Woodlark Gold Project
DFS Executive Summary

NOVEMBER 2018

ASX : GPR

WOODLARK GOLD PROJECT

DEFINITIVE FEASIBILITY STUDY

3216-000-GREP-002

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

Geopacific Resources Limited (Geopacific) is proposing to develop the Woodlark Gold Project (hereafter termed 'the Project'), located on Woodlark Island approximately 600 km east of Port Moresby, Papua New Guinea (PNG). Woodlark Mining Limited (WML) holds a 100% interest in Mining Lease 508. WML is owned 49% by Kula Gold Limited (Kula), a Public Company incorporated in Australia, and 51% by Geopacific, a Public Company incorporated in Australia. Geopacific is the largest shareholder of Kula with an 85% holding. Geopacific's total interest in WML is 93%, which includes both the direct interest and the indirect interest through Kula.

The results of the DFS financial model highlight the robust project economics. The key highlights are as follows:

- 967 koz of gold produced.
- Total revenue of A$1.6B.
- Total net cashflow of A$343M (post-tax and capital repayment).
- Project NPV of A$197M (post tax).
- Project payback period of 2.2 years (post-tax).
- Project IRR of 29% (post-tax).
- Average all-in sustaining costs of A$1,033/oz.

The project will involve open-cut mining of gold reserves at the Kulumadau, Busai and Woodlark King deposits using multi-staged pit designs, with a stripping ratio of 3.9:1 over the life of the mine. Waste rock will be deposited in engineered waste rock dumps located adjacent to each pit.

Ore will be treated by a conventional carbon in leach gold processing plant. The plant will have a capacity of 2.4 Mt per annum producing a total of 967,000 ounces of gold over a 13 year production life.

The project will incorporate a Deep Sea Tailings Placement (DSTP) system including an approximately 12 km pipeline from the process plant to the north-east coast of the island.

The island is relatively sparsely populated with generally small villages scattered around the coastal areas and inland locations, with residents typically living a subsistence lifestyle. The main administration centre is Guasopa in the south-eastern part of the island. Kulumadau is the second largest village on the island and is located within the proposed area of development. An agreement is in place with the Kulumadau residents to relocate the village to several locations outside of the mining lease.

A Project Location Map is provided in Figure 1.1.1 and a General Site Layout in Figure 1.1.2.

Figure 1.1.1 Woodlark Gold Project Location

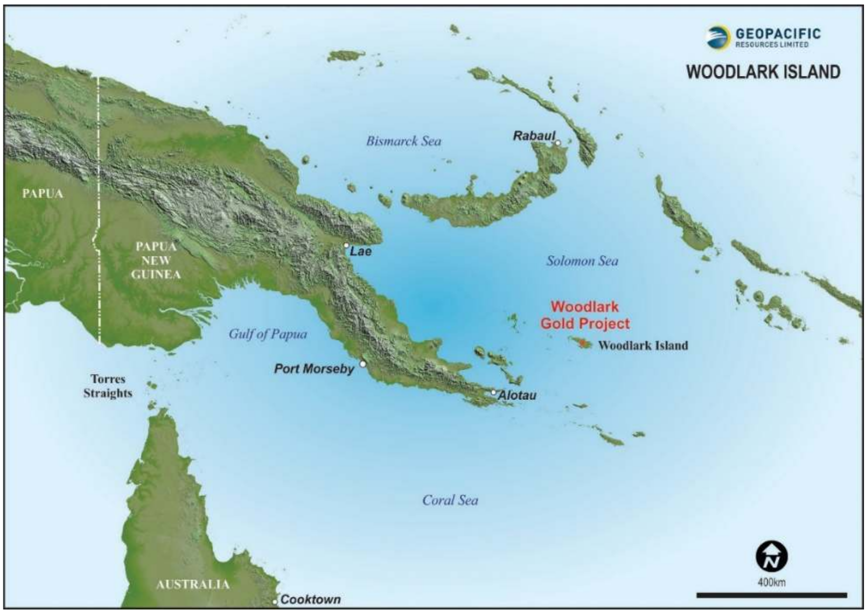
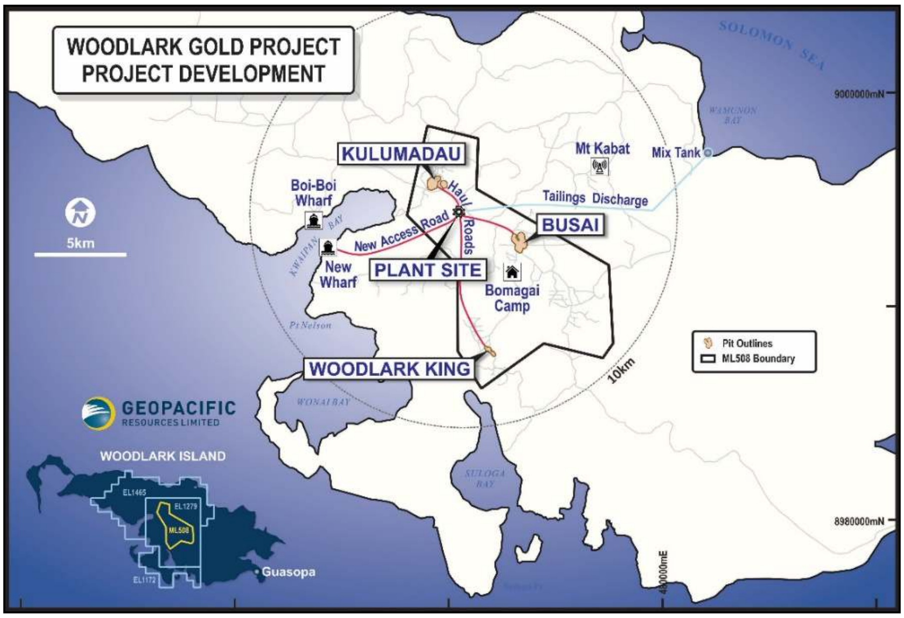


Figure 1.1.2 Woodlark Gold Project General Site Layout



1.1.1 Independent Consultants

Specialist independent consultants who contributed to the DFS are listed in Table 1.1.1.

Table 1.1.1 Specialist Independent Consultants

Subject	Specialist Independent Consultant
Metallurgy	Lycopodium, ALS Metallurgy and Independent Metallurgical Operations
Mineral Resource Estimate	MPR Resource Consultants
Pit Optimisations & Pit Designs	Mining Plus
Ore Reserve Estimate	Mining Plus
Geotechnical	Peter O'Bryan and Associates (pits), Pitt and Sherry (plant site), Knight Piésold (seismicity)
Capital costs	Lycopodium, Mincore & Geopacific
Operating costs	Lycopodium, Mining Plus, specialist contractor quotes & Geopacific
Deep sea tailings system	Tetra Tech

1.2 Woodlark Gold Project Tenure

Mining lease ML508 was granted in 2014 by the Minister of Mines with a validity of 20 years (expires in 2034) and encompasses an area of 60 km^2 including the three reserve areas (Kulumadau, Busai and Woodlark King), additional areas of high exploration potential and areas for key project infrastructure. In 2016, Geopacific successfully applied to maintain the currency of the mining lease by gaining approval for the extension of the condition to complete construction and commissioning from July 2017 to December 2019.

ML508 was approved by the PNG Government through the Mineral Resources Authority (MRA) following completion of a detailed Environmental Impact Statement (EIS), finalisation of Compensation and Relocation Agreements and a Memorandum of Agreement with the local land owners and Provincial and Central Governments.

Several additional Leases for Mining Purposes (LMP) and Mining Easements (ME) have also been approved as part of the project development.

1.3 Geology

Woodlark Island (locally known as Muyuw Island) is located on the northern margin of the Woodlark Basin, some 600 km east of Port Moresby.

The geology of the island consists of basement Palaeocene-Eocene tholeiitic basalt and sediments (Loluai formation) overlain by mid-Miocene calc-alkaline to shoshonitic volcanics (Okiduse formation), which host the majority of known gold mineralisation. The island is relatively flat, with the highest point, Mt Kabat just 243 m above sea level. Most of the island is covered by a Pleistocene age coral reef formation (Kiriwina formation), masking prospective volcanic sequences.

The second declared gold field in Papua, gold mining on Woodlark Island commenced in 1895 at several alluvial sites in the Suloga bay. Numerous alluvial prospects were developed in watersheds across the Okiduse formation, ahead of underground mining operations at Busai and Kulumadau in the early 20th century. Kulumadau was the deepest underground mine in Papua New Guinea until the 1920's.

Three deposits, namely Kulumadau, Busai and Woodlark King (Boniavat), have undergone rigorous drill testing over a number of campaigns since the 1960s (~300,000 m), resulting in a combined JORC 2012 resource inventory of 47 Mt @ 1.04 g/t Au for 1.573 Million oz Au.

Busai and Kulumadau are both interpreted as structurally controlled epithermal gold deposits. The deposits show evidence of complex paragenetic assemblages and variable degrees of structural overprint. The main difference between the two deposits is the overwhelming amount of brecciation and cataclasis at Kulumadau as compared to Busai. Both deposits remain open at depth and along strike.

Due to the significant presence of post-mineralisation Kiriwina formation sediments masking much of the prospective geology, very little regional scale exploration exists.

The extensive resource drilling database, geophysical surveys and limited surface exploration all indicate the widespread occurrence of gold mineralisation well outside the defined resources. Major regional structures associated with known gold resources are evident on geophysical images and form the principal targets for exploration.

1.3.1 Exploration

Exploration on Woodlark has been ongoing semi continuously from the early 1960's, beginning with the Bureau of Mineral Resources (BMR) undertaking surface geochemistry, limited geophysics and diamond drilling at Kulumadau between 1962 and 1963. Subsequent explorers include BHP, Highlands Gold, Auridium, Misima Mines and Woodlark Mining (BDI Mining and Kula Gold Ltd).

Exploration has principally focussed on delineating resources at Kulumadau, Busai and Woodlark King. Regional exploration in the form of stream sediment sampling, soil sampling and geological mapping has largely been confined to outcropping regions of volcanic lithologies and limited in effectiveness due to the widespread young sediment cover. Much of this work was prospect-scale focused, with no comprehensive, island-wide exploration effort attempted.

Two aeromagnetic surveys were completed over the central portion of the island by BHP in 1989 and Kula Gold in 2014. Other geophysical surveys and remote sensing data capture included several campaigns of ground IP surveys over Kulumadau and Busai and a LiDAR topography survey over the granted Mining Lease and surrounding infrastructure routes.

Prior to Geopacific's commencement of operations in late 2016, a total of 2,087 drill holes for 262,840 m of drilling had been completed by previous explorers. Only a small proportion of drilling was completed outside the Busai and Kulumadau areas.

Geopacific's exploration efforts have focused on delineating Measured and Indicated Resources within conceptual pit outlines at the Busai and Kulumadau deposits. Two holes were also drilled at the Woodlark King deposit for validation and QAQC purposes. Up until December 2017, Geopacific completed 204 drill holes for 25,865 m of drilling (RC and diamond).

The exploration focus is moving to assess the numerous historical gold workings outside defined gold resources. An island-wide detailed geological mapping and geochemical sampling programme over exposed volcanic lithologies has commenced, representing the first attempt to systematically assess exposed prospective Okiduse volcanics geologically and geochemically. An assessment of the substantial depth extension opportunities below and along strike of defined resources will be ongoing, with obvious near-pit extensional targets highlighted for drilling.

1.4 Mineral Resources

MPR Geological Consultants Pty Ltd (MPR) were retained by Geopacific to estimate recoverable gold resources for a series of gold deposits at the Woodlark Project.

The Kulumadau and Busai deposits host the majority of the Mineral Resource estimated, with Woodlark King and Munasi contributing a much lesser amount.

Estimation of resources at Woodlark relies on sampling by Kula Gold Ltd, who managed the exploration activities at Woodlark between the years 2004 to 2014 and by Geopacific, who acquired exploration management rights in October 2016.

Geopacific has maintained a quality control protocol that allows routine monitoring of sampling precision and assay accuracy. Geopacific have also undertaken programmes of sampling and assaying to verify the historical sampling information. It was identified that the reliability of some early RC drilling results contained inaccuracies due to drilling and sampling methods employed at the time, resulting in all RC drill holes completed prior to 1996 being removed from the database. 13 twin holes and 11 replacement holes were drilled by Geopacific to verify or replace selected drill holes in the database to ensure accuracy of the dataset used in the resource estimations.

Recoverable resources at Woodlark have been estimated using the method of Multiple Indicator Kriging (MIK) with block support adjustment. Geological and oxidation domains were imposed to define domains of similar grade tenor and directional trends. The models estimate resources into panels with dimensions of 20 mE x 25 mN x 5 mRL. MIK of gold grades used indicator variography based on the resource sample grades, with continuity of gold grades characterised by indicator variograms at 14 indicator thresholds.

A block support adjustment, incorporating an adjustment for Information Effect, was used to estimate the recoverable gold resources assuming a selective mining unit of 4 mE x 8 mN x 2.5 mRL and grade control sampling at 5 mE x 10 mN x 1.5 mRL. The shape of the local block gold grade distribution has been assumed lognormal within each panel as estimated by Indicator Kriging.

In the MPR study, data viewing, compositing and wire-framing at Woodlark have been performed using Micromine software. Exploratory data analysis, variogram calculation and modelling, and resource estimation have been performed using FSSI Consultant (Australia) Pty Ltd GS3M software. GS3M is designed specifically for estimation of recoverable resources using MIK.

The recoverable resource estimates within each panel have been initially classified according to the distribution of sampling in the Kriging neighbourhood. This classification scheme takes into account the uncertainty in the estimates related to the proximity and spatial distribution of the informing sample composites. Table 1.4.1 presents the resource estimates for Woodlark. Resources are shown at a gold cut-off of 0.4 g/t Au that is applicable to the current costs and revenue of the open pit mining and milling operation proposed.

The estimates extend below topography and are constrained to an optimal open pit shell using a gold price of A$2,400 and costs that reflect a medium scale conventional open pit and milling operation. The model is regarded as sufficiently reliable to form the basis of an economic assessment of open pit mining.

Table 1.4.1 Woodlark Project JORC 2012 Resources 0.4 g/t Au cut off (pit constrained)

Kulumadau

Resource Category	Tonnes (Mt)	Grade (g/t Au)	Metal (Koz)
Measured	8.88	1.30	372
Indicated	8.54	1.10	303
Inferred	2.9	1.2	108
Total	**20.32**	**1.20**	**784**

Busai

Resource Category	Tonnes (Mt)	Grade (g/t Au)	Metal (Koz)
Measured	12.36	0.96	382
Indicated	7.16	0.84	193
Inferred	1.4	1.1	48
Total	**20.93**	**0.93**	**623**

Woodlark King

Resource Category	Tonnes (Mt)	Grade (g/t Au)	Metal (Koz)
Indicated	3.24	0.96	100
Inferred	0.2	1.1	9
Total	**3.49**	**0.97**	**109**

Munasi

Resource Category	Tonnes (Mt)	Grade (g/t Au)	Metal (Koz)
Inferred	2.3	0.8	58
Total	**2.3**	**0.8**	**58**

Total

Resource Category	Tonnes (Mt)	Grade (g/t Au)	Metal (Koz)
Measured	21.24	1.10	754
Indicated	18.94	0.98	597
Sub-total	40.18	1.05	1,351
Inferred	6.8	1.0	222
Total	**47.00**	**1.04**	**1,573**

* Rounding may result in minor discrepancies.

1.5 Mining

Mining Plus was engaged to complete the mining components of the DFS, including optimisation, design and scheduling and preparation of a detailed operating and capital cost estimate to enable the generation of an Ore Reserve.

The study has shown that the three mining areas can be developed in a practical sequence to mine 1.1 Moz of gold and provide sufficient feed to the processing plant for 13 years.

Table 1.5.1 summarises the main mining indicators for the study.

Table 1.5.1 Mining Summary

Description	Unit	Life of Mine
Waste Mined	Kt	149,189
Ore Mined	Kt	30,304
Grade	g/t Au	1.11
Contained Gold	oz Au	1,083,291
Strip Ratio	x	3.9
Average Mining Cost	A$/t mined	2.51

1.5.1 Pit Designs and Ore Reserve

The Ore Reserve was generated from the Mineral Resource Estimate produced by MPR Geological Consultants with the appropriate modifying factors applied for dilution. This Resource model was used in an open pit optimisation process to produce a range of pit shells using operating costs and other inputs derived from all previous studies and then verified as the DFS was finalised.

Geotechnical drilling and analysis was completed by Peter O'Bryan and Associates to DFS level. The resultant recommended design parameters were used to approximate the overall pit slope angles for the pit optimisation runs, and the final wall angles for the designs.

The optimisation resulted in four discrete pits, two at Woodlark King and one each at Busai and Kulumadau.

Individual designs were completed for each discrete area of Busai and Kulumadau, plus a number of starter pits were designed to allow reduced pre-strip durations and the early access to high grades ore.

The Ore Reserves are the Measured and Indicated resources mined and processed within the mine schedule that produce a positive economic outcome for the project. These Ore Reserves, at a 0.4 g/t cut off grade are summarised in Table 1.5.2.

Table 1.5.2 Ore Reserve Estimate

Deposit	Classification	Mt	Au (g/t)	Au (oz)
Busai	Proved	9.3	1.03	307,300
	Probable	4.3	0.87	120,900
Kulumadau	Proved	7.4	1.37	324,700
	Probable	5.2	1.17	196,900
Woodlark King	Proved	1.9	1.06	65,000
	Probable	0.8	0.84	22,800
Total	Proved	18.6	1.17	697,000
	Probable	10.4	1.02	340,600
Total		**28.9**	**1.12**	**1,037,600**

1.5.2 Mine Schedule

The mine schedule was developed to ensure 2.4 Mtpa of ore is available to feed the processing plant once commissioned.

The initial pre-strip period is 9 months and involves the stripping of 5.5 Mt from Stage 1 and Stage 2 pits at Kulumadau and the build-up of 450,000 tonnes of ore on the stockpile at 1.45 g/t Au.

The planned mining rates are maintained below 10 Mtpa for the first three years of mining and then rise to 20 Mtpa by the sixth year. These mining rates are driven by the tonnage and grade requirement to ensure that the mine plan achieves gold production levels in excess of 100,000 oz per year for as long as practical.

The mining period is expected to last approximately 9 years excluding pre-stripping operations, however there is an additional four years of low grade stockpile reclaim after mining has been completed. Over the mine life, nearly 150 Mt of rock is mined comprising 30 Mt of ore at an average strip ratio of 3.9:1 with the mining rate progressively increasing over the nine year period. A summary of the mine schedule is presented in Table 1.5.3.

Table 1.5.3 Mine Schedule Summary

Description	Unit	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Total
Ore Mined	Mt	0.5	3.0	3.8	3.9	4.7	2.9	2.5	2.9	3.9	2.2	-	-	-	-	30.3
	g/t	1.45	1.48	1.12	1.09	1.12	1.07	0.99	1.04	1.04	0.96	-	-	-	-	1.11
Waste Mined	Mt	5.1	7.6	10.0	11.0	14.1	16.5	17.6	17.4	13.7	5.9					118.9
Total Mined	Mt	5.5	10.6	13.8	14.9	18.9	19.4	20.1	20.3	17.6	8.1	-	-	-	-	149.2
Strip Ratio	t:t	11.3	2.5	2.6	2.8	3.0	5.6	7.0	6.1	3.5	2.7	-	-	-	-	3.9
Mill Feed	Mt	-	2.2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.7	30.3
	g/t	-	1.72	1.55	1.54	1.49	1.34	1.14	1.18	1.32	1.05	0.56	0.52	0.45	0.45	1.11
Production	k.oz	-	112	108	104	103	95	78	83	90	70	38	34	31	21	967

* Rounding may result in minor discrepancies in totals.

1.5.3 Mining Costs

A capital and operating cost estimate for the mining operations has been estimated from first principles using an owner mining scenario. The cost estimate includes the purchase, operation and maintenance of the mining equipment, the operational, maintenance and support personnel and the mining services costs.

The equipment operating costs have been built up utilising the expected machinery productivities and efficiencies along with the estimation of haulage distances and subsequent haulage times.

The majority of the equipment operating cost parameters were supplied by submissions from equipment suppliers while the remaining significant contributors, diesel and explosives costs, were provided by Geopacific after submissions from suitable suppliers.

The mining cost estimate, including pre-strip costs, is summarised in Table 1.5.4.

Table 1.5.4 Mining Operating Cost Estimate

Mining Costs	Total Mining Cost (A$)	Mining Cost per Tonne (A$)
Salaries and On-Costs	89,832,729	0.60
Equipment Ownership	39,735,366	0.27
Diesel	69,894,053	0.47
Equipment Maintenance	58,152,430	0.39
GET	5,621,747	0.04
Tyres	14,559,292	0.10
Explosives	74,607,181	0.50
Grade Control Drilling	21,498,079	0.14
Technical Services	1,263,185	0.01
Total	**375,164,061**	**2.51**

1.6 Metallurgical

Two sets of metallurgical and comminution testwork have been undertaken for the Woodlark Gold Project. The first set was historical testwork and the second set comprises the recent detailed metallurgical and comminution testwork programme to support the DFS.

The historical testwork consisted of four programmes conducted in 1992-93 (Amdel), 1996 (IML, AMMTEC and JKTech), 2010-2012 (Metcon) and early 2017 (IMO). Review of the historical testwork identified several areas that required further testing for a DFS. The DFS metallurgical testwork programme was carried out from October 2017 to June 2018 by ALS Perth under the direction of Lycopodium.

Samples for the DFS testwork programme were selected to represent the range of ore types from the two main Woodlark deposits – Kulumadau and Busai.

The selected metallurgical treatment route is based on the results of the DFS testwork programme and the relevant results from the historical programs.

The following conclusions can be drawn from the current and previous metallurgical and comminution testwork programmes:

- The Woodlark ores have a wide range of comminution parameters, but typically have moderate to high natural fracturing, low to medium competency, low resistance to impact breakage, moderate grinding energy requirements and low abrasion. A SAG and ball mill comminution circuit was selected to accommodate the wide spectrum of rock competencies.
- Gold leach extraction is relatively independent of grind size up to a maximum P_{80} of 106 µm. A grind size of P_{80} 106 µm was selected as optimum.
- The gravity gold component of the Kulumadau and Busai ores is high (>60%) and lower for the Woodlark King ore (15%). A gravity stage was included in the DFS testwork and a gravity circuit has been included in the process plant flowsheet.
- Leach kinetics are fast with all recoverable gold typically extracted from the gravity tails within eight hours with air sparging. If the gravity circuit is offline, all recoverable gold is extracted within 24 hours. A carbon in leach (CIL) circuit residence time of 24 hours has been included in the process plant flowsheet.
- Gold extraction for the Kulumadau and Woodlark King ore were typically high with gold extraction increasing as the ore gold head grade increased.
- Gold extraction varied for the Busai ores with gold extraction typically decreasing as the ore arsenic head grade increased.
- Silver extraction was moderate for all ore types and capacity has been allowed in the plant flowsheet for silver recovery.
- Some cyanide soluble copper is present in the Woodlark ores. A cold cyanide wash to assist in removing adsorbed copper from the loaded carbon has been included in the process plant flowsheet.
- Leach cyanide consumptions are low, and the required lime addition is low to moderate when using fresh water. Lime consumptions are significantly higher if sea water is used.

Variability metallurgical testwork results suggest that:

- For the Kulumadau and Woodlark King ore, the gold head grade and gold residue grades are moderately correlated and that a linear model to predict tailings grade based on head grade can be used to estimate gold recoveries over a range of head grades.

- For the Busai ore, the arsenic head grade and gold extraction are moderately correlated and that a linear model to predict tailings gold grade based on the arsenic head grade can be used to estimate gold recoveries over a range of arsenic head grades.

Average recoveries from the three mining areas are 92.0% from Kulumadau, 85.5% from Busai and 91.2% from Woodlark King.

1.7 Process Plant

The process plant design for the Woodlark Gold Project is based on a robust metallurgical flowsheet designed for optimum recovery with minimum operating costs. The flowsheet is based upon unit operations that are well proven in industry.

The treatment plant design incorporates the following unit process operations:

- Primary jaw crushing to produce a coarse crushed product.

- A SAB milling circuit comprising a SAG mill and a ball mill in closed circuit with hydrocyclones.

- Gravity gold recovery and treatment of concentrate by cyanidation and electrowinning.

- A CIL circuit to leach and adsorb gold and silver onto carbon.

- A pressure Zadra elution circuit, electrowinning and gold smelting to doré.

- Dewatering of CIL tails slurry.

- Tailings slurry pumping via overland pipe to a deep sea tailings placement facility.

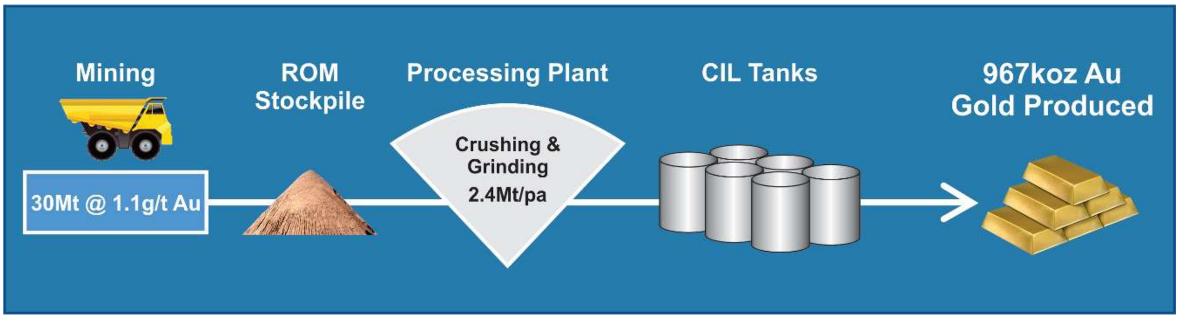
- The grinding circuit is fed directly from the primary crusher, i.e. there is no coarse ore stockpile or surge bin to decouple the grinding circuit and the crushing circuit. The plant utilisation factor has been set accordingly. An emergency feed hopper has been included to allow temporary feeding of the mill in the event of crusher downtime.

The plant design has been based on a nominal capacity of 2.4 Mtpa of the Woodlark ore type.

The civil, mechanical and electrical design of the plant facilities is based on industry standard practice and Lycopodium's extensive experience in gold plant design and project implementation.

A simplified flows diagram is shown in Figure 1.7.1

Figure 1.7.1 Simplified Flowsheet



1.7.1 Key Equipment Selection

The key criteria for equipment selection are the suitability for duty and the projected mine life of the operation without unnecessarily compromising reliability and ease of maintenance.

The SAG mill and ball mill sizes and installed power are reflective of several similar sized mills installed by Lycopodium in remote locations, which provides confidence in manufacturing and proven engineering.

The balance of equipment will be conventional and the nominated manufacturers have provided satisfactory service and performance in several successful Lycopodium projects of similar style, scope and scale.

1.7.2 Plant Location and Site Layout

The plant has been located in between the Kulumadau and Busai pits to minimise haul costs.

The location of the various plant facilities is reflective of the local topography whilst consideration has been given to site specific constraints, such as the location of the ROM pad, ore storage and waste rock dumps and the access roads.

The plant layout provides ease of access to all equipment for operating and maintenance requirements while maintaining a compact footprint to minimise construction costs.

The plant layout has allowed for possible future installation of pebble crushing.

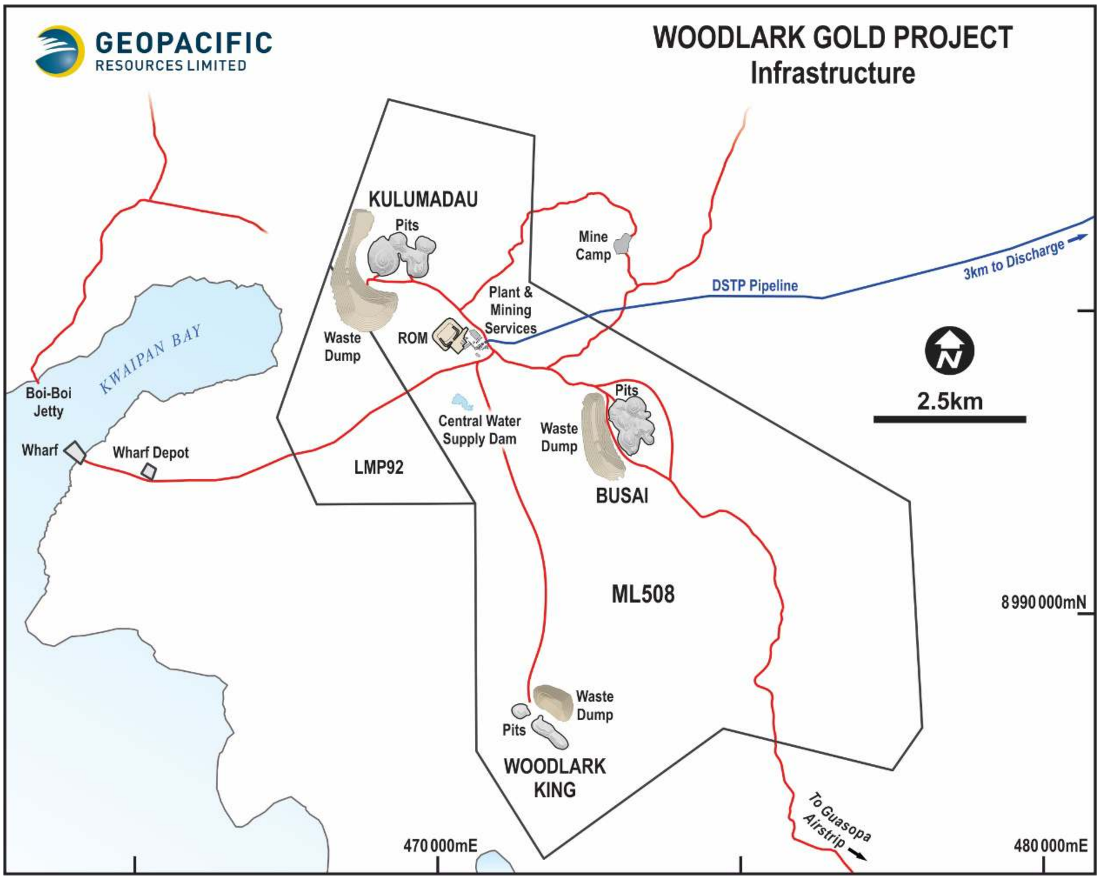
1.8 Infrastructure

The overall site development plan is shown in Figure 1.8.1. The major features of the Project and its infrastructure include a process plant, deep sea tailings placement (DSTP) system, accommodation camp, roads, airstrip, mine services area, mine open pit, water supply dam and mine waste dumps.

The process plant and mine services buildings are to be located approximately half way between the Kulumadau and Busai Mining areas. The camp will be located approximately 2.7 km to the north-east of the plant to enable easy access from the mine, and access from the airstrip and nearby villages without the need to pass through the mine site.

A new wharf is to be constructed with an onshore wharf depot approximately 7 km to the west of the plant site accessed by a newly constructed road across relatively flat terrain. The deep sea tailings placement (DSTP) discharge point and mixing tank is located approximately 12 km to the east of the plant site.

Figure 1.8.1 Overall Site Plan



1.8.1 Temporary Construction Camp

The existing exploration camp will be expanded to accommodate a forecast peak demand of 300 people, including 32 senior managers, 48 supervisors and 222 other workers.

1.8.2 Permanent Mine Camp

The permanent camp will be constructed, approximately 2.7 km to the north-east of the process plant. The camp will accommodate up to 300 workers and also provide meals for an additional 175 workers who reside in nearby villages outside of the Mining Lease area.

1.8.3 Roads

A number of new roads will be constructed including between the process plant and wharf depot, a causeway between the wharf and the wharf depot, an access/service road along the DSTP pipeline and various other site roads. Roads will be constructed depending on usage requirements.

1.8.4 Wharf and Wharf Depot

The majority of the freight for the project will be landed or despatched from a wharf to be constructed at Kwaiapan Bay. The wharf facility will consist of an unloading ramp for landing craft, a berthing facility and a heavy loading/unloading facility.

The wharf depot facility will be located approximately 1,000 m back from the shoreline to provide an area for freight laydown and fuel storage.

1.8.5 Power

The plant site-wide electrical power requirements for infrastructure, mining and processing were calculated on the basis of the equipment sizing presented in the mechanical equipment list and infrastructure list. The installed load and maximum demand for the site is shown Table 1.8.1. The maximum demand is calculated for a 30 minute window and represents the minimum supply capacity required for the site.

Table 1.8.1 Plant Power Demand

Area	Plant Installed Load	Plant Maximum Demand	Plant Average Continuous Load
Process Plant	13,645 kW	8,920 kW	8,101 kW
Infrastructure	3,518 kW	2,022 kW	691 kW
Totals	**17,163 kW**	**10,942 kW**	**8,792 kW**

Power will be provided by a site power station located to the west (downwind) of the process plant and will be owned and operated by an Independent Power Producer.

1.8.6 Mine Services Area

The mine services areas will be located adjacent to the process plant and will include various office and training rooms, park up areas, washdown and refuelling bays and other facilities.

1.8.7 Airstrip

A portion of the construction and operations personnel will be expatriates or PNG Nationals working on a fly-in, fly out basis. The existing airstrip at Guasopa is in good working order and will receive minor upgrades to accommodate larger commercial aircraft.

1.8.8 Explosives Storage and Handling

An ANFO (ammonium nitrate / fuel oil) storage site will be established by contract with a reputable supplier.

A high explosive magazine will be built and located separately. This will store high explosives and detonators and will include a blast berm and will be fully fenced.

1.8.9 Village Relocation

Geopacific has entered into an agreement to build new houses and supporting infrastructure (i.e. churches, schools etc.) and relocate all residents living within affected areas of the mining lease to agreed locations outside of the project area.

1.9 Tailings Disposal

Tailings are planned for disposal via a deep sea tailings placement (DSTP) system, designed based on a range of comprehensive environmental studies and impact assessment. DSTP provides an effective solution for tailings management and is the preferred option in high rainfall environments and in situations where there is a degree of seismic activity. The DSTP system, which has been assessed and approved by the Conservation and Environment Protection Authority in PNG, is located on the north eastern side of the island, with tailings to be directed to an offshore basin in excess of 3,500 m deep. The option of an onshore tailings management facility was assessed, but was deemed to be unfeasible due to the high rainfall environment and the risk of contaminant release to fresh water streams on the island, and the requirement for indefinite management post closure.

Lycopodium engaged subconsultant EBA Tetratech of Vancouver Canada, who have significant experience in designing DSTP systems in PNG and around the world, to undertake the DSTP design and capital cost estimate.

1.10 Water Management

1.10.1 Pit Dewatering

Removal of both groundwater and surface water from the pits will be via sump pumping methods. Suitable sized sumps will be constructed within the pits to contain runoff before it is removed. Water will be pumped to a number of locations.

Any excess water generation will pass though sediment control infrastructure (i.e. sediment trap, settling pond) prior to being discharged to the environment. The type of sediment control structure will be dependent on the level of sediment contained in the discharge and the overall flow rate.

1.10.2 Surface Water Management

Runoff from the waste dumps will flow into perimeter drains and be directed to sediment control structures before being discharged to the natural drainages.

Road drainage will be directed to channels running along the downstream edges. Water will be directed towards natural drainages with installed culverts draining any flow under the roadways.

Runoff from the process plant, stockpile and ROM areas will be directed through drains and bunds wherever possible to the primary water supply dam.

Both the temporary construction camp and the permanent camp will be located on elevated ridges and will not be affected by any major drainage lines.

1.10.3 Water Supply

A total site water use summary is provided in Table 1.10.1.

Table 1.10.1 Site Water Use Summary

	m^3/day	m^3/h	L/s
Water in Mill Feed	816	34	
Water in Plant Tailings	6,936	289	
Difference (water required into slurry)	6,120	255	
Raw water (reagents, gland) into plant (fresh water requirement)	1,344	56	16
Difference - raw water makeup (can be fresh or seawater)	4,776	199	55
Cooling water losses (fresh water only)	24	1	0
Plant dust suppression	0	0	0
Mine services and mine dust suppression (fresh water only)	240	10	3
Raw water for camp/potable water (fresh water only)	96	4	1
Total other (fresh or seawater) water requirement	**4,776**	**199**	**55**
Total fresh water requirement	**1,704**	**71**	**20**

A primary water supply dam will be constructed to the south west of the process plant location and will hold approximately 40,000 m^3, equivalent to six days of storage. Runoff from some parts of the process plant area will be redirected towards the water supply dam to supplement recharge from natural catchment and to also enable the dam to provide some sediment control.

It is anticipated that there will also be some water availability through pit dewatering activities (surface water and groundwater). During the first three years of operation a water storage pond will be constructed within the Kulumadau waste dump footprint to capture some runoff from the waste dump and the upstream area between the waste dump and the pits, and to receive dewatering yield.

A seawater supply line, capable of supplying up to 60 L/s for the plant, will be established from Kwaiapan Bay to provide back-up supply when required.

Potable supply will come from the integrated water supply system and treated via a centralised potable water treatment system.

1.11 Environment and Social Impact

Environmental approval (Permit No. WD-L3(388)) for the Woodlark Gold project was granted in February 2014 by the Department of Environment and Conservation (now the Conservation and Environment Protection Agency - CEPA), with the Environment Permit coming into force on 15 March 2014 with a validity of 20 years (expires March 2034).

An Environmental Impact Statement (EIS) was completed to meet the requirements of PNG regulations under the Environment Act 2000. This included completion of an Environmental Inception Report (equivalent to a Scoping Study) and an Environmental Impact Statement (equivalent of a full Environmental and Social Impact Assessment - ESIA) underpinned by extensive studies completed by technical subject matter experts.

1.11.1 Environmental and Social Management System

An Environmental and Social Management System (ESMS) has been developed and is being implemented to ensure rigour around policies, procedures, data management and storage, regulatory requirements and training and inductions. The ESMS has been developed in such a way to enable it to evolve during the various project stages and to ensure a process of continuous improvement.

1.11.2 Environmental Monitoring and Management Plan

An Environmental Monitoring and Management Plan (EMMP) was developed by Coffey Environments as required by both the Environment Permit, and the Environment Act 2000.

1.11.3 Mine Closure

The Company is committed to managing all phases of the Project in accordance with best practice environmental management such that the medium and long term social and environmental impacts are minimised. A conceptual closure plan (incorporating decommissioning) has been prepared and presented in the EIS. Where appropriate, progressive rehabilitation will be undertaken during the life of the project and will close / decommission the project with the objectives of removing public safety hazards, and providing a post mining land use compatible with the prevailing beneficial land-uses of the area. The rehabilitation plan will encompass potential end-land use, rehabilitation principles, land rehabilitation methods, post monitoring and management techniques. The closure / decommissioning plan includes the environmental objectives and a provisional plan for rehabilitation and site closure.

1.11.4 Equator Principles Assessment

The Equator Principles is a 'risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects'. The principles state that impacts to project affected communities and environments are avoided where possible, and where impacts are unavoidable, that they should be 'minimised, mitigated and/or offset'. A detailed gap analysis has been undertaken of the work completed to date against the requirements of the Equator Principles and is detailed in Section 11. In general, the work completed to date meets the requirements of the Equator Principles, with other Principles becoming relevant over time as the project progresses.

1.12 Project Implementation

The DFS was prepared using an Engineering, Procurement and Construction Management (EPCM) strategy for the purposes of determining capital costs. It is the intention that the project will be implemented using an Engineering, Procurement and Construction (EPC) strategy to ensure project delivery guarantees.

A Front End Engineering Design (FEED) phase is proposed to reduce the Project Schedule.

A preliminary schedule shows the Project can be executed within 22 months from EPCM award. Key project milestone dates are provided in Table 1.12.1.

Table 1.12.1 Key Project Activities

Item	Activity Completion (Weeks After EPCM Award)	Activity Completion (Months After EPCM Award)
Feed Engineering Award	-19	-4.4
EPCM Award	0	0.0
Kick Off	1	0.2
Award SAG & Ball Mill Supply	4	1.0
Complete Procurement and Contracts	40	9.1
Engineering and Drafting Complete	44	10.1
Plant Commissioning Commence	84	19.4
First Ore To Crusher (Crush to Stockpile)	70	16.2
First Ore To Mill (Continuous Feed)	84	19.4
Practical Completion	85	19.6
First Gold	89	20.6
Completion & Demobilisation Complete (Inc. Performance Testing)	94	21.7

1.13 Operations

The entire operations workforce will be under the control of a General Manager who will be supported by six main departments each with a manager heading the department; namely mining, processing, maintenance, administration, environment & community relations and health, safety & security. In addition, the Power Plant Provider will report directly to the General Manager.

Personnel required for key mine operations roles will be recruited early to contribute to mine design and manage the mining pre-strip operations.

Geopacific is committed to providing training and employment opportunities to Woodlark Islanders, based on identifying individuals with the necessary qualifications, experience and skills. It is anticipated, however, that expatriate staff will fill a number of senior management, key supervisory and training roles. A succession plan will be developed to transition locals and nationals into roles initially filled by expatriates where possible.

The company will recruit its national workforce under a preferential hiring policy in the following order:

- Mining Lease landowners.
- Other Woodlark Islanders.
- Residents of Milne Bay Province.
- Other PNG residents.

It is recognised that the site is remote from the main population areas. An allowance has been made to employ senior PNG nationals on a 'fly in, fly out' basis.

1.13.1 Ramp Up and Production

Mining and processing plant ramp up and production estimates have been prepared to facilitate the development of a financial cash flow model and thus more accurately determine the timing of likely expenditure and revenue streams.

The mining team will be mobilised during the construction phase to allow establishment of the mine services area, development of haul roads, mine pre-strip, building of an initial ROM stockpile and other mining infrastructure.

The plant ramp up schedule has been developed to reflect the simple, robust flowsheet of the processing facility, using ramp up data from similar regional operations as a basis. It is estimated that nameplate plant ore throughput will be achieved in the fourth month after ore is first introduced to the circuit.

Mine pre-strip will commence nine months prior to the commencement of operations.

1.14 Operating Cost Estimate

The overall Woodlark life of mine (LOM) processing and administration operating cost estimate is summarised in Table 1.14.1.

This operating cost has been generated by the financial model using the mine schedules and costs developed by Mining Plus, the plant feed schedule developed by Mining Plus and the administration, processing and infrastructure costs developed by Lycopodium and Geopacific.

Table 1.14.1 Overall LOM processing and administration Operating Cost Estimate (±15%)

Processing & Admin Operating Costs	LOM Unit Cost A$/t processed	Gross LOM Cost A$M
Power	7.16	217.0
Consumables	3.30	100.1
Maintenance	1.05	31.9
Laboratory	0.11	3.2
Process & Maintenance	2.15	65.1
Total Processing	**13.77**	**417.3**
Infrastructure Power	0.87	26.3
Admin Labour	2.18	66.0
General & Admin	1.43	43.3
Total G&A	**4.47**	**135.6**

The costs presented in Table 1.14.1 do not include the mining costs – these are presented in Section 1.5 and 1.16.

The operating costs include the contract costs for the assay laboratory and the power station.

1.15 Capital Cost Estimate

The overall project capital cost estimate was compiled by Lycopodium from inputs developed by Lycopodium, Tetratech, Mincore, Mining Plus and Geopacific.

The estimate of initial capital cost is summarised in Table 1.15.1.

Table 1.15.1 Capital Cost Estimate Summary (±15%)

Main Area	A$'000
000 Construction Distributables	18,115
100 Treatment Plant Costs	46,425
200 Reagents and Plant Services	9,068
300 Infrastructure	27,018
400 Mining	18,801
500 Management Costs	16,878
600 Owner's Project Costs	26,960
700 Owner's Operation Costs - Mining Pre-strip	13,098
700 Owner's Operation Costs - Working Capital	7,676
Subtotal	**184,039**
Contingency	13,800
Taxes & Duties	646
Escalation	Excl.
Grand Total	**198,485**

The power station will be built and run by a contractor. The capital costs include an establishment fee for the power station.

The following exchange rates have been used in the compilation of the estimate:

- A$1.00 = $1.32 USD (United States Dollar).
- A$1.00 = €1.55 EUR (Euro).
- A$1.00 = £1.77 GBP (British Pound).
- A$1.00 = R0.099 ZAR (South African Rand).
- A$1.00 = K2.44 PGK (Papua New Guinea Kina).

Foreign currency exposure is shown in Table 1.15.2 below.

Table 1.15.2 Foreign Currency Exposure

Currency	Percentage of Capital Estimate
AUD	59%
PGK	23%
USD	17%
EUR	<1%
ZAR	<1%

1.16 Financial Model

The financial analysis assesses the economic viability and performance of the Project pursuant to the assumptions and results of the Study. The analysis has been performed on a project basis and prepared in Australian Dollars (A$) on an ungeared basis. All site related costs, royalties, income taxes and sustaining capital expenditure have been included.

The results of the financial model include the pre and post-tax project cash flows along with the unit costs per ounce of gold sold, including C1 cash costs and all-in-sustaining costs. Various measures of project value have also been calculated including the payback period, net present value of cashflows (NPV) and internal rate of return (IRR). A sensitivity analysis was performed to demonstrate the effect of variations in key parameters on the economic returns from the project.

The key assumptions for the financial model are listed in Table 1.16.1.

Table 1.16.1 Key Financial Assumptions

Item	Unit	Value
Gold price	A$/oz	1,650
Diesel price	A$/L	0.90
Foreign exchange rate	US$/A$	0.75
Foreign exchange rate	PGK/A$	2.44
Royalty	% of revenue *(net of refining costs)*	2.25
Tax losses *Allowable Exploration Expenditure (AEE) and Allowable Capital Expenditure (ACE)*	PGK	165,201,647 *(before pre-productions costs and capital expenditure)*

1.16.1 Unit Costs – Cash Costs (C1) and All-in Sustaining Costs (AISC)

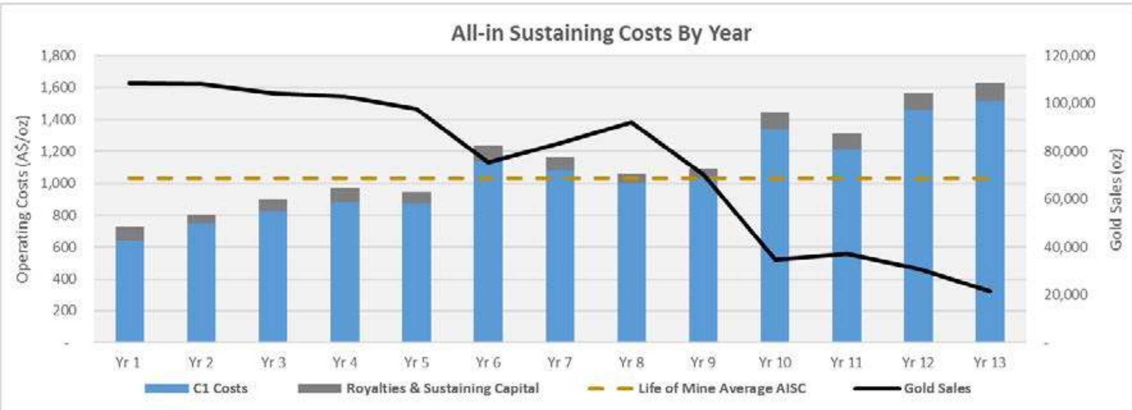
Over the life of mine, the weighted average AISC are estimated at A$1,033/oz Au with a weighted average of A$866/oz Au for the first five years of production. The life of mine breakdown of C1 and AISC by cost category are shown in Figure 1.16.1.

Figure 1.16.1 Unit Costs – Life of Mine Summary

Metric	Unit	Life of Mine Summary
UNIT COSTS		
Mining	A$/oz	374
Processing	A$/oz	431
General and Admin	A$/oz	140
Refining Costs	A$/oz	6
Total C1 Costs	A$/oz	952
		-
Royalties	A$/oz	37
Sustaining Capital	A$/oz	18
Corporate Overheads	A$/oz	26
Total AISC	A$/oz	1,033

The unit costs are inversely correlated to gold sales and range from A$726/oz Au in Year 1 of production when gold sales peak at 109k oz. The breakdown of C1 and AISC by year is shown in Figure 1.16.2.

Figure 1.16.2 Unit Costs – Life of Mine Summary



1.16.2 Cashflow

The estimated ungeared post-tax cashflow of the Project is A$343M, a breakdown of which is shown in Figure 1.16.3.

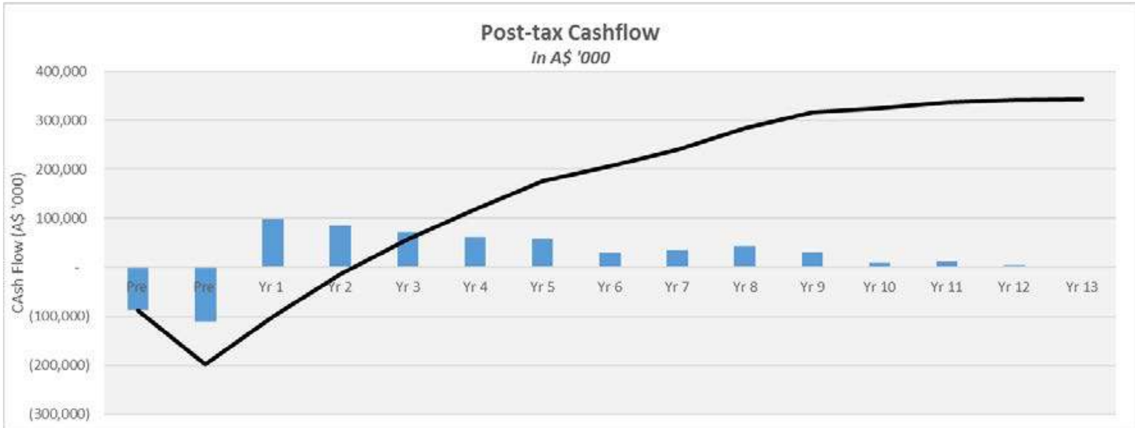
Figure 1.16.3 Life of Mine - Post-tax Project Cashflow (ungeared)

Metric	Unit	Life of Mine Summary
Post-tax Cash Flow		
Free Cashflow (Pre-tax)	A$ '000	423,553
Income Tax	A$ '000	(80,307)
Free Cashflow (Post-tax)	A$ '000	343,246

The financial model demonstrates the cashflow from the Project is strongest in the initial years of production which is a function of the mine scheduling to maximise revenue in the early years. This not only provides optimal project payback but also acts as a measure to de-risk the project.

The Project cashflow by year is outlined in Figure 1.16.4.

Figure 1.16.4 Post-tax Project Cashflow by Year (ungeared)



1.16.3 Discounted Cash Flow

The net cashflows have been discounted at 8% to calculate a net present value (NPV) of post-tax cashflows of A$197M. The pre and post-tax NPV's are displayed in Figure 1.16.5.

Figure 1.16.5 Pre and Post-tax NPV

Metric	Unit	Life of Mine Summary
NPV (pre-tax cash flows)	A$ '000	**250,938**
NPV (post-tax cash flows)	A$ '000	**197,380**

1.16.4 Internal Rate of Return (IRR)

The net cashflows have been applied to calculate the IRR of the Project. The pre and post-tax IRR's are displayed in Figure 1.16.6.

Figure 1.16.6 Pre and Post-tax IRR

Metric	Unit	Life of Mine Summary
IRR (pre-tax)	%	33%
IRR (post-tax)	%	29%

1.16.5 Project Payback Period

The net cashflows have been applied to calculate the Project Payback Period. The pre and post-tax Project Payback Periods are displayed in Figure 1.16.7.

Figure 1.16.7 Pre and Post-tax Project Payback Period

Metric	Unit	Life of Mine Summary
Project Payback (pre-tax)	months	24
Project Payback (pre-tax)	years	2.0
Project Payback (post-tax)	months	26
Project Payback (post-tax)	years	2.2

1.17 Risks and Opportunities

1.17.1 Significant Risks

Geopacific have developed a detailed register of risks using a structured risk management framework. The risk register lists and assesses all identified risks for both the construction and operational phases of the project. Several key project risk areas have been identified, and mitigation actions developed for both construction and operational phases of the project. Key project risk areas include:

- health, safety and security
- supply chain, including transport and logistics
- environmental and social impact
- human resources
- commercial

- sovereign and regulatory
- geotechnical drilling requirements
- communications
- technical risks associated with construction, mining, mine planning and mineral processing.

Mitigation measures have been developed and these are presented in Section 17.

1.17.2 Opportunities

Project opportunities associated with the plant and infrastructure include the following:

- Engage a mining contractor to reduce upfront capital requirements.
- Increase of the resource grade from new higher grade discoveries.
- Resource growth from further exploration in the highly prospective areas contained within existing exploration leases.
- Pit optimisations with the improved operating costs may provide further project upside.
- Potential conservative estimation of dilution may result in higher than anticipated operational grade.
- Potential to reduce construction time.
- Drilling and blasting of the Kiriwina formation (coronus) was included in the mine schedule, however this may not be required for this unit. There is the potential to reduce the powder factors, or eliminate blasting as the pit develops and experience is gained in mining this material.
- Implement an early works program to reduce Project Execution Schedule.
- Implement an EPC contract (in preference to the EPCM contract).
- Self-perform construction of buildings.
- Self-perform bulk earthworks by utilising the mining fleet.
- Utilise pre-cast concrete components.
- Use of financial instruments to mitigate financial risk.