

NEOEN

**THUNDERBOLT ENERGY HUB
WIND FARM**

Scoping Report

FINAL

November 2020



THUNDERBOLT ENERGY HUB WIND FARM

Scoping Report

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Neoen Pty Ltd

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Date: **November 2020**



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1.0 Introduction

The proposed Thunderbolt Energy Hub is located in the Kentucky Area of New South Wales (NSW), approximately 40 kilometres (km) north east of Tamworth adjacent to the New England Highway (refer to **Figure 1.1**). The Thunderbolt Energy Hub is proposed to include wind and solar electricity generation and battery storage. This application relates to the wind farm component (the Project), refer to **Figure 1.2**, with the solar farm and battery store to be subject to a separate development application process.

The Project includes the construction and operation of approximately 70 wind turbines. Associated infrastructure is also proposed including operation and maintenance buildings, roads, civil works and electrical infrastructure (including two new substations) required to connect to the existing electricity transmission network.

The wind farm will have a capacity of approximately 380 megawatts (MW), with the potential to power ~226,800 homes. The overall capacity of the Thunderbolt Energy Hub (including the solar aspect) will be approximately 500 MW plus a 400 MW battery, with the potential to power ~276,830 homes once fully operational. Two new substation locations are proposed to be constructed adjacent to the two existing 330kV transmission lines. Energy generated by the Thunderbolt Energy Hub is proposed to be injected into one or both of these transmission lines through either one or both of the proposed new substations.

The Project Area is located within the New England Renewable Energy Zone (REZ) identified in the NSW Governments Electricity Strategy (refer to **Section 3.1.2**). The REZ is expected to play a vital role in delivery affordable energy to the community across NSW. The Project is therefore strategically located in a broad area identified as suitable for renewable energy project.

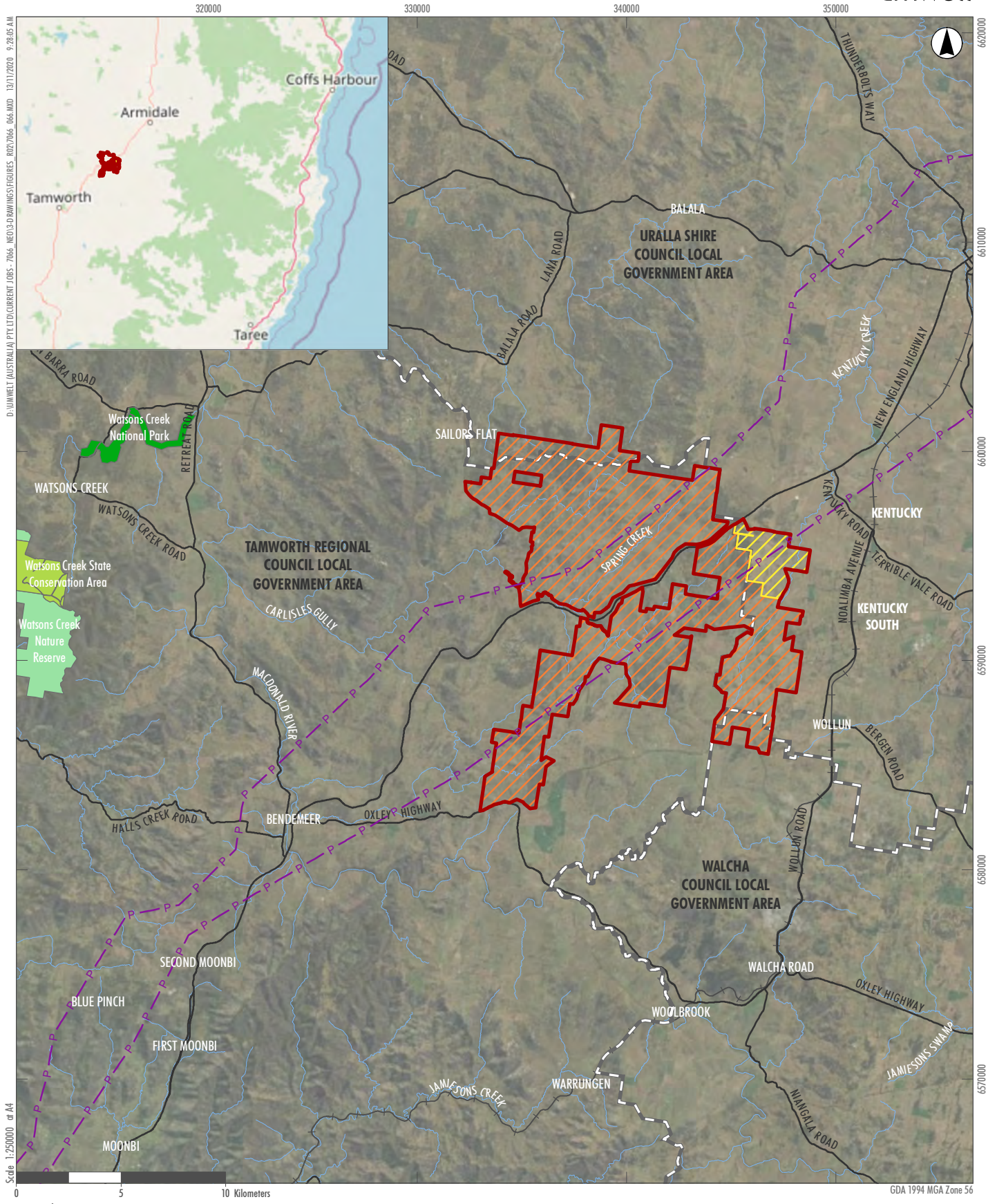
The Kentucky region has been identified as having high wind renewable energy resource potential. Preliminary wind studies undertaken by the Proponent have guided the development of the preliminary turbine layout for the Project.

The Project Area encompasses 12 freehold properties and covers approximately 12,222 hectares (ha). These properties are primarily utilised for sheep and cattle grazing activities. The preliminary layout for the Project (refer to **Section 2.0**) will be subject to further review and refinement as the environmental and social impact assessment progresses.

1.1 The Proponent

The proponent for the development application for the Project is Neoen Australia Pty Ltd. Neoen was founded in 2008 and is a leading independent producer of renewable energy. Neoen has been operating in Australia since 2012 and is the owner and operator of DeGrussa solar farm in WA, the Hornsdale Wind Farm and Hornsdale Power Reserve in SA; Parkes Solar Farm, Dubbo Solar Hub, Griffith Solar Farm and Coleambally Solar Farm in NSW; and the Bulgana Green Power Hub and Numurkah Solar Farm in Victoria. The business therefore has an established presence in both NSW and more broadly in Australia as a producer of renewable energy.

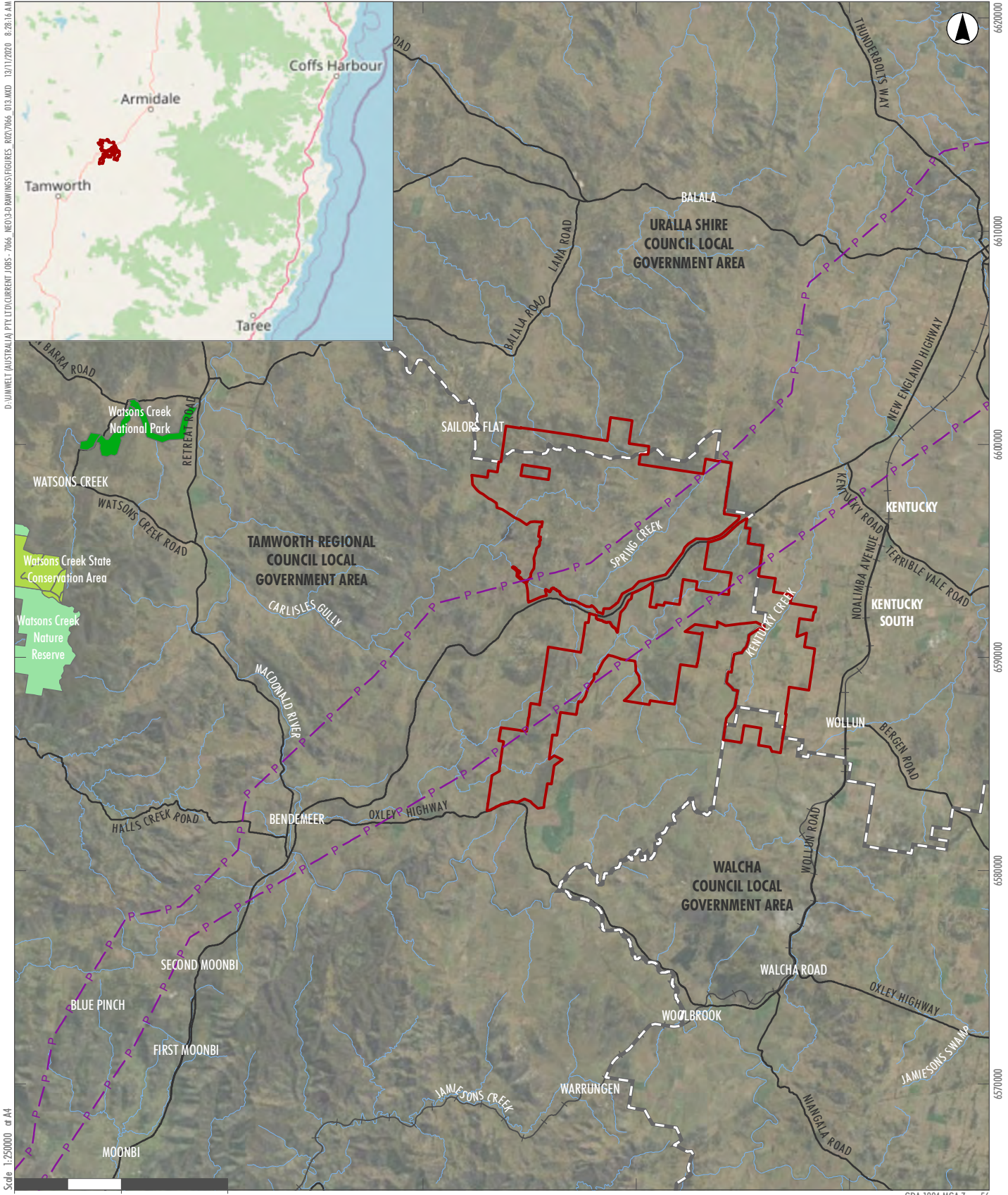
Neoen has more than 2 gigawatts (GW) of renewable projects either operating, under construction or committed in Australia as at the end of 2020 with offices in Sydney and Canberra and plans to be a key provider of renewable energy to both the people of NSW and across Australia. Neoen intends to reach 3 GW of operating or under construction assets in its portfolio in Australia by 2022.



- Legend**
- Thunderbolt Energy Hub
 - Thunderbolt Wind Farm
 - Thunderbolt Solar Farm and Battery Store
 - Local Government Areas
 - National Park
 - Nature Reserve
 - State Conservation Area
 - Existing 330kV Power Lines
 - Watercourse
 - Road
 - Railway

FIGURE 1.1
Thunderbolt Energy Hub

320000 330000 340000 350000



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Legend

- Project Area
- Local Government Areas
- National Park
- Nature Reserve
- State Conservation Area
- Existing 330kV Power Lines
- Watercourse
- Road
- Railway

FIGURE 1.2

Thunderbolt Wind Farm

2.0 Project Overview

2.1 Environment and Community Context

The Project Area is located within a rural setting approximately 40 kilometres (km) north east of Tamworth adjacent to the New England Highway. The Project Area covers approximately 12,222 ha located within the Tamworth Regional Local Government Area (LGA), the Walcha LGA and the Uralla LGA. The Project Area is located near to the villages of Bendemeer, Wollun and Kentucky and the closest national park, state park or nature reserve is Watsons Creek National Park, located approximately 13 km west (refer to **Figure 2.1** and **Figure 2.1A**). The villages of Bendemeer, Wollun and Kentucky have populations of 492, 67 and 283 respectively. The Project Area is accessed directly from the New England Highway, Oxley Highway and a number of other existing local roads.

The land within the Project Area is owned by multiple landowners as well as Crown reserves and roads. Land within and surrounding the Project Area has been subject to extensive vegetation clearing associated with historic agricultural land uses and is predominately utilised for grazing activities, with some horticulture, forestry and areas of nature conservation. It has an elevation ranging from 840m AHD to 1140m AHD, comprising of hills and ridgelines with intervening valleys.

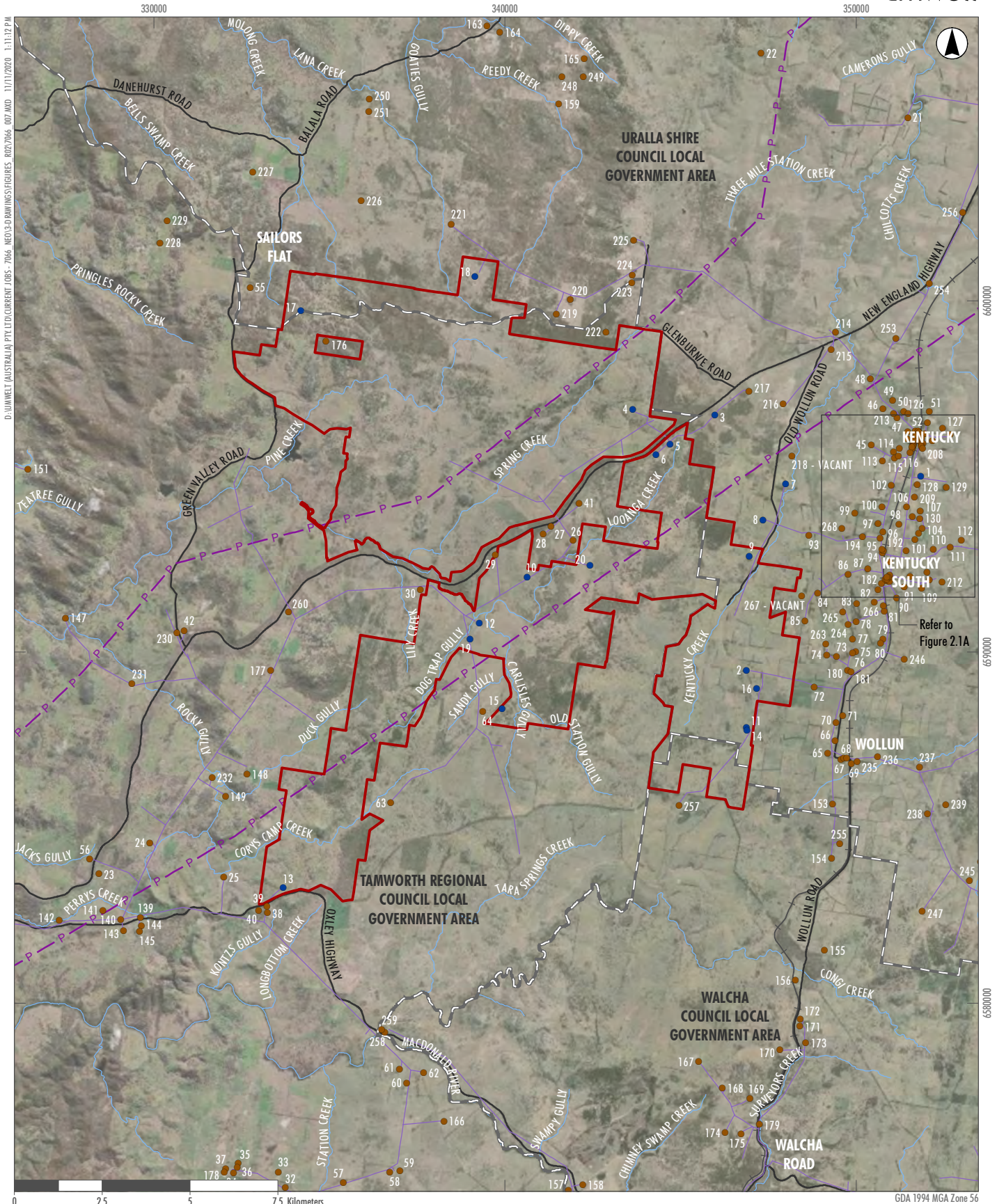
The land within the Project Area is variable in land capability with land classes 4, 5, 6, 7 and 8 land and soil capability, which is described as moderate to very low capability agricultural land.

There are approximately 37 non-involved residential dwellings located within 4 km of the proposed turbines, with the closest non-involved dwelling approximately 1.4 km from the closest wind turbine.

The Project Area is zoned as RU1 Primary Production under the relevant Local Environmental Plans (LEPs). None of the land within the Project Area is identified as Biophysical Strategic Agricultural Land (BSAL) and the Project Area is not currently subject to any mineral titles, exploration leases or licences.

As discussed above, the Project Area is located within the New England REZ under the NSW Governments Electricity Strategy. A REZ involves the coordinated development of new grid infrastructure in energy rich areas to connect multiple generators (such as solar and wind farms) in the same location. The designation of REZs is intended to result in the development of additional capacity of renewable electricity generation at a lower cost. The REZs are expected to play a vital role in delivery affordable energy across NSW as the State's existing power stations close over the coming decades.

The New England REZ is identified as potentially supplying 8,000 MW of renewable energy as it has been identified by the NSW government and having some of the best natural energy resources in the country and is ideally located close to existing high voltage power lines that connect the NSW east coast and Queensland. The REZ is discussed further in **Section 3.1.2**.



- Legend**
- Project Area
 - Involved Landholder
 - Non-involved Landholder
 - P — Existing 330kV Power Lines
 - Existing LV Power Lines
 - Local Government Areas
 - Road
 - Railway
 - Watercourse

FIGURE 2.1
Site Context

Image Source: ESRI Basemap, Data source: DFSI (2020), Neoen (2020)

350000

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GDA 1994 MGA Zone 56

Legend

- Project Area
- Involved Landholder
- Non-involved Landholder
- Existing LV Power Lines
- Road
- + Railway
- Watercourse

FIGURE 2.1A

Site Context

2.2 The Project

The preliminary layout for the Project (refer to **Figure 2.2**) has been prepared to locate the wind turbines predominately along ridgelines while also maximising the number of turbines within areas identified as having higher wind resources.

The Project includes the construction, operation and maintenance of approximately 70 turbines. Associated infrastructure is also proposed including roads, operation and maintenance buildings, civil works and electrical infrastructure required to connect to the existing transmission network.

The key components of the Project include:

- approximately 70 (3 blade steel) wind turbines with a total height (tip height) of approximately 250 m
- electrical connections between the proposed wind turbines consisting of a combination of underground cables and overhead powerlines
- two new substations and transmission connections to connect the proposed turbines to the 330kV transmission line network
- other associated infrastructure including access roads and tracks, operation and maintenance buildings and construction facilities (all facilities subject to further detailed design)
- temporary on-site concrete batching plant during the construction phase
- targeted road network upgrades to facilitate delivery of wind turbine components to the site as required

The proposed infrastructure would be contained within the Project Area boundary including turbine blades. The proposed layout will allow for micro-siting and will be subject to further detailed design as the environmental and social impact assessments progress.

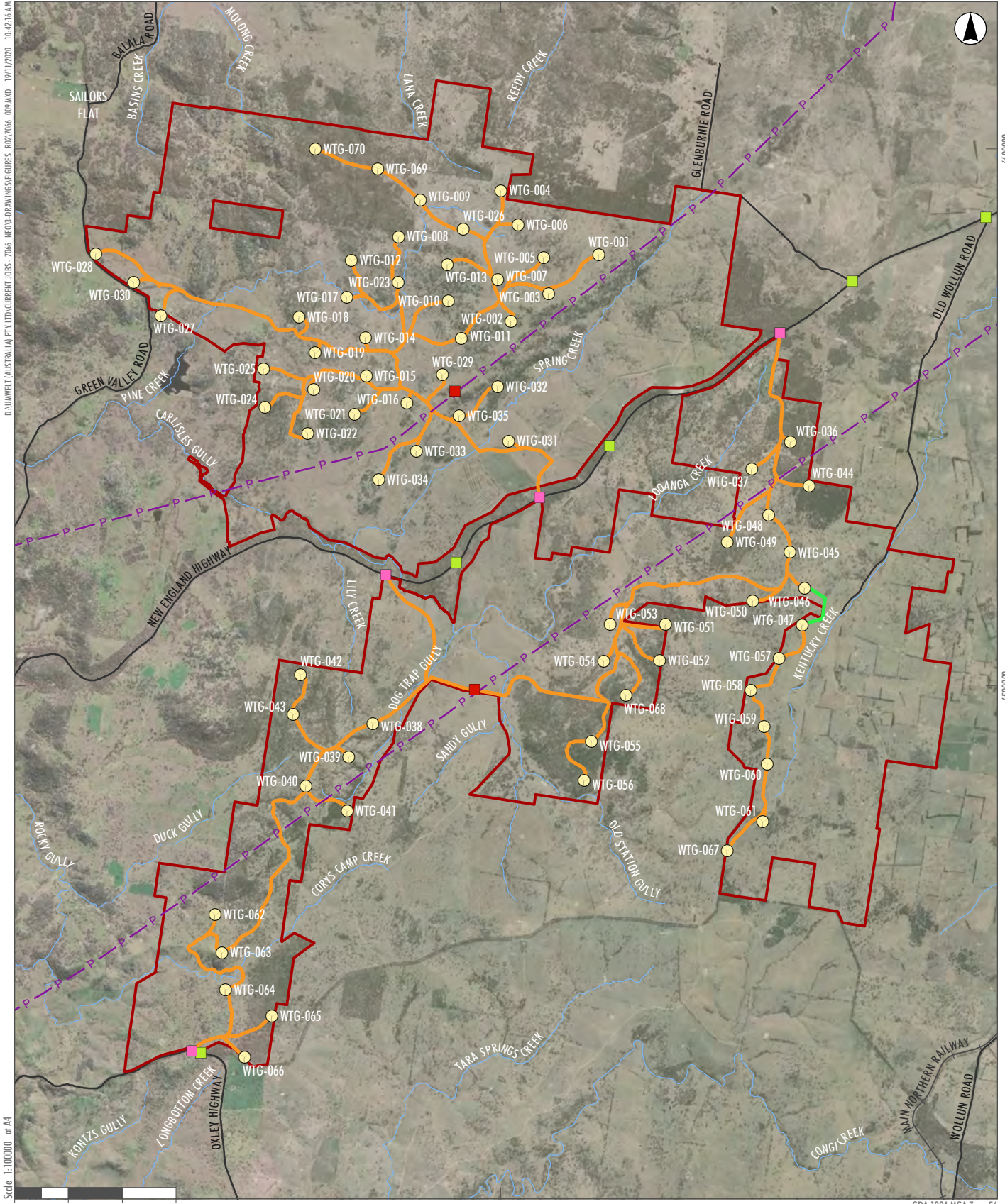
2.2.1 Land Ownership

The Project Area encompasses 12 privately-owned properties, all of which are primarily utilised for sheep and cattle grazing, refer to **Figure 2.3**.

Land surrounding the Project Area is also predominately utilised for agricultural purposes. There are approximately 9 non-involved dwellings located within 2 km, 28 located between 2 - 4 km and 210 located between 4 - 8 km of the proposed turbines.

340000

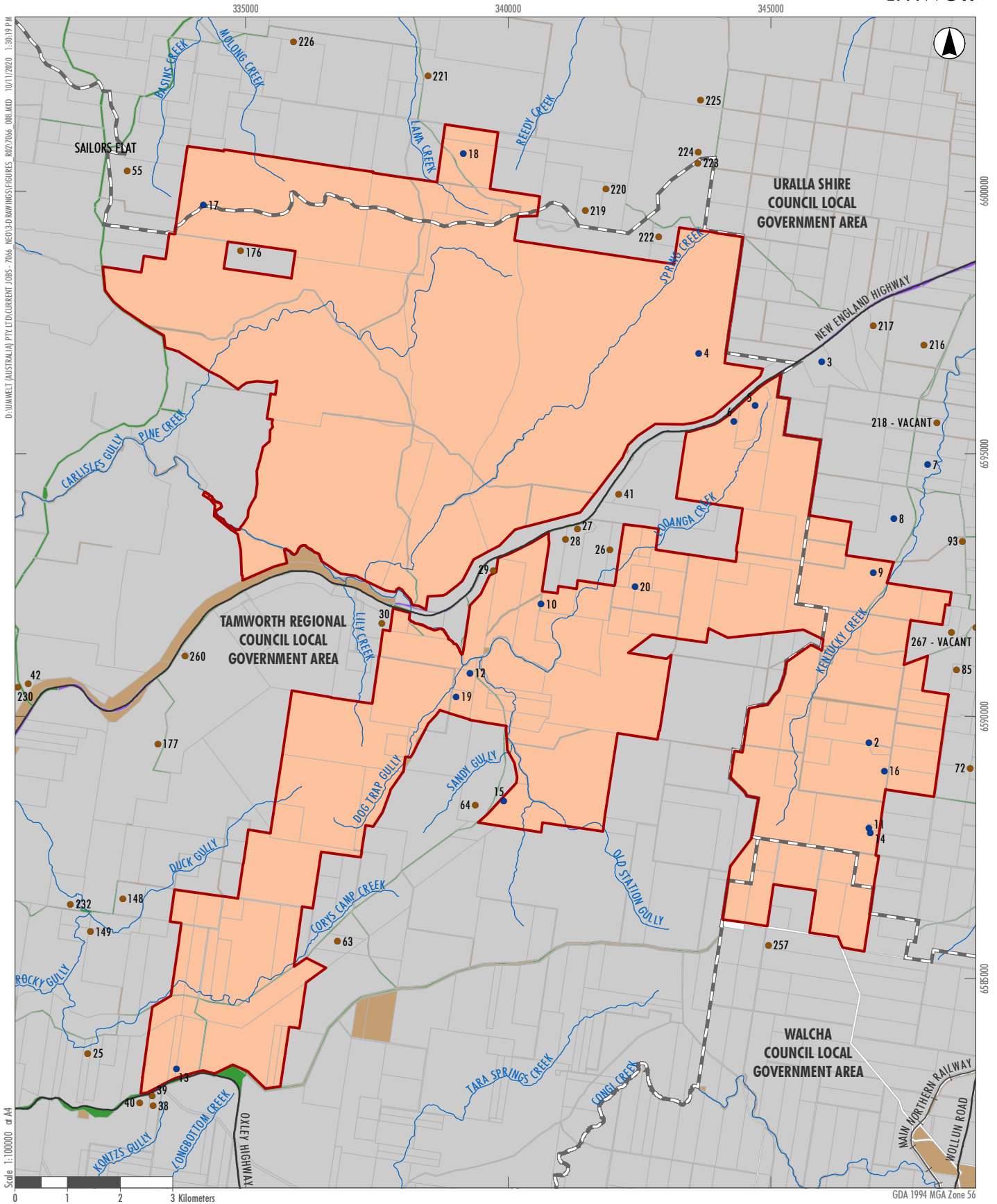
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- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
 - Possible Substation Location
 - Existing 330kV Power Lines
 - Access Point
 - Potential Secondary Access Point
 - Road
 - Railway
 - Watercourse

FIGURE 2.2
Conceptual Layout

Image Source: ESRI Basemap, Data source: DFSI (2020), Neoen (2020)



- Legend**
- Project Area
 - Involved Landholder
 - Non-involved Landholder
 - Local Government Areas
 - Road
 - Railway
 - Watercourse
 - Private - Involved Landholder
 - Crown land
 - Private
 - Local Government Authority
 - Shared Crown/Council

FIGURE 2.3
Landownership

3.0 Strategic Context

3.1 Project Justification

The development of renewable energy projects aligns with both Federal and NSW commitments to increase renewable energy generation and reduce carbon emissions across the NSW and Australian economies.

The proposed location of this Project is within an identified REZ, being an area identified by the NSW government as to be targeted for renewable energy development. The NSW government has indicated that these REZs will play a vital role in delivering affordable energy generation to help prepare the State for the expected retirement of thermal power stations over the coming decades. The government has also indicated that the REZ are expected to unlock a significant pipeline of large-scale renewable energy and storage projects, while supporting up to \$23 billion of private sector investment in our regions and up to 2,000 construction jobs each year.¹

The Project will contribute to meeting these Federal and NSW government objectives and is located within a defined area planned for renewable energy development.

Further detail regarding the strategic context and Project benefits of the development is provided in the following sections.

3.1.1 Federal and State Renewable Energy Commitments

Australia is one of the 195 countries from around the world signed to the international climate change agreement (the Paris Agreement). The Paris Agreement aims to:

- hold the increase in the global average temperature to below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels
- increase the ability [of nations] to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production, and
- make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

The Paris Agreement seeks to meet its objectives by developing programs and mechanisms that:

- require participating Parties to prepare and communicate greenhouse gas mitigation contributions. Parties are expected to set mitigation targets for 2020, and then develop new targets every five years. Each successive target is expected to represent a larger mitigation effort than the previous target
- promote climate change resilience and adaptation
- provide mitigation and adaptation funding to developing countries
- foster mitigation and adaptation technology transfer between Parties, and
- require participating Parties to report progress towards their mitigation contributions on an annual basis.

¹ <https://energy.nsw.gov.au/renewables/renewable-energy-zones>

Australia signed the Paris Agreement on 22 April 2016, the obligations under the Paris Agreement will drive national greenhouse gas policy between 2020 and 2030. Under the Paris Agreement, Australia is obliged to:

- prepare, communicate and maintain a Nationally Determined Contribution (NDC). An NDC outlines the size and type of mitigation contribution each member state will make to the international effort
- pursue domestic mitigation measures, with the aim of achieving the objectives of its NDC
- communicate an NDC every 5 years, and
- quantify its NDC in accordance with IPCC methodologies, which promote transparency and avoid double counting.

Australia's commitment to the Paris Agreement includes reducing greenhouse gas emissions by 26 - 28 % on 2005 levels by 2030 (Commonwealth of Australia, 2015). Australia's NDC prescribes an unconditional economy-wide target to reduce greenhouse gas emissions and states that future policies will target emissions generated from energy use, industrial processes, agriculture, land-use, land-use change and forestry and waste.

In order to reduce the emissions of greenhouse gases generated by the electricity sector and to encourage additional generation of electricity from sustainable and renewable resources the Australian Government introduced the Renewable Energy Target (RET) in 2009. The RET has been a successful initiative as the current target of 33,000 GWh under the RET is expected to be met during 2020.

The NSW Government has developed its NSW Climate Change Policy Framework, which aims to deliver net zero emissions by 2050, and a State that is more resilient and responsive to climate change (OEH 2016).

Under the NSW Climate Change Policy Framework, NSW has committed to both follow the Paris Agreement and to work to complement national action.

The policy framework is being delivered through:

- the Climate Change Fund
- developing an economic appraisal methodology to value greenhouse gas emissions mitigation
- embedding climate change mitigation and adaptation across government operations
- building on NSW's expansion of renewable energy, and
- developing action plans and strategies.

In 2013 the NSW Government released the Renewable Energy Action Plan (REAP) and the NSW Energy Efficiency Action Plan (EEAP).

The REAP aimed to increase the generation, storage and use of renewable energy in NSW, at least cost to customers and with maximum benefits to NSW.

The three core goals of the REAP was to attract renewable energy investment, build community support for renewable energy and attract and grow expertise in renewable energy. Based on the implementation of the REAP, renewable energy is now well-placed to play a leading role in meeting NSW's energy needs into the future and has resulted in solar and wind generated electricity tripling during the five years the REAP was implemented.

The objective of the EEAP is to deliver bill savings to those most affected by electricity price rises and to reduce pressure on future rises. The EEAP included targets to realise annual energy savings of 16,000 GW hours by 2020 and to support 220,000 low income households to reduce energy use by up to 20% by 2014.

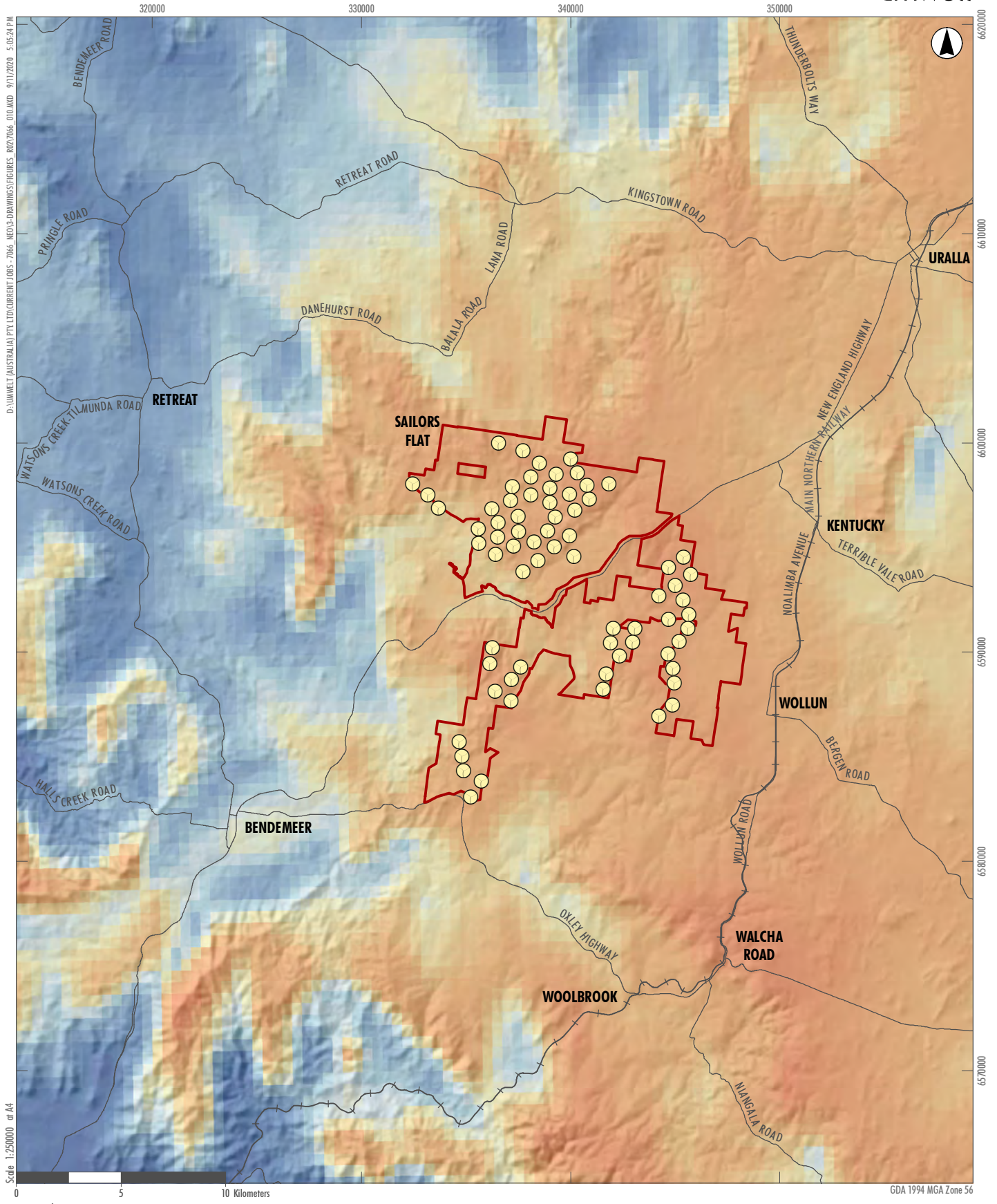
The Project will deliver clean, reliable and affordable energy and is well aligned with the objectives of the current Federal and State commitments to combat climate change and to provide affordable renewable energy to the community and businesses.

3.1.2 Local and Regional Renewables Context

The Project Area is located within the New England region which is identified as a REZ under the NSW Governments Electricity Strategy. There are a large number of renewable energy projects within the REZ, at different stages of the approval process within 100 km of the Project Area. The Winterbourne Wind Farm Project (recently provided with SEARs) is located approximately 20 km to the southeast of the Project Area as well as several solar farms (refer to **Figure 3.1**). The Tara Springs Wind Farm project is located adjacent to the Project Area to the south (refer to **Figure 3.1**), this project is at the pre-scoping phase, a scoping report is yet to be submitted to DPIE.

Wind energy is known to be one of the cheapest forms of new build large-scale energy generation and NSW has world-class wind resources. The east coast and regions along the higher exposed parts of New England, the Great Dividing Range and the Southern Highlands, have been identified as some of Australia's best sites with consistently high average wind speeds and are often closer to existing transmission lines.

The Project Area is mapped as an area with highest wind and medium solar renewable energy source potential under the NSW REAP. The Renewable Energy Resource Mapping (DPIE, 2019) is reproduced in **Figure 3.2** which indicates the existing wind resources applicable to the Project Area.



Legend

- Project Area
- Preliminary Turbine Layout
- Railway
- Road

Wind speed (metres per second)

High : 10.2

Low : 2.4

FIGURE 3.2
Wind Resource Mapping

Image Source: ESRI Basemap, Data source: DFSI (2020), Neoen (2020)

3.1.3 Project Benefits

The Project will provide long-term, strategic benefits to the state of NSW, including:

- renewable energy supply to assist with fulfilling the current obligations under state and federal renewable energy targets
- providing for cleaner reliable electricity generation, assisting with meeting current load demand while reducing greenhouse gas emissions and the impacts of climate change
- providing regional investment in the NSW renewable energy sector.

The Project will also provide direct financial benefits to the regional and local community, including:

- infrastructure investment of approximately \$570 million
- employment generation creating over 350 jobs during the construction phase and approximately 10 - 15 jobs during the operational phase
- indirect benefits to local services through the construction and operation phases
- additional landowner income to involved landowners resulting in financial contributions to the local community
- local community benefits through the implementation of a proposed community benefit fund that will invest in local community project and initiatives to provide a direct and targeted local benefit

3.2 Project Alternatives

The Project location was selected due to the area being identified as a REZ and as having high wind renewable energy resource potential. A broader area was investigated prior to settling on the proposed Project Area.

Neoen initially commenced consultation with potential involved landholders based on a study area of 35,000 ha. This area has been reduced to approximately 13,00 ha with the indicative turbine placement and infrastructure design being subject to a number of iterations during consultation with the landowners and initial environmental investigation which has informed the development of the current indicative Project layout. Further detail in relation to the refinement of the Project is included in the Community Relations Plan, prepared by Neoen, attached as **Appendix 1**.

Neoen commenced consultation with the now involved landholders in early 2019 (initially as project neighbours). This consultation included phone calls, group workshops and face to face meetings conducted by Neoen employees. This initial consultation process resulted in the current involved landholders confirming involvement in the Project between June and September 2020.

The Project layout will be subject to further refinement and revision as more information is obtained through the proposed environmental studies and ongoing feedback from the consultation processes.

3.3 Planning Considerations

3.3.1 NSW Planning Approval Pathway

There are a number of legislative instruments in NSW which regulate the planning and environmental impact of development. The primary instrument is the EP&A Act which regulates the environmental assessment and approval process for development in the State. The EP&A Act is supported by the Environmental Planning and Assessment Regulation 2000 (the Regulation).

3.3.1.1 NSW Environmental Planning and Assessment Act 1979

The Project will require development consent under Part 4 of the EP&A Act. The Project is State Significant development (SSD) under the provisions of the State Environmental Planning Policy (State and Regional Development) 2011 and is subject to the provisions of Division 4.7 of the EP&A Act. The development application will be lodged with the Planning Secretary of DPIE. This report accompanies the request for the Secretary's Environmental Assessment Requirements (SEARs) for the EIS.

Under Division 4.2, Section 4.5 of the EP&A Act the consent authority for SSD is the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind).

Section 4.15 of the EP&A Act describes the matters for consideration in assessing SSD, which includes the provisions of relevant environmental planning instruments, proposed instruments that have been the subject of public consultation, development control plans, planning agreements and statutory regulations. The assessment of SSD must also consider the likely impacts of the development, suitability of the site, any submissions received and the public interest.

Clause 4.41 of the EP&A Act clarifies that development consent for SSD includes authorisations under the following statutory provisions, meaning that separate planning approval processes do not apply:

- a permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*
- an approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977*
- an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*
- a bushfire safety authority under section 100B of the *Rural Fires Act 1997*
- a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*.

3.3.1.2 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) declares certain development to be SSD.

Under the SRD SEPP, the Project is SSD as it is a development for the purpose of electricity generation and will have a capital investment value of greater than \$30 million.

3.3.1.3 Permissibility

Clause 34(1)(b) of State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Under Clause 8(1) of the Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other environmental planning instruments, including local environmental plans.

The Project Area falls within three different LGA's and is zoned RU1 – Primary Production. The zoning of parts of the site are specified RU1 under the Tamworth Regional Local Environmental Plan 2010, the Walcha Local Environmental Plan 2012 and the Uralla Local Environmental Plan (2012). Electricity generating works are not permitted within the RU1 – Primary Production Zone, however, due to the operation of Clause 34(1)(b) of the Infrastructure SEPP the proposed development is permissible with development consent.

3.3.2 NSW Legislation

The applicable State legislation is outlined in **Table 3.1**.

Table 3.1 State Legislation

State Legislation	Description
<i>Biodiversity Conservation Act 2016</i> (BC Act)	Under the BC Act, biodiversity assessment in accordance with the Biodiversity Assessment Method (BAM) is required for any SSD project. The Project (as SSD) will trigger the need to prepare a Biodiversity Development Assessment Report (BDAR) in accordance with the BAM. The EIS will include a BDAR.
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	The POEO Act regulates pollution to the environment and requires licences for environmental protection including waste, air, water and noise pollution control. Wind farms are a scheduled activity under the POEO Act and require an Environment Protection Licence (EPL). An EPL would be sought in relation to the construction and operation of the Project.
<i>Water Management Act 2000</i> (WM Act)	Any water extractions (take) from water sources (surface and groundwater) regulated by a Water Sharing Plan (WSP) required for construction purposes will require licensing under the WM Act. The potential water requirements during construction will be assessed as part of the Water and Soil Impact Assessment prepared to support the EIS. Any necessary licences would be obtained for the Project.
<i>Roads Act 1993</i> (Roads Act)	A consent is required under section 138 to work on or above a road or to connect a road to a classified road. Consents under section 138 will be required for the proposed road works.
<i>Crown Land Management Act 2016</i> (Crown Land Act)	The Crown Land Act provides for the administration and management of Crown Land in NSW. Crown land may not be occupied, used, sold, leased, licensed, dedicated, reserved or otherwise dealt with unless authorised by the Crown Land Act. There are some areas of Crown Land (e.g. Crown road reserves) within the Project Area and should any works be proposed in these areas an approval would be obtained.

State Legislation	Description
<p><i>Contaminated Land Management Act 1997</i> (CLM Act)</p>	<p>The CLM Act establishes the process for investigating and if required, remediating land that the NSW EPA considers to be contaminated significantly enough to require regulation under Division 2 of Part 3.</p> <p>The Project Area does not contain land listed on the Contaminated Lands Register. Relevant mitigation and management measures would be incorporated into the CEMP for the Project and the ongoing OEMP to address potential contamination issues and outline the requirements in relation to reporting contamination incidents to the NSW EPA.</p>

3.3.3 Commonwealth Legislation

3.3.3.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a framework for protection of the Australian environment, including its biodiversity and its natural and culturally significant places.

Any action which could have a significant impact on a matter of national environmental significance (MNES) must be referred to the Minister for the Environment, MNES includes:

- World heritage properties
- National heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Migratory species protected under international agreements
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines), and
- A water resource, in relation to coal seam gas development and large coal mining development.

The Project Area is not within a world heritage property or place, does not have wetlands of international importance, is not within either a Commonwealth marine area or the Great Barrier Reef Marine Park, and does not relate to a nuclear action, coal seam gas or coal mining development.

There is potential for the Project to impact on listed threatened species and ecological communities, and migratory species.

A Referral will be lodged to determine whether the Project requires formal assessment and approval under the EPBC Act as a Controlled Action. If deemed a controlled action, it is assumed that the Project would be assessed under a bilateral agreement between the NSW and Commonwealth governments.

3.3.3.2 Civil Aviation Regulations 1988

Reporting of tall structures to the Royal Australian Air Force (RAAF) is required under the Civil Aviation Regulations 1988. A detailed assessment in accordance with the regulations and consultation with the relevant agencies will be undertaken as part of the preparation of the EIS.

3.3.3.3 Heavy Vehicle National Law

Approvals would be required for the transport of wind turbines and associated infrastructure by over size and over mass (OSOM) vehicles.

4.0 Stakeholder Engagement

Neoen has prepared a Community Relations Plan (CRP) for the Project and has undertaken consultation with the community to inform this scoping report. The following section provides a summary of the CRP, the consultation undertaken to date and key issues raised. Refer to the CRP, attached as **Appendix 1**, for further detail.

4.1 Community Relations Plan

The CRP (Neoen, 2020) identifies the community relations approach and objectives for the Project and the surrounding communities. It outlines the overall framework across the phases of the project lifecycle (from development through construction to operations). It provides a summary of the key stakeholders including landholders, neighbours, local community and local government and consultation undertaken to date.

Through the implementation of the CRP Neoen aims to:

- **Involve** the community in the development, construction and operation of the wind farm
- **Collaborate** with the community to ensure that local advice and insight are shaping the approach to engagement and benefit sharing
- **Empower** the community to shape key elements of the project, such as co-designing the long-term framework of the shared benefits program.

The CRP provides an overview of Neoen’s approach to community relations throughout all stages of the Project, outlines the Project and the relevant stakeholders, provides detail on the consultation undertaken to date and outlines the Community Benefit Sharing Program (CBSP).

Refer to **Appendix 1** for further detail.

4.1.1 Agency Stakeholder Engagement

Agency consultation undertaken to date in relation to the Project is provided in **Table 4.1**.

Table 4.1 Agency Consultation

Agency	
Department of Planning, Infrastructure and Environment (DPIE)	Video-conference – 18 August 2020 A project overview was provided – key focus areas included visual and cumulative impacts
Biodiversity Conservation Division (BCD) – North West and North East BCD Office	Video-conference – 24 July 2020 Meeting included providing a project overview and assessment methodology discussions
Transport for New South Wales (TfNSW) – Northern region	Preliminary information booklet provided
Uralla, Walcha and Tamworth Local Council	Project overview provided July 2020 Meeting (Uralla Shire Council only) 6 October 2020
State and Federal Ministers	Letters providing an overview of the project were sent to relevant MPs of the State electorates of Tamworth and Northern Tablelands and Federal electorate of New England

4.1.2 Community Stakeholder Engagement

The community consultation undertaken to date is summarised in **Table 4.2**.

Table 4.2 Community Consultation

Stakeholders	
Involved Landholder Group	Commenced in 2019 Workshops in 2019 and 2020 to refine project area and confirm involved landholders Regular informal consultation (phone and email) and information sharing
Near Neighbours	Community meeting – February 2020 Phone liaison (57 landowners located within 8 km of Project Area) Face to face meetings (27 landowners) – July to October Community Information Session – September 2020 Distribution of project information booklet Online project survey

Neoen met with 27 landowners during the face to face meetings, 33% indicated that had no concerns regarding the Project. Key feedback identified by the community in relation to the Project include:

- decreasing or increasing land values of neighbouring properties
- visual Impact
- noise Impacts
- construction disruption (dust, noise, traffic); and
- impact on local environment and/or land use.

Other potential issues included decommissioning, health impacts, concerns regarding existing infrastructure and ability to connect to the grid, disruption to other services (such as phone lines) and impacts to water resources.

These issues are addressed in **Section 5.0** and will be subject to detailed environmental assessment during the EIS phase of the Project.

Further detail in relation to community engagement is provided in **Appendix 1**.

4.2 Continued Stakeholder Engagement

Neoen will continue to implement the CRP throughout the Project assessment phase. Key consultation mechanisms and activities will include:

- Project website including project email, job interest register and feedback survey
- community Information session(s)
- Council and agency stakeholder briefings
- investigate, Identify and confirm options for Community Benefit-sharing Scheme

- face to face meetings with neighbouring landholders
- Project information sheets
- involved landowner dinners and updates.

5.0 Preliminary Environmental Assessment

A preliminary environmental risk assessment has been undertaken for the Project which includes consideration of project specific and cumulative impacts. The identification of issues for consideration has been informed by the DPIE *Scoping an Environmental Impact Statement* guideline, the NSW Wind Energy guidelines and standard SEARs.

As part of the preliminary environmental and social assessment the potential project issues have been separated into 'Key Issues' and 'Other Issues'. Key issues are issues where there is a reasonable likelihood that the Project will have a material impact and detailed assessment is required to fully understand such impacts and identify project-specific mitigation. Other issues are issues which are not of particular concern and unlikely to have a material impact and/or the measures to manage the impacts are well understood and routinely used on similar projects.

Table 5.1 provides a summary of the key and other issues, potential impacts, preliminary mitigation controls and proposed assessment approach. Further detail regarding the preliminary analysis and proposed scope of the detailed assessments to be prepared to support the EIS is provided in **Section 5.1**.

Table 5.1 Preliminary Environmental Risk Assessment Overview

Issue	Potential Impacts	Preliminary Mitigation	Issue Level	Assessment approach
Visual Amenity	<ul style="list-style-type: none"> Impact to current scenic landscape/character of the locality Loss of visual amenity of adjoining landholders Cumulative visual impacts Night lighting disturbance 	<ul style="list-style-type: none"> Detailed site-specific assessment Detailed project design to avoid and/or minimise impact where practicable Mitigation measures (landscaping etc) 	Key Issue	Specialist assessment
Noise and Vibration	<ul style="list-style-type: none"> Operational noise impacts on involved and non-involved landholders Noise disturbance associated with increase road traffic and construction works during construction phase Potential vibration disturbance to involved and non-involved landholders Cumulative noise impacts 	<ul style="list-style-type: none"> Detailed project design to avoid and/or minimise impact where practicable Implementation of appropriate mitigation (if required) Implementation of construction and operational noise management plans. 	Key Issue	Specialist Assessment
Biodiversity	<ul style="list-style-type: none"> Loss or modification of terrestrial habitats due to vegetation clearing Impact to threatened species or endangered ecological communities Bird and bat strike Spread of weeds across the Project Area due to construction activities Cumulative biodiversity impacts 	<ul style="list-style-type: none"> Detailed project design to avoid and/or minimise impact where practicable Biodiversity management and monitoring programs Construction environmental management plan Biodiversity offsets as required by the BAM 	Key Issue	Specialist Assessment
Aboriginal Cultural and Historic Heritage	<ul style="list-style-type: none"> Potential impact to Aboriginal or historic heritage objects or Aboriginal cultural values or heritage values of the area 	<ul style="list-style-type: none"> Detailed project design to avoid and/or minimise impact where practicable Implementation of appropriate mitigation (if required) Implementation of construction and operational management plans. 	Key Issue	Specialist Assessment

Issue	Potential Impacts	Preliminary Mitigation	Issue Level	Assessment approach
Traffic and Transport	<ul style="list-style-type: none"> Increased traffic during construction phase Disruption to traffic due to delivery of construction materials Disruption to traffic due to road upgrade works Cumulative traffic and transport impacts 	<ul style="list-style-type: none"> Construction Traffic and Access Management Plan Potential targeted road upgrades where necessary (as an outcome of traffic and transport assessment) 	Key Issue	Specialist Assessment
Socio-Economic Impacts	<ul style="list-style-type: none"> Economic impacts locally and regionally Land use changes Property valuation Community consultation 	<ul style="list-style-type: none"> Stakeholder Engagement Strategy Community Benefits Fund Environmental and social impact mitigation measures 	Key Issue	Consultation and Economic Evaluation to be undertaken by Neoen
Aviation Safety	<ul style="list-style-type: none"> Turbines potentially interacting with air traffic 	<ul style="list-style-type: none"> Installation of lighting and/or navigation aids Detailed project design to avoid and/or minimise impact 	Key issue	Specialist Assessment
Telecommunications EMF/EMI	<ul style="list-style-type: none"> Loss of telecommunication signals Interruption to (or loss of strength) of TV and radio signals Threat to human health 	<ul style="list-style-type: none"> Detailed project design to avoid and/or minimise impact where practicable Development of site-specific mitigation measures 	Key issue	Specialist Assessment
Blade Throw Shadow Flicker/Blade Glint	<ul style="list-style-type: none"> Blade throw risk to human health and nearby infrastructure Shadow flicker/blade glint disruption to nearby residents or motorists on New England Highway 	<ul style="list-style-type: none"> Detailed project/turbine design 	Key Issue	Specialist Assessment
Water and Soil Resources	<ul style="list-style-type: none"> Erosion and sediment control Water supply Flooding 	<ul style="list-style-type: none"> Construction Environmental Management Plan Detailed design to avoid and/or minimise impact 	Other Issue	Specialist Assessment
Bushfire	<ul style="list-style-type: none"> Risk to infrastructure and risk to human health 	<ul style="list-style-type: none"> Implementation of appropriate controls, emergency response management and management of infrastructure and surrounding land 	Key Issue	EIS Chapter

Issue	Potential Impacts	Preliminary Mitigation	Issue Level	Assessment approach
Waste	<ul style="list-style-type: none"> • Generation of waste associated with construction and operation 	<ul style="list-style-type: none"> • Implementation of appropriate waste management plan 	Other Issue	EIS Chapter
Air Quality	<ul style="list-style-type: none"> • Elevated dust levels associated with construction works 	<ul style="list-style-type: none"> • Implementation of appropriate controls as part of Construction Environmental Management Plan 	Other Issue	EIS Chapter
Decommissioning and Rehabilitation	<ul style="list-style-type: none"> • Decommissioning works • Rehabilitation practices 	<ul style="list-style-type: none"> • Commitments to appropriate decommissioning and rehabilitation following closure • Implementation of best practice management during decommissioning works 	Other Issue	EIS chapter

5.1 Key Environmental and Social Issues

5.1.1 Visual Amenity

Umwelt has prepared a Preliminary Visual Impact Analysis (PVIA) for the Project. This section provides a summary of the outcomes of the PVIA with the full report attached (refer to **Appendix 2**). The PVIA has been prepared to address the requirements of the DPIE Wind Energy Guideline and the Visual Assessment Bulletin (2016) (the Visual Bulletin).

The PVIA addresses the scoping phase requirements set out in the Visual Bulletin which includes:

- *Undertaking community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area;*
- *Production of a map detailing the key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints and an overlay of the wind resource, and*
- *Results of the application of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*

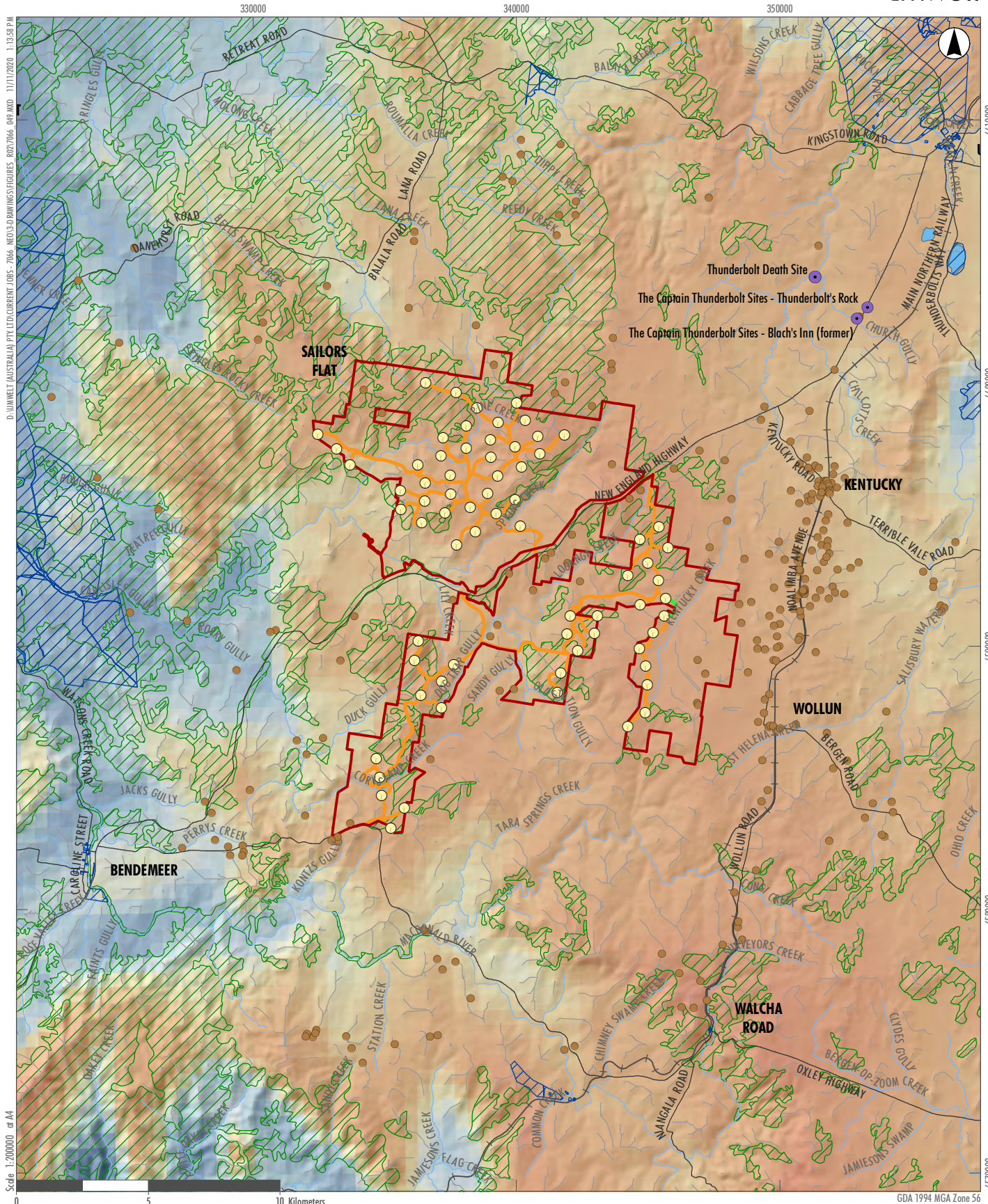
The Visual Bulletin indicates that consultation with the community during early stages of the assessment process *may be broad, but should include discussions about the proposed project area, likely corridors for development, or preliminary turbine layouts and must involve people from the visual catchment.*

As outlined in **Section 4.0**, Neoen undertook community consultation during the scoping phase which included one public information session, face to face meetings with involved and potentially involved landholders and online survey. No specific key landscape features within the vicinity of the Project Area and potentially impacted by the Project were identified by the community, however, stakeholders indicated that the most visually valued aspect of the local area was the 'rural landscape and beauty'. The only specific visually important location identified by stakeholders during the consultation was the views of the vegetated hills (Harnham Hill) to the northeast of Kentucky. The Project will be located to the west of Kentucky and will not impact on views to the northeast of Kentucky.

Neoen has indicated that the consultation undertaken to date has indicated that the visual impact concerns of the community relate to how wind turbines will impact the views from their homes generally rather than disrupting their views of a particular landscape feature or key viewpoint. Further information in relation to the community consultation, undertaken by Neoen, is provided in **Appendix 1**.

The PVIA includes a map outlining the key landscape features which includes the preliminary wind turbine layout, the location of dwellings, key landscape features (based on constraints mapping) and an overlay of the wind resource, refer to **Figure 5.1**.

There are no National Parks or Nature Reserves within the vicinity of the Project Area, however there are National Park areas approximately 30 km to the east of the Project Area. The closest State Conservation Areas are located >10 km from the Project Area and the closest State Heritage Item (Thunderbolt Death Site) is located approximately 8.4km to the north east of the Project Area. The key public vantage points of the Project will be from the New England Highway which runs through the centre of the Project Area. Extensive areas within and surrounding the Project Area have been cleared for agricultural purposes, with areas of remnant vegetation scattered across the Project Area and extensive stands of vegetation along the New England Highway. While no specific landscape features within or nearby to the Project Area have been identified through the consultation process, the Project Area and surrounding area is predominately utilised for agriculture and/or rural residential land use. The Project will be visible from both involved and non-involved landholders which is therefore the focus of the PVIA.



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- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
 - Road
 - Railway
 - Watercourse
 - State Heritage Item
 - Rural Residential Dwellings
 - State Heritage Conservation Area
 - Native Vegetation
 - Lakes
 - Ridgelines
- Wind speed (metres per second)**
- High : 10.2
 Low : 2.4

FIGURE 5.1
Key Landscape Features

5.1.1.1 Visual Magnitude Assessment

The visual magnitude is determined by a ratio of turbine height and distance, determining the visual extent of turbines relative to dwellings and key public viewpoints. This visual extent assists with identifying viewpoints that may require further assessment during the preparation of the EIS.

Based on the proposed wind turbine height of 250 m, a buffer of approximately 3.4 km applies (black line on **Figure 5.2**) in accordance with Figure 2 of the Visual Bulletin. It is noted that key public vantage points and residential dwellings outside of the 3.4 km buffer also require consideration as part of the detailed assessment during the EIS phase, additionally Figure 5 of the Visual Bulletin establishes an additional buffer of 5 km (blue line on **Figure 5.2**).

Within the 3.4 km buffer (0 - 3.4k m) there are 19 involved and 33 non-involved dwellings, within 3.4 - 5 km there are 0 involved and 36 non-involved dwellings. Within the 5 - 8 km buffer zone there are 123 non-involved dwellings, refer to **Figure 5.2**. The visual magnitude assessment indicates that 67 of the proposed turbines are located within 3.4km of a dwelling (below the black line). Proposed turbines WTG-015, WTG-20 and WTG-024 are located 3.7 km from a dwelling (below the blue line).

Figure 5.2 also illustrates the Visual Zone of Influence Analysis, which indicates areas within the landscape from which the turbines will not be visible. Note further detail in relation to dwelling identification is provided in **Appendix 2**.

It should be noted this analysis is preliminary only generated from topography mapping and does not take into consideration other factors that would restrict views such as orientation, vegetation, distance, perspective etc. It should also be noted that the Visual Bulletin preliminary assessment tools are not determinative and rather providing early indication of where placement of turbines will require further detailed assessment and justification.

5.1.1.2 Multiple Wind Turbine Analysis

The Visual Bulletin outlines the requirements for the multiple wind turbine assessment which provides a *preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint.*

The multiple wind turbine analysis has been undertaken for each dwelling within the viewshed and the results illustrated on **Figure 5.3**. This gives an indication of the number of turbines visible across the landscape, however, it should be noted that this is based on topography alone and does not take into consideration other factors such as orientation, vegetation, distance, perspective etc which would restrict views of the turbines. This may result in the turbines being either completely screened from view or only partially visible (i.e. only the tip of the turbine may be visible). It is noted that the screening assessment does not differentiate the extent of a turbine that may be visible, with any views of any part of the turbines no matter how small resulting in the turbine being identified as visible.

A visual sector analysis (assessing six sectors of 60°) has also been undertaken from representative viewpoints as part of the PVIA with the findings provided in **Appendix 2**. The PVIA notes that there are 32 non-involved dwellings within the 3.4 km buffer of the turbines and these dwellings will likely have views of multiple turbines in 1 - 3 sectors and will require further detailed analysis during the EIS phase. Based on the analysis directly east of the Project Area in Kentucky South (Viewpoint 3) there will potentially be views of multiple turbines in 2 sectors, the remainder of the viewpoints located around the Project Area will have views within 1-2 sectors. Note further detail in relation to dwelling identification is provided in **Appendix 2**.

There are also six non-involved dwellings located in the centre of the project area (on the New England Highway) which could potentially have views of multiple turbines within 3 - 6 sectors. These two viewpoints represent an area of potentially high visual impact, although it should be noted again that this is based on topography only, the visual impact in relation to these dwellings will require further detailed assessment as part of the EIS phase of the Project.

Neoen has engaged with these landholders and have indicated that five landholders are concerned about the Project (including visual impacts) and one is supportive, refer to **Appendix 1** for further detail. Consultation with these landholders will continue through the development of the detailed Landscape and Visual Impact Assessment (LVIA).

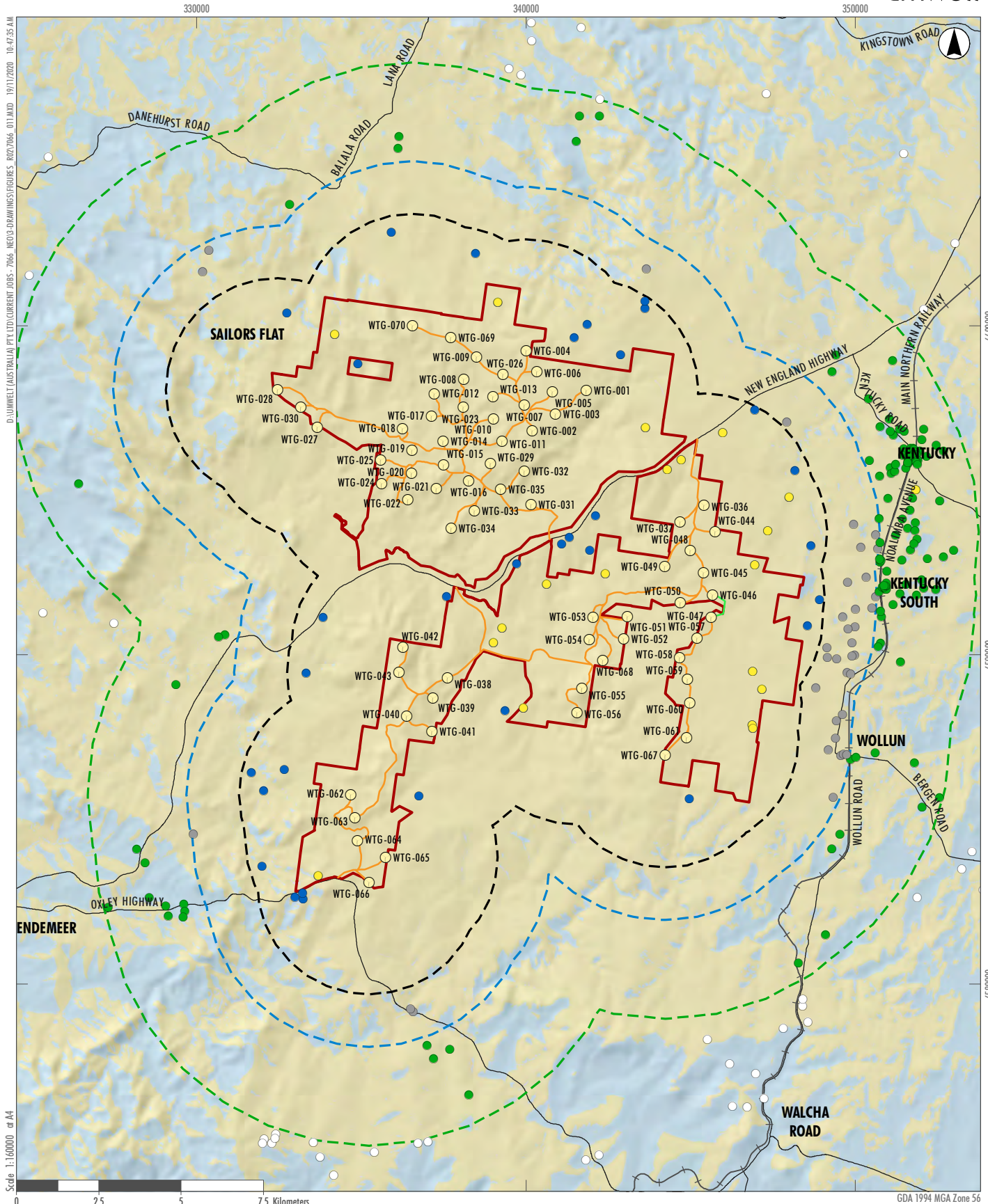
5.1.1.3 Visual Impact Assessment

The detailed LVIA will be prepared in accordance with the requirements of the Visual Bulletin which comprises three main steps:

1. preparation of visual baseline study inputs, including consulting the community on aspects of the baseline study
2. establishing visual influences zones from viewpoints using data collected in the baseline study
3. visual performance evaluation requiring application of visual performance objectives to the proposed wind turbine layout.

The detailed LVIA will also include:

- a detailed assessment of the Project layout with consideration to all influencing factors such as topography, relative distance, perspective, orientation and existing vegetation that may obscure views of the Project
- consultation with potentially impacted landholders
- ground truthing, photography and photomontages of the Project
- a description of the proposed mitigation measures to reduce visual impacts.



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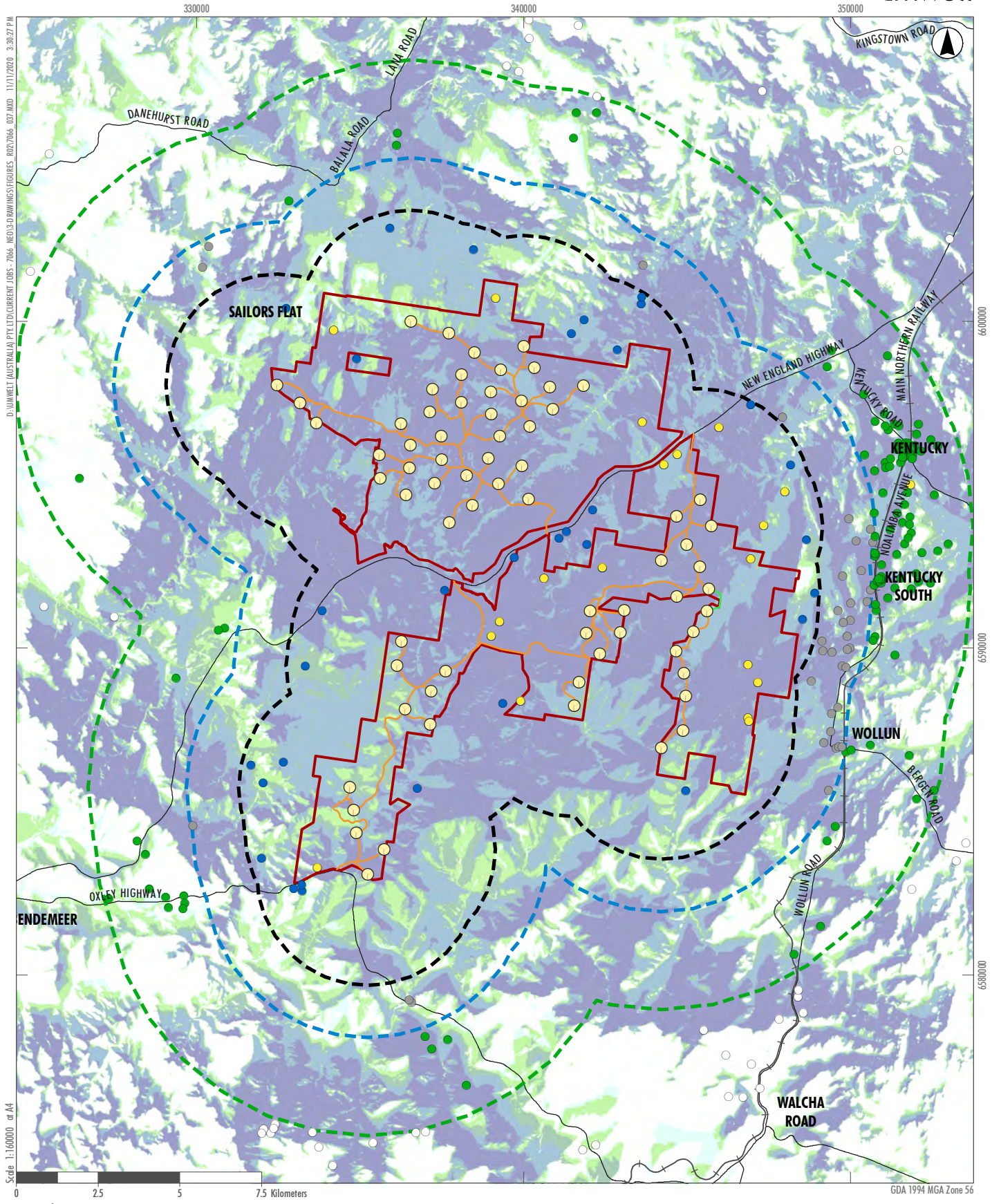
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GDA 1994 MGA Zone 56

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|--|--|---|--|
| <ul style="list-style-type: none"> Project Area Primary Access Road Electrical Easement Only Preliminary Turbine Layout Road Railway | <p>Dwelling Proximity</p> <ul style="list-style-type: none"> Involved Dwelling Within 3.4km (below the black line) 3.4km to 5km (between black and blue line) 5km to 8km Greater than 8km | <p>Visual Influence Zones</p> <ul style="list-style-type: none"> Zone 1 (3.4km) Zone 2 (5km) Zone 3 (8km) | <p>Bare Earth Viewshed Analysis (250m Turbines)
(Vegetation NOT Considered)</p> <ul style="list-style-type: none"> Not Visible Visible |
|--|--|---|--|

FIGURE 5.2
Visual Context



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|---|---|--|--|
| <ul style="list-style-type: none"> Project Area Primary Access Road Electrical Easement Only Preliminary Turbine Layout Watercourse Road Railway | <p>Dwelling Proximity</p> <ul style="list-style-type: none"> ● Involved Dwelling ● Within 3.4km (below the black line) ● 3.4km to 5km (between black and blue line) ● 5km to 8km ○ Greater than 8km | <p>Visual Influence Zones</p> <ul style="list-style-type: none"> Zone 1 (3.4km) Zone 2 (5km) Zone 3 (8km) | <p>Number of Potentially Visible Turbines
(Vegetation not Considered)</p> <ul style="list-style-type: none"> 1 1 - 5 5 - 10 10 - 30 30 - 70 |
|---|---|--|--|

FIGURE 5.3

Multiple Wind Turbine Analysis

5.1.2 Noise

A preliminary noise and vibration assessment has been undertaken by Sonus Pty Ltd in accordance with the NSW DPIE Wind Energy: Noise Assessment Bulletin 2016 (Noise Bulletin). The results of the preliminary noise assessment are summarised below, with the full report attached (refer to **Appendix 3**)

5.1.2.1 Preliminary Noise Assessment Overview

Preliminary noise predictions have been made using the CONCAWE noise propagation model and SoundPLAN noise modelling software. The CONCAWE system divides meteorological conditions into six separate weather categories, depending on wind speed, wind direction, time of day and level of cloud cover. Weather Category 6 provides “worst-case” (i.e. highest noise level) conditions which are conducive to the propagation of the turbine noise. The preliminary noise impact assessment has considered:

- the preliminary turbine layout (which is subject to further review and refinement)
- the surrounding dwelling locations
- local topographic contours
- a maximum sound power level of 104 dB(A) and a hub height of 165 m that is representative of the type, generation capacity and size for this type of project (noting that the final turbine model has not yet been selected), and
- the turbines being free of any excessive levels of tonality or any other special noise characteristics at the residences.

5.1.2.2 Potential Noise and Vibration Impacts

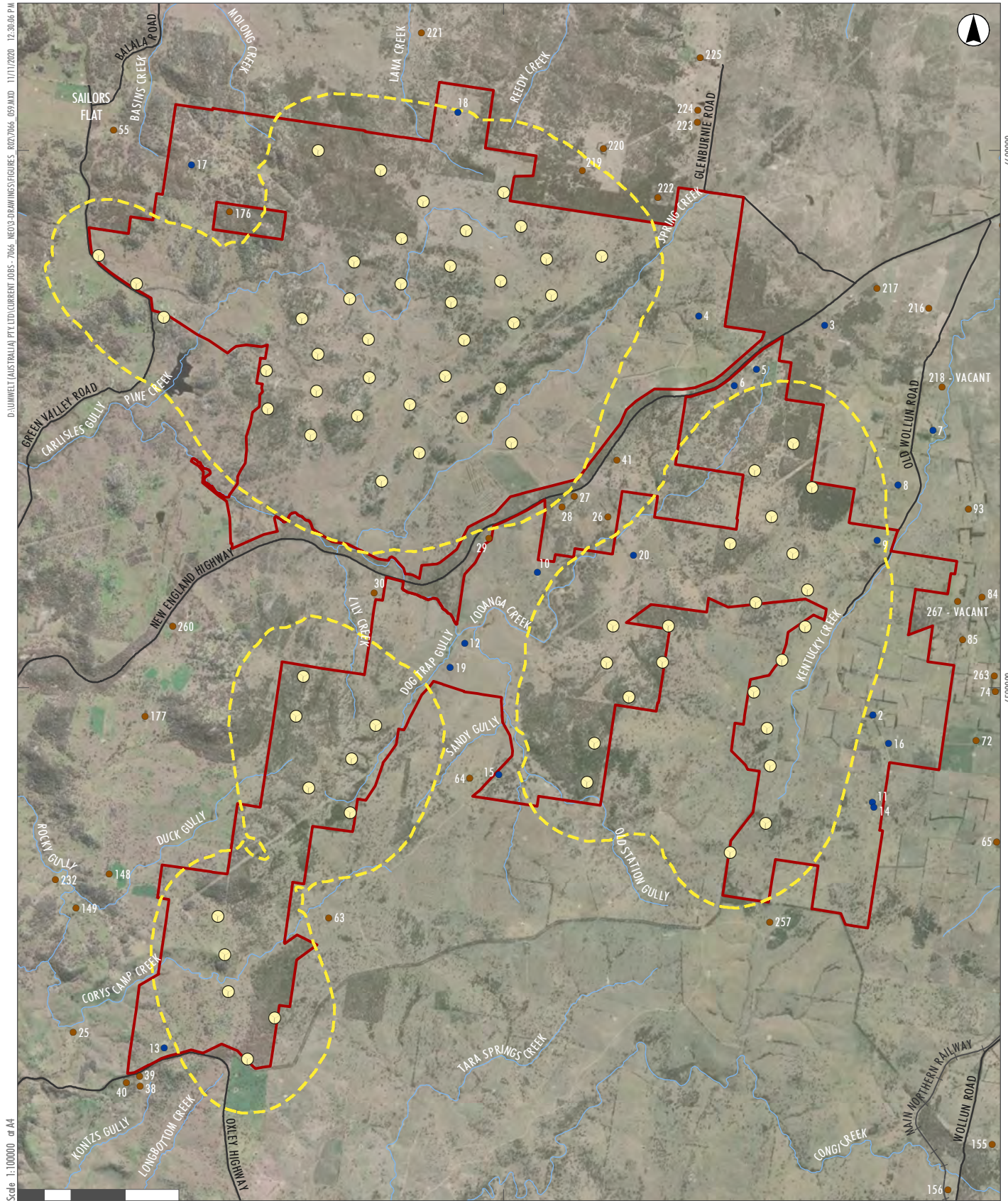
The Noise Bulletin provides a baseline noise criterion of 35 dB(A) at non-involved dwellings. The Noise Bulletin enables the baseline criteria to be higher for involved dwellings. It is noted that background noise level monitoring conducted as part of the detailed EIS process may result in an increase in the noise assessment criteria above that of the 35 dB(A) baseline noise criterion.

The 35 dB(A) noise contour and the involved and non-involved dwellings are shown **Figure 5.4** for the scenario of every turbine in the preliminary Project layout concurrently producing its maximum sound power level of 104 dB(A).

Based on the preliminary modelling, the baseline criterion of 35 dB(A) is predicted to be achieved at all non-involved dwellings with the exception of dwelling No.219, located to the north of the Project Area, which has a predicted noise level of 36 dB(A).

This preliminary analysis and the further detailed assessment to be undertaken as part of the EIS will further inform the detailed design of the Project to seek to minimise any significant noise impacts. This may include measures such as modifications to the turbine layout or the development of a mitigation strategy for affected non-involved dwellings.

The assessment will also assess construction phase noise impacts including on-site construction noise sources and road traffic noise impacts.



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Legend

- Project Area
- Preliminary Turbine Layout
- 35 dB(A) Noise Contour
- Involved Landholder
- Non-involved Landholder
- Road
- Railway
- Watercourse

FIGURE 5.4

Preliminary Noise Analysis

5.1.2.3 Noise and Vibration Impact Assessment Methodology

The Noise and Vibration Impact Assessment (NVIA) will be prepared following the Noise Bulletin (DPE, 2016c), NSW Noise Policy for Industry (NPfI) (EPA, 2017), Interim Construction Noise Guideline (DECC, 2009), NSW Road Noise Policy (DECCW, 2011) and Assessment Vibration: A technical Guideline (DECC, 2006).

The NVIA will:

- establish the relevant level of background noise
- provide predictive noise modelling of the Project’s construction and operational activities
- assess the road traffic noise during construction and operational activities
- assess any vibration impacts at sensitive receptors, and
- identify any reasonable and feasible mitigation and management measures.

5.1.3 Biodiversity

The biodiversity development assessment for the Project has been commenced applying a staged approach to progressively gather information to inform the Project design process, assisting to minimise impacts. The staged approach also allowed the biodiversity assessment team to stratify the Project Area in order to plan the subsequent stages of the assessment. Stage 1 included:

- a four-day initial site inspection, focussing on land associated with potential impacts of the Project
- preliminary application of the online BAM Credit Calculator
- commencement of investigation of potential biodiversity offsetting pathways, and
- commencement of consultation with the Biodiversity Conservation Division (BCD).

5.1.3.1 Preliminary Survey Overview

A preliminary site inspection took place on 19 - 22 May 2020. The aims, methods and survey effort associated with this preliminary surveys is summarised in **Table 5.2**.

Table 5.2 Site Inspection Survey effort

Survey Aim	Method	Survey Effort
Ground-truth regional mapping	Interrogation and analysis of regional mapping products Vegetation assessments Rapid Vegetation Assessment BAM Vegetation Integrity Plots Meandering transects (including walked and driven)	17 rapid vegetation assessments which record the floristic structure and dominant plant species in each stratum at a point, to inform vegetation mapping and description (i.e. non-quantitative description only) Five BAM Vegetation Integrity Plots Meandering transects (including walked and driven) throughout site

Survey Aim	Method	Survey Effort
Understand bird and bat site utilisation	Bird and Bat Utilisation Surveys (BBUS) Bird utilisation survey points, recording all bird species observed in 360 degrees, noting flight behaviour, flight orientation and estimating flight height Recording the location and behaviour of any raptor species observed at any point during the survey Bat utilisation survey points, installing Anabat units (microbat echolocation call detectors)	Four sites, each comprising bird and bat utilisation surveys Bird utilisation points each surveyed twice, once in the morning and once in the afternoon (not on the same day) Anabat call detectors deployed for three nights at the same four sites
Collect data to use in the BAM Credit Calculator	BAM Vegetation Integrity Plots Meandering transects	Five BAM Vegetation Integrity Plots Meandering transects throughout Project Area

5.1.3.2 Preliminary Survey Results

The initial site inspection ground-truthed existing regional vegetation mapping to review accuracy of the regional mapping for the Project Area. The regional mapping used was the Border Rivers-Gwydir Catchment (VIS_ID 3801) vegetation mapping (DPIE 2009). **Table 5.3** and **Figure 5.5** shows the results of the mapping review, including preliminary updates. This mapping is preliminary and will be updated as further biodiversity survey is completed.

We note that detailed vegetation mapping has not yet been completed and extensive updates to the preliminary mapping will be necessary for the Project as it progresses, particularly in relation to the allocation of the Derived Native Grasslands to Plant Community Types (PCTs). In **Table 5.3** an indication of the extent of mapping revision likely for PCTs within the Project Area is noted.

Table 5.3 Preliminary Plant Community Types and their extent in the Project Area

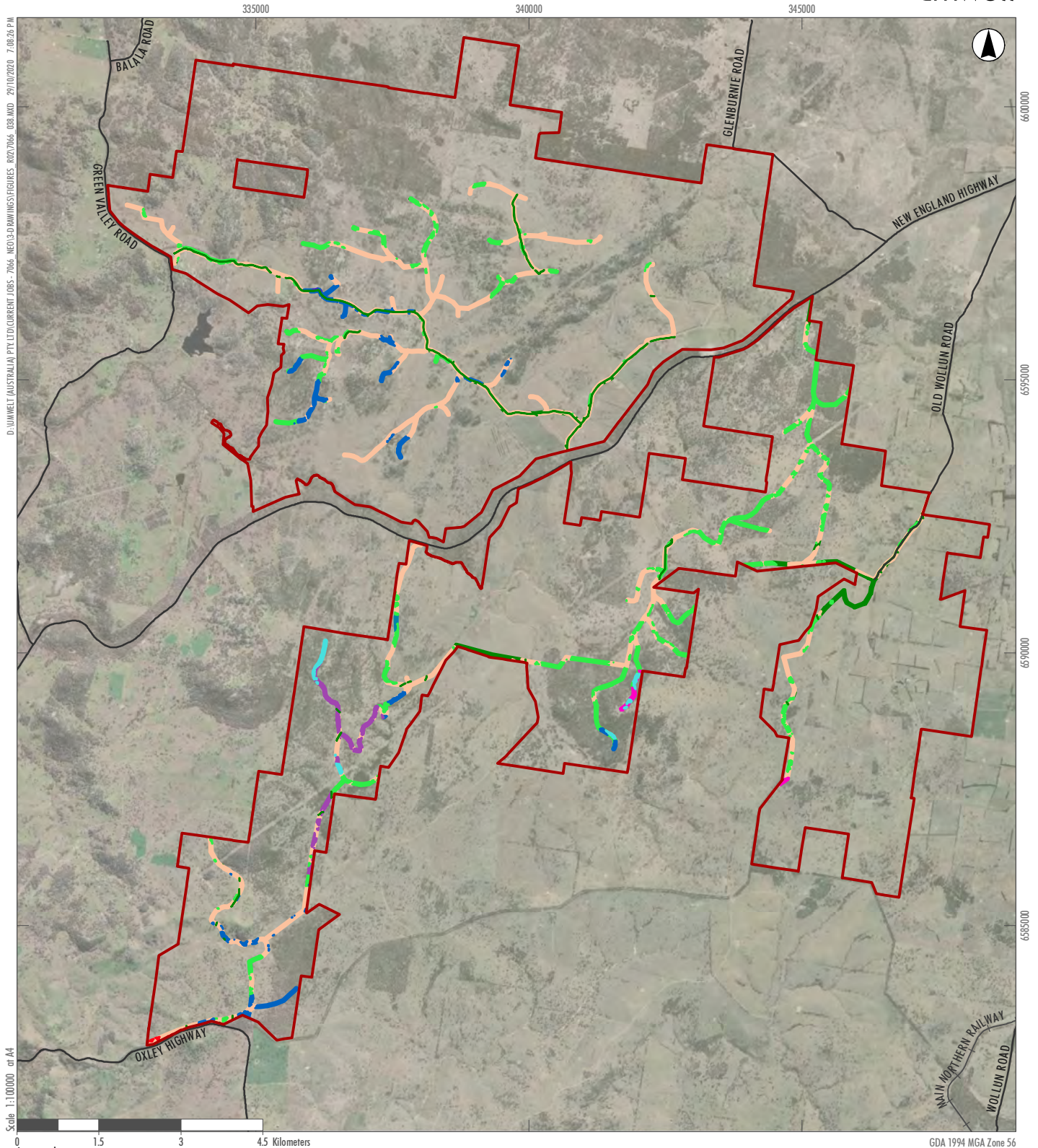
PCT	Possible TEC (see notes)	Preliminary Area (ha)	Likely Need for Mapping Refinement in the Future
84-River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South and Nandewar Bioregions		3.5	Low
501-Bendemeer White Gum - Silvertop Stringybark - Rough-barked Apple +/- Moonbi Apple Box grassy open forest of the southern New England Tablelands Bioregion		120	High
503-Black Cypress Pine - Orange Gum heath shrubland or woodland on granite outcrops of the New England Tableland Bioregion		0.5	Low
510-Blakely's Red Gum - Yellow Box grassy woodland of the New England Tablelands Bioregion	1	330	High
537-Orange Gum - Caley's Ironbark - Red Stringybark open forest of the southern Nandewar Bioregion and New England Tableland Bioregion		10	Moderate

PCT	Possible TEC (see notes)	Preliminary Area (ha)	Likely Need for Mapping Refinement in the Future
538-Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion	1, 2	4.7	Low
542-Stringybark - Rough-barked Apple - cypress pine shrubby open forest of the eastern Nandewar Bioregion and western New England Tableland Bioregion		30	Moderate
559-Youman's Stringybark - Mountain Gum open forest of the western New England Tableland Bioregion	4	36	Moderate
565-Silvertop Stringybark - Mountain Gum grassy open forest of the New England Tableland Bioregion	4	70	High
567-Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion	1, 2	3	Low
568-Broad-leaved Stringybark shrub/grass open forest of the New England Tableland Bioregion		7.7	Low
582-Sedgeland fens wetland of impeded drainage of the Nandewar Bioregion and New England Tableland Bioregion	3	0.8	Low
Derived Native Grasslands		1,380	High
Exotic Vegetation		215	Moderate

Notes:

Possible TECs (further analysis is required to confirm)

1. White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (EEC - BC Act & CEEC - EPBC Act)
2. New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion (CEEC - BC Act) / New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodland (CEEC - EPBC Act)
3. Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions (EEC - BC Act) **OR** Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions (EEC - BC Act & EEC - EPBC Act) **OR** Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion / Upland Wetlands of the New England Tablelands and the Monaro Plateau (EEC - BC Act & EEC- EPBC Act)
4. Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion (EEC - BC Act)



Legend

Project Area

Preliminary PCT Mapping

PCT1 - Candidate Native Grasslands

PCT501 - Bendemeer White Gum - Silvertop Stringybark - Rough-barked Apple +/- Moonbi Apple Box grassy open forest of the southern New England Tablelands Bioregion

PCT510 - Blakely's Red Gum - Yellow Box grassy woodland of the New England Tablelands Bioregion

PCT542 - Stringybark - Rough-barked Apple - cypress pine shrubby open forest of the eastern Nandewar Bioregion and western New England Tableland Bioregion

PCT559 - Yuman's Stringybark - Mountain Gum open forest of the western New England Tableland Bioregion

PCT565 - Silvertop Stringybark - Mountain Gum grassy open forest of the New England Tableland Bioregion

PCT567 - Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion

PCT568 - Broad-leaved Stringybark shrub/grass open forest of the New England Tableland Bioregion

PCT582 - Sedgeland fens wetland of impeded drainage of the Nandewar Bioregion and New England Tableland Bioregion

Not Native

FIGURE 5.5

Preliminary PCT Mapping

5.1.3.3 Potential Threatened Ecological Communities

A list of Threatened Ecological Communities (TECs) that have the potential to occur within the Project Area has been prepared based on the results of the initial site inspection and desktop assessment as shown in Table 5.4. An assessment of the likelihood of the Project being able to avoid impact on the identified TECs is also included in the table. It is noted that this preliminary assessment is based on preliminary survey results and mapping, and on the preliminary layout of the Project and is subject to change.

Table 5.4 Potential Threatened Ecological Communities in the Project Area

Threatened Ecological Community	BC Act Status	EPBC Act Status	Likelihood of Occurrence (probable locations in Project Area) ¹	Likelihood of Avoidance
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	E	CE	High (north areas; centre of wind site; possibly in Solar Farm)	Low
New England Peppermint (<i>Eucalyptus nova-anglica</i>) Woodland on Basalts and Sediments in the New England Tableland Bioregion / New England Peppermint (<i>Eucalyptus nova-anglica</i>) Grassy Woodland	CEE	CE	High (Solar Farm)	Moderate
Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains Bioregions	E	E	Low	High
Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions	E	-	Moderate (low lying areas)	Moderate
Howell Shrublands in the New England Tableland and Nandewar Bioregions	E	-	Low	High
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	E	E	Low	High
McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions	E	-	Low	High
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E	E	Moderate (south area of wind site)	Moderate
Native Vegetation on Cracking Clay Soils of the Liverpool Plains	E	-	Low	Low
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	-	CE	Low	Moderate
Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion	E	-	Moderate (south area of wind site)	Moderate

Threatened Ecological Community	BC Act Status	EPBC Act Status	Likelihood of Occurrence (probable locations in Project Area) ¹	Likelihood of Avoidance
Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions	E	E	Low	High
Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion/Upland Wetlands of the New England Tablelands and the Monaro Plateau	E	E	Moderate (low lying areas)	Moderate
Weeping Myall Woodlands	-	E	Low	High

EEC – Endangered Ecological Community

CEEC – Critically Endangered Ecological Community

1. Note that TECs with a low likelihood of occurrence have not been allocated a potential location

5.1.3.4 Species-Credit Species Survey Requirements

A preliminary BAM calculator assessment indicates the following species-credit species will require targeted surveys within the Project Area (**Table 5.5**). A survey strategy has been developed providing for completion of surveys to address the requirements of the BAM for the Project.

Table 5.5 Species Credit Species likely to require survey within the Project Area

Common Name	Scientific Name	J	F	M	A	M	J	J	A	S	O	N	D
Fauna													
Barking Owl	<i>Ninox connivens</i>												
Booroolong Frog	<i>Litoria booroolongensis</i>												
Border Thick-tailed Gecko	<i>Uvidicolus sphyrurus</i>												
Bush Stone-curlew	<i>Burhinus grallarius</i>												
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>												
Eastern Pygmy-possum	<i>Cercartetus nanus</i>												
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>												
Greater Glider	<i>Petauroides volans</i>												
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>												
Koala	<i>Phascolarctos cinereus</i>												
Large Bentwinged-bat	<i>Miniopterus orianae oceanensis</i>												
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>												
Little Eagle	<i>Hieraetus morphnoides</i>												
Masked Owl	<i>Tyto novaehollandiae</i>												
Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>												
Powerful Owl	<i>Ninox strenua</i>												
Red Goshawk	<i>Erythrotriorchis radiatus</i>												
Swift Parrot	<i>Lathamus discolor</i>												
Regent Honeyeater	<i>Anthochaera phrygia</i>												
Rufous Bettong	<i>Aepyprymnus rufescens</i>												

Common Name	Scientific Name	J	F	M	A	M	J	J	A	S	O	N	D
Square-tailed Kite	<i>Lophoictinia isura</i>												
Squirrel Glider	<i>Petaurus norfolcensis</i>												
Tusked Frog - endangered population in the Nandewar and New England Tableland Bioregions	<i>Adelotus brevis</i>												
Western Sawshelled Turtle, Bell's Turtle	<i>Myuchelys bellii</i>												
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>												
White-throated needletail	<i>Hirundapus caudacutus</i>												
Flora													
	<i>Callistemon pungens</i>												
Aromatic Peppergrass	<i>Lepidium hyssopifolium</i>												
Austral Toadflax	<i>Thesium australe</i>												
Blackbutt Candlebark	<i>Eucalyptus rubida</i> subsp. <i>barbigerorum</i>												
Bluegrass	<i>Dichanthium setosum</i>												
	<i>Euphrasia arguta</i>												
Finger Panic Grass	<i>Digitaria porrecta</i>												
Granite Boronia	<i>Boronia granitica</i>												
Granite Homoranthus	<i>Homoranthus prolixus</i>												
Inverell Cycad	<i>Macrozamia humilis</i>												
Large-leafed Monotaxis	<i>Monotaxis macrophylla</i>												
McKie's Stringybark	<i>Eucalyptus mckieana</i>												
Mueller's Eyebright	<i>Euphrasia collina</i> subsp. <i>muelleri</i>												
Narrow-leaved Black Peppermint	<i>Eucalyptus nicholii</i>												
Native Milkwort	<i>Polygala linariifolia</i>												
Ooline	<i>Cadellia pentastylis</i>												
Small Snake Orchid	<i>Diuris pedunculata</i>												
Silky Swainson-pea	<i>Swainsona sericea</i>												
Tall Velvet Sea-berry	<i>Haloragis exalata</i> subsp. <i>velutina</i>												
	<i>Tylophora linearis</i>												
Velvet Wattle	<i>Acacia pubifolia</i>												

5.1.3.5 Bird Utilisation

A total of 40 bird species were recorded across the four bird utilisation sites surveyed as part of the preliminary surveys. Three small woodland birds listed as vulnerable under the BC Act (but not species-credit species) were recorded during such surveys including Scarlet robin (*Petroica boodang*), Diamond firetail (*Stagonopleura guttata*) and Varied sittella (*Daphoenositta chrysoptera*).

A fourth small woodland bird listed as vulnerable under the BC Act, the flame robin (*Petroica phoenicea*), was observed incidentally within the Project Area. This species is also not a species-credit species. A range of other threatened bird species not observed during the survey are likely to occur in the Project Area.

The assemblage of birds observed during the surveys was broadly consistent across all survey locations. The most notable observation was likely the consistency with which wedge-tailed eagle (*Aquila audax*) were recorded throughout much of the Project Area. The majority of the 21 observations of this species in the Project Area were of individuals or pairs in flight though loose groups of up to four individuals were occasionally observed. While this species is not listed under the BC Act or the EPBC Act, it is a species susceptible to blade strike impacts from wind turbines due to its flight behaviour.

5.1.3.6 Bat Utilisation

The bat utilisation surveys identified seven microbat species listed as threatened under the BC Act including Eastern falsistrelle, Large bent-winged bat, Large-footed myotis, Corben's long-eared bat, Yellow-bellied sheath-tailed bat, Greater broad-nosed bat and the Eastern Cave bat. The Corben's long-eared bat is also listed under the federal EPBC Act. Three of these are defined as species-credit species under the BAM and will potentially require targeted surveys if the Project Area is likely to support specific habitat for the species. The Project Area has the potential to support breeding habitat for the eastern cave bat particularly in the mid and northern sections, where granite outcrops are common. Consultation with BCD has been undertaken to determine the appropriate survey requirements for the large bent-wing bat, large footed myotis and eastern cave bat.

5.1.3.7 Biodiversity Development Assessment

Further detailed biodiversity survey will be undertaken within the Project Area with a focus on the development footprint and in the vicinity of proposed turbine locations. Following the completion of the surveys, a Biodiversity Development Assessment Report (BDAR) will be prepared. The BDAR will include:

- field surveys and GIS mapping:
 - PCT survey and GIS mapping
 - targeted species-credit survey
 - bird and bat utilisation survey
- preparation the BDAR including:
 - results of the previous literature review
 - methods and results of vegetation surveys including a vegetation community map (based on PCTs and including TECs)
 - methods and results of surveys targeting species-credit species
 - assessment of prescribed impacts
 - outcomes of the calculator assessment identifying the credits generated by the PCTs (and ecosystem-credit species) and species-credit species
 - relevant data and mapping for Agency submission including field sheets, figures and associated GIS files.

5.1.4 Heritage

5.1.4.1 Aboriginal Heritage

The Project Area falls within three Local Aboriginal Land Council (LALC) areas – Armidale, Tamworth and Amaroo and partly falls within the Gomeroi People native title claim area (NC2011/006, NSD37/2019). 30 registered Aboriginal sites are located within or within close proximity (1 km) of the Project Area (refer to **Figure 5.6**). The majority of registered sites comprise artefacts (~70%), modified trees (~9%), art (~6%) and ceremonial rings (~6%). The majority of the registered sites are located outside the Project Area and preliminary analysis indicates that the Project design can accommodate the avoidance of the registered sites located within the Project Area.

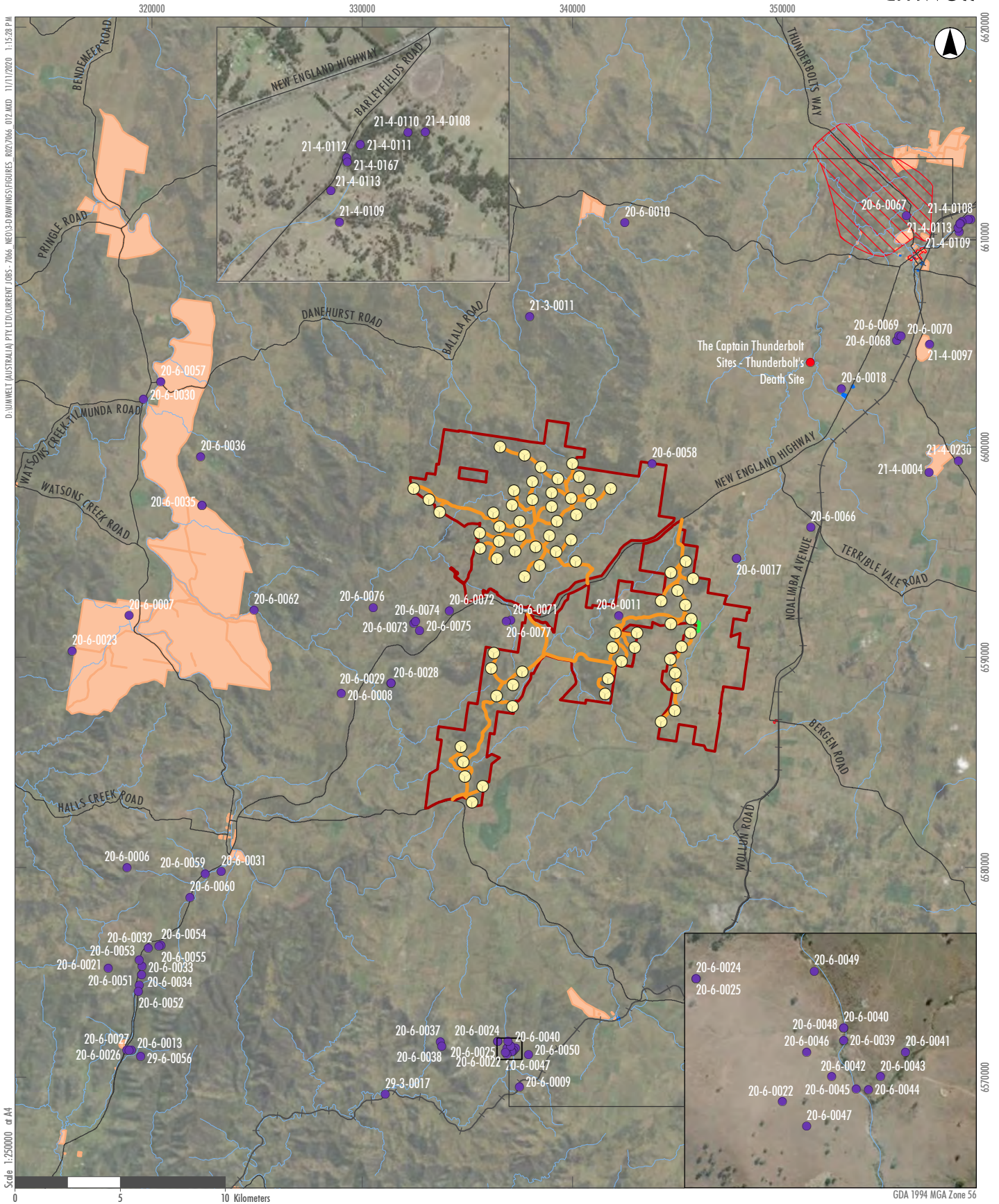
An Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken following the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010). The ACHA will include consultation with the registered Aboriginal parties for the Project in determining and assessing impacts, developing and selecting options and mitigation measures, having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010).

5.1.4.2 Historic Heritage

There are no Commonwealth or World listed heritage places located within or in proximity to the Project Area. There are also no State listed or Locally listed heritage places or items located within the Project Area. The closest State listed heritage site is the 'Thunderbolt's Death Site' which is located approximately 8.4 km to the north east of the Project Area (refer to **Figure 5.6**). The Thunderbolt's Death Site is a natural landscape feature near Kentucky Creek. It is considered to be the broad location of bushranger Captain Thunderbolt's last stand and death.

There are numerous local heritage sites located in proximity to the Project Area. The Rocky River Goldmining Precinct Local Heritage Conservation Area is located 13 km east of the of the Project Area. These local heritage sites will not be impacted by the Project.

The EIS will be supported by a historical heritage assessment (HHA) which will be prepared with regard to the NSW Heritage Manual, relevant Heritage Council of NSW guidelines and with consideration of the principles contained in the Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS 2013).



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- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
 - Road
 - Railway
 - Watercourse
 - AHIMS Site
 - The Captain Thunderbolt Sites - Thunderbolt's Death Site
- Environmental Planning Instrument - Heritage**
(NSW Department of Planning, Industry and Environment)
- State Heritage Listed Site
 - Local Heritage Listed Site
 - Local Heritage Conservation Area

FIGURE 5.6
Heritage

5.1.5 Traffic and Transport

The construction phase of the Project will result in increased traffic movements by both light vehicles transporting construction personnel and minor light construction materials and also heavy vehicle movements transporting the turbine towers, blades and other heavy-duty equipment required for construction purposes. Traffic increase associated with the operational phase of the Project will be minimal and will generally only involve the movement of light vehicles transporting operational staff around the site intermittently.

Major turbine components will be delivered to the Port of Newcastle and transported to the Project Area by truck via the New England and Oxley Highways. Primary access roads will be constructed on site to provide access to the proposed turbine locations, there are also a number of potential secondary access roads which could provide access to the Project Area if required (refer to **Figure 5.7**). The proposed access route and level of construction/maintenance required for the access roads will be confirmed and assessed during the preparation of the EIS.

Primary access routes include the New England Highway, Kentucky Road, Noalimba Avenue, Oxley Highway and Wollun Woolbrook road. Potential secondary access routes include Old Wollun Road, Traceys Road, Reeves Road, Westvale road, Gunnalong road, Pine Creek road, Walcha Stock Route Road, Borgers Road and Rimbanda road. It is expected that upgrades to local roads (secondary access routes) to allow access for heavy vehicles will be required (where considered suitable) prior to any deliveries occurring as part of the construction phase of the Project. Existing access tracks within the Project Area will also be upgraded (if required) or created to allow the delivery of the turbines. All access roads and tracks will be maintained during the construction phase of the Project.

A Traffic and Transport Impact Assessment (TTIA) will be undertaken to assess the potential transport routes required for the construction of the Project and any potential impact to the road network. The TTIA will be undertaken following relevant NSW Government guidelines and assessment standards including Guide to Traffic Generating Developments (RTA, 2002), Road Design Guide and relevant Austroads Standards and Austroads Guide to Traffic management.

The TTIA will include:

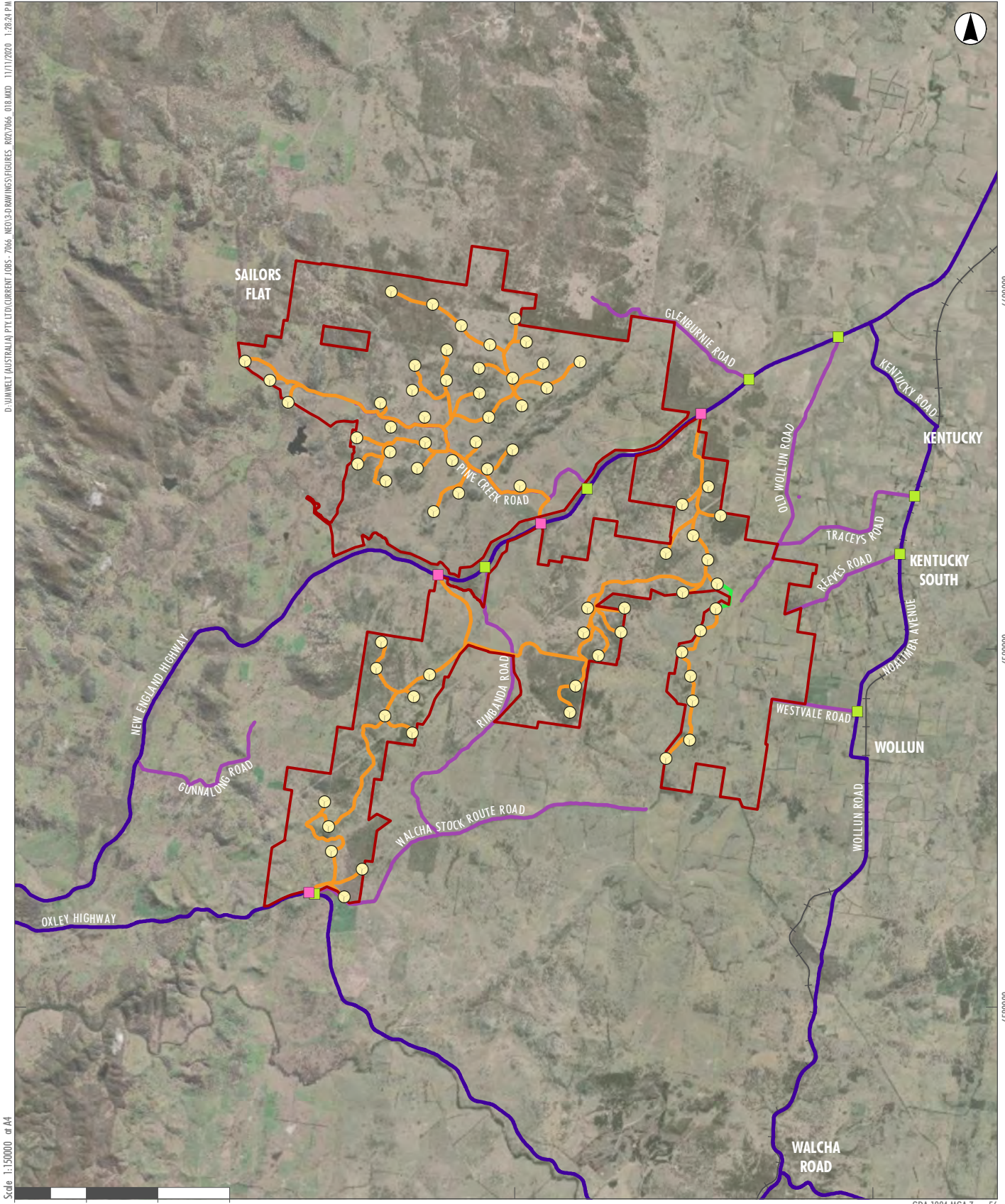
- a review and assessment of the existing road network
- a review of any previous traffic impact assessments undertaken for the surrounding area
- traffic counts in selected areas along the proposed traffic routes (if data is not readily available)
- a detailed assessment of the likely Project-alone and cumulative traffic impacts during the construction and operational phases of the Project (including intersection performance, capacity, safety and site, and
- identification of any mitigation and management measures that may be required.

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- Legend**
- Project Area
 - Preliminary Turbine Layout
 - Electrical Easement Only
 - Primary Access Road
 - Potential Secondary Access Road
 - Delivery Route
 - Access Point
 - Potential Secondary Access Point
 - Railway

FIGURE 5.7
Access

Image Source: ESRI Basemap, Data source: DFSI (2020), Neoen (2020)

5.1.6 Socio-Economic Impacts

The Project Area is located across the LGAs of Tamworth, Walcha and Uralla, and in proximity to the localities of Kentucky, Kentucky South, Wollun and Bendemeer (refer to **Table 5.6**). Based on preliminary review of key community and demographic information, these proximal residential locations can be characterised as follows:

- key industries of employment include beef cattle or sheep farming
- age distribution is varied, but generally older than the NSW median age
- the localities have higher proportions of houses with no internet access (compared to NSW), and
- lower than NSW median housing costs.

Table 5.6 Selected Demographic Characteristics of Key Communities

	Kentucky* (SSC)	Kentucky South	Bende-meer (SSC)	Uralla (SSC)	Uralla (LGA)	Tamworth Regional (LGA)	Walcha (LGA)	NSW
Population	158	125	492	2,743	6,048	59,663	3,092	7,480,228
Median age	49	46	49	45	46	40	48	38
Private Dwellings	80	58	230	1,291	2,734	26,041	1,593	3,059,599
Top Industry of employment (%)	Sheep-Beef Cattle Farming – 16.3	Sheep Farming 12.5	Beef Cattle Farming (Specialised) – 9.8	Local Govt, Admin – 5.7	Beef Cattle Farming (Specialised) – 5.4	Hospitals (except Psychiatric Hospitals) – 5.3	Beef Cattle Farming (Specialised) – 20.7	Hospitals (except Psychiatric Hospitals) – 3.5
Top occupation (%)	Managers – 32.9	Managers 29.5	Managers – 21.2	Technicians and Trades Workers – 16.4	Managers – 19	Professionals – 17.5	Managers - 34	Professionals – 23.6
Median weekly Family Income (\$)	1,458	1,166	1,273	1,254	1,342	1,312	1,329	1,780
Median Rent	\$7	110	\$150	\$220	\$190	\$260	\$148	\$380
Median Mortgage repayments	\$1,337	1,274	\$1,000	\$1,278	\$1,346	\$1,500	\$1,083	\$1,986
Internet not accessed from dwelling (%)	18.8	32	28.9	25.1	21.4	21.7	28.4	14.7

Source: ABS QuickStats (2016) * ABS make small random adjustments to all cell values to protect the confidentiality of data therefore data should be interpreted as indicative only.

The potential social and economic impacts associated with Project are both positive (opportunities) and negative (impacts), these are summarised in **Table 5.7**.

Table 5.7 Potential Socio-economic Opportunities and Impacts

Potential Impact/Opportunity	Potential Negative Impacts
Employment opportunities at a local level (during construction over 350 and operation 10-15)	Construction activities may cause disruption (noise, air quality, traffic) to nearby dwellings and motorists on the New England Highway
Approx. \$570 million infrastructure investment of the life of the Project Investment in the region benefitting supply companies, labour hire, accommodation, hospitality etc	Community members, including non-involved landowners, may perceive the Project infrastructure to impact visual amenity, result in noise impacts and competing with the agricultural use of the land
Income generation for involved landowners providing additional income to farmers	Community concern about environmental impacts such as impacts on biodiversity
Community Benefit Sharing Program (CBSP) – the CBSP will be developed in consultation with local communities and may include near neighbour payments, community benefit fund, lower energy bills and investment to address specific local issues (such as mobile coverage), refer to Appendix 1 for further detail	Community perception of the level of renewable development in the region and the potential cumulative impacts

A key part of the consideration of the social impact aspects of the Project as part of the EIS will be the community engagement program. Neoen will undertake the community engagement program to engage the community throughout the life of the Project and the environmental assessment and approval process. This engagement will inform the assessment of the social and economic impacts associated with the Project. The consultation program has been designed in line with the following objectives:

- foster a transparent and open approach to the development of Thunderbolt Energy Hub and ensure ‘no surprises’ for the local community
- keep the community and stakeholders informed about Thunderbolt Energy Hub through the provision of accurate, timely and factual project information
- identify and address community and stakeholder concerns and maintain transparency in the project design, implementation and ongoing operations
- involve stakeholders and community regarding key decisions and develop long term relationships and partnerships
- identify opportunities for local business involvement and local employment in the construction and operations of Thunderbolt Energy Hub
- co-design, develop and deliver a benefit sharing program in collaboration with the community, and in partnership with local stakeholders where possible.

Further detail regarding Neoen’s planned engagement program is provided in **Appendix 1**.

5.1.7 Hazard and Safety

The following section addresses the proposed approach to assessing potential hazard and safety impacts associated with the Project including aviation safety, health impacts, impacts to telecommunications, blade throw, shadow flicker, blade glint and bushfire threat.

5.1.7.1 Aviation Safety

The Project, like all wind farms, will need to consider the potential for interaction with air services. Wind turbine height and placement will consider potential safety hazards for aircraft through intrusion of the airspace and the potential effects on the associated navigation instruments. There are five airports located within a 50 km radius of the Project Area. These include Tamworth Regional Airport, Walcha Airport Aerodrome, Kelvin Station Airport, Armidale Airport and Woodville Airport. There are also a number of small airstrips and runways located within the vicinity of the Project Area.

The EIS will include an Aviation Impact Assessment (AIA). The AIA will include an Aviation Impact Statement which will include the following specific requirements as advised by Airservices Australia:

Aerodromes:

- specify all registered/certified aerodromes that are located within 30 nm (55.56 km) of the Project Area
- nominate all instrument approach and landing procedures at these aerodromes
- review the potential effect of the Project on the operational airspace of the aerodromes

Air Routes:

- nominate air routes published in ERC-L & ERC-H which are located near/over the Project Area and review potential impacts of the Project on aircraft using those air routes

Airspace:

- nominate the airspace classification where the Project Area is located

Navigation/Radar:

- nominate radar navigation systems with coverage overlapping the Project Area.

A risk assessment in relation to night lighting of the wind turbines will also be undertaken in accordance with Australian Standard AS/NZS ISO 31000:2018 Risk Management – Guidelines.

During the development of the AIA, consultation will be undertaken with Airservices Australia, Department of Defence, applicable local Councils and aerodrome operators.

5.1.7.2 Health

Electromagnetic fields (EMF) are present where electric current flows, including overhead and underground transmission lines and substations and electrical appliances. The standard SEARs for wind farm developments require proponents to *“consider and document any health issues having regard to the latest advice of the National Health and Medical Research Council, and identify potential hazards and risks associated with electric and magnetic fields and demonstrate the application of the principles of prudent avoidance.”*

The EIS will include an EMF assessment which will consider potential health issues and risks associated with EMF produced by the wind farm and associated electrical infrastructure within the Project Area in accordance with the ICNIRP Guidelines for Limiting Exposure to Time-varying Electric, Magnetic and Electromagnetic Fields (1998).

5.1.7.3 Telecommunications

Telecommunications and radar services (civil and meteorological) can be impacted by wind turbines through electromagnetic interference (EMI). The EIS will include an EMI Assessment which will address any impact to radiocommunication services within the Project Area as a result of the Project and any required mitigation measures.

5.1.7.4 Blade Throw

Blade throw typically involves the failure of the turbine rotor which has the potential to result in the turbine blade becoming detached from the turbine. This risk is addressed by the turbine design, however, an assessment will be undertaken for the Project. The blade throw assessment will consider the potential risk of blade throw associated with the proposed turbine layout. The assessment will include:

- general review and assessment of the likelihood of blade throw occurring and typical blade throw distances;
- calculation of the separation distance between turbines and neighbouring dwellings and property boundaries; and
- consideration of mechanisms to reduce the likelihood of blade throw occurring, including:
 - relevant standards against which turbines should be certified
 - typical overspeed and failsafe protection mechanisms
 - management and maintenance procedures, including regular inspections, and
 - provisions for blade replacement.

5.1.7.5 Shadow Flicker and Blade Glint

Shadow flicker is a moving shadow cast by the blades of a wind turbine from the sun which can cause a nuisance to surrounding landowners and in rare cases can cause health impacts such as photosensitive epilepsy or motion sickness. Blade glint can result from sunlight reflecting off the white components of the turbines. The risk of blade glint from wind turbines is low given majority of manufacturers treat the turbines with non-reflective finishes to reduce the risk of this occurring.

The EIS will include a Shadow Flicker Assessment which will:

- review sensitive receiver locations (involved and non-involved dwellings)
- estimate the annual hours of shadow flicker received at each dwelling
- identify of any dwellings where there is potential for the shadow flicker duration to exceed the limits specified in the relevant guidelines
- identify the specific turbines contributing to the shadow flicker for each dwelling
- assess the likely reduction in shadow flicker duration due to turbine orientation and cloud cover
- generate maps of theoretical and predicted actual shadow flicker duration, and
- consider the potential sources of conservatism in the assessment.

The Shadow Flicker Assessment will also address the potential for impacts associated with blade glint.

5.1.7.6 Bushfire Hazard

The Project Area is identified as bushfire prone land by the Tamworth, Uralla and Walcha Council's Bushfire Prone Land Mapping (refer to **Figure 5.8**).

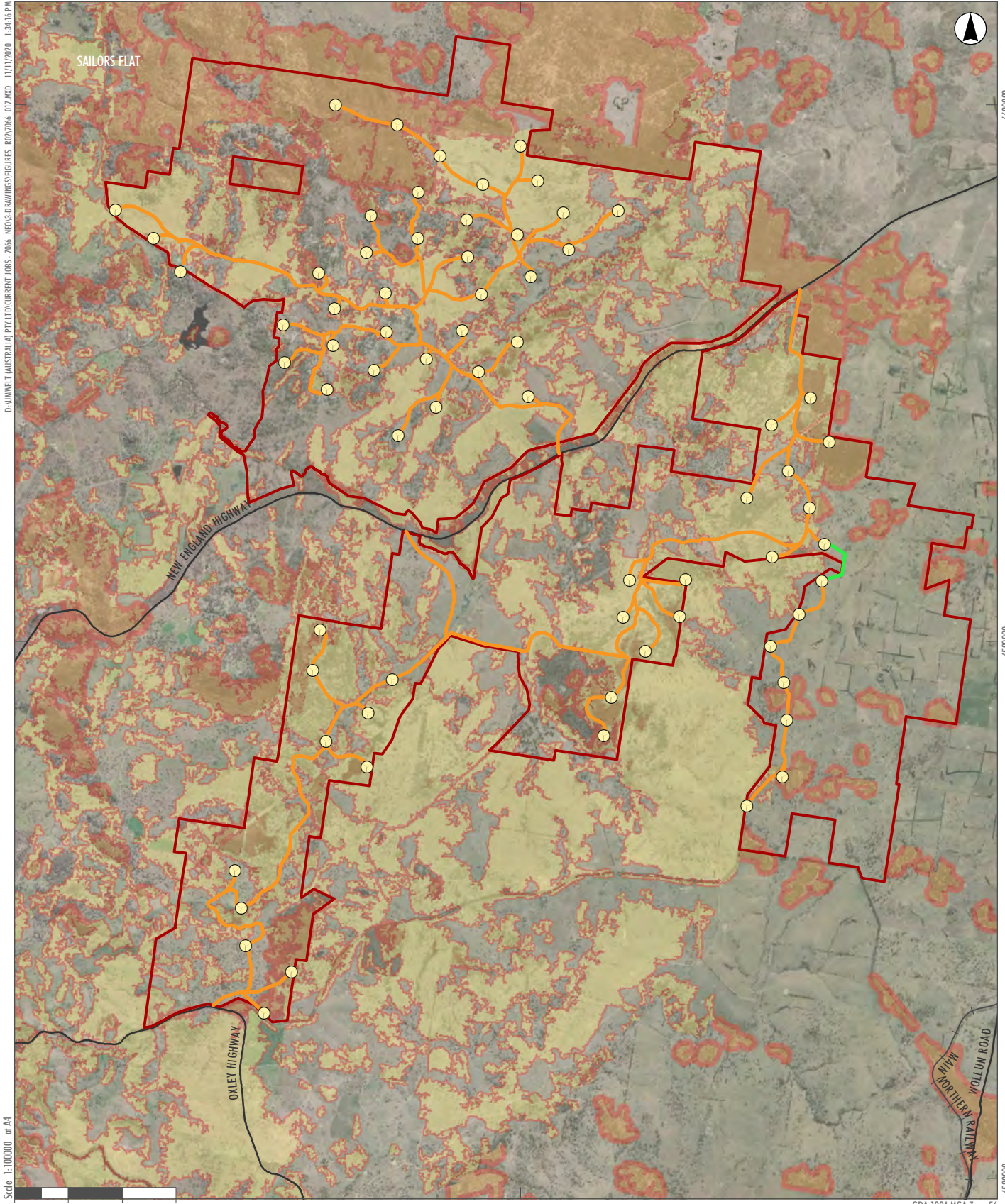
Although the Project Area has been subject to extensive clearing associated with agricultural land use there are areas of remnant vegetation, which form a potentially significant fuel load capable of sustaining and spreading bushfire. Areas of vegetation within the Project Area also represent a potential linkage between vegetated areas within and adjoining the Project Area, with the potential to support the spread of bushfire.

A bushfire threat assessment will be undertaken in accordance with the requirements of Planning for Bushfire Protection (PBP) 2019. Consultation with the Rural Fire Service (RFS) will also be undertaken during the preparation of the EIS.

5.1.8 Water and Soil Resources

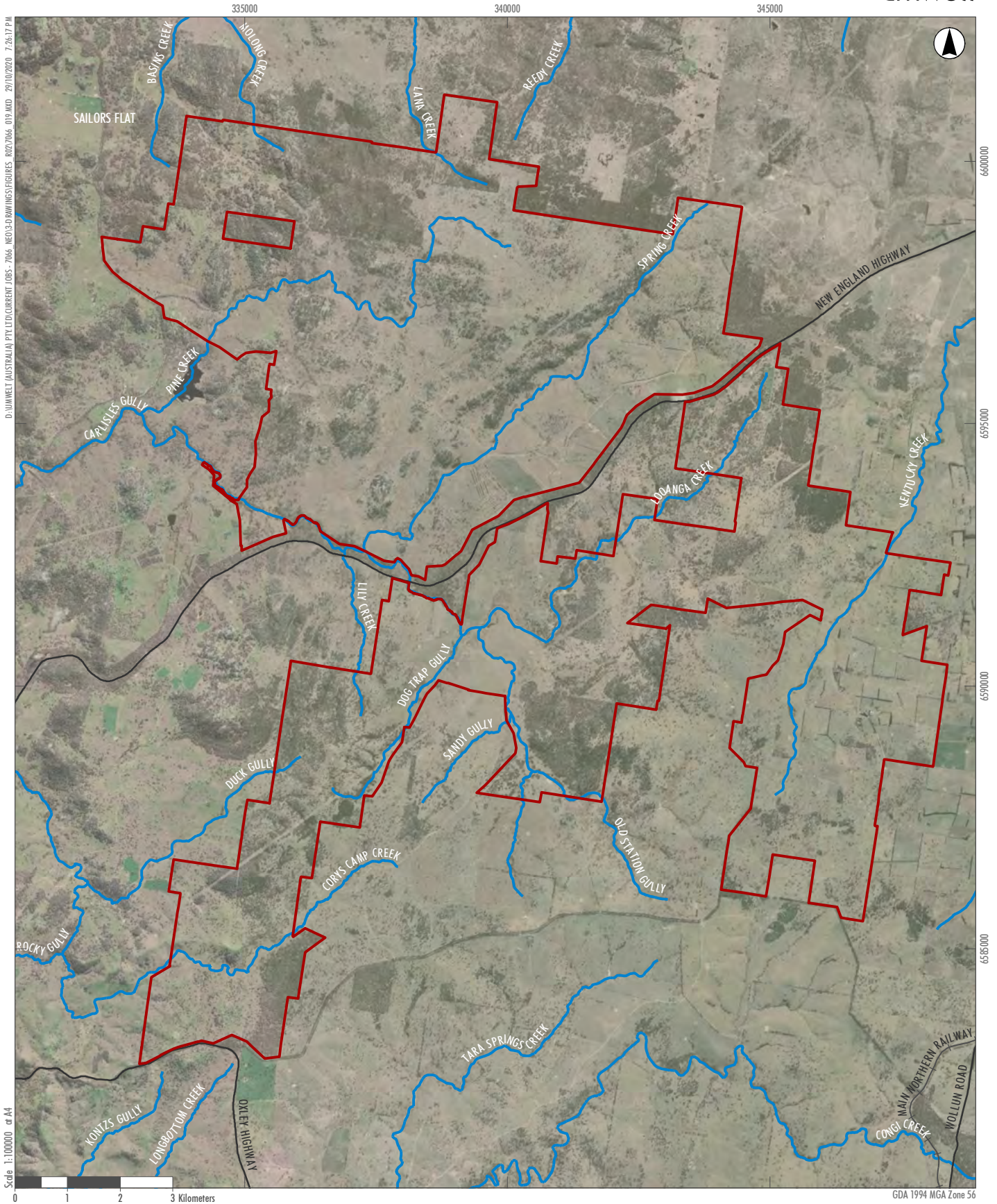
The Project Area falls within the Namoi, Gwydir and Mcleay catchments. There are a number of minor creeks that traverse the Project Area (refer to **Figure 5.9**), however, the Project Area is not prone to flooding. The majority of the soils within the Project Area are identified as erodible rudosols and tenosols. The land is Class 4, 5, 6, 7 and 8 under the Land and Soil Capability Assessment Scheme (LSC). The Project Area is not identified as Biophysical Strategic Agricultural Land.

A Water and Soils Impact Assessment (WRIA) will be undertaken as part of the EIS that will consider potential impacts on water resources and the catchment, including flooding, erosion and sediment control, water quality, water users, water sourcing and licence, and any required management and mitigation measures to minimise the potential impacts of the Project on water and soil resources.



- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
- Bushfire Prone Land**
- Vegetation Buffer
 - Vegetation Category 1
 - Vegetation Category 2
 - Road

FIGURE 5.8
Bushfire Prone Land



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- Legend**
- Project Area
 - Watercourse
 - Road
 - Railway

FIGURE 5.9
Drainage Lines

5.1.9 Cumulative Impacts

The wind energy guideline identifies the requirement to address cumulative impacts in relation to any other proposed, approved or operating wind energy projects in the vicinity particularly with regard to landscape, noise, biodiversity and traffic impacts.

As discussed in **Section 3.1.2**, the Project Area is located within a REZ and therefore there are a number of other existing and proposed renewable energy projects within the region (refer to **Figure 3.1**). The relevant detailed environmental assessments will include an assessment of the potential cumulative impacts associated with the Project.

5.1.10 Other Issues

The EIS will also address other issues relating to:

- Land use – the EIS will assess the potential interactions of the Project with other land uses, including agricultural land uses. This assessment will draw on the findings of other related assessments including impacts on visual amenity, water, soil, noise, air quality, traffic, hazard and safety.
- Waste – the EIS will classify and quantify the likely waste streams to be generated during construction and operation and describe measures to manage, reuse, recycle and dispose of this waste in accordance with relevant guidelines.
- Air quality – in accordance with relevant NSW guidelines in relation to construction.
- Decommissioning and rehabilitation.

6.0 Conclusion

The Project Area is located within the New England REZ under the NSW Governments Electricity Strategy. The REZ has been identified as a suitable location for renewable energy projects. The Project will contribute to achieving the commitments to establishing renewable energy within NSW at both the Federal and State government level.

The preliminary project layout will be subject to further analysis and refinement as part of the detailed specialist studies to be undertaken to inform the EIS and as an outcome of the ongoing stakeholder engagement program. The key issues relevant to the Project include:

- Visual Amenity
- Noise and Vibration
- Biodiversity
- Heritage
- Traffic and Transport
- Socio-Economic Opportunities and Impacts
- Hazard and Safety
- Water and Soils
- Cumulative impacts.

All identified issues will be subject to assessment as part of the EIS as detailed in **Section 5.0** and in accordance with the SEARs.

In addition to providing long-term, strategic benefits to the State of NSW through providing regional investment and cleaner electricity generation, the Project will also provide direct financial benefits to the regional and local community, including:

- Investment of approximately \$570 million
- employment generation creating over 350 jobs during the construction phase and up to 15 during the operational phase
- indirect benefits to local services through the construction and operation phases
- additional landowner income to involved landowners resulting in financial contributions to the local community
- local community benefits through the implementation of a proposed community benefit fund that will invest in local community project and initiatives to provide a direct and targeted local benefit.

7.0 References

Australian Bureau of Statistics, Quick Stats (2016), 14 September 2020

Department of Planning and Environment, Wind Energy Guideline (2016)

Department of Planning and Environment, Wind Energy: Visual Assessment Bulletin (2016)

Department of Planning and Environment, Wind Energy: Noise Assessment Bulletin (2016)

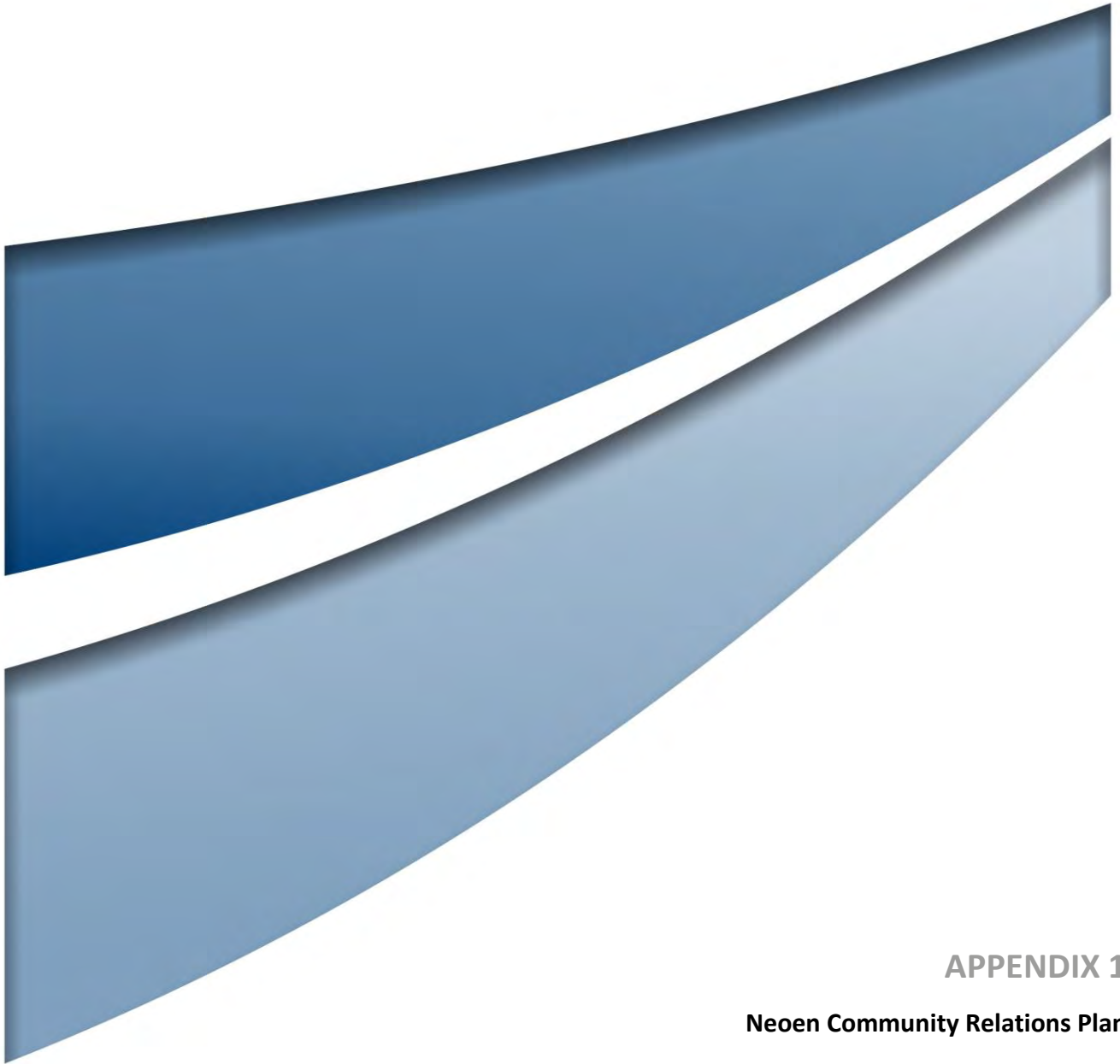
Department of Planning and Environment, Guideline 3 Scoping an Environmental Impact Statement (2017)

NSW Energy, 2019, Renewable Energy Zones Factsheet

NSW Office of Environment and Heritage, State Heritage Register

8.0 Glossary and Abbreviations

Term/Abbreviation	Definition
AHIMS	Aboriginal Heritage Information Management System
BAM	Biodiversity Assessment Methodology
BC Act	NSW Biodiversity Conservation Act 2016
BSAL	Biophysical Strategic Agricultural Land
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DAWE	Commonwealth Department of Agriculture, Water and the Environment
DPIE	NSW Department of Planning, Industry and Environment
EEAP	NSW Energy Efficiency Action Plan
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMI	Electromagnetic Interference
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
EPL	Environment Protection Licence
EP&A Act	NSW Environmental Planning and Assessment Act 1979
GW	Gigawatts
Involved Dwellings	Dwellings located on land owned by landholders involved in the project
km	Kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
MW	Megawatts
MNES	Matter of National Environmental Significance
NDC	Nationally Determined Contribution
Non-involved dwellings	Dwellings located on land owned by landholders not involved in the Project
OEMP	Operational Environmental Management Plan
OSOM	Over size and over mass vehicles
PCT	Plant community type
Project	Refers to the total area of the proposed wind farm
Proponent	Neoen
REAP	Renewable Energy Action Plan
REZ	Renewable Energy Zone
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
TEC	Threatened ecological communities
VPA	Voluntary Planning Agreement



APPENDIX 1

Neoen Community Relations Plan



THUNDERBOLT ENERGY HUB COMMUNITY RELATIONS PLAN

Version	V1 – public
Released	21/10/2020
Document Owner	Joanna Murphy, Project Manager



Document Control

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Author:	
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PURPOSE

This Community Relations Plan (CRP) was developed during the feasibility phase by Joanna Murphy with oversight from the Community Relations Manager Lisa Stiebel in October 2020.

This document identifies the community relations approach and objectives for the Thunderbolt Energy Hub and surrounding communities. It outlines the overall framework across the phases of the project lifecycle (from development through construction to operations) and proposed plans. It also provides a summary of the key stakeholders including landholders, neighbours, local community and local government.

Neoen understands that the success of the Thunderbolt Energy Hub is dependent to a large extent on the development of genuine, open and ongoing relationships with key stakeholders and members of the local community. We recognise the importance of ensuring a “no surprises” dynamic with the local community and are committed to developing and nurturing long-term relationships between our team and the various project stakeholders.

This template was developed in accordance with the best practice guidelines from the ACT and VRET auction schemes in order to position this project well for any appropriate government or corporate tenders.

The CRP is a key element of the Community Relations Toolkit depicted in Table 1. It is one of the three tools, along with the stakeholder register and the project website, that will accompany the project from early feasibility stage to decommissioning.

This is an external CRP for public access.

Safety First

Neoen have a policy of safety first across all our projects and activities. Staff and community safety is a baseline essential to ensure engagement can proceed. Wherever there is a conflict between the approach and guidelines outlined in this Community Relations Plan and the safety of our staff or the general public then appropriate safe practices will take priority.

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1. COMMUNITY RELATIONS APPROACH

1.1 Our approach

Stakeholder and community relations are led by Neoen’s project managers with support from community relations specialists. We consider it important that trusting relationships are developed between the people on the ground who know the project the best, and the stakeholders that are part of and connected to their region and local community. Due to the rural nature of the community, our overall approach to consultation for the Thunderbolt Energy Hub will be open, relaxed, flexible and responsive.

Neoen have a vertically integrated business model, meaning that we ‘develop to own’ our projects. This model is unusual in the industry, affording us a clear advantage over our competitors in respect to community relations – our starting point is the clear understanding that we will be long term neighbours and participants in the local community for the lifetime of the project. As such we are able to establish and nurture relationships, embrace partnerships and innovation, confident that we will be there to see projects and benefits to fruition.

1.2 Our values

As a company Neoen has a clear set of values that underpin and guide our work. How these internal values translate into our external approach to building relationships with communities is described in Table 2.



Integrity

We operate with integrity, whatever we do, whenever and wherever we do it. We work with partners who abide by the same rules.



Commitment

We uphold all our commitments, internal and external. We believe in hard work and take pleasure in seeing a good job well done.



Audacity

We believe we can become a world leader in renewable energy. We have the audacity to operate globally, imagining, designing and implementing competitive, effective energy solutions.



Esprit de corps

We are loyal to each other and form a close-knit team. We are proud of our company, our goals and our accomplishments.

Table 1: Principles and practice

Value & Principle	In practice
Integrity Mutual Respect	- We provide a space for genuine dialogue where people can participate in respectful discussions.
Integrity Transparency	- We demystify the development process for local stakeholders and clearly communicate which points, when and to what extent they are able to influence decisions. - We are transparent about how and why decisions are made.
Integrity Inclusiveness	- We reach out to involve key stakeholders and the local community so they can play a part in decisions that affect them. - We provide a range of opportunities and avenues for ongoing and meaningful dialogue, allowing for detailed and timely discussions.
Commitment Responsiveness	- We communicate well and are responsive to emerging issues, concerns and ideas.

Value & Principle	In practice
Commitment Mutual Benefit	- We provide timely information and ensure people have time to digest information, understand the project and make informed decisions.
	- We seek shared outcomes of mutual benefit for the local host community over the long term.
Audacity Innovation	- We deliver engagement beyond regulatory conditions and compliance - We are open to and pursue bold and creative ideas and solutions tailored to and driven by the local context of the project.
Esprit de corps Relationship building	- We build and nurture long term local relationships and make meaningful links with local leaders and organisations. - We provide many avenues for interaction across the project lifecycle.
Esprit de corps Celebration	- We value and celebrate community; our own and those of the communities we work with. - We enjoy celebrating our successes together.

1.3 Industry Best Practice

Our approach to engaging stakeholders is informed by the Public Participation Spectrum developed by the International Association of Public Participation (IAP2) and widely adopted as a framework for structuring consultation by the renewables industry¹. The approaches and spectrum are represented in the Table 3.

Table 2: Spectrums of engagement

Spectrum	Inform	Consult	Involve	Collaborate	Empower
Community engagement objective	- Provide balanced and objective information - Assist the community in understanding all aspects of the project, including possible problems/ issues	- Obtain feedback from the community on plans, options and/or decisions	- Work directly with the community throughout all stages of the project - Ensure community concerns and aspirations are consistently understood and considered	- Partner with the community in each aspect of planning, development and decision-making - Include the development of alternatives and the identification of the preferred solution	- Community leads the development of the renewable energy project - Place decision-making in the hands of the community

¹ Lane, T. and J. Hicks (2017) Community Engagement and Benefit Sharing in Renewable Energy Development: A Guide for Applicants to the Victorian Renewable Energy Target Auction. Department of Environment, Land, Water and Planning, Victorian Government, Melbourne.

Spectrum	Inform	Consult	Involve	Collaborate	Empower
Promise to community	<ul style="list-style-type: none"> - Keep the community informed through all stages of development, including issues and delays 	<ul style="list-style-type: none"> - Keep the community informed - Listen and acknowledge suggestions and concerns - Provide feedback on how input influenced the decision 	<ul style="list-style-type: none"> - Work with the community to ensure concerns and aspirations are directly reflected in the alternatives developed - Provide feedback on how input influenced the decision 	<ul style="list-style-type: none"> - Look to the community for direct advice and innovation in formulating solutions - Incorporate advice and recommendations into decisions to the maximum extent possible 	<ul style="list-style-type: none"> - Implement what the community decides
Community engagement outcomes	<ul style="list-style-type: none"> - Securing a good site to install the renewable energy facility - Gaining planning permission - Meeting compliance regulations 	<ul style="list-style-type: none"> - Minimising objections - Effectively managing complaints - Good stakeholder relations - A level of community awareness and trust in the project 	<ul style="list-style-type: none"> - Long-term broad local social acceptance and knowledge of the project - Strengthened local relationships and trust - Local advocates for renewable energy 	<ul style="list-style-type: none"> - Broad community participation, support and awareness - Some sense of local ownership - Greater community benefit and strong local relationships and trust - Timely development and easier planning approval - Some sharing of benefits beyond investors 	<ul style="list-style-type: none"> - Benefit sharing program tailored to the local context - Harness the skills and capital of the community - Upskill community members to manage the project - Largely community owned and controlled

This CRP aims to move our engagement activities and benefit sharing approach along the spectrum listed above so that across our project portfolio we are:

- **Involving** the community in the development, construction and operation of the wind farm, solar farm and battery farm
- **Collaborating** with the community to ensure that local advice and insights are shaping our approach to engagement and benefit sharing
- **Empowering** the community to shape key elements of the project, such as co-designing the long-term framework of the shared benefits program

1.4 Emerging trends

Table 3 in the prior section shows that differing levels of participation are legitimate, depending on the goals, timeframes, resources and levels of interest/concern in the decision to be made. At all levels of engagement, it is fundamental to define the promise and ensure it is clearly understood by both the decision makers and the stakeholders to be engaged. The following figure² shows the emergent key elements of best practice as at 2018.



Stakeholders groups are likely to have differing communication and engagement needs. A level of engagement is therefore necessarily assigned to each stakeholder identified. It is possible for the level of engagement to alter at different milestones of the project; as a consequence, some stakeholders will be assigned more than one level of engagement. Each level of engagement is a valid one, provided it is delivered in a meaningful way and to a group that expects to be engaged with at that level.

The project team will engage broadly but understands there are stakeholders seeking different levels of engagement in the project. Stakeholder level of interest will evolve over the duration of the project and this analysis will be updated regularly to reflect changes and emerging issues or opportunities. A detailed Stakeholder Register incorporating the stakeholders and communities affected and/or interested in the project is maintained by the manager responsible for the CRP.

² Lane, T., Wood, E. Hall, N., Webb, A. and Mey, F. Enhancing Social Outcomes from Wind Development in Australia: Evaluating Community Engagement and Benefit Sharing. Clean Energy Council, Melbourne.

1.5 Objectives

1. Foster a transparent and open approach to the development of Thunderbolt Energy Hub and ensure ‘no surprises’ for the local community.
2. Keep the community and stakeholders informed about Thunderbolt Energy Hub through the provision of accurate, timely and factual project information.
3. Identify and address community and stakeholder concerns and maintain transparency in the project design, implementation and ongoing operations
4. Involve stakeholders and community regarding key decisions.
5. Identify opportunities for local business involvement and local employment in the construction and operations of Thunderbolt Energy Hub.
6. If relevant, identify opportunities for Indigenous Participation and employment in the construction and operations of Thunderbolt Energy Hub and where appropriate co-develop and implement an Indigenous Participation Plan.
7. Co-design, develop and deliver a benefit sharing program in collaboration with the community, and in partnership with local stakeholders where possible.
8. Develop long-term relationships and partnerships with community and stakeholders.

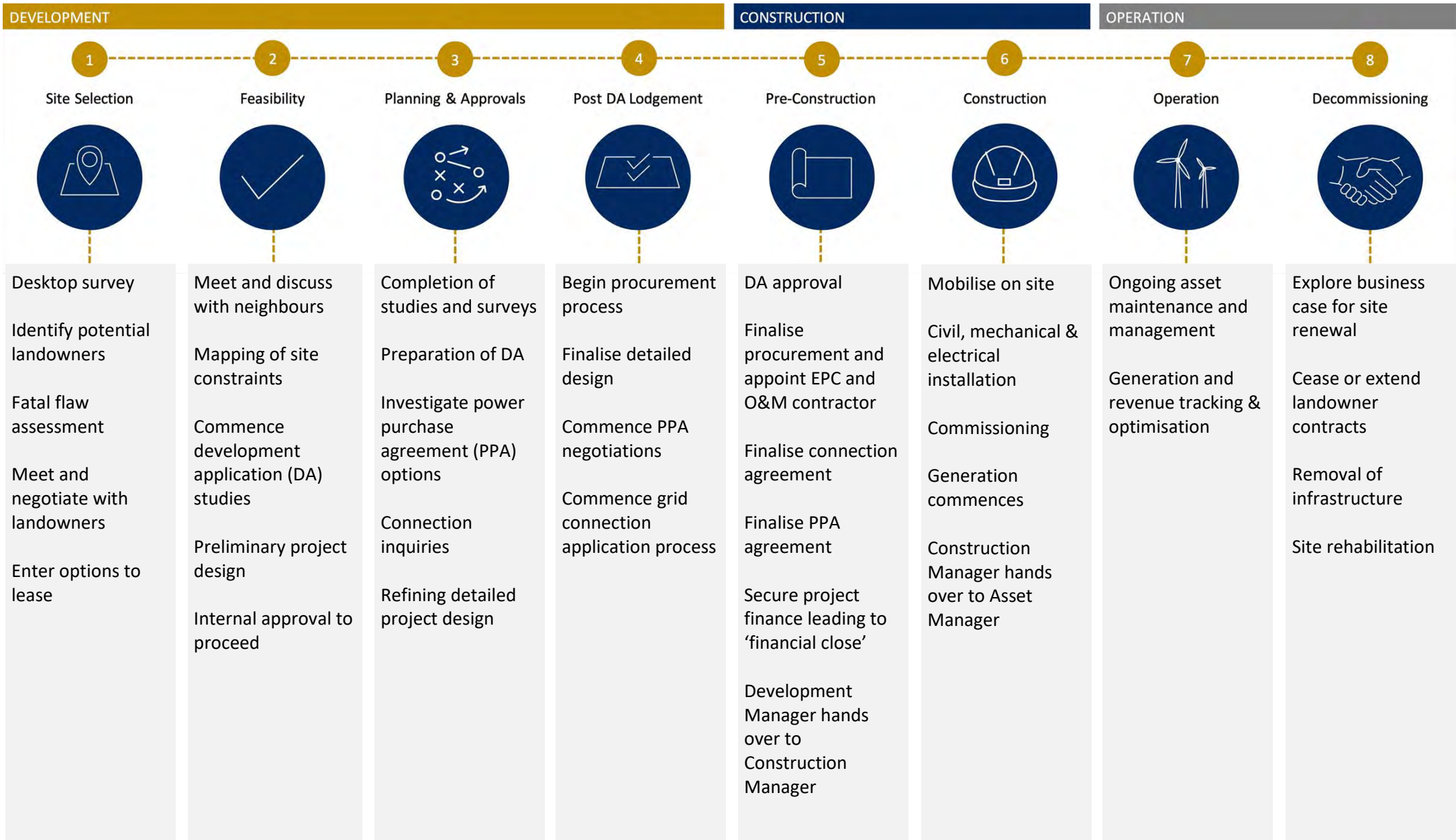
1.6 Community Relations Framework

An eight-phased approach will guide the implementation of community relations strategy in alignment with each of the project stages.

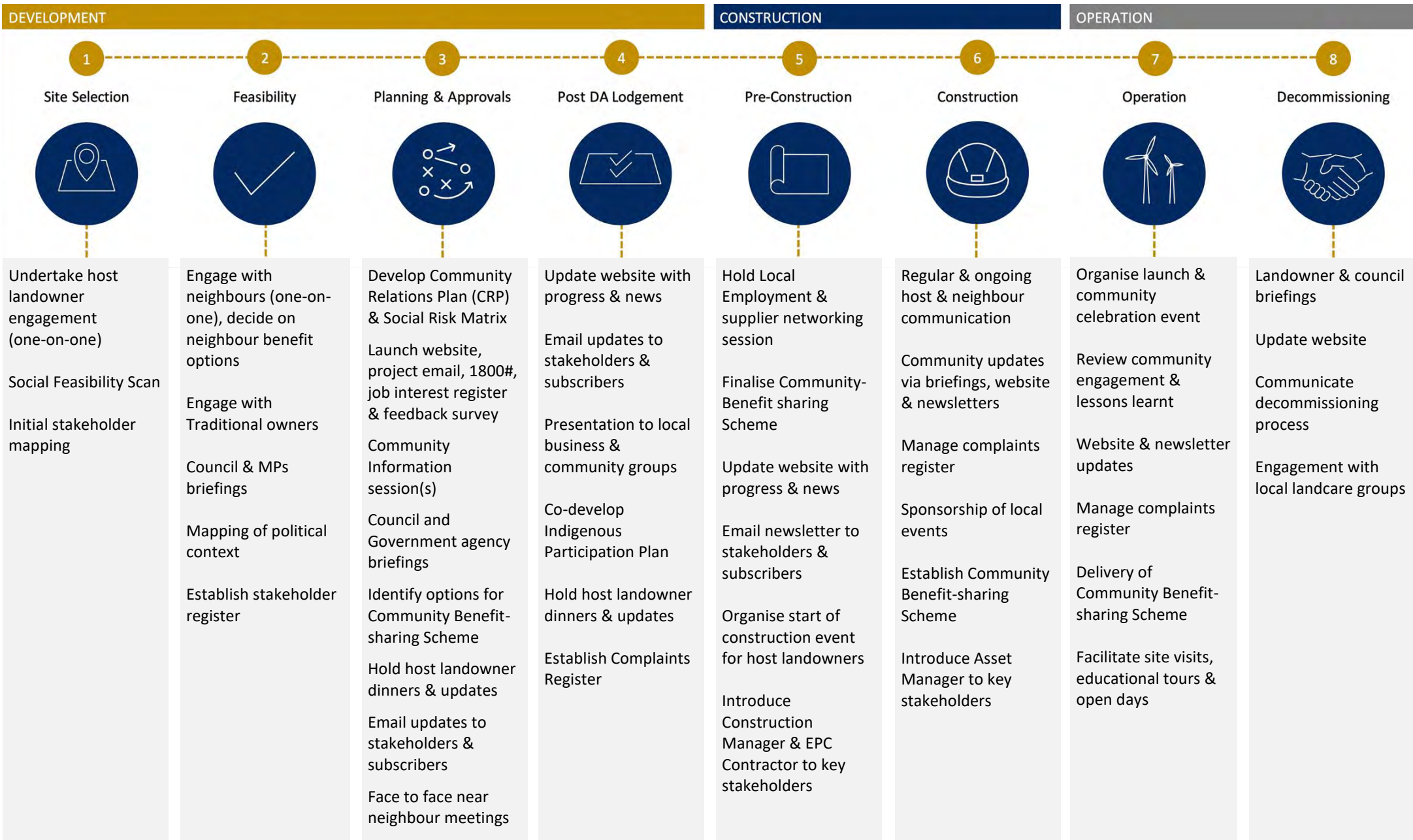
Key project activities and milestones are outlined on the page below, with the associated community relations activities on the following page.

Section 3 provides detailed project-specific information on the community relations approach and strategy for Thunderbolt Energy Hub.

1.7 Project Activities and Milestones by Stage



1.8 Community Relations Activities by Stage



2. PROJECT CONTEXT

2.1 Context narrative

Thunderbolt Energy Hub is a hybrid renewable energy project with the ability to provide affordable, reliable power to New South Wales consumers. The project will combine around 380MW of wind, 120MW of solar generation combined with 400MW battery storage, giving the project the ability to store and dispatch energy to the grid during times of peak demand throughout the day and night.

The project location was chosen as it meets several criteria that will allow it to become a competitively priced project for NSW consumers. Some of the criteria taken into account include:

- Strong wind & solar resource;
- Suitable site topography;
- Low population and thus distances to involved and neighbouring dwellings; and
- Located within a strong part of the electricity network (ability to connect to one or both of the existing 330kV transmission lines crossing the project).

2.2 Background and development to date

The project site was first identified in mid-2018 and engagement with landholders commencing soon thereafter. The project is now in the stage of early feasibility works with contract negotiations underway with landholders. These are expected to be finalised in Q4, 2020.

Initial feasibility studies have occurred up to and throughout 2020, including:

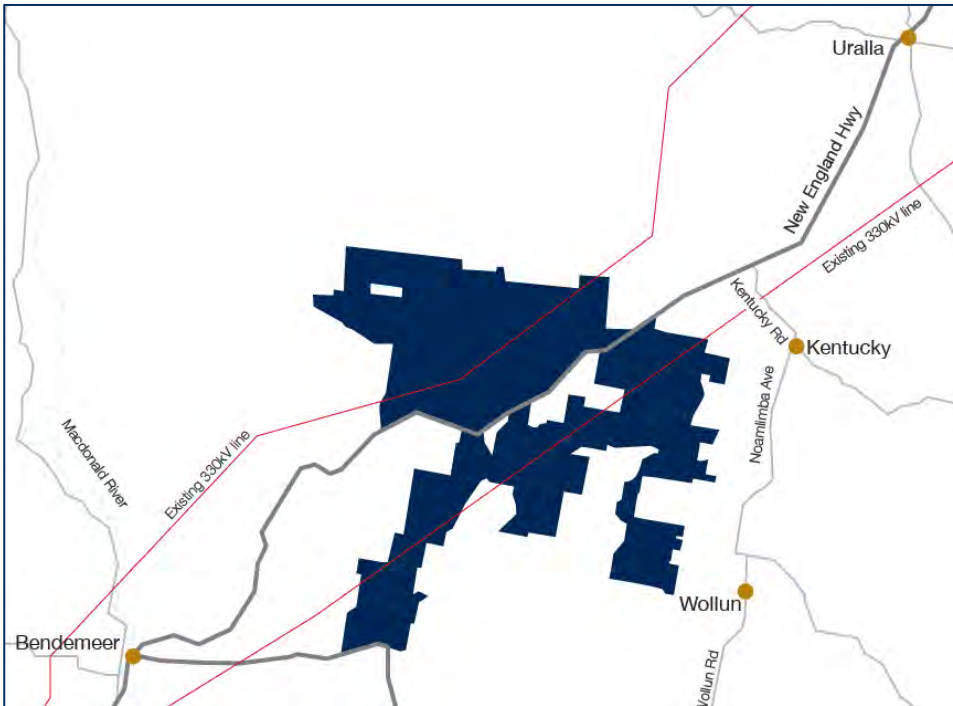
- Installation of a SODAR machine to monitor the wind resource in September 2018;
- Installation of an 80m wind monitoring mast in February 2020;
- A fatal flaw assessment;
- Development of a preliminary wind turbine layout based on SODAR wind data in February 2020;
- A preliminary on-site ecological assessment to confirm some of the flora and fauna species present within the project site;
- A seasonal specific ecological survey in August 2020;
- Commencement of one-on-one neighbour engagement in September 2020;
- The first community information session on 16th September 2020; and
- A presentation introducing the Thunderbolt Energy Hub project to Uralla Shire Council in early October 2020.

The project is now in the early Planning & Approvals phase with the submission of the Scoping Report targeted for October 2020.

2.3 Site location

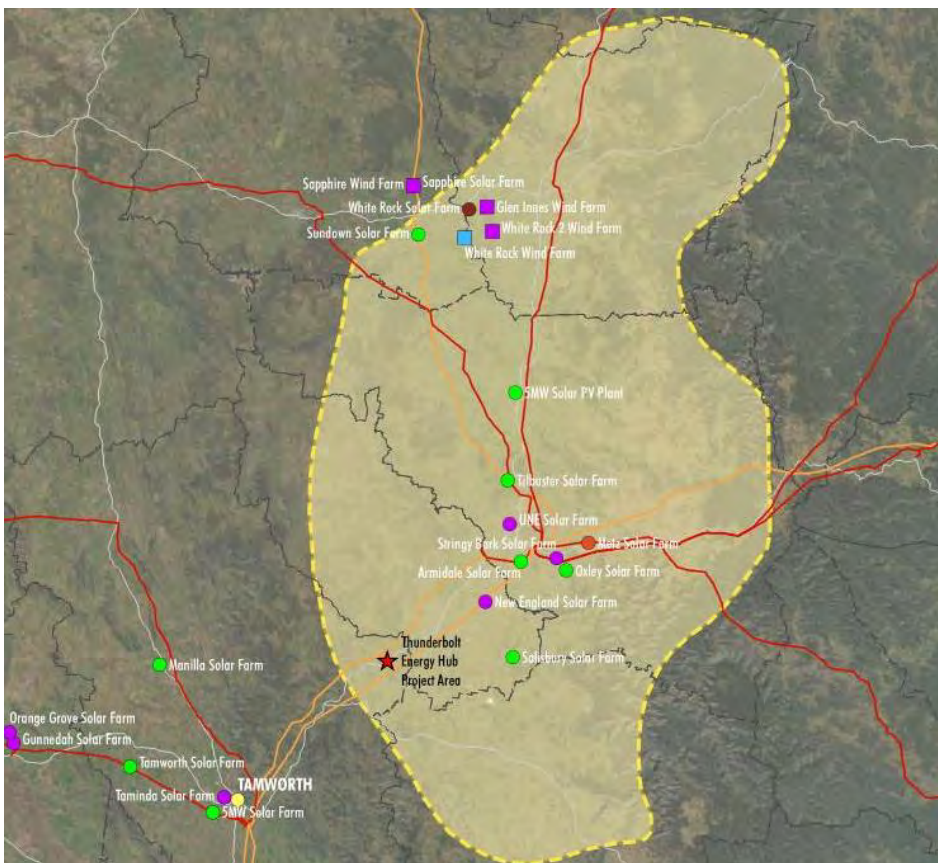
Thunderbolt Energy Hub is located in Kentucky and Bendemeer, NSW. The southern end of the project is located approximately 40km north-east of Tamworth (population ~63,000) and the northern end of the project is located approximately 40km south-west of Armidale (population ~30,000). Host landholder properties span across a north-south length of approximately 18km shown on Figure 1.

Figure 1 Thunderbolt Energy Hub Project Map



The Thunderbolt Energy Hub is located within the New England Renewable Energy Zone (REZ), announced by the New South Wales Government in July 2020.

Figure 2 New England REZ



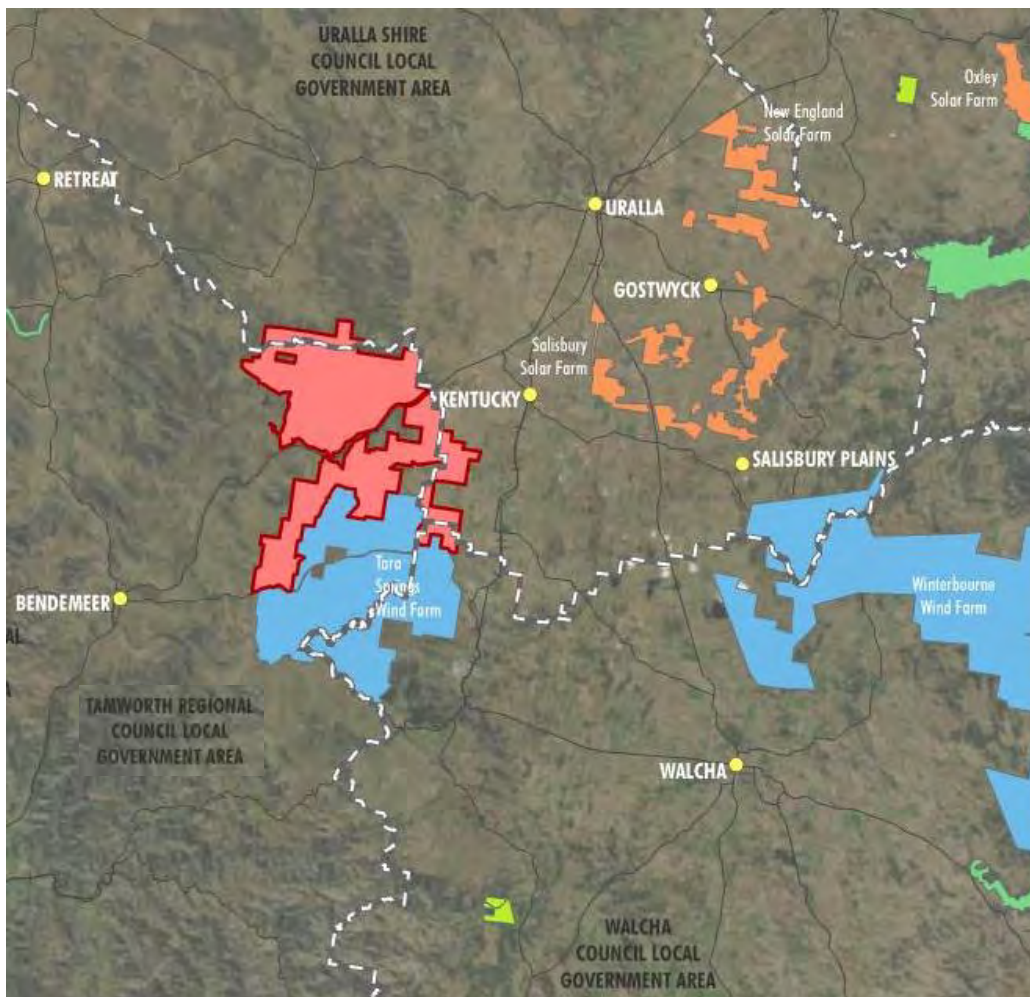
A number of other State Significant Developments (SSD) are proposed near the Thunderbolt Energy Hub. These projects are various stages of development, as detailed in Table 3 below.

Table 3 SSD Projects planned near Thunderbolt Energy Hub

SSD Name	Technology	Proposed Size	Project Stage	Proponent	Distance to Thunderbolt Energy Hub
Oxley Solar Farm	Solar Battery	300 MW solar; 30 MW battery	Development; Prepare EIS	Solar Megawatt Holdings Pty Ltd	Approximately 42km north-east of Thunderbolt Energy Hub
New England Solar Farm	Solar Farm Battery	720 MW solar; 50 MW battery	In Construction	UPC Renewables Australia Pty Ltd	Approximately 25km north-north-east of Thunderbolt Energy Hub
Salisbury Solar Farm	Solar Farm	700 MW	Development; Prepare EIS	Walcha Energy Pty Ltd	Approximately 9km north-east of Thunderbolt Energy Hub
Winterbourne Wind Farm	Wind Farm	700 MW	Development; Request for SEARs	Vestas	Approximately 20km east of Thunderbolt Energy Hub
Tara Springs Wind Farm	Wind Farm	400 MW	Early Development; Scoping Report not yet submitted	Renewable Energy Systems (RES)	Adjacent to Thunderbolt Energy Hub

The location of these projects in relation to the Thunderbolt Energy Hub project are shown on Figure 3 below.

Figure 3 Thunderbolt Energy Hub and other SSD projects within the New England REZ



2.4 Community Overview

The broad community around the proposed Thunderbolt Energy Hub is centred in the towns of Kentucky and Bendemeer. According to the Australian Bureau of Statistics³ 2016 Census Tables 4 and 5 are representative of the area.

Table 4: Total Population Study Map – Kentucky and Kentucky South

Demographics	Kentucky	Kentucky South
Estimated Population	158	125
Median Age	49	46
Median Weekly household Income	\$1,187	\$1,274
Total Dwellings	80	58
Education	Kentucky	Kentucky South

³ <https://www.abs.gov.au/websitedbs/D3310114.nsf/Home/2016%20QuickStats>

Bachelor Degree level and above	26	16
Advanced Diploma and Diploma level	11	17
Certificate level III	18	14
Year 12	19	6
Occupation	Kentucky	Kentucky South
Managers	24	15
Professionals	11	10
Labourers	13	11
Technicians and Trades Workers	8	5
Industry	Kentucky	Kentucky South
Sheep-Beef Cattle Farming	8	3
Shearing Services	5	0
Sheep Farming (Specialised)	3	5
Beef Cattle Farming (Specialised)	3	4
Other Grocery Wholesaling	0	4
Veterinary Services	0	3
Meat Processing	3	0
Home Ownership	Kentucky	Kentucky South
Owned outright	23	22
Owned with a mortgage	24	15
Rented	13	10

Table 5: Total Population Study Map – Wollun and Bendemeer

Demographics	Wollun	Bendemeer
Estimated Population	67	492
Median Age	37	49
Median Weekly household Income	\$1,291	\$905
Total Dwellings	27	230
Education	Wollun	Bendemeer
Bachelor Degree level and above	-	46
Advanced Diploma and Diploma level	-	22
Certificate level III	-	62
Year 12	-	35

Occupation	Wollun	Bendemeer
Managers	-	47
Professionals	-	29
Labourers	-	44
Technicians and Trades Workers	-	28
Industry	Wollun	Bendemeer
Beef Cattle Farming (Specialised)	-	16
Hospitals (except Psychiatric Hospitals)	-	14
Sheep Farming (Specialised)	-	12
Sheep-Beef Cattle Farming	-	11
Pubs, Taverns and Bars	-	7
Home Ownership	Wollun	Bendemeer
Owned outright	-	84
Owned with a mortgage	-	57
Rented	-	38

3. COMMUNITY RELATIONS STRATEGY

3.1 Needs-based approach

Each key stakeholder has a different need across each phase of the Thunderbolt Energy Hub lifecycle. To address this nuance, a needs-based approach is described for each of the key stakeholders to this project in Table 5.

Table 6: Key stakeholders

Stakeholder Group	Overview	Objectives – Needs based approach	Activities – per development phase
Host Landowners	Residents who are hosting wind turbines, part of the solar farm and/or a battery on their land.	<p>Ongoing communication and discussions as project progresses.</p> <p>Contribution to the project’s progress, ability to provide local knowledge, advice and input.</p> <p>Involvement in development and delivery of Community Benefit-sharing Scheme</p>	<p>One-on-one meetings</p> <p>Landowner updates & dinners</p> <p>Letterbox drops (or email) with updates</p> <p>Invitations & involvement in community events</p>
Adjacent neighbours of wind turbine host landholders that were involved in the landholder group from its inception or shortly thereafter	Adjacent neighbours who were involved in the initial landholder group discussions, but cannot host wind turbines, solar or battery technologies due to the smaller size of their property.	<p>Ongoing communication and discussions as project progresses.</p> <p>Contribution to the project’s progress, ability to provide local knowledge, advice and input.</p> <p>Involvement in development and delivery of Community Benefit-sharing Scheme</p>	<p>Benefit-sharing: minimum payment throughout operations of the project</p> <p>One-on-one engagement</p> <p>Invitation to be provided a private photomontage</p> <p>Letterbox drop (or email) with updates</p> <p>Community Information Sessions</p> <p>Invitation to community events</p>
Solar near neighbours: 0 – 4km	Residents owning land adjacent to the project site have the potential to be affected by the visual impact of the solar farm and the noise from heavy vehicle traffic associated with the construction phase.	<p>To create and maintain a close connection with direct adjacent neighbours of the Thunderbolt Energy Hub.</p> <p>To keep neighbours informed about the project from early in the project planning process and provide opportunities to raise issues and provide feedback.</p> <p>To ensure that neighbours share in the benefits of the project.</p>	<p>Benefit-sharing based on visual impact or proximity of wind turbine generators to the respective neighbours’ dwellings</p> <p>One-on-one engagement</p> <p>Letterbox drop (or email) with updates</p> <p>Community Information Sessions</p> <p>Invitation to community events</p>

Stakeholder Group	Overview	Objectives – Needs based approach	Activities – per development phase
Wind near neighbours: 2 – 4km	Residents owning land adjacent to the project site have the potential to be affected by the visual impact of the wind farm and/or battery and the noise from heavy vehicle traffic associated with the construction phase.	<p>To create and maintain a close connection with direct adjacent neighbours of the Thunderbolt Energy Hub.</p> <p>To keep neighbours informed about the project from early in the project planning process and provide opportunities to raise issues and provide feedback.</p> <p>To ensure that neighbours share in the benefits of the project.</p>	<p>Benefit-sharing based on visual impact or proximity of wind turbine generators to the respective neighbours’ dwellings</p> <p>One-on-one engagement</p> <p>Invitation to be provided a private photomontage depending on the distance and aspect of their dwelling</p> <p>Letterbox drop (or email) with updates</p> <p>Community Information Sessions</p> <p>Invitation to community events</p>
Wind near neighbours: 4 – 8km	Residents owning land adjacent to the project site have the potential to be affected to some extent by the visual impact of the wind farm and potentially some noise from heavy vehicle traffic associated with the construction phase.	<p>To keep neighbours informed about the project from early in the project planning phase</p> <p>To provide opportunities to raise issues and provide feedback</p>	<p>One-on-one engagement</p> <p>Letterbox drop (or email) with updates</p> <p>Community Information Sessions</p> <p>Invitation to community events</p>
Neighbourhood (Kentucky, Wollun and Bendemeer)	The local people living within the Kentucky, Wollun and Bendemeer townships adjacent to the project.	<p>To keep the local community informed about the project from early in the project planning phase</p> <p>To provide opportunities to raise issues and provide feedback</p> <p>To involve in development and delivery of benefit-sharing strategy that will support the local neighbourhood</p>	<p>Benefit-sharing</p> <p>Newspaper advertisements</p> <p>Community Information Sessions</p> <p>Invitation to community events</p>
Councils	We will work with Tamworth Regional Council, Uralla Shire Council and Walcha Council to shape the Community Engagement Strategy and Benefit Sharing Program.	To ensure a positive and collaborative relationship with the LGA that can support the long-term goals of the community.	<p>One-on-one engagement</p> <p>Project briefings & updates</p> <p>Community Information Sessions</p> <p>Pre-DA meeting</p>
State MPs	The Hon. Kevin Anderson MP (Tamworth)	To ensure the local member is kept updated	Project briefing in person by Head of Development

Stakeholder Group	Overview	Objectives – Needs based approach	Activities – per development phase
	The Hon. Adam Marshall MP (Northern Tablelands)	about the project and its progress	Invitation to community events
Federal MP	The Hon. Barnaby Joyce, MP (New England)	To ensure the local member is kept updated about the project and its progress	Project update in person by head of Development Invitation to community events
Traditional Owners – Indigenous community	We will seek to engage and understand what elements of the project are culturally relevant and/or sensitive.	Engaging with local Aboriginal groups beyond planning requirements, such as Cultural Heritage Management Plans.	Invitation to co-design Indigenous Participation Plan Site Visit Invitation to community events
Rural Fire Service (RFS)	Representatives from the New England RFS district	To ensure project activities abide by safety and regulatory requirements	Provide indicative design plans and updates on the project to prepare for any local fire and emergency safety requirements
Schools, TAFEs and Universities	Kentucky Public School Bendemeer Public School Woolbrook Public School Rocky River Public School Uralla Central School St. Joseph’s Primary School, Uralla Walcha Central School St. Patrick’s School Walcha TAFE NSW Tamworth TAFE NSW Armidale University of New England (Armidale)	To ensure organisations are updated on education and vocational opportunities associated with the project. To use the opportunity of a local renewable project to dovetail relevant & practical educational content into the syllabus.	Information and project updates provided and invitation to future networking engagement Opportunities for site visits for local schools.
Business groups / industry stakeholders	We will seek to engage and collaborate with local businesses and business networks around what opportunities may be available such as sourcing for the wind farm, solar farm and/or battery development.	To ensure Neoen is creating of local renewable energy projects.	To ensure project activities abide by safety and regulatory requirements
Wind farm, solar farm and/or battery opponents	Friends of Kentucky Action Group	To be accessible, help to address concerns proactively, and to have a best practice complaints system in place.	Complaints process implementation Letterbox drop (or email) with updates
Advocacy groups	Sustainability groups Community energy groups	Discussion on community energy and zero emissions targets	Update / presentation on project

Stakeholder Group	Overview	Objectives – Needs based approach	Activities – per development phase
		Potential for partnerships	Invitations to community events
Community organisations	Z-Net Uralla The Rotary Club of Uralla Walcha Rotary Club Uralla Lions Club Walcha Lions Club	To understand a project and be able to update their members To participate in / benefit from Community Benefit-sharing Scheme	Update/presentation on project Invitations to community events

3.2 Facilitating opportunities for involvement

3.2.1 Local Participation

One of our key areas of focus for the broader local community is facilitating the involvement of local jobseekers and businesses in the construction and operation of the wind farm, solar farm and battery to ensure a strong regional economic benefit.

During feasibility & planning/approvals phases expressions of Interest for work are invited and received through adverts, information days and the project website. A job interest register for internal use is created to ensure reference during construction and operation phases can be made to list of interested workers.

In the pre-construction phase a Local Employment & Supplier Networking Session will be held locally, with invitations going out to those on the job interest register and local employment agencies, ensuring they have the opportunity to meet with the appointed construction contractors.

3.2.2 Indigenous Participation

During the development stage we engage with traditional owners and, depending on local context and requirements, we co-develop a Cultural Heritage Management Plan or a Cultural Heritage Arrangement.

3.2.3 Education

We explore opportunities to work with local schools and colleges, both at primary and secondary, to support education in renewable energy generation, the electricity grid and electricity market.

During operations we offer opportunities for site visits from local schools, and will be developing more specific educational content, materials and visitor packs in 2021.

4. COMMUNITY ENGAGEMENT ACTIVITY

4.1 Host landholder group consultation

The Thunderbolt Energy Hub project presents a unique approach to the engagement of host- and near-neighbour landholders. Following the engagement of Kyabra Station as host landholder to the north of the New England Highway, Neoen has been working together with a landholder group to the north and south of the New England Highway. The aim of working with a group of landholders in the Kentucky and Bendemeer region rather than individually was to:

- Enable transparent discussions;
- Provide all landholders with fair financial compensation;
- Provide an avenue to ask questions and share early feedback in a group setting, including concerns, preferences and questions; and
- Be inclusive of all landholders within the group, including those that would not be able to host infrastructure on their properties.

4.1.1 Background

Prior to Neoen's first engagement with the landholders in the Kentucky and Bendemeer regions, a group of landholders on the southern-side of the New England Highway had formed as a result of discussions with another renewable energy developer. This group consisted of landholders that the previous developer considered to host wind turbines on their properties and smaller landholders with adjacent landholdings that were not considered as suitable hosts by this developer.

In the preliminary stages of the Thunderbolt Energy Hub development (late 2018 and early 2019), the project involved only Kyabra Station as a host landholder. When Neoen engaged with the southern-side landholder group in early 2019 this was to inform and consult with them early as immediate project neighbours. The group showed a keen interest in the project and later expressed their wish to also participate as host landholders based on Neoen's transparent and long-term approach to development. Neoen welcomed the landholder group participation, thus increasing the size of the proposed project. In the invitation extended to this landholder group, Neoen provided all landholders in the group an opportunity to participate in hosting the project regardless of the size of their land holdings.

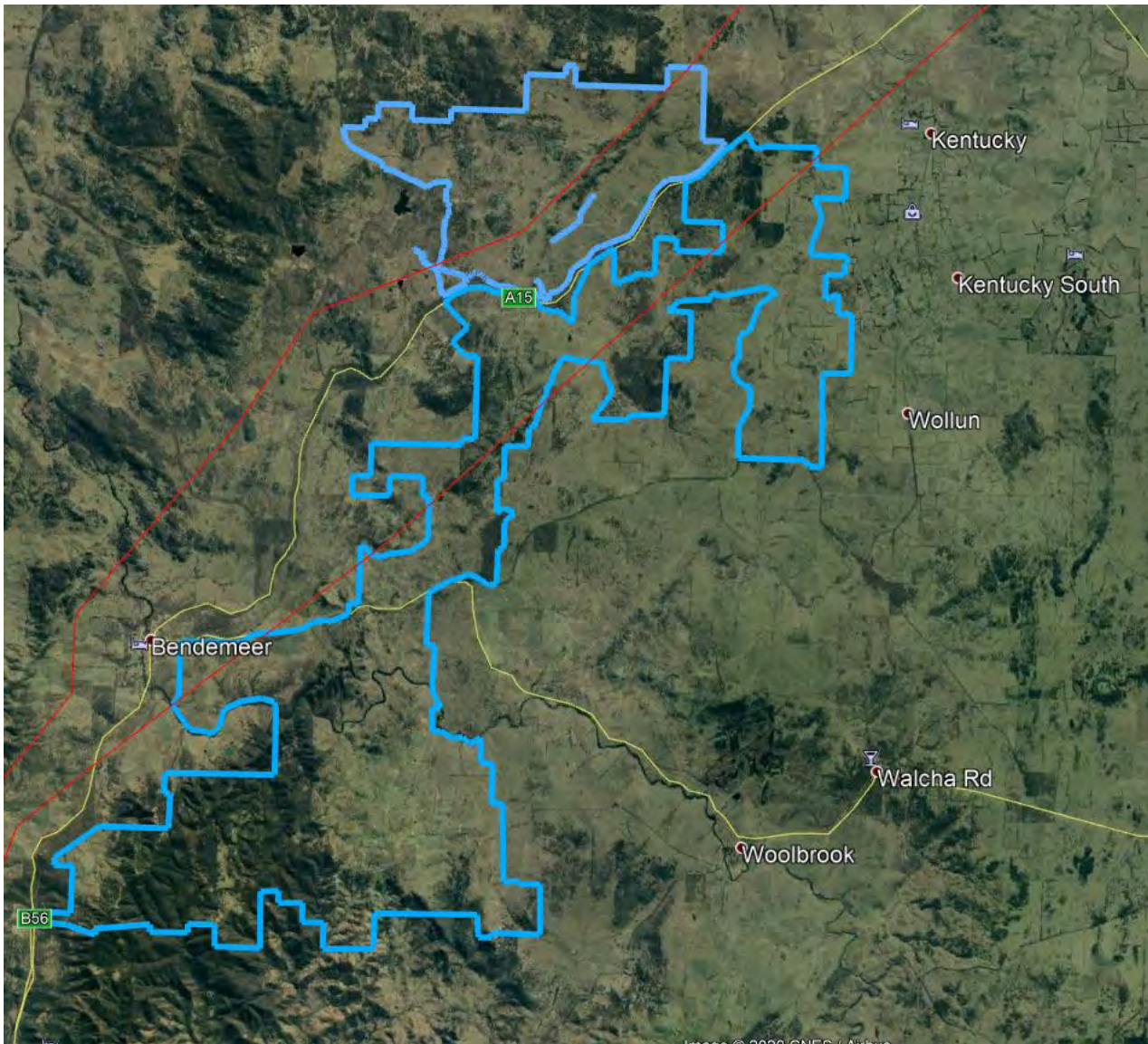
4.1.2 Working with the landholder group

Neoen views working with a landholder group, including those that will not be able to host infrastructure, as advantageous as:

- The group feels a sense of ownership towards the project;
- All landholders receive the same information at the same time;
- Open and transparent discussions can be held within the group and with Neoen;
- Group workshops could be conducted, considering everyone's preferences within the group;
- Smaller, non-host landholders, are also included in early discussion and are able to provide their feedback, which feeds into the early wind farm and solar farm design; and
- Smaller, non-host landholders do not feel as though they are "missing out" as they will also receive financial compensation throughout the operational phase of the project.

The original landholder group boundary is shown on Figure 4 below.

Figure 4 Original host landholder group boundary



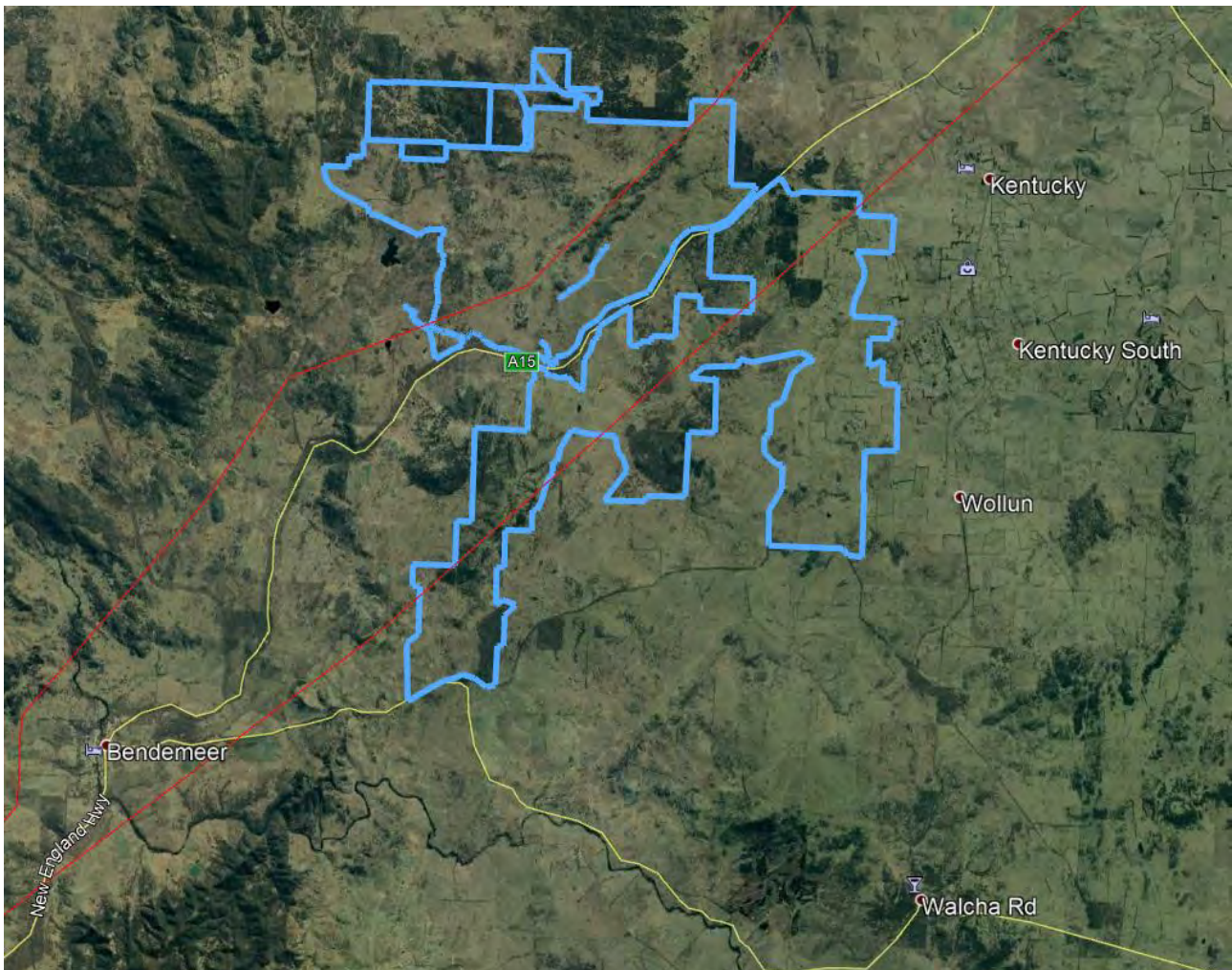
A number of landholders to the east of the New England Highway, which were not part of the initial landholder group, either did not wish to join the group or had already signed contracts with other renewable energy developers and thus could not join the group.

Neoen hosted a number of landholder group workshops in 2019 and 2020 to explain the development process of a wind and solar farm, including the specialist studies that would be undertaken, community consultation, approvals required as well as estimated timeframes for each phase up until the operations phase. Preliminary wind resource maps, wind turbine layout and solar farm layouts were shown to the group and feedback was sought regarding the early designs. This allowed Neoen to understand and address landholder preferences early regarding potential access track routes, distances from wind turbines to houses and sheds as well as exclusion zones on properties.

To ensure effective and clear communication could be maintained within the large landholder group, Neoen created a landholder only webpage as a separate section within the main project website. This page is only accessible by Neoen and host landholders and allows Neoen to easily share documents, maps, answers to commonly asked questions, meeting minutes, a summary of next steps in the development phase, and updates and news with the group. Uploading this information to the landholder only section of the website ensures that all host landholders have access to the latest information at the same time and to ensure that information can be easily accessed and referred to if and when required.

Following several months of discussions and negotiations between the landholder group and Neoen, a final landholder group was formed. This final landholder group is shown on Figure 5 below. Landholders, who were primarily to the southern side of the Oxley Highway, chose not to progress with Neoen's landholder group and instead commenced discussions with a different renewable energy developer.

Figure 5 Final host landholder land outline



As the boundary of the final host landholder group is now finalised, Neoen is able to determine which of the smaller landholders, who were part of the landholder group discussions, would be adjacent neighbours of the wind farm host landholders. Although the properties of these neighbours are too small to host renewable energy infrastructure, these neighbours are invited to remain as part of the landholder group and are also offered financial compensation. These landholders' properties are located on the New England Highway.

4.1.3 Consultation with near neighbours along the New England Highway

There are six neighbouring properties along the New England Highway that are located in the centre of the proposed wind farm development (dwellings 26, 27, 28, 29, 30 and 41). These properties are relatively small and not suitable to host wind turbine infrastructure.

Neoen has engaged with these six near neighbours from early 2020 by inviting them along to landholder group workshops and facilitating a separate group meeting at which these neighbours (and other residents within the Kentucky community) could discuss their concerns about the proposed wind and solar farm. Neoen recognises the importance of engaging with these particular neighbours very early on in the development process due to the proximity of their dwellings to the proposed wind farm and possible higher visual impact. One-on-one meetings were also offered to these neighbours to discuss their feedback

and concerns. Two of the six neighbours have taken up the offer for a one-on-one meeting to date. One of the six neighbours expressed during the one-on-one meeting that he was very supportive of the project and would enjoy the view onto the proposed wind turbines. The other five neighbours on the other hand are concerned about the development, with the primary concerns being visual impact, potential noise impact and potential loss of property value. One of these concerned neighbours also founded the Friends of Kentucky Action Group (FOKAG), in opposition of the development.

Neoen is currently working with each of these neighbours to ensure that their feedback and concerns are considered in the upcoming specialist assessments and further development of the wind farm layout. Neoen has also offered that photomontages could be created from each of these neighbouring houses such that they may have a better understanding of what the proposed wind farm may look like from their dwellings.

4.2 Neighbour consultation

As the Thunderbolt Energy Hub has now reached the early stages of the Planning & Approvals phase within development, initial neighbour consultations have been undertaken. This involved contacting 57 neighbours within a 0-8km distance to the wind farm via phone to inform them of the Thunderbolt Energy Hub project and offer one-on-one in-person meetings if they wished to do so. This number does not include those neighbours who were originally part of the landholder group, but chose not to proceed with Neoen's project. These neighbours will also continue to be informed about Neoen's project and invited to attend community information sessions. Of the 57 neighbours contacted, 27 were met in person throughout late July to early October 2020. Further neighbours will be contacted in the upcoming months.

The majority of the in-person meetings were held in private homes, while some were held in public locations such as cafes. Three neighbours talked to Neoen at the community drop-in session in September 2020. Neighbours that have not been met in person to date either could not schedule a meeting yet, did not want to meet as they did not feel the project would affect them, or felt that their questions could be captured through a phone conversation and by Neoen sending an information in the mail. Preliminary project information booklets were mailed to those neighbours that could not meet and requested further information. The figures for each are as follows:

- Neighbours that did not want to meet and did not want to receive information in the mail or via email: 5
- Neighbours that did not want to meet, but wished to receive information in the mail or via email: 11
- Neighbours that would like to meet, but could not schedule a meeting to date: 14

The main questions and concerns that were raised during these meetings and how these were addressed by Neoen are summarised in Table 8. A number of these questions are also outlined in the FAQ section of Neoen's community information booklet and on the project website which was provided during neighbour meetings and at the first Community Information Day. The percentage of people concerned about each of these issues is summarised in Table 7 below.

Table 7 One-on-one neighbour meeting outcomes - key concerns about the proposed wind farm

Description of concern	Percentage of responses
Decreasing or increasing land values of neighbouring properties	33 %
Visual Impact	33 %
Construction disruption (dust, noise, traffic, etc)	22 %
Noise impact	33 %
Impact on the local environment and/or land use	19 %
Decommissioning	4 %

Description of concern	Percentage of responses
Other concerns	22 %
No concerns	33 %

The 'other' concerns that were raised about the wind farm included:

- Potential health impacts – 1 person;
- Whether all proposed wind farms would be able to connect to the existing 330kV transmission lines – 1 person who is signed on with another renewable energy developer;
- Disruption to their phone and/or internet service – 1 person; and
- Potential impact on local water resources during construction (in particular the Kentucky Creek), which is relied upon by many within the community, particularly throughout the drought – 1 person.

4.2.1 NSW Visual Impact Assessment Bulletin

As part of the one-on-one conversations held from early October 2020 onwards, specific questions regarding potential visual impact were asked in line with the NSW Visual Assessment Bulletin. These included:

- What are some of the key landscape features, areas of scenic quality and key public viewpoints valued by you?
- Are there any landscape features in the area that you particularly value and why?
- Are there any specific viewing locations or landscape features in the area surrounding the Project that you value highly or believe may require conservation or protection?
- Are you concerned about a particular view from your property or visual impacts to the area in general?

The responses received to date indicate that there are no key landscape features, areas of scenic quality or key public viewpoints in the local region surrounding the proposed Thunderbolt Energy Hub project. Some neighbours living in Kentucky and Kentucky South mentioned that they very much enjoyed the views onto the hill to the north-east of Kentucky called Harnham Hill; however as the Thunderbolt Energy Hub is proposed to the west of Kentucky, this would not present an issue in their views. The neighbours that are concerned about visual impact of the wind farm are concerned about the visual impact from their homes only. The concern relates to how the wind turbines may impact the view from their homes over the hills and fields generally, rather than disrupting their view of a particular landscape feature or key viewpoint.

No concerns were raised to date about the solar farm component. A number of neighbours asked whether the solar farm would take up the whole property and whether it can still be used for farming purposes. Neoen explained that solar panel rows are typically 5-7m apart, which means that Merino sheep are able to graze between the solar array. Information on Neoen's operating solar farms was also shared, all of which have sheep grazing amongst the rows of solar panels.

A local community liaison consultant has been engaged by Neoen in late September 2020, who lives within 5km from the proposed project in Kentucky. Her role will be to assist Neoen with the one-on-one neighbour engagement meetings and other community liaison activities during the development phase.

4.2.2 Priority concerns identified by neighbours

Table 8 Key neighbour concerns and Neoen's response

Description of concern	Neoen's response to concern
Decreasing or increasing land values of neighbouring properties	Neoen shared information about a study commissioned by the NSW Office of Environment and Heritage and published by planning consultancy Urbis in July 2016, which suggests that renewable energy infrastructure, including both wind and

Description of concern	Neoen's response to concern
	<p>solar farms do not impact the land value of adjacent properties extensively.</p> <p>Neoen furthermore responded that further investigations into other studies would be undertaken to determine if any changes in land values of properties surrounding other existing renewable energy projects have been observed.</p>
Visual Impact	<p>Neoen responded by noting that the visual impact from the nearest receivers (and others with a particular concern) would be studied during the development phase through a visual impact assessment in line with the NSW Visual Impact Assessment Bulletin.</p> <p>Photomontages could be provided to near neighbours and those that are particularly concerned about visual impact to receive an impression of how the wind turbines may look from their dwellings. The wind farm layout may be adjusted if any adverse visual impacts are identified.</p> <p>Additionally, Neoen asked neighbours specific questions regarding potential visual impact in line with the NSW Visual Assessment Bulletin during the meetings to identify if there are any key landscape features, scenic quality and/or key public viewpoints that are valued by the individuals. This is outlined in Section 4.2.2.1.</p>
Proximity to houses	<p>Appropriate distances to neighbouring houses will be determined based on both the visual impact study as well as the noise study. These studies will assess the visual and noise impacts to near neighbours and allow Neoen to modify the wind turbine layout to prevent adverse impacts to neighbours. Further consultation would occur with neighbours throughout these studies.</p>
Construction disruption (dust, noise, traffic, etc)	<p>Neoen responded by noting that, where possible, existing roads would be utilised as much as possible. Roads will need to be upgraded and maintained by Neoen throughout the project's lifecycle, which may be of benefit to neighbours where current roads are in poorer condition.</p> <p>Neoen would additionally determine the impacts of construction activities on near neighbours as part of its traffic and transport specialist assessment to determine the most efficient transport routes to site, while minimising disruption to neighbours. Compensation for near neighbours who are most affected throughout construction may also be considered.</p>
Noise impact	<p>Specialist noise studies will be undertaken to determine the noise of turbines at various receiver points, including the dwellings of near neighbours. Outcomes of this study will inform changes required to the wind farm layout such that wind turbines meet the NSW legislated noise guidelines.</p>
Impact on the local environment	<p>Neoen responded by outlining that detailed ecological studies would be undertaken during multiple seasons throughout the year to determine how the wind farm and solar farm may impact flora and fauna species. The wind farm and solar farm layout can subsequently be revised to minimise and avoid</p>

Description of concern	Neoen's response to concern
	adverse impacts to species, particularly those that are considered to be threatened or vulnerable.
Unfair sharing of financial benefits	<p>Neoen will assess the impact of the wind farm and solar farm on near neighbours, both from a visual impact and from a construction disruption point of view.</p> <p>Near neighbours, who were part of the landholder group, are considered to be involved in the project and receive annual compensation agreed with Neoen.</p> <p>Other near neighbours may also receive financial compensation depending on the impact of the project on their property.</p> <p>Additionally, Neoen aims to further support the wider community by involving as many local contractors and suppliers from the local community throughout the construction phase. A construction job register is established and a local contractor and supplier information session will be held prior to construction commencing.</p> <p>Finally, a Community Benefit-Sharing Program be established by Neoen, which is intended to benefit initiatives and projects within the community throughout the 25-30 years of operations.</p>
Potential health impacts	<p>Neoen referred concerned neighbours and members of the community to research literature on this topic. To date 17 reviews have been undertaken by leading health and research organisations, who concluded that there is no evidence linking wind turbines with health effects. Such organisations include the World Health Organisation, Australia's National Health and Medical Research Centre, the UK Health Protection Agency and the US National Research Council.</p>
Decommissioning, lack of clear Government regulation around clean-up of sites	<p>Neoen is a long-term owner and operator of all of its wind farms, solar farms and batteries. Neoen is responsible for decommissioning the renewable energy infrastructure. This is also built into the agreements with the host landholders.</p>

Some neighbours felt that after the in-person discussion with Neoen and learning about the project in further detail, they were less concerned than prior to the meeting. Some neighbours remained concerned and are not in favour of the project.

4.3 Community-wide consultation

In February 2020, prior to one-on-one neighbour meetings commencing, a meeting was held with a concerned group within the community to discuss some of the key concerns by these residents. The group consisted mainly of adjacent neighbours and some community members who live a few kilometres from the project. The key concerns were sent to Neoen prior to the meeting, such that Neoen could present as much information as possible in response. Some questions and responses included:

- Grid connection – how will it work and is there sufficient capacity?
- Does Neoen receive Government subsidies?
- Can aerial firefighting occur around wind turbines?
- Will Neoen decommission the wind and solar farm at its own cost?
- Will roads be improved?
- Do wind farms cause property values to decrease?
- Can wind be accurately measured throughout a drought with different weather patterns than usual?

The concerns were addressed in detail at the meeting and further information shared about the development process. Key issues, as per Table 8, were also discussed. The outcome was that some attendees felt less concerned following the meeting, while others preferred to discuss particular items further during one-on-one meetings.

A wider Community Information Day was hosted in mid-September 2020. The wider community was invited to attend this meeting through advertising in local newspapers and the Thunderbolt Energy Hub project website. Community members that Neoen had previously spoken to and who had expressed an interest in being kept informed of the project were informed directly about the Community Information Day through sending a flyer by email or mail. Neoen displayed project information posters in a local cafe for members of the public to learn more about the proposal and provided feedback verbally and/or through a feedback survey. This allowed Neoen to collect further information about the main concerns of the community regarding the project as well as to seek feedback on which local community projects and initiatives could be sponsored by the project's Community Benefit Fund.

Concerns raised and responses provided by Neoen are per Table 8. Feedback surveys were submitted by neighbours to the proposed Thunderbolt Energy Hub project before, during and following the Community Information Day. A total of 38 feedback surveys have been received to date. The views of neighbours and members of the public are summarised below.

Overall level of support for the Thunderbolt Energy Hub project: **7.8** out of 10 (where 0 means full opposition to the project and 10 means full support of the project).

Table 9 Survey Response: What are the main concerns about the wind farm?

Description of concern	Percentage of responses
Visual Impact	35.1 %
Noise	8.1 %
Disturbances (such as traffic) during construction	37.8 %
Effects on land use or land values	48.6 %
Effects on natural areas and habitats	45.9 %
No concerns	29.7 %
Other	13.5 %

The respondents who selected 'other' in response to this question, raised the following other main concerns about the wind farm proposal:

- Impact of land values based on the proximity to the project;
- Social tensions/conflict within the community;
- Decommissioning; and
- Lack of clear Government regulation around decommissioning of sites.

4.4 Agency consultation

4.4.1 Department of Planning, Industry and Environment (DPIE)

Neoen and Umwelt met with representatives of DPIE on 18th August 2020 to discuss the proposal.

DPIE raised the following main concerns:

- **Visual Impact:** DPIE is concerned about the visual impact of the wind farm on adjacent neighbours due to the large number of near neighbours within a 4km radius of the proposal. Visual impact studies must clearly assess the visual impact from receivers within a 4km and a 8km radius of the wind turbines in line with requirements of the Visual Bulletin.
- **Cumulative Impact:** DPIE is concerned of the cumulative impact of the Thunderbolt Energy Hub and other renewable energy projects that are proposed in the region. Impacts include visual, noise,

traffic and construction disruption. A detailed map was requested showing the distances of Thunderbolt Energy Hub relative to the other renewable energy projects.

4.4.2 Biodiversity Conservation Division (BCD)

Neoen and Umwelt had discussions with members of both the North West BCD Office and the North East BCD Office on 24th July 2020 to discuss the project and request further information about particular requirements that BCD may have in regards to the seasonal ecological studies. Due to the project covering two BCD regions, BCD informed us that Neoen's point of contact for future correspondence would be the North West Office, who would then share this information with the North East Office.

BCD also provided advice in regards to the installation of anabats on wind monitoring masts to record bat calls during ecological surveying. The preference is for three anabats to be installed on an 80m wind monitoring mast: one at ground level and two at height. This will allow sufficient information to be gathered about the heights at which bats typically fly in the project region and therefore to determine if and to what extent the proposed wind farm may impact bats.

4.4.3 Transport for New South Wales (TfNSW)

Neoen informed TfNSW northern region of the proposed development. A preliminary information booklet was shared as well as information about the Community Information Day in September 2020. Further consultation will occur with TfNSW representatives during the EIS phase once the traffic and transport assessment commences. This will then involve discussions with TfNSW with regards to key haulage and delivery routes, traffic volume and proposed site access points. TfNSW have also requested to review the Traffic Impact Assessment and Construction Traffic Management Plan once these become available.

4.4.4 TransGrid

Neoen commenced discussions with TransGrid in late 2019 through the submission of a connection enquiry. In September 2020 a follow-up meeting was conducted to further discuss the preliminary project connection proposed by Neoen; i.e. to connect the Thunderbolt Energy Hub to both existing 330kV transmission lines. Neoen will continue discussions with TransGrid throughout the EIS phase and as further information becomes available on the New England Renewable Energy Zone.

4.4.5 State and Federal Ministers

The Thunderbolt Energy Hub is located within the State electorates of Tamworth and Northern Tablelands and within the Federal electorate of New England. Letters were sent to the respective MPs for each electorate, informing them of the proposed Thunderbolt Energy Hub proposal along with a preliminary project information booklet. Ministers were also informed about the first Community Information Day held in September 2020 in Uralla.

4.4.6 Local Councils

The Thunderbolt Energy Hub is located within the Local Government Areas (LGAs) of Tamworth Regional Council and Uralla Shire Council. The project is also very close to the border of the Walcha Council.

Neoen made contact with all three Councils in early July 2020, informing them of the proposed project and that further information would be shared as it becomes available. Information was also sent to each respective Council to inform them about the Community Information Day in September. Neoen offered to give a presentation to Tamworth Regional Council and Uralla Shire Council about the project development to date and to seek the Councils' feedback and questions. While Uralla Shire Council requested a meeting, Tamworth Regional Council preferred to be kept updated via email.

On the 6th October 2020, Neoen met with representatives of the Uralla Shire Council to discuss the proposed project, including development activities undertaken to date, indicative timelines, proposed numbers of jobs for the community and learning about the proposed community benefits fund. The Council did not raise any particular concerns and is interested to be kept informed and to be involved throughout the project, for example as part of a Community Reference Group if possible. One of the Councillors is currently part of the New England Solar Farm Community Reference Group and another Councillor is their Project Officer. Due to a number of other renewable energy projects being proposed in the region, such as the New England Solar Farm, Uralla Shire Council is generally familiar with renewable energy projects.

5. COMMUNITY BENEFIT SHARING

To ensure both short and long-term benefits flow through to the community as a result of the establishment and operation of the Thunderbolt Energy Hub, we establish a Community Benefit Sharing Program (CBSP).

The CBSP will be designed to deliver benefits to key stakeholders in the community in a way that aims to meet their needs and aspirations. Specifically, our objectives are to:

- deliver significant and meaningful improvements to the community surrounding Thunderbolt Energy Hub;
- ensure a wide range of different stakeholder groups benefit from Thunderbolt Energy Hub;
- empower the community to shape the design and implementation of the different initiatives;
- build support for renewable energy in the Kentucky, Bendemeer and Uralla area.

The majority of initiatives will be delivered during the construction and operations phase.

In alignment with Neoen’s organisational vision, it is important that the benefit be a true benefit and be tailored to meet each distinct communities’ need.

From an industry best practice standpoint, several principles are seen as being helpful guides in developing or assessing a benefit sharing strategy, as outlined in Table 10 below⁴:

Table 10: Benefit sharing principles

Principle	Description
Appropriate	<ul style="list-style-type: none"> – Benefit sharing is tailored to local circumstances, culture and need, helping to address (not create or reinforce) patterns of conflict or inequality. It makes sense and is appropriate in the local context. – The local community provides guidance on how benefit sharing can create a positive, lasting and meaningful impact for their local community. We work with the local community to develop specific benefit sharing strategies that respond to their unique local context and need.
Flexible	<ul style="list-style-type: none"> – Benefit sharing is an aspect of project development that will greatly benefit from being open to community involvement, influence and negotiation. Having the flexibility to respond to local context will ensure benefit sharing has the best and biggest local impact. – The lifecycle of renewable energy developments is significant (25 years or more), a lot can change in a community during that period of time. Therefore, it is important to build in flexibility so that benefit sharing can evolve as the community needs do.
Transparent	<ul style="list-style-type: none"> – The benefit sharing strategy is transparently available to the community and provides a clear and understandable rationale for the various programs and who is eligible to participate. – Benefits are freely given for the sake of sharing the proceeds of the project and building relationships. Benefit sharing must not come with conditions of silence or consent.
Integrated	<ul style="list-style-type: none"> – Benefit sharing seeks to integrate the project owner/operators as valuable community members by building links and relationships into the community. – The benefit sharing approach is integrated with Neoen’s broader approach to community engagement and project development.

⁴ Lane, T & Hicks, J, (forthcoming) Benefit Sharing Options for Renewable Energy, 2019, Clean Energy Council

Principle	Description
Mutually Beneficial	– The approach is designed to bring mutual benefit to local communities and the project.
Proportionate	– The benefits are perceived as being proportionate to the scale of the project and the level of change or disturbance experienced by local people. Given community members living closest to projects experience greater impacts, they should receive a proportionate benefit.
Strategic	– Create a positive legacy in the local community. Look to bring ongoing and lasting value to the local area. Integrate benefit sharing opportunities with broader strategies by building local partnerships.
Accountable	– Systems and processes are deployed to ensure the credibility and reputation of the benefit sharing program. – Benefit sharing is managed in a transparent and accountable way that involves local stakeholders.

5.1 Scope of the CBSP

This CBSP does not include:

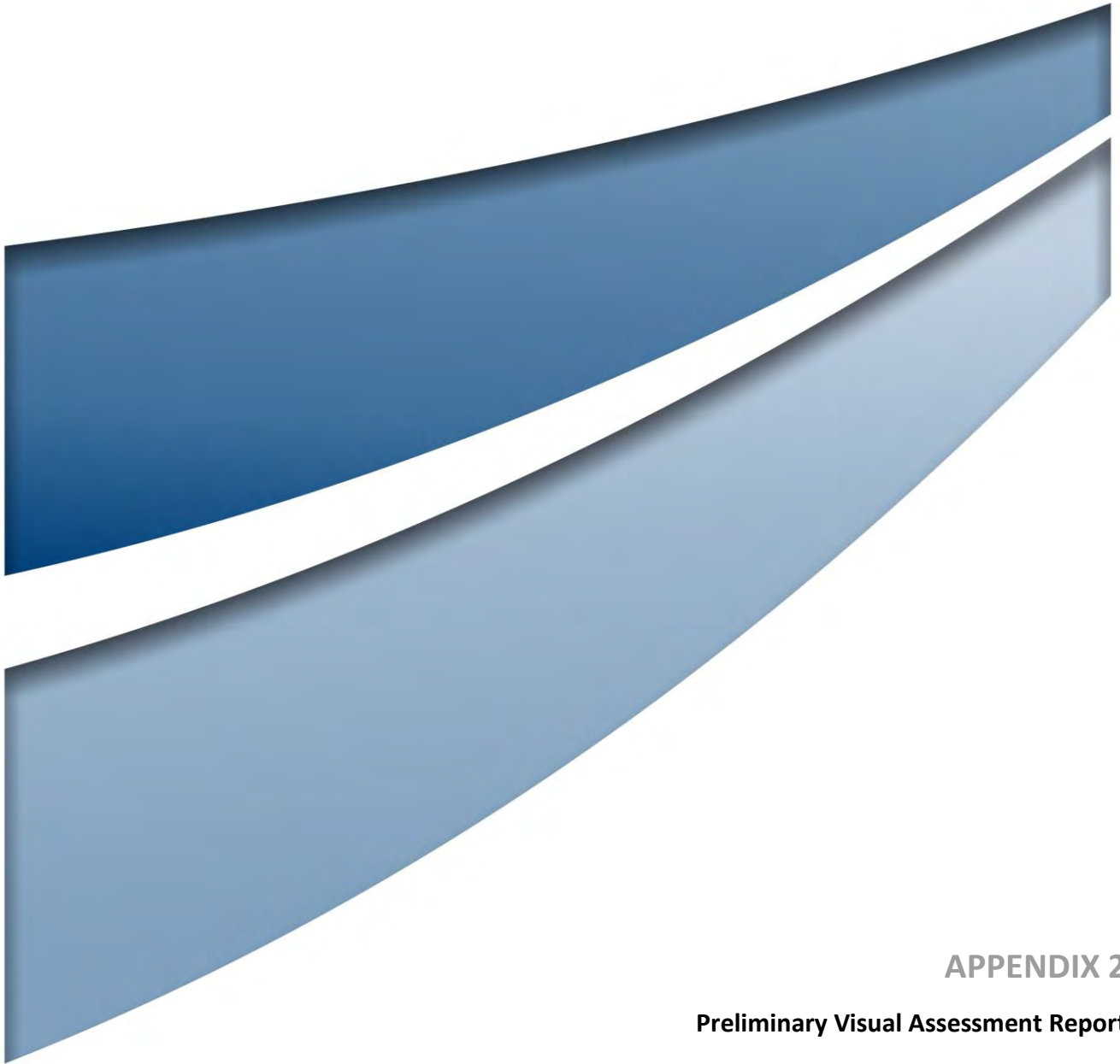
- required activities under our permit conditions such as for visual screening
- annual council rates payments or fire levies (where applicable)
- host landowner payments;
- the value of local jobs and investment.

However, it is worth noting that these activities will all deliver significant value to the community. \$200,000 is the total amount for Thunderbolt Energy Hub CBSP annually based on the current size of the project.

Neoen have a number of mechanisms to enable benefits to be shared in a meaningful and equitable way. Community input will be sought into these options (and any other local ideas) at the community information sessions held in the lead up to planning permit submission and via the community feedback survey. As there are a number of other renewable energy projects being developed in the region, Neoen plans to coordinate with these projects to identify common opportunities for the community benefit funds and ensure that funding is provided to a range of initiatives within the local communities.

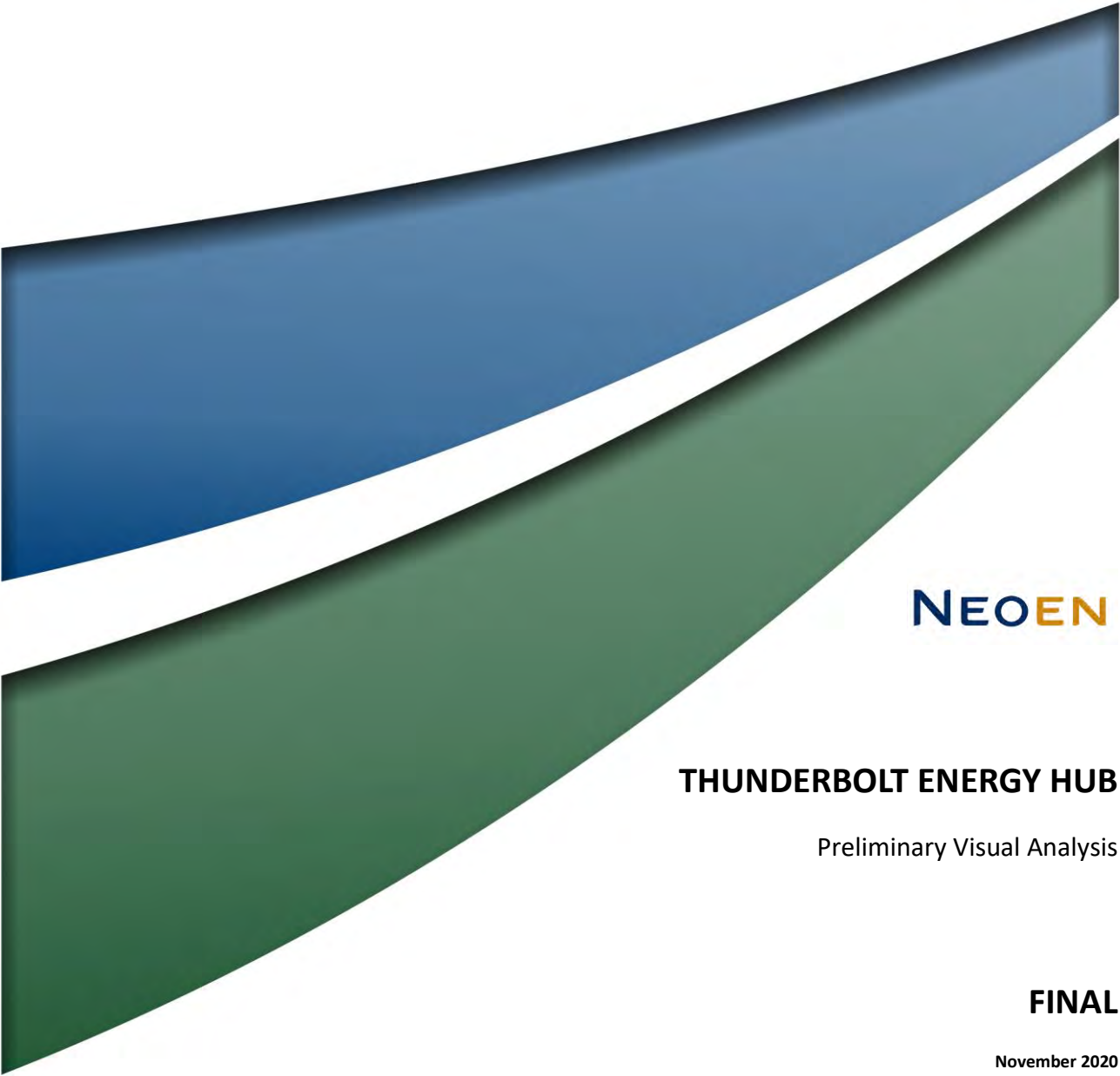
The final program is likely be a mix of 3-4 benefit-sharing mechanisms from the following list:

- Near Neighbour payments or similar
- Community Benefit Fund
- Lower energy bills – through solar and/or storage subsidies
- Lower energy bills - through partnership with an energy retailer
- Community co-investment
- Investment to address specific local issue – e.g. poor mobile coverage, electricity blackouts



APPENDIX 2

Preliminary Visual Assessment Report



NEOEN

THUNDERBOLT ENERGY HUB

Preliminary Visual Analysis

FINAL

November 2020



THUNDERBOLT ENERGY HUB

Preliminary Visual Analysis

FINAL

Prepared by
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on behalf of
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Report No. 7066/R04
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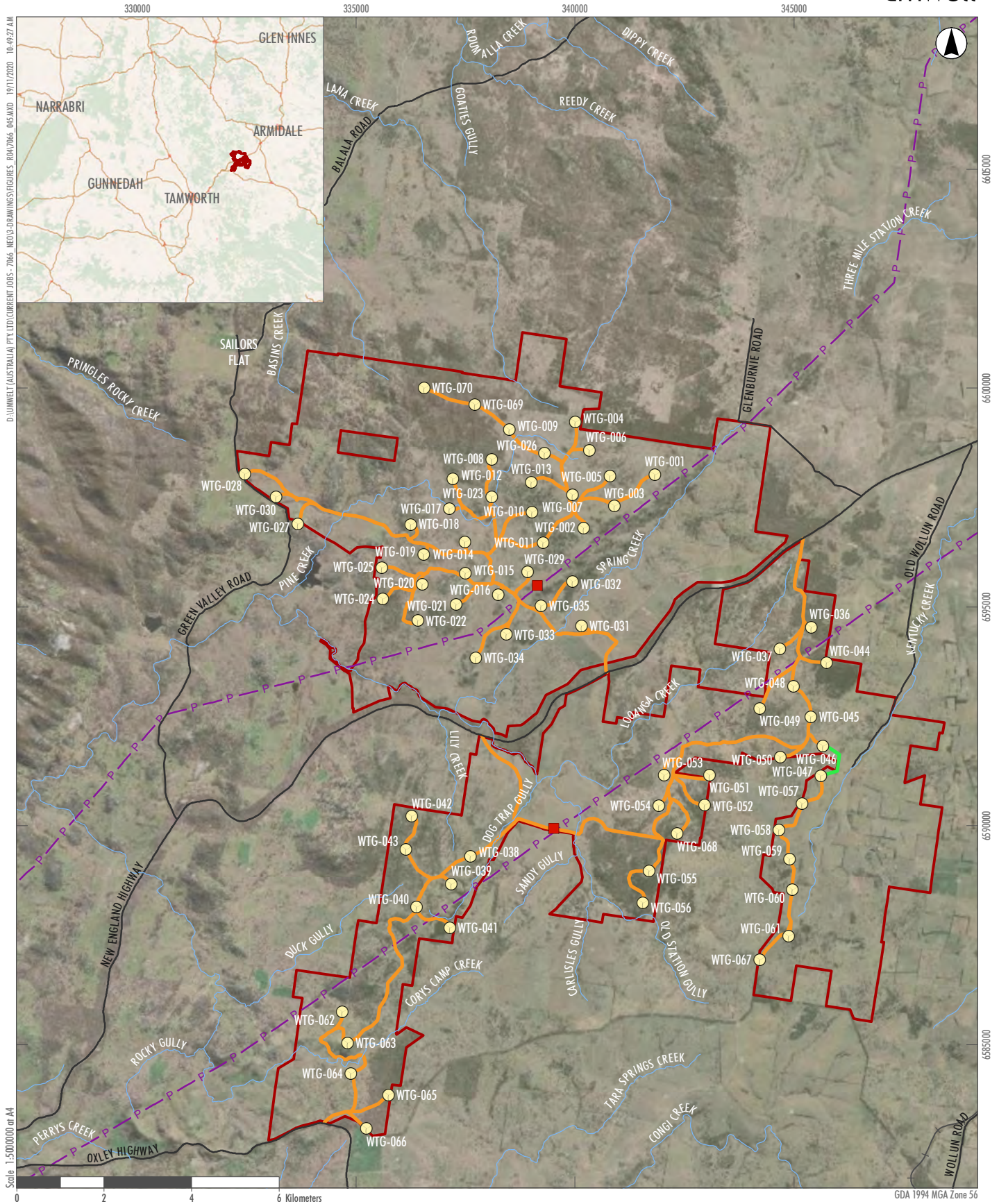
1.0 Introduction

The following Preliminary Visual Impact Analysis (PVIA) has been prepared for Neoen Pty Ltd (the Proponent) as part of the Scoping Report and request for SEARs for the Thunderbolt Energy Hub Project.

The PVIA has been prepared to address the requirements of the Department of Planning, Industry and Environment (DPIE) Wind Energy Guideline and the Visual Assessment Bulletin (2016) (the Visual Bulletin).

This PVIA has considered the preliminary layout for the Project (refer to **Figure 1.1**). The Project includes the construction, operation, and maintenance of approximately 70 (3 blade steel) wind turbines, with a total height (tip height) of 250m. Associated infrastructure is also proposed including operation and maintenance buildings, civil works, a battery facility and electrical infrastructure required to connect to the existing transmission network. It is noted that this PVIA has focused on the preliminary assessment of the proposed turbines, with the ancillary infrastructure including roads, substations and transmission lines to be subject to further design refinement and assessed in further detailed during the Environmental Impact Statement (EIS) phase.

The preliminary layout prepared by Neoen locates the wind turbines predominately along ridgelines while also focussing on the areas identified as having higher wind resources. The project layout will be subject to further refinement as the detailed environmental and social impact assessment progresses as part of the EIS phase.



- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
 - Possible Substation Location
 - Existing 330kV Power Lines
 - Road
 - + Railway
 - Watercourse

FIGURE 1.1
Conceptual Layout

Image Source: Data source: Geoscience Australia; Forestry Corporation of NSW (2019); DSFI (2017); NPWS Estate (2019); Neoen (2020)

2.0 Assessment Requirements

At the scoping phase of the Project the Visual Bulletin requires proponents to undertake a preliminary environmental assessment that includes:

- *Undertaking community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area;*
- *Production of a map detailing the key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints and an overlay of the wind resource; and*
- *Results of the application of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*

These requirements are addressed in the following sections.

2.1 Community Consultation

The Visual Bulletin indicates that consultation with the community during early stages of the assessment process *may be broad, but should include discussions about the proposed project area, likely corridors for development, or preliminary turbine layouts and must involve people from the visual catchment.*

The intent of undertaking this early community consultation regarding visual aspects of the Project is to:

- establish the key landscape features, areas of scenic quality and key public viewpoints valued by that community
- allow the community to have input into the ranking of those features and scenic quality into high, moderate or low visual significance
- inform landholders about the proposed project area, likely corridors for development, preliminary turbine layouts and access routes, and
- inform the community about the proposed project, listen to the community's concerns and suggestions for alternative siting and location designs, and discuss potential visual impacts.

Neoen undertook community consultation during the scoping phase which included a public information session, face to face meetings with involved and nearby landholders and an online survey. The community involvement to date has included:

- attendance of 40 - 50 stakeholders at the public information session in Kentucky
- 27 near neighbour meetings
- 38 responses to the online survey.

The Visual Bulletin states that *key landscape features can include natural features of the landscape (for example, a distinctive mountain peak) as well as important cultural features (for example, an iconic church). Consideration of areas of scenic quality involves the identification of areas of the landscape that are of high scenic quality and those that are moderate or low.*

No specific key landscape features within the vicinity of the Project Area and potentially impacted by the Project were identified by the community, however, stakeholders indicated that the most visually valued aspect of the local area was the 'rural landscape and beauty'. The only specific visually important location identified by stakeholders during the consultation was the views of the vegetated hills (Harnham Hill) to the northeast of Kentucky. The Project will be located to the west of Kentucky and will not impact on views to the northeast of Kentucky.

Neoen has indicated that the consultation undertaken to date has indicated that the visual impact concerns of the community relate to how wind turbines will impact the views from their homes generally rather than disrupting their views of a particular landscape feature or key viewpoint. Further information in relation to the community consultation undertaken by Neoen is provided in the Community Relations Plan, prepared by Neoen which forms Appendix 1 of the scoping report.

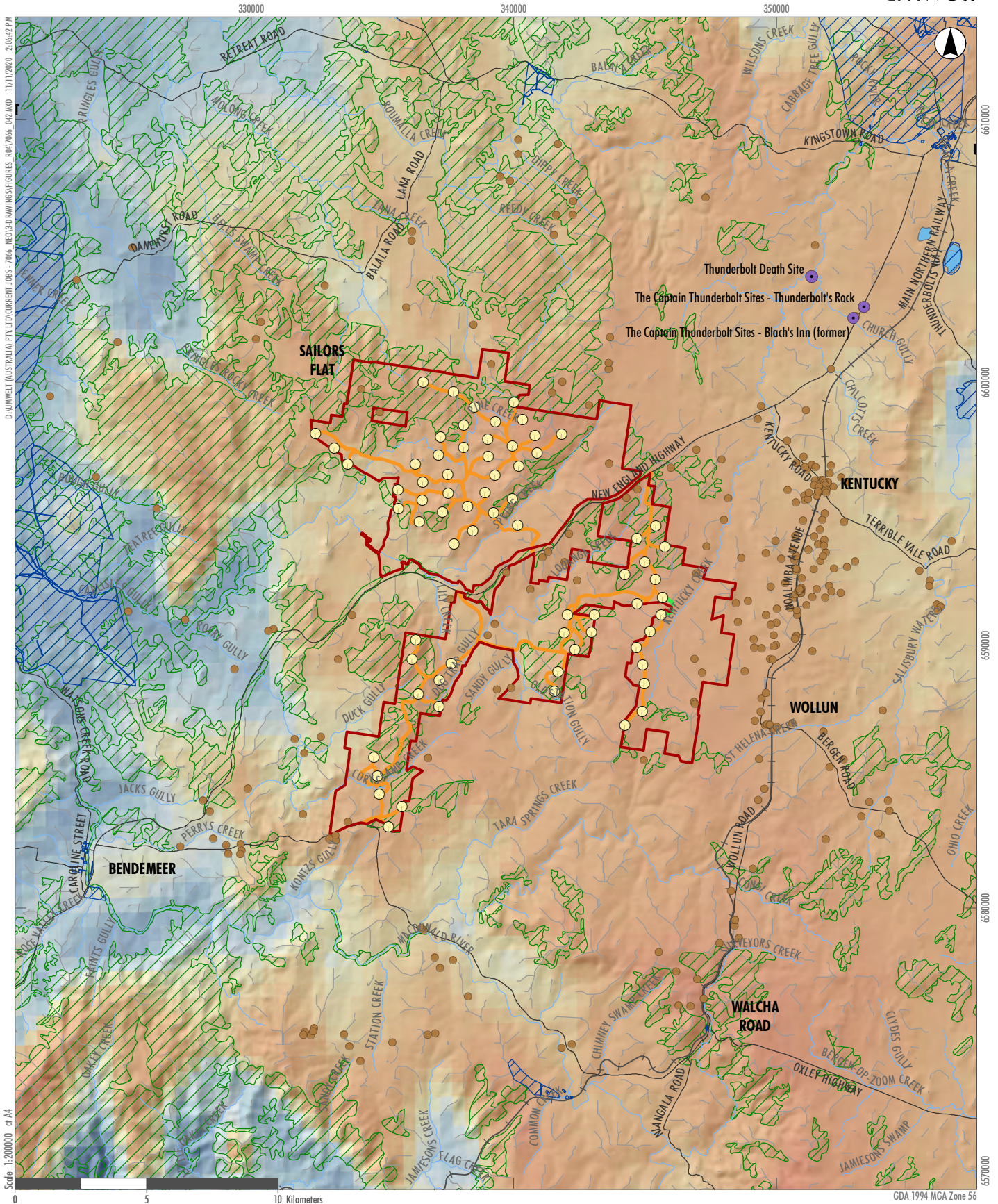
Based on land use and zoning (predominately RU1-Primary Production and small areas of R02 – Rural Landscape in the northern section of the Project Area), land cover and topography, a preliminary landscape analysis has been prepared which identified the following landscape areas within and in proximity to the Project Area:

- rural residential townships of Kentucky, Kentucky South, Wollun, Walcha and Bendemeer
- cleared farming land/pasture
- hills and rock outcrops
- pasture with open and isolated trees
- road corridors (New England Highway, Oxley Highway and various local roads)
- minor creek lines, and
- timbered hills.

Figure 2.1 provides an overview of the key landscape features with wind resource overlay (as required by the Visual Bulletin). **Plates 2.1 to 2.6** also illustrate the current views within the Project Area.

There are no National Parks or Nature Reserves within the vicinity of the Project Area, however, as noted above, there are National Park areas more distant to the east of Kentucky (approximately 30 km at nearest point). The closest State Heritage Conservation Areas are <10 km from the Project Area. The closest State Heritage Item (Thunderbolt Death Site) is located approximately 8.4 km to the north east of the Project Area.

The key public vantage points of the Project will be from the New England Highway which runs through the centre of the Project Area. Extensive areas within and surrounding the Project Area have been cleared for agricultural purposes with areas of remnant vegetation scattered across the Project Area and extensive stands of vegetation along the New England Highway. The roadside vegetation will, in some locations, partially screen views from some parts of the highway with this to be subject to further assessment as part of the detailed visual assessment. While no specific landscape features within or nearby to the Project Area have been identified through the consultation process, the Project Area and surrounding area is predominately utilised for agricultural land uses. The Project will be visible from both involved and non-involved landholders, with these views the focus of this preliminary assessment.



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- | | | |
|----------------------------|----------------------------------|---|
| Project Area | State Heritage Item | Wind speed (metres per second)
High : 10.2
Low : 2.4 |
| Primary Access Road | Rural Residential Dwellings | |
| Electrical Easement Only | State Heritage Conservation Area | |
| Preliminary Turbine Layout | Native Vegetation | |
| Road | Lakes | |
| Railway | Ridgelines | |
| Watercourse | | |

FIGURE 2.1

Key Landscape Features



Plate 2.1 View northeast from the southern end of the Project Area



Plate 2.2 Coreys Creek Camp Crossing on Rimbanda Road within Project Area



Plate 2.3 Existing vegetation within Southern portion of Project Area



Plate 2.4 Heading south along New England Highway towards the Project Area



Plate 2.5 Heading north east along New England Highway towards the Project Area

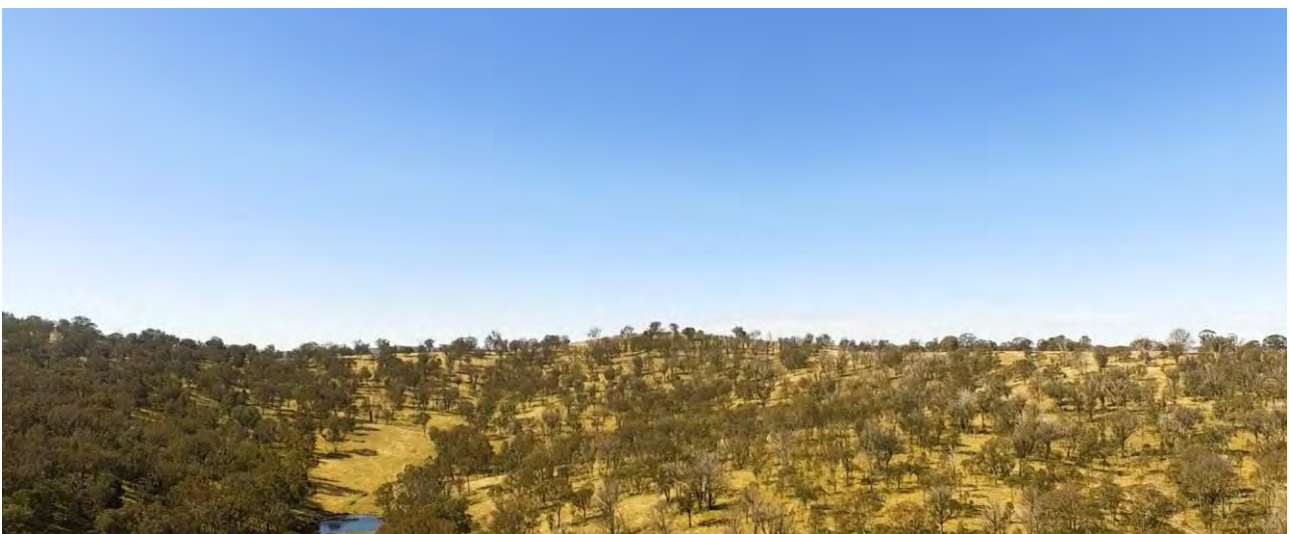


Plate 2.6 View east from the Southern End of the Project Area

2.2 Visual Magnitude Assessment

The Visual Bulletin states that by *mapping the dwellings, key public viewpoints and proposed turbines at scale, the potential visual magnitude of a turbine relative to that dwelling or public viewpoint can be established. This is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints shown in the graph at Figure 2 (of the Visual Bulletin).*

The visual magnitude is determined by a ratio of turbine height and distance. This assessment establishes the visual extent of turbines relative to dwellings and key public view points and is useful in identifying which viewpoints may require further assessment during the preparation of the EIS.

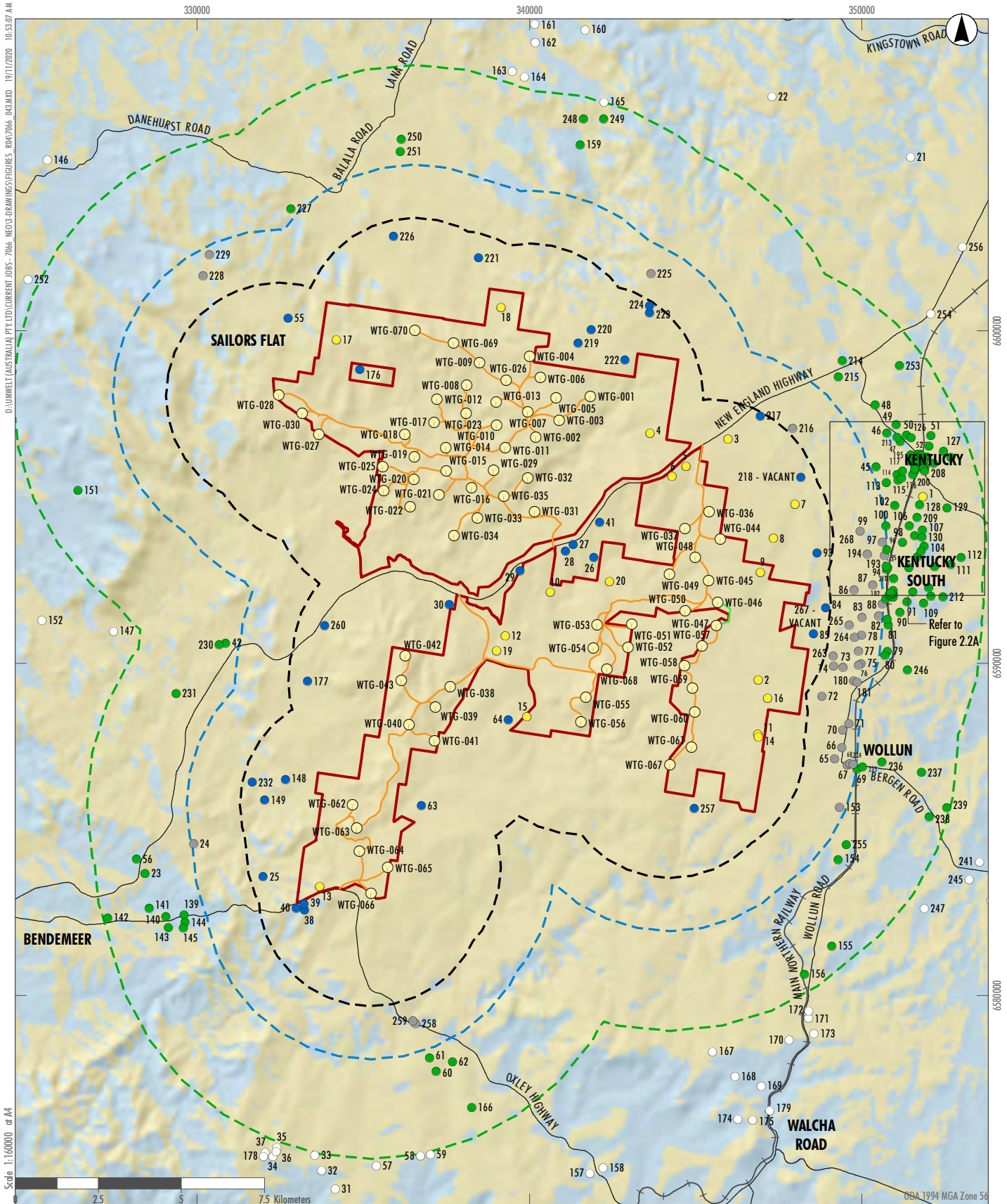
Based on the proposed wind turbine height of 250 m, a distance of approximately 3.4 km applies (black line on **Figure 2.2** and **Figure 2.2A**) in accordance with Figure 2 of the Visual Bulletin. It is noted that key public vantage points and residential dwellings outside of the 3.4 km buffer also require consideration as part of the detailed assessment during the EIS phase, additionally Figure 5 of the Visual Bulletin establishes an additional buffer of 5 km (blue line on **Figure 2.2** and **Figure 2.2A**).

In determining the visual baseline as part of the EIS phase of a Project the 'blue line' informs the visual magnitude assessment and has been considered in this preliminary assessment to provide further context given the number of dwellings located outside of the 3.4 km buffer however within close range (<8 km).

Within the 3.4 km buffer (0 to 3.4 km) there are 20 involved and 32 non-involved dwellings, within 3.4 to 5 km there are 0 involved and 36 non-involved dwellings. Within the 5 to 8 km buffer zone there are 123 non-involved dwellings. The turbine layout, dwelling locations and relevant buffers are shown on **Figure 2.2** and **Figure 2.2A**. The visual magnitude assessment indicates that 67 of the proposed turbines are located within 3.4km of a dwelling (below the black line). Proposed turbines WTG-015, WTG-20 and WTG-024 are located 3.7 km from a dwelling (below the blue line).

Figure 2.2 also illustrates the Visual Zone of Influence Analysis, which indicates areas within the landscape from which the turbines will not be visible. However, it should be noted this analysis is preliminary only generated from topography mapping and does not take into consideration other factors that would restrict views such as orientation, vegetation, distance, perspective etc.

It should be noted that the Visual Bulletin also states that the preliminary assessment tools are not determinative and are not designed to provide a 'yes' or 'no' answer as to whether particular turbines are or are not acceptable. Rather providing early indication of where placement of turbines will require further detailed assessment and justification, and where consultation with potentially affected landowners needs to be focused which may include discussions for landholder agreements.

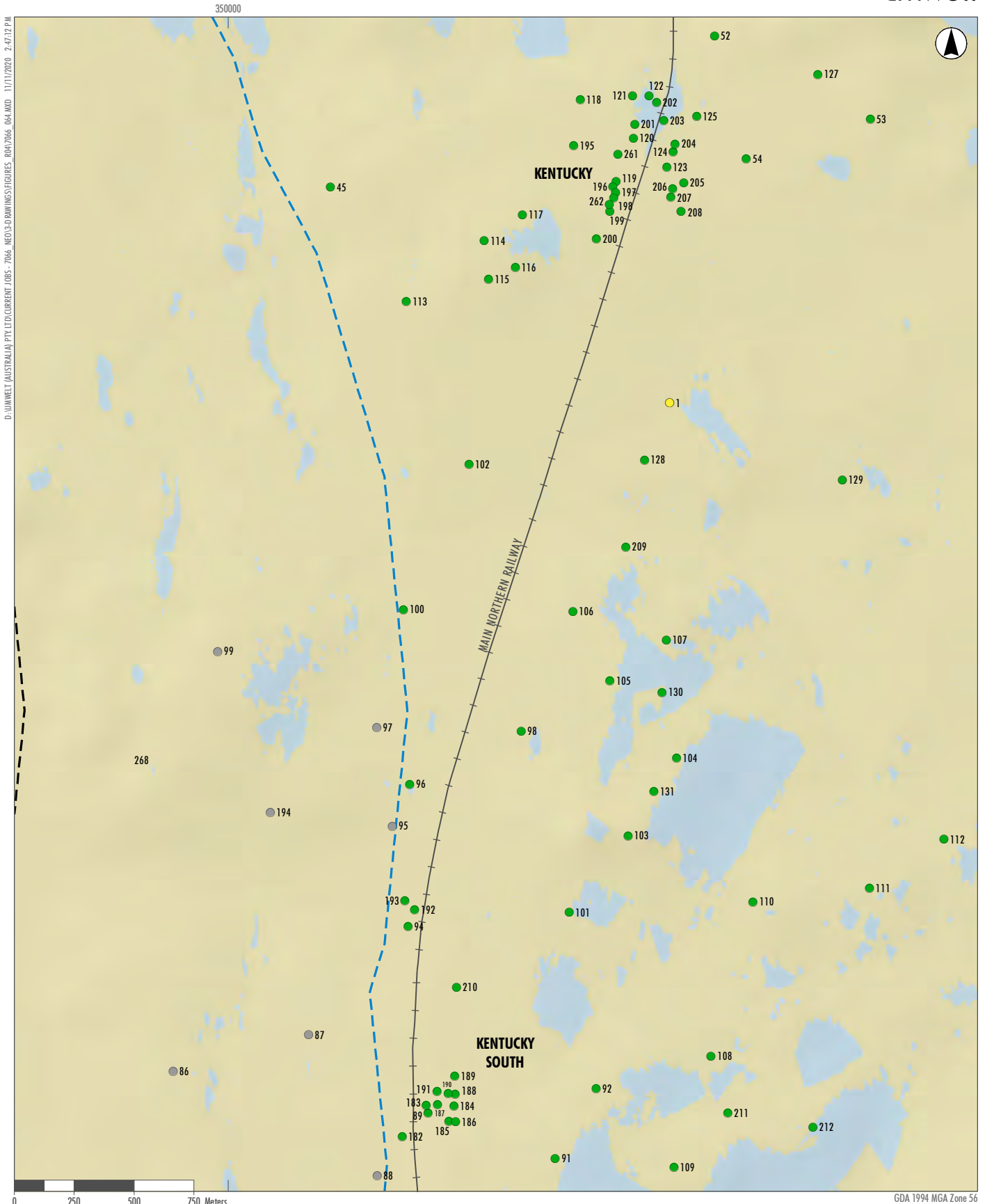


Legend

- | | | | |
|--|---|---|--|
| Project Area | ● Involved Dwelling | Zone 1 (3.4km) | Not Visible |
| Primary Access Road | ● Within 3.4km (below the black line) | Zone 2 (5km) | Visible |
| Electrical Easement Only | ● 3.4km to 5km (between black and blue line) | Zone 3 (8km) | |
| Preliminary Turbine Layout | ● 5km to 8km | | |
| Road | Greater than 8km | | |
| Railway | | | |

FIGURE 2.2

Visual Magnitude



- Legend**
- Road
 - +— Railway
 - Watercourse
- Dwelling Proximity**
- Involved Dwelling
 - 3.4km to 5km (between black and blue line)
 - 5km to 8km
- Visual Influence Zones**
- Zone 1 (3.4km)
 - Zone 2 (5km)
 - Zone 3 (8km)

- Bare Earth Viewshed Analysis (250m Turbines)
(Vegetation NOT Considered)**
- Not Visible
 - Visible

FIGURE 2.2A
Visual Magnitude

2.3 Multiple Wind Turbines Assessment

The Visual Bulletin outlines the requirements for the multiple wind turbine assessment which provides a *preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint.*

The multiple wind turbine analysis has been undertaken for each dwelling within the viewshed and the results illustrated on **Figure 2.3** and **Figure 2.3A**. This gives an indication of the number of turbines visible across the landscape, note this is based on topography alone and does not take into consideration other factors such as orientation, vegetation, distance, perspective etc, which would restrict views of the turbines. This may result in the turbines being either completely screened from view or only partially visible (i.e. only the tip of the turbine may be visible). This screening assessment does not differentiate the extent of a turbine that may be visible, with any views of any part of the turbines no matter how small resulting in the turbine being identified as visible. The detailed visual assessment will determine the extent of visibility from different locations and the level of visual impact.

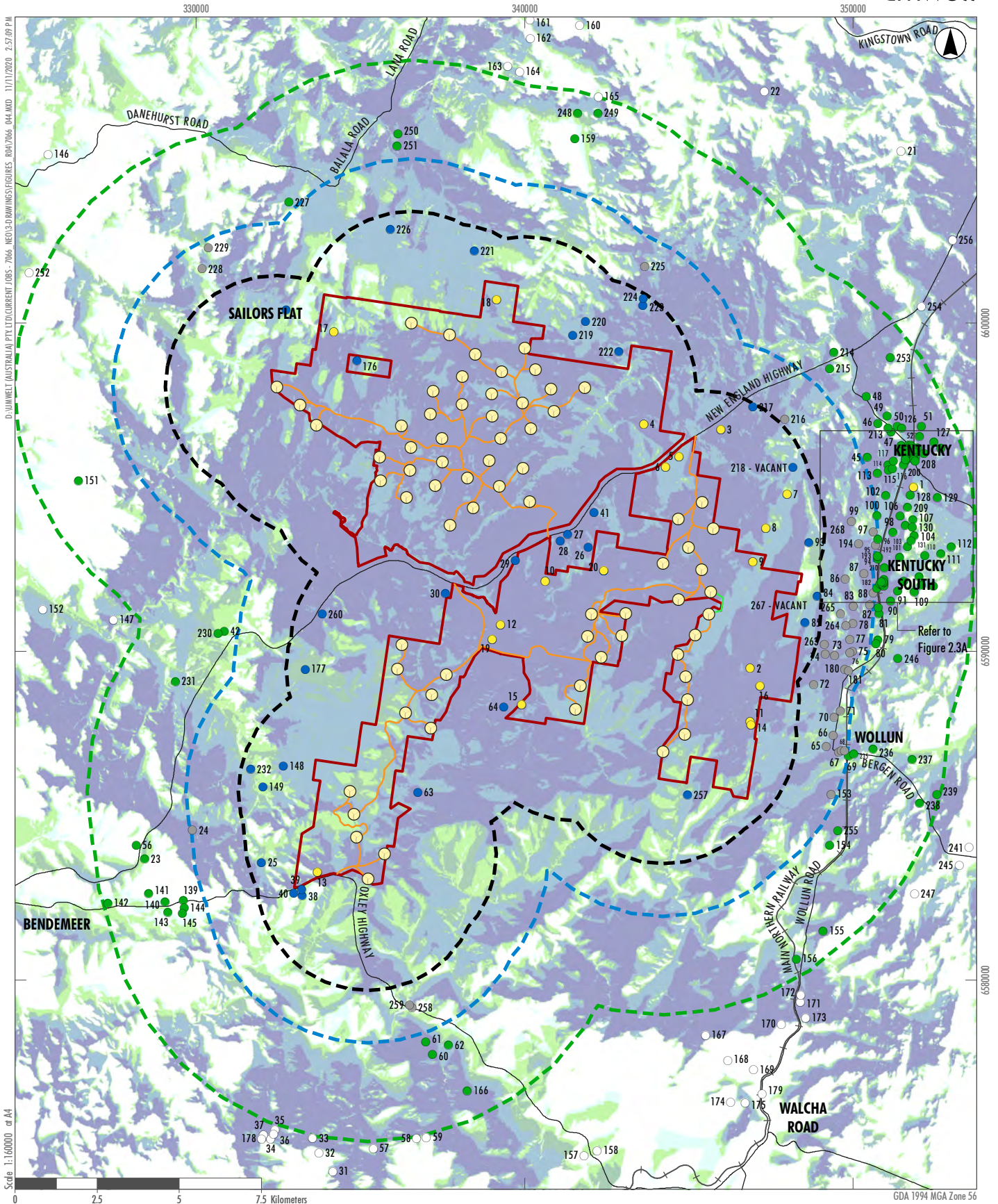
In relation to mapping the proposed turbines into six sectors of 60°, for the purposes of this preliminary report eight representative viewpoints have been identified, refer to **Figure 2.4** and **Figure 2.4A**. The representative viewpoints include:

- Viewpoint 1 – from New England Highway travelling southwest towards the Project Area
- Viewpoint 2 – From residential area of Kentucky
- Viewpoint 3 – From residential area of Kentucky South
- Viewpoint 4 – From the residential area of Wollun
- Viewpoint 5 – From the south of the Project Area on the Oxley Highway
- Viewpoint 6 – From dwellings north of Bendemeer, southwest of the Project Area
- Viewpoint 7 – From dwellings on New England Highway in centre of Project Area
- Viewpoint 8 – From dwellings on New England Highway in centre of Project Area.

The sector mapping for each viewpoint is shown on **Figure 2.5** to **Figure 2.12**.

It is noted that there are 33 non-involved dwellings within the 3.4km buffer of the turbines and these dwellings will likely have views of multiple turbines in 1 to 3 sectors and will require further detailed analysis during the EIS phase. Based on the analysis, the dwellings directly east of the Project Area in Kentucky South (Viewpoint 3 - **Figure 2.7**) will potentially have views of multiple turbines in two sectors, the remainder of the dwellings located around the Project Area will have views within 1-2 sectors.

There are also six non-involved dwellings located in the centre of the Project Area (on the New England Highway) which could potentially have views of multiple turbines within 3-6 sectors (refer to **Figure 2.11** and **Figure 2.12**). These two viewpoints represent an area of potentially high visual impact, although it should be noted again that this is based on topography only, the visual impact in relation to these dwellings will require detailed assessment as part of the EIS phase of the Project.



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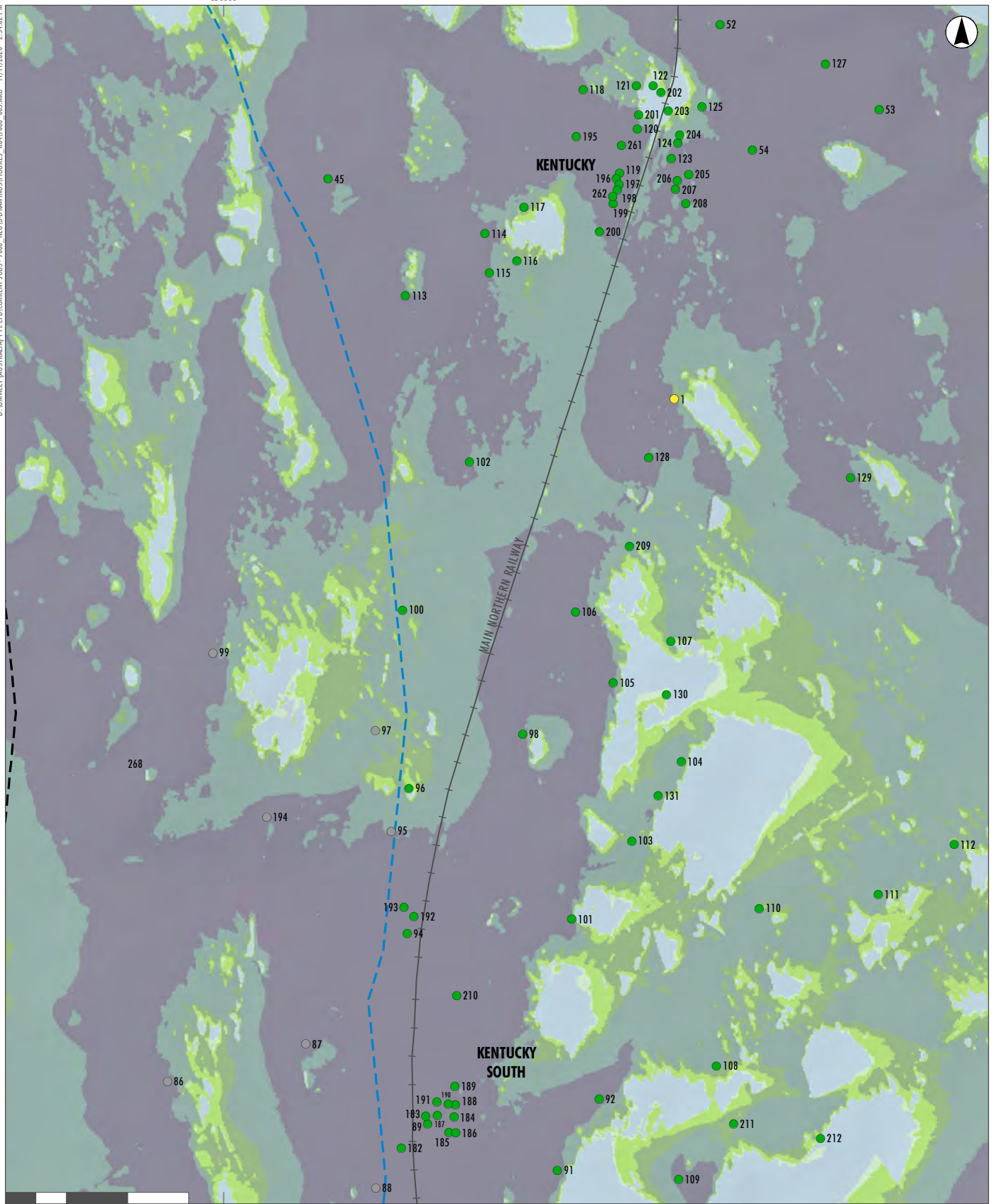
Legend

- | | | | |
|---|--|---|--|
| <ul style="list-style-type: none"> Project Area Primary Access Road Electrical Easement Only Preliminary Turbine Layout Watercourse Road Railway | <p>Dwelling Proximity</p> <ul style="list-style-type: none"> Involved Dwelling Within 3.4km (below the black line) 3.4km to 5km (between black and blue line) 5km to 8km Greater than 8km | <p>Visual Influence Zones</p> <ul style="list-style-type: none"> Zone 1 (3.4km) Zone 2 (5km) Zone 3 (8km) | <p>Number of Potentially Visible Turbines
(Vegetation not Considered)</p> <ul style="list-style-type: none"> 1 1 - 5 5 - 10 10 - 30 30 - 70 |
|---|--|---|--|

FIGURE 2.3

Multiple Wind Turbine Analysis

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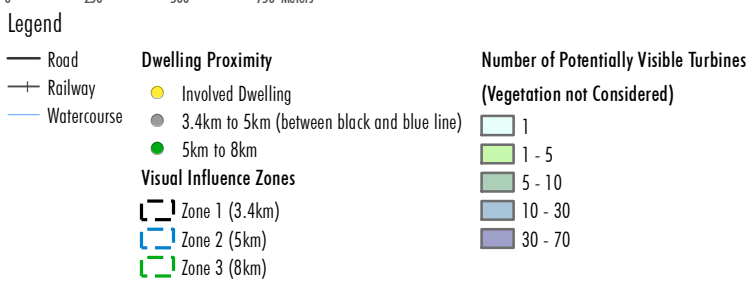
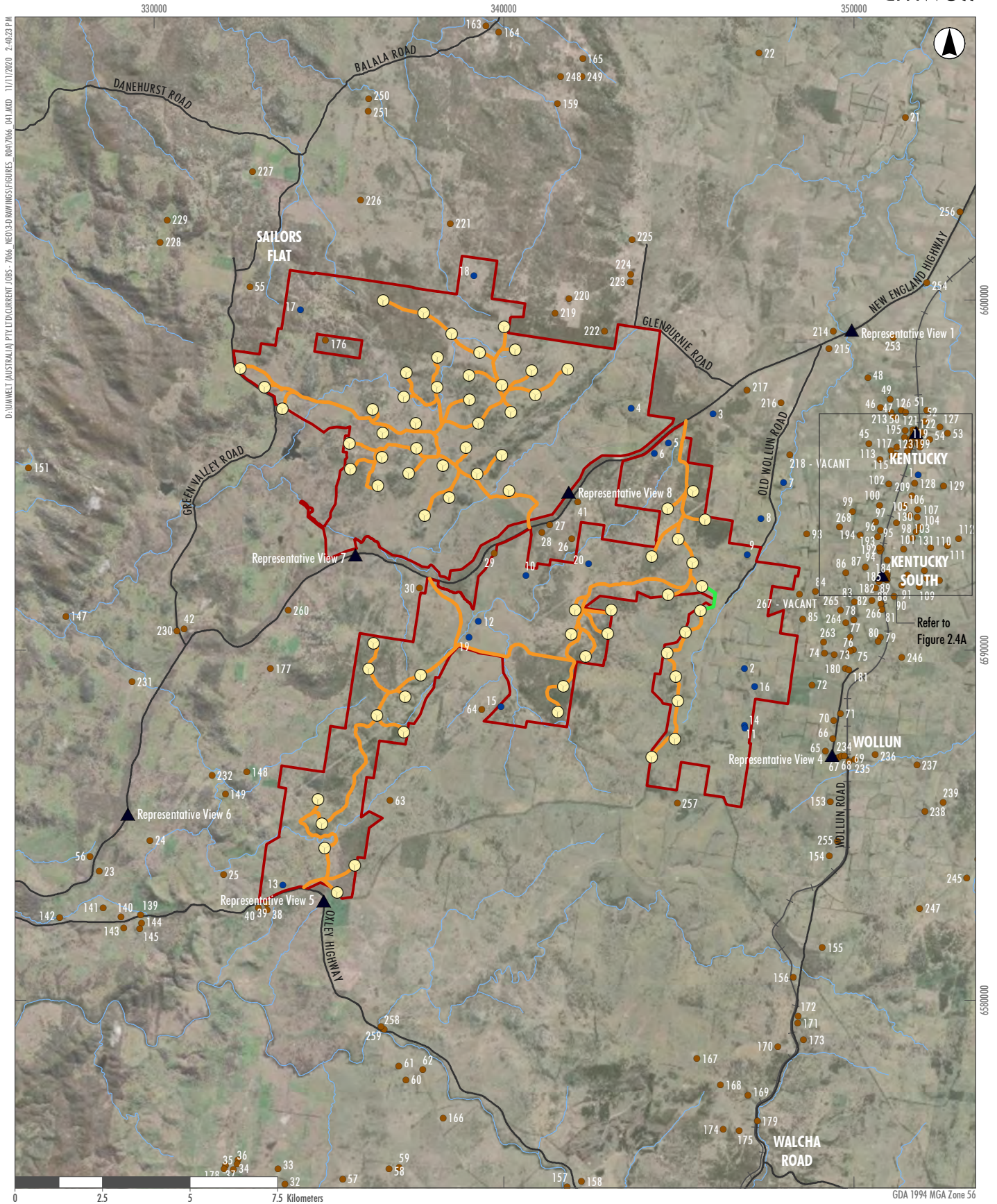


FIGURE 2.3A
Multiple Wind Turbine Analysis



- Legend**
- Project Area
 - Primary Access Road
 - Electrical Easement Only
 - Preliminary Turbine Layout
 - ▲ Representative View
 - Involved Landholder
 - Non-involved Landholder
 - Road
 - Railway
 - Watercourse

FIGURE 2.4

**Representative Viewpoints
for Multiple Wind Turbine Analysis**

350000

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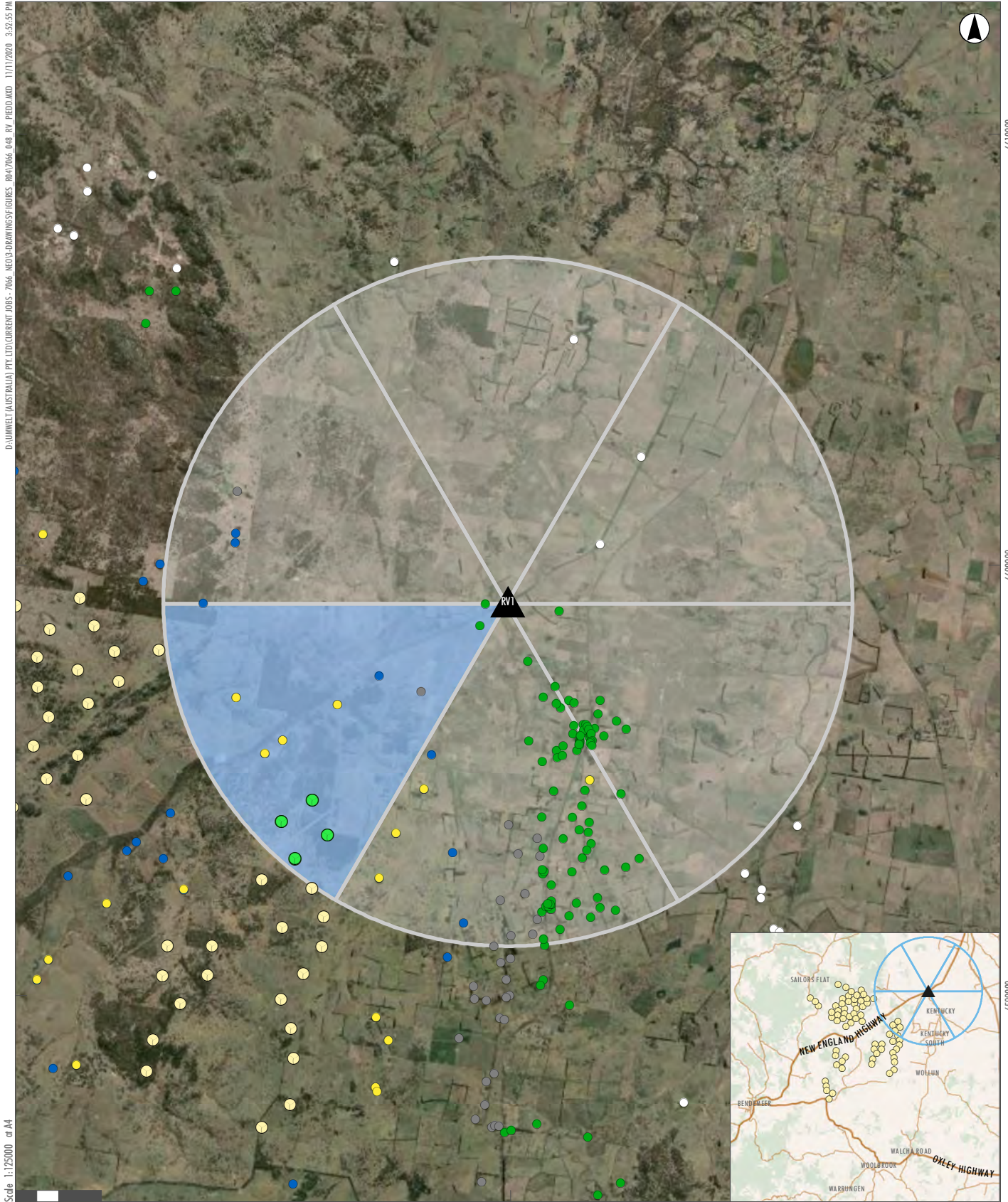


Legend

- ▲ Representative View
- Involved Landholder
- Non-involved Landholder
- Road
- +— Railway
- Watercourse

FIGURE 2.4A

**Representative Viewpoints
for Multiple Wind Turbine Analysis**



Scale 1:125000 or A4

GDA 1994 MGA Zone 56

Legend

▲ Representative View Location

Proposed Turbines Visibility

- WTG is Potentially Visible (within 8km)
- WTG is Not Visible (within 8km)
- Proposed Turbines (beyond 8km)

Dwelling Proximity to Proposed WTGs

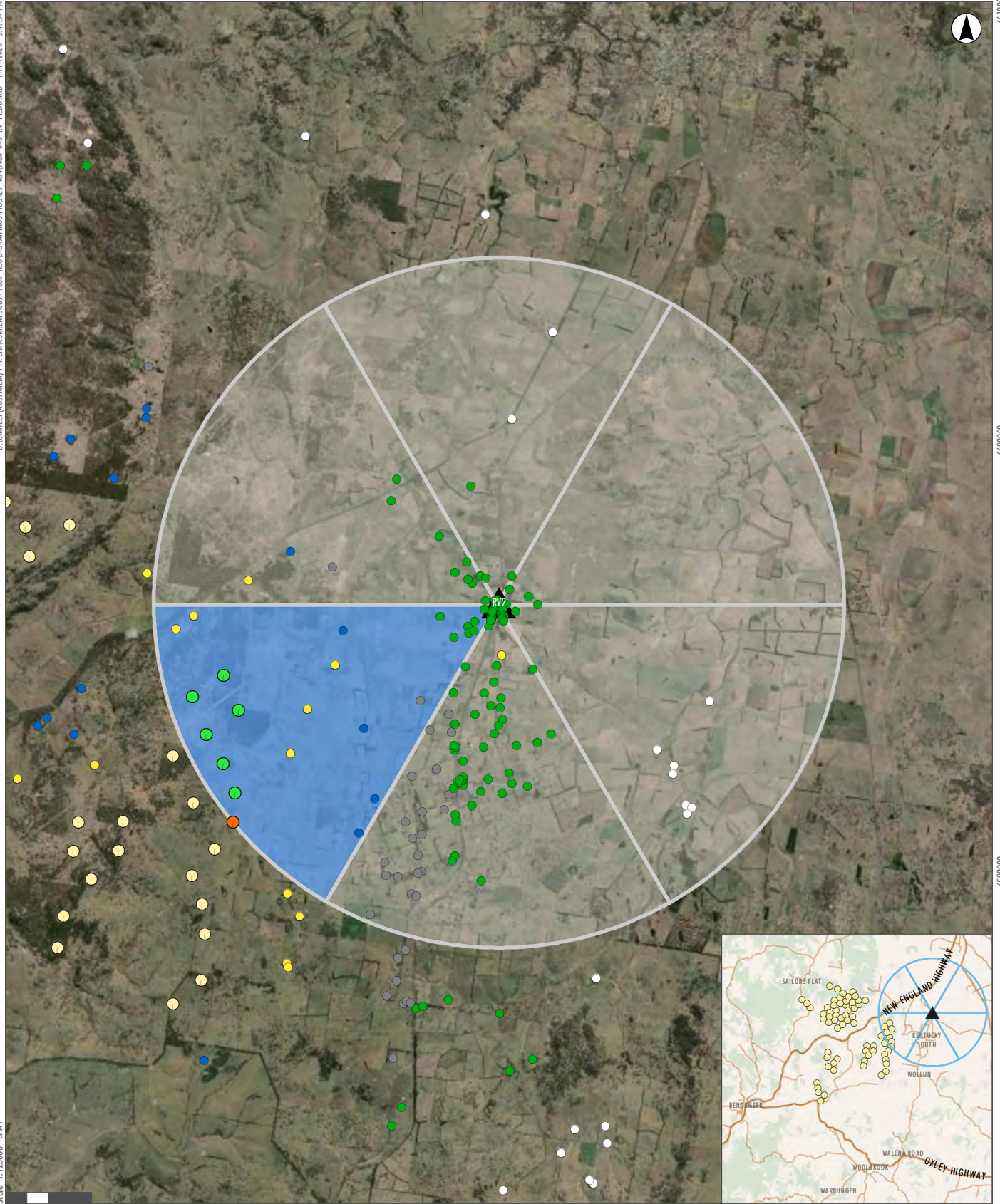
- Within 3.4km
- 3.4km to 5km
- 5km to 8km
- Greater than 8km
- Involved Dwelling

8km Multiple Turbine Visibility Analysis (Visible Turbine Count)

- 0
- 1 - 3
- 4 - 5
- 6 - 10
- 11 - 28

FIGURE 2.5

Representative View 1



Legend

- ▲ Representative View Location
- Proposed Turbines Visibility**
 - WTG is Potentially Visible (within 8km)
 - WTG is Not Visible (within 8km)
 - Proposed Turbines (beyond 8km)
- Dwelling Proximity to Proposed WTGs**
 - Within 3.4km
 - 3.4km to 5km
 - 5km to 8km
 - Greater than 8km
 - Involved Dwelling
- 8km Multiple Turbine Visibility Analysis (Visible Turbine Count)**
 - 0
 - 1 - 3
 - 4 - 5
 - 6 - 10
 - 11 - 28

FIGURE 2.6

Representative View 2

340000

350000

360000

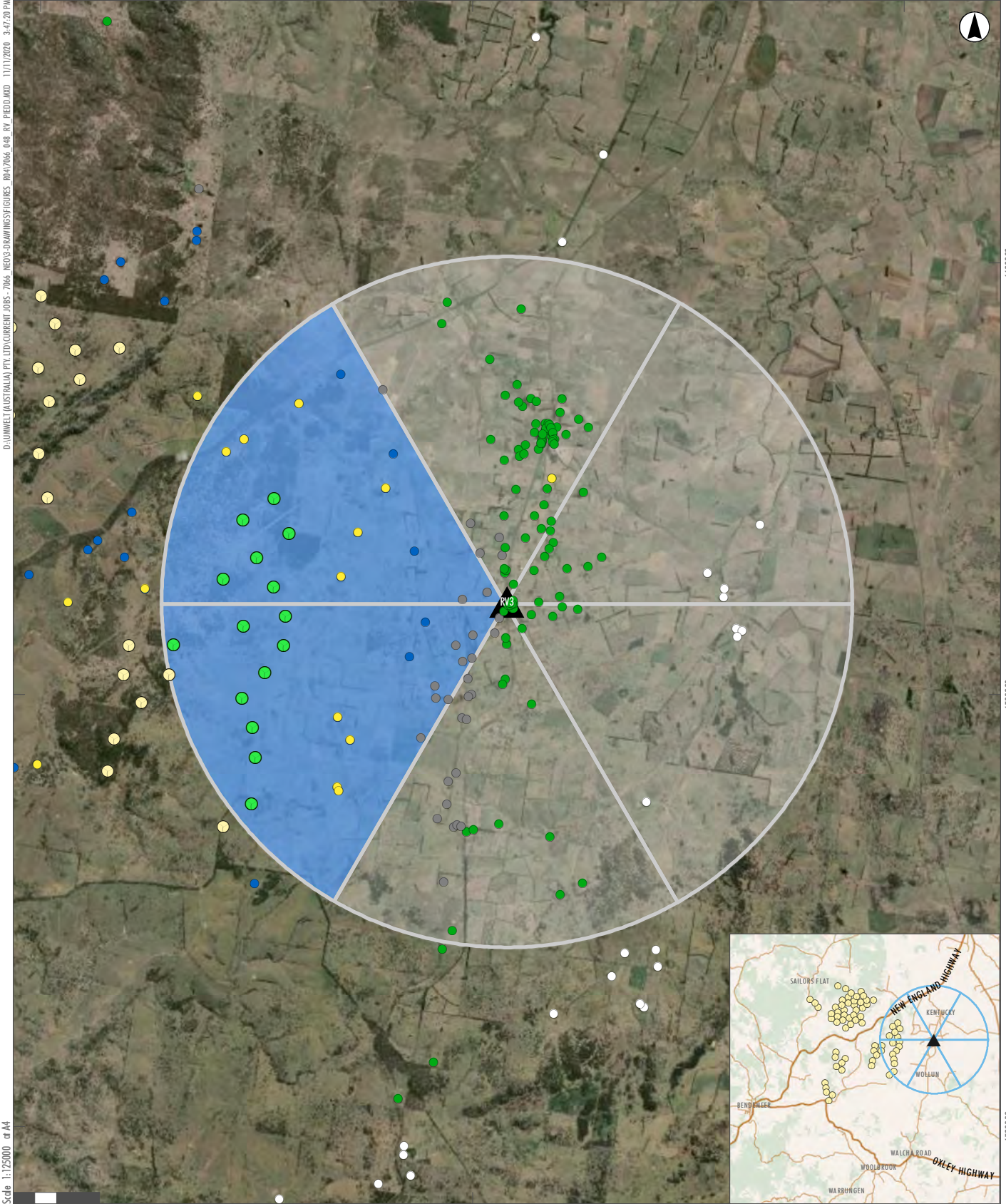
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6600000

6590000

6580000



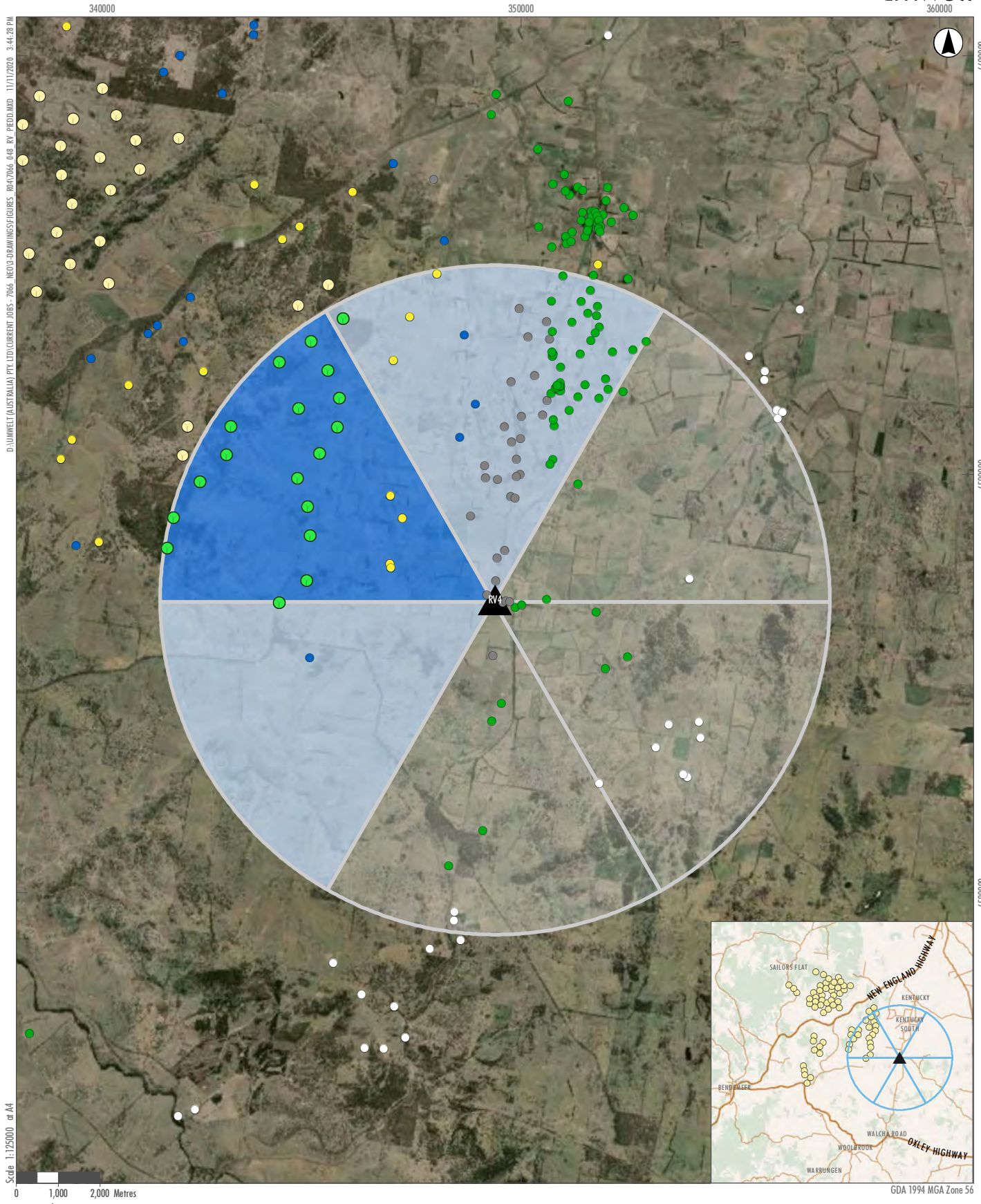
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Legend

- ▲ Representative View Location
- Proposed Turbines Visibility**
 - WTG is Potentially Visible (within 8km)
 - WTG is Not Visible (within 8km)
 - Proposed Turbines (beyond 8km)
- Dwelling Proximity to Proposed WTGs**
 - Within 3.4km
 - 3.4km to 5km
 - 5km to 8km
 - Greater than 8km
 - Involved Dwelling
- 8km Multiple Turbine Visibility Analysis (Visible Turbine Count)**
 - 0
 - 1 - 3
 - 4 - 5
 - 6 - 10
 - 11 - 28

FIGURE 2.7

Representative View 3



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Legend

- | | | |
|---|--|---|
| ▲ Representative View Location | Dwelling Proximity to Proposed WTGs | 8km Multiple Turbine Visibility Analysis (Visible Turbine Count) |
| Proposed Turbines Visibility | ● Within 3.4km | 0 |
| ● WTG is Potentially Visible (within 8km) | ● 3.4km to 5km | 1 - 3 |
| ● WTG is Not Visible (within 8km) | ● 5km to 8km | 4 - 5 |
| ● Proposed Turbines (beyond 8km) | ○ Greater than 8km | 6 - 10 |
| | ● Involved Dwelling | 11 - 28 |

FIGURE 2.8

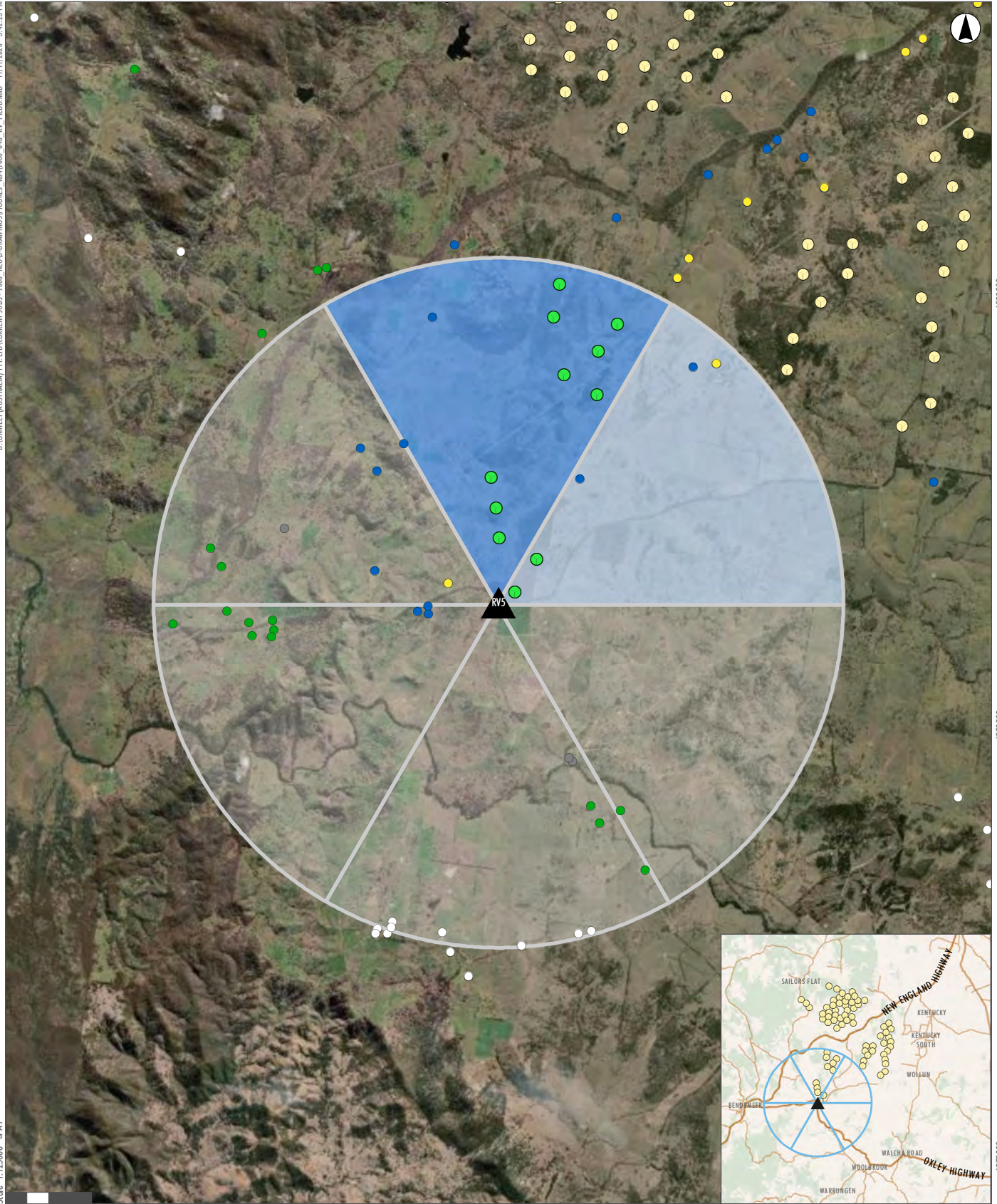
Representative View 4

330000

340000

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Scale 1:125000 at A4



Legend

- ▲ Representative View Location
- Proposed Turbines Visibility**
 - WTG is Potentially Visible (within 8km)
 - WTG is Not Visible (within 8km)
 - Proposed Turbines (beyond 8km)
- Dwelling Proximity to Proposed WTGs**
 - Within 3.4km
 - 3.4km to 5km
 - 5km to 8km
 - Greater than 8km
 - Involved Dwelling
- 8km Multiple Turbine Visibility Analysis (Visible Turbine Count)**
 - 0
 - 1 - 3
 - 4 - 5
 - 6 - 10
 - 11 - 28

FIGURE 2.9

Representative View 5

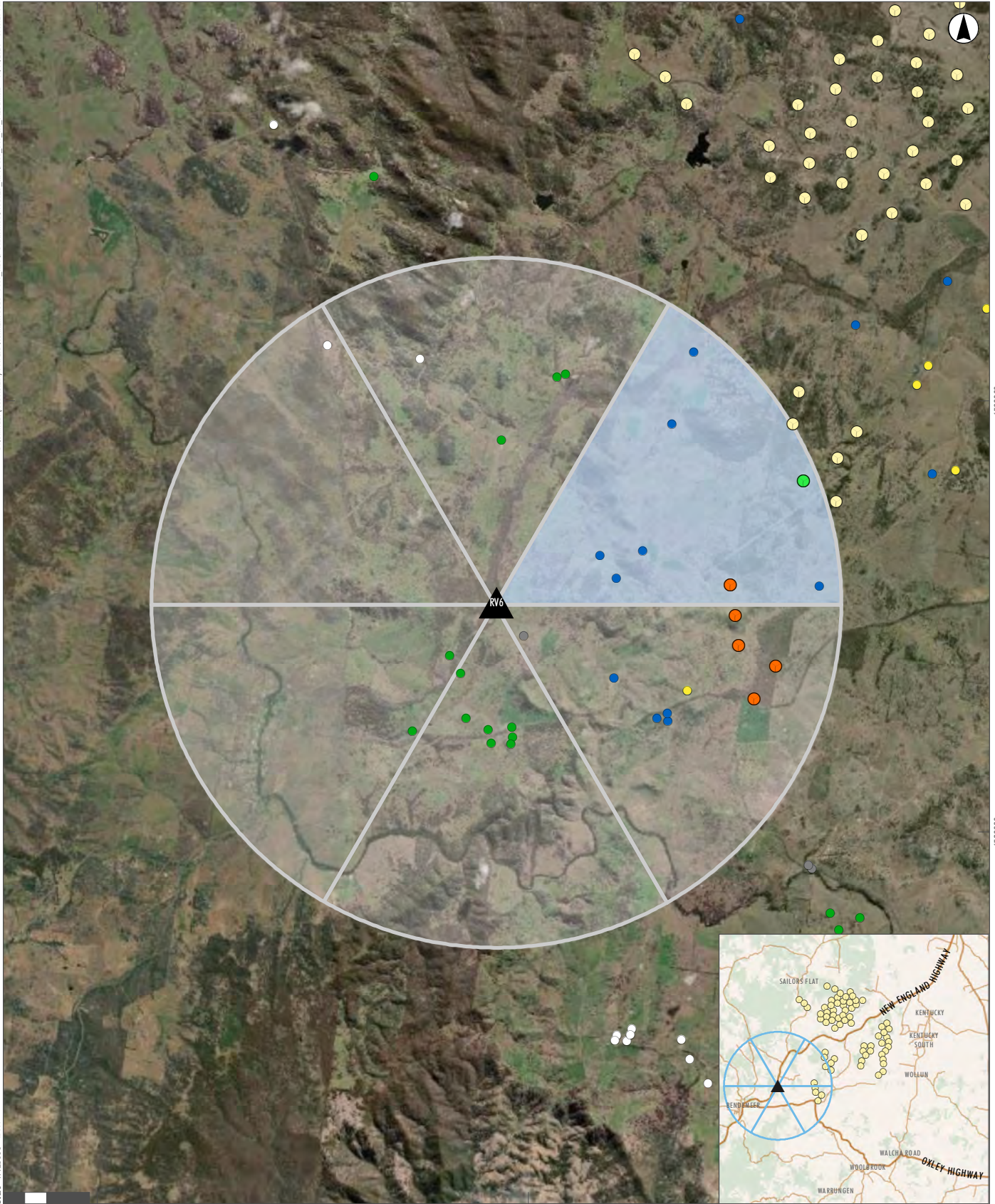
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330000

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Scale 1:125000 at A4



6590000

6580000

0 1,000 2,000 Metres

GDA 1994 MGA Zone 56

Legend

▲ Representative View Location

Proposed Turbines Visibility

- WTG is Potentially Visible (within 8km)
- WTG is Not Visible (within 8km)
- Proposed Turbines (beyond 8km)

Dwelling Proximity to Proposed WTGs

- Within 3.4km
- 3.4km to 5km
- 5km to 8km
- Greater than 8km
- Involved Dwelling

8km Multiple Turbine Visibility Analysis (Visible Turbine Count)

- 0
- 1 - 3
- 4 - 5
- 6 - 10
- 11 - 28

FIGURE 2.10

Representative View 6

330000

340000

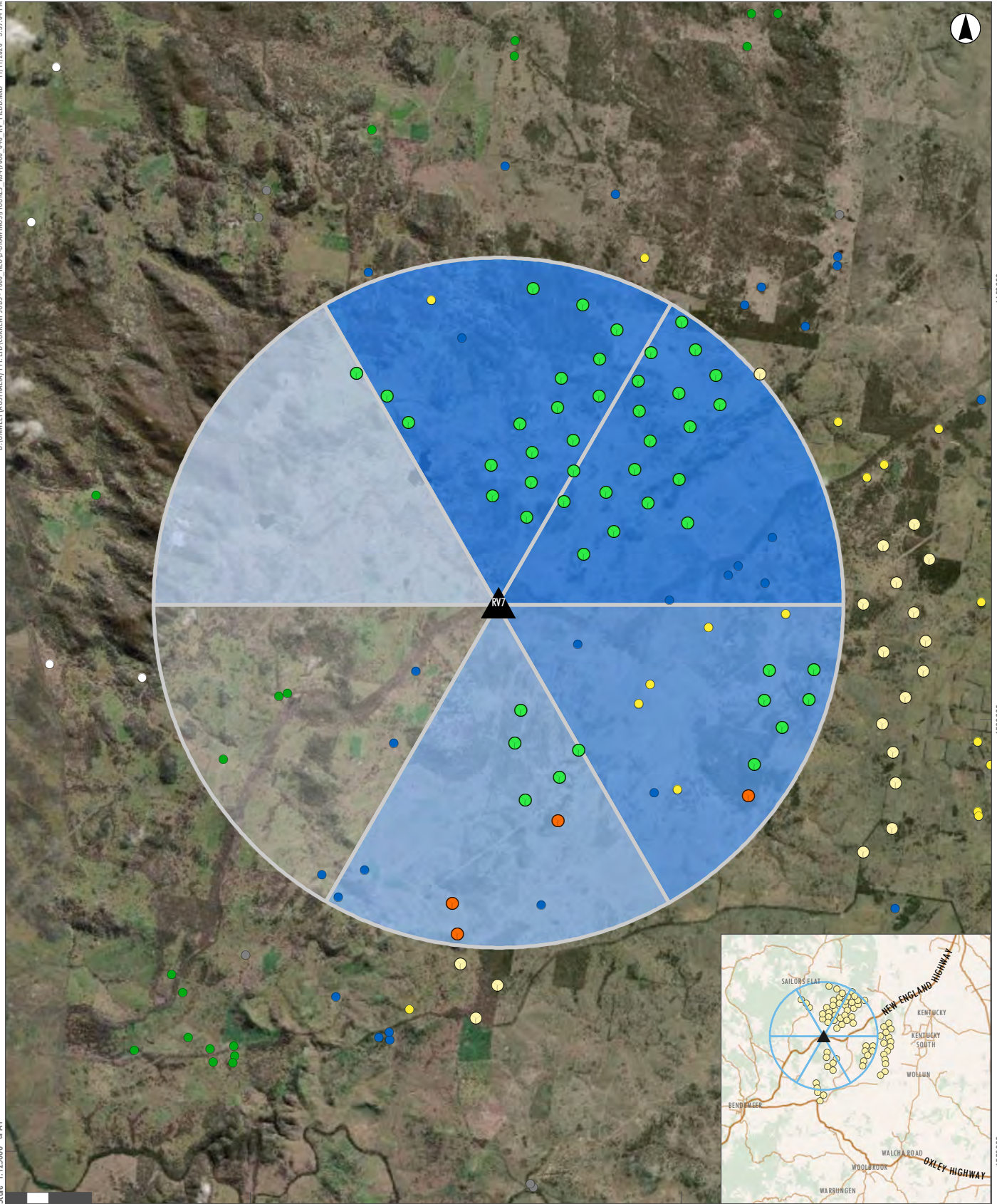
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Scale 1:125000 or A4

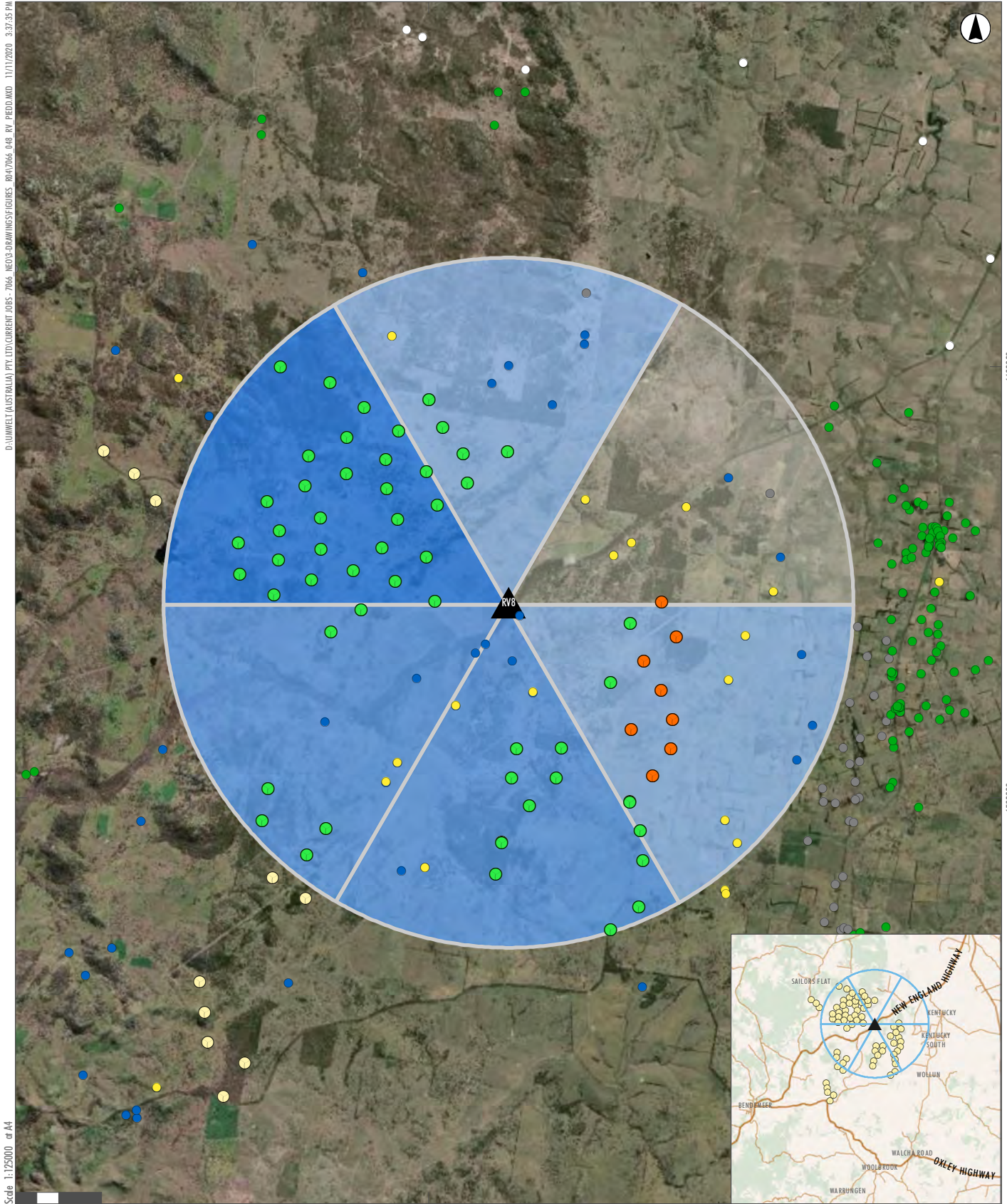


Legend

- | | | |
|---|--|---|
| ▲ Representative View Location | Dwelling Proximity to Proposed WTGs | 8km Multiple Turbine Visibility Analysis (Visible Turbine Count) |
| Proposed Turbines Visibility | ● Within 3.4km | 0 |
| ● WTG is Potentially Visible (within 8km) | ● 3.4km to 5km | 1 - 3 |
| ● WTG is Not Visible (within 8km) | ● 5km to 8km | 4 - 5 |
| ● Proposed Turbines (beyond 8km) | ○ Greater than 8km | 6 - 10 |
| | ● Involved Dwelling | 11 - 28 |

FIGURE 2.11

Representative View 7



Scale 1:125000 at A4

0 1,000 2,000 Metres

GDA 1994 MGA Zone 56

Legend

- ▲ Representative View Location
- Proposed Turbines Visibility**
- WTG is Potentially Visible (within 8km)
- WTG is Not Visible (within 8km)
- Proposed Turbines (beyond 8km)
- Dwelling Proximity to Proposed WTGs**
- Within 3.4km
- 3.4km to 5km
- 5km to 8km
- Greater than 8km
- Involved Dwelling
- 8km Multiple Turbine Visibility Analysis (Visible Turbine Count)**
- 0
- 1 - 3
- 4 - 5
- 6 - 10
- 11 - 28

FIGURE 2.12

Representative View 8

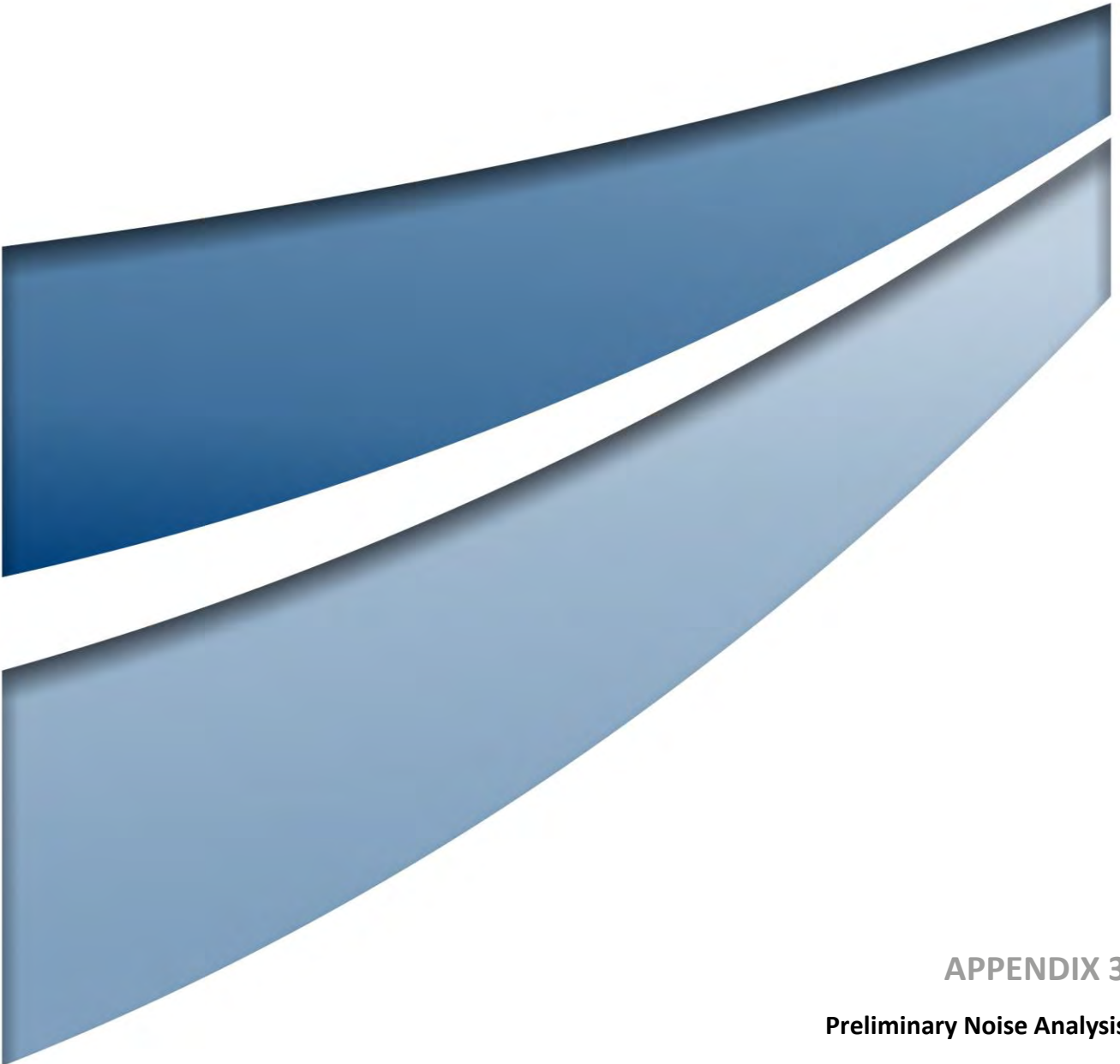
3.0 Conclusion

This Preliminary Visual Impact Analysis for the Project has been prepared to indicate the level of potential visual impacts associated with the Project and to inform the required scope of work for the detailed visual assessment to be undertaken as part of the EIS. The preliminary assessment tools used in this preliminary assessment are not determinative and are not designed to provide a 'yes' or 'no' answer as to whether particular turbines are or are not acceptable. Rather, the preliminary assessment provides an early indication of where placement of turbines will require further detailed assessment and justification, and where consultation with potentially affected landowners needs to be focused which may include discussions for landholder agreements.

The preliminary assessment has found that a turbines will be visible from a number of residences and other public viewing locations such as roads, and that further detailed assessment will be required to both inform the final Project layout and as part of the EIS.

Neoen has also commenced consultation with local residents and the broader community regarding the Project and has gathered information about stakeholder views on the visual landscape, potential visual impacts and views on the Project more generally. This stakeholder feedback will be considered by Neoen in finalising the Project design and in the completion of the detailed visual assessment. Neoen will continue to consult with stakeholders as the Project progresses.





APPENDIX 3
Preliminary Noise Analysis

Thunderbolt Energy Hub

Scoping Assessment

S6576C4

October 2020

sonus.

Document Title : Thunderbolt Energy Hub - Windfarm – Scoping Assessment
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GLOSSARY

A-weighting	Frequency adjustment applied to measured noise levels to replicate the frequency response of the human ear.
Ambient noise level	The noise level of the existing noise sources in the environment (in the absence of the wind farm).
Background noise level	The ambient noise level which excludes intermittent noise sources.
Bulletin	<i>Wind Energy: Noise Assessment Bulletin - For State significant wind energy development (NSW Department of Planning and Environment, December 2016)</i>
CONCAWE	<i>The oil companies' international study group for conservation of clean air and water - Europe, The propagation of noise from petrochemical complexes to neighbouring communities (May 1981).</i>
dB(A)	A-weighted noise or sound power level in decibels.
EIS	Environmental Impact Statement
Equivalent noise level	Energy averaged noise level over a prescribed period of time
Involved Dwelling	A Dwelling with a commercial agreement with the wind farm.
Non-involved Dwelling	Not an Involved Dwelling
SEARs	Secretary's Environmental Assessment Requirements
Sound power level	A measure of the sound energy emitted from a source of noise.
The Project	Thunderbolt Energy Hub (windfarm component only)
Weather category 6	Weather category which is most conducive for the propagation of noise, resulting in highest predicted noise levels when using CONCAWE.
Worst-case	Conditions resulting in the highest noise level at dwellings.
WTG	Wind turbine generator comprising a three bladed, upstream facing, horizontal axis turbine mounted on steel towers with a common set of generic design components comprising a foundation, tower, nacelle, hub and blades

1 INTRODUCTION

A Scoping (Noise Impact) Assessment has been made in accordance with the New South Wales Planning and Environment *Wind Energy: Noise Assessment Bulletin (the Bulletin)* for the Thunderbolt Energy Hub (Windfarm component only) (the **Project**).

The Project is located approximately 40 kilometres (km) north east of Tamworth adjacent to the New England Highway and includes the construction, operation, and maintenance of approximately 70 turbines and associated infrastructure including a solar farm and a battery.

The Scoping Assessment relates to the windfarm component only and has been prepared to assist in applying for the Secretary's Environmental Assessment Requirements (**SEARs**) and to guide the preparation of the Environmental Impact Statement (**EIS**) for the Project.

2 SCOPING NOISE IMPACT ASSESSMENT

The Scoping (noise impact) Assessment is based on the following:

- Wind turbine generator (**WTG**) locations as summarised in Appendix A. The locations represent a scoping layout only and is expected to evolve through the EIS process;
- Dwelling locations (subject to ground-truthing) are summarised in Appendix B. Appendix B also includes the status of the dwelling with respect to the project, the nearest WTG, the distance to the nearest WTG, and preliminary predicted noise level;
- Local topographical contours;
- An indicative WTG with a maximum sound power level of 104 dB(A) and a hub height of 165m that is representative of the type, generation capacity and size for this type of project; and,
- The WTG being free of any excessive levels of tonality or any other special noise characteristics at the dwellings.

2.1 Methodology

Predictions have been made using the CONCAWE noise propagation model and SoundPLAN noise modelling software. The model considers the following:

- sound power levels and preliminary locations of WTGs;
- separation distances between WTGs and dwellings;
- topography of the area;
- influence of the ground;
- air absorption; and,
- meteorological conditions.

The CONCAWE system divides meteorological conditions into six separate “weather categories”, depending on wind speed, wind direction, time of day and level of cloud cover. Weather Category 6 provides “worst-case” (i.e. highest noise level) conditions which are conducive to the propagation of WTG noise.

The preliminary assessment has been based on the following noise model input conditions:

- weather category 6 (representing a temperature inversion and wind conditions that assist with the propagation of noise);
- atmospheric conditions at 10°C and 80% relative humidity (representing conditions that result in low levels of noise absorption from the atmosphere);
- wind direction from all WTGs to the particular dwelling under consideration, even in circumstances where WTGs are located in opposite directions from the dwelling;
- acoustically soft ground (representing the pastoral nature of the land and in accordance with CONCAWE requirements); and,
- maximum barrier attenuation from topography of 2 dB(A) (representing a conservative assessment of any shielding provided by topography).

2.2 Criteria

The Bulletin provides a baseline noise criterion of 35 dB(A) at non-involved dwellings. The Bulletin enables the baseline criterion to be increased / relaxed for involved dwellings and at dwellings with high background noise levels. That is, the background noise level monitoring conducted as part of the EIS process may result in an increase in the noise assessment criteria above that of the 35 dB(A) baseline noise criterion.

2.3 Results

The 35 dB(A) noise contour and the dwelling locations are shown in Figure 1 for the scenario of every WTG in the Scoping layout concurrently producing a maximum sound power level of 104 dB(A).

The baseline criterion of 35 dB(A) is achieved at all non-involved dwellings with the exception of “Dwelling 219”, located to the north of the site, which has a predicted noise level of 36 dB(A).

The Project will be refined during the preparation of the EIS to ensure compliance at all dwellings when compared against the noise criteria determined from the background noise monitoring. Where the noise is required to be reduced at any dwelling, modifications to the WTG layout or the development of a curtailment strategy are options that could be used to ensure compliance at all involved and non-involved dwellings.

3 EIS ASSESSMENT

A detailed acoustic assessment will be prepared for inclusion in the EIS addressing the following components:

- WTG noise in accordance with the Bulletin;
- Ancillary noise in accordance with the *NSW Noise Policy for Industry, 2017*;
- Construction noise in accordance with the *Interim Construction Noise Guideline, 2009*;
- Traffic noise in accordance with the *NSW Road Noise Policy, 2011*; and
- Vibration in accordance with *Assessing Vibration: A Technical Guideline, 2006*.

The EIS will incorporate the following information:

1. Background noise monitoring results;
2. Establishment of criteria in accordance with the background noise monitoring results;
3. Predictions which account for the sound power levels and locations of WTGs and ancillary infrastructure;
4. A construction noise assessment and framework for a management plan;
5. A traffic noise assessment and input to a management plan where required;
6. Commentary on vibration impacts; and,
7. Noise reduction measures (such as modifying the WTG layout and/or applying a curtailment strategy) where the relevant operational (or construction) assessment criteria cannot be achieved.

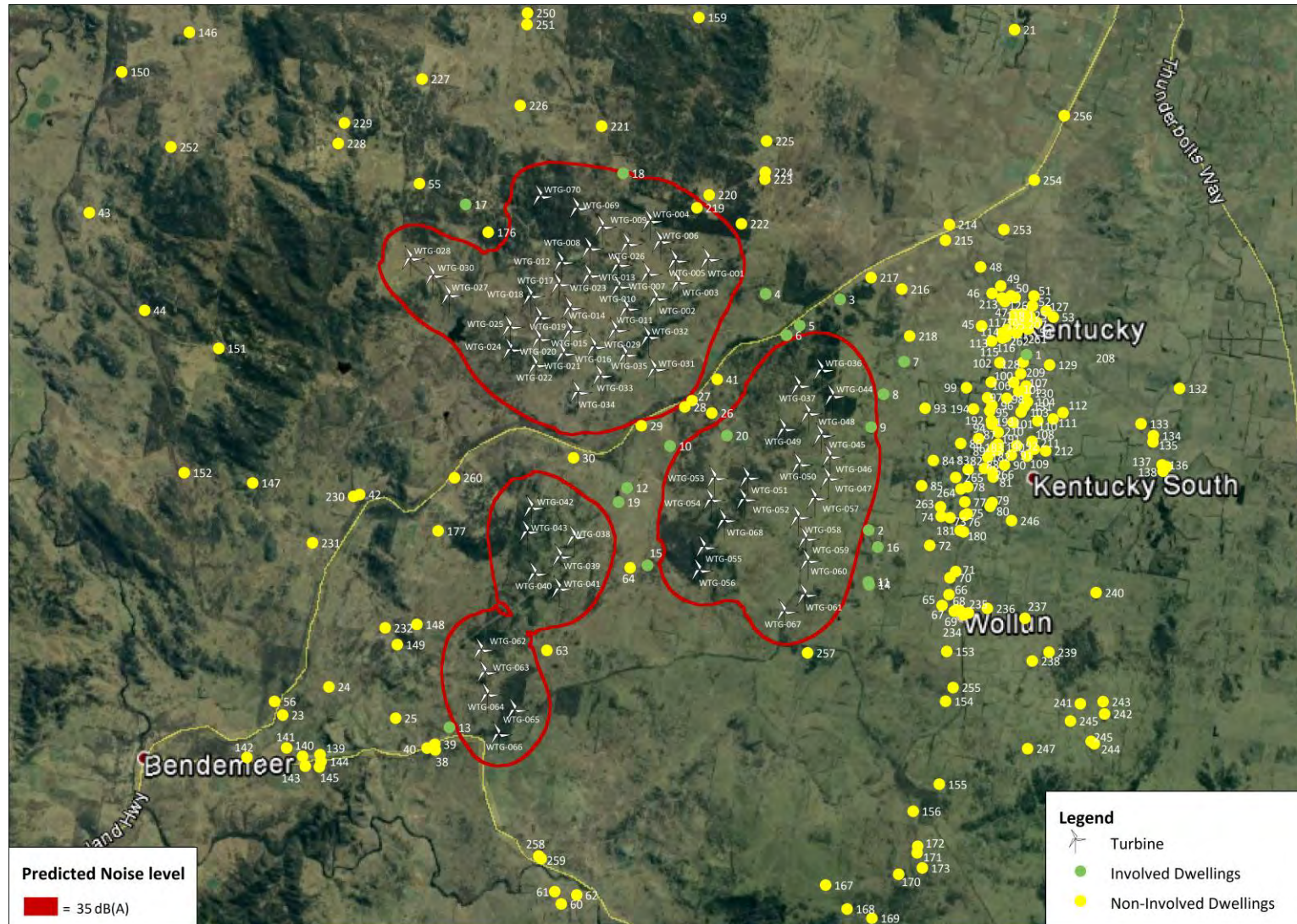


Figure 1: 35 dB(A) Noise contour with WTGs and nearby dwellings

APPENDIX A:

WTG ID	WTG Coordinates (UTM WGS84 55H)	
	Easting	Northing
WTG-001	341827	6598026
WTG-002	340196	6596793
WTG-003	340897	6597300
WTG-004	340004	6599227
WTG-005	340801	6597982
WTG-006	340330	6598582
WTG-007	339944	6597567
WTG-008	338102	6598364
WTG-009	338506	6599047
WTG-010	339020	6597164
WTG-011	339273	6596471
WTG-012	337219	6597930
WTG-013	339003	6597848
WTG-014	337487	6596486
WTG-015	337503	6595771
WTG-016	338253	6595271
WTG-017	337134	6597237
WTG-018	336248	6596871
WTG-019	336542	6596200
WTG-020	336516	6595513
WTG-021	337282	6595056
WTG-022	336408	6594695
WTG-023	338095	6597514
WTG-024	335614	6595188
WTG-025	335589	6595903
WTG-026	339304	6598507
WTG-027	333671	6596894
WTG-028	332461	6598046
WTG-029	338917	6595795
WTG-030	333170	6597511
WTG-031	340149	6594563
WTG-032	339945	6595577
WTG-033	338432	6594362
WTG-034	337731	6593841
WTG-035	339229	6595025
WTG-036	345402	6594540

WTG ID	WTG Coordinates (UTM WGS84 55H)	
	Easting	Northing
WTG-037	344679	6594042
WTG-038	337615	6589295
WTG-039	337172	6588671
WTG-040	336378	6588135
WTG-041	337142	6587665
WTG-042	336270	6590211
WTG-043	336137	6589461
WTG-044	345748	6593722
WTG-045	345390	6592485
WTG-046	345663	6591816
WTG-047	345617	6591132
WTG-048	344991	6593176
WTG-049	344222	6592681
WTG-050	344694	6591578
WTG-051	343073	6591152
WTG-052	342964	6590472
WTG-053	342036	6591144
WTG-054	341921	6590454
WTG-055	341693	6588965
WTG-056	341551	6588238
WTG-057	345189	6590507
WTG-058	344663	6589910
WTG-059	344903	6589236
WTG-060	344967	6588537
WTG-061	344881	6587469
WTG-062	334685	6585741
WTG-063	334806	6585033
WTG-064	334879	6584336
WTG-065	335738	6583845
WTG-066	335232	6583080
WTG-067	344223	6586936
WTG-068	342332	6589818
WTG-069	337712	6599631
WTG-070	336555	6600000

APPENDIX B:

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
1	351844	6595007	Yes	WTG-044	6229	<20
2	346877	6589487	Yes	WTG-057	1972	34
3	345978	6596744	Yes	WTG-036	2278	29
4	343635	6596914	Yes	WTG-001	2123	31
5	344710	6595921	Yes	WTG-036	1544	33
6	344299	6595615	Yes	WTG-036	1540	34
7	347994	6594786	Yes	WTG-044	2485	28
8	347347	6593760	Yes	WTG-044	1599	34
9	346955	6592728	Yes	WTG-044	1564	36
10	340629	6592135	Yes	WTG-053	1720	34
11	346872	6587861	Yes	WTG-060	2021	32
12	339274	6590819	Yes	WTG-038	2253	32
13	333687	6583283	Yes	WTG-066	1557	34
14	346896	6587768	Yes	WTG-061	2038	32
15	339916	6588381	Yes	WTG-056	1640	34
16	347166	6588953	Yes	WTG-060	2238	32
17	334195	6599732	Yes	WTG-070	2375	31
18	339149	6600709	Yes	WTG-004	1711	35
19	339010	6590368	Yes	WTG-038	1760	33
20	342417	6592461	Yes	WTG-053	1371	37
21	351468	6605230	No	WTG-001	12035	<20
22	347299	6607047	No	WTG-001	10551	<20
23	328436	6583675	No	WTG-064	6477	<20
24	329894	6584558	No	WTG-063	4935	<20
25	331992	6583573	No	WTG-064	2986	26
26	341941	6593172	No	WTG-053	2030	34
27	341318	6593565	No	WTG-031	1537	35
28	341090	6593361	No	WTG-031	1527	35
29	339724	6592770	No	WTG-031	1842	34
30	337592	6591761	No	WTG-042	2037	33
31	334165	6574176	No	WTG-066	8967	<20
32	333743	6574737	No	WTG-066	8475	<20
33	333550	6575188	No	WTG-066	8069	<20
34	332278	6575160	No	WTG-066	8452	<20
35	332401	6575431	No	WTG-066	8156	<20
36	332373	6575309	No	WTG-066	8280	<20
37	332053	6575279	No	WTG-066	8423	<20
38	333237	6582574	No	WTG-066	2058	30
39	333223	6582754	No	WTG-066	2035	30
40	332982	6582633	No	WTG-066	2293	28
41	342111	6594228	No	WTG-031	1991	34
42	330861	6590610	No	WTG-043	5400	<20
43	322353	6599475	No	WTG-028	10208	<20
44	324095	6596401	No	WTG-028	8526	<20
45	350428	6595909	No	WTG-044	5165	<20
46	350760	6596933	No	WTG-036	5868	<20
47	351163	6596676	No	WTG-036	6144	<20
48	350402	6597768	No	WTG-036	5951	<20

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
49	351037	6597171	No	WTG-036	6219	<20
50	351357	6596859	No	WTG-036	6391	<20
51	352079	6596850	No	WTG-044	7061	<20
52	352033	6596541	No	WTG-044	6888	<20
53	352685	6596192	No	WTG-044	7363	<20
54	352166	6596026	No	WTG-044	6818	<20
55	332742	6600385	No	WTG-028	2356	28
56	328178	6584101	No	WTG-063	6694	<20
57	335396	6574882	No	WTG-066	8199	<20
58	336720	6575172	No	WTG-066	8047	<20
59	337017	6575218	No	WTG-066	8062	<20
60	337201	6577730	No	WTG-066	5701	<20
61	336999	6578118	No	WTG-066	5267	<20
62	337687	6578014	No	WTG-066	5629	<20
63	336750	6585708	No	WTG-041	1996	34
64	339373	6588304	No	WTG-038	2018	33
65	349185	6587121	No	WTG-061	4318	21
66	349404	6587462	No	WTG-061	4523	21
67	349567	6586936	No	WTG-061	4717	20
68	349641	6586986	No	WTG-061	4785	<20
69	349861	6586818	No	WTG-061	5023	<20
70	349435	6587993	No	WTG-060	4501	22
71	349615	6588184	No	WTG-060	4661	21
72	348802	6589005	No	WTG-047	3830	25
73	349441	6589881	No	WTG-047	4024	24
74	349159	6589919	No	WTG-047	3744	25
75	349982	6589998	No	WTG-047	4510	22
76	349901	6589958	No	WTG-047	4442	22
77	349900	6590372	No	WTG-047	4350	22
78	349995	6590851	No	WTG-047	4387	22
79	350764	6590358	No	WTG-047	5205	<20
80	350703	6590240	No	WTG-047	5164	<20
81	350794	6591161	No	WTG-046	5172	<20
82	350517	6591428	No	WTG-046	4869	21
83	350009	6591391	No	WTG-046	4366	22
84	348912	6591679	No	WTG-046	3252	27
85	348543	6590885	No	WTG-047	2936	28
86	349771	6592214	No	WTG-046	4127	23
87	350336	6592367	No	WTG-046	4705	21
88	350623	6591779	No	WTG-046	4960	20
89	350836	6592039	No	WTG-046	5178	<20
90	351151	6591535	No	WTG-046	5495	<20
91	351367	6591850	No	WTG-046	5704	<20
92	351537	6592142	No	WTG-046	5883	<20
93	348653	6593325	No	WTG-044	2932	27
94	350752	6592819	No	WTG-044	5085	<20
95	350687	6593239	No	WTG-044	4962	<20
96	350759	6593414	No	WTG-044	5020	<20
97	350621	6593652	No	WTG-044	4873	<20

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
98	351224	6593636	No	WTG-044	5476	<20
99	349956	6593969	No	WTG-044	4215	22
100	350733	6594144	No	WTG-044	5002	<20
101	351425	6592879	No	WTG-044	5739	<20
102	351006	6594750	No	WTG-044	5357	<20
103	351672	6593198	No	WTG-044	5947	<20
104	351875	6593523	No	WTG-044	6130	<20
105	351596	6593846	No	WTG-044	5849	<20
106	351440	6594137	No	WTG-044	5707	<20
107	351832	6594018	No	WTG-044	6091	<20
108	352019	6592278	No	WTG-046	6372	<20
109	351863	6591814	No	WTG-046	6200	<20
110	352194	6592923	No	WTG-044	6495	<20
111	352681	6592980	No	WTG-044	6972	<20
112	352992	6593184	No	WTG-044	7264	<20
113	350745	6595432	No	WTG-044	5281	<20
114	351071	6595685	No	WTG-044	5673	<20
115	351089	6595524	No	WTG-044	5636	<20
116	351201	6595574	No	WTG-044	5758	<20
117	351230	6595794	No	WTG-044	5860	<20
118	351472	6596274	No	WTG-044	6267	<20
119	351622	6595934	No	WTG-044	6276	<20
120	351694	6596113	No	WTG-044	6408	<20
121	351690	6596290	No	WTG-044	6473	<20
122	351759	6596290	No	WTG-044	6536	<20
123	351834	6595992	No	WTG-044	6495	<20
124	351860	6596057	No	WTG-044	6542	<20
125	351959	6596205	No	WTG-044	6688	<20
126	351484	6596799	No	WTG-036	6488	<20
127	352465	6596381	No	WTG-044	7224	<20
128	351740	6594770	No	WTG-044	6082	<20
129	352568	6594685	No	WTG-044	6887	<20
130	351814	6593798	No	WTG-044	6066	<20
131	351780	6593384	No	WTG-044	6041	<20
132	356665	6593943	No	WTG-044	10919	<20
133	355450	6592830	No	WTG-044	9743	<20
134	355837	6592460	No	WTG-044	10167	<20
135	355823	6592263	No	WTG-046	10170	<20
136	356114	6591539	No	WTG-046	10454	<20
137	356251	6591483	No	WTG-046	10593	<20
138	356142	6591342	No	WTG-046	10489	<20
139	329617	6582431	No	WTG-064	5596	<20
140	329065	6582378	No	WTG-064	6135	<20
141	328559	6582639	No	WTG-064	6543	<20
142	327313	6582341	No	WTG-064	7825	<20
143	329144	6582063	No	WTG-064	6168	<20
144	329644	6582207	No	WTG-064	5651	<20
145	329591	6582042	No	WTG-066	5735	<20
146	325501	6605143	No	WTG-028	9940	<20

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
147	327492	6590972	No	WTG-027	8558	<20
148	332659	6586519	No	WTG-062	2170	29
149	332044	6585886	No	WTG-062	2645	27
150	323374	6603902	No	WTG-028	10810	<20
151	326424	6595206	No	WTG-028	6671	<20
152	325339	6591294	No	WTG-028	9814	<20
153	349332	6585674	No	WTG-061	4800	<20
154	349300	6584108	No	WTG-061	5552	<20
155	349098	6581494	No	WTG-067	7306	<20
156	348277	6580647	No	WTG-067	7482	<20
157	341814	6574663	No	WTG-066	10685	<20
158	342219	6574823	No	WTG-066	10816	<20
159	341534	6605613	No	WTG-004	6567	<20
160	341680	6609068	No	WTG-004	9983	<20
161	340171	6609233	No	WTG-069	9912	<20
162	340177	6608682	No	WTG-069	9381	<20
163	339493	6607822	No	WTG-070	8356	<20
164	339859	6607653	No	WTG-069	8305	<20
165	342253	6606897	No	WTG-004	7993	<20
166	338263	6576638	No	WTG-066	7119	<20
167	345520	6578325	No	WTG-067	8708	<20
168	346196	6577576	No	WTG-067	9566	<20
169	346978	6577284	No	WTG-067	10038	<20
170	347823	6578667	No	WTG-067	9019	<20
171	348404	6579340	No	WTG-067	8671	<20
172	348417	6579546	No	WTG-067	8497	<20
173	348568	6578862	No	WTG-067	9169	<20
174	346271	6576298	No	WTG-067	10833	<20
175	346726	6576269	No	WTG-067	10956	<20
176	334904	6598856	No	WTG-070	2008	34
177	333328	6589464	No	WTG-043	2809	27
178	332005	6575172	No	WTG-066	8541	<20
179	347241	6576540	No	WTG-067	10826	<20
180	349759	6589477	No	WTG-047	4461	22
181	349864	6589437	No	WTG-047	4573	22
182	350727	6591942	No	WTG-046	5065	<20
183	350829	6592073	No	WTG-046	5172	<20
184	350944	6592070	No	WTG-046	5287	<20
185	350924	6592006	No	WTG-046	5264	<20
186	350951	6592004	No	WTG-046	5291	<20
187	350874	6592077	No	WTG-046	5217	<20
188	350950	6592120	No	WTG-046	5295	<20
189	350947	6592195	No	WTG-046	5297	<20
190	350919	6592123	No	WTG-046	5265	<20
191	350872	6592131	No	WTG-046	5218	<20
192	350779	6592890	No	WTG-044	5099	<20
193	350739	6592927	No	WTG-044	5054	<20
194	350177	6593296	No	WTG-044	4449	21
195	351445	6596084	No	WTG-044	6167	<20

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
196	351608	6595911	No	WTG-044	6255	<20
197	351620	6595886	No	WTG-044	6258	<20
198	351612	6595865	No	WTG-044	6243	<20
199	351595	6595809	No	WTG-044	6208	<20
200	351540	6595693	No	WTG-044	6118	<20
201	351699	6596172	No	WTG-044	6435	<20
202	351791	6596263	No	WTG-044	6555	<20
203	351820	6596188	No	WTG-044	6553	<20
204	351868	6596090	No	WTG-044	6562	<20
205	351905	6595928	No	WTG-044	6540	<20
206	351858	6595903	No	WTG-044	6487	<20
207	351851	6595868	No	WTG-044	6469	<20
208	351894	6595808	No	WTG-044	6490	<20
209	351662	6594407	No	WTG-044	5953	<20
210	350955	6592566	No	WTG-044	5333	<20
211	352089	6592041	No	WTG-046	6430	<20
212	352445	6591982	No	WTG-046	6784	<20
213	351073	6596787	No	WTG-036	6100	<20
214	349414	6599099	No	WTG-036	6073	<20
215	349291	6598605	No	WTG-036	5626	<20
216	347923	6597066	No	WTG-036	3569	23
217	346955	6597433	No	WTG-036	3283	24
218	348169	6595592	No	WTG-036	2960	26
219	341469	6599624	No	WTG-004	1518	36
220	341858	6600032	No	WTG-001	2006	33
221	338474	6602191	No	WTG-069	2671	29
222	342872	6599122	No	WTG-001	1514	33
223	343614	6600525	No	WTG-001	3072	26
224	343624	6600743	No	WTG-001	3257	25
225	343664	6601724	No	WTG-001	4129	22
226	335911	6602846	No	WTG-070	2918	25
227	332822	6603678	No	WTG-070	5240	<20
228	330187	6601650	No	WTG-028	4261	<20
229	330378	6602290	No	WTG-028	4727	<20
230	330667	6590549	No	WTG-043	5578	<20
231	329376	6589088	No	WTG-062	6276	<20
232	331664	6586415	No	WTG-062	3095	24
234	349737	6586967	No	WTG-061	4882	<20
235	350023	6586881	No	WTG-061	5176	<20
236	350613	6587023	No	WTG-061	5750	<20
237	351799	6586714	No	WTG-061	6959	<20
238	352027	6585374	No	WTG-061	7447	<20
239	352555	6585647	No	WTG-061	7888	<20
240	354036	6587523	No	WTG-060	9125	<20
241	353540	6584027	No	WTG-061	9318	<20
242	354298	6583708	No	WTG-061	10140	<20
243	354255	6584094	No	WTG-061	9963	<20
244	353980	6582769	No	WTG-061	10241	<20
245	353881	6582847	No	WTG-061	10118	<20

Dwelling ID	Dwelling Coordinates (UTM WGS84 55H)		Involved Dwelling (Yes/No)	Nearest WTG	Distance to Nearest WTG (m)	Predicted Level (dB(A))
	Easting	Northing				
245	353230	6583487	No	WTG-061	9250	<20
246	351373	6589786	No	WTG-047	5911	<20
247	351880	6582617	No	WTG-061	8516	<20
248	341622	6606381	No	WTG-004	7335	<20
249	342236	6606379	No	WTG-004	7493	<20
250	336141	6605752	No	WTG-070	5767	<20
251	336123	6605391	No	WTG-070	5408	<20
252	324918	6601540	No	WTG-028	8313	<20
253	351136	6598941	No	WTG-036	7228	<20
254	352087	6600498	No	WTG-036	8955	<20
255	349536	6584540	No	WTG-061	5500	<20
256	353035	6602520	No	WTG-036	11043	<20
257	344957	6585629	No	WTG-067	1499	32
258	336574	6579159	No	WTG-066	4144	<20
259	336496	6579240	No	WTG-066	4043	<20
260	333842	6591136	No	WTG-042	2599	28
261	351629	6596047	No	WTG-044	6323	<20
262	351593	6595839	No	WTG-044	6216	<20
263	349138	6590218	No	WTG-047	3638	25
264	349778	6590786	No	WTG-047	4175	23
265	349616	6591150	No	WTG-047	3999	24
266	350771	6591324	No	WTG-046	5131	<20

