19 October 2023

Wonarah DSO Project Feasibility Study Delivers Strong Financial Results

Avenira Limited (**Avenira** or the **Company**) is pleased to announce the results of the feasibility study for the Company's 100% owned Direct Shipping Project (**DSO Project**), underpinned by an updated Wonarah Mineral Resource Estimate based on a 27% P_2O_5 cut-off grade (**Feasibility Study**).

The DSO Feasibility Study results demonstrate the strong economics of the DSO Project, with limited capital investment and attractive operating margins, particularly in the current global phosphate price environment.

This favourable backdrop enables a short payback period and supports the technical and financial capacity for the DSO Project to generate early-stage cash flows to support and part-fund the development of the Company's downstream ventures.

The DSO Project has been designed as a short-term operation to leverage favourable global phosphate prices. Avenira intends to review the opportunity to extend the planned mine schedule if market demand for phosphate remains strong.

HIGHLIGHTS

- **Resource Development:** DSO Feasibility Study focuses on the development, extraction and sale of Mineral Resources from the Arruwurra Phosphate mineral body at Wonarah, over a 23 month period.[1]
- **Substantial Mineral Resource:** Mineral Resource Estimate of 66Mt at 30% P_2O_5, with sufficient Resources to support the DSO Project over the current mine plan[2].
- **Mine Plan Extension Potential:** Opportunity for mine plan extension and further upside to the DSO Project's economics if the global phosphate price remains high.
- **Simple Operation and Process Flow Sheet:** DSO Project is a low technical risk, simple open pit mining and crushing operation, with a process flow sheet that does not require wet beneficiating. It aims to produce 836kt of saleable phosphate product over a 23 month period.
- **Short Payback Period:** Low pre-production Capex of A$11.5 million enables a short 14-month payback period.[3]
- **Cash Flow for Downstream Development:** Total free cash flows of A$27.3 million generated over 23 months to support the funding and development requirements of Avenira's downstream ventures, including its Lithium Ferro Phosphate, Thermal Phosphoric Acid and Yellow Phosphorous projects.
- **Structural Tailwinds:** Intended to leverage the structural demand-supply shortfall in prevailing phosphate rock and downstream fertiliser markets that have seen prices increase substantially over the past year.

[1] Including mobilisation and pre-production developments at Wonarah.
[2] Refer to ASX Announcement dated 27th September 2023.
[3] Payback period of 14-months includes working capital requirements.

OVERVIEW OF FEASIBILITY STUDY

Avenira is planning to develop its 100% owned Wonarah DSO Project located ~260km East of Tennant Creek and ~960km Southeast of Darwin in the Barkly Tableland of the Northern Territory. The Project is Northern Territory enhanced freehold and is situated on land owned by the Arruwurra Aboriginal Corporation (**AAC**).

Wonarah is accessible via the Barkly Highway on a priority highway between Tennant Creek to the West and Mount Isa to the East. The road surface meets national highway standards and provides secure road access to the mine site.

The DSO Project will mine readily saleable phosphate rock from one open pit across the Arruwurra phosphate rock deposit at Wonarah. Mineralised domains comprise a main mudstone phosphorite unit (**APH**) with a basal indurated high phosphate grade unit (**BPH**). The location of the open pit is designed to reflect the area of the deposit containing the highest amount of material fit for DSO production.

Mined DSO will be crushed and screened via an onsite crushing plant, producing three distinct saleable phosphate rock products, namely:

a) **BPH Lumps (10-50mm**): BPH lumps are well suited for the production of Yellow Phosphorus (and ultimately Thermal Phosphoric Acid, a critical input into the manufacture of LFP cathodes). BPH lumps are intended to be transported to the Port of Darwin via a combination of road and rail, for export to international offtakers.

b) **BPH Fines (<10mm):** BPH fines will also be exported overseas targeting the Single Superphosphate (**SSP**) market and the downstream fertiliser industry.

c) **DAPR Product:** APH material will be targeted into the domestic agricultural market as a Direct Application Phosphate Rock (**DAPR**) and will be sold at mine gate, targeting local farmers and fertiliser traders.

The DSO Project has been designed as a short-dated operation to leverage favourable global phosphate prices. Avenira intends to review the opportunity to extend the planned mine schedule if market demand for phosphate remains strong.

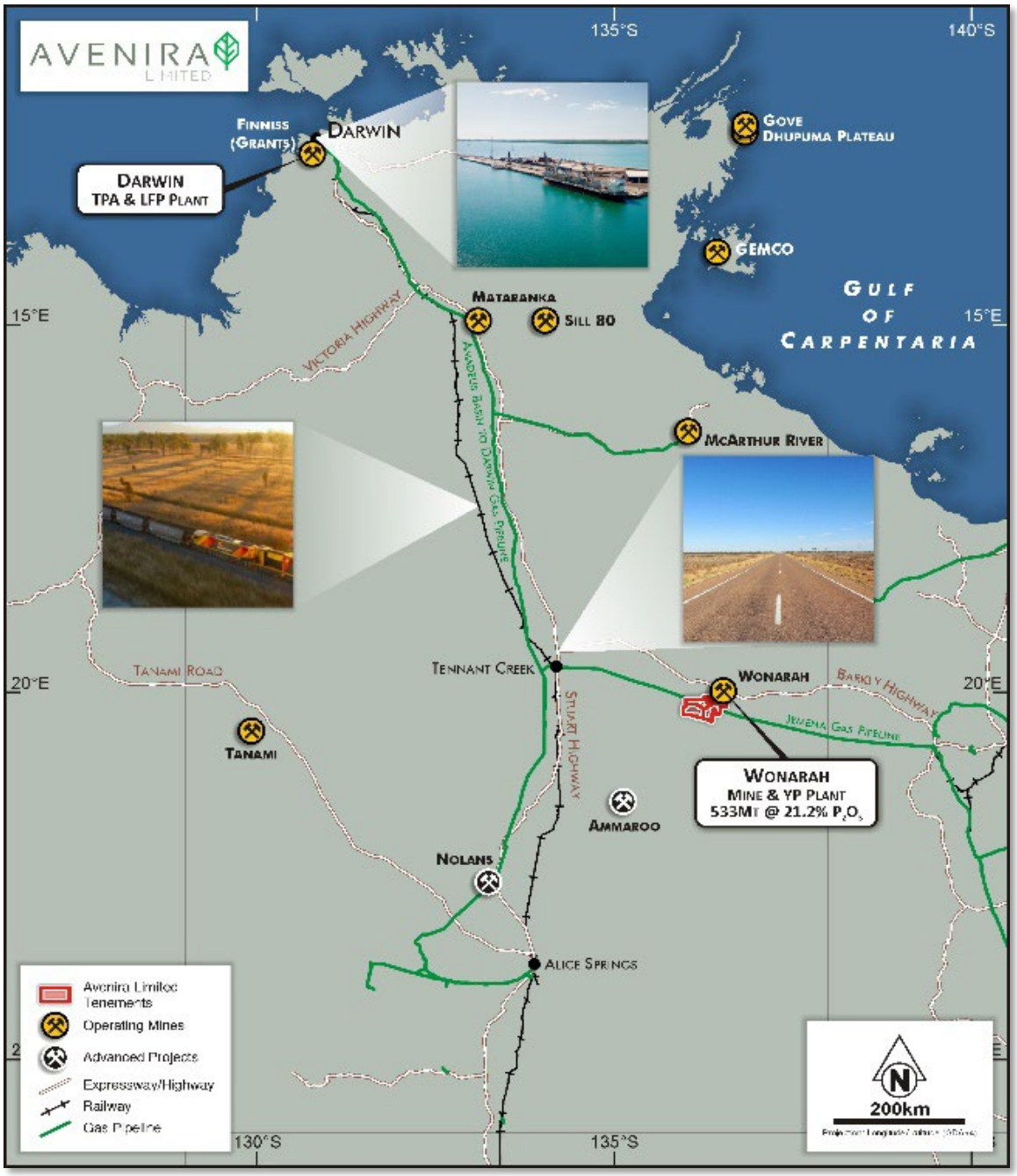
The DSO Project requires minimal upfront Capex to bring product to market and will employ mining contractors to optimise capital efficiency. Cash flows generated by the DSO Project will be earmarked to support the development and funding requirements for Avenira's other downstream projects.

Wonarah has a Mineral Resource estimate of 66Mt at 30.2% P_2O_5 at a 27% P_2O_5 cut-off grade[4] that contains more than sufficient Measured and Indicated Resources to support the Project's intended operations of 23 months and total mining of approximately 451kt and 392kt of BPH and APH material, respectively[5].

[4] Refer to ASX Announcement dated 27th September 2023.
[5] Difference between total production of 836 kt of saleable phosphate product and 843 kt of ROM relates to the stockpiling of APH at the end of the mine schedule that has not been treated.

The mine plan underpinning the Feasibility Study was prepared by AMC Consultants Pty Ltd (**AMC**), a market leader in mining solutions. This was used by MiningPlus to obtain indicative pricing from contractors for the various mining services required for the DSO Project. Chain Consulting, a specialist Northern Territory logistics consultant, obtained market prices from logistics providers. These inputs were used to provide a Feasibility Study level of accuracy for the Project of +/-10% to 15%.

Figure 1: Wonarah Location and Regional Infrastructure[6]



[6] Refer to Appendix II in ASX Announcement dated 27th September 2023. Wonarah Mineral Resource of 533Mt at 21.2% P_2O_5 is based on a 15% P_2O_5 cut-off grade.

KEY FEASIBILITY STUDY OUTCOMES

The DSO Feasibility Study demonstrates strong project economics. Key outputs include:

Table 1: Wonarah DSO Project Base Case Results

Metric	Unit	Base Case
BPH Lumps Product Sales	Kt	180
BPH Fines Product Sales	Kt	271
BPH Product Price[7]	A$/tonne	308
APH DAPR Product Sales	Kt	225
APH Product Price	A$/tonne	100
Project Operations	Months	23
Capital Investment	A$M	11.5
Total Free Cash Flows	A$M	27.3
Average Product Price[8]	A$/tonne	238.6
All-in Sustaining Cost	A$/tonne	181.3
Total Cash Revenues	A$M	161.3
Total Cash Operating Costs	A$M	122.5
Payback Period[9]	Months	14

Commenting on the results of the Feasibility Study, Executive Chairman, Brett Clark stated:

> *"The Feasibility Study confirms the Wonarah DSO Project to be a simple, low risk and low capital intensity project with the capacity to generate healthy cash flows, especially in the current phosphate rock price environment.*
>
> *The Study demonstrates the technical and commercial viability of the Wonarah DSO Project, leveraging a simple and commercially well-understood processing flow sheet that enables us to produce saleable phosphate rock without any chemical beneficiating.*
>
> *Cash flows generated by the DSO Project will be applied towards the development of our other downstream ventures. We look forward to progressing financing and offtake discussions with key stakeholders and move towards the commencement of production."*

This announcement was authorised for release by the Board of Directors.

[7] Price assumptions is based on US$200/tonne and an exchange rate of 0.65 AUD/USD.
[8] Based on the weighted price for BPH lumps, fines and APH product.
[9] The payback period is calculated from the beginning of the capital investment period and extends to the point in time when the cumulative net cash flows from the project turn positive. No income tax payments have been assumed as the Company anticipates having adequate tax losses available to offset any potential tax liabilities over the life of the project.

FEASIBILITY STUDY PARAMETERS

Cautionary and Forward-Looking Statements

The Feasibility Study referred to in this announcement has been undertaken to determine the economic and technical feasibility of a direct shipping project at the Wonarah mine site in the Northern Territory. The Feasibility Study has been prepared to an accuracy level of +/-10% to 15% accuracy.

The Feasibility Study is based on material assumptions outlined elsewhere in this announcement ("**Study Parameters**"). These include assumptions about the key commercial terms of potential offtake arrangements, future commodity prices, mining rates, crushing yields, operating costs etc… While Avenira considers all the material assumptions contained within the Feasibility Study to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes put forward by the Feasibility Study will be achieved. The Study Parameters have been disclosed to provide investors with an intended scale and nature of the Project.

The Feasibility Study referred to in this announcement has been undertaken to assess the technical and financial viability of the Project. Further evaluation work may be undertaken before Avenira is able to provide any assurance of an economic development case. Avenira has concluded there is reasonable grounds for providing the forward-looking statements included within this announcement and that there is a reasonable basis to expect it will be able to fund the development of the DSO Project. Investors should not make any investment decisions based solely on the results of the Feasibility Study. While Avenira considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this Feasibility Study will be achieved.

To achieve the range of outcomes indicated in the Feasibility Study, additional funding in the order of A$10 – 15 million will be required.

Investors should note that there is no certainty that Avenira will be able to raise funding when needed. It is possible that such funding may only be available on terms that dilute or otherwise affect the value of existing shares of Avenira. It is also possible that Avenira may pursue other value realisation strategies such as sale, partial sale, or joint venture of the project. If it does, this could materially reduce Avenira's proportionate ownership of the DSO Project.

The Company has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes that it has a reasonable basis to expect it will be able to fund the development of the DSO Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Feasibility Study.

This announcement may contain certain financial measures relating to the Feasibility Study that are not recognised under International Financial Reporting Standards (**IFRS**). Although the Company believes these measures provide useful information about the financial forecasts derived from the Feasibility Study, they should not be considered in isolation or as a substitute for measures of performance or cash flow prepared in accordance with IFRS. As these measures are not based on IFRS, they do not have standardised definitions and the way the Company calculates these measures may not be comparable to similarly titled measures used by other companies. Consequently, undue reliance should not be placed on these measures.

Competent Persons Statement

The information in this report that relates to Mineral Resources for Wonarah is based on information compiled by Mr Jonathon Abbott, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr. Abbott is a director of Matrix Resource Consultants Pty Ltd and provides geological consulting services to the Company. Mr. Abbott has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Abbott consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Refer to AEV ASX release dated 27 September 2023 for full Mineral Resource estimate details. In accordance with ASX Listing Rule 5.23, the Company is not aware of any new information or data that materially affects the information included in this release, and the Company confirms that, to the best of its knowledge, all material assumptions and technical parameters underpinning the estimates in this release continue to apply and have not materially changed.

Contents

1 MINERAL RESOURCE

1.1 Mineral Resource Statement

The Wonarah Mineral Resource has been re-reported based on a 27% P_2O_5 cut-off grade[10] as shown below in Table 2. This was undertaken to confirm the potential for the deposit to support the 843kt production target for the DSO Project. The grade cut-off also provides confidence that sufficient contained P_2O_5 exists as a supply of feedstock for Avenira's other downstream ventures, including its 100% owned LFP Project.

Estimates are derived from the block model constructed by the Competent Person responsible for the Mineral Resource estimate in September 2012, constrained within Avenira's current mining licences (ML33343 and ML33344) and exploration licences (EL29849 and EL32359). The figures in Table 2 below are rounded to reflect the precision of the estimates and include rounding errors.

Table 2: Wonarah Mineral Resource Estimate (at 27% P_2O_5 cut-off grade)

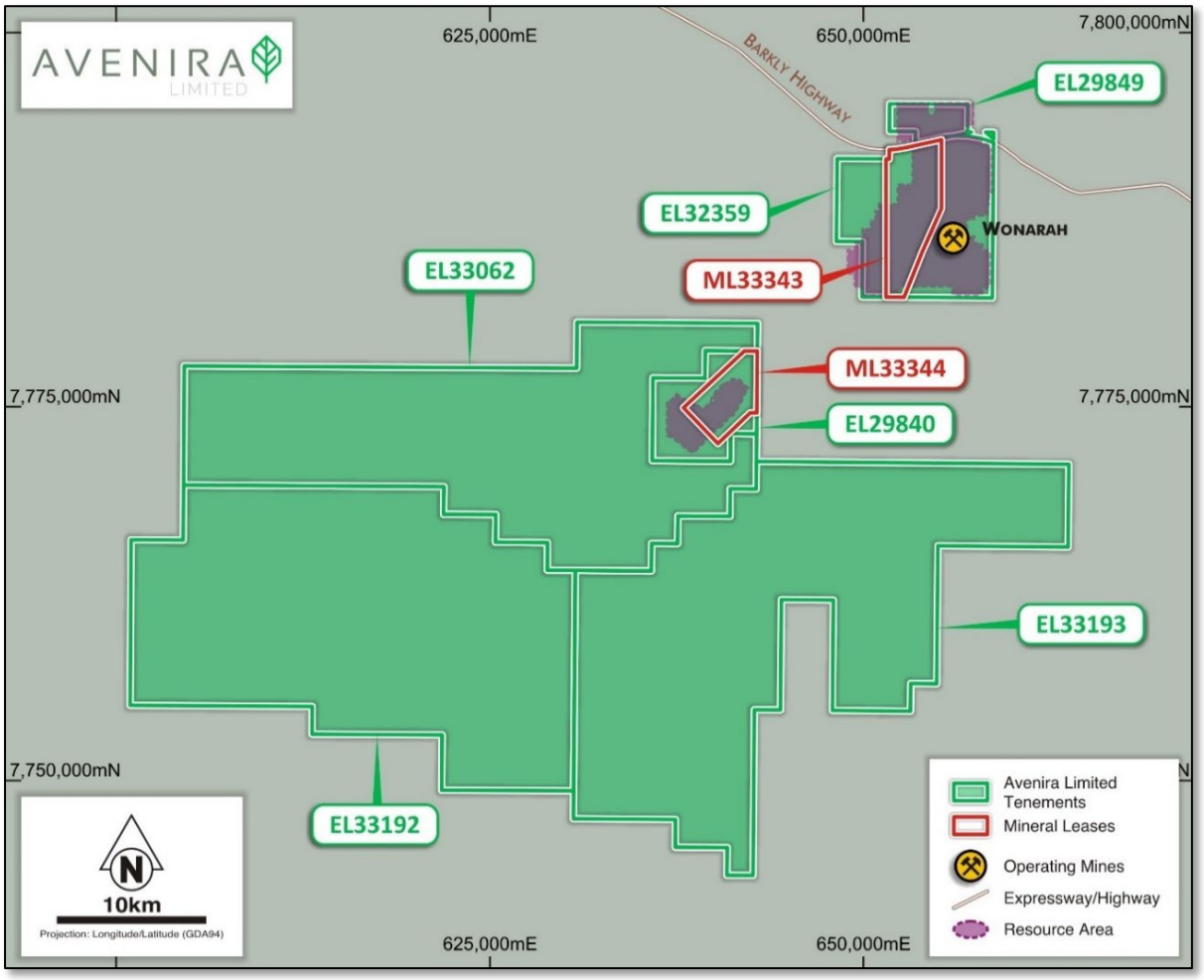
Category	Tonnes	P_2O_5	Al_2O_3	CaO	Fe_2O_3	K_2O	MgO	MnO	Na_2O	SiO_2	TiO_2
	Mt	%	%	%	%	%	%	%	%	%	%
Measured	3.4	30.9	3.14	42.1	0.85	0.18	0.19	0.05	0.08	18.0	0.14
Indicated	9.6	30.0	3.43	38.8	1.14	0.28	0.11	0.03	0.08	24.7	0.15
M + I	**13.0**	**30.2**	**3.35**	**39.7**	**1.07**	**0.26**	**0.13**	**0.04**	**0.08**	**22.9**	**0.15**
Inferred	53	30	3.1	40	1.3	0.3	0.1	0.1	0.06	22	0.1
Total	**66**	**30**	**3.1**	**40**	**1.3**	**0.3**	**0.1**	**0.08**	**0.06**	**22**	**0.1**

Further drilling is anticipated to better define the estimated rock phosphate grade profile in future mining schedules by improving the definition of the high-grade phosphate boundaries, with the potential to convert a proportion of Inferred Resources to Measured and Indicated.

Mineral Resources are classified as Measured, Indicated and Inferred on the basis of estimation search passes and plan view polygons defining areas of relatively consistent drill spacing. The classification scheme varies between mineralised domains and cut off grades reflecting difference in grade continuity between different zones, and the decreasing continuity of the mineralisation with increasing P_2O_5 cut-off grades.

[10] Refer to ASX Announcement dated 27th September 2023.

Figure 2: Wonarah Mineral Resources Areas and Tenement Boundaries

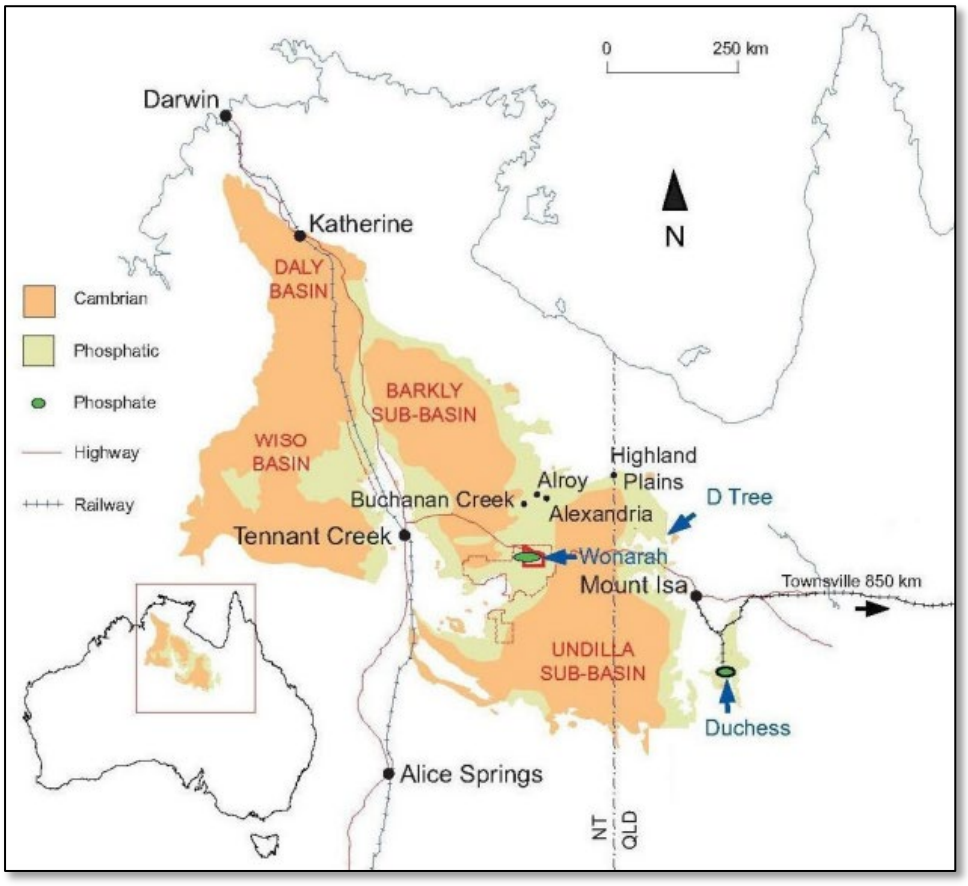


1.2 Wonarah Regional Geology

The Wonarah Deposit is located within the Georgina Basin, a sedimentary basin containing lower and middle Palaeozoic sediments. The Georgina Basin is subdivided into several sub-basins that primarily reflect the thickness of Cambrian deposition. Within the region of the deposit two sub-basins occur, the Brunette and the Undilla, which are made up of Middle Cambrian sediments and volcanics. Figure 3 displays the Georgina Basin and the relevant Sub-basin.

Within these sub-basins, two geological sequences (the Ordian and the Late Templetonian) have been identified. The Ordian sequence consists of Thorntonia limestone (dolomitic siltstone) overlying the Peaker Piker volcanics which are weathered basalt and dolerite. The Late Templetonian sequence includes the phosphate bearing Upper Gum Ridge Formation and consists of (from bottom to top of formation) transitional phosphorite overlain by transitional sediments (clay mudstone and siltstone, some dolomite and sandstone), then overlain by Chert Breccia Phosphorite, Mudstone Phosphorite and Convolute Mudstone.

Figure 3: Regional Geography Setting and Phosphate Deposits



1.3 Arruwurra Geology and Mineralisation Characteristics

The phosphate mineralisation at the Arruwurra deposit occupies a broad northeast to Southwest trending shelf that slopes gently to the Southwest. The shelf drops away sharply at the Western end and along the Southeastern edge. Mineralisation outcrops in the northeast before petering out against the basement high to the north.

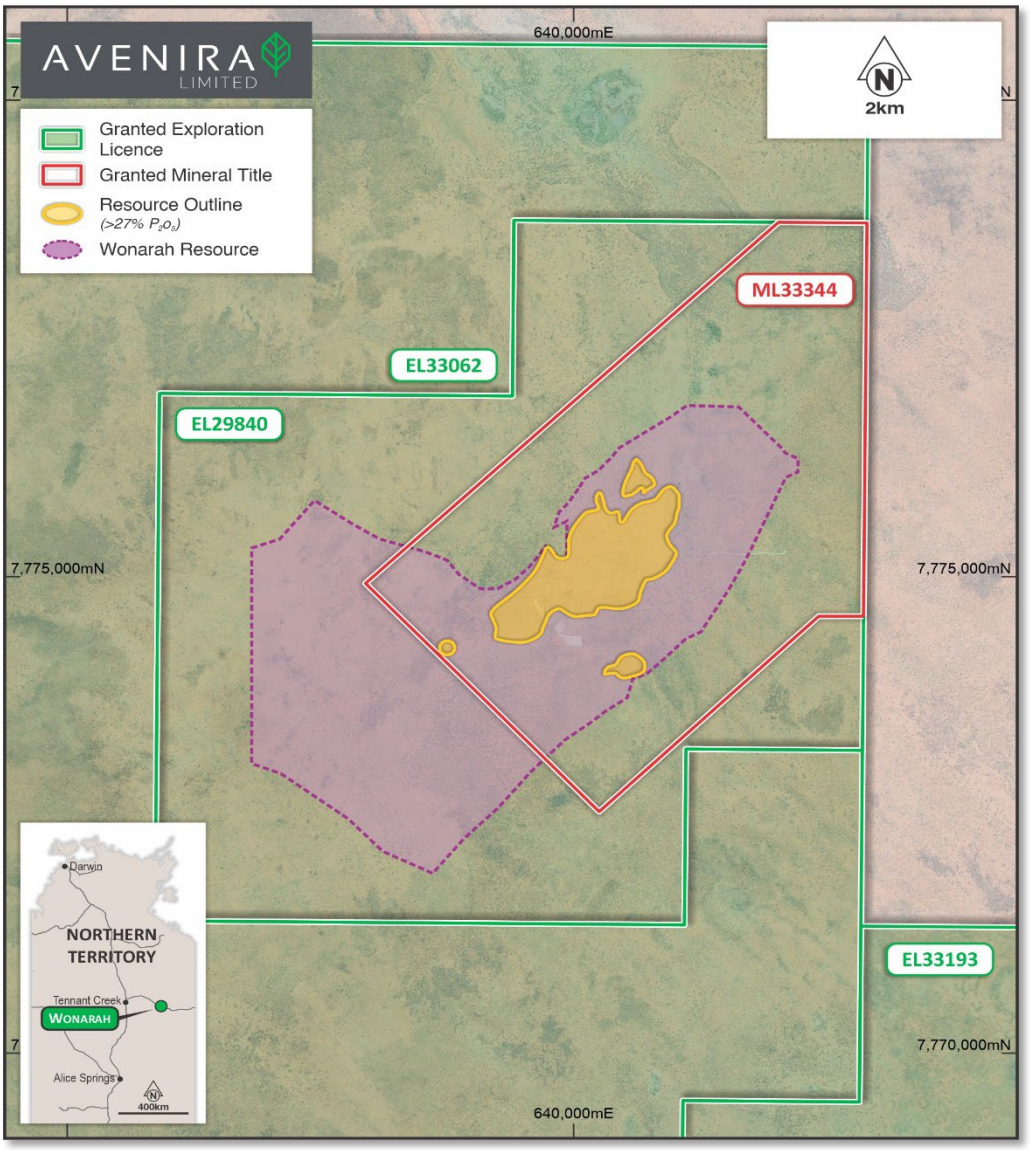
The basement at Arruwurra is a basalt of the Peaker Piker Volcanics. Thorntonia Limestone equivalent dolomites and dolostones overlay the basalt along the Southeastern and Southern margin of the deposit. An abrupt change in lithology and depth to the basalt basement indicates a probable fault which has thrown the deposit side upwards. A karst surface is present on the dolomite.

The Upper Gum Ridge Formation at Arruwurra is different to the Main Zone. The Upper Gum Ridge Formation transition unit is thinner and comprises 1 to 5m of mudstone, siltstone and phosphorite.

The Arruwurra deposit showcases mineralised domains characterised by a primary mudstone phosphorite unit (**APH**), accompanied by an underlying high-grade unit of indurated phosphate (**BPH**).

The Arruwurra deposit spans an expansive area measuring approximately 6km by 2.5km and extends approximately 55m below the surface. The predominant concentration of mineralisation within Arruwurra is situated within the APH unit, which averages thickness of approximately 6m. Accompanying this unit is the internally variable basal BPH zone, averaging around 1.6m in thickness. A substantial portion of the Arruwurra resource is within 30m depth of the surface. Figure 4 shows the Arruwurra Mineral Resource at 27% P_2O_5.

Figure 4: Arruwurra Mineral Resource Block Model Grades >27% P_2O_5



1.4 Main Zone Geology and Mineralisation Characteristics

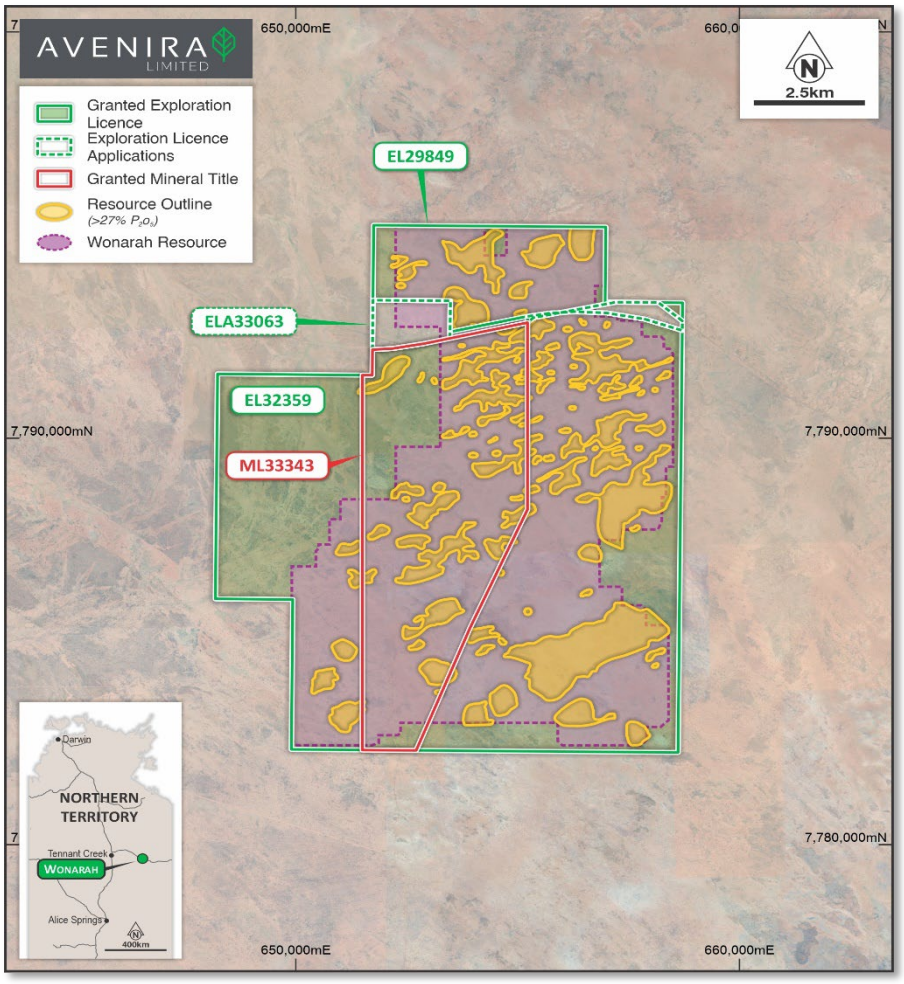
The basalt basement in the Main Zone area is also comprised of the Peaker Piker Volcanics. The top of the basalt is extremely weathered and has a ferruginous and manganiferous duricrust. Some dolomitic rocks of the Thorntonia Limestone equivalent are present above the basalt at the Southeastern extremity of the Main Zone. To the East and the South the carbonate rocks are extensively developed.

The overlying phosphate-bearing Upper Gum Ridge Formation is divided into four main units: basal undifferentiated Transitional Unit sediments, Chert Breccia Phosphorite, Phosphorite Mudstone and Convolute Mudstone. The Transition Unit is continuous, 4 to 8m thick and comprised of clay-rich mudstone and siltstone with minor phosphorite, dolomite, sandstone and basal epiclastics. The basal transitional phosphorite is a laterally discontinuous high grade porcellainous phosphorite up to 3m thick developed throughout the Eastern and Southern sections of Main Zone.

Mineralised domains interpreted for Main Zone comprise a Mudstone Phosphorite (**MPH**) unit underlain by Chert Breccia Phosphorite (**CBX**) and undifferentiated Transitional Sediments (**TUN**) which contain locally developed and generally discontinuous beds of high-grade porcellaneous mudstone phosphorite designated as Transitional Phosphorite (**TUP**). Thin discontinuous zones of elevated phosphate grades within mudstone above the main mineralised envelope are designated as CMU.

The Main Zone deposit encompasses an extensive area of around 10 km by 14 km, reaching depths of around 75m below the surface. The combined sequence of mineralised formations, including variably mineralised mudstone phosphorite, chert breccia phosphorite, and undifferentiated transitional sediments, has an average thickness of approximately 10m.

Figure 5: Main Zone Mineral Resource Block Model Grades >27% P_2O_5



A significant proportion of the Main Zone resource lies within 50m of the surface. Figure 5 shows the Main Zone Mineral Resource at 27% P_2O_5.

1.5 Basis of Estimate – Mineral Resource

Resources were estimated by Ordinary Kriging of 1 m down hole composited assay grades from RC and diamond drilling within wireframes representing the mineralised domains. Zones of mineralisation were established predominantly at grades of 10% P_2O_5 or higher. The estimates include P_2O_5, Al_2O_3, CaO, Fe_2O_3, K_2O, MgO, MnO, Na_2O, SiO_2 and TiO_2 grades with variograms modelled for each attribute.

The estimates use bulk densities derived from 520 immersion density measurements of oven-dried diamond core samples, specific to individual mineralised zones. The densities vary from 1.7 to 2.0 (t/bcm).

Mineral Resource estimates are classified as Measured, Indicated and Inferred by resource domain, estimation search pass and a set of polygons defining areas of relatively consistent drill hole spacing.

1.6 Wonarah Tenement Portfolio

Avenira's tenement portfolio at Wonarah comprises 7 exploration licences and 2 mineral leases granted by the Northern Territory Government[11] that collectively cover 1,499km^2.

Mineral leases ML33343 and ML33344 are held over the Arruwurra and Main Zone deposits identified for the DSO Project.

Table 3: Wonarah Phosphate Tenements

Tenement ID	Area (approx. Km^2)
ML33343	30
ML33344	17
EL29840	42
EL29849	11
EL32359	99
EL33062	373
EL33063	3
EL33192	462
EL33193	462
Total	**1,499**

[11] Refer to ASX Announcement dated 13th April 2023.

2 MINING AND SCHEDULING

2.1 Mining Method

The Arruwurra deposit will be excavated using conventional open pit truck and excavator mining. The mining process will primarily entail progressive stripping, with limited drill and blasting operations.

To ensure capital efficiency and flexibility, an experienced mining contractor will undertake the mining operations. The contractor will establish essential mining facilities, including a mobile equipment workshop, tyre bay, warehouse, laydown yard, and fuel and oil facilities.

Excavators will load BPH and APH material and waste on 2.5m benches. BPH and APH material will be transported to the Run-of-Mine (**ROM**) pad, while waste material will be deposited in an ex-pit waste dump. Waste material from the pre-stripping operation will be used for the construction of ROM pads and haul roads. Ancillary equipment, such as tracked dozers, grades, water carts, and lighting plants will be used to support the operation and assist with pit development.

Drill and blast on 5-10m benches will be required, but operations will be mostly comprised of free digging activities. The mining contractor will handle the magazines and explosives.

ROM will then be blended, crushed and screened to meet DSO product specification. ROM will be hauled and stockpiled at a dedicated storage facility adjacent to the primary crusher from the multiple locations in the pit. BPH material will then be reclaimed from stockpiles and blended into the crusher to meet DSO grade and physical quality targets.

The mine plan focuses exclusively on the Arruwurra deposit and does not consider any mining of the orebody at Main Zone. Subject to a decision to extend the life of the DSO Project, Avenira may look to incorporate mining at Main Zone to increase production.

A mining model was created to estimate material loss using a 200mm boundary on both upper and lower material bounds, resulting in a 14% material loss estimated for the selected mining method within the pit design.

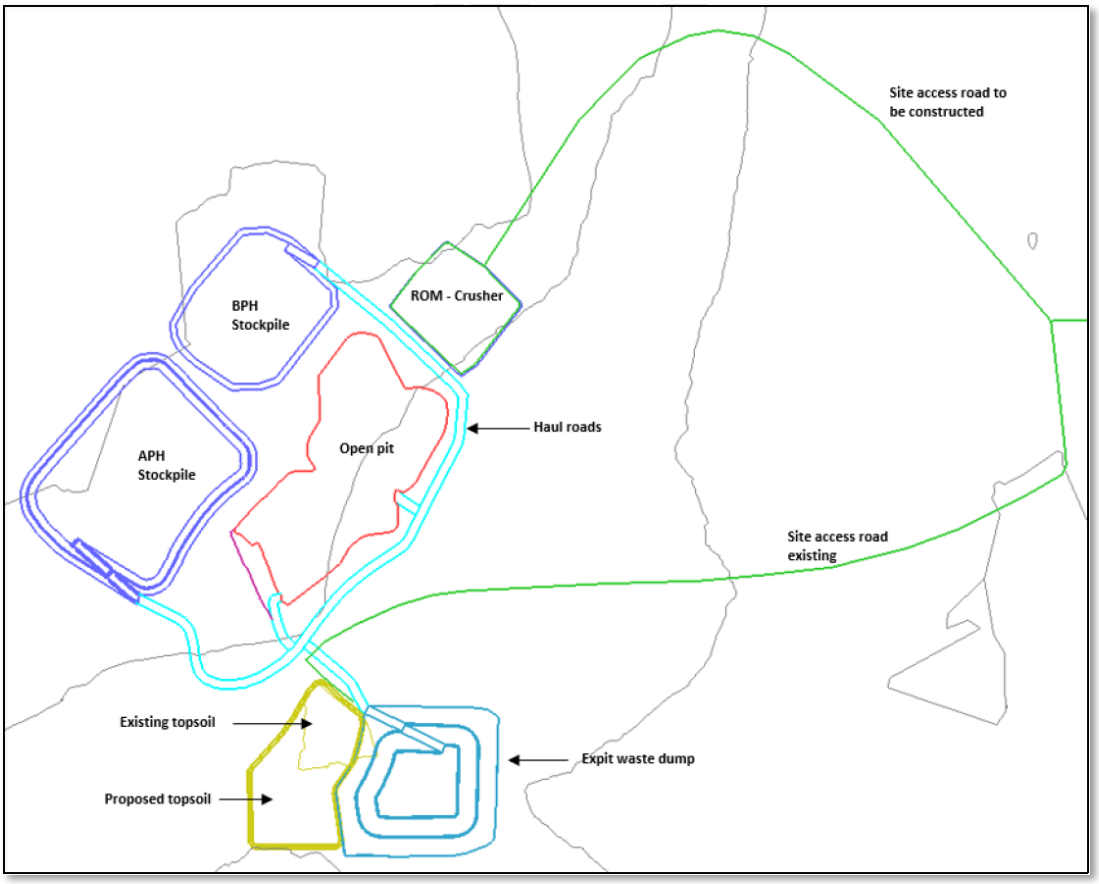
2.2 Mining Design

The full mine design plan consists of one pit to be mined across five stages and includes the following facilities:

- Open pits
- Waste dumps
- ROM Pad and stockpiles
- Haul road layout

The crusher will located to the Northeast of the pit. Stockpiles will be positioned to the North of the pit. This placement takes advantage of the natural surface gradient, which slopes towards the South, facilitating drainage of water runoff from the stockpiles into the pit void.

Figure 6: DSO Project Mine Design Plan – Site Layout



The pit designs were based on the parameters detailed below in **Table 4**.

Table 4: Pit Design Parameters

Parameter	Units	Value
Haul ramp width (two-lane)	**meters**	15
Haul ramp gradient	**-**	1:9
Batter height	**meters**	25
Batter face angle in regolith rock unit	**degrees**	30
Batter face angle below regolith rock unit	**degrees**	60
Berm Width	**meters**	0

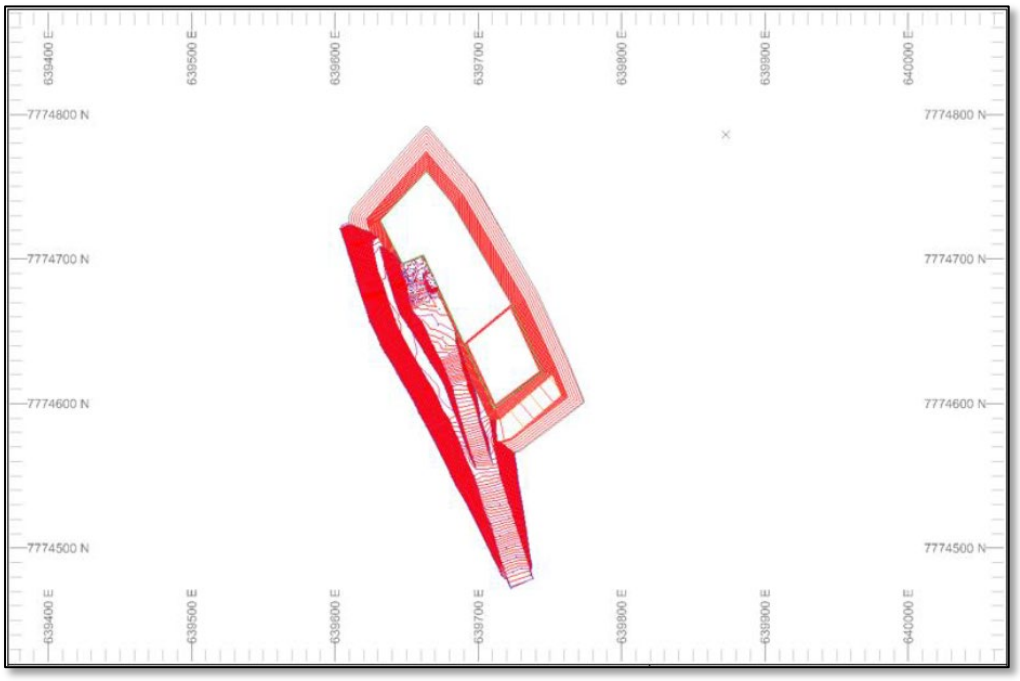
The pit was divided into 5 stages. A summary of the BPH and APH material quantities for the pit and each of its stages are detailed in Table 4.

Table 5: Summary of Pit Design and BPH and APH Material Quantities

Pit Stage	BPH Qty (kt)	BPH P_2O_5 Grade (%)	APH Qty (kt)	APH P_2O_5 Grade (%)	Waste Qty (kt)	Total Qty (kt)
1.0	33	31	46	20	220	300
1.1	76	33	80	19	498	654
1.2	82	33	99	19	579	760
1.3	81	34	110	20	709	900
1.4	103	33	51	22	688	841
1.5	76	32	5	19	707	789
Total	**451**	**33**	**392**	**20**	**3,402**	**4,245**

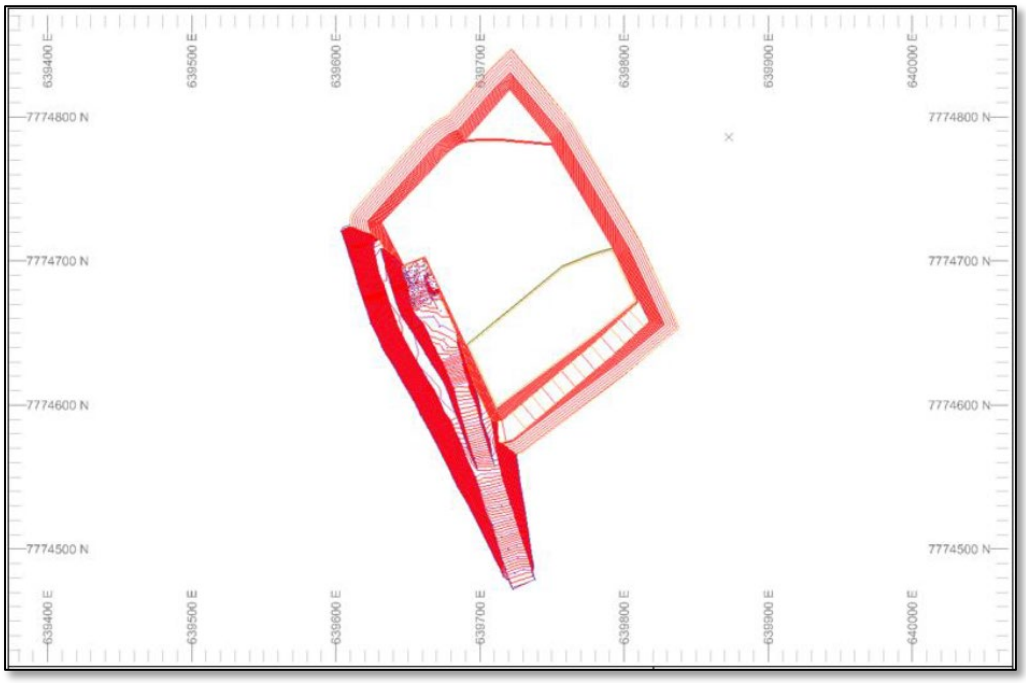
Pit stage 1.0 has been designed around the existing 2010 trial pit to reduce waste striping and utilises the existing ramp. This pit will supply enough BPH material for the 10kt first shipment.

Figure 7: Pit Stage 1.0 Design



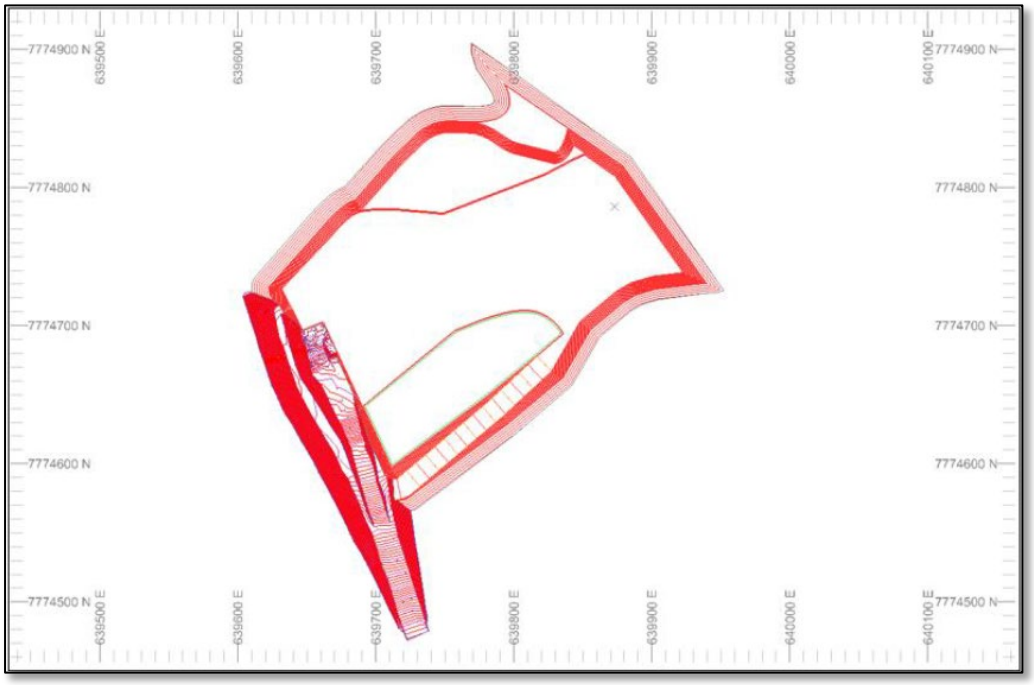
Pit stage 1.1 is an extension of the pit stage 1.0 design towards the East. Pit stage 1.1 is shown in Figure 8.

Figure 8: Pit Stage 1.1 Design



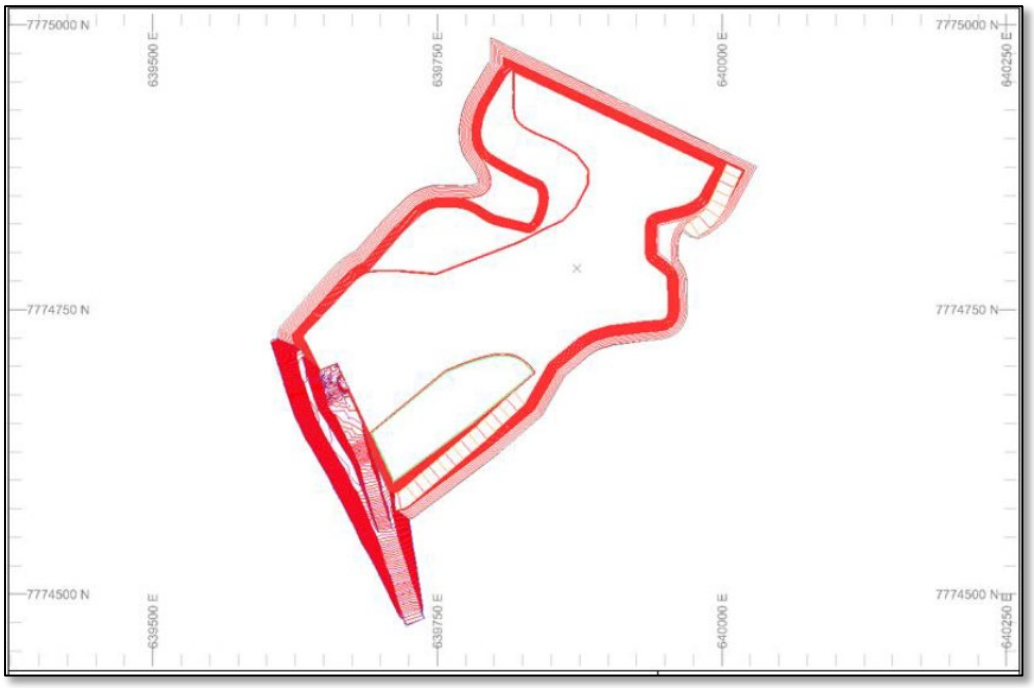
Pit stage 1.2 is a further extension towards the East. A new ramp will be developed to allow for the trial pit to be mined out in subsequent stages. Pit stage 1.2 is shown in Figure 9.

Figure 9: Pit Stage 1.2 Design



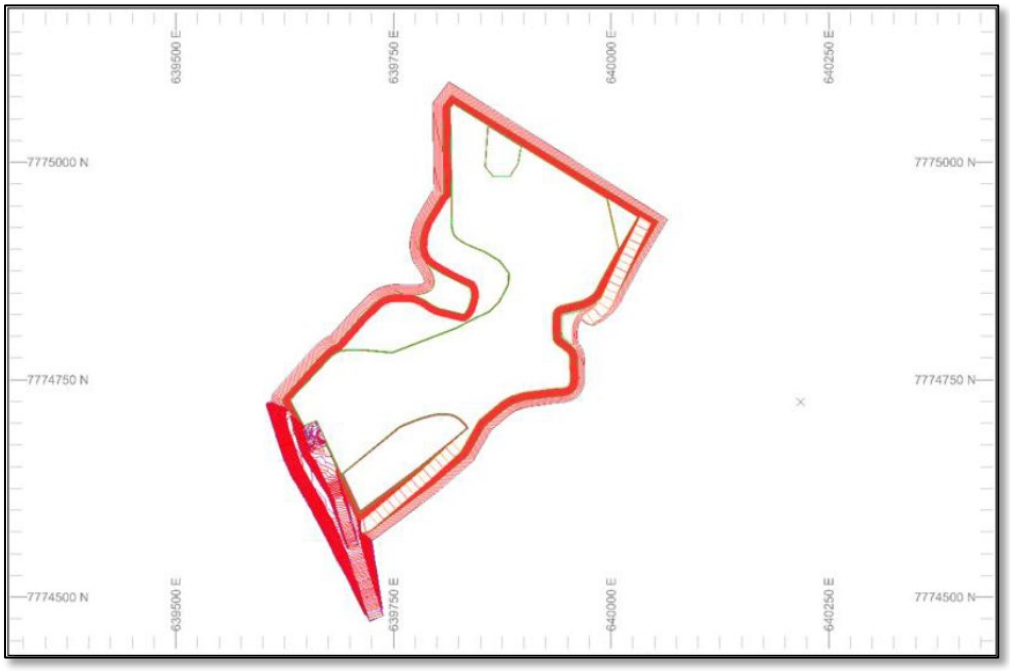
Pit stage 1.3 mines out the Western extents of Pit stage 1.1 and removes the trial pit ramp beneath it. Pit stage 1.3 is shown in Figure 10.

Figure 10: Pit Stage 1.3 Design



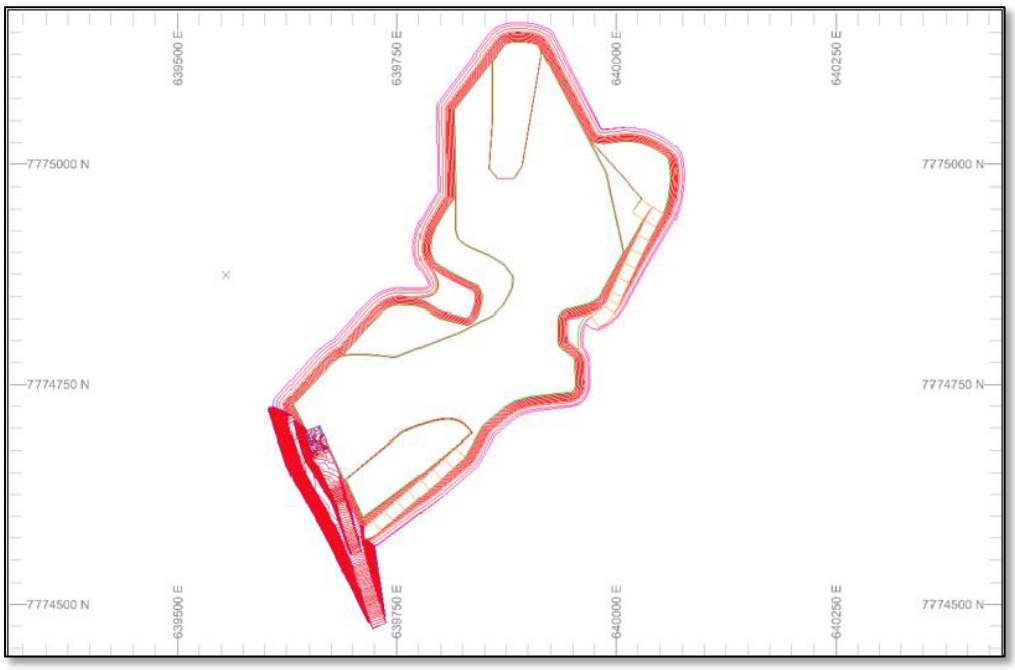
Pit stage 1.4 progresses the pit towards the Northeast and utilises the existing ramp in pit stage 1.3 to access the lower benches. Waste from pit stage 1.3 will start to backfill pit stages 1.1, 1.2 and 1.3 via temporary ramps. Pit stage 1.4 is shown in Figure 11.

Figure 11: Pit Stage 1.4 Design



Pit stage 1.5 is the final stage. BPH and APH material is accessed from the Western ramp and most of the waste is dumped into the pit void to the Southwest using temporary ramps. Pit stage 1.5 is shown in Figure 12.

Figure 12: Pit Stage 1.5 Design

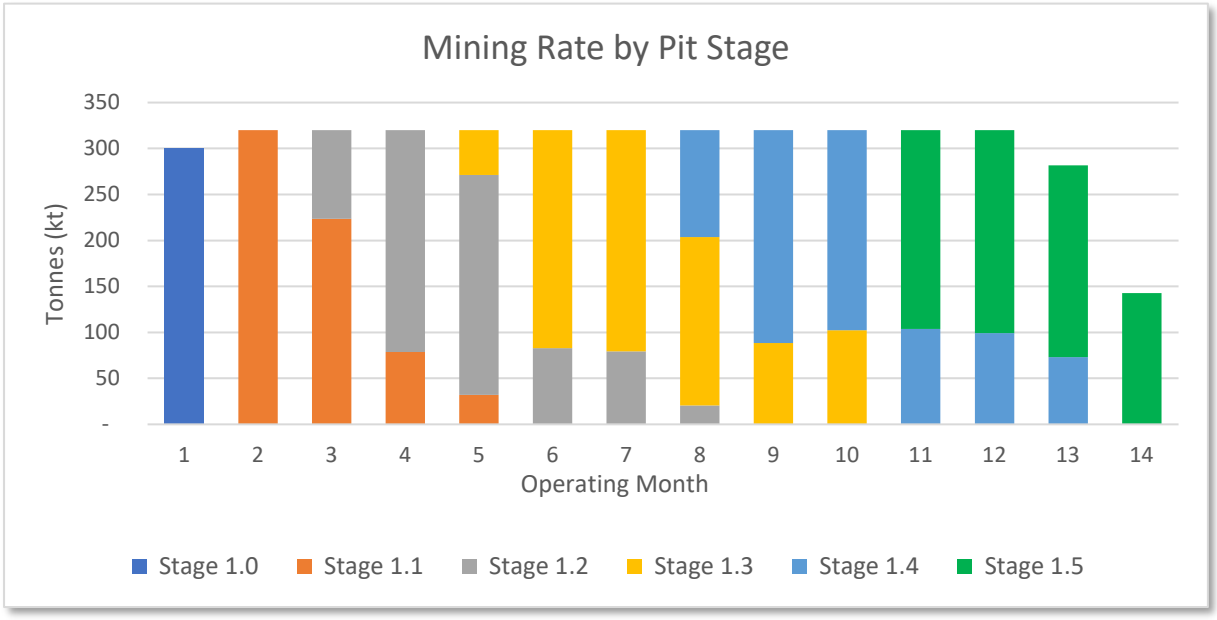


2.3 Mine Schedule

The mine schedule developed by AMC is based on Measured (88.8%) and Indicated (11.2%) Resource categories and does not include any Inferred Mineral Resources.

Mining by pit stage is shown below in Figure 13.

Figure 13: Mining Movements by Pit Stage



The mining schedule by material type is shown below in Figure 14. The strip ratio over the tenor of the mine plan is 4:1 (including both BPH and APH materials).

Figure 14: Mining Movements by Material Type

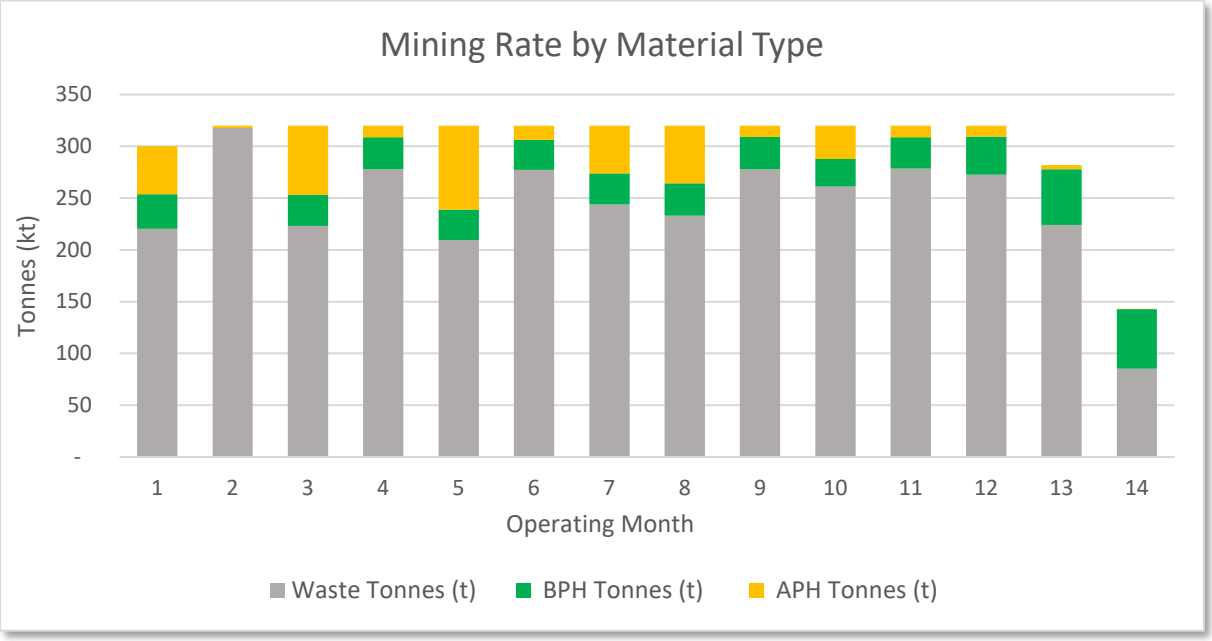
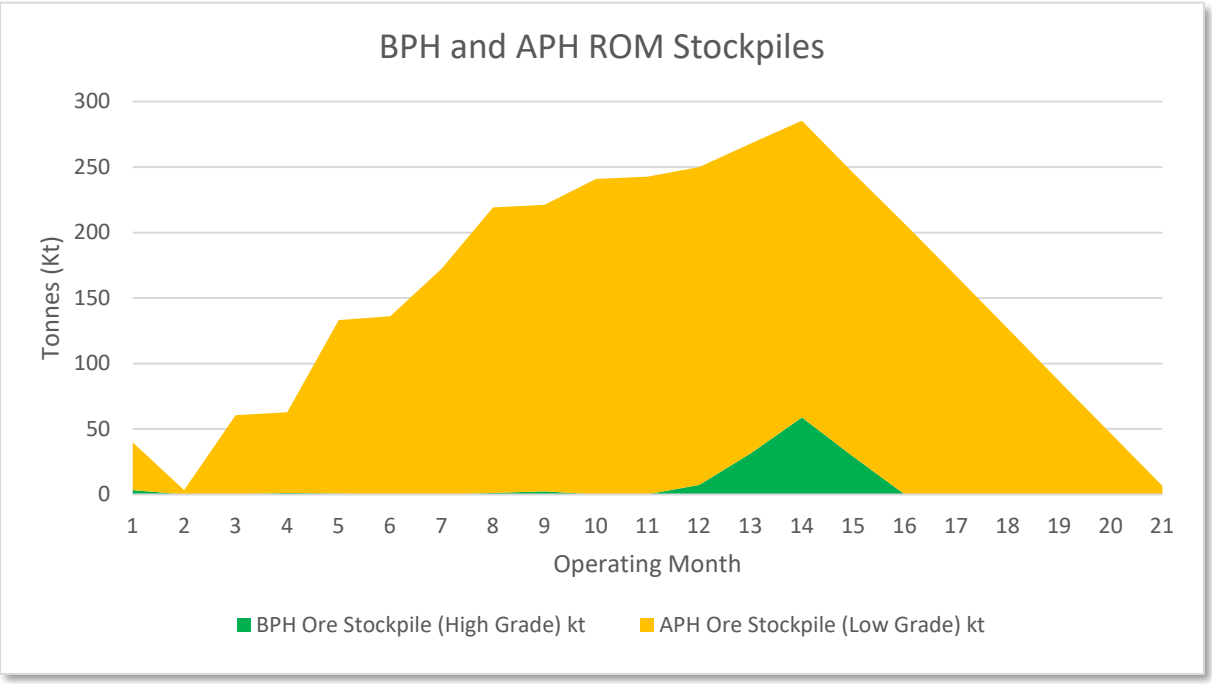


Figure 15 shows ROM stockpiles. BPH ROM is expected to be processed at approximately the same rate as it is mined to reduce stockpiling requirements. In contrast, APH ROM stockpiles will be processed when additional capacity through the crusher is available.

Figure 15: ROM Stockpiles



2.4 Treatment Process

On site processing will consist of a mobile crush and screening plant. BPH material will be re-handled at the ROM stockpile by Front-End Loaders (**FEL**) and fed into the plant and crushed to below 80mm.

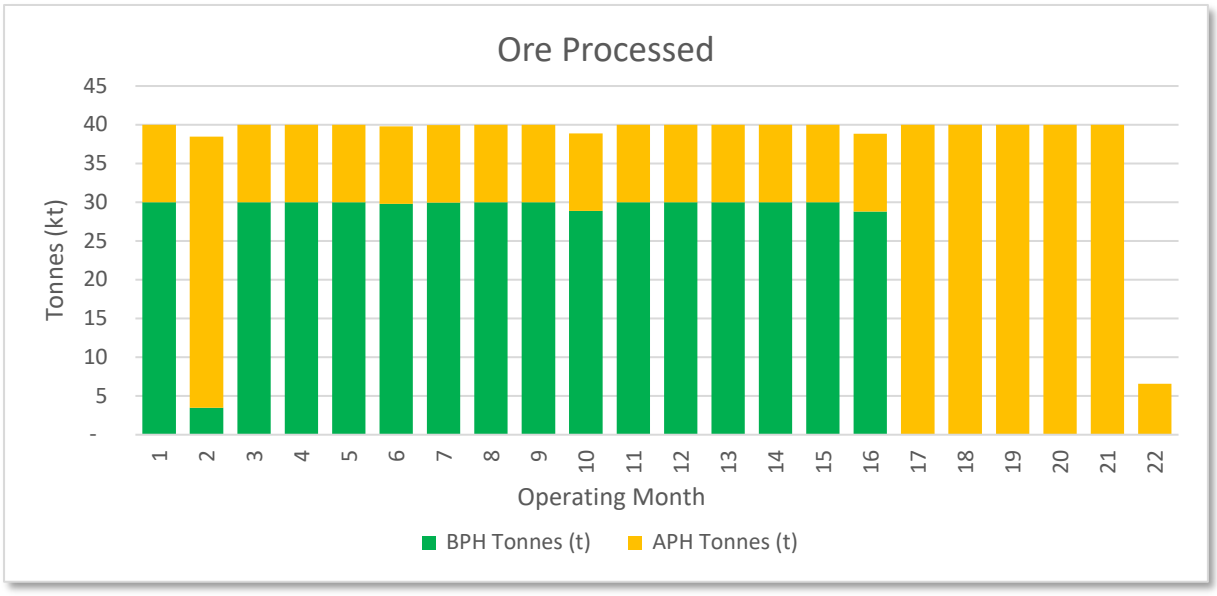
The screens will divert fines below 10mm and lumps above 50mm. Lumps larger than 50mm will be recycled back into the crusher and the fines will be rehandled to the fines stockpile. The crusher settings will be optimised to reduce recycled lumps to maintain required DSO production. Lumps and fines are expected to be generated from the crusher based on an assumed 40/60 ratio. Both the lumps (**10-50mm**) and fines (**<10mm**) will be loaded into shipping containers for regional export.

The ratio between lumps and fines will be optimised during operations, with the sales strategy for these two product streams to be adjusted accordingly to maximise cash flow.

During the processing of APH ROM, the plant will be configured for 100% of the feed to be crushed and screened to below 2mm as per the market specifications for DAPR. The treatment plant for both the BPH and APH material will be operated by a crushing contractor.

Crushing and screening has been scheduled to maintain a steady production rate while providing enough BPH to meet shipping requirements of 25kt per month.

Figure 16: Crushing and Screening Schedule



Product tonnes and grade for lumps and fines and APH are shown in Figure 17 and Figure 18, respectively. The BPH product streams are expected to have average P_2O_5 grade of 32.8%, whereas the APH product is expected to have an average P_2O_5 grade of 19.9%.

Figure 17: BPH Product Tonnes and Grade

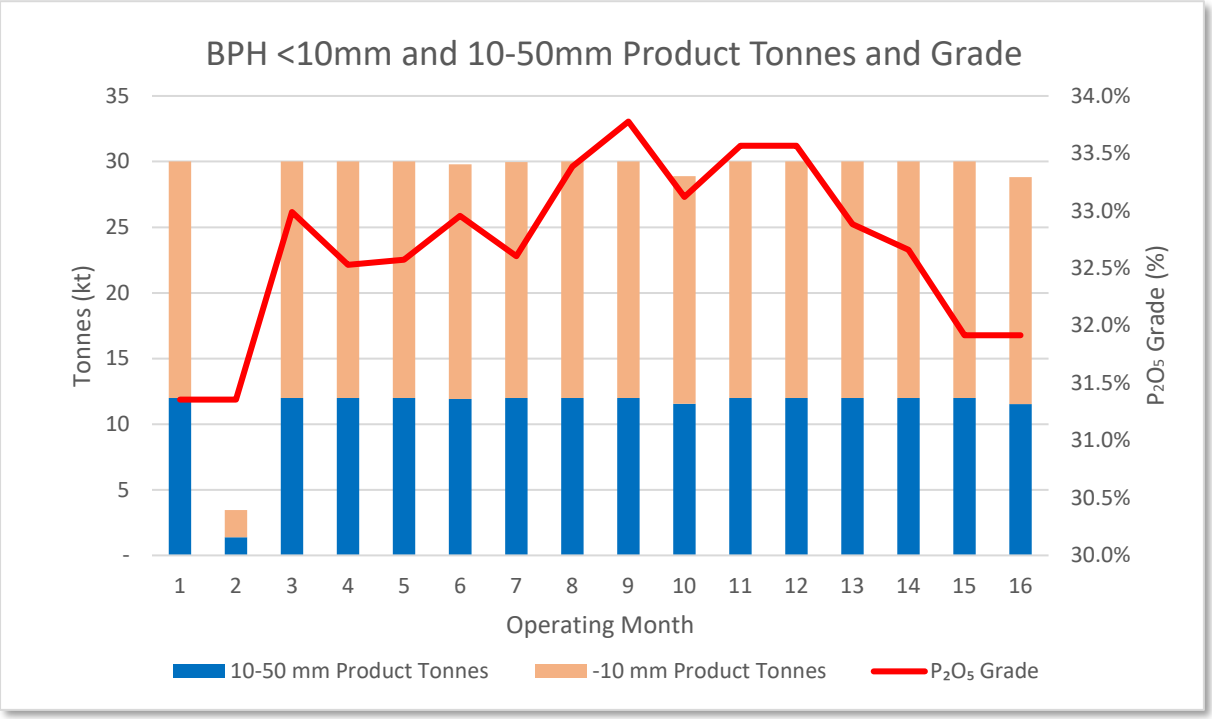


Figure 18: APH Product Tonnes and Grade

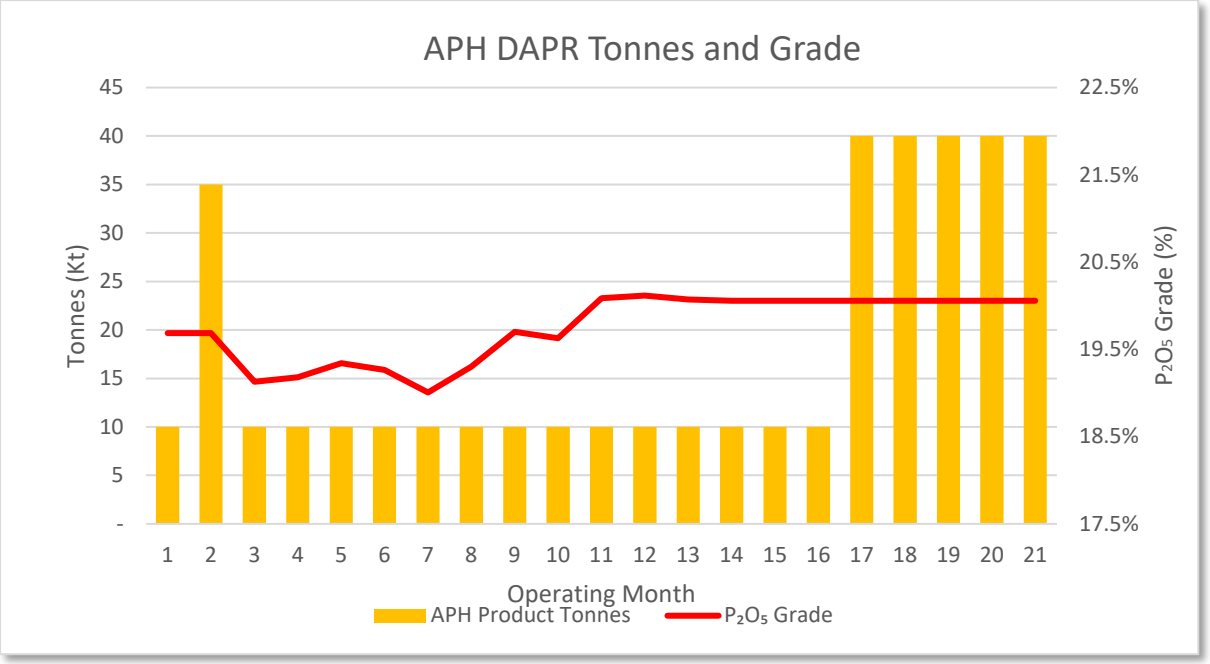
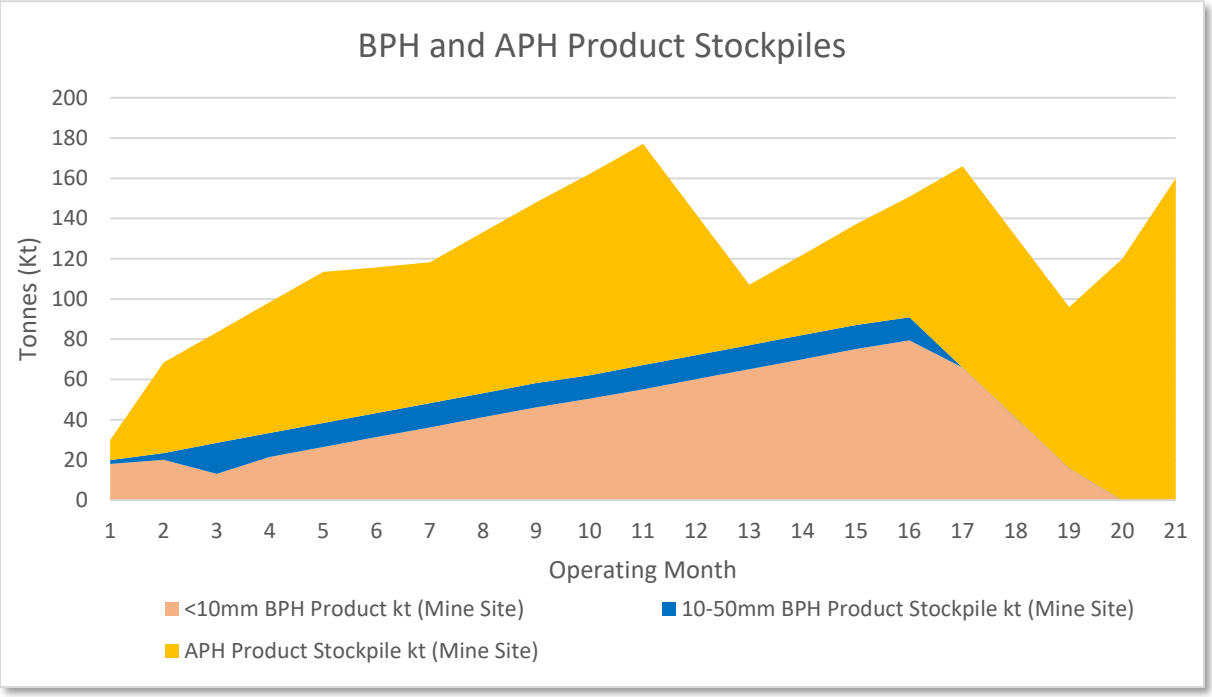


Figure 19 contains the scheduled BPH and APH product stockpiles. At the end of the schedule, Avenira is forecast to have approximately 160kt of readily saleable APH material. This can be sold at mine gate at no incremental cost to Avenira as and when demand arises. The Company plans to review opportunities to sell this product in the future.

Figure 19: BPH and APH Product Stockpiles



3 LOGISTICS

3.1 Product Haulage and Rail

The logistics route encompasses the transportation of DSO from the Wonarah mine site to Darwin Port. This process involves the following phases:

- **Road Haulage to Tenant Creek:** Half Height (**HH**) 20' containers will be utilised for transporting the finished product. These containers will be initially trucked to Tennant Creek and stored at the existing rail yard. The highway along the Barkly Highway is bitumen-sealed and the mine access road has an existing gravel pavement.
- **Rail Haulage to Darwin Port:** The containers will then be conveyed from Tennant Creek to Darwin East Arm Port via rail transport. Tennant Creek is serviced by a daily container train with spare capacity.
- **Stevedoring:** The containers will be unloaded onto a stockpile at Darwin Port prior to loading onto a bulk cargo ship. These containers feature opening lids and end tipper doors, allowing products to be loaded at the mine using front-end loaders or excavators.

All logistics services described above will be provided by third party contractors.

The proposed road haulage route is shown in Figure 20.

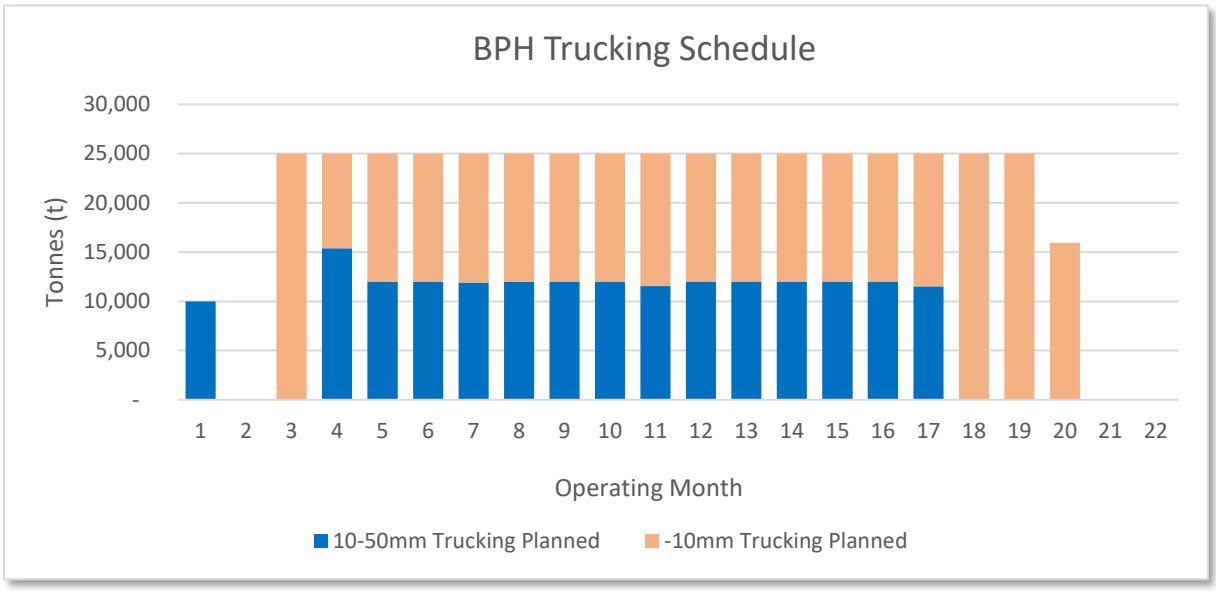
Figure 20: Barkly Highway Haulage Route

The total haulage route includes:

- 30 km access road from mine stockpile to the Barkly Highway
- 284 km on the Barkly Highway to Tennant Creek
- 875km km on the Adelaide to Darwin rail-line to Darwin Port

The trucking and rail schedule is shown in Figure 21. Avenira intends to truck and rail approximately 25 kt per month of BPH product once the DSO Project reaches steady state.

Figure 21: BPH Trucking Schedule



3.2 Darwin Port

BPH lumps and fines will be shipped from Darwin Port to overseas downstream Thermal and Wet acid processors in dry bulk carriers. Shipping volumes have been sized at 25 kt per month for both the lumps and fines, interchangeably. The planned BPH shipping volumes are shown below in Figure 22.

Figure 22: BPH Shipping and Sales Schedule

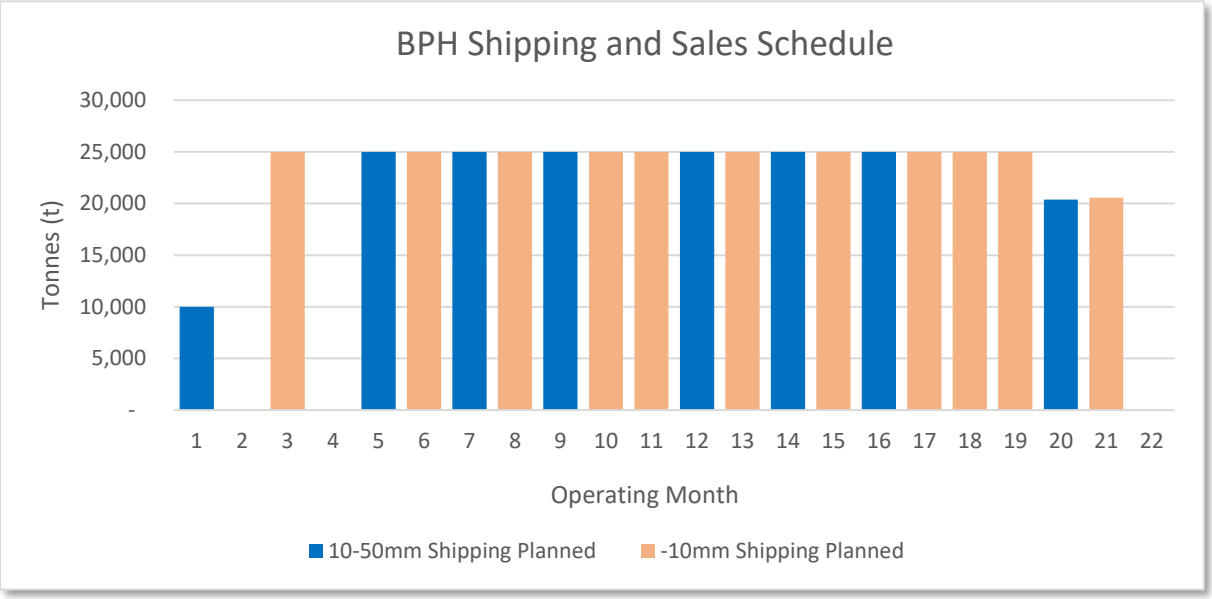


Figure 23: Darwin Port Layout

3.3 Mine Gate Sales

APH will be sold at the mine gate as DAPR. Avenira plans to sell 25kt in the first year of production followed by 200kt in the subsequent. APH sales are shown in Figure 24.

APH product will be sold at the mine-gate and therefor will incur no transport costs.

Figure 24: APH Mine Gate Sales Schedule

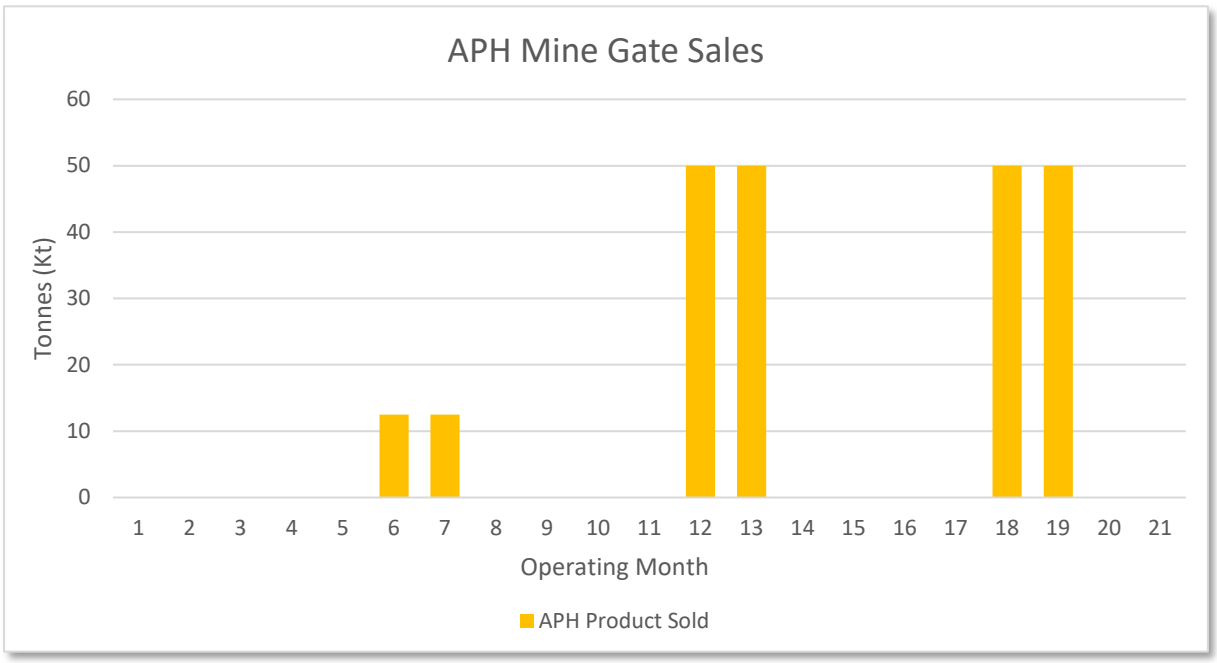


Table 6: Wonarah DSO Mining, Treatment and Product Schedule:

Material Movements	Units	Total	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21
Mining																							
BPH	(t)	450,938	33,463	-	30,248	31,044	29,366	29,145	29,956	31,154	31,187	26,553	30,298	37,030	53,977	57,516	-	-	-	-	-	-	-
APH	(t)	391,576	46,344	2,133	66,750	11,159	81,004	13,608	46,275	55,749	10,824	32,203	11,217	10,452	3,775	83	-	-	-	-	-	-	-
Waste	(t)	3,402,338	220,337	317,867	223,002	277,797	209,629	277,246	243,768	233,097	277,989	261,244	278,486	272,518	224,018	85,339	-	-	-	-	-	-	-
Total	(t)	4,244,853	300,144	320,000	320,000	320,000	320,000	320,000	320,000	320,000	320,000	320,000	320,000	320,000	281,771	142,938	-	-	-	-	-	-	-
Crusher Feed																							
BPH Stockpile Feed	(t)	105,603	-	3,463	-	248	1,292	658	-	-	1,154	2,341	-	298	7,328	30,000	30,000	28,821	-	-	-	-	-
BPH Direct Feed	(t)	345,335	30,000	-	30,000	29,752	28,708	29,145	29,956	30,000	28,846	26,553	30,000	29,702	22,672	-	-	-	-	-	-	-	-
APH Stockpile Feed	(t)	375,053	-	35,000	3,477	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	40,000	40,000	40,000	40,000	40,000
APH Direct Feed	(t)	16,523	10,000	-	6,523	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Feed	(t)	842,514	40,000	38,463	40,000	40,000	40,000	39,804	39,956	40,000	40,000	38,893	40,000	40,000	40,000	40,000	40,000	38,821	40,000	40,000	40,000	40,000	40,000
DSO Product																							
BPH Feed	(t)	450,938	30,000	3,463	30,000	30,000	30,000	29,804	29,956	30,000	30,000	28,893	30,000	30,000	30,000	30,000	30,000	28,821	-	-	-	-	-
Lump Product	(t)	180,375	12,000	1,385	12,000	12,000	12,000	11,921	11,983	12,000	12,000	11,557	12,000	12,000	12,000	12,000	12,000	11,528	-	-	-	-	-
p2o5 Grade	(%)	32.8%	31.4%	31.4%	33.0%	32.5%	32.6%	33.0%	32.6%	33.4%	33.8%	33.1%	33.6%	33.6%	32.9%	32.7%	31.9%	31.9%	-	-	-	-	-
<10mm Product	(t)	270,563	18,000	2,078	18,000	18,000	18,000	17,882	17,974	18,000	18,000	17,336	18,000	18,000	18,000	18,000	18,000	17,293	-	-	-	-	-
p2o5 Grade	(%)	32.8%	31.4%	31.4%	33.0%	32.5%	32.6%	33.0%	32.6%	33.4%	33.8%	33.1%	33.6%	33.6%	32.9%	32.7%	31.9%	31.9%	-	-	-	-	-
APH Feed	(t)	391,576	10,000	35,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	40,000	40,000	40,000	40,000	40,000
APH Product	(t)	391,576	10,000	35,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	40,000	40,000	40,000	40,000	40,000
p2o5 Grade	(%)	19.9%	19.7%	19.7%	19.1%	19.2%	19.3%	19.3%	19.0%	19.3%	19.7%	19.6%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%
Product Stockpiles																							
Lump Product	(t)	175,760	2,000	3,385	15,385	12,000	12,000	11,921	11,983	12,000	12,000	11,557	12,000	12,000	12,000	12,000	12,000	11,528					
<10mm Product	(t)	832,483	18,000	20,078	13,078	21,463	26,463	31,346	36,241	41,223	46,223	50,559	55,117	60,117	65,117	70,117	75,117	79,409	65,938	40,938	15,938		
APH Product	(t)	2,371,687	10,000	45,000	55,000	65,000	75,000	72,500	70,000	80,000	90,000	100,000	110,000	70,000	30,000	40,000	50,000	60,000	100,000	90,000	80,000	120,000	160,000
DSO Transport																							
Lump Product Trucked/Railed	(t)	180,375	10,000	-	-	15,385	12,000	12,000	11,921	11,983	12,000	12,000	11,557	12,000	12,000	12,000	12,000	12,000	11,528	-	-	-	-
<10mm Product Trucked/Railed	(t)	270,563	-	-	25,000	9,615	13,000	13,000	13,079	13,017	13,000	13,000	13,443	13,000	13,000	13,000	13,000	13,000	13,472	25,000	25,000	15,938	-
Lump Product Shipped	(t)	180,375	10,000	-	-	-	25,000	-	25,000	-	25,000	-	-	25,000	-	25,000	-	25,000	-	-	-	20,375	-
<10mm Product Shipped	(t)	270,563	-	-	25,000	-	-	25,000	-	25,000	-	25,000	25,000	-	25,000	-	25,000	-	25,000	25,000	25,000	-	20,563
APH Mine Gate Sales	(t)	375,000	-	-	-	-	-	12,500	12,500	-	-	-	-	50,000	50,000	-	-	-	-	50,000	50,000	-	-

4 EQUIPMENT LIST

4.1 Loading and Hauling

The selected machinery specified in this section is based on recommendations detailed by contractors participating in the tendering process for the Wonarah Project.

The major mining equipment to be used for mining is as follows:

- 1 x Komatsu PC1250 excavator with a bucket size of 7.0m^3
- 1 x Caterpillar 349FL excavator with bucket size of 3.08m^3
- 1 x Caterpillar 336DL excavator with bucket size of 2.27m^3
- 4 x Caterpillar 777 rigid dump truck with payload of 90t

4.2 Drill and Blast

Detailed drill and blast requirements will be determined after testing during operations of the various combinations of drilling patterns, drillhole charge column and blasting sequence that maximises the production of desired product.

The following drill rig is to be used for production hole drilling:

- 1 x Atlas Copco ROC L8 drill rig with hole size range of 115-300mm

4.3 Auxiliary Equipment

Auxiliary equipment is diverse and listed by type as follows:

- Track Dozers for clean-up activities and waste dump maintenance
- Water Trucks for dust suppression and water supply to in-pit machinery
- Graders for road maintenance
- Front End Loader for ROM rehandling to support crushing and screening activities
- Service Truck
- ANFO Mobile Manufacturing Unit (**MMU**) Truck
- Stemming Loader
- Dewatering Pump
- Standpipe and Bore Pump

5 INFRASTRUCTURE

5.1 Existing Infrastructure

Infrastructure for mining will be established to ensure suitability for a 23 month operation. Key existing infrastructure includes a camp with capacity for 24 personnel. The mining contractor will establish the majority of the remaining infrastructure required at the mine site ensuring easy demobilisation.

5.2 Utilities

Electric power will be supplied by diesel driven mobile generators located at the mine site and at the camp. Contractors for each area will be responsible for full mobilisation, establishment, management, maintenance, disestablishment and demobilisation of the generators and remediation of the surrounding area at the completion of the DSO Project.

Potable water will be extracted from existing bores and treated at the camp. Water for processing, dust suppression and vehicle washing will also be extracted from the bores and used untreated. Water used at the mine site will be distributed by a system of surface run poly piping from bores into a combination of turkey's nests and tanks and delivered via pumps and standpipes.

5.3 Disposal and Drainage

All disposal of any waste material (net pit rock waste and the waste rock dump) from site will be undertaken as per the Environmental Waste and Hazardous Substances Management Plans compiled by SLR Consulting Limited (**SLR**).

- All drainage of storm and surface water runoff from the Arruwurra mine site will be managed as per the Environmental Water Management Plan including the Water Balance modelling report by WRM Water & Environment (**WRM**) which will require a series of surface drains and sediment basins.
- Drainage of ROM stockpiles will generally be drained back towards the Pit 1 void, with waste rock dump drainage managed through a network of surface drains and sediment basins.
- All pit water (including from surface water runoff or groundwater) will be pumped to a temporary turkey's nest dam or tanks for use in dust suppression, noting any future discharge would only occur upon Avenira being granted a waste discharge license.
- Any water from bores will either be used for potable water at the camp or for dust suppression and vehicle washing use at the Arruwurra mine site managed through a network of tanks, turkey's nest, pumps, and standpipes.

Sewage will be treated via the removal from site of sealed modules/pods/tanks including pumping into a waste truck.

- Wastewater (including sewage), contaminated soils, waste oils and greases, will be handled at the camp facility using a combination of grease traps at the kitchen, and waste removal service ex-site.

- Sewage will be contained in sealed modules attached to the ablutions blocks and removed from site by the Mining Contractor as required. All contaminated soils will be collected and placed in sealed containers and removed from site by the Mining Contractor. All wastewater from vehicle or plant washing will be trapped and removed by a combination of pumps and loaders to a bio-remediation area.

5.4 Building and Facilities

An existing and new camp facility owned by the Arruwurra Aboriginal Corporation (**AAC**) and located on Avenira's mining lease, is available for use and includes:

- 24 x ensuite rooms with air conditioning.
- A 3-room office and reception complex.
- Separate male and female ablutions block.
- Camp diesel generator.
- Kitchen and associated store and cool rooms.
- Combined recreation and mess room.
- Functioning potable water supply and filtration system.
- Functioning sewage and wastewater system.
- Several circa 10,000 litre poly tanks available (spares).
- Multiple 20-foot shipping containers for secure storage.

The camp has been under care and maintenance for several years and will require little capital to get back to a fully functioning state. Pre-commissioning works include:

- Licensing required by regulations including food via the NT Department of Health NT.
- Recommissioning of access to potable water including water quality testing.
- Electrical checks and fault rectification throughout.
- Hire of a fully fitted out laundry, first aid and recreation complex.
- Minor earthworks around the camp for parking, recreation, and muster areas.
- Appointment of a camp management contractor to manage the facility to be updated by Avenira and Contractor after negotiation.

5.5 Transport Infrastructure

Key transport to and from site will be made up of light vehicles, buses of various sizes, small and large courier trucks, B-double road trains, and quad road trains. All vehicles will require reporting to the mine camp prior to undertaking any work or travelling down the 30km extension of the Arruwurra mine site access track.

Key infrastructure for transport at both the camp and mine site will require minor earthworks and signage with traffic plans by the contractors of each area and will include:

- Designated parking spaces.

- Designated pickup and drop off areas for passengers.
- Muster points.
- Fuel delivery area.
- Goods receiving area.
- Mining Contractor's Laydown Area.
- DSO loading at the Mining Contract's ROM pad.

5.6 Temporary Facilities

Due to the short-term nature of the DSO Project, most of the remaining site infrastructure will be temporary in nature and located at the Mining Contractors' work area at the mine site approximately 30km Southwest from the mine camp.

The Mining Contractor will establish a temporary workshop facility and dome covered shipping containers to service light vehicles, mobile fleet and pumps supported by a mid-sized demountable administration complex with an adjoining first aid room.

Once the DSO Project is completed, most of the infrastructure can easily be demobilised with only minor earthworks required to remediate sites for rehabilitation.

6 WATER MANAGEMENT

6.1 Surface Water Management

Mine infrastructure will be located to minimise deviation of natural surface water flow paths to avoid inundation of the open pits and to prevent erosion and siltation and adverse impacts on water quality downstream of the Mineral Lease.

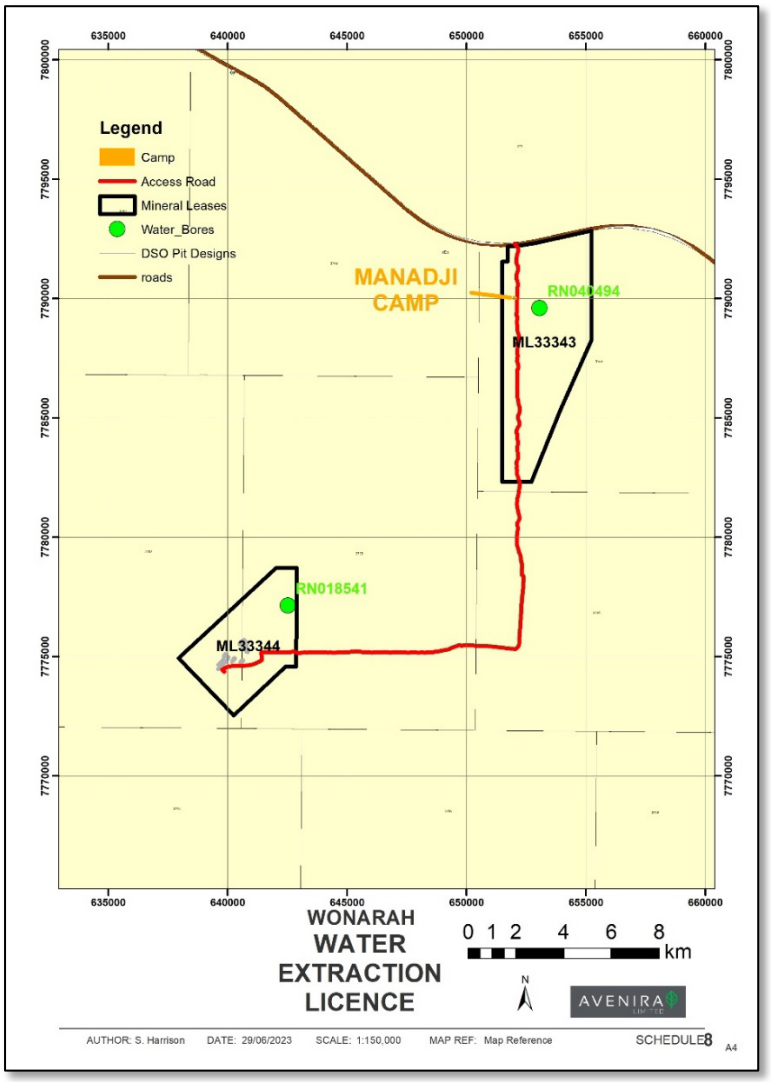
Site surface water management will be based on the principle of diverting clean surface water runoff away from disturbed areas, and intercepting runoff from disturbed areas and directing it through sediment control structures prior to discharge to the downstream environment.

6.2 Water Supply

Provision of water supply for the DSO Project is split into two stages. The first stage comprises existing bores located on the South side of the Barkly Highway with supplemental water sourced by dewatering the existing bulk sample pit. The second stage requires development of a pipeline corridor from existing bores that Avenira developed in 2010 located North of the Barkly Highway.

The initial water source for the DSO Project will utilise existing bores drilled on/or adjacent to the Manadji Camp (**RN040494**) and Arruwurra mining area (**RN0918541**). The location of these bores is shown in Figure 25.

Figure 25: Water Supply Locations



Additional details for the initial water source supply bores are shown below in Table 6.

Table 7: Initial Water Supply Bore Details

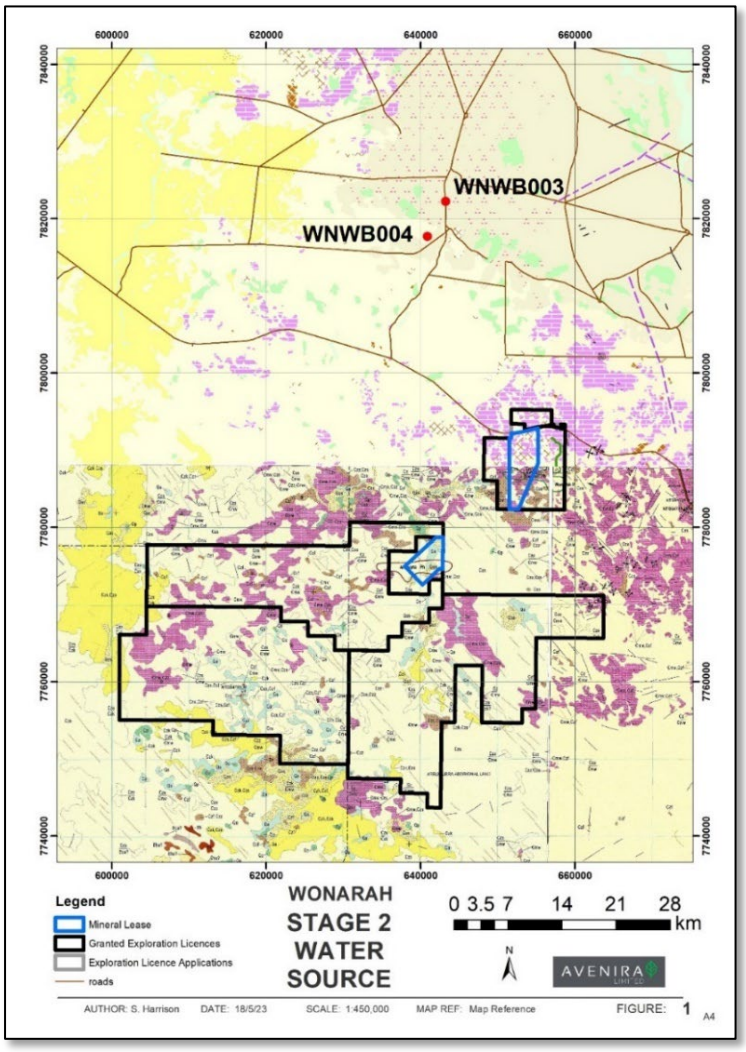
Bore ID	Bore Name	Latitude	Longitude	Yield (L/s)	Yield (ML/yr)	Extraction (ML/yr)
RN018541	Arruwurra Pit	-20.097596	136.36317	3.0	94.6	94.6
RN040494	Manadji Camp	-19.984202	136.462928	1.4	44.2	44.2

Pit stage 1.0 will require removal of water accumulated from rainfall captured during the last wet season to allow mining to commence as per the mining plan. This water will be captured in a turkey's nest adjacent to the pit for use in dust suppression and road construction.

Licencing for the initial stage will be submitted to the Department of Environment, Parks and Water Security (**DPEWS**) following land-owner approval from Arruwurra. In the interim the 5ML/yr. allowance for non-licenced use from each lease or cadastre entity will be utilised with supplemental water from pit dewatering or cartage from external sources if required.

The secondary water source will utilise existing bores located to the North of the Barkly Highway in addition to the bore being utilised for the start of the project. The Northern bores are located in a cavernous, weathered dolomite aquifer that is interpreted to extend regionally to the North, East and West. The location of the Northern bores relative to the tenements held by Avenira are displayed in Figure 26 with extraction rates detailed in Table 7.

Figure 26: Secondary Water Supply Locations



Water supply from the Northern Bores is considered a contingency. Failure to obtain approvals for access to the secondary water source would only be detrimental to the project's operations in the event that the supply of water from the primary Southern Bores was interrupted. Avenira will review the feasibility of alternative risk mitigation strategies in the event that approvals are not obtained.

Table 8: Secondary Water Supply Bore Details

Bore ID	Collar Location – MGA94 Zone 53 (mE)	(mN)	Yield (L/s)
WNWB003	643,257	7,822,227	15
WNWB004	640,889	7,817,697	5

The secondary water supply will require the Company to apply for additional water extraction licence. These water supply bores reside on a non-Avenira tenure, and therefore will require additional access rights to be granted from the pastoral owners (**Dalmore Downs**), the Native Title claimants (**Arruwurra**) and the Exploration Licence holders (**Inca Minerals**).

7 PHOSPHATE MARKET

7.1 Primary Use Case

Phosphorous along with nitrogen and potassium, is an essential plant nutrient. Each of these nutrients are required for cell division and plant growth. Phosphate rock is the primary commercial source of phosphorous in the world. Agriculture is heavily entrenched in its reliance on phosphate rock with approximately 85% of all phosphate rock produced globally used to make fertilisers and 10% to make animal feeds.

Phosphate rock is a non-renewable resource. Phosphorous has no substitutes in food production, and therefor availability and access to phosphorous are paramount to global food security. Soils in entire continents (such as Australia) have either too little phosphorous or release phosphorous at insufficient rates to make high-yield farming without external inputs. Farmers and other agricultural producers must routinely replenish the phosphorous in their soils to match the uptake of phosphorous by their crops.

Downstream phosphate rock derivatives such as Thermal Phosphoric Acid (**TPA**) are seeing increased demand in battery supply chains, especially for Lithium Ferro Phosphate (**LFP**) Cathode Active Materials (**CAM**). LFP CAM is a pre cursor to battery cell manufacturing for Electric Vehicles EV and Energy Storage Systems ESS in the growing demand for renewable energy in the Circular Economy.

7.2 Market Dynamics

Phosphate prices are intrinsically linked to international supply and demand trends for agriculture. Growing human populations and expanding meat consumption in developing countries have continued to outpace new production, steadily increasing long-term prices. Phosphate rock has also historically exhibited a very low-price elasticity of demand, as there are no available substitutes for phosphate in agriculture.

The upward trend in phosphate rock prices has been particularly evident over the past 12-months, with a confluence of geopolitical factors providing additional tailwinds for phosphate rock prices, including:

- Russian exports falling significantly following globally imposed economic sanctions relating to the invasion of the Ukraine;
- China suspending phosphate exports to ensure adequate availability for domestic supply needs, most notably for fertiliser production; and
- European Union heavy metal limits for phosphate imports affecting supply originating from Morocco, one of the largest producers of phosphate rock.

Avenira anticipates prices to continue to rise over the medium to long term, partly driven by the rapid adoption of LFP batteries and the increasing demand for TPA. Due to its superior cost structure, steadily improving driving range and non-flammable characteristic, LFP is expected to take a dominant share of the market. In August-22, UBS analysts stated that LFP will represent 40% of the total electric battery market by 2030.

7.3 Price Determinants

The price of phosphate rock is influenced by several characteristics. However, the most important determinant is the percentage of P_2O_5 content in the rock. Manufacturers prefer high-grade phosphate rock because the high-grade phosphate content can be mixed with other lower-grade concentrates, providing greater flexibility to downstream phosphate manufacturers. High-grade phosphate rock also reduces transportation costs relative to the units of total phosphate rock moved.

7.4 Price Assumptions

Table 8 contains the price assumptions that management has employed in the financial evaluation of the DSO Project for BPH lumps and fines that will be exported internationally and APH DAPR that will be used domestically.

Table 9: BPH and APH Price Assumptions

Price Assumptions	USD$/tonne	AUD$/tonne[12]
BPH Lump (32.8% P_2O_5): 10-50mm (FOB)	200	308
BPH Fines (32.8% P_2O_5): <10mm (FOB)	200	308
APH DAPR (19.9% P_2O_5) (Mine Gate)	65	100

BPH Lump and Fines Price:

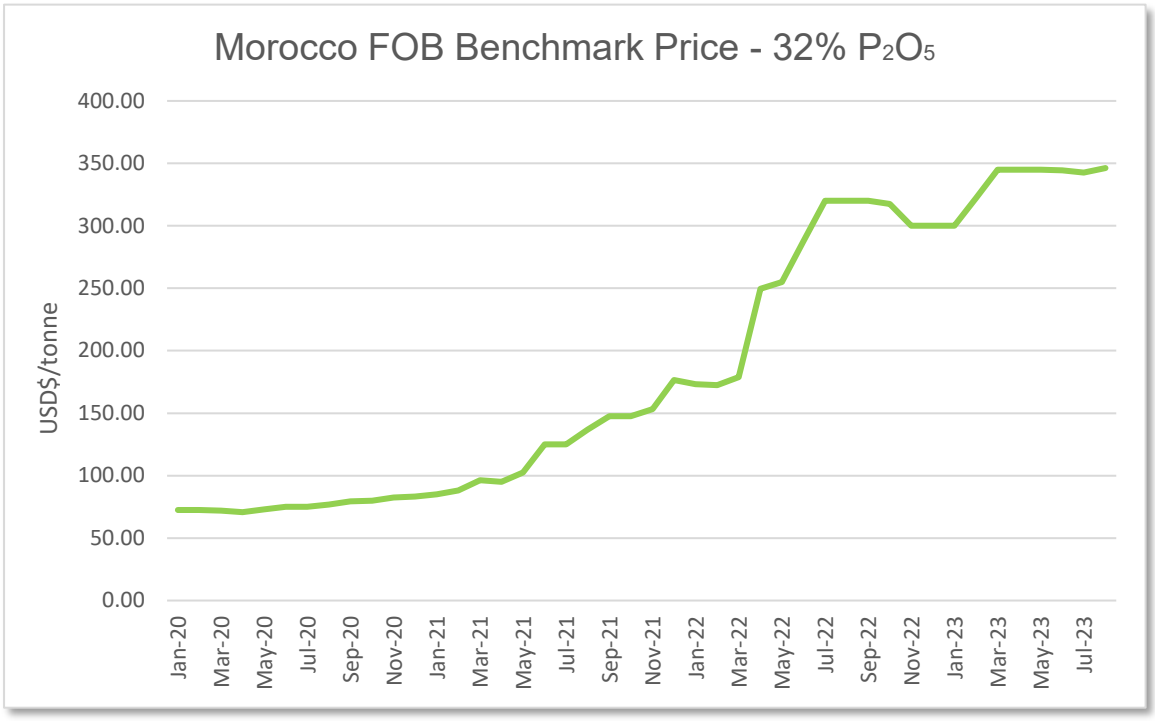
Recent market dynamics have favoured the DSO Project's financial viability. The benchmark Morocco FOB (32.0%) price index, which serves as a key indicator for traded phosphate rock prices globally, has consistently exceeded US$300/tonne over the past several months.

[12] AUD/USD conversions are based on 0.65 exchange rate.

BPH lumps and fines have an average P_2O_5 grade of 32.8%, which aligns closely with the Morocco benchmark. For the purposes of the DSO Feasibility Study, Avenira has conservatively assumed BPH prices of US$200/tonne over the 23 month life of the DSO Project. This reflects most mineral intelligence agencies forecasting phosphate rock prices to gradually decline over the next few years. Additionally, the Moroccan benchmark has recently been decoupled from other observable phosphate prices globally.

Achieved prices for the BPH product will depend on the specific end uses identified by buyers. Determination of price is influenced by several factors, including adjustments for factors such as grade, transport, bioavailability, deleterious elements, and other properties. Achieved prices for the BPH product could be higher or lower based on these considerations.

Figure 27: Morocco FOB Benchmark Price Index[13]



APH DAPR Price:

Management is targeting the Australian domestic market, in particular local traders and farmers, for the distribution of the APH DAPR product.

The assumption of AUD$100/tonne at the mine gate and addressable market of 200ktpa are based on recent feedback and correspondence with local traders who have conducted research into the regional market and have expressed interest in the product. Traders have visited Wonarah and collected samples of APH and believe it to meet their requirements.

[13] Data from the World Bank Pink Sheet, https://www.worldbank.org/en/research/commodity-markets

7.5 BPH Lumps – End Use Case

BPH lump is targeted for the Yellow Phosphorous market for downstream offtakers in Southeast Asia. Yellow Phosphorous is a precursor used in the chemical manufacture of herbicides, food supplements and battery quality acids. This includes Thermal Phosphoric Acid, a raw material used in the production of LFP CAM.

Yellow phosphorus is produced by heating phosphate rock in an electric arc or fuel-fired furnace in the presence of carbon and silica. BPH lump is well-suited for this purpose due to its higher than usual silica content. This reduces the need for external silica and reduces operating costs for downstream users.

BPH lump's size parameters of 10-50mm are designed to maximise gas flow due to their larger void spacing, which results in a more efficient chemical reaction. The physical robustness of the BPH lumps further reduces dust inside the furnace which minimises product waste.

Avenira has been in ongoing discussions with a number of overseas offtakers that are interested in the BPH lumps as a feedstock for Yellow Phosphorus production. Avenira has already sent samples of BPH lump to prospective offtakers in both Southeast Asia and China that have confirmed the suitability of the product for the production of Yellow Phosphorus.

7.6 BPH Fines – End Use Case

BPH fines will be sold into the Single Superphosphate (**SSP**) market. SSP is a type of mineral fertiliser that is produced by reacting phosphate rock with sulfuric acid. It is a low-cost source of phosphorus and is used in agriculture to improve soil fertility. SSP is a globally used and traded product. BPH fines will be sold into this market for blending with other phosphate rocks, with a lower P_2O_5 grade.

7.7 APH DAPR – End Use Case

Avenira has been in recent discussions with parties interested in the APH material. Avenira has existing historical stockpiles from 2010 of approximately 2 kt that will be used to market the product prior to commencing the DSO Project.

APH DAPR will be sold at the mine gate to local traders and farmers and will be directed to agriculture in the Northern Territory, regional Queensland and areas serviced by the Adelaide to Darwin railway. DAPR will be delivered in trucked bulk ore bags.

Large regions in Northern Australia are phosphate deficient and acidic. Both of these properties make agriculture located in these areas' prime targets for phosphate in the form of DAPR. It is anticipated that the total addressable local market for DAPR is 200ktpa in the NT and QLD. The rock is added to the soils and dissolves slowly releasing the phosphate in a bioavailable format. The bioavailable phosphate is price competitive in large regions with manufactured phosphate products due to the isolated nature of these regions from the port.

8 CAPITAL COST ESTIMATATION

8.1 Initial Capital

The initial capital costs to establish the mine site, commence operations are summarised in Table 9 below.

Table 10: Capital Cost Breakdown[14]

Initial Capital Investment	A$M	%
Mine Security Deposit	2.9	25.7
Pre-Strip Mining Costs	5.8	50.3
Port Costs	0.2	1.8
Mining Mobilisation	0.7	6.4
Crushing Mobilisation	0.1	0.7
Mining Infrastructure	0.6	5.1
Contingencies	1.1	10.0
Total Capital Expenditure	**11.5**	**100.0**

Capital costs are reported in Australian dollars (AUD) and include an allowance for contingencies of 10%. The DSO Project is intended to be a contractor operation and therefore is not expected to result in the acquisition of any primary mining equipment.

Capital costs are based on quotations received from Avenira's preferred mining and crushing contractors. Below is a description of the constituents of each capital expenditure item:

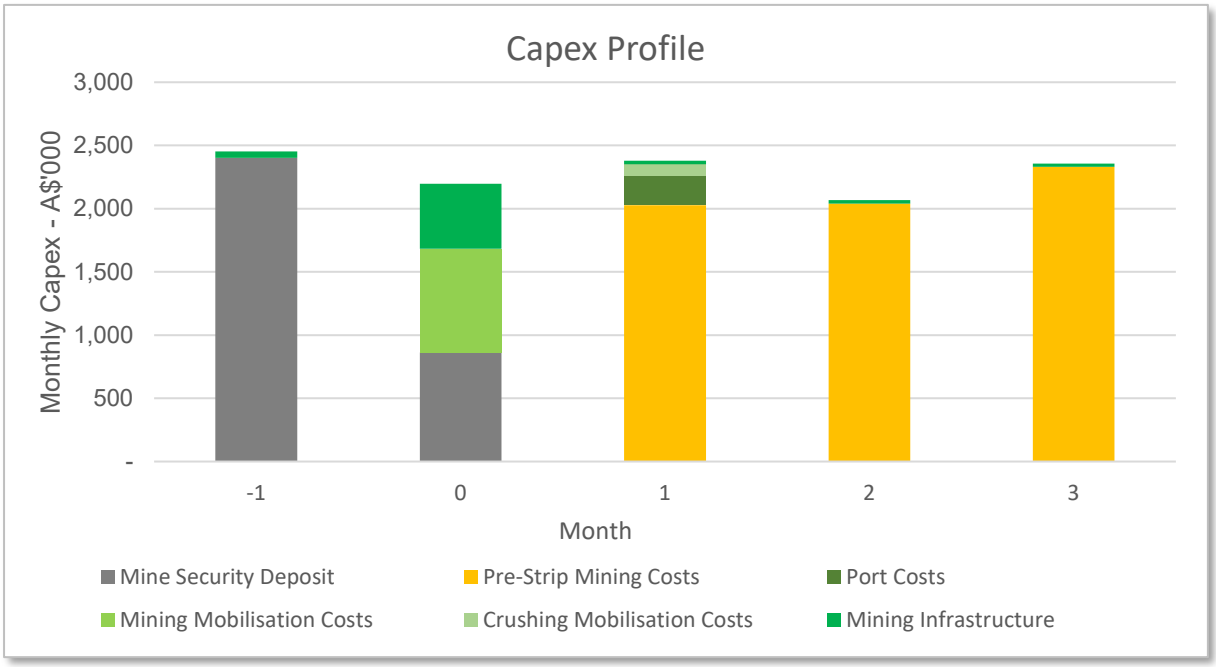
- **Mining Security Levy Costs:** Mining security bond payable to the Northern Territory Government to commence production.
- **Pre-Strip Mining Costs:** Removal of overburden and costs associated with early-stage mining and the development of the open-pit at Wonarah. Due to the size of its working capital impact, pre-stripping cost incurred before production have been considered a capital cost (rather than operating cost).
- **Port Costs:** Cost associated with securing access to and preparing the Port of Darwin for the DSO Project. This includes tarpaulins, concrete pads and a security payment to Darwin Port.
- **Mining Mobilisation:** Mobilisation of personnel, mining equipment and vehicle fleet to Wonarah. This also includes the establishment of an office and training room complex, fuel and hydrocarbon facilities, explosive magazine and AN storage shed, other site infrastructure.

[14] Capital cost breakdown includes rounding.

- **Crushing Mobilisation:** Mobilisation of personnel and the crushing and screening plant to Wonarah. This includes the establishment of the work area and set up of the circuit with dust suppression.
- **Mining Infrastructure:** Establishment of critical facilities at the mine site. This includes an UHF radio repeater trailer and pipeline protection.

Figure 28 shows the expected timing and profile of the expected Capital costs.

Figure 28: Capital Cost Profile[15]



Total Capex is expected to be incurred evenly over the course of 5 months, with 2 months of capital outlay required to mobilise and prepare the mine site prior to pre-strip mining operations. Costs in Figure 28 have been grossed up to include the 10% contingency.

Items excluded from the pre-production capital cost estimate:

- Water supply and storage facilities.
- Fuel facilities.
- Power infrastructure and supply.
- Technical resources (hardware, software, communication infrastructure).
- Other owner related costs.

[15] Capex profile is shown by month, where month 1 denotes the start of operations.

9 OPERATING COST ESTIMATES

9.1 Operating Costs

The DSO Project operating costs are shown below in Table 10 below.

Table 11: Total and Average Unit Operating Costs

Product Sold (kt)		BPH lump tonnes	BPH fines tonnes	APH DAPR tonnes	Total product tonnes
Product Sold (kt)		180	271	225	**676**
Operating Costs per tonne sold (Real $)	**A$M**	**A$/BPH lump tonne**	**A$/BPH fines tonne**	**A$/APH DAPR tonne**	**A$/Avg. product tonne**
Mining (ex. pre-strip)	21.2	30.2	30.2	33.7	**31.3**
Crushing	14.5	16.9	16.9	30.5	**21.5**
Haulage	52.2	115.7	115.7	-	**77.2**
Shipping	10.3	22.8	22.8	-	**15.2**
Personnel	5.5	8.2	8.2	8.2	**8.2**
Accom. and Messing	3.9	5.7	5.7	5.7	**5.7**
Demobilisation	0.5	0.7	0.7	0.7	**0.7**
Total C1 Cash Costs	**108.0**	**200.2**	**200.2**	**78.8**	**159.8**
NT Royalties	11.4	-	-	-	**16.8**
AAC Royalties	3.1	-	-	-	**4.6**
AISC Cash Costs	**122.5**	**-**	**-**	**-**	**181.3**

Operating costs are reported in Australian dollars (AUD) and are presented on a real basis.

Operating costs are based on quotations received from Avenira's preferred mining, crushing, and logistics contractors for the DSO Project. Below is a description of the constituents of each operating cost item:

- **Mining (ex. pre-strip):** Costs associated with mining and excavating the Wonarah open pit. This includes drill and blast activities and the clearing and grubbing of the pit, waste dump, haul road and ROM pad.
- **Crushing:** Cost of crushing and screening feed tonnes and rehandling to stockpiles.
- **Haulage:** Cost of road and rail haulage from Wonarah to Tennant Creek, and subsequently to Darwin Port. Based on the quoted cost for 20"" half containers.

- **Shipping:** Cost of stevedoring, wharfage, port lease and miscellaneous vessel and port expenses.
- **Personnel:** Cost of appointing new full time equivalents (**FTE**) to operate and monitor the DSO Project.
- **Accommodation and Messing:** Cost of facilitating accommodation and meals for the mining contractors. This is based on an assumed A$200/man day unit rate.
- **Demobilisation:** Cost of demobilising the mining and crushing personnel, equipment and vehicle fleets from Wonarah following the end of production.

9.2 Mineral Royalties

Mineral royalties include production royalties payable to the Arruwurra Aboriginal Corporation and the Northern Territory State Government via the Territory Revenue Office.

In July 2023, Avenira and the Arruwurra Aboriginal Corporation executed a mining agreement allowing the Company to develop the Wonarah DSO Project[16]. Key commercial terms of the agreement reflected in the Feasibility Study include:

- Annual payments of A$434,750 in respect of the mineral lease;
- Community payment of 2.5 per cent for production sold less the cost of logistics between mine gate and loading the vessel for export; and
- Upfront capital payment equal to A$200,000 payable at the start of production.

The upfront annual payment made to AAC in July 2023 of A$159,750 has been excluded from the financial evaluation of the DSO Project. Avenira has the right to satisfy certain payments to AAC either by payment of cash or issuance of scrip. All payments have been assumed to be cash settled in the financial evaluation of the DSO Project.

The Northern Territory Government royalty regime is a 'hybrid regime' that considers both an ad-valorem rate on headline revenues and the Projects profits. More specifically, the royalty payable under the Mineral Royalty Act NT (**MRA**), is the greater of:

- 20 per cent of the net value, less A$10,000; and
- a percentage of gross production revenue based on the following schedule:
    - 1% for the royalty payer's first royalty year that begins on or after 1 July 2019
    - 2% for the royalty year that follows the royalty year mentioned above.
    - 3% for the royalty year that follows the royalty year mentioned above.

Net value has been calculated as the gross realisation from the production unit, less operating costs[17].

[16] Refer to ASX Announcement dated 3rd July 2023.
[17] Capital Recognition, Eligible Exploration and other Allowable Deductions under the NT royalty regime have not been considered in the Feasibility Study.

9.3 Income Tax

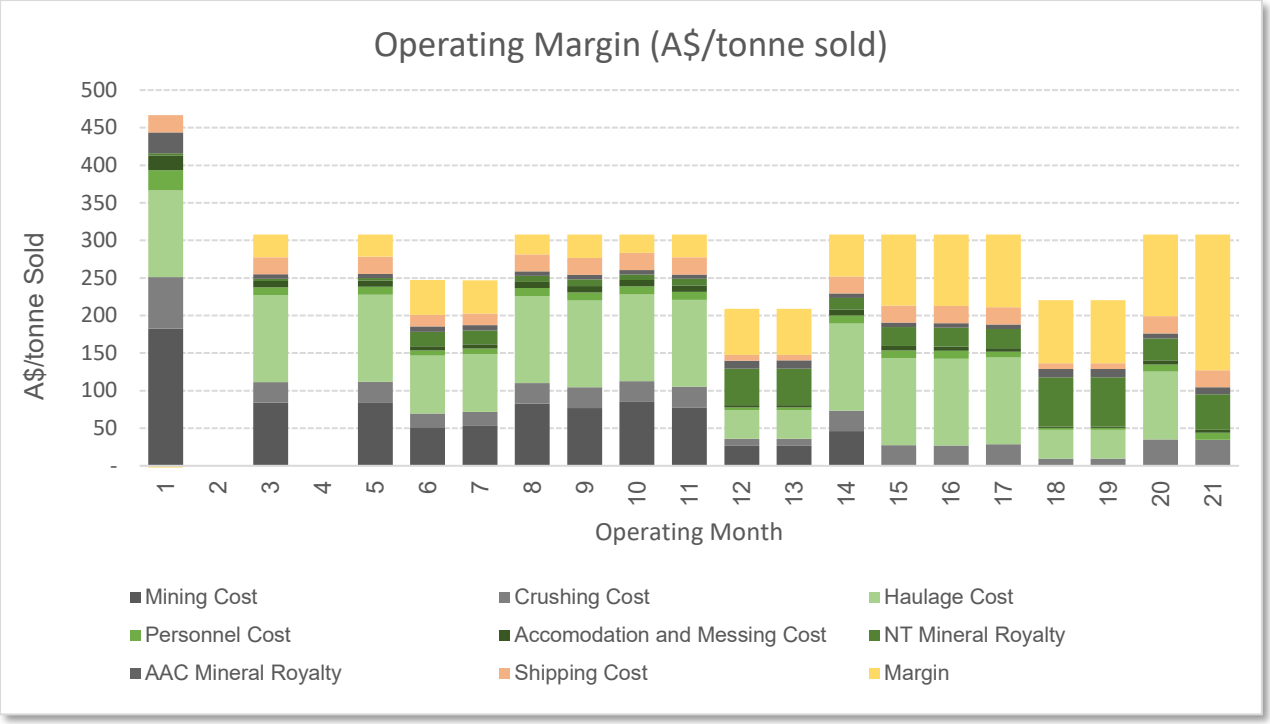
Avenira has approximately A$110M of prior tax losses at present and hence does not expect to pay any tax on net profits generated over the life of the DSO Project.

10 PROJECT VALUATION

10.1 Operating Margins and Cash Flow

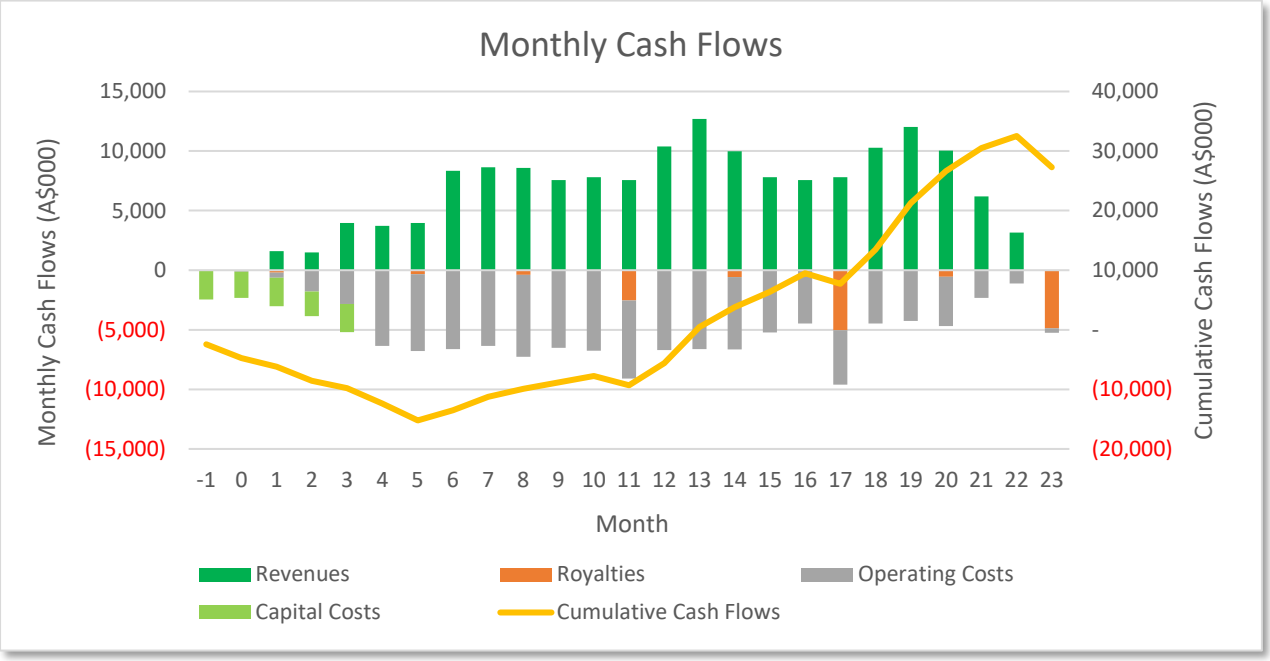
The Feasibility Study illustrates the DSO Project has robust operating margins and forecasted cash flows as detailed below in Figure 29 and Figure 30.

Figure 29: Operating Margin Per Tonne Sold (Real $)



The DSO Project is expected to generate its strongest operating margins and cash flows towards the end of its tenor, as mining and crushing rates slow down, with accumulated ROM and product stockpiles being sufficient to sustain the scheduled shipment volumes.

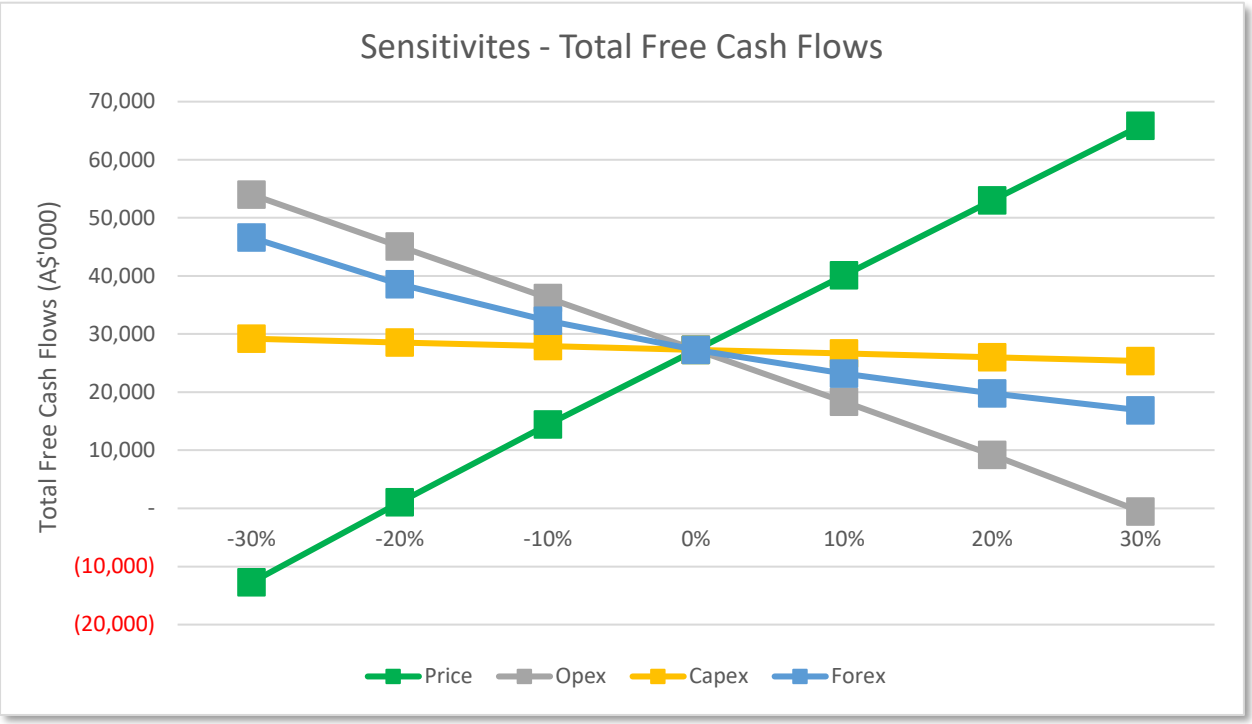
Figure 30: Free Cash Flows (A$'000)



11 FINANCIAL SENSITIVITIES

Project returns have been calculated on a real and unleveraged basis. Sensitivities have been applied to key project estimates and assumptions in Figure 31 below.

Figure 31: Free Cash Flow Sensitivities to Changes in Key Variables



The sensitivity analysis of total free cash flows to key variables, including prices, Opex, Capex and Forex demonstrates that the DSO Project is robust.

12 FUNDING AND IMPLEMENTATION

To achieve the range of outcomes in the Feasibility Study, pre-production capital funding in the order of A$10-15 million will likely be required. It is anticipated that the finance will be sourced from a combination of equity and debt capital markets.

Key to successful project financing will be the ability to gain binding off-take agreements for a significant proportion of the product from the DSO Project. Avenira is currently progressing offtake discussions with a number of parties for both the BPH and APH materials. The Company believes that the robust economics, efficient capital intensity and optionality to extend the project for minimal incremental capital expenditure will facilitate successful fund raising.

Investors should note there is no certainty that the Company will be able to raise the funding required when needed. It is also possible that such funding may only be available via equity funding which may have a dilutive effect on the Company's share value. The Company may also pursue other strategies in order to realise the value of the Project, such as a sale, partial sale or joint venture of the Project. If this occurs, this could materially reduce the Company's proportionate ownership in the Project.

13 APPROVAL STATUS

The DSO Project requires various regulatory approvals prior to the commencement of production. The key approvals and their status are listed below:

- **Mineral Leases**: Avenira has been granted Mineral Leases ML33343 and ML33344 at Wonarah. These mineral leases host the infrastructure and pit deposits to be used for the DSO Project[18].
- **Native Title Mining Agreement**: Wonarah is situated on Arruwurra enhanced freehold land owned by the Arruwurra Aboriginal Corporation (**AAC**). Avenira has successfully negotiated and agreed terms with AAC for the DSO Project[19].
- **Mine Management Plan**: The Mine Management Plan (**MMP**) encompassing the initial stages of the DSO Project have been submitted to the Northern Territory Government for approval. The submission seeks staged expansion for the balance of production with customary conditions including submission of an amended MMP with the findings of surface grade control drilling, along with other supporting documents that demonstrate appropriate management of environmental risks.
- **Environmental Approvals**: The approved Environmental Impact Statement (**EIS**) spans a level of disturbance well in excess of that proposed by the current DSO

[18] Refer to ASX Announcement dated 13th April 2023.
[19] Refer to ASX Announcement dated 3rd July 2023.

project[20]. The Northern Territory Environment Protection Authority (**NTEPA**) have provided guidance that no further assessment is required as a statutory approval is required under the Mine Management Act. Customary conditions outlined in NTEPA Assessment Report 64 are required to be addressed as part of these approvals and as such are contained within the MMPs submitted to DITT.

14 KEY RISKS

Avenira has identified the following key risks facing the DSO Project:

- **Commodity Risk:** Free cash flow generated by the DSO Project demonstrate the greatest sensitivity to changes in the phosphate price. The price assumptions used in the Feasibility Study may not materialise as expected. This could have an adverse effect on the DSO Project.
- **Offtake Arrangements:** There is no assurance that customers will enter into offtake contracts for the supply of phosphate products from Avenira. This would curtail the ability of the DSO Project to secure debt financing.
- **Access to Capital:** Without access to sufficient equity or debt capital, the DSO Project may not be developed. The Projects ability to secure financing or raise funds will be subject to market conditions. Movements in capital markets may have a material outcome on the ability of Avenira to fund the DSO Project.
- **Currency Exposure:** Phosphate prices are typically denominated in USD$. This exposes the DSO Project's revenues to adverse movements in the AUD/USD rate.
- **Labour Market:** The DSO Project requires skilled workers. Shortages of qualified workers or difficulties in attracting and retaining talent could negatively impact the DSO Project's operations.
- **Operational Risks:** Mining operations can be complex and dangerous and there is always the risk of accidents, delays and other disruptions. These pose a material risk and could impact the operational performance of the DSO Project.
- **Cost Inflation:** There is a risk that both capital and operating costs could be subject to significant cost inflation prior to the implementation of the DSO Project which would negatively impact the financial metrics presented in the Feasibility Study.

[20] Refer to Minemakers Environmental Impact Statement (EIS) dated November 2009.

Feasibility Study Contributors

No.	Scope	Contribution
1	Project Management & Report	MiningPlus
2	Mine Design, Plan and Schedule	AMC Consultants
3	Mining Geotechnical	AMC Consultants
4	Mining Services & Costs	MiningPlus
5	Logistics Services & Costs	Chain Consulting
6	Marketing	Avenira
7	Environmental & Regulatory Approvals	SLR Consulting
8	Indigenous Affairs	Avenira, Arruwurra Aboriginal Corporation
9	Human Resources & Infrastructure	Avenira
10	Financial Evaluation	BurnVoir Corporate Finance
11	Legal	WardKeller

Appendix I – JORC Code, 2012 Edition – Table 1 report template

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling..*	• Exploration and resource drilling undertaken by Avenira (previously named Minemakers) and previous holders of the Wonarah tenements totals 2,111 RAB, aircore, RC and diamond cored holes for 100,238 m of drilling. • Resource estimates are primarily based Avenira RC and diamond drilling. A small number of holes drilled by previous tenement holders provide information in areas of limited Avenira sampling and represent around 4% of the resource dataset.
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• RC and diamond holes were generally sampled over 1 m down hole intervals. • Avenira RC sub-samples were collected by riffle splitting. Diamond core was halved for assaying using a diamond saw. • All of Avenira drilling and sampling was supervised by field geologists.
	• *Aspects of the determination of mineralisation that are Material to the Public Report.*	• Hand-held XRF measurements were used to aid selection of intervals for assaying. These results were not used for drilling intercept calculations • pXRF is a hand-held XRF unit used to provide qualitative measurements and to confirm visual observations. • A Olympus Vanta M series hand-held XRF unit was used on 3-beam Geochem setting with a 20 second reading period for each beam. • Certified reference standard materials are used to ensure the unit is calibrated correctly in the field, with measurements completed daily. Calibration was successful if the reference standards returns observations within two standard deviations of the standards certified values
	• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information*	• 92% of Avenira RC and diamond samples were assayed by Amdel. ALS and Ammtec assays provide 7% and 1% of the Avenira resource dataset respectively. • Amdel's sample preparation comprised oven drying and crushing of the entire sample to -2mm, with a 100 g sub-sample collected by rotary splitter pulverised to -106 microns. A 0.1 gram sub-sample of the pulverised material was fused with lithium metaborate and analysed by XRF for P_2O_5, Al_2O_3, CaO, Fe_2O_3, K_2O, MgO, MnO, Na_2O, SiO2 and TiO_2. ALS and Ammtec used similar procedures to Amdel.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• The RC drilling utilised face sampling bits with diameters of generally 5 to 5 ¼ inches (127-133 mm). • All diamond drilling was triple tube, at HQ and PQ diameter. Diamond core was not oriented. • All Wonarah drilling was vertical with the exception of 4 diamond holes and 44 RC holes primarily drilled for ground-water investigation.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• RC sample recovery was assessed by weighing total recovered sample material. The recovered weights show generally reasonably consistent sample recoveries averaging 84% for the mineralised samples which is consistent with good quality RC drilling. • Additional confirmation of the reliability of RC sampling is provided by 30 twinned diamond holes which show very similar average phosphate grades to the paired RC holes. • Diamond core recovery was assessed by measuring recovered lengths for core runs. Recovery measurements are available for 95% of Avenira holes and show an average recovery of 91% for mineralised intervals, which is consistent with good quality diamond drilling. • Available information suggests that the resource sampling is representative and does not include a systematic bias due to preferential sample loss or gain.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Avenira RC and diamond holes were routinely geologically logged by industry standard methods, with logging available for around 88% of RC and diamond drilling. • Subsamples of all RC chips were retained in chip trays for the future reference. Diamond core was routinely photographed • The geological logging is qualitative in nature, and of sufficient detail to support the resource estimates. • Hand-held XRF measurements were used to aid selection of intervals for assaying. These results were not used for resource estimation.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• RC samples were collected over generally 1m down-hole intervals and sub-sampled with a three tier riffle splitter. Virtually all RC samples were dry, with only 0.1% logged as wet. • Diamond core was halved for assaying using a diamond saw. • Measures taken to ensure the representivity of RC and diamond sub-sampling include close supervision by field geologists, use of appropriate sub-sampling methods, routine cleaning of splitter and cyclones, and rigs with sufficient capacity to provide generally dry, high recovery RC samples. • Information available to demonstrate the representivity of sub-sampling includes RC field duplicates and paired RC and diamond holes. • The available information demonstrates that the sub-sampling methods and sub-sample sizes are appropriate for the grain size of the material being sampled, and provide sufficiently representative sub-samples for resource estimation.
Quality of assay data and laboratory tests	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Hand-held XRF measurements were used to aid selection of intervals for assaying. These results were not used for resource estimation(see above for unit and QC protocols). • Avenira assay quality control procedures include certified reference standards, coarse blanks and external laboratory checks. These results have established acceptable levels of precision and accuracy for the assays included in the current estimates.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*	• No drill hole results are reported in this announcement.
	• *The use of twinned holes.*	• Avenira diamond drilling includes 30 holes drilled within 10 m of RC holes. The twinned diamond and RC holes show very similar mineralisation grades and thicknesses providing confidence in the reliability of the RC sampling.
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• For Avenira drilling, sample intervals, and geological logs were directly entered into lap-top computers. These logs and laboratory assay files were merged directly into a central Micromine database • Avenira database and geological staff routinely validate database entries with reference to original data. • The Competent Person's independent checks of database validity include: Comparison of assay values with geological logging, comparison of assay values between nearby holes, checking for internal consistency between, and within database tables, comparisons between assay results from different sampling phases, and for most assays from Avenira drilling the results from laboratory source files were compared with database assay entries. These checks showed no significant discrepancies in the databases used for resource estimation. • No original source data is available for checking of database entries for Rio Tinto drilling. These data represent only 4% of the resource dataset and any uncertainty associated with their validity does not significantly affect confidence in the resource estimates.
	• *Discuss any adjustment to assay data.*	• No assay results were modified for resource estimation.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* •	• Around 55% of drill holes informing mineral resources have high accuracy differential GPS collar surveys. The remainder of collar locations were measured by hand-held GPS, with elevations derived from the aerial survey. • No holes were down-hole surveyed. For the comparatively widely spaced and shallow vertical holes the lack of comprehensive differential GPS collar surveys and lack of down-hole surveys and does not affect confidence in resource estimates.
	• *Specification of the grid system used.*	• All surveying was undertaken in Map Grid of Australia 1994 (MGA94) Zone 55 coordinates.
	• *Quality and adequacy of topographic control.*	• In October 2008, Fugro Airborne Surveys completed an aerial survey of the Wonarah area. Data captured in the survey included topographic elevations measured by radar altimeter relative to differential GPS locations. • Topographic control is adequate for the current estimates.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*	• Drill hole spacing at Main Zone varies from more than one by one km in peripheral portions of the deposit to around 250 by 62.5 m in several comparatively small areas. • For peripheral Arruwurra mineralisation, drill spacing ranges from around 500 by 500 m to one by one km in the far west of the deposit. Central portions have been sampled by generally 250 by 250 m spaced drilling with an area including virtually the entire BPH

Criteria	JORC Code explanation	Commentary
		zone infilled to 125 by 125 m spacing.
	• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• The data spacing has established geological and grade continuity sufficiently for the current Mineral Resource Estimates.
	• *Whether sample compositing has been applied*	• Drill hole samples were composited to 1 m down-hole intervals for resource modelling.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The mineralisation is flat lying to gently undulating, and perpendicular to the generally vertical drill holes. • The drilling orientation achieves un-biased sampling of the mineralisation.
Sample security	• *The measures taken to ensure sample security.*	• Sample collection for Avenira drilling was supervised by Avenira geologists. • Wonarah is in an isolated area with limited access to the general public. Samples selected for assaying were collected in heavy-duty polywoven plastic bags that were immediately sealed. The bagged samples were then delivered directly to the analytical laboratories in Mount Isa by Avenira employees or contractors, or less commonly by a local freight carrier. • Results of field duplicates and inter-laboratory checks, twinned holes, and the general consistency of results between sampling phases and drilling methods provide confidence in the general reliability of the resource data.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Sample data reviews have included comparisons between various sampling phases and methods which provide some confidence in the general reliability of the data. • The Competent Person independently reviewed the quality and reliability of the resource data. These reviews included observation of drilling and sampling, review of database consistency, comparison of laboratory source files with database entries, and review of QAQC information. • The Competent Person considers that the sample preparation, security and analytical procedures adopted for the Wonarah drilling provide an adequate basis for the Mineral Resource estimates.

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 or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Arruwurra mineral resources lie within Exploration Licence 29840. Main Zone Mineral Resources lie within Exploration Licences 29849,32359 and 33063 which are held by Avenira. The underlying land tenure is NT freehold held by the Arruwurra Aboriginal Corporation. • Mining Licence applications ML33343 and ML33344 are also in place over EL32359 and EL29840 to ensure security of tenure
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Data from holes drilled by Rio Tinto provide information in areas of limited Avenira sampling and represent around 4% of the resource dataset.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Wonarah is hosted by late Proterozoic to early Palaeozoic sedimentary rocks of the Georgina Basin. Phosphate mineralisation is hosted by gently undulating mudstone phosphorite and chert breccia phosphorite units of the Upper Gum Ridge Formation. • The majority of Arruwurra mineralisation lies within a layer of mudstone phosphorite which averages around 6m thick with a variably developed high grade indurated basal zone averaging approximately 1.6 m thick. • Main Zone mineralisation is hosted within a sequence of mudstone phosphorite and chert breccia phosphorite and undifferentiated transitional sediments with an average combined thickness of around 10m. The majority of Main Zone Mineral Resources lie within the mudstone phosphorite and chert breccia. The undifferentiated transitional sediments contain generally low phosphate grades and represent only a small proportion of estimated Mineral Resources.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• No drill hole results are reported in this announcement.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated*	• No drill hole results are reported in this announcement.

Criteria	JORC Code explanation	Commentary
	and some typical examples of such aggregations should be shown in detail.	
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No include equivalent values are reported.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• The mineralisation is flat lying to gently undulating, and perpendicular to the generally vertical drill holes, with down-hole lengths representing true thicknesses.
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.*	• Appropriate maps are include in the body of this announcement.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• No drill hole results are reported in this announcement.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Metallurgical data has been previously reported. This has revealed that the material from Wonarah is suitable for the NovaPhos process or production of MAP and DAP product.[21]
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further extensional and/or infill drilling may be carried out, as well as drilling or bulk test pit activities to recover samples for further metallurgical and geotechnical test work prior to any proposed mining, Diagrams and plans may show culturally sensitive areas that are subject to a confidentiality agreement and are not shown here.

[21] Refer to Section 3 JORC table in ASX Announcement dated 30th April 2014.

Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• For Avenira drilling, sample intervals, and geological logs were directly entered into lap-top computers. These logs and laboratory assay files were merged directly into a central database. • Avenira database and geological staff routinely validate database entries with reference to original records. • The Competent Person's independent checks of database validity undertaken by: Comparison of assay values with geological logging, comparison of assay values between nearby holes, checking for internal consistency between, and within database tables, comparisons between assay results from different sampling phases, and for most assays from Avenira drilling the results from laboratory source files were compared with database assay entries. • These checks showed no significant discrepancies in the databases used for resource estimation. • No original source data is available for checking of database entries for Rio Tinto drilling. These data represent only 4% of the resource dataset and any uncertainty associated with their validity does not significantly affect confidence in the resource estimates.
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.*	• Mr Abbott visited Wonarah on the 12th and 13th of March 2009. The site visit included inspection of drilling and sampling activities, and discussions of details of the project's geology and drilling and sampling with Avenira geologists and Mr Abbott gained an improved understanding of the geological setting and mineralisation controls, and the resource sampling activities.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Geological setting and mineralisation controls of the Wonarah mineralisation have been confidently established from drill hole logging. • Resources were estimated within wireframes representing mineralised domains interpreted on the basis of geological logging and P_2O_5 assay grades. • Mineralised domains interpreted for Arruwurra comprise a main mudstone phosphorite unit (APH) with an internal basal indurated high phosphate grade unit (BPH). • Mineralised domains interpreted for Main Zone comprise a Mudstone Phosphorite (MPH) unit underlain by Chert Breccia Phosphorite (CBX) and undifferentiated transitional sediments (TUN) which contain locally developed and generally discontinuous beds of high grade porcellaneous mudstone phosphorite designated as transitional phosphorite (TUP). • The mineralised domains were interpreted with reference to geological logging and are trimmed by areas of basement highs, where mineralisation has been not developed. The

Criteria	JORC Code explanation	Commentary
		mineralised domains are consistent with geological understanding. • Due to the confidence in understanding of mineralisation controls and the robustness of the mineralisation model, investigations of alternative interpretations are unnecessary.
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.*	• Arruwurra resources cover an area around 6 km by 2.5 km and extend to approximately 55 m below surface. The majority of Arruwurra mineralisation lies within the APH unit which averages around 6 m thick with the variably developed internal basal BPH zone averaging approximately 1.6 m thick. • Main Zone estimates extend over an area approximately 10 km by 14 km and extend to approximately 75 m below surface. The combined sequence of variably mineralised mudstone phosphorite, chert breccia phosphorite and undifferentiated transitional sediments averages around 10 m thick.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	• Resources were estimated by Ordinary Kriging of 1 m down hole composited assay grades within the mineralised domains. • The estimates include P_2O_5, Al_2O_3, CaO, Fe_2O_3,K_2O, MgO, MnO, Na_2O, SiO_2 and TiO_2 grades with variograms modelled for each attribute. • No upper cuts were applied to the estimates. This reflects the generally moderate variability of most attributes, and ameliorates the risk of understating secondary attribute grades. • Around the margins of the interpreted mineralisation, domain boundaries were generally extrapolated to a maximum of around half the drill hole spacing beyond drilling, with an extrapolation distance of generally less than 250 m. • Arruwurra estimation included un-folding of composite locations using the top of the mineralised domain as a reference surface. • Grade estimation included a four pass, octant based search strategy, with hard boundaries between domains. • Micromine software was used for data compilation, domain wire-framing, and coding of composite values, and GS3M was used for resource estimation. • The estimation technique is appropriate for the mineralisation style.
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	• Within areas of consistent sampling coverage, the current estimates are consistent with previous resource estimates for the project. • Production to date for Wonarah is limited to a bulk sampling exercise undertaken at Arruwurra during 2009. Meaningful comparison of model estimates and production is impossible.
	• *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*	• In addition to P_2O_5, the resource model includes estimates for Al_2O_3, CaO, Fe_2O_3, K_2O, MgO, MnO, Na_2O, SiO_2 and TiO_2. • Estimated resources make no assumptions about recovery of by-products.
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* •	• Arruwurra resources were estimated into 125 by 125 by 1 m parent blocks (east, west, vertical). Plan-view dimensions of the parent blocks approximate the drill hole spacing in the closest drilled portions of the deposit. • Main Zone resources were estimated into 125 by 30 by 1 m parent blocks. Plan-view

Criteria	JORC Code explanation	Commentary
		dimensions of the parent blocks approximate half the drill hole spacing in the closest drilled portions of the deposit • For precise representation of interpreted domain volumes the parent bocks were sub-blocked at domain boundaries. • Grade estimation included a four pass, octant based search strategy. • Arruwurra search ellipsoid radii (east, west, vertical) and minimum data requirements range from 300 by 300 by 1.5m (8 data) for search 1 to 800 by 800 by 3 m (4 data) for search 4. • Main Zone search ellipsoid radii (east, west, vertical) and minimum data requirements range from 400 by 90 by 1.5m (8 data) for search 1 to 900 by 300 by 4.5 m (4 data) for search 4.
	• *Any assumptions behind modelling of selective mining units.*	• The estimates are intended to reflect medium to large scale open pit mining. Specific details of potential mining parameters are unclear reflecting the early stage of project evaluations.
	• *Any assumptions about correlation between variables.*	• The modelling did not include specific assumptions about correlation between variables.
	• *Description of how the geological interpretation was used to control the resource estimates.*	• The mineralised domains used for resource estimation are consistent with geological interpretation of mineralisation controls.
	• *Discussion of basis for using or not using grade cutting or capping.*	• No upper cuts were applied to the estimates. This reflects the generally moderate variability of most grade attributes, and ameliorates risk of understating secondary attribute grades.
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Model validation included visual comparison of model estimates and composite grades, and trend (swath) plots. • Production to date for Wonarah is limited to a bulk sampling exercise undertaken at Arruwurra during 2009. Meaningful comparison between model estimates and production is impossible.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry tonnage basis
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The cut off grades used for resource reporting reflect Avenira's interpretation of potential project economics for their perceived development options for the project.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The estimates are intended to reflect medium to large scale open pit mining. Specific details of potential mining parameters are unclear reflecting the early stage of project evaluations. • With a maximum depth of 75 m, the resources appear amenable to open pit mining.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Metallurgical data has been previously reported. This has revealed that the material from Wonarah is suitable for the NovaPhos process or production of MAP and DAP.[22] • All mined BPH ore will be transported to the ROM pad for crushing and screening to produce two distinct products; Thermal Lump and SSP. • A yield assumption of 40% has been applied to the Thermal Lump production. As both products hold similar sales potential, the yield assumption is considered non-material to the project.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Avenira previously prepared and processed an Environmental Impact Statement for a direct shipping project and the terms of approval under that process which remains applicable to Wonarah continue to apply[23]. Avenira has received notice from the Northern Territory Environmental Protection Authority that environmental issues associated with the IHP beneficiation process can be addressed under a Mining Management Plan assessment process. It is not anticipated that there will adverse environmental effects from any mining or beneficiation operations. Baseline flora and fauna studies have not indicated any impediments to mining or processing. for DSO or IHP projects
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk densities were derived from 520 immersion density measurements of oven dried diamond core samples. • Densities (t/bcm) were assigned by mineralised domain as follows: • Arruwurra: APH 1.8, BPH 2.0 • Main Zone: CMU 1.8, MPH <30% P_2O_5 1.8, MPH >30% P_2O_5 2.0, CBX 1.7, TUN 1.7, TUP 2.0
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	• The estimates are classified as Measured, Indicated and Inferred by domain, estimation search pass and polygons defining areas of relatively consistent drill hole spacing as follows: • For P_2O_5 cut off grades of 10% and 15% Measured resources include estimates for Arruwurra mineralisation tested by 125 by 125 m spaced drilling and Main Zone MPH mineralisation tested by 125 by 62.5 m drilling. Indicated resources include Arruwurra mineralisation and Main Zone MPH, CBX and TUN mineralisation tested by 250 by 250 m spaced drilling. Inferred mineral resources include all estimates for the Main Zone CMU and TUP domains and estimates for the other mineralised domains tested by drilling spaced at broader than 250 by 250 metres generally to around 500 by 500 m. • For P_2O_5 cut off grades of 27%, resources were claissified as follows: - Arruwurra BPH Mineralisation tested by 125 by 125 and 250 by 250 m spaced drilling are classified as Measured and Indicated respectively.

[22] Refer to Section 3 JORC table in ASX Announcement dated 30th April 2014.
[23] Refer to Minemakers Environmental Impact Statement (EIS) dated November 2009.

Criteria	JORC Code explanation	Commentary
		- Arruwurra APH: All estimates are classified as Inferred. - Main Zone MPH Estimates for mineralisation tested by 250 by 250 m and closer spaced drilling are classified as Indicated category, with estimates for areas of broader spaced sampling classified as Inferred. - Main Zone CBX and TUN: All estimates are classified as Inferred. - Main Zone CMU and TUP domains comprise small zones generally intersected by few drill holes. All estimates for these domains are classified as Inferred. • Peripheral portions of the Main Zone deposit include areas with around 1 by 1 km spaced drilling. Mineralisation in these areas is too poorly defined for estimation of Mineral Resources, and is considered only as exploration potential.
	• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	• The resource classification accounts for all relevant factors.
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The resource classifications reflect the Competent Person's views of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The resource estimates have been reviewed by Avenira geologists, and are considered to appropriately reflect the mineralisation and drilling data.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• Confidence in the relative accuracy of the estimates is reflected by the classification of estimates as Measured, Indicated and Inferred.