



## Application for Licence

### Division 3, Part V *Environmental Protection Act 1986*

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<b>Licence Number</b>	L9246/2020/1
<b>Licence Holder</b>	Donald Pty Ltd
<b>ACN</b>	121 909 108
<b>File Number</b>	DER2020/000086
<b>Premises</b>	Westerndale Farm 497 Thompson Road Gillingarra WA 6510  Legal description – Lot 1 on Plan 7150 Lot 67 on Deposited Plan 228035 Lot 500 on Diagram 54739 Lot 501 on Diagram 54739 Lot 616 on Deposited Plan 249557 Lot 879 on Deposited Plan 249690 Lot 1184 on Diagram 5049 Lot 1209 on Diagram 5367 Lot 1249 on Diagram 5240 Lot 1388 on Diagram 18322
<b>Date of Report</b>	24 September 2020
<b>Status of Report</b>	Final

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# 1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
ACN	Australian Company Number
Biosolids	Means sludge from a wastewater treatment plant that has undergone further treatment to reduce disease causing pathogens and volatile organic matter significantly, resulting in a stabilised material suitable for beneficial use. Does not include industrial and food processing sludges.
Biosolids Guidelines	Western Australian guidelines for biosolids management (2012) Department of Environment and Conservation
Cake	Means stabilised biosolids that have been dewatered by mechanical or solar means to usually greater than 15% total solids.
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Contaminant limited biosolids application rate (CLBAR)	Means the rate which ensures that the concentration of any limiting contaminants does not exceed the maximum allowable soil contaminant concentration, as calculated in the Biosolids Guidelines.
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
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 <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Licence Holder	Donald Pty Ltd
Lime amended biosolids (LAB)	Means biosolids that have had sufficient lime added to destroy or inhibit regrowth of microorganisms (including pathogens).

Term	Definition
Limiting factor	Means the lower rate of the nitrogen limited biosolids application rate (NLBAR), the contaminant limited biosolids application rate (CLBAR) and the phosphorus limited biosolids application rate (PLBAR) if required, as defined in the Biosolids Guidelines. The Limiting Factor in relation to conditions of this Licence are stated in the respective Review of Environmental Factors report.
Nitrogen limited biosolids application rate (NLBAR)	Means the nitrogen demand of the crop, as calculated in the Western Australian guideline for biosolids management.
Phosphorus limited biosolids application rate (PLBAR)	Means the rate at which phosphorus can be applied to soils without excess leaching into the environment, which is only calculated for soils with limited ability to immobilize phosphorus, as calculated in the Western Australian guideline for biosolids management.
Prescribed Premises	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
Review of Environmental Factors	Means a third party independent auditor's review and certification of a proposed biosolids application.
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>

## 2. Purpose and scope of assessment

### 2.1 Application details

The Water Corporation, on behalf of the Applicant, applied on 12 February 2020 for a Licence for the purpose of Category 61A solid waste facility for the application of biosolids to land at Westerndale Farm, Gillingarra. It is proposed that biosolids cake from Beenyup and Woodman Point wastewater treatment plants (WWTPs) and lime amended biosolids (LAB) from Subiaco WWTP are applied to paddocks at Westerndale Farm as a fertiliser for canola and wheat crops. Westerndale Farm comprises 2 852 hectares in total, of which 2 139 hectares are arable. After the application of required buffers around sensitive receptors, it has been calculated a maximum of 1 995 hectares are suitable for biosolids application.

Biosolids are organic residues from the treatment of domestic and industrial wastewater that has undergone treatment to reduce pathogens and volatile organic matter. The resulting product is applied to land to provide carbon and nutrient inputs to agricultural and composting industries.

The Water Corporation has lodged a Review of Environmental Factors (2020) (REF) that assesses soils of three paddocks within Westerndale Farm, W2, W15 and W16, and specifies the pathogen grades and contaminant grades for biosolids for each of the three WWTPs. This assessment will review the findings of these sampling regimes, determine the potential for emissions and discharges from the premises and assess the risks of impacts to the surrounding environment.

This assessment will review the REF against the Western Australian Guidelines for Biosolids Management (DWER, 2012) (Biosolids Guidelines) to determine the adequacy of management of application of biosolids.

Table 2 lists the documents submitted during the assessment process.

**Table 2: Documents and information submitted during the assessment process**

Document/information description	Date received
Water Corporation & Aroona Alliance (2020) Review of Environmental Factors Westerndale Farm	12 February 2020
Aroona Alliance various electronic correspondence to clarify the Applicant, land owner and legal rights to the land, confirmation of CLBAR calculations, pathogen grading, biosolids transport, application timeframes, soil incorporation methods.	2 April 2020 15 April 13 May 2020

Table 3 lists the prescribed premises categories that have been applied for.

**Table 3: Prescribed Premises Categories**

Classification of Premises	Description	Approved Premises production or design capacity or throughput
61A	Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land	Less than 50 000 tonnes per annum



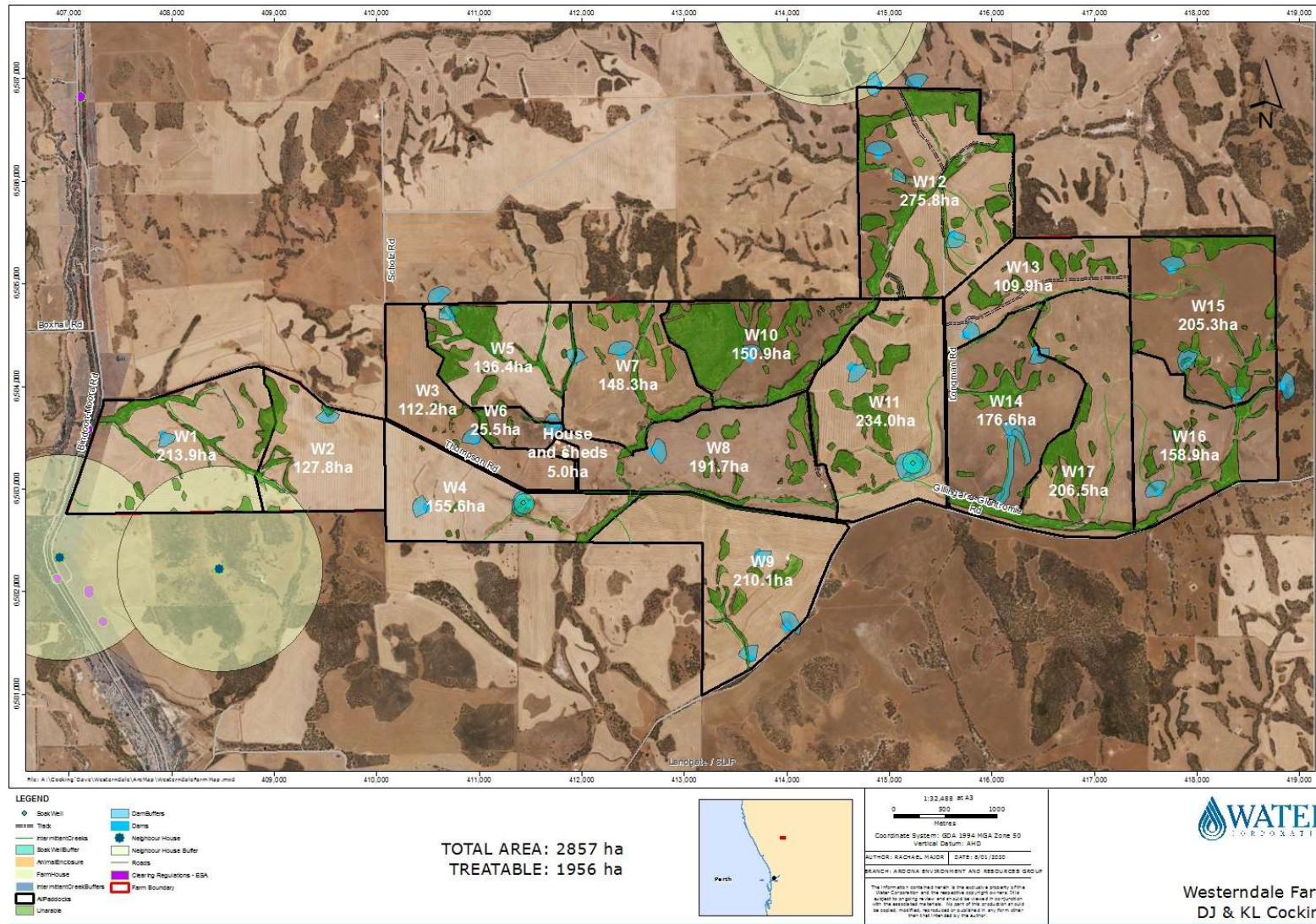


**Figure 1: Premises map**

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IR-T04 Decision Report Template v2.0 (July 2017)





**Figure 2: Paddock map with paddocks (ha), non-arable areas (green), dam exclusion areas (blue), housing exclusion areas (yellow)**

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## 3. Legislative context

### 3.1 Part V of the EP Act

#### 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: Regulatory principles (July 2015)*
- *Guidance Statement: Setting conditions (October 2015)*
- *Guidance Statement: Publication of Annual Audit Compliance Reports (May 2016)*
- *Guidance Statement: Licence duration (August 2016)*
- *Guidance Statement: Environmental Standards (September 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guideline: Decision Making (June 2019)*
- *Guideline: Industry Regulation Guide to Licensing (June 2019)*
- *Guideline: Odour Emissions (June 2019)*

### 3.2 Environmental Protection (Clearing of Native Vegetation) Regulations 2004

The applicant intends on applying biosolids over current agricultural lands, which does not include clearing additional native vegetation.

### 3.3 Environmental Protection (Controlled Waste) Regulations 2004

The Environmental Protection (Controlled Waste) Regulations 2004 identify licensing and transportation requirements for controlled waste substances. Substances which are identified as controlled wastes under the regulations include non-spadeable biosolids. Any required Controlled Waste licenses must be obtained from DWER prior to operation of the Premises.

The transport of spadeable biosolids does not require a Controlled Waste licence.

### 3.4 Department of Health

Biosolids are included in the MoU for Wastewater Services and Groundwater Replenishment between the Water Corporation and DoH. The MoU is designed to establish and maintain a strong cooperative relationship between the Water Corporation and DoH for protecting public health associated to wastewater services. This ensures services meet health, environmental and social expectations. Under Section 10 and Binding Protocol 1 of the MoU, the Water Corporation is obliged to manage biosolids quality as per the Biosolids Guidelines.

Prior to application of biosolids DoH approval is sought, providing specific biosolids application rates for each paddock.

### 3.5 Occupational Safety and Health

Transport and farm operators involved in the land application program are educated about the potential health risks from contact with biosolids. All operators will wear appropriate personal protective equipment (PPE) and follow proper hygiene procedures. Transport operators will also ensure that trailers are cleaned by high pressure hose after tipping to ensure that no biosolids are transferred onto public roads.

## 4. Experience of operator

In the application form it has been declared that a director of the corporation that operates the premises, has previously held a licence under Part V of the EP Act. In addition, it has been declared that a director of that corporation has been a director of another corporation that has paid a penalty for an offence under a provision of legislation subsidiary to the EP Act.

On 11 October 2006 Junex Nominees Pty Ltd received an infringement notice issued under the *Environmental Protection (Unauthorised Discharges) Regulations 2004* for the offence of “allowing sediment from biosolids wastes to discharge to an adjacent watercourse”. The offence occurred during a rainfall event.

Junex Nominees Pty Ltd held Licence L7644/2001/5 at that time for the purpose of category 61A solids waste facility for biosolids application to land.

One of the Directors of Junex Nominees Pty Ltd at that time, is now a Director of the Applicant company Donald Pty Ltd.

The parcel of land where the offence occurred forms part of the Premises of this application.

#### Key finding:

1. The Delegated Officer will ensure the risk assessment for this licence application adequately considers potential discharges of biosolids to watercourses after rainfall events.

## 5. Consultation

The application was advertised on the DWER website on 24 April 2020 and in the West Australian on 27 April 2020 for a public consultation period closing on 28 April 2020. No submissions were received.

A letter inviting comment was sent to the Shire of Victoria Plains on 12 June 2020. The shire advised on 16 June 2020 that, under the Shire’s Town Planning Scheme there is no requirement for development approval as the proposed activity will be done to improve the land’s current agricultural production capacity. The proposed use is considered to be ancillary to the current use of the land for extensive agricultural -purposes and does not therefore require development approval under the Shire of Victoria Plains Local Planning Scheme No.5. The following additional comments were made:

- Any heavy vehicles accessing the land must have due regard for the RAV rating applicable to Thompson Road, with a suitable permit possibly required from Main Roads WA depending upon the size of the heavy vehicles proposed to be used. If any extraordinary damage is caused to the local road network as a direct result of the proposed freight task, the local government reserves its right to require the landowner to pay for any repairs works that may be required either upfront or by way of reimbursement; and
- It is expected any license approval that may ultimately be issued by the DWER will ensure no biosolids are deposited in close proximity to any existing creek lines traversing the land or any other sensitive environmental features and will have a

suitable separation distance to any nearby sensitive land uses (e.g. existing dwellings). If any problems arise in relation to odour emissions or other potential environmental impacts the local government will refer all enquiries / complaints to the DWER / EPA to address.

A letter inviting comment was sent to the Department of Health on 12 June 2020. The department advised on 8 July 2020 that DoH has no objection to the proposed licence application providing the proponent:

- Applies the biosolids to land in accordance with the Biosolids Guidelines;
- Implements appropriate management plans to mitigate potential odour, leachate and emission issues that may arise; and
- A complaints register should also be maintained detailing the nature of the complaint, action taken and timeline to address the complaint.

A letter inviting comment was sent to the Department of Primary Industries and Regional Development on 12 June 2020. The department advised on 7 July 2020 that DPIRD does not object to the licence application provided that the activities are compliant with the Biosolids Guidelines and offers the following comments:

- Maintenance of buffer distances from watercourses, soaks and dams need to be stringently observed to prevent contaminating surface or groundwater systems;
- Ensure suitable soil conservation practices are in place on steeper slopes up to 12% to prevent surface runoff from heavy rainfall events;
- Withholding periods for other agricultural activities such as animal feed and fibre, on land where biosolids have been applied, must be strictly observed.

DWER referred the draft Licence and Decision Report to the Applicant on 16 September 2020. The Applicant provided comments on 22 September 2020 which are summarised in Appendix 2.

## 6. Location and siting

### 6.1 Siting context

The Premises is located at 497 Thompson Road, Gillingarra within the Shire of Victoria Plains, approximately 12km north west of New Norcia, 16 km north of Mogumber and 120 km North of Perth. The area is zoned for rural purposes which provides for agricultural activities as currently performed at Westerndale Farm. The Premises is surrounded by similarly rural zoned agricultural activities.

### 6.2 Residential and sensitive Premises

Table 4 below provides a summary of human receptors, in proximity to the Premises, which have the potential to be impacted from the activities considered in this Decision Report. The risk assessment in section 10 considers these human receptors in the context of emissions and potential pathways.

There are no residentially zoned developments within a 5km radius of the Premises boundary.

**Table 4: Receptors and distance from Premises boundary**

Sensitive Land Uses	Distance from Premises boundary
Rurally zoned residential houses adjacent to the Premises	360 m south from Lot 1134 540 m south from Lot 1134 750 m north from Lot 1249

## 6.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at, or emissions and discharges from the Premises. Table 5 below provides a summary of environmental receptors, in proximity to the Premises, which have the potential to be impacted from the activities considered in this Decision Report. The risk assessment in section 10 considers these environmental receptors in the context of emissions and potential pathways. The table has been modified to align with the *Guidance Statement: Environmental Siting*.

**Table 5: Environmental values**

Specified ecosystems	Distance from the Premises
Threatened fauna	The endangered <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo) has been recorded at multiple locations south of the Premises boundary, the closest being 1.1 km south, all located within remnant vegetation along the Goonanugo Creek and associated minor tributaries.
Threatened flora	<p>The following flora have been recorded within a 5km radius of the Premises boundary:</p> <p>13 threatened species – <i>Acacia splendens</i>, <i>Banksia fuscobractea</i>, <i>Banksia serratuloides</i> subsp. <i>serratuloides</i>, <i>Conospermum densiflorum</i> subsp. <i>Unicephalatum</i>, <i>Conostylis wonganensis</i> (<i>Wongan Conostylis</i>), <i>Darwinia acerosa</i> (<i>Fine-leaved Darwinia</i>), <i>Eleocharis keigheryi</i>, <i>Eremophila scaberula</i>, <i>Eucalyptus pruiniramis</i>, <i>Glyceria drummondii</i> (<i>Nangetty Grass</i>), <i>Goodenia arthrotricha</i>, <i>Grevillea</i> sp. <i>Gillingarra</i>, and <i>Trithuria occidentalis</i>.</p> <p>3 Priority 1 species – <i>Caladenia dundasiae</i>, <i>Drosera orbiculata</i> and <i>Micromyrtus rogeri</i>.</p> <p>2 Priority 2 species – <i>Stylidium</i> sp. <i>Moorra</i> and <i>Synaphea rangiferops</i>.</p> <p>18 Priority 3 species –</p> <p>13 Priority 4 species – <i>Acacia ridleyana</i>, <i>Banksia kippistiana</i> var. <i>paenepeccata</i>, <i>Banksia pteridifolia</i> subsp. <i>vernalis</i>, <i>Beaufortia eriocephala</i> (<i>Woolly Bottlebrush</i>, <i>Woolly Beaufortia</i>), <i>Blackallia nudiflora</i> (<i>Wedge-leaved Cryptandra</i>), <i>Chamelaucium</i> sp. <i>Wongan Hills</i>, <i>Daviesia debilior</i> subsp. <i>sinuans</i>, <i>Dielsiodoxa leucantha</i> subsp. <i>Leucantha</i>, <i>Guichenotia tuberculata</i>, <i>Melaleuca sclerophylla</i>, <i>Persoonia rudis</i>, <i>Petrophile biternata</i>, <i>Petrophile plumose</i>, <i>Schoenus capillifolius</i>, <i>Stylidium periscelanthum</i> (<i>Pantaloony Triggerplant</i>), <i>Stylidium sacculatum</i>, <i>Verticordia huegelii</i> var. <i>tridens</i>, and <i>Verticordia muelleriana</i> subsp. <i>Muelleriana</i></p>
Threatened ecological communities	The buffer zone for seven threatened ecological communities extends into the eastern edge of the Prescribed Premises boundary.

### Key finding:

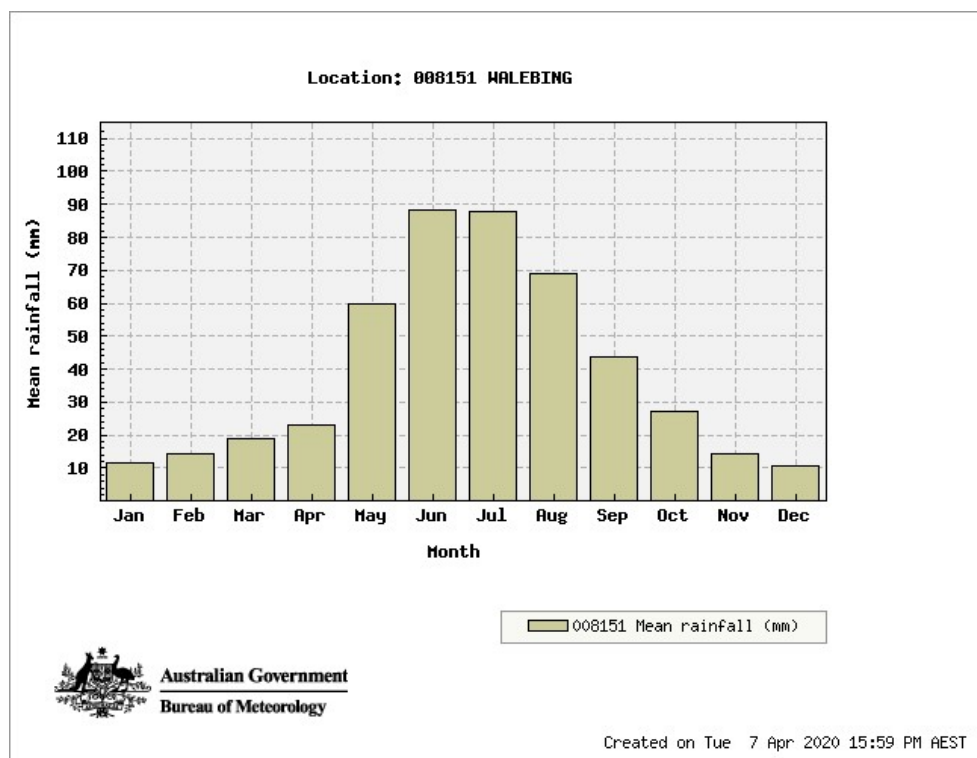
1. The Delegated Officer notes the above specified ecosystems are unlikely to be impacted by the clearing associated with the proposed biosolids activity as land clearing is not required.
2. The Delegated Officer notes the above specified ecosystems may be impacted by excess nutrient levels in soils, groundwater and surface water and as such have been considered as a receptor in the risk assessment.

## 7. Potential pathways

Emissions and discharges can leave the Premises via air or water movement and travel to the receptors mentioned above. The potential for an emission or discharge to travel is influenced by local environmental factors such as rainfall, temperature, soil type, landscape topography, groundwater and water sources and prevailing winds. Some pathways can also be the receptor, where the environmental factor holds its own value. Further detail is provided on some of these pathways below.

### 7.1 Rainfall

Rainfall as stormwater can contribute to emissions where it becomes contaminated after coming into contact with wastes, then travels via overland flow to potentially contaminate dams and watercourses in close proximity to the Premises, or travels via infiltration to ground to potentially contaminate groundwater.



**Figure 3: Average annual rainfall (mm) at Walebing site 008151.**

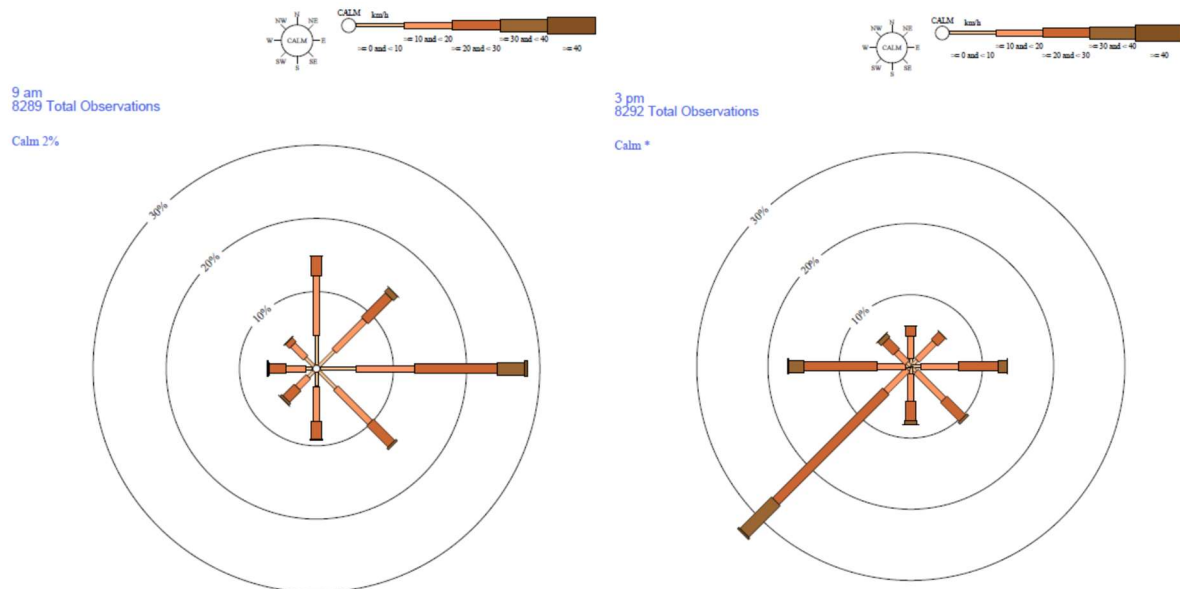
Rainfall events that may carry these emissions to sensitive receptors have been considered. The closest Bureau of Meteorology (BoM) weather station which records rainfall data is Walebing (BoM site 008151). Maximum average rainfall is received from May to September annually. Minimum average rainfall is received from October to April annually (Figure 3).

The Applicant will implement various control methods to prevent rainfall as stormwater from becoming contaminated. These controls are discussed in section 8 and the associated residual risk is discussed in section 10.



## 7.2 Prevailing winds

Prevailing wind patterns can provide a direct pathway for transmission of dust, odours and vectors such as flies by air, so the prevailing wind patterns that may carry these emissions to sensitive receptors have been considered. The closest Bureau of Meteorology (BoM) weather station which records wind frequency data is Gingin Airport (BoM site 009178). Prevailing winds are from the east in the mornings, and from the south west in the afternoons (Figure 4). It is important to note that these wind roses show historical wind speed and wind direction data for Gingin Airport weather station and should not be used to predict future data.



**Figure 4: Annual wind rose for 9am and 3 pm at Gingin Airport site 009178.**

## 7.3 Groundwater and water sources

Groundwater and water sources are susceptible to contamination from biosolids when there is increased interaction between stormwater and biosolids. Westerndale Farm is not located within a Public Drinking Water Source Protection Area.

The distances to groundwater and water sources are shown in Table 6.

**Table 6: Groundwater and water sources**

Groundwater and water sources	Distance from Premises
Major watercourses/waterbodies	Minor tributaries span the extent of the Premises An unnamed stream passes through the Premises The north branch of the Moore River passes within 500 m of the western boundary of the Premises
Groundwater sources	Karri groundwater subarea located within an unproclaimed groundwater zone The depth to groundwater at the Premises is greater than 10 m.
Agricultural dams	25 agricultural dams and two freshwater soaks are located within the Premises boundary Four agricultural dams are located within 50 m of the Premises boundary

## 7.4 Temperature

Seasonal temperature variations can increase and decrease microbial activity which influences the speed of decomposition. An increase in temperatures as experienced during summer increases microbial activity and decomposition, increases odour emissions and provides ideal breeding conditions for flies. While odour emissions alone have the potential to adversely affect the amenity of human sensitive receptors, odour also increases the attractiveness of the waste to vectors such as flies, mosquitoes and rodents. These vectors can then transfer pathogens such as *E. coli* and helminths to humans causing significant health impacts. Increased temperature events that may create these odour emissions have been considered.

The closest Bureau of Meteorology (BoM) weather station which records temperature data is Walebing (BoM site 008151). Maximum average temperatures are experienced in December to March annually. Minimum average temperatures are experienced from June to September annually (Figure 5).

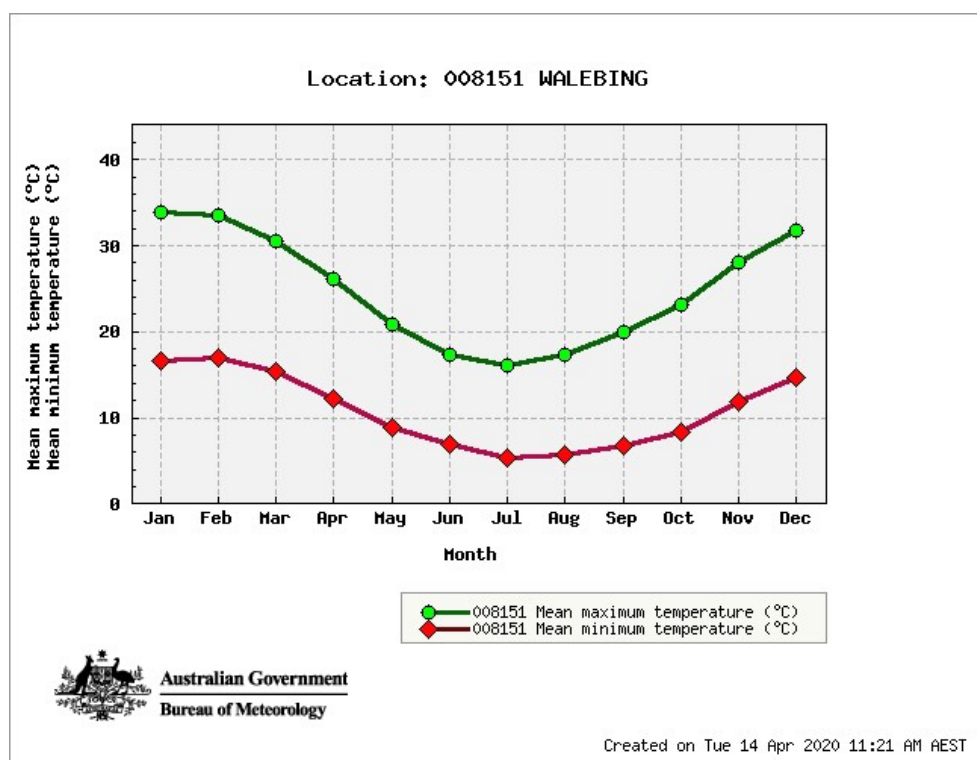


Figure 5: Average maximum and minimum temperatures (°C) at Walebing site 008151.

## 7.5 Soils

Westerndale Farm occurs within the Eastern Darling Range a gently undulating lateritic plateau on granite with eastward-flowing streams for broad shallow valleys with flat valley floors. Soils are mainly formed on laterite (over granite), rock weathered in situ (granite), colluvium and alluvium. The farm predominately consists of loamy gravels and sandy gravels with a Phosphorus Retention Index of 47-219, Colwell P of 24–129mg/kg, likely phosphorus category 1-3, low risk of leaching.

The soil landscape map of Westerndale Farm identifies 5 dominant soil subsystems on arable farmland, these are:

- Glentrome 1 Typical Phase (230ha)

- Glentrome 2 Typical Phase (426ha)
- Julimar Leaver Gentle slope Phase (210ha)
- Udamong 1 paleo-slope Phase (243ha)
- Udamong 2 typical Phase (306ha).

These soil characteristics are unlikely to impede infiltration of rainfall into the soil until the saturation point of the soil is gradually reached. This reduces the likelihood of surface runoff during low intensity rainfall events generally experienced from October to April annually (see Figure 3).

High volume or intensity of rainfall, however, is likely to result in higher proportions of runoff where the soil saturation point is quickly reached, and further infiltration of rainfall is impeded. Where land has had biosolids recently applied the overland flow can become contaminated (see section 7.1). High rainfall events are generally experienced from May to September annually (see Figure 3).

Gravels and bare rock are present within the Premises, which are not suitable for biosolids application.

Figure 6 depicts the soil landscape map units across the Premises.

Table 7 details soil types and characteristics relevant to the assessment.

**Table 7: Soil and sub-soil characteristics**

Soil landscape map – soil system	Description	Soil landscape map – soil subsystems	Description
Glentrome System	Stripped, weathered plateau with undulating low hills and rises; loamy earths, loams loamy gravel and some clay and rock; weathered granite and migmatite	Glentrome 1 typical phase (Gt1a)	Very gently to gently inclined hillslopes and rarely hillcrests; loamy gravel, sandy duplexes and earths and loamy earths.
		Glentrome 2 typical phase (Gt2a)	Very gently to gently inclined generally upper to middle hillslopes; loamy gravel, shallow loams over rock, loamy and sandy duplexes, loamy earths, clays, some wet soil
Julimar System	Moderately dissected areas with gravelly slopes and ridges and minor rock outcrop on the eastern side of the Darling Plateau over weathered granite and granitic gneiss, Loamy gravel, shallow duplexes and pale deep sand common.	Julimar Leaver gentle slope phase (Ju1g)	Gently inclined upper, mid and lower hillslopes; loamy gravel, shallow gravel over duricrust, some sandy and loamy earths on rock; <i>Eucalyptus wandoo</i> and <i>Eucalyptus marginate</i> woodland but with some <i>Eucalyptus loxophleba</i> and <i>Acacia</i> spp. On the sandier topsoil areas.
Udamong System	Northern Darling Range near New Norcia. Partially stripped lateritic plateau with undulating low hills to gently undulating rises. Loamy gravel, minor pale sand and clay; deep weathered granitic gneiss, gneiss and schist.	Udamong 1 paleo-slope phase (Ug1c)	Plateau residual, very gently to moderately inclined (<15%) undulating plain and hillslopes, loamy gravel, shallow gravel and sandy gravels. <i>Eucalyptus wandoo</i> , heath and mallee.
		Udamong 2 typical phase (Ug2a)	Partially stripped plateau, very gently to gently inclined hillslopes and minor open depressions. Loamy gravel, shallow loamy gravel over duricrust, some sands. Woodland of <i>Eucalyptus wandoo</i> , <i>Eucalyptus calophylla</i> , <i>Dryandra</i> spp.





## 7.6 Landscape topography

As landscape topography slope angles increase, rainfall runoff increases which can cause erosion of the soils, plus mobilisation of leachable contaminants and biosolid sediment downslope to surface water bodies. The risk of rainfall runoff is low on landscapes with a slope of less than 3%, with the risk of runoff increasing with the increase in slope. Slopes between 3% and 6% pose a medium risk of erosion from runoff and slopes between 6% and 12% present a high risk of erosion from runoff. Slopes above 12% pose an extreme risk of erosion from runoff, so are considered unsuitable for biosolids application without significant controls being implemented.



**Figure 7: Paddock W2 with landscape slopes at or exceeding 10% shown in red**





## 8. Applicant controls

The Applicant has proposed a number of controls consistent with requirements of the Biosolids Guidelines. These controls are designed to reduce emissions and discharges, thereby reducing adverse impacts upon sensitive human and environmental receptors.

The Applicant has proposed the following buffer zones within the Premises boundary where biosolids will not be applied, in accordance with the Biosolids Guidelines to minimise impacts from emissions and discharges:

- A 1km radius from all occupied residential dwellings adjacent to the Premises;
- A 100m radius from permanent watercourses, freshwater soaks, the upslope catchment area of agricultural dams
- A 50m radius from intermittent tributaries, the upslope catchment area of drainage lines and current and future animal yards.

The average slope across the arable farm area is <6%, ranging between 2% to 12%. There are small sections of the arable area where slopes fall into the 6-12% category where increased soil conservation measure will be implemented. There are some steeply sloped areas up to 20%, however these areas are not suitable for farming and will not be subject to biosolids application.

Biosolids will be stored on flat ground with a gradient <3% on areas suitable for biosolids application whilst maintaining suitable buffer distances from sensitive receptors. The biosolids will be stored within these areas for less than 30 days. Biosolids storage will be in line with the Biosolids Guidelines.

Animal withholding periods will be in place as described in the Biosolids Guidelines to ensure that no biosolids is consumed during grazing.

*E. coli* management routinely occurs during treatment of wastewater at the three plants, Woodman Point, Beenyup and Subiaco, and routine testing ensures treatment is adequate at reducing these pathogens. Prior to transport of biosolids out of the wastewater treatment plants, additional testing occurs to ensure the *E. coli* levels meet the requirements of the Biosolids Guidelines.

Application of biosolids will not occur year round but only during one to two two-month periods annually. Application will not occur during rainfall events or prior to heavy rains being forecast. Application of biosolids occurs in a moist state which will reduce dust emissions.

### Key finding:

3. The Delegated Officer notes the above Applicant controls are consistent with the recommendations of the Biosolids Guidelines (DEC 2012).

## 9. Modelling and monitoring data

### 9.1 Review of Environmental Factors

On behalf of the Applicant, Aroona Alliance conducted a Review of Environmental Factors Westerndale Farm (2020) (REF) for three representative paddocks as an initial determination of suitability for Westerndale Farm to receive biosolids. The application of biosolids to land is considered beneficial when the application rate of nutrients in the biosolids is compatible with the nutrient requirements of the vegetation, crop or pasture growing on the land. The soils of the receiving land are sampled and analysed prior to biosolids application, to determine background nutrient levels and heavy metal concentrations. This data is then added to the nutrient levels and heavy metal concentrations of the biosolids coming from the WWTPs, to determine if the combined levels meet or exceed the maximum permissible soil contaminant concentration levels. Table 8 provides the soil analysis data.

Soil sampling was conducted at three paddocks within Westerndale Farm. The three paddocks sampled were W2 to the west of the Premises and W15 and W16 on the east of the Premises. Prior to the application of biosolids to any additional paddocks at Westerndale Farm, Aroona Alliance on behalf of the Applicant will sample that paddock to determine the actual soil acceptance data of that specific paddock.

**Table 8: Soil sampling chemical analysis**

Parameter	Units	Reporting limit	Paddock W2	Paddock W15	Paddock W16
% Moisture	%w/w	1	3.8	11	1.2
pH (CaCl <sub>2</sub> )	pH units	0	6.8	5.4	6.4
Phosphorus	mg/kg	10	320	480	300
Arsenic	mg/kg	1	<1	<2	<1
Cadmium	mg/kg	0.3	<0.3	0.4	<0.3
Copper	mg/kg	1	14	21	6
Lead	mg/kg	1	12	8	9
Nickel	mg/kg	0.5	5.7	<4	4.1
Zinc	mg/kg	2	16	16	8
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05
Hexavalent Chromium	mg/kg	0.5	<.5	<0.5	<0.5
PRI (1:20)	mL/g	1	24	9	24.2
Available phosphorous	mg/kg	1	28.8	72	23
Cation Exchange Capacity	meq/100g	0.01	4.4	6.9	6.9
Reactive Iron	mg/kg	1	530	760	880
Clay (0.002mm)	%w/w	1	2	1	2
Organic Matter	%w/w	0.1	5	5.6	4.9
Bulk Density	kg/L	0.1	2	1.6	1.5

## 9.2 Contaminant limited biosolids application rate (CLBAR)

Critical soil concentrations of metal contaminants can adversely affect microbial processes and plant productivity or exceed levels permitted by food standards for human consumption. The soil analysis data is sampled and compared against the maximum permissible soil contaminant concentrations for food production, to determine the background levels of metals.

Table 9 compares this data, showing all three paddocks fall well below the maximum permissible concentration levels for all four contaminants.

**Table 9: Maximum permissible soil contaminant concentrations (MPSCC) (dry t/ha) for food production**

Contaminant	MPSCC	Paddock W2	Paddock W15	Paddock W16
Arsenic	20	<1	<1	<1
Lead	200	12	8	9
Mercury	1	<0.05	<0.05	<0.05
Nickel	60	5.7	<4	4.1

The soil analysis data is then added to the biosolids data from each of the WWTPs, and again compared to the maximum permissible soil contaminant concentrations to determine if there is a risk of excessive uptake of metals by crops. Table 10 shows the biosolids chemical data for cake from Woodman Point and Beenyup WWTPs and LAB from Subiaco WWTP. The biosolids are graded based on these contaminant levels. The Applicant has advised both cake and LAB are classed as contaminant grade 2 (C2).

**Table 10: Biosolids sampling chemical analysis**

Parameter	Woodman Point Cake	Beenyup Cake	Subiaco LAB
pH	8.2	8.2	12.6
pH (3 hour)	N/A	N/A	12.4
Lime Equivalence (%)	N/A	N/A	21.00
Total solids (%)	18.40	18.20	26.80
Total Kjeldahl Nitrogen (mg/kg)	72 077.00	75 500.00	50 769.00
Ammonia N (mg/kg)	7 885.00	6 342.00	1 471.00
Oxidised N (mg/kg)	1.50	1.80	8.30
Total Phosphorus (mg/kg)	20 230.00	14 833.00	11 631.00
Arsenic (mg/kg)	4.30	4.00	3.00
Cadmium (mg/kg)	1.20	1.14	0.66
Chromium VI (mg/kg)	0.25 (½ LOD*)	0.25 (½ LOD)	0.25 (½ LOD)
Lead (mg/kg)	29.00	19.00	7.00
Mercury (mg/kg)	1.30	0.10	0.70
Nickel (mg/kg)	41.00	20.00	8.00
Copper (mg/kg)	662.00	630.00	392.00
Zinc (mg/kg)	3 476.00**	826.00	290.00
Chlordane (mg/kg)	0.01 (½ LOD)	0.01 (½ LOD)	0.01 (½ LOD)
Dieldrin (mg/kg)	0.01 (½ LOD)	0.01 (½ LOD)	0.01 (½ LOD)

\* LOD Limit of Detection

\*\* Annual average measure including the ongoing Zinc incident

The CLBAR is the rate in dry solid tonnes per hectare which will cause the concentration of the limiting contaminant to reach the maximum allowable soil contaminant concentration after biosolids application is performed. The contaminant with the lowest CLBAR is the limiting contaminant, and its CLBAR is the maximum application rate permitted at the Premises.

Table 11 shows the CLBAR results for cake and Table 12 shows the CLBAR results for LAB. Zinc is the limiting metals contaminant for cake at paddocks W2, W15 and W16. Zinc is the limiting metals contaminants for LAB at paddocks W2 and W16 and cadmium is the limiting metals contaminant for LAB at W15.

**Table 11: CLBAR for cake (dry t/ha)**

Contaminant	Paddock W2	Paddock W15	Paddock W16
Cadmium	485.7	78.1	334.7
Chromium VI	2 868.9	2 295.2	2 151.7
Copper	267.1	177.8	190.1
Zinc	80.5	36.9	54.8

**Table 12: CLBAR for LAB (dry t/ha)**

Contaminant	Paddock W2	Paddock W15	Paddock W16
Cadmium	587.5	94.5	404.8
Chromium VI	1 959.0	1 567.2	1 469.2
Copper	300.3	200.0	213.7
Zinc	214.3	98.1	171.7

### 9.3 Pathogen Grade

The biosolids are graded based on the level of treatment undertaken to achieve desired microbial limits and a reduction in odour and vector attraction. The Applicant has advised both cake and LAB are classed as Pathogen Grade 3 (P3) and Table 13 outlines the treatment methods undertaken at each plant.

**Table 13: Pathogen treatment methods.**

Wastewater Treatment Plant	Treatment	Results	Monitoring
Woodman Point	Mesophilic anaerobic digestion at 35±3 degrees for ≥15 days	E.coli < 2x10 <sup>6</sup> counts per gram; 1.5 log pathogen reduction; volatile solids reduction >38%	Continuous temperature, daily sludge retention, log / VS reduction, total solids, monthly E.coli, nutrients, TSS and quarterly / annual metals and miscellaneous
Beenyup	Mesophilic anaerobic digestion at 35±3 degrees for ≥15 days	E.coli < 2x10 <sup>6</sup> counts per gram; 1.5 log pathogen reduction; volatile solids reduction >38%	Continuous temperature, daily sludge retention, monthly E.coli, nutrients, TSS and quarterly / annual metals and miscellaneous
Subiaco	Addition of lime so that pH is maintained at >12 for >3hrs	E.coli < 2x10 <sup>6</sup> counts per gram	Daily samples to monitor pH, monthly E.coli, nutrients, TSS and quarterly / annual metals and miscellaneous



## 9.4 Nitrogen or phosphorus limited biosolids application rate

Different agricultural crops required different levels of nutrient inputs for optimal growth. Of particular interest with biosolids are nitrogen and phosphorus demands. Immediately upon application of biosolids to land the inorganic form of nitrogen is available for crop uptake, specifically ammonia, nitrate and nitrite. A fraction of the organic nitrogen content is also immediately available, depending on the nitrogen mineralisation rate in the year following biosolids application.

As majority of the organic form of nitrogen in biosolids is not readily available for plant use immediately after application, this content is stored in the soils for later use by the crops. If the volume of biosolids applied to land far exceeds the initial nitrogen take up rate of the crop upon application plus the long term nitrogen take up rate of the crop via soil storage, the excess nitrogen is able to be leached from the soils and into the environment.

Canola and wheat are proposed to be farmed at Westerndale Farm, both of which are heavy nitrogen users. Due to this only the nitrogen limited biosolids application rate (NLBAR) in dry solid tonnes per hectare is calculated based on a combination of the crop requirements and the available nitrogen content of the biosolids. Table 14 shows nitrogen is the limiting factor for both cake and LAB.

**Table 14: NLBAR (dry t/ha)**

Type	Canola	Wheat*
Cake	9	9
LAB	19	19

\* Assuming a yield aim of 5 tonnes per hectare

Table 15 shows the soil phosphorus rankings at each of the paddocks. As the risk of Phosphorus leaching is low the phosphorus limited biosolids application rate (PLBAR) was not calculated. If the crops proposed to be farmed at Westerndale Farm alters, the phosphorus limited biosolids application rate (PLBAR) will be calculated.

**Table 15: Phosphorus ranking**

	Paddock W2	Paddock W15	Paddock W16
PRI	28.85	9	24.2
Colwell P (mg/kg)	40	72	23
Agronomic demand for P	low	Low	Moderate
Reactive Fe	530	760	880
Category	3	3	2
Risk of P leaching	Low	Low	Low

## 9.5 Paddock application rates

The three sample paddocks were found suitable for biosolids application at the nitrogen limited biosolids application rate (NLBAR), based on the nitrogen requirements of the proposed canola and wheat crops. As the NLBAR is lower than the CLBAR, and the PLBAR is not applicable, Cake will be applied to the paddocks at the NLBAR of 48 wet tonnes per hectare, and LAB will be applied at 72 wet tonnes per hectare. Biosolids application rates may vary slightly throughout the year due to expected changes in treatment plant performance.

Paddock W2 has 102.4 hectares of treatable land, thereby able to accept 4 915 wet tonnes of biosolids cake or 7 372 wet tonnes of lime amended biosolids (LAB).

Paddock W15 has 147.9 hectares of treatable land, thereby able to accept 7 099 wet tonnes of biosolids cake or 10 648 wet tonnes of lime amended biosolids (LAB).

Paddock W16 has 110.5 hectares of treatable land, thereby able to accept 5 304 wet tonnes of biosolids cake or 7 956 wet tonnes of lime amended biosolids (LAB) (Table 16).

Biosolids will be applied by the Applicant as per the Biosolids Guidelines. Applying biosolids at the NLBAR will satisfy the complete nutrient requirements of the proposed crops, and therefore no additional fertiliser will be required.

**Table 16: Paddock application rates**

	Paddock W2		Paddock W15		Paddock W16	
	Cake	LAB	Cake	LAB	Cake	LAB
Dry t/ha	9	19	9	19	9	19
Approx. wet t/ha	48	72	48	72	48	72
Application area (ha)	102.4		147.9		110.5	
Approx. wet ton total	4 915	7 372	7 099	10 648	5 304	7 956

## 9.6 Approximate total annual farm application rates

The approximate total treatable area at Westerndale farm is 1 035 hectares allowing a total application of 49 680 wet tonnes of cake or 74 520 wet tonnes of LAB (Table 17). However, the annual agricultural programme at Westerndale coupled with annual total biosolids production means that the total biosolids capacity of the farm is unlikely to be reached within an annual period.

At present approximately 114 000 tonnes of biosolids are produced annually from the three wastewater treatment plants. Aroona Alliance intends on having six licensed farms in the biosolids program with biosolids applications rotated every two months between farms. The maximum annual application per farm is not expected to be reached in an annual period but will be a contingency in the event biosolids cannot be delivered to the alternative farms during an allocation period.

**Table 17: Maximum annual application rates**

	Westerndale Farm	
	Cake	LAB
Dry t/ha	9	19
Approx. wet t/ha	48	72
Approx. Treatable area (ha)	1 035	
Approx. wet tonne total	49 680	74 520

## 10. Risk assessment

In undertaking this risk assessment, DWER will assess all potential emissions pathways and potential receptors previously identified to establish whether there is a Risk Event.

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. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other legislative mechanisms, that emission will not be risk assessed further and will be screened out through Table 18.

The linkage from the source of emissions, via pathways towards receptors to determine Risk Events are set out in Table 18 below.

**Table 18. Emissions, pathways and receptors during operation**

Risk Events					Risk rating <sup>1</sup>	Applicant controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Sources / Activities	Potential emissions	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood <b>Low Risk</b>			
Biosolids Application of biosolids to land	Noise	Air / wind dispersion Amenity impacts	Residential premises located less than 1 km from the Premises boundary	N/A	C = Slight L = Unlikely <b>Low Risk</b>		N/A	Any emissions of noise causing impacts may be subject to the provisions of the <i>Environmental Protection (Noise) Regulations 2004</i> .
	Dust			Refer to Section 8	C = Slight L = Unlikely <b>Low Risk</b>	Y	N/A	Any emissions of dust and odour causing impacts may be subject to the provisions of section 49 of the EP Act.
	Odour			Refer to Section 8	C = Slight L = Unlikely <b>Low Risk</b>	Y	N/A	

Risk Events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Sources / Activities	Potential emissions	Potential pathways and impact	Receptors	Applicant controls				
	Pathogens including <i>E. coli</i> and helminths	Air / wind dispersion Physical movement of pathogens by vectors	Residential premises located less than 1 km from the Premises boundary	Refer to Section 8	C = Minor L = Unlikely <b>Medium Risk</b>	N	<b><u>Condition 2</u></b>	LAB with a pathogen grade of P3 treated by the addition of lime or anaerobic digestion cannot be stored for more than 7 days as the lime can be leached out of the LAB and influence the pathogen grade.
	Vectors including flies, mosquitoes and rodents	Amenity impacts Human and cattle health impacts	Cattle	Refer to Section 8	C = Minor L = Unlikely <b>Medium Risk</b>	N	<b><u>Condition 2</u></b>	Flystrike monitoring is required dependant on the number of days biosolids is stored. A contingency plan is required when flystrike is detected.
	Excess nutrients including Nitrogen and phosphorus	Overland flow Subsurface seepage Contamination of soil Impact to vegetation health Degradation of surface water and groundwater quality	Beneficial uses of surface water and groundwater	Refer to Section 8	C = Moderate L = Unlikely <b>Medium Risk</b>	N	<b><u>Condition 2</u></b> <b><u>Condition 3</u></b>	Gravels and bare rock are present within the Premises, which are unsuitable for biosolids application. Conditioned to prevent application within these areas. The REF submitted with the application considered paddocks W2, W15 and W16 only. Any application of biosolids on the Premises outside the scope of the original REF, will require an additional REF to be undertaken.

Risk Events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Sources / Activities	Potential emissions	Potential pathways and impact	Receptors	Applicant controls				
	Contaminated stormwater	Overland flow Erosion of landscape Impact to vegetation health Degradation of surface water quality	Surface water bodies	Refer to Section 8	C = Moderate L = Unlikely <b>Medium Risk</b>	N	<b><u>Condition 2</u></b>	High slope areas across the Premises are to be identified, and soil conservation practices implemented where biosolids application is to occur.  Biosolids are not to be applied on land with slopes >12%.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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



## 11. Regulatory controls

### 11.1 Licence controls

The risk assessment has determined that additional controls will be applied to the Licence in order to manage identified operational risks. Licence conditions are as follows:

- Condition 1 allows for waste acceptance at the Premises;
- Condition 2 allows for waste processing at the Premises during storage and land application;
- Condition 3 requires reapplication of biosolids be subject to a subsequent Review of Environmental Factors;
- Conditions 4 and 5 require monitoring of waste acceptance to and removal from the Premises;
- Conditions 6 to 11 require accurate logbook and record keeping, complaints and reporting.

## 12. Determination of Licence conditions

The conditions in the issued Licence in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*. The *Guidance Statement: Licence Duration* has been applied and the issued Licence expires in 20 years from date of issue.

Table 19 provides a summary of the conditions to be applied to this Licence.

**Table 19: Summary of conditions to be applied**

Condition Reference	Grounds
Premises operation Conditions 1, 2 and 3	These conditions are valid, risk based and contain appropriate controls.
Monitoring Conditions 4 and 5	These conditions are valid, risk based and consistent with the EP Act.
Records and reporting Conditions 6 to 11	These conditions are valid and necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the Licence under the EP Act.

## 13. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Issued Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

**Tracey Hassell**

**A/MANAGER WASTE INDUSTRIES**

Delegated Officer under section 20 of the *Environmental Protection Act 1986*

## Appendix 1: Key documents

	Document title	In text ref	Availability
1.	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER 2015a	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2.	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	DER 2015b	
3.	DER, May 2016. <i>Guidance Statement: Publication of Annual Audit Compliance Reports</i> . Department of Environment Regulation, Perth.	DER 2016a	
4.	DER, August 2016. <i>Guidance Statement: Licence Duration</i> . Department of Environment Regulation, Perth.	DER 2016b	
5.	DER, September 2016. <i>Guidance Statement: Environmental Standards</i> . Department of Environment Regulation, Perth.	DER 2016c	
6.	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.	DER 2016d	
7.	DER, February 2017. <i>Guidance Statement: Land Use Planning</i> . Department of Environment Regulation, Perth.	DER 2017a	
8.	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2017b	
9.	DWER, June 2019. <i>Guideline: Decision Making</i> . Department of Water and Environmental Regulation, Perth.	DWER 2019a	
10.	DWER, June 2019. <i>Guideline: Industry Regulation Guide to Licensing</i> . Department of Water and Environmental Regulation, Perth.	DWER 2019b	
11.	DWER, June 2019. <i>Guideline: Odour Emissions</i> . Department of Water and Environmental Regulation, Perth.	DWER 2019c	

## Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Applicant's comment	DWER response
<p>Table 2</p> <p>d) LAB with a pathogen grade of P3 treated by the addition of lime or anaerobic digestion is stored for not more than 7 days</p>	<ul style="list-style-type: none"> <li>Lime amended biosolids is not treated by anaerobic digestion so this reference should be removed.</li> <li>LAB contains &lt;1cfu E. coli once it has been treated with lime with a 3hr pH &gt;12.</li> <li>There is no strong evidence to suggest E. coli would increase beyond the &lt;2,000,000 required for P3 if stored for more than 7 days and can therefore be stored the same as cake.</li> <li>Due to high pH the LAB does not provide suitable conditions to promote fly breeding.</li> </ul> <p>Proposed condition:</p> <p>LAB is stored for not more than 30 days, unless stored within a bunded area.</p>	<p>The Applicant has previously provided information that the Subiaco Wastewater Treatment Plant treats biosolids via the addition of lime whereby pH is maintained at &gt;12 for &gt;3 hours (A1893059). DWER agrees reference to anaerobic digestion can be removed.</p> <p>The restriction on storage of LAB for no longer than 7 days is in accordance with the Biosolids Guidelines.</p> <p>Condition d) to be amended as follows:</p> <p>d) LAB with a pathogen grade of P3 treated by the addition of lime is stored for not more than 7 days.</p>
<p>Table 2</p> <p>g) If Cake is stored for more than seven (7) days between 01 October and 31 May, visual flystrike monitoring is to be undertaken weekly and flystrike monitoring by an entomologist is to be undertaken fortnightly</p>	<ul style="list-style-type: none"> <li>An entomologist will essentially identify the presence and species of fly, which in our mind is a redundant requirement as it is our intention to visually inspect stockpiles and either spread or treat the stockpile in accordance with the contingency plan as required in Condition 2 -Table 2 (h).</li> <li>Routine inspections, spreading or treating stockpiles is the most effective way to control flies. If further controls are required beyond this then we see the engagement of an entomologist as more of an incident investigation option rather than a condition of an operating licence, which as mentioned is redundant under normal operations and an expense we would rather avoid for very little benefit</li> </ul> <p>Proposed condition:</p> <p>If cake is stored for more than seven (7) days between 01 October and 31 May, visual flystrike monitoring is to be undertaken weekly</p>	<p>The requirement for flystrike monitoring by an entomologist on a fortnightly basis when cake is stored for more than seven days from October to May is in accordance with the Biosolids Guidelines.</p> <p>Condition g) to remain as proposed.</p>

Condition	Summary of Applicant's comment	DWER response
<p>Table 2</p> <p>l) Bunds are to surround the stockpile area on all sides;</p> <p>m) Bunds are to adequately contain biosolids within the walls;</p> <p>n) Bunds are to ensure overland stormwater runoff does not enter the stockpile area;</p> <p>o) Runoff diversion drains to be installed on the upslope side of the bunded area, if necessary, to prevent erosion of the bund walls; and</p> <p>p) To be fenced to adequately exclude stock, where stock exclusion is necessary (refer to land application specification y)).</p>	<ul style="list-style-type: none"> <li>• Diversion drains up slope side of the stockpile should be sufficient to prevent runoff entering the stockpile</li> <li>• Bunds to be installed on the downslope side of the stockpile should be sufficient to prevent runoff</li> <li>• Remove double bracket in p)</li> </ul> <p>Proposed conditions:</p> <ul style="list-style-type: none"> <li>• l) Bunds are to surround the stockpile area on the downslope side;</li> <li>• m) Bunds are to adequately contain biosolids</li> <li>• o) Runoff diversion drains to be installed on the upslope side of the bunded area if necessary, to prevent runoff entering the stockpile.</li> <li>• Delete n)</li> <li>• Delete double bracket in p)</li> </ul>	<p>Bunds serve a number of purposes. They ensure that the biosolids are contained within a specific area; they assist in keeping stormwater away from the stockpiles; and they provide a physical barrier to help restrict access. The use of diversion drains is in addition to a bund wall on the upslope side of the stockpile. Bunds surrounding the stockpile on all sides is in accordance with the Biosolids Guidelines.</p> <p>Conditions l), m), n) and o) to remain as proposed.</p> <p>Condition p) typographical error with brackets to be edited.</p>

Condition	Summary of Applicant's comment	DWER response
<p>Table 2 (q) i. 1000 m of any occupied residences offsite of the Premises</p>	<p>The Biosolids guideline allows for the buffer distance to be reduced with written consent from the occupier.</p> <p>Proposed condition: 1000m - occupied dwellings outside the premises or as negotiated with written approval from the dwelling occupant</p>	<p>The application specifies a 1km buffer will be applied to all adjacent occupied residential dwellings in line with the Biosolids Guidelines requirements, further preventing impacts to surrounding dwellings. The application states a specific odour control measure is the 1km buffers to the neighbouring residents from biosolids application areas.</p> <p>The application has not requested to reduce this buffer distance, nor provided written approval from any land owners of occupied residences offsite of the Premises. And on this basis the risk assessment has considered the level of risk with the 1000 metre buffer zone in place.</p> <p>Noting the provision of the Biosolids Guidelines, should the Applicant wish to apply biosolids within 1000 metres of occupied residences offsite of the Premises, the Applicant carries the responsibility of ensuring that written consent from an occupier is obtained prior to application. Written consent must be able to be provided to DWER on request.</p> <p>Condition q) i. has been amended to allow for Watercorp to apply biosolids within 1000m of a residence subject to written consent being obtained.</p> <p>Condition 7 has been amended to require accurate and auditable books to be maintained of any process information of specification required by Table 2 Item (q).</p>

## Attachment 1: Licence L9246/2020/1

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