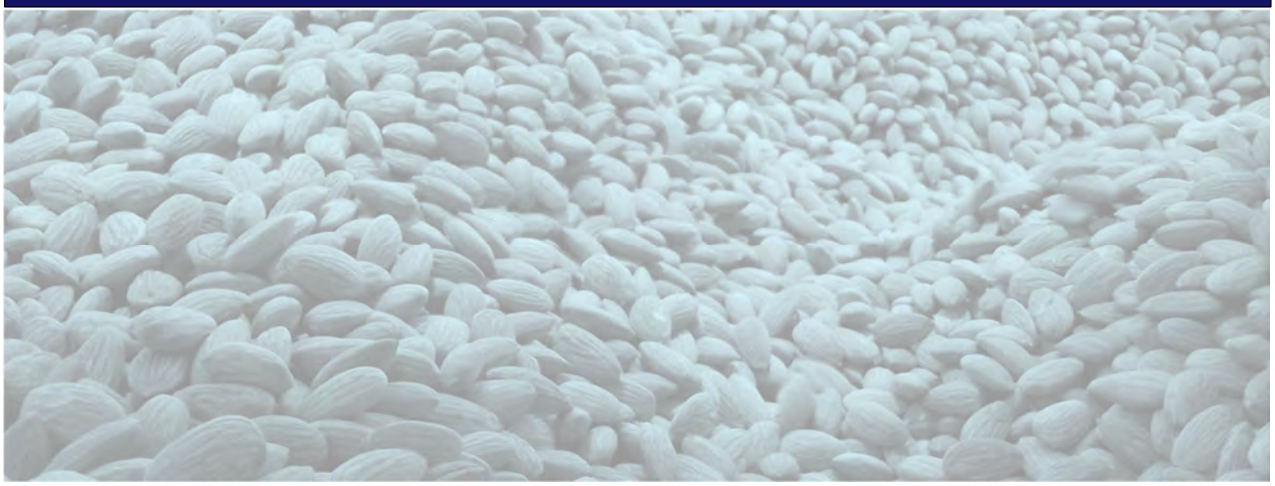
Statement of Environmental Effects

for the construction and operation of an Almond hulling and shelling facility at 580 Swan Hill Rd, Murray Downs, NSW 2731

November 2022

Progressive Rural Solutions www.prsltd.com.au



Document Information Record

Project Details

Client name:	Canally Orchards Pty Ltd As Trustee For Canally Orchards Trust
Project:	Construction and operation of a new almond hulling and shelling Facility at 580 Swan Hill Rd, Murray Downs NSW
Project No:	J280-0

Document Control

Document Title	Statement of Environmental Effects for the construction and operation of a new almond hulling and shelling facility (<30,000t throughput) at 580 Swan Hill Rd, Murray Downs NSW		
File Name:	J280 – SEE – V1R5		
Revision:	V1R5		
Author	Rebecca Moodie	**Position:**	Consultant
Signature:	RMoodie	**Date:**	07/11/2022
Reviewed by:	Clare Fitzpatrick	**Position:**	Director
Signature:	Clare Fitzpatrick	**Date:**	07/11/2022
Approved by:	Jeremy Glassel	Position:	Project Manager
Signature:	Per email	**Date:**	07/11/2022

The above parties have reviewed, prepared and proposed this application to consider the relevant matters in the Development Referral Guide, NSW Dept of Planning and Environment, Sept 2022.

Revision History

Version	Issue date	Reason for issue	Author	Reviewed by	Approved by
V1R1	18/08/2022	Initial Document	Clare Fitzpatrick	NA	NA
V1V2	01/11/2022	Draft	Clare Fitzpatrick	Rebecca Moodie	NA
V1V3	03/11/2022	Preliminary draft	Clare Fitzpatrick	Jeremy Glassel	NA
V1R4	07/11/2022	Final Draft	Clare Fitzpatrick	Rebecca Moodie	Jeremy Glassel
V1R5	07/11/2022	FINAL	Clare Fitzpatrick	Jeremy Glassel	Relevant authorities

Distribution

Version	Recipient	Lodgement	Copies
V1R3	Client's representative for preliminary review	Electronic	1
V1R4	Client's representative for final review	Electronic	1
V1R5	Murray River Council for lodgement	Electronic	1
V1R5	Building Certifier	Electronic	1
V1R5	Client/Contractor	Electronic & Hard	2

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Related Documents

Title	Version	Prepared by	Doc Type	Date
Owners Consent	1.0	Property Owner (Martin)	Consent	26/10/2022
NSW Property Planning Report	1.0	NSW DPE	Search Report	01/06/2022
Cost Estimate	1.0	Process Innovations	Cost Review	07/11/2022
Title Search	1.0	Dye and Durham	Search	07/11/2022
Traffic Impact Assessment	-	TrafficWorks	Report	08/09/2022
Acoustics Assessment	C	Waveform Acoustics	Report	08/11/2022
Aboriginal Heritage Due Diligence Assessment	-	Landskape	Report	07/11/2022
AHIMS Search	1.0	OEH - Basic Search	Search Report	21/07/2022
AHIMS Search	1.0	OEH – Extensive Search	Search Report	21/07/2022
Biodiversity Values Map and threshold report	1.0	NSW DPE	Search Report	25/10/2022
Protected Matters Search	1.0	Department of Agriculture, Water and the Environment	Search Report	25/10/2022
Connection Investigation Response	1.0	Essential Energy	Investigation	June 2022
Site Photos	1.0	Progressive Rural Solutions	Photos	As shown
Preliminary Regulatory compliance assessment	1.0	Brent Williams and Associates Pty Ltd	Report	August 2022

Related Plans

Plan Number	Revision	Plan Title	Prepared by	Date
S1166-sht 1	A	Cover Sheet	Price Merrett Consulting	04/11/2022
S1166-sht 2	A	Existing site plan	Price Merrett Consulting	04/11/2022
S1166-sht 3	A	Development footprint plan	Price Merrett Consulting	04/11/2022
S1166-sht 4	A	Development layout plan	Price Merrett Consulting	04/11/2022
S1166-sht 5	A	Detail layout plan – north	Price Merrett Consulting	04/11/2022
S1166-sht 6	A	Detail layout plan – south	Price Merrett Consulting	04/11/2022
S1166-sht 7	A	West-east long sections	Price Merrett Consulting	04/11/2022
S1166-sht 8	A	South to north long sections	Price Merrett Consulting	04/11/2022
S1166-sht 9	A	Site traffic plan	Price Merrett Consulting	04/11/2022
S1166-sht 10	A	Surface finish plan	Price Merrett Consulting	04/11/2022
S1166-sht 11	A	Catchment and drainage plan	Price Merrett Consulting	04/11/2022
S1166-sht 12	A	Proposed entrance	Price Merrett Consulting	04/11/2022
S1166-sht 13	A	Cut-fill plan	Price Merrett Consulting	04/11/2022
C627-A100	H	Cover Sheet	JMA Engineering	28/10/2022
C627-A101	H	Site Plan – overall	JMA Engineering	28/10/2022
C627-A102	H	Site Plan – enlargement	JMA Engineering	28/10/2022
C627-A300	H	Elevations	JMA Engineering	28/10/2022
C627-A301	H	North-West 3dview	JMA Engineering	28/10/2022
J280-Sht1	V1R3	Bushfire Protection	Progressive Rural Solutions	08/11/2022

Confidentiality

No information in this report has been classified as confidential.

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1. INTRODUCTION

1.1. ORGANISATION

This Statement of Environmental Effects has been prepared by Progressive Rural Solutions on behalf of Canally Orchards as trustee for Canally Orchards Trust (Canally Orchards) to accompany a Development Application to construct and operate a less than 30,000 t per annum capacity Almond Shelling and Hulling Facility at Murray Downs NSW.

Progressive Rural Solutions – Clare Fitzpatrick will be the contact person throughout the application process. The project manager who will oversee construction is Mr Jeremy Glassel of Process Innovations who will be the contact person during construction phase of the project. The applicant, developer and operator of the approved site once constructed and commissioned will be Canally Orchards Pty Ltd.

1.2. PURPOSE

This Statement of Environmental Effects (SEE) has been prepared by Progressive Rural Solutions (PRS) to accompany a development application for an Almond Hulling and Shelling Facility at 580 Swan Hill Rd Murray Downs. The application is being made under Part 4 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act) and *Environmental Planning and Assessment Regulation* 2021 (EP&A Reg).

The EP&A Reg requires applications for certain developments to be in the approved form - being one that has been approved by the Planning Secretary. This report has been prepared to meet the mandatory documents and drawings identified as required to accompany an application made under the EP&A Act 1979. The Planning Circular titled 'Application Requirements', March 2022 has been reviewed and the related information included in this report. The information provided in this report has also been prepared in consideration of the relevant matters in the *Development Referrals Guide, NSW Dept of Planning and Environment, Sept 2022*.

1.3. REPORT FORMAT

This report is set out in the following format:

Table 1-1 – Table showing report format

Section	Address
1	Purpose, documentation and background.
2	Project description and analysis.
3	Planning context.
4	Engagement and application requirements
5	Environmental Assessment.
6	Mitigation, Management and Monitoring Measures
7	Conclusions.
References	Reference to material used during the assessment and report writing
Appendices	References, Plans and supporting reports.

1.4. APPLICATION TYPE

This application is being made as a local development for review by the Murray River Council.

Concurrence and referral authorities for this application include:

- **Transport for NSW – Roads** – Concurrence and Referral as a result of traffic generating development and connection to a regional road – including an upgraded driveway entrance.

Further detail of concurrence and referral requirements for this application are included in this report in **Section 4** of this report.

1.5. PROJECT VALUE

The total value of this project is just over $27.5 Million (incl GST). Details on the specifics of the project works values have been provided in the attached cost estimate report.

1.6. PROJECT BACKGROUND AND SUMMARY

Increased global demand for plant-based healthy foods such as nuts and nut products has seen Australia become a world leader in almond production. Almonds are grown in Australia across four states with over 15.4 million trees planted and no indication of the industry slowing down. The NSW Riverina region accounts for more than 35% of Almond trees. It is forecast that as the current plantations mature, and there is a significant increase in production volume, there will be insufficient resources to meet almond drying, shelling and hulling requirements within the region. Projected grown within the almond industry has identified that there will be insufficient capacity within the existing Almond facilities to receive, dry and separate the valuable almonds from its shell and hull. This facility is proposed to meet that demand and is planned for receival of the 2024 harvest.

Canally Orchards Pty Ltd, being part of Australian Farming Services, has the capability of being Australia's third largest almond producer. Since 2016, they have established over 4,000ha of almond orchards within the Riverina, including planting more than 1.4 million trees. The company currently employs in excess of 60 staff relating to orchard operations. Canally Orchards have identified a significant gap between their almond production volume and the available resources to produce an edible and saleable nut. To manage this, for both theirs and other growers, they are proposing to construct a new Almond Facility at Murray Downs, NSW.

The site proposed for this facility is located on the property known as 'Marill' 580 Swan Hill Road, Murray Downs being formally identified as Lot 3 DP238154 within the Parish of Yellymong, County of Wakool. The entire property encompasses an area of 348ha however the facility site proposes to occupy an area of 31ha. This property has been operated as a cropping property for a significant length of time and offers multiple benefits to the proposal with relation to vicinity to growing areas and labour, suitable sealed road access, a modified site dominated by exotic species and the vicinity to essential services such as electricity.

Figure 1-1 and **Figure 1-2** below show the location of the proposed hulling and shelling facility within the States of NSW and Victoria followed by the local region.

Figure 1-1 - Map showing location of project site within the State (Source: Google earth)

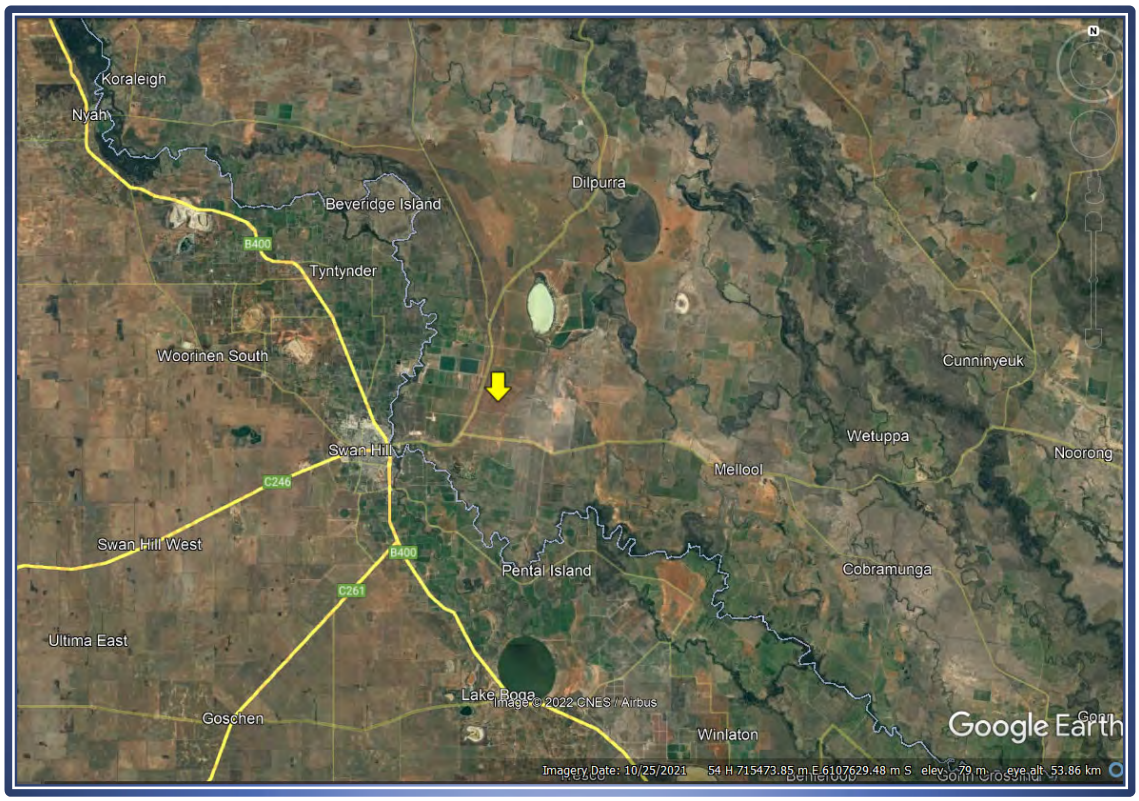


Figure 1-2 - Location of the project within the region (Source: Google Earth)

The almond hulling and shelling facility has been proposed recognising the current operation requirements and future growth as the almond orchards it services mature into full production. The proposed facility relating to this application and assessment will have an annual throughput of less than 30,000t.

The almond industry is in a period of extensive growth, the proposed throughput volume related to this application will meet the industry immediate needs only. The site and proposed development has the ability to expand with industry demand. Acknowledging this, at the time of an increase in throughput volume in excess of 30,000t, the operation will need to make further application in the form of a designated development application to seek approval for this increased activity. This application will also require an assessment relative to an Environmental Protection Authority licence.

The objectives of this project are to:

- Construct a state of the art, almond drying hulling and shelling facility to support orchards in the Sunraysia and Riverina.
- To recognise the industry shortage in whole almond shelling post 2023 and increase the almond industry capacity for drying, cleaning hulling and shelling.
- To vertically integrate the Canally Orchards production, value adding to the existing operation.
- To construct a facility with sufficient capacity, area and ability to upscale its operations and allow for future processing of almonds grown in the region.
- To ensure responsible development of the facility with minimal environmental and human impact.
- To meet local, regional and state planning requirements undertaking responsible and economically sustainable development.
- To establish additional employment opportunities within the region including developing opportunities for specialise skills required throughout the almond industry.

The proposed facility and its location within the property is shown in the following images.

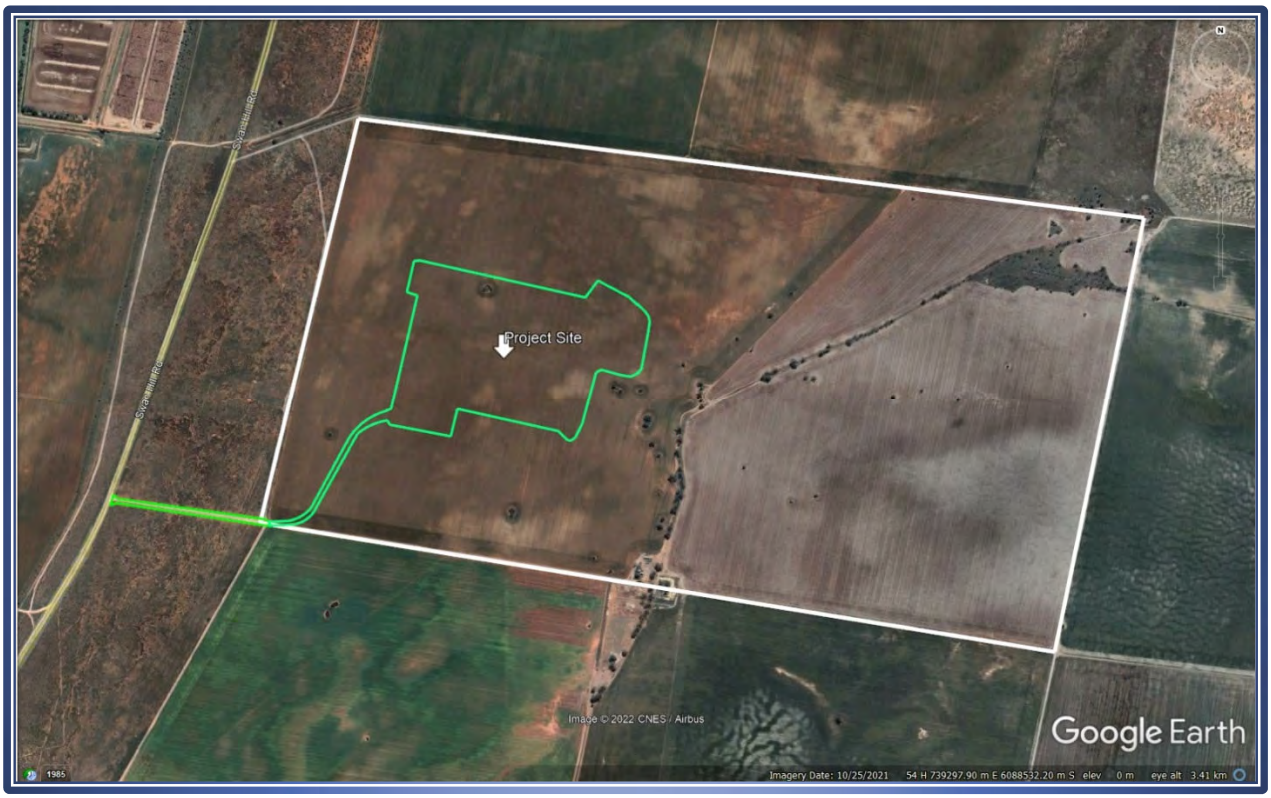


Figure 1-3 - Location of project within the property (Source: Google Earth 2022)

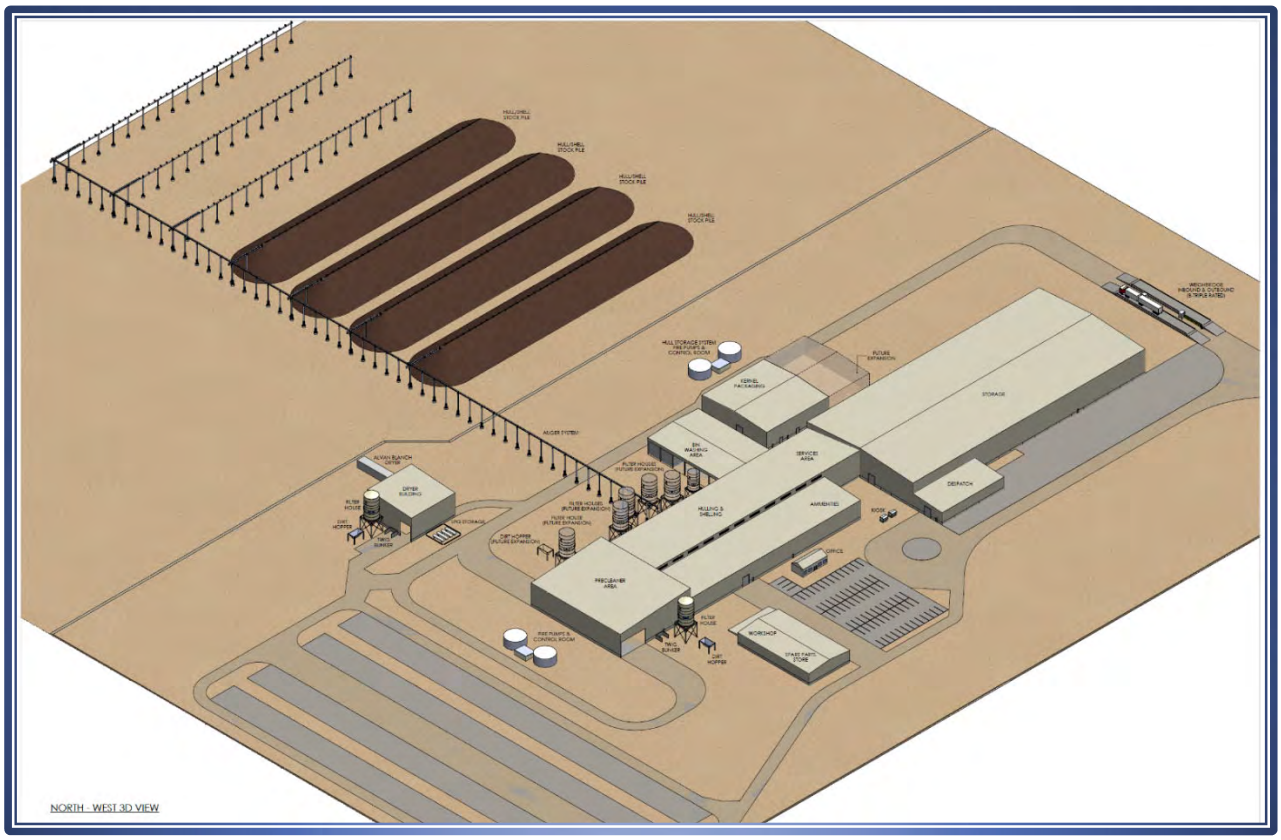


Figure 1-4 - Photo showing proposed layout in 3D (Source JMA Plans – Sheet A301)

2. PROJECT DESCRIPTION AND ANALYSIS

This section aims to provide a detailed description of the project including the construction and operation phases and their elements.

2.1. LOCATION AND EXTENT

The project is located in the New South Wales Riverina region and the Murray River Council Local Government Area. The property the project site is located on is 'Marill' 580 Swan Hill Road, Murray Downs and is formally identified as Lot 2 DP1127724 and Lot 3 DP238154 in the Parish of Yellymong and County of Wakool.

The project site is located within an existing agricultural production area of the property only relating to 31ha portion of Lot 3 DP238154. The site is an existing dryland agricultural paddock which is cleared of nearly all native vegetation and harvested annually for cereal cropping. The area is zoned Primary Production Zone (RU1) of the Wakool Local Environment Plan (LEP).

Access to the site is from the Swan Hill Rd and traverses a Travelling Stock Reserve. The project proposes an upgrade to the existing driveway entrance and driveway from the Swan Hill Rd to the property. All works will be proposed within the existing modified area.

The project site is located 3km by road northeast of Murray Downs and 5.5km to the north east of Swan Hill, Victoria.

The location of the project site is shown in the figures and tables below.

Figure 2-1 - Location of project site in relation to the region (Source: Google earth 2022)

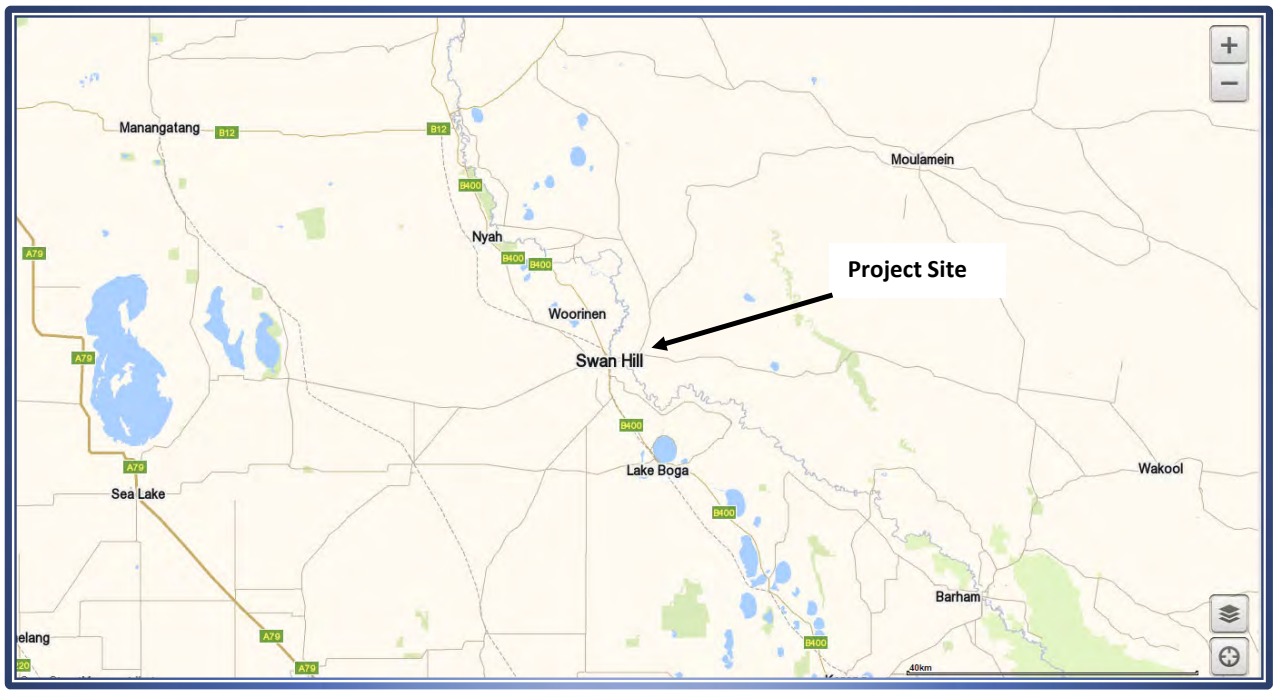


Figure 2-2 - Location of project site in relation to the local area (Source: Whereis 2022)

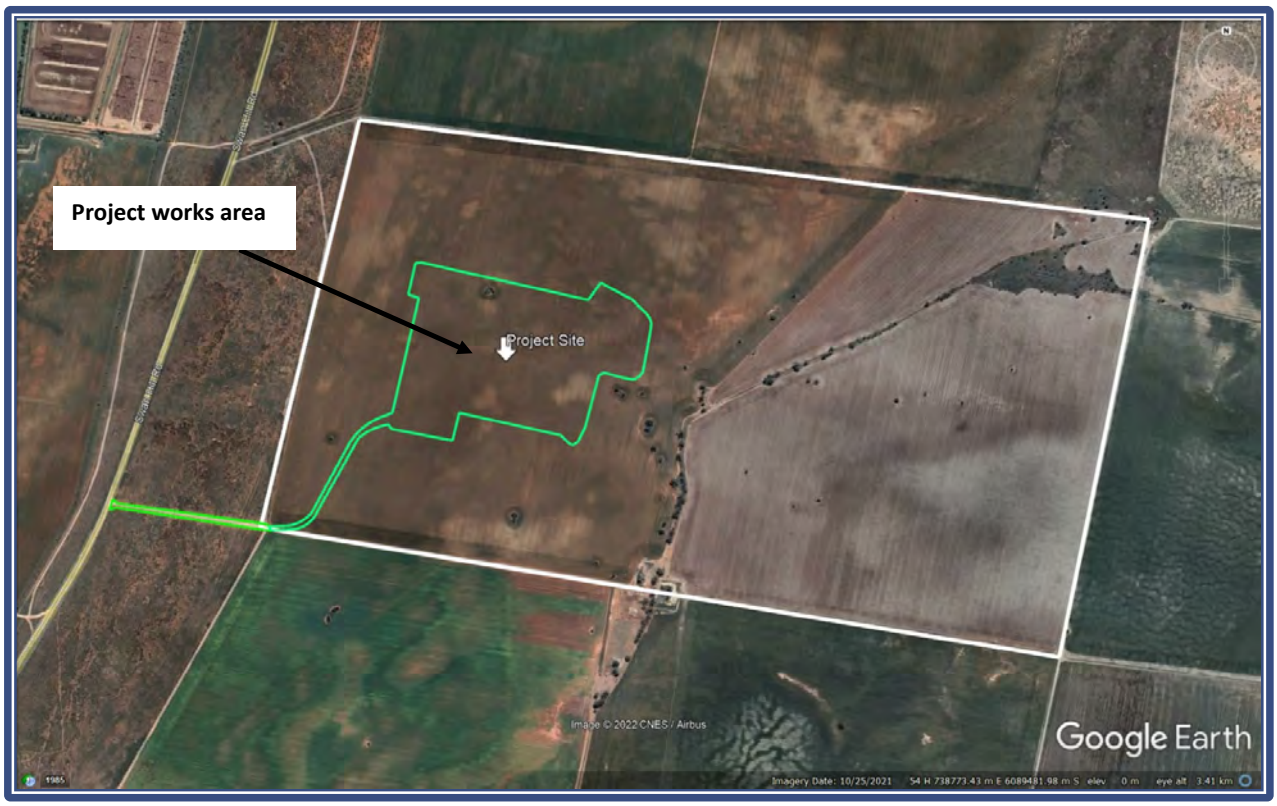


Figure 2-3 - Location of project (green outline) in relation to the property (white outline) (Source: Google earth 2022)

The land details of the project are summarised as follows:

Table 2-1 - Land details of the project

Details	Specific related to property/site	
Lot number	2*	3
Deposited Plan	1127724*	238154
Parish	Yellymong	
County	Wakool	
Local Shire	Murray River Council	
LEP Zone	Zone RU1 – Primary Production	
Catchment Area	Murray	
IBRA Sub-region	Riverina – Murray Fans	
Mitchell Landscapes	Murray Lakes, Swamps and Lunettes	
Local Aboriginal Land Council	Wamba Wamba	
Floodplain Management Plan	Nil	
Land Stature	Freehold	
Area of project works	Approx. 31ha	
Area of this property	Approx. 348ha	
GPS Reference	MGA Zone 54 E:738859 N:6088688	

* Property title, not project site related

2.2. PROJECT COMPONENTS

2.2.1. INFRASTRUCTURE

The project is made up of the following components:

2.2.1.1. BUILDINGS

The following buildings are proposed to be constructed as part of the project site.

Table 2-2 - Project Buildings

Detail	Work Type	Number	Size (m) L x W	Footprint (m^2)	Work portion
Dryer Building	New Shed	1	27 x 27	729	Building
Hulling/Shelling Shed	New Shed	1	150 x 55	8,048	Building
Amenities (within Hulling and shelling shed)	Amenities	-	15 x 5.8	87	Fit out
Bin washing area	New Shed	1	40 x 32	1,409	Building
Services Area	New Shed		29 x 28	810	Building
Kernel Packaging	New Shed	1	38 x 40	1,526	Building
Workshop & Spare Parts	New Shed	1	44 x 25	1,100	Building
Storage	New Shed	1	143 x 65	9,307	Building
Despatch	New Shed	1	38 X 18	687	Building
Loading Dock	Open area	1	25 x 5	12.5	Building
Office	New Building	1	15 x 7	105	Building
Fire Control Room & Tanks	Small shed Tanks	2 4	7 x 6 14	42 350kL	Building Tanks

All buildings relating to the project will be constructed in accordance the Building Code of Australia, 2019 requirements. The construction phase of the project will make application to a private certifier for a Construction Certificate and Occupation Certificate for the building works. A preliminary review of the project has been undertaken to review the proposals compliance with the Building Code of Australia and identified specific requirements to be considered as part of the project design and further information required prior to the submission for a Construction Certificate. The requirements in relation to buildings (sprinkler system throughout, perimeter vehicle access etc) has been incorporated within the project application plans.

2.2.1.2. OTHER AREAS

The following additional works are proposed at the project site which relate to access, storage and operational areas.

Table 2-3 - Project other works areas

Detail	Work Type	Number	Size (m) L x W	Footprint (m^2)	Work portion
Driveway entrance (upgrade)	Entrance upgrade	1	NA	8876	Driveway Upgrade
Driveway (upgrade) - sealed	Road upgrade	1	NA	13,687	
Internal roads	Access roads	-	-	16,725	Hardstand
Parking Area	Access	80 spaces	-	2,433	Hardstand
Bin storage area	Open area	1	90 x 40	7,334	Hardstand
Field Bunkers	Open area	1	-	12,948	Hardstand
Hull storage	Open area	7 bunkers	-	98,625	Hardstand
Stormwater detention basin	Dam	1	90 X 65	5,850	Bulk earthworks

2.2.1.3. EQUIPMENT

The following machinery and equipment are proposed for installation as part of this facility for site operational activities.

Table 2-4 – Other equipment to be installed

Detail	Location	Number	Size (m) L x W	Footprint (m^2)	Work portion
Weighbridge	Entrance road (internal)	2	42 x 20	160	Hardstand & Fit out
Dryer equipment	Dryer Building	1	<30,000t	-	Fit out
Precleaning equipment	Hulling & Shelling	1	<30,000t	2,063	Fit out
Hulling and Shelling equipment	Hulling & Shelling	1	<30,000t	5,262	Fit out
Pumps and pipelines	Fire Control room Stormwater pond	3	NA	-	Fit out
LPG storage	As shown	1	50 x 30`	1,500	Fit out
Kiosk	As shown	2	3 x 4	12	Electrical
Filter house	As shown	2	6 x 6	72	Fit out
Dirt Hopper	As shown	2	6 x 3	36	Fit out
Twig Bunker	As shown	2	3 x 3	18	Fit out
Signage	Driveway entrance Internal Swan Hill Rd	Multiple	Variable	Varies 0.12	Following approval & prior to operation

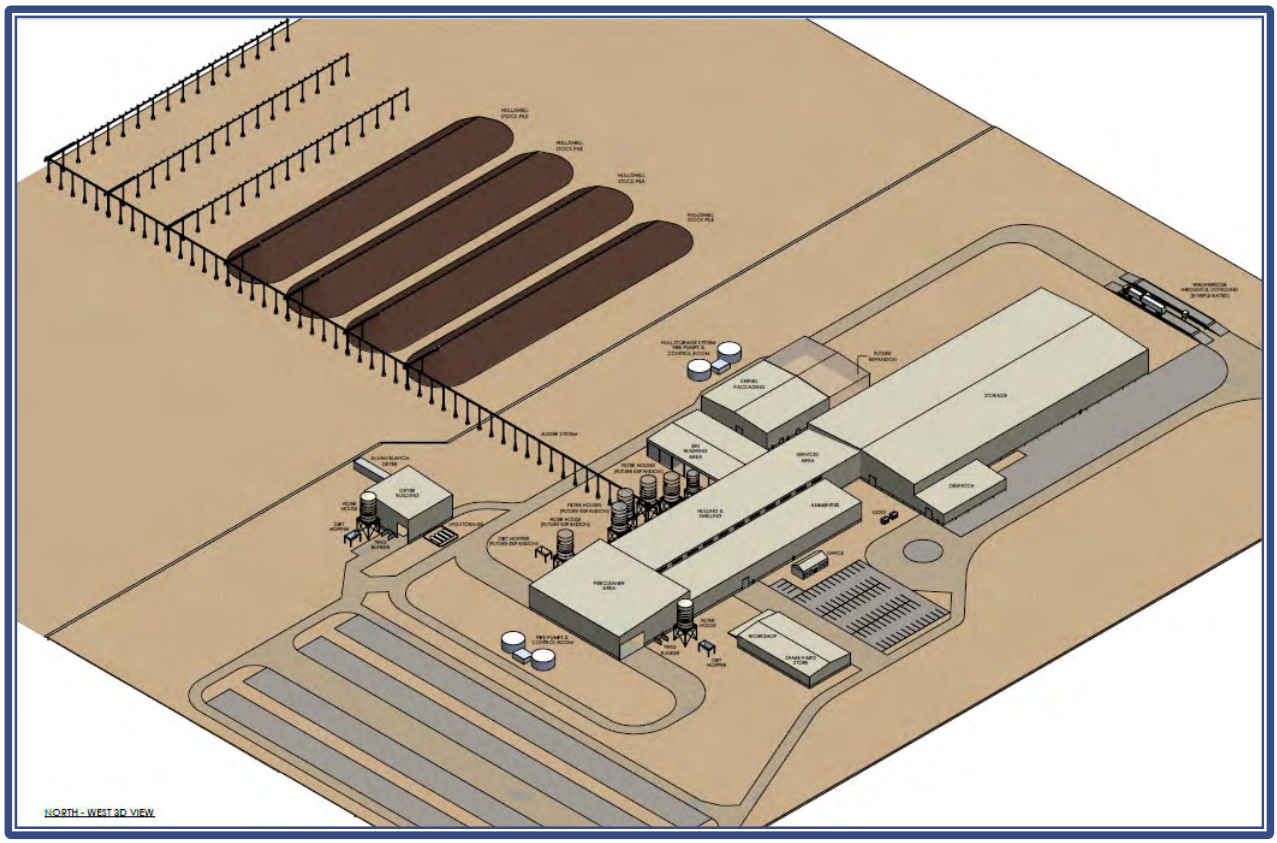


Figure 2-4 – Overview of the project site and facility plans (Source: JMA Plans – Sheet A301)

Figure 2-5 - Cross sections of proposed facility (Source: JMA Plans – Sheet A300)

2.2.2. STORMWATER DETENTION DAM

This project includes the construction of a 15ML storm water management system and detention dam to capture runoff from within the site except water that is collected within rainfall collection tanks. **Figure 2-6** below shows the facility and the area relating to the capture and management of stormwater during rainfall events. The catchment area at the site is 316,000m^2 with the green lines representing the direction of drainage.

Water captured within the runoff reservoir will be used throughout the operation of the facility to supress dust as required and for additional fire protection measures. The dam will operate with significant 'air space' or freeboard to allow the holding of water and remain functional for storm water management. Should there be significant instantaneous rainfall event, water will exit the dam at a level lower than the finished level of the hull storage area to ensure the site is protected from impact.

Following consultation with WaterNSW, it was determined that this dam is exempt from any licensing requirements.

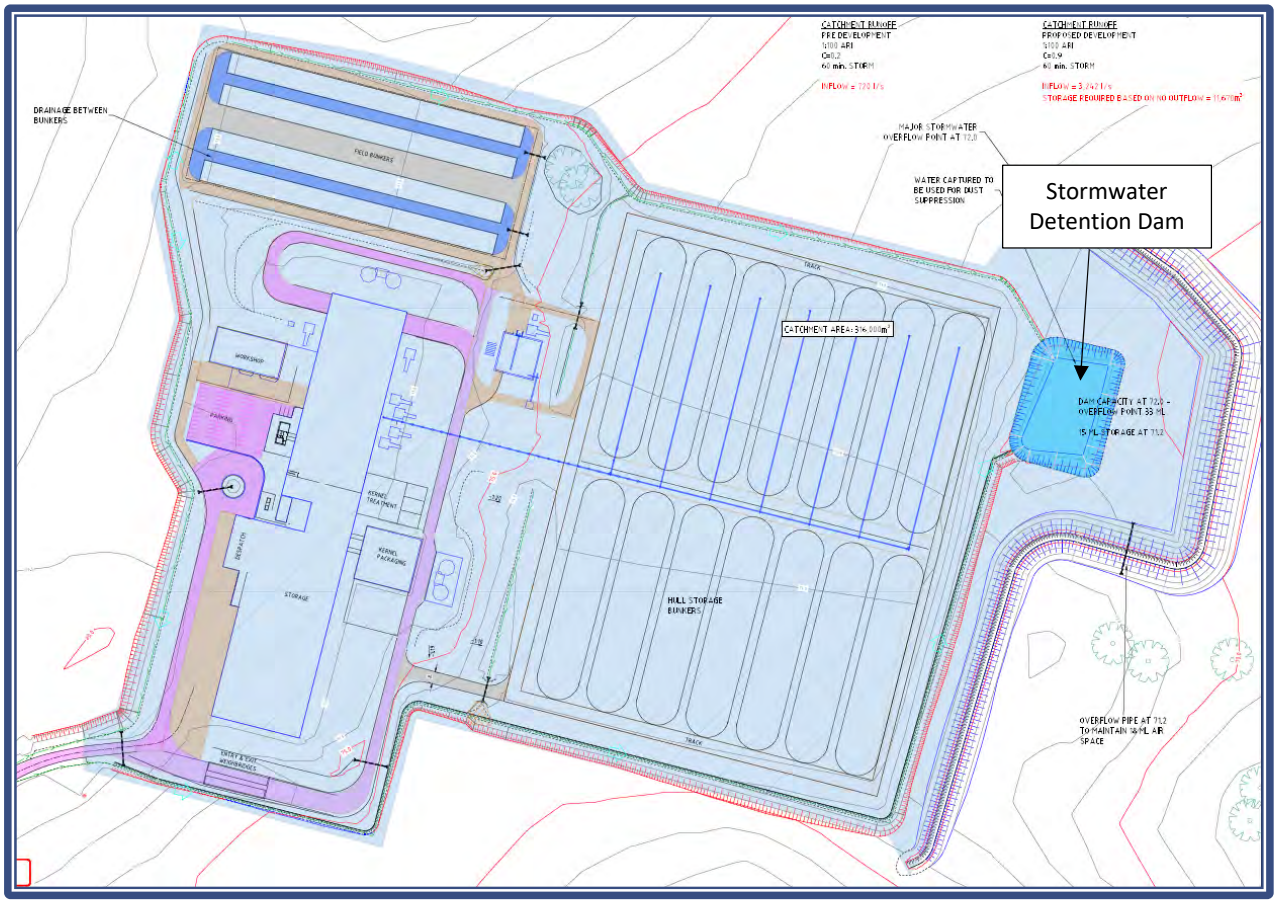


Figure 2-6 - Site Catchment and Drainage (Source: Price Merrett Plan – Sheet 10)

2.2.3. ACCESS

Access to the facility and project area is from the Swan Hill Rd which carries traffic from Swan Hill through to Moulamein and Stony Crossing/Kyalite through to Balranald. Following a review of the proposed traffic movements (See **Section 5.9** and **Appendix 6.12**) it has been identified due to low turning volumes, no turning lane treatment is required. The existing driveway entrance and access at and adjoining the Swan Hill Road will require upgrading to facilitate the safe turning of two B-Triple Trucks to simultaneously enter and exit the site. This upgrade will reduce any impact to vehicles transiting on the Swan Hill Road.

With any change to the facility operation or increase in almond throughput volume, further alterations to the entrance to the site will be required which will include a Basic Access Left (BAL) and Basic Access Right (BAR) turning treatment.

Prior to undertaking the proposed upgrade works, a Road Opening Permit and related Traffic Management Plan will be required to be lodged with the Murray River Council.

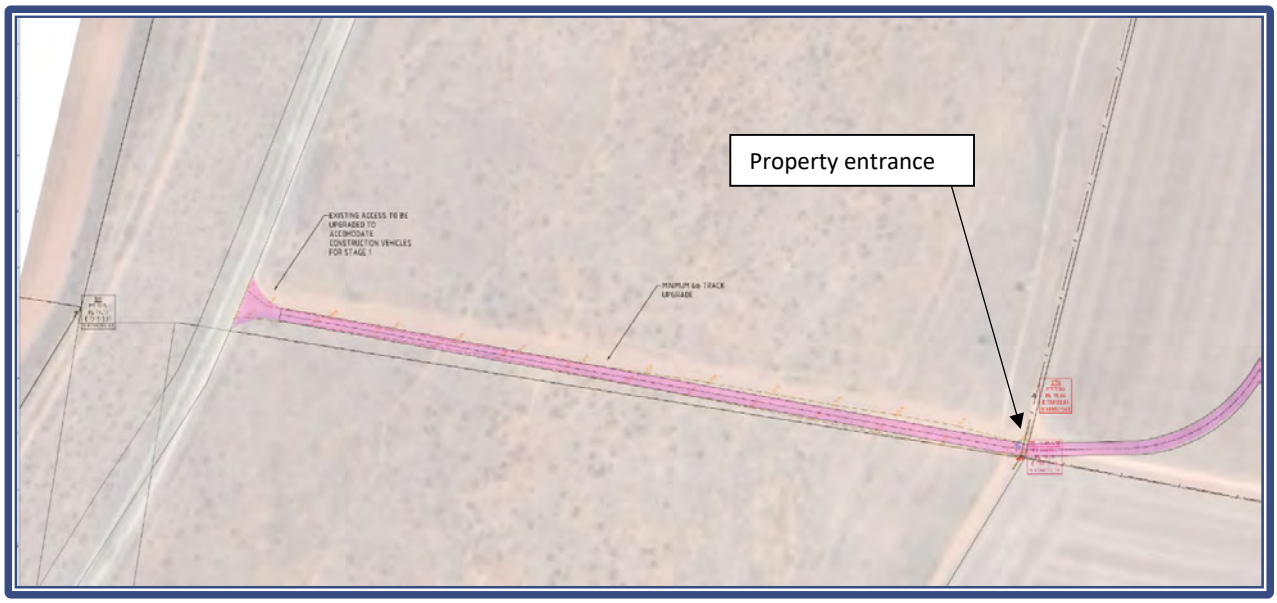


Figure 2-7 - Plan identifying the project site access (Source: Price Merrett plans – Sheet 12)

2.3. PROJECT CONSTRUCTION METHODOLOGY

The proposed development would comprise of the following main phases:

1. Site establishment
2. Bulk earthworks,
3. Driveway upgrade works,
4. Construction of internal roads, parking, pad and hard stand areas,
5. Building construction,
6. Fit out, and
7. Electric connection and commissioning.

2.3.1. SITE ESTABLISMENT

Site establishment will consist of the following activities:

- Detailed survey,
- Survey set out and benchmark establishment,
- Contractor inductions and establishment of 'No-Go' areas,
- Preparation of site laydown, parking and storage area within site,
- Delivery and installation of temporary site office,
- Site WC facility establishment,
- Preparation and establishment of waste management system and area.

2.3.2. BULK EARTHWORKS

Earthworks will be undertaken within the site to establish a level area with adequate slope and drainage prior to placement of hardstand materials on the surface. This work requires the stripping of soils (cut) generally in the eastern area and the placing of material (fill) in the western section. Due to the natural topography of the site, the facility at completion will be located behind the existing high point of the property and an earthen mound on the eastern side of the property. The earthen mound will be constructed with excess earth created as part of the levelling activities on the site. Works will be commencing with the drainage diversion works and the detention basin – assisting with erosion and sediment control within the site. Works will be progressively undertaken from east to west to assist with compaction over the hardstand areas on the site.

This stage will be undertaken over a 16 week period.

Figure 2-8 - Photo showing typical bulk earthmoving equipment (Source: PRS Library)

Project calculated earthwork volumes have been summarised in the following **Table 2-5.**

Table 2-5 – Summary of required earthwork volumes

Work Area	Area (m^2)	Cut (m^3)	Fill (m^3)*	Short/Excess
Topsoil strip	24000	12,750		12,750
Topsoil application - drains and batters			12,750	-
Cut to fill		74,500	30,500	40,950
Shed pad levelling		75,500	30,300	42,170
Stormwater dam		10,750	-	10,750
Mound – fill			99,950	-99,950
Total		173,500	173,500	0

* Bulk fill

The following replication of Sheet 13 of the project plans shows the cut and fill levels of the proposed earthworks at the site.

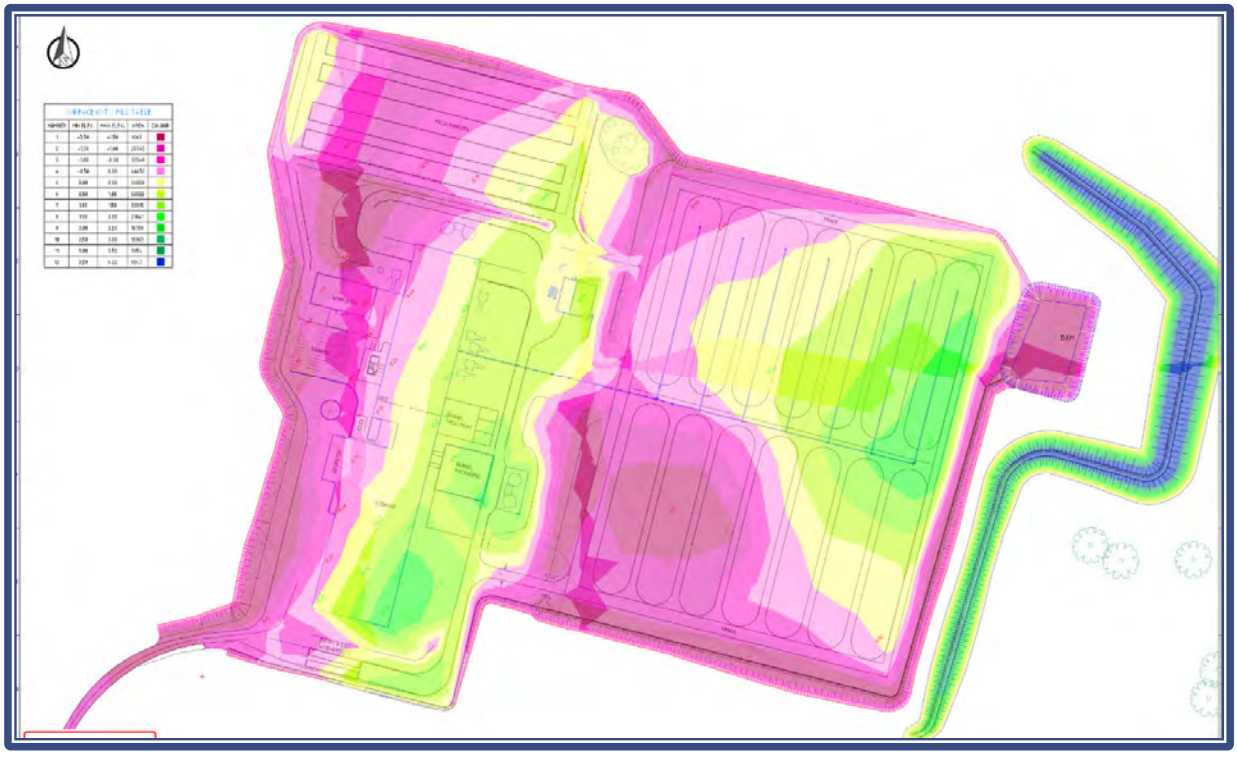


Figure 2-9 - Plan identifying the project earthworks (Source: Price Merrett plans – Sheet 13)

2.3.3. DRIVEWAY UPGRADE WORKS

Project works propose the construction of an upgraded driveway entrance and driveway between the Swan Hill Road and the property boundary. These works are proposed to be undertaken in the following order:

1. Receive Road Opening Permit,
2. Survey/set out,
3. Traffic Management Control (driveway entrance upgrade only),
4. Drainage and bulk earthworks (preparation, fill)
5. Prepare and place base,
6. Compact and test,
7. Spread and place select material,
8. Compact and test,
9. Spread and lay seal,
10. Place final seal at nominated timeframe following settlement, and
11. Mark lines and install signs as required by approval,

The driveway and entrance construction is expected to be undertaken over a 3-week period.

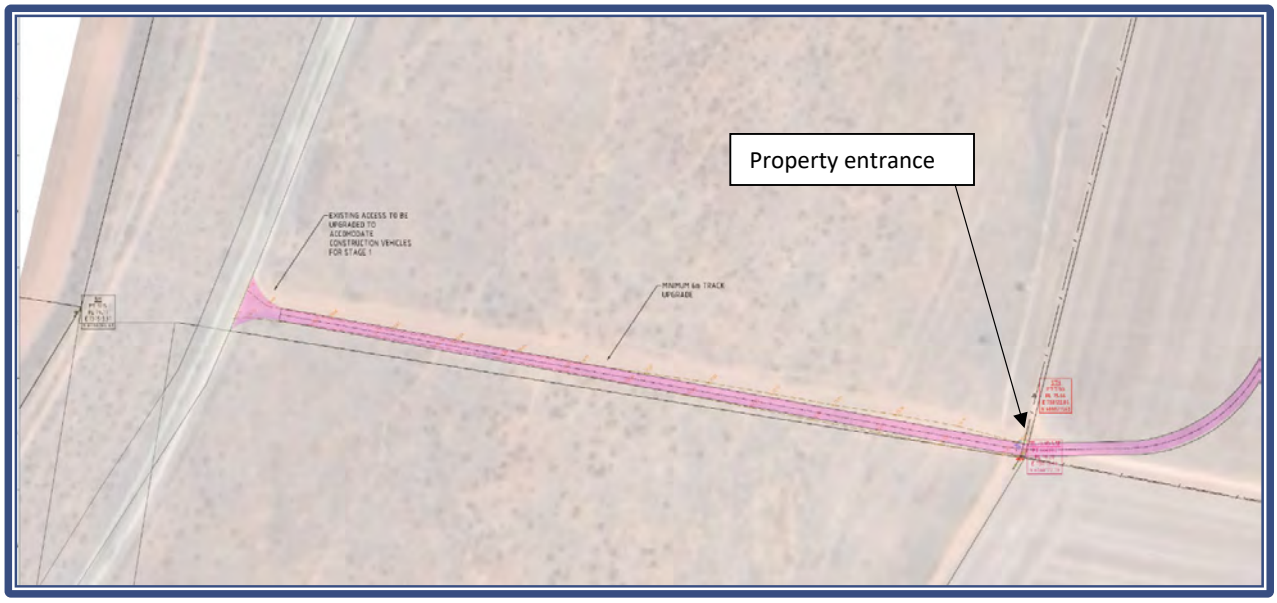


Figure 2-10 - Plan identifying the project site access (Source: Price Merrett – Sheet 12)

2.3.4. CONSTRUCTION OF HARD STAND AREAS

Construction activities relating to the establishment of internal sealed roads, parking areas, building pads, field and hull storage bunkers will be undertaken in the following works order:

1. Survey, set out and confirm bulk earthworks level,
2. Strip/fill to match design,
3. Test existing site,
4. Place required material to match design,
5. Compact and test,
6. Place finished surface,
7. Compact and test,
8. And install signage as required throughout site.

It is estimated that these works will be undertaken up to over a 20-week period and these works will cross over the bulk earthworks, entrance upgrade, and building construction works as they are completed progressively throughout the site.

Figure 2-11 - Photos showing an example of hardstand construction (Source: McMahon Services)

2.3.5. BUILDINGS CONSTRUCTION

Building construction activities detailed in **Table 2-2** above are proposed to be undertaken in the following construction activities order:

1. Undertake geotechnical testing for final site classification following earthworks,
2. Receive and store materials for construction,
3. Mobilise contractors,
4. Install footings and slab,
5. Install frames,
6. Install stormwater and guttering connections to pipes,
7. Install roof,
8. Complete wall cladding,
9. Fit out doors etc.

It is estimated that these works will be undertaken over a 52-week period and will form the longest of the construction stage. Works relating to this stage will occur progressively as the surface preparation works are completed. Building construction order will commence with the dryer, office and will be followed by the shelling and hulling building and then storage. The remaining buildings will be constructed following completion of the priority buildings.

2.3.6. FIT OUT

Fit out activities relating to the facility will be undertaken progressively across the site and include the following activities:

1. Services connected including:
    a. Stormwater
    b. Septic
    c. Electrical
    d. Plumbing
2. Machinery/equipment installed
3. Workshop and offices cabinetry etc.
4. Fire safety system,
5. Footings for equipment as required (Augers, stack house, weighbridge etc.),
6. Construction and assembly of machinery as required.

It is estimated that these works will be undertaken over a 26-week period and will commence as buildings are completed and if relevant provided occupancy.

Figure 2-12 - Photo showing almond sorting system within similar facility

2.3.7. ELECTRICAL CONNECTION

An upgraded electrical connection to the site has been investigated and the connection has been designed, with the connection upgrade agreement lodged with Essential Energy. Works relating to this will be instigated upon related approvals and completed within the earliest timing available.

2.3.8. COMMISSIONING AND SIGNOFF

Buildings and equipment installation will be constructed and commissioned across the site progressively, as contractors, materials and equipment is available.

2.4. CONSTRUCTION ELEMENTS

2.4.1. TIMEFRAME

The project timing relates to completion of the facility in time to receive the 2024 Almond crop. This is of the utmost importance. The project works is proposed to commence upon receipt of all approvals. As identified above, the estimated timeframes (pending weather) are:

Table 2-6 - Proposed construction timeframes

	Months													
Works	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Site establishment														
Bulk earthworks														
Driveway														
Hard Stand														
Buildings														
Fit out														
Connections & commissioning														

2.4.2. CONSTRUCTION HOURS

A review of the project activities in relation to noise generation has indicated that impacts from construction activities are minimal considering significant separation distances from noise sensitive receivers based on the construction activities being undertaken within acceptable timeframes. Therefore, construction timeframes propose work within the recommended standard working hours identified in the *Interim Construction Noise Guideline* (DECC, 2009) which are:

- Monday to Friday: 7am to 6pm,
- Saturday: 8am to 1pm, and
- Sundays and public holidays: no work.

This is further discussed in **Section 5.8**. Pending timeframes and agreement from surrounding landholders, a small variation to working hours may be requested to facilitate efficient machinery operation and safe work sites during heat periods.

2.4.3. LIKELY PLANT AND EQUIPMENT

The likely equipment that is proposed to be utilised for the construction activities is as follows.

Table 2-7 - Major items of construction plant and equipment

Works	Plant	Number on site
All	Grader	1
	Tractor	1
	Excavator	1
	Light Vehicles	Varies
	ATV	1
	Site Office	1
Earthworks	Scraper (self-elevating)	2
	Water Truck (pending compaction tests)	2
	Tractor and Laser Bucket	2
	Sheepsfoot Roller (pending compaction tests)	2
	Watercart	2
	Excavator	1
	Truck & semi-trailer	1
Site Footprint Foundations	Scraper	1
	Sheepsfoot Roller (pending compaction tests)	2
	Watercart	2
	Excavator	1
	Tip truck and dog trailer	Varies
Shed Construction & Fit out	Cranes	2
	Scissor Lifts	5
	Concrete Trucks	2
	Forklifts	2
	Loaders	1
	Truck and Semi-trailers	varies

2.4.4. COMPOUND AREAS

A construction compound area for vehicle parking, materials delivery and storage and laydown is proposed at the proposed car parking and office area being a compacted surface within the controlled drainage area when constructed. This area will be connected to the internal site drainage system which is proposed for early construction.

2.4.5. EMPLOYMENT

The project, wherever possible, will utilise local contractors within their area of expertise. Where there is a shortage in available resources, other contractors within the region will be sourced to undertake works. Local contractors are proposed to be utilised where machinery will require maintenance. Many parts of this facility are specialised with very few service technicians available in Australia as a result, some labour content will not be local.

It is expected that the project will employ a total of 12 full time equivalent staff as part of the direct project works however this does not include related employment as part of the equipment manufacturing.

2.4.6. UTILITIES

The project requires an upgraded electrical connection and upgrade works. A connection investigation has been completed (Attached **Appendix6.4**) which details the proposed 22kV connection to be undertaken by December 2023. Future opportunities and power requirements have also been investigated within this report.

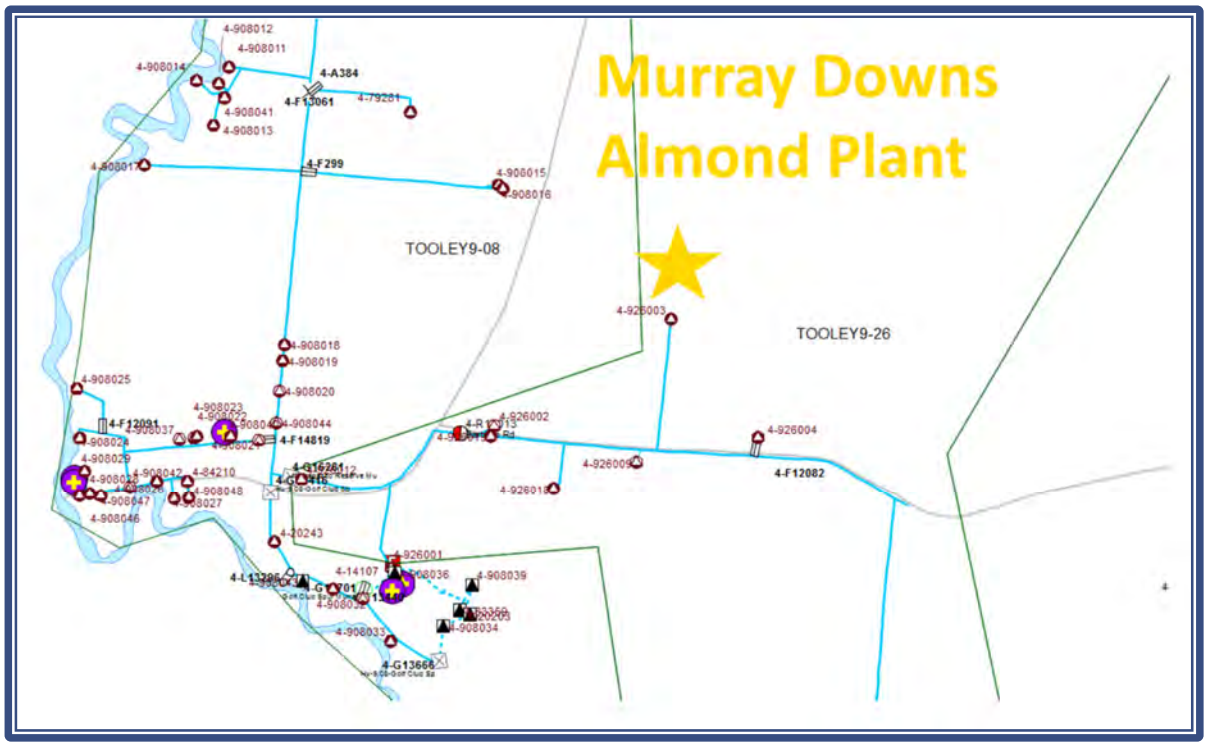


Figure 2-13 - Image showing existing Essential Energy infrastructure and proposed connection (Source: Fig 4.1.1 Essential Energy Report)

This connection and upgrade include the following:

Non-Contestable works

- Review study recommendations.
- Design review of new 22kV metering transformer and PQM installation (gifted to EE).
- Remediation works to Koraleigh Zone Substation (ZS) to accommodate the increased power flow, following a line upgrade of 22kV line feeder KOR23, including overhead cable termination.
- Coordinate with the Applicant on protection requirements.
- Facilitate telecommunications paths to PQM
- Commissioning and final testing.

Contestable works

The full extent of works considered to be contestable and thus the responsibility of the Connection Applicant includes:

- Facilitate Network Performance analysis: -
    - Voltage regulation.
    - Fault level and sensitivity.
    - Stability and harmonics.
    - Protection analysis.
    - Earthing analysis.
    - Operational parameters.
    - Frequency Injection Analysis.
- Design, construction, and commissioning: -
    - New 22kV feeder extension from pole 16518 to PoC. (EE standard construction – gifted asset)
    - Upgrade of existing overhead conductor of feeder KOR23 from Koraleigh ZS to pole 16518.
- Line easements and land purchase.
- Procurement, installation, and commissioning of revenue metering equipment in accordance with regulatory requirements (located outside of EE owned infrastructure).
- SiD documentation.
- Test and commissioning documentation.

A project Costing Estimate has been provided and adopted for the project application costs.

2.4.7. HAZARDOUS SUBSTANCES & DANGEROUS GOODS

No explosives are required for the project construction works. No chemicals are required relating to construction activities. Construction machinery will require re-fuelling and diesel fuel will be stored on site in a 5000L diesel fuel trailer. This will be stored on the laydown and parking area with the related spill kit and MSDS.

2.5. OPERATION ELEMENTS

The facility will play an important role in the Canally Orchards operation where harvested almonds from the almond plantations throughout the Sunraysia and Riverina will be received and separated into varying staged produce ready for multiple markets. The facility will separate harvested whole almonds into two products being: almonds and hulls and shells.

The operation of the hulling and shelling facility will include all steps from storing, drying, pre-cleaning, hulling and bulk packaging prior to distribution for further processing. **Figure 2-14** below shows an overview of the facility layout highlighting the major components. The facility's current proposed capacity is for a throughput of less than 30,000t almonds.

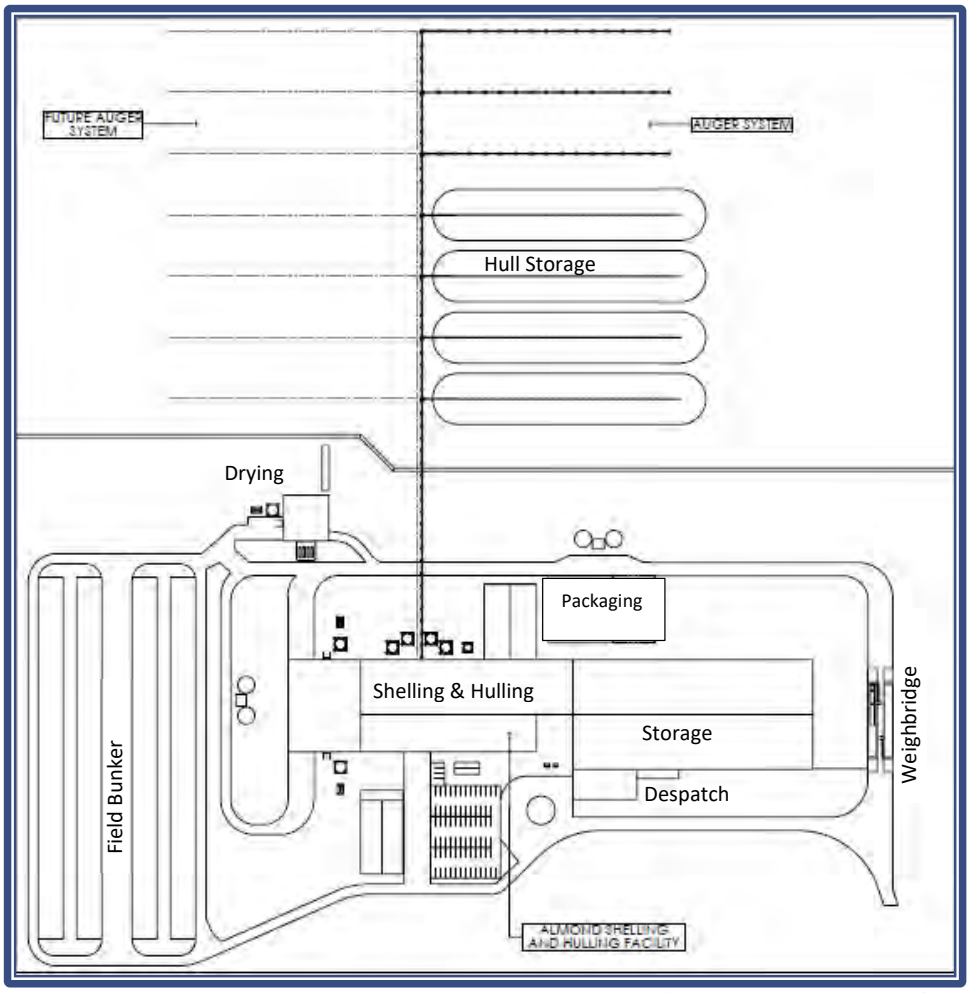


Figure 2-14 - Image identifying proposed hulling and shelling facility layout (Source: JMA Plans sheet A102)

2.5.1. OPERATION AREAS AND ACTIVITIES

2.5.1.1. WEIGHBRIDGE

The facility will operate two weighbridges located at the delivery entrance to the site. The duel weighbridge system consists of weighbridges opposite each to simultaneously weigh entry and exit trucks and minimise wait times and internal traffic hold points. The weighbridge weighs the delivery trucks loaded with product as it enters the site and assists with determining the correct delivery location for the harvested almonds. Trucks after delivering almonds are

tared off for accurate wights. The weighbridge will also be utilised for the export of hulls weighing trucks prior to and after loading to ensure legal load limits are followed prior to exit.

The weighbridge will have the capacity to weigh up to B-double sized trucks in a single weigh. At this point, trucks and products entering the site are also assessed for any biosecurity risk prior to accepting products and being allowed to proceed into the site.

Figure 2-15 - Photos showing example of entry/exit weighbridge (Source: eagleweighbridge.com)

2.5.1.2. DELIVERIES

There are three separate delivery locations within the site which are:

1. Field Dryer
2. Bunker storage
3. Pre-cleaner area

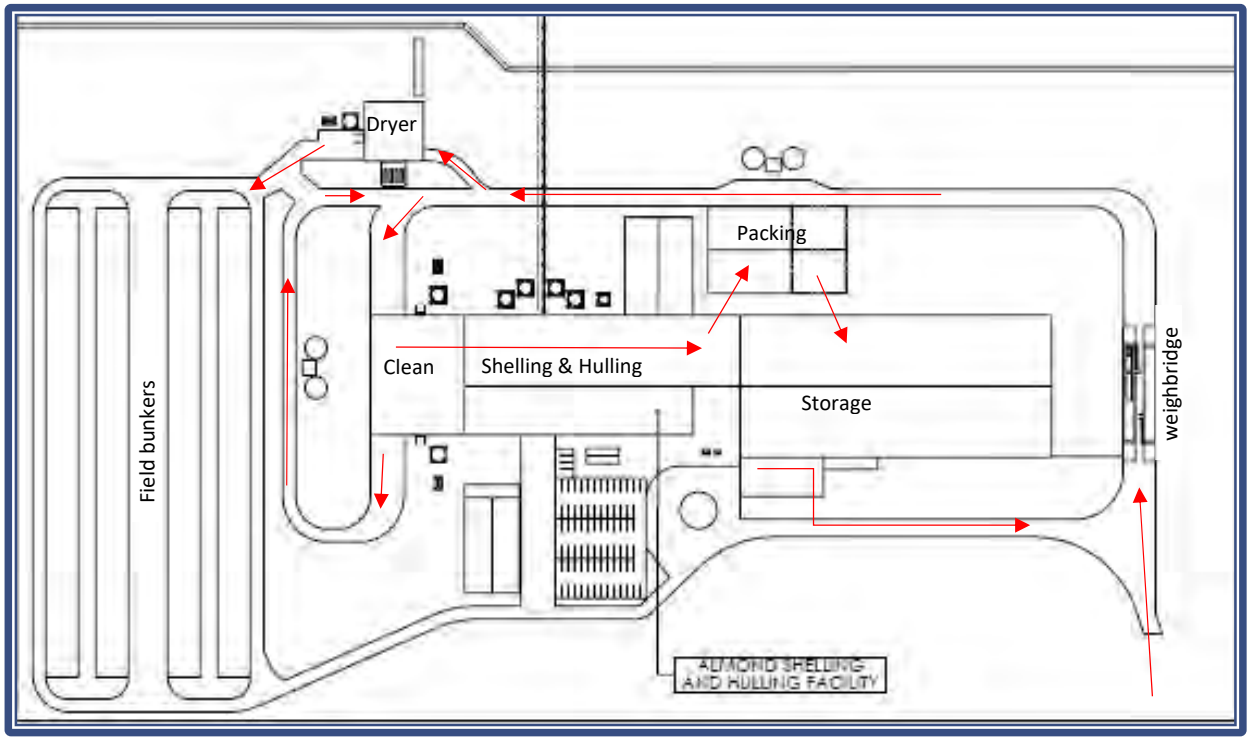


Figure 2-16 - Facility Buildings with arrows showing delivery locations at the within the site (Source: JMA Engineering Plan – Sheet A102)

2.5.1.3. DRYING

Where almonds are of a moisture content higher than that suitable to be stored within the field bunker, they will be delivered to the field dryer. This area receives almonds from the orchard trucks and almonds are mechanically moved through an Alvan Blanch field dryer that slowly and gently dries the whole almond on a drying bed. This activity utilises heated air which is recycled within the system. LPG is required for this system and will be stored in the required Australian Standard storage cylinders adjoining the dryer area.

Once dried, almonds will be transported from the drying area by internal transport bins to the field bunker area to allow the moisture to equalise within the entire almond

Figure 2-17 - Example of an Alvan blanch field dryer (Source: Alvan Blanch)

2.5.1.4. FIELD BUNKER

Almonds that have been dried will be delivered to the field bunkers where they will be stored until moving into the pre-cleaning phase. Where storage will be undertaken for a significant time, the bunkers will be covered by tarps – similar to that seen in grain storage facilities. This area will have a compacted base and drainage directed to the stormwater detention basin on site. The inclusion of a suitable storage area for received almonds allows a smaller throughput capacity for the following stages.

Figure 2-18 - Photo example of almond field bunker storage (Source: Aust-Mech)

2.5.2. SHELLING AND HULLING

The activities that will be carried out in each section of the facility focusing on the main steps are outlined in the sections and **Figure 2-19** below.

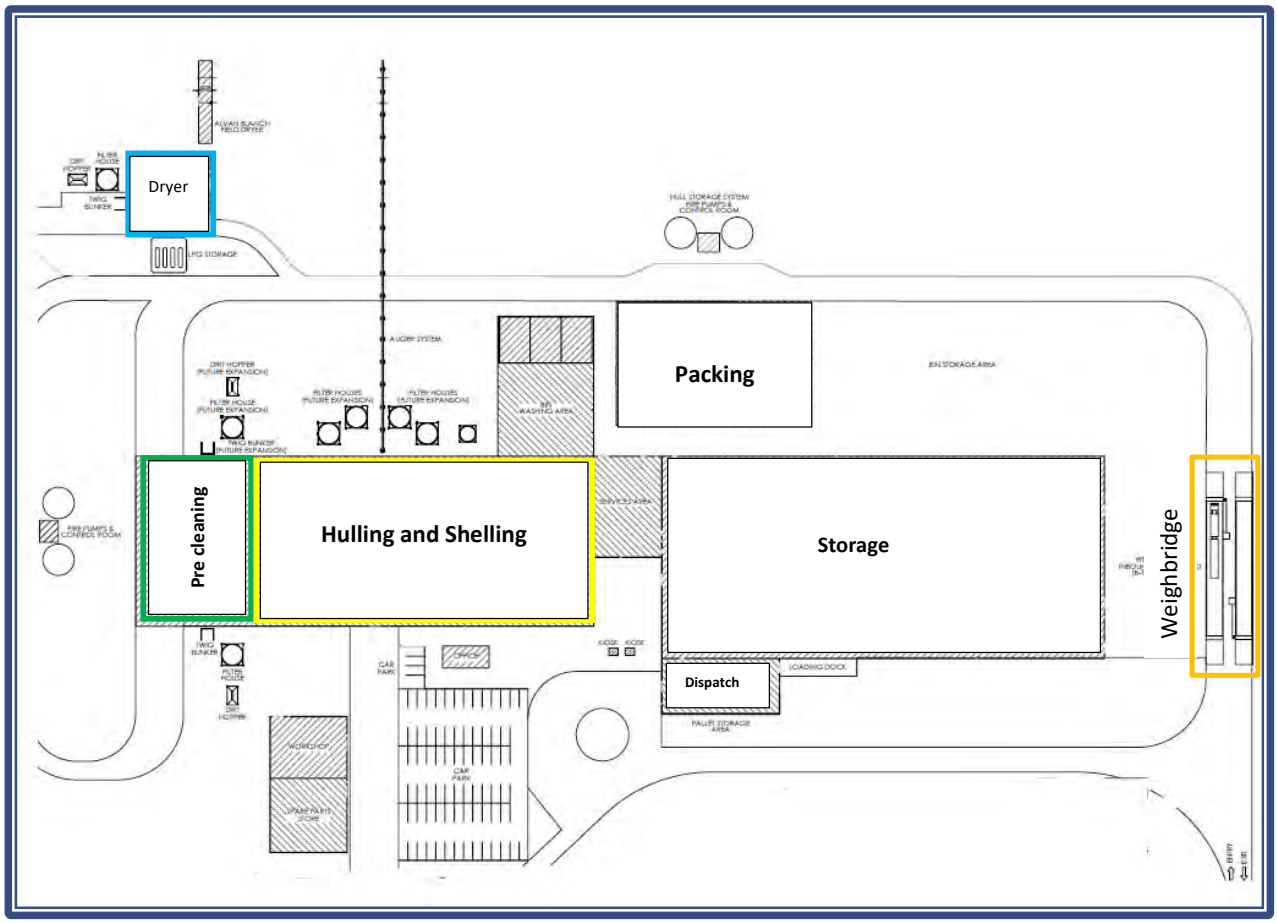


Figure 2-19 – Plan showing Shelling and Hulling Overview (Source: JMA Engineering Plans – Sheet A102)

2.5.2.1. PRE-CLEANING

Harvested almonds received into this system, first enter the pre-cleaning stage where dirt, sticks, stones and other debris are removed prior to entering to the hulling and shelling system. There are three machines involved in the pre cleaning step with the first being the de sticker which removes the larger sticks and a sand screen which removes the dirt particles from the harvested mix.

Larger soil clumps and stones are removed by the destoner which uses positive air and gentle vibration to move the lighter almonds and remove the stones and large clumps of soil.

Lastly, the almonds move through the de-twigger which removes any remaining small twigs and debris.

Figure 2-20 - Photos showing almond pre-cleaning machinery (Source: theproducenerd)

Debris removed at this stage is stored in hoppers outside the shed area and as required will be either returned to farm for reincorporation into the orchard system or used within the adjoining farming area.

Following cleaning, the almonds may go directly to packaging prior to storage or continue through the shelling and hulling system.

2.5.2.2. HULLING AND SHELLING

Where the almonds are to be exported as hulled and shelled almonds, the whole pre-cleaned, dry almonds enter a series of machines which uses vibrating screens and counter rotating belts to gently loosen the almond from the hulls and shell of the almond. The separated hulls which make up approximately 75% of the fresh almond weight are at this point conveyed from within the system via an overhead auger system to the hull storage area.

Following hull removal, almonds will be bulk packaged for storage and then despatched from the facility to established markets for this product.

At this stage of the development minimal equipment will be installed in this section of the facility, only allowing a throughput of up to 30,000t. There will be sufficient space within this area to facilitate a higher volume in the future. In addition to a potential increase in volume, future processing activities following shelling and hulling have the potential to be undertaken at this facility. These activities include sizing, processing, roasting, blanching and directly packaging for sale.

2.5.3. STORAGE AND DESPATCH

As described above, this facility has the ability to receive and despatch almonds in varying stages to meet market demand. There are also multiple by-products related to varying stages of the almond treatment activities undertaken throughout the facility. Each of these almond products and by-products require storage and despatch from the site. The following section describes these in detail and **Figure 2-22** below identifies the areas discussed.

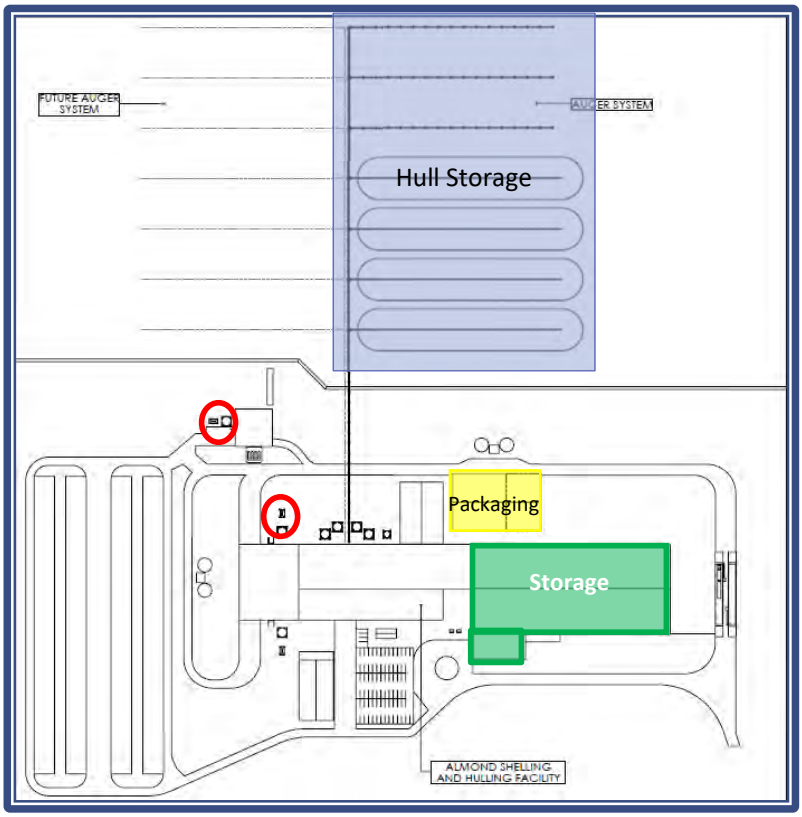


Figure 2-21 - Image identifying proposed storage facility layout (Source: JMA Engineering Sheet A101)

2.5.3.1. ALMOND PACKAGING

The almond end product will exit the site in varying forms of packaging. These include 50lb woven poly bags, 1,000kg and 850kg bulk bags and 12.5 and 50lb cartons. Almonds in their related form will be transferred into their required package

size within the kernel packing area. They will then be transferred into the storage area ready for despatch as required by their related market.

Future options at this site, may see alternate packing options developed.

2.5.3.2. ALMOND STORAGE

Once packaged, almonds will be stored within the storage area to allow the product prepared at this facility to exit to the related market from this site. This may include despatch to direct markets or delivery to processing facilities for additional treatment. Examples of these activities are blanching, roasting or milk production.

2.5.3.3. HULL & SHELL STORAGE

The main purpose of this facility is for the removal of the hulls and shells from the almonds harvested on farm. Once separated, the hulls and shells are transferred from the hulling and shelling building via overhead auger to the dedicated hull storage area at eastern side of the site.

Hulls and shells are a valuable by-product of the whole almond and are highly sought after from a variety of industries. These include intensive animal industry as a feed energy and dry matter source, animal bedding, compost and new uses are being investigated for renewable energy.

The site proposes the ability to store up to 30,000t of hulls on site at any given time. Hulls are stored in laterals that are 130m long and up to 11.5m high. This volume of storage is proposed to manage the volume across the harvest and operation time at the facility allowing hulls to be despatched from the site across a timeframe outside of harvest receivals and to meet market demand.

Figure 2-22 - Photo showing an example of hull storage (Source: Harris Woolf Almonds)

2.5.3.4. TWIG BUNKER AND DIRT HOPPER

The proposed facility includes the use of twig bunkers and dirt hoppers to collect and store twigs removed from the drying and cleaning system at the facility. Once, removed, dirt, rocks, stones and twigs will be stored in bunkers and hoppers prior to their removal and return to the farming areas.

Volumes of these removed products are minimal based on the harvest methods that are used on farm.

2.5.4. OTHER AREAS

2.5.4.1. OFFICE

The facility will include a permanent site office which will be occupied year-round with staff. This will include a full-time site manager, production supervisor, maintenance manager and a single administration manager. Other staff will include a hull loadout manager and part time gardener/maintenance person.

The office area is located adjoining the hulling and shelling area and will monitor receivals and despatches and staffing throughout the year.

2.5.4.2. DESPATCH

The despatch area is where all packaged almonds will load out of the site. This includes a pallet storage area and a loading dock. Trucks entering this area will not be required to utilise the weighbridge due to the packaging type. All product leaving through this area will be from the site storage shed.

2.5.4.3. BIN WASHING & STORAGE

Field bins utilised throughout the site and from farming areas will be washed, disinfected and cleaned within this area prior to storage in the adjoining area. Minimal washing occurs of the bins and the activities will utilise water from within the rainwater captured on site.

2.5.4.4. WORKSHOP & SPARE PARTS

Due to the specialised nature of the equipment utilised at the facility, there are multiple spare parts that will be held on site. A site workshop will also be built for maintenance of machinery and equipment used throughout the facility. This work will be undertaken year-round and include the employment of full time staff for these activities.

2.5.4.5. CAR PARKING

Significant car parking areas are proposed as part of this facility. This large area is proposed due to the ability to park all the maximum likely number of vehicles at the change of shift for the future capacity of the facility. This includes 80 car parking spaces and room for disabled parking adjoining the office area.

2.5.5. OTHER OPERATIONAL ELEMENTS

2.5.5.1. BIOSECURITY

The major risk to biosecurity within the almond industry is derived from pests – both to the orchard plantations and the bees that work within the industry. All orchards supplying whole almonds to the facility maintain separate biosecurity plans. The trucks rotate through farms one orchard at a time, thereby reducing any risk of cross contamination should there be cause for one.

Records are maintained and harvest produce recorded from each orchard by weighbridge certificate. Site monitoring will occur with every delivery received. Roads where orchard delivery machinery are sealed to assist with the reduction of cross contamination. Should a future issue occur, truck tire and foot baths can be easily introduced to the site to assist with disinfecting vehicles, machinery and staff.

2.5.5.2. VERMIN AND PEST CONTROL

Vermin including rodents, lice and flies can be attracted to agricultural produce operations through a readily available source of feed and housing. Vermin and pest populations are proposed to be managed in conjunction with the Almond Industries Good Manufacturing Process. This includes good housekeeping practices to minimise waste and spillage to reduce the likelihood of attracting vermin. Should vermin population reach a nuisance level, a baiting program will be implemented which will include traps around the sheds, bunkers and storage areas.

2.5.5.3. LIGHTING

Lighting will be required to safely undertake facility operations and ensure a safe working environment for staff. This includes lighting at weighbridges, within and outside buildings and temporary lighting in the field bunker areas. Should it be determined that lighting is required at the driveway entrance, this will also be installed to conditioned and Australian Standard requirements. All lighting is proposed to be directed downwards towards ground level to achieve maximum coverage. Lighting will be unobtrusive within the area and with the large separation distances from residences will not impact neighbouring properties.

2.5.5.4. HAZARDS & RISK

Fire & Bushfire

Searches for Bushfire risk overlays have been undertaken for the property on the NSW Planning Spatial Viewer and the NSW Bushfire Planning tool. Both returned the result that the site is not considered Bushfire Prone Land. **Figure 2-23** below shows these results.

Figure 2-23 - Replication of bushfire prone online mapping (Source: NSW Rural Fire Service)

A preliminary review of the proposed buildings at the site has been undertaken for compliance with the Building Code of Australia. This identified that the buildings at the site were to be considered as:

- Class 8 – Precleaning, shelling and hulling Building,
- Class 5 – Office
- Class 7b and 8 – Spare parts and Workshop

Planning for Bushfire Protection, 2019 identified in Chapter 8 that whilst bush fire is not captured in the NCC for Class 5-8 buildings, the following objectives will be applied in relation to access, water supply and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and
- to locate gas and electricity so as not to contribute to the risk of fire to a building; and provide for the storage of hazardous materials away from the hazard wherever possible.

As discussed above, the site proposes an upgraded road entrance suitable for passing trucks at both the road entry and along the full length of the driveway. This access being sealed should be considered adequate and safe for both building occupants and firefighters. In the event that this access is cut off, an alternate option for egress from the site is available through the adjoining property to the south and the Noorong Road.

Occupants of the site can be evacuated from the site via vehicle out of the site to south Swan Hill, east to Noorong, north to Moulamein and northwest to Kyalite. The site will contain adequate signage and inductions to train staff, contractors and visitors in the marshalling location and directions of escape.

The site design has proposed significant separation distances between each activity area, buildings, hazardous substance storage and contains access roads surrounding buildings and the site. The site has been designed to contain two fire pump and control systems connected to adjoining storage tanks. In addition to this, the site also maintains a significant 15ML stormwater detention dam which will maintain suitable access for both land and air fire control services. The sheds will maintain internal fire control sprinklers. All areas within the site will be either hardstand or watered grassed areas

which maintains a significant separation distance from the surrounding farming areas that vary with potential fuel loads by activity and time of year.

Chemical and Hazardous Substances

As described above, the drying activities at the site require the use of Liquified Petroleum Gas (LPG) to produce the warm air required for drying of field harvested whole almonds. LPG is classified as a flammable gas and requires risk screening for a hazardous or potentially hazardous development.

The site proposes to store 4 x industrial Australian Standard (AS) 2.0 tonne tanks on the site – a total volume of 8 tonne. This sizing ensures that the deliveries match on site storage minimising traffic movements for LPG deliveries. A review of the General Screening Threshold Quantities in Table 3 of Applying SEPP Resilience and Hazards 2021 indicates that the screening threshold of 10 tonne is not exceeded and as a result, the storage of LPG at this site is not considered hazardous or potential hazardous.

The storage and use of LPG will meet all requirements identified in AS 1596.

Diesel will also be stored on site for the use of onsite machinery (tractors, ATV etc) and back up operation generators. Fuel storage will be within a double bunded, Australian Standard fuel storage tank with suitable access to receive deliveries and refuel machinery on site. The total volume of diesel stored on site will be 5,000L adjacent to the workshop area.

The workshop will maintain multiple types of lubricating oils and greases as part of the servicing of site machinery and plant. This will be stored in the workshop and spare parts storage area.

2.5.6. OPERATION HOURS

The site will operate for 24 hours a day seven days a week for up to 12 weeks of the year. This timing is dependent on the orchard harvest timing however is throughout the months of February to early May. Following receipt of almonds from on-farm and all receivals reaching a moisture level suitable for storage, the site will return to an operational time of between 6AM and 6PM up to 7 days a week throughout the remaining parts of the year.

2.5.7. EMPLOYMENT

The operation of this project will require varying staff numbers throughout the year. The site will require permanent staff which is proposed to include the following:

Table 2-8 - Facility labour needs

Role	Employment Type	Number
Site manager x 1	Permanent	1
Hulling and shelling supervisor x 1	Permanent	1
Maintenance manager x 1	Permanent	1
Hull/loadout operator x 1	Permanent	1
Gardiner/Maintenance x 0.5	Permanent Part Time	0.5
Administration x 1	Permanent	1
Packaging	Permanent	2
Shift Supervisor	Casual – per shift	1
Pre-cleaner operators	Casual – per shift	2
Front-end Loader operation	Casual – per shift	3
Meat Circuit Operator	Casual – per shift	2
Forklift operator	Casual – per shift	9
Cleaner/General hand	Casual – per shift	2
Quality Control	Casual – per shift	2
Total	**Permanent**	**7.5**
	Casual	**63**

A review of the labour requirements for the operation of the facility has identified that some roles will require specific labour skills that are not available within the local area. This will require the sourcing of staff from outside the area – bringing additional families into the area. Where possible and suitable skills are available locally, staff will be sourced within the local area.

Based on housing availability, it is likely that staff will live in Murray Downs or Swan Hill. Some staff may come from other adjoining areas such as Barham, Kyalite, Moulamein, Tooleybuc or Goodnight. It is also expected that this project will

provide additional flow on benefits to the region which will continue to utilise local machinery sales and service business, fuel, rural supplies, etc.

2.5.8. MAINTENANCE, MANAGEMENT AND MONITORING

DETENTION DAM

The ongoing management of the detention dam is important as it provides additional water for use for fire control. Whilst the dam is not strictly described as a 'Ring Tank' or 'Storage' the same principles from the Irrigation Australia's (2007) *Guidelines for Ring Tank Storages* can be used for maintenance and monitoring. These include:

- Visual Observation
    - Frequent checks during rainfall events,
    - Regular checks (two to four weeks) when dam contains water,
    - Embankment checks for:
        - Erosion inside and outside batters,
        - Tunnelling,
        - Large woody vegetation growth on embankments,
        - Animal burrows,
        - Undercutting of the inside batter,
        - Slumping of the crest, and
        - Seepage through the embankments.
- Objective Measurements
    - Survey crest heights where applicable,
    - Measure crest widths at set points and record results,
    - Check depth of floor at set points for silt build up, and
    - Check compaction of embankments of floor.

Ongoing maintenance should include the following:

CREST OF EMBANKMENTS

Check every five years for

- Current crest levels,
- Low spots in the walls from slumping or erosion,
- Shape of crest,
- Record results to check against as constructed and ongoing loss of height.

Correct any minor damage with a grader blade to:

- Fill small rills,
- Even out the surface, and
- Maintain slope from crest to ensure adequate run-off from the top.

OUTSIDE BATTER

Check for

- Erosion,
- Tunnelling,
- Large woody vegetation growth on embankments,
- Animal burrows, and
- Seepage through the embankments.

Correct any minor damage with a grader blade/bucket to:

- Fill small rills,
- Even out the surface,
- Maintain slope from crest to ensure adequate run-off, and
- Remove any deep-rooted vegetation that could cause permeation into the embankments.

INSIDE BATTER

Check for:

- Erosion,
- Tunnelling,

- Large woody vegetation growth on embankments,
- Animal burrows,
- Undercutting of the inside batter, and
- Seepage through the embankments.

Correct any minor damage by:

- Filling batter erosion from wave action by using moist clay compacted into position. Silt from within the storage cannot be used for this purpose.
- Fill small rills,
- Even out the surface,
- Maintain slope from crest to ensure adequate run-off, and
- Remove any deep-rooted vegetation that could cause permeation into the embankments.

VEGETATION

Check that vegetation on embankments is only good grass cover and does not contain any deep-rooted plants that can penetrate the embankments. General weed spraying should be incorporated into the maintenance of the storage dam to assist with the limiting of the spread of weed seeds throughout the property.

FLOOR

Check for:

- Holes,
- Silt build up,
- Vegetation, and
- Any obvious seepage areas.

Correct any damage ensuring that the compacted clay liner is not damaged by:

- Removing any new vegetation,
- Remove any silt build up,
- Repairing any holes that have appeared, and
- Maintaining a weed free environment.

GROUNDWATER MONITORING

Groundwater at the site is has not been identified within 5m of the surface. The general records of surrounding groundwater networks should be monitored in relation to the finished excavation levels to ensure that regional groundwater levels do not impede upon excavated areas of the site.

3. PLANNING CONTEXT

A number of statutory planning controls need to be addressed for the project. This section reviews Commonwealth, State and local planning legislation and policies to determine what approvals are likely to be required to allow the proposed development to proceed.

3.1. COMMONWEALTH LEGISLATION

3.1.1. ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

This Act is the Australian Governments central piece of environmental legislation. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as Matters of National Environmental Significance (MNES).

These nine matters to which this Act applies are:

- *World heritage sites,*
- *National heritage places,*
- *Wetlands of international importance (Ramsar wetlands),*
- *Nationally threatened species and ecological communities,*
- *Migratory species,*
- *Commonwealth marine areas,*
- *The Great Barrier Reef Marine Park,*
- *Nuclear actions, and*
- *Water resources relating to coal seam gas and mining development.*

The EPBC Act confers jurisdiction over actions that have a significant impact on the environment where the actions affect, or are taken on, Commonwealth land, or are carried out by a Commonwealth agency.

COMMENT

A review of the nine matters referred to above has been undertaken and the project works do not relate to a World heritage site, national heritage place, Ramsar wetland, Commonwealth marine area, Great Barrier Reef of coal seam gas and mining. A biodiversity assessment has also been undertaken which has reviewed the site in terms of nationally threatened species and communities and migratory species, with no impacts identified. Further information relating to this legislation and threatened species is described in **Section 5.4.**

3.1.2. WATER ACT, 2007

The *Water Act* 2007 is intended to allow the Commonwealth to coordinate the management of water resources in the Murray-Darling Basin in conjunction with the Basin States. The Act establishes the Murray-Darling Basin Authority as the national regulatory authority. A key requirement of the Act was the implementation of the Murray-Darling Basin Plan which provides for a coordinated approach to water management across the Murray–Darling Basin's four states - South Australia, Victoria, NSW and Queensland - and the Australian Capital Territory. The Plan sets the amount of water that can be extracted annually from the Basin for consumptive use (urban, industrial and agricultural) without having a negative impact on the natural environments of the Basin coming into effect in November 2012.

COMMENT

This project is not located on the Murray River or any tributary within the Murray Darling Basin. The operation of the system does not rely on large volumes of water. The project development work and operation will not affect the aims and objectives of the MDBA or the operation of the Murray River.

3.1.3. NATIVE TITLE ACT 1993

The *Native Title Act* 1993 provides a national system for the recognition and protection of native title and for its co-existence with the national land management system. The native title is recognised where: the rights and interests are possessed under traditional laws and customs that continue to be acknowledged and observed by the relevant Indigenous Australians, by virtue of those laws and customs, the relevant Indigenous Australians have a connection with the land or waters, the native title rights and interests are recognised by the common law of Australia.

COMMENT

This project is not subject to a native title claim either past or current.

3.2. STATE LEGISLATION

3.2.1. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *Environmental Planning and Assessment Act (EP&A Act)* and its associated regulations provide a framework for assessing environmental impacts and determining planning approvals for developments and activities in NSW. Within the EP&A Act, there are two parts which inflict requirements for planning approvals:

- **Part 4** which relates to decision making process by consent authorities. Section 4.15, under Part 4, describes types of impact which must be considered before development approval is granted. It states that consideration must be given for the impact of that development on the environment.
- **Part 5** governs the decision-making process by State government (determining) authorities (except for State significant infrastructure) regarding activity approval. In the decision-making process, under Section 5.5 (previously 111), it is the State government agencies' duty to consider environmental impacts; and then under Section 5.7 (previously 112), determine whether the level of impact is sufficient to require the preparation of an Environmental Impact Statement (EIS).

COMMENT

This project is to be determined under Part 4. The provisions of Section 4.15 are addressed below:

Table 3-1 – Table showing project in relation to the EPA Act clauses

Clause	Description	Project Consistent Yes/No	Explanation
4.15 – (1) a)	*In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application: - the provisions of:*		
i) **ii)** **iii)** **iiia)** **iv)**	*any environmental planning instrument, and* *any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and* *any development control plan, and* *any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and* *the regulations (to the extent that they prescribe matters for the purposes of this paragraph),* *that apply to the land to which the development application relates,*	Yes	See **Section 2**
b)	*The likely impacts of that development, including environmental impacts both on the natural and built environments, and social and economic impacts in the locality*	Yes	See **Section 5**
c)	*The suitability of the site for the development,*		See **Section 2**
d)	*Any submissions made in accordance with this Act or the regulations,*	NA	Noted
e)	*The public interest.*	NA	Noted

Table 3-2 - Table of Integrated Development Approvals

Act	Sect	General Terms of Approval required	Required	Report location
Coal Mine Subsidence Compensation Act 2017	s22	Approval to alter of erect improvements, or to subdivide land within a mine subsidence district.	No	NA
Fisheries Management Act 1994	s144	Aquaculture permit.	No	NA
	s201	Permit to carry out dredging work.	No	NA
	s205	Permit to cut, remove, damage or destroy marine vegetation on public water land or an aquaculture lease, on the foreshore of any such land or lease.	No	NA
	s219	Permit to: Set a net, netting or other material, or Construct or alter a dam, floodgate, causeway or weir, or Across or within a bay, inlet river or creek or across or around a flat.	 No No No	NA
Heritage Act 1977	s57	Approval in respect of doing or carrying out of an act, matter of thing referred to.	No	Section **5.5** & Appendix **6.9.**
Mining Act 1992	s63 or s64	Grant of a mining lease.	No	NA
National Parks and Wildlife Act 1974	s90	Grant of an Aboriginal Heritage Impact Permit.	No	Section **5.5**
Petroleum (onshore) Act 1991	s16	Grant of a production lease.	No	NA
Protection of the Environment Operations Act 1997	s43(a), 47 & 55	Works relating to the following sections of the including Environment protection licence to authorize carrying out of scheduled development work.	No No No	NA
	s43b, 48 &55	Environment protection licence to authorise carrying out of scheduled activities at any premises (excluding any activity described as a “waste activity” but including any activity described as a “waste facility”).	No No No	NA
	s43d, 55 & 122	Environment protection licences to control carrying out of non-scheduled activities for the purposes of regulating water pollution resulting from the activity.	No No No	NA
Roads Act 1993	s138	Erect a structure or carry out a work in, on or over a public road dig up or disturb the surface of a public road remove or interfere with a structure, work or tree on a public road pump water into a public road from any land adjoining the road connect a road (whether public or private) to a classified road.	Yes* Yes* No No No	Section **5.9**
Rural Fires Act 1997	s100b	In respect of bush fire safety of subdivision of land that could lawfully be used for residential or rural residential purposes or development of land for special fire protection purposes.	No	NA
Water Management Act 2000	s89	Water use approval.	No	NA
	s90	Water management work approval.	No	NA
	s91	Activity approval.	No	NA

* Please see further information in related section in adjoining column.

Table 3-3 - Table of Integrated Development Approvals

Act/EPI	Sect	Referral & Concurrence Required	Required	Report location
Biodiversity Conservation Act 2016	7.12	Where a development application indicates that a reduction is being sought in the number of biodiversity credits to be retired under the BDAR.	No	NA
Fisheries Management Act 1994	221ZZ	Where the development is likely to significantly affect threatened species, populations or ecological communities, unless the consent authority has obtained the concurrence of the Fisheries Agency Head	No	NA

3.2.2. STATE ENVIRONMENTAL PLANNING POLICIES

A table has been provided below showing all the State Environmental Planning Policies identified by the NSW Property Planning Report and their relationship to the project.

Table 3-4 - Table of State Environmental Planning Policies

State Environmental Planning Policy		Relevant	Comment
Housing 2021		No	Not Relevant
Transport and Infrastructure 2021			
Ch. 2	*Infrastructure*	Yes	See below
Ch. 3	*Educational establishments and child care facilities*	No	Not relevant
Ch. 4	*Major infrastructure corridors*	No	Not relevant
Ch. 5	*Three ports*	No	Not relevant
Ch. 6	*Moorebank Freight Intermodal Precinct*	NO	Not relevant
Primary Production 2021			
Part 2.1	*Preliminary*	Yes	Project is in line with aims of the instrument.
Part 2.2	*State Significant agricultural land*	No	Not relevant
Part 2.3	*Farm dams and other small-scale & low risk artificial waterbody*	No	Land is not located within the relevant area.
Part 2.4	*Livestock industries*	No	Not relevant
Part 2.5	*Sustainable aquaculture*	No	Not relevant
Biodiversity Conservation 2021			
Ch.2	*Vegetation in non-rural areas*	No	Not located within identified zone.
Ch.3	*Koala Protection 2020*	No	No clearing of land required
Ch.4	*Koala Protection 2021*	No	No clearing of land required
Ch.5	*Murray Lands*	Yes	See table **3.2.4** below for further comment
Ch. 6-13	*Variable*	No	Not relevant
Resilience and Hazards 2021			
Ch.2	*Coastal Management*	No	Not related to this area
Ch. 3	*Hazardous and offensive development*	Potential	See below - **Section 5.10**
CH. 4	*Remediation of land*	No	Not Relevant
Industry and Employment 2021			
Ch.2	*Western Sydney employment area*	No	Not located within identified zone.
Ch. 3	*Advertising and signage*	No	Project does not propose advertising signage outside property
Ch. 4	*Advertisements*	Yes	Project will not advertise facility.
Resources and Energy 2021		No	Not Relevant
Planning Systems 2021			
Ch. 2	*State and regional development*	Yes	See **Sections 3.2.2** and **4.2.1**

State Environmental Planning Policy		Relevant	Comment
Ch. 3	*Aboriginal Land*	No	Project is not located on land related to this Chapter.
Ch. 4	*Concurrence and consents*	Yes	See **Section 4**
Precincts – Regional 2021			
Ch. 2	*State significant precincts*	No	Project is not located within nominated precinct
Ch. 3	*Activation precinct*	No	Project is not located within an activation precinct
Building Sustainability Index: BASIX 2004		No	Not Relevant
Exempt and Complying Development Codes 2021		No	Project is not exempt
Design Quality of Residential Apartment Development		No	Not Relevant

3.2.3. SEPP (INFRASTRUCTURE) 2021 – CHAPTER 2: INFRASTRUCTURE

The Infrastructure SEPP sets out the planning rules and controls for infrastructure in NSW. This SEPP specifically sets out the planning controls for infrastructure in NSW eg. Hospitals, roads, railways, emergency services, water supply and electrical delivery.

The project proposes several activities that relate to this planning instrument. This includes the following:

Connection to the existing electrical infrastructure and upgrade of electrical supply to the site.
Cl 2.47 & 2.48 detail the requirements in relation to development applications made relating to electrical infrastructure. This project is not located within the specified locations of this instrument. There are no works proposed that related to the penetration of the ground within 2m of an underground electricity power line or distribution pole or within 10m of any part of an electricity tower. There are no electrical easements on the property, does not relate to a swimming pool and does not propose network powerlines below ground. An easement is identified as being required in the connection proposal.

As identified in the above **Section 2.4.6**, an upgraded electrical connection has been investigated and is available. This connection upgrade agreement has been lodged with Essential Energy.

Upgrade of the existing driveway access to the Swan Hill Rd and Traffic Generating Development
Consultation with Transport for NSW – roads identified that the project is located on a Regional Road under the management of the Murray River Council. Works proposed include the upgrade of the existing driveway connection to the Swan Hill Road and driveway to facilitate the safe movement of B-Triple trucks (entry and exit) from the site. The development is also a traffic generating development. The development is not exempt and requires referral to Transport for NSW for comment prior to approval. A detailed Traffic Impact Assessment (**Appendix 12** – Traffic Impact Assessment Report) has been undertaken relating to this assessment and in line with referral requirements.

3.2.4. SEPP (BIODIVERSITY CONSERVATION) 2021 – CHAPTER 5: MURRAY LANDS

Chapter 5 of the Biodiversity Conservation SEPP is in place to conserve and enhance the riverine environment of the Murray Lands for the benefit of all users.

Table 3-5 – Project in consideration of SEPP (Biodiversity Conservation) 2021 - Chapter 5

Clause	Description	Project Consistent Yes/No	Explanation
5.8	***General Principles*** *When this Part applies, the following must be taken into account: -*		
a)	*The aims, objectives and planning principles of this plan,*	Yes	See the assessment below for detailed review against the principles of the plan.
b)	*Any relevant River Management Plan*	NA	Project is not related to the River Murray.
c)	*Any likely effect on the proposed plan or development on adjacent and downstream local government areas,*	Yes	No impact expected as there are no works are not located on River or connected waterway.

Clause	Description	Project Consistent Yes/No	Explanation
d)	*The cumulative impact of the proposed development on the River Murray.*	Yes	No works proposed within the River Murray and works do not require extraction from a water source.
5.9	**Specific Principles** When this part applies, the following must be taken in to account -		
Access	** The waterway and much of the foreshore of the River Murray is a public resource. Alienation or obstruction of this resource by or for private purposes should not be supported.* ** Development along the main channel of the River Murray should be for public purposes. Moorings in the main channel should be for the purposes of short stay occupation only.* ** Human and stock access to the River Murray should be managed to minimise the adverse impacts of uncontrolled access on the stability of the bank and vegetation growth.*	Not applicable	Project activities do not related to the River Murray frontage and will not alter access to any part of the Murray River or connected waterway.
Bank disturbance	*Disturbance to the shape of the bank and riparian vegetation should be kept to a minimum in any development of riverfront land.*	Not applicable	Works do note relate to the alteration of the banks of the Murray River or its tributaries.
Flooding	** Where land is subject to inundation by floodwater:* *(a) the benefits to riverine ecosystems of periodic flooding,* *(b) the hazard risks involved in developing that land,* *(c) the redistributive effect of the proposed development on floodwater,* *(d) the availability of other suitable land in the locality not liable to flooding,* *(e) the availability of flood free access for essential facilities and services,* *(f) the pollution threat represented by any development in the event of a flood,* *(g) the cumulative effect of the proposed development on the behaviour of floodwater, and* *(h) the cost of providing emergency services and replacing infrastructure in the event of a flood.* ** Flood mitigation works constructed to protect new urban development should be designed and maintained to meet the technical specifications of the Department of Water Resources.*	Not applicable	Project is not located within flood liable land and is not subject to inundation.
Land degradation	** Development should seek to avoid land degradation processes such as erosion, native vegetation decline, pollution of ground or surface water, groundwater accession, salination and soil acidity, and adverse effects on the quality of terrestrial and aquatic habitats.*	Yes	Project works do not propose land degradation processes and has assessed impacts to native vegetation, surface and groundwater, salinity and risk of erosion.
Landscape	** Measures should be taken to protect and enhance the riverine landscape by maintaining native vegetation along the riverbank and adjacent land, rehabilitating degraded sites and*	Not applicable	Project is not located within the Riverine environment or adjacent to the riverbank.

Clause	Description	Project Consistent Yes/No	Explanation
	stabilising and revegetating riverbanks with appropriate species.		
River Related Uses	** Only development which has a demonstrated, essential relationship with the river Murray should be located in or on land adjacent to the River Murray. Other development should be set well back from the bank of the River Murray.* ** Development which would intensify the use of riverside land should provide public access to the foreshore.*	Not applicable	Project is not proposed to be adjacent to the River Murray.
Settlement	** New or expanding settlements (including rural-residential subdivision, tourism and recreational development) should be located:* *a) on flood free land,* *b) close to existing services and facilities, and* *c) on land that does not compromise the potential of prime crop and pasture land to produce food or fibre.*	Not applicable	Project does not relate to new settlement areas.
Water quality	** All decisions affecting the use or management of riverine land should seek to reduce pollution caused by salts and nutrients entering the River Murray and otherwise improve the quality of water in the River Murray.*	Yes	Project is not related to riverine land and is not connected to a watercourse. Project incorporates a detention dam to manage storm water run off.
Wetlands	** Wetlands are a natural resource which have ecological, recreational, economic, flood storage and nutrient and pollutant filtering values.* *Land use and management decisions affecting wetlands should:* *a) provide for a hydrological regime appropriate for the maintenance or restoration of the productive capacity of the wetland,* b) consider the potential impact of surrounding land uses and incorporate measures such as a vegetated buffer which mitigate against any adverse effects, *c)control human and animal access, and* *d)conserve native plants and animals.*	Not applicable	The project is not located on or adjoining a wetland area.

Comment

The project is in line with all aims, objectives and planning principles of Chapter 5 – Murray Lands. The project site is not located on or adjoining riverine land connected to the Murray River or its tributaries. The site does not restrict access to the River, is not connected to river related uses, is not flood liable land and not considered a wetland. The project area will incorporate a storm water detention system that manages site runoff preventing any potential for the site to impact on waterways or reduce regional surface and groundwater quality.

3.2.5. SEPP (RESILIANCE AND HAZARDS) 2021 – CHAPTER 3: HAZARDS AND OFFENSIVE DEVELOPMENT

Chapter 3 which was previously identified as the State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) applies to any proposals that fall under the policy's definition of '*potentially hazardous industry*' or '*potentially offensive industry*'.

This policy aims:

a) To amend the definitions of hazardous and offensive industries where used in environmental planning instruments, and

b) To render ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground. that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in the Policy, and
c) To require development consent for hazardous or offensive development proposed to be carried out in the Western Division,
d) To ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account, and
e) To ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.
f) To require the advertising of applications to carry out any such development.

For developments classified as '*potentially hazardous industry*' the policy establishes a comprehensive test by way of a preliminary hazard analysis to determine the risk to people, property and the environment at the project location and in the presence of controls. The policy states that a potentially hazardous or offensive industry means:

"a development for the purposes of any industry which if the development were to operate without employing measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would either:

***Potentially hazardous industry** - pose a significant risk in relation to the locality to*
(a) human health, life or property, or
(b) the biophysical environment, or
and includes a hazardous industry and a hazardous storage establishment.

***Potentially offensive industry** - would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment."*

Comment
A review of the site proposal and activities has been undertaken in accordance with the *Applying SEPP 33 Hazardous and Offensive Development Application Guidelines*, 2008. The Hazardous materials proposed for use and storage at the site are as follows:

Table 3-6 - Proposed hazardous materials for storage on site - SEPP 33 screen

Material	Classification	Description	Storage Quantity	Storage Location	Volume above Screen threshold?
Diesel Fuel	Class 3 C1*	Combustible liquids: flashpoint above 61^{0}C but not exceeding 150^{0}C	5,000L	Adjoining the workshop area	Not stored adjoining other combustible liquids
Lubricating oils and greases	Class 3 C2*	Combustible liquids flashpoint above 150^{0}C	1,000kg	Spare parts store	No
Liquid Petroleum Gas	Class 2.1 LPG Above ground	Liquefied Petroleum Gas as defined in Australian Standard AS1596	8,000t	Adjoining Drying Building	No (Less than 10t)

* Note: If combustible liquids of Class C1 are present on site and are stored in a separate bund or within a storage area where there are no flammable materials stored they are not considered to be potentially hazardous.

It can be seen from the above table that based on the volumes proposed for storage at the site, the action is not considered either potentially hazardous or hazardous as volumes to be stored are below the screening level and class C1 materials are not proposed for storage adjoining other combustible materials.

A review of the facility operational activities and their locations has been undertaken to ensure that no actions are considered either hazardous or potentially hazardous. There are no activities on site that will be odour generating. The site will not discharge to air, land or waterways. An independent noise assessment has been undertaken to review the operating equipment and its related noise levels. This report prepared a model of the potential noise limits in relation to the surrounding area and determined that the facility operational noise levels will not impact on the site surrounds and receptors based on modelling results.

3.2.6. SEPP (PLANNING SYSTEMS) 2021 – CHAPTER 2: STATE AND REGIONAL DEVELOPMENT

The aim of this chapter is to identify development that is considered, State Significant development infrastructure and/or critical State significant infrastructure and to identify development that is regionally significant.

State Significant Development is described in Schedule 1 of this SEPP. Clause 3 – Agricultural produce industries and food and beverage processing identifies the following types of development that has been considered:

Development that has a capital investment value of more than $30 million for any of the following purposes—

(a) abattoirs or meat packing, boning or products plants, milk or butter factories, fish packing, processing, canning or marketing facilities, animal or pet feed production, gelatine plants, tanneries, wool scouring or topping or rendering plants,

(b) cotton gins, cotton seed mills, sugar mills, sugar refineries, grain mills or silo complexes, edible or essential oils processing, breweries, distilleries, ethanol plants, soft drink manufacture, fruit juice works, canning or bottling works, bakeries, small goods manufacture, cereal processing, margarine manufacturing or wineries,

(c) organic fertiliser plants or composting facilities or works.

The project works do not exceed the cost of $30 Million and as a result are not triggered as State Significant.

Infrastructure is declared as State Significant if it is declared by Section 5.12(2) of the Act or nominated within Schedule 3 of the SEPP. This project is not State Significant Infrastructure.

Development is considered to be regionally significant if it is identified in Schedule 6.

Clause 2 identifies that *Development that has a capital investment value of more than $30 million,* is considered regionally significant however this project does not exceed that value. A review of the Clause 5 – Private infrastructure and community facilities over $5 million has identified that the project is not described as any of the purposes within this clause. Similarly, the project is not considered Designated under clause 7. Therefore, the project is not considered regionally significant.

Comment

A review of the Planning Systems SEPP has identified that the project does not fulfill the criteria for State Significant Development, is not State Significant Infrastructure and is also not defined as regionally significant. This is based on the development cost being lower than $30 million capital investment value. This is consistent with advice received from the NSW Planning Senior Planning Officer Ms Meredith McIntyre.

3.3. REGIONAL PLANNING

3.3.1. RIVERINA MURRRAY REGIONAL PLAN 2036

The *Riverina Murray Regional Plan 2036* is a 20 year blueprint for the future of the Riverina Murray. This application has considered the goals and directions of the plan in table below

Table 3-7 – Project in consideration of the Murray Regional Plan 2036

Goal	Description	Project Consistent Yes/No	Explanation
1	**A growing and diverse economy**		
Dir 1	*Protect the regions diverse and productive agricultural land.*	Yes	This project allows the continued use of developed and productive agricultural land.
Dir 2	*Promote and grow the agribusiness sector.*	NA	Project provides local facility for value adding to products produced in the region.
Dir 3	*Expand advanced and value-added manufacturing.*	NA	Project application is not related to manufacturing.
Dir 4	*Promote business activities in industrial and commercial areas.*	NA	Project is agriculture related and is proposed for construction and operation within the Rural Zone.
Dir 5	*Support the growth of the health and aged care sectors.*	NA	Project is not related to health or aged care facilities.

Goal	Description	Project Consistent Yes/No	Explanation
Dir 6	*Promote the expansion of education and training opportunities.*	NA	Project will not relate to education or training.
Dir 7	*Promote tourism opportunities.*	NA	Project is not related to tourism although may by default have a limited amount of tourism opportunity when operating.
Dir 8	*Enhance the economic self-determination of Aboriginal communities.*	NA	Project does not relate to an Aboriginal community.
Dir 9	*Support the forestry industry.*	NA	Project is not related to forestry.
Dir 10	*Sustainably manage water resources for economic opportunities.*	Yes	Project will operate within the MDBP, water sharing plan, is not a high water use industry and is proposed to operate within the actions of this direction.
Dir 11	*Promote the diversification of energy supplies through renewable energy generation.*	NA	Project is not an energy supply and has considered energy requirements as part of the due diligence.
Dir 12	*Sustainably manage mineral resources.*	NA	Project is not mineral resource related.
Goal 2	**A Healthy environment with pristine waterways**		
Dir 13	*Manage and conserve water resources for the environment.*	Yes	Project will not decrease water quality with the following of mitigation measures. The project utilises existing site to minimise all potential environmental impacts.
Dir 14	*Manage land uses along key river corridors.*	Yes	Project is not located within the river corridor.
Dir 15	*Protect and manage the region's many environmental assets.*	Yes	Project's environmental effects has been assessed for potential impacts to environmental value of area, ecosystems, habitats and does not propose additional impact to the Travelling Stock Reserve.
Dir 16	*Increase resilience to natural hazards and climate change.*	Yes	Project will not affect flooding.
Goal 3	**Efficient transport and infrastructure networks**		
Dir 17	*Transform the region into the eastern seaboard's freight and logistics hub.*	NA	Proposal does not relate to industry or freight.
Dir 18	*Enhance road and rail freight links.*	NA	Proposal does not relate to industry or freight.
Dir 19	*Support and protect ongoing access to air travel.*	NA	Proposal does not relate to industry or freight and will not affect air travel.
Dir 20	*Identify and protect future transport corridors.*	NA	Will not affect future corridors.
Dir 21	*Align and protect utility infrastructure investment.*	NA	Project will not remove future access to infrastructure.
Goal 4	**Strong, connected and healthy communities**		
Dir 22	*Promote the growth of regional cities and local centres.*	NA	Project application does not relate to regional development although has the ability to benefit with future opportunities within Murray Downs and surrounding areas.
Dir 23	*Build resilience in towns and villages.*	NA	Project does not relate to an urban proposal.
Dir 24	*Create a connected and competitive environment for cross-border communities.*	NA	Project does not relate to community actions.
Dir 25	*Build housing capacity to meet demand.*	NA	Project is not related to housing proposal.
Dir 26	*Provide greater housing choice.*	NA	Project not related to housing proposal.
Dir 27	*Manage rural residential development.*	NA	Project not related to rural residential development.

Goal	Description	Project Consistent Yes/No	Explanation
Dir 28	*Deliver healthy built environments and improved urban design.*	NA	Project not related to urban design.
Dir 29	*Protect the region's Aboriginal and historic heritage.*	NA	Project will not affect Aboriginal heritage as not occurring on undisturbed land.

Comment

The project is in line with all aims, objectives and planning principles of the Murray Regional Plan 2036.

3.4. LOCAL PLANNING

Local Environment Plans (LEPs) guide planning decisions for Local Government Areas (LGAs). These frameworks include zoning and development controls providing a framework for the way land can be used and ensure local development is undertaken appropriately. Development Control Plans (DCPs) often provide additional details relating to development standards and character as well as guidance to applicants and planning authorities on how development proposals should give effect to aims of local planning and additional details relating to development standards and character.

3.4.1. WAKOOL LOCAL ENVIRONMENTAL PLAN 2013

The table provided below identifies relevant clauses within the LEP, identifies their consistency and provides an explanation where required.

Table 3-8 – Table of Wakool LEP clauses

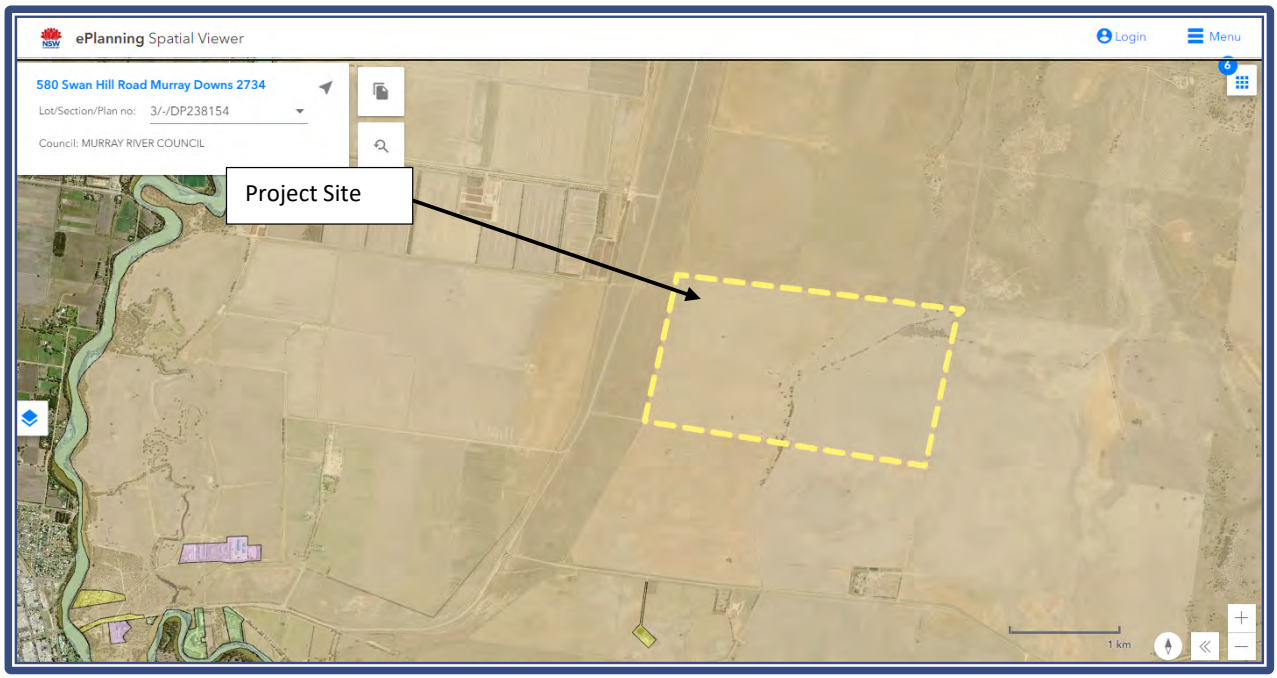
Clause	Description	Project Consistent Yes/No	Explanation
1.2	**The aims of the Wakool LEP are:**		
a)	to reinforce the strong rural character of Wakool.	Yes	The project does not propose a change in the zoning of the area and occupies a small area within the property. The remaining area of the property will continue to be used as an agricultural faming production area.
b)	to encourage the continued use of agricultural land for primary production.	Yes	
c)	to avoid the unnecessary fragmentation of rural land.	Yes	Project does not involve subdivision, propose incompatible land uses or fragment rural lands.
d)	to encourage sustainable economic growth and development within Wakool.	Yes	Project supports economic growth within the Wakool portion of the Murray River LGA and assist with value adding a product grown in the district by many local businesses.
e)	to identify, protect, conserve and enhance Wakool's natural assets.	Yes	Projects are unlikely to be detrimental to natural assets.
f)	to identify and protect Wakool's built and cultural heritage assets for future generations.	Yes	Works are proposed only on existing disturbed area with no identified impacts to heritage.
g)	to encourage and support growth in the townships of Barham, Wakool, Koraleigh, Tooleybuc, Moulamein and Murray Downs within the servicing catchment for sewer and water.	NA	Not applicable.
h)	to protect environmentally sensitive land and conserve native vegetation habitats and threatened species.	Yes	Works are unlikely to impact on native vegetation or threatened species with no vegetation removal or species impacted.
i)	to give priority to the protection, conservation and enhancement of indigenous and non-indigenous cultural heritage.	Yes	No impacts predicted to heritage as part of project works or operation.

Clause	Description	Project Consistent Yes/No	Explanation
j)	to encourage non-agricultural enterprises by permitting a wide range of urban land uses consistent with the imperative to support economic growth, employment creation and business opportunities.	NA	Not applicable.
2.1	**Land Use Zones**		
2.1	*RU1 – Primary Production*	Yes with consent	Project is described as Rural Industry and is permitted with consent. Development is in line will all objectives within this zone.
5	**Miscellaneous provisions**		
5.10	*Heritage Conservation.*	Yes	See sections **5.5** - **Indigenous Heritage** and **5.6** - **Non-Indigenous Heritage**
5.21	*Flood planning*	Yes	Not in flood planning area
6	**Additional Local Provisions**		
6.1	*Earthworks.*	Yes	See Below
6.3	*Terrestrial biodiversity*	Yes	See below.
6.4	*Riparian Land and Watercourses*	NA	Not applicable
6.5	*Wetlands*	NA	Not applicable
6.6	*Development on the river front areas*	NA	Not applicable
6.7	*Development on the river beds and banks*	NA	Not applicable
6.8	*Essential Services*	Yes	See Below

ZONING

The project as identified below is located within the RU – Primary Production Zone. The objectives of this 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.*
- *To promote the use of agricultural land for efficient and effective agricultural production without the encroachment of urban land uses.*
- *To allow the development of processing, service and value-adding industries related to agriculture and primary industry production.*
- *To allow the development of complementary non-agricultural land uses that are compatible with the character of the zone.*



COMMENT

The project area is identified below in relation to the land use zone and adjoining zones. The project is located within the RU1 – Primary Production zone and is defined as ***Rural Industry/ Agricultural Produce Industry*** which is permitted with consent in this zone.

Rural Industry *means 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.

Note—Rural industries are not a type of industry—see the definition of that term in the Dictionary.

agricultural produce industry *means a building or place used for the handling, treating, processing or packing, for commercial purposes, of produce from agriculture (including dairy products, seeds, fruit, vegetables or other plant material), and includes wineries, flour mills, cotton seed oil plants, cotton gins, feed mills, cheese and butter factories, and juicing or canning plants, but does not include a livestock processing industry.*

Note—Agricultural produce industries are a type of rural industry—see the definition of that term above.

WAKOOL LEP 2013 – CLAUSE 6.1 EARTHWORKS

The objectives of this clause are as follows:

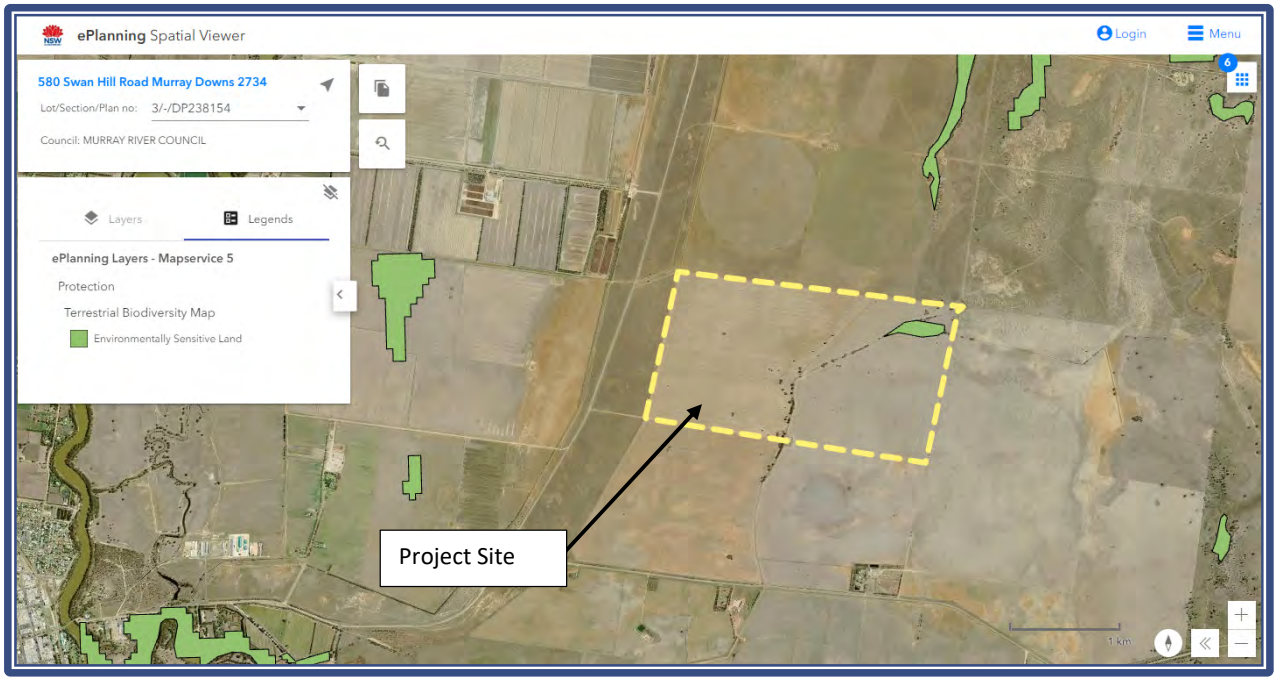
a) *to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land,*
b) *to allow earthworks of a minor nature without requiring separate development consent.*

COMMENT

The project works require development consent. Soil and geotechnical requirements are provided in **Section 5.3**, surface water and drainage is addressed in **Section 5.2.2**, land and amenity matters are addressed in **Section 5.11** and heritage is reviewed in **Section 5.5**. As previously stated, the works are not proposed on or within a River, within a drinking water catchment or an environmentally sensitive area.

WAKOOL LEP 2013 – CLAUSE 6.3 TERRESTRIAL BIODIVERSITY

The property and site relating to the project works are shown below together with the Terrestrial Biodiversity overlay. It can be seen that the property interacts with this overlay however the project area is not located within the overlay area. This is consistent with the on-site conditions that do not propose to impact on native vegetation at the site.



The objectives of this clause are as follows:

(a) protecting native fauna and flora,

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

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

COMMENT

Project works are in an area on the site that will not impact the area mapped within the terrestrial biodiversity overlay. A Biodiversity assessment has been completed as part of this report and is in **Section 5.4** below.

WAKOOL LEP 2013 – CLAUSE 6.8 ESSENTIAL SERVICES

The LEP states that development consent must not be granted to development unless the consent authority is satisfied that there are sufficient essential services available to the project including: water, electricity, sewage, stormwater drainage and road access.

COMMENT

As identified above, the project does not require a connection to council's water, sewerage or stormwater system. The existing Swan Hill road access relating to the driveway entrance and entry road is proposed for upgrade and an approved electrical upgrade by Essential Energy is proposed.

3.5. DEVELOPMENT CONTROL PLAN

3.5.1. WAKOOL DEVELOPMENT CONTROL PLAN 2013

The purpose of the Development Control Plan (DCP) is to:

- Define development standards that deliver increased certainty of development outcomes desired by the community, proponents, and Council,
- Provide development guidelines for various forms of development that complement the provisions contained in Wakool LEP, 2013 and SEPP (Biodiversity and Conservation) – Chapter 5 - Murray Lands,
- Encourage innovation in design and development by, where suitable, focussing on desired outcomes, not the method of achieving those outcomes, and

- Expediting development approvals by providing clear direction on Council's intent and criteria and having more detailed controls for those developments that seek to vary from the DCP.

Specific sections in the DCP that relate to this project are

Table 3-9 - Table showing the Wakool Development Control Plan considerations

Clause	Description	Project Consistent Yes/No	Explanation
A	**Introduction**		
2.4	Local Development	Yes	Project is to be assessed as local development however will require referral to relevant authorities under SEPP (Biodiversity and Conservation) Chapter 5 – Murray Lands.
3	Advertising	Yes	Project works may be advertised as works and scale of the project have the potential to be in the public interest.
B	**Land Use Types**		
2	Industrial and higher impact uses		
2.1 & 4.1	Site Planning	Yes	This application provides the required documentation to consider and respond to the environmental opportunities and site constraints. The application includes the require information outlined in Appendix 1. This document is a Statement of Environmental Effects reviewing the environment and heritage at the site. Significant plans are provided as part of the application documents.
2.2	Site Selection & Land Use Conflict	Yes	The site has been selected based on minimal impact to adjoining areas. The project proposal is permissible under the Wakool LEP. This assessment provides a review of the identified impacts for the construction and operation of the facility. There is significant area within the site not connected to adjoining boundaries that the project design has considered.
2.3	Building Setbacks	Yes	The facility has been designed in accordance with the required setbacks for buildings. The project design has also considered and met the relevant separation distances recommended in Appendix 2 for Rural Industries.
2.4	Building articulation, design & Materials	Yes	The proposed buildings are setback a significant distance from local roads being located behind an elevated area on the west and a constructed mound on the east. There will be limited viewpoints of the infrastructure from the adjoining roads or adjoining areas. See **Section 5.11**.
2.5	Access and parking	Yes	Access and parking has been proposed in accordance with the local and state requirements. A Traffic in accordance with Appendix 1 has been provided as part of this assessment. See **Section 5.9**.
2.6	Outdoor lighting, advertising and signage	Yes	See B6.
2.7	Outdoor storage areas	Yes	The proposed storage of materials is in accordance with the DCP being proposed away from public vantage points and behind buildings. The surface areas of storage and site facilities as been designed to drain to a controlled drainage area.
2.8	Fencing	NA	No change to existing rural property boundary fencing is proposed.

Clause	Description	Project Consistent Yes/No	Explanation
2.9	Landscape and tree preservation	NA	The project site is located in excess of 650m from any public road and behind an elevated area. Public will have limited vantage points of the site.
2.10	Utilities	Yes	Project does not proposed connection to reticulated sewer and will proposed an on site sewerage management system in accordance with Local Government Act requirements. Water requirements at the site are minimal and the site has sufficient water storage to manage operating requirements. Stormwater management system has been proposed and detailed in this document. Power requirements and connection have also been considered and connections upgrades have been instigated. Waste management is detailed in the following sections of this document.
6.1	Outdoor lighting, advertising & signage	Yes	The project site will include detailed signage within the property to assist with traffic movement, safety and biosecurity. This will include main signage located at the property entrance which is located a significant distance from the Road. The proposed sign located on the Swan Hill Road will identify the site driveway.
6.2	Street trading/ footpath dining	NA	Not relevant.
6.3	Earthworks	Yes	Project works will be undertaken in conjunction with Erosion and Sediment Control measures and Australian Standard & Building Code of Australia requirements for related structures. Relevant plans have been included in this application showing the proposed works.
6.4	Tourist and visitor accommodation	NA	Not relevant
6.5	River structures and boating facilities	NA	Not relevant
6.6	Animal boarding and training	NA	Not relevant
6.7	Sex services premises	NA	Not relevant
6.8	Temporary Events	NA	Not relevant
6.9	Extractive Industries	NA	Not relevant
C	**Site Specific Controls**		
1.1	Natural Environment	Yes	No vegetation is proposed for removal as part of works. Further information is detailed in **Section 5.4**.
1.2	Watercourses and Wetlands	NA	Project is not related to a watercourse or wetland
1.3	Groundwater	Yes	Project is not located within groundwater impact area and will not interact with local groundwater network either during construction or operation of the site.
2.1	Hazards – Geology and salinity	Yes	Project is not located within a saline area and does not contain any soil related issue. See **Section 5.3** for details.
2.2	Hazards - Contamination	Yes	There is no record of contamination at the site and no evidence of activities typically associated with contamination.
2.3	Hazards – Stormwater and drainage	Yes	Detailed plans and descriptions are provided in relation to stormwater management at the site. See **Section 5.2** for details.
2.4	Flood Planning	Yes	Site is not subject to flooding See **Section 5.2** for details.
2.5	Bushfire	Yes	Site is not mapped as bushfire prone. See **Section 2.5.5.4** for details.

Clause	Description	Project Consistent Yes/No	Explanation
2.6	Noise and Vibration	Yes	This document and related assessments has considered and assessed the potential impacts on the site, surrounds and receptors. No impacts have been identified based on construction activities occurring within day times. See **Section 5.8** for detail and **Appendix 6.11**.
2.7	Odour	NA	Project construction and operation activities do not relate to odour.
3.1	Indigenous Heritage and archaeology	Yes	The project works area has been assessed for potential impacts to Aboriginal Cultural Heritage by a qualified archaeologist. See **Section 5.5** and **Appendix 6.9** for further details.
3.2	Non-indigenous heritage	Yes	The project works area has been assessed for potential impacts to non-indigenous heritage and based on separation distances, there are no predicted impacts. See **Section 5.6** and **Appendix 6.10** for further details.
4	Access and Parking	Yes	The project plans have provided the proposed entrance treatment at the Swan Hill Rd. The facility only proposes a single entrance to the property which has been proposed in accordance with this section. Internal traffic movements and parking plans have been provided. Parking is proposed in accordance with the Traffic Impact Assessment and proposes double the car parks required to accommodate shift changes.
5	Urban Character Statements	NA	Project is not located in an urban settlement.

Comment

The project has been reviewed and proposed in accordance with relevant parts of the Wakool Development Control plan meeting and often exceeding development controls identified.

4. ENGAGEMENT AND APPLICATION REQUIREMENTS

During the preparation and review of the proposed works, relevant referral authorities for this project have been consulted to ensure the projects aims, objectives, works and ongoing management and operation is in line with current permitted activities. **Table 4-1** below summarises the referral authorities consulted and the details of that activity. Further information on the authorities that have been consulted, both within NSW and where relevant at a national level, with the described outcomes is included as referenced in the table. Specific copies of the correspondence are included in **Appendix 6.4.**

4.1. REFERAL AUTHORITY SUMMARY

This Development Application is to be assessed by Murray River Council who will consider the requirements for concurrence and referral based on project works. To assist in this determination the below table has been prepared in reference to the *NSW Development Referrals Guide (September 2022*) to summarise possible referral authorities and their role in approval.

Table 4-1 Summary of Engagement Considerations (based on NSW Development Referrals Guide published September 2022)

Role	Authority	Consultation	Integrated	Concurrence	Referral	Notes
Development Impacting Electricity	Essential Energy	Yes	No	No	No	Consultation with Essential Energy has been undertaken and Connection Investigation has been completed. Further discussed in **Section 5.1.6**below
Bushfire Protection	NSW Rural Fire Service (NSW RFS)	No	No	No	No	The proposed project is not within a mapped bushfire prone area however the development application and design has considered the Planning for Bushfire Protection, 2019
Heritage Conservation	Heritage Council of NSW (Heritage Council)	No	No	No	No	The impact of the project on Heritage has been considered in sections **5.5** and **5.6**
Aboriginal Cultural Heritage	Heritage NSW	No	No	No	No	Due Diligence Assessment report has been completed to support this application. Further detail provided in Section **5.5** and Report included in **Appendix6.9.**
Environment Protection	Environment Protection Authority (EPA)	Yes	No	No	No	Consultation has been undertaken in relation to the staged approach for this project. Confirmation that no EPA licence is required for stage 1 and the works referred to in this project. Biodiversity Assessment has been included in **Section 5.4**.
Aquatic and Marine matters	Multiple	No	No	No	No	This project does not river related
Water Management (Part 1) – Controlled Activities	Department of Planning and Environment - Water	No	No	No	No	This project does not river related, and no action is identified as a Controlled Activity.
Water Management (Part 2) – Water Licences and Approvals	NRAR WaterNSW	Yes	No	No	Nos	Consultation has been undertaken to assess the capture of stormwater runoff from the hardstand areas on the project site for storage in a stormwater catchment dam and confirmation that the project is exempt have been received. Further details are provided on this in **Section 5.2.**

Role	Authority	Consultation	Integrated	Concurrence	Referral	Notes
Water Quality	WaterNSW	No	No	No	No	This project does not river related or connected to any tributary or waterway
Development impacting water infrastructure	Water NSW	Yes	No	No	No	Works are not related to any water infrastructure.
Flood prevention	Environment, Energy and Science group within Department of Planning, Industry and Environment	No	No	No	No	This project does not river related and is not within a flood planning area.
Coal mine subsidence	Subsidence Advisory NSW	No	No	No	No	Not relevant to this project.
Mining leases	Department of Regional NSW – Mining, Exploration and Geoscience (MEG)	No	No	No	No	Not relevant to this project.
Development impacting pipeline infrastructure	Jemena, Viva Energy, Caltex, Qenos, Exxon Mobil, APA Group, Energy Australia and BP Australia	No	No	No	No	Not relevant to this project.
Development impacting railway infrastructure	Sydney Trains, Sydney Metro, Transport for NSW and Australian Rail Track Corporation	No	No	No	No	Not relevant to this project
Development impacting roads	Transport for NSW – Roads	Yes	No	No	Yes	Project works are located on a Regional Road under the control of Murray River Council. A Traffic Impact Assessment has been completed by Traffic Works detailing potential traffic impacts. See **Section 5.9** for further information. Referral required due to Traffic Generation.
Development impacting air infrastructure	Air Service Australia, Sydney Airports Corporation	No	No	No	No	Not relevant to this project.
Development impacting defence infrastructure	Australian Department of Defence	No	No	No	No	Not relevant to this project.
Proposed education infrastructure	NSW Department of Education	No	No	No	No	Not relevant to this project.
Development impacting observatory infrastructure	Siding Springs Observatory, Planning Secretary	No	No	No	No	Not relevant to this project.
Urban design	Design review panels, Government Architect NSW	No	No	No	No	Not relevant to this project.

Role	Authority	Consultation	Integrated	Concurrence	Referral	Notes
Land-use planning	Planning Secretary, Minister for Planning	No	No	No	No	Not relevant to this project.
Development at ports	Port operator (NSW Ports)	No	No	No	No	Not relevant to this project.
Hazardous and offensive development	Environment Protection Authority (Licence)	Yes	No	No	No	Project has considered Hazardous and Offensive development triggers and there are there are no triggers identified as part of the project works and operation.

* Council may choose to refer for comment

4.2. CONSULTATION AND OUTCOMES

Specific details relating to referral authorities' responses and where relevant results of assessments against the referral requirements have been provided below. Where received and is relevant, copies of the correspondence have been included in **Appendix 4.**

4.2.1. DEPARTMENT OF PLANNING AND ENVIRONMENT

Role: Determination of State Significant Development

The NSW Government has identified certain types of development as state significant. These include new educational establishments, hospitals, correctional centres, chemical and other manufacturing, mining and extraction, tourist and recreation facilities, some port facilities, waste management facilities and energy generating facilities. State Significant Development is triggered based on its size, location (if in a sensitive environmental area) and if it exceeds specific capital investment.

Preliminary consultation was undertaken with the DPE in the early investigation of the project feasibility. Ms Meredith McIntyre Senior Planning Officer of the Western Region Local and Regional Planning team was consulted as part of the preliminary consultation where a review of criteria for State Significant Development determined that the planned staged project would be considered Regional Significant should the processing volume of 30,000t annual throughput be proposed however would not meet the criteria to be classified as state significant.

***Application Requirement**:* No concurrence or referral required.

4.2.2. DEPARTMENT OF REGIONAL NSW

Role: Determination of Regional Development and connecting stakeholders

Regional NSW is the central agency for regional issues, building resilient regional economies and communities, strengthening primary industries, managing the use of valuable regional land and overseeing the states mineral and mining resources. The Department ensures that Government investment in NSW is fair and delivers positive outcomes for local communities and businesses.

A High Impact Team (HIT) meeting was held with multiple agencies to discuss the proposed facility and its location on the 25th May 2022. Agencies that were included in the HIT meeting and follow up included Dept of Regional NSW (Riverina Murray), Department of Primary Industries, Murray River Council, Industry Capability Network, AusIndustry, EPA, Planning, Industry and Environment, Essential Energy and Transport for NSW.

Following the meeting relevant agencies and essential service providers provided feedback and direction for the concept development and eventual proposal as developed for this application. It is recognised that this development at this stage is not considered Regionally Significant however any future investment and development will be.

***Application Requirement**:* No requirement for referral to this Department or a Regional Planning Panel. The department will be notified of the lodgement of this application at a local level.

4.2.3. MURRAY RIVER COUNCIL

Role: Consenting Authority

The Murray River Council has statutory responsibilities with regard to the review of the project within its Council area and the aims, objectives and responsible planning in line with State, Regional, Local planning instruments and Development Control Plans.

Representatives from the Murray River Council's Community and Economic Development team attended the HIT meeting to discuss the project at its inception. A second pre-development application meeting was held with representatives of Murray River Council including Ms Isobella Lucic and Mr Christopher O'Brien on 1 July 2022. The project was discussed in detail with multiple options and requirements identified. This document, related reports, plans and other information has been prepared in line with these requirements.

***Application Requirement**:* The development being considered a Rural Industry is identified under the planning control of Council. There is no part of the project development that is proposed contrary to the aims, objectives and principles of the instrument previously known as Murray REP2. The works do not relate to the River Murray and propose impact to the Murray River. Referral requirements have been nominated within the planning control and consultation table which include a requirement to refer to Transport for NSW - Roads. A detailed review of the planning requirements has been undertaken and provided in this report. Multiple detailed assessments have also been undertaken to support the application and this Statement of Environmental Effects. All requirements identified within the meeting and correspondence have been reviewed and provided in this report and supporting documents.

4.2.4. ESSENTIAL ENERGY

Role: Development Impacting Electricity

Electrical supply authorities provide advice on potential electrical safety risks in relation to proposed development. This advice is important to minimise the risk of safety issues occurring during construction and operation and to support the ongoing efficient operation of the electricity network.

Essential Energy is the retail electricity service provider in this region and consultation has been sought in the form of a connection enquiry in April 2022. A Connection Investigation Response report was provided in June 2022 and following review, the connection agreement has been completed and lodged.

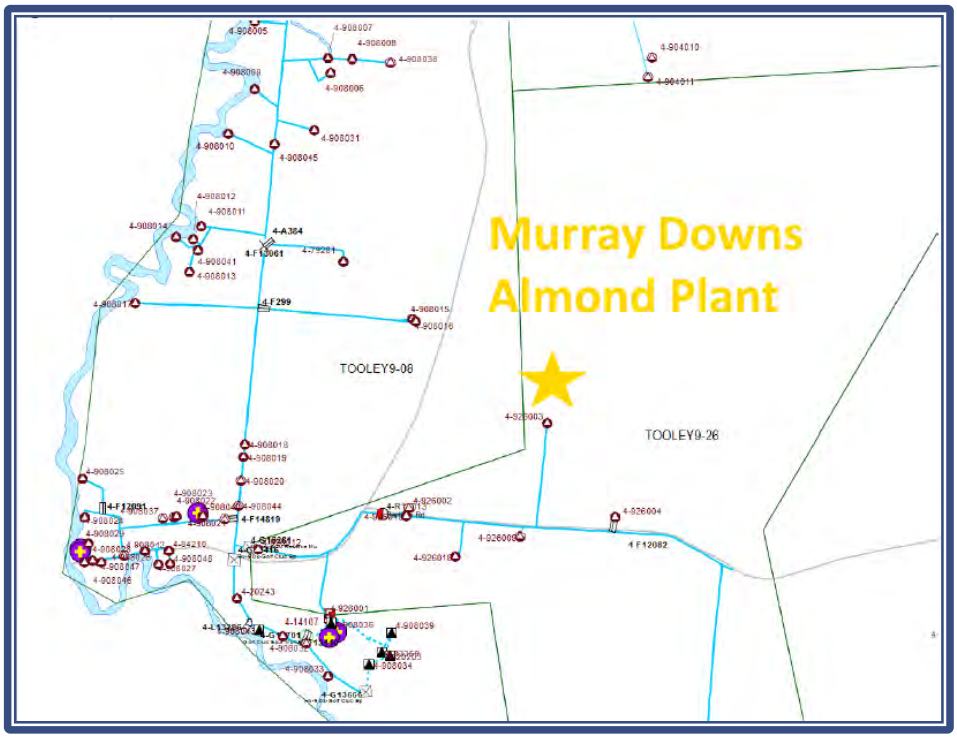


Figure 4-1 Overview of the proposed connection with Essential Energy's 22kV distribution line KOR23 (Source Connection Investigation Response)

***Application Requirement**:* No activities described in the SEPP (Transport and Infrastructure) clause 2.47 relate to the project works. The project works and their undertakings have been prepared in accordance with a supply agreement and assessment prepared by Essential Energy.

4.2.5. NSW RURAL FIRE SERVICES

Role: Bushfire Protection

NSW Rural Fire Services has a statutory obligation to protect life, property and the natural environment. These obligations are met through supressing, preventing and minimising the impacts on property from the threat of bushfire. The authority also reviews development proposals in line with development potential, site location, characteristics and the surrounding environment.

The property is not mapped as being within a bushfire prone area. No consultation has been undertaken with the NSW RFS as part of this application. A review of the *Planning for Bushfire Protection*, 2019 has been undertaken in conjunction with the Building Code Australia classification of the buildings (undertaken by certifier) and the project has been designed to incorporate additional measures in relation to access, egress, access to water and asset protection zones. A map has been provided identifying these measures which are also detailed in **Section 2.5.5.4**.

There is no dwelling proposed on the site and sufficient emergency evacuation measures are available at the site.

***Application Requirement**:* The development is not integrated, and no concurrence or referral is required although may be undertaken if Council chooses.

4.2.6. HERITAGE NSW AND WAMBA WAMBA LOCAL ABORIGINAL LAND COUNCIL

Role: Aboriginal Cultural Heritage

A Due Diligence Assessment has been undertaken on the project site by a suitably qualified archaeologist with experience in Aboriginal cultural heritage.

Multiple attempts were made to contact the Wamba Wamba Local Aboriginal Council for input during the site inspection and as part of the Due Diligence assessment. All attempts including visiting the office were unsuccessful in reaching a representative. No Consultation has been undertaken with Heritage NSW. The assessment undertaken in accordance with the HeritageNSW requirements which did not identify the need to undertake further investigations or make application of an AHIP. The detailed results of this assessment have been discussed further in section **5.5** of this report.

Application Requirement: The development is not integrated, and no concurrence or referral is required.

4.2.7. ENVIRONMENTAL PROTECTION AUTHORITY (EPA)

Roles: Environment Protection

The Environment Protection Authority (EPA) is responsible for administering the *Protection of the Environment Operations Act 1997* (POE Act) which includes Clean air, water, noise and pollutions including waste.

A site inspection and consultation has been undertaken with Mr Darren Wallett, Unit Head of Regulatory Operations to review the proposed facility and site operations. At the site meeting the current proposed throughput of less than 30,000t of was discussed together with future options to increase the volume and processing activities. It was identified that future activities at the site would require an EPA licence and a designated development application.

The EPA did not have comment on the facility as proposed as no EPA licence is required however it was encouraged to consider site location and design with regard to future opportunities and potential noise impacts on adjoining areas. This information was utilised for the final siting and operation activities. An acoustic assessment has also been undertaken considering the current proposed activities at the site.

Application Requirement: Based on the proposed capacity of less than 30,000t at the site, the development does not meet the definition of an activity listed in Schedule 1 of the POEO Act and no trigger for an Environment Protection Licence (EPL) is required. Chapter 5 of the Biodiversity and Conservation SEPP does not identify referral as being required under Rural Industry. As a result, the development is not integrated and does not require concurrence and unless determined by Council, does not require referral.

4.2.8. WATERNSW

Roles: Water Management (Part 2) – Water Licences and Approvals

WaterNSW is responsible for supplying NSW's bulk water needs, operating NSW's river systems and providing services to its customers with respect to licensing and approvals, water allocation trades, water licence trades and water resource information.

Consultation has been undertaken with Water NSW representative Simone Tonkin (Water Regulation Specialist, Assessment and Approvals) in the Deniliquin office on 7th September July 2022. At this time, information was provided in relation to maximum harvestable rights, the stormwater detention system and its overflow management and the proposed use of water captured within the site. Following a pre-lodgement review undertaken by this officer, it was determined that the site works were exempt for requiring any licence or authority.

Application Requirement: The development is not integrated under Section 89 or 90 of the Water Management Act, 2000. Chapter 5 of the Biodiversity and Conservation SEPP does not identify referral as being required under Rural Industry. As a result, the development is not integrated and does not require concurrence and unless determined by Council, does not require referral.

4.2.9. TRANSPORT FOR NSW - ROADS

Roles: Development impacting roads

The road network in NSW is critical for the way that residents live and work in the State. Roads form an essential part of the economy, and it facilitates links within the community. The transport for New South Wales (previously known as RMS) authority is responsible for ensuring road users have safe and efficient journeys throughout all of NSW, managing the operations and programs for roads.

Consultation has been undertaken with Transport for NSW representative Mr Cam O'Kane via phone on the 1st July 2022 following an enquiry email providing preliminary information on the project. It was confirmed in this conversation that the Swan Hill Rd is a Regional road under the control of the Murray River Council. It was also noted that it would be likely that Council would refer and consider comments from Transport for NSW as part of its review of any project works. The existing traffic numbers (unknown), sight distance, and proposed use and road impacts were broadly discussed. It was identified that any assessment of traffic impacts should be undertaken by someone with suitable experience and should detail the proposed traffic numbers and interaction with existing use of the road. Following this discussion, Trafficworks were engaged to undertake assessments reflective of the proposed and future traffic interaction with the site. This is further discussed in **Section 5.9** of this report.

Application Requirement: Consultation undertaken with Transport for NSW-roads identified that Council is the Road Authority responsible for the Swan Hill Road. The development does generate traffic and as a result, the SEPP (Transport and Infrastructure) Schedule 3 table determines that an Industry with a floor area greater than 20,000m^2 (this development) and access to a road (generally) will require referral to Transport for NSW – roads for comment. Suitable assessments and information have been provided in this assessment for this referral.

4.2.10. NSW DPI CROWN LAND & NSW LOCAL LAND SERVICES

Role: Land Owners Consent (Access)

NSW DPI – Crown Land is responsible for the management of NSW's Crown land, covering 42% of the state, including parks, reserves, roads and cemeteries. The department supports a wide range of uses for Crown land. To ensure the land is used correctly, they are responsible for issuing licences, lease and permits.

Advice was sought and provided by Peter Bisset of the Hay office in relation to the proposed works on the Crown Land managed as a Travelling Stock Reserve (TSR). This department confirmed that the site is within a Travelling Stock Reserve it is within the control of Local Land Services.

Local Land Services is a regional-focused NSW Government agency that delivers services to farmers, landholders and the wider community. They assist stakeholders to make better decisions about the land that they manage and ensure sustainable decisions are made with relation to rural lands. This includes agricultural production, biosecurity, natural resource management and help during emergencies.

Following NSW Crown land advice, the Murray Local Land Services representative Mr Gary Rodda was consulted in relation to the proposed driveway connecting works within the TSR. During this conversation, it was identified that as the works related to the upgrade of the single access driveway to the property, that construction costs are to be covered by the owner, that any work should review the disturbance activities in conjunction with preventing harm to Aboriginal

Cultural Heritage. As a result of this, the assessment was undertaken over the facility area and the access driveway with no potential impacts identified.

***Application Requirement**:* Consultation identified that the project area is not subject to NSW Crown land control. The access to the property through the TSR is a singular access permitted under Clause 75 of the Local Land Services Act. Consultation has occurred with Local Land Services and recommendations relating to the proposed works have been followed and provided in this report. Chapter 5 of the Biodiversity and Conservation SEPP does not identify referral as being required under Rural Industry. As a result, the development is not integrated and does not require concurrence or referral.

4.2.11. SURROUNDING RESIDENTS AND OCCUPANTS

Adjoining properties consist of lessee's, present and absent landowners. The image below identifies the surrounding property ownership in relation to the project site.

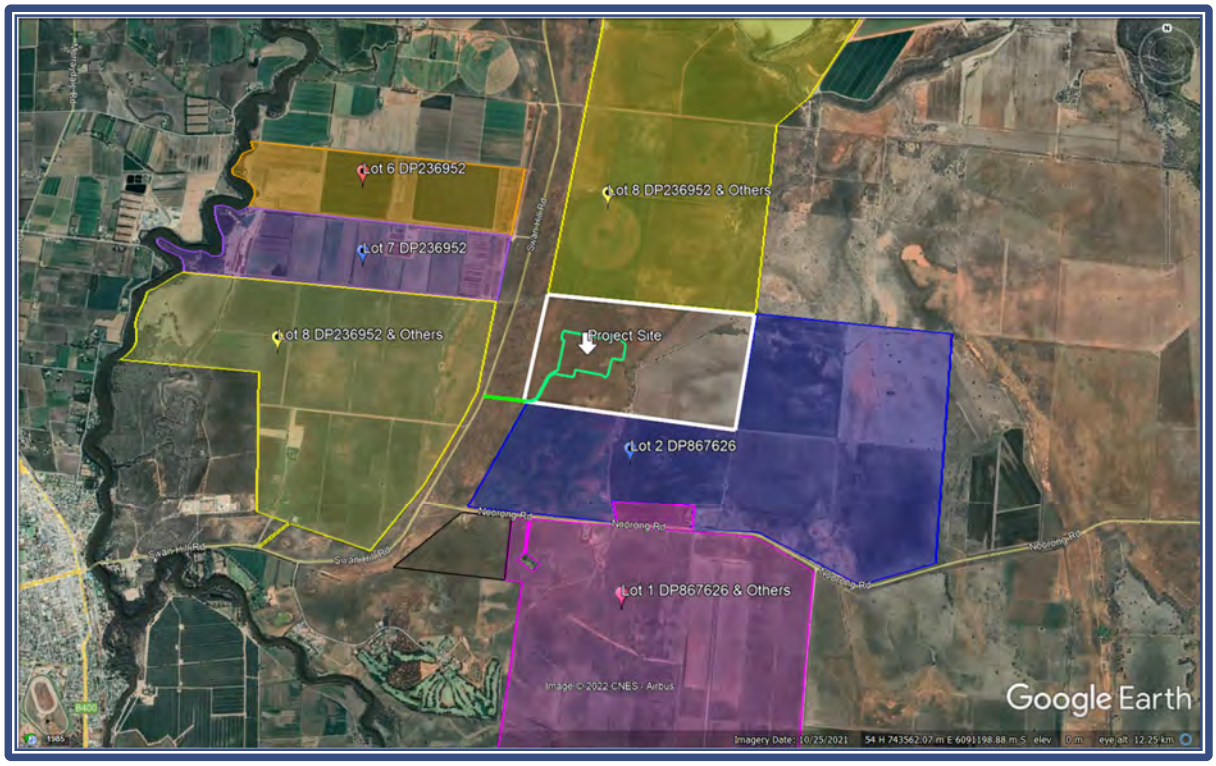


Figure 4-2 - Project site and property in relation to surrounding property ownership (Source: Google earth)

All adjoining landowners were originally contacted by the applicants' representatives at the time of contract review for the property purchase. At that time, the future facility was identified with no individual identifying any issue with the proposed facility as broadly described.

Following completion of the detailed assessments and project design components, further consultation has now been undertaken providing details of the project plans and assessments to adjoining landholders and operators prior to the lodgement of this development application. The areas shown in shading above represent the area of the consultation. No issues were raised with the representative during these meetings.

***Application Requirement**:* Public notification required.

5. ENVIRONMENTAL IMPACT ASSESSMENT

5.1. ENVIRONMENTAL SETTING

5.1.1. INTRODUCTION

The descriptions of various environmental aspects of this project throughout this section are reliant upon a range of background information common to many of the key environmental issues. In this section, the local setting is described, and background information is provided on topography, climate, geological setting, land ownership and land uses of the project site and surrounds. The information presented in this sub-section provides a general overview of the environmental setting of the project site with more specific information in relation to particular environmental aspects of the project being presented in the following subsections.

5.1.2. CLIMATE

INTRODUCTION AND DATA SOURCES

Meteorological conditions have the potential to influence a range of project-related activities. An overview of these conditions at the project site and surrounds, with a focus on their potential influencing factors to project related activities, has been recorded below.

CLIMATE RECORDS

The climate in the Swan Hill area can be described as a semi-arid climate under the Koppen climate classification with hot summers and cool winters. Extreme temperatures at Swan Hill Airport have ranged from 47.5^{0}C on the 25th January 2019 to -5.9^{0}C on the 17th June 1977. The average annual rainfall is 310.3mm.

Table 5-1 – Table showing climate data (Swan Hill)

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
Highest High	46.2	46.9	42.0	36.9	28.0	25.0	23.0	27.8	34.1	38.4	45.2	45.8	46.9
Mean High	33.0	32.4	28.6	23.8	18.8	15.3	14.6	16.8	20.3	24.2	28.2	30.6	23.9
Mean Low	16.1	16.0	12.9	9.1	6.3	4.4	3.6	4.0	5.9	7.9	11.6	13.7	9.3
Lowest Low	6.0	5.5	4.1	-.03	-2.2	-5.0	-5.2	-3.7	-1.6	-1.0	1.0	5.0	-5.2
Mean rainfall	27.0	22.1	17.5	22.1	25.6	25.3	28.1	27.3	29.5	21.9	42.5	22.0	310.3
Avg rainfall days	3.9	3.6	3.5	4.7	7.8	10.4	12.9	10.3	8.0	6.3	6.5	4.8	76.4

TEMPERATURE

January and February are typically the hottest months, with the highest recorded maximum temperature of 46.9˚C recorded in February. July is the coldest month with a lowest recorded temperature of -5.5˚C.

RAINFALL

Rainfall data for the project area has been reviewed since January 1900. Across this period the mean annual rainfall is 329.7mm, with mean monthly rainfall totals increasing towards the months of July and August. Mean monthly rainfall totals vary between 21.6mm in February and 32.2mm in August. The driest year on record was 1967 when 132mm of rainfall was recorded. By contrast the wettest year on record was 1973 when 671.6mm of rain was recorded.

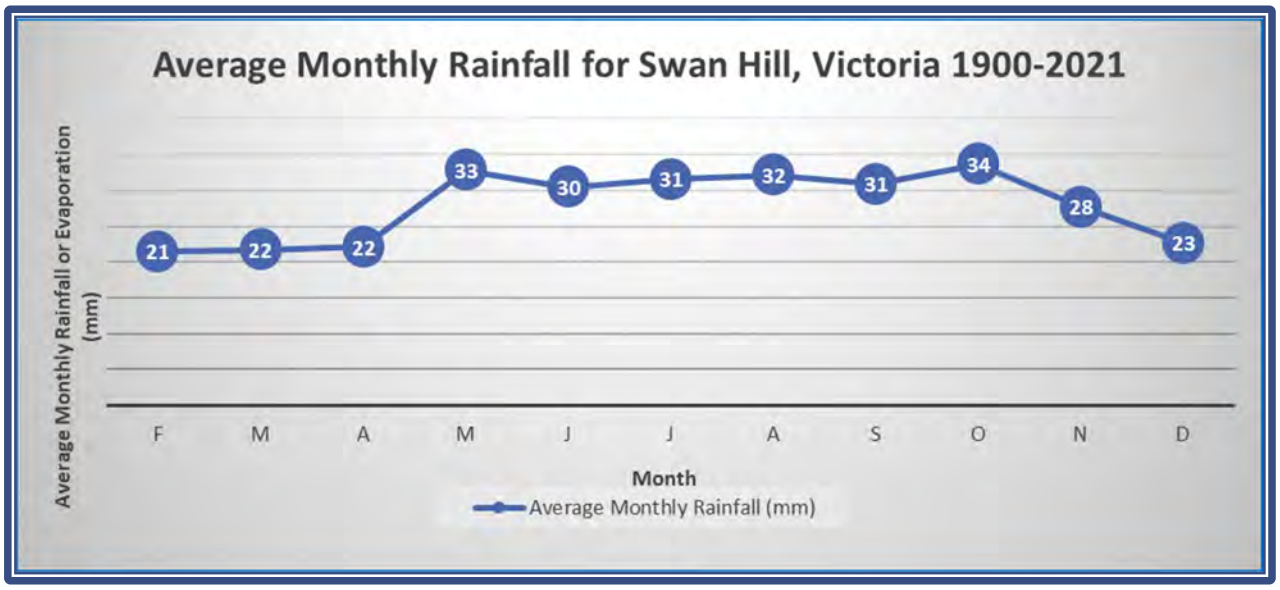
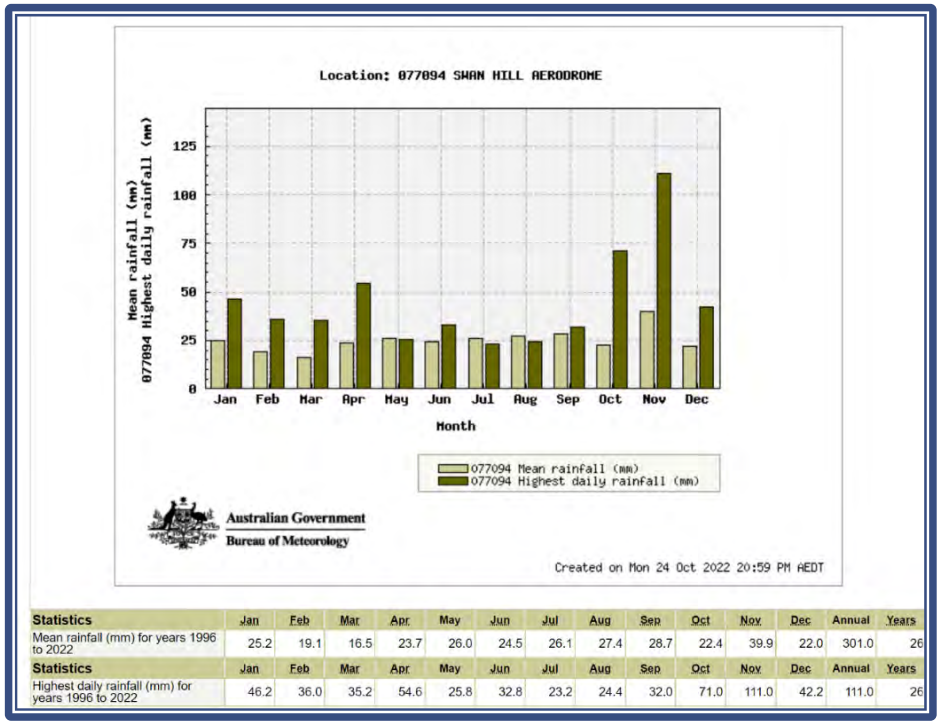


Figure 5-1 – Average monthly rainfall (Source: Silo 2022)

The maximum daily rainfall recorded in the area is 54.6mm which was recorded on 10 April 2014. As is demonstrated in **Figure 5-2** below the maximum daily rainfall exceeds monthly average rainfall for all months, except for July and August indicating that high intensity storms with significant rainfall over a relatively short duration occur, particularly in the summer months.



Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean rainfall (mm) for years 1996 to 2022	25.2	19.1	16.5	23.7	26.0	24.5	26.1	27.4	28.7	22.4	39.9	22.0	301.0	26
Statistics	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**Years**
Highest daily rainfall (mm) for years 1996 to 2022	46.2	36.0	35.2	54.6	25.8	32.8	23.2	24.4	32.0	71.0	111.0	42.2	111.0	26

Figure 5-2 – Swan Hill Aerodrome mean monthly rainfall vs highest daily rainfall (1996-2022)

EVAPORATION

The average annual evaporation at the project site 1,750mm. The highest evaporation months are December and January and the lowest months are June and July. The graph in **Figure 5-3** below compares the monthly evaporation against the monthly rainfall which shows evaporation exceeds rainfall at all months throughout the year with the June and July period almost at uniform.

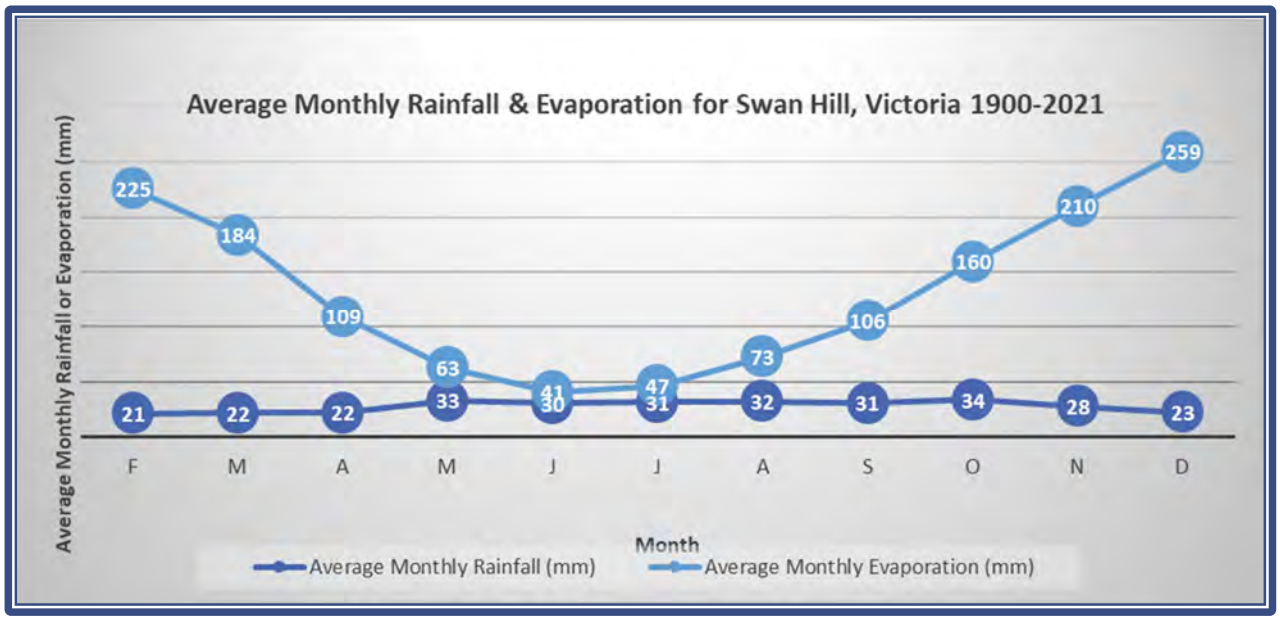


Figure 5-3 - Total monthly evaporation vs rainfall (Source: Silo 2022)

WIND

The annual wind records which are displayed as wind roses for both 9am and 3pm for the Swan Hill Aerodrome have been provided below.

Figure 5-4 - Average annual wind data from 9am (left) and 3pm (right) (Source: BOM 2022)

It can be identified from the above that the site and surrounds are subject to 'normal wind conditions' in the morning with the wind blowing from the south east slightly more than all other directions. The wind blows from the north west slightly less than other sectors. The afternoon wind direction is more dominant from the west and south west and rarely from the north east, east and south east.

5.1.3. GEOLOGY

Surface geology covering the site has been mapped by VandenBerg et al (1997) in the Swan Hill 1:250,000 geology map sheet. The site is a lunette deposit forming part of the Yamba Formation, comprising of 'aeolian sand, silt and clay'. The site borders younger, Coonambidgal Formation deposits to the west, including Fluvial, lacustrine clay, sand or sandy clays which may have influenced the formation of this lunette. An extract of the map is included in **Figure 5-5** below.

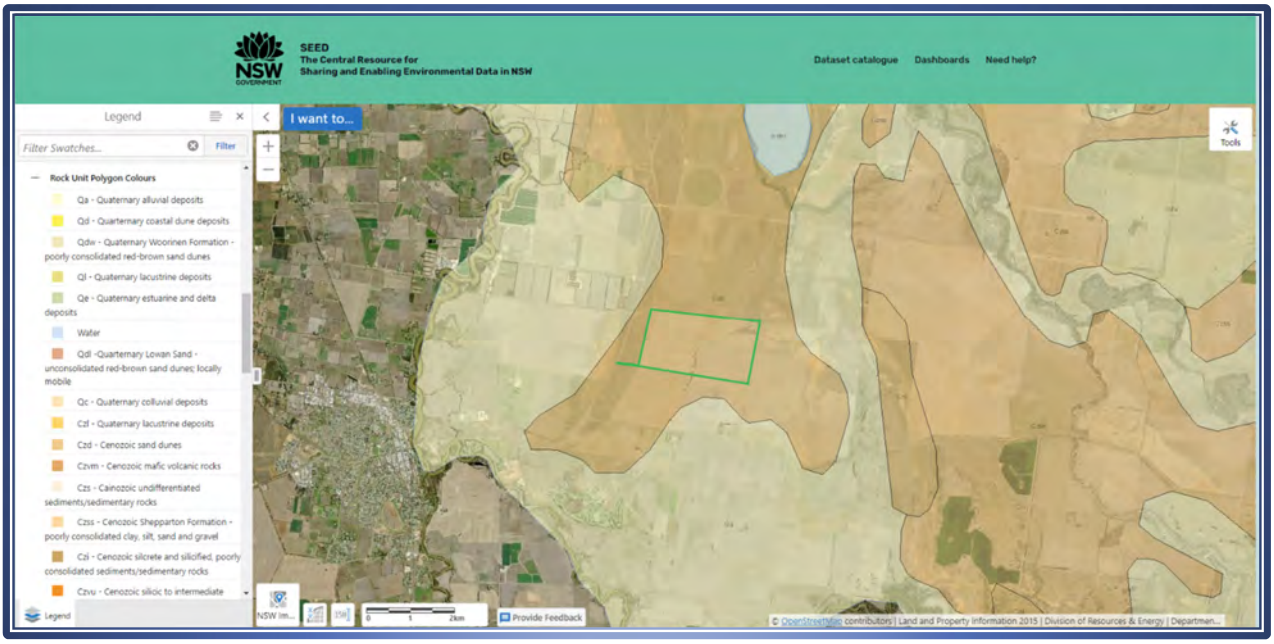


Figure 5-5 – Surface geology covering the site (Source: SEED OEH NSW 1500k Surface Geology)

5.1.4. TOPOGRAPHY AND DRAINAGE

Topography of the Riverine Plain ranges from approximately 150ms above sea level in the regions bordering the highlands in the south and eastern flanks to approximately 60ms in the lower lying reaches where the Murray River meets the Murrumbidgee (Google Earth 2022). The general pattern of landfall is to the north and west with the main discharge points of the plain entering the Murray River between Barmah and Robinvale.

SITE TOPOGRAPHY AND DRAINAGE

The local topography of the property ranges 8m in elevation from west to east. The elevation in the east area being the lowest is approximately 70.38m AHD rising to an elevation of 78.76m being the highest elevation on the property. This covers a length of 730meters.

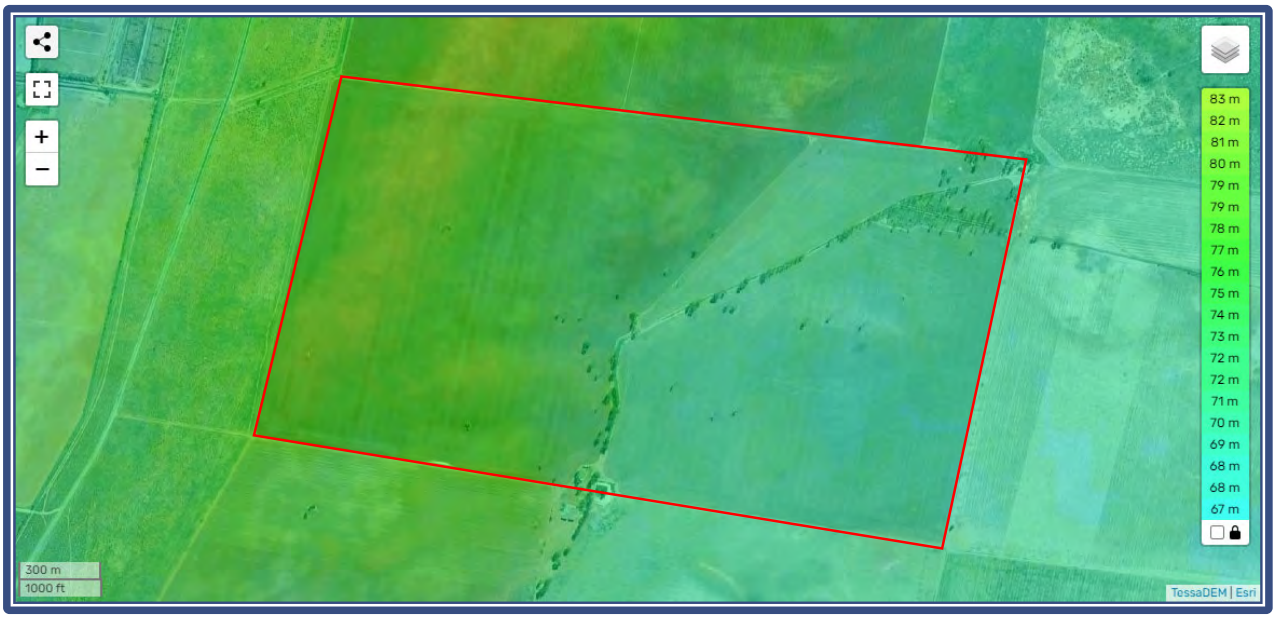


Figure 5-6 - Local site topography (Source: en-au topographic maps)

Figure 5-7 below shows the project site for the proposed facility in relation to the natural contours on the property. The following Figure 5-5 shows the cross section 1 with the green line showing the existing natural surface and the black line showing the proposed finished levels at the site.

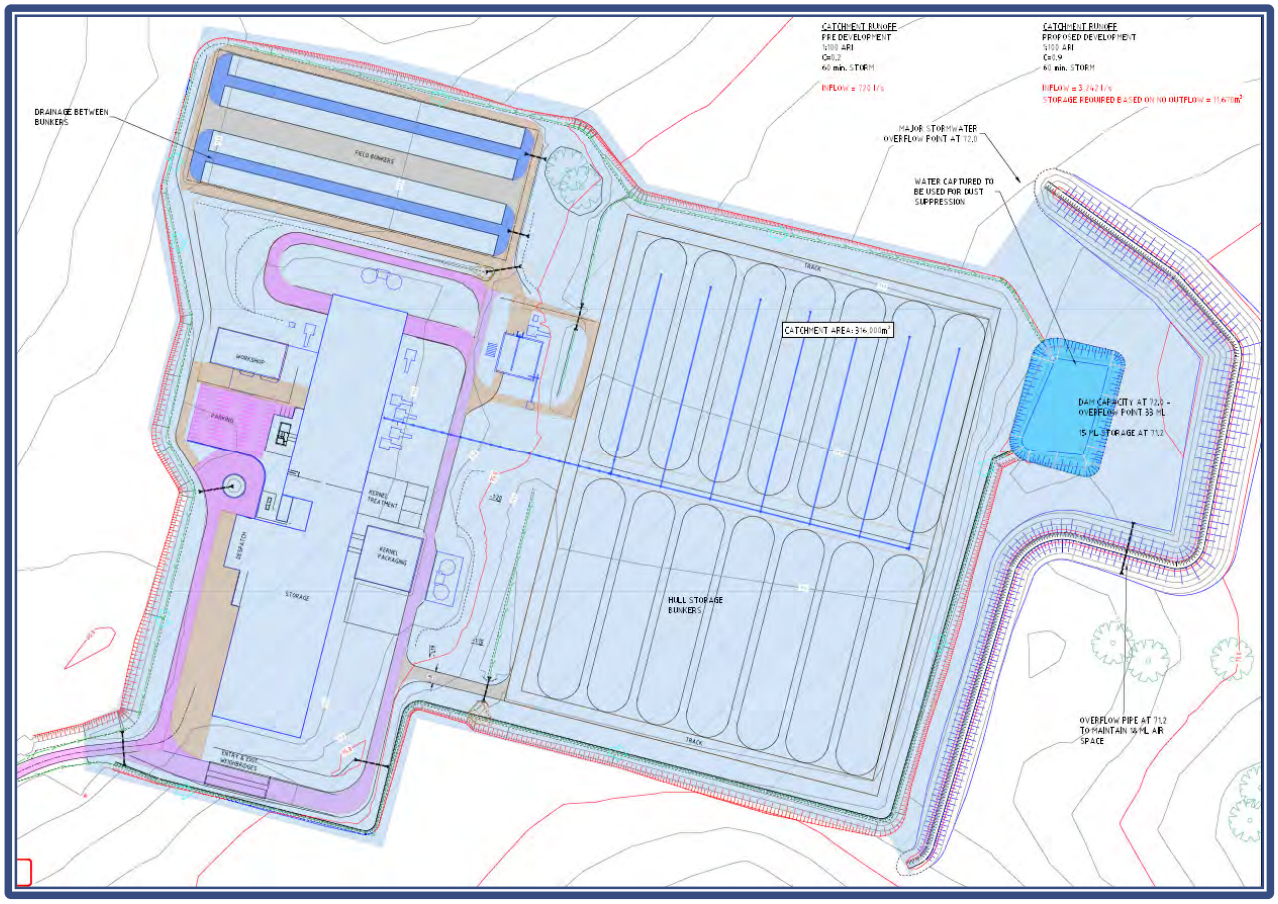


Figure 5-8 - Site slope and drainage (Source: Price Merrett Plan Sheet 7)

5.1.5. LAND OWNERSHIP, RESIDENCES AND LAND USE

LAND OWNERSHIP

Figure 5-9 below represents the project land ownership and residences surrounding the project site. The yellow circles shown indicates a 2km and 4km radius from the centre of the project site. **Table 5-2** below the image nominates the receptors within the area and their distance from the project property boundary and the edge of the project site.

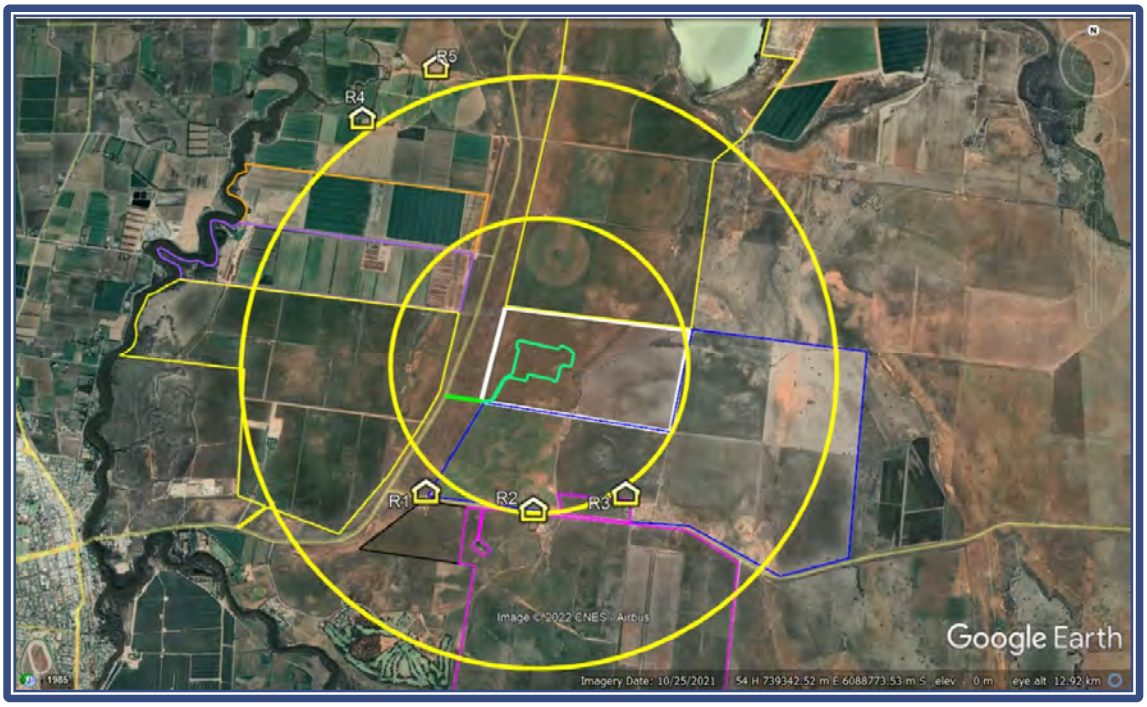


Figure 5-9 – Image identifying project in relation to property ownerships (Source: Google earth 2022)

Table 5-2 - Table of receptors – showing distance from the property boundary closest to facility

ID	Type	Distance (km)		Direction
		From property boundary	From site boundary	
R1	64 Noorong Rd	1.6	1.6	South west
R2	194 Noorong Rd	1.5	1.8	South
R3	321 Noorong Rd	1.4	1.9	South east
R4	947 Stony Crossing Rd	3	3.6	North west
R5	1027 Stony Crossing Rd	3.4	3.8	North west

5.1.6. SURROUNDING LAND USE

The site being located within an agricultural area is surrounded by other farming properties. Other land uses within the area include the Garrison Cattle Feedlot opposite the property to the west and a Travelling Stock Reserve both on the western side of the property.

5.2. WATER

5.2.1. EXISTING ENVIRONMENT

Surface Water

The property does not maintain any current access to licences water supply systems. Water requirements at the site are minimal with limited volumes required for office and staff amenities, bin washing, dust suppression and when required fire control within the facility.

The site is elevated and maintains natural drainage at the site. There is no evidence of erosion occurring at the site. **Figure 5-6** in the above topography section shows that elevations at the site.

Flooding

The site is not located within a Floodplain or a registered flood study area. A review of the GHD Murray Downs Flood Study prepared for the Wakool Shire Council in October 2014 was reviewed and identified that the site is not subject to flooding. The 0.5% AEP map has been replicated and shows the extent of flooding within the region. Due to the distance from the River and the elevated level of the site, no further consideration has been given to flooding at this site.

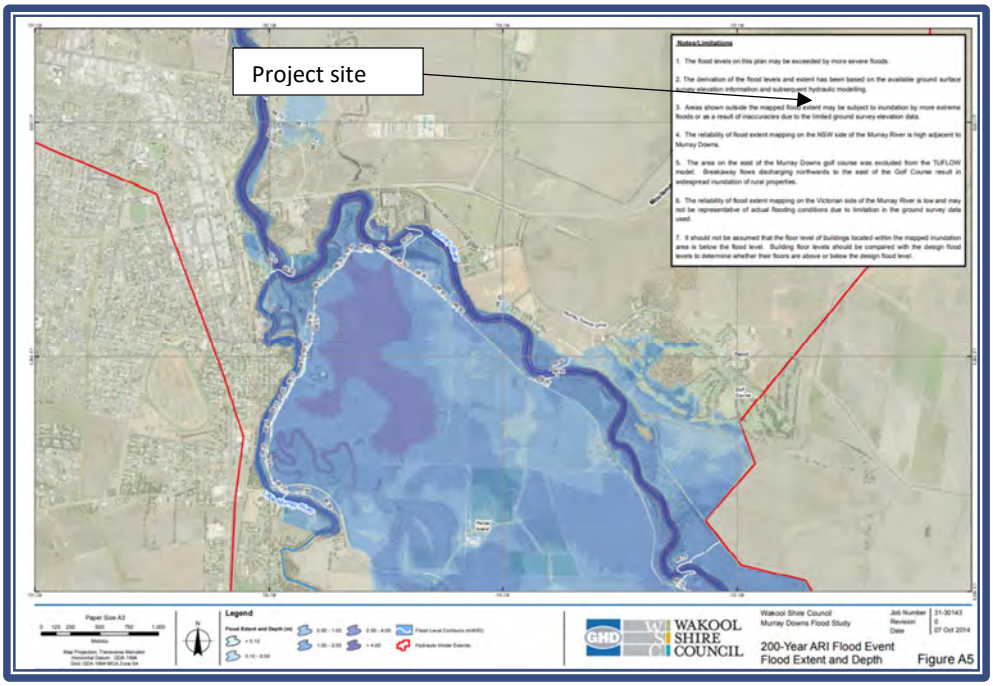


Figure 5-10 - 0.5% AEP flood levels at Murray Downs (Source: Figure A5 - Murray Downs Flood Study)

Groundwater

This site is not identified within the groundwater vulnerability overlay of the Wakool LEP. Works proposed at the site are within an elevated area and proposed cuts of up to 2.5m in depth. A review of the available local groundwater monitoring points has been undertaken which has identified three sites with records. These are GW501356, GW036822 and GW36824 with their locations shown in **Figure 5-11**.

Groundwater trends in the region have been steadily increasing in depth. The bores located to the east and west of the site have been the focus of this review with the groundwater levels being recorded in 19958 as shallow as 4m below the surface. Current depths recorded in the region are between 8.19m and 5.45m. Detailed records are provided in A**ppendix 5**.

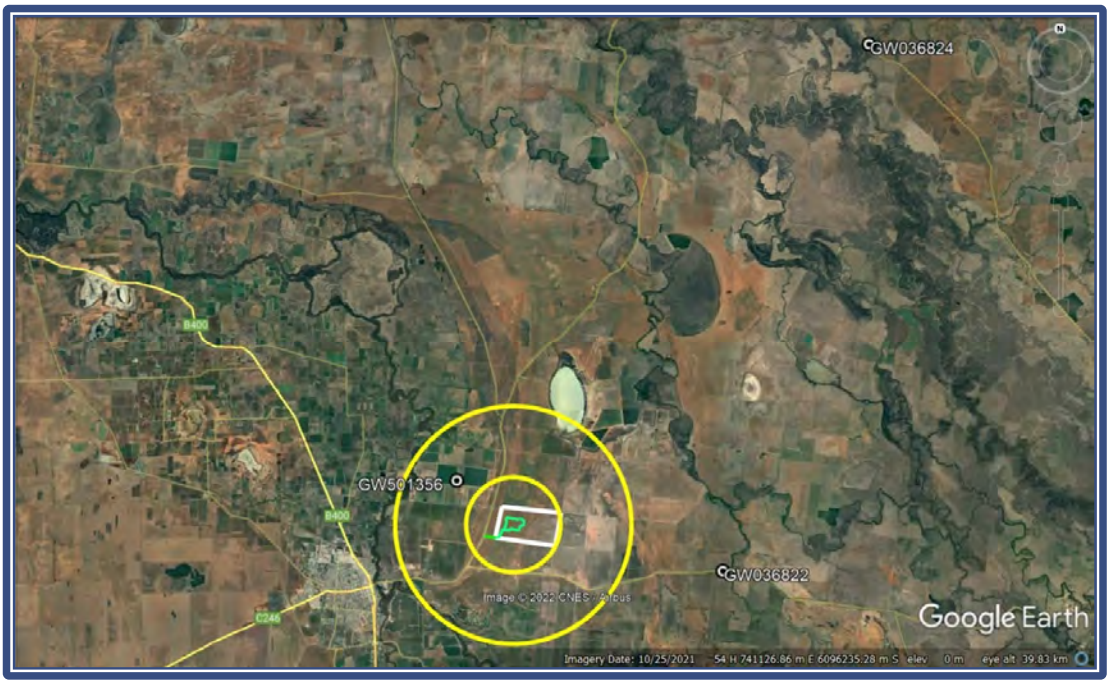


Figure 5-11 – Image identifying monitored bore locations surrounding the project areas (Source: Google Earth 2022)

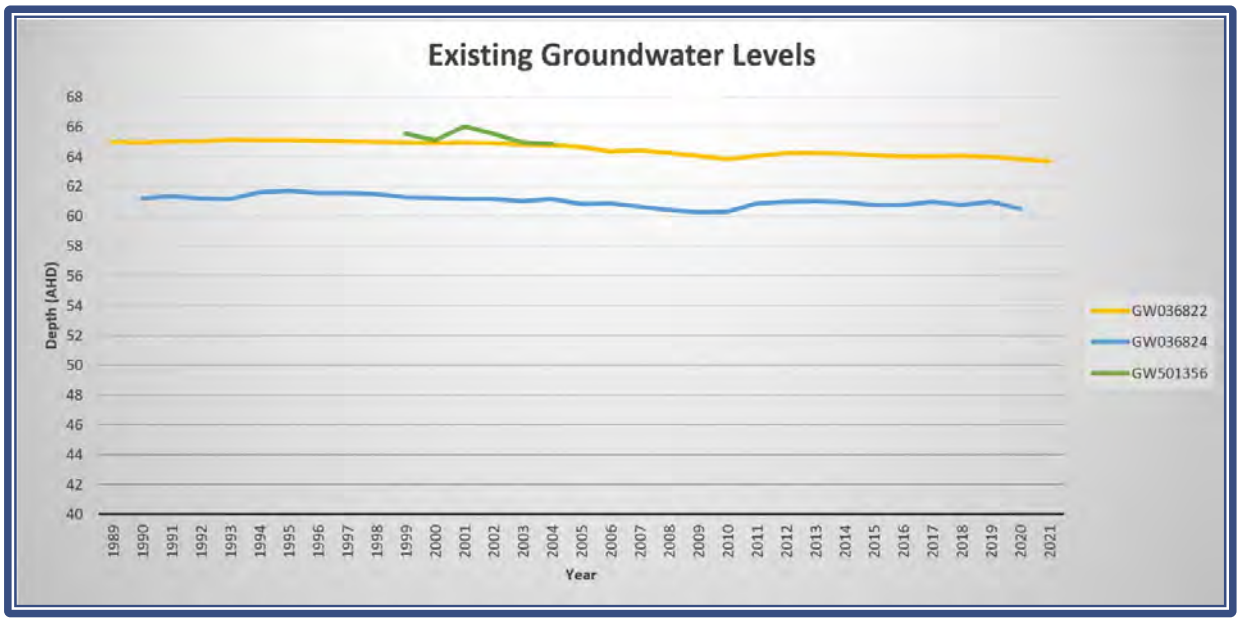


Figure 5-12 – Graph identifying monitoring bore depth to water table in area

GROUNDWATER DEPENDENT ECOSYSTEMS

As part of the site assessment a review of the probability of Groundwater Dependent Ecosystems (GDE) has been completed. The site identified some areas associated with vegetation adjoining the site have a have high probability of a GDE, and the adjoining Travelling Stock Reserve has a low probability of a GDE. The area associated within the location of the facility works area has not identified any GDE.

Figure 5-13 – Image identifying the Groundwater Dependant Ecosystems probability (Source: ArcGIS – MyMap)

The project works will occur over the TSR which overlays a low probability area. The works proposed within this area do not require excavation or removal of vegetation. It is therefore highly unlikely that the project works, or operation will interact with or impact on any GDE.

Catchments and Drainage

This project is located within the central portion of the Murray River catchment area within the Murray Darling Basin. The area is located between the Hume Dam in the east and the confluence of the Murray and Darling Rivers in the west. This area comprises 3% of the Murray Darling Basin with rivers within this catchment entering the Murray and contributing over 50% of the inflows of the Basin.

The Murray River, which is a major tributary of the Murray-Darling River system, drains much of the Riverina spanning almost 1,200kms. The Murray River in this catchment is regulated containing the Yarrawonga, Torrumbarry, and Mildura Weirs and the Mid Murray Storages. The major tributaries are the Kiewa, Owens, Goulburn, Campaspe, Loddon, Wakool, Murrumbidgee Rivers and the Broken Creek. The major distributaries are the Edward River and the Gunbower Creek.

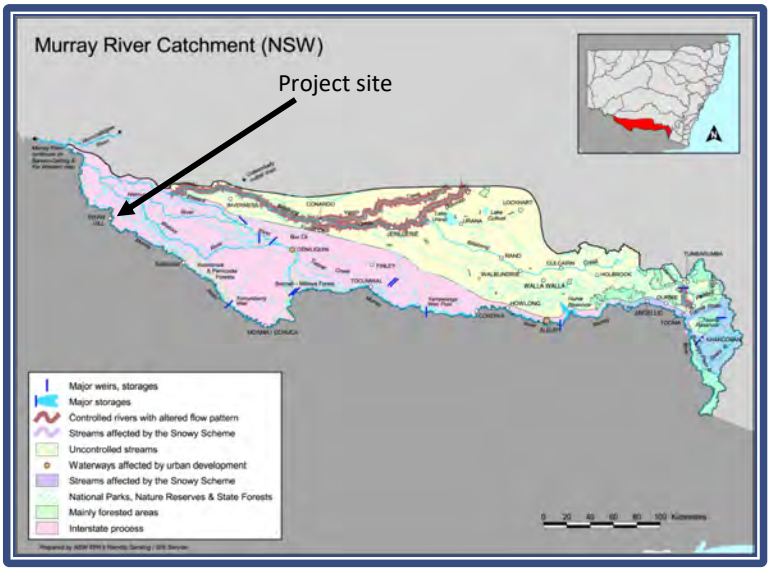


Figure 5-14 – Image identifying the Murray Catchment (source: https://www.environment.nsw.gov.au/ieo/Murray/maplg.htm)

As identified above, the nearest named waterway is the Murray River and the Murray Downs Creek. Both systems are located approx. 4kms from the property boundary and with no direct connection to the site.

There is a redundant irrigation channel supply system located on the eastern side of the project site in the centre of the property. This channel system previously delivered stock drinking water throughout the area. It is understood that this system is no longer in use.

There are no wetlands (including RAMSAR wetlands) within the vicinity of the project site and there are no known drinking water sources immediately downstream of the project.

Flooding

As identified above, the site is not subject to flooding or located within a Floodplain Management Plan area. The site is not located on or within 40m of a waterway. As such flooding in relation to the project is not considered to have an environmental impact and will not be discussed further in this document.

5.2.2. ASSESSMENT

SURFACE WATER IMPACTS

The potential surface water impacts from the project construction and operation activities relate to water pollution from activities within the project site and include:

- Local soil erosion during rainfall events within the project footprint during construction,
- Surface water run-off from stockpile areas, and
- Surface run-off from rehabilitated areas prior to full stabilization.

As described above, the project site isolated from local wetlands and streams. The facility proposes the use of a permanent site-specific stormwater detention system which will be incorporated into the early construction works. All surface water run-off during construction will be managed with erosion and sediment controls with the incorporation of the detention pond and other related measures.

The following table below identifies the areas within the facility and the characteristics of the site run-off from within this area.

Table 5-3 - Table identifying project area and run-off management

Area	Area (M^2)	Surface	Run-off co-efficient	Area (m^2)	Run-off directed to
Roof Areas	23,817	Roof	1	23,817	Tanks – overflow to stormwater dam
Car park & entrance	28,379	Sealed	1	28,379	Stormwater Dam
Other internal roads	10,909	Sealed/compacted gravel	1	10,909	
Storage Areas	126,121	Compacted Gravel	0.9	113,509	
Grassed	30,765	Grassed	0.3	9,230	
Detention Pond	5,400	Water	1	5,400	
Remaining area	90,609	Earth/grass	0.2	18,122	
Total Catchment Area	**316,000**	-	-	**209,366**	

The roof catchment will be directed to 4 large water storage tanks that will store water on site for use within the staff facilities and for cleaning purposes. Tanks will also be connected to the fire control systems. Tank overflows will be connected to the stormwater drainage system that captures all runoff water within the site.

The entire site has been designed with drainage and grading to control and direct all runoff within the site to the stormwater detention basin that will be constructed on the eastern side of the facility. This storage has the capacity to store up to 15ML (at a level of 71.20m) with an additional capacity for large stormwater events. Should an extreme event occur, the dam will overtop through an overflow pipe which directs water through the property within its natural pathway. Should the pipeline fail, or in-flows exceed outflows, the stormwater flows will exit the site towards the north at a level of 72.00m which is lower than the finished level within the hull storage area. This prevents back inundation of run-off water within the site and maintains sufficient water for use for fire and dust control.

FLOODING IMPACTS

There are no flood impacts relative to the project site as the site is not within a Floodplain Management Plan area, an active floodplain or identified as being subject to flooding being located substantially higher than the regional floodplain.

GROUNDWATER IMPACTS

A review of the local groundwater bores indicates that the current groundwater levels in the region are between 8.19m and 5.45m below the surface at their monitoring locations (east and west of the site). To apply this to the site, the groundwater is between 14.6 and 11.3m below current site levels. As described above, the site is proposed to be levelled through earthworks with cuts proposed as deep as 2.5m below natural surface. **Figure 5-15** below shows the groundwater levels recorded in the region compared to the design finished level at the site. This review indicates even if groundwater followed the natural surface within the area, the proposed works would not intercept of impact on the regional groundwater system. Mitigation measures will be required to ensure that the storage of water within the stormwater detention system will not interact with the local and regional groundwater.

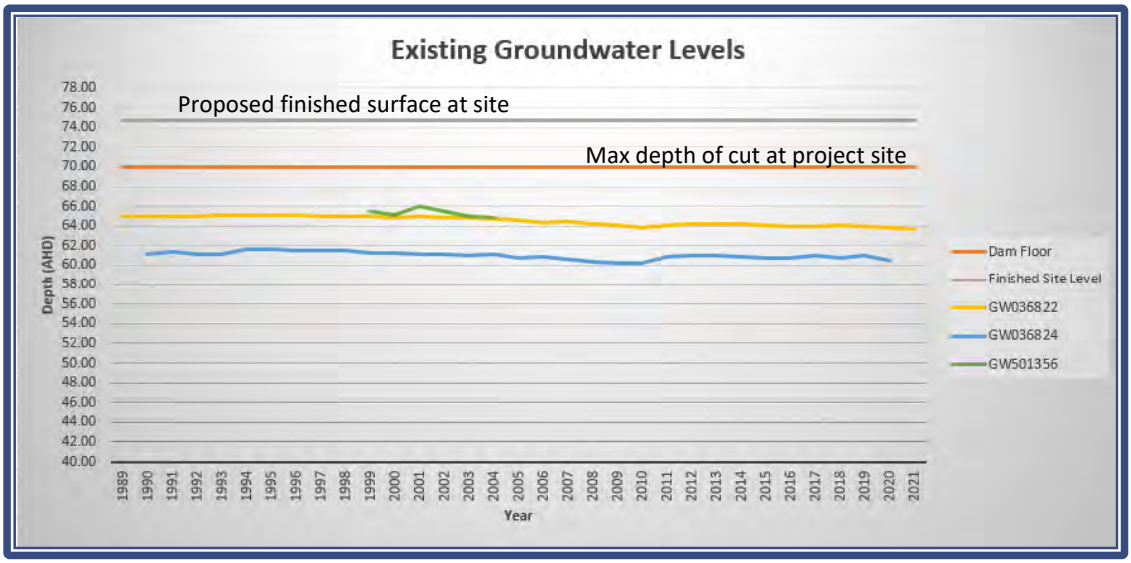


Figure 5-15 – Graph identifying local groundwater levels in relation to the project site and works

5.2.3. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential soil impacts. These are shown in the table below.

Table 5-4 - Water mitigation, management and monitoring measures

ID	Potential Impact	Timing	Safeguard
W-1	Mobilisation of sediments from the site.	Pre-Construction	Erosion and sediment control measures are to be implemented and maintained in accordance with the relevant section of managing Urban Stormwater: Soil and Construction Vol 1 (Landcom, 2004)
W-2	Mobilisation of sediments from the site.	Construction	Rehabilitation works are to be undertaken as soon as practicable to stabilise disturbed surface areas.
W-3	Mobilisation of sediments from the site.	Operation	Vegetation cover of embankments is to be maintained to prevent surface erosion and drain failure.
W-4	Contamination of surface and groundwater systems.	Construction	Storage and re-fuelling and maintenance of plant and equipment is to be undertaken on the designated constructed compacted parking area.
W-5	Contamination of surface and groundwater systems.	Pre-Construction	Vehicles are to be washed prior to site entry to prevent requirements for washing on site. Where machines are required to be washed, run-off from washing must be directed to controlled drainage within site.
W-6	Contamination of surface and groundwater systems.	Construction	Daily construction plant maintenance checks will be undertaken to ensure that no oil, fuel or other liquids are leaking. Checks are to be undertaken by qualified staff and will be trained in the management of accidental spills.
W-7	Contamination of surface and groundwater systems.	Construction	An emergency spill kit will be kept on site with staff aware of location and trained in its application.
W-8	Pondage of surface water and/or inadequate site drainage.	Pre-Construction	Site drainage to be inspected prior to construction work commencement. Where required, drains are to be utilised and ESC measures are to be utilised and maintained until site is stabilised.
W-9	Pondage of surface water and/or inadequate site drainage.	Construction	ESC measures are to be maintained during the life of the project construction and until the site is stabilised.
W-10	Pondage of surface water and/or inadequate site drainage.	Operation	Drainage within the site is to be maintained to ensure all water drains freely to designated area. The overtopping

ID	Potential Impact	Timing	Safeguard
			level and pipeline should be regularly checked and maintained at a height of 71.20m
W-11	Groundwater identified in monitoring bore	Operation	Review groundwater monitoring plan for contingency plans
W-12	Groundwater identified in monitoring bore	Operation	Water and drainage systems are to be monitored for volume and level during operation. Where high water losses within the system are identified, the system must be emptied, and the floor and walls checked for integrity in conjunction with geotechnical advice.
W-13	Failure of embankments and or detention dam	Operation	Recommended filling and management measures must be followed during operation of system. Where system failure occurs, the storage must be reviewed with an experienced geotechnical engineer for rectification.

5.2.4. CONCLUSION

Significant design work has been undertaken with relation to surface water management at the site. Water run-off from the surrounding area will not interact with the site being directed around the site and through its natural pathways. Water that falls on roofs will be either captured in tanks and stored for use within the facility with other areas and overtopping into the site stormwater system in large rainfall events.

Site earthworks will prepare the site for drainage of surface areas, conveyance via constructed drains and culverts will transfer on site stormwater, draining water away from the buildings and storage areas to a dedicated stormwater detention dam. Water captured and stored within the dam will be utilised at the site for dust suppression and fire control.

Site activities are highly unlikely to interact with the local groundwater network or its dependant ecosystems. The site is not located within an identified groundwater management overlay area, there is significant distance between the site excavation activities and the local groundwater levels. Mitigation measures are proposed at the site with material storage areas to be constructed as a hard stand and the proposed detention pond to be constructed to a suitable standard to prevent seepage.

5.3. SOIL

5.3.1. METHODOLOGY

The methodology utilised to assess the project in relation to soils is as follows:

1 Identify the existing environment through undertaking a review of geotechnical and soil information available within the vicinity and where available the project area,
2 Review the results in relation to the project activities and infrastructure, and
3 Where required, identify further investigations required prior to site works and project management and mitigation measures to minimise any identified impacts.

5.3.2. EXISTING ENVIRONMENT

The soil profiles in the project region are located adjoining the Murray Downs lunette system. The natural slope in this area is generally 1-3% to the east. Parent soil materials within this area are derived from alluvial deposits of silts, sands and clays of the Murray and Murrumbidgee Rivers.

The soils on the 'Maril' property are broadly described as 'ylw' – Yanga Lunettes for a small section in the north west section and predominantly contain 'mkoa' Magpie Creek – var A. The Magpie Creek soils are described as *Cainozoic alluvial sequences of the Shepparton Formation, comprising unconsolidated to poorly consolidated mottled variegated and silty clays influenced by aeolian materials of the nearby Woorinen soil landscape.* The Yanga Lunettes soils are generally described as *Siliceous Sands to Calcareous Soils which dominate this landscape, along with Red and Brown Earths to Duplex soils and occasional Brown Sodosols on lower slopes.*

Figure 5-16 below identifies the project site in relation to soils within the area. Soils surrounding the site include 'wkxa' – (grey) Wakool River – var a, 'ylw' (orange) indicating the lunette system and 'mkoa' (green) – Magpie Creek var a indicating the transitional area between the lunette and plains.

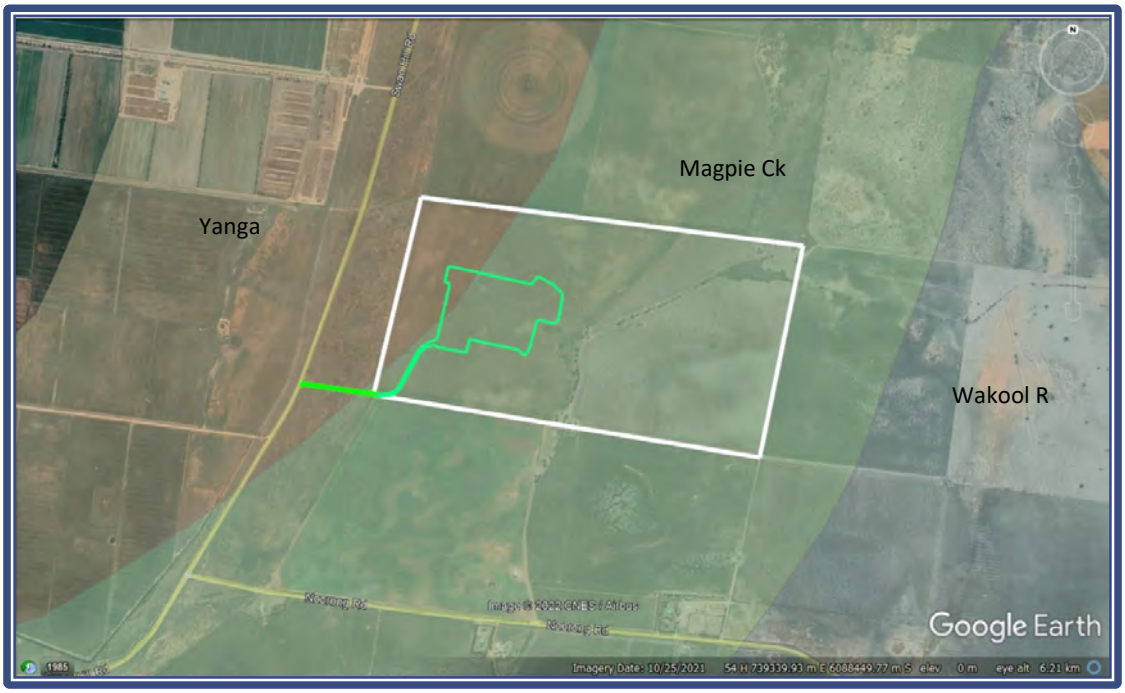


Figure 5-16 - Image identifying regional soil mapping (Source: eSPADE layer Google Earth 2022)

CONTAMINATION

The project site has a long history of agricultural use in the form of agricultural cropping. No stock dip sites have been located on the land relative to the project site. A visual inspection of the project site did not reveal any signs of chemical contamination such as dumps, burnt patches of vegetation or bare or abnormally coloured areas. There are no EPA contamination records of the site. Based on these results, the site is not likely to contain any long-term residual chemicals, however, may contain short term herbicides. These chemicals are not considered as a risk and therefore no assessment has been deemed required.

SOILS – GENERAL CHARACTERISTICS

A review of available information on eSPADE has identified the following within the mapping system:

- There are no Acid Sulfate (ASS) or Potential Acid Sulfate Soils (PASS) within the project area. This is consistent with a visual assessment of the site.
- The site has very slight to negligible limitations with relation to mass movement.
- There is a very slight to negligible chance of intercepting shallow soils or rocks at the site.
- The area has a moderate to very slight limitation with relation to structural decline and water erosion hazard.
- There are moderate to minor limitations with relation to waterlogging, and
- The sandier sections of the site may be subject to wind erosion.

A review of the soil technical reports for areas within the vicinity of the site indicate the following results.

Table 5-5 - Soil Profile results

	Magpie Creek (Profile 7)					Lunette (Profile 128)				
Profile Depth	**Horizon**	**Soil Type**	**pH**	**EC**	**Colour**	**Horizon**	**Soil type**	**pH**	**EC**	**Colour**
0	A	Fine sandy clay loam	8.7		Yellowish brown	A1	Clay Loam	8.5	0.16	-
0.08	B	Fine sandy clay loam	9		Yellowish brown					
0.1						B2	light medium clay	9	2.26	-
0.3										
0.4		Fine light sandy clay	8.6		Strong brown	B3	light medium clay	9	3.03	-

Magpie Creek (Profile 7)						Lunette (Profile 128)					
0.76		Fine light sandy clay	8.4		Strong brown						
0.84		Fine light sandy clay	8.1		Strong brown						
1											
1.07						-					
2.13		light clay	8.1		Strong brown						
2.29											

The search results indicate that the site has soil types which are common for the region. Soils are likely to be suitable for geotechnical use and construction following detailed investigations which outline their characteristics and management measures.

5.3.3. ASSESSMENT

This section outlines the potential impacts of the development on the immediate and surrounding landscape.

SOIL CHEMISTRY

SOIL ELECTRICAL CONDUCTIVITY

The soils at the site are of a low to moderate level of Electrical Conductivity (EC). Apart from minor to moderate flocculation of subsoil clays associated with high EC, there is not expected to be any impact on the soils and their use for geotechnical construction based on EC at the site. Elevated EC levels at depth provide an indication that sulphate resistant concrete should be specified to protect reinforcement mesh from rust.

SOIL PH, ACID SULFATE AND POTENTIAL ACID SULFATE SOILS

The results of soil pH (H_2O) testing identify soils at the site are acidic ranging in pH between 8.5 and 9. Utilizing the definition of Acid Sulphate Soils (ASS) & Potential Acid Sulphate Soils (PASS) in the ASSMAC guidelines, the soils are not defined as either ASS or PASS as they are of a pH higher than 4 when tested in their natural state. There is not expected to be any impact from soil pH, ASS or PASS on use of soils for geotechnical purposes at the site.

SOIL SOLDIDITY AND DISPERSION

Sodic and dispersive conditions are not known from available soil literature. Sodic and dispersive soils will require detailed investigation to understand their distribution. Soils of sodic and dispersive types can be safely used and managed for geotechnical purposes and during earthworks with appropriate control measures including use of gypsum, hydrated lime, or use of protective shrouds or covers and by following the review undertaken by geotechnical engineers or soil scientists. Testing for sodicity status must include exchangeable cations and Cation Exchange Capacity in order to calculate the Exchangeable Sodium Percentage (ESP). Testing for dispersion must include the Emerson Aggregate Test.

DETAILED GEOTECHNICAL ASSESSMENT

Earthworks and construction on the site are subject to on-site geotechnical assessment. This assessment process and testing is recommended:

- Borehole logging and classification of horizons and layers in accordance with AS1726 (2017), within all areas proposed infrastructure including:
    - Building foundations,
    - Borrow areas,
    - Earthen pads for sheds, hard stand areas,
    - Detention dam, and
    - Roads.

Borehole logging should include measurement of the depth of topsoil for stripping and stockpiling for later use.

- Sample collection and NATA accredited testing for:
    - Moisture Content,
    - Particle Size Distribution,
    - Atterberg Limits,
    - Moisture Density Relationship,

  - Permeability (in areas for water storage),
  - California Bearing Ratio (all roads and traffic areas),
  - Allowable Bearing Pressure,
  - Emerson Dispersion Class, and
  - Other tests requested by building and foundation designers or earthworks contractors.
- Recommendations and specification for each material type for the proposed end use:
  - Earthen pads,
  - Earthen embankments, and
  - Road subgrade or subbase.
- General management recommendations for:
  - Erosion control and site drainage,
  - Topsoil stripping and stockpiling,
  - Use of amendments, including Hydrated Lime or Gypsum, and
  - Quality Assurance monitoring.

SOIL USE

CONSTRUCTION

Where construction activities are proposed to occur, topsoil will be stripped and stockpiled within the site, to be used for aesthetical purposes, protection of earthworks or erosion control. Project works will be undertaken progressively across the site, preparing the area to a finished bulk earthworks level prior to final grade and the placement of the hardstand materials. Excess soil from the facility area will be utilised in the construction of an earthen mound on the eastern side of the site. There is no requirement for soils to be imported or exported from the site or for long term storage between stages.

OPERATION

The site once completed will have variable finished surfaces which include grassed areas, earthen batters, drains, hardstand storage areas, gravel and sealed roads and buildings. Soils that are exposed, being those located on batters and within grassed areas, must be maintained with topsoil and vegetation wherever possible to minimise any opportunity for erosion actions through water or wind.

SITE DRAINAGE

All works are proposed to be located within a constructed controlled drainage area. Run-off water from within the area is captured by constructed drains and directed to a proposed detention dam for holding for fire and dust mitigation measures. Should an unexpected and large rainfall event occur, run-off water will be allowed to overtop at a controlled level equal to that of the hull storage pad level preventing impacts from stormwater at the site. Water overtopping the area will follow the natural fall of the property. Water outside the site will be prevented from entering the site being directed into the natural drainage lines within the property minimising any changes to the area.

Where stockpiles are utilised, silt fences will need to be employed to assist with the prevention of soil mobilisation. Structures within the system that capture the first flush of water from the construction site will utilise erosion and sediment control measures suitable for the catchment area. The site will be revegetated with grass species following construction to assist with the prevention of erosion and run-off from embankments. Gypsum will need to be used to control sodic and dispersive soils to prevent stormwater from becoming turbid.

5.3.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Potential impacts of development and safeguards for mitigating impacts are provided in **Table 5-6**. Safeguards provide detail of the management and monitoring measures required to ensure risk of impact is minimised or eliminated.

Table 5-6 - Soil mitigation, management and monitoring measures

ID	Potential Impact	Timing	Safeguard
S-1	Failure of earthen structures from the use of unsuitable soils.	Construction	Detailed geotechnical investigation to be carried out. Recommendations for construction are to be provided and followed. Earthworks contractors and others on site are to be briefed by project manager or site engineer to ensure all recommendations are followed. Soils are to be monitored by contactors and site supervisor during excavation to identify unsuitable or

ID	Potential Impact	Timing	Safeguard
			inconsistent materials. Should these be identified, work should cease until updated engineering recommendations and management measures are provided.
S-2	Failure of earthen structures from dispersive or sodic soils.	Construction	Should dispersive soils be identified during detailed testing, soils must be adequately compacted to reduce water ingress and air space for soil to occupy water. Free water will cause clay fines to remain in suspension and be prone to washing or erosion on embankments. For geotechnical use, treatment of soils with hydrated lime is expected by geotechnical engineers at recommended rates to render soil Exchangeable Sodium Percentage levels (ESP) below the point causing dispersion, typically less than 5%. For general earthworks and site management, dispersive soils should be avoided for finishing embankments, or otherwise managed accordingly by protective shrouding or gypsum treatment. Topsoil shrouding and gypsum application are expected.
S-3	Failure due to inadequate construction technique.	Construction	Construction technique must be followed as per geotechnical recommendations. Soils are expected to be layered in lifts, moisture conditioned and compacted to standards of compaction to be specified by geotechnical reporting.
S-4	Failure due to inadequate compaction.	Construction	Quality Assurance checks for compaction standards and density will be undertaken at set hold points within the project, covering all earthen structures, mounds and other earthworks.
S-5	Failure of detention dam system from use of unsuitable soil leading to seepage and impact on groundwater systems.	Construction	Detailed geotechnical investigation to occur across the area proposed for use as a detention dam. Recommendations to be provided by geotechnical engineer for construction. Material monitoring to be carried out by contractors and site supervisor, confirmed within QA checks. Should sand be discovered in the floor area during construction, soil engineers must be contacted for further advice.
S-6	Surface erosion across the site footprint from sodic and dispersive soils.	Construction	Topsoil is required to be placed over sodic soils. Where required and identified by Geotech, Gypsum may be used to assist with stabilisation.
S-7	Failure around associated pipe works installed through mound wall.	Construction	Ensure that pipes are sleeved, trench excavated 600mm wider than pipe work and soils used for backfilling have adequate moisture. Backfill of earth around structures should follow geotechnical recommendations.
S-8	Surface erosion across the site from sodic and dispersive soils.	Operation	Vegetation should be established and maintained on topsoiled areas.
S-9	Failure of stormwater detention system.	Operation	Ensure that drainage entrance and overflow and overtop system are maintained in suitable condition to operate as designed.
S-10	Failure of earthen structure including hardstand, roads, pads, drains and banks due to poor maintenance	Operation	Geotechnical recommendations relating to the protection of finished construction areas should be followed and maintained.

5.3.5. CONCLUSION

A desktop assessment has been undertaken across the area reviewing available soil information on and adjoining the project site. The preliminary assessment has identified that the soils within the area are suitable for construction purposes however required detailed testing, assessments and recommendations for their specific use within the site.

Mitigation measures have been provided based on desktop assessment. Additional measures from detailed testing and assessments will be provided and must be implemented throughout the site construction and facility operation.

Ongoing compaction testing and quality assurance will be required throughout the earthworks phase of the project and soil classifications undertaken at finished site and prior to foundation design completed.

5.4. BIODIVERSITY

5.4.1. METHODOLOGY

A review of the project works area has been undertaken to assess and identify potential impacts to biodiversity as part of the construction or operation of the project. Specifically, the project works considered potential impacts to threatened species, populations, communities, and biosecurity. A full copy of the completed search results and detailed assessments are provided in **Appendix 6.6, 6.7** and **6.8.**

The assessment methodology included:

- Background review including:
    - Database searches of Bionet, EPBC Protected Matters, NSW DPI – Fisheries, Atlas of Groundwater Dependant Ecosystems, and the SEED Dataportal.
    - Desktop assessment
- Site inspection including:
    - Presence of mature trees with hollows, fissures and/or other suitable roosting/nesting places,
    - Presence of hollow logs/debris and areas of dense leaf litter,
    - The presence of preferred feed tree species,
    - Condition, flow and water quality of drainage lines and bodies of water,
    - Plant Community Type and condition,
    - Presence of fruiting flora species and blossoming flora species, particularly winter flowering species,
    - Vegetation connectivity and proximity to neighboring areas of vegetation,
    - Presence of caves, hollow trees and/or man-made structures suitable as bat roost sites,
    - Native flora species and vegetation communities present,
    - Opportunistic fauna sightings, and
    - Weed species present and their abundance.
- Five part test.

5.4.2. EXISTING ENVIRONMENT

The site as described previously has been completely transformed from its pre-European state with changes to the area commencing as early as 1848. Post European settlement, the area was used as a pastoral property by the Kidman Reid empire. Its vicinity to the Murray River, developed township and productive soils saw this and its adjoining properties cleared of vegetation and developed for permanent plantings, cropping or horticultural pursuits. These agricultural activities have seen the removal of any trace of native ground cover species, forbes or shrubs.

Some limited scattered trees remain within the property which include several isolated bull-oaks on the lighter soils outside the project area, red gums adjoining the lower areas and adjoining property situated on an old channel bank and a clump of needlewoods within the project area (not proposed to be disturbed or removed).

Figure 5-17 - Photo showing project site (PRS photo September 2022)

Figure 5-18 - Photos showing the project area under crop (PRS photo September 2022)

The groundcover on the site consists of planted annual species that has been sown as a crop with intent of harvest for hay or grain. This crop and ongoing farming practice have managed weed levels within the site with few recorded at the inspection. In terms of native groundcover, the intensive mechanical and chemical disturbances have likely removed any trace of native forbs or grasses with none identified on the site during either inspection.

The property entrance and driveway traverse the Travelling Stock Reserve (TSR). The existing driveway is proposed to be upgraded for the continued use and will incorporate a revised turning treatment from the Swan Hill Rd and a sealed access road to and within the property.

Figure 5-19 - Photo showing the existing access track for upgrade (PRS photo September 2022)

The regional, environmental and landscape context of the project area is shown below in **Table 5-7**.

Table 5-7 - Regional and environmental landscape context

Project Area	Description
Bioregion	Riverina
Subregion	Murray Fans
Catchment	Murray
Mitchell Landscape	Murray Lakes, Swamps and Lunettes
Local Government Area	Murray River Shire
Surrounding Land use	Agriculture and a lineal section of Travelling Stock Reserve

5.4.3. ASSESSMENT

The desktop searches undertaken, and site inspection reviewed the project site with relation to the NSW Biodiversity Values mapping and any species recorded in the site and region. Due to the siting of the project and construction methodology proposed, **no clearing of native vegetation is required,** and it has been determined that Biodiversity Development Assessment Report (BDAR) is not required and the NSW 'Five part test' assessment has been applied.

The 'Five part test' has been undertaken following collation of database records, species and community profiles and a 'likelihood of occurrence' assessment has been prepared with reference to the broad habitats contained within the area. This was further refined following a site visit and assessment of any possible habitat present.

In summary the attached searches identified the following:

- No native vegetation of any form requires removal as part of the project works and no dead limbs, fallen timber or logs are proposed for removal within the works site. All groundcover vegetation at the site is an introduced annual crop.
- There are twelve Listed Threatened Ecological Communities within the area which are identified as follows:
    - *Acacia melvillei Shrubland in the Riverina and Murray-Darling Depression bioregions (Bionet).*
    - *Allocasuarina luehmannii Woodland in the Riverina and Murray-Darling Depression Bioregions (Bionet)*
    - *Buloke (Allocasuarina luehmannii) Woodlands of the Riverina and Murray-Darling Depression Bioregions (PMST & Bionet)*
    - *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Bionet & PMST)*
    - *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Bionet)*
    - *Weeping Myall Woodlands (PMST & Bionet)*
    - *Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions (Bionet).*
    - *Natural Grasslands of the Murray Valley Plains (Bionet & PMST).*
    - *Plains mallee box woodlands of the Murray-Darling Depression and NSW South Western Slopes bioregions (Bionet & PMST).*
    - *Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions (Bionet).*

- *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner (PMST & Bionet).*
- *Mallee Bird Community of the Murray Darling Depression Bioregion (PMST).*

The site is mapped as Non-native (PCT-0)– not being one of the desktop reviewed and identified Endangered Ecological Communities (EEC). This mapping is consistent with the vegetation that is located on the property and project site. The adjoining area (pink) is mapped as Riverine Plain Grasslands (PCT-165) however works are not proposed within the mapped areas or relate to the clearing of vegetation associated with this Plant Community Type.

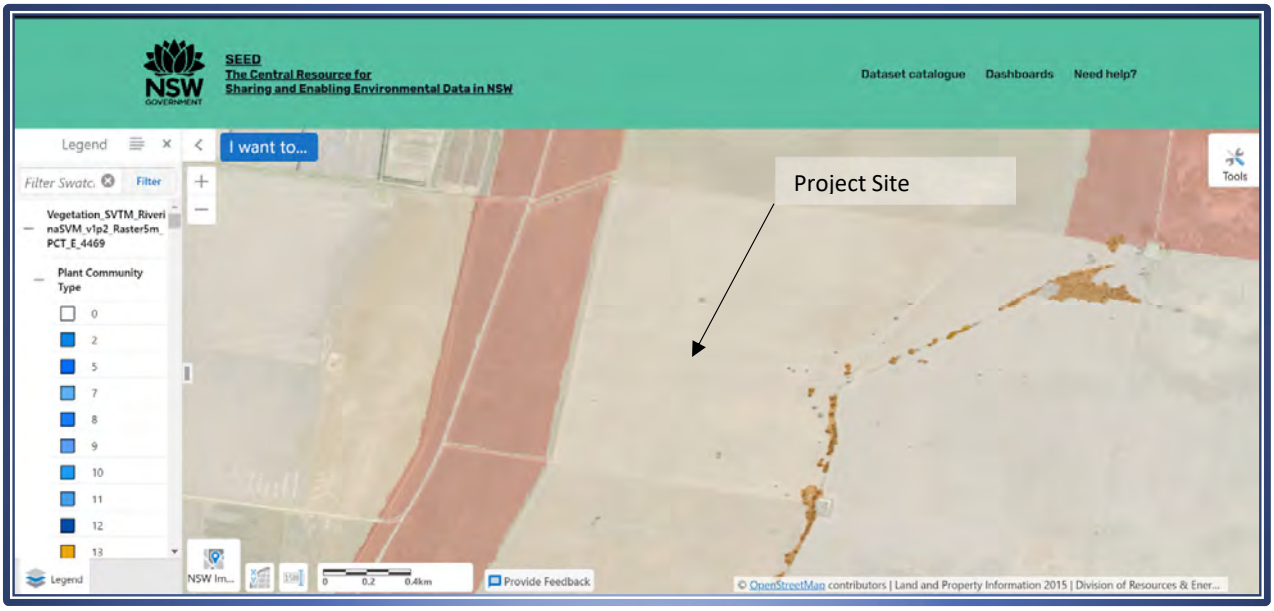


Figure 5-20 - Snapshot showing mapped Plant Community Type of the project area (Source: SEED)

- The Protected Matters Search Tool (PMST) identified eight flora species with the potential to occur within 10km of the project site. None of these species were identified in any studies undertaken or at the site inspection. The Bionet search identified three of which two were common species. The requirements for the habitat typical of these species was not identified at the site.
- Searches identified two amphibian, one reptile, seventeen birds, six aquatic, one bat and one mammal with the potential to occur within 10km of the project site. An assessment of these species was undertaken with additional consideration given to those recorded in close proximity (White-fronted Chat). This assessment did not identify any species at risk as a result of the project construction or operation on the basis that the construction and operation mitigation measures are employed.
- The assessment also considered the works in relation to Key Threatening Processes (KTP) listed under the NSW Biodiversity Act and the Environment Protection and Biodiversity Conservation Act with one KTP identified as part of the project works.
- Hygiene protocols (for both weeds and pathogens) are proposed at all sites to ensure disturbed areas aren't colonised by exotic species, preventing potential long-term impacts.

Table 5-8 - Table identifying species identified in searches

Scientific Name	Common Name	NSW	C'Wealth	Search
Amphibian				
Crinia sloanei	Sloane's Froglet	V	R	P
Litoria raniformis	Southern Bell Frog	E	V	P
Reptile				
Hemiaspis damelii	Grey Snake		E	P
Birds				
Botaurus poiciloptilus	Australasian Bittern	E	E	P
Rostratula australis	Australian Painted Snipe	E	E	p

Scientific Name	Common Name	NSW	C'Wealth	Search
Calidris ferruginea	Curlew Sandpiper	E	CE	
Numenius madagascariensis	Eastern Curlew	Listed		
Falco hypoleucos	Grey Falcon	Listed	P	
Leipoa ocellata	Malleefowl	NL	CE	
Pezoporus occidentalis	Night Parrot	Listed		
Grantiella picta	Painted Honeyeater	Listed	P	
Pedionomus torquatus	Plains-wanderer	E	NL	P
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E	V	P
Epthianura albifrons	White-fronted Chat	PE	E	P
Fish				
Galaxias rostratus	Flathead Galaxias	CE	CE	P
Macquaria australasica	Macquarie Perch	E	E	P
Maccullochella peelii	Murray Cod	NL	V	P
Craterocephalus fluviatilis	Murray Hardyhead	CE	E	P
Bidyanus bidyanus	Silver Perch	V	CE	P
Maccullochella macquariensis	Trout Cod	V	NL	P
Galaxias rostratus	Flathead Galaxias	CE	CE	P
Mammals				
Phascolarctos cinereus	Koala	V	V	P
Bats				
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	P
Fauna				
Austrostipa wakoolica	A spear-grass	E	E	P, B
Austrostipa metatoris	A spear-grass	V	V	P, B
Maireana cheelii	Chariot Wheels	V	V	P, B
Caladenia tensa	Greencomb Spider-orchid	NL	E	P
Swainsona murrayana	Slender Darling Pea	V	V	P
Lepidium monoplocoides	Winged Peppercress	E	E	P
Lepidium monoplocoides	Yellow Swainson-pea		E	P
Senecio behrianus	Stiff Groundsel		E	P

A Five Part Test has been provided below.

FIVE PART TEST

(a) 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.

The project works do not require the removal of any flora species as activities are proposed in a previously disturbed and an area dominated by agricultural annual cropping activities. There are no impacts proposed with relation to hollow bearing trees, feed trees, hollow logs or fallen timber within the project site as the single area of remnant vegetation will remain untouched. There is also no connection of this site to a watercourse of and the project activities do not relate to water extraction from a watercourse or groundwater source.

Therefore, it is unlikely that the project construction works or operation will have an adverse effect on the life cycle of any species placing any species or population at the risk of extinction.

(b) in the case of an endangered ecological community (EEC) 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 that its local occurrence is likely to be placed at risk of extinction.***

There are six threatened ecological communities that have been identified in the Protected Matters Report and nine in the BioNET search - a total of twelve. Plant Community Type mapping and a site inspection identified the Plant Community Type as being Non native - not an EEC.

No activities proposed will have an adverse effect that will place an EEC at the risk of extinction either locally or otherwise nor will it modify the composition of any EEC.

(c) 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.***

Project works do not propose the removal of any vegetation including trees dead or alive or the removal of logs, fallen branches or other potential forms of habitat. Therefore, no habitat will be removed, fragmented or isolated as part of the project work to the extent that a threatened species or community's survival will be affected.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly).

The project site does not lie within and will not affect a declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process (KTP) or is likely to increase the impact of a key threatening process.

Key Threatening Processes (KTP) from the EPBC or BC Acts are considered as part of this assessment. There are no KTP that have been identified that relate to either the project construction works or the operation of the site.

5.4.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential impacts to biodiversity. These are shown in the table below.

Table 5-9 - Biodiversity mitigation, management and monitoring measures

ID	Potential Impact	Timing	Safeguard
B-1	Native vegetation accidentally cleared	Pre-construction	All 'No-Go' zones are to be clearly identified and communicated to contractors.
B-2	Hollow-bearing tree removal	Pre-construction	No native vegetation or hollow-bearing trees are to be removed as part of the project works or from within any area adjoining the site.
B-3	Weed and pathogen management	Pre-construction	Machinery must be inspected and cleaned prior to entering and leaving the site to ensure that weed seeds and propagules are not imported or spread to unaffected areas.
B-4	Vegetation outside site impacted by works	Pre-construction	All vegetation areas outside the site will be identified as 'No-Go' zones and machinery will not interact with these areas.
B-5	Site and surrounding areas contaminated due to chemical spill	Pre-construction	Measures to prevent and contain spillage of potential contaminants must be implemented.
B-6	Vegetation Clearing	Construction	No vegetation within or adjoining the site is to be removed – all compounds, excavations and access tracks are to be located within identified project area.
B-7	Vegetation impacted by altered drainage or mobile silt	Construction	Construction areas are to be stabilised as soon as practicable (progressively where possible).
B-8	Impacts on surrounding Native Vegetation	Construction	Measures to prevent and contain spillage of potential contaminants must be implemented.

ID	Potential Impact	Timing	Safeguard
B-9	Vegetation impacted by chemical spill or contamination	Construction	In the event of a spill or contamination at the site, all works must cease and the spill management procedure implemented immediately.
B-10	Water quality risks	Construction	Any pollution that has any potential to enter a waterway or site must be reported to the EPA in accordance with the notification requirements of the *Protection of the Environment Operations Act 1997* (POEO Act).
B-11	Weed proliferation	Construction	Construction related traffic will utilise existing site accesses and internal roads, thus minimising the area of disturbance of the development on farm. A 'come-clean go-clean' practice will be utilised for all vehicles, machinery and operators. Any outbreaks of weeds identified will be managed appropriately (such as through spot spraying) to control weed occurrence and minimise the risk of spread. The management of weeds forms part of the Best Management Practices (BMP) adopted on the farm.
B-12	Weed proliferation	Operation	The site will be regularly monitored and maintained to control the growth of weeds. Such practices will occur as part of ongoing farm maintenance operations, which are currently conducted regularly across the properties.

5.4.5. CONCLUSION

The project site has been selected for its location within the landscape and its modified nature. Minimal vegetation remains on the property and no native vegetation is required to be removed from the site as part of the project works. The site is dominated by agricultural annual crops and the site will be constructed on areas containing this exotic vegetation. No impacts are proposed to native vegetation within or adjoining the site.

A review of native flora and fauna species that have been recorded or have the potential to utilise the site has been undertaken. This includes recorded endangered populations and ecological communities. A five-part test has been undertaken to review the proposed works and operation of the facility and on the basis that mitigation measures are proposed and implemented, there is limited potential to impact on any species.

5.5. INDIGENOUS HERITAGE

5.5.1. METHODOLOGY

Landskape Natural and Cultural Heritage Management was commissioned to undertake a detailed Aboriginal Cultural Heritage assessment. The assessment of the proposed work area has been completed in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Department of Environment, Climate Change and Water [DECCW] 2010a).* The assessment and report have been undertaken by Dr Matt Cupper a qualified geoscientist, archaeologist and Research Fellow in the School of Geography, Earth and Atmospheric Sciences at the University of Melbourne.

The methodology followed to complete this assessment was accordance with standard archaeological practice, *the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH, 2011) and *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

The methodology broadly included:

- Review of archaeological literature applicable to the area, including a review of the OEH AHIMS register, Archaeological Reports Register, the NSW State Heritage Inventory and the Australian Heritage database,
- Review and discussion of past environmental factors which may influence the presence and integrity of sites,
- Development of a predictive model of site location and site type,
- Field survey completed on 4 September 2022,
- Assessment of the cultural heritage significance of sites recorded or areas of archaeological sensitivity,

- Development of a statement of heritage impact on the indigenous heritage and archaeological values of the area of the proposed development, and
- Development of management recommendations and mitigation measures where applicable.

A summary of the results of this assessment has been provided below with the full Aboriginal Cultural Heritage Assessment (ACHA) provided in **Appendix 6.9**.

5.5.2. EXISTING ENVIRONMENT

The proposed work area is located 4 km northeast of the Murray River at Murray Downs in southwestern New South Wales. The Murray River a regulated permanent stream course with associated lakes and wetland areas within the Riverine Plain of the Murray Basin. Climate is semi-arid, receiving approximately 300 mm of rainfall per annum (Bureau of Meteorology 2022). The surface geology of the region is mostly aeolian (wind-lain) sediments, while underlying sequences within the basin were deposited by shallow seas and lakes over the past 60 million years (Brown and Stephenson 1991).

The proposed project site would occupy the sandplain landforms of the Woorinen Formation approximately 4 km northeast of the Murray River. This area would have once supported a vegetation cover of eucalypts (Eucalyptus spp.) with a blue bush (Maireana spp.) and saltbush (Atriplex spp.) understorey. The site has been substantially modified by past European land use and all original vegetation has been removed, the land has been previously used for cereal crops and pasture for livestock. Currently the site is used for broad-acre agricultural cropping of cereals with the access area proposed to be upgraded being grazed.

The availability of water was an important factor in the Aboriginal occupation of southwestern NSW, with the main permanent water sources on the fringes of the region along the Murray and Murrumbidgee Rivers. Ethnographic accounts suggest that the Wati Wati and Wemba Wemba probably resided at the lakes and rivers during the warmest months of the year, with people moving into the sandplains to collect food after winter rains (Krefft 1865).

European settlement occurred in around the 1820s in this area with the landscape subjected to a range of activities including extensive logging and clearing, long-term intensive agricultural cultivation (ploughing) and pastoral grazing. European explorers, settlers and government officials including Major Thomas Mitchell (1839), Edward John Eyre (1838, 1845), Gerard Krefft (1865), George Augustus Robinson (cited in Clark 1990) and Alfred William Howitt (1904) kept journals and published written accounts, which are the chief source of information about the Aborigines who lived in southwestern NSW at the time of first contact with European observers.

The project area contains no recorded Aboriginal sites registered on AHIMS, searched on 21 July 2022, with the closest Aboriginal cultural heritage places being approximately 3-4km away.

5.5.3. ASSESSMENT

During the site visit on 4 September 2022 the archaeologist completed a pedestrian surveyed of the ground surface looking for traces of archaeological elements such as stone artefacts, hearths, heat retainers, shells and mounds. Due to the openness of the landscape it was possible to identify likely site locations from at least 10 m and deviate from the transects to make closer inspections.

Despite the intensive nature of the survey there were no Aboriginal cultural heritage sites identified at the proposed project site. The area has been significantly disturbed by previous clearing and earthworks associated with past agricultural uses. The agricultural activities, vehicular traffic and with and water erosion has exposed the sediments enough to determine that no archaeological material was present on the surface or likely to be buried beneath the soil.

Based on the assessment the following conclusions and recommendations have been provided:

- The proposed works can proceed because the activities will not harm Aboriginal cultural heritage.
- If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking development activities, the proponent must:
    - Not further harm the object
    - Immediately cease all work at the location
    - Secure the area to avoid further harm to the Aboriginal object
    - Notify HeritageNSW as soon as practical on 131555, providing any details of the Aboriginal object and its location
    - Not recommence any work at the location unless authorised in writing by HeritageNSW.
- If skeletal remains are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and contact made with NSW Police and Heritage NSW.

5.5.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

All Aboriginal objects and sites in NSW are protected under the *National Parks and Wildlife Act 1974*. It is an offence to knowingly harm or desecrate an Aboriginal object or Aboriginal place. If in the course of the project activities, a potential object is identified, contingency measures have been provided below.

Table 5-10 – Aboriginal Cultural Heritage mitigation, management and monitoring measures

ID	Potential Impact	Timing	Safeguard
AH1	Disturbance and discovery of Aboriginal burial or skeletal material	Construction	In the event that possible human skeletal material (remains) are encountered during construction, the following steps should be undertaken: 1. Works at that location of discovery and placement of material will cease and an appropriate buffer zone of at least 50 metres will be established, 2. The site must be immediately secured to prevent unauthorized access and (any further) harm, 3. Contact police as the discovery of human remains triggers a process which assumes that they are associated with a crime. The NSW Police will retain carriage of the process until such time as the remains are confirmed to be Aboriginal or historic, 4. Contact HeritageNSW should the human remains be deemed Aboriginal or historical by the police, HeritageNSW must be notified immediately to assess the remains – Contact number 131 555, 5. The project Archaeologist may also be engaged at this stage to assist with further representation of the proponent/applicant/owner/company. • All directions dictated by the HeritageNSW South West Branch, in discussion with the project Archaeologist (where relevant), must be followed. This may include the need to engage technical specialist (e.g. Forensic Anthropologist), and liaison with RAPs, to formulate future management of the remains, • Work is not to commence in the area unless authorised in writing by HeritageNSW and/or the NSW Police.
AH2	Disturbance and discovery of an Aboriginal object	Construction	In the event that a potential Aboriginal object is encountered during project activities, the following steps should be undertaken. 1. All ground surface disturbance in the area of the find(s) and the fill zone for earthworks will cease immediately following the discovery or potential discovery of a find anda. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted and ensure that there is no further harm to the object,b. The discoverer of the find(s) will secure the area and prevent equipment or personnel from entering the area except in accordance with this protocol, and c. The site supervisor/project manager will be informed of the find(s). 2. If finds are suspected to be human skeletal remains, then NSW Police and HeritageNSW must be contacted as a matter of priority. 3. HeritageNSW and the project archaeologist will be referred to, to assess the Aboriginal object encountered and provide direction. If appropriate, a representative from any Registered Aboriginal Party and Local Aboriginal Land Council for the project may also be engaged to assess the cultural significance of the place or object as part of the

ID	Potential Impact	Timing	Safeguard
			obligations of the AHIP assessment process, Re-commencement of ground disturbing works may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from HeritageNSW.

5.5.5. CONCLUSION

An assessment undertaken by a qualified archaeologist who has suitable experience in identifying Aboriginal objects and areas, utilising the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* has been undertaken on the site considering all project works. This assessment identified that no Aboriginal cultural heritage places or objects have previously been identified in or near the proposed work area and no Aboriginal cultural heritage places or objects were identified during the assessment.

Based on the results of the Aboriginal cultural heritage Due Diligence Assessment, it was concluded that the proposed works can proceed as the activities will not harm Aboriginal cultural heritage.

If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed project works, the project manager/project co-ordinator/project owner must:

- *Not further harm the object,*
- *Immediately cease all work at the particular location,*
- *Secure the area so as to avoid further harm to the Aboriginal object,*
- *Notify HeritageNSW as soon as practical on 131555, providing any details of the Aboriginal object and its location*
- *Not recommence any work at the particular location unless authorised in writing by the HeritageNSW.*

In the event that skeletal remains are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and HeritageNSW contacted.

5.6. NON-INDIGENOUS HERITAGE

5.6.1. METHODOLOGY

The methodology utilised to assess the project in relation to non-Indigenous heritage is as follows:

1 Undertake heritage searches of the related area,
2 Record results of the searches for future reference,
3 Where searches identify listed item, review item in relation to project activities, and
4 Identify project management and mitigation measures to minimise any identified impacts.

The results of this assessment have been included below.

5.6.2. EXISTING ENVIRONMENT AND ASSESSMENT

The following searches of the available Heritage lists and registers:

- National Heritage List (Commonwealth of Australia, 2022),
- Commonwealth Heritage List (Australian Government Dept. of Environment and Energy, 2022),
- NSW State Heritage Register (Heritage, 2022),
- State Heritage Inventory (Heritage, 2022), and
- Wakool LEP 2013 (New South Wales Government, 2022).

The final searches were undertaken on the 25th October 2022 and a copy of these searches and results has been included in **Appendix 10** and further discussed below.

The results of the searches identified that no heritage items are located within the project disturbance footprint. The NSW State Heritage Register and the Wakool LEP 2013 identifies two listed heritage items within the Local area which are identified as:

Table 5-11 - Listed heritage items in the vicinity of the property

Item	Address	Distance from project boundary	Direction from project	Comment
Murray Downs Homestead	150 Swan Hill Rd Murray Downs	3.7km	South west	Separated by large distance and no visual connection.

Item	Address	Distance from project boundary	Direction from project	Comment
	Lot 2 DP1067731			
Swan Hill Bridge	Murray River	5.4km	South west	Large separation distance

The proposed works are not within the immediate vicinity of any listed heritage item. Therefore, it is unlikely that there is a risk of impact to any non-indigenous heritage values of the location.

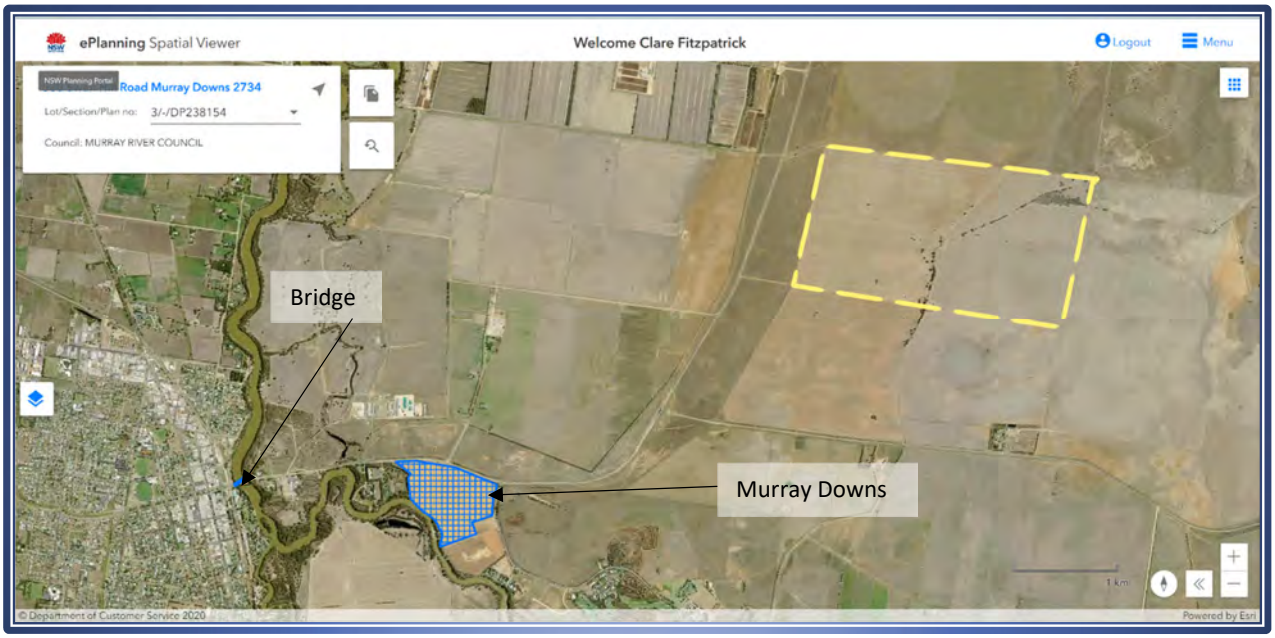


Figure 5-21 - Map showing location of the property in relation to listed heritage items (Source: ePlanning Spatial Viewer 2022)

5.6.3. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Table 5-12 – Non-indigenous heritage mitigation, management and monitoring measures

ID	Potential Impact	Timing	Safeguard
NI-1	Damage to unknown heritage item.	Construction	Staff working on site during construction will be instructed to stop work immediately on identification of any suspected heritage artefact.
NI-2	Identification of heritage item within project site.	Construction	If any unexpected archaeological remains are discovered during construction, work will stop immediately in the vicinity of the material/find and specialist advice from a suitably qualified heritage consultant will be sought.

5.6.4. CONCLUSION

It is not anticipated that there will be any impacts to non-indigenous heritage based on the significant distances between the project works and listed Heritage items and places. Measures have been proposed to mitigate any risks with relation to unexpected historical finds.

5.7. AIR QUALITY

5.7.1. METHODOLOGY

Air quality as part of this assessment is considered in both the construction and operation phase separately. Both phases of the project consider impacts to air quality in relation to dust generating activities. The site activities do not relate to the any odour generating actions and as a result, no assessments relating to odour have been undertaken.

Dust generation or particulate matter is the main air quality issue relevant to the project particularly the construction activities. Particulate matter refers to a category of airborne particulates, typically less than 30 microns (µm) in diameter and ranging down to 0.1µm. This type of dust is termed Total Suspended Particulates (TSP).

Emissions of particulate matter less than 10µm (termed as PM_{10} and $PM_{2.5}$ in the following subsections) are considered to be an important influence on human health as it has the ability to penetrate the respiratory system and can cause cardiovascular and respiratory diseases, pulmonary and heart diseases as well as reduced lung capacity.

Particles that are too large to remain in suspension in the air are referred to as 'deposited dust' and are typically greater than 35µm in diameter. Even these particles lack the ability to cause significant harm to human health, they can contribute to reductions in amenity and therefore are considered as part of this section.

Table 5-13 – NSW Dust Criteria for Ambient and Deposited Dust Levels

Pollutant	Averaging Period	Maximum Concentration	Source
Particles as PM10	1 day	50 µg/m^3	(National Environment Protection (Ambient Air Quality) Measure, 2016)
Particles as PM2.5	1 day	50 µg/m^3	
Deposited Dust	Annual	Max 4 g/m^2	NSW DECCW
Deposited Dust	Annual	Max increase of 2 g/m^2	NSW DECCW

5.7.2. EXISTING ENVIRONMENT

The project site is situated in a rural region where the existing air quality is regarded as generally good. Air quality does vary seasonally due to the dry nature of the area and surrounding agricultural land use. Emissions from vehicles and dwellings would be considered to be low due to the density of housing and industry within the broader region.

As shown below in the 5 year average wind rose the prevailing winds in the project region are from the south 10.58% of the time and the north west 9.23% of the time. The strongest winds are from the south. (Willy Weather, 2022).

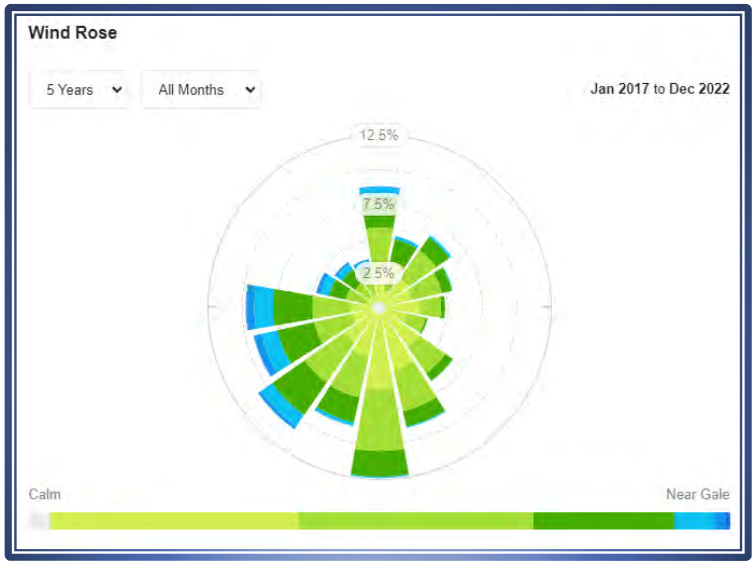


Figure 5-22 - Wind Rose Swan Hill Airport (Source: Willy Weather)

For more detailed daily information on wind assessments, please refer to **Section 5.1.2.**

5.7.3. ASSESSMENT

POTENTIAL SOURCES OF AIR CONTAMINANTS

Construction Sources

A wide range of activities can generate dust, and these are usually visible and readily identifiable. The potential sources of airborne particulates from the site have been assessed as being limited to:

- Dust lift off from exposed earthen areas, open areas or rehabilitated surfaces,
- Dust lift off from stockpiles, and
- Dust lift off from access tracks and haul roads resulting from light vehicle and heavy earthmoving traffic.

The majority of any airborne particulates from the project site is likely to be visible dust. Proposed activities that have the potential to generate particulate matter include the following:

- Construction activities (scrapers, graders),
- Vehicle movements on unsealed roads during construction,
- Rehabilitation activities, and
- Wind erosion from:
  - Exposed earthworks, and
  - Exposed rehabilitation areas.

POTENTIAL CONSTRUCTION IMPACTS

Impact on Amenity

In dry, windy conditions particulates can be lifted from open or disturbed areas resulting in visible dust emissions. Most airborne particulates that originate from these sources are larger than PM_{10} and are associated with nuisance rather than public health problems. The larger particles tend to settle back to the ground within a short range (<300m) from the source. Dust emissions of this type can cause reduced amenity of an area and reduce visibility for onsite traffic, potentially creating unsafe driving conditions.

It is unlikely that there will be an amenity impact during these project works based on the main construction sites isolation from receptors and the distance from adjoining roads. A short construction period for the upgraded access roads will assist with minimising impacts to traffic on the Swan Hill Road. Water carts are proposed to be in operation to assist with achieving the required moisture content as required and will assist with dust mitigation.

Impact on Vegetation

Dust may have physical effects on plants such as: blockage and damage to stomata, shading, abrasion of leaf surface or cuticle, and cumulative effects, e.g. drought stress on already stressed species (*NSW Minerals Council 2000*). There are no dust deposition guidelines relating to health or condition rating of plant species. The effect of soil erosion can render an area incapable of promoting vegetation growth, which affects rehabilitation programs.

It is unlikely that vegetation will be impacted by construction activities based on the limited amount of standing vegetation within the vicinity and the requirement to manage soils at the site in a moist state for compaction.

Vehicle Emissions

The operation of construction plant and equipment will result in additional exhaust emissions in the area. The number of vehicles, plant and equipment to be used as part of the construction phase is considered to be low and would not substantially increase emissions.

Mitigation measures described below will be implemented to mitigate potential impacts from vehicle emissions.

Sensitive Receptors in the vicinity of the Project

There are no receivers identified as a sensitive receptor in the receiving environment relevant for the project construction activities. The residences within the surrounding area are not located in the direction of the main prevailing winds or within the potential dust deposition area (200m). There are several vegetated buffers located between the residences and the project site

POTENTIAL OPERATION IMPACTS

Dust

Dust may be generated through mobilization of soil and sand from the transferring and cleaning of harvested almonds where soils and other foreign objects are separated from the whole almond. Unloading and movement of harvested almonds throughout the facility will create some dust which will be localised to the operations area.

Dust is also generated and removed throughout the separation of the hulls and shells. Once almonds enter the drying and separation area, the buildings maintain an aspiration system that will manage the removal of dust throughout each stage of the system. Dust extracted is captured within the filter-house system which is cleaned as required. Dirt clods will be captured from machinery primary pre-cleaning areas and transferred by exhaust fans filter systems and deposited within proposed hoppers adjoining the main shed area.

All main access roads within the facility will be sealed to remove potential dust lift form vehicle movements within the site. Roads that remain gravel within the site may require dust suppression during the harvest period. Water for this will be sourced from the stormwater detention system.

Almond shells and hulls stored within the adjoining areas are unlikely to include dust having been removed from this product as part of the treatment process.

Machinery Emissions

The facility will be operated by electric power machinery via connection to the electrical network as discussed in the preliminary power assessment in **Appendix 6.14**.

5.7.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential dust and air quality impacts. These are shown in the table below.

Table 5-14 – Air quality mitigation and monitoring measures

ID	Potential Impact	Timing	Safeguard
A-1	General air quality impacts	Pre-construction	Inductions for all employees will include information on: • Location of project receptors, • Potential sources of dust, • Monitoring of dust during construction activities, • Mitigation measures for managing dust, and Speed limits onsite and staying on designated roads.
A-2	Dust emissions	Construction	Monitor wind and weather forecasts (Bureau of Meteorology) and excavation activities within the vicinity of the Swan Hill Road are to be postponed during excessively windy conditions. (1)
A-3	Dust emissions	Construction	After re-establishment of the soil profile (post construction), vegetative cover will be established as soon as possible, as part of the progressive rehabilitation program.
A-4	Dust emissions and unsafe environment	Construction	Adhere to site speed limits and designated roads.
A-5	Exhaust emissions	Construction	Construction plant and equipment must be maintained in good working, serviced order.
A-6	Exhaust emissions	Operation	Site plant and equipment must be maintained in good working, serviced order.
A-7	Exhaust emissions	Construction	All plant and equipment must be of adequate size to undertake work proposed.
A-8	Exhaust emissions	Operation	All plant and equipment must be of adequate size to undertake work proposed.
A-9	Impact on sensitive receptors	Construction	Wind direction and speed to be monitored during dusty operations. All works to stop if any adjoining receptor are impacted by dust emissions.
A-10	Separation system within buildings creates unsafe working environment or sub-standard product	Operation	Dust extraction systems within the facility must be maintained to manufacturers specifications to ensure that dust is removed from the drying and separating machinery systems.

(1) Shut down periods during excessively windy conditions will be determined following a risk assessment of impact to various sensitive receivers, including motorists on adjacent public roads and employees.
(2) Clay fines are effective dust suppressants, in place of chemically manufactured additives.

5.7.5. CONCLUSION

An assessment has been undertaken to identify potential impacts to air quality as part of the construction activities of the project. Consistent with other projects relating to earthworks, the main construction impact identified relates to the generation of dust. A range of mitigation measures have been identified to assist with the management of air quality for

both the construction and operation of the project which can ensure impacts to surrounding areas are protected from dust impacts.

Operation activities at the site will produce dust through the movement of harvested almonds within the site and as part of the drying and separation activities. The unloading and transferring of harvested almonds will produce some localised dust within the activity area with particles settling within the activity area.

Transport movements over some unsealed roads within the facility during the harvest delivery period may also create dust. Dust generation on site roads can be managed through the use of a watercart supplied form the storm water detention dam.

Drying and separation activities undertaken within buildings at the site will also generate some clods of dirt removal and dust as a result of drying and separating. Dust generated as whole almonds are dried and separated will be removed through extraction systems within the buildings reducing the risk to staff and ensuring a quality almond suitable for packaging.

5.8. NOISE AND VIBRATION

An acoustic assessment of the proposed project has been undertaken by Waveform Acoustics. The assessment includes consideration of the construction activities and the ongoing operation of the site to receiving up to 30,000t annually. The full acoustic is included in **Appendix 6.11.**

5.8.1. METHODOLOGY

The methodology utilised as part of this assessment is as follows:

1 Measure the existing environment in relation to noise using an ARL Ngara noise logger,
2 Identify Noise Sensitive Receptors (NSR) in relation to noise impacts,
3 Identify the noise generating activities both during construction and operation,
4 Establish the predicted impacts of project activities on NSRs at their property boundaries using the Quantitative Assessment Method for construction and modelling for the operation, and
5 Propose mitigation measures to manage project impacts.

The project does propose the use of any vibrating equipment as part of the construction or operation and there is no drilling, driving or blasting proposed. As a result, there is no assessment of vibration in the following section.

CONSTRUCTION

Activities that will generate noise on the site will vary depending on the type of construction activity proposed. These are earthworks, shed construction and the infrastructure fit out. In terms of noise generating activities, the earthworks phase will be the largest contributor to noise.

The NSW *Interim Construction Noise Guidelines* 2009 identifies that noise criteria for construction activities that will continue for a period of greater than 3 weeks must be considered. The following table provides the Noise criteria for the construction period of the project.

Table 5-15 - NSW EPA construction noise criteria for residential uses

Time of day	Management Level $L_{Aeq\ (15\ min)}$*	How to apply
Recommended standard hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No works on Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account:

		1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see section 7.2.2.
* Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.		

Utilising the above noise criteria methodology, the assessment identified that the following construction noise limits will apply to the project:

- Standard Hours
  - Noise affected limit – 45 dB(A).
  - Highly noise affected limit – 75 dB(A).
- Non Standard Hours
  - Evening (6pm to 10 pm) – 40 dB(A).
  - Night (10pm to 7 am) – 40 dB(A).

OPERATION

The *Noise Policy for Industry*, 2017 (NPI) has been reviewed to assess the ongoing operation noises in accordance with the guideline and any future EPA requirements. The noise assessment procedure for industrial noise must consider two separate components, the intrusiveness and the amenity criteria. The project intrusiveness noise level aims to protect against significant changes in noise levels, whilst the project amenity noise level seeks to protect against cumulative noise impacts from industry and maintain amenity for particular land uses. The lower of the two criteria is applied as the noise levels specific to the project. The *NSW Noise Policy for Industry, 2017* provides acceptable noise level criteria for rural receivers. These are:

Table 5-16 - Amenity criteria - Recommended LAeq noise levels from industrial noise sources

Period	Utilised minimum RBL dB (A)	Min project Intrusiveness Criteria[1] ($L_{Aeq, 15min}$ dB (A)	Amenity Criteria[2] ($L_{Aeq, 15min}$ dB (A)
Day (7am-6pm)	35	40 (35+5)	50
Evening (6pm-10pm)	30	35 (30+5)	45
Night (10pm-7am)	30	35 (30+5)	40

Notes: 1. Intrusiveness criterion is $L_{Aeq\ 15\ minute}$ < rating background level + 5, **2**. Amenity criterion given in Table 2.1 and 2.2 of the NSW Industrial Noise Policy

Utilising the above noise criteria methodology, the following noise trigger limits that will apply to the project are:

- Daytime – 40 dB(A)
- Evening – 35 dB9A)
- Night – 35 dB (A)

CALCULATIONS AND BASE INFORMATION

A review of the proposed construction and operation machinery has been undertaken in accordance with the above criteria in line with project construction and operation activities.

Table 5-17 - Typical noise levels of machinery associated with the facility for both construction and operation

Item of Plant	Timing of use	dB Level @ 10m
Grader	Construction	80
Tractor	All	80
Vehicle – 4WD style	All	70
ATV	All	70
Scraper	Construction	75
Compactor (roller)	Construction	79
Truck – Water cart style	All	65
Excavator	Construction	79
Truck (>20 T)	All	75
Tip truck & Dog	All	79
Mobile Crane	Construction	77
Concrete trucks	Construction	80
Forklift	All	70
Loader	All	76
Hand Tools (Grinders etc)	All	80
Generator	All	74
Field Dryer	Operation	95
Drying Equipment	Operation	85

5.8.2. EXISTING ENVIRONMENT

The site is located in a rural area dominated by agricultural activities. There are a few residences in the vicinity of the proposed project area. The following image replicated from independent Acoustics assessment appendix map identifies the nearest dwelling to the project site not owned by the applicant is located 1.4 kms to the southeast of the property boundary. The yellow radius circles indicate 2km and 4km from the centre of the project site.

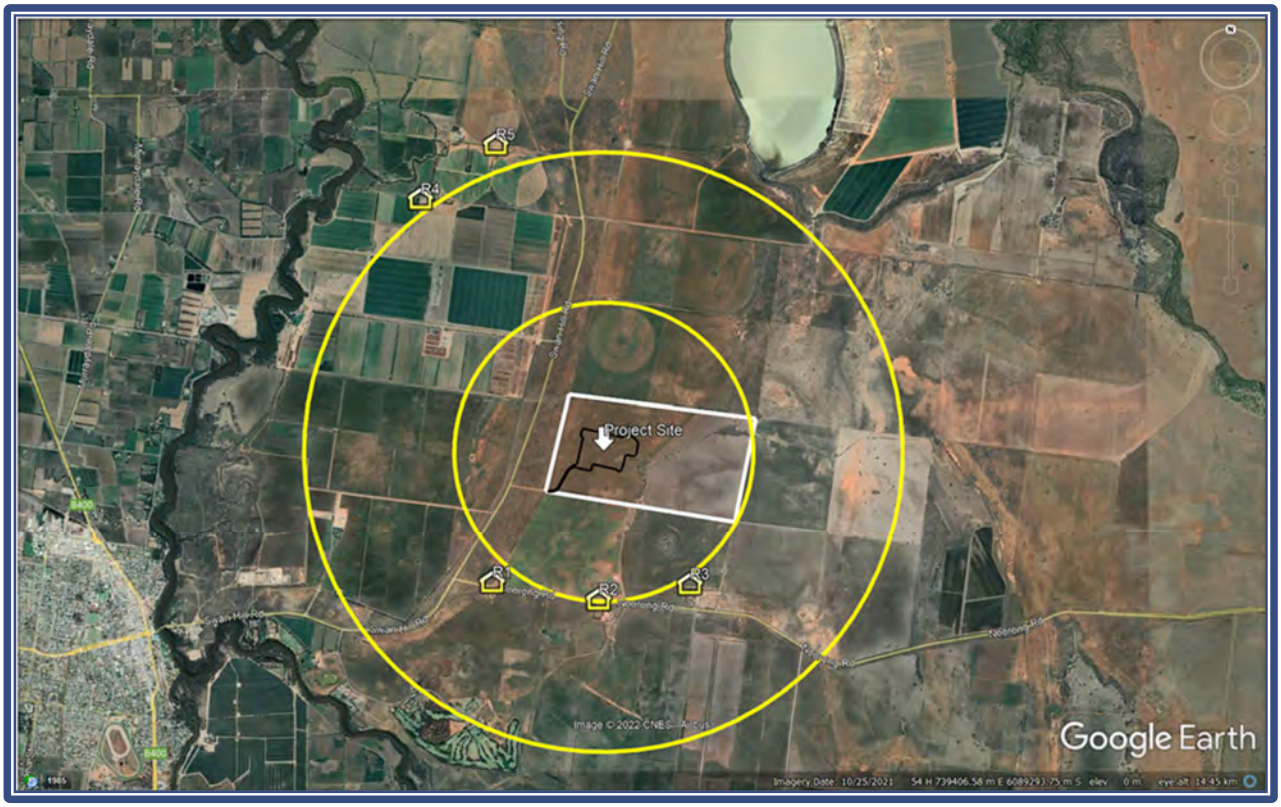


Figure 5-23 – Image identifying project in relation to property ownerships (Source: Google Earth 2022)

Table 5-18 - Table of receptors – showing distance from the property boundary closest to facility

ID	Type	Distance (km)		Direction
		From property boundary	From site boundary	
R1	64 Noorong Rd	1.6	1.6	South west
R2	194 Noorong Rd	1.5	1.8	South
R3	321 Noorong Rd	1.4	1.9	South east
R4	947 Stony Crossing Rd	3	3.6	North west
R5	1027 Stony Crossing Rd	3.4	3.8	North west

The main existing sources of noise in the vicinity of the site are from existing road traffic noise and general farming machinery operation. It is acknowledged that this project is in an agricultural area where there are adverse amenity related impacts possibly occurring from time to time including from noise, heavy vehicle movements and 24-hour farming operations.

The assessment included a site-specific noise assessment logging Rating Background Levels (RBL) over a 24hour period. The results of this assessment were consistent with those in rural area with the lowest recorded LA90 levels measured in a 15-minute period being 25dB L_{A90} in recommended standard hours and 20 dB L_{A90} outside recommended standard hours. The RBL was established utilising the *Noise Policy for Industry 2017*.

5.8.3. ASSESSMENT

CONSTRUCTION

The construction works for facility will be undertaken progressively throughout the site with multiple pieces of machinery being used at the same times. These include site set out, earthworks, building construction and machinery installation and fit out. The assessment undertook a review of the identified items of plant operating at the same time at each of the identified receptors at their normal operating levels.

As identified above, the nearest receptor is located 1.4km from the property boundary and 1.6km from the project work area being the driveway entrance. **Table 5-19** below provides the calculated maximum noise generation limits on site during construction activities to ensure that the required noise levels at the receptor are met.

Table 5-19 - Calculated noise generation limits for project construction

Time Period	Target dB(A)	Max dB(A) on site	Achieved?
Standard Hours			
Noise Affected	45	44	Complies
Highly Noise Affected	75		Complies
Non-standard hours			
Evening (6pm-10pm)	40	Nil	Complies
Night (10pm-7am)	40		Complies

Should construction timeframes assessed be proposed to manage resources, timeframes and site safety (heat management) consultation with adjoining neighbours will be undertaken to ensure no impact to those residents.

OPERATION

The operation of the project has the potential to generate noise from a range of activities and sources. These include the drying fan and drying activities within the dedicated building. The timing of these activities will vary slightly depending on seasons however will operate for up to 12 weeks of the year for 24 hours a day.

Other site operations such as truck deliveries and despatch, loader and forklift operations will be used throughout the day during standard operating hours.

An assessment modelling the predicted noise levels of the site has been undertaken to review the potential impacts on the local receptors within the area. **Figure 5-24** below identifies that the LAeq noise level at each of the receptors would be less than 30.

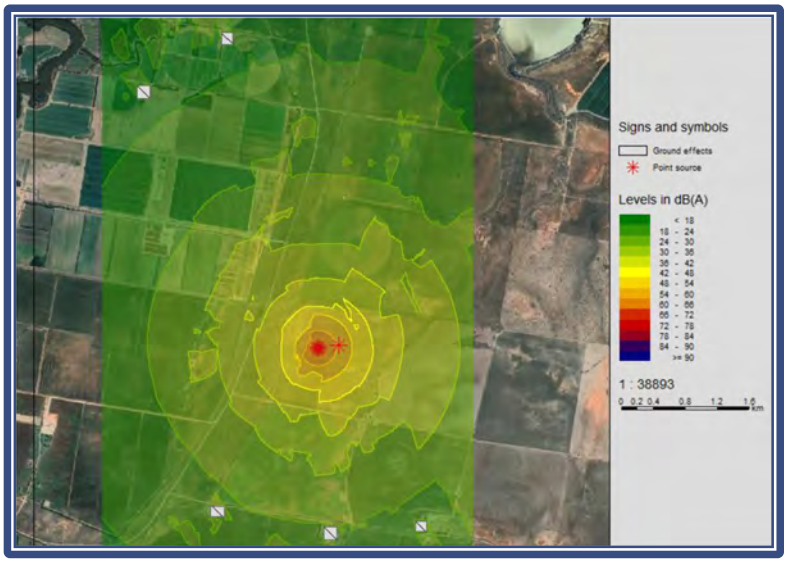


Figure 5-24 - Replication of acoustic model of site operation noise (Source: Waveform Acoustics Report Pg 13)

5.8.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

As identified above, the predicted noise emitting activities for both the construction and operation stages of the project will not exceed the noise generation limits. The following mitigation measures are proposed to ensure that the project remains consistent with baseline information utilised during the assessment.

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential noise impacts. These are shown in the table below.

Table 5-20 – Noise mitigation, management and monitoring measures

ID No	Potential Impact	Timing	Safeguard
N-1	**Noise impacts at receptor**	Construction	• Ensure that all machinery is regularly serviced and has appropriate noise abatement devices. All equipment selected for use on site will be regularly monitored to minimise noise emissions with any excessively noisy equipment stood down until issue rectified. • Machines, where practical, will not operate at full power and will be switched off when left for long periods of time. • Machines that are appropriate for undertaking the works are selected and not under or oversized for the works.
N-2	**Noise impacts at receptor – Outdoor Dryer**	Operation	Whilst the modelling indicated that it is unlikely a barrier will be required for the field dryer, once commissioned, noise emissions should be monitored to ensure acceptable noise levels are not exceeded. If required, Acoustic Screening may be employed to ensure ongoing compliance
N-3	**Noise impacts at receptor – Outdoor Dryer**	Operation	The modelled attenuation of the shed has been based on Rw 30. Consideration should be given to any penetrations in the acoustic fabric such as but not limited to: i. Doors ii. Windows iii. Ventilation iv. Extraction v. Other Mechanical pipework.

ID No	Potential Impact	Timing	Safeguard
N-4	**Noise impacts at receptor – Outdoor Dryer**	Operation	Other potential on-site operational plant and equipment should be reviewed in terms of location and noise output to determine whether they pose a noise risk and whether additional acoustic attenuation may be necessary once site operations commence.
N-5	**Noise impacts at receptor – Outdoor Dryer**	Operation	All forklift and heavy machinery that is used on a regular basis are fitted with compressed air alert sirens rather than beepers.
N-6	**Noise impacts at receptor once operations commenced**	Operation	A follow up assessment should be considered within 3 months of operation to confirm compliance with the noise limits and to identify any additional measures that should be undertaken.

5.8.5. CONCLUSION

The detailed acoustic assessment identified that based on the predicted noise emissions from the typical equipment used in construction projects like this, that it was expected that the noise emissions from the site would fall below the threshold for Noise Affected Levels without the requirement for additional mitigation measures.

A modelled assessment was undertaken which assessed the use of the field dryer and filter house fan. The results of the model identified that the noise levels fell below the project trigger levels and that there would be no negative impacts on residential receptors.

In addition to this, the assessment also identified that it was unlikely that there would be impacts to the local amenity as part of the construction and operation of the Almond Facility. Mitigation measures have been provided which relate to the operation of equipment at the site and recommend future testing of site operations once commenced.

5.9. TRAFFIC AND ACCESS

A Traffic Impact Assessment has been completed for the project with traffic conditions assessed for this proposal and the potential future stage of the site. TrafficWorks was engaged to undergo the assessment and the report has been included **in Appendix 12** with a summary below.

5.9.1. METHODOLOGY

The Traffic Impact Assessment was undertaken to:

- Estimate traffic generation and distribution associated with the proposed development,
- Determine the suitability of the proposed access locations onto the adjacent road network,
- Determine the likely traffic impacts on the existing road network as part of the current development and potential future use of the site,
- Outline estimated parking demand of the facility and ensure it can be contained within the site, and
- Identify any necessary mitigating works.

5.9.2. EXISTING ENVIRONMENT

The project site is open farmland with access to Swan Hill Road in the property's southwest corner approximately 500m east of the road. There is a travelling stock reserve between the property boundary and Swan Hill Road. **Figure 5-26** below shows an aerial view of the property and current access.

Swan Hill Road is a Regional Road that connects Swan Hill (Victoria) in the south to and in the north and provides access to Moulamein, Kyalite through to Balranald. It provides a single lane of traffic in each direction with a 7m sealed carriageway with 2m unsealed shoulders on both sides of the road. Swan Hill Road is subject to a default rural 100 km/h speed limit.

The Swan Hill Road is a designated B-Double route (up to 26m) and a designated AB-Triple route from the Victorian/NSW border in the southwest to approximately 5km north of the site (where the route continues to the north along Stony Crossing Road).

Figure 5-25 - Overview map identifying existing project location in relation to regional roads (Source: Whereis)

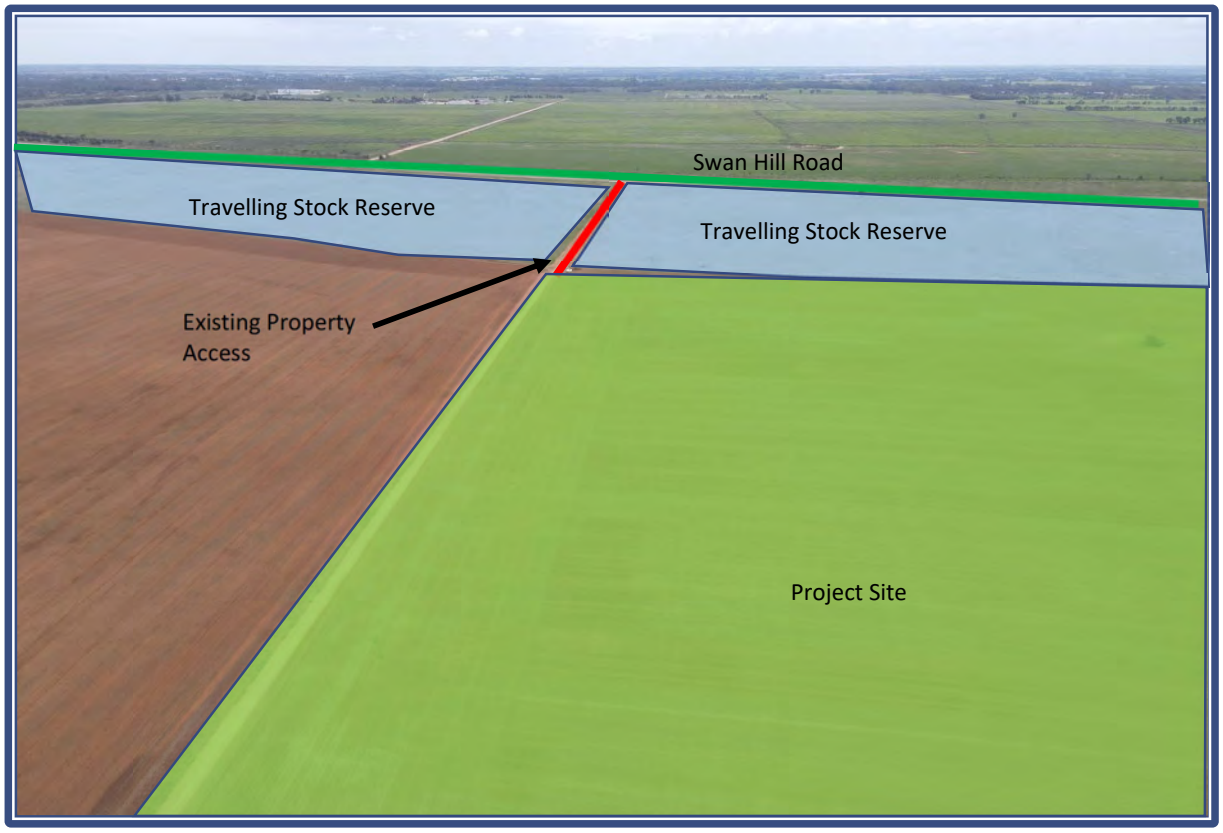


Figure 5-26 - Areal view of the project site in relation to Swan Hill Road (PRS Photo 2022)

The daily traffic counts for Swan Hill Road was sourced via Transport for NSW's Traffic Volume Viewer website with indications there are approximately 704 vehicles per day (VPD) that travel along Swan Hill Road. 342 northbound and 362 southbound with 17% heavy vehicles.

Review of TfNSW Centre for Road Safety website which details all injury crashes throughout the state indicates that there have been no casualty crashes within the vicinity of the project site in the five years of data available (2016-2020)

Figure 5-27 - Photos showing view from driveway intersection looking north (left) and south (right)

The existing entrance to the property consists of a gravel intersection which connects with an existing wide access road across the Travelling Stock Reserve to the property boundary. There is no residence on the property and current traffic into and out of the site consists of normal farming traffic associated with cropping activities. This includes trucks of B-Double and tractors towing implements.

Figure 5-28 - Photos showing existing driveway looking from the property towards the Swan Hill Rd (Source: PRS photo 2022)

5.9.3. ASSESSMENT

The project construction and operation access will be limited to the Swan Hill Road (Regional Road) which performs an intermediate function between the main arterial network of state roads and local council-controlled roads.

CONSTRUCTION

The construction works proposed for the project will be undertaken in several phases, many of which will utilise the same contractors and equipment to complete works for the entire works program. As a result, there will be minimal deliveries of major construction equipment to the site. Earthwork contractors will be sourced locally reducing the requirement for traversing the Swan Hill bridge over the Murray River.

Building materials and equipment will be delivered from Adelaide, Melbourne or Sydney depending on the port receivals and successful supply contracts. All delivery loads will be from either north of the site or from Noorong Road (pending load ratings) – i.e. minimal heavy vehicle traffic traversing the Swan Hill Murray River bridge.

Contractors engaged to undertake construction works on the site will be either local - travelling from their residence or accommodated within local areas ranging from Murray Downs, Swan Hill and Moulamein. Staff and contractors will minimise vehicle movements wherever possible by vehicle pooling to site.

During construction it is estimated that there will be a maximum of three heavy vehicle movements in a day relating to the delivery of concrete and/or gravel to the site. All deliveries will occur in daylight hours with most before 8AM.

OPERATION

The almond harvest season occurs over an up to 12-week period between mid-March and the end of May where the facility will operate 24 hour rotational shifts to receive almonds from the local orchard areas. Once stored at the facility at a suitable moisture level, the almonds will have their hulls and shells removed throughout the year, being stored prior to being despatched to the processing plant or market. As a result of the different demand on the traffic network the operation traffic assessment has been split into two sections - harvest season and post-harvest season.

Harvest Season

During harvest season inbound almonds arrived from the orchards via B-triples with the outbound hulls and shells and finished goods to depart by B-doubles. The influx of harvested almonds requires the facility to operate over 24 hours staff requirements are summarised in **Table 5-21** below with two-way vehicle movements.

Table 5-21 - Estimated weekly vehicle movements by stage

Class	Movement Type	Type of vehicle	Number
Light	Staff	Passenger	60
	Visitors	Passenger	2
Heavy	Almonds	B-Triple	50
	Hulls and Shells	B-Double	5
	Finished Product	B-Double	5
	Other Deliveries	B-Double	4
Total	**All light vehicles**		**62**
	All heavy vehicles		**64**
	Total		**126**

Post- Harvest Season

Post-harvest season accounts for the remaining activities undertaken over the year. During Stage 1, the facility will enter maintenance mode outside harvest season, with minimal staff, deliveries and vehicles. When Stage 2 becomes operational, the facility will continue to clean, hull and shell the almonds throughout the year. The number of employees will be retained for up to eight weeks following the harvest season before tapering down for the rest of the year during the post-harvest season.

Table 5-22 - Estimated weekly vehicle movements by stage

Class	Movement Type	Average estimated weekly vehicle movements	
		Type of vehicle	Number
Light	Staff	Passenger	4
	Visitors	Passenger	1
Heavy	Hulls and Shells	B-Double	5
	Finished Product	B-Double	5
	Other Deliveries	B-Double	2
Total	**All light vehicles**		**5**
	All heavy vehicles		**12**
	Total		**17**

Traffic flow at the site has been a major consideration of the project design with traffic flow throughout the site shown below in **Figure 5-29.** The blue line shows the direction of flow and how traffic will enter, move around and exit the site. Harvested almonds will be delivered on trucks of up to B-triple road trains which will enter the site, travel via the entry weighbridge, delivering harvested almonds to either the field dryer, pre-cleaner or field bunker to await capacity to enter the hulling and shelling system. Trucks will be weighed again prior to exiting the site.

B-Double trucks will collect hulls and shells entering through the weigh bridge to be weighed prior to picking up the product and then exiting via the weigh bridge again.

Once packaged the final almond product will be picked up by B-Double trucks which will enter the site and do a small loop through the dispatch and loading dock area.

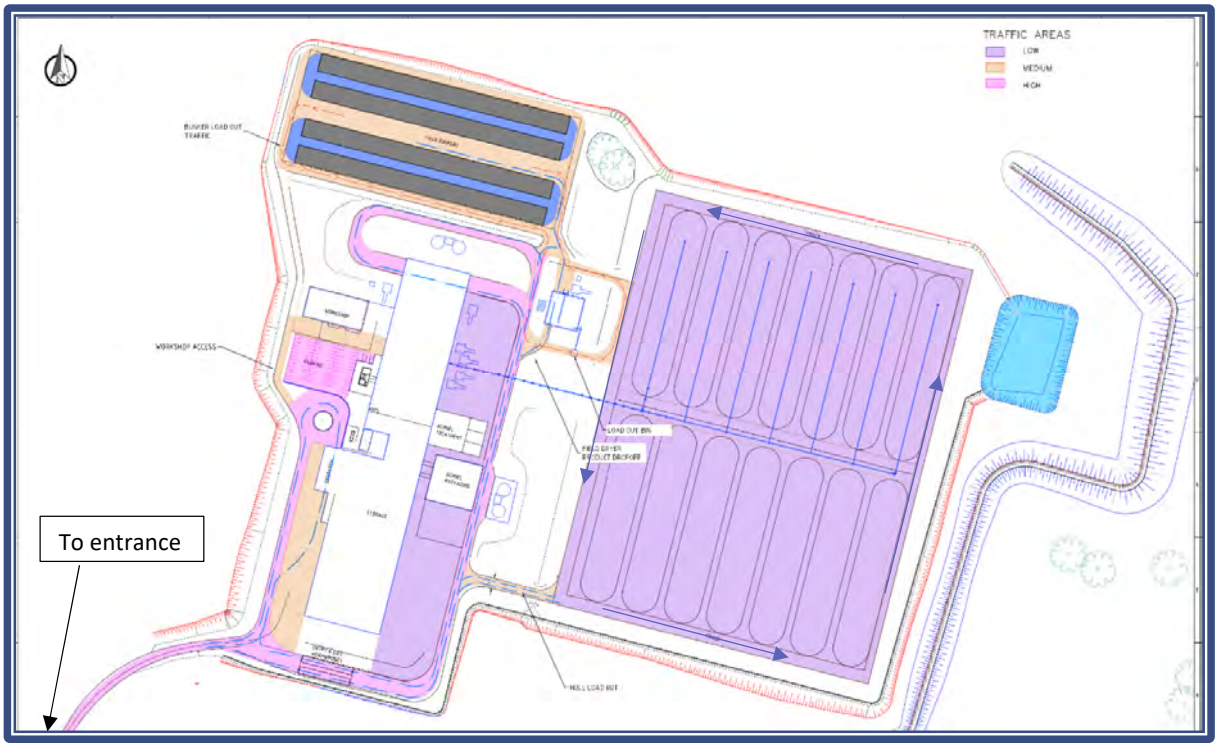


Figure 5-29 - Traffic Flow Map

Parking requirements have been assessed with relation to the maximum number of staff, visitors and people on site at the change in shifts. This area has been included within the site design to ensure that any future requirements are also considered and integrated into the site design without the requirement to interact with site operations in the future. The car parking area at the site will be sealed. Disability parking will be included adjoining the site office.

5.9.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

The Traffic Impact Assessment concluded that there are no traffic safety problems that require urgent remedial action. The report has the following recommendations with relation to this proposal.

Table 5-23 –Traffic mitigation and monitoring measures

ID No	Potential Impact	Timing	Safeguard
T-1	Traffic interaction of the Swan Hill Rd and property entrance	Construction	Ensure that the access point to Swan Hill Road is constructed to permit two B-triples to pass simultaneously
T-2	Not related to this stage		
T-3	Truck delivery and dispatch sizing	Operation	Confirm with the National Heavy Vehicle Register (NHVR) whether any permits are required for B-triples to travel on Swan Hill Road.

ID No	Potential Impact	Timing	Safeguard
T-4	Parking at site	Design	A designated parking area be shown on the proposed plans to cater for at least 80 passenger vehicles (maximum staffing of site at shift change)
T5	Public Lighting Assessment	Pre-construction	Review design requirements and where identified it is required, undertake a public lighting assessment during the detailed design of the site access intersection with Swan Hill Road.

5.9.5. CONCLUSION

Construction traffic impacts will require heavy and light vehicle movements daily with a maximum identified heavy vehicle movement required during gravel and concrete delivery of up to three vehicles per day across some periods of construction. Light vehicles will also access the site from variable directions to complete construction works on site. Deliveries of materials will avoid the Swan Hill Murray River bridge instead being delivered from the north.

The Traffic Impact Assessment concluded that there are no trends in crashes observed within the vicinity of the site within the last 5-year period indicating that there are no safety issues at or near the site that require urgent remedial action. The safe intersection sight distance is satisfied at the proposed access location and no further treatment is required. For the proposed development relating to this application, no turning lane treatments are required at the Swan Hill Rd – driveway access intersection however the access driveway should be designed to permit two B-triples to pass each other simultaneously.

In addition to the assessment, there is significant parking areas proposed at the site being of sufficient area to incorporate the maximum change in shift of staff at maximum employment timing. The parking design incorporates all inclusive parking areas.

5.10. WASTE MANAGEMENT

5.10.1. METHODOLOGY

Waste and litter management should be recognized due to the impact poor management could have on the environmental performance of the construction and operation of the project. This section applies to all activities conducted during the construction and operation of the project.

The *NSW Waste and Sustainable Materials Strategy 2041* has been developed to improve the way that we live and ensure that future generations enjoy the same or an improved quality of life. This strategy stretches across all aspects of life and covers environmental, social and economic areas. This strategy adopts the principles set out in the *Protection of the Environment Administration Act 1991*.

The strategy identifies a circular economy (shown below) providing guidance on the future reuse, regeneration and recovery of waste within our society towards achieving efficient resource use.

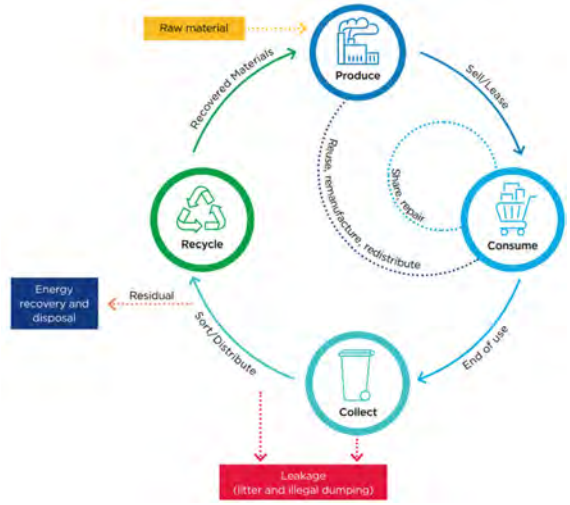


Figure 5-30 - Circular economy (Waste & Sustainable Materials Strategy 2041)

5.10.2. ASSESSMENT

The following items have the ability to be recycled within the Murray River Council waste facilities:

- Greenwaste - into mulch/ compost
- Untreated / painted timber - into bark chips
- Concrete – crushed for road base
- Bricks, pavers, rocks, rubble & concrete roof tiles – crushed for road base or decorative rock
- Ewaste – more than 95% of e-waste can be recovered and recycled
- Cleanfill – can be used as fill
- Scrap metal – can be recycled and made into new materials
- Cardboard & commingled recycle – can be recycled into new materials
- Oil – can be recycled and filtered into fresh oil.

CONSTRUCTION

The project as described does not involve a demolition phase being solely related to a new construction. The strategy of waste and litter management at the project site for construction is as follows:

- To minimize waste production,
- To identify waste types and quantities on site,
- To maximise the beneficial use of production waste material for site construction and rehabilitation activities,
- To identify potential re-use or recycling opportunities and ensure appropriate handling and collection procedures are in place,
- To investigate methods to minimise waste generated by the project and implement reasonable and feasible measures to minimise waste,
- To ensure the disposal of wastes conforms to applicable guidelines or licences,
- To ensure areas where fuels, oils or other potential contaminants are stored and are appropriately bunded, and
- To ensure sewerage disposal does not degrade the wastewater utilisation area.

Construction wastes expected to be generated by the development are likely to consist of:

- General domestic wastes from on-site construction which include lunch wrappers, cans, small boxes etc,
- Routine maintenance consumables including used grease tubes, rags, oil drums etc and
- General construction generated waste including off-cuts, used pallets and packaging.

All contractors selected for infrastructure construction activities will be utilising detailed design drawings with materials specifically cut to size and specification for this construction project. As a result, the waste generation from the construction activities is predicted to be minimal. The following table provides detail around the generation of waste and intended outcome of each waste stream material.

Table 5-24 - Construction waste material volumes and outcomes

Materials on site			Disposal		
			Reuse and Recycling	Disposal	
Type of material	**Description**	**Estimated volume**	**On-site**	**Off-site**	**Contractor & landfill site**
Excavation material	Bulk earthworks	See above	Balanced on site	NIL	NIL
Green Waste	Nil	NA	NA	NA	NA
Bricks	Nil	NA	NA	NA	NA
Tiles	Nil	NA	NA	NA	NA
Concrete	Footings, slab, loading areas etc	25,000m^2	Delivered to order	Nil	Nil
Timber	Pallets from delivered material	200 pallets	Nil	Re-used for product delivery	Nil
Plasterboard	Internal walls for office	NA	NA	NA	Yes Swan Hill landfill
Metals	Cladding/roofing offcuts, bracing	Variable	Nil	Recycled metal	NA

Pipeline off-cuts	Offcuts from water pipelines etc	Minimal – small volume to even pipe ends	NA	NA	Yes Swan Hill landfill
Other waste	Disposables, packaging etc	20 skip bin/recycle bin across project works	NA	Cardboard, recycle waste	TBC – Swan Hill Skip Bins Swan Hill landfill

OPERATION

The operation of the facility will generate different types of waste and by-products. These can be separated into the following separate types of waste streams:

1. Beneficial by-products and refuse from the harvested almond,
2. Office consumables,
3. Workshop and maintenance consumables, and
4. Sewerage from amenities.

Almond by-products and refuse

Almonds will be delivered to the site as harvested from local orchards. The whole almond when delivered from the farms includes other materials such as rocks, dirt clods, twigs, leaves and the whole almond within its shell. As the almond moves through the pre-cleaning system, twigs, leaves, sticks and large clods of direct are removed. These items are removed by separating machinery removing each type of item into storage areas adjoining the sheds for removal to farm. Rocks and dirt will be returned to farm and used on tracks, leaves, sticks and twigs are re-used as organic matter inputs to suitable farming systems.

Hulls and shells are a highly sought after by-product with a beneficial use in multiple industries. The hulls and shells will be transferred to the hull storage area which it will be stored for sale and export as a separate commodity – generally as a roughage additive to the intensive livestock industry.

Office consumables

The site will include a staffed office to manage and administrate the operation activities. These activities will include the generation of waste which will include:

- General domestic waste eg, lunch wrappers,
- Office disposables such as paper, print ink cartridges, boxes etc
- Redundant office equipment.

General domestic waste and office disposals will utilise recycle practices including paper and cardboard and ink cartridges. Any other general waste will be deposited into site waste receptacle and exported to landfill by an external contractor. Pending contractor, waste deposition may be into either Murray River Council or Swan Hill Council landfill.

Workshop and maintenance consumables

Operation activities relate to the operation of site machinery such as tractors, loaders and drying and separating machinery. Maintenance of these items of plant will produce waste in the form of:

- Oil,
- Grease,
- Filters,
- Belts,
- Fuel.

Servicing of the items of plant will occur at the facility workshop and within operation timeframes and all materials where possible will be recycled. If not recycled, they will go to landfill via skip bin/appropriate receptacle from the site's current waste contractor.

Sewerage from amenities

The site proposes to include site amenities including two toilet facilities. These will be located within the office and the shelling and hulling building. The site is not connected to a town sewerage network and as a result will require an on-site septic and wastewater management system. This system will be designed, application lodged for and installed by a registered plumber with suitable qualifications to propose and undertake related works.

5.10.3. MITIGATION, MANAGEMENT AND MONITORING

As identified above, the predicted waste volume for the construction of the project will be managed through detailed design drawings and prefabricated construction materials provided for buildings and materials.

Operation of the site will produce minimal waste of which the majority is designated for recycle and return to farm. Beneficial by-products from the harvested almonds in the form of shells and hulls will be stored and sold as a secondary product.

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential waste impacts. These are shown in the table below.

Table 5-25 – Waste mitigation and monitoring measures

ID No	Potential Impact	Timing	Safeguard
R-1	Contamination of waste and recycling	Pre-construction	Construction staff are to undergo site induction including waste management procedures. Wastes are to be treated as per the NSW circular economy.
R-2		Operation	
R-3	Ineffective use of waste systems and storage.	Construction	Waste areas will be clearly identified with clear instructions on the waste separation information.
R-4		Operation	
R-5	Poor waste management/escaped products	Construction	No long term storage of waste material is to occur on site.
R-6		Operations	
R-7	Contamination of waste streams	Construction	Waste receptacles on site are to be clearly identified as waste storage areas with written instructions at appropriate locations to identify recycle and waste separation.
R-8		Operation	
R-9	Site contamination and ineffective waste management.	Construction	Waste is to be disposed of by appropriate measures (i.e. not buried on site).
R-10		Operation	
R-11	Excess waste created/ Environmental duty	Construction	Waste minimisation strategies are to be employed and recycling undertaken where possible.
R-12		Operation	
R-13	Disturbance of visual amenity	Construction	All works are to be confined within the project construction footprint. All waste, vehicles, plant and equipment are to be stored in identified laydown areas and will be removed from the site at project completion.
R-14		Operation	
R-15	Contamination of land, groundwater or eventual waterways	Operation	All run-off from the site is to be captured and managed effectively through the stormwater detention dam at the site.

5.10.4. CONCLUSION

The impacts of waste generation from construction are manageable utilising detailed designs, prefabricated and made to order materials for the project. Additional construction material waste as part of the project works will be minor with major waste generated as part of the project works being in the form of general construction wastes and disposables. All contractors undertaking works on site will be inducted to ensure any waste derived on the project site during construction will be suitably removed and managed in accordance with recycle and reuse policies.

Ongoing operation of the site will generate waste in the form of office consumables, machinery consumables such as oil, grease, filters and rarely waste fuel. Almond separation techniques will produce some sticks and twigs, soil in the form of clods and dust and the beneficial by-product of hulls and shells which will be exported as a separate commodity. Where possible oils and fuel will be recycled and disposables and consumables to go to landfill via the appropriate waste contractor.

5.11. VISUAL AMENITY

5.11.1. METHODOLOGY

It is noted at the outset that the value placed upon visual amenity and the impact upon surrounding visual amenity varies from person to person and from location to location. As a result, a visual amenity assessment is, by its nature, highly subjective. Emphasis has therefore been placed on providing a description of the existing visual amenity surrounding the project site and the measures that would be taken by the applicant to minimise potential visual amenity-related impacts on surrounding residents and others.

5.11.2. EXISTING ENVIRONMENT

Agriculture is responsible for a significant part of the growth and development of the district and evidence of cleared land and other agricultural activities dominate the existing landscape. Structures such as farm sheds, a feedlot and water irrigation systems are common in the rural environment.

Public vantage points of the property are mainly from Swan Hill Road by passing vehicles with a single glimpse of the site from Noorong Road.

Figure 5-31 - Image showing the view towards the site from Swan Hill Road (Source: Google Maps Street View)

Within a 4km radius of the project there are 5 residential buildings not owned by the applicant with the closest approximately 1.8km from the infrastructure at the project site. The view from this receptor towards the project site is interrupted by several stands of native vegetation and a change in natural elevation.

Figure 5-32 - Map identifying the projects visual receivers (Source: Google earth 2022)

5.11.3. ASSESSMENT

As identified above, infrastructure such as sheds and large agricultural infrastructure are common in this area eg silo complexes. There are significant natural elevation alterations and separation distances identified between the proposal and public vantage points and adjoining residences not owned by the applicant. As a result, it is unlikely that the proposal will impact on the visual amenity of the site either during construction or operation.

5.11.4. MITIGATION, MANAGEMENT AND MONITORING MEASURES

Mitigation and monitoring measures relating to the project construction and operation will be implemented to minimise potential visual impacts. These are shown in the table below.

Table 5-26 – Visual impact mitigation, management and monitoring measures

ID No	Potential Impact	Timing	Safeguard
V-1	Visual amenity disturbed through construction.	Construction	All works are to be confined within the project construction footprint. All waste, vehicles, plant and equipment are to be stored in identified laydown areas and will be removed from the site at project completion. Works connecting to the driveway entrance and upgrade will occur during daytime only with machines stored within site compound areas at works completion.
V-2	Public vantage points impacted from construction activities	Construction	Existing natural landform will be utilised to provide screening for any machinery storage.
V-3	Waste escaping from project site	Construction	All waste will be managed in accordance with waste mitigation measures identified.
V-4	Operation of project is unsightly from public vantage point	Operation	The project site must be maintained in a clean and tidy condition at all times.
V-5	Project infrastructure disturbs the natural agricultural environment	Operation	The facility and related infrastructure must be maintained in natural colours and not painted in colours uncomplimentary to the natural environment. Signage proposed at and directing to the site will only be in the approved format.

5.11.5. CONCLUSION

The project infrastructure is not uncommon within the rural environment with sheds and large agricultural management infrastructure being familiar infrastructure. Public vantage points of the project site are limited to glimpses from behind vegetation or natural elevation screening on the Noorong and Swan Hill Road within a 100km/hour speed zone. There are no residences with direct vision of the project site with the closest outside residence being over 1.8km from the site infrastructure. There are no predicted visual disturbance impacts as part of the construction or operation of the project.

6. MITIGATION, MANAGEMENT AND MONITORING MEASURES

The Statement of Environmental Effects identifies a range of mitigation measures proposed to manage adverse environmental impacts and beneficial opportunities from the project.

This section summarises those measures as commitments, made by the applicant that are in addition to those that are statutory requirements associated with legislative, licence or environmental authority compliance. In the following tables the commitments and relevant EIS section are detailed for both the construction phase and the ongoing operation and management.

Table 6-1 - Statement of commitments - Preconstruction

Aspect	ID	Potential Impact	Safeguard
Pre-construction			
Water	W-1	Mobilisation of sediments from the site.	Erosion and sediment control measures are to be implemented and maintained in accordance with the relevant section of managing Urban Stormwater: Soil and Construction Vol 1 (Landcom, 2004)
Water	W-5	Contamination of surface and groundwater systems.	Vehicles are to be washed prior to site entry to prevent requirements for washing on site. Where machines are required to be washed, run-off from washing must be directed to controlled drainage within site.
Water	W-8	Pondage of surface water and/or inadequate site drainage.	Site drainage to be inspected prior to construction work commencement. Where required, drains are to be utilised and ESC measures are to be utilised and maintained until site is stabilised.
Biodiversity	B-1	Native vegetation accidentally cleared	All 'No-Go' zones are to be clearly identified and communicated to contractors.
Biodiversity	B-2	Hollow-bearing tree removal	No native vegetation or hollow-bearing trees are to be removed as part of the project works or from within any area adjoining the site.
Biodiversity	B-3	Weed and pathogen management	Machinery must be inspected and cleaned prior to entering and leaving the site to ensure that weed seeds and propagules are not imported or spread to unaffected areas.
Biodiversity	B-4	Vegetation outside site impacted by works	All vegetation areas outside the site will be identified as 'No-Go' zones and machinery will not interact with these areas.
Biodiversity	B-5	Site and surrounding areas contaminated due to chemical spill	Measures to prevent and contain spillage of potential contaminants must be implemented.
Air	A-1	General air quality impacts	Inductions for all employees will include information on: • Location of project receptors, • Potential sources of dust, • Monitoring of dust during construction activities, • Mitigation measures for managing dust, and Speed limits onsite and staying on designated roads.
Waste	R-1	Contamination of waste and recycling	Construction staff are to undergo site induction including waste management procedures. Wastes are to be treated as per the NSW circular economy.

Table 6-2 - Statement of commitments - Construction

Aspect	ID	Potential Impact	Safeguard
Construction			
Water	W-2	Mobilisation of sediments from the site.	Rehabilitation works are to be undertaken as soon as practicable to stabilise disturbed surface areas.
Water	W-4	Contamination of surface and groundwater systems.	Storage and re-fuelling and maintenance of plant and equipment is to be undertaken on the designated constructed compacted parking area.
Water	W-6	Contamination of surface and groundwater systems.	Daily construction plant maintenance checks will be undertaken to ensure that no oil, fuel or other liquids are leaking. Checks are to be undertaken by qualified staff and will be trained in the management of accidental spills.
Water	W-7	Contamination of surface and groundwater systems.	An emergency spill kit will be kept on site with staff aware of location and trained in its application.
Water	W-9	Pondage of surface water and/or inadequate site drainage.	ESC measures are to be maintained during the life of the project construction and until the site is stabilised.
Soil	S-1	Failure of earthen structures from the use of unsuitable soils.	Detailed geotechnical investigation to be carried out. Recommendations for construction are to be provided and followed. Earthworks contractors and others on site are to be briefed by project manager or site engineer to ensure all recommendations are followed. Soils are to be monitored by contactors and site supervisor during excavation to identify unsuitable or inconsistent materials. Should these be identified, work should cease until updated engineering recommendations and management measures are provided.
Soil	S-2	Failure of earthen structures from dispersive or sodic soils.	Should dispersive soils be identified during detailed testing, soils must be adequately compacted to reduce water ingress and air space for soil to occupy water. Free water will cause clay fines to remain in suspension and be prone to washing or erosion on embankments. For geotechnical use, treatment of soils with hydrated lime is expected by geotechnical engineers at recommended rates to render soil Exchangeable Sodium Percentage levels (ESP) below the point causing dispersion, typically less than 5%. For general earthworks and site management, dispersive soils should be avoided for finishing embankments, or otherwise managed accordingly by protective shrouding or gypsum treatment. Topsoil shrouding and gypsum application are expected.
Soil	S-3	Failure due to inadequate construction technique.	Construction technique must be followed as per geotechnical recommendations. Soils are expected to be layered in lifts, moisture conditioned and compacted to standards of compaction to be specified by geotechnical reporting.
Soil	S-4	Failure due to inadequate compaction.	Quality Assurance checks for compaction standards and density will be undertaken at set hold points within the project, covering all earthen structures, mounds and other earthworks.
Soil	S-5	Failure of detention dam system from use of unsuitable soil leading	Detailed geotechnical investigation to occur across the area proposed for use as a detention dam. Recommendations to be provided by geotechnical engineer for construction.

Aspect	ID	Potential Impact	Safeguard
		to seepage and impact on groundwater systems.	Material monitoring to be carried out by contractors and site supervisor, confirmed within QA checks. Should sand be discovered in the floor area during construction, soil engineers must be contacted for further advice.
Soil	S-6	Surface erosion across the site footprint from sodic and dispersive soils.	Topsoil is required to be placed over sodic soils. Where required and identified by Geotech, Gypsum may be used to assist with stabilisation.
Soil	S-7	Failure around associated pipe works installed through mound wall.	Ensure that pipes are sleeved, trench excavated 600mm wider than pipe work and soils used for backfilling have adequate moisture. Backfill of earth around structures should follow geotechnical recommendations.
Biodiversity	B-6	Vegetation clearing	No vegetation within or adjoining the site is to be removed – all compounds, excavations and access tracks are to be located within identified project area.
Biodiversity	B-7	Vegetation impacted by altered drainage or mobile silt	Construction areas are to be stabilised as soon as practicable (progressively where possible).
Biodiversity	B-8	Impacts on surrounding Native Vegetation	Measures to prevent and contain spillage of potential contaminants must be implemented.
Biodiversity	B-9	Vegetation impacted by chemical spill or contamination	In the event of a spill or contamination at the site, all works must cease and the spill management procedure implemented immediately.
Biodiversity	B-10	Water quality risks	Any pollution that has any potential to enter a waterway or site must be reported to the EPA in accordance with the notification requirements of the *Protection of the Environment Operations Act 1997* (POEO Act).
Biodiversity	B-11	Weed proliferation	Construction related traffic will utilise existing site accesses and internal roads, thus minimising the area of disturbance of the development on farm. A 'come-clean go-clean' practice will be utilised for all vehicles, machinery and operators. Any outbreaks of weeds identified will be managed appropriately (such as through spot spraying) to control weed occurrence and minimise the risk of spread. The management of weeds forms part of the Best Management Practices (BMP) adopted on the farm.
Indigenous Heritage	AH1	Disturbance and discovery of Aboriginal burial or skeletal material	In the event that possible human skeletal material (remains) are encountered during construction, the following steps should be undertaken: 1. Works at that location of discovery and placement of material will cease and an appropriate buffer zone of at least 50 metres will be established, 2. The site must be immediately secured to prevent unauthorized access and (any further) harm, 3. Contact police as the discovery of human remains triggers a process which assumes that they are associated with a crime. The NSW Police will retain carriage of the process until such time as the remains are confirmed to be Aboriginal or historic,

Aspect	ID	Potential Impact	Safeguard
			4. Contact HeritageNSW should the human remains be deemed Aboriginal or historical by the police, HeritageNSW must be notified immediately to assess the remains – Contact number 131 555, 5. The project Archaeologist may also be engaged at this stage to assist with further representation of the proponent/applicant/owner/company. • All directions dictated by the HeritageNSW South West Branch, in discussion with the project Archaeologist (where relevant), must be followed. This may include the need to engage technical specialist (e.g. Forensic Anthropologist), and liaison with RAPs, to formulate future management of the remains, • Work is not to commence in the area unless authorised in writing by HeritageNSW and/or the NSW Police.
Indigenous Heritage	AH2	Disturbance and discovery of an Aboriginal object	In the event that a potential Aboriginal object is encountered during project activities, the following steps should be undertaken. 1. All ground surface disturbance in the area of the find(s) and the fill zone for earthworks will cease immediately following the discovery or potential discovery of a find anda. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted and ensure that there is no further harm to the object,b. The discoverer of the find(s) will secure the area and prevent equipment or personnel from entering the area except in accordance with this protocol, and c. The site supervisor/project manager will be informed of the find(s). 2. If finds are suspected to be human skeletal remains, then NSW Police and HeritageNSW must be contacted as a matter of priority. 3. HeritageNSW and the project archaeologist will be referred to, to assess the Aboriginal object encountered and provide direction. If appropriate, a representative from any Registered Aboriginal Party and Local Aboriginal Land Council for the project may also be engaged to assess the cultural significance of the place or object as part of the obligations of the AHIP assessment process, Re-commencement of ground disturbing works may only resume in the area of the find(s) following compliance with any consequential legal requirements and gaining written approval from HeritageNSW.
Non-Indigenous Heritage	NI-1	Damage to unknown heritage item.	Staff working on site during construction will be instructed to stop work immediately on identification of any suspected heritage artefact.
Non-Indigenous Heritage	NI-2	Identification of heritage item within project site.	If any unexpected archaeological remains are discovered during construction, work will stop immediately in the vicinity of the material/find and specialist advice from a suitably qualified heritage consultant will be sought.

Aspect	ID	Potential Impact	Safeguard
Air	A-2	Dust emissions	Monitor wind and weather forecasts (Bureau of Meteorology) and excavation activities within the vicinity of the Swan Hill Road are to be postponed during excessively windy conditions. (1)
Air	A-3	Dust emissions	After re-establishment of the soil profile (post construction), vegetative cover will be established as soon as possible, as part of the progressive rehabilitation program.
Air	A-4	Dust emissions and unsafe environment	Adhere to site speed limits and designated roads.
Air	A-5	Exhaust emissions	Construction plant and equipment must be maintained in good working, serviced order.
Air	A-7	Exhaust emissions	All plant and equipment must be of adequate size to undertake work proposed.
Air	A-9	Impact on sensitive receptors	Wind direction and speed to be monitored during dusty operations. All works to stop if any adjoining receptor are impacted by dust emissions.
Noise	N-1	Noise impacts at receptor	• Ensure that all machinery is regularly serviced and has appropriate noise abatement devices. All equipment selected for use on site will be regularly monitored to minimise noise emissions with any excessively noisy equipment stood down until issue rectified. • Machines, where practical, will not operate at full power and will be switched off when left for long periods of time. Machines that are appropriate for undertaking the works are selected and not under or oversized for the works.
Waste	R-3	Ineffective use of waste systems and storage.	Waste areas will be clearly identified with clear instructions on the waste separation information.
Waste	R-5	Poor waste management/escaped products	No long term storage of waste material is to occur on site.
Waste	R-7	Contamination of waste streams	Waste receptacles on site are to be clearly identified as waste storage areas with written instructions at appropriate locations to identify recycle and waste separation.
Waste	R-9	Site contamination and ineffective waste management.	Waste is to be disposed of by appropriate measures (i.e. not buried on site).
Waste	R-11	Excess waste created/ Environmental duty	Waste minimisation strategies are to be employed and recycling undertaken where possible.
Waste	R-13	Disturbance of visual amenity	All works are to be confined within the project construction footprint. All waste, vehicles, plant and equipment are to be stored in identified laydown areas and will be removed from the site at project completion.
Visual	V-1	Visual amenity disturbed through construction.	All works are to be confined within the project construction footprint. All waste, vehicles, plant and equipment are to be stored in identified laydown areas and will be removed from the site at project completion. Works connecting to the driveway entrance and upgrade will occur during daytime only with machines stored within site compound areas at works completion.

Aspect	ID	Potential Impact	Safeguard
Visual	V-2	Public vantage points impacted from construction activities	Existing natural landform will be utilised to provide screening for any machinery storage.
Visual	V-3	Waste escaping from project site	All waste will be managed in accordance with waste mitigation measures identified.

Table 6-3 - Statement of commitments - Operation

Aspect	ID	Potential Impact	Safeguard
Operation			
Water	W-3	Mobilisation of sediments from the site.	Vegetation cover of embankments is to be maintained to prevent surface erosion and drain failure.
Water	W-10	Pondage of surface water and/or inadequate site drainage.	Drainage within the site is to be maintained to ensure all water drains freely to designated area. The overtopping level and pipeline should be regularly checked and maintained at a height of 71.20m
Water	W-11	Groundwater identified in monitoring bore	Review groundwater monitoring plan for contingency plans
Water	W-12	Groundwater identified in monitoring bore	Water and drainage systems are to be monitored for volume and level during operation. Where high water losses within the system are identified, the system must be emptied, and the floor and walls checked for integrity in conjunction with geotechnical advice.
Water	W-13	Failure of embankments and or detention dam	Recommended filling and management measures must be followed during operation of system. Where system failure occurs, the storage must be reviewed with an experienced geotechnical engineer for rectification.
Soil	S-8	Surface erosion across the site from sodic and dispersive soils.	Vegetation should be established and maintained on topsoiled areas.
Soil	S-9	Failure of stormwater detention system.	Ensure that drainage entrance and overflow and overtop system are maintained in suitable condition to operate as designed.
Soil	S-10	Failure of earthen structure including hardstand, roads, pads, drains and banks due to poor maintenance	Geotechnical recommendations relating to the protection of finished construction areas should be followed and maintained.
Biodiversity	B-12	Weed proliferation	The site will be regularly monitored and maintained to control the growth of weeds. Such practices will occur as part of ongoing farm maintenance operations, which are currently conducted regularly across the properties.
Air	A-6	Exhaust emissions	Site plant and equipment must be maintained in good working, serviced order.
Air	A-8	Exhaust emissions	All plant and equipment must be of adequate size to undertake work proposed.

Aspect	ID	Potential Impact	Safeguard
Air	A-10	Separation system within buildings creates unsafe working environment or sub-standard product	Dust extraction systems within the facility must be maintained to manufacturers specifications to ensure that dust is removed from the drying and separating machinery systems.
Noise	N-2	Noise impacts at receptor – Outdoor Dryer	Whilst the modelling indicated that it is unlikely a barrier will be required for the field dryer, once commissioned, noise emissions should be monitored to ensure acceptable noise levels are not exceeded. If required, Acoustic Screening may be employed to ensure ongoing compliance
Noise	N-3	Noise impacts at receptor – Outdoor Dryer	The modelled attenuation of the shed has been based on Rw 30. Consideration should be given to any penetrations in the acoustic fabric such as but not limited to: i. Doors ii. Windows iii. Ventilation iv. Extraction v. Other Mechanical pipework.
Noise	N-4	Noise impacts at receptor – Outdoor Dryer	Other potential on-site operational plant and equipment should be reviewed in terms of location and noise output to determine whether they pose a noise risk and whether additional acoustic attenuation may be necessary once site operations commence.
Noise	N-5	Noise impacts at receptor – Outdoor Dryer	All forklift and heavy machinery that is used on a regular basis are fitted with compressed air alert sirens rather than beepers.
Noise	N-6	Noise impacts at receptor once operations commenced	A follow up assessment should be considered within 3 months of operation to confirm compliance with the noise limits and to identify any additional measures that should be undertaken.
Waste	R-2	Contamination of waste and recycling	Construction staff are to undergo site induction including waste management procedures. Wastes are to be treated as per the NSW circular economy.
Waste	R-4	Ineffective use of waste systems and storage.	Waste areas will be clearly identified with clear instructions on the waste separation information.
Waste	R-6	Poor waste management/escaped products	No long term storage of waste material is to occur on site.
Waste	R-8	Contamination of waste streams	Waste receptacles on site are to be clearly identified as waste storage areas with written instructions at appropriate locations to identify recycle and waste separation.
Waste	R-10	Site contamination and ineffective waste management.	Waste is to be disposed of by appropriate measures (i.e. not buried on site).
Waste	R-12	Excess waste created/ Environmental duty	Waste minimisation strategies are to be employed and recycling undertaken where possible.
Waste	R-14	Disturbance of visual amenity	All works are to be confined within the project construction footprint. All waste, vehicles, plant and equipment are to be stored in identified laydown areas and will be removed from the site at project completion.

Aspect	ID	Potential Impact	Safeguard
Waste	R-15	Contamination of land, groundwater or eventual waterways	All run-off from the site is to be captured and managed effectively through the stormwater detention dam at the site.
Visual	V-4	Operation of project is unsightly from public vantage point	The project site must be maintained in a clean and tidy condition at all times.
Visual	V-5	Project infrastructure disturbs the natural agricultural environment	The facility and related infrastructure must be maintained in natural colours and not painted in colours uncomplimentary to the natural environment. Signage proposed at and directing to the site will only be in the approved format.

7. EVALUATION AND CONCLUSION

7.1. PROJECT JUSTIFICATION

Where possible, agricultural entities need to spread its risk exposure in as many ways as prudently possible. These may encompass but need not be exclusive to:

- Enterprise mix,
- Continuity of production through vertical integration,
- Employing and utilizing good management and field operation teams, and
- Applying sound marketing practices.

The applicant has identified that there will be a significant gap between almond production and facility throughput from harvest 2024 onwards with production number steadily increasing annually. As a result, the facility proposed at this site has considered their orchard requirements, surrounding area production numbers and a facility that can grow in both volume and add processes into the future for further value adding.

The proposed development involves capital expenditure in the order of $27.5 Million. During the construction phase, the site will require up to seven or more full time staff of which several will be introduced to the local area due to a specific skill set. Other roles will be sourced from the local area where practicable. During harvest the labour requirement will be increased to 66 casual staff. This employment generation would be deemed as a positive socioeconomic impact on the region.

The project area is located within a highly modified and disturbed area that has a long history of agricultural practices. There is a small stand of trees location within the site that have been incorporated into the site area. This action is not considered to modify their relationship with the existing environs. An existing access to the property is proposed for upgrade within its existing footprint. No removal of native vegetation or impacts to undisturbed areas are proposed.

Overall, the proposal is considered to present a net benefit to the region's economy.

7.1.1. OTHER FACTORS

The Aims and Objectives of the *Wakool Local Environment Plan 2013*, in particular the aim expressed in clause 1.2, section 2 of the plan described as:

- *to make local environmental planning provisions for land in that part of the Murray River local government area to which this Plan applies (in this Plan referred to as "Wakool") in accordance with the relevant standard environmental planning instrument under section 3.20 of the Act.*

The particular aims of this Plan are as follows:

(aa) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,
(a) to reinforce the strong rural character of Wakool,
(b) to encourage the continued use of agricultural land for primary production,
(c) to avoid the unnecessary fragmentation of rural land,
(d to encourage sustainable economic growth and development within Wakool,
(e) to identify, protect, conserve and enhance Wakool's natural assets,
(f) to identify and protect Wakool's built and cultural heritage assets for future generations,
(g) to encourage and support growth in the townships of Barham, Wakool, Koraleigh, Tooleybuc, Moulamein and Murray Downs within the servicing catchment for sewer and water,
(h) to protect environmentally sensitive land and conserve native vegetation habitats and threatened species,
(i) to give priority to the protection, conservation and enhancement of indigenous and non-indigenous cultural heritage,
(j) to encourage non-agricultural enterprises by permitting a wide range of urban land uses consistent with the imperative to support economic growth, employment creation and business opportunities.

The project site is zoned RU1 Primary Production under the *Wakool LEP 2013*. The objectives of this 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.*

- *To promote the use of agricultural land for efficient and effective agricultural production without the encroachment of urban land uses.*
- *To allow the development of processing, service and value-adding industries related to agriculture and primary industry production.*
- *To allow the development of complementary non-agricultural land uses that are compatible with the character of the zone.*

This project facilitates the sustainable growth of an existing extensive agricultural organisation within this and adjoining local government areas. The completion of the project will create the starting place for a state-of-the-art facility that will support not just the applicants' orchards but multiple other local almond growers. The facility will further assist with future value adding the product, creating seasonal and permanent employment opportunities within the area and proposes a primary industry enterprise appropriate to the area.

As noted in the preceding sections, the environmental impacts related to the project are not significant and can be managed through established mitigation measures identified and recorded throughout this report.

7.2. SUITABILITY OF SITE

The site has been selected taking into account many factors. These are as follows:

- The property and project area are suitable for the operation considering vicinity of populated areas, separation from receptors and access to labour.
- The site maintains existing access for the construction and suitable area for the upgrade of access for the operation of the project.
- There site is not subject to flooding, large overland flows are manageable, and the proposal will not impact on flood dependent ecosystems.
- There is no native vegetation proposed for removal from the site. All vegetation proposed for removal is non-native introduced annual crops.
- There is no predicted loss of habitat or impact to threatened species identified as part of the project works.
- The facility produces minimal waste and a beneficial by-product that is readily utilised by other local agricultural operations.
- The site does not propose harm as defined by the Act to any Aboriginal or European heritage objects or places.
- Visual amenity of the proposed facility has been managed by integrating the site within the natural landscape and topography, and
- The project site is isolated from sensitive receivers with impacts from noise and air quality adequately managed.

The project is not inconsistent with existing and surrounding land uses and is permitted with consent within the Rural Zone.

7.3. CONCLUSION

The Statement of Environmental Effects (SEE) provides a comprehensive assessment of the project and includes an investigation of all relevant environmental issues.

The objectives of this project are to:

- Construct a state of the art, almond drying hulling and shelling facility to support orchards in the Sunraysia and Riverina.
- To recognise the industry shortage in whole almond shelling post 2023 and increase the Almond industry capacity for drying, cleaning hulling and shelling.
- To vertically integrate the Canally Orchards production, value adding to the existing operation.
- To construct a facility with sufficient capacity, area and ability to upscale its operations and allow for future processing of almonds grown in the region.
- To ensure responsible development of the facility with minimal environmental and human impact.
- To meet local, regional and state planning requirements undertaking responsible and economically sustainable development.
- To establish additional employment opportunities within the region including developing opportunities for specialise skills required throughout the almond industry.

The construction of the proposed almond hulling and shelling facility will meet the above objectives. The SEE has highlighted a range of issues which will be addressed through careful management and operation of the project. Potential adverse impacts have been assessed and strategies to minimize and mitigate those impacts form a key part of this assessment report. The project includes a number of commitments to manage environmental impacts during its construction and operation.

The design and management requirements of the project has considered matters raised by the relevant consent authorities. The SEE identifies that the project should proceed, as it will:

- Provide an increase in the regional almond hulling and shelling capabilities as an operation that is sustainable for future generations.
- Reduce pressures on the existing almond facilities, supporting infrastructure and orchard management systems.
- Result in no long-term impacts on the environment or local community, and
- Satisfy sustainable development principles.

On the basis of the assessments and investigations completed, and with the implementation of the recommended mitigation measures, the project is considered justified.

5. REFERENCES

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6. APPENDICES

6.1. APPENDIX 1 - PROJECT AND SITE PLANS

6.2. APPENDIX 2 - PROPERTY PLANNING REPORT

Property Report

580 SWAN HILL ROAD MURRAY DOWNS 2734

Property Details

Address:	580 SWAN HILL ROAD MURRAY DOWNS 2734
Lot/Section /Plan No:	2/-/DP1127724 3/-/DP238154
Council:	MURRAY RIVER COUNCIL

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Wakool Local Environmental Plan 2013 (pub. 22-11-2013)
Land Zoning	RU1 - Primary Production: (pub. 6-11-2020)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	500 ha
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Terrestrial Biodiversity	Biodiversity

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Allowable Clearing Area (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004: Land Application (pub. 25-6-2004)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2 -12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development: Land Application (pub. 26-7-2002)

Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Land near Electrical Infrastructure	This property may be located near electrical infrastructure and could be subject to requirements listed under ISEPP Clause 45. Please contact Essential Energy for more information.
Local Aboriginal Land Council	WAMBA WAMBA
Regional Plan Boundary	Riverina Murray

6.3. APPENDIX 3 – PROPERTY TITLE SEARCH AND PLAN

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 3/238154

SEARCH DATE	TIME	EDITION NO	DATE
7/11/2022	9:28 AM	5	24/1/2018

LAND

LOT 3 IN DEPOSITED PLAN 238154
LOCAL GOVERNMENT AREA MURRAY RIVER
PARISH OF YELLYMONG COUNTY OF WAKOOL
TITLE DIAGRAM DP238154

FIRST SCHEDULE

GRAEME BRUCE MARTIN
PAMELA JOY MARTIN
AS JOINT TENANTS (T 3836021)

SECOND SCHEDULE (8 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 N733251 EASEMENT FOR WATER SUPPLY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF LOT 5 IN DEPOSITED PLAN 238154 SHOWN AS PROPOSED WATER SUPPLY EASEMENT 100 WIDE IN DEPOSITED PLAN 540814
3 N733257 EASEMENT FOR WATER SUPPLY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF LOT 8 IN DEPOSITED PLAN 238154 SHOWN AS PROPOSED WATER SUPPLY EASEMENT 100 WIDE IN DEPOSITED PLAN 540814
4 N733258 EASEMENT FOR WATER SUPPLY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND SHOWN AS PROPOSED WATER SUPPLY EASEMENT 100 WIDE AND PUMP SITE WITHIN LOT 15 IN DEPOSITED PLAN 540814
5 N964541 EASEMENT FOR WATER SUPPLY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF LOT 2 IN DEPOSITED PLAN 238154 SHOWN AS PROPOSED WATER SUPPLY EASEMENT 100 WIDE IN DEPOSITED PLAN 540814
6 LAND EXCLUDES THE ROAD(S) SHOWN IN DP238154
7 LAND EXCLUDES MINERALS BY THE CROWN GRANT OF 16 ACRES 2 ROODS 35 PERCHES
8 AN63936 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA

NOTATIONS

UNREGISTERED DEALINGS: NIL

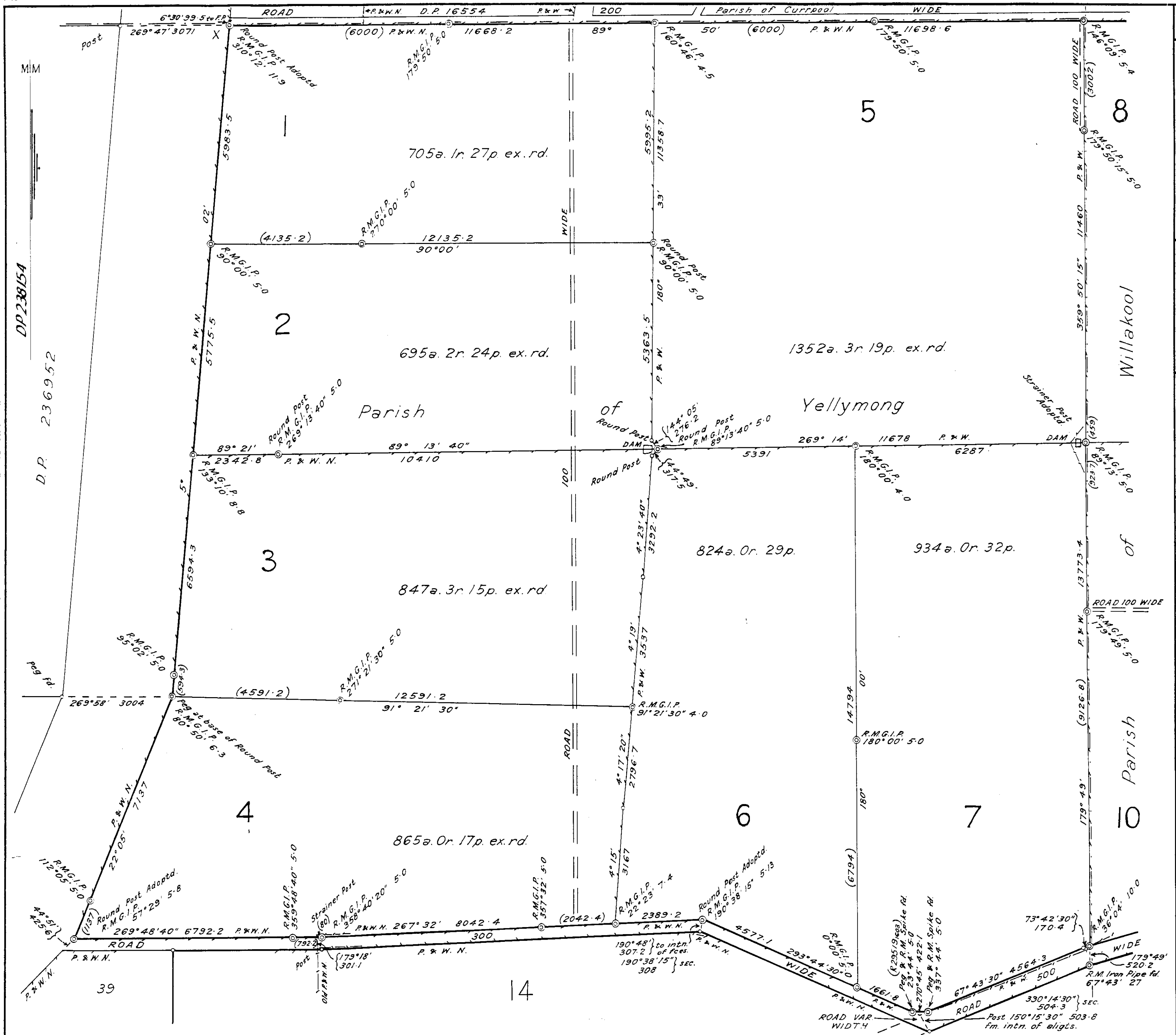
*** END OF SEARCH ***

dda2255000 PRINTED ON 7/11/2022

Plan Form 2—This form must NOT be used where it is intended to dedicate public roads or public reserves or create drainage reserves, easements, or restrictions as to user—See Form 3.

WARNING. CREASING OR FOLDING WILL LEAD TO REJECTION.

WARNING. Plan Drawing only to appear in this space.



WARNING. Plan Drawing only to appear in this space.

DP 238154 (E)

Registered: 30.9.1969

C.A.: Nº 69/5 of 17.6.1969

Title System: Torrens

Purpose: Subdivision

Ref. Map: Parishes

Last Plan: DP 531115(pt.)

PLAN OF subdivision of part of C.T. Vol. 10874 Fol. 223 and whole of C.T. Vol. 11036 Fol. 206

Scale: 20 chains to an inch

~~Mun.~~/Shire ~~City:~~ Wakool

Locality:

Parishes: Willakool & Yellymong

County: Wakool

This is sheet 1 of my plan in 3 sheets
Delete if inapplicable.

I, Alan James Cullum of Swan Hill Victoria a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made *(1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 14.4.69

Signature [signature]

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth. X Y
*Strike out either (1) or (2). †Insert date of survey.

Council Clerk's Certificate.

I hereby certify that—

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

~~*(b) the requirements of section 348 of the †Metropolitan Water, Sewerage, and Drainage Act, 1924, as amended, †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended,~~

have been complied with by the applicant in relation to the proposed Subdivision (insert "new road" or "subdivision") set out herein.

Subdivision No. 69/5

Date 17th June 1969

(Signature) [signature]
Council Clerk.

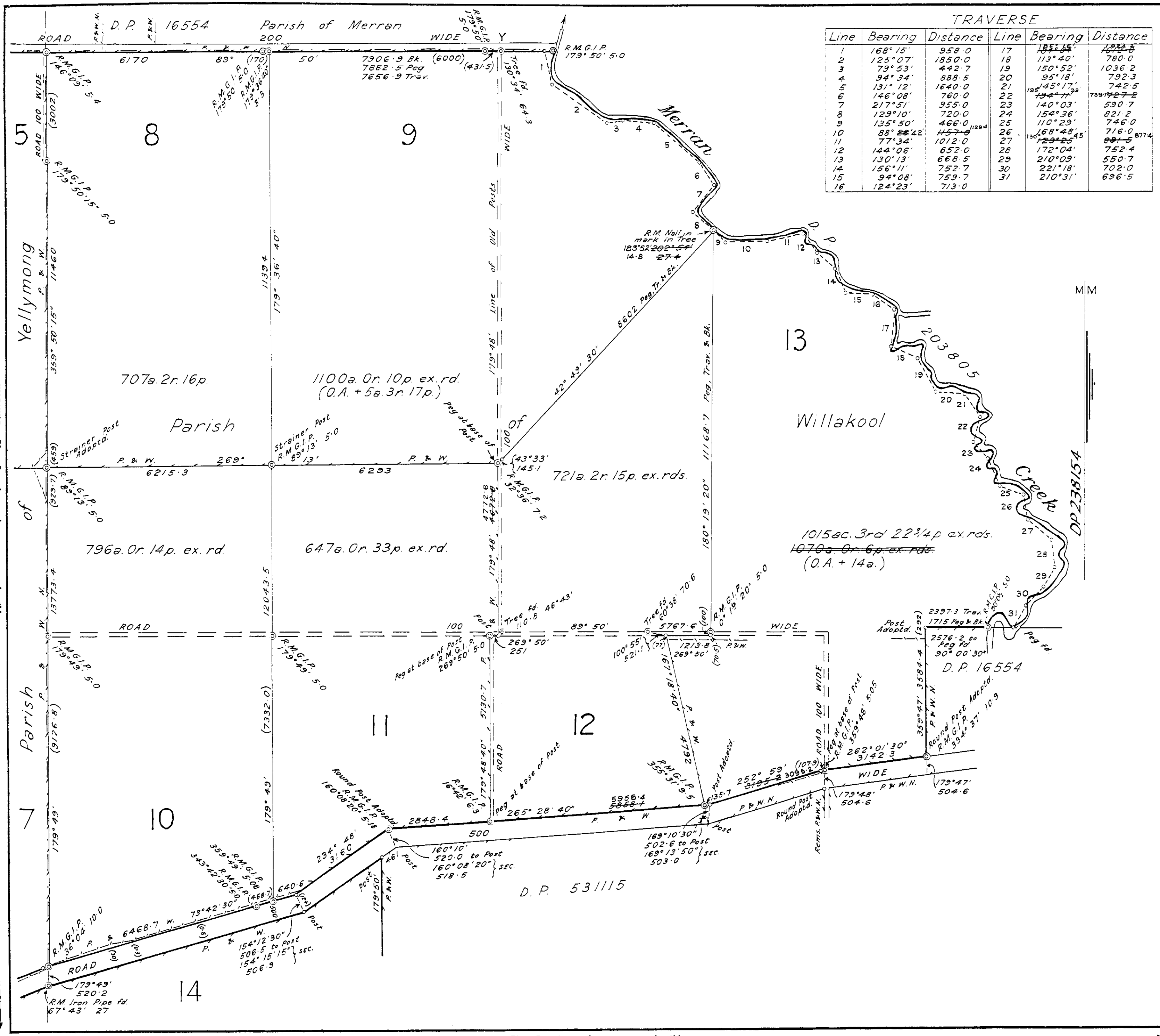
*This part of certificate to be deleted where the application is only for the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.
†Delete if inapplicable.

NO/4A3A OFFICE USE ONLY.

SURVEYOR'S REFERENCE. SSH 627

Form No. 4 — To be used in conjunction with Forms 2 or 3.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



Line	Bearing	Distance	Line	Bearing	Distance
1	168° 15'	958·0	17	185°56' (amended)	1024·2 (amended)
2	125°07'	1850·0	18	113°40'	780·0
3	79°53'	442·7	19	150°52'	1036·2
4	94°34'	888·5	20	95°18'	792·3
5	131° 12'	1640·0	21	145°17'	742·5
6	146°08'	760·0	22	195°39' ~~194°11'~~	739·1 ~~727·2~~
7	217°51'	955·0	23	140°03'	590·7
8	129°10'	720·0	24	154°36'	821·2
9	135°50'	466·0	25	110°29'	746·0
10	88° ~~28~~ 42'	1129·4 ~~1157·0~~	26	168°48'	716·0
11	77°34'	1012·0	27	130°45' ~~129°25'~~	877·4 ~~891·5~~
12	144°06'	652·0	28	172°04'	752·4
13	130°13'	668·5	29	210°09'	550·7
14	156°11'	752·7	30	221°18'	702·0
15	94°08'	759·7	31	210°31'	696·5
16	124°23'	713·0			

DP 238154 (E)

Registered: 30.9.1960

This is Sheet 2 of my plan in 3

Sheets dated 14.4.69

Alan J Cullum

Surveyor registered under Surveyors Act, 1929, as amended.

This is Sheet 2 of the plan of 3

Sheets covered by my Certificate No. 69/5

Shire of Wakool

K.J. McKinnon

Council Clerk.

Connection to R.M. on northern boundary of Lot 13 amended in Reg. Gen. Dept - vide 1970 M2156.
Sup. Surv. per [illegible] 21.4.1970

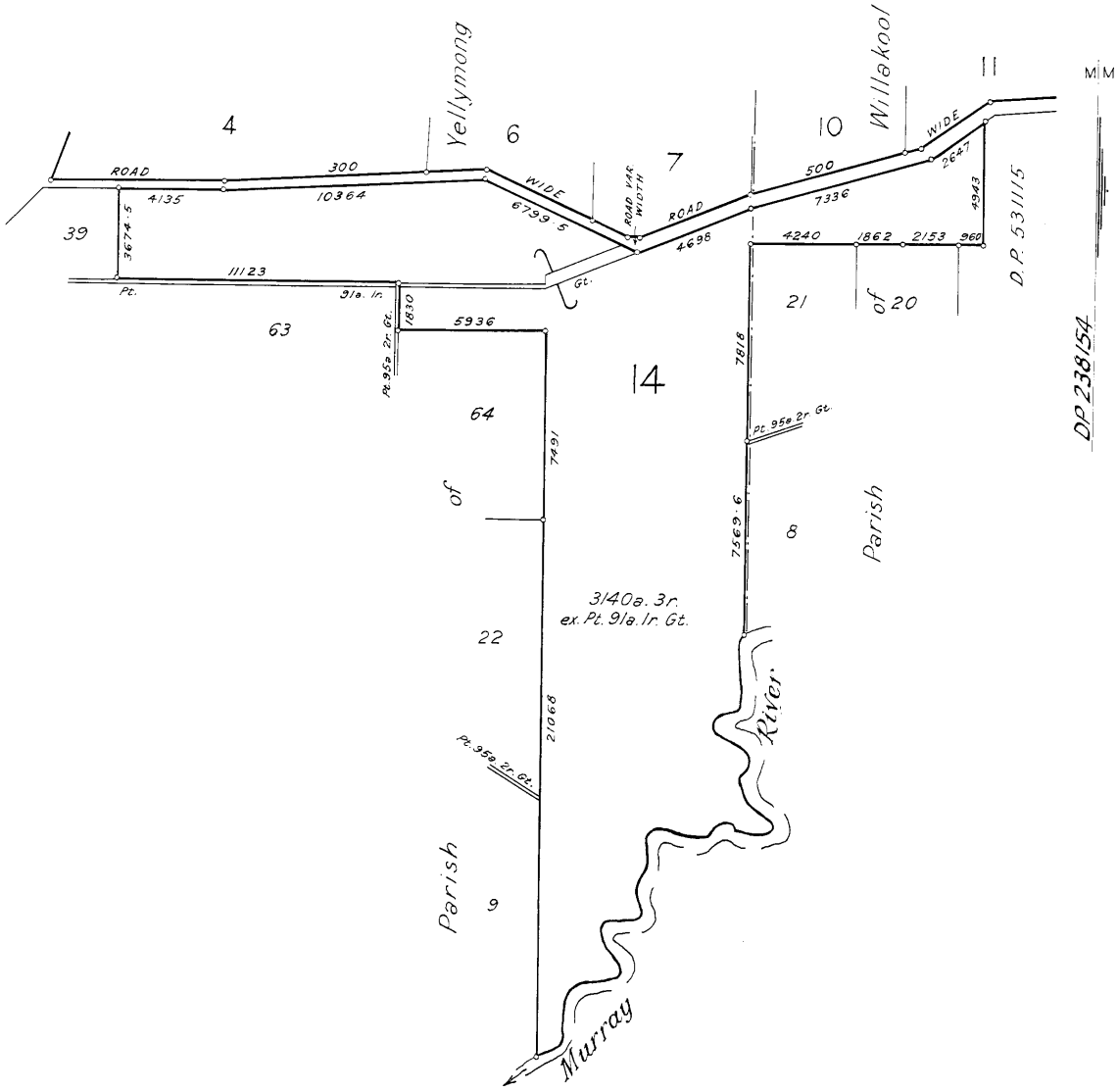
Scale: 20chains to an inch

WARNING. Plan Drawing only to appear in this space.

Amendments made in Reg. Gen. Dept.: Lot 12, 5858·1 — 5958·4, 3195·2 — 3095·2; Road, 100 WIDE; Lot 11, 4672·6 — 4772·6 [initials] 14-8-69. Lot 13, 1070a.0r.6p. — 1015a.3r.22¾ p. [initials] 11/9/69.

Form No. 4 — To be used in conjunction with Forms 2 or 3.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



DP 238154 (E)

Registered: 20/9/1969

This is Sheet 3 of my plan in 3

Sheets dated 14·4·69

Surveyor registered under Surveyors Act, 1929, as amended.

This is Sheet 3 of the plan of 3

Sheets covered by my Certificate No. 69/5

Shire of Wakool

Subdivision of 17th June, 1969

Council Clerk.

Scale: 40 chains to an inch

WARNING. Plan Drawing only to appear in this space.

WARNING. Plan Drawing only to appear in this space.

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 238154 SH 1/3

LINKS	METRES
4	0.805
4.5	0.905
5	1.006
5.13	1.032
5.4	1.086
5.8	1.167
6.3	1.267
7.4	1.489
8.8	1.770
10	2.012
11.9	2.394
99.5	20.016
100	20.117
113.7	22.873
170.4	34.279
200	40.234
276.2	55.563
300	60.350
301.1	60.572
307.2	61.799
308	61.960
317.5	63.871
422.1	84.913
425.6	85.617
450	90.526
459	92.336
500	100.584
503.8	101.348
504.3	101.449
520.2	104.648
594.3	119.554
792.2	159.365
923.7	185.819
1137	228.728
1661.8	334.301
2042.4	410.866
2342.8	471.296
2389.2	480.631
2594.3	521.890
2796.7	562.607
3002	603.906
3004	604.309
3071	617.787
3167	637.099
3292.2	662.285
3537	711.531
4135.2	831.870
4564.3	918.191
4577.1	920.766
4591.2	923.603
5363.5	1078.965
5391	1084.497
5775.5	1161.846
5983.5	1203.689
5995.2	1206.042
6000	1207.008
6287	1264.743
6594.3	1326.562
6792.2	1366.373
6794	1366.735
7137	1435.736
8042.4	1617.874
9126.8	1836.020
10410	2094.159
11358.7	2285.007
11460	2305.385
11668.2	2347.268
11678	2349.240
11698.6	2353.384
12135.2	2441.214
12591.2	2532.947
13773.4	2770.767
14794	2976.079

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 238154 SH 1/3 CONTD

AC RD P	HA
695 2 24	281.5
705 1 27	285.5
824 - 29	333.5
847 3 15	343.1
865 - 17	350.1
934 - 32	378.1
1352 3 19	547.5

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 238154 SH 2/3

LINKS	METRES
3.3	0.664
5	1.006
5.05	1.016
5.08	1.022
5.18	1.042
5.4	1.086
6.3	1.267
7.2	1.448
9.5	1.911
10	2.012
10.9	2.193
14.8	2.977
17	3.420
64.3	12.935
70.5	14.182
70.6	14.202
77	15.490
100	20.117
107.9	21.706
110.8	22.289
135.7	27.298
145.1	29.189
170	34.199
200	40.234
251	50.493
292	58.741
431.5	86.804
442.7	89.057
459	92.336
466	93.744
468.7	94.287
502.6	101.107
503	101.188
504.6	101.509
506.5	101.892
506.9	101.972
518.5	104.306
520	104.607
520.2	104.648
521.1	104.829
550.7	110.783
590.7	118.830
640.6	128.868
652	131.162
668.5	134.481
696.5	140.114
702	141.220
713	143.433
716	144.036
720	144.841
739.7	148.804
742.5	149.367
746	150.071
752.4	151.359
752.7	151.419
759.7	152.827
760	152.888
780	156.911
792.3	159.385
821.2	165.199
877.4	176.505
888.5	178.738
923.7	185.819
955	192.115
958	192.719
1012	203.582
1024.2	206.036
1036.2	208.450
1129.4	227.199
1136.4	228.607
1213.8	244.178
1577.4	317.322
1640	329.916
1715	345.003
1850	372.161
2397.3	482.260
2576.2	518.249

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 238154 SH 2/3 CONTD

LINKS	METRES
2848.4	573.007
3002	603.906
3095.2	622.655
3142.3	632.130
3160	635.691
3584.4	721.067
4772.6	960.094
4772.9	960.155
4792	963.997
5130.7	1032.133
5767.6	1160.257
5958.4	1198.639
6000	1207.008
6170	1241.207
6215.3	1250.319
6293	1265.950
6468.7	1301.295
7332	1474.964
7656.9	1540.323
7882.5	1585.707
7906.9	1590.615
8602	1730.447
9126.8	1836.020
11168.7	2246.785
11394	2292.108
11460	2305.385
12043.5	2422.767
13773.4	2770.767

AC RD P	HA
5 3 17	2.37
14 - -	5.666
647 - 33	261.9
707 2 16	286.4
721 2 15	292
796 - 14	322.2
1015 3 22 3/4	411.1
1100 - 10	445.2

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 238154 SH 3/3

LINKS	METRES
300	60.350
500	100.584
960	193.121
1830	368.137
1862	374.575
2153	433.115
2647	532.492
3674.5	739.192
4135	831.830
4240	852.952
4698	945.087
4943	994.373
5936	1194.133
6799.5	1367.842
7336	1475.768
7491	1506.949
7569.6	1522.761
7818	1572.731
10364	2084.905
11123	2237.592
21068	4238.207

AC RD P	HA
91 1 -	36.93
95 2 -	38.65
3140 3 -	1271

6.4. APPENDIX 4 – CONSULTATION

Regional NSW High Impact Team meeting

NSW Crown Land

See Appendix 13 for Power Connection Assessment

From: Peter Bisset
To: Clare Fitzpatrick
Cc: Rebecca Moodie
Subject: Re: #A-PJ-2047345: Cannaly Orchards - 580 Swan Hill Rd Murray Downs - Property Entrance
Date: Monday, 20 June 2022 3:23:17 PM
Attachments: image001.png
image003.png
image002.png
Outlook-tft03mdc.png
Outlook-bhcb01s4.png
Outlook-pfkkecbg.png
Outlook-4erll1ie.png
Outlook-54qzz21d.png
Outlook-ugbvjsml.png

Hi Clare,

The existing access road is within a travelling stock reserve under the control of Local Land Services and the *Local Land Services Act 2013* section 75 has provisions which allows LLS to provide consent to works required on property access tracks which pass through TSR's.

75 Certain occupiers of land to have a right of access over travelling stock reserves

(1) An occupier of land is entitled to a right of way over a travelling stock reserve (whether controlled or managed) to and from the road nearest to the land if no other access to and from the land by means of an established road or track is available.

(2) A right of way is subject to such conditions as to its exercise (including any conditions as to its position, construction or improvement) as may be imposed by Local Land Services in a particular case.

(3) Local Land Services is to give notice to the occupier of land of any condition imposed by it on a right of way of the occupier.

(4) The occupier may, with the approval of Local Land Services, and must if directed to do so by Local Land Services by notice in writing, construct or make improvements to the occupier's right of way over the reserve.

(5) Any construction or improvements are to be made at the expense of the occupier.

You will need to contact Murray Local Land Services at Deniliquin and get their consent.

Peter Bisset
Natural Resource Management Project Officer
Crown Lands
Department of Planning and Environment
T (02) 6990 1801 E peter.bisset@crownland.nsw.gov.au

dpie.nsw.gov.au

126 Lachlan Street
HAY NSW 2711

Working days Monday to Friday, 8:00am - 4:00pm

From: Clare Fitzpatrick <clare@prsltd.com.au>
Sent: Monday, 20 June 2022 2:37 PM
To: Peter Bisset <peter.bisset@crownland.nsw.gov.au>
Cc: Rebecca Moodie <rebecca@prsltd.com.au>
Subject: #A-PJ-2047345: Cannaly Orchards - 580 Swan Hill Rd Murray Downs - Property Entrance

Hi Peter,
I have left a message for you in relation to this project.
We are working with a client in relation to a proposed Almond Processing Plant at the above address and formal property titles Lot 3 DP238154 & Lot 2 DP1127724.
The existing access to the property is shown on the map below with the shaded area being identified as Crown Reserve – likely a TSR?

Below is a drone photo of the road entrance. The ploughed area with the vehciles is the south west corner of the property and the photo shows the existing access between the property and the Swan Hill Rd showin in the distance running paralell to the property.

As part of this project, an upgraded property access suitable for road train and B-double access is proposed. At this stage, this is proposed on the same alignment and area as the existing driveway to the property.
We would like to discuss any requirements that Crown Land have in relation to this upgrade and any proposed works connecting the road to the driveway.

Regards, Clare

Clare Fitzpatrick
Principal

PROGRESSIVE RURAL SOLUTIONS

Progressive Rural Solutions
Mob: 0408577248
Email: clare@prsltd.com.au
Mail: PO Box 74 Deniliquin NSW 2710
Web: www.prsltd.com.au

From:	Jeremy Glassel
To:	Gerard Van Emmerik
Cc:	Clare Fitzpatrick; David Armstrong | Australian Farming Services
Subject:	Re: Hi Impact Team Meeting - Contacts and Actions
Date:	Tuesday, 7 June 2022 4:20:02 PM
Attachments:	image001.png

Hi Gerard,

Just a short note to thank you for your assistance in coordinating the HIT meeting with your team late last month

We met Darren Wallett from the EPA on-site last week and he was extremely helpful in confirming that our preferred site at Murray Downs is in a great location for our planned activities.

Essential Energy promptly made further contact with myself to discuss the power options. We are expecting further correspondence from them this Thursday which will provide more detail on the power available and likely costs for connection.

Confirmation that this project will be a Rural Significant Development has thrown a curve ball to the project team. The time required to work through that process is disastrous for the project as it will kill any chance of being operational for the 2024 almond season. We have been brainstorming ideas on how we can manage the project whilst also safeguarding our 2024 almond crop and have decided that the project will need to be completed in 2 stages. Stage 1 will allow the site to receive, dry and store almonds from the 2024 season. We will also put in place a good portion of the infrastructure to support Stage 2 of the project when that is approved. Stage 1 will be a far smaller project with a total cost of less than $30M and our processing capacity on site (initially only drying) will fall short of the 30,000 MT that triggers an EPA licensed site. The stage approach will assist the project to get some on site traction and provide some security for the crop should the almond processing plant be commissioned late. Stage 2 will likely be a further $55M expenditure and will be presented to Murray River Council as a Rural Significant Development to follow the usual planning route.

We have reached out to Murray River Council through Clare Fitzpatrick who is assisting us with our planning requirements to discuss this in more detail and seek their support We are very much looking forward to them coming back to us with a meeting date in the very near future so that we can together form a plan so that this major agricultural investment can take place in Murray Downs.

Regards

Jeremy Glassel
Process Innovations
Ph: 03 5309 2595
Mobile: 0400 106 941
www.**process**innovations.com.au

On Wed, May 25, 2022 at 2:21 PM Gerard Van Emmerik <gerard.vanemmerik@regional.nsw.gov.au> wrote:

> Hi Everyone

Thank you for attending the meeting today and providing Australian Farming Services with your thoughts and feedback on their proposed Almond Processing Facility. I appreciate there is a way to go in terms of getting approval for the project but as a starting point there was some valuable information presented.

Please find attached a document which includes the contact details of everyone involved in the meeting today and a brief list of actions. I have also included the chat comments from the meeting just in case you didn't see them.

It would also be worth understanding what will happen to the waste (hulls and shells). Storage may result in biosecurity issues. There may also be a market for it as bedding for poultry farms etc. I'm sure these things have been considered but the processing, storage, transport etc are all considerations.

Please reach out if I can be of any further help.

Regards

Gerard Van Emmerik

Business Development Manager

Regional Development | Department of Regional NSW

5/620 Macauley Street, Albury, NSW 2640

0418 411 612 | gerard.vanemmerik@regional.nsw.gov.au | www.nsw.gov.au/regionalnsw

The Department of Regional New South Wales acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.

Australian Farming Services HIT Meeting

Contacts

Australian Farming Services

Name	Position	Email	Phone
David Armstrong	CEO	daivd@ausfarmingservices.com.au	0419 349 940
Jeremy Glassel	Engineer	Jeremy.glassel@gmail.com	0400 106 941

Department of Regional NSW (Riverina Murray)

Name	Position	Email	Phone
Gerard Van Emmerik	Business Development Manager		
Margaret O'Dwyer	Deputy Director Economic Development		
Debbie Lane	Business Development Manager		

Department of Primary Industries

Name	Position	Email	Phone
Adrian Knobel	Regional Plant Biosecurity Officer		

Murray River Council

Name	Position	Email	Phone
Sara Ryan	Acting Director Community & Economic Development		
John Harvie	Director Special Projects		
Jack Bond	Director Infrastructure		
Rod Croft	Director Planning & Environment		

Industry Capability Network

Name	Position	Email	Phone
Geoff Reardon	Regional Manager		

AusIndustry

Name	Position	Email	Phone
Nicola James	Business Services Outreach		

Environmental Protection Agency

Name	Position	Email	Phone
Darren Wallett	Head Regional Operations – Riverina Far West		

Planning, Industry & Environment

Name	Position	Email	Phone
Haydon Murdoch	Team Leader Riverina Murray		
Meredith McIntyre	Senior Planning Officer		

Essential Energy

Name	Position	Email	Phone
Andrew Phipps	Manager Network Connections		
Darrin Edwards	Manager Connections Planning		
Julie Clearwater	Major Complex Grids Connections Specialist		

Transport for NSW

Name	Position	Email	Phone
Joanne Cheshire	Senior Manager, Community and Place Partner – Riverina Murray		
Belinda Roberts	Senior Manager Community Partnering		
Denise Crouch	Lead Community & Safety Partner		

Actions List

	Agency	Action

Meeting Comments

In case people missed them I have included a snip of the comments made by participants during the meeting as a reference point. It may be worth reaching out to the comment poster if further clarification is needed.

6.5. APPENDIX 5 – GROUNDWATER DATA

		Bore name		
		GW036822	GW036824	GW501356
Easting		747679	755166	736622
Northing		6086308	6108292	6090678
Monitoring Timeframe		1989-2021	1989-2021	1999-2004
Depth		281	207	6.2
Elevation		69.14	68.53	66.57
Year	Season			
1989	Summer	64.97		
	Winter	65.02	60.87	
1990	Summer	64.96	61.19	
	Winter	65.08	61.1	
1991	Summer	65.03	61.35	
	Winter	65.06	61.36	
1992	Summer	65.02	61.2	
	Winter	65.1	61.18	
1993	Summer	65.14	61.17	
	Winter	65.03	61.77	
1994	Summer	65.1	61.6	
	Winter	65.13	61.97	
1995	Summer	65.1	61.71	
	Winter	65.16	61.54	
1996	Summer	65.06	61.58	
	Winter	65.1	61.63	
1997	Summer	65.02	61.55	
	Winter	65.02	61.7	
1998	Summer	64.99	61.5	
	Winter	64.96	61.4	
1999	Summer	64.95	61.28	65.56
	Winter	64.96	61.27	62.47
2000	Summer	64.9	61.24	65.09
	Winter	64.89	61.19	65.27
2001	Summer	64.94	61.17	66.04
	Winter	64.98	61.233	65.69
2002	Summer	64.92	61.17	65.53
	Winter	64.92	61.06	65.59
2003	Summer	64.8	61.02	64.94
	Winter	64.79	60.97	64.62
2004	Summer	64.75	61.17	64.88
	Winter	64.73	60.9	
2005	Summer	64.66	60.826	
	Winter	64.6	60.52	
2006	Summer	64.35	60.85	
	Winter	64.5	60.65	
2007	Summer	64.43	60.64	
	Winter	64.33	60.48	
2008	Summer	64.25	60.41	
	Winter	64.16	60.28	
2009	Summer	64.05	60.28	
	Winter	63.95	60.17	
2010	Summer	63.83	60.29	
	Winter	63.83	60.73	
2011	Summer	64.06	60.87	
	Winter	64.18	60.85	
2012	Summer	64.25	60.98	
	Winter	64.26	60.94	
2013	Summer	64.26	61.01	
	Winter	64.26	60.95	
2014	Summer	64.19	60.95	
	Winter	64.15	60.78	
2015	Summer	64.1	60.76	
	Winter	64.1	60.63	
2016	Summer	64.01	60.74	
	Winter	64.03	61.02	
2017	Summer	64.01	60.99	
	Winter	64.08	60.87	
2018	Summer	64.05	60.74	
	Winter	64.05	60.65	
2019	Summer	63.97	60.97	
	Winter	63.92	60.45	
2020	Summer	63.83	60.48	
	Winter	63.82	60.34	
2021	Summer	63.69		

6.6. APPENDIX 6 – PROTECTED MATTERS SEARCH TOOL

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 25-Oct-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	29
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	9
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	300 - 400km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	100 - 150km upstream from Ramsar site	In feature area
Kerang wetlands	Within 10km of Ramsar site	In buffer area only
Riverland	200 - 300km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	300 - 400km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			
Community Name	Threatened Category	Presence Text	Buffer Status
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community may occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Mallee Bird Community of the Murray Darling Depression Bioregion	Endangered	Community likely to occur within area	In buffer area only
Natural Grasslands of the Murray Valley Plains	Critically Endangered	Community likely to occur within area	In feature area
Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions	Critically Endangered	Community likely to occur within area	In feature area

Community Name	Threatened Category	Presence Text	Buffer Status
Weeping Myall Woodlands	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area	In buffer area only
Polytelis anthopeplus monarchoides Regent Parrot (eastern) [59612]	Vulnerable	Breeding likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
FISH			
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Craterocephalus fluviatilis Murray Hardyhead [56791]	Endangered	Species or species habitat likely to occur within area	In feature area
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat may occur within area	In feature area
PLANT			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Austrostipa metatoris [66704]	Vulnerable	Species or species habitat known to occur within area	In feature area
Austrostipa wakoolica [66623]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia tensa Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidium monoplocoides Winged Pepper-cress [9190]	Endangered	Species or species habitat likely to occur within area	In feature area
Maireana cheelii Chariot Wheels [8008]	Vulnerable	Species or species habitat known to occur within area	In feature area
Senecio behrianus Stiff Groundsel, Behr's Groundsel [14030]	Endangered	Species or species habitat known to occur within area	In buffer area only
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Swainsona pyrophila Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
[Limosa limosa](#) Black-tailed Godwit [845]		Species or species habitat known to occur within area	In buffer area only
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Philomachus pugnax](#) Ruff (Reeve) [850]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis			
Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [15089]	NSW	In buffer area only
Defence		
Defence - SWAN HILL ARES DEPOT (Drill Hall) [21108]	VIC	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
River Murray Reserve	Natural Features Reserve	VIC	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Beveridge Island	VIC	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
The Modified Operation of the Goulburn Murray Irrigation District	2009/5123	Controlled Action	Post-Approval	In feature area
Not controlled action				
Cannie Ridge Pipeline Project	2004/1341	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Lake Mokoan Decommissioning and Mid Murray Storage Project	2007/3342	Not Controlled Action	Completed	In buffer area only
Swan Hill Irrigation modernisation project VIC	2013/7075	Not Controlled Action	Completed	In buffer area only
Wimmera Mallee Pipeline Project	2004/1692	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Woorinen Pipeline Project	2000/72	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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6.7. APPENDIX 7 – BOSET REPORT

Biodiversity Values Map

953.6 0 476.79 953.6 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days

Notes

Biodiversity Values Map and Threshold Report

Results Summary

Date of Calculation	25/10/2022 12:41 PM	**BDAR Required***
Total Digitised Area	1,059,673.4 sqm	
Minimum Lot Size Method	LEP	
Minimum Lot Size 10,000sqm = 1ha	5,000,000 sqm	
Area Clearing Threshold 10,000sqm = 1ha	10,000 sqm	
Area clearing trigger Area of native vegetation cleared	Unknown #	Unknown #
Biodiversity values map trigger Impact on biodiversity values map(not including values added within the last 90 days)?	no	no
Date of the 90 day Expiry	N/A	

*If BDAR required has:

- at least one 'Yes': you have exceeded the BOS threshold. You are now required to submit a Biodiversity Development Assessment Report with your development application. Go to https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor to access a list of assessors who are accredited to apply the Biodiversity Assessment Method and write a Biodiversity Development Assessment Report
- 'No': you have not exceeded the BOS threshold. You may still require a permit from local council. Review the development control plan and consult with council. You may still be required to assess whether the development is '"likely to significantly affect threatened species' as determined under the test in s. 7.3 of the Biodiversity Conservation Act 2016. You may still be required to review the area where no vegetation mapping is available.

Where the area of impact occurs on land with no vegetation mapping available, the tool cannot determine the area of native vegetation cleared and if this exceeds the Area Threshold. You will need to work out the area of native vegetation cleared - refer to the BMAT user guide for how to do this.

On and after the 90 day expiry date a BDAR will be required.

Disclaimer

This results summary and map can be used as guidance material only. This results summary and map is not guaranteed to be free from error or omission. The State of NSW and Department of Planning and Environment and its employees disclaim liability for any act done on the information in the results summary or map and any consequences of such acts or omissions. It remains the responsibility of the proponent to ensure that their development application complies will all aspects of the *Biodiversity Conservation Act 2016.*

The mapping provided in this tool has been done with the best available mapping and knowledge of species habitat requirements. This map is valid for a period of 30 days from the date of calculation (above).

Acknowledgement

I as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature_____ Date:25/10/2022 12:41 PM

6.8. APPENDIX 8 – BIODIVERSITY DETAILED SPECIES RECORDS AND TEST

A likelihood of occurrence ranking has been attributed to threatened biota and migratory species based on the framework outlined in the tables below.

Presence of habitat	Definition
Present	Potential of known habitat is within the project site.
Marginal	Habitat present in project site is not typical but may be suitable.
Absent	No potential or known habitat is present within the project site.
Unlikely	Species not previously recorded within a 10km radius and suitable habitat not recorded within the project site.

Likelihood of occurrence	Definition
Known	Species recorded within the project site either from previous records or field survey results
Likely	Species previously recorded within a 10km radius and suitable habitat occurs within the project site.
Possible	Species recorded within 10km radius but no suitable habitat recorded, or species not previously recorded within a 10km radius, but the project site is located within species known distribution and suitable habitat occurs within the project site.
Unlikely	Species not previously recorded within a 10km radius and suitable habitat not recorded within the project site.

Possible to be impacted	Definition
No	The project would not result in an impact to this species. No Assessment of Significance (AoS) is necessary for this species.
Low	The project is unlikely to result in an impact to the species. No Assessment of Significance (AoS) is necessary for this species.
Moderate	The project could impact on this species of its habitats. This species is considered further in the Assessment. The risk to this species is considered manageable and an AoS is not considered necessary.
High	The project is likely to impact on this species or its habitats. An AoS has been applied to these entities.

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
Amphibian								
Crinia sloanei	**Sloane's Froglet**	**Region**: Murray-Darling Basin with majority or records in the Darling Riverine Plains, NSW South Western Slopes and Riverina Bioregions. **Habitat**: Ground-dwelling frog associated with periodically inundated areas in grassland, woodland and disturbed areas. **Preferred Food**: No information available. **Breeding**: Breeds in ephemeral wetlands or periodically inundated areas of permanent wetlands, in grasslands, woodlands and disturbed environments.	**V**	**NL**	Habitat required for this species not identified at site.	Absent	Unlikely	No
Litoria raniformis	**Southern Bell Frog**	**Region**: In NSW the species was once distributed along the Murray and Murrumbidgee Rivers and their tributaries, the southern slopes of the Monaro district and the central southern tablelands as far north as Tarana, near Bathurst. Currently, the species is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. **Habitat:** Found mostly amongst emergent vegetation, including Typha sp. (bullrush), Phragmites sp. (reeds) and Eleocharis sp.(sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams. Can be found floating in warmer waters in temperatures between 18–25°C. Additionally, this species occurs in: clays or well-watered sandy soils; open grassland, open forest, and ephemeral and permanent non-saline marshes and swamps; montane eucalypt forest, dry schlerophyll forest in coastal Victoria; steep-banked water edges (like ditches and drains) and gently graded edges containing fringing plants; and formerly, areas of high altitudes. **Food sources**: Invertebrates as well as other small frogs. **Breeding**: Breeding occurs during the warmer months and is triggered by flooding or a significant rise in water levels. The species has been known to breed anytime from early spring through to late summer/early autumn (Sept to April) following a rise in water levels.	**E**	**V**	Habitat required for this species not identified at site.	Absent	Unlikely	No
Reptile								
Hemiaspis damelii	Grey Snake	**Region:** Occurs in a series of fragmented sub-populations throughout NSW and QLD. In NSW predominate areas are associated with the lower reaches of major westerly flowing rivers including Gwydir, Namoi, Castlereagh, Macquarie, Lachlan and Murrumbidgee. **Habitat**: In lower NSW, the species has been recorded exclusively from the margins of ephemeral wetlands within River Red Gum and Black Box vegetation communities and from Tangled Lignum swamps. Recently sightings have only been from wetlands that have received water flows. No species sightings have been detected from dry phase wetlands. Seasonally inundated floodplains and wetlands, swamps and lake systems with cracking clays and frog diversity are critical habitat features.		**E**	Habitat required for this species not identified at site.	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		Food sources: Forages on for floodplain frogs within soil cracks in the open and beneath vegetation typically during warm weather and after heavy rain. Generally active in NSW between October and March. **Breeding**: Live bearing species giving birth to 4-16 young between Jan and March. Males mature at around 7 months and females 12 months.						
Aves								
Botaurus poiciloptilus	Australasian Bittern	Region: Widespread but uncommon over south-eastern Australia. Found throughout most of NSW except for the north-west. Habitat: Favors permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spikerushes. Food source: Frogs, rush, yabbies, spiders, insects, snails. Breeding: Occurs in summer from October to January. Usually six eggs to a clutch. Nests: Built in secluded places in densely-vegetated wetlands on a platform of reeds.	E	E	Habitat required for this species not identified at site.	Absent	Unlikely	No
Rostratula australis	Australian Painted Snipe	Region: Most records from the south east, particularly the Murray Darling Basin. In NSW, most records associated with marshes, lakes and swamps in the Basin. Habitat: Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Forages on mud flats and in shallow water. Food source: Worms, molluscs, insects, some plant matter. Breeding: Often in response to local conditions, generally occurs from September to December. Nest: A scrape in the ground lined with grasses and leaves.	E	E	Habitat required for this species not identified at site.	Absent	Unlikely	No
Calidris ferruginea	Curlew Sandpiper	Region: Distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April. Habitat: It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. Roosts on shingle, shell or sand beaches; spits or islets on the coast or in wetlands; or sometimes in salt marsh, among beach-cast seaweed, or on rocky shores. Food source: Worms, molluscs, crustaceans, insects and some seeds.	E	CE Listed Migratory Wetland Species Listed Marine Species	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Absent	Unlikely	No
Numenius madagascariensis	Eastern Curlew	Region: Region Within Australia, the Eastern Curlew has a primarily coastal distribution. The species is found in all states, particularly the north, east, and south-east regions including Tasmania. Eastern Curlews are rarely recorded inland. In NSW the species occurs across the entire coast but is mainly found in estuaries such as the Hunter River, Port Stephens, Clarence River, Richmond River and ICOLLs of the south coast.	NL	CE Listed Migratory Wetland Species Listed	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		Habitat: It generally occupies coastal lakes, inlets, bays and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats and sometimes saltmarsh of sheltered coasts. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. Food source: It forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed. It is carnivorous, mainly eating crustaceans (including crabs, shrimps and prawns), small molluscs, as well as some insects. Breeding: It may delay breeding until three to four years of age. Within Australia, immature birds, which do not migrate, move northward in winter. Breeds in Russia and north-eastern China but its distribution is poorly known. During the non-breeding season a few birds occur in southern Korea and China, but most spend the non-breeding season in north, east and south-east Australia. Nest: It roosts on sandy spits and islets, especially on dry beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. May also roost on wooden oyster leases or other similar structures		Marine Species	impact on species requirements.			
Falco hypoleucos	Grey Falcon	Region: Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin. The breeding range has contracted since the 1950's, with most breeding now confined to the arid parts of the range. Population trends are unclear, but it is believed to be extinct in areas with more than 500mm annual rainfall in NSW. Habitat: Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions. Occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey. Food source: Preys primarily on birds, especially parrots and pigeons. Breeding: Two to three eggs are laid in late winter and early spring. Nest: Uses old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse.	E	NL	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Unlikely	Unlikely	No
Leipoa ocellata	Malleefowl	Region: Known and predicted to occur in central and western NSW. Significant populations occur in Mallee Cliffs NP, extending east to Balranald and north to Mungo. The population in central NSW has been significantly reduced due to land clearance and fox predation. A population continues to persist in the Goonoo forest near Dubbo. Habitat: Predominantly inhabit mallee communities, less frequently found in other eucalypt woodlands such as Inland Grey Box, Ironbark or Bimble Box woodlands with thick understory, or in other woodlands dominated by Mulga or native Cypress Pine species. Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy, with dense and diverse shrub and herb layers. Food source: Forage in open areas on seeds, buds, flowers, fruits, herbs, insects and cereals if available. Breeding: Usually 15-24 (up to 34) eggs laid in a single season. Nest: Incubate eggs in large mounds with considerable volume of sandy soil.		Malleefowl	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Marginal	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
Pezoporus occidentalis	Night Parrot	Region: Distribution has not been well documented, but it is known to be restricted to arid and semi-arid Australia. Habitat: Known to occur within Spinifex grasslands in stony or sandy areas and samphire and chenopod associations on floodplains, salt lakes and clay pans. Suitable habitat is characterized by the presence of large and dense clumps of Spinifex, and it may prefer mature spinifex that is long and unburnt. Food Source: Said to feed on the seeds of grasses and herbs, particularly those of Spinifex. Breeding: Largely unknown. Breeding is said to take place after heavy rainfall. Actual breeding records are few, but young have been recorded in August, and there are unverified reports of breeding activity in April, July and August.	PE	E	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Absent	Unlikely	No
Grantiella picta	Painted Honeyeater	Region: Nomadic species occurring at low densities throughout its range. Occurs throughout NSW, except in coastal areas and the south-western corner of the state. Greatest concentration and almost all breeding occurs on inland slopes of Great Dividing Range. Habitat: Boree/Weeping Myall, Brigalow and Box-Gum Woodlands and Box-Ironbark forests. Food source: Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Breeding: Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, Sheoak, paperbark or mistletoe branches.	V	V	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Absent	Unlikely	No
Pedionomus torquatus	Plains-wanderer	Region: Western Riverina area bounded by Hay, Narrandera on the Murrumbidgee River in the north, the Cobb highway in the west, the Billabong creek in the south and Urana in the east. Also in North-central Victoria and central-western QLD. Habitat: Plains-wanderers live in semi-arid, lowland native grasslands that typically occur on hard red-brown soils. Habitat structure appears to play a more important role than plant species composition. Preferred habitat of the Plains-wanderer typically comprises 50% bare ground, 10% fallen litter, and 40% herbs, forbs and grasses. Food source: Insects. Breeding: Plains-wanderers are capable of breeding in their first year and they breed in solitary pairs. Clutch-size is usually four eggs, but can range from two to five. Nest: The nest is a hollow or 'scrape' that is scratched into the ground and lined with grass. The nests are placed amongst native grasses and herbs, or sometimes amongst crops.	E	CE	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Absent	Unlikely	No
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	Region: The eastern subspecies is restricted to areas around the Murray River in South Australia, Victoria and NSW. In NSW it occurs along the Murray River downstream of Tooleybuc (though there are few records between Mildura and the South Australian border), the Wakool River downstream of Kyalite, and the Murrumbidgee River immediately upstream from the junction with the Murray River and adjoining areas of mallee.	E	V	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		Habitat: The species nests within River Red Gum forests along the Murray, Wakool and lower Murrumbidgee Rivers, and possibly the Darling River downstream of Pooncarie. Principal foraging habitat is mallee woodlands, though foraging also occurs in riverine forests and woodlands. Mallee woodland within 20 kilometres of nesting sites is critical foraging habitat for breeding birds. Food source: Seeds, grasses, plant material, flower buds, insect larvae. They may utilise cereal crops and will feed on spilt grain. Is claimed to be a pest in almond orchards. Breeding: Breeding season August to January, clutch size 3 to 5. Typical nest trees are large, mature healthy trees with many spouts (though dead trees are used) and are usually located close to a watercourse.			impact on species requirements.			
Epthianura albifrons	White-fronted Chat	Region: Found across southern half of Australia. Potential to occur throughout NSW; most commonly found in southern half of the state. Habitat: Salt marsh and other damp, open areas with low vegetation such as swampy farmland and roadside verges. Food source: Insects. Breeding: Breed from late July through to early March. Open cup nests usually built in low vegetation approximately 23cm above ground. Two to three eggs laid per clutch.	V	NL	Habitat not typical of species requirements. No records of species at site or within local area. Project works or actions will not impact on species requirements.	Marginal	Likely	Low
Fish								
Galaxias rostratus	Flathead Galaxias	Region: endemic to the southern tributaries of the Murray Darling River system; the Murray, Murrumbidgee and Lachlan Rivers and their tributaries and the upper Macquarie River catchment. Flathead Galaxias has experienced significant declines in distribution and abundance in all river systems in NSW. Extensive scientific sampling over the last two decades has recorded extremely few specimens. The last record in the Murrumbidgee River was in 1971, and it is thought that the species may be locally extinct from the lower Murray, Murrumbidgee, Macquarie and Lachlan Rivers. Habitat: freshwater fish generally found mid-water in still and gently moving waters of small streams, lakes, lagoons, billabongs and backwaters. Its habitat consists of coarse sand or mud substrate and aquatic vegetation. Preferred Food: Flathead Galaxias feeds predominately on aquatic insects and crustaceans. Breeding: Spawning occurs in spring, when water temperatures are above 10.5°C. The species produces 2000-7000 transparent, slightly adhesive demersal eggs, with fecundity increasing with length of fish. The eggs hatch after 9 days at temperatures between 9-14°C. Fry are 6-8 mm long after hatching. Individuals probably mature in their first year (approximately 80 mm long).	CE	CE	The project site is not connected to a waterway being located 4kms from any River system. No impacts to aquatic species will be impacted due to distance from suitable waterway to source species.	Absent	Unlikely	No
Macquaria australasica	Macquarie Perch	Region: found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury/Nepean and Shoalhaven catchments. The conservation status of the different populations is not well known, but there have been long-term	E	E	The project site is not connected to a waterway being located 4kms from	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		declines in their abundance. Habitat: prefers clear water and deep, rocky holes with lots of cover as well as aquatic vegetation, additional cover may comprise of large boulders, debris and overhanging banks. Spawning occurs just above shallow running water. Preferred Food: Adult fish feed on aquatic insects, crustaceans and molluscs. Breeding: Sexual maturity occurs at 15-20 cm or two years of age for males and 25 cm or three years for females however this varies between locations due to local conditions. Macquarie Perch spawn in spring or summer in flowing shallow upland streams and rivers. Females produce around 50,000-100,000 eggs which settle among stones and gravel of the stream or river bed. Hatching occurs after approximately 10 days and larvae are about 7 mm long.			any River system. No impacts to aquatic species will be impacted due to distance from suitable waterway to source species.			
Maccullochella peelii	Murray Cod	Region: are massively reduced in numbers. Wild stocks are now estimated to be less than ten percent of the population present at the time of European settlement. Have become locally extinct in many small tributaries in which they once abounded, particularly in upland reaches of the southern and central Murray Darling Basin, and the fish is rare in the majority of the rest of its original range. Habitat: varies greatly, from quite small clear, rocky, upland streams with riffle and pool structure on the upper western slopes of the Great Dividing Range to large, meandering, slow-flowing, often silty rivers in the alluvial lowland reaches of the Murray-Darling Basin. Preferred Food: have a varied diet of other fish, spiny freshwater crayfish, Yabbies, shrimp, freshwater mussels, frogs, water fowl, small mammals, tortoises and other reptiles. Breeding: reach sexual maturity at 4 to 6 years of age and 2 to 3 kg in weight. Has relatively low fertility compared to many other freshwater fish. Egg counts range from <10,000 eggs for a barely mature female to approximately 90,000 for females around the 22 kg mark. It is likely that large female Murray cod that are in the 15-25 kg range and "in their prime" are perhaps the most important breeders because they produce the most eggs. Both of these factors mean the spawning's of large female fish have far higher larval survival rates and make far greater reproductive contributions than the spawning's of small female fish.	NL	V	The project site is not connected to a waterway being located 4kms from any River system. No impacts to aquatic species will be impacted due to distance from suitable waterway to source species.	Absent	Unlikely	No
Craterocephalus fluviatilis	Murray Hardyhead	Region: Found only in lowland areas of the southern basin. In the Murray as far upstream as Yarrawonga and lower to mid Murrumbidgee (although possibly extinct in the Murrumbidgee). Habitat: Found on the margins of lakes, wetlands, backwaters and billabongs, preferring open water, shallow, slow moving or still habitats. Food source: Omnivorous eating primarily microcrustaceans but also some aquatic insects and algae. Breeding: Spawning occurs over an extended breeding season(Sept-Apr) but breeding usually occurs in late spring - early summer. Batch spawner with ovarian eggs at	CE	E	The project site is not connected to a waterway being located 4kms from any River system. No impacts to aquatic species will be impacted due to distance from	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		various stages of development. Likely to lay adhesive eggs amongst aquatic vegetation.			suitable waterway to source species.			
Bidyanus bidyanus	Silver Perch	Region: Once widespread throughout entire Murray Darling. Now only one self sustaining population occurs in the central Murray downstream of Yarrawonga weir. Habitat: Generally found in fast flowing water including rapids and races and more open sections of the river. Food source: Omnivorous with diet containing aquatic plants, snails, shrimps and aquatic insect larvae. Breeding: Successful spawning seems dependent on high flows and overbank flooding.	V	CE	The project site is not connected to a waterway being located 4kms from any River system. No impacts to aquatic species will be impacted due to distance from suitable waterway to source species.	Absent	Unlikely	No
Maccullochella macquariensis	Trout Cod	Region: Endemic to southern tributaries occurring in NSW, Vic and SA. Habitat: Found in variety of habitats from pasture-lands to sclerophyll forest preferring cool flowing water that is well oxygenated. Most active between May to October. Create burrows that vary from deep burrows with multiple entrances to simple burrows under a rock or log. Food source: Opportunistic feeding on dead fish and other animals but mainly decaying aquatic plant matter. Breeding: Cued by rapid decline in water temperature in May. Females incubate eggs under their abdomen for 20 weeks and hatchlings remain in the mothers care for a further month before dispersing.	V	NL	The project site is not connected to a waterway being located 4kms from any River system. No impacts to aquatic species will be impacted due to distance from suitable waterway to source species.	Absent	Unlikely	No
Mammals								
Phascolarctos cinereus	Koala	Region: Fragment distribution throughout eastern Australia from north-east Queensland to South Australia. In NSW, mainly occurs on the central and north coasts, and some populations in the west of the Great Dividing Range. Habitat: Eucalypt woodlands and forests. Food source: Foliage of more than 70 eucalypt and 30 non-eucalypt species. Breeding: Females breed at two years of age and produce one young per year.	V	V	No records of species within the area. Project works do not require the removal of vegetation and will not alter any species that may support this species. No change to the potential feeding or utilisation area for this species.	Absent	Unlikely	No
Bats								
Nyctophilus corbeni	Corben's Long-eared Bat	Region: Coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Habitat: Inhabits a variety of vegetation types, including mallee, bulloke *Allocasuarina*	V	V	Habitat not typical of species requirements. No records of species	Marginal	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		leuhmanni and box eucalypt dominated communities, but it is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Roosts in tree hollows, crevices, and under loose bark. Food source: Slow flying agile bat, utilising the understory to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground. Breeding: Mating takes place in autumn with one or two young born in late spring to early summer.			at site or within local area. Project works or actions will not impact on species requirements.			
Flora								
Austrostipa wakoolica	A spear-grass	Region: Confined to the floodplains of the Murray River tributaries of central-western and south-western NSW, with localities including Manna State Forest, Matong, Lake Tooim, Merran Creek, Tulla, Cunninyeuk and Mairjimmy State Forest (now part of South West Woodland Nature Reserve). Habitat: Grows on floodplains of the Murray River tributaries, in open woodland on grey, silty clay or sandy loam soils; habitats include the edges of a lignum swamp with box and mallee; creek banks in grey, silty clay; mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rise. Associated species include Callitris glaucophylla, Eucalyptus microcarpa, E. populnea, Austrostipa eremophila, A. drummondii, Austrodanthonia eriantha and Einadia nutans. Flowering/Description: Flowers from October to December, mainly in response to rain.	E	E	Species recorded in three location 8kms and 10kms to the north east of the site in 1947, in an undisturbed area. Whilst potential habitat exists at the site, the significant disturbance that has occurred at the site all but eliminates the potential for the species to occur.	Marginal	Possible	Low
Austrostipa metatoris	A spear-grass	Region: Most records occur in the Murray Valley with sites including Cunninyeuk Station, Stony Crossing, Kyalite State Forest (now part of Murrumbidgee Valley Regional Park) and Lake Benanee. Scattered records also occur in central NSW including Lake Cargelligo, east of Goolgowi, Condobolin and south west of Nymagee. Otherwise only known from near Bordertown in south east South Australia, where it may be locally extinct. Habitat: Grows in sandy areas of the Murray Valley; habitats include sandhills, sandridges, undulating plains and flat open mallee country, with red to red-brown clay-loam to sandy-loam soils. Associated species include Eucalyptus populnea, E. intertexta, Callitris glaucophylla, Casuarina cristata, Santalum acuminatum and Dodonaea viscosa. Flowers in response to rain. It is not known if fire plays a role in the ecology of this species although most species of Austrostipa provide an abundance of highly flammable ephemeral fuel in periods following above-average rainfall. Recorded in populations as locally frequent or dominant only in scattered patches. Flowering/Description: Flowers in response to rain.	V	V	Species recorded in a single location 8kms to the north east of the site in 1947 an undisturbed area. Whilst potential habitat exists at the site, the significant disturbance that has occurred at the site all but eliminates the potential for the species to occur.	Marginal	Possible	Low
Maireana cheelii	Chariot Wheels	Region: Restricted to the southern Riverina region of NSW, mainly in the area between Deniliquin and Hay. Also has a limited distribution in Victoria where very	V	V	4 records of species within the area from	Marginal	Possible	Low

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		rare. NSW collections have mainly been from the Moulamein, Deniliquin and Hay districts, including Tchelery and Zara Stations. There is an outlying record from "Wangareena east of Wanaaring". Habitat: Usually found on heavier, grey clay soils with *Atriplex vesicaria* (Bladder Saltbush). Recorded on the Hay Plain in *Atriplex vesicaria, Maireana aphylla* and *Acacia homalophylla* shrublands. Soils include heavy brown to red-brown clay-loams, hard cracking red clay, other heavy texture-contrast soils. Tends to grow in shallow depressions, often on eroded or scalded surfaces, and does not extend to the higher soils in the habitat. It has been found on the edges of bare, windswept claypans, in shallow depressions of eroded surfaces where rainwater collects and on a "shelf" in the crabhole complex of heavy grey soils. Flowering/Description: Flowering time is mostly spring to summer. Bears fruits mostly from September to November.			2006. Species recorded adjoining lower area within grey clays. Habitat at the project site is not typical of species requirements. Project works or actions will not impact on species requirements.			
Caladenia tensa	Greencomb Spider-orchid	Region: Predominantly remains in Victoria although has historically been distributed throughout the Murray Darling Depression region in areas of 300-400mm rainfall. Habitat: Grows on red-brown sandy loams on rises in open woodland dominated by Yellow Gum, Pine/Box woodland, mallee-heath sites, healthy woodland, generally with rock outcrops. Flowering/Description: Flowering occurs from late August-Oct/Nov producing one flower. reproductions entirely from seed and plants produce a single replacement tuber each year.	NL	E	Species recorded in a single location 8kms to the north east of the site in 1947 an undisturbed area. Whilst potential habitat exists at the site, the significant disturbance that has occurred at the site all but eliminates the potential for the species to occur.	Absent	Unlikely	No
Swainsona murrayana	Slender Darling Pea	Region: Found throughout NSW , it has been recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. Habitat: Collected from clay-based soils. Grows in a variety of vegetation types. Species may require some disturbance, and has been known to occur in paddocks that are moderately grazed or occasionally cultivated. Flowering/Description: Produce winter-spring growth, flower in spring to early summer, then die back after flowering. They re-shoot readily and often carpet the landscape after good cool-season rains.	V	V	Project works do not require the removal of vegetation and will not alter the area that may support this species. Project works and access to site will not impact or reduce area of this species as site is already cleared.	Absent	Unlikely	No
Lepidium monoplocoides	Winged Peppercress	Region: Widespread in the semi-arid western plains regions of NSW. Habitat: Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by Bulloak and/or eucalypts. The field layer of the	E	E	Habitat not typical of species requirements. No records of species at site or within local	Absent	Unlikely	No

Scientific Name	Common Name	Description	Level of Threat NSW	C'wlth	Comment	Present of habitat	Likelihood of occurrence	Potential for impact
		surrounding woodland is dominated by tussock grasses. Species highly dependent on seasonal conditions and does not tolerate grazing disturbance. Flowering: From August to October.			area. Project works or actions will not impact on species requirements.			
Lepidium monoplocoides	Yellow Swainson-pea	Region: Occurs in the south western plains regions of NSW, into Victoria and SA. Distributed in the south-eastern half od SA, along the Murray River valley into north-western Victoria with isolated occurrences northward. Habitat: Grows on mallee scrub on sandy or loamy soil, usually found after fire. Sites recorded include cleared and burnt mallee scrub on red load to sand, previously burnt mallee and disturbed woodland in sheltered aspects (bulldozed firebreak, roadsides, claypans etc). Recorded in small to moderately large populations between 3 & 300 plants. Usually found after fire which may be a stimulus for seed germination. Flowering: From September to December.	V	V	Habitat is suitable for species at site however the highly disturbed and intensive and long history of annual cropping at the site is likely to have modified the area to the extent that the species is highly unlikely to be found.	Present	Possible	Low
Senecio behrianus	Stiff Groundsel	Region: Endemic to south-eastern Australia. Previously occurred along the Murray River in South Australia, the Darling River in NSW and Glenelg River near Casterton however these populations are believed to be extinct. There are 5 wild populations remaining (4 at Corop and 1 at Ballarat) each occupying less than 0.25ha. Additional populations have been reintroduced at Corop. Habitat: Little known on the habitat of this species. It was once widespread on the floodplains of the Murray Darling Basin river system and herbarium records note the species within swampy soils and sandy clay. Remaining populations grown on poorly draining grey clays or sandy clays close to floodplains and periodically flooded depressions. Main habitat feature is seasonal inundation and hydrological regime - more species are located within areas flooded to a depth of 30cm or more. Flowering: From January to May. Seed germination is high under favourable conditions (not recorded in the wild) and many of the population are connected by woody rhizomes. Pollination mechanism is unknown.	NL	E	Habitat for this species is not typical at the site noting that some suitable soils exist however lack the required flooding regime. Site is not located within the known population area.	Marginal	Unlikely	No

6.9. APPENDIX 9 – ABORIGINAL CULTURAL HERITAGE ASSESSMENT

Aboriginal Cultural Heritage Due Diligence Assessment report and appended AHIMS basic and extensive searches.

6.10. APPENDIX 10 – HERITAGE SEARCHES

6.10.1. NATIONAL HERITAGE LIST

Nil results

6.10.2. COMMONWEALTH HERITAGE LIST

Nil results

6.10.3. NATIONAL HERITAGE LIST

Nil Results

6.10.4. NSW STATE HERITAGE REGISTER

Item	Address	Suburb	LGA	SHR
Murray Downs Homestead	Moulamein Highway	Wakool	Wakool	01438
Swan Hill-Murray River Road Bridge	Main Rd 67	Swan Hill (East)	Wakool	01481
Coonamit Bridge over Wakool River	Main Rd 386	Swan Hill	Wakool	01464
Tooleybuc Bridge over Murray River	Main Road 222	Tooleybuc	Wakool	01482

6.10.5. WAKOOL LOCAL ENVIRONMENTAL PLAN 2013

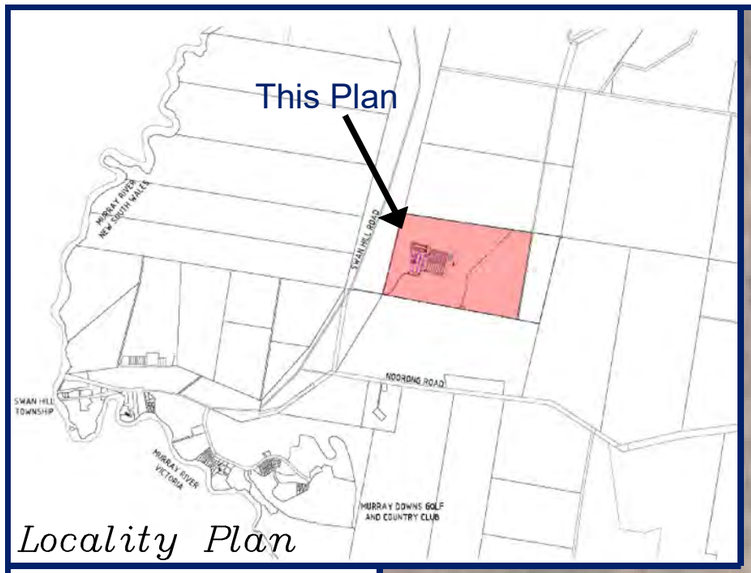
PART 1 – HERITAGE ITEMS

LOCALITY	ITEM NAME	ADDRESS	PROPERTY DESCRIPTION	SIGNIFICANCE	ITEM NO
Barham	Barham Koondrook Bridge over Murray River	Main Road 319		State	I2
Barham	Barham War Memorial Hall	15 Murray St	Part Lots 5 and 6, Section 4, DP 758053; Part Lot 157, DP 1049554	Local	I1
Cunninyeuk	Gee Gee Bridge over Wakool River	Nacurrie Road North, Noorong State Forest	Adjacent to Lot 50, DP 756533	State	I3
Koraleigh	Koraleigh Uniting Church	17 Eagles Lane	Lot 8, Section 1, DP 15133	Local	I4
Moulamein	The Old Courthouse and footbridge	Via Jebb Street	Part Lot 109 and Lot 110, DP 39558	Local	I5
Murrabit	Gonn Crossing Bridge over Murray River	Murrabit Road	Adjacent to Lot 1, DP 608956	Local	I6
Murray Downs	Murray Downs Homestead	MR 467 Swan Hill-Kyalite Road	Lot 2, DP 1067731	State	I7
Nyah	Nyah Bridge over Murray River	Speewa Road	Adjacent to Lot 1, DP 135141	Local	I9
Speewa	Speewa Ferry, Murray River	Speewa Ferry Road	Adjacent to Lot 3, DP 317039	Local	I10
Swan Hill	Coonamit Bridge over Wakool River	MR 386	Adjacent to Lot 1, DP 653213	State	I12
Swan Hill	Swan Hill Bridge over Murray River	MR 467	Adjacent to Lot 65, DP 756603	State	I11
Tooleybuc	Tooleybuc Bridge over Murray River		Adjacent to Lot 1, DP 585209	State	I13

6.11. APPENDIX 11 – ACOUSTIC ASSESSMENT REPORT

6.12. APPENDIX 12 – TRAFFIC IMPACT ASSESSMENT REPORT

6.13. APPENDIX 13 – BUSHFIRE PLAN



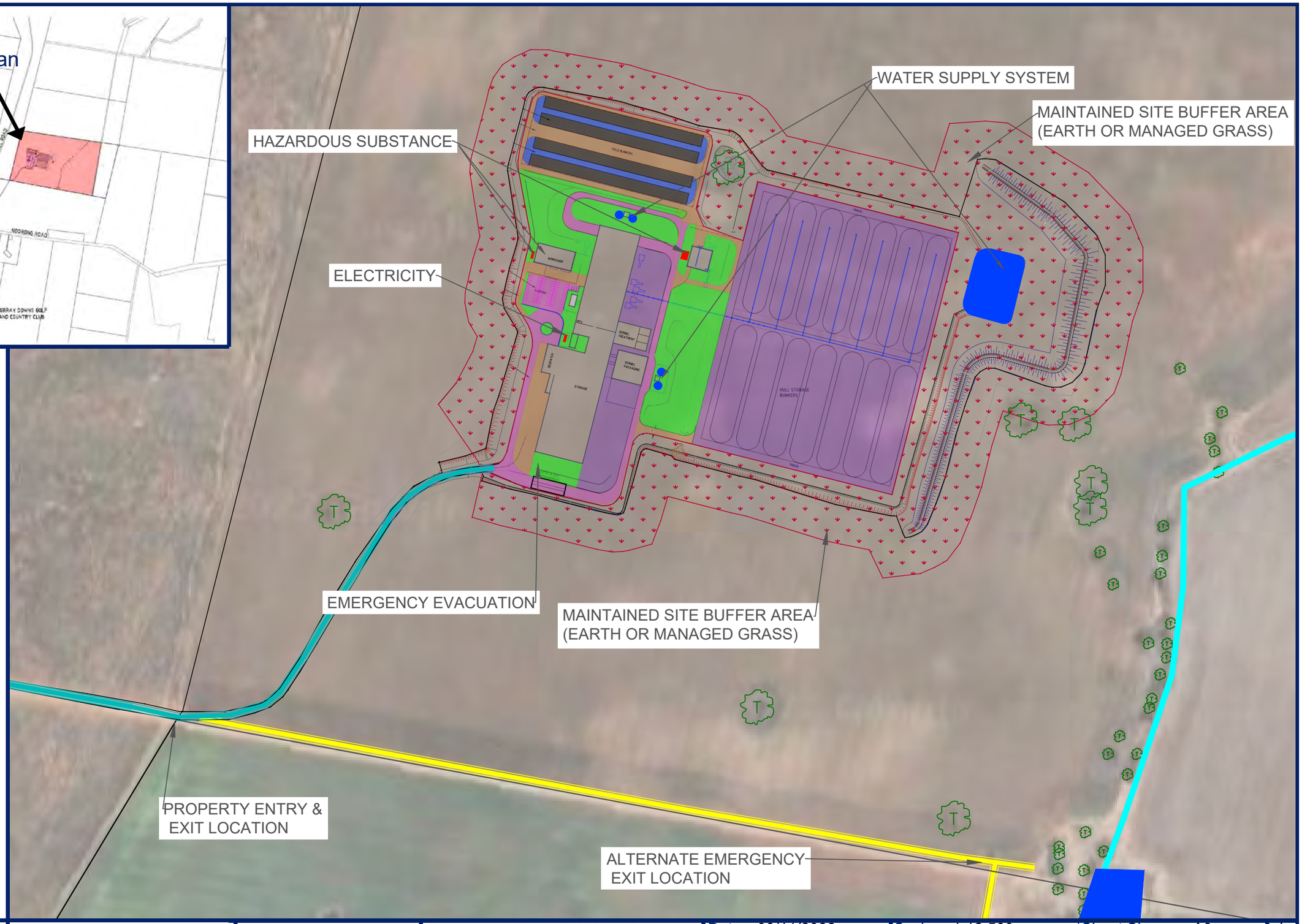
Locality Plan

Legend

- Old Channel
- Existing Channel
- New Channel
- Old Drain
- Existing Drain
- New Drain
- Existing Track
- New Track
- Existing Pipe 355
- New Pipe 355
- Boundary Fence
- Internal Fence
- Powerline
- Tree
- Tree for Removal

Surface Area

- Hardstand Area 100mm
- Hardstand Area 150mm
- Hardstand Area Sealed
- Freshwater
- Maintained Bare Ground/ unwater grass
- Maintained Grass Cover
- Building Outline



Plan Type/Stage

FINAL

Overview Plan

For Application

Related & Base Plans

Date	Plan Description
24/10/2022	Price Merret Consulting Plans 6414: sheets 1-13 Rev A
28/10/2022	JMA Engineering Job C627 - Sheets 1-5 Rev H
-	- -
-	- -

Progressive Rural Solutions Pty Ltd
PO Box 74, DENILIQUIN NSW 2710
Ph. 0408577248 ACN: 634 646 825 ABN: 58 634 646 825
Email: admin@prsltd.com.au Web: www.prsltd.com.au

Date.- 08/11/2022

Client.- Canally Orchards

Property.- 'Maril' 580 Swan Hill Rd

Project.- Almond Hulling and Shelling Facility

Plan.- Site Maintenance Plan

Scale.- 1:12,500 | Sheet Size.- A3

Drawing No.- J128-Maintenance-Site

Version	Date	Amendment
V1R1	01/11/22	Initial Plan
V1R2	07/11/22	Draft Plan for client review
V1R3	08/11/22	Final Plan for lodgement

6.14. APPENDIX 14 - PRELIMINARY POWER ASSESSMENT

End of Document