Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W6974/2024/1
Applicant	City of Swan
File number	DER2024/000285
Premises	Recovery Centre Bullsbrook 121 Stock Road BULLSBROOK 6084 Legal description - Lot 801 on Deposited Plan 419737 As defined by the premises maps attached to the issued works approval
Date of report	11 March 2025
Decision	Works approval granted

Melissa Chamberlain

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Date: 2025.03.11 11:58:27 +08'00'

Melissa Chamberlain
MANAGER - WASTE INDUSTRIES
STATEWIDE DELIVERY
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 W6974/2024/1 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

On 13 June 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 relates to the construction and operation of proposed upgrades to the recovery centre's layout and infrastructure, including:

- Upgrades to waste compaction and storage infrastructure.
- Drainage upgrades, including construction of a leachate evaporation pond.
- Site layout reconfiguration for increased safety.
- Upgrades to facilities for staff and visitors.

The application also proposes a 4,800-tonne increase in throughput following completion of site upgrades to accommodate anticipated changes in demand for brick, rubble, and e-waste disposal. The increased e-waste demand has been influenced by the recent ban on disposal of e-waste to landfills under the Waste Avoidance and Resource Recovery (e-waste) Regulations 2024. Following completion of works, the applicant will need to apply for a licence amendment to authorise the ongoing increase in throughput.

The premises relates to the categories and assessed production capacity under Schedule 1 of the Environmental Protection Regulations 1987 (EP Regulations) which are defined in works approval W6974/2024/1. 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 W6974/2024/1.

2.3 Premises overview

The facility currently operates as a solid waste facility and depot under licence L9055/2017/1 serving the northern community of the City of Swan. The facility accepts public waste between Thursday and Sunday, with waste handling, loading, and processing occurring weekdays from 6:00 am to 4:30 pm.

Key operations include:

- Materials Recovery Facility: Accepts recyclables, construction and demolition waste, green waste, and short-term stockpiles of recycled commodities like paper, cardboard, metals, and aluminium cans.
- Annual Waste Handling: Processes around 7,000 tonnes of green waste and timber (chipping/shredding) and 10,000 tonnes of solid waste.
- Dry Bulk Material Storage: Stores e-waste, bottles, containers, batteries, white goods, rubble, green waste, metals, mattresses, tyres, polystyrene, and office furniture.

- Additional Features: Includes a self-bunded oil shed for used oil collection, clothing donation bins, and a crushed gravel area for chipping and storing green waste before removal by City staff, residents, or contractors.

Following the proposed upgrades, the facility will retain all current functions, with a reorganised layout to enhance safety and efficiency.

The proposed layout of the upgraded recovery centre is shown below in Figure 1.

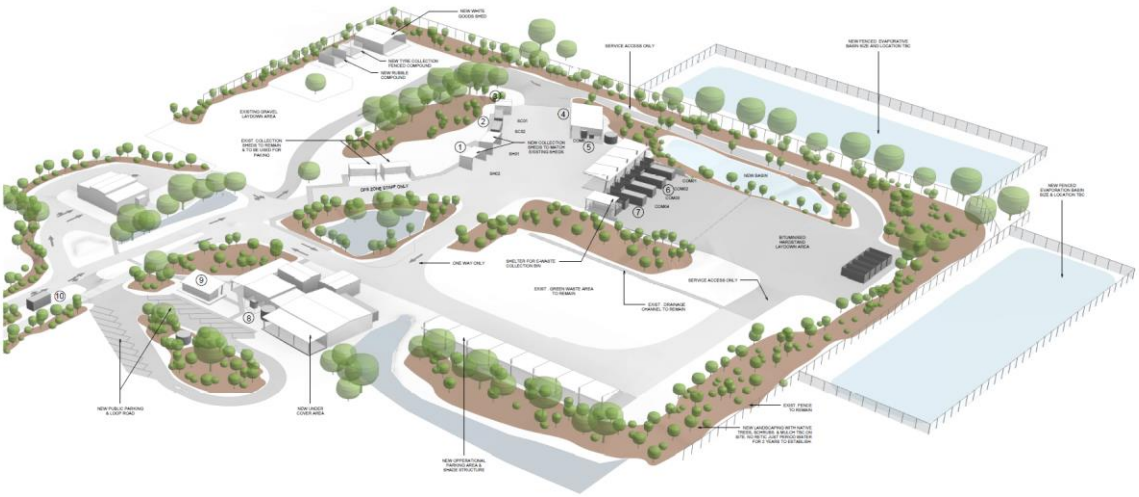

Figure 1: Proposed layout of the upgraded recovery centre.
(Please note that only one leachate/ evaporation basin is proposed currently.)

2.4 Background – green waste storage and leachate management

On 30 July 2016, works approval W5969/2016/1 was granted to City of Swan (the City) for the construction of waste sorting and processing infrastructure at Lot 6, 121 Stock West Road, Bullsbrook. In May 2017, the City submitted a partial compliance document confirming construction of four waste storage sheds, a construction and demolition waste storage area, and a crushed gravel green waste storage area. The City planned to complete the remaining infrastructure (mixed waste hardstand, leachate collection, and leachate pond) in Stage 2, with a subsequent licence amendment to be submitted. However, works approval W5969/2016/1 expired in July 2019 before Stage 2 construction began.

To mitigate increased leachate risks from green waste storage and processing due to the incomplete construction of pollution control infrastructure, City of Swan proposed limiting green waste storage to a maximum of three working days, which was incorporated into licence L9055/2017/1. Despite this, DWER was made aware that green waste was repeatedly stored beyond this limit, sometimes for months. In 2020, a fire in the green waste stockpile triggered a response from DFES and DWER Environmental Response Unit, raising concerns over long-term green waste storage, leachate infiltration, and firefighting runoff on the permeable crushed gravel base. Following this incident, the licence holder was reminded of the three-day storage limit, and additional controls for managing firefighting runoff were introduced in a licence amendment. To date there have been no improvements to fire management infrastructure.

This works approval application did not specifically propose upgrades to the fire management infrastructure as part of the planned improvements; however, risks associated with fire have been considered in the assessment due to its relevance to the operation of the upgraded infrastructure. The adequacy of the existing fire management controls under licence L9055/2017/1 may also be reassessed when the licence is later amended to include infrastructure constructed under this works approval.

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 infrastructure 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 (in addition to existing controls on L9055/2017/1)
Construction			
Dust Noise	Earthworks and construction of infrastructure Vehicle/equipment movements	Air / windborne pathway	No additional controls proposed.
Operation			
Smoke	Fire event resulting in the combustion of various waste types including green waste and tyres	Air / windborne pathway	No additional controls proposed.
Firefighting wash-water		Runoff and/or seepage to soil and groundwater	Existing licence controls apply. Construction of new HDPE-lined evaporation pond to capture leachate and contaminated runoff from high-risk areas.
Leachate	Storage of green waste		
Contaminated stormwater or liquid waste spills.	Acceptance, handling and storage of waste		Upgraded waste storage infrastructure that is bunded and/or covered to prevent rainwater ingress e.g. sea containers, sheds and shelters. Construction of additional low permeability surfaces (bitumen and concrete). Separation of site drainage: • Drainage from higher risk areas (mixed waste and green waste areas) directed to new leachate

Emission	Sources	Potential pathways	Proposed controls (in addition to existing controls on L9055/2017/1)
			pond. • Drainage from the remainder of the site directed to infiltration basins.
Dust		Air / windborne pathway	Some waste types will use an improved compactor-based system, offering better material containment and reducing off-site disposal trips. Existing licence controls apply.
	Vehicle movements		Improvements to road infrastructure and layout, and traffic flow.
	Green waste chipping		No additional controls proposed.
Noise	Operation of heavy machinery and vehicles, including green waste chipping and additional waste compactors		No additional controls proposed.
Asbestos	Acceptance and storage of C&D wastes with potential to contain asbestos		
Odour	Acceptance, handling and storage of waste		
Windblown waste			

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
Residential premises	Two nearby residential premises located within 500 m of the premises boundary, ~40 m east and and ~170 m west, respectively.
Beneficial users of groundwater	Nearest down-gradient groundwater abstraction licence is approximately 550 m south-east of

	premises boundary. Depth to groundwater historically encountered at 0.4-2.2 metres below ground level (mbgl) with a general trend of dropping groundwater levels. The most recent depth was recorded at around 1.7 mbgl. Figure 2: Plot of local measured groundwater depth (mbgl) from 1984-current (WIR ref: 61611182) outlines groundwater depth recordings at a nearby Water Information Reporting (WIR) site (Ref: 61611182) between 1984-2025.
Environmental receptors	**Distance from activity / prescribed premises**
Green Growth – Vegetation Complex Commitments (Yanga Complex)	Complex mapped within premises boundary but not within proposed construction or operational area.
Proclaimed surface and groundwater Areas under the Rights in Water Irrigation Act 1914	Swan River System Swan Groundwater Area
Threatened Ecological Community (TEC)	Within 300 m of premises boundary

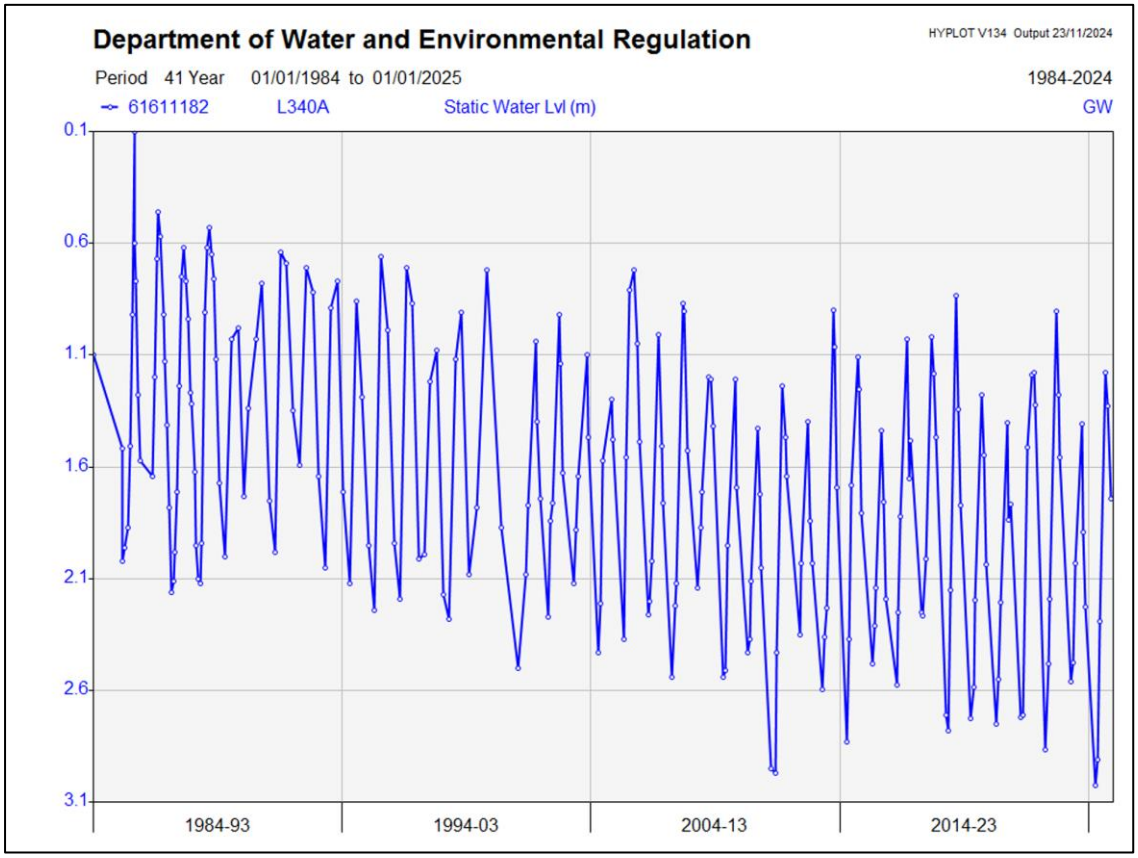

Figure 2: Plot of local measured groundwater depth (mbgl) from 1984-current (WIR ref: 61611182)

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 W6974/2024/1 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 amendment will be required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. continued operation of the upgraded infrastructure. 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 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 infrastructure, including operation of vehicles and machinery	Dust	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Closest residential premises ~40m from the premises boundary .	*Refer to Table 1*	C = minor L = rare **Low Risk**	Yes	N/A	The delegated officer considers the emission risk to be effectively managed under the conditions of the existing licence (L9055/2017/1). General provisions of the EP Act also apply.
	Noise				C = minor L = rare **Low Risk**	Yes	N/A	The delegated officer considers the emission risk to be effectively managed under the conditions of the existing licence (L9055/2017/1) and the Environmental Protection (Noise) Regulations 1997.
Operation								
Acceptance, storage, and handling of waste, including green waste and C&D inert waste possibly contaminated with asbestos-containing materials and/or fibres Increase in throughput for Category 62 waste types (excluding liquid waste and tyres).	Dust	**Pathway:** Air/windborne pathway **Impact:** Human **h**ealth and amenity, and vegetation ecosystem disturbance	Closest residential premises ~40m from the premises boundary Green Growth – Vegetation Complex Commitments (Yanga Complex) but not within proposed construction or operational area	*Refer to Table 1*	C = minor L = rare **Low Risk**	Yes	N/A	The delegated officer considers these emission risk to be effectively managed under the conditions of the existing licence (L9055/2017/1). General provisions of the EP Act also apply.
	Windblown waste	**Pathway:** Air/windborne pathway **Impact:** Amenity			C = slight L = unlikely **Low Risk**	Yes	N/A	
	Asbestos fibres	**Pathway:** Air/windborne pathway **Impact:** Health	Closest residential premises ~40m from the premises boundary		C = severe L = unlikely **High Risk**	Yes	N/A	

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**				
	Odour	**Pathway:** Air/windborne pathway **Impact:** Amenity		*Refer to Table 1*	C = slight L = unlikely **Low Risk**	Yes	N/A	
	Noise				C = minor L = rare **Low Risk**	Yes	N/A	The delegated officer considers this emission risk to be effectively managed under the conditions of the existing licence (L9055/2017/1) and the Environmental Protection (Noise) Regulations 1997.
	Leachate and/or contaminated stormwater run-off	**Pathway:** Direct discharge, overland runoff or seepage **Impact:** Ecosystem disturbance or impact to surface and groundwater quality	Beneficial users of groundwater – closest abstraction bore ~550m down hydraulic gradient of premises boundary. Depth to groundwater ~0.4-2.2 mbgl Green Growth – Vegetation Complex Commitments (Yanga) - not within proposed construction or operational area.		C = moderate L = possible **Medium Risk**	No	**Condition 1, Table 1: Design, construction and installation requirements** Condition 6: operational requirements during time limited operations	Refer to Section 3.3 As outlined in Section 3.3, the delegated officer has determined that a bunded green waste storage hardstand must be constructed from appropriate low-permeability material to effectively mitigate the risk of emissions from green waste leachate and fire wash water emissions. The delegated officer is otherwise satisfied that the upgrades to waste storage and drainage infrastructure will adequately mitigate the risk of leachate emissions in the other areas of the premises, as outlined further in Appendix 2, Table 5.
Fire	Fire wash waters				C = major L = possible **High Risk**	No		
	Smoke	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Closest residential premises ~40m from the premises boundary		C = minor L = unlikely **Medium Risk**	Yes	N/A	The delegated officer considers this emission risk to be effectively managed under the conditions of the existing licence (L9055/2017/1).

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.

3.3 Risk assessment – leachates

3.3.1 Leachate emissions

The *Guideline: Better Practice Organics Recycling* (the guideline), released in December 2022, aligns with *Our Regulatory Approach* and *the Waste Avoidance and Resource Recovery Strategy 2030* by:

- Setting environmental performance objectives (EPOs) as required outcomes,
- Establishing benchmark controls for operators to demonstrate compliance with EPOs, and
- Allowing for alternative controls to achieve EPOs, supporting a risk-based approach and supporting effective and innovative site-specific solutions.

The EPO relevant to leachate emissions aims to *"Protect the environment by preventing and, where that is not possible, minimising emissions to land and water that may cause pollution or environmental harm".* Organic materials, including green waste, can generate leachate from residual moisture, dust suppression, rainfall, or firefighting runoff. To meet the relevant EPO, the guideline specifies that bunded, low-permeability barriers (e.g. compacted clay, asphalt, or concrete) must be used for waste storage areas. The site's existing unbunded crushed gravel hardstand is unlikely to meet those benchmarks, posing a risk of groundwater contamination due to its permeability and the very shallow depth to groundwater in the local area (as shown in Figure 2: Plot of local measured groundwater depth (mbgl) from 1984-current (WIR ref: 61611182). A full assessment of the applicant's proposed controls against the guideline benchmarks has been outlined in Appendix 2.

The guideline also sets an EPO for fire prevention and management, aiming to minimise the risk of fires and related pollution. As noted, the existing crushed gravel hardstand may not meet EPOs for either leachate or fire management, highlighting the need for effective pollution controls.

The delegated officer finds that improper management of green waste storage could lead to nutrient-rich leachate infiltrating groundwater, raising nitrogen levels. The site is also at risk of fire in stored green waste and associated runoff produced by firefighting activities. To mitigate these risks, the works approval holder must construct a bunded green waste storage hardstand that means guideline specifications.

3.3.2 Key findings

The delegated officer has reviewed the information relating to leachate and contaminated stormwater emissions and has determined the following:

1. The proposed upgrades will reduce risks associated with contaminated stormwater by minimising rainwater ingress into waste storage areas.
2. Green waste storage continues to pose a medium to high risk of groundwater contamination from leachate runoff, including seepage from residual liquids within the stockpile, moisture from dust suppression, rainfall, or fire suppression activities.
3. Insufficient evidence was provided to demonstrate that the existing crushed gravel hardstand meets the objectives outlined in the *Guideline: Better Practice Organics Recycling.* Consequently, there is a potential risk of groundwater contamination from leachate infiltration, exacerbated by the shallow groundwater depth in the area (Figure 2).
4. The likelihood of leachate emissions is further increased by the applicant's inconsistent adherence to green waste storage duration limits set under licence

L9055/2017/1, intended to mitigate the increased risks associated with the crushed gravel base.

5. The delegated officer has determined that City of Swan must construct a bunded green waste storage hardstand that meets the benchmark controls for leachate barriers on hardstand surfaces, as specified in the *Guideline: Better Practice Organics Recycling.*

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 8 November 2024	None received.	N/A
Department of Planning, Lands and Heritage (DPLH) advised of proposal on 24 October 2024	DPLH replied on 24 October 2024 advising that the following comments had been provided to the applicant regarding the works identified as Public Works: • The City may wish to refer the Bushfire Management Plan (dated 8 October 2024) to DFES for comments. • It is advised for a Risk Management Plan be prepared for the site.	The department has noted this and sought comment from DFES in relation to fire risk associated with the works approval application.
Department of Fire and Emergency Services (DEFS) advised of proposal on 5 November 2024	DFES replied on 2 December 2024 stating that the submission had been reviewed by the DFES regional team and HAZMAT team with no changes proposed.	N/A
Applicant was provided with draft documents on 22 January 2025 and 26 February 2025.	Refer to Appendix 1.	Refer to Appendix 1.

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.
4. DWER 2022, *Guideline: Better practice organics recycling*, Perth, Western Australia
5. DWER 2020, *Our regulatory approach*, Perth, Western Australia

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

Condition	Summary of applicant's comment	Department's response
N/A	Applicant requested an additional increase to throughput of 4,800 tonnes per annum for e-waste, bricks and rubble to accommodate changes in demand.	Additional throughput increase was incorporated, and a second draft was sent for review on 26 February 2025. No further comments received.
Condition 1, Table 1	Applicant provided clarity on the intended design and construction specifications for the green waste hardstand.	Accepted.

Appendix 2: Assessment against benchmark controls

Table 5: Assessment of operator controls against relevant benchmark controls – leachate management

Benchmark control	Applicant proposed control	Conditions of works approval
Design the leachate containment system based on a quantitative assessment of the potential leachate and stormwater runoff generated from a one in 20 (5 per cent) annual exceedance probability (AEP) 24-hour storm event.	The delegated officer has determined that the design specifications of the proposed evaporation pond exceed the minimum benchmark control specifications.	The proposed leachate pond construction specifications were included in the works approval conditions.
Engage a suitably qualified person to prepare a construction quality assurance (CQA) plan for infrastructure and equipment to be constructed or installed as part of the leachate containment system.	No specific controls meeting this benchmark were proposed.	The works approval stipulates that a suitably qualified engineer must certify that all infrastructure has been constructed in accordance with relevant requirements.
Ensure a suitably qualified person verifies and documents the specifications and construction methods for infrastructure and equipment that form part of the leachate containment system in accordance with the CQA plan.		
Separate uncontaminated stormwater from the area serviced by the leachate containment system by using, for example, surface-grade changes, bunds, interceptor drains, piping and other drainage systems.	The proposed stormwater drainage infrastructure is designed to separate high-risk stormwater, directing runoff from high-risk areas (such as mixed waste and green waste storage) to the proposed evaporation pond, while stormwater from lower-risk areas will be diverted to multiple stormwater infiltration basins.	Proposed stormwater drainage infrastructure specifications were included in the works approval.
Ensure all hardstand surfaces and pond liners can support the load of the material and machinery to be used on the surface, without compromising integrity.	No specific controls meeting this benchmark were proposed.	Conditions relating to infrastructure construction specifications were included in the works approval.
Use hardstand surfaces for the receipt, storage and processing of feedstocks, materials undergoing processing (i.e. mechanical, pasteurisation or composting), products and residual physical contaminants that:	No changes to existing crushed gravel base of the green waste storage area to meet this benchmark were proposed.	Additional green waste hardstand construction specifications were included in the works approval as a result

• provide a leachate barrier comprised of low-permeability material such as compacted clay, asphalt or concrete that minimises infiltration of leachate to soil and groundwater • achieve a grading that prevents pooling of leachate, provides sufficient fall towards the leachate storage infrastructure, minimises erosion of the hardstand surface or material stored on the hardstand and allows safe and effective use of vehicles and machinery (an average grading of at least 2 per cent across the hardstand may be suitable; however, the grading required to achieve these outcomes depends on the site-specific conditions) • are bunded by low-permeability materials such as compacted clay, asphalt or concrete that prevent leachate runoff from the hardstand surface and stormwater from entering the hardstand surface (the interface between bunds and hardstand materials are effectively sealed to prevent leakage).		of the risk assessment outlined in Section 3.3.
Collect and store leachate and liquid wastes in a pond or an above-ground tank	Construction of HDPE-lined leachate evaporation pond proposed.	Conditions relating to infrastructure construction specifications were included in the works approval.
Ensure leachate storage infrastructure has sufficient capacity to: • contain the runoff from the leachate containment system that would result from a one in 20 (5 per cent) AEP, 24-hour rainfall event • be maintained with a minimum top-of-embankment freeboard of 500 mm during operation.		
Line storage ponds for leachate, liquid feedstocks and liquid wastes with a liner that minimises infiltration to soil and groundwater (further detail provided in the guideline).		
Install monitoring equipment (e.g. high-level alarms) for storage ponds or tanks for leachate, liquid feedstocks, liquid wastes and liquid products or implement management practices to ensure they cannot be overfilled.	No monitoring or operational controls meeting this benchmark were proposed.	A minimum freeboard of 0.5 m has been stipulated in the works approval.
Line drainage infrastructure with a liner that minimises infiltration to soil and groundwater (see Table 6 for acceptable liner designs). Concrete pipework is also an acceptable form of drainage infrastructure.	Existing and proposed drainage infrastructure specifications deemed	Construction specifications for proposed additional stormwater

Design and construct drainage infrastructure to convey the runoff from the leachate containment system that would result from a one in 20 (5 per cent) AEP, 24-hour rainfall event.	sufficient to meet guideline EPO by the delegated officer.	drainage infrastructure were included in the works approval.