



Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6635/2021/1
Applicant	Australian Nickel Investments Pty Ltd
ACN	111 599 323
File number	DER2021/000643
Premises	Cosmos Nickel Operations – Paste Plant Goldfields Highway SIR SAMUEL WA 6437 Legal description: Mining tenement M36/371 and part mining tenements M36/127 and M36/180 as defined by the premises map attached to the issued works approval.
Date of report	18 February 2022
Decision	Works approval granted

**A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6635/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary and overview of premises

On 11 November 2021, Australian Nickel Investments Pty Ltd (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works and time limited operation of a paste plant at the Cosmos Nickel Operations (the premises) in the Goldfields region of Western Australia. The premises is approximately 32 km northeast of the town of Leinster.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6635/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6635/2021/1.

The proposed paste plant will be used to produce paste to fill empty voids within the underground mine to increase stability. The paste plant is expected to utilise either wet tailings from the Cosmos Nickel processing plant or dry tailings from the existing tailings storage facility (TSF1). The operation of the paste plant will divert tailings for re-use underground which will increase available tailings storage facility capacity. The paste plant will predominantly utilise wet tailings however is expected to utilise dry tailings during the first several months of operation (i.e. until the Cosmos processing plant is operational) and during process plant shutdowns.

The proposed plant is sized for a maximum production rate of 120 m³/hr and allows for increased mixing intensity when using wet tailings from the Cosmos processing plant. The plant sizing is based on being able to produce paste fill required to meet mining demands (415,000m³ paste produced per annual period).

A general layout of the proposed paste plant is shown in Figure 1.

Dry tailings will be reclaimed from the existing TSF1 via a front-end loader and transported via truck to the paste plant approximately 3.5km away. The tailings beach will be developed to form a slight sloping plateau towards the decant pond area. This will permit rainfall runoff and future tailings to be managed in accordance with the Tailings Operating Manual and Procedures. The reclaim of tailings will be undertaken in a manner that maintains the integrity of the outer 30-40m of TSF1.

The reclaimed dry tailings will be stockpiled in a designated area adjacent to the paste plant. A maximum of 30,000 tonnes will be stockpiled at any one time. The base of the tailings stockpile area will be enclosed with a perimeter bund to prevent run-off from leaving the area. The dry tailings will then be feed into the dry tailings feed hopper by a front-end loader.

Wet tailings will be delivered via pipeline from the processing plant to the paste plant with return water sent back to the processing plant. The intended route of the pipelines delivery system is depicted as Figure 2. Two options (A and B) for the intended route are being considered by the applicant and has yet to be decided.

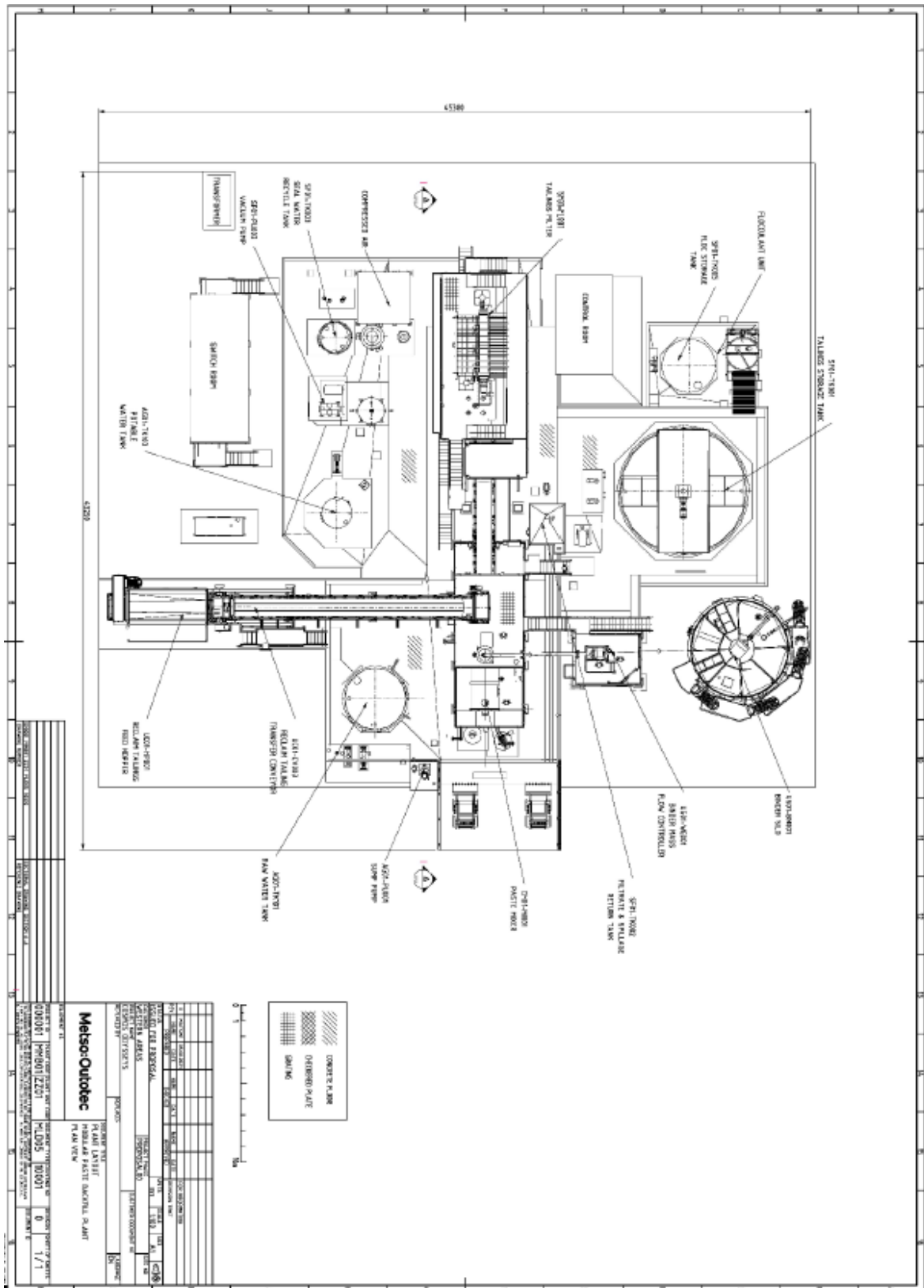


Figure 1: Layout of proposed paste plant.

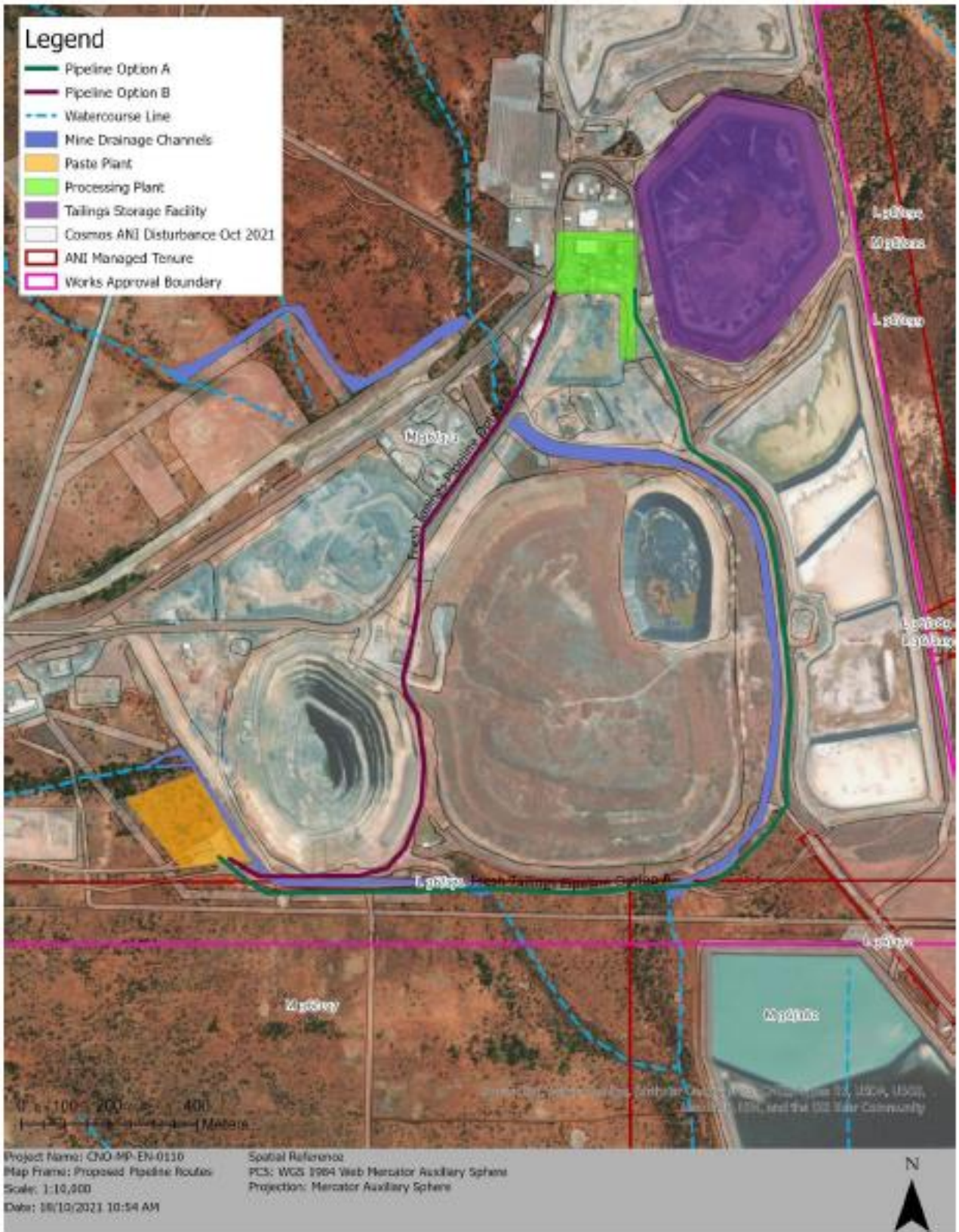


Figure 2: Proposed pipeline routes (option A and option B).

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of paste plant infrastructure Vehicle movements	Air / windborne pathway	<ul style="list-style-type: none"> ▪ Dust suppression will be achieved using water carts along roads and on hardstand areas. ▪ Enforce speed limits along roads to reduce dust emissions.
Noise	Construction of paste plant infrastructure	Air / windborne pathway	No controls proposed.
Commissioning / Operation			
Dust	Reclamation of tailings from TSF1 for paste production Storage and handling of dry tailings at the paste plant tailings storage facility Handling and storage of binder (concrete) at the paste plant Handling and storage of dry flocculant at the paste plant	Air / windborne pathway	<ul style="list-style-type: none"> ▪ Dust suppression will be achieved using water carts along roads and on hardstand areas. ▪ Fibrous particles has been noted through laboratory examination (Golder Associates, 2017) within the tailings. Potentially fibrous materials will be managed in accordance with the <i>Fibrous Minerals Management Plan (CNO-WHS-PLN-3420)</i> ▪ Sprayers and sprinklers (from water carts) will be used during handling and storage of dry tailings. ▪ Limiting bucket height and load size in windy conditions during dry tailings loading into hopper. ▪ Concrete binder will be delivered and stored within a silo with an enclosed

Emission	Sources	Potential pathways	Proposed controls
			<p>discharge system (under pressure).</p> <ul style="list-style-type: none"> Flocculant will be stored and weighed within a container shed.
Noise	<p>Operation of paste plant</p> <p>Movement of machinery /vehicles</p>	Air / windborne pathway	No controls proposed.
Spills and leaks (hydrocarbons/ reagents from paste plant infrastructure	<p>Storage and handling of paste plant reagents</p> <p>Paste plant infrastructure</p>	Direct discharge / overland runoff	<ul style="list-style-type: none"> Paste plant chemicals and hydrocarbons will be stored and handled in accordance with Australian Standard 1940-2004. All components of reagent mixing and handling facilities will be housed within bunded concrete containment slabs serviced by sump pumps. The bunds will be continuously cleared by the sump pumps and any spillage will be pumped back into the process circuit or to the existing TSF. Utilisation of spill pallets and other containment facilities during maintenance works. Strategic positioning of spill kits where the potential of spills is likely to occur.
Spills and leaks of tailings from pipelines	Transport of wet tailings to the paste plant from the processing plant via pipelines	Direct discharge to land / overland runoff	<ul style="list-style-type: none"> Pipelines will incorporate leak detection technology Pipelines will be placed within a containment trench or suitably bunded easement capable of containing any spill with appropriately designed catch pits or sumps Pipelines will be inspected daily for integrity during operations Where pipelines cross creeks or drains, reinforcement (steel casing) will be used and the pipeline raised above predicated flood levels for a 1 in 100-year event.
Sediment laden / contaminated stormwater	Flooding of paste plant and dry tailings storage area from significant rainfall events.	Direct discharge / overland runoff	<ul style="list-style-type: none"> The base of the dry tailings storage area will be enclosed with a perimeter bund to prevent run-off from leaving the area. Surface water infrastructure will be constructed where required to control and direct surface water flows to direct surface water away from work areas. This may include bunding, culverts, drainage lines or collection sumps. Work areas will be graded as required to ensure any contaminated stormwater or runoff is directed away from work activity

Emission	Sources	Potential pathways	Proposed controls
			<p>areas and directed to a designated collection area and reused or treated accordingly if disposed.</p> <ul style="list-style-type: none"> The proposed surface water management infrastructure will be designed to 1 in 100-year rainfall events.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from activity / prescribed premises
Yakabindie Pastoral Station (Homestead)	Approximately 4.5km northwest of the proposed infrastructure.
Town of Leinster	32 km southeast of the Premises. Not considered a receptor.
Environmental receptors	Distance from activity / prescribed premises
Threatened and Priority Ecological Communities	<p>500m buffer for a Priority 1 Ecological Community - Violet Range (Perseverance Greenstone Belt) vegetation complexes (banded ironstone formation) is overlapping premises boundary.</p> <p>Edge of buffer 800km west of paste plant area.</p>
Surface water	<p>Minor watercourse (freshwater creek) is located approximately 1.6km east of the paste plant area. Watercourse feeds into Lake Miranda (5km south of the premises)</p> <p>Another minor drainage line is located 750m south east of the processing plant area. This also feeds into Lake Miranda.</p>
Threatened and/or priority flora	<i>Grevillea inconspicuous</i> (priority flora) located approximately 2.1km south west of the paste plant area.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6635/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the paste plant activity. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk Event					Risk rating C = consequence L = likelihood	Applicant controls sufficient?	Conditions of works approval	Justification for additional regulatory controls
Source/Activities	Potential emissions	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Construction of new Category 5 infrastructure	Dust	Air/windborne pathway causing impacts to vegetation health	Native vegetation	See section 3.1.1	C = Slight L = Rare Low risk	Y	N/A	No additional regulatory controls required.
	Noise	Air/windborne pathway causing impacts to health and amenity	Pastoral station homestead 4.5km northwest of processing plant	None proposed.	C = Slight L = Unlikely Low risk	N/A	N/A	
Operation (including commissioning and time limited operations)								
Reclaiming of dry tailings from TSF1.	Dust	Air/windborne pathway causing impacts to vegetation health	Native vegetation Minor watercourse 300m east of TSF1	See section 3.1.1	C = Minor L = Unlikely Medium risk	Y	Condition 10 – time limited operation requirements	The applicant's proposed controls have been conditioned within the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).

	Tailings spills during loading and transport	Direct discharge to land	Soils Native vegetation	See section 3.1.1	C = Minor L = Unlikely Medium risk	Y	Condition 10 – time limited operation requirements	The applicant's proposed controls have been conditioned within the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).
Commissioning and operation of the paste fill plant (including storage and handling of dry reclaimed tailings)	Dust from handling of dry tailings at paste plant	Air/windborne pathway causing impacts to health and amenity	Native vegetation	See section 3.1.1	C = Minor L = Unlikely Medium risk	Y	Condition 5 – commissioning requirements Condition 10 – time limited operation requirements	The applicant's proposed controls have been conditioned within the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).
	Noise	Air/windborne pathway causing impacts to health and amenity	Pastoral station homestead 4.5km northwest of processing plant	None proposed	C = Slight L = Unlikely Low risk	N/A	N/A	No additional regulatory controls required. The provisions of the <i>Environmental Protection (Noise) Regulations 1997</i> are also applicable
	Spills and leaks (hydrocarbons/reagents) from paste plant infrastructure.	Direct discharge to land	Surrounding soil	See section 3.1.1	C = Slight L = Unlikely Low risk	Y	Condition 1 - infrastructure design requirements	The applicant's proposed controls have been conditioned within the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).
	Spills and leaks of tailings and hypersaline return water	Direct discharge to land	Surrounding soil Native vegetation	See section 3.1.1	C = Moderate L = Unlikely Medium risk	Y	Condition 1 – infrastructure design requirements	The applicant's proposed controls have been conditioned within

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	from pipelines.						Condition 5 – commissioning requirements Condition 10 – time limited operation requirements	the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).
	Sediment laden / contaminated stormwater from within work areas	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Minor watercourse is located approximately 700m east of plant area.	See section 3.1.1	C = Moderate L = Unlikely Medium risk	Y	Condition 1 – infrastructure design requirements Condition 5 – commissioning requirements Condition 10 – time limited operation requirements	The applicant's proposed controls have been conditioned within the works approval in accordance with <i>Guideline: Risk Assessments</i> (DWER 2020).

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 7/01/2022	No comments received	N/A
Local Government Authority advised of proposal on 7/01/2022	No comments received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 7/01/2022	Response received 18/1/2021. "DMIRS has reviewed the application from Australian Nickel Investments Pty Ltd for a Works Approval W6635/2021/1 under Division 3 Part V of the Environmental Protection Act 1986 (EP Act) at Cosmos Nickel Operation, mining tenements M36/371, M36/127 and M36/180. The proposed construction of a Paste Fill Plant appears consistent with approvals granted by DMIRS under the <i>Mining Act 1978</i> via mining proposal registration ID 92690. Given this, DMIRS has no concerns regarding this application"	Noted.
Applicant was provided with draft works approval and assessment documents on 28/01/2022	Applicant responded on 14/02/2022 advising no comments / changes to be made on drafts and waiving rest of 21 day consultation period.	N/A

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	11 November 2021			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Australian Nickel Investments Pty Ltd			
Premises name	Cosmos Nickel Operation			
Premises location	Mining lease M36/371, M36/127 and M36/180			
Local Government Authority	Shire of Leonora			
Application documents				
HPCM file reference number:	DER2018/001042-6			
Key application documents (additional to application form):	Supporting document Application form			
Scope of application/assessment				

<p>Summary of proposed activities or changes to existing operations.</p>	<p><u>Works approval</u></p> <p>This application is for the Cosmos paste plant which will utilise dry and wet tailings for paste production. The paste produced will be utilised to fill stopes (empty voids) underground to increase stability. Dry tailings will be sourced from TSF1 and wet tailings will be sourced via a pipeline from the Cosmos processing plant. The operation of the paste plant will divert tailings for re-use underground which will increase available tailings storage facility capacity. The paste plant will predominantly utilise wet tailings however is expected to utilise dry tailings during the first several months of operation (i.e. until the Cosmos processing plant is operational) and during process plant shutdowns.</p>
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Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5	1.1 Million tonnes (max design capacity) 415,000 tonnes expected production rate.	<i>Is there a proposed change to the previously assessed production or design capacity?</i>

Legislative context and other approvals

<p>Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/></p>
<p>Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Ministerial statement No: EPA Report No:</p>
<p>Has the proposal been referred and/or assessed under the EPBC Act?</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<p>Reference No:</p>
<p>Has the applicant demonstrated occupancy (proof of occupier status)?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: Expiry:03/03/2041 Other evidence <input type="checkbox"/> Expiry:</p>

Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why? Not required
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: 7914/2
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: Several Groundwater Licenses and agreements are held to allow for abstraction of water under the Rights in RIWI Act and include: <ul style="list-style-type: none"> ▪ GWL 110790(7) allowing 3 Gigalitres (GL) per year for the purposes of dust suppression, dewatering and mineral ore processing; ▪ GWL 63896(10) allowing 1.5 GL per year for the purposes of mineral exploration activities; and ▪ AGR 201905(1) allowing 1.5 GL per year for potable water production
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Goldfields Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>

<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Mining Act 1976 – mining proposal REG ID 92690</i> <i>Dangerous Goods Safety Act 2004</i></p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Classification: possibly contaminated – investigation required (PC-IR) Date of classification: 20/07/2011</p>