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# Tongo Ore Reserve Estimate and FEED Study Outcomes

Newfield Resources Limited (**Newfield**) is pleased to announce the initial Ore Reserve estimate and key results from the recently completed Front-End Engineering Design (**FEED**) Study on its Tongo Mine development in Sierra Leone.

Included in this important announcement are the following key sections:

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### For further details please contact:

Anthony Ho Executive Director Newfield Resources Limited



ASX Announcement 9 May 2019

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# Highlights

9 May 2019

- Initial Probable Reserve of 1.1 Mcts from shallow zones of Kundu and Lando kimberlites
- Reserve model forecasts:
  - o Initial 8-year life with peak annual diamond production of 260,000 carats
  - Average realised price of US\$222/ct and forecast unit opex of US\$115/ct (both real basis)
  - FEED Study conducted to +/- 10% confidence limits on capex and opex
  - First diamonds within 12 months of Final Investment Decision (FID)
  - Forecast positive free cashflow from 4Q Year 2
- High life extension and expansion potential targeted to be realised from infill drill program to upgrade Inferred Resources at Kundu, Lando and Tongo D-1 (5.3 Mcts total, +1.0mm cut-off)
- Targeted exploration across 7 other kimberlites not currently at resource status







**ASX Announcement** 



#### Newfield Executive Director, Karl Smithson, commented:

"The Newfield team is delighted to announce the completion of the Tongo Mine development FEED Study. The FEED work has definitively shown that Tongo is a technically robust and strongly economic development.

"The very high-grade and high-value diamonds of the Tongo kimberlites, combined with the considerable process and support infrastructure already on site, are key drivers of the strong forecast margins and short lead time to first diamond production. The Newfield team is confident that Tongo is a generational project. This dynamic is expected to be demonstrated via further investment in infill drilling, planned to be concurrent with project construction, in order to upgrade large-scale Inferred Resources to Indicated status, with targeted eventual conversion of that material to Ore Reserves.

"We strongly believe in the potential of the Tongo Mine development to concurrently deliver sustainable economic and social benefits to our local communities, and the broader populace of Sierra Leone. Development of the box cut for the underground portal entrance and decline has already commenced. We look forward to providing further updates as we progress towards targeted project funding and FID in the second half of 2019."

#### **Reasonable Basis for Forward-Looking Statements**

This ASX release contains forward-looking statements. Newfield has concluded that it has a reasonable basis for providing the forward-looking statements, including the production target and forecast financial information, included in this release. This includes a reasonable basis to expect that it will be able to fund the development of the Tongo Mine development as required. The detailed reasons for these conclusions are outlined throughout this release (including Section 15), the attaching *FEED Study Executive Summary*, the attaching *Ore Reserves Report Summary* and *Appendix A* (Section 4 of JORC Table 1).

The Ore Reserves underpinning the production target and forecast financial information in this ASX release have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules.

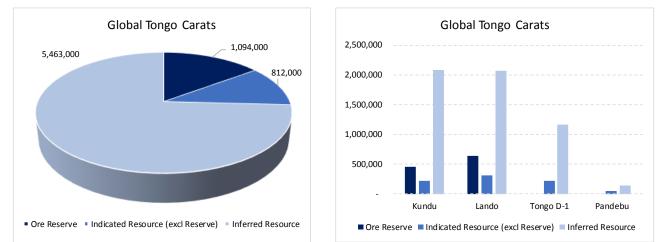
#### 1. FEED Study Overview

The FEED Study on the Tongo Mine development was commissioned by Newfield following its acquisition of Stellar Diamonds plc in early 2018. The FEED Study was completed by Paradigm Project Management (PPM) in April 2019. Other key contributors to components of the FEED Study include: MPH Consulting, Z-Star Mineral Resource Consultants, SRK Consulting and Datamine.

Alongside the FEED Study, an initial Ore Reserve estimate was undertaken for the Indicated Resource portions of the Kundu and Lando kimberlite dykes within the Tongo Mine development (these total approx. 1.6 Mcts, +1.0mm cut-off; see Table 1 for further detail in relation to all references to Tongo resource inventory). These dykes are the first kimberlites targeted for commercial production and their Indicated Resource portions are at the shallower levels of the dykes. The considerable body of Inferred Resources at the Kundu, Lando and Tongo Dyke-1 kimberlites (totalling approx. 5.3 Mcts, +1.0mm cut-off) is incapable of evaluation as Ore Reserves at this point due to its lower level of resource classification.



Concurrently with planned project construction, Newfield intends to embark on a drilling and sampling program in order to upgrade a substantial proportion of the Inferred Resources (mostly delineated at depths greater than approximately 100 metres below surface) to Indicated status, with targeted eventual conversion of this material to Ore Reserves.



#### Figure 1: Global Tongo carat classification (Reserves at +1.18mm cut-off, Resources at +1.00mm)

For internal planning purposes, the FEED Study produced a detailed life-of-mine schedule comprising Ore Reserves, Indicated Mineral Resources not yet considered for conversion to Ore Reserves, and Inferred Mineral Resources, together comprising the global resource inventory of the Kundu, Lando and Tongo Dyke-1 kimberlites. Within this schedule, Ore Reserves are naturally at shallower depths and expected to be mined preferentially in earlier years of the schedule.

In accordance with the current regulatory framework, this release outlines a life-of-mine schedule, production forecasts, and capital and operating cost estimates restricted to solely Ore Reserves. Newfield confirms that the technical and economic viability of the Tongo Mine development is based solely on Ore Reserves. However, naturally Newfield has also considered the potentially substantially expanded and extended project opportunity that targeted eventual upgrade and conversion of Inferred Resources could present.

#### 2. Licence and Tenure

Sierra Diamonds Limited, a wholly owned subsidiary of Newfield, holds a 25-year mining licence (ML02/18) and economic rights to the 25-year mining licence (ML02/12) held by Tonguma Limited via a Tribute Mining and Revenue Sharing Agreement. These licences, which can be renewed for a further 15 years, cover an area of 134km<sup>2</sup> over the renowned Tongo diamond fields in south-eastern Sierra Leone.



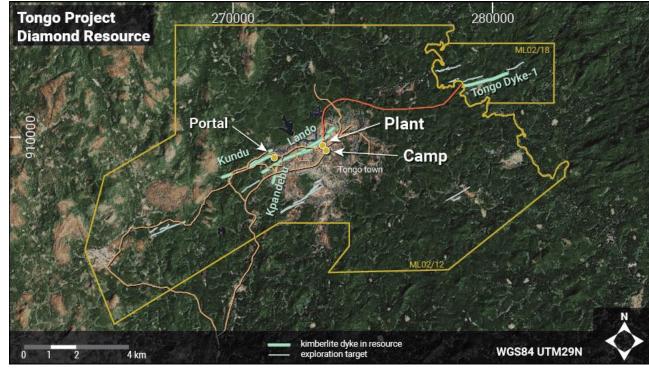


Figure 2: Tongo Mine development map

Newfield has full management and operating control of the combined Tongo Mine development, subject to the following conditions and obligations:

- i. Newfield is responsible for 100% of the development costs, and all annual payments due to the Government and local stakeholders associated with the Tonguma and Tongo Licences;
- Newfield has the right to preferentially recoup its initial investment (development capital), provided
   Octéa Mining Limited (**Octéa**) recoups US\$5 million on a pro-rata basis over the same period;
- iii. Once Newfield and Octéa have recouped these amounts, Octéa has the right to a 10% gross royalty on diamond sales for the life of mine, post payment of the Government of Sierra Leone export royalty of 6.5%;
- iv. Octéa also has the right to a one-time bullet payment of US\$5.5 million, to be paid five years after the mine development commences; and
- v. Newfield retains the right of first refusal over the Tonguma Licence.

#### 3. Mineral Resource Estimate

MPH Consulting and Z-Star completed an updated Mineral Resource estimate for the Tongo Mine development in November 2018. This estimate was based on 10,792 metres of detailed mine development



drilling undertaken in 2018 and updated wireframe and geological models based on recent and historical drilling data (75,000m in total).

The updated estimate totalled 7.4 Mcts of Indicated and Inferred diamond resources at a +1.0mm cut-off and has previously been announced (refer Newfield ASX release dated 26 November 2018, 7.4 *Million Carats Resource for the Tongo Diamond Project*).

Kimberlite	Resource Category	Tonnes Kimberlite	+1.0mm Grade (cpt)	Total Carats	Diamond Value (US\$/ct)
Kundu	Indicated	200,000	3.4	680,000	194
Kundu	Inferred	650,000	3.2	2,080,000	194
Kundu	Total	850,000	3.2	2,760,000	
Lando	Indicated	320,000	3.0	954,000	194
Lando	Inferred	740,000	2.8	2,072,000	194
Lando	Total	1,060,000	2.9	3,026,000	
Pandebu	Indicated	60,000	0.8	48,000	182
Pandebu	Inferred	110,000	1.3	143,000	182
Pandebu	Total	170,000	1.1	191,000	
Tongo D-1	Indicated	160,000	1.4	224,000	187
Tongo D-1	Inferred	730,000	1.6	1,168,000	187
Tongo D-1	Total	890,000	1.5	1,392,000	
TOTAL	IND. & INF.	2,970,000		7,369,000	

Table 1: Mineral Resource estimate

Further details of this updated Mineral Resource estimate are also provided in the attaching *FEED Study Executive Summary*. Aside from the partial conversion of Indicated Resource to Probable Reserve as set out in this release and accompanying JORC Table 1, Newfield confirms that there are no material changes to the Mineral Resource estimate announced on 26 November 2018 and that the material assumptions underpinning this Mineral Resource estimate continue to apply.



Figure 3: Tongo rough diamond export parcels (recovered from processing of stockpiled bulk sample material from Kundu, Lando and Pandebu in 2018; see Newfield ASX release dated 15 January 2019)<sup>1</sup>



#### 4. Ore Reserve Estimate

An initial Probable Ore Reserve estimate of 1.1 Mcts (+1.18 mm cut-off) has been declared for the Kundu and Lando dykes. This estimate has been based on material classified as Indicated Mineral Resources with dilution and mining losses applied. Consideration of all JORC modifying factors supported the declaration of an Ore Reserve estimate.

Kimberlite dyke	Classification	Tonnes (Mt)	Diluted grade (cpt)	Carats (Mcts)	Diamond value (US\$/ct)
Kundu	Probable	0.496	0.92	0.457	222
Lando	Probable	0.589	1.08	0.637	222
TOTAL	PROBABLE	1.085	1.00	1.093	222

Notes: All Ore Reserve estimates are reported on a 100% basis and assume extraction by underground mining methods. The reference point for the definition of Ore Reserves is at point of delivery to the process plant.

Further key detail in relation to the basis for the Ore Reserve estimate declared over the Kundu and Lando dykes is contained in the attaching *Ore Reserves Report Summary*.

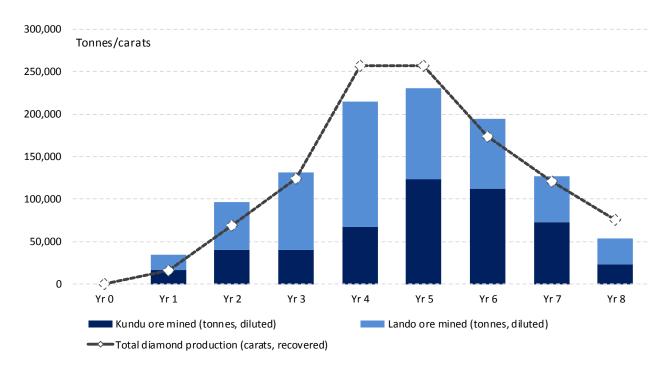
<sup>&</sup>lt;sup>1</sup> The Company is not aware of any new material information that affects the information reported in the Newfield ASX release of 15 January 2019.



#### 5. Mine Access, Method and Schedule

Detailed mine planning and scheduling has been completed for the Tongo Mine development. Mining is planned to be exclusively underground with access to the Kundu and Lando kimberlites being from a single portal entrance located approximately midway between the two kimberlites.

The selected mining method is traditional shrinkage stoping (with an 85cm mining stope width). This method has been commonly used in similar kimberlite dyke mining operations in South Africa. Forecast diluted, recovered diamond grades average 1.0 cpt across the initial 8-year Reserves-only life-of-mine.



#### Figure 4: Summary mining schedule (Ore Reserves only)

First production diamonds from Kundu and Lando are scheduled to be realised within 12 months of the decline development commencing. The Reserves-only life-of-mine schedule sees a progressive build of annual diamond production volumes as increasing numbers of mining faces are opened along strike and at depth. Total ore mined and processed is 1.1 Mt and total diamond production is forecast at 1.1 Mcts (Kundu 0.46 Mcts and Lando 0.64 Mcts). Peak annual production of approximately 260,000 carats is achieved in Year 5.

Newfield plans to undertake significant further investment in infill drilling of the lower zones of Inferred Resources at both Kundu and Lando. As outlined in Section 13 of this release, this infill program is targeted at significantly expanding peak diamond production rates, and substantially extending the current operating life, of the Reserves-only life-of-mine schedule shown in Figure 4.



#### 6. Process Recovery

A new configuration has been designed for the 50tph production plant that was relocated from Koidu to Tongo in 2018. It utilises the basic structures of the plant, with completely new designs for the scrubbing and screening, final recovery and sort house. The head feed capacity of the plant will remain at 50tph with the top cut-off size established at 25mm, and a bottom cut-off equivalent of 1.2mm.

The 50tph plant is scheduled to operate for 24 hours per day at an 85% utilisation rate. This is sufficient to treat the ramped-up ore throughput from Kundu and Lando, with considerable additional excess capacity.

Study work is also underway in relation to process capacity expansion and optimisation. This is aimed at matching any substantial expansion in future mine production rates, particularly should Tongo D-1 be concurrently mined with Kundu and Lando.

#### 7. Infrastructure and Mining Fleet

The philosophy adopted for the Tongo Mine development is based on the universal "fit for purpose" approach whereby existing buildings, workshops, stores and other constructions are used or upgraded. The vast majority of the infrastructure is planned to be built in-house by Newfield.

Construction of some of the camp and office buildings has been completed and others are ongoing. The portal and plant civils have not yet commenced. Accommodation for up to 80 senior and middle management staff is planned on site, with the remainder of the work force being housed in the wider Tongo community area.

Tenders have been gathered for diesel power generation facilities on a lease basis. This limited the upfront power-related capital estimate to approximately US\$2.0 million. The power usage is calculated based on a gradual roll out of generators as the Tongo Mine develops; Year 1 requires only 80kW, which increases to 600kW in Year 2, 1,021kw in Year 3, and peaks as deeper levels of the mine are exploited.

The main mining equipment for the decline development will comprise two each of the following: 15t haul truck, jumbo rig rock drill and underground LHD loader. The rest of the underground mining equipment is of the standard specification typically seen in the majority of underground mines.

#### 8. Environmental and Social

Both mining licences have valid Environmental Impact Assessments and Environmental Licences in place and approved by the Environmental Protection Agency. All fees and statutory reporting are up to date.

A Community Development Agreement has been negotiated between the host communities and Newfield. This document is currently being drafted. It will be legally binding and determine the level of corporate social investment in local community infrastructure and other development that will endure for the life-of-mine. Surface rental fees are paid to the host communities according to a legally binding agreement between the host communities and Newfield.



#### 9. Capital Expenditure Estimates

The capital expenditure estimates have been forecast to a +/- 10% level of detail, with a further contingency of up to 10% applied in certain areas.

The total capital expenditure estimate (+/- 10%) for the first three years of development of the Kundu and Lando kimberlites under the Reserves-only schedule is US\$29.4 million (upfront capital expenditure, nominal basis). The major items in this forecast comprise: portal infrastructure and decline development (US\$5.3 million), level development and ventilation (US\$7.8 million), process plant refurbishment (US\$5.1 million), power supply (US\$2.0 million), general infrastructure (US\$3.8 million) and mining licence fees (US\$2.2 million). On a pre-tax, pre-Octea royalties basis, the Tongo Mine development is forecast to become free cashflow positive during 4Q Year 2.

#### Table 3: Forecast upfront capital expenditure (Years 0-2, nominal basis)

Upfront capital expenditure (nominal)	US\$M
Portal infrastructure and decline development	5.3
Level development and ventilation	7.8
Process plant refurbishment	5.1
Power supply	2.0
General infrastructure	3.8
Mining licence fees	2.2
Other	3.2
Total	29.4

The residual escalated capital for the Tongo Mine development post Year 2 (inclusive of ongoing decline and level development for Kundu and Lando) is estimated at US\$23.3 million (nominal basis), which includes all sustaining and major replacement capital. It is expected that all residual capital will be funded out of forecast project cashflow.

#### 10. Operating Cost Estimates

The operating cost estimates have been forecast to a +/- 10% level of detail.

Based on a total life-of-mine forecast operating cost of US\$137 million (nominal) and total diluted ore processed of 1.09 million tonnes (Reserves-only schedule), an average operating cost of US\$127 per tonne of ore is established (real basis US\$116/t). This equates to approximately US\$126 per carat produced (real basis US\$115/ct).



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	11. Financial A
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	Summary finance basis, the Tongo (pre-Octea royal Value (NPV) at The equivalent In
$(\bigcirc)$	Table 5: Summa
	Forecast financia
$\bigcirc$	Total gross revenu
	Total operating cos
	Upfront capital cos

#### Table 4: Forecast life-of-mine operating costs (pre-Octea royalties, nominal basis)

LOM operating cost forecast (nominal) US\$M US\$/t diluted ore US\$/ct 20.6 19.0 18.8 25.5 23.5 23.4 er 42.3 39.0 38.7 (port royalty (6.5%) 15.8 14.5 14.4 3.3 3.6 3.4 ŋg 17.7 16.3 16.2 125.5 115.7 114.8

ast optimum production years (Year 3 to Year 7; Reserves-only schedule) the escalated unit anges between US\$111 and US\$135 per tonne of ore (real basis US\$96 to US\$117 per er carat basis over the same period the unit cost ranges between US\$89 and US\$141 per US\$83 to US\$123 per carat).

#### nalysis

cial model for the Tongo Mine development has been constructed on a nominal basis with nine diamond prices and all capital and operating cost estimates escalated at 2% per annum. e diamond price estimates of US\$222 per carat for Kundu/Lando and US\$220 per carat for vere derived from the detailed recovered resource work by MPH Consulting and Z-Star.

cial analysis based on solely Ore Reserves is outlined in Table 5. On this Reserves-only Mine development is forecast to generate total free cashflow of approximately US\$77 million Ities and tax, ungeared, nominal basis). On a Reserves-only basis the ungeared Net Present a 10% nominal discount rate is approximately US\$33 million (pre-Octea royalties and tax). nternal Rate of Return (IRR) is approximately 30%.

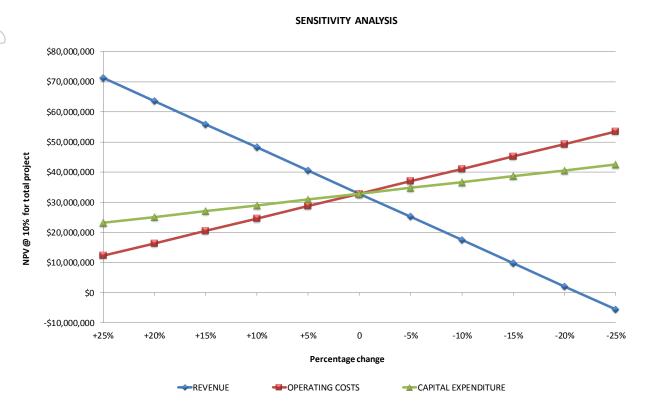
Table 5: Summary financials	(Reserves-only, ungeared	, pre-Octea royalties and tax,	, nominal basis)
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Forecast financial information (Reserves only)	Units	Result
Total gross revenue	US\$M	267
Total operating costs	US\$M	(137)
Upfront capital costs	US\$M	(29)
Residual LOM capital costs	US\$M	(23)
Total free cashflow	US\$M	77
NPV (10% dr, ungeared, pre-Octea royalties and tax)	US\$M	33
IRR (ungeared, pre-Octea royalties and tax)	%	30

The sensitivity of the NPV<sub>10%</sub> (Reserves-only schedule, nominal, ungeared, pre-Octea royalties and tax) to changes in diamond revenue, operating cost and capital expenditure estimates is detailed in Figure 5 below.







In aggregate, the financial analysis undertaken highlights that the Tongo Mine development, including under solely the Reserves-only case, is expected to deliver strong financial returns with robust overall project economics.

#### 12. Key Risks

Identified key risks to the Tongo Mine development include diamond price movements, diamond shrinkage (theft), dyke complexity, higher water ingress, appropriate process design, and skilled local labour availability. A range of mitigation measures have been identified and are planned to be put into place in order to address these risks.

#### 13. Expansion and Life Extension Potential

The initial forecast Reserve operating life of the Tongo Mine development is 8 years. This reflects solely the exhaustion of existing Indicated Resource estimates from Kundu and Lando (Kundu and Lando, total 1.6 Mcts at +1.0mm cut-off).

However, both Kundu and Lando have large-scale Inferred Resource estimates (total 4.2 Mcts, +1.0mm cutoff) predominantly delineated from approximately 100m below surface to a maximum depth of approximately



230m (and limited currently only by drilling). These Inferred Resources were not converted to Ore Reserves for inclusion in the Reserve life-of-mine schedule due to their lower level of resource classification. Naturally however these Inferred Resources are planned to be upgraded into Indicated Mineral Resources via additional drilling (with targeted eventual conversion of this material to Ore Reserves). Subject to further definition, this material naturally represents potentially highly economic plant feed given the additional capital required to exploit it would likely be limited to incremental decline and level development.

Moreover, there are a further nine kimberlites located within the Tongo Mine development licence area. Two of these already have defined Indicated and Inferred resources (Tongo D-1 with 1.4 Mcts at 1.0mm cut-off, and Pandebu with 0.2 Mcts at 1.0mm cut-off). The other seven are all highly prospective for significant diamond deposition. Infill drilling is planned to upgrade the Inferred Resources at Tongo D-1 to Indicated status, with targeted eventual conversion to Ore Reserves also.

Newfield therefore believes there is clear and significant opportunity to both potentially extend the life of and/or increase the production rate of the operation.

#### 14. Value Engineering

Key value engineering opportunities identified at the Tongo Mine development and prioritised for further assessment include: simpler plant design with increased capacity; waste sorting to reduce plant feed and increase ore head grade; trackless underground development drive design; and alternative supply tender for power generation equipment.

#### 15. Project Funding and FID

Newfield has commenced project funding discussions with a range of potential counterparties. Final Investment Decision (FID) on the Tongo Mine development is targeted for 2H 2019.

Development of the box cut for the underground portal entrance and decline has already commenced. Blasting of the decline is set to commence upon a positive FID.

Newfield has formed the view that there is a reasonable basis to believe that project funding for the Tongo Mine development will be available as required. There are a number of grounds on which this reasonable basis is established:

- a) The technical and financial parameters detailed in the Tongo Mine development FEED Study are robust and economic. Newfield also possesses strong legal tenure and social licence to operate at Tongo.
- b) Newfield is debt free and owns 100% of the Tongo Mine development (conditioned by a Tribute Mining and Revenue Sharing Agreement with Octea). The Company has an uncomplicated, clean corporate and capital structure. These are all factors expected to be attractive to potential financiers. These factors also deliver flexibility in engagement with potential debt or quasi-debt providers.



- c) The Newfield Board and management team possess extensive experience in the resources industry and, more particularly, the diamond sector. They have played leading roles previously in the exploration and development of significant diamond projects globally. In this regard, key Newfield personnel have a demonstrated track record of identifying, acquiring, defining, funding, developing and operating quality diamond assets of significant scale.
- d) Newfield has held preliminary, confidential discussions with a range of potential project financiers. These potential counterparties include debt providers, quasi-debt and convertible note offerors, and institutional and high net worth private equity investors. These discussions have indicated that the Tongo Mine development possesses physical and financial attributes that deliver Newfield a reasonable likelihood of securing the requisite funding for its development.
- e) Completion and release of the FEED Study outcomes now provides a platform for Newfield to advance discussions with these potential funding counterparties. This includes targeted progression to binding offers and formal documentation. Newfield's targeted project funding timeline is aligned with its targeted Final Investment Decision (FID) on the Tongo Mine development in 2H 2019.
- f) Newfield is targeting total pre-production and working capital funding being comprised of one, some or all of mezzanine debt, convertible debt and/or equity. The final mix will depend on general market and diamond industry conditions, specific counterparty appetite and terms, and the Newfield Board's prevailing views on optimal balance sheet configuration.
- g) Newfield's current market capitalisation is approximately A\$95 million. This is multiple times the currently targeted funding component for the Tongo Mine development. Newfield would also note that it has a strong track record of support from major shareholders in previous substantial equity raisings undertaken by the Company. Finally, Newfield notes the potential for staging of any development funding given the rapid forecast transition to first diamond production relative to the progressive forecast ramp-up to positive project free cashflow.
- h) It should be noted that this project funding strategy is subject to change at the Newfield Board's discretion at any point. It should also be noted that, while the Newfield Board holds a reasonable basis to believe that project funding will be available as required, there is no assurance that the requisite project funding for the Tongo Mine development will be secured.



# **Competent Person's Statements:**

The information in this ASX release has been reviewed and compiled by Karl Smithson, Executive Director of Newfield and Chief Executive Officer of Newfield's subsidiary company Sierra Diamonds Limited, a qualified geologist and Fellow of the Institute of Materials, Metals, Mining, with 30 years' experience in the diamond and natural resources sector. Mr Smithson has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking, to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Smithson consents to the inclusion in this ASX release of this information in the form and context in which it appears.

Information included in this announcement that relates to the diamond resource estimate is extracted from Newfield's ASX announcement dated 26 November 2018 titled "7.4 million carats Resource for the Tongo Diamond Project", as amended by the ASX announcement dated 28 November 2018 titled "Revised Announcement and Retraction of Valuation References". Newfield confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all the material assumptions and technical parameters underpinning the estimates in the original market announcements continue to apply and have not materially changed.

Information included in this announcement that relates to the Ore Reserve estimate for the Kundu and Lando dykes is based on and fairly represents information and supporting documentation prepared by Michael Lynn. Mr Lynn is an executive director of Newfield. He is a Fellow of the Geological Society of South Africa, and a registered scientist with the South African Council for Scientific Professions. Mr Lynn has provided his prior written consent to the form and context in which the Ore Reserve estimate for the Kundu and Lando dykes and the supporting information are presented in this announcement.

Paradigm Project Management (Pty) Ltd (PPM) completed the Front End Engineering and Design (FEED) for the Tongo Mine in February 2019 which included the development of the overall mine design, including all mining, geotechnical, hydrogeology, process, structural, mechanical, electrical, control and instrumentation and civil engineering for the project. PPM then undertook the completion of the capital expenditure estimate and the operating cost budgets which where used to develop the pre-tax financial model used to assess the economic viability of the Tongo Mine. PPM has very extensive experience in the diamond industry including prospecting, project evaluation, mine design, mining engineering, process engineering and design, mine operations (including fissure mines), executive management, and all other related activities, covering over 73 mines in 13 countries, including all African countries with known diamond deposits/operations.

# **Forward Looking Statements:**

This announcement may contain certain forward-looking statements and projections regarding estimated resources and planned strategies and corporate objectives. Such forward-looking statements/projections are estimates for discussion purposes only and should not be relied upon. They are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors many of which are beyond the control of Newfield. The forward-looking statements/projections are inherently uncertain and may therefore differ materially from results ultimately achieved. Newfield does not make any representations and provides no warranties concerning the accuracy of the projections, and disclaims any obligation to update or revise any forward-looking statements/projects based on new information, future events or otherwise except to the extent required by applicable laws and ASX Listing Rules.

# TONGO MINE DEVELOPMENT

# Summary of Ore Reserve Estimation of the Kundu and Lando Kimberlite Dykes

# Summary of information required according to ASX Listing Rule 5.9.1

The attaching ASX release on the Tongo Mine development contains a first-time declaration of Ore Reserve estimates for the Kundu and Lando kimberlite dykes.

The following provides a summary of the material assumptions and confidence limits in the estimation of Ore Reserves in terms of costs, classification of Mineral Resources and Ore Reserves, modifying factors, mining method, ore processing method, cut-off grades, and estimation methodology. It also summarises the material assumptions in the non-technical areas including environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors.

#### **Material Assumptions**

- Underground development design criteria were based on geotechnical parameters determined by SRK Consulting from a study performed as part of the FEED, and international best practice with respect to underground development.
  - Leave 5 m thick crown pillar
  - Decline gradient 8° (1:7)
  - Decline dimension 6 m width x 4 m height until split where both legs become 4 m width x 4 m height
  - o Loading/passing cubbies every 80 m in the declines
  - o Flat gradient for 10m on either side of level breakaways
  - Cubby to be 4 m x 4 m and 10 m long at 90° to declines
  - o Distance between decline and dyke to be 25 m
  - o Return airway elevations 230 masl for Kundu and 222 masl for Lando
  - o Rock drive elevations: 192, 157, 122, 87, 52 and 17 masl for Kundu
  - o Rock drive elevations: 184, 149, 114, 79, 44 and 9 masl for Lando
  - o Rock drives and crosscuts 2 m width x 2.2 m height
  - Crosscut spacing to be 12 m centre-to-centre
  - Rock drives to be parallel to dykes
  - Clearance between rock drives and dykes to be 6 m from skin of rock drive
  - o Clearance between ramp and dyke to be 25 m
  - o Radius of curvature for decline flats to be a minimum of 20 m
  - Rock drives to be at an upgrade of 1° from point of entry on level to allow for water drainage to the access point
  - Rock drives to be widened to 3 m at tipping points for 20 m along drive
  - $\circ$   $\;$  Rock drives to be 3 m wide for 15 m on either side of level access from decline

- Two orepasses at each tipping point, 10 m apart
- Orepasses to discharge into roof of cubby
- Orepasses to be >50° inclination and 0.75 m diameter
- Two cubbies 10 m apart centre to centre
- Return airway to be 3 m x 3 m
- Return air passes to be 2 m x 2 m
- Service bays 25 m long and 4 m wide
- Underground development rates were assumed from benchmarking underground development rates on similar mines in South Africa.
  - Stoping build up (including raising) is 6 months to a maximum rate of 12m per month. This includes 3 months for the raise and 3 months for the stoping tonnage build up;
  - Decline development rate build-up "learning curve" to be:
  - o Month 1: 20 m; Month 2: 40 m; Month 3: 60 m; Month 4: 80 m
  - o Decline average monthly development rate after "learning curve" to be 80 m/month
  - Level access development rate to be 30 m per month
- The mine design criteria were derived from operating costs estimates for the selected mining method, determined to +/- 10% confidence limits.
  - Diamond price \$222/ct
  - Diamond Grade Lando 2.2 cpt; Kundu 2.4 cpt
  - Mining recovery 95%
  - Process recovery 100%
  - Royalty 0% (but included in the financial model at 6.5%)
  - Operating cost \$95/t
  - o Cut-off grade 0.45 cpt, less 10%, i.e. 0.4 cpt
  - Stoping width is 0.85m up to a maximum of 2m (1.5 m in uppermost stope);
  - Working height in stope to be 1.8m;
  - o Minimum width between mined parallel fissures to be not less than 5m;
- For the purposes of the FEED and mine development and construction, Capex and Opex estimates have been done to within +/- 10% confidence limits, with a contingency of up to 10% on certain costs dependent on confidence. This is equivalent to the confidence limits of a feasibility study. A cost inflation of 2% per annum (typically regarded as US\$ inflation) has been applied to the operating costs for the life of mine.
- Capital estimates for the mine construction and operation have been compiled from current quotations on all required equipment and infrastructure development, as well as benchmarking for underground development costs. Detailed engineering design of all components of the mine envisaged in the

financial model has been completed. Opportunities to refine various components have been captured in an opportunities register for further consideration.

- The total power requirement each year and the generator set rating allows the required number of generator sets to be determined. It is planned that the power requirement during the construction phase i.e. year 1 will be addressed with existing generators sets on site and hence there is no capital expenditure on power for year 1.
- From year 4 onwards, total operating cost is below US\$100 per tonne for life of mine, excluding the final 3 years of the base case, where the cost escalates as tonnage decreases. This is not realistic, since the Company intends to continue mining beyond the current mine plan. The base case scenario (Ore Reserve declaration) suffers from the high cost per tonne during ramp up, but does not benefit from the realistic LoM cost per tonne post year 5. Nevertheless, it provides a positive NPV.
- Major Opex costs have been estimated from a detailed manpower plan, estimates of mining consumables based on operating mines in South Africa, a detailed analysis of power consumption, and an estimate of plant costs based on modelled consumption of consumables.
- Ore haulage costs are a small component of overall Opex because tonnages are small. They have been estimated from manufacturers guidelines and maintenance costs (including tyres), with different cycle times (and therefore costs) per mining level. Haulage costs of ore and waste are different as the waste dumps are situated adjacent to the decline access portal, whereas the plant is approximately 1.5 km away.
- Average diamond revenues were estimated by ZStar and are derived from an accumulation of diamond size (size frequency distribution; SFD) and diamond value per sieve size (model, colour, and quality, together representing the diamond assortment). The SFD is obtained from the grade size curve of each dyke (using both microdiamond and bulk sample data). The assortment is obtained from the parcel valuations derived from bulk sample parcels (total of 3,554 carats).

#### Criteria for Mineral Resource and Ore Reserve Classification

- The Mineral Resource was classified at the Indicated or Inferred level of confidence depending on the density of data and depth of the deposit, according to JORC Standards of reporting (2012).
- Mineral Resource classification considers confidence in bulk dry density, grade, geological model and dyke geometry, and diamond value. Where any of these criteria cannot be estimated within the block model on a local scale, the Mineral Resource was classified as Inferred. Where local classification of all criteria is possible, the Mineral Resource was classified as Indicated.
- Appropriate technical and security operating procedures were in place during the collection, transport and processing of samples used to support the Mineral Resource.
- The Ore Reserves are classified as Probable Reserves because they are based on Indicated Resources, and the confidence limits that entails.
- It is not realistic to establish Measured Resources on a kimberlite dyke deposit, since the cost per interval of required sampling is prohibitive. It is likely therefore that Proven Ore Reserves will never be declared for the Tongo Project. This is common for most diamond projects.
- The Probable Ore Reserve is based on Indicated Resources which have been classified on the basis of the following confidence limits:

- The distribution of samples and geostatistical support for local grade estimation is sufficient to allow local grade estimates to be made on the basis of geological and grade continuity.
- The number of stones recovered from samples is statistically sufficient to provide confidence to the level of Indicated Resource.
- The Resource/Reserve conversion is based on a technical study with costs estimated to +/- 10% accuracy and detailed geotechnical, hydrogeological, mining, and metallurgical recovery studies, and a detailed discounted cash flow financial model, which demonstrates the economic viability of the Project.
- Modifying Factors which have been taken into account in the declaration of an Ore Reserve are: mining losses estimated at 5% of the Indicated Resource, losses of smaller diamonds (due to lock-up in the treatment process) and the impact on grade and revenue.
- The Mineral Resource used for the Ore Reserve conversion is stated as a total content resource, with no metallurgical losses. In practice, loss of smaller diamonds occurs due to lock-up of small stones, which are not all liberated by crushing. These losses have been estimated from the total content size frequency distribution (derived from microdiamond analysis) and macrodiamond size frequency analysis (derived from bulk samples) by ZStar. The impact of losses of smaller stones on grade and revenue of undiluted kimberlite is summarised the following table:

Dyke	Mineral Resource Grade (cpt)	Mineral Resource Revenue (US\$/ct)	Mineral Reserve Grade (cpt)	Mineral Reserve Revenue (US\$/ct)
Kundu	2.9	204	2.4	222
Lando	2.5	204	2.2	222

• Consideration of the environmental, permitting, legal, title, taxation, socio-economic, marketing and political factors support the estimation of Ore Reserves.

#### Mining Method and Assumptions

- The kimberlite dykes will be extracted using an industry standard shrinkage method. Level spacing will be 35 m and on each level there will be a level drive to provide access to the stope, approximately 6 m from the stope. This proposed mining method is considered appropriate for the deposit style.
- In the Base case scenario of mining only Ore Reserves, production would ramp up to a maximum of approximately 230,000 t of ore hauled annually to the ROM pad proximal to the plant. However, this is likely to be surpassed in the operating case scenario where Inferred Resources are brought into production, and peak production is likely to be over 340,000 t per annum from year 4.
- Bulk dry density of both ore and waste rock has been measured from drill core and fresh bulk sample rock.
- Because the kimberlites are dykes comprising coherent kimberlite, internal dilution is negligible. Dilution from country rock has been measured from drill intersections, and estimated across mining blocks, taking into account the minimum mining width, and maximum stope width based on geotechnical parameters.

- Because the mining method involves short hole drilling on small stopes, a high proportion of ore is expected to be recovered, and 95% ore recovery has been assumed in the model. A benchmark analysis of other producing underground diamond mines was undertaken. The recovery rates for these mines provided confidence that, given the style and mineralisation of the project relative to the benchmarking analysis, a mining recovery rate of approximately 95% is achievable.
- Geotechnical and geohydrological parameters were derived from geotechnical drilling studies undertaken by SRK Consulting, and used during underground mine design by Datamine. These include structural, rock strength, 2D elastic and rock mass analysis to derive stable spans, and stability factors for sill pillars, stope and underground development.
- Further work to de-risk the mine plan involves review of the underground de-watering requirements. The current estimate is based on pump testing of a small number of surface boreholes. However, further testing is planned for Year 1, and the cost of this (approximately US\$ 1 million) has been included in the financial model that underpins the Ore Reserve estimate.
- Further resource delineation drilling is planned once the underground development reaches beyond 150 m depth, to upgrade Inferred Resources to Indicated classification, and bring these into the Ore Reserve and extend the mine life.

#### **Ore Processing Method and Assumptions**

- An industry standard ore processing flowsheet is planned for the Tongo Mine development, incorporating crushing, screening, dense media separation, and X-ray recovery of diamonds. Multiple re-crush opportunities exist for ore within the circuit, to maximise recovery of larger diamonds, minimise diamond damage, and ensure efficient recovery of smaller stones.
- No ore dressing studies have been done on the kimberlite ore from Tongo. The plant being used is the same as that used for processing the bulk samples during Mineral Resource evaluation, with some important upgrades to improve efficiency, and it is assumed that it will work at least as well as it did when processing the bulk samples. Upgrades include a new, larger scrubber, a new primary crusher, and new X-ray recovery circuit based on the latest De Beers designed CWX118CD dry X-Ray machines.
- Because loss of smaller stones has a material impact on average grade and average revenue per carat, these losses are accounted for as a modifying factor in the conversion of Mineral Resources to Ore Reserves. Since no diamond losses are expected due to plant inefficiencies other than non-liberation of small stones from the ore, and the grade determined for the Mineral Resource is based on the processing of bulk samples through the same plant, the plant recovery efficiency is assumed to be 100%.

#### Cut-off Grades

• Mining grade in the context of Tongo is a function of primary kimberlite grade (defined by the Resource model), and mining dilution (defined by the total width of kimberlite in a stope width ranging between 0.85 m and 2 m). All stopes that provide a diluted ore grade above a threshold of 0.4 cpt were included in the mining schedule, as these have a theoretical rock value close to the estimated per tonne mining and processing cost. Stopes with a model diluted ore grade below 0.4 cpt have been excluded from the Ore Reserve estimate.

• The Mineral Resource model has defined KZIs (kimberlite zone intersections) with true widths and detailed dilution percentages. These are the basis for determination of diluted grades in ore blocks.

#### **Ore Reserve Estimation Methodology**

- Ore Reserve estimation is derived from Indicated Mineral Resources only and is supported by the FEED program, which is a feasibility level study. Ore Reserves were estimated for the Kundu and Lando dykes which are planned to be mined underground by overhand shrinkage stoping. The current Mineral Resource estimate comprising Indicated Resources within the Kundu and Lando kimberlite dykes, and with a bottom cut-off of +1.18 mm, is the basis of the Ore Reserve estimate.
- The production schedule was calculated by Datamine based on a number of technical software programs. The stope rates for the project were calculated from the Mine Shape Optimiser (MSO) program based on specific parameters. The development design was done using Studio 5D Planner based on the stopes obtained from MSO. The design was then exported to Enhance Production Scheduler for the scheduling of the production. The stope optimization parameters were based on the recovered +1.18 mm bottom size cut-off mining grades and revenues as determined by Z-Star.
- The production schedule was then used in a discounted cash flow model, incorporating Capex, operating capital costs and Opex estimates, including royalties, community development and other statutory payments, to arrive at a realistic NPV assuming a 10% discount rate. The resulting NPV is significantly positive, and robust, based on sensitivity analysis.
- The Project is most sensitive to revenue (diamond price and ore dilution), and least sensitive to Capex.

#### Material Non-Technical Modifying Factors ('Social Licence')

- Sierra Diamonds Limited, a wholly owned subsidiary of Newfield, holds a 25-year mining licence (ML02/18) and economic rights to the 25-year mining licence (ML02/12) held by Tonguma Limited via a Tribute Mining and Revenue Sharing Agreement. These licences, which can be renewed for a further 15 years, cover an area of 134km<sup>2</sup>.
- Mining licence fees totalling US\$ 1.206 million have been paid for 2019 for both MLs.
- All relevant permits are in place and current. All fee payments and statutory reporting are up to date.
  - The Project has all Environmental permits in place, and is meeting its obligation to provide quarterly reports to the EPA. Annual fees totalling US\$45,000 have been paid up to date.
  - Surface rental fees are paid to the host communities according to a legally binding agreement between the host communities and Newfield. These annual payments total approximately US\$60,000 for the combined licence areas and have been paid up to date.
  - A Community Development Committee (CDC) has been appointed, which is representative of the host community. The CDC administers the Community Development Fund (CDF), which is funded through arrangements listed in a Community Development Agreement (CDA).
  - The CDA is currently being negotiated but is based on a Parliamentary ratified Mining Lease Agreement which states that the CDF will be funded annually by a sum equivalent to 0.25% of the previous year's production.
  - Community relations are strong, and maintained through regular interaction.

- Risks are managed through a comprehensive risk log, and include both community and Government risks. Mining is a cornerstone of the Government of Sierra Leone's 'New Direction' which aims to promote mining as a driver for economic development of the country.
- The Mine is accessed by tar roads from Freetown to Mano Junction, approximately 25 km from camp, and then by a gravel road which is maintained by the Company.
- The Project benefits from existing infrastructure built by previous operators, including a camp, workshops and roads. Enhancements to the camp are underway, to accommodate sufficient expatriate expertise to build and commission the mine, and develop local skills to the point that most expatriates are no longer required.
- Detailed designs for the underground portal and associated surface and underground infrastructure, camp upgrades, plant and waste dumps have been prepared and construction will commence once funding is secured.
- Export of diamonds is via the Government's Precious Metals Trading office in Freetown, where the diamonds are valued (for the purposes of royalty and corporate tax payments), and Kimberley process Certificates are issued.





# Tongo Diamond Mine Development

Front End Engineering Design (FEED) Study

# **Executive Summary**

This is an Executive Summary of a Front-End Engineering Design (**FEED**) Study of the Tongo Mine development in Sierra Leone. The FEED Study was completed by Paradigm Project Management (Pty) Ltd. (**PPM**) in February 2019. The Tongo Mine development is 100%-owned by Newfield Resources Limited (**Newfield**), a company listed on the Australian Securities Exchange.

Alongside the FEED Study, Newfield undertook an Ore Reserve estimation for the Indicated Resource portions of the Kundu and Lando kimberlite dykes within the Tongo Mine development, which totals approx. 1.6 Mcts at a+1.0mm bottom cut-off) These dykes are the first kimberlites targeted for commercial production and their Indicated Resource portions are at the shallower levels of the dykes. The considerable body of Inferred Resources at the Kundu, Lando and Tongo Dyke-1 kimberlites (totalling approx. 5.3 Mcts, +1.0mm cut-off) is not amenable to the estimation of Ore Reserves at this stage due to its lower level of resource classification.

Concurrently with planned project construction, Newfield intends to embark on a drilling and sampling program in order to upgrade a substantial proportion of the Inferred Resources (mostly delineated at depths greater than approximately 100 metres below surface) to Indicated status, with targeted eventual conversion of this material to Ore Reserves.

For Newfield internal planning purposes, the FEED Study produced a detailed life-of-mine schedule comprising Ore Reserves, Indicated Mineral Resources not yet considered for conversion to Ore Reserves, and Inferred Mineral Resources, together comprising the global resource inventory of the Kundu, Lando and Tongo Dyke-1 kimberlites. Within this schedule, Ore Reserves are naturally at shallower depths and expected to be mined preferentially in earlier years of the schedule.

In accordance with the current regulatory framework, this document outlines a life-of-mine schedule, production forecasts, and capital and operating cost estimates restricted to solely Ore Reserves. Newfield confirms that the technical and economic viability of the Tongo Mine development is based solely on Ore Reserves. However, Newfield has also considered the potentially substantially expanded project opportunity that targeted upgrade and conversion of Inferred Resources presents.

## Licence and Tenure

Sierra Diamonds Limited, a wholly owned subsidiary of Newfield, holds a 25-year mining licence (ML02/2018) and economic rights to the 25-year mining licence (ML02/2012) held by Tonguma Limited via a tribute mining and revenue sharing agreement. These licences, which can be renewed for a further 15 years, cover an area of 134km<sup>2</sup> over the renowned Tongo diamond fields in eastern Sierra Leone.

# Mineral Resource Estimate

MPH Consulting Limited and Z-Star Mineral Resource Consultants completed an updated Mineral Resource Estimate for the Tongo Mine development in November 2018. This estimate was based on detailed mine development drilling undertaken in 2018 and updated wireframe and geological models based on recent and historical drilling data. The updated estimate totalled 7.4m carats of Indicated and Inferred diamond resources at a +1.0mm cut-off. Further details of this updated Mineral Resource estimate are set out in Table 3.

# Mine Access, Method and Schedule

Newfield, SRK Consulting and Datamine have designed a detailed mine plan for the Tongo Mine development. Mining is planned to be exclusively underground with access to the Kundu and Lando kimberlites being from a single portal entrance located approximately midway between the two kimberlites. The selected mining method is traditional shrinkage stoping (with an 85cm mining stope width), which has been commonly used in similar kimberlite dyke mining operations in South Africa.

#### Table 1: Life-of-mine Tongo Mine development (Reserves-only schedule)

Mine schedule summarv		
Initial mine life	vears	8
Total mined and processed ore tonnes	Mt	1.09
Average diluted ore grade	cpht	1.00
Total carats recovered	M cts	1.09
Kundu	M cts	0.46
Lando	M cts	0.64
Peak annual production (Year-5)	M cts	0.26

First production diamonds from Kundu and Lando are scheduled to be realised within 12 months of the commencement of decline development. The life-of-mine schedule sees a progressive build-up of annual diamond production volumes as increasing numbers of mining faces are opened along strike and at depth. Total life-of-mine diamond production (Reserves-only schedule) is forecast at 1.1 Mcts. Peak annual production of approximately 260,000 carats is achieved in Year-5.

Newfield plans to undertake significant further investment in infill drilling of the lower zones of Inferred Resources at both Kundu and Lando. This infill drilling program is targeted at significantly expanding peak diamond production rates, and substantially extending the current operating life, of the Reserves-only life-of-mine schedule shown in Table 1. Newfield also intends to undertake a further drilling program and targeted resource-to-reserve conversion exercise for the Tongo Dyke-1 kimberlite, which although already possessing a significant portion of Indicated Resources, was not evaluated for Reserve status at this stage.

## **Process Recovery**

A new configuration for the relocated Koidu 50tph production plant has been designed. It utilises the basic structures of the plant, with completely new designs and quotations for the scrubbing and screening section, final recovery and sort house. The head feed capacity of the plant will remain at 50tph with the top cut-off size established at 25mm, and a bottom cut-off equivalent of 1.2mm.

The 50tph plant is scheduled to operate for 24 hours per day at an 85% utilisation rate. This is sufficient to treat the maximum ore throughput from Kundu and Lando, with considerable excess capacity. Study work is also underway in relation to process capacity expansion and optimisation. This is aimed at matching any substantial expansion in future mine production rates, particularly should Tongo Dyke-1 be concurrently mined with Kundu and Lando.

# Capital and Operating Cost Estimates

The total capital expenditure estimate (+/- 10%) for the first three years of development of the Kundu and Lando kimberlites under the Reserves-only schedule is US\$29.4 million (upfront capital expenditure, nominal basis). The major items in this forecast comprise: portal infrastructure and decline development (US\$5.3 million), level development and ventilation (US\$7.8 million), process plant refurbishment (US\$5.1 million), power supply (US\$2.0 million), general infrastructure (US\$3.8 million) and mining licence fees (US\$2.2 million).

The residual escalated capital for the Tongo Mine development post Year 2 (inclusive of ongoing decline and level development for Kundu and Lando) is estimated at US\$23.3 million (nominal basis), which includes all sustaining and major replacement capital. It is expected that all residual capital will be funded out of forecast project cashflow.

The operating cost estimates for the Tongo Mine development have been done to a +/- 10% level of detail. Based on a total life-of-mine forecast operating cost of US\$137 million (nominal) and total diluted ore processed of 1.09 million tonnes (Reserves-only schedule), an average operating cost of US\$127 per tonne of ore is established (real basis US\$116/t) (including all government export royalties and sales/marketing costs). Based on the unescalated average price of US\$222 per carat and average life of mine diluted grade of 1.00 carat per tonne, a run of mine value of approximately US\$222 per tonne of ore (unescalated) is calculated, which is approximately 1.9 times the unescalated operating cost and illustrates a healthy operating margin for the Tongo Mine development.

# Financial Analysis

A detailed financial model for the Tongo Mine development has been constructed on a nominal basis with forecast life-of-mine diamond prices and all capital and operating cost estimates escalated at 2% per annum. The summary financial analysis based on the Reserves-only development case is outlined in Table 2. Real life-of-mine diamond price estimates of US\$222 per carat for Kundu/Lando and US\$220 per carat for Tongo Dyke-1 were derived from the detailed resource work by MPH Consulting and Z-Star.

Project financial analysis		
Total gross revenue	US\$M	267
Total operating costs	US\$M	(137)
Upfront capital costs	US\$M	(29)
Residual LOM capital costs	US\$M	(23)
Total free cashflow	US\$M	77
NPV (10% d.r., ungeared, pre-Octea royalties and tax)	US\$M	33
IRR (ungeared, pre-Octea royalties and tax)	%	30

On this Reserves-only basis, the Tongo Mine development is forecast to generate total free cashflow of approximately US\$33 million (post 6.5% Government export royalties and 1.5% selling costs, pre-Octea royalties and tax). On a Reserves-only basis, the ungeared Net Present

Value (NPV) at a 10% nominal discount rate is approximately US\$33 million (pre-Octea royalties and tax). The equivalent Internal Rate of Return (IRR) is approximately 30%.

## Key Risks and Opportunities

Identified key risks to the Tongo Mine development include normal geotechnical and geological risks that are inherent when dealing with underground mine developments and particularly those of kimberlite dykes/fissures. These can include irregular continuity of the ore bodies, unusual rock conditions and higher than expected water ingress into the underground workings. All these risks have been carefully considered and mitigation plans identified to ensure the risks are adequately managed. Outside the control of the Company, however, global rough diamond prices are perceived to be a key risk. The outlook for pricing remains stable in the near term, and the longer term outlook appears more favourable.

One of the main opportunities for the Tongo Mine development is the potential to extend the life of mine, or increase the production capacity, through bringing additional diamond resource to account. Both Kundu and Lando have large-scale Inferred Resource estimates (total 4.2 Mcts, +1.0mm cut-off) predominantly delineated from approximately 100m below surface to a maximum depth of approximately 230m (and limited currently only by drilling). These Inferred Resources were not converted to Ore Reserves for inclusion in the Reserve life-of-mine schedule due to their lower level of resource classification. Naturally however these Inferred Resources are planned to be upgraded into Indicated Mineral Resources via additional drilling (with targeted eventual conversion of this material to Ore Reserves). Subject to further definition, this material naturally represents potentially highly economic plant feed given the additional capital required to exploit it would likely be limited to incremental decline and level development.

Moreover, there are a further nine kimberlites located within the Tongo Mine development licence area. Two of these already have defined Indicated and Inferred resources (Tongo D-1 with 1.4 Mcts at 1.0mm cut-off, and Pandebu with 0.2 Mcts at 1.0mm cut-off). The other seven are all highly prospective for significant diamond deposition. Infill drilling is planned to upgrade the Inferred Resources at Tongo D-1 to Indicated status, with targeted eventual conversion to Ore Reserves also.

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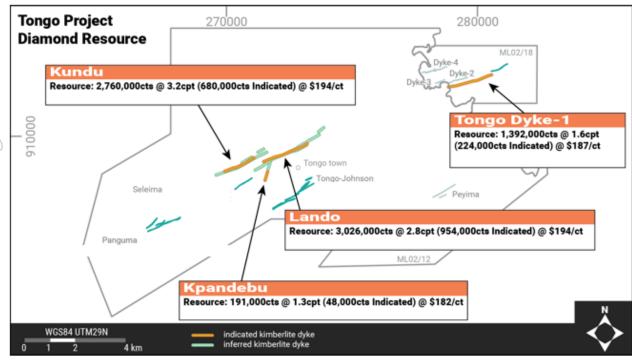
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# 1. Introduction

Sierra Diamonds Limited, a wholly owned subsidiary company of Newfield Resources Limited (ASX:NWF), holds the 25 year Tongo mining licence (ML02/2018) in the eastern part of Sierra Leone. Furthermore, it holds the economic rights to the adjacent mining licence held by Tonguma Limited (ML02/2012) via a Tribute Mining and Revenue Share Agreement.

Both licences cover a 134km<sup>2</sup> area over the renowned Tongo diamond fields in eastern Sierra Leone. The licences are host to 11 kimberlite dykes, of which four have been declared into a JORC compliant +1.0mm Indicated and Inferred diamond resource of 7.4 million carats (Kundu, Lando, Kpandebu and Tongo Dyke-1).

#### Figure 1: Mining Licences, Kimberlites and Diamond Resources



In September 2016 Paradigm Project Management (Pty) LTd. (**PPM**) reported a Preliminary Economic Assessment over the combined Tongo-Tonguma Mine development which incorporated the underground mining of the Kundu, Lando and Tongo-Dyke-1 kimberlites. Based on these results it was decided to advance the Tongo Mine development to a detailed Front End Engineering Design (**FEED**) which commenced in February 2018 and was completed in April 2019. This FEED programme was led by PPM with significant contributions by SRK Consulting (South Africa) and Datamine on the mine design, scheduling and optimisation.

Furthermore, Sierra Diamonds retained MPH Consulting (Toronto) and Z-Star (South Africa) to provide an updated mineral resource statement based on further detailed drilling undertaken in 2018 and updated wireframes and geological models based on the recent and historical drilling data. Revised grade modelling and estimated revenues were also calculated. The mineral resource was announced by Newfield in November 2018 (see Newfield ASX release dated 28 November 2018, 7.4 million carats Resource for the Tongo Diamond Project). A summary of the 7.4 million carat Indicated and Inferred resource estimate is provided in Table 3.

#### Table 3: Summary of the Indicated and Inferred Diamond Resource by kimberlite

Kimberlite	Resource Category	Tonnes Kimberlite	+1.0mm Grade (cpt)	Total Carats	Diamond Value (US\$/ct)
Kundu	Indicated	200,000	3.4	680,000	194
Kundu	Inferred	650,000	3.2	2,080,000	194
Kundu	Total	850,000	3.2	2,760,000	
Lando	Indicated	320,000	3.0	954,000	194
Lando	Inferred	740,000	2.8	2,072,000	194
Lando	Total	1,060,000	2.9	3,026,000	
Pandebu	Indicated	60,000	0.8	48,000	182
Pandebu	Inferred	110,000	1.3	143,000	182
Pandebu	Total	170,000	1.1	191,000	
Tongo D-1	Indicated	160,000	1.4	224,000	187
Tongo D-1	Inferred	730,000	1.6	1,168,000	187
Tongo D-1	Total	890,000	1.5	1,392,000	
TOTAL	IND. & INF.	2,970,000		7,369,000	

# 2. Project Location

The Tongo Mine development is located in the eastern Kenema district of Sierra Leone, some 345kms from the capital city of Freetown. Access is primarily by good sealed road from Freetown via Kenema to Mano Junction and thereafter by 25kms of unsealed road which the Company maintains. Total travel time is approximately six hours.

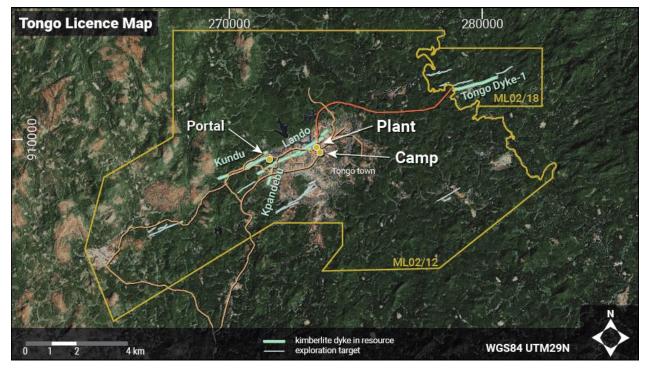




# 3. Licence Tenure and Royalties

The Tongo Mine development comprises two adjacent 25-year mining licences held by Sierra Diamonds Limited (ML02/2018) and Tonguma Limited (ML02/2012). Each licence can be renewed for a further 15 years according to the Mines Act (2009). Together the licences cover an area of 134km<sup>2</sup> over the renowned Tongo diamond fields, which have been exploited both commercially and by artisanal mining since the 1950's. However, the kimberlites within the licence areas remain unexploited.

#### Figure 3: Mining Licences



The Tonguma mining licence has a Parliamentary ratified mineral concession agreement which allows for certain tax, duty and other concessions on production. Sierra Diamonds has obtained approval from the National Revenue Authority and Ministry of Finance to book all costs via the Tonguma mining licence in order to benefit from these concessions. The standard royalty of export of diamonds remains 6.5% for both licences.

# 4. Tribute Mining and Revenue Share Agreements

Newfield and Octéa Mining Limited (**Octéa**) agreed on 28 February 2017 to combine Newfield's Tongo Diamond Project with Octéa's adjacent Tonguma Project, and to bring both assets into production under the same production development (the "Tribute Mining Agreement" and "Revenue Sharing Agreement"). As part of this transaction, Octéa's 50tph production plant (the former Koidu production plant), and certain mining equipment and other assets, were transferred to Newfield.

Newfield has full management and operating control of the combined Tongo Mine development, subject to the following conditions and obligations:

i. Newfield is responsible for 100% of the development costs, and all annual payments due to the Government and local stakeholders associated with the Tonguma and Tongo Licences;

- Newfield has the right to preferentially recoup its initial investment (development capital) from the project, provided Octéa recoups US\$5 million on a pro-rata basis over the same period;
- Once Newfield and Octéa have recouped these amounts, Octéa has the right to a 10% gross royalty on diamond sales for the life of mine, post payment of the Government of Sierra Leone export royalty of 6.5%;
- iv. Octéa also has the right to a one-time bullet payment of US\$5.5 million, to be paid five years after the mine development commences; and
- v. Newfield retains the right of first refusal over the Tonguma Licence.

# 5. Environment and Social Licence

Both mining licences have valid Environmental Impact Assessments and Environmental Licences in place and approved by the Environmental Protection Agency. All fees and statutory reporting are up to date.

A Community Development Agreement has been negotiated between the host communities and Newfield. This document is currently being drafted. It will be legally binding and determine the level of corporate social investment in local community infrastructure and other development that will endure for the life-of-mine.

Surface rental fees are paid to the host communities according to a legally binding agreement between the host communities and Newfield. These annual payments total approximately US\$60,000 for the combined licence areas.

# 6. Mineral Resource Estimation

This section is taken from the 2018 MPH Mineral Resource (JORC) Estimate Update Report.

#### 6.1 Geological Model

This section summarizes the databases and methodologies used for updating the mineral resource estimate for the Tongo Mine development diamondiferous kimberlites. The project is complex with a total of seven distinct dyke "segments" in the Kundu kimberlite dyke system: ten in Lando, two at Kpandebu and three at Tongo Dyke-1, all requiring separate geological modelling and resource estimation. MPH followed the approach of previous workers on these deposits, continuing with similar methodologies and maintaining past nomenclature for dyke segments.

The 2018 drilling and sampling work was designed to systematically upgrade the geological and microdiamond database for the shallowest portions of the dykes designated L1. L1 incorporates the upper three mining levels of 35m stope heights (totaling 105m), with Level 3 rock and fissure drives positioned approximately 130m below surface to allow for a substantial crown pillar of 25-30m. The delineation programme was designed to ensure that, combined with previous drilling, pierce points on the dykes were achieved every 50m within this L1 depth slice at approximately mid-depth, or 60m below surface.

A second L2 depth slice which incorporates the next three mining stope levels (Levels 4 to Level 6), for a further 105m, has been isolated for interpretative work including all previous microdiamond and SG sampling of the kimberlite segments. No new drilling was carried out within L2 in 2018.

Similarly, all data below L2 has been isolated for interpretation and designated L3. Only L1 and L2 have sufficient drilling data for resource estimation at Kundu, Lando and Kpandebu, whereas Tongo Dyke-1 (Main) received systematic deep drilling previously allowing CAE to estimate inferred resources to -400m. Block models have been clipped at the base of L2 for resource estimation on Kundu, Lando and Kpandebu.

The overall approach to resource estimation by MPH in 2018 has been similar to that of MSC in 2016, which estimated the 4.5 million carat resource, but has had the advantage of much denser drilling and sampling data, such that:

- i) Geological models of the kimberlite dyke segments have been constructed as 2-D sheets interpolating the spatial position of these deposits, based on all drilled intercepts and detailed interpretation of the drilling results in 1:500 level plans and sections by the Newfield and MPH geological teams. Initial interpretative work incorporated the historical geological models to aid in correlations of previous and 2018 kimberlite intersections. The 2018 models now supersede all previous models, as the more precise interpretations within L1 have allowed for better projections through L2 and deeper, on these deposits.
- ii) Dyke segment thickness has been calculated as kimberlite zones of intersection or KZI's (horizontal true widths) which include internal dilution between the dykes/dykelets making up a segment. These were calculated manually by the geological team and checked and validated by GEMS.
- iii) Volumes were calculated in GEMS using the detailed thicknesses both measured and interpolated, for KZI's and total kimberlite within the KZI.
- iv) Bulk density measurements through the KZI's allowed for concise tonnage estimates for both KZI and total kimberlite, for each dyke segment.
- v) Grade models for the dyke systems were updated with the new L1 microdiamond data such that individual grade estimates for certain segments with the largest databases were now possible, along with zonal or global grades for the entire Kundu, Lando, Kpandebu and Tongo Dyke-1 dyke systems.
- vi) Estimates for the average diamond value for the deposits from historical bulk samples were updated to 2018 price books, supplemented by the current valuation work done on the Kpandebu bulk sample parcel, and on some Kundu stockpile material.

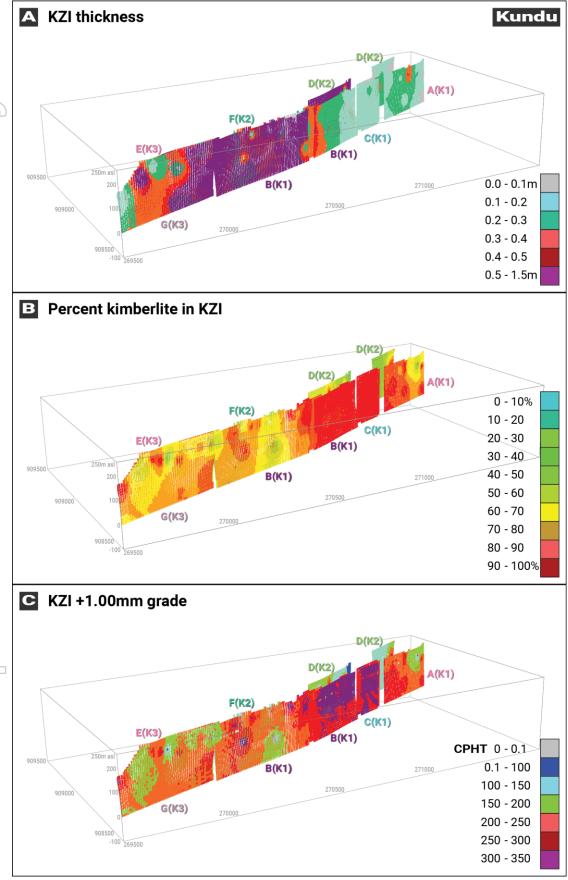
The geological models have been constructed by detailed interpretative work at 1:500 scale using both level plans on 50 m intervals, and sections every 100 m, with certain areas examined in more detail. The geological interpretation for each dyke segment was digitized on the 200 m and 150 m level plans, to which the wireframes were snapped, along with all assigned drill hole intercepts (KZI's) for all levels.

Four block models were created in Gems for the project, one for each area of the Kundu, Lando, Kpandebu and Tongo Dyke-1 systems. Since the L1 drill grid spacing was 50 meters apart on all four dykes, the block models all use  $10 \times 10 \times 1$  m blocks to obtain the most reliable interpolation results. The values interpolated in the block model are the dyke segment widths (KZI), the kimberlite width within the KZI, and the SG. The Inverse Distance Squared (ID2)

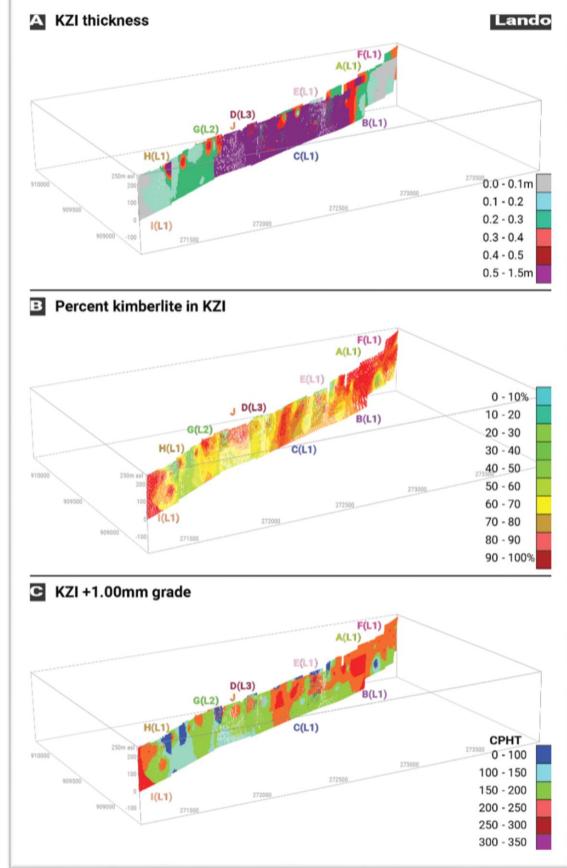
method was used for interpolation with a minimum of 2 and a maximum of 12 drill hole intersections within 250 m range from the block in all direction.

The values calculated in the block model comprise the KZI thickness, the percentage of kimberlite in the KZI, and the grade of the KZI using +1.00 mm and +1.18 mm bottom size cut offs. ZStar's global grades were used for this modelling.

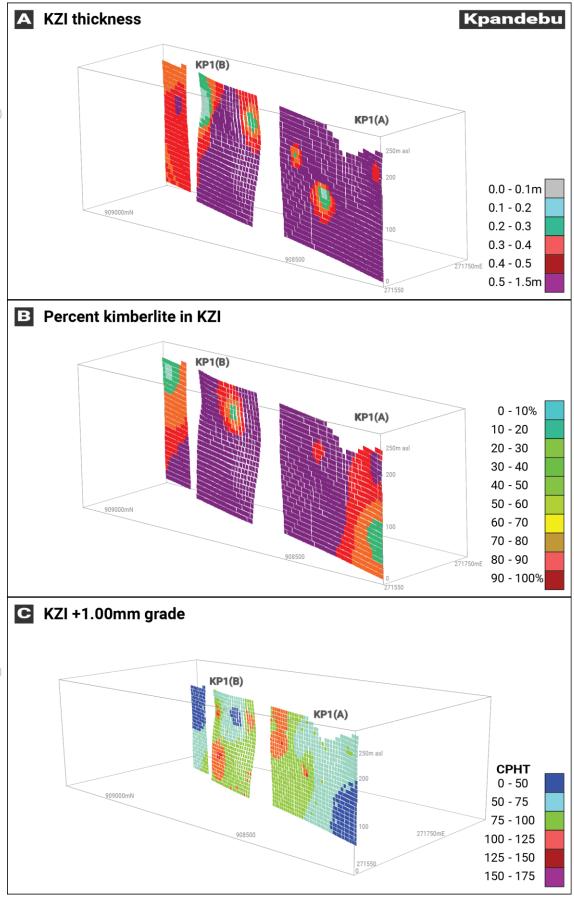
The four new block models for Kundu, Lando, Kpandebu and Tongo Dyke-1 are shown below in Figures 4 to 7.



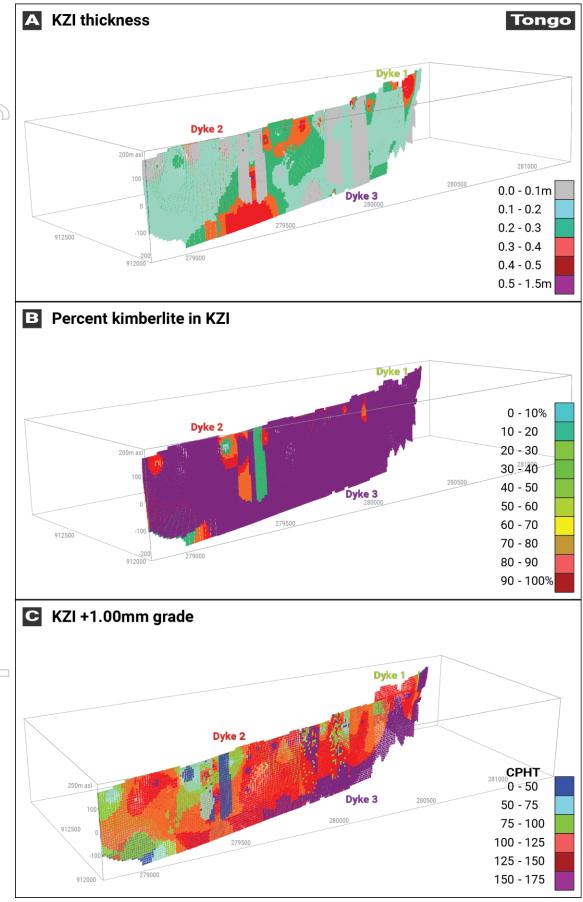
#### Figure 5: Lando block model











## 6.2 Resource Statement

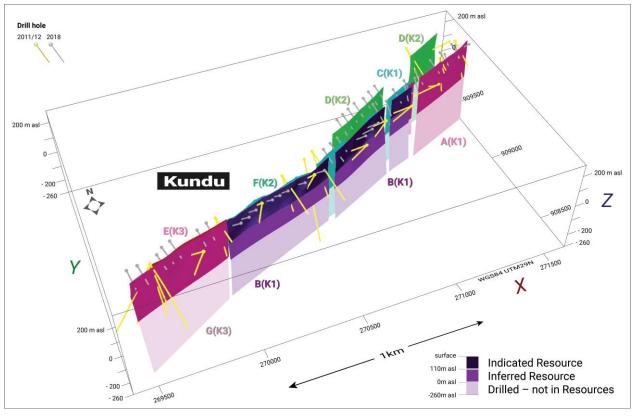
With specific reference to the Tongo Mine development, MPH notes that kimberlite dyke mines (or fissure mines as they're sometimes called) in South Africa and Canada (Snap Lake) have generally demonstrated very consistent in situ kimberlite grades within individual dyke segments or lenses, over extensive lateral and vertical distances of 100's of metres. This is due to the hypabyssal or magmatic kimberlite being a single intrusion or emplacement event, with local grade variations due to the amount of dilution inherent in the local mining stope, which in turn is reflective of the dyke morphology at that site.

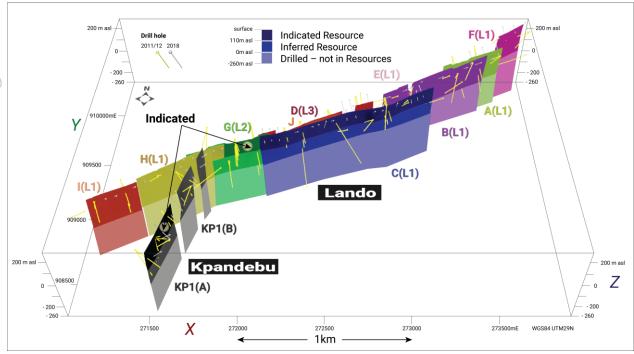
MPH has provided a classification matrix in relation to the Tongo diamond resource from surface to depth which demonstrates that most of L1 is classified as Indicated in category based on the 50m drilling and sampling density. Certain areas of L1 remain as Inferred category based on the lower density of geological information for those segments. For lower levels (L2 and L3) there is either an Inferred resource or an area of clear exploration potential for each individual kimberlite. Figures 8 to 10 also show this classification in perspective view for each kimberlite.

Based on the wireframe, geological block model and the grade and diamond value information provided by Z-Star, MPH prepared a mineral resource statement for the Tongo Mine development. At a +1.0mm bottom cut off the Indicated resource is established at 740,000 kimberlite tonnes for a total of 1,906,000 carats for the four kimberlites. Grades range from 0.8cpt for Kpandebu to 3.4cpt for Kundu. The diamond values range from US\$182/ct for Kpandebu to US\$194/ct for the Kundu and Lando kimberlites.

The Inferred resource totals 2,230,000 kimberlite tonnes containing 5,463,000 carats, at an average grade of 2.4cpt. The combined Indicated and Inferred resource is therefore 2,970,000 tonnes containing 7,369,000 carats at a +1.0mm bottom cut off (Table 4).

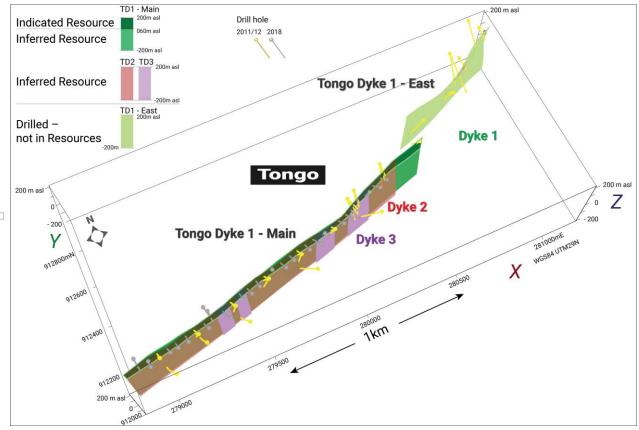








#### Figure 10: Tongo Dyke-1 kimberlite dyke segments



Kimberlite System	Dyke Segment	2018 Resource Category	Composite SG of KZI	Volume KZI (m3)	Tonnes KZI	% Kimberlite in KZI	Ton nes Kimberlite	+1.00mm Kimberlite Grade (cpt)	Total Cara ts	+1.00mm \$/carat
Surface (*245m)	to 110masi									
Kundu	B(K1)	Indicated	2.72	92,966	252,923	79.4%	200,000	3.4	680,000	\$ 194
Lando	C(L1)	Indicated	2.75	105,727	291,269	74.6%	220,000	3.2	704,000	\$ 194
	G(LZ)	Indicated	2.76	43,117	119,054	81.8%	100,000	2.5	250,000	\$ 194
K pande bu	KP1(A)	Indicated	2.77	38,156	105,622	55.8%	60,000	0.8	48,000	\$ 182
Surface(~200m)	to 060masl									
Tongo Dyke 1	T(D1)	Indicated	2.76	88,788	244,664	64.8%	160,000	1.4	224,000	\$ 187
Total Indicated Re	e so urce s 09/1	11/2018					740,000	2.6	1,906,000	
	to 110masl									
Surface (*245m) Kundu	Various	Inferred	2.74	161.044	441.258	64.4%	290.000	3.2	928.000	Ś 194
Lando	Various	Inferred	2.75	151,629	441,238	63.5%	290,000	2.8		\$ 194 \$ 194
Koande bu	KP1(B)	Inferred	2.74	21.843	59,952	49.8%	30.000	13	-	\$ 194
110masl to 0 masl		interreg	2.14	21,043	37,734	47.0/0	30,000	C1	39,000	2 104
Kundu	Various	Inferred	2.73	185.201	506.038	73.3%	360.000	3.2	1,152,000	\$ 194
Lando	Various	Inferred	2.75	256,431	704,938	67.3%	470.000	2.8	1,316,000	+
K pande bu	KP1(A&B)	Inferred	2.75	49,865	136,914	54.9%	80,000	1.3	104,000	
Surface (~200m) t	o 060masi									
Tongo Dyke 1	TD2 &3	Inferred	2.75	64,552	177,564	68.4%	120,000	1.6	192,000	\$ 187
060masl to -040 n	asl									
Tongo Dyke 1	TD1,2,3	Inferred	2.75	153,340	422,229	66.3%	280,000	1.6	448,000	\$ 187
-040 masl to 200 n	nasi									
Tongo Dyke 1	TD1,2,3	Inferred	2.76	153,929	425,135	76.4%	3 30,00 0	2	528,000	18
Total Inferred Res	so urce s 09/11	1/2018					2,230,000	2.4	5,463,000	

#### Table 4: MPH Mineral Resource Estimate for the Tongo Mine development

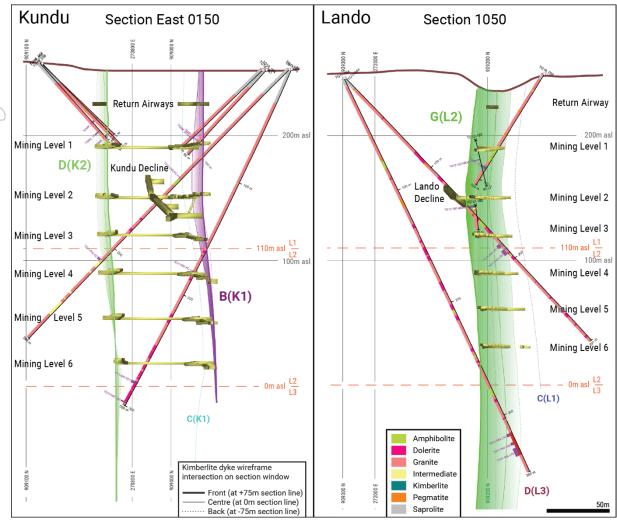
### 6.3 Further Potential

It should be noted that the Indicated and Inferred mineral resource has been estimated down to approximately 230m below surface for Lando, Kundu and Kpandebu and 400m below surface for Tongo Dyke-1. However, drilling has intersected kimberlites at greater depths than the current resource and furthermore a number of other kimberlites have been drill tested and sampled but not in sufficient detail to declare them into resource.

## 7. Mine Plan

Newfield Resources, SRK and Datamine have designed a detailed mine plan for the Tongo Mine development. The mine will be exclusively underground with access to the Kundu and Lando kimberlites being from a single portal entrance located approximately midway between the two kimberlites at 250masl. Tongo Dyke-1 will be accessed by a separate portal commencing five years after the portal and underground decline for Kundu/Lando has been developed. It should be noted that the detailed mine design work has only been carried out on the Kundu and Lando kimberlites and that Tongo Dyke-1 remains at an earlier stage of work and confidence, albeit some of the detailed FEED costings have been applied. A detailed mine design will be formulated for Tongo Dyke-1 in due course once Kundu and Lando are in production.

The single access decline to Kundu and Lando will commence with a 6m x 4m portal entry and continue at the decline slope angle of 8-degrees for a distance of 149m whereafter it will split into two separate declines of 4m x 4m dimensions towards Kundu and Lando respectively. The joint decline will take approximately four months to develop and equip before the split. Thereafter the 4m x 4m declines will continue at a slope of 8-degrees and spiral down to Level 5 (48masl) which is the basis of the current mine plan. The Kundu decline will extend for a distance of 1,049m and the Lando decline for 1,109m and both will be developed over a 25 month period from the time of the joint decline split, which equates to an average development rate of approximately 60m per month per decline.





As the decline progresses, at each 35m vertical depth a mining level will be established. This will comprise rock drives each of  $2m \times 2.2m$  in dimension which will have a 6m clearance from the kimberlite. Mining Level 1 (L1) will be established at 188masl. A  $3m \times 3m$  return airway will be established at the top of L1 on the respective kimberlite dykes in order to facilitate ventilation for the life of mine. A 5m minimum thickness crown pillar will protect the underground workings from water ingress from surface.

At each level intersection the declines will have a flat section that facilitates the breakaway into the rock drive that runs parallel to the kimberlite dyke (fissure) on that level. A 2m x 2.2m access crosscut is then developed from the rock drive to intersect the fissure. A crosscut will be developed every 10m along the rock drive. Once the crosscut has intersected the kimberlite a fissure drive is developed to the left and to the right. The expected development rates for the rock drives and cross cuts are 60m per month.

Including the decline, return airway, cubby, access, ore pass, rock drive, crosscuts, service bay and ventilation, the total development for Kundu and Lando will be 10,680m and 12,723m, respectively, over the 8-year initial Life of Mine (Reserves-only schedule).

# 8. Mining Method

A number of different narrow fissure mining methods were considered during the PEA (2016) which are not repeated in this FEED Study but can be referenced in the PEA document. The selected mining method is the traditional shrinkage stoping which is commonly used in kimberlite dyke mining in South Africa.

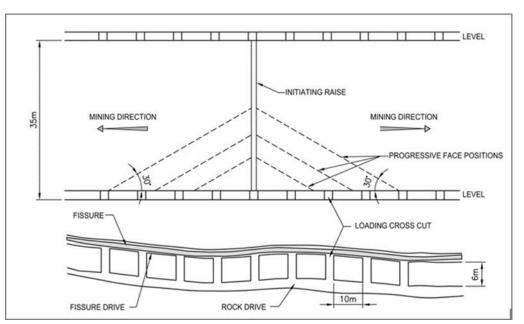
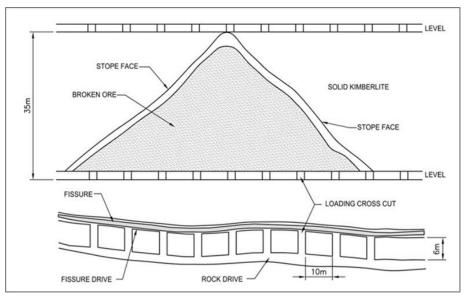


Figure 12: Plan view of the Overhand Shrinkage Stoping layout

Figure 13: Section view of the Overhand Shrinkage Stoping layout



In most shrinkage stoping applications, mining is initiated from a raise. The standard practice is to develop the raise vertically then to establish the stope face by sliping the sidewalls from the bottom upwards, creating an inverted "V" (Figures 12 and 13). The stope face is typically angled at 30-degrees and has a face length of 60m to 70m. Each stope face is drilled and blasted each day shift, with ore loading and hauling taking place during the night shift utilizing mechanical air loaders (rock shovels). The ore is loaded into hoppers on track mounted 3 tonne locos which haul the material to the ore pass (loading bins) where it is tipped. The underground haul trucks then load from the bins and transport to surface and the processing plant.

Based on the mine design and development rates, a number of levels and stope faces can be developed and mined simultaneously.

# 9. **Production Schedule**

The production schedule was calculated by Datamine based on a number of technical software programmes. The stope rates for the project were calculated from the Mine Shape Optimiser (MSO) programme based on specific parameters. The development design was done using Studio 5D Planner based on the stopes obtained from MSO. The design was then exported to Enhance Production Scheduler for the scheduling of the production. The stope optimization parameters were based on the recovered +1.18mm mining grades as determined by Z-Star and reported by MPH in the JORC Resource Report, as shown in Table 5.

Table 5: MPH and Z-Star recovered (factored) Mineral Resource grade and value estimates

Kimberlite	Recovered Grade (cpt) +1.0mm	Total Content Value (\$)	Recovered Grade (cpt) +1.18mm	Recovered Value (\$)
Kundu	2.5	217	2.4	222
Lando	2.3	217	2.2	222

Based on the envisaged 85cm mining stope width, a diamond value of US\$222 per carat, mining recovery of 95%, and a mining and processing cost of US\$95 per tonne (based on the older PEA study figures), the cut-off grade required for a stope to be profitable, was calculated at 45cpht (0.45cpt). A 10% discount factor was then applied on the basis that where some stopes are marginal or slightly loss making they will nevertheless be mined as capital has already been invested to access profitable stopes. This therefore reduced the grade in the optimisation to 40.5cpht as the cut-off for mining zone profitability.

On the basis of just Kundu and Lando, the Reserves-only mine schedule sees a total of 1.1 million run of mine (diluted) tonnes produced which yields approx. 1.1 million carats, at an average Life of Mine grade of 1.0 carat per tonne, well over double the profitability cut off which shows an attractive margin for the mine (see Figure 13).

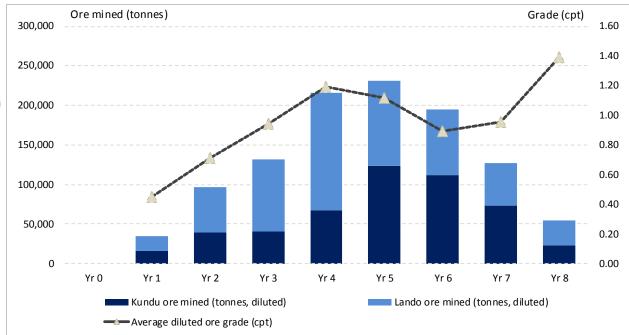
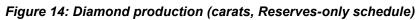
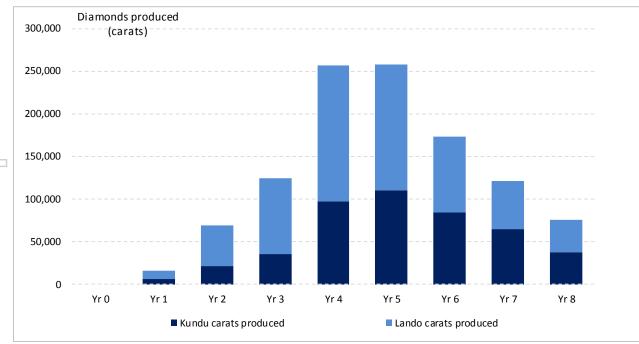


Figure 13: Production run of mine (diluted ore tonnes) and average diluted ore grade (cpht) (all Reserves-only schedule)

Based on the Reserves-only mine schedule, the first stope ore is recovered within 12 months of decline development commencing. Year-1 of this schedule would see some 15,000 carats produced which increases to 69,000 carats in Year-2, 124,000 carats in Year-3 and 257,000 carats in Year-4 (and Year-5). Production thereafter progressively declines as the current Reserves for Kundu and Lando are depleted to Year-8, where 75,000 carats are forecast to be produced (see Figure 14).





While the initial Reserves-only Life of Mine extends to only 2027, there is naturally expected to be high potential for at least deeper levels of the developed kimberlites to be brought into future mine plans as required/appropriate.

## **10. Mining Equipment**

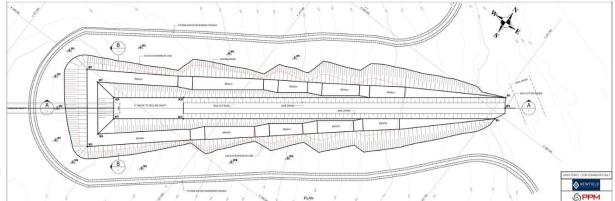
The main mining equipment for the decline development will comprise two each of the following: 15t haul truck, jumbo rig rock drill and underground LHD loader. In order to reduce the capital requirement Newfield has negotiated a lease and purchase contract with Perth based BauMart Holdings Limited. All six units will be leased for a period of 36 months at a monthly rate of US\$75,250 and can be purchased for a residual value of US\$50,000 at the end of the lease period. The units have been inspected at the factory in China and specific requests for parts and engine types will be incorporated into the manufacture of the machines. A 12 months maintenance contract with a dedicated service engineer is included in the contract.

The rest of the underground mining equipment is of the standard specification typically seen in the majority of underground mines.

### 11. Geotechnical

SRK Consulting has been the key consultant on the geotechnical aspects of the mine development plan. Consultants have been involved in logging and assaying drill core for rock strength and fracture pattern analysis. Furthermore, much work has been done on the selection of the portal location, design and safety work. The box cut and portal designs have been provided by SRK and excavations have already commenced by Newfield. Some 45,000m<sup>3</sup> of overburden, weathered and competent granite is to be excavated for the box cut, with some 22,000m<sup>3</sup> having been removed already by Newfield.

#### Figure 15: Kundu/Lando box cut plan view





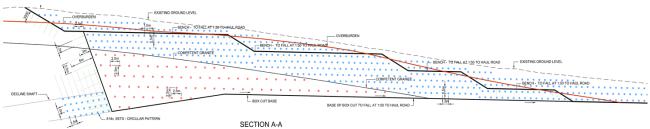
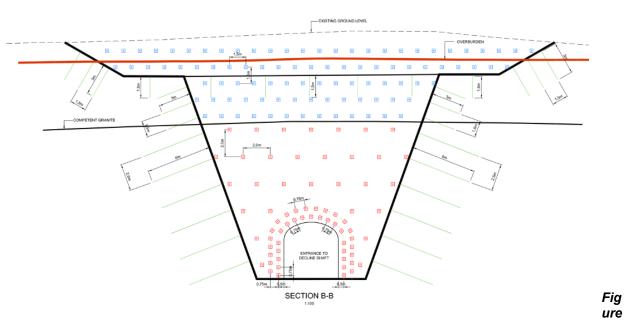


Figure 17: Kundu/Lando portal entrance design



18: Kundu/Lando box cut in progress



# 11. Hydrology and Hydrogeology

SRK Consulting were the lead consultants on the hydrological and hydrogeological studies at Tongo. This has involved logging of drill core holes, assessing permeability and inflow rates based on airlift flow tests, and issuing a report on the findings.

In summary, the Tongo Mine development will have a progressively increasing water inflow rate to the underground workings as depth increases.

The total flow rates, in litres per second, predicted for Year 1 are:

- o Kundu 17
- o Lando 10
- **Total** 27

The inflow rates steadily increase until approximately Year 8. The predicted inflow rates, in litres per second, for Year 8 are:

- o Kundu 92
- o Lando 63
- o Total 155

The pumping design to dewater the predicted inflow rates has been established at 100 litres per second using a PCH 150 Pump on each kimberlite with pumping required for up to 22 and 15 hours per day respectively for Kundu and Lando once the mine reaches L3 to L5 depth. However, in the early years for mining of L1 and L2 a smaller pumping capacity is required and budgeted for.

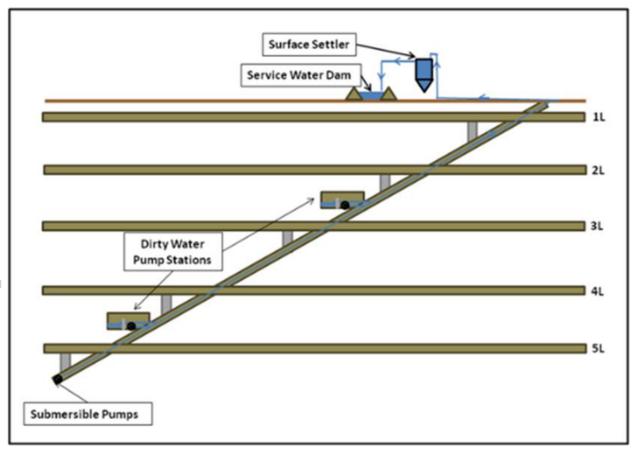
More detailed hydrogeological studies are budgeted for in the first year in order to better refine the water ingress and pumping requirements for the later years of the mine life.

The mine dewatering system is designed as a dirty water handling system and suits the type of mining method. The system is designed as a cascade system where water is collected on the levels and transferred to the pump station dams situated in the declines on L1, L3 and L5. On surface a water settler treats the dirty water through separating the suspended solids from the water. The overflow is clean water and a small percentage is re-used as service water for the mine whilst the rest is discharged.

The service water usage requirements for mining were based on the input parameters as tabulated below. The total water consumption for Kundu and Lando was therefore assumed as  $200 \text{ m}^3$  per day.

Element	Unit	Number
Development Faces per Level	Each	4
No of Working Levels	Each	3
Decline Development	Each	1
Rock Drills per Face	Each	1
Consumption (S25)	Litres/sec	0.13
Maximum Flow	Litres/sec	2.66
Shift Per Day	Each	2
Shift Duration	Hours	8
Utilisation	%	60%
Total Volume per mine	m³/day	91.93

Figure 19: Mine dewatering system (schematic)

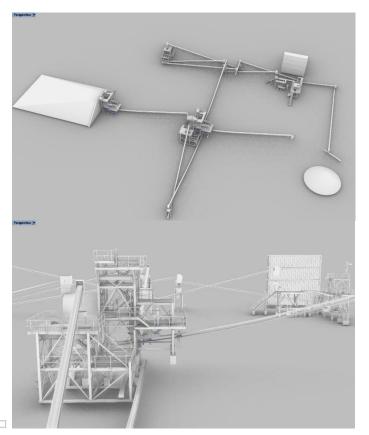


# 12. Process and Recovery

As part of the Tribute Mining and Revenue Share Agreement, Newfield has acquired the former Koidu 50tph production plant from Octea Mining. A new plant configuration has been designed by PPM using the basic structures of the plant, with complete new designs and quotations for the scrubbing and screening section, final recovery and sort house being supplied by various contractors.

The head feed capacity of the plant will remain at 50tph with the top cut off size established at 25mm, with a bottom cut off equivalent of 1.2mm. The re-crush cut off size will be 8mm. The plant is of standard specifications for a DMS plant, having seven main sections being head feed/primary crushing, scrubbing/screening, secondary crushing, DMS concentration and transfer, recrushing, recovery plant and sort house. The budget for the plant refurbishment and upgrade is set at US\$5.1 million.

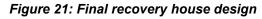
Figure 20: 50tph DMS plant design lay-out

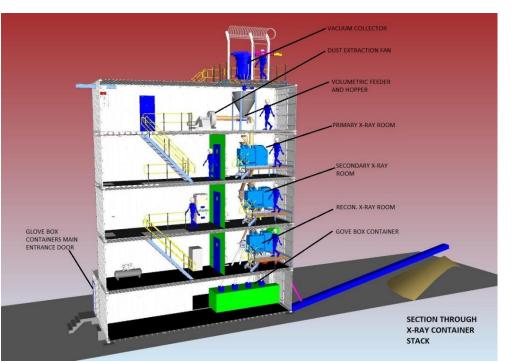


The 50tph plant is scheduled to operate for 24 hours per day, with an 85% utilization, once the mine is in full production. On the Reserves-only development case, this is sufficient to treat the ore from Kundu and Lando, with considerable excess capacity.

The recovery section for the 50tph plant has been designed by ADP Marine and Modular and includes all electrical and instrumentation specifications. Diamond recovery will be by three Debtech designed CWX118CD dry X-Ray machines at a cost of US\$1.0 million (included in the plant capex). Newfield has already paid a 30% deposit and manufacture of the X-Ray machines is ongoing with an envisaged factory testing date in May 2019. The sort house has been designed by PSI and caters for up to 8 sorters.

The DMS concentrates will report to -2mm+1mm, -4mm+2mm, -8mm+4mm and -25mm+8mm and be fed to the primary X-Ray machines. The tailings from the primary X-Ray machine are fed to the secondary X-Ray machine. The secondary X-Ray machine tailings are discharged onto the recovery plant tailings conveyor. The primary and secondary X-Ray machine concentrates are combined for further treatment and report to the sort house feed bins in their respective size ranges. If the concentrate sizes are too large then they will be re-concentrated in the third X-Ray machine before presenting to the sort house. The diamonds recovered by the sorters will be delivered to the weighing and accounting glovebox for final checking and then deposited into the safe. The concentrate tailings will be transported to the Recovery Tailings Stockpile.





# **13. Power Requirements**

For the FEED program, tenders were gathered for the power generation at the Tongo Mine development on a lease basis. This reduced the upfront power-related capital to approximately US\$2.0 million. The power usage is calculated based on a gradual roll out of generators as the mine develops with Year-1 only requiring 80kW of power, which increases to 600kW in Year-2, 1,021kw in Year-3, and peaking as deeper levels of the mine are exploited.

## 14. Project Infrastructure

PPM and Newfield have jointly established a detailed project infrastructure plan with specific designs, detailed drawings and in some cases civils estimates created by consulting group RMCE. The philosophy adopted for the Tongo Mine development is based on the universal "fit for purpose" approach whereby existing buildings, workshops, stores and other constructions are used or upgraded. The vast majority of the infrastructure will be built in-house by Newfield.

The overall upfront capital budget for the initial camp, portal and plant infrastructure is US\$3.8 million (over Years 0-2). However, this also includes a number of EMV and LGV vehicles for the overall mine operation. Construction of some of the camp and office buildings is completed, others ongoing. The portal and plant civils have not yet commenced but are being scheduled during the course of 2019. Accommodation for up to 80 senior and middle management staff is planned on site, with the remainder of the work force being housed in the wider Tongo community area.

# **15. Capital Cost Estimates**

The overall capital expenditure estimate (+/- 10%) for the first three years of development of the Kundu and Lando kimberlites (Years 0-2) under the Reserves-only schedule is US\$29.4 million (upfront capital expenditure, nominal basis). The major items in this forecast comprise: portal infrastructure and decline development (US\$5.3 million), level development and ventilation (US\$7.8 million), process plant refurbishment (US\$5.1 million), power supply (US\$2.0 million), general infrastructure (US\$3.8 million) and mining licence fees (US\$2.2 million).

The residual escalated capital for the Reserves-only Tongo Mine development post Year 2 (inclusive of ongoing decline and level development for Kundu and Lando) is estimated at US\$23.3 million (nominal basis), which includes all sustaining and major replacement capital. Post investment of the upfront capital expenditure estimate, it is expected that all further capital expenditure will be funded out of forecast project cashflow.

Item	Upfront (Yrs 0-2)	Residual (Yrs 2-17)	Total
	US\$'000	US\$'000	US\$'000
Corporate	275	0	275
Licence fees and rental	2,200	5,031	7,231
Tonguma Portal	731	0	731
Tonguma Joint Decline	597	0	597
Kundu Decline	1,884	0	1,844
Lando Decline	2,093	0	2,093
Kundu Mining	4,160	3,498	7,658
Lando Mining	3,628	3,535	7,163
Plant	5,051	0	5,051
Power Supply	2,011	724	2,735
Security	297	0	297
Infrastructure	3,829	0	3,829
IT	334	0	334
Supply Chain	719	353	1,072

Table 7: Upfront and residual/sustaining capital expenditure requirements (Reserves-only schedule)

HSE	320	726	1,046
HR	170	0	170
Owner's Rep	994	0	994
Major Replacement	99	9,442	9,541
Total Capital	29,393	23,310	52,703

## 16. Operating Cost Estimates

The operating cost estimates for the Tongo Mine development have been done to a +/- 10% level of detail and include certain contingencies. Based on a total life-of-mine forecast operating cost of US\$137 million (nominal) and total diluted ore processed of 1.09 million tonnes (Reserves-only schedule), an average escalated operating cost of US\$127 per tonne of ore is established. Clearly in the early and later mine years where tonnage is lower, unit opex is elevated. Table 8 summarises the operating costs for the initial three years of the mine and the remaining life of mine.

Item	Upfront (Yrs 0-2)	(Yrs 2-17)	Total
	US\$'000	US\$'000	US\$'000
Corporate	136	449	585
Diamond Marketing	291	3,721	4,012
GoSL Diamond Export Fees	1,260	16,125	17,385
Kundu Stoping	581	9,750	10,331
Lando Stoping	1,068	11,300	12,368
Plant	1,113	2,664	3,777
Power Supply	2,930	25,203	28,133
			· · · · · · · · · · · · · · · · · · ·
Security	1,031	2,256	3,287
Infrastructure	1,691	5,400	7,091
IT	406	1,402	1,808
Supply Chain	256	661	917
HSE	707	1,059	1,765
Manpower	14,040	31,838	45,878
Total Working Costs	25,510	111,826	137,337

Table 9: Life of mine unit operating cost estimates (US\$ per tonne processed, Reserves-only schedule, escalated basis)

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8
Tonnes ('000)	34	97	132	215	231	194	127	54
Opex (US\$/t)	247	124	111	107	106	110	135	209

#### **Cost and Diamond Price Inflation** 17.

The costing of capex and opex has been done to within +/- 10% confidence limits. Furthermore, a contingency of up to 10% on certain costs has been applied. A cost inflation/escalation of 2% per annum (typically regarded as US\$ inflation) has been applied to the operating costs for the life of mine.

The diamond price has been inflated at the same 2% nominal rate (0% real) as per the operating This is considered to be conservative based on the long-term supply demand costs. fundamentals of the rough diamond market. In its most recent industry sector note, Bain (2018) forecast future rough diamond supply to grow at between -1% and +1% with demand at +2% real (2% to 4% nominal) through to 2030. Bain expects China and the USA to maintain their leading roles in the diamond jewelry market with real GDP growth of 2-3% per annum fueling the US demand and the growing number of middle class in China will reinforce the long-term demand trend.

#### **Financial Model Results** 18.

PPM has prepared a detailed discounted cash flow model for the Tongo Mine development. This is a pre-Octea royalties, pre-tax, ungeared, nominal, project level model. The cash flows are post Government export royalty of 6.5% and diamond sales/marketing fees of 1.5%.

The Reserves-only case model has the following economic parameters, on an escalated basis: 8 years

US\$222/ct (Kundu/Lando)

US\$267 million

US\$137 million

US\$53 million

US\$53 million

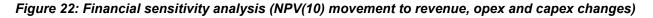
- Life of Mine 0
- Total ore mined and processed 1,085,076 tonnes 0
- Total carats produced 1,093,228 carats 0
- Life of mine average grade 100cpht (1.00cpt) diluted run of mine 0
- Real diamond price  $\circ$
- **Total Gross Revenue** 0
  - **Total Operating Costs** 0
  - **Total Capital Costs** 0
  - **Operating Margin** 0
  - **Project Cash Flow** 0
  - NPV(10) 0
  - IRR 0

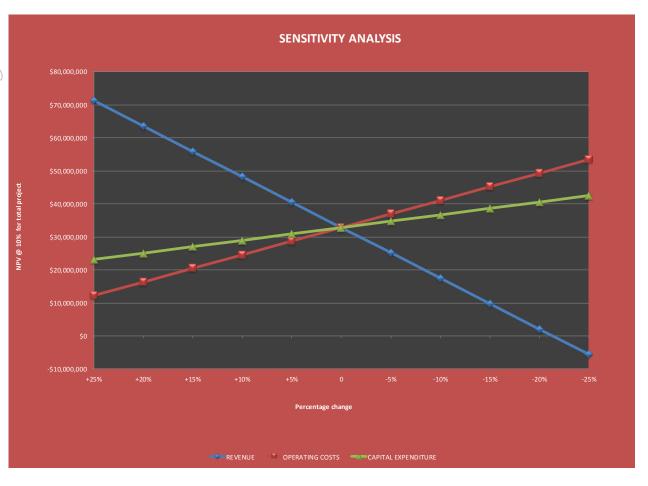
US\$33 million 30%

49%

#### **Sensitivity Analysis** 19.

PPM has conducted a sensitivity analysis on the basis of adjusting the operating costs, capital costs and project revenue (effectively diamond prices) by +/- 25%. There is only a relatively modest impact from changes in operating and capital costs. As would be expected, the most significant return variance is in the revenue input.





## 20. Risk Analysis

A detailed project risk analysis has been undertaken by PPM and its associated consultants, primarily SRK Consulting. Key risk areas analysed include business, technical, human resources, project management, and corporate. Each risk area was broken down to a number of individually identified risks and assessed regarding its likelihood and severity of impact should it occur. A risk exposure table has been created and mitigations against the risk identified. It is incumbent on Newfield to continue to manage the risk register as the project moves into construction and production.

A summary of the perceived key risks categories identified are:

#### Table 10: Key risks

Key Risk	Likelihood	Mitigation
Nature of ore body	90% due to complexity of dykes	Additional drilling in advance of mining
Unforeseen and excessive water ingress in underground workings	25% as pump capacity is already designed for large water ingress	Further Geotech / hydro-drilling and testing and ensure adequate pumping capacity at all times

Theft (diamonds, equipment, consumables)	90% for equipment and consumables 25% for diamonds	Ensure strict security protocol and systems. Monitoring equipment in red areas
Incorrect process design	90%	Optimisation study on process design prior to construction. Implement regular metallurgical testing once plant is constructed
Inadequate mining skills in country	90% as low skills capacity	Utilise experienced expatriate skills in early mine life and train and develop local skills over time
Global diamond prices depreciating	50% due to rough diamond market uncertainty	Monitor rough diamond market, time sales for optimum periods, develop regular client base for sales, brand Tongo goods.

# 21. **Opportunities**

Project consultants PPM and SRK have built an opportunities log which highlights certain areas where improvements, efficiencies and cost savings can be identified. Study work is underway in relation to process capacity expansion and optimisation. This is aimed at matching any substantial expansion in future mine production rates, particularly should Tongo Dyke-1 be concurrently mined with Kundu and Lando. In addition, a potential new mining development technique to reduce the equipping and manpower in the development drives is also to be investigated in the near future.

A key opportunity for the Tongo Mine development is the potential to extend the life of mine, or increase the production capacity, through bringing additional diamond resource to account. Both Kundu and Lando have large-scale Inferred Resource estimates (total 4.2 Mcts, +1.0mm cut-off) predominantly delineated from approximately 100m below surface to a maximum depth of approximately 230m (and limited currently only by drilling). These Inferred Resources were not converted to Ore Reserves for inclusion in the Reserve life-of-mine schedule due to their lower level of resource classification. Naturally however these Inferred Resources are planned to be upgraded into Indicated Mineral Resources via additional drilling (with targeted eventual conversion of this material to Ore Reserves). Subject to further definition, this material naturally represents potentially highly economic plant feed given the additional capital required to exploit it would likely be limited to incremental decline and level development.

Moreover, there are a further nine kimberlites located within the Tongo Mine development licence area. Two of these already have defined Indicated and Inferred resources (Tongo D-1 with 1.4 Mcts at 1.0mm cut-off, and Pandebu with 0.2 Mcts at 1.0mm cut-off). The other seven are all highly prospective for significant diamond deposition. Infill drilling is planned to upgrade the Inferred Resources at Tongo D-1 to Indicated status, with targeted eventual conversion to Ore Reserves also.

A summary of the main opportunities identified are:

#### Table 11: Key opportunities

Key Opportunity	Likelihood	Realisation Plan
Plant expansion and optimisation	75%	Trade-off studies into potential future existing plant expansion versus addition of second stand-alone plant
Potential for waste sorting	90%	Investigate cost and benefit of optical waste sorter to reduce plant feed and operating cost

	Optimise ore flow underground	90%	Review current development drive design to make trackless to reduce cost and manpower and accelerate production schedule
	Exploration to upgrade existing resources and define new resources	90%	Exploration program to upgrade existing resources and define new resources at depth and across other kimberlites
2	Chinese supplier for power generation	95%	Re-tender to Chinese suppliers for power generation to reduce costs

## 22. Conclusions

Completion of the FEED Study has demonstrated that the Tongo Mine development represents a technically and economically viable project. The detailed level of study and assessment embedded in both the FEED Study, and the recently updated Mineral Resource estimate for Tongo, have resulted in a considerable reduction in general technical risk for the project.

The Tongo Mine development FEED Study forecasts strong financial returns and robust economics, even under solely the Reserves-only development case. The upfront capital required to develop the mine is modest by typical/average diamond industry standards. Finally, the Tongo Mine development benefits from being brought into production relatively quickly compared to other diamond operations and reaching a sustainable, profitable production level from the early stages of its forecast operating life.

Significant potential exists to increase the overall mined tonnage for the Tongo Mine development, thereby allowing for future scale expansion and/or life extension of the project. Opportunities also exist to optimize the mine development and processing capabilities in order to further reduce forecast costs and increase economic efficiencies/value.

#### PARADIGM PROJECT MANAGEMENT (PTY) LTD.

MPH CONSULTING LIMITED.

## 23. References

□ Bain & Company and AWDC:	Research Report titled "The Global Diamond Industry 2018"
MPH Consulting:	Mineral Resource (JORC) Estimate Update Report for the Tongo Project, November 2018
Z-Star Consultants:	Update of the Tonguma and Tongo (Dyke-1) Mineral Resource, November 2018
Paradigm Project Management:	Tongo-Tonguma Kimberlite Dyke Mine Preliminary Economic Assessment, September 2016
Paradigm Project Management:	Front End Engineering Design Study, February 2019

### APPENDIX 1: Reporting of JORC Compliant Resource Statement for the Tongo Diamond Project -Sierra Leone.

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Newfield Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to</li> </ul>	<ul> <li>Drilling was contracted out to Boart Longyear with HQ and NQ core recovery over various phases of drilling which culminated in over 76,000m of drilling on the project area, of which over 22,000 m was drilled on Kundu and Lando kimberlites.</li> <li>The drill programme was initially designed with boreholes at 200m or 100m intervals along strike. In 2018, 50m "infill" drilling was completed on four kimberlite dykes (Kundu, Lando, Kpandebu and Tongo Dyke 1) to a depth of approximately 100m below surface.</li> <li>Drill core was logged in detail at the Tongo site and selected</li> </ul>
	<ul> <li>the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed</li> </ul>	<ul> <li>Drin core was logged in detail at the rongo site and selected samples of kimberlite and country rock core collected, and assayed for specific gravity, moisture content, petrography and microdiamond analysis. The latter samples were labelled and bagged prior to dispatching to the Saskatchewan Research Council Geoanalytical Laboratories ("SRC") in Canada.</li> <li>The SRC is accredited to the ISO/IEC 17025 standard by the Standards Council of Canada as a testing laboratory for diamond analysis using caustic fusion.</li> </ul>
	information.	<ul> <li>Bulk sampling was predominantly carried out in 2007, 2012 and 2014 on various kimberlites with samples collected from near surface using either drill/blast or free dig methods. Samples were measured and transported for processing either via a 50tph DMS plant (currently being modified to be the main Tongo Mine production plant) or a smaller 5tph DMS plant. The former had diamond recovery by X-Ray machines whereas the latter was initially by grease table, and later by X-ray. All results have been modelled and standardised to be reported by industry standard methods.</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	<ul> <li>Drilling to date on the Tongo Project has been by diamond/core drilling techniques.</li> <li>The upper portions of the holes were generally drilled using HQ core diameter and cased until competent rock was intersected. Thereafter the drill diameter reduced to NQ core for the remainder of the hole.</li> <li>Over 76,000m of drilling has been completed on the Project, of which over 22,000 m of drilling was completed on Kundu and Lando kimberlites.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Each drill hole was surveyed down hole for orientation purposes and the information provided to the Company's geologists.</li> <li>Core recovery was generally very good and is core loss is calculated and each core tray photographed by the Company geologists.</li> </ul>
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	<ul> <li>All drill core in 2018 was logged in detail by Company geologists and also by a consulting geologist on behalf of MPH Consulting which has prepared an independent JORC compliant resource for the Tongo Project. For all drill core pre-2018, the core was logged by Company geologists and by an independent consulting geologist from Mineral Services Canada. Standard kimberlite logging techniques and measurements and recordings were applied.</li> <li>All drill core was photographed and the key intersections stored in core trays in a covered building on the Tongo site.</li> </ul>
	<ul> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>No quantitative analysis was done for the core, except for olivine counts.</li> <li>All core was logged and photographed and the main intersections are stored on site in durable core trays for future inspection, if required.</li> </ul>

	Criteria	JORC Code explanation	Newfield Commentary
d te	Criteria Sub-sampling echniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> </ul>	<ul> <li>All sections of the kimberlite were collected and dispatched for microdiamond analysis to SRC.</li> <li>SRC conducted extensive quality control tests on each sample and these were reported to the Company along with the sample results.</li> <li>SRC retained all sample residues and all diamond recovered are stored at SRC.</li> <li>The bulk samples collected in 2007, 2011, 2012 and 2014 were selected over the four different kimberlites that comprise this resource statement. Some samples were larger than others but each sample was carefully measured/surveyed in-situ. In addition, specific gravity, bulk density and moisture content</li> </ul>
		<ul> <li>Whether sample sizes are appropriate to the grain size of the material being sampled,</li> </ul>	<ul> <li>measurements were collected for each bulk sample or subsection of bulk sample processed. This enabled an accurate volume and tonnage to be collected which could then be used to calculate the grade of each bulk sample.</li> <li>Kimberlite dykes are by nature elongate and narrow in form. Therefore it is challenging to achieve full representation along strike and at depth for these types of deposits. The bulk sample stone size frequency data is therefore plotted along with the stone size frequency data of the microdiamond samples that were collected from the bulk sample and core drilling material. It is then statistically possible to determine the continuity of grade (or otherwise) along each kimberlite and assess whether the data is representative of the dyke or a sub-section of the dyke.</li> </ul>
)			• The density and volume of sampling of both bulk samples and microdiamond samples is sufficient to classify a portion of each kimberlite in the Indicated category (where local grade and geometry can be established) and where the data is less representative, Inferred category of resource has been declared.
a	Quality of assay lata and laboratory ests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments,</li> </ul>	<ul> <li>Microdiamond analysis by caustic fusion of kimberlite rock is a standard process in the diamond industry to determine the initial diamond content of kimberlite.</li> <li>The SRC is accredited to the ISO/IEC 17025 standard by the</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
	<ul> <li>etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul> <li>Standards Council of Canada as a testing laboratory for diamond analysis using caustic fusion.</li> <li>SRC conducts quality control testing/spiking of all samples processed and these are reported with the sample results. 100% of all spikes were recovered which demonstrates the thoroughness of the assay process at SRC.</li> <li>The bulk sampling collection and processing was done by experienced geologists and metallurgists respectively. The processing was via industry standard diamond plant scrubbing, crushing and DMS technology with diamond recovery either by X-Ray machines or grease (or both). Samples and tailings were processed at least twice through the DMS to ensure control and efficiency of recovery.</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>No twin drill holes were drilled.</li> <li>Verification of drill core was undertaken by independent consultants of MPH or Mineral Services Canada during the various phases of drilling.</li> <li>Extensive drill and bulk sample databases are kept and are verified by the independent consultants and most recently by MPH as part of the resource statement exercise.</li> </ul>
Location of data points	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>All drill collars and bulk sample sites were surveyed by a real time differential GPS which gives millimetre accuracy in the X,Y and Z coordinates.</li> <li>The data spacing and distribution has been deemed by MPH and Z-Star to establish certain sections of the kimberlite dykes into either Indicated or Inferred Mineral Resource status.</li> <li>Where possible, individually identified (by logging/petrography), geological domains have been sampled separately by microdiamond samples. Where more than one microdiamond sample from drill core intersected the same domain, these samples were composited.</li> </ul>
Data spacing and	Data spacing for reporting of Exploration Results.	• The drill holes were spaced at 50 m and drilled to provide

Criteria	JORC Code explanation	Newfield Commentary
distribution	<ul> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>intersections of kimberlite dykes from a depth surface to 100 m below surface.</li> <li>The 50m spacing was established to be sufficient to establish geological continuity of the kimberlites drilled.</li> <li>MPH has provided a JORC compliant Mineral Resource estimate based on the drilling, microdiamond analysis and previous work and results on the Project.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>Statistical analysis of geological and grade continuity shows the sample density to provide robust and unbiased representative sampling.</li> <li>Outlier values in the microdiamond results have been recognised and omitted from the final grade estimations.</li> <li>The drill holes were orientated at an angle of between 60 and 45-degrees</li> <li>Selected drill core was orientated to determine the orientation of structures within the best recipe.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>structures within the host rocks.</li> <li>The drill core was placed in core trays and is stored securely at the Tongo Project site.</li> <li>The drill core dispatched for assay was done in sealed containers that could not be tampered with in transit from site to the lab on Canada.</li> <li>The kimberlite bulk samples were securely stockpiled at the Tongo camp sites. During processing the samples were trucked under security escort to the DMS plant. Once at the plant sites the samples were stockpiled on a concrete apron until processed via the plant. The diamonds were recovered under security observation in glove boxes and all diamonds recovered are stored in a safe that has two separate key holders.</li> <li>Diamonds were exported under Kimberley Process procedures. From the Tongo camp the goods were secured in a safe and transported by road to the Government valuator in Freetown</li> </ul>

	Criteria	JORC Code explanation	Newfield Commentary
			of taxes and KP certificate issue. The goods were flown out on commercial flight to Brussels where they were handed to Customs for delivery by a security firm to Antwerp for valuation.
	Audits or reviews	The results of any audits or reviews of sampling techniques and	The assay process is industry standard and no audit is required.
)		data.	<ul> <li>The process was viewed, audited and signed off by independent consultants MPH, CAE Mining and MSC.</li> </ul>
)			• Plant DMS and final recovery tailings were processed at least twice to ensure full diamond recovery.

### Section 2 Reporting of Exploration Results

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Newfield Commentary
<i>Aineral tenement</i> and land tenure tatus	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul> <li>The Tongo Project comprises mining licence ML02/12 held by Tonguma Limited and the adjacent mining licence ML2/18 held by Newfield subsidiary company Sierra Diamonds Limited.</li> <li>The Project is subject to a Tribute Mining Agreement between Sierra Diamonds Limited and Tonguma Limited. Sierra Diamonds has the rights to mine the two properties and once all capital costs have been recovered pay to Tonguma a 10% royalty on revenues (after deduction of the 6.5% export royalty paid to the Government of Sierra Leone).</li> <li>All licence fees are paid up to date and the licences are in good standing. Newfield is awaiting the signing of the Sierra Diamonds mining licence.</li> </ul>
xploration done / other parties	• Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Both Tonguma Limited and Sierra Diamonds limited have conducted extensive exploration and evaluation including of over 76,000m of drilling, bulk sampling and processing of a number of kimberlites, conducted by Octea Mining and Sierra Diamonds Itd (now a subsidiary company of Newfield).</li> <li>All of this work has been extensively reported and summarised in two resource reports issued in 2014 (for Sierra Diamonds) and in 2016 (for Tonguma Ltd.).</li> </ul>
ology	• Deposit type, geological setting and style of mineralisation.	• The Project area is underlain by Archean granite-gneiss into which presumed Jurassic age (circa. 140Ma) kimberlites have intruded. These kimberlites have been weathered into their root zones such that only kimberlite dykes with small blows or pipes remain. The extensive erosion has resulted in widespread dispersion of alluvial diamonds in the Tongo area which have been mined both commercially (to 1980's) and by artisanal miners since the diamonds were first discovered I the early 1950's.

	Criteria	JORC Code explanation	Newfield Commentary
D	Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> </ul>	<ul> <li>No new drill information is released in this announcement. Aside from the partial conversion of Indicated Resource to Probable Reserve as set out in the covering ASX release and accompanying disclosures, Newfield confirms that there are no material changes to the Mineral Resource estimate announced by Newfield to the ASX on 26 November 2018 and that the material assumptions underpinning this Mineral Resource estimate continue to apply.</li> </ul>
		<ul> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul> <li>This information was reported in previous technical reports listed in this report. Aside from the partial conversion of Indicated Resource to Probable Reserve as set out in the covering ASX release and accompanying disclosures, Newfield confirms that there are no material changes to the Mineral Resource estimate announced by Newfield to the ASX on 26 November 2018 and that the material assumptions underpinning this Mineral Resource estimate continue to apply. Newfield is also not aware of any new material information that affects the information disclosed in that release.</li> </ul>
	Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> </ul>	• Diamond grades and values have been determined from the bulk sampling and microdiamond data. Some samples were combined to provide statistically larger and more representative samples but only where geological continuity could be determined.
		<ul> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the</li> </ul>	<ul> <li>The resource cut off grades have been established to +1.0mm and +1.18mm square mesh bottom cut off.</li> </ul>
		procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	• Grades are also reported as both total content and recoverable grades (i.e. after the effects of processing).
		• The assumptions used for any reporting of metal equivalent values should be clearly stated.	<ul> <li>There are no metal equivalent values used.</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>The mineralisation occurs in near-vertical kimberlite dykes.</li> <li>There is no identified relationship between the diamond content of the kimberlites and the widths of the dykes.</li> </ul>
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	<ul> <li>Diagrams are included in the report.</li> </ul>
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul> <li>The resources are stated to a +1.18mm bottom cut off and reported as carats per dry tonnes.</li> <li>Exploration Targets are not reported in this report.</li> </ul>
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul> <li>A total of 11 kimberlite dykes are known on the project area.</li> <li>Limited bulk sampling and drilling has been completed on a number of the kimberlites not yet declared in resource.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>The work reported in this report takes the project to the stage of mine construction. Detailed engineering design has been completed and a project execution plan is being prepared.</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Newfield Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>A detailed and extensive database is held that shows all drilling, bulk sampling, density, moisture content, and other required technical information. This database has been reviewed most recently by MPH Consulting who used this as a basis for its own resource declaration work.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Site visits have been conducted in the past by MSA Projects, CAE Mining, Mineral Services Canada and most recently in 2018 by MPH Consulting.</li> <li>MPH visitors were Paul Sobie (P.Geo) and Paul Allen (Pr. Sci. Nat). Mr Sobie has visited the project area on three different occasions.</li> <li>During the site visits all processes of drilling, sampling and bulk sample processing were audited by MPH. In addition detailed logging of the 2018 drill core was undertaken by Paul Allen as a basis for support for the geological modelling work undertaken by MPH.</li> <li>The 2011, 2012 and 2014 bulk sample collection and processing was audited by CAE Mining and MSC respectively as part of earlier resource report work. The 2018 bulk sample processing was audited by MPH.</li> <li>The author is resident on the project.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> </ul>	<ul> <li>The geological model is well constrained by the extensive drill data.</li> <li>All drill holes have been carefully logged and used for creation of a robust geological model by MPH.</li> <li>The geological domains or segments of the dyke were determined and the diamond data from the bulk sampling and microdiamond.</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
)	<ul> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>assays applied to these domains, where possible.</li> <li>Different kimberlite intrusions can carry different grade and value of diamonds. Z-Star and MPH have where possible confirmed continuity of grade across certain segments of individual kimberlites. Some segments of these kimberlites have higher or lower grade than the segmental average and these have been documented where possible.</li> </ul>
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The indicated portion of the kimberlite dykes has been determined to between 245 m amsl (surface) and 115m amsl for Lando and Kundu kimberlites and between 200masl (surface) and 065masl for Tongo Dyke-1. At depths below these an inferred resource has been declared or an exploration target identified.
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions about correlation between variables.</li> </ul>	<ul> <li>Diamond industry standard grade and value statistical modelling was carried out to determine grades/values to either indicated or inferred status. The upper level to approximately 130m depth had data at a sufficient density (50m intervals) to declare indicated status on each kimberlite. Below this level the data was not sufficiently detailed and so some extrapolation was performed based on the modelling and continuity of grade assumptions, such that inferred status was declared to about 230m depth. GEMs V6.3 was used for the geological modelling.</li> <li>No assumptions on by-products were made.</li> <li>The block model was done on a 10m x 10m basis by MPH in GEMS V6.3.</li> <li>The detailed core logging and previous petrographic studies were used to determine the main segments of the dykes that comprise the model. Grades were applied to these segments, where possible, based on the density of the microdiamond and surface bulk samples. These were tied back to the bulk sample results such that modelling from the micro to macrodiamond stone sizes could be achieved and grades applied to the geological</li> </ul>

	Criteria	JORC Code explanation	Newfield Commentary
0		<ul> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>domains/segments.</li> <li>Grades are reported at a +1.18mm square mesh cut off which is optimal cut-off for the project. Furthermore, grades are reported as total content or as recoverable/factored grades which considers inherent inefficiencies of processing plant where small stones could be lost.</li> <li>MPH validated the geological work done by the company.</li> </ul>
-	Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	<ul> <li>Tonnages and Grades are reported on a dry basis.</li> </ul>
-	Cut-off parameters	<ul> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul> <li>Grades are reported at +1.18mm cut off which is industry standard for diamond projects.</li> <li>Mine stopes with a diluted grade less than 0.4 cpt were excluded from the mine plan.</li> </ul>
-	<i>Mining factors or assumptions</i>	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul> <li>Standard shrinkage stoping is considered to be the mining method. A mining zone width of a minimum of 0.85m is assumed. Based on the detailed logging the dilution of kimberlite with country rock could be established and therefore the tonnage for the kimberlite zone (KZI) was calculated which included all kimberlite and any country rock within a 0.85m stope width. The percentage of kimberlite within that modelled stope width was calculated based on the detailed core logging and therefore the in-situ volume and tonnage of kimberlite could be calculated and applied to the geological model in a domain, segment and 10m x 10m block model.</li> </ul>

	Criteria	JORC Code explanation	Newfield Commentary
0	Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Resource grades are reported at a +1.18mm cut off which is the optimal cut-off for mining. Furthermore, grades are reported as total content and as recoverable/factored grades which considers inherent inefficiencies of processing plant where small stones could be lost. The recovered grades are typically lower than total content grades, with a commensurate higher diamond value as smaller, lower value diamonds are lost in the process.
	Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Environmental impact assessment studies have been completed for the Tongo project area and approved by the Environmental Protection Agency. Environmental licences are in place for the project.
	Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Bulk density measurements (601 in number) of multiple kimberlite and rock samples have been taken and have been used in the resource declaration exercise.</li> <li>For core samples the density was calculated by normal water displacement methods.</li> <li>For bulk samples bulk density was calculated by a bucket weight method, which takes into account the void spaces in a sample stockpile.</li> </ul>
	Classification	• The basis for the classification of the Mineral Resources into	• The resource has been declared to either an indicated or inferred

	Criteria	JORC Code explanation	Newfield Commentary
D		<ul> <li>varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>level of confidence depending on the density of data and depth of the deposit, according to JORC Standards of reporting (2012).</li> <li>All relevant factors have been taken into account by MPH Consulting in the declaration of the resource and therefore the outcome and result appropriately reflects the Competent Person's view of the deposits.</li> </ul>
	Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	<ul> <li>MPH reviewed but did not audit earlier resource work as reported for the project by CAE Mining and MSC. The results in terms of diamond grade and value are consistent between the various consultants. However, based on the more detailed drilling and accurate logging and interpretation of the geological model, there has been an increase in tonnage declared in the resource statement for a number of kimberlites.</li> </ul>
-	Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	<ul> <li>The CP considers that the quantity of bulk samples and microdiamonds processed is sufficient to determine average diamond grade and value for the kimberlites. Where possible local grade estimates on a segmental basis have been determined and in particular for the resource declared as indicated. Otherwise global estimates have been determined on the basis of continuity of grade based on the Z-Star modelling of data and the MPH detailed geological block model.</li> </ul>
		• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	
		• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

#### Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	a JORC Code explanation	Newfield Commentary
Mineral Resource estimate f conversio Ore Reser	• Clear statement as to whether the Mineral Resources are	<ul> <li>The current Mineral Resource estimate comprising Indicated Resources within the Kundu and Lando kimberlite dykes, with a bottom cut-off of +1.18 mm is the basis of the Ore Reserve estimate.</li> <li>The Mineral Resource is stated inclusive of the Ore Reserves.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>The CP is resident on the Project and has been present at many FEED programme meetings held with PPM and SRK Consulting.</li> </ul>
Study stat	<ul> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul> <li>The Project is the subject of a detailed Front End Engineering and Design (FEED) study, which has determined engineering designs for all aspects of the project, and estimated costs to within +/- 10%, with up to 10% contingencies included on all material cost estimates.</li> <li>Both Base Case and Operating Case mine plans have been established using criteria determined by geological and geotechnical constraints. Modifying Factors have been incorporated into the mine plan, to allow for losses.</li> </ul>
Cut-off parameter	• The basis of the cut-off grade(s) or quality parameters applied.	<ul> <li>In the mine plan, mine stope blocks with a diluted grade below 0.4 cpt were excluded from the mine schedule.</li> </ul>
Mining fac or assumptic	Feasibility or Feasibility Study to convert the Mineral Resource to	<ul> <li>Modifying factors due to losses of small diamonds were estimated based on size frequency data. This has an impact on grade and revenue. A benchmark analysis of other producing underground diamond mines was undertaken. The recovery rates for these mines provided confidence that, given the style and mineralisation</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
	method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	of the project relative to the benchmarking analysis, a mining recovery rate of approximately 95% is achievable.
	<ul> <li>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul> <li>The following modifying factors were applied to the mine plan. <ul> <li>Diamond price \$222/ct</li> <li>Diamond Grade Lando - 2.2 cpt; Kundu – 2.4 cpt</li> <li>Mining recovery 95%</li> <li>Process recovery 100%</li> </ul> </li> <li>The mining method is appropriate. It is an industry standard for irregular, narrow vertical orebodies.</li> <li>Detailed geotechnical studies are reported which were carried out by SRK Consulting to optimise development and stope design.</li> <li>The Mineral Resource model has defined KZIs (kimberlite zone intersections) with true widths and detailed dilution percentages. These are the basis for determination of diluted grades in ore blocks.</li> </ul>
		<ul> <li>The minimum mining width is 0.85 m.</li> </ul>
1		• The Base Case financial model is based on Indicated Resources only, which have been converted to Ore Reserves. The narrow, vertical geometry of kimberlite dykes make them difficult and expensive to evaluate to the Indicated Resource level. Progressively deeper holes become prohibitively expensive relative to the information they provide. To overcome this obstacle, the Tongo dykes have been drilled out to establish an Indicated Resource at shallow depth only. Inferred Resources at deeper depth (below approximately 100 m) will be brought into the Indicated category as mining progresses.
		<ul> <li>Detailed engineering design of all infrastructure elements (mine, underground portal, roads, camp, plant and recovery plant) has been completed and costed.</li> </ul>
Metallurgical factors or	• The metallurgical process proposed and the appropriateness of	• Industry standard crushing, scrubbing, DMS, and X-ray recovery of

	Criteria	JORC Code explanation	Newfield Commentary
	assumptions	that process to the style of mineralisation.	diamonds is proposed.
D		<ul> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> </ul>	<ul> <li>No new or untested technology is incorporated into the design of the plant or the recovery section.</li> </ul>
		<ul> <li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> </ul>	<ul> <li>The plant being used at Tongo was previously used as the bulk sample plant for most of the evaluation bulk sampling. It is therefore proved in terms of its efficacy. It is being improved by upgrading some elements, such as a crusher, scrubber, and new X-ray recovery.</li> <li>There are no deleterious elements present in the ore.</li> <li>The bulk sampling work was mostly completed through the plant which will be used as the production plant. The representivity of</li> </ul>
		<ul> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	samples was considered during the independent resource estimation, and the samples are considered representative of the orebody.
		,	• The ore reserve incorporates the diamond value of the diamonds present as valued from over 3,500 ct of bulk sample diamonds.
_	Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• An ESIA has been completed and EMP implemented. Monitoring activities are ongoing. Environmental licences have been issued by the EPA for both MLs. Detailed plans for waste rock, slimes dam, and tailings are in place. These plans incorporate the use of a slimes dam from a previous alluvial mine. Public disclosure of project plans has been completed and public concerns incorporated into the project plan.
	Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	<ul> <li>Much of the surface infrastructure is in place already (camp, roads and site for the plant). These will be further developed as required, and detailed plans and engineering drawings are available. Volumes of waste and ore for an underground diamond mine are relatively low. An access road for supplies is in place.</li> </ul>
	Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study.	• Capital costs have been estimated by the compilation of quotes and tenders from suppliers for all material capital costs. Underground

<ul> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s), for the principal metals, minerals and co-products.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> <li>Market</li> <li>The demand, supply and stock situation for the particular</li> </ul>	Criteria	JORC Code explanation	Newfield Commentary
factors       factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.       reputable dealer (DDA Group of Antwerp) of 3,554 ct or recovered from bulk samples, re-priced to 2018 value Diamond values are assumed to rise with inflation annum. Diamonds are sold in US\$ and no exchant applicable.         • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.       • Average diamond revenue per ore reserve is derived average value per diamond sieve class (derived from the valuations) combined with the size frequency dist diamonds within the ore reserves (derived from the mine and bulk sample size distributions). This has been mod +2, +3 and +5DTC sieve classes to allow for losses in the size fractions.         Market assessment       • The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply       • The diamond market is analysed annually by Bain, analysis suggests decline in supply and growth in commodity		<ul> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and</li> </ul>	<ul> <li>Operating costs have been estimated from detailed assessment of power requirements (all power will be diesel generated), manpower, and mining consumables. Other operating costs are fixed (such as royalties). Transport costs are derived from current costs experienced by the Project.</li> <li>USD/ZAR Exchange rate is derived from a three-year average. The SLL exchange rate is current, as the rate shows a steady decline against the USD.</li> <li>Refining charges are not applicable.</li> <li>Government and community royalties have been included in the</li> </ul>
assessment commodity, consumption trends and factors likely to affect supply analysis suggests decline in supply and growth in commodity.		<ul> <li>factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity</li> </ul>	<ul> <li>Average diamond revenue per ore reserve is derived from the average value per diamond sieve class (derived from the diamond valuations) combined with the size frequency distribution of diamonds within the ore reserves (derived from the microdiamond and bulk sample size distributions). This has been modified in the +2, +3 and +5DTC sieve classes to allow for losses in those smaller</li> </ul>
A customer and competitor analysis along with the identification     In the financial model, it is assumed that all production is		commodity, consumption trends and factors likely to affect supply and demand into the future.	<ul> <li>The diamond market is analysed annually by Bain, and their analysis suggests decline in supply and growth in demand for diamonds.</li> <li>In the financial model, it is assumed that all production is sold at the</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
	<ul> <li>of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul> <li>high proportion of gem quality diamonds in the Tongo Mine footprint.</li> <li>Price is assumed to grow with inflation only. However, independent forecasts of decline in supply, and growth in demand, suggest that this assumption is conservative.</li> <li>Customer specification is not relevant to gem quality diamonds.</li> </ul>
Economic	<ul> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul> <li>NPV (Ore Reserves only) @ 10% US\$ 32.8 million</li> <li>Inflation at 2%</li> <li>Revenue per carat - Kundu \$/ct 222</li> <li>Revenue per carat - Lando \$/ct 222</li> <li>Kimberlite grade - Kundu cpt 2.4</li> <li>Kimberlite grade - Lando cpt 2.2</li> <li>Exchange Rate ZAR/US\$ 14.35</li> <li>Exchange Rate \$LL/US\$ 8,750</li> <li>Exchange Rate £/US\$ 1.28</li> <li>Diesel Price US\$/I</li> <li>Diamond price escalation % 2.0%</li> <li>Capex and Opex escalation % 2.0%</li> <li>NI, LA, overtime, shift allow, etc. 19%</li> <li>Manned Hours per month Days 27</li> <li>Manned Hours per month Hours 648</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
		<ul> <li>Recovery Efficiency wrt MRE 100%</li> <li>Manned Hours per day Hours 24</li> <li>Manned days per month Days 27</li> <li>Manned Hours per month Hours 648</li> <li>Manned Hours per year Hours 7,776</li> <li>The Project is most sensitive to changes in revenue, and leas sensitive to changes in capital expenditure.</li> </ul>
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	<ul> <li>The Company has negotiated a Community Development Agreement (CDA) with the Community Development Committee (CDC). The CDC is strictly representative of the community (including women and youth special interest groups, Chiefdon sections, the District Council and Civil Society) and the CDA guarantees a share of revenues for community development.</li> <li>The Company pays surface rent to all landowners within the MLs totalling approximately US\$ 60,000 per annum.</li> <li>Regular meetings are held between the Company and community representatives, and a grievance procedure has been formulated.</li> <li>Recruitment for unskilled and semi-skilled jobs is done through the Lower Bambara Chiefdom Recruitment Committee (similarly representative of the community, except for the exclusion of the District Council), which guarantees fair distribution of employmen opportunities throughout the community.</li> <li>Whilst no revenue is accruing prior to the commencement oproduction, the Company has agreed to provide US\$100,000 per annum for community development.</li> </ul>
Other	<ul> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> </ul>	<ul> <li>A comprehensive risk analysis has been done and is reported.</li> <li>No marketing agreements have been entered into. Currently several sales companies are vying to sell the Tongo production.</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
	<ul> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</li> </ul>	<ul> <li>All required Government licences and approvals have been received. The MLs are in good standing, and all relevant fees have been paid. There is no known unresolved issue upon which commencement of production is dependent.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul> <li>The Ore Reserves are classified as Probable Reserves based on the fact that they are based on Indicated Resources, and the confidence limits that entails.</li> <li>The CP is confident that the declaration of Probable Ore Reserves is appropriate based on the level of confidence in the geological, geotechnical, hydrogeological, environmental, metallurgical, revenue and engineering studies which have been completed, the quality of the diamonds recovered, and the status of the diamond market.</li> <li>It is not realistically possible to establish Measured Resources on a kimberlite dyke deposit, since the cost per interval of required sampling is prohibitive. It is likely therefore that Proven Ore Reserves will never be declared for the Tongo Project. This is common for most diamond projects.</li> </ul>
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	<ul> <li>Various highly reputable CPs have been involved with different stages of the development of Mineral Resources on the Tongo Project, and each has reviewed, to the degree possible, the work of previous investigators.</li> <li>The author (and current CP) has audited the following aspects of the Ore Reserve</li> <li>0 2018 Resource drilling</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
)		<ul> <li>o 2018 Resource geological logging</li> <li>o 2018 sample Security measures</li> <li>o 2018 Bulk sample processing</li> <li>Several previous technical reports are listed in the report, each of which details the confidence limits of data reported.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The Probable Ore Reserve is based on Indicated Resources which have been classified on the basis of the following confidence limits:</li> <li>The distribution of samples and geostatistical support for local grade estimation is sufficient to allow local grade estimates to be made on the basis of geological and grade continuity.</li> <li>The number of stones recovered from samples is statistically sufficient to provide confidence to the level of Indicated Resource.</li> <li>The Resource/Reserve conversion is based on a technical study with costs estimated to +/- 10% accuracy and detailed geotechnical, hydrogeological, mining, and metallurgical recovery studies, and a detailed discounted cash flow financial model, which demonstrates the economic viability of the Project.</li> <li>Modifying Factors which have been taken into account in the declaration of an Ore Reserve are: mining losses estimated at 5% of the Indicated Resource, losses of smaller diamonds (due to lock-up in the treatment process) and the impact on grade and revenue.</li> </ul>

#### Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

Criteria	JORC Code explanation	Newfield Commentary
Indicator minerals	• Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.	<ul> <li>No indicator minerals have been recovered during this work.</li> </ul>
Source of diamonds	• Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.	• The microdiamonds recovered at SRC have been individually weighed and described if they are above the 300 micron mesh size. A summary of these descriptions was included in the announcement.
		<ul> <li>The diamonds recovered from the bulk sampling process are visually assessed by an experienced person as to whether they are gem, near gem or boart in characteristics.</li> </ul>
		• Diamond parcels were exported to Antwerp where they were valued by independent diamond marketing groups. This information was combined and averaged to provide an average \$ per carat per sieve class and this information was used by Z-Star to create the diamond value model for each kimberlite.
1		• Since some of the valuations were performed in 2011, 2014 and 2016, an industry rough diamond price index was used to re-base the diamond values in 2018 terms.
Sample collection	• Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (eg large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).	<ul> <li>The microdiamond samples reported from SRC were kimberlite intersections from drill core.</li> <li>The microdiamond data is collected at 50m along strike intervals for the upper level of the kimberlites, and at either 100m or 200m</li> </ul>
	Sample size, distribution and representivity.	<ul> <li>The bulk samples were collected from one or two sites only from</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
		<ul> <li>surface on each kimberlite.</li> <li>Through combining the data from the micro and macrodiamond sampling the sample representivity was determined for the resource statement declaration.</li> </ul>
Sample treatment	<ul> <li>Type of facility, treatment rate, and accreditation.</li> <li>Sample size reduction. Bottom screen size, top screen size and recrush.</li> <li>Processes (dense media separation, grease, X-ray, hand-sorting, etc).</li> <li>Process efficiency, tailings auditing and granulometry.</li> <li>Laboratory used, type of process for micro diamonds and accreditation.</li> </ul>	<ul> <li>The microdiamond drill core samples were processed at accredited lab SRC in Canada using industry standard caustic fusion methods Results were reported to a mesh size of +0.075mm. SRC is accredited as reported above.</li> <li>The bulk samples were processed via either a 50tph plant at the Koidu Mine in Sierra Leone, or the Company's 5tph DMS plant at the Tongo site. Diamond recovery was by Flowsort X-rays and with a grease scavenge. The sample concentrates were processed twice and diamonds were recovered under strict security control in diamond glove boxes by diamond pickers. The diamonds were weighed, described and stored securely in a safe each day. This process was done under Government observation.</li> </ul>
Carat	• One fifth (0.2) of a gram (often defined as a metric carat or MC).	<ul> <li>Sample results are reported as carats per tonne, which is industr standard reporting.</li> </ul>
Sample grade	<ul> <li>Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.</li> <li>The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.</li> <li>In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).</li> </ul>	<ul> <li>The bulk sample results and subsequent resource grades wer reported carats per dry metric tonne at a cut off of +1.0mm an +1.18mm</li> </ul>
Reporting of	Complete set of sieve data using a standard progression of sieve	The resource grades and values are reported to a bottom size of the second

	Criteria	JORC Code explanation	Newfield Commentary
D	Exploration Results	sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.	<ul> <li>off of +1.0mm and +1.18mm in carats per metric tonne. For grade modelling purposes standard DTC sieve sizes were used and size frequency plots determined.</li> <li>The resource grades are reported where possible in individual</li> </ul>
		<ul><li>Sample density determination.</li><li>Per cent concentrate and undersize per sample.</li></ul>	segments of the kimberlite dykes where sample density allows. Otherwise global grades are reported based on geological continuity and modelled grades.
		<ul> <li>Sample grade with change in bottom cut-off screen size.</li> <li>Adjustments made to size distribution for sample plant performance and performance on a commercial scale.</li> </ul>	Total content grades range from 1.3cpt to 3.2cpt at a +1.18mm cut off.
		<ul> <li>If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.</li> </ul>	<ul> <li>Recovered/factored grades range from 1.2 to 2.9cpt at a+1.18mm cut off.</li> <li>Diamond values range from \$194/ct to \$204/ct at a +1.18mm cut off</li> </ul>
		<ul> <li>The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.</li> </ul>	<ul> <li>All grades were estimated by using standard size frequency plots and modelling by Z-Star.</li> </ul>
	Grade estimation for reporting	<ul> <li>Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.</li> <li>The sample crush size and its relationship to that achievable in a</li> </ul>	<ul> <li>Some 76,000m of drilling has been completed over the Tongo Project of which 52,924m was drilled on the Kundu, Lando, Pandebu and Tongo Dyke-1 kimberlites.</li> </ul>
	Mineral Resources and Ore Reserves	<ul> <li>Total number of diamonds greater than the specified and reported lower cut-off sieve size.</li> </ul>	• For the four kimberlites declared in resource drill spacing in the upper level (130m) was at 50m intervals along strike. Below this level the spacing was at 100m or 200m along strike.
		<ul> <li>Total weight of diamonds greater than the specified and reported lower cut-off sieve size.</li> <li>The sample grade above the specified lower cut-off sieve size.</li> </ul>	<ul> <li>Microdiamond samples were collected from each kimberlite intersection and processed at SRC. This is split as Lando (583kg for 4,964 stones), Kundu (212kg for 1,552 stones), Pandebu (366kg for 1,189 stones), Tongo Dyke-1 (610kg for 1,063 stones)</li> </ul>
			<ul> <li>Selected bulk samples were processed to provide diamonds for value estimation and grade estimation these are 2007: Kundu (566 tonnes for 1,258cts at 2.23cpt), Lando A (240 tonnes for 554cts at 2.3cpt), Lando B (231 tonnes for 567cts at 2.5cpt): 2012 Kundu (605 tonnes for 941cts at 1.6cpt): 2014 Tongo Dyke-1 (1,593)</li> </ul>

Criteria	JORC Code explanation	Newfield Commentary
		tonnes for 2,331cts at 1.5cpt): 2018 Pandebu (306 tonnes fo 298cts at 1cpt).
Value estimation	<ul> <li>Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.</li> <li>To the extent that such information is not deemed commercially sensitive, Public Reports should include:</li> <li>diamonds quantities by appropriate screen size per facies or depth.</li> <li>details of parcel valued.</li> <li>number of stones, carats, lower size cut-off per facies or depth.</li> <li>The average \$/carat and \$/tonne value at the selected bottom cut-off should be reported in US Dollars. The value per carat is of critical importance in demonstrating project value.</li> <li>The basis for the price (eg dealer buying price, dealer selling price, etc).</li> <li>An assessment of diamond breakage.</li> </ul>	<ul> <li>Diamond values are reported based on recoveries from the bull sampling campaigns in 2007 (2,379cts), 2012 (941cts) 2014 (2,331cts), and 2018 (298cts) from the Kundu, Lando, Pandebu and Tongo Dyke-1 kimberlites.</li> <li>The recovered/factored diamond values at a +1.18mm cut off are reported as Lando (\$222/ct), Kundu (\$222/ct), Pandebu (\$211ct) Tongo Dyke-1 (\$257/ct)</li> </ul>
Security and integrity	<ul> <li>Accredited process audit.</li> <li>Whether samples were sealed after excavation.</li> <li>Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.</li> <li>Core samples washed prior to treatment for micro diamonds.</li> <li>Audit samples treated at alternative facility.</li> <li>Results of tailings checks.</li> <li>Recovery of tracer monitors used in sampling and treatment.</li> <li>Geophysical (logged) density and particle density.</li> </ul>	<ul> <li>The SCR laboratory process has been accredited to the ISO/IE0 17025 standard by the Standards Council of Canada for th microdiamond samples.</li> <li>The processing of the bulk samples was done by the Compan which is experienced in this process.</li> <li>Internal security measures are strict and the process is done under observation by a representative of the Government of Sierra Leone</li> <li>Bulk samples and tailings were processed twice for audit purposes</li> <li>Tracers were used in the DMS and Flowsort processes an monitored for efficiency of recoveries.</li> <li>No geophysical logging was undertaken for the drilling.</li> </ul>

Cri	iteria	JORC Code explanation	Newfield Commentary
D		and density, moisture factor.	Multiple density and moisture content calculations were determined for the drill core and bulk samples.
Class	ification	<ul> <li>In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.</li> </ul>	<ul> <li>Z-Star has undertaken a thorough modelling process of all results in terms of stone frequency for all microdiamond results (reported as stones &gt;150micron/8kg) which is normal industry practice.</li> <li>Z-Star has reported on the basis of stones per DTC sieve class.</li> <li>All stone size frequencies for the microdiamond and macrodiamond results have been combined in the form of grade size plots to quantify grade, at a defined bottom cut off, as well as the stone and carat size frequency distribution.</li> </ul>