

## BLACK SWAN RESTART PROJECT UPDATE

21 December 2021

### KEY POINTS

#### Fill the Mill Strategy

- Growing mine inventory supports restart strategy based on feeding the 1.1Mtpa processing circuit from a combination of feed sources to maximise nickel units produced

#### Further exploration success at Silver Swan – very high grade intersections

- Assay results received from recent resource drilling at Silver Swan indicate potential for increased Reserve (up from current Silver Swan JORC Reserve of 6,800t Ni):
  - PTMD005: 12.9m @ 10.63% Ni
  - PTMD007: 6m @ 11.36% Ni
  - PTMD014: 11m @ 13.26% Ni
  - PTMD015: 3.5m @ 16.30% Ni
  - PTMD018: 15m @ 17.92% Ni

#### Drilling in Black Swan Disseminated mineralisation returning positive results

- Drilling results indicating potentially greater consistency of metallurgically favourable serpentinite mineralisation in the disseminated zone below the existing pit

#### Preliminary Investment Decision

- Progress to date on the Fill the Mill strategy supports fast tracking a number of initiatives, including:
  - further exploration down plunge of the existing Silver Swan resource to grow the high-grade mining inventory
  - commence studies on dewatering the Black Swan open pit in 2022
  - commence environmental and mine approvals process
  - employ personnel for key project management roles
  - undertake studies on site-based accommodation and commence approvals process
  - progress planning and approval for grid power allocation

#### Marketing and Project Funding

- Indicative terms requested from prospective offtake parties indicate interest from market in preliminary Black Swan concentrate specification

**Poseidon Nickel (ASX: POS) (“Poseidon”, “the Company”)** is pleased to provide its second update on the Black Swan 1.1Mtpa “Fill the Mill” project and the Bankable Feasibility Study process.

Managing Director and CEO, Peter Harold, commented, “*we continue to progress the Fill the Mill strategy at Black Swan.*”

*The resource drilling programs on the Black Swan Disseminated orebody and within the Silver Swan Channel continue to deliver positive results which show potential for an increase in the mining inventory for the restart. In addition, further knowledge of these resources builds our knowledge of the mineralogy and metallurgy and will help us refine the ore blending strategy to achieve the optimal concentrate specifications.*

*Progress to date on the Bankable Feasibility Study has provided the necessary outputs from our internal Preliminary Economic Assessment to provide comfort for us to commence a number of workstreams to support the Black Swan restart.”*



FIGURE 1 – BLACK SWAN 2MTPA PROCESSING PLANT

## Black Swan Restart Project Update

The following workstreams are ongoing:

- drilling within the Silver Swan Channel to identify potential resource growth opportunities and convert Resources from the JORC Inferred to Indicated classification;
- drilling the Black Swan Disseminated (BSD) zone to confirm the extent of serpentinite mineralisation and nickel grades;
- mining studies to convert the Resources to Reserves for Silver Swan, Golden Swan and BSD;
- metallurgical test work on blending the various ore sources to determine the optimum feed blend, expected metallurgical recoveries for each feed source and typical concentrate specifications;

- environmental and development approvals for the mining activities, infrastructure requirements including power supply and on site accommodation;
- indicative offtake terms for the quality and quantity of nickel concentrate expected to be produced;
- indicative financing proposals for the debt component of the restart capital; and
- completing the Bankable Feasibility Study.

The following work streams have already been completed:

- Silver Swan Tailings maiden Resource (Silver Swan Tailings – Maiden Resource Estimate ASX announcement dated 15 September 2021)
- five year water access agreement signed with Norton Gold Fields Pty Ltd; and
- Golden Swan maiden Resource (Golden Swan Maiden Resource ASX announcement dated 27 October 2021).

### Black Swan Restart Project Timetable

The revised Black Swan restart timetable was presented at the 2021 AGM (see ASX announcement dated 23 November 2021). The Final Investment Decision for the project is expected to be made during July 2022 with plant commissioning scheduled for the March 2023 quarter period.

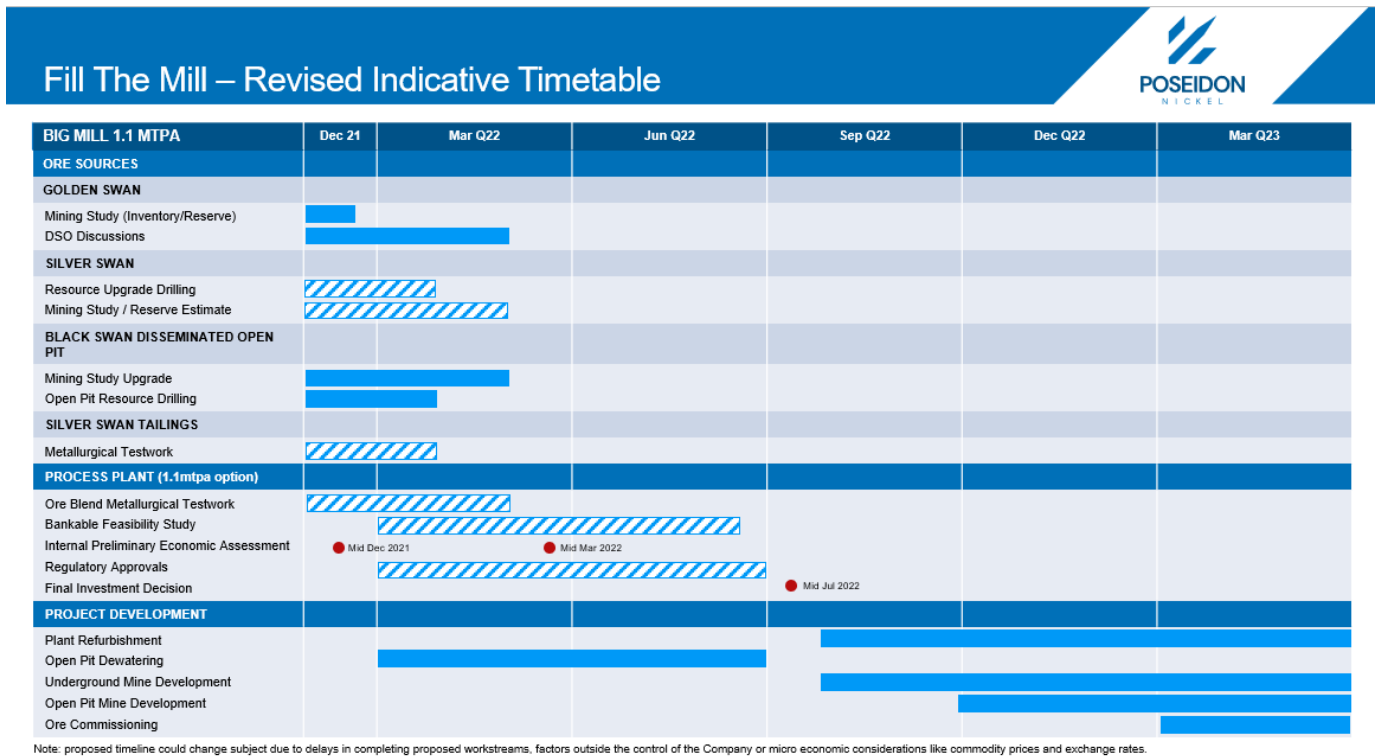


FIGURE 2 – REVISED BLACK SWAN RESTART INDICATIVE TIMETABLE

Preliminary Economic Assessments are internal Company milestones which provide the basis for management and the Board to make decisions to continue various workstreams and also approve selected works to progress the Fill the Mill strategy.

Following completion of the December 2021 Preliminary Economic Assessment (PEA), and based on works completed to date, the Company has approved the following workstreams:

- studies on dewatering the Black Swan pit with an aim to commence dewatering during 2022;
- identify and fill certain key management roles considered crucial to achieving the Fill the Mill strategy;
- environmental studies on the proposed mine plans including the open pit cut-back and waste dump expansion;

- studies on site based accommodation and commencing the approvals process; and
- planning and approvals for grid power.

Following completion of the current drilling programs within the Silver Swan Channel and the BSD, receipt of assay results, completion of updated mine studies and receipt of indicative offtake terms for the anticipated concentrate specifications, a further internal Preliminary Economic Assessment will be completed (targeting mid-March completion) ahead of the Bankable Feasibility Study (BFS) which is due in June 2022. The March 2022 PEA should provide additional information to allow the Company to approve additional works ahead of the Black Swan restart including:

- engagement with potential mining and processing contractors;
- recruiting further key positions required ahead of commencement of plant refurbishment works;
- ordering long lead items to ensure development and commissioning timelines are minimised;
- commencing pre-works required ahead of plant refurbishment and mining; and
- progressing with all approvals required for restart.

## Resource Base and Mining Inventory

The current drilling programs have identified opportunities to increase the mining inventory to support the Fill the Mill strategy.

The current Black Swan Resources are summarised in Table 1.

**TABLE 1: BLACK SWAN MINERAL RESOURCES SUMMARY**

	Black Swan Open Pit	Silver Swan	Golden Swan	Silver Swan Tailings	Total
Measured Tonnes (kt)	-	-	-	675	675
Measured grade (%Ni)	-	-	-	0.92	0.92
Measured Ni-metal (t)	-	-	-	6,200	6,200
Indicated Tonnes (kt)	9,600	108	111.6	-	9,820
Indicated grade (%Ni)	0.68	9.4	4.7	-	0.82
Indicated Ni-metal (t)	64,900	10,130	5,200	-	80,230
Inferred tonnes (kt)	21,100	61	48.4	-	21,209
Inferred grade (%Ni)	0.54	9.7	2.2	-	0.57
Inferred Ni-metal (t)	113,800	5,900	1,050	-	120,750
<b>Total tonnes (kt)</b>	<b>30,700</b>	<b>169</b>	<b>160</b>	<b>675</b>	<b>31,704</b>
<b>Grade (%Ni)</b>	<b>0.58</b>	<b>9.5</b>	<b>3.9</b>	<b>0.92</b>	<b>0.65</b>
<b>Total Ni-metal (t)</b>	<b>178,700</b>	<b>16,030</b>	<b>6,250</b>	<b>6,200</b>	<b>207,180</b>

## Silver Swan Resource Drilling

Resource drilling within the Silver Swan Channel which commenced in early August 2021 is continuing to identify extensional opportunities to the existing resource and should allow the conversion of some of the current Inferred Resources to the Indicated category.

Recent assay results from Silver Swan returned grades of up to 18% Ni over intersections ranging between 6 to 15 metres (refer ASX announcement dated 20 December 2021), which has potential to grow the JORC Reserve and high-grade mining inventory of the project.

## Black Swan Disseminated Resource Drilling

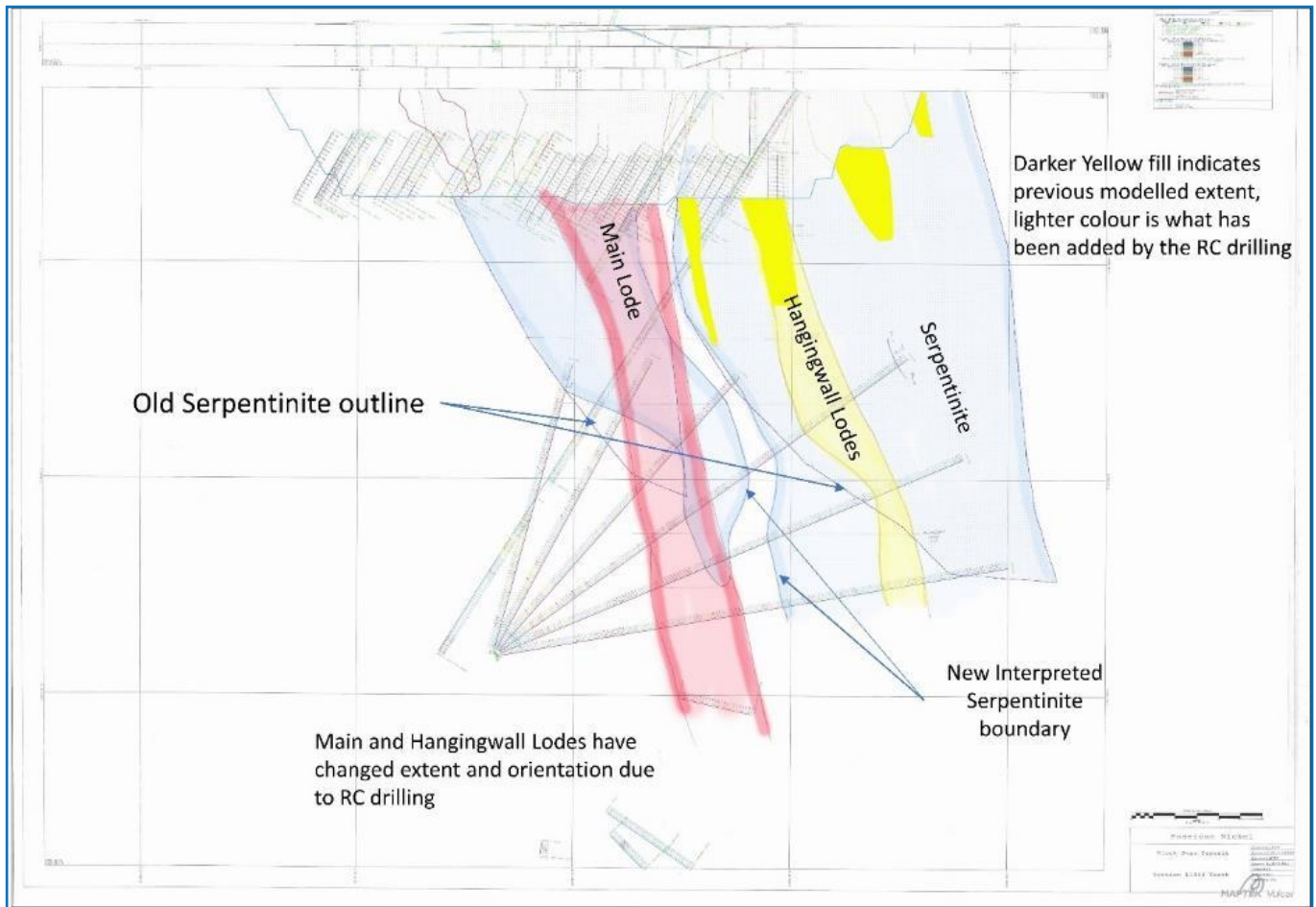
To further de-risk the Black Swan restart it is important to understand the distribution of the more metallurgically favourable serpentinite mineralisation below the existing Black Swan open pit. The current



Serpentinite Model was developed by a previous owner of Black Swan, over 10 years ago, on limited information, and is not well constrained, as shown by the RC drilling program undertaken in 2019 (refer Figure 3).

Ongoing drilling in the BSD resource area has indicated consistent wide intersections of serpentinite in the disseminated zone. Further drilling in this area commenced mid-December with the 15 hole program anticipated to take two months to complete.

Most of the Black Swan disseminated mineralisation beneath the pit is in the Inferred Resource category. While these resources can be used in preliminary pit optimisation designs, they are not able to be converted to an Ore Reserve.

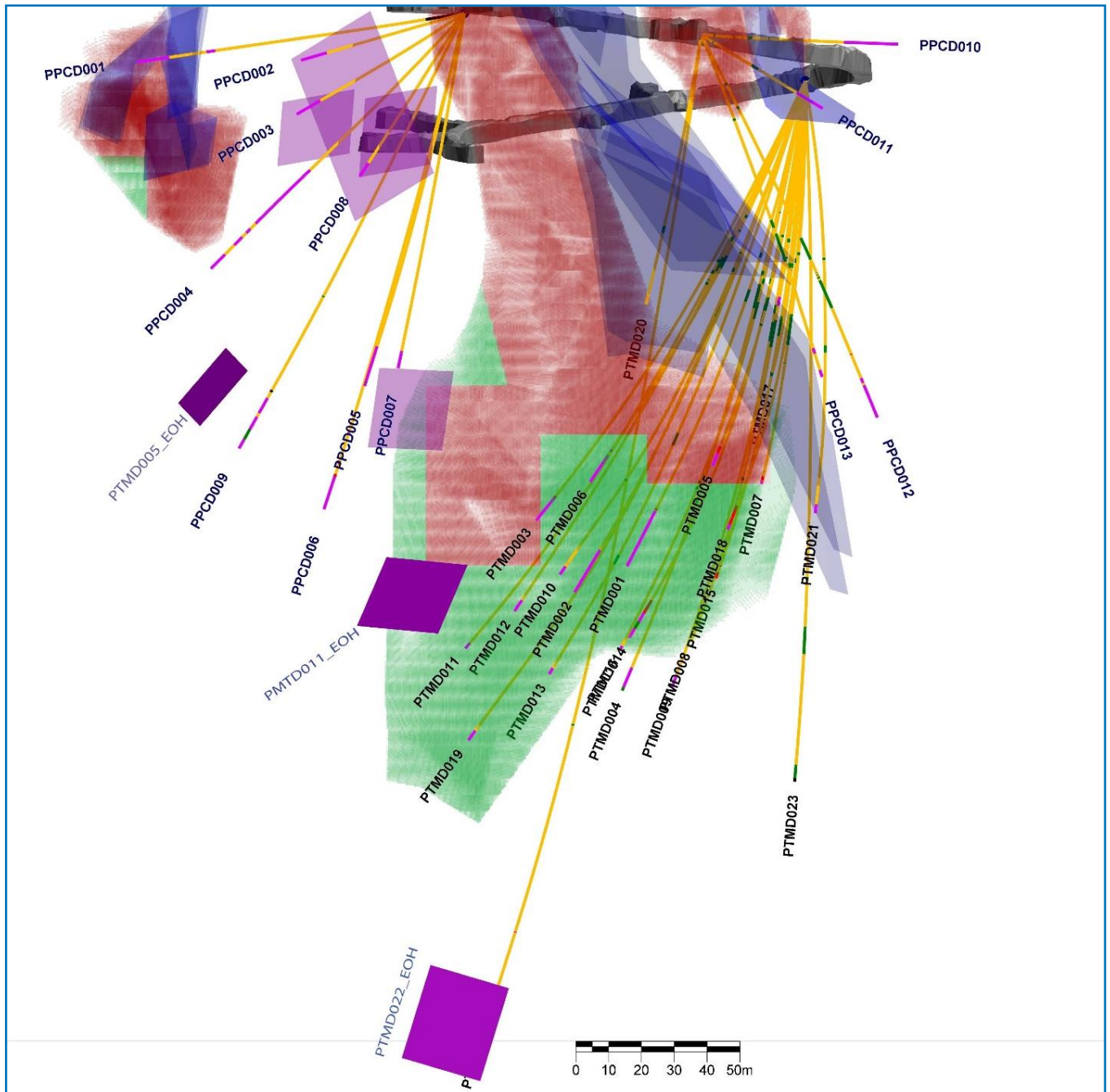


**FIGURE 3: BLACK SWAN DISSEMINATED LONG SECTION HIGHLIGHTING CHANGES TO SERPENTINITE AND MINERALISATION EXTENTS FROM THE 2019 RC DRILLING PROGRAM**

## Further Exploration at Black Swan

The Company recently completed downhole electromagnetic (DHEM) surveys on eight holes at Silver Swan (refer ASX announcement dated 20 December 2021). Interpretation of the results was carried out by Newexco with seven plates returning a conductance of >15,000 Siemens, indicating the presence of strong conductors that in the Silver Swan setting can be interpreted as being indicative of massive sulphides. The location of these plates in relation to the Tundra-Mute Resource are shown in Figure 4.

An additional EM survey will be undertaken when hole PTMD023 is completed to determine targets for the next round of drilling within the Silver Swan Channel.



**FIGURE 4: NEW DHEM PLATES SHOWN IN RELATION TO TUNDRA-MUTE AND PEKING DUCK/FLEDGLING CANARD DRILLING**

As the BFS progresses the Company will continue with exploration programs at Black Swan to test extensional opportunities with the aim of growing both high and low-grade resources.

## Metallurgical Test Work

The metallurgical testwork program for the BFS is well underway.

The testwork program incorporates the blending of several feed sources to determine the average recoveries, optimal blend ratios and anticipated concentrate specifications. The main feed source will be the lower grade disseminated ore from the Black Swan open pit. Small proportions of the high-grade massive sulphides from the Silver Swan and Golden Swan underground Resources will be blended with the disseminated ore and the metallurgical testwork will determine the optimum blend and associated recoveries.

The historical Silver Swan tailings, located only 300 metres from the Black Swan concentrator, will form a small but important proportion of the proposed feed blend (less than 10%). The tailings average about 0.92% nickel with a high iron-sulphide content and low MgO. The high iron, low MgO makes it attractive to include as part of the feed blend, to improve the final concentrate marketability. The Fe:MgO ratio in nickel concentrate is important for many nickel smelters, with penalties (and some cases rejection limits) applied to low Fe:MgO concentrates. The 675,000 tonnes of Measured Resource of Silver Swan Tailings could support at least six years of production blending capability, to ensure the final concentrate quality remains within the required specification with respect to the Fe:MgO ratio.

## Black Swan Accommodation

The current strength of the Western Australian mining industry has resulted in tightening of the accommodation market in Kalgoorlie. To counter this development Company is progressing studies on accommodation at Black Swan to support the required workforce.

There is a potential significant time/cost benefit to Poseidon with 35 rooms already on site and the opportunity to relocate further rooms from Lake Johnston. In addition, any Kalgoorlie based personnel would reduce onsite accommodation requirements.

Management has commenced the process to submit relevant Kalgoorlie Shire and environmental applications for an onsite camp.

## Power Supply

Black Swan is connected to grid power via the West Kalgoorlie and Black Flag power distribution lines. Sourcing grid power presents a cost benefit to the project and reduces the carbon footprint of operations compared to diesel fired power sources.

The Company has engaged with our energy retailer Amanda Energy and Western Power on grid power solutions for Black Swan. Studies will commence in early 2022 on a potential 10MW allocation on the Black Flag line, which combined with existing supply on the West Kalgoorlie line, would be sufficient to support the proposed Black Swan project.

## Marketing and Project Funding

The Company has already undertaken sufficient metallurgical testwork, in conjunction with historical plant production data, to provide preliminary concentrate specifications to a number of potential offtake parties to seek indicative terms to be used for internal Preliminary Economic Assessment of the project.

The Company continues to engage with parties who have expressed interest in concentrate offtake and/or funding arrangements to support the Black Swan restart. These discussions are expected to progress further once the Company has defined the mining inventory and finalised the concentrate specifications and the production schedule.

*This announcement was authorised for lodgement by the Board of Poseidon Nickel Limited.*



**Peter Harold**  
**Managing Director & CEO**

**21 December 2021**

## About Poseidon Nickel Limited

Poseidon Nickel Limited (**ASX Code: POS**) is a nickel sulphide exploration and development company with three projects located within a radius of 300km from Kalgoorlie in the Goldfields region of Western Australia and a resource base of around 400,000 tonnes of nickel and 180,000 ounces of gold.

Poseidon's strategy is focused on the exploration and eventual restart of its established nickel operations in Western Australia where project risk capital and operating costs are low. A critical element of this strategy has been to acquire projects and operations with high levels of geological prospectivity likely to lead to resource increases through the application of modern exploration techniques.

Poseidon owns the Windarra, Black Swan and the Lake Johnston Nickel Projects. In addition to the mines and infrastructure including concentrators at Black Swan and Lake Johnston, these projects have significant exploration opportunities demonstrated by the discovery of the Abi Rose deposit at Lake Johnston and the recent discovery of the Golden Swan mineralisation at Black Swan. The Company has recently completed a Definitive Feasibility Study on retreating the gold tailings at Windarra and Lancefield given the strength of the A\$ gold price.

### COMPETENT PERSON STATEMENTS:

"The information contained within this announcement is extracted from the reports titled:

- "Poseidon Announces Black Swan Mineral Resource" released 4 August 2014
- "Silver Swan Resource Upgrade" released 5 August 2019
- "50% Increase in Indicated Resources at Lake Johnston" released 17 March 2015
- "Poseidon Announces Revised Mt Windarra Resource" released 7 November 2011
- "Resource Increase of 25% at Windarra Nickel Project" released 1 December 2011
- "Silver Swan Resource Upgrade" released 5 August 2019
- "Silver Swan Tailings – Maiden Resource Estimate" released 15 September 2021
- "Golden Swan Maiden Resource" released 27 October 2021

which are available to view on [www.poseidon-nickel.com.au](http://www.poseidon-nickel.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original announcement and, in the case of Minerals Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not materially modified from the original market announcement."

The Australian Securities Exchange has not reviewed and does not accept responsibility for the accuracy or adequacy of this release.

### FORWARD LOOKING STATEMENTS:

This release contains certain forward looking statements including nickel production targets. Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as "may", "will", "except", "intend", "plan", "estimate", "anticipate", "continue", and "guidance", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production and expected costs. Indications of, and guidance on future earnings, cash flows, costs, financial position and performance are also forward looking statements.

Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change, without notice, as are statements about market and industry trends, which are based on interpretation of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance.

Forward looking statements may be affected by a range of variables that could cause actual results or trends to differ materially. These variations, if materially adverse, may affect the timing or the feasibility and potential development of the Golden Swan underground mine.



## Appendix 1 - Mineral Resource Statement

**TABLE 1: NICKEL PROJECTS MINERAL RESOURCES STATEMENT**

Nickel Sulphide Resources	JORC Compliance	Cut Off Grade	MINERAL RESOURCE CATEGORY												
			INDICATED			INFERRED			TOTAL						
			Tonnes (Kt)	Ni% Grade	Ni Metal (t)	Tonnes (Kt)	Ni% Grade	Ni Metal (t)	Tonnes (Kt)	Ni% Grade	Ni Metal (t)	Co% Grade	Co Metal (t)	Cu% Grade	Cu Metal (t)
<b>BLACK SWAN PROJECT</b>															
Black Swan	2012	0.40%	9,600	0.68	65,000	21,100	0.54	114,000	30,700	0.58	179,000	0.01	4,200	NA	-
Silver Swan	2012	4.50%	108	9.4	10,130	61	9.7	5,900	168	9.5	16,030	NA		NA	
<b>LAKE JOHNSTON PROJECT</b>															
Maggie Hays	2012	0.80%	2,600	1.6	41,900	900	1.17	10,100	3,500	1.49	52,000	0.05	1,800	0.1	3,400
<b>WINDARRA PROJECT</b>															
Mt Windarra	2012	0.90%	922	1.56	14,000	3,436	1.66	57,500	4,358	1.64	71,500	0.03	1,200	0.13	5,700
South Windarra	2004	0.80%	772	0.98	8,000	-	-	-	772	0.98	8,000	NA	-	NA	-
Cerberus	2004	0.75%	2,773	1.25	35,000	1,778	1.91	34,000	4,551	1.51	69,000	NA	-	0.08	3,600
<b>TOTAL</b>															
Total Ni, Co, Cu Resources	2004 & 2012		16,775	1.04	174,030	27,275	0.81	221,500	44,049	0.9	395,530	0.01	7,200	0.05	12,700

Note: totals may not sum exactly due to rounding. NA = Information Not Available from reported resource model. The Indicated Mineral Resources are inclusive of those Mineral Resources modelled to produce the Ore Reserves

- **Black Swan Resource** as at 22 July 2014 (see ASX announcement "Poseidon Announces Black Swan Mineral Resource" released 4 August 2014)
- **Silver Swan Resource** as at 5 August 2019 (see ASX announcement "Silver Swan Resource Upgrade" released 5 August 2019)
- **Maggie Hays Resource** as at 17 March 2015 (see ASC announcement "50% Increase in Indicated Resources at Lake Johnston" released 17 March 2015)
- **Mt Windarra Resource** as at 7 November 2014 (see ASX announcement "Poseidon Announces Revised Mt Windarra Resource" released 7 November 2014)
- **South Windarra and Cerberus Resource** as at 30 April 2013 (see ASX announcement "Resource Increase of 25% at Windarra Nickel Project" released 1 December 2011)

The Company is not aware of any new information or data that materially affects the information in the relevant market announcements. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

**TABLE 2: SILVER SWAN MINERAL RESOURCE ESTIMATE**

Area	Silver Swan Resource - August 2019											
	Indicated				Inferred				Total			
	kt	Ni %	As ppm	Ni metal (t)	kt	Ni %	As ppm	Ni metal (t)	kt	Ni %	As ppm	Ni metal (t)
Tundra-Mute	68	9.2	3,200	6,260	59	9.8	3,290	5,800	127	9.5	3,240	12,060
Peking Duck	26	9.7	2,520	2,560	1.2	8.8	4,330	100	27	9.7	2,590	2,660
Fledgling-Canard	12	9.9	2,100	1,160	0				12	9.9	2,100	1,160
Goose	1.7	9	3,180	150	0				1.7	9	3,180	150
Total resource	108	9.4	2,910	10,130	61	9.7	3,310	5,900	168	9.5	3,060	16,030

**Silver Swan Resource** as at 5 August 2019 (see ASX announcement "Silver Swan Resource Upgrade" released 5 August 2019)

The Company is not aware of any new information or data that materially affects the information in the relevant market announcements. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

**TABLE 3: SILVER SWAN TAILINGS RESOURCE – SEPTEMBER 2021**

Zone	Silver Swan Tailings Resource - September 2021									
	Measured									
	Tonnes	Ni%	Ni t	Cu%	Co ppm	Fe%	MgO%	As%	S%	Density
1	280600	0.75	2118	0.02	283	16.7	8.81	0.04	7.56	2.84
2	394365	1.04	4082	0.06	967	26.1	4.71	0.17	13.56	3.09
<b>Total</b>	<b>674964</b>	<b>0.92</b>	<b>6201</b>	<b>0.04</b>	<b>683</b>	<b>22.2</b>	<b>6.42</b>	<b>0.11</b>	<b>11.06</b>	<b>2.98</b>

Silver Swan Tailings Resource as at 15 September 2021 (see ASX announcement “Silver Swan Tailings – Maiden Resource Estimate” released 15 September 2021).

The Company is not aware of any new information or data that materially affects the information in the relevant market announcements. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

**TABLE 4: GOLDEN SWAN 2021 MINERAL RESOURCE AT A 1.0% NICKEL CUT-OFF**

Type	Golden Swan Resource - October 2021											
	Indicated				Inferred				Total			
	kt	Ni %	As ppm	Ni metal (t)	kt	Ni %	As ppm	Ni metal (t)	kt	Ni %	As ppm	Ni metal (t)
Contact	111.6	4.7	390	5,200	8.8	4.7	500	410	120.4	4.7	390	5,610
Hanging Wall	-	-	-	-	39600	1.6	140	640	39.6	1.6	140	640
<b>Total</b>	<b>111.6</b>	<b>4.7</b>	<b>390</b>	<b>5,200</b>	<b>48.4</b>	<b>2.2</b>	<b>208</b>	<b>1050</b>	<b>160</b>	<b>3.9</b>	<b>332</b>	<b>6,250</b>

Note: totals may not sum due to rounding

Golden Swan Resources as at 27 October 2021 (see ASX announcement “Golden Swan Maiden Resource” released 27 October 2021).

The Company is not aware of any new information or data that materially affects the information in the relevant market announcements. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.