Application for works approval

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

Works approval number	W6306/2019/1
Works approval holder	Wannamal Rd Organics Pty Ltd
ACN	604 725 019
DWER file number	DER2019/000424
Premises	Wannamal Rd Organics Pty Ltd Wannamal Road West CULLALLA WA 6503 Legal description: Part of Lot 7779 on Deposited Plan 209806 Certificate of Title Volume 1608 Folio 716 As defined by the coordinates in Schedule 1 of the Works Approval
Date of report	10 June 2020

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1. Definitions

Key terms relevant to this decision report and their associated definitions are listed in Table 1.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Applicant	Wannamal Rd Organics Pty Ltd
AS4454-2012	means the document titled *Australian Standard - Composts, soil conditioners and mulches* published by Standards Australia, as amended from time to time.
category / categories	categories of prescribed premises as set out in Schedule 1 of the EP Regulations.
condition	means a condition to which this Works Approval is subject under s.62 of the EP Act.
Decision Report	refers to this document.
Delegated Officer	An officer delegated under section 20 of the EP Act.
Department	The department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
DFES	Department of Fire and Emergency Services
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point.
green waste	means waste that originates from untreated trees or plants.
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
occupier	has the same meaning given to that term under the EP Act.

Term	Definition
prescribed premises	this has the same meaning given to that term under the EP Act.
premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
risk event	as described in *Guidance Statement: Risk Assessment*
TDS	means Total Dissolved Solids
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
tpa	means tonnes per annum

2. Purpose and scope of assessment

On 6 August 2019 an application for a works approval was received from Wannamal Rd Organics Pty Ltd (the Applicant) to construct and operate a composting facility at Lot 7779 on Deposited Plan 209806, Wannamal Road West, Cullalla (the premises) in the Shire of Gingin. The proposal is to build a 25 hectare composting facility constructed over five stages of development. The premises proposes to accept green waste and grease trap waste. Stage 1 is the first stage of this proposal, and is the subject of this works approval application and assessment.

Based on the activities proposed, the operation will cause the premises to become prescribed under Part V of the *Environmental Protection Act 1986* (EP Act) for Category 67A and Category 61 as detailed in
Table 2 below.

Table 2: Classification of Premises and assessed production or design capacity

Category	Description	Production or design capacity
67A	Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, missing, drying or composting to produce commercial quantities of compost or blended soils.	50,000 tonnes per year
61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	18,250 tonnes per year

Once sufficient capital has been reached with operation of the first stage, the second stage will then be constructed. As this works approval only assesses the works and construction of Stage 1, the applicant will be required to submit an application for a works approval for Stage 2 and then as required for the remaining construction stages.

This Decision Report is an assessment of the foreseeable risk events that have the potential to impact public health, public amenity and the environment, arising from the construction of Stage 1 of the composting facility and the operation of the premises.

2.1 Application details

Table 3 lists the documents submitted during the assessment process.

Table 3: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval application – DWER Record DWERDT186781 DWER Application form Cover letter Attachment 1A: Certificate of Title Attachment 2: Composting Facility Design Attachment 7: Siting and location	6 August 2019
Additional information – DWER Record A1831264 *Clarification required - Response to request for further information prior to validating application*	20 September 2019
Additional information – DWER Record 1842418 *Clarification required – Response to request for further information following DWER meeting*	3 November 2019
Additional information – DWER Record A1842415 *Clarification required – Response to request for further information following acceptance of application*	15 November 2019
Additional information – DWER Record A1875872 *Submission of flora survey report*	27 February 2020
Additional information – DWER Record A1899212 Response to draft documentation provided for comment	2 June 2020
Revised asphalt bunding profile – DWER Record A1901930	10 June 2020

3. Overview of Proposed Premises

The proposed composting facility will be constructed over 5 stages, with an estimated throughput of 100,000 tonnes per annual period of raw green waste material once all 5 stages are operational. The applicant has indicated that of this 100,000 tonnes of green waste proposed to be accepted, 50,000 tonnes is proposed to be mulched. This works approval only assesses Stage 1 of the proposal, which is designed to process an annual throughput of up to 50,000 tonnes of green waste, and up to 18,250 tonnes per year of grease trap waste.

Stage 1 of the proposed development comprises a 7 hectare composting area, and will produce approximately 15,217 tonnes per year of compost (from approximately 30,434 tonnes per annum of raw feedstock material). The following sections summarise the process information and infrastructure described in the application. The proposed premises layout is shown in Figure 1 below. The premises is proposed to operate from 7am to 5pm Monday to Friday.

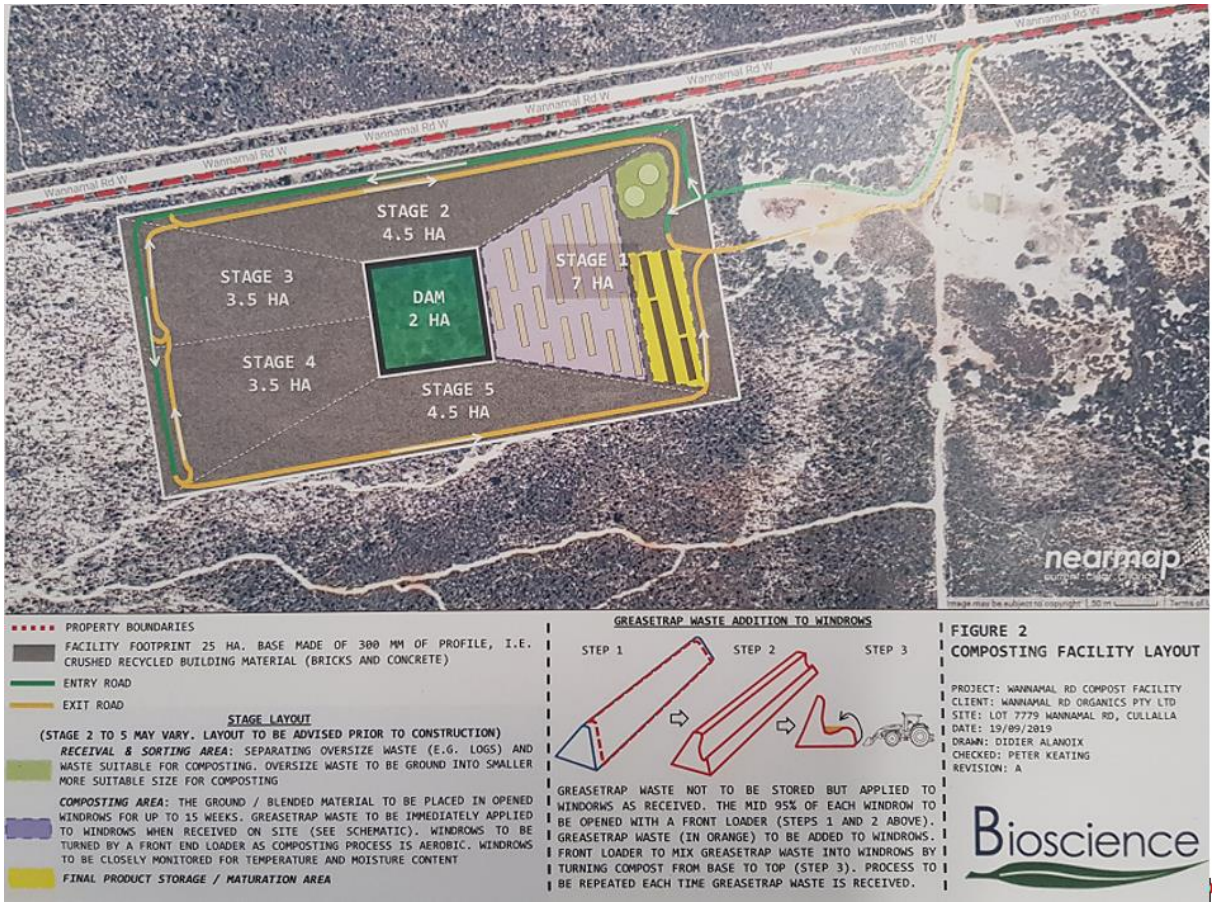


Figure 1: Site Layout Plan (The white line depicts the Premises boundary)

3.1 Waste acceptance and throughputs

Wannamal Rd Organics Pty Ltd proposes to accept green waste and grease trap waste as feedstock for its composting operations. Stage 1 of the proposal is designed to accept up to 50,000 tonnes per year of green waste, with the majority of this material anticipated to be sourced from licensed waste transfer stations. Green waste may also be sourced from roadside tree pruning or land clearing activities. Green waste is expected to mainly comprise ground wood, bark, stems and leaves from such activities.

To assist in increasing the efficiency of the composting process, the applicant also proposes to accept approximately 18,250 tonnes per year of grease trap waste. This material will be immediately applied to composting windrows as it is received. There will be no storage of grease trap waste at the premises. The quantity of grease trap waste received at the premises will be limited operationally by the active composting windrows. Grease trap waste will be added to active compost stockpiles at the appropriate time to maintain a target moisture content range of between 45 and 65 % (the applicant has nominated the moisture content within active stockpiles to be maintained between 45% and 50%).

The applicant may also accept small quantities of raw material feedstock such as urea which may be required as an additive in the composting process to ensure a commercially useful compost product having a carbon to nitrogen ratio (C/N) of 40.

3.2 Proposed composting process

Tip trucks will enter the premises via an access track from Wannamal Road West and proceed to the receival and storage area (refer to Figure 1) to deliver green waste and raw material feedstock. Each load will be screened manually on the receival and storage area floor and be segregated according to composition. Oversized material not suitable for composting (e.g. logs) will be separated out and ground into smaller size fractions suitable for composting using a tub grinder.

A front-end loader will blend the ground green waste material in the receival and storage area. Once blended it will be transported within to the Stage 1 composting area to be stockpiled in open windrows for processing (refer to Figure 1). All green waste feedstock received at the premises will be removed from the receival and storage area within 48 hours of delivery.

Windrows will be formed progressively by layers, with each layer being wet by a water cart retained on site. Composting windrows will be up to 8 metres wide and 4 metres high, and will not exceed 50 metres in length. A front end loader will be used to aerate and relocate the stockpiles.

Windrows will be closely monitored for temperature and moisture content throughout the composting process to ensure the composting material has a moisture content between 45-50%. The temperature and moisture of the windrows will be measured in the early morning to determine the stage of composting and the required frequency of turning. To ensure windrows maintain a 45-50% moisture content level, the applicant intends to use water collected in the premises' stormwater and leachate collection basin, bore water and grease trap waste. Grease trap waste will be immediately applied to windrows when received at the premises and mixed into windrows with a front-end loader. The windrows will be maintained above 50 degrees Celsius for six weeks to ensure pasteurisation. The duration for windrows to be composted is between 8 to 12 weeks. The adequate decomposition of the composting process will be determined by the temperature of the windrows dropping below 40 degrees.

Once mature, the final product will be tested to meet the standard requirements of AS 4454-2012 certification. The applicant noted that a mechanical trammel screen may be brought on site to screen final products to create coarse (mulch) and fine (compost) materials. The Delegated Officer has considered the implementation of this equipment for the composting process in the risk assessment. Once material meets the end product specifications of AS 4454-2012, it is anticipated it will be used mostly for broad acre agriculture.

3.3 Infrastructure

Stage 1 is the subject of this works approval, which will consist of the installation of a two hectare lined stormwater and leachate collection basin and a seven hectare composting area (refer to Stage 1 on Figure 1). The following information in relation to the works and planned infrastructure was submitted within the application:

- Composting material will be stored and processed on a hardstand area comprising 100 mm thick asphalt layer overlaying a subbase constructed from crushed recycled demolition waste, composed of bricks and concrete with sand added as necessary to optimize compaction and maximum dry density. An asphalt bund (mound) on the perimeter of the hardstand area will assist in draining stormwater and leachate to the collection basin.
- A 200 mm thick asphalt lined stormwater and leachate collection basin will be constructed in the centre of the facility to service the composting facility. The composting hardstand will have a 1:100 slope towards the 4 metre deep collection basin which will allow for the collection of any leachate from composting activities and storm water runoff to flow towards the basin.

The composting facility infrastructure, as it relates to Category 67A and 61 activities, is detailed in Table 4 and with reference to the Site Layout Plan as shown in Figure 1.

Table 4: Proposed infrastructure and equipment

Ref	Infrastructure or Equipment	Site Layout Plan reference
1	Stage 1 Composting hardstand (7ha) • Subgrade constructed of crushed recycled building material to be 300 mm in thickness • Lined with 100 mm thick layer of asphalt • Hardstand to be constructed to achieve a permeability of 1 x 10^{-9} metres per second or less • 200 mm asphalt bund constructed around perimeter of Stage 1 area	Referred to as 'Stage 1 - 7ha' in Composting Facility Layout Plan; comprising of a receival and storage area, composting area and final product storage/ maturation area.
2	Stormwater runoff and leachate collection basin • 141 metres x 123 metres x 4 metres deep basin • Approximately 70,258m³ capacity • Walls and base lined with 200 mm thick layer of asphalt • A permeability of 1 x 10^{-9} metres per second or less must be achieved	Referred to as 'Dam 2 ha' in Composting Facility Layout Plan.
3	Tip truck for delivering raw materials to composting area	N/A – Mobile equipment
4	Front-end loader for blending and transport of raw materials	
5	1 x watercart (20,000 L) for controlling dust emissions and windrow moisture content, and for emergency fire-fighting (top mounted fire-fighting nozzle)	
6	1 x trailer mounted high volume discharge pump watercart (20,000 L) for emergency fire-fighting	

Ref	Infrastructure or Equipment	Site Layout Plan reference
7	2 x 30,000 L gravity fed overhead water tanks	N/A
8	Tub-grinder capable of processing up to 300 tonnes per hour. Expected noise level of 66dB at 100m at full capacity.	N/A
9	Wood shredder capable of processing 300 tonnes per hour. Expected noise level of 95-100dB at 10 m.	N/A
10	Mechanical trammel screen capable of processing 300 tonnes per hour. Expected noise level of 86dB at 10 m.	N/A
11	Perimeter fencing 1.8 m high link-mesh security fencing installed and maintained to the premises boundary to prevent site access.	N/A

4. Legislative context and other approvals

4.1 Contaminated sites.

At the time of assessing this works approval application Lot 7779 on Deposited Plan 209806, Cullalla, was not listed on DWER's contaminated sites database, as a known or suspected contaminated site.

4.2 Other relevant approvals

4.2.1 Development approval

The premises is situated in an area zoned as 'General rural' as defined by the Shire of Gingin's Local Planning Scheme No.9 (District Scheme). The applicant lodged an application for development approval with the Shire of Gingin on 7 August 2019 for the development of a composting facility. The Shire of Gingin advised DWER on 14 January 2019 that the application contained insufficient information to accept and formally receive. The Shire noted that the applicant has not provided any additional information to date and is therefore unable to confirm if an application for development approval would be supported once lodged and accepted. The applicant has advised that additional information will be provided to the Shire in June 2020.

To date, no planning approval has been issued for the proposed activities on the premises. Whilst DWER acknowledges that planning approval has not been issued, this does not prevent DWER continuing with a decision on its assessment of the works approval application.

4.2.2 Groundwater licence

Land owner Vinsan Holdings Pty Ltd hold a 'Licence to take' groundwater for the property (GWL165729) which was recently renewed for an annual water entitlement of 111,430 kL per annum. The Licence is valid until 25 September 2029 and allows the taking of water for the purposes of domestic use, irrigation of pasture and olive trees, general aquaculture, and stock watering. The Delegated Officer notes that groundwater licence will likely require an amendment to alter the approved purpose should the applicant require the use of groundwater for this proposal.

4.2.3 Native Vegetation Clearing

The applicant originally applied for a clearing permit (CPS 7612/1) that covered the majority of the composting area footprint on 24 May 2017. A preliminary assessment of the clearing permit application by the Department's Native Vegetation Branch determined that the proposed clearing was likely to result in a number of environmental impacts and that a targeted flora survey and vegetation survey would be required. The applicant subsequently requested to withdraw the clearing permit application on 1 March 2019 given the required flora surveys had not been conducted and the relevant approvals had not been applied for.

During the assessment of this works approval application DWER Industry Licensing advised the applicant that a new clearing permit application is required to be submitted to DWER's Native Vegetation Regulation Branch (NVRB) to address the proposed clearing. A clearing permit application was provided to DWER's NVRB for assessment on 29 May 2020.

The works approval does not authorise clearing of any native vegetation on the proposed premises.

4.2.4 Premises legal occupation

Lot 7779 on Deposited Plan 209806 Cullala is owned by Vinsan Holdings Pty Ltd. The applicant has occupational control of the premises through a lease agreement with the landowner. The lease agreement is for a 5 year term, with the option to extend.

4.3 Part V of the EP Act

4.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations. The guidance statements which inform this assessment are:

- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Decision Making (June 2019)
- Guidance Statement: Risk Assessments (February 2017)
- Guidance Statement: Environmental Siting (November 2016)

5. Location and siting

5.1 Siting context

The premises is sited in the locality of Cullalla within the Shire of Gingin, approximately 67 kilometers north of Perth and approximately 21 kilometres north-east of the town of Gingin (refer to Figure 2: Premises location). The Wannamal town site in the Shire of Chittering is located approximately 8.1 kilometres east of the Premises. Approximately 50 people reside in the town of Wannamal.

The premises is zoned as 'General rural' under the Shire of Gingin's Local Planning Scheme No.9 (District Scheme). Properties situated to the north, east and south of the premises are also zoned 'General rural'. The land situated immediately to the west of the premises is zoned as 'Parks and Recreation' and is known as the 'Boonanarring Nature Reserve'. The site has been mapped by the Department of Fire and Emergency Services (DFES) as a designated bush fire prone area that is subject, or likely to be subject to bushfire attack.

Two intensive piggeries are located within a four kilometre radius of this premises.

Figure 2: Premises location

5.2 Environmental receptors

Figure 3 and **Error! Not a valid bookmark self-reference.** below provides a summary of human and environmental receptors in proximity to the proposed premises which have a potential to be impacted from site activities.

Table 5: Distance to receptors

Human receptors	**Distance from activity or prescribed premises**
Industrial Premises - EJ Howard and AR Howard (Kamarah Piggery) (L5008/1991/13) – Intensive Piggery	1.4 kilometres north-east of the Premises boundary.
Industrial Premises - Westpork Pty Ltd (Mindarra Farm Piggery) (L5724/1993/11) – Intensive Piggery	3.4 kilometres west of the Premises boundary.
Industrial Premises – Piggery (not licenced)	3.9 kilometres south-east of the Premises boundary
Residential Premises (Zoned General rural)	4.2 kilometres south-east of the Premises boundary
	4.4 kilometres east of the Premises boundary
	4.6 kilometres south-east of the Premises boundary
	6 kilometres north-east of the Premises boundary
Town (Wannamal)	8.1 kilometres east of the Premises boundary
Environmental receptors	**Distance from activity / prescribed premises**
***Rights in Water and Irrigation Act 1914 (RIWI Act*)** Proclaimed Groundwater Area – Gingin Groundwater Area	Premises is situated within a Proclaimed Groundwater Area.
RIWI Act: Proclaimed Surface Water Area – Gingin Brook Catchment Area	Premises is situated within a Proclaimed Surface Water Area
Threatened Ecological Community (TEC) known as the '*Banksia* Woodlands of the Swan Coastal Plain ecological community', listed as Endangered under the ***Environment Protection and Biodiversity Conservation Act 1999***	Premises is located within a mapped occurrence of this TEC. Several mapped occurrences of this TEC also occur within the vicinity of the Premises.
Conservation area known as 'Boonanarring Nature Reserve' (C class category)	730 metres west of the Premises boundary

Environmental receptors (cont…)	Distance from activity / prescribed premises
Geomorphic wetlands of the following management categories are located within the local area: • Resource Enhancement Wetland (***REW***) • Multiple Use Wetland (***MUW***); and • Conservation Category Wetland (***CCW***);	REW - 50 metres east of the premises boundary
	MUW - 330 metres east of the premises boundary
	CCW – 375 metres north of the premises boundary
	CCW – 1.4 kilometres south-east of the premises boundary
Threatened and priority flora species	Records of several threatened and priority flora species that occur within five kilometres of the premises boundary.
Major perennial watercourse known as the 'Brockman River'	6.3 kilometres east of the Premises boundary
Public Drinking Water Source Area (***PDWSA***) Priority 1 known as the 'Gnangara Underground Water Pollution Control Area'	29.5 kilometres south-west of the Premises boundary

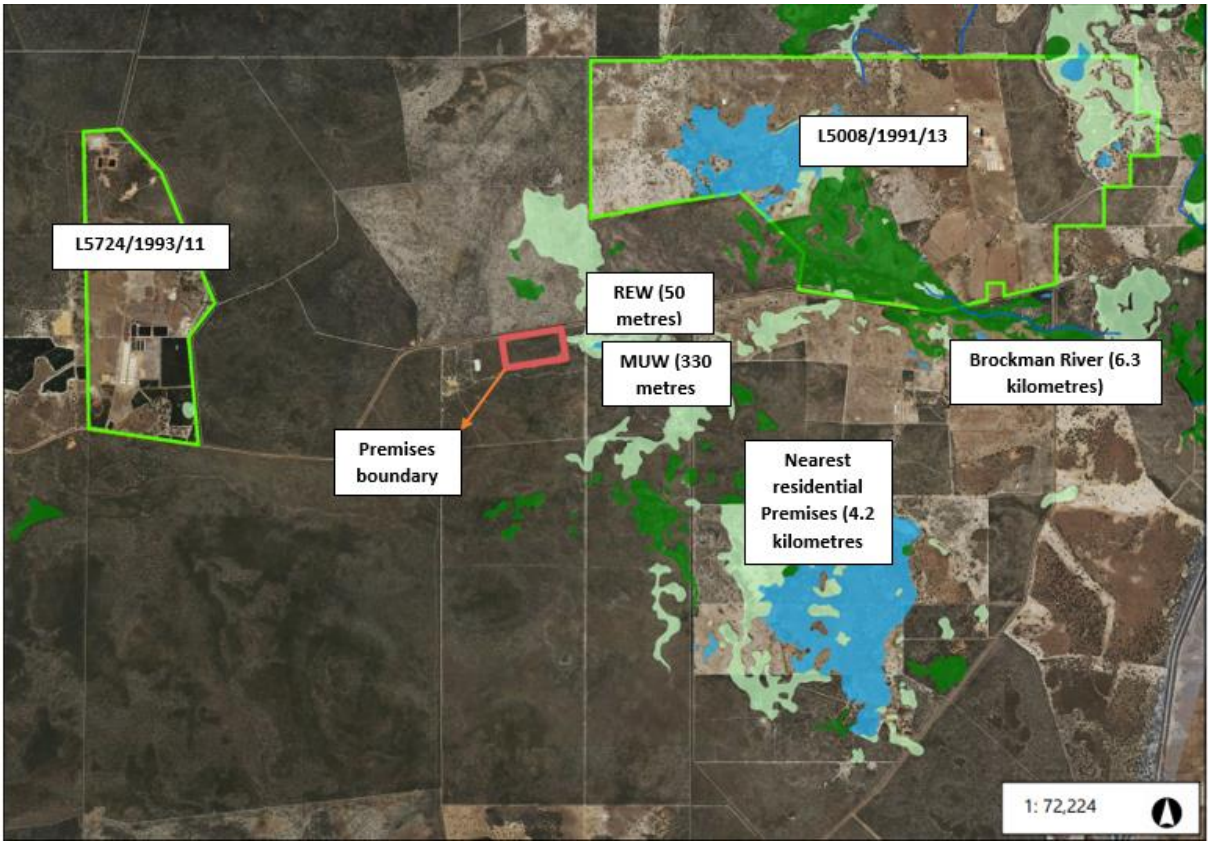


Figure 3: Proximity of Premises to sensitive receptors (The red box constitutes the Prescribed Premises)

(Management categories of wetlands: dark green – CCW; lime green – REW; blue –MUW)

6. Potential emissions and pathways

Risk is assessed as a combination of emission sources, the proximity and sensitivity of receptors to those emission sources and any pathways that can allow the emission to reach and potentially harm the receptor. The potential for emissions to impact on sensitive receptors has been assessed in accordance with the Department's Risk Framework.

6.1 Emissions

The key emissions during premises construction which have been considered in this report are **noise** and **dust** from activities including ground works, vehicle movements and placement of equipment and infrastructure. The applicant has proposed measures to assist in controlling these emissions, where necessary. The control measures are outlined in Section 6.3 below and have been considered when undertaking the risk assessment detailed in Section 7.

The key emissions considered during time limited and full premises operation are **dust, noise, leachate/liquid waste, odour, fire smoke risk** and **fire wash-water** from vehicle movements, waste acceptance/storage, windrow turning by machinery and the open windrow composting process.

Following completion of works and time limited operations, a prescribed premises category 67A and 61 licence under Part V of the EP Act will be required to authorise emissions associated with ongoing operations 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 DWER assesses the associated licence application.

6.2 Pathways

6.2.1 Groundwater, site topography and soil type

Leachate is considered a potential emission due to the moisture content of the composting process, inclusion of grease trap waste and the ability for stormwater to interact with the open windrows. Wastewater from fire-fighting washwater (in the event of a fire) may become contaminated and has the capacity to infiltrate groundwater. Discharges of leachate and potentially contaminated wastewater/stormwater directly to soils onsite may result in seepage to groundwater or surface-run off to adjoining land. As a result the soil type, topography and depth to groundwater have been considered.

The landform and soil type at the proposed premises is mapped by the Department of Primary Industries and Regional Development as the 'Capitella System' described as 'subdued stripped lateritic plateau, undulating to gently undulating low rises with gently undulating plain including dunes; pale and yellow deep sands, sandy gravels, some duplex; from sandstones plus alluvial and aeolian deposits'. These soils are considered to be highly permeable and likely to allow leachate to move through the soil profile.

A review of the published hydrogeological reports and DWER monitoring bore data in the local area indicates the direction of groundwater flow is generally to the west. Groundwater is currently being extracted at the site from the Mirrabooka aquifer. Nearby users that are downgradient (west) of the property are accessing groundwater from the Leederville-Parmelia aquifer and therefore not considered to be affected by groundwater discharge from operations at the site.

Groundwater generally flows to the west therefore it is not considered likely that a pathway via groundwater exists to the wetland areas to the east and south of the premises. The only environmental receptor as identified in Table 7 that may potentially be impacted by

groundwater discharge is the '*Banksia* Woodlands of the Swan Coastal Plain ecological community' TEC that is mapped within the vicinity of the premises. However, noting that the depth to groundwater has been identified as being 26 metres below ground level (based on wells constructed and sampled in the local area), it is considered unlikely that the vegetation in the area is dependent on groundwater.

DWER's GIS mapping system also indicates that groundwater in the area is likely to have a TDS concentration of 1000 to 3000 mg/L, and is considered to be fresh to brackish. Groundwater may not be considered as potable for human consumption, however may be suitable for non-potable purposes of for livestock use.

Notwithstanding the above, the applicant has proposed the installation of four groundwater monitoring wells, two hydraulically up-gradient (MB1 and MB2) and two hydraulically down-gradient (MB3 and MB4) of the composting area, as shown in Figure 4, to monitor potential impacts to groundwater from the premises activities.

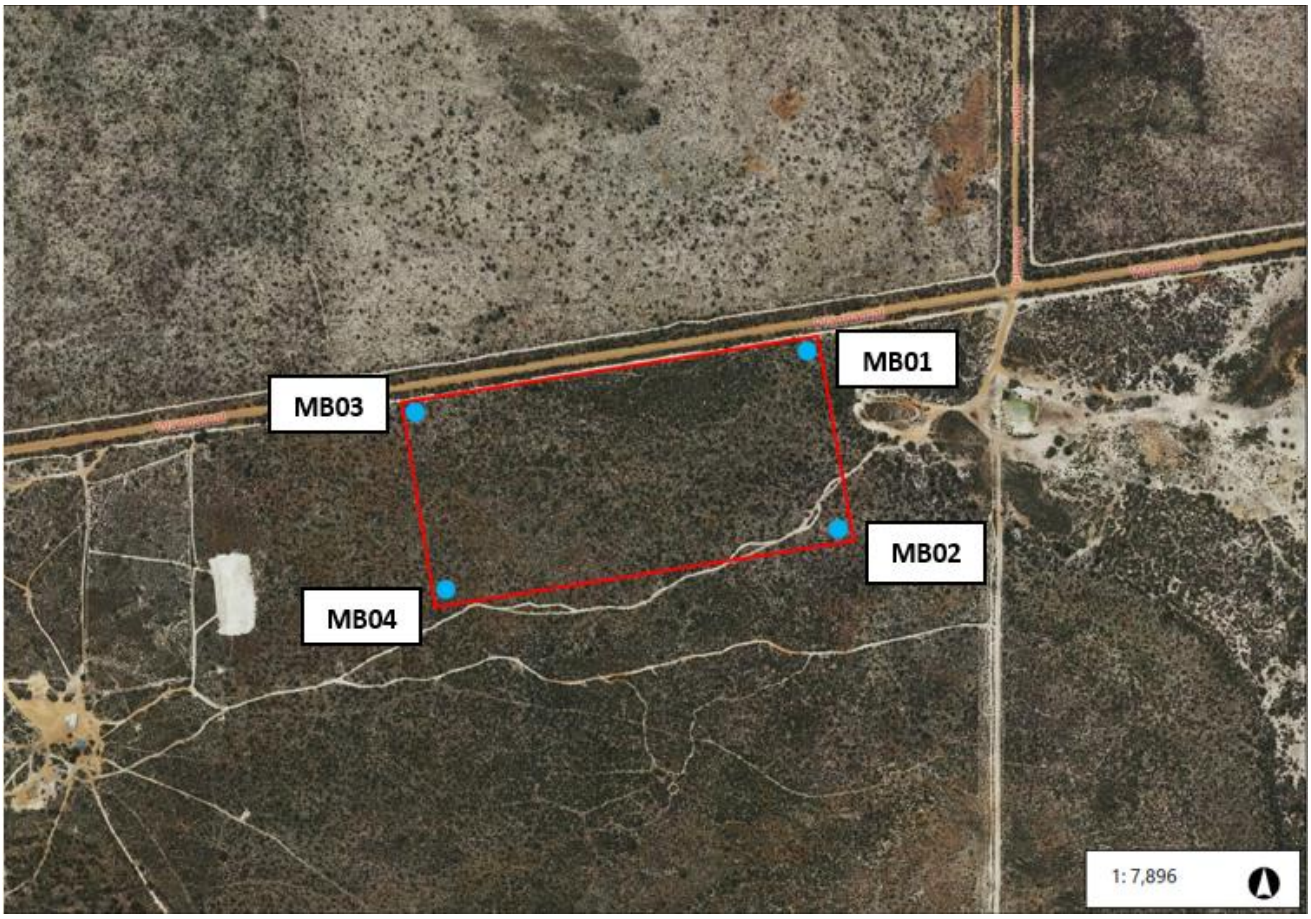


Figure 4: Proposed groundwater monitoring well locations

Key Findings:

1. The proposed groundwater monitoring well locations are considered suitable to monitor potential impacts to groundwater from on-site activities.
2. The works approval will include conditions regarding the construction and installation of these groundwater monitoring wells.
3. The works approval will require groundwater monitoring of wells prior to and during time limited operations to determine depth to groundwater and monitor for potential impacts to groundwater.
4. Ongoing monitoring requirements will also be required under licence conditions for continued operations.

6.2.2 Surface water runoff

The premises is located approximately 50 metres east of a Resource Enhancement Wetland (REW). A number of wetlands (REW, conservation category and multiple-use category) occur to the north, west and south-west of the premises.

Noting the close proximity of the nearest wetland being only 50 metres east of the prescribed premises boundary and that the landscape topography of the site slopes gently towards this waterbody, a potential pathway for overland flow to this surface water body exists.

A desktop water balance was undertaken for the proposed premises to estimate the required capacity for the stormwater runoff and leachate collection basin. The water balance model determined that the stormwater and leachate basin is capable of retaining the rainfall received during a 1% Annual Exceedance Probability (AEP) rainfall event (168 hour duration).

Key Findings:

5. The applicant has demonstrated that sufficient capacity exists within the leachate collection basin and the premises, both under normal conditions and during rainfall events.

6.2.3 Air

As **dust, noise and odour** are considered potential emissions, the prevailing wind direction has been considered. Using information available on the Bureau of Meteorology's website, the closest available weather station for climate data is Gingin Aero Station (No. 009178). Based on the climate data for Gingin Aero station (May 1996 to August 2019), the prevailing annual average wind direction is east in the morning and south west in the afternoon.

These pathways have been considered in the risk assessment table in Section 7.

6.3 Applicant controls

The applicant has proposed the following management controls as part of the application:

Table 6: Summary of potential emissions and applicant controls

Source/activities	Emission (as identified above)	Proposed controls
Excavation works Construction and placement of new infrastructure/equipment Vehicle movements on unsealed access roads	Dust	A water cart will be used on site to manage dust emissions during the construction phase.
Composting windrows Compost storage		Water cart retained on site for the wetting down of composting windrows to prevent dust emissions during operation. Moisture content levels of composting windrows to reduce dust generation will be maintained by staff undertaking visual inspections once a day every morning. Watering will also occur in the afternoon depending on the evaporation levels of composting windrows. Materials prone to dust generation will be wetted prior to, and during grinding/shredding, as required.
Excavation works Construction and placement of new infrastructure/equipment Vehicle/heavy machinery movements Screening operation Lift-off from composting windrows Lift-off from compost storage	Noise	The siting of the facility and distance to sensitive human receptors is considered to create minimal noise impacts.

Source/activities	Emission (as identified above)	Proposed controls
Composting windrows Compost storage Application of grease trap waste and other raw materials to composting activity Storage of leachate in leachate collection basin	Odour	Low odour-risk feedstocks used in composting process. The siting of the facility and distance to sensitive human receptors is considered to create minimal odour impacts. The moisture content of composting windrows will be maintained between 40% and 50%. Waste will be removed from the receival and storage area within 48 hours of delivery.
Production of leachate from storage of composting feedstocks (green waste and grease trap waste) prior to pasteurisation Storage of leachate in leachate collection basin 18,250 tpa of liquid waste (grease trap waste) Potentially contaminated stormwater	Leachate/Liquid waste/Contaminated stormwater	Hardstand constructed with a 100 mm thick asphalt profile to achieve a coefficient of permeability 1 x 10^{-9} metres per second or less with 200mm high asphalt bund surrounding perimeter of the Stage 1 area for the diversion of uncontaminated surface water around the hardstand, and to contain potentially contaminated stormwater. Composting windrows are situated on the asphalt hardstand. Stormwater runoff and leachate collection basin is constructed with 200mm thick asphalt material. The hardstand will include 1:100 slope to allow for leachate overflow from composting activities and stormwater runoff to be directed towards the collection basin. Four groundwater monitoring (two up-gradient and two downgradient) wells will be constructed on site to determine any potential impacts associated within the proposed activities onsite.
Spontaneous combustion of green waste windrows and stockpiles due to elevated internal temperatures	Fire wash-water generated from extinguishing a fire	Composting area graded towards a lined stormwater/leachate collection basin. Composting windrows are situated on a low permeability asphalt hardstand. A designated water cart is available for emergency fire management. The applicant has provided a Fire Management Plan that addresses operational controls to reduce the potential for spontaneous green waste fires to occur.

Source/activities	Emission (as identified above)	Proposed controls
Spontaneous combustion of green waste windrows and stockpiles due to elevated internal temperatures	Particulates, noxious gases and smoke from upset conditions (compost fire)	Waste will be removed from the receival and storage area within 48 hours of delivery. Moisture content of the composting windrows will be maintained above 45% as part of the composting process, and by virtue will reduce the risk of spontaneous combustion. Moisture content of the green waste received on site will not exceed 20% to prevent the generation of heat occurring through biological activity occurring and in turn resulting in spontaneous combustion. This will be maintained by watering once a day every morning from a water cart retained on site. Windrows will be no more than 5m high, 10m wide and 50m long. A 10m separation distance will be used for windrows within the composting area, sufficient to allow vehicle access. In the green waste receival and storage area a 21 metre separation distance between windrows in each row will occur, as well as a 41m separation distance between windrow rows. The applicant has provided a Fire Management Plan that addresses fire risk, and fire management procedures to be employed on the premises in the event of a fire.

7. Risk assessment

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 7 and Table 8 below, consistent with the *Guidance Statement: Risk Assessments*. Risk ratings have been assessed for each key emission source and take into account potential source-pathway-receptor linkages. The mitigation measures / controls proposed by the applicant have been considered in determining the risk rating. Emissions during construction and operation have been assessed separately to allow clear delineation of activity phases.

The works approval that accompanies this report authorises construction and time-limited operations. A licence is required to operate the premises following the time-limited operational phase authorised under the works approval.

The conditions in the issued works approval, as outlined in Table 7 and Table 8, have been determined in accordance with the *Guidance Statement: Setting Conditions*.

7.1 Risk assessment – construction

Table 7: Identification of emissions, pathway and receptors during construction

Risk Events					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities	**Potential emission**	**Potential receptors**	**Potential pathway/impacts**	**Applicant controls**					
Excavation works Construction and placement of new infrastructure/ equipment Vehicle/heavy machinery movements on unsealed surfaces	**Dust**	Two industrial premises (piggeries) are situated approximately 1.4 kilometres north east and 3.4 kilometres north west of the premises boundary. Four residential receptors located within six kilometres of the premises boundary. Closest resident is located 4.2 kilometres south east of the premises.	Air/wind pathway causing impacts to health and amenity of closest human receptors.	See Section 6.3	Minor	Unlikely	Medium	The Delegated Officer considers that fugitive dust emissions may arise from construction activities and vehicle movements during the construction of the proposed facility, and these emissions may cause minimal off site impacts. The Delegated Officer also considers that these impacts will probably not occur in most circumstances, resulting in a Medium risk associated with construction dust emissions. The Delegated Officer considers the inclusion of dust controls necessary to manage this risk and therefore conditions to manage dust emissions have been placed on the works approval.	Conditions 10 and 11: Dust emissions controls
		The premises is situated within an area where the occurrence of an endangered Threatened Ecological Community (TEC) known as the 'Banksia Woodlands of the Swan Coastal Plain ecological community' has been mapped.	Potential for dust to be deposited on TEC vegetation through air/wind dispersion which may prevent photosynthesis and plant respiration.		Minor	Possible	Medium	Based on the distance to the relevant receptor, the Delegated Officer considers that the dust emissions generated during construction may impact TEC vegetation that surrounds the composting facility. Therefore, a condition to manage dust generation at the premises has been imposed on the works approval that requires the applicant to retain a water cart on site for unsealed roads and exposed areas, and for these areas to be watered down regularly, or as required.	Conditions 10 and 11: Dust emissions controls
		Resource Enhancement Wetland (REW) located approximately 50 metres east of the premises boundary.	Disruption to normal ecosystem function		Minor	Unlikely	Medium	The Delegated Officer considers that short term dust emissions during construction activities will not cause distinguishable impacts to the REW at this distance. General dust controls included with the works approval are considered sufficient to manage any potential impacts.	Conditions 10 and 11: Dust emissions controls

Risk Events					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities	**Potential emission**	**Potential receptors**	**Potential pathway/impacts**	**Applicant controls**					
Excavation works Construction and placement of new infrastructure/equipment Vehicle/heavy machinery movements	**Noise**	Two industrial premises (piggeries) are situated approximately 1.4 kilometres north-east and 3.4 kilometres north-west of the premises boundary. Four residential receptors located within six kilometres of the premises boundary. Closest resident is located 4.2 kilometres south-east of the premises.	Air/wind pathway causing impacts to health and amenity of closest human receptors.	The applicant has not proposed any specific noise controls during construction	Minor	Unlikely	Medium	It is not expected that sensitive receptors will be significantly impacted by noise emissions during construction given the distance from the premises.	The general provisions of the EP Act and the *Environmental Protection (Noise) Regulations 1997* are considered sufficient in regulating noise emissions.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

7.2 Risk assessment – operation

Table 8: Identification of emissions, pathway and receptors under time-limited operations and during full operation

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities*	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Lift-off from composting windrows Lift-off from compost storage Vehicle/heavy machinery movements on unsealed surfaces	**Dust**	Two industrial premises (piggeries) are situated approximately 1.4 kilometres north-east and 3.4 kilometres north-west of the premises boundary. Four residential receptors are located within six kilometres of the premises boundary. Closest resident is located 4.2 kilometres south-east of the premises	Air/wind pathway causing impacts to health and amenity of closest human receptors.	Refer to Section 6.3	Minor	Unlikely	Medium	Dust emissions may be generated from the dust lift off from composting windrows, and intermittent vehicle movements across unsealed surfaces. The application of water throughout the composting process is considered to be sufficient for preventing dust list off and reduce the capacity for dust emissions to reach the closest human receptors given the large separation distance from these receptors to the premises.	Condition 1 and 2 (Table 1) – Infrastructure and equipment. Conditions 21 – Dust management (under time limited operations).
Vehicle/heavy machinery movements	**Noise**	Two industrial premises located approximately 1.4 kilometres north-east and 3.4 kilometres north-west of the premises boundary. Four residential receptors are located within six kilometres of the premises boundary. Closest resident is located 4.2 kilometres south-east of the Premises	Air/wind pathway causing impacts to health and amenity of closest human receptors	Refer to Section 6.3	Slight	Rare	Low	The Delegated Officer considers that the siting of the premises is likely to be sufficient at mitigating noise emissions associated with the composting activities.	All noise emissions from the Premises are subject to the *Environmental Protection (Noise) Regulations 1997.*

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities*	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Composting windrows Storage of green waste and grease trap waste feedstocks Application of grease trap waste and other raw materials to composting activity Storage of storm water and leachate in leachate collection basin	**Odour**	Two industrial premises located approximately 1.4 kilometres north-east and 3.4 kilometres north-west of the premises boundary. Four residential receptors are located within six kilometres of the Premises boundary. Closest resident is located 4.2 kilometres south east of the premises.	Air/wind pathway causing impacts to health and amenity of closest human receptors.	Refer to Section 6.3	Minor	Possible	Medium	Feedstock accepted and processed at the premises has the potential to generate odour emissions through the deposition of odorous materials and inadequate composting processes causing impacts outside the premises. Notwithstanding the proposed feedstocks are considered to present a low odour-risk. The applicant has undertaken an odour screening analysis in accordance with DWER's *Odour emissions* Guideline (2019) which has demonstrated that the sensitive residential receptors are located beyond the recommended screening distances for Category 67A and 61 being 2200 metres and 1000 metres respectively. Noting the closest sensitive residential receptor is not located within the prevailing wind direction, the 4.2 kilometre separation distance and in consideration of the applicant's proposed controls which require the maintenance of composting windrows to be within specific ranges of moisture, the Delegated Officer considers that these measures are sufficient for mitigating odour emissions.	Condition 1 and 2 (Table 1) – Infrastructure and equipment. Conditions 17 (Table 3) to 19: Waste acceptance and throughput restrictions. Condition 20 (Table 4): Waste processing specifications. Condition 25: Compost process monitoring.

Production of leachate from storage of composting feedstocks prior to pasteurisation. Leachate from active composting windrows and final products. Storage of leachate in leachate collection basin 18,250 tpa of liquid waste (grease trap waste)	**Leachate/ liquid waste**	Deterioration of groundwater quality on-site and adjacent lots. Multiple wetlands occur to the north, west and southwest of the Premises, with the closest being an REW wetland located approximately 50 metres east of the premises boundary. TEC known as the 'Banksia Woodlands of the Swan Coastal Plain ecological community' mapped within and surrounding premises.	Seepage through the soil profile causing contamination of groundwater on-site. Soil contamination may inhibit the growth and survival of remnant native vegetation located adjacent to the premises and in turn result in degradation of TEC vegetation and health impacts to conservation significant fauna utilising the area.	Refer to Section 6.3	Moderate	Unlikely	Medium	There are several sensitive receptors located in close proximity to the premises that may be impacted by leachate runoff generation from the acceptance and composting pad and from the overflow/seepage of the leachate collection basin. The impermeable hardstand is considered to be a primary measure for preventing direct discharges of leachate from the composting area (and liquid waste receival area) to the immediate environment. The gradient of the composting facility is considered to be sufficient in directing and containing leachate and potentially contaminated stormwater to the collection basin. However, there is a risk of leachate runoff occurring from the designated Stage 1 area. The applicant has proposed to install asphalt bunding around the perimeter of Stage 1 to help direct leachate into the stormwater and leachate collection basin. The Delegated Officer has reviewed the water balance model submitted as part of the application and determined that the leachate collection basin has sufficient capacity to contain leachate generated from the proposed composting trial for the first stage of the development. It is noted that a freeboard was not included in the water balance calculation, therefore a condition has been included within the works approval for the Works Approval Holder to maintain a nominal 500mm freeboard on the leachate basin to capture potentially contaminated stormwater during a storm event. Consideration was also given to all composting activities with possible leachate generation occurring on low permeable hardstands, preventing the leachate from seeping through the soil profile and reaching groundwater. Groundwater monitoring conditions have been placed on the works approval requiring the applicant to install groundwater wells prior to and during time limited operations to monitor potential impacts to groundwater as a result of the operations. The application of liquid waste (grease trap waste) is not considered to increase the potential for liquid waste emissions at the premises. This is due to the wastes being accepted directly into the batch composting process on a low permeability hardstand. The Delegated Officer considers that any spill/loss that may occur during acceptance would result in the liquid waste being directed to the lined leachate collection basin.	Condition 1 and 2 (Table 1) – Infrastructure and equipment. Condition 3 (Table 2): Construction quality assurance testing for specified infrastructure. Condition 4 (Table 3): Infrastructure requirements – installation of groundwater monitoring wells. Conditions 5 to 7: Groundwater monitoring (prior to Time Limited Operations). Conditions 17 (Table 4) to 18: Waste acceptance and throughput restrictions. Condition 20 (Table 5): Waste processing specifications. Conditions 22 to 24: Groundwater monitoring (during Time Limited Operations). Condition 25: Compost process monitoring. Conditions 26 to 27: Final product testing.

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities*	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Potentially contaminated stormwater (from active areas)	**Potentially contaminated stormwater**	Multiple wetlands occur to the north, west and southwest of the premises, with the closest being an REW wetland located approximately 50 metres east of the premises boundary.	Stormwater runoff may contain elevated metals, nutrients and other contaminants which may cause contamination on and off-site land, surface water bodies and groundwater if not properly contained. Soil contamination may inhibit the growth and survival of remnant native vegetation located adjacent to the Premises and in turn result in degradation of TEC vegetation and health impacts to conservation significant fauna utilising the area.	Refer to Section 6.3	Moderate	Unlikely	Medium	Noting the close proximity of the composting facility to the closest surface water body, and the topography of the site (sloping south-east towards the wetland area), there is a risk of contaminated stormwater runoff to this water body, particularly during a large rainfall event. The Delegated Officer considers however, this risk will be significantly reduced by the applicant's proposed controls which include that all composting activities will occur on a bunded hardstand that is sloped towards a containment stormwater and leachate basin situated in the centre of the composting facility. The Delegated Officer considers the design of the infrastructure and the asphalt bunding surrounding the hardstand to be sufficient for the prevention of surface water runoff.	Condition 1 and 2 (Table 1) – Infrastructure and equipment. Condition 3 (Table 2): Construction quality assurance testing for specified infrastructure. Condition 4 (Table 3): Infrastructure requirements – groundwater monitoring wells. Conditions 5 to 7: Groundwater monitoring (prior to Time Limited Operations). Conditions 22 to 24: Groundwater monitoring (during Time Limited Operations).
Spontaneous combustion of green waste windrows and stockpiles due to elevated internal temperatures	**Particulates, noxious gases and smoke from upset conditions (compost fire)**	Remnant native vegetation surrounding the premises TEC known as the 'Banksia Woodlands of the Swan Coastal Plain ecological community' mapped within and surrounding premises. Breeding and foraging habitat for conservation significant fauna Boonanarring Nature Reserve located 730 metres west of the premises.	Air/wind pathway causing impacts to adjacent TEC vegetation and the adjacent property which comprises of a conservation area managed by DBCA.	Refer to Section 6.3	Major	Unlikely	Medium	The site has been mapped by the Department of Fire and Emergency Services (DFES) as a designated bush fire prone area that is subject, or likely to be subject to bushfire attack. The processing of 50,000 tpa of green waste/ compost product represents a large stockpile of flammable material on site at any one time. Based on the risk of fire, the siting of the premises within in a bush fire prone area, and the proximity of the proposed activities to remnant native vegetation that may be representative of a TEC (that contains significant habitat for conservation significant fauna), the risk of fire impacts from the proposed activity is considered to be Medium. The Delegated Officer considers regulatory controls are required for onsite fire-fighting equipment, to manage fire risk with stockpiled green waste/compost, and to manage access for fire-fighting equipment. Additional green waste storage conditions may be included in the works approval, as referenced from the *Information Note: Bulk Green Waste Storage Fires* published by DFES. To reduce the risk of the public being able to access the premises and composting stockpiles being deliberately lit at the premises, a condition relating to installation of security fencing has been imposed on the works approval.	Condition 1 and 2 (Table 1) – Infrastructure and equipment Condition 13: Security fencing Condition 10 (Table 5): Waste processing specifications Condition 25: Compost process monitoring

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/ Activities*	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Spontaneous combustion of green waste windrows and stockpiles due to elevated internal	**Particulates, noxious gases and smoke from upset conditions (compost fire)**	Two industrial premises located approximately 1.4 kilometres north east and 3.4 kilometres north west of the premises boundary. Four residential receptors located within six kilometres of the premises boundary. Closest resident is located 4.2 kilometres south east of the premises.	Air/wind pathway causing impacts to health and amenity of closest human receptors.	Refer to Section 6.3	Moderate	Unlikely	Medium	As noted in the risk assessment above, there is a risk of fire present given the siting of the premises is located within in a bush fire prone area and the proximity of the proposed activities to remnant native vegetation. In the event of a fire, there is the potential for smoke emissions to impact upon the health and amenity of industrial and residential receptors. The Delegated Officer has taken into consideration the distance of the prescribed premises to these receptors and the applicant's proposed controls and determined that these measures are sufficient for managing the risk of fire emissions to human receptors.	Condition 1 and 2 (Table 1) – Infrastructure and equipment Condition 13: Security fencing Condition 20 (Table 5): Waste processing specifications Condition 25: Compost process monitoring
Spontaneous combustion of green waste windrows and stockpiles due to elevated internal temperatures	**Fire-wash water generated from extinguishing a fire**	Deterioration of groundwater quality on-site and adjacent lots Multiple wetlands occur to the north, west and south-west of the premises, with the closest being an REW wetland located approximately 50 metres east of the premises boundary	Seepage through the soil profile to groundwater causing contamination of groundwater. Overland flow causing impacts to surface water quality (nearby wetlands).	Refer to Section 6.3	Moderate	Unlikely	Medium	The Delegated Officer considers that the applicant's proposed controls of the composting operations occurring on a low permeability asphalt hardstand and the grading of the premises directed towards a leachate/stormwater collection basin are sufficient to manage the risk associated with fire wash waters which would only occur in an adverse situation.	Condition 1 and 2 (Table 1) – Infrastructure and equipment.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

8. Consultation

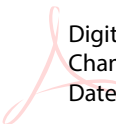
Table 9: Summary of consultation

Method	Comments received	DWER response
Application advertised on DWER website (11/11/2019)	None received	N/A
Local Government Authority advised of proposal (09/01/20)	The Shire of Gingin have confirmed that they are currently assessing a development application for the Premises.	Noted.
Draft Decision Report and Works Approval provided to Applicant (27/03/2020)	The applicant replied on 28 May 2020 providing additional information to assist in the finalisation of the assessment of the works approval application. The applicant raised a question regarding the inclusion of a 200mm high concrete bund on the premises, and the use of QLD Main Roads method Q304A for permeability testing of the hardstand.	DWER has reviewed the response and the draft documentation has been updated accordingly. The bunding requirement has been updated to reflect the asphalt bunding (mounding) on the perimeter of the premises, as requested by the applicant. In regard to the QLD Main Roads method for hardstand permeability testing, this was provided in the draft works approval as this was the testing method proposed to be used by the applicant's engineering consultant.

9. 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.

Melissa Chamberlain



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Melissa Chamberlain
A/MANAGER – WASTE INDUSTRIES
REGULATORY SERVICES

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

Document title	Availability
Works Approval (W6306/2019/1) application form and supporting documentation (August, 2019)	DWER record (DWERDT186781)
Email from applicant 20/9/2019 – Response to Request for Further Information	DWER record (A1831264)
Email from applicant 3/11/2019 – Response to Request for Further Information	DWER record (A1842418)
Email from applicant 15/11/2019 – Response to Request for Further Information	DWER record (A1842415)
Email from applicant 27/2/2020 – Response to Request for Further Information	DWER record (A1875872)
Email from applicant 02/06/2020 – Response to Request for Further Information	DWER record (A1899212)
Email from Bioscience with additional bunding information 10/06/2020	DWER record (A1901930)
AS 4454-12. Composts, soil conditioners and mulches. Standards Australia (2012)	accessed at standards.org.au
DFES September 2014. *Information Note: Bulk Green Waste Storage Fires*. Department of Fire and Emergency Services, Perth.	accessed at dfes.wa.gov.au
DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	
DER, February 2017 *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	
DWER, June 2019. *Guideline: Decision Making*. Department of Water and Environmental Regulation, Perth.	