

IMPALA PLATINUM LIMITED



Closure Costing Report for Proposed 16 Shaft Waste Rock Dump Expansion



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LIST OF TERMS AND ABBREVIATIONS USED

TERMS & ABBREVIATIONS	DESCRIPTION
Care and maintenance	This involves the maintaining and corrective action as requires as well as conducting the required inspection and monitoring to demonstrate achievement of success of the implemented measures
Closure	This involves the application for closure certificate and initiation of transfer of on-going care and maintenance to third parties
Contingencies	This allows for making reasonable allowance for possible oversights/omissions and possible work not foreseen at the time of compilation of the closure costs. Allowance of between 10 percent and 20 percent would usually be made based on the accuracy of the estimations. The South African Department of Minerals and Energy Guideline (January 2005) requires an allowance of 10 percent
Decommissioning	This relates to the situation after cessation of operations involving the deconstruction/removal and/or transfer of surface infrastructure and the initiation of general site reclamation
DMR	Department of Mineral Resources
E-TEK	E-TEK Consulting
Impala	Impala Platinum Limited (Rustenburg Operations)
Post-closure	The period after mine closure
Preliminary and Generals (P&Gs)	This is a key cost item which is directly related to whether third party contractors have applied for site reclamation. This cost item comprises both fixed and time-related charges. The former makes allowance for establishment (and de-establishment) of contractors on site, as well as covering their operational requirements for their offices (electricity/water/communications), latrines, etc. Time-related items make allowance for the running costs of the fixed charged items for the contract period
Reclamation	The re-instatement of a disturbed area into a usable state (not necessarily its pre-mining state) as defined by broad land use and related performance objectives
Rehabilitation	The return of a disturbed area to its original state, or as close as possible to this state
Remediation	To assist in the reclamation process by enhancing the quality of an area through specific actions to improve especially bio-physical site conditions
Scheduled closure	Closure that happens at the planned date and/or time horizon
Site relinquishment	Receipt of closure certificate and handover to third parties for on-going care and maintenance, if required
Un-scheduled closure	Immediate closure of a site, representing decommissioning and reclamation of the site in its present state
EMPR	Environmental Management Program Report
WRD	Waste Rock Dump

1 INTRODUCTION

E-TEK Consulting (E-TEK) was requested by Impala Platinum Limited (Impala) to assist with the preliminary closure costing of the proposed 16 Shaft Waste Rock Dump (WRD) expansion project for their Rustenburg Operations. The existing WRD at 16 Shaft Complex was constructed in accordance with the relevant approved EIA/EMP amendment report for 16 Shaft. Impala is however proposing the 16 Shaft WRD expansion projects, which requires the construction of a new WRD at the shaft.

The project is located within Impala's surface use area at its Rustenburg operations. This area falls within the Rustenburg Local Municipality and Bojanala Platinum District Municipality in the North West Province.

These closure costs were determined to form part of an authorisation process with the Department of Mineral Resources (DMR) for the proposed new project and are aligned to the DMR guideline document for new EIA/EMP applications. Closure cost estimates were calculated for the first ten years of operations and scheduled closure.

Closure costing is categorised according to the DMR guideline:

- Infrastructural areas;
- Mining areas;
- General surface reclamation;
- Water management;
- Post closure aspects; and
- Additional allowances.

The closure cost estimates quantities were taken from available plans and information provided by Impala and SLR. Rates used were obtained from E-TEK's existing database and in consultation with demolition and earthworks contractors.

The closure cost estimates for the Proposed 16 Shaft Waste Rock Dump Expansion at their Impala Rustenburg Operations for Unscheduled Closure (1-10 Year forecast) and Scheduled Closure is indicated in the table below:

16 Shaft Waste Rock Dump Expansion Project		
Forecast	Closure Cost Estimates	
Year 1	R	787 286.68
Year 2	R	1 050 486.10
Year 3	R	1 135 843.87
Year 4	R	1 204 205.34
Year 5	R	1 986 083.18
Year 6	R	1 694 302.01
Year 7	R	1 713 593.61
Year 8	R	1 732 885.21
Year 9	R	1 752 176.81
Year 10	R	1 771 468.41
Scheduled Closure	R	2 421 089.61

2 APPROACH TO COST DETERMINATION

The approach followed with the determination of the closure costs could be summarised as follows:

- Sourcing and review of project information from Impala to determine the nature and extent of the proposed expansion project;
- Agreement that no site visit was required as operation of the proposed new project has not commenced. Furthermore, E-TEK has a good understanding of the general site conditions and nature of operations at Impala due to the involvement in the closure costing for the whole of Impala’s current Rustenburg Operations;
- Determination of the various components of rehabilitation of the specified area;
- Compilation of a Bill of Quantities capturing the quantities of the proposed new project;
- Unit rates used were obtained from E-TEK’s existing data base and in consultation with demolition and earthworks contractors;
- Application of the above unit rates and associated quantities in pre-determined spreadsheets to determine the latest closure cost estimates;
- Forecast the first ten years of operations to reflect the fluctuating closure costs of the proposed new expansion project; and
- A closure report to summarize the approach, assumptions and findings of the closure costing.

3 INFORMATION

Closure costing was based on the following information supplied by Impala:

Description	Person	Date
EMPR for 16 Shaft	SLR (Caitlin Pringle)	05/09/2012
Scoping Report for 16 Shaft	SLR (Caitlin Pringle)	05/09/2012
Detail layout drawings (Pdf and DWG)	SLR (Siduduzo Dladla)	20/11/2012
Rehabilitation Criteria	SLR (Siduduzo Dladla)	19/11/2012

4 CLOSURE CRITERIA

The following general and site specific assumptions and qualifications for each of the closure components listed in section 2 and 3 for Impala are described below:

4.1 General assumptions

- The closure cost estimate is aligned to the Guideline Document for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine, by the DMR (January, 2005);
- The closure costs for the site could comprise a number of cost components. This report only addresses the decommissioning and reclamation costs, equating to an outside (third party) contractor establishing on-site and conducting reclamation-related work. Other components such as staffing of the site after decommissioning, the infrastructure and support services (e.g. power

supply, etc.) for this staff as well as workforce matters such as separation packages, re-training /re-skilling, etc. are outside the scope of this report;

- Based on the above, dedicated contractors would be commissioned to conduct the demolition and reclamation work on the site. This would inter alia require establishment costs for the contractors and hence, the allowance for preliminary and general (P&Gs) in the cost estimate;
- Allowance has also been made for third party contractors and consultants to conduct post-closure care and maintenance work as well as compliance monitoring;
- Closure costs have been determined for both the scheduled and un-scheduled 1-10 year forecast closure situations. Specifically, scheduled closure takes place at a planned date and/or within a time horizon, in accordance with overall mine planning. Un-scheduled closure entails immediate closure of a site, representing decommissioning and reclamation of the site in its present state;
- In accordance with the DMR guideline, no cost off-sets due to possible salvage values were considered and gross reclamation costs are reported; and
- Fixed percentages for P&Gs and contingencies as per the DMR guideline have been applied.

4.2 Site specific assumptions

- The proposed position of the site is located on farm land and vacant veld and is currently not disturbed by mining operations;
- The liability estimates for this facility needs to be incorporated into the greater 16 Shaft Complex in the next liability update of Y2013;
- The expansion project of the waste rock dump forms part of the greater 16 Shaft Complex;
- The project will commence in Y2013 when final approval has been received;
- The life of mine for this project and 16 shaft is currently estimated at 30 years;
- The total volume for the waste rock dump is an estimated 3 861 639m³ at life of mine and 128 721m³ per annum;
- The toe of the waste rock dump will move an estimated 20m per annum;
- Final height of the waste rock dump will be 40m with the side slopes at normal angle of repose;
- The side slopes of the waste rock dump will be graded down to the required 18 degrees by means of cut to fill dozing;
- Concurrent rehabilitation as per Impala's standard guideline will be implemented and it was assumed that a 20m strip will require rehabilitation in the event of unscheduled closure;
- The side slopes of the waste rock dump will be graded down to the required 18 degrees with a cut to fill method;
- Allowance was made for the disposal of general waste (including building rubble) at a permitted waste disposal site within a 30km radius; and
- Impala is not the land owner but has a surface use agreement with the Royal Bafokeng as well as other Independent Minerals Owners (IMO).

5 CLOSURE COSTING

Detailed spreadsheets for the closure cost estimates for this report are included in Appendix A. The following sub-headings describe all criteria and assumptions used for closure costing.

5.1 Infrastructural areas

The closure criteria for the following closure cost components are the same for un-scheduled and scheduled closure.

- General
 - All infrastructure used for Stormwater interception will be left in position until such time that rehabilitation of the waste rock dump is completed and water quality is of acceptable standards;
 - A earth lined v-drain will be constructed around the perimeter of the waste rock dump and will not require rehabilitation afterwards;
 - A sump will be constructed to collect dirty water intercepted by the earth lined v-drain including pumps and pipeline to the nearest pollution control dam; and
 - An overland conveyor will be used as the main disposal method of waste rock and will be lengthened as the waste rock dump increases in size.
- Closure Criteria
 - All infrastructures will be completely removed to 1m below natural ground level. No beneficial reuse has been allowed for any of the surface infrastructure;
 - Allowance was made for the demolition cost of all steel type structures. This includes a removal fee for a 30km load and hauls to an authorised facility to be sold or auctioned off. However as per DMR requirement, the salvage value of steel was not used to offset demolitions costs;
 - Allowance was made for the disposal of other non-demolition waste (general waste) at a permitted disposal site within a 30 km radius;
 - A 2.5 % allowance was made for the sorting and screening of waste; and
 - General surface rehabilitation will be implemented on footprint areas where disturbance has taken place.

5.2 Mining areas

Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)

Waste Rock dump

- General
 - Project development will commence in Y2013 once approval has been received;
 - Concurrent rehabilitation will be implemented at operational phase; and
 - A 20m face will require rehabilitated at any given time during the operational phase.
- Closure Criteria
 - Allowance was made to reshape the side slopes of the waste rock dump to 18 degrees using a cut and fill method by means of dozing;
 - Allowance was made to place a mix of waste rock, clay and topsoil mixture layer of 500mm over the reshaped area at a load and haul distance of 1km;
 - Additional allowance was made to spread the material over the reshaped slopes by means of dozers or graders;
 - Allowance was also made to create stormwater berms on the side slopes as per detail designs; and
 - Allowance was also made for the establishment of vegetation.

5.3 General surface reclamation

- General

- Rehabilitation of disturbed footprint areas;
- Closure Criteria
 - Disturbed area will be reshaped and levelled filling all voids and making area free draining;
 - Allowance was made to rip the disturbed area to a depth of 500mm to alleviate compaction;
 - Allowance was made to import 250mm topsoil from the local stockpile onto the levelled surface; and
 - Additional allowance was made to establish vegetation which includes soil amelioration cultivation and seeding actions with indigenous grass seed mixture.

5.4 Water management

Assumed no provision is required.

5.5 Post closure aspects

5.5.1 Surface water monitoring

- No allowance was made, currently forms part of the greater 16 Shaft Complex closure cost.

5.5.2 Ground water monitoring

- No allowance was made, currently forms part of the greater 16 Shaft Complex closure cost.

5.5.3 Reclamation monitoring

- An allowance has been included for the reclamation monitoring of reclaimed areas for a five year period.
- No allowance was made, currently forms part of the greater 16 Shaft Complex closure cost.

5.5.4 Care and maintenance

- Care and maintenance of the reclaimed areas, over a five year period, has been assumed.
- No allowance was made, currently forms part of the greater 16 Shaft Complex closure cost.

5.6 Additional allowances

The closure criteria for the following closure cost components are the same for un-scheduled and scheduled closure:

5.6.1 Preliminary and general

- Additional allowance of six percent of the total for infrastructural and related aspects (sub-total 1 on summary costing table) has been made, which is aligned to the DMR guideline.

5.6.2 Contingencies

- Additional allowance of ten percent of the total for infrastructure and related aspects (sub-total 1 on summary costing table), which is aligned to the DMR guidelines.

6 CONCLUSION AND WAY FORWARD

6.1 CONCLUSION

The closure costs as reflected in this report have been based on information obtained from Impala and SLR. In those cases where the required information was not available, estimates were made based on

experience and benchmarked against similar facilities. Unit rates for the costing were obtained from E-TEK's existing data base and/or through previous experience and consultation with demolition, earthworks contractors and rehabilitation practitioners. Where required, these were adapted to reflect site-specific conditions.

Notwithstanding the above, if the closure measures are implemented as envisaged, the reflected costs provide a good indication of the costs for the closure situations as calculated and should provide a good basis for making the required financial provision. The ten year forecast of closure costs is based on the assumption that the project will start in Y2013 after the approval has been obtained from the authorities.

6.2 WAY FORWARD

The liability estimates for this project needs to be included in the next annual update of Y2013 for the greater 16 Shaft Complex. Certain assumptions regarding concurrent rehabilitation at operational level were made; these assumptions need to be investigated when the facility is operational to make sure all assumptions are in line with the current closure criteria.

7 DOCUMENT LIMITATIONS

This Document has been provided by E-TEK Consulting (“E-TEK”) subject to the following limitations:

i) This Document has been prepared for the particular purpose outlined in E-TEK’s proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.

ii) The scope and the period of E-TEK’s Services are as described in E-TEK’s proposal, and are subject to restrictions and limitations. E-TEK did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by E-TEK in regards to it.

iii) Conditions may exist which were undetectable given the limited nature of the enquiry E-TEK was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.

iv) In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. E-TEK’s opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed E-TEK to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

v) Any assessments made in this Document are based on the conditions indicated from published sources and the investigation described. No warranty is included; and either expresses or implies that the actual conditions will conform exactly to the assessments contained in this Document.

vi) Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by E-TEK for incomplete or inaccurate data supplied by others.

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Appendix A: Detailed costing spreadsheet.



Closure Costing Summary		Year 1 - 2012	Year 2 - 2013	Year 3 - 2014	Year 4 - 2015	Year 5 - 2016	Year 6 - 2017
Tasks							
1 Closure Aspects							
1	Infrastructural aspects	R 55 940.00	R 55 940.00	R 55 940.00	R 55 940.00	R 219 940.00	R 226 500.00
2	Mining aspects	R 357 408.00	R 689 966.12	R 740 165.92	R 781 346.50	R 1 272 261.88	R 1 004 095.70
3	General surface reclamation	R 222 675.00	R 82 875.00	R 82 875.00	R 82 875.00	R 82 875.00	R 82 875.00
4	Water management	R -	R -	R -	R -	R -	R -
	SUB - TOTAL 1 (for infrastructural and related structures)	R 636 023.00	R 828 781.12	R 878 980.92	R 920 161.50	R 1 575 076.88	R 1 313 470.70
5	Post closure aspects	R 45 000.00	R 81 000.00	R 105 660.00	R 124 380.00	R 144 540.00	R 155 160.00
	SUB - TOTAL 2 (for post - closure aspects)	R 49 500.00	R 89 100.00	R 116 226.00	R 136 818.00	R 158 984.00	R 170 676.00
6 Additional allowances							
6.1	Preliminary and General	R 38 161.38	R 49 726.87	R 52 738.86	R 55 209.69	R 94 504.61	R 78 808.24
6.2	Contingencies	R 63 602.30	R 82 878.11	R 87 898.09	R 92 016.15	R 157 607.69	R 131 347.07
	SUB - TOTAL 3 (for additional allowances)	R 101 763.68	R 132 604.98	R 140 636.95	R 147 225.84	R 252 012.30	R 210 155.31
	Grand - Total (for sub - total 1+2+3)	R 787 286.68	R 1 050 486.10	R 1 135 843.87	R 1 204 205.34	R 1 986 083.18	R 1 694 302.01



Closure Costing Summary		Year 7 - 2018	Year 8 - 2019	Year 9 - 2020	Year 10 - 2021	Scheduled Closure
Tasks						
1 Closure Aspects						
1	Infrastructural aspects	R 233 060.00	R 239 620.00	R 246 180.00	R 252 740.00	R 637 460.00
2	Mining aspects	R 1 004 095.70	R 1 004 095.70	R 1 004 095.70	R 1 004 095.70	R 1 004 095.70
3	General surface reclamation	R 82 875.00	R 82 875.00	R 82 875.00	R 82 875.00	R 82 875.00
4	Water management	R -	R -	R -	R -	R -
	SUB - TOTAL 1 (for infrastructural and related structures)	R 1 320 030.70	R 1 326 590.70	R 1 333 150.70	R 1 339 710.70	R 1 724 430.70
5	Post closure aspects	R 165 780.00	R 176 400.00	R 187 020.00	R 197 640.00	R 382 500.00
	SUB - TOTAL 2 (for post - closure aspects)	R 182 358.00	R 194 040.00	R 205 722.00	R 217 404.00	R 420 750.00
6 Additional allowances						
6.1	Preliminary and General	R 79 201.84	R 79 595.44	R 79 989.04	R 80 382.64	R 103 465.84
6.2	Contingencies	R 132 003.07	R 132 659.07	R 133 315.07	R 133 971.07	R 172 443.07
	SUB - TOTAL 3 (for additional allowances)	R 211 204.91	R 212 254.51	R 213 304.11	R 214 353.71	R 275 908.91
	Grand - Total (for sub - total 1+2+3)	R 1 713 593.61	R 1 732 885.21	R 1 752 176.81	R 1 771 468.41	R 2 421 089.61

Closure Costing - 16 Shaft WRD				Closure Costs - Year 1 - (2012)				
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructural Aspects						
2		Normal cost and time related items						
3		Not applicable	1.1	na	0,00	R	-	
4		Sub-Total for cost and time related items					R	-
5		Demolition of plant and related structures						
6		Not applicable	1.1	na	0,00	R	-	
7		Sub - Total for demolition of plant and related structures					R	-
8		Demolition of all structural structures						
9		Concrete sumps	4.2	m ³	7,81	R 640,00	R 5 000,00	Sump constructed of reinforced concrete, 2.5m * 2.5m * 2.5m
10		Sub - Total for demolition of all structural structures					R	5 000,00
11		Demolition of workshops and stores						
12		Not applicable	1.1	na	0,00	R	-	
13		Sub - Total for demolition of workshops and stores					R	-
14		Demolition of permanent brick structures and temporary structures						
15		Not applicable	1.1	na	0,00	R	-	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R	-
17		Removal of all surface related finishes						
18		Interception trench	1.1	na	0,00	R	-	
19		Sub - Total for removal of all surface related finishes					R	-
20		Removal of all linear items						
21		Overhead conveyor	5.1.3	m	0,00	R 320,00	R	-
22		Pipeline from sump to PCD dam	5.2.1	m	1800,00	R 27,00	R 48 600,00	
23		Sub - Total for removal of all linear items					R	48 600,00
24		Rehabilitation of roads						
25		Not applicable	1.1	na	0,00	R	-	
26		Sub - Total for rehabilitation of roads					R	-
27		Disposal of demolition waste						
28		Sorting and screening of waste	8.1	%	53600,00	2,50%	R 1 340,00	2,50%
29		Disposal of demolition waste	8.2.1	m ³ /km	10,00	R 100,00	R 1 000,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R	2 340,00
31		Sub - Total for infrastructural aspects					R	65 940,00
32								
33								
34		Open pit reclamation including final voids and ramps						
35		Not applicable	1.1	na	0,00	R	-	
36		Sub - Total open pit reclamation including final voids and ramps					R	-
37		Sealing of shafts and inclines						
38		Not applicable	1.1	na	0,00	R	-	
39		Sub - Total for sealing of shafts and inclines					R	-
40		Rehabilitation of overburden and spoils						
41		Not applicable	1.1	na	0,00	R	-	
42		Sub - Total for rehabilitation of overburden and spoils					R	-
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
44		Not applicable	1.1	na	0,00	R	-	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	-
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
47		Waste Rock Dump						
48		Strip topsoil and stockpile for movement of loe	9.2	m ²	0,00	R 20,00	R	-
49		Clay compacted outer wall	1.1	na	0,00	R	-	
50		Reshape WRD	9.1.1	m ²	4614,40	R 18,00	R 83 059,20	Assumed will be completed during the operational phase Will be constructed during the operational phase Cut to fill action assumed 10m high at 20,6m ² /per meter
51		Import capping layer	9.6.1	m ²	4200,00	R 28,00	R 117 600,00	Assumed 1km haul distance, 500mm waste rock, clay and topsoil mixture
52		Spread capping layer	9.1.1	m ²	4200,00	R 18,00	R 75 600,00	Spread by means of end tipping and dozing
53		Stormwater berm	9.2	m ²	3477,84	R 20,00	R 69 556,80	Excavate and place material next to berm @ 3,37m ² /per meter
54		Establish vegetation	10.4.1	ha	0,84	R 13 800,00	R 11 592,00	Includes amelioration and cultivation
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	247 498,80
56		Reclamation of subsided areas						
57		Not applicable	1.1	na	0,00	R	-	
58		Sub - Total for reclamation of subsided areas					R	-
59		Sub - Total for Mining aspects					R	257 498,80
60								
61								
62		Shape and level disturbed area	10.1.1	ha	1,50	R 55 250,00	R 82 875,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
63		Rip area to alleviate compaction	9.5.1	ha	1,50	R 9 400,00	R 14 100,00	500mm deep ripping
64		Import 250mm topsoil from local stockpile	9.6.1	m ²	3760,00	R 28,00	R 105 000,00	1cm load and haul
65		Establish vegetation	10.4.1	ha	1,50	R 13 800,00	R 20 700,00	Includes amelioration and seeding actions
66		Sub - Total for General Surface Reclamation					R	222 675,00
67								
68								
69		Not applicable	1.1	na	0,00	R	-	
70		Sub - Total for Water Management					R	-
71								
72		SUB - TOTAL 1 (for infrastructural and related structures)					R	836 033 00
73								
74		Surface water quality monitoring	12.1	yr	0,00	R 108 000,00	R	-
75		Groundwater quality monitoring	12.2	yr	0,00	R 150 000,00	R	-
76		Reclamation monitoring on reclaimed areas	12.3	ha	2,50	R 2 500,00	R 6 250,00	Part of greater Impala 16 Shaft Complex 5 years, area to be added to the greater 16 Shaft Complex
77		Care and maintenance of reclaimed areas	12.4	ha	2,50	R 15 500,00	R 38 750,00	5 years, area to be added to the greater 16 Shaft Complex
78		Sub - Total for Post closure aspects					R	43 000,00
79		Contingencies for post closure aspects	1.2	sum	1,00	10%	R 4 500,00	Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R	4 500,00
81		SUB - TOTAL 2 (for post - closure aspects)					R	49 500 00
82								
83		Preliminary and General	1.2	sum	1,00	R 38 161,38	R 38 161,38	Assume 8 percent of sub - total 1
84		Contingencies	1.2	sum	1,00	R 83 602,30	R 63 602,30	Assume 10 percent of sub - total 1
85		SUB - TOTAL 3 (for additional allowances)					R	181 763 68
86		Grand Total (for sub - total 1-2-3)					R	787 286 66

Closure Costing - 16 Shaft WRD				Closure Costs - Year 2 - (2014)					
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes	
1		Infrastructure Aspects							
2		Nominal cost and time related items							
3		Not applicable	1,1	na	0,00	R	-	R	
4		Sub-Total for cost and time related items					R	-	
5		Demolition of plant and related structures							
6		Not applicable	1,1	na	0,00	R	-	R	
7		Sub - Total for demolition of plant and related structures					R	-	
8		Demolition of all structural structures							
9		Concrete ramps	4,2	m²	7,81	R	640,00	R	5 000,00
10		Sub - Total for demolition of all structural structures					R	5 000,00	
11		Demolition of workshops and stores							
12		Not applicable	1,1	na	0,00	R	-	R	
13		Sub - Total for demolition of workshops and stores						R	
14		Demolition of permanent brick structures and temporary structures							
15		Not applicable	1,1	na	0,00	R	-	R	
16		Sub - Total for demolition of permanent brick structures and temporary structures						R	
17		Removal of all surface related finishes							
18		Interception trench	1,1	na	0,00	R	-	R	
19		Sub - Total for removal of all surface related finishes						R	
20		Removal of all linear items							
21		Overland conveyer	5,1,3	m	0,00	R	300,00	R	-
22		Pipeline from sump to PGD dam	5,2,1	m	1800,00	R	27,00	R	48 600,00
23		Sub - Total for removal of all linear items						R	
24		Rehabilitation of roads							
25		Not applicable	1,1	na	0,00	R	-	R	
26		Sub - Total for rehabilitation of roads						R	
27		Disposal of demolition waste							
28		Sorting and screening of waste	6,1	%	63000,00		2,50%	R	1 340,00
29		Disposal of demolition waste	6,2,1	m³/km	10,00	R	100,00	R	1 000,00
30		Sub - Total for disposal of demolition waste						R	
31		Sub - Total for infrastructural aspects						R	
32								R	
33									
34		Open pit reclamation including final voids and ramps							
35		Not applicable	1,1	na	0,00	R	-	R	
36		Sub - Total open pit reclamation including final voids and ramps						R	
37		Sealing of shafts and inclines							
38		Not applicable	1,1	na	0,00	R	-	R	
39		Sub - Total for sealing of shafts and inclines						R	
40		Rehabilitation of overburden and spoils							
41		Not applicable	1,1	na	0,00	R	-	R	
42		Sub - Total for rehabilitation of overburden and spoils						R	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)							
44		Not applicable	1,1	na	0,00	R	-	R	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						R	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)							
47		Waste Rock Dump							
48		Strip topsoil and stockpile for movement of top	9,2	m³	0,00	R	20,00	R	-
49		Clay compacted outer wall	1,1	na	0,00	R	-	R	
50		Ramp WRD	9,1,1	m³	12375,00	R	18,00	R	222 750,00
51		Import capping layer	9,6,1	m³	7500,00	R	28,00	R	210 000,00
52		Spread capping layer	9,1,1	m³	7500,00	R	18,00	R	135 000,00
53		Stormwater berm	9,2	m³	4684,30	R	20,00	R	93 686,00
54		Establish vegetation	10,4,1	ha	2,07	R	13 800,00	R	28 530,12
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						R	
56		Reclamation of subleided areas							
57		Not applicable	1,1	na	0,00	R	-	R	
58		Sub - Total for reclamation of subleided areas						R	
59		Sub - Total for Mining aspects						R	
60									
61									
62		Shape and level disturbed area	10,1,1	ha	1,50	R	55 250,00	R	82 875,00
63		Rip area to alleviate compaction	9,5,1	ha	1,50	R	9 400,00	R	14 100,00
64		Import 250mm topsoil from local stockpile	9,6,1	m³	3750,00	R	28,00	R	105 000,00
65		Establish vegetation	10,4,1	ha	1,50	R	13 800,00	R	20 700,00
66		Sub - Total for General Surface Reclamation						R	
67									
68		Not applicable	1,1	na	0,00	R	-	R	
69		Sub - Total for Water Management						R	
70									
71		Sub - TOTAL 1 (for infrastructural and related structures)						R	
72								R	
73		Surface water quality monitoring	12,1	yr	0,00	R	106 000,00	R	-
74		Groundwater quality monitoring	12,2	yr	0,00	R	150 000,00	R	-
75		Reclamation monitoring on reclaimed areas	12,3	ha	4,50	R	2 600,00	R	11 250,00
76		Care and maintenance of reclaimed areas	12,4	ha	4,50	R	15 600,00	R	69 750,00
77		Sub - Total for Post closure aspects						R	
78								R	
79		Contingencies for post closure aspects	1,2	sum	1,00	10%		R	8 100,00
80		Sub - Total for Contingencies for post closure aspects						R	
81		Sub - TOTAL 2 (for post closure aspects)						R	
82		Preliminary and General	1,2	sum	1,00			R	
83		Contingencies	1,2	sum	1,00			R	
84		Sub - TOTAL 3 (for additional elements)						R	
85		Grand - Total (for sub - total 1-2+3)						R	

Closure Costing - 16 Shaft WRD				Closure Costs - Year 3 - (2015)					
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes	
1		Infrastructural Aspects							
2		Nonfinal cost and time related items							
3		Not applicable	1.1	na	0.00	R	-		
4		Sub-Total for cost and time related items					R	-	
5		Demolition of plant and related structures							
6		Not applicable	1.1	na	0.00	R	-		
7		Sub - Total for demolition of plant and related structures					R	-	
8		Demolition of all structural structures							
9		Concrete sumps	4.2	m ²	7.81	R	640.00	Stamp constructed of reinforced concrete, 2.5m * 2.5m * 2.5m	
10		Sub - Total for demolition of all structural structures					R	640.00	
11		Demolition of workshops and stores							
12		Not applicable	1.1	na	0.00	R	-		
13		Sub - Total for demolition of workshops and stores					R	-	
14		Demolition of permanent brick structures and temporary structures							
15		Not applicable	1.1	na	0.00	R	-		
16		Sub - Total for demolition of permanent brick structures and temporary structures					R	-	
17		Removal of all surface related finishes							
18		Intersection trench	1.1	na	0.00	R	-		
19		Sub - Total for removal of all surface related finishes					R	-	
20		Removal of all linear items							
21		Overland conveyor	5.1.3	m	0.00	R	320.00	Not yet constructed	
22		Pipeline from sump to FCD dam	5.2.1	m	1800.00	R	27.00		
23		Sub - Total for removal of all linear items					R	48 600.00	
24		Rehabilitation of roads							
25		Not applicable	1.1	na	0.00	R	-		
26		Sub - Total for rehabilitation of roads					R	-	
27		Disposal of demolition waste							
28		Sorting and screening of waste	6.1	%	53600.00		2.50%	1 340.00	
29		Disposal of demolition waste	6.2.1	m ³ /m	10.00	R	100.00	Assume 30km distance	
30		Sub - Total for disposal of demolition waste					R	2 340.00	
31		Sub - Total for infrastructural aspects					R	55 940.00	
32									
33									
34		Open pit reclamation including final voids and ramps							
35		Not applicable	1.1	na	0.00	R	-		
36		Sub - Total open pit reclamation including final voids and ramps					R	-	
37		Sealing of shafts and inclines							
38		Not applicable	1.1	na	0.00	R	-		
39		Sub - Total for sealing of shafts and inclines					R	-	
40		Rehabilitation of overburden and spoils							
41		Not applicable	1.1	na	0.00	R	-		
42		Sub - Total for rehabilitation of overburden and spoils					R	-	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)							
44		Not applicable	1.1	na	0.00	R	-		
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	-	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)							
47		Waste Rock Dump							
48		Strip topsoil and stockpile for movement of ice	9.2	m ²	0.00	R	20.00	Assumed will be completed during the operational phase	
49		Clay compacted outer wall	1.1	na	0.00	R	-	Will be constructed during the operational phase	
50		Reheaps WRD	8.1.1	m ³	20108.40	R	18.00	Cut to fill action assumed 25m high at 128.0m ² /per meter	
51		Import capping layer	9.6.1	m ²	6672.00	R	28.00	Assumed 1km haul distance, 500mm waste rock, clay and topsoil mixture	
52		Spread capping layer	8.1.1	m ²	6672.00	R	18.00	Spread by means of steel tipping and dozing	
53		Storm-water berm	9.2	m ²	2196.80	R	20.00	Excavate and place material next to berm @ 3.37m ² /per meter	
54		Establish vegetation	10.4.1	ha	1.37	R	13 800.00	Includes amelioration and cultivation	
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	748 168.82	
56		Reclamation of subdivided areas							
57		Not applicable	1.1	na	0.00	R	-		
58		Sub - Total for reclamation of subdivided areas					R	-	
59		Sub - Total for Mining aspects					R	748 168.82	
60									
61									
62		Shape and level disturbed area	10.1.1	ha	1.50	R	55 250.00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 600mm over footprint	
63		Rip area to eliminate compaction	9.5.1	ha	1.50	R	9 400.00	500mm deep ripping	
64		Import 250mm topped from local stockpile	9.5.1	m ²	3750.00	R	28.00	1km haul and haul	
65		Establish vegetation	10.4.1	ha	1.50	R	13 800.00	Includes amelioration and seeding actions	
66		Sub - Total for General Surface Reclamation					R	82 875.00	
67									
68									
69		Not applicable	1.1	na	0.00	R	-		
70		Sub - Total for Water Management					R	-	
71									
72		SUB - TOTAL 1 (for infrastructural and related structures)					R	876 960.82	
73									
74		Surface water quality monitoring	12.1	yr	0.00	R	108 000.00	Part of greater Impala 16 Shaft Complex	
75		Groundwater quality monitoring	12.2	yr	0.00	R	150 000.00	Part of greater Impala 16 Shaft Complex	
76		Reclamation monitoring on reclaimed areas	12.3	ha	5.87	R	2 500.00	5 years, area to be added to the greater 16 Shaft Complex	
77		Care and maintenance of reclaimed areas	12.4	ha	5.87	R	15 500.00	5 years, area to be added to the greater 16 Shaft Complex	
78		Sub - Total for Post closure aspects					R	183 800.00	
79		Contingencies for post closure aspects	1.2	sum	1.00	10%	R	10 585.00	Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R	10 585.00	
81		SUB - TOTAL 2 (for post - closure aspects)					R	118 228.00	
82									
83		Preliminary and General	1.2	sum	1.00	R	52 738.96	Assume 6 percent of sub - total 1	
84		Contingencies	1.2	sum	1.00	R	87 863.09	Assume 10 percent of sub - total 1	
85		SUB - TOTAL 3 (for additional allowances)					P	140 836.96	
86		Grand - Total (for sub - total 1+2+3)					R	1 115 843.87	

Closure Costing - 16 Shaft WRD			Closure Costs - Year 4 - (2015)					
Item nr	ID	Taxr	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1								Infrastructure Aspects
2								Normal cost and time related items
3			1.1	na	0.00	R -	R -	Not applicable
4								Sub-Total for cost and time related items
5								Demolition of plant and related structures
6			1.1	na	0.00	R -	R -	Not applicable
7								Sub - Total for demolition of plant and related structures
8								Demolition of all structural structures
9			4.2	m²	7.81	R 640.00	R 5 000.00	Sump constructed of reinforced concrete, 2.5m * 2.5m * 2.5m
10								Sub - Total for demolition of all structural structures
11								Demolition of workshops and stores
12			1.1	na	0.00	R -	R -	Not applicable
13								Sub - Total for demolition of workshops and stores
14								Demolition of permanent brick structures and temporary structures
15			1.1	na	0.00	R -	R -	Not applicable
16								Sub - Total for demolition of permanent brick structures and temporary structures
17								Removal of all surface related finishes
18			1.1	na	0.00	R -	R -	Not applicable
19								Sub - Total for removal of all surface related finishes
20								Removal of all linear items
21			5.1.3	m	0.00	R 320.00	R -	Overland conveyor
22			5.2.1	m	1800.00	R 27.00	R 48 600.00	Pipeline from sump to PCD dam
23								Sub - Total for removal of all linear items
24								Rehabilitation of roads
25			1.1	na	0.00	R -	R -	Not applicable
26								Sub - Total for rehabilitation of roads
27								Disposal of demolition waste
28			6.1	%	53900.00	2.50%	R 1 340.00	2.50%
29			6.2.1	m³/ton	10.00	R 100.00	R 1 000.00	Assume 30km distance
30								Sub - Total for disposal of demolition waste
31								Sub - Total for infrastructural aspects
32								
33								
34								Oper. pit reclamation including final voids and ramps
35			1.1	na	0.00	R -	R -	Not applicable
36								Sub - Total oper pit reclamation including final voids and ramps
37								Sealing of shafts and inclines
38			1.1	na	0.00	R -	R -	Not applicable
39								Sub - Total for sealing of shafts and inclines
40								Rehabilitation of overburden and spoils
41			1.1	na	0.00	R -	R -	Not applicable
42								Sub - Total for rehabilitation of overburden and spoils
43								Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)
44			1.1	na	0.00	R -	R -	Not applicable
45								Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)
46								Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)
47								Waste Rock Dump
48			9.2	m²	0.00	R 20.00	R -	Strip topsoil and stockpile for movement of ice
49			1.1	na	0.00	R -	R -	Not applicable
50			9.1.1	m²	27010.00	R 18.00	R 486 180.00	Assumed will be completed during the operational phase
51			9.6.1	m²	6207.50	R 28.00	R 145 810.00	Will be constructed during the operational phase
52			9.1.1	m²	5207.50	R 18.00	R 93 735.00	Will be constructed during the operational phase
53			9.2	m²	2082.41	R 20.00	R 41 248.60	Will be constructed during the operational phase
54			10.4.1	ha	1.04	R 13 800.00	R 14 372.70	Assumed 1km haul distance, 500mm waste rock, clay and topsoil mixture
55								Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)
56								Reclamation of subside areas
57			1.1	na	0.00	R -	R -	Not applicable
58								Sub - Total for reclamation of subsided areas
59								Sub - Total for Mining aspects
60								
61								
62			10.1.1	ha	1.50	R 55 250.00	R 82 875.00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
63			9.5.1	ha	1.50	R 9 400.00	R 14 100.00	500mm deep ripping
64			9.6.1	m²	3750.00	R 28.00	R 105 000.00	1km load and haul
65			10.4.1	ha	1.50	R 13 800.00	R 20 700.00	Includes amelioration and seeding actions
66								Sub - Total for General Surface Reclamation
67								
68								
69			1.1	na	0.00	R -	R -	Not applicable
70								Sub - Total for Water Management
71								
72								Sub - TOTAL 1 (for infrastructural and related structures)
73								
74			12.1	yr	0.00	R 106 000.00	R -	Part of greater Impela 16 Shaft Complex
75			12.2	yr	0.00	R 150 000.00	R -	Part of greater Impela 16 Shaft Complex
76			12.3	ha	6.91	R 2 500.00	R 17 275.00	5 years, area to be added to the greater 16 Shaft Complex
77			12.4	ha	6.91	R 15 500.00	R 107 105.00	5 years, area to be added to the greater 16 Shaft Complex
78								Sub - Total for Post closure aspects
79			1.2	sum	1.00	10%	R 12 438.00	Assumed 10 percent for post closure aspects
80								Sub - Total for Contingencies for post closure aspects
81								Sub - TOTAL 2 (for post - closure aspects)
82								
83			1.2	sum	1.00	R 55 200.69	R 55 200.69	Assume 6 percent of sub - total 1
84			1.2	sum	1.00	R 92 016.15	R 92 016.15	Assume 10 percent of sub - total 1
85								Sub - TOTAL 3 (for additional allowances)
86								
87								
88								Grand - Total (for sub - total 1-2+3)

Closure Costing - 16 Shaft WRD			Closure Costs - Year 5 - (2017)					
Item nr	IC	Task	Unit	Rate	Quantity	Rate	Amount	Notes
1		Infrastructurel Aspects						
2		Nominal cost and time related items						
3		Not applicable	1.1	na	0,00	R	-	
4		Sub-Total for cost and time related items					R	
5		Demolition of plant and related structures						
6		Not applicable	1.1	na	0,00	R	-	
7		Sub - Total for demolition of plant and related structures					R	
8		Demolition of all structural structures						
9		Concrete sumps	4.2	m²	7,81	R	640,00	Sump constructed of reinforced concrete, 2.5m x 2.5m x 2.5m
10		Sub - Total for demolition of all structural structures					R	5 000,00
11		Demolition of workshops and stores						
12		Not applicable	1.1	na	0,00	R	-	
13		Sub - Total for demolition of workshops and stores					R	
14		Demolition of permanent brick structures and temporary structures						
15		Not applicable	1.1	na	0,00	R	-	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R	
17		Removal of all surface related finishes						
18		Interception trench	1.1	na	0,00	R	-	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R	
20		Removal of all linear items						
21		Overland conveyor	5.1.3	m	500,00	R	320,00	Assumed will only be constructed when ramp is completed
22		Pipeline from sump to PCD dam	5.2.1	m	1800,00	R	27,00	
23		Sub - Total for removal of all linear items					R	396 600,00
24		Rehabilitation of roads						
25		Not applicable	1.1	na	0,00	R	-	
26		Sub - Total for rehabilitation of roads					R	
27		Disposal of demolition waste						
28		Sorting and screening of waste	6.1	%	213600,00		2,50%	2,50%
29		Disposal of demolition waste	6.2.1	m³/ton	10,00	R	100,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R	8 348,00
31		Sub - Total for infrastructurel aspects					R	218 948,00
32								
33								
34		Open pit reclamation including final voids and ramps						
35		Not applicable	1.1	na	0,00	R	-	
36		Sub - Total open pit reclamation including final voids and ramps					R	
37		Sealing of shafts and inclines						
38		Not applicable	1.1	na	0,00	R	-	
39		Sub - Total for sealing of shafts and inclines					R	
40		Rehabilitation of overburden and spoils						
41		Not applicable	1.1	na	0,00	R	-	
42		Sub - Total for rehabilitation of overburden and spoils					R	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
44		Not applicable	1.1	na	0,00	R	-	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
47		Waste Rock Dump						
48		Strip topsoil and stockpile for movement of top	8.2	m²	0,00	R	20,00	Assumed will be completed during the operational phase
49		Clay compacted outer wall	1.1	na	0,00	R	-	Will be constructed during the operational phase
50		Reshape WRD	9.1.1	m²	93773,70	R	18,00	Assumed will be completed during the operational phase
51		Import capping layer	9.6.1	m²	5578,00	R	28,00	Cut to fill action assumed 40m high at 328.5m³/par meter.
52		Spread capping layer	9.1.1	m²	5578,00	R	16,00	Assumed 10m haul distance, 500mm waste rock, clay and topsoil mixture
53		Stormwater berm	9.2	m²	1817,60	R	20,00	Spread by means of end tipping and dozing
54		Establish vegetation	10.4.1	ha	1,12	R	13 800,00	Excavate and place material next to berm @ 3,37m³/par meter
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	15 395,28
56		Reclamation of embankled areas						
57		Not applicable	1.1	na	0,00	R	-	
58		Sub - Total for reclamation of embankled areas					R	1 272 281,88
59		Sub - Total for mining aspects					R	
60								
61								
62		Shape and level disturbed area	10.1.1	ha	1,50	R	95 250,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 800mm over footprint
63		Rip area to alleviate compaction	9.5.1	ha	1,50	R	9 400,00	500mm deep ripping
64		Import 250mm topsoil from local stockpile	9.8.1	m²	3750,00	R	28,00	10m load and haul
65		Establish vegetation	10.4.1	ha	1,50	R	13 800,00	Includes amelioration and seeding actions
66		Sub - Total for General Surface Reclamation					R	82 878,00
67								
68								
69		Not applicable	1.1	na	0,00	R	-	
70		Sub - Total for Water Management					R	
71								
72		SUB - TOTAL 1 (for infrastructurel and related activities)					R	1 511 078,84
73								
74		Surface water quality monitoring	12.1	yr	0,00	R	106 000,00	Part of greater Impala 16 Shaft Complex
75		Groundwater quality monitoring	12.2	yr	0,00	R	150 000,00	Part of greater Impala 16 Shaft Complex
76		Reclamation monitoring on reclaimed areas	12.3	ha	8,08	R	2 500,00	5 years, area to be added to the greater 16 Shaft Complex
77		Care and maintenance of reclaimed areas	12.4	ha	8,08	R	15 500,00	5 years, area to be added to the greater 16 Shaft Complex
78		Sub - Total for Post closure aspects					R	144 500,00
79		Contingencies for post closure aspects	1.2	sum	1,00		10%	Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R	14 450,00
81		SUB - TOTAL 2 (for post - closure aspects)					R	158 950,00
82								
83		Preliminary and General	1.2	sum	1,00	R	94 504,61	Assume 6 percent of sub - total 1
84		Contingencies	1.2	sum	1,00	R	157 507,69	Assume 10 percent of sub - total 1
85		SUB - TOTAL 3 (for additional allowances)					R	282 012,30
86		Grand - Total (for sub - total 1+2+3)					R	1 865 043,18

Closure Costing - 16 Shaft WRD			Closure Costs - Year 6 - (2018)					
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructural Aspects						
2		Normal cost and time related items						
3		Not applicable	1.1	na	0,00	R -	R -	
4		Sub-Total for cost and time related items					R -	
5		Demolition of plant and related structures						
6		Not applicable	1.1	na	0,00	R -	R -	
7		Sub - Total for demolition of plant and related structures					R -	
8		Demolition of all structural structures						
9		Concrete sumps	4.2	m ²	7,81	R 840,00	R 5 000,00	Sump constructed of reinforced concrete, 2,5m * 2,5m * 2,5m
10		Sub - Total for demolition of all structural structures					R 5 000,00	
11		Demolition of workshops and stores						
12		Not applicable	1.1	na	0,00	R -	R -	
13		Sub - Total for demolition of workshops and stores					R -	
14		Demolition of permanent brick structures and temporary structures						
15		Not applicable	1.1	na	0,00	R -	R -	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R -	
17		Removal of all surface related finishes						
18		Interception trench	1.1	na	0,00	R -	R -	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R -	
20		Removal of all linear items						
21		Overland conveyor	5.1.3	m	520,00	R 320,00	R 166 400,00	Assume will extend 20m per year
22		Pipeline from sump to FCD dam	5.2.1	m	1800,00	R 27,00	R 48 600,00	
23		Subs - Total for removal of all linear items					R 215 000,00	
24		Rehabilitation of roads						
25		Not applicable	1.1	na	0,00	R -	R -	
26		Sub - Total for rehabilitation of roads					R -	
27		Disposal of demolition waste						
28		Sorting and screening of waste	6.1	%	220000,00	2,50%	R 5 500,00	2,50%
29		Disposal of demolition waste	6.2.1	m ³ /ton	10,00	R 100,00	R 1 000,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R 6 500,00	
31		Sub - Total for infrastructural aspects					R 226 900,00	
32								
33		Open pit reclamation including final voids and ramps						
34		Open pit reclamation including final voids and ramps						
35		Not applicable	1.1	na	0,00	R -	R -	
36		Sub - Total open pit reclamation including final voids and ramps					R -	
37		Sealing of shafts and inclines						
38		Not applicable	1.1	na	0,00	R -	R -	
39		Sub - Total for sealing of shafts and inclines					R -	
40		Rehabilitation of overburden and spoils						
41		Not applicable	1.1	na	0,00	R -	R -	
42		Sub - Total for rehabilitation of overburden and spoils					R -	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
44		Not applicable	1.1	na	0,00	R -	R -	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R -	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
47		Waste Rock Dump						
48		Strip topsoil and stockpile for movement of loe	9.2	m ²	0,00	R 20,00	R -	Assumed will be completed during the operational phase
49		Clay compacted outer wall	1.1	na	0,00	R -	R -	Will be constructed during the operational phase
50		Re-shape WRD	9.1.1	m ²	46845,80	R 18,00	R 843 224,40	Cut to fill section assumed 40m high at 329,9m ² /per meter.
51		Import capping layer	9.6.1	m ²	2967,50	R 28,00	R 83 080,00	Assumed 10m haul distance, 500mm waste rock, clay and topsoil mixture
52		Spread capping layer	9.1.1	m ²	2967,50	R 18,00	R 53 415,00	Spread by means of end tipping and dozing
53		Stormwater berm	9.2	m ²	808,80	R 20,00	R 16 176,00	Excavate and place material next to berm @ 3,37m ² /per meter
54		Establish vegetation	10.4.1	ha	0,58	R 13 600,00	R 8 190,30	Includes amelioration and cultivation
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R 1 004 095,70	
56		Reclamation of subsideid areas						
57		Not applicable	1.1	na	0,00	R -	R -	
58		Sub - Total for reclamation of subsideid areas					R -	
59		Sub - Total for fitting aspects					R 1 004 095,70	
60								
61								
62		Shape and level disturbed area	10.1.1	ha	1,50	R 55 250,00	R 82 875,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
63		Rip area to alleviate compaction	9.6.1	ha	1,50	R 9 400,00	R 14 100,00	500mm deep ripping
64		Import 250mm topsoil from local stockpile	9.6.1	m ²	3750,00	R 28,00	R 105 000,00	10m haul and haul
65		Establish vegetation	10.4.1	ha	1,50	R 13 800,00	R 20 700,00	Includes amelioration and seeding actions
66		Sub - Total for General Surface Reclamation					R 22 575,00	
67								
68		Water Management						
69		Not applicable	1.1	na	0,00	R -	R -	
70		Sub - Total for Water Management					R -	
71								
72		SUB - TOTAL 1 (for infrastructural and related structures)					R 1 313 476,70	
73								
74		Surface water quality monitoring	12.1	yr	0,00	R 108 000,00	R -	Part of greater Impala 16 Shaft Complex
75		Groundwater quality monitoring	12.2	yr	0,00	R 150 000,00	R -	Part of greater Impala 16 Shaft Complex
76		Reclamation monitoring on reclaimed areas	12.3	ha	8,62	R 2 500,00	R 21 550,00	5 years, area to be added to the greater 16 Shaft Complex
77		Care and maintenance of reclaimed areas	12.4	ha	8,62	R 18 500,00	R 133 610,00	5 years, area to be added to the greater 16 Shaft Complex
78		Sub - Total for Post closure aspects					R 251 160,00	
79		Contingencies for post closure aspects	1.2	sum	1,00	10%	R 16 518,00	Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R 16 518,00	
81		SUB - TOTAL 2 (for post-closure aspects)					R 170 678,00	
82								
83		Preliminary and General	1.2	sum	1,00	R 78 808,24	R 78 808,24	Assume 5 percent of sub - total 1
84		Contingencies	1.2	sum	1,00	R 131 347,07	R 131 347,07	Assume 10 percent of sub - total 1
85		Sub - Total 3 (for additional allowed)					R 210 155,31	
86		Grand - Total (for sub - total 1+2+3)					R 1 894 302,01	

Closure Costing - 16 Shaft WRD				Closure Cost - Year 7 - (2019)				
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructural Aspects						
2		Nominal cost and time related items						
3		Not applicable	1,1	na	0,00	R	-	
4		Sub-Total for cost and time related items					R	-
5		Demolitioning of plant and related structures						
6		Not applicable	1,1	na	0,00	R	-	
7		Sub - Total for demolitioning of plant and related structures					R	-
8		Demolitioning of all structural structures:						
9		Concrete sumps	4,2	m ²	7,81	R	640,00	Sump constructed of reinforced concrete, 2,5m * 2,5m * 2,5m
10		Sub - Total for demolitioning of all structural structures					R	6 000,00
11		Demolitioning of workshops and stores						
12		Not applicable	1,1	na	0,00	R	-	
13		Sub - Total for demolitioning of workshops and stores					R	-
14		Demolitioning of permanent brick structures and temporary structures						
15		Not applicable	1,1	na	0,00	R	-	
16		Sub - Total for demolitioning of permanent brick structures and temporary structures					R	-
17		Removal of all surface related finishes						
18		Interception trench	1,1	na	0,00	R	-	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R	-
20		Removal of all linear items						
21		Overland conveyor	5,1,3	m	540,00	R	320,00	Assume will extend 20m per year
22		Pipeline from sump to PCD dam	5,2,1	m	1800,00	R	27,00	
23		Sub - Total for removal of all linear items					R	221 400,00
24		Rehabilitation of roads:						
25		Not applicable	1,1	na	0,00	R	-	
26		Sub - Total for rehabilitation of roads					R	-
27		Disposal of demolition waste						
28		Sorting and screening of waste	6,1	%	226400,00		2,50%	2,50%
29		Disposal of demolition waste	6,2,1	m ³ /km	10,00	R	100,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R	6 000,00
31		Sub - Total for infrastructural aspects					R	233 000,00
32		Water Protection						
33		Open pit reclamation including final voids and ramps						
34		Not applicable	1,1	na	0,00	R	-	
35		Sub - Total open pit reclamation including final voids and ramps					R	-
36		Grinding of shafts and inclines						
37		Not applicable	1,1	na	0,00	R	-	
38		Sub - Total for grinding of shafts and inclines					R	-
39		Rehabilitation of overburden and spoils						
40		Not applicable	1,1	na	0,00	R	-	
41		Sub - Total for rehabilitation of overburden and spoils					R	-
42		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
43		Not applicable	1,1	na	0,00	R	-	
44		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	-
45		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
46		Waste Rock Dump						
47		Strip topsoil and stockpile for movement of top	9,2	m ²	0,00	R	20,00	Assumed will be completed during the operational phase
48		Clay compacted outer wall	1,1	na	0,00	R	-	Will be constructed during the operational phase
49		Reshape WRD	9,1,1	m ²	48845,90	R	18,00	Cut to fill action assumed 40m high at 329,9m ² /per meter.
50		Import capping layer	8,6,1	m ²	2967,50	R	26,00	Assumed 11m haul distance, 500mm waste rock, clay and topsoil mixture
51		Spread capping layer	9,1,1	m ²	2967,50	R	18,00	Spread by means of end tipping and dozing
52		Stormwater berm	9,2	m ²	808,90	R	20,00	Excavate and place material next to berm @ 3,37m ² /year meter.
53		Establish vegetation	10,4,1	ha	0,59	R	13 800,00	Includes amelioration and cultivation
54		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	1 004 094,76
55		Reclamation of disturbed areas						
56		Not applicable	1,1	na	0,00	R	-	
57		Sub - Total for reclamation of disturbed areas					R	-
58		Sub - Total for Mining aspects					R	1 004 095,76
59		Water Protection						
60		Shape and level disturbed area	10,1,1	ha	1,50	R	55 250,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
61		Rip area to alleviate compaction	9,5,1	ha	1,50	R	9 400,00	500mm deep ripping
62		Import 250mm topsoil from local stockpile	9,5,1	m ²	3750,00	R	28,00	11m load and haul
63		Establish vegetation	10,4,1	ha	1,50	R	13 800,00	Includes amelioration and seeding actions
64		Sub - Total for General Surface Reclamation					R	82 075,00
65		Water Protection						
66		Not applicable	1,1	na	0,00	R	-	
67		Sub - Total for Water Protection					R	-
68		Water Protection						
69		Water Protection						
70		Water Protection						
71		Water Protection						
72		Water Protection						
73		Water Protection						
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95		Water Protection						
96		Water Protection						
97		Water Protection						
98		Water Protection						
99		Water Protection						
100		Water Protection						

Closure Costing - 16 Shaft WRD				Closure Cost - Year 6 - (2020)				
Item No.	ID	Task	Unit Price Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructure Aspects						
2		Normal cost and time related items						
3		Not applicable	1,1	na	0,00	R	-	
4		Sub-Total for cost and time related items					P	
5		Demolitioning of plant and related structures						
6		Not applicable	1,1	na	0,00	R	-	
7		Sub - Total for demolitioning of plant and related structures					R	
8		Demolitioning of all structural structures						
9		Concrete sumps	4,2	m ²	7,81	R	640,00	Sump constructed of reinforced concrete, 2,5m * 2,5m * 2,5m
10		Sub - Total for demolitioning of all structural structures					R	5 000,00
11		Demolitioning of workshops and stores						
12		Not applicable	1,1	na	0,00	R	-	
13		Sub - Total for demolitioning of workshops and stores					R	
14		Demolitioning of permanent brick structure and temporary structures						
15		Not applicable	1,1	na	0,00	R	-	
16		Sub - Total for demolitioning of permanent brick structures and temporary structures					R	
17		Removal of all surface related finishes						
18		Interception trench	1,1	na	0,00	R	-	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R	
20		Removal of all linear items						
21		Overland conveyor	5,1,3	m	560,00	R	320,00	Assume will extend 20m per year
22		Pipeline from sump to PCD dam	5,2,1	m	1800,00	R	27,00	
23		Sub - Total for removal of all linear items					P	227 808,00
24		Rehabilitation of roads						
25		Not applicable	1,1	na	0,00	R	-	
26		Sub - Total for rehabilitation of roads					R	
27		Disposal of demolition waste						
28		Sorting and screening of waste	6,1	%	232800,00	R	2,50%	2,50%
29		Disposal of demolition waste	6,2,1	m ³ /ton	10,00	R	100,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R	6 820,00
31		Sub - Total for Infrastructural aspects					R	239 628,00
32								
33								
34		Open pit reclamation including final voids and ramps						
35		Not applicable	1,1	na	0,00	R	-	
36		Sub - Total open pit reclamation including final voids and ramps					R	
37		Sealing of shafts and inclines						
38		Not applicable	1,1	na	0,00	R	-	
39		Sub - Total for sealing of shafts and inclines					R	
40		Rehabilitation of overburden and spoils						
41		Not applicable	1,1	na	0,00	R	-	
42		Sub - Total for rehabilitation of overburden and spoils					R	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
44		Not applicable	1,1	na	0,00	R	-	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
47		Waste Rock Dump						
48		Strip topsoil and stockpile for movement of toe	9,2	m ²	0,00	R	20,00	Assumed will be completed during the operational phase
49		Clay compacted outer wall	1,1	na	0,00	R	-	Will be constructed during the operational phase
50		Reshape WRD	9,1,1	m ²	46945,80	R	18,00	R 843 224,40 Cut to fill action assumed 40m high at 323,9m ² /per meter.
51		Import capping layer	9,8,1	m ²	2967,50	R	28,00	R 83 090,00 Assumed 1km haul distance, 500mm waste rock, clay and topsoil mixture
52		Spread capping layer	9,1,1	m ²	2967,50	R	18,00	R 53 415,00 Spread by means of wind tipping and dozing
53		Stormwater berm	9,2	m ²	808,80	R	20,00	R 16 176,00 Excavate and place material next to berm @ 3,37m ² /per meter
54		Establish vegetation	10,4,1	ha	0,58	R	13 600,00	R 8 180,30 Includes amelioration and cultivation
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	1 084 096,76
56		Reclamation of subsided areas						
57		Not applicable	1,1	na	0,00	R	-	
58		Sub - Total for reclamation of subsided areas					P	
59		Sub - Total for Mining aspects					R	1 084 096,76
60								
61								
62		Shape and level disturbed area	10,1,1	ha	1,50	R	55 250,00	R 82 875,00 Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
63		Rip area to alleviate compaction	9,8,1	ha	1,50	R	9 400,00	R 14 100,00 500mm deep ripping
64		Import 250mm topsoil from local stockpile	9,8,1	m ²	3750,00	R	28,00	R 105 000,00 1km load and haul
65		Establish vegetation	10,4,1	ha	1,50	R	13 800,00	R 20 700,00 Includes amelioration and seeding actions
66		Sub - Total for General Surface Reclamation					P	82 875,00
67								
68		Not applicable	1,1	na	0,00	R	-	
69		Sub - Total for Water Management					R	
70								
71		SUB - TOTAL 1 (for infrastructural and related structures)					R	1 326 890 70
72								
73		Post-closure aspects						
74		Surface water quality monitoring	12,1	yr	0,00	R	106 000,00	R - Part of greater Impala 16 Shaft Complex
75		Groundwater quality monitoring	12,2	yr	0,00	R	150 000,00	R - Part of greater Impala 16 Shaft Complex
76		Reclamation monitoring on reclaimed areas	12,3	ha	9,80	R	2 500,00	R 24 500,00 5 years, area to be added to the greater 16 Shaft Complex
77		Care and maintenance of reclaimed areas	12,4	ha	9,80	R	15 500,00	R 151 900,00 5 years, area to be added to the greater 16 Shaft Complex
78		Sub - Total for Post closure aspects					P	178 400,00
79		Contingencies for post closure aspects	1,2	sum	1,00	10%	R	17 640,00 Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R	17 640,00
81		SUB - TOTAL 2 (for post - closure aspects)					R	184 040 00
82								
83		Preliminary and General	1,2	sum	1,00	R	78 635,44	R 78 635,44 Assume 8 percent of sub - total 1
84		Contingency	1,2	sum	1,00	R	132 659,07	R 132 659,07 Assume 10 percent of sub - total 1
85		SUB - TOTAL 3 (for additional allowances)					R	212 294 51
86		Grand - Total (for sub - total 1+2+3)					R	1 732 888 71

Closure Costing - 16 Shaft WRD		Closure Costs - Year 9 - (2011)						
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructural Aspects						
2		Notional cost and time related items						
3		Not applicable	1,1	na	0,00	R -	R -	
4		Sub-Total for cost and time related items					R -	
5		Demolition of plant and related structures						
6		Not applicable	1,1	na	0,00	R -	R -	
7		Sub - Total for demolition of plant and related structures					R -	
8		Demolition of all structural structures						
9		Concrete ramps	4,2	m ²	7,81	R 640,00	R 5 000,00	Ramp constructed of reinforced concrete, 2,5m * 2,5m * 2,5m
10		Sub - Total for demolition of all structural structures					R 5 000,00	
11		Demolition of workshops and stores						
12		Not applicable	1,1	na	0,00	R -	R -	
13		Sub - Total for demolition of workshops and stores					R -	
14		Demolition of permanent brick structures and temporary structures						
15		Not applicable	1,1	na	0,00	R -	R -	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R -	
17		Removal of all surface related finishes						
18		Interception trench	1,1	na	0,00	R -	R -	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R -	
20		Removal of all linear items						
21		Overland conveyor	6,1,3	m	580,00	R 320,00	R 185 600,00	Assume will extend 20m per year
22		Pipeline from pump to PCD dam	6,2,1	m	1800,00	R 27,00	R 48 600,00	
23		Sub - Total for removal of all linear items					P 234 200,00	
24		Rehabilitation of roads						
25		Not applicable	1,1	na	0,00	R -	R -	
26		Sub - Total for rehabilitation of roads					R -	
27		Disposal of demolition waste						
28		Sorting and screening of waste	6,1	%	236200,00	2,50%	R 5 900,00	2,50%
29		Disposal of demolition waste	6,2,1	m ³ /km	10,00	R 100,00	R 1 000,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R 6 900,00	
31		Sub - Total for infrastructural aspects					R 246 100,00	
32								
33		Waste Management						
34		Open pit reclamation including final voids and ramps						
35		Not applicable	1,1	na	0,00	R -	R -	
36		Sub - Total open pit reclamation including final voids and ramps					R -	
37		Berthing of shafts and inclines						
38		Not applicable	1,1	na	0,00	R -	R -	
39		Sub - Total for berthing of shafts and inclines					R -	
40		Rehabilitation of overburden and spoils						
41		Not applicable	1,1	na	0,00	R -	R -	
42		Sub - Total for rehabilitation of overburden and spoils					R -	
43		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
44		Not applicable	1,1	na	0,00	R -	R -	
45		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R -	
46		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
47		Waste Rock Dump						
48		Strip topsoil and stockpile for movement of top	9,2	m ³	0,00	R 20,00	R -	Assumed will be completed during the operational phase
49		Clay compacted outer wall	1,1	na	0,00	R -	R -	Will be constructed during the operational phase
50		Reshape WRD	9,1,1	m ²	46645,80	R 18,00	R 843 224,40	Cut to fill action assumed 40m high at 329,8m ² /per meter
51		Impact capping layer	9,6,1	m ²	2967,60	R 28,00	R 83 080,00	Assumed 10m haul distance, 500mm waste rock, clay and topsoil mixture
52		Spread capping layer	9,1,1	m ²	2967,60	R 18,00	R 53 415,00	Spread by means of end tipping and dozing
53		Stormwater berm	9,2	m ³	808,80	R 20,00	R 16 176,00	Excavate and place material next to berm @ 3,37m ³ /per meter
54		Establish vegetation	10,4,1	ha	0,59	R 13 800,00	R 6 150,30	Includes amelioration and cultivation
55		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R 1 094 998,70	
56		Reclamation of disturbed areas						
57		Not applicable	1,1	na	0,00	R -	R -	
58		Sub - Total for reclamation of disturbed areas					R -	
59		Sub - Total for Mining aspects					R 1 094 998,70	
60								
61		General Surface Rehabilitation						
62		Shape and level disturbed area	10,1,1	ha	1,50	R 55 250,00	R 82 875,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
63		Rip area to allow for compaction	9,8,1	ha	1,50	R 9 400,00	R 14 100,00	500mm deep ripping
64		Import 250mm topsoil from local stockpile	9,8,1	m ³	3785,00	R 28,00	R 106 000,00	10m haul and haul
65		Establish vegetation	10,4,1	ha	1,50	R 13 800,00	R 20 700,00	Includes amelioration and seeding actions
66		Sub - Total for General Surface Rehabilitation					R 213 675,00	
67								
68		Not applicable	1,1	na	0,00	R -	R -	
69		Sub - Total for Water Management					R -	
70								
71								
72		SUB - TOTAL 1 (for infrastructural and related structures)					R 1 337 150,70	
73								
74		Surface water quality monitoring	12,1	yr	0,00	R 106 000,00	R -	Part of greater Impala 16 Shaft Complex
75		Groundwater quality monitoring	12,2	yr	0,00	R 150 000,00	R -	Part of greater Impala 16 Shaft Complex
76		Reclamation monitoring on reclaimed areas	12,3	ha	10,39	R 2 600,00	R 25 975,00	5 years, area to be added to the greater 16 Shaft Complex
77		Care and maintenance of reclaimed areas	12,4	ha	10,39	R 16 500,00	R 161 045,00	5 years, area to be added to the greater 16 Shaft Complex
78		Sub - Total for Post closure aspects					R 187 020,00	
79		Contingencies for post closure aspects	1,2	sum	1,00	10%	R 18 702,00	Assumed 10 percent for post closure aspects
80		Sub - Total for Contingencies for post closure aspects					R 18 702,00	
81		SUB - TOTAL 2 (for post - closure aspects)					P 205 722,00	
82								
83		Preliminary and General	1,2	sum	1,00	R 79 939,04	R 79 939,04	Assume 6 percent of sub - total 1
84		Contingencies	1,2	sum	1,00	R 133 315,07	R 133 315,07	Assume 10 percent of sub - total 1
85		RUB - TOTAL 3 (for additional allowances)					R 213 254,11	
86		Grand - Total (for sub - total 1+2+3)					P 1 782 176,81	

Closure Costing - 16 Shaft WRD				Closure Cost - Year 10 - (2022)				
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes
1		Infrastructure Aspects						
2		Nominal cost and time related items						
3		Not applicable	1.1	na	0.00	R	-	
4		Sub-Total for cost and time related items					R	
5		Demolition of plant and related structures						
6		Not applicable	1.1	na	0.00	R	-	
7		Sub - Total for demolition of plant and related structures					R	
8		Demolition of all structural structures						
9		Concrete slabs	4.2	m ²	7.61	R 640.00	R 5 000.00	Slump constructed of reinforced concrete, 2.5m * 2.5m * 2.5m
10		Sub - Total for demolition of all structural structures					R 5 000.00	
11		Demolition of workshops and stores						
12		Not applicable	1.1	na	0.00	R	-	
13		Sub - Total for demolition of workshops and stores					R	
14		Demolition of permanent brick structures and temporary structures						
15		Not applicable	1.1	na	0.00	R	-	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R	
17		Removal of all surface related finishes						
18		Interception trench	1.1	na	0.00	R	-	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R	
20		Removal of all linear items						
21		Overland conveyor	5.1.3	m	600.00	R 320.00	R 192 000.00	Assume will extend 20m per year
22		Pipeline from sump to PCD dam	5.2.1	m	1800.00	R 27.00	R 48 600.00	
23		Sub - Total for removal of all linear items					R 240 600.00	
24		Rehabilitation of roads						
25		Not applicable	1.1	na	0.00	R	-	
26		Sub - Total for rehabilitation of roads					R	
27		Disposal of demolition waste						
28		Sorting and screening of waste	6.1	%	24500.00	2.50%	R 6 140.00	2.50%
29		Disposal of demolition waste	6.2.1	m ³ /km	10.00	R 100.00	R 1 000.00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R 7 140.00	
31		Sub - Total for infrastructure aspects					R 252 740.00	
32		Water Management						
33		Open pit reclamation including final voids and ramps						
34		Not applicable	1.1	na	0.00	R	-	
35		Sub - Total open pit reclamation including final voids and ramps					P	
36		Sealing of shafts and inclines						
37		Not applicable	1.1	na	0.00	R	-	
38		Sub - Total for sealing of shafts and inclines					R	
39		Rehabilitation of overburden and spoils						
40		Not applicable	1.1	na	0.00	R	-	
41		Sub - Total for rehabilitation of overburden and spoils					R	
42		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)						
43		Not applicable	1.1	na	0.00	R	-	
44		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	
45		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)						
46		Waste Rock Dump						
47		Strip topsoil and stockpile for movement of top	3.2	m ²	0.00	R 20.00	R -	Assumed will be completed during the operational phase
48		Clay compacted outer wall	1.1	na	0.00	R	-	Will be constructed during the operational phase
49		Reelops WRD	9.1.1	m ²	46845.80	R 18.00	R 843 224.40	Cut to fill action assumed 40m high at 323.8m ² /per meter.
50		Import capping layer	9.6.1	m ²	2967.50	R 28.00	R 83 080.00	Assumed 11m haul distance, 500mm v. rate rock, clay and topsoil mixture
51		Spread capping layer	9.1.1	m ²	2967.50	R 18.00	R 53 415.00	Spread by means of end tipping and dozing
52		Stormwater berm	9.2	m ²	808.80	R 20.00	R 16 176.00	Excavate and place material next to berm @ 3.37m ² /per meter
53		Establish vegetation	10.4.1	ha	0.99	R 18 800.00	R 18 800.00	Includes amelioration and cultivation
54		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R 1 904 896.70	
55		Reclamation of subleided areas						
56		Not applicable	1.1	na	0.00	R	-	
57		Sub - Total for reclamation of subleided areas					R	
58		Sub - Total for Mining aspects					R 1 884 095.70	
59		General Surface Rehabilitation						
60		Shape and level disturbed area	10.1.1	ha	1.50	R 55 250.00	R 82 875.00	Includes stockpiling of material, backfilling of excavations in out to fill operation and final profiling @ave 500mm over footprint
61		Rip area to facilitate compaction	9.6.1	ha	1.50	R 9 400.00	R 14 100.00	500mm deep ripping
62		Import 250mm topsoil from local stockpile	9.6.1	m ²	3750.00	R 28.00	R 105 000.00	11m haul and haul
63		Establish vegetation	10.4.1	ha	1.50	R 13 800.00	R 20 700.00	Includes amelioration and seeding actions
64		Sub - Total for General Surface Rehabilitation					R 22 875.00	
65		Water Management						
66		Not applicable	1.1	na	0.00	R	-	
67		Sub - Total for Water Management					R	
68		SUB - TOTAL 1 (for infrastructure and related structures)					R 1 339 716.70	
69		Post Closure Aspects						
70		Surface water quality monitoring	12.1	yr	0.00	R 105 000.00	R -	Part of greater Impulse 16 Shaft Complex
71		Groundwater quality monitoring	12.2	yr	0.00	R 150 000.00	R -	Part of greater Impulse 16 Shaft Complex
72		Reclamation monitoring on reclaimed areas	12.3	ha	10.98	R 2 500.00	R 27 450.00	5 years, area to be added to the greater 16 Shaft Complex
73		Care and maintenance of reclaimed areas	12.4	ha	10.98	R 15 500.00	R 170 180.00	5 years, area to be added to the greater 16 Shaft Complex
74		Sub - Total for Post closure aspects					R 187 640.00	
75		Contingencies for post closure aspects	1.2	sum	1.00	10%	R 19 764.00	Assumed 10 percent for post closure aspects
76		Sub - Total for Contingencies for post closure aspects					R 19 764.00	
77		SUB - TOTAL 2 (for post - closure aspects)					R 217 404.00	
78		Pathway and General Contingencies	1.2	sum	1.00	R 80 382.64	R 80 382.64	Assume 6 percent of sub - total 1
79		Contingencies	1.2	sum	1.00	R 133 971.07	R 133 971.07	Assume 10 percent of sub - total 1
80		SUB - TOTAL 3 (for additional allowances)					R 214 363.71	
81		Grand - Total (for sub - total 1-2-3)					P 1 771 468.41	

Closure Costing - 16 Shaft WRD			Closure Cost - Scheduled						
Item nr	ID	Task	Unit Rate Code	Unit	Quantity	Rate	Amount	Notes	
1		Infrastructural Aspects							
2		Nominal cost and time related items							
3		Not applicable	1,1	na	0,00	R	-	R	
4		Sub-Total for cost and time related items					R	-	
5		Demolition of plant and related structures							
6		Not applicable	1,1	na	0,00	R	-	R	
7		Sub - Total for demolition of plant and related structures					R	-	
8		Demolition of all structural structures							
9		Concrete sumps	4,2	m²	7,81	R	640,00	R 5 000,00	Sumps constructed of reinforced concrete, 2,5m * 2,5m * 2,5m
10		Sub - Total for demolition of all structural structures					R	5 000,00	
11		Demolition of workshops and stores							
12		Not applicable	1,1	na	0,00	R	-	R	
13		Sub - Total for demolition of workshops and stores					R	-	
14		Demolition of permanent brick structures and temporary structures							
15		Not applicable	1,1	na	0,00	R	-	R	
16		Sub - Total for demolition of permanent brick structures and temporary structures					R	-	
17		Removal of all surface related finishes							
18		Interception trench	1,1	na	0,00	R	-	R	V-shaped earth trench constructed from clay
19		Sub - Total for removal of all surface related finishes					R	-	
20		Removal of all linear items							
21		Overland conveyor	5,1,3	m	1665,00	R	320,00	R 532 800,00	
22		Pipeline from sump to PCD dam	5,2,1	m	1800,00	R	27,00	R 48 600,00	
23		Sub - Total for removal of all linear items					R	891 400,00	
24		Rehabilitation of roads							
25		Not applicable	1,1	na	0,00	R	-	R	
26		Sub - Total for rehabilitation of roads					R	-	
27		Disposal of demolition waste							
28		Sorting and screening of waste	6,1	%	586400,00	R	2,50%	R 14 660,00	2,50%
29		Disposal of demolition waste	6,2,1	m³/m	364,00	R	100,00	R 36 400,00	Assume 30km distance
30		Sub - Total for disposal of demolition waste					R	61 060,00	
31		Sub - Total for infrastructural aspects					R	637 460,00	
32									
33		Open pit reclamation including final voids and ramps							
34		Not applicable	1,1	na	0,00	R	-	R	
35		Sub - Total open pit reclamation including final voids and ramps					R	-	
36		Sealing of shafts and inclines							
37		Not applicable	1,1	na	0,00	R	-	R	
38		Sub - Total for sealing of shafts and inclines					R	-	
39		Rehabilitation of overburden and spoils							
40		Not applicable	1,1	na	0,00	R	-	R	
41		Sub - Total for rehabilitation of overburden and spoils					R	-	
42		Rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)							
43		Not applicable	1,1	na	0,00	R	-	R	
44		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (non polluting potential)					R	-	
45		Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)							
46		Waste Rock Dump							
47		Strip topsoil and stockpile for movement of loe	9,2	m³	0,00	R	20,00	R	Assumed will be completed during the operational phase
48		Clay compacted outer wall	1,1	na	0,00	R	-	R	Will be constructed during the operational phase
49		Roshape WRD	9,1,1	m³	48845,80	R	16,00	R 843 224,40	Cut to fill action assumed 40m high at 323,8m³ per meter.
50		Import capping layer	9,6,1	m³	2967,50	R	28,00	R 83 080,00	Assumed 10m haul distance, 500mm waste rock, clay and topsoil mixtue
51		Spread capping layer	9,1,1	m³	2967,50	R	16,00	R 53 415,00	Spread by means of end tipping and dozing
52		Stormwater berm	9,2	m³	606,80	R	20,00	R 16 176,00	Excavate and place material next to berm @ 3,37m³ per meter
53		Establish vegetation	10,4,1	ha	0,59	R	13 600,00	R 8 190,30	Includes amelioration and cultivation
54		Sub - Total for rehabilitation of processing waste deposits and evaporation ponds (polluting potential)					R	1 004 666,70	
55		Reclamation of subsided areas							
56		Not applicable	1,1	na	0,00	R	-	R	
57		Sub - Total for reclamation of subsided areas					R	-	
58		Sub - Total for Mining aspects					R	1 004 666,70	
59									
60		General Surface Reclamation							
61		Shape and level disturbed area	10,1,1	ha	1,50	R	55 250,00	R 82 975,00	Includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
62		Rip area to eliminate compaction	9,6,1	ha	1,50	R	9 400,00	R 14 100,00	500mm deep ripping
63		Import 250mm topsoil from local stockpile	9,6,1	m³	3750,00	R	28,00	R 105 000,00	Tim load and haul
64		Establish vegetation	10,4,1	ha	1,50	R	13 600,00	R 20 700,00	Includes amelioration and seeding actions
65		Sub - Total for General Surface Reclamation					R	82 875,00	
66									
67		Water Management							
68		Not applicable	1,1	na	0,00	R	-	R	
69		Sub - Total for Water Management					R	-	
70									
71									
72									
73		SUB - TOTAL 1 (for infrastructural and related structures)					R	1 124 430,70	
74		Post - Closure aspects							
75		Surface water quality monitoring	12,1	yr	0,00	R	106 000,00	R	Part of greater Impala 16 Shaft Complex
76		Groundwater quality monitoring	12,2	yr	0,00	R	150 000,00	R	Part of greater Impala 16 Shaft Complex
77		Reclamation monitoring on reclaimed areas	12,3	ha	21,25	R	2 500,00	R 53 125,00	5 years, area to be added to the greater 16 Shaft Complex
78		Care and maintenance of reclaimed areas	12,4	ha	21,25	R	15 500,00	R 329 375,00	5 years, area to be added to the greater 16 Shaft Complex
79		Sub - Total for Post closure aspects					R	382 690,00	
80		Contingencies for post closure aspects	1,2	sum	1,00	R	10%	R 38 260,00	Assumed 10 percent for post closure aspects
81		Sub - Total for Contingencies for post closure aspects					R	38 260,00	
82									
83		Preliminary and General	1,2	sum	1,00	R	103 465,84	R	Assume 6 percent of sub - total 1
84		Contingencies	1,2	sum	1,00	R	172 443,07	R	Assume 10 percent of sub - total 1
85		SUB - TOTAL 2 (for additional allowances)					R	278 908,91	
86		Grand - Total (for sub - total 1-2+3)					R	2 421 099,61	

Rates Table - 2012					
Unit Rate Code	Costing Items	Currency	Unit Rates	Unit	Notes
1. Nominal unit and time related rates					
1.1	Not Applicable	Rands	R -	na	
1.2	Sum	Rands	R -	sum	
1.3	Rate	Rands	R -	unit	
2. Steel and related structures					
2.1	Cladding / Sheeting	Rands	R 21.50	m²	
2.2	Structural steelwork	Rands	R 1 280.00	t	
2.3	Super structures				
2.3.1	Light plant structures	Rands	R 107.00	m²	up to 105kg of steel per square meter
2.3.2	Medium plant structures	Rands	R 590.00	m²	up to 450kg of steel per square meter
2.3.3	Medium / Heavy plant structures	Rands	R 1 280.00	m²	up to 1000kg of steel per square meter
2.3.4	Heavy plant structures	Rands	R 1 900.00	m²	up to 1500kg of steel per square meter
2.4	Steel tanks with rubber lining				
2.4.1	0-5m	Rands	R 10 800.00	no	diameter
2.4.2	5-10m	Rands	R 26 650.00	no	diameter
2.4.3	10-15m	Rands	R 37 300.00	no	diameter
2.4.4	15-20m	Rands	R 53 300.00	no	diameter
2.4.5	20-30m	Rands	R 69 300.00	no	diameter
2.5	Single steel tanks	Rands	R 5 300.00	no	small enclosed steel tanks
2.6	Carports				
2.6.1	Carports with IBR covering	Rands	R 90.00	m²	excludes paving
2.6.2	Carports with Shade net covering	Rands	R 43.00	m²	excludes paving
3. Buildings and related structures					
3.1	Brick buildings				
3.1.1	Single storey building	Rands	R 295.00	m²	includes soft strip, excludes disposal of waste
3.1.2	Double storey building	Rands	R 500.00	m²	includes soft strip, excludes disposal of waste
3.2	Substations, pump stations and strong rooms				
3.2.1	Single storey building	Rands	R 480.00	m²	includes soft strip, excludes disposal of waste
3.2.2	Double storey or double volume building	Rands	R 680.00	m²	includes soft strip, excludes disposal of waste
3.3	Prefabricated or temporary buildings	Rands	R 140.00	m²	
3.4	110mm Brick wall	Rands	R 15.00	m²	
3.5	230mm Brick wall	Rands	R 30.00	m²	
3.6	Workshop & Stores	Rands	R 320.00	m²	single volume buildings
3.7	Workshop & Stores	Rands	R 380.00	m²	double volume buildings
4. Concrete					
4.1	Heavy concrete, thickness greater than 750mm	Rands	R 1 280.00	m³	bulk and heavy reinforced concrete
4.2	Medium concrete, thickness between 150 and 750mm	Rands	R 640.00	m³	Heavy reinforced concrete
4.3	Light concrete, thickness less than 250mm	Rands	R 400.00	m³	reinforced concrete
4.4	Floors, bases and foundations after removal of superstructure	Rands	R 215.00	m²	250mm floors with 500mm bases on 30% of the area
4.5	Heavy duty floors, bases and foundations after removal of superstructure	Rands	R 590.00	m²	400mm floors with 800mm bases on 30% of the area
4.6	Strip footings	Rands	R 135.00	m	
4.7	Column footings	Rands	R 280.00	no	
5. Linear items					
5.1	Conveyers				
5.1.1	Overland conveyor - light, no cladding	Rands	R 215.00	m	
5.1.2	Overland conveyor - medium	Rands	R 285.00	m	
5.1.3	Overland conveyor - heavy	Rands	R 320.00	m	
5.1.4	Suspended conveyor - light to medium	Rands	R 535.00	m	
5.1.5	Suspended conveyor - heavy with cladding	Rands	R 640.00	m	
5.2	Pipelines				
5.2.1	Overland steel pipelines on plinths (<200mm)	Rands	R 27.00	m	5m plinth spacing, includes disposal of waste @ 10km
5.2.2	Overland steel pipelines on plinths (200-350mm)	Rands	R 48.00	m	5m plinth spacing, includes disposal of waste @ 10km
5.2.3	Overland steel pipelines on plinths (350-500mm)	Rands	R 64.00	m	5m plinth spacing, includes disposal of waste @ 10km
5.3	Overland power lines				
5.3.1	Minor lines	Rands	R 27.00	m	
5.3.2	Major lines	Rands	R 80.00	m	
5.4	Railway lines				
5.4.1	Electrified	Rands	R 295.00	m	excludes ballast and rehab
5.4.2	Non - electrified	Rands	R 215.00	m	excludes ballast and rehab
5.5	Fencing				
5.5.1	Erect security fencing	Rands	R 133.00	m	
5.5.2	Erect stock fencing	Rands	R 27.00	m	
5.5.3	Dismantling of security fencing	Rands	R 27.00	m	
5.5.4	Dismantling of stock fencing	Rands	R 8.00	m	
5.5.5	Dismantling of steel palisade fencing	Rands	R 58.00	m	
5.5.6	Dismantling of concrete palisade fencing	Rands	R 120.00	m	
6. Waste					
6.1	Sorting and screening of waste	Rands		2.5	%
6.2	Disposal of waste				
6.2.1	Disposal of inert demolition waste	Rands	R 100.00	m³/km	30km haul distance
6.2.2	Disposal of hazardous waste	Rands	R 805.00	m³	excludes transport
6.3	Decontamination of equipment				
6.3.1	Decontamination of equipment - small projects	Rands		5	% of overall dismantling of steel structures
6.3.2	Decontamination of equipment - large projects	Rands		2.5	% of overall dismantling of steel structures
6.4	Removal and disposal of single HDPE liner	Rands	R 6.50	m²	
7. Shaft and portals					
7.1	Shafts				
7.1.1	Sealing of vertical shaft	Rands	R 714 220.00	sum	3m diameter
7.1.2	Sealing of vertical shaft	Rands	R 810 160.00	sum	3.5m diameter
7.1.3	Sealing of vertical shaft	Rands	R 898 050.00	sum	4m diameter
7.1.4	Sealing of vertical shaft	Rands	R 1 087 320.00	sum	4.5m diameter
7.1.5	Sealing of vertical shaft	Rands	R 1 332 500.00	sum	5m diameter
7.1.6	Sealing of vertical shaft	Rands	R 1 375 140.00	sum	5.5m diameter
7.1.7	Sealing of vertical shaft	Rands	R 1 410 500.00	sum	6.0m diameter
7.1.8	Sealing of vertical shaft	Rands	R 1 482 400.00	sum	6.5m diameter

7.1.9	Sealing of vertical shaft	:	Rands	R 1 599 900.00	sum	7m diameter
7.1.10	Sealing of vertical shaft	:	Rands	R 1 719 458.00	sum	7.5m diameter
7.1.11	Sealing of vertical shaft	:	Rands	R 1 836 850.00	sum	8m diameter
7.1.12	Sealing of vertical shaft	:	Rands	R 1 982 760.00	sum	8.5m diameter
7.1.13	Sealing of vertical shaft	:	Rands	R 2 132 000.00	sum	9m diameter
7.1.14	Sealing of vertical shaft	:	Rands	R 2 281 240.00	sum	9.5m diameter
7.1.15	Sealing of vertical shaft	:	Rands	R 2 573 324.00	sum	10m diameter
7.1.16	Sealing of vertical shaft	:	Rands	R 2 665 000.00	sum	11m diameter
7.2	Backfill incline shaft portal	:	Rands	R 31 980.00	sum	
7.3	Plug outlet and seal penstock of tailings dam	:	Rands	R 213 200.00	sum	assume 100 000m ³ backfilled with waste rock <1km haul distance, excl topsoil
7.4	Plug surface hoists	:	Rands	R 200 000.00	sum	
7.5	Seal incline shaft	:	Rands	R 159 900.00	sum	
8 Roads, hardstands and paving						
8.1	Remove tar roads with 600mm layer works	:	Rands	R 45.00	m ²	layer works buried in trench next to road or 10km load and haul, but excludes disposal of tar
8.2	Major gravel roads with engineered surfaces	:	Rands	R 21.00	m ²	layer works buried next to road or 10km load and haul
8.3	Minor gravel roads and tracks	:	Rands	R 4.00	m ²	minor gravel roads and tracks (no layer works) - ripped, profiled and vegetated
8.4	Concrete slab or concrete liners	:	Rands	R 135.00	m ²	thin concrete with minimal reinforcing
8.5	Removal of ganited embankments	:	Rands	R 80.00	m ²	excludes disposal
8.6	Removal of brick paving & stone pitching	:	Rands	R 38.00	m ²	
9 Excavations						
9.1	Dozing	:				
9.1.1	Dozing to profile dumps (116m max)	:	Rands	R 18.00	m ³	cut to fill including final profiling
9.1.2	Bulk dozing of material (60m max)	:	Rands	R 11.00	m ³	bulk dozing, no profiling
9.2	Excavation	:	Rands	R 20.00	m ³	
9.3	Backfilling	:				
9.3.1	Backfilling of final void	:	Rands	R 15.50	m ³	large volumes: 50% dozing & 50% load and haul
9.3.2	Backfilling of final void	:	Rands	R 27.00	m ³	large volumes: 0km haul distance for bulk material
9.4	Compacting	:	Rands	R 3.50	m ²	In layers of 250mm
9.5	Ripping	:				
9.5.1	Ripping of areas to alleviate compaction	:	Rands	R 9 400.00	ha	500mm deep ripping
9.5.2	Deep ripping	:	Rands	R 13 800.00	ha	1000mm deep ripping
9.6	Transport	:				
9.6.1	Load and haul	:	Rands	R 28.00	m ³	1km, small volumes
9.6.2	Extra over rates for hauling outside free haul distance	:	Rands	R 7.80	m ³ /km	small volumes
9.6.3	Load and haul for 4km distance	:	Rands	R 51.40	m ³ /km	small volumes
9.6.4	Load and haul	:	Rands	R 13.20	m ³	1km, large volumes
9.6.5	Extra over rates for hauling outside free haul distance	:	Rands	R 3.00	m ³ /km	large volumes
9.6.6	Load and haul for 4km distance	:	Rands	R 163.20	m ³ /km	large volumes
9.6.7	Load and haul for 50km distance	:	Rands	R 163.20	m ³ /km	large volumes
10 Reclamation on disturbed areas						
10.1	Profiling - dozer work	:				
10.1.1	Shaping, leveling of infrastructural footprint areas (500mm)	:	Rands	R 55 250.00	ha	includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 500mm over footprint
10.1.2	Shaping, leveling of infrastructural footprint areas (750mm)	:	Rands	R 82 875.00	ha	includes stockpiling of material, backfilling of excavations in cut to fill operation and final profiling @ave 750mm over footprint
10.1.3	Reshaping, profiling of dumps (general)	:	Rands	R 110 500.00	ha	
10.1.4	Profiling of disturbed areas (general)	:	Rands	R 939 250.00	ha	minimal dozing to make area free draining
10.1.5	Breach dam wall & reshape 1:5	:	Rands	R 220.00	m	approx. 5m high @ 1:5
10.2	Import clean / removing contaminated soil	:				
10.2.1	Import cover material and spread (250m)	:	Rands	R 88 400.00	ha	2500m ² over 1km average @ R32/m ²
10.2.2	Remove contaminated soil to 250mm average depth	:	Rands	R 127 000.00	ha	assume 4km haul distance
10.3	Cappling / impermeable cover	:				
10.3.1	Install 2mm HDPE liner	:	Rands	R 94.00	m ²	
10.4	Establish vegetation	:				includes soil amelioration, cultivation and seeding actions
10.4.1	Establishment of vegetation (general)	:	Rands	R 13 800.00	ha	general on flat surfaces
10.4.2	Establishment of vegetation on WRD and tailings dams	:	Rands	R 19 250.00	ha	general in topsoil layer on sloped areas
10.4.3	Establish vegetation on backfilled pit areas	:	Rands	R 4 400.00	ha	
10.4.4	Re-rip and establish vegetation on stockpile footprint areas and haul roads	:	Rands	R 5 500.00	ha	
11 Plant and machinery						
11.1	Crane	:	Rands	R 38 700.00	p/day	excludes site establishment
11.2	TB	:	Rands	R 2 800.00	p/day	excludes site establishment
11.3	Excavator (20ton)	:	Rands	R 4 200.00	p/day	excludes site establishment
11.4	Loader (20ton)	:	Rands	R 8 850.00	p/day	excludes site establishment
12 Post closure aspects						
12.1	Surface water	:	Rands	R 108 000.00	yr	8 monitoring points on a monthly basis
12.2	Groundwater	:	Rands	R 150 000.00	yr	15 monitoring points on a quarterly basis
12.3	Reclamation monitoring	:	Rands	R 2 500.00	ha	5 years
12.4	Care and maintenance	:	Rands	R 15 500.00	ha	5 years
13 Regulatory Work						
13.1	Specialist, soil and groundwater study	:	Rands	R 330 000.00	sum	Nominal allowance, not for large and complex and integrated sites
13.2	Basic Assessment with Public Participation	:	Rands	R 250 000.00	sum	Nominal allowance, not for large and complex and integrated sites
13.3	Integrated Water and Waste Management Plan (IWWMP) and Water Use License Application (WULA)	:	Rands	R 220 000.00	sum	Nominal allowance, not for large and complex and integrated sites
13.4	Waste License Application	:	Rands	R 40 000.00	sum	Nominal allowance, not for large and complex and integrated sites
14 Water Treatment Cost						
14.1	Cleaning of Stormwater system	:	Rands	R -	sum	Nominal allowance
14.2	Cleaning of Oily and Chemical Sewer system	:	Rands	R -	sum	Nominal allowance
14.3	xxxxxxxx	:	Rands	R -	m ²	
14.4	yyyyyyyy	:	Rands	R -	m ²	
14.5	zzzzzz	:	Rands	R -	m ²	
15 Services						
15.1	Drilling of borehole	:	Rands	R 33 000.00	sum	Nominal allowance
15.2	Equipping of borehole (Pump, electrical and piping)	:	Rands	R 55 000.00	sum	Nominal allowance
16 Other						
16.1	Unspecified	:	Rands	R -	sum	
16.2	Unspecified	:	Rands	R -	sum	
16.3	Unspecified	:	Rands	R -	sum	

