



Statement of Environmental Effects

Wormtech Vermiculture Facility

224 Wood Road, Yenda NSW

PREPARED FOR: WORMTECH

BY: SKM PLANNING PTY LTD – 6 MURPHY CRESCENT, GRIFFITH NSW –
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Statement of Validity

Submission of Environmental Impact Statement	
Prepared under Part 4, Division 4.7 (State Significant Development) of the <i>Environmental Planning and Assessment Act 1979</i>	
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:	Wormtech Vermiculture Facility
Applicant Name:	Wormtech
Applicant Address:	224 Wood Road, Yenda NSW
Proposed development:	<p>The Proposal would comprise the continued operation of a vermiculture facility with a capacity to compost of up to 5,000 tonnes of organic material per annum.</p> <p>The key construction components of the Proposal would include:</p> <ul style="list-style-type: none"> • Augmentation to Vermiculture pads to achieve the recommendations of the Geotech and installed an approved impermeable geomembrane under each windrow. • Internal roads to permit truck circulation. • Installation of a transportable amenities block.
Land to be developed:	<p>The site is located at 224 Wood Road Yenda and is legally described as:</p> <p>Lot 487 DP751728 and a portion of Lot 7310 DP 1201286 (part of a disused Murrumbidgee Irrigation reserve)</p>
Signature:	
Name:	Kelly McNicol
Date:	

Glossary of terms

Term	Description
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ANZECC	Australian and New Zealand Environment and Conservation Council
Applicant	Wormtech
Applying SEPP 33	<i>Applying SEPP 33: Hazardous and Offensive Development Application Guidelines</i> (Department of Planning, 2011a)
Approved Methods	<i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i> (NSW EPA, 2016)
AQIA	Air Quality Impact Assessment
ARI	Average Recurrence Interval
AS	Australian Standard
BC Act	<i>Biodiversity Conservation Act 2016</i>
BCA	Building Codes of Australia
BoM	Bureau of Meteorology
Composting Guidelines	Former Department of Environment and Conservation Composting and Related Organics Processing Facilities guidelines
Council	Griffith City Council
DA	Development Application
DCP	Development Control Plan
DP	Deposited Plan
DPE	Department of Planning and Environment (NSW) (The Department)
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPA	Environment Protection Authority (NSW)
EPIs	Environmental Planning Instruments
EPL	Environmental Protection Licence
ERA	Environment Risk Assessment
FRNSW	Fire and Rescue NSW
FRNSW Guidelines	NSW FRNSW Fire Safety in Waste Facilities Guidelines
Geotech	Geotechnical Investigation prepared by Aitken and Rowe
GLEP	Griffith Local Environmental Plan 2014
ha	hectares
ICNG	Interim Construction Noise Guideline

LAeq	Equivalent continuous sound level
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
NML	Noise Management Level
NPfi	Noise Policy for Industry (EPA, 2017)
NPI	National Pollutant Inventory
NSW	New South Wales
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
PM₁₀	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	<i>Protection of the Environment Operations (Waste) Regulation 2014</i>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PSNL	Project Specific Noise Levels
RBL	Rating Background Level
RL	Reduced level
RNP	Road Noise Policy
Roads Act	<i>Roads Act 1993</i>
RTA	Roads and Traffic Authority
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
tpy	tonnes per year
VENM/ENM	Virgin Excavated Natural Material and Excavated Natural Material

1 Proponent and Site Details

Wormtech is proposing to continue to operate a vermiculture facility on Wood Road in Yenda. The property is located approximately 2.5 km east of Yenda. The property has a history of agricultural use and has been used since 2015 for vermiculture including research and testing. Wormtech is a local business which specialises in producing and supplying compost and worm products without the need for chemical fertilisers. Wormtech has two sites including the site in Yenda which has been used for vermiculture and research and a site near Carrathool which is used for more conventional composting. The site near Carrathool has an approved capacity of 30,000 tonnes per year (tpy) and has proposed to increase this to 99,000 tpy through a modification to their existing consent.

Applicant	Wormtech
Site Address	224 Wood Road, Yenda
Lot and plan of site of facility	Lot 487 DP751728
Lot and Plan of leachate dam	Lot 487 DP751728 and a portion of Lot 7310 DP 1201286 (part of a disused Murrumbidgee Irrigation reserve)
Local Government Area	Griffith
Total area of land containing the facility	9.5 ha

The Wormtech land holding contains an existing vermiculture facility including compacted and formed windrows and pads for:

- Waste acceptance.
- Vermiculture pad.
- Finished product.

The site also contains a leachate collection and recirculation system including a hose reel and pump to reapply leachate to windrows, a transportable office, a farm dwelling and amenities for workers, two sheds (one used for storage and the other used for final screening and bagging), three driveways and a parking area constructed on compacted road building gravel. The parking area is 26 m wide x 5.5 in depth and contains 10 parking spaces.

1.1 Surrounding Land Uses

The site is located to the east of Yenda, surrounded by farms with ancillary farm dwellings. The predominant agricultural crop in the area is wine grapes. Casella's main winery is located on Wood Road to the north-west of the site. Wood Road is an unsealed Council Road which connects to the Burley Griffin Way via a channelised intersection. There are two dwellings within 500 m of the site.



Figure 1 - Site Location

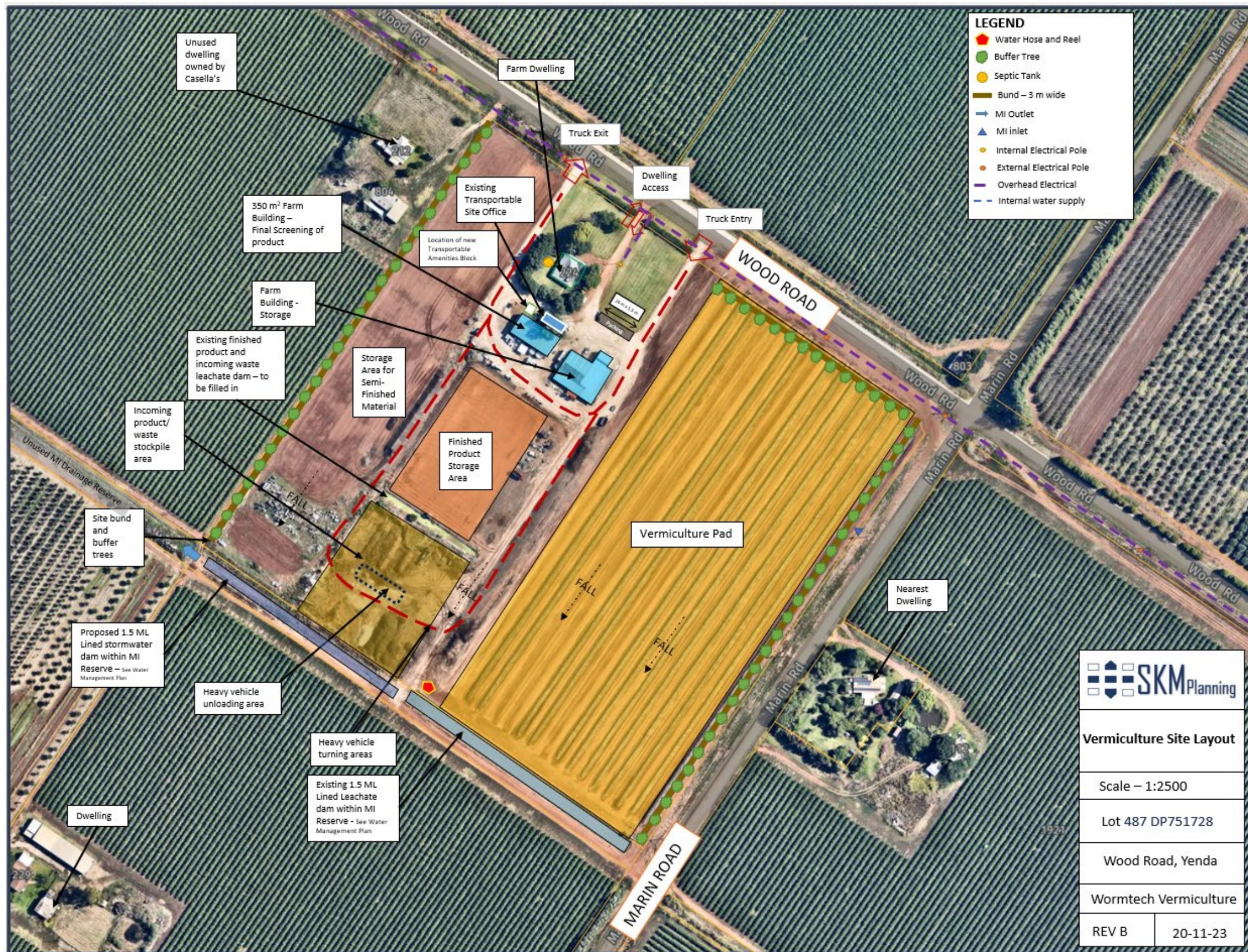


Figure 2: Site Layout

2 Proposed Development

2.1 Overview

The proposal is for the continued use of a vermiculture facility on the site. The primary purpose of the facility is to process non-putrescible wastes combined with pasteurised compost using vermiculture to create worm castings. Wormtech has been operating the site primarily as a research and testing facility since 2015 with the goal of optimising the vermiculture process. No complaints have been made from nearby residents regarding the existing operations and the lined leachate dam has adequately collected water during all rain events.

2.2 Process Description

The proposed development involves the continued use of the vermiculture facility which would accept up to 5,000 tonnes of organic material per year under a local (non-designated) development application submitted to Griffith City Council.

Waste streams would consist of a mixture of the following waste types up to a total of 5,000 tpy.

- Pasteurised compost – up to 3000 tonnes per year
- Rice – up to 50 tonnes per year
- Mulch – up to 1800 tonnes per year
- De-hydrated food waste – up to 25 tonnes per year
- Fabrics and textiles – up to 100 tonnes per year.

Wormtech are also considering other feed sources to the vermiculture system including filter cake (Paper pulp). This source of organic carbon (Non putrescible) will replace some of the compost volume delivered to the Yenda site thus remaining under the 5000 tpa threshold.

Waste acceptance and dispatch

Pasteurised compost would be transported to the site via B-double's from Wormtech site near Carrathool at Conargo Road in the Murrumbidgee Shire LGA. Based on a load of 70 tonnes in a B-double, a total of 42 trucks would deliver compost to the site or less than 1 per week. Other waste streams would be delivered to the site in semi-trailers with up to 40 tonne loads totalling around 50 trucks per year. A total of around 20-125 organics deliveries in trucks would occur throughout the year. It is expected that the same amount of truck movements would be necessary to remove the processed products from the site. As such a total of 250 truck movements (two-way) would be expected per year or around four-five per week.

Trucks would enter the site via the truck entry and proceed to the incoming organics / waste stockpile area. Organics would be separated via stream in bunkers or stockpiles awaiting use in the windrows. Accepted material would be inspected for contaminants. When it is time to

'feed' the worms, the material is loaded into a feed out wagon and run on top of the windrow adding approximately 250mm of fresh material (see **Figure 4**). Immediately after the feeding, the windrows are watered with leachate or raw water. This assists in the vermiculture process and provides dust mitigation.

Feeding occurs every two to three weeks with a minimum of two passes of the watering wheel (which pumps water from the leachate dam and directly applies it to the windrows). After around 9 months the windrows are of a size that mean the worm castings at the bottom of the rows can be picked up and stockpiled for maturation. During maturation, the remaining live forms and eggs of worm's hatch and further refine the material at the same time the piles are allowed to dry out. At this point the materials are sampled and sent to an external laboratory for testing and analysis.

Matured materials are then collected into 1 tonne bulk produce bins and tipped over a screen to remove any oversized residual organic material and separate any non-organic contaminants (mainly plastics). Screened material is then ready to be sold in bulk or packaged into bags depending on end market requirements.



Figure 3: Watering Cart



Figure 4: Feeding Worms



Figure 5: Finished Product - Worm castings in one tonne container

Vermiculture Pad

The vermiculture pad has been designed to ensure all leachate is collected and slowly worked through the windrow at a grade of 1:1000 prior to entering a drain connected to a 100 mm pipe which discharges directly to the leachate dam. To ensure that leachate does not impact groundwater, the use of an impermeable plastic liner under the worms is proposed. The liner would ensure that leachate does not travel through the subsoils into groundwater. Wormtech wants to ensure that all leachate produced is captured and transferred to the dam for reuse. Leachate is rich in nutrients and its re-application to the windrows improves the finished product. Leachate would drain to the south to existing 100 mm drainage pipes which connect into the leachate dam (**Figure 6**).

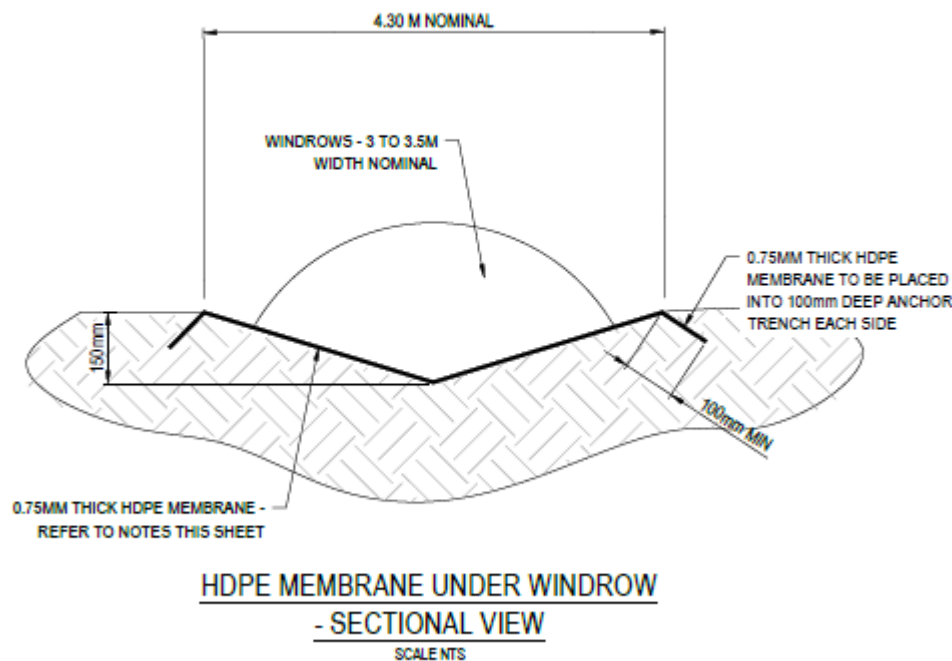


Figure 6: Proposed Windrow Layout

Leachate from the dam is utilised for the watering of the windrows over the 9-month period through the use of a watering cart connected to a moveable pump. The cart works up and down the windrows (see **Figure 3**). The leachate dam has a capacity of 1.5 ML and is plastic lined.

Storage of finished product and incoming wastes

Incoming wastes would be stored on a clay pad with a maximum storage capacity of around 500 tonnes at any given time. Dehydrated food wastes would be buried on site for storage and utilised only when non-odorous.

Finished product would be stored on clay pads which direct any potential leachate to a second leachate dam. A maximum of 3000 tonnes of harvested worm castings would be stored on site at any given time. In terms of non-conforming wastes, avoidance is first line of defence with samples of feed material sought prior to delivery. If by chance material was delivered and determined to be non-conforming, the load would be isolated and returned to sender. Waste/feed material is only accepted from approved established partners. Wormtech do not operate as a general waste receival. Potential farm fed inputs are closely controlled and the type of waste accepted at the site must meet the requirements of the vermiculture process.

Office and amenities

The site presently contains a transportable office building which caters for two staff. A manager's dwelling occupied by two of the owners of the business is used for the amenities for office and outdoor workers. The proposal includes the installation of a amenities block for workers adjacent to the transportable office. The amenities block would be sourced from Coates hire or similar. Plans for the amenities block can be provided post approval. The use of the dwelling for amenities will cease when the transportable amenities is constructed. A total of 8 staff would occupy the site at any given time and the site would operate between 7am to 5pm – Monday to Friday.

3 Legislative Context

This section provides a review of the proposal against the relevant planning legislation as prescribed in Section 4.15 of the Environmental Planning and Assessment Act 1979.

3.1 Environmental Planning and Assessment Act 1979

The proposed vermiculture facility will require development consent from Griffith City Council under Part 4 of the *Environmental Planning and Assessment Act, 1979*.

The proposal is non-designated development with a processing capacity of 5,000 tonnes per year of organic material – mostly non-putrescible.

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, bio digestion 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-water table, 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.*

Commentary:

To permit Council to make an informed decision regarding 13(b)(vi) an odour assessment has been prepared by Nic Hall from Insound is provided at Appendix 3. The odour assessment concluded that the potential for offensive odours to be produced above the relevant odour criteria at the nearest occupied dwelling to the east of the site is unlikely, subject to the implementation of some management and mitigation measures.

In terms of dust, the feeding of worms is the single largest source of dust. The timing of this activity is managed to avoid hot, dry or windy conditions. Dust suppression utilising the water cart also occurs immediately after feeding.

We believe the proposal should be accepted as non-designated development based on:

- The conclusions of the odour assessment.

- The limited noise produced at the site. Noise would be similar to the operation of the site as a farm. The site would only operate during daylight hours as well.
- The lack of any amenity impacts experienced at receivers while the site has operated over the last 8 years.
- The use of mainly pasteurised compost which has no odour and has a high moisture content in the vermiculture process.

3.2 Protection of the Environment Operations Act 1997

Schedule 1 Section 12 of the *Protection of the Environment Operations Act, 1997* relates to composting facilities:

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 offsite 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 offsite 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.*

The proposal **would not** require an Environmental Protection Licence as the site would not accept more than 5,000 tonnes per year of non-putrescible wastes or more than 200 tonnes per year of putrescible organics.

3.3 Griffith Local Environmental Plan 2014

The site is zoned RU1 Primary Production under the Griffith Local Environmental Plan 2014 and composting facilities are a permissible use with the consent of Griffith City Council.

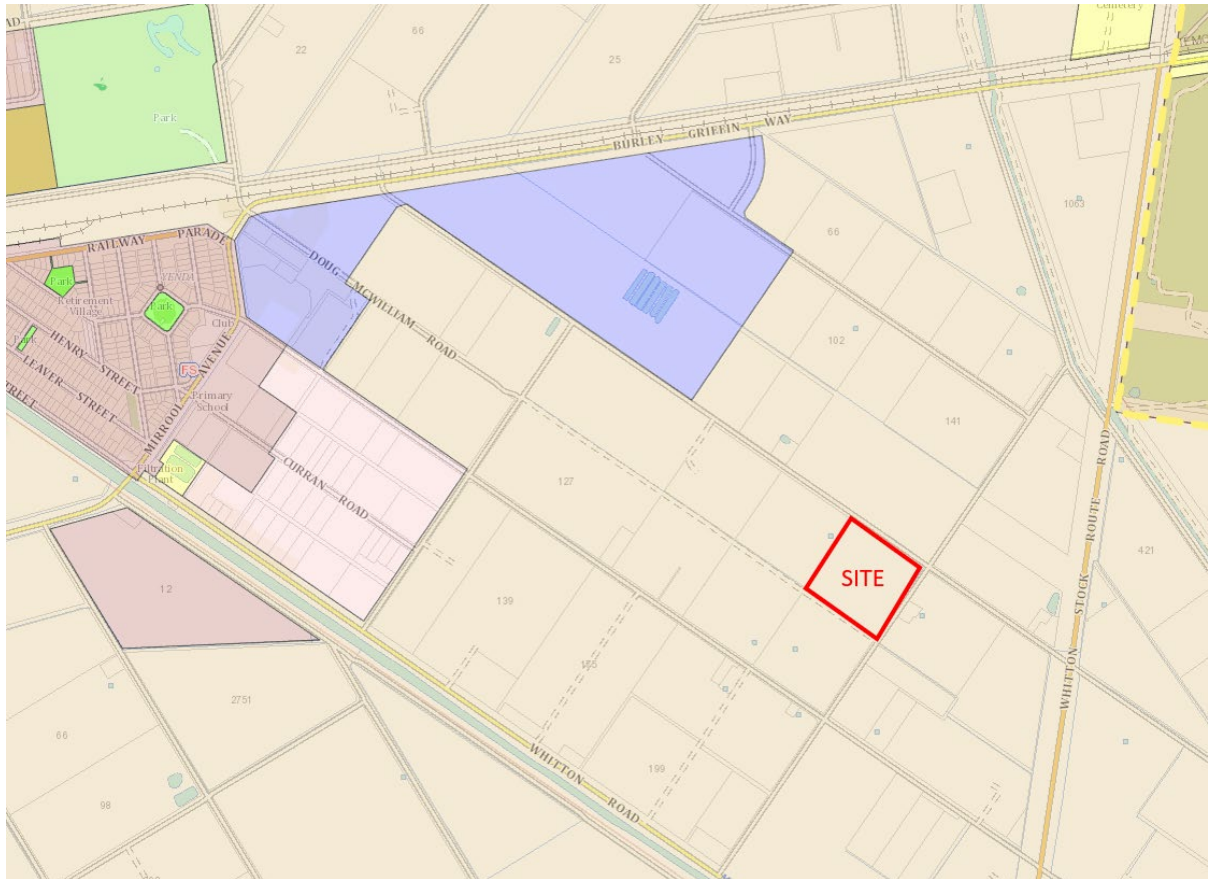


Figure 7: GLEP Zoning Map

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.*

Clause 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 riverbanks 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.*

Commentary:

The site is located within the Griffith Main Drain J Flood Study boundaries. A review of the mapping for the flood study indicates that the site is not considered flood prone for the 1% AEP flood event (see **Figure 8**).

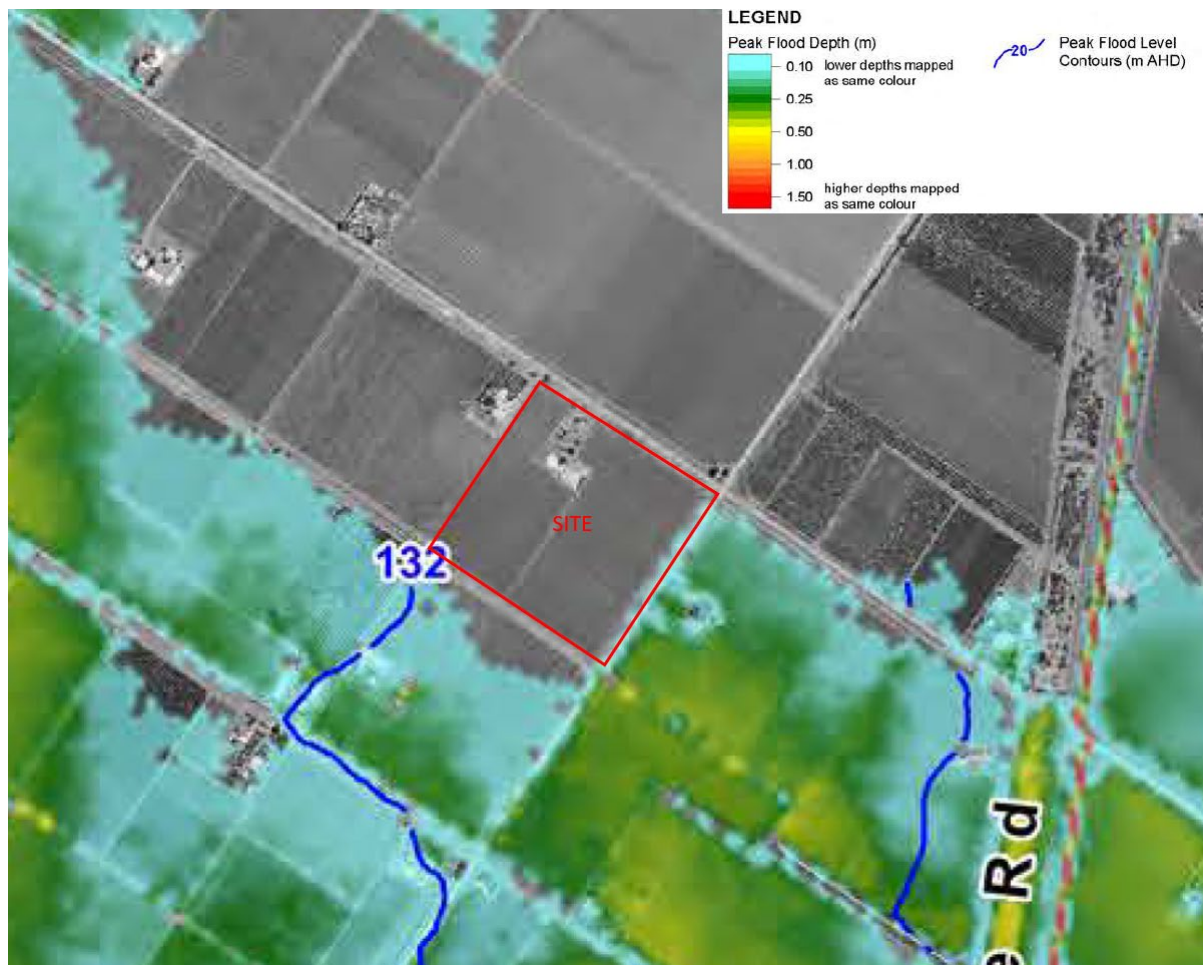


Figure 8: Flood Mapping for the Site

Clause 7.1 Earthworks

- (1) *The objective of this clause is 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.*
- (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 development that is permitted without consent under this Plan or to development for which development consent has been given.*
- (3) *In deciding whether to grant development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters—*
 - (a) *the likely disruption of, or any detrimental effect on, 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 proposal seeks consent for earthworks relating to the excavation of the composting pads to install a plastic liner and forming of additional internal roads. A review of the clause is provided below:

- (a) The earthworks are unlikely to significantly disrupt or have a detrimental effect on drainage patterns and soil stability in the locality. A geotechnical investigation has been prepared which did not find any traces of groundwater within 2 m of the ground surface. All excavation works would be carried out within 1 m of ground level.
- (b) The effect of the earthworks on the future use of the land is essential for the vermiculture facility.
- (c) The quality of the soil to be excavated is suitable for reuse for construction.
- (d) The proposed minor earthworks will not detrimentally impact on the existing amenity of adjoining properties.
- (e) No fill materials would be brought onto the site.
- (f) The likelihood of disturbing relics is low. An AHIMS search has been completed and indicates that there are no known Aboriginal sites or places within 50m of the site. Unexpected finds protocols will be adhered to should relics be located during construction works.
- (g) The subject site is not located in close proximity to any drinking water catchment or environmentally sensitive area.
- (h) Appropriate measures to minimise and mitigate the impacts of the development include implementing appropriate sediment and erosion controls during construction.

Clause 7.3 Terrestrial 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) In deciding whether to grant development consent 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:

The subject property is not identified on the Terrestrial Biodiversity Maps as having areas of significance.

Clause 7.4 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 “Groundwater vulnerable” on the Groundwater Vulnerability Map.*

Commentary:

The subject site is not identified on the groundwater vulnerability maps.

Clause 7.5 Riparian land and watercourses

- (1) *The objective of this clause is to protect and maintain the following—*
 - (a) *water quality within watercourses,*
 - (b) *the stability of the bed and banks of watercourses,*
 - (c) *aquatic and riparian habitats,*
 - (d) *ecological processes within watercourses and riparian areas.*
- (2) *This clause applies to all the following—*
 - (a) *land identified as “Watercourses” on the Riparian Lands and Watercourses Map,*
 - (b) *all land that is within 40 metres of the top of the bank of each watercourse on land identified as “Watercourses” on that map.*

Commentary:

The subject site is not identified on the Riparian Lands and Watercourses Map and is located more than 40 metres from any watercourses.

Clause 7.6 Wetlands

(1) The objective of this clause is to ensure that wetlands are preserved and protected from the impacts of development.

(2) This clause applies to land identified as “Wetlands” on the Wetlands Map.

Commentary:

The subject site is not identified on the on the Wetlands Map.

Clause 7.10 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 vehicular access.*

Commentary:

- The site is supplied with irrigation water from MI through a delivery entitlement. A high-pressure MI pipeline is connected to the site for use.
- All necessary Essential Energy approvals for this infrastructure are in place. No additional demand is expected which would require upgrades.
- A transportable amenities block is proposed. The amenities block would be connected to the sites existing septic system. Alternatively, an additional septic system could be installed. A Section 68 application would be submitted for the installation of the transportable building and connection to septic.
- The site is bunded to retain all leachate on site.
- The site is accessed from Wood Road from an unsealed driveway constructed of road base into a hardstand. The development application is supported by a TIA which has concluded that the surrounding road network can adequately cater for the development without any upgrades.

3.4 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) has been prepared which outlines the requirements for the use of roads in the area. Wood Road is a Council controlled local road (see **Appendix 4**). The site contains separated site entry and exit in a Basic Rural access formation. No alterations are proposed to the existing accessways.

The TIA concluded that the proposal would not cause any significant impacts to the road network which would require any upgrades. The proposal therefore does not include any required Roads Act approvals.

3.5 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). The proposal would be unlikely to impact any threatened or endangered species as it does not include the clearing of any native vegetation. As such, a Biodiversity Development Assessment Report (BDAR) is not considered necessary in this instance.

3.6 Composting Guidelines

The former Department of Urban Affairs and Planning in September 1996 released the EIS Guidelines for Composting and Related Facilities (Composting Guidelines). The proposal does not require the preparation of an EIS; however, the Guidelines have nonetheless been considered. This Guideline places a high priority on assessing environmental factors in site selection to determine the suitability of the site for the facility. It recognises the key issues surrounding composting facilities are air quality, particularly odour, surface and groundwater protection and traffic. An initial site assessment against Table 4 of the Composting Guidelines is provided below:

Table 1: Matters for consideration in initial site investigations (EIS Guideline – Composting)

Factor for Consideration	Comments
Operational Requirements	The site is relatively flat with good transport networks and ready access to raw materials
Surface Water	There are no watercourses on site nor in the immediate vicinity, nor is the site in a drinking water catchment. Stormwater will be directed around the composting site. Stormwater falling onto the composting area will be directed to a water / leachate recycling dam.
Groundwater	The site is not mapped as having vulnerable groundwater. The vermiculture operation will take place on compacted pads with leachate management infrastructure in place including a plastic liner discharging leachate to a collection system and dam. Groundwater is known in the locality to be around 3-5 m below ground. The leachate dam is around 1.5 m deep. During the construction of the dam, groundwater was not intercepted. The dam is lined and leaching into the ground is not possible.
Flooding	The site is not subject to flooding.
Soils	The vermiculture operation is to be undertaken above plastic liner to be installed. There is no evidence of acid sulphate soils, erodibility, sodicity nor soil instability.
Topography	The site and surrounding area are relatively flat and there are no topographic features that will assist with odour or particulate buffering. For this reason, good management practices and monitoring are to be employed to limit off site impacts.
Flora and Fauna	The area of the proposed composting facility is not mapped as terrestrial biodiversity. The site is highly degraded from the planting of horticulture crops.
Transport	The site has good access to the State's classified road network via Wood Road which connects to Burley Griffin Way.

3.7 State Environmental Planning Policy (Infrastructure) 2007

Clause 104 & Schedule 3 – Traffic Generating Development

Schedule 3 requires the referral of any waste facility to TfNSW. However, the potential light and heavy vehicle movements of the proposal is relatively minor. A Traffic Impact Assessment (TIA) has been prepared by Varga Traffic Planning which concludes that the proposed development would not have any unacceptable traffic or parking implications and the safety, capacity and efficiency of the surrounding road network would be maintained to a satisfactory standard.

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 works would be located at least 5 m from the overhead lines and poles running into the site from the main lines in Wood Road. **Figure 9** shows the existing overhead electrical lines in the locality from Essential Energy's Network Mapping System online. The proposal does not include any works near the internal lines which provide overhead electricity to the farm buildings and dwellings. As no works are proposed near Essential Energy infrastructure, a referral under the SEPP is not warranted.

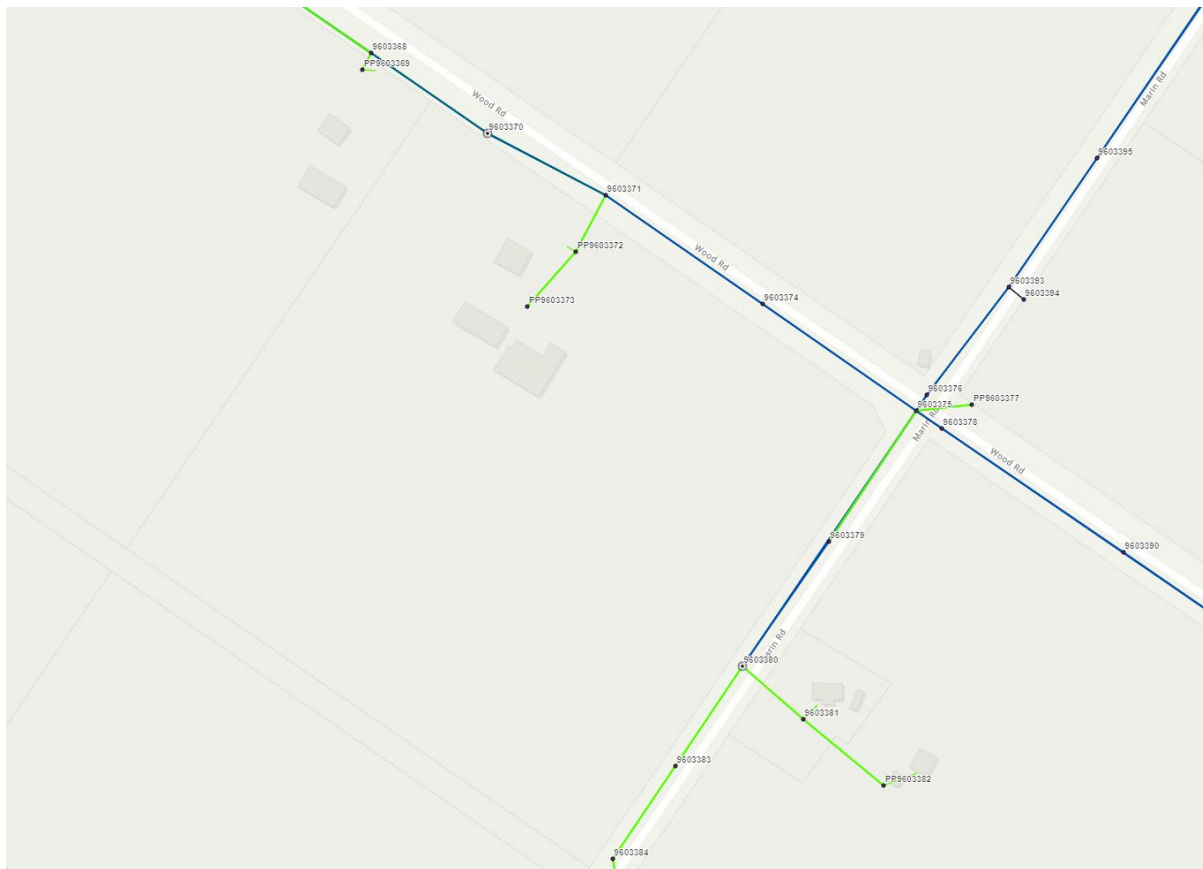


Figure 9: Essential Energy Network

3.8 State Environmental Planning Policy (State and Regional Development) 2007

The SEPP includes classes of State significant development (SSD) in Schedule 1. Waste and resource management facilities:

(1) Development for the purpose of regional putrescible landfills or an extension to a regional putrescible landfill that—

- (a) has a capacity to receive more than 75,000 tonnes per year of putrescible waste,*
- or*

(b) has a capacity to receive more than 650,000 tonnes of putrescible waste over the life of the site, or

(c) is located in an environmentally sensitive area of State significance.

(2) Development for the purpose of waste or resource transfer stations in metropolitan areas of the Sydney region that handle more than 100,000 tonnes per year of waste.

(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.

(4) Development for the purpose of waste incineration that handles more than 1,000 tonnes per year of waste.

(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.

(6) Development for the purpose of any other liquid waste depot that treats, stores or disposes of industrial liquid waste and—

(a) handles more than 10,000 tonnes per year of liquid food or grease trap waste, or

(b) handles more than 1,000 tonnes per year of other aqueous or non-aqueous liquid industrial waste.

The proposal at its full build out would not exceed 5,000 tonnes per year of waste acceptance at the site which is below the threshold for the development to be considered SSD.

3.9 State Environmental Planning Policy (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 childcare 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 horticulture 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:

- 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.
- The proposed use is not sensitive in nature.

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 vermiculture 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. Further assessment is provided in **Section 4**.

3.10 Development Control Plans (DCP)

Development Control Plan 1 Non-Urban Development specifies controls for development in rural zones. It is noted that this policy does not reflect the current zones specified in the Griffith Local Environmental Plan 2014, and the provisions in the DCP are not specific to water vermiculture facilities. Table 2 - General Provisions for Development Other Than Subdivision of Non-Urban Lands has been assessed below for the 1(b) zone equivalent for RU1 Primary Production.

Table 2 - General Provisions for Development Other Than Subdivision of Non-Urban Lands

<p><i>Bulk, Scale, Setbacks and General Amenity Issues</i></p> <p><i>The structure is to be setback a minimum of ten (100) metres from the front boundary where the lot has frontage to an arterial road.</i></p> <p><i>Landscaping</i></p>	<p>No structures are proposed. However, windrows would be located within 10 m from Marin Road and Wood Road. A row of screening vegetation is proposed in this location.</p> <p>The area between the road reserve and the vermiculture pad and finished product storage area would contain a</p>
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Site Access

vegetation buffer with screening trees. A landscape plan can be furnished as a post approval matter. Access to the site is presently from Wood Road. There are no changes proposed to the existing access arrangements.

Stormwater Management

Stormwater will be contained and reused onsite with surplus water to be directed to existing farm drains.

3.11 Griffith Community Participation Plan

The Griffith Community Participation Plan does not list vermiculture as a notifiable development. However, it is expected that Council will notify the neighbours and seek comment due to the nature of the development.

4 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.

4.1 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.
- Outcomes of consultation with Council and EPA.
- The results of specialist studies undertaken as part of this EIS.
- Knowledge and experience at Wormtech Carrathool facility.

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

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

4.2 Impact Evaluation

The environmental impacts of the proposal have been assigned a likelihood between almost impossible to almost 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

4.3 Consequence Evaluation

The environmental impacts have also been assigned a consequence rating between catastrophic and negligible in accordance with **Table 2**.

Table 2: Consequence Evaluation Ratings and Levels

Consequence Rating	Health Safety and	Natural Environment	Community Relations & Cultural Heritage	Damage / Loss	Level
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	6
Severe	Fatality	Very serious long-term environmental impairment of ecosystem function	Very serious widespread social impact. Irreparable damage to valued cultural items	Major \$1 M - \$10 M	5
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	4
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	3
Minor	First Aid Treatment	Minor effects on biological or physical environment	Minor medium-term social impacts	Low Financial Loss <\$10,000	2
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	1

4.4 Risk Assessment Matrix

The environmental impacts have been assigned a risk ranking from negligible to catastrophic as depicted in **Table 3**.

Table 3: Risk Matrix

Likelihood	Consequence					
	Negligible	Minor	Moderate	Significant	Severe	Catastrophic
6 – Certain	6	12	18	24	30	36
5 – Very Likely	5	10	15	20	25	30
4 – Likely	4	8	12	16	20	24
3 – Possible	3	6	9	12	15	18
2 – Unlikely	2	4	6	8	10	12
1 – Almost Impossible	1	2	3	4	5	6

4.5 Risk Assessment

Table 4 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 proposal, following the implementation of mitigation measures (residual risk), with a risk rating above 'low'.

Table 4: Risk Assessment

Issue	Aspect	Potential Impact	Likelihood	Consequence	Risk Rating	Mitigation	Residual Risk
Air Quality	<ul style="list-style-type: none"> Vehicle movements. The receival and composting of organics. Use of pelletising plant. 	Elevated levels of dust and odour emissions.	Likely	Moderate	Medium	<ul style="list-style-type: none"> Cover loads. Wet dry soils and compost. Cover new waste with finished compost or bury in the ground. Avoid feeding and turning windrows in adverse weather conditions. 	Low
Traffic	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Implement driver code of conduct. All-weather surface on internal roads. Establish adequate parking. 	Very Low
Noise	<ul style="list-style-type: none"> Vehicle and truck movements. Operational noise including turning windrows and loading and unloading of trucks. 	Potential generation of offensive noise at receivers.	Possible	Minor	Low	<ul style="list-style-type: none"> Avoid feeding and turning windrows in adverse weather conditions. Avoid carrying out multiple noise intensive procedures continuously. Carry out loading and unloading activities during daytime hours. Do not operate outside standard hours. 	Very Low
Groundwater and Surface Water	<ul style="list-style-type: none"> Stormwater and leachate management. 	Contamination of surface and groundwater due to issues with the pads, bunding and leachate management system.	Possible	Minor	Low	<ul style="list-style-type: none"> Limit storage of oil/chemical. Implement spill management procedures. Install plastic liner and test adequacy following installation. Maintain all surfaces and water management systems and monitor integrity. Implement testing regime for contamination of ground and surface water. 	Very Low
Waste Management	<ul style="list-style-type: none"> Receival, consolidation, and composting of organics. 	Land and water contamination due to poor management of the site.	Possible	Minor	Low	<ul style="list-style-type: none"> Operate the facility in accordance with a waste management plan. 	Very Low
Visual	<ul style="list-style-type: none"> Visibility of the proposed new infrastructure. 	Impact to visual amenity of existing environment.	Possible	Minor	Low	<ul style="list-style-type: none"> 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 2 m. 	Very Low

							<ul style="list-style-type: none">- Ensure non-conforming wastes remain in the bunker.- Plant a landscape buffer around the vermiculture pad and finished product area	
Aboriginal Heritage	<ul style="list-style-type: none">• Ground disturbance during construction.	Disturbance of Aboriginal artefacts, sites or places of cultural heritage significance.	Unlikely	Negligible	Very Low		<ul style="list-style-type: none">- Establish Unexpected Finds Protocol including consultation with local and State government agencies and registered Aboriginal Parties.	Very Low
Biodiversity	<ul style="list-style-type: none">• 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		<ul style="list-style-type: none">- 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 SEE provides a detailed assessment of each potential issue or impact as identified in the following sections. The issue which has the potential to have a residual risk rating of low are considered to be air quality

The Air Quality Impact Assessment (AQIA) prepared by Soundin 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.

5 Impact Assessment

This section provides an assessment of the potential impact arising from the proposal. The impact assessment is based on the matters for consideration listed in Section 4.15 of the EP&A Act.

5.1 Air Quality

Background

An AQIA has been prepared by SoundIn Consultants. This Assessment is attached at **Appendix 3**. The site is in a rural area to the west of Yenda which contains horticulture farms, rural industries and some farm dwellings. There are two dwellings located within 500 m of the vermiculture site (see **Figure 10**).



Figure 10: Location of Sensitive Receptors

Table 5: Odour and Air Quality Sensitive Receivers

Receiver	Address	Description
R1	120 Marin Road, Yenda	Residence
R2	229 Barracks Road, Yenda	Residence

Long term meteorological data for the area surrounding the site is available from the Bureau of Meteorology (BoM) weather station at the Griffith Airport. The weather station is located approximately 17 kilometres west of the site and records observations of several meteorological parameters including temperature, humidity, and rainfall.

Long term climatic trends are provided in **Table 6**. As is evident, January is the hottest month with a mean maximum daily temperature of above 30 degrees Celsius. July is the coolest month with a mean minimum daily temperature of around 5 degrees Celsius.

Table 6: Climate Trends at Griffith Airport

Obs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
9am mean temperature and humidity													
Temp(°C)	23.0	21.7	18.5	15.3	10.6	7.9	6.9	9.0	12.3	16.8	18.8	21.3	15.2
Hum(%)	49	58	60	66	78	87	88	79	70	56	56	49	66
3pm mean temperature and humidity													
Temp(°C)	30.6	30.2	27.0	22.8	18.2	14.3	13.3	15.5	18.9	22.8	26.0	28.6	22.4
Hum(%)	28	34	37	41	53	63	62	54	47	37	35	31	43
Daily minimum and maximum temperatures													
Min(°C)	17.4	17.4	14.3	10.3	7.0	4.5	3.5	3.8	5.9	9.2	12.8	15.3	10.1
Max(°C)	33.2	32.3	28.8	24.1	19.2	15.5	14.7	16.6	20.1	24.2	28.1	31.1	24.0
Rainfall													
Rain(mm)	36.0	28.1	36.2	29.1	35.5	35.4	32.8	35.3	33.4	40.8	35.5	32.5	406.7
Rain Days	3.3	2.6	3.0	3.2	4.2	4.9	5.5	5.6	4.7	4.7	3.6	3.3	48.6

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 406.7 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.

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 the 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 odour units (OUs) to be experienced at a sensitive receiver. Acceptable levels of OU's range from 2 OU for urban areas to 7 OU for a rural area. For context, the Baiada poultry processing facility in Griffith utilised 7 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 two dwellings being located within 500 m of the site.

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:

- Vermiculture windrows
- Input material stockpiles
- Leachate storage dams.

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

Table 7: Specific Odour Emission Rates.

Source	SOER (OUv/m ² /s)	Reference
Finished compost	0.15	Northstar, 2022
Spent poultry litter	0.3	Northstar, 2022

Table 8: Odour Sources and Emission Rates

Source	Area	SOER (OUv/m ² /s)	Odour emission rate (OU/s)
Vermiculture windrows	16,704	0.15	2,506
Input stockpiles	5,437	0.3	816
Windrow leachate	1,192	0.3	358
Stockpile leachate	378	0.3	113

Assessment of Impacts

The AQIA predicted the odour concentrations which are provided in **Table 9**.

Table 9: Predicted Odour Concentrations

Receiver	Predicted OU	Impact Criterion	Complies?
R1	7.0	7.0	Yes
R2	3.0	7.0	Yes

As is evident by **Table 9** the predicted worst case scenario odour impacts of the development would be below the relevant assessment criteria for the rural locality.

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.
- Transfer organics to windrows as soon as possible after receipt to dilute the odour potential.
- 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.

Conclusions

The AQIA at **Appendix 4** 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.

5.2 Soils

The proposal has been informed by a Geotechnical Investigation prepared by Aitken and Rowe:

- Geotechnical Investigation Existing Vermiculture Facility, LOT 487, No. 224 WOOD ROAD, YENDA, NSW

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 vermiculture operations pad area and separate borrow pit area.

The Geotech suggests general topography of the area is flat, gently undulating low tablelands. The Yenda area is underlain by alluvial flood plain deposits of black and red clayey silt, sand and gravel soils of Quaternary Deposit of Cainozoic Age in accordance with 1:250,000 Scale "Metallogenic Series Sheet SI/55-10 for Narrandera".

Investigation

The Geotech consisted of three boreholes (BH1 to BH3) which were drilled across the vermiculture pad area to depths of 2.0 m (see **Table 9**). The borehole locations were selected to be representative of the entire vermiculture pad area.

Aitken Rowe's investigation found the following:

The permeability test carried out on the natural clay-based material from BH1 indicates the permeability of 8x10⁻¹⁰m/sec on high plasticity silty clay, which was compacted at 100% of SMDD at nearest 100% of SOMC. The dispersion (Emerson Class) tests carried out on the same samples showed "Emerson Class 4" and therefore the clay-based materials are considered "potentially slightly dispersive". The laboratory test reports are attached.

The laboratory tests carried out on the fill and natural silty clay material recovered from BH3 indicated that the material generally contains 0 % gravel, 31 to 34% sand, 31 to 32% silt and 34 to 38% clay content with Plasticity Index (PI) of 17 to 18%. The material is generally classified as "CL –

Sandy Silty CLAY; low plasticity, fine to coarse sand” in accordance with “AS1726 -2017 Geotechnical Site Investigations”.

The permeability test carried out on the natural clay-based material from BH3 indicates the permeability of 9×10^{-9} m/sec on low plasticity sandy silty clay, which was compacted at 95% of SMDD at nearest 100% of SOMC. The dispersion (Emerson Class) tests carried out on the same sample showed “Emerson Class 3” and therefore the clay-based materials are considered “potentially moderately dispersive”. The laboratory test reports are attached.

These results were found to be within the Department of Environment and Conservation (NSW) environmental guidelines for “Composting and Related Organics Processing Facilities (1.0×10^{-7} m/sec) for composting pads provided the subgrade material is compacted to 98% SMDD at nearest 100% of SOMC.

No groundwater was intercepted during the investigations.

Results and Aitken and Rowe Opinion

Based on the investigations carried out in the Geotech, Aitken and Rowe

It is our professional opinion that the fill and natural impermeable clay-based material encountered across the existing vermiculture pad is considered an adequate and suitable natural geological barrier between the groundwater, soil and substrata and the vermiculture across the site. It should however be noted the DCP and DIS tests at the location of BH2 (DCP2), BH3 (DCP3), DIS 3 and DIS 6 showed either poorly compacted fill or firm and firm consistency natural material to depths of 0.5m to 0.7m below the existing surface level which is considered “unsuitable” and therefore “reworking” of the surface material is highly recommended to a minimum depth 0.5m to 0.7m across the existing vermiculture pad in order to achieve the required compaction of 98% SMDD with the permeability requirements.

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

- *Remove topsoil, if any, and fill to a minimum depth of 0.5m to 0.7m and stockpile for later use for landscaping and fill as appropriate.*
- *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 fill or natural material should then be scarified to a depth of about 200mm; moisture conditioned to within 0 to -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 (i.e. sand) can be applied over the surface to protect from cracking.



Figure 11: Borehole Location

Wormtech carefully reviewed the Geotech and have decided to pursue the use of a plastic liner instead of a clay liner as discussed with Council. The plastic liner and wastewater collection system are described in Section 5.3 below.

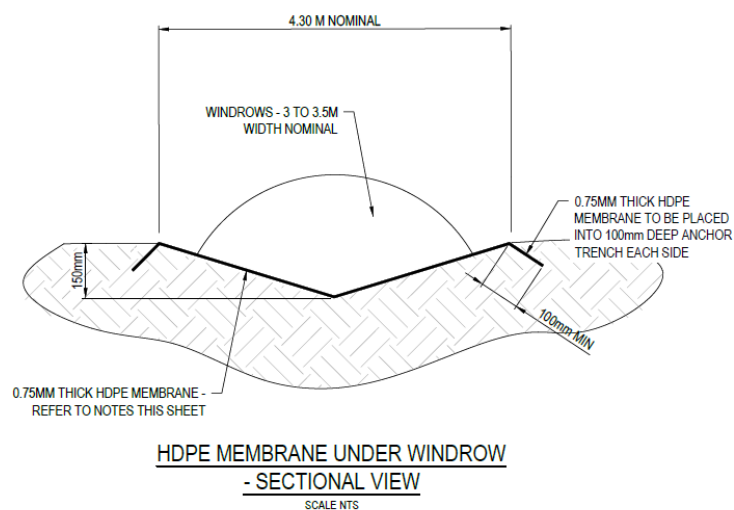
Conclusions

The investigations, conclusions, and recommendations of the Geotech report have provided the Applicant with the surety that the facility can be constructed to meet all the requirements of the Composting Guidelines without the use of a plastic liner. However, Wormtech believes the plastic liner would provide the best solution to achieve a sustainable impervious layer to collect and convey leachate to the lined dam. The liner would remain in situ and there would be less ongoing maintenance required as compared with a clay pad surface which would require re-compaction if the clay barrier were damaged.

5.3 Water and Leachate Management

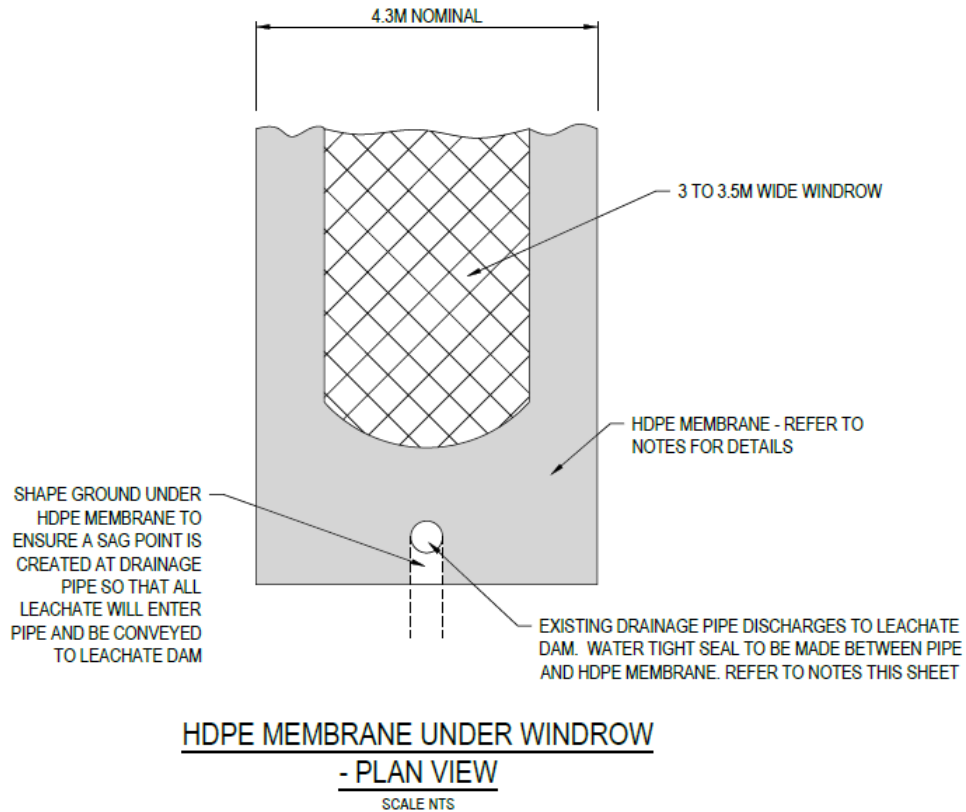
A Water Management Plan (WMP) has been prepared by Sustainability Workshop and is available at **Appendix 5**. The WMP includes the following leachate management system:

- Installation of an EPA compliant HDPE membrane under each windrow to be 0.75 mm thick
 - The Composting Guideline requires that the saturated hydraulic conductivity of the membrane to be less than 1×10^{-7} . The 0.7mm thick geomembrane complies with this requirement.



- To protect the membrane during harvesting of compost, the bottom 100mm of compost would remain in-situ.
- Each windrow would be constructed to fall to a collection pipe at the end of the windrow which discharges directly to the 1.5 ML leachate collection dam.
 - This system is presently in place at the facility and works efficiently to collect leachate without issue. The modification to the system would involve the

installation of the geomembrane to ensure leachate does not interact with the subsurface on the vermiculture pad area.



- The 1.5 ML lined leachate collection dam would continue to be utilised without modification.
- Leachate in the collection area is diluted with stormwater run-off from areas of the farm not used for windrowing.
- The diluted leachate is then pumped from the leachate collection dam using a hard hose irrigator and applied to each windrow as needed during the composting process.
- At the end of the vermiculture cycle the compost is harvested and transferred to the western side of the site.
- During storage of the composted and matured product any stormwater would be conveyed overland and collected in a new 1.5 ML lined storage dam. Detailed plans for the dam can be provided post approval.

- This stormwater would be utilised on the windrows via the pump system as Wormtech has noticed there is a deficit in water needed.

The proposed stormwater and leachate system would be considered a 'closed system', and no water would leave the site.

Mitigation Measures

Once installed, the leachate and stormwater conveyance and collection system would be monitored by Wormtech. Monitoring would include the following:

- Visual inspection of the geomembrane after each harvest
- Monitoring water levels in the leachate and stormwater dams and visual inspection of the liner during dry periods when the dams are not full.
- Bunding of the eastern and western boundaries to ensure leachate and stormwater stay within the vermiculture facility

Conclusions

The leachate and water management impacts of the proposal have been carefully considered by Wormtech and Sustainability Workshop. All leachate would be collected from the geomembrane lined windrows and discharged to the lined stormwater dam. Wormtech would ensure this system is monitored and in good working order as the reuse of the collected leachate is a valuable additive to the vermiculture process.

5.4 Noise and Vibration

Potential sources of noise in the operations of the facility include:

- Movement of tractors and equipment through the windrows.
- Operation of the screening plant prior to dispatch.
- Trucks unloading organics.
- Truck movements into and out of the site.

Noise from the facility is comparable to other horticulture and viticulture operations in the area.

There are two sensitive receivers for noise located within 500 m of the site.

Receiver	Address	Description
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R1	120 Marin Road, Yenda	Residence
R2	229 Barracks Road, Yenda	Residence

Wormtech have been operating the vermiculture facility since 2015. During this time the site has been operating in the same manner as proposed in this development application. Also, during this time, no noise complaints have been received from neighbours. The site operates during standard daylight hours and turning of windrows takes place in the late morning or early afternoon, during times which nearby receivers would be less sensitive to noise. There are no proposed operations during evening and nighttime periods.

SoundIn consultants, who are specialists in noise assessment, attended the site at full operation and did not consider the noise produced from the operations of the site to warrant the preparation of a Noise Impact Assessment. During several visits to the site, SKM Planning also did not foresee the noise generation of the site to be dissimilar from other ongoing agricultural operations in the locality.

It is not expected that noise impacts would cause amenity issues at nearby receivers. 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.

5.5 Traffic

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 Varga Traffic Planning (see **Appendix 4**). The TIA assessed the worst-case scenario traffic impact of the development at full operation.

Road Network

Wood Road is rural, unclassified road which provides a connection between Burley Griffin Way and Northern Branch Canal Road and comprises a two-way rural road with unsealed road shoulders. The site gains its primary access from Wood Road.

Marin Road is a local, unclassified road which links Whitton Road and Northern Branch Canal Road, and comprises a two-way rural road with unsealed road shoulders. Marin Road is located at the eastern boundary of the site. No access to Marin Road from the site is proposed.

Burley Griffin Way is classified by TfNSW as a State Road and provides the key east-west road link in the area between Griffith and Ardlethan. It typically carries one traffic lane in each direction. Kerbside parking is not permitted on both sides of the road. Wood Road connects to Burley Griffin Way via a channelised intersection.

Whitton Stock Route Road is classified by TfNSW as a Regional Road and links Mirrool Avenue and Whitton Stock Route Road in Yenda. It typically carries one traffic lane in each direction. Kerbside parking is generally not permitted on both sides of the road. Wood Road connects to Whitton Stock Route Road to the east.

Accessways

The site contains a truck entry and a truck exit. Each accessway is 6 m wide, with tapers extending out to 20 m. Trucks would enter via the eastern accessway and exit via the western accessway. The site has been operating with B-double combination vehicles entering and exiting the site without an issue.

Another designated accessway is provided for the dwelling which is utilised by the managers of the site. This accessway is 5 m wide with 16 m tapers and is considered suitable for light vehicle use.

Traffic Generation

The TIA calculated that there would be around 250 truck movements per year or around 5 per week. The TIA modelled a worst-case scenario of two truck movements per day and 10 light vehicle movements per hour during morning and afternoon peak periods.

Table 10: Projected Peak Hour Traffic Generation Potential

<i>Vermiculture Facility</i>	AM Peak Hour			PM Peak Hour		
	IN	OUT	Total	IN	OUT	Total
Transportable Office	2	0	2	0	2	2
Farm dwelling	2	0	2	0	2	2
Other facilities	4	0	4	0	4	4
Truck Delivery	1	0	1	0	1	1
Total	9	0	9	0	9	9

The TIA concluded the following regarding the potential traffic impacts of the development:

The projected maximum traffic generation potential of the site of 9 vph as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, particularly given that the existing agriculture development has been operating since 2015, and no complaints have been made from nearby residents.

Parking

The proposal includes the continued use of ten parking spaces located adjacent to the front landscaping area. The parking spaces are informal in nature but can be established using line-o-dots. A total of eight employees would be on the site at any given time. Each employee would have a parking space and two spaces would be reserved for visitors to the site. As such, the parking requirements of the proposed development have been catered for on site.

Conclusions

The potential traffic impacts of the development have been carefully considered in the SEE including the TIA. The site is located on an unsealed Council Road connected to the Burley Griffin Way which is a classified road. 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.

5.6 Hazards and Risks

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.

Existing Land Uses and Storage

The site contains the Wormtech composting facility which does not require fertilisers or pesticides which could be classed as DG's. The limited storage of the following potential DG's and quantities are carried out on site:

- 1800 litre of diesel fuel stored in an elevated tank.

No additional DG's are proposed to be stored on site.

The following land uses surround the development site:

- Agricultural operations with some ancillary dwellings

Methodology

The Preliminary Risk Screening (PRS) methodology is based on Appendix 2 of the Applying SEPP 33 Guideline. The quantities of DG's 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.

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 DG's, 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).

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.

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.

5.7 Visual Impact

The proposal includes the construction of a vermiculture 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 20 m from Marin Road and Wood Road (carriageways). The site is relatively rural in nature with only two farm dwellings, not associated with the site, located within 500 m of the site with views to the vermiculture facility. 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.

Photos of the Site



Figure 12: View of Composting Facility from Wood Road



Figure 13: View of Windrow Feeding from Marin Road

Receiver Locations

The development site is located on Wood Road in Yenda which is a rural location with very few visual receivers which have a view of the facility including the vermiculture rows. The vermiculture facility would be visible from Wood Road and Marin Road. However, the area is agricultural in nature and the windrows would not be dissimilar from other farming operations in the locality. There are two visual receivers within 500 m with a view to the site from a dwelling.

A dwelling is located at 120 Marin Road to the east of the windrows, and another is located at 229 Barracks Road (see **Figure 14**).



Figure 14: Visual Receiver Location

Overview of Visual Impact

The vermiculture facility will be visible from Marin Road. The main visual impact of the development from users of Marin Road would be from the windrows and the leachate dam which would be located around 20 m from the road. The Applicant has proposed a bund with a landscape buffer to mitigate some of the visual impact of the development for road users.

The windrows would have a maximum height of around 2-3 m and would decrease in height during the vermiculture process. Around 150 m from the road carriageways are the waste stockpiles and existing sheds.

Visual Impact at 120 Marin Road

The area around the dwelling at 120 Marin Road contains extensive vegetation (see **Figure 15**). Views from internal and external private areas for the dwelling at 120 Marin Road would have a substantially screened view of the windrows due to the existing vegetation and the proposed landscape buffer.

Visual Impact at 229 Barracks Road

The windrows and external stockpiles and other infrastructure are located to the north of the dwelling (see **Figure 16**). Views from internal and external private areas for the dwelling at 229 Barracks Road would not have a direct view of the vermiculture facility due to the location of an existing farm building with a length of 42 m and a height of 5 m.



Figure 15: View Analysis from 120 Marin Road

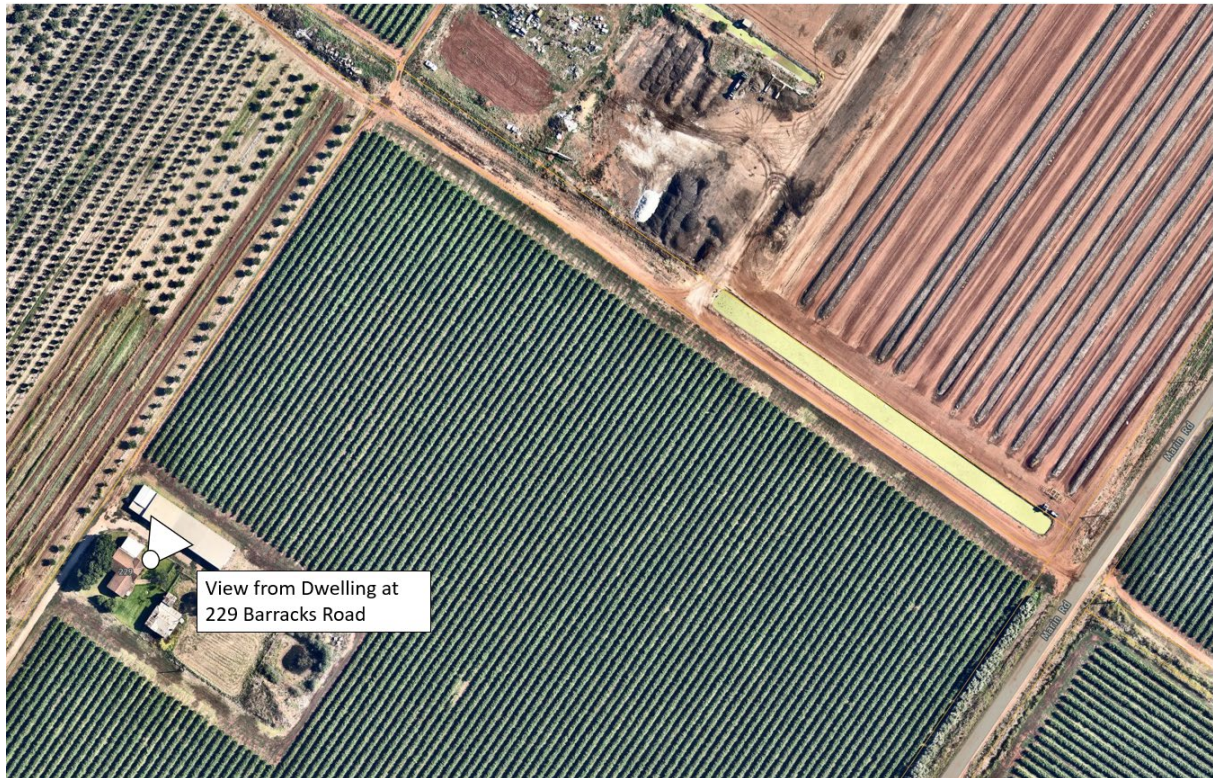


Figure 16: View Analysis from 229 Barracks Road

Based on a view analysis of each of the dwellings in the context of the vermiculture facility it is concluded that none of these receivers would have a direct and unobstructed view of the facility due to the following factors:

- Flat topography of the area.
- Presence of native vegetation and farm buildings around the dwellings.
- Proposed landscaping buffers.

As the surrounding sensitive receivers are connected to active farming operations and the visual qualities of the proposal are representative of an agricultural setting, the visual sensitivity of the receiver is considered low and the visual effect of the proposal on the receiver is considered low-medium. The overall visual impact of the proposal on the receivers is considered low-medium.

Table 11: Visual Assessment

Viewpoint	Visual Sensitivity	Visual Effect	Visual Impact
120 Marin Road	low	low-medium	low-medium

229 Barracks Road	low	low-medium	low-medium
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Mitigation Measures

Wormtech 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.
- Keep the site in a neat and tidy state and house machinery in farm buildings.
- Install a landscape buffer to partially screen the view of the site from the road and receivers.

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 Marin Road and Wood Road presently would not warrant additional mitigation measures subject to the planting of the landscape buffer.

6 Justification and Conclusion

Based on the assessment carried out in this Statement of Environmental Effects 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 and vermiculture 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 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 vermiculture facility site was 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 Statement of Environmental Effects has concluded that the vermiculture facility can operate at full production without causing amenity impacts on receivers in the area by way of dust, odour, traffic 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 Statement of Environmental Effects 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.