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Issued via email: adam.smith@erm.com

Dear Adam

Kerrs Creek Wind Farm – Desktop Traffic Assessment

Amber Organisation has been asked to provide a desktop review of the traffic matters associated with the Kerrs Creek Wind Farm. The wind farm is located approximately 20 kilometres north of Orange and is expected to accommodate approximately 63 turbines. The layout for the wind farm and the locality within the surrounding area are provided within Appendix A, with access to the site expected to be provided via Burrendong Way and Shepherds Creek Road.

The turbine models are expected to require blade lengths in the order of 80-100 metres long. The surrounding road network has not been assessed to accommodate the transport vehicles associated with this type of plant as part of previous projects in the area. As such, a critical component of the Environmental Impact Statement for the project is ensuring there is a suitable access route to accommodate the vehicles delivering the turbine components to the site.

The following provides a review of the potential access route for oversized and overmass (OSOM) vehicles from Port of Newcastle (which is expected to be the delivery port due to the limitations associated with routes from other ports) and the site. The assessment has used available aerial and road network imagery and has been undertaken with consideration to the heavy vehicle route maps provided by TfNSW. It also provides a review of the access arrangements for the site to determine any potential road upgrades required by the increase in traffic generated by staff and heavy vehicles accessing the site.

1. OSOM Route Assessment

1.1 Blade Transport Vehicle

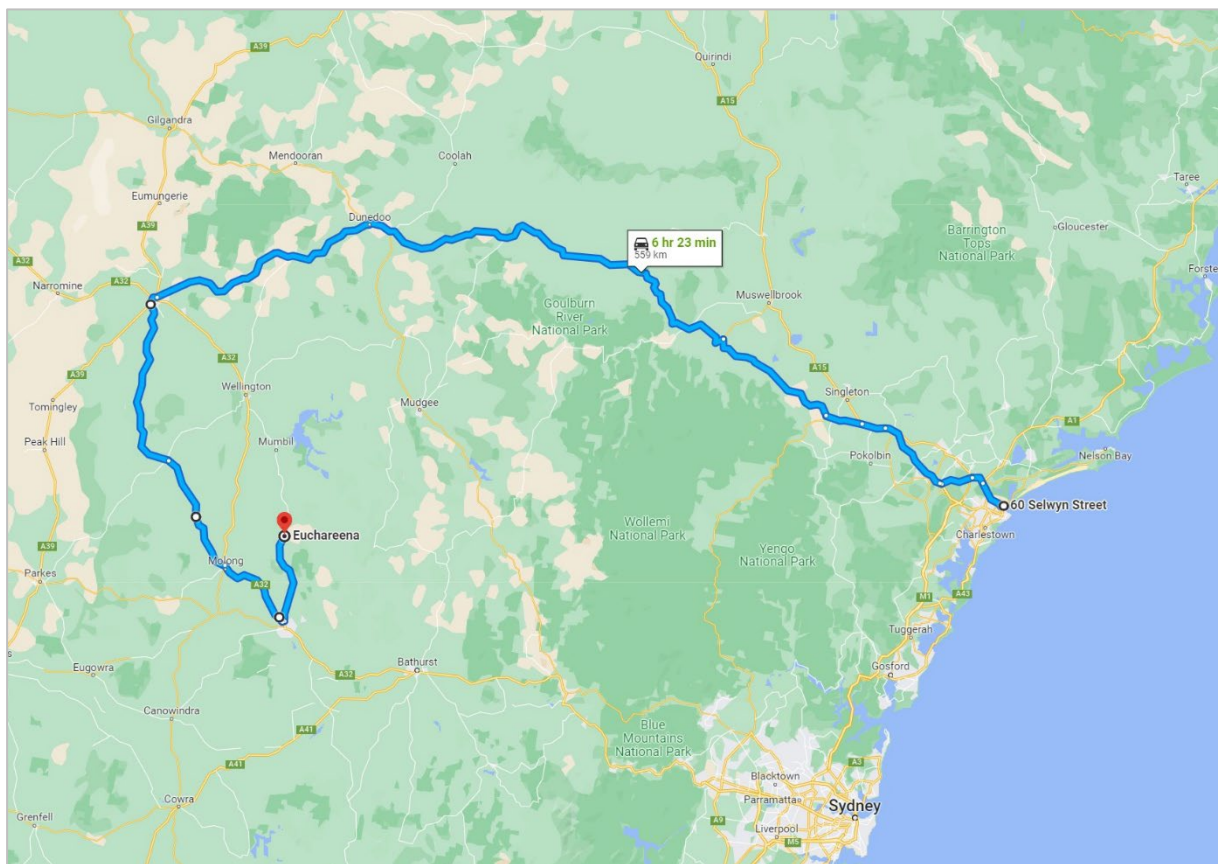
The route assessment has focused on the blade transport vehicle which typically represents the worst-case scenario due to the length of the vehicle and the associated load. The chosen route aims to reduce the number of turn manoeuvres at intersections as these often require road upgrades to accommodate the vehicle and the overhang of the turbine blade. It also aims to avoid built-up areas to limit the conflict between the OSOM vehicles and vulnerable road users.

The route from the Port of Newcastle to the site for the blade transport vehicle is expected to be as follows:

- Vehicles would depart Newcastle utilising Industrial Drive, Pacific Highway, New England Highway, and John Renshaw Drive to access the Hunter Expressway. The route would ensure the towns of Maidstone and Rutherford are avoided and is typically adopted for blade transport vehicles departing Newcastle.
- Vehicles would then utilise Golden Highway to avoid Muswellbrook, and travel through Dubbo.
- Vehicles would then utilise Obley Road, which continues as Banjo Paterson Way, and connects with Mitchell Highway within Molong. It is noted that this part of the route is not currently approved within the NSW Combined Higher Mass Limit and Restricted Access Vehicle Map.
- The route would then continue along Mitchell Highway and utilise the Northern Distributor at the northern extents of Orange to access Burrendong Way.

The proposed route for the blade transport vehicle from Port of Newcastle is shown within Figure 1.

Figure 1: Blade Transport Vehicle – Expected Access Route from Port of Newcastle to Site



Source: Google Maps - <https://goo.gl/maps/wGBha2F5iFrBGpJ6>

Large portions of the access route have previously been utilised by renewable energy projects and are expected to be able to readily accommodate the blade transport vehicle. Key pinch points that would require further assessment include:

- The route travels through Dubbo which has previously accommodated wind turbine components but the proposed blades are likely to be longer than what has previously been traversed the route.
- The route within Molong has a number of tighter corners/intersections that would require further assessment.

Overall, the route is expected to utilise roads that have previously been assessed as being able to accommodate the blade transport vehicle and the route avoids travelling through town centres as far as practical.

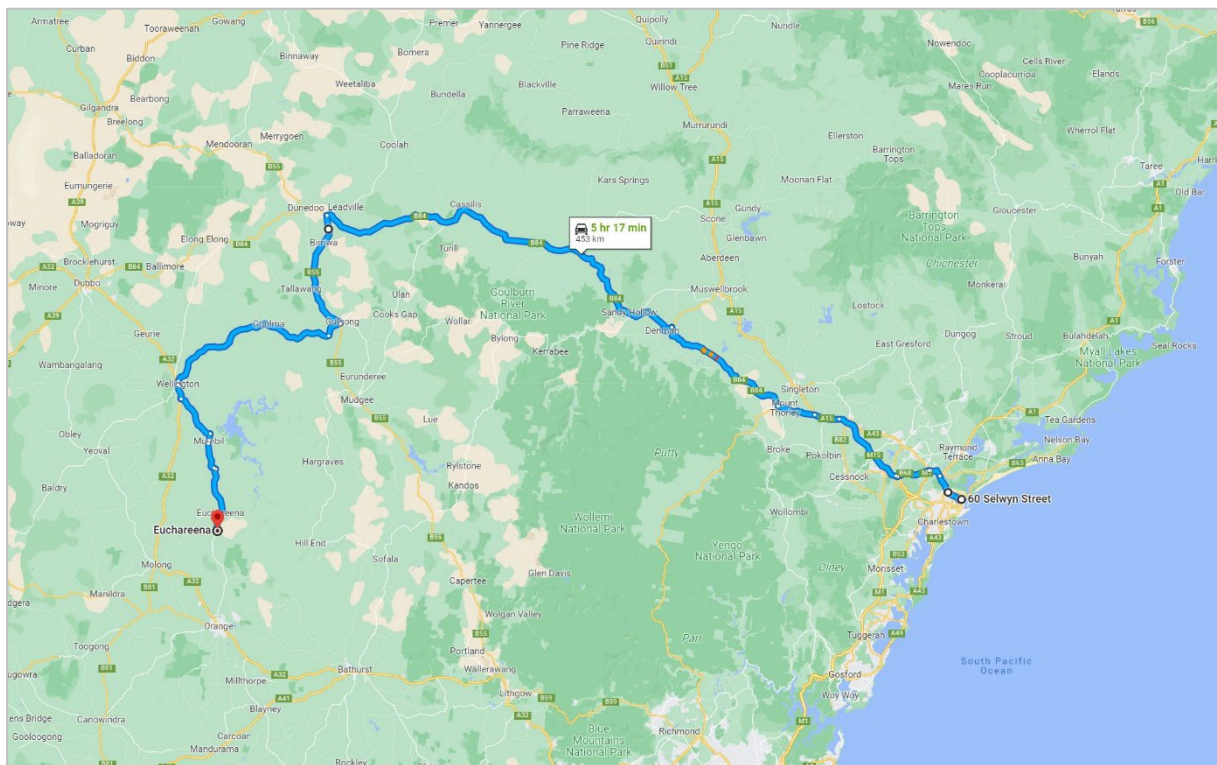
1.2 Other OSOM Transport Vehicles

The other components of the wind turbines can often be accommodated within the existing road reserve. The routes are recommended to be checked by a structural engineer to ensure any structures such as bridges and culverts can accommodate the heavier loads. It is noted that State roads are typically designed to accommodate the associated loads.

The other vehicles are expected to be able to take a more direct route that avoids travelling through Dubbo and instead travel through Gulgong and Wellington (where the blade transport vehicles would be unable to traverse the road network). The proposed route would access Castlereagh Highway prior to reaching Dunedoo, then would utilise Goolma Road, and Mitchell Highway to access Burrendong Way to the north of the site.

The proposed route for the other transport vehicles from Port of Newcastle is shown within Figure 2.

Figure 2: All Other Transport Vehicles – Expected Access Route from Port of Newcastle to Site



Source: Google Maps - <https://qoo.gl/maps/WbfSJXMU8iSEqCFk9>

The routes for the blade transport vehicle and the transport vehicles for the other components are recommended to be reviewed as part of a future Route Assessment which would be prepared as part of the preparation of the Environmental Impact Statement. It is recommended the assessment be undertaken by a transport company and reviewed by a suitably qualified traffic engineer.

1.3 Railway Crossings

It is noted that the above routes traverse a number of railway crossings. In particular, a number of railway level crossings are located adjacent to Burrendong Way and the relevant rail authority should be consulted prior to construction and as part of the preparation of the Environmental Impact Statement.



A key consideration for the rail authority is whether there is sufficient queue space for the largest heavy vehicle expected to access the site (e.g. B-Double) between the railway crossing and any adjacent intersections. A distance of approximately 60 metres is provided between the level crossing and Burrendong Way at Shepherds Creek Road which is expected to be sufficient to allow trucks to queue before entering Burrendong Way.

It is recommended that an assessment of all railway level crossings is provided as part of the future Route Assessment to confirm OSOM vehicles are able to traverse the level crossings.

2. Heavy Vehicle Access Route

2.1 Burrendong Way

Burrendong Way is classified as a Regional Road under the care and management of Dubbo Regional Council. It has a sealed carriageway width of approximately 6.5-8 metres which accommodates one lane of traffic in each direction. It has a speed limit of 100km/hr which reduces to 60km/hr in built up areas. The TfNSW Restricted Access Vehicle Map indicates it has the following classification:

- Between Northern Distributor and Dawsons Gate Road it is an approved B-Double Route.
- Between Long Point Road and Dawsons Gate Road it is an approved B-Double Route with travel condition stating *No travel permitted 8:00-9:00am and 3:00-4:30pm on school days. A maximum speed limit of 80kp/h applies.*
- Between Long Point Road and Mitchel Highway it is not rated.

As part of the future Traffic Impact Assessment it is recommended that the part of the route that is not rated is assessed to confirm whether B-Double vehicles are able to traverse the relevant intersections. The road is provided with a width that would be able to accommodate two-way vehicle movement. However, as the road carriageway is not designed to accommodate B-Double vehicles it is recommended that road dilapidation surveys be undertaken during construction to ensure the road is maintained in a suitably manner. The existing travel conditions should be followed at all times.

2.2 Shepherds Creek Road

Shepherds Creek Road is a municipal local road that runs in a general north-south alignment to the east of Burrendong Way between Burrendong Way and Overshot Road. It has a sealed carriageway for approximately 130 metres extending north from Burrendong Way and has an unsealed surface for the remainder of its length. It has a width of approximately 4 metres and accommodates two-way vehicle movement.

The *Australian Road Research Board Best Practice Guide for Unsealed Roads 2* (ARRB Guide), dated October 2020, provides a breakdown of the unsealed road classifications based on a functional classification system which is reflective of the approach taken within the Austroads Guidelines. Unsealed roads would typically be considered for sealing when they accommodate between 200 and 500 vehicle movements per day. The ARRB Guide notes that roads may warrant paving when maintenance costs increase to unacceptable levels, in wet climates, or when economic or social benefits are evident.

Accordingly, we recommend Shepherds Creek Road remain unsealed but be provided with a width of 7 metres to allow two vehicles to pass. It is recommended that road dilapidation surveys be undertaken during construction to ensure the road is maintained in a suitably manner.



3. Access Arrangements

The primary traffic impact during construction is generated by staff accessing the site in the morning peak hour and exiting the site in the evening peak hour, and by standard heavy vehicles accessing the site during the day. Staff are expected to primarily be located within Dubbo and Orange and other smaller regional centres.

Access to the site is proposed to occur via several connections to Burrendong Way and Shepherds Creek Road. Vehicles are expected to access Burrendong Way from the south via Northern Distributor or via Mitchell Highway to the north. It is recommended that accesses to Burrendong Way are limited as far as practical to limit the impact to the Regional Road network.

Given Burrendong Way is classified as a Regional road, the intersection with Shepherds Creek Road and the accesses on Burrendong Way should provide turn treatments in accordance with the Austroads Guide and in consultation with Dubbo Regional Council and TfNSW.

All accesses should also be located to ensure the sight distance complies with the requirements of the Austroads Guide which typically requires a sight distance of 285 metres within 100km/hr speed zone areas.

4. Conclusion

Based on the above assessment, it has been determined that Port of Newcastle is likely to be the preferred delivery port for the wind farm given load height limitations for routes from other nearby ports.

The assessment identified a route for the blade transport vehicle which would travel through Dubbo, and a more direct route for the other OSOM vehicles through Wellington. The routes are expected to be able to accommodate the vehicles with minor road upgrades which would be identified by way of a Route Assessment.

Burrendong Way is classified as a Regional Road with some parts of the road rated to accommodate B-Doubles and some parts being unrated. As part of the future Traffic Impact Assessment it is recommended that the part of the route that is not rated is assessed to confirm whether B-Double vehicles are able to traverse the relevant intersections. The road is provided with a width that would be able to accommodate two-way vehicle movement. However, as the road carriageway is not designed to accommodate B-Double vehicles it is recommended that road dilapidation surveys be undertaken during construction to ensure the road is maintained in a suitably manner.

Upgrades are likely to be required at the intersections of Burrendong Way and Shepherds Creek Road which would provide the required turn treatments in accordance with the Austroads Guide. Turn facilities would also be required at the site access to Burrendong Way and it is recommended the number of access points be limited to provide a safer road environment and reduce road upgrade costs.

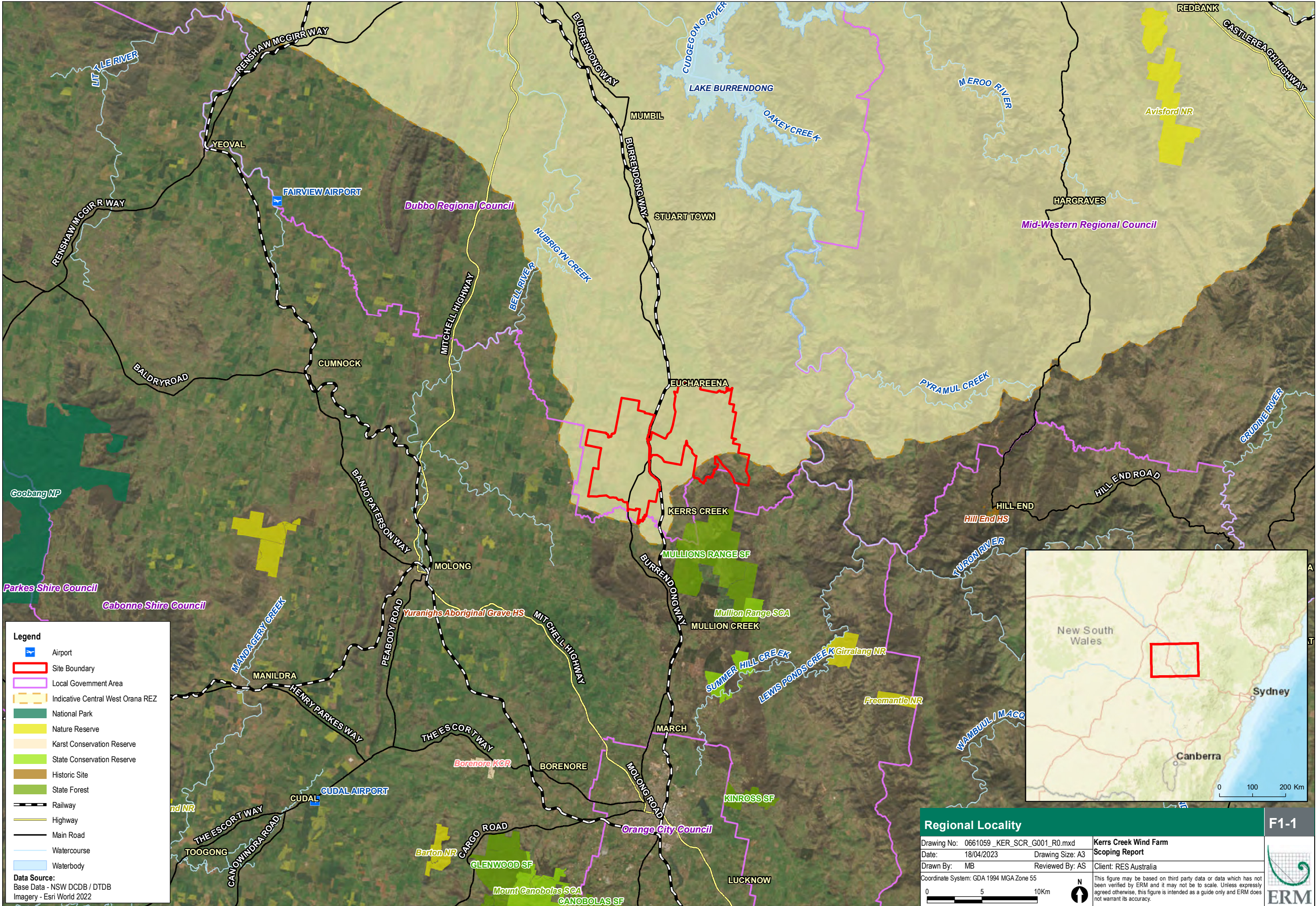
If you have any questions please feel free to contact the undersigned.

Yours sincerely
Amber Organisation

Michael Willson
Director

Appendix A

Site Layout and Locality



Legend

Airport

Site Boundary

Local Government Area

Indicative Central West Orana REZ

National Park

Nature Reserve

Karst Conservation Reserve

State Conservation Reserve

Historic Site

State Forest

Railway

Highway

Main Road

Watercourse

Waterbody

Data Source:

Base Data - NSW DCDB / DTDB

Imagery - Esri World 2022

Regional Locality

Drawing No: 0661059_KER_SCR_G001_R0.mxd

Date: 18/04/2023

Drawn By: MB

Coordinate System: GDA 1994 MGA Zone 55

Kerrs Creek Wind Farm

Scoping Report

Client: RES Australia

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

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