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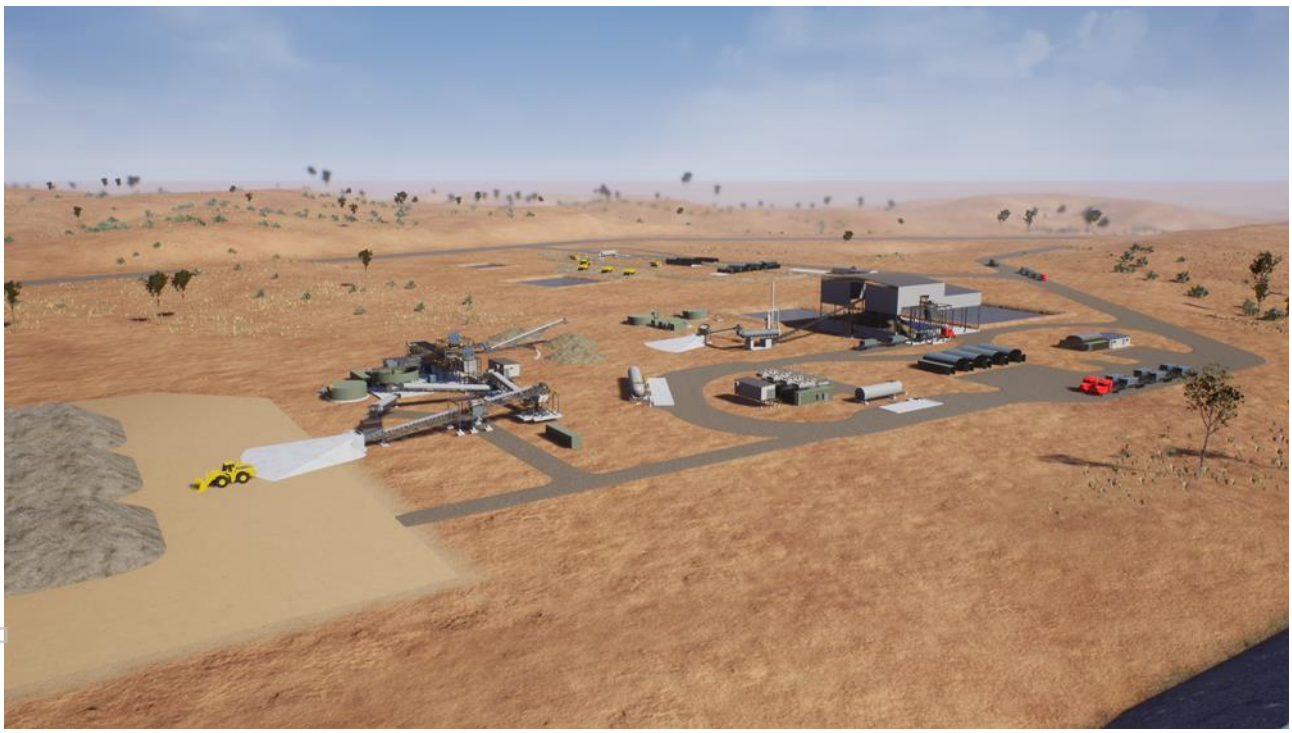
ASX Announcement 8th October 2018

Ardmore Phosphate Rock Project

Definitive Feasibility Study Results & Maiden Ore Reserve



CAPTION: 3D design of full-scale Ardmore processing plant and mine services facilities.

Highlights

- Maiden Ore Reserve of 10.1Mt at 30.2% P_2O_5 of high-grade phosphate rock ore supports minimum 10 year project life
- Significant upside to project life as Ore Reserve contained within existing 16.2 million tonne Mineral Resource, with additional 339km^2 of prospective exploration tenements approved and subject to grant held adjacent to the project
- Definitive Feasibility Study ("DFS") based on annual production of 800,000 wet tonnes of premium grade phosphate rock concentrate
- DFS confirms robust low capital project with a short 4 year payback period
- Unleveraged nominal pre-tax NPV_{10} of A$172 million and internal rate of return of 40%
- Initial start-up plant presently being fabricated, with first operations scheduled to commence in mid-2019 to provide circa 30,000 tonnes of concentrate to numerous potential long-term offtake customers
- The start-up plant is readily upgradeable to achieve full-scale production, representing a major step in technically and commercially de-risking the project

Executive Summary

Centrex Metals Limited ("Centrex") is pleased to announce it has completed a Definitive Feasibility Study ("DFS") for its high-grade Ardmore Phosphate Rock Project in North West Queensland. The DFS has confirmed Ardmore to be a high-quality asset with a relatively low capital requirement, low technical risk and the potential to provide strong returns.

The results of the DFS were based on a 800,000 wet tonnes per annum phosphate concentrate processing facility with a minimum 10 year mine life based on maiden Ore Reserves.

Key contributors to the DFS included;

- RPM Global – Mineral Resources
- Optima Consulting & Contracting – Ore Reserves & mining
- GR Engineering Services – Process & mine site infrastructure, overall study compilation
- WSP – Roads & rail siding infrastructure
- Integer Research – Marketing review & pricing
- Golder Associates – Environment, hydrology & hydrogeology

The Project DFS displays robust economics highlighted by an unleveraged nominal pre-tax NPV_{10} of A$172 million and internal rate of return of 40% over the 10 year evaluation period, based on annual production of approximately 800,000 wet tonnes of premium-grade phosphate concentrate with ultra-low cadmium.

TABLE: Key DFS results.

Parameter		Result	
Study accuracy		+/- 15%	
Mine life		10 years	
Annual production		800,000 wet tonnes	
Pre-production capital cost (2018 real terms)		A$ 77 million	US$ 57 million
Life of mine CFR operating cost ex-royalties (2018 real terms)		A$ 149/dmt	US$ 111/dmt
Life of mine CFR sales price (2018 real terms) [1]		A$ 211/t	US$ 156/t
A$:US$ exchange rate assumption [2]		0.74	
Pre-tax results (nominal) [3]			
	Unleveraged NPV_{10}	A$ 172 million	US$ 127 million
	Unleveraged IRR	40 %	
	Net cash flow	A$ 392 million	US$ 290 million
Post-tax results (nominal) [3]			
	Unleveraged NPV_{10}	A$ 109 million	US$ 81 million
	Unleveraged IRR	30 %	
	Net cash flow	A$ 274 million	US$ 203 million
	Payback period	4.0 years	

1. Life of mine average CFR sales price derived from Integer Research market analysis and target customer pricing forecasts
2. Flat exchange rate for life of mine based on the average recent forecasts from the major four Australian banks
3. Net Present Value is on a nominal basis with a 2.5% escalator applied to revenue and costs using a 10% discount rate

Fabrication is already underway on a modular start-up processing plant to provide circa 30,000 wet tonnes of premium grade phosphate rock concentrate with ultra-low cadmium to potential off-take customers in the local region by mid-2019. The start-up plant is readily upgradable for full-scale operations and represents a major step in technically and commercially de-risking the project.

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1. Project Background

The Ardmore Phosphate Rock Project ("Ardmore") located approximately 130km by road south of Mount Isa in North West Queensland (Figure 1) is one of the few remaining undeveloped high-grade phosphate rock deposits in the world. The known Mineral Resources for the project are located on Mining Lease 5542 held by Centrex with a current term of 21 years. Centrex also holds granted Exploration Licences and an Exploration Licence Application surrounding the Mining Lease prospective for phosphate.

Ardmore is located 70km to the west of the Duchess Phosphate Rock Mine, Australia's only current mainland phosphate rock operation that provides feed to an integrated nitrophosphate fertiliser manufacturing plant at Incitec Pivot's Phosphate Hill Operations.

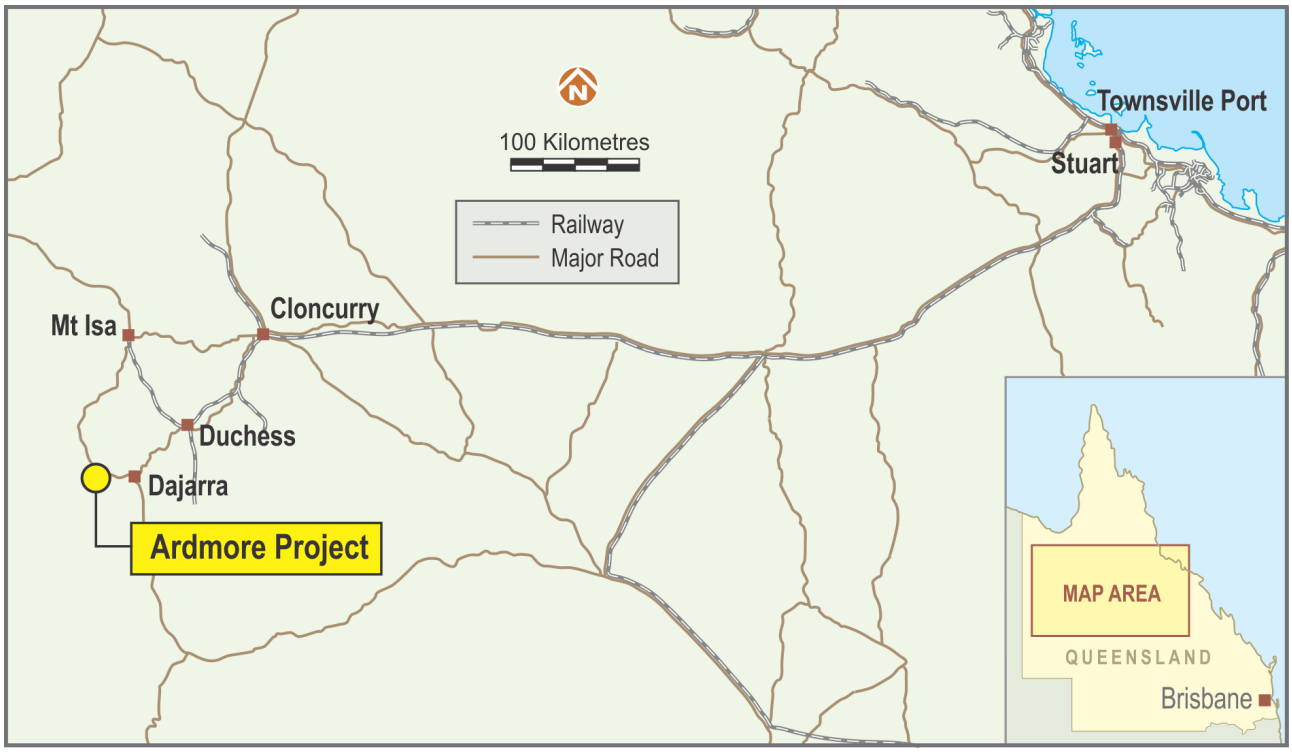

FIGURE 1: Ardmore location map.

State controlled roads pass through the project for connection into the Mount Isa Rail Line. Centrex intends to develop a phosphate rock concentrate export operation at Ardmore, with product transported by road and rail to the Port of Townsville for supply to the domestic and regional markets.

Ardmore's relatively high in-situ phosphate grade, shallow mining conditions, existing infrastructure and close proximity to regional markets (over current suppliers) provides the project with numerous competitive advantages.

2. What is Phosphate Rock?

Phosphorous is one of three essential elements for plant nutrition, the other two being potassium and nitrogen Phosphate rock is the primary commercial source of phosphorous for agricultural purposes (Zapata & Roy 2004) and is the key ingredient for a range of fertiliser products as outlined in Figure 2.

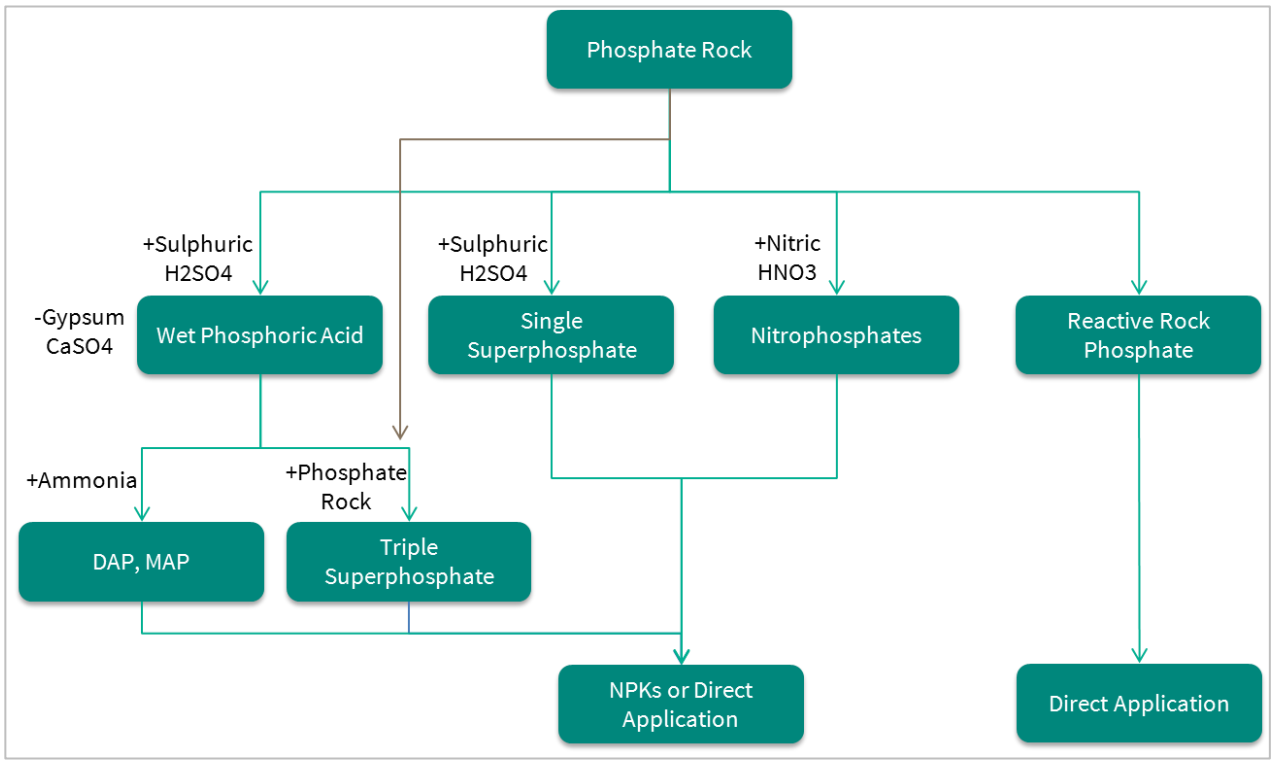

FIGURE 2: Relationship of phosphate rock to fertilisers (adapted from Van Kauwenbergh 2010).

Around 75% of phosphate rock is used in the production of phosphoric acid (Van Kauwenbergh 2010). In this process the phosphate ore is ground and reacted with sulphuric acid to produce phosphoric acid and gypsum that are separated through filtration. The purified and concentrated merchant grade phosphoric acid ("MGA") can be utilised in the manufacture of high phosphate content fertilisers, reacted with ammonia to produce either diammonium phosphate ("DAP") or monoammonium phosphate ("MAP"), or alternatively fresh phosphate rock can be reacted with phosphoric acid to produce triple superphosphate ("TSP").

A secondary use is to make lower phosphorous grade single superphosphate ("SSP") via the direct addition of sulphuric acid to ground phosphate rock without the removal of the gypsum (Van Kauwenbergh 2010). The final use of phosphate rock for fertiliser is as a direct application slow release product, which not all phosphate rock or agricultural areas are suitable for. The direct application or "reactive phosphate rock" market is currently minor.

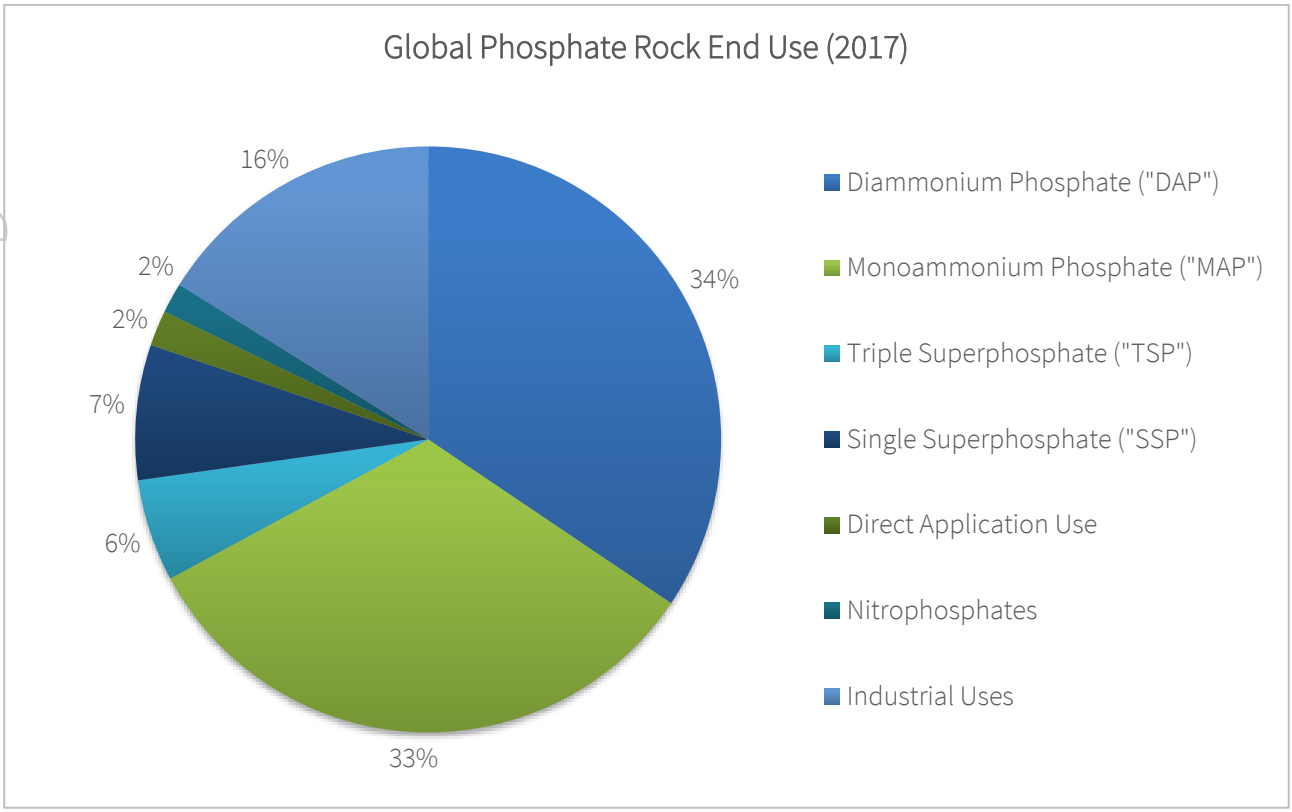

FIGURE 3: Phosphate rock consumption by end use in 2017 (derived from Integer 2018).

3. The Phosphate Rock Market

There is a clear correlation between phosphate rock consumption and world population growth since the advent of industrial fertilisers (Figure 4). With further growth of the global population, the phosphate rock market will continue to grow (Heckenmuller et al. 2014). A secondary growth driver within the growing population is the rise in average living standards (developing nations), whereby evolving dietary habits is leading to increased crop consumption and an associated increase in fertiliser application (Heckenmuller et al. 2014).

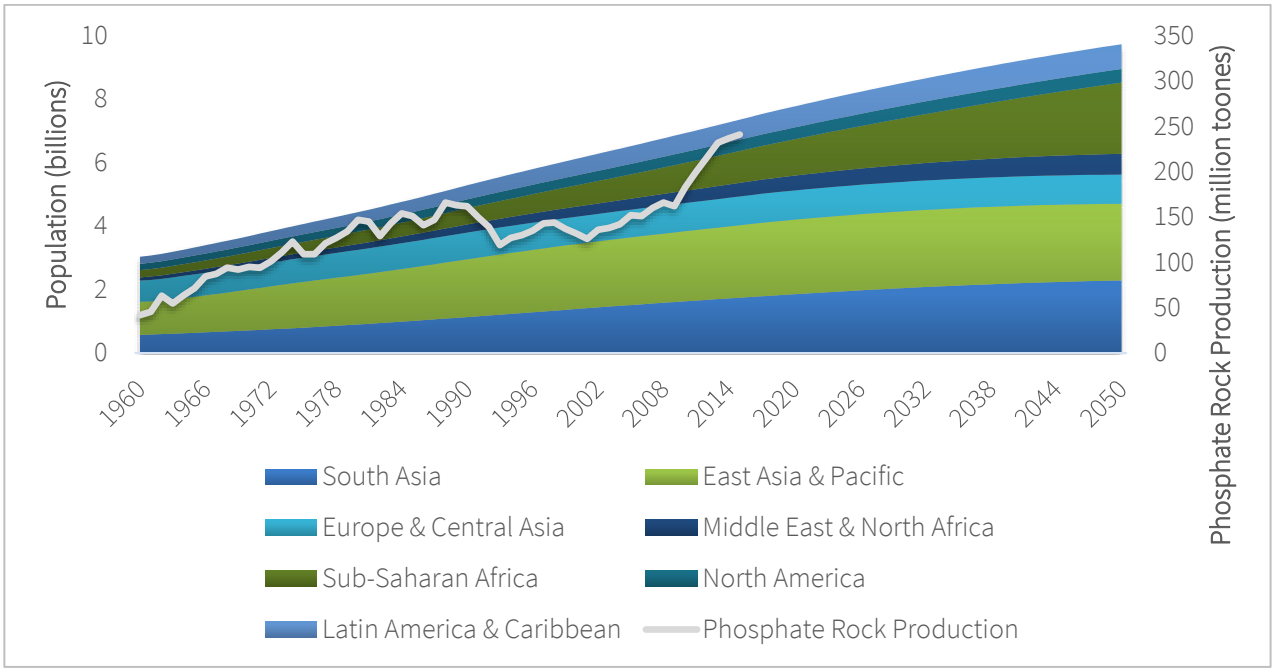

FIGURE 4: Global phosphate rock historical and forecast production trends against population growth (derived from World Bank 2018, & USGS 2018).

In 2017 total phosphate rock demand was 203 million tonnes with China accounting for 40% of the demand. Globally most phosphate rock production is for captive use in integrated fertiliser plants, with only 28 million tonnes traded in 2017. Ardmore is located within the strategic Asia-Pacific region where outside of China there is limited phosphate rock production, and presently the key importing countries in the region consume 12 million tonnes annually (refer shaded cells in Table 1) with consumption in this region forecast to grow to 19 million tonnes over the next 5 years (Integer 2018). On this basis, Ardmore would only account for 12% of incremental demand growth in the region. China uses almost all of its domestic phosphate rock production for internal consumption and due to depleting reserves its imports are expected to grow significantly over this period. This will likely also reduce its limited exports to the region.

TABLE 1: Phosphate imports by country 2017.

Country	2017 ('000 t)
India	7,855
USA	2,571
Indonesia	2,390
Brazil	1,935
Canada	940
New Zealand	546
Malaysia	410
Pakistan	405
Australia	431
South Korea	298
Japan	260
China	122
Taiwan	118
Others	9,889
Total	28,011

Morocco, Jordan and Egypt are the major suppliers to the Asia-Pacific region accounting for 80% of imports, with Peru and Togo accounting for a further 10%. Ardmore has a significant freight advantage over these suppliers to the target markets in this region.

FIGURE 5: Current major Asia-Pacific phosphate rock importers (green) and exporters to the region (brown).

Traded phosphate rock benchmark grades vary from 27% to 34% P_2O_5 depending on end use. Imports for Australia and New Zealand are almost solely for SSP requiring a minimum 34% P_2O_5 phosphate rock blend to make the required 20% P_2O_5 SSP product grade (higher than levels required in many other countries).

Lower carbonate levels (CaO/P_2O_5 ratio) mean lower sulphuric acid input costs for the SSP and MGA markets. There is a balance required to achieve low enough minor element ratios (Al_2O_3% +Fe_2O_3%+MgO%)/P_2O_5 % for MGA producers and high enough levels to allow for effective granulation in the production of SSP.

Cadmium levels have become a particular industry focus as the toxic metal can be concentrated in crops, with the European Commission proposing to introduce a new limit of 60 mg Cd/kg P_2O_5, with this limit dropping to 20 mg Cd/kg P_2O_5 within 12 years, and the New Zealand Government setting up a special management group to address the issue.

For the export market general physical specifications require at least 90% passing 2mm and no more than 10% passing 75 µm (ultrafines) at 3% moisture. These specifications are mainly driven by materials handling considerations for the customers.

Crushing the already high-grade Ardmore ore to -2 mm, attritioning (to rub the clay off), and desliming (washing the clay out) to meet the physical specifications required for export has the additional bonus of increasing the phosphorous grade, with pilot plant test work producing a premium 35% P_2O_5 product. Ardmore product has low carbonate levels that translates into relatively low sulphuric acid consumption in the MGA and SSP processes as shown by test work completed by KemWorks in the US. Its MER levels are within the traded range for MGA plants and at a suitable level for granulation in SSP plants. The chemical composition shows it will be one of the few products on the market with the possibility to produce SSP in Australia and New Zealand without the need for blending with other rocks, a potential significant saving in inventory and logistics costs for customers. Ardmore has ultra-low cadmium levels similar to igneous rocks but with higher reactivity and a softer nature given its sedimentary origin.

Once in production Ardmore phosphate rock concentrate will be one of the only premium phosphorous grade products on the market with both low calcium and ultra-low cadmium levels (Figure 6).

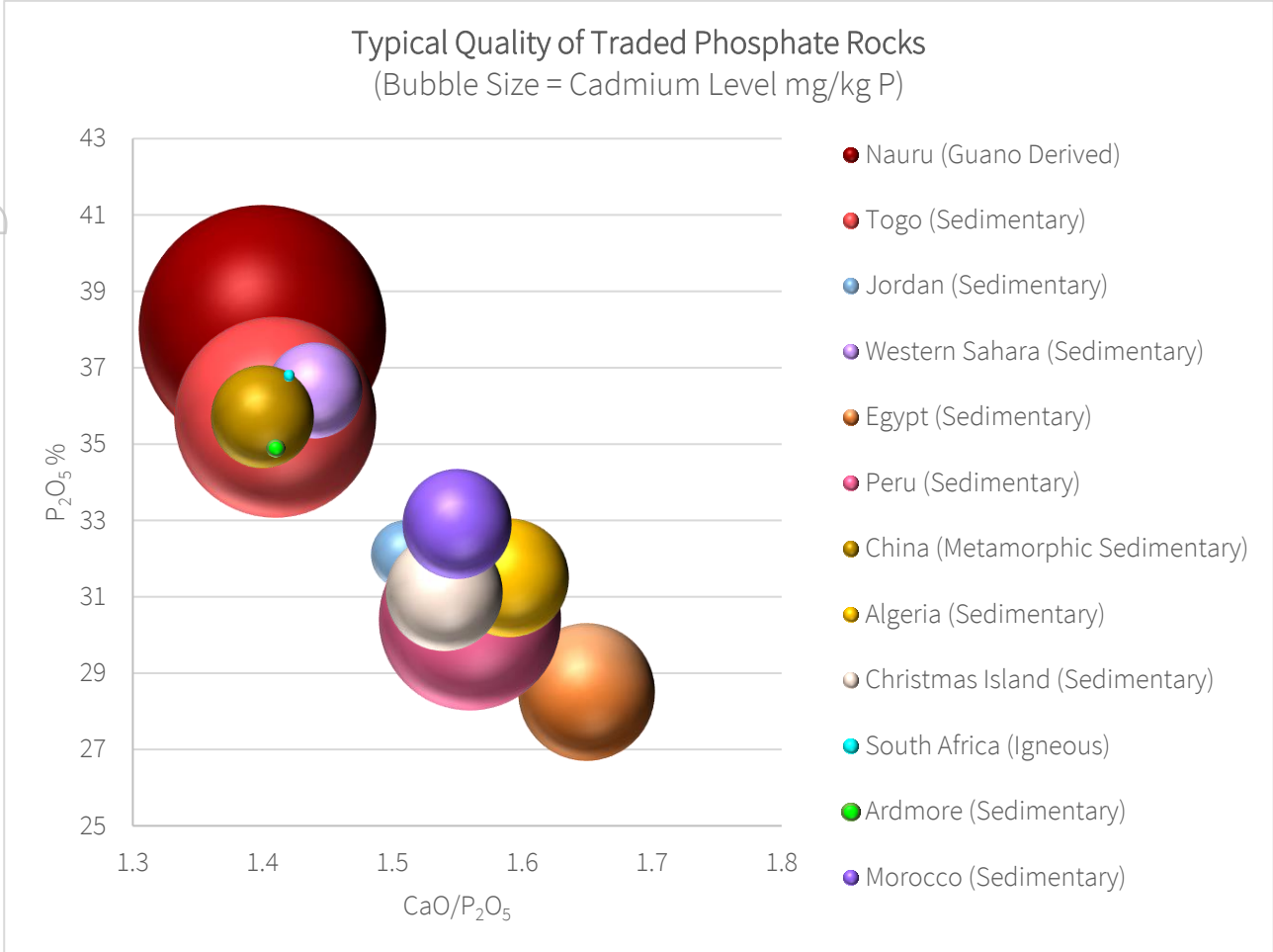

FIGURE 6: Typical phosphate rock specifications for current imports to target markets (derived from FAI 2010, OCP 2012, Oosterhuis et al. 2004, Runkun et al. 2003, Union Harvest 2018, CIP 2015, Bramley 1990).

The Australian and New Zealand markets are the priority for Ardmore given the large freight advantage and high suitability for SSP plants. Indonesia is another priority market where Ardmore has a similar freight advantage and MGA production is currently expanding requiring significant additional rock. Additionally, as India is the largest import market Centrex continues to progress discussions with MGA producers requiring increasing volumes of high-grade rock.

Centrex signed a non-binding MOU with Gujarat State Fertilisers & Chemicals ("GSFC") earlier this year to negotiate an off-take agreement for 300,000 tonnes over the 10-year Ardmore mine life. Centrex and GSFC are currently in negotiation for binding agreements. Two 400 tonne run of mine shipments were recently shipped to two major SSP manufacturers in New Zealand with the view to longer term off-take of high grade concentrate. Centrex oversaw the trials with both producing positive results. As part of Centrex's acquisition of the project, Southern Cross Fertilisers Pty Ltd, a subsidiary of Incitec Pivot Limited ("IPL"), holds a 20% right of first refusal on off-take for the project. IPL are Australia's largest phosphate rock importer for their two SSP plants in Victoria.

4. Geology & Mineral Resource

The Ardmore deposit is located within the Ardmore Outlier on the eastern edge of the Georgina Basin, which hosts all of the major phosphate rock deposits in Australia. The deposit is a siliceous sedimentary marine phosphorite composed of pelletal (100-200 µm) carbonate-fluorapatite hosted within the Simpson Creek Phosphorite Member of the Beetle Creek Formation. It is one of the few undeveloped high-grade phosphate rock deposits in the world.

The deposit is split into two main areas known as the Northern and Southern Zones, roughly 5km apart (Figure 8). The phosphorite unit ranges in thickness from 2m to 5m and dips at a shallow angle to the east before intersecting an eastern bounding fault.

A thin (2 to 15cm) collophane (mudstone) marker bed, located two thirds of the way down, separates the upper and lower phosphorite beds of the unit before grading conformably into underlying lower grade phosphatic siltstones and shales.

The phosphorite unit outcrops extensively and is heavily weathered and leached of primary carbonate. For this reason it is generally very friable, however indurated material is found close to surface where in-situ recrystallisation of apatite has occurred, forming an apatite-cement between nodules.

FIGURE 7: Shallow white phosphorite ore being exposed under alluvium during bulk sample excavation in the Southern Zone.

A total of 1,006 reverse circulation, rotary percussion and diamond drill holes across the deposit resulted in a Mineral Resource of 16.2 million tonnes at 27.8% P_2O_5 using a 16% P_2O_5 cut-off being estimated by RPM Advisory Services Limited ("RPM") (Table 2, Figure 8).

TABLE 2: Ardmore Mineral Resources.

16% P_2O_5 Grade Cut-Off		
Mineral Resource Category	Million Tonne	P_2O_5 %
Measured	3.3	29.8
Indicated	11.1	27.4
Inferred	1.7	26.8
Total Mineral Resources	16.2*	27.8

* Totals may not add precisely due to rounding.

The announcement in relation to the Mineral Resource was made on 1st June 2018 and can be found at:

https://www.asx.com.au/asxpdf/20180601/pdf/43vgxdjlpsgcwb.pdf

The results were reported under JORC 2012 and Centrex is not aware of any new information or data that materially affects the information contained within the release. All material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

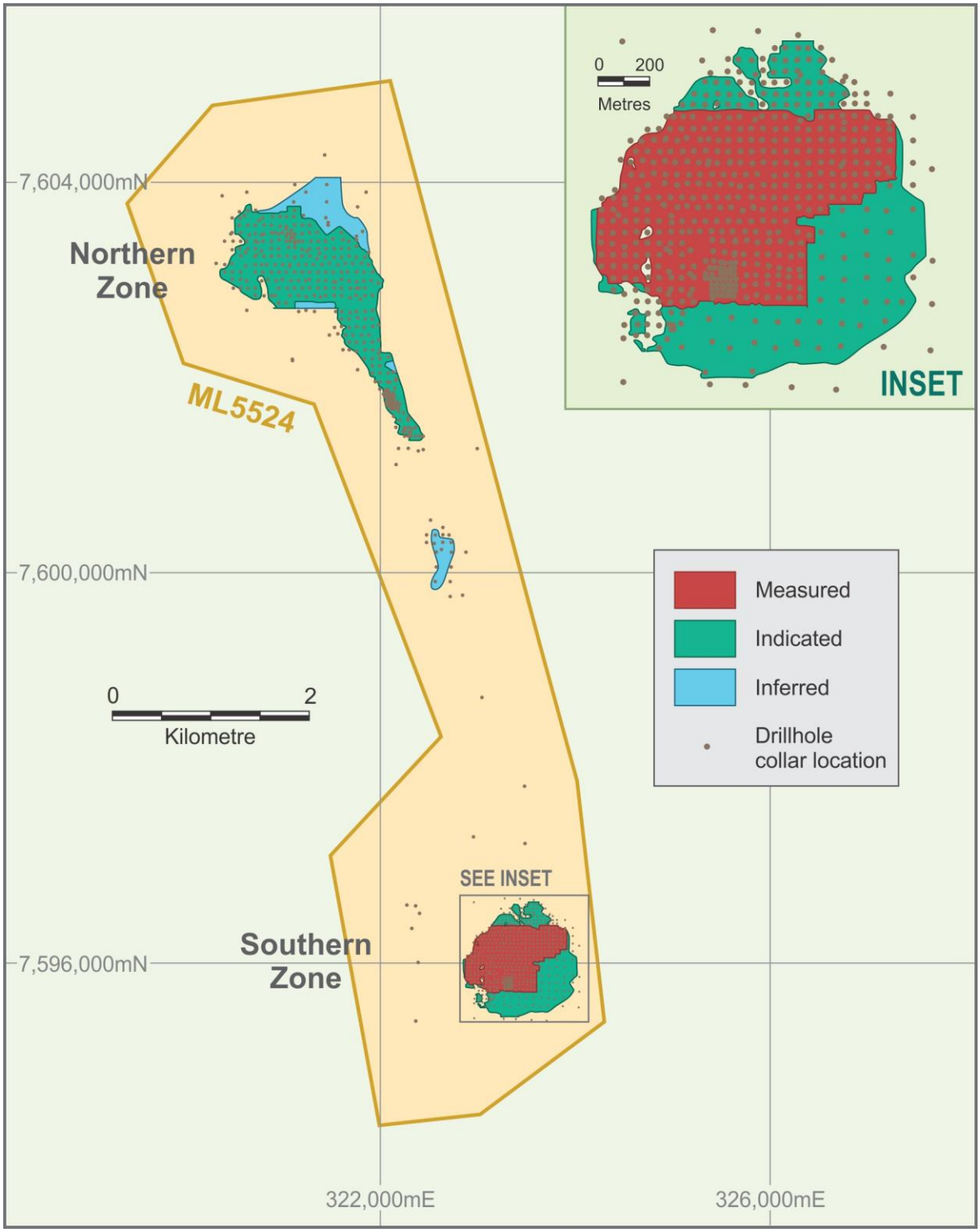

FIGURE 8: Plan view of the Mineral Resources by category with drill hole collar locations.

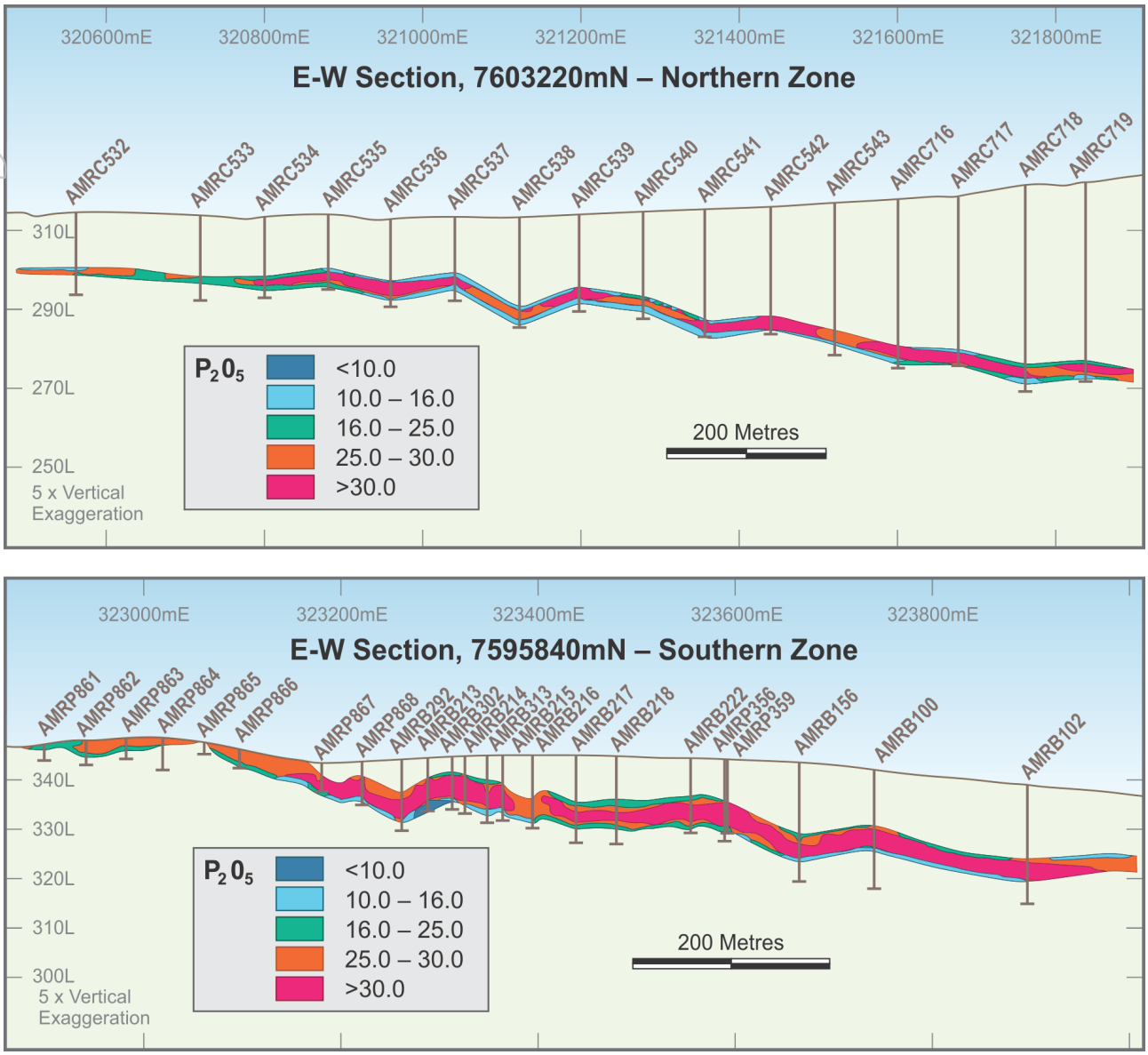

FIGURE 9: Representative cross sections of the deposit zones with 5x vertical exaggeration.

Centrex holds two granted exploration licences surrounding its Mining Lease and has made an application for a further exploration license north of Ardmore. The northern tenement contains a number of mapped locations with outcropping Beetle Creek Formation, the same host geology to the Ardmore deposit (Figure 10). Wide spaced (circa 5km) drilling in the late 1960s and early 1970s identified intersections of phosphorite in the area at varying depths. Centrex will explore for fault block uplifts between the wide spaced historical drilling where phosphorite may be near surface, similar to the fault blocks seen at Ardmore. In all 339km2 of prospective exploration ground is held adjacent (including one application) to the known phosphorite deposit.

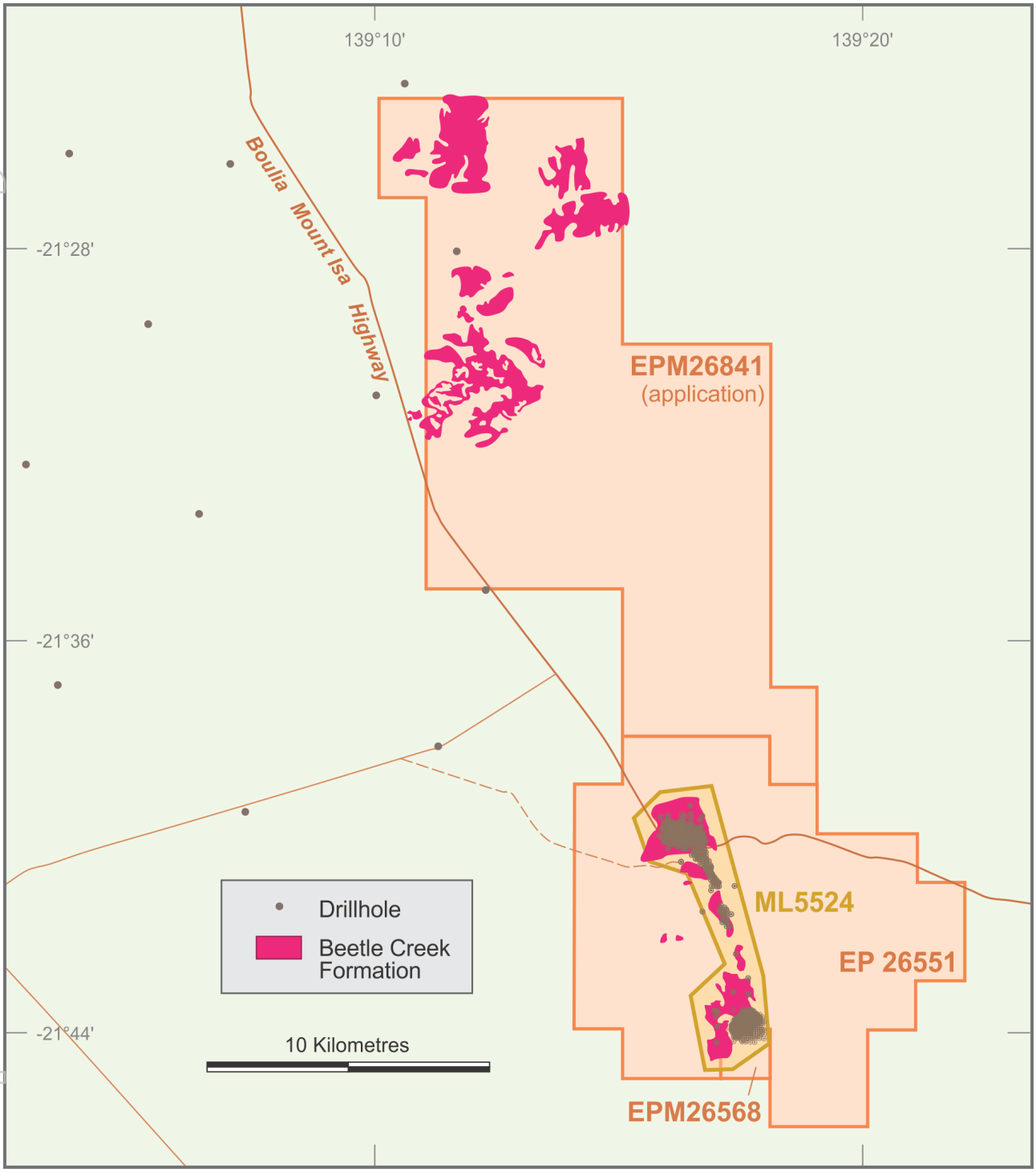

FIGURE 10: Location of Centrex's Queensland tenements with mapped Beetle Creek Formation prospective for phosphorite.

5. Hydrogeology

The Beetle Creek Formation and part of the underlying Thorntonia Limestone in the Northern Zone of the deposit that hosts the target ore zone also contains a partially confined aquifer overlain by the Blazen Shale. The Southern Zone on average is shallower than the Northern Zone and is above the water table. The aquifer in the Northern Zone is of limited aerial extent and forms a small shallow basin that is bound on all sides by less permeable rock. Centrex undertook drilling and the installation of seven monitoring bores and one test pumping bore over the aquifer. Hydraulic testing including pumping tests, groundwater sampling and water quality analysis was undertaken from all existing bores in addition to a seismic survey of the aquifer to better define the aquifer limits and parameters. Golder Associates Pty Ltd ("Golder") undertook assessment and analysis of all of the data to determine the water holding capacity and recharge potential of the aquifer. A fully saturated estimate of the aquifer is approximately 5,600ML based on the information to date with minor recharge from ephemeral stream beds where they intersect outcropping Beetle Creek Formation. The groundwater is brackish to saline and neutral to slightly basic. The aquifer has been deemed to be suitable for managed aquifer recharge by excess water from water capture dams which forms part of the projects water security strategy.

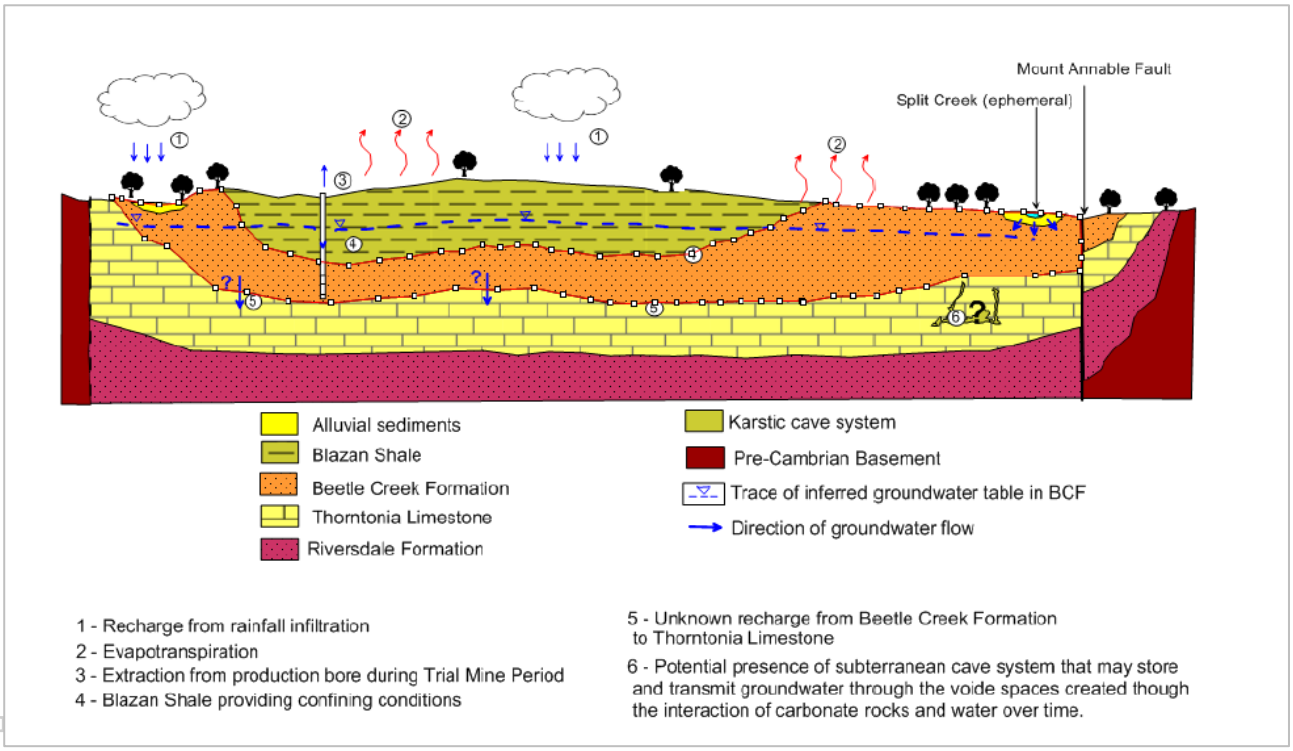

FIGURE 11: Conceptual groundwater model in the Northern Zone.

6. Ore Reserves

The DFS focussed on the development of an operation with an annual production of 800,000 wet tonnes of phosphate rock concentrate from the Ardmore deposit. The Ore Reserve estimate was completed by Optima Consulting & Contracting Pty Ltd ("Optima") and was based on the recent Mineral Resource estimate by RPM.

Measured and Indicated Mineral Resources were converted to Proven and Probable Ore Reserves respectively, subject to mine designs, modifying factors and economic evaluation.

TABLE 3: Ardmore Ore Reserves estimate.

Ore Reserve Category	Million Tonne	P_2O_5 %
Probable	7.3	30.2
Proven	2.8	30.3
Total Ore Reserves	10.1	30.2

An outline of the key aspects relating to the Ardmore DFS including material information for the Ore Reserve is included elsewhere in the body of this release. In addition, Centrex provides the following summary information relating to the Ore Reserves:

- Material Assumptions
  - The Ore Reserves are based on key modifying factors that include analysis, designs, schedules and cost estimates of a DFS that describes the development of the Ardmore Phosphate Rock Project over a 10 year mine life;
  - Metallurgical test work has been completed to a pilot scale level by reputable and experienced laboratories including product quality testing;
  - The mining process has been based on Measured & Indicated Mineral Resources only, reported in accordance with the JORC Code, detailed mine designs, parameters defined from a geotechnical study and mining equipment selection from experienced mining engineers;
  - The process plant design has been developed by experienced consultant engineers in consultation with plant vendors to support the flowsheet and the predicted throughput, recovery, product grade and production estimates;
  - The infrastructure requirements to support the mining and processing operations have been defined and designed by experienced consultant engineers; and
  - Logistics solutions have been derived from a combination of analysis by specialist consultants and service provider proposals.
- Classification Criteria
  - The Ore Reserves comprise Measured & Indicated Mineral Resources only;
  - 0.1% of the mining inventories in the DFS where based on Inferred Mineral Resources, having no material effect on the study economics; and
  - Following the completion of the feasibility study, the competent person considers that there is a high degree of confidence in the Ore Reserves with a relative accuracy of +/-15%.

- Mining Method
  - The mining method used is truck and excavator strip mining with overburden backfilled progressively into mined areas where possible, with the selected mining method suited to the shallow relatively flat lying ore body at Ardmore;
  - Dozer stripping was considered and continues to be evaluated as an alternative for waste/overburden removal;
  - The overburden and ore zone will be free dug without blasting as demonstrated by numerous mining excavator and dozer trials completed on site by Centrex;
  - The life of mine strip ratio is 5.6 and the overall recovery of the mineable Mineral Resource is 89%;
  - The Ore Reserve is based on undercutting the hangingwall and the footwall, accepting ore losses at the contacts in order to ensure minimal dilution to maximise process plant feed grade; and
  - A 150mm undercut was applied respectively resulting in a relatively high-grade cut-off of 26.5% P_2O_5.
- Processing Method
  - In order to meet export sizing specifications the run of mine ore will be crushed to -2mm and deslimed to remove the -38µm, with attritioning added in between to aid in liberation of clay material;
  - The flowsheet is standard for high-grade deposits in the phosphate rock industry; and
  - Pilot level test work for crushing and beneficiation has shown the flowsheet to provide a premium grade product.
- Quality Parameters
  - The cut-off grade and mining method provides for a sufficient process plant feed grade to produce a >34% P_2O_5 product based on the proposed flowsheet to allow for its potential use in Australian and New Zealand SSP (20% P_2O_5) production without the need for blending;
  - Fertiliser conversion test work on product produced from a pilot plant of the flowsheet has shown the concentrate to be a high-quality product;
  - A lower cut-off producing a lower grade product could still be marketable, with down to 27% P_2O_5 products being traded on the market; and
  - The addition of a silica flotation circuit would allow a drop in the cut-off grade whilst producing an equivalent high-quality product but is subject to a further programme of work.
- Estimation Methodology
  - Product pricing forecasts were provided by independent market specialists in US$ adjusted for product quality (grade and performance) based on pilot plant results and fertiliser conversion test work;
  - Ardmore pricing was derived for each of its target markets individually benchmarked against the more relevant competitor to each market, adjusted relative to the quality of the competitor based on historical trading quality premiums and discounts; and

- Exchange rate assumptions were based on the most recent forecasts from the four major Australian Banks.

- Other Material Modifying Factors
  - Water provision for the project will be from a mix of saline aquifer water located within the existing Ardmore Mining Lease, treated through a desalination plant, and from a water capture dam located off the current lease requiring a new Mining Lease for infrastructure;
  - Power for the project will be provided via onsite diesel generators;
  - Process plant tailings will be deposited in a conventional tailings dam, and the majority of mine waste will be progressively backfilled during strip mining;
  - The mining operations will be progressively rehabilitated as backfilling progresses;
  - Baseline environmental and heritage studies have been undertaken and show no impediments to the development of the operation; and
  - A change to the project's current Environmental Authority for Mining will need to be applied for prior to commencement of operations.

7. Mining

A geotechnical assessment of the deposit was undertaken by Golder in September 2017. The review included a three day site visit to assess the surface geology and structures, the historical excavations within the deposit, and geotechnical logging of PQ diamond drill core from the recent drilling program.

TABLE 4: Recommended geotechnical design parameters.

Batter Location	Materials expected to be exposed in batter	Maximum Overall Slope Angle	Minimum Berm Width	Maximum Bench Height	Maximum Bench Angle
Soils (all batters)		30°	N/A	3m	N/A
Eastern Face	Pre-Cambrian Basement Rocks, faulted contact with Cambrian sediments.	60°, or coincident with angle of faulted contact	N/A	30m	N/A
Northern Face	Beetle Creek Formation and Blazan Shale exposed during mining. Base of Beetle Creek Formation exposed at end of mining.	50°	5m	15m	60°
Western Face					
Southern Face					

Mining trials of both ore and overburden were undertaken at site using an excavator and dozer. Both ore and waste was shown to be free diggable without the need for blasting. Laboratory test work on selected samples of PQ core waste rock were tested for bulk density before and after crushing to estimate swell factors.

Optima undertook pit optimisation for the deposit using Whittle software. In order to ensure minimal dilution with contact material, a 150mm undercut skin was applied to the mining model blocks above a cut-off of 26.5% P_2O_5. The mining cut-off grade was set based on pilot scale process plant test work to achieve a target average run of mine grade of >30% P_2O_5 in order to meet the plant feed requirements to produce a premium grade concentrate. This means 150mm of ore below the hangingwall and 150mm above the footwall is conceded resulting in an effective 89% mining recovery. The annual processing rate was set at 1,021,000 dry tonnes per annum to produce 800,000 wet tonnes of concentrate per annum at 3% moisture (based on pilot plant test work mass recoveries). A Cost and Freight ("CFR") price of $US 151 was assumed for the optimisation.

For mine planning only Measured & Indicated Mineral Resources were used, however if Inferred Mineral Resources were inside the mine designs they were included in the mining inventory for the DFS. For the final design the proportion of mining inventories from Inferred Mineral Resources was just 0.1%. The pit design inventories of 10.1 million tonnes at 30.2% P_2O_5 were 2% lower than the optimisation results.

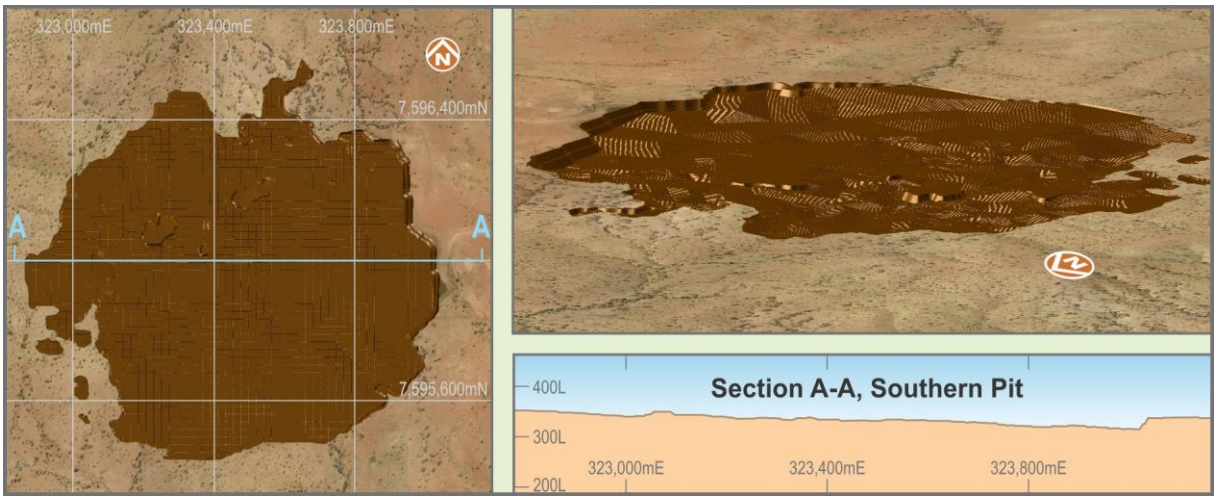

FIGURE 12: Southern Zone pit design.

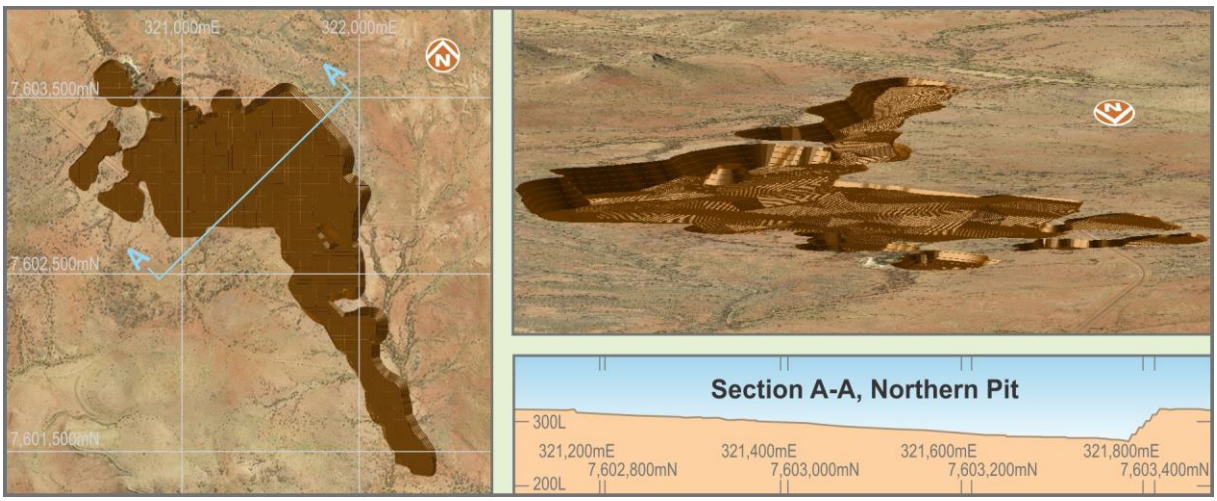

FIGURE 13: Northern Zone pit design.

The main mining method considered was strip mining with truck and excavator given the shallow deposit to minimise waste haulage. Utilising dozers for overburden stripping continues to be evaluated as an alternative. The strip mining approach has the added advantage of allowing progressive rehabilitation as the pits are backfilled. The pits would be mined in 40m wide strips from northwest to southeast. Topsoil would be cleared progressively as each strip is mined and placed next to the relevant strip ready for rehabilitation.

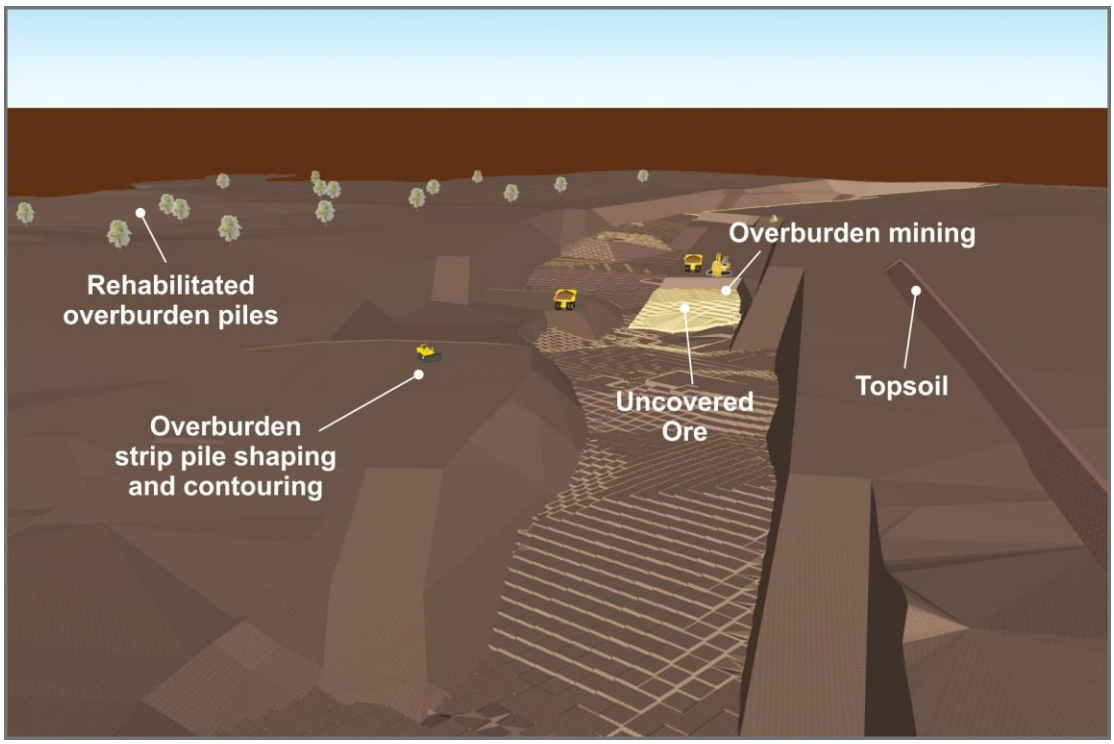

FIGURE 14: Example strip mining progression.

A 200 tonne excavator and 90 tonne trucks were selected for the mining operation along with ancillary equipment. The process plant and ROM pad is located adjacent to the Southern Zone where mining will commence. Ore from the Northern Zone in the later mine life will be hauled to the plant along a 6km haul road that parallels the mine access road.

The mining schedule was optimised to smooth out total material movements over the mine life and keep a relatively constant feed grade to the process plant via the use of long and short-term stockpiles. Strip mining and progressive waste backfill results in short waste haulage distances. This provides a significant cost advantage when combined with the free dig nature of the overburden (no blasting) resulting in total waste unit mining costs being relatively low.

Golder analysed requirements for mine dewatering based on annual mine limits. Dewatering will be performed in the Northern Zone below the water table (approximately 15m depth) progressively from 5 dewatering bores as the relevant strips are mined. These bores, along with the 3 water production wells, are to be utilised at varying stages of the mine life for process water production.

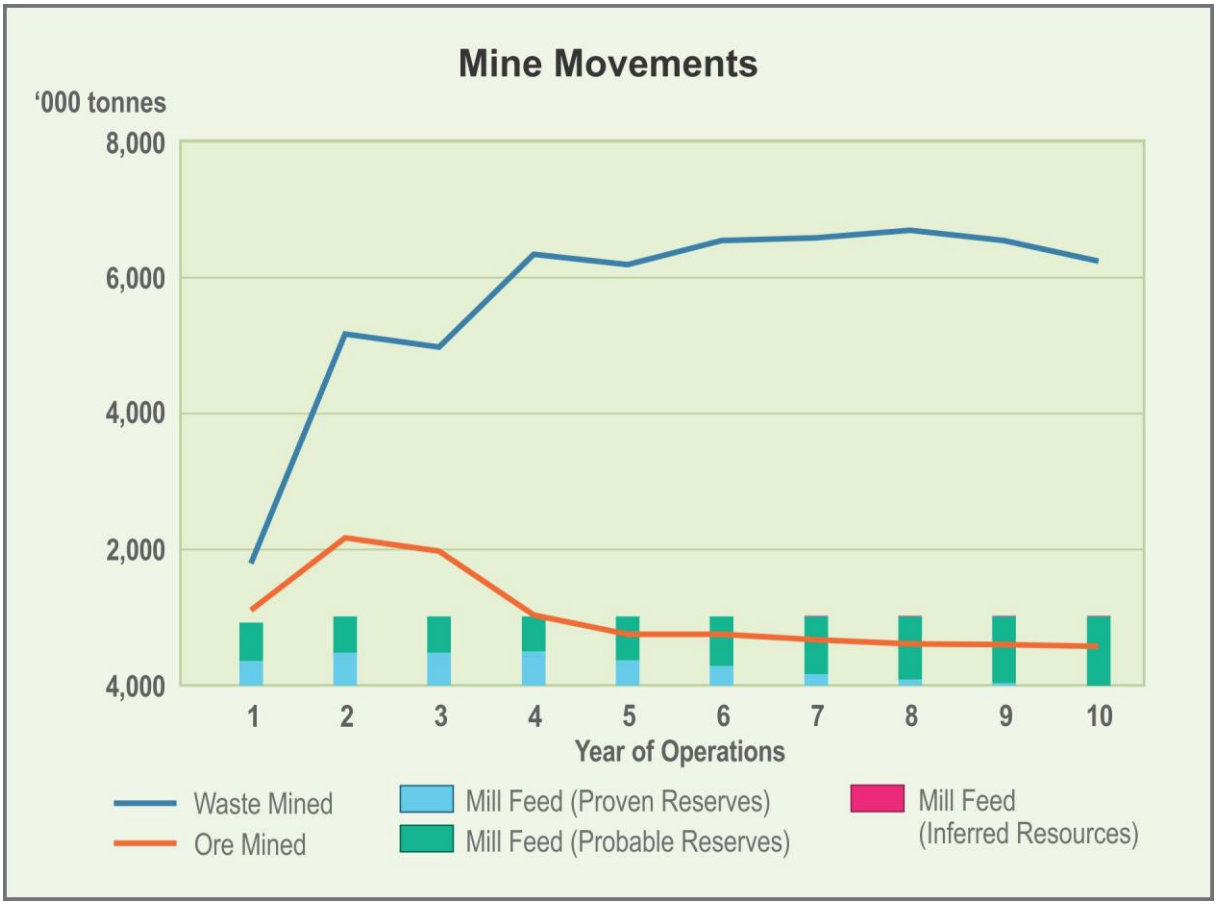

FIGURE 15: Mining movements schedule.

8. Metallurgical Test Work

The test work program for Ardmore was developed and managed by Centrex. The majority of the work was executed by Bureau Veritas Minerals in its Adelaide laboratory with specialist vendors undertaking equipment selection test work. The contributors to the test work program were as follows:

- Bureau Veritas – Mineralogy, ore characterisation, bench scale wet plant test work, variability test work and bulk sample pilot plants;
- Tunra – Materials handling test work on ROM ore and concentrate;
- Outotec – Filtration and thickening test work on concentrate and tailings;
- Williams Crushers (USA) – pilot plant crushing test work using rolls crushers and hammer mills;
- Trilabs – Tailings characterisation for TSF design; and
- Kemworks (USA) – ROM and concentrate testing for the production of SSP and concentrate testing for the production of phosphoric acid.

The main DFS test work program was undertaken using a composite sample of 19 PQ diamond drill cores taken from the Southern Zone. This "Master Composite" best represented the first 5 years of mining based on the mine plan. Sufficient sample was taken to allow for a 600 kg pilot test run of the Master Composite.

A further 3 PQ samples plus selected samples from the other 19 PQ holes were used for variability testing of different ore types, waste and hanging and footwall contact material. Two additional bulk samples were collected from the Southern Zone from a series of trenches across the ore body for another bulk pilot run and for pilot scale crushing test work.

The test work program was comprised of the following activities:

- Sample receipt and preparation including preparation;
- Ore Characterisation test work including in situ and solids density, UCS, CWi, BBMi, BRMi, SMC and abrasion tests;
- Screening test work at various sizes;
- Mineralogy including QXRD and QEMSCAN;
- Comprehensive elemental analysis of heads and products;
- Attritioning test work including varying test conditions to define test parameters for bulk sample piloting;
- Thickening and filtration test work;
- Materials handling test work;
- Crusher pilot scale test work;
- Phosphoric acid and SSP test work;
- Tailings characterisation tests work including PSD, density, Atterberg limits and settling tests;
- Variability test work on 12 separate domains identified within the southern and northern pits;
- 2 bulk sample runs to test attritioning and screening at pilot scale; and
- Dry attrition test work on alternative flow sheet.

The test work program confirmed the ability of the selected flowsheet to produce a high quality concentrate from the Ardmore ore across a range of feed parameters. It also provided the design input data for the process plant design criteria and for equipment selection and sizing.

9. Processing

GR Engineering Services ("GRES") completed the engineering design of the Ardmore process plant. The plant has been designed to treat run of mine ("ROM") ore at a design capacity of 146tph (nominal 133tph) and concentrate production of 120tph (nominal 101tph) on a dry tonnes basis, to accommodate the project annual production target of 800,000 wet tonnes per annum at 3% moisture.

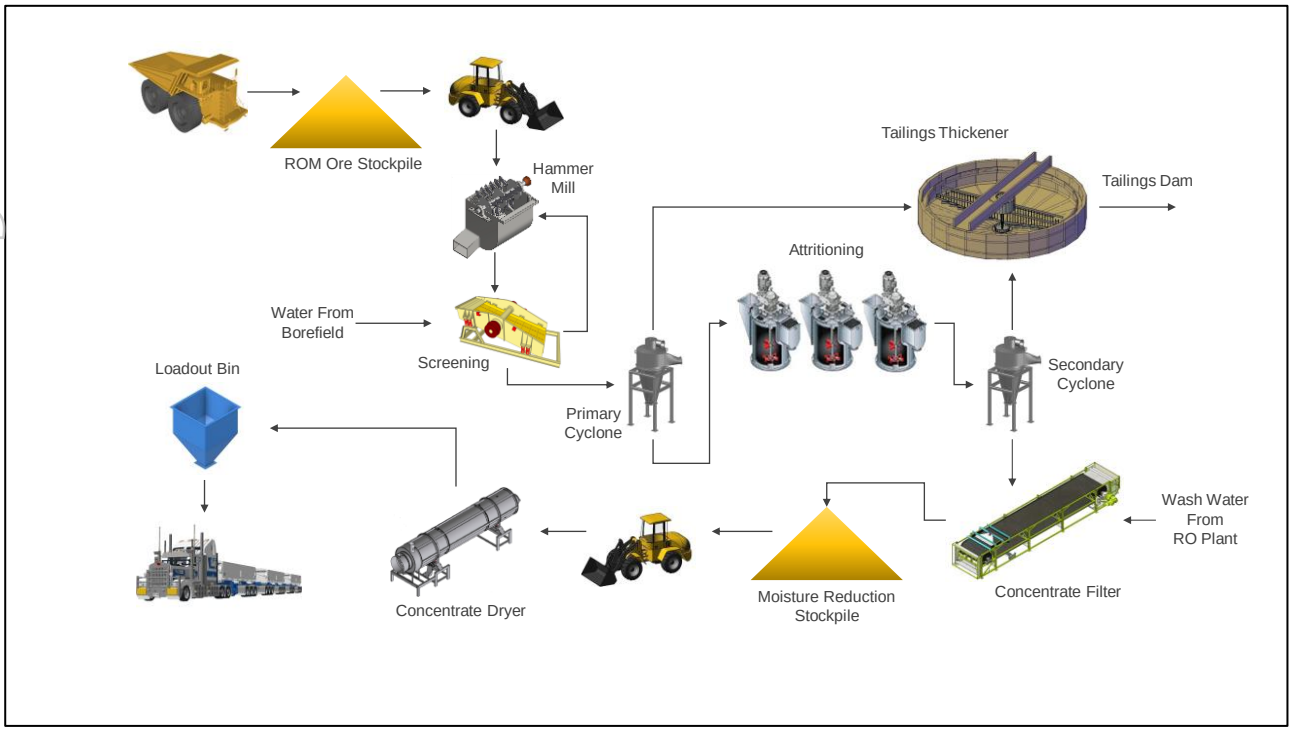

FIGURE 16: Simplified Process Flow.

The processing circuit comprises:

- ROM ore rehandled by a front-end loader on the ROM pad to feed the crushing bin;
- Crushing circuit comprising a single closed-circuit hammer mill and vibratory wet screen to achieve 90% passing 2mm;
- Wet processing undertaken with raw borefield water;
- Undersize from the screen slurried and pumped to a primary cyclone bank for primary desliming at 38µm;
- Primary cyclone underflow is pumped to a bank of attritioner cells to abrade clays from the phosphate particle surfaces;
- Attritioner product pumped to a secondary cyclone bank for secondary desliming;
- Secondary cyclone underflow pumped to a belt filter where the product is washed with potable water from the desalination (RO) plant;
- Filtered product is conveyed on a radial stacker to a series of active moisture reduction stockpiles;
- A front end loader reclaims partially dried product from the stockpile and feeds it to a dryer hopper bin;
- A rotary dryer dries the product to 3% moisture;
- Dried product conveyed to an automated loaded bin for discharge into containers on road trains;
- Cyclone overflow (tailings) from both the primary and secondary cyclone banks is thickened and then pumped to a conventional tailings dam for disposal; and

- Tailings from the processing plant will be impounded in a Tailings Storage Facility (TSF) located to the south of the plant and pit.

The TSF is situated within a small valley and enclosed by a primary embankment and is fitted with a rock wall decant pond. The TSF is planned to be lifted every 2 years over the life of mine with a final enclosed area of 96 Ha. Water from tailings and weather events will be reclaimed and pumped back to the plant via the decant pond and pump system. The primary embankment has an internal liner to minimise seepage and control moisture in the wall.

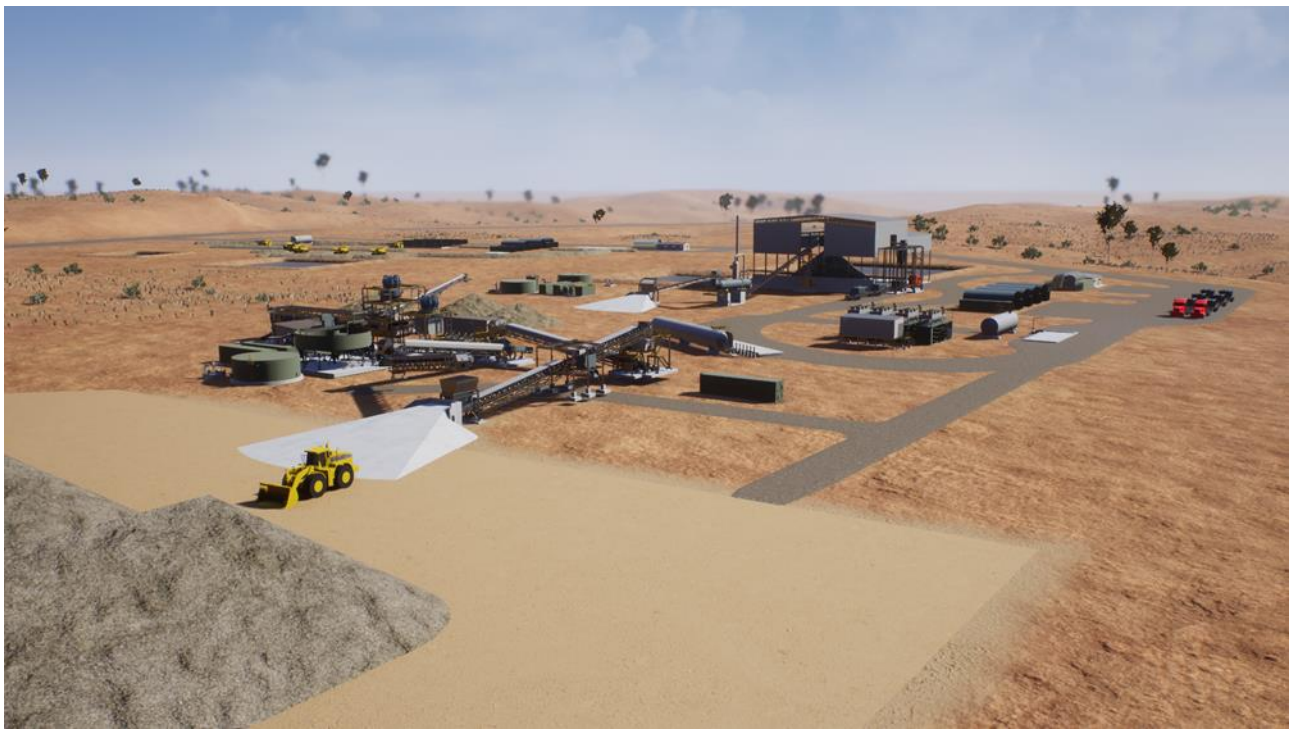

FIGURE 17: 3D design of the proposed Ardmore process plant.

10. Mine Site Infrastructure

Mine site infrastructure facilities for the project were designed by GRES except where noted and include:

- Access Roads – A new 6km dual lane gravel access road will be constructed joining the process plant to the existing State Highway. Additional internal roads will be constructed joining the various site facilities. A diversion of the State Highway around the proposed Northern Zone pit was designed by WSP for implementation at the end of the third year of operations prior to mining in that area.
- Bulk Earthworks – Activities will include clearing all required areas and stockpiling topsoil, installation of civil works including culverts, box cuts, back fill, hard stands, dams, drains, catchments, services trenching and water storage ponds and liners.

- Mine Services – Mine services will include heavy and light vehicle maintenance facilities, workshops, park-up areas, heavy and light vehicle wash down bays, tyre and lube facilities. A ROM pad has been designed along with an associated storm water catchment pond. Long-term stockpiles have been designed by Optima adjacent to the ROM pad.
- Plant Services - Duty and standby air compressors are provided for the process plant as well as a compressor at the mine workshop.
- Fuel Storage – Two 70,000L self-bunded tanks with automated fuel systems will be purchased to supply diesel to the mobile equipment and power station.
- Gas Storage – Two 50,000t LPG tanks leased from a gas vendor will provide the gas to the dryer in the process circuit.
- Power Supply – Four 500Kw diesel generators will provide a total 2MW capacity for the 1.3MW load. Smaller diesel generators are provided for the accommodation village, bore field, TSF and water dam.
- Water Supply – A borefield and transfer station will be constructed within the Northern Zone of the deposit to extract raw water for use in the process plant. Bore field water will be supplemented by raw water (when available) from a new water capture dam constructed on a major creek line. The dam will be fitted with its own pumping and piping system. Processing will be undertaken using raw water transported by pipeline to the process plant at the Southern Zone. Concentrate washing will use potable water produced from a 1,500m^3/day capacity reverse osmosis ("RO") desalination plant on site that will also provide potable water for amenities, fire water and safety showers.
- Buildings – Includes gatehouse & amenities, first aid, training, administration, process plant office & main amenities, control room, mine office & amenities, mine & process workshops, warehouse & stores, and a product storage shed for surge capacity.
- Communications – Three microwave relay towers will be constructed to link into the regional mobile network to provide data and telephone services. At site two-way radio, LAN and wi-fi networks will be established.
- Accommodation – an 86 person accommodation village has been provided for with the design based on vendor proposals and includes landscaping, sewage, waste disposal and water treatment.
- Laboratory – online analyses will be installed within the process plant to provide real-time chemical analysis for the operations. Sample stations have also been allowed for in the plant however normal plant samples will be analysed off-site at a laboratory nearby at Mount Isa.

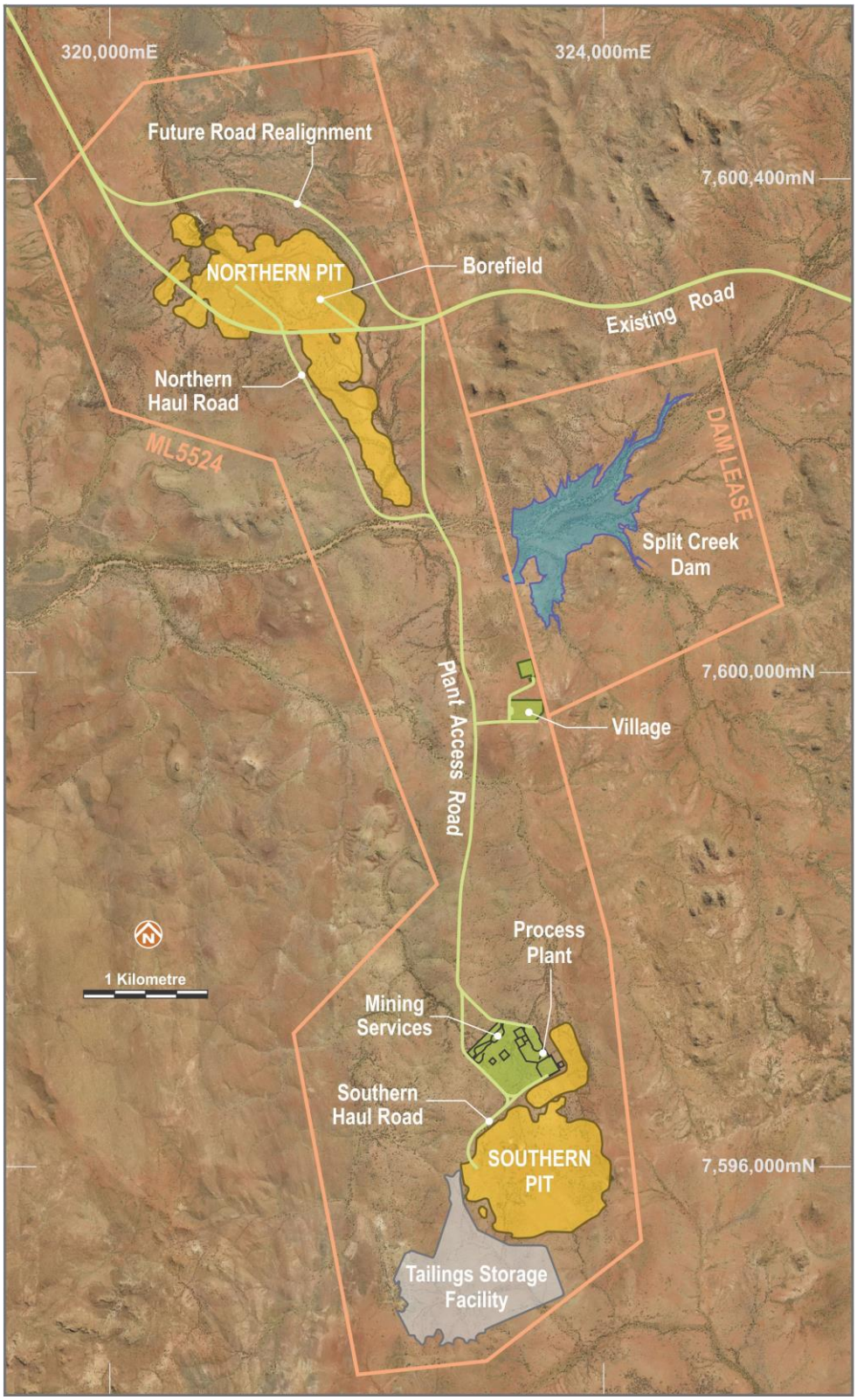

FIGURE 18: Ardmore project site layout.

11. Logistics

The proposed logistics solution from mine to ship for Ardmore comprises the following components:

- Discharge of product from an automated bin at the mine site into ¾ height (1.8m) containers (rotainers) on tri-drive triple skeletal roads trains;
- A 92km road haul from the mine to a new rail siding northeast of Ardmore at the town of Duchess including;
    - Construction of a connecting 6km dual lane gravel access road from the Ardmore process plant site to the Mount Isa-Boulia Highway;
    - 26km haul east along the existing single lane bitumen highway with gravel passing shoulders to the town of Dajarra; and
    - 60km haul northeast along an upgraded existing dual lane gravel state owned road from Dajarra to Duchess.
- Construction of a new rail siding and hardstand at Duchess connecting into the Mt Isa narrow gauge rail line with containers loaded onto the train using reach stackers (empty containers will be unloaded at the same time and stacked for loading onto road trains);
- 879-890km rail haul east to any of four rail siding locations near Townsville using two 1,000m dedicated flatbed wagon rail consists;
- Containers unloaded at the port side siding facility with reach stackers, then loaded onto tri-drive triple skeletal road trains;
- Road haul from the port side siding to either existing third-party container yards within the port precinct, or to a new third party 70,000 tonne capacity bulk storage shed for storage in container or in bulk respectively;
- During vessel (ship) loading, reclaim from the container yard or storage shed for an approximately 1km road haul within the port precinct to an existing common user berth;
- Loading vessels with either existing third-party container bulk discharge cranes (rotainers), or a third-party mobile bulk shiploader;
- Loading up to 55,000 tonne supramax vessels for export, with a mix of mainly supramax and some handysize vessels sailing approximately every three weeks.

Centrex received multiple proposals from third parties for the logistics chain. There was only minor cost difference between the various siding options, container versus bulk storage, or rotainer versus mobile bulk shiploader options. Centrex will continue to work with the logistics providers to contract the preferred solution.

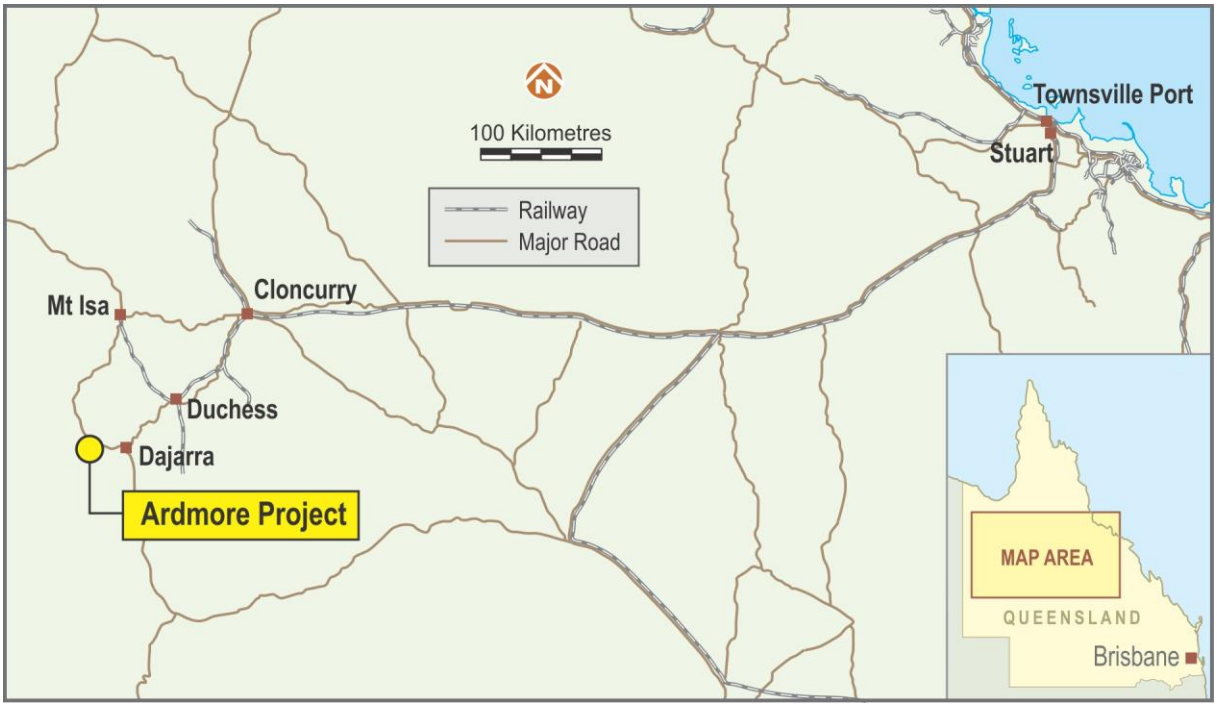

FIGURE 19: Ardmore logistic infrastructure location map.

Owner operator road haulage from the mine to Duchess siding, including operation and maintenance of the Duchess siding, was modelled by specialist logistics consultants Rusu Consulting and benchmarked against contractor proposals. Required upgrades to the gravel road sections and associated ongoing maintenance works were designed by WSP. The upgrades include widening of cattle grids, the addition of some culverts, and replacement of an existing causeway across a major creek line.

At Duchess an existing maintenance siding owned by Queensland Rail ("QR") is proposed to be upgraded to a new 1.2km siding with an adjacent 1km hardstand for staging and storage of containers. QR and Centrex are currently working on sub-leasing arrangements for the siding area. The design accommodates seven days of wet weather stocks for any unplanned road closures to the siding due to inclement weather. The track siding design was completed by QR and the hardstand and associated works and facilities were designed by WSP. The facilities are to include amenities, an office, fuel and maintenance facilities, and fixed lighting from existing mains power along the length of the hardstand. The hardstand itself is to have a compacted road base surface given the planned 10 year operational life, with allowance for regular surface maintenance.

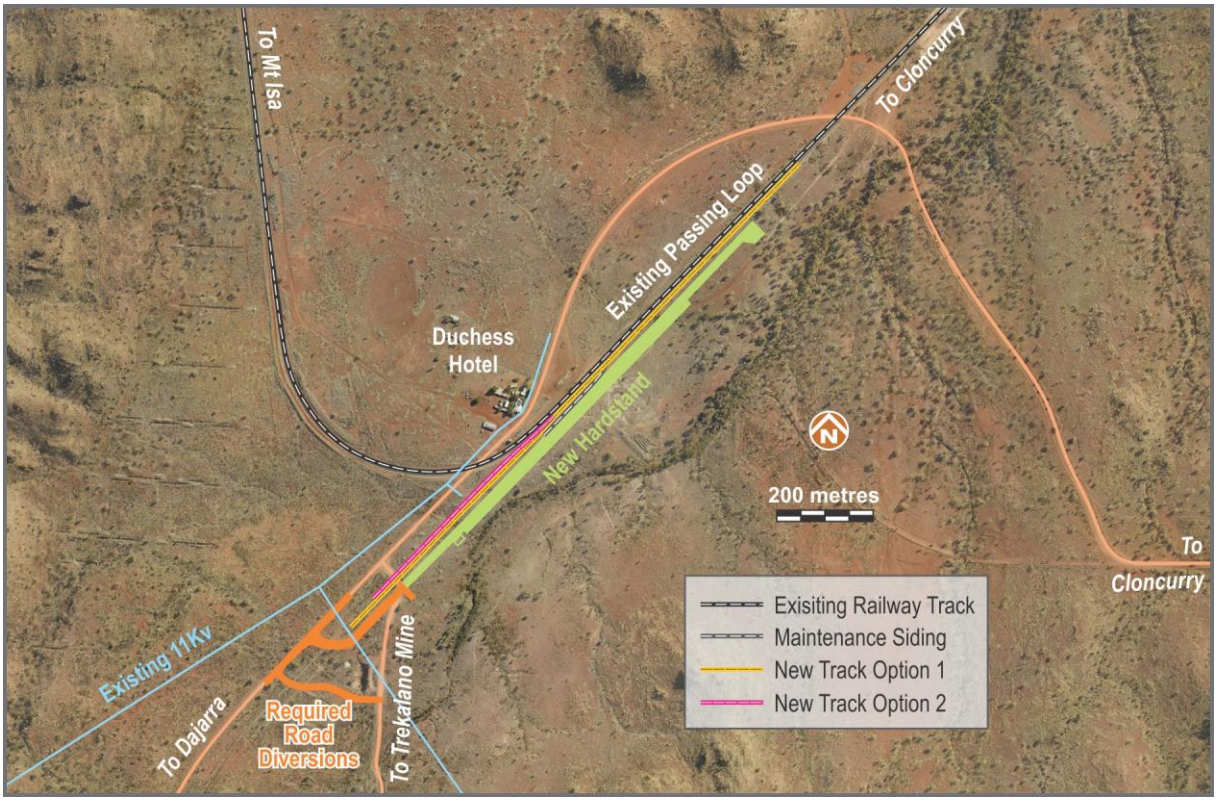

FIGURE 20: Aerial imagery with existing and proposed Duchess infrastructure locations.

Two existing third party siding facilities exist at Stuart, around 11km by road from the Port of Townsville. The Port of Townsville is currently undertaking a feasibility study for a new common user intermodal rail facility within the port precinct. Centrex is considering this option and has been engaged as a stakeholder for the study. A further potential siding facility location was identified at Stuart by QR adjacent to existing rail infrastructure, and WSP completed a design for this option. The design and location remain confidential at this time while QR and Centrex continue to review the proposed option. This option was not considered for the DFS however it will be assessed against the third party options once final designs are completed.

12. Marketing & Freight

Centrex engaged Integer to provide forecast CFR pricing over the life of mine to each of its individual target customers. Integer utilised its forecast of the Morocco FOB 32% P_2O_5 benchmark as the basis of its future pricing trend. Integer forecast the market to begin rebalancing and prices increasing in real terms in 2020 in line with demand growth and absorption of current production increases into the global market from Morocco.

Ardmore CFR pricing for each customer was determined based on the customers current most relevant supplier and the historical premium or discount relative to Morocco 32% P_2O_5 product for this supplier. Ardmore's 35% P_2O_5 product was then benchmarked to the current supplier with a premium or discount applied for the relative quality difference (e.g. if Ardmore quality was lower a discount was applied or vice versa). This provided an

average CFR price in 2018 real terms for the anticipated mix of Ardmore customers of US$ 133/t at the commencement of operations in 2021, and an average of US$ 156/t over the life of mine.

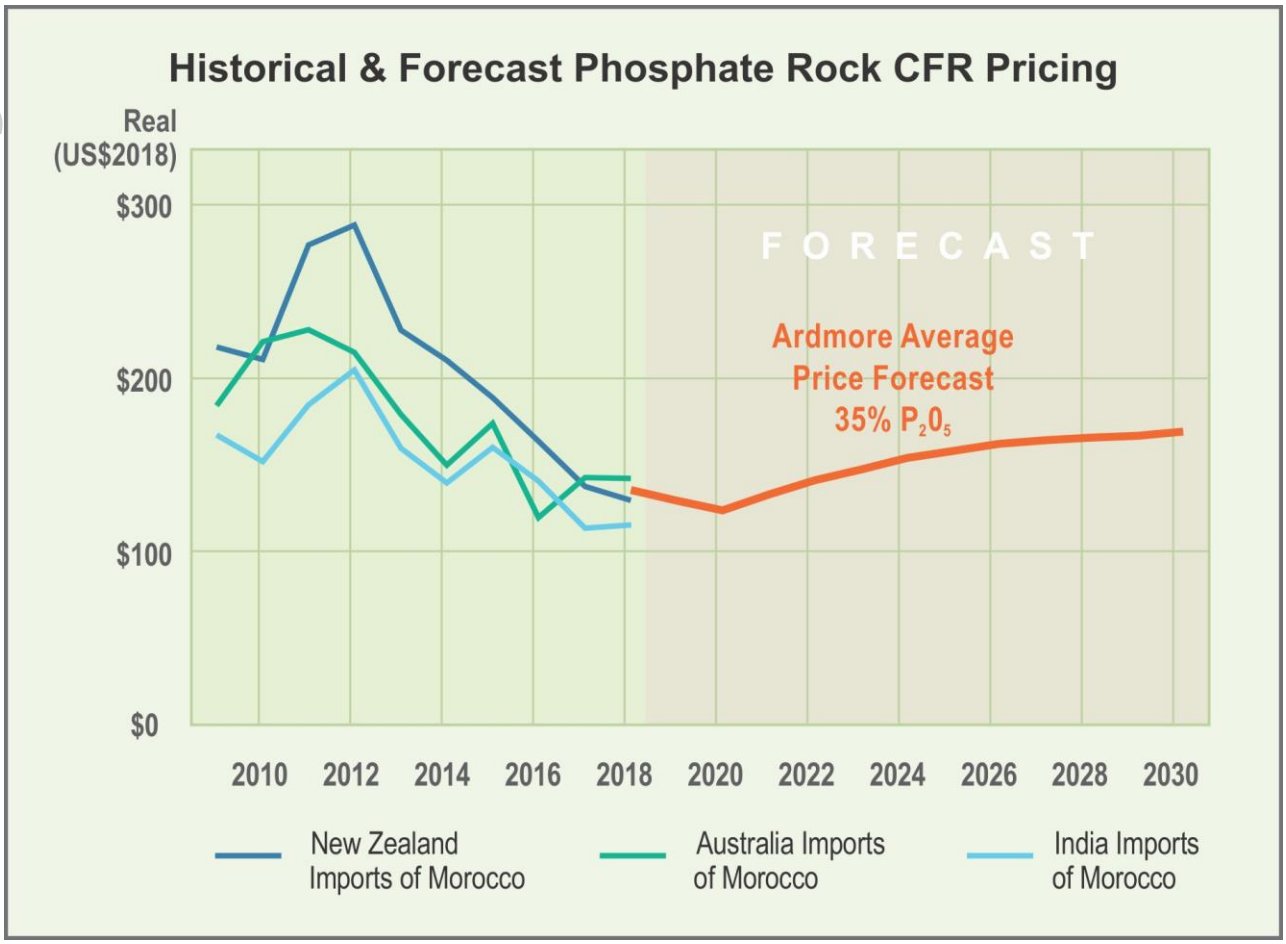

FIGURE 21: Historical CFR Morocco phosphate rock pricing to target markets, and CFR average pricing forecast for Ardmore 35% P_2O_5 product (historical pricing from Government customs data).

Of note, phosphate rock prices have been rising steadily during 2018 with the Morocco benchmark up 10% since the start of the year in line with rising DAP prices according to World Bank.

At the Port of Townsville, the study provides for 70,000 tonnes of product storage sufficient to load up to 55,000 tonne supramax vessels (a change from smaller handysize vessels in the previous Scoping Study). Freight rates for each customer were determined for Centrex by Braemer ACM Shipbroking with an average of US$20.9/WMT ($US 21.6/DMT) utilised in the DFS based on the proposed customer mix.

TABLE 5: Ardmore freight rates to target customers.

Country	Vessel Size	$US/WMT
New Zealand (North Island)	55,000	$17.7
New Zealand (South Island)	30,000 to 55,000	$19.7
Australia (East Coast)	30,000 to 55,000	$23.0
India (West Coast)	50,000	$23.8
India (East Coast)	50,000	$21.6
Indonesia (East Java)	36,000	$20.7

13. Capital Costs

The pre-production capital cost estimate for the project totals A$68.3 million or A$76.6 million inclusive of 12% combined growth & contingency allowance, and was compiled by GRES to an overall estimate accuracy of +/-15% in quarter three 2018 A$. US$ estimates are at an assumed exchange rate of 0.74 based on the average of recent forecasts from the major four Australian banks. The contributors to the capital costs estimate were as follows:

- Estimates for the process plant, mine services, ROM pad and mine buildings, and mine site infrastructure were completed by GRES;
- Optima provided capital cost estimates for mine start-up activities;
- Design and quantities were estimated for the tailings and water capture dams by Land Marine & Geological Services Pty Ltd and CMW Geosciences with GRES providing cost estimates based on the quantities;
- WSP completed estimates for the off-mine infrastructure including road upgrades and the siding;
- Rusu Consulting provided road haulage and siding operations estimates; and
- Centrex compiled capital estimates for owner's costs.

TABLE 6: Capital Costs estimate (real 2018).

	Result	
Overall estimate accuracy	+/- 15%	
Pre-production capital costs		
Area	A$ million	US$ million
Mining	4.0	3.0
Process plant	15.4	11.4
Mine site infrastructure	13.2	9.8
Road haulage	2.1	1.6
Rail siding	9.5	7.0
General (camp, borefield etc.)	7.0	5.2
Sub-total directs	*51.2*	*37.9*
EPCM	6.2	4.6
Other in-directs	5.9	4.4
Owners	5.0	3.7
Sub-total in-directs	*17.1*	*12.7*
Sub-total pre-production capital	68.3	50.6
Growth & contingency – 12%	8.3	6.1
Total pre-production capital	76.6	56.7
Life of mine sustaining capital	11.5	8.5

14. Operating Costs

Operating costs were estimated to an accuracy of +/-15 % as of quarter three 2018. US$ estimates provided are at an assumed exchange rate of 0.74 deriving a total average life of mine CFR cost per tonne of concentrate of US$111:

- Owner mining estimates were compiled by Optima with input from vendors for equipment leasing quotations;
- Process plant estimates were completed by GRES;
- Logistics costs were based on proposals received from logistics vendors;
- Sea freight costs were based on estimates provided by Braemer ACM Shipbroking; and
- Owners operating costs were compiled by Centrex.

TABLE 7: Life of mine average CFR operating costs (real 2018).

	Result	
Overall estimate accuracy	+/- 15%	
Average LOM operating costs / DMT of concentrate – Real 2018 $		
Area	A$/DMT	US$/DMT
Mining	17	13
Processing	16	12
Road haulage & siding	12	9
Rail & port	68	50
Sea Freight	29	22
Owners	7	5
Total CFR	149	111
Royalties	8	6

15. Financial Sensitivities

Project returns have been calculated on a nominal basis from the project as a whole on an unleveraged basis with the key financial results and assumptions provided in the Executive Summary. Figure 23 shows the sensitivity to the four variables that have the most impact on the nominal pre-tax NPV_{10} of the project in descending order of most sensitive to least sensitive. The financial outcomes of the project are most sensitive to changes in revenue and therefore future phosphate prices. Changes in foreign exchange and operating costs have approximately equal sensitivity whilst changes in capital expenditure have the least impact on the financial metrics given the relatively low project capital intensity.

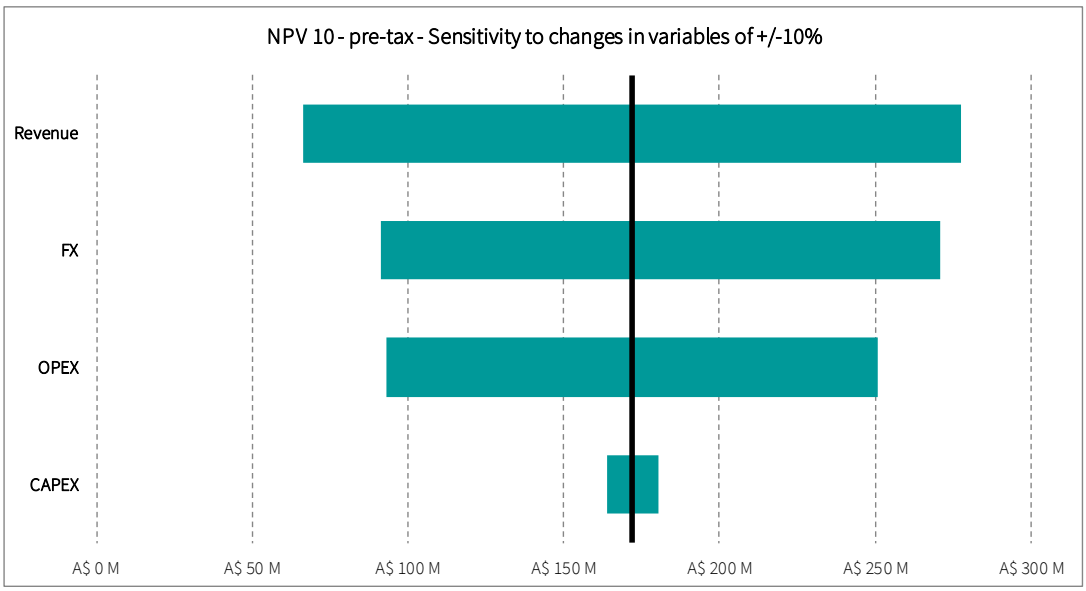

FIGURE 22: Sensitivity of changes to the pre-tax NPV of +/- 10% in major variables.

16. Environment, Community, Tenure & Approvals

Baseline environmental and social studies have largely been completed for the project by Golder Associates Pty Ltd and Northern Resource Consultants with impact assessment studies continuing. Results of work to date indicate:

- There are no EPBC-listed threatened flora, fauna or ecological communities in the area;
- Several areas within the lease are defined as having an endangered biodiversity status under State legislation, however no threatened fauna or flora species are expected to impact project development;
- The ore, tailings and overburden are non-acid forming ("NAF") and have low potential for metalliferous drainage;
- Proposed extraction of groundwater for processing is unlikely to affect any environmental values;
- Cultural heritage identified within the project area can be adequately protected and risks managed through measures provided in proposed heritage management agreements;
- The project's remote location from the nearest sensitive receptors, 8 km to the west and the Dajarra township 23 km to the east ensure any air and noise impacts from the proposed operations at these locations will be minor; and
- Importantly, potential impacts on socio-economic values will be largely positive with the development of employment and business opportunities for the local communities.

Centrex has applied to the Department of Environment and Science for a major amendment of its existing Environmental Authority (BRMN0037) to allow the start-up operation to proceed. Another major amendment application is being prepared for the proposed full-scale production operation.

Other key regulatory approvals required for the project which are being progressed include:

- Approval for the extraction and use of groundwater from pit dewatering;
- Water licence for groundwater supply;
- Mining lease for a water supply dam on Split Creek;
- Approval to obtain unallocated water from the Water Plan (Georgina & Diamantina) and related licence;
- Road use management plan for concentrate haulage; and
- Approvals relating to the proposed diversion of a section of the Diamantina Development Road.

The Ardmore Mining Lease is "pre 1996 grant" and consequently the lease area is not subject to any requirement for an agreement under the Native Title (Qld) Act 1993. However, requirements still exist under the Queensland Aboriginal Cultural Heritage Act 2003 regarding the company's duty of care to the recognition, protection and conservation of Aboriginal cultural heritage. A search of the DATSIP Cultural Heritage Register of the lease area did not identify any Aboriginal cultural heritage sites.

An aboriginal cultural and historic heritage assessment of the lease area was undertaken by RBC Environmental in conjunction with relevant traditional owners on behalf of Centrex in June 2017. A series of smaller, more targeted surveys focussing on areas which are proposed to be subject to major ground disturbance have since been undertaken. Management of Centrex's duty of care under the ACHA has involved direct consultation with relevant

traditional owners and the undertaking of field clearance surveys with group representatives under a system of work program notifications.

The Mining Lease itself falls within both the Cloncurry and Boulia Shire Councils and Centrex has been engaging with both. Land owner compensation agreements are in place for mining and Centrex maintains regular contact with the pastoral lease holders. Ongoing community consultation has included an information day held in Dajarra with positive support provided by residents and businesses.

All current planned mining operations and processing facilities are sited on Mining Lease 5542 held by Centrex Phosphate Pty Ltd, a wholly owned subsidiary of Centrex. The Mining Lease was renewed for a further 21 year term in June 2017, and includes rights in addition to phosphate for; As, Bi, Cu, Fe, Ni, Pb, Sb, V, Zn, Ag and Th. It is planned to apply for a smaller, adjoining mining lease for the establishment of a water supply dam.

Mine rehabilitation for the study was assumed to be progressive throughout the mine life. Where possible mine waste will be backfilled into existing excavations that will minimise waste rock storage facilities (waste dumps). Allowances have been made of soil stripping and storage in advance of operations for later use in rehabilitation. Rehabilitated areas would be re-seeded progressively.

17. Funding & Project Implementation

To achieve the range of outcomes indicated in the DFS, pre-production capital funding in the order of A$77 million will likely be required. It is anticipated that the finance will be sourced through a combination of equity and debt instruments from existing shareholders, new equity investment and debt providers from Australia and overseas.

The Company has sufficient cash on hand at the date of this announcement to progress early works on the start-up phase scheduled for mid-2019. Centrex aims to commence start-up operations by mid-2019 to deliver first shipments to customers in order to secure long-term off-take agreements which will underpin financing for full scale operations. Centrex has already committed to and commenced fabrication of a start-up wet processing plant from its existing funding.

Centrex believes that the robust economics, relatively efficient capital intensity, and project scale will facilitate successful fund raising. A key to successful project financing will be the ability to gain binding off-take agreements for a significant proportion of the product from the project. Centrex is already well progressed in its marketing of the product having completed two paid 400 tonne trials of run of mine ore to two major regional customers with positive feedback, and the signing of a non-binding MOU with major Indian fertiliser company Gujarat State Fertilizers & Chemicals Limited for 40% of the off-take.

The project development schedule contemplates the following key milestones as a pathway to full scale production in 2021:

- Start-up mining and processing operations (fabrication commenced) scheduled for H1 2019;
- Multiple 5,000 to 6,000 tonne concentrate shipments to potential long-term offtake customers in mid-2019;

- Long-term offtake agreements, approvals and conditional logistics contracts award, all targeted for H2 2019, will be a major step in de-risking the project;
- Project financing to run in parallel in H2 2019 with a final investment decision scheduled for end of 2019;
- Construction to commence 2020 over a 12 to 15 month period to first production; and
- Short ramp up to full scale mining and processing operations targeted for H1 2021 due to shallow nature of the ore body and plant having being de-risked during start-up phase.

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Competent Persons Statement

Mineral Resource Estimates

The information in this report relating to Mineral Resources is based on and accurately reflects information compiled by Mr Jeremy Clark of RPM, who is a consultant and adviser to Centrex Metals Limited and who is a Member of the Australian Institute of Geoscientists. Mr Clark has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity 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 Clark consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

Ore Reserve

The information in this report that relates to Ore Reserves is based on information compiled by Ben Brown, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Ben Brown is employed by Optima Consulting and Contracting Pty Ltd, an external independent consultancy. Ben Brown has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Ben Brown consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Metallurgical Test Work

The information in this report that relates to Metallurgical Test Work is based on information compiled by Steve Klose, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Steve Klose is the General Manager Projects for Centrex Metals Limited. Steve Klose has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Steve Klose consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Exploration Results

The information in this report that relates to Exploration Results is based on information compiled by Alastair Watts, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Alastair Watts is the General Manager Exploration for Centrex Metals Limited. Alastair Watts has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Alastair Watts consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Forward Looking Statements

This announcement has been prepared by Centrex Metals Limited and it is not intended to be and does not constitute an offer to sell, or a solicitation of an offer to buy or sell, 'Centrex Metals' securities.

This announcement does not constitute a recommendation to invest in Centrex Metals assets, not investment, accounting, financial, legal, tax or other advice and does not take into consideration the investment objectives, financial situation or particular needs of any recipient of the announcement (Recipient). Before making an investment decision, Recipients should (a) conduct their own independent investigations and analysis of Centrex Metals and the information set out in the announcement, (b) rely entirely on such investigations and analysis and not on this announcement in relation to their assessment of Centrex Metals and (c) form their own opinion as to whether or not to invest in Centrex Metals.

The announcement contains information on Centrex Metals and its activities which are current as at the date of this announcement. The information in this announcement is general in nature and does not propose to be complete nor does it purport to contain all of the information that a prospective investor may require in evaluating a possible investment in Centrex Metals or that would be required in a prospectus or a product disclosure statement prepared in accordance with the Corporations Act. To the maximum extent permitted by law, none of Centrex Metals and its related bodies corporate, and each of those parties officers, employees, agents, advisers and associations (each a Relevant Person) is, or may be taken to be, under any obligation to correct, update or revise the announcement.

Any forward looking statements (including forecasts) included in this announcement are not representations as to future matters and should not be relied upon by Recipients. The statements are based on a large number of assumptions about future events and are subject to significant uncertainties and contingencies, many of which are outside the control of Centrex Metals. No representation is made that any forecast or future event will be achieved. Actual results may vary significantly from the forecasts. Each Recipient should make its own enquiries and investigations regarding the assumptions, uncertainties and contingencies which may affect Centrex Metals' assets.

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Ardmore Phosphate Rock Project JORC Table 1

SECTION 1: Sampling techniques and data.

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling.* • *Sample representivity.* • *Determination of mineralisation.*	Water bores and monitoring bores were not sampled and used for lithology logging only. Drill holes were mainly (99% of the data) sampled at a nominal 0.5m interval. Historical rotary percussion drill holes were completed using a 6" tri-cone blade. Samples were collected via a venturi system with a rubber seal over a PVC cased hole collar into a cyclone. Sample intervals were split by hand using a 16 pocket splitter and re-split to achieve average sample weights of 1kg. Reverse circulation ("RC") drilling by Centrex drilling was completed with a 4 ¼ inch hammer with a 900 psi compressor, and an auxiliary compressor for sampling below the water table. Samples were split to a target 1kg using a rig mount cone splitter. Rotary percussion drilling was completed by Centrex using an 89mm diameter drill bit and utilised a rig mounted cyclone with a single tier riffle splitter placed beneath to produce a 2-3kg sample split. The sampling method for the three historical diamond core holes has not been verified and these holes were not specifically targeting phosphate but other commodities in the overlying shale. For the drilling all original samples logged visually as containing phosphorite were sent for analysis as well as a number of intervals either side or where the lithology indeterminate. Centrex samples were sent to Bureau Veritas in Adelaide for sample preparation and assays. Samples were crushed to -3mm and then split for a sub-sample to be pulverised in a tungsten carbide bowl. Samples were then analysed using lithium borate fusion followed by ICP. Historical rotary percussion samples were sent to a dedicated sample preparation facility in Mount Isa owned

Criteria	JORC Code explanation	Commentary
		by BH South for crushing and pulverising. 100g splits of the pulps were sent to Amdel in Adelaide for original assays. Secondary 100g pulps splits were kept in Mount Isa and were later re-assayed (93% of original pulps) in 2010 via lithium metaborate fusion followed by inductively coupled plasma mass spectrometry at Bureau Veritas in Adelaide. PQ diamond drilling was completed for metallurgical purposes and drill holes were used for lithology reference and in-situ dry bulk density density only. All PQ drill holes were twin holes of rotary percussion drill holes. The PQ diamond core was for metallurgical testwork purposes. For each drill hole the mineralised interval was divided into further intervals down hole and packaged into 20-30kg plastic bags with cable ties for manual handling reasons. The interval of each bag was recorded and bags were weighed wet and dry at Bureau Veritas in Adelaide. There were 49 bags in total of mineralised intervals. From each dried bag interval, two representative approximately 20cm pieces were taken for in-situ dry bulk density determination. Each piece was wrapped in cling wrap and weighed in air and in water to determine the dry bulk density.
Drilling techniques	• *Drill type.*	RC drilling was completed with a 4 1/4" hammer by Kelly Drilling using a Schramm 450 with a 900 psi compressor, and an auxiliary compressor was used for drilling below the water table. PQ diamond drilling was completed by Kelly Drilling using a Longyear GK850 multi-purpose rig. Historical rotary percussion holes AMRB2-28 were completed with a Schramm Rotadrill P42 and holes AMRB29-326 with a Drillmatic using a 6" tri-cone blade. Historical diamond drilling was a mix of NQ and HQ using a Mindrill M10L (AMDD1) and VKI (AMDD2-3) rigs.

Criteria	JORC Code explanation	Commentary
		Centrex rotary percussion drilling was completed by JDR Mining & Civil Pty Ltd using a Tamrock Ranger 700 tracked rig with an 89mm diameter drill bit.
Drill sample recovery	• *Method of recording and assessing sample recoveries.* • *Measures taken to maximise sample recovery.*	Drill sample recoveries were monitored during the drilling process. An auxiliary compressor was used below the water table to increase sample recovery for the RC. RC and rotary percussion sample weights were consistent against the set interval volume.
Logging	• *Geological and geotechnical logging.* • *Whether logging is qualitative or quantitative.* • *Total length and percentage of the relevant intersections logged.*	Geological logging was qualitative based on visual field observations and conducted on all samples. Logging included lithology, hardness, colour, stratigraphy, grainsize, moisture, and weathering. 0.5m RC and rotary percussion samples were wet sieved for observation. Diamond core was logged to 10 cm resolution. Diamond core was geotechnically logged by consultant geotechnical engineers.
Sub-sampling techniques and sample preparation	• *Nature, quality and appropriateness of the sample preparation technique.* • *Quality control.* • *Sample representivity.* • *Sample sizes.*	Historical rotary percussion samples were collected via a Venturi system with a rubber seal over a PVC hole collar into a cyclone. Samples were split by hand using a 16 pocket riffle splitter and then re-split to achieve average sample weights of 1kg. Samples were sent to a dedicated sample preparation facility in Mount Isa owned by BH South for crushing and pulverising. 100g splits of the pulps were sent to Amdel in Adelaide for original assays in the 1970s. Secondary 100g pulps splits were kept in Mount Isa which were later re-assayed (93% of original pulps) in 2010. RC intervals were run through a rig-mounted cone splitter. 0.5m RC samples were crushed to –3mm and split for pulverising prior to analysis. Samples were generally 0.5 to 1kg. Field duplicates were taken on average every 20th sample. Blanks and standards were submitted to the laboratory on average every 20th sample respectively. Field duplicates showed acceptable variation. 21 of the 2017 RC holes were twin holes of historical rotary percussion holes completed from 1968 to 1974. The original sample pulps from the historical holes were re-assayed in 2010 using lithium borate fusion followed by

Criteria	JORC Code explanation	Commentary
		ICP. Comparison of the twin pair data showed comparable results. Centrex rotary percussion intervals were riffle split via a single tier riffle splitter placed beneath the rig mounted cyclone. 0.5m RP samples were crushed to -3mm and split for pulverising prior to analysis. Samples were generally 2.0-3.0 kg. Field duplicates were taken on average every 40th sample. Blanks and standards were submitted to the laboratory on average every 30th sample respectively. Field duplicates showed acceptable variation. Diamond holes were for metallurgical purposes and so were not routinely assayed. The holes were twins of historical percussion holes completed from 1968 and 1974. Comparison of lithological logging between twin pairs showed good correlation. For each diamond drill hole the mineralised interval was divided into further intervals down hole and packaged into 20-30kg plastic bags with cable ties for manual handling reasons. The down hole interval of each bag was recorded and bags were weighed wet and dry at Bureau Veritas in Adelaide. There were 49 bags in total of mineralised intervals. From each dried bag interval, two representative approximately 20cm pieces were taken for in-situ dry bulk density determination. Each piece was wrapped in cling wrap and weighed in air and in water to determine the dry bulk density.
Quality of assay data and laboratory tests	• *Nature of quality control procedures.*	For the Centrex RC, field duplicates were taken on average every 20th sample from the cone splitter mounted on the drill rig. Blanks and two separate standards (sedimentary phosphorite certified reference material) were submitted to the laboratory on average every 20th sample respectively. Field duplicates showed acceptable variation. Blanks and standard results showed no concerns. 21 of the 2017 RC holes were twin holes of historical rotary percussion holes completed from 1968 to 1974. The original sample pulps from the historical holes were re-assayed in 2010 using lithium borate fusion followed by

Criteria	JORC Code explanation	Commentary
		ICP. Comparison of the twin pair data showed comparable results. Diamond holes were for metallurgical purposes and so were not routinely assayed. The holes were twins of historical percussion holes completed from 1968 and 1974. Comparison of lithological logging between twin pairs showed good correlation. For each of the PQ diamond core density intervals the average of the dry bulk density from the two pieces tested per interval was compared to the dry bulk density determined by the core-length-weight method which assumes 100% core recovery, which was very close to being achieved in the majority of intervals. The two methods of dry bulk density determination showed strong correlation indicating the pieces selected to be representative of the interval. For the Centrex rotary percussion field duplicates were taken on average every 40th sample from the one tier riffle splitter. Blanks and two separate standards (sedimentary phosphorite certified reference material) were submitted to the laboratory on average every 30th sample respectively. Field duplicates showed acceptable variation. Blanks and standard results were within acceptable limits. Historical rotary percussion programs were undertaken in conjunction with programs by BH South at Duchess approximately 70km east in the same stratigraphy and style of mineralisation. Quality control programs were undertaken on the initial drilling at Duchess and with no issues shown, no further quality control programs were undertaken at the subsequent Ardmore drilling campaigns. Quality control at the Duchess program included twin holes plus sampling of dust from the cyclones. The nature of the quality control procedures used in the laboratory has not been verified.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage protocols.* • *Any adjustment to assay data.*	Data and results collected by field geologists was reviewed and audited by alternative company geologists via site visits and database reviews. 21 of the 2017 RC holes and 12 of the Centrex rotary percussion holes were twin holes of historical rotary percussion holes (plus each other in some cases) completed from 1968 to 1974. The original sample pulps from the historical holes were re-assayed in 2010 using lithium borate fusion followed by ICP. Comparison of the twin pair data showed comparable results across all three drill types. Diamond holes were for metallurgical purposes and so were not routinely assayed. The holes were twins of historical percussion holes completed from 1968 and 1974. The diamond holes were also twinned in some cases with the RC and the Centrex rotary percussion holes. Comparison of lithological logging between twin pairs showed good correlation. Historical sampling procedures were outlined in discussions by Centrex with the Exploration Manager in charge of the historical Ardmore drilling at the time. Historical information on the documentation of primary data, data entry procedures, data validation, data storage protocols and adjustments to assay data has not been verified.
Location of data points	• *Accuracy and quality of surveys.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	Centrex drill hole collar coordinates were collected by a licensed surveyor using DGPS. Field surveys by Centrex identified many of the historical drilling steel collar pegs to be in place and these were also surveyed with DGPS. Where historical collar pegs could not be found, original coordinates based on aerial survey were used. Topography was further confirmed using a high-resolution 1m contour LIDAR survey of the mining lease. All coordinates were reported in MGA94 Zone 54. All drill hole collars were “snapped” to the LIDAR survey prior to wireframe interpretation.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource.* • *Whether sample compositing has been applied.*	Drill spacing was generally on an 80m grid with some areas down to 40m and even 20m grids. The hole spacing is considered sufficient to establish the degree of geological and grade continuity appropriate for estimation of a Mineral Resource. For each PQ diamond core interval, two core pieces were selected for in-situ dry bulk density determination, the results were averaged for the interval. No downhole compositing was undertaken. This is considered suitable given that 99% of the data are 0.5 m in length.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling.*	The holes were drilled vertically, which is considered appropriate for a shallow-dipping sedimentary unit.
Sample security	• *The measures taken to ensure sample security.*	Samples were collected in calico bags, transferred into plastic bags, and transported in batches in bulk bags to the laboratory. Diamond core metallurgical samples were collected in plastic bags and packaged in steel drums for transport.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	RPM reviewed the sampling techniques and data.

Ardmore Phosphate Rock Project JORC Table 1 Report

SECTION 2: Reporting of Exploration Results.

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements.* • *The security of the tenure held at the time of reporting.*	The project is located on Mining Lease ML 5542 held by Centrex Phosphate Pty Ltd, a 100% subsidiary of Centrex Metals Limited. The Ardmore Mining Lease (ML 5542) has been renewed in October 2017 for a further 21-year term. Southern Cross Fertilisers Pty Ltd holds a 3% revenue royalty on production. Compensation agreements for exploration and mining with all relevant landowners over the Mining Lease are in place.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Exploration by other parties.*	BH South and Queensland Phosphate Limited (Mines Exploration Pty Ltd) completed a significant amount of exploration from 1968 through to 1980, including 300 RP and 3 DD holes. Six excavations were also dug for detailed geological mapping and metallurgical test work.
Geology	• *Deposit type, geological setting and style of mineralisation.*	The Ardmore phosphate deposit was discovered in September 1966 and is located within the 'Ardmore Outlier' of the Georgina Basin. The Cambrian-aged sedimentary phosphate deposit consists predominantly of pelletal phosphorites with small bands of collophane mudstone. The small (approx. 100-200 micron) sized pellets of carbonate-fluorapatite are thought to have formed in a shallow shelf environment. Within the 'Ardmore Outlier', the single phosphate bed occurs within the Simpson Creek Phosphorite Member (SCPM) of the Beetle Creek Formation. The SCPM is essentially flat-lying with a gentle-to-moderate dip (<20 degrees) to the east, and occurs spatially within two main separate areas: the Northern Zone and the Southern Zone. The SCPM has an approximate average thickness of 5 m in the Southern Zone and is located from surface to greater than 15 m depth. The Northern Zone has an approximate average thickness of 3 m and is deeper than the Southern Zone, with depths starting from near-surface in the west before dipping away to the east and extending to depths greater than 20 m.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results.*	Full drilling results have previously been reported. For full details of reported drilling results see announcements on the 2nd February 2017, 23rd October 2017, 3rd & 13th of November 2017, and 3rd & 26th of April 2018; http://www.asx.com.au/asxpdf/20170202/pdf/43fr772d32lgt0.pdf http://www.asx.com.au/asxpdf/20171023/pdf/43ngkq74j0qqrd.pdf

Criteria	JORC Code explanation	Commentary
		http://www.asx.com.au/asxpdf/20171103/pdf/43ny85wh5prq0m.pdf http://www.asx.com.au/asxpdf/20171113/pdf/43p5hf47zpntff.pdf https://www.asx.com.au/asxpdf/20180403/pdf/43sx1j0jx3h475.pdf https://www.asx.com.au/asxpdf/20180426/pdf/43thbnkbfx6wq4.pdf The results were reported under JORC 2012 and Centrex is not aware of any new information or data that materially affects the information contained within the release. All material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.
Data aggregation methods	• *Weighting averaging techniques and grade cuts.* • *Aggregation procedure.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	Reported assay results for public reporting were composited by weighted average interval for consecutive intervals above and below 19% P_2O_5 for ease of reporting.
Relationship between mineralisation widths and intercept lengths	• *Geometry of the mineralisation with respect to the drill hole angle.*	The mineralised unit is sub-horizontal to shallow dipping at between 0° to 20°, meaning true thickness of mineralisation may be slightly less than the down hole intervals reported.
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.*	See figures included in this announcement.

Criteria	JORC Code explanation	Commentary
Balanced reporting	• *Representative reporting of both low and high grades and/or widths.*	All sampled intervals were reported with weighted average compositing of consecutive intervals above and below 19% P_2O_5 for ease of reporting.
Other substantive exploration data	• *Other exploration data.*	No other exploration data results have been received at this time.
Further work	• *The nature and scale of planned further work.*	The Mineral Resource has been utilised for mine designs and cost estimation to allow the completion of a Feasibility Study by Centrex.

Ardmore Phosphate Rock Project JORC Table 1 Report

SECTION 3: Estimation and Reporting of Mineral Resource.

Criteria	JORC Code explanation	Commentary
Database Integrity	• *Measures taken to ensure that data has not been corrupted.* • *Data validation procedures used*	Historically, random cross-checks were conducted of databases relative to original hand-written logs. Approximately 20% of the assays were cross checked with no issues identified. Further checks were conducted in 2018 showing no errors between original and input data. All drill hole collars were verified against original data and against topographic LIDAR survey. Before estimation, all drill holes were "snapped" to the detailed LIDAR surface. A correlation analysis was undertaken for the previous estimate on the re-assays versus original assay results for approximately 20% of the assay database. Q-Q plots were produced and the re-assay data and the original data were observed to correlate well, with P_2O_5 R2=99.66, Fe_2O_3 R2=98.4, and Al_2O_3 R2=96.3.
Site Visits	• *Comment on any site visits undertaken by the Competent Person.* • *If no site visits have been undertaken indicate why in this case.*	Mark Burdett, an associate consultant for RPM, visited the site in May 2017 and inspected the main drilling areas and associated historical drill collars, costeans, and outcropping geological units.
Geological Interpretation	• *Confidence in the geological interpretation.*	The data spacing and distribution is considered sufficient to establish the degree of geological and grade continuity appropriate for a Mineral Resource. The geological interpretation demonstrates lateral continuity of the mineralised horizons. Recent infill drilling (2017/2018) has confirmed lateral continuity and horizontal consistency.

Criteria	JORC Code explanation	Commentary
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 target high-grade phosphorite occurs as a single, generally flat lying unit within two separate areas, the Northern Zone with a strike extent of approximately 4.0 km (N-S) and the Southern Zone with a strike extent of approximately 1.6 km (E-W). The target phosphorite unit is generally shallow-dipping, with the average depths of the hanging wall and footwall contacts being 8.0 m and 12.0 m respectively based on drilling to date. On a localized scale (less than 10m) the dip of the mineralised unit can be observed to be angled, due to local structures, however is considered generally flat lying or shallow dipping on a larger scale
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions.* • *The availability of check estimates.*	The mineralised zone was represented by interpreted three-dimensional strings and wireframes. A "high-grade" zone was interpreted using a nominal 21% P_2O_5 cut-off and a "low-grade" halo was interpreted, where present, using a nominal 12% P_2O_5.These interpretations were used to develop a cellular model and to the flag drill hole samples. No compositing was undertaken because more than 99% of the data within the mineralised zones was sampled at 0.5m intervals. Grade estimation was undertaken using Ordinary Kriging methods. The following nine (9) components were estimated: P_2O_5, Al_2O_3, CaO, Fe_2O_3, K_2O, MnO, MgO, Na_2O, and SiO_2. In addition, density was estimated using ID2, as was percentage indurated. Variography was undertaken for the high grade mineralised zone on all components for the 2 main lateral domains: South and North. Variograms were generally robust, however due to a lack of sample data in the low grade domains, the more robust high grade variograms were applied. The orientation of the search ellipse was controlled using a process referred to as 'dynamic anisotropy' in which surfaces that represent the dip and strike of the interpreted mineralised units are used to define a search ellipse bearing and dip for each cell in the model. In general

Criteria	JORC Code explanation	Commentary
		variograms were isotropic in the lateral extents and this was reflected in the search ellipse dimensions
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture.*	The tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	A "high-grade" zone was interpreted using a nominal 21% P_2O_5 cut-off and a "low-grade" halo was interpreted, where present, using a nominal 12% P_2O_5. Both these cut-offs were determined statistically and geologically to best represent high and low grade zones. No high-grade or low-grade cuts were applied to P_2O_5data as the population distribution did not identify any significant unexplained outliers. Minor high-grade cuts were applied to gangue elements where required although were always limited to only minor samples sitting close to or above the 99th percentile.
Mining factors or assumptions	• *Assumptions made regarding reasonable prospects for eventual economic extraction.*	Because of the flat-lying orientation and shallowness of the mineralisation, it is considered conducive to open cut mining methods however localized changes in dip from flat to angled may require reasonably selective open cut mining methods.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability.*	The estimated grades of the mineralisation shows a potential direct shipping ore without further beneficiation.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options.*	For a direct ship ore option, there would be no process tailings only mine waste, to be stored in a conventional tailings storage facility.
Bulk density	• *Whether assumed or determined.*	From the recent PQ diamond drilling program, a total of 98 core samples were sent for laboratory in-situ dry bulk density determination based on the weight in air-weight in water method. Based on the results the average in-situ dry bulk density of the ore was 1.91 (g/cm^3) with a standard deviation of 0.3 (g/cm^3). The majority of bulk density determinations were taken from the Southern Zone. Bulk density determinations from only 3 drill holes have been collected from the Northern Zone.
Classification	• *The basis for the classification of the Mineral Resource into varying confidence*	Mineral Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results,

Criteria	JORC Code explanation	Commentary
	categories	Mineral Resources and Ore Reserves (JORC, 2012). The Mineral Resource was classified on the basis of data quality and quantity, sample spacing, and mineralisation continuity. As a result, the interpreted and estimated mineralisation is considered to have sufficient confidence to be classified as a Mineral Resource: - There is a significant quantity of data in the historical and recent database. Recent drilling from both 2017 and 2018 has fully aligned with the earlier interpretation. - The historical documentation is of a very high quality and remains available for review. Furthermore, the reviews and replication checks have provided high confidence in the historical data. - Recent collar surveys of located historical drill hole collars have verified the presence of the collars in the expected locations. Not all historical drill holes could be located for re-survey however comparisons of located holes (historical location to new survey location) are minimal and therefore immaterial to the interpretation. - The 2010 re-assay programme shows very good reproducibility of the original 1968–1980 data and provides alignment with 2017/2018 assay procedures. - The geological interpretation demonstrates continuity within each of the two main (North and South) lateral spatial domains for the majority of estimated variables. Recent infill drilling from late 2017 to 2018 has aligned well with historical drilling and estimations. - The geostatistical assessment yielded robust variograms to support to interpreted continuity. - The classification of the Mineral Resource has benefited from recent infill drilling, which the historical drilling (including 2017) and previous estimations. Based on the points outlined above, Measured Resources have been defined in areas of 20m to 40m drill spacing and where mineralisation displays strong continuity over these distances between drill holes and all relevant data is considered sufficient in quality and quantity. Grade continuity is supported by variogram ranges where for

Criteria	JORC Code explanation	Commentary
		P2O5 in the Southern Zone the total range in the lateral extent is approximately 300m. A range of 40m represents approximately 70% of the total sill and approximately 15% of the total range. Several regions in the deposit, consisting of 40m or less drill spacing were not classified as Measured Resources where geological continuity was compromised by local structural changes or supporting data was not sufficient. Indicated Resources are generally defined with by a drill spacing between 40m to 80m however still dependent on mineralisation continuity and data quality. Inferred resources have been defined largely in peripheral areas where the drill spacing is larger or mineralisation is less continuous.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates*	Internal audits have been completed by RPM which verified the technical inputs, methodology, parameters and results of the estimate.
Discussion of the relative accuracy/ confidence	• *Statement of the relative accuracy and confidence level in the Mineral Resource estimate*	The Mineral Resource estimate has been reported to a confidence reflected in the Mineral Resource statement classification. A high confidence is achieved in areas of closer spaced drilling that defines mineralisation continuity and consistency. Grade continuity is supported by observed variogram ranges. The data quality is high and historical data has undergone significant re-assay and checks. The Mineral Resource statement relates to global estimates of tonnes and grade. Approximately 89% of the estimated Mineral Resource is classified as Indicated and Measured (69% Indicated, 20% Measured). The remaining (11%) of the mineralisation remains in the Inferred category – this is largely in peripheral areas where the drill spacing is larger or mineralisation is less continuous. No mining activities have been undertaken therefore reconciliation could not be conducted.

Ardmore Phosphate Rock Project JORC Table 1 Report

SECTION 4: Estimation and Reporting of Ore Reserves

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves*	• Measured and Indicated Mineral Resources from the resource model contained in mine designs and scheduled in the Ardmore Phosphate project feasibility study were converted to Proven and Probable Reserve respectively. • Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits* • *If no site visits have been undertaken indicate why this is the case*	• The Competent Person, Ben Brown, visited site in December 2017, observing trial mining of bulk samples. This enabled verification of the free digging potential of lithologies encountered at the project site.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves* • *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*	• Centrex produced a Feasibility Study as the basis to convert Mineral Resources to Ore Reserves and to provide the basis and confidence to advance the project to execution phase based on the mine plan contained in the feasibility study. • The mine plan includes modifying factors and only economically viable mining blocks with a cut-off grade applied are sent to the processing plant and included in Ore Reserves.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied*	The optimal cut-off grade was determined with the following constraints: • Minimum mine life of 10 years • Average life of mine product grade of >34% P_2O_5 considering processing factors derived from pilot scale test work By reducing recovery of phosphate with a 150mm mining loss skin on the foot wall and hanging wall contacts and varying the cut-off grade to 26.5% P_2O_5 a 10-year mine life could be met at the required product grade. The idea of using the undercut skin minimises dilution and aims to

Criteria	JORC Code explanation	Commentary
		realise the resource modelled grade, keeping in mind that free digging material enables this method to be possible. Low grade material falls between a grade of greater than 16% but less than 26.5% P_2O_5.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design)* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used* • *The mining recovery factors used* • *Any minimum mining widths used* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion* • *The infrastructure requirements of the selected mining methods*	• Detailed mine design was used to convert Mineral Resources to Ore Reserves contained in the mine designs. • Strip mining with conventional truck and shovel operation was considered the most appropriate mining method since this enables shorter haulage distances and best suits the tabular flat lying nature of mineralisation. • Pit walls were constrained to an overall slope wall angle of 50 degrees based on independent geotechnical analysis. Grade control drilling is carried out on a 5m x 5m grid with boreholes scanned to log the hangingwall and footwall contacts. These points are then used to create a digital terrain model to guide mine production with spotters where required. • The Mineral Resource model was reblocked to 10mx10mx1m for pit optimisation using Whittle™. This is done to reduce the time taken to carry out pit optimisation. The reblocked model is split into a possible ore component and waste component to not dilute mineralisation with a fixed cut-off grade of 26.5% P_2O_5. • No dilution is applied, but ore losses since an undercut of 150mm is applied on the mineralised foot wall and hanging wall boundaries at a cut-off grade of 26.5% P_2O_5. • No recovery factor is applied since the undercut skin of 150mm creates an overall recovery of around 89%. • A minimum mining width of 20m is applied. • Inferred material is used in the feasibility study and makes up around 0.1% of processing plant feed and ROM inventory having virtually no effect on the economic analysis of this project. • The infrastructure required for the mining method is only haul road access from the mining area to the processing plant stockpiles.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation*	• The metallurgical process is to crush to a P_{90} of -2mm, wet screening, de-sliming, attrition of de-slimed material, de-slimming of attrition product, filter and then drying with de-slimed overflow going to tailings. • This is well tested and common in phosphate processing

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	• *Whether the metallurgical process is well-tested technology or novel in nature* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied* • *Any assumptions or allowances made for deleterious elements* • *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* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	throughout the world for high grade phosphate processing of over 25% P_2O_5 feed grade. • Bench scale test work and bulk pilot programs have been carried out. Phosphate recovery is relatively consistent from friable ore to indurated ore except that throughput rate is slower with indurated ore. Most ore is friable and one major ore-type hence no domaining was necessary and indurated is blended into the plant feed to limit the effect on throughput rate to negligible. Many sub-ore-types exist, and further test work or operational experience will determine if these require domaining in the resource model. For the feasibility study only flagging and monitoring of indurated (using downhole geophysical density as a proxy) and chemical composition was deemed necessary. • Deleterious elements are carried through the process and like indurated material are flagged in the resource model and controlled by blending of throughput. • Bulk pilot programs have been carried out and with reconciliation have slightly higher grades than the resource model, hence proven to represent the orebody. • The testwork has demonstrated that a saleable product can be produced using a 26.5% P_2O_5 cut-off grade as used in the reserve estimation.
Environmen-tal	• *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*	• Environmental impact assessment studies have been completed for the start-up operation and are currently being undertaken for the full-scale operation. Waste rock characterisation indicates the material is non-acid forming (NAF), is acid consuming (AC) and has low potential for metalliferous drainage. The overburden will be used for backfill during mining operations.
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*	• Centrex has landholder agreements in place over the projects Mining Lease for construction of a mine and the associated process plant. • Water for the project will primarily be supplied from a bore field within an aquifer located within the Mining Lease and supplemented with a new water capture dam. • Power for the site will be provided by diesel generators with diesel supplied from a depot at the town of Cloncurry. • Accommodation for staff will be via a new mining village to be built on the Mining Lease.

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		• Labour will be sourced both locally where possible from Mount Isa and Cloncurry, with FIFO out of Brisbane to supplement where needed. FIFO would be to Mount Isa with a bus service for staff from Mount Isa to the mine. • Product will be hauled on road 90km on existing roads to the existing rail line at Duchess. Product will be railed into Townsville for shipping. Centrex has received numerous proposals from third parties for rail, storage and shipping using existing facilities.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study* • *The methodology used to estimate operating costs* • *Allowances made for the content of deleterious elements* • *The source of exchange rates used in the study* • *Derivation of transportation charges* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private*	• Experienced contractors and consultants provided capital costs from vendor quotes, actual costs from similar projects and cost databases. • Operating costs were built up from first principles, from service providers and benchmarked where possible for validation. These services were provided in-house, by experienced contractors and consultants. • Deleterious elements such as iron and aluminium in their oxide form attract penalty rates and are blended through the mine to mill plan to below penalty levels in the feasibility study. • The exchange rates were based on the average of current forecasts from the four major Australian banks. Major capital items have short lead times limiting exposure to exchange rate fluctuations for components sourced internationally. • Transportation charges were derived by freight logistics services and port services provider quotes. • Prices for the study were forecast independently by Integer with adjustments made for the quality of the product against the existing suppliers based on historical phosphate rock pricing premiums and discounts. A 3% royalty rate is payable to Southern Cross Phosphate Pty Ltd while a variable royalty is payable to the Queensland government as detailed in Revenue factors below.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products*	• Revenue is calculated as product price less royalties less costs to produce and transport the product to the point of sale. Parameter: Value PCAF: AUD$144.9*Product Tonnes Processing Recovered grade: P_2O_5*0.9916+3.8156 Mass Recovery: 76.60% Cut-Off: 26.50% Revenue: AUD$201.6*Product Tonnes Exchange Rate USD:AUD: 0.74

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		Government Royalty: The higher value of: (a) $0.80/t; (b) $R = \$1*(G/32.3)*(P_{curr}/\$72.50)$ Where G is the average P_2O_5 content of the phosphate rock for the return period. P_{curr} is the average price for the return period, converted to Australian dollars at the average hedge settlement rate for the return period, of Moroccan phosphate rock with 32.3% P_2O_5 content. Royalty to Southern Cross Fertiliser Pty Ltd: 3% of sale price • Prices for the study were forecast independently by Integer with adjustments made for the quality of the product against the existing suppliers based on historical phosphate rock pricing premiums and discounts.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future* • *A customer and competitor analysis along with the identification of likely market windows for the product* • *Price and volume forecasts and the basis for these forecasts* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract*	• Integer Research completed an independent market assessment for Centrex for the Ardmore phosphate rock project. • Global phosphate rock demand is forecast to rise by 18% over Ardmore's mine life. To remain in balance additional supply capacity is required to be online prior to 2025. • Ardmore phosphate rock will be sold into the Asia-Pacific region where it has a freight advantage over the current suppliers located outside the region. Demand for the major importers in the region is forecast to rise by 7 million tonnes over the next 5 years. Ardmore's proposed 776ktpa production represents just 12% of the incremental demand growth. • Ardmore's high phosphate grade combined with ultra-low cadmium levels provide a competitive advantage along with its lower freight over the current suppliers to

Criteria	JORC Code explanation	Commentary
		the region in North Africa, the Middle East and South America. • Integer provided CFR pricing for each of Ardmore's target customers over the life of mine taking into account their forecast Morocco benchmark FOB pricing, global freight rate trends, and current supplier freight plus quality adjustments against Morocco and Ardmore. • Traded phosphate rock benchmarks range anywhere from 27% to 34% P_2O_5 with Ardmore at the top of this range. KemWorks undertook fertiliser conversion test work on the Ardmore product showing excellent results for SSP and phosphoric acid production. • Centrex has completed two 400 tonne paid trials with two customers plus entered into a non-binding MOU with a major Indian manufacturer for 40% of its production with a binding off-take agreement currently being negotiated based on a proposed 2 tonne pilot test of the product. Southern Cross Fertlisers Pty Ltd a subsidiary of fertiliser manufacturer Incitec Pivot hold a first right of refusal over 20% of the planned production.
Economic	• *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.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs*	• The project was economically evaluated (NPV) under the following price, exchange rate and inflation assumptions which are derived from general market consensus on long term prices: o 10% discount rate. o The average CFR over the life of mine using a weighted average for its target customer mix in $ Real, 2018 is $US155 or $A207/dmt. This equates to $US186/dmt in nominal terms. o The average 2020 forecast of 0.74 AUD:USD exchange rate from the four major Australian banks was used o An average freight rate of $US21.66/dmt from the port of Townsville o A diesel price for mining and site operations of $A0.76 per litre ex-GST and after off-road rebate of A$0.41 per litre (A$ 1.29 per litre TGP inc-GST) o Inflation rate of 2.5% o The financial model assumes 100% equity finance for the purpose of this study and is therefore a project financial evaluation on an ungeared basis • Results of financial evaluation are given in the table below with NPV sensitivity plots also included below:

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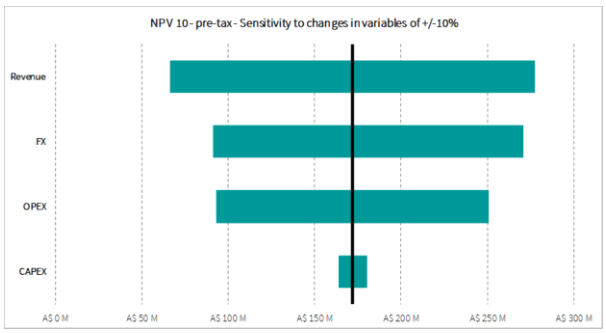
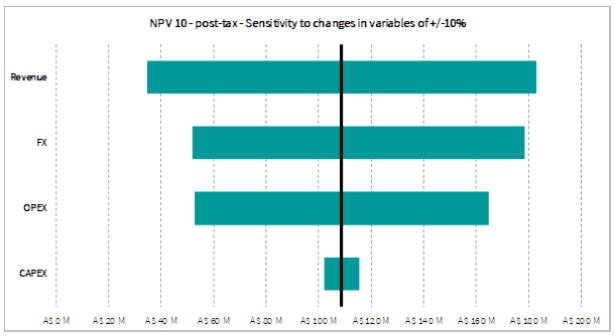
Metric	A$
Pre-Production Capital (Real $2018) Average Revenue	77 million 251/t
Average cash cost (CFR basis) Average operating margin	188/t 23%
Net cash flow (pre-tax) NPV10 (pre-tax)	392 million 172 million
Internal rate of return (pre-tax) Payback (pre-tax from last capital)	40% 3.25 years
Net cash flow (post-tax) NPV 10 (post-tax)	274 million 109 million
Internal rate of return (post-tax) Payback (post-tax from last capital)	30% 4.0 years





Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate*	• Landowner compensation agreements have been completed with the key landowners and cultural heritage management agreements are being negotiated with aboriginal parties. An infrastructure agreement will be required with the relevant aboriginal party for the water supply dam.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves* • *Any identified material*	• No significant material naturally occurring risks have been identified both physically and chemically • No marketing arrangements are formally in place but negotiations are at an advanced stage with customers in New Zealand, Australia and India • Centrex Phosphate Pty Ltd is the authorised holder of ML

Criteria	JORC Code explanation	Commentary
	naturally occurring risks • *The status of material legal agreements and marketing arrangements* • *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*	5542 on which the Ore Reserves are located. An application for an adjacent mining lease for infrastructure purposes (water supply dam) has yet to be made • Centrex holds an Environmental Authority (EA BRMN0037) which authorises mineral exploration and small-scale mining activities on ML 5542. This EA will require amendment to allow mining and processing operations to proceed. An application to amend this EA for full-scale operations will be made to DES (Department of Environment and Science) late 2018. Other key approvals required include : o Water licences for 'non-associated' groundwater extraction and surface water capture o Water licence for extraction and use of 'associated' ground water from pit dewatering o An additional amendment to the EA for the water supply dam o Approval for aquifer recharge o Approvals relating to the realignment of the highway in the north of the mining lease (DTMR, Cloncurry Shire Council) o Approval of a Road Use Management Plan with DTMR (Department of Transport and Main Roads) for concentrate haulage to Duchess o Approvals for the construction and operation of a rail siding at Duchess (Queensland Rail)
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories* • *Whether the result appropriately reflects the Competent Person's view of the deposit* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any)*	• Measured Resources inside the mine plan were converted to Proven Ore Reserves while Indicated Resources inside the mine plan were converted into Probable Ore Reserves. Direct conversion was applied due to the feasibility study level of confidence of ±15% with no mining technical reason to not qualify the contained Mineral Resources as Ore Reserves. • The result appropriately reflects the Competent Person's view of the deposit which is a flat lying tabular deposit like the nearby operating Phosphate Hill mine with a similar ore mining technique with similar mining equipment. • No Probable Ore Reserves have been derived from Measured Mineral Resources.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates*	• MEC Mining, an independent mining consultancy conducted a review of the Ore Reserve estimates in October 2018 concluding that the Ore Reserve is JORC

Criteria	JORC Code explanation	Commentary
		compliant.
Discussion of relative accuracy/ confidence	• *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* • *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* • *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* • *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*	• Following the completion of the definitive feasibility study, the competent person considers that there is a high degree of confidence in the Ore Reserves with a relative accuracy of ±15%.