	412,493	73,307	1,402,139	98,150	1,500,289
		160 Leaching	C Concrete	313,676	20,531	225,844	-	539,519	59,347	598,866
			D Steelwork	498,650	10,755	268,875	57,570	825,095	90,760	915,855
			E Platework	48,390	1,292	32,288	4,674	85,352	9,389	94,741
			E Tankage	601,748	15,405	677,809	48,140	1,327,698	119,493	1,447,191
			F Mechanical	1,186,831	6,953	208,575	94,946	1,490,353	104,325	1,594,677
		170 Desorption	C Concrete	7,975	414	4,554	-	12,529	1,378	13,907
			D Steelwork	50,900	1,157	28,913	5,812	85,625	9,419	95,043
			E Platework	4,649	108	2,700	558	7,907	870	8,777
			E Tankage		-		-	-		-
		100 B. 5 :	F Mechanical	695,116	2,520	75,600	55,609	826,325	57,843	884,168
		180 Refining	C Concrete	53,000	2,461	27,067	-	80,067	8,807	88,874
			D Steelwork	190,500	5,165	129,122	20,474	340,096	37,411	377,506
			E Platework	54,776	4,766	119,138	4,653	178,567	19,642 20,983	198,209
			E Tankage F Mechanical	73,235 438,485	3,789 2,412	152,532 72,367	7,379 35,079	233,145 545,931	38,215	254,128 584,146
		190 Other Plant Areas	A General	430,400	2,412	72,307	33,079	545,951	30,213	504,140
		150 Other Fidnit Areas	F Mechanical	7,400	36	1,080	592	9,072	635	9,707
	100 Treatment Plant Total		i inconanica	22,561,603	279,323	7,454,088	1,634,274	31,649,965	3,901,534	35,551,499
		es 201 Reagents & Plant Services - Ge	er A General	-	-	-	-	-	-	-
		210 Reagents	C Concrete	87,255	2,773	30,505	-	117,760	12,954	130,714
			D Steelwork	142,175	3,050	76,247	14,526	232,948	25,624	258,572
			E Tankage	187,567	2,145	81,671	18,952	288,189	26,671	314,861
			F Mechanical	380,549	3,186	95,567	30,444	506,559	35,459	542,019
		230 Water Services	A General	-	-	-	-	-	-	-
			C Concrete	78,546	4,138	45,516	-	124,062	13,647	137,709
			D Steelwork	135,500	2,925	73,125	15,900	224,525	24,698	249,223
			E Tankage	111,223	2,847	125,282	8,898	245,403	22,086	267,489
		OFO Air Opering	F Mechanical	335,000	3,056	91,665	26,800	453,465	31,743	485,208
		250 Air Services	C Concrete	11,400	572	6,288	-	17,688	1,946	19,633
			D Steelwork	41,600	855 1 170	21,375	4,472	67,447	7,419	74,866
1	I	I	F Mechanical	387,414	1,170	35,100	30,993	453,508	31,746	485,253

CAPITAL COST ESTIMATE
Rev A

Condor Gold La India Gold Project 5032

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# Summary Plant Area & Disc

Scope	Main Area	Plant Area CCC Code	PDisc. Prelim.	Supply Cost	Installation Hours	Labour Installation Cost	Freight Cost	Project Totals USD	Contingency USD	Total Project USD
		260 Fuels	C Concrete	6,550	339	3,724	-	10,274	1,130	11,404
			E Tankage	27,500	540	13,500	3,300	44,300	3,987	48,287
			F Mechanical	13,000	189	5,670	1,040	19,710	1,380	21,090
		270 Electrical Services	C Concrete	18,950	1,026	11,286	-	30,236	3,326	33,562
			D Steelwork	75,100	1,580	39,488	8,158	122,746	13,502	136,248
			F Mechanical	8,750	1,181	35,438	700	44,888	3,142	48,030
	200 Reagents & Plant Service			2,048,079	31,570	791,444	164,183	3,003,706	260,459	3,264,165
	300 Infrastructure		A General	-	-	-	-	-	-	-
			B Earthworks	6,432	-	21,742	-	28,174	7,043	35,217
			F Mechanical	5,000	36	1,080	400	6,480	454	6,934
		320 Utilities & Services	A General	-	-	-	-	-	-	-
			F Mechanical	30,000	300	9,000	2,400	41,400	2,898	44,298
			G Piping	50,000	3,375	101,250	4,000	155,250	31,050	186,300
			G Piping	79,000	4,410	132,300	6,320	217,620	43,524	261,144
		350 Plant Buildings	C Concrete	3,752	27	295	-	4,047	445	4,492
			F Mechanical	46,638	536	16,065	3,731	66,434	4,650	71,084
			M Buildings	986,872	32,014	606,821	246,286	1,839,979	183,998	2,023,977
	300 Infrastructure Total			1,207,694	40,697	888,552	263,137	2,359,383	274,062	2,633,446
Lyco Directs Tota				25,817,377	351,591	9,134,084	2,061,594	37,013,054	4,436,055	41,449,109
Lyco Indirects	000 Construction Indirects	001 Construction Indirects - Contract		-	-	189,000	-	189,000	47,250	236,250
			C Concrete	299,000	-	-	-	299,000	32,890	331,890
			D Steelwork	-	-	670,000	-	670,000	73,700	743,700
			E Tankage	-	-	298,154	-	298,154	26,834	324,987
			F Mechanical	-	-	312,500	-	312,500	34,375	346,875
			M Buildings	165,000	-	-	-	165,000	16,500	181,500
		010 Construction Indirects - General		205,000	-	-	500,000	705,000	70,500	775,500
			P EPCM	-	-	542,850	-	542,850	54,285	597,135
			A General	29,500	400	9,092	8,000	46,592	4,659	51,251
			A General	326,559	-	163,986	-	490,545	49,054	539,599
	000 Construction Indirects T			1,025,059	400	2,185,581	508,000	3,718,640	410,047	4,128,687
	500 Management Costs	510 EPCM - Home Office	P EPCM	4,000,000	-	-	-	4,000,000	400,000	4,400,000
			P EPCM	150,000	28,920	3,158,000	-	3,308,000	330,800	3,638,800
			P EPCM	20,000	-	-	-	20,000	2,000	22,000
	500 Management Costs Total	l		4,170,000	28,920	3,158,000	-	7,328,000	732,800	8,060,800
Lyco Indirects To	otal			5,195,059	29,320	5,343,581	508,000	11,046,640	1,142,847	12,189,487
Grand Total				31,012,436	380,911	14,477,665	2,569,594	48,059,694	5,578,903	53,638,597

#### **Exclusions**

Mining Costs and mine service buildings
Tailings Dam
Surface Water Management System
Owners Costs
Road Diversion
HV Power Line Relocation
HV Sub-Station
Import Duties and Taxes
Construction Camp
Sunk Costs
Pre-Production Costs
Mobile Plant and Light Vehicles

Maintenance Equipment Village Relocation

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Condor Gold La India Gold Project 5032

# Summary Plant Area & Disc

Scope	Main Area	Plant Area	PDisc. Prelim.	Supply Cost	Installation	Labour	Freight Cost	Project Totals	Contingency	Total Project
		CCC Code			Hours	Installation		USD	USD	USD
						Cost				

Operations Accommodation

Geotechncial, Tailings, other EPCM costs

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# CAPITAL COST ESTIMATE Rev A

Condor Gold La India Gold Project 5032

# **Summary Main Area**

Scope	Main Area	Supply Cost	Installation	Labour	Freight Cost	Project Totals	Contingency	Total Project USD	%
			Hours	Installation Cost		USD	USD		
Lyco Directs	100 Treatment Plant	22,561,603	279,323	7,454,088	1,634,274	31,649,965	3,901,534	35,551,499	66.3%
	200 Reagents & Plant Services	2,048,079	31,570	791,444	164,183	3,003,706	260,459	3,264,165	6.1%
	300 Infrastructure	1,207,694	40,697	888,552	263,137	2,359,383	274,062	2,633,446	4.9%
Lyco Directs To	tal	25,817,377	351,591	9,134,084	2,061,594	37,013,054	4,436,055	41,449,109	77.3%
Lyco Indirects	000 Construction Indirects	1,025,059	400	2,185,581	508,000	3,718,640	410,047	4,128,687	7.7%
	500 Management Costs	4,170,000	28,920	3,158,000	-	7,328,000	732,800	8,060,800	15.0%
Lyco Indirects	Total Total	5,195,059	29,320	5,343,581	508,000	11,046,640	1,142,847	12,189,487	22.7%
Grand Total	rand Total		380,911	14,477,665	2,569,594	48,059,694	5,578,903	53,638,597	100.0%
		64.5%	0.8%	30.1%	5.3%	100.0%	11.6%	_	

Exclusions
Mining Costs and mine service buildings
Tailings Dam
Surface Water Management System
Owners Costs
Road Diversion
HV Power Line Relocation
HV Sub-Station
Import Duties and Taxes
Construction Camp
Sunk Costs
Pre-Production Costs
Mobile Plant and Light Vehicles
Maintenance Equipment
Village Relocation
Operations Accommodation
Geotechncial, Tailings, other EPCM costs

Orginal Cost Estimate	58,247,162	Saving
Fab steel in Thailand	57,569,804	677,358
Fab Platework in Indonesia	57,281,805	287,999
Use flat pack buildings	56,878,226	403,579
Field Erected Tankage Savings	56,590,208	288,018
General Plant Site Reductions	54,717,091	1,873,117
Potential Savings in E&I (10% of Direct Costs)		500,000
Bundle Major Mech Equipment (3% saving)		195,000
	54,022,090	
Delete Mining Buildings covered by SRK		383,493
		4,608,564

# **APPENDIX 7 OPERATING COST ESTIMATE**

# **Condor Gold PLC**

# La India Gold Project

# 2300 TPD PRIMARY THROUGHPUT

# **PLANT OPERATING COSTS**

01-Aug-14

Prepared By:



REV. NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN PROJE APPROVAL APPRO	
				DEGION DEGIS	-0-
Α	17-Jun-14	Issued for Review	AC		
В	26-Jun-14	Issued for Final Review	AF		
С	09-Jul-14	Issued for Study	AC		
D	17-Jul-14	Re-Issued for Study	AC		
E	01-Aug-14	Re-Issued for Study	AC		



Rev E

# **REVISION RECORD**

Date	Revision	Description	Reason	Initials
17-Jun-14	Α	Issued for Review		AC
26-Jun-14	В	Issued for Final Review		AF
		Review of maintenance and labour costs to fit to shift schedule		AF
		Fixed vs variable power calculation - set mill to 0%, adjusted some of the other		AF
		usage factors.		
		Average continous power draw in crushing and grinding estimate based on		AF
		operating hours.		
		Cyanide cost from \$3,400 to \$2,700 based on new quote from Cyanco.		AF
		Liner wear consumable reduced to 55% of the amount calculated by Bond.		AF
09-Jul-14		Equipment list power total, removed duplicates and non continuous items.		AF
09-Jul-14	С	Issued for Study		AC
		Diesel price down to \$1.00 from \$1.20 per Dan M		AC
		Grinding power calculation corrected from availability to continuous load factor		AC
		ODMO server discrete sedere different AOI seller OM te OM te consent for		
		SBMS consumption rate reduced from 10kg/kg CN to 8kg/kg CN to account for		AC
		increase discharge of 30ppm CN from 1ppm Power cost reduced from \$0.20/kWh to \$0.18/kWh per Dan M		40
		Labour Rates Increased per Dan M based on data reported from B2		AC AC
		Equipment Capital Cost updated per estimate to correct maintenance cost		
		Abrasion index reduced from 1.13 to 1.08 to represent a weighted average		AC AC
		Cyanide cost from \$2,700 to \$2,620 based on new quote from Dupont		AC
		Concentrate assay costs removed		AC
17-Jul-14	D	Revised diesel price to \$0.85 per email from Condor and completed elution,		AC
17-501-14		goldroom, and regeneration energy requirements utilizing new diesel price		AC
		SBMS unit cost lowered to reflect flottec quote and lime unit cost raised to include freight		AC
		Added costs associated with FEL operation for reclaiming the crushed ore		AC
04 4 44	_	stockpile		
01-Aug-14	E	Updated power consumption to reflect latest load list and corrected mill average draw		AC
				1
				1
				-
				-
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Rev E

#### QUALIFICATIONS

The operating cost estimate presented here includes all direct costs associated with the Project to allow production of Gold dorè. The operating cost estimate is presented with the following qualifications and exclusions:

#### 1 Exclusions Summary

#### 1.1 General

- 1.1.1 All costs associated with areas beyond the battery limits of the study.
- 1.1.2 Import duties
- 1.1.3 All taxes (GST and/or VAT, etc.)
- 1.1.4 Any impact of foreign exchange rate fluctuations, other than Cordoba to USD
- 1.1.6 Any escalation from the date of the estimate
- 1.1.7 Project finance costs
- 1.1.8 Interest charges
- 1.1.9 Corporate Overheads
- 1.1.10 Political risk insurance
- 1.1.11 Plant rehabilitation costs
- 1.1.12 Any land or crop compensation costs
- 1.1.13 Licence fees
- 1.1.14 Royalties
- 1.1.15 General and Administration Costs (G&A)

#### 1.2 Contingency

1.2.1 No allowance for contingency

#### 1.3 Mining

- 1.3.1 ROM Stockpile rehandling costs
- 1.3.2 All mining and exploration costs, including mining services
- 1.3.3 Maintenance cost of all mine, haul and plant access roads.

#### 1.4 Product

- 1.4.1 Products transport costs
- 1.4.2 Products marketing costs
- 1.4.3 Products insurance costs

#### 1.5 Tailings

- 1.5.1 Tailings storage costs, including future lifts and rehabilitation
- 1.5.2 External Government required monitoring costs

### 1.6 Environmental

1.6.1 Any rehabilitation or closure costs

### 1.7 Laboratory

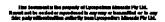
- 1.7.1 Grade control and exploration analytical costs
- 1.7.2 Contract labour

# 2 Estimate Basis

- 2.1 All costs and exchange rates are as at 2Q 2014
- 2.2 Currency of Estimate: US\$
- 2.3 Accuracy: ± 25 %
- 2.4 Exchange rate US\$ 1.00 = Cordoba 25
- 2.5 Fuel costs have been based on a diesel price of US\$ 0.86 /L
- 2.6 Power unit costs have been based on grid supply, with an electricity cost of US\$ 0.18 /kWh
- 2.7 Consumables costs have been based on data from the Lycopodium database of recent projects as well as vendor pricing.
- 2.8 Grinding media consumption rates have been based on Lycopodium Modelling
- 2.9 Reagent consumption rates have been based on preliminary testwork and the Lycopodium database of projects
- 2.10 Power consumption has been based on data from the Lycopodium database of recent projects
- 2.11 Maintenance costs have been factored from the capital cost estimate for similar sized plants, using factors from the Lycopodium database
- 2.12 Labour unit costs have been taken from client supplied data.
- 2.13 Mobile equipment cost provides for fuel and maintenance, not for purchase or vehicle lease
- 2.14 The pebble crusher circuit is not included in the operating cost.

### 3 Battery Limits

- 3.1 Feed into ROM bin. Loader to crusher excluded.
- 3.2 Tails in tailings dam
- 3.3 Gold bullion in safe on site. No transport or refining charge included





Project Name: Client: Project Description: Job No.: Option: Revision:

La India Gold Project Condor Gold PLC Pre Feasibility Study 5032

			_
Annual Throughput	805,000	tpa	Design Basis
	CR, SS-SAG, CIL		
Operating Basis Hours per day Days per yer	24 350		
Operating Hours Crushing Plant Milling	6300 7728	h/y h/y	5027-PDC-001 5027-PDC-001
Crusher Throughput	135	dtph	Calculated
Mill Throughput Mill Throughput	2,300 2,300	dry t/d tph	Calculated Calculated
Estimate Period Estimate Accuracy Estimate Currency	2Q 2014 ± 25% US\$		Design Basis Design Basis Design Basis
Labour Cost Basis	NON-EXPAT		
Exchange Rate: US\$ 1.00 Cordoba	1.000 25.000	US\$ Cordoba	20-month average
Fuel Price Diesel price	\$ 0.86	US\$/L	Email from Client
Power Supply	GRID		Client
Power Cost - Diesel Operating Cost Diesel Consumption Total Cost	\$ 0.036 0.26 0.26	US\$/kWh L/kWh US\$/kWh	Assumption Assumption
Power Cost - Grid Demand charge Local	\$ - \$ 0.18000 \$ -	US\$/month US\$/kWh US\$/kWh	Assumption Design Basis
Unit Rate Total Cost	\$ 0.180 \$ 0.180	US\$/kWh US\$/kWh	Calc
Ore Properties			
Au Ag	3.400 5.800	g Au/t g Ag/t	5032-PDC-001 5032-PDC-001
Specific Gravity (SG) Axb Bond BWI Bond AI Bond CWI	2.54 40.0 21.9 1.1300 19.5	3.3.	5032-PDC-001 AG-SAG Design 2013 La Indi AG-SAG Design 2013 La Indi AG-SAG Design 2013 La Indi Assumption
Recovery			
Gravity Circuit Recovery Au Ag	0.0% 0.0%		5032-PDC-001 5032-PDC-001
Flotation Circuit Recovery Au Ag	0.0% 0.0%		5032-PDC-001 5032-PDC-001
Intense Cyanidation Recovery Au Ag	:		5032-PDC-001 5032-PDC-001
CIL Leach Recovery Au Ag	90.2% 69.9%		5032-PDC-001 5032-PDC-001
Overall Recovery w/ Gravity Au Ag	90.2% 69.9%		5032-PDC-001 5032-PDC-001
Overall Recovery w/o Gravity Au Ag			5032-PDC-001 5032-PDC-001
Annual Gold Production Annual Silver Production	- 79,382 - - 104,940 -	oz/year oz/year	Calc Calc



Project Name: Client: Project Description: Job No.: Option: Revision:

La India Gold Project Condor Gold PLC Pre Feasibility Study 5032

Annual Metal Production	- 184,322	- oz/year	Calc
Annual Equivalent Gold Production  NY Spot price, Au (Jun 17th 2014)	- 81,006 1,264	- oz/year \$/oz	Calc http://www.kitco.com
NY Spot price, Ag (Jun 17th 2014) Au/Ag Ratio	19.56 65	\$/oz	http://www.kitco.com
Crushing Crusher throughput	805,000	tpa	
Annual Operating Hours Availability	6,300 <b>75.0</b> %	h/y	Calc
SAG Mill SAG Mill throughput	805,000 104	tpa tph	
Annual Operating Hours Availability Specific Energy	7,728 92.0% 28.4	h/y kWh/t	Calc 5032-PDC-001
Pre-Leach Thickener Concentrate Thickener Feed	- 805,000 - 104.17	- tpa - tph	
Flocculant addition	- 48.0	g/t thickener feed	5032-PDC-001
<u>Cyanide Thickener</u> Tailings Thickener Feed	- 805,000 - 104.2	- tpa - tph	Calculated
Flocculant addition	- 48.0	g/t thickener feed	5032-PDC-001
CIL Number of Tanks %Solids CIL Feed Annual Operating Hours	6 48% 805,000 104 7,728	- tanks - - tpa - h/y	5032-PDC-001 5032-PDC-001 5032-PDC-001
Availability  Elution	92.0%	-	
Number of Strips Carbon Strip Time Strip Heater Operating Time Annual Operating Hours Availability	6 5.0 2.5 2.5 780 8.9%	- strips / week - t/strip - h/strip - h/strip - h/yr - %	5032-PDC-001 5032-PDC-001 Assumed
Gold Room Number of Smelts Smelt time	2 4	smelt / week h / smelt	Assumed Assumed
Cyanide Detoxification	SO2 / Air		
Tailings %Solids Tailings Slurry Tailings Solution	<b>50%</b> 1,610,000 805,000	% solids tpa slurry m3/y solution	5032-PDC-001
WAD Cyanide in Reactor Feed WAD Cyanide in Reactor Discharge	150 1	g/m³ g/m³	
WAD Cyanide Load WAD Cyanide Discharge WAD Cyanide Destroyed	120,750 805 119,945	kg/year kg/year kg/year	
Reagents			
Activated Carbon (Pica G210-AS or equivalent) CIL Carbon in circuit CIL Carbon consumption per day Total Annual Consumption	60.0 40.0 32.2	- t - g/t ore 0.0 tpa	5032-PDC-001 5032-PDC-001 Calc
Lime (Quicklime - CaO 90% w/w) CIL	0.93	- kg/t ore	5032-PDC-001
Cyanide treatment (destruction)	748.7 4 531.3	tpa  ould kg/kg CN  0.0 tpa	Calc 5032-PDC-001 Calc
Flotation Total	1,280.0	- kg/h - tpa - tpa	5032-PDC-001 Calc Calc
<u>Cyanide</u>	,,200.0	-	23.0
(NaCN 20% w/w)	I	I	1



Project Name: Client: Project Description: Job No.: Option: Revision: La India Gold Project Condor Gold PLC Pre Feasibility Study 5032

CIL Solid NaCN		0.65	-	kg/t ore	5032-PDC-001
		523.3		tpa	Calc
Elution Solid NaCN		128		kg/strip	5032-PDC-001
		39.9		tpa	Calc
ILR Solid NaCN		0		kg/d	5032-PDC-001
		-		tpa	Calc
Total Solid NaCN		563.2		tpa	Calc
Total Colla Hacit		000.2		, pa	Calc
Sodium Hydroxide					
(NaOH 20% w/w)					
Elution Solid NaOH		365	-	I. a /atria	5032-PDC-001
Elution Solid NaOH			-	kg/strip	5032-PDC-001
		113.9	-	tpa	BBC
ILR Solid NaOH		0		kg/d	5032-PDC-001
		-	-	tpa	
Total Solid NaOH			-		
		113.9	-	tpa	Calc
Hydrochloric Acid					
(HCI 32%)					
Elution / Gold Room HCI		598	-	kg/strip	5032-PDC-001
Total		186.6		tpa	Calc
		. 50.0			
Smelting Flux					
Silica	10	10	10	kg/1000oz	5032-PDC-001
Borax	15	15		kg/100002 kg/1000oz	
		15	13	kg/100002 kg/1000oz	5032-PDC-001
Sodium Nitrate	15			kg/10000Z	5032-PDC-001
Fluorspar	5	5	5	kg/1000oz	5032-PDC-001
Silica	-	1.843	-	tpa	Calc
Borax	-	2.765	-	tpa	Calc
Sodium Nitrate	-	2.765	-	tpa	Calc
Fluorspar	-	0.922	-	tpa	Calc
,	-	8.294	-	tpa	Calc
				·	
Sodium Metabisulphite					
(NaS2O5)					
Detox Area		8.0		kg/kg CN	5032-PDC-001 revised in Rev C from 10
Total		966.0	_	tpa	to account for 30ppm discharge
Total		900.0	-	ipa	to account for supprint discharge
0 0 d-b B					
Copper Sulphate Pentahydrate					BBC
Detox Area		0.87		kg/kg CN	5032-PDC-001
		105.1	-	tpa	Calc
Total		105.1	-	tpa	Calc
PAX Collector					
Flotation	-			kg/h	Calc
Total	_	0.0	_	tpa	Calc
10101		0.0		- Pu	Caio
MIBC Frother					
Flotation				1 /h-	Calc
	-	0.0		kg/h	
Total	-	0.0	-	tpa	Calc
<u>Flocculant</u>					
Pre-Leach Thickener	-	48	0.0		5032-PDC-001
Total	-	38.6		tpa	Calc
Cyanide Thickener	-	48	0.0	kg/t	Calc
Total	-	38.6	-	tpa	5032-PDC-001
Water					
Process Water		113	122	m3/h	5032-PDC-001
Raw Water		11		m3/h	5032-PDC-001
I YOU'V V V OLG!		0.0		m3/d/person	5032-PDC-001 5032-PDC-001
Potable Water	1	0.0	0.2	пола/реголі	3032-FDC-001
Potable Water					
		0.40.000	4 004 000	0.4	0-1-
Process Water	-	949,200	1,024,800		Calc
Process Water Raw Water		92,400	84,000	m3/y	Calc
Process Water	- - -		84,000		

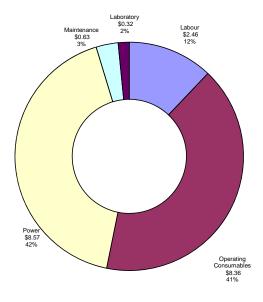


Rev E

### **SUMMARY OF OPERATING COSTS**

Annual throughput 805,000 tpa ore

Cost Category				Total Co	st				Distribution		Fixed Cost	Variable Co	ost	
	US\$/year	US	\$/t ore	US\$/oz Au		US\$/oz Ag	2	S\$/oz Au (Equiv.)		% Fixed	US\$/year	US\$/year	U	S\$/t ore
Labour	\$ 1,977,072	\$	2.46	\$ 24.91	\$	18.84	\$	24.41	12.1%	100%	\$ 1,977,072	\$ -	\$	-
Operating Consumables	\$ 6,730,133	\$	8.36	\$ 84.78	\$	64.13	\$	83.08	41.1%	8%	\$ 567,311	\$ 6,162,822	\$	7.656
Power	\$ 6,897,275	\$	8.57	\$ 86.89	\$	65.73	\$	85.14	42.1%	13%	\$ 874,216	\$ 6,023,060	\$	7.482
Maintenance	\$ 509,837	\$	0.63	\$ 6.42	\$	4.86	\$	6.29	3.1%	100%	\$ 509,837	\$ -	\$	-
Laboratory	\$ 256,135	\$	0.32	\$ 3.23	\$	2.44	\$	3.16	1.6%	100%	\$ 256,135	\$ -	\$	-
TOTAL	\$16,370,452	\$	20.34	\$ 206.22	\$	156.00	\$	202.09	100%		\$ 4,184,571	\$ 12,185,882	\$	15.14



Rev I

# LABOUR COSTS

 Basis
 12
 hours per day

 Shift Roster
 2
 shifts per day

 4
 shifts in total

 Panel Rotation
 4 days or, 4 days off

	Employees per	Number of	Number of			Base Annual	Overhead	o	verhead		Annual Labour	1	otal Annual Labour
	Team	Teams	Employees	Classification		lary/Wage	Costs		Costs		Costs		Costs
Administration Department						US\$	%		US\$		US\$		US\$
Management Site Manager	1	1	0	M 6	\$	160,000	24%	\$	38,800	\$	198,800	\$	_
Office Manager	Ö	1	ő	M 2	\$	18,288	24%	\$	4,435	\$	22,723	\$	-
Secretary	1	4	0	AC 1	\$	4,140	24%	\$	1,004	\$	5,144	\$	-
Safety, Health & Environment													
SHE Manager	1	1	0	M 1	\$	18,288	24%	\$	4,435	\$	22,723	\$	-
OH&S Officer	1	1	0	SD 6	\$	16,296	23%	\$	3,789	\$	20,085	\$	-
Environmental Monitoring Officer	1	1 1	0	SD 4 SD 1	\$	10,000	23%	\$	2,325	\$	12,325	\$	-
Environmental Technicians First Aid Officer	Ö	1	0	SD 2	\$	4,140 16,296	23% 23%	\$	963 3,789	\$	5,103 20,085	\$	-
Human Resources HR Manager	1	1	0	SD 7	\$	18,288	23%	\$	4,252	\$	22,540	\$	
Senior HR Officer	Ö	1	ő	SD 3	\$	18,288	23%	\$	4,252	\$	22,540	\$	-
HR Officer	0	1	0	SD 3	\$	18,288	23%	\$	4,252	\$	22,540	\$	-
Training Superintendent	1	1	0	SD 5	\$	18,288	23%	\$	4,252	\$	22,540	\$	-
Security													
Manager Security	1	1	0	SD 7	\$	18,288	23%	\$	4,252	\$	22,540	\$	-
Security Supervisors Security Staff	1 2	4	0	SS 5 SS 3	\$	16,296 5,000	33% 33%	\$	5,418 1,663	\$	21,714 6,663	\$	-
Joodiny Olan	_	-		55 5	۳	3,000	JJ /6	φ	1,003	Ψ	0,003	Ψ	-
Finance & Administration	l .				١.			L				١.	
Administration Manager	1	1	0	M 2	\$	100,000	24%	\$	24,250	\$	124,250	\$	-
Senior Accountant Accountant	0 1	1 1	0	SD 7 SD 6	\$	85,000 70,000	23% 23%	\$	19,763 16,275	\$	104,763 86,275	\$	-
Accounts Clerk	Ö	i	ő	SD 2	\$	50,000	23%	\$	11,625	\$	61,625	\$	-
Payroll Clerk	0	1	0	SD 2	\$	50,000	23%	\$	11,625	\$	61,625	\$	-
Purchasing Officer	1	1	0	SD 3	\$	55,000	23%	\$	12,788	\$	67,788	\$	-
Warehouse Officer Warehouse Labour	1	1 1	0	SD 3 SD 2	\$	55,000 3,024	23% 23%	\$	12,788 703	\$	67,788 3,727	\$	-
Expediter Clerk	Ö	1	ő	SD 2	\$	50,000	23%	\$	11,625	\$	61,625	\$	-
IT Communications / IT Technician	1	1	0	SD 4	\$	16,296	23%	\$	3,789	\$	20,085	\$	-
Community Relations			_										
Community Relations Manager	1	1	0	SD 6	\$	16,296	23%	\$	3,789	\$	20,085	\$	-
Administration Subtotal			0									\$	-
Process Plant													
Process Plant Manager	1	1	1	<b>M</b> 1	\$	143,000	24%	\$	34,678	\$	177,678	\$	177,678
Secretary	0	1	1	SD 1	\$	3,000	23%	\$	698	\$	3,698	\$	3,698
Operations													
Plant Superintendent	1	1	1	<b>M</b> 1	\$	137,500	24%	\$	33,344	\$	170,844	\$	170,844
General Foreman / Process Trainer	0	1	0	<b>M</b> 1	\$	54,000	24%	\$	13,095	\$	67,095	\$	-
Shift Supervisors	1	4	4	SS 1	\$	37,500	33.3%	\$	12,469	\$	49,969	\$	199,875
Control Room Operators Crushing Operators	1	4	4	SS 1 SS 1	\$	21,000 18,600	33% 33%	\$	6,983 6,185	\$	27,983 24,785	\$	111,930 99,138
Milling Operators	1	4	4	SS 1	\$	21,000	33%	\$	6,983	\$	27,983	\$	111,930
CIL Operators	1	4	4	<b>SS</b> 1	\$	18,600	33%	\$	6,185	\$	24,785	\$	99,138
Flotation Operators	0	4	0	SS 1	\$	18,600	33%	\$	6,185	\$	24,785	\$	-
Relief/Daycrew Operators Goldroom Supervisors	1 2	4 1	4 2	SS 1 SD 1	\$	18,600 37,500	33% 23%	\$	6,185 8,719	\$	24,785 46,219	\$	99,138 92,438
Goldroom Operators	2	1	2	SD 1	\$	18,600	23%	\$	4,325	\$	22,925	\$	45,849
Senior Metallurgist	1	1	1	SD 1	\$	54,000	23%	\$	12,555	\$	66,555	\$	66,555
Plant Metallurgist	1	1	1	SD 1	\$	23,400	23%	\$	5,441	\$	28,841	\$	28,841
Lab Analyst	1	1	2	SD 6	\$	16,296	23%	\$	3,789	\$	20,085	\$	40,170
Lab Technicians Met Technician	2 0	1 1	2	SD 2 SD 2	\$	10,800 10,800	23% 23%	\$	2,511 2,511	\$	13,311 13,311	\$	26,622 53,244
		'	•	55 2	Ű	10,000	2070	φ	ا ۱ ک,ے	φ	10,011	Ψ	33,244
Maintenance Maintenance Manager	1	1	1	<b>M</b> 1	\$	42,000	24%	\$	10,185	\$	52,185	\$	52,185
Maintenance Supervisor	1	4	4	SD 1	\$	42,000	23%	\$	9,765	\$	51,765	\$	207,060
Maintenance Planner/Trainer	1	1	1	<b>SD</b> 1	\$	42,000	23%	\$	9,765	\$	51,765	\$	51,765
Mechanical Engineer	0	1	0	SD 1	\$	54,000	23%	\$	12,555	\$	66,555	\$	-
Electrical Engineer Mechanical Supervisor	0	1 1	0	SD 1 SD 1	\$	54,000 37,500	23% 23%	\$	12,555 8,719	\$	66,555 46,219	\$	-
Electrical Supervisor	0	1	0	SD 1	\$	37,500	23%	\$	8,719	\$	46,219	\$	-
Boilermakers	1	4	4	<b>SD</b> 1	\$	7,800	23%	\$	1,814	\$	9,614	\$	38,454
Millwright	1	4	4	SD 1	\$	7,800	23%	\$	1,814	\$	9,614	\$	38,454
Trades Assistants	1	4	4	SD 1	\$	6,600	23%	\$	1,535	\$	8,135	\$	32,538
Electricians Instrument Technicians	1	4	4	SD 1 SD 1	\$	11,400 10,800	23% 23%	\$	2,651 2,511	\$	14,051 13,311	\$	56,202 53,244
			1	SD 4	ě	16,296	23%	\$	3,789		20,085		
Warehouse Manager	1	1	'	30 4	Ψ	10,230	2070	φ	3,709	\$	20,000	\$	20,085
		1	68	35 4	Ů	10,290	2070	Ą	3,769	Þ	20,065	\$	1,977,072



#### Rev E

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# LABOUR COST SUMMARY

Basis 12 hours per day shifts per day shifts in total Shift Roster Panel Rotation

Area	Employees	Labo	ur	Camp	Transport	Housing	FIFO	Travel	Tota
		US\$/y	ear U	IS\$/year	US\$/year	US\$/year	US\$/year	US\$/year	US\$/yea
Administration	0	\$ -							\$ -
	41	\$ 1,427,0	35						\$ 1,427,085
Process Plant Maintenance	27	\$ 549,9	37						\$ 549,987
Mining Operations	0	\$ -							\$ -
Mining Maintenance	0	\$ -							\$ -
-									
Total	68	\$ 1,977,0	2 \$	- !	\$ -	\$ -	\$ -	\$ -	\$ 1,977,072

- NOTES

  1. Direct Labour Costs include Oncosts, refer to "Labour Costs" based on the selected rates.

  2. Camp Costs include all costs associated with the accommodation camp, as calculated here.
- 3. Transport Costs include the cost of transport between the camp/village and the plant (e.g. bussing)
- 4. Housing Costs include any additional housing assistance to senior staff that have not been included in the Labour costs
- FIFO Costs include all expenses relating to a fly-in-fly-out operation
   Travel Costs include all travel costs for senior staff that have not been included in the Labour costs (e.g. Expat travel to home country)



#### Rev E

### **OPERATING CONSUMABLES COST**

Throughput

805,000 t ore/year

Operating Consumable			Unit Cos (Total on	site)		Consumption Rate			Total (	Cost	% Fixed		Fixed		Varia	ble	
			US\$	/unit	Unit			l l	US\$	US\$/t ore	%		US\$/y		US\$/y	US	\$/t ore
Crusher Liners																	
Jaw Crusher Fixed	Fixed Jaw	Metso C100	\$	7,500	ea.		8.9 set(s)/y		66,780	\$ 0.08		\$	-	\$	66,780	\$	0.083
Jaw Crusher Moveable	Swing Jaw	Metso C100	\$	6,200	ea.		7.0 set(s)/y	\$	43,400	\$ 0.05	1 0%	\$	-	\$	43,400	\$	0.054
SAG Mill	100 mm thickness	Steel	\$	2,564	/tonne	0.188 kg/t milled	151 t/y	\$	387,688	\$ 0.48	2 0%	\$	-	\$	387,688	\$	0.482
Grinding Media																	
SAG Mill Balls	125 mm	Steel	\$	1,600	/ t		0 t/y		-	\$ -	0%	\$	-	\$	-	\$	-
SAG Mill Balls	105 mm	Steel	\$	1,600	/ t	1.842 kg/t milled	1,483 t/y		2,373,049	\$ 2.94		\$	-	\$	2,373,049	\$	2.948
SAG Mill Balls	94 mm	Steel	\$	1,600	AC		0 t/y		-	\$ -	0%	\$	-	\$	-	\$	-
SAG Mill Balls	80 mm	Steel	\$	1,600	/ t		0 t/y		-	\$ -	0%	\$	-	\$	-	\$	-
SAG Mill Balls	65 mm	Steel	\$	1,600	/ t		0 t/y		-	\$ -	0%	\$	-	\$	-	\$	-
SAG Mill Balls	50 mm	Steel	\$	1,600	/ t		0 t/y	\$	-	\$ -	0%	\$	-	\$	-	\$	-
Screen Consumables	4.2 m v 2.4 m	Doburothere		E 000	0-4		4.0 ==4/=1/	•	E 000	e 0.00	200/			•	F 000	•	0.000
Gravity Circuit Screen	1.2 m x 2.4 m	Polyurethane	\$	5,000	set		1.0 set(s)/y			\$ 0.00		\$	-	\$	5,000		0.006
Cyclone O/F Trash Screen		Polyurethane	\$	5,000 5,000	set		1.0 set(s)/y		5,000	\$ 0.00 \$ -	6 0% 0%	\$	-	\$	5,000	\$ \$	0.006
Loaded Carbon Recovery S		Polyurethane Polyurethane	3	5,000	set		0.0 set(s)/y 0.0 set(s)/y		-	\$ -	0%	\$	-	\$	-	\$	-
Carbon Sizing Screen	0.83 x 18 mm		3		set					1	0%	\$	-	\$		\$	-
CIL Intertank Screen	1.6 m x 6 m	Polyurethane	3	5,000	set		0.0 set(s)/y		-	Ĭ.		\$	-	\$	-	\$	-
Carbon Safety Screen	1 x 18 mm	Polyurethane	3	5,000	set		0.0 set(s)/y		-	*	0%		-	\$	-		-
Carbon Dewatering Screen	1 0.83 X 18 mm	Polyurethane	\$	5,000	set		0.0 set(s)/y	\$	-	\$ -	0%	\$	-	\$	-	\$	-
Reagents - Carbon Activated Carbon	(Pica G210-AS or equivalent)	1.68 x 2.39 mm		3,910	/t		32.2 t/y	\$	125,902	\$ 0.15	50%	\$	62,951	\$	62,951	\$	0.078
		1.00 X 2.55 Hill	•	3,310	/ (		32.2 dy	Ψ	123,302	ψ 0.15	30%	J	02,331	Ψ	02,931	Ψ	0.070
Reagents - ILR, CIL, Eluti														_		_	
Lime	(Quicklime - CaO 90% w/w)		\$	210	/t		1,280.0 t/y		268,790	\$ 0.33		\$	-	\$	268,790		0.334
Cyanide	(NaCN 20% w/w)	Dry briquettes	\$	2,620	/t		563.2 t/y			\$ 1.83		\$	-	\$	1,475,547		1.833
Sodium Hydroxide	(NaOH 20% w/w)	Pearls	\$	1,150	/t		113.9 t/y		130,962			\$	-	\$	130,962		0.163
Hydrochloric Acid	(HCI 32%)	IBC	\$	900	/t		186.6 t/y		. ,	\$ 0.20		\$	-	\$	167,918		0.209
Sodium Metabisulphite Copper Sulphate Pentahyo	(NaS2O5) drate		\$	496 2,382	/ t / t		966.0 t/y 105.1 t/y			\$ 0.59 \$ 0.31		\$	250,235	\$	479,136 -	\$ \$	0.595
Reagents - Smelting Flux																	
Silica			•	900	/t		1.8 t/y	\$	1,659	\$ 0.00	2 100%	\$	1,659	\$	_	\$	
Borax			Š	1,275	/ t		2.8 t/y			\$ 0.00		\$	3,525	\$		\$	
Sodium Nitrate			Š	1,660	/ t		2.8 t/v	\$		\$ 0.00		\$	4,590	s S		\$	
Fluorspar			\$	900	/t		0.9 t/y			\$ 0.00		\$	829	\$	-	\$	-
Reagents - Gold Room																	
Crucibles			\$	1,623	ea.		0.0 /y	\$	-	\$ -	100%	\$	-	\$	-	\$	-
Electrowinning - CIL																	
Electrodes			\$	-	ea.		0.0 /y		-	\$ -	0%	\$	-	\$	-	\$	-
Replacement Anodes			\$	-	ea.		0.0 /y		-	\$ -	0%	\$	-	\$	-	\$	-
Replacement Cathodes			\$	-	ea.		0.0 /y		-	\$ -	0%	\$	-	\$	-	\$	-
Stainless Steel Stocking			\$	72	kg		0.0 kg/y		-	\$ -	0%	\$	-	\$	-	\$	-
Stainless Steel Wool Mats			\$	-	set		0.0 set(s)/y		-	\$ -	0%	\$	-	\$	-	\$	-
Stainless Steel Wool			\$	-	set		0.0 set(s)/y	\$	-	\$ -	0%	\$	-	\$	-	\$	-
Electrowinning - Intense	Cyanidation																l



TOTAL									730,133	\$ 8.360	8%	\$	567,311	\$ 6,162		7.656
Operator Supplies	Allowance		\$	100	pp/yr			\$	6,800		100%	\$	6,800		- 3	
Mill Lubricants General supplies	Allowance Allowance			40,000 10,000	lot lot		1.0 lot/y 1.0 lot/y		40,000 10,000	\$ 0.050 \$ 0.012	100% 100%	\$	40,000 10,000	\$ \$	- 5	
General	Variable Component		\$	2.000	kL				114,413		15%	\$	17,228		185	
Water Treatment and Sup Water Supply Cost	Fixed Component		\$	5,000	/year			\$		\$ 0.006	100%	\$	5,000		- 5	
Sulphamic Acid		Cleaning	\$	765	/ t	50.0 kg/week	2.6 t/y			\$ 0.002	20%	\$	398		591	
Antiscalant Antiscalant		Elution and ILR Cooling Tower	\$	2,600 2,600	/ t / t	0.0 kg/week 0.0 kg/week	0.00 t/y 0.00 t/y			\$ - \$ -	0% 100%	\$	-	\$ \$	-   5	
Antiscalant Antiscalant		Lime slaking Decant return water		1,380 2,600	/ t / t	50.0 kg/week 0.0 kg/week	2.60 t/y 0.00 t/y	\$	-	\$ 0.004 \$ -	0% 100%	\$ \$	-	\$	588	-
Reagents - Water																
Diesel		Elution	\$	858	/kL		66 kL/y		56,523		0%	\$	-		523	
Diesel Diesel		Smelting Furnace Carbon Regen.	\$	858 858	/kL /kL		9 kL/y 179 kL/y		651.190 153,707		0% 0%	\$	-		651 S	
Natural Gas (Utilities)		Utilities	\$	0.15	/m3		0 m3/y	\$	-	\$ -	0%	\$	-	\$	- 5	-
Fuel Diesel		Mobile Equipment	•	858	/kL		273 kL/y	e ,	234,423	\$ 0.291	70%	\$	164,096	\$ 70	327	0.087
Flocculant - Cyanide Thick			\$	3,960	/ t					\$ 0.190	0%	\$	-		014	
Reagents - Thickening Flocculant - Pre-Leach Th	ic Superflow C-496		•	3,960	/t		38.6 t/v	\$	153,014	\$ 0.190	0%	\$	_	\$ 153	014	0.190
Filter Cloths Filter Plates	19 m x 1 m		\$ \$	152 6,000	/t /t		0.0 set(s)/y 0.0 set(s)/y			\$ - \$ -	0% 0%	\$ \$	-	\$ \$	- 9	
Filter Consumables												Ť				
Stainless Steel Wool Mats Stainless Steel Wool			\$ \$	-	set set		0.0 set(s)/y 0.0 set(s)/y	\$ \$		\$ - \$ -	0% 0%	\$	-	\$ \$	- 5	
Stainless Steel Stocking			» \$	72	ea. kg		-	\$ \$		\$ - \$ -	0%	\$ \$	-	\$ \$	- 9	
Replacement Anodes Replacement Cathodes			\$	-	ea.		0.0 /y	\$	-	\$ -	0% 0%	\$	-	\$	- 5	-
Electrodes			\$	-	ea.		0.0 /y	\$	-	\$ -	0%	\$	-	\$	-   9	-



#### Rev E

#### **POWER CONSUMPTION COSTS**

Power Supply GRID

Power Unit Cost \$ 0.180 US\$/kWh

0

Area	Description	Installed	Peak	Average	Total Annual	Total		ıal			Annual	Ann		
		Power	Power	Continuous	Power	Po	ower		% Fixed		Fixed	Varia		
			Draw	Draw	Consumption	C	ost				Cost	Cos	st	
		kW	kW	kW	kWh/year	US\$/year	ι	JS\$/t ore	%		US\$/year	US\$/year	US	\$/t ore
121	CRUSHING AND SCREENING	268	-	120	756,000	\$ 136,0	30 \$	0.169	10%	\$	13,608	\$ 122,472	\$	0.152
120	CRUSHING AND SCREENING SWITCHROOM L&SP, AIR-CON LC	182	-	39	245,700	\$ 44,2	26 \$	0.055	10%	\$	4,423	\$ 39,803	\$	0.049
132	GRINDING	5,184	-	3,507	27,102,096	\$ 4,878,3	77 \$	6.060	0%	-\$	20,170	\$ 4,898,547	\$	6.085
130	MILLING SWITCHROOM L&SP, AIR-CON LOADS	192	-	41	344,400	\$ 61,9	92 \$	0.077	20%	\$	12,398	\$ 49,594	\$	0.062
160	CIL AND TAILINGS	387		241	2,024,400	\$ 364,3	92 \$	0.453	20%	\$	72,878	\$ 291,514	\$	0.362
170	DESORPTION	130		50	420,000	\$ 75,6	00 \$	0.094	20%	\$	15,120	\$ 60,480	\$	0.075
180	REFINING/ GOLDROOM	199	-	81	680,400	\$ 122,4	72 \$	0.152	20%	\$	24,494	\$ 97,978	\$	0.122
180	CIL SWITCHROOM L&SP, AIR-CON LOADS	162	-	35	294,000	\$ 52,9	20 \$	0.066	20%	\$	10,584	\$ 42,336	\$	0.053
145	DETOX	207	-	121	1,016,400	\$ 182,9	52 \$	0.227		\$	-	\$ 182,952	\$	0.227
142	THICKENING AND SCREENING	424	-	157	1,318,800	\$ 237,3	84 \$	0.295		\$	-	\$ 237,384	\$	0.295
210	REAGENTS	171	-	47	394,800	\$ 71,0	64 \$	0.088	100%	\$	71,064	\$ -	\$	-
232	PLANT WATER SYSTEMS	241	-	84	705,600	\$ 127,0	08 \$	0.158	100%	\$	127,008	\$ -	\$	-
251	COMPRESSED AIR	754	-	260	2,184,000	\$ 393,1	20 \$	0.488	100%	\$	393,120	\$ -	\$	-
100	MISCELLANEOUS FACILITIES AND BUILDINGS	278	-	99	831,600	\$ 149,6	88 \$	0.186	100%	\$	149,688	\$ -	\$	-
	Contingency	-	-	-	-	\$ -	\$	-		\$	-	\$ -	\$	-
	Sub Total Unit Rate	8,779	-	4,882	38,318,196	\$ 6,897,2	75 \$	8.568	13%	\$	874,216	\$ 6,023,060	\$	7.482
	Power Demand Cost					\$ -	\$	-		\$		\$ -	\$	-
	Service Charge					\$ -	\$	-		\$	-	\$ -	\$	-
												•		
	TOTAL					\$ 6,897,2	75 \$	8.568	13%	\$	874,216	\$ 6,023,060	\$	7.482

#### NOTES

- 1. Power taken from the detailed Equipment List (5032-LST-006-RevC)
- 2. Peak Power Draw = Installed Power x Load Factor (kW)
- 3. Average Continuous Power Draw = Peak Power Draw x %Utilisation (kW)
- 4. Total Annual Consumption = Average Continuous Power Draw x 350 x 24 (kWh), for Area 120, 121,132 = operating hours x Average Continuous power draw
- 5. Utilisation is calculated from the annual operating hours
- 6. Mill Motor Power Draw = Mill Pinion Power / Mill Power Factor (default 0.95)



### Rev E

#### MAINTENANCE MATERIAL COSTS

Area	Capital Cost (Installed) US\$	Maintenance factor %	Maintenance Cost US\$/year		Cost US\$/t ore	% Fixed	Fixed aintenance Cost US\$/year	Mai	/ariable intenance Cost JS\$/year	Mair	riable itenance Cost \$\frac{1}{1} t ore
Plant Maintenance											
Crushing, Stockpile, Reclaim		2.9%	\$	-	\$ -	<b>60%</b>	\$ -	\$	-	\$	-
Milling, Classification, Gravity		3.6%	\$	-	\$ -	<b>70</b> %	\$ -	\$	-	\$	-
Flotation/CIL/Goldroom		2.3%	\$	-	\$ -	100%	\$ -	\$	-	\$	-
Reagents		1.2%	\$	-	\$ -	100%	\$ -	\$	-	\$	-
Services		0.0%	\$	-	\$ -	100%	\$ -	\$	-	\$	-
Tailings		2.0%	\$	-	\$ -	<b>80%</b>	\$ -	\$	-	\$	-
Infrastructure		1.0%	\$	-	\$ -	100%	\$ -	\$	-	\$	-
Plant Sub Total	\$ 12,700,000	3.0%	\$	381,000	\$ 0.473	100%	\$ 381,000	\$	-	\$	-
Mobile Equipment			\$	108,837	\$ 0.135	100%	\$ 108,837	\$	-	\$	-
Maintenance General											
Maintenance software (SAP etc)			\$	5,000	\$ 0.006	100%	\$ 5,000	\$	-	\$	-
Maintenance manuals			\$	5,000	\$ 0.006	100%	\$ 5,000	\$	-	\$	-
Maintenance training			\$	10,000	\$ 0.012	100%	\$ 10,000	\$	-	\$	-
TOTAL		3.0%	\$	509,837	\$ 0.633		\$ 509,837	\$	-	\$	-

### LIGHT VEHICLES, MOBILE EQUIPMENT, GENERATORS AND SMALL ENGINES

Equipment	Number	Treatment	Admin		Daily	Annual	Total	-	Annual		Mainte	nance	(A\$ per ar	num)			270	00				Total	Maintenance (	Cost	
1	of units	Plant		Make	Operating	Operating	Annual	Diesel (	Consumption	Tyre	es	Drive	e Train	Brakes		Oils/Lub	G	ieneral	Gene	eral			•		П
					hours	hours	hours	L/h	L/y	US\$ per	r Unit	US\$ p	per Unit	US\$ per l	lnit l	JS\$ per Unit	US\$	per Unit	USS	\$/h	US\$ pe	r Unit	US\$/year	US\$/year	1
Light Equipment																									
4WD Single Cab Ute	2	2	0	Toyota	3.0	1,095	2,190	6	13,140		960	\$	1,200		150 \$			2,000					\$ 9,020	\$ 9,02	
4WD Maintenance Truck	1	1		Toyota	3.0	1,095	1,095	8	8,760	\$	960	\$			150 \$			2,000					\$ 4,510		10
4WD Cargon Van	0	l	0		3.0	1,095	-	9	-						200 \$			2,000				5,200	\$ -	\$ -	
Personnel Carrier	0		0		8.0	2,920	-	10	-	\$	1,200	\$	1,600	\$	200 \$	200	\$	2,000			\$	5,200	\$ -	\$ -	
Subtotal	3				, ,				21,900														\$ 13,530	\$ 13,53	30
Medium/Heavy Equipment																									
8t Twincab 4WD Hiab Truck	1	l		Isuzu FER500	2.0	730	730	12	8.760	\$	1.600	s	2,000	\$	240 \$	200	\$	2,500		- 1.	\$	6,540	\$ 6,540	\$ 6,54	40
Warehouse Delivery Truck w/Boom	1	l		ISUZU FERSUU	2.0	730	730	12	8,760	<b>3</b>	1,600	•	2,000	•	240 \$	200	•	2,500			Ф	6,540	\$ 6,540	\$ 6,54	ŧU
5t Tip truck	1			Isuzu FVZ1400	3.0	4 005		12			1.600	s	2 000	\$		200		2.500		- 1.	•	0.540	•	\$ -	
		l		Isuzu FVZ1400 Isuzu FVZ1400		1,095	-		-						240 \$		3					6,540	<b>5</b> -	5 -	
Service/Lube Truck Fuel Truck		l			4.0	1,460 1,460	-	12	-		1,600 1.600	\$			240 \$ 240 \$	200 200	3	2,500 2,500				6,540	\$ -	\$ - \$ -	
		l		AC	4.0		-	12														6,540	<b>5</b> -		
All Terrain Forklift - Propane	1			Bobcat 753	3.0	1,095	1,095	6	6,570		800	\$			150 \$			1,500				3,850	\$ 3,850		
Warehouse Forklift - Propane	1	l		Bobcat 753	4.3	1,570	1,570	6	9,417	\$	800	\$			150 \$			1,500		- 13		3,850	\$ 3,850		
Bobcat	1	l		Bobcat 753	5.0	1,825	1,825	6	10,950	\$	800	\$	1,200	\$	150 \$	200	\$	1,500	_				\$ 3,850	\$ 3,85	50
Integrated Tool Carrier	0	l		Cat IT28G	6.0	2,190		12											\$			24,090	\$ -	\$ -	
Telescopic Handler CAT TH 62	1			Cat TH62	3.6	1,314	1,314	6	7,884										\$				\$ 10,512	\$ 10,51	12
Mac 14 14t Franna Crane	0	l			2.0	730	-	10	-										\$			7,300	\$ -	\$ -	
50 t All terrain Crane	1	l			2.0	730	730	10	7,300										\$				\$ 7,300	\$ 7,30	00
150 t Crawler Crane	0	l			0.5	183	-	12	-										\$			1,825	\$ -	\$ -	
Backhoe/FEL	1	l		Cat 446B	3.6	1,314	1,314	10	13,140										\$				\$ 13,140		
Loader (ROM) Reclaim	1	l		950	3.3	1,166	1,166	18	20,979										\$			34,965	\$ 34,965	\$ 34,96	35
18 t Grader				Cat 14H	5.0	1,825	-	20	-										\$	16	\$ 2	28,288	\$ -	\$ -	
Subtotal	9								85,000														\$ 84,007	\$ 84,00	)7
Equipment																									
Emergency Generator (2,000 kVA)	1	l			0.6	219	219	500	109,500							500	•	3.000			\$	3,500	\$ 3,500	\$ 3,50	ഹ
Stand-by Generator (800 kVA)	1				0.4	131	131	200	26.280						ě	500	ě	2.000					\$ 2,500		
Portable Pumps Generator (200 kVA)	l i	l			1.2	438	438	50	21,900						ě	500	ě	1.000					\$ 1,500		
Generator (5 kVA)	1	l			2.2	800	800	2	1,600						į	500		500					\$ 1,000		
Portable Compressor	4	l			2.2	800	800	4	3.200						2	500		500					\$ 1,000		
Diesel Welder	2			Lincoln	1.8	640	1,280	2	2,560						•	100		500			s S		\$ 1,000		
Fusion Butt Welder Damos 90/315	4	l		Damoss 90/315	1.8	640	640	2	1,280						1 2	100		500			э \$	600	\$ 1,200	\$ 60	
Subtotal	8	1		Dai1105S 90/315	1.0	640	640		166.320						Þ	100	· P	500			Φ	000	\$ 11.300		
Subtotal	- °								100,320													-+	φ 11,300	φ 11,30	~
TOTAL	20								273,220														\$ 108,837	\$ 108,83	37

Mobile Equipment Cost Summary		US\$/year	US\$/t ore
Fuel	273,220 L/y	\$ 234,423	\$ 0.291
Maintenance and Repairs	·	\$ 108,837	\$ 0.135
Total Mobile Equipment Cost		\$ 343,260	\$ 0.426

290295

NOTES
1. Maintenance cost for mobile equipment in US\$ per unit.
4. ROM loader annual operating hours equal to crusher operating hours per year

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# LABORATORY

Assay Costs	Inte	ernal	Ext	ernal
Solids Preparation	\$	-		
Solids Moisture	\$	-		
Solids Sizing	\$	-	\$	95
Solids Fire Assay			\$	25
Solids ICP				
Solution Assay	\$	-	\$	12
Carbon Assay			\$	20
Bullion			\$	100
Concentrate TML	\$	-		
Environmental (WAD CN, As)			\$	70
Water Quality (potable)			\$	180
Sample Pick Up/Courier			\$	1

Number of shifts per day

				)						
Assay Requirement	Shiftly	Daily	Weekly	Monthly	Assays per year	Int or Ext	Cos	st/sample	,	TOTAL JS\$/year
Solids										
Mill Feed		1			365	External	\$	25.00	\$	9,125
Leach Feed	1				730	External	\$	25.00	\$	18,250
Leach Tanks			6	6	384	External	\$	25.00	\$	9,600
Leach Tails	1		1		782	External	\$	25.00	\$	19,550
Tails bottle roll		1	1		417	External	\$	25.00	\$	10,425
Float Feed					-	External	\$	25.00	\$	-
Rougher Concentrate					-	External	\$	25.00	\$	-
Scavenger Concentrate					-	External	\$	25.00	\$	-
Scavenger Tail					-	External	\$	25.00	\$	-
Final Concentrate					-	External	\$	25.00	\$	-
Final Tails					-	External	\$	25.00	\$	-
Metallurgical Testing				50	600	External	\$	25.00	\$	15,000
Solutions (AAS)										
Leach Feed	1				730	Internal	\$	-	\$	-
Leach Tanks			7	7	448	Internal	\$	-	\$	-
Leach Tail	1				730	Internal	\$	-	\$	-
Pregnant Eluate			7		364	Internal	\$	-	\$	-
Barren Eluate			7		364	Internal	\$	-	\$	-
ICR Pregnant Eluate		1			365	Internal	\$	-	\$	-
ICR Barren Eluate		1			365	Internal	\$	-	\$	-
Thickener Overflow					-	Internal	\$	-	\$	-
Process Water Pond					-	Internal	\$	-	\$	-
Tails bottle roll		1	1		417	Internal	\$	-	\$	-
Metallurgical Testing				50	600	Internal	\$	-	\$	-
Carbon										
Loaded		2			730	External	\$	20.00	\$	14,600
Barren		2			730	External	\$	20.00	\$	14,600
Regen		2			730	External	\$	20.00	\$	14,600
CIL Tanks			12	12	768	External	\$	20.00	\$	15,360
Bullion										
Bars			5		260	External	\$	100.00	\$	26,000
Concentrate										
TML	1				730	Internal	\$	-	\$	-
Shipment Assay				4	48	External	\$	-	\$	-
Miscellaneous										
Mill Feed Moisture	1			10	850	Internal	\$	-	\$	-
Mill Feed Sizing	1			10	850	Internal	\$	-	\$	-
Leach Feed Sizing	1			10	850	Internal	\$	-	\$	-
Environmental Samples			2	10	224	External	\$	70.00	\$	15,680
Water Quality Sample			2	2	128	External	\$	180.00	\$	23,040
Subt	otal	·			14,559				\$	205,830
Sample Pick Up/Courier					6,896	External	\$	1.00	\$	6,896
									\$	10,000
Contingency for duplicates, ch	ecks, etc			15%					\$	33,409
TOTAL									\$	256,135
IVIAL									Ψ	230,133

NOTE:
1. Grade Control Costs excluded

# **APPENDIX 8 ELECTRICAL LOAD LIST**



# **CONDOR GOLD PLC**

# LA INDIA PROJECT ELECTRICAL LOAD LIST

5032-LST-006

August 2014

**Prepared by:** 



С	01/08/14	ISSUED FOR STUDY – MILL CONSUMED POWER UPDATED	AC		DM	
В	25/07/14	ISSUED FOR STUDY				
Α	2/07/14	ISSUED FOR REVIEW	ES			
REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED



ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOA	D SPECIFICATION		II	NSTALLED LOAI	D		DEMAN	ND (PEAK) LOAI	)		AVER	AGE (RUNNING	) LOAD	
							7711111222	211102																
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO R	kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
					PLANT TOTAL				8,356			0.94	8,779	3,067	9,300		6,571	2,087	6,894			4,882	1,347	5,065
PLANT SWITC	CHBOARD LOADS 2	21-SB-001																						
4.16KV SUPP	LY LOADS																							
Α	21-VS-001	20-ML-001	1	0	SAG MILL	ML	Variable	VSD	4,000	4,160	0.93	1.00	4,292	431	4,313	0.90	3,876	389	3,895	0.913	0.80	3,135	315	3,150
					SUBTOTAL - 4.16KV SUPPLY LOADS				4,000			1.00	4,292	431	4,313		3,876	389	3,895			3,135	315	3,150
460V SUPPLY	LOADS																							
AREA 120 FE	ED PREPARATION																							
AREA 120 -CF	RUSHING																							
Α	120-MC-001	121-FE-01	1	0	PRIMARY APRON FEEDER	FE	Variable	VSD	15.22	460	0.90	0.994	16.9	1.9	17.0	0.75	12.7	1.4	12.7	0.750	0.75	9.5	1.0	9.6
А	120-MC-001	121-RB-001	1	0	ROCK BREAKER	RB	Fixed	DOL	65.00	460	0.94	0.830	68.9	46.3	83.0	0.75	51.6	34.7	62.2	0.100	0.75	5.2	3.5	6.2
Α	210-MC-001	121-CN-01	1	0	CRUSHER SERVICE HOIST	CN	-	FDR	4.00	460	1.00	0.800	4.0	3.0	5.0	0.75	3.0	2.3	3.8	0.500	0.75	1.5	1.1	1.9
Α	120-MC-001	121-CR-01	1	0	PRIMARY JAW CRUSHER	CR	Fixed	DOL	112.00	460	0.95	0.910	117.5	53.5	129.1	0.75	88.1	40.2	96.9	0.750	0.75	66.1	30.1	72.6
А	120-MC-001	121-HX-01	1	0	PRIMARY JAW CRUSHER HYDRAULIC OIL HEATER	НХ	Fixed	DOL	1.50	460	0.86	0.740	1.7	1.6	2.4	0.75	1.3	1.2	1.8	0.650	0.75	0.8	0.8	1.1
А	120-MC-001	121-PP-01	1	0	PRIMARY JAW CRUSHER HYDRAULIC OIL PUMP	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.750	0.75	1.4	1.0	1.8
A	120-MC-001	121-PP-02	1	0	PRIMARY JAW CRUSHER LUBE OIL PUMP	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.750	0.75	1.4	1.0	1.8
Α .	120-MC-001	121-CV-01	1	0	PRIMARY JAW CRUSHER DISCHARGE CONVEYOR PRIMARY JAW CRUSHER DISCHARGE CONVEYOR TRAMP	CV	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.750	0.75	6.7	4.9	8.3
Α	120-MC-001 120-MC-001	121-MA-01 121-WE-01	1	0	MAGNET PRIMARY JAW CRUSHER DISCHARGE CONVEYOR	MA WE	Fixed	DOL	0.01	460 460	1.00	0.810	0.0	8.6 0.0	0.0	0.75	8.9	0.0	0.0	0.750	0.75	0.0	0.0	0.0
A A	120-MC-001	121-WE-01	1	0	WEIGHTOMETER PRIMARY CRUSHER DISCHARGE CONVEYOR DUST	DC	Fixed	DOL	22.00	460	0.94	0.800	23.4	18.1	29.6	0.75	17.5	13.6	22.2	0.750	0.75	13.2	10.2	16.6
Α	120-MC-001	121-FE-02	1	0	COLLECTOR & FAN SURGE BIN APRON FEEDER	FE	Variable	VSD	11.22	460	0.90	0.995	12.5	1.3	12.6	0.75	9.4	0.9	9.4	0.750	0.75	7.0	0.7	7.1
A	120-MC-001	121-CV-02	1	0	STOCKPILE FEED CONVEYOR	CV	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.750	0.75	6.7	4.9	8.3
					SUBTOTAL - AREA 120 -CRUSHING				268			0.88	274	147	311		205	110	233			120	59	133
AREA 120 CR	USHING SWITCHRO	OOM L&SP, AIR-C	ON LOADS																					
A	120-MC-001	120-AC-001	1	0	SWITCHROOM AIR CONDITIONERS 1	ELEC	-	FDR	25	460	1.00	0.800	25.0	18.8	31.3	0.75	18.8	14.1	23.4	0.500	0.75	9.4	7.0	11.7
A	120-MC-001	120-AC-002	0	1	SWITCHROOM AIR CONDITIONERS 2	ELEC	-	FDR	25	460	1.00	0.800	25.0	18.8	31.3	0.75	0.0	0.0	0.0	0.500	0.00	0.0	0.0	0.0
А	120-MC-001	120-DB-001	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	1.00	30.0	22.5	37.5	0.500	0.80	12.0	9.0	15.0
А	120-MC-001	120-DB-002	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	1.00	30.0	22.5	37.5	0.500	0.80	12.0	9.0	15.0
А	120-MC-001	120-WO-001	1	0	WELDING OUTLETS	ELEC	-	FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
Α	120-MC-001	120-WO-002	1	0	WELDING OUTLETS	ELEC	-	FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
					SUBTOTAL - AREA 120 CRUSHING SWITCHROOM L&SP, AIR-CO	ON LOADS			182			0.80	182	137	228		133	100	166			39	29	49
					TOTAL AREA 120 FEED PREPARATION				451			0.85	468	292	552		347	216	409			165	93	190
AREA 130 - M	ILLING																							
AREA 130-RE	CLAIM & GRINDING																							
А	130-MC-001	132-CV-01	1		SAG MILL FEED CONVEYOR	CV	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.913	0.75	8.2	5.9	10.1
Α	130-MC-001	132-WE-02	1	0	SAG MILL FEED CONVEYOR WEIGHTOMETER	WE	Fixed	DOL	0.01	460	1.00	0.800	0.0	0.0	0.0	0.75	0.0	0.0	0.0	0.913	0.75	0.0	0.0	0.0



ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOAI	D SPECIFICATION		II	NSTALLED LOAD	)		DEMAN	ID (PEAK) LOAD			AVERA	GE (RUNNING	LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO R	kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
А	130-MC-001	132-ZM-04	1	0	SAG MILL LINER HANDLER HYDRAULIC POWER PACK	ZM	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	0.75	22.5	16.9	28.1	0.913	0.75	20.5	15.4	25.7
А	130-MC-001	132-ZM-06	1	0	SAG MILL JACKING SYSTEM HYDRAULIC POWER PACK	ZM	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.913	0.75	1.7	1.3	2.1
А	130-MC-001	132-ZM-07	1	0	SAG MILL MOTOR BEARING LUBRICATION SYSTEM	ZM	-	FDR	19.00	460	1.00	0.800	19.0	14.3	23.8	0.75	14.3	10.7	17.8	0.913	0.75	13.0	9.8	16.3
А	130-MC-001	132-ZM-08	1	0	SAG MILL TRUNNION BEARING LUBRICATION SYSTEM	ZM	-	FDR	45.00	460	1.00	0.800	45.0	33.8	56.3	0.75	33.8	25.3	42.2	0.913	0.75	30.8	23.1	38.5
А	130-MC-001	132-ZM-09	1	0	SAG MILL MOTORS HEATING/ COOLING ANCILLIARIES	ZM	-	FDR	85.00	460	1.00	0.800	85.0	63.8	106.3	0.75	63.8	47.8	79.7	0.913	0.75	58.2	43.7	72.8
А	130-MC-001	132-ZM-10	1	0	SAG MILL REDUCER/ PINION BEARING LUBRICATION SYSTEM	ZM	-	FDR	45.00	460	1.00	0.800	45.0	33.8	56.3	0.75	33.8	25.3	42.2	0.913	0.75	30.8	23.1	38.5
А	130-MC-001	132-ZM-11	1	0	SAG MILL INCHING DRIVE HYDRAULIC POWER PACK	ZM	-	FDR	205.50	460	1.00	0.800	205.5	154.1	256.9	0.75	154.1	115.6	192.7	0.100	0.75	15.4	11.6	19.3
А	130-MC-001	132-PP-03	1	0	CYCLONE FEED PUMP 1	PP	Variable	VSD	132.00	460	0.93	0.999	141.6	6.3	141.8	0.75	106.2	4.8	106.3	0.913	0.75	97.0	4.3	97.1
Α	130-MC-001	132-PP-04	0	1	CYCLONE FEED PUMP 2	PP	Variable	VSD	132.00	460	0.93	0.999	141.6	6.3	141.8	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	130-MC-001	132-CN-04	1	0	CYCLONE AREA PORTAL CRANE	CN	-	FDR	3.70	460	1.00	0.800	3.7	2.8	4.6	0.75	2.8	2.1	3.5	0.100	0.75	0.3	0.2	0.3
А	130-MC-001	132-PP-05	1	0	SAG MILL FEED END SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
А	130-MC-002	132-CV-02	1	0	PEBBLE TRANSFER CONVEYOR	CV	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.80	5.0	3.3	6.0	0.913	0.80	4.5	3.0	5.4
А	130-MC-002	132-MA-02	1	0	PEBBLE TRANSFER CONVEYOR TRAMP MAGNET	MA	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.80	9.5	6.9	11.8	0.913	0.80	8.7	6.3	10.7
А	130-MC-002	132-WE-03	1	0	PEBBLE TRANSFER CONVEYOR WEIGHTOMETER	WE	Fixed	DOL	0.01	460	1.00	0.800	0.0	0.0	0.0	0.80	0.0	0.0	0.0	0.913	0.80	0.0	0.0	0.0
А	130-MC-002	132-MD-02	1	0	PEBBLE TRANSFER CONVEYOR METAL DETECTOR	MD	Fixed	DOL	0.01	460	1.00	0.800	0.0	0.0	0.0	0.80	0.0	0.0	0.0	0.913	0.80	0.0	0.0	0.0
А	130-MC-002	132-FE-01	1	0	PEBBLE CRUSHER FEEDER	FE	Variable	VSD	3.00	460	0.84	0.997	3.6	0.3	3.6	0.80	2.9	0.2	2.9	0.750	0.80	2.1	0.2	2.1
А	130-MC-002	132-CR-01	1	0	PEBBLE CRUSHER	CR	Fixed	DOL	93.00	460	0.96	0.870	97.3	55.1	111.8	0.80	77.8	44.1	89.5	0.750	0.80	58.4	33.1	67.1
Α	130-MC-002	132-ZM-15	1	0	PEBBLE CRUSHER HYDRAULIC POWER PACK	ZM	-	FDR	11.00	460	1.00	0.800	11.0	8.3	13.8	0.80	8.8	6.6	11.0	0.913	0.80	8.0	6.0	10.0
А	130-MC-002	132-ZM-16	1	0	PEBBLE CRUSHER LUBRICATION PACKAGE	ZM	-	FDR	11.00	460	1.00	0.800	11.0	8.3	13.8	0.80	8.8	6.6	11.0	0.913	0.80	8.0	6.0	10.0
А	130-MC-002	132-CV-03	1	0	PEBBLE CRUSHER DISCHARGE CONVEYOR	CV	Fixed	DOL	7.50	460	0.91	0.780	8.2	6.6	10.6	0.80	6.6	5.3	8.4	0.750	0.80	4.9	4.0	6.3
																							·	
				I .	SUBTOTAL - AREA 130-RECLAIM & GRINDING				864			0.89	892	448	998		570	86	577			372	198	421
														I I										
AREA 130 - MIL	LING SWITCHROO	OM L&SP, AIR-CO	N LOADS																					
А	130-MC-001	130-AC-001	1	0	SWITCHROOM AIR CONDITIONERS 1	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	0.75	22.5	16.9	28.1	0.500	0.75	11.3	8.4	14.1
А	130-MC-001	130-AC-002	0	1	SWITCHROOM AIR CONDITIONERS 2	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	0.75	0.0	0.0	0.0	0.500	0.00	0.0	0.0	0.0
А	130-MC-001	130-DB-001	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	1.00	30.0	22.5	37.5	0.500	0.80	12.0	9.0	15.0
А	130-MC-001	130-DB-002	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	1.00	30.0	22.5	37.5	0.500	0.80	12.0	9.0	15.0
Α	130-MC-001	130-WO-001	1	0	WELDING OUTLETS	ELEC	-	FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
А	130-MC-001	130-WO-002	1	0	WELDING OUTLETS	ELEC	-	FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
					SUBTOTAL - AREA 130 - MILLING SWITCHROOM L&SP, AIR-CO	N LOADS			192			0.80	192	144	241		137	103	171			41	31	51
																							 I	
					TOTAL AREA 130 - MILLING				1,056			0.88	1,084	592	1,236		707	438	832			412	228	471
																								1
AREA 140 - SCF	REENING/TAILING	/DESORPTION																						
SUB AREA 142	- TRASH SCREEN	/TAILINGS																						
А	140-MC-001	141-SC-01	1	0	TRASH SCREEN	sc	Fixed	DOL	6.00	460	0.91	0.830	6.6	4.5	8.0	0.75	5.0	3.3	6.0	0.913	0.75	4.5	3.1	5.5
A	140-MC-001	142-ZM-02	1	0	PRE-LEACH THICKENER HYDRAULIC POWER PACK	ZM	Fixed	DOL	15.00	460	0.93	0.810	16.2	11.7	20.0	0.75	12.2	8.8	15.0	0.913	0.75	11.1	8.0	13.7
A	140-MC-001	142-PP-06	1	0	PRE-LEACH THICKENER U/F PUMP No.1	PP	Variable	VSD	18.50	460	0.91	0.997	20.3	1.6	20.4	0.75	15.2	1.2	15.3	0.913	0.75	13.9	1.1	13.9
Α	140-MC-001	142-PP-07	0	1	PRE-LEACH THICKENER U/F PUMP No.2	PP	Variable	VSD	18.50	460	0.91	0.997	20.3	1.6	20.4	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0



ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOAI	D SPECIFICATION		II	NSTALLED LOA	AD	DE	MAND (PEAK) LOA	D		AVERAC	GE (RUNNING	LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
А	140-MC-001	142-SA-01	1	0	CIL FEED PRIMARY SAMPLER	AG	Fixed	DOL	0.75	460	0.82	0.730	0.9	0.9	1.2	0.75 0.7	0.6	0.9	0.913	0.75	0.6	0.6	0.9
Α	140-MC-001	142-SA-02	1	0	CIL FEED SECONDARY SAMPLER	AG	Fixed	DOL	0.37	460	0.76	0.650	0.5	0.6	0.8	0.75 0.4	0.4	0.6	0.913	0.75	0.3	0.4	0.5
А	140-MC-001	142-PP-08	1	0	PRE-LEACH THICKENER O/F WATER PUMP No.1	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 17.5	13.6	22.2	0.913	0.75	16.0	12.4	20.3
А	140-MC-001	142-PP-09	0	1	PRE-LEACH THICKENER O/F WATER PUMP No.2	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
А	140-MC-001	146-SA-01	1	0	TAILINGS PRIMARY SAMPLER	SA	Fixed	DOL	0.75	460	0.82	0.730	0.9	0.9	1.2	0.75 0.7	0.6	0.9	0.913	0.75	0.6	0.6	0.9
А	140-MC-001	146-SA-02	1	0	TAILINGS SECONDARY SAMPLER	SA	Fixed	DOL	0.37	460	0.76	0.650	0.5	0.6	0.8	0.75 0.4	0.4	0.6	0.913	0.75	0.3	0.4	0.5
Α	140-MC-001	146-ZM-02	1	0	TAILINGS THICKENER HYDRAULIC POWER PACK	ZM	-	FDR	15.00	460	1.00	0.800	15.0	11.3	18.8	0.75 11.3	8.4	14.1	0.913	0.75	10.3	7.7	12.8
А	140-MC-001	146-PP-20	1	0	TAILINGS THICKENER OVERFLOW PUMP 1	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 17.5	13.6	22.2	0.913	0.75	16.0	12.4	20.3
А	140-MC-001	146-PP-21	0	1	TAILINGS THICKENER OVERFLOW PUMP 2	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	140-MC-001	146-PP-22	1	0	TAILINGS PUMP 1	PP	Variable	VSD	112.00	460	0.93	0.999	120.4	5.4	120.5	0.75 90.3	4.0	90.4	0.913	0.75	82.5	3.7	82.5
Α	140-MC-001	146-PP-23	0	1	TAILINGS PUMP 2	PP	Variable	VSD	112.00	460	0.93	0.999	120.4	5.4	120.5	0.75 0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	140-MC-001	146-PP-24	1	0	TAILINGS AREA SUMP PUMP	PP	Fixed	DOL	7.50	460	0.91	0.780	8.2	6.6	10.6	0.75 6.2	5.0	7.9	0.100	0.75	0.6	0.5	0.8
	1			I .	SUBTOTAL - SUB AREA 142 - TRASH SCREEN/TAILINGS				395			0.96	424	123	441	177	60	187			157	51	165
						'									1	'		1					
SUB AREA 14	5 - DETOXIFICATIO	N																					
А	140-MC-001	145-AG-07	1	0	DETOX AGITATOR 1	AG	Fixed	DOL	55.00	460	0.94	0.830	58.3	39.2	70.2	0.75 43.7	29.4	52.6	0.913	0.75	39.9	26.8	48.1
А	140-MC-001	145-AG-08	1	0	DETOX AGITATOR 2	AG	Fixed	DOL	55.00	460	0.94	0.830	58.3	39.2	70.2	0.75 43.7	29.4	52.6	0.913	0.75	39.9	26.8	48.1
Α	140-MC-001	145-ZM-02	1	0	CYANIDE RECOVERY THICKENER HYDRAULIC POWER PACK	ZM	-	FDR	15.00	460	1.00	0.800	15.0	11.3	18.8	0.75 11.3	8.4	14.1	0.913	0.75	10.3	7.7	12.8
А	140-MC-001	145-PP-01	1	0	CYANIDE RECOVERY THICKENER U/F PUMP 1	PP	Variable	VSD	18.50	460	0.91	0.997	20.3	1.6	20.4	0.75 15.2	1.2	15.3	0.913	0.75	13.9	1.1	13.9
А	140-MC-001	145-PP-00	0	1	CYANIDE RECOVERY THICKENER U/F PUMP 2	PP	Variable	VSD	18.50	460	0.91	0.997	20.3	1.6	20.4	0.75 0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	140-MC-001	145-PP-08	1	0	CYANIDE RECOVERY THICKENER O/F PUMP 1	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 17.5	13.6	22.2	0.913	0.75	16.0	12.4	20.3
Α	140-MC-001	145-PP-17	1	0	DETOX AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75 8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
	1			I .	SUBTOTAL - SUB AREA 145 - DETOXIFICATION				195			0.87	207	119	239	140	88	166			121	75	142
						1			1		1			II.	1					1			
AREA 160 - CI	IL/TAILING																						
А	160-MC-001	161-CN-01	1	0	CIL AREA CRANE	CN	Fixed	DOL	15.00	460	0.93	0.810	16.2	11.7	20.0	0.75 12.2	8.8	15.0	0.100	0.75	1.2	0.9	1.5
Α	160-MC-001	161-SC-01	1	0	INTERTANK SCREEN 1	sc	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
Α	160-MC-001	161-SC-02	1	0	INTERTANK SCREEN 2	sc	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
Α	160-MC-001	161-SC-03	1	0	INTERTANK SCREEN 3	sc	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
Α	160-MC-001	161-SC-04	1	0	INTERTANK SCREEN 4	sc	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
А	160-MC-001	161-SC-05	1	0	INTERTANK SCREEN 5	SC	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
Α	160-MC-001	161-SC-06	1	0	INTERTANK SCREEN 6	SC	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
А	160-MC-001	161-PP-16	1	0	LOADED CARBON RECOVERY PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75 8.9	6.5	11.0	0.913	0.75	8.2	5.9	10.1
Α	160-MC-001	161-SC-07	1	0	CARBON RECOVERY SCREEN	SC	Fixed	DOL	3.20	460	0.87	0.810	3.7	2.7	4.5	0.75 2.8	2.0	3.4	0.913	0.75	2.5	1.8	3.1
Α	160-MC-001	161-AG-01	1	0	CIL TANK 1 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5
А	160-MC-001	161-AG-02	1	0	CIL TANK 2 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5
А	160-MC-001	161-AG-03	1	0	CIL TANK 3 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5
А	160-MC-001	161-AG-04	1	0	CIL TANK 4 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5
А	160-MC-001	161-AG-05	1	0	CIL TANK 5 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5
А	160-MC-001	161-AG-06	1	0	CIL TANK 6 AGITATOR	AG	Fixed	DOL	45.00	460	0.95	0.820	47.3	33.0	57.7	0.75 35.5	24.8	43.3	0.913	0.75	32.4	22.6	39.5

5032-LST-006



ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOAI	D SPECIFICATION	l	ı	INSTALLED LOA	AD	1	EMAND (PE	AK) LOAD	1		AVERA	GE (RUNNING	i) LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO k	V	VAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
А	160-MC-001	161-SC-08	1	0	CARBON SIZING SCREEN	sc	Fixed	DOL	3.20	460	0.87	0.810	3.7	2.7	4.5	0.75 2	3	2.0	3.4	0.913	0.75	2.5	1.8	3.1
А	160-MC-001	161-PP-17	1	0	CIL AREA SUMP PUMP 1	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
А	160-MC-001	161-PP-18	1	0	CIL AREA SUMP PUMP 2	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
А	160-MC-001	161-SC-09	1	0	CARBON SAFETY SCREEN	sc	Fixed	DOL	6.00	460	0.91	0.830	6.6	4.5	8.0	0.75 5	)	3.3	6.0	0.913	0.75	4.5	3.1	5.5
					SUBTOTAL - AREA 160 - CIL/TAILING				364			0.82	387	271	472	2	0	203	354			241	168	293
																								·
AREA 170 - DE	ESORPTION				1																			
А	170-MC-001	171-ZM-01	1	0	REGEN KILN SCRUBER	ZM	-	FDR	2.20	460	1.00	0.800	2.2	1.7	2.8	0.75 1	7	1.2	2.1	0.830	0.75	1.4	1.0	1.7
A	170-MC-001	171-PP-02	1	0	REGEN KILN SCRUBER PUMP	PP	Fixed	DOL	5.50	460	0.91	0.830	6.1	4.1	7.3	0.75 4	3	3.1	5.5	0.830	0.75	3.8	2.5	4.6
А	170-MC-001	171-RO-01	1	0	CARBON REGENERATION KILN	RO	Variable	VSD	5.60	460	0.88	0.998	6.4	0.4	6.4	0.75 4		0.3	4.8	0.830	0.75	4.0	0.3	4.0
A	170-MC-001	171-PP-17	1	0	CARBON REGEN AREA SUMP PUMP	PP	Fixed	DOL	7.50	460	0.91	0.780	8.2	6.6	10.6	0.75	2	5.0	7.9	0.100	0.75	0.6	0.5	0.8
A	170-MC-001	171-PP-20	1	0	CARBON TRANSFER PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75 8		6.5	11.0	0.830	0.75	7.4	5.4	9.2
A	170-MC-001	171-CN-01	1	0	CARBON LOADING HOIST	CN	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75 3		2.3	3.9	0.100	0.75	0.3	0.2	0.4
A	170-MC-001	171-PP-25	1	0	TRANSFER WATER PUMP	PP	Fixed	DOL	3.00	460	0.87	0.810	3.4	2.5	4.2	0.75 2	6	1.9	3.2	0.913	0.75	2.4	1.7	2.9
A	170-MC-001	171-HX-01	1	0	STRIP SOLUTION HEATER	HX	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4		3.1	5.6	0.670	0.75	3.1	2.1	3.7
A	170-MC-001	171-PP-27	1	0	HEATER OIL RECIRCULATION PUMP	PP	Fixed	DOL	22.00	460	0.94	0.790	23.4	18.1	29.6	0.75 1	5	13.6	22.2	0.670	0.75	11.7	9.1	14.9
A	170-MC-001	171-PP-28	1	0	STRIP SOLUTION PUMP 1	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75 4		3.1	5.6	0.670	0.75	3.1	2.1	3.7
A	170-MC-001	171-PP-30	1	0	PREGNANT SOLUTION PUMP 1	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75		6.5	11.0	0.913	0.75	8.2	5.9	10.1
A	170-MC-001	171-PP-35	0		PREGNANT SOLUTION PUMP 2	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75		0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	170-MC-001	171-PP-31	1	0	STRIPPING WATER/ TREATED WATER TANK ANTI-SCALANT	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75 1		1.4	2.3	0.913	0.75	1.7	1.3	2.1
A	170-MC-001	171-PP-32	1		PUMP SULPHAMIC ACID PUMP	PP	Fixed	DOL	1.50	460	0.86	0.740	1.7	1.6	2.4	0.75 1		1.2	1.8	0.100	0.75	0.1	0.1	0.2
A	170-MC-001	171-PP-33	1	0	ACID WASH COLUMN AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75		6.5	11.0	0.100	0.75	0.9	0.6	1.1
A	170-MC-001	171-PP-34	1	-	PREGNANT SOLUTION AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75		6.5	11.0	0.100	0.75	0.9	0.6	1.1
			·		SUBTOTAL - AREA 170 - DESORPTION		1 1/100	302	119		0.02	0.82	130	91	159	8		62	108	0.100	0.70	50	33	60
					TOTAL AREA 140 - SCREENING/TAILING/DESORPTION				1,073			0.88	1,148	605	1,298	6		413	810			568	327	655
					TOTAL AREA 140 - SORELAING/TAILING/DESORT TION				1,073			0.00	1,140	003	1,230			413	010			300	321	033
ΔRFΔ 180-240	- REFINING & REA	GENT																						
AREA 180 - RE																								
A	180-MC-001	181-RC-01	1	0	ELECTROWINNING CELL 1 RECTIFIER	RC	_	FDR	45.00	460	1.00	0.800	45.0	33.8	56.3	0.75 3	8	25.3	42.2	0.913	0.75	30.8	23.1	38.5
A	180-MC-001	181-RC-02	1		ELECTROWINNING CELL 2 RECTIFIER  ELECTROWINNING CELL 2 RECTIFIER	RC	•	FDR	45.00	460	1.00	0.800	45.0	33.8	56.3	0.75 3		25.3	42.2	0.913	0.75	30.8	23.1	38.5
A	180-MC-001	181-RC-02	'		ELECTROWINNING CELL 2 RECTIFIER  ELECTROWINNING CELL 3 RECTIFIER	RC		FDR	45.00	460	1.00	0.800	45.0	33.8				0.0	0.0	0.913	0.75		0.0	0.0
A	180-MC-001		1		ELECTROWINNING CELL 3 RECTIFIER  ELECTROWINNING SCRUBBER	ZM	- Fivod								56.3			1.4				0.0		
		181-ZM-01		0	ELECTROWINNING SCRUBBER  ELECTROWINNING SCRUBBER PUMP		Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1				2.3	0.100	0.75	0.2	0.1	0.2
Α	180-MC-001	181-PP-01	1			PP	Fixed	DOL	5.50	460	0.91	0.830	6.1	4.1	7.3	0.75 4		3.1	5.5	0.913	0.75	4.2	2.8	5.0
A	180-MC-001	181-CN-01	1		GOLD ROOM CRANE	VL ZAA	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75		2.3	3.9	0.100	0.75	0.3	0.2	0.4
A	180-MC-001	181-ZM-02	1		CATHODE WASH HP SPRAY MACHINE	ZM	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75		2.3	3.9	0.100	0.75	0.3	0.2	0.4
A	180-MC-001	181-DR-01	1		DRYING OVEN	AG	Fixed	DOL	19.00	460	0.94	0.800	20.3	15.2	25.4	0.75		11.4	19.0	0.500	0.75	7.6	5.7	9.5
Α .	180-MC-001	181-FC-01	1	0	BARRING FURNACE	PP	Fixed	DOL	0.56	460	0.81	0.720	0.7	0.7	1.0	0.75		0.5	0.7	0.100	0.75	0.1	0.1	0.1
A	180-MC-001	181-FA-05	1		SMELTING FURNACE EXTRACTION FAN	FA	-	FDR	5.50	460	1.00	0.800	5.5	4.1	6.9	0.75 4		3.1	5.2	0.100	0.75	0.4	0.3	0.5
A	180-MC-001	181-PP-02	1		GOLDROOM AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75		6.5	11.0	0.100	0.75	0.9	0.6	1.1
Α	180-MC-001	181-FA-02	1	0	GOLDROOM VENTILATION FAN № 1	FA	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	2	2.3	3.9	0.913	0.75	2.9	2.1	3.6

5032-LST-006



ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOAI	D SPECIFICATION		II	NSTALLED LOAI	)		DEMAN	ID (PEAK) LOAD			AVERA	GE (RUNNING	) LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO R	kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
Α	180-MC-001	181-FA-03	1	0	GOLDROOM VENTILATION FAN №2	PP	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.913	0.75	2.9	2.1	3.6
					SUBTOTAL - AREA 180 - REFINING				194			0.80	199	148	248		115	86	144			81	61	101
AREA 210 -REA	AGENT																							
Α	210-MC-001	216-PP-67	1	0	HCL ACID DRUM PUMP	PP	Fixed	DOL	0.75	460	0.82	0.730	0.9	0.9	1.2	0.75	0.7	0.6	0.9	0.100	0.75	0.1	0.1	0.1
Α	210-MC-001	216-PP-68	1	0	HCL ACID WASH PUMP	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.100	0.75	0.2	0.1	0.2
Α	210-MC-001	211-CN-01	1	0	CAUSTIC BAG LIFTING HOIST	CN	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.100	0.75	0.3	0.2	0.4
Α	210-MC-001	214-AG-01	1	0	CAUSTIC MIXING TANK AGITATOR	AG	Fixed	DOL	1.50	460	0.86	0.740	1.7	1.6	2.4	0.75	1.3	1.2	1.8	0.913	0.75	1.2	1.1	1.6
Α	210-MC-001	214-PP-70	1	0	CAUSTIC DOSING PUMP	PP	Variable	VSD	1.10	460	0.80	0.996	1.4	0.1	1.4	0.75	1.0	0.1	1.0	0.913	0.75	0.9	0.1	0.9
А	210-MC-001	211-CN-02	1	0	CYANIDE BAG LIFTING HOIST	CN	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.100	0.75	0.3	0.2	0.4
А	210-MC-001	211-AG-01	1	0	CYANIDE MIXING TANK AGITATOR	AG	Variable	VSD	2.20	460	0.84	0.995	2.6	0.3	2.6	0.75	2.0	0.2	2.0	0.913	0.75	1.8	0.2	1.8
А	210-MC-001	211-PP-71	1	0	CYANIDE TRANSFER PUMP	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	4.6	3.1	5.6	0.100	0.75	0.5	0.3	0.6
А	210-MC-001	211-PP-72	1	0	CYANIDE DOSING PUMP	PP	Variable	VSD	0.37	460	0.71	0.996	0.5	0.0	0.5	0.75	0.4	0.0	0.4	0.913	0.75	0.4	0.0	0.4
А	210-MC-001	211-PP-73	1	0	CYANIDE RECIRCULATION PUMP 1	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.913	0.75	1.7	1.3	2.1
А	210-MC-001	211-PP-74	0	1	CYANIDE RECIRCULATION PUMP 2	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
А	210-MC-001	211-PP-75	1	0	CYANIDE AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
А	210-MC-001	212-AG-01	1	0	LIME MIXING & STORAGE TANK AGITATOR	AG	Fixed	DOL	5.50	460	0.91	0.830	6.1	4.1	7.3	0.75	4.6	3.1	5.5	0.913	0.75	4.2	2.8	5.0
А	210-MC-001	212-PP-01	1	0	LIME TRANSFER PUMP	PP	Fixed	DOL	7.50	460	0.91	0.780	8.2	6.6	10.6	0.75	6.2	5.0	7.9	0.913	0.75	5.6	4.5	7.2
А	210-MC-001	212-PP-02	1	0	LIME DOSING PUMP	PP	Fixed	DOL	15.00	460	0.93	0.810	16.2	11.7	20.0	0.75	12.2	8.8	15.0	0.913	0.75	11.1	8.0	13.7
А	210-MC-001	212-PP-03	1	0	LIME AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
А	210-MC-001	450-PP-01	1	0	TRUCK WASH SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
Α	210-MC-001	213-CN-01	1	0	FLOCCULANT AREA HOIST	CN	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.100	0.75	0.3	0.2	0.4
Α	210-MC-001	213-FE-01	1	0	FLOCCULANT SCREW FEEDER	FE	Fixed	DOL	1.10	460	0.85	0.770	1.3	1.1	1.7	0.75	1.0	0.8	1.3	0.400	0.75	0.4	0.3	0.5
А	210-MC-001	213-BL-01	1	0	FLOCCULANT BLOWER	BL	Fixed	DOL	7.50	460	0.91	0.780	8.2	6.6	10.6	0.75	6.2	5.0	7.9	0.400	0.75	2.5	2.0	3.2
А	210-MC-001	213-AG-01	1	0	FLOCCULANT MIXING TANK AGITATOR	AG	Fixed	DOL	1.50	460	0.86	0.740	1.7	1.6	2.4	0.75	1.3	1.2	1.8	0.913	0.75	1.2	1.1	1.6
А	210-MC-001	213-PP-76	1	0	FLOCCULANT TRANSFER PUMP	PP	Fixed	DOL	18.50	460	0.94	0.800	19.8	14.8	24.7	0.75	14.8	11.1	18.5	0.100	0.75	1.5	1.1	1.9
А	210-MC-001	213-PP-77	1	0	PRE-LEACH THICKENER FLOCCULANT DOSING PUMP	PP	Variable	VSD	1.50	460	0.83	0.995	1.8	0.2	1.8	0.75	1.4	0.1	1.4	0.913	0.75	1.2	0.1	1.2
Α	210-MC-001	213-PP-78	1	0	TAILINGS THICKENER FLOCCULANT DOSING PUMP	PP	Variable	VSD	1.50	460	0.83	0.995	1.8	0.2	1.8	0.75	1.4	0.1	1.4	0.100	0.75	0.1	0.0	0.1
0.1	210-MC-001	215-CN-02	1	0	SMBS BAG LIFTING HOIST	CN	-	FDR	3.70	460	1.00	0.800	3.7	2.8	4.6	0.75	2.8	2.1	3.5	0.100	0.75	0.3	0.2	0.3
А	210-MC-001	215-AG-01	1	0	SMBS MIXING TANK AGITATOR	AG	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.913	0.75	1.7	1.3	2.1
Α	210-MC-001	215-PP-71	1	0	SMBS TRANSFER PUMP	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	4.6	3.1	5.6	0.100	0.75	0.5	0.3	0.6
Α	210-MC-001	215-PP-72	1	0	SMBS DOSING PUMP 1	PP	Variable	VSD	0.37	460	0.71	0.996	0.5	0.0	0.5	0.75	0.4	0.0	0.4	0.913	0.75	0.4	0.0	0.4
Α	210-MC-001	215-PP-73	0	1	SMBS DOSING PUMP 2	PP	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
A	210-MC-001	215-PP-75	1	0	SMBS AREA SUMP PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1.1
A	210-MC-001	215-FA-XX	1	0	SMBS EXTRACTION FAN	FA	Fixed	DOL	3.00	460	0.87	0.810	3.4	2.5	4.2	0.75	2.6	1.9	3.2	0.913	0.75	2.4	1.7	2.9
В	210-MC-001	217-AG-02	1	0	COPPER SULPHATE AGITATOR	AG	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.913	0.75	1.7	1.3	2.1
В	210-MC-001	217-PP-71	1	0	COPPER SULPHATE TRANSFER PUMP	FA	Fixed	DOL	2.20	460	0.87	0.810	2.5	1.8	3.1	0.75	1.9	1.4	2.3	0.100	0.75	0.2	0.1	0.2
В	210-MC-001	217-PP-72	1	0	COPPER SULPHATE DOSING PUMP	FA	Variable	VSD	0.37	460	0.71	0.996	0.5	0.0	0.5	0.75	0.4	0.0	0.4	0.913	0.75	0.4	0.0	0.4
-			· ·		SUBTOTAL - AREA 210 -REAGENT				155			0.82	171	120	209		124	87	152			47	31	56
					The state of the s				.50			V.U_	.,,	0				J.				.,	7.	

5032-LST-006



		EQUIPMENT	DUTY	OTDDV		50UID 7VD5	FIXED/	START		MOTOR (LOA)	CDECUEIO A TION			NOTALLED LOAD			DEMAN	ID (PEAK) LOAD			AVEDA	OF (BUNINING)	LOAD.	
ELEC. REV	SWBD/ MCC No	NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	VARIABLE	METHOD		MOTOR / LOAL	SPECIFICATION		ir	NSTALLED LOAI	,		DEMAN	ID (PEAK) LOAD			AVERA	GE (RUNNING)	LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO R	kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kVA
AREA 180-210	-230 SWITCHROOM	I L&SP, AIR-CON I	LOADS								·													
Α	210-MC-001	210-AC-001	1	0	SWITCHROOM AIR CONDITIONERS 1	ELEC	-	FDR	15	460	1.00	0.800	15.0	11.3	18.8	0.75	11.3	8.4	14.1	0.500	0.75	5.6	4.2	7.0
Α	210-MC-001	210-AC-002	0	1	SWITCHROOM AIR CONDITIONERS 2	ELEC	-	FDR	15	460	1.00	0.800	15.0	11.3	18.8	0.75	0.0	0.0	0.0	0.500	0.00	0.0	0.0	0.0
Α	210-MC-001	210-DB-001	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	0.75	22.5	16.9	28.1	0.500	0.80	12.0	9.0	15.0
Α	210-MC-001	210-DB-002	1	0	LIGHTING AND SMALL POWER	ELEC	-	FDR	30	460	1.00	0.800	30.0	22.5	37.5	0.75	22.5	16.9	28.1	0.500	0.80	12.0	9.0	15.0
Α	210-MC-001	210-WO-001	1	0	WELDING OUTLETS	ELEC		FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
Α	210-MC-001	210-WO-002	1	0	WELDING OUTLETS	ELEC	-	FDR	36	460	1.00	0.800	36.2	27.2	45.3	0.75	27.2	20.4	33.9	0.100	0.75	2.7	2.0	3.4
					SUBTOTAL - AREA 180-210-230 SWITCHROOM L&SP, AIR-CON	LOADS			162			0.80	162	122	203		111	83	138			35	26	44
					TOTAL AREA 180-210 - REFINING & REAGENT				511			0.81	532	390	660		350	256	434			163	118	201
AREA 230 - W	ATER & AIR SERVI	CES																						
SUB AREA230	- PLANT WATER S	SYSTEM																						
Α	230-MC-001	232-PP-41	1	0	RAW WATER PUMP 1	PP	Fixed	DOL	30.00	460	0.94	0.850	31.9	19.8	37.5	0.75	23.9	14.8	28.1	0.913	0.75	21.8	13.5	25.7
Α	230-MC-001	232-PP-42	0	1	RAW WATER PUMP 2	PP	Fixed	DOL	30.00	460	0.94	0.850	31.9	19.8	37.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	232-ZM-01	1	0	MILL WATER CHILLER SYSTEM	ZM	-	FDR	24.50	460	1.00	0.800	24.5	18.4	30.6	0.75	18.4	13.8	23.0	0.913	0.75	16.8	12.6	21.0
Α	230-MC-001	235-PP-48	1	0	GLAND WATER PUMP 1	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.913	0.75	8.2	5.9	10.1
Α	230-MC-001	235-PP-49	0	1	GLAND WATER PUMP 2	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	238-PP-51	1	0	FIREWATER PUMP - JOCKEY	PP	Fixed	DOL	1.10	460	0.85	0.770	1.3	1.1	1.7	0.75	1.0	0.8	1.3	0.100	0.75	0.1	0.1	0.1
Α	230-MC-001	238-PP-52	1	0	FIREWATER PUMP - ELECTRICAL	PP	Fixed	DOL	37.00	460	0.95	0.800	39.1	29.3	48.9	0.75	29.3	22.0	36.7	0.100	0.75	2.9	2.2	3.7
Α	230-MC-001	238-PP-53	1	0	PROCESS WATER PUMP 1	PP	Fixed	DOL	30.00	460	0.94	0.850	31.9	19.8	37.5	0.75	23.9	14.8	28.1	0.913	0.75	21.8	13.5	25.7
Α	230-MC-001	238-PP-54	0	1	PROCESS WATER PUMP 2	PP	Fixed	DOL	30.00	460	0.94	0.850	31.9	19.8	37.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	233-PP-57	0		EVENT POND SUBMERSIBLE PUMP	PP	Fixed	DOL	30.00	460	0.94	0.850	0.0	0.0	0.0	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	234-TE-01	1	0	PROCESS PLANT POTABLE WATER TREATMENT PLANT (PWTP) - FUTURE	TE	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.913	0.75	8.2	5.9	10.1
Α	230-MC-001	234-PP-58	1	0	PLANT POTABLE WATER DISTRIBUTION PUMP 1	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	4.6	3.1	5.6	0.913	0.75	4.2	2.8	5.1
Α	230-MC-001	234-PP-59	0	1	PLANT POTABLE WATER DISTRIBUTION PUMP 2	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
					SUBTOTAL - SUB AREA230 - PLANT WATER SYSTEM				257			0.83	241	162	290		119	82	145			84	57	101
SUB AREA 25	O - COMPRESSED	AIR																						
Α	230-MC-001	251-CO-01	1	0	PLANT AIR COMPRESSOR NO 1	со	Fixed	DOL	56	460	0.94	0.830	59.3	39.9	71.5	0.75	44.5	29.9	53.6	0.913	0.75	40.6	27.3	48.9
Α	230-MC-001	251-CO-02	0	1	PLANT AIR COMPRESSOR NO 2	со	Fixed	DOL	56	460	0.94	0.830	59.3	39.9	71.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	251-DR-01	1	0	AIR DRYER	AD	Fixed	DOL	6.1	460	0.91	0.830	6.7	4.5	8.1	0.75	5.1	3.4	6.1	0.913	0.75	4.6	3.1	5.6
Α	230-MC-001	252-BL-01	1	0	CIL BLOWER 1	BL	Fixed	DOL	150	460	0.96	0.890	157.1	80.5	176.5	0.75	117.8	60.4	132.4	0.913	0.75	107.6	55.1	120.8
Α	230-MC-001	252-BL-02	0	1	CIL BLOWER 2	BL	Fixed	DOL	150	460	0.96	0.890	157.1	80.5	176.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
Α	230-MC-001	252-BL-03	1	0	DETOX BLOWER 1	BL	Fixed	DOL	150	460	0.96	0.890	157.1	80.5	176.5	0.75	117.8	60.4	132.4	0.913	0.75	107.6	55.1	120.8
Α	230-MC-001	252-BL-04	0	1	DETOX BLOWER 2	BL	Fixed	DOL	150	460	0.96	0.890	157.1	80.5	176.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
					SUBTOTAL - SUB AREA 250 - COMPRESSED AIR				718			0.88	754	406	856		285	154	324			260	141	296
SUB AREA 26	- PLANT FUEL DIS	STRIBUTION																						
А	230-MC-001	261-PP-80	1	0	PLANT DIESEL FUEL DISTRIBUTION PUMP 1	PP	Fixed	DOL	1.1	460	0.85	0.770	1.3	1.1	1.7	0.75	1.0	0.8	1.3	0.913	0.75	0.9	0.7	1.2

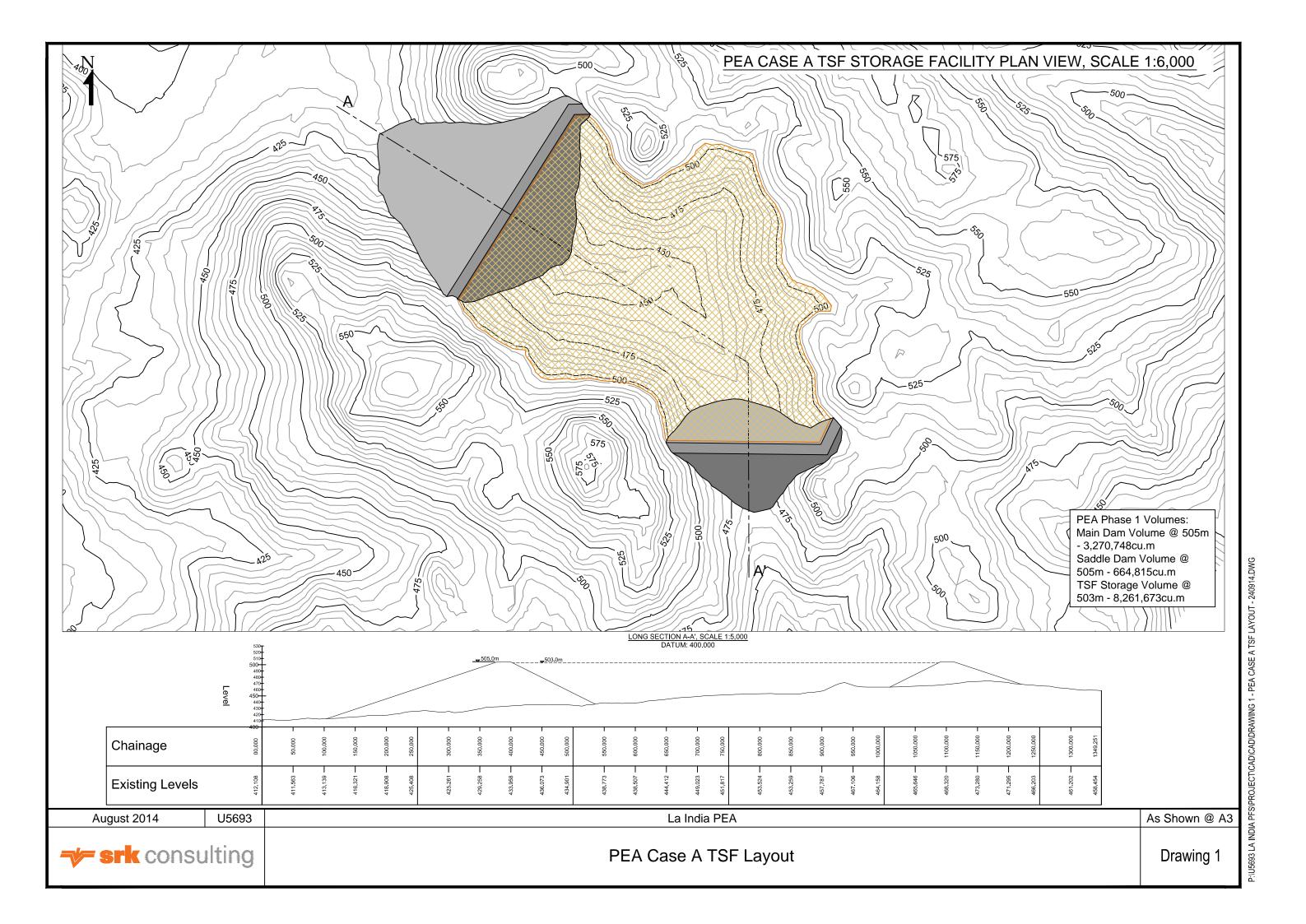


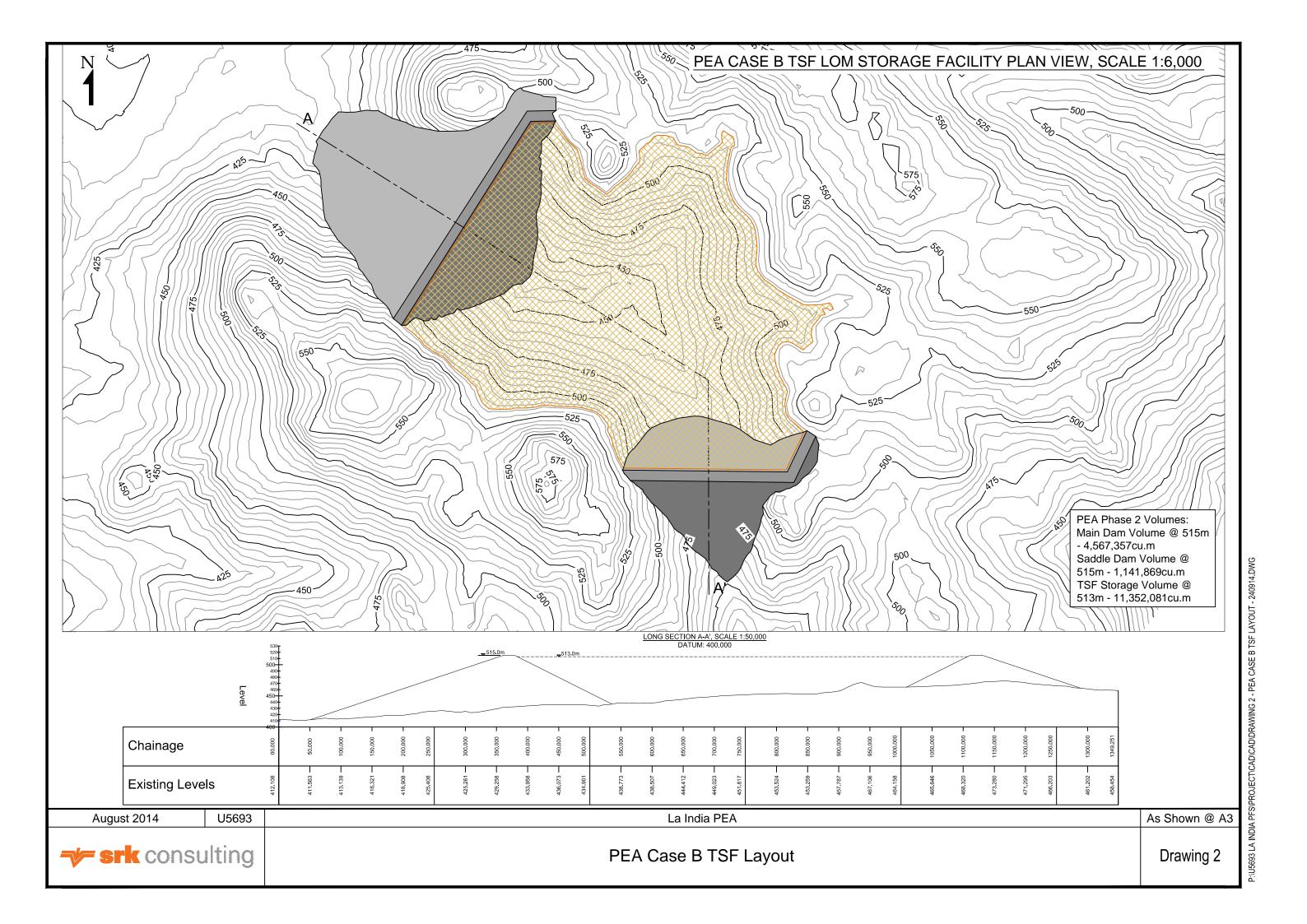
ELEC. REV	SWBD/ MCC No	EQUIPMENT NUMBER	DUTY	STDBY	EQUIPMENT NAME	EQUIP. TYPE	FIXED/ VARIABLE	START METHOD		MOTOR / LOAD	SPECIFICATION		IN	NSTALLED LOA	D		DEMAN	ID (PEAK) LOAD	,		AVERA	GE (RUNNING	) LOAD	
									NAMEPLATE (kW)	VOLTAGE (V)	EFFICIENCY	PF	kW	kVAR	kVA	LOAD FACTO R	kW	kVAR	kVA	UTILIZATION FACTOR	LOAD FACTOR	kW	kVAR	kV
Α	230-MC-001	261-PP-81	0	1	PLANT DIESEL FUEL DISTRIBUTION PUMP 2	PP	Fixed	DOL	1.1	460	0.85	0.770	1.3	1.1	1.7	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0.0
					SUBTOTAL - SUB AREA 260 - PLANT FUEL DISTRIBUTION				2			0.77	3	2	3		1	1	1			1	1	1
					TOTAL AREA 230 - WATER & AIR SERVICES				977			0.87	997	570	1,148		405	237	469			345	198	39
REA 300 - II	FRASTRUCTURE																							
REA 340 - T	AILING DAM & MICE	LLANEOUS FACI	LITIES																					
В	340-MC-001	344-PP-37	1	0	DECANT RETURN PUMP	PP	Fixed	DOL	30.00	460	0.94	0.850	31.9	19.8	37.5	0.75	23.9	14.8	28.1	0.913	0.75	21.8	13.5	25
В	340-MC-001	344-PP-38	1	0	UNDERDRAINAGE PUMP	PP	Fixed	DOL	11.00	460	0.92	0.810	11.9	8.6	14.7	0.75	8.9	6.5	11.0	0.100	0.75	0.9	0.6	1
В	340-MC-001	344-PP-39	1	0	SEEPAGE PUMP	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	4.6	3.1	5.6	0.100	0.75	0.5	0.3	0
REA 320 - U	TILITIES & SERVICE	:S																						
Α	340-MC-001	324-PP-82	0	1	MSA SEWAGE FORWARDING PUMPS	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	(
Α	230-MC-001	324-PP-83	1	0	LABORATORY ACID WASTE PUMP	PP	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.100	0.75	0.3	0.2	(
Α	230-MC-001	324-PP-84	1	0	LABORATORY GENERAL WASTE PUMP	PP	Fixed	DOL	3.70	460	0.87	0.810	4.2	3.1	5.2	0.75	3.2	2.3	3.9	0.100	0.75	0.3	0.2	C
Α	230-MC-001	324-PP-85	0	1	PLANT ADMIN OFFICE AREA SEWAGE FORWARDING PUMPS	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0
Α	230-MC-001	324-PP-86	0	1	PROCESS PLANT SEWAGE FORWARDING PUMPS	PP	Fixed	DOL	5.60	460	0.91	0.830	6.2	4.2	7.5	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0
Α	230-MC-001	324-TE-02		0	PROCESS PLANT SEWAGE TREATMENT PLANT (STP)	TE	-	FDR	37.00	460	1.00	0.800	0.0	0.0	0.0	0.75	0.0	0.0	0.0	0.913	0.00	0.0	0.0	0
					SUBTOTAL - AREA 320 - UTILITIES & SERVICES				61			0.830	27	19	33		6	5	8			1	0	1
UB AREA 3	0 - PLANT BUILDING	GS																						
Α	350-MC-001	360-CN-01	1	0	WAREHOUSE/ WORKSHOP CRANE	CN	-	FDR	5.60	460	1.00	0.800	5.6	4.2	7.0	0.75	4.2	3.2	5.3	0.100	0.75	0.4	0.3	0
			1	1	SUBTOTAL - SUB AREA 360 - PLANT BUILDINGS				6			0.830	6	4	7		4	3	5			0	0	1
ISCELLANE	OUS FACILITIES AN	ID BUILDINGS		I																				
Α	110-SB-001	ZM	1	0	WORKSHOP/WAREHOUSE 25kW	ZM	-	FDR	50	460	1.00	0.800	50.0	37.5	62.5	0.80	40.0	30.0	50.0	0.500	0.80	20.0	15.0	25
Α	111-SB-001	ZM	1	0	LABORATORY 25KW	ZM	-	FDR	25	460	1.00	0.800	25.0	18.8	31.3	0.80	20.0	15.0	25.0	0.500	0.80	10.0	7.5	1:
Α	112-SB-001	ZM	1	0	ADMIN OFFICES / GATEHOUSE	ZM	-	FDR	50	460	1.00	0.800	50.0	37.5	62.5	0.80	40.0	30.0	50.0	0.500	0.80	20.0	15.0	2
Α	115-SB-002	ZM	1	0	DRY/WET MESS	ZM	-	FDR	50	460	1.00	0.800	50.0	37.5	62.5	0.80	40.0	30.0	50.0	0.500	0.80	20.0	15.0	25
					SUBTOTAL MISCELLANEOUS FACILITIES AND BUILDINGS				175			0.80	175	131	219		140	105	175			70	53	8

NOTES: Per Mechanical Equipment List 5032-LST-001 Rev C

# **APPENDIX**

C PROCESSING WASTE - SCENARIO A AND B TAILINGS STORAGE FACILITY LAYOUT





# **APPENDIX**

D ECONOMIC ANALYSIS - PFS BASE CASE, SCENARIO A AND SCENARIO B YEAR BY YEAR SUMMARIES

# **Base Case Annual Results**

Year		Units	Totals	-2	-1	1	2	3	4	5	6	7	8	9	10
Production	-														
Mining															
Open Pit															
Waste Expit		(kt)	94,529	1,500	5,692	7,982	11,489	15,879	16,210	15,767	12,914	6,309	786	-	_
Stripping Ratio		(t:t)	13.62	- ,,,,,,	148.33	9.40	10.39	14.16	20.06	15.09	11.37	9.23	5.06	-	_
Ore Expit		(kt)	6,942	-	38	849	1,106	1,121	808	1,045	1,136	683	156	-	-
	Gold	(g/t Áu)	3.02	-	2.06	2.38	2.42	2.68	3.48	3.44	3.20	3.89	3.24	-	-
	Silver	(g/t Ag)	5.31	-	2.86	4.75	4.97	5.41	6.02	5.17	4.82	6.63	5.72	-	-
Total Material Mined		(kt)	101,471	1,500	5,730	8,832	12,595	17,000	17,018	16,812	14,050	6,993	942	-	-
Processing		` ,			•	·					·				
Mill Feed		(kt)	6,942	-	-	721	800	800	800	800	800	800	800	621	
Gold		(g/t)	3.02	-	-	2.6	2.9	3.3	3.5	4.1	4.0	3.5	1.6	1.2	-
Silver		(g/t)	5.31	-	-	5.0	5.8	6.5	6.1	6.1	6.0	6.0	3.1	2.5	-
Recovery		(0 )													
Gold		(%)	91.0%	0.0%	0.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%	0.0%
Silver		(%)	69.9%	0.0%	0.0%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	0.0%
Dore Produced		. ,													
Gold		(koz)	614	-	-	55.8	68.2	77.0	81.9	96.8	93.8	81.8	36.8	22.0	-
Silver		(koz)	828	-	-	81.1	103.9	117.4	108.9	110.4	107.0	108.4	56.1	35.2	-
Sales Summary															
Produced															-
Gold		(koz)	614	-	-	55.8	68.2	77.0	81.9	96.8	93.8	81.8	36.8	22.0	-
Silver		(koz)	828	-	-	81.1	103.9	117.4	108.9	110.4	107.0	108.4	56.1	35.2	-
Payable															
Gold		(koz)	613	-	-	55.7	68.1	76.9	81.8	96.7	93.7	81.7	36.8	22.0	-
Silver		(koz)	820	-	-	80.3	102.9	116.2	107.8	109.3	105.9	107.3	55.6	34.8	-
Product Prices															
Gold		(US\$/oz)	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Silver		(US\$/oz)	19.75	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Revenue															
Gold		(US\$m)	767	-	-	69.6	85.1	96.1	102.3	120.8	117.2	102.1	46.0	27.4	_
Silver		(US\$m)	16	-	-	1.6	2.0	2.3	2.1	2.2	2.1	2.1	1.1	0.7	-
Total Revenue		(US\$m)	783		-	71.2	87.2	98.4	104.4	123.0	119.3	104.2	47.1	28.1	-
Operating Expenditure															
Mining o/p		(US\$m)	(235)	(4.9)	(13.8)	(22.4)	(28.2)	(36.0)	(35.3)	(35.0)	(31.1)	(19.9)	(6.8)	(1.2)	-
Processing		(US\$m)	(142)	(	-	(15.1)	(16.3)	(16.3)	(16.3)	(16.3)	(16.3)	(16.3)	(16.3)	(12.9)	_
Tailings		(US\$m)	`(0)	-	-	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	-
Refinery		(US\$m)	(2)	-	-	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)	(0.2)	-
G&A		(US\$m)	(38)	-	-	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(3.4)	(2.7)	-
Contingency (Mining o/p only)		(US\$m)	(6)	-	-	(0.6)	(0.8)	(1.0)	(0.9)	(0.9)	(0.8)	(0.5)	(0.2)	-	-
Terminal Benefits Liability		(US\$m)	(1)	-	-	` -	` -	. ,	` -	` _	` -	` -	-	(0.9)	-
Subtotal operating costs		(US\$m)	(424)	(4.9)	(13.8)	(42.9)	(50.2)	(58.2)	(57.4)	(57.2)	(53.2)	(41.7)	(27.0)	(17.8)	
Royalty		(US\$m)	(23)	-	-	(2.1)	(2.6)	(3.0)	(3.1)	(3.7)	(3.6)	(3.1)	(1.4)	(0.8)	-
Total operating costs		(US\$m)	(448)	(4.9)	(13.8)	(45.1)	(52.8)	(61.2)	(60.5)	(60.9)	(56.8)	(44.8)	(28.4)	(18.7)	
Operating Profit - EBITDA		(US\$m)	335	(4.9)	(13.8)	26.2	34.4	37.2	43.9	62.1	62.5	59.4	18.7	9.5	
Corporate Income Tax		(000,)		(,	(10.0)		• • • • • • • • • • • • • • • • • • • •			<del></del>	02.0			0.0	
Profit tax		(US\$m)	(63)	-	-	-	(1.1)	(2.7)	(8.6)	(13.7)	(14.2)	(15.0)	(5.0)	(2.3)	-
Net Profit		(US\$m)	273	(4.9)	(13.8)	26.2	33.3	34.5	35.3	48.4	48.3	44.4	13.7	7.2	_
Working Capital Movement		(004)	2.0	(1.0)	(10.0)	20.2	00.0	0 1.0	00.0	10.1	10.0		10.1		
Working Capital Movement		(US\$m)	(0)	0.4	0.7	0.1	0.1	0.4	(0.2)	(0.5)	(0.2)	(0.6)	0.3	(0.1)	(0.3)
Capital Expenditure		(ΟΟΨΙΙΙ)	(0)	0.4	0.7	0.1	0.1	0.4	(0.2)	(0.0)	(0.2)	(0.0)	0.5	(0.1)	(0.5)
Project Capital Expenditure		(US\$m)	(108.1)	(24.8)	(66.4)	(0.2)	(4.1)	(0.5)	(0.2)	(0.3)	(0.0)	(0.1)		(11.5)	
Sustaining Capital Expenditure		(US\$III)	(108.1)	(24.0)	(00.4)	(0.2)	(4.1)	(0.5)	(5.8)	(0.3)	(0.0)	(0.1)	-	(11.5)	-
Total Capital Expenditure		(US\$m)	(10.5) (118.6)	(24.8)	(66.4)	(0.2)	(4.2) ( <b>8.4)</b>	(0.5)	(5.8) <b>(6.0)</b>	(0.1) ( <b>0.4)</b>	(0.3) ( <b>0.4)</b>	(0.1)	-	(11.5)	-
Net Free Cash (Post-tax)		(US\$m)	154	(24.8)	(79.5)	26.1	25.1	34.3	29.0	47.5	47.7	43.8	14.0	(4.5)	(0.3)
									5.7	53.2	100.9	144.7	158.7	154.2	153.9
Cumulative NFC (Post-tax)		(US\$m)	-	(29.3)	(108.8)	(82.7)	(57.6)	(23.3)							
Net Free Cash (Pre-tax)		(US\$m)	216	(29.3)	(79.5)	26.1	26.2	37.0	37.6	61.2	61.9	58.8	18.9	(2.2)	(0.3)

# **Scenario A Annual Results**

Scenario A Amidai Nest	uito											_		
Year		Units	Totals	-2	-1	1	2	3	4	5	6	7	8	9
Mining														
Open Pit														
Waste Expit		(kt)	118,178	1,501	5,651	9,146	12,371	13,384	15,520	15,406	16,932	17,070	11,195	-
Stripping Ratio		(t:t)	12.45	-	117.17	7.99	9.23	10.93	12.84	12.58	13.04	16.84	11.35	-
Ore Expit	0-14	(kt)	9,489 2.79	-	48	1,144 2.30	1,340 2.21	1,225	1,209	1,224	1,299	1,013	986	-
	Gold Silver	(g/t Au)		-	1.66			2.44	2.97	3.25	2.67 3.47	3.25	3.50	-
Total Material Mined	Silver	(g/t Ag) (kt)	4.51 127,667	1,501	2.45 5,699	4.37 10,290	4.18 13,712	4.83 14,609	5.17 16,729	4.98 16,631	18,231	4.64 18,083	4.68 12,181	-
Underground		(KI)	127,007	1,501	3,099	10,290	13,712	14,009	10,729	10,031	10,231	10,003	12,101	_
Ore		(kt)	0	_	_	_	_	_	_	_	_	_	_	_
010	Gold	(g/t Au)	0.00	_	_	_	_	_	_	_	_	_	_	_
	Silver	(g/t Ag)	0.00	-	-	-	-	_	-	-	-	-	-	-
Processing														
Mill Feed		(kt)	9,489	-	-	1,135	1,200	1,200	1,200	1,200	1,200	1,200	1,154	-
Gold		(g/t)	2.79	-	-	2.3	2.3	2.5	3.0	3.3	2.8	3.0	3.2	-
Silver		(g/t)	4.51	-	-	4.4	4.7	4.9	5.2	5.1	3.8	3.9	4.1	-
Recovery														
Gold		(%)	91.0%	0.0%	0.0%	90.9%	91.4%	91.2%	91.3%	91.4%	91.3%	90.7%	90.2%	0.0%
Silver		(%)	69.9%	0.0%	0.0%	69.9%	69.9%	69.9%	70.0%	70.0%	70.0%	69.9%	69.9%	0.0%
Dore Produced		(107)	774			76.4	80.7	86.6	104.9	116.0	97.1	104.2	100 2	
Gold Silver		(koz) (koz)	774 963	-	-	76.4 112.4	80.7 126.1	86.6 132.9	104.9 140.7	116.0 137.2	97.1 101.3	104.2 105.8	108.3 106.3	-
Sales Summary		(KUZ)	903	-	-	112.4	120.1	132.9	140.7	131.2	101.3	105.8	100.3	-
Produced		(1407)	774		_	76.4	80.7	86.6	104.9	116.0	97.1	104.2	100.2	
Gold Silver		(koz) (koz)	963	-	-	76.4 112.4	126.1	132.9	140.7	116.0 137.2	101.3	104.2 105.8	108.3 106.3	-
Payable		(KUZ)	303			112.4	120.1	132.9	140.7	137.2	101.3	103.0	100.5	
Gold		(koz)	773		_	76.3	80.6	86.5	104.8	115.9	97.0	104.1	108.2	
Silver		(koz)	953			111.3	124.8	131.6	139.3	135.9	100.3	104.8	105.2	
Product Prices		(102)				111.0	124.0	101.0	100.0	100.0	100.0	104.0	100.2	
Gold		(US\$/oz)	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Silver		(US\$/oz)	19.75	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Revenue		(000,02)	10.70		10.0	10.0	10.0		10.0	10.0	10.0	.0.0	10.0	10.0
Gold		(US\$m)	967	-	-	95.4	100.8	108.2	131.0	144.9	121.2	130.2	135.3	
Silver		(US\$m)	19	_	_	2.2	2.5	2.6	2.8	2.7	2.0	2.1	2.1	_
Total Revenue		(US\$m)	986		-	97.6	103.2	110.8	133.8	147.6	123.2	132.2	137.4	
Operating Expenditure		(554)				4114								
Mining o/p		(US\$m)	(302)	(3.5)	(13.3)	(24.2)	(32.2)	(34.4)	(39.5)	(39.3)	(43.1)	(43.1)	(29.3)	_
Mining u/g		(US\$m)	-	-	-	()	-	-	-	-	( )	-	(=====	-
Processing		(US\$m)	(175)	-	-	(21.2)	(22.1)	(22.1)	(22.1)	(22.1)	(22.1)	(22.1)	(21.4)	-
Tailings		(US\$m)	(0)	-	-	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	-
Refinery		(US\$m)	(3)	-	-	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	-
G&A		(US\$m)	(36)	-	-	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.6)	(4.2)	-
Contingency (Mining o/p only)		(US\$m)	(4)	-	-	(0.3)	(0.7)	(0.6)	(0.4)	(0.4)	(0.5)	(0.5)	(0.3)	-
Terminal Benefits Liability		(US\$m)	(1)	-	-	-	-	-	-	-	-	-	(1.1)	
Subtotal operating costs		(US\$m)	(521)	(3.5)	(13.3)	(50.6)	(60.0)	(62.0)	(67.0)	(66.8)	(70.7)	(70.6)	(56.7)	<u> </u>
Royalty		(US\$m)	(30)	-	-	(2.9)	(3.1)	(3.3)	(4.0)	(4.4)	(3.7)	(4.0)	(4.1)	
Total operating costs		(US\$m)	(551)	(3.5)	(13.3)	(53.6)	(63.1)	(65.4)	(71.0)	(71.2)	(74.4)	(74.6)	(60.9)	<u> </u>
Operating Profit - EBITDA		(US\$m)	435	(3.5)	(13.3)	44.0	40.2	45.4	62.8	76.3	48.8	57.6	76.5	-
Corporate Income Tax														
Profit tax		(US\$m)	(86)	-	-	(3.3)	(3.4)	(4.4)	(13.3)	(16.8)	(8.9)	(13.7)	(22.1)	-
Net Profit		(US\$m)	349	(3.5)	(13.3)	40.7	36.8	41.0	49.5	59.5	39.8	44.0	54.4	
Working Capital Movement														
Working Capital		(US\$m)	-	0.3	0.8	(0.1)	0.6	(0.0)	(0.2)	(0.4)	0.9	(0.2)	(1.2)	(0.5)
Capital Expenditure														
Project Capital Expenditure	<u> </u>	(US\$m)	(129.8)	(28.0)	(82.4)	(0.2)	(4.1)	(0.6)	(0.2)	(0.3)	(0.0)	(0.5)	(13.4)	
Sustaining Capital Expenditure		(US\$m)	(15.4)	-	-	-	(6.0)	-	(8.9)	(0.1)	(0.4)	-	-	-
Total Capital Expenditure		(US\$m)	(145.1)	(28.0)	(82.4)	(0.2)	(10.1)	(0.6)	(9.2)	(0.4)	(0.4)	(0.5)	(13.4)	
Net Free Cash (Post-tax)		(US\$m)	204	(31.2)	(94.9)	40.4	27.3	40.4	40.2	58.7	40.4	43.3	39.7	(0.5)
Cumulative NFC (Post-tax)		(US\$m)	-	(31.2)	(126.1)	(85.7)	(58.4)	(18.1)	22.1	80.8	121.2	164.5	204.2	203.7
Net Free Cash (Pre-tax)		(US\$m)	290	(31.2)	(94.9)	43.7	30.6	44.8	53.4	75.5	49.3	56.9	61.9	(0.5)

# **Scenario B Annual Results**

Scenario B Amiliani	tesuits														40		40	40
Year		Units	Totals	-2	-1	1	2	3	4	5	6		8	9	10	11	12	13
Mining																		
Open Pit		(1.4)	440.470	4.504	E 0E4	0.440	40.074	40.004	45 500	45 400	40.000	47.070	44.405					
Waste Expit		(kt)	118,178	1,501	5,651	9,146	12,371	13,384	15,520	15,406	16,932	17,070	11,195	-	-	-	-	-
Stripping Ratio		(t:t)	12.45	-	117.17	7.99	9.23	10.93	12.84	12.58	13.04	16.84	11.35	-	-	-	-	
Ore Expit	0-14	(kt)	9,489	-	48	1,144	1,340	1,225	1,209	1,224	1,299	1,013	986	-	-	-	-	
	Gold	(g/t Au)	2.79	-	1.66	2.30	2.21	2.44	2.97	3.25	2.67	3.25	3.50	-	-	-	-	
Total Material Mineral	Silver	(g/t Ag)	4.51	4 504	2.45	4.37	4.18	4.83	5.17	4.98	3.47	4.64	4.68	-	-	-	-	
Total Material Mined		(kt)	127,667	1,501	5,699	10,290	13,712	14,609	16,729	16,631	18,231	18,083	12,181	-	-	-	-	
Underground		(1.6)	0.500			405	000	004	000	070	050	074	004	00.4	070	050	400	
Ore	0.11	(kt)	3,520	-	-	185	228	364	388	376	358	371	301	294	273	256	126	
	Gold	(g/t Au)	4.31	-	-	3.62	4.34	4.71	5.11	4.53	3.67	3.60	4.08	4.57	4.32	4.23	4.91	
	Silver	(g/t Ag)	5.20	-	-	4.60	3.96	4.03	3.82	4.72	4.26	4.85	6.37	7.21	6.58	6.74	7.60	-
Processing		4.3																
Mill Feed		(kt)	13,009	-	-	1,320	1,425	1,589	1,597	1,600	1,600	1,594	1,336	294	273	256	126	
Gold		(g/t)	3.20	-	-	2.5	2.6	3.0	3.5	3.6	2.9	3.1	3.6	4.6	4.3	4.2	4.9	
Silver		(g/t)	4.70	-	-	4.4	4.6	4.6	4.8	4.9	3.8	4.1	5.0	7.2	6.6	6.7	7.6	
Recovery																		
Gold		(%)	91.6%	0.0%	0.0%	91.3%	91.7%	91.7%	91.7%	91.7%	91.7%	91.2%	90.9%	92.5%	92.7%	93.1%	94.4%	0.0%
Silver		(%)	70.0%	0.0%	0.0%	70.0%	70.0%	69.9%	70.0%	70.0%	70.0%	70.0%	69.9%	70.0%	70.0%	70.2%	70.5%	0.0%
Dore Produced																		
Gold		(koz)	1,226	-	-	96.4	110.0	138.7	164.4	167.7	138.0	145.5	139.2	39.9	35.2	32.3	18.7	-
Silver		(koz)	1,375	-	-	131.6	146.4	165.9	174.1	177.2	135.6	146.4	149.5	47.7	40.4	38.9	21.6	
Sales Summary																		
Produced																		
Gold		(koz)	1,226	-	-	96.4	110.0	138.7	164.4	167.7	138.0	145.5	139.2	39.9	35.2	32.3	18.7	-
Silver		(koz)	1,375	-	-	131.6	146.4	165.9	174.1	177.2	135.6	146.4	149.5	47.7	40.4	38.9	21.6	-
Payable																		
Gold		(koz)	1,225	-	-	96.3	109.9	138.6	164.2	167.5	137.8	145.3	139.0	39.8	35.1	32.3	18.7	-
Silver		(koz)	1,362	-	-	130.3	145.0	164.2	172.3	175.5	134.2	144.9	148.0	47.2	40.0	38.5	21.4	-
Product Prices																		
Gold		(US\$/oz)	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250
Silver		(US\$/oz)	19.75	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
Revenue		(==,-,																
Gold		(US\$m)	1,531	-	-	120.4	137.4	173.2	205.3	209.4	172.3	181.7	173.8	49.8	43.9	40.4	23.4	
Silver		(US\$m)	27	_	_	2.6	2.9	3.2	3.4	3.5	2.7	2.9	2.9	0.9	0.8	0.8	0.4	
Total Revenue		(US\$m)	1,558			122.9	140.3	176.5	208.7	212.9	174.9	184.5	176.7	50.7	44.7	41.1	23.8	-
Operating Expenditure		(004111)	1,550			122.3	140.5	170.5	200.7	212.3	174.5	104.5	170.7	30.7	77.1	71.1	23.0	
Mining o/p		(US\$m)	(304)	(3.5)	(13.3)	(24.2)	(32.2)	(34.4)	(39.5)	(39.3)	(43.2)	(43.1)	(29.2)	(0.5)	(0.5)	(0.7)		
Mining 0/p		(US\$III)	(215)	(3.3)	(13.3)	(11.3)	(13.9)	(22.2)	(23.7)	(22.9)	(21.8)	(22.6)	(18.3)	(17.9)	(16.7)	(15.6)	(7.8)	_
Processing		(US\$III)	(241)	-	-	(23.8)	(25.4)	(27.7)	(23.7)	(22.9)	(27.9)	(27.8)	(24.1)	(9.0)	(8.7)	(8.5)	(2.2)	_
Tailings		(US\$m)	(1)	-	-	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	
Refinery		(US\$III)	(4)	-	-	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	
				-	-	(4.6)							(4.6)					
G&A Contingency (Mining o/p only)		(US\$m) (US\$m)	(50) (4)	-	-	(4.6)	(4.6) (0.7)	(4.6) (0.6)	(4.6) (0.4)	(4.6) (0.4)	(4.6) (0.6)	(4.6) (0.5)	(4.6)	(4.6)	(4.6)	(4.6)	(0.4)	-
Terminal Benefits Liability		(US\$m) (US\$m)	(4)	-	-	(0.3)	(0.7)	(0.0)	(0.4)	(0.4)	(0.0)	(0.5)	(0.3)	-	-	-	(0.1)	•
		(US\$III)		- (2 E)	- (42.2)	(64.7)	(77.0)	(00 O)	(96.5)	- (OF C)	(00 E)	(00.4)	- (76.0)	(22.2)	- (20.7)	(29.5)		
Subtotal operating costs			(818)	(3.5)	(13.3)	(64.7)	(77.3)	(90.0)	,	(95.6)	(98.5)	(99.1)	(76.8)	(32.2)	(30.7)		(10.6)	
Royalty		(US\$m)	(47)			(3.7)	(4.2)	(5.3)	(6.3)	(6.4)	(5.2)	(5.5)	(5.3)	(1.5)	(1.3)	(1.2)	(0.7)	
Total operating costs		(US\$m)	(865)	(3.5)	(13.3)	(68.4)	(81.5)	(95.3)	(102.8)	(102.0)	(103.7)	(104.6)	(82.1)	(33.7)	(32.0)	(30.8)	(11.3)	
Operating Profit - EBITDA		(US\$m)	693	(3.5)	(13.3)	54.5	58.8	81.2	105.9	110.8	71.2	79.9	94.6	17.0	12.6	10.4	12.5	
Corporate Income Tax																		
Profit tax		(US\$m)	(133)	-	-	(4.5)	(5.8)	(11.3)	(22.3)	(23.3)	(11.8)	(16.6)	(25.5)	(3.3)	(2.9)	(2.2)	(3.3)	-
Net Profit		(US\$m)	560	(3.5)	(13.3)	50.1	53.0	69.9	83.6	87.6	59.5	63.3	69.1	13.7	9.8	8.1	9.2	
Working Capital Movement																		
Working Capital		(US\$m)	0	0.3	0.8	0.3	0.5	0.0	(0.3)	(0.2)	1.2	(0.2)	(1.5)	0.1	0.0	(0.0)	(1.0)	(0.2)
Capital Expenditure		\							\-\-\-\-\-\-	\-\ \-\ \-\ \ \-\ \ \ \ \ \ \ \ \ \ \ \		\/				\/		, . · = /
Project Capital Expenditure		(US\$m)	(214.1)	(30.5)	(121.3)	(29.5)	(16.6)	(0.6)	(0.2)	(0.3)	(0.0)	(0.5)	(1.6)	(0.2)	(0.0)	-	(12.7)	
Sustaining Capital Expenditure		(US\$m)	(32.8)	(00.0)	(121.0)	(0.6)	(8.2)	(1.2)	(8.3)	(1.4)	(8.1)	(1.2)	(1.0)	(1.0)	(0.9)	(0.9)	(12.7)	
Total Capital Expenditure		(US\$m)	(246.9)	(30.5)	(121.3)	(30.1)	(24.8)	(1.8)	(8.5)	(1.7)	(8.1)	(1.7)	(2.6)	(1.1)	(0.9)	(0.9)	(12.7)	
Net Free Cash (Post-tax)		(US\$m)	313	(33.8)	(133.9)	20.3	28.8	68.2	74.8	85.7	52.5	61.4	65.0	12.7	8.9	7.3	(4.6)	(0.2)
							(118.5)		24.5	110.2		224.0	289.0			317.9	313.3	313.2
Cumulative NFC (Post-tax)		(US\$m)	-	(33.8)	(167.6)	(147.4)		(50.4)			162.7			301.8	310.6			
Net Free Cash (Pre-tax)		(US\$m)	446	(33.8)	(133.9)	24.7	34.6	79.4	97.1	109.0	64.3	78.0	90.5	16.0	11.7	9.5	(1.3)	(0.2)