Environmental Impact Statement

Killoran Ag Composting Facility

1578 Cadell Road, Gala Vale

Lot 107 &118 DP 756459 and Lot 1192 DP861844

ENVIRONMENTAL IMPACT STATEMENT

PREPARED FOR: KILLORAN AG

BY: SKM PLANNING PTY LTD – 6 MURPHY CRESCENT, GRIFFITH NSW – ADMIN@SKMPLANNING.COM

DATE OF FINAL ISSUE –

PREPARED BY KELLY MCNICOL M.PL (DIRECTOR) _____

Statement of Validity

Submission of Environmental Impact Statement **Prepared under Part 4, Division 4.7 (State Significant Development) of the *Environmental Planning and Assessment Act 1979***	
Environmental Assessment prepared by	
Name:	Kelly McNicol
Qualifications:	Bachelor of Arts and Sciences – (Geography and English) Masters of Urban and Regional Planning
Address:	6 Murphy Crescent, Griffith NSW
In respect of:	Killoran Ag Composting Facility
Applicant Name:	Killoran Ag Pty Ltd
Applicant Address:	1578 Cadell Road, Gala Vale NSW
Proposed development:	The Proposal would comprise the construction and operation of a Composting facility with a capacity to compost of up to 99,000 tonnes of organic material per annum. The key construction components of the Proposal would include: • Establishment of composting pads and water recycling system using open air windrows. • Operation of a pelletising system in an open-ended shed. • Installation of signage. The key operational components of the Proposal would include: • Operation of a composting facility 24 hours a day and seven days a week. • Product storage.
Land to be developed:	The site is located at 1578 Cadell Road, Gala Vale NSW and is legally described as Lot 107 &118 DP 756459 and Lot 1192 DP861844.
Environmental Impact Statement:	An Environmental Impact Statement (EIS) is attached which addresses all matters in accordance with Part 4 (Division 4.7) of the *Environmental Planning and Assessment Act 1979* and Schedule 2, Part 3, clause 7(1)(e) of the *Environmental Planning and Assessment Regulation 2021*.
Signature:	kelly mcnicol
Name:	Kelly McNicol
Date:	3 November 2023

Glossary of terms

Term	Description
ADG	Australian Dangerous Good
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ANZECC	Australian and New Zealand Environment and Conservation Council
AOBV	Areas of Outstanding Biodiversity Value
Applicant	Killoran Ag Pty Ltd
Applying SEPP 33	*Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* (Department of Planning, 2011a)
Approved Methods	*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (NSW EPA, 2016)
AQIA	Air Quality Impact Assessment
ARI	Average Recurrence Interval
AS	Australian Standard
BAR	*Rural Basic Right Turn*
BC Act	*Biodiversity Conservation Act 2016*
BCA	Building Codes of Australia
BDAR	Biodiversity Development Assessment Report
BIC	Building Information Certificate
BoM	Bureau of Meteorology
BOS	Biodiversity Offset Scheme
CIA	Coleambally Irrigation Area
CLM Act	*Contaminated Land Management Act 1997*
Composting Guidelines	Former Department of Environment and Conservation Composting and Related Organics Processing Facilities guidelines
Council	Murrumbidgee Council
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTMP	Construction Traffic Management Plan
DA	Development Application
DCP	Development Control Plan
DG	Dangerous Goods
DP	Deposited Plan
DPI	Department of Primary Industries (NSW)

DPE	Department of Planning and Environment (NSW) (The Department)
EEC	Endangered Ecological Community
EES Group	Environment Energy and Science Group within the Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPA	Environment Protection Authority (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPIs	Environmental Planning Instruments
EPL	Environmental Protection Licence
ERA	Environment Risk Assessment
FOGO	Food organics and garden organics
FRNSW	Fire and Rescue NSW
FRNSW Guidelines	NSW FRNSW Fire Safety in Waste Facilities Guidelines
Geotech	Geotechnical Investigation prepared by Aitken and Rowe
GFA	Gross Floor Area
ha	hectares
ICNG	Interim Construction Noise Guideline
IDO	Interim Development Order
JLEP 2012	Jerilderie Local Environmental Plan 2012
kg	kilogram
kL	kilolitres
km	kilometres
km/hr	kilometres per hour
L	litre
LAeq	Equivalent continuous sound level
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
Killoran Ag	Killoran Ag Pty Ltd
m	metres
m^3	cubic metres
mg	milligrams
ML	megalitres

mm	millimetres
mm/s	millimetres per second
MNES	Matters of National Environmental Significance
MSW	Municipal Solid Waste
NML	Noise Management Level
NPfI	Noise Policy for Industry (EPA, 2017)
NPI	National Pollutant Inventory
NSW	New South Wales
OSD	Onsite detention
OTMP	Operational Traffic Management Plan
OU	Odour units
PANL	Project Amenity Noise Level
PHA	Preliminary Hazard Analysis
PINL	Project Intrusiveness Noise Level
PM	Particulate matter
PM_{10}	Particulate matter - 10 micrometres or less in diameter
$PM_{2.5}$	Particulate matter - 2.5 micrometres or less in diameter
PMF	Probable Maximum Flood
POEO (Waste) Regulation	*Protection of the Environment Operations (Waste) Regulation 2014*
POEO Act	*Protection of the Environment Operations Act 1997*
PRS	Preliminary Risk Screening
PSNL	Project Specific Noise Levels
RBL	Rating Background Level
RL	Reduced level
RNP	Road Noise Policy
Roads Act	*Roads Act 1993*
RTA	Roads and Traffic Authority
SAII	Serious And Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
SEED	Sharing and Enabling Environmental Data
SEPP	State Environmental Planning Policies
SEPP HR	State Environmental Planning Policy (Hazards and Risks) 2021
SSD	State Significant Development
SWL	Sound power levels

t	Metric tonne
TAPM	The Air Pollution Model
TIA	Traffic Impact Assessment
TN	Total nitrogen
TP	Total phosphorus
tpy	tonnes per year
TSC Act	*Threatened Species Act 1995 (repealed)*
TSP	Total suspended particles
TSS	Total suspended solids
VENM/ENM	Virgin Excavated Natural Material and Excavated Natural Material
WAD	Works Authorisation Deed
Yanco	Yanco Agricultural Institute

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1 Executive Summary

1.1 Introduction

This Environmental Impact Statement (EIS) has been prepared on behalf of Killoran Ag Pty Ltd (Killoran Ag, the Applicant) to support a designated development application under Division 4.3 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Killoran Ag proposes to establish a composting facility at 1578 Cadell Road, Gala Vale, which is legally described as Lot 107 &118 DP 756459 and Lot 1192 DP861844 in the Murrumbidgee Local Government Area (LGA). The composting facility would receive 99,000 tonnes per year (tpy) of Category 1 and Category 2 organic materials (as referenced in Table 3 of the Composting Guidelines) including such organics as poultry farm litter, food organics and garden organics (FOGO), waste straw, biosolids and manures. The organic materials would be windrowed and once the composting process is complete, would be removed from site in bulk or pelletised form. The use of a purpose-built pelletising plant in an existing farm building is also proposed.

This EIS has been prepared by SKM Planning Pty Ltd on behalf of the Applicant to support a development application for approval by Murrumbidgee Council as the consent authority.

1.2 Site Description

Owners	**Alistair Macdonald**
Applicant	Killoran Ag Pty Ltd
Site Address	1578 Cadell Road, Gala Vale
Lot and Plan details of entire farm holding	Part Holding 1 Lots 116-118, Lot 1192 DP861844, Lot 3 DP113903 Holding 2 Lot 1 DP1273305, Lot 1 DP598665 and Lots 106-109 DP 756459
Lot and plan of site of facility	Lot 100 DP 756459 (composting facility) Lot 1192 DP861844 (internal roads) Lot 106 DP 756459 (pelletising shed)
Local Government Area	Murrumbidgee Council (Council)
Total area of land containing the facility	Lot 118 - 120 ha Lot 107 - 120ha

The site is located approximately 17km south of Coleambally via the Kidman Way. The site has a history of agricultural use and is the primary location of the Killoran Ag operation who grow wheat and other rotational crops and graze sheep. Killoran Ag's existing offices and farm shed are located on the site on Lot 106 DP756459.

The site contains a single unsealed driveway with access from Cadell Road which is located on Lot 1192 DP861844 and continues to Lot 118 DP756459. The driveway is constructed of road base and has been compacted to create a hardstand. The driveway ends at the existing farm building which is used for storage. The farm building has a floor area of 1,344 m^2 and contains a water tank to hold stormwater (to the south of the building). The site's bore is also located to the south of the farm building. To the east of the farm building is the farm holding's offices. Another farm building is located to the west which is presently used for storage.

On Lot 107 DP756459 there is a paddock presently utilised for rotational crops. The cleared and cultivated portion of the lot is 45 ha in area. This paddock would be utilised for the composting pads. Killoran Ag has constructed some pads and is presently carrying out limited composting activities in this area to trial their system. The compost is used on their existing farm holdings in the area. A burrow pit and dam are also located on this lot adjacent to the paddock.

The farm holding contains three dwellings used by managers and farm workers. Two farm dwellings are located on Lot 1 DP598665 (1578 Cadell Road, Gala Vale) and one dwelling on Lot 101 DP756459 (see **Figure 1**).

The site contains scattered native vegetation, none of which would be removed as part of the development.

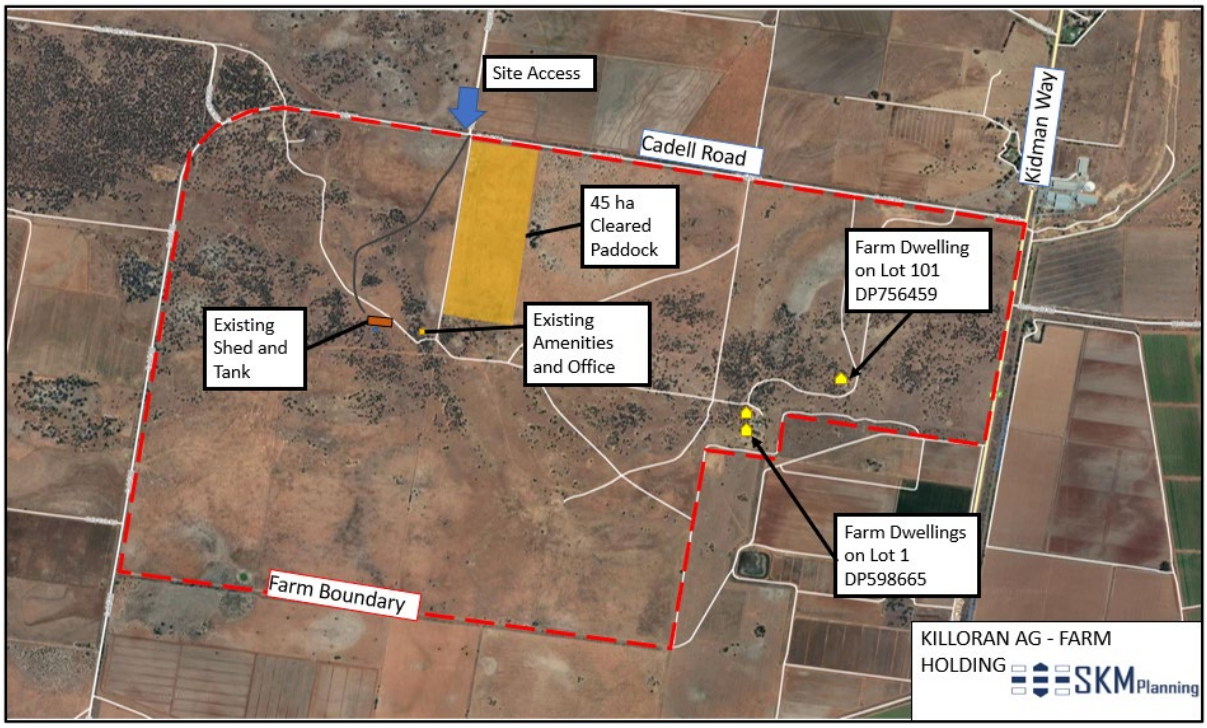


Figure 1 - Site Location

1.3 Surrounding Uses

The site is located in a remote location in the Murrumbidgee Local Government Area (LGA) on Cadell Road which connects to the Kidman Way at an existing channelised intersection around 2.7 km from the site. Cadell Road is a bitumen sealed two lane road. The nearest residential receiver not located on the farm holding is located 1.2 km to the north-west of the site. The predominant land use in the locality is broadacre crop agriculture and grazing land.

1.4 The Applicant and Objectives of Development and Need

Killoran Ag is a multi-faceted agricultural and transport business which grazes and raises sheep, grows a variety of crops and places straw bedding in and transports spent litter from the many poultry production operations in the region at the end of the grow out period. Having transported the litter to agricultural operations for direct application to land, Killoran Ag began planning the development of a composting facility to value add to the poultry litter and create a product with application for several types of farming operations. There is also a significant need for the processing and recovery of organic material from FOGO for reuse. The FOGO would be sourced from green bin collections of regional Council's or from transfer stations licenced to accept the organics. It is expected that the NSW government will mandate the use of green bin collection across NSW in the coming years. The proposal would facilitate this initiative and provide a licenced facility to accept wastes generated in the Riverina.

The composting facility will provide biologically active organic material for the amelioration of soils in irrigated and non-irrigated farm holdings regionally, and in northern NSW and Queensland.

1.5 Proposal Alternatives

The alternative approach to the project is the 'do nothing' option which would involve the continuation of existing farming operations on the site. This option would result in the continuation of the direct application of spent poultry litter to farms in the area without value adding. The 'do nothing' approach would also limit the ability of regional Councils to dispose of green bin wastes at a local facility.

1.6 Proposal Description

The proposed development involves the establishment of a composting facility and construction of infrastructure to pelletise the material for the ultimate yearly input of 99,000 tonnes per year (tpy).

The facility would include the following:

- Establishment of compost pads.
- Establishment of an unloading area with a bunker for non-conforming waste.
- Construction of a water / leachate recycling dam.
- Use of a weighbridge approved under another Council development application.
- Improvements to site access.
- Installation of drainage infrastructure.
- Installation of a 144,000 litre water storage tank for fire fighting.
- Use of pelletising plant within a shed, subsequent to retrospective council approval.
- Establishment of internal roads.

It is proposed to receive 99,000 tpy of Category 1 and Category 2 organic materials (as referenced in Table 3 of the Composting Guidelines) including such organics as poultry farm litter, FOGO, waste straw, biosolids and manures. The material will be composted in windrows, before being sold in bulk or pelletised form. Specialised windrow mixing equipment would be utilised to turn over the windrows. It would take approximately 9-16 weeks for the composting process to complete. During this time the windrows would be turned over 6-8 times. Water would be added to compost as required from the water / leachate recycling dam. Other additives would be used to ensure the compost matures within optimal conditions (see **Table 1**).

Table 1: Composting Factors – Optimal Ranges

Conditions for Rapid Composting	Reasonable Range	Preferred Range

Carbon to nitrogen ratio	20:1 – 40:1	25:1 – 30:1
Water content	40-65%	50-60%
Oxygen concentration	5%	5-15%
Particle size (diameter)	0.4 cm to 1.3cm	Depends on material
pH	5.5 – 9.0	6.5 – 8.0
Temperature	42-65 degrees Celsius	55-60 degrees Celsius

The pelletising plant is housed in an open-ended shed, with composting, windrowing and turning taking place in the open on the compost pads. Composting will take place on Lot 107 DP 756459 and the pelletising plant is located in an existing farm shed on Lot 118 DP756459.

Access to the site is via Cadell Road which directly connects to the Kidman Way approximately 2.7 km to the east of the site. Kidman Way is a regional road under the control of Transport for NSW (TfNSW).

A proposed site footprint is presented in **Figure 2**, this provides a general outline of the location of the facility. A detailed site plan is also provided at **Appendix 1**. The composting area would occupy, at full build out of the facility (following completion of Stage 2), an area of 45 ha. Composting pads would be created which drain to leachate recycling infrastructure. The pads would be constructed to meet the requirements of the Department's Composting Guidelines. Water and leachate from the composting pads would be collected in a recycling dam for reapplication to the windrows.

The open-ended pelletising plant shed is located on Lot 106 and shown in yellow on **Figure 2**.

The proposal would be carried out in Stages. Stage 1 would involve the construction of two composting pads and the waste inspection and storage area and associated infrastructure. Stage one would result in the receipt of 30,000 tpy of organics and use of the pelletising plant. Stage 2 would involve the construction of the remainder of the composting facility and associated infrastructure to permit the ultimate acceptance of 99,000 tpy of organics.

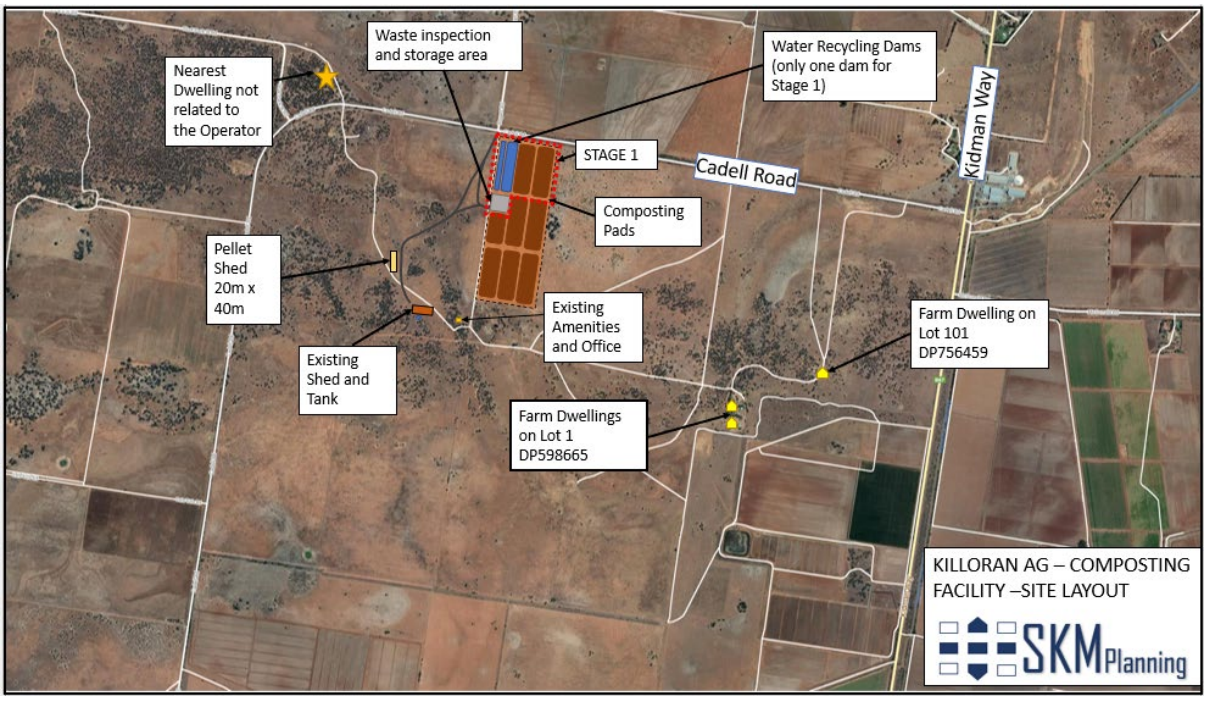


Figure 2: Layout Plan

1.7 Planning Pathway

Pursuant to Section 4.10 of the EP&A Act, proposals are classified as designated development if they are declared as such under the Environmental Planning and Assessment Regulations 2021 (EP&A Regulations) or an EPI. In this instance, the proposal is listed as 'designated development' in Schedule 3 of the EP&A Regulations:

16 Composting facilities or works

(1) Development for the purposes of a composting facility or works is designated development if the facility or works process more than 5,000 tonnes per year of organics.

(2) Development for the purposes of a composting facility or works is designated development if the facility or works are located—

(a) in or within 100 metres of—

(i) a natural waterbody, or

(ii) a wetland, or

(iii) a coastal dune field, or

(iv) an environmentally sensitive area of State significance, or

(b) in an area of high watertable, highly permeable soils, acid sulfate, sodic or saline soils, or

(c) in a drinking water catchment, or

(d) in a catchment of an estuary where the entrance to the sea is intermittently open, or

(e) on a floodplain, or

(f) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the consent authority's opinion, considering topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood because of noise, visual impacts, vermin, traffic or air pollution, including odour, smoke, fumes or dust.

(3) In this section—

***composting facility or works** means a facility or works involving the controlled aerobic or anaerobic biological conversion of organics into humus-like products by—*

(a) methods such as bioconversion, biodigestion or vermiculture, or

(b) reducing the size of organics by shredding, chipping, mulching or grinding.

organics has the same meaning as in the Protection of the Environment Operations Act 1997, Schedule 1.

The proposal includes the acceptance of 99,000 tpy of organics and therefore is considered a type of 'designated development'. The proposal is also integrated development under the *Protection of the Environment Operations Act 1997* (POEO Act) as it proposes to compost over 5,000 tpy of waste. An integrated approval from WaterNSW is also sought for a water use approval under section 92 of the *Water Management Act 2000*.

1.8 Consultation

Killoran Ag has consulted with all sensitive receivers in the immediate locality and a range of stakeholders. Council, the EPA and TfNSW were also directly consulted as part of the preparation of the EIS. The purpose of this engagement was to provide information on the proposal as early as possible in the planning process to allow for the up-front identification of issues and where possible resolution by altering the proposal.

Issues raised during the consultation process have been considered in the design of the proposal and addressed in this EIS.

1.9 Key Environmental Impacts

Odour and Air Quality

Potential emissions sources associated with the development include the delivery of organic materials to the site, the windrowing of these materials, the collection and storage of leachate and the pelletising of finished compost material (which is not expected to have an offensive odour profile but would cause particulate emissions).

Dust emissions would be created from trucks and tractors manoeuvring through the site on unsealed surfaces.

Due to the remoteness of the site and the lack of sensitive receivers in the locality, the Air Quality Impact Assessment (AQIA) (**Appendix 4**) concluded that odour and particulate emissions would be below the relevant limits at all sensitive receivers. Some basic mitigation measures which relate to the efficient operation of the facility have been proposed.

Traffic

A Traffic Impact Statement (TIA) has been prepared by Spotto Consulting which concludes the expected future traffic generation of the development would not impact the safety, capacity or efficiency of the road network (**Appendix 5**). Minor roadworks would be required in the Kidman Way road reserve and at the site access to facilitate the development. A Works Authorisation Deed (WAD) would be applied for as a post approval matter for works in Kidman Way and a Section 138 Roads Act approval would be sought for works at the site access and Cadell Road..

Water Quality and Hydrology

Two detailed geotechnical investigations (Geotechs) were prepared to inform the design of the development by Aitken and Rowe. The investigation has concluded that the underlying soil profile is adequate to meet the requirements of the Composting Guidelines to avoid seepage into the subsurface including groundwater for both the composting pads and the leachate collection system (**Appendix 2**)

Noise and Vibration

A Noise and Vibration Impact Assessment (Noise Assessment) has been prepared to justify the proposal and ensure that offensive noise is not experienced at the nearest residences (**Appendix 3**).

The Noise Assessment concluded that the composting facility operating at full production capacity would not exceed the project specific noise levels (PSNL) for the development at all receivers in the area.

1.10 Conclusion

The proposal has been closely assessed for potential environmental, social and economic impacts. A range of environmental issues were identified and assessed with appropriate mitigation and management measures proposed to be carried through to the construction and operational phases of the development. This EIS has concluded that the proposal would not cause a detrimental impact to neighbours or the locality. The proposal is also considered to be in the public interest as it would provide a sustainable facility for the reuse and repurposing of FOGO and a portion of the spent poultry litter and other organic wastes produced in the region.

2 Introduction

2.1 Background

This Environmental Impact Statement (EIS) has been prepared by SKM Planning Pty Ltd (SKM) on behalf of Killoran Ag (the Applicant) to accompany an application for a local designated development application to be submitted to Murrumbidgee Council (Council). This application seeks development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for a new composting facility. The site is located approximately 17 kilometres (km) south of the village of Coleambally, New South Wales (NSW), (refer **Figure 1**) within the Murrumbidgee Council Local Government Area (LGA).

The Applicant is proposing to construct a new composting facility (the proposal) at 1578 Cadell Road, Gala Vale within a portion of their large farming holding including Lot 107 DP756459, Lot 118 DP756459 and Lot 1192 DP861844 (the site).

The site is currently used as the base for the Killoran Ag farming operations and includes farm sheds and an amenities block. The Applicant has been carrying out farm-based composting works to create compost to be used on their paddocks for a few years now and would like to use the knowledge learned in these trials to create a commercial operation to facilitate waste diversion from landfill in the region.

The development application is proposed to authorise the receipt and composting of 99,000 tonnes per year (tpy) of organics including Category 1 and Category 2 organic materials (as referenced in Table 3 of the Composting Guidelines) including such organics as poultry farm litter, FOGO, waste straw, biosolids and manures.

2.2 Purpose of this Report

The purpose of the EIS is to assess the potential environmental and social impacts of the development on the locality, LGA and region. This EIS has also been prepared to meet the Secretary's Environmental Assessment Requirements (SEARs) for the proposed facility, issued by the DPE on 28 February 2022. The EIS has been prepared in accordance with the EP&A Act, Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) and any relevant guidelines including the former Department of Environment and Conservation Composting and Related Organics Processing Facilities guidelines (Composting Guidelines).

2.3 The Applicant

Killoran Ag is a diverse operation which focuses on a number of agricultural related endeavours including broadacre cropping, livestock production, transportation services and contracting.

The Applicant believes that their site provides the ideal location for a composting facility as it is in a remote location removed from village areas and sensitive receivers. The site has good access to the classified road network and is strategically located in proximity to the poultry industry and irrigated and broadacre farmers in need of compost.

2.4 Approval Pathway

The proposal is considered designated development under the EP&A Act and categorised under Schedule 3 of the EP&A Regulation as a composting facility or works as it proposes to process more than 5,000 tpy of organic materials. As the proposal is designated development, the Applicant requested SEARs and received them from DPE in February of 2022.

The proposal is also integrated development under the *Protection of the Environment Operations Act 1997* (POEO Act) as it proposes to compost over 5,000 tpy of waste. An integrated approval from WaterNSW is also sought for a water use approval under section 92 of the *Water Management Act 2000*.

Murrumbidgee Council is the approval authority for the development application and the NSW EPA and WaterNSW are the integrated development authorities. Council would require General Terms of Approval (GTA's) from the EPA and WaterNSW prior to determining the development application.

2.5 Secretary's Environmental Assessment Requirements (SEARs)

The Department issued SEARs in February of 2022.

Table 2: SEARs

Secretary's Environmental Assessment Requirements	Reference within EIS
The Environmental Impact Statement (EIS) must comply with these assessment requirements and meet the minimum form and content requirements in sections 190 and 192 of the Environmental Planning and Assessment Regulation 2021.	Entire EIS
strategic and statutory context – including: • a detailed justification for the proposal and suitability of the site for the development	Section 5

• a demonstration that the proposal is consistent with all relevant planning strategies, environmental planning instruments, development control plans (DCPs), or justification for any inconsistencies • a list of any approvals that must be obtained under any other Act or law before the development may lawfully be carried out.	
suitability of the site – including: • a detailed justification that the site can accommodate the proposed receival capacity, having regard to the scope of the operations and its environmental impacts and relevant mitigation measures • plans depicting the proposed layout, including the location of machinery, equipment and stockpiles.	Sections 7-16
waste management – including: • details of the type, quantity and classification of waste to be received at the site • details of the resource outputs and any additional processes for residual waste • details of waste handling including, transport, identification, receipt, stockpiling and quality control • the measures that would be implemented to ensure that the proposed development is consistent with the aims, objectives and guidelines in the NSW Waste Avoidance and Sustainable Materials Strategy 2041.	Section 4
air quality and odour – including: • a description of all potential sources of air and odour emissions during construction and operation • an air quality impact assessment in accordance with relevant Environment Protection Authority guidelines • a description and appraisal of air quality impact mitigation and monitoring measures.	Section 8
fire and incident management – including: • details of the size and volume of stockpiles and their arrangements to minimise fire spread and facilitate emergency vehicle access	Section 4

• the measures that would be implemented to ensure that the proposed development is consistent with the aims, objectives and guidelines in the NSW Fire and Rescue guideline Fire Safety in Waste Facilities dated 27 February 2020.	
soil and water – including: • a description of local soils, topography, drainage and landscapes • details of water usage for the proposal including existing and proposed water licencing requirements in accordance with the Water Act 1912 and/or the Water Management Act 2000 • details of sediment and erosion controls • a detailed site water balance • an assessment of potential impacts on the quality and quantity of surface and groundwater resources • details of the proposed stormwater and wastewater management systems (including sewage), water monitoring program and other measures to mitigate surface and groundwater impacts • characterisation of the nature and extent of any contamination on the site and surrounding area including an assessment against the provisions of State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 4 • a description and appraisal of impact mitigation and monitoring measures.	Section 10 and 11
biodiversity including: • accurate predictions of any vegetation clearing on site or for any road upgrades • a detailed assessment of the potential impacts on any threatened species, populations, endangered ecological communities (ECC) or their habitats, groundwater dependent ecosystems and any potential for offset requirements • details of weed management during construction and operation in accordance with existing State, regional or local weed management plans or strategies	Section 15

• a detailed description of the measures to avoid, minimise, mitigate and/or offset biodiversity impacts.	
noise and vibration – including: • a description of all potential noise and vibration sources during construction and operation, including road traffic noise • a noise and vibration assessment in accordance with the relevant Environment Protection Authority guidelines • a description and appraisal of noise and vibration mitigation and monitoring measures.	Section 13
traffic and transport – including: • details of road transport routes and access to the site • road traffic predictions for the development during construction and operation • swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site • an assessment of impacts to the safety and function of the road network and the details of any road upgrades required for the development.	Section 9
visual – including • an impact assessment at private receptors and public vantage points.	Section 16
heritage – • including an assessment of Aboriginal and non-Aboriginal cultural heritage.	Section 12

3 The Site

3.1 Site Description

The Killoran Ag farm holding consists of twelve lots in total, the most relevant to the development being the five contiguous of Lots 116-118, Lot 1192 DP861844 and Lot 3 DP113903 and the other consisting of six lots being Lot 1 DP1273305, Lot 1 DP598665 and Lots 106-109 DP 756459 including closed roads.

Lot 107 DP756459

This lot contains the existing 45 ha paddock which the composting facility will occupy. The lot also contains some outbuildings which are not subject to the proposal, native vegetation which would not be impacted by the proposal and access tracks.

Lot 1192 DP861844

This lot contains the existing site access from Cadell Road which is unsealed. The driveway runs north to south through the lot to Lot 118 DP756459. The lot contains a farm dwelling and outbuilding used for the farming operations.

Lot 118 DP756459

This lot contains the existing base for the Killoran Ag farming operation and the pelletising plant in an open-ended shed.

3.2 Site history

The site has historically been used as a farm station for sheep rearing, rotational crops and as the main depot for the larger agricultural operations. The paddock which the composting facility will occupy has been laser levelled and worked up and planted with various crops over the years. A burrow pit is located within this paddock which has been used to provide earth for internal roads and bunds.

The site does not contain any development approvals for its infrastructure. There are several buildings on the site which were constructed prior to any Council Interim Development Order (IDO) or a requirement for a building approval. One of these buildings contains a workers amenities block and offices in it which are used by the Applicant's farming operations.

The proposal includes the retrospective approval of the open-ended shed used to house the pelletising plant. A Building Information Certificate (BIC) would be lodged separately for the main farm shed on the site.

This pelletising shed was constructed as an additional farm shed to support the farming operations. The shed is 20 m x 40 m with a concrete floor, steel frame and colourbond sheeting. The shed is open-ended and has colourbond sheeting on two of the walls.

The shed has a height of 6 m. The Applicant has purchased a pelletising plant and installed it in this shed.

No vegetation was removed to construct the shed. Construction plans for the pelletising shed have been provided at **Appendix 9**.

3.3 Surrounding Land Uses

The site is located in a remote location in the LGA on Cadell Road which connects to the Kidman Way at an existing channelised intersection around 2.7 km from the site. Cadell Road is a bitumen sealed two lane road. The nearest residential receiver not located on the farm holding is located 1.2 km to the north-west of the site at 1308 Cadell Road. The predominant land use in the locality is broadacre crop agriculture and grazing land.

A nature reserve known as “South West Woodland” is located to the west of the site on Cadell Road around 1.7 km from the proposed composting facility.

3.4 Land Ownership

The entire **farm holding** includes the following lots:

Lots 116-118, Lot 1192 DP861844 and Lot 3 DP113903

Lot 1 DP1273305, Lot 1 DP598665 and Lots 106-109 DP 756459

The **site** includes only the following lots:

Lot 107 DP756459, Lot 1192 DP861844 and Lot 118 DP756459

The entire farm holding including the site is owned by Alistair Macdonald who is a director of Killoran Ag Pty Ltd. Owners consent has been obtained for the lodgement of the development application and supporting EIS. The farm holding contains three farm dwellings which are used ancillary to the agricultural operations. These dwellings have not been considered sensitive receivers for the purpose of the technical studies provided in the Appendices including for Air Quality and Noise.

3.5 Zoning and Permissibility

The site is zoned RU1 Primary Production under the Jerilderie Local Environmental Plan 2012 (JLEP 2012) and composting facilities are a permissible use with consent of Council.

Composting facilities being a sub definition of *rural industry* being defined as*:*

> *the handling, treating, production, processing, storage or packing of animal or plant agricultural products for commercial purposes, and includes any of the following—*
>
> *(a) agricultural produce industries,*
>
> *(b) livestock processing industries,*
>
> *(c) composting facilities and works (including the production of mushroom substrate),*
>
> *(d) sawmill or log processing works,*
>
> *(e) stock and sale yards,*

(f) the regular servicing or repairing of plant or equipment used for the purposes of a rural enterprise.

Under JLEP 2012 the objective of the RU1 Primary Production zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
  To minimise conflict between land uses within this zone and land uses within adjoining zones.

The proposal would meet the objectives of the zone by providing a facility that will reuse the by-products of primary industries in the region. Land use conflict would be avoided through the careful management of the composting facility.

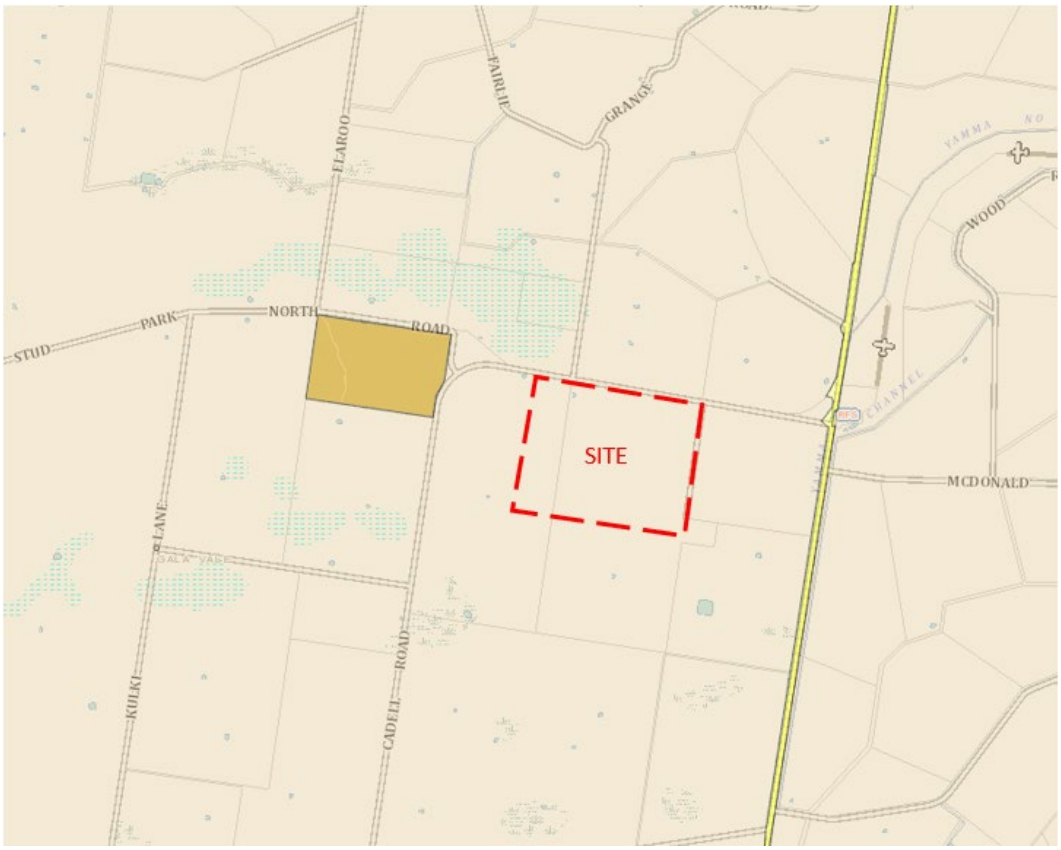


Figure 3: Zoning of the Site

3.6 Topography, Hydrology, Geology and Soils

The land is relatively flat and drains predominantly to a series of intermittent wetlands and swamps. There are no natural watercourse lines within close proximity to the site. There are a series of irrigation channels that traverse the locality. The area is within the Coleambally Irrigation Area (CIA) which ensures a secure water source as part of the regulated allocation from the Murrumbidgee River.

The CIA covers almost 400,000 hectares and services over 500 farms. The average farm size is 220 ha and provides for irrigated agriculture.

The composting operations would need to be constructed and drained to direct stormwater around the operation as well as collect leachate water from the composting pads themselves so as not to contaminate any surface water.

The site geography is the Shepparton formation, being poorly consolidated clay, silt, sand and gravel. This formation is found throughout the Riverina between the Lachlan and Murray Rivers.

The site is predominantly class 6 land with very severe limitations; there is some class 4 land which has moderate to severe limitations closer to the road.

Class 6 land shown in yellow in **Figure 4** has very severe limitations for a wide range of land uses and few management practices are available to overcome these limitations. Land generally is suitable only for grazing with limitations and is not suitable for cultivation.

Class 4 land shown in green can be cultivated occasionally for sowing of pastures and crops. However, it has cropping limitations because of erosion hazard, weak structure, salinity, acidification, shallowness of soils, climate, wetness, stoniness or a combination of these factors. It is only suitable for intermittent cultivation with specialised practices. Required erosion control practices include advanced conservation tillage, pasture cropping, well-planned rotations and maintenance of ground cover.

Classes as per the Land and Soil Capability Mapping for NSW and provide a statewide classification of soil capabilities.

Figure 4: Soil and Land Classification Map

3.7 Biodiversity

The proposed composting operations would be located on a paddock which has been laser levelled, worked up and planted with rotational crops for several years. The composting site

is void of any native vegetation. No native vegetation or habitat would be removed as part of the proposal.

It is not expected that the proposal would impact on any fauna species. A more comprehensive assessment of the potential biodiversity impacts of the development is provided in 15

3.8 Surrounding Receivers

The nearest sensitive receiver to the site which is not part of the Killoran Ag farm holding is located 1.25 km to the west of the proposed composting operations.

There are seven dwellings not associated with the proposed development within 10 km of the proposed composting site. **Figure 5** illustrates the sensitive receivers in the locality.

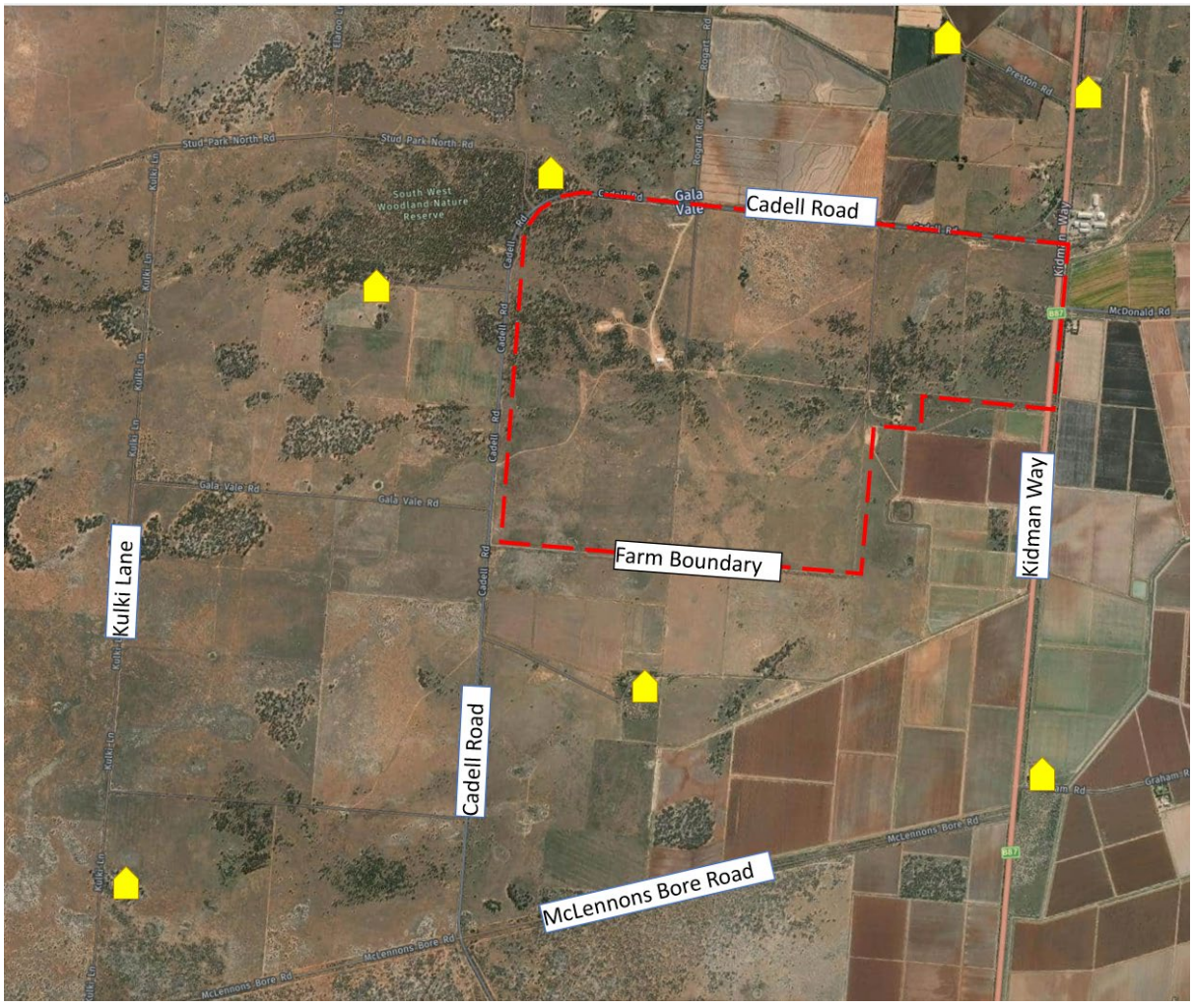


Figure 5: Sensitive Receivers within 10km of site (source: Google Earth)

3.9 Climate

The climate at the site can be described as warm and temperate. The nearest long term weather station is at the Yanco Agricultural Institute (Yanco) some 56.7 km away. Long term averages from Elders are shown in **Table 3**:

Table 3: Long Term Temperature Averages at Yanco

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Mean Max (°C)	34.2	32.4	28.9	24.3	19.0	15.2	14.5	16.3	20.5	25.0	29.0	31.1	**24.2**
Mean Min (°C)	18.8	18.3	15.4	11.7	7.6	5.7	4.9	5.2	7.6	10.7	14.3	16.4	**11.4**
Mean Rain (mm)	30.4	30.4	34.6	29.9	35.4	35.1	33.2	34.9	35.1	36.8	29.6	31.0	**394.0**
Mean Rain Days	4.5	4.0	4.7	5.2	8.1	10.9	12.1	10.8	8.8	7.1	5.7	5.2	**86.8**

Wind directional data was obtained and is available in **Appendix 4** AQIA. However, it is noted the prevailing winds in the locality are from the west and north-west.

4 Proposed Development

4.1 Proposal Overview

The proposal relates to the construction and operation of a composting facility with the capacity to process 99,000 tpy of organic materials. The development is considered designated development as it proposes to process in excess of 5,000 tpy of organics which meets criteria in clause 16 of Schedule 3 of the EP&A Regulation.

The proposal is also considered integrated development as the proposed amount of organics to be processed meets the criteria of Clause 12 of Schedule 1 of the *Protection of the Environment Operations Act* 1997.

The proposed composting facility would operate using open-air windrows, located on approximately 45 ha of the subject site in an area which has historically been used for rotational crops and is highly disturbed and void of any native vegetation. The proposal also includes the use of an existing building for a pelletising plant sourced from a former pelletising facility in South Australia. The pelletising plant would operate in a two-sided shed with the north and south ends open. Between 15,000 and 30,000 tpy of the compost produced would be further processed into pelletised form to be sold and transported offsite. **Figure 8** provides an overall site layout plan for the development.

4.2 Design and Layout

The proposal includes the following:

- Construction of the composting facility including:
    - Landforming to create impervious clay pads in accordance with the Geotechnical Investigation prepared by Aitken and Rowe (Geotech) (see **Appendix 2**).
    - Construction of a compacted pad for the receival of organics in stockpiles. Stockpiles would be sized and separated in accordance with the NSW Fire Safety in Waste Facilities Guidelines (FRNSW Guidelines).
    - Construction of a leachate collection dam.
    - Construction of a leachate / water sump.
    - Construction of a leachate conveyance system.
    - Construction of a bund / farm road surrounding the composting site.
- Use of an existing 21 m long weighbridge to be constructed under an approved Council development application (DA 29/2023).
- Use of the pelletising plant installed in Farm Shed 2 to pellitise finished product.
- Use of a bore for the provision of water during dry periods – water supply approval has been applied for and the proposal represents an integrated development application.

- Receipt of the Category 1 and 2 organic materials (as referenced in Table 3 of the Composting Guidelines) including such organic types as poultry farm litter, FOGO, waste straw, biosolids and manures.

4.3 Staging

The development would be carried out in two stages:

Stage 1 (see **Appendix 1** for detailed Plans):

- Construction of two composting pads.
- Construction of a below ground dam/sump for the storage and reuse of leachate and stormwater with a capacity of 18.4 ML.
- Construction of Main Drain 1 and 2 for the collection and recirculation of leachate with a capacity of 3.5 ML.
- Construction of a field drain which would drain leachate from the loading area to Main Drain 2.
- Excavation of part of the dam area to create storage for 7 ML.
- Total capacity of water infrastructure for Stage 1 is 30.4 ML, including an additional 1.5 ML on the composting pads.
- Construction of raised farm roads to bund the entire Stage 1 composting facility.
- Construction of a loading area with a capacity for 5,000 tonnes storage at any given time. Organics would be stored in stockpiles separated in accordance with the FRNSW Guidelines as required.
- Construction of a 144,000 litre fire water tank to be supplied by the bore on site.
- Installation of a pump and pipe network from the bore to the tank and the sump / dam.
- Construction of a non-conforming waste bunker.
- Use of the existing weighbridge.
- Upgrade to the existing accessway to cater for the movement of trucks including road trains. Killoran Ag will be seeking the full year classification of Cadell Road as a Road Train Road.
- Construction of additional internal roads to the composting area from the main access off Cadell Road.
- Use of the pelletising shed.
- Acceptance of a total of 30,000 tpy of organics.
- Composting of around 8,000 tonnes at any given time in windrows.

Stage 2

- Construction of an additional six composting pads.
- Construction of the remainder of the main leachate storage dam increasing its capacity to 26 ML.
- Construction of Main Drain 3 and 4.
- Total additional capacity of water infrastructure for Stage 2 is 22.5 ML bringing the total capacity of the water and leachate collection system to 52.9 ML.
- Construction of additional raised farm roads to bund the entire composting facility.
- Acceptance of a total of 99,000 tpy of organics.
- Storage of 5,000 tonnes of accepted organics in the loading area at any given time.

- Composting of 25,000 tonnes of organics at any given time in windrows across the entire facility

4.4 Surface Water Drainage

PHL Surveyors have designed the surface water drainage system based on the 1 in100 year 24 hour rainfall event. The total required detention for this event is 49 ML and the proposal has provided 52.9 ML of detention within the sump, dam and drains. This volume does not include the additional storage available within the bunded area (which encompasses the entire composting facility through raised farm roads). The design and construction of the dam, sump, composting pads and drains has been informed by the Geotechs with recommendations for the construction protocols to achieve the Composting Guidelines (see **Appendix 2**).

In Stage 1, composting pads 1A and 1B have been designed to drain to Main Drain 1 and Main Drain 2. Leachate is then sent to the below ground sump for collection and reuse. Leachate is sent back to the composting pads to add nutrients and water to the compost via a water cart with pump and hose system. In heavy rainfall events, leachate would be directed from the sump into the leachate dam for storage and reuse. The loading area has been designed to drain to a field drain which discharges to Main Drain 2.

In dry times, the dams would be topped up with bore water to ensure there is sufficient water available for the composting process. A detailed water balance has been provided at **Appendix 7** which has been used to inform the lodgement of a water use approval with WaterNSW.

In Stage 2, composting pads 2A-2C have been designed to drain to Main Drain 3 and the field drain at the northern extent of the pads. Main Drain 3 would discharge to Main Drain 2 via a culvert under the raised farm road.

Composting pads 3A-3C have been designed to drain to a field drain at the southern extent of the facility. This field drain would direct leachate to Main Drain 4 which would direct leachate via the other Main Drains back to the sump.

4.5 Leachate Dam

The proposal includes the construction of a leachate collection dam in stages as described above. The dam is to be constructed in accordance with the Geotechs (see **Appendix 2**) and the Composting Guidelines. In this regard, the dam would:

- Consist of a clay soil liner with recompacted clay to ensure a permeability of less than 10^{-9} ms^{-1}.
- The storage would be monitored with an alarm. However, the entire composting facility would be bunded so should the dam overtop, any leachate would be retained within the site.
- A freeboard for the 1 in 10-year 24-hour rain event would be maintained (1 m above operating depth).
- The site is bunded, so overland stormwater flows from other areas of the farm would not mix with the leachate in the facility.
- All water entering the bunded facility is treated as leachate.

Leachate from the leachate dam would be reused on the windrows when needed to obtain optimal moisture levels. This would involve the use of a water cart with pump and hose system to spray leachate onto the windrows using a tractor.

4.6 Site Access and Parking

The site access from Cadell Road would be upgraded between the road carriageway and the property boundary with tapers sized for the manoeuvring of road trains into and out of the site.

Figure 6: Accessway Upgrade

Parking would be provided adjacent to the proposed site amenities building. Parking would be provided on an all-weather surface. Parking is also provided around the pelletising shed.

4.7 Composting Process Overview

Waste Streams / Inputs

The composting facility would receive 99,000 tpy of Category 1 and Category 2 organic materials (as referenced in Table 3 of the Composting Guidelines) including such waste types as poultry farm litter, FOGO, waste straw, biosolids and manures. Other inputs would include rock phosphate, zeolite and other rock minerals. It is expected that the bulk of the organics received initially would be poultry farm litter, waste straw and FOGO.

Composting Process

The composting process at the site involves receiving organic material which is composted before being used as organic fertiliser, as either loose compost through a bulk spreader or compost pellets through seeding machinery, for agricultural or other purposes. Generally, the composting process will be performed as follows:

- Organic material will be transported to the site.
- Spent poultry litter will be unloaded directly onto the composting pads and formed into windrows through use of a front-end loader.
- Composting pads are designed and will be constructed to meet the requirements of the Composting Guidelines to avoid leaching into the soils.
- FOGO and other organics will be unloaded onto the proposed unloading area, inspected, undergo initial screening to remove unwanted contaminants via a trommel screen and a picking line, and moved onto the composting pads and formed into windrows.
- Windrows will be frequently turned and watered with a specialised windrow turner and water cart to ensure they remain aerobic and that pasteurisation is achieved.
- FOGO may be mixed with other organic materials, such as spent poultry litter or waste straw, to ensure an ideal carbon to nitrogen ratio for composting.
- The organics may be mixed with other products, such as rock phosphate or zeolite, to aid in the composting process and ensure the final product has the required nutrient values.
- The moisture content of windrows will be monitored and adjusted as required to maintain a moisture content of circa 50% during composting.
- The temperature of the windrows will be monitored daily for a minimum of the first five weeks. The internal temperature of the windrows will need to reach a minimum temperature of 55ºC which will be maintained for at least three consecutive days before each turn. The internal temperature of 55ºC will need to be maintained for a minimum of 15 days in total (with windrows being turned at least 5 times) to ensure pasteurisation.
- If windrows reach internal temperatures greater than 70ºC, the windrow will be turned to dissipate heat.
- Dimensions of windrows would be typically 2m high x 4m wide x 300m long.
- The composting process is expected to take approximately 2 to 4 months. Compost will be dried through use of the specialised windrow turner.
- Finished compost material would be subject to a final screening to ensure all inorganic material is removed.

- Finished compost material may be blended with other ingredients to create the required final product.
- Final compost material will either be loaded loose onto trucks, or pelletised and loaded onto trucks loose or in bags and transported to the customer.

Throughout the composting process, the following tests and information will be regularly performed and recorded for each batch to ensure adherence to industry requirements:

- Temperature.
- Turns.
- Watering.

Finished products will be tested prior to release for sale in accordance with relevant regulations / legislation and the Environment Protection Licence (EPL). All testing records will be retained.

Pelletising Process

The proposal includes the use of the pelletising plant installed in the open-ended farm shed. A maximum of 30,000 tpy of finished compost would be pelletised. Generally, the pelletising process will be performed as follows (see **Figure 7** and **Appendix 1**):

- Mature compost is transported from the composting pads to the pelletising shed in tipper trucks.
- Compost is loaded into the intake hoppers using a front-end loader.
- The compost is fed into the hammer mill system through the infeed auger.
- The hammer mill process the coarse compost into a finer material ready for pelletisation.
- The finer compost is transferred from the hammer mills to the pre-pellet bin through an auger.
- The finer compost is fed from the pre-pellet bin into the pellet press.
- The finer compost is extruded into a pellet by the pellet press and carried into the cooling tower by an auger.
- The pellets are transferred from the cooling tower to the trommel screen by a conveyor.
- The trommel screen removes the fines from the pellets.
- The pellets are transferred from the trommel screen to the out-loading area.
- The fines are carried back to the intake hoppers by a front-end loader to be re-processed.

- The finished pellets would be loaded into bulka bags and stored under the awning or transferred direct into a truck trailer to be transferred to the client in bulk.

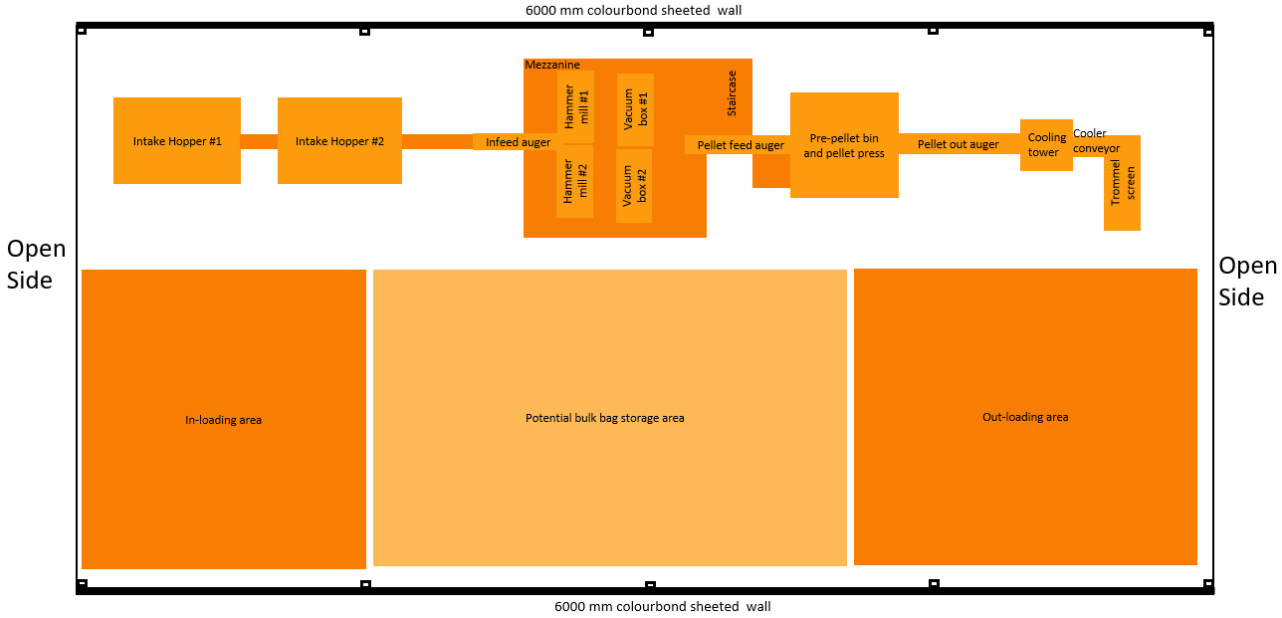


Figure 7: Floor Plan of Pelletising Shed (Larger Version at Appendix 1)

Equipment

The composting process would likely utilise the following plant and equipment:

- John Deere 8310R Tractor.
- EZ-5500 Compost Windrow Turner.
- EZ 10,000 litre Water Tank Trailer with spray nozzles.
- JCB TM320S Telemaster.
- Pelletising plant.

Storage Capacity

The site would contain eight composting pads. Each composting pad would contain between 5 and 8 windrows. Each windrow would contain 600 tonnes and would have a length of 300 m. A total composting capacity of all the composting pads would be 22,500 tonnes at any given time. It is expected that the composting process would take between 2.5-4 months depending on the meteorological conditions which would allow up to 99,000 tpy of compost to be processed.

The loading area would contain enough area to hold 5,000 tonnes of organics at any given time. Organics would be separated into stockpiles in accordance with the requirements of the FRNSW Guidelines (as required). A non-conforming waste bunker would also be located

within the loading area to hold contaminants found in the incoming FOGO and other Category 1 and 2 organics. These contaminants would generally consist of plastic and metals which would be removed and sent offsite to a licenced landfill when the bunker is full.

The pelletising shed is capable of accommodating 600 tonnes of finished product in bulkabags.

Non-Conforming Waste

The following is the non-conforming waste process proposed for the composting facility:

- All loads of incoming organic materials will be inspected on arrival.
- If unacceptable levels of contamination are identified as the truck is unloading, unloading will be stopped, and the contaminated material may be required to be reloaded onto the truck so that the contaminated load can be redirected to an appropriate waste facility capable of handling the waste.
- During the initial screening process, any contamination identified will be removed and transported to the contaminated waste bunker located on site.
- When the contaminated waste bunker is required to be emptied, the contaminated waste will be transported to a suitably licenced landfill facility for disposal.
- Any waste leaving the site will be recorded over the weighbridge.

Dust Suppression

The composting facility would adopt the following dust suppression measures:

- Staff will undertake regular inspections of dust arising from the site and implement dust suppression strategies as required to ensure dust remains on site, including watering pads and internal roadways with a water truck.
- Loads of incoming material and outgoing product will be required to be tarped.
- Windrows will be watered by the water cart as required. The water cart size is 10,000 litres and can be filled at the bore, dam or sump.

Collection and Dispatch of Compost

All outgoing loads of finished product will be weighed and recorded by date, quantity, category, customer, destination and freight provider. The finished product will be sold and distributed to local and regional customers according to supply and demand, largely in the agricultural and horticultural markets.

Quality assurance on final products will be performed and recorded in accordance with Killoran Ag's testing policy and procedures.

Operational workforce and hours

Approximately 5-6 staff will be employed at the facility and will be involved in the receiving of organic materials, composting the materials and pelletising the final composted material.

Hours of operation would be typically between the hours of 7am to 5pm, Monday to Friday. Some very limited operations may be conducted outside these hours

Weighbridge

The proposal includes the use of a weighbridge approved under DA 29/2023 which is to be located near the incoming waste loading area. The weighbridge, and accompanying approaches, have been sized to cater for road trains. All incoming and outgoing trucks would utilise the weighbridge.

Site Amenities

A site amenities building would be provided as located on the Plans provided at **Appendix 1** to be used by staff and visitors to the site. The building would be transportable in nature and consist of toilet facilities and a small lunch room. The Applicant has not selected a transportable amenities block from a provider at this time. It is requested that Council determine the development application with a condition of consent requiring the approval of a section 68 approval for a transportable building to provide staff amenities. At the time of this application, detailed plans would be provided including details of the proposed septic system to be installed.

4.8 Fire Protection and Fire Water Management

The proposal includes the installation of a 144,000 litre firewater tank located near the unloading and stockpile area. This tank would be filled via the bore water available on the site through a commercial licence and approval with WaterNSW. Once filled the water would be retained for firefighting purposes. The operators of the site would ensure that the tank is always full. A water cart would be available to put out small fires, if they were to occur, during regular operations. Should staff be unable to supress a fire, the RFS would be called and their trucks would be filled at the tank. The tank would be fitted with the RFS connections. As a backup supply, water can be accessed from the sump and leachate dam to supress fires. The following measures would be employed to reduce the risk of a fire:

- No smoking in the proximity of combustible materials.
- Monitoring of windrow temperatures.
- Windrows are maintained at a moisture content above 40% weight for weight (w/w).
- Operational equipment onsite is able to be utilised to spread or remove materials in the event of a fire.

- Staff are trained in the use of onsite firefighting appliances.
- Access to soil materials that can be used to smother fires.
- Fire extinguishers are provided on all mobile plant.

The size and location of the windrows would meet the requirements of the FRNSW Guidelines – as required. Adequate separation between windrows would be provided to ensure fire spread between windrows is avoided. Incoming organics would be separated into appropriately sized stockpiles in the unloading area which would be separated to avoid the spread of fire. The following measures would be employed in the event of a fire:

- Staff would utilise a fire and emergency protocol to follow should a fire occur including the following procedures:
    - In the event of a fire within a windrow or stockpile, the affected area would be suppressed with either the use of water and/or dirt. The stockpile/windrow must then be pulled apart. However, if weather conditions are such that pulling apart the stockpile/windrow is likely to ignite other stockpile/windrows or spread the fire internally or externally, (e.g. dry with moderate/strong winds), the stockpile must not be broken up until conditions are suitable.
    - In the event that staff cannot suppress the fire, the RFS would be contacted to attend the site.
    - Once the fire is extinguished, the impacted area would be monitored for 24 hours to ensure the fire does not re-ignite.

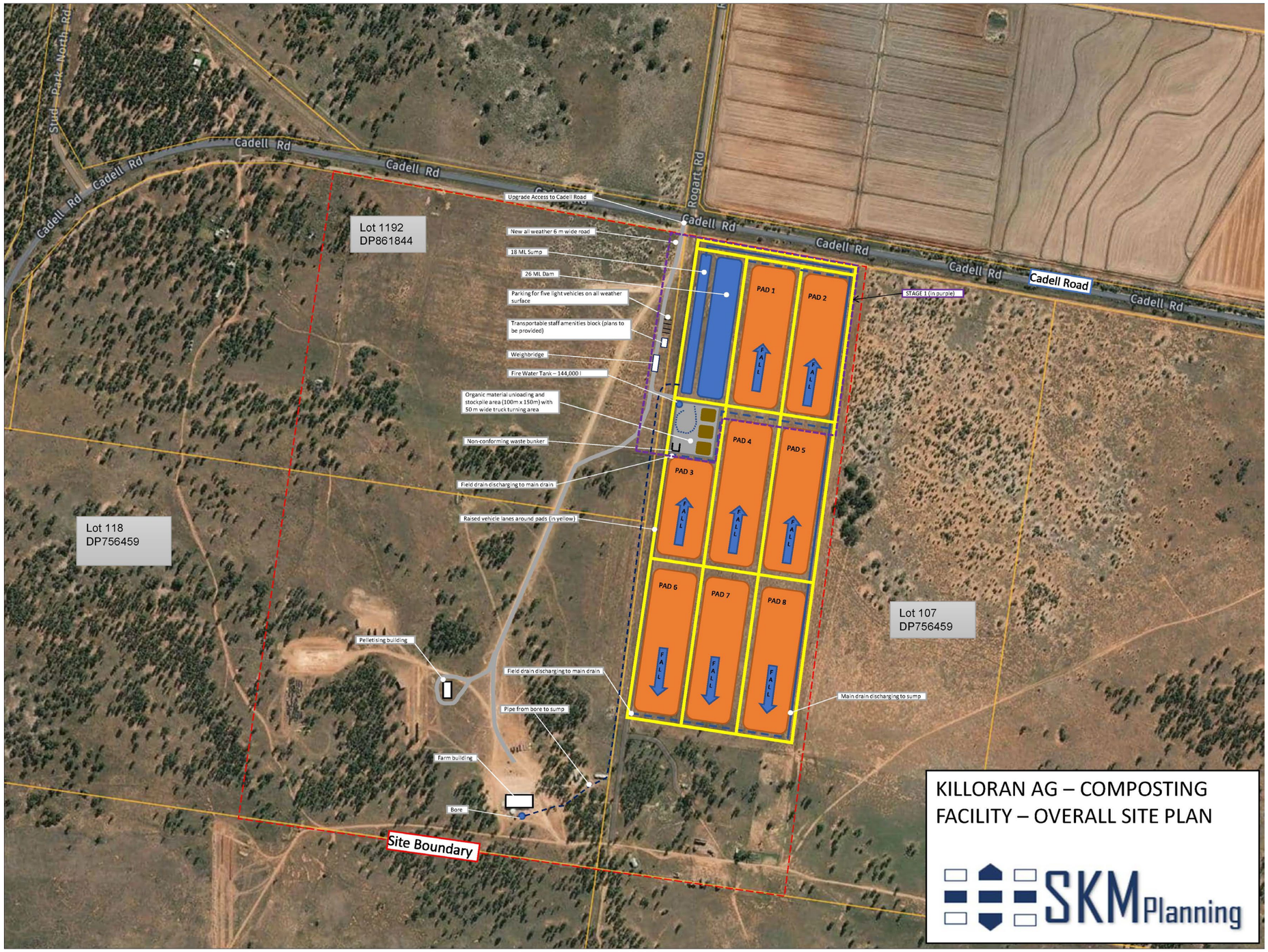


Figure 8: Overall Site Plan (Larger Version provided at **Appendix 1**)

5 Statutory Planning Approvals

This section provides an assessment of the proposal against the relevant planning legislation as prescribed in Section 4.15 of the EP&A Act.

5.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment (DoE) and provides a legal framework to protect and manage places defined as Matters of National Environmental Significance (MNES). The EPBC Act lists the following places as MNES:

- *World Heritage properties.*
- *National heritage places.*
- *Wetlands of International Significance (including Ramsar wetlands).*
- *Listed threatened species and ecological communities.*
- *Listed Migratory Species protected under international agreements (CAMBA and JAMBA).*
- *The Great Barrier Reef Marine Park.*
- *Water resources (relating to coal seam gas development and large coal mining development).*
- *Protection of the Environment from Nuclear Actions.*
- *Marine Environment.*

Under Part 9 of the EPBC Act, actions that may have a significant impact on a MNES are deemed 'controlled actions' and require approval from the Commonwealth Minister for the Environment (Environment Minister).

The assessment of the significance of the impact is based on the criteria listed in the DoE's Significant Impact Guidelines 1.1 (DoE 2003). Should the Environment Minister decide the action will be taken in a manner that will ensure it will be likely to not have an adverse impact on the MNES, approval will be granted.

The proposal will not have an impact on MNES, and accordingly, approval from the Commonwealth Minister for the Environment is not required.

5.2 Environmental Planning and Assessment Act 1979

The proposed composting facility requires development consent from Council under Part 4 of the EP&A Act.

Development applications must consider the objects of the EP&A Act which are as follows:

(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,

(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

(c) to promote the orderly and economic use and development of land,

(d) to promote the delivery and maintenance of affordable housing,

(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,

(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),

(g) to promote good design and amenity of the built environment,

(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,

(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,

(j) to provide increased opportunity for community participation in environmental planning and assessment.

The proposal is considered to be generally in accordance with objects of the EP&A Act for the following reasons:

- The composting facility would utilise organic waste products from the rearing of poultry and wastes which otherwise may have been destined for landfill.
- The proposal would facilitate the green bin programs starting up throughout the region.
- The site is located in a remote area which is generally used for agricultural purposes including broadacre and irrigated cropping and grazing of livestock. These agricultural operations use large amounts of fertilisers to alter the composition of the soils adding nitrogen and phosphorous between crops. The use of compost is an organic alternative to chemical-based fertilisers. The location of the site is optimal as it is near large farming operations which can use the product. The site is also located in close proximity to several poultry production facilities in the region.
- The proposal would not require the removal of any native vegetation and the composting facility would be located on disturbed land which has been historically modified and used for rotational crops.

5.3 Environmental Planning and Assessment Regulation 2021 (EP&A Regulations)

The composting facility will have a processing capacity of 99,000 tpy and would be considered designated development under Schedule 3 Section 13 of the EP&A Regulations which prescribes as follows:

13 Composting facilities or works

Composting facilities or works (being works involving the controlled aerobic or anaerobic biological conversion of organic material into stable cured humus-like products, including bioconversion, biodigestion and vermiculture)—

(a) that process more than 5,000 tonnes per year of organic materials, or

(b) that are located—

(i) in or within 100 metres of a natural waterbody, wetland, coastal dune field or environmentally sensitive area, or

(ii) in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils, or

(iii) within a drinking water catchment, or

(iv) within a catchment of an estuary where the entrance to the sea is intermittently open, or

(v) on a floodplain, or

(vi) within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

5.4 Protection of the Environment Operations Act 1997 (POEO Act)

The Proposal is considered a scheduled activity under Schedule 1, Section 12 of the POEO Act. This section prescribes:

12 Composting

*(1) This clause applies to **composting**, meaning the aerobic or anaerobic biological conversion of organics into humus-like products—*
(a) by methods such as bioconversion, biodigestion or vermiculture, or

(b) by size reduction of organics by shredding, chipping, mulching or grinding.

(2) The activity to which this clause applies is declared to be a scheduled activity if—
(a) where it takes place inside the regulated area, or takes place outside the regulated area but receives organics from inside the regulated area (whether or not it also receives organics from outside the regulated area)—
(i) it has on site at any time more than 200 tonnes of organics received from off site, or

(ii) it receives from off site more than 5,000 tonnes per year of non-putrescible organics or more than 200 tonnes per year of putrescible organics, or

(b) where it takes place outside the regulated area and does not receive organics from inside the regulated area—

(i) it has on site at any time more than 2,000 tonnes of organics received from off site, or

(ii) it receives from off site more than 5,000 tonnes per year of non-putrescible organics or more than 200 tonnes per year of putrescible organics.

(3) For the purposes of this clause, 1 cubic metre of organics is taken to weigh 0.5 tonnes.

Accordingly, the proposal would require an EPL from NSW Environment Protection Authority to operate. The proposal is considered integrated development and the EPA would provide General Terms of Approval for the development prior to Council providing development consent.

5.5 Roads Act 1993

The Roads Act 1993 (Roads Act) provides a framework for the management of roads in NSW. It provides for the classification of roads and the declaration of the TfNSW and other public authorities for both classified and unclassified roads. The Roads Act confers functions on TfNSW and other roads authorities and allows distribution of such functions between TfNSW and other roads authorities. The Roads Act sets out procedures for the opening and closing of public roads and regulates the carrying out of various activities on public roads.

As part of the development assessment, a Traffic Impact Assessment (TIA) (refer to **Appendix 5**) has been prepared which outlines the requirements for the use of roads in the area. The Applicant would apply to Council and TfNSW to have Cadell Road gazetted as a year-round Road Train route to permit the use of A-Double combination trucks for the development. The proposal is not reliant on the use of road trains, however, the amount of traffic to the site would be reduced through the use of larger combination trucks.

The intersection at Kidman Way and Cadell Road would need to be augmented to incorporate a Rural Basic Right Turn (BAR) intersection treatment. A Works Authorisation Deed (WAD) with TfNSW would be required prior to works occurring. The access to the site off Cadell Road would also be upgraded through a section 138 Roads Act approval from Council. We envision that this would include suitable tapers for the manoeuvring of trucks and would not require an intersection treatment. An example of a rural property access design is provided in the TIA at Appendix 5.

5.6 Water Management Act 2000

The *Water Management Act 2000* provides a framework for controlling the extraction of water, the use of water, the construction of works such as dams and weirs, and the carrying out of activities on or near water sources in NSW.

Part 3 of the Act contains a number of approvals which deal with the capture, conveyance and use of water in NSW. The proposed development consists of a leachate water storage sump

and dam and a fire water tank proposed to be supplied by a bore through an entitlement from WaterNSW.

89 Water use approvals

(1) A water use approval confers a right on its holder to use water for a particular purpose at a particular location.

(2) A water use approval may authorise the use within New South Wales of water taken from a water source outside New South Wales.

90 Water management work approvals

(1) There are three kinds of water management work approvals, namely, water supply work approvals, drainage work approvals and flood work approvals.

(2) A water supply work approval authorises its holder to construct and use a specified water supply work at a specified location.

(3) A drainage work approval confers a right on its holder to construct and use a specified drainage work at a specified location.

(4) A flood work approval confers a right on its holder to construct and use a specified flood work at a specified location.

91 Activity approvals

(1) There are two kinds of activity approvals, namely, controlled activity approvals and aquifer interference approvals.

(2) A controlled activity approval confers a right on its holder to carry out a specified controlled activity at a specified location in, on or under waterfront land.

(3) An aquifer interference approval confers a right on its holder to carry out one or more specified aquifer interference activities at a specified location, or in a specified area, in the course of carrying out specified activities.

The Applicant is seeking a water supply works and/or use approval, and a water access licence to buy water to use for a commercial purpose at the composting facility. The approval process with WaterNSW is underway. A detailed water balance has been provided at **Appendix 7**. The bore licence would ensure adequate water is available throughout the year and during prolonged meteorological events including drought. The proposal is therefore considered integrated development requiring an approval from WaterNSW.

The proposal includes the construction of a bunded composting facility which would not accept or capture any overland flow of water. The site is not located in proximity to a river or stream.

5.7 Biodiversity Conservation Act 2016 (BC Act)

The BC Act includes a two-tiered approach for the assessment of biodiversity impacts of a development. The first tier of assessment (i.e. thresholds tests) for 'local development' assessed under Part 4 of the EP&A Act initially focuses on 'triggers' that otherwise indicate a requirement, or not, for a second tier of assessment performed under Part 7 of the BC Act.

Threshold tests applied to determine if a development or activity is "likely to significantly affect threatened species" are listed below:

- Impacts exceed the biodiversity offsets scheme thresholds (Section 7.2 of the BC Act); or
- Impacts are likely to significantly affect threatened species or ecological communities, or their habitats (Section 7.3 of the BC Act); or
- Impact on declared area of outstanding biodiversity value.

'Yes' to any of the above triggers a requirement for an impact assessment performed in accordance with the Biodiversity Assessment Methodology (BAM) by an Accredited Person (Section 7.7 of the BC Act). A Preliminary Biodiversity Assessment has been prepared for the development and is provided in **Section 15**. The proposal does not include the removal of any native vegetation or potential habitat for fauna. The proposal would be unlikely to impact any threatened or endangered species. As such, a Biodiversity Development Assessment Report (BDAR) is not considered necessary in this instance.

5.8 State Environmental Planning Policies (SEPP)

SEPP Transport and Infrastructure 2021

Division 5 Electricity transmission or distribution

Subdivision 2 Development likely to affect an electricity transmission or distribution network

45 Determination of development applications—other development

(1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following—

(a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,

(b) development carried out—

(i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or

(ii) immediately adjacent to an electricity substation, or

(iii) within 5m of an exposed overhead electricity power line,

(c) installation of a swimming pool any part of which is—

(i) within 30m of a structure supporting an overhead electricity transmission line, measured horizontally from the top of the pool to the bottom of the structure at ground level, or

(ii) within 5m of an overhead electricity power line, measured vertically upwards from the top of the pool,

(d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.

(2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must—

(a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and

(b) take into consideration any response to the notice that is received within 21 days after the notice is given.

Commentary

Essential Energy's infrastructure is located within and in close proximity to the site. The proposal has been designed with reference to Essential Energy's guidelines. All earthworks would be located at least 5 m from the overhead lines and poles running into the site from the main lines in Cadell Road. **Figure 9** shows the existing overhead electrical lines in the locality from Essential Energy's Network Mapping System online. As the proposal is in proximity to this infrastructure it is expected that Council will notify the authorities in accordance with the SEPP.

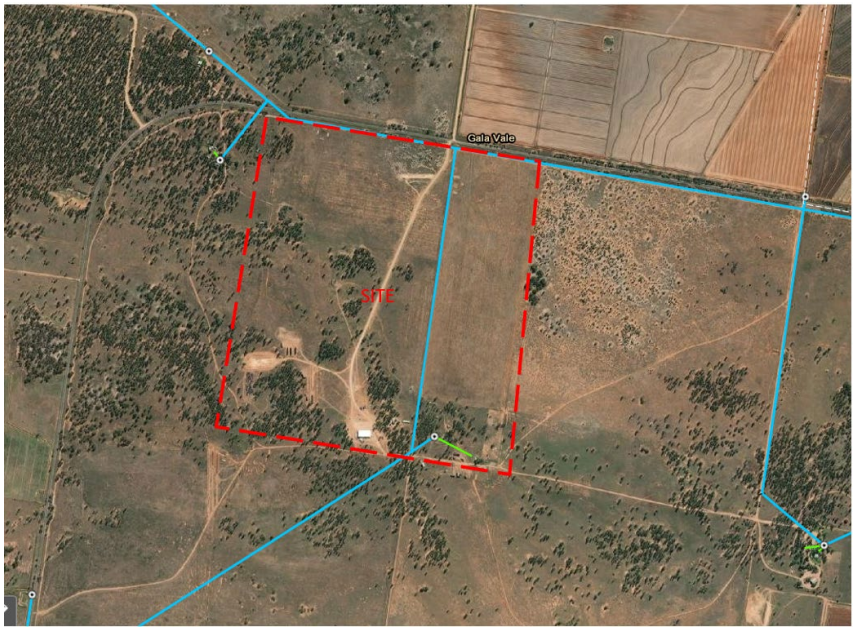


Figure 9: Essential Energy Network Map

Clause 2.21 & Schedule 3 – Traffic Generating Development

The development is considered a traffic generating development requiring referral to TfNSW. The proposal includes a TIA (see **Appendix 5** including a conceptual design for alterations to the Cadell Road / Kidman Way intersection.

SEPP Resilience and Hazards 2021

4.6 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless—

> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subsection (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subsection (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

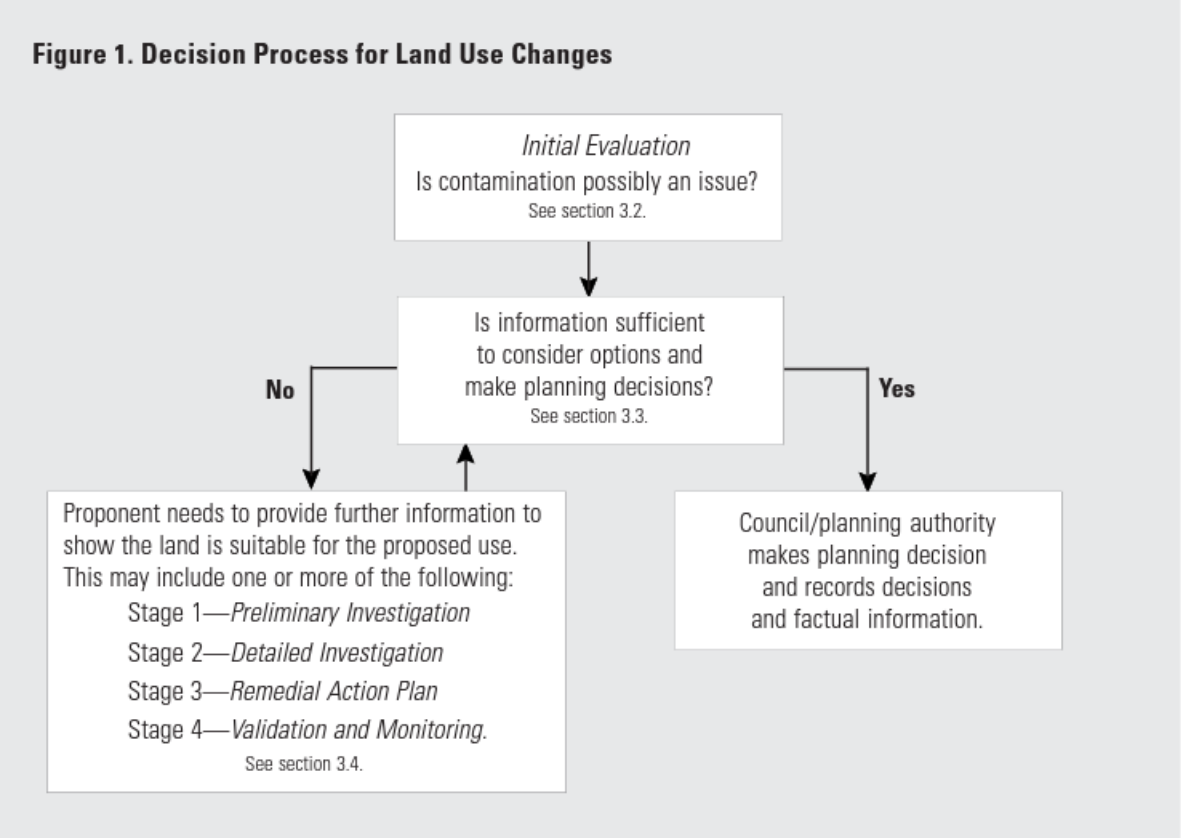
(4) The land concerned is—

> *(a) land that is within an investigation area,*
>
> *(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,*
>
> *(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land—*
>
> > *(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and*

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

Commentary

The historical use of the site for grazing and rotational cropping is listed as a potentially contaminating land use in Table 1 of "Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land."



A Preliminary Site Investigation is not considered warranted based on a review of the Guidelines for the following reasons:

- There is no evidence of the site being used for potentially contaminating uses historically with elevated levels of herbicide or pesticide usage.
- The site is not listed on a Contaminated Site Registry.
- There are no land restrictions or notices issued by Council or the EPA on the site.
- The proposal does not include a sensitive land use.

An unexpected finds protocol would be established by the construction contractors. Should any potential contamination be found during excavation, Council and the EPA would be notified, and a suitable remediation plan prepared in accordance with the SEPP.

Chapter 3 – Hazardous and Offensive Development

The SEPP aims to ensure that measures are employed to reduce the impact of a development that is a hazardous or offensive industry. Under the SEPP, a consent authority must not consent to the carrying out of any development on land without considering:

- *Current circulars or guidelines published by the Department of Planning and Environment relating to hazardous or offensive development;*
- *Whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply;*
- *In the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant;*
- *Any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and*
- *Any likely future use of the land surrounding the development.*

The proposal is for a composting facility which would not store or use any dangerous goods. The proposal does not involve the use of hazardous chemicals above screening levels that would trigger consideration as potentially hazardous development. While the proposal requires an EPL, extensive buffer lands exist which are owned by the landowner and are appropriately zoned to prevent encroachment. A preliminary risk screening assessment has been provided at **Section 14**.

5.9 Jerilderie Local Environmental Plan 2012 (JLEP 2012)

The site is zoned RU1 Primary Production under the JLEP 2012 and composting facilities are a permissible use with the consent of Council.

Composting facilities being a sub definition of *rural industry* being defined as*:*

> *the handling, treating, production, processing, storage or packing of animal or plant agricultural products for commercial purposes, and includes any of the following—*
>
> *(a) agricultural produce industries,*
>
> *(b) livestock processing industries,*
>
> *(c) composting facilities and works (including the production of mushroom substrate),*
>
> *(d) sawmill or log processing works,*
>
> *(e) stock and sale yards,*

(f) the regular servicing or repairing of plant or equipment used for the purposes of a rural enterprise.

Under JLEP 2012 the objectives of the RU1 Primary Production zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

Commentary:

The proposal would meet the objectives of the zone by providing a facility that will reuse the by-products of primary industries in the region. Land use conflict would be avoided through the careful management of the composting facility.

Clause 5.10 – Heritage Conservation

1) Objectives

The objectives of this clause are as follows—

(a) to conserve the environmental heritage of Jerilderie,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

(2) Requirement for consent

Development consent is required for any of the following—

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance)—

(i) a heritage item,

(ii) an Aboriginal object,

(iii) a building, work, relic or tree within a heritage conservation area,

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land—

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance

Commentary:

The site does not contain any heritage items and is not within a heritage conservation area. As such a Heritage Assessment is not required in this instance.

5.21 Flood planning

(1) The objectives of this clause are as follows—

(a) to minimise the flood risk to life and property associated with the use of land,

(b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,

(c) to avoid adverse or cumulative impacts on flood behaviour and the environment,

(d) to enable the safe occupation and efficient evacuation of people in the event of a flood.

(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—

(a) is compatible with the flood function and behaviour on the land, and

(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and

(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and

(d) incorporates appropriate measures to manage risk to life in the event of a flood, and

(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—

(a) the impact of the development on projected changes to flood behaviour as a result of climate change,

(b) the intended design and scale of buildings resulting from the development,

(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,

(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.

(4) A word or expression used in this clause has the same meaning as it has in the Considering Flooding in Land Use Planning Guideline unless it is otherwise defined in this clause.

(5) In this clause—

***Considering Flooding in Land Use Planning Guideline** means the Considering Flooding in Land Use Planning Guideline published on the Department's website on 14 July 2021.*

***flood planning area** has the same meaning as it has in the Floodplain Development Manual.*

***Floodplain Development Manual** means the Floodplain Development Manual(ISBN 0 7347 5476 0) published by the NSW Government in April 2005.*

Commentary:

The site has not been identified as flood prone for the 1 in 100 year flood event in any Council flood study or management plan. Local knowledge suggests the site is not on a flood plain or subject to overland flow during flood events. The clause does not appear to be relevant to the

proposal. However, the composting facility would be bunded to ensure stormwater does not intercept leachate.

6.1 Earthworks

(1) The objectives of this clause are as follows:

(a) to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land,

(b) to allow earthworks of a minor nature without requiring separate development consent.

(2) Development consent is required for earthworks unless:

(a) the earthworks are exempt development under this Plan or another applicable environmental planning instrument, or

(b) the earthworks are ancillary to other development for which:

(i) development consent has been given, or

(ii) for which development consent is not required.

(3) Before granting development consent for earthworks, the consent authority must consider the following matters:

(a) the likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality of the development,

(b) the effect of the development on the likely future use or redevelopment of the land,

(c) the quality of the fill or the soil to be excavated, or both,

(d) the effect of the development on the existing and likely amenity of adjoining properties,

(e) the source of any fill material and the destination of any excavated material,

(f) the likelihood of disturbing relics,

(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area,

(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

Commentary:

The proposed development will require a substantial amount of earthworks. The proposal will not impact drainage patterns on adjacent farm holdings as the proposal has been designed to retain all water on site and reuse it for the composting process. The area around the composting facility would be bunded by farm roads to ensure leachate does not cross property boundaries or impact the roadway.

There are no sensitive receivers in the area which could be impacted by the dust created by the earthworks. The nearest dwelling not associated with Killoran Ag is located 1.2 km to the north-west of the site.

An AHIMS search has been completed at **Appendix 8** which shows that there are no known Aboriginal sites or places near the dam site.

The likelihood of disturbing any relics on the subject lands is considered low as the lands have been previously cultivated and worked up and therefore are highly disturbed. A more detailed assessment of Aboriginal Cultural Heritage has been provided in **Section 12**.

7.4 Biodiversity

(1) The objective of this clause is to maintain terrestrial biodiversity by:

(a) protecting native fauna and flora, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the conservation and recovery of native fauna and flora and their habitats

(2) This clause applies to land identified as "Biodiversity" on the Terrestrial Biodiversity Map.

(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider:

(a) whether the development is likely to have:

(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and

(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and

(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

(iv) any adverse impact on the habitat elements providing connectivity on the land, and

(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

(b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Commentary:

As previously stated, the area of the site subject to the construction of the composting facility is void of any native vegetation and the area has not been identified for "terrestrial biodiversity" in the JLEP 2012 maps (see **Figure 10**). A more detailed assessment of the potential biodiversity impacts of the development is provided in **Section 15**.

Figure 10: Council Biodiversity Map

Clause 6.5 – Groundwater Vulnerability

(1) The objectives of this clause are as follows—

(a) to maintain the hydrological functions of key groundwater systems,

(b) to protect vulnerable groundwater resources from depletion and contamination as a result of development.

(2) This clause applies to land identified as "Vulnerable" on the Groundwater Vulnerability Map.

(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider the following—

(a) the likelihood of groundwater contamination from the development (including from any on-site storage or disposal of solid or liquid waste and chemicals),

(b) any adverse impacts the development may have on groundwater dependent ecosystems,

(c) the cumulative impact the development may have on groundwater (including impacts on nearby groundwater extraction for a potable water supply or stock water supply),

(d) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Commentary:

The site is mapped on the Groundwater Vulnerability Map of the JLEP 2012. The historical bore investigations on the site have shown that groundwater is located around 60-90 m from the ground surface. A Geotech (refer to **Appendix 2**) was also carried out which included the drilling of bore holes to 6 m below the surface. No groundwater was intercepted as part of these investigations.

The composting operations will need to be undertaken on a fully compacted hardstand area to limit groundwater penetration in accordance with the requirements of the Composting Guidelines. The Geotech has provided detailed construction requirements for the composting facility to meet the requirements of the Composting Guidelines and achieve permeability requirements. A clay soil liner of recompacted clay would be used. Should the composting

facility be constructed in accordance with the Geotech and the Composting Guidelines the likelihood of an impact to groundwater from leachate would be minimal considering the depth of the water table and the general suitability of the soils.

Clause 6.8 - Essential services

Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required—

(a) the supply of water,

(b) the supply of electricity,

(c) the disposal and management of sewage,

(d) stormwater drainage or on-site conservation,

(e) suitable road access.

Commentary:

- The site is supplied by bore water which would be used when required under licence with WaterNSW. The composting facility would reuse water and leachate through the leachate collection system. During dry periods, the bore would be utilised to augment the water needs of the composting operations. The bore would also be used to fill the 144,000 litre fire water tank. A detailed site water balance for the development is provided in **Appendix 7**.
- The site is connected to electricity, however, the composting operations do not require connection to Essential Energy's supply network which is located on the site. The pelletising plant would run on a generator. In the future, the Applicant may extend the internal electrical infrastructure to the pelletising facility. A generator would also be used for the staff amenities building.
- Site amenities for the farming operation are existing and connected to a septic system. No change to this system is proposed. A new amenities block is proposed for the composting facility. The Applicant would provide detailed plans of the amenities block post approval and as part of a Section 68 approval . It is expected the amenities block would be a transportable structure.

  A new septic system would be installed to service the amenities block.
- The site is accessed from Cadell Road which is a bitumen sealed Council road which connects to Kidman Way to the east which is a classified road under the control of TfNSW.
    - The access to the site from Cadell Road would be bitumen sealed and sized to cater for the movements of a road train. Design plans for the accessway would

be provided to Council to achieve a Section 138 Roads Act approval from Council.

- The TIA provided at **Appendix 5** included an assessment of the intersection of Kidman Way and Cadell Road and concluded a BAR would be required to be constructed. Detailed plans for the BAR would be provided to achieve a Works Authorisation Deed (WAD) with TfNSW.

5.10 Development Control Plans (DCP)

A review of Council's DCP's indicates that the site is not covered by any development controls.

6 Consultation

6.1 Government Agency Consultation Outcomes

During the preparation of the EIS the following local and State Agencies were consulted:

- TfNSW – Spotto Consulting on behalf of the Applicant
- EPA – including a pre lodgement meeting
- Council – including a pre lodgement meeting.

TfNSW

TfNSW raised the following issues or requirements in discussions:

- A TIA would be required.
- A BAR intersection treatment would most likely be required at the intersection of Cadell Road and Kidman Way subject to the conclusions and recommendations of the TIA.
- Cadell Road is not part of the approved Road Train Network and an application would need to be made to have the road gazetted.

EPA

A pre-lodgement meeting occurred with the EPA (Jason Price), SKM Planning and the Applicant to discuss the proposal. The EPA and the Applicant discussed the proposed waste streams to be accepted on the site and the potential environmental impacts which must be considered in the development application including waste management, air quality and noise.

6.2 Consultation During EIS Exhibition

This EIS will be placed on public exhibition for a minimum period of 30 days. The Applicant will continue to commit resources to satisfy consultation requirements during the public exhibition phase and throughout the life of the development. The Applicant will actively engage with key stakeholders to ensure they are aware the EIS is on public exhibition.

The Applicant will continue to undertake consultation with stakeholders as necessary post determination of the EIS.

7 Environmental Risk Assessment

To meet the environmental risk assessment requirements of the SEARs, the Australian Standard AS/NZS ISO 31000:2009 Risk Management Principles and Guidelines has been utilised in this section to understand the potential environmental impacts of the development.

7.1 Methodology

The potential environmental impacts of the proposal requiring assessment were identified through:

- A review of other development applications for composting facilities.
- The Composting Guidelines.
- The SEARs.
- Outcomes of consultation with Council, TfNSW, EPA and neighbours.
- The results of specialist studies undertaken as part of this EIS.
- Discussions with other composting facility operators.

The key environmental and social impacts identified for the proposal include:

- Odour and air quality.
- Noise.
- Traffic generation.
- Leachate and Stormwater.
- Waste Management.
- Fire and Incident Management.

7.2 Impact Evaluation

The environmental impacts of the proposal have been assigned a likelihood between almost impossible to certain with a potential frequency for each.

Likelihood	Description	Frequency
Certain	Common Occurrence	At least daily
Very Likely	Expected to occur in most circumstances	Once per week
Likely	Probably will occur or has happened in the past	Once per month
Possible	Occurs Infrequently	Less than once per year
Unlikely	Could happen at some time	Less than once per 10 years
Almost Impossible	Not Likely to Occur	Less than 1 per 100 years

7.3 Consequence Evaluation

The environmental impacts have also been assigned a consequence rating between catastrophic and negligible in accordance with **Table 4**.

Table 4: Consequence Evaluation Ratings and Levels

Consequence Rating	Health and Safety	Natural Environment	Community Relations & Cultural Heritage	Damage / Loss
Catastrophic	Multiple Fatality	Significant and irreversible impact on threatened species, habitat(s) or ecosystem(s)	Irreparable damage to sites of high cultural significance	Significant Financial Loss. >$10 million
Severe	Fatality	Very serious long-term environmental impairment of eco-system function	Very serious widespread social impact. Irreparable damage to valued cultural items	Major $1 M - $10 M
Significant	Lost Time Injury	Serious medium-term environmental effects	Ongoing serious social issues. Significant but repairable damages to structures/items of cultural significance	High $100,000 - $1 M
Moderate	Medical Treatment required. Medical Treatment Injury	Moderate short-term effects but not effecting overall ecosystem function	Ongoing social issues. Minor permanent damage to items of cultural significance.	Low financial Loss <$100,000
Minor	First Aid Treatment	Minor effects on biological or physical environment	Minor medium-term social impacts	Low Financial Loss <$10,000
Negligible	No medical attention. Report only	Limited damage to minimal areas of low significance	Low level repairable damage to commonplace structures	Min Financial Loss <$1000

7.4 Risk Assessment Matrix

The environmental impacts have been assigned a risk rating from very low to very high as depicted in **Table 5**.

Table 5: Risk Matrix

Likelihood	Consequence					
	Negligible	Minor	Moderate	Significant	Severe	Catastrophic
Certain	Low	Medium	High	High	Very high	Very high
Very Likely	Low	Low	Medium	High	Very high	Very high
Likely	Low	Low	Medium	Medium	High	High
Possible	Very low	Low	Low	Medium	Medium	High
Unlikely	Very low	Low	Low	Low	Low	Medium
Almost Impossible	Very low	Very low	Very low	Low	Low	Low

7.5 Risk Assessment

Table 6 provides a risk assessment of the environmental and social impacts considered as part of the ERA. The risk assessment did not identify any aspects of the Project, following the implementation of mitigation measures (residual risk), with a risk rating above ‘low’.

Table 6: Risk Assessment

Issue	Aspect	Potential Impact	Likelihood	Consequence	Risk Rating	Mitigation	Residual Risk
Air Quality	• Vehicle movements. • The receival and composting of organics. • Use of pelletising plant.	Elevated levels of dust and odour emissions.	Likely	Moderate	Medium	- Cover loads. - Wet dry soils and compost. - Cover new waste with mulch or finished compost. - Avoid turning windrows in adverse weather conditions.	Low
Fire	• Fires caused during the composting process.	Impact of fires from compost windrows on composting facility and surrounds.	Likely	Moderate	Medium	- Implement FRNSW fire safety procedures. - Installation of fire water tank. - Availability of water cart.	Low
Traffic	• Employee and visitor light vehicle movements • Truck movements related to the delivery of organics and the removal of finished products. • Truck movements related to the delivery of additives.	Increased traffic movements impacting the safety, capacity and efficiency of the road network.	Possible	Minor	Low	- Implement driver code of conduct. - All-weather surface on internal roads. - Establish adequate parking.	Very Low
Noise	• Vehicle and truck movements. • Use of pelletising plant. • Operational noise including turning windrows and loading and unloading of trucks.	Potential generation of offensive noise at receivers.	Possible	Minor	Low	- Avoid turning windrows in adverse weather conditions. - Avoid carrying out multiple noise intensive procedures continuously. - Carry out loading and unloading activities during daytime hours.	Very Low
Groundwater and Surface Water	• Stormwater and leachate management.	Contamination of surface and groundwater due to issues with the pads, bunding and leachate management system.	Possible	Minor	Low	- Limit storage of oil/chemical. - Implement spill management procedures. - Maintain all surfaces and water management systems and monitor integrity. - Implement testing regime for contamination of ground and surface water.	Very Low
Waste Management	• Receival, consolidation, and composting of organics.	Land and water contamination due to poor management of the site.	Possible	Minor	Low	- Operate the facility in accordance with a waste management plan prepared in accordance with EPA requirements.	Very Low

Visual	• Visibility of the proposed new infrastructure.	Impact to visual amenity of existing environment.	Possible	Minor	Low	- Ensure the stockpiles are setback from the road reserve and restrict the height of the stockpiles to 5 m in height at any given time and the height of windrows to 3 m. - Ensure non-conforming wastes remain in the bunker.	Very Low	
Aboriginal Heritage	• Ground disturbance during construction.	Disturbance of Aboriginal artefacts, sites or places of cultural heritage significance.	Unlikely	Negligible	Very Low	- Establish Unexpected Finds Protocol including consultation with local and State government agencies and registered Aboriginal Parties.	Very Low	
Biodiversity	• Disturbance of biodiversity during construction and operations.	Disturbance of native vegetation outside development footprint, weed management and fauna accessing the compost facility.	Unlikely	Negligible	Very Low	- Retain all fires within composting facility. - Monitor for weeds and non-native plants. - Implement a Weed Management Plan. - Use scare guns. - Avoid removal of native vegetation.	Very Low	

The proposal would not be expected to create environmental risks which cannot be managed or mitigated to an acceptable level. This EIS provides a detailed assessment of each potential issue or impact as identified in the following sections. The two issues which have an elevated residual risk rating compared to the others are air quality and fire. It is noted that the residual risk rating for these two issues is still considered to be low.

The AQIA has concluded that the air quality impacts of the development can be managed to ensure the amenity of the nearest sensitive receivers are substantially maintained. A number of mitigation and management measures will be implemented to decrease the potential for air quality impacts including covering loads, using a water cart and wetting dry soils and compost, and covering newly received waste with mulch or finished compost.

The site would mitigate potential impacts caused by fire through the implementation of fire safety measures in accordance with the FRNSW Guidelines as required. A 144,000 litre fire water tank would be located adjacent to the unloading area on a hardstand which would be accessible by the RFS. Alternative water supply for firefighting purposes would be available within the leachate collection system which can be pumped to the location of the fire. Other measures would also be implemented including segregating the fire into a single secluded pile and then flattening it out if possible. A water truck would also be available to suppress small fires.

8 Air Quality

8.1 Introduction

The EIS includes a comprehensive assessment of the potential air quality and odour impacts of the development. An AQIA has been prepared by SoundIn Consultants. This Assessment is attached at **Appendix 4**.

8.2 Existing Environment

The site is located in a very rural area south of Coleambally surrounded by large scale grazing and agricultural operations. The site has a history of agricultural use including grazing and broadacre cropping. There are four sensitive receivers not related to the Killoran Ag operations within 5 km of the proposed location of the composting facility and pelletising shed.

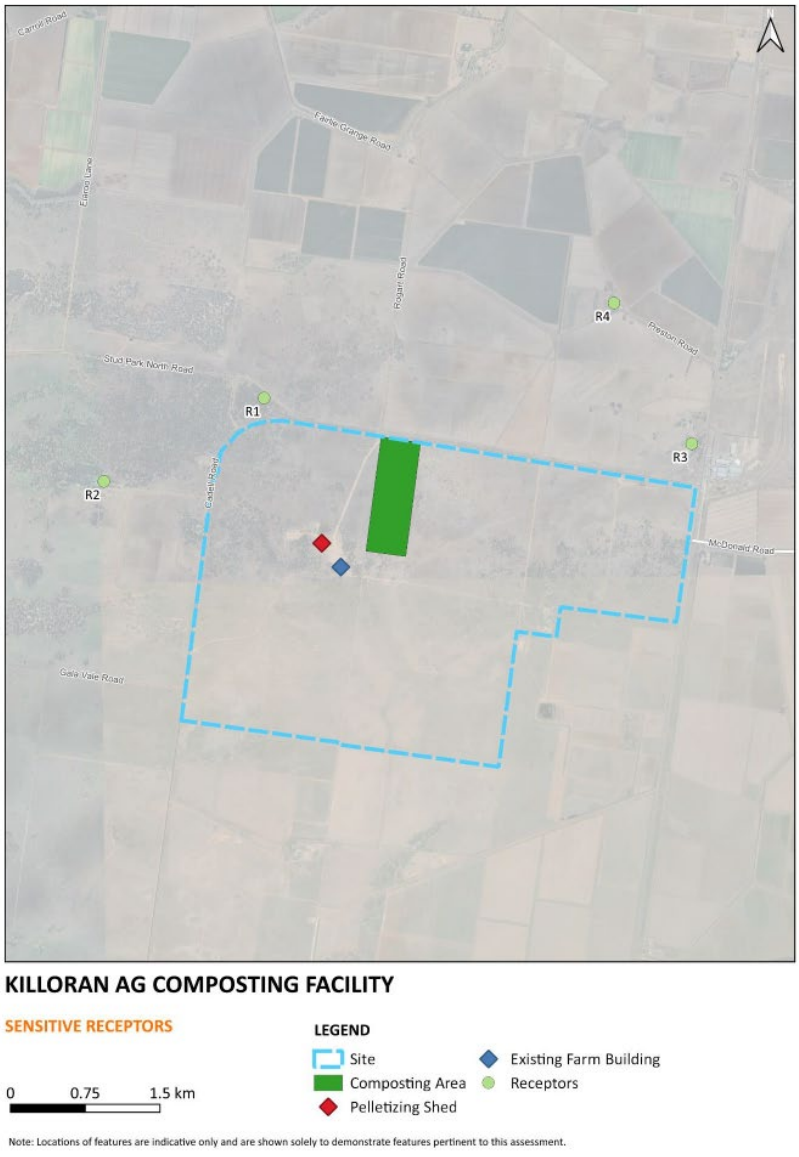


Figure 11: Location of Sensitive Receivers located within 5 km of the site.

Table 7: Odour and Air Quality Sensitive Receivers

Receiver	Address	Description
R1	1308 Cadell Road, Gala Vale	Residence
R2	1189 Cadell Road, Gala Vale	Residence
R3	3583 Kidman Way, Coleambally	Residence
R4	132 Preston Road, Coleambally	Residence

SoundIn took a conservative approach to the AQIA and selected the sensitive receivers in **Table 7** utilising the 2 odour unit (OU) criteria in the EPA's Approved Methods. The 2 OU criteria is the most strict criteria and is usually utilised in urban areas or in proximity to schools or hospitals. Odour concentrations are used and are defined in OUs. The number of OUs represents the number of times that the odour would need to be diluted to reach a level that is just detectable to the human nose. Thus, by definition, odour less than one OU unit, would not be detectable to most people.

Long term meteorological data for the area surrounding the site is available from the Bureau of Meteorology (BoM) weather station at the Yanco. The Yanco weather station is located approximately 56.7 kilometres north-east of the Site and records observations of several meteorological parameters including temperature, humidity, and rainfall.

Long term climatic trends are provided in **Table 8**. As is evident, January is the hottest month with a mean maximum daily temperature of above 33 degrees Celsius. July is the coolest month with a mean minimum daily temperature of around 5 degrees Celsius.

Table 8: Yanco Climate Averages

Obs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am mean temperature and humidity													
Temp(°C)	23.7	22.4	19.0	16.7	11.5	8.6	7.6	9.5	13.4	17.0	20.1	21.9	15.9
Hum(%)	46	55	58	61	76	87	89	80	68	53	51	46	64
3pm mean temperature and humidity													
Temp(°C)	32.1	30.6	27.8	23.3	18.5	14.5	13.5	15.4	19.2	22.8	27.0	28.8	22.8
Hum(%)	23	30	30	37	45	61	60	52	43	33	29	27	39
Daily minimum and maximum temperatures													
Min(°C)	18.8	18.2	15.4	11.7	7.7	5.7	4.9	5.3	7.6	10.6	14.2	16.2	11.4
Max(°C)	33.9	32.4	29.0	24.3	19.0	15.2	14.5	16.3	20.3	24.7	28.5	31.1	24.1
Rainfall													
Rain(mm)	32.1	31.4	37.1	32.3	37.7	36.9	35.5	38.1	38.9	40.3	35.0	32.3	427.6
Rain Days	3.3	2.7	3.3	3.6	4.5	5.3	6.4	6.3	5.3	5.0	3.9	3.6	53.2

October is the wettest month with average of 40mm of rainfall over a five-day period which is well below the NSW average for the same month. An average of 428 mm of rainfall per year falls in the region.

The AQIA in **Appendix 4** provides the windrows for the Yanco meteorological stations which clearly indicates that on an annual basis, northerly and south westerly winds appear dominant. The south westerly winds are a feature of summer, spring and autumn. It is noted that south easterly winds rarely feature in any season. Wind speed and wind direction during 2021 are considered representative of the five-year period and were therefore adopted for assessment purposes.

8.3 Air Quality Criteria

The NSW EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (Approved Methods) (NSW EPA, 2022) sets out applicable impact assessment criteria for a number of air pollutants.

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The AQIA uses the Approved Methods and best practices to identify pollutants of interest concluding that odour is the primary air pollutant associated with the Proposal and is the focus of this assessment.

The proposal will also generate some dust emissions; however, noting the significant separation distances to nearby sensitive receptors, dust impacts from the proposal will be small and were not assessed further in the AQIA.

The POEO Act prohibits emissions from development which causes offensive odour occurring at any offsite receiver. The range of a person's ability to detect odour varies greatly in the population, as does their sensitivity to the type of odour. Therefore, there can be a wide range of variability in the way odour response is interpreted. In the AQIA, SoundIn notes:

odour refers to complex mixtures of odours, and not "pure" odour arising from a single chemical. Odour from a single, known chemical very rarely occurs (when it does, it is best to consider that specific chemical in terms of its concentration in the air). In most situations, odour will be comprised of a cocktail of many substances that is referred to as a complex mixture of odorous pollutants, or more simply odour.

To predict odour from development, air dispersion modelling is used which can calculate the level of dilution of odours emitted from the development to sensitive receivers. The result of the modelling is an estimate of OUs to be experienced at a sensitive receiver. As discussed above, the 2 OU criteria was used to identify receivers which could experience some potential odour impacts in the locality. Acceptable levels of OUs range from 2 OU for urban areas to 7 OU for a rural area. For context, the Baiada poultry processing facility in Griffith utilised a 6 OU criteria to assess potential impacts on rural receivers. This criterion can be used if less than 10 rural residences are located in proximity to the site. The AQIA has adopted a similar approach based on four dwellings being located within 5 km of the site.

8.4 Modelling Methodology

As there is no background meteorological data for the site, the AQIA utilised the Air Pollution Model (TAPM), developed and distributed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) which is a prognostic model.

The TAPM simulation was incorporated in a CALMET model which is a program for modelling potential fine scale wind flows.

Ultimately the AQIA used the CALMET data to create a dispersion model using CALPUFF which is considered an advanced dispersion model and is intended for use in situations where less advanced Gaussian plume models are not appropriate. CALPUFF is most often used in areas exhibiting one or more of the following features:

- Complex terrain.
- Recirculating coastal sea breezes.
- High frequency of calm winds.
- Buoyant line sources.

CALPUFF is also the preferred dispersion model for odour, and for this reason has been selected for this assessment.

Emission Inventory

The AQIA identified that the following potential odour sources could create odour from the proposal:

- Open compost windrows.
- Input material stockpiles.
- Leachate storage.

Based on other AQIA's for similar waste developments and relevant literature, the following specific odour emission rates were utilised:

Source	SOER (OUv/m^2 /s)	Reference
FOGO	5.65	SLR, 2011
Spent poultry litter	1.1	Dunlop, 2017
Finished compost	0.15	Northstar, 2022
Leachate	0.3	Northstar, 2022

The AQIA identified that the approximate ratio of FOGO to other inputs would be on average 1:3 and therefore the initial SOER of the FOGO within the windrow would be diluted to 2.24 OUv/m^2 /s. The odour emissions from the organics in the windrows would continue to reduce during the composting process. However, the AQIA assumed that this reduction occurs in a linear fashion over a typical 12-week cycle. This is a conservative assumption and would tend to overestimate odour emissions from the windrows. During the turning of windrows (every 2 weeks), it would be expected that odour emissions would increase for a short period of time. **Table 9** provides the weekly windrow emission rates for the development.

Table 9: Weekly windrow emission rates

Week	SOER (OUv/m²/s)		Turning day
	Not-turned	Turned	
Week 1	2.24		
Week 2	2.05	17.90	Monday
Week 3	1.86		
Week 4	1.67	14.86	Tuesday
Week 5	1.48		
Week 6	1.29	11.83	Wednesday
Week 7	1.10		
Week 8	0.91	8.79	Thursday
Week 9	0.72		
Week 10	0.53	5.75	Friday
Week 11	0.34		
Week 12	0.15	2.72	Saturday

The AQIA utilised the following operational requirements of the proposal to understand the odour potential of the facility:

When full, the composting area will accommodate the equivalent of 38 windrows, each approximately 300 metres long, 2 metres high and 4 metres wide. For assessment purposes, a "peak" composting scenario has been developed which includes 38 windrows in the composting area, with 3 windrows at each of the weekly stages in a 12-week cycle and the remaining two windrows being at the week 12 (i.e. finished) stage.

The loading area would be used to store both incoming materials and finished compost at varying amounts depending upon site operations at the time. The assessment scenario assumes that the loading area contains approximately 5,000 tonnes of FOGO – the most odorous material associated with the facility – stored in stockpiles approximately 100 metres long, 6 metres wide and 3 metres high. This scenario represents the loading area being filled to capacity with FOGO, which is unlikely to occur for extended periods of time but, if it does occur, the FOGO would be "capped" with a layer of finished compost or similar material. Capping windrows in this manner has been demonstrated to reduce odour emissions by approximately 60% (Arcadis, 2019). This reduction has been incorporated into the dispersion model.

Surface area corrections have been applied to both the windrows and the stockpiles to account for their trapezoidal shapes.

8.5 Assessment of Impacts

The AQIA predicted the odour concentrations provided in **Table 10**.

Table 10: Predicted 99th percentile odour concentrations at sensitive receptors

Receiver	Predicted OU	Impact Criterion	Complies?
R1	5.4	5.7	Yes
R2	2.4	5.7	Yes
R3	2.1	5.7	Yes
R4	2.8	5.7	Yes

As is evident by **Table 10** the predicted worst case scenario odour impacts of the development would be below the relevant assessment criteria for the rural locality. A contour plot showing the OU concentration created by the development are provided in **Figure 12**.

8.6 Mitigation Measures

The following mitigation measures would be implemented to ensure the odours associated with the proposal do not cause an impact to the nearby receivers:

- Avoid turning over windrows in adverse weather.
- Cover incoming FOGO with waste straw or finished compost.
- Transfer FOGO to windrows as soon as possible after receival to dilute the odour potential.
- Avoid unnecessary disruption of FOGO stockpiles.
- Wet dusty surfaces during dry conditions. Staff will undertake visual inspections of dust generation to ensure dust does not spread beyond the boundaries of the site.
- Provide neighbours with the manager's contact details to divulge any odour impacts.
- Staff will receive training on methods to reduce dust generation.

8.7 Conclusions

The AQIA at **Appendix 7** has been conducted in accordance with the Approved Methods. Potential off-site odour impacts associated with the operation of the Site were predicted using the CALPUFF dispersion modelling system. The modelling results indicate that predicted odour concentrations at sensitive receivers comply with the impact assessment criterion. Subject to the implementation of some best practice management and mitigation measures, it is not expected that odour impacts would be experienced at nearby receivers.

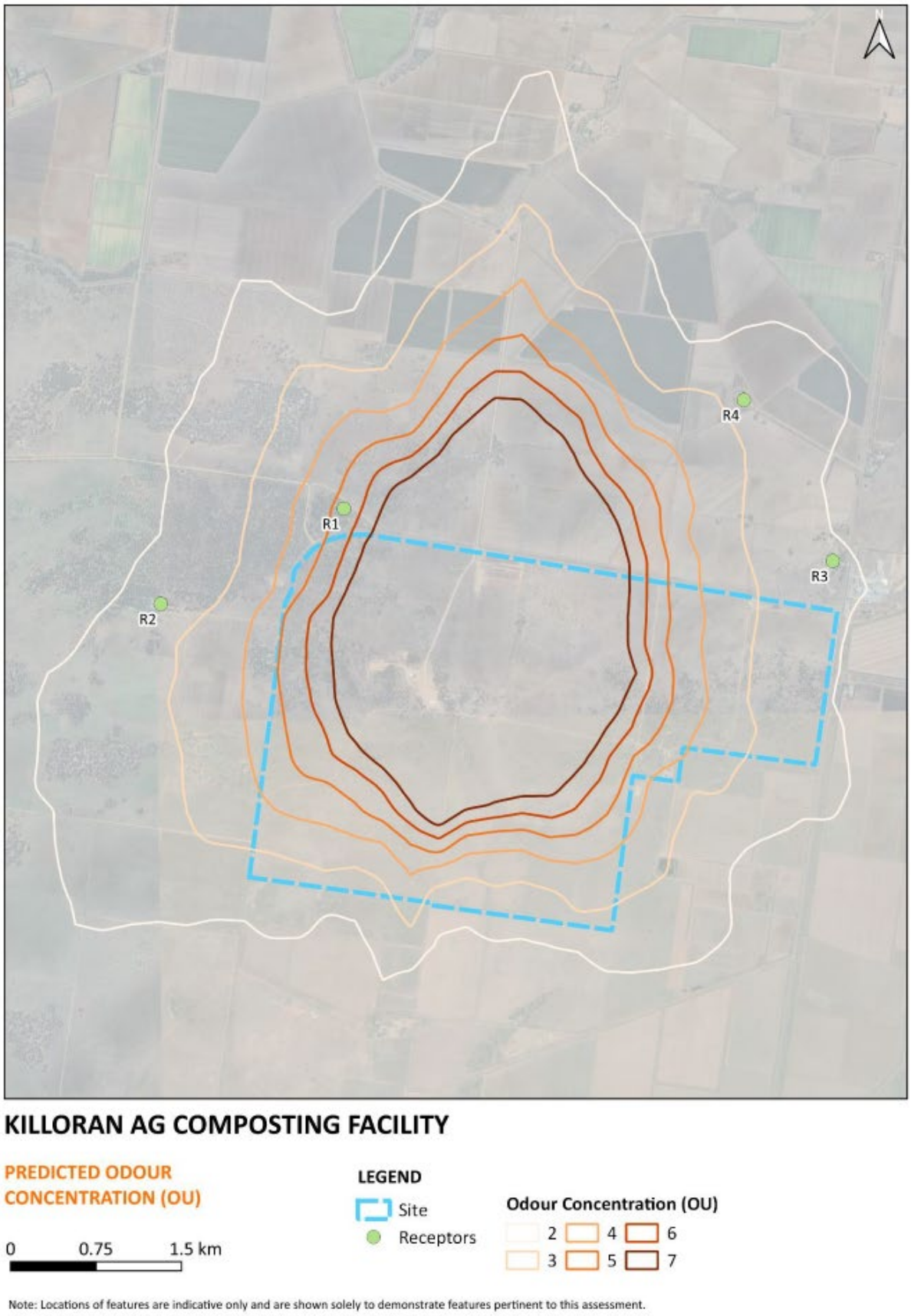


Figure 12: Predicted 99th percentile odour concentrations for the development

9 Traffic Access and Parking

9.1 Introduction

The proposed development would increase the traffic movements to the site which could have the potential to impact the safety, efficiency and capacity of the road network. To better understand the potential impact of the development, a TIA was prepared by Spotto Consulting. The TIA assessed the worst-case scenario traffic impact of the development at full operation.

9.2 Road Network

The development site is located on Cadell Road which connects to the Kidman Way to the east of the site.

Cadell Road

Cadell Road intersects with Kidman Way near the site, and also at a second point approximately 13km further south, looping around to the west. It is a local road under the control of Murrumbidgee Council, and it is authorised for travel by B-Doubles and Type 1 A Double Road Trains (but only between 1 November and 30 May). It's role balances through movement with property access (although with a limited number of properties and accesses). In the vicinity of the site, Cadell Road is a two-lane, two-way sealed rural road that runs roughly east-west and is located to the north of the site. Contained within a 60m-wide road reserve, the main carriageway comprises a 6.0m-wide sealed width, with roadside table drains. No pedestrian or cyclist facilities are present, and there is no street lighting. The speed limit is the default rural speed limit of 100km/h.

Kidman Way

Kidman Way is an important north-south route. It runs from the Newell Highway at Bundure (roughly 15km north of Jerilderie) for a length of over 600km to Bourke in northern NSW, providing access to western NSW regional centres including Griffith, Hillston and Cobar. Signposted as the B87, it is a State Road under the control of Transport for NSW (TfNSW) and is authorised for travel by vehicles up to and including AB-triples. It's role favours through movement over property access.

In the vicinity of the site, Kidman Way is a two-lane, two-way sealed rural road that runs roughly north-south and is located to the east of the site. Contained within an 80m-wide road reserve, the main carriageway contains one 3.6m-wide through lane in each direction, with 1.5-2.0m-wide sealed shoulders and roadside table drains. No pedestrian or cyclist facilities are present, and there is no street lighting. The speed limit is 100km/h in the vicinity of the site.

Cadell Road and Kidman Way Intersection

The intersection of Kidman Way and Cadell Road is located east of the site. It is a three leg intersection, with priority given to through vehicles on Kidman Way as a result of Give Way

signage and linemarking on Cadell Road. A 60m-long left turn auxiliary lane is present for northbound vehicles on Kidman Way.

9.3 Existing Traffic Conditions

There is no existing traffic volume data for Cadell Road. However, the owners of the site have suggested the traffic volumes of the road are extremely low. This was also established during several site visits in which little or no traffic was present on the road. To estimate the volume on the road, traffic generation rates from the RTA (TfNSW) Guide to Traffic Generating Developments were used. The rural residential rate was used to estimate the traffic volumes on the road based on the eight properties along the road.

The TIA used the traffic data for Kidman Way from the NSW Traffic Volume Viewer application, using the following:

- Traffic volume counts on Kidman Way in 2010, which show that the average daily traffic volume was 640 vehicles per day with a heavy vehicle percentage of 25-30% and an AM/PM peak equating to 10% of the daily total.
- A permanent traffic counter on the Newell Highway north of Jerilderie, which showed that long term traffic volume growth has averaged 1.5% per annum.

The TIA established the mid-block data for Cadell Road and Kidman Way based on the above data and assumptions in **Table 11**.

Table 11: Midblock traffic data - existing

Location	Daily	AM Peak	PM Peak
Cadell Road (west of Kidman Way)	60	6	6
Kidman Way (north of Cadell Rd)	750	75	75

Based on the midblock data the TIA established that all roads in the vicinity of the site are to an adequate design standard for the existing traffic volumes.

9.4 Proposed Traffic Impacts

The traffic volumes of the composting facility operating at full capacity were established based on the following assumptions:

- 99,000 tpy in total.
- Materials brought in using a mix of semi-trailers and B-Doubles (20%/80%).
- Load per vehicle = 20 t per semi-trailer and 32 t per B-Double.
- Each vehicle makes two trips (one in plus one out).

- Operations spread evenly over six days per week.
- Maximum five staff, each travelling to and from site in their own private vehicle.
- Staff travel inbound in the morning and outbound in the PM, with 50% ancillary movements across the day.
- A maximum of two other vehicles travelling to the site each day (visitors, deliveries, etc.)

Based on these assumptions, the traffic generating activities of the proposed development are summarised in **Table 12**.

Table 12: Traffic Generating Activities

Element	Trips per week	Trips per day
Raw materials in	134 (19 Semi + 48 B-Double)	22
Processed materials out	134 (19 Semi + 48 B-Double)	22
Staff and other light vehicles	96	16
Total	364	60

The traffic generation of the development was added to the existing traffic volumes on the nearby roads and is presented in **Table 13**.

Table 13: Midblock traffic - future

Location	Daily	AM Peak	PM Peak
Cadell Road (west of Kidman Way)	120	12	12
Kidman Way (north of Cadell Rd)	810	81	81

Road design standards and capacity limits for low volume (typically rural) roads are determined with reference to Section 4.2.6 of the Austroads Guide to Road Design Part 3: Geometric Design (AGRD 3). The current design standards for roads in the vicinity of the site are presented in **Table 14**.

Table 14: Daily traffic volumes and design standards

Daily Traffic Volume	Design Standard	Applicable Roads	Meets Design Standard?
<150	3.7m wide seal	Cadell Road	Yes
150-500	6-7m wide seal		
500-1000	7-8m wide seal	Kidman Way	Yes

Table 13 shows that none of the roads in the vicinity of the site would exceed the design capacities in **Table 14**.

The TIA does note that Cadell Road is only authorised for travel by B-Doubles and Type 1 A-Double Road Trains between 1 November and 30 May. Given that the increase in traffic will still see traffic volumes on Cadell Road be less than 150 vehicles per day, Cadell Road should be gazetted for travel by heavy vehicles at all times.

The TIA concluded that there would not be significant impact on the roads surrounding the site and further afield as a result of the proposed development.

9.5 Intersection

The TIA included an assessment of the key intersection of Cadell Road and the Kidman Way to determine whether the volume of traffic generated by the proposal would warrant any upgrades. The assessment was carried out in accordance with the procedures outlined in Appendix A.8 of the Austroads Guide to Road Design Part 4: Intersections and Crossings – General.

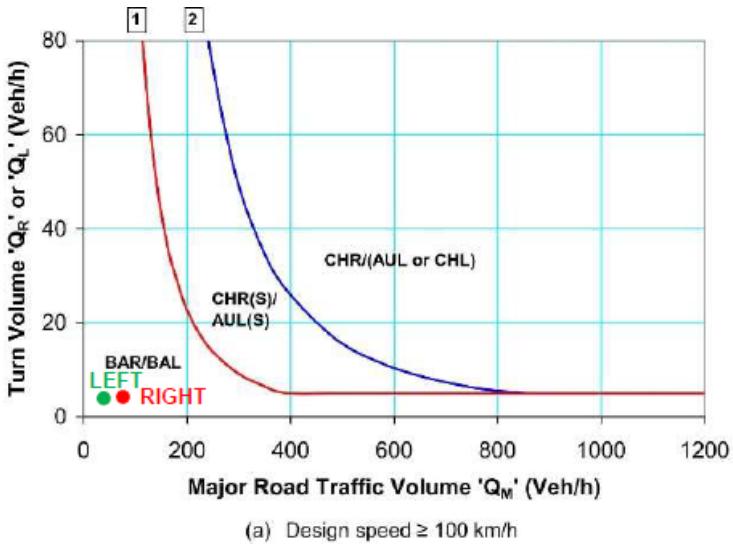


Figure 13: Major Road and turning volumes

The assessment in **Figure 13** demonstrates that the following treatments are warranted to cater for traffic from the proposed development:

- Left turn from Kidman Way into Cadell Road – BAL or Basic Left Turn.
- Right turn from Kidman Way into Cadell Road – BAR or Basic Right Turn.

9.6 Mitigation and Management Measures

The proposal includes the following road improvements and management and mitigation measures:

Road Improvements

- The intersection of Kidman Way and Cadell Road is proposed to be upgraded to in accordance with Strategic Design at **Appendix 5**.
- Cadell Road to be requested to be gazetted for travel by B-Doubles and Type 1 A-Doubles all year round.
- The access into the site would be designed as a typical rural property access with tapers catering for a road train.

Mitigation Measures

- Preparation of a driver code of conduct to ensure drivers delivering organics to the site and removing finished product cover their loads and use identified haulage routes.
- Ensure internal roadways are constructed of an all weather surface and maintained to an all weather standard at all times.
- Ensure parking spaces are delineated with markers which are maintained.

9.7 Conclusions

The potential traffic impacts of the development have been carefully considered in the EIS including the TIA. The site is located on a bitumen sealed Council road connected to the Kidman Way which is a classified road. The proposal includes the upgrade of the existing access to the site. The type and levels of traffic forecasted during the full operation of the development would not be expected to have an impact on the safety, capacity, or efficiency of the road network. A detailed design for the upgraded intersection would be provided post approval as part of the WAD process to facilitate a Section 138 Roads Act Approval.

10 Water and Hydrology

10.1 Introduction

Two Geotechs have been prepared by Aitken and Rowe to inform the design of the development including providing construction measures to ensure compliance with the Composting Guidelines (see **Appendix 2**). The results of groundwater assessments and bore logs have also been examined to understand the hydrogeological conditions of the site.

10.2 Existing Environment

The proposed composting facility is located on a former broadacre paddock used for the cultivation of rotational crops. The site is located in an area which is not known to contain saline soils. However, the site has been mapped in the JLEP 2012 as Groundwater Vulnerable. The nearest stream or river to the site is Delta Creek which is around 9 km to the south of the site. Delta Creek is a major non-perennial water course which is part of the Murray River catchment with flows coming from the Murrumbidgee River to the north.

Rainfall

Rainfall data for the surface water assessment has been sourced from the BoM Station at Yanco. Annual rainfall patterns are consistent with a summer climate zone with low rainfall during the summer months and slightly higher rainfall in the winter months. Average rainfall data is provided in **Figure 14**.

Gala Vale Long-Term Averages

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Mean Max (°C)	34.1	32.4	29.0	24.3	18.9	15.1	14.5	16.2	20.4	24.7	28.5	31.1	24.1
Mean Min (°C)	18.8	18.2	15.4	11.7	7.6	5.7	4.9	5.2	7.6	10.6	14.2	16.2	11.3
Mean Rain (mm)	31.2	29.5	34.9	30.4	35.9	34.7	32.9	35.2	35.9	37.9	31.9	30.4	399.1
Mean Rain Days	4.8	3.9	4.7	5.3	8.1	11.0	12.0	10.9	8.9	7.3	5.9	5.3	87.8

Figure 14: Average Rainfall Data

Flooding

The site is not located in an area which has been known to be impacted by flooding. The site is not located within the study boundaries of the Darlington Point Flood Study. There is no outside flood risk to the site and the area is not shown as flood prone land or within flood planning areas within the JLEP 2012 *Flood Planning Maps*. As the site is not flood prone, a flood impact assessment has not been prepared nor is warranted. The proposal has been designed to ensure all stormwater from the 1 in 100 year storm event can be contained within the water storage and conveyance system to avoid off site impacts – refer to PHL Surveyors Plans at **Appendix 1**.

Groundwater

Bore records from the site and area indicated that groundwater is located between 60 and 90 m below the surface level. The Geotechs carried out for the site by Aitken and Rowe found no evidence of any groundwater aquifer or seepage in 45 boreholes (see **Appendix 2**). The Composting Guidelines require composting pads to be constructed to avoid leaching into groundwater. Aitken and Rowe has provided detailed recommendations regarding the construction of the composting pads and leachate dam to achieve compliance with the specifications detailed in the Composting Guidelines. During the months leading up to the investigations, the site was subject to recent (monthly) and ongoing (over year) below average rainfall. It is thus possible that groundwater could look different in characteristically wet times.

Issues with groundwater contamination can occur if the leachate barrier system is broken or degraded over time from lack of monitoring and maintenance. The Composting Guidelines state that in the absence of groundwater in the soil profile, a suction lysimeter could be used to extract bore water to the vadose zone beneath the composting facility. We do not propose to use a lysimeter given the depth of the groundwater and due to the use of an impermeable clay liner for the compositing facility it is unlikely that the leachate barrier system would be broken. Protocols would be put in place to monitor the leachate barrier system (refer to **Section 10.5**).

Wetlands and Riparian Land

There are no wetland areas located within the site, as identified in the JLEP 2012. Riparian land is considered to be located within 40 metres of a watercourse. As the nearest watercourse is 9 km to the south, the site is not considered to be in a riparian zone.

10.3 Proposed Water / Leachate Management System

A water management system has been designed by PHL Surveyors to handle all storm events up to and including the 1 in 100 year ARI event. Key components of the system include:

- Eight composting pads engineered to a permeability of $1x10^{-9}$ m/s to control the penetration of leachate generated from the composting process.
- An engineered pad with a permeability of $1x10^{-9}$ m/s for the unloading and storage of organics.
- External raised lanes to bund the entire composting facility and ensure clean stormwater from outside the site does not come in contact with leachate.
- A main drain on the eastern side of the facility which collects stormwater and leachate from the composting pads and field drains.
- Pads 1A,1B and 2A-C have been designed to drain to the north and pads 3A-3C would drain to the south.

- Assuming 100% runoff from the 1 in 100 year 24 hour rain event, a total detention of 49.1 ML would be required. The site has been designed to retain 52.9 ML (30.4 ML in stage 1, with 22.5 ML added in stage 2).
- As part of Stage 1, with two composting pads, a below ground sump would be constructed and part of the future dam to retain stormwater and leachate. As part of Stage 2, the remainder of the dam would be constructed. Dam and sump construction would be completed in accordance with the recommendations of the Geotech.

Water captured in the water management system would be available for reuse on the windrows to achieve optimal moisture levels for the composting process. In dry periods, the system would be supplemented by water from the bore located on site. A detailed water balance for the development has been provided at **Appendix 7**. Based on this assessment it is expected that a total of 2.4 ML of bore water would be required to supplement the leachate each year including for dust suppression and fire water availability (see **Figure 15**).

Site water requirement													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall (mm)	32	31	37	32	38	37	35	38	39	40	35	32	427
Rainfall per sqm on composting facility (L)	32	31	37	32	38	37	35	38	39	40	35	32	427
Rainfall on total composting facility less leachate dam (kL)	13,801	13,489	15,930	13,874	16,187	15,838	15,251	16,242	16,701	17,306	15,031	13,874	183,524
Rainfall run-off capture on total composting facility less leachate dam (kL)	6,901	6,745	7,965	6,937	8,093	7,919	7,625	8,121	8,350	8,653	7,515	6,937	91,762
Rainfall on leachate dam (kL)	806	788	930	810	945	925	890	948	975	1,010	878	810	10,715
Rainfall capture on leachate dam (kL)	806	788	930	810	945	925	890	948	975	1,010	878	810	10,715
Total rainfall capture (kL)	**7,706**	**7,532**	**8,895**	**7,747**	**9,039**	**8,844**	**8,516**	**9,069**	**9,325**	**9,664**	**8,393**	**7,747**	**102,477**
Evaporation (mm)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(117)	(1,400)
Evaporation per sqm on leachate dam (L)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(78)	(938)
Potential evaporation on total leachate dam (kL)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(1,962)	(23,544)
Total evaporation on total leachate dam (kL)	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(1,962)**	**(23,544)**
Leachate dam water level before use for composting (kL)	5,744	5,570	6,933	6,531	7,420	8,114	8,481	9,400	10,576	12,090	12,334	11,932	
Water use for composting (kL)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(6,188)	(74,250)
Leachate dam water level after use for composting (kL)	**0**	**0**	**0**	**746**	**343**	**1,232**	**1,927**	**2,293**	**3,213**	**4,389**	**5,903**	**6,146**	**5,744**	
Bore water requirement for composting (ML)	**(0.44)**	**(0.62)**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**(1.06)**
Water requirement for fire tank (ML)	(0.14)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.14)
Water requirement for dust suppression (ML)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(1.20)
Bore water requirement for facility (ML)	**(0.69)**	**(0.72)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(0.10)**	**(2.40)**

Figure 15: Site Water Balance (see **Appendix 7**)

10.4 Potential Impacts to Surface and Ground Water

Although the composting facility has been designed as a closed system for water with perimeter lanes providing bunding, there are still risks posed to external surface water. If leachate is discharged to the external environment it could cause impacts to water quality through reduced oxygen, high nutrient levels, increased organic matter and turbidity. Decreased water quality could impact waterways and aquatic environments through:

- Loss of dissolved oxygen in receival waters.
- Increased phosphate and nitrogen levels causing algae.
- Increase in suspended solids and higher turbidity.
- Increase acidity of receival waters.

The collection and retention of leachate within the water management system and facility will be a key priority for Killoran Ag. Leachate is a valuable commodity in the composting process and its reuse provides the necessary nutrients to optimise the finished product. As such, every measure to monitor the leachate collection and detention system would be utilised.

10.5 Mitigation Measures

The measures which will be implemented to avoid potential impacts to surface and groundwater are provided in **Table 15** and are based on best practices and measures utilised at other composting facilities across the state.

Table 15: Surface and Groundwater Mitigation Measures

Potential Impact	Mitigation Measure
Pollution from sedimentation, oil/chemical spills and gross pollutants	• Limit the storage of fuels and chemicals near the composting facility. • Plant and equipment would be regularly inspected and serviced to limit the risk of oil loss. • All staff would be appropriately trained in the spill response plan for the minimisation and management of unintended spills. • All reasonable and practicable measures would be taken to prevent pollution of any existing waterways as a result of silt or untreated leachate run-off, and oil or grease spills from any machinery. Wastewater for cleaning equipment must not be discharged to any watercourses or stormwater systems.
Contamination of clean storm water with leachate	• The facility has been designed to capture and retain the 1 in 100 24 hour storm event. The site is also bunded and would be able to capture larger stormwater events. • Clean stormwater to be diverted around the facility. The entire facility would be bunded with perimeter raised laneways. • The water management system would be monitored to ensure banks are intact and leaching into the sub surface does not occur.
Increased soil infiltration of contaminated surface water and leachate	• Maintain surface gradient of the hardstand pad and orientation/geometry of windrows to minimise leachate generation and to ensure that leachate flows directly to the primary sump without mixing with compost organics. • Maintain all water related infrastructure, during construction and operation of facility including: – Low permeability clay base in the composting processing areas. – Clay lining of the leachate dams. – Bunding and arrangement of windrows. – Perimeter bunding and diversion drains.
High contaminant load in leachate	• Establish a testing regime for the leachate including monitoring anaerobic conditions. • Shandy leachate with bore water if contaminant levels too high.
Uncontrolled release of contaminants through the bed and	• Monitor water levels in the detention basin to ensure that water levels do not drop to levels exceeding expected

banks of the detention basin or pads	evaporation rates. • Maintain integrity of hardstand pads and repair damaged areas with additional compaction.
Surface and groundwater contamination from leachate	• Leachate would be recycled through moisture conditioning of compost, to drawdown on basin volumes and ensure the design capacity of the basin is maintained for future storm events. • Management of windrows and gradients to ensure no ponding or pooling occurs. Depressions must be filled promptly by using screened or sieved overburden. • All water that has entered processing and storage areas and water that has been contaminated by leachate must be handled and treated in the same manner as leachate. • Sampling of groundwater (bore) on a regular interval; more intensive in the beginning of operation of the facility and relaxed if no seasonal effects are demonstrated.
Ineffective collection and storage of leachate	• Leachate would be collected and stored in a clay lined sump and basin capable of capturing the 1% (Annual Exceedance Probability) AEP, 24-hour runoff event. The hardstand pad and basin liner shall be constructed of recompacted overburden/clay with an in-situ permeability (K) of less than $1x10^{-9}$ m/s in accordance with the Geotech • Leachate basin is to be desilted as required in order to maintain design storage capacity, without compromising basin liner integrity.

10.6 Conclusion

Through the proper construction of the composting pads and leachate collection and storage system, impacts to surface and groundwater will be avoided. The proposed mitigation measures are considered adequate to limit any potential impacts on receival waters above and below the surface. The use of the bore is also considered adequate for the proposal subject to an integrated development approval for the water supply from WaterNSW. The detailed site water balance has shown that through the use of the bore during dry or drought periods, the facility can continue to operate during a leachate imbalance.

11 Soils

11.1 Existing Environment

The site geography is the Shepparton formation, being poorly consolidated clay, silt, sand and gravel. This formation is found throughout the Riverina between the Lachlan and Murray Rivers.

The site is predominantly class 6 land with very severe limitations; there is some class 4 land which has moderate to severe limitations closer to the road.

Class 6 shown in yellow in **Figure 16** has very severe limitations for a wide range of land uses and few management practices are available to overcome these limitations. The land generally is suitable only for grazing with limitations and is not suitable for cultivation.

Class 4 land shown in green can be cultivated occasionally for sowing of pastures and crops. However, it has cropping limitations because of erosion hazard, weak structure, salinity, acidification, shallowness of soils, climate, wetness, stoniness or a combination of these factors. It is only suitable for intermittent cultivation with specialised practices. Required erosion control practices include advanced conservation tillage, pasture cropping, well-planned rotations and maintenance of ground cover.

Classes as per the Land and Soil Capability Mapping for NSW which provide a statewide classification of soil capabilities (see **Figure 16**).

Figure 16: Soil and Land Classification Map

11.2 Investigations

The EIS includes two detailed Geotechs carried out by Aitken and Rowe (see **Appendix 2**):

- Geotechnical Investigation (Geotech 1) – Proposed Composting Facility – Lot 107, No.1578 Cadell Road, Gala Vale NSW.

- Geotechnical Investigation (Geotech 2)– Proposed Water Storage Dam and Sump – Lot 107, No.1578 Cadell Road, Gala Vale NSW.

Geotech 1 – Composting Pads

The purpose of this investigation was to determine the nature of the subsurface soils and groundwater conditions by auguring, testing and sampling at the proposed location of the composting facility which includes the proposed composting operations pad area and separate borrow pit area. The materials from the proposed borrow pit area are to be used in the composting pad construction which is to be raised above the existing surface level.

The Geotech suggests the Gala Vale area is underlain by the Quaternary alluvium sediments (floodplain sediments) comprising unconsolidated clay, silt, sand and gravel in accordance with 1:250,000 Scale “Metallogenic Series Sheet SI/55-10 for Narrandera”.

Investigation

Geotech 1 consisted of the logging and sampling of forty-five (45) boreholes (BH1 to BH45) to the depth ranging from 2.0m to 6.0m below existing surface level across the proposed composting pad at the subject site and five (5) boreholes (BH46 to BH50) to the depth of 4.5m below existing surface level across the proposed borrow pit area at the subject site as shown in **Figure 17**.

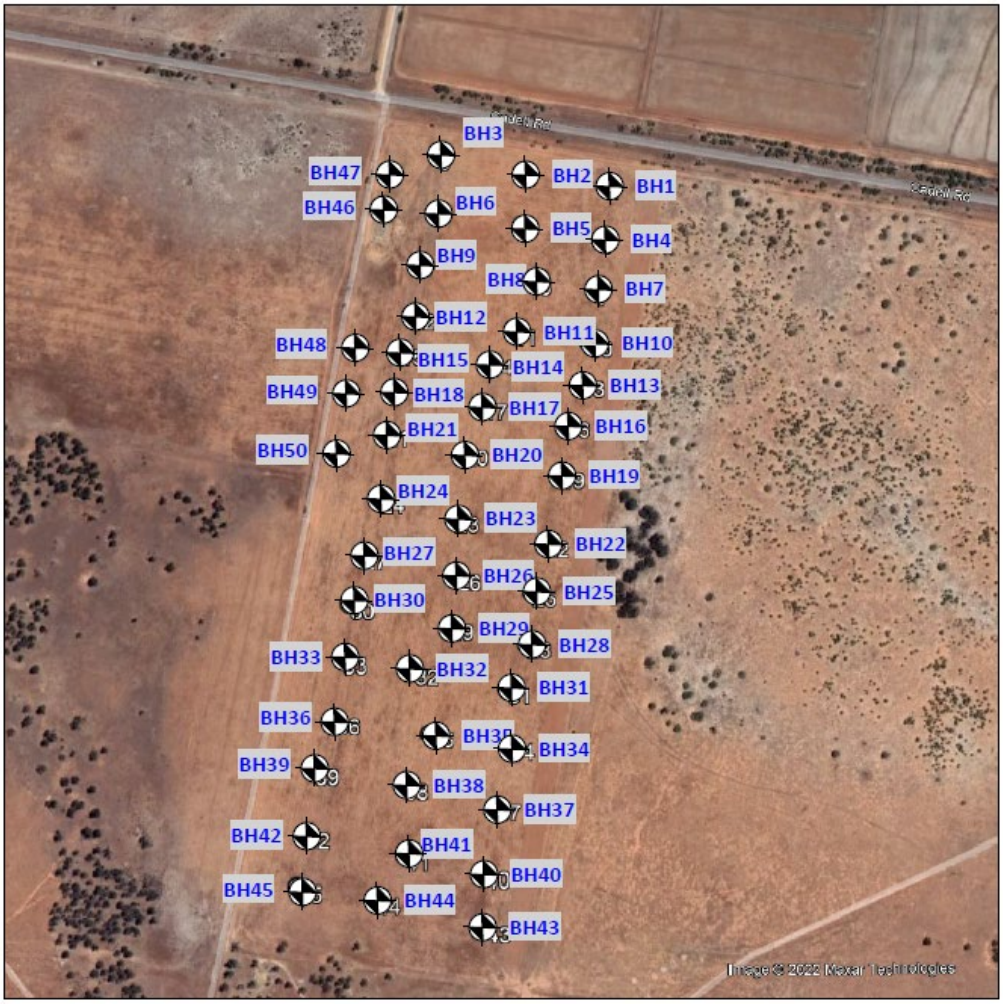


Figure 17: Borehole Locations - Geotech 1

Based on the results of the laboratory testing of the bore results, Aitken Rowe has provided the following recommendations to ensure the composting pads can meet the requirements of the Composting Guidelines:

- *Remove topsoil, if any, and fill and stockpile for later use for landscaping and fill as appropriate. It should be noted topsoil was generally encountered to the depth of 0.05m to 0.1m (BH10 to BH45) and fill encountered to the depths of 0.3m to 0.4m in BH1 to BH9.*
- *Remove any unsuitable material encountered at the time of the construction as required.*
- *Once the topsoil, fill and unsuitable materials, if any, are removed as required, the exposed subgrade material should then be scarified to a depth of about 200mm; moisture conditioned to within +/-2% of SOMC and compacted to a minimum of 98% of SMDD.*
- *Proof roll the exposed subgrade using a minimum of 10 passes of 12 tonne dead weight roller to detect any soft, loose or heaving areas.*

- *Any soft, loose or heave areas, if detected during the process, should be excavated down and backfilled with appropriate approved materials, compacted in 150mm thick layers to the equivalent density of minimum 98% of SMDD.*
- *Any area of exposed subgrade, which exhibits shrinkage cracking and does not require recompaction, should be watered and rolled until the shrinkage cracks do not reappear. During this undertaking, care should be exercised to ensure the surface does not become soft.*
- *Monitor in dry conditions. If cracks appear then immediately apply water until cracking has ceased. Alternatively, a thin layer (minimum of 0.1m) of granular material (ie sand) can be applied over the surface to protect from cracking.*

PHL Surveyors have carefully considered the results and recommendations of the Geotech to design the composting pads and recirculation facility. They have included construction methodology on the plans. Killoran Ag would construct the facility in accordance with the Geotech and the designs prepared by PHL Surveyors.

Geotech 2 – Leachate Dam

The purpose of the investigation was to determine the nature of the subsurface soils and groundwater conditions by excavating test pits, sampling and testing across the proposed sites. Based upon the information obtained, comments and recommendations for the suitability of the construction of the proposed water storage dam are to be made.

Investigation

Geotech 2 consisted of the logging and sampling of two (2) test pits (TP1 & TP2) across the proposed sump and four (4) test pits (TP3 to TP6) across the proposed water storage dam at the subject site at the locations as shown in **Figure 18**.

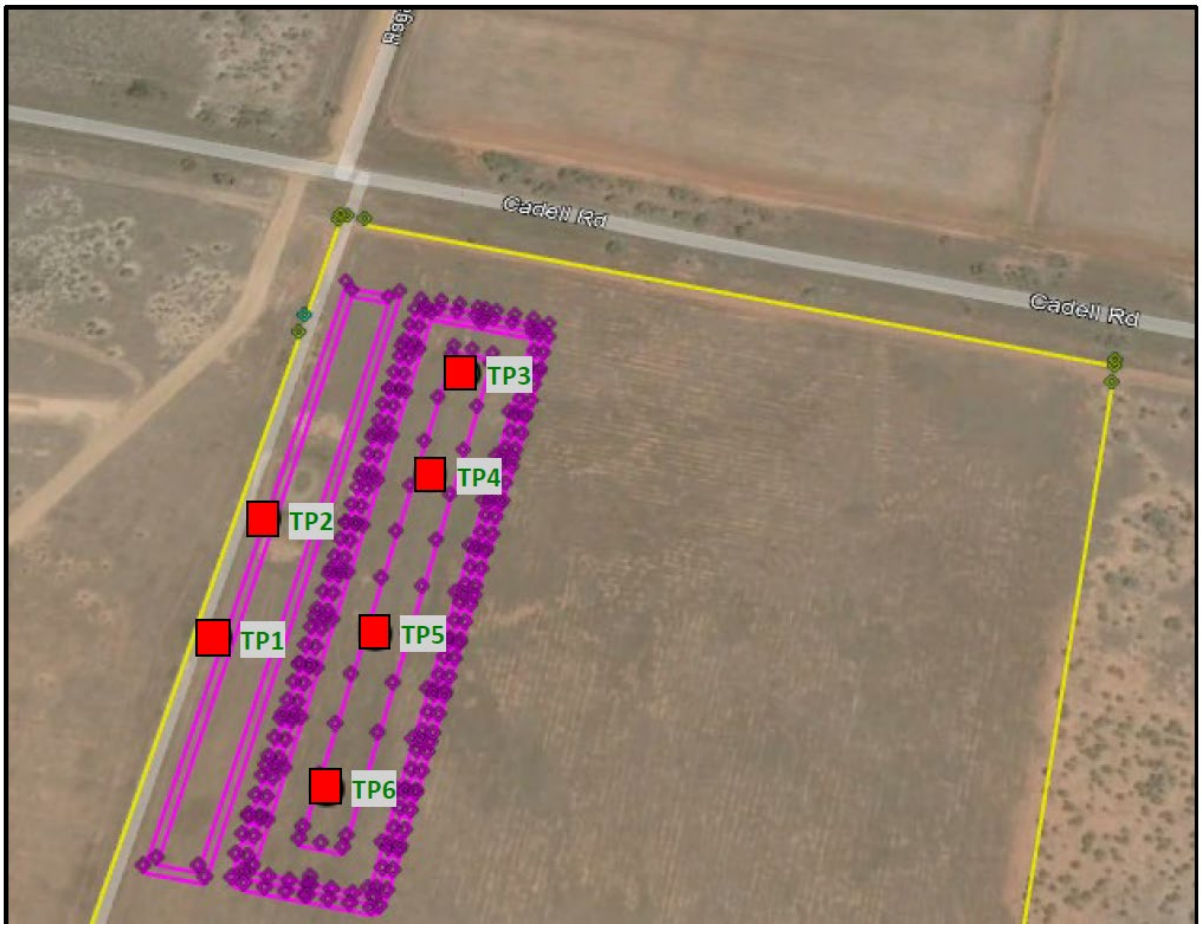


Figure 18: Test Pit Location

The permeability test carried out on the selected silt-based material recovered from TP4 and TP6 indicate the permeability of 1x10-9 m/sec on low plasticity clayey silt material which was compacted at 98% of SMDD at nearest 100% of SOMC and 9x10-10 m/sec on low plasticity sandy silt material which was compacted at 100% of SMDD at nearest 100% of SOMC. The dispersion (Emerson Class) test carried out on the same silt-based sample from TP4 & TP6 showed “Emerson Class 3 and 4” and therefore considered generally “potentially slightly dispersive”.

The permeability test carried out on the selected clay-based material recovered from TP3 indicate the permeability of 4x10-9 m/sec on medium plasticity silty clay material, which was compacted at 95% of SMDD at nearest 100% of SOMC. The dispersion (Emerson Class) test carried out on the same clay-based samples from TP3 and TP5 showed “Emerson Class 2 and 3” and therefore considered generally “potentially highly to slightly dispersive”.

Based on the results of the laboratory testing of the bore results, Aitken Rowe concluded that the sump and leachate dam can be built at the subject site provided some treatment of the material with strict compaction control at the floor and sides of the water storage dam and sump are undertaken. The Geotech also concluded that all the required earthworks should be capable of being performed by conventional earthmoving plant such as scrapers, dozers,

rollers and backhoes or excavators. The Geotech has recommended the following construction methodology or management measures:

- *silt-based and clay-based material at the bottom and sides of the proposed dam be scarified to a depth of at least 250mm and re-compacted in such a way that it achieves at least 100% of Standard Maximum Dry Density (SMDD) at -2 to 0% Standard Optimum Moisture Content (SOMC) in a 150mm thick compacted layer prior to the placement of clay liner or plastic liner.*
- *remove the low plasticity silt-based and clay-based material where exposed on the sides and floor of the excavation to a minimum depth of 0.6m.*
- *The careful selection of the material for the clay liner is vital to ensure that there is no gravel incorporated in the liner. It is anticipated that the natural medium plasticity silty clay and medium, medium to high and high plasticity clay material encountered across the site or similar materials may be used for clay liner provided the material is compacted in 150mm layers to the equivalent density of 100% of SMDD at a moisture content within the range of -2 to 0% of SOMC*
- *The clay liner utilizing the clay-based material as discussed above, shall be placed and compacted as specified below:*
    - *The exposed natural material should be scarified to a depth of about 250mm at both sides and floor of the dam; moisture conditioned to within -2 to 0% of SOMC and compacted to a minimum of 100% of SMDD once excavation is taken to the required depth.*
    - *Any soft or heave areas, if detected during the process, should be excavated down at least 0.5m and backfilled with appropriate approved materials compacted in 150mm thick layers to the minimum equivalent density of 100% of SMDD.*
    - *Any area of exposed subgrade which exhibits shrinkage cracking and does not require recompaction, should be watered and rolled until the shrinkage cracks do not reappear. During this undertaking, care should be exercised to ensure the surface does not become soft.*
    - *Once the exposed surface is treated as specified above, the approved clay liner material shall be placed in horizontal layers, compacted in 150mm thick layers to the equivalent density of 100% of SMDD at a moisture content within the range of -2 to 0% of SOMC. Care shall be taken in the placement of compacted materials to avoid laminations occurring between compacted layers. Compacted surfaces shall not be allowed to dry and crack before placing subsequent layers. If this should occur, then all dried clays shall be stripped off and replaced or alternatively, scarified and conditioned to the recommended moisture condition before placing the next layer. To prevent such laminations*

from occurring between compacted layers, each subsequent layer shall be compacted and kneaded into the underlying layer using a sheepsfoot roller.

- *The batter incorporating with clay liner should not be steeper than 1V:2H (1 Vertical to 2 Horizontal).*

Geotech 2 also provided construction methodology for the construction of embankments.

PHL Surveyors have carefully considered the results and recommendations of the Geotech to design the sump and leachate collection dam and recirculation facility. They have included construction methodology on the plans. Killoran Ag would construct the facility in accordance with the Geotech and the designs prepared by PHL.

11.3 Mitigation Measures

The following mitigation measures would be implemented to ensure the soils associated with the proposal are utilised to adequately construct and operate the facility in accordance with the Composting Guidelines:

- Compaction testing by geotechnical engineers under Level 2 supervision during construction of the pads, sump and basin.
- Removal of any sandy deposits in the soil profile.
- Post construction water level testing of the dam and sump.

11.4 Conclusion

The investigations, conclusions, and recommendations of the Geotech reports have provided the Applicant with the surety that the facility can be constructed to meet all the requirements of the Composting Guidelines and ensure the necessary permeability of the pads, embankments and surface of the dam can be achieved. Through strict adherence to the recommendations of both Geotech reports, the facility would be constructed to avoid environmental impacts such as leaching to subsurface or blow outs of embankments.

12 Aboriginal Cultural Heritage

12.1 Introduction

The composting facility and works site is located on a former broadacre paddock which has been laser levelled, worked up and cultivated over the years for rotational crops. Due to the degraded nature of the site and the lack of native vegetation disturbance, an Aboriginal Cultural Heritage Assessment has not been completed. An assessment of the development against the Aboriginal Code of Practice is provided in this section.

12.2 Landscape

Factors that are typically used to inform the archaeological potential of landscapes include the presence or absence of resources that would have been used by Aboriginal people including water, animal and plant foods, stone and other resources.

Topography

The general topography of the area is flat, gently undulating low tablelands. The Gale Vale area is underlain by the Quaternary alluvium sediments (floodplain sediments) comprising unconsolidated clay, silt, sand and gravel in accordance with 1:250,000 Scale “Metallogenic Series Sheet SI/55-10 for Narrandera”. The site and surrounding area is flat with very little variation in topography, however, the composting facility site gradually slopes from south to north. The site is located within the Murrumbidgee scalded plains unit of the Mitchell landscape.

Surface Geology

The geology of the locality is part of the Riverine Bioregion and the Murrumbidgee Subregion which is typified with flood deposits of black and red clays and silts with sand and gravel. The seed online portal was used to understand the surface geology of the area.

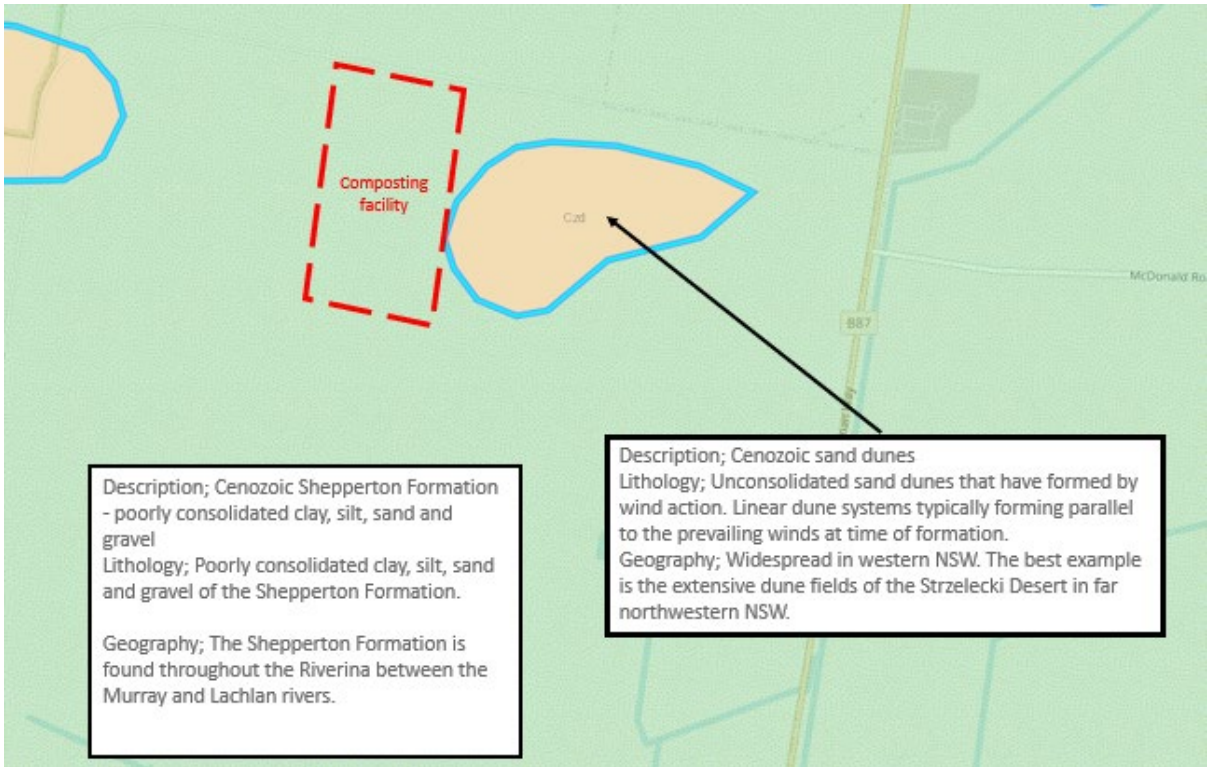


Figure 19: Surface Geology (source: SEED)

The surface geology of the site is predominantly Cenozoic Shepparton Formation - poorly consolidated clay, silt, sand and gravel. This surface geology has widespread distribution in the Riverina and would not in itself suggest the historical presence or use of the area by Aboriginal people.

Soil Landscapes

Soils in the locality and within the Murrumbidgee catchment have been generally formed from the deposition of flood material. The Geotechs at **Appendix 2** have found the site contains material which generally contains 1 to 2% gravel, 19 to 44% sand, 26 to 40% silt and 29 to 39% clay content with Plasticity Index (PI) ranging from 13 to 27%. The materials are generally classified as “ML – Clayey SILT, low plasticity, with fine to coarse sand” and “CL – Sandy Silty CLAY, low plasticity, fine to coarse sand, trace gravel”.

Hydrology

The site is located within the CIA which was established by the NSW government in the 1950’s. The area has been highly modified to create a series of channels and drains either newly created or redirecting existing streams to convey water to irrigated paddocks. Prior to the construction of the irrigation scheme the area would have been a pastoral and agricultural setting. The nearest stream to the site is Delta Creek which is located 9 km to the south-west and Yanco Creek which is 10 km to the south.

Figure 20: Creek and Stream Location near the Site

Summary of Landscape and Locality Context

The site and locality including the irrigation area have been highly modified through irrigation farming, construction of channels, laser levelling of land and ploughing of paddocks. Prior to the colonisation of Australia, the area would have been typified as a semi-arid desert plan disconnected from major water courses. There are no major water courses in proximity of the site however, historically during heavy rainfall events perennial tributaries could have flowed near the site and eventually into either Delta Creek or Yanco Creek which could have been a major resource location for communities. Intact archaeological sites would likely be located within intact landscape formations void of significant ground modification. As the composting facility site is highly disturbed and modified, the potential for archaeological finds is considered low.

12.3 Assessment of development against Aboriginal Code of Practice

Will the activity disturb the ground surface?

Yes. The proposal includes the disturbance of the ground surface. However, the ground surface is considered farmland which has been disturbed from past agricultural practices.

Are there any:

a) *relevant confirmed site records or other associated landscape feature information on AHIMS? and/or*
b) *any other sources of information of which a person is already aware? and/or*
c) *landscape features that are likely to indicate presence of Aboriginal objects?*

Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?

An AHIMS search has been conducted and no Aboriginal sites were identified within 2 km of the site (see **Appendix 8**).

Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?

The Desktop Assessment carried out a review of the geology, topography and vegetation on the site and in the Gala Vale area.

The activity area is in land that is currently used for cropping and agricultural practices and has been subject to extensive previous disturbance through potential laser levelling and modification for the installation of the channel system that traverses the wider region. No undisturbed natural watercourses or significant landforms remain within the project area that are likely to contain potential Aboriginal sites or objects.

The above factors have likely removed any potential for unidentified Aboriginal sites to be present within the project area. Based on this assessment, it is deemed unnecessary to conduct a pedestrian site inspection of the project area as there is low potential for any intact archaeological deposits to be present.

Based on the above assessment, the Desktop Assessment concludes that it is unlikely that Aboriginal sites would be present on site or disturbed during the construction and operation of the composting facility.

12.4 Mitigation Measures

The following mitigation measures would be implemented to ensure that Aboriginal artefacts or sites, if found during construction or operation of the development, are protected:

- All relevant staff should be made aware of their statutory obligations for heritage under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1977*. This is to be in the form of a heritage induction on site prior to works.
- An Unexpected Finds Protocol in accordance with the relevant guidelines would be prepared. The following protocol would be used in the unlikely event that an artefact is found:

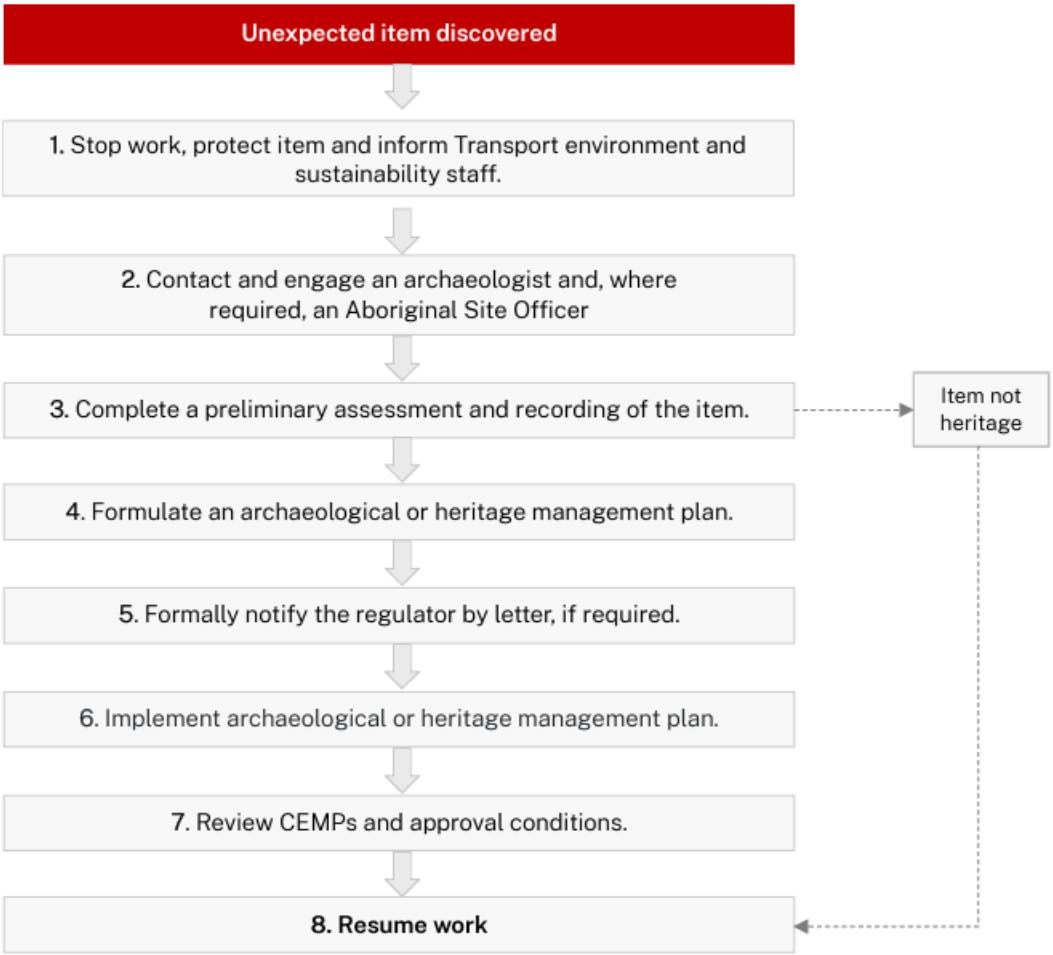


Figure 21: Unexpected Finds Protocol

12.5 Conclusions

Based on the assessment carried out in this section against the Aboriginal Code of Practice it is unlikely that Aboriginal artefacts or items would be unearthed during construction or operation. However, the Applicant would implement an Unexpected Finds Protocol during construction which would ensure the relevant guidelines and legislation is followed to protect and manage any items encountered.

13 Noise and Vibration

13.1 Introduction

The proposal has the potential to impact the amenity of nearby sensitive receivers during the construction and operation of the development by way of noise. The potential for noise impacts during the construction of the composting facility are considered low based on the agricultural setting and the prevalence of similar earthmoving operations on irrigated farms in the locality. An assessment of the potential construction and operational noise impacts of the development has been provided in a Noise and Vibration Impact Assessment (Noise Assessment) prepared by SoundIn and dated October 2023 (see **Appendix 3**).

13.2 Surrounding Environment and Sensitive Receivers

The site is located in a rural area which is generally secluded from sensitive receivers. In the immediate locality (within 5 km from the site) there are only four sensitive receivers which are not associated with the farm holding (see **Table 16**).

Table 16: Noise Receiver Location

Receiver	Address	Description
R1	1308 Cadell Road, Gala Vale	Residence
R2	1189 Cadell Road, Gala Vale	Residence
R3	3583 Kidman Way, Coleambally	Residence
R4	132 Preston Road, Coleambally	Residence

13.3 Construction Noise Assessment

The construction period of the development is expected to last around 6 months and would be carried out in two stages. Due to the relatively remote nature of the site, noise monitoring has not been undertaken for the purpose of the Noise Assessment. Instead, a conservative approach has been taken whereby the minimum daytime RBL value of 35 dBA, as recommended in the Noise Policy for Industry (NPfI), has been adopted. Construction activities associated with the Proposal would be conducted during standard daytime hours.

Project-specific construction NML's for the most potentially affected receivers near the Site are presented in **Table 17**.

Table 17: Project specific construction NML

Receiver	Acceptable LAeq,15min noise level (standard daytime hours) (dBA)	Highly affected noise level (dBA)
Any Receiver	45	75

The Noise Assessment concluded that noise levels during construction would comply with the NML's at all receivers and that noise levels would not be expected to exceed the highly affected level of 75 dBA level at any time during construction.

13.4 Operational Noise Assessment

The NPfI provides a framework for assessing environmental noise impacts from industrial premises and industrial development proposals in New South Wales.

The NPfI recommends the development of project noise trigger levels (PNTL), which provide a benchmark for assessing a proposal or site. The PNTL should not be interpreted as mandatory noise criteria but, rather, as noise levels that, if exceeded, would indicate a potential noise impact on the community.

The PNTL is the lower value of the project intrusiveness noise level and the project amenity noise level. The project intrusiveness noise level assesses the likelihood of noise being intrusive above the ambient noise level and is applied to residential receivers only.

The project amenity noise level ensures the total industrial noise from all sources in the area does not rise above a maximum acceptable level. The NPfI stipulates that PNTLs are determined for the daytime (7am – 6pm), evening (6pm – 10pm) and night-time (10pm – 7am) periods, as relevant. The determined trigger levels typically apply at the most affected point on or within the receiver property boundary.

Project Intrusiveness Noise Level (PINL)

The NPfI establishes that the intrusiveness noise level is the noise level 5 dBA above the rating background noise level (RBL) for each time period (daytime, evening or night-time) of interest at a residential receiver. The NPfI stipulates that project intrusiveness noise levels should not be set below 40 dBA during the daytime and 35 dBA in the evening and night-time. Additionally, the NPfI recommends that the project intrusiveness noise level for evening is set at no greater than that for the daytime, and that the project intrusiveness level for night-time is set at no greater than that for the evening and daytime.

The Noise Assessment has taken a conservative approach utilising the minimum project intrusive noise levels recommended in the NPfI. The Noise Assessment used the PINL's in **Table 18**.

Table 18: PINL's Used in the Noise Assessment

Receiver	Time of Day	RBL (dBA)	Project Intrusiveness noise level – LAeq,15min (dBA)
All Receivers	Day	35	40
	Evening	30	35
	Night	30	35

Project Amenity Noise Level (PANL)

The PANL aims to set a limit on continuing increases in noise levels from all industrial noise sources affecting a variety of receiver types. In the context of the development, there are no other noise sources other than machinery operating on the surrounding agricultural operations. Amenity noise levels are not used directly as regulatory limits. They are used in combination with the PINL's to assess the potential impact of noise, assess mitigation options and determine achievable noise requirements.

Table 19: PANL for the development

Receiver	Noise amenity area	Time of day [1]	Recommended amenity noise level – $L_{Aeq,period}$ (dBA)
Residential	Rural	Day	50
		Evening	45
		Night	40
	Urban	Day	55
		Evening	45
		Night	40
	Suburban	Day	60
		Evening	50
		Night	45

As the proposal is located in a rural area, the noise amenity levels for rural areas was utilised.

Project Noise Trigger Level (PNTL)

The PNTL and PANL for sensitive receivers in the locality are provided in **Table 20**. The PNTL – which are the lower values of the PINL and the PANL– are highlighted in bold.

Table 20: Project Specific Noise Trigger Levels

Receiver	Time of day [1]	RBL (dBA)	Project Intrusiveness noise level – $L_{Aeq,15min}$ (dBA)
R1 – R4	Day	35	40
	Evening	30	35
	Night	30	35

1. Day – 7am – 6pm; Evening = 6pm – 10pm; Night = 10pm – 7am.

These are the levels which the development is required to achieve compliance with.

Noise Modelling Methodology and Assumptions

The proposal would have several operational requirements which could cause varying levels of noise. These potential noise emissions were modelled by SoundIn using SoundPLAN v8.2. Factors accounted for in this model included:

- Equipment noise level emissions and locations
- Shielding from structures
- Noise attenuation due to geometric spreading
- Meteorological conditions
- Ground absorption
- Atmospheric absorption.

Noise Sources

The main noise sources associated with the development which could act in a continuous method and cause noise impacts include:

- The pelletising plant.
- The telehandler which would load loose compost into the pelletising plant and pelletised compost onto trucks.
- A tractor with a windrow turner.
- Trucks bringing materials to and from the site.

SoundIn conducted sound power level (SWL) testing associated with the machinery in April of 2023. The Noise Assessment assumed that all of the machinery was operating continuously including trucks travelling back and forth to the compost area and to the pelletising shed. The adopted SWLs of each piece of equipment ranged from 93 dBA to 107 dBA.

Predicted Noise Levels

The predicted LAeq,15min noise levels at nearby residential receivers associated with the scenario outlined above are presented in **Table 21** which indicate that noise levels above the PNTL's established for the development would not be breached at any of the receivers.

Table 21: Predicted Noise Levels at Receivers

Receiver	Predicted $L_{Aeq,15min}$ noise level (dBA)		Project noise trigger level (dBA)			Complies?
	Calm	NE	Day	Evening	Night	
R1	28	34	40	35	35	Yes
R2	23	28	40	35	35	Yes
R3	<20	<20	40	35	35	Yes
R4	<20	20	40	35	35	Yes

The maximum predicted noise levels of the development are also provided in a contour plot in **Figure 22.**

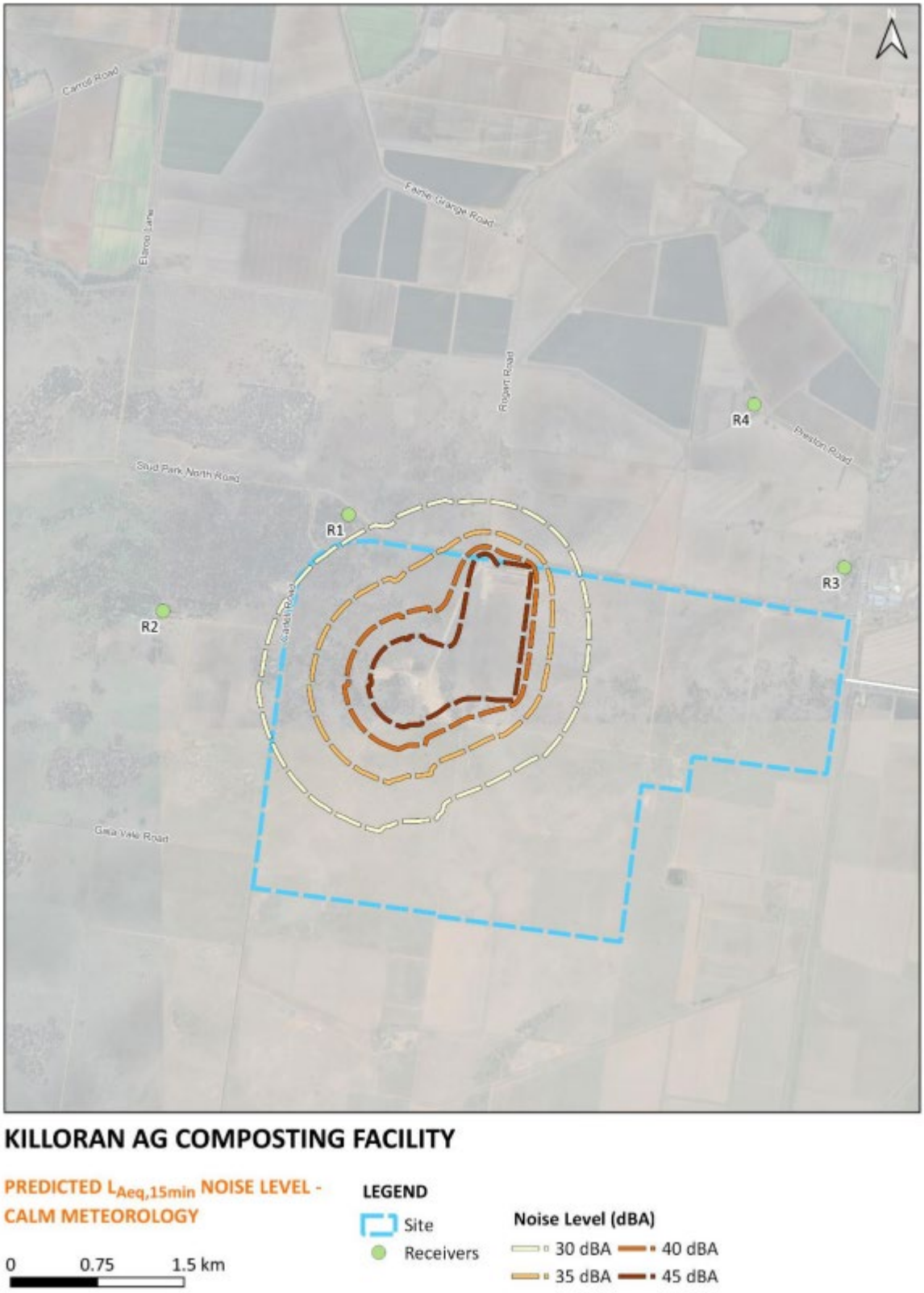


Figure 22: Maximum predicted noise levels - contour plot

13.5 Mitigation Measures

The following mitigation measures would be implemented to ensure noise associated with the proposal does not cause an impact to the nearby receivers:

- Avoid turning over windrows in adverse weather.
- Avoid carrying out multiple noise intensive procedures continuously.
- Carry out loading and unloading activities during daytime hours.
- Provide neighbours with the manager's contact details to divulge any noise impacts.

13.6 Conclusions

Noise impacts associated with the construction of the Proposal have been assessed in accordance with the ICNG in the Noise Assessment. A computer noise model has been developed by SoundIn to predict construction noise levels at nearby sensitive receivers. Predicted construction noise levels at nearby receivers comply with the established NMLs. Noise impacts associated with the operation of the Proposal have been assessed in general accordance with the NPfI. A computer noise model has been developed to predict operational noise levels at sensitive receivers. Road noise impacts associated with the Proposal have been assessed in accordance with the RNP. Predicted road noise levels associated with traffic generated by the Proposal comply with the RNP impact assessment criteria. Noise modelling indicates that operational noise levels would comply with the established noise trigger levels at all receivers during both calm and noise enhancing meteorological conditions. As such, it is not expected that the development operating during worst case scenario noise conditions would impact the amenity of the residents of houses in the area.

14 Hazards and Risks

14.1 Introduction

A Preliminary Risk Screening (PRS) under State Environmental Planning Policy (Hazards and Risks) 2021 (SEPP HR) has been undertaken for the development. The preliminary risk screening required the identification of classes and quantities of all dangerous goods (DG) to be used, stored or produced on site with respect to storage depot locations as well as transported to and from the site, and to determine if a more detailed assessment is required. Where SEPP HR identifies a development as potentially hazardous and/or offensive, developments are required to undertake a Preliminary Hazard Analysis (PHA) to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls.

14.2 Existing Land Uses and Storage

The site contains the Killoran Ag operations which are carried out within the broader farm holding. The storage of the following potential DG's and quantities are carried out on site:

- 17,000 litres of diesel fuel stored in a tank.

It is noted at the time of preparation of this EIS, Killoran Ag was in the process of assessing options for a slightly larger diesel fuel tank from a different provider, approximately 20,000 to 30,000 litres. The storage of diesel is only considered a DG at any volume if it is stored in proximity to other DG's.

No additional DG's are stored on site. Killoran Ag stores chemicals, fertilisers and other DG's on a different site. The DG's are transferred to the site and applied to the land when required. As these DG's are not stored on site they are not required to be considered in a Risk Screening, but would be considered in terms of transport to the site.

The following land uses surround the development site:

- Agricultural operations to the north and south
- Sunrice handling facility to the east along Kidman Way – 2.9 km away.
- South West Woodland Nature Reserve.
- Nearest dwelling is 1.25 km to the north-west of the composting facility.

14.3 Methodology

The Preliminary Risk Screening (PRS) methodology has been based on Appendix 2 of the Applying SEPP 33 Guideline. The quantities of dangerous goods located on the broader site has been compared against Table 3 of the Applying SEPP 33 Guideline. If more than one packaging group was present in an DG class, it was assumed that the total amount for that class was the more hazardous packing group.

14.4 Preliminary Risk Screening

The proposal would not increase the amount of DG's stored on the site. As such, the DG's which are presently stored on site would be the extent of the potential hazard and risk and the proposal would not be expected to add to these risks. It should be noted that diesel fuels are not considered DG's unless stored with Class 3 flammable liquids. As the diesel on the site is not stored with any Class 3 liquids, screening is not required for the diesel.

The quantity of the DG's stored on the site do not exceed the screening thresholds in Applying SEPP 33.

Traffic movements associated with diesel transport also occur once a month. The limited amount of existing diesel fuel transport movements would not necessitate a transport safety study.

The Preliminary Risk Screening (PRS) has determined the existing operations nor the proposed composting facility are potentially hazardous or offensive requiring the preparation of the Preliminary Hazard Analysis (PHA).

14.5 Mitigation Measures

Although the site is not considered to be a potentially hazardous development, the following management and mitigation measures would be implemented to avoid potential hazards and risks:

- Maintain sufficient firefighting infrastructure in accordance with FRNSW Guidelines.
- Prepare an Emergency Response Plan for the facility.
- Storage of all DG's and flammable liquids in accordance with relevant Australian Standards.
- Train staff in DG handling and Emergency Response protocols.

14.6 Conclusions

The proposal is not considered to be a potentially hazardous or offensive industry requiring the preparation of the Preliminary Hazard Analysis (PHA). Should the mitigation measures be implemented, the risk of off-site impacts is considered low, and no further assessment is required.

15 Biodiversity

15.1 Introduction

The composting facility has been strategically sited on an existing paddock which has been extensively disturbed by past agricultural practices. The paddock has been land formed and used for rotational broadacre crops. There is no native vegetation on the site which will be disturbed by the construction and use of the composting facility, including native trees, shrubs and grasslands.

The proposal is to be accessed under Part 4 of the *EP&A Act.* The *Biodiversity Conservation Act* (BC Act) and EPBC Act also apply. Assessment matters relevant to this project are:

- Matters referred to in the BC Act where a development or an activity is "likely to significantly affect threatened species or ecological community".
- Impact on matters identified by the BC Act and its regulation as constituting Serious and Irreversible Impact (SAII).
- Matters of National Environmental Significance (MNES).

15.2 Thresholds Test

The thresholds test focuses on triggers that indicate a requirement or not for a second tier of assessment performed under Part 7 of the BC Act. The tests are applied to determine if a development or activity is likely to significantly affect threatened species as listed below:

- Impacts that exceed the biodiversity offsets scheme thresholds (Section 7.2 of the BC Act); or
- Impact on declared areas of biodiversity value mapped on the BVM; or
- Impacts are likely to significantly affect threatened species or ecological communities, or their habitats (Section 7.3 of the BC Act).

If any of the above criteria are triggered, an impact assessment performed in accordance with the Biodiversity Assessment Method (BAM) by an Accredited Assessor is required.

Biodiversity Offset Scheme Thresholds Test

An area criteria threshold determines the clearing limit of native vegetation before triggering a requirement for assessment in accordance with the BAM. The site is not burdened by a minimum lot size, therefore the entire area of the lot is used to consider the extent of clearing permitted. The size of the lot which will contain the composting facility is 128 ha in area, therefore a total of 1 hectare can be cleared without the threshold being breached.

Minimum lot size of the land	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

(Biodiversity Conservation Regulation 2017 cl. 7.2 (4))

Figure 23: Clearing Thresholds - BAM Method

Figure 24: Aerial with location of Composting Facility

As previously stated, the proposed composting facility is located on a 45 ha paddock contained within a lot which is 128 ha in area. The paddock has been disturbed from past agricultural practices including land forming, grazing and cultivation of rotational crops. The area is void of native vegetation including trees, shrubs and grasslands. The area of the larger farm holding was selected by the Applicant to avoid any impact to the patches of native vegetation throughout the site.

Biodiversity Values Map

The Biodiversity Values Map identifies land with high biodiversity value, as defined by the OEH Biodiversity Conservation Regulation 2017. A review of the Biodiversity Values Map has been carried out to understand if the site contains any areas identified as significant.

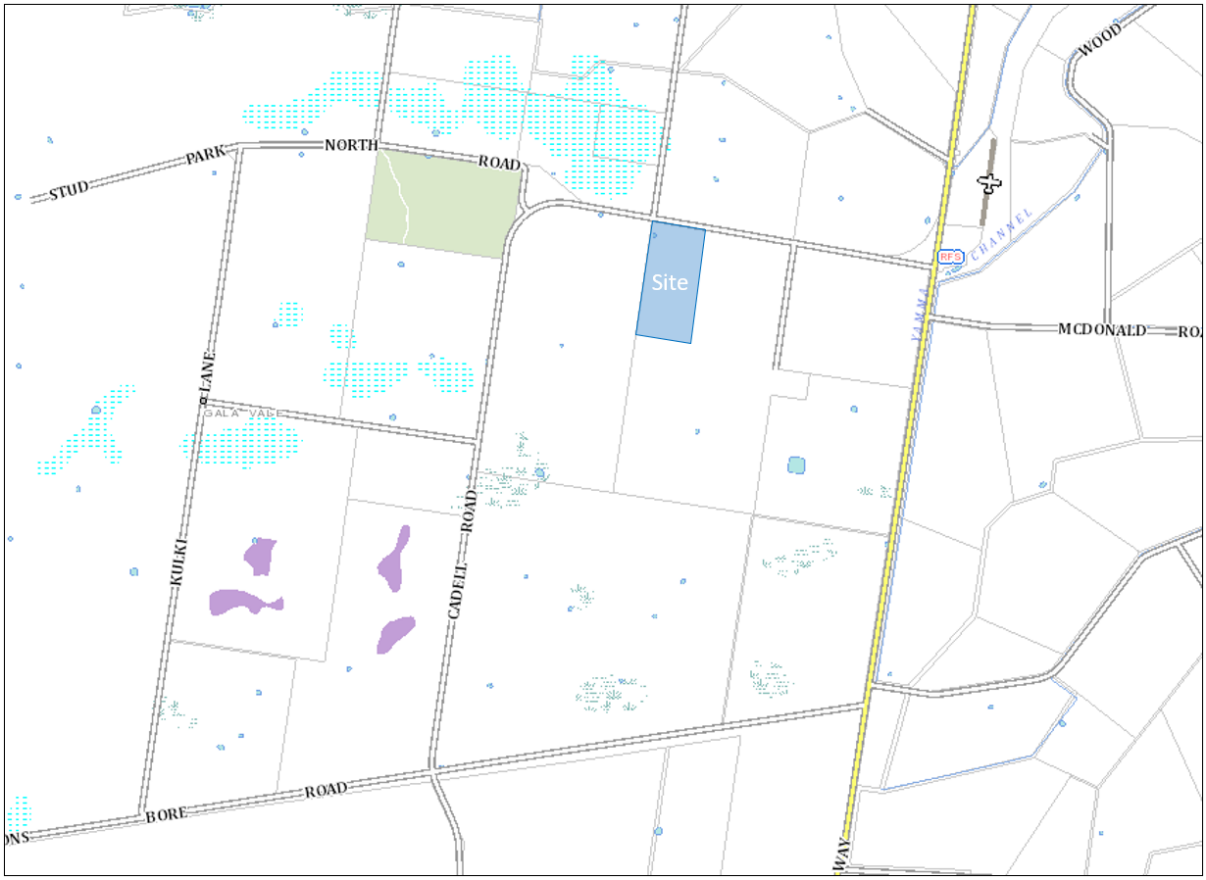


Figure 25: Biodiversity Values Map

Threatened Species

Fauna

The Threatened Species Test of Significance Guidelines state that a proposed development under Part 4 of the EP&A Act must identify if the site includes any threatened species (Schedule 1, BC Act).

A search of Bionet indicates that no threatened species have been sighted within 1 km of the composting facility. However, outside of this area, there are two fauna species recorded within the region surrounding the site, including Grey-crowned Babbler (eastern subspecies) and the Eastern Grass Owl. As the proposal does not include the removal of native vegetation or potential habitat, the development is not expected to have an adverse impact on any of the listed vulnerable species in the locality.

Flora

Using NSW SEED portal to search the sites vegetation classification, no threatened vegetation communities were found on or adjacent to the site.

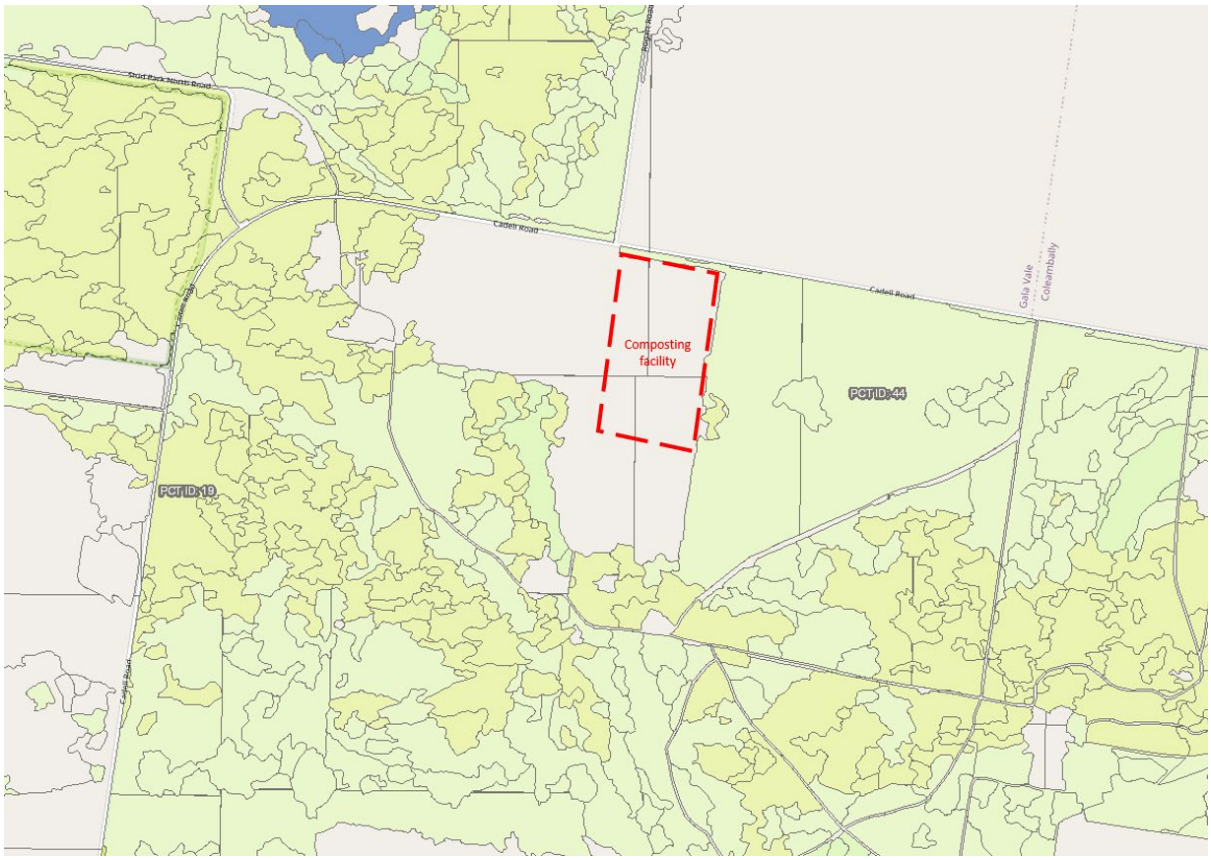


Figure 26: SEED Mapping of Vegetation Communities

The area to be utilised for the proposed composting facility does not contain any identified plant community types. Within the farm holding there are two notable plant communities including:

- PCT id.44 - Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT id.19 - Cypress Pine woodland of source-bordering dunes mainly on the Murray and Murrumbidgee River floodplains.

None of the identified patches of vegetation are listed as threatened under Schedule 2 in the *BC Act*.

As the proposal would not disturb any native vegetation at all let alone in excess of 1 ha in area, a BDAR is not warranted and the Biodiversity Offset Scheme (BOS) does not apply to the development. To ensure that potential external biodiversity impacts have been assessed in accordance with the legislation, a further Test of Significance has been performed.

15.3 Test of Significance

Under the BC Act, a development will require a five-part test for any clearing of native vegetation, impacts over threatened flora/fauna species and Endangered Ecological Communities. The five-part Test of Significance is not required in this instance as no impact on native vegetation or fauna habitat is proposed. However, as a precaution, the Test of Significance has been carried out.

Table 22 below provides an assessment of the site and development against key threatening processes listed in Schedule 4 of the BC Act.

Table 22: Test of Significance

Factors in the test of significance	Impact of the proposed development
Adverse effects on the life cycle of species Applies to listed species (Schedule 1 BC Act) *In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction [BC Act section 7 (1)(a)]*	The development would not be expected to have an adverse impact on the species listed in Schedule 1 of the BC Act. The composting facility would be constructed on cleared land used historically for the cultivation of rotational crops. The life cycles of threatened species are not directly related to, dependent on or active on the site. There have been no sightings of threatened species on the area proposed for the composting facility. The vulnerable species spotted in the locality would be able to move through the vegetation corridors which exist on the farm holding and around the composting facility.
Adverse effect on ecological communities Applies to endangered and critically endangered ecological communities listed under part 1 and 2 of schedule 2 in the BC Act *in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:* *(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or* *(ii) is likely to substantially and adversely modify the composition of the ecological community such*	The site does not have any endangered or critically endangered ecological communities. No remnant native vegetation will be cleared. The proposed development will have no negative impact on the vegetation communities on or surrounding the site.

that its local occurrence is likely to be placed at risk of extinction [BC Act section 7(1)(b)]	
Adverse effects on habitats Applies to the habitat area used by threatened species and ecological communities on and surrounding the site. *in relation to the habitat of a threatened species or ecological community:* *(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and* *(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and* *(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality*	No threatened flora species or ecological communities have been recorded on or around the site. The two threatened fauna species identified near the site are both avian and could potentially interact with the site as a transport corridor. The proposal does not include the clearing of any vegetation which could have been used to support avian populations including habitat. The proposal is not expected to have adverse impact on the habitat of any threatened species.
Adverse effects on areas of outstanding biodiversity value Applied to declared areas of outstanding biodiversity value (AOBVs)	The site is not in or within proximity to any areas of AOBV.
Key Threatening Processes Applies for processes listed in schedule 4 of the BC Act *whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process [BC Act section 7(1)(e)]*	**Clearing and/or loss of native vegetation (habitat, dead treed, hollow tree)** The proposal does not include the clearing of any native vegetation. **Impact on native flora and fauna by feral animals (Rabbit, goats, cat, pigs, toad, fish, honeybees, bell miners, horses, deer, red fire ants, Yellow Crazy Ant, fox, rats)** The proposed development will not improve feral animal habitat or facilitate the spread of any invasive fauna. **Impact on native flora and fauna by pathogens and disease (Psittacine Circoviral, chytridiomycosis, *Phytophthora cinnamomi,* Pucciniales pathogenic)**

The proposed composting facility would be contained within a bunded area and therefore leachate would be controlled within the site. Leachate could not carry pathogens to areas outside the site. The controlled composting process ensures no pathogens remain in the finished product leaving the site. The product is essentially pasteurised.

Impact of the introduction and establishment of exotic species (vines, scramblers, Scotch Broomm, African Olive, *Chrysanthemoides monilifera,* perennial grasses, escaped garden plants, including aquatic plants, lantana)

Incoming waste streams and materials are monitored and inspected for invasive species and non-conforming wastes or organics.

15.4 Mitigation Measures

The following mitigation measures would be implemented during construction and operation of the facility to avoid potential impacts on biodiversity in the area:

- Ensure any fires do not spread outside the confines of the composting facility.
- Monitor the surrounding areas for invasive weed species and non-native plants.
- Use scare guns to limit avian species habituating the leachate ponds.
- Avoid the removal of any native vegetation during operation.

15.5 Conclusions

The proposal is not expected to have an adverse impact on biodiversity. There is not considered to be any significant impact on any threatened species, ECC, critical habitat, or endangered populations by the proposed works on any state of nationally significant species population under the EPBC Act or BC Act.

16 Visual Impacts

16.1 Introduction

The proposal includes the construction of a composting facility with windrows with heights of around 2-3 m and an unloading area with larger stockpiles up to 5 m in height. Windrows would be located around 30 m from Cadell Road. The site is relatively rural in nature with only four farm dwellings, not associated with the site, located within 5 km of the site. The visual impacts associated with the proposal will vary depending on the viewing location and other elements including topography and bulk and scale of the development. A visual assessment of the proposal with recommended mitigation measures has been provided in this section.

16.2 Photos of the Site and Locality

Figure 27: View of Composting Facility from Cadell Road

Figure 28: View of Trial Composting Windrows from the edge of the road reserve in Cadell Road.

16.3 Receiver Locations

The development site is located on Cadell Road in Gala Vale which is a rural location with very few visual receivers which would have any view of the proposed facility including the composting rows. The composting facility would be visible from Cadell Road. However, the area is agricultural in nature and the windrows would not be dissimilar from other farming operations in the locality. There are four visual receivers within 5 km of the site. None of these receivers would have a direct view of the facility due to the following factors:

- Flat topography of the area.
- Distance of the receivers to the site.
- Presence of native vegetation around the dwellings.
- Presence of channel embankments.

16.4 Overview of Visual Impact

The proposal includes the use of a pelletising shed which cannot be seen from any visual receivers in the locality or from Cadell Road. The composting facility will be visible from Cadell Road. The main visual impact of the development from Cadell Road would be from the windrows and the leachate dams which would be located around 30 m from the road. Due to the proposed bunding of the site, the infrastructure is not expected to be overly visible from the road. The windrows would have a maximum height of around 3 m and would decrease in height during the composting process. Around 300 m from the road would be the fire water tank, amenity facilities, and the unloading stockpiles with bunkers.

The locality surrounding the development site is extremely flat with little to no undulation. Due to the flatness of the locality and the existence of native vegetation surrounding residential receivers – providing visual buffers, the likelihood of a detrimental visual impact on receivers in the locality is considered low.

16.5 Visual Impact

The four farm dwellings within five kilometres of the site each have lineal bands of mature trees which act as wind breaks and provide shade and amenity to the dwellings. The plantings provide a dense visual buffer between homesteads and the site in all circumstances. Based on visits to the site and the surrounding area, review of aerial imagery and pictures, a visual assessment of the potential impact on the four dwellings has been provided in **Table 23**.

Table 23: Visual Assessment

Viewpoint	Visual Sensitivity	Visual Effect	Visual Impact
R1	low- medium	low	low
R2	low- medium	low	low
R3	low- medium	low	low
R4	low- medium	low	low

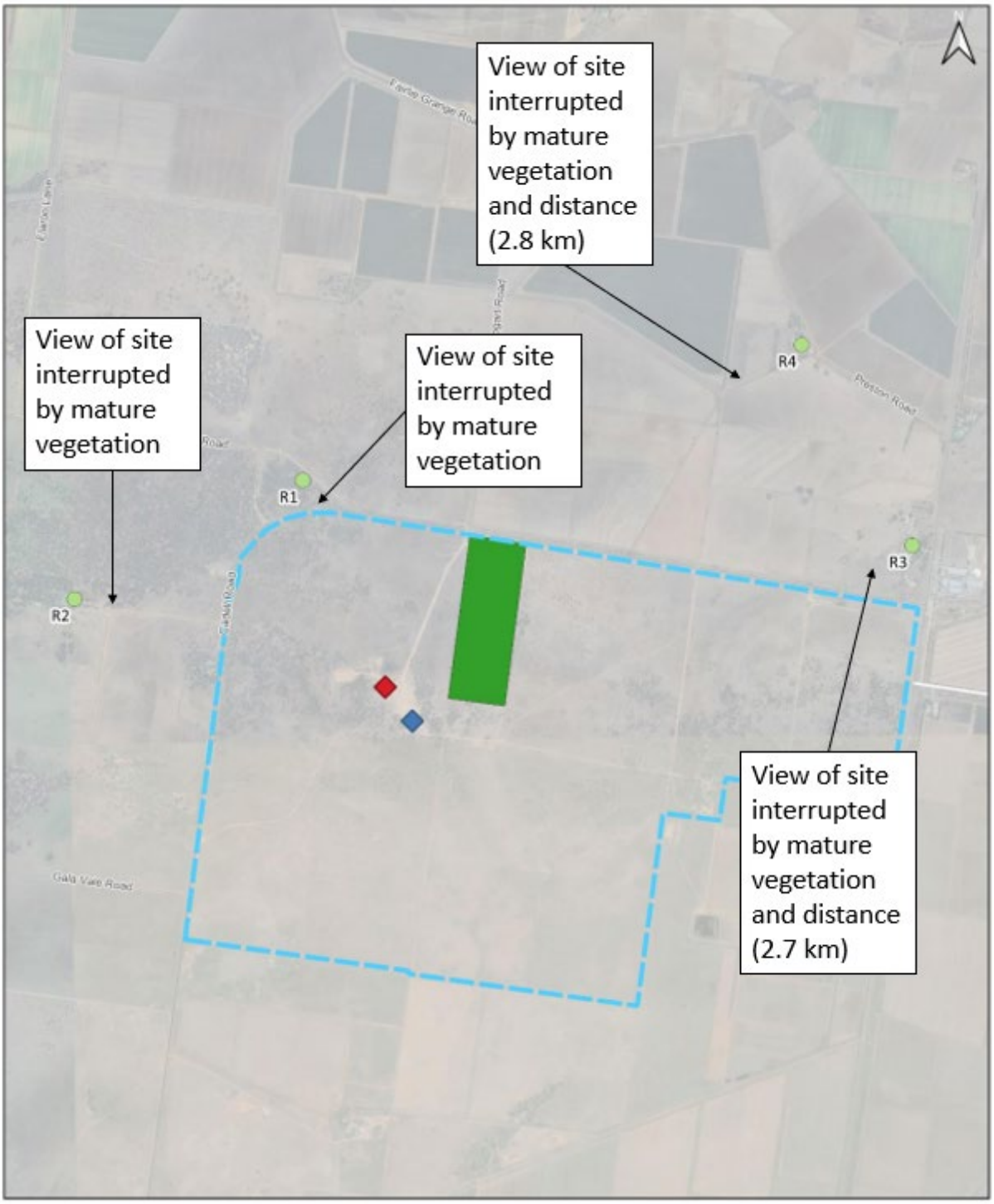


Figure 29: Visual Receiver Location

The nearest residential receiver is located over 1 km from the site and the dwelling is surrounded by native vegetation including within the road reserve. There are no direct views of the composting facility from any of the receivers due to the topography of the land being flat in nature, the presence of screening vegetation and the distance of the site to receivers.

As discussed previously, the composting facility would be visible from Cadell Road. However, this road is a local rural road with very limited traffic. During several site visits, there was an

extremely limited amount of traffic on the road. As such, the potential vehicular visual receivers would be low and would be expected to be familiar with agricultural operations and their potential impacts. The facility would not be visible from any Classified Road and therefore no mitigation measures for visual impacts have been proposed.

16.6 Mitigation Measures

Killoran Ag would propose the following mitigation measures during operation to avoid unsightliness when viewed from the road:

- Ensure that all the unconforming waste is enclosed in a bunker area and does not scatter to the road reserve or off site.
- Ensure stockpiles do not exceed 5 m and windrows do not exceed 3 m in height.

16.7 Conclusions

Based on the visual assessment carried out in this section, the proposal would be very unlikely to cause a negative visual impact given the rural and agricultural nature of the locality and the lack of immediate views of the site from sensitive visual receivers. The amount of traffic which is experienced on Cadell Road presently would not warrant the planting of screening plants.

17 Mitigation Measures

17.1 Air Quality

The following mitigation measures would be implemented to ensure the odours associated with the proposal do not cause an impact to the nearby receivers:

- Avoid turning over windrows in adverse weather.
- Cover incoming FOGO with waste straw or finished compost.
- Transfer FOGO to windrows as soon as possible after receival to dilute the odour potential.
- Avoid unnecessary disruption of FOGO stockpiles.
- Wet dusty surfaces during dry conditions. Staff will undertake visual inspections of dust generation to ensure dust does not spread beyond the boundaries of the site.
- Provide neighbours with the manager's contact details to divulge any odour impacts.
- Staff will receive training on methods to reduce dust generation.

17.2 Traffic

The proposal includes the following road improvements and management and mitigation measures related to traffic:

Road Improvements

- The intersection of Kidman Way and Cadell Road is proposed to be upgraded to in accordance with Strategic Design at Appendix 5a.
- Cadell Road to be requested to be gazetted for travel by B-Doubles and Type 1 A-Doubles all year round.
- The access into the site be designed as a typical rural property access with tapers catering for a road train.

Mitigation Measures

- Preparation of a driver code of conduct to ensure drivers delivering organics to the site and removing finished product cover their loads and use identified haulage routes.
- Ensure internal roadways are constructed of an all weather surface and maintained to an all weather standard at all times.

- Ensure parking spaces are delineated with markers which are maintained.

17.3 Water and Hydrology

The measures which will be implemented to avoid potential impacts to surface and groundwater are provided in the table below and are based on best practices and measures utilised at other composting facilities across the state and the Composting Guidelines.

Potential Impact	Mitigation Measure
Pollution from sedimentation, oil/chemical spills and gross pollutants	• Limit the storage of fuels and chemicals near the composting facility. • Plant and equipment would be regularly inspected and serviced to limit the risk of oil loss. • All staff would be appropriately trained in the spill response plan for the minimisation and management of unintended spills. • All reasonable and practicable measures would be taken to prevent pollution of any existing waterways as a result of silt or untreated leachate run-off, and oil or grease spills from any machinery. Wastewater for cleaning equipment must not be discharged to any watercourses or stormwater systems.
Contamination of clean storm water with leachate	• The facility has been designed to capture and retain the 1 in 100 24 hour storm event. The site is also bunded and would be able to capture larger stormwater events. • Clean stormwater to be diverted around the facility. The entire facility would be bunded with perimeter raised laneways. • The water management system would be monitored to ensure banks are intact and leaching into the sub surface does not occur.
Increased soil infiltration of contaminated surface water and leachate	• Maintain surface gradient of the hardstand pad and orientation/geometry of windrows to minimise leachate generation and to ensure that leachate flows directly to the primary sump without mixing with compost organics. • Maintain all water related infrastructure, during construction and operation of facility including: – Low permeability clay base in the composting processing areas. – Clay lining of the leachate dams. – Bunding and arrangement of windrows. – Perimeter bunding and diversion drains.
High contaminant load in leachate	• Establish a testing regime for the leachate including monitoring anaerobic conditions. • Shandy leachate with bore water if contaminant levels too high.
Uncontrolled release of contaminants through the bed and banks of the detention basin or pads	• Monitor water levels in the detention basin to ensure that water levels do not drop to levels exceeding expected evaporation rates. • Maintain integrity of hardstand pads and repair damaged areas with additional compaction.

Surface and groundwater contamination from leachate	• Leachate would be recycled through moisture conditioning of compost, to drawdown on basin volumes and ensure the design capacity of the basin is maintained for future storm events. • Management of windrows and gradients to ensure no ponding or pooling occurs. Depressions must be filled promptly by using screened or sieved overburden. • All water that has entered processing and storage areas and water that has been contaminated by leachate must be handled and treated in the same manner as leachate. • Sampling of groundwater (bore) on a regular interval; more intensive in the beginning of operation of the facility and relaxed if no seasonal effects are demonstrated.
Ineffective collection and storage of leachate	• Leachate would be collected and stored in a clay lined sump and basin capable of capturing the 1% AEP, 24-hour runoff event. The hardstand pad and basin liner shall be constructed of recompacted overburden/clay with an in-situ permeability (K) of less than $1x10^{-9}$ m/s in accordance with the Geotech prepared by Aitken and Rowe • Leachate basin is to be desilted as required in order to maintain design storage capacity, without compromising basin liner integrity.

17.4 Soils

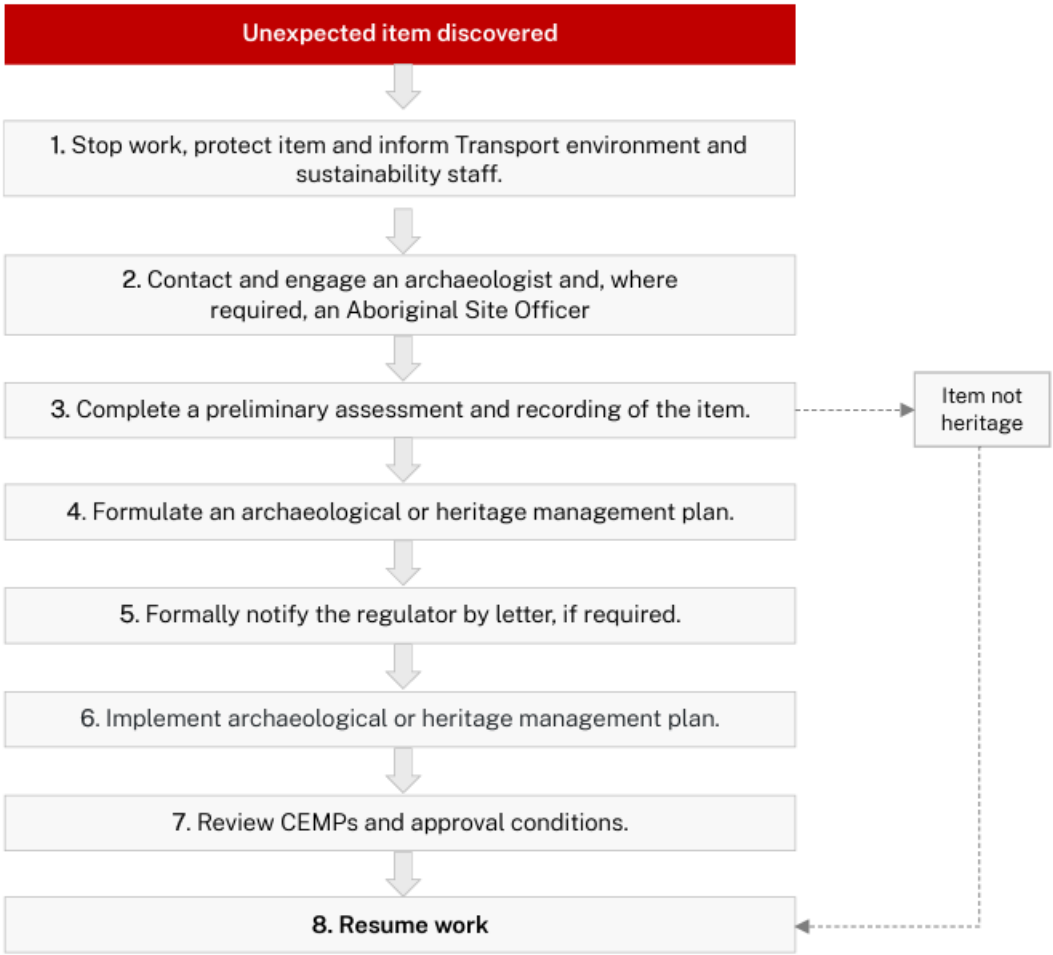
The following mitigation measures would be implemented to ensure the soils associated with the proposal are utilised to adequately construct and operate the facility in accordance with the Composting Guidelines:

- Compaction testing by geotechnical engineers under Level 2 supervision during construction of the pads, sump and basin.
- Removal of any sandy deposits in the soil profile.
- Post construction water level testing of the dam and sump.

17.5 Aboriginal Cultural Heritage

The following mitigation measures would be implemented to ensure that Aboriginal artefacts or sites, if found during construction or operation of the development, are protected:

- All relevant staff should be made aware of their statutory obligations for heritage under the National Parks and Wildlife Act 1974 and the Heritage Act 1977. This is to be in the form of a heritage induction on site prior to works.
- An Unexpected Finds Protocol in accordance with the relevant guidelines would be prepared. The following protocol would be used in the unlikely event that an artefact is found:



17.6 Noise and Vibration

The following mitigation measures would be implemented to ensure noise associated with the proposal does not cause an impact to the nearby receivers:

- Avoid turning over windrows in adverse weather.
- Avoid carrying out multiple noise intensive procedures continuously.
- Carry out loading and unloading activities during daytime hours.
- Provide neighbours with the manager's contact details to divulge any noise impacts.

17.7 Hazards and Risk

Although the site is not considered to be a potentially hazardous development, the following management and mitigation measures would be implemented to avoid potential hazards and risks:

- Maintain sufficient firefighting infrastructure in accordance with FRNSW Guidelines.

- Prepare an Emergency Response Plan for the facility.
- Storage of all DG's and flammable liquids in accordance with relevant Australian Standards.
- Train staff in DG handling and Emergency Response protocols.

17.8 Biodiversity

The following mitigation measures would be implemented during construction and operation of the facility to avoid potential impacts on biodiversity in the area:

- Ensure any fires do not spread outside the confines of the composting facility.
- Monitor the surrounding areas for invasive weed species and non-native plants.
- Use scare guns to limit avian species habituating the leachate ponds.
- Avoid the removal of any native vegetation during operation.

17.9 Visual Impacts

Killoran Ag would propose the following mitigation measures during operation to avoid unsightliness when viewed from the road:

- Ensure that all the unconforming waste is enclosed in a bunker area and does not scatter to the road reserve or off site.
- Ensure stockpiles do not exceed 5 m and windrows do not exceed 3 m in height.

18 Justification and Conclusion

Based on the assessment carried out in this Environmental Impact Statement it is considered that the proposal has merit and is justified. In summary, we believe there is adequate justification for the development for the following reasons:

- Project Need – the need for composting facilities to reuse organic wastes is becoming increasingly important given the production of methane through landfilling, the impacts of climate change and the need to produce organic fertilisers and soil amelioration for farming operations in the regions.
- The proposal is not considered to be contrary to any local or regional strategic plans.
- The proposed development has been shown to be consistent with relevant local, State and Commonwealth government planning instruments.
- Alternative sites have been considered and the proposed site was selected based on a careful assessment of the potential impacts of the development on nearby receivers including by way of noise, traffic and odour.
- The site is located in a relatively remote area with good connections to the regional road network. There are few residential or sensitive receivers in close proximity to the site.
- The composting facility site within the broader farm holding has been selected on a disturbed area of the farm holding to avoid the removal of any native vegetation or the potential disturbance of Aboriginal artefacts.
- The Environmental Impact Statement has concluded that the composting facility can operate at full production without causing amenity impacts on receivers in the area by way of dust, odour, noise or visual impacts.
- Mitigation measures have been proposed to ensure that any residual environmental impacts are avoided including to groundwater and surface water, spread of invasive species and fire avoidance and suppression.

The conclusion of this Environmental Impact Statement is that the proposed development has merit, is justified and would have relatively limited environmental impacts subject to the implementation of mitigation, monitoring and management measures. As such, the Applicant seeks Council's timely approval of the proposal.