GOYDER
RENEWABLES ZONE

GOYDER SOUTH HYBRID RENEWABLE ENERGY FACILITY

Development Application Package

June 2020

NEOEN

Development Application Package Contents

DEVELOPMENT APPLICATION FORM

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Development Application Report

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- Traffic Impact Assessment
- Electromagnetic Interference Assessment
- Aeronautical Impact Assessment

A3 MAPPING SET

SECTION 49 & 49A – CROWN DEVELOPMENT
DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: Regional Council of Goyder

APPLICANT: Neoen Australia Pty Ltd

ADDRESS: L6, 16 Marcus Clarke St Canberra, ACT

CROWN AGENCY: Department for Energy and Mining

FOR OFFICE USE

DEVELOPMENT No: _____

PREVIOUS DEVELOPMENT No: _____

DATE RECEIVED: / /

CONTACT PERSON FOR FURTHER INFORMATION

Name: Simone Fogarty OR Tom Jenkins

Telephone: 08 8272 3081 [work] 18000966166 [Ah]

Fax: _____ [work] _____ [Ah]

Email: Fogarty@iinet.net.au Tom.Jenking@neoen.com

❒ Complying	Decision: _____
❒ Merit	Type: _____
❒ Public Notification	Finalised: / /
❒ Referrals	

NOTE TO APPLICANTS:

(1) All sections of this form must be completed. The site of the development must be accurately identified and the nature of the proposal adequately described. If the expected development cost of this Section 49 or Section 49A application exceeds $100,000 (excl. fit-out) or the development involves the division of land (with the creation of additional allotments) it will be subject to those fees as outlined in Item 1 of Schedule 6 of the *Development Regulations 2008.* Proposals over $4 million (excl. fit-out) will be subject to an advertising fee. (2) Three copies of the application should also be provided.

	Decision required	Fees	Receipt No	Date
Planning:				
Land Division:				
Additional:				
Minister's Approval				

EXISTING USE: Primary Produciton

DESCRIPTION OF PROPOSED DEVELOPMENT:

Renewable energy generation in the form of wind and solar and ancillary infrastrucutre

LOCATION OF PROPOSED DEVELOPMENT: Burra, Worlds End, Baldina, Bright, Koonoona

House No: _____ Lot No: _____ Town/Suburb: _____

Section No [full/part] _____ As described in Appendix C of the Development Application Report Volume: _____ Folio: _____

Section No [full/part] _____ Volume: _____ Folio: _____

LAND DIVISION: **NA**

Site Area [m^2] _____ Reserve Area [m^2] _____ No of existing allotments _____

Number of additional allotments [excluding road and reserve]: _____ Lease: **YES** ❒ **NO** ❒

DEVELOPMENT COST [do not include any fit-out costs]**:** **$3,000,000,000 ($3.0bn)**

POWERLINE SETBACKS: Pursuant to Schedule 5 (2a)(1) of the *Development Regulations 2008,* if this application is for a building it will be forwarded to the Office of the Technical Regulator for comment unless the applicant provides a declaration to confirm that the building meets the required setback distances from existing powerlines. The declaration form and further information on electricity infrastructure and clearance distances can be downloaded from sa.gov.au.

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the *Development Act 1993* and meet the requirements for lodgement under s.49 of the Development Act 1993.

SIGNATURE: _____ Dated: 5 / 06 / 2020

GOYDER
RENEWABLES ZONE

VOLUME 1:

Goyder South Hybrid Renewable Energy Facility Development Application Report

NEOEN

Executive Summary

The Goyder region in South Australia is home to some of the best wind and solar resources in the country.

The Goyder South Hybrid Renewable Energy Facility is proposed to take advantage of these resources by combining wind, solar and energy storage in one integrated project. The facility will be capable of delivering a steady, reliable, dispatchable output of power throughout the day and night.

Neoen Australia Pty Ltd is seeking Development Authorisation for the Goyder South Hybrid Renewable Energy Facility (**Goyder South**) pursuant to section 49 of the *Development Act 1993* (SA). This report is part of an application package lodged under the Act for planning assessment. There is also a range of other legislation and processes for approval of other characteristics of the project (e.g. native vegetation clearance). Neoen is submitting applications under the relevant legislation and concurrent processes where relevant.

The proposed project is a hybrid power station capable of producing firm, reliable power at a cost which would likely be lower than any other renewable or conventional fossil-fuelled generator in Australia—even taking into account the additional cost of battery storage.

The proposed project site is located south of Burra and north of Robertstown in the Goyder Regional Council area. The project would comprise up to 1,200MW of wind generation, up to 600MW of solar PV generation and up to 900MW/1,800MWh of battery storage. The proposed connection point near Robertstown means that the project's large-scale battery would be in an ideal position to inject emergency power and fault current into the South Australian grid in the event of a fault impacting the proposed SA-NSW interconnector, and enable the continued stable operation of the South Australian grid in any subsequent separation from the NSW grid.

The Goyder South Hybrid Renewable Energy Facility proposal comprises:

- A wind farm of up to 163 turbines with a capacity of up to 1200MW, a maximum hub height of 160m, a maximum blade length of 80m and an overall maximum height (tip height) of 240m;
- A solar farm (across two sites) of up to 3000 ha of solar panels with a capacity of up to 600MW;
- An energy storage facility (lithium-ion battery) with a capacity of up to 900MW/1,800MWh (2 hours);
- Associated infrastructure for connection to the electricity grid including three substations, access tracks, underground connection cabling and transmission lines;
- Permanent operations and maintenance compounds;
- Temporary construction compounds for both wind and solar components, including concrete batching plants; and
- A number of meteorological masts (in addition to those already on the site) to record wind speed and other meteorological data, both pre- and post- construction.

Neoen are seeking a 200m micro-siting allowance for all of the permanent project elements in order to ensure that the project can maximise shared land use opportunities and generation efficiencies and minimise impacts on landform, flora and fauna and residents.

Given the scale of energy generation that would ultimately be achieved by development of the Goyder South project, it is proposed to be constructed in multiple stages. It is not yet possible to be certain about the size and composition of each stage as this depends on the size and type of the demand from electricity customers. Indicatively, however, Neoen hopes to construct Goyder South in approximately three separate stages, each comprising:

- 400MW wind;
- 200MW solar; and
- 300MW/600MWh storage.

Given the scale of the project stages, significant time would be required to achieve financial close and construction commencement on each stage. Thus, Neoen requests that, if approved, the development timeframes be structured on a 'rolling' basis as follows:

- 3 years to substantially commence Stage 1 (from the date of approval);
- 6 years to complete Stage 1 (from the date of approval);
- 3 years to substantially commence Stage 2 (from the date of construction commencement of Stage 1);
- 3 years to complete Stage 2 (from the date of construction commencement of Stage 2);
- 3 years to substantially commence Stage 3 (from the date of construction commencement of Stage 2);
- 3 years to complete Stage 3 (from the date of construction commencement of Stage 3)

…and so on, on the proviso that construction of the entire project be completed within 12 years from the date of the approval.

Within a given stage, construction would need to be undertaken as sub-stages focused on the key components of the project as follows:

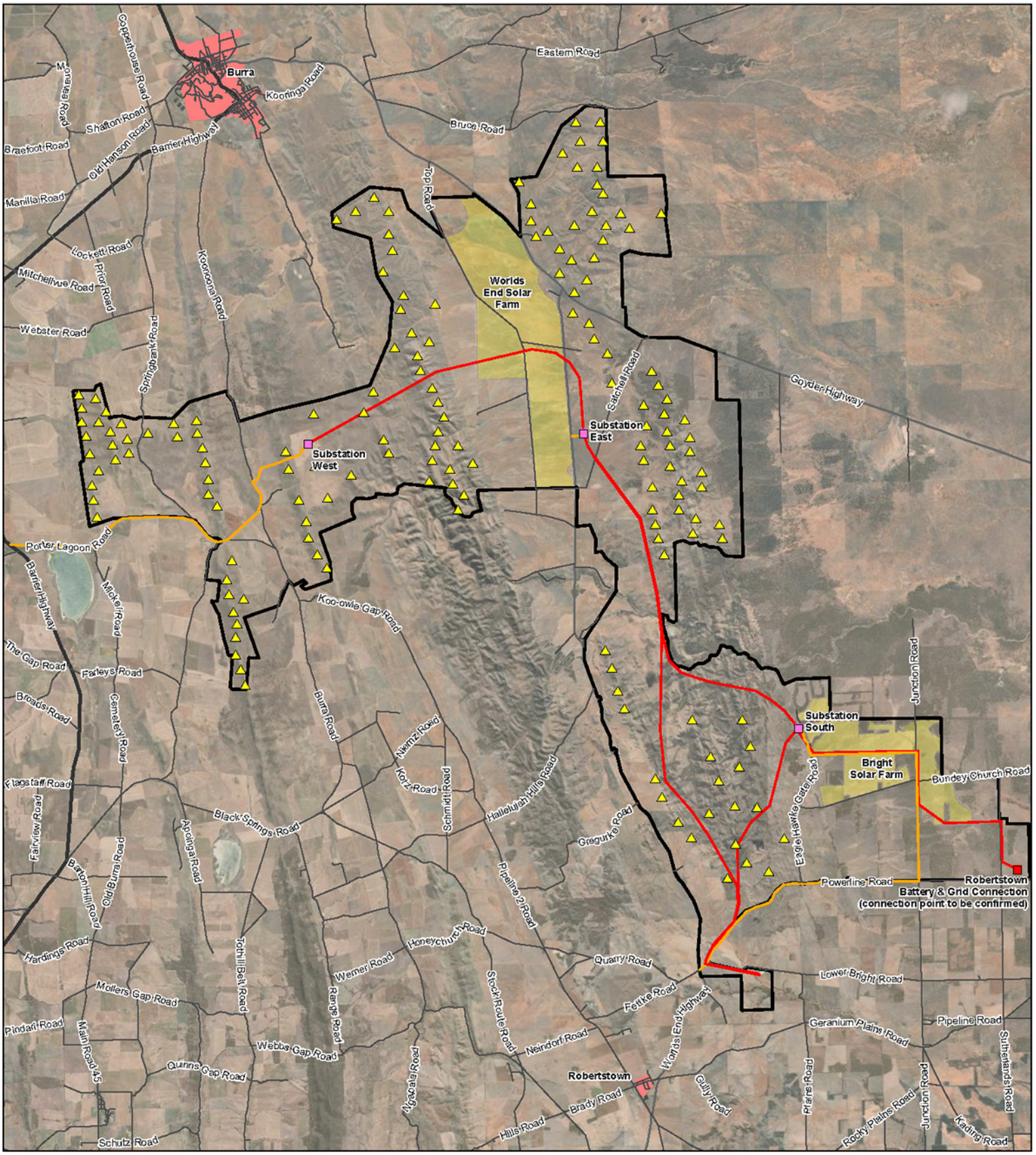
- Sub-Stage A - Wind farm and ancillary infrastructure;
- Sub-Stage B - Solar farm and ancillary infrastructure;
- Sub-Stage C - Battery energy storage facility and ancillary infrastructure;
- Sub-Stage D – Transmission lines; and
- Sub-Stage E - Balance of works.

Neoen notes that if a stage of wind or solar reached financial close separately (i.e. not as a hybrid stage), the development and build schedule would need to be customised accordingly.

It is proposed that within each sub-stage, conditions of authorisation may be satisfied, and Building Rules consent may be obtained separately. This would mean that construction of any sub-stage may commence once the conditions are satisfied and Building Rules consent has been obtained in relation to that sub-stage, without the need to satisfy all conditions and obtain Building Rules consent for the other sub-stages within the stage, or the subsequent stages of the project.

Building Rules consent would be sought from a Private Certifier (as is the standard requirement for all Crown Development applications) for all relevant components of the project.

The whole of the development is located within the Primary Production Zone where 'wind farms and ancillary development' are an envisaged land use. An assessment of the merits of the proposal should be considered against the relevant policy contained in the Goyder Development Plan. While it is the role of the relevant authority to undertake a full assessment of the proposed development against the Development Plan policy, the applicant has given careful consideration to the interface issues identified in the Development Plan. The proposal as presented is considered not to be seriously at variance with the Development Plan. It is acknowledged that the project would have some impacts, predominantly during the construction phase, and management arrangements are proposed to address these. Overall Neoen believes the proposal to have adequately and appropriately addressed the potential land use impacts including in respect of on-going noise, visual amenity, shadow flicker and blade glint, flora and fauna, heritage, aviation, fire risk, electromagnetic interference and traffic as sought by the Development Plan. As a result, Neoen submits that the proposal therefore warrants Development Authorisation.



- Goyder South project boundary
- Solar farm
- Turbine layout
- Substation
- Possible Interconnector Substation
- Construction access road
- Proposed transmission line
- Highway
- Arterial / Sub Arterial
- Collector and local
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Goyder Renewables Zone

Goyder South Project Layout

Job Number 33-19112
Revision C
Date 02 Jun 2020

Figure 1

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Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

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NEOEN

1. The Proponent

Neoen is an independent power producer specialising in renewable energy projects, with over 4 GW of generation in operation or under construction worldwide. The company was founded in 2008 and was publicly listed on the French stock exchange in 2018. The company is headquartered in Paris and operates across a range of renewable energy technologies, including solar, wind and battery storage. Neoen has over 200 experienced employees across 14 countries on multiple continents. Outside of Paris the largest Neoen branch is in Australia (opened in August 2012) including development, finance, operations and maintenance personnel across offices in Sydney and Canberra, as well as part-time offices in Adelaide and Burra.

Since 2012, Neoen Australia has brought over 1GW of solar, wind and storage to construction and operation through local partnerships and strategic acquisitions in Australia. Neoen's South Australian projects include the award-winning 315MW Hornsdale Wind Farm and the Hornsdale Power Reserve, the world's largest lithium-ion battery. Hornsdale Power Reserve, better known as the 'Tesla battery' after its technology manufacturer, has been an immense success for both Neoen and South Australia. Not only has it intervened numerous times to prevent blackouts, but it also saved consumers around $40 million in 2018 and $116 million in 2019 by suppressing the prices of various grid stability services previously provided exclusively by gas generators. [1]

A key differentiator of Neoen's business model is that it **does not develop projects to sell**. The company is an owner-operator—it develops, builds, owns and operates its projects for their entire lifespan. Consequently, Neoen has always focused on delivering the best possible projects built on strong technical expertise within the global team and on meaningful partnerships with local communities.

[1] https://reneweconomy.com.au/hornsdale-big-battery-doubles-savings-to-consumers-and-keeps-lights-on-85139/

2 Project Background

The **Goyder South** project incorporates land first included in the proposed Stony Gap Wind Farm which received Development Approval in 2014. Neoen purchased this project with a view to merging it into the new, much larger **Goyder South Hybrid Renewable Energy Project,** itself part of the larger **Goyder Renewables Zone (GRZ)**, a project concept which Neoen has been developing since late 2017. The GRZ covers both Goyder North and Goyder South, divided by the town of Burra. Neoen intends to submit a separate Development Application for the Goyder North project in the future.

At its full size of approximately 1200MW of wind, 600MW of solar and 900MW/1,800MWh of battery storage, Goyder South would generate more than 4,800,000 MWh of power annually—estimated to be equivalent to the following:

tonnes of CO_2 avoided per year	**2,112,000**
number of cars taken off the road per year	**872,000**
number of trees planted per year	**39,360,000**

The GRZ has been designed and sited to complement the 'EnergyConnect' project under development by ElectraNet and the South Australian government for an interconnector to New South Wales. This project is currently undergoing its own impact assessment process. While there is a general understanding of the location of the interconnector the final location of the substation for the project cannot be confirmed until the impact assessment process for the interconnector has been completed.

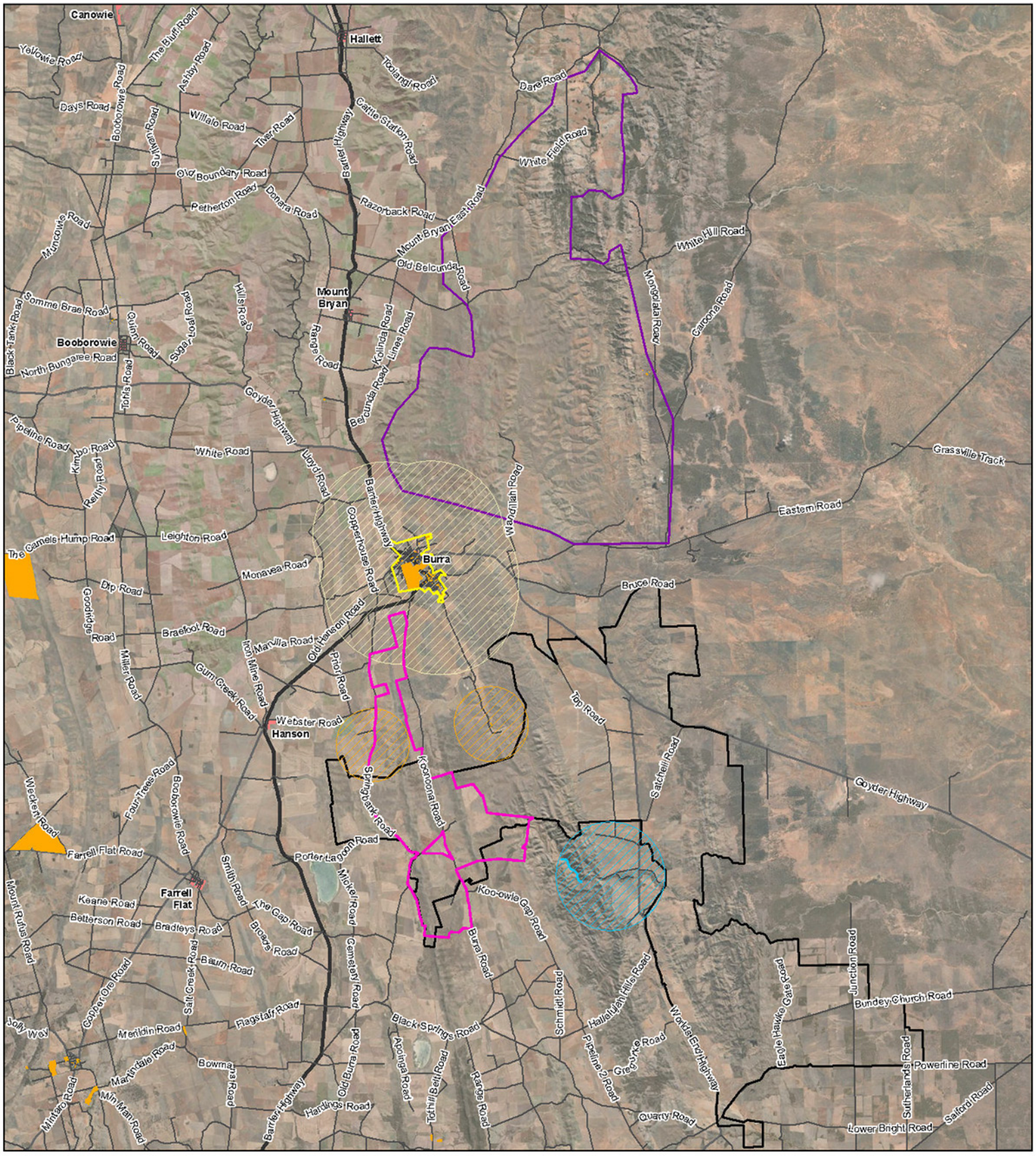
The extremely large battery associated with the proposed project would be located on the SA end of the future EnergyConnect line and would, like the Hornsdale Power Reserve, provide crucial grid support functions to the state's energy supply. It would be available to assist the grid in the event of major disruptions (noting that Hornsdale played a major role in keeping SA's grid stable during the recent disruption to one of SA's existing interconnectors[2] in February 2020).

The battery's key role, however, would be to allow Goyder South to provide 'hedge' contracts to consumers such as industrial customers or electricity retailers. These contracts guarantee customers a fixed power price 24 hours a day, irrespective of regional spot price fluctuations. This reduces the risk of power price fluctuations to large, energy-intensive industries and businesses such as mines, smelters, manufacturers and retailers.

The hedge contract market has previously been occupied exclusively by fossil fuel generators. Goyder South would be able to provide these contracts at a much lower cost, and without the emissions, environmental damage and exposure to international fuel prices associated with gas generators.

By combining energy production and storage, Goyder South would overcome the conventional critique of renewables that they are 'intermittent' and 'unreliable'. Hybrid projects such as this are the natural 'next step' in the transition to a cleaner, cheaper, renewable economy.

2 https://www.afr.com/companies/energy/sa-to-remain-cut-off-from-east-coast-power-grid-for-weeks-20200203-p53xb8



- Goyder South project boundary
- Goyder North project area (indicative, not subject of Development Application)
- Stony Gap Wind Farm boundary
- Burra Gorge
- Burra Gorge campground 3km setback
- Burra State Heritage Area
- Burra State Heritage Area 4km setback
- Heritage Place
- Heritage Place 2km setback
- Township
- Highway
- Arterial / Sub Arterial
- Collector and local

Paper Size A3

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Goyder Renewables Zone

Job Number 33-19112
Revision C
Date 02 Jun 2020

Goyder Renewable Energy Zone

Figure 1

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2.1 Site Selection

The Goyder South project would span the Worlds End valley with turbines located on the western and eastern ridge lines, extending south towards Robertstown. The northern solar site would be located on marginal cropping/grazing land in the centre of the Worlds End valley, on the western side of the Worlds End Highway, while the southern solar site would be located further south to the east of the eastern ridgeline in the locality of Bright.

The Goyder South site is characterised by world-class wind and solar resources with highly complementary profiles. Like much of the Mid North, wind in this region tends to blow most strongly at night, while solar is of course present during the day, as shown in Figure 2. The resulting energy output, firmed and smoothed by battery storage, would be able to closely match South Australia's average consumption profile ('Normalised Load' in the figure below).

The site also benefits from ideal terrain to enable co-location of both technologies—high ridges for wind turbines and flat, cleared grazing land for solar development.

These characteristics of terrain and resource quality, as well as the site's location near the Robertstown substation and the future interconnector (which will soon become a major hub of the National Electricity Market grid) makes the project one of the most promising renewable developments in Australia.

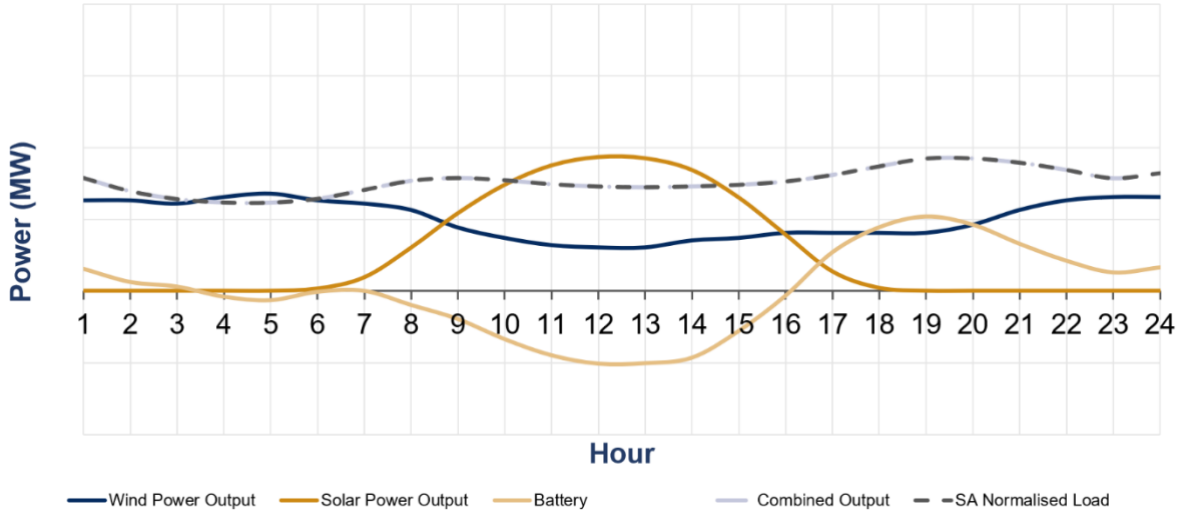
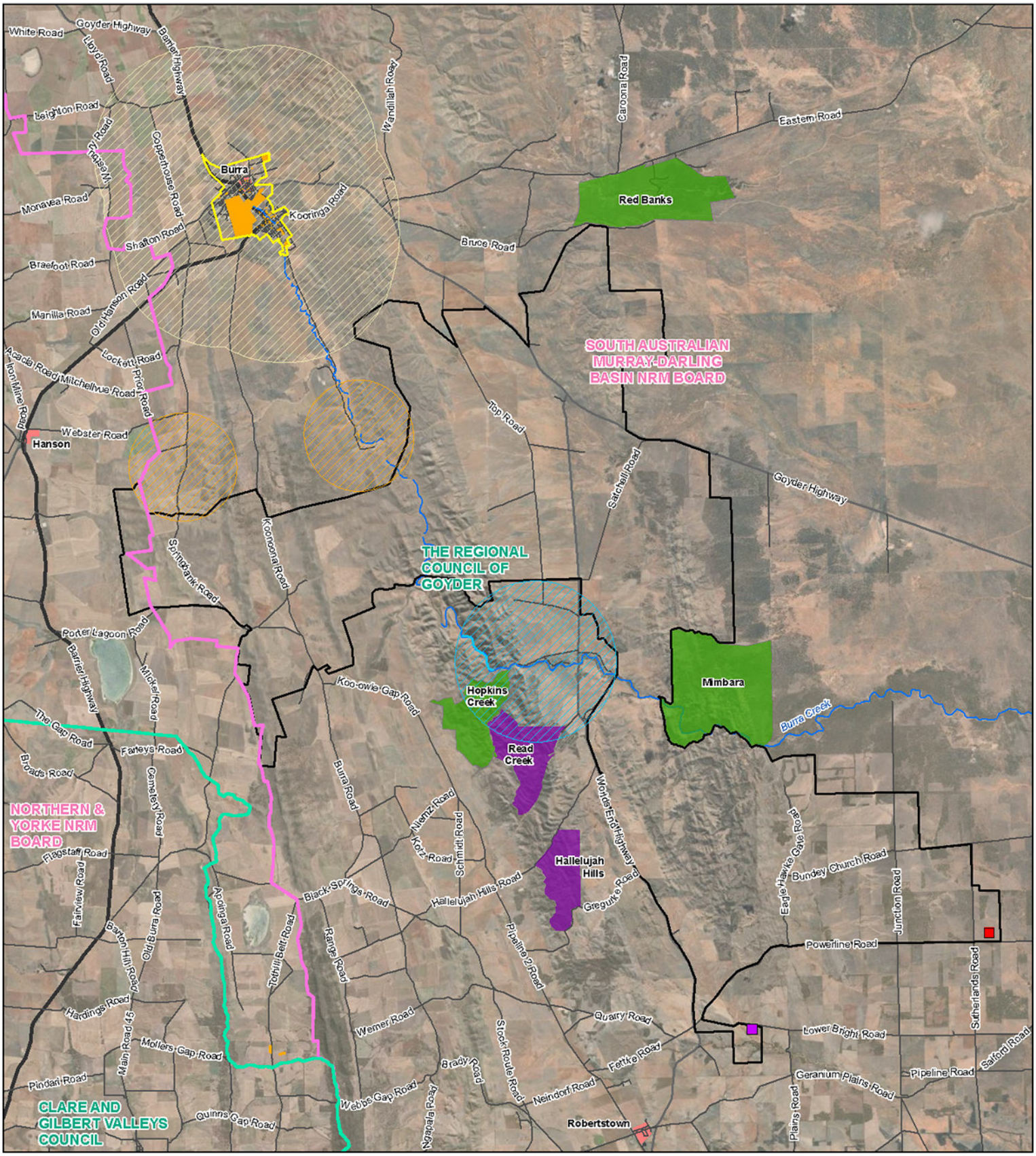


Figure 2 Indicative combined output from Goyder South

The location of Goyder South has been selected on the basis of a number of critical factors:

a) Clearly established, excellent wind and solar resources
b) Suitable topography for both wind (elevation) and solar (flat, minimal flood risk)
c) Appropriate existing land uses (marginal agricultural viability, supporting mixed land use)
d) Proximity to the national electricity grid infrastructure (Robertstown substation) and the proposed EnergyConnect interconnector with NSW
e) Strong support from landowners, neighbours and Council
f) Accessibility for construction and on-going maintenance
g) Large project scale and low density of dwellings enable generous setbacks from dwellings and sensitive ecological areas.



- Goyder South project boundary
- Existing grid connection
- Possible grid connection (interconnector substation)
- Local government area
- NRM region
- Burra Creek
- Conservation Park
- Private conservation area
- Burra Gorge
- Burra Gorge campground 3km setback
- Burra State Heritage Area
- Burra State Heritage Area 4km setback
- Heritage Place
- Heritage Place 2km setback
- Highway
- Arterial / Sub Arterial
- Collector and local
- Township

Paper Size A3

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Project Location

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Date 02 Jun 2020

Figure 3

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3. Anticipated Project Outcomes

3.1 Energy System Outcomes

Downward pressure on wholesale energy prices

While some have attributed record high electricity prices in South Australia in recent years to the growth in renewable energy generation in the state, multiple studies show that these price increases have been driven primarily by gas generators. Gas generators have a higher marginal cost of generation and, due to the way that Australian wholesale energy markets operate, the highest-cost generators are often able to set the market price received by all generators, even those with a lower cost of energy (such as renewable generators).[3] Rising gas supply costs in recent years due to demand competition from the international gas export market has continued to inflate the cost of gas generation.

One analysis of the South Australian market found that in 2018 the average wholesale electricity price was reduced from a projected price of $128/MWh to $90/MWh (a $38/MWh reduction) due to the increasing penetration of renewable energy in the state in 2018 (110 GWh of solar and 5,550 GWh of wind generation).[4] This represents a saving of $175 per year for the average South Australian household. Since 2018, the state's proportion of renewable energy has continued to increase and, with the recent (albeit temporary) fall in gas prices in 2020 driven by a collapse of international fossil fuel markets stemming from COVID-19 and the Russia-Saudi oil conflict, the cost of gas generation has also fallen. With a resulting reduction in the inflationary effect of gas generation on average SA power prices, projected wholesale power prices in SA over the next 2-3 years have consequently fallen sharply to the low $50s/MWh.[5] However, it should be noted that gas prices are unlikely to remain at this level in the long term and that the displacement of gas generation in the state by renewables must continue if wholesale power cost is to be maintained or further reduced.

Grid stability

The battery storage facility at Goyder South would also be capable of providing accurate, precise grid stabilisation services at well below the current market rate (as set by gas generators). To illustrate this point, Neoen notes that the Hornsdale Power Reserve saved consumers upward of $40 million in grid services costs in the first year of its operation by increasing competition among grid service providers, and approximately $116 million in its second year.[6]

In summary, Goyder South would be expected to produce up to 4,800,000 MWh per year of low-cost renewable generation, while also introducing battery storage that is able to replace the grid-support functions of gas generation. This would continue to put downward pressure on electricity pricing for all consumers in the state and provide opportunities to support new and existing businesses to remain competitive nationally.

3.1.1 Renewable energy & greenhouse gas targets

Neoen is a passionate advocate for the importance of decarbonising our stationary energy generation sector. Likewise, as the first state to introduce legislation establishing greenhouse gas emissions reduction and renewable energy targets, South Australia has a strong record of leading Australia in action on climate change.

The South Australian government currently predicts that South Australia will achieve 'net 100% renewable energy' by 2030.[7] At full size, the energy output from Goyder South would represent approximately 33% of South Australia's current generation—taking the state to approximately 86% renewable energy generation.

3 https://www.aemc.gov.au/sites/default/files/content//Five-Minute-Settlement-directions-paper-fact-sheet-FINAL.PDF
4 https://243b2ed8-6648-49fe-80f0-f281c11c3917.filesusr.com/ugd/cb01c4_1e9c944ea9524f38b3d1d392e08e94c0.pdf
5 https://reneweconomy.com.au/cheap-electricity-is-back-in-australia-92856/
6 https://www.afr.com/business/energy/solar-energy/south-australias-big-battery-slashes-40m-from-grid-control-costs-in-first-year-20181205-h18ql1
https://reneweconomy.com.au/hornsdale-big-battery-doubles-savings-to-consumers-and-keeps-lights-on-85139/
7 https://reneweconomy.com.au/south-australia-to-accelerate-transition-emissions-cuts-after-bushfires-70921/

The *Climate Change and Greenhouse Emissions Reduction Act 2007 (SA)* sets a legislative target of reducing greenhouse gas emissions within the state by at least 60 per cent to an amount that is equal to or less than 40 per cent of 1990 levels by 2050, while the Government has confirmed it is aiming for better than this—net zero emissions by 2050.[8] The state is already well on the way to the achievement of these objectives, with net greenhouse gas emissions reducing by 39 percent in South Australia between 1989-1990 and 2016-2017.

Despite this, the energy sector remains the largest contributor to greenhouse gas emissions in SA—accounting for 81.7 percent of total net emissions in 2016-17. This is comprised of 30 percent from transport fuels; 22 percent from energy industries (with the majority from electricity generation); 18 percent from other energy sources including manufacturing industries and construction; and 12 percent from fugitive emissions from fuels such as from the oil and gas and solid fuels industries.

The transition to stationary renewable energy generation through projects such as those being proposed here will continue to represent one of the fastest and most cost-effective ways to ensure the achievement of the state's target of zero emissions by 2050. Further, large-scale renewable energy projects will not only decarbonise South Australia's electricity supply, but low-cost firm renewables represent an opportunity for the production of alternative fuels such as hydrogen to decarbonise transport and industrial processes.

3.2 Community Outcomes

Neoen has aimed to include as many landowners as possible in the project to ensure a wide distribution of benefits to the local and regional community if it is approved. For example, the company has preferenced the placement of substations on land owned by landowners who would not otherwise be involved, despite the availability of other equally suitable land owned by landowners who have already committed to participation in the project.

As with other significant scale projects, Neoen proposes to make an annual contribution to a Community Benefits Scheme to provide benefits to the wider community. Neoen is also proposing a relatively new, best-practice form of benefit-sharing—a Neighbour Benefits Scheme—which is emerging at some other renewable projects around Australia, albeit not on this scale.

3.2.1 Community Benefits Scheme

As is the case for other renewable energy projects, and consistent with the approach taken at Hornsdale Wind Farm and Crystal Brook Energy Park, Neoen proposes to establish an annual amount to be distributed for the benefit of the broader community in the region through a Community Benefits Scheme (CBS).

Under the CBS, Neoen would commit to providing up to $600,000 per annum to the community for the duration of the Goyder South project's operational lifespan (25-30 years) at full project size. To the best of Neoen's knowledge, this would be the largest annual community funding amount offered by any renewable project in Australia.

While the project is undergoing staged development, the annual funding available under the scheme would be incrementally increased as each successive stage is built:

1. $60,000 per 100MW of wind generation constructed
2. $30,000 per 100MW of solar generation constructed
3. $10,000 per 100MW of battery storage constructed.

These figures would be adjusted in accordance with inflation from 2020 to the date of the first payment. The amounts are fixed and would not vary according to energy yield or project returns.

[8] https://www.environment.sa.gov.au/files/sharedassets/public/about_us/section_7_report_2019_as_tabled.pdf

The table below illustrates an **example** of how the Scheme might increase with successive stages of Goyder South (noting, as above, that size and technology composition cannot be predicted with certainty).

Stage	Installed Capacity	CBS Contribution	Cumulative CBS Size
1	200MW wind 100MW solar 100MW battery	$120,000 $30,000 $10,000	$160,000
2	300MW wind 150MW battery	$180,000 $15,000	$355,000
3	300MW wind 200MW solar 50MW battery	$180,000 $60,000 $5,000	$600,000 (cap reached)
4	150MW wind 50MW battery	$0 $0	$600,000

Tranches of the CBS associated with each respective stage would begin at each stage's completion.

Neoen also wishes to flag once more its intention to lodge a Development Application in the coming 12-18 months for Goyder North (the second half of the Goyder Renewables Zone). Depending on the final sizing of the project when lodged for assessment, Neoen anticipates that an additional $400,000 Community Benefits Scheme would be associated with that project on similar terms to those described above, bringing the cumulative cap to $1 million per year in 2020 figures.

Structure of Community Benefits Scheme

Traditionally, Community Benefits Schemes act as a 'pool' of funds that are allocated annually via single, one-off grants. These schemes usually have established criteria and decisions are made by a panel representing a range of interests. However, the potential size of the Goyder South scheme would be likely to justify supporting some longer-term initiatives and programs indefinitely or for several years.

Neoen has therefore determined that:

1) A large portion of the funds would be made available in the form of a traditional Community Fund to support various community initiatives via the standard grants process
2) Neoen is considering allocating the remainder to:
    a. Community-driven and stakeholder-driven initiatives: for example, Neoen has asked community members attending its Open Days to vote on initiatives such as power bill reductions or mobile reception improvement
    b. Council-driven initiatives with clear value to the community: for example, a 'Heritage Maintenance Fund' to help maintain Burra's heritage sites and promote tourism for the benefit of the local economy.

Neoen is currently discussing with Council how a scheme of this size could be administered from year to year. Neoen's aim is to have a strong element of input from community members as well as elected Council members.

3.2.2 Neighbour Benefits Scheme

Neoen has committed to the establishment of a 'Neighbour Benefit Scheme' (NBS) if this project proceeds. This is proposed to be an annual scheme that would apply to neighbours with a residential dwelling within 6km of a wind turbine, which is occupied on a full-time or near full-time basis. Qualification for the scheme would not be conditional on these neighbours' support or cooperation during the development assessment process. Neighbours **would not be penalised** for opposing the project and should, accordingly, not feel obliged to temper their submissions in relation to this development application.

The NBS's purpose would **not** be to compensate neighbours for lifestyle impacts, as Neoen has instituted a 2km setback from dwellings. Instead, its objectives would be:

- to share project benefits beyond those persons fortunate enough to own land suitable for renewable energy assets;
- to recognise that Community Benefit Schemes are often focussed on townships rather than rural areas;
- to create more stakeholders in Goyder South, increasing the project's social licence; and
- to create more supporters of renewable energy.

The amount of the NBS would be a fixed (per dwelling) payment starting just prior to the start of construction. This timing would be dictated by the fact that the amount would be set according to the distance between turbines and dwellings and this may change as the project layout is refined, meaning turbines could be removed or micro-sited any time up to construction commencement.

Although the payment itself would be associated with a dwelling, the NBS would be implemented via contractual agreements with the dwellings' owners. This means that if the owner of a dwelling eligible for the NBS wishes to sell that dwelling, that person would forfeit their rights to receive the NBS and the purchaser would be invited to sign an identical agreement with Neoen.

The annual entitlement per dwelling would be set objectively on the basis of distance from turbines and the number of turbines:

1) Turbines within 2-3km of Example Dwelling: $[X] per turbine per year
2) Turbines within 3-4km of Example Dwelling: $[Y] per turbine per year
3) Turbines within 4-5km of Example Dwelling: $[Z] per turbine per year
4) Turbines within 5-6km of Example Dwelling: $[R] per turbine per year

Thus, neighbours closer to turbines would receive a higher entitlement. Neoen has chosen not to publicise these amounts in this Development Application in order to protect the privacy of potential recipients, but notes that, on an annual basis for 25-30 years, the entitlements would be a meaningful size and, at a minimum, would cover typical annual electricity bills for most families. Neoen is in the process of discussing these entitlements with neighbours directly.

Additional notes:

a) As noted elsewhere, Neoen has voluntarily imposed a minimum setback distance of 2km (required setback being 1km) between turbines and dwellings;

b) Turbines would only be sited within less than 2 km of a dwelling by agreement with the owner of that dwelling. These dwellings (of which there is only a small number) fall outside the scope of the NBS and a special agreement would be reached with those residents, reflecting their closer proximity;

c) Recognising that townships receive other benefits from large projects, the NBS would **not** be applicable to dwellings within urban, residential or rural living-zoned areas, including Burra and Robertstown;

d)

e) Dwelling owners who are involved with the project as infrastructure hosts, and who are therefore already receiving direct project benefits, would not be entitled to the NBS (whether or not the involved host land would be the same parcel of land as that on which the dwelling is located);

f) Owners of two or more dwellings entitled to the NBS would receive per-dwelling entitlements at a 50% discounted amount per additional dwelling, capped at a maximum of three dwellings. The dwelling which would receive entitlement at a 100% rate would be, in order of priority:

1. the owner's place of residence;
2. if the owner does not live on the property, the primary dwelling associated with the property; and
3. (if there is no clearly identifiable primary dwelling) the closest dwelling to the Goyder South project.

g) Only dwellings which are clearly inhabited on a full-time or near full-time basis would be entitled to the NBS. If a dwelling becomes uninhabited for a significant period, the owner would be obliged to inform Neoen and payments would be paused until the dwelling becomes re-occupied;

h) Dwellings which have received building approval **prior** to the approval of this development application (**if** approved) would be entitled to receive the NBS once their dwelling is constructed and occupied; and

i) Tenants of rented dwellings would not be entitled to receive the NBS due to the significant administrative burden which would be associated with higher resident turnover for rented properties. However, Neoen would strongly encourage landlords to pass benefits through to tenants directly or via reduced rent, and is investigating the possibility of including a clause to this effect in the contracts.

These principles are still in the process of refinement and, while Neoen commits to the NBS, it reserves the right to fine-tune the conditions to ensure a fair and reasonable distribution of entitlements for all eligible dwellings.

3.3 Performance Outcomes

Neoen commits to incorporating a range of design and land use impact management measures to minimise impacts on the local community and the environment if this project is approved. These commitments to the South Australian government and the public are clearly stated in this application. Should this project receive approval, these commitments will form part of the project description and Neoen will adhere to them and ensure that its contractors also adhere to them.

3.3.1 Other Approvals, Licences and Permits

There are a number of assessment and approvals requirements that must be addressed before a project can proceed to construction. The purpose of this application package is to address those matters and issues that are required by the *Development Act 1993* (*SA)*, which focusses its assessment on land use impacts.

Neoen is also addressing the requirements of a range of other legislation that apply to this project, as described below.

The ***Environment Protection and Biodiversity Conservation Act 1999 (Cth)*** **(EPBC Act)** addresses the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places. Neoen has engaged consultants to undertake studies that address matters that may be of relevance to this legislation and have held preliminary discussions with the Department of Agriculture, Water and Environment, the agency responsible for the implementation of the EPBC Act. A key consideration for this Department is whether the applicant has reasonably addressed or can reasonably manage the potential impacts to nationally listed species. At this point the discussions have indicated that there are unlikely to be any ecological or heritage issues that cannot be adequately managed and therefore it is unlikely that the project would be prevented by this legislation.

The ***Aboriginal Heritage Act 1988*** **(SA)** protects Aboriginal heritage and archaeology. It is important to highlight that the legislation requires that information about Aboriginal heritage is kept confidential. It is a requirement of this Act that no activity (including development, farming etc.) impacts on Aboriginal heritage without Ministerial consent, a process that includes consultation with Aboriginal stakeholders.

The Goyder South site falls within the traditional lands of the Ngadjuri Nation. Neoen has undertaken preliminary studies to identify the likely potential for impact which was found to be low; however, Neoen is currently in the process of procuring a physical on-site anthropological survey from Ngadjuri experts, and will continue to engage with them as the development proposal continues to be refined. Neoen intends to utilise best practice with regard not only to avoidance of impacts on Aboriginal heritage but also to benefit-sharing and employment opportunities for Aboriginal people, and is also working with the Ngadjuri to develop a training and employment program associated with construction of the project.

Aviation impacts are addressed by a number of Commonwealth bodies including the Civil Aviation Safety Authority (CASA) and the Department of Defence. An aviation impact study has been prepared and consultation with these bodies is underway. An Aviation Impact Assessment is included in this package of information and identifies that there are no material risks to aviation practices. Airservices Australia, on behalf of CASA, have confirmed that the proposed project poses no issues but has highlighted the need to report the relevant

structures (turbines and meteorological masts) when locations have been finalised. A response from the Department of Defence has not yet been received.

The approach to **traffic** management predominantly focuses on the construction phase as this accounts for the vast majority of impacts. A traffic impact assessment has been undertaken to identify impact issues and appropriate management strategies. Neoen understands that should this application be approved, it would be required to enter into detailed agreements (in the form of a **Traffic Management Plan**) with Council and the Department of Planning, Transport and Infrastructure (DPTI) to ensure that traffic impacts are appropriately managed, and commits to doing so promptly and thoroughly.

Native vegetation is protected by the ***Native Vegetation Act 1991*** **(SA)**. Any clearance (unless exempt) requires an application to the Native Vegetation Council and is assessed against the Principles of Clearance under the Act. A net 'Significant Environmental Benefit' is generally a condition of approval. No clearance approval would be issued unless a Development Approval has been obtained first. Neoen has undertaken the investigations required to commence preparation of an application under this legislation and will ensure all reasonable efforts have been made to minimise impact on native vegetation. It is noted that the project area has a long history of grazing and cropping and, as such, much of the land that would be directly impacted by the development has already suffered vegetation degradation.

Neoen has recognised that a specific vegetation assessment based on the Bushland Assessment Methodology (BAM) will need to be undertaken across the Project Area. The BAM is endorsed by the Native Vegetation Council and used to assess areas of native vegetation requiring clearance and calculate the SEB requirements for the Project.

To assist with re-vegetation objectives for this area, Neoen has secured an option to purchase land near the Worlds End Gorge which would be dedicated for the purposes of regeneration of native vegetation and conservation of the natural environment. It is intended that this would complement the environmental experience for Heysen Trail walkers as well as visitors to the popular Burra Creek Campground and recreation area. This proposal does not formally form part of the Native Vegetation Removal Application, but they are necessarily linked. The following provides more information about Neoen's proposal.

3.3 Worlds End Gorge Reserve

While Neoen has made every effort to site its proposed infrastructure so as to minimise impacts on native flora and fauna, Goyder South would, like any large project, inevitably require some clearance of native vegetation. This clearance would create an obligation to establish a 'Significant Environmental Benefit' under the *Native Vegetation Act 1991* (*SA)*. This may be achieved either by paying a specified amount into the Native Vegetation Fund, or by acquiring and protecting, in perpetuity, an area of land which, in size and environmental quality, is valued at a similar level of SEB points. Preferably, this land is situated within close proximity to the project and be host to similar ecological communities.

Typically, proponents of large-scale infrastructure opt to pay into the Fund as this is much the simpler of the two options. At Goyder South, however, Neoen believes that a unique opportunity exists to secure and protect an area of exceptional scenic and environmental value which is immediately adjacent to the boundaries of the proposed project.

Worlds End Gorge waterhole

3.3.1 Proposal

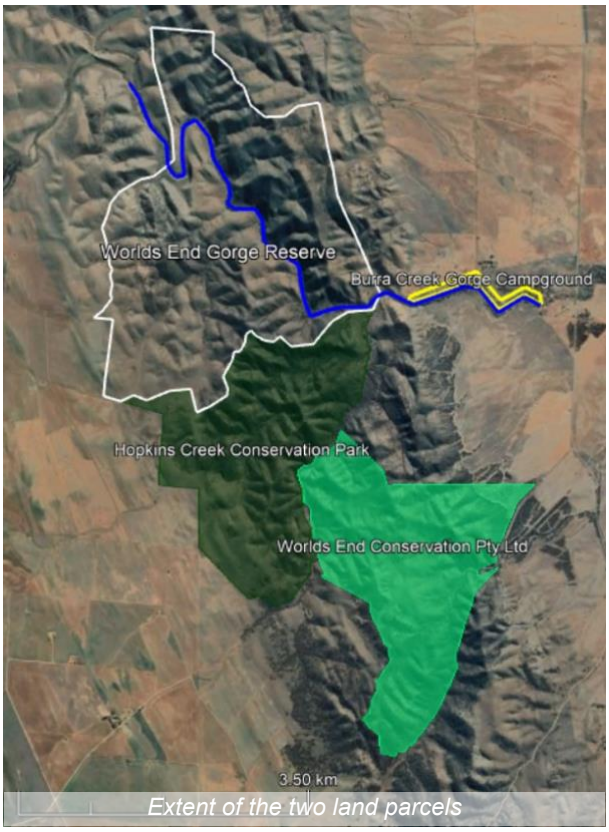
The Worlds End Gorge (also known as the Burra Creek Gorge) is approximately 20 minutes' drive south of Burra, immediately adjoining the southern edge of the Goyder South project and the popular Burra Creek Gorge Campground. It is made up of two parcels and totals approximately 2,360 acres (955 hectares) of rugged, mountainous land, bisected by the Gorge itself through which runs the Burra Creek.

The Creek is fed by underground springs and thus the Gorge contains several large, permanent waterholes. Fresh water with permanent, non-seasonal flow is rare in South Australia, and the Gorge is home to a range of rare and threatened aquatic and riparian species of flora and fauna.

The Gorge and the adjoining land have been privately owned since European settlement, and variously used for copper mining and grazing. Once a popular swimming spot for local residents, ongoing issues with bushfire risk due to unsupervised campfires, vandalism of fences and subsequent escape of livestock eventually forced the current owners, David and Joanne Gebhardt, to prohibit public access some years ago.

In 2019 Neoen, together with David and Joanne, formulated a proposal to use these parcels for the creation of an area which would be both a native vegetation offset and a public nature reserve. Although the Gorge has been part of their property (The Gap) for many years and has a considerable emotional importance to their family, the Gebhardts believe that its unique environmental and scenic value, and its significance to the local community made this an ideal use for the land.

Enabled by the generosity of the Gebhardt family, Neoen now proposes to create the 'Worlds End Gorge Reserve' alongside its proposed Goyder South project.



Extent of the two land parcels

3.3.2 Dual Land Use - Conservation & Natural Tourism

The Gebhardts have granted Neoen binding Options to Purchase over the two parcels that encompass the Gorge, to be exercised around the time of construction commencement on Goyder South.

Together, these parcels would be likely to exceed the total SEB point liability of Goyder South and would be significantly more than the SEB liability of any one stage of the project. Consequently, purchase of the two parcels would occur sequentially, beginning with the easternmost parcel, as successive stages of Goyder South achieve financial commitment. This means that the reserve would commence at a size of approximately 1388 acres and expand to its full size of approximately 2360

acres as Goyder South grows. The land is also contiguous with the Hopkins Creek Conservation Park, which is itself contiguous with land owned by Worlds End Conservation Pty Ltd, a private conservation organisation. The addition of the Gorge Reserve to this land would result in an unbroken conservation area and wildlife corridor through the Hallelujah Hills approximately 9 kilometres in length.

Main waterhole a short distance from Burra Creek Campground

The land would be managed for the conservation and rehabilitation of its valuable native flora and fauna (see further on this below). However, Neoen feels strongly that the outstanding natural beauty of the Gorge and its surrounds justify the second proposed land use—creation of the scenic Worlds End Gorge Reserve for the free enjoyment of residents and visitors. Neoen has consulted with the Native Vegetation Council on this proposal and they have indicated their in-principle approval as per Appendix A.

Neoen envisages that the Gorge Reserve would be suitable for a range of natural tourism activities such as hiking, swimming, climbing and walk-in camping. Besides the Gorge's natural waterholes, the varied terrain offers numerous potential routes for walkers ranging from easy to very challenging. The highest point on the land is around 540m above sea level (among the tallest hills in the area) and provides natural views to the south over the Hallelujah Hills. To the north and east the view would include the proposed Goyder South wind and solar installations. From inside the Gorge, sheltered by trees and steep cliffs, the wind turbines would be largely invisible.

Together with the Department of the Environment and Friends of the Heysen Trail, Neoen is also investigating the possibility of routing a portion of the Trail through the Gorge instead of along Worlds End Highway.

Neoen wishes to emphasise that:

1. All activities in the proposed reserve would be required to have minimal environmental impact (noting that there would be no public vehicle access permitted) and this would be subject to monitoring to ensure consistency with the conservation purpose of the offset. Some trails and basic facilities such as dedicated camping/swimming areas or toilets may be constructed for this purpose, and for the safety of users. Similarly, areas of the reserve which are characterised by particular ecological sensitivity, or which are undergoing rehabilitation, may be excluded from public access either temporarily or permanently.

2. Any other conditions under which public access and use may acceptably be combined with conservation have not been finalised in detail with relevant stakeholders (in particular the Department of the Environment, the Native Vegetation Council and Goyder Regional Council) and additional conditions on public access may be required.


Rugged cliffs lining the Gorge

3. Any other conditions under which public access and use may acceptably be combined with conservation have not been finalised in detail with relevant stakeholders (in particular the Department of the Environment, the Native Vegetation Council and Goyder Regional Council) and additional conditions on public access may be required.

At around 20 minutes from Burra, Neoen considers that making this unique place available for public access would provide considerable enjoyment to the nearby community, as well as a significant boost to tourism opportunities in the Goyder area (which so far have largely focused on Burra's industrial heritage rather than nearby areas of natural beauty).

3.3.3 Ownership and Management

As is typical for offset land, the Reserve would require an annual budget for its management and rehabilitation. Neoen is in the process of establishing an appropriate budget (which would be committed for the lifetime of Goyder South) and looks forward to consulting with relevant stakeholders on this question. The budget would include, at a minimum, funds for:

- stock removal and fencing;
- pest and weed control;
- protection and rehabilitation of key native species;
- arrangements for safe public access; and
- exclusion from ecologically sensitive areas.

Neoen's intention is that once purchased, the Reserve would be protected in perpetuity for the benefit of the environment and the community and could not be re-sold into private ownership upon the decommissioning of Goyder South. Neoen is currently exploring various opportunities to achieve this objective, including a Heritage Agreement.


Burra Creek and waterhole

3.3.4 How this relates to the Development Application

This proposal relates to the achievement of significant environmental benefit in accordance with the Native Vegetation Act, and Neoen's broader desire to benefit the community and the people of the Goyder area, and does not formally form part of the development application. Should the project receive approval under the Development Act, then the vegetation clearance application could be finalised, which would then facilitate the arrangements for the Worlds End Gorge Reserve. Subject to development and native vegetation approval, however, Neoen commits to the creation of the Reserve as per this Section 3.3.

Apart from formalising the ownership and management structure, considerable work would be required to bring together the wide range of stakeholders who are likely to have an interest in the manner in which the Reserve would be used. This would include (but not be limited to) the Department of Environment and Water (Native Vegetation, National Parks and Wildlife and Tourism); local Aboriginal representatives; Goyder Regional Council; the local community and environment groups; Friends of the Heysen Trail; and various other interested individuals. Detailed work would be required to appropriately and sensitively design, construct and budget for any walking trails, viewing areas and low-impact camping areas.

Neoen recognises that the Worlds End Solar farm component of the proposed development would have an impact on the landscape located adjacent to the Heysen Trail where it abuts Top Road. In recognition of this, Neoen has commenced discussions with the Department of Environment and Water (National Parks and Wildlife).

The Department has advised that the Heysen Trail does change from time-to-time in response to a wide range of factors. It was also highlighted that trail users value a variety of landscape experiences.

While the ultimate goal is to facilitate an extension of the Heysen Trail through the new Gorge Reserve it is anticipated that it could take some time to facilitate this opportunity.

In the meantime, Neoen have commenced discussions with the South Australian Department for Environment and Water (DEW) and the Friends of the Heysen Trail to discuss an offer to divert approximately 3.6km of the Trail that is likely to have solar panels located on both sides of the Trail.

The diversion would include an edge treatment that creates an outlook for trail users as indicated in the figure below.

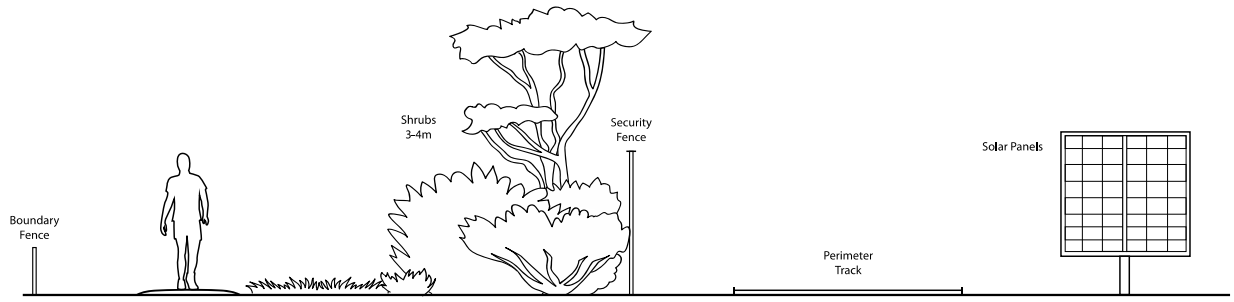


Figure 4: Potential Heysen Trail Diversion: Edge Treatment

Based on preliminary engagement with the Department, Neoen expects that it will have no in-principle objection to the Stage 1 approach or inclusion of the Gorge. This aligns with the State Government's strategic emphasis on nature-based tourism.

4. Existing Conditions

4.1 Locality

From its northern tip approximately 5km south of the centre of Burra, the proposed development area extends approximately 27 km south and terminates approximately 5km north of Robertstown. The site of the development includes a total area of approximately 30,000ha and has a total asset footprint of approximately 3,300ha which represents slightly more than 10% of the total area.

The land within the proposed development site is generally privately owned and comprises predominantly dryland cropping and grazing. Due to the long settlement history of the area, there are a number of “paper” roads in the area, which are government-held land where a road has not actually been constructed.

The proposed project area is located in the eastern portion of the northern Mount Lofty Ranges and wholly located within the Regional Council of Goyder. The region is serviced by the Barrier Highway, the Burra-Morgan Highway (Goyder Highway) and the Worlds End Highway.

The area is within the Mid North Region (for the purposes of strategic land use planning) and the SA Murray-Darling Basin Natural Resource Management (NRM) area. It is also located within the ‘Northern Ranges’ of the Rangelands part of the SA Murray-Darling Basin NRM. The area is generally described as a transitional zone between cropping and pastoral country. It is noted that the project is not located within a prescribed water resources area.

Prior to European settlement, the Ngadjuri people occupied the land that is the subject of this application. European exploration and use of the land began in around 1838-39 and focussed on cereal grain and grazing, including vast sheep and cattle runs. The Burra copper deposit was discovered in 1854 and railway lines were established in 1870.

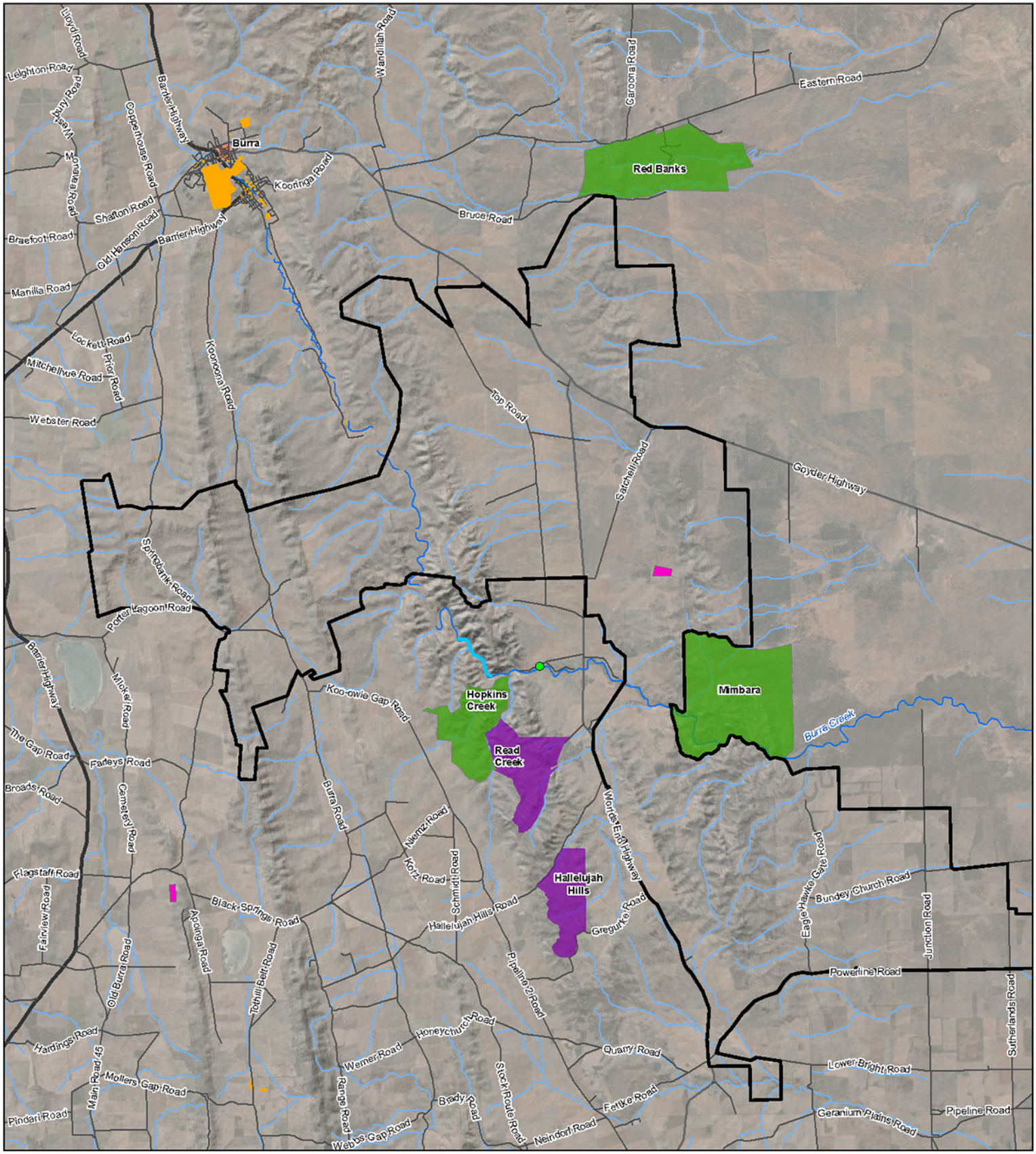
Today, Burra remains a key regional service centre providing for aged services, affordable housing and temporary housing for short-term residents.

Robertstown is located on the Worlds End Highway between Eudunda and Burra and is approximately 7 km to the south of the proposed development (based on the nearest turbine—the transmission line is located approximately 5km from Robertstown). Originally strategically located as a service centre for the surrounding agricultural and mining activities, this town further developed in response to the need for a supply depot and the supply of water (Morgan-Whyalla pipeline).

The Burra/Robertstown region is typical of the dryer areas of the mid north. This region can experience cool to cold winters and warm to hot summers. This area is on the edge of Goyder’s Line and has experienced drought conditions for the last three years.

This region has a relatively low population density, with most residential premises being located in a number of towns, Burra being the largest. The land use is predominantly agricultural, mostly grazing and some limited cropping.

The Goyder South project is proposed to span the Worlds End valley with turbines located on the western ridge lines and the eastern ridgelines and extending south towards Robertstown. The northern solar site would be located on marginal cropping/grazing in the centre of the Worlds End valley, on the western side of the Worlds End Highway, while the southern solar site would be located further south to the east of the eastern ridgeline in the locality of Bright.



- Goyder South project boundary
- Worlds End campground
- Conservation Park
- Private conservation area
- Extractive mineral lease
- Burra Gorge
- Heritage Places
- Highway
- Arterial / Sub Arterial
- Collector and local
- Burra Creek
- Minor watercourse
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Neoen
Goyder Renewables Zone

Job Number 33-19112
Revision B
Date 02 Jun 2020

Description of Site

Figure 5

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

4.2 Climate & Topography

The region has a Mediterranean climate in which hot dry summers are followed by cool, relatively wet winters. As it located in the rain shadow of the Mount Lofty Ranges, the region has a marked reduction in rainfall compared to the country to the west (SAMDBNRMB 2009). The Millennium Drought which began in 1995 and continued across much of Australia until late 2009 severely affected the region.
Climate change modelling suggests the region will become even hotter and drier which would see an increase in drought periods that may ultimately affect water resources and biodiversity in the region. (DEWNR Technical Report July 2016/08 Non-prescribed Surface Water Resources Assessment South Australian Murray-Darling Basin Natural Resources Management Region).

Long-term rainfall monitoring in the region is relatively sparse in this part of South Australia. However, a long-established monitoring site at Burra indicates a steady trend in average annual rainfall of 448mm (over 125 years of records) with June, July and August receiving the bulk of the rainfall and significantly drier periods from November to March inclusive.

4.3 Natural Resources

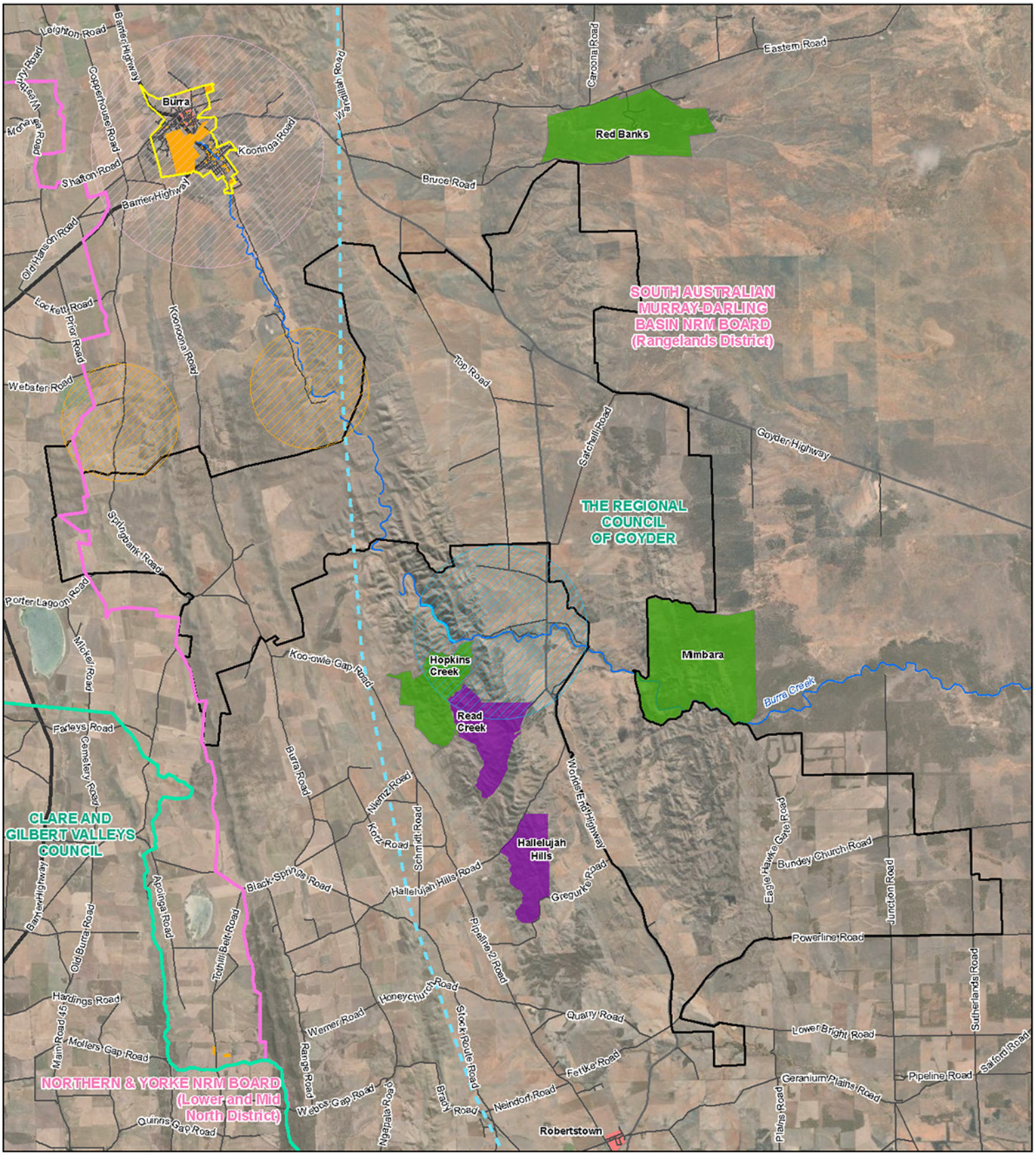
The project area is proposed to be located in a region identified as the Northern Ranges portion of the SA Murray-Darling Basin.[9] This is more specifically an area that represents the northern portion of the Eastern Mount Lofty Ranges. This area is generally described as a transitional zone between cropping and pastoral country and is further described in the following quote[10]:

Extract from the SA MDB Natural Resources Management Plan

- *The northern Eastern Hills are located in the west of the district and are mainly comprised of hills and slopes with shallow soils formed on basement rock grading to plains and gentle slopes with soils formed of outwash sediments derived from basement rock grading to plains and gentle slopes with soils formed of outwash sediments derived from basement rock highs.*
- *These lower rainfall ranges support extensive natural grasslands and open grassy woodlands, with mallee and riparian woodlands dominating drainages and plains between the rises.*
- *The northern Eastern Hills retain a range of significant biodiversity assets that are threatened, including the EPBC-listed Pygmy Blue Tongue Lizard, Spalding Blown-grass, Iron-grass Natural Temperate Grassland, and Peppermint Box (Eucalyptus odorata) Grassy Woodland.*
- *Recovery Plans have been developed at a national or regional level for some threatened species and ecological communities, including the Pygmy Blue-Tongue Lizard, Spalding Blown-grass and Iron-grass Natural Temperate Grassland.*
- *While the northern Eastern Hills are largely used for grazing domestic stock, significant areas of cereal crops also occur in the southern parts of this landscape.*
- *Water erosion is an important issue across the landscape, but particularly in the north-eastern Mt Lofty Ranges. The risk of water erosion is increased where inappropriate grazing and vegetation management occurs.*
- *A significant and emerging land use issue in the northern ranges relates to the development of wind farms.*

[9] SA Murray-Darling Basin https://www.naturalresources.sa.gov.au/samurraydarlingbasin-rap/Subregions/Northern-Ranges

[10] South Australian Murray-Darling Basin Natural Resources Management Board, 2015. *Natural Resources Management Plan: Volume A Strategic Plan.* P48



- Goyder South project boundary
- Goyder's line
- Local government area
- NRM region/district
- Conservation Park
- Private conservation area
- Burra Gorge
- Burra Gorge campground 3km setback
- Burra State Heritage Area
- Burra Town Hall 4km setback
- Heritage Place
- Heritage Place 2km setback
- Highway
- Arterial / Sub Arterial
- Collector and local
- Burra Creek
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Neoen
Goyder Renewables Zone

Job Number 33-19112
Revision B
Date 02 Jun 2020

Strategic Context

Figure 6

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

The area's natural resources are managed through the SA Murray-Darling Basin Natural Resource Management Plan. The four highest priority issues for natural resource management in this area are:[11]

- Containing new environmental weeds;
- Sustainable livestock grazing;
- Containing new agricultural weeds; and
- Threatened species recovery.

Goyder's Line runs through the project area, meaning that the land is already considered marginal for agriculture. An increasing challenge for the region will be the potential impact of climate change on rainfall patterns and temperatures. Trends associated with climate change could have significant impacts on the viability of current agricultural activities.

Based on Neoen's discussions with landholders and Council, a greater proportion of the land in and around the project, which was once used for cropping, is already transitioning to grazing, especially in the World's End valley—a transition which has been accelerated by the drought conditions in recent years.

A report prepared by the Climate Council in 2016 identified that a key barrier to adaptation is a 'lack of financial resources (that) is preventing many landholders from preparing for climate change' (p. 59).[12] This report identified renewable energy projects as one opportunity to provide an alternative source of income for landholders and to support economic growth (p. 66).

In the longer term, landowners in this already marginal area may struggle with increasingly frequent and severe periods of drought. Given this, some may find the diversified and secure income associated with the Goyder Renewable Energy Zone helpful in working towards drought resilience, and Neoen's discussions with landowners have indicated that this has been one of their main motivations in deciding to participate in the Goyder South project.

Burra Creek catchment

Burra Creek and its catchment is one of the most significant water courses in the project area. The semi-arid Burra Creek catchment is located in the north-west part of the region, adjacent to the Southern Flinders Ranges. Its headwaters commence just north of Mount Bryan and flow in a southerly direction towards Worlds End before changing direction to the east and flowing to its discharge point at the River Murray.

Climate in the Burra Creek catchment generally consists of hot, dry summers and cool, relatively wet winters. Although the predominant wet period is during winter-spring, summer storms can deliver large volumes of water during a short period of time (Deane *et al.* 2006). Based on SILO rainfall data for the period 1900–2015, the average annual rainfall across the Burra Creek catchment is between 400-500 mm from the top of the catchment to Logan Creek, before reducing to 300-400 mm between Logan Creek and Worlds End, and 200-300 mm from Worlds End to the River Murray. Small sections of the catchment north-east of Burra and around the south-west corner average over 500 mm. Compared to the long-term average, rainfall for the recent period 2006-15 has been largely similar across the catchment.

Topography in the Burra Creek catchment varies from just above sea level at its discharge point to the River Murray, to elevations of 900 m AHD in the north of the catchment. Flows from Burra Creek to the River Murray are rare with the last time this occurred estimated to be around 1941 (Deane *et al.* 2006). Burra Creek is well known for the Burra Gorge (also known as Worlds End Gorge) and the associated Burra Creek Campground is a popular recreational area.

The Burra Creek catchment has three current surface water monitoring data logging sites in the central part of the catchment and many community surface water monitoring sites. Burra Creek upstream Logan Creek and Burra Creek at St Just Street Ford were established in 2008 and monitor water level and electrical conductivity. Burra Creek at St Just Street Ford was decommissioned in 2010 before being reopened in late 2014. Burra Creek at Worlds End (low flows) was designed to monitor low flows due to the strong groundwater discharges

[11] South Australian Murray-Darling Basin Natural Resources Management Board, 2017. *Regional Action Plan: A guide to natural resource management priorities in the South Australian Murray-Darling Basin, Northern Ranges subregion summary*.

[12] Climate Council, 2016 'On the Frontline: Climate Change & Rural Communities'

(baseflow) that occur within the creek. A historic surface water monitoring station, Burra Creek at Worlds End; A4260536, monitored streamflow from 1974 to 2009 and indicated that flows did not cease during this period, due to baseflow maintaining the perennial reaches of the central catchment (Deane *et al.* 2006).

4.4 Population

The 2016 Census recorded the total population of Burra as 1,103[13] and Robertstown as 248.[14]
The 2018 Estimated Resident Population for Regional Council of Goyder is 4,026 with a population density of 0.01 persons per hectare and an average household size of 2.23 persons.[15]

To provide a comparative context, the major differences between the age structure of Regional Council of Goyder and RDA Yorke and Mid North Region were:

- A *larger* percentage of 'older workers & pre-retirees' (17.0% compared to 15.2%);
- A *larger* percentage of 'parents and homebuilders' (17.7% compared to 16.1%);
- A *smaller* percentage of 'seniors' (12.7% compared to 14.1%); and
- A *smaller* percentage of 'young workforce' (7.9% compared to 9.0%).

From 2011 to 2016, the Regional Council of Goyder's population decreased by 9 people (0.2%). This represents an average annual population change of -0.04% per year over the period. The largest changes in the age structure in this area between 2011 and 2016 were in the age groups:

- 'Empty-nesters' and retirees (60 to 69) (+131 people);
- Parents and homebuilders (35 to 49) (-80 people);
- Primary schoolers (5 to 11) (-66 people); and
- Seniors (70 to 84) (+54 people).

Analysis of the household/family types in Regional Council of Goyder in 2016 compared to RDA Yorke and Mid North Region shows that there was a higher proportion of couple families with a child or children as well as a lower proportion of one-parent families. Overall, 21.3% of total families were couples with a child or children, and 7.1% were one-parent families, compared with 20.5% and 8.6% respectively for RDA Yorke and Mid North Region.

There was also a higher proportion of lone-person households and a lower proportion of couples without children. Overall, the proportion of lone person households was 30.4% compared to 29.7% in RDA Yorke and Mid North Region while the proportion of couples without children was 30.1% compared to 31.2% in RDA Yorke and Mid North Region.

The SEIFA index of disadvantage uses a method that derives an index from a set of variables that relate to the concept of disadvantage such as income, education levels, unemployment, rent levels etc. This is a relative comparison between areas and not an absolute measure. Goyder has a score of 946 which sits about mid-range on the index.

4.5 Cultural Heritage

Aboriginal Heritage

The proposed project area is recognised as being within the traditional lands of the Ngadjuri Nation. There are limited publications available relating to specific Ngadjuri ethno-history which may be due in part to European interaction and subsequent cultural losses. However, the Ngadjuri are known to have lived a rich ceremonial life and to have been bound by complex social and marriage laws.

Aboriginal heritage is protected by the *Aboriginal Heritage Act 1988* (SA) which also requires that the location and nature of known heritage is kept confidential. Neoen have commissioned and completed a preliminary Aboriginal heritage study but this study cannot be released publicly as it contains sensitive information. This

[13] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC40193
[14] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC41252
[15] Source: RDA Yorke and Mid North Region Community profile

study is the first step taken by proponents to identify heritage constraints and management requirements for the project. Neoen also flags its intention to undertake cultural heritage surveys in coming months, prior to the detailed design stage.

The main requirement for compliance is that projects do not damage, disturb or interfere with Aboriginal heritage sites, objects or remains. It is the responsibility of the applicant to take the precautionary steps required to minimise the risk of disturbance. However, much of the focus of heritage protection occurs during the construction phase when ground works may reveal material of heritage value. If this occurs, it is at this point that works are carefully managed in line with the requirements of the Aboriginal Heritage Act (this may include, consultation with Ngadjuri, archaeologists, DPC-AAR and the Minister for Aboriginal Affairs).

The requirement to keep Aboriginal heritage sites confidential and the recognition that a significant amount of Aboriginal heritage and artefacts are not known or recorded means that this is not an issue that can be addressed as part of the Development Assessment process. However, should the project be approved, Neoen would continue to work closely with the Ngadjuri and its own heritage consultants to minimise these risks during development and construction, noting Neoen's experience to-date in successfully managing these risks across numerous other projects in Australia (including Hornsdale Wind Farm, which was also partially located on Ngadjuri land).

European Heritage

The proposed project area is located in a region that has played an important role in the development of South Australia, with its significant pastoral and mining history. The importance of the pastoral and mining history of the region is reflected in the many towns, areas and structures of European heritage interest and their inclusion on National, State and local heritage registers.

Mining activity in the region commenced in the mid-1840s and continued until the mid-to-late 1870s. With a decline in mining, the region re-focused on agricultural activities and services to support farming families. The prosperity of the 1870s and early 1880s came to an end with a series of droughts in the mid-1880s and a drop in world prices for wool, wheat and copper. The numerous ruins of farms and farm buildings in and around the project site attest to the resulting population decline in the region.

In more recent times, the name 'Burra' has become globally synonymous with heritage management and protection. The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance is known as 'The Burra Charter' and was first adopted at an international conference held in Burra in 1979. The principles of the Burra Charter are incorporated into legislation in Australia and around the world.

Neoen has discussed this issue with Goyder Regional Council extensively and commits not only to ensuring that Goyder South does not negatively impact Burra's heritage, but also to actively supporting it wherever possible.

There are no formally listed Local Heritage Places within the Regional Council of Goyder but there are three State Heritage listed places in the vicinity of the project, which include:

- Burra State Heritage Area (also nationally listed);
- Princess Royal Station; and
- Old Koonoona Homestead.

While the project would not have a direct physical impact on these places, Neoen acknowledges that the project may have a limited indirect impact by changing the appearance of the nearby landscape. Neoen has therefore commissioned specialist advice in relation to this potential impact from both a state and national perspective.

While there are a number of registered places of European heritage, it is likely that the area may contain archaeology that is not formally recorded. It is noted that the *Heritage Places Act 1993* requires all developments to address and manage the potential for archaeological finds to occur during construction and ensure that they are recorded, a process that has often been overlooked in the past. This is a very similar approach to that required to address Aboriginal archaeology.

For example, Neoen notes the ruin that is located on the Worlds End Highway, near the intersection of Satchell Road which is understood to be a former church and was used as a school for a period. This ruin is not heritage listed but it is likely that there may be archaeology near or around this building. To minimise the risk of disturbance, Neoen has established a 200m setback from this property.

Neoen would also carry out a heritage survey for the proposed footprint of the project prior to micrositing to identify any European archaeological/heritage risks and develop management recommendations in line with the relevant legislation.

Ruin on Worlds End Highway near Satchell Road

5. Response to Feedback

The following chapter provides an overview of the landholder and stakeholder engagement that has been undertaken prior to the lodgement of the application, the issues raised and Neoen's response.

5.1 Community Engagement

As a long-term 'owner operator', Neoen does not develop its projects to sell, and expects to operate in communities for 30 years or more. Consequently, it is a vital aspect of its business that it creates long-term partnerships with communities.

Neoen always takes pride in meeting and exceeding industry best-practice community engagement guidelines, and would be happy to provide more detail on these processes upon request.

Neoen Community Office in Burra

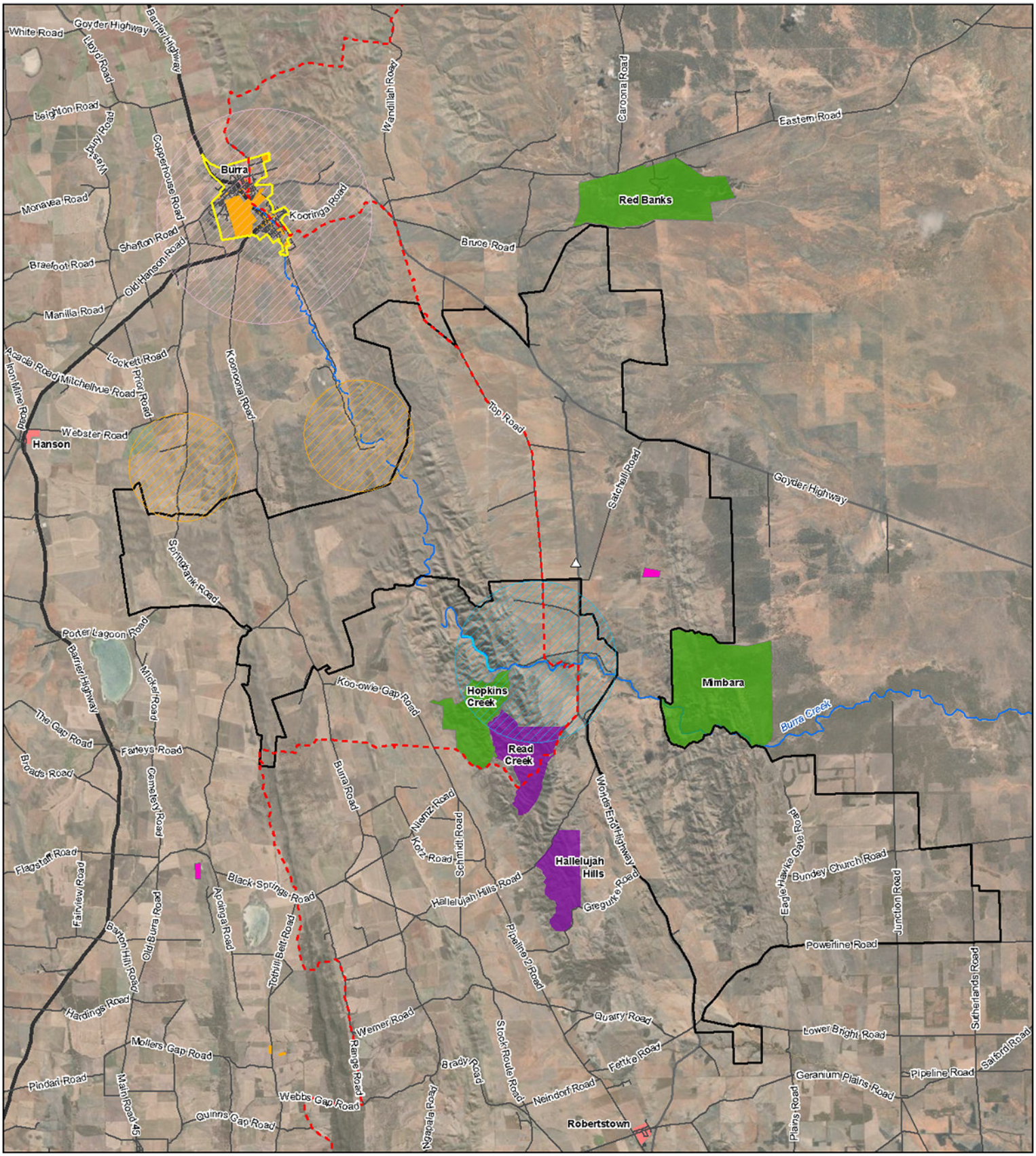
At Goyder South, the unprecedented scale of the project has allowed the company to implement several new methods of engagement which go beyond best-practice community engagement:

1. **Community Liaison Officer:** In addition to Neoen's Goyder South Project Manager, Neoen has employed a Community Liaison Officer, based locally and with family background in the area, as well as extensive experience with renewable energy. She has been dedicated solely to Goyder South and, over the last 12 months, has assisted in locating and engaging with all potential landholders and neighbours within a 6km radius of the project boundary, as well as staffing the Community Office and connecting community members with the Project Manager.

2. **Community Office:** Neoen established a community office on the main street of Burra in early September 2019 and held the first Community Information Open Day on 11 September 2019. A second Open Day was held on 6 November 2019 in both Burra and Robertstown. A preliminary turbine layout was provided at the second Open Day, as well as numerous information posters and pamphlets for community members to take with them. The reaction from community members at both events was exceptionally positive.

   The Neoen Community Office in Burra is staffed on a part-time basis (approximately 2 days per week from 9am-4pm) by the Goyder South Community Liaison Officer. It contains a large amount of project information including layouts and future plans for Goyder South. It also provides background on Neoen and information about renewable energy. Information pamphlets are available and members of the public are encouraged to vote on how the Goyder South Community Fund (see further section 3.2.1 of this Application) should be spent.

Example voting poster



- Goyder South project boundary
- Church ruin
- Heysen trail
- Conservation Park
- Private conservation area
- Extractive mineral lease
- Burra Gorge
- Burra Gorge campground 3km setback
- Burra State Heritage Area
- Burra Town Hall 4km setback
- Heritage Place
- Heritage Place 2km setback
- Highway
- Arterial / Sub Arterial
- Collector and local
- Burra Creek
- Township

NOTE:
- Ngadjuri Nation Native Title claim covers entire area shown
- Minerals Exploration Licenses cover entire area shown excluding Burra township and Red Banks CP (Ausmex SA Pty Ltd and PNX Metals Ltd)

Paper Size A3
0 0.5 1 2 3 4
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

NEOEN

Neoen
Goyder Renewables Zone

Job Number 33-19112
Revision C
Date 02 Jun 2020

Summary of Community Interests

Figure 7

N:\AU\Melbourne\Projects\33\19112\GIS\Maps\Deliverables\DA_figures\33_19112_007_Summary_Community_Interests_A3P_RevC.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

During open hours, the space is open to the public and offers a clear, easy way for community members with concerns or comments to get in touch with Neoen if they prefer physical communication to phone or email. A significant number of one-on-one meetings have also been held in the office. Regrettably, the office has been **temporarily closed** since early March due to COVID-19 public health measures, but Neoen looks forward to re-opening as soon as it is safe and appropriate.

It is noted that the information provide through the community office was based on an early and preliminary understanding of the project, its impacts and its layout. The information provided in this development application package is based on more up-to-date information and understanding and therefore some information has changed. As a rule, the project has become slightly smaller over this period.

5.2 Council and Agency Consultation

Neoen has briefed Council on the Goyder project several times over the last 18 months and Council has made a number of requests in response. Neoen has taken on board these requests, which include:

- **A turbine setback of at least 4km from Burra town centre**
  Neoen has voluntarily increased this distance to approximately **5.3 km** to ensure minimal visibility of turbines from the town, deleting over 10 turbines in the process;
- **Maintaining an acceptable distance between turbines and the Burra Creek Campground**
  While a minimum distance was not formally specified by Council, Neoen has adopted a minimum distance of 3km and understands that Council approves of this distance in-principle. As the campground is within a heavily vegetated area surrounded by rises, views of turbines are expected to be minimal.
- **Avoid construction traffic through Burra centre**
  Neoen has instructed its traffic consultants to this effect and would ensure that heavy vehicle traffic through Burra is avoided (some light vehicle traffic is inevitable and, from an economic point of view, desirable as project workers would use the town as a service and accommodation centre). Final clarification of routes would be undertaken in consultation with Council and DPTI as part of the formulation of the Traffic Management Plan. Some oversized transport (such as the long turbine blades) would need to use the Copperhouse Road diversion (see further the Traffic Impact Assessment in Volume 2 of this Application) but all other traffic would be directed to use other access options.
- **Consult as widely as possible within the community**
  This is summarised in this Chapter in Section 5.1.

Neoen and the specialist team have also held preliminary briefings and discussions with key State Agencies to confirm their expectations in relation to the provision of information as part of the assessment process, including:

- Department of Planning and Transport (Transport section) regarding construction access routes;
- Department of Environment and Water (Native Vegetation section) regarding offset land (see further Worlds End Gorge Reserve section);
- Department of Environment and Water (National Parks and Wildlife); and
- Department of Energy and Mining.

Strategic Directions

A number of local and state level strategic plans that relate to the project area have been reviewed in order to provide a context for the project and a longer-term outlook for the project area.

The Council has recently endorsed its '**Goyder Master Plan 2019-2034'**[16] which highlights key future issues and aspirations for the Council. It covers a wide range of issues and areas of consideration, of which the following are relevant to the project:

- Burra is one of two important service centres for the Council area;
- Burra is a State Heritage Area (since 1994) and is on the National Heritage List (since 2017) and there is an intention to seek World Heritage status;
- Economic development, underpinned by the agricultural sector, is a critical interest area;
- The 'Centre for Renewable Excellence' combining heritage preservation and facilitation of renewable energy and economic growth is a key growth and evolution strategy for the Council;
- Growing and stimulating tourism is an important economic strategy for the Council area and the Councils 2017 Tourism Strategic Plan identified the importance of heritage, arts and nature-based attractions; and
- Access to information technology systems (internet, TV, mobile) is a significant challenge for the region.

The **Mid North Region Plan** (May 2011) is the relevant state-level land use strategic plan. Key points in the strategy include:

- Maintaining town character and heritage and promoting towns and settlements with distinctive built heritage and historical importance to the state, including Aboriginal heritage and importance (p. 11);
- Expanding local electricity generation through renewable energy sources such as wind farms and gas-fired peak demand plants which will provide greater capacity for economic activity. This will require expansion of the transmission infrastructure to service this growth (p. 12);
- Managing (urban) growth to protect natural and industry assets, especially to the south of Burra and Clare (p. 14);
- Retaining built heritage and linking it with tourism, particularly along the Clare and Burra to Hawker corridors (p. 14); and
- Enhancing the development of renewable energy (p. 14).

Of specific relevance to the proposed Goyder South project, the strategy includes the following objectives:

- Support the development of wind farms in appropriate locations, including the co-location of wind farms and existing agricultural land (p. 38); and
- Support the development of licensed wind-power generators (p. 53).

At the State level, South Australia has a strategy and action plan that aims to transform the state's nature-based tourism sector. The strategy, ***Nature like nowhere else; Activating nature-based Tourism in South Australia*** and action plan outline the vision and actions designed to make South Australia a world leader in nature-based tourism. At the same time the strategy seeks to value and support the ongoing conservation of our State's natural and cultural heritage. The strategy is an initiative developed by the Department of Environment and Water (National Parks and Wildlife Service SA) which aims to lead tourism development by providing opportunities to further develop experiences that are sustainable, have potential for growth and have proven demand. One of the key themes is: standout walking journeys across the landscape.

5.3 Land Interests

It is not a requirement of the South Australian development assessment system for an applicant to finalise arrangements for access to land prior to lodgement of the development application. It is considered the responsibility of the applicant to negotiate appropriate agreements with third parties, depending on the nature of the land interest.

This application reflects discussions held in good faith with titled landowners. It is acknowledged that access to land and other land rights would be finalised once the project obtains development authorisation and proceeds with detailed project design.

Neoen undertakes to accommodate the reasonable interests of current landowners through the micro-siting process including (where relevant) farming practices, screening for visual impact and shadow flicker and noise

[16] https://www.goyder.sa.gov.au/__data/assets/pdf_file/0027/337824/Appendix-1-Goyder-Master-Plan-2019-2034.pdf

attenuation. Neoen are also open to discussion and negotiation with those that have other land interests including the Ngadjuri Nation, the Crown Lands Agency and mining explorers.

5.3.1 Landowner Consultation

A significant challenge for the Goyder South HRE Project has been the scale of the engagement process with landowners. The scale of the project means that there are potentially more than 40 landowners directly involved, and many more neighbours within the 6km radius. Challenges have arisen not only from the perspective of finalising so many landholder negotiations, but also from the difficulty of determining land ownership and dwelling status (noting the abundance of abandoned or empty buildings in the area) and even obtaining accurate contact details (noting that many landowners, involved and neighbouring, do not live on their land). COVID-19 has also presented challenges in contacting some landowners in recent months.

Potentially involved landowners have overwhelmingly been enthusiastic about the project and Neoen is confident that virtually all of these discussions will ultimately result in agreement between Neoen and those landowners if the project is approved. The current layout has been drafted on this assumption. However, having regard to the desirability of beginning development assessment as soon as possible so as not to unduly delay the project, Neoen notes that there are still some land discussions ongoing at the time of lodgement of this application with landowners who have not yet signed an agreement with Neoen. Neoen has informed these landowners that **while their properties may be included in the proposed DA layout, they are entirely free to withdraw from negotiation processes as and when they see fit**, which may occur during or after the assessment process and regardless of its outcome.

In the event that any landowners decide **not** to participate in the project, Neoen would alter the project layout to reflect their decision, including:

- removing any proposed asset locations on their properties;
- unless agreed otherwise as project neighbours, instituting full 2km minimum setbacks between turbines and occupied dwellings; and
- unless agreed otherwise as project neighbours, removing any assets as required to achieve EPA noise limits applicable to uninvolved dwellings.

5.3.2 Neighbour Consultation

In accordance with industry best practice, Neoen has endeavoured to contact every neighbour within a 6-kilometre radius of the proposed Goyder South project area (except population centres such as Burra and Robertstown) via letter or phone to offer personal face-to-face meetings at their home or at Neoen's Burra office (at the choice of the individuals). In some cases, Neoen's Community Liaison Officer has been obliged to knock on doors directly or reach out to acquaintances and family to find other methods of contact. In recent months, COVID-19 has dictated consultation primarily by video conference or phone.

At meetings, the project team has aimed to provide accurate information about Neoen, renewable energy technology and the Goyder South project, noting that the design has evolved as consultation continues (overall the layout has been reduced in size). Neighbours have been provided with contact details for the Community Liaison Officer and Project Manager and, where agreeable, added to the Goyder South mailing list to receive project updates. Neoen has also encouraged a number of neighbours to submit their details to the project's register of jobseekers and potential suppliers of goods and services (https://goyderenergy.com.au/workwithus/). These engagement efforts have been successful and positive in the overwhelming majority of cases (noting the paragraph below) and Neoen looks forward to maintaining a close ongoing dialogue with neighbours as development of the project continues subject to approval.

Neoen also wishes to note that due to the size of the proposed project, there are well over 200 buildings within the 6km radius (mostly on the western boundary of the project) excluding population centres. During the development process, Neoen has identified approximately 130 of these buildings as dwellings. However, the status of these dwellings varies greatly. Most fall into the following categories:

1. Occupied;
2. Occupied part-time, e.g. as shearers' quarters;
3. Habitable but unoccupied;
4. Uninhabitable but with a clear intention of future refurbishment; or
5. Uninhabitable and abandoned.

Neoen's project team has categorised owners of dwellings falling into the first four categories as 'neighbours' for setback and noise limit purposes. The team has made every effort to correctly ascertain the status of these dwellings and contact every associated landowner, but if any nearby residents believe that any errors or omissions have inadvertently been made and neighbouring dwellings have been missed or miscategorised, then Neoen urges those persons to contact the company for immediate correction and, if necessary, amendment to the project design. Neoen commits to promptly remedying all errors which can be substantiated.

5.3.3 Aboriginal Community Engagement

The relevant Aboriginal stakeholders for the Goyder area are the Ngadjuri Nation, whose traditional lands include the proposed project land and who also have a Native Title Application over this land (see 5.3.4). A relationship between Neoen and the Ngadjuri Nation already exists as a result of the Hornsdale Wind Farm and Power Reserve, which also falls partly within their traditional lands.

Dialogue between Neoen and the Ngadjuri regarding Goyder South has primarily been focused on two topics:

1. Avoidance and preservation of any Ngadjuri cultural heritage which may exist across the Goyder South site; and
2. Broad benefit-sharing by committing to training and employment opportunities for Aboriginal people, with particular focus on benefiting members of the Ngadjuri community since the project is on their land.

Discussion regarding both topics is progressing well, with a physical anthropological site survey to be carried out in the coming weeks to inform further site design and micrositing.

Regarding benefit-sharing, Neoen is particularly keen to introduce (and fulfil) binding best-practice Aboriginal participation targets. To achieve this, it has engaged RAW Recruitment, an Adelaide-based firm which specialises in assisting companies to engage effectively with Aboriginal stakeholders, as well as recruit Aboriginal and minority persons for construction projects. Many of RAW's executives and chief consultants are of Aboriginal descent with links to Aboriginal groups whose lands are within South Australia, and are well-placed to facilitate discussions and help translate the Goyder South project into lasting, meaningful outcomes for the Ngadjuri and Aboriginal communities across South Australia.

5.3.4 Crown Land and Native Title

Neoen is aware that there are a number of historical titles, easements and 'paper roads' within the proposed project area and that some of the titles date back to the very early days of settlement. Work is being undertaken to determine the detail of any rights of way, easements and similar land restrictions.

In addition, Neoen acknowledges that Crown Land may be subject to Native Title rights and that the Ngadjuri Nation has a current Native Title application for the land that is the subject of this application. Neoen is aware that the Department for Environment and Water (Crown Lands) manages this public land on behalf of the public and those that may have a particular interest in the land in accord with the *Crown Land Management Act 2009 (SA)*.

Neoen acknowledges that this includes undertaking a consultative process to determine the proposed use of any Crown Land in accord with the Act and in response to any party that may have interest in Crown Land.

Neoen has striven to ensure that no permanent infrastructure is proposed to be located on Crown Land (or overhangs the boundary of Crown Land), the exception being the possibility of overhead or underground cables which may be required to traverse Crown land for short distances in a small number of locations. However, the exact extent of this cannot be determined until the micro-siting process has commenced. Neoen is committed to working with Crown Lands to ensure all rights and interests are considered and taken into account.

5.3.5 Mining and Mineral Exploration

Given the history of Burra and surrounding areas, it is not surprising that there are a number of mining operations and exploration activities occurring in and around the proposed development area. The proposed Goyder South development does not impact directly on land currently being mined.

Neoen has engaged extensively with the Department of Energy and Mining on this topic and understands that relevant mining stakeholders within interests in proximity to the proposed project area include the holders of four Exploration Licences (EL), one Mineral Claim (MC), one Extractive Minerals Lease and one Private Mine (PM) under the *Mining Act* 1971 (SA):

TENEMENT	LICENSEE/HOLDER	OPERATORS
EL 5881	Ausmex Mining Pty Limited	Ausmex Mining Pty Limited
EL 5918	PNX Metals Limited	PNX Metals Limited
EL 6201	Ausmex Mining Pty Limited	Ausmex Mining Pty Limited
EL 6326	PNX Metals Limited	PNX Metals Limited
MC 4478	S.C. Heinrich & Co Pty Ltd	S.C. Heinrich & Co Pty Ltd
EML 6507	S.C. Heinrich & Co Pty Ltd	S.C. Heinrich & Co Pty Ltd
PM 314	Kruse, Valerie Margaret	Kruse Quarries Pty Ltd

Engagement with these stakeholders has occurred as follows:

1. PNX Metals and Ausmex Mining are engaged in joint venture exploration activities and have been represented jointly by Ausmex in discussions with Neoen. Neoen and Ausmex/PNX have negotiated and signed a Memorandum of Understanding agreeing to cooperative shared use of overlapping land according to best-practice principles, including South Australia's *Multiple Land Use Framework*,[17] and committing to work toward a more detailed Interface Agreement when and if both parties reach a more advanced stage of their projects.

   Neoen is happy to facilitate additional economic development in South Australia and does not consider that renewable energy assets (which occupy a very small percentage of land within the overall project boundaries) are inconsistent with mining exploration or extraction activities under the Mining Act, provided that activities are regulated by an agreed framework. To support this position, Neoen are seeking a micro-siting allowance of 200m for Goyder South project infrastructure to facilitate shared land uses and interface with proposed mining activities. Section 7.6 of this report explains the micro-siting process.

2. Neoen understands that S.C. Heinrich and Co are planning a small quarry for base materials in the far east of the proposed project area. While negligible impacts on Goyder South are expected from the quarry or vice versa, Neoen and S.C. Heinrich signed a Deed of Cooperation in early 2019 pertaining to sharing of road access, maintenance and site safety. The availability of fill material from a local source may indeed be beneficial to Goyder South and Neoen looks forward to working with SC Heinrich in the future.

3. Neoen engaged with Kruse Quarries in mid-2019 and was advised that their quarry is located outside the boundaries of the proposed Goyder South development area. The representative of Kruse indicated to Neoen that Kruse was not concerned by the proposed Goyder South development and both parties agreed that Neoen should provide updates on the project where relevant, with likely points of relevance in the future anticipated to be limited to a small amount of shared road usage.

[17] http://www.energymining.sa.gov.au/minerals/land_access/multiple_land_use_policy_framework

5.4 Other Interest Groups and Individuals

Neoen has either directly or indirectly (through the specialist consultant team) sought to better understand local issues by communicating with a range of non-government interest groups about the proposed project. These local issues include:

- Native flora and fauna protection and rehabilitation;
- Local and regional bushfire issues and management by the Country Fire Service (CFS);
- Burra's cultural and industrial heritage, including a potential future application for World Heritage listing by Goyder Regional Council; and
- Heysen Trail and Worlds End recreational activities.

These discussions have identified several measures which, as far as possible, Neoen has incorporated into its site design and stakeholder engagement strategy. These include:

- Support for and investment in local environmental rehabilitation areas and groups;
- Support for the Worlds End Gorge and Burra Creek Campground;
- Subject to appropriate consultation, exploration of alternative routes for a portion of the Heysen Trail which currently passes through a long stretch of flat, grazed, relatively uniform land between Burra and Robertstown;
- Implementation of appropriate setbacks from Burra and Robertstown and active support for Council's application for Burra to receive World Heritage status, possibly including a dedicated annual amount from the proposed Community Benefits Scheme to support preservation of heritage buildings;
- Active bushfire protection, cooperation and possible assistance with purchase of key firefighting assets by the local CFS; and
- Opportunities to support and add to the state's nature-based tourism strategy and avoid circumstances which might undermine this strategy.

6. Response to Studies

6.1 Approach

Neoen has employed independent specialists to explore key potential impacts of the project and provide professional advice to ensure that the location of the proposed development infrastructure would minimise impacts that may be generated by this project during both the construction and operation phases. Full copies of the studies are contained in Part B of the application package.

The findings and recommendations of these studies have resulted in a series of changes to the project layout as the project has evolved. As a result, Neoen has ultimately reduced the maximum number of proposed wind turbines substantially from over 200 turbines to 163, implemented evidence-based buffers and setbacks and relocated other infrastructure to avoid impacts. The project's evolution is summarised in the introduction to Volume 2 of this application package.

The studies have also identified mitigation practices that the applicant commits to implementing in order to minimise impacts if the project is approved. These are set out in the final chapter of this document.

6.1.2 Variation between reports

Neoen has gone to significant lengths to ensure that the detailed description of the proposed project is consistent across all of the specialist reports that are contained in Part B of the application package. However, it is recognised that all large-scale project applications display some level of inconsistency between the details of the final proposal and the project description used in the specialist reports. This is because:

- The specialist reports are intentionally commissioned early in the layout development process to identify potential impacts and avoid these where possible. The specialist studies are therefore undertaken based on early versions of the project layout. The project design also evolves during this time and updated information is passed to specialists as this occurs. With seven separate teams of specialists, minor errors are all but inevitable.
- Specialists often choose to base their qualitative conclusions on assumptions about the proposed equipment to be used (number, size, scale, type, model) that represent a **conservative** impact scenario. This enables the studies to factor in a reasonable contingency when predicting impacts to ensure that the final project layout and approach would perform better than the acceptable impact thresholds.

Neoen therefore respectfully requests that where inconsistencies of a minor nature appear within the documentation, the details contained in **this application report (Volume 1), and not the specialist reports (Volume 2)** are recognised as the true and correct description of the proposed project. Where necessary, Neoen will promptly issue any required clarifications.

6.2 Flora and Fauna Assessment

Methodology

EBS Ecology's initial assessment of the proposed project area and potential impacts on flora and fauna included both desktop and site survey investigations. EBS were also able to draw on their experience and knowledge of ecological issues previously identified for the Stony Gap project and other studies. The desktop assessment identified the 'potential' for any threatened and protected species to occur within the project area. The site survey work (undertaken in autumn and spring) then provided ground-truthing of this and any other issues identified during the surveys.

The information provided in the EBS report specifically identifies macro-ecological issues and constraints for the project that need to be taken into account at the Development Application stage, including areas that should be avoided and habitats that require substantial buffers over 200m. Should this application be approved, additional,

more detailed and targeted survey work will be undertaken prior to construction to inform micro-siting processes, with a key objective being the avoidance of impacts on flora and fauna.

This EBS work also forms the basis of the information needed for other assessment processes including an application for native vegetation clearance and an EPBC Act 1999 referral. Additional ecological assessment will be undertaken to support the information requirements for these process as well as the micro-siting process.

Key Findings & Recommendations

It is noted that conditions during the two surveys were poor due to below-average rainfall and compounding grazing pressure which meant that the condition of some potentially important vegetation associations did not meet the criteria. These patches are recommended to be assessed as if they did meet the criteria.

The following ecological constraints for the project were identified by EBS:

- Avoid, where possible, areas that have been mapped as patches of Iron-grass (*Lomandra* sp.) and Peppermint Box (*E. odorata*) – where areas cannot be avoided, EBS recommends that targeted surveys need to be undertaken for both Iron-grass and Peppermint Box, to determine if they qualify as Threatened Ecological Communities (TEC), prior to construction taking place. The survey, conditions permitting, should be timed after a good rainfall season. Where areas cannot be avoided, patches containing both Iron-grass and Peppermint Box need to be identified prior to construction, so that wind turbines and associated infrastructure can be microsited away from these patches.
- Avoid, where possible, areas that have been identified as known locations where Pygmy Blue Tongue Lizards (PBTL) have been recorded, and areas mapped as likely PBTL habitat and potential PBTL habitat. Where areas cannot be avoided, micrositing needs to occur prior to construction, for the placement of wind turbines and associated infrastructure away from locations most likely to support PBTLs. Neoen have committed to undertaking survey work for micrositing PBTL within the Project Area, when all infrastructure positions are known.
- Avoid, where possible, the area marked as containing records of *Dodonaea subglandulifera* (Peep Hill Hop-bush).
- Avoid, where possible, areas mapped as having conservation value which have been identified by EBS as areas of high bird richness habitat or those vegetation associations containing Mallee Woodland, Sedgeland or Shrubland.
- Avoid, where possible, known Wedge-tailed Eagle nests (active and inactive) and implement a 1 km buffer around mapped nests.
- Complete a full assessment for flora and fauna, in areas that were not assessed or properties that weren't able to be accessed (portions of the south-east section of the Project Area), as part of the initial ecological assessment work.

Neoen's Response

Neoen notes, in respect of this last point, that some areas in the far south-eastern section of the project were not accessible to the ecology team due to the early stage of discussions with those landholders. The land affected by the development in this portion of the project area is largely confined to cleared, cropped and grazed land, but Neoen nevertheless commits to appropriate assessment of all project areas in the near future.

During the investigations phase an area in the north west sector of the project was identified as containing a cluster of wedge-tailed Eagle nests, Pygmy Blue Tongue Lizards and a significant area of Peppermint Box. Even though the Stony Gap approval had previously permitted the construction of turbines in this area, Neoen decided to identify this area as an **Ecological Protection Zone** (indicated on the following figure) and withdraw all infrastructure from this area (including at least 8 turbines). This area is excluded from the proposed Project Area.

As a result of changes to the Project Area boundary and proposed project layout over time, potential impacts to flora and fauna from the Project have been significantly reduced. Some of the benefits of these changes include:

- Number of patches of Peppermint Box (E. odorata) (VA2) within the Project Area, reduced from three to one;
- For the PBTL:

  - Number of locations within the Project Area where individuals have been recorded reduced from 62 to 24;
  - Area of likely habitat within the Project Area reduced from 194 ha to 47 ha;
  - Area of possible PBTL habitat within the Project Area reduced from 870 ha to 450 ha.
- Area of possible habitat and locations of finds of two skins potentially belonging to the Flinders Ranges Worm Lizard no longer within the Project Area;
- Area of high density of threatened bird species no longer within the Project Area – these species included: the White-winged Chough (5 records), Peregrine Falcon (2 records) and Diamond Firetail (1 record);
- Number of Wedge-tailed Eagles nests (active and in-active) within the Project Area reduced from 15 to 6; and
- Number of locations within the Project Area where bird individuals have been recorded reduced from 931 (representing 68 bird species) to 586 (representing 58 species).

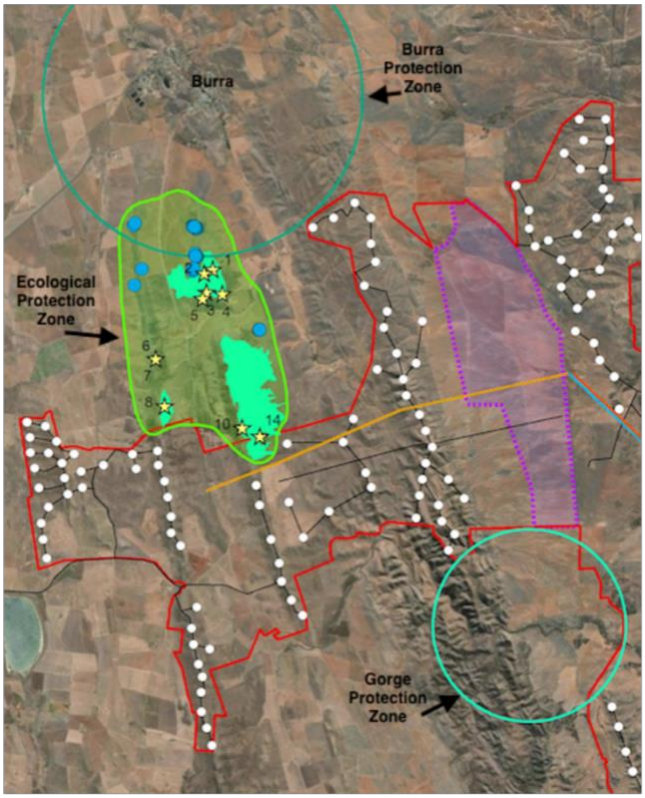


Figure 8 Ecological Protection Zone identified following surveys

As well as being nearby to the popular Burra Creek Campground, Burra Creek Gorge holds ecological significance for the local area and is rich in biodiversity. Neoen has instituted a voluntary 3 km setback from Burra Creek Gorge to minimise visual impact to this sensitive area. In addition to this, Neoen notes that it has committed to acquiring and protecting the Gorge and surrounding land for the purpose of native vegetation offset and rehabilitation, as well as boosting nature based tourism. Please see further Chapter 3.3.

Further Mitigation Commitments

If this project is approved, Neoen commits to undertaking the following as part of the micro-siting process:

- Avoid where possible, areas that have been mapped as patches of Iron-grass (Lomandra sp.) and Peppermint Box (E. odorata)—where areas cannot be avoided, targeted surveys will be undertaken for both Iron-grass and Peppermint Box, to determine if they qualify as TECs, prior to construction taking place. The survey, conditions permitting, would be timed after a good rainfall season. Where areas cannot be entirely avoided, locations of wind turbines and associated infrastructure will be microsited prior to construction to avoid patches containing both Iron-grass and Peppermint Box;

- Undertake PBTL survey work for micrositing of infrastructure within the Project Area, prior to finalising the location of the Project infrastructure;
- Avoid, where possible, areas that have been identified as known locations where PBTL have been recorded, and areas mapped as likely PBTL habitat and potential PBTL habitat. Where areas cannot be entirely avoided, locations of wind turbines and associated infrastructure will be microsited prior to construction to minimise impacts on PBTL burrows and habitat;
- Avoid, where possible the area marked as containing records of Dodonaea subglandulifera (Peep Hill Hop-bush);
- Avoid, where possible, areas mapped as having conservation value which have been identified by EBS as areas of high bird richness habitat or those vegetation associations containing Mallee Woodland, Sedgeland or Shrubland;
- Avoid, where possible, known Wedge-tailed Eagle nests (active and in-active) and implement a 1 km buffer around mapped nests; and
- Complete a full assessment for flora and fauna, in areas that were not assessed or properties that weren't able to be accessed (south-east section of the Project Area), as part of the initial ecological assessment work.

Additional recommendations have been provided which are more relevant to the Native Vegetation clearance approval and EPBC processes that are being undertaken concurrently with this Development Application. Neoen support the recommendations of EBS subject to the specific requirements of these processes. The recommendations are to:

- undertake a targeted assessment for both potential TECs within the Project Area, prior to construction and once a final infrastructure layout is known (noting that it is recommended that these targeted surveys are completed (if practical) once a good season has occurred, but if conditions do not improve before construction, it is recommended that as a worst case scenario, these INTG patches are treated as qualifying as a TEC, and are addressed as part of the EPBC Referral process);
- continue the process of an EPBC Referral to the Department of Agriculture, Water and Environment (DAWE), to address the potential impacts the proposal may have on MNES, which is likely to include both TECs and the Pygmy Blue-tongue Lizard;
- undertake targeted searches for potential habitat (south of Burra Creek) and avoid areas of Dodonaea subglandulifera (Peep Hill Hop-bush);
- liaise with the PBTL Recovery Team regarding impact minimisation techniques and undertake targeted PBTL and Flinders Ranges Worm-lizard surveys to inform the micro-siting of all infrastructure to avoid impacts;
- avoid impacts to wombats by locating drainage line areas away from their sites, and where this is insufficient, employ non-lethal management techniques;
- develop and implement a management plan that details the requirements for the protection during construction and operation;
- develop and implement an SEB Offset Management Plan (including any requirements of the Native Vegetation Council);
- in consultation with the PBTL Recovery Team, explore the possibility of a managed re-location of PBTL from poor locations to optimal locations as required;
- undertake a breeding success monitoring program for known raptor nests where they may be closest to construction activity;
- include weed and soil pathogen management strategies in the construction and operational management plans; and
- include strategies that support ongoing monitoring and support for particular fauna populations.

6.3 Visual Impact, Shadow Flicker and Blade Glint

Methodology

As the wind farm component of the Goyder South project would be the most visually prominent of all project elements, the landscape and visual impact assessment was undertaken using a methodology that is professionally recognised as suitable for the assessment of wind farm developments. The assessment also considered the overall visual impact of the project (including the other infrastructure elements) within the context

of the existing landscape. The assessment considered possible visual impacts for dwellings within 5km of the project.

The shadow flicker assessment is undertaken by modelling the angle of the sun through each day of the year and identifying where shadow flicker may be experienced based on the turbine layout and maximum turbine dimensions stated in this application. The methodology of the assessment has followed an accepted methodology to assess the potential for shadow flicker. It is noted that this assessment of shadow flicker takes into account topography but does not take into account vegetation and other features of the landscape that might provide screening or building orientation and window placement that might reduce the duration of shadow flicker effect inside habitable rooms. Thus, it is an inherently conservative figure (ie. likely to represent an over-estimate of impacts).

Key Findings & Recommendations

The key findings of the Landscape and Visual Impact Assessment (LVIA) are set out below:

- The landscape character type, identified and described in the LVIA, is generally well represented throughout the local areas and more generally within the broader portions of the landscape area surrounding the Project Site;
- The distinguishable characteristics of the landscape character area may be altered by the Project, although the landscape character area would have the capability to absorb some change. The degree to which the landscape character area may accommodate the Project will potentially result in the introduction of prominent elements to the landscape character area, but these may be accommodated to some degree;
- Views toward the Project from local roads will offer a range of transitory views which will be subject to direction of travel and potential screening influence of vegetation alongside road corridors. Views from highways and some local roads would be partially screened and/or filtered by local topography and roadside tree planting;
- Given separation distances, the Project is unlikely to have a significant visual effect on the character of surrounding residential localities and the Burra township, where views toward the Project from the majority of residential and/or commercial view locations would be screened by adjoining buildings or structures and/ or surrounding tree cover and landform;
- Some dwellings surrounding the Project Site maintain privacy and/or shelter planting around dwellings. The extent of planting reduces the potential visibility of the Project from a number of view locations within the surrounding viewshed;
- The LVIA identified 28 non-host (occupied) residential dwellings within 5 km of the Project and determined that the majority of these dwellings would not experience a significant (high) visual effect as a result of the Project;
- The LVIA concluded that the north and south solar facilities would not result in significant visual impacts from sensitive view locations (including dwellings) with visibility toward these facilities largely constrained by landform following low hills;
- Given separation distances between key sensitive view locations and the overhead power line easements, it is unlikely that overhead power lines would form prominent visual elements from the majority of these view locations. The substation and battery storage facilities would also tend not form prominent visual elements in the landscape where views from key sensitive view locations over moderate to long distances are screened by combinations of undulating landforms and/or vegetation;
- Proposed mitigation works, including landscape screening, are considered likely to mitigate views toward the majority of the Project's principal assets; and
- Overall the LVIA concluded that the Project would not have an unreasonable impact on the landscape character, or the visual amenity of people living, working, or travelling through the landscape surrounding the Project Site.

In addition to the work that has already been undertaken to address visual impact, the report proposes consideration of further mitigation during detailed design, construction and operation, including the following:

- further refinement in the design and layout where possible, which may assist in the mitigation of bulk and height of proposed structures;
- a review of materials and colour finishes for selected components including the use of non-reflective finishes to structures where possible;
- minimise tree removal where possible;
- avoid temporary light spill beyond the construction site where temporary lighting is required;

- progressively rehabilitate disturbed areas;
- protect mature trees within the Project Site where possible;
- ongoing maintenance and repair of constructed elements;
- replacement of damaged or missing constructed elements; and
- long term maintenance (and replacement as necessary) of vegetation within the Project Site to maintain visual filtering and screening of external views where appropriate.

The shadow flicker results identified that no uninvolved residences would experience shadow flicker exceeding guideline limits. The assessment identified that 12 involved landowner dwellings (some of which are not continually occupied) would experience shadow flicker in excess of the recommended guidelines and that three dwellings are predicted to have very high levels. However, these results are conservative in that they do not take into account vegetation and other features of the landscape that might provide screening, or building orientation and window placement that might reduce the duration of shadow flicker effect inside habitable rooms. Where appropriate, if actual shadow flicker effect on these involved landowner dwellings still needs to be addressed, a variety of mitigation measures may be employed.

The shadow flicker report identified that blade glint is generally not a problem provided that non-reflective coatings are used for the surfaces of the blades. Non-reflecting coatings are used as standard practice on all modern turbines.

Neoen Response

Neoen acknowledges the finding that potentially 28 non-host, occupied dwellings within 5km of the proposed project area could experience visual impact.

Neoen acknowledges that shadow flicker may affect up to 12 involved landowner dwellings and proposes to confirm the extent of impact based on individual site assessments to determine the potential mitigating effects of existing dwelling orientation, layout and vegetation. Should a shadow flicker impact still present a significant issue, Neoen will explore appropriate mitigation measures with the affected landowners to ensure that the levels are acceptable to the landowners.

Neoen also notes that the transmission line has been sited away from the Worlds End Highway to the extent practical, even where this involves greater cost due to routing through more rugged terrain.

Neoen undertakes to:

- Consult residents within 5km of the project to identify appropriate landscape mitigation works to screen views;
- Apply targeted screen planting of infrastructure along the Worlds End Highway and the Goyder Highway;
- Investigate mitigation measures, in consultation with the affected involved landowners, including screening techniques, micro-siting of turbines, or shadow flicker controllers (which can shut down a turbine at the time of day and season when shadow flicker is problematic); and
- Use a non-reflective coating on the wind turbines.

Further Mitigation Commitments

Neoen notes that many of the further mitigation recommendations align strongly with flora and fauna impact management objectives. Accordingly, Neoen also supports the following:

- Take into account, where possible, the finer grain visual impact of structures during the micro siting process;
- Minimise tree removal and protect mature trees where possible;
- Progressively rehabilitate disturbed areas;
- Maintain all elements in good repair; and
- Maintain screen planting to ensure effective screening where necessary.

6.4 Noise Impact Assessment

Methodology

A detailed Environmental Noise Assessment of the proposed wind farm has been undertaken by Sonus in accordance with the South Australian Environment Protection Authority *Wind Farms Environmental Noise Guidelines 2009 (SA Guidelines*). The SA Guidelines were established to ensure a wind farm project did not unreasonably interfere with the acoustic amenity of the surrounding community and therefore to provide an objective assessment method for the purpose of comparison with the relevant Development Plan provisions. These Guidelines set a maximum sound level for neighbours and a slightly less onerous level for involved landowners.

The assessment of potential noise sources from the solar, battery and substations was based on World Health Organisation guidelines. The assessment of construction noise was based on the methodology identified by the *Environment Protection (Noise) Policy 2007*. It is noted that the EPA policy establishes noise objectives for construction activity, particularly limiting noise impacts at night-time.

The methodology included on-site background noise monitoring at 5 locations in the vicinity of the proposed wind farm in accord with the wind farm guidelines.

Key Findings & Recommendations

Noise predictions from the solar, battery and substation have been made and assessed against criteria developed in accordance with the *Environment Protection (Noise) Policy 2007*.

Noise predictions from the wind farm have been made and assessed against criteria developed in accordance with the *Wind Farms Environmental Noise Guidelines 2009.*

Based on the predictions, the requirements of the *Environment Protection (Noise) Policy 2007* and *Wind Farms Environmental Noise Guidelines 2009* can be achieved at all surrounding dwellings.

A final assessment will also be made during the detailed design stage to confirm that the final equipment selections comply with the relevant criteria.

In respect to wind farm noise, the assessment found that

- The requirements of the 2009 Guidelines can be achieved at all Neighbours, more specifically:
    - the baseline criterion of 35 dB(A) applied to neighbours in localities which are primarily intended for rural living can be achieved;
    - the baseline criterion of 40 dB(A) applied to neighbours in localities in other zones can be achieved; and,
- The requirements of the 2009 Guidelines, being a level of 45 dB(A) for this assessment, can be achieved at all Involved landowners.
- Based on the above it is considered that the proposal is *located and designed to minimise adverse impact* and *does not detrimentally affect the amenity of the locality*, satisfying the relevant provisions of the Goyder Council Development Plan.

The assessment recommends the preparation of a Construction Noise and Vibration Management Plan (CNVMP) to manage and control construction noise and vibration impacts and noted the following techniques that might be employed to minimise noise impacts during construction:

- Construction activities are typically limited to 7am and 7pm weekdays and Saturday;
- The use of temporary acoustic barriers;
- The use of proprietary enclosures around machines;
- The use of exhaust silencers on equipment;
- Substituting construction methods with alternative processes that produce less noise;

- The fitting of broadband reversing signals to vehicles which remain on the site;
- Administrative measures such as inspections, scheduling and providing training to establish a noise minimisation culture for the works; and
- Make specific and controlled provision for construction activity that might need to occur outside the typical construction hours (e.g. concrete pouring in early hours on days of extreme heat).

Neoen Response

Neoen acknowledge the findings of the noise assessment and support the recommendations proposed including:

- Compliance with the noise policy is a fundamental and non-negotiable criterion for the micro-siting process;
- A final assessment will be made during the detailed design and micro-siting stage to confirm that the final selected equipment complies with the relevant criteria; and
- Preparation of a Construction Noise and Vibration Management Plan prior to the commencement of construction.

Further Mitigation Commitments

Neoen also commits to seeking a guarantee from the successful manufacturer to ensure that the final WTG selection will be free of tonality at all surrounding dwellings.

6.5 Cultural Heritage

Methodology

As a parallel process to discussions with representatives from the Ngadjuri Nation, Independent Heritage Consultants (IHC) undertook a preliminary desktop heritage assessment for the Goyder South Hybrid Renewable Energy Project in order to determine the potential for impact on known heritage places. The assessment included a review of registered sites and a comprehensive literature review in relation to two aspects:

- Aboriginal heritage—which is protected by the Aboriginal Heritage Act; and
- European Heritage which is protected by the EPBC Act, the Heritage Places Act and the Development Act.

It should be noted that most Aboriginal heritage and some European heritage exists in the form of archaeology. It is often not possible to know what is present until site work commences. Therefore this heritage is protected by a procedure that is implemented when archaeology is uncovered during construction.

It is noted that the heritage report provided with the Development Application is a version that has had sensitive Aboriginal heritage information removed to maintain confidentiality in line with the advice of the Aboriginal affairs agency.

Key Findings & Recommendations

<u>Aboriginal Heritage</u>

This literature review revealed likely Aboriginal site types and landform associations for the project area. Site types to be expected are stone cairns, culturally modified trees and quarries, and to a lesser extent, stone artefact scatters, campsites, engravings, paintings and burials. It was determined that these sites are more likely located along ridgelines and creeks (including the Burra Gorge).

The literature review also highlighted a single DPC-AAR listed site within the project area and a number of previously surveyed areas that potentially do not require further assessment. While this has highlighted future time/cost savings for Neoen, it has also identified a number of gaps where additional work is recommended.

In all the previous studies, only one reference was made to an ethnographic association. This related to the quartzite outcrops running along the Brown Hill Range. However, this was not defined as a site under the Aboriginal Heritage Act 1988 (AHA). This suggests that there is a low potential for any ethnographic sites (definable under the AHA) to be identified within the current project area.

The main requirement for this project to comply with the AHA is to not damage, disturb or interfere with Aboriginal heritage sites, objects and/or remains.

- Any known DPC-AAR sites must be avoided. If they cannot be avoided Ministerial consent under section 23 of the AHA is required;
- In the event that any new Aboriginal heritage sites are identified during works in the area, they are also afforded blanket protection by the AHA and if they cannot be avoided, Ministerial consent under section 23 of the AHA is required.

Although not mandated by the AHA, the following are options that can be used to manage Aboriginal heritage risk for the project:

- IHC recommend that Neoen engage archaeologists to carry out a site avoidance survey in the remaining unsurveyed development footprint to identify and record any unknown archaeological sites that may be present. If Neoen cannot avoid these or design around them, then Ministerial consent under section 23 of the AHA would be required;
- Although the risk of impacting ethnographic sites in the project area has been identified as “low” the best way to mitigate against inadvertently impacting an ethnographic site is to consult with the relevant Aboriginal group;
- IHC recommend that Neoen manage heritage risk during works by ensuring all contractors and workers are aware of heritage risks and how to manage them accordingly. This can be outlined during initial site inductions;
- Neoen should implement a site discovery procedure such as that provided in Appendix 1 of the IHC report;
- Neoen should consider engaging an archaeologist to be on call and assist in identifying any heritage items found during works.

<u>European Heritage</u>

Earlier studies of the region have made reference to a number of historical archaeological features (stone walls, building remnants and archaeological features), however none of these were recorded in detail. This, combined with the proximity of the project area to a National heritage area (Burra) and identification of a number of historic themes in the region suggests that there is potential for additional European (archaeological) heritage to be identified within the current project area.

All European buildings of heritage significance and subsurface archaeological features, whether listed or not, are protected and must be managed in line with the requirements of the EPBCA, the Heritage Places Act and the Development Act.

- There is one National heritage place in the general vicinity of the project area, being the town of Burra. Neoen is investigating the need for an EPBC referral to manage visual impacts on Burra and specialist advice has been sought. Neon will continue to address this matter in consultation with the relevant Commonwealth department as part of this project;
- There are three State listed built heritage places in the general project vicinity and these would not be impacted by the current layout design. The current layout has been designed to be set back from any State listed built heritage items;
- There are no local listed built heritage places in or adjacent to the proposed project area;
- There is potential for sub-surface European archaeological deposits and sites to be present in the proposed project area. Any archaeological deposit uncovered by the proposed development must be reported to Heritage SA. A qualified archaeologist with an approved s27 permit from Heritage SA records any archaeological deposits identified during works;

Although not mandated by heritage legislation, the following are options that can be used to mitigate heritage risk for the project:

- IHC recommend that Neoen engage a qualified archaeologist to carry out a survey of the project area and identify and record any potential archaeological sites and/or deposits in the development footprint. If Neoen cannot avoid these or design around items of recorded heritage, such as ruins, walls or archaeological deposits, then these would need to be managed pursuant to s.27 of the Heritage Places Act;
- Neoen may wish to manage heritage risk during works by ensuring all contractors and workers are aware of heritage risks and how to manage them accordingly. This can be outlined during initial site inductions;
- Neoen should manage project risk by implementing a site discovery procedure such as that provided in Appendix 1 of the IHC report;
- Neoen should consider engaging an archaeologist to be on call and assist in identifying any heritage items found during works.

Neoen Response

Neoen acknowledges the advice provided by IHC and notes that an EPBC process (which combines the ecological matters and the Burra National heritage consideration) will be formally commenced imminently. Preliminary discussions with the Department of Agriculture, Water and Environment (DAWE), has indicated that any impacts from the project are likely to be minimal and manageable.

Neoen note that the proposed layout is considered unlikely to have an impact on known or probable Aboriginal or European Heritage. However, the development assessment process is likely to include a referral to the State Heritage Agency. Neoen are open to the advice that may be provided during the assessment process in relation to State Heritage Places.

While the formal listing of heritage places in this Council area does not include local heritage places, Neoen is conscious that there may be a range of places, buildings and structures (such as stone walls) which are of general community value. Where possible these would be avoided (in the case of single sites) or impact minimised with post-construction reinstalment (in the case of stone walls).

Neoen note that the micro-siting process and 200m micro-siting allowance should be sufficient to avoid the vast majority of specific locations of archaeology or cultural value.

Further Mitigation Commitments

Neoen acknowledges the legal requirement for this project to comply with the AHA and not damage, disturb or interfere with Aboriginal heritage sites, objects and/or remains. Compliance with this requirement is addressed in the draft CEMP and would be a requirement of the construction contractor.

Neoen will adopt the following to manage Aboriginal heritage risk for the project:

- prior to construction and during detailed site design, engage archaeologists to carry out a site avoidance survey in the remaining unsurveyed development footprint to identify and record any unknown archaeological sites that may be present. Any sites identified would be considered as part of the micro-siting process. If Neoen cannot avoid these or design around them, then Ministerial consent under section 23 of the AHA would be sought;
- consult with the Ngadjuri to mitigate against inadvertently impacting an ethnographic site;
- through the CEMP and site inductions, ensure that all contractors and workers are aware of heritage risks and how to manage them accordingly =;
- through the CEMP, implement a site discovery procedure (as per Appendix 1 the IHC report); and
- engage an archaeologist to be on call and assist in identifying any heritage items found during works.

Neoen will adopt the following to manage European heritage risk for the project:

- continue to progress the EPBC referral in relation to Burra in consultation with the relevant Commonwealth department;
- maintain a minimum 2km setback from the other two State listed built heritage places;
- where possible, avoid ruins and other landscape structures (in the case of single sites) or minimise impact (including by post construction reinstalment) in the case of stone walls;
- through the CEMP, ensure that any archaeological deposit uncovered by the proposed development is reported to Heritage SA;
- ensure that a qualified archaeologist with an approved s27 permit from Heritage SA records any archaeological deposits identified during works;
- engage a qualified archaeologist to carry out a survey of the project area and identify and record any potential archaeological sites and/or deposits in the development footprint. Any sites identified would be considered as part of the micro-siting process. If Neoen cannot avoid these or design around items of recorded heritage, such as ruins, walls or archaeological deposits, then these would be managed pursuant to s.27 of the Heritage Places Act;
- through the CEMP and site inductions, ensure that all contractors and workers are aware of heritage risks and how to manage them accordingly;
- through the CEMP, implement a site discovery procedure (as per Appendix 1 the report); and
- engage an archaeologist to be on call and assist in identifying any heritage items found during works.

6.6 Traffic Impact Assessment

Methodology

A Traffic Impact Assessment (TIA) has been undertaken by Jacobs to identify the most appropriate access arrangements having regard to the nature of the traffic likely to be generated by this type of project and the likely improvements needed to accommodate it. The primary traffic impact for the proposed development is associated with the construction phase of the project as the proposed form of land use generates very little traffic once established. After approximately 30 years of operation, traffic generation is likely to temporarily increase with the decommissioning process (or 'repowering' with new turbines, which would require an additional DA and is not a scenario Neoen or Jacobs address presently).

The TIA was undertaken in conjunction with a 'preliminary construction assessment'. This assesses transport and access options having regard to the nature of the traffic generated including light vehicles, heavy commercial vehicles and over-dimension and over-mass vehicles. The assessment has considered the maximum likely dimensions of equipment parts and has factored in 'extra' traffic volumes to ensure that a conservative assessment has been undertaken.

Key Findings & Recommendations

The TIA found that the principal transportation impacts will be associated with the construction phase. This is due to the delivery of over mass and over size loads and the higher number of vehicle movements. It is Jacobs' recommendation that Designated Route 1 (D1) be used for the transport of over mass and over size loads to the site, excepting for deliveries required to access the site via Access T5 due to constraints (fords) located along Worlds End Highway. Designated Route 2 (D2) is recommended to be used (as well as D1) for vehicle movements which meet the gazetted routes level. Additional approvals and permits will need to be sought to permit the transport of over mass and over size loads travelling via D1, noting the route has more constrained geometry and a lower gazetted level than D2.

- Designated Route 1 (D1): Sturt Highway – Horrocks Highway – Barrier Highway – Goyder Highway – Copperhouse Road – Worlds End Highway
- Designated Route 2 (D2): Sturt Highway – Horrocks Highway – Thiele Highway – East Terrace (bypass of Kapunda) – Thiele Highway – Three Chain Road (bypass of Eudunda) – Worlds End Highway – Goyder Highway – Copperhouse Road – Barrier Highway

To ensure transportation impacts are minimised on the road network, adjacent towns and local residents, it is recommended that a specific Traffic Management Plan (TMP) is developed.

The report also recommends that a structural engineer is engaged to verify the load-bearing capacities of bridge infrastructure.

Recommendations have been provided to improve the key locations which were identified as requiring works in order to accommodate the extra vehicle movements associated with the constriction phase of the project:

New Intersections	**Access Point (T2)**: Full basic turn treatment, with auxiliary left turn (AUL) on the major road only. Provide double two-way barrier lines. Provide 50m sealed apron
Intersection Upgrade	**Access Point (T1)**: Channelised right turn treatment on the major road (Worlds End Highway), and basic left turn treatments for the major and minor roads. Provide double two-way barrier lines. Provide 50m sealed apron. **Access Point (T3)**: Full basic turn treatment, with auxiliary left turn (AUL) on the major road only. Provide double two-way barrier lines. Provide 50m sealed apron. **Access Point (T4)**: Channelised right turn treatment on the major road (Goyder Highway), and auxiliary left turn treatments for the major and minor roads. Provide double two-way barrier lines. Remove existing trees to meet required site distances. Provide 50m sealed apron. **Access Point (T5)**: Channelised right turn treatment on the major road (Barrier Highway), and auxiliary left turn treatments for the major and minor roads. Provide 50m sealed apron. **Goyder Highway and Worlds End Highway**: Channelised right turn treatment on the major road (Goyder Highway), and channelised left turn treatment for the minor road.
Priority Signage	Intersection of Porter Lagoon Road and Springbank Road. Intersection of Koonoona Road and Burra Road. Intersection of Koonoona Road and Turner Road. Intersection of Burra Road and Turner Road.

Neoen Response

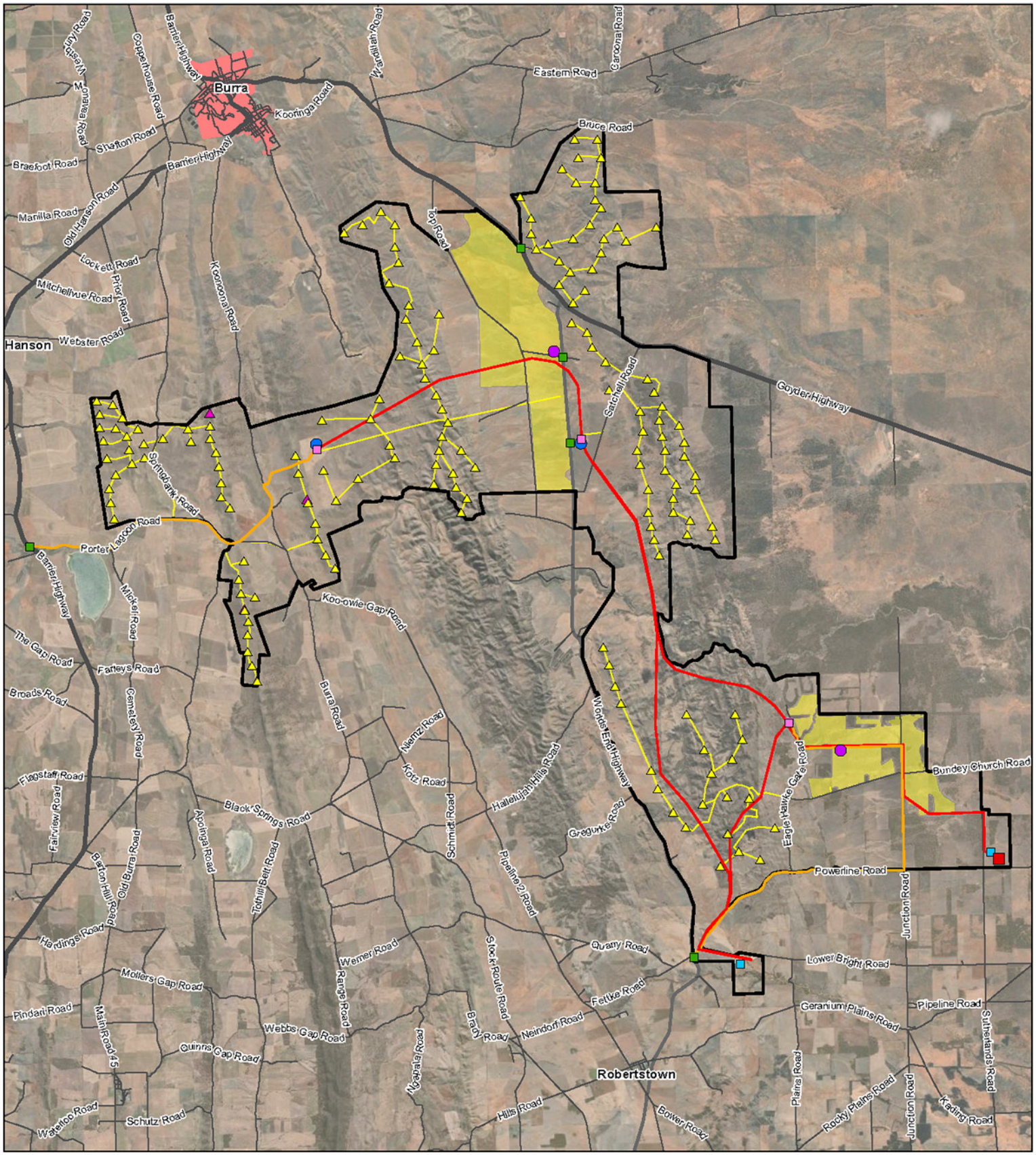
Neoen acknowledge that work would be required to up-grade road and access infrastructure to accommodate the construction phase of the development. Neoen would work with Council and DPTI to:

- Prepare a detailed TMP prior to construction;
- Further investigate the upgrades recommended to ensure safety of all road users and that no additional cost burden falls on ratepayers or taxpayers as a result of the project;
- Seek the advice of a structural engineer to verify the load-bearing capacities of bridge infrastructure; and
- Determine an appropriate annual road maintenance budget to cover any wear and tear attributable to project vehicles.

Further Mitigation Commitments

If this project is approved, Neoen commits to managing traffic impacts by:

- Ensuring heavy vehicle traffic will not go through Burra centre, but will use the Copperhouse Road bypass for components for which no viable alternative routes are available;
- Ensuring that the TMP recognises the school bus routes in the region (including on Koonoona Road);
- Ensuring that the TMP recognises the use of Top Road by walkers as part of the Heysen Trail; and
- Communicating and consulting with residents living near the project's main access routes tominimise disruption to their activities and lifestyle.



- Turbine layout (total turbines 163)
- Goyder South project boundary
- Solar farms (2)
- Internal access tracks
- Construction access road
- Proposed transmission line
- Battery and grid connection (2)
- Construction entry point (5)
- Substation and O&M (3)
- Possible interconnector substation (1)
- Solar construction compound (2)
- Wind construction compound (2)
- Existing met mast (3)
- Highway/Arterial
- Sub-arterial
- Collector and local
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Goyder Renewables Zone

Job Number 33-19112
Revision B
Date 02 Jun 2020

Internal and External Access

Figure 9

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: stevenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

6.7 Electromagnetic Impact Assessment

Methodology

An Electromagnetic Impact Assessment was undertaken by GHD in accordance with accepted industry standards. The report assesses potential electromagnetic interference caused by the proposed wind farm, solar farm, battery storage and associated power transmission infrastructure and identifies mitigation measures where required.

The methodology included a comprehensive search of licenced communications systems relevant to the project area. In particular, the Goyder Connect Broadband Service was taken into account. This is an important service for many people in this area which does not have NBN Co Fixed Wireless coverage.

Key Findings & Recommendations

The assessment found that, provided its recommendations are adopted, the wind farm components can be designed, located and sited to avoid and substantially minimise interference to pre-existing television, radar and radio transmission and reception services, and that where an impact is created, mitigation efforts are available.

The results of the investigations are summarised in the following table.

Service and Impact	Mitigation Strategy	Recommendation
Fixed Point to Point SA Water link (licence #226752) is likely to be impeded by SG056.	Alternative service routing. Replacement with 3G/4G or satellite communications. Provision of repeater.	Neoen will liaise with SA Water to determine suitable rectification options.
Fixed Point to Point Minor to no impact anticipated to services if turbines are kept out of the nominated exclusion zones.	Nil	Ensure micro-siting of the wind turbines such that blade tips do not enter the second Fresnel exclusion zones of existing radio systems.
Digital Television Potential minor service degradation to local community, i.e. TV reception within 10 km of wind farm may be affected.	Realign antennas on affected dwellings in a more direct path to their respective transmitter. Realign antennas on affected dwellings to another television transmitter, such as Spencer Gulf (The Bluff) or Adelaide (Crafers). Replace antennas on affected dwellings with a higher gain antenna Relocate antennas on affected dwellings to another position on the property that is less affected Install satellite television on affected dwellings Install a television relay station in or near the townships.	Neoen will undertake a pre- and post-construction assessment of the television and radio reception strength at the location of any existing or approved dwellings as at the date of development approval that are within 5 kilometres of any turbine. The assessments will be undertaken by an independent television and radio monitoring specialist, and include testing at locations to be determined by the television and radio monitoring specialist to enable the average television and radio reception strength to be determined. If the post-construction assessment establishes an unacceptable increase in interference to reception as a result of the wind farm, as determined by the independent television and radio monitoring specialist, measures to restore the

		affected reception to pre-construction quality will be undertaken.
AM/FM Services Minor to no impact anticipated to services.	Nil.	Measure signal levels in wind farm vicinity to establish a baseline, as per TV signal mitigation recommendation.
Meteorological Radar None to minor impact anticipated to weather-watch radar systems during extraordinary radio propagation conditions.	Take the radar impact into consideration where possible for any micro siting of the layout.	Liaise closely with BoM and provide sufficient information to allow them to reconfigure their radar systems.
Land Mobile Radio Potential minor impact anticipated to SAGRN, Spark Infrastructure and Sihero land mobile radio services.	Avoid micro-siting to within 20 m of transmitter locations; ideally avoiding moving any closer than 100 m away.	Record signal levels in the affected areas of LMR operations prior to the construction of the wind turbines to establish a baseline.
Goyder Connect Backbone Link STN-WDY impeded by Turbines B026 (and possibly B029 and B023)	Construct repeater station.	Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Backbone Link STN-BDH possibly impeded by Turbine B010	Construct repeater station.	Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner C1 may lose coverage due to Turbine B017 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H3 may lose coverage due to Turbine B004 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H2 may lose coverage due to Turbine B025 and B033 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H56 may lose coverage due to Turbine B024 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowners C3, C4 and H57 may lose coverage due to Turbine B027 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.

The general mitigation strategies recommended included:

- All types of radio communications can benefit from general mitigation through the design of the turbine and the choice of materials used in its construction;
- The turbines have been spaced to mitigate the effect of creating a “virtual wall” of turbines;
- Utilise (wherever practical) equipment complying with the Electromagnetic Emission Standard, AS/NZS 61000.6.4:2012 to avoid the creation of excessive noise at frequencies that interfere with radio communication signals; and
- Electrical insulation and shielding should be considered in the turbine design to reduce the RF noise emitted from the electronic control systems located in the nacelle.

Neoen Response

Neoen accept the recommendations of the EMI report.

Neoen note the warning that, should the project be extended any further south than it is, this could intrude into the interference cone of the Buckland Park radar. Neoen can confirm that there is no intention to extend further south.

Further Mitigation Commitments

Neoen appreciate the importance of the Goyder Connect service to local residents. The availability and cost of technical solutions, in the event of impacts on the service, has been explored, including installation of new repeater stations. Neoen commits to rectifying any issues for Goyder Connect, including (if necessary) installation of such repeater stations, promptly and at its cost.

6.8 Aviation (including aerial firefighting)

Methodology

An Aviation Impact Assessment was undertaken by Chiron Aviation in accordance with standard industry methodology. This included preparing an Aviation Impact Statement based on Airservices Australia requirements. A qualitative risk assessment was also undertaken to address a range of issues including perceived impacts and the need for obstacle lighting.

Key Findings & Recommendation

The study found that the project **would not impact** on:

- The Lowest Safe Altitude of nearby published air routes;
- The Obstacle Limitation Surface (OLS) of any registered or certified aerodrome;
- The Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces associated with the Instrument Approach Procedures at any Certified or Registered Aerodrome;
- The operation of the uncertified aerodrome at Stonefield;
- The Restricted Area R265D; or
- The performance of communication, navigation or surveillance facilities.

The proposed solar farm photovoltaic panel arrays of Goyder South are shielded by adjacent turbines, therefore any aircraft at cruising altitude would be at least 1300ft above ground level over the facility. At that height it is considered that glare or glint would not be a hazard to aircraft safety.

Goyder South sits near existing wind farms within Danger Area D258B, an area used for military flying training and **may impact** on its use. (Defence Services is being consulted).

The Qualitative Risk Assessment demonstrates that for Goyder South:

- By day the wind turbines are conspicuous by their size and colour;
- The solar panel arrays would not affect low-level aircraft flight as they are shielded by the adjacent turbines;

- Night operations of aircraft do not occur below prescribed airspace;
- Aerodromes equipped for night operations are sufficiently distant;
- It is assessed as a **LOW risk to aviation** and is therefore **not a hazard to aircraft safety**.

The Obstacle Lighting Review for Goyder South finds that in accordance with the NASF Guideline D risk assessment:

- **Obstacle lighting** is **not required** as the risk to aviation is LOW and no additional mitigating strategies are necessary.

The Goyder South wind turbines and meteorological monitoring masts are considered to be tall structures, therefore they must be reported to the Vertical Obstacle Database, managed by Airservices Australia.

Further, the assessment identified that the project would not unduly affect aviation practices in relation to aerial spraying, emergency services and aerial firefighting.

The turbines and meteorological monitoring towers used in Goyder South must be reported to the vertical obstruction database held by Airservices Australia in accordance with AC 139-08(1) *Reporting of Tall Structures* to ensure their position and height is marked on aeronautical charts and known to aviation industry. It is also highlighted that the wind monitoring masts used in Goyder South are:

- Appropriately marked as per guidelines above except for strobe light;
- Reported as tall structures in accordance with AC139-08;
- Notified to the Aerial Agricultural Association of Australia; and
- Subject to a NOTAM specifying their location and height.

While wind turbines do not create insurmountable issues for aerial firefighting, the AIA noted that access tracks significantly improve access for ground-based firefighting and create firebreaks that can be used to slow or contain fires, while the cleared areas around turbine bases can act as a refuge. As such the following is encouraged:

> 'To enable access for fire appliances the following provisions should be considered:
>
> - Constructed roads should be a minimum of 3.5 metres in trafficable width (with 0.5m each side) with a four (4) metre vertical clearance for the width of the formed road surface; and
> - Roads should be of all-weather and capable of accommodating a vehicle of 15 tonnes.'[18]
>
> Facility operators are to undertake the following fuel management measures are included in their plans during the Fire Danger Period:
>
> - Grass to be maintained at below 100mm in height during the declared Fire Danger Period; and
> - A fire break area of ten (10) metres width is to be maintained around the perimeter of the facilities, electricity compounds and substations.'[19]

The report did highlight that the project is located within an area sometimes used for military aviation training (Danger Area D258B). As part of the Aviation Impact Assessment, the Defence Department is being consulted separately. It is highly unlikely that the proposed development would be problematic given that that other turbines already exist within this training area.

Airservices Australia have undertaken an assessment of the project and have not identified any issues with the proposed development but have highlighted the requirement to complete the Vertical Obstacle Notification form for all tall structures (turbines and met masts) as soon as construction commences. A copy of this correspondence is contained in Appendix A.

Neoen Response

Neoen fully understand and appreciates the requirement in relation to the reporting of tall structures and acknowledge the requirements of Airservices Australia.

[18] CFA Guidelines for Renewable Energy Installations February 2019 section 3
[19] CFA Guidelines for Renewable Energy Installations February 2019 section 4

With respect to the recommendations for firefighting, Neoen support the recommendations made and are prepared to make the relevant commitments. It should be noted that the access tracks would initially be wider and support heavier vehicles than that required for emergency vehicles during the construction phase. Following construction, the tracks would be rehabilitated at the edges to reduce their physical and visual impact. This rehabilitation can be modified to suit the required track width.

Neoen have undertaken preliminary discussion with the local CFS to better understand local conditions and firefighting priorities, such as permanent tanks at locations within the Worlds End valley to assist with rapid refill of tanker vehicles. As part of the discussions Neoen also identified the need for perimeter access tracks for the solar farms particularly for the Worlds End Solar Farm and this has been incorporated into the solar farm layouts.

It is expected that the CFS would be consulted as part of the Development Assessment process. Neoen wish to provide the opportunity for the CFS to further advise on track widths and fuel management measures, as well as infrastructure (such as the abovementioned tanks) that Neoen may be able to install as part of the Goyder South project to support firefighting efforts.

Further Mitigation Commitments

Neoen commit to the following:

- The turbines and meteorological monitoring towers used in Goyder South would be reported to the vertical obstruction database held by Airservices Australia in accordance with AC 139-08(1) *Reporting of Tall Structures* to ensure their position and height is marked on aeronautical charts and known to aviation industry;
- Additionally, all future wind monitoring masts would be appropriately marked as per the Airservices guidelines (except for strobe light), notified to the Aerial Agricultural Association of Australia and subject to a NOTAM specifying their location and height.
- Subject to CFS advice, access tracks shall be rehabilitated to a width and condition that accommodates emergency vehicles;
- Subject to CFS advice, the following fuel management measures would be included in operational and management plans:
    - Grass to be maintained at below 100mm in height during the declared Fire Danger Period;
    - A fire break area of ten (10) metres width is to be maintained around the perimeter of the facilities, electricity compounds and substations; and
    - An access track provided around the perimeter of the solar farms.

7. Detailed Project Description

This chapter provides a more detailed description of the proposed project and its components and elements. The overall project layout is depicted in Figure 10.

7.1 Development Act Requirements

The legislation requires applicants to provide certain specific information and requires the assessment process to follow specific steps. The following information is provided to meet these requirements.

7.1.1 Section 49 Requirements

The proposed development is for electricity generation with connection to the national electricity grid, which falls within the definition of 'public infrastructure' as stated in Section 49 (1) of the *Development Act*. Neoen have sought and received the relevant Agency Sponsorship and the certification from the Office of the Technical Regulator that is required for this assessment pathway (copies provided in Appendix B).

7.1.2 Site Definition

Appendix C contains the information that identifies the full extent of 'involved' land parcels for statutory purposes. The following distinctions should be noted:

- The 'Project Boundary' has been delineated to broadly identify the cluster of project elements that comprise the proposed development. This includes turbines, solar panels, batteries, substations and transmission lines. The boundary includes the land that hosts this infrastructure as well as many parcels which do not.
- The 'development area' includes those parcels and portions of parcels directly affected by (ie. hosting) the project elements and, where appropriate (such as very large parcels on the edge of the project, only part of which may host infrastructure) may not include the whole of the parcels of land identified within the project boundary.

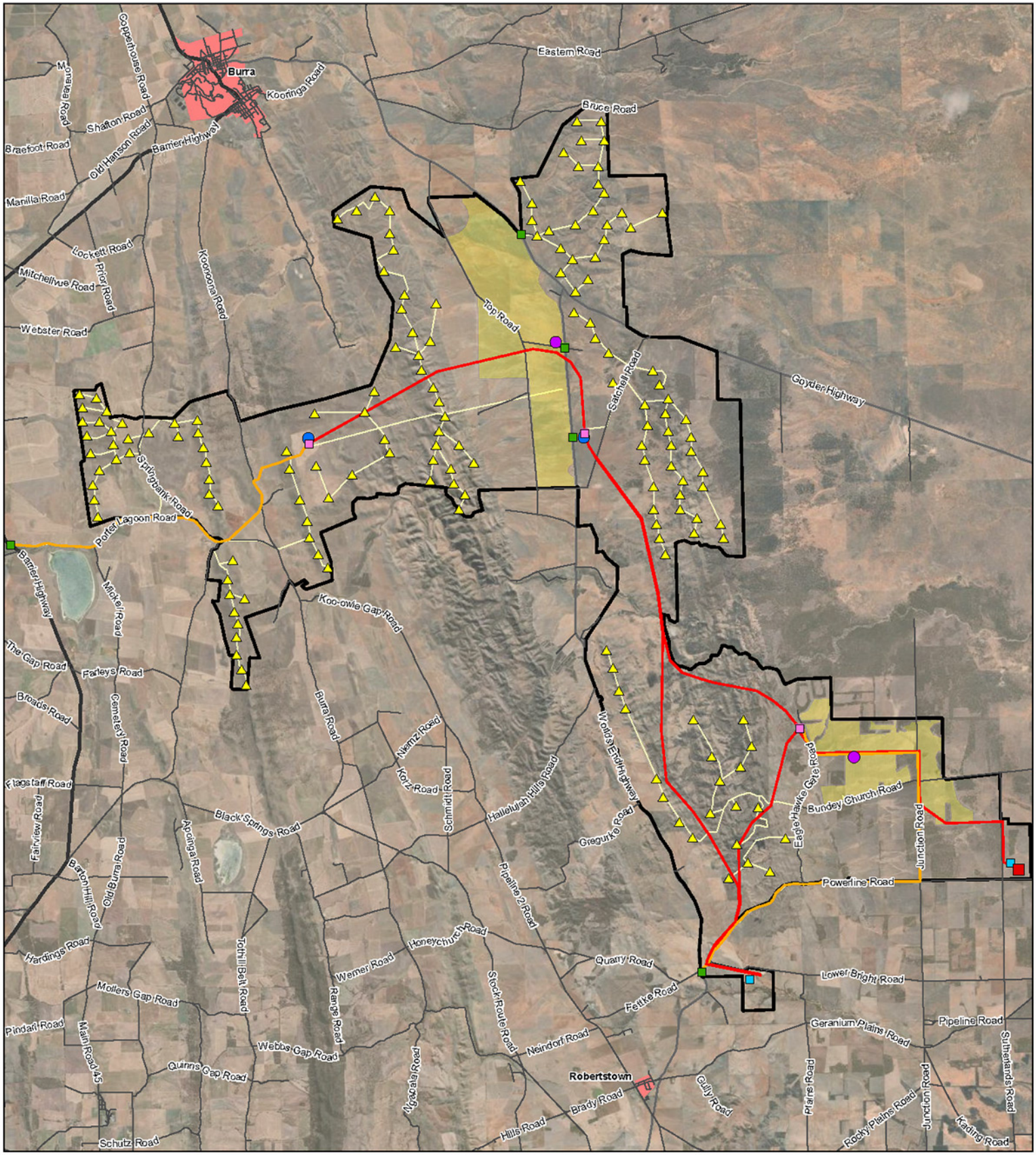
A full list of the parcels of land involved in the project is contained in Appendix C.

7.1.3 Application Plans

A set of plans that provide more detail on key sites and typical layouts is provided in Appendix D.

Detailed plans have not been prepared for on-ground works as a micro-siting process would need to be undertaken for each site which would then be followed by the preparation of detailed plans which would be submitted to relevant stakeholders for approval leading up to the construction process.

Adequate land area has been identified to include all the site works needed for each element (including site preparation, levelling and foundations and stormwater management systems).



- Goyder South project boundary
- Solar farm (2)
- Turbine layout
- Battery and grid connection
- Construction entry point
- Substation and O&M
- Possible interconnector substation
- Solar construction compound
- Wind construction compound
- Proposed transmission line
- Construction access road
- Internal access tracks
- Highway
- Arterial / Sub Arterial
- Collector and local
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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Goyder Renewables Zone

Goyder South
Project Layout

Job Number	33-19112
Revision	C
Date	02 Jun 2020

Figure 10

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180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

7.3 Permanent Project Components

The Goyder South Hybrid Renewable Energy Facility would comprise a number of project elements as generally described below:

Wind turbine generators: Up to 163 turbines with a maximum tip height of 240m (and 200m for turbines B010, B017 and B024 which are closest to Burra, to minimise visual impact). The final sizing of turbines would depend on the specific wind resource characteristics on each portion of the site and the requirements of individual power purchasers, which may dictate use of turbines of a smaller size. The wind turbines associated with Goyder South would be dispersed across an area of approximately 28,000 hectares and would have a generating capacity of between 4-8MW per turbine. The actual footprint of the turbines would be approximately 0.1% of the total project land area and would impede neither grazing nor cropping.

Single-axis tracking, bifacial solar PV: The bifacial solar panels would gather light on both faces, with the rear face of the panel harnessing light reflected from the ground. Accordingly, these panels benefit from greater spacing between rows than seen in some older solar farms (up to 10m) and additional land is therefore required to accommodate this technology. They would have a generating capacity of up to 600MW and would be located at two sites:

- Near the World's End Highway approximately halfway between Burra and Robertstown; and
- In the area named Bright to the north-east of Robertstown.

The land at the Worlds End solar site was once cropping land but is now largely low-intensity grazing land, sparsely populated and increasingly marginal. The land at the Bright solar site has previously been cropped but is currently not used either for cropping or grazing due to ongoing drought and consequent de-vegetation. The project may use one or both of these sites depending on final landholder negotiations, ecological surveys and detailed technical investigations (for example, sub-surface geotechnical characteristics).

Batteries: The battery storage infrastructure is expected to be co-located with the grid connection infrastructure located adjacent to the existing Robertstown substation and the planned NSW interconnector substation (which is likely to be the point of grid connection for Stages 2+ of Goyder South). Because the battery will provide key grid stability services, it is desirable to locate the battery storage directly adjacent to these grid substations to reduce the likelihood of physical disruptions to the transmission line 'islanding' the batteries from the grid. Neoen has also proposed that some battery storage (up to 300MW) may be included at the substation sites should this better support the technical project and grid support outcomes.

Substations: The project would include three 'collector' substations located in proximity to the two solar sites and the three approximate stages of turbine development. This includes a substation in the western portion of the project area (in the ranges), one on the eastern side (near Worlds End Highway) and one in the south near the southern solar site. These substations would be connected to each other and the relevant grid connection points by overhead transmission lines as described below. The footprint of the substations has been developed to accommodate the substation and associated equipment as well as the operations and maintenance facilities. Approximately 2ha of additional land has been included to accommodate battery facilities if required for grid support reasons.

Overhead transmission line: There would be a double-circuit 275kV or 330kV overhead transmission line connecting the three substations and then extending from the Goyder South substation to the to the grid substations initially at Robertstown and later to the NSW interconnector substation. It is intended that both the Goyder South and Goyder North projects would ultimately share this transmission line corridor and transmission infrastructure, which would avoid the unnecessary additional visual and ecological impact, cost and land use restrictions associated with two separate corridors and transmission lines. At a later date, Goyder North would require an additional length of transmission line to connect to the northern tip of this line.

The following table provides a more detailed description of the proposed project components and elements. The table also lists the relevant Certificate of Title and Plan numbers (relating to the set of plans contained in Appendix D):

Component	Description	Location & Plan Reference
Wind Turbine Generators	Number – max 163 Max Height – max 240m (200m for B017, B010 and B024 near Burra) Blade length –max 80m Rotor diameter – max 160m Hub Height – max 160m Blades will have non-reflective coatings. Footings may be either a mass concrete footing (raft style), pile-type rock anchors or a combination of both, and up to 26m in diameter, the vast majority of which would be buried. Crane hardstand area of 50m x 30m at base of each turbine.	163 locations identified on Plan GS001 Maximum dimensions identified on Plan GS017
Solar Panels	Bifacial panels of approximately 1m x 2m Single-axis trackers (face north and tilts east to west). Mounted on framework of between 1.5 - 3m height Max tilt height 4m with up to 10m spacing between rows.	Refer to Bright Solar Farm and Worlds End Solar Farm sections
Substation - West	A fenced compound of 350 x 420m including substation and ancillary equipment and an Operations & Maintenance facility. Access from Koonoona Road.	CT 5283/652 (D42727Q1) Refer Plan GS002 & 3
Substation - East	A fenced compound of 350 x 420m including substation and ancillary equipment and an Operations & Maintenance facility. Screen planting provided on the north, west and south boundaries. Access from Worlds End Highway.	CT5971/400(H200200S4) and CT5971/400 (H200200S271) Refer Plan GS004
Substation - South	A fenced compound of 150 x 420 containing the substation and ancillary equipment and another compound of 100 x 420 for the Operations & Maintenance facility. Access from Junction Road via Bright Solar Farm	CT5984/418 (H200300S230) Refer Plan GS005
Operations & Maintenance	Co-located with all three substation sites Comprising buildings (office, staff amenities), car park area, workshop and laydown area. Fenced compounds of approximately 420m x 100m each.	Refer to substation and typical plans GS006 - 10
Bright Solar Farm	Up to 300MW solar (800,000-1,000,000 panels) well-spaced (up to 10m) and mounted on single-axis trackers (to height of 1.5 – 3m). Located on a site of approximately 1,342ha and a potential developable area of 996ha and within a chain mesh fenced compound. Approximately 160-200 photovoltaic boxes or skids (inverters and transformers) Underground cabling and connections (33-66kV) Internal access tracks	CT 5913/912 (H200300S217) CT 5913/912 H200300S218) CT 5913/911 (H200300S219) CT 5485/272 (H200300S238) CT 5296/200 (H200300S3B) CT 5296/200 (H200300S3C) CT 5966/368 H200400S107) CT 5966/368 (H200400 S66) CT 5966/368 (H200400S67) Refer Plan GS011

Worlds End Solar Farm	Up to 300MW solar (800,000-1,000,000 panels) well-spaced (up to 10m) and mounted on single-axis trackers (at height of 1.5 – 3m). Located on approximately 2097ha and a potential developable area of 1925ha and within a chain mesh fenced compound. Approximately 160-200 photovoltaic boxes or skids (inverters and transformers) Underground cabling and connections (33-66kV) Internal access tracks	FP5679/972 (F215720A97), CT5937/228 (H200200S18), CT5726/489 (H200200S2), CT5513/133 (H200200S21), CT5513/133 (H200200S22), CT5880/715 (H200200S23), CT5880/715 (H200200S24), CT5834/368 (H200200S44), CT5513/134 (H200200S45), CT5432/57 H200200S46), CT5432/60 H200200S47), CT5882/867 (H200200S48), CT5882/867 (H200200S69), CT5432/61 (H200200S70), CT5432/56 (H200800S244), CT5432/85 (H200800S245), CT5432/59 (H200800S248), CT5432/59 (H200800S250), CT5432/59 (H200800S252), CT5432/58 (H200800SD) Refer Plan GS012
Battery and Grid Connection (BGC) (Robertstown Substation)	Lithium-ion battery with maximum 900MW power output and energy storage of up to 1,800MWh. Developed in three stages of approximately 300MW/600MWh each. A compound of approximately 8ha with a 3.5m high fence, containing batteries, switchyard and associated equipment, underground cabling and overhead transmission lines. Security CCTV cameras and lighting. O&M compound. Lightning rods of up to 15m.	CT 6230/207 (D120572A302), CT5906/102 (D62492A100) & CT 5501/288 (F117063A181) Refer Plan GS013
BGC Operations & Maintenance	Co-located with all three substation sites Comprising buildings (office, staff amenities), car park area, workshop and laydown area. Fenced compounds of approximately 420m x 100m each.	CT 6230/207 (D120572A302) Refer Plans GS014, 15, 16
Transmission Lines	275kV (or 330) overhead transmission lines connecting the substations west and east with the substation south and then to the grid (initially Robertstown and later with interconnector). Transmission line lattice towers of up to 47m height with a footprint of 10m x 10m. Spaced approximately 200-300m apart.	NA
Meteorological Masts	Up to 10 more met masts are likely to be required, with heights up to the hub height of the final selected turbine and including appropriate aviation safety specifications. The specific locations have yet to be identified as this depends on final micro-siting of turbines and staging. Note: there are 5 existing approved met masts (3 installed for Stony Gap project, 2 more approved under Council process).	NA

Access Tracks	Access tracks for the construction phase would be up-to 10m wide to accommodate construction activities and cranes and designed to be of acceptable gradient for CFS vehicles. Following construction these tracks would be rehabilitated and reduced to the minimum widths requested by the CFS (likely 7m).	NA
Underground cabling	Underground cabling for transmission (33- 66kV) and communications (fibre). Generally located adjacent access tracks and within the solar and battery facilities. Trench width approx. 500mm per circuit and depth approx. 1.2m (900mm coverage on top). Impact areas of 5m width for single cable plus 1m for additional cable	NA

7.3.1 Substations and Operations and Maintenance Facilities

The proposed Goyder South project includes three substations and operations and maintenance (O&M) facilities. Layout plans of these three sites are provided in Plans GS002 – GS005. A typical substation and O&M layout is provided in Plan GS006.

The substations include a range of electrical equipment that manages and controls the supply of electricity. Substations need to be specifically designed to electrical industry standards which includes design features for a range of safety purposes. Should this Application be successful, the substations would be designed in detail to meet all technical industry requirements.

The O&M facilities are used on an on-going basis to support maintenance and repair activities for the relevant portions of the project. This includes an office with staff amenities (kitchenette, toilets, shower), car park, workshop/shed and laydown/temporary storage. The proposed wind O&M facilities have been co-located with the west and east substations to minimise footprint impacts. The O&M facilities would be designed in detail to suit the requirements of the maintenance contractors.

Supporting services would be small scale and comprise standard electricity supply, water connection (where available) or suitably sized water tanks and wastewater disposal in accord with Council requirements.

Typical office and workshop plans and elevations are provided in Plans GS007, GS008, GS009 and GS010.

Substation West

This site is shown in Plans GS002 and GS003 and is proposed to be located in the north-west sector of the project area. It is situated behind a small ridgeline and in an enclosed valley that has been selected to minimise its visual impact from public roads. The substation is sited more than 100m from the two drainage lines that are situated on either side of the site.

Substation East

This site (Plan GS004) has been located to enable access via the Worlds End Highway but has been set back as much as possible to minimise its visual impact from the highway. To further minimise visual impact it is proposed that the office and workshop be clad in a metal, grey, matte finish (such as Colorbond ‘Matte Shale Grey’ or similar) to match the existing materials used in the area and that the compound be screen landscaped using indigenous plant species.

The facility is also proposed to be located more than 700m from the church ruin to the south west of the site to provide a significant visual separation.

Substation South

Due to the topography of this area the typical layout has been modified and reduced slightly to minimise earthworks and vegetation clearance as shown on Plan GS005. The facility is proposed to be located more than 100m from the drainage line to the south. The main access to the facility would be via Junction Road and the main Bright Solar access road. This site is visually secluded even though it is located adjacent a public road (Eagle Hawke Gate Road). This road is essentially a relatively rough track north of Bundey Church Road and serves a limited number of properties.

Substation south site

7.3.2 Solar Farms

Two solar farm sites are proposed, with one located in the area known as Bright (toward the southern end of the project area) and the other in the Worlds End Valley. Both sites contain drainage lines that would need to be taken into account as part of the micro-siting process and when preparing the detailed construction plans. As part of the detailed solar layout design process, stormwater management plans would be prepared to address runoff from the ranges to the west and arrest soil erosion. It is recognised that stormwater runoff, while rare given typical climatic conditions, can be substantial at both sites (especially at the Bright location). It is recognised that this matter would need to be properly addressed both to address erosion as well as to protect the proposed infrastructure.

A permanent vegetation cover would be established beneath the panels. Bifacial panels are more widely spaced than traditional panels to support healthier vegetation growth. Controlled sheep grazing by landowners would be permitted within the solar area to assist with vegetation management – a practice Neoen is now adopting at all of its Australian solar farms. Results at other projects indicate that land under solar panels typically retains at least **80% of its pre-solar carrying capacity** in Dry Sheep Equivalent (DSE), and sheep benefit from access to shade. The specific nature of vegetation would be developed in consultation with stock owners, native vegetation advisors and the CFS (the aim being to balance fuel load and dust impacts).

Plans GS011 (Bright Solar Layout) and GS012 (Worlds End Solar Layout) identify the key development arrangements and constraints for each site. These include drainage lines, remnant vegetation, setbacks and buffer areas.


Sheep on Neoen solar farms

Bright Solar Farm

This site was previously heavily cropped and much of the native vegetation has been removed as a result. However, there are a number of stands of native vegetation that remain at the edge of crop paddocks. There are also a number of significant and, in places, deep drainage lines that require protection from erosion.

Plan GS0011 contained in Appendix D identifies the potential developable area in this location. This is based on the following criteria:

- Existing remnant vegetation patches have been excluded;
- A 15m buffer has been established between panels and vegetation areas;
- Significant drainage lines have been excluded;
- A 15m buffer has been provided from significant drainage lines; and
- A buffer of 30m to the adjacent cropped land has been provided.

Bright Solar Farm – View from south-east corner

The total site area is approximately 1,342ha in total but, excluding the areas identified above, the potential developable area is approximately 996ha which represents the land that has previously been cropped and grazed. However, additional land may be excluded following the preparation of a detailed stormwater management plan and the detailed micro-siting process.

Access to this site and through the site to the southern substation and O&M facility is proposed from Junction Road on the eastern side of the solar farm area. This access and the drainage line crossings are based on existing farm tracks. The proposed access has been developed for three key reasons:

- This arrangement would minimise the construction traffic impacts on a group of dwellings located in the vicinity of the Eagle Hawk Gate Road and Bundy Church Road intersection;
- It would minimise the works and impacts associated with two drainage line crossings located on Eagle Hawk Gate Road north of the intersection mentioned above; and
- This ‘private’ access road (which is primarily needed for construction) minimises native vegetation clearance along public road easements by using existing cleared paddocks and farm tracks.

Worlds End Solar Farm

The land associated with the proposed Worlds End solar site has a long history of cropping and grazing and, as a consequence, remnant native vegetation is limited. There are a number of drainage lines traversing the site, some of which are more substantial than others and require more detailed assessment as part of the detailed solar farm layout design. The area also has a history of crop fires, the risk of which is now significantly lower due to reduced cropping activity.

It is acknowledged this area is quite visually prominent given that it abuts the Goyder Highway and the Worlds End Highway. A short section of the Heysen Trail also runs along Top Road which extends through the solar farm site.

The total site area is approximately 2,097ha but the proposed developable area is approximately 1,925ha which excludes the buffers listed below, the unmade road easement that is located in the northern portion of the site and the buildings and surrounds near the Goyder Highway and Worlds End Highway intersection.

Plan GS012 identifies the location of buffers that have been provided for number of purposes including:

- A 30m separation between panels and the boundary of the solar site which would include a perimeter access track (for maintenance and bushfire access);
- A 10m screen planting strip and stormwater swale along the Goyder Highway and Worlds End Highway frontages;
- Provision of a walkway and screen planting to the section of Heysen Trail that is proposed to be diverted (refer Chapter 3); and

- Allowance for a 200m buffer to the church ruin.

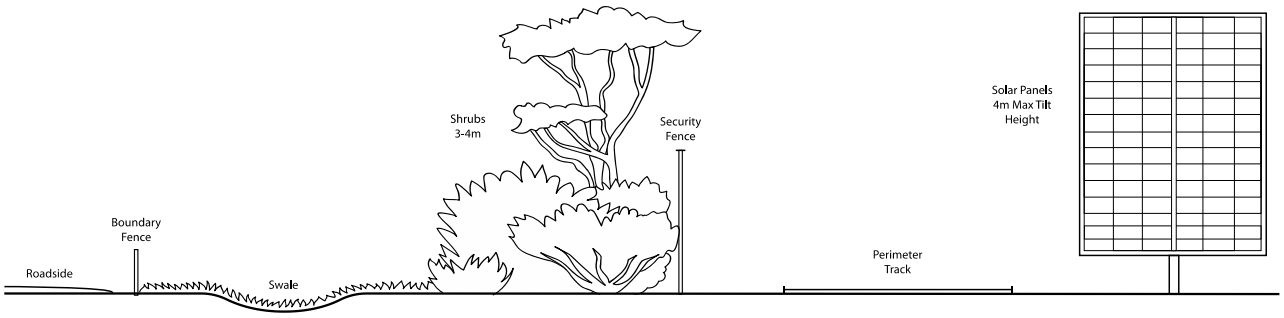


Figure 11: Proposed Highway Edge Treatment for Worlds End Solar Farm

7.3.3 Battery and Grid Connection

The proposed project includes up to 900MW/1,800MWh of battery facilities which would be best located close to grid substation connections. The Robertstown substation is an example of a key grid connection point. The proposed NSW interconnector will also have a substation connection point but the specific location of this was not finalised at the time that this application was prepared.

Neoen have the option of locating the batteries at the identified Robertstown connection site within the three project substations or at the SA-NSW interconnector site when it is finalised. The intended approach for Stage 1 of the development will be to locate approximately 300MW of battery at the Robertstown site, though this could be slightly more or less depending on the connection pathway and development of the SA-NSW interconnector.

If, for some reason, the NSW interconnector site is not available for battery storage, the remaining 600MW can be accommodated at the substations (each can accommodate up to 300MW) and the 'future' site at Robertstown (which can accommodate up to 450MW).

Hornsdale Power Reserve Construction

Robertstown

The general locality in the vicinity of the Robertstown substation, already contains both ElectraNet and SA Power Networks overhead and underground transmission and distribution lines. The land immediately to the north of the proposed site has been approved for the Robertstown Solar development. Additional works have commenced on the eastern side of the existing substation.

Neoen have selected this site for its proximity to the substation, minimal native vegetation impacts (cropped land) and to 'cluster' the first stage of the battery and connection substation in an area already impacted by energy infrastructure.

The proposed layout is provided in Plan GS013. The layout avoids the high voltage ElectraNet transmission lines to the south. The proposed battery location also avoids the SA Power Networks lines that run east/west and north south. The site has been positioned so that is achieves:

- A minimum setback from the creek line of 50m;
- A minimum separation between the compound and the SA Power Networks line to the south of 25m; and
- A minimum setback from the road of 30m (setback from the easement boundary of 10m).

Robertstown Substation

An area has also been identified to accommodate future stages of battery development and the layout makes provision for a 25m separation corridor between the main portion of the proposed site and the future site (providing initial protection for the SA Power Networks line that follows the property boundary). This land would only be used if, for some reason, the NSW interconnector site is not available. In the event that it is required, Neoen would work with SA Power Networks to ensure that their assets are protected.

SA-NSW Interconnector

It has previously been identified that the exact location of the substation for the NSW interconnector has not been finalised. The applicant has made a considered estimate of the likely general location of the substation and has designed the Goyder layout to match this as much as is possible at this point in time.

The layout of the battery and grid connection for the project would have the same components as the connection proposed for the Robertstown substation connection.

The applicant would provide layout details when the interconnector site is confirmed. It is recognised that this may involve variation to this application or a new application if the arrangements change significantly.

7.3.4 Transmission Lines

High voltage overhead transmission lines would be provided as indicated on the layout to connect the various elements of the project. The transmission lines are similar to those that form the national grid network of transmission lines and would have an estimated total length of approximately 56km. The transmission lines would be supported by standard lattice type towers at intervals of 250-300m depending on terrain and elevation.

Typical example of transmission lines and towers

7.4 Temporary Project Components

There would be a number of facilities needed to support the construction phase of the project which include:

- Two wind construction compounds co-located with the western and eastern substations;
- Two solar construction compounds located within the Bright and Worlds End solar areas;
- Construction compounds including an office, staff amenities and carparking facilities as well as storage and laydown areas;
- Wind construction compounds which would include an option for a temporary batching plant facility; and
- Laydown areas required at the base of each turbine.

These facilities would be decommissioned and the affected land rehabilitated at the conclusion of the relevant construction stage.

The following table provides a description of the temporary construction facilities that would be required only during the construction phase of the development.

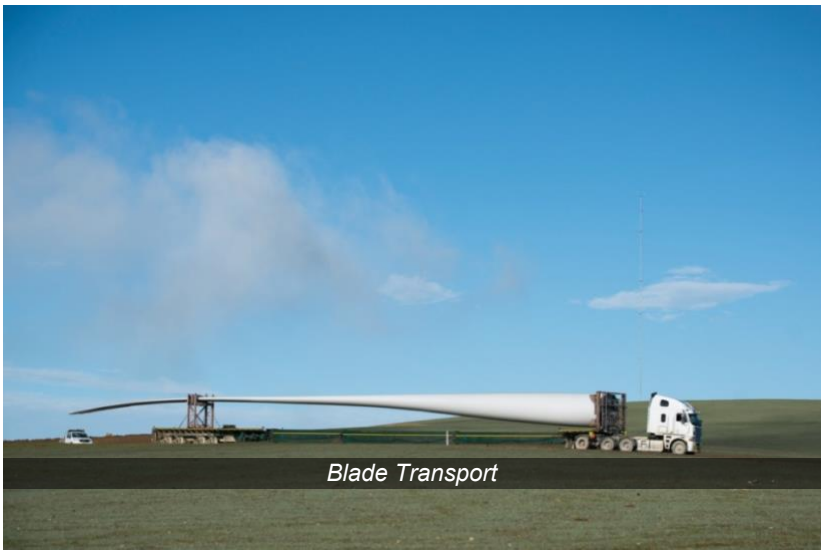
Component	Description	Location
Temporary Construction Compounds - Wind	A fenced compound of approximately 200m x 420m including site office and staff facilities, staff toilets and change rooms, workshops, car park, laydown area; Including batch plant site; Co-located with substation sites	Substation West - CT 5283/652 (D42727Q1) Substation East - CT5971/400 (H200200S4) Refer Plans GS002, GS003, GS004, and GS018
Temporary Construction Compounds - Solar	A fenced compound of 150m x 800m Significant PV laydown area of 650 x 150m Site office and car park of 150 x 150m	Bright Solar Farm – CT5296/200 (H200300S3B) Worlds End Solar Farm – CT5834/368 (H200200S44) Refer Plans GS011, GS012, GS019 Appendix B
Temporary Batch Plant	Area of 100 x 100 containing the mobile batch plant, office, lab, staff amenities, washdown area, storage and materials stockpiles	Substation West - CT 5283/652 (D42727Q1) Substation East - CT5971/400 (H200200S4) Refer Plans GS002, GS004 and GS020 Appendix B
Temporary Laydown Area (BGC)	A temporary laydown area located within the proposed BGC site.	CT 6230/207 (D120572A302) Refer Plan GS013
Turbine laydown Area	A laydown area of 80m x 20m adjacent to each turbine	Adjacent each turbine

7.4.1 Construction Compounds and Laydown Areas

Construction compounds and laydown areas are features of most projects which involve some form of building or infrastructure construction. These elements and locations are highlighted in electricity projects because the construction phase often the represents a period of time that carries the most significant impacts (noise, traffic etc.).

The approach to construction is managed via a range of statutory obligations, permits and licencing that are not normally part of the development assessment system. Construction contractors and developers are very well versed in these requirements.

Neoen undertake to ensure that lead contractors are made fully aware of their statutory obligations to protect the environment and archaeology. Neoen would ensure that contracts require construction contractors to prepare all the necessary documentation for construction facilities, undertake the works needed to ensure that impacts are minimised, and rehabilitate sites following construction.



Blade Transport

7.4.2 Temporary Concrete Batching Plants

Mobile, temporary concrete batching plants are likely to be required to supply the concrete needed for the turbine footings, which are substantial. The need for on-site concrete batching plants would depend on the requirements of the final selected civil contractor and the practicalities of sourcing concrete from other locations. On-site plants significantly reduce project cost and heavy traffic in the local area. Neoen understands that additional approvals from the EPA would be required before these plants can be constructed.

Provision has been made for two such plants at the western and eastern wind construction compounds. Care has been taken to ensure that the potential site of the batch plants is at least 100m from a watercourse (the minimum recommended set back is 50m to minimise stormwater contamination).

Should the batch plants be required, Neoen would ensure that the contractor prepares the following:

- A detailed layout plan that specifies the plant and equipment to be used on the site;
- A site-specific stormwater management approach that contains potentially contaminated water on site and diverts, clean stormwater runoff to natural drainage lines; and
- A Construction Environment Management Plan (CEMP).

7.5 Staging and Timeframes

Power Purchase Agreements (PPAs) are agreements between generators and electricity consumers to sell electricity from generation projects at a fixed price. These agreements are vital to achieving financial close on any large-scale generation project. Because it is not possible to secure PPAs of a size adequate to build the entirety of Goyder South at once, the project would be constructed in multiple stages.

It is not yet possible to be certain about the size and composition of each stage as this depends on the size and type of the PPAs secured. Some power purchasers may, for example, have a ‘load profile’ (i.e. electricity consumption profile) which mandates more wind than solar, or vice versa. Indicatively and subject to this uncertainty, however, Neoen hopes to construct Goyder South in approximately three separate stages, each comprising:

- 400MW wind;
- 200MW solar; and
- 300MW/600MWh storage.

Given the scale of the project stages, significant time would be required to achieve financial close and construction commencement on each stage. Thus, Neoen requests that the development timeframes be structured on a ‘rolling’ basis as follows:

- 3 years to substantially commence Stage 1 (from the date of approval)
- 6 years to complete Stage 1 (from the date of approval)
- 3 years to substantially commence Stage 2 (from the date of construction commencement of Stage 1)
- 3 years to complete Stage 2 (from the date of construction commencement of Stage 2;
- 3 years to substantially commence Stage 3 (from the date of construction commencement of Stage 2)

- 3 years to complete Stage 3 (from the date of construction commencement of Stage 3)

…and so on, on the proviso that construction of the entire project be completed within 12 years from the date of approval.

Each stage is likely to take in the order of two years to construct, with some construction time overlap to enable work teams to move from stage to stage. As noted, this would depend partly on the size and technology composition of stages, with solar construction typically being faster. However, Neoen has proposed 3 years for construction of each stage to provide a necessary margin for unforeseen delays and contingencies. This margin is necessary in order to reduce perceived project risks for construction contractors and financiers.

Within the three stages, construction would need to be undertaken as separate sub-stages focused on the key components of the project as follows:

- Sub-Stage A - Wind farm and ancillary infrastructure
- Sub-Stage B - Solar farm and ancillary infrastructure
- Sub-Stage C - Battery energy storage facility and ancillary infrastructure
- Sub-Stage D – Transmission Lines
- Sub-Stage E - Balance of works.

Neoen notes that if a stage of wind or solar reached financial close separately (ie. not as a hybrid stage, though any stage will almost certainly be accompanied by storage), the development and build schedule would need to be customised accordingly.

It is proposed that within each stage, conditions of authorisation may be satisfied, and Building Rules consent may be obtained, as applicable and in relation to each sub-stage separately, and in any order, such that construction of any sub-stage may commence once the conditions are satisfied and Building Rules consent has been obtained in relation to that sub-stage, without the need to satisfy all conditions and obtain Building Rules consent for the other sub-stages within the stage, or the subsequent stages of the project.

Building Rules consent would be sought from a Private Certifier (as is the standard requirement for all Crown Development applications) for all relevant components of the project.

Neoen acknowledges that the timeframe for construction requested for this approval is long, allowing construction to continue for as long as 12 years after approval, and that this may be perceived as reducing the certainty to which community stakeholders are entitled with regard to development approval outcomes. However, Neoen considers that there are factors which justify these timelines in the case of Goyder South:

1. **Scale:** There are few other renewable infrastructure developments of a comparable scale to Goyder South (noting that the entire project size may represent an investment of over AU$3 billion). The deployment of so much capital in one region is a time-intensive process, having regard to the necessity to find customers and financiers for each and every stage.

2. **Certainty:** If Neoen fails to achieve financial close on Stage 1 (however unlikely) and commence construction within 3 years after the approval, the approval would expire in a timely fashion and the community would achieve certainty on the outcome. If, however, financial close on Stage 1 is achieved, the construction cost of subsequent stages is significantly reduced due to: (1) prior installation of ancillary infrastructure driving substantial reductions in ‘fixed costs’, and (2) a more detailed understanding of the site allowing construction contractors to reduce their ‘risk contingencies’ in pricing. Cost reductions mean that the price of energy for Stages 2+ is reduced, making it easier to achieve financial close, so the community can be relatively assured that following Stage 1, subsequent stages are likely to follow until the project is complete.

3. **Community benefits:** Neoen notes that in its experience with Hornsdale Wind Farm (comprising 3 stages of approximately 100MW each, with construction spanning a period of approximately 5 years in total), an extended multi-stage build is highly preferable from a community point of view.

   Positive outcomes include:

   a) A more sustained presence of the project workforce in the region, allowing businesses and households to make sound decisions and plans predicated on the presence of the construction workforce (for example, renovation of a café or construction of a ‘granny flat’ to house a worker); and

b) Longer-term employment for workers on the project, which also encourages those who are not already local to relocate their families to the region.

An extended build-out program also helps to avoid a number of negative outcomes:

a) The 'boom and bust' dynamic which can accompany major projects in regional areas, resulting in (for example) the opening of new businesses which become unsustainable once the project construction phase is over and the construction workforce transitions to a smaller operational size;
b) Excessive load on public infrastructure such as hospitals and roads; and
c) Unavailability of housing for a very large workforce, which both:
    i. Requires workers to find accommodation elsewhere and commute long distances; and
    ii. Denies the host community the economic benefit of long-term tenancies.

7.6 Final Detailed Layout

Should this application be approved, the project would follow what is, for large renewable projects, a standard process leading up to construction (noting that this process would most likely be repeated for each stage of Goyder South):

- Neoen would tender for one or more head contractors to take on responsibility for delivery of the overall project. Typically, this would be a wind turbine manufacturer/installer or a large-scale civil works company;
- Detailed site investigations would be performed (geotechnical testing, high-resolution topographical surveying); and
- Using the results of these investigations, the selected contractor would undertake detailed site evaluation and project design. This would lead to the preparation of a final layout (including turbine micro-siting) and detailed construction impact management plans, as well as supporting information that demonstrates compliance with the conditions of approval.

For large and complicated projects, micro-siting is an important process that occurs following an approval and during detailed design. Large projects are required to provide information that demonstrates the likely impact of a project and provide evidence to ensure that project impacts would not exceed accepted limits. This is usually achieved through the provision of specialist studies that model impacts and highlight actions (either design changes or management techniques) that would avoid unacceptable impacts.

Larger projects, particularly infrastructure projects, also need to address complex on-ground issues that do not become fully apparent until construction and earthworks commence. For this reason, most large infrastructure projects have a 'micro-siting' allowance (in the order of 100-200m) that enables re-positioning of structures within a short distance of the location shown on proposal plans, where issues of detail arise. However, Neoen emphasises its understanding that post-approval micro-siting does not permit a project to exceed the impact limits imposed by any condition of approval such as minimum separation distances from dwellings or maximum noise limits. Once the micro-siting process has occurred, Neoen would submit a final layout and demonstrate that it complies with the conditions of approval.

Given the scale and complexity of the project, the likely extended timescale of its construction (being multi-stage), the range of different local environments and the range of issues that would need to be considered, Neoen requests that the project, if approved, be granted a **200m micro-siting allowance** around all of the infrastructure identified in the application plans.

Micro-siting is primarily necessary to:

- Ensure that sub-surface conditions are suitable for turbine footings (i.e. to avoid the need for excessive and destructive ground works to address rock profiles);
- Help facilitate a compromise position to allow shared land uses (such as mining and farm management);
- Ensure that there is sufficient flexibility to avoid:
    - site-specific flora and fauna impacts, noting that some factors such as nests, PBTL burrows and sensitive flora may move between first ecological surveys and the commencement of construction;
    - impacts on cultural heritage (Aboriginal or European); and

- Assist in accommodation of requirements associated with other processes as described in Section 3.3.1. and Chapter 6.

In conducting micro-siting and developing final site designs, the head contractor would be required to work with Neoen's specialist advisors, and to comply with, at a minimum:

- Any Development Approval conditions (as stated in the Decision Notification);
- The parameters identified in this Application documentation including the matters identified in the Commitments in Chapter 9;
- EPA noise level limits;
- Constraints to minimise EMI impacts;
- Constraints to minimise aviation impacts;
- Project adopted setbacks;
- Dwelling setback requirements of 2km minimum (unless agreed otherwise with the dwelling owner);
- Avoidance of sensitive flora and fauna and general minimisation of native vegetation clearance; and
- Any agreements with involved landowners and neighbours.

7.6 Decommissioning and Rehabilitation

The proposed technology is expected to have an economic life of approximately 25-30 years. The landowner agreements make provision for an initial lease term of 30 years as well as an additional term of 30 years. At the end of the current lease term, a decision would be made whether to:

- decommission the project permanently; or
- to remove the old turbines and panels and seek to replace them with new, upgraded models.

If the project is to be upgraded, then a new development application would be lodged at that time.

In the event that the project is permanently decommissioned, Neoen would take full responsibility for decommissioning and rehabilitation works. A decommissioning plan would be prepared and submitted to the relevant authority for approval.

Decommissioning would include the following:

- De-energising plant and equipment;
- Dismantling and removal wind turbines, solar panels and transmission lines, as well as all other aboveground buildings, foundations and equipment;
- Rehabilitation of disturbed land; and
- Recycling of recyclable materials (including batteries).

Decommissioning of some elements may be subject to the landowner's discretion (such as access tracks).

As per accepted industry practice, decommissioning does not include the removal of infrastructure that is located more than 600mm below the surface, as the earthworks required cause considerable and unnecessary vegetation and soil disturbance, and this infrastructure, if left in place, causes no harm to the environment or disruption to agricultural practices.

8. Assessment of Land Use Impacts

8.1 Development Assessment

The proposed development is located within the Goyder Regional Council Local Government Area which means that the Goyder Regional Council Development Plan (Consolidated 24 November 2016) is the relevant Development Plan for land use assessment purposes.

The SA Planning Commission released a discussion paper aimed at updating assessment policy in relation to renewable energy projects: 'Discussion Paper on Proposed Changes to Renewable Energy Policy in the Planning and Design Code' (State Planning Commission, July 2019). The Development Act states that the policy that is in force at the time an application is lodged is the policy that would be applied to the application. This means that policy that might be adopted after the lodgement date cannot be applied to an assessment.

Nevertheless, where it is relevant, Neoen have taken into account the draft policy expressed in the Discussion Paper. However, Neoen are not in a position to anticipate the final outcome of the draft policy process and therefore have placed significantly greater weight on the policy in effect at the time of lodgement.

8.1.1 Nature of the proposed development

The proposed development is a renewable energy generation facility in the form of a wind farm, two solar farms, energy storage and ancillary components.

Previous applications for renewable energy projects have prompted the question as to whether renewable energy projects are a form of industry for the purposes of the planning assessment. The term 'industry' means something quite specific in the planning system and is defined in the *Development Regulations 2008* as follows:

'industry means the carrying on, in the course of a trade or business, of any process (other than a process in the course of farming or mining) for, or incidental to:

(a) the making of any article, ship or vessel, or of part of any article, ship or vessel; or
(b) the altering, repairing, ornamenting, finishing, assembling, cleaning, washing, packing, bottling, canning or adapting for sale, or the breaking up or demolition, of any article, ship or vessel; or
(c) the getting, dressing or treatment of materials (and industrial would be construed accordingly).

This question was considered by the Environment, Resources and Development Court (ERDC) in relation to an appeal against a wind farm (ERDC Number 106 of 2010, decision dated 17 June 2011). The Court found that the process of making an article in the definition of 'industry' contemplates and is limited to the production of something physical or tangible' and consequently the Court did not therefore consider the conversion of wind energy into electrical energy, to be 'caught' by the definition of 'industry'.

From a planning perspective, the definition of industry has been drafted by reference to the impacts a land use will generate, not necessarily by reference to its size or scale. Most forms of industry have 'inputs' (such as raw materials and chemicals) and generate 'waste' as part of the production process. In this context, industrial land uses would generate traffic on an on-going basis (delivery of materials and removal of rubbish) and may represent a pollution risk due to the tangible types of waste generated (air emissions, wastewater, materials). Planning provisions addressing the development of 'industry' are designed to manage these impacts.

Other than during the construction phase, renewable energy generation developments do not generate significant on-going tangible impacts in the way industrial facilities do. Consequently, it is appropriate that renewable energy facilities be assessed by reference to their actual physical characteristics, rather than as 'industry'.

8.1.2 Suitability of the proposed land use in the Primary Production Zone

Under the Goyder Regional Council Development Plan, the site is wholly located on Primary Production zoned land. According to the 'Desired Character' of the Primary Production Zone, this zone seeks to reinforce and protect sustainable and efficient primary production, placing an emphasis on agriculture as a significant part of the region's economy and employment base. The zone policy identifies that, where non-primary production land uses occur, they should not limit or inhibit the use of adjoining land for primary production. The zone explicitly envisages renewable energy projects as an objective of the zone (Objective 4 Accommodation of wind farms and ancillary development) and as part of the Desired Character:

> *"Wind farms and ancillary development such as substations, maintenance sheds, access roads and connecting power-lines (including to the National Electricity Grid) are envisaged within the zone and constitute a component of the zone's desired character. These facilities would need to be located in areas where they can take advantage of the natural resource upon which they rely and, as a consequence, components (particularly turbines) may need to be:*
> - *located in visually prominent locations such as ridgelines*
> - *visible from scenic routes and valuable scenic and environmental areas*
> - *located closer to roads than envisaged by generic setback policy."*

The proposed development is highly compatible with primary production activities for the following two key reasons:

- both wind farms and solar farms, once constructed, are benign land uses in that other activities (particularly agricultural activities) can and do occur around them; and
- they provide an alternative source of income for land owners that enables primary production to continue with more certainty, especially in times of drought and potentially in the face of climate change impacts.

Sheep taking advantage of extra shade

The policy contained in the General Section of the Development Plan also acknowledges the way in which Renewable Energy Facilities are sited, by encouraging:

- Development of renewable energy facilities that benefit the environment, the community and the state. (Objective 1)
- The development of renewable energy facilities, such as wind farms and ancillary development, in areas that provide opportunity to harvest natural resources for the efficient generation of electricity.

The Development Plan provides that renewable energy facilities, including wind farms and ancillary development, should be) "located in areas that maximize efficient generation and supply of electricity" (PDC 1a).

The Development Plan specifically envisages the development of renewable energy projects and recognises the need for them to be located in rural areas that provide access to the required natural resources and space for their construction. However, the policy also recognises that a range of impacts, including visual impact, need to be addressed to the extent possible for the nature of the land use.

The proposed development takes advantage of the high-quality renewable resources and infrastructure context of this locality. As stated in Chapter 2 the applicant is seeking to develop this project in this location due to the following:

a) Clearly established, excellent wind and solar resources;
b) Suitable topography for both wind (elevation) and solar (flat, minimal flood risk);
c) Appropriate existing land uses (marginal agricultural viability, supporting mixed land use);
d) Proximity to the national electricity grid infrastructure (Robertstown substation) and the proposed EnergyConnect interconnector with NSW;
e) Strong support from landowners, neighbours and Council;

f) Accessibility for construction and on-going maintenance; and
g) Large project scale and low density of dwellings enable generous setbacks from dwellings and sensitive ecological areas.

It is noted that the Development Plan policy makes specific reference to 'wind farms' but does not specifically mention other forms of renewable energy generation. It is accepted that when the policy was originally added to Development Plan, wind was the only commercially viable form of renewable generation. Since then other technology has become viable but updating Development Plan policy has not occurred due to the imminent introduction of the Planning and Development Code policy.

Neoen submits that the proposed Goyder South Hybrid Renewable Energy Facility is an appropriate form of land use within the Primary Production Zone that is specifically envisaged in the Zone. The proposal would not adversely affect (and indeed, would support) the sustainability of primary production and would not undermine the land use intent of the zone.

8.2 Setbacks and Constraints

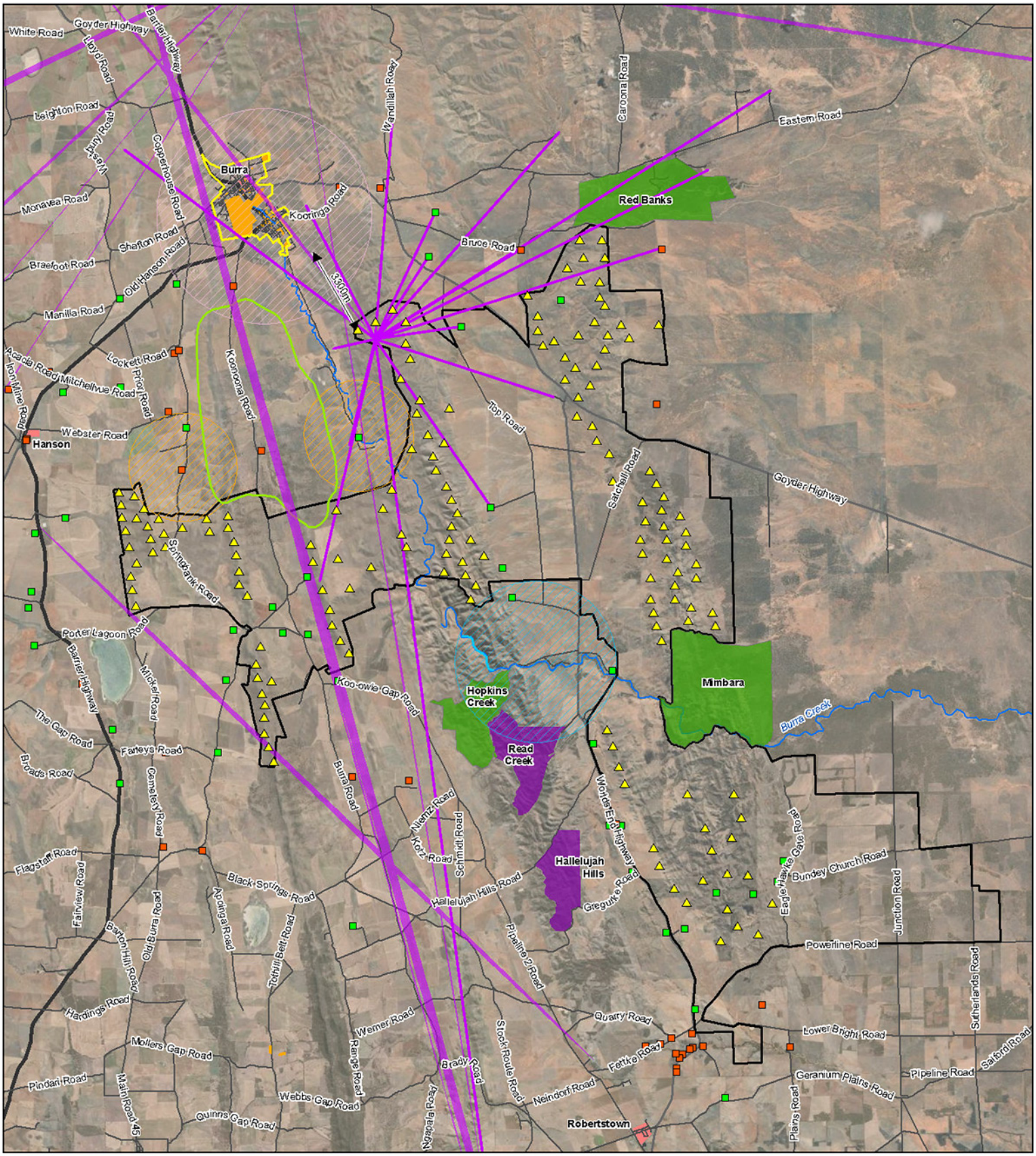
A number of technical constraints have been highlighted in the specialist reports which are summarised in Figure 12. In addition, the proposed layout incorporates a number of setback/siting expectations that are less technical in nature but which also aim to avoid impacts and these are also included in Figure 12. The layout proposed in this Development Application complies with the constraints identified in these reports.

From the early phase of the project planning process, Neoen have committed to ensuring that the wind turbines are set back from dwellings and key locations at appropriate distances. In some cases, these distances have been increased, based on further advice and consideration. For example, Neoen had agreed with Council to provide a minimum 4km buffer between turbines and the centre of Burra. Based on specialist advice in relation to visual impact, this distance has been increased to approximately 5.3km.

A number of setbacks and constraints have been applied to the project to avoid impacts of various types including:

- Planning policy (which aims to minimise land use type impacts such as visual impact);
- environmental and ecological (which aim to minimise impacts on water quality and fauna);
- Setbacks agreed with Council and individual landowners (which aim to minimise community impacts and farming impacts); and
- Other setback/separation requirements (industry standards and requirements).

The following figure provides a summary of the setbacks and constraints that have been identified and avoided. Please note that due to the scale of this plan some turbines symbols appear to intersect with point-to-point Fresnel exclusion zones but the "on-ground" position does not intersect.



- Goyder South project boundary
- Turbine
- Involved houses
- Uninvolved houses
- Point-to-Point Fresnel exclusion zones
- Ecological protection zone
- Conservation Park
- Private conservation area
- Burra Gorge
- Burra Gorge campground 3km setback
- Burra State Heritage Area
- Burra Town Hall 4km setback
- Heritage Place
- Heritage Place 2km setback
- Highway
- Arterial / Sub Arterial
- Collector and local
- Burra Creek
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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GHD

NEOEN

Neoen
Goyder Renewables Zone

Job Number 33-19112
Revision B
Date 02 Jun 2020

Summary of Setbacks and Constraints

Figure 12

N:\AU\Melbourne\Projects\33\19112\GIS\Maps\Deliverables\DA_figures\33_19112_012_Summary_Setbacks_Constraints_ADP_RevB.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Planning Policy

The current relevant Development Plan contains policy that indicates suitable setbacks for wind turbines primarily to address visual impact.

Neoen notes that changes to development assessment policy are proposed with the introduction of the Planning and Design Code Phase 2. While Goyder South will be assessed under current planning policy, Neoen has designed the project to comply with policy setbacks expected to be introduced as part of the Code for turbines and solar infrastructure (noting the policy identified in the *Discussion Paper on Renewable Energy Policy* issued by the State Planning Commission in July 2019).

The following table provides a summary of the current and proposed planning policy setbacks for wind turbines.

Feature	Current Policy Requirement	Proposed Policy	Project Adopted
Township Boundary	**2km**	2km plus 10m per metre of turbine tip height over 150m 200m tip height = **2.5km** 240m tip height = 2.9km	Approx. **3.75km** from Burra Township Boundary (Rural Living Zone boundary) for turbines with a max tip height of 200m
Non-host dwellings	**1km**	**1.2km**	**2km** except with bilateral agreement

Neoen has also adopted and achieved a separation distance of 2km between turbines and the two State Heritage places (Princess Royal Station and Old Koonoona Homestead) and 4km to the Burra State Heritage boundary.

The Discussion Paper identifies that solar farm developments should include a 30m setback from adjacent properties. The 30m setback was originally identified by a Victorian court to address the potential 'heat island effect' that solar farms might have on adjacent cropping activities. However, it is noted that this is a low-risk issue within the project area as much of the land is no longer cropped and a significant portion of the solar farms are bordered by roads (at Worlds End) or native vegetation (at Bright).

Notwithstanding this, the 30m setback has been adopted to enable appropriate bushfire protection (in the form of perimeter separation), landscaping in appropriate locations and access. It is also noted that the Development Plan identifies a 30m setback from roads for buildings and structures. A 30m separation has also been included where the solar farms directly abut land that has traditionally been cropped.

Ecological and Environmental

The project layout has also taken into account the need for setbacks for a range of ecological issues, particularly in relation to separation distances to bird nesting sites (such as a best-practice 1km setback from mapped Wedge-tailed Eagle nests). In particular, the project area has been reduced so as to entirely exclude a significant area to the north-west which contains sensitive flora and fauna (including Pygmy Blue Tongue Lizards (PBTL)). This was an area originally approved for turbines as part of the Stony Gap Wind Farm and the exclusion of this area from the project footprint has resulted in the removal of at least 8 potential turbine locations which were among the most productive in the project due to the high elevations. Nevertheless, Neoen considers that the significant amount of vegetation (especially peppermint *odorata* woodland), nesting sites and PBTL habitat justifies full protection of this area.

This Ecological Protection Zone also allows Neoen to introduce greater setbacks from several uninvolved neighbours.

Other environmental setbacks include:

- minimum 50m setback from water courses (including drainage lines) for concrete batch plants: Neoen has adopted a 100m setback for the potential batch plants and all proposed permanent and facilities;
- minimum 15m setback from centre line of drainage lines for solar farm infrastructure – additional setbacks may be required but would need to be assessed at the detailed design stage; and

- minimum 15m separation between the edge of native vegetation and solar farm infrastructure both to protect the vegetation but also to minimise the shading of panels.

Council and Landowners

Section 2.2 describes the consultation that has already been undertaken with a range of stakeholders. This section highlights two key setback requests that Council has made which are:

- A turbine setback of at least 4km from Burra town centre (a setback of over 5km has been achieved); and
- Maintenance of an acceptable distance between turbines and the Burra Creek Campground (a setback of 3.2km has been achieved)

Communication with landowners has been undertaken and, as a result, Neoen has agreed to a range of siting and setback matters with individual landowners that address their particular needs in relation to dwellings, infrastructure visibility, access and farm operations. This communication will continue as development progresses.

Other Requirements

The setbacks and separation distances adopted for other elements of the project such as transmission lines and substations are defined by electrical industry standards and design requirements. This includes setbacks or separation distances from existing transmission lines and higher voltage distribution lines (in accord with ElectraNet and SA Power Networks requirements).

If approved, Goyder South will conform to the design requirements of these industry standards.

8.3 Consideration of Impact Issues

The Primary Production Zone and the General Section of the Development Plan includes policy that helps to identify a range of potential impact and interface issues that require consideration. These are summarised and listed in tables below.

- Primary Production Zone;
- Renewable Energy Facilities;
- Infrastructure /Orderly and Sustainable Development;
- Heritage Conservation and Heritage Places;
- Interface between land uses / Landscaping, Fences and Walls;
- Natural Resources;
- Transport and Access; and
- Hazards (including Aviation Safety).

8.3.1 Primary Production Zone

Objective 1	Economically productive, efficient and environmentally sustainable primary production.
Objective 3	Protection of primary production from encroachment by incompatible land uses and protection of scenic qualities of rural landscapes
Objective 4	Accommodation of wind farms and ancillary development.
PDC 1	The following forms of development are envisaged in the zone: • tourist accommodation, including through the diversification of existing farming activities and conversion of farm buildings • farming • intensive animal keeping (especially within Enterprise Policy Area 2) • wind farm and ancillary development • wind monitoring mast and ancillary development.

PDC 4	Wind farms and ancillary development should be located in areas which provide opportunity for harvesting of wind and efficient generation of electricity and may therefore be sited: (a) in visually prominent locations (b) closer to roads than envisaged by generic setback policy.
PDC 11	Structures and buildings should generally be set back a minimum of 30 metres from all road boundaries.
PDC 12	Development should not occur within 500 metres of a national park, conservation park, wilderness protection area or significant stands of native vegetation if it will increase the potential for, or result in, the spread of pest plants.

Section 8.1.2 addressed the question of the overall suitability of the proposed land use within the Primary Production Zone and compatibility with primary production activities. The landscape and visual impact assessment acknowledges that the turbines and transmission lines will be visible but concludes that the landscape can accommodate these structures.

Setbacks have been incorporated into the project that meets the requirements of PDC 11 and 12. It is noted that the construction CEMP (contained in Appendix E) includes a section that deals with the management of weeds and pests.

8.3.2 Renewable Energy Facilities

Renewable Energy Facilities	Objective 1	Development of renewable energy facilities that benefit the environment, the community and the state.
	Objective 2	The development of renewable energy facilities, such as wind farms and ancillary development, in areas that provide opportunity to harvest natural resources for the efficient generation of electricity.
	Objective 3	Location, siting, design and operation of renewable energy facilities to avoid or minimise adverse impacts on the natural environment and other land uses.
	PDC 1	Renewable energy facilities, including wind farms and ancillary development, should be: (a) located in areas that maximize efficient generation and supply of electricity; and (b) designed and sited so as not to impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips.
	PDC 2	The visual impacts of wind farms and ancillary development (such as substations, maintenance sheds, access roads and wind monitoring masts) should be managed through: (a) wind turbine generators being: (i) setback at least 1000 metres from non-associated (non-stakeholder) dwellings and tourist accommodation (ii) setback at least 2000 metres from defined and zoned township, settlement or urban areas (including deferred urban areas) (iii) regularly spaced (iv) uniform in colour, size and shape and blade rotation direction (v) mounted on tubular towers (as opposed to lattice towers) (b) provision of vegetated buffers around substations, maintenance sheds and other ancillary structures.
	PDC 3	Wind farms and ancillary development should avoid or minimise the following impacts on nearby property owners / occupiers, road users and wildlife: (a) shadowing, flickering, reflection or glint (b) excessive noise

		(c) interference with television and radio signals and geographic positioning systems (d) interference with low altitude aircraft movements associated with agriculture (e) modification of vegetation, soils and habitats striking of birds and bats.
	PDC 4	Wind turbine generators should be setback from dwellings, tourist accommodation and frequently visited public places (such as viewing platforms) a distance that would ensure that failure does not present an unacceptable risk to safety.

The Development Plan policy relating to Renewable Energy Facilities specifically recognises renewable energy as a form of land use and encourages their development. The policy also clearly indicates that effort should be made to "avoid or minimise adverse impacts" (Obj 3). The principles of development control highlight those key issues that these facilities should address when being designed but also indicated that there is some need to balance this with the efficient generation of energy.

The proposed development is located to take advantage of the exceptional wind and solar resources of this region as described in Chapter 2. However, some of the more productive wind generation sites have been excluded in order to avoid and minimise impacts on the environment and residents in the area particularly within the ecological protection zone and to achieve the adopted setbacks from Burra and uninvolved dwellings. Neoen have also endeavoured to meet landowner requests for siting arrangements that avoid conflicts with farming operations.

The specialist studies demonstrate that there is unlikely to be any significant impact in relation to:

- Reflection or glint;
- Excessive noise; or
- Aviation safety generally (further considered in section 8.3.8).

The application has acknowledged that there is some potential for impacts in relation to:

- Theoretical shadow flicker;
- Interference with IT and communication systems;
- Modification of vegetation, soils and habitats in defined locations;
- Removal of native vegetation; and
- Striking of bats and birds.

The applicant has made impact mitigation commitments to address these issues to ensure that they are minimised.

With respect to visual impact, Section 8.2 highlights the manner in which the project meets and exceeds the setback policies. It is acknowledged both by the applicant and in the policy that renewable energy projects do have a visual impact. This is particularly the case for turbines and transmission lines.

The landscape and visual assessment acknowledges that, at a macro-scale, various elements of the project will be highly visible (such as turbines and the transmission lines) but argues that the nature of the landscape can accommodate this impact. The landscape already accommodates a range of infrastructure including existing high voltage transmission lines and the SA Water pipeline.

Where possible, other infrastructure has been sited to minimise impact such as the western and southern substations and the Bright solar site. Neoen proposes to minimise the visual impact of other components of the project in the following manner:

- Worlds End solar site: the perimeter of the solar array that abuts the Worlds End Highway and the Goyder Highway would be set back 30m from the road boundary. This setback would include a perimeter access track, a security fence and a 10m wide vegetation screen (comprising indigenous species);
- Substation East: a considerable setback from the Highway (over 400m), use of appropriate cladding materials and screen planting around the compound.

Neoen understands that PDC 4 originates from a concern that turbines could 'throw' a blade during operation due to attachment failure, whereupon the blade which might theoretically become a dangerous projectile. While very early models of wind farms in the 1980s may have experienced rare issues in this regard, Neoen believes it is extremely unlikely with contemporary models and is unaware of reliable records indicating this has ever occurred in Australia with machines from a reputable manufacturer. Furthermore, the negligible probability of such a blade striking a vehicle, dwelling, tourist accommodation or frequently visited public site in a sparsely populated area makes this issue even less significant. Nevertheless, all turbine structures have been set back from roads and public places to address this policy.

8.3.3 Infrastructure /Orderly and Sustainable Development

Infrastructure	Objective 1	Infrastructure provided in an economical and environmentally sensitive manner.
	Objective 4	The visual impact of infrastructure facilities minimised
	PDC 8	Electricity infrastructure should be sited and designed to minimise its visual and environmental impacts.
	PDC 10	Utilities and services, including access roads and tracks, should be sited on areas already cleared of native vegetation. If this is not possible, their siting should cause minimal interference or disturbance to existing native vegetation and biodiversity.
	PDC 11	Utility buildings and structures should be grouped with non-residential development where possible.
Orderly and Sustainable Development	PDC 7	Where development is expected to impact upon the existing infrastructure network (including the transport network), development should demonstrate how the effect would be addressed.

These policies highlight the need for the provision of infrastructure but seek to minimise impacts. They acknowledge that infrastructure do have impacts and urges applicants to consider a range of avenues to minimise them. It is noted that the policy does not demand that all impacts are avoided.

Where possible, Neoen propose to locate the project components on cleared land, co-locate elements where technically feasible and seek to minimise visual impact by appropriate siting and spacing. As identified above, there are some situations where visibility cannot be avoided. It is noted that Neoen have 'clustered' facilities and buildings where possible. For example, the substations and the O&M facilities have been co-located and the battery and grid connections have also be co-located. These sites were also selected as they were either grazed or cropped in the recent past and do not contain native vegetation.

The Worlds End solar site was selected not only because of its solar resource and topography but also because it is a large area of land that has very little remnant native vegetation of significant quality. The establishment of screen planting along the highway edges using indigenous species many help to re-instate some habitat corridors for small species.

Section 7.6 describes the micro-siting process that would be applied, a key aim of which is to minimise the impact on native vegetation for those elements that cannot avoid areas in the vicinity of native vegetation.

The proposed development would support and enhance existing electricity infrastructure but it is recognised that the construction phase would place additional pressure on the transport network. Neoen has accepted the specialist construction and traffic management advice in order to plan for a construction phase that would minimise traffic impacts.

8.3.4 Heritage Conservation and Heritage Places

Heritage Conservation	Objective 1	The conservation of areas, places and their settings of indigenous and non-indigenous cultural significance.
	PDC 1	Development should conserve and not adversely impact on the cultural or natural significance of places, areas, artefacts …..
Heritage Places	Objective 1	The conservation of State and local heritage places
	PDC 3	Conservation of the setting of State and local heritage places.

A heritage study was commissioned by Neoen to provide advice and guidance on potential heritage impacts for both Aboriginal and European heritage. The proposed development does not directly impact on known Aboriginal or European heritage.

However, in order to protect the setting of known places, the proposed infrastructure has been setback from State Heritage places at least 2km and, in the case of the Burra State Heritage Place boundary, 4km.

It is acknowledged that the construction phase of the development could reveal archaeology that is protected by legislation. The micro-siting process will include the consideration of potential heritage impacts including engaging archaeologies to carry out a site avoidance survey that would feed into micro-siting considerations. In addition, Neoen have accepted the advice of its heritage specialists to adopt an appropriate approach in the CEMP to ensure that artefacts or finds are appropriately protected in accord with the requirements of the legislation.

8.3.5 Interface between land uses / Landscaping, Fences and Walls

Interface between land uses	Objective 1	Development located and designed to prevent adverse impact and conflict between land uses.
	Objective 2	Protect community health and amenity and support the operation of all desired land uses.
	PDC 1	Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following: (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants (b) noise (c) vibration (d) electrical interference (e) light spill (f) glare (g) hours of operation (h) traffic impacts.
	PDC 2	Development should be designed and sited to minimise negative impact on existing and potential future land uses considered appropriate in the locality
	PDC 7	Development should be consistent with the relevant provisions each of the following documents: (c) the current Environment Protection (Noise) Policy
Landscaping, Fencing and Walls	Objective 1	The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.
	PDC 2	Landscaping should: (a) include the planting of locally indigenous species where appropriate

		(b) be oriented towards the street frontage (c) result in the appropriate clearance from powerlines and other infrastructure being maintained.
	PDC 5	Existing stone walls, particularly in Burra, should be retained.

As described previously, renewable energy projects are highly compatible with primary production activities. Neoen has applied generous setbacks to minimise adverse impacts and conflicts with other forms of land uses and some locations have been avoided altogether. Where potential issues could remain, Neoen have proposed suitable and appropriate management techniques.

Objective 2 seeks to protect "community health". Neoen considers this is likely to originate in two considerations:

1. **Infrasound:** assessment of renewable projects has often involved concerns by members of the community around 'infrasound' generated by wind turbines. The matter of infrasound has been extensively reviewed and investigated by the SA EPA and the National Health and Medical Research Council (NHMRC) and tested several times in both South Australian and Victorian courts. The results have repeatedly indicated a lack of scientific evidence that infrasound adversely affects human health, or indeed that wind turbines produce more infrasound than other environmental sources such as trees, the ocean or air-conditioning. In 2013, an EPA study indicated a higher level of infrasound within its own office than at most wind farms.[20]

   Neoen does, however, consider that misinformation and subsequent belief in these health effects can provoke a 'nocebo' response, and that anxiety generated as a result of mistaken beliefs may certainly be harmful. Consequently, in all community consultation efforts Neoen strives to combat this information with accurate facts.

2. **Noise:** It is noted that the "current Environment Protection (Noise) Policy" identified in PDC 2 specifically makes provision for the assessment of wind farms by reference to the *Wind Farms Environmental Noise Guidelines 2009 (SA Guidelines*) as the relevant standard.[21]

   Wind turbines unquestionably produce noise, and excessive or 'tonal' noise can be harmful and impact on amenity and quality of life. Neoen has therefore made every effort to site turbines appropriately. The Goyder South environmental noise impact assessment (see Chapter 6.4) has demonstrated that the proposed development is able to comply with the relevant EPA noise policy requirements. See further Chapter 6.4.

   Neoen also notes that after extensive review of international policies, the South Australian EPA has concluded its turbine noise limits to be among the strictest in the world.[22] Neoen highlights that should Goyder South fail to comply with these limits in its post-construction compliance assessment, the EPA is empowered under the *Environment Protection Act 1993* (SA) to require Neoen to modify turbines' operation until compliance with the limits is achieved.[23]

Principle of Development Control 1 identifies the specific interface issues that should be addressed. As previously explained, renewable energy facilities are not industrial and do not generate tangible emissions or pollutants. Similarly, after construction they do not generate the typical impacts of land uses such as significant traffic. For this reason, while they can operate 24 hours/7 days a week, as their operational impacts are benign. Potential impacts such as noise and electrical interference (EMI) have been fully assessed as having minimal or manageable impacts. Light spill is not relevant to the proposed development as there will be no significant lighting, other than minimal lighting associated with operations and management facilities which may have

[20] EPA, *Infrasound Levels Near Wind Farms and in Other Environments* p3 https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjRqJCeqeXpAhVUxDgGHZcGAOkQFjAAegQIARAB&url=https%3A%2F%2Fwww.epa.sa.gov.au%2Ffiles%2F477912_infrasound.pdf&usg=AOvVaw2RuCIin8S2ROBfQbUF69xe

[21] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjnp-Ccm-XpAhXgyzgGHSXxBmYQFjABegQIAxAB&url=https%3A%2F%2Fwww.epa.sa.gov.au%2Fdata_and_publications%2Fall_publications%2Ffor_councils%2Fwind_farm_noise&usg=AOvVaw11HQ2liay_1dCViHctPc8X

[22] https://www.epa.sa.gov.au/environmental_info/noise/types_of_noise/wind_farms/waterloo_wind_farm_environmental_noise_study/report_summary

[23] https://www.epa.sa.gov.au/data_and_publications/all_publications/for_councils/wind_farm_noise

limited external lighting near doorways for emergency night use. This would be no different to a light above the doorway of an agricultural shed.

Concerns about the “glare” of solar panels has been raised previously, possibly because people assume that the ‘glass’ faces of panels work like typical glass (e.g. windows). It is important to note that solar panels are specifically designed to absorb light, not reflect it, which means they respond to light more like still lakes than glass.

As has been discussed previously, the project also proposes screen planting using indigenous species to enhance visual amenity and further reduce glare along major road frontages.

While the development will not impact stone walls in Burra, it is acknowledged that there are agricultural stone walls located within the project area. Impact on these stone walls will be considered as part of the micro-siting process and avoided wherever possible. It is possible that some disturbance to a stone wall may occur where this is necessary for access. If so, any crossing would be established to minimise impact and any impact will be reinstated following construction.

8.3.6 Natural Resources

Natural Resources	Objective 1	Retention, protection and restoration of the natural resources and environment.
	Objective 2	Protection of the quality and quantity of South Australia’s surface waters, including inland and underground waters
	Objective 6	Development sited and designed to: (a) protect natural ecological systems (b) achieve the sustainable use of water (c) protect water quality, including receiving waters (d) reduce runoff and peak flows and prevent the risk of downstream flooding (e) minimise demand on reticulated water supplies (f) maximise the harvest and use of stormwater (g) protect stormwater from pollution sources
	Objective 8	Native flora, fauna and ecosystems protected, retained, conserved and restored.
	Objective 12	Protection of areas prone to erosion or other land degradation processes from inappropriate development.
	Objective 13	Protection of the scenic qualities of natural and rural landscapes
	PDC 1	Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.
	PDC 7	Development within the Water Management Area designated on *Concept Plan Map Go/2 - Development Constraints - Water Management Areas* should not adversely affect the quality or quantity of the water resource.
	PDC 30	Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.
	PDC 31	Development should be designed and sited to minimise the loss and disturbance of native flora and fauna, including riparian and riverine animals and plants, and their breeding grounds and habitats.

The proposed development would have little impact on natural resources once established, because the nature of the land use is such that it does not require the use of natural resources (other than wind and solar) or the production of significant waste.

The protection of natural and rural landscapes must be balanced against the recognition that wind farm infrastructure, by its very nature, is visible. Policy in the Primary Production Zone and under Renewable Energy Facilities clearly acknowledges this and accepts that this is a trade-off for renewable energy generation. A similar principle might be applied to solar arrays, as these require flat land which can be highly visible from public roads in the near vicinity.

The location of project components has avoided creeklines and drainage lines as much as possible. Where this has not been possible setbacks of 100m from creeklines and 15m from drainage lines have been applied. The two potential batch plants have also been sited to avoid sensitive locations. In addition, the substations and the battery and grid connection facilities would be designed to include appropriate stormwater and wastewater management systems.

It has been acknowledged that the design of the two solar sites must take into account the notable drainage lines that are situated on these sites, some of which display obvious signs of erosion impacts especially in the Bright area. The setback from these drainage lines and the establishment of permanent ground cover would help to arrest the erosion.

The construction phase is when there is the greatest risk of impact on water quality and natural resources. As is standard practice, the construction phase is controlled and managed by a range of legislative and permit requirements. Crucial to this is the preparation of Construction Environment Management Plans (CEMP). These plans set out the manner in which construction activities are to occur in order to protect water quality and minimise impacts associated with earth moving, erosion, dust, traffic and the spread of weeds. A draft CEMP is contained in Appendix E which also addresses issues relating to concrete batching plants.

A specific CEMP would be prepared for each of the temporary concrete batching plants if they are required.

8.3.7 Transport and Access

Transport and Access	PDC 2	Development that: (a) provides safe and efficient movement for all motorised and non-motorised transport modes (b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles (c) provides off street parking (d) is appropriately located so that it supports and makes best use of existing transport facilities and networks.
	PDC 13	Development should make sufficient provision on site for the loading, unloading and turning of all traffic likely to be generated.

The development plan policies relating to traffic and transport issues tend to focus on land uses that generate large volumes of traffic on an on-going basis. Renewable energy projects generate minimal traffic during their operation but do generate traffic (especially oversized vehicles) during the construction and decommissioning phases. While the construction phase is likely to extend over a nearly 10-year period, it is important to note that the focus of this construction traffic would shift across the project area as the construction schedule moves through the various stages, avoiding continuous impact focused in any one area.

As identified in the traffic impact assessment, due to the size and weight of some of the infrastructure parts, it is anticipated that there would need to be some up-grade of sections of roads and intersections to accommodate the construction vehicles. This detail would be agreed between the Department of Planning, Transport and Infrastructure, the Council and Neoen as part of the detailed Traffic Management Plan.

The substations and battery/grid connection sites include appropriate parking and storage areas.

8.3.8 Hazards (including Aviation Safety)

Hazards	Objective 1	Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.
	PDC 1	Development located away from areas that are vulnerable to, and cannot be adequately and effectively protected from the risk of natural hazards
	PDC 2	Development located to minimise the threat and impact of bushfires on life and property
Renewable Energy Facilities	PDC 1	Renewable energy facilities, including wind farms and ancillary development, should be: …(b) designed and sited so as not to impact on the safety of water or air transport and the operation of ports, airfields and designated landing strips.
	PDC 3	Wind farms and ancillary development should avoid or minimise the following impacts on nearby property owners / occupiers, road users and wildlife: (d) interference with low altitude aircraft movements associated with agriculture

The proposed development could be susceptible to hazards such as bushfires and flooding. There is also community concern that wind farms, in particular, might create bushfire problems. In addition, there is a concern that wind turbines might create aviation safety issues for aerial spraying and aerial firefighting. These matters are discussed below.

8.3.8.1 Aviation Safety - Agriculture

The question of the impacts of renewable projects on agricultural aviation safety is primarily in relation to aerial spraying.

The impact of turbines on agricultural aviation was heavily investigated in relation to the Ceres Wind Farm proposal on the Yorke Peninsula. This area, unlike Goyder South, uses aerial spray frequently. The turbines at Goyder South are, furthermore, almost exclusively located on ridges which are subject to grazing rather than cropping.

Advice from operators has also identified that these pilots fly at low altitudes and navigate by sight to avoid obstacles such as trees, towers and buildings. Turbines are highly visible and unlikely to be missed, though transmission lines and meteorological masts are more difficult to see and thus more hazardous. Neoen notes that there is already a significant amount of transmission line in and around the project area, and commits to appropriate aviation safety markers on future meteorological masts.

Overall, aerial spraying is not considered to be a significant issue for the Goyder South site.

8.3.8.2 Bushfire Risk

Locations within South Australia that have relatively high bushfire risk have been mapped and identified as ‘Bushfire Protection Areas’. Within these areas, policies apply that aim to minimise bushfire risk and require particular standards of construction depending on the level of risk.

The Regional Council of Goyder is not included in this mapping. However, given the recent experience over the 2019/20 season, reasonable consideration of bushfire risk as part of the impact assessment approach is considered appropriate from two perspectives:

- The extent to which the proposed development might be a source of bushfire risk
- The extent to which the proposed development might contribute to reducing or increasing bushfire risk generated from other sources.

Local Bushfire History and Context

As is the case for many locations across Australia, the project area and its immediate surrounds have experienced a number of bushfire events. The following table provides a summary of events that have occurred over the last 20 years (Nature Maps, SA CFS, Bushfire History).

Name	Date	Location	Area burnt
Baldina Creek	Sept 2003	Northern edge of Red Banks Conservation Park	1.3 ha
Redbanks	Sept 2003	Northern edge of Red Banks Conservation Park	0.8 ha
Burra	Dec 2005	Centre of the Worlds End valley	6122 ha
Worlds End	Oct 2017	West of Mimbara Conservation Park	221.6 ha
Burra	April 18	Near Sod Hut in western ranges	1.3 ha

The most significant fire in terms of the area burnt occurred in Dec 2005 and was thought to have been started by lightning. This was essentially a grass fire that spread very quickly.

Aerial Firefighting

As identified in the Aviation Impact Assessment in Volume 2, wind turbines do not create insurmountable issues for aerial firefighting. Neoen's aviation consultant investigated the issue of aerial firefighting and wind farms extensively in relation to Neoen's Crystal Brook Energy Park project, and the issue is commonly discussed during wind farm assessments more generally. As noted in the AIA, a firefighting pilot made the comment that "wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity."

Following the Waterloo fire near the Waterloo Wind Farm in 2017, the SACFS conducted a review of the use of aerial firefighting resources. The key recommendations included that the wind farm developer prepare a comprehensive Bushfire Emergency Response Plan including strategies such as pausing or braking of turbines, improved visibility markings for meteorological masts, adoption of preventative strategies and notification procedures.

Aerial firefighting at Waterloo Wind Farm (source: https://ramblingsdc.net/WindTurbineFires.html)

Neoen notes that its remote (Canberra) Control Room is staffed 24/7 and would be able to pause wind turbine operations rapidly in response to requests from emergency services.

The Country Fire Service has also highlighted that, while:

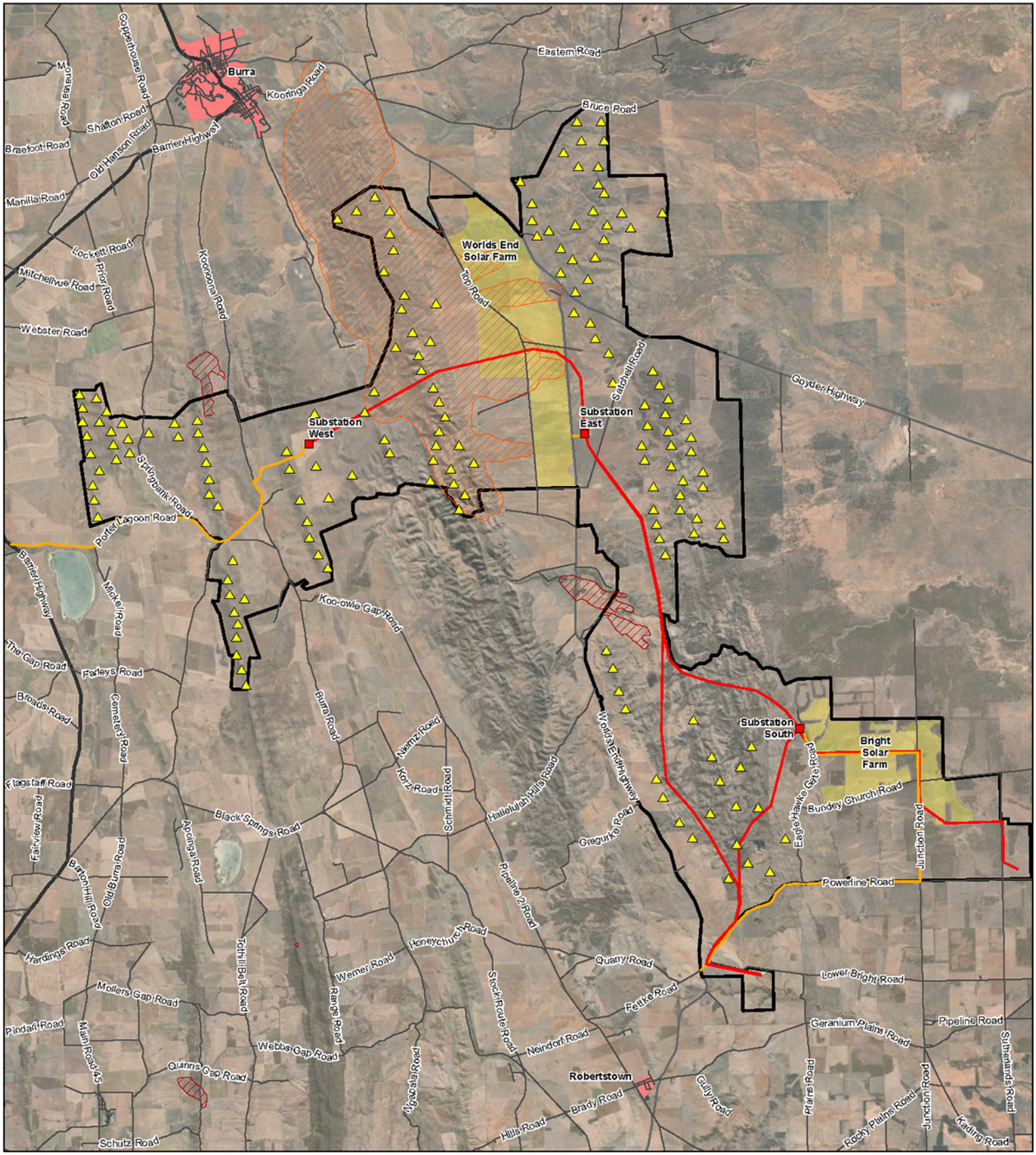
> *'aircraft are often the most visible part of the response to a fire, and therefore believed to be the most important, almost all fires are still extinguished by ground crews.'*[24]

Figure 1: Aerial firefighting at Waterloo Wind Farm (source: https://ramblingsdc.net/WindTurbineFires.html)

The Australasian Fire and Emergency Services Council (AFAC) position paper on Wind Farms and Bushfire Operations also concluded that

> *"wind turbines are not expected to pose increased risks due to wind turbulence or the moving blades. Local wind speeds and direction are already highly variable across landscapes affected by turbulence from ridge lines, tall trees and buildings."*

[24] CFS Fact Sheet – Aerial firefighting



Goyder South project boundary
Solar farm
Turbine layout
Substation
Construction access road
Proposed transmission line

Historic bushfires
2000s
2010s

Township
Highway
Arterial / Sub Arterial
Collector and local

Paper Size A3
0 0.5 1 2 3 4
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

NEOEN

Neoen
Goyder Renewables Zone

Job Number 33-19112
Revision B
Date 02 Jun 2020

Bushfire History

Figure 13

N:\AU\Melbourne\Projects\33\19112\GIS\Maps\Deliverables\DA_figures\33_19112_013_Bushfire_History_A3P_Rev8.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by: savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Other Impacts of Renewable Energy Projects on Bushfires

There has been considerable discussion about the extent to which renewable energy projects might pose a risk of starting bushfires. This section discusses the implications of the various components of Goyder South for bushfire risk and management.

Wind turbines

Wind turbines themselves are sometimes claimed to present a high risk of bushfire in two respects. Neither of these are accurate:

1. **Malfunction:** Electrical equipment in a turbine is fully 'enclosed' within the nacelle and tower, providing a natural containment barrier, while cables linking turbines to the collector substation are underground. Machines are highly engineered and heavily tested, and each is worth many millions of dollars. Liability for property damage or loss of life from faulty equipment starting a fire could also be immense. Consequently, manufacturers and developers are strongly incentivised to minimise malfunctions.

   It is notable that there are now well over 2,000 wind turbines installed in Australia. Taken in aggregate, these turbines have now accumulated millennia of 'operational years'. To Neoen's knowledge there have only been 4 or 5 fires recorded as ever having been started by turbines in Australia, none of which resulted in severe damage.

2. **Lightning:** Turbines are specifically designed to deal with strikes with minimal damage. Again, there is an obvious commercial reason for this: turbines are frequently struck, and if one is significantly damaged by lightning, the financial losses from repair/replacement costs and 'downtime' are significant. Similarly, if a turbine starts a fire which causes damage to nearby property or land, the potential liability for the wind farm operator is considerable.

   Consequently, turbine blades are constructed with a large cable running from their tips back to the nacelle. From here, another cable runs down the tower to the ground, where it connects to an 'earthing mat' – a network of cables buried underground which are designed to dissipate energy from a strike safely.

   In a landscape without turbines, trees on ridges are typically the tallest points, and are most likely to be struck by lightning. Because wood is a poor conductor of electricity, when a tree is struck it will often catch alight (potentially starting bushfires). By attracting strikes which would otherwise have struck trees, turbines function in a similar way to lightning rods on tall buildings, which are also designed to dissipate the energy from strikes safely, and reduce the incidence of fires from lightning.

Wind farms also actively benefit ground-based firefighting efforts in several ways:

1. Construction and maintenance of access tracks in previously inaccessible areas such as steep hills and ridges greatly improves access for ground-based firefighting units, which are the primary means of fighting fires;
2. Access tracks act as firebreaks;
3. Cleared areas around turbines can act as 'last resort' retreats;
4. Frequent staff presence resulting in greater oversight and potential earlier notification of fire;
5. Reduction of fuel load by regular slashing of grass and removal of debris;
6. On-site firefighting resources to augment local firefighting capabilities, including water tanks and firefighting equipment.

Grass fire stopped at access track
source: https://ramblingsdc.net/WindTurbineFires.html)

Solar panels

Solar panels themselves are essentially inert and relatively non-flammable. As with any electrical equipment, malfunctions with cabling or inverters are possible, but extremely rare provided that equipment is correctly designed and installed. Goyder South will utilise only top tier components and installers, and these will be maintained to industry technical standards and requirements.

The layout of both Goyder South solar arrays will also take into account facilitation of firefighting efforts including boundary and internal access track widths, availability of on-site water and firefighting equipment. Because vegetation management is a key aspect of operations, fuel load during bushfire season will also be carefully managed.

Batteries and ancillary infrastructure

Large-scale battery installations are a relatively new form of development, but pose no more risk than other forms of electrical equipment such as substations, of which there are hundreds across South Australia. Installations are designed in accordance with industry standards, including lightning rods to conduct strikes safely, and are subject to careful fuel management practices around their perimeter. Firefighting equipment is present on-site.

While the higher voltage transmission lines proposed for Goyder South would of necessity be above ground, such lines are required to be designed and built to the same standards as ElectraNet transmission lines, of which there are already many thousands of kilometres in South Australia. Lines are supported by poles or towers that are much higher than domestic scale distribution lines, meaning that they are less exposed to falling trees or limbs and further from flammable material on the ground.

Proposed Approach

In addition, Neoen have commenced informal discussions with the local CFS about additional infrastructure which might be installed (at Neoen's cost) around the solar farm or locally to facilitate firefighting efforts, such as installing large water storage tanks at regular intervals around the boundary to be used for refilling tankers. Such infrastructure would, of course, be made available to fight any fires locally, not simply those which might potentially endanger the project. This approach would be included in an Operational Management Plan.

Given the history of crop fires in the region, Neoen has adopted a 30 m set back to property boundaries for the Worlds End solar site to provide access and protection of solar assets from fire. In addition to this, Neoen would commit to the following:

- Ensure that the construction of all equipment is undertaken to industry standards and requirements;
- Preparation of a Bushfire and Emergency Services Plan for all elements of the project, including strategies such as pausing or braking of turbines, adoption of preventative strategies, notification procedures and direct communication channels between Neoen's control room and local CFS;
- Fuel load management (noting that dust management requires some vegetation be maintained);
- Incorporation of access tracks appropriate for firefighting according to CFS specifications.

Conclusion

The nature of the intended development and the site is such that the proposal is considered to be compatible with the current Development Plan and zoning policy in that:

- The proposed development is an envisaged land use in the Primary Production Zone;
- At the macro scale, every effort has been made to avoid or minimise impacts particularly through the identification of exclusion zones and generous setbacks;
- Where possible, elements of the project have been located on cleared land to avoid native vegetation clearance and the micro-siting process will assist with further minimising ecological impacts while maintaining the requirements to minimise other impacts;
- The project has adopted best-practice setbacks to address specific visual impact and ecological issues;

- Wherever possible, components have been sited in locations which are less visible and which avoid native vegetation clearance;
- Where this cannot be avoided, screen planting is proposed to minimise visual impact from the major highways;
- The wind, battery storage, substations, transmission and other ancillary components of the Goyder South project would utilise minimal land area resulting in negligible impacts on that land for primary production uses;
- The solar component would be located on land which is currently extremely marginal for cropping, and due to changing weather patterns, is becoming increasingly unsustainable even for commercial grazing; and
- The wind, solar and transmission components are compatible with shared land use arrangements, particularly primary production, including ongoing grazing on both wind and solar sites. The availability of a second, secure income stream to landowners will make it more likely that this land can continue to be farmed into the future.

Neoen therefore submits that, on balance, the Goyder South Hybrid Renewable Energy Facility is highly compatible with the Development Plan intent and zoning policy.

9. Commitment to Minimising Impacts

9.1 Summary of Commitments

The following is a consolidated list of actions that Neoen commit to undertaking (either themselves or through contractors) in the development and operation of the proposed project, in order to minimise impacts on the environment and community.

9.1.1 Community Outcomes

Community Benefits Scheme (CBS)

Neoen commits to providing up to $600,000 per annum to be distributed for the benefit of the broader community in the region for the duration of the Goyder South project's operational lifespan (25-30 years) at full project size. While the project is undergoing staged development, the annual funding available under the scheme will be incrementally increased as each successive stage is built:

1. $60,000 per 100MW of wind generation constructed;
2. $30,000 per 100MW of solar generation constructed; and
3. $10,000 per 100MW of battery storage constructed.

These amounts will be adjusted in accordance with inflation from January 2020 to the date of the first payment.

Neighbour Benefit Scheme (NBS)

Neoen commits to providing annual payments to qualifying neighbours with a residential dwelling within 6km of a constructed wind turbine, which is occupied on a full-time or near full-time basis. Annual payments will be made to qualifying neighbours for the duration of the Goyder South project's operational lifespan (25-30 years). The annual entitlement per dwelling will be set on the basis of distance from turbines and the number of turbines.

Benefits to Aboriginal people

Neoen commits to:

- engaging effectively with Aboriginal stakeholders (the Ngadjuri Nation); and
- ongoing efforts to share project benefits by formulating binding and meaningful employment and training opportunities to Aboriginal people, with particular focus on benefiting members of the Ngadjuri community.

Heysen Trail

Neoen commits to good faith discussions with DEW and the Friends of the Heysen Trail in respect of an offer to divert approximately 3.6km of the Heysen Trail which currently passes through a long stretch of flat, grazed, relatively uniform land between Burra and Robertstown which would have solar panels located on both sides of the Trail.

9.1.2 Land Interests

Neoen undertakes to accommodate the reasonable interests of current landowners through the micro-siting process including farming practices, screening for visual impact and shadow flicker (if relevant) and noise attenuation.

Neoen also commits to discussion and negotiation with other holders of interests in land including, but not limited to, the Ngadjuri Nation, the Crown Lands Agency and holders of mining interests.

9.1.3 Micro-siting

The micro-siting process for all project infrastructure will be undertaken primarily to minimise site impacts. Neoen will require the head contractor to work with Neoen's specialist advisors to undertake the micro-siting process and develop the final site designs and to comply with, at a minimum:

- Any Development Approval conditions (as stated in the Decision Notification);
- The parameters identified in this Application documentation including the matters identified in the Commitments in this Chapter 9;
- EPA noise level limits;

- Constraints to minimise EMI impacts;
- Constraints to minimise aviation impacts;
- Project adopted setbacks;
- Occupied dwelling setbacks for turbines;
- Minimisation of impacts on sensitive flora and fauna, and general minimisation of native vegetation clearance; and
- Any agreements with involved landowners, neighbours and tenement-holders under the Mining Act.

9.1.4 General Environmental Impacts

Neoen commits to:

- The preparation of a set of Construction Environment Management plans as indicated in the Draft CEMP contained in Appendix E to address a range of construction impact issues; and
- The preparation of an Operational Management Plan to address on-going impact management issues.

–

In relation to fire risk management Neoen commits to the following:

- Ensure that the construction of all equipment is undertaken to industry standards and requirements;
- Preparation of a Bushfire and Emergency Services Plan for all elements of the project, including strategies such as pausing or braking of turbines, adoption of preventative strategies, notification procedures and direct communication channels between Neoen's control room and local CFS;
- Fuel load management (noting that dust management requires some vegetation be maintained); and
- Incorporation of access tracks appropriate for firefighting according to CFS specifications.

In relation to decommissioning and rehabilitation, Neoen commits to:

- Preparing and submitting a decommissioning plan to the relevant authority for approval;
- Carrying out the following decommissioning works:
    - De-energising cables and equipment;
    - Dismantling and removal wind turbines, solar panels and transmission lines, as well as all other aboveground buildings, foundations and equipment;
    - Rehabilitation of disturbed land;
    - Recycling of recyclable materials (including batteries);
    - Decommissioning all other elements except (at landowners' request) those which are potentially useful to landowners and do not create other impacts, such as access tracks; and
    - Leaving below-ground infrastructure in-situ where it is located more than 600mm below the surface.

9.1.5 Setbacks

Neoen commits to the following setbacks not otherwise specified in this Chapter 9:

- A turbine setback of 5.3km from Burra town centre;
- A minimum distance of 3km between turbines and the Burra Creek Campground;
- Unless otherwise agreed with the landowner, a minimum distance of 2km between turbines and occupied dwellings;
- A 30m setback between solar panels and boundaries and/or cropping land;
- A minimum 50m setback from water courses (including drainage lines) for concrete batch plants;
- A minimum 15m setback from centre line of drainage lines for solar farm infrastructure; and
- A minimum 15m separation between the edge of native vegetation and solar farm infrastructure.

9.1.6 Ecology

If this project is approved, Neoen commits to undertaking the following as part of the micro-siting process:

- Avoiding, where possible, areas that have been mapped as patches of Iron-grass (Lomandra sp.) and Peppermint Box (E. odorata). Where areas cannot be avoided, targeted surveys will be undertaken for both Iron-grass and Peppermint Box, to determine if they qualify as TECs, prior to construction taking place. The survey, conditions permitting, would be timed after a good rainfall season. Where areas cannot be entirely avoided, locations of wind turbines and associated infrastructure will be microsited prior to construction to avoid patches containing both Iron-grass and Peppermint Box;
- Survey work to avoid PBTL within the Project Area, prior to finalising the location of the Project infrastructure;

- Avoiding, where possible, areas that have been identified as known locations where PBTL have been recorded, and areas mapped as likely PBTL habitat and potential PBTL habitat. Where areas cannot be entirely avoided, locations of wind turbines and associated infrastructure will be microsited prior to construction to minimise impacts on PBTL burrows and habitat.
- Avoiding, where possible, the area marked as containing records of Dodonaea subglandulifera (Peep Hill Hop-bush);
- Avoiding, where possible, areas mapped as having conservation value which have been identified by EBS as areas of high bird richness habitat or those vegetation associations containing Mallee Woodland, Sedgeland or Shrubland;
- Avoiding, where possible, known Wedge-tailed Eagle nests (active and in-active) and implement a 1 km buffer around mapped nests; and
- Completion of a full assessment for flora and fauna, in areas that were not assessed or properties that were not able to be accessed (south-east section of the Project Area), as part of the initial ecological assessment work.

9.1.7 Visual Impact and Shadow Flicker

Neoen undertakes to:

- Consult residents within 5km of the project area to identify appropriate landscape mitigation works to screen views prior to the finalisation of the layout;
- Apply targeted screen planting of infrastructure along the Worlds End Highway and the Goyder Highway;
- Investigate mitigation measures, in consultation with the involved landowners impacted by shadow flicker, including screening techniques, micro-siting of turbines, or shadow flicker controllers (which can shut down a turbine at the time of day and season when shadow flicker is problematic); and
- Specify non-reflective coatings on the wind turbines.

Neoen note that many of the visual impact recommendations align strongly with flora and fauna impact management objectives. Accordingly, Neoen also supports the following:

- Take into account, where possible, the finer grain visual impact of structures during the micro-siting process;
- Minimise tree removal and protect mature trees where possible;
- Progressively rehabilitate disturbed areas;
- Maintain all project elements in good repair; and
- Maintain screen planting to ensure effective screening.

9.1.8 Noise

In order to minimise noise impacts and comply with the relevant noise policy and guidelines, Neoen commits to the following:

- Compliance with EPA noise limits will be a fundamental and non-negotiable criterion for the micro siting process;
- A final noise assessment will be made during the detailed design and micro siting stage to confirm that the final selected equipment and its location will comply with the relevant criteria;
- In relation to turbines, a guarantee will be sought from the successful manufacturer to ensure that the final WTG selection will be free of tonality at all surrounding dwellings; and
- Preparation of a Construction Noise and Vibration Management Plan prior to the commencement of construction.

9.1.9 Cultural Heritage

To manage the project's potential risk to Aboriginal heritage Neoen commits to:

- Engage archaeologists to carry out a site avoidance survey in the remaining unsurveyed development footprint to identify and record any unknown archaeological sites that may be present;
- In micro-siting infrastructure, seek to avoid identified archaeological sites;
- Consult with the Ngadjuri to mitigate against inadvertently impacting an ethnographic site;

- Through the CEMP and site inductions, ensure that all contractors and workers are aware of heritage risks and how to manage them accordingly;
- Through the CEMP, implement a site discovery procedure (as per Appendix 1 the IHC report); and
- Engage an archaeologist to be on call and assist in identifying any heritage items found during works.

To manage the project's potential risk to European heritage Neoen commits to:

- Continue to progress the EPBCA referral in relation to Burra in consultation with the relevant Commonwealth department;
- Maintain a minimum 2km setback from the other two State listed built heritage places;
- where possible, avoid ruins and other landscape structures (in the case of single sites) or minimise Impact (including by way of post construction reinstalment) in the case of stone walls;
- Maintain a 200m setback of infrastructure from the ruin (former church/school) located near the intersection of Worlds End Highway and Satchell Road;
- Through the CEMP, ensure that any archaeological deposit uncovered by the proposed development is reported to Heritage SA;
- Ensure that a qualified archaeologist with an approved s27 permit from Heritage SA records any archaeological deposits identified during works;
- Engage a qualified archaeologist to carry out a survey of the project area and identify and record any potential archaeological sites and/or deposits in the development footprint;
- In micrositing infrastructure, seek to avoid identified archaeological sites;
- Through the CEMP and site inductions, ensure that all contractors and workers are aware of heritage risks and how to manage them accordingly;
- Through the CEMP, implement a site discovery procedure (as per Appendix 1 the report);
- Engage an archaeologist to be on call and assist in identifying any heritage items found during works; and
- Considering impacts on historic stone walls as part of the micro-siting process and avoiding these wherever possible. If some disturbance to a stone wall must occur where this is necessary for access, any crossing will be established to minimise impact and any impact will be reinstated following construction.

9.1.10 Traffic

To ensure traffic impacts are appropriately managed, Neoen commits to entering into detailed agreements (in the form of a Traffic Management Plan) with Council and the Department of Planning, Transport and Infrastructure (DPTI) and will do so promptly and in good faith.

In addition, Neoen commits to:

- Further investigation of the upgrades recommended to ensure safety of all road users and that no additional cost burden falls on ratepayers or taxpayers as a result of the project;
- Seek the advice of a structural engineer to verify the load-bearing capacities of bridge infrastructure;
- Ensuring heavy vehicle traffic will not go through townships but will use the Copperhouse Road bypass for components for which no viable alternative routes are available;
- Ensuring that the TMP recognises the school bus routes in the region (including on Koonoona Road); and
- Ensuring that the TMP recognises the use of Top Road by walkers as part of the Heysen Trail.

9.1.11 EMI

Neoen commits to undertaking the recommendations set out in the following table and to rectifying any issues for Goyder Connect, including (if necessary) installation of repeater stations, promptly and at its cost.

Service and Impact	Mitigation Strategy	Recommendation
Fixed Point to Point	Alternative service routing.	Neoen will liaise with SA Water to determine suitable rectification options.

SA Water link (licence #226752) is likely to be impeded by SG056.	Replacement with 3G/4G or satellite communications. Provision of repeater.	
Fixed Point to Point Minor to no impact anticipated to services if turbines are kept out of the nominated exclusion zones.	Nil	Ensure micro-siting of the wind turbines such that blade tips do not enter the second Fresnel exclusion zones of existing radio systems.
Digital Television Potential minor service degradation to local community, i.e. TV reception within 10 km of wind farm may be affected.	Realign antennas on affected dwellings in a more direct path to their respective transmitter. Realign antennas on affected dwellings to another television transmitter, such as Spencer Gulf (The Bluff) or Adelaide (Crafers). Replace antennas on affected dwellings with a higher gain antenna Relocate antennas on affected dwellings to another position on the property that is less affected Install satellite television on affected dwellings Install a television relay station in or near the townships.	Neoen will undertake a pre- and post-construction assessment of the television and radio reception strength at the location of any existing or approved dwellings as at the date of development approval that are within 5 kilometres of any turbine. The assessments will be undertaken by an independent television and radio monitoring specialist, and include testing at locations to be determined by the television and radio monitoring specialist to enable the average television and radio reception strength to be determined. If the post-construction assessment establishes an unacceptable increase in interference to reception as a result of the wind farm, as determined by the independent television and radio monitoring specialist, measures to restore the affected reception to pre-construction quality will be undertaken.
AM/FM Services Minor to no impact anticipated to services.	Nil.	Measure signal levels in wind farm vicinity to establish a baseline, as per TV signal mitigation recommendation.
Meteorological Radar None to minor impact anticipated to weather-watch radar systems during extraordinary radio propagation conditions.	Take the radar impact into consideration where possible for any micro siting of the layout.	Liaise closely with BoM and provide sufficient information to allow them to reconfigure their radar systems.
Land Mobile Radio Potential minor impact anticipated to SAGRN, Spark Infrastructure and Sihero land mobile radio services.	Avoid micro-siting to within 20 m of transmitter locations; ideally avoiding moving any closer than 100 m away.	Record signal levels in the affected areas of LMR operations prior to the construction of the wind turbines to establish a baseline.
Goyder Connect Backbone Link STN-WDY impeded by Turbines B026 (and possibly B029 and B023)	Construct repeater station.	Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Backbone Link STN-BDH possibly impeded by Turbine B010	Construct repeater station.	Liaise with Goyder Connect to agree on alternative service delivery path.

Goyder Connect Landowner C1 may lose coverage due to Turbine B017 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H3 may lose coverage due to Turbine B004 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H2 may lose coverage due to Turbine B025 and B033 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowner H56 may lose coverage due to Turbine B024 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.
Goyder Connect Landowners C3, C4 and H57 may lose coverage due to Turbine B027 impeding the signal.	Review service delivery through alternative tower. Construct repeater station.	Verify installation location at customer end and re-analyse. Liaise with Goyder Connect to agree on alternative service delivery path.

9.1.12 Aviation and firefighting

Neoen commits to:

- Reporting the turbines and meteorological monitoring towers used in the Goyder South project to the vertical obstruction database held by Airservices Australia in accordance with AC 139-08(1) *Reporting of Tall Structures* to ensure their position and height is marked on aeronautical charts and known to aviation industry;
- Appropriately marking all wind monitoring masts as per the Airservices guidelines (except for strobe light), notified to the Aerial Agricultural Association of Australia and subject to a NOTAM specifying their location and height;
- Subject to CFS advice, rehabilitating access tracks to a width and condition that accommodates emergency vehicles; and
- Subject to CFS advice, including the following fuel management measures in operational and management plans:
    - Grass to be maintained at or below 100mm in height during the declared Fire Danger Period;
    - A fire break area of ten (10) metres width is to be maintained around the perimeter of the facilities, electricity compounds and substations;
    - An access track provided around the perimeter of the solar sites.

9.2 Worlds End Gorge Reserve

Neoen has secured binding Options to Purchase over the two land parcels that encompass the Worlds End Gorge (also known as the Burra Creek Gorge). Neoen intends to sequentially purchase the parcels as successive stages of the Goyder South project achieve financial commitment, in order to create the 'Worlds End Gorge Reserve'. This means that the reserve would commence at a size of approximately 1388 acres and expand to its full size of approximately 2360 acres as Goyder South grows.

This proposal relates to the achievement of significant environmental benefit in accordance with the Native Vegetation Act, and Neoen's broader desire to benefit the community and the people of the Goyder area, and does not formally form part of the development application.

Should the Goyder South project receive approval under the Development Act, then the vegetation clearance application can be submitted under the Native Vegetation Act. The arrangements for the Worlds End Gorge Reserve will form part of the SEB commitments associated with that application.
For completeness, Neoen notes that it intends that the arrangements for the Worlds End Gorge Reserve will:

- ensure that all activities in the proposed reserve would be required to have minimal environmental impact (noting that there would be no public vehicle access permitted) and this would be subject to monitoring to ensure consistency with the conservation purpose of the offset;
- provide a budget for the lifetime of the project for:
    - stock removal and fencing
    - pest and weed control
    - protection and rehabilitation of key native species
    - arrangements for safe public access
    - exclusion from ecologically sensitive areas;
- Ensure the reserve would be protected in perpetuity for the benefit of the environment and the community, and could not be re-sold into private ownership upon the decommissioning of Goyder South; and
- Bring together the wide range of stakeholders who are likely to have an interest in the manner in which the reserve would be used, which would include (but not be limited to) the Department of Environment and Water (Native Vegetation & National Parks and Wildlife), Ngadjuri representatives, Goyder Regional Council, the local community and environment groups, Friends of the Heysen Trail and various other interested individuals.

Appendix A Relevant Correspondence

17 April, 2020

Native Vegetation Council
Attn: Adam Schutz

81-95 Waymouth Street
Adelaide, SA 5000

Neoen Australia
Tom Jenkins

Level 6, 16 Marcus Clarke
Canberra, ACT 2603

To Whom it May Concern

RE: Worlds End Gorge Reserve & SEB Offset Land

Drawing upon earlier informal conversations between the Native Vegetation Council (NVC) and Neoen, Neoen wishes to provide the NVC with the following statement of intentions and commitments with regard to an envisioned purchase of land for the purpose of offsetting vegetation clearance entailed by Neoen's 'Goyder South' hybrid renewable energy project. Neoen intends that, should this land purchase proceed, these commitments be public and binding upon the company.

1 Land Use – Conservation & Natural Tourism

As an SEB offset, Neoen understands that the first priority for the land is that it be managed for the conservation and rehabilitation of its valuable native flora and fauna. However, Neoen considers that the outstanding natural beauty of the Gorge and its surrounds justify a second land use – the creation of a scenic 'Worlds End Gorge Reserve' for the free enjoyment of local residents and visitors to the area.

Neoen envisages that the Gorge Reserve will be suitable for a range of natural tourism activities such as hiking, swimming, climbing and walk-in camping. Besides the Gorge's natural waterholes, the varied terrain offers numerous potential routes for walkers ranging from easy to very challenging. The highest point on the land is around 540m above sea level (among the tallest hills in the area) and will provide natural views to the south over the Hallelujah Hills, and to the north and east over the Goyder South wind and solar installations. From inside the Gorge, the wind turbines will be largely invisible.

At around 20 minutes from Burra, Neoen considers that making this unique place available for public access will provide considerable enjoyment to the nearby community, as well as a significant boost to tourism opportunities in the Goyder area (which so far have largely focused on Burra's industrial heritage rather than areas of natural beauty).

Neoen wishes to emphasise that:

- All activities must be of minimal environmental impact (noting that there will be no public vehicle access permitted) and subject to monitoring to ensure consistency with the conservation purpose of the offset. Some trails and basic facilities such as dedicated camping/swimming areas or toilets may be constructed for this purpose, and for the safety of users of the Reserve. Similarly, areas of the Reserve which are characterised by particular ecological sensitivity, or which are undergoing rehabilitation, may be excluded from public access either temporarily or permanently.
- Neoen will continue to engage with relevant stakeholders (in particular the NVC) regarding the conditions under which public access and use may acceptably be combined with environmental protection. In particular, Neoen understands that it will be required to draft and submit a Native Vegetation Management Plan for approval by the NVC.

2 Ownership and Management

As is typical for offset land, the Reserve will require an annual budget for its management and rehabilitation. Neoen is in the process of establishing an appropriate budget (which will be committed for, at a minimum, the lifetime of Goyder South) and looks forward to consulting with relevant stakeholders on this question, particularly including the NVC and Department of the Environment. The budget will include, at a minimum, funds for:

- Stock removal and fencing;
- Pest and weed control;
- Protection and rehabilitation of key native species;
- Arrangements for safe public access and exclusion from ecologically sensitive areas.

Neoen's intention is that once purchased, the Reserve will (as is standard for SEB offset land) be protected in perpetuity for the benefit of the environment and the community, and should not be re-sold into private ownership upon the decommissioning of Goyder South. Given that the Reserve will need more active management than most SEB offset land given its intended mixed use, Neoen is currently exploring various structures to achieve this objective. The Reserve land could, for example, be owned by a charitable trust, by the State Government, by Council or by a suitable conservation organisation. In all of these cases protection could potentially be bolstered by a Heritage Agreement.

As a company, Neoen aims to give back to the local community and environment wherever possible, and is excited by this unique opportunity. Neoen looks forward to discussing the above with the NVC and other important stakeholders as Goyder South progresses through development, and thanks the NVC for considering this proposal.

Sincerely,

…….

Tom Jenkins
Project Manager, Goyder South

Native Vegetation Council

Contact: Adam Schutz
Telephone: 8207 7713

81-95 Waymouth Street
Adelaide SA 5000

GPO Box 1047
Adelaide SA 5001

Ph| 08 8303 9777
Fx| 08 8303 9780

nvc@sa.gov.au

30 April 2020

Neoen Australia Pty Ltd
C/- Project Manager, Goyder South
227 Elizabeth Street –
SYDNEY NSW 2000

RE: Proposed SEB Area associated with Neoen - Goyder South

To Whom it May Concern

It is understood that Neoen Australia Pty Ltd (Neoen) are proposing to construct a hybrid wind and solar farm with battery storage at a location south of Burra in the mid north of South Australia. The project is referred to as 'Goyder South'. This is proposed to be followed by further wind and solar development to the north of Burra.

It is expected that the construction of this project will require the removal of native vegetation. The vegetation is protected under the *Native Vegetation Act 1991* and any clearance will required the approval of the Native Vegetation Council (NVC). This will be considered under Native Vegetation Regulation 12, Schedule 1 – Clause 34 Infrastructure. This Regulation requires any clearance of vegetation is firstly avoided and then minimised where ever possible, with all subsequent clearance is to be offset through the establishment of a Significant Environmental Benefit (SEB). An SEB can be achieved through the protection and management of land for the growth and conservation of native vegetation, referred to an SEB area. Alternatively, an applicant may also pay an amount into the Native Vegetation Fund in lieu of achieving the SEB.

It is understood that Neoen a progressing the establishment of a proposed SEB area on a property in the vicinity of Worlds End Gorge. The property is considered to be of significant environmental value containing rare and threatened species, important aquatic and riparian habitat in a semi-arid area and is connected to and expands on existing protected areas.

The proponent has provided details of the proposed management and use of the intended SEB area to the NVC, as set out in the communication from Neoen annexed to this letter.

The Native Vegetation Council, when determining the appropriateness of a proposed SEB area and the associated management, will consider the proposal against the matters set out in its Policy for a Significant Environmental Benefit under the *Native Vegetation Act 1991* and *Native Vegetation Regulations 2017* (SEB Policy). The SEB Policy stipulates that, amongst other things, an SEB Area should be conserved and managed for the growth of native vegetation and is not to be used in a way that is inconsistent with that dedication.

Whilst public access for tourism and community use does not directly contribute to the management and enhancement of the native vegetation, it can increase public awareness, appreciation and commitment to the environment. Also, if planned, managed and implemented appropriately, it is expected that public accesses for this property for activities such as hiking, swimming, climbing and walk-in camping could be achieved with very minimal impacts on the environmental values, particularly the native vegetation. Therefore, subject to commitments set out in the annexed letter, the NVC supports the proposed secondary use of the land for activities relating to tourism

and public access. These activities, including their extent, location and management, will need to be incorporated in the Native Vegetation Management Plan for the SEB area to be approved by the NVC, as well as the selected structure for long-term protection (such as a Heritage Agreement).

The NVC considers the proposed SEB area provides a significant range of potential benefits to both the environment and the community and looks forward to progressing this matter with Neoen.

Yours sincerely,

Adam Schutz

Coordinator, Assessments and Stakeholder Liaison

Native Vegetation Branch

for **NATIVE VEGETATION COUNCIL**

From: Airport Developments <Airport.Developments@AirservicesAustralia.com>
Sent: Tuesday, 12 November 2019 14:58
To: 'ian_jennings@netspace.net.au' <ian_jennings@netspace.net.au>
Cc: Airspace Protection <Airspace.Protection@casa.gov.au>; Vertical Obstruction Data <VOD@AirservicesAustralia.com>
Subject: AIRSERVICES RESPONSE: SA-WF-019 - Wind Farm, Goyder South Hybrid Renewable Energy Project [SEC=UNCLASSIFIED]

Hi Ian,

I refer to your request for an Airservices assessment of the wind farm for the Goyder South Hybrid Renewable Energy Project.

Airspace Procedures
With respect to procedures designed by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a maximum height of 902m (2960ft) AHD, the wind farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure at any airport.

The wind turbines will not affect any air route.

Note that procedures not designed by Airservices were not considered in this assessment.

Communications/Navigation/Surveillance (CNS) Facilities
This wind farm, to a maximum height of 902m (2960ft) AHD, will not adversely impact the performance of Precision/Non-Precision Navigational Aids, HF/VHF Communications, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links.

Vertical Obstacle Notification
As soon as construction commences, the proponent must complete the Vertical Obstacle Notification Form for tall structures and submit the completed form to VOD@airservicesaustralia.com. For further information regarding the reporting of tall structures, please contact (02) 6268 5622, email VOD@airservicesaustralia.com or refer to the web link below:
http://www.airservicesaustralia.com/services/aeronautical-information-and-management-services/part-175/

Kind regards,

William Zhao
Advisor Airport Development
Tower Road, Melbourne Airport, Tullamarine VIC 3043
t 03 9339 2182
e airport.developments@airservicesaustralia.com

Appendix B Development Act Requirements

Government of South Australia

Department for Energy and Mining

Our Ref: D20016768

Mr Louis de Sambucy
Managing Director, Australia
Neoen
Suite 1, Level 10 227 Elizabeth Street
SYDNEY NSW 2000

Via: tom.jenkns@neoen.com

Dear Mr de Sambucy

CROWN SPONSORSHIP GOYDER SOUTH HYBRID RENEWABLE POWER STATION

Thank you for your letter of 15 August 2019 requesting Crown Sponsorship under section 49 of the *Development Act 1993* to assist with Neoen's proposed Goyder South Hybrid Renewable Project.

This Project has been considered within the South Australian Department for Energy and Mining (DEM) with input from the Department of Planning, Transport and Infrastructure, the Department for Environment and Water, the Environment Protection Authority and the Technical Regulator. In principle, the Project is supported, recognising the possible environmental and community issues that will need to be addressed through the development assessment process.

On balance, the development of Neoen's proposed Project has the potential to benefit South Australia and can be considered public infrastructure. Accordingly I, as Chief Executive of the DEM, will support the development and specifically endorse the Development Application to construct the Project comprising up to 1,200 MW of wind generation, up to 600MW of solar photovoltaic generation and up to 900MW/1,800MWh of battery storage as a development of public infrastructure pursuant to section 49(2)(c) of the *Development Act 1993* (the Act).

DEM acknowledges and appreciates Neoen's efforts in agreeing a Memorandum of Understanding with Ausmex Mining, which holds mineral exploration licences in the Project area, and the intention of both parties to apply the principles of the SA Multiple Land Use Framework and cooperate to ensure that both companies' operations can co-exist.

It is the responsibility of Neoen to prepare all documentation as required by section 49 of the Act. This includes all costs in the preparation, lodgement and assessment of the Development Application and any other subsequent action in relation to this Application.

Chief Executive

Address Level 12, 11 Waymouth Street, Adelaide 5000 | GPO Box 320 Adelaide SA 5001 | DX452
Tel (+61) 08 8429 3216 | Email DEM.OCE@sa.gov.au| www.energymining.sa.gov.au | ABN 83 768 683 934

SOUTH AUSTRALIA

Government of South Australia

Department for Energy and Mining

A certificate from the Office of the Technical Regulator must also accompany your Development Application to ensure that your Project meets either Real Inertia or Fast Frequency Response criteria to safeguard the stability and reliability of the state's electricity network.

A development application must then be submitted to the DEM Clean Energy Transition Division (CET@sa.gov.au) who will lodge it with the State Commission Assessment Panel (SCAP). These lodgement documents can be provided in electronic form or made available via download link. Any development fee levied by SCAP is the responsibility of Neoen.

Please contact Mr Richard Webster, Principal Industry Development Officer, on (08) 8429 5285 or via email: richard.webster@sa.gov.au prior to the lodgement of your Development Application to ensure all relevant statutory requirements are met.

DEM makes no representations and gives no warranties in relation to the outcome of the Development Application or time that it takes to secure a planning outcome. It is the responsibility of Neoen to obtain all other statutory approvals, licences, connection agreements and permits from relevant authorities, manage community expectations and to fund the Project. The South Australian Government makes no commitment to purchase any product or service related to the Project.

If the Development application has not been received electronically, by mail or in person by the SCAP within 12 months from the date of this letter, my support for this Crown Sponsorship under section 49 (2)(c) of the *Development Act 1993* for the Project will lapse.

Yours sincerely

Paul Heithersay
CHIEF EXECUTIVE

27/04/2020

SOUTH AUSTRALIA

Government of South Australia
Department for Energy and Mining

Ref: D19097913

Energy and Technical Regulation

Office of the Technical Regulator

Level 8, 11 Waymouth Street
Adelaide SA 5000

GPO Box 320
Adelaide SA 5001

Telephone: 08 8226 5500
Facsimile: 08 8226 5866

www.sa.gov.au/otr

30th August 2019

Tom Jenkins
Project Manager
Neoen
Level 6, 16 Marcus Clarke Street
Canberra ACT 2601
By email: tom.jenkins@neoen.com

Dear Tom,

RE: Goyder South Hybrid Renewable Power Station

The development of the Goyder South Hybrid Renewable Power Station project has been assessed by the Office of the Technical Regulator (OTR) under Section 37 of the Development Act 1993.

The *Development Regulations 2008* prescribe if the proposed development is for the purposes of the provision of electricity generating plant with a generating capacity of more than 5 MW that is to be connected to the State's power system – a certificate from the Technical Regulator is required, certifying that the proposed development complies with the requirements of the Technical Regulator in relation to the security and stability of the State's power system.

In making a decision on your application, our office has taken the following information into account:

- Your letter dated 15th August 2019.
- NEOEN email to the OTR dated 28th August 2019.

After assessing the information provided, I advise that approval is granted for the proposed generator on the following provision.

- The FFR requirement of the project is to be provided via a BESS solution that meets the OTR's requirements.

It should be noted that should the above provision not be addressed this will have impact on the ESCOSA license for the proposed generator.

Should you have any questions regarding this matter, please do not hesitate to call Mark Burns on (08) 8429 2707.

Yours sincerely

Rob Faunt
TECHNICAL REGULATOR

Energy and Technical Regulations

Level 8, 11 Waymouth Street Adelaide SA 5000 | GPO Box 320 Adelaide SA 5001 | DX541
Tel (+61) 8 8226 5500 | Fax (+61) 8 8226 5866 | www.dpc.sa.gov.au | ABN 83 524 915 929

Government of South Australia

DEVELOPMENT REGULATIONS 2008
Form of Declaration (Schedule 5 clause 2A)

To: State Commission Assessment Panel

From: Neoen Australia Pty Ltd

Date of Application: 5 / 06 / 2020

Location of Proposed Development: Burra, Worlds End, Baldina, Bright Koonoona

House No: _____ Lot No: _____ Street: _____

Town/Suburb: As described in Appendix C of the Development Application Report

Section No (full/part): _____ Hundred: _____

Volume: _____ Folio: _____

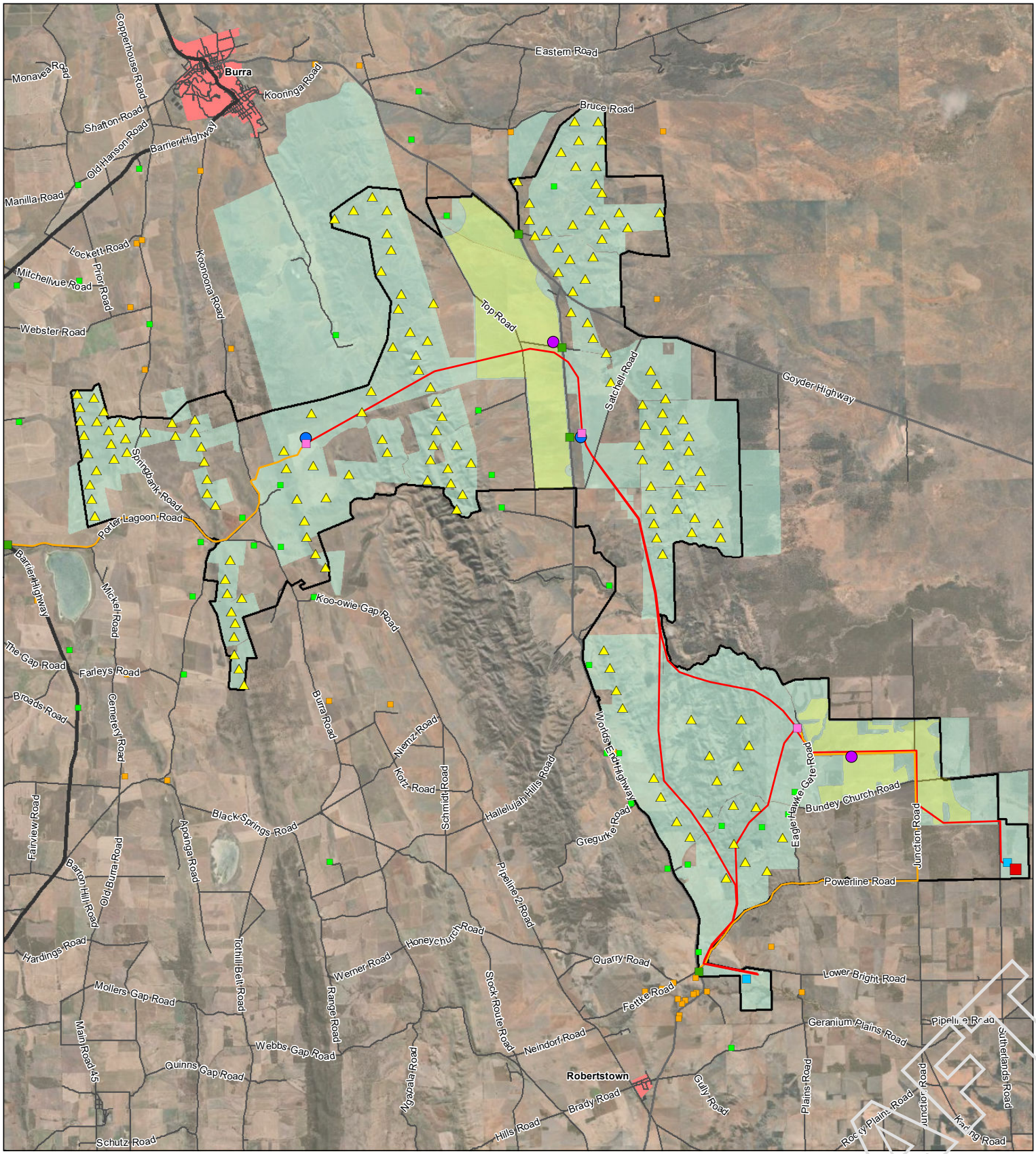
Nature of Proposed Development:

Goyder Renewables Zone - Goyder South Hybrid Renewable Energy Facility - solar and wind generation and ancillary infrastructure

I Tom Jenkins **being the applicant/ a person acting on behalf of the applicant (delete the inapplicable statement) for the development described above declare that the proposed development will involve the construction of a building which would, if constructed in accordance with the plans submitted, not be contrary to the regulations prescribed for the purposes of section 86 of the Electricity Act 1996. I make this declaration under clause 2A(1) of Schedule 5 of the Development Regulations 2008.**

Signed: _____ **Date:** 5 / 06 / 2020

Appendix C Site Definition



- Goyder South project boundary
- Turbine layout
- Involved houses
- Uninvolved houses
- Involved parcel
- Solar farm
- Proposed transmission line
- Construction access road
- Battery and grid connection
- Construction entry point
- Substation and O&M
- Possible interconnector substation
- Solar construction compound
- Wind construction compound
- Highway
- Arterial / Sub Arterial
- Collector and local
- Township

Paper Size A3

0 0.5 1 2 3 4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

Neoen
Goyder Renewable Energy Park

Site Definition

Job Number 33-19112
Revision B
Date 02 Jun 2020

Appendix C

N:\AU\Melbourne\Projects\33\19112\GIS\Maps\Deliverables\DA_figures\33_19112_013_Site_Definition_A3P_RevB.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by:savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Involved Land

TITLE	VOLUME	FOLIO	PARCEL_ID	Infrastructure
CT	5852	92	D12300 A1	Turbine
CT	5189	1	D36035 A602	Turbine
CT	5283	654	D42727 A3	Turbine
CT	5283	652	D42727 Q1	Turbine, Substation, O&M, Transmission Line
CT	5442	112	D46214 A370	Turbine
CT	5472	67	D46215 A344	Turbine, Transmission Line
CT	5914	152	D46437 A372	Turbine
CT	5689	928	D51338 A51	Transmission Line, Battery & Grid Connection
CT	6043	239	D57122 A25	Turbine
CT	5851	238	D57122 A26	Turbine
CT	5906	102	D62492 A100	Transmission Line
CT	6080	406	D86838 A2	Turbine
CT	5852	89	F159241 A9	Turbine
CT	5335	998	F170358 A92	Turbine
CT	6043	233	F17595 A10	Turbine
CT	5210	950	F17596 A1	Turbine
CT	5210	953	F17596 A4	Turbine
CT	5297	110	F17597 A15	Turbine
CT	6043	234	F17622 A5	Turbine
CT	6043	236	F17622 A6	Turbine
CT	6043	235	F17622 A7	Turbine
CT	5501	281	F177071 A189	Turbine, Transmission Line
CT	5805	514	F177073 A191	Turbine, Transmission Line
CT	5695	973	F187001 A489	Turbine
CT	5487	674	F208303 Q92	Turbine
CT	5679	972	F215720 A97	Solar
CT	5852	90	H200100 S123	Turbine
CT	5852	86	H200100 S130	Turbine
CT	5852	88	H200100 S131	Turbine
CT	5852	88	H200100 S140	Turbine
CT	5852	87	H200100 S2179	Turbine
CT	5992	528	H200100 S2180	Turbine
CT	5167	107	H200100 S393	Turbine
CT	5939	221	H200100 S455	Turbine
CT	5167	58	H200100 S55	Turbine
CT	5167	58	H200100 S56	Turbine
CT	5210	959	H200100 S61	Turbine
CT	5914	152	H200200 S15	Turbine
CT	5914	152	H200200 S17	Turbine
CT	5937	228	H200200 S18	Solar

CT	5726	489	H200200 S2	Solar
CT	5513	133	H200200 S21	Solar, Transmission Line
CT	5513	133	H200200 S22	Solar, Transmission Line
CT	5880	715	H200200 S23	Solar
CT	5880	715	H200200 S24	Solar, Transmission Line
CT	6073	921	H200200 S245	Turbine
CT	6064	88	H200200 S25	Turbine
CT	5914	152	H200200 S272	Transmission Line
CT	5971	400	H200200 S4	Transmission Line, Substation, O&M
CT	5235	626	H200200 S43E	Turbine
CT	5834	368	H200200 S44	Solar
CT	5513	134	H200200 S45	Solar
CT	5432	57	H200200 S46	Solar
CT	5432	60	H200200 S47	Solar
CT	5882	867	H200200 S48	Solar
CT	5442	112	H200200 S49	Solar
CT	5726	491	H200200 S5	Transmission Line
CT	5442	112	H200200 S50	Turbine
CT	5345	737	H200200 S64	Turbine
CT	5345	737	H200200 S65	Turbine
CT	5345	737	H200200 S66	Turbine
CT	5345	737	H200200 S67	Turbine
CT	5882	867	H200200 S69	Solar
CT	5432	61	H200200 S70	Solar
CT	5345	737	H200200 S73	Turbine
CT	5345	737	H200200 S74	Turbine
CT	5345	737	H200200 S97	Turbine
CT	6098	650	H200300 S104	Transmission Line
CT	6098	650	H200300 S105	Transmission Line
CT	5469	752	H200300 S14	Transmission Line
CT	5983	732	H200300 S173	Transmission Line
CT	5670	385	H200300 S174	Transmission Line
CT	5670	385	H200300 S175	Transmission Line
CT	5670	385	H200300 S176	Transmission Line
CT	5670	385	H200300 S186	Transmission Line
CT	5670	385	H200300 S187	Transmission Line
CT	5360	17	H200300 S191	Transmission Line
CT	5360	17	H200300 S192	Transmission Line
CT	5360	17	H200300 S197	Transmission Line
CT	5360	17	H200300 S198	Transmission Line
CT	5295	767	H200300 S201	Turbine
CT	5913	912	H200300 S217	Solar
CT	5913	912	H200300 S218	Solar
CT	5913	911	H200300 S219	Solar
CR	5745	722	H200300 S222	Transmission Line

CT	5984	418	H200300 S230	Transmission Line, Substation, O&M
CT	5485	272	H200300 S238	Solar
CT	6171	275	H200300 S240	Turbine
CT	6171	276	H200300 S241	Turbine
CT	5987	805	H200300 S242	Turbine, Transmission Line
CT	5501	284	H200300 S24E	Turbine, Transmission Line
CT	6073	921	H200300 S256	Turbine
CT	5979	28	H200300 S258	Turbine, Transmission Line
CT	5979	28	H200300 S258	Turbine, Transmission Line
CT	5878	476	H200300 S259	Turbine, Transmission Line
CT	5473	356	H200300 S25S	Turbine, Transmission Line
CT	5337	224	H200300 S2A	Turbine
CT	5315	54	H200300 S33	Turbine, Transmission Line
CT	5583	476	H200300 S35	Turbine, Transmission Line
CT	5792	744	H200300 S39E	Transmission Line
CT	5787	256	H200300 S39NW	Turbine
CT	5296	200	H200300 S3B	Solar
CT	5296	200	H200300 S3C	Solar
CT	6098	650	H200300 S40	Transmission Line
CT	5953	906	H200300 S41	Turbine
CT	5951	34	H200300 S46	Turbine
CT	5925	335	H200300 S48	Turbine, Transmission Line
CT	5598	757	H200300 S49	Turbine, Transmission Line
CT	5145	518	H200300 S50	Turbine
CT	5966	368	H200400 S107	Transmission Line, Solar
CT	5966	368	H200400 S62	Transmission Line, Battery & Grid Connection
CT	5966	368	H200400 S66	Transmission Line, Solar
CT	5966	368	H200400 S67	Transmission Line, Solar
CT	5966	368	H200400 S68	Transmission Line
CT	5915	155	H200400 S69	Transmission Line
CT	5210	954	H200800 S104	Turbine
CT	5189	1	H200800 S186	Turbine
CT	5210	956	H200800 S203	Turbine
CT	5210	958	H200800 S24	Turbine
CT	5432	56	H200800 S244	Solar
CT	5432	85	H200800 S245	Solar
CT	5432	59	H200800 S248	Solar
CT	5432	59	H200800 S250	Solar
CT	5432	59	H200800 S252	Solar
CT	5513	135	H200800 S257	Transmission Line
CT	6043	238	H200800 S309	Turbine
CT	5939	221	H200800 S6	Turbine
CT	5189	1	H200800 S87	Turbine
CT	5189	1	H200800 S88	Turbine

CT	5189	1	H200800 S89	Turbine
CT	5189	1	H200800 S93	Transmission Line
CT	5189	1	H200800 S94	Turbine
CT	5189	1	H200800 S95	Turbine
CT	5189	1	H200800 S97	Transmission Line
CT	5432	58	H200800 SD	Solar

Wind Turbine Generator (WTG)
Location References

Num	WTG	East_MGA54	North_MGA54
1	B001	310545	6259113
2	B004	311500	6260400
3	B005	311557	6258594
4	B008	312000	6257500
5	B010	312300	6267100
6	B015	312800	6258300
7	B017	312950	6267400
8	B021	313239	6260452
9	B023	313557	6261167
10	B024	313600	6267866
11	B025	313900	6265300
12	B026	313934	6259504
13	B027	314100	6267400
14	B028	314100	6266600
15	B029	314111	6259050
16	B030	314240	6266039
17	B031	314300	6262700
18	B032	314500	6264000
19	B033	314600	6264500
20	B034	314900	6263200
21	B035	315100	6262400
22	B036	315200	6261900
23	B037	315500	6262900
24	B038	315500	6258100
25	B039	315600	6261300
26	B040	315600	6258800
27	B042	315700	6264200
28	B043	315700	6259300
29	B044	315800	6260800
30	B045	315800	6259800
31	B046	316000	6260300
32	B047	316200	6258500
33	B048	316300	6258000
34	B049	316500	6259300
35	B050	316500	6257100
36	B051	316700	6257600
37	B052	317000	6258700
38	B053	318600	6268400
39	B054	319002	6267634
40	B055	319008	6267069
41	B056	319194	6266523
42	B058	319600	6266700
43	B060	320000	6266100
44	B061	320001	6265257

Num	WTG	East_MGA54	North_MGA54
45	B062	320100	6269400
46	B063	320400	6265700
47	B064	320440	6263888
48	B065	320500	6266900
49	B066	320500	6264600
50	B067	320564	6270453
51	B068	320600	6268909
52	B069	320700	6269800
53	B070	320934	6265033
54	B071	321014	6263525
55	B072	321100	6267400
56	B073	321200	6265800
57	B074	321200	6262995
58	B075	321300	6268900
59	B076	321300	6268300
60	B077	321382	6270456
61	B078	321500	6269800
62	B079	321500	6268000
63	B080	321500	6266400
64	B081	321600	6266900
65	B082	321652	6262482
66	B083	322100	6267300
67	B084	321806	6261480
68	B085	322400	6266800
69	B086	322900	6260700
70	B087	323000	6260000
71	B088	323176	6261872
72	B089	323400	6261400
73	B090	323500	6267300
74	B091	323600	6260400
75	B092	323700	6260900
76	B093	323700	6259800
77	B094	323800	6259300
78	B095	323800	6258600
79	B096	324100	6257600
80	B097	324100	6257100
81	B098	324200	6258100
82	B099	324300	6260200
83	B100	324500	6259600
84	B101	324500	6259100
85	B102	324600	6256300
86	B103	324700	6256800
87	B104	324900	6258400

Num	WTG	East_MGA54	North_MGA54
88	B105	324900	6257900
89	B106	325500	6256600
90	B107	325600	6256100
91	B108	326200	6248240
92	B109	326306	6249851
93	B110	326569	6248960
94	B111	326810	6246833
95	B112	326054	6245573
96	SG065	326033	6246898
97	B113	327729	6245777
98	SG001	303430	6261070
99	SG002	304000	6260940
100	SG003	304350	6260472
101	SG004	303520	6260598
102	SG007	307485	6260178
103	SG008	303536	6260125
104	SG009	304101	6260112
105	SG010	304898	6260085
106	SG011	306702	6260071
107	SG012	304513	6259798
108	SG013	307500	6259740
109	SG014	305800	6259740
110	SG015	303664	6259640
111	SG016	306817	6259623
112	SG017	305104	6259538
113	SG018	304600	6259340
114	SG019	322800	6259300
115	SG020	307700	6259240
116	SG021	305146	6259046
117	SG022	303803	6259030
118	SG023	304700	6258840
119	SG024	322900	6258800
120	SG025	307800	6258740
121	SG026	310640	6258500
122	SG027	304100	6258440
123	SG028	307900	6258140
124	SG029	303870	6257940
125	SG030	323200	6257900
126	SG031	307900	6257640
127	SG032	311000	6257440
128	SG033	303930	6257440
129	SG034	308200	6257240
130	SG035	323200	6257100

Num	WTG	East_MGA54	North_MGA54
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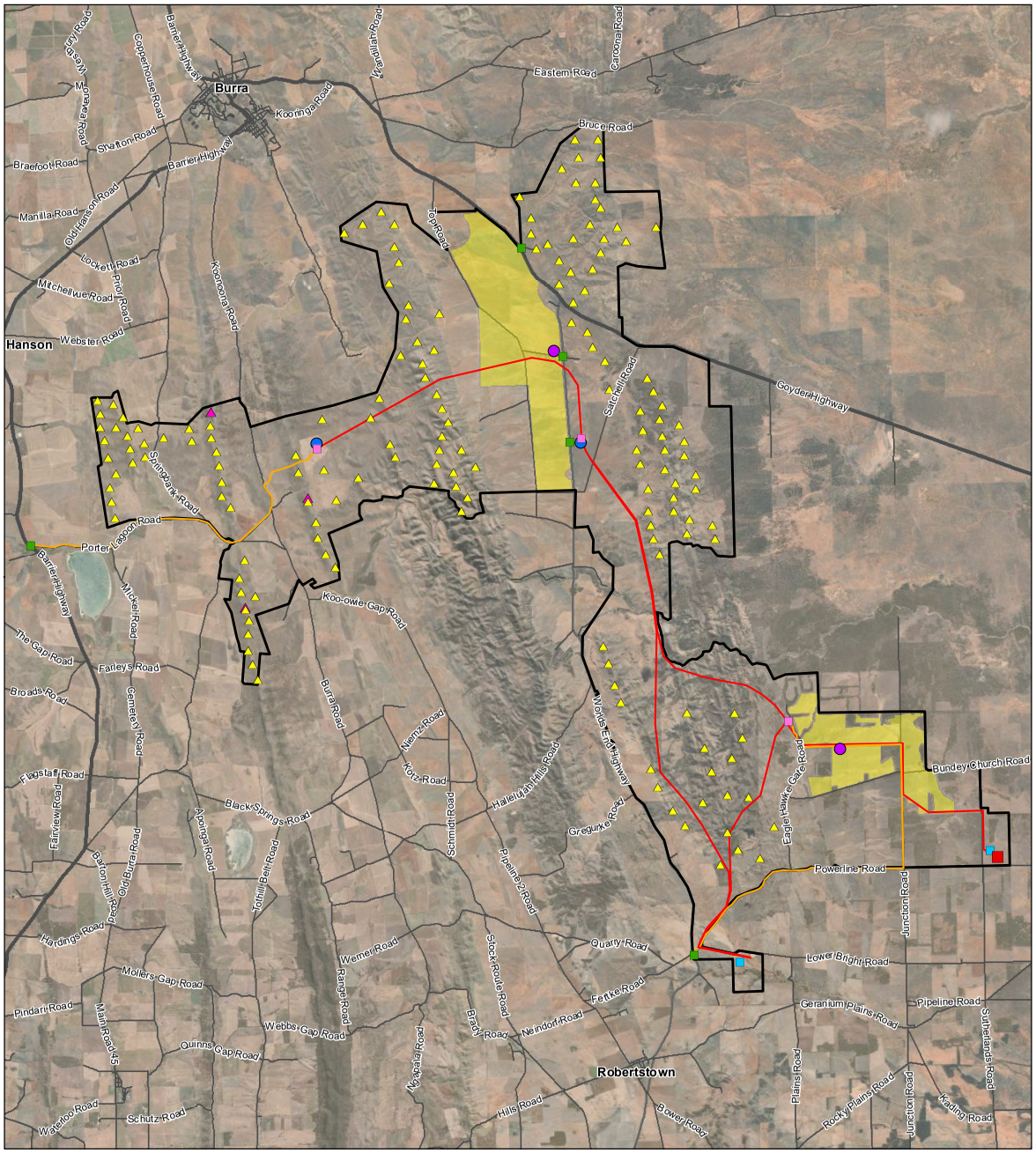
132	SG037	311260	6256694
133	SG039	323300	6256600
134	SG040	311330	6256140
135	SG041	323400	6256100
136	SG042	311635	6255557
137	SG043	323600	6255545
138	SG044	308700	6255340
139	SG046	311981	6255086
140	SG047	308532	6254688
141	SG048	308600	6254185
142	SG049	309100	6254040
143	SG050	308746	6253570
144	SG051	308870	6253176
145	SG052	308829	6252703
146	SG053	321574	6252245
147	SG054	308840	6252095
148	SG055	321786	6251631
149	SG056	309010	6251599
150	SG057	322007	6250856
151	SG058	322223	6250246
152	SG059	324578	6249860
153	SG060	325213	6248597
154	SG061	323300	6247835
155	SG062	325469	6247751
156	SG063	323533	6247192
157	SG064	325147	6246641
158	SG066	324084	6246344
159	SG067	324541	6245806
160	SG069	326444	6244948
161	SG070	327200	6244640
162	SG071	325787	6244398
163	SG072	309172	6251050

Appendix D Project Layout Plans (A4/On screen)



NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS001

Project Layout

Legend

- Turbine layout (total turbines 163)
- Goyder South project boundary
- Solar farms
- Existing met mast (3)
- Battery and grid connection (2)
- Construction entry point (5)
- Substation and O&M (3)
- Possible interconnector substation (1)
- Solar construction compound (2)
- Wind construction compound (2)
- Construction access road
- Proposed transmission line
- Highway/Arterial
- Sub-arterial
- Collector and local

Not to Scale

Development Application Not for Construction

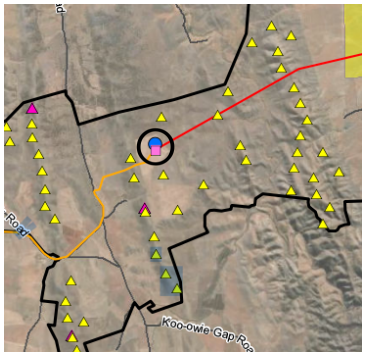
NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS002

Substation West Layout

Parcel Cadastre



Map base source: Location SA

Not to Scale

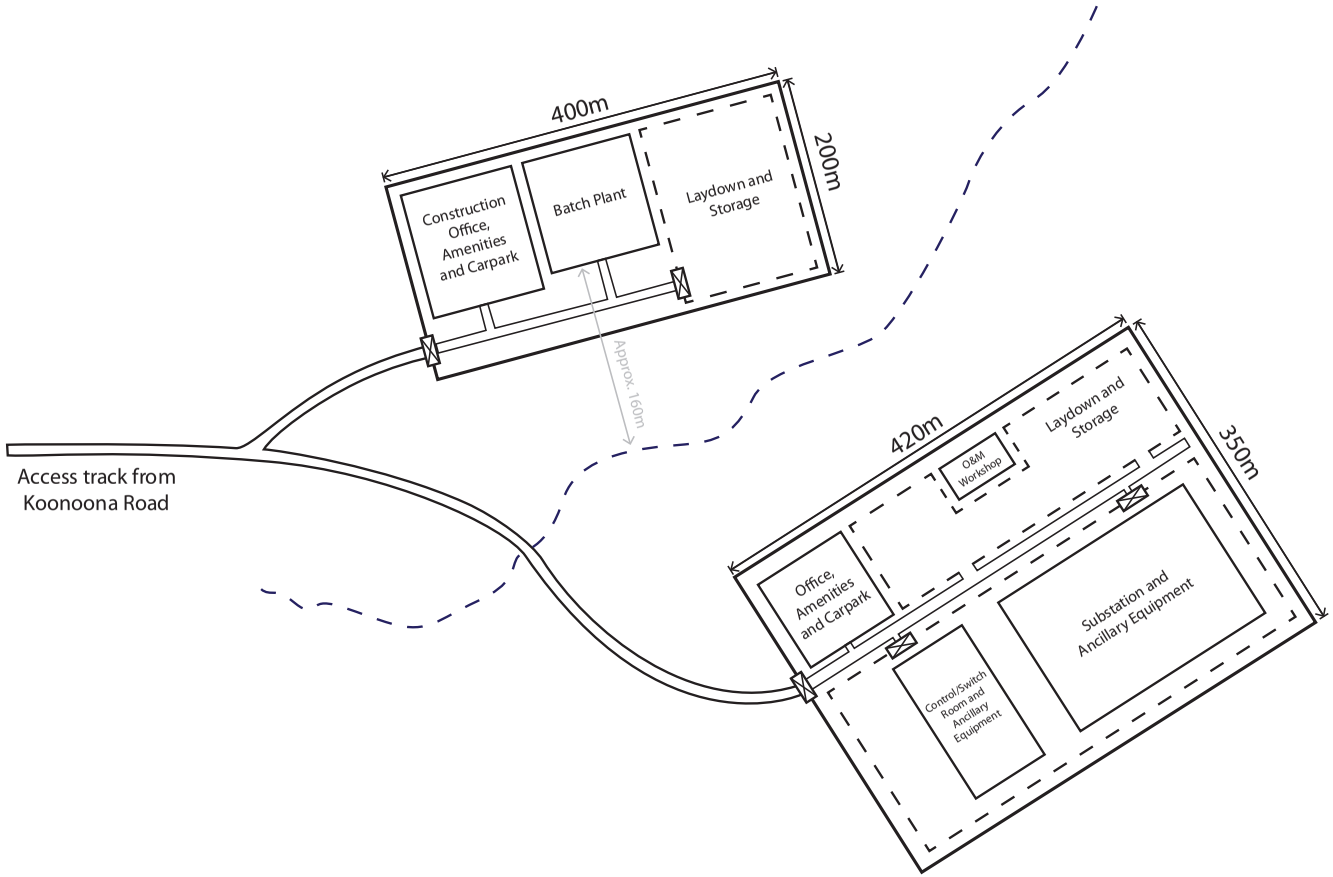
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS003

Substation West Layout & Wind Construction Compound Layout



Not to Scale

Development Application Not for Construction

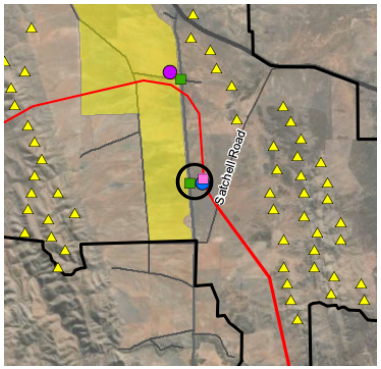
NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS004

Substation East Layout

Parcel Cadastre



Map base source: Location SA

Not to Scale

Development Application Not for Construction

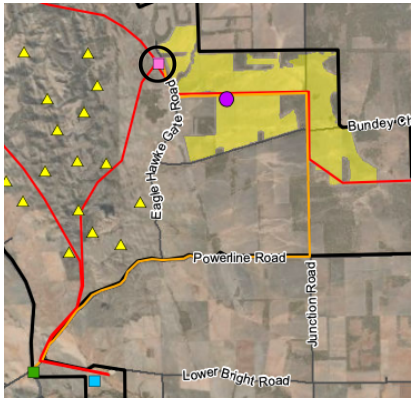
NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS005

Substation South Layout

Parcel Cadastre



Map base source: Location SA

Not to Scale

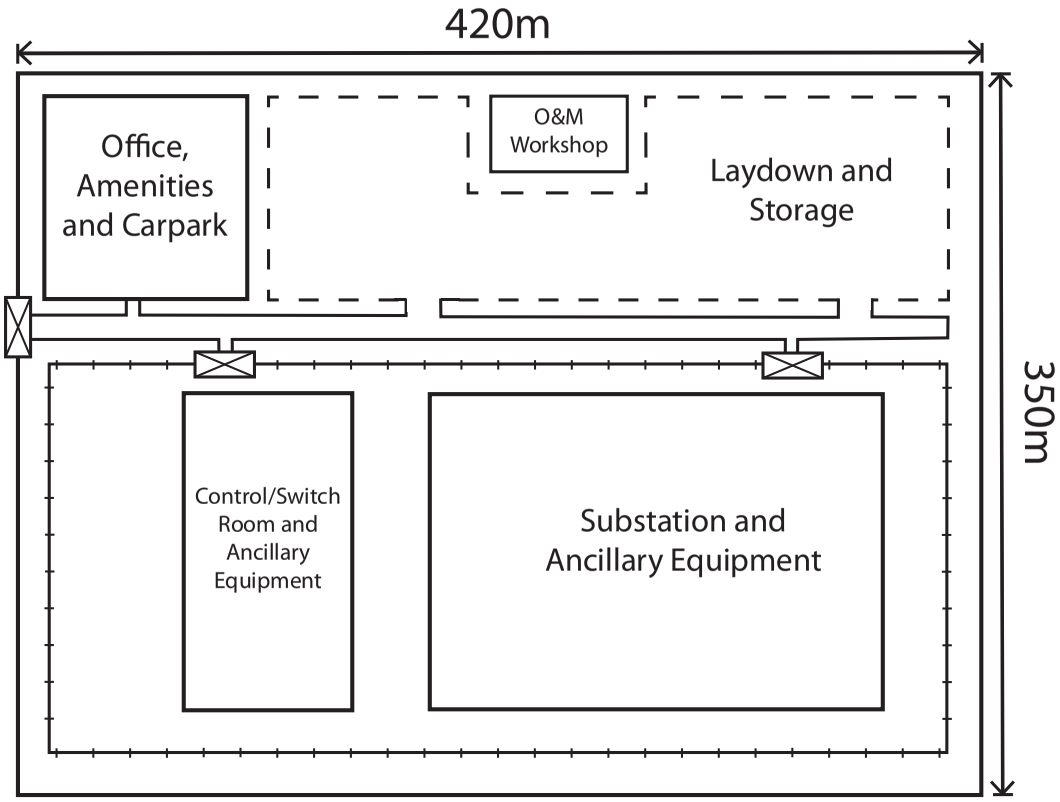
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS006

Project Layout



Typical Substation and Operations and Maintenance Layout

Not to Scale

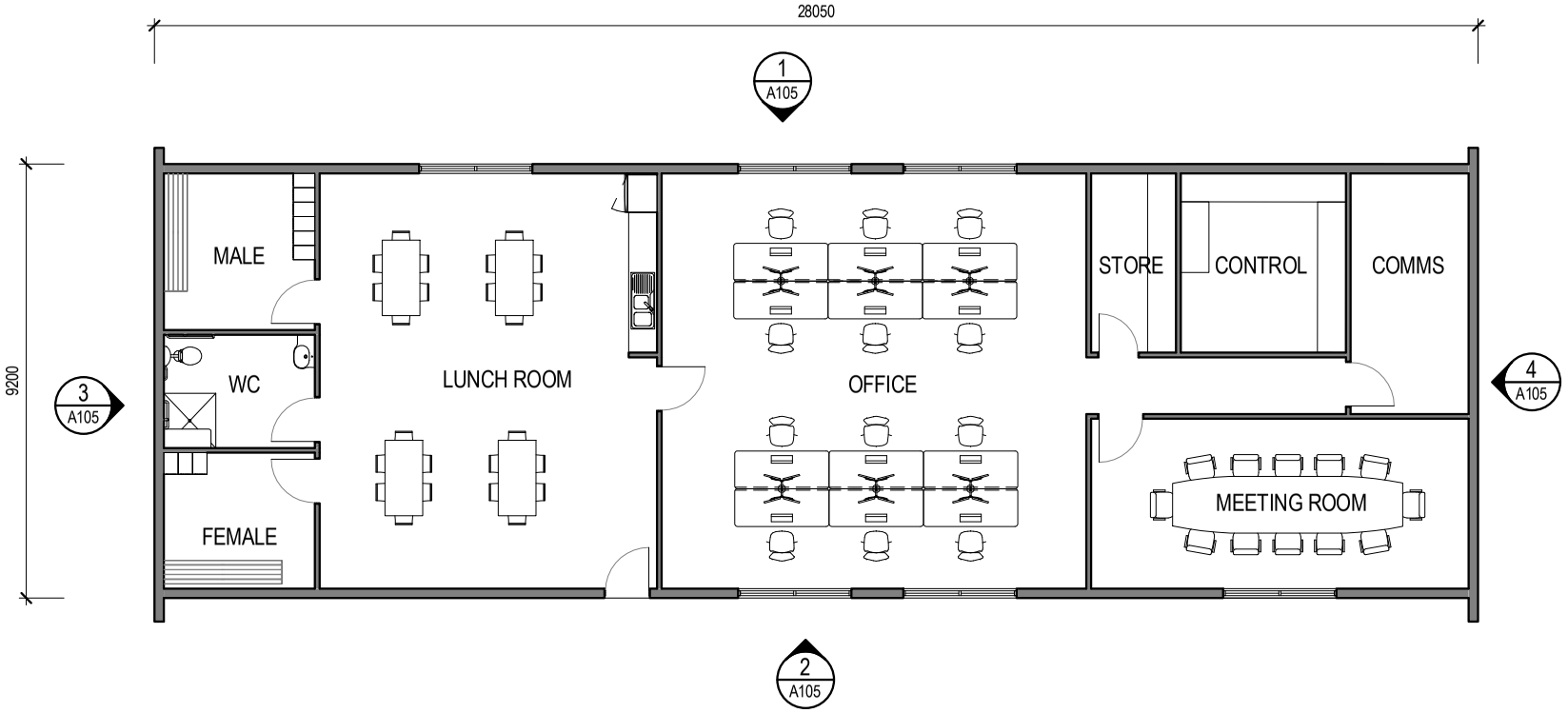
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS007

Typical O&M Office Plan



Not to Scale

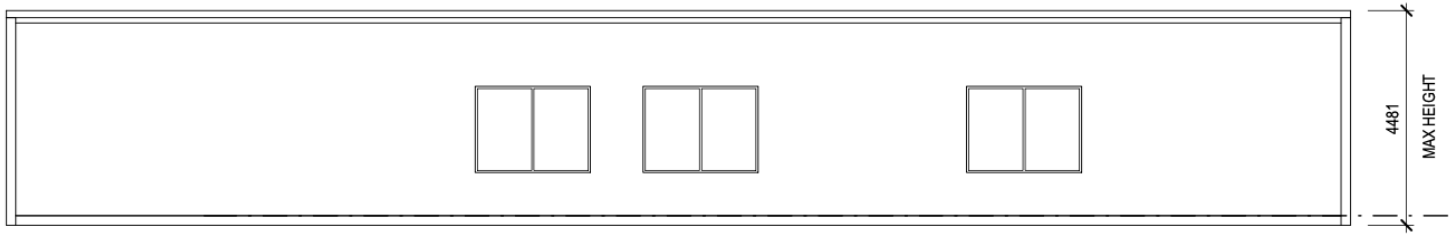
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

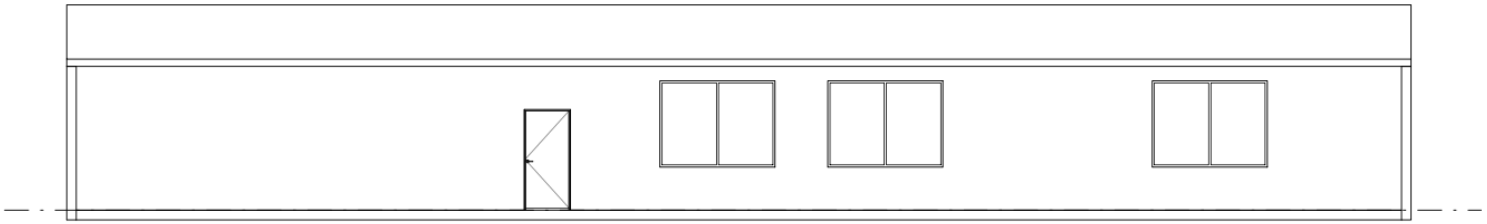
Goyder South Hybrid Renewable Energy Facility

Plan GS008

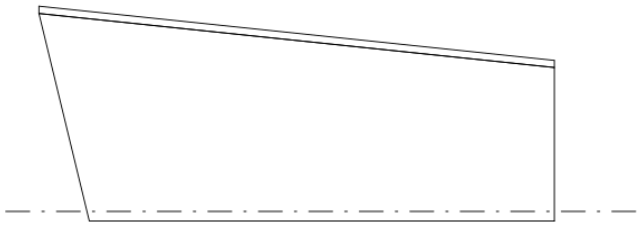
Typical O&M Office Elevations



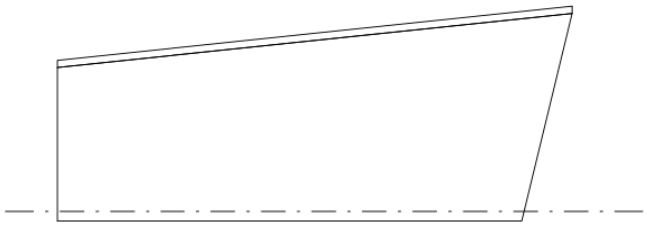
NORTH ELEVATION
SCALE 1 : 100



SOUTH ELEVATION
SCALE 1 : 100



WEST ELEVATION
SCALE 1 : 100



EAST ELEVATION
SCALE 1 : 100

Not to Scale

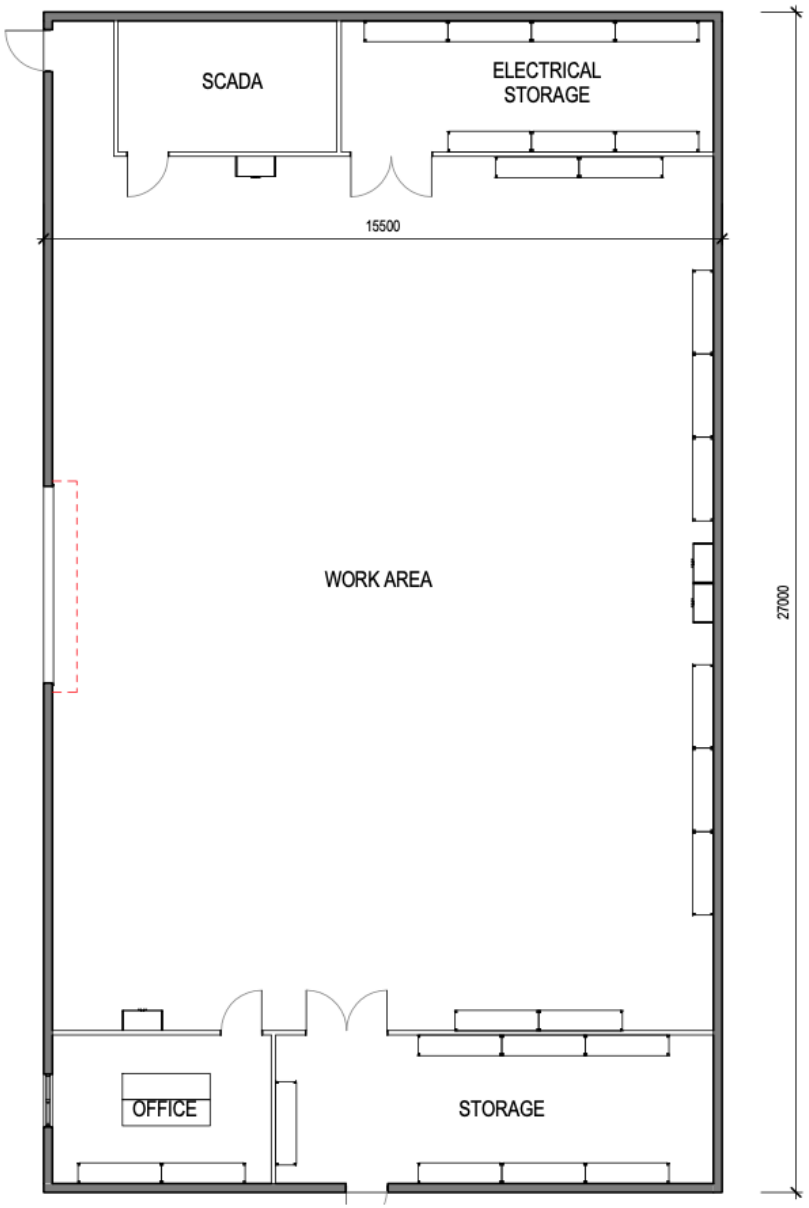
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS009

Typical O&M Workshop Plan



Not to Scale

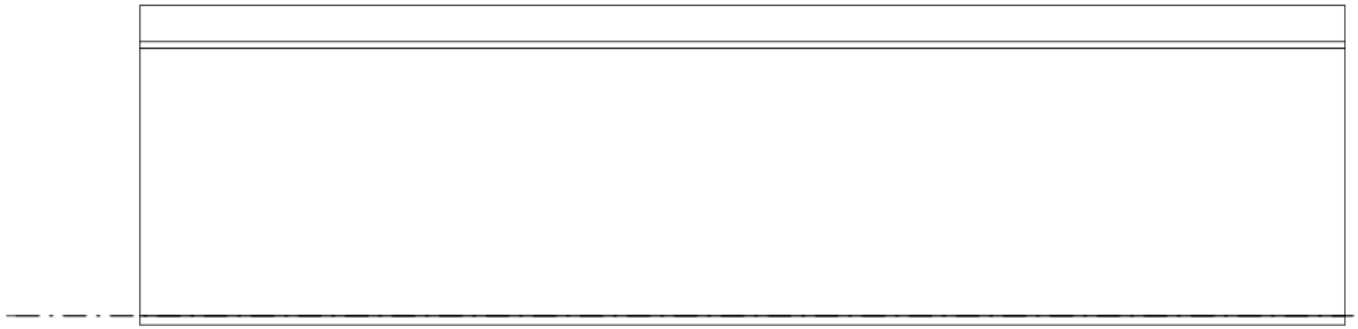
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

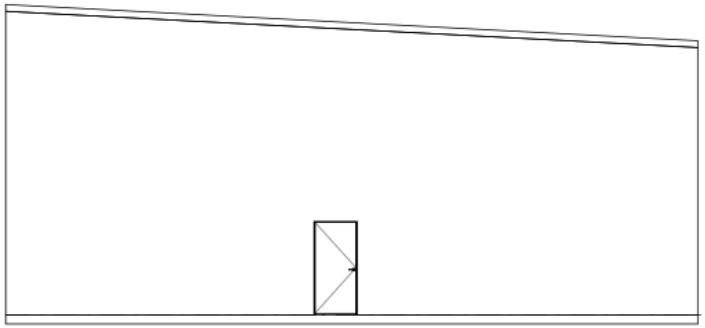
Goyder South Hybrid Renewable Energy Facility

Plan GS010

Typical O&M Workshop Elevations



EAST ELEVATION
SCALE 1 : 100



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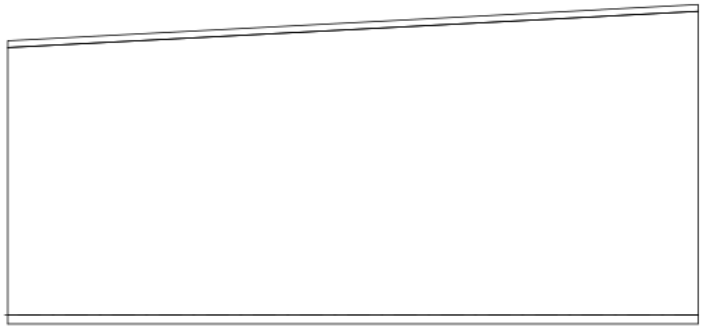
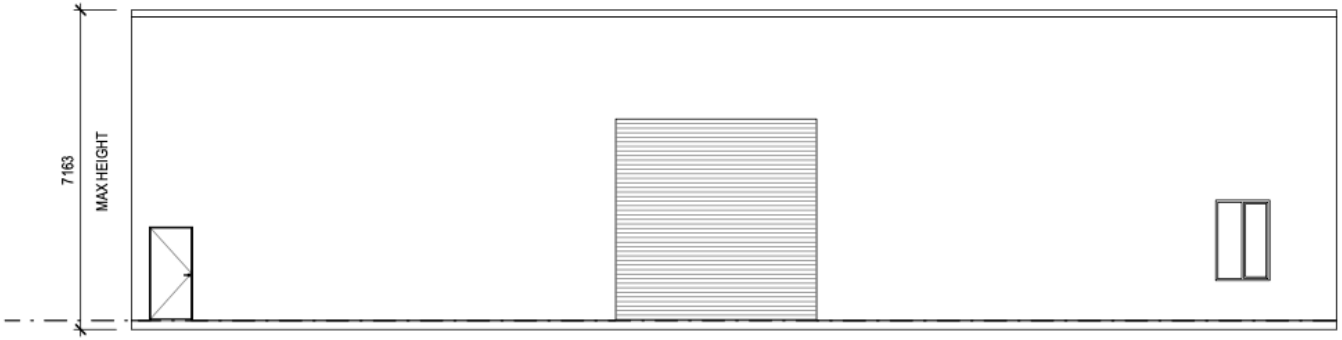


NORTH ELEVATION
SCALE 1 : 100



WEST ELEVATION
SCALE 1 : 100

Not to Scale

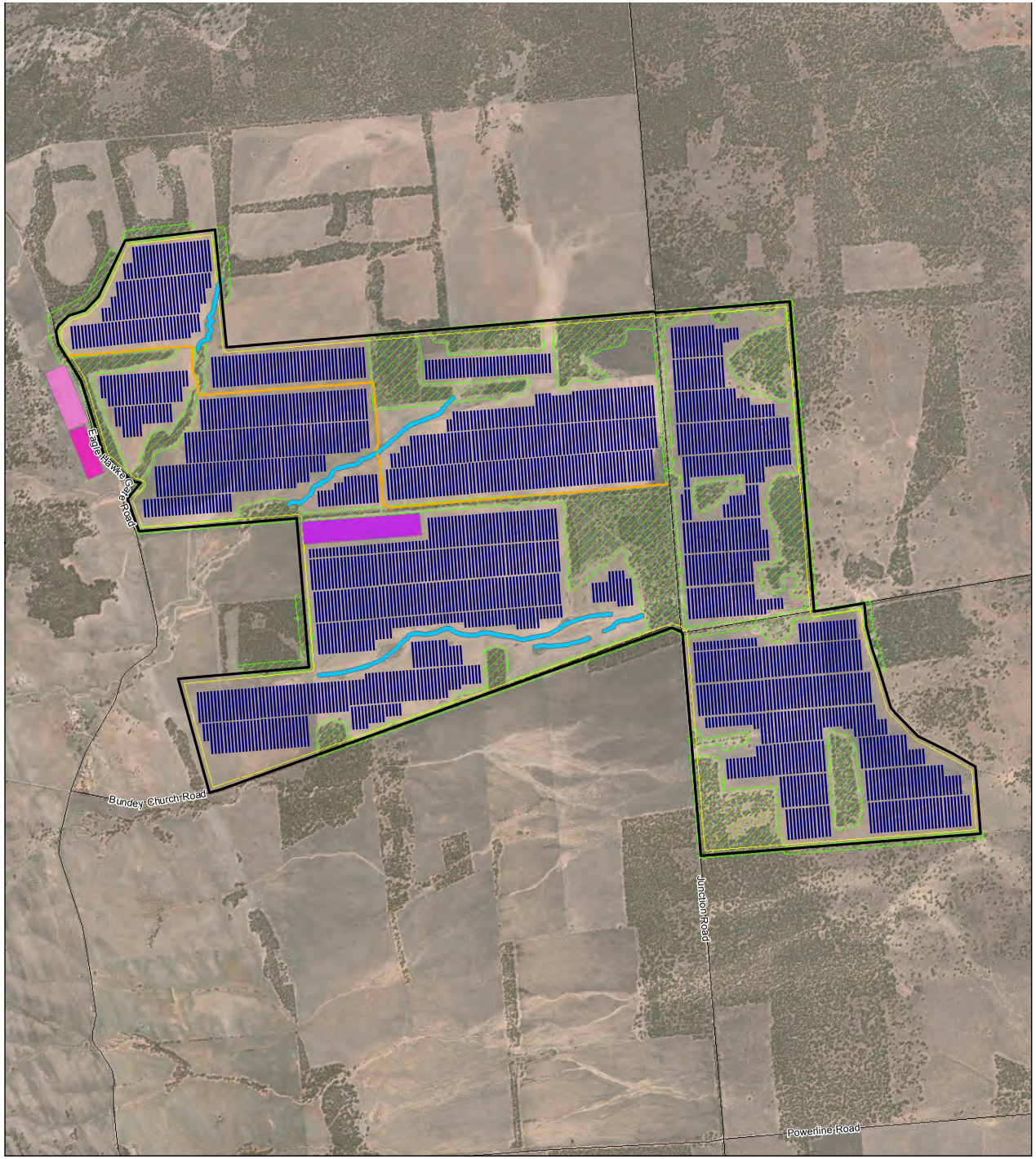
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS011

Bright Solar Layout

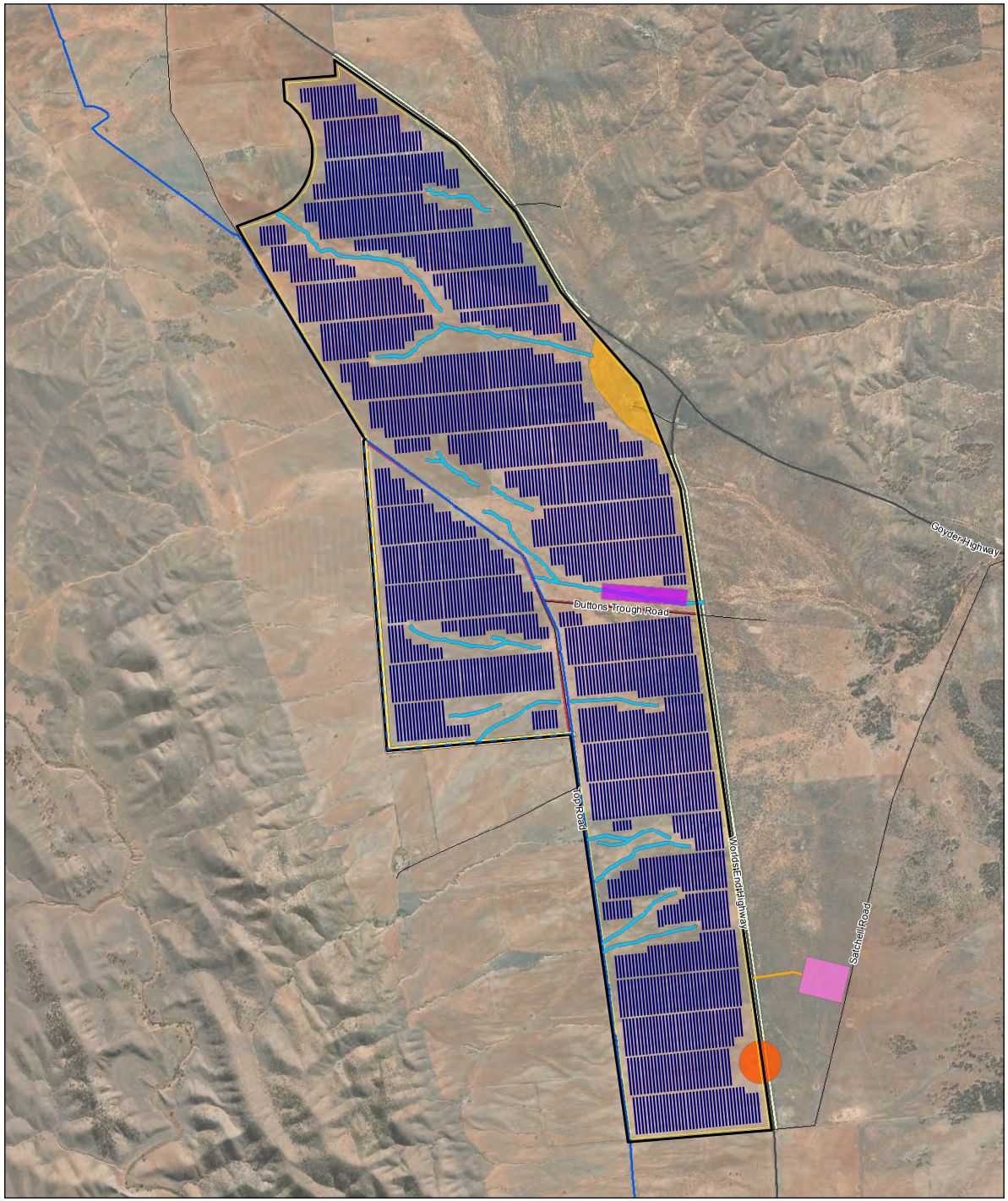


Legend

- Solar boundary
- Infrastructure access roads
- 30m boundary buffer
- Drainage lines (inc. 15m buffer)
- Vegatation exclusion zone (inc. 15m buffer)
- Operations and maintenance
- Solar construction compound
- Substation
- Collector and local

Not to Scale

Development Application Not for Construction



NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS012

Worlds End Solar Layout

Legend

- Solar boundary
- Infrastructure access roads
- Heysen trail
- Heysen trail relocation
- 30m boundary buffer
- Road easement exclusion
- Church ruin 200m buffer
- No-go zone (buildings, topography)
- Drainage lines (inc. 15m buffer)
- Heysen Trail relocation 30m buffer
- Highway 30m buffer
- Solar construction compound
- Substation
- Collector and local
- Arterial / Sub Arterial

Not to Scale

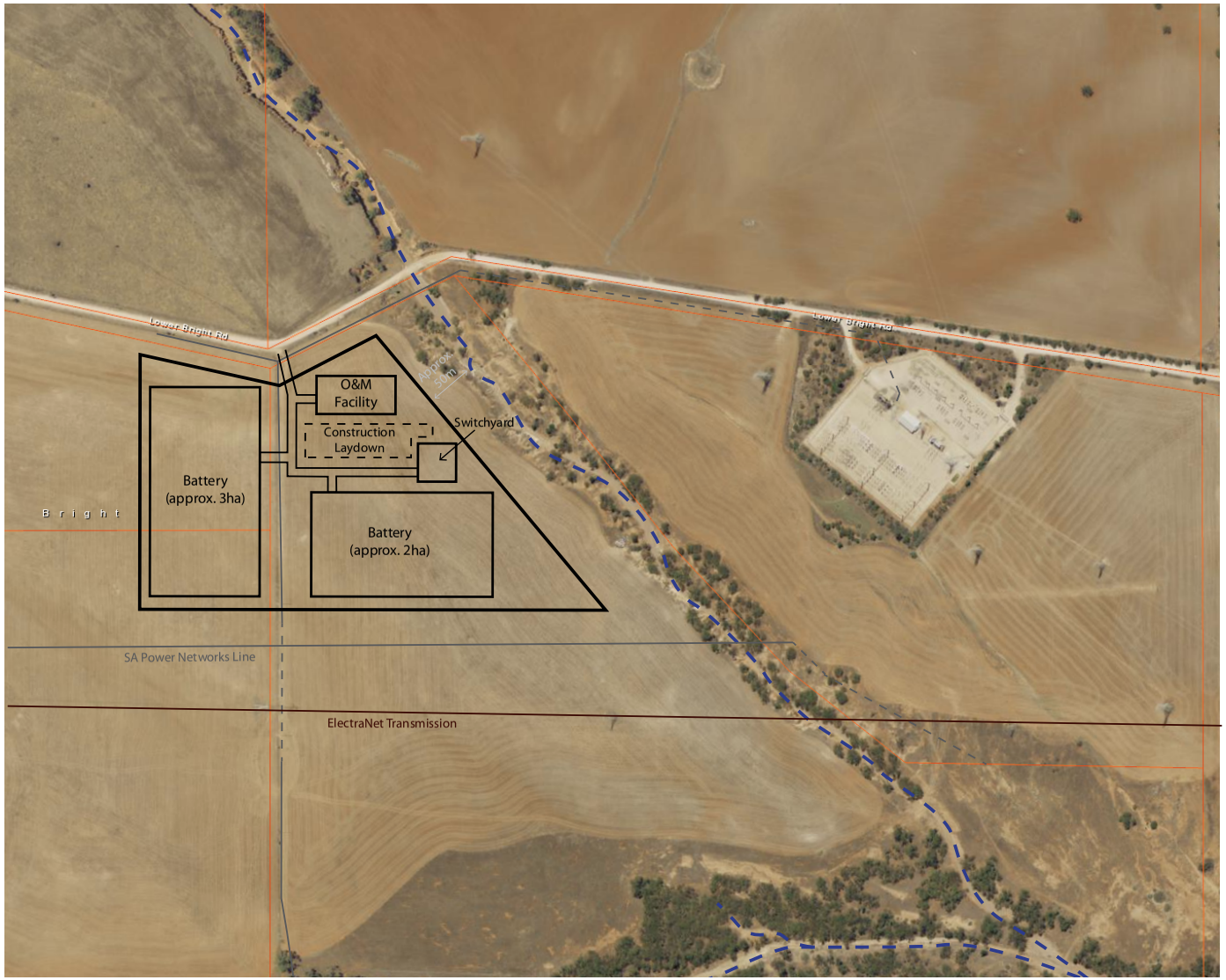
Development Application Not for Construction

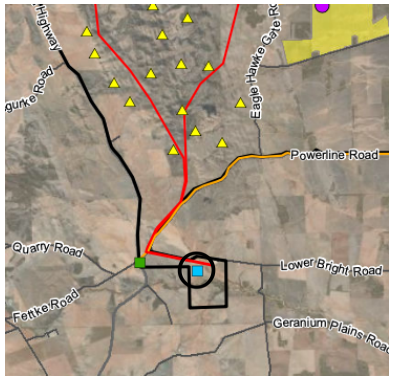
NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS013

Battery and Grid Connection (BGC) Typical Plan





Map base source: Location SA

Not to Scale

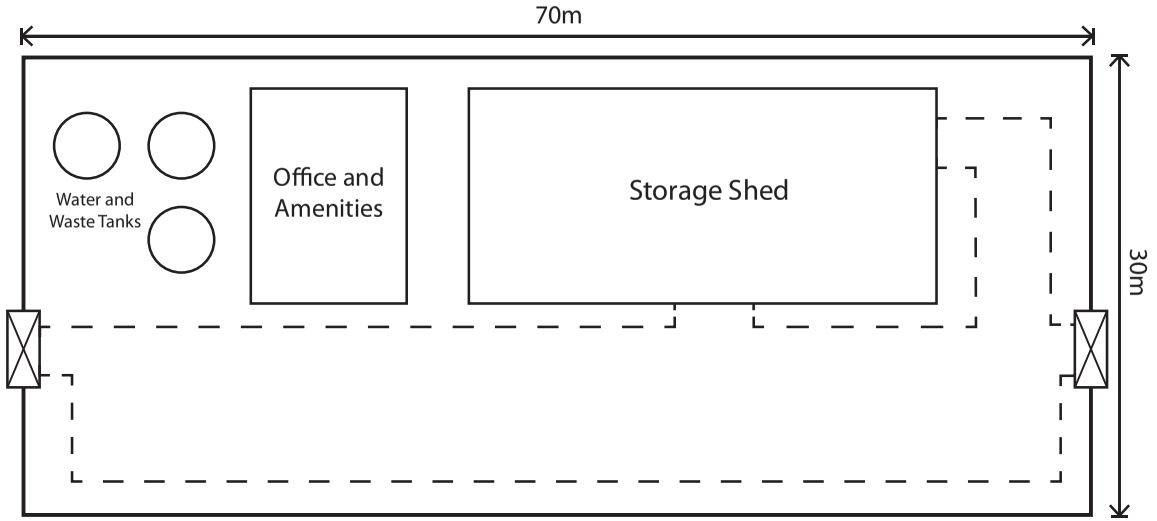
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

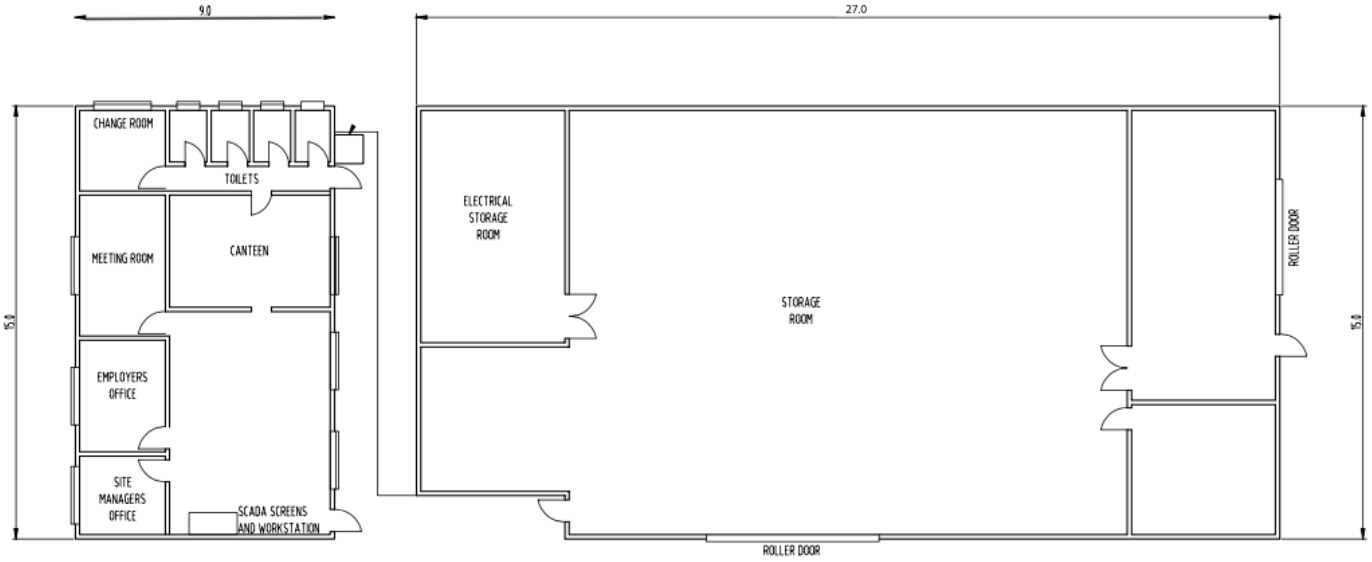
Goyder South Hybrid Renewable Energy Facility

Plan GS014

BGC O&M Facility Layout



Office and Storage Shed Layout



Not to Scale

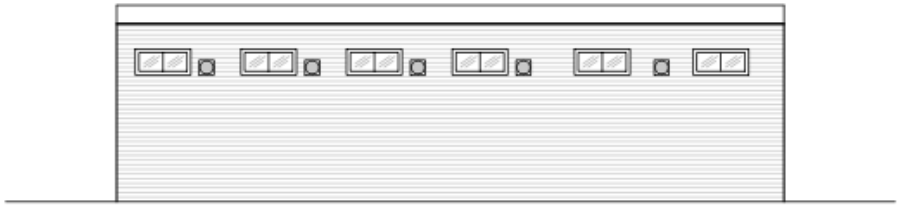
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

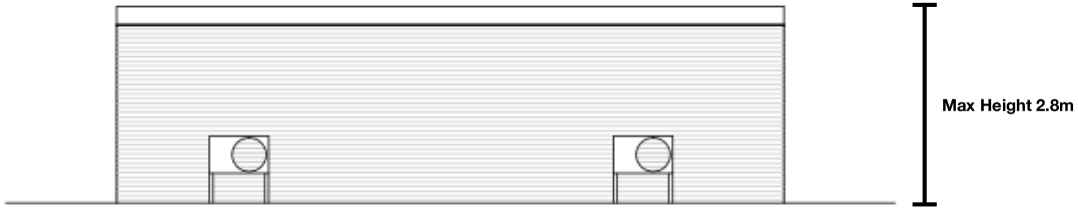
Goyder South Hybrid Renewable Energy Facility

Plan GS015

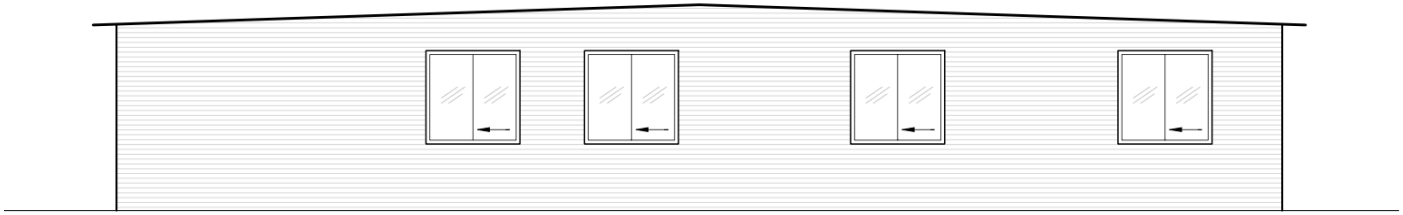
BGC Office Elevations



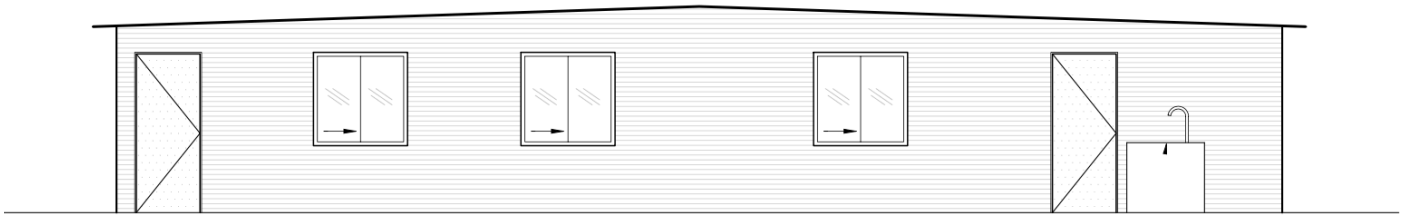
NORTHERN ELEVATION
SCALE 1:50



SOUTHERN ELEVATION
SCALE 1:50



WESTERN ELEVATION
SCALE 1:50



EASTERN ELEVATION
SCALE 1:50

Not to Scale

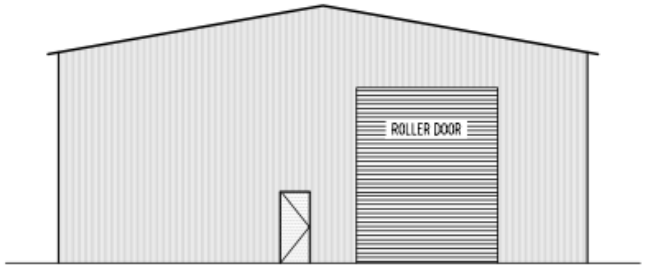
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

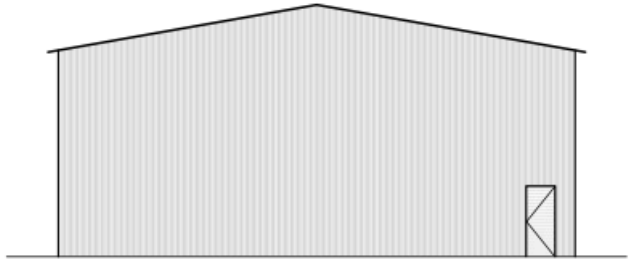
Goyder South Hybrid Renewable Energy Facility

Plan GS016

BGC Shed Elevations

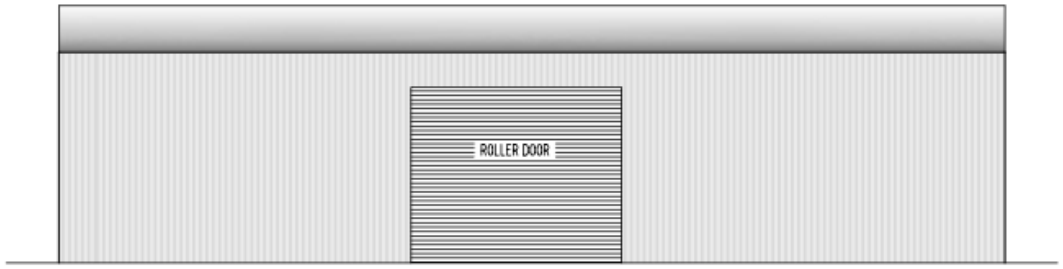


EASTERN ELEVATION
SCALE 1:100



WESTERN ELEVATION
SCALE 1:100

NORTHERN ELEVATION
SCALE 1:100



SOUTHERN ELEVATION
SCALE 1:100

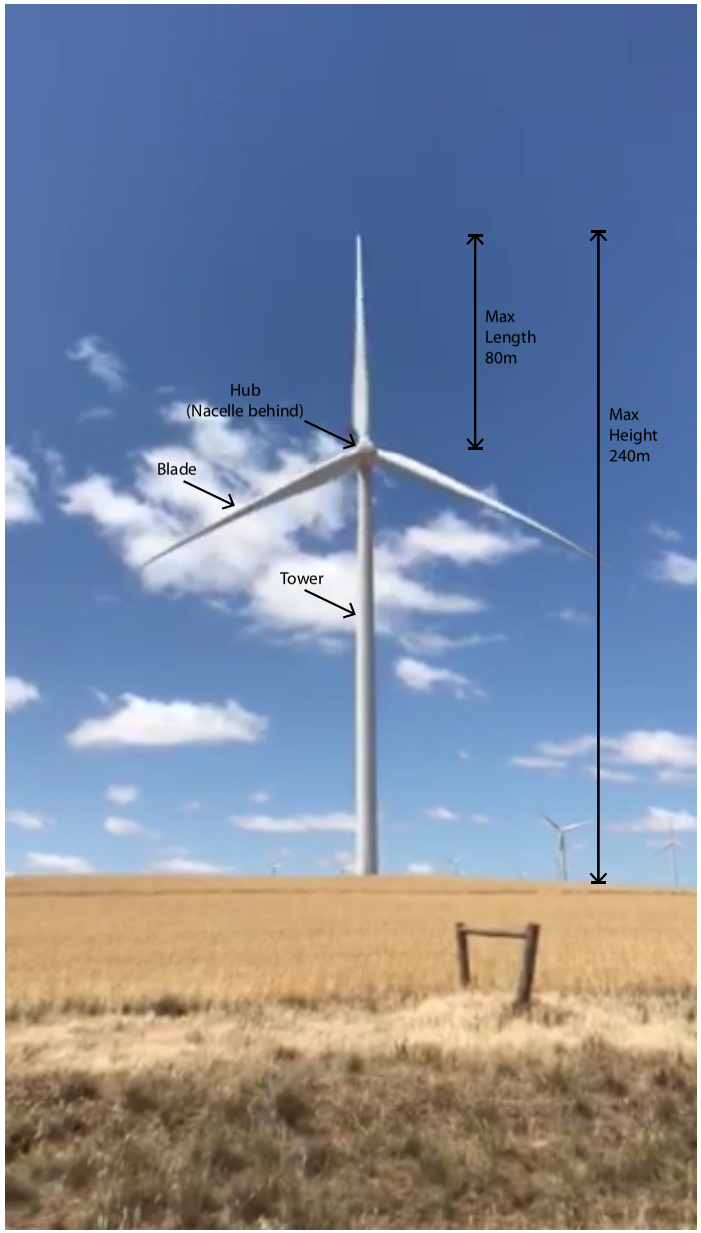
Not to Scale

Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS017



Typical Turbine Maximum Dimensions

Tower Construction Stages

Not to Scale

Development Application Not for Construction

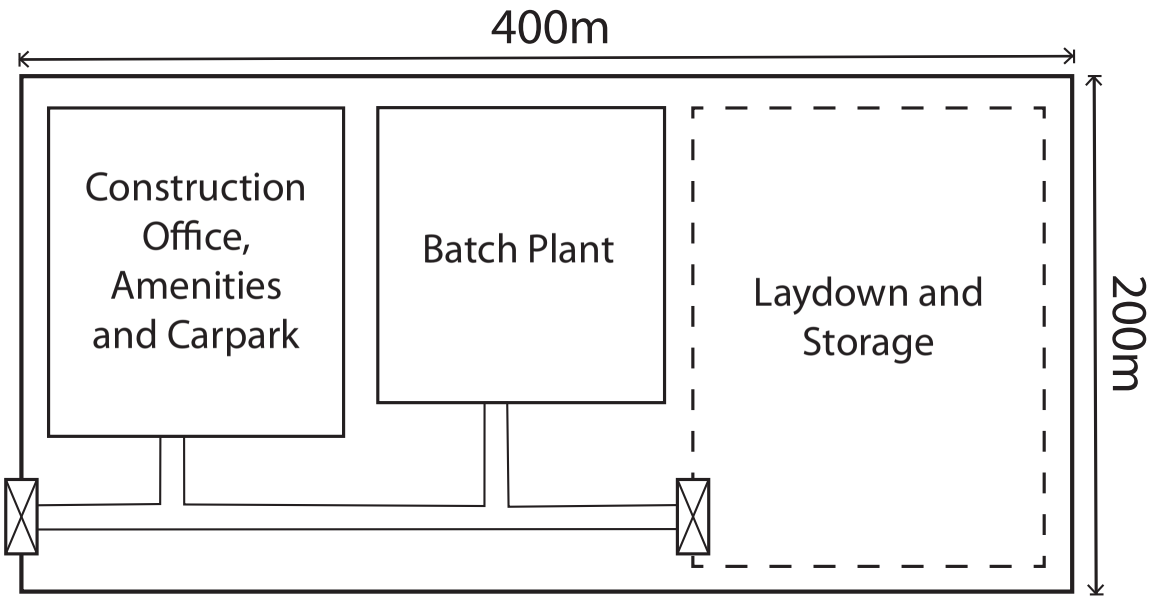
NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS018

Temporary

Typical Wind Construction Compound Layout



Not to Scale

Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

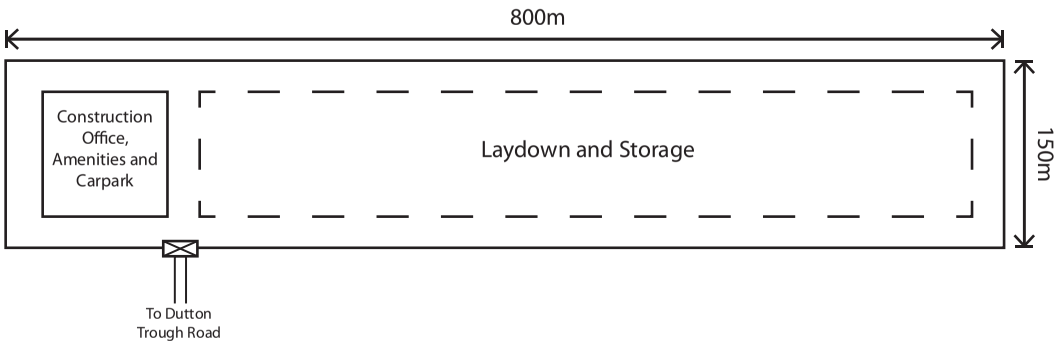
Goyder South Hybrid Renewable Energy Facility

Plan GS019

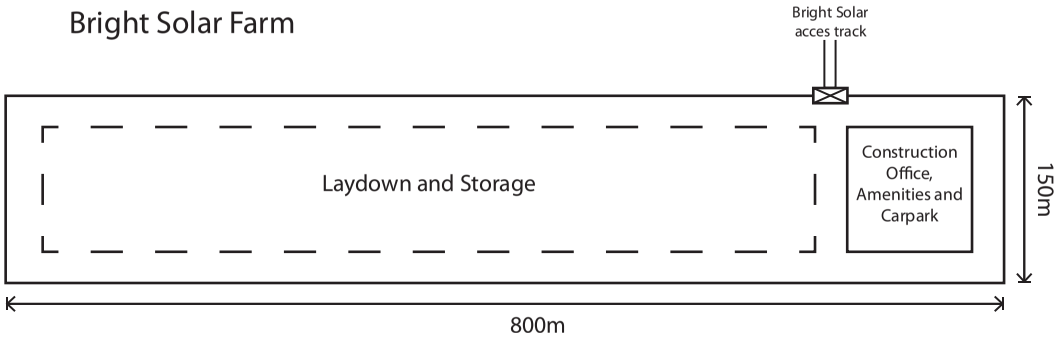
Temporary

Typical Solar Construction Compound Layout

Worlds End Solar Farm



Bright Solar Farm



Not to Scale

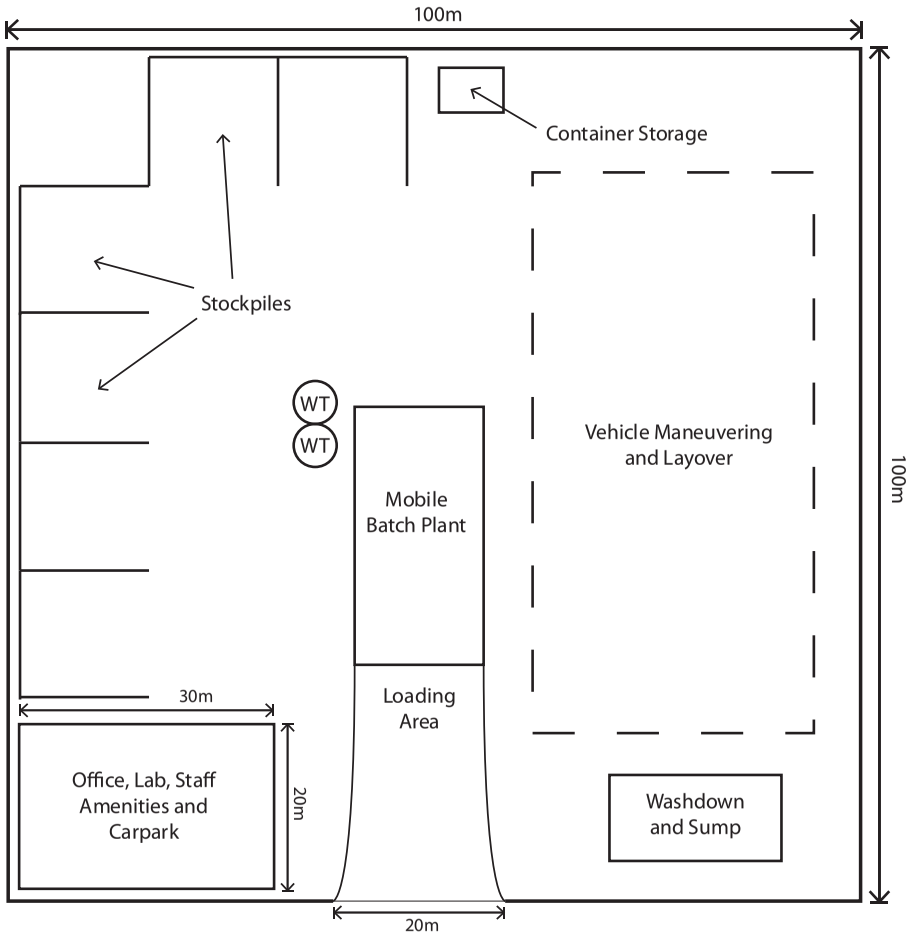
Development Application Not for Construction

NEOEN
BOUNDLESS ENERGY

Goyder South Hybrid Renewable Energy Facility

Plan GS020
Temporary

Typical Batch Plant Layout



Not to Scale

Development Application Not for Construction

Appendix E Construction Environment Management Plan

Goyder South Hybrid Renewable Energy Facility

DRAFT

Construction Environment Management Plan

June 2020

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Environmental Manager (assigned by the Contractor) 8

Superintendent (assigned by the Contractor) 8

Contractor(s) and Staff 8

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Appendices

Appendix A - Batch Site Plans (subject to Development Approval)

Introduction

This Construction Environmental Management Plan (CEMP) has been prepared to accompany a development application for the proposed Goyder South Hybrid Renewable Energy Facility.

The project area is located in a region identified as the Northern Ranges portion of the SA Murray-Darling Basin Natural Resources Management area. As such it is acknowledged that the protection of the quality of water resources is important in this area, particularly surface water that feeds into the Burra Creek system. It is noted that the project is not located within a prescribed water resources area.

Purpose of this CEMP

This CEMP seeks to provide high level guidance to avoid and/or minimise potential environmental impacts associated with installation, use and removal of temporary concrete batching plants as part of the construction phase of the project. It seeks to identify potential mitigation measures and strategies that should be adopted during construction and operation and decommissioning.

Additional Plans relating to detailed elements will be prepared by the respective construction contractors for review and acceptance prior to works commencing on site. Detailed site-specific mitigation measures will be developed and included in any final Plans to be prepared by the construction contractors. A CEMP is a dynamic document and is to be updated by the contractor(s) as required to reflect detailed methodology, changes to site conditions or scheduled works. The construction contractor(s) will take responsibility for reviewing and managing the outcomes identified in the CEMP.

The purpose of the CEMP is to:

- Provide for concrete batching plant works to be carried out in accordance with the environmental conditions outlined in the Development Approval and EPA License requirements;
- Provide for works to be carried out in accordance with the applicable environmental legislation and standards;
- Outline how the environmental features of the site are to be protected during construction;
- Ensure all potential environmental risks associated with construction are identified and assessed;
- Protect environmental features and sensitive receptors;
- Outline measures to monitor and control potential environmental impacts associated with the works that are implemented effectively;
- Provide government, community and other stakeholders with assurance that environmental issues associated with the works are managed appropriately;
- Allocate clear responsibilities for the environmental management at all levels;
- Optimise construction methods; and
- Provide guidance for site closure and rehabilitation.

Temporary Batching Plant

It should be noted that a final decision as to whether the temporary batch plant sites will be used (one or both) will be taken closer to the time of the actual construction phase. It is likely that, should

they be established, each site will operate for approximately one year correlating with the turbine foundation preparation phase of the relevant project stage.

This CEMP includes a Concrete Batching Plan sub- management plan to ensure that the specific actions required for these activates are fully addressed. By including this in the overall CEMP document, the proponent can be certain that the 'handover' to the contactors will include these requirements

Data Sources

The following reports and data sources have been reviewed during the preparation of this draft CEMP:

- Goyder South Hybrid Renewable Energy Facility: Flora and Fauna Assessment (EBS Ecology 15 May 2020);
- Goyder Renewables Zone – Goyder South Environmental Noise Assessment (Sonus June 2020);
- Goyder South Hybrid Renewable Energy Project Desktop Heritage Assessment (IHC, May 2020)
- SA EPA Air & Water Quality Guideline – Concrete batching (EPA 427/16 March 2016)
- NatureMaps – online database (naturemaps.sa.gov.au)
- South Australian Murray-Darling Basin Natural Resources Management Board, 2015. Natural Resources Management Plan: Volume A Strategic Plan

These studies, any conditions of approval and any other finalised investigations post production of this draft document, will need to be reviewed by the contractor prior to completion of the final CEMP.

Project Information

Site Location

The proposed Goyder South development will be located south of Burra and north of Robertstown in the Goyder Regional Council area. This area is located in the eastern portion of the northern Mount Lofty Ranges and wholly located within the Goyder Regional Council area.

Burra the key service centre within the region and is identified as an important centre for aged services, affordable housing and temporary housing for short term residents. Robertstown is located on the Worlds End Highway between Eudunda and Burra. Originally strategically located as a service centre for the surrounding agricultural and mining activities this town further developed in response to the need for a supply depot and the supply of water (Morgan-Whyalla pipeline).

The Burra/Robertstown region is typical of the dryer areas of the mid north. This region can experience cool to cold winters and warm to hot summers. This area is on the edge of Goyder's line and has experienced drought conditions for the last three years.

This region has a relatively low population density, with most residential premises being located in a number of towns, Burra being the largest. The land use is predominantly agricultural, mostly grazing and some cropping.

The Goyder south project spans the Worlds End Valley with turbines located on the western ridge lines and the eastern ridgelines. The Worlds End solar site is located in the centre of the valley, on the western side of the Worlds End Highway and Bright Solar site is located to the north-east of Robertstown.

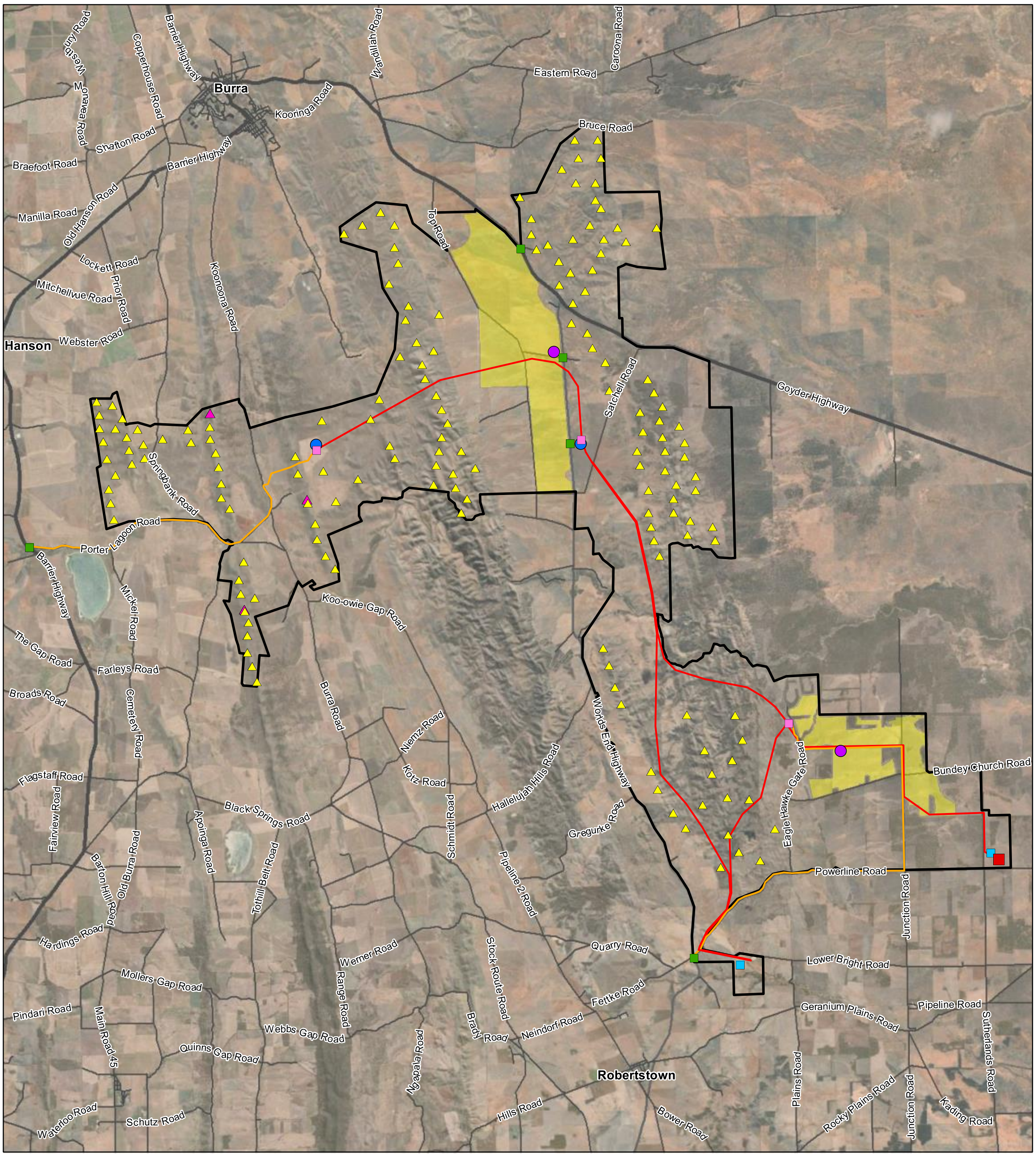
There are two main Highways providing access to the project area: the Barrier Highway running roughly north-south and the Goyder Highway which runs roughly north-west/south-east of Burra.

Description of works

The Goyder South Hybrid Renewable Energy Facility comprises:

- A wind farm of up to 165 turbines with a capacity of up to 1,200MW;
- Two solar farms of up to 3000 ha of solar panels with a capacity of up to 600MW;
- An energy storage facility (lithium-ion battery) with a capacity of up to 900MW/1,800MWh (2 hours);
- Three substations including operation and maintenance facilities at each site;
- Associated infrastructure for connection to the electricity grid including access tracks, underground connection cabling and transmission lines;
- Temporary construction compounds for both wind and solar components; and
- A number of meteorological masts (in addition to those already on the site).

The layout of the project is summarised in the following Figure. This layout will be subject to a micro siting process prior to the preparation of detail design and layout plans.



- △ Turbine layout (total turbines 163)
- Goyder South project boundary
- Solar farms
- ▲ Existing met mast (3)
- Battery and grid connection (2)
- Construction entry point (5)
- Substation and O&M (3)
- Possible interconnector substation (1)
- Solar construction compound (2)
- Wind construction compound (2)
- Construction access road
- Proposed transmission line
- Highway/Arterial
- Sub-arterial
- Collector and local

Paper Size A3
0 0.5 1 2 3 4
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

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NEOEN

Neoen
Goyder Renewable Energy Park

Job Number 33-19112
Revision I
Date 02 Jun 2020

Project Layout

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180 Lonsdale Street Melbourne VIC 3000 Australia **T** 61 3 8687 8000 **F** 61 3 8687 8111 **E** melmail@ghd.com **W** www.ghd.com

Data source: SA Government, roads data, 2018; Geoscience Australia, township boundary, 2018; Neoen, layout data, 2020. Created by:savenables

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Sensitive Receptors

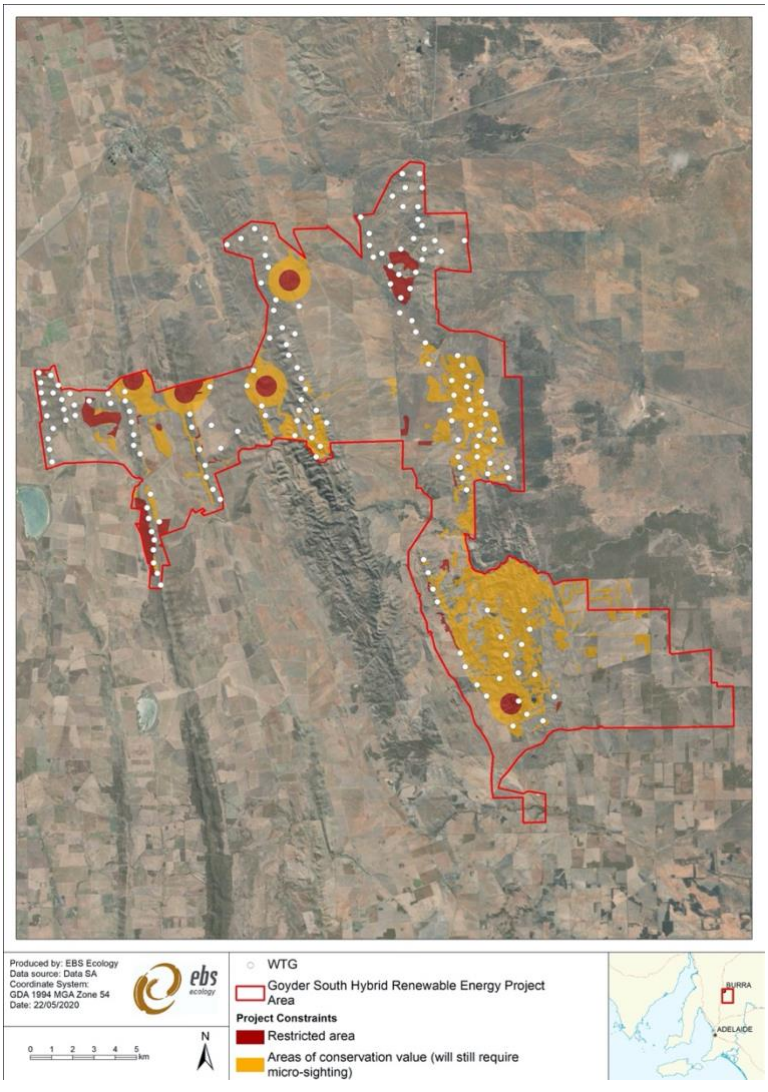
This section summarises the environmental features which have been identified as potential sensitive receptors for this project. The potential construction impacts upon these receptors are considered in Section 3.

Table 1 Sensitive Receptors

Standard	Management Criteria
Community	There are two main towns (Burra and Robertstown) and two small hamlets (Hanson and Point Pass) in the vicinity of the development but none of these are within the project boundary. Burra is the regional centre in this area. The wind farm will be located on a number of private properties primarily used for farming which will involve over 40 landowners. The majority of these communities are serviced by unsealed gravel roads with sealed roads generally limited to the highways and located around the towns. The existing traffic volumes along these roads are low and the roads are generally only used by local farmers for access to their properties and transportation of farming equipment and materials. However, the Worlds End Highway provided access to the Worlds End Gorge camp-ground which is the middle of the project area. Tourist traffic should be expected on this highway. In addition, the Heysen Trail extends thorough the Worlds End Valley along Top Road. Trial walkers should be expected on this road. The majority of the project area is on land that the Ngadjuri Nation identified as their traditional lands and a small portion (associated with the NSW interconnector) may extend to lands of the First Peoples of the Murray Mallee.
Ecology	The region is typical of the dryer areas of the mid north. This region can experience cool to cold winters and warm to hot summers. This area is on the edge of Goyder's Line and has experienced drought conditions for the last three years. Much of the area was cleared of vegetation during the mining period and the land has been cropped and grazed since. Remnant native vegetation tends to existing in the steeper areas of the ranges and in patches along drainage lines. Remnant road-side vegetation and patches of remnant vegetation is more common toward the southern end of the project area. An ecological survey has been undertaken and has identified the presence of threatened flora and fauna species. A number of protected areas (conservation parks and vegetation heritage areas) are located near the project area. Burra Creek is an important ecological corridor that runs through the project area. Further detailed micro-siting will be required in the areas identified in the following Figure.
Water Resources	The area surrounding Burra reaches relatively hot maximum temperatures in summer, with mean maximum temperatures highest in January (29.4 degrees) and February (29.1 degrees). The wettest months are August (55.6 millimetres (mm)), June (51.8 mm) and July (51.2 mm) (Commonwealth of Australia 2019). This area has been in drought for the last three years and therefore all water resources are important and valuable. The most significant water course in the area is the Burra Creek system. Water required for the project will need to be bought in as options for water supply in the area is limited.

Standard	Management Criteria
Soils and Geology	The topography of the Project Area comprises undulating hills of the eastern Mount Lofty Ranges, with steep escarpments present along geological fault zones, particularly at the eastern extent of the ranges. Steep sided valleys occur where watercourses cross the escarpments. The soils of the eastern slopes of the Mount Lofty Ranges generally have a high to very high erosion potential by water and are likely to be subject to soil erosion by water, and potentially wind, if ground is disturbed. The site is in an area bounded by known fault lines that are seismically active. The likelihood of a major earthquake occurring is not known, however no significant (>4 magnitude) earthquakes have been recorded in the area. The Granite Boulders Area Geological Site (see Table 2) is located in the project area.
Cultural Heritage	There are a number of State Heritage places and areas in the vicinity of the project. Burra is a nationally listed heritage place. There are no known, listed sites of Aboriginal or European Heritage within the project boundary. However, this area has a long history of occupation by both the traditional people and Europeans associated with mining. As such the project area may contain both Aboriginal and European archaeology which is protected by law. (refer procedure in Appendix A) Building ruins and dry stone walls are noticeable features in the landscape and while they are not formally protected they are to be protected in accord with the results of detailed heritage assessment during the micrositing process.

Restricted Areas and Conservation Value Areas



Environmental Management System

Managing environmental issues and promoting environmental awareness during the site works is an essential component of responsible project management. It requires the active consideration of environmental issues and health and safety as a prerequisite to all construction operations. This section identifies the key management measures which will be required to avoid or minimise these likely impacts. The contractor EMS is expected to comprise an environmental policy and the basic elements indicated in Section 3 of this report.

Where required, detailed Management Plans for specific issues will need to be prepared and added to this CEMP prior to the construction and operation of the batch plants.

Implementation Responsibility

The roles and responsibilities of the following key participants in the construction works for the project are outlined below:

- Neoen Principal
- Contractor Design Engineer
- Contractor Superintendent
- Contractor Environmental Manager
- Contractor and Staff.

The Neoen Principal will engage a construction company ("the Contractor") who will be responsible for ensuring the CEMP is developed and implemented by all staff and their subcontractors involved with the construction works.

The Principal should ensure that all contractual documents specifically quote a CEMP in terms of responsibility for addressing and implementing relevant environmental requirements for the temporary batch plants. The contractual documents should also indicate that the Contractor is responsible for ensuring legislative and CEMP compliance controls are maintained on site.

The Contractor is responsible for obtaining all relevant approvals/permits/licences prior to works commencing. The Contractor will appoint an Environmental Manager who is responsible for developing environmental impact mitigation measures compliant with all approvals, permits, licences and management measures and incorporating this (in the form of detailed Management Plans) into the CEMP for construction, operation and decommissioning works. The Contractor will use a Design engineer, Environmental Manager and a superintendent to ensure that the design, construction, operation and decommissioning of the batch plants meet all relevant environmental requirements.

Successful implementation relies upon support for, and compliance with, the CEMP's requirements from all involved parties. Responsibilities are detailed below:

Neoen Principal (the "Principal")

- Key contact and representative of Neoen.
- Ensure contractual documents include environmental responsibilities, adequate training and preparation of detailed Management Plans to accompany the CEMP prior to construction of the batch plants commencing.
- Overall responsibility for ensuring the project meets its compliance obligations and environmental requirements are implemented.
- Agree procedures for emergency response.
- Agree frequency and method of auditing, monitoring and other matters which are to be reported to Neoen.

Design Engineer (appointed by the Contractor)

- Responsible for the detailed design and layout of the batch plants, water and wastewater management systems, ponds and washout pits, storage and stockpile areas and batch plant emission/materials management equipment.
- Checks on-site implementation of the above design requirements.

Environmental Manager (assigned by the Contractor)

- Responsible for managing environmental aspects during the construction and site closure phases and that the Superintendent has the information required to implement site controls successfully.
- Checks all environmental requirements, licences and procedures are implemented.
- Advises staff of special requirements.
- Conducts or commissions a consultant to undertake environmental audits/monitoring during all stages to ensure implementation of requirements.
- Determines and/or ensures environmental controls and procedures are in place and maintained during all phases of the project.
- Determines the training/instructions required for staff to be able to meet their environmental obligations.
- Reports environmental incidents during construction.
- Responsible for the emergency response procedure for environmental incidents.

Superintendent (assigned by the Contractor)

- Supervises and implements environmental controls on site during the construction works.
- Ensures training/instructions required by staff to be able to meet their environmental obligations, are undertaken and recorded.
- Reporting of environmental incidents to the Environmental Manager.
- During an emergency situation, responsible for informing the Environmental Manager and activating the response procedure.

Contractor(s) and Staff

- Implement environmental controls as directed
- Report environmental incidents to the superintendent.

Error! Reference source not found. summarises the relevant project phase responsibilities relevant to implementation of a CEMP.

Table 2 Project Role Description and Responsibility

Planning and Design (pre-construction)	**Principal**	Oversees planning and Tender phase. Responsible for ensuring environmental compliance during the design phase and CEMP preparation.
	Design Engineer	Responsible for preparation of a CEMP to guide development of a project-specific CEMP and outline legislative requirements. Responsible for design of the temporary batch plant facilities (if required)
	Environmental Manager	Responsible for review of the CEMP and preparation of detailed Management Plans for inclusion in the CEMP prior to construction of the batch plants commencing.
Construction, Operation and Decommissioning Works	**Principal**	Responsible for environmental compliance.
	Superintendent	Oversees construction phase and enforces environmental controls on site.

	Environmental Manager	Ensures Contractor complies with environmental requirements.

Site Establishment

Each site shall be established in accord with the approved development application plans. These are preliminary concept plans have been developed with the advice of civil engineers and based on topography surveys to ensure appropriate management of site access and site stormwater.

Each site will be reviewed as part of the micro siting process to ensure that the siting is optimal from an environmental protection and safety perspective. The sites will then be designed in detail to accommodate the required infrastructure and environmental management systems (such as stormwater management, waste management, vehicle access, washdown areas etc..).

CEMP Review, Reporting and Monitoring

The CEMP will only be effective if it is appropriately managed and utilised. Although the detailed Management Plans will be developed and included in the EMP prior to the commencement of construction works by the Contractor with the intention of covering the detailed methodology, circumstances may differ from those anticipated. Consequently, it is important that the CEMP be regularly reviewed and updated. This will ensure that the measures, responsibilities, criteria and corrective actions remain achievable, effective and suitable to the project, whilst maintaining compliance with relevant legislation and policy.

An important principle that is embodied in this CEMP is that of "continuous improvement". To facilitate this process it is critical that an appropriate monitoring, reporting and review process be developed and adopted.

Review of CEMP

The CEMP is to be reviewed throughout the construction and operation phase of the batch plants monthly (or at a frequency determined by the Contractor). The review is to examine the following as a minimum:

- The implemented environmental management activities
- The incident reporting and preventative action procedures
- The complaints handling procedures
- The emergency response procedures for environmental incidents.

Monitoring Records

The results of any monitoring required by any approvals, licences or Conditions of Consent granted for the construction phase of the development must be:

- In a legible form
- Kept for at least 4 years after the monitoring or event to which they relate/took place
- Be available upon request to any authorised person.

The following minimum records will be kept in regards to any monitoring / sampling activity:

- The date(s) on which the monitoring was taken
- The time(s) at which the monitoring was collected
- The point at which the monitoring was taken
- The name of the person who conducted the sample.

Sampling Quality Control Plan

Where practicable NATA accredited laboratories will be used for any testing of samples taken in association with approvals, licences or consent conditions. Laboratory detection limits must be below the adopted assessment criteria.

Quality Assurance / Control measures such as collection and testing of duplicates and blind duplicates will be used to ensure the accuracy and quality of the required monitoring.

Follow Up Action

Where adherence to the requirements in this document are found to be unsatisfactory in achieving broader environmental and site management goals, action will be taken to investigate the cause and make amendments to the CEMP as required.

Reporting

The Contractor shall provide a fortnightly report to the Principal to cover the following circumstances:

- Include a report on any monitoring undertaken in accordance with licences, approvals or conditions of consent
- Provide a summary of complaints received during the construction phase of this project
- Report of compliance with the CEMP.

Training and Site Induction

The Contractor will oversee that all employees, sub- contractors and visitors receive environmental instruction in relation to the CEMP and legislative requirements. Each person will be made aware of and have an understanding of their obligations and duties detailed in this CEMP. Everyone involved with the project should be familiar with the CEMP components that are relevant to their role.

The Principal is responsible for overseeing that the contractual agreement with the Contractor specifies the necessity of providing adequate training to the construction teams. This responsibility is to be assigned to the Superintendent who can liaise with the Principal and other agencies, if required. During construction works, the Contractor must ensure that each operative is trained to use the machinery and materials on site efficiently to avoid environmental nuisance, including noise, air pollution, impacts on water quality, spread of waste material and land contamination.

It is important to note that legislative requirements have change in relation to the management of archaeology. All archaeology, both Aboriginal and European is protected by law. All employees much be made aware of these new requirements.

In addition, Local Government is now responsible for responding to community complaints about noise, smoke, dust and odour (Local Nuisance and Litter Control Act, 2016). All employees shall be briefed on the effect of this legislation.

Emergency Response and Incident Management

The CEMP should detail emergency response procedures, with clear lines of responsibility to enable effective response with minimal environmental harm or disruption. The following sections provide an outline of procedures and protocols that should be included in the CEMP.

Environmental Incidents (Notification of Environmental Harm)

The type of incidents that may require notification in accordance with legislation depends on the extent of harm or the potential damage to the environment. To ensure that Neoen has a consistent approach to incident reporting, the Principal must be contacted immediately after the site has been made safe. The Contractor's Environmental Manager and Superintendent will be responsible for ensuring:

- An immediate assessment of the potential onsite and offsite impacts of the incident
- Consulting (if necessary) with emergency services
- Instigating appropriate steps to mitigate the impacts
- Advising regulatory authorities, where these authorities can provide assistance with mitigation of impacts.

Failure to report an incident may result in enforcement action on all involved.

The Principal will provide written details of the notification to the appropriate authorities within 7 days of the dates on which the incident occurred.

The Principal will liaise with the appropriate authorities to provide suitable details within the time specified.

Emergency Response Plan

Emergencies that may occur during the construction phase of the project include:

- Fire
- Chemical spill
- Flooding
- Explosion
- Wildlife Injury
- Damage to power or services cables
- Personnel injury
- Seismic activity.

Prior to the commencement of the construction phase, the Principal and the Contractor are to agree on procedures for emergency response. It is the responsibility of the Contractor to develop, implement and train staff in the emergency response procedures.

To ensure emergencies are managed in an appropriate manner the Contractor is to follow the general procedures outlined in Table 3.

Table 3 General Emergency Response Plan

Standard	Management Criteria
Policy	To minimise the risk of an environmental accident or emergency during construction phase of the Project.
Performance Objective	Ensure that an Emergency Response Plan is kept in place to respond to any accidents or incidents that may impact on the environment and that all personnel are inducted in its application.
Implementation Strategy/ Mitigation Measures	Material Safety Data Sheets for all materials used or stored on site relevant to the concrete batching plant, regardless of quantity, for the construction works shall be kept on site by the Contractor.
	Spill Response Kits, fire extinguishers and other emergency response equipment should be fully maintained and readily available.

Standard	Management Criteria
	In the event of an emergency the Contractor's Superintendent is to immediately notify the Principal. The Superintendent will also notify the relevant emergency services.
Monitoring	Following an emergency, the affected areas shall be monitored as required. In the event of a spill, it should be ensured that all contaminated material, including soil, has been removed and properly disposed of by a suitably qualified contractor.
	Follow up action is to be undertaken to ensure adequate provisions are implemented to minimise or eliminate the risk of reoccurrence of the emergency.
Reporting	Once immediate mitigation steps have been undertaken and the incident contained. All incidents/emergencies will be reported to the Principal. The Contractor is to record emergency information on an Incident/Complaints Form and will include the following: • Location of the emergency or incident • Name and telephone number of the designated contact person • Time of the emergency/incident • The environmental harm or nuisance caused, threatened, or to be caused by the emergency/incident • Any remediation work undertaken • Actions to be taken to prevent further incidents/emergencies and mitigate any environmental harm and/or nuisance caused by the incident/emergency.
Corrective Action	Non-conformance with this plan shall be documented by the Principal and corrective action undertaken to ensure future conformance. All non-conformances shall be documented and passed onto the Contractor.

Incident and Corrective Action Records

All environmental incidents need to be documented, recorded and followed up with identified corrective action(s). Incident Reporting documentation needs to be completed by those personnel involved along with the Contractor's Environment Manager; approval should be sought from the Principal. Corrective actions should be identified and documented in Corrective Action documentation and approved by the Principal's Representative. While identifying corrective actions to be taken, personnel responsible for implementing the corrective action need to be identified and informed of their responsibilities. Corrective Action documentation should be updated throughout the course of the construction works and/or until the identified actions have been fully completed.

Incident/Emergency Response Plan Contact Register

In the event of an incident or emergency occurring at the site, contact will be made with the key emergency services as identified in Table 4.

Table 4 Incident/Emergency Contact Register

Organisation	Title	Telephone Number
Principal (Neoen)	TBC	TBC
Neoen Representative	TBC	TBC
Contractor Environmental Manager	TBC	TBC
Contractor nominated Superintendent	TBC	TBC

EPA	Pollution and Environmental Incident reporting (24 hour)	(08) 8204 2004
Fire Brigade **Police** **Ambulance**	Emergency	000
Regional Council of Goyder	Incidents/Community Complaints	08 8892 0100

Community information and grievance procedure

A programme will be established of public information provision to residents or other nearby sensitive receptors which may be impacted by the construction works, including the concrete batching plants and haul traffic. A grievance procedure will be included in the final CEMP and implemented during the construction phase. A complaints register including details of the complaint, how the complaint was actioned / resolved should be maintained and retained throughout the construction period.

Fire prevention

Fires can eventuate from work activities or during operation. The dry grass may ignite causing damage to the grazing paddocks and adjacent dwellings. Fire may spread causing damage to the ancillary services and structures and smoke may disrupt traffic on adjacent roads.

Liaison with the CFS will be required prior to construction commencing, with regards to requirements during the "Fire Danger Period". Determine, in consultation with CFS, the appropriate firefighting measure and equipment required on site during construction.

A Fire Prevention Management Plan should be developed as part of the final CEMP.

Table 5 Fire prevention outline plan

Objective	Minimise the risk of fire resulting from the construction of the project.
Legislation / Policy	*Electricity Act 1996* *Fire and Emergency Services Act 2005* *Electricity Regulations 2012- General* *Electricity Regulations 2010 – Principles of Vegetation Clearance* *Australian Standard 1851(2012) – Portable Fire Extinguishers* *Australian Standard 1940(2004) – The storage and handling of flammable and combustible liquids.*
Potential Impacts	Fires can eventuate from work activities or during operation. The dry grass may ignite causing damage to the grazing paddocks and adjacent dwellings. Fire may spread causing damage to the wind turbines and ancillary services and structures. Smoke may disrupt traffic on adjacent roads.
Mitigation	Liaise with CFS during the **pre-construction** stage with regards to requirements surrounding compound areas, during the "Fire Danger Period" Determine, in consultation with CFS, the appropriate fire fighting measure and equipment required on site during construction.

	Provide CFS and SES information regarding the location of the equipment and measures implemented during the construction stage. **During construction**, the area surrounding each turbine to a distance of 30m will be maintained as follows: • Grass must be no more than 200mm in height; • Maintenance works such as mowing and tree pruning to be done before entering the Fire Danger Season or under CFS supervision. • Leaf litter must be less than 20mm deep; • No fires would be lit at any time, for any purpose, including burning waste materials; • Spark-arrestors to be installed on all vehicle and machinery powered by internal combustion engines; • Vehicles may only be operated on approved roads and tracks for that class of vehicle. Only diesel powered vehicles may operate "off road" at any time. • Welding to be undertaken under controlled manner; • Minimise on-site storage of flammable materials; and • All vehicles to be equipped with compliant fire extinguishers. When conducting work using or generating intensive heat: • Use a fire resistant shield to prevent sparks or hot material from leaving the work area; • Provide a fire proof container for off-cuts; • The work area around active grinding equipment (10m) and hot work source (1.5m) to be kept clear of flammable material or will be kept wet; and • Fire extinguishers and water tap to be made available in close proximity of the hot works area. During periods of High Fire Danger: • All hot work will be banned and no permits will be issued (including explosives)
Strategy	A Fire Prevention Management Plan will be provided as part of the final CEMP.

Environmental Sub-management Plans

The following sections outlines potential mitigation strategies to avoid and/or minimise potential impacts to various environmental aspects associated with the concrete batching plants. Key legislative considerations and potential approvals/permits are highlighted. This will need reviewing against the construction methodology, once finalised.

The Contractor's Environmental Manager will need to determine the Inspection / Criteria/ Target / Evidence required to determine compliance with each element of the CEMP. The mitigation measures provided represent the minimum requirements that should be adopted prior to commencement of construction. Where indicated, Management Plans should be prepared and added to this CEMP prior to the construction of the batch plants.

The following outline sub-management plans provided here are:

- Flora and Fauna Protection
- Weed, Pest and Disease Control
- Water Quality Protection
- Erosion and Sediment Control
- Construction Noise and Vibration Control
- Air Quality Control
- Materials, Fuels and Waste Management
- Protection of Sites of Cultural and Natural Heritage Significance.
- Decommissioning and Rehabilitation
- Temporary Concrete Batching Plants

Flora and Fauna and Rehabilitation

Table 6 Flora and Fauna Protection

Objective	Minimise Impacts to flora and fauna including vegetation clearance and manage the works so as to avoid damage to retained vegetation and fauna.
Legislation / Policy	*Native Vegetation Act 1991* *Native Vegetation Regulations 2003* *Environment Protection and Biodiversity Conservation Act 1999* *Landscape South Australia Act 2019* *National Parks and Wildlife Act 1972*
Permits/Approvals	Submission of an EPBC referral. Consent to clear Native Vegetation under Native Vegetation Act 1991.

Table 7 Flora and Fauna Protection Mitigation and Controls

Key Construction Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Aggregate storage and stockpiles, Temporary storage of chemicals, spoil and equipment, Concrete mixing	Potential disturbance to fauna located in areas to be cleared. Potential disturbance to fauna residing in habitats adjacent works area. Native vegetation located within the works area could be impacted. Vegetation within the footprint of the proposal may require clearance.	A Flora and Fauna Management Plan will be provided as an addition to this CEMP. Locate concrete batching works within temporary construction compounds in order to minimise the construction area footprint and avoid where possible disturbance to preferred habitat of conservation significant species predicted as likely to occur at the site and those recorded during the Flora and Fauna survey (EBS Ecology 2020). Vegetation exclusion zones should be clearly identified and communicated to site personnel. Place site depots, equipment compounds and stockpile areas on previously cleared areas away from trees, bushes and native grasses, where possible.	TBC	Environmental Manager Superintendent

Key Construction Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		Avoid work/storage within the drip-line of trees to prevent damage to the tree roots and soil compaction. If there is any removal of native vegetation required during construction, it will be conducted in accordance with the requirements of and approvals under Native Vegetation Act 1991. Any direction provided by the NVC must be adhered to. Do not burn off cleared vegetation. Reuse cleared vegetation, where possible.		
Construction traffic movement	Increased potential for wildlife vehicle strike on haul roads to and from site.	Use existing access tracks where possible to minimise additional disturbance Speed limits on haulage traffic may be required to be imposed to prevent increased occurrence of wildlife strike.	TBC	Environmental Manager Superintendent
Tidy and make good work areas	Minimise permanent impacts to flora and fauna.	Reinstatement of any areas of vegetation, including road verges, which have been impacted during the construction phase in accordance with Native Vegetation Council Approval requirements, conditions and directives. In areas of native vegetation return topsoil and mulched vegetation to approximately the same area of the roadside it came from.	TBC	Environmental Manager Superintendent

Weed, Pest and Disease Control

Table 8 Weed, Pest and Disease Control

Objective	Prevent the movement or increase in weeds, pests or diseases.
Legislation / Policy	*Native Vegetation Act 1991* *Native Vegetation Regulations 2003* *Environment Protection and Biodiversity Conservation Act 1999* *Landscape South Australia Act 2019* *National Parks and Wildlife Act 1972*
Permits/Approvals	Permit to move pest plants or animals (Natural Resources Management Act 2004)

Table 9 Weed, Pest and Disease Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Aggregate storage and stockpiles, Tidy and make good work areas.	Potential spreading of weeds, pests and diseases. Potential increase in prevalence of pest animals.	A Vegetation and Fauna Management Plan will be provided as part of the final CEMP, and this will need to cover the issue of Weed, Pest and Disease Management. Control weeds on site during construction and monitor the site for any outbreaks. Ensure that raw materials, such as rubble, gravel, sand and water brought into the construction site are free of weeds, pests and disease. Check rock prior to transportation and clean/spray as appropriate. Vegetation from weed species should be disposed of separately at a licensed waste depot.	TBC	Environmental Manager Superintendent
Construction traffic movement	Potential spreading of weeds and pests. Potential increase in prevalence of pest animals.	Follow weed or disease hygiene procedures ensuring vehicles and equipment are cleaned as required.	TBC	Superintendent

Water Quality Protection

Table 10 Water Quality Protection

Objective	Minimise impact to surface and ground water quality within works area and haul routes.
Legislation / Policy	*Environment Protection Act 1993* *Environment Protection Regulations 2009* *Environment Protection (Water Quality) Policy 2003* *Landscape South Australia Act 2019* *Stormwater Pollution Prevention, Code of Practice for the Building and Construction Industry* *EPA Guidelines (EPA 396/10) - Water Quality, Dredging and Earthworks Drainage.* *Guidelines for separation distances* (EPA) 2007 Air & Water Quality Guideline – Concrete batching (EPA 427/16 March 2016)
Permits/Approvals	Earthworks drainage authorisation (section 7(6) of Schedule 1 of the Environment Protection Act 1993). Approvals may be required for actions/activities that have an impact on water resources such as up-grades of watercourse crossings, water extraction, water degradation (Natural Resource Management Act, 2004). EPA licensing (e.g. a concrete batching plant)

Table 11 Water Quality Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Water provision and management, Aggregate storage and stockpiles, Temporary storage of chemicals, spoil and equipment, Concrete mixing, Construction traffic movement	Impact to the natural movement of surface and groundwater affecting availability to flora and fauna and local communities and landowners. Impacts to water quality can affect aquatic fauna, decreases the aesthetic value of a watercourse or water body and can damage transport infrastructure.	A Water Management Plan will be prepared prior to construction and operation of the concrete batching plant. Ensure any conditions/obligations relating to a Permit for surface or groundwater extraction is complied with. Chemical testing of any identified water source should be carried out to determine the suitability of water for use in mixing concrete, or for dust suppression. Consideration to stormwater drainage control will be given when establishing the construction site. The following objectives will be considered: • Limit site access to designated routes and controlled area; • Locate and secure all stockpiles areas away from watercourses and concentrated water flow paths; • Ensure that all the stormwater drainage are in place before site clearing works begin; • Assess the impact of the proposed stormwater drainage systems on the adjacent properties; • Consideration to existing underground services will be given when establishing the access tracks and construction site, and protection will be provided where required. • Construction of access road networks may alter surface drainage paths. Drainage should be installed to mitigate potential effects, taking into consideration ephemeral watercourses • Minimise areas of vegetation loss to areas identified for clearance as part of the scheme.	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		Control surface run-off entering and leaving the work area: • Existing natural drainage paths and stormwater facilities must not be blocked or restricted. • Runoff from unsealed areas at the construction site must not enter stormwater drains or natural drainage lines. • Stormwater should be diverted around stockpiles.		
Waste Water Management	Reduction in quality of water resources.	The site must incorporate a wastewater management system; and effectively operate the system in respect of any wastewater generated at the site. Regular inspection and maintenance of the system is necessary. Waste water generated at the premises must not be discharged into any waters; or onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, or by the rising of the water table). Settling ponds should be lined with an impervious liner capable of containing all contaminants found within the water they are designed to collect. Concrete agitator bowls and chutes must not be washed out to the stormwater system or roadways. A wastewater collection and recycling system should be designed to collect contaminated water from: • agitator washout • truck washing • yard washdown • contaminated stormwater • concrete batching area • slump stand	TBC	Design Engineer, Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		• any other wastewater from the batching plant operation.		
Tidy and make good work areas	Long term effects arising from the development of the project.	Cleared areas to be stabilised / rehabilitated promptly and where possible enhance the natural value of these areas.	TBC	Superintendent

Soil Management, Erosion and Sediment Control

Table 12 Erosion and Sediment Control

Objective	Minimise erosion within works area and haul routes and minimise sediment laden stormwater leaving the site.
Legislation / Policy	*Environment Protection Act 1993* *Environment Protection Regulations 2009* *Environment Protection (Water Quality) Policy 2003* *Landscape South Australia Act 2019* *Stormwater Pollution Prevention, Code of Practice for the Building and Construction Industry* Air & Water Quality Guideline – Concrete batching (EPA 427/16 March 2016)
Permits/Approvals	Earthworks drainage authorisation (section 7(6) of Schedule 1 of the Environment Protection Act 1993.) EPA licensing (concrete batching plant)

Table 13 Erosion and Sediment Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Erosion Control	Release of unsuitable substances to the terrestrial or water environment	Preparation of plans detailing Soil, Erosion and Sedimentation techniques to be applied for the construction, operation and decommissioning phases of the batch plant sites	Prior to construction	Superintendent
Site establishment and set up,	The soil characteristics are likely to be subject to soil erosion by water and potentially wind if ground is disturbed.	Soil erosion and generation should be minimised during construction. Preparation of a Soil, Erosion and Sedimentation Management Plan. Erosion and sedimentation control devices installed prior to commencement of construction/works.	TBC	Environmental Manager Superintendent
Topsoil stripping and vegetation removal,	Damage to top soil and subsoil.	The Management Plan should be developed that includes the following: • Maps showing the areas to be stripped and left in-situ.	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		• Minimise areas of vegetation loss to areas identified for clearance as part of the scheme. • The appropriate method for stripping, stockpiling, respreading and ameliorating the soils. • The location of soil stockpiles and content (e.g. Topsoil type A subsoil type B). • Schedules of volumes for each material. • Expected after-use for each soil whether topsoil to be used on site, used or sold off site, or subsoil to be retained for landscape areas, used as structural fill or for topsoil manufacture. • Identification of person responsible for supervising soil management. Soil should be handled in the right conditions of weather and soil moisture and using suitable machinery in an appropriate way. Soil that is wet or very moist (wetter than the plastic limit) should ideally be allowed to dry further. Use tracked equipment wherever possible to reduce compaction. Confine movement of trucks or dumpers to designated temporary haul routes. Multiple handling of soil materials increases the risk of damage to soil structure so should be minimised. Avoid stripping topsoil for reuse too deeply so that subsoil becomes incorporated, thereby reducing fertility. Do not remove topsoil from below the spread of trees to be retained.		

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Water provision and management, Aggregate storage and stockpiles, Concrete mixing,	Soil erosion can contaminate watercourses, lead to loss of vegetation, impact on aquatic fauna, decreases the aesthetic value of a watercourse, reduce the agricultural capacity of land and can damage transport infrastructure.	Implement controls to prevent and minimise the risk of any sediment from earthworks entering the stormwater system. Areas of exposed soil, including stockpiles, are protected from erosion, or that suitable control measures are in place to prevent any mobilised soil being transported off site. Locate stockpiles away from watercourses and not in drainage lines. Stormwater diverted around stockpiles. Any dewatering on site to be undertaken in a manner which prevents sediment entering stormwater drains and water course. Use of sediment curtains, cofferdams or similar to prevent suspended sediment movement during construction within water or areas likely to be inundated. Maintain the sediment control and stormwater drainage devices at all times.	TBC	Design Engineer, Environmental Manager Superintendent
Tidy and make good work areas	Long term effects arising from the development of the project.	All stockpiles resulting from the concrete batching works will be removed from site. The access tracks width will be reduced to approximately 5 metres. Top soil will be spread over exposed batters and vegetation will be reinstated. The reinstatement works will be undertaken as soon as practical after the completion of earthworks. Cleared/excavated areas to be stabilised / rehabilitated promptly and where possible enhance the natural value of these areas. Temporary or permanent measures will be implemented either to help with the revegetation process or to provide additional protection against erosion. On steep slopes erosion control matting will	TBC	Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		be used to provide interim protection until the vegetation cover is fully established.		
Decommissioning and reinstatement of site	Long term impacts from degraded soil and vegetation conditions leading to exacerbated erosion and cycle of deterioration	A site decommissioning plan to be prepared to ensure all sites are remediated and rehabilitated to original condition (or better) post removal of temporary batch plant.	Within 6 months of commencement of operation	Environmental Manager Superintendent

Construction Noise and Vibration

Table 14 Construction Noise and Vibration

Objective	Avoid and/or minimise noise and vibration emissions during the temporary concrete batching works.
Legislation / Policy	*Environmental Protection Act 1993* *Environment Protection Regulations 2009* *Environment Protection (Noise) Policy 2007* *AS2436 – 1981 "Guide to Noise Control on Construction, Maintenance and Demolition Sites"* "*Air & Water Quality Guideline – Concrete batching*" (EPA 427/16 March 2016) *Australian Standard AS 1055–1997 Acoustics – Description and measurement of environmental noise* *Guidelines for separation distances* (EPA) 2007 *Local Nuisance and Litter Control Act*, 2016
Permits/Approvals	EPA licensing (concrete batching plant)

Table 15 Construction Noise and Vibration Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Operation, Tidy and make good work areas.	Noise and vibration from construction activities may impact on nearby sensitive receptors including residential dwellings and/or wildlife.	A Construction Noise and Vibration Management Plan will be prepared prior to construction commencing. The finalisation of site locations should as a minimum, accord with EPA separation distances to any sensitive receptors including nearby wildlife. Site perimeter fencing may need to be established for the work area and include a noise and vibration barrier. Throughout construction activities the Contractor will be required to observe all obligations under the Environment Protection Act 1993 and Section 6 of AS2436 – 1981 "Guide to Noise Control on Construction, Maintenance and Demolition Sites". Activities to be undertaken must be compliant with requirements of Environment Protection (Noise) Policy 2007.	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		Plant and equipment used to be properly maintained and have noise limitation equipment installed as per manufacturer's specification. Plant and equipment used on site to be stood down when not required. Construction to occur only during the hours specified in the Development Approval. Works carried out outside of the hours will only entail: • works that do not cause noise emissions which exceed the noise limits of the Policy at any nearby dwelling not associated with the project; or • the delivery of materials as requested by Police or other authorities for safety reasons; or • emergency work to avoid the loss of lives, property, and/or to prevent environmental harm; or • works with the prior consent of the Environment Protection Authority (EPA) (an example might be occasional concrete pours on hot days). Nearby residents/stakeholders will be notified of construction activities. Noise monitoring/inspections to be undertaken as prescribed in the Construction Noise and Vibration Management Plan. Noise monitoring undertaken if required upon receipt of a complaint. To monitor potential vibration impacts from construction works on nearby structures, dilapidation surveys may be required.		

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Construction traffic movement	Haul traffic may cause noise and vibration nuisance or damage to residential and sensitive receptors traveling to and from the site	A Construction Traffic Management Plan will be established prior to construction commencing. Appropriate routes for light and heavy construction vehicles selected to minimise disturbance prior to commencement of construction works. Construction traffic must use agreed haul roads to travel to and from site. Approved areas for parking will be identified. All vehicles and equipment will be operated and maintained to comply with regulatory standards in order to control noise emissions. Best practice in regard to construction traffic in residential areas.	TBC	Environmental Manager Superintendent

Air Quality Control

Table 16 Air Quality Control

Objective	Avoid and/or minimise air quality impacts during construction works.
Legislation / Policy	Environmental *Protection Act 1993* *Environment Protection Regulations 2009* *Environment Protection (Air Quality*) Policy *1994* *Guidelines for separation distances* (EPA) 2007 "*Air & Water Quality Guideline – Concrete batching*" (EPA 427/16 March 2016) *Local Nuisance and Litter Control Act*, 2016
Permits/Approvals	EPA licensing (e.g. a concrete batching plant)

Table 17 Air Quality Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Water provision and management, Aggregate storage and stockpiles, Temporary storage of chemicals, spoil and equipment, Concrete mixing, Tidy and make good work areas.	Dust from construction impacting surrounding environment including residential areas, water bodies and wildlife. Odour from construction works impacting amenity of surrounding area.	An Air Quality Management Plan will be provided as a supplement to the CEMP. This will demonstrate that all reasonable and practicable measures to minimise air quality impacts from the operations have been made. The selection of site location should as a minimum, accord with EPA separation distances to any sensitive receptors including nearby wildlife. The design of the site should consider provision of natural or artificial wind barriers such as trees, fences and landforms. Prevailing wind direction should be considered to ensure bunkers and conveyors are sited in a leeward position to minimising effects from wind. Dust controls to be implemented during construction including management of stockpiles (height, orientation etc.) and the use of suppressants including water spraying as required. Aggregate stored on site in	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		stockpiles should be contained within three-sided storage bunkers with windshields that project 0.5 metre above the bunker wall. Drive-over in-ground aggregate storage bins should be shielded on at least two sides. Concrete batching sides to 0.5 metre high for the full length and width of the bin. Where overhead aggregate storage bins are not totally enclosed, aggregate should not be loaded within 0.5 metre of the top of the walls. If conveyors are used they must be designed and constructed to prevent fugitive dust emissions e.g. covering the conveyor, installing side protection, equipping them with spill trays, including belt cleaning devices. Mixer loading areas, weigh bins and hoppers (if used) should be designed to reduce fugitive dust. Sweeping of floors, as necessary and after spills, should be considered to prevent dust build-up. Water should not be used in the process of cleaning up spills except where the area drains to a wastewater collection point where washing down would be preferable to generating dust by sweeping. Works that are likely to generate dust will cease when dry or windy conditions are conducive to the release of dust should dust suppression strategies be rendered ineffective. Air Quality monitoring undertaken if required upon receipt of a complaint. Stockpiles covered or watered down. Develop and follow a fire prevention plan.		

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Construction traffic movement.	Exhaust fumes from construction and haulage to and from site impacting surrounding environment including residential areas and wildlife. Fugitive dust from transported loads or haul routes.	A Construction Traffic Management Plan will be prepared prior to construction commencing which will identify the haul route and any specific mitigation required for the concrete batching plants i.e. management of potential fugitive material during transportation, operation of equipment to control exhaust emissions, a procedure for complaints. Travel distances within the site should be reduced by appropriate site layout and design, Hard-surface where necessary roadways and any other areas where there is a regular movement of vehicles. Where roads are temporary consider: • armouring (a thin layer of high quality pavement material is placed on the pavement surface) • chemical suppressant products • regular light watering. All vehicles and equipment will be operated and maintained to comply with regulatory standards for exhaust emissions. Construction site roads watered down. Spray with water and/or cover pavement materials and aggregates before transporting. Any loads of dust generating or odorous materials entering or leaving site to be covered.	TBC	Superintendent
Storage of raw materials	Release of unsuitable substances to the air	Bunkers shall be established on site prior to operation. The prevailing wind direction to be taken into account to ensure bunkers are orientated to minimise the effects of the wind. All stockpiles of raw materials to be located within storage bunkers/bays. Materials stored to a height less than two thirds of the height of the bunker wall.	Detailed design phase	Design Engineer Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Handling of raw materials	Release of unsuitable substances to the air	Batch plant hopper to be fitted with a 3 sided, roofed cover to minimise generation of windborne material.	Detailed design phase	Design Engineer Superintendent
Storage of raw materials	Release of unsuitable substances to the air	All storage silos to be fitted with an appropriately sized fabric filter incorporating an effective fabric-cleaning device to prevent emissions from the displacement of air whilst filling.	Detailed design phase	Design Engineer Superintendent
Designate storage areas	Materials stored in inappropriate locations leading to contamination of stormwater.	Designate temporary storage areas within approved layout plans.	Prior to construction	Superintendent
Control of Dust	Release of unsuitable substances to the air	Dust mitigation measures (including management of vehicle traffic areas, fitting of sprinklers, use of tarpaulins, use of fabric filters at cement storage silo)	During design, construction, operation and decommissioning	Superintendent
Control of Dust	Release of unsuitable substances to the air	Sprinklers to be installed on storage bunkers/bays and utilised as required to keep material damp to avoid wind erosion and dispersion.	During design, construction and operation	Superintendent
Control of Dust	Release of unsuitable substances to the air and the environment	All storage silos to be fitted with a high level visible and audible alarm, completes with a test circuit, to guard against overfilling and fitted with an automatic delivery shutdown.	During design, construction and operation	Superintendent

Materials, Fuels and Waste Management

Table 18 Materials, Fuels and Waste Management

Objective	Avoid and/or minimise impacts associated with the release of hazardous substances or materials. Avoid and/or minimise waste generation during the construction works and concrete batching plant operation.
Legislation / Policy	*Environment Protection Act 1993* *Environment Protection Regulations 2009* *Dangerous Substances Act 1979* *Dangerous Substances Regulations 2002.* *Controlled Substances Act, 1984* *Landscape South Australia Act 2019* *Environment Protection (Waste to Resources) Policy 2010* *EPA Guidelines for Stockpile Management – Waste and Waste Derived Fill* *EPA Guidelines for Bunding and Spill Management* *EPA Current criteria for the classification of waste - including Industrial and Commercial Waste (Listed) and Waste Soil* "*Air & Water Quality Guideline – Concrete batching*" (EPA 427/16 March 2016) *Local Nuisance and Litter Control Act*, 2016
Permits/Approvals	Waste Transporter's licence (Environment Protection Act 1993 and Environment Protection Regulations 2009.) EPA licensing (e.g. a concrete batching plant)

Table 19 Materials, Fuels and Waste Management Mitigation and Control

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Management of waste	Release of unsuitable substances to the terrestrial environment	Prior to construction commencing, a Waste and Wastewater Management plan will be prepared as a supplement to the COEMP. Each site shall have a clear system/process to collect, treat and re-use wastewater (including contaminated stormwater) and to suitably manage used materials (eg bad batches, putrescible, packaging etc…). This system/process must address how waste and wastewater not suitable for re-use or treatment will be handled and/or its disposal off-site.	During design, construction and operation.	Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Define containment details of all ponds and pits	Release of unsuitable substances to the terrestrial environment	Provide detail of linings and volumes of all ponds and washout pits	Prior to construction	Design Engineer
Storage of materials (of granular or liquid form) within defined, appropriately bunded areas)	Release of unsuitable substances to the terrestrial environment	All materials/substances likely to degrade water (eg fuel, concrete admixtures etc…) must be stored within a bunded areas(s), suitably sealed and sized (to at least 120% of the volume of the largest container within the bund), designed and constructed to prevent the escape of material into surface or underground water resources (refer EPA's *Bunding and Spill Management Guidelines*)	Detailed design phase	Design Engineer Superintendent
Site establishment and set up, Water provision and management, Aggregate storage and stockpiles, Temporary storage of chemicals, spoil and equipment, Concrete mixing, Construction traffic movement Tidy and make good work areas.	Contamination of the environment with hazardous substances and/or materials.	Prior to construction commencing, a Materials, Fuels and Site Waste Management Plan will be established which will identify the materials and storage requirements for all chemicals used on site or transported to site. All hazardous chemicals and dangerous goods used or stored at the subject site during construction will be stored in accordance with the Dangerous Substances Act and the EPA Guidelines. Material Safety Data Sheets for all relevant materials used or stored on site, regardless of quantity, for the construction works shall be kept on site by the Contractor. Spill kits will be located on site to be used in the event that there is an incident and appropriate personnel will be trained in the use of this equipment. Storage of materials should not be in areas at risk of inundation. All hazardous chemicals and dangerous goods should be stored away from any drainage channels and stormwater drains. Decanting/pumping of hazardous substances and materials to occur in bunded area where possible. Spills cleaned up immediately (spill kit). Emergency procedures in the event of a spill should be documented.	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site establishment and set up, Topsoil stripping and vegetation removal, Aggregate storage and stockpiles, Concrete mixing, Construction traffic movement Tidy and make good work areas.	Waste generated during construction impacting upon the environment. Waste generated during construction inappropriately disposed of offsite and impacting the environment.	Prior to construction commencing, a Materials, Fuels and Site Waste Management Plan will be established which will identify the type and amount of waste to be generated during construction and procedures for the storage, reuse, recycling and/or appropriate disposal of waste. Contaminated soil and/or groundwater disposed of appropriately, if required. Management of waste in accordance with all statutory and licensing requirements. Any food waste should be contained and removed from site regularly to prevent attracting pest species. Implement to reduce waste: • Re-use of materials and waste concrete wherever possible in accordance with legislative requirements. • Adequate waste separation repositories. • All waste generated during construction separated at source and taken to an appropriately licenced waste disposal facility if not able to be re-used on site. • No burning or waste burial on site. • Management of litter and site debris.	TBC	Environmental Manager Superintendent

Protection of Sites of Cultural and Natural Heritage Significance

Table 20 Protection of Sites of Cultural and Natural Heritage Significance

Objective	Manage the works to prevent or minimise impacts to sites or artefacts of Indigenous or European heritage.
Legislation / Policy	*Environment Protection and Biodiversity Conservation Act 1999* *Aboriginal Heritage Act 1988 (amended 2016)* *Heritage Places Act 1993* *The Burra Charter (1979) amended 2013*
Permits/Approvals	Authority to disturb an Aboriginal site or object (Section 23 Aboriginal Heritage Act 1988). Permit to disturb European archaeology (Section 27 Heritage Places Act 1993)

Table 21 Protection of Sites of Cultural and Natural Heritage Significance Mitigation and Controls

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Site avoidance	Potential delays to construction where archaeology is identified and approvals to disturb are required.	Prior to layout finalisation, a qualified archaeologist to undertake a survey of the project area. The results of this survey are to be considered as part of the micro-siting process and avoided where possible. If avoidance is not possible, then a permit to disturb much be obtained prior to any on-ground works.	TBC	Environmental Manager Superintendent
Site establishment and set up, Topsoil stripping and vegetation removal, Tidy and make good work areas.	Damage to sites or artefacts of indigenous or European heritage or to their setting.	An Archaeological and Cultural Heritage Management Plan will be provided as part of the final CEMP. Sites will be located in accord with the approved plans. Should any archaeological occurrences be located during the course of the works the contractor and the Principal must follow the site discovery procedures (included at the end of this document) This includes a requirement to report such an occurrence to Heritage SA (Heritage Places Act) or the appropriate Aboriginal organisations and AARD in accordance with the Aboriginal Heritage Act. All work is to cease that may negatively impact on the sites integrity until it has been assessed by an appropriately qualified professional and with	TBC	Environmental Manager Superintendent

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
		representation from the recognised Aboriginal stakeholders (where relevant). Avoid damaging or altering any features relating to ruins or dry stone walls.		
Construction traffic movement.	Damage to sites or artefacts of indigenous or European heritage or to their setting.	A Construction Traffic Management Plan will be established prior to construction commencing. When selecting appropriate routes for light and heavy construction vehicles these should consider heritage features located along haul routes. Construction traffic must use agreed haul roads to travel to and from site. Approved areas for parking will be identified which are located away from heritage features.	TBC	Environmental Manager Superintendent

Temporary Concrete Batch Plants (CBP)

Purpose:

Provide additional and specific requirements for plants to ensure that any temporary CBPs are established in a manner that prevents impacts on the environment and community.

Location:

Two sites have been nominated for the location of temporary batching plants

- The wind construction compound – adjacent Substation West
- The wind construction compound – adjacent Substation East

The locations have been selected to avoid vegetation clearance, sensitive receivers (dwellings and water courses) and ensure a minimum separation from drainage lines of 100m.

Plant details:

- Each plant will be sized to accommodate a complete foundation pour each day, which comprises approximately 500m3 of concrete.
- The plant will occupy an area of approximately 100m by 100m, including the stockpile area for aggregate, sand and cement.
- The plant will be removed from the site upon completion of the construction works. The site of the plant will be remediated to its original condition upon removal.

Each plant will include the following components:

- Trailer mounted concrete mixer
- Cement bins
- Sand and aggregate stockpiles
- Storage container for equipment and tools
- Powered by diesel generators or local power if available
- Water for concrete manufacturing (potable) and dust suppression to be sourced from commercial water sources.

The principle activities associated with the temporary CBP are listed below:

- Site establishment and set up,
- Topsoil stripping and vegetation removal,

- Water provision and management,
- Aggregated storage and stockpiles,
- Temporary storage of chemicals, spoil and equipment,
- Concrete mixing,
- Construction traffic movement,
- Decommissioning and rehabilitation of each site.

Table 22 Temporary Batch Plant Sites

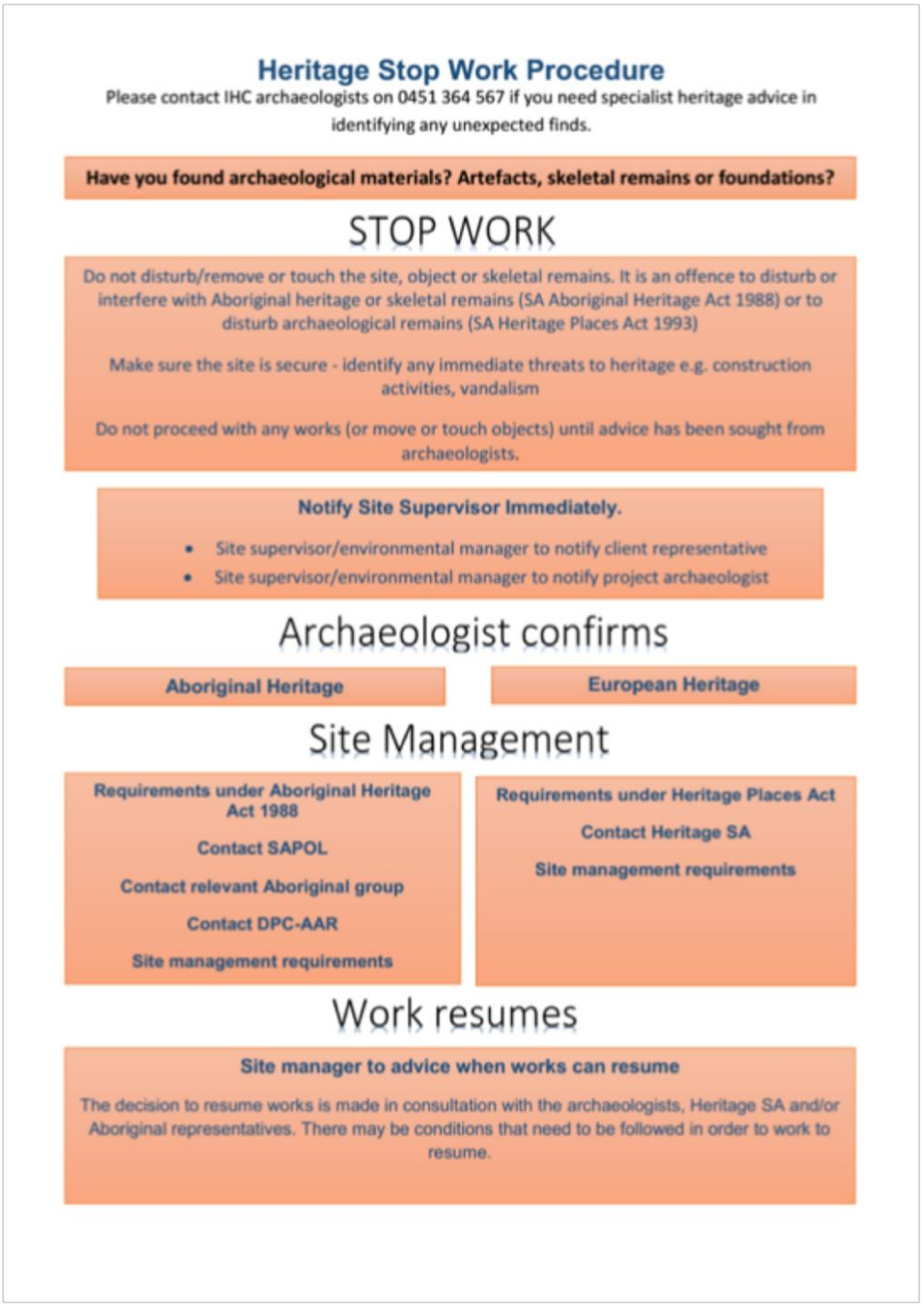
Objective	Avoid/minimise impacts on the community and the environment.
Legislation / Policy	*Environment Protection Act 1993* *Environment Protection Regulations 2009* "*Air & Water Quality Guideline – Concrete batching*" (EPA 427/16 March 2016) *Environment Protection (Water Quality) Policy 2003* *Landscape South Australia Act 2019* *Stormwater Pollution Prevention, Code of Practice for the Building and Construction Industry* *Local Nuisance and Litter Control Act*, 2016
Permits/Approvals	Earthworks drainage authorisation (section 7(6) of Schedule 1 of the Environment Protection Act 1993.) EPA licensing (for concrete batching plant)

Table 23 Site Specific Requirements for Temporary Batch Plants

Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Obtain EPA licence	In breach of law	Plant is not to operate without approval	EPA Licence	Superintendent
Site Establishment	Inappropriate siting leading to water quality impacts	Sites to be established in accord with concept plans and location/layout plans (Development Act approval)	TBC	Superintendent

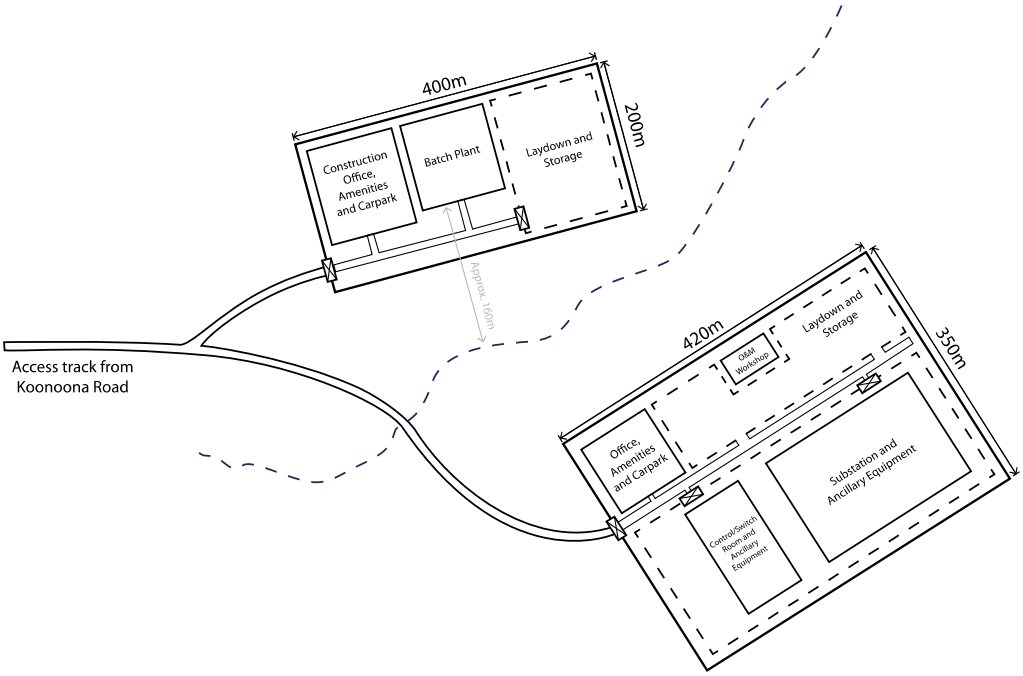
Key Tasks	Potential impact	Control / Action	Inspection / Criteria/ Target / Evidence	Responsibility
Prepare Stormwater and Waste water management plan	Impact to the natural movement of surface and groundwater affecting availability to flora and fauna and local communities and landowners.	Prepare a Water Management Plan in accord with CEMP. Have particular regard to the drainage line identified at the Substation West site. This drainage line may feed the Burra Creek system and much be protected.	TBC	Environmental Manager Superintendent
Site preparation, site set up, on-going management to align with this CEMP	Impact on air, soil and water quality as wind may disperse materials that are not adequately protected.	Prepare an Air Quality Management plan in accord with CEMP. Have particular regard to the management of stockpiles associated with the Substation East site. This site is more exposed with less wind protection.	TBC	Environmental Manager Superintendent

Site Discovery Procedure



Appendix A

Substation West: Location of Wind Construction Compound and Batch Plant Site



Substation East: Location of Wind Construction Compound and Batch Plant Site

General Layout of Batch Plant Sites