

Preliminary Transport Management Plan

Alberton Wind Farm

V161334T

Prepared for
Synergy Wind Pty Ltd

13 October 2016



Document Information

Prepared for Synergy Wind Pty Ltd
Project Name Alberton Wind Farm
File Reference V161334TREP001D01.docx
Job Reference V161334T
Date 13 October 2016

Contact Information

Cardno Victoria Pty Ltd
Trading as Cardno
ABN 47 106 610 913

Level 4
501 Swanston Street
Melbourne
Victoria 3000 Australia

Telephone: (03) 8415 7777
Facsimile: (03) 8415 7788
International: +61 3 8415 7777

victoria@cardno.com.au
www.cardno.com

Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
F01	29/09/16	Will Drew	WD	Margeaux Hawkins	MH
F02	13/10/16	Sam Mulligan	SM	Chris Butler	CB

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1 Introduction

Cardno have been engaged by Synergy Wind Pty Ltd to undertake a preliminary review of the road transportation options for wind turbine components to the entrance / on-site storage, once delivered by ship to a nearby port.

This report is a desktop assessment, and does not include any on-site studies or investigations. This assessment does not include investigations regarding bearing capacity of any bridges, or clearance to overhead structures which will be required to be investigated at a later stage.

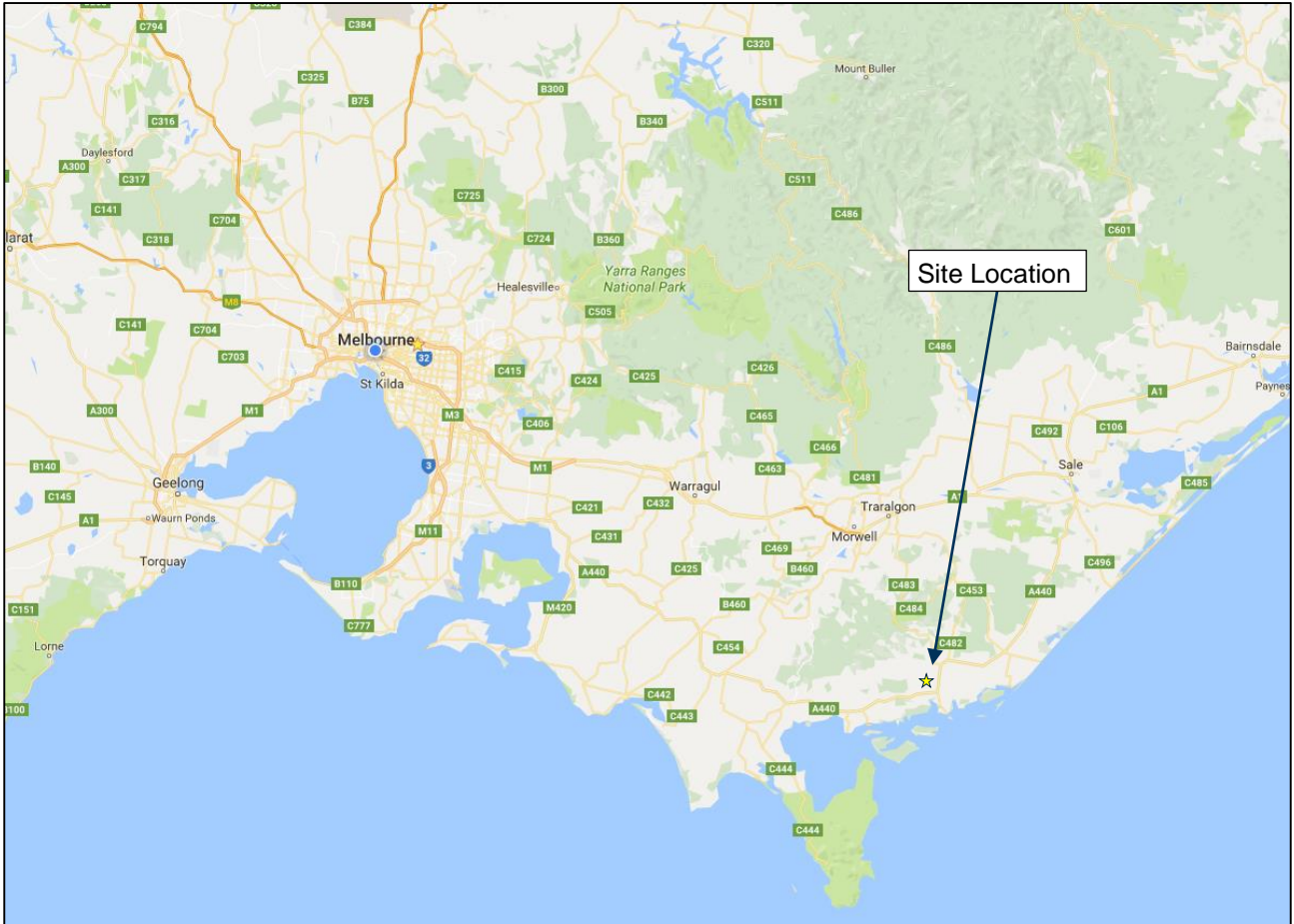
The Alberton Wind Farm is proposes a total of 34 Wind Turbine Generators (WTGs) with the largest WTG likely to be adopted measuring approximately 200 metres high (70 metre blade length).

This assessment considers the transport route of wind turbine components from the preferred port of entry to the subject site, with a particular focus on the turbine blades.

2 Site Location

The proposed Alberton Windfarm is located approximately 200 Kilometres south-west of Melbourne, and approximately 50 kilometres south of Traralgon, as shown in Figure 2-1.

Figure 2-1 Locality Map



The WTG sites are spread across multiple different land holdings, with the specific location of each site detailed in Appendix A.

3 Transport Summary

3.1 General

Cardno were informed that the two potential ports where turbine components could be shipped into were either Port Anthony or Port of Hastings.

3.1.1 Preferred Route

After completing this investigation, it was determined that the route from Port Anthony (approximately 24 kilometres from the port to the first WTG access point) was the most suitable option.

This route was significantly shorter (approximately 24 kilometres versus 190 kilometres), comprising much more simple and achievable movements for the 70 metre long blade vehicles.

This route will take vehicles via Barry Road, onto the South Gippsland Highways and then a number of different local roads and private accessways to connect into the local WTG sites.

3.2 Road Network

3.2.1 South Gippsland Highway (A440)

The South Gippsland Highway is a state highway operating between Doveton in Melbourne's outer suburbs to Sale, approximately 80 kilometres north-west of Alberton.

3.2.2 Barry Road

Barry Road is a local road operating between Port Anthony and the South Gippsland Highway (A440). From the Port, Barry Road continues for approximately 250m east where it takes a 90° turn to the north for 2.5 kilometres. It then turns west for approximately 700 metres, before deviating north through a sweeping 90° bend. Barry Road is then oriented approximately north-south for 2.4 kilometres to the South Gippsland Highway.

The intersection of the South Gippsland Highway and Barry Road has been designed to accommodate a channelised right turn (CHR) on the main road, as shown in Figure 3-1.

Figure 3-1 South Gippsland Highway / Barry Road Intersection



3.3 Approvals

Following the issue of a Planning Permit for the development of the proposed wind farm, approvals will need to be sought from a number of authorities and government departments, potentially including (but not limited to) the following:

- > VicRoads
- > Ausnet Services
- > Telstra
- > Optus
- > Wellington Shire Council and South Gippsland Shire Council
- > Department of Transport, Planning and Local Infrastructure

The approvals will need to take into consideration the proposed oversize vehicle haulage route from the port, as well as any roadworks and modifications required to infrastructure to accommodate the movement of parts and equipment to and from the site.

4 Port of Import

The wind turbine equipment will be imported from various countries, and is expected to arrive on ships into Port Anthony. This port has a single berth, which is serviced by a wharf approximately 200 metres in length (equivalent to approximately 14,000 square metres storage adjacent to the berth).

Access to the port storage is via Barry Road, followed by use of the A440 (South Gippsland Highway) to Alberton.



5 Route Assessment: Port Anthony to Alberton

5.1 Route Description

The route from Port Anthony to Alberton is approximately 30 kilometres in length, and takes vehicles via Barry Road, onto the South Gippsland Highway and then into various private accessways and local roads depending on the particular WTG site.

Figure 5-1 shows the general access route between Port Anthony and Alberton.

Figure 5-1 Access Route Map

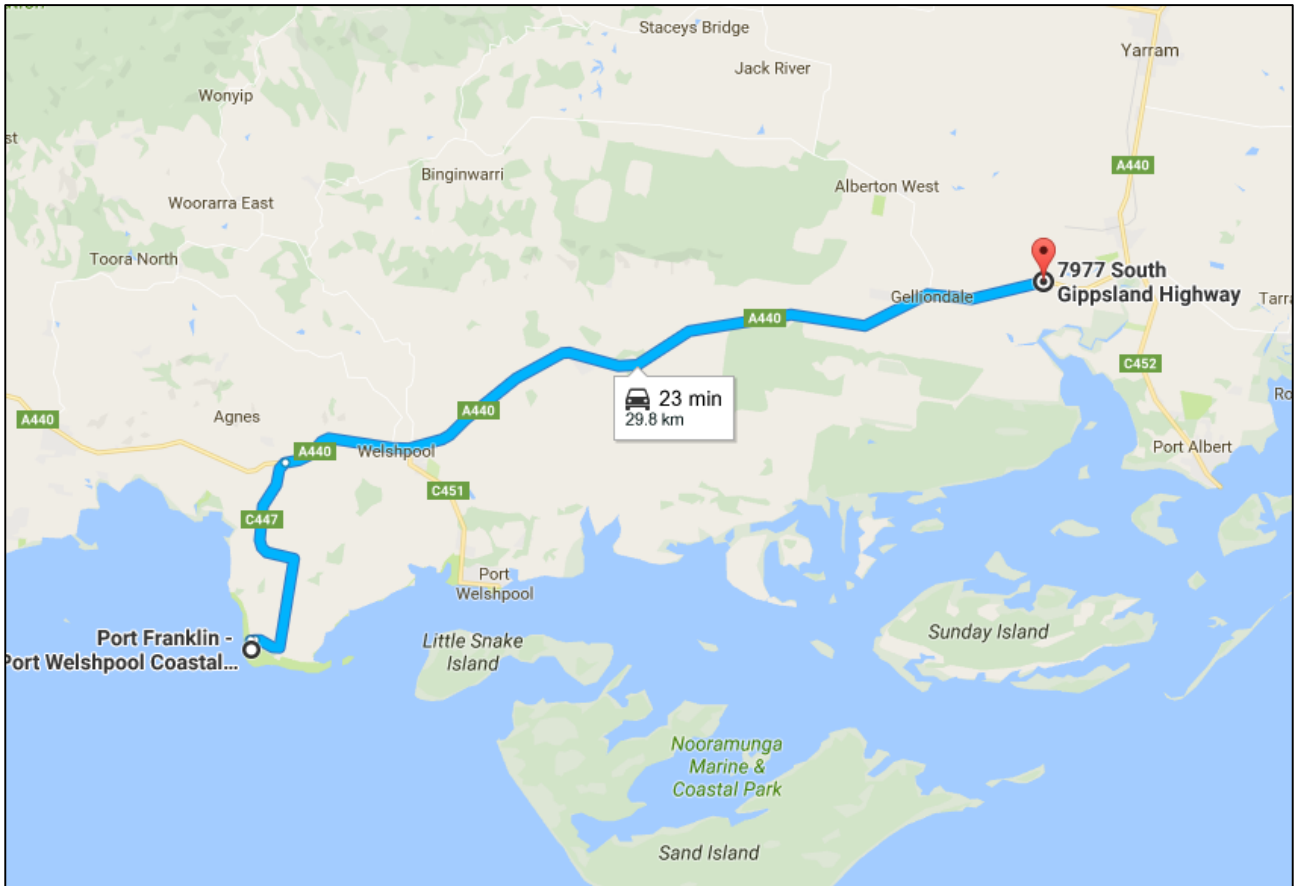


Figure 5-2 and Figure 5-3, overleaf, further breakdown the route from Port Anthony to the South Gippsland Highway, and the route from the South Gippsland Highway to various WTG sites, respectively, indicating the various intersections that will require mitigating works.

Figure 5-2 Road Transport Route – Port Anthony to South Gippsland Highway



Figure 5-3 Road Transport Route – South Gippsland Highway to Various Sites



5.2 Exiting the Port

**Location:**

Chainage 0.0 km (approx.)

Movement:

Exit the port delivery area to the east towards Barry Road

Comments:

Turbine component delivery vehicles will reverse to the southern side of the dock, then undertake a right turn out of the dock area towards Barry Road.

Conclusion:

No immediate concerns with this movement. A spotter will likely be required to keep the driver informed throughout the movement.

5.3 Barry Road onto Barry Road (IN1)



Location:

Chainage 0.8 km (approx.)

Movement:

Tight left hand turn from the port access road onto Barry Road

Comments:

To complete this movement, the blades will need to utilise the entire width of the road. A significant portion of mitigating works will be required on the inside of this turn, including modifications to the adjacent fence line.

Police and escorts will be required to control local traffic on either side of the access road.

Conclusion:

Once modifications have been undertaken to the fence and inside of the corner, the movement should not present any further issues.

5.4 Barry Road onto Barry Road (IN2)

**Location:**

Chainage 2.6 km (approx.)

Movement:

Tight left hand bend on Barry Road.

Comments:

To complete this movement, the blades will need to utilise to entire width of the road. In addition, mitigating works will be required on the outside of this turn, including fill, removal of signs and possible tree trimming.

Police and escorts will be required to control local traffic either side of this corner.

Conclusion:

Care will need to be taken with this movement, spotters will be required to keep the driver informed throughout the movement and appropriate traffic management utilised to ensure that sufficient and safe gaps in the traffic flow can be ensured.

5.5 Barry Road onto South Gippsland Highway (IN3)

**Location:**

Chainage 6.1 km (approx.)

Movement:

Sweeping right hand corner from Barry Road onto the South Gippsland Highway.

Comments:

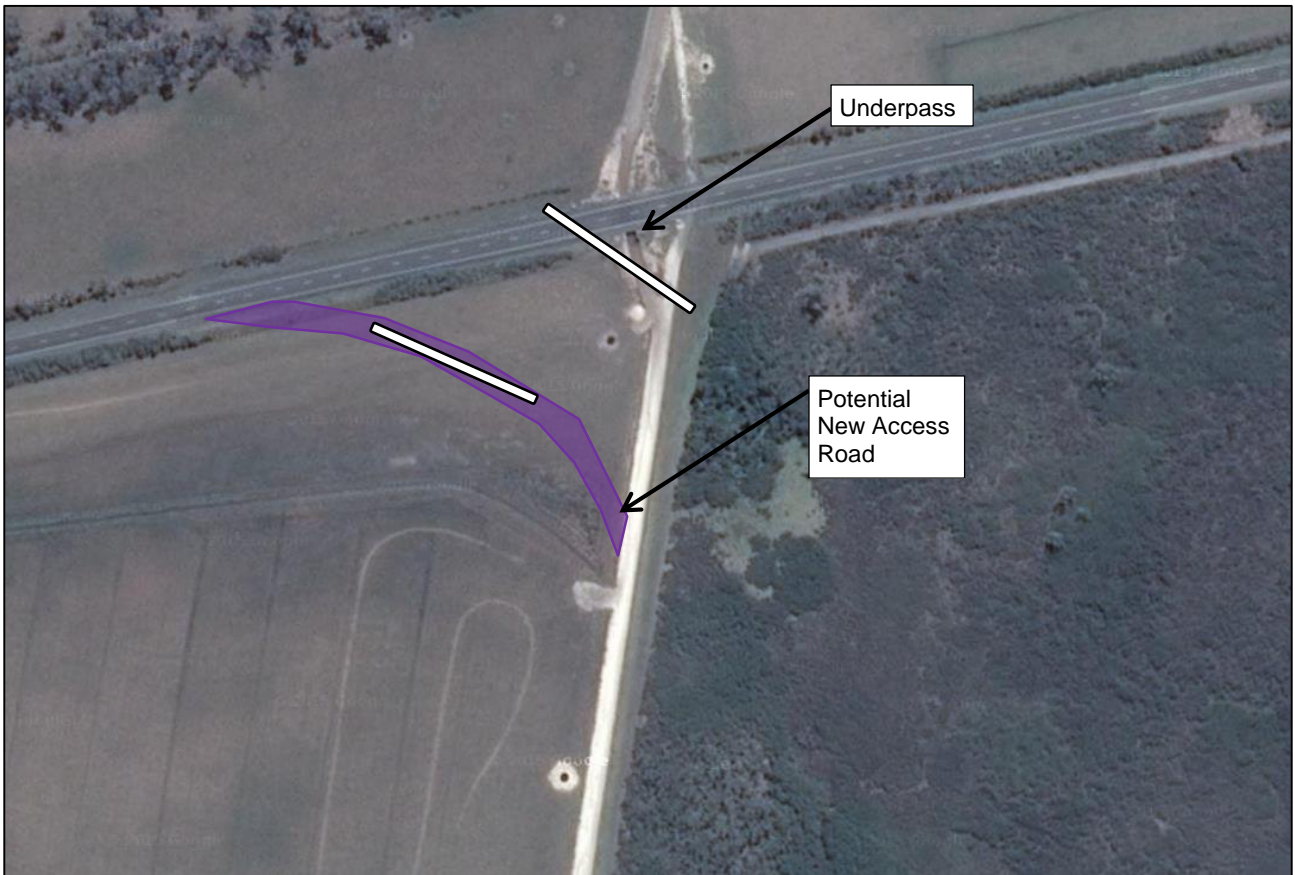
The blade vehicles will need to cross over to the incorrect side of the road prior to the corner, and then utilise the Highway's exit lane to access the South Gippsland Highway. Once through the corner, blade vehicles will be able to cross back over to the correct side of the road.

Police and escorts will be required to control local traffic either side of this intersection.

Conclusion:

Minimal works will be required for this movement, however care is to be taken in completing the turn and a spotter should be utilised to keep the driver informed throughout movements through this intersection.

5.6 WTG 1-7 Site Access (IN4)



Location:

Chainage 19.9 km (approx.)

Movement:

Sharp right turn from South Gippsland Highway into private access road which services wind turbines 1-7.

Comments:

Significant work will be required to facilitate this turn. A temporary crossover will need to be constructed which also will serve any construction vehicles associated with the seven turbine sites to the south.

It is noted that an underpass appears to be constructed on the western side of the private access road, and this will either need to be filled in to facilitate the turn, or a new crossover and access road constructed to the west of this intersection.

Typically an accessway through the adjacent property would not be recommended, however given these works are on land which will also contain a wind turbine, it is considered an appropriate recommendation in this instance.

In addition to the above, the access road itself will likely need to be upgraded in order to facilitate a large number of OSOM vehicle movements.

Police and escorts will be required to control local traffic behind the load and traffic heading west on the South Gippsland Highway.

Conclusion:

Once the crossover has been upgraded / installed, and new access road constructed (if required), there should not be any problems with this movement.

5.7 South Gippsland Highway onto Coal Mine Road (IN5)



Location:

Chainage 22.1 km (approx.)

Movement:

Sharp left turn from South Gippsland Highway onto Coal Mine Road from which Wind Turbine Number 9 is accessed.

Comments:

As per the previous, significant works will be required to facilitate access to Coal Mine Road from South Gippsland Highway.

Modifications to the fence line on the inside of the turn, as well as large amounts of fill will be required to allow the 70 metre long blade vehicles to undertake this movement.

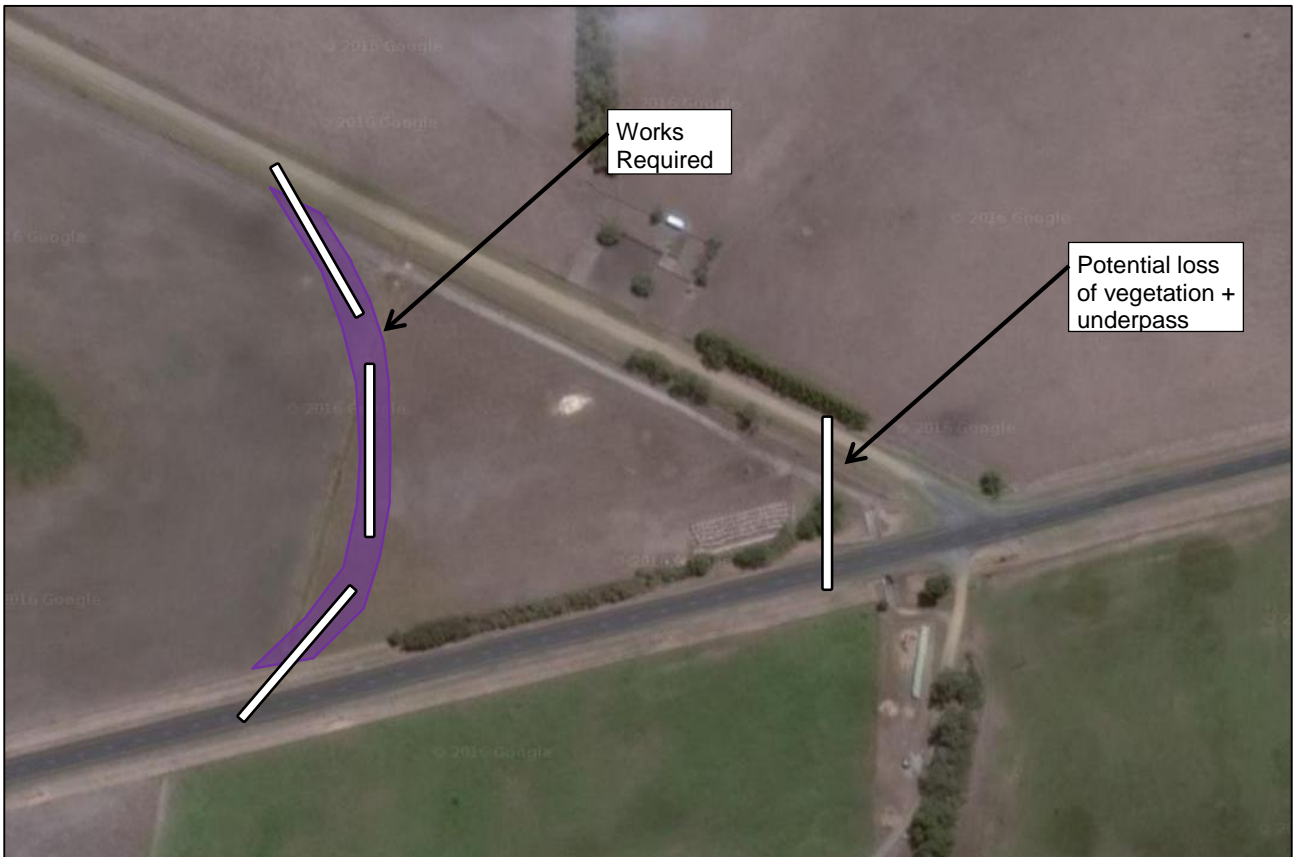
In addition, it is likely that Coal Mine Road will need to be upgraded to be suitable for OSOM vehicle movement (approx. 500m to the site access road).

Police and escorts will be required to control local traffic behind the load and traffic heading west on the South Gippsland Highway.

Conclusion:

Consent from the owner of the land will be required to make the modifications to the fence line (it is noted that this land parcel does not include any turbines, and hence approval from the landowner may be more difficult), however should these modifications be consented by the land owner, there should not be any problems with this movement.

5.8 South Gippsland Highway onto Old Alberton Road (IN6)



Location:

Chainage 27.5 km (approx.)

Movement:

Acute left turn from South Gippsland Highway onto Old Alberton Road from which Wind Turbines 17, 24, 25, 26 and 29 are accessed.

Comments:

Given the acute nature of this turn, it will be difficult to complete this turn without impacting on the vegetation (observed on the northern side of South Gippsland Highway and on each side of Old Alberton Road).

In order to avoid the vegetation mentioned above, and simplify the movement, it is recommended that an accessway be constructed through the adjacent land holding (as indicated above). This new accessway can be designed to adequately accommodate the desired blade turbine vehicles.

Typically an accessway through the adjacent property would not be recommended, however given these works are on land which will also contain a wind turbine, it is considered an appropriate recommendation in this instance.

Police and escorts will be required to control local traffic behind the load and along Old Alberton Road

Conclusion:

Given the new accessway will be designed to adequately accommodate the anticipated turbine vehicles, there should be no problems with this movement.

5.9 Older Alberton Road onto Old Alberton Road (IN7)



Location:

Chainage 29.1 km (approx.)

Movement:

Sharp right hand bend along Old Alberton Road to stay on Old Alberton Road.

Comments:

Significant works will be required to facilitate this movement, including fill on the outside of the corner.

Police and escorts will be required to control local traffic either side of the corner

Conclusion:

Once the outside of the corner is trafficable, there should be no problems with this section of road.

5.10 South Gippsland Highway onto Ti Tree Road (IN8)

**Location:**

Chainage 28.4 km (approx.)

Movement:

Acute right turn from South Gippsland Highway onto Ti Tree Road from which a large number of turbines are accessed.

Comments:

Given the acute nature of this turn, it will be difficult to complete this turn without impacting on the vegetation (observed on the northern side of South Gippsland Highway and on each side of Ti Tree Road).

In order to avoid the vegetation mentioned above, and simplify the movement, it is recommended that an accessway be constructed through the adjacent land holding (as indicated above). This new accessway can be designed to adequately accommodate the desired blade turbine vehicles.

As above, an accessway through the adjacent property would not be recommended, however given these works are on land which will also contain a wind turbine, it is considered an appropriate recommendation in this instance.

Police and escorts will be required to control local traffic behind the load and along Ti Tree Road

Conclusion:

Given the new accessway will be designed to adequately accommodate the anticipated turbine vehicles, there should be no problems with this movement.

5.11 South Gippsland Highway onto Pound Road West (IN9)



Location:

Chainage 35 km (approx.)

Movement:

Sharp left turn from South Gippsland Highway onto Pound Road West from which a turbines 20, 21, 23, 28 and 30 are accessed.

Comments:

Significant works will be required to facilitate access to Pound Road West from South Gippsland Highway

Multiple sections of fill will be required around the intersection, as well as some potential modifications to fence lines of the adjacent properties; permission will be required from the landholders prior to modifying these fence lines if necessary. Blade vehicles up to 70 metres should be able to make the turn without impacting on the trees shown on the north-west side of the intersection.

Police and escorts will be required to control local traffic on each side of the intersection (with a particular focus on traffic along South Gippsland Highway).

Conclusion:

Most of the modifications required for this movement will be within the road reserve, however some works may spill onto the adjacent land holdings, and consent will be required from the owners. Care will need to be taken so as to avoid power poles that are adjacent this intersection on the south west and east.

6 Conclusion

After conducting this preliminary route assessment, it was concluded that with a moderate amount of upgrades and modifications to some relevant stretches of the potential haulage route, loads could physically be delivered to all Wind Turbine locations proposed for the Alberton Wind Farm.

No structures of significance were identified along the route, however a number of smaller underpasses were identified and should be assessed to confirm the axle loadings are acceptable.

A turbine blade length of 70 metres was adopted for this assessment and should not be exceeded for some movements without additional assessment. In addition, loading heights will need to be confirmed and checked for adequacy, however no significant structures or trees were noted along this route.

Port Anthony had reasonable amounts of storage and would require little work to accommodate the equipment; however suitability of this Port will need to be confirmed with the Port Authority, particularly with respect to shipping access and permissions.

The road is predominantly good quality highway with the exception of the more localised wind turbine access routes.

Whilst the South Gippsland Highway is an approved OSOM vehicle route, VicRoads, Councils and electrical authorities should be contacted prior to departure.

Subsequent to this desktop study, it will be necessary to undertake an inspection of the site and surrounding road network to identify any further locations which may require widening or modifications that have not been obvious in this desktop study.