



Decision Report

Application for Works Approval

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

Works Approval Number W2843/2025/1

Applicant Phosphate Resources Ltd

ACN 009 396 543

File number APP-0026860

Premises Christmas Island Phosphates
Christmas Island
INDIAN OCEAN TERRITORIES WA 6798

Legal description
Mining Tenement MCI 70/1A
As defined by the premises map attached to the issued works approval

Date of report 6 June 2025

Decision Works approval granted

Grace Heydon

MANAGER WASTE INDUSTRIES

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 W2843/2025/1 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 13 December 2024, 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 for the construction of a Class I Inert Landfill within Unallocated Crown Land and Mining Tenement MCI 70/1A on Christmas Island (the premises). The landfill is required as Phosphate Resources Ltd (PRL; the works approval holder) does not have any other feasible options for the disposal of scrap metal and conveyors from their mining operations. The proposal would also divert tyres from being landfilled at the Shire of Christmas Island's landfill facility.

The proposed landfill site is situated in a depression formed by the previous mining activities in a pinnacle field (Figure 1). Historically, tailings were deposited in the depression forming a clay like base. A one-metre-thick capping layer consisting of suitable rocks, soil or overburden is proposed as a final cover at the end of the landfill's life. It is expected that the landfill will be closed once it has reached its 71,000 m³ capacity after approximately 10 years. Figure 2 provides a conceptual landfill design, including final capping. Upon closure, the land will be transferred back to the Commonwealth Government, following a safety assessment by the Department of Energy, Mines, Industry Regulation and Safety (PRL, 2024). Final capping, post-closure and rehabilitation will be assessed at the licence application stage and regulated through the licence for the continued operation of the landfill.

The construction activities proposed to be undertaken on the premises will include the following:

- the clearing of vegetation to re-establish the access track to the landfill facility. A Clearing Permit for the clearing of native vegetation has been obtained for this purpose (CPS 3290/3 – Block 100-MCP-SP-SOUTH-MB1);
- reinstating the ramp to be utilised for the placement of waste into the landfill;
- grading the base of the landfill to create a safe surface for tipping; and
- the installation of fencing, including a lockable gate as a single entry point to the facility.

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 W2843/2025/1. 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 W2843/2025/1.



Figure 1: Mine field depression/proposed landfill area (PRL, 2024)

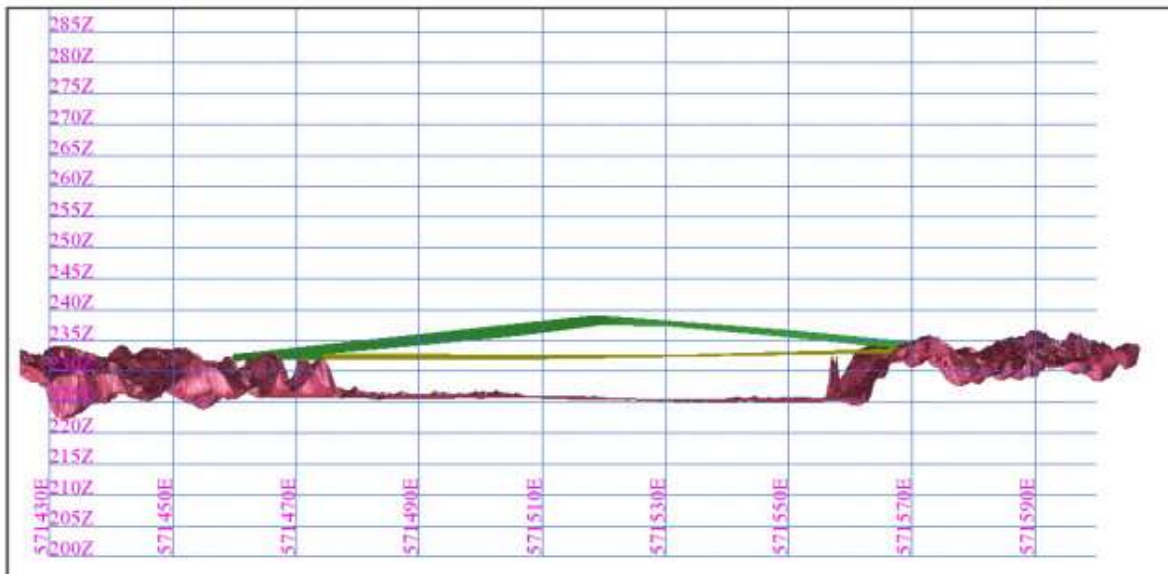


Figure 2: Conceptual landfill design with proposed closure capping shown in green (PRL, 2024)

2.2.1 Proposed operational activities

The applicant has advised that the landfill will only be used for the disposal of wastes compliant with the requirements of Class I for a Category 63 Landfill in accordance with the department's Landfill Waste Classification and Waste Definitions 1996 (as amended 2019), namely:

1. Scrap metal; and
2. Inert Waste Type 2 (tyres and conveyors)

Scrap metal and tyre/conveyor wastes will be segregated from each other in the landfill. Tyres are proposed to be landfilled in batches of no more than 1,000 and batches will be separated by a minimum of 100 mm of soil in accordance with Part 6 of the EP Regulations.

Waste is proposed to be consolidated and pushed further to the back of the disposal zone once sufficient quantities have been landfilled (approximately 5,000 cubic metres). Overburden which has been found suitable as cover material is proposed to be used to cover the waste at a 200 mm thickness. The licence holder proposes to cover and compact the waste every 6 months or for every 5,000 cubic metres of waste deposited, whichever is sooner.

2.3 Local Climate

Christmas Island is described as having a tropical monsoonal climate. The wet and dry seasons are distinct, with the dry season occurring from May to November with low sporadic rainfall and south-east trade winds. The wet season is from December to April and most of the island's rainfall occurs in this period. During the wet season, the island experiences the effects of north-west monsoons, often bringing high swells and strong winds, with gusts exceeding 100 km/hour.

The island has warm to hot temperatures and high humidity (80-90%) all year round, with little temperature variation in seasons (PRL, 2024). The average annual rainfall recorded since 1973 is 2,205.8 mm (Bureau of Meteorology, 2025). However, rainfall measurements can vary significantly from year to year and also across different parts of the island (PRL, 2024). Between July and October, daily evaporation rates generally exceed rainfall.

Climate averages for each month, sourced from Bureau of Meteorology in 2023 and Falkland (1999) are shown in Figure 3 (PRL, 2023).

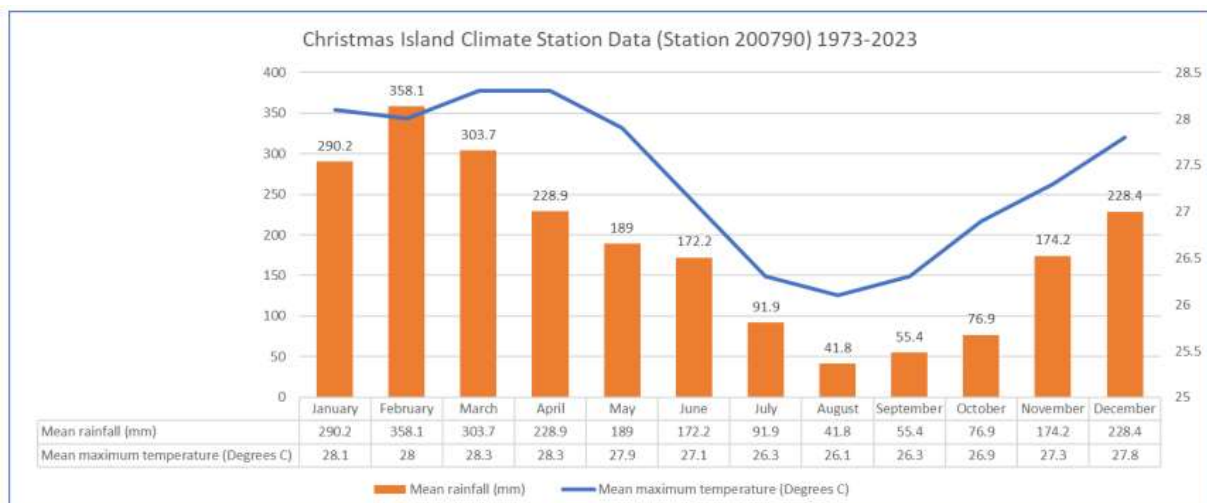


Figure 3: Climate Averages at Airport Station 200790 - Figure from PRL (2024)

Occasionally, Christmas Island experiences impacts from cyclones due to its location within the Equatorial Region (PRL, 2024).

2.4 Geology and Hydrogeology

Christmas Island is a seamount which rises more than 4,200 m above the sea floor, and up to 361 m above sea level. There are volcanic rocks at the island's core. These are comprised mainly of basalt covered by a limestone layer. The limestone is overlain by quaternary phosphatic soils (Barrie, 1967; PRL 2024). A geological map of Christmas Island provided by PRL is shown in Figure 4. The map was created by J.Barrie and digitised by Geoscience Australia (CIGIS July 2014). Figure 5 shows a typical stratigraphic column for the island.

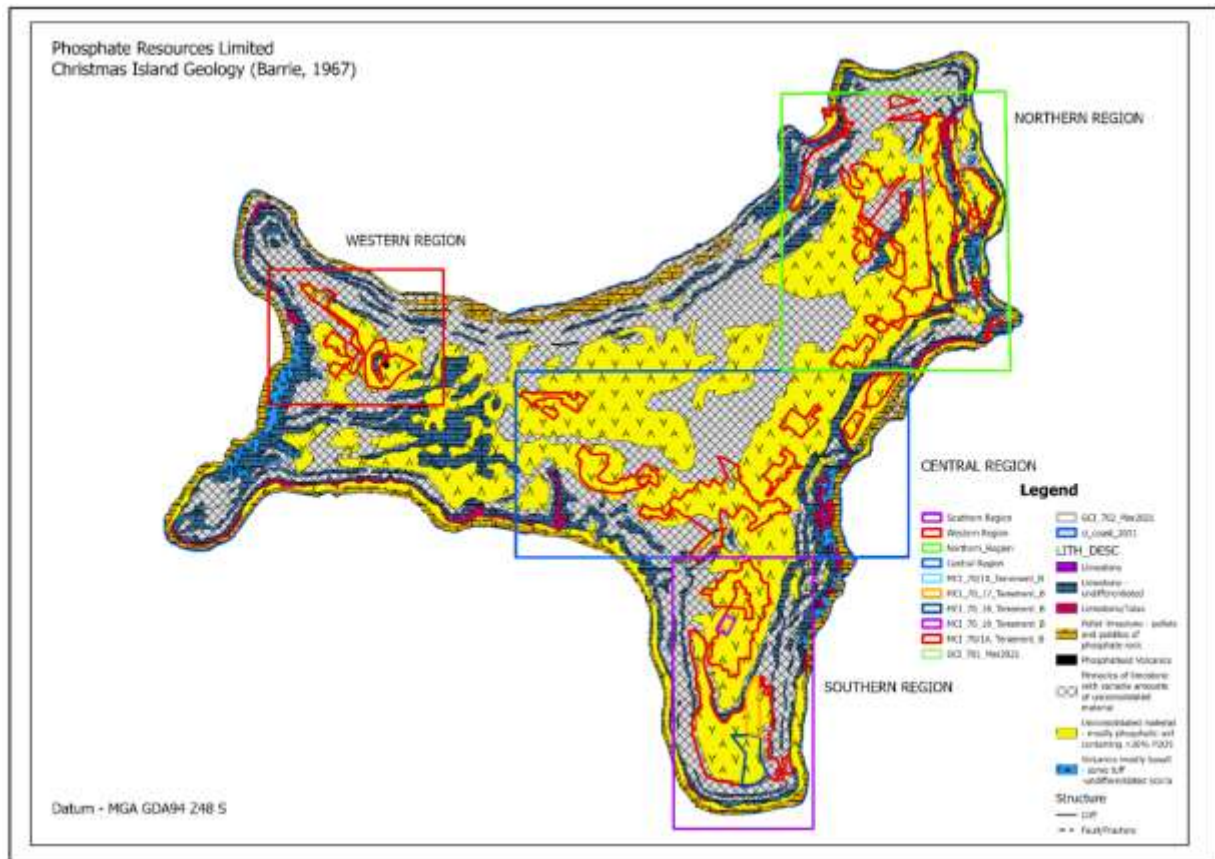


Figure 4: Geology of Christmas Island – Figure from PRL (2024)

The island has three key hydrogeological units: shallow residual soils that overlay fractured unconfined to semi-confined aquifers within karstic limestone, and underlying volcanic basement rocks of low permeability.

As the surface soils and underlying limestone is highly permeable, this restricts permanent surface water forming and surface water is limited to a few springs on the island, such as 'The Dales' (located approximately 11,800 m north-west of the proposed landfill) and 'Hosnie Springs' (located approximately 9,200 m north north-east of the proposed landfill). However, there are some intermittent surface water systems which occur following heavy rains in the wet season.

The springs are supplied with water from recharge areas on the plateau (Puhlovich et al. 2003), with about half the rainfall infiltrating the soil zone to recharge the aquifers. Additionally, recharge occurs through dissolution features such as dolines and sinkholes (Puhlovich et al. 2003). Here the water flows along the interface of limestone and the underlying volcanic rock to the springs or down fractures in the volcanic rock to the perched and basal aquifers. Groundwater depth on the island varies between 50-100 meters (PRL, 2024).

The perched aquifer is the main water supply for the island and is located approximately 6 km north of the proposed landfill (see figure 6).

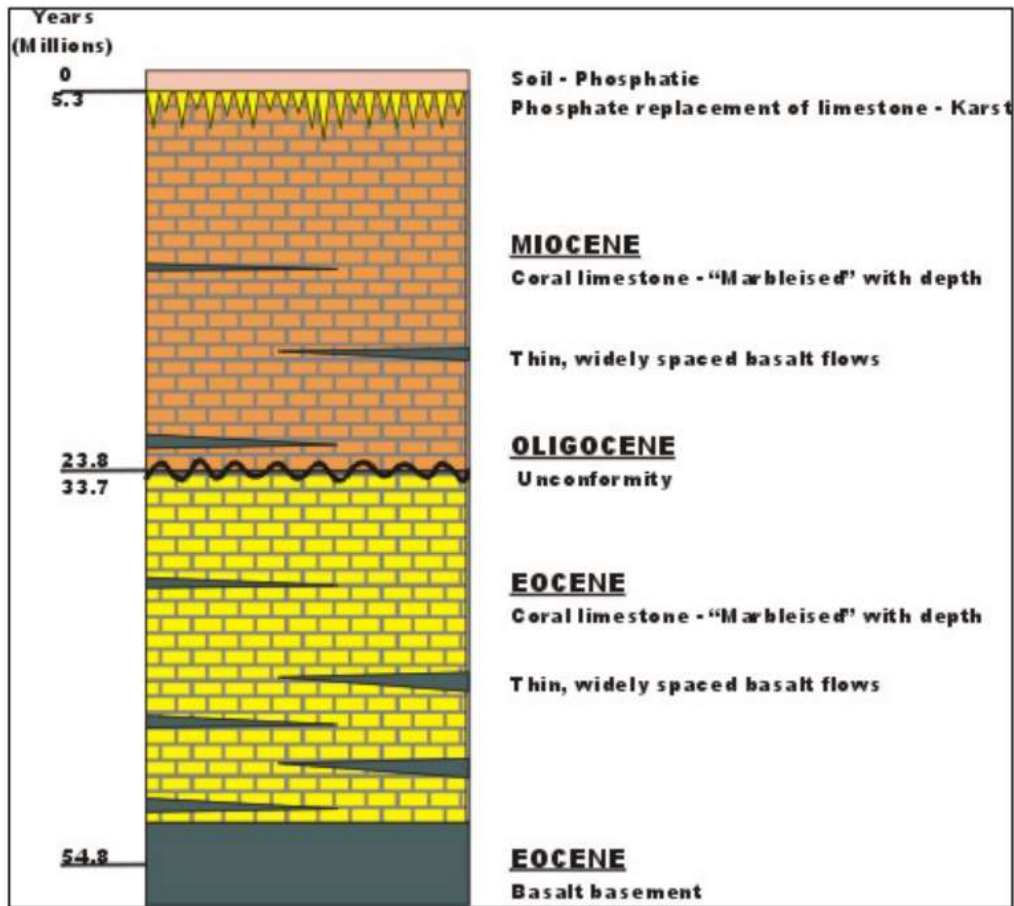


Figure 5: Christmas Island stratigraphic column (PRL, 2024)

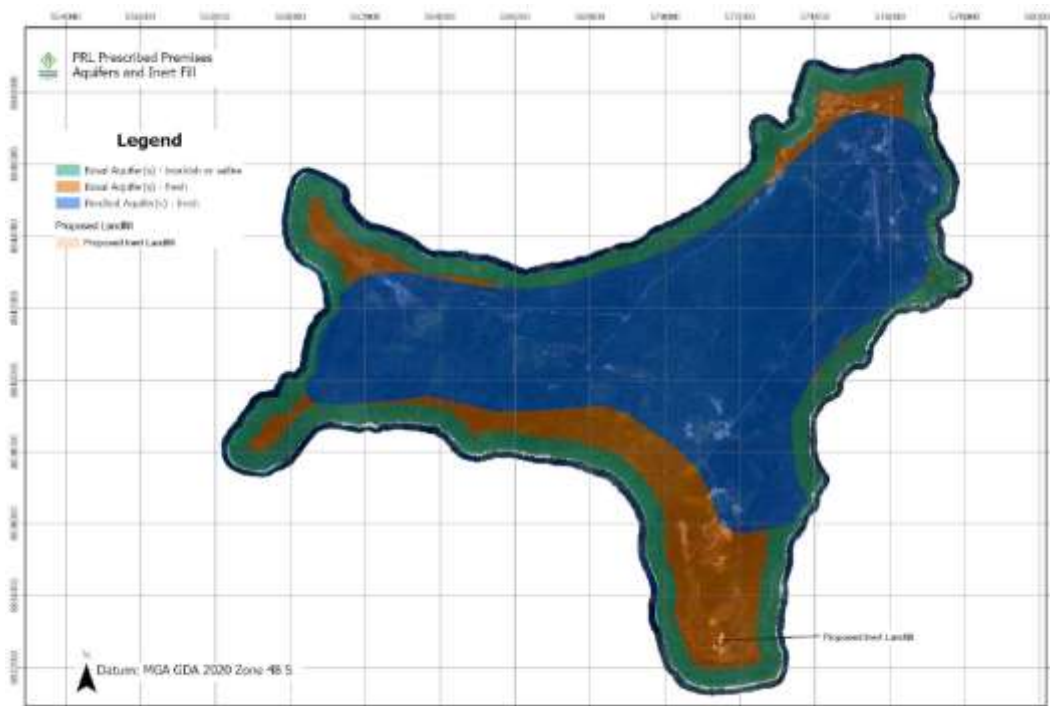


Figure 6: Location of local aquifers (PRL, 2024)

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	Vehicle movements and earthwork activities	Air / windborne pathway	- Traffic Management Plan will be in place - A Water Cart will be used as required to mitigate dust emissions.
Noise			Noise impacts are not expected due to the distance of the facility from human receptors.
Operation			
Dust	Vehicle movements, tipping of waste and lift-off from landfill	Air / windborne pathway	- Traffic Management Plan - Monthly Inspections - Water Cart (as required) - Overburden deemed suitable as cover will be used to cover waste in a campaign manner.
Noise	Receival of waste materials and burial of scrap metal and tyres/conveyors Vehicle movements		Noise impacts are expected to be negligible sue to limited operating hours (daytime only) and distance from residential areas.
Odour	Receival of waste materials and burial of scrap metal and tyres/conveyors Vehicle movements	Air / windborne pathway	- No odour predicted from inert waste types. - Monthly Inspections will be undertaken. - Waste will be covered in a campaign manner as required.

Emission	Sources	Potential pathways	Proposed controls
Leachate containing heavy metals and organic compounds	Landfilling of tyres and scrap metals	Seepage to soil and groundwater	- No leachate predicted from the inert waste types received at the landfill. - Groundwater is estimated to be 265 mbgl and therefore, not expected to be impacted. - Waste will be covered with 200 mm of overburden. - Closure cover is designed as a one metre top cover capping of suitable rock/soil/overburden with a two-degree slope from the centre of the landfill to allow free drainage of stormwater
Sediment laden / contaminated stormwater	Receival of waste materials and burial of scrap metal and tyres/conveyors	Overland runoff	- Stormwater flow will be diverted away from waste where necessary via bunding or grading around the tipping area. - Water captured within the landfill site will drain into the base tailings. Surface runoff is not possible due to limestone pinnacle fields and a higher ground level around the landfill area. - A Traffic Management Plan will be developed and will include any potential requirements for surface water bunds. - Closure cover is designed as a one metre top cover capping of suitable rock/soil/overburden with a two-degree slope from the centre of the landfill to allow free drainage of stormwater.
Pests (vermin, mosquitoes and other animals)		Via air and land	Regular inspections will be undertaken, and pest control measures will be implemented as required.
Weeds	Landfill operations, vehicle and operator movements Lack of vehicle hygiene	Soil on vehicle tyres containing seeds/vegetative material	- Monthly inspections will be undertaken. - Weed control will be undertaken as per weed management plan.

Emission	Sources	Potential pathways	Proposed controls
Smoke Particulates and noxious gases from tyre combustion, including: Volatile Organic Compounds (VOC's), Benzene, Toluene, Xylene	Storage and burial of tyres and conveyors (waste fire)	Air / windborne pathway	- Tyres will be landfilled as per the requirements of Part 6 of the EP Regs – in batches of no more than 1,000 separated from each other by at least 100mm of soil. - The facility will be fenced and the gate to the facility will remain locked when it is not in use. - Access to the facility will be strictly for PRL and PRL contractors only.
Fire embers			
Firefighting wash-water		Overland runoff Seepage through soil	Nil provided

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 and Figure 7 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 prescribed activity
'Recreation' zoned land use	>12,000 m north of proposed landfill site
Commercial premises	>12,000 m north of proposed landfill site
Christmas Island District High School (CIDHS)	13,700 m north of the proposed landfill site
Residential premises	13,800 m north of the proposed landfill site

Environmental receptors	Distance from prescribed activity
Christmas Island Environmentally Sensitive Area (National Park)	570m south and 850m west of the proposed landfill facility
Threatened and/or priority fauna – Historic record of Giant Gecko (<i>Cyrtodactylus sadleiri</i>)	Within 1,500 m of the proposed landfill facility
Threatened and/or priority flora – <i>Tectaria devexa</i> var. <i>minor</i>	Within 1,000 m of the proposed landfill facility
Public drinking water source areas – Perched aquifer (Main water supply for Christmas Island)	~6,000 m north of the proposed landfill facility The Delegated Officer considers that due to the location of the proposed landfill in relation to the perched aquifer, the perched aquifer is unlikely to be impacted by the landfill. Therefore, the perched aquifer has not been considered further as a receptor in the risk assessment.
Indian Ocean	1,200 m south, 1,500 m west, and 1,400 m east of proposed landfill facility
Underlying groundwater (non-potable purposes)	265m bgl

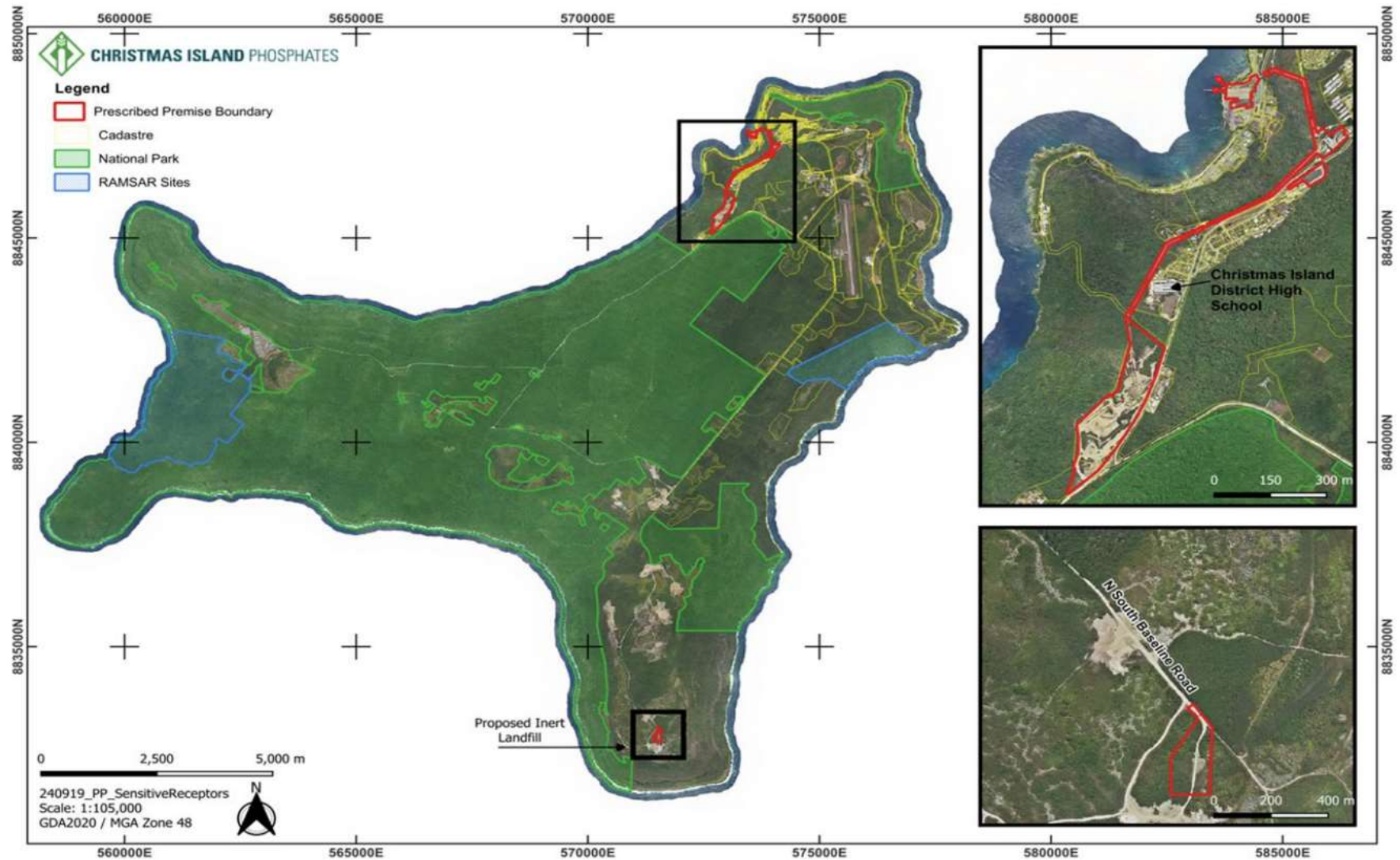


Figure 7: Distance to sensitive receptors

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 W2843/2025/1 that accompanies this decision report authorises construction and time-limited operations only. 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 to authorise emissions associated with the ongoing operation of the premises. 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 and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Vehicle movements and earthwork activities	Dust	Pathway: Air/windborne pathway Impact: Health and amenity	Residences 13,800 m north of the premises Christmas Island District High School Commercial premises >12,000 m north of the premises	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	Condition 2	The Delegated Officer considers that due to distance, there is a low risk of sensitive receptors being impacted by dust from construction works.
	Noise		Recreation zone >12,000 m north of the premises		C = Slight L = Rare Low Risk	Y	N/A	The works approval holder is required to comply with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Operation (including time-limited operations)								
Vehicle movements, tipping of waste and lift-off from landfill	Dust	Pathway: Air/windborne pathway Impact: Health and amenity	Residences 13,800 m north of the premises Christmas Island District High School Commercial premises >12,000 m north of the premises	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	N/A	The Delegated Officer considers that due to distance, there is a low risk of sensitive receptors being impacted by dust from the operation of the landfill.
Receival of waste materials, and burial of scrap metal and tyres/conveyors Vehicle movements	Noise		Recreation zone >12,000 m north of the premises		C = Slight L = Rare Low Risk	Y	N/A	The works approval holder is required to comply with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Receival of waste materials, and burial of scrap metal and tyres/conveyors Vehicle movements	Odour	Pathway: Air/windborne pathway Impact: Health and amenity	Residences 13,800 m north of the premises Christmas Island District High School Commercial premises >12,000 m north of the premises Recreation zone >12,000 m north of the premises	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	N/A	The Delegated Officer considers that due to the types of material being received at the landfill and the distance to sensitive receptors, odour impacts are low risk.

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Landfilling of tyres and scrap metal	Leachate containing heavy metals and organic compounds	Pathway: Seepage to soil and groundwater Impact: Ecosystem disturbance	Beneficial uses of groundwater (non-potable) Indian Ocean	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	N	Conditions 1, 11 <u>Conditions 1, 9, 12</u>	The Delegated Officer considers it necessary for waste to be covered and compacted within 21 days of it being deposited to ensure the stability of the landfill and to prevent pooling of water in the waste which may contribute to leachate generation. This has been included as a regulatory control within the works approval. The Delegated Officer has added a condition to the works approval that mandates the submission of a Landfill Post-closure and Rehabilitation Plan. This plan will be assessed during the licence application stage to ensure that the necessary controls for effective landfill capping are included. Effective capping of the landfill will minimise the production and impact of leachate.
Receival of waste materials, and burial of scrap metal and tyres/conveyors	Sediment laden/contaminated stormwater	Pathway: Overland runoff Impact: Ecosystem disturbance or impact to surface water quality	Indian Ocean	Refer to Section 3.1	C = Minor L = Rare Low Risk	N	Conditions 11 <u>Conditions 1, 9, 12</u>	The Delegated Officer considers it necessary for waste to be covered and compacted to an even density to ensure the stability of the landfill and that the integrity of the final cap is maintained. This has been included as a regulatory control within the works approval. The Delegated Officer has also included a requirement in the works approval for stormwater to be retained on the premises.
Inadequate covering of waste	Pests (vermin, mosquitoes, and other animals)	Pathway: via land and air Impact: Ecosystem disturbance	Christmas Island National Park Threatened Fauna	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	N	<u>Conditions 9, 10, 12</u>	The Delegated Officer considers it appropriate to specify a time period for fence repairs to be undertaken to prevent unauthorised access. The Delegated Officer also considers it necessary for waste to be covered and compacted within 21 days of it being deposited to ensure that it does not collect water which may contribute to mosquito breeding and attraction of animals. These controls have been conditioned within the works approval.
Landfill operations, vehicle and operator movements Lack of vehicle hygiene	Weeds	Pathway: Via air or soil on vehicle tyres containing seeds, vegetative material Impact: Impacts to terrestrial ecosystems	Christmas Island National Park Threatened/Priority Flora	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	Y	Condition 10	N/A
Waste tyre fire from: The improper burial of tyres and scrap metal due to: - inadequate separation of metal and tyres; and/or - inadequate compaction of waste creating pockets of oxygen	Smoke Particulates and noxious gases from tyre combustion, including: Volatile Organic Compounds (VOC's), Benzene, Toluene, Xylene (BTEx)	Pathway: Air/windborne Impact: Ecosystem disturbance	Threatened Fauna	Refer to Section 3.1	C = Major L = Possible High Risk	N	Condition 1 <u>Conditions 3, 6, 9, 12</u>	The Delegated Officer considers it necessary for waste to be covered and compacted within 21 days of it being deposited to reduce exposure of combustible wastes (tyres/conveyor belts) to oxygen. The Delegated Officer also considers it appropriate for the works approval holder to have a Fire and Emergency Management Plan in place due to burning tyres/rubber being considered a high hazard. Tyres have a high calorific value which results in intense heat and large volumes of black smoke, posing risks to the community, firefighters, and the environment. Additionally, tyre fires produce pyrolytic oil that can contaminate soil and water. Tyre fires are difficult to extinguish as the material retains heat and repels water (DFES, 2020).

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Waste tyre fire from: The improper burial of tyres and scrap metal due to: - inadequate separation of metal and tyres; and/or - inadequate compaction of waste creating pockets of oxygen	Smoke Particulates and noxious gases from tyre combustion, including: Volatile Organic Compounds (VOC's), Benzene, Toluene, Xylene (BTEX)	Pathway: Air/windborne Impact: Impacts to health and amenity	Residences 13,800 m north of the premises Christmas Island District High School Commercial premises >12,000 m north of the premises Recreation zone >12,000 m north of the premises	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 1 <u>Conditions 3, 6, 9, 12</u>	The Delegated Officer considers it necessary for waste to be covered and compacted within 21 days of it being deposited to reduce exposure of combustible wastes (tyres/conveyor belts) to oxygen. The Delegated Officer also considers it appropriate for the works approval holder to have a Fire and Emergency Management Plan in place due to burning tyres/rubber being considered a high hazard. Tyres have a high calorific value which results in intense heat and large volumes of black smoke, posing risks to the community, firefighters, and the environment. Additionally, tyre fires produce pyrolytic oil that can contaminate soil and water. Tyre fires are difficult to extinguish as the material retains heat and repels water (DFES, 2020).
	Fire embers	Pathway: Air/windborne Impact: Ecosystem disturbance	Christmas Island National Park Threatened/Priority Flora	Refer to Section 3.1	C = Major L = Possible High Risk	N		
Extinguishing a waste fire Storage and improper burial (pockets of oxygen) of tyres leading to a waste fire	Firefighting wash-water	Pathway: Overland runoff and seepage into soils Impact: Ecosystem disturbance or impact to surface and/or groundwater quality	Beneficial uses of groundwater (non-potable) Indian Ocean	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	<u>Condition 1</u>	Firefighting wash-water should be able to be captured by the stormwater management system and retained on the premises.

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 3 February 2025 and in The Islander Newsletter on 21 February 2025	None received	N/A
The Shire of Christmas Island was advised of proposal on 4 February 2025	None received	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal on 4 February 2025	DEMIRS responded on 28 February 2025 and advised that they were currently assessing a Mining Proposal submitted by Phosphate Resources Limited for Christmas Island Phosphate (EARS Reg Id: 128096), which contained the proposed landfill facility. DEMIRS advised that: 1. <i>"waste material disposed of within the facility should be progressively consolidated and compacted to remove void spaces to reduce future subsidence issues"; and</i> 2. <i>"at closure the landfill should be mounded above surface level to prevent water pooling and infiltration and waste material being covered with a minimum of 1.5m of suitable capping material."</i> DEMIRS had no further comments on the proposal.	The Delegated Officer has included conditions within the works approval for the compaction of wastes to an even density to ensure that all faces are stable and capable of retaining restoration material. The department will further assess the final capping, post-closure and rehabilitation of the landfill at the licence application stage, taking DEMIR's comments into consideration. The Works Approval specifies a requirement to submit a Post-closure and Rehabilitation Plan to the department. Post-closure and rehabilitation requirements will be regulated through the licence for the operation of the premises.
Indian Ocean Territories Government Arrangements, Department of Infrastructure, Transport Regional Development, Communications and the Arts advised of proposal on 4 February 2025.	None received	N/A
Applicant was provided with draft documents on 4 April 2025.	Comments from the applicant were received on 28 April 2025. Refer to Appendix 1	Refer to Appendix 1

Applicant was provided with a second draft package on 20 May 2025 following comments received on 28 April 2025.	Comments from the applicant were received on 3 June 2025.	Refer to Appendix 1
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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.

The works approval that accompanies this report authorises construction and time limited operations only. A licence amendment is required to operate the landfill at the premises.

6. References

1. Barrie, J 1967, *Christmas Island geology and topography*, Australia
2. Bureau of Meteorology 2025, *Monthly Rainfall Christmas Island Aero*. Retrieved February 2025, from [Monthly Rainfall - 200790 - Bureau of Meteorology](#).
3. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Department of Fire and Emergency Services (DFES) 2020, *Guidance Note: GN02 Bulk Storage of Rubber Tyres Including Shredded and Crumbed Tyres*, Perth, Western Australia
5. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. Falkland, T 1999, *Christmas Island, Indian Ocean: Groundwater Investigations and Monitoring Report*, Canberra
8. Phosphate Resources Limited 2024, *Christmas Island Phosphates Application for Works Approval – South Point Landfill (Class I) Supporting Information*, Christmas Island, Indian Ocean
9. Puhlovich, A., Jacobsen, N., & Overall, R. 2003, *Surface water and groundwater hydrology in relation to proposed new mining leases*, Christmas Island, Indian Ocean

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Comments received 28 April 2025		
1.1g)	PRL requested an amendment to the condition from <i>"a 3 m firebreak is to be maintained around the landfill cell"</i> to <i>"3 m separation is required from the waste cell and vegetation is maintained"</i>. The applicant stated that this was due to a natural separation existing from vegetation to the tipping area through a pinnacle field or height. There is a lower risk of fire on Christmas Island due to the wet season, high annual rainfall and there has been no recorded lightning started fire from 1992/3. There is also a lack of readily combustible material in the landfill.	The Delegated Officer has amended the condition to take into consideration the pinnacle field surrounding the landfill and has required a 3 m buffer zone free of combustible material to be maintained instead of a fire break.
1.2a)	PRL requested that the requirement for bunds to be installed be removed as not just bunding would be used in the stormwater management system. Bunding, v drains and sumps would be used in stormwater management. The following wording has been requested for the condition <i>"divert stormwater from entering the landfill and ensure water that comes into contact with waste is retained on site."</i>	The Delegated Officer has changed the wording of the condition to be more outcomes based and allow flexibility in the design and construction of the stormwater management system.
1.3a)	PRL has requested that the requirement for a 1.8 m chain-link fence to be installed around the landfill to prevent unauthorised access and access by animals is removed. The disposal area is surrounded by pinnacle fields and is inaccessible by vehicle/foot other than when the entrance is re-established. The entrance gate will be the only access point. PRL has requested the following wording: <i>"A 1.8 m high chain-link fence must be installed at the entrance to the landfill to prevent unauthorised access"</i>.	The Delegated Officer has resolved to amend the wording as requested by the applicant.
2.	PRL has requested that the requirement to have sufficient water available onsite at all times for dust management is removed due to only two water carts being available which cannot remain at the landfill permanently. The carts would need to fill up with water and wet other areas on the site. PRL has requested the following wording: <i>"The works approval holder must provision for a water cart during construction activities to minimise the potential for dust emissions."</i>	The Delegated Officer has amended the condition to clarify that sufficient water is to be available for reducing dust emissions during construction activities and is not required onsite permanently.

Condition	Summary of applicant's comment	Department's response
3.	PRL requested that the requirements of what is to be included in the Fire and Emergency Management Plan be removed and the wording be amended to: <i>"The works approval holder must have an implemented Emergency Management Plan"</i>. This is due to the proposed wastes not being readily combustible, there being a separation to vegetation, no ignition sources, access restriction, and covering and compacting of wastes. The tyres and conveyor will be buried in batches of 1,000 or as per Condition 12.2. No record of lightning strike causing a fire on island (records go back to 1992/3). CIP have an existing Emergency Management Plan and a Memorandum of Understanding with the Christmas Island Fire Service for fire response on island. Fire risk is identified in the Group Risk Register with relevant controls specified including the above.	The Delegated Officer has resolved to remove specific requirements for the content of the Fire and Emergency Management Plan. The requirement to prepare, maintain and implement a Fire and Emergency Management Plan will remain.
4.	PRL has requested an amendment to the Post-closure and Rehabilitation Plan condition as follows: <i>'The works approval holder must engage a professional landfill design consultant, to create:</i> <i>(a) estimated final contours of the site, after allowing for settlement, and specifying to what extent settlement has been allowed for; and</i> <i>(b) review of the capping design and capping materials proposed to be used for the final capping of the landfill; and</i> <i>(c) Detail within (a) and (b) are to be included in the Landfill Procedure.'</i> PRL advised that the area will be UCL once relinquished and its future land use it is up to the Commonwealth. <i>"The area is of low biodiversity value due to being surround by pinnacle fields. Post closure drainage is into these surrounding pinnacle fields. High level closure design with a cross section and mRLs were provided in the Supporting Documents."</i>	The requirement for a Post-closure and Rehabilitation Plan is a standard requirement for all landfills. The Delegated Officer acknowledges that there is already some post-closure information in the Landfill Procedure submitted as part of the works approval application. The Landfill Procedure document can be updated to include the Post-closure and Rehabilitation Plan required by Condition 4 instead of being a separate document.

Condition	Summary of applicant's comment	Department's response
	 Figure 2: Conceptual landfill design with proposed closure capping shown in green (PRL, 2024) The closure cover will be constructed via trucks, excavator and dozer so it will be traffic compacted on the already pushed up waste and operational cover increasing the long term stability of the cover. The 2% fall is so that water runs off from the landfilling area which avoids water pooling on the cover and reduces risk of subsidence. The low angle (2%) will minimise erosion from the surface of the cover. A pre and post-closure cover survey will be taken using a drone. With a pre-relinquishment survey and inspection (with DEMIRS) required. The area requires to be made safe to meet closure requirements of the tenement. PRL pay a conservation levy as part of the lease which releases PRL from rehabilitation requirements beyond 'making safe'."	

Condition	Summary of applicant's comment	Department's response
6.	PRL requested the wording to be amended to: <i>"The Environmental Compliance Report required by condition 5, must include as a minimum the following:</i> <i>(a) a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1;</i> <i>(b) the updated Landfill Procedure with specified information required in condition 3 and condition 4; and</i> <i>(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person."</i> PRL stated that they did not believe engineering sign off was required for this level of risk as the only infrastructure is a fence, gate, ramp and bunding. PRL does not believe that as constructed plans are required for each item of infrastructure as the infrastructure is not complex. Site layout, access, bunding, fence/gate and ramp can be shown on a site plan with appropriate photos. The Landfill Procedure can be updated to include the information required under Conditions 3 and 4 without the need for two additional documents and the Compliance Report will be signed off by an appropriate PRL representative.	The Delegated Officer has resolved to remove the need for the Environmental Compliance Report to be signed off by a suitably qualified engineer and for as-constructed plans to be provided as requested. Requirements to provide the Fire and Emergency Management Plan and the Post-closure and Rehabilitation Plan will remain. However, these plans may be provided within the Landfill Procedure document.
9.1(b)i.	PRL request this condition to be amended to <i>"waste is covered, levelled and compacted to an even density every 5,000m³, 6 months or sooner as identified in monthly inspections"</i>. PRL states <i>"If this was a commercial landfill or had high risk waste or putrescible wastes or nearer to sensitive areas more regular cover is required. The proposed wastes are inert, not putrescible, and heavier so will not create windblown wastes or other risks in which other landfills pose."</i>	The Delegated Officer has not been provided with sufficient information regarding the frequency (and quantity) of waste disposal to assess whether this proposal is reasonable. Waste should be covered immediately after placement if it will be placed infrequently. This helps reduce the risk of fires (regarding waste tyres) and prevents water from collecting in the waste, which can lead to mosquito breeding and leachate production. If wastes are only placed every six months and are covered at this time, then this frequency may be acceptable. If wastes are deposited more regularly then they may not need to be covered at the time of placement but should still be covered and compacted more regularly than every 6 months or every 5,000 m³. Regular covering and compaction of wastes reduces the volume of air pockets within the waste, leading to more uniform and predictable settlement over time, and therefore increases the stability of the landfill. With the limited information available, the Delegated Officer has determined that due to the non-putrescible nature of

Condition	Summary of applicant's comment	Department's response
		waste materials, the timeframe to cover and compact the materials has been extended to 7 days.
9.3(a)	Request to amend to <i>"Must be maintained in good condition to prevent unauthorised access"</i> PRL requests this as <i>"the disposal area is surrounded by pinnacle fields and is inaccessible by vehicle/foot other than when the entrance is re-established. This gate will be the only access by people."</i> <i>There is no stock, feral goats etc that could access the site. The landfill will not be used for putrescible wastes."</i>	The Delegated Officer has resolved to amend the condition as requested.
10(a)	Request to amend to <i>"check and record the integrity of the entry fence and gate on a monthly basis and undertake repairs within 1 week of any damage being identified;"</i> PRL requests this due to the disposal area being surrounded by pinnacle fields and being inaccessible by vehicle/foot. The entrance gate will be the only access. The entry fence check will be included in the monthly inspection checklist.	The Delegated Officer has resolved to amend the condition as requested.
10(b)	Request to amend to <i>"undertake vermin prevention measures including baiting; and"</i>	The Delegated Officer has resolved to amend the condition as requested.
12.3(a)	Request to amend to <i>"(i) Must be stockpiled in sufficient quantities to ensure that waste is covered to a depth of 200 mm every 5,000m³, 6 months or sooner as identified in monthly inspections."</i> PRL advises that the Mining and Haulage team will be required every 6 months to campaign haul material to the site to be stockpiled.	The Delegated Officer has amended the condition to require sufficient quantities of clean fill/uncontaminated fill to be stockpiled on the premises to ensure that waste is covered to a dept of 200 mm within 7 days of being discharged to align with condition 9.1(b)i.
14.	PRL requested removal of this condition	The Delegated Officer has resolved to remove the condition as requested.

Condition	Summary of applicant's comment	Department's response
Comments received 2 June 2025		
4.	<i>"PRL appreciate that the post-closure information can be consolidated into the Landfill Procedure however request amendment to the condition wording to reflect this. The cover construction, drainage and monitoring detailed below will also be detailed in the Landfill Procedure. PRL acknowledge the requirement for final contours accounting for settlement and capping detail to ensure the closure plan contains a higher level of detail previously provided.</i> <i>The below detail will also be added to the Landfill Procedure:</i> Cover construction, drainage and monitoring: <i>The closure cover will be constructed via trucks, excavator and dozer so it will be traffic compacted on the already pushed up waste and operational cover increasing the long term stability of the cover. The 2% fall is so that water runs off from the landfilling area which avoids water pooling on the cover and reduces risk of subsidence. The low angle (2%) will minimise erosion from the surface of the cover. A pre and post-closure cover survey will be taken using a drone. With a pre-relinquishment survey and inspection (with DEMIRS) required. The area requires to be made safe to meet closure requirements of the tenement. PRL pay a conservation levy as part of the lease which releases PRL from rehabilitation requirements beyond 'making safe'."</i> The applicant also mentioned that the future land use is up to the Commonwealth, and it was agreed with DITRCA and DEMIRS that it was not a PRL requirement to detail post-closure land use.	The Delegated Officer has resolved to remove the requirement for the post-closure and rehabilitation plan to specify options for the use of the site after it has ceased to be a landfill site. The condition has been amended to: <i>"The works approval holder must have a post-closure and rehabilitation plan for the premises, prepared by a professional landfill design consultant, that sets out:</i> <i>(a) the estimated final contours of the site, after allowing for settlement, and specifying to what extent settlement has been allowed for;</i> <i>(b) details on the capping design and capping materials proposed to be used for the final capping of the landfill;</i> <i>(c) a proposed system of drainage for the site;</i> <i>(d) measures proposed for the protection of the environment and the monitoring of the site post-closure; and</i> <i>(e) the estimated period for which the site will require protection and monitoring."</i> The Landfill Procedure document can be updated to include the Post-closure and Rehabilitation Plan required by Condition 4 instead of being a separate document. The wording of the condition does not prevent this. Information which has been provided in PRL's comments can be used to satisfy some of the above requirements. For example, the cover construction, drainage and monitoring details proposed to be added to the Landfill Procedure can be used to address conditions 4(c) and (d).

Condition	Summary of applicant's comment	Department's response
6.	The applicant requests that condition 6 be amended to: <i>"The Environmental Compliance Report required by condition 5, must include as a minimum the following:</i> <i>(a) certification by an authorised representative of the works approval holder that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;</i> <i>(b) a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1;</i> <i>(c) the Fire and Emergency Management Plan specified in condition 3; and</i> <i>(d) the Landfill Procedure to include detail Post-closure and Rehabilitation Plan specified in condition 4."</i>	The Delegated Officer has determined that fire management is required to be addressed for the landfill site. The existing Emergency Management Plan can be updated to include details on how fires will be prevented and managed at the premises. The due date for the Fire and Emergency Management Plan will be extended to 30 September 2025 to allow time for any required updates to be made. The Delegated Officer has determined that no amendments will be made to the wording of Condition 6.
9.1(b)i.	The applicant requests that this condition be amended to: <i>"Waste is covered, levelled and compacted to an even density within 21 days of being discharged;"</i> The applicant stated that this allows flexibility in machine availability, weather and other factors. It is not possible to have a loader/dozer at the landfill permanently due to its location away from mining activities. The applicant also stated that <i>"21 days does not create a material risk to the environment due to the waste being inert, seasonality off the island (dry and wet season) and the low likelihood of fires with all the other controls in place."</i>	The Delegated Officer considers the proposed amendment to be reasonable and has resolved to amend the licence condition as requested.
12.3(i)	The applicant requests the condition be amended to align with Condition 9.1(b)i.: <i>"Must be stockpiled on the premises in sufficient quantities to ensure that waste is covered to a depth of 200 mm within 21 days of being discharged."</i>	The Delegated Officer considers the proposed amendment to be reasonable and has resolved to amend the licence condition as requested.