Solar photovoltaic technology is continually improving, and large-scale solar facilities are economically viable at new scales and in new places across Australia. Australia, the continent with the highest solar radiation per square metre, is uniquely positioned to capture this potential.

4.2 Site Suitability

Detailed expert investigations have confirmed the Site is suitable for the use and development of a solar farm and associated infrastructure. At a broad scale, the Proposal is supported by State and Local government policy and will complement existing local agricultural and rural resource land uses.

The following factors provide support for the use and development of a large-scale solar farm and associated infrastructure on the Site:

- Large landholding within single ownership.
- Relatively flat topographical conditions avoid the need for significant changes to the natural landscape.
- Most slopes share a northerly aspect.
- Sits well outside of the key settlement areas of Poatina, Cressy and Campbell Town.
- Close to the electricity grid, with access to the TasNetworks Palmerston Substation (via a new 220kV connection).
- Access to main roads.
- Limited number of sensitive receptors.
- Land that has already experienced disturbance from agricultural and forestry activities.

The sheer size of the Connorville Station property has allowed for the key constraints to be considered in the siting and design of the Proposal, including bushfire risk, the lack of capacity of the existing 110 kV line to accommodate a large-scale solar farm, areas subject to flooding, the adjacent Conservation Covenants, key environmental features (high quality native vegetation, habitat, and watercourses), and sites of Aboriginal cultural heritage sensitivity. Please refer to chapter 3.1.1 for further detail on how these constraints were effectively responded to in the planning and design of the Proposal.

4.3 Social, Economic and Energy Benefits

4.3.1 Social and Economic Benefits

Overall, the Proposal will provide significant employment, major contribution to the local economy, and contributes to Tasmania's reputation in renewable energy generation, specifically solar.

The Proposal comprises a construction investment of $478 million. A significant proportion of this investment can support local and regional opportunities in general construction and civil works, electrical and engineering, parts manufacturing, transport, machinery operating and servicing.

The Proposal is expected to generate 986 (FTE) jobs during the construction phase, including 370 direct jobs.

The ongoing operation of the solar farm is estimated to generate $36 million in total economic output and support 27 (FTE) jobs per annum, which includes 11 direct jobs (FTE).

The Socio-Economic Assessment (Appendix F) by Urban Enterprise provides further detail on the socio and economic benefits, also covered in greater depth in Chapter 9.3.

	Short-term economic stimulus (construction phase)	Construction investment of $478 million, generating $1.09 billion in total economic output. Creation of 986 (FTE) jobs, including 370 direct jobs.
	Ongoing economic impacts (operational phase)	Operation estimated to generate $36 million in total economic output. Creation of ongoing 27 (FTE) jobs, including 11 direct jobs.
	Ongoing Municipal revenue	Uplift in Council revenue of approximately $36k per annum.

Source: Urban Enterprise

4.3.2 Renewable Energy Benefits

The Site's topography, solar irradiance and proximity to a substation are key ingredients that pave the way to an effective solar farm. The Proposal will be the largest solar farm in Tasmania, helping to deliver a clean source of energy generation and reach Tasmania's ambitious renewable energy targets. The renewable energy benefits are shown in Figure 23:

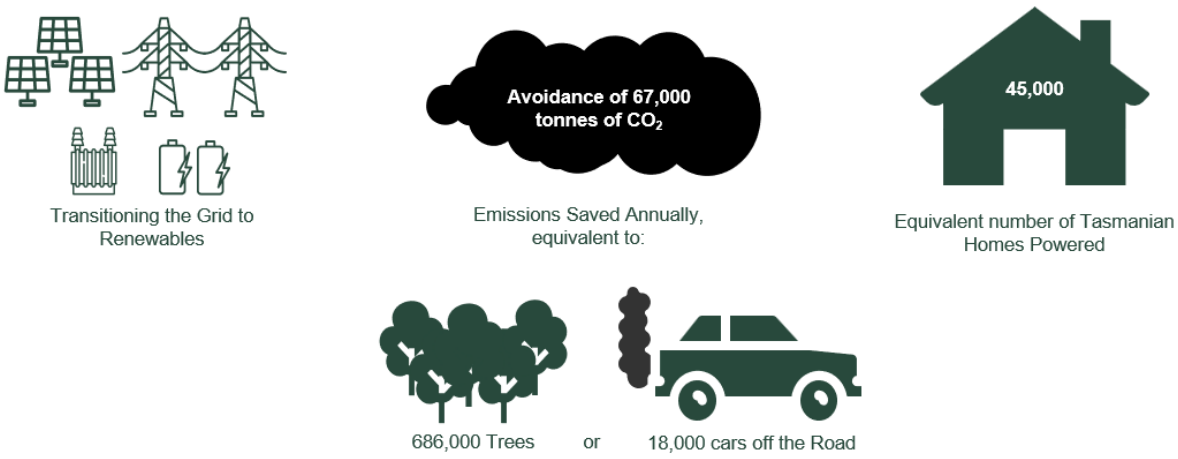


Figure 23 Summary of Renewable Energy Benefits

Source: Cogency

5. Community and Stakeholder Engagement

Cogency prepared a Community and Stakeholder Engagement Plan at the outset of the Proposal, that outlined the engagement objectives, principles, methodology, stakeholder mapping, monitoring and review, and action plan. The Proponent, with the support of Cogency has been committed to an early, proactive and meaningful engagement and stakeholder, starting from the preliminary concept design phase. The Community & Engagement Summary Report is contained at Appendix G and provides a record of the engagement activities and their outcomes.

5.1 Engagement Programme Overview

The Community and Stakeholder Engagement Programme for the Northern Midlands Solar Farm comprised of four key stages. Each stage was designed to ensure the Proponent and the project team delivered early, proactive, and meaningful engagement with key stakeholders and the local community. The engagement activities of the programme were scheduled to allow ample time for interested parties to be informed and involved. The four key phases of engagement included:

- Pre-feasibility Stage (March 2022 -June 2022)
- Preliminary & Early Engagement (July 2022 – November 2022)
- Pre-application Engagement (December 2022-April 2022)
- Post-Lodgement Engagement (May 2023 Onwards)

During the phases of the Proposal, the Proponent aimed to inform, consult, and involve the appropriate stakeholders through effective engagement activities based on the objectives and principles of community engagement best practice and guidelines. The following key engagement activities were undertaken throughout each stage of community engagement:

- Presentations and briefings
- Direct landowner engagement
- Project website, newsletters, factsheets, posters
- Letter drops to local community.
- Door Knock meetings with community members
- Community Information Day
- Timely and informative progress updates email, letters, phone calls and the website
- Complaints and handling process

The following key stakeholders were engaged at the varying stages of engagement:

- Local community of Northern Midlands
- Neighbouring property owners and transmission landowners
- Northern Midlands Council
- Northern Midlands Mayor and Councillors
- Premier of Tasmania
- ReCFIT
- TasNetworks
- EPA
- Registered Indigenous Parties
- Tasmanian Farmers and Grazier Association
- Skills Tasmania

5.2 Key Findings

The four stages of community and stakeholder engagement, supported by a robust Community & Stakeholder Engagement Strategy has enabled early, proactive, and meaningful engagement at each pivotal stage of development of the project to occur. The development of the Proposal has been defined by two-way communication that has been free-flowing, with issues raised by stakeholders and community members addressed in a timely manner by the Proponent and project team.

As part of the feasibility engagement process, discussions were held with the Northern Midlands Council, TasNetworks, as well as Renewables, Climate and Future Industries Tasmania (ReCFIT). This was to garner support as well as to gain initial feedback to understand their views on the Proposal and to identify any major issues. Initial discussions helped to identify the key issues to be explored in relation to grid connection and project development, potential referral authorities and relevant state agencies, as well as the potential planning approvals pathway. It was found that these key stakeholders were supportive in principle of the Proposal.

The preliminary and early engagement activities were important in maintaining the relationships built with key process stakeholders, as well as establishing initial contact with the EPA. An important part of this stage was also informing neighbouring property owners and potential transmission route landowners about the Proposal. At this stage a preliminary concept design and technical assessments had been completed, meaning information about the project could be more readily shared and any concerns more meaningfully expressed. A key issue raised during early engagement was the requirement of the 'Project Proposal' as requested by the EPA. Initials concerns of neighbouring property owners and transmission landowners were centred around irrigation and potential impacts to agricultural productivity in the area. However, based on the initial discussions the feedback was mostly positive. The key process stakeholders remained generally supportive after the provision of more information. Ongoing discussions with neighbouring property owners and transmission landowners will continue to be pivotal as the project progresses.

The Pre-Application engagement phase aimed at introducing the Proposal to the wider local community, provide timely updates of the Proposal and continue discussions with neighbouring properties and the identified transmission line landowners. Interaction between the Proponent, project team and the community has resulted in open and honest feedback. This was showcased during the Community Information Day held on Tuesday 28th March 2023, at Cressy Town Hall. As the proposed solar farm is the first of its kind in Tasmania, local community members showed a keen interest in the Proposal and understanding its key technical aspects. A small number of community members were interested in understanding more about the potential amenity and environmental impacts. The provision of fact sheets and environmental and technical assessments aimed to alleviate these concerns. The concerns raised at the community information day, along with briefings and presentations were taken into consideration in the final design and layout of the solar farm. Overall, the response to date from the local community and other key stakeholders has been largely positive.

While the Proposal is undergoing assessment for statutory approval, the Proponent and the project team will continue to engage the local community, transmission landowners and other key stakeholders. This is to ensure the community understands the opportunities for formal public input on the Proposal as it is assessed, as well as to provide key updates. As a key member of the community, the Proponent, with the support of Cogency, remains committed to proactive, and meaningful engagement with the local community and stakeholders.

6. Legislation, Guideline and Policy Context

6.1 Policy & Strategic Summary and Alignment

Table 7 outlines the federal, state, regional and local polices, legislation and plans that are relevant to the Proposal, including alignment with the relevant provisions.

Table 7 Relevant policies

Policy & Strategic Summary & Alignment		
Commonwealth	**Relevant Objectives & Actions**	**Project alignment**
Paris Climate Agreement 2016	▪ Strengthen the global response to the threat of climate change ▪ Maintain global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit temperature increase to 1.5°C". ▪ Achieve net zero emissions by 2050, and inscribe low emissions technology stretch goals	▪ The Proposal supports Australia's renewable energy targets that support commitment to the Paris Climate Agreement. ▪ It is expected that approximately 67,000 tonnes of CO2 emissions will be saved annually as a result of the Proposal.
Climate Change Act 2022	▪ Advance Australia's response to climate change ▪ Promote accountability in governance and policy making in regard to climate change ▪ Achieve Australia's greenhouse gas emissions reduction targets, per s 10 of the Act, at least 43% below 2005 levels by 2030, and net zero by 2050. ▪	▪ The Proposal supports Australia's greenhouse gas reduction targets by generating new renewable energy that can contribute to the replacement of fossil fuel-based energy. ▪ This Proposal will be Tasmania's first large-scale solar farm and can set a precedent in the State.
Australian Renewable Energy Target Scheme	▪ Reduce greenhouse gas emissions in electricity sector ▪ Encourage generation of electricity form sustainable and renewable sources ▪ Investment in new renewable energy projects until the target of 33,000 gigawatt-hours of renewable electricity generation is met and sustained until 2030.	▪ The Proposal supports Australia's renewable energy targets by seeking to reduce greenhouse gas emissions through the generation of electricity through renewable sources.
AEMO Integrated System Plan 2022	▪ Support development of National Energy Market (NEM)	▪ The Proposal will connect to the NEM at Palmerston Substation. As well as providing additional, locally generated renewable energy, the BESS component of the proposal will contribute to grid stability and management. ▪ It is likely that transmission line assets will be turned over to TasNetworks.
Environmental Protection and Biodiversity Conservation Act 1999	▪ Environmental law that provides environmental protection in relation to Matters of National Environmental Significance (MNES). ▪ Ensures "that 'nationally significant' animals, plants, habitats, and places are identified, and any potential negative impacts on them are carefully considered before changes in land use or new developments are approved".	▪ Findings of the Flora and Fauna Impact Assessment indicate the Proposal is not expected to impact matters of national environmental significance and it is unlikely to require approval under the EPBC Act. ▪ Due to the Development Area forming part of the much larger Connorville Station landholding, the parcels of land with the least environmental constraints and ecological value were selected for this Proposal.
State	**Relevant Objectives & Actions**	**Project alignment**
Resource Management & Planning System	▪ Promote the sustainable development of natural and physical resources and the	▪ The Proposal promotes sustainable development through the provision of renewable energy generation, sited specifically to avoid environmental impacts,

	maintenance of ecological processes and genetic diversity ▪ Provide for the fair, orderly and sustainable use and development of air, land, and water ▪ Encourage public involvement in resource management and planning ▪ Facilitate economic development in accordance with the objectives set out in the above paragraphs ▪ Promote the sharing of responsibility for resource management and planning between the different spheres of government, the community and industry in the State	and represents a significant economic investment in the region.
Land Use Planning & Approvals Act 1993 (LUPA Act)	▪ Regulate the use and development of land, and some resources, within local government areas. ▪ Schedule 1 of the LUPA Act sets out the objectives of the Resource Management and Planning System (RMPS) (Part 1) and Planning Process (Part 2).	▪ Pursuant to the LUPA Act, and under the Planning Scheme, a permit will be required for the Proposal. ▪ The application for the Proposal will be made under Part 4, Division 2, section 57 of the LUPA Act. This is because the Proposal is a discretionary use in the 2022 Northern Midlands Planning Scheme.
Land Use Planning & Approvals Regulations 2014	▪ Prescribes notice requirements for certain exhibitions, approvals and application under the LUPAA Act. ▪ Prescribes fees payable under the LUPAA Act.	▪ The planning approvals process for the Proposal will adhere to the regulations outlined in Land Use Planning & Approvals Regulations 2014 (Tas.).
Environmental Management and Pollution Control Act 1994	▪ Regulate activities that may cause environmental harm, and encourage environmental management by industry, planning authorities, and State agencies. ▪ Determines whether a development is considered a Level 1, 2 or 3 activity, based on the attributes of the project and their potential environmental impact. ▪ Activities not requiring EPA approval are still subject to the EMPCA, its regulations and policies. ▪ Level 1 activities are regular uses and developments which may have their approval covered by regular planning schemes. Their approval does not normally require EPA contribution, though may under a set of triggers outlined in Clauses 24 and 20.B. ▪ Level 2 activities are defined as those listed in Schedule 2 to the EMPCA and they require EPA referral for approval. ▪ Level 3 activities are the highest level. These have been designated 'State significant' under the State Policies and Projects Act 1993 (Tas.).	▪ As the State has not yet considered a discrete solar farm application, the EMPC Act and its supplementary guidelines does not specify whether large-scale solar farms are a Level 1, 2 or 3 Activity. ▪ The proposed solar farm does not fall within the categories contained in schedule 2 of the EMPCA as being level 2 activities. ▪ Based on an initial review, the EPA confirmed the Proposal is unlikely to cause serious material social or environmental harm. Therefore, it is unlikely the Proposal would be referred to the Board for environmental assessment. ▪ Accordingly, the Proposal is being treated as a Level 1 Activity under EMPCA, with Northern Midlands Council as the planning authority.
State Policies and Projects Act 1993	▪ Encourage the development of State policies that achieve the objectives outlined in the RMPS. ▪ Provide for the determination and integrated assessment of projects of State Significance. ▪ Guide and outline requirements for State of the Environment Reporting. ▪ Seeks to further objectives of the RMPS.	▪ This planning approvals pathway has not been selected for the Proposal as it is not considered to qualify as a Project of State Significance under the *Land Use Planning and Approvals Act 1993* (Tas.) (LUPAA) or this Act.
Aboriginal Heritage Act 1975	▪ Protect and conserve relics (places, objects and sites) of Indigenous heritage.	▪ The siting and design of the Proposal has taken into consideration the findings of the Aboriginal Cultural Heritage Assessment. The Aboriginal sites discovered within the

		study area have been avoided for development. ▪ Therefore, the Proposal's impact on existing Indigenous heritage values is expected to be negligible. ▪ It is therefore considered that the Proposal aligns with the objectives and requirements of the AHA Act 1975.
Historic Cultural Heritage Act 1995	▪ Protect and conserve places of cultural heritage significance in Tasmania ▪ Seeks to further objectives of the RMPS	▪ The Proposal's impact on existing cultural heritage values is expected to be negligible, in line with the Historic Heritage Assessment undertaken for this Proposal. ▪ It is therefore considered that the Proposal aligns with the objectives and requirements of the HCH Act.
Major Infrastructure Development and Approvals Act 1999	▪ Make special provisions in relation to the approval of major infrastructure projects. ▪ Applies to projects having effects extending beyond single council area. ▪ Seeks to further objectives of the RMPS.	▪ This planning approvals pathway has not been selected for the Proposal as it is not considered to qualify as a Major Infrastructure Project under the *Land Use Planning and Approvals Act 1993* (Tas.) (LUPAA) given the Proposal's development footprint is within a single Council area.
Water Management Act 1999	▪ Promote the sustainable and fair use, management, and development of freshwater resources. ▪ Maintain ecological processes and diversity of aquatic and riparian ecosystems. ▪ Seeks to further objectives of the RMPS.	▪ It is considered that the Proposal aligns with the objectives and requirements of the *Water Management Act 1999* (Tas.), in accordance with the Flooding Impact Assessment prepared by a suitably qualified hydrologist.
Nature Conservation Act 2002	▪ Conserve and protect fauna, flora and geological diversity of the State. ▪ Protect national parks and other reserved land for related purpose.	▪ The likelihood of impact on the quality of flora and fauna habitat of the Proposal is expected to be negligible. ▪ It is therefore considered that the proposal aligns with the objectives of the NCA Act.
Threatened Species Protection Act 1995	▪ Aim to protect threatened species in Tasmania	▪ Based on the findings of the Flora and Fauna report, some species listed in the act were deemed to have the potential to occur on site. ▪ However, as demonstrated in the masterplan, the Proposal has been sited and designed to ensure the impact on native vegetation and listed matters is negligible.
Forest Practices Act 1985	▪ Provide a code of conduct for forest practices ▪ Aim to conserve and protect land for the use and maintenance forests, native vegetation, and timber assets ▪ maintain natural and cultural values of forests in Tasmania	▪ The Proposal is not deemed to be implicated by the Forest Practices Act 1985.
Tasmania's Climate Change Act (2008)	▪ Aim to achieve net zero greenhouse gas emissions by 2030 and support measures to help the State adapt to climate change	▪ The Proposal will help the state in achieving its emissions target through the generation and storage of additional renewable energy.
Tasmanian Renewable Energy Target 2022	▪ Expand generation of renewable energy and increase network resilience capability ▪ Aim to achieve 150% (15,750 GWh of electricity generated by NEM-connected equipment) by 2030 and 200% (21,100 GWh per the same conditions) by 2040.	▪ The Proposal will be a key contributor to the heightened TRET target and support the Tasmanian Government's transition to a major clean power exporter. ▪ The target in itself highlights the Tasmanian Government's strong support for new renewable energy generators.
Tasmanian Renewable Energy Action Plan 2020	▪ Transform the State into a global renewable energy powerhouse ▪ Improve energy security and lower energy prices through renewable energy generation ▪ Growing the economy and creating jobs	▪ The Proposal to use and develop land for a solar farm is well aligned with the REAP's goals and would contribute to each of its priorities, as well as support its vision.

Regional	Relevant Objectives & Actions	Project alignment
Northern Tasmania Regional Land Use Strategy (2018)	▪ Enable and support opportunities for renewable energy generation	▪ It is considered that the Regional Land Use Strategy is supportive of the development of renewable energy assets in Northern Tasmania.
Northern Tasmanian Region Economic Development Strategy (2019)	▪ Grow regional exports including emerging industries such as renewable energy. ▪ Increase public and private investment in the region	▪ The Proposal will generate substantial investment in the Northern region of Tasmania that has the potential to grow energy exports.
Local	**Relevant Objectives & Actions**	**Project alignment**
Northern Midlands Strategic Plan 2021	▪ Develop Infrastructure that enhances capacity and economic sustainability of local area ▪ Supports diverse, innovative, independent business and industry	▪ The Proposal represents an economically sustainable investment for the local economy and will benefit members of the local community.
Northern Midlands Economic Development Framework (2019)	▪ Actively support economic development opportunities ▪ Encourage increase in private investment and development opportunities enabled by natural environment	▪ The Proposal will generate substantial investment in the region leveraging the natural environment.

6.2 Renewable Energy Guidelines

6.2.1 Energy Networks Australia National Connection Guidelines

The National Connection Guidelines have been developed by Energy Networks Australia to provide a set of nationally consistent guidelines for safe, consistent, and efficient connection of renewable energy sources to the grid. These guidelines have been prepared for network connection of a range of generation technologies and outlines the key technical requirements to facilitate streamlined integration into the national grid as the transition to renewable energy transition continues to intensify.

Assessment

A wide range of technical, safety, social and environmental factors were considered when determining the Proposal's integration into the national grid. Based on these technical requirements, it is considered that the Proposal reflects the key sentiments of the National Connection Guidelines to provide for the safe, consistent, and efficient connection of renewable energy.

6.2.2 Tasmanian Renewable Energy Coordination Framework 2022

The Tasmanian Renewable Energy Coordination Framework contains the specific directions for achieving the abovementioned REAP's goals and vision.

Action 6 – Establish Tasmania's First Renewable Energy Zone

Action 6, of the Framework's third 'pillar', in particular represents a significant opportunity for the Proposal. The Action refers to establishing Tasmania's first Renewable Energy Zone (REZ). The Renewable Energy Zones program is administrated by the AEMO and is intended to form "*high-quality resource areas where clusters of large-scale renewable energy projects can be developed using economies of scale*"[2].

The benefits of an REZ being established in the T3 region (in which the site is located – see Figure 24) would include additional storage utilities, enhanced grid connection, and the potential for government direct investment

[2] AEMO, "Appendix 3 to Draft 2022 ISP for the National Electricity Market", p. 5.

in certain elements of the Proposal. While these benefits would further support the case for developing a BESS on the site, an absence of an REZ would not preclude its development.

Indicative mapping however does suggest that Tasmania's midlands are a candidate Renewable Energy Zone as identified by AEMO (see T3 Central Highlands in Figure 24 below).

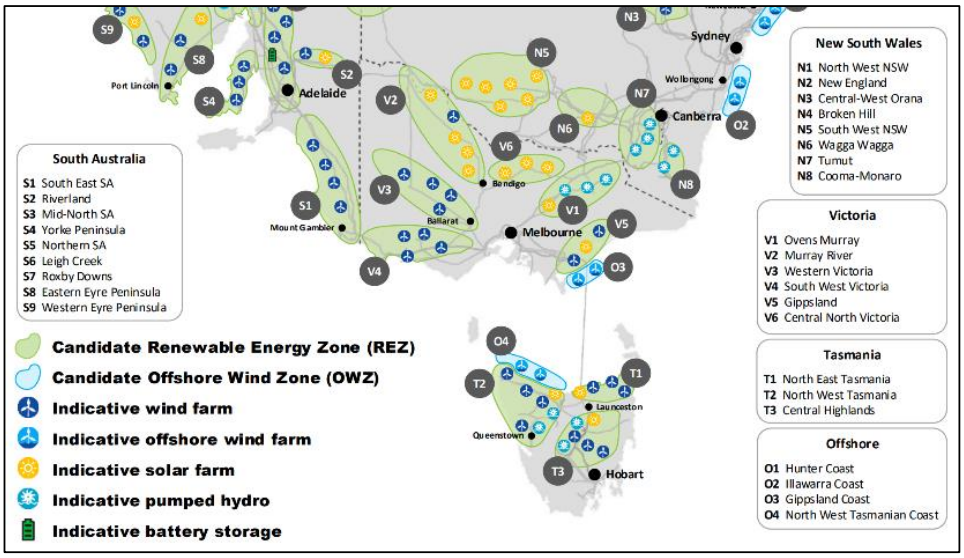


Figure 24 AEMO Renewable Energy Zones

Source: AEMO, Appendix 3 of the Draft 2022 ISP for the National Electricity Market, p. 7.

The Framework further specifies that 'it is envisaged that there will need to be more than one REZ to deliver on all of the State's renewable energy objectives,' and that there will be a 'rolling approach to establishing additional REZ, dependent on variables like the commitment and construction of Marinus Link' and 'organic load growth in the State.'

Action 9 – A Guideline to Community Engagement, Local Procurement and Benefit Sharing Practice

This Action relates to the relationship between genuine community engagement and successful project delivery. One of the goals is to implement "*best-practice community engagement*" standards[3]. The issuing of these guidelines was scheduled for Q2, 2022 and will be administered by a 'REZ Coordinator' (recently identified as RECFIT) who would facilitate broad-based community engagement on behalf of energy stakeholders in REZs.

It is recommended that the Proponent of the Northern Midlands Solar Farm proposal promote the Northern Midlands area to be a 'pilot REZ', via the RECIT as the REZ Coordinator.

Assessment

The Proposal will generate substantial direct and indirect benefits for the Tasmanian economy. It will stimulate job creation and economic growth through renewable energy investment, along with building a skilled workforce.

[3]Renewable Energy Coordination Framework, p. 24.

6.2.3 Draft Guideline for Community Engagement Benefit, Benefit Sharing and Local Procurement 2022

ReCFIT's *Guideline to Community Engagement, Local Procurement and Benefit Sharing Practice* purpose is to set standards for best practice community engagement, benefit sharing and local procurement for renewable energy development projects in Tasmania. Whilst it is specially tailored to Tasmania, it reflects best practice standards from renewable energy development across Australia and the globe. The Guidelines provide key principles to help facilitate appropriate and effective engagement with local communities. It outlines how local communities should best be consulted and involved in a project's lifecycle; how the benefits of developments should be shared to created lasting value in local communities and how to encourage and enable local communities to participate in providing services and skills to new developments.

Assessment

The Proposal has involved community engagement activities guided by the principles of ReCFIT's *Guideline to Community Engagement, Local Procurement and Benefit Sharing Practice*. This has enabled early, proactive, and meaningful engagement with the local community and ensured the benefits are tangible and valued.

Please refer to chapter 5 and Appendix G for further details on the comprehensive community engagement program delivered for this Proposal.

7. Planning Assessment

7.1 Planning Scheme Overview

The Northern Midlands Council reformed its planning system in 2022. This change was made to harmonise it with the new, State-wide Tasmanian Planning Scheme (TPS). New planning schemes under each TPS have two parts: (a) a set of consistent, State-wide planning rules called the State Planning Provisions (SPPs); and (b) Local Provisions Schedules (LPSs), administered by the respective local government, which determines the locations of zones and overlays implemented from the SPPs, and identifies special areas to be subject to additional, unique controls.

Under the Northern Midland Council's current scheme, the Proposal is located within both an Agricultural Zone and a Utilities Zone, under Clauses 21.0 and 26.0 respectively. It is also affected by an Electricity Transmission Infrastructure Protection Code (Clause C4.0), Natural Assets Code (Clause C7.0), and Bushfire Prone Areas Code (Clause C13.0).

7.2 Planning Scheme Operation and Application

The purpose of the Planning Scheme is to control and coordinate use and development by applying planning controls to land. These controls are set out in Zones, Codes and General Provisions, and can become operative when a proposal exceeds certain use or built parameters or is located within a Zone or Code area.

There are two types of controls in the scheme that can be included in Zones, Controls or General Provisions: 'Acceptable Solution' and 'Performance Criteria'. The two are intended to work together. Some controls, however, include only one of either. The purpose of acceptable solutions is to act as suggested, frontline requirements that should be met where possible. The purpose of Performance Criteria, then, is to provide backup decision guidelines for the planning authority to consider if the Acceptable Solution is not met by a proposal. Where there is only an Acceptable Solution, it is considered that it is a requirement, not an encouragement; where there are only Performance Criteria, it is considered that there are no specific requirements, and only decision guidelines.

7.3 Project Definition

The Proposal is appropriately defined in the planning scheme as:

- (Clause 6.0, Table 6.2) **Utilities**: use of land for utilities and infrastructure including:
  - (b) electricity generation;
  - (c) transmitting or distributing gas, oil or electricity;
  - (d) transport networks.

While there are more specific definitions that describe some of the Proposal's components, all components are considered associated with/subservient to the primary component, being the solar farm ('Utilities'), and therefore grouped under the primary use class (Clause 6.2). The use class 'Minor utilities' is not an appropriate description of the Proposal components.

Other definitions within the Planning Scheme that are relevant include:

- (C4.0, C4.3, 4.3.1) **Electricity transmission infrastructure**: means infrastructure for or associated with the transmission of electricity. It includes overhead lines, underground electricity and communication cables, substations, communications station, buildings, structures and access tracks for or associated with the transmission of electricity, and the like.
- (3.0, Table 3.1) **Native vegetation**: means plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not been planted for domestic or commercial purposes.

- (3.0, Table 3.1) **Threatened native vegetation community**: means as defined under the *Nature Conservation Act 2002*.
- (3.0, Table 3.1) **Road**: means land over which the general public has permanent right of passage, including the whole width between abutting property boundaries, all footpaths and the like, and all bridges over which such a road passes.
- (C13.0, C13.3.1) **Hazardous use**: means a use where hazardous chemicals of a manifest quantity are stored on a site.

Although Battery Use/Storage is not clearly defined in the Planning Scheme as a hazardous use, the TFS have determined that both the battery storage compounds and compounds for diesel storage (construction and operating phases) will exceed the manifest quantities and therefore are considered as a hazardous use under the Bushfire Prone Areas Code (Appendix D), as per the *Tasmanian Work Health and Safety Regulations 2022*, Chapter 7, Part 7.1, the *Explosives Act 2012* and Clause C13.0 Bushfire-Prone Areas Code – C1.5.2 – P1. Therefore, these components are considered a '**Hazardous use**'. This is relevant to the assessment against the bushfire and landslip risk codes.

7.4 Summary of Permit Requirements

The Proposal is primarily located within the Agriculture Zone under Clause 21.0 to the Planning Scheme and its permit approval does not require a rezoning. The following Development Application triggers apply to the Proposal, with reliance upon some Performance Criteria among the Use and Development Standards:

- Clause 21.2 Use Table: Discretionary Use Class (Agriculture Zone), relies upon some Performance Criteria
- Clause 26.2 Use Table: Permitted Use Class (Utilities Zone – Palmerston Substation), relies upon some Performance Criteria
- Clause C2.0 Parking and sustainable transport, relies upon some Performance Criteria
- Clause C4.0 Electricity transmission infrastructure protection, relies upon some Performance Criteria
- Clause 7.0 Natural assets (Waterway and coastal protection area only), relies upon some Performance Criteria
- Clause C12.0 Flood-prone areas, relies upon some Performance Criteria
- Clause C13.0 Bushfire-prone areas, relies upon some Performance Criteria

There are no major exemptions to exempt the entire Proposal. For example, the Clause 4.0, Table 4.5, Sub-clause 4.5.1 'Renewable energy exemptions' does not apply. The exemption is for "ground mounted solar energy installations: If covering an area of not more than 18m²". The Proposal is significantly larger than 18 m^2.

However, within specific clauses some exemptions apply to specific components, including within the Historic Heritage, Landslip hazard and Electricity transmission infrastructure protection codes. Under the Planning Scheme Table 4.6 Miscellaneous exemptions, fencing within the Agriculture Zone is exempt.

7.5 Zones

As shown in Figure 25, the Site (and Development Area) is primarily zoned Agriculture, with the Palmerston Substation zoned Utilities.

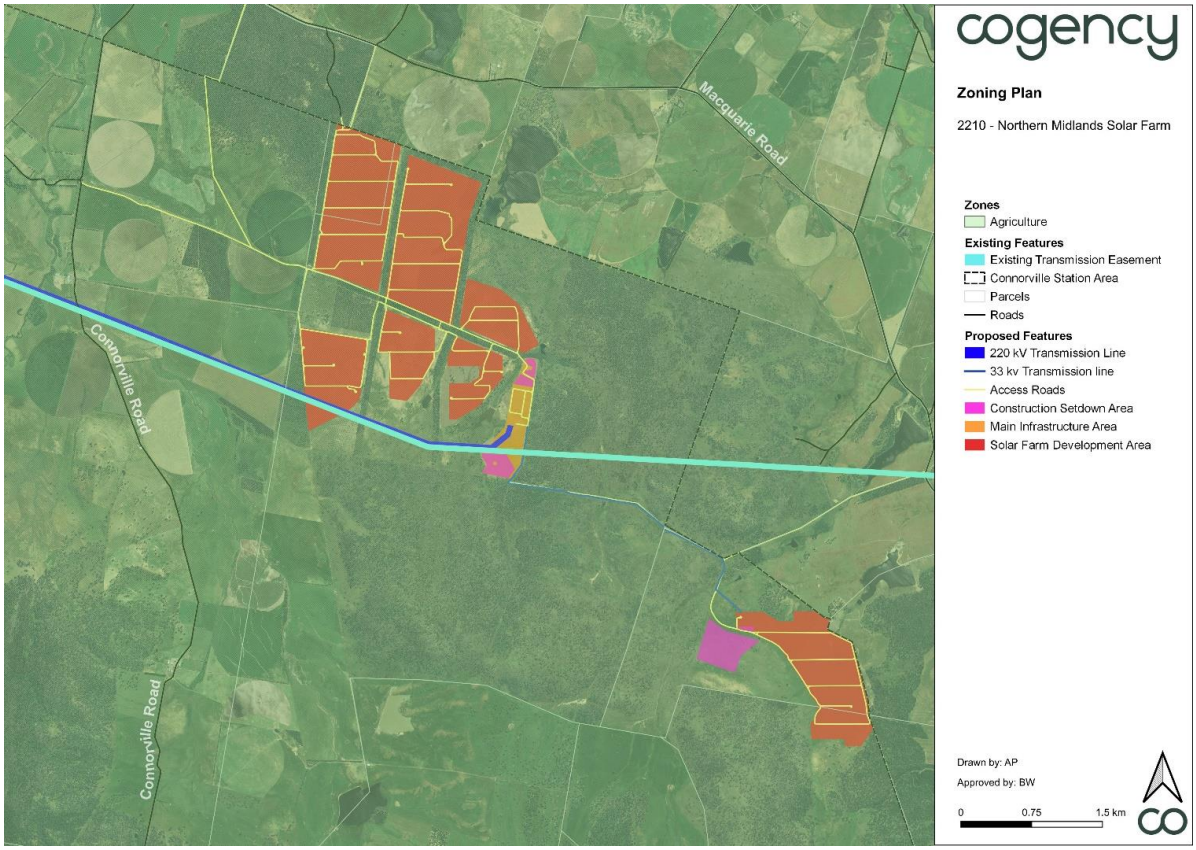


Figure 25 Zoning plan

An assessment against these zones is provided below.

7.5.1 Clause 21.0 – Agriculture Zone

The purpose of the Agriculture Zone is:

- 21.1.1: To provide for the use or development of land for agricultural use.
- 21.1.2: To protect land for the use or development of agricultural use by minimising:
  - (a) conflict with or interference from non-agricultural uses;
  - (b) non-agricultural use or development that precludes the return of the land to agricultural
  - use; and
  - (c) use of land for non-agricultural use in irrigation districts.
- 21.1.3: To provide for use or development that supports the use of the land for agricultural use

Under Clause 21.2 Use Table, the use class for Utilities is Discretionary, with no associated condition.

The following clauses are applicable to the Proposal, with assessment against each provided below:

- 21.3 Use Standards: 21.3.1 Discretionary uses
- 21.4 Development Standards for Buildings and Works (all standards)

Clause 21.5 Development Standards for Subdivision is not applicable as the Proposal does not include subdivision.

Table 8 Agriculture Zone – 21.1 Purpose

Purpose	Response
21.1.1: To provide for the use or development of land for agricultural use.	The Proposal supports agricultural use of the land, as it: ▪ Retains 'Agrisolar' use – grazing of sheep within the solar farm area; ▪ Diversifies the economic income streams for the business; and ▪ Is sited on lower-value land within the property, as well as having a minimal physical impact upon the property.
21.1.2: To protect land for the use or development of agricultural use by minimising: (a) conflict with or interference from non-agricultural uses; (b) non-agricultural use or development that precludes the return of the land to agricultural use; and (c) use of land for non-agricultural use in irrigation districts.	The Proposal does not create any land use conflict and will have a minimal impact upon the existing agricultural use of the land. Refer to the Agricultural Assessment report for further details.
21.1.3: To provide for use or development that supports the use of the land for agricultural use	As noted above, the Proposal supports the agricultural use of the land.

Table 9 Agriculture Zone – 21.3 Use Standards

21.3.1 Discretionary uses	
Objective: That uses listed as Discretionary: (a) support agricultural use; and (b) protect land for agricultural use by minimising the conversion of land to non-agricultural use.	
Acceptable Solution or Performance Criteria	**Assessment**
P1 A use listed as Discretionary, excluding Residential or Resource Development, must be required to locate on the site, for operational or security reasons or the need to contain or minimise impacts arising from the operation such as noise, dust, hours of operation or traffic movements, having regard to: (a) access to a specific naturally occurring resource on the site or on land in the vicinity of the site; (b) access to infrastructure only available on the site or on land in the vicinity of the site; (c) access to a product or material related to an agricultural use; (d) service or support for an agricultural use on the site or on land in the vicinity of the site; (e) the diversification or value adding of an agricultural use on the site or in the vicinity of the site; and (f) provision of essential Emergency Services or Utilities.	**Satisfies P1.** The Discretionary use for Utilities (f) supports diversification and value add of Connorville Station (d, e). In general, large-scale solar farms require a large area of land with appropriate topography and primarily cleared, often suiting agricultural land (c). In this Proposal's circumstance, the siting of the solar farm is proximate to the necessary infrastructure (Palmerston Substation, (b)), and has appropriate solar access (a). The Proposal will directly support the energy needs of Connorville Station as well as providing economic diversity.
P2 A use listed as Discretionary, excluding Residential, must minimise the conversion of agricultural land to non-agricultural use, having regard to: (a) the area of land being converted to non-agricultural use;	**Satisfies P2.** The Proposal includes 432.3 ha of solar arrays and associated infrastructure, with only a very small portion taken out of direct agricultural use. Furthermore, a large portion of the Solar West Development Area has previously been used as a pine plantation, not productive agricultural activities. The majority of the Development Area will

(b) whether the use precludes the land from being returned to an agricultural use; (c) whether the use confines or restrains existing or potential agricultural use on the site or adjoining sites.	continue to be used for sheep grazing (a), will not impact on surrounding agricultural operation (c), and can be fully decommissioned and returned to its former state if/when the solar farm is closed (a).
P3 A use listed as Discretionary, excluding Residential, located on prime agricultural land must: (a) be for Extractive Industry, Resource Development or Utilities, provided that: (i) the area of land converted to the use is minimised; (ii) adverse impacts on the surrounding agricultural use are minimised; and (iii) the site is reasonably required for operational efficiency; or (b) be for a use that demonstrates a significant benefit to the region, having regard to the social, environmental and economic costs and benefits of the proposed use.	**Satisfies P3.** Both (a) and (b) are satisfied by the Proposal. As described above, the Utilities use (solar farm) causes minimal reduction of agricultural land and does not impact surrounding uses. It provides direct use and benefit to the existing use (Connorville Station) and is located in an area proximate to the necessary connection infrastructure. Furthermore, the Proposal will provide significant benefit to the region, in economic investment, diversification, energy security and construction jobs.
A4/P4 (Residential use) does not apply	**Satisfies P4** *(not applicable – Proposal use is not Residential)*.

Table 10 Agriculture Zone – 21.4 Development Standards for Buildings and Works

21.4.1 Building height	
Objective: To provide for a building height that: (a) is necessary for the operation of the use; and (b) minimises adverse impacts on adjoining properties.	
Acceptable Solution or Performance Criteria	**Assessment**
P1 Building height must be necessary for the operation of the use and not cause an unreasonable impact on adjoining properties, having regard to: (a) the proposed height of the building; (b) the topography of the site; (c) the bulk and form of the building; (d) separation from existing use on adjoining properties; (e) the nature of the existing uses on adjoining properties; and (f) any buffers created by natural or other features.	**Satisfies P1.** *Note: The energy installation components (solar farm, BESS, fencing etc) are all below the 12 m acceptable solution height.* Connection to the national grid is a critical and necessary component of the Proposal. Without the proposed 220 kV transmission line and poles connecting to the Palmerston Substation, the Proposal could not proceed. The transmission line and requisite poles will be sited alongside the existing 110 kV transmission line, meaning that it is not introducing a *new* visual impact. While the pole heights are taller than the existing (40 m vs 20 m), the visual impact is considered acceptable given that transmission lines are keeping in with the existing landscape character of the area. The route of the transmission line does not cover any visually prominent or higher-elevated terrain. The transmission line does not cross any buffer areas. The transmission line will be sited a significant distance (greater than 1km) from the non-participating dwellings. While it is within close proximity to a small number of dwellings, these are owned by participating landowners who are willing to host the transmission line and are already close to existing

	transmission infrastructure such as the adjacent 110 kV line. In summary, the use of the existing transmission line corridor for the new line is an appropriate measure, with acceptable height and impact. The attached LVIA assesses and justifies the proposal (Appendix E).
21.4.2 Setbacks	
Objective: That the siting of buildings minimises potential conflict with use on adjoining properties.	
P1 Buildings must be sited to provide adequate vehicle access and not cause an unreasonable impact on existing use on adjoining properties, having regard to: (a) the bulk and form of the building; (b) the nature of existing use on the adjoining properties; (c) separation from existing use on the adjoining properties; and (d) any buffers created by natural or other features.	**Satisfies P1.** The siting of the Proposal is distant from adjoining property uses, particularly any sensitive uses such as dwellings (c). The Context Plan (Figure 10) shows significant separation between the solar farm component of the Proposal and any nearby dwellings. The Solar West area is adjacent to neighbouring agricultural uses, including some pivot irrigation. The Solar East area is adjacent to heavily vegetated land (forestry and forest). All adjacent properties are private freehold land, and the Proposal does not cause an unreasonable impact through use, visual impact or bulk/form (a)(b). There are no relevant buffers for sensitive or hazardous uses or environmental or scenic features (d).
A2 Buildings for a sensitive use must have a setback from all boundaries of: (a) not less than 200m; or (b) if the setback of an existing building for a sensitive use on the site is within 200m of that boundary, not less than the existing building.	**Complies.** The proposal is not a sensitive use.
21.4.3 Access for new dwellings	
Does not apply (no dwelling proposed)	

7.5.2 Clause 26.0 – Utilities Zone

The Palmerston Substation is zoned Utilities, with the Proposal including transmission line connection to the substation (therefore, use and development of Utilities within the zone). The works are within the 'Substation facility buffer area'. The Proponent's consultant team has engaged with TasNetworks through the early concept design stages. The Proposal aligns with the zone purpose, is a Permitted Use Class, and has some relevant Use and Development Standards assessed below.

The following clauses do not apply:

- Clause 26.3.2, as the use class is not Discretionary.
- 26.4.3 Fencing, as no fencing is proposed within the Utilities zone.
- 26.4.4 Outdoor storage areas, as no outdoor storage areas are proposed within the Utilities zone.
- 26.5 Development Standards for Subdivision, as no subdivision is proposed.

Table 11 Utilities Zone – 26.1 Purpose

Purpose	Response
26.1.1: To provide land for major utilities installations and corridors.	The Proposal is for Utilities.
26.1.2: To provide for other compatible uses where they do not adversely impact on the utility.	Not applicable – the Proposal is for Utilities.

Table 12 Utilities Zone – 26.3 Use Standards

21.3.1 Discretionary uses	
Objective: That uses do not cause an unreasonable loss of residential amenity to residential zones.	
Acceptable Solution or Performance Criteria	**Assessment**
A1, A2 and A3.	**Complies with A1, A2 & A3.** These acceptable solutions apply to specific uses (excludes Utilities) only where a site is within 50m of residential zones. The Palmerston Substation is completely surrounded by Agricultural zoned land and therefore these standards are not applicable.

Table 13 Utilities Zone – 26.4 Development Standards for Buildings and Works

26.4.1 Building height	
Objective: That uses do not cause an unreasonable loss of residential amenity to residential zones.	
Acceptable Solution or Performance Criteria	**Assessment**
P1 Building height must: (a) be necessary for the operation of the use and not cause unreasonable impact on adjoining properties, having regard to: (i) the bulk and form of the building; (ii) separation from existing buildings on adjoining properties; and (iii) any buffers created by natural or other features; and (b) not unreasonably impact on the visual character of the area, having regard to: (i) the topography of the site; (ii) any existing vegetation; and (iii) visibility from adjoining roads and public open space.	**Satisfies P1.** The Proposal requires new infrastructure within Palmerston Substation. Key components will include electricity transmission poles and other associated infrastructure that exceed the Acceptable Solution heights. These structures are critical to the use as Utilities and ability to transmit electricity from the Proposal to the NEM. While the buildings and structures exceed the Acceptable Solution height limits, they do not cause unreasonable impact upon adjoining properties or visual character of the area. The Palmerston Substation already contains significant electrical infrastructure with multiple transmission lines connecting into the facility. The additional transmission elements are in keeping with this character.
A2	**Complies (does not apply – no buildings proposed)**
26.4.2 Setbacks	
Objective: That building setbacks are: (a) compatible with the character of the surrounding area; and (b) does not cause an unreasonable loss of amenity to adjoining properties.	

Acceptable Solution or Performance Criteria	Assessment
A1	**Complies (does not apply – no buildings proposed)**
A2	**Complies (does not apply – not within 10m of residential zones)**

7.6 Codes

The Development Area is subject to the following mapped overlays:

- Clause C4.0 Electricity transmission infrastructure protection
- Clause C6.0 Local heritage place
- Clause 7.0 Natural assets (*Waterway and coastal protection area only, not Priority vegetation area*)
- Clause C12.0 Flood-prone areas
- Clause C13.0 Bushfire-prone areas
- Clause C15.0 Landslip hazard (however the Proposal is exempt under this clause).

The following codes are also relevant to the Proposal:

- Clause C2.0 Parking and sustainable transport
- Clause C3.0 Road and railway assets

The following codes are *not* applicable to the Proposal:

- Clause C1.0 Signs (no signage proposed)
- C5.0 Telecommunications Code (no telecommunications facility is proposed)
- C8.0 Scenic Protection Code (not mapped over Development Area, although within property)
- C9.0 Attenuation Code (not mapped)
- C10.0 Coastal Erosion Hazard Code (not mapped)
- C11.0 Coastal Inundation Hazard Code (not mapped)
- C14.0 Potentially Contaminated Land Code (not mapped)
- C16.0 Safeguarding of Airports Code (not mapped)

The following sub-sections provide assessment against relevant codes.

7.6.1 Clause C2.0 Parking and Sustainable Transport Code

See Chapter 6.2 within the Traffic Impact Assessment prepared by Pitt & Sherry (11 May 2023), of the enclosed Appendix H, for an assessment against this code.

One Performance Criteria is relied upon, otherwise all relevant acceptable solutions are complied with. Broadly, the Development Area's size allows for all necessary access, turning, loading and parking requirements to be met.

7.6.2 Clause C3.0 Road and Railway Assets Code

See Chapter 6.1 within the Traffic Impact Assessment prepared by Pitt & Sherry (11 May 2023), of the enclosed Appendix H, for an assessment against this code.

Broadly, the use will generate negligible traffic in operation. During construction, while vehicle traffic generation will exceed a 20% increase, Macquarie Road is currently operating well below capacity, and therefore the Proposal is not expected to generate any unacceptable impacts.

7.6.3 Clause C4.0 – Electricity Transmission Infrastructure Protection Code

The Electricity Transmission Infrastructure Protection Code is mapped across the Site (through Solar West area), pertaining to an existing 110 kV transmission line (Figure 27). This '*electricity transmission corridor'* comprises an 80 m Inner Zone plus 20 m either side (total width 120 m).

Pursuant to Clause C4.2.1, this code applies to the use or development of land within an electricity transmission corridor, if for buildings and works.

The Proposal includes development within the code corridor, comprising:

- The internal 33 kV overhead transmission line (crossing the corridor within Solar West).
- Security fencing 2.1 m tall (crossing the corridor as part of the most south-western solar area within Solar West).
- Temporary construction laydown area in Solar West.
- Alongside the corridor, the proposed 220 kV transmission line.

Nominally, the Proposal triggers this application of the code, although some components are exempt under Clause C4.4.1. The proposed 220 kV transmission line and 33 kV line are exempt under Clause C4.4.1, as they are for use and development of electricity transmission infrastructure. The 220 kV transmission line and 33 kV line are considered to meet the purpose and expectations of the code. Similarly, any works undertaken within Palmerston Substation's 'Substation facility' and 'Substation facility buffer area' will be for electricity transmission infrastructure and therefore is exempt.

The below assessment therefore focuses on the development components listed above and excludes the proposed 220 kV transmission line and internal 33 kV line.

Broadly, the Proposal does not include any major development within the overlay that could create conflict with the existing transmission infrastructure, and therefore is appropriate.

Some of the Development Standards do not apply. The Proposal is not for a sensitive use, not a use listed within Table C.4.1 (Uses with potential to create dust or other airborne particulates) and does not include subdivision.

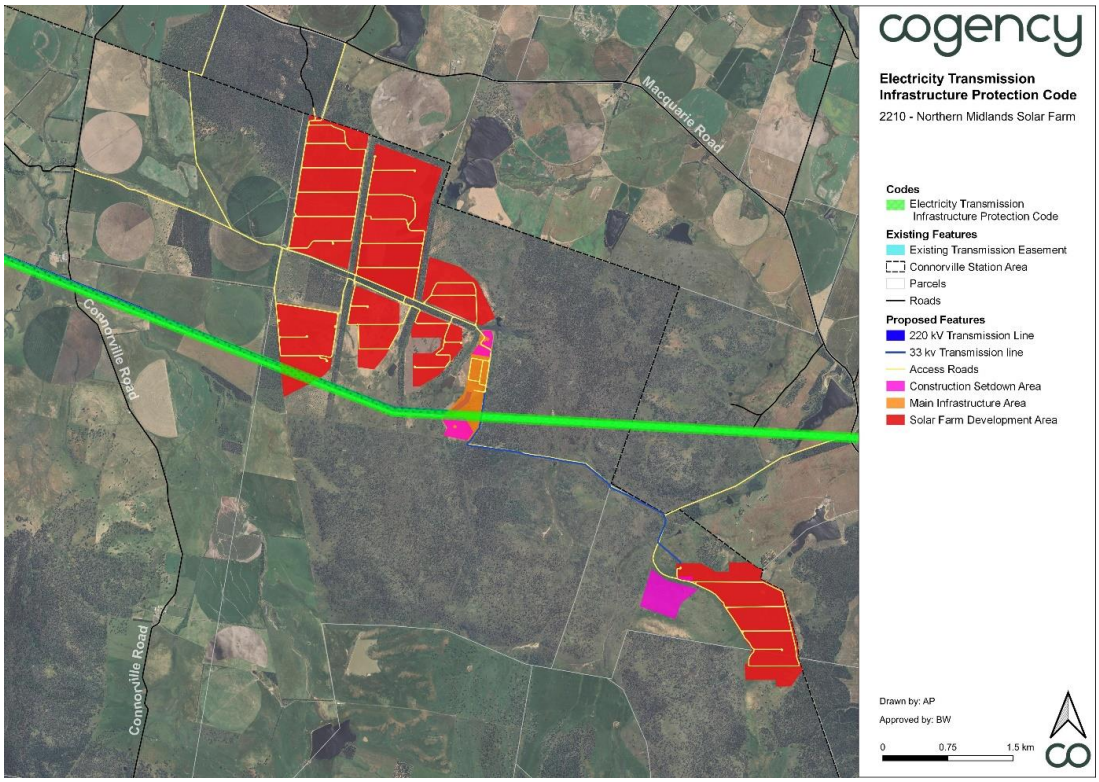


Figure 26 Electricity Transmission Infrastructure Protection Overlay - Solar area

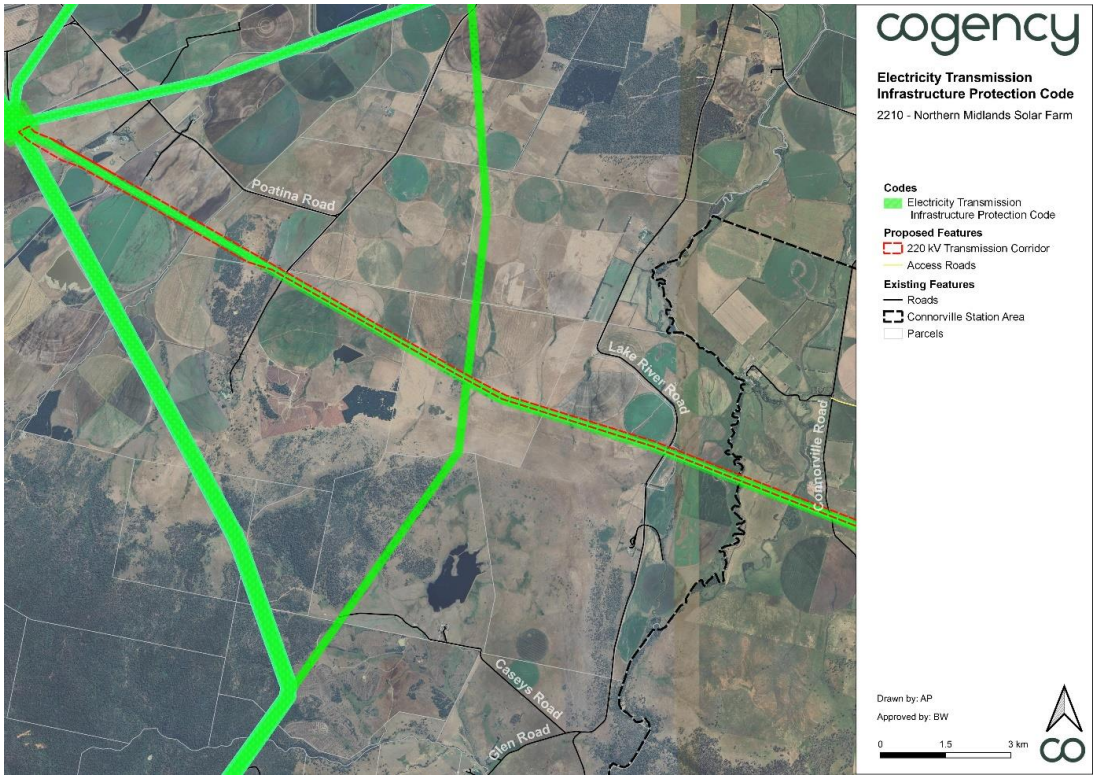


Figure 27 Electricity Transmission Infrastructure Protection Overlay – Transmission line area

Table 14 Electricity Transmission Infrastructure Protection Code – C4.1 Purpose

Purpose	Response
C4.1.1: To protect use and development against hazards associated with proximity to electricity transmission infrastructure.	The Proposal is sited so that it does not create any hazards or conflict with the nearby electricity transmission infrastructure.
C4.1.2: To ensure that use and development near existing and future electricity transmission infrastructure does not adversely affect the safe and reliable operation of that infrastructure.	The Proposal is sited so that it does not adversely affect the safe and reliable operation with the nearby electricity transmission infrastructure.
C4.1.3: To maintain future opportunities for electricity transmission infrastructure.	The Proposal includes expansion of the transmission network, in an appropriate location adjacent to existing lines.

Table 15 Electricity Transmission Infrastructure Protection Code – 21.3 Use Standards

C4.5.1 Sensitive use within a substation facility buffer area
Does not apply (not a sensitive use)
C4.5.2 Dust or other airborne particulates within an electricity transmission corridor
Does not apply (not a use listed in Table C4.1)
C4.5.3 Dust or other airborne particulates within a substation facility buffer
Does not apply (not a use listed in Table C4.1)

Table 16 Electricity Transmission Infrastructure Protection Code – C4.6 Development Standards for Buildings and Works

C4.6.1 Buildings or works within an electricity transmission corridor	
Objective: That buildings or works within an electricity transmission corridor are located at appropriate distances from transmission lines or cables to: (a) ensure operational efficiencies, access to, and security of, existing or future electricity transmission infrastructure; and (b) protect against a safety hazard associated with proximity to existing or future electricity transmission infrastructure.	
Acceptable Solution or Performance Criteria	**Assessment**
P1 Buildings or works within an electricity transmission corridor must not cause an unreasonable impact on the safety, security, operation of, or access to, existing or future electricity transmission infrastructure, having regard to: (a) the nature, height and materials of the buildings and works; (b) the extent of encroachment of the buildings and works into the electricity transmission corridor; (c) the location of the buildings and works within the electricity transmission corridor; and (d) any advice from the electricity entity.	**Satisfies P1.** The Proposal includes two structural components that cross the existing inner protection zone and easement: the 33 kV overhead transmission line (which is exempt) and the 2.1 m tall security fence. Both elements are acceptable and do not impact the existing electricity transmission infrastructure. The Proponent consultant team have had ongoing engagement with TasNetworks, who will also provide written advice as part of a referral of this application.
C4.6.2 Buildings or works within a substation facility buffer area	
Objective: That buildings or works within a substation facility buffer area are appropriately located to minimise risk to the security, operation, safety and access to existing and future electricity transmission infrastructure.	

P1 Buildings or works within a substation facility buffer area and located less than 5m from a substation facility, must minimise any impact on the safety, security, operation or access to the substation facility, having regard to: (a) the nature, height, and materials of the buildings and works; (b) the location of the buildings and works; (c) any proposed mitigation measures; and (d) any advice from the electricity entity.	**Satisfies P1.** The only works within the substation facility buffer area are part of the 220 kV transmission line, therefore are exempt and appropriate and do not impact the safety, security, operation or access to the substation facility.

7.6.4 Clause C6.0 – Local Historic Heritage Code

Pursuant to Clause C6.2.1, this code applies to development (not use) on land within a local heritage place. While there are two relevant local heritage places mapped over distinct areas of the Site (Connorville Station and Woodside House, cited in Table 17 (Figure 28)), under Clause C6.2.3 this code does not apply, because they are both registered places entered on the Tasmanian Heritage Register.

In 2013, amendments to the *Historic Cultural Heritage Act 1995* were made, with the primary goal of streamlining the approvals process and better align the Heritage Act with the Planning Act. Under the Amendment applicants need only lodge a single Development Application. The Planning Authority then refers the application to the Heritage Council, who has the opportunity to advise the Planning Authority whether or not it has an interest in the Development Application and may request further information under s57 of the LUPAA. If the Heritage Council does not have an interest in the Development Application, it reverts to the status it has under the Scheme or Planning Act.

The supporting Historic Heritage Assessment (Appendix K) provides further details, including the recommendation that a heritage Certificate of Exemption is appropriate.

Table 17 NOR-Table C6.1 Local Heritage Places

Reference Number	THR Number	Town / Locality	Street Address	Property Name	Folio of the Register	Description, Specific Extent, Statement of Local Historic Heritage Significance and Historic Heritage Values
NOR-C6.1.100	5056	Cressy	394 Macquarie Road	Connorville	133307/1	**Description:** House, outbuildings, mill and garden **Specific Extent:** Specific extent is limited to the part of the title defined in the THC central plan register, where available.
NOR-C6.1.105	5072	Cressy	4740 Poatina Road	Woodside House	126579/2	**Description:** House, includes outbuildings, wall and garden **Specific Extent:** Specific extent is limited to the part of the title defined in the THC central plan register, where available.

The exemption under Clause C6.2.3 means that no assessment against the Development Standards of the Code is required.

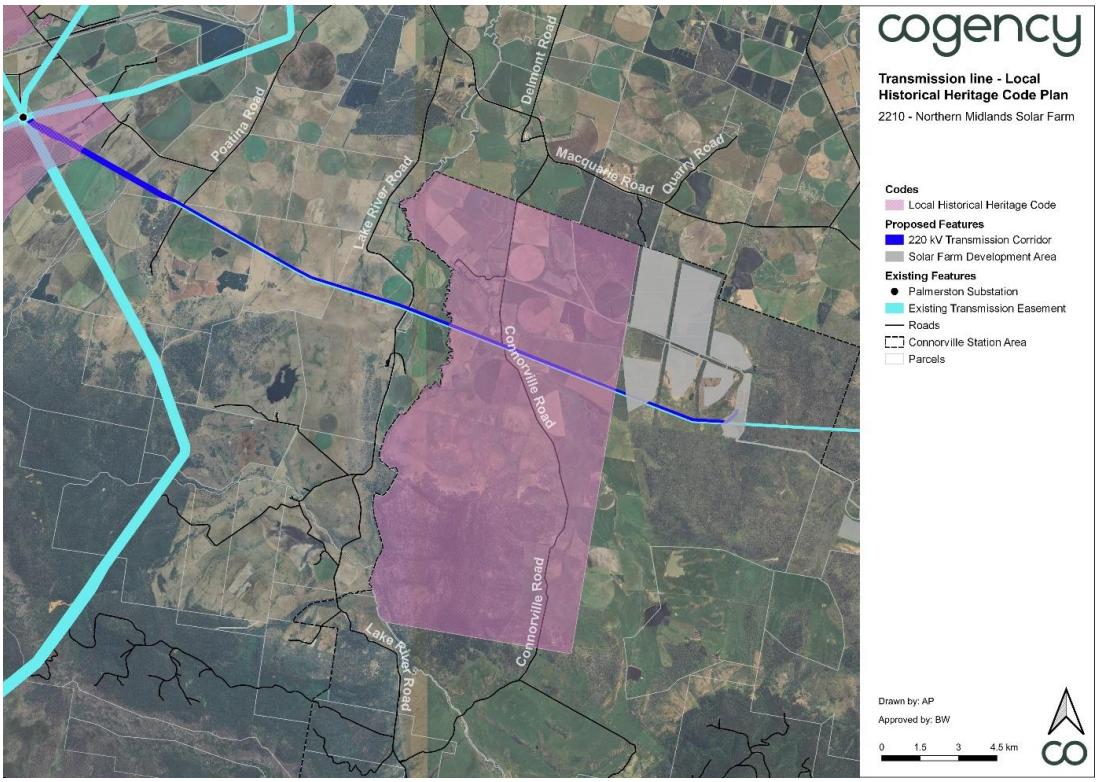


Figure 28 Local Heritage Place, Connorville

7.6.5 Clause C7.0 – Natural Assets Code

Pursuant to Clause C7.2.1, this code applies to development on land within a waterway and coastal protection area. There are a number of mapped waterways within the Development Area (Figure 29 and

Figure 30), comprising minor tributaries, tributaries, artificial drains, streams and dams. Solar East and Solar West are situated in locations that may be affected by overland flow or small distributed streams. Within Solar West, five of the six solar array areas have watercourses running through them. While most waterway corridors have been avoided and excluded from development, some solar arrays are located within a waterway corridor.

The layout of solar arrays has fully avoided areas with a 'H3' to 'H6' hazard rating, consistent with recommendations in the Flooding Impact Assessment (Appendix M), with H6 being the most hazardous areas. The Flooding Impact Assessment also recommends that building works and solar panel placement avoid the 'H2' hazard areas where possible, as a conservative approach. It states that solar farm development may be able to occur within H2 areas provided that appropriate flood mitigation measures involving earthworks/fill are implemented as part of detailed design in accordance with further detailed hydrological studies. Accordingly, the layout of the Proposal largely avoids these H2 hazard areas, and where panels are proposed to be located within H2, earthworks/fill will be implemented as part of detailed design.

That report also notes the ability to micro-site transmission poles means that modelling of the proposed 220 kV transmission line is not necessary.

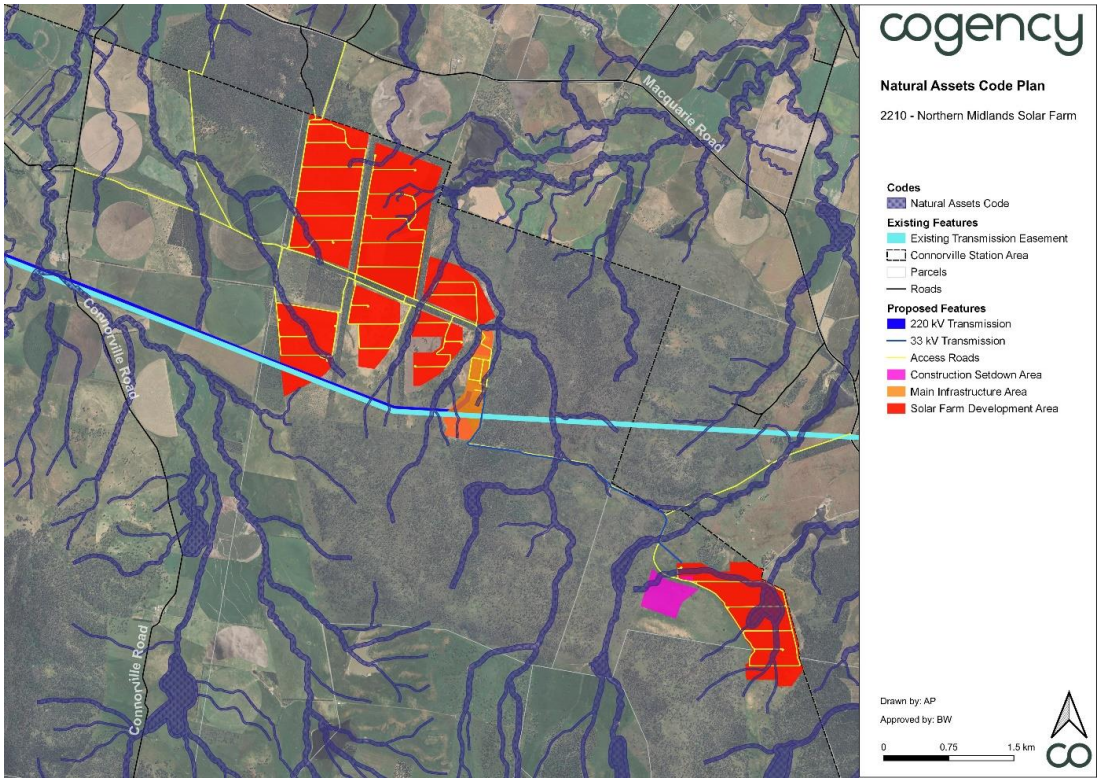


Figure 29 Natural Assets Code (Waterways) - Solar area

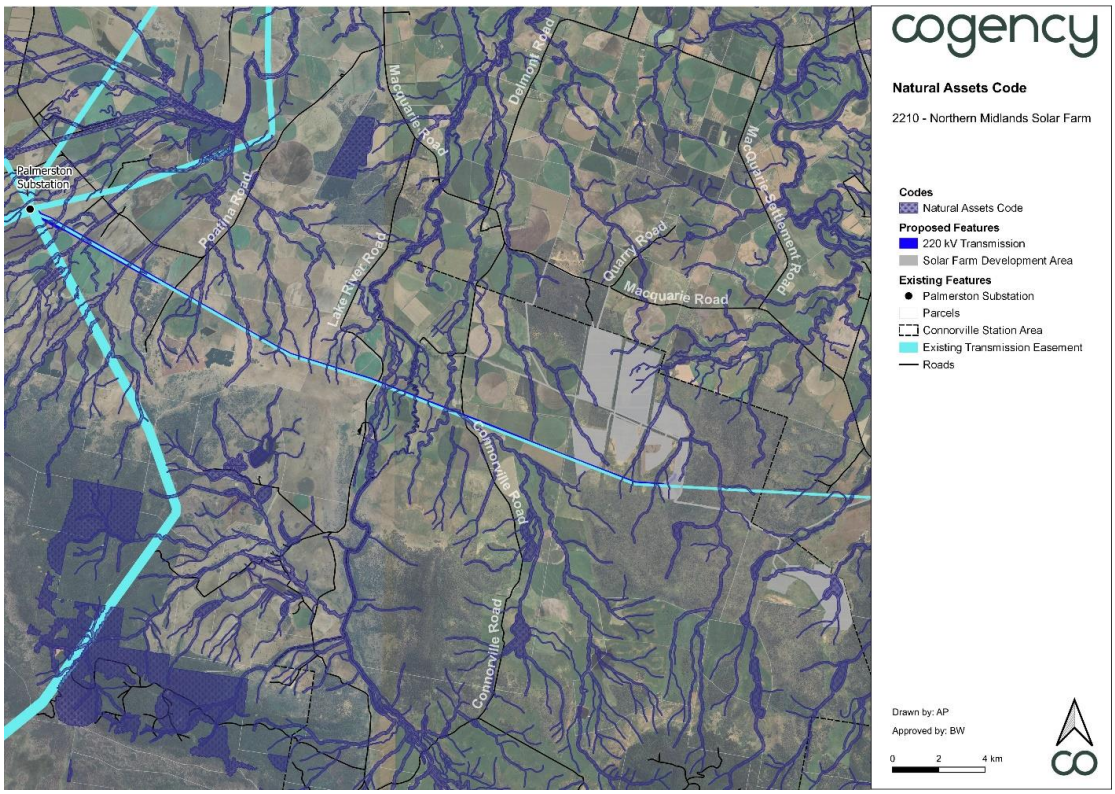


Figure 30 Natural Assets Code (Waterways) - Transmission line area

Table 18 Natural Assets Code (Waterways) – C7.1 Purpose

Purpose	Response
C7.1.1 To minimise impacts on water quality, natural assets including native riparian vegetation, river condition and the natural ecological function of watercourses, wetlands and lakes.	The Proposal does not create impacts upon water quality, as demonstrated in the supporting flooding impact assessment report. Where possible, the Proposal avoids the waterway corridors. The solar panels that are sited within potential flood prone areas are not expected to impact the quality or ecological function of those watercourses.
C7.1.2 To minimise impacts on coastal and foreshore assets, native littoral vegetation, natural coastal processes and the natural ecological function of the coast.	*Not applicable*
C7.1.3 To protect vulnerable coastal areas to enable natural processes to continue to occur, including the landward transgression of sand dunes, wetlands, saltmarshes and other sensitive coastal habitats due to sea-level rise.	*Not applicable*
C7.1.4 To minimise impacts on identified priority vegetation.	*Not applicable*
C7.1.5 To manage impacts on threatened fauna species by minimising clearance of significant habitat.	*Not applicable*

Within this code, ‘natural assets’ means biodiversity, environmental flows, natural streambank and streambed condition, riparian vegetation, littoral vegetation, water quality, wetlands, river condition and waterway and/or coastal values.

Table 19 Natural Assets Code (Waterways) – C7.6 Development Standards for Buildings and Works

C7.6.1 Buildings and works within a waterway and coastal protection area or a future coastal refugia area	
Objective: That buildings and works within a waterway and coastal protection area or future coastal refugia area will not have an unnecessary or unacceptable impact on natural assets.	
Acceptable Solution or Performance Criteria	**Assessment**
P1.1 Buildings and works within a waterway and coastal protection area must avoid or minimise adverse impacts on natural assets, having regard to: (a) impacts caused by erosion, siltation, sedimentation and runoff; (b) impacts on riparian or littoral vegetation; (c) maintaining natural streambank and streambed condition, where it exists; (d) impacts on in-stream natural habitat, such as fallen logs, bank overhangs, rocks and trailing vegetation; (e) the need to avoid significantly impeding natural flow and drainage; (f) the need to maintain fish passage, where known to exist; (g) the need to avoid land filling of wetlands; (h) the need to group new facilities with existing facilities, where reasonably practical; (i) minimising cut and fill; (j) building design that responds to the particular size, shape, contours or slope of the land; (k) minimising impacts on coastal processes, including sand movement and wave action; (l) minimising the need for future works for the protection of natural assets, infrastructure and property; (m) the environmental best practice guidelines in the *Wetlands and Waterways Works Manual*; and (n) the guidelines in the *Tasmanian Coastal Works Manual*.	**Satisfies P1.1** The Proposal has typically been designed around waterways and areas of material inundation (as modelled in the supporting flooding assessment report). In the instances where solar arrays are proposed within the waterway corridors, their pile-driven installation means that physical impact is negligible. Furthermore, the waterways primarily run openly through cleared agricultural paddocks and therefore have been heavily grazed and often highly modified. No waterways will have their flow impeded, with only minor instances of some drainage diversion around proposed assets. As noted in the supporting report, buildings and other key infrastructure will be located outside of the waterways marked in the Code and those defined in the modelling.
A2 / P2.1/P2.2 Does not apply (not a future coastal refuge area)	
A3 Development within a waterway and coastal protection area or a future coastal refugia area must not involve a new stormwater point discharge into a watercourse, wetland or lake.	Complies No points of discharge into a waterway are required.
A4 Dredging or reclamation must not occur within a waterway and coastal protection area or a future coastal refugia area.	Complies No dredging is proposed.
A5 Coastal protection works or watercourse erosion or inundation protection works must not occur within a waterway and coastal protection area or a future coastal refugia area.	Complies No watercourse erosion protection works are proposed.

C7.6.2 Clearance within a priority vegetation area
Does not apply (not within a priority vegetation area)

7.6.6 Clause C12.0 – Flood-Prone Areas Hazard Code

Pursuant to Clause C12.2.1, this code applies to development of land within a flood-prone hazard area.

The proposed 220 kV transmission line crosses Lake River, with an associated flood-prone area (Figure 31). There are no relevant exemptions under Clause C12.4.1.

The supporting Flooding Impact Assessment (Appendix M) assesses the Proposal and potential flooding related to these areas. The report states that micro-siting of the transmission line poles can avoid potential flooding issues and therefore is acceptable. The following Development Standards assessment is taken from that report.

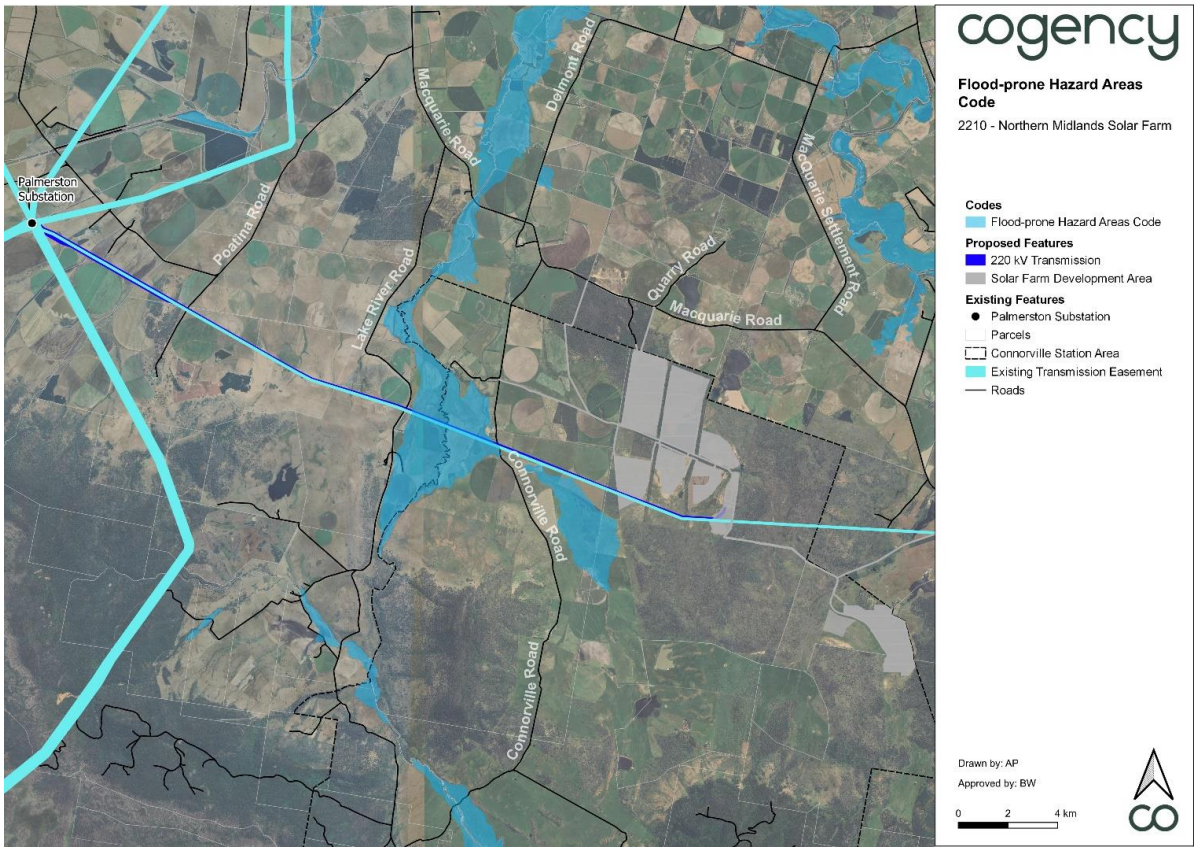


Figure 31 Flood Prone Areas Hazard Code

Table 20 Flood-Prone Areas Hazard Code – C12.6 Development Standards for Buildings and Works

C12.6.1 Buildings and works within a flood-prone hazard area
Objective: That: (a) building and works within a flood-prone hazard area can achieve and maintain a tolerable risk from flood; and (b) buildings and works do not increase the risk from flood to adjacent land and public infrastructure.

Acceptable Solution or Performance Criteria	Assessment
P1.1 Buildings and works within a flood-prone hazard area must achieve and maintain a tolerable risk from a flood, having regard to: (a) the type, form, scale and intended duration of the development; (b) whether any increase in the level of risk from flood requires any specific hazard reduction or protection measures; (c) any advice from a State authority, regulated entity or a council; and (d) the advice contained in a flood hazard report.	**Satisfies P1.1.** P1.1(a) – The form and scale of the development will be minimised by locating assets outside of the flow paths outlined in the modelling. P1.1(b) – The detailed design phase will address the specific hazard protection measures (such as cut off drains and bunding of critical infrastructure). It is noted that the primary approach is to locate solar panels outside of flow paths. Where additional measures are required to manage overland flow, these will be identified at a detailed design phase to ensure that as infrastructure design develops the flood related controls are appropriate. P1.1(c) – Relevant authorities' advice will be adhered to when received. This assessment has not identified any specific advice P.1.1(d) –The development will comply with the recommendations in this report. Primarily to locate infrastructure outside of flow path location.
P1.2 A flood hazard report also demonstrates that the building and works: (a) do not cause or contribute to flood on the site, on adjacent land or public infrastructure; and (b) can achieve and maintain a tolerable risk from a 1% annual exceedance probability flood event for the intended life of the use without requiring any flood protection measures.	**Satisfies P1.2.** P1.2(a) – The proposed development will not contribute to flooding on this site or adjacent land. Flows will be contained to existing flow paths and directed to existing dams and waterways. P1.2(b) –Peak hazard ratings are in acceptable ranges and construction is proposed to be avoided. See Appendix A of the supporting Flooding Assessment Report for site hazard mapping.

7.6.7 Clause C13.0 Bushfire-Prone Areas Code

Pursuant to Clause C13.2.1, this code applies to subdivision and use for a vulnerable or 'hazardous' use within the mapped area. The entire site is mapped within the Bushfire-Prone Hazard Area. Under C13.3.1, 'Hazardous use' means a use where:

(a) hazardous chemicals of a manifest quantity are stored on a site; or

(b) explosives are stored on a site and where classified as an explosives location or large explosives location as specified in the *Explosives Act 2012*.

As discussed earlier, as determined by the TFS, under the Bushfire-Prone Areas Code, the BESS and required fuel storage components of the Proposal are considered a Hazardous use. To address this, a Bushfire Impact Statement (BIS) has been prepared (Appendix D). The BIS is supported by a Bushfire Emergency Management Strategy (BEMS), Bushfire Mitigation Plan (BMP) and plans for each area of the proposal (that show a Bushfire Hazard Management Area (HMA)). Furthermore, the Victorian Country Fire Authority *Design Guidelines and Model Requirements - Renewable Energy Facilities* (v3 March 2022) have been considered in the design of the Proposal, to minimise risk. Where a requirement of the Planning Scheme is more stringent than the CFA guidelines, the Planning Scheme requirement has been addressed as the minimum.

The BMP outlines design requirements including emergency vehicle access, static water (firefighting) supply, vegetation layout, firebreaks and separation of renewable energy components.

The TFS have been engaged as part of the preparation of the Bushfire Impact Statement and relevant supporting plans.

In addition to the BIS, BEMS and BMP, the BESS design process has been supported by NJM Design, specialised consultants who have prepared a Fire Hazard and Risk Assessment specific to the BESS and solar arrays (Appendix 4 within Appendix D).

As taken from the supporting report, Table 21 provides an assessment against the relevant Clause C13.5.2 (Clause C13.5.1 Vulnerable uses does not apply).

Table 21 Bushfire-Prone Areas Code – C13.5 Use Standards

C13.5.2 Hazardous uses	
Objective: That hazardous uses can only be located on land within a bushfire-prone area where tolerable risks are achieved through mitigation measures that take into account the specific characteristics of both the hazardous use and the bushfire hazard.	
Acceptable Solution or Performance Criteria	**Assessment**
P1 A hazardous use must only be located in a bushfire-prone area if a tolerable risk from bushfire can be achieved and maintained, having regard to: (a) the location, characteristics, nature and scale of the use; (b) whether there is an overriding benefit to the community; (c) whether there is no suitable alternative lower-risk site; (d) the emergency management strategy (hazardous use) and bushfire management plan; and (e) other advice, if any, from the TFS.	**Satisfies P1.** The proposed location of the development is in a suitable site on a title where there is an excellent resource to generate electricity from solar. The risk from bushfire is considered tolerable as long as the measures proposed in this BIS, the BMP and the BHMP are adhered to.
A2 An emergency management strategy (hazardous use) endorsed by the TFS or accredited person.	**Complies with A2.** ▪ A BEMS has been developed. ▪ All hazardous substances must be stored and signed as per requirements under the Work Health & Safety Act 2012, the Explosives Act 2012, and AS1940, AS3780 & AS2187 to limit the risk of exposure to a hazardous substance in a bushfire emergency ▪ All hazardous materials storage must be ember proof ▪ All hazardous chemicals will be stored in bunded areas, which will assist in preventing any spill entering the surrounding landscape and contributing to the nearby bushfire threat ▪ A local ignition event could lead to there not being enough time to leave the site and so occupants may need to take refuge on site in areas away from the hazardous materials, the site office facilities are the recommended location until the Operation and Maintenance building is constructed, which will then take over as the shelter in place facilities
A3 A bushfire hazard management plan that contains appropriate bushfire protection measures that is certified by the TFS or an accredited person.	**Complies with A3.** ▪ A BMP has been prepared for the entire site ▪ A BHMP has been developed and a HMA has been designed (where each known hazardous use is located) and endorsed by an accredited person (as part of the BMP) ▪ Any buildings within the hazardous use sites storing hazardous materials must be constructed to BAL 12.5 standards as a minimum ▪ HMAs have designed with setbacks from each location's boundaries, with all land within the boundary also required to be managed as part of the HMA. The

	HMA for each location also incorporates all other site infrastructure, access, and the proposed water supply ▪ Access across the Site will be adequate for bushfire purposes and for evacuation purposes ▪ A static water supply that is compliant with Table C13.5 of the Code must be installed at each hazardous use site.

Chapter 9.12 provides further detail on bushfire risk.

7.6.8 Clause C15.0 – Landslip Hazard Code

Pursuant to Clause C15.2.1, this code applies to use or development of land within a landslip hazard area.

Small patches of 'Low' landslip hazard risk areas exist within the Development Area, both in the solar installation and transmission line areas (Figure 32 and Figure 33).

Despite the fractional overlap of the Development Area and low landslip hazard risk area, the development is exempt under Clause C15.4.1 (a) and (e):

- (a) use of land within a low or medium landslip hazard band, excluding for a critical use, hazardous use or vulnerable use;
- (e) development, including subdivision, on land within a low landslip hazard band, if it does not involve significant works;

The areas of overlap include some security fencing in the Solar West area and two internal access track crossings just north of the same area. The proposed 220 kV transmission line can easily avoid the areas of low hazard risk in the detailed design process.

Clause C15.3.1 defines **Significant works** as any of the following:

(a) excavation equal to or greater than 1m in depth, including temporary excavations for the installation or maintenance of services or pipes;

(b) excavation or land filling of greater than 100m^3 whether or not material is sourced on the site or imported;

(c) felling or removal of vegetation over a contiguous area greater than 1000m^2;

(d) the collection, pooling or storage of water in a dam, pond, tank or swimming pool with a volume of more than 45000L;

(e) removal, redirection, or introduction of drainage for surface or groundwater; and

(f) discharge of stormwater, sewage, water storage overflow or another wastewater.

The minor works proposed within areas of landslip hazard risk do not comprise 'significant works' under the above definition.

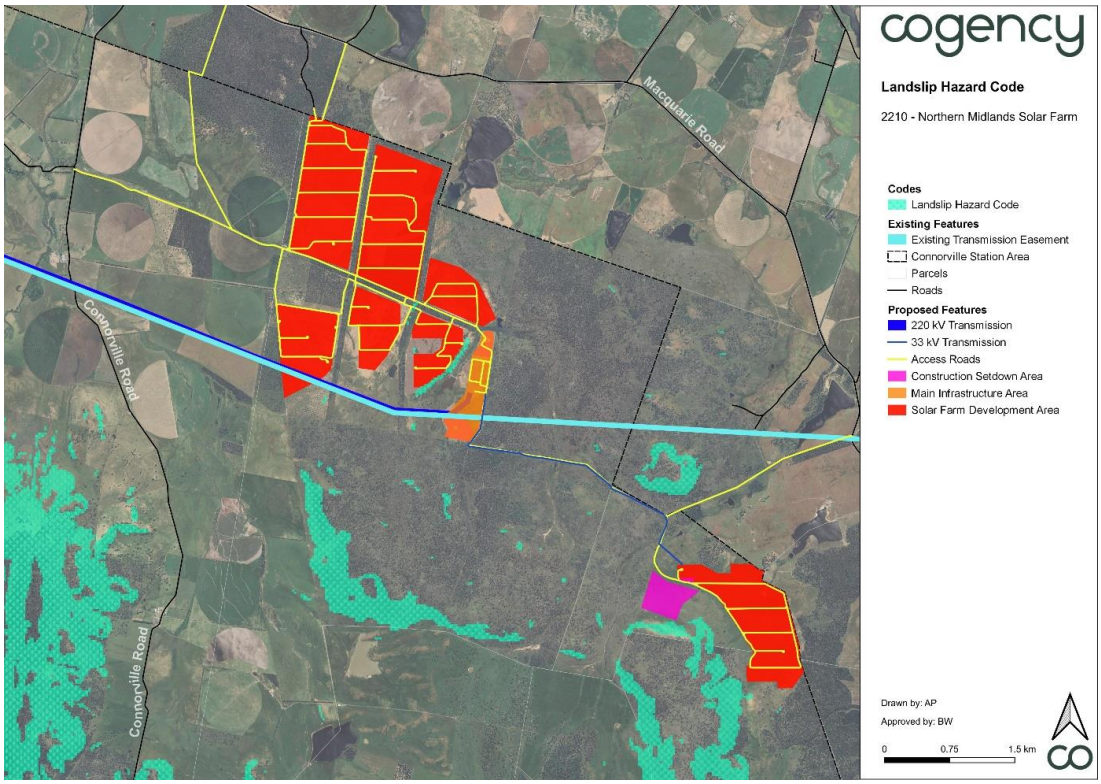


Figure 32 Landslip Hazard Area – Solar area

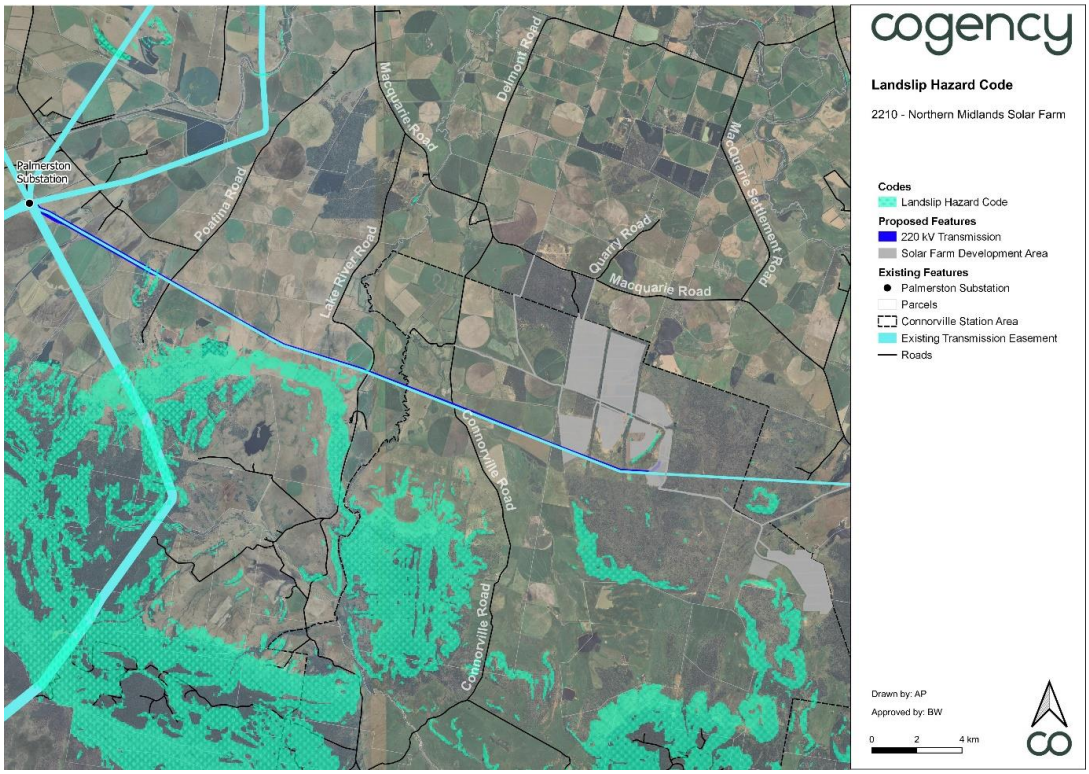


Figure 33 Landslip Hazard Area – Transmission line area

7.7 Northern Midlands Local Provisions Schedule

There are no Local Area Objectives or other relevant provisions within the LPS, except those already addressed in prior sections, including the Local Historic Heritage Code. It is noted that the Scenic Protection Area Code covers some areas within the Connorville Station property, but no development is proposed within these areas.

7.8 Planning Assessment Summary

As demonstrated in the above sections, the Proposal is consistent with the applicable planning provisions. While the Use Class Utilities is Discretionary within the Agriculture Zone, the Proposal is consistent with the objectives of the Agriculture Zone and Utilities Zone, and complies with applicable Acceptable Solutions or, where necessary, satisfies applicable Performance Criteria under the zones and relevant codes.

The Proposal has been designed to avoid and minimise key hazards and considerations, or mitigate where required, including against landslip risk, bushfire risk, inundation risk, infrastructure protection, natural values (waterways and native vegetation) and cultural and historic heritage.

The buildings and works are considered appropriate to their surrounds, do not impact the amenity of nearby neighbours, and have been sited to minimise visual appearance. Considering the complexity of the Proposal, the current proposed plans necessitate an element of flexibility, particularly for micro-siting of transmission poles.

The Proposal supports ongoing agricultural use on the Site and will provide significant local and regional economic benefits.

It is considered that the Proposal is highly consistent with the applicable planning provisions and should be approved.

8. Relevant Applications and Amendments

As previously mentioned, the Northern Midlands Council reformed its planning system in 2022. This change was made to harmonise the planning provisions with the new, State-wide TPS and came into effect in November 2022. There are currently no other existing public applications and/or amendments nearby the Northern Midlands Solar Farm that will impede the development of the Proposal.

Based on publicly available information, it appears that Tas Irrigation are proposing a pipeline realignment following the existing 110 kV transmission easement between Billopp Road and the Palmerston Substation near Poatina. Whilst the final alignment of is subject to change, the current plans show the pipeline running along the southern side of the existing easement. Engagements with TasNetworks and Tas Irrigation are ongoing to coordinate the interface between these proposed works.

Other renewable energy projects are at various stages of the development process within the Northern Midlands catchment area. It has been noted that Akaysha Energy are developing a BESS to the north of the Palmerston Substation near Poatina. It is unlikely that the two projects will impede each other, conversely, both can benefit from the proximity to the strength of skills and existing infrastructure in the region. The presence of multiple renewable energy developments is positive for the Northern Midlands region and is an important step to increasing reliable and affordable power, and to ensuring growth in Tasmania's economy through investment and job creation.

9. Technical Impact Assessments

A group of suitably qualified, experienced specialist consultants were engaged to assess and provide input to the Proposal.

The following environmental and technical impact assessments have been prepared to support the Development Application and should be read in conjunction with this Planning Report:

- Design Plans (Appendix C), including:
  - Technical Engineering and Transmission Concept Design, Entura
  - Solar Tracker General Arrangement, FTC
  - BESS design, DNV
  - Transmission corridors and indicative siting, Entura and Cogency
- Bushfire Impact Statement, Ground Proof Mapping and Fire Hazard and Risk Assessment, NJM Design (Appendix D)
- Landscape and Visual Impact Assessment, Moir Landscape (Appendix E)
- Socio-Economic Assessment, Urban Enterprise (Appendix F)
- Community & Stakeholder Engagement Summary Report, Cogency Australia (Appendix G)
- Traffic Impact Assessment, Pitt & Sherry (Appendix H)
- Agricultural Assessment, Ag-Challenge (Appendix I)
- Cultural Heritage Assessment, Cultural Heritage Management Australia (Appendix J)
- Historic Heritage Assessment, Cultural Heritage Management Australia (Appendix K)
- Flora and Fauna Assessment, Nature Advisory (Appendix L)
- Flooding Impact Assessment, Pitt & Sherry (Appendix M)
- Acid Sulfate Soil Investigation, Pitt & Sherry (Appendix N)
- Noise Impact Assessment, SLR Consulting (Appendix O)

Furthermore, Watts Advisory was engaged to provide advice on grid connection, and Page Seager law firm was engaged to provide legal advice throughout the process, including in relation to the adjacent Conservation Covenant. A geotechnical consultant will be engaged to assess the design and layout of the Proposal at the appropriate time.

9.1 Technical Engineering and Transmission Concept Design

The technical design of the BESS has been undertaken by DNV with the remaining development components primarily designed by Entura (Appendix C). Both sets of design plans have been iteratively developed, informed by technical investigations as they have been developed.

The overall design layout has focused upon working with the natural topography and environmental context. The design is situated in cleared agricultural paddocks, on the lower-value agricultural land within Connorville Station. This means that any natural values have been avoided and minimised.

The design plans will be subject to further detailed design, with an expected planning permit condition to provide updated plans or allowing for minor amendment to endorsed plans. The complexity of a major renewable energy generation facility requires other consents beyond planning, particularly grid connection design and approval by TasNetworks.

9.2 Landscape and Visual Impact

The LVIA (prepared by Moir Landscape Architecture) has reviewed key viewpoints and locations with potential views towards the Proposal, as well as provided an overview of the proposed treatments which may be considered to assist in the mitigation of potential visual impacts.

The assessment includes a broad landscape character assessment, character zones and scenic quality, visual sensitivity and visual impact. While there are some mapped areas under the Scenic Protection Code in the vicinity of the Proposal, there is no development within these mapped areas. The existing 110 kV overhead transmission lines and poles that cross the Site (connecting Palmerston Substation to Avoca Substation) are viewed as part of the existing visual character. The assessment states that the proposed 220 kV overhead transmission line is in keeping with the existing character visible in the surrounding area. Furthermore, there are very limited opportunities to view the Proposal from publicly accessible land and roads, including the majority of Macquarie Road, Connorville Road and Lake River Road.

The surrounding character can be recognised as rural properties generally cleared - outside the Conservation Covenants - to support farming activities including irrigated pastures, grazing and cropping. South of the Project, the Great Western Tiers Mountain Range is a key landscape feature, heavily vegetated.

A Digital Terrain Model (DTM) was utilised to map potential 'visual exposure' from the surrounding area, essentially a theoretical or worst-case scenario based upon topography, as visual elements such as vegetation and structures are not represented on the DTM. This modelling demonstrates potential visual exposure and combined with further detailed analysis found very low overall visual exposure, from both public viewpoints and nearby dwellings. There are 21 dwellings within 2 kms of the solar array areas, with 15 dwellings have been identified as having a 'nil' visual impact, the remaining 6 dwellings have been identified as having a 'low' visual impact as these dwellings are located at a higher elevation and/or have reduced vegetation screening between the dwelling and the Development Area.

Importantly, the proposed associated infrastructure, specifically the transmission line connecting the Proposal to Palmerston Substation, will have a low visual change to the landscape as it aligns with the existing transmission line which already forms part of the existing visual landscape.

The associated Landscape Plan provides suggested planting species and locations for fast-growing, low-height native plantings to add further screening of the Proposal. It is noted however, that existing vegetation around the solar areas already sufficiently screens and fragments views towards the Proposal.

9.3 Socio-Economic

Urban Enterprise's socioeconomic impact assessment (SEIA) identifies and assesses the suite of socioeconomic impacts that could be generated by the project. Economic impacts relate to the direct and indirect economic activities that are generated through the construction and operational phase of the project. Social impacts relate to changes (both positive and negative) that may occur to the way people live and the environment during the project's lifecycle.

The SEIA analysis considers existing local and regional socioeconomics, noting that the Proposal will draw on a regional, state and national supply chain during the development, construction and operation phases of the project. Local and regional opportunities will present for regional businesses in general construction and civil works, electrical and engineering, parts manufacturing, transport, machinery operating and servicing. Within the catchment there is a relatively high level of unemployment.

The estimated construction investment of $478 million is estimated to generate $1.09 billion in total economic output and support 986 (FTE) jobs during the construction phase, including 370 direct jobs. The ongoing operation of the solar farm is estimated to generate $36 million in total economic output and support 27 (FTE) jobs per annum, which includes 11 direct jobs (FTE).

Council will receive an uplift in revenue in the form of additional rates and charges due to a change in land use on-site. The estimated revenue uplift delivered to Council in year 1 is in the order of $36k per annum. Ongoing rate revenue will be redirected into the Northern Midlands community for wider benefit.

Some of the 370 construction workers will be imported from outside of the region and will require a mix of rental housing and commercial accommodation. Greater Launceston has adequate rental property and commercial

room capacity to meet accommodation demand generated by the project's construction phase. However, if all renewable projects are delivered across Tasmania (as planned), servicing the cumulative housing needs could place temporary upward pressure on rents and commercial room rates.

Under the Agrisolar proposal for NMSF, sheep grazing will replace cropping and cattle grazing on the development area. The potential reduction in agricultural value would be negligible and would have low impact on the property's agricultural amenity. All other agricultural activities currently in use across the balance of Connorville Station will remain.

Overall, the Proposal carries strong economic benefits, provides significant construction jobs, and due to its siting does not create amenity impacts. The timing of other major renewable projects in Tasmania is difficult to predict, but a high overlap of projects may create competition for labour force. There may be short-term construction impacts upon rental housing within the area.

9.4 Traffic Impact

The Traffic Impact Assessment (TIA) details existing conditions of site access and transport routes, traffic volumes and safety history. The TIA has been undertaken in iterations, informing site access design and layout. The proposed upgrading of four farm access tracks will provide the solar area access points, along with Connorville Road – all access points have appropriate sight distances.

Overall, the existing road network and proposed road upgrades are suitable for the Proposal. There are no negative transport impacts with all roads capable of carrying the additional construction traffic loads. Once operational, there will be very minimal increases in traffic. The construction traffic required to use Lake River Road (for transmission construction) may warrant additional signage at the approaches to the Lake River Road/Macquarie Road intersection. There will potentially be works required to Billopp Road, to be confirmed in detailed design. A Construction Management Plan will include Traffic Management Plan requirements.

If Over Size and Over Mass (OSOM) Vehicles are required for delivery of major components, further OSOM route assessment would be required. Any vehicles greater than 26m B-double will require additional consideration and should have an approved Traffic Management Plan detailing the trip route and specifics, or a permit (as required).

Internal access roads will be designed to provide appropriate heavy vehicle and fire-truck access. The construction laydown areas will provide more than ample carparking.

No additional turning treatments are required. The impact of traffic generated by the ongoing operation of the NMSF development is expected to be minimal during both the AM and PM peak hours and throughout the day. The 10-20 daily vehicle movements to and from the site will likely occur earlier than the current AM peak (11:00am-12:00pm) or later than the PM peak (3:00pm-4:00pm). Heavy vehicles required to access or egress the site, post construction, are expected to be negligible. The additional traffic generated by the development post-construction represents less than 5% of the existing traffic on Macquarie Road and is not expected to impact the function or operation of the surrounding network or affect the existing crash risk.

9.5 Agricultural

The Agricultural Assessment study was undertaken on the five parcels of land within Connorville Station that form part of the Proposal Site. The study assigns a Land Capability Classification (based on standard methodology). The classification system ranges from a rating of one through seven and is hierarchal in which Class 1 land is considered the best land and is highly versatile for a range of agricultural uses, and as the Class unit increases, more inherent limitations are considered to decrease the agricultural versatility of the land. Classes 1 to 4 are considered suitable for cropping activities, Classes 5 to 6 should be limited to pastoral grazing, and Class 7 is considered unsuitable for agricultural uses due to major limitations and required land management practices.

The Solar East and Solar West areas are majority Class 4, but also have areas of Class 5, 5-6, and a limited area of Class 6. This indicates serious limitations to agricultural usefulness and the land is limited to intensive to light grazing practices with high risks of crop failure.

The combined parcels of land within Connorville Station are considered productive farmland. The proposed change of primary land use within the Development Area to solar energy production will mean that the current agricultural versatility (cropping or grazing) will be reduced in favour of the alternative primary use for energy production. The design of the solar farm will however enable sheep to be grazed underneath the solar panels, thus retaining some of the current level of agricultural productivity. Underneath the solar array, solar panels will limit pasture access to sunlight and water, reducing pasture productivity. Positively, solar panels will benefit the welfare of sheep, as the shelter provided will help combat impacts of cold, frost, rain and harsh heat on sheep and lambs. Agricultural versatility and productivity will be reduced, however positive aspects of solar panels on animal welfare partly mitigate this reduction, particularly within the Development Area where frost is a high risk.

The proposed transmission line running from the Solar West Area to Palmerston Substation will have a negligible impact on livestock grazing practices.

Regarding the Agrisolar component, the grazing will have the primary purpose of managing fuel load to a defined maximum for the duration of the fire risk period, while at the same time also maintaining a soil cover in excess of 70% to protect the soil surface from rainfall impact during storm events. Soil management and fire risk mitigation objectives will take precedence over fattening of livestock.

A weed management plan will be prepared as part of the Proposal's detailed design. The weed management plan will aim to suppress the growth of weeds and ensure that any *declared weeds* by the Tasmanian Government of concern are suppressed as far as practical.

The assessment concludes that there is no perceived detrimental impact on the continued agricultural use of surrounding properties for grazing, cropping and irrigation as a consequence of the Proposal.

9.6 Aboriginal Cultural Heritage

Cultural Heritage Management Australia (CHMA) have undertaken an Aboriginal Cultural Heritage Assessment. The three primary stages of the assessment were Stage 1 (Pre-fieldwork and background work), Stage 2 (Field work) and Stage 3 (Report preparation). The final report outlines the aims, results and recommendations of the study. This report was endorsed by Aboriginal Heritage Tasmania on 15 August 2023.

The study area for this assessment comprises land to the south of the Macquarie River valley and to the east of the Lake River. The terrain across the study area is typically quite gently undulating and is drained by a series of ephemeral water courses. Being outside the main river valleys, site and artefact densities across the study area would reasonably be expected to be lower compared with the main river valleys.

The Stage 1 search of the Aboriginal Heritage Register (AHR) determined the extent of registered Aboriginal heritage sites within and in the general vicinity of the study area. The AHR search showed that there are a total of 38 registered Aboriginal sites that are situated within an approximate 5km radius of the study area. None of these 38 registered Aboriginal sites are located within or in the immediate vicinity of the Proposal's Development Area. The closest registered site is situated around 2km to the south. The majority of the sites are clustered around the Macquarie River, to the north of the study area.

However, the field survey assessment of the NMSF project footprint resulted in the identification and recording of five Aboriginal heritage sites. Two of these sites are classified as artefact scatters (AH14167 and AH14168), with the other three sites classified as Isolated artefacts (AH14148, AH14165, AH14166). The values of these sites vary between low-medium aesthetic and scientific significance, and medium-high social significance. The first recommendation for these sites is avoidance of development. Site AH14167 is the largest of the recorded sites and is a high-density artefact scatter comprising 90+ artefacts. Four of the five sites are within close proximity to the Development Area, and the fifth is further west, along the proposed 220 kV transmission route.

CHMA's findings have influenced the design and siting of the Proposal. The Entura engineering design plans (Appendix C) demonstrate that the Proposal avoids all four Aboriginal heritage sites. As such, the Proposal avoids all sites of significance. This is consistent with the Statement of Cultural/Social Significance by Vernon Graham within the report: "As long as sites AH14167, AH14168, AH14148, AH14165 and AH14166 can be avoided and protected, I am satisfied that this proposal poses a minimal risk of impacting Aboriginal heritage values."

Other recommendations relating to construction management and unanticipated finds will be undertaken throughout construction of the Proposal.

9.7 Historic Heritage

CHMA undertook a Historic Heritage Assessment, including an archaeological potential investigation for the Development Area. There are two properties listed on the Tasmanian Heritage Register (THR) (Connorville Station THR 5056 & Woodside THR 5072), as detailed in Chapter 7.6.4.

The report notes the THR listings for both properties are based primarily on the heritage values of their buildings, not the broader properties.

CHMA could not source the Central Plan Register for Connorville, and therefore had to assume the THR listing applied to the entire property, despite noting the buildings are the basis for the listing. Connorville was originally owned by Roderic O'Connor, a wealthy landowner and practical engineer who emigrated from Ireland. The house, mill, outbuildings and garden were constructed in the period between 1824–1842. The house would be rebuilt in 1924 but the outbuildings remain. It is still owned by the O'Connor family. The setting of the house in the landscape and the relationship to the outbuildings is important. No historic heritage features were identified during the survey, and it was confirmed that the Proposal avoids any of the buildings on the Connorville Station property, which are the primary basis for the heritage significance of the property and heritage landscape plantings associated with the property. A review of the available information does not indicate that any dwellings or other structures were ever constructed within or in the immediate vicinity of the Development Area and based on the observations made during the survey, the archaeological potential within and immediately surrounding the Development Area has been assessed as low.

The Central Plan Register for the Woodside property shows that the heritage listed boundaries of the property is restricted to a 2.35ha area that encompasses the main homestead and immediate surrounds. Approximately 1.5km of the transmission line corridor runs through the boundaries of the Woodside property. However, the transmission line corridor is situated over 500m south of the CPR listed boundaries of the Woodside Homestead complex.

On the basis of the above, the report concludes that it is clear that the impacts on the heritage values of the Connorville property will be negligible. It is therefore advised that a Certificate of Exemption is warranted for these works.

9.8 Flora and Fauna

The Flora and Fauna Assessment (Nature Advisory, Appendix L) study area covered an expanded area to ensure the surrounds of the Development Area and all transmission line options were assessed. This assisted in refining the design layout and select.

Much of the Solar West and Solar East Development Area have been cleared of trees in the past to support pasture for grazing of livestock. These cleared areas are generally considered to be of low quality native or non-native vegetation, with a low potential to support listed flora and fauna species. Areas of native vegetation are generally found along the habitat corridors between paddocks, and along the proposed access roads, and considered to be of 'moderate' 'high', or 'very high' quality, and provide 'moderate' or 'high' fauna habitat. These areas have a higher potential to support listed flora and fauna species compared to the agricultural land.

The proposed 220 kV transmission corridor comprises cleared land or vegetation of low-quality habitat potential.

The combined desktop evaluation and field survey indicated potential suitable habitat for 31 listed flora species in the study area. Habitat for most of these species occurs within higher quality shelter belts and treed reserves around the properties and in adjacent woodland/forest habitat of the access track between Solar East and Solar West.

The assessment found that some listed wetland flora species could potentially occur within lower lying areas of the central properties, drainage lines, small ponds and higher quality riparian habitat along Lake River within option 2.1 and 2.2 of the transmission line. These considerations fed into the selection of option 1 (the selected transmission line route for this Proposal), as it has the least interaction with higher quality vegetation and fauna habitat. In accordance with the Flora and Fauna Assessment recommendations, areas of habitat mapped as moderate, high and very high quality (see Figure 3 of the report), have been avoided where possible.

As demonstrated in the masterplan, the Proposal is sited on predominantly low-quality agricultural land, leaving the native vegetation corridors intact. Infrastructure has been sited within areas of low-quality habitat and no mapped native vegetation (see Figures 3 and 4 of the supporting report). Furthermore, the proposal seeks to utilise existing access tracks or tracks through farmland where possible to avoid impacts on treed shelterbelts or woodland areas. This approach results in the Proposal having the least impact on native vegetation and listed matters.

The current layout of the Proposal aims to avoid any suitable habitat for EPBC Act listed values. Further micro siting of access tracks and other solar farm components will confirm this. If this is achieved, an EPBC Referral will not be required. An EPBC Act Referral would only be required if EPBC Act listed flora species or ecological communities were found to be present within impacted areas during further surveys and detailed design, and if a significant impact to these values is expected.

Therefore, at this stage, the Proposal is not expected to impact matters of national environmental significance and does not require formal assessment and approval under the EPBC Act.

9.9 Hydrology and Flood

The Flooding Impact Assessment (Pitt & Sherry, 12 May 2023) considers the topography and hydrology of a catchment study boundary, generally expanding beyond Solar East and Solar West, to undertake flood modelling, to inform the Proposal.

The report notes that modelling along the proposed 220 kV transmission line is unnecessary, as micro-siting of poles can avoid any potential impacts.

There are a number of watercourses through the solar farm and infrastructure development areas. The report models potential flooding, including 1% AEP events (that considers the impacts of climate change), and produces flood depth, duration and velocity results.

9.9.1 Results and recommendations

The Proposal will not contribute to flooding on site or adjacent land. Flows will be contained to existing flow paths and directed to existing dams and waterways. Peak flood hazard ratings are in acceptable ranges and high-hazard areas have been identified to inform and/or avoid construction. Specific flood hazard protection/reduction measures will be addressed in detailed design phase. Detailed design of earthworks and infrastructure placement will avoid and address hydrological risk.

The Flooding Impact Assessment provides flood hazard ratings across the Development Area, with H1 being the lowest flood hazard and H6 being the greatest flood hazard. As discussed in chapter 7.6.5 above, the layout of the Proposal fully avoids areas with a hazard rating of H3 to H6 hazard rating, consistent with recommendations in the Flooding Impact Assessment (Appendix M). The Flooding Impact Assessment also

recommends that building works and solar panel placement avoid the 'H2' hazard areas where possible, as a conservative approach. It states that solar farm development may be able to occur within H2 areas provided that appropriate flood mitigation measures involving earthworks/fill are implemented as part of detailed design in accordance with further detailed hydrological studies. Accordingly, the layout of the Proposal largely avoids these H2 hazard areas, and where panels are proposed to be located within H2, earthworks/fill will be implemented as part of detailed design.

Solar West

Within the Solar West area, there are several significant flow paths through the site that could be detrimental to the solar panels. Accordingly, construction of solar panels in these concentrated flow paths have been avoided. Construction in areas downstream of dams and other water retention infrastructure should consider flood hazard ratings and appropriate level of risk associated with dam outflows/spillways. Flows are concentrated in these locations and will be of greater hazard than elsewhere on the site.

Broadly across the entire Solar West site, velocity of water is low to medium. Velocities are generally below 2m/s and only exceed this in the more defined flow paths.

Water should be safely conveyed through the area along these existing flow paths requiring minimal improvements (if any) to drainage infrastructure.

Infrastructure Area (Solar West)

The infrastructure zone shown in Figure 16 of the report shows one larger flow through towards the eastern end of the Solar West area. Other minor flows in the area can be accommodated with surface drainage to allow for the location of critical infrastructure.

Open drainage channels and/or bunding around critical assets will protect the area from the 1% AEP flows. Further study should be carried out when location of assets is finalised to size the critical drainage infrastructure (pits, pipes, cut off drains etc).

Solar East

The smaller Solar East site is within a large bowl that has a significant flow restriction on the outlet which causes water to back up and pond. Towards the bottom of Solar East, water depths reach roughly 1m and back up, filling the bowl. The extent of inundation in the 1% AEP (includes impacts of climate change) event is presented in Figure 18 of the report.

Portions of the two panel regions may be unsuitable for the placement of panels due to water levels. Water velocities in this area are low, however this is due to the backwater affect. Locating panels within the backwater region is unlikely to have an impact on flood behaviour. As panels are proposed to be installed in these regions, it is recommended to review the flood depth maps against the height of solar panel infrastructure to ensure the infrastructure is not adversely impacted.

Roads and Culverts

Access roads and the culverts that drain them are a typical risk on all flooded sites. Mitigation measures such as scour (rock) protection, maintenance and clearing, headwall/wingwall optimisation, and potential for larger culverts are recommended to be explored during detailed design.

Dams and Spillways

There are several dams throughout the Development Area and wider Connorville Station. During floods they fill and present a risk both due to the deep water in the dam and due to the fast-flowing water leaving the dam via spillways and other infrastructure. The majority of the dams sit below the proposed panel locations and therefore won't impact the Proposal. A total of six dams are located within Solar West and one dam within Solar

East. Only the dam in the Solar East area is situated within the development footprint and spillway outflows contribute to flood hazard ratings of H3 – H4 in the 1% AEP event (includes impacts of climate change). A flood emergency response plan is recommended to be explored at detailed design phase for this dam.

Main Infrastructure Area

The location of assets in the main infrastructure area is more sensitive given their composition (BESS and switchyard, etc). Locations of items such as BESS and other electrical infrastructure will need to be protected from flooding impacts. This area has limited overland flow paths and is located within the lowest hazard category ranking (H1). Therefore, drainage works, and earth levels (via cut and fill) can attain necessary flood prevention. The report recommends at least 1 m lateral flood clearance, representing the 1% AEP flood level (includes impacts of climate change) + 300mm freeboard.

Management of water quality

The use of existing vehicle tracks within Connorville Station significantly reduces the need for new internal vehicle tracks, reducing potential risks for water runoff quality. A CEMP (as a condition on permit) would include restrictions for the construction of vehicular crossings, including sediment control, and if required, appropriate sizing of culverts to avoid negative water quality impacts. All internal tracks are unsealed and will remain unsealed, with limited need for culverts anticipated.

Beyond the construction phase (with sediment control managed by a CEMP (as a condition on permit), the operational phase of the solar farm will have no impacts upon water quality, particularly as it flows off-site. The post-development conditions of solar panels will have no impact upon water runoff or quality. Similarly, the post-development conditions of transmission line infrastructure will have no impact upon water runoff or quality. The hardstand infrastructure and BESS areas are located a significant distance from neighbouring properties, and while they increase impermeable surfaces, they are upstream of dams internal to Connorville Station. Accordingly, there are no expected impacts upon water runoff quality.

9.10 Acid Sulphate

Acid Sulfate Soils (ASS) is a collective term for natural, waterlogged soils that contain sulfides formed by underwater bacterial activity. Once exposed to air through disturbances such as excavation or drainage, oxidation can produce sulfuric acid in large quantities, which can be harmful to sensitive ecosystems if not properly managed.

Within the LISTmap there is a mapped layer of ASS modelling, shown in Figure 5 of the Acid Sulfate Soil Investigation report. That shows the Solar West and Solar East areas are clear of any ASS risk mapping. Most of the land immediately surrounding the Solar West and Solar East areas are also not mapped for any risk. There are some limited areas along the proposed 220 kV transmission line mapped as low and extremely low probability of occurrence.

The Acid Sulfate Soil Investigation recommends some limited further testing, partly dependent upon detailed design (for instance, whether or not waterways will be disturbed). Broadly, the investigation states that testing of the Solar West area is not warranted, and limited testing of Solar East may be warranted. Overall, the risk of ASS is considered low.

9.11 Acoustic

Noise modelling was conducted, supported by unattended noise monitoring conducted at the two closest identified dwellings, located approximately 4 km from the proposed solar farm. The Noise Impact Assessment (Appendix O) concludes that key potential impacts in relation to noise are:

- **Noise from construction activities:** All construction works will be completed under a Construction Environmental Management Plan (CEMP). Due to the distances between the proposed site and the closest receptors construction noise impacts are relatively minimal. However, scheduling construction activities in

accordance with the Prohibited Hours as defined in the Regulations, community engagement and best practice noise management controls, regular maintenance, broadband reversing beepers etc. will further minimise residual risk of harm to nearby receptors.

- **Noise from operational activities:** The closest receptor is located approximately 1,250 m north of Solar West. Night-time compliance is achieved at this receptor with the current modelling with no additional mitigation. Some receptors close to the existing transmission line corridor may experience some corona ('buzzing') noise during periods of heavy rain or high humidity, the installation of any additional transmission lines to cater for this Proposal is not expected to increase corona noise at these receptors significantly.

Overall, the acoustic impacts generated by the Proposal are expected to be negligible, due to the significant distance between the Development Area and sensitive receptors, and the key components of the Proposal (such as the BESS and switchyards) being centrally located within the Development Area. The recommendations outlined in chapter 7.1 of the Noise Impact Assessment report will be addressed as part of detailed design.

9.12 Bushfire Impact Statement and Fire Hazard and Risk

Two specialists have been engaged to consider bushfire and fire hazard and risk. For the BESS design specifically, NJM Design have undertaken a Fire Hazard and Risk Assessment (Appendix 4 within Appendix D). Ground Proof Mapping were engaged for broader assessment, including the Bushfire Impact Statement (BIS) (Appendix D). The BIS has been signed off by the TFS.

Much of the farming land to the north and northwest, where most of the fire weather comes from during the summer bushfire period, is under irrigation, resulting in minimal fire risk. Ignition sources would be limited to occurrences such as escapes from burning of stubble from crops or fire from farm harvesting machinery.

The (BIS) analyses bushfire risk in the landscape and proposal design contexts, identifying and assessing bushfire risk to the development, isolating the areas (Solar Farm East, Solar Farm West, Infrastructure Compounds and the Transmission Line Route Options), including both bushfire emanating from the site and bushfire impacting the site from an external source.

Chapter 7.6.7 provides an assessment of the Proposal (specifically the Hazardous use components: BESS and fuel storage) against the Bushfire-prone areas code.

The BIS concludes that whilst the Development Area is shown as being located in a Bushfire Prone Area and there is potential for bushfire threat, the overall risk is deemed low, especially if specific recommended measures are taken to mitigate the risk.

Recommended mitigation measures to moderate the risk to an acceptable level are listed below:

1. Implement all measures and strategies as listed in the Bushfire Mitigation Plan (BMP) specific to the facility location and design (hazard management areas, access, bushfire fighting water supply and firebreaks) for the entire development.
2. Implement all measures and strategies as listed in the BMP specific to the construction (vegetation & fuel management, machinery usage, fuel storage, semi-permanent office & storage buildings) and production phases.
3. As part of the BMP, provide a Bushfire Hazard Management Plan (BHMP) and more specifically a Hazard Management Area (HMA) for all identified hazardous uses, to meet the requirements Tasmanian Planning Scheme – Northern Midlands Local Provision Schedule 2022, and more specifically, C13.0 Bushfire-Prone Areas Code.
4. As part of the BMP, incorporate a Bushfire Emergency Management Strategy (BEMS) to ensure that the facility is prepared in the event of an unplanned fire, providing for safety of site personnel, emergency responders and the community. This will cover the construction and production phases. This BEMS will guide the formation of a Bushfire Emergency Plan (BEP) to be prepared at Building Approval stage.
5. Implement all recommended mitigation measures as defined in Table 5 of this BIS.
6. Apply fuel reduction planned burning to Conservation Covenants CPR7165, CPR5542 and CPR8717 to reduce fuel loads to the north and northwest of the development sites.

Any residual risk remaining, after ensuring that the above mitigation measures are implemented or undertaken, would be minimal. It should be noted that bushfire risk in this landscape situation cannot be fully reduced as vegetation still exists within and surrounding the site area. Further risk management should focus on the situation if a fire was to occur on site and how that is managed to reduce the impact.

The NJM Design BESS report concludes that:

- The design of the BESS units is acceptable and covers all fire initiation and fire spread risks to an acceptable level.
- Based on the AS5139 Risk Methodology the risk of a fire would be considered Very Low, given that the consequence is Minor, and the likelihood is very low.
- Fire spread to adjacent allotments (i.e., conservation covenant area) would not be predicted to occur.
- It is considered that the design and layout of the BESS provides an acceptable level of fire safety to personnel, fire brigade and adjacent properties.

10. Conclusion

As demonstrated within this Planning Report, the proposed Discretionary Development Application for use and development of land for Utilities (a large-scale solar farm and associated infrastructure, including battery storage and electricity transmission infrastructure), known as the Northern Midlands Solar Farm, is an appropriate use and form of development for the Site.

The Northern Midlands Solar Farm is a landmark development in Tasmania as the first large scale solar farm proposal. Approval of the Development Application is considered appropriate for the following reasons:

- It provides significant renewable energy generation, supporting Tasmanian renewable energy targets and the transition to renewables;
- It is appropriately located for solar exposure and with close proximity to existing electricity infrastructure at Palmerston Substation, can efficiently connect to the National Energy Market grid;
- The Proposal supports ongoing agricultural use on the Site and will provide significant local and regional economic benefits, including:
  - Short-term economic stimulus through the construction phase, generating $1.09 billion in total economic output and the creation of 986 (FTE) jobs, including 370 direct jobs.
  - Ongoing economic benefits through the operational phase, generating $36 million in total economic output and the creation of 27 (FTE) jobs ongoing, including 11 direct jobs.
- The feasibility and design of the Proposal are supported by a suite of detailed technical investigations;
- It is consistent with the applicable planning provisions:
  - While the Use Class Utilities is Discretionary within the Agriculture Zone, the Proposal is consistent with the objectives of the Agriculture Zone and Utilities Zone; and
  - The Proposal complies with applicable Acceptable Solutions or, where necessary, satisfies applicable Performance Criteria under the zones and relevant codes.
- Connorville Station is a large landholding entirely capable of hosting the solar farm. The Solar West and Solar East areas are sited such that they are obscured from public areas. The proposed 220 kV transmission line is sited alongside an existing 110 kV transmission line, providing efficient shared use of easements and reducing potential visual impact;
- The Proposal has been designed to avoid and minimise key hazards and considerations, or mitigate where required, including against:
  - Landslip risk: mapped risk areas are primarily avoided;
  - Bushfire risk: appropriate separation, management, water-supply and access arrangements are in place, as signed off by the TFS;
  - Inundation risk: areas of modelled inundation are essentially avoided;
  - Infrastructure protection: ongoing engagement with TasNetworks ensures appropriate design within the existing transmission easement and Palmerston Substation;
  - Natural values: primarily via avoidance of key waterways and high-quality native vegetation;
  - Cultural heritage: avoidance of artefact sites, following site investigation results;
  - Historic heritage: avoidance of the curtilage of listed buildings.
- The buildings and works are considered appropriate to their surrounds, do not impact the amenity of nearby neighbours, and have been sited to minimise visual appearance;
- Surrounding infrastructure including roads, are capable of accommodating the Proposal, with appropriate access tracks and parking proposed;
- Potential construction impacts will be managed through a Construction Environmental Management Plan (CEMP) and are considered negligible; and
- While the current layout plans for the proposed 220 kV transmission line seek a flexible design layout, this is warranted considering: the complexity of the Proposal; the need for TasNetworks to approve the Grid Connection Application (and design); and the clear ability for micro-siting of transmission poles via detailed design to provide avoidance, minimisation and/or mitigation of hazards and other considerations.

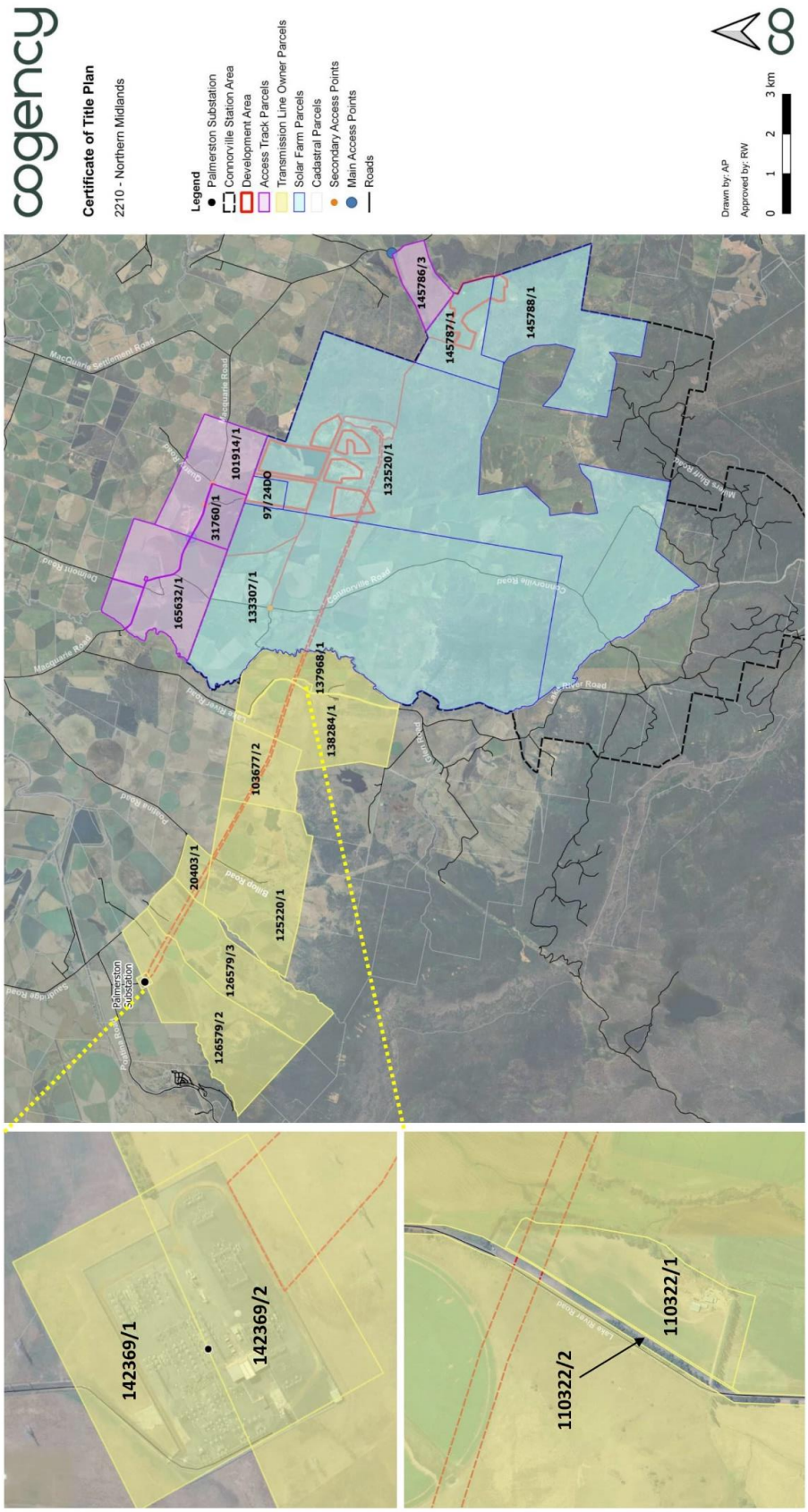
Considering the above reasons, it is requested that Northern Midlands Council approve the Proposal.

Appendix A Details of Certificates of Title

The following table summarises all lots that comprise the Site, due to them containing the Development Area. The plan further below corresponds to the table.

Our Ref#	Relevant Area	Address	Property ID	Title Ref.	Schedule of Easements
1	Most of Solar West	395 Macquarie Rd, Cressy, TAS 7302 (Connorville Station)	675 14 89	132 520 /1	No – Included in Folio Text provided
2	Most of Solar East	Lot 1 Macquarie Rd, Campbell Town, TAS 7210 (Connorville Station)	268 01 18	145 787 /1	No – Included in Folio Text provided
3	Southern part of Solar East	Lot 1 Macquarie Rd, Campbell Town, TAS 7210 (Connorville Station)	268 01 34	145 788 /1	No – Included in Folio Text provided
4	Connorville Station (for Transmission)	394 Macquarie Rd, Cressy TAS 7302 (Connorville Station)	675 14 70	133 307 /1	No – Included in Folio Text provided
5	North-western Corner of Solar West	394 Macquarie Rd, Cressy TAS 7302 (Connorville Station)	General Law	97 / 24 DO	No – General Law Deed
6	Access Track to Solar East (Access #1)	Lot 1 Macquarie Road, Campbell Town TAS 7210	2680126	145786/3	Yes
7	Access Track to Solar West (Access #2)	'Tier View' – 3504 Macquarie Rd Cressy TAS 7302	6751534	101914/1	No – Included in Folio Text provided
8	Access track to Solar West (Access #3)	Macquarie Road, Cressy TAS 7302	6751518	31760/1	No – Included in Folio Text provided
9	Access track to Solar West (Access #4)	'Pisa' - 3979 Macquarie Road, Cressy TAS 7302	6751462	165632/1	Yes – listed in folio text
10	Transmission Line	543 Lake River Road, Cressy TAS 7302	1499659	137968/1	No – Included in Folio Text provided
11	Transmission Line	'Park nook' 543 Lake River Road, Cressy TAS 7302	6752932	138284/1	No – Included in Folio Text provided
12	LGA Subdivision Road	Near 543 Lake River Road	0	110322/2	Yes
13	Transmission Line	543 Lake River RD Cressy TAS 7302	1499659	110322/1	Yes
14	Transmission Line	Lake River RD Cressy TAS 7302	1694745	103677/2	No – Included in Folio Text provided
15	Transmission Line	'Rock Thorpe' – 318 Lake River Road, Cressy TAS 7302	6752924	204030/1	No – Included in Folio Text provided
16	Transmission Line	4792 Poatina Road, Cressy TAS 7302	3300690	126579/3	No – Included in Folio Text provided
17	Transmission Line	5000 Poatina RD Cressy TAS 7302	3300682	125220/1	No – Included in Folio Text provided
18	Transmission Line	'Woodside' 4740 Poatina Road, Cressy TAS 7302	6753425	126579/2	No – Included in Folio Text provided
19	Palmerston Substation East	'Palmerston Transend SUB STN' - 4554 Poatina Rd Cressy TAS 7302	6753097	142369/1	No – Included in Folio Text provided
20	Palmerston Substation West	'Palmerston Transend SUB STN' - 4554 Poatina Rd Cressy TAS 7302	6753097	142369/3	No – Included in Folio Text provided

Appendix I


cogency
Certificate of Title Plan
2210 - Northern Midlands
Legend
Palmerston Substation
Connorville Station Area
Development Area
Access Track Parcels
Transmission Line Owner Parcels
Solar Farm Parcels
Cadastral Parcels
Secondary Access Points
Main Access Points
Roads
Drawn by: AP
Approved by: RW
0 1 2 3 km
145786/3
145787/1
145788/1
101914/1
31760/1
97/24DO
132520/1
165632/1
133307/1
137968/1
138284/1
103677/2
20403/1
125220/1
126579/3
126579/2
142369/1
142369/2
110322/1
110322/2

Appendix C Design Plans

Appendix D Bushfire Impact Statement

Appendix E Landscape and Visual Impact Assessment

Appendix F Socio-Economic Assessment

Appendix G Community & Stakeholder Engagement Summary Report

Appendix H Traffic Impact Assessment

Appendix I Agricultural Assessment

Appendix J Cultural Heritage Assessment

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Appendix L Flora and Fauna Assessment

Appendix M Flooding Impact Assessment

Appendix N Acid Sulfate Soil Investigation

Appendix O Noise Impact Assessment

pitt&sherry

Northern Midlands Solar Farm

Traffic Impact Assessment

Prepared for

Connorville Estates Pty Ltd

Client representative

Emanuele Raffaele
(Robert Luxmoore Project Management)

Date

28 August 2023

Rev03

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Prepared by — Sandra Diaz		**Date —** 28 August 2023
Reviewed by — Rebekah Ramm		**Date —** 28 August 2023
Authorised by — Rebekah Ramm		**Date —** 28 August 2023

Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft Traffic Impact Assessment	SJD	RLR	RLR	12/12/2022
B	Updated to reflect client comments	SJD	RLR	RLR	21/02/2023
C	Updated for DA lodgement	SJD	RLR	RLR	11/05/2023
00	Final for client	SJD	RLR	RLR	16/05/2023
01	Updated to include transmission line accesses	SJD	RLR	RLR	03/08/2023
02	Updated to include additional access	SJD	RLR	RLR	17/08/2023
03	Changes to transmission line access recommendations	SJD	RLR	RLR	28/08/2023

1. Introduction

1.1 Background

Connorville Estates Proprietary Limited proposes to develop part of Connorville Station, located at 394 Connorville Road, Cressy, into a Solar Farm with a nominal yield of 288MW DC. The agrisolar concept combines agricultural sheep grazing with solar energy production by allowing grazing beneath the solar panels. The Northern Midlands Solar Farm (NMSF) also includes a new transmission line built to connect the solar farm to the existing TasNetworks transmission lines, and the provision for a battery storage facility.

1.2 Traffic impact assessment scope

Robert Luxmoore Project Management, on behalf of Connorville Estates Proprietary Limited, engaged pitt&sherry to undertake a Traffic Impact Assessment (TIA) for the NMSF.

This report has been prepared with reference to the *Tasmanian Planning Scheme – Northern Midlands* (the Planning Scheme) and in accordance with the Department of State Growth's (the department's) Publication *Traffic Impact Assessments (TIA) Guidelines.*

2. Existing conditions

2.1 Site location

The development footprint for the NMSF covers 543 ha, mostly located within the existing Connorville Station, approximately 15km east of Poatina (see Figure 1). The NMSF project includes construction of a new transmission line linking the solar farm to the existing Poatina substation.

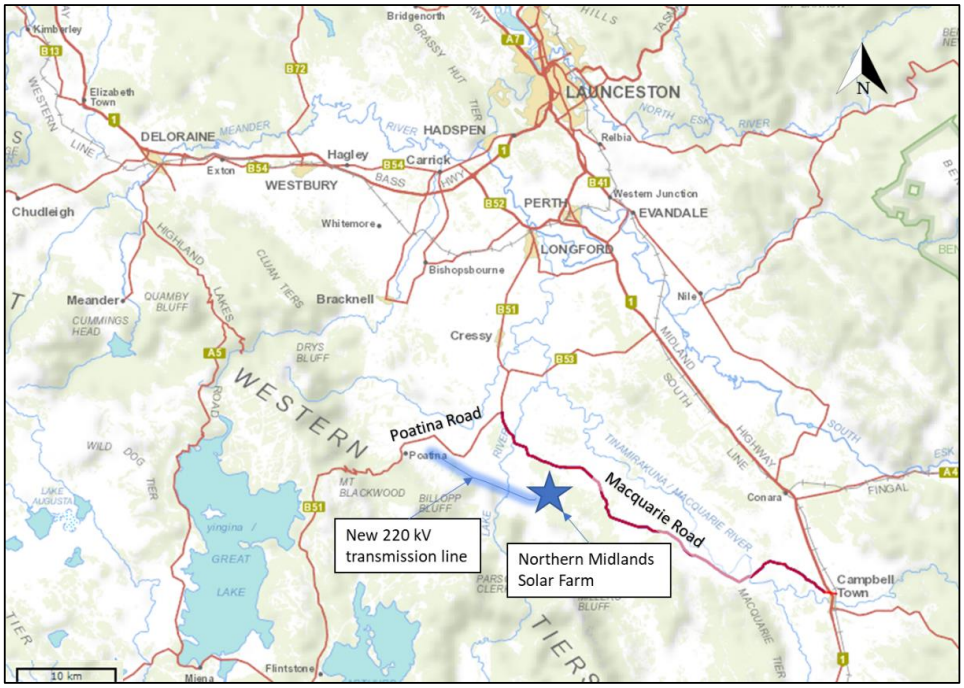

Figure 1: Connorville Station and proposed NMSF Site Location

The site has a land use classification of 21.0 – Agriculture under the Planning Scheme and all surrounding land is zoned the same. The Palmerston Substation has a land use of 26.0 – Utilities.

Connorville Station comprises Connorville House, outbuildings, a mill and garden, and is defined as a Local Heritage Place under the Tasmanian Heritage Register. There are also some areas of the bushland on the station protected by a Conservation Covenant.

2.2 Site access

Connorville Station is currently accessed via Connorville Road, accessed from Macquarie Road, near the western side of the property. Connorville Road is a Northern Midlands Council (Council) owned two-way local road for the initial 1.1km from Macquarie Road. South of this, Connorville Road is a privately owned access road used to access Connorville Station.

There are several existing farm access gates located along Macquarie Road. These entrances vary from unformed accesses directly onto grassed paddocks, to rough formed gravel tracks. Four of these farm entrances and the Connorville Road access road are assessed in this report as potential options to be developed into site accesses for use during construction of the NMSF, as discussed in 4.1 Site access.

Access to the transmission line construction corridor will likely utilise Connorville Road, Lake River Road and Billopp

Road for construction vehicles and equipment and materials. Palmerston Substation, where the transmission line will be connected, has a dedicated access road from Poatina Road. Each of these potential transmission line construction accesses is assessed in this report.

2.3 Surrounding road network

2.3.1 Connorville Road

Connorville Road (Figure 2) is a Council owned two-way local road. It provides access to Connorville Station from Macquarie Road with vehicles travelling 1.1km down the road to reach the station's entrance (Figure 3). It is 3.5m wide with unsealed shoulders on both sides. It does not provide cycling or pedestrian facilities on either side of the road.

Connorville Road is subject to low traffic volumes. The speed limit is not signed however due to the narrow nature of the road, speeds would be slow.

Figure 2: Connorville Road, viewed to the south from Macquarie Road

Figure 3: Connorville Road viewed to the south from entrance to Connorville Station

2.3.2 Macquarie Road

Macquarie Road (shown in Figure 4 and Figure 5) is a Council owned collector road[1] which spans across the Northern Midlands from Campbell Town (junction with West Street/ Pedder Street) to Cressy (junction with Poatina Road/ Cressy Road). Macquarie Road is a two-way road configured with a single lane in each direction. Macquarie Road is approximately 6m wide with 0.5-1m gravel shoulders on both sides and typically no centre or edge lines. It does not provide cycling or pedestrian facilities on either side of the road.

Macquarie Road is subject to the Tasmanian Sealed Rural Road speed limit of 100km/h. Latest traffic count data recorded in the vicinity of the site counted 350 vehicles per day[2] (2016) at the Lake River bridge just north of the Connorville Station site. This is the most recent traffic count Northern Midlands Council could provide on Macquarie Road. Poatina road has a permanent counter installed which gives confidence in trends and patterns on the network.

[1] Based on the LIST Road Centrelines Transport Class.
[2] Daily traffic volumes provided by Northern Midlands Council.

Figure 4: Macquarie Road, looking east

Figure 5: Macquarie Road, looking west

2.3.3 Poatina Road

Poatina Road is a Department of State Growth (State Growth) Category 4 road under the State Road Hierarchy, and has a speed limit of 100km/h. The road carries approximately 406 vehicles per day (2021), of which 17% are heavy vehicles. Poatina Road forms part of the Tasmanian 26 metre B-double network. Poatina Road would be used to access the Palmerston Substation for construction of the new transmission line for the NMSF project.

2.3.4 Lake River Road

Lake River Road is a Council owned collector road[3] which loosely follows along Lake River from Macquarie Road south into the Great Western Tiers. Lake River Road is a two-way road configured with a single lane in each direction with a speed limit of 100km/h. It does not provide cycling or pedestrian facilities on either side of the road.

Lake River Road would be used for construction access to the new transmission line corridor. The area of interest (northern end) is approximately 6m wide with 0.5-1m unsealed shoulders and no centre or edge lines.

2.3.5 Cressy Road

Cressy Road is a State Growth arterial road which connects Macquarie Road to major northern transport routes. Cressy Road is part of the B-double network and has a speed limit of 100km/h and carries approximately 1,359 vehicles per day (2021) with 22% heavy vehicles.

2.3.6 Illawarra Road

Illawarra Road links between Midland Highway and Bass Highway and is part of the Tasmanian State Highway network. Illawarra Road will link incoming traffic from Bass Highway in the west, and from Launceston (via Midlands Highway) in the east to Cressy Road and be part of the key transport routes for the NMSF project.

2.3.7 Bass Highway

The Bass Highway is a State Growth road classified as a Primary Freight and Passenger Road (Category 1) in the State Growth Road Hierarchy. It spans from Launceston to the northwest of Tasmania and provides primary transport links to the ports of Burnie and Devonport.

[3] Based on the LIST Road Centrelines Transport Class.

2.3.8 Pedder Street

Pedder Street is the eastern continuation of Macquarie Road through the urban area of Campbell Town and links Macquarie Road to the Midland Highway. Pedder Street is a 5m wide sealed road with unsealed shoulders and a speed limit of 60km/h.

2.3.9 Midland Highway

The Midland Highway (shown in Figure 6 and Figure 7) is a State Growth Road, classified as a Primary Freight and Passenger Road (Category 1) in the State Growth Road Hierarchy, and spans from Launceston to Hobart. It is a two-way highway with a varying number of lanes in each direction and operates predominantly in a north-south direction. The highway is approved for B-double usage.

The Midland Highway has a speed limit of 110km/h for much of its duration. North of Campbell Town, the highway carries approximately 6,534 vehicles per day, of which 20% are heavy vehicles.

Figure 6: Midland Highway approaching Campbell Town facing north.

Figure 7: Midland Highway south of Campbell Town facing south.

2.4 Traffic volumes

Northern Midlands Council provided data of a traffic count undertaken in 2016 on Macquarie Road at Lake River bridge, to the north of the proposed NMSF development. Traffic volumes of 350 vehicle movements per day were counted, with 16% heavy vehicles recorded.

In order to estimate 2023 traffic volumes on Macquarie Road, a compounding growth rate of 3% per year has been applied to the available traffic data, resulting in an estimated Average Annual Daily Traffic (AADT) for 2023 of 430 vehicles per day. The growth rate was based on the *Department of State Growth's traffic data website* (Traffic Data website) recorded at the Poatina Road traffic counter in the vicinity of the site. It is noted that seasonal variations were not accounted for in traffic volume or proportion of heavy vehicles.

Poatina Road traffic volumes were estimated using the data available from the Traffic Data website. A continuous classified traffic counter is located on Poatina Road just west of the Palmerston Substation and shows AADT for 2021 of 406 vehicles per day with 17% heavy vehicles. Applying a compounding growth rate of 3% per year the AADT for 2023 is estimated to be 431 vehicles per day.

An increase in the percentage of heavy vehicles has been observed at the Poatina Road station and based on this we have estimated the 2023 heavy vehicle percentage to be approximately 18% on Poatina Road and approximately 20% on Macquarie Road.

Based on the available traffic data, it was noted that the weekday AM peak hour for Poatina Road (Nov 2021) is between 11:00am and 12:00pm and the PM peak hour is between 3:00pm and 4:00pm. These weekday peak times will be adopted for this assessment.

A summary of the estimated current traffic parameters in the vicinity of the NMSF site, are shown below in Table 1.

Table 1: 2022 traffic estimates

Location	AADT	% Heavy Vehicles	AM peak volume (AM peak hour)	PM peak volume (PM peak hour)
Macquarie Road	430	20 %	33 (11.00am – 12.00pm)	35 (3.00pm – 4.00pm)
Poatina Road	431	18 %	33 (11.00am – 12.00pm)	35 (3.00pm – 4.00pm)

2.5 Road safety

2.5.1 Crash history

State Growth has provided crash data in the vicinity of the proposed NMSF development including relevant sections of Macquarie Road, Poatina Road, Lake River Road as shown in Figure 8. The data provided was for a 10-year period. A summary of the crash data is included in
Table 2, below.

The crash history shows that 17 crashes have occurred in the vicinity of the proposed NMSF development in past 10 years. No serious crashes have been recorded since 2015, and all except one were single vehicle crashes. The data does not indicate repetitive crash types or locations, or any crash patterns of concern.

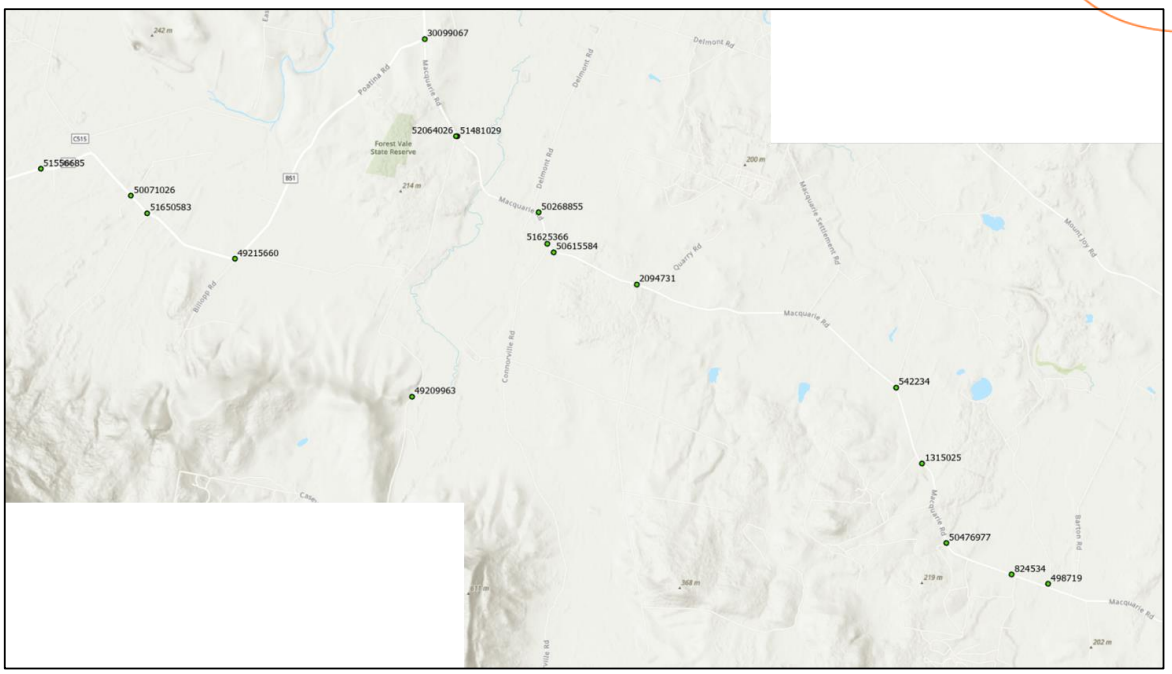

Figure 8: Historical crash locations in the vicinity of the proposed development

Table 2: Crash history in the vicinity of the proposed development

Crash Severity	Total	Crash Type	Count
Serious	1	149 - Other manoeuvring	1
Minor	6	173 - Right off carriageway into object or parked vehicle	2
		167 - Animal (not ridden)	1
		179 - Other straight	1
		181 - Off right bend into object/parked vehicle	1
		183 - Off left bend into object/parked vehicle	1
Property Damage Only	10	167 - Animal (not ridden)	2
		149 - Other manoeuvring	1
		172 - Off carriageway to right	1
		179 - Other straight	1
		182 - Off carriageway left bend	1
		184 - Out of control on carriageway	1
		189 - Other curve	1
		unknown	2
Total	**17**		**17**

3. Development proposal

3.1 Overview

The NMSF project is located at 394 Connorville Road, Cressy (see Figure 9 below). The concept is to install 432.3 ha of single-axis tracking solar panels to achieve solar generation of approximately 288MW DC, and inverters, solar farm substation and new transmission line to integrate the generated energy to the existing TasNetworks grid, along with the provision for a battery storage facility.

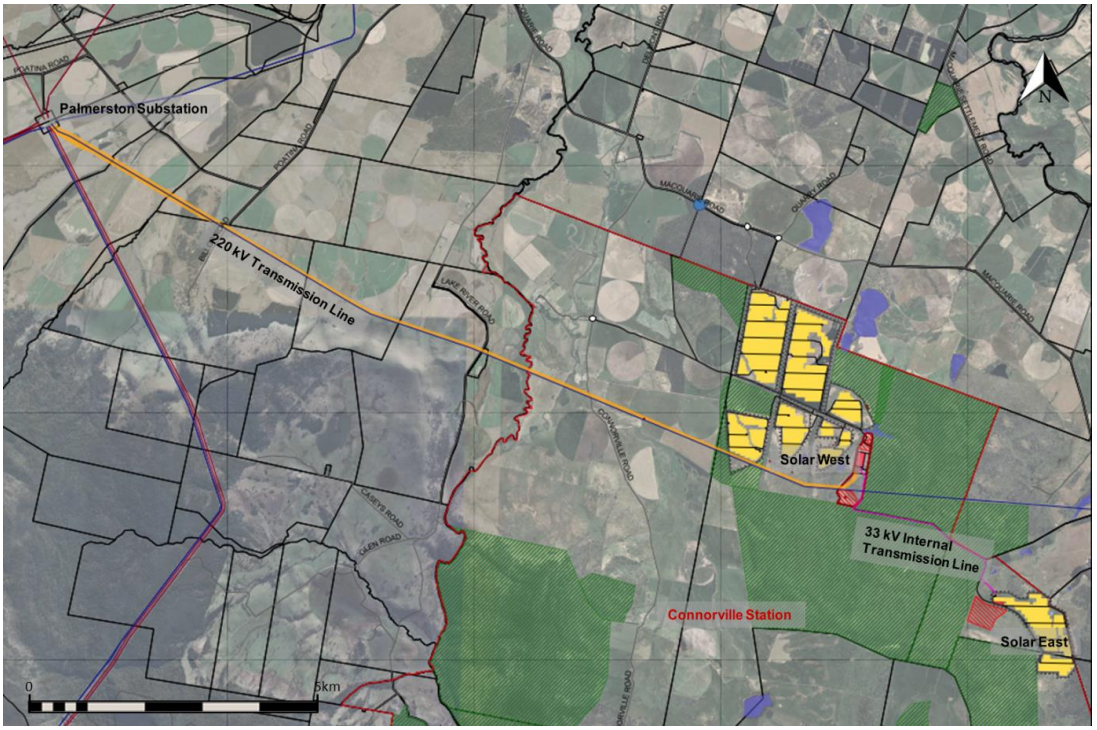

Figure 9: Proposed Northern Midlands Solar Farm layout

Construction of the solar farm will involve:

- Bulk earthworks, access tracks, and hardstands for construction laydown and car parking areas
- Installation of solar panel arrays in Solar East and Solar West areas
- Infrastructure area including switchyard, battery energy storage system (BESS), and operations and maintenance compound
- 33KV internal transmission line linking Solar East and Solar West areas
- One new 220kV transmission line including poles/towers and line; and
- New connection at the Palmerston Substation.

3.2 Staff and site operation

Construction of the NMSF is estimated to take 18 months and involve up to 270 workers onsite for the solar farm construction at the peak,[4] plus an additional 50 workers involved in the transmission line, substation connection, BESS and switchyard components.

Working hours at site are 7.00am – 6.00pm, Monday-Friday, 8.00am – 6.00pm Saturday and 10am – 6pm public holidays or Sunday. Employees are expected to carpool or be bused in and out at the start and end of the day with most vehicles coming from Launceston. Deliveries will be expected throughout the day.

3.3 Post construction

Once construction is complete and the solar farm is operational, the ongoing access requirements will reduce dramatically.

Onsite functions relating to the solar operation will require minimal staff. Operational jobs are estimated at 11 direct jobs[5]. The agricultural operations of the station will continue similar to prior construction of the solar farm.

[4] Client data based on similar sized projects.
[5] Extracted from draft Urban Enterprise SocioEconomic report.

4. Construction phase assessment

4.1 Site access

The existing access and egress to Connorville Station is from Connorville Road, and the continuing private road. For the NMSF development, this will be utilised as a secondary/emergency access. Two existing farm access gates along Macquarie Road are proposed to be developed into main access points (Access #1 and Access #4). Two additional access points will be secondary/emergency accesses for NMSF (Access #2 and Access #3). The proposed accesses are shown in Figure 10, below.

The construction corridor for the new transmission line will require temporary access tracks via private properties which will be explored as part of the detailed design and will be included as part of the options agreements with the transmission landowners along the chosen alignment. Access to the construction corridor will utilise Connorville Road, Lake River Road (Access #5 and Access #6), Poatina Road and Billopp Road (Access #7 and Access #8) for construction vehicles, equipment and materials. The connection to Palmerston Substation will utilise the existing Palmerston Substation access road off Poatina Road.

Multiple site accesses will allow convenient access to each area of the site for different construction activities and stages.

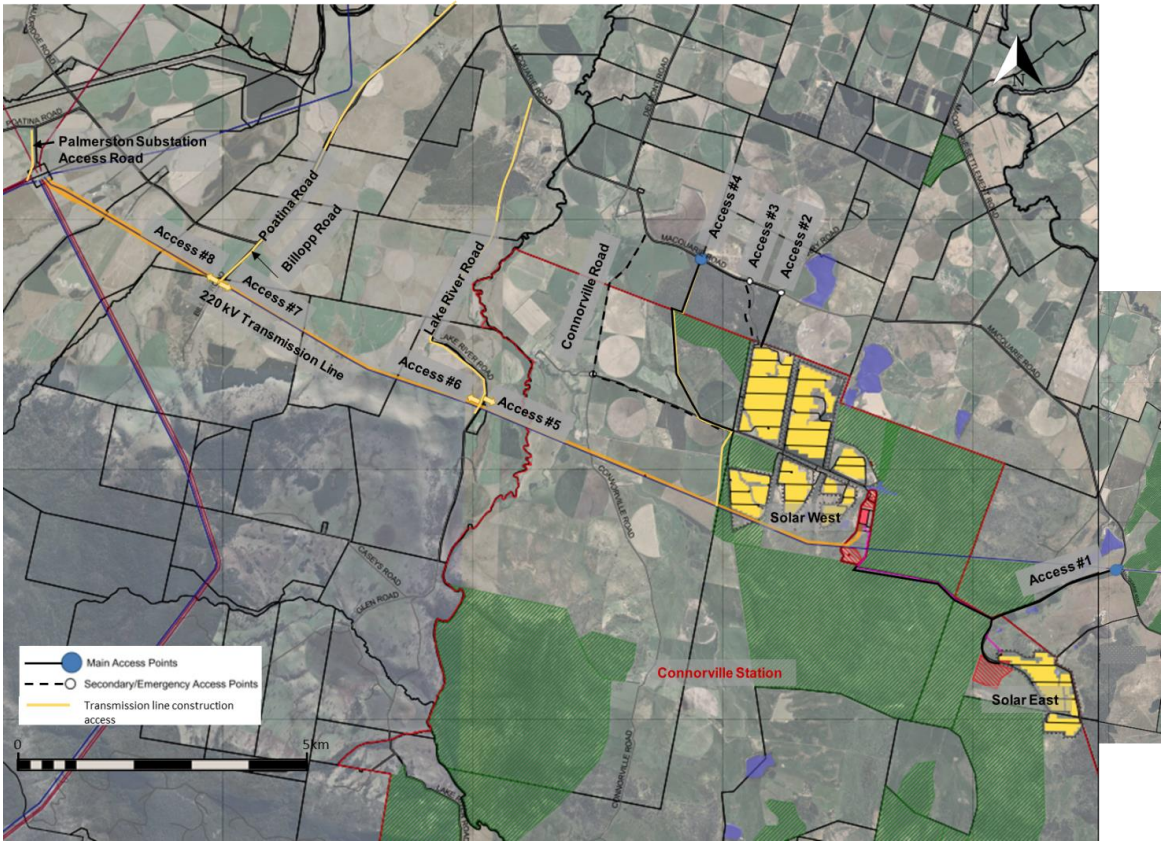

Figure 10: NMSF site accesses

4.2 Construction site access suitability

pitt&sherry visited the NMSF area on Tuesday 25 October 2022 and Thursday 27 July 2023. The proposed site accesses were inspected and assessed for suitability. Note that Access #4 had a desktop assessment only from images supplied by the client. Observations are summarised below, ordered east to west.

4.2.1 Access #1 – Proposed Main access

The existing access is a roughly formed farm track. It joins Macquarie Road just past a sweeping bend but has good sight distance in both directions.

Figure 11: Access #1 entrance

Figure 12: Macquarie Rd, west approach to Access #1

Figure 13: Macquarie Rd, east approach to Access #1

4.2.2 Access #2

– Proposed Secondary/Emergency access

Access #2 is a farm entrance providing paddock access. It joins Macquarie Road on a long straight and has good sight distance in both directions

Figure 14: Access #2 entrance

Figure 15: Macquarie Rd, west approach to Access #2

Figure 16: Macquarie Rd, east approach to Access #2

4.2.3 Access #3

– Proposed Secondary/Emergency access

Access #3 is a private unsealed access road. It joins Macquarie Road on a long straight and has good sight distance in both directions.

Figure 17: Access #3 entrance

Figure 18: Macquarie Rd, west approach to Access #3

Figure 19: Macquarie Rd, east approach to Access #3

4.2.4 Access #4 – Proposed Main access and Transmission line access

Access #4 is a private unsealed access road. It joins Macquarie Road on a long straight and has good sight distance in both directions.

Figure 20: Access #4 entrance

Figure 21: Macquarie Rd, west approach to Access #4

Figure 22: Macquarie Rd, east approach to Access #4

4.2.5 Connorville Road – Proposed Secondary/Emergency access

Connorville Road is a narrow 3.5m sealed country lane. It joins Macquarie Road at a sweeping bend but has good sight distance in both directions.

Figure 23: Connorville Rd entrance

Figure 24: Macquarie Rd, west approach to Connorville Rd

Figure 25: Macquarie Rd, east approach to Connorville Rd

4.2.6 Lake River Road – Transmission line access

Lake River Road is an existing Council owned local road. The 6.4m wide two-way sealed road has a speed limit of 100km/h.

Macquarie Road site distance to the west is limited to 130m by a crest on Macquarie Road.

Figure 26: Lake River Road (looking south)

Figure 27: Macquarie Rd, west approach to Lake River Road

Figure 28: Macquarie Rd, east approach to Lake River Road

4.2.7 Access #5 - Transmission line access

Access #5 is a private unsealed access road with a double gated entrance.

The access joins Lake River Road near a curve and has restricted sight distance in both directions. Sight distance to the south was recorded as 190m but would be improved by trimming/removal of vegetation on the opposite roadside. Sight distance to the north was recorded as 195m.

Figure 29: Access #5, looking east

Figure 30: Lake River Road, south approach to Access #5

Figure 31: Lake River Road, north approach to Access #5

4.2.8 Access #6 - Transmission line access

Access #6 is a farm entrance ('Gate 10') which provides access to a grass track leading to the transmission line corridor (Figure 32).

Access is required as close as possible to the transmission line. The transmission line crosses Lake River Road in a location with steep topography, where it would be difficult to constructing an access road sight distance would be limited due to a bend in the road. Therefore this access point appears the most suitable location to access the transmission line corridor. The existing access location on Lake River Road is shown in Figure 33.

Figure 32: Access #6, looking northwest

Figure 33: Transmission line accesses #5 and #6 off Lake River Road

The existing access entrance is parallel to Lake River Road for entry from south approach only. The entrance would require construction on a modified alignment to allow construction traffic to enter and exit from the north.

Sight distance to the south was measured as 165m, limited by an established tree row on the opposite roadside. Sight distance to the north was good.

Figure 34: Lake River Road, south approach to Access #6

Figure 35: Lake River Road, north approach to Access #6

4.2.9 Billopp Road - Transmission line access

Billopp Road is a 4.5m wide unsealed country lane which services a private farm access Figure 36). It joins Poatina Road at a sweeping bend in a non-standard Y-intersection. Vehicles travelling to and from the east connect straight onto Billopp Road, but vehicles travelling to and from the west use a secondary entrance into/out of Billopp Road (Figure 37).

Both exits have good sight distance along Poatina Road in both directions.

Figure 36: Billopp Road entrance, looking south

Figure 37: Poatina Road/ Billopp Road non-standard intersection

Figure 38: Poatina Road, west approach to Billopp Road

Figure 39: Poatina Road, northeast approach to Billopp Road

4.2.10 Accesses #7 and #8 - Transmission line accesses

Billopp Road enters private land about 850m from Poatina Road and the transmission line corridor will cross the private section of Billopp Road (Figure 40). A 40km/h speed sign is displayed at the farm entrance. Accesses #7 and #8 are not existing tracks but are likely to utilise the existing farm gates to access the transmission line corridor.

Sight distances were not measured due to the accesses being on private property, but Billopp Road is straight and flat in this location with excellent visibility in both directions.

The existing cattle grate on Billopp Road at the farm entrance may need assessment or modification to accommodate heavy construction traffic.

Figure 40: Billopp Road continuation, looking south

Figure 41: Access #7 (existing farm gates indicated) looking east

Figure 42: Access #8 (existing farm gates indicated) looking west

4.2.11 Palmerston Substation Access Road

Palmerston Substation Access Road is a privately owned access road functioning solely to service the substation. The sealed road is in poor repair in places with numerous large potholes.

If the Palmerston Substation Access Road is intended to be used for works associated with NMSF, it is recommended that potholes be repaired prior to the commencement of the proposed works at the substation. These pavement defects are likely to worsen with increased use and may pose a safety hazard.

Figure 43: Palmerston Substation Access Road (looking south)

Figure 44: Poatina Rd, west approach to Palmerston Substation Access Rd

Figure 45: Poatina Rd, east approach to Palmerston Substation Access Rd

4.2.12 Access geometry suitability

The required access width for an articulated vehicle (such as a semi-trailer or a B-double truck) is a 10m access plus a 10m exit separated by a 1.5m minimum median as per *AS2890.2 Off-street commercial vehicle facilities.* Sufficient turning areas should be provided for all vehicles to enter and exit the site in a forward direction. If it is necessary to make the access or exit narrower, swept paths must be completed for the largest vehicle accessing the site to confirm that a vehicle can turn into and out of the site in a forward direction.

The existing Y-intersection access from Billopp Road to Poatina Road is a non-standard layout. While this may be suitable for a private farm access with minimal traffic, upgrading to a standard T-junction layout would be required if large volumes of heavy vehicles were expected.

Billopp Road will only be utilised for the transmission line construction phase and the NMSF project is not expected to generate any operational traffic on this road after the new transmission line is complete. During transmission line construction, the generation for Billopp Road is estimated to be[6]:

[6] Refer to discussion of traffic generation in Section 4.6

- 5 light vehicles accessing site between 6:00am and 7:00am
- 5 light vehicles leaving site between 6:00pm and 7:00pm; and
- 3 trucks movements across the day.

A worst-case scenario (where all movements for the transmission line use Billopp Road – expected to be a rare occurrence) would be:

- 10 light vehicles accessing site between 6:00am and 7:00am
- 10 light vehicles leaving site between 6:00pm and 7:00pm; and
- 5 trucks movements across the day.

As Billopp Road carries very low traffic volumes and construction traffic volumes are not substantial, use of traffic management is considered suitable for managing movements. The traffic management plan for the project should direct construction traffic to enter and exit Billopp Road from the northeast (from Cressy or Midlands Highway). This access is a straight continuation from Poatina Road and has good sight distance in both directions. The western leg of Billopp Road should be excluded from use for construction traffic.

4.2.13 Traffic management at accesses

A traffic management plan should be prepared for the site for all access points, to ensure safe and efficient movement is maintained on public roads, this should include:

- How traffic will be managed on site so that public roads are not impacted by additional movements at the access points; and
- Direction for all construction traffic to enter and exit Billopp Road from/to the east only; and
- As there will generally be a gravel surface from the access roads onto the sealed public roads, the intersection should be checked daily at a minimum to ensure gravel is not pushed onto the public roads, if any gravel is present on the public roads it should be cleared immediately. A system where construction workers can report for gravel on the road at any access point would be beneficial. Sight distance suitability.

The Safe Intersection Sight Distance (SISD) has been assessed for each proposed site access in accordance with the *Austroads Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections*. The speed limits on Macquarie Road and Poatina Road are 100km/h resulting in a required sight distance of 248m.

A summary of the road widths and sight distances measured on site are shown in Table 3 below. Accesses which do not meet the required SISD of 248m are highlighted and discussed in further detail below.

Table 3: Summary of Site Accesses

Access	Road width	Sight distance left	Sight distance right
Access #1	To be constructed at 4m	>250m	>250m
Access #2	To be constructed at 4m	>250m	>250m
Access #3	4m	>250m	>250m
Access #4	4m	>250m	>250m
Connorville Road	3.5m	>250m	>250m
Lake River Road	6m	130m	>250m
Access #5	4m	190m	195m
Access #6	4m	165m	>250m

Access	Road width	Sight distance left	Sight distance right
Billopp Road	4.5m	>250m	>250m
Access #7	To be constructed at 4m	>250m	>250m
Access #8	To be constructed at 4m	>250m	>250m
Palmerston Substation Access Road	4.5m	>250m	>250m

Sight distance at the existing Lake River Road/ Macquarie Road intersection does not meet the Austroads guidelines for SISD of the west approach at the 100km/h posted speed limit. It is worth noting that Lake River Road will very likely be utilised as a construction access for the installation of the new transmission line but will not be required as an access for the ongoing operations of NMSF.

Increasing the site distance for eastbound traffic, would require major works to remove the crest of the hill and reform the road. As the increase in traffic from NMSF construction is only expected to last 18 months, it may be considered unnecessary to undertake such a major remediation. To increase the safety of the Lake River Road/ Macquarie Road intersection, consideration should be given to installing an advisory Side Road Intersection W2-4(R) sign (Figure 46) as detailed in the *Australian Standard AS1742.2-2009 Manual of uniform traffic control devices – Part 2: Traffic control devices for general use*. Additionally, a Trucks Crossing or Entering sign (Figure 47) may improve awareness of slow-moving heavy vehicles ahead - either entering from the Lake River Road or slowing to turn right into Lake River Road. Should the construction contractor determine the limited access is not safe for construction works even with additional signage, a Construction Traffic Management Plan proposing a lower speed limit could be prepared for the duration of the construction works.

Figure 46: Side Road Intersection Advisory Sign

Figure 47: Trucks Crossing or Entering Advisory Sign

The sight distances at Accesses #5 and #6 off Lake River Road are also less than the required SISD recommended for a 100km/h design speed. The sight distances at these accesses could be improved by vegetation trimming and/or site benching. Alternatively, additional signage or temporary speed restrictions during the construction phase may be suitable.

An advisory Side Road Intersection W2-4(R) sign (Figure 46) or W2-4(L) and a Trucks Crossing or Entering sign (Figure 47) at the north and south approaches to Access #5 and the south approach to Access #6 may improve awareness of slow-moving heavy vehicles ahead - either exiting from the site access or slowing to turn right into the site access.

Restricting the speed of Lake River Road to 80km/h would reduce the required SISD to 181m. Access #5 satisfies this sight distance in both directions, and Access #6 which requires realignment to allow entry from the north, could be situated slightly north to satisfy this sight distance. An 80km/h speed limit would be reasonable during the construction phase for a rural collector road such as Lake River Road.

4.3 Transport routes

4.3.1 Light vehicles

All staff vehicles will enter and exit the site via the site accesses described above. Routes taken to access the site by staff vehicles will depend on their origin, with the majority expected to travel from the north, predominantly Launceston and surrounding townships.

4.3.2 Heavy vehicles

Standard heavy vehicles

Heavy vehicles will be required for transporting materials, plant and equipment to site. Most heavy vehicles are expected to travel to and from Launceston. Resources from the mainland may also arrive by sea to Burnie or Devonport ports and travel along the Bass Highway. Any vehicles travelling to or from Hobart or south will utilise the Midland Highway.

Heavy vehicles will utilise the approved Tasmanian 26 metre B-double network of roads. The majority of vehicles accessing the site will be trucks up to the size of a 26 metre B-double. At the time of writing this report, there do not appear to be any restrictions for access using the Midland Highway, Bass Highway and Cressy Road which are approved B-double routes. This should be checked closer to the construction date including any load limits on bridges.

Macquarie Road is suitable for vehicles up to a 19m semi-trailer in size. It is recommended that if Macquarie Road is used for haulage that any bridges on the road are assessed by a structural engineer for suitability. Approval would be required for B-double trucks to use Macquarie Road.

The preferred primary transport routes for the NMSF project are shown in Figure 48, below.

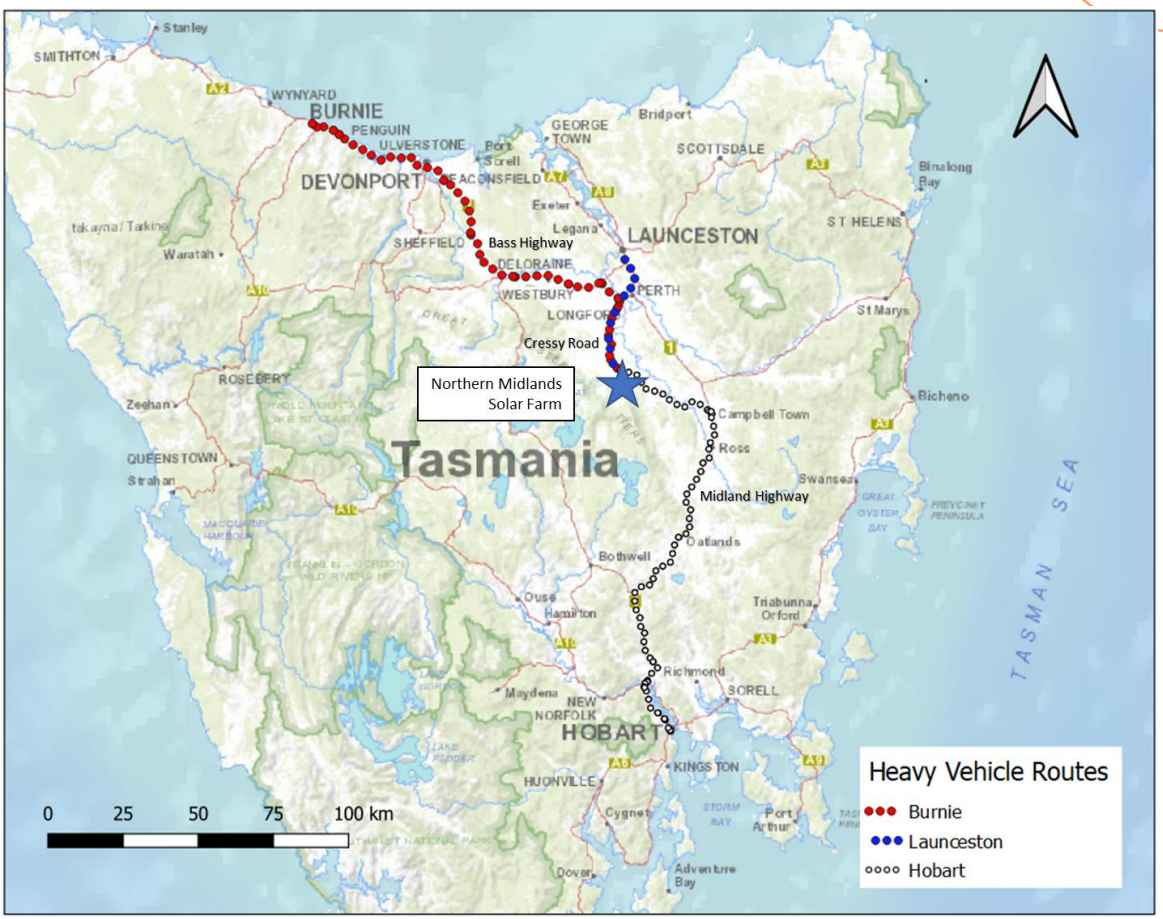

Figure 48: Heavy vehicle transport routes to site

Over Size and Over Mass (OSOM) Vehicles

The project is likely to require some materials to be transported using OSOM vehicles. The following assessments should be completed for OSOM vehicles:

- An OSOM route assessment, completed by a suitably qualified person, which assesses the suitability of routes for the proposed OSOM vehicle and if there are any modifications that are required to be made to the road and nearby infrastructure (e.g. moving powerlines, widening pavements, removing traffic islands, moving/ removing signage).
- A construction traffic management plan which considers the impact to traffic operation
- A structural assessment of any impacted bridges to determine their suitability; and
- A dilapidation report may be required for Macquarie Road.

OSOM movements should occur on the highest order roads and B-double approved routes as much as possible as shown in Figure 48.

4.4 Internal access roads

A comprehensive network of access roads is proposed and will provide access to all sections of the solar farm – see Masterplan drawings (Appendix A).

The internal roads will be all weather access tracks constructed 4m wide, to suit 20 tonne vehicles and with passing bays every 200m to allow two-way use.

Guidance has been provided below for the design of the internal access roads.

The following standards apply for access roads:

- New access roads should be developed with a width of 5.5m to provide two-way access, or minimum of 4m for one-way access (based on Tasmania Fire Service requirements)
- New access roads providing access for articulated vehicles must not exceed a grade of 1:6.5 (15.4%) and the rate of change of grade must not exceed 1:16 (6.25%) as specified in AS2890.2
- A minimum turning radius for an articulated vehicle must not exceed 12.5m as specified in AS2890.1; and
- Swept paths should be completed along all access roads for the largest vehicle accessing the site.

4.5 Parking and unloading areas

Construction laydown/ car parking areas are proposed for both the east and west solar farm areas (see masterplan drawings, Appendix A).

The parking areas should be sized to accommodate the parking requirements at convenient locations across the site and be suitably sized for functionality. Car parking should be designed in accordance with AS2890.1 – Off street car parking. Some example parking requirements are shown in Table 4.

Table 4: Example Car Parking Requirements

Item	Employee Car Parking	Visitor Car Parking
Car parking space width	2.4m	2.5m
Car parking space length	5.4m	5.4m
Aisle width	6.2m	5.8m
Car park crossfall	1:16 (6.25%)	

The laydown areas will allow delivery vehicles to be clear of other circulating vehicles during unloading.

The ground conditions onsite have not been assessed but placing gravel hardstand areas may be required if ground is soft (especially during wetter months). If oversized or heavy loads are required, specific checks should be carried out to confirm ground capacity and prevent bogging or overturning onsite.

4.6 Traffic generation

Traffic impacts at the site are expected to predominantly occur during the construction phase. Construction of the project is estimated to take approximately 18 months. Each activity will have varying requirements for traffic access, and the client has provided estimates of traffic movements during construction, shown in Table 5 below.

Table 5: NMSF estimated construction traffic

Construction Activity	Duration	Work force	Light Vehicle	Medium Truck	Large Truck
	(weeks)	(workers per day)	(vehicle movements per day)		
Logistics	35	20	10		15
Civil	45	50	20		20
Mechanical	52	100	30	4	
Electrical	52	80	30	2	
Completion and Commission	25	20	10		
SUBTOTAL - Solar Farm		**270**	**100**	**6**	**35**
Substation and Transmission Line	25	50	20	2	7
SUBTOTAL - Energy Infrastructure		**50**	**20**	**2**	**7**
TOTAL		**320**	**120**	**8**	**42**

Construction activities will overlap, so for the purposes of this traffic impact assessment we have assumed each activity occurs concurrently and based the peak construction traffic generation on the total of all stages. This is a conservative approach, as it is more likely that demands from each stage will be staggered. Demands from different activities will also be distributed spatially across the site.

Construction traffic will access the transmission line corridor from Lake River Road, Billopp Road, and Palmerston Substation Access Road along with the solar farm Access #4 from Macquarie Road. Access use will vary as construction progresses. Conservatively, on the odd occasion, all vehicle movements could use a single access if construction is focused in one area, however we assume generally there would be sharing of movements across the transmission line accesses.

Traffic distribution and directional split

It has been assumed that light vehicles will predominantly access the site between 6:00am and 7:00am in the morning before the 7:00am start, and egress the site between 6:00pm and 7:00pm, based on typical construction site operation, Monday to Friday. Similarly on Saturdays light vehicles are assumed to predominantly arrive in the hour before work commences onsite at 8:00am, and egress in the hour after work finishes at 6:00pm, and on Sundays or public holidays light vehicles will access from 9:00am to 10:00am and egress from 6:00pm-7:00pm.

It has been assumed that trucks will access and egress the site throughout the day from 7:00am to 6:00pm weekdays and 8:00am – 6:00pm Saturday and 10:00am – 6:00pm public holidays or Sunday.

4.7 Traffic impacts – during construction

The traffic impact of the construction phase of the NMSF development has been assessed based on the following assumptions:

- A growth rate of 3% per year has been applied to the recorded traffic volumes along Macquarie Road and Poatina Road to calculate existing traffic volumes (see Section 2.4).
- No other significant developments are known in the immediate vicinity of the site within the foreseeable future; and
- Construction staff would travel to and from the site outside the current peak times and therefore would not contribute to the current peak hour traffic flows.

120 light vehicle movements plus approximately 50 medium and heavy vehicle movements are estimated to and from the site per day during peak construction. 170 additional vehicle movements per day on Macquarie Road would represent an increase in daily traffic volumes of 40%. The Planning Scheme states that the maximum acceptable increase in AADT from vehicles travelling to and from site is 40 light vehicle movements per day and 5 vehicle movements per day of vehicles longer than 5.5m (as per Table C3.1 of the Planning Scheme). The estimated traffic generated by the proposed NMSF development exceeds this criteria.

The local road network is comprised of rural roads with low existing traffic flows operating well below capacity. It is not anticipated that the additional traffic produced by the NMSF development during the construction phase will negatively impact the function or safety of the local network.

Heavy vehicle flows are likely to be spread across the day and the contribution to the AM and PM peak flows is estimated to be small (6 heavy vehicles per hour).

Light vehicle movements are likely to occur clustered, with 50% arriving 6:00am-7:00am and 50% departing 6.00pm-7.00pm, coinciding with the hours of operation of the construction site. 60 additional light vehicle movements plus 6 heavy vehicles concentrated within an hour period is significant. The current AM and PM peaks on Macquarie Rd are 33 and 35 vehicles per hour. Therefore, NMSF construction traffic will generate new peak hours on the local network during the construction period. Maximum peak flows are estimated to be 60 vehicles per hour from 6:00am – 7:00am and 66 vehicles per hour from 6:00pm – 7:00pm respectively, but actual peaks may be lower if staff work hours vary and start and finish times are staggered for different work crews.

4.8 Vehicle turning

The network of internal roads will ensure all vehicles can access site and turn around to safely egress site in a forward direction. Detailed road design has not been documented to date and swept paths have not been assessed for the internal access roads.

Due to the size of the site, it is expected there will be sufficient space for vehicles to turn around on site within the solar farm and infrastructure area footprint.

Vehicle turning paths should be assessed once detailed design plans for the site are prepared.

5. Operational phase assessment

5.1 Traffic generation

As outlined previously, operation of the solar farm requires very little labour. Once construction is complete, the ongoing access requirements will reduce dramatically. Onsite functions relating to solar operations are limited to servicing and maintenance and the agricultural operations of the station will continue similar to prior construction of the solar farm.

The ongoing operation of the solar farm is estimated to generate $36 million in total economic output and support 27 (FTE) jobs per annum, which includes 11 direct jobs (FTE)[7]. As a conservative estimate we have assumed 10-20 vehicle movements per day are generated by the site post-development.

5.2 Access suitability

Given the significantly smaller traffic volumes anticipated during operations compared with during construction, it is assumed that the construction site accesses established for construction access will more than adequately meet the site's ongoing operational requirements.

It is worth noting that Lake River Road, which has reduced site distance to the west at the intersection with Macquarie Road, is utilised as a construction access for the installation of the new transmission line but will not be required as an access for the ongoing operations of NMSF.

5.3 Traffic impacts – post-development

The impact of traffic generated by the ongoing operation of the NMSF development is expected to be minimal during both the AM and PM peak hours and throughout the day.

The 10-20 daily vehicle movements to and from the site will likely occur earlier than the current AM peak (11:00am-12:00pm) or later than the PM peak (3:00pm-4:00pm). Heavy vehicles required to access or egress the site, post construction, are expected to be negligible.

The additional traffic generated by the development post-construction represents less than 5% of the existing traffic on Macquarie Road and is not expected to impact the function or operation of the surrounding network or affect the existing crash risk.

[7] Extracted from draft Urban Enterprise SocioEconomic report.

5.4 Turning treatments

It is not considered necessary to provide left or right turn treatments at the property accesses for the following reasons:

- There are low traffic volumes on Macquarie Road
- The proposed development will generate traffic volumes that can be safely accommodated on the existing roads during the 18 months of construction and very low traffic volumes in the operational phase; and
- There is good sight distance at all proposed access points, plus inclusion of warning signage for Lake River Road where sight distance is limited.

6. Planning Scheme Assessment

6.1 C3.0 Roads and Railway Assets Code

The NMSF development has been assessed against the Use Standards of the *Tasmanian Planning Scheme – Northern Midlands* (the Planning Scheme) Roads and Railway Assets Code, shown below in Table 6.

Table 6: Road and Railway Assets Code - Use Standards

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction	
Objective: To minimise any adverse effects on the safety and efficiency of the road or rail network from vehicular traffic generated from the site at an existing or new vehicle crossing or level crossing or new junction.	
Acceptable Solution	**Comment**
A1.1 For a category 1 road or a limited access road, vehicular traffic to and from the site will not require: a) A new junction b) A new vehicle crossing; or c) A new level crossing. **A1.2** For a road, excluding a category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority. **A1.3** For the rail network, written consent for a new private level crossing to serve the use and development has been issued by the rail authority. **A1.4** Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing, will not increase by more than: a) The amounts in Table C3.1; or	**Complies with acceptable solution A1** The A1 criteria are addressed below. 1.1. Macquarie Road,Poatina Road and Lake River Road are not Category 1 or limited access roads. 1.2. The NMSF project will make use of existing access points to Connorville Station and therefore will not create any new junctions or access points. 1.3. No rail in the vicinity - not applicable 1.4. Amount of increase in annual average daily traffic to and from the site is conservatively estimated to be 10-20 vehicle movements per day (post-development) which is a 5% increase to existing volumes on Poatina Road and Macquarie Road and satisfies criteria of Table C3.1 of 20% for other roads. During construction daily vehicle movements are estimated at 120 light vehicles and 50 heavy vehicles. These increases exceed the criteria of Table C3.1 of 20% for other roads, however given that the surrounding roads are currently operating well below capacity the additional traffic associated with the development is not anticipated to adversely affect the functioning or safety of the local network,

b) Allowed by a licence issued under Part IVA of the Roads and Jetties Act 1935 in respect to a limited access road. **A1.5** Vehicular traffic must be able to enter and leave a major road in a forward direction.	for the relatively short period of construction (18 months). 1.5. The proposed network of internal access roads will enable all vehicles to turn around on site.

6.2 C2.0 Parking and Sustainable Transport Code

The NMSF development has been assessed against the Use Standards and Development Standards of the *Tasmanian Planning Scheme – Northern Midlands* (the Planning Scheme) Parking and Sustainable Transport Code, shown below in Table 7 and Table 8, respectively.

Table 7: Parking and Sustainable Transport Code – Use Standards

C2.5.1 Car parking numbers	
Objective: To ensure that an appropriate level of car parking spaces are provided to meet the needs of the use.	
Acceptable Solution	**Comment**
Acceptable Solution A1 The number of on-site car parking spaces must be no less than the number specified in Table C2.1	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for car parking spaces (as per Table C2.1) The site is large and there is expected to be sufficient space for all vehicles associated with the NMSF to park.

C2.5.2 Bicycle parking numbers	
Objective: To ensure that an appropriate level of bicycle parking spaces are provided to meet the needs of the use.	
Acceptable Solution	**Comment**
Acceptable Solution A1 Bicycle parking spaces must: a) Be provided on the site or within 50m of the site; and b) Be no less than the number specified in Table C2.1.	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for bicycle parking spaces (as per Table C2.1) Likelihood of travel to site by bicycle is considered unlikely.

C2.5.3 Motorcycle parking numbers	
Objective: To ensure that an appropriate level of motorcycle parking spaces are provided to meet the needs of the use.	
Acceptable Solution	**Comment**

Acceptable Solution A1 The number of on-site motorcycle parking spaces for all uses must: a) Be no less than the number specified in Table C2.4; and b) If an existing use or development is extended or intensified, the number of on-site motorcycle parking spaces must be based on the proposed extension or intensification, provided the existing number of motorcycle parking spaces is maintained.	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for motorcycle parking spaces (as per Table C2.4) The site is large and there is expected to be sufficient space for any motorcycles associated with the NMSF to park.

C2.5.4 Loading bays	
Objective: That adequate access for goods delivery and collection is provided, and to avoid unreasonable loss of amenity and adverse impacts on traffic flows.	
Acceptable Solution	**Comment**
Acceptable Solution A1 A loading bay must be provided for uses with a floor area of more than 1000m² in a single occupancy.	**Complies with Acceptable Solution A1** The NMSF development does not have a floor area of >1000m^2, therefore no requirement applies. However, as the site is large there is expected to be sufficient space for required vehicle loading.

Table 8: Parking and Sustainable Transport Code – Development Standards

C2.6.1 Construction of parking areas	
Objective: That parking areas are constructed to an appropriate standard.	
Acceptable Solution	**Comment**
Acceptable Solution A1 All parking, access ways, manoeuvring and circulation spaces must: a) Be constructed with a durable all-weather pavement b) Be drained to the public stormwater system, or contain stormwater on the site; and c) Excluding all uses in the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone, Recreation Zone and Open Space Zone, be surfaced by a spray seal, asphalt, concrete, pavers or equivalent material to restrict abrasion from traffic and minimise entry of water to the pavement.	**Complies with Acceptable Solution A1** Access ways, parking areas and turning areas etc, will be required to be suitably constructed including appropriate drainage, and well maintained to ensure all weather access to site, particularly throughout the wetter months. NMSF is in an Agriculture zone and therefore sealing of the access ways is not required.

C2.6.2 Design and layout of parking areas

Objective:

That parking areas are designed and laid out to provide convenient, safe and efficient parking.

Performance Criteria	Comment
Performance Criteria P1 All parking, access ways, manoeuvring and circulation spaces must be designed and readily identifiable to provide convenient, safe and efficient parking, having regard to: a) The characteristics of the site b) The proposed slope, dimensions and layout c) Useability in all weather conditions d) Vehicle and pedestrian traffic safety e) The nature and use of the development f) The expected number and type of vehicles g) The likely use of the parking areas by persons with a disability h) The nature of traffic in the surrounding area i) The proposed means of parking delineation; and j) The provisions of Australian Standard AS 2890.1:2004 - Parking facilities, Part 1: Off-street car parking and AS 2890.2 -2002 Parking facilities, Part 2: Off-street commercial vehicle facilities.	**Satisfies Performance Criteria P1** Details of the parking layout, and construction details of access ways have not been provided by the client. However, the sites size and topography are such that satisfying the performance criteria should be achievable.

C2.6.3 Design and layout of parking areas

Objective:

That:

a) Access to land is provided which is safe and efficient for users of the land and all road network users, including but not limited to drivers, passengers, pedestrians and cyclists by minimising the number of vehicle accesses

b) Accesses do not cause an unreasonable loss of amenity of adjoining uses; and

c) The number of accesses minimise impacts on the streetscape.

Acceptable Solution	Comment
Acceptable Solution A1 The number of accesses provided for each frontage must: a) Be no more than 1; or b) No more than the existing number of accesses, whichever is the greater.	**Complies with Acceptable Solution A1** The NMSF project will make use of existing access points to Connorville Station and therefore will not create any new access points.

C2.6.5 Pedestrian access

Objective:

That pedestrian access within parking areas is provided in a safe and convenient manner.

Performance Criteria	Comment
Performance Criteria P1 Safe and convenient pedestrian access must be provided within parking areas, having regard to: a) The characteristics of the site b) The nature of the use c) The number of parking spaces d) The frequency of vehicle movements e) The needs of persons with a disability f) The location and number of footpath crossings g) Vehicle and pedestrian traffic safety h) The location of any access ways or parking aisles; and i) Any protective devices proposed for pedestrian safety.	**Satisfies Performance Criteria P1** Details of parking layout and pedestrian accesses have not been provided by the client. However, the sites size is such that satisfying the performance criteria should be achievable.

C2.6.6 Loading bays

Objective:

That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods.

Performance Criteria	Comment
Performance Criteria P1 Loading bays must have an area and dimensions suitable for the use, having regard to: a) The types of vehicles likely to use the site b) The nature of the use c) The frequency of loading and unloading d) The area and dimensions of the site e) The topography of the site f) The location of existing buildings on the site; and g) Any constraints imposed by existing development.	**Satisfies Performance Criteria P1** Laydown areas are shown in the development masterplans within the Solar East and Solar West areas. They have been sized and located to accommodate deliveries of plant and equipment by heavy vehicles. The topography of the site is flat and the laydowns will ensure loading and unloading can occur clear of circulating vehicles on the access roads.
Acceptable Solution A2 The type of commercial vehicles likely to use the site must be able to enter, park and exit the site in a forward direction in accordance with *Australian Standard*	**Complies with Acceptable Solution A1** The site's size and accesses provide sufficient space for commercial vehicles to enter, park, turn and exit the site in a forward direction.

C2.6.5 Pedestrian access	
AS 2890.2 – 2002, Parking Facilities, Part 2: Parking facilities Offstreet commercial vehicle facilities.	

7. Conclusion

Robert Luxmoore Project Management, on behalf of Connorville Estates Proprietary Limited, engaged pitt&sherry to undertake a Traffic Impact Assessment for the Northern Midlands Solar Farm. The analysis and discussion presented in this TIA report can be summarised as follows:

- The crash history for Macquarie Road, Lake River Road and Poatina Road in the vicinity of the site is consistent with that of a rural road with no crash patterns of concern observed
- The sight distance to the west of the Lake River Road/ Macquarie Road intersection, and Accesses #5 and #6 off Lake River Road do not meet the Austroads guidelines for safe intersection sight distances
- The sight distances of all other proposed accesses meet the Austroads guidelines
- The proposed transport route is expected to have sufficient capacity to accommodate the additional traffic generated during construction of the proposed development; and
- Operational traffic volumes of NMSF are estimated to be minimal and are not expected to have any noticeable impact to the safety and function of the surrounding road network after construction.

Recommendations:

- To mitigate the hazard caused by reduced sight distance at the Lake River Road/ Macquarie Road intersection, it is recommended that advisory Side Road Intersection (W2-4(R)) and Trucks [crossing or entering] (T2-25) signage be erected prior to the crest west of the intersection to alert vehicles travelling eastbound
- Trim or remove vegetation to improve sight distances at Accesses #5 and #6 off Lake River Road. If adequate sight distances are not achieved, a construction management plan may include advisory signage Side Road Intersection (W2-4(R) or (L)) and Trucks [crossing or entering] (T2-25) and/or temporary 80km/hr speed limits to mitigate the hazard caused by reduced sight distances
- Access #6 should be realigned to allow entry from and exit to the north. If the entrance is moved north of the existing gateway sight distances will likely be improved
- It is recommended that potholes on Palmerston Substation Access Road be repaired prior to the commencement of any works at the substation as these pavement defects are likely to worsen with increased use and may pose a safety hazard
- Provide sufficient parking for staff and delivery vehicles within the temporary construction compounds, including a loading area which allows delivery vehicles to be clear of other circulating vehicles during unloading
- A traffic management plan should be prepared all site access points, to ensure safe and efficient movement is maintained on public roads; and
- Any vehicles greater than 26m B-double will require additional consideration and should have an approved Traffic Management Plan detailing the trip route and specifics, or a permit (as required).

Important information about your report

In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. The Report may only be used and relied on by the Client for the purpose set out in the Report. Any use which a third party makes of this document, or any reliance on or decisions to be made based on it, is the responsibility of the Client or such third parties.

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