

Chapter 20: Agriculture

Environment Effects Statement



20 Agriculture

20.1 Introduction

This chapter summarises the potential impacts on agriculture due to the construction, operation and decommissioning of the Victoria to New South Wales Interconnector (VNI) West (Victorian component) (the Project). This chapter assesses the impacts and identifies how impacts would be avoided, minimised or managed. This chapter summarises the outcomes of *Technical Appendix M: Agriculture*.

In selecting the Proposed Easement for the Project, VicGrid VNI West took a comprehensive approach to identify potential environmental values and constraints to be avoided by the Proposed Easement, where practicable. From an agricultural perspective, the Proposed Easement avoided significant farming infrastructure supporting intensive animal industries such as feed lots, piggeries and poultry farms. Lateral-move irrigators, intensive orchards and horticultural businesses operating within proximity to the Proposed Easement were also avoided.

The agriculture impact assessment provides an analysis of the impacts on farming activities and production including economic losses at a State and study area production scale resulting from construction, operation and decommissioning of the Project. The assessment noted that any additional impact on farming operations or production at the individual farm level would need to be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.



Key definitions

Proposed Easement – The Proposed Easement is approximately 240 km long and 70 m wide, except at two transposition locations where it would be 170 m wide. The Proposed Easement is the area where there would be ongoing and direct impacts to affected properties.

The data in the Proposed Easement is used to calculate the areas of impact during the operation phase of the transmission infrastructure.

Study area – The agriculture impact assessment Study area is the extent of the four local government areas (LGAs) that are traversed by the Proposed Easement. These are the shires of Gannawarra, Loddon, Buloke and Northern Grampians.

The Australian Bureau of Statistics (ABS) agricultural production statistics that coincide with LGA statistical areas are used to describe the current agricultural production.

Project Area – The Project area is located within the Study area and includes the Proposed Easement, Proposed Easement options and encompasses all areas that would be used to support the construction and operational components of the Project.

This data is used to calculate areas of impact during the construction phase.

The agricultural impact assessment also evaluated two alternative options along the Proposed Easement at Tragowel and Teddywaddy. The assessment found that regardless of the combination of Proposed Easement options, there was a minimal difference in impact on agricultural production because the Proposed Easement options were traversing similar agricultural land use types and covering a similar area of impact.

Agriculture is the dominant land use within the 240 km Proposed Easement. Primary production land uses are categorised into three main agricultural types:

- Cropping (dryland/irrigated)
- Grazing (dryland/irrigated)
- Dairy

Agricultural production in the study area provides more than 10% of the Victorian state's total value of cropping, grazing and dairy, combined.

Impacts to agricultural activities would be greater during the construction phase (when compared to the operational phase) as agricultural land would be excluded from production. Once construction is complete, the majority of this land would return to productive use.

Construction may lead to loss of access to land, along and adjacent to, the Proposed Easement and within the wider Project area, interference with optimal timing for stock breeding, crop sowing or harvest, or clearance of land that reduces pasture for stock grazing or reduces crop area and yield.

In order to estimate the impact of agricultural production loss in the Project area relative to the study area, it was assumed that some farms would experience only one major disruption over consecutive weeks or months while others, depending on timing of activities, may experience several disruptions over one or more calendar seasons. The overall assessment of production loss assumed landholders would lose access to land in the Project area for the equivalent of one entire year when in practice, this could occur incrementally over the 3.5 year construction period and depending on timing many farms would maintain partial or full operation between work stages. Some farms would experience less production loss than the full year and others could experience more, depending on the construction sequence.

The total value of lost farm production activity along the Proposed Easement during construction is estimated at approximately \$2.77 million. The \$2.77 million represents one full year's loss of agricultural productivity over the 3.5 year construction period for the Project. The \$2.77 million is minor relative to the total economic footprint of agriculture in the study area in that it equates to approximately 0.3% of the total value of agricultural activity from cropping, grazing and dairy in the study area (~\$1.1 billion).

In the operational phase most farming activities could continue beneath the transmission line other than on the land area comprising the footprint of the transmission towers. This may incur ongoing financial losses from increased production costs due to operational inefficiencies caused by operating machinery around the towers.

Biosecurity risks associated with the movement of personnel, vehicles and equipment between farm properties would be present across the construction, operation, and decommissioning phases of the Project, and would require management throughout the Project lifecycle.

The Project impacts would be mitigated through:

- Avoiding significant farm assets, minimising isolation and redundancy of the most productive land through Project design
- Developing and adhering to property management plans in order to minimise disruption by scheduling construction activities to avoid sensitive farming periods
- Developing and complying with an enforceable Construction Environmental Management Plan (CEMP) covering contractors works to minimise damage to farmland and the environment (for example, soil and surface waters).
- Developing and adhering to a robust biosecurity management plan (BMP).

Prior to the commencement of construction, Project-specific agricultural procedures to industry standards, in consultation with agricultural specialists, landholders and Agriculture Victoria, would be developed to avoid and minimise impacts on biodiversity values, land use (including agriculture) and landholders.

These procedures must be incorporated into the BMP within the Project CEMP, Operational Environmental Management Plan (OEMP) and Decommissioning Environmental Management Plan (DEMP).

Property-specific biosecurity issues and requirements would be covered under individual BMPs as part of the preparation of landholder specific property management plans.

The BMP would require works to be planned and undertaken in a manner that minimises the risk of spreading weeds and diseases. This includes scheduling activities outside high-risk periods where practicable, progressing works from least weed infested areas to most infested areas, and avoiding wet or muddy conditions where feasible.

Equipment and vehicles would be inspected before entering site, with only essential equipment brought onto properties. Vehicles, plant, equipment and footwear would be cleaned and disinfected before entering and upon leaving each property, with washdown facilities meeting relevant industry standards. Personnel would carry appropriate biosecurity kits, and where practicable avoid using equipment or clothing previously used interstate.

The BMP would also include procedures for record keeping, incident reporting and compliance monitoring, including documenting vehicle, equipment and personnel movements. Following construction, vehicle and equipment access would be restricted to approved access corridors and formed tracks to minimise the spread of pests, weeds and diseases.

During construction, farm production impacts on individual properties would have a medium residual impact, that is the impact would continue for less than five years and there would be ability to recover from the impact. The productivity impacts at the individual farm scale would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

Biosecurity is considered a medium to major residual impact as the consequence could be widespread, long-lasting and have medium to major effects on production depending on the type of incursion. The application of the Environmental Performance Requirements (EPRs) reduce the likelihood of a medium level biosecurity impact to possible and reduces the likelihood of a major biosecurity impact to rare.

During the operational and decommissioning phases, residual impacts were assessed as minor at the study area scale but may have a larger impact at an individual property scale. Some restrictions on use of manned aerial services within and adjacent to the Proposed Easement and on the development of new farm infrastructure within the Proposed Easement would remain. Biosecurity remains a medium to major residual impact in these phases due to periodic line inspections and occasional maintenance work in the operational phase and movement of vehicles during the decommissioning phase.

Any residual impacts or unexpected negative impacts at the property level would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

20.2 Assessment scope

The scoping requirements provided by the Minister for Planning for the Project set out the specific environmental matters to be investigated and documented in this Environment Effects Statement (EES). The EES Scoping Requirements inform the extent and scope of each EES technical study. Issues identified in the EES Scoping Requirements to be addressed in this agriculture impact assessment include:

- Potential adverse impacts on agriculture or other forms of farming, including direct and indirect effects on farm production, productivity, spread of weeds, pathogens and other biosecurity risks, constraints on cropping or grazing, accessibility of land with farming equipment around transmission lines and restrictions on farming practices
- Potential significant disruption, both long and short-term, to existing and/or proposed land uses (including agriculture), public infrastructure and fire emergency management, with associated economic and social effects
- Potential adverse economic effects, including both direct and indirect effects on employment, farming and agriculture, other businesses, housing and local and regional economy
- Potential effects on the community and social setting (including wellbeing) of the Project Area of Interest

Technical Appendix M: Agriculture was prepared in support of this EES. This provides more detailed information on the investigation and impact assessment conducted in response to the EES scoping requirements.

This chapter should be read in conjunction with other relevant EES chapters. EES chapters related to this impact assessment are listed in Table 20-1 below.

Table 20-1 Related EES chapters and relevance to agriculture

EES Chapter	Relevance
<i>EES Chapter 8: Electric and magnetic field</i>	Considers electric and magnetic field emissions from Project infrastructure and the potential for electromagnetic interference (EMI) as this was a commonly raised landholder and community concern during the Proposed Easement planning
<i>EES Chapter 9: Geology and soils</i>	Considers the impact of disturbing acid sulfate soils, contaminated soils and erosive/dispersive soils along the Proposed Easement. Agricultural productivity is strongly influenced by soils and management of soils is a key focus for farm operations.
<i>EES Chapter 14: Surface water</i>	Considers negative impacts of irrigation water supply – either accessibility or volumes available for agricultural use.
<i>EES Chapter 13: Climate change</i>	Considers the impact climate change could have on land use patterns and potentially change the types of crops and livestock grown in the Project area.
<i>EES Chapter 18: Traffic and transport</i>	Considers Project impacts on the local road network, including the potential for disruption to agricultural traffic.
<i>EES Chapter 21: Aviation</i>	Considers the impact of the Proposed Easement on aviation activities which would include the potential impacts on aerial application of fertiliser and chemicals.

EES Chapter	Relevance
<i>EES Chapter 22: Business and economics</i>	Evaluates both potential direct and indirect impacts of the Project on non-agricultural businesses. This included impacts to housing, employment and the regional economy. The business and economics chapter precluded agricultural (or farm) businesses, it did consider the flow on effects of agricultural impacts to non-farm businesses, including those depending on agriculture in the region (e.g. fertiliser, chemical and machinery suppliers).
<i>EES Chapter 23: Land use and planning</i>	Considers the Project in the context of the agricultural land use and how this would be impacted during and operation.
<i>EES Chapter 24: Social</i>	Considers the potential effects on the community and social setting (including wellbeing) of the Project. This included positive and negative social impacts on local residents, industries, businesses, farmers and landholders and potential impacts on social cohesion resulting from changes for existing business and in relation to recreational activities. EPRs are proposed within the social impact assessment to mitigate the potential impacts on the mental health of agricultural communities.

20.3 Methodology

To respond to the scoping requirements outlined in Section 20.2, the agriculture impact assessment undertook the following methodology:

- Definition of a study area, which for the purposes of the agricultural assessment, is the extent of the four local government areas (LGAs) that are traversed by the Proposed Easement
- Collation of baseline and background Australian Bureau of Statistics (ABS) statistical data on agricultural land use and production data for the Project Area, review of industry and other published data and desktop spatial analysis confirming land use and irrigation infrastructure
- Obtaining advice and information from Agriculture Victoria, Goulburn Murray Water, North Central Catchment Management Authority (NCCMA) and the Department of Energy, Environment and Climate Action (DEECA)
- Fieldwork and ground-truthing from public areas and site visits and interviews with representative landholders
- Characterisation of existing conditions including an overview of agricultural soils and land use, climate and irrigation, and agricultural production and value in the study area
- Review of the Project description to determine the location, type, timing, extent, intensity, and duration of potential Project interactions with agricultural activities
- Conducting an issues screening to identify significant issues, uncertainties and/or potential impacts that require more detailed characterisation and/or assessment within the EES
- Assessment of the sensitivity of receptors (e.g. farmland), the severity, extent and duration of these impacts (magnitude), and the consequence or potential outcome of each potentially substantive impact
- Identification of EPRs to reduce impacts
- Evaluation of residual environmental impacts against assessment criteria, considering the proposed EPRs and their likely effectiveness

20.3.1 Avoidance and minimisation

The Proposed Easement was selected based on a combination of feedback from landholders, community members, Traditional Owners, government agencies and other stakeholders, as well as technical, engineering and environmental assessments. The selection process was based on the principles of:

- Avoiding environmental sensitivities wherever practicable
- Minimising potential impacts
- Maintaining technical integrity

An evaluation framework was developed for the Project, where key environmental considerations were identified and used to evaluate proposed options for the Project. The evaluation framework, which was applied consistently throughout Project development, is detailed in *EES Chapter 6: Assessment framework*.

For the agriculture impact assessment, the following evaluation framework criteria are relevant:

- Avoid impacts to known agricultural developments, including irrigation systems and channels, and any other sensitive land uses so far as reasonably practicable
- Avoid conflicts with surrounding known renewable development projects and proposed agriculture infrastructure (that is, lateral irrigation systems) to the extent practicable.

Additionally, the Project design team considered advice from the agricultural technical specialist in relation to minimising agricultural impacts throughout the design process. This consultation included field visits to enable all consultant team members to hear from landholders firsthand to understand their concerns. This resulted in infrastructure design changes such as:

- Micro-siting of transmission line towers and the alignment of the Proposed Easement, to minimise adverse in-paddock impacts of tower siting on water supply, field drainage, operation of border check-bank irrigation bays, livestock movement and other activities associated with irrigated cropping and grazing
- Shifting the Proposed Easement to accommodate a continuation of the operation of lateral move irrigators (and proponents of future lateral move irrigators)
- Avoidance of identified intensive animal industries such as feed lots, piggeries and poultry farms, and avoidance of intensive orchards and horticultural businesses
- Understanding landholder concerns regarding removal of farm shade trees and shelter belts, and optimising design to retain remnant trees and planted shelter belts wherever possible
- Avoidance of farm dwellings was an important criterion, however, there were instances where discussions with landholders requested a preference for the design team to develop the Proposed Easement closer to farm buildings (and dwellings) resulting in less possible future interruption to farming operations

By following these criteria, the Project has been able to avoid and minimise impact to agriculture and associated land uses throughout the study area.

20.4 Summary of stakeholder and community engagement

VicGrid VNI West acknowledges the importance of consultation and is committed to working closely with stakeholders, Traditional Owners, community members and landholders. Discussions with community stakeholders including local Councils and Traditional Owners commenced during the early stages of the Project, extending throughout the EES process.

20.4.1 Stakeholder engagement

To date, VicGrid VNI West has undertaken extensive engagement with several agencies and stakeholders in relation to agriculture, including Agriculture Victoria, Goulburn Murray Water, DEECA, Victorian Farmers Federation and Gannawarra Shire Council. Engagement also included visits to impacted farms and meetings or informal discussions with impacted landholders, near neighbours and community members.

Landholders representing the agricultural uses along the Proposed Easement and Proposed Easement options responded to online requests for interviews with agricultural specialists and public advertisements in local print media. Subsequent one-on-one interviews with affected landholders sought feedback on potential mitigation measures identified by landholders in relation to expected adverse agricultural impacts.

Based on individual desktop assessments, 145 properties of more than 200 landholdings along the Proposed Easement were selected as potential candidates for on-site interviews due to scale, geographical spread and enterprise type. The Project's Landholder Liaisons made direct contact with landholders. In addition, media advertising and direct emails to all landholders (with an email contact available to the Project team) offered an opportunity for one-on-one discussion, or to respond to an online survey.

The agricultural specialists responded to all landholders who took up the opportunity which resulted in nine one-on-one in depth interviews completed face-to-face on-farm with landowner(s), two interviews were conducted in the Kerang shopfront and two were completed as telephone or teleconference interviews.

A further 40 responses from potentially affected landholders to the online survey were received and additional feedback was received from 50 landholders through drop-in sessions at the Kerang shop front. All these interactions and feedback informed the agriculture assessment.

A total of 13 in-depth interviews were undertaken with 20 landholders participating, representing 6% of the landholders along the Proposed Easement. An additional six interviews were held with nearby landholders or well-informed local stakeholders outlining their understanding of the potential adverse agricultural impacts of the operating transmission line, the Proposed Easement and associated construction activity. All interviewees were asked to outline possible impact mitigating actions.

As far as possible, the interviewees were stratified by geography, enterprise, and farm size. The achieved interviews are shown in Table 20-2.

Table 20-2 Landholder interviews and site visits

Jurisdiction LGA - (est. total agricultural landholdings impacted)	Grazing	Cropping	Irrigated grazing or cropping	Irrigated dairy	Total
Gannawarra (77)	-	-	4	2	6
Loddon (7)	-	-	-	-	0
Buloke (49)	-	3	-	-	3
Northern Grampians (76)	2	2	-	-	4
Total (209)	2	5	4	2	13

Engagement with other relevant agencies and industry bodies including the CEO of Birchip Cropping Group, Victorian Farmers Federation executive members living in the study area, and staff at the International Sustainability and Carbon Certification (ISCC) accreditation agency.

In addition, combined consultation activities by VicGrid VNI West and the agricultural specialist included:

- Visits to the Proposed Easement, including visits to four farms to assist in establishing an understanding of possible adverse impacts on existing and proposed irrigation infrastructure located along the design route
- A whole-of-government familiarisation bus tour of the northern end of the Proposed Easement conducted on 29 and 30 April 2025
- Meetings on farms near Lake Meran and Oakvale on 9 Nov 2023 with Project design team members and Australian Energy Infrastructure Commissioner, Andrew Dwyer, to discuss engagement with farmers, on-farm impacts and proposed EPRs, and consideration of route modifications
- Discussions conducted with landholders and community members at the VNI West Project Kerang shopfront¹ where the agricultural specialists were available for more than 4 hours per day on each Tuesday and Wednesday during the 14-month period (November 2023 to January 2025)
- Discussions with Gannawarra LGA staff members and councillors at the Kerang shopfront during the November 2023 to May 2025 consultation period

The key issues raised through this engagement included:

- Interference/frustration caused to operation of (large) farm equipment by both construction activity and by towers and lines
- Interruption to farming activities during construction phase
- Increase in biosecurity risk
- Inability to perform time-critical tasks (i.e. spraying) if construction/inspection crews are on site
- Construction equipment access issues (damage to farm tracks, fences and crops)
- Frustrations and increased costs to aerial agriculture operations (crop-spraying etc)
- Damage to local roads
- Damage and compaction to irrigation layouts
- Isolation or disruption to irrigation practice for check bank layout
- Proposed Easement access constraints for dairy movement
- Animal unrest caused by machinery and particularly use of helicopters

Full details of community and stakeholder engagement are provided in *Technical Appendix M: Agriculture. EES Chapter 7: Stakeholder and community engagement* provides a summary of the Project's key overall engagement activities.

20.5 Study area

For the purposes of the agricultural assessment, information was considered at three spatial scales which collectively constitute the study area.

¹ In November 2023, VicGrid VNI West established a shopfront in Kerang to provide an opportunity for landholders, stakeholders and community members to meet Project team members to understand the Project. The shopfront is continuing to provide an opportunity to exchange information between the Project proponent and the community.

- The study area which incorporates the four LGAs that are traversed by the Proposed Easement. These are shires of Gannawarra, Loddon, Buloke and Northern Grampians (see Figure 20-1 to Figure 20-4). The ABS agricultural production statistics that coincide with LGA statistical areas are used to describe the current agricultural production. The outer boundaries of these LGAs constitute the maximum spatial extent of the study area.
- The Project area is located within the study area and includes the Proposed Easement, Proposed Easement options and encompasses all areas that would be used to support the construction and operational components of the Project. This data is used to calculate areas of impact during the construction phase and includes these areas:
 - The Project 500 kilovolt (kV) Proposed Easement and Proposed Easement options
 - The Project 220 kV Easement
 - Tragowel Terminal Station
 - Bulgana Reactor Station
 - Nine laydown and/or workforce accommodation areas
 - Temporary conductor stringing hardstand areas
- The Proposed Easement (shown on Figure 20-1 to Figure 20-4 and Figure 20-5), which is the 70 m wide, 240 km long area where there would be ongoing and direct impacts to affected properties. This data is used to calculate the areas of impact during the operation phase of the transmission infrastructure.

The agricultural assessment also considered the financial production losses in the context of the state of Victoria.

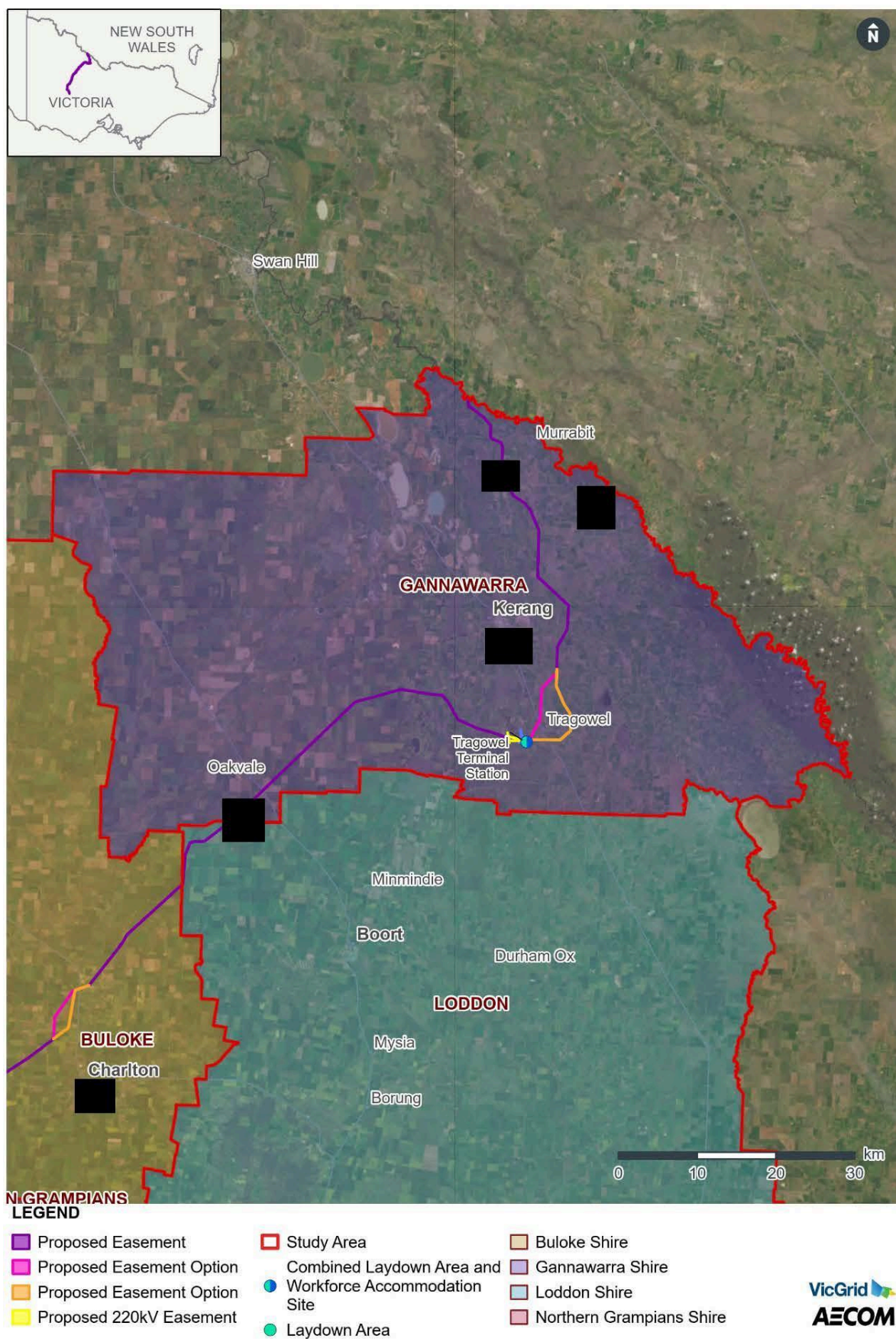
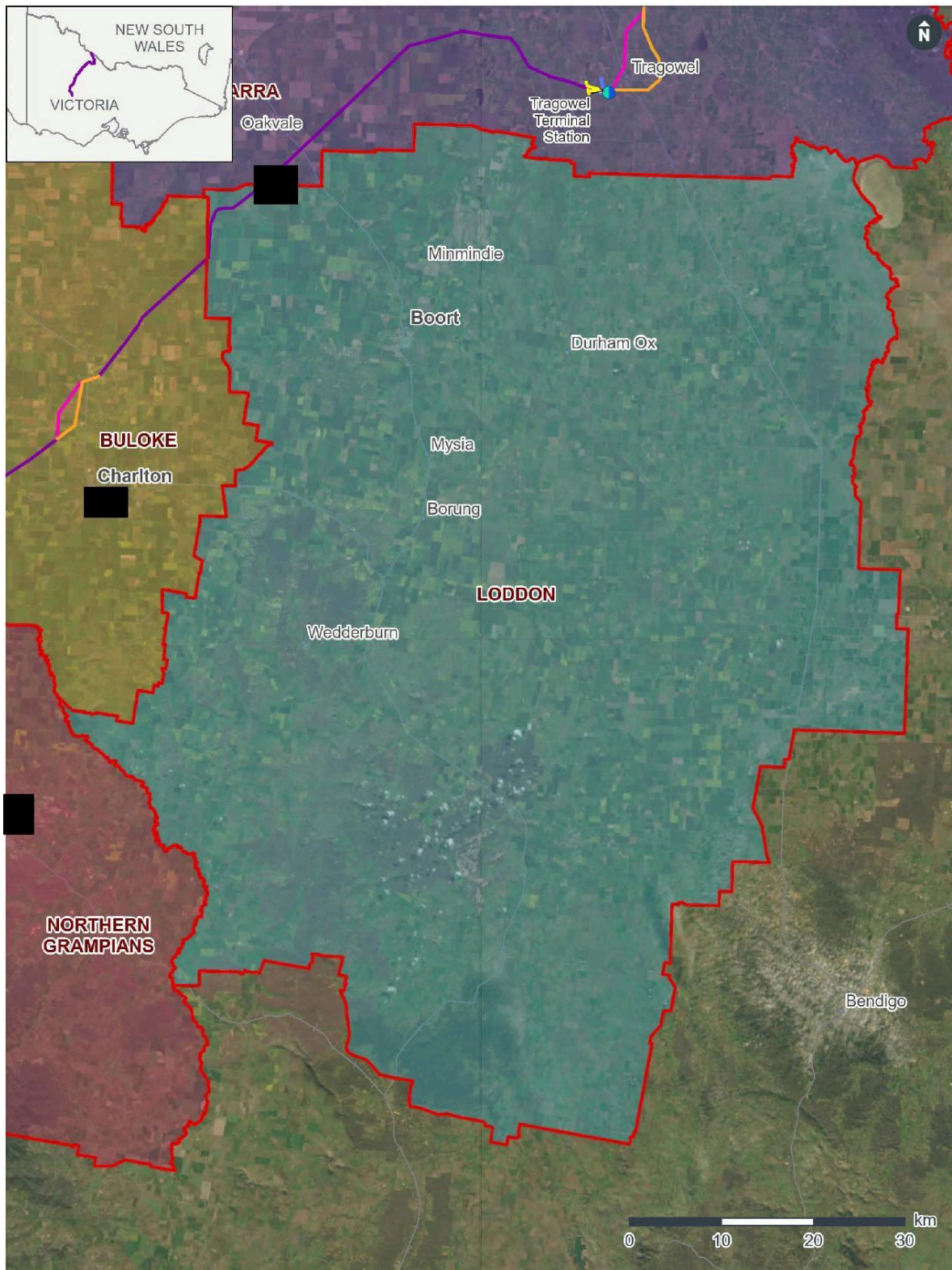


Figure 20-1 Study area (four LGAs) and the Proposed Easement (1/4)



LEGEND

- | | | |
|--|--|--|
| — Proposed Easement | Study Area | Buloke Shire |
| — Proposed Easement Option | Combined Laydown Area and Workforce Accommodation Site | Gannawarra Shire |
| — Proposed Easement Option | Laydown Area | Loddon Shire |
| — Proposed 220kV Easement | | Northern Grampians Shire |

Figure 20-2 Study area (four LGAs) and the Proposed Easement (2/4)

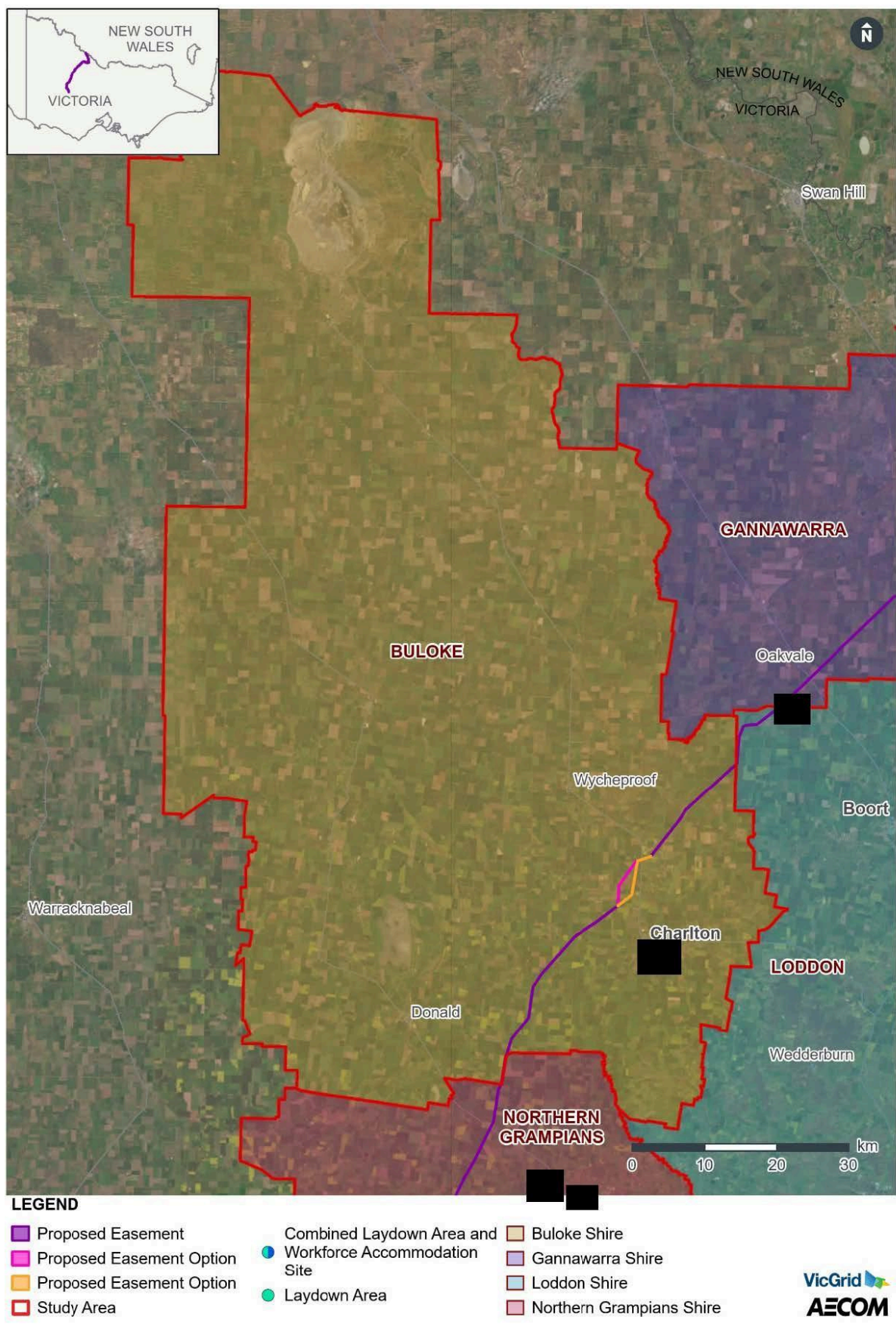
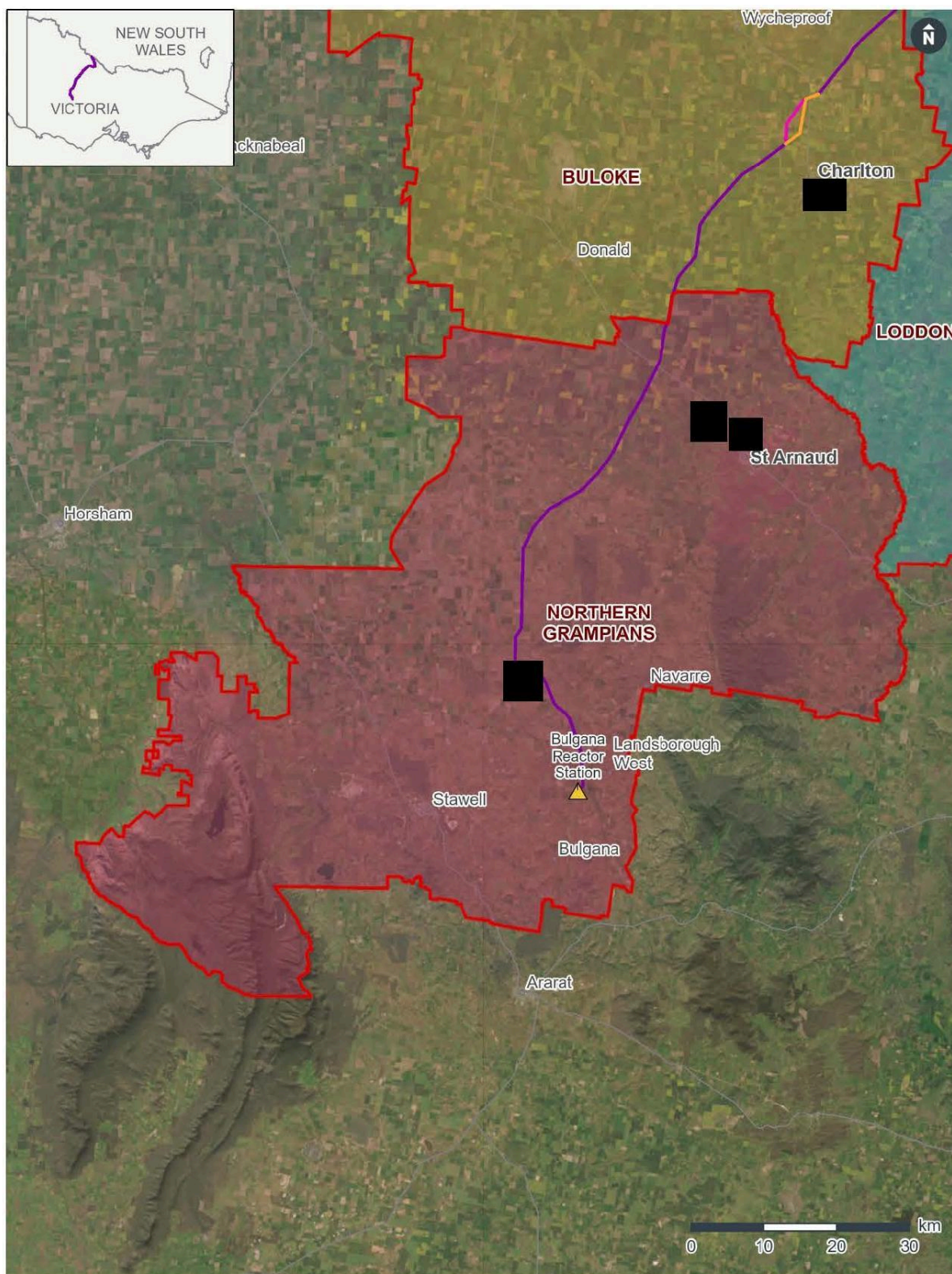


Figure 20-3 Study area (four LGAs) and the Proposed Easement (3/4)



LEGEND

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|--|--|--|
| — Proposed Easement | ● Combined Laydown Area and Workforce Accommodation Site | Buloke Shire |
| — Proposed Easement Option | ● Laydown Area | Loddon Shire |
| — Proposed Easement Option | | Northern Grampians Shire |
| — Study Area | | |



Figure 20-4 Study area (four LGAs) and the Proposed Easement (4/4)



Figure 20-5 Project area and Proposed Easement

20.6 Existing environment

This section describes the existing conditions within the study area as they relate to the agriculture impact assessment.

The existing conditions assessment included:

- An overview of agricultural soils, land use, climate and irrigation activities within the study area
- Review of the agricultural production and value in the study area
- Collation of baseline and background ABS, statistical data on agricultural land use and production data for the study area
- Review of industry and other published data
- Desktop spatial analysis confirming land use and irrigation infrastructure
- Obtaining advice and information from Agriculture Victoria; Goulburn Murray Water, and DEECA
- Fieldwork and ground-truthing from public areas incorporating a roadside inspection at key locations within the study area in (November 2023 and March 2025), with a concentrated field inspection of the Proposed Easement along adjacent roadways conducted on 7th, 8th and 9th October 2024
- Site visits and interviews with representative landholders (December 2024 to March 2025)
- Observations made during regular transiting through the study area, and across the Proposed Easement to attend a range of VNI West consultation meetings (November 2023 to March 2025)
- Direct inputs from landholders provided at various community sessions

20.6.1 Climate, irrigation, soils and agricultural land uses

The type of agricultural land use in a certain area is influenced by soil type, climate, topography and the availability of irrigation water.

Dryland cropping and grazing land uses are more likely in areas with moderate temperatures and consistent rainfall as these conditions are ideal for maintaining soil moisture and supporting reliable crop growth. In contrast, irrigated cropping and grazing are more likely in drier climates where limited natural rainfall is supplemented with artificial water supply to sustain crops and maintain productivity.



Key definitions

Dryland cropping and grazing is a form of agriculture that relies solely on natural rainfall rather than irrigation. It typically involves growing broadacre crops such as wheat, barley and canola, alongside grazing livestock such as sheep or cattle on rain-fed pastures.

Irrigated cropping and grazing is a form of agriculture where water is supplied through irrigation systems to support crop production and pasture growth in addition to natural rainfall.

Across the study area, annual rainfall ranges from 300–500 mm increasing from the north to south. Average temperatures exhibit an opposite trend, with consistently warmer conditions in the north compared to the south.

The average maximum temperature at Bulgana (Figure 20-5) is 29 degrees Celsius, with minimum averages of 4 degrees Celsius. At Kerang (Figure 20-5), the average maximum temperature is higher (33 degrees Celsius), with similar minimum averages, to Bulgana, (4 degrees Celsius).

While agricultural land use is influenced by soil, climate and seasonal conditions, the types of uses found in the study area are also determined by a range of factors including landholders' preference, availability of irrigation water, market trends, management decisions and available skills and expertise. Due to the varied conditions in the study area, the distribution of agricultural land uses in the study area varies widely between LGAs.

Irrigation supply can be a key factor in maximising the productivity of farmland, especially farmland with poorer soils and low rainfall in parts of the Gannawarra, Loddon and Buloke LGAs.

The following section provides an overview of the agricultural capability of soils and current land use occurring within each LGA.

Gannawarra LGA

Gannawarra covers a total area of 356,894 hectares (ha) with 223,085 ha being farmed. More than half of this area (114,840 ha) is dedicated to winter cropping dominated by barley, wheat, pulses and canola. Approximately 36% of the 240 km Proposed Easement is located in Gannawarra LGA.

In Gannawarra LGA, the combination of low rainfall and clay soils that are poorly drained and often saline, means the land has limited productive capacity without irrigation. This lack of rainfall is supplemented on some landholdings by irrigation water supplied from the Goulburn, Murray and Loddon Rivers, and is supplied via the Goulburn Murray Water (GMW) network of channels throughout the declared irrigation district, known as the Goulburn-Murray Irrigation District (GMID).

Water availability for irrigators has fallen by approximately 25% since 2008 because of the implementation of the Murray Darling Basin (MDB) Plan. This 25% reduction² in available water annually has led to a number of once irrigated farms, including farms within the Proposed Easement, no longer being irrigated or opportunistically irrigated, thus reducing farm production per hectare in these relatively low rainfall areas. The reduction in the volume of water available has also limited the opportunity to increase irrigation intensity or to install new irrigation developments.

The Murray Darling Basin Plan (MDP) – The MDB Plan was enacted through the *Water Act* in 2012 with significant water recovery for environmental projects having commenced some years earlier. By the end of 2023 the recovery of water away from consumptive uses for environmental purposes was significant.

Dryland farmland within the Proposed Easement in Gannawarra is broadly classified as medium-low agricultural capability³.

Loddon LGA

The Loddon LGA covers a total area of 619,236 ha with 450,102 ha being farmed. Annual rainfall in Loddon LGA is similar to Gannawarra LGA. Soils are mainly red sodosols. Approximately 5% of the 240 km Proposed Easement is located in Loddon LGA.

² [Progress on water recovery | Murray–Darling Basin Authority](#)

³ Agricultural capability is determined primarily according to the land's ability to sustainably support a particular type and intensity of use. A system of land classification based on integrating data on climate, landform, geological or parent materials, soils and land has been developed by DNRE 2002, Land resource assessment for the North East CMA Region, Department of Natural Resources & Environment, Victoria. Further details of the classification are provided in *Technical Appendix M: Agriculture* (Section 6).

Agricultural land use varies widely in the Loddon LGA with a combination of irrigation and dryland cropping dominating the agricultural land use in the shire. The distribution of agricultural land use types reflects an overlap with the GMID in the northern half of the shire where there is a concentration of irrigated pastures, before transitioning slowly to dryland cropping in the south.

Dryland farmland within the Proposed Easement in Loddon LGA is broadly classified as medium agricultural capability.

Buloke LGA

Buloke covers a total area of 806,942 ha of which 668,242 ha is being farmed. Approximately 23% of the 240 km Proposed Easement is located in Buloke LGA.

Dryland cropping is the predominant land use in the Buloke LGA. Agricultural production can be limited by the dry and saline, sodosol soils (soils with a high concentration of sodium) which are present in parts of the study area. These soils have hard-setting surfaces which reduces penetration of moisture and have high sodicity. However, much of the soils in the LGA can be moderately productive because they are medium textured rather than heavy clays, with reasonable structure, water retention and fertility. A small proportion of the LGA near the boundary with the Loddon LGA and near Glenloth West forms the westernmost arm of the GMID where there are a few properties that are irrigated cropping.

Dryland farmland within the Proposed Easement in Buloke LGA is broadly classified as medium agricultural capability.

Northern Grampians LGA

Northern Grampians covers a total area of 573,000 ha with 344,027 ha being farmed. Approximately 32% of the 240 km Proposed Easement is located in Northern Grampians LGA.

In the Northern Grampians LGA, dryland cropping and grazing is the dominant agricultural land use type. Cropping is the predominant land use in the northern section of the LGA reflective of the higher soil quality.

This transitions to mixed farming or livestock grazing in the south because soils in the south of the LGA can get waterlogged, their aggregates readily disperse, and when dry, can have hard-setting surface horizons which are not ideal conditions for cropping. These constraints can limit the land's overall agricultural potential. Desktop analysis indicates that there are no irrigated properties or land parcels with an active water licence within this section of the Proposed Easement.

Dryland farmland within the Proposed Easement in Northern Grampians is broadly classified as medium agricultural capability.

Further details of soils in each of the LGAs in the Project area can be found in *Technical Appendix M: Agriculture* (Section 6).

20.6.2 Agriculture in the study area

The study area provides a significant contribution to overall agricultural productivity in Victoria, representing more than 14% of the state's total area of land (in hectares) used for agriculture.

As shown in Table 20-3, land use is dominated by cropping (59%), followed by pastures for livestock, mainly sheep and lambs (38%), and dairy (3%).

Table 20-3 Agricultural land use and production in the study area versus state of Victoria (2020 – 2021)⁴

Agricultural activity type	Land use in the study area (hectares & percentage)	Land use in the study area as a percentage of the state of Victoria	Agricultural production in study area (tonnes)	Agricultural production in study area as a percentage of the state of Victoria
Cropping	914,855 (59%)	19%		
Cereal crops	645,334 (41%)	25%	1.8 million	23%
Broadacre crops (excluding cereal crops)	269,521 (17%)	23%	0.43 million	20%
Hay and silage	135,610 (9%)	13%	0.5 million	35%
Grazing mainly sheep and lambs with small amount of cattle)	595,868 (38%)	10%	1.8 million	18%
Dairy	51241 (3%)	6%	0.06 million	2%
Total	1,561,964	14%		

Cropping, grazing and dairy (Figure 20-6) are a significant contributor to the economy in the study area. In the 2020-21 financial year, the total estimated value of agricultural activity for these three agricultural activities in the study area was \$1.1 billion. This equates to more than 10% of the state's total estimated agricultural output value of \$9.7 billion (Table 20-4).

Irrigated cropping and grazing are more prevalent in the northern portion of the study area (within the GMID). Dryland cropping and grazing are more prevalent in the south of the study area. Dairy farming is limited to areas with access to irrigation water supply. In the case of both cropping and non-dairy grazing systems, irrigation water can be used, where available, to improve crop yields and pasture growth for livestock grazing.

Table 20-4 Agricultural activity (\$ total EVAO) in the study area in relation to Victoria (2020-2021)

Enterprise type	Study area (%)	Victoria (%)	Study area as a percentage of Victoria
Cropping (grains)	\$700,978,191 (65%)	\$2,640,478,963 (27%)	27%

⁴ The Agricultural impact assessment relied on 2020-21 ABS data due to this data set being the only available statistical data set that covered all relevant agricultural land uses/industries with statewide and Study area coverage at an appropriate scale. While there have been more recent releases (2022-23 and 2023-24) of statistical data for some broadacre (livestock, cropping) commodities, these data sets do not cover all relevant commodities for the Proposed Easement and are not available at a useable geographical scale to support the analysis. These production figures are considered representative because farms in the study area in 2020 and 2021 had average or above average growing season rainfall. The value of agricultural output is based on a three-year weighted average of commodity prices.

Enterprise type	Study area (%)	Victoria (%)	Study area as a percentage of Victoria
Livestock grazing (beef, sheep)	\$279,578,558 (25%)	\$4,393,893,306 (45%)	6%
Dairy	\$104,340,882 (10%)	\$2,686,102,281 (28%)	4%
Total	\$1,084,897,631	\$9,720,474,550	11%



Figure 20-6 Image of grazing typical of the study area

20.6.3 Agriculture in the Project area

The existing conditions assessment considered the agricultural activities in the Project area. The Project area includes the Proposed Easement plus all of the other Project activities such as the laydown areas, workforce accommodation areas, the Tragowel Terminal Station and Bulgana Reactor Station.

Agricultural production in the Project area is dominated by the same three key agricultural activities as the Study area:

- **Cropping (dryland/irrigated):** Winter cereal, legume and oilseed cropping dominated by the growing of barley and wheat
- **Grazing (dryland/irrigated):** Livestock grazing, particularly at the (higher rainfall) southern end of the Project area
- **Dairy:** Irrigated dairy farming

There are 209⁵ agricultural properties or landholdings within the Project area engaged in broadacre cropping, livestock grazing, or dairy production, or a combination of these activities (Table 20-4). Engagement with landholders and a series of site inspections of farming land within the Project area informed an estimate of the number and type of farm businesses impacted by the Project and their predominant agricultural use. Impacts to other non-agricultural businesses in the Project area are assessed in *Technical Appendix O: Business and economics*.

A summary of the number of properties by agricultural activity type and an estimate of the total area of those properties impacted is presented in Table 20-5.

Table 20-5 Agricultural activity within the Project area (including the Proposed Easement) in relation to the study area

Agricultural activity type	Number of properties	Total area of properties impacted (ha)	Total area of land use in the study area (ha)	Area of properties as a percentage of study area
Cropping	142	144,924	914,855	16%
Grazing	64	22,358	595,868	4%
Dairy	3	642	51,241	1%
Total	209	167,924	1,561,964	11%

Figure 20-7 presents the distribution of agricultural activity in the Project area.

⁵ This count may differ from property numbers used for engagement and access planning, which are managed separately and may reflect multiple route options.

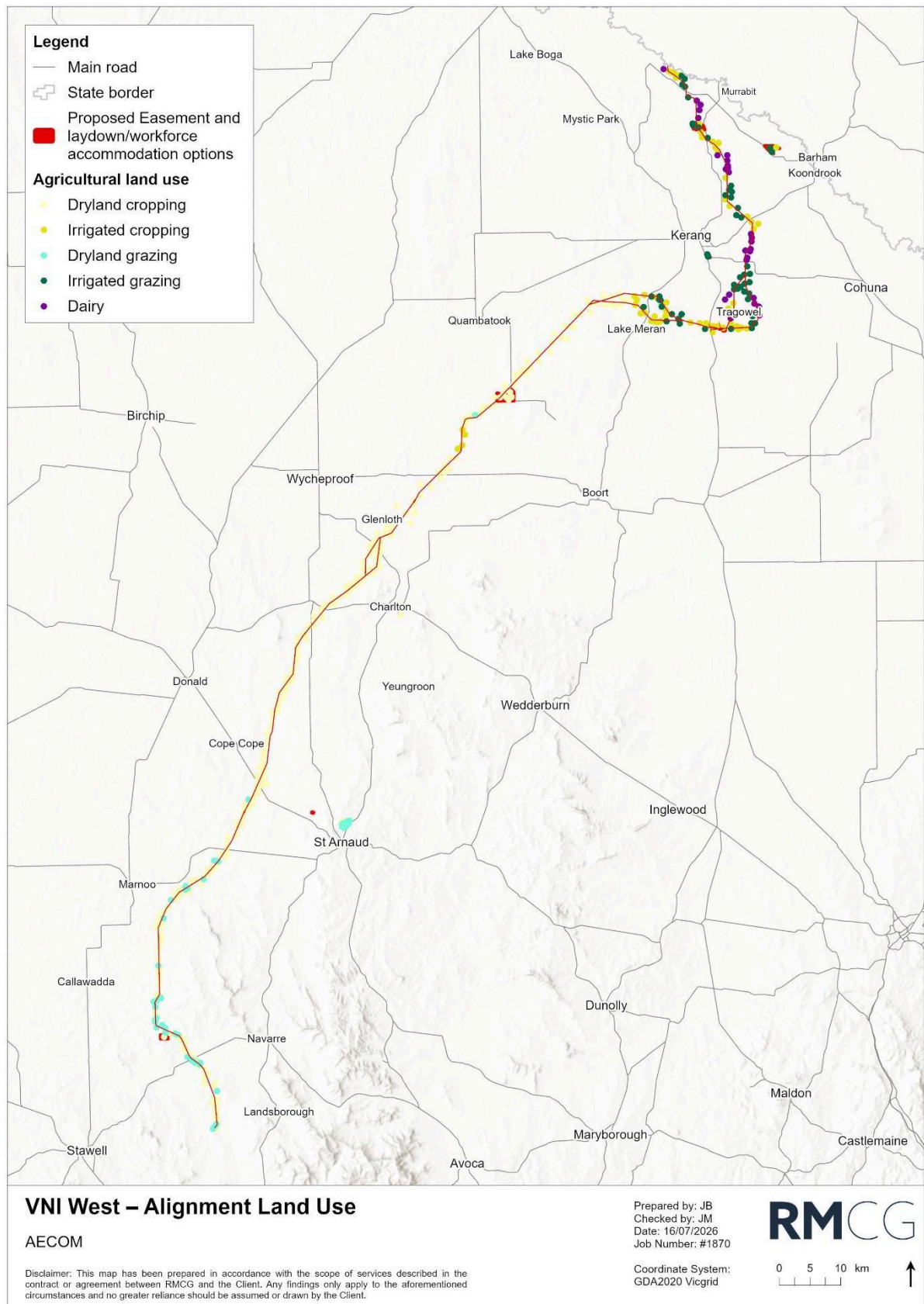


Figure 20-7 Geographic distribution of agricultural activity in the Project area



Sowing is the agricultural process of planting seeds into the soil to establish crops or pastures.

Fertilising is the agricultural practice of applying nutrients to soil or plants to support crop and pasture growth

Aerial spraying is an agricultural practice where crop protection products, such as herbicides, insecticides or fungicides, are applied from an aircraft or drone.

Harvesting is the agricultural process of collecting mature crops from the field for use as food, livestock feed, seed or other agricultural products. It typically involves the use of specialised machinery, such as combine harvesters, to collect crops including wheat, barley, canola and legumes.

The following is a discussion of the three main agricultural activities to provide context as to how these may be impacted by the Project.

Cropping

Cropping is the predominant agricultural activity in the Project area (and the wider study area) and is defined as any agricultural activity that practises broadacre dryland or irrigated cropping, i.e., not horticulture crops. The main crops are cereals, oil seeds and legumes as well as hay and silage. Irrigated cropping is typically more productive than dryland cropping because water availability supports higher and more reliable yields.

A range of specialist equipment is used to sow, fertilise, spray and harvest crops. Aerial spraying of crops for disease and weed control is common for cropping activities.

The main activities on a cropping property include sowing winter crops in autumn and summer crops (irrigated) in springtime/early summer, spraying/fertilising throughout winter and spring and harvesting in spring and summer. The timing of these three key cropping activities is critical to the productivity and profitability of a cropping activity.

The key sensitivities for a cropping property are time of sowing, spraying, and harvesting, ability to use high efficiency equipment and ability to use aerial spraying when ground access is limited.

Grazing

Refers to any agricultural activity that is solely based on grazing livestock, such as sheep and cattle. These properties are only used for grazing livestock for meat or fibre production (e.g., wool, lamb, beef) and breeding (e.g., stud stock). Most grazing enterprises are located along the southern part of the Project area extending southwards from near St Arnaud, Marnoo, Callawadda, Navarre to Joel Joel.

Infrastructure required for grazing enterprises includes pastures, fencing, access tracks and laneways, stock yards and loading ramps for sheep and/or cattle, hay sheds and shearing sheds. Tractors, sowing equipment, fertiliser spreaders and boom sprays (spray boom attached to farm machinery) for chemical application may also be used.

Key sensitivities for a grazing property include timing of lambing and calving and having access to pastures, shelter and infrastructure at critical times such as during lambing, calving, severe weather, shearing, drenching, and vaccinating.

Dairying

Refers to an agricultural activity that grows irrigated pasture and/or fodder crops to support milk production. Fodder refers to plant material grown, harvested or stored as feed for livestock. There are only three dairy operations identified along the Proposed Easement and therefore dairying represents only a small proportion of the total land use. These businesses are all within the GMID area of Gannawarra LGA.

Infrastructure required for dairy enterprises includes pastures, fencing, access tracks and laneways, stock yards and loading ramps, general shedding, calf rearing facilities, feed pads, feed storage areas and milking sheds, as well as irrigation infrastructure.

The key sensitivities for a dairying activity are time of sowing, spraying, and harvesting, limiting disruption of breeding animals pre and post calving, having daily access to the dairy and feeding areas and having access to irrigation infrastructure from August to May.

Other agricultural uses

Other agricultural activities in the Project area were identified through desktop assessment but upon ground-truthing were identified as not current. For the purposes of this assessment, these land uses were classified as follows:

- Horse farming (0.39 ha) – classified as irrigated grazing
- Vegetable growing (0.01 ha) – classified as irrigated cropping
- Non-native animals (9.95 ha) – reclassified as dryland cropping

There is one pig farming property within the Project area, however the specific footprint of the Proposed Easement was deliberately aligned to avoid pig production infrastructure (sheds, silos etc) so that pig production would not be impacted directly. The land parcels impacted had a water licence, so were reclassified to irrigated cropping given the land could be used to grow crops to support pig production, as follows:

- Pig farming (12.71 ha) – reclassified to irrigated cropping

Many properties in the Project area are involved in multiple agricultural activities. For the existing conditions assessment, the predominant agricultural activity on each property that might be affected by the Project was identified and the property was assigned to that category.

20.7 Construction impact assessment

The following sections describe the impacts to agriculture during construction of the Project. The area of land impacted during construction is the Project area, that is, all areas of land which would be excluded from agricultural use over the construction period (the 240 km long, 70 m wide Proposed Easement, laydown and/or workforce accommodation areas, Tragowel Terminal Station, Bulgana Reactor Station and temporary hard stands for wire stringing).

The total impacted area has been estimated at 3,551 ha over 209 farm properties. The majority of the impacted area (3,085 ha) is due to the Proposed Easement footprint and the associated isolated irrigation bay land which would result from the Proposed Easement. A summary of the number of properties and areas impacted is provided in Table 20-6.

This table shows that the majority of properties impacted (34%) are cropping (dryland) farms with the second most impacted being the cropping (irrigated) farms (27%).

Table 20-6 Summary of number of properties and areas impacted by construction of the Project sorted by agricultural activity

Agricultural activity	Number of properties	Area directly affected by the Project (ha)	% by agricultural activity type
Cropping			
Dryland	132	1,205	34%
Irrigated	10	975	27%
Grazing			
Dryland	19	189	5%
Irrigated	46	694	20%
Dairy			
Irrigated	2	488	14%
Total	209	3,551	100%

The following sections discuss the potential impacts to these properties in terms of:

- Agricultural production loss
- Disruption to farm activities
- Isolation and redundancy of farmland
- Biosecurity breach
- Other impacts (soil damage and contamination of soils and or water)

20.7.1 Agricultural production loss

During construction, some removal of land from production, both temporary and long-term, cannot be avoided. Production and economic losses associated with this loss of land are of significant concern to the agricultural community in the Project area. Economic losses would be experienced through loss of land, reduced production, or farming inefficiencies caused by the Project.

Construction may lead to loss of access to land, along and adjacent to, the Proposed Easement and within the wider Project area, interference with optimal timing for stock breeding, crop sowing or harvest, or clearance of land that reduces pasture for stock grazing or reduces crop area and yield.

Impact

The 240 km of transmission line is estimated to take approximately 3.5 years to construct. However, construction duration on individual properties would be much shorter and would vary depending on the length of transmission line and the number of towers on any given property. Construction activities have the potential to result in agricultural production losses during periods of intermittent occupancy of land.

Specific construction activities may include:

- Movement of people, vehicles and equipment
- Surveying and pegging including aerial inspections (helicopter, drone or plane)
- Line clearance and removal of vegetation and infrastructure (such as fences)
- Fencing and creating exclusion areas where required by the works, or reasonably requested by a landowner (usually related to livestock management)
- Track and drainage construction
- Construction of tower foundations
- Construction and installation of towers
- Stringing of transmission lines and joining of conductors
- Removal of temporary infrastructure, including access tracks, temporary fences, temporary gateways and laydown areas
- Rehabilitation of soil, pasture (resowing and reversing any compaction as required) and crops

Following liaison with landholders, some construction areas may be fenced to ensure the safety of the public, farm workers and livestock is maintained. Access tracks may be fenced off or may remain unfenced for shared use with the landowner, according to safety requirements and the agricultural needs at each particular site.

For any one agricultural property, construction can take place over a few weeks or months, and then rehabilitation and re-establishment of pasture and crops can take from one to two further years. Different enterprises, in different geographic locations along the Proposed Easement would require different lengths of time to re-establish production to normal levels.

Cropping operations and some pasture could be re-established in one year, depending on timing of sowing windows and seasonal conditions. In low rainfall, dryland conditions, re-establishing pasture to full production could take longer (up to two years, depending on seasonal conditions).

Farm production losses would be experienced with any loss of land, reduced production or farming inefficiencies caused by the Project. Construction may lead to loss of access to land along and adjacent to the Proposed Easement; untimely scheduling which interferes with optimal timing for stock breeding, crop sowing or harvest; or clearance of land that reduces pasture for stock grazing or reduces crop area and yield. Dealing with construction and access issues can also impact on landholder's productive time, through the need to move stock, alter optimal schedules or make additional movements of machinery and infrastructure.

Calculating impact by LGA

In order to estimate the impact of agricultural production loss in the Project area relative to the study area, it was assumed that some farms would experience only one major disruption over consecutive weeks or months while others, depending on timing of activities, may experience several disruptions over one or more calendar seasons. The overall assessment of production loss assumed landholders would lose access to land in the Project area for the equivalent of one entire year when in practice, this could occur incrementally over the 3.5 year construction period and depending on timing many farms would maintain partial or full operation between work stages. Some farms would experience less production loss than the full year and others could experience more, depending on the construction sequence.

The significance of potential agricultural production loss was assessed by comparing the potential loss of production in each LGA to the total production for the study area and the state of Victoria.

The potential agricultural production loss of broadacre grains production (in tonnes) for each LGA during the construction period, is shown in Table 20-7 and Table 20-8. The potential loss in grains production is small relative to the annual grain production of each LGA, the study area and in the state of Victoria. In addition, the natural variation in grain production between seasons is substantially greater than the potential loss attributable to the Project.

Table 20-7 Potential loss of grain production in the study area by LGA

Local Government Area	Cropping area affected (ha)	Cereals (t)	Oils seeds (t)	Pulses and legumes (t)	All broadacre crops (t)
Gannawarra	1,187	2,361	77	135	2,572
Loddon	77	197	20	4	221
Buloke	401	873	64	66	1,003
Northern Grampians	517	1,250	171	110	1,531
Total	2,182	4,680	332	315	5,327

Table 20-8 Potential loss of grain production in comparison with the study area and Victoria

Local Government Area	Estimated loss of grain production from all broadacre crops (t)	Study area broadacre crop production (t)	As a percentage of each LGA in study area
Gannawarra	2,572	245,610	1.0%
Loddon	221	515,792	0.04%
Buloke	1,003	1,091,547	0.1%
Northern Grampians	1,531	380,174	0.4%
Total	5,327	2,233,123	0.2%

Technical Appendix M: Agriculture has not quantified the potential impact of the Project on the number of livestock units during the construction phase of the Project. Providing the EPRs outlined in Section 20.11 are implemented it is not expected that the Project activities would lead to a reduction in the number of dairy cows, beef cattle or sheep on farms within the study area. It is expected farmers would purchase additional feed during times when Project activities restrict access to usual grazing areas.

The direct impact of one full year of potentially lost agricultural production in the Project area was calculated by:

- Identifying the areas impacted during each phase of the Project for each land use (grazing, cropping and dairy)
- Calculating the average farmgate value of agricultural activity or output per hectare for each of the five agricultural land uses (that is, dairy, cropping (dryland/irrigated) and grazing (dryland/irrigated)) in each LGA using the Estimated Value of Agricultural Operation (EVAO) and Area of Holdings (AOH) data sets
- Calculating the loss of production, as a result of the Project, for each agricultural land use in each LGA
- Assessing the significance of the Project impact in comparison to total production from the relevant agricultural activity for the study area and the state of Victoria

The annual value of potentially lost agricultural production, broken down by LGA, is summarised in Table 20-9.

Estimated Value Agricultural Operation (EVAO) is an ABS construct used to estimate the relative size of agricultural activity undertaken by a business (at the property level) for each agricultural industry classification. Three year weighted average prices are applied to livestock product sales and livestock numbers on each farm, and the area and production data for crops. A three-year weighted average is used to minimise the effects of other large movements in commodity prices and seasonal conditions which may unduly influence a business level EVAO. All values and prices are in nominal terms unless stated otherwise.

The most recent comprehensive EVAO data available is from 2020–2021 and this has been used in the impact assessment.

Area of Holdings (AOH) is a data set which refers to the total area of land or property (hectares) an individual or entity holds.

Table 20-9 The annual value of potentially lost agricultural production by LGA

Local Government Area (Number of properties)	Project area directly impacted (ha)	Estimated loss of production due to Project (\$)	LGA agricultural activity (\$) EVAO total	Estimated loss of production due to Project as % of LGA EVAO total
Gannawarra (76)	2,369	\$1,983,049	\$178,195,377	1.1%
Loddon (7)	79	\$68,116	\$291,763,600	0.02%

Local Government Area (Number of properties)	Project area directly impacted (ha)	Estimated loss of production due to Project (\$)	LGA agricultural activity (\$) EVAO total	Estimated loss of production due to Project as % of LGA EVAO total
Buloke (49)	401	\$227,951	\$360,863,419	0.1%
Northern Grampians (76)	702	\$493,847	\$254,075,235	0.2%
Total	3,551	\$2,772,963	\$1,084,897,631	0.3%

Gannawarra

The majority of the land impacted by the Project is in the Gannawarra LGA, affecting a mix of four of the five agricultural land uses across 76 properties:

- Cropping (dryland) – 239 ha (10% of the total impacted land in Gannawarra LGA)
- Cropping (irrigated) – 948 ha (40% of the total impacted land in Gannawarra LGA)
- Grazing (irrigated) – 694 ha (~29⁶% of the total impacted land in Gannawarra LGA)
- Dairy (all irrigated) – 488 ha (~21% of the total impacted land in Gannawarra LGA).

The estimated loss of production in Gannawarra LGA is approximately \$2 million out of a total of approximately \$178 million EVAO in Gannawarra LGA. This equates to approximately 1.1% loss of EVAO from Gannawarra LGA.

Loddon

The comparatively small land area impacted in the Loddon LGA is expected to occur on seven properties, affecting a mix of three of the five agricultural land uses:

- Cropping (dryland) – 50 ha (~63% of the total impacted land in Loddon LGA)
- Cropping (irrigated) – 27 ha (~34% of the impacted land in Loddon LGA)
- Grazing (dryland) – 3 ha (~4% of impacted land in Loddon LGA)

The estimated loss of production in Loddon LGA is approximately \$68,000 out of a total of approximately \$292 million EVAO in Loddon LGA. This equates to a 0.02% loss of EVAO from Loddon LGA.

Buloke

The land area impacted in the Buloke LGA is expected to occur on 49 properties affecting two agricultural land uses:

- Cropping (dryland) – 400 ha (99% of the total impacted land in Buloke LGA)
- Cropping (irrigated) – 1 hectare (1% of the total impacted land in Buloke LGA)

The estimated loss of production in Buloke LGA is approximately \$228,000 out of a total of approximately \$361 million EVAO in Buloke LGA. This equates to a 0.1% loss of EVAO from Buloke LGA.

Northern Grampians

The land area impacted in the Northern Grampians LGA is expected to occur on 76 properties, affecting two agricultural land uses:

- Grazing (dryland) – 185 ha (~26% of the total impacted land in Northern Grampians LGA)
- Cropping (dryland) – 517 ha (~74% of the total impacted land in Northern Grampians LGA)

The estimated loss of production in Northern Grampians LGA is approximately \$494,000 out of a total of approximately \$254 million total EVAO in Northern Grampians LGA. This equates to a 0.2% loss of EVAO from Northern Grampians LGA.

⁶ ‘~’ indicates that percentages have been rounded up or down

The majority of the total loss (~\$2 million) is in Gannawarra LGA. The agricultural activity with the greatest proportional loss (expressed as a percentage of total EVAO in the study area: is dairy (0.7 %) and the largest absolute loss (in terms of total EVAO value (\$)) is cropping (\$1.4 million).

In summary the total estimated full year's loss of agricultural production on affected land in the Project area has a combined value of approximately \$2.77 million. This equates to approximately 0.3% of the total value of annual agricultural production (measured as EVAO (\$)) in the Study area.

By agricultural activity, the farm production loss was estimated to be:

- \$1.4 million for cropping (0.2% of total EVAO (\$) in the Study area)
- \$0.7 million for grazing (0.1% of total EVAO (\$) in the Study area)
- \$0.7 million for dairy (0.7% of total EVAO (\$) in the Study area).

The estimates of production loss assume that the affected land would be entirely excluded from production during the construction period which was assumed to be one full year's production loss across the entire Proposed Easement. Once the construction period ends, the majority of this land would return to productive use.

The estimates of production losses also include isolation and redundancy of farmland for check-bank irrigation bays traversed by the Proposed Easement during construction. Isolation and redundancy of farmland outside irrigation areas was assessed to be minor due to the capacity to micro-site towers to allow farm machinery access around towers. Potential impacts due to isolation and redundancy are further described in Section 20.7.3.

Scheduling of construction works could result in higher agricultural productivity losses to individual farms, therefore the EPRs discussed below include measures to schedule works so they align as conveniently as possible with farming operations.

While the type of impacts would be similar from one farm to another (e.g., areas excluded from production) their significance for an individual landholder would vary. For some they are likely to be minor, temporary and localised and easily managed, but it is also possible that there would be properties where any reduction in production or increase in costs may present a significant challenge to the farm business.

The detailed analysis of the production impacts on individual businesses would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

EPRs

There are a range of mitigating actions to reduce impacts of the Project. Remaining impacts would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

Design EPRs

Farm production impacts have been, and would continue to be, mitigated through Project design and ongoing liaison with landholders in relation to:

- Avoiding significant farm assets and infrastructure (e.g., overhead irrigators, homes, dams, shelterbelts, sheds, yards, feedlots, intensive animal shedding, water storage dams, irrigation infrastructure, main canals and channels)

- Responding to landholder requests to micro-site towers to reduce impacts on boom-spray operations
- Conductor heights that allow vehicles and equipment up to 5.0 m high to operate without restriction or the need for a safety assessment and up to 8.6 m with a safety assessment
- Minimising isolation and redundancy of productive land
- Minimising overlap of Proposed Easement and land under irrigation, workable location of towers within irrigated farms through consultation with landholder
- Increasing the distance between some transmission line towers, allowing the conductors to span significant agricultural assets wherever possible (irrigation areas, shelterbelts)
- Redesign of critical farm infrastructure to better suit farm conditions post-construction

Scheduling EPRs

Construction timelines and schedules would consider farm operations and attempt to avoid scheduling certain activities during sensitive periods of the year for agriculture. Providing landholders with adequate notice of construction activities to avoid the risk of farmers investing in crops or activities that would not reach the point of financial return before construction starts would also minimise financial losses.

Where farm irrigation infrastructure is impacted by construction, and where there is the expectation that this impact would continue during the operational phase, an irrigation infrastructure evaluation may be required. This farm specific evaluation would determine if adjustments to paddock layout, adjustments to current irrigation supply systems, or use of alternative irrigation layouts could significantly reduce potential production losses. Where feasible, compensation and/or support would be provided to farmers to relocate, adjust or replace irrigation supply systems and realign paddock irrigation layout.

Scheduling of construction would be discussed and agreed with landholders as part of the Property Management Plan (EPR-AG01).

Residual impact

Production loss would occur as a result of Project construction.

However, with effective implementation of design and schedule EPRs, the residual farm production impacts on agricultural activities would have a minor, short-term impact on some individuals but long-term viability is unlikely to be affected. The impact is negligible relative to the total economic footprint of agriculture in the study area in that it equates to approximately 0.3% of the total value of agricultural activity from cropping, grazing and dairy in the study area (~\$1.1 billion).

Remaining impacts would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

20.7.2 Disruption to farm activities and livestock

During the construction period (~3.5 years for the full construction of the transmission lines) normal farm activities in the Project area would be disrupted. Construction would create physical barriers to some farming activities where the use of temporary fences, construction machinery, and equipment restrict the movement and use of large farm machinery. Access tracks to work sites would also be created through productive agricultural land. There would be restrictions on the use of some large specialist farm machinery for cropping in and near construction areas for a period, and ongoing restrictions on the use of some aerial agricultural services.

Disruptions to livestock (dairy cows, sheep, cattle) would only be expected in paddocks immediately adjacent to the Proposed Easement, laydown and/or workforce accommodation areas or access tracks. Disruption is likely to be of short duration (totalling days to weeks) and intermittent, while construction works are actively occurring at the site. Construction works for tower assembly and transmission line stringing, would not be constant, with specialist crews following each other along the Proposed Easement doing specific jobs (clearing, site preparation, tower construction, conductor stringing, site rehabilitation, etc). As each work crew leaves a site (or property) there may be days, weeks, or possibly months of inactivity until the next crew arrives.

Impacts

Consultation with landholders confirmed that disruptions are of moderate to high concern to farmers. While some disruptions would be of short duration, some would persist for the life of the Project, including presence of permanent infrastructure such as towers and foundations; terminal stations; limitations on some aerial agricultural services; and restrictions or exclusions for certain irrigators⁷ and operation of some very large specialist farm machinery.

The types of disruption to farm activities during construction may include:

- Restriction on the supply of irrigation water to some paddocks (or sections of paddocks) traversed by the Proposed Easement during the construction phase
- Alternative routes required to get farm workers, farm machinery and stock from one side of the construction works to the other causing delays and inconvenience
- Alternative routes required for accessing stockyards, sheds, and other key farm infrastructure causing delays, inconvenience and distressed livestock
- Construction noise, dust and vibration affecting farming activities and livestock
- Restrictions on the use of some large specialist farm machinery and aerial agricultural services in and near construction areas
- Partial isolation of some areas of the farm or sections of paddocks (land is separated or restricted from surrounding areas, but some connections or access remain), making grazing and cropping operations less efficient
- Livestock may become distressed or anxious due to unusual activity, noise and disruption to routines and routes translating into:
 - Altered feeding patterns
 - Erratic behaviour
 - Accidental harm
 - Slower growth
 - Reduction in milk production
 - Danger to farmworkers from handling
 - Problematic birthing
 - Rejection or abandonment of lambs and calves by their mothers

⁷ Noting that large gun-style sprinkler irrigators that are not able to be used in easements were not observed to be in operation in the Project area.

- Making handling tasks more dangerous for farm workers (tasks such as vaccinating, shearing, pregnancy testing, loading).
- Placement of towers for the Project may interfere with controlled traffic farm layouts requiring affected farmers to re-map and realign wheel tracks

This assessment has not examined the potential impacts of the Project on the continued access to groundwater and surface water for irrigation, however, no restrictions on the supply of surface water or groundwater were identified. There was very little (if any) use of groundwater for irrigation observed in the Project area.

EPRs

The Project design EPRs identified in Section 20.7.1 also apply to these impacts.

Discussions with landholders would be held so that activities at an individual farm level are understood such that unnecessary disruptions or restrictions to farming activities can be avoided. These discussions would occur during the development of specific Property Management Plans (EPR-AG01) and would consider the following issues such that EPRs (outlined below) could be agreed upon:

- Micro-siting of individual towers on properties to minimise disruption in response to specific landholder requests
- Farm practices that must be discontinued or altered
- Timing of construction activities to avoid potentially disruptive periods such as sowing, harvesting, lambing or calving on livestock and dairy farms whenever practical.
- Principles for constructing temporary fences
- Effects on property infrastructure, machinery and equipment
- Effects on irrigation infrastructure and systems
- Other disruptions to the farm operation
- Biosecurity risk management (to prevent introduction or spread of weeds, pathogens and pests) including processes/plans
- A clear communications path to enable timely notification of issues between landholders and the Project team, particularly the construction contractor

Where consultation is not possible with a landholder, a standard PMP would be implemented.

Measures to mitigate impacts would include (but not be limited to):

- Temporary physical crossovers and other workarounds for maintaining access for livestock and for landholders to critical farm infrastructure
- Provision of temporary water supplies and distribution systems so that there are no disruptions to water supply for stock or other farm uses
- Temporary fences and gates where appropriate
- Temporary stock yards and loading facilities
- Early communication of impending construction activity, so that adequate time is given for sensitive livestock to be moved prior to works commencing
- Speed limits, giving way to livestock proper gate usage
- Helicopter use would be avoided or minimised over paddocks holding livestock

Ongoing communication with farmers in accordance with PMPs would be important to minimise disruption and to enable forward planning. Appropriate advance notification would be important for some landholders so that they do not invest in crops or activity that would not reach the point of financial return before construction starts.

Residual impact

Disruption of farming activities and livestock is likely to occur as a result of Project construction.

However, with the adequate implementation of the proposed EPRs, construction-related disruptions to agricultural activity would have a minor to medium residual impact. This rating is based on the linear, progressive nature of the construction: while disruption would, at times, be significant at specific locations during active works, it is expected to be localised to the immediate work area and short-term in duration as crews move along the alignment. At the individual property level, residual impacts would vary according to specific construction activities on each property, effectiveness of EPRs, and by activity type, property size and management practices.

Farm or farm business disruptions would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

20.7.3 Isolation and redundancy of farmland

The construction of towers and stringing of conductors may restrict movement and the use of large machinery. Fences, machinery, and equipment would create physical barriers. Access tracks to work sites would also be created through productive agricultural land.

These construction activities could result in portions of agricultural land being temporarily isolated or becoming unworkable. This issue of isolation and redundancy of productive land is a concern for some landholders, particularly for areas where significant investment in irrigation and other fixed agricultural infrastructure has been made.

Impacts

Restrictions on movement and creation of physical barriers may cause portions of land to be isolated and potentially unworkable.

There could be temporary isolation of irrigation land that goes beyond the Proposed Easement area. This would be the case if the alignment of the Proposed Easement ran perpendicular or across on an angle over a series of irrigation bays. In such circumstances the entire bay could be out of production for the construction period. If the alignment of the transmission line was in parallel with the irrigation bays, then there would be limited isolation of irrigation area outside of the Proposed Easement.



Pivot and lateral
move irrigators

Pivot and lateral move irrigators are mechanised irrigation systems used to distribute water across agricultural fields.

A pivot irrigator rotates around a fixed central point, moving in a circular pattern to irrigate a large area.

A lateral move irrigator travels across a field in a straight line, typically supplied with water through a pipe or channel system.

The likelihood of isolation of land area could be greater with the use of pivot or lateral move irrigators if the construction activities block their normal movement across the area irrigated. The alignment has avoided these types of irrigation infrastructure and therefore the impact of land isolation arising from restricted use of these types of irrigation infrastructure has not been assessed.

Construction activity specifically along the Proposed Easement may potentially prevent stock access to pasture, shelter, stockyards and watering points resulting in the need for alternative access.

Cropping involves the regular use of large machinery for soil preparation, fertilising, sowing, spraying for pests and weeds, and harvesting. This equipment generally requires all-weather access and timing of some operations can be critical. Large farm machinery requires space for safe operation and turning. Where construction activities may potentially restrict this access, alternatives would be identified.

EPRs

The Project design EPRs identified in Section 20.7.1 also apply to this impact.

Additional EPRs which apply to this impact are:

- Where possible, placing the Proposed Easement on paddock or property boundaries to avoid bisecting or diagonally crossing paddocks
- Siting towers to allow sufficient space to accommodate effective machinery movement
- Locating access tracks in collaboration with landholders
- Ensuring stock access to water and livestock handling facilities by having fenced stock crossing points at appropriate locations along the Proposed Easement
- Installation of temporary stock water options when required

Land isolation and redundancy impacts would be further mitigated during ongoing design and landholder engagement by micro-siting of towers, where practicable, by redesigning farm layouts and by irrigation system redesign.

Residual impacts

A certain amount of isolation of land is likely to occur as a result of Project construction.

However, with effective implementation of proposed EPRs, isolation and redundancy of productive land the residual impact would be minor to medium for irrigated properties during construction. The residual impact on dryland cropping would be minor.

As construction progresses along the Proposed Easement, many isolated areas would be reinstated, but some impacts may persist. Residual impacts would vary according to specific construction activities on each property, effectiveness of EPRs, the enterprise mix, property layout, irrigation layouts and management practices. Some impacts on cropping (machinery access) and dairy operations (irrigation layouts) would be temporary, and some would be long term (operational impact).

Losses due to land isolation, inaccessibility and redundancy during construction and rehabilitation would be considered as part of the compensation process under the *Land Acquisition and Compensation Act 1986*.

20.7.4 Biosecurity breach

Biosecurity is of significant concern to the agricultural industry and is strongly reflected in State policy and legislation, national animal traceability systems, and in standard farm management practices.

A biosecurity breach is a failure or violation of the measures put in place to prevent pests, diseases, or contaminants from entering the farm. In the context of the Project, a breach can be caused by actions like unintentionally bringing in restricted items or failing to comply with biosecurity protocols, for example, disregarding appropriate hygiene and disinfection practices.

The construction phase would involve accessing sections of agricultural land with personnel, vehicles, equipment and machinery to prepare sites, build access tracks, lay tower foundations, assemble and erect towers, and then rehabilitate soil and pasture. This would involve multiple construction teams working concurrently.

Movement of people and equipment has the potential to introduce or spread weeds, pests, fungi and diseases. These threats may be carried in water or soil that is attached to vehicles, shoes and/or equipment, or may be hidden inside packaging, equipment and vehicles.

Impacts

A biosecurity incursion can spread beyond property boundaries, depending on the particular weed, pest or pathogen. There can be major impacts on the individual property, but the consequences could extend beyond the property directly involved. There can be regional and industry-wide shutdowns, or state border closures, with impacts on both domestic and export industries.

Some disease outbreaks can result in large-scale culling of farmed and domesticated animals. The ability of an agricultural industry to access domestic and international markets for their products can be permanently compromised. The natural environment can also be severely degraded with flow-on impacts for native flora and fauna.

The impacts of biosecurity incursions can last for long periods (years or decades), and introductions are often difficult or impossible to reverse. New species can spread via soil, water, wind, and animal vectors, and can eventually affect large areas. Control and treatment options, if they exist, are often time-consuming and costly.

Biosecurity breaches can lead to impacts such as:

- Loss of pasture or crop productivity
- Increased treatment and control costs and time
- Ill-health or death of livestock
- Reduced production of meat, milk, crops and fodder
- Restriction on movement or sale of produce
- Breeding restrictions
- Reduced prices for produce

- Loss of export market contracts
- Weed invasions of remnant natural areas affecting biodiversity on the farm

There are particular biosecurity threats that are of current concern and relevance to the Project area. These are listed in detail in *Technical Appendix M: Agriculture* including relevant references.

In summary they include:

- Notifiable animal diseases present, or have been present in Australia
 - Ovine Johne's disease (OJD)
 - Anthrax⁸
- Notifiable emergency animal diseases not currently identified in Australia but do pose a risk in the future:
 - Lumpy skin disease
 - African Swine Fever
 - Foot and Mouth Disease
 - Equine influenza
- Pests such as:
 - Varroa mite
 - Fire ants
- Plant diseases such as:
 - Myrtle rust
 - *Phytophthora cinnamomi*
 - Grain, pulses and cereal diseases
- Invasive plant species that can have significant production impacts and costs associated with control:
 - State prohibited weeds
 - Regionally prohibited weeds
 - Regionally controlled weeds
 - Restricted weeds
 - Herbicide resistant weeds such as annual ryegrass

Depending on the species involved, the availability of vectors, the timing and volume of the pest, disease or weed, impacts can be localised and of limited duration or can spread to become regionally significant.

⁸ Technical Appendix M notes that it would be rare for this disease to occur in the Project area.

In order to meet industry standards, farms are required to keep biosecurity records (including records of people and stock moving onto and off the farm).

In the event of a serious uncontained biosecurity incursion, the consequences could be major because of the potential scale, magnitude and duration of the effects on farm production. Specifically emergency animal disease outbreaks may result in Government interventions, as indicated by the *Victorian Government State Emergency Animal Disease Response Plan* such as:

- Quarantine, movement restrictions and declared areas
- National livestock stand still
- Tracing and surveillance
- Destruction of animals
- Disposal and decontamination of contaminated items
- Vaccination (if required and approved)
- Vector (insect) control

EPRs

Prior to the commencement of construction, a Project-wide Biosecurity Management Plan (BMP) would be developed to industry standards, in consultation with agricultural specialists, landholders and Agriculture Victoria, to avoid and minimise impacts on biodiversity values, land use (including agriculture) and landholders. Key management measures to be included in this plan are:

- Scheduling of works to avoid periods of seed set for listed weeds
- Scheduling of works to avoid periods where disease may be more likely to spread if there has been a recent occurrence
- Procedures to move works from least weed infested areas to most infested areas
- Procedures to avoid wet or muddy areas where feasible
- All equipment and supplies would be thoroughly inspected before being taken to site
- Only equipment that is to be used during the activity would be taken to site
- Avoidance where possible of equipment or clothing that has been used in other states or territories
- Each vehicle to carry a biosecurity kit containing a hard brush, disinfectant, clean water, hand soap, handheld blower or air compressor, rubbish bags, bucket with lid suitable for footbaths, change of clothes, coveralls for entering cropped areas
- All vehicles, plant and equipment must have any visible soil removed and be washed down with a suitable sanitiser when they move from one property to the next (i.e., cleaned before entering each property and cleaned upon exit)
- Personnel must clean their footwear, removing any visible soil and using a footbath with a suitable sanitiser before entering each property
- Presence of animal diseases e.g. Ovine Johne's Disease or the bacterial infection causing footrot, and known herbicide resistant weeds should be recorded prior to work being undertaken
- Record keeping covering breach detection, incident management procedures and reporting, and compliance monitoring
- Records of vehicles, plant and equipment movement and treatment must be kept (e.g., washdowns), as well as people entering and leaving each property
- Following construction of access tracks, movement of vehicles and construction equipment onto and off farming properties would only occur within approved access corridors and along formed tracks. No vehicles or construction equipment would cross paddocks unless along formed tracks and within an approved access route
- Compliance monitoring would be undertaken regularly based on the risk of a biosecurity breach arising from the construction activity
- A process for monitoring of the Project area after construction activities have moved through would be conducted to identify and allow eradication of emerging weeds, pests, fungi or diseases
- A system for reporting issues identified, in conjunction with the PMP (EPR-AG01)

These requirements would apply to all company and contractor personnel, vehicles and equipment entering the site during Project construction.

Training would be provided to ensure personnel understand the requirements of the BMP and how to implement them.

Desktop and field audits would also be conducted to ensure compliance with the construction BMP.

The BMP would include strict compliance monitoring and reporting requirements, to identify and respond to outbreaks quickly.

Property-specific biosecurity issues and requirements would be covered under individual BMPs as part of the PMPs (EPR-AG01).

Residual impact

The likelihood of a biosecurity breach during construction would be significantly reduced through the implementation of and compliance with a BMP by the Principal Contractor.

However, the residual impact for this issue is considered to be medium to major because the impact can be widespread, long-lasting and have major effects on farm production, depending on the type of incursion. The application of the EPRs reduces the likelihood of a medium level biosecurity impact to possible and reduces the likelihood of a major biosecurity impact to rare.

20.7.5 Other construction phase impacts

Other potential, indirect impacts that Project construction may have on agriculture are:

- Soil damage
- Contamination of soils and/or water
- Impact of lost production on social and community well-being

Soil damage

Impact

Soil mixing, erosion, drilling, and compaction are interrelated impacts commonly associated with transmission line construction and can affect future crop yields. These may impact agricultural lands by increasing the mixing of soils, eroding topsoils during rain events, and compacting soils. Agricultural soils that have been improperly protected or mitigated may suffer decreased yields for several years after the construction of the transmission line is completed.

There are four ways in which soil can be impacted by construction:

- Soil contamination – importation of gravel potentially bringing in pollutants, weeds, pests or pathogens.
- Soil loss – disturbed and unprotected soil can potentially blow or wash off-site, creating sedimentation in waterways and smothering vegetation or crops. Due to the presence of sodic or dispersive subsoils, soil erosion potential increases once topsoil is removed and exposed to rainfall, in particular in the southern parts of the study area where there is more sloping terrain. Loss of topsoil, the most organically rich upper layer of soil, also reduces soil fertility and production.
- Loss of soil structure – poor soil reinstatement or profiling can lead to long term soil management problems, including subsidence.
- Dust – created by vehicles and machinery moving on dry tracks and surfaces. Dust can smother vegetation and crops, create health problems, and reduce amenity.

EPRs

These impacts on soil can be mitigated through good soil management practices during construction, through rehabilitation of sites where soil has been disturbed or moved, and through ongoing monitoring of these areas.

Through a Project CEMP, the Principal Contractor would be responsible for:

- Ensuring standard techniques for the retention and conservation of soils are used on each property
- Separation of topsoil from subsoil

- Stockpiling and protection of soils
- Track and site watering to minimise dust (using water tankers)
- Managing dust emissions
- Rehabilitation of construction areas, including the removal of foreign gravel and base materials, and reinstatement of the soil profile, particularly the topsoil

Post-construction monitoring in the Project area would be undertaken for early identification and management of regrowth problems, erosion, subsidence, compaction, and contamination. This monitoring may be undertaken by landholders as part of normal farming activities and reported to the transmission network service provider (TNSP) in accordance with the PMP.

Residual impact

With adequate implementation of proposed EPRs, residual impacts relating to soil issues are expected to be minor during construction. This conclusion is consistent with *Technical Appendix B: Geology and soils* which found that the residual impacts of construction are considered negligible if the EPRs proposed in that study in relation to dispersive soil erosion to surface water (EPR-C01 and EPR-C11) are implemented.

Contamination of soils and/or water

Impact

The Project construction phase would involve a range of vehicles, machinery and equipment on farm properties and at laydown and/or workforce accommodation areas, and these would utilise a variety of chemicals, lubricating materials, fuels and oils (and possibly herbicides).

Activities such as refuelling and weed spraying create the potential for contamination of soil, surface water and groundwater. Spills and incidents can lead to localised contamination, lost production and clean-up costs. Livestock accessing or consuming contaminants (either in storage or if spilled) can suffer health impacts, leading to illness, loss of condition, withholding periods for sale, or death.

Significance and duration of impacts are dependent on materials being used. With the volumes and types of chemicals anticipated for this Project, potential impacts are likely to be minor, localised and of short duration.

EPRs

Technical Appendix B: Geology and soils address the impacts noted above in relation to the potential of the Project to contaminate soils and surface waters. The assessment includes EPRs that address management, storage and use of chemicals, fuels and hazardous materials and leaks and spills during construction and operation (EPR-GS05).

Residual impact

With implementation of the proposed EPRs, the residual impact is negligible.

Impact of lost production on social and community well-being

Uncertainty with timing of construction activities and temporary farm production loss could result in well-being impacts on farmers and the community. These impacts would be more generally felt during the construction phase. The expected continuity of farming operations once construction is complete and the availability of compensation mechanisms could be considered to alleviate uncertainty and improve well-being over the long-term. These impacts are covered comprehensively in the *Technical Appendix Q: Social*.

20.7.6 Summary of options impact assessment

The assessment found that irrespective of the combination of Proposed Easement options, there was a minimal difference in impact on agricultural production because the Proposed Easement options were traversing similar agricultural land use types and covering a similar area (hectares of impact).

The differences were assessed as minor and in the order of a \$115,000 difference in estimated farm production loss between the highest and lowest impact route.

The lowest farm production impact route was assessed as:

- Tragowel western easement option Figure 20-1
- Teddywaddy western easement option Figure 20-2

This generally follows the shortest Proposed Easement route. Both the Tragowel western easement option and Teddywaddy western easement option are shorter than their counterparts, resulting in less impact to farm production.

20.7.7 Summary of residual construction impacts

A summary of the residual construction impacts, discussed in previous sections, following implementation of EPRs and associated EPRs is shown in Table 20-7.

Table 20-10 Residual impacts – Project construction

Impact	EPR	Residual impact consequence rating	Residual likelihood
Temporary agricultural land loss (3,551 ha)	EPR-AG01	Minor (individual property) A short-term financial loss to individuals that would be compensated. Minor (study area and state) 0.3% of total annual \$EVAO) in the study area	Almost certain
Disruption to farm cropping activities	EPR-AG01	Minor to medium The extent and duration of disruptions to cropping activity would differ between locations and properties but with mitigations in place, the residual impacts of the construction phase for most property owners would be relatively minor. Depending on timing of construction activities, more moderate impacts could be experienced on some properties hence the residual consequence may be medium.	Likely

Impact	EPR	Residual impact consequence rating	Residual likelihood
Disruption to livestock	EPR-AG01	Minor Animal disruption would be temporary and localised, providing mitigations are put in place.	Likely
Isolation and redundancy of dryland farmland	EPR-AG01	Minor Farm or farm business losses due to land isolation, inaccessibility and redundancy during construction and rehabilitation would be subject to financial compensation.	Likely
Isolation of irrigated land	EPR-AG01	Minor to medium Impacts from temporarily isolated irrigation bays would be expected to be larger than for dryland farmland and for most properties would be relatively minor. The residual consequence may be medium for some properties. Farm or farm business losses due to land isolation, inaccessibility and redundancy during construction and rehabilitation would be subject to financial compensation.	Almost certain
Biosecurity breach	EPR-AG02	Medium to major Some threat remains after mitigations, and in the event of a biosecurity breach the residual impact could be widespread, long-lasting and have major effects on production depending on the type of incursion.	Possible medium impact Rare major impact
Soil damage and rehabilitation	EPR-GS02	Minor Residual impacts relating to soil issues are expected to be minor during construction and site rehabilitation.	Possible
Contamination of soils or water	EPR-GS05	Negligible Residual impacts are minor and localised	Rare

20.8 Operational impact assessment

The following sections describe the potential impacts to agriculture during operation of the Project.

The key operational activities are the ongoing presence of the Proposed Easement with its electrical towers spaced approximately 300–500 m apart, along with overhead lines and selected access tracks, the Tragowel Terminal Station and Bulgana Reactor Station. These activities could either remove land from agricultural production or partially restrict its use during the Project's operational lifespan (50–100 years).

The remainder of the Proposed Easement, particularly the space between the towers, can still be used for farming activities such as grazing, dryland cropping, and most forms of irrigated agriculture provided that safety clearances are maintained and access for maintenance is not obstructed. In addition, the laydown and/or workforce accommodation areas could return to their pre-existing uses.

Permanent structures such as sheds, silos, or tall vegetation are typically not permitted within the Proposed Easement. Most farm machinery would be within the height restrictions and would be able to operate in the Proposed Easement without additional approval. Equipment up to 8.6 m may be able to operate subject to a safety assessment.

The adoption of aerial technologies and digital systems such as drone spraying, autonomous machinery, soil and weather sensors, and virtual fencing would require some consideration prior to their usage.

The Proposed Easement, with its associated restrictions, would remain in place for the duration of the Project. Following completion of the construction phase, it is expected that the access tracks on private property would be reinstated back to original condition (typically grazing or cropping land) unless the landholder requested the track to be retained permanently, or unless the tracks are required during operation of the Project. Maintenance crews would use access tracks to inspect each transmission tower or use aerial surveillance. Where this is required, access to these tracks would be negotiated and agreements made with landholders post-EES.

The total area that would be removed from agricultural production during the Project's operational life-span is approximately 52 ha. The number of properties and the area that would be impacted by operation of the Project is shown in Table 20-8.

Table 20-11 Number of properties and areas impacted by operation of the Project by agricultural activity

Agricultural activity	Number of properties	Area directly affected by the Project (ha)	% of total impacted area by agricultural activity
Cropping			
Dryland	132	25.1	48%
Irrigated	10	19.7	38%
Grazing			
Dryland	19	3.1	6%
Irrigated	46	2.4	5%
Dairy			
Irrigated	2	2.0	4%
Total	209	52.3	100% ⁹

Almost 90% of the impacted land is being used for broadacre cropping and the remainder is being grazed for livestock production or dairy farming. These ongoing impacts are spread over the same 209 farm properties as during the construction period.

20.8.1 Agricultural production loss

The total area that would be removed from agricultural production during the Project's operational life-span is approximately 52 ha. The impacted area is calculated based on the exact footprints of the towers, the Tragowel Terminal Station and the Bulgana Reactor Station.

⁹ Percentages have been rounded up

Impact

Approximately 38 ha would be removed from agricultural use beneath the tower footprints for the life-span of the Project. A further 13 ha for the Tragowel Terminal Station and 1.5 ha for the Bulgana Reactor Station would be removed for the life-span of these activities.

The agricultural production from this area is valued at \$50,000 per annum, across the 209 affected properties. This estimate of the annual farm production loss equates to approximately 0.1% of total value of agricultural activity (measured as \$EVAO) in the study area.

The majority of ongoing loss in agricultural activity would come from the broadacre cropping sector, comprising almost 80% of this annual loss.

EPRs

Impacts along the Proposed Easement, including those affecting irrigation and broadacre cropping enterprises, would have been addressed through initial selection of the Proposed Easement location and, where practicable, the micro-siting of towers based on landholder requests, where these occurred.

During construction, the Project would support necessary adjustments to irrigation layouts and, where appropriate, assist with modifications to irrigation equipment and paddock configurations. Once these changes are implemented, the long-term financial impacts on farm businesses are expected to be minimal.

Where land is permanently removed from use, the impact would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

The compensation process is outside the scope of the EES, but remains a key part of the broader response for affected landholders.

Residual impact

Fifty-two hectares of agricultural land would be removed from production during the Project's operational life-span. While some of this land may still support grazing, cropping would not be possible. The residual impact of this area of land being removed from production would be minor at the study area scale.

Other ongoing impacts may include operational inefficiencies, such as machinery overlap or irrigation constraints where towers intersect with controlled traffic or irrigation check bank layouts. Localised weed growth around tower bases may occur, though its impact on overall productivity would be typically limited.

Non-tangible impacts could include changes in the flexibility or future use of the land. Some properties may require long-term adjustments to paddock layout or experience reduced adaptability for future farm improvements, especially where landholders have plans for intensification or infrastructure upgrades. These effects are typically less visible but can still influence farm planning and decision-making.

20.8.2 Disruption to farm activities and livestock

Farming activities are generally expected to continue within the Proposed Easement with minimal disruption, except in the areas removed from production or where height restrictions apply for machinery operation and the use of manned aerial spraying/fertilising.

Drones and unmanned aerial vehicles may be permitted within the Proposed Easement, subject to a safety assessment and approval by the TNSP.

Impact

The main interruption is likely to come from periodic maintenance access by line workers for inspections, vegetation management, minor repairs, or emergency response to faults or weather events. This access may occur at various times over the life of the Project and occasionally overlap with farming operations. Most maintenance activities would be expected to be short-term and low impact. However, the most common concern raised by landholders is the risk of mistiming during lambing or calving. While usually brief and manageable, unplanned access during these sensitive periods can result in minor stock losses, particularly when animals cannot be moved at short notice.

An assessment of aviation impacts was undertaken in *Technical Appendix N: Aviation*. This included the assessment of uncertified aerodromes within 5.56 km of the Proposed Easement. These uncertified aerodromes may be used for aerial application operations (such as fertiliser, pest and crop spraying), or the operation of privately owned aircraft. There is the potential for impacts to two uncertified aerodromes on private properties adjacent to the Project.

EPRs

Most farm machinery can continue to operate within the Proposed Easement without restriction. Operating heights above 5 m and up to 8.6 m require a safety assessment before being able to operate. Any equipment with operating heights above 8.6 m is prohibited¹⁰. Most farm machinery falls within these operating height restrictions so can continue to operate as usual.

The PMP (EPR-AG01) will set clear expectations for respectful access, timely communication, and behaviour that reduces interference with farming operations. While the Code does not specifically address livestock or interaction around activities such as lambing and calving, this gap would typically be managed through training and induction of Project personnel.

At the two locations where the Proposed Easement might impact existing aerial farming operations, consultation would be undertaken with relevant landowners to identify appropriate arrangements such as alternative airstrip orientations or a mutually acceptable relocation of the strip. If these measures cannot be agreed upon then compensation will be provided by a process in accordance with the *Land Acquisition and Compensation Act 1986*. Refer to *Technical Appendix N: Aviation* for further information.

Residual impact

With EPRs in place, residual impacts on farming operations are expected to be minor due to their localised nature. Ongoing communication and consistent adherence to access protocols would be essential to limiting disruption and maintaining landholder confidence throughout the life of the Project.

20.8.3 Isolation and redundancy of farmland

Isolation and redundancy of productive land is a recognised concern for farmers along the Proposed Easement, particularly where land use is required to shift from more productive to less productive purposes.

¹⁰ TCV, undated, Farming with VNI West – Farming near transmission infrastructure fact sheet. Prepared by Transmission Company Victoria.

Impact

In most cases, redundancy of land has been minimised during the Project planning phase. However, the main potential impact stems from the unavoidable location of the Proposed Easement and associated towers within paddocks, which can disrupt land use and result in areas that are impractical or inefficient to farm. This could include changes to paddock shape and layout, where tower locations create irregular, fragmented, or undersized sections that complicate arable operations and irrigation.

These effects tend to be more problematic on cropped land, where long, uniform machinery runs and consistent irrigation layouts are preferred, or where towers interfere with controlled traffic systems.

By contrast, grazing enterprises are generally less affected, as livestock can make use of most of the land beneath and around the Proposed Easement.

EPRs

The Proposed Easement and towers avoid areas which could impact on existing overhead irrigation operations, as far as possible.

Where other farming activities would be disrupted, landholders would be supported through compensation or physical on-farm measures to minimise longer-term disruption. Measures would include:

- Where cropped land becomes isolated or constrained, fencing could be adjusted to integrate the affected area into an adjacent paddock
- Machinery could be modified so that certain sections are disengaged to avoid input wastage when working near tower bases
- Formation of check banks around the base of towers to help facilitate flow around the towers
- For controlled traffic operations, machine guidance lines are generally reprogrammed to navigate around towers with limited disruption
- In grazing systems, emerging technologies such as virtual fencing offer increased flexibility for managing awkward or previously underutilised zones

Residual impact

With EPRs in place, the amount of isolated or redundant productive land is expected to be minor for irrigated land and negligible for dryland farming.

20.8.4 Biosecurity breach

As discussed in Section 20.7.4, biosecurity is a significant concern for any farming enterprise, particularly where certain pests, weeds or livestock diseases can be difficult and costly to manage once established.

Impact

During operations, on-farm maintenance activity associated with the Proposed Easement is expected to be limited. However, the movement of vehicles, machinery, equipment, and personnel onto or between properties could result in a biosecurity breach, particularly through the unintentional spread of soil, plant material, or disease.

While most landholders acknowledge that biosecurity practices vary between farms, there would be a reasonable expectation that external personnel, such as line workers and contractors, follow appropriate biosecurity protocols.

EPRs

The EPRs identified in Section 20.7.4 will also apply in the operational phase. As outlined in Section 20.7.4, prior to the commencement of construction, Project-specific agricultural procedures to industry standards, in consultation with agricultural specialists, landholders and Agriculture Victoria, would be developed to avoid and minimise impacts on biodiversity values, land use (including agriculture) and landholders.

These procedures must be incorporated into the BMP within the OEMP (EPR-AG02).

Property-specific biosecurity issues and requirements would be covered under individual BMPs as part of the preparation of landholder specific property management plans (EPR-AG01).

Residual impact

With EPRs in place, the likelihood of a biosecurity breach is reduced, however the residual impact for this issue is considered to be medium to major because the impact can be widespread, long-lasting and have major effects on farm production, depending on the type of incursion.

20.8.5 Other operational phase impacts

A commonly raised landholder and community concern during the Proposed Easement planning was exposure to electromagnetic fields. While often cited as a health risk, current evidence suggests that there is no material impact on livestock health or farming systems. According to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA, 2025), there is no established link between magnetic fields from powerlines and adverse health effects, although precautionary measures are still advised for prolonged human exposure. Further information is provided in *Technical Appendix A: Electric and magnetic field*.

In addition, corona noise may be observed from the overhead transmission lines during operation of the Project. Corona noise is most often observed as a frying, hissing or crackling sound and is a function of various parameters including the line voltage, relative air density, the electric field on the surface of the conductor, the line geometry and the condition of the line. It is rarely observed for low voltage overhead lines but is known to be a significant parameter for lines operating above 345 kV. Further information is provided in *Technical Appendix L: Noise and vibration*.

20.8.6 Summary of residual operational impacts

A summary of residual operational impacts, discussed in previous sections, following implementation of EPRs is shown in Table 20-12.

Table 20-12 Residual impacts – Project operation

Impact	EPR	Residual impact consequence rating	Residual impact likelihood
Permanent agricultural land loss (52 ha)	EPR-AG01	Minor Fixed land areas removed from use, compensated and minimal in scale.	Almost certain
Disruption to farm cropping activities	EPR-AG01	Minor With EPRs in place, residual impacts on farming operations would be expected to be minor and localised:	Likely

Impact	EPR	Residual impact consequence rating	Residual impact likelihood
		Minimal operational loss within tolerances. Rarely impacted; manageable with adaptive practices.	
Disruption to livestock	EPR-AG01	Minor Low-intensity disruption; potential for periodic stock disturbance if poorly timed	Unlikely
Isolation and redundancy of dryland farmland	EPR-AG01	Minor With EPRs in place, the amount of isolated or redundant productive land would be expected to be minimal. Minor inefficiencies; absorbed through routine operational management.	Possible
Isolation or disruption to paddock layout or isolation of land	EPR-AG01	Minor With EPRs in place, the amount of isolated or redundant productive land would be expected to be minimal.	Possible
Biosecurity breach	EPR-AG02	Medium to major Some threat remains after EPRs are implemented, and in the event of a biosecurity breach the residual impact could be widespread, long-lasting and have major effects on production depending on the type of incursion.	Possible medium impact Rare major impact

20.9 Decommissioning impact assessment

Decommissioning of the transmission line would involve the removal of conductors, demolition of towers, extraction of footings, and rehabilitation of access tracks and any other disturbed areas. While the process is expected to be shorter in duration than initial construction, it may still require significant vehicle and equipment access across agricultural properties.

Impact

During decommissioning, the area of land affected is expected to be largely confined to the former Proposed Easement. The process of tower removal and footing extraction may cause soil disturbance at tower locations, with additional impacts along access routes required for equipment movement. Temporary laydown areas may also be established contributing to short-term ground disturbance.

Practical land use patterns on affected farms may continue to reflect the long-term presence of the transmission infrastructure. Over time, landholders may have adjusted fencing, irrigation layouts, paddock configurations, and access routes to accommodate the infrastructure. Removal of towers would enable some land to return to full use, though opportunities to optimise farm layout may vary depending on the extent of prior adaptation and landholder preference.

In addition, soil condition and drainage patterns in disturbed areas may require time to stabilise, particularly on cropping and irrigated properties where soil structure is critical to farm productivity. These impacts are expected to be temporary and manageable through standard land rehabilitation practices.

Decommissioning efforts would focus on returning land to productive use. Following tower removal, soil treatments such as deep ripping, lime application or rotary hoeing may be required, with the scope of rehabilitation determined by landholder agreements and site-specific needs.

While the decommissioning phase is relatively short, maintaining strict biosecurity protocols remains essential.

EPRs

The EPRs identified in Section 20.7.4 will also apply in the decommissioning phase.

As outlined in Section 20.7.4, prior to the commencement of construction, Project-specific agricultural procedures to industry standards, in consultation with agricultural specialists, landholders and Agriculture Victoria, would be developed to avoid and minimise impacts on biodiversity values, land use (including agriculture) and landholders.

These procedures must be incorporated into the BMP within the DEMP (EPR-AG02).

Property-specific biosecurity issues and requirements would be covered under individual BMPs as part of the preparation of landholder specific property management plans (EPR-AG01).

Residual impact

The removal of transmission infrastructure would be expected to result in mostly positive impacts to farming operations as it would return land to its pre-Project condition, but some residual effects may remain, reflecting years of landholder adaptation to the Proposed Easement being present.

In cropping systems, machinery use is likely to gradually restore paddock uniformity, while the removal of towers could improve straight-line efficiency for planting, spraying, and fertiliser application. Similarly, properties that modified fences, irrigation layouts, or GPS guidance systems during the operational phase may require minor reconfiguration to fully optimise field operations.

Even after the removal of transmission infrastructure, the legal Proposed Easement may still remain on property titles unless it is formally extinguished. If not released, landholders may continue to face limitations or uncertainty in future farm planning and property transactions. The decommissioning process would therefore include provisions for the legal release of the Proposed Easement, supported by clear guidance on responsibilities, timing, and procedural steps.

With EPRs in place, the likelihood of a biosecurity breach is reduced, however the residual impact for this issue is considered to be medium to major because the impact can be widespread, long-lasting and have major effects on farm production, depending on the type of incursion.

20.9.1 Summary of residual decommissioning impacts

A summary of the residual decommissioning impacts, discussed in previous sections, following implementation of EPRs is shown in Table 20-13.

Table 20-13 Residual impacts – Project decommissioning

Impact	EPR	Residual impact consequence rating	Residual likelihood
Temporary agricultural land loss during decommissioning works	EPR-AG01	Minor Mostly positive – improves farm layout and restores full paddock access. Farm infrastructure reinstatement (e.g. fences, GPS, irrigation).	Almost certain
Disruption to farm cropping activities	EPR-AG01	Minor Short-term restrictions in paddocks; soil condition expected to recover.	Possible
Disruption to livestock	EPR-AG01	Minor Animal disruption would be minor, temporary and localised providing EPRs are put in place.	Likely
Biosecurity breach	EPR-AG02	Medium to major Some threat remains after EPRs, and in the event of a biosecurity breach the residual impact could be widespread, long-lasting and have major effects on production depending on the type of incursion.	Possible medium impact Rare major impact
Soil damage and rehabilitation	EPR-GS02	Minor Short-term impact. Soil condition would be expected to recover after rehabilitation.	Possible
Contamination of soils or water	EPR-GS05	Negligible Residual impacts would be minor and localised.	Rare

20.10 Cumulative impact assessment

This section provides an assessment of cumulative impacts with other proposed developments in the study area.

For the purpose of evaluating cumulative impacts, this assessment has identified 16 other projects that are located within the zone of influence of this study, see Figure 20-8. The zone of influence for this cumulative impact assessment is the study area. Therefore, this cumulative assessment includes proposed developments that intersect or are immediately adjacent to the Proposed Easement, as well as those beyond the Proposed Easement.

Each of the projects have been evaluated in terms of its scale, receptor impacts, and spatial and temporal overlays with the Project, to determine whether there is the potential for cumulative impacts with the Project and sufficient information available to undertake a meaningful assessment.

Based on the screening assessment seven potential projects within the zone of influence of the Project were determined to have potential for cumulative agricultural impacts when combined with the Project.

- Meering West Wind Farm
- Western Renewables Link (WRL)
- New Sky Tragowel Solar Farm
- Macorna Wind Farm
- Bulgana Green Power Hub Wind Farm
- Kerang II (CleanGen2) Solar Farm
- Cannie Wind Farm

Impact

In assessing the potential cumulative impacts for the Project, it is important to consider that some developments, predominately those 'proposed' (referred) or identified in development plans, may not be taken forward, or fully built out.

The cumulative agricultural impact of the Project, when considered as an addition to 16 other proposed developments, was assessed as minor. The impacts for most projects would be greater during construction, and at a property level there could be a moderate impact if construction phases of projects overlap and properties hosted more than one project. This impact would only be temporary and limited to the construction area, which generally represents a small proportion of the farm area.

The projects identified are located on agricultural land and may have some agricultural impact. At a regional scale, because the Project impact was considered to be minor, the cumulative agricultural impact of the other developments and the Project was also assessed as being insignificant.

The Project has also been assessed as having a minor agricultural impact during its operational phase, thus any temporal overlap with other projects during the operational phase would be considered not to have any significant cumulative impact.

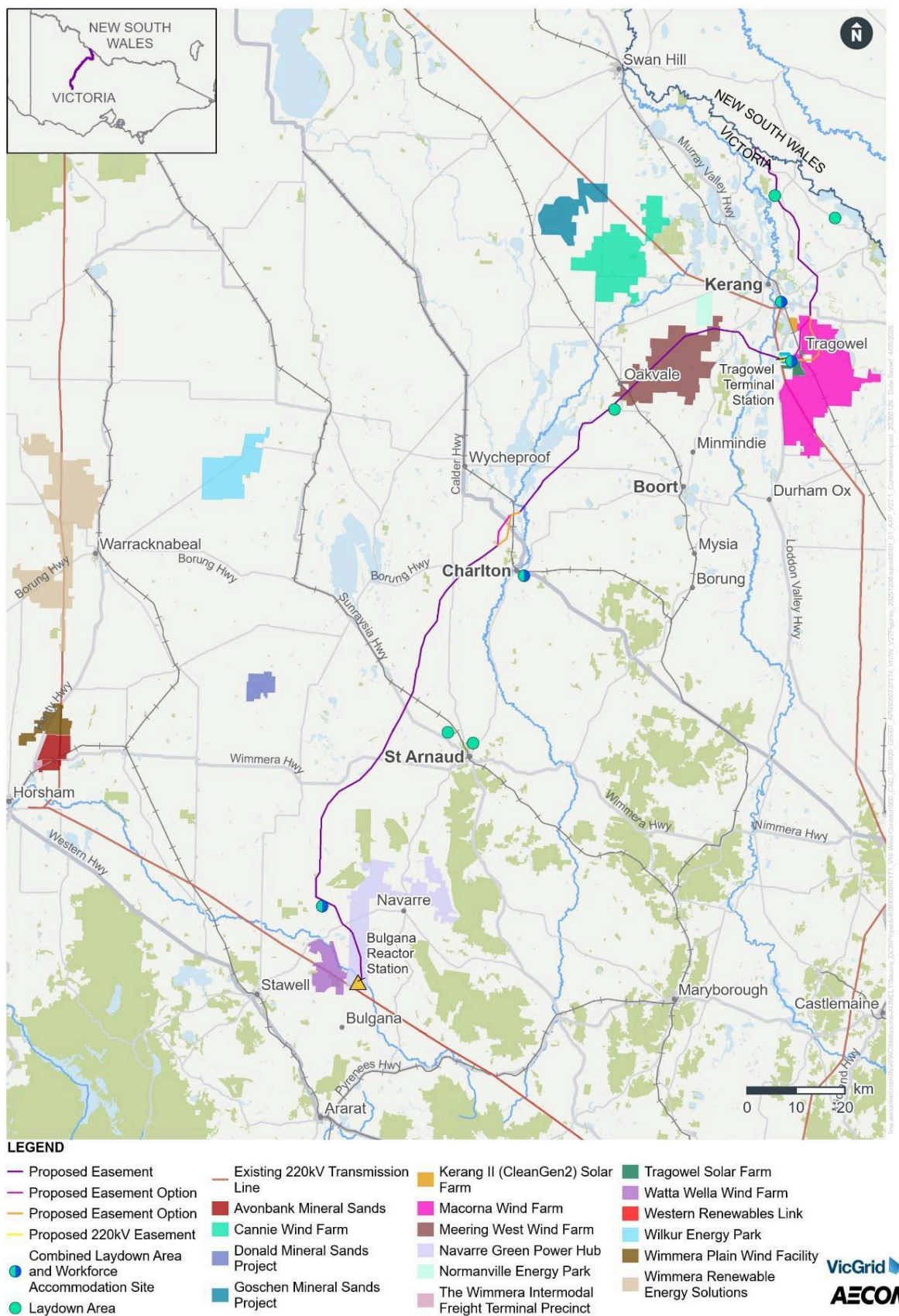


Figure 20-8 Projects considered for potential cumulative impacts

20.11 EPRs, monitoring and contingency measures

EPRs are recommended to avoid, minimise and mitigate potential adverse effects on agriculture and are listed in Table 20-14.

The following plans will be prepared to give effect to the EPRs:

- Property management plans (PMPs), refer to EPR-AG01
- Biosecurity management plans (BMPs), refer to EPR-AG02
- Construction Environmental Management Plan (CEMP), refer to *EES Chapter 28: Environmental Management Framework*
- Operational Environmental Management Plan (OEMP), refer to *EES Chapter 28: Environmental Management Framework*
- Decommissioning Environmental Management Plan (DEMP), refer to *EES Chapter 28: Environmental Management Framework*

These plans would be incorporated into the Project Environmental Management Framework (EMF) in the EES, and implemented by VicGrid VNI West, TNSP and the Principal Contractor engaged to construct, operate and decommission the Project.

Landholders would be compensated for financial losses that are a direct result of Project activities during construction and operation in accordance with the *Land Acquisition and Compensation Act 1986*.

20.11.1 EPRs

Table 20-14 outlines the EPRs developed to avoid and minimise potential impacts during construction, operation and decommissioning of the Project.

Table 20-14 EPRs

ID	EPR	Phase
AG01	Preparation of landholder-specific Property Management Plans (PMPs) Prior to the commencement of construction works on each directly affected property, the Delivery Partner/Principal Contractor will develop and implement a Property Management Plan (PMP) for that property to avoid, minimise and mitigate impacts on agricultural activities, land use and farm businesses to the extent reasonably practicable. Each Property Management Plan will be prepared having regard to applicable land access arrangements, statutory approvals and property-specific requirements, in consultation with the landholder. The PMP will document how landholder feedback has been considered. Where agreement cannot be reached, the PMP will document the matters raised by the landholder, the Project response, and the escalation pathway applied under the CSEP and complaints management process.	Pre-construction Construction Operation and Decommissioning

ID	EPR	Phase
	Where consultation has not been possible despite reasonable endeavours, and where the Project is otherwise authorised to proceed, an interim standard Property Management Plan will be prepared and implemented until property-specific consultation can occur. VicGrid VNI West and the Delivery Partner/Principal Contractor will continue to use reasonable endeavours to consult with the relevant landholder and update the plan with property-specific requirements as soon as practicable. All PMPs will include minimum controls for property access, biosecurity, reinstatement, notification and issue escalation. The interim standard Property Management Plan will include those minimum controls. Property-specific requirements identified through consultation will be incorporated where practicable and where consistent with the EMF, EPRs and statutory approval conditions. Each PMP will include, at a minimum: • A single point of contact for the landholder and communication protocols for two-way engagement • Notification procedures for construction activities, access requirements and relevant changes to work timing or location • A pre-condition baseline assessment of relevant land conditions, infrastructure and access areas, drainage, fencing, gates, tracks and other features that may be affected by Project activities to inform rehabilitation and reinstatement • The final location, where available, of Project activities to occur on the property, including towers, temporary work areas, temporary and permanent access tracks, fencing, portable facilities and vegetation removal • Property access arrangements for movement of personnel, vehicles, livestock and equipment • Measures to minimise disruption to livestock, irrigation, water supply and other farm infrastructure • Identification of periods where works should be avoided or minimised where practicable, such as harvesting, lambing and calving through consultation • Where works cannot avoid or minimise disruption during critical agricultural periods, requirements for advance notice, consultation with the affected landholder, and identification of practicable support, access, staging, reinstatement or other management measures will be adopted • Property-specific safety assessment where appropriate • Property-specific biosecurity requirements, including any additional requirements to be implemented in conjunction with the Biosecurity Management Plan required under AG02	

ID	EPR	Phase
	- Requirements for rehabilitation and reinstatement to previous level of agricultural use, including pasture re-establishment, weed control, soil improvement and reinstatement of affected infrastructure or landform features where relevant - Requirements for post-reinstatement inspection and remedial action where rehabilitation or reinstatement criteria are not achieved - Information on relevant issue escalation, reinstatement, rehabilitation, compensation or claims pathways where relevant - Notification and management procedures for incidents, issues and complaints relevant to the property - Requirements for review and update of the PMP where property conditions, access arrangements or Project activities materially change.	
AG02	Biosecurity Management Plan(s) (BMP) Prior to the commencement of construction, the Delivery Partner/Principal Contractor will develop and implement a Biosecurity Management Plan (BMP) as a sub-plan of the CEMP to avoid and minimise biosecurity impacts on agricultural land uses, biodiversity values, landholders and farm businesses. The BMP will be prepared with input from agricultural specialists and relevant landholders where property-specific biosecurity risks are identified. Agriculture Victoria will be consulted where regulatory advice is required or where declared weeds, pest animals, diseases or pathogens present a material biosecurity risk. Prior to operation and decommissioning, the relevant delivery entity will review and update the BMP, as required, for those phases. The BMP will include procedures for identifying, recording, escalating and responding to biosecurity incidents and breaches, including pest, weed, disease or pathogen risks affecting agricultural land, livestock, crops, biodiversity values or landholder operations. These procedures will identify relevant notification and escalation pathways, including landholders, Agriculture Victoria and other relevant authorities where required, and will interface with the Project's incident management and emergency response procedures under EM07 where a biosecurity incident requires a coordinated emergency response. The BMP will be reviewed by the Independent Environmental Auditor under EM02 for consistency with the approved EMF, EPRs and applicable statutory approval conditions. Implementation of the BMP will be subject to periodic independent audit in accordance with EM02. The BMP will include, at a minimum: Requirement that inductions/training on the BMP must be completed by workers prior to entering affected properties and that records of training are appropriately verified as part of routine site construction mobilisation.	Pre-construction Construction Operation and Decommissioning

ID	EPR	Phase
	• Measurable performance standards and outcomes, to verify that biosecurity controls are effective in avoiding and minimising the introduction or spread of declared weeds, pest animals, diseases and pathogens between properties, work areas and sensitive environmental areas, so far as reasonably practicable • Planning measures to avoid or minimise biosecurity risks, including movement sequencing, avoidance of wet or muddy areas where feasible, and consideration of weed seed set and disease spread periods where practicable • Inspection and hygiene requirements for vehicles, plant, equipment, clothing and supplies before entering and leaving properties • Requirements for washdown, footbath and sanitising procedures, including standards for washdown facilities where established • Requirements for vehicle biosecurity kits and any other minimum equipment necessary to implement biosecurity procedures • Record keeping for vehicle, plant, equipment and personnel movement, treatment, incidents, compliance and breach detection • Controls requiring vehicles and equipment to remain within approved access corridors and formed tracks on farming properties unless otherwise agreed • Training requirements to ensure all personnel understand and implement BMP requirements • Auditing, periodic review and update requirements, including consideration of emerging biosecurity risks, regulatory feedback, third-party review outcomes and landholder feedback from earlier project phases • Ongoing monitoring requirements for the easement and rehabilitated areas where relevant to biosecurity performance • Biosecurity incident and breach response procedures, including investigation, containment, notification, corrective action, close-out and review requirements • Escalation pathways for biosecurity incidents requiring a coordinated response, including interface with emergency response procedures under EM07 where relevant. Any additional property-specific biosecurity issues or requirements will be documented and implemented through the relevant PMP prepared under AG01.	

20.11.2 Relevant EPRs from related studies

EPRs from other EES studies that relate to this assessment are included in Table 20-15. The detail of the EPRs is provided in the relevant technical studies and all EPRs are collated in *EES Chapter 28: Environmental Management Framework*.

Table 20-15 Relevant EPRs from related studies

ID	EPR	Phase
GS02	Saline and Dispersive Soils Management Plan (SDSMP)	Pre-construction Construction
GS03	Acid sulfate soil assessment	Design Pre-construction
GS04	Acid Sulfate Soil Management Plan (ASSMP)	Pre-construction Construction Decommissioning
AV01	Aviation stakeholder notification and consultation	Design Pre-construction Construction
TT01	Traffic Management Plans (TMPs)	Pre-construction Construction Operation (if required) Decommissioning
TT02	Access, heavy vehicle haulage and road safety assessment	Pre-construction Construction

20.11.3 Monitoring and contingency measures

Table 20-13 outlines the monitoring and contingency measures for the agriculture impact assessment.

Table 20-16 Monitoring and contingency measures

Relevant EPR	Monitoring	Location	Frequency	Project phase(s)	Assigned responsibility
AG02	Monitor biosecurity performance, including presence of weeds, pests, fungi and diseases, and compliance with the Biosecurity Management Plan record-keeping requirements	Project wide (active work areas)	Monthly during relevant phases via site inspections and review of monthly contractor reports	Construction Operation Decommissioning	Landholders (informal observation) Principal Contractor VicGrid VNI West/TNSP
AG02	Verification of BMP training records to ensure all personnel understand and implement BMP requirements before accessing farmland	Project wide (active work areas)	Verification personal have completed training prior to accessing farmland	Pre-construction Construction Operation Decommissioning	Principal Contractor TNSP
AG02	Monitor post-construction rehabilitation and soil condition within the easement, including regrowth, erosion, subsidence and compaction	Reinstated easement areas, excluding tower bases where relevant	Post-construction (in line with implementation of progressive rehabilitation) and ongoing for the agreed rehabilitation period	Construction Operation	Principal Contractor (post-construction) VicGrid VNI West/TNSP

20.12 Conclusion

The agriculture impact assessment provides an analysis of the impacts on farming activities and production including economic losses at a State and study area production scale resulting from construction, operation and decommissioning of the Project. The assessment noted that any additional impact on farming operations or production at the individual farm level would need to be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

Agricultural production in the study area, comprising Gannawarra, Loddon, Buloke and Northern Grampians LGAs, provides more than 10% of the Victorian state's total value of cropping, grazing and dairy, combined.

Agricultural activities would be more likely to be impacted at the construction phase as agricultural land would be excluded from production during the construction period. Once the construction period ended, the majority of this land would return to productive use.

The combined value of potentially lost agricultural activity directly affected by Project construction (3,551 ha) was calculated for each agricultural activity. The total value of lost farm production was estimated at around \$2.77 million which equates to approximately 0.3% of the value of agricultural activity in the study area (~\$1.1 billion).

Loss of productivity costs would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

Other construction impacts would be disruption to agricultural activities, isolation of farmland, biosecurity, soil damage and contamination of soils. At a study area production-scale, construction phase impacts were assessed to be negligible, whilst acknowledging that residual impacts to individual properties are medium.

Biosecurity breach is a medium to major residual impact to agriculture during the construction phase.

In the operational phase most farming activities can continue beneath the transmission line other than on the land area comprising the footprint of the transmission towers. This may incur relatively low ongoing financial losses from increased production costs due to minor operational inefficiencies caused by operating machinery around the towers.

Farm production impacts during operation of the Project were considered to have an overall negligible impact at the study area scale but may have a larger impact at an individual property scale. Restrictions on use of manned aerial services within and adjacent to the Proposed Easement and on the development of new farm infrastructure within the Proposed Easement would remain.

During decommissioning, the area of land affected is expected to be largely confined to the former Proposed Easement. Decommissioning efforts would focus on returning land to productive use noting that disturbed areas may require time to stabilise.

The residual impact of a biosecurity breach remains medium to major during the operational and decommissioning phases.

The cumulative agricultural impact of VNI West (Victorian component), when considered in addition to 16 other proposed developments in the study area, was assessed as minor.

As far as possible, the Project location and design has been chosen to avoid and minimise impacts to agricultural uses.

Where potential impacts cannot be avoided or minimised through Project design, the following EPRs have been developed:

- Property management plans (PMPs), refer to EPR-AG01
- Biosecurity management plans (BMPs), refer to EPR-AG02
- Construction Environmental Management Plan (CEMP), refer to *EES Chapter 28: Environmental Management Framework*
- Operational Environmental Management Plan (OEMP), refer to *EES Chapter 28: Environmental Management Framework*
- Decommissioning Environmental Management Plan (DEMP), refer to *EES Chapter 28: Environmental Management Framework*

Residual impacts, or unexpected negative impacts at the property level, would be considered as part of a compensation process in accordance with the *Land Acquisition and Compensation Act 1986*.

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