

Wimmera Plains Energy Facility: Ladlows Road -Banyena Road, Jung



Traffic Impact Assessment

14 September 2020 Prepared for Wimmera Plains Energy Facility Pty Ltd

IMP180332TIA01F03

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Document Information

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Traffic Impact Assessment

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Development Proposition				
Location	36° 33' 48" S 142° 17' 40" E Ladlows Road - Banyena Road, Jung			
Use	Wind Energy Facility			
Yield	302.4 MW, 54 turbines (247 metre tip height)			
	Traffic Considerations			
Haulage Route				
	Portland - Henty Highway - through Heywood - Princes Highway - Portland- Casterton Road - through Casterton - Glenelg Highway - Coleraine-Edenhope Road - through Harrow - Nhill-Harrow Road - through Nhill - Western Highway From Nhill, two different routes are taken to access the site the north and			
	south.			
Turbine Blade Vehicles	Northern Approach			
	Borung Highway (Dimboola) - Dimboola-Minyip Road - Henty Highway			
	Southern Approach			
	Through Dimboola - Wail-Dooen Road - Wail-Kalkee Road - Blue Ribbon Road - Ladlows Road - Henty Highway			
Other Delivery Vehicles	Access to each of the construction compounds by heavy vehicle deliveries will primarily be via Henty Highway to the south (typically from Finlaysons Road or Horsham) - thereafter vehicles will travel along the local roads or access tracks to each turbine site as required. Vehicles deliveries will be contained within roads that are either pre-approved or conditionally approved (dry weather) for B-double & HML travel. It is proposed to upgrade existing local road to all weather roads.			
Traffic Impact				
Traffic Generation	The site is estimated to generate in the order of 84 daily vehicle movement during peak construction (comprising 52 heavy vehicles, 28 light vehicles & OD vehicles). This level of additional traffic can comfortably be accommodated by the			
	external road network. It is however recommended that local gravel roads be upgraded to an all-weather standard during the construction period. In addition to the above, we expect that VicRoads will require sections of Finlaysons Road and Bells Road (leading to Henty Highway) to be sealed to prevent debris transfer onto their road.			
Recommended Measures	 Finally, we recommend the proponent enter into a maintenance agreement with Council to ensure roads are adequately maintained during the construction period. Outside of construction (i.e. during operation) the site is not expected to have a significant impact on local roads, and maintenance can revert to Council. 			



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Site Access			
Turn Warrants	Conservatively assuming all peak construction traffic enters each compound during the road network peak, the site warrants the provision of Basic Left Turn (BAL) and Basic Right Turn (BAR) at Finlaysons Road and Bells Road respectively. It is considered appropriate to utilise the sealed shoulders on Henty Highway, noting the construction period lasting 18-24 months. Notwithstanding, given upgrades to each road are likely to occur, a temporary informal BAL and BAR could be provided if deemed necessary by VicRoads.		
Sight Distances	area, the sight distance as future turbine acces accordance with the relevant standards (subje review)	ss points is deemed to be in ct to confirmation by on-site	
Traffic Management			
Traffic Management Plan	At this stage finer details in regards to many con known. Once all relevant contractors and suppliers are Traffic Management Plan (TMP) be prepared wh assumptions made This TMP can form part of a cond	struction elements are not yet e known, we recommend a ich confirms the traffic related ition of permit.	
	Conclusion		

— Subject to the recommendations provided, there are no traffic grounds that should prohibit the issue of a permit for development of Wimmera Plains wind energy facility.



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2.1 Engagement

IMPACT[®] have been engaged by Wimmera Plains Energy Facility Pty Ltd to prepare a Traffic Impact Assessment for the proposed Wimmera Plains Energy Facility project between Ladlows Road and Banyena Road in Jung, Victoria.

Traffic Impact Assessment

This Traffic Impact Assessment report has been prepared to accompany the town planning application for this project.

In preparing this assessment we have referenced the following:

- Indicative development plans prepared by BayWa;
- City of Horsham Planning Scheme, including:
 - Clause 52.32 Wind Energy Facilities.







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3.1 Location

The Wimmera Plains Energy Facility is located approximately 13-20 kilometres north east of Horsham, as illustrated in Figure 1.



Figure 1 Location of Development Site

3.2 Site Context

The development site has historically been used as farmland for crop raising and/or grazing purposes.

Surrounding / neighbouring uses are also typically farmland for crop raising and/or grazing purposes. Of significance however, we note that the Murra Warra Wind Farm (approximately 100 turbines) is currently being constructed on Dimboola-Minyip Road (approximately 13 kilometres north of the development site).

The 220kV Red Cliffs Terminal to Horsham Terminal transmission line travels through the eastern side of the development footprint, whilst a local 22kV transmission line travels along Henty Highway.





The following section provides a brief summary of the classification, alignment and design of each road (local and arterial) in proximity to the subject site.

Traffic Impact Assessment

3.3.1 Henty Highway

Henty Highway is a State Arterial Road which is generally aligned in a north-south direction and extending north from Portland (on the southern coast of Victoria) until the township of Lascelles in northern Victoria. North of Lascelles, Henty Highway continues as the Sunraysia Highway.

In the vicinity of the site, Henty Highway has been constructed with a central seal in the order of 6 metres (two 3.0 metre lanes) plus sealed shoulders measuring approximately 1.5 - 2.0 metres on each side.

Figure 2 illustrates a typical section of Henty Highway near the subject site.

Henty Highway operates with a posted speed limit of 100 km/hr adjacent the subject site.



Figure 2 Henty Highway typical section adjacent subject site (Source Google Street View)

3.3.1.1 Existing Traffic Volumes - Henty Highway

Data published by VicRoads indicates that on average, Henty Highway carries in the order of 800 vehicles per day in the vicinity of the subject site.

A further breakdown of the data reveals a combined peak count of up to 140 vehicles per hour (split relatively evenly between northbound and southbound vehicles) and typically occurs between 8:00am-9:00am and 4:00pm-6:00pm; between these times traffic is typically in the order of 100-120 vehicles per hour on weekdays.

The daily traffic profile along Henty Highway is illustrated at Figure 3.





Figure 3 Daily Traffic Profile - Henty Highway between Kewell Road & Wimmera Highway¹

3.3.2 Shearwoods Road

Shearwoods Road is classified as a rural access / minor rural road extending in an east-west direction.

Primarily used as an access to private land, Shearwoods Road also provides a connection between Henty Highway (east) and Dogwood Road (west).

Proximate to the site, Shearwoods Road is constructed with an approximate 6 metre gravel road pavement.

3.3.3 Smiths Road

Classified as a minor rural / rural access road, Smiths Road extends in an east-west direction between Henty Highway (west) and Jung Cemetery Road (east).

In the site's vicinity, Smiths Road is constructed with an unsealed pavement measuring approximately 4-5 metres in width.

3.3.4 Banyena Road

Banyena Road is a local road which extends in an east west direction between Western Highway and Longerenong-Warracknabeal Road.

East of Henty Highway, Banyena Road is constructed with a central seal in the order of 3 - 3.5 metres wide, plus unsealed gravel shoulders measure approximately 2.5 - 3.0 metres on each side.

To the west of Henty Highway, Banyena Road is typically constructed with a gravel road pavement measuring approximately 6 metres wide.

Most traffic currently utilising Banyena Road are likely to be local residents of the surrounding lots.







Classified as a minor rural road, Bells Road extends in an east-west direction between Henty Highway (west) and Jung Cemetery Road (east).

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Bells Road is constructed as an unsealed gravel road, with a road pavement measuring approximately 4 metres in width.

Whilst Bells Road is a public road, we expect that a majority of traffic using it are local vehicles using the road to access particular lots of land.

3.3.6 Finlaysons Road

Finlaysons Road is classified as a minor rural / rural access road and extends in an east-west direction between Blue Ribbon Road (west) and Henty Highway (east).

Near the subject site, Finlaysons Road is constructed as an unsealed gravel road with approximately 6-7 metre pavement width.

Despite being a public through road, we expect that a majority of traffic using Finlaysons Road are local vehicles using the road to access particular lots of land.

3.3.7 Ladlows Road

Classified as a rural access road, Ladlows road is aligned in a general east-west direction between Henty Highway (east) and Blue Ribbon Road (west).

Ladlows road is constructed with a central sealed pavement measuring approximately 6 metres in width and unsealed shoulders (1-2 metres wide).

Of significance, we note that Ladlows Road provides access to a local quarry which would likely contribute a majority of vehicle movements to this road.

3.3.8 Dooen North Road

Dooen North Road is classified as a minor rural / rural access road and extends in a north-south direction between Dooen School Road (south) and Kalkee East Road (north).

In proximity to the site, Dooen North Road is constructed as an unsealed gravel road with approximately 5-6 metres road pavement.

3.3.9 Dogwood Road

Classified as a minor rural road, Dogwood Road extends north-south between Henty Highway (south) and Borung Highway (north).

In vicinity to the subject land, Dogwood Road is constructed as an unsealed gravel road, with an approximate 6-7 metre road pavement.

3.3.10 Max Johns Road

Max Johns Road is a local road which extends north-south between Banyena Road (to the north) and Wimmera Highway (to the south).

Proximate to the development site, Max Johns Road is constructed with an unsealed gravel pavement in the order of 4 - 4.5 metres.

Despite being a public road, we expect that a majority of traffic using Max Johns Road are local vehicles using the road to access particular lots of land.





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Whytes Road is a local road which extends north-south between Smiths Road (to the north) and Greenhills Road (to the south).

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Proximate to the development site, Whytes Road is comprised on an unsealed pavement in the order of 3 -3.5 metres.

Whytes Road operates without a posted speed limit and hence defer to the default 100km/hr rural speed limit.

Similar to the above, despite being a public through road, we expect that a majority of traffic using Whytes Road are local vehicles using the road to access particular lots of land.

3.3.12 Unnamed Roads

In addition to the above local roads, the site also seeks to leverage several unnamed local roads to facilitate access.

These unnamed roads are typically constructed a dirt track with no formal road pavement.

We expect that these roads are currently used by local vehicles to access particular parcels of land as required.

Planning and Policy Context 3.4

The site sits within the Horsham Rural City Council Local Government Area (LGA).

A majority of the land within the site is designated as Farming Zone, with no specific planning overlays applicable to this area of land. There is a small portion of Public Park and Recreation Zone (PPRZ) which is within the site area, but does not form part of the subject site itself.

Figure 4 provides a visual representation of the various zones applicable within the subject area (FZ light green and PPRZ dark green).







3.4.1 Planning Framework

3.4.1.1 Clause 52.32 - Wind Energy Facilities

Clause 52.32 of the Victorian Planning Provisions outlines the relevant application requirements associated with the development of Wind Energy Facilities. Relevant to traffic and access matters, considerations under Clause 52.32 include:

Traffic Impact Assessment

- Clause 52.32-4 Application Requirements
 - o Site and context analysis in relation to the surrounding area;
 - Access to infrastructure

3.4.1.2 Clause 35.07 - Farming Zone

A Wind Energy Facility is a Section 2 use within the Farming Zone subject to meeting the requirements of Clause 52.32.

Relevant to access for the wind energy facility, in considering an application for use and building and works, the decision guidelines listed under Clause 35.07-6 include:

— How the use and development makes use of existing infrastructure and services.





The pre-approved B-Double and Higher Mass Limit (HML) network in the locality of the development site are reproduced as Figure 5 and Figure 6 respectively.





VicRoads Higher Mass Limit (HML) Network



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The document must not be used for any As shown in the figures above, both Henty Highway and Banyena Road are pre-approved B-Double and HML figurage routes. A majority of the other roads in proximity to the site are conditionally approved including smaller local roads throughout the subject site) for use outside of wet weather periods.

Accordingly, a permit is not required to use these roads for Class 2 & Class 3 heavy vehicles during dry weather, which will typically encompass all proposed concrete, aggregate and civil related heavy vehicles.

3.6 Project Description

The proposal contemplates the development of the subject area as a wind farm energy facility, comprising a total of 54 wind turbines and will generate up to 302.4 MW.

The wind farm development site will be located across multiple land holdings, with a total land area in the order of 3800 ha.

Figure 7 shows the proposed turbine locations in the context of the broader subject area subject site.

As shown in Figure 7, two construction compounds are proposed to service the site, one to the east of Henty Highway and one to the west. We understand that the eastern construction compound will be used to service turbine sites located to the east of Henty Highway, whilst the other to service those located to the west of Henty Highway.

The site will seek to leverage a combination of small local roads and private access tracks to connect the turbine sites to the construction compounds. The site seeks to leverage the following local roads for access:

- East Turbines
 - o Banyena Road;
 - o Whytes Road;
 - o Bells Road;
 - Max Johns Road; and
 - o Smiths Road
- West Turbines
 - o Shearwoods Road
 - o Finlaysons Road
 - o Ladlows Road;
 - o Banyena Road;
 - o Dooen North Road;
 - Dogwood Road; and
 - Unnamed Roadways.

We understand that (where applicable) these roads (including the private access tracks) are to be upgraded / constructed to all weather roads, suitable for the haulage of construction vehicles during the delivery of the wind farm project.

Where roads are already of a suitable standard, they are to be maintained during construction and restored to their pre-construction condition after the project is complete.

We understand that any access point (to the turbine site or construction compound) will be constructed as required to facilitate access by OSOM delivery vehicles where necessary.

IMPACT[®] are advised that each turbine will be comprised of the following components:

- Three x 81-metre long turbine blades;
- Up to five x tubular steel tower sections;
- A nacelle which contains the generator, a gear box and electrical equipment;
- Transformer and switch gear (which is also housed inside the nacelle:
- A hardstand area (a pad for the turbine and crane);

Each construction compound will also include a temporary site office, amenities block, on-site car park, control buildings and temporary laydown areas for components.



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The Wind Farm will have an expected operating life of 25 years.



Figure 7

Proposed Development Footprint





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4.1 Construction Materials Delivery Routes

The source location and delivery routes (as discussed below) for all components is yet to be confirmed. The following sections outline the most likely scenario as currently understood by **IMPACT**[®].

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4.1.1 Gravel / Aggregate

IMPACT® are advised that the site will require in the order of 120,000 tonnes of gravel aggregate.

The gravel is to be provided by local Horsham civil contractors, who will leverage local quarries on either side of Finlaysons Road (2 kilometres west of Henty Highway).

We understand that some additional blending materials may be sourced further afield (such as Tuckers Hill) and then blended with the gravel aggregate on-site. These deliveries will be brought in to the construction compounds via Western Highway and Henty Road.

Based on the foregoing, the impact of most aggregate delivery vehicles will typically be limited to Finlaysons Road, Henty Highway and Bells Road.

4.1.2 Water Deliveries

We understand that water will be supplied directly into both the eastern and western site construction compounds via temporary pipelines.

Based on the foregoing, no external delivery vehicle movements are expected to be required for water deliveries.

We note however that there will be several water truck movements each day associated with dust suppression along local gravel roads and internal access tracks. Dust suppression vehicles will be utilised on relevant sections of local roads and access tracks as required

4.1.3 Concrete Trucks

IMPACT® are advised that the site will require approximately 54,000 cubic metres of concrete.

A temporary concrete batching plant is proposed within both construction compounds (east and west of Henty Road).

Concrete materials are to be sourced locally from Horsham and delivered to each concrete batching plant. Thereafter, concrete will be mixed on-site and then distributed to each turbine site as required.

4.1.4 Steel Reinforcement Deliveries

We understand that steel deliveries will be most likely be delivered from Horsham.

We expect that delivery vehicles will use the shortest route possible whilst leveraging the pre-approved HML roads (discussed in Section 3.5). Accordingly, vehicles will likely arrive from the south-west (via Henty Highway).





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IMPACT[®] understands that Portland will be the port of entry for WTG and other major imported componentry.

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The main OD routes out of the Portland is as follows:

Portland - Henty Highway - through Heywood - Princes Highway - Portland-Casterton Road - through Casterton - Glenelg Highway - Coleraine-Edenhope Road - through Harrow - Nhill-Harrow Road - through Nhill - Western Highway

From Nhill, two different routes are taken to access the site the north and south. This allows Wind Turbine transportation vehicles to utilise the angle of Henty Highway advantageously and minimise impact on adjacent landscaping when making turning manoeuvres.

Northern Approach

Borung Highway (Dimboola) - Dimboola-Minyip Road - Henty Highway

Southern Approach

Through Dimboola - Wail-Dooen Road - Wail-Kalkee Road - Blue Ribbon Road - Ladlows Road - Henty Highway

Elements of the routes outlined above have previously been tested and approved for other wind farm sites (such as the nearby Murra Warra Wind Farm). Notwithstanding, given the larger blade length proposed (81 metres compared to 67 metres & 75 metres), an additional preliminary desktop haulage route assessment (refer Section 5) has been undertaken to confirm the validity of these routes.

Note: We understand that the other wind farm components (nacelle, tower sections etc) will be similar to those used on nearby wind farm sites. Accordingly, this site will seek to leverage previously approved routes used by these sites (such as Murra Warra). Accordingly, this analysis focuses on the longer turbine blades only.

Appendix A shows the routes proposed for the subject site.

We are advised that an additional detailed route investigation will be undertaken for turbine components once a supplier has been engaged and method confirmed for the delivery of the site.

4.3 Construction Staff

During the delivery of the project, it is expected that the majority of staff will typically reside in either Horsham or Warracknabeal.

We understand that most staff will be bussed to / from the site via Henty Highway (north for those coming from Warracknabeal and south for Horsham). We expect there will be muster points external to the site (likely within each regional centre) where staff meet and get bussed into the subject site.

The remaining staff (managerial / senior) will likely drive to the site along the same route.





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4.4.1 Construction Materials Vehicle Deliveries

Delivery Route

Based on the foregoing, we note that materials deliveries are typically being sourced locally, either in Horsham or Finlaysons Road. A majority of deliveries will arrive at each of the construction compounds via Henty Highway before being distributed to each individual turbine site as required.

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Recommendations

Regarding site access for these delivery vehicles, we recommend the following:

- Site access tracks and local roads providing access to/from turbine units be constructed / upgraded to a standard which permits heavy vehicle access & turbine component delivery for all weather events;
 - A majority of the local roads in the area will facilitate dry weather movements only, with access restricted on wet days.
 - o This will help prevent unnecessary delays during the construction period.

4.4.2 Turbine Component Delivery

Delivery Route

Components for the wind farm will typically be delivered from Portland via the route described above.

Section 5 provides a preliminary assessment of the proposed route and details the likely mitigation measures required or problem areas throughout the regional delivery area.

Locally, vehicles will arrive at the construction sites via Henty Highway (both north and south), before being delivered to the relevant turbine site.

Recommendations

Regarding local site access for these delivery vehicles (noting Section 5 discusses these vehicles in a regional context), we recommend the following:

- Site access tracks and local roads (where required) be widened at intersection to facilitate the largest (i.e. turbine) component delivery vehicles.
 - This will also ensure that each road / site access can geometrically cater to all other construction traffic.

4.4.3 Staff Vehicles

Travel Route

We are advised that most staff will be bussed to/from the subject site, with some managerial / senior staff arriving via private motor car.

Vehicles (both light and bus) will arrive from the north and south depending on the pick-up location (Horsham or Warracknabeal).

Recommendations

No additional recommendations for staff traffic.





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5.1 Preamble

The nearby Jung Wind Farm sought to leverage previously approved haulage routes for the Turbine component delivery vehicles; specifically, this route is currently being used by haulage vehicles for the delivery of the nearby Murra Warra wind farm².

Traffic Impact Assessment

The proposed development, however, seeks to leverage the recently developed Vestas V162 turbines, which have larger turbine blades compared to other nearby developments (81 metres, compared to 67 and 75 metres); details regarding installation and delivery are still being confirmed with suppliers and delivery contractors.

Noting the additional length required for these turbines, we have undertaken a preliminary investigation of the proposed haulage route, to determine whether or not vehicles can be reasonably expected to utilise this route.

5.2 Haulage Vehicle Assumptions & Limitations

As discussed above, the proposed turbines for the subject site have only recently been developed, and the haulage strategy (especially for turbine blades) is yet to be completely resolved

Noting the foregoing, **IMPACT**[®] have consulted and liaised with the turbine manufacturer and other haulage specialists to establish a realistic model for these delivery vehicles

This model has been developed with the computer simulation software Autoturn, and adopts the following key assumptions:

- Blade design modelled off 82m Blade in Schnabel 3x4 (an 81 metre blade length adopted)
- Bookend design
- Front trailer maximum steering angle: 60 degrees between truck and bookend of trailer
- Rear trailer maximum steering angle: 70 degrees between blade and jinker.

5.3 Route Assessment

The following sets out our findings of constraints, required mitigation measures, etc, at key intersections and junctures along this route.

Table 1 Haulage Route - Portland to Nhill

Intersection Location	Drawing Ref. Number	Key Comments	Analysis
Henty Highway / Lowe Street	IMP180332-DG-05-01	Left turn through the slip lane. Removal of signs and light pole required	No modification to road required.
Henty Highway / Princes Highway	IMP180332-DG-05-02	Left turn lane through slip lane.	No modifications required.
Princes Highway / Portland-Casterton Road	IMP180332-DG-05-03	Right turn off Princes highway.	Street-view not available to confirm current features.

² <u>http://murrawarrawindfarm.com/transport-route-for-murra-warra-wind-farm-components-media-release/</u>



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purpose which may breach any convright		Central island to be mounted and signs removed.		
Portland-Casterton Road / Glenelg Highway	IMP180332-DG-05-04	Right turn off Portland- Casterton Road onto Glenelg Highway. Gravelling required, number of light poles and signage to be removed.	Conflict with light poles a result of avoiding vegetation. Not connected to any power lines. Rear trailer travels over eastern verge.	
Glenelg Highway / Coleraine-Edenhope Rd	IMP180332-DG-05-05	Left turn off Glenelg Highway onto Coleraine Edenhope Road. Removal of signs required.	Generally, no issues here	
Coleraine-Edenhope / Nhill-Harrow Rd	IMP180332-DG-05-06	Right turn off Coleraine- Edenhope Road onto Nhill-Harrow Road. Removal of sign and potential tree trimming required.	Generally, no issues here.	
Nhill-Harrow Road / Western Highway	IMP180332-DG-05-07	Right turn off Nhill- Harrow Road onto Western Highway. Removal of signs and tree trimming required.	Anticipated that tree trimming will be required. Result of avoiding conflict with power pole.	
Western Highway / Nelson Street (in Nhill)	IMP180332-DG-05-08	Slide right along Western Highway onto Western Highway/Nelson Street. Removal of numerous signs and a light pole required. Tree trimming required also	Swept path shown to avoid tree adjacent the eastern carpark. Western Highway tight adjacent the Farmers Arms Hotel but manoeuvring is manageable.	

Table 2 Nhill to Northern Access

Intersection Location	Drawing Ref. Number	Key Comments	Findings
Western Highway / Borung Highway	IMP180332-DG-02-01	Left turn off Western Highway onto Borung Highway. Signs to be removed where indicated. Mountable islands will be driven on	Generally, no issues here
Borung Highway / Dimboola-Minyip Road	IMP180332-DG-02-02	Right turn off Borung Highway onto Dimboola-Minyip Road. Signs to be removed with minor gravelling required to support trailer.	Generally, no issues here



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purpose which may be add by be add b	IMP180332-DG-(04))2-(03-	Forward manoeuvre across Henty Highway (eastwards) before reversing to the north along Henty Highway then heading south. Signs to be removed and central islands mounted. Gravelling required.	Movement strategy undertaken to avoid conflict with several trees. Gravelling required along both northern corners.	

Nhill to Southern Access

Intersection Location	Drawing Ref. Number	Key Comments	Findings
Western Highway / Wail-Dooen Road	IMP180332-DG-03-01	Slide left off Western Highway onto Wail- Dooen Road. Minor trimming may be required.	No issues here
Wail-Kalkee Road / Blue Ribbon Road	IMP180332-DG-03-02	Right turn off Wail-Kalkee Road onto Blue Ribbon Road. Signs to be removed.	Generally, no issues here
Blue Ribbon Road / Ladlows Road	IMP180332-DG-03-03	Left turn off Blue Ribbon Road onto Ladlows Road Signage to be removed.	Generally, no issues here
Ladlows Road / Henty Highway	IMP180332-DG-03-04	Left turn off Ladlows Road onto Henty Highway. Signage to be removed. Minor gravelling may be required	Generally, no issues here

5.4 Preliminary Assessment Conclusion

The foregoing discussion (and attached swept path assessment) indicates that access to/from the subject site should be possible for turbine blade delivery vehicles, subject to the discussed mitigation measures.

Notwithstanding the above, we recommend that a detailed route investigation be undertaken for all turbine blade delivery components once a delivery method and contractor has been confirmed & engaged.





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6.1 General

Typically, all internal Wind Farm construction traffic is limited to internal access roads, with only deliveries and staff movements required to travel across the external road network.

Traffic Impact Assessment

In this instance however, a number of turbines are accessed off the local road network.

Accordingly, we expect that all delivery vehicle movements will travel to either the eastern or western construction compounds before being locally distributed to the relevant turbine site (as required)

6.2 Key Traffic Generation Assumptions

The following section sets out our key assumptions to estimate traffic movements generated by the subject site

6.2.1 Project Delivery Timeframe & Construction Periods

We have adopted a 24-month (104 week) delivery time-frame for the project; a 6-day working week has been adopted across the project life.

Furthermore, we have adopted the following delivery stages for the project:

- General Construction Activities
 - These are assumed to occur throughout the duration of the project construction;
- Site Set-Up
 - This stage is assumed to be undertaken and completed over a 4 week period.
- Roads & Hard standings
 - This is assumed to be undertaken of a 70 week period (approximately 2/3 of the total construction period);
 - This stage will be undertaken concurrently with the foundation construction and turbine erection components
- Foundation construction
 - This stage will occur after the relevant roads / hardstands have been constructed for each turbine site;
 - A construction period of approximately 60 weeks has been adopted for this component of works
- Turbine erection (including delivery) & Cable Installation
 - This stage will occur after the relevant roads, hardstands & foundations has occurred
 - This stage is assumed to be undertaken over an approximate 50 week period, occurring after (but also at the same time) as the previous stages
- Testing and operations
 - This stage is expected to occur after the delivery of turbines, and is anticipated to last approximately 16 weeks.



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& Materials Assumptions

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Of significance, we note the following in relation to site generated vehicle movements:

- Water for construction will be piped directly into each construction compound
 - No external movements are required for water deliveries;
 - Dust suppression vehicles will be utilised along relevant local roads and access tracks as required.
- Concrete will be batched on-site within each construction compound
 - No concrete truck delivery vehicles will be required;
 - Aggregate and materials for concrete will be delivered to each compound before being distributed locally as concrete to each turbine site as required.
- Aggregate for access track construction will be delivered from nearby quarries on Finlaysons Road
 - Some additional movements may be required from further afield to mix into the aggregate.
 - Wind turbine components will be imported with:
 - Three (3) blades per turbine;
 - Five (5) tower sections per turbine; and
 - A single nacelle, drive train, hub/spinner & power module per turbine.
- A total of 120,000 tonnes of aggregate will be required for roads and hardstands
 - 80% of which is to be sourced locally from Finlaysons Road, the remaining 20% (to ensure appropriate quality) sourced further afield
 - A total of 54,000 cubic metres of concrete will be required for turbine foundations
 - o 80% of this by mass will be aggregate, 14% cement and 6% water
 - o All concrete is batched on-site

All assumptions and estimations for traffic generation calculations are outlined in the detailed calculations provided as Appendix C.

6.3 Construction Traffic Generation

External traffic generated by the site will be split across three broad categories:

- General traffic (LV) generated by staff / visitors to/from the site (i.e. utes, vans and private cars)
- Over Dimensional (OD) used for the delivery of long / heavy WTG components: and
- Other heavy vehicles (HV) which are used for the delivery of the smaller WTG components and construction materials.

Table 3 summarises the likely traffic mix of vehicle movements generated over the 18-month construction period.

The values quoted are given as two-way delivery movements. We note however that for each inbound trip to the site there will also be an unloaded return trip. Delivery vehicles will be unloaded on the return trip and collapsed to regulation dimensions where applicable. The full traffic volume estimations are shown attached as Appendix C.

|--|

Type of Vehicle	Total Vehicle Movements	Peak Daily Movements
Light Vehicle	15,072 total LV movements	Peak of 28 LV movements / day
Over Dimensional Vehicle	1,296 total OD movements*	Peak of 4 OD movements / day*
Heavy Vehicles	21,859 total HV movements*	Peak of 52 HV movements / day*
Total Vehicles	38,227 total movements	Peak of 84 daily movements**

* Includes both loaded and unloaded trips, for each loaded trip there will be one loaded (return) trip, where the transport vehicle will be collapsed to regulation dimensions where applicable

**Conservatively assumes all vehicle traffic peaks during the same period.





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The site will operate with a small full-time maintenance crew. Accordingly, apart from the initial construction phase, the proposal is anticipated to have a negligible impact upon traffic on the local road network.

Details of likely traffic generation during operation are as follows:

- Routine maintenance at the site is expected to occur once per day and be carried out by a crew of approximately six people. Accordingly, six vehicle movements are expected to occur along the local road network per day. All other movements are internal to the site; and
- Occasional maintenance will occur when components of the development need to be replaced, such as replacing a blade or gearbox. This is expected to occur very occasionally and will be subject to approval processes with the relevant authorities.

In the context of the Wind Farm construction and background traffic along Henty Highway, operating traffic will be minimal. By virtue of the minimal traffic along other local roads, project traffic will be noticeable, but not yield any significant impact on these roads.

6.5 Traffic Impact

6.5.1 Declared Main Roads

Most heavy vehicle and light vehicle traffic will seek to leverage Henty Highway as a connection to the subject site construction compounds. Henty Highway is an arterial road managed by VicRoads and forms part of a pre-approved B-Double/HML haulage routes.

Arterial roads managed by VicRoads are generally designed to accommodate large volumes of heavy traffic and over-dimensional loads. As such they are normally sufficient for the transport of the turbine components and construction materials required to build a wind farm.

The proposed development will generate up to 84 daily vehicle movements (42 round trips), comprising 28 light vehicles, 52 heavy vehicles and four (4) OD vehicles during the respective peak construction periods for each movement.

Data sourced from VicRoads indicates that Henty Highway generally carries in the order of 800 vehicles per day in the locality of the subject site.

Classified as a rural arterial road, Henty Highway has an environmental capacity for up to 7,000 vehicles on a daily basis.

During the construction stage of the development Henty Highway is predicted to carry up to 880 vehicle movements on a daily basis. This level of traffic is comfortably within the environmental capacity of the road and will be comfortably absorbed by Henty Highway, with no long-term impact to its performance.





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By contrast, not all local roads are typically designed to accommodate heavy traffic and over-dimensional loads.

Traffic Impact Assessment

In this instance, the local roads contained within and utilised by the proposed development are part of the pre-approved B-Double/HML network (either conditionally or unconditionally as discussed above).

Accordingly, it is assumed that these roads have been designed appropriately to accommodate heavy vehicle traffic (during dry weather) and should be able to adequately cater to heavy vehicle traffic generated by the site.

Notwithstanding, to help ensure and mitigate the impact of construction traffic generated by the subject site, we expect that proponent will enter into an upgrade and maintenance agreement with Horsham Rural City Council for relevant sections of the impacted roads.

As proposed, relevant sections of local roads (and newly constructed access track) will have the capacity to facilitate heavy vehicle access after wet weather events (rather than dry weather only) to mitigate potential lengthy construction delays.

Note: We expect VicRoads may require a portion of Finlaysons Road and Bells Road leading up to Henty Highway to be sealed in order to prevent the transfer of gravel / materials onto their road.

6.5.3 Over-Dimensional Deliveries

The proposed Over-Dimensional (OD) haulage route from Portland is discussed in Section 5.

As discussed in this section access for turbine delivery vehicles to the subject land is feasible, subject to mitigation measures (detailed in the relevant section).

Noting their similarity, deliveries for the remaining turbine components will seek to leverage previously approved and adopted delivery routes for nearby wind farm sites.

Road Maintenance 6.6

6.6.1 Declared Roads

Given the construction period is relatively short we expect that VicRoads will retain maintenance responsibilities for these roads.

6.6.2 Local Roads

As discussed above, we recommend local roads be upgraded to a standard where they can facilitate construction traffic outside of dry weather periods.

We expect that the proponent and Council will form a maintenance agreement for the upkeep of these roads during the construction period.

The following sections cover possible items that could form part of this agreement where necessary.





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7.1 Turning Lane Assessment

Reference has been made to AustRoads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings³. This document provides guidance on the warrants for various turn treatments at unsignalised intersections, these warrants are reproduced as Figure 8.

Traffic Impact Assessment



(a) Design speed ≥100 km/h

Figure 8 Warrants for turn treatments at unsignalised intersections

These warrants provide guidance on where a full-length deceleration lane must be used and where a shorter lane, designated Auxiliary Left Turn Lane (AUL) and Channelised Right Turn (CHR), may be acceptable based on traffic volumes.

The warrants apply to turning movements from the major road only, with the applicable traffic flows being peak hour flows.

Noting the very low / limited traffic volumes along the local access roads, this assessment will be restricted to Henty Highway only.

As discussed in Section 3.3.1.1, traffic counts undertaken by VicRoads indicate that Henty Highway carries in the order of 800 vehicles per day on average, with peak vehicle movements in the order of 140 movements per hour during peak periods (comprising approximately 70 northbound and 70 southbound).

The proposal is projected to generate in the order of 84 daily additional vehicle movements during the peak construction period, of which approximately 40 are expected to be inbound vehicle movements (see Section 6.3 above); furthermore, we note that inbound movements will be somewhat split between eastern and western construction compounds.

Notwithstanding the above, for the purposes of a conservative assessment, it will be assumed that all construction traffic will be turning in to each construction compound during the road network peak.

³ AustRoads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings, AustRoads 2017 Edition)







The document must not be used for any As discussed in 4.1, a majority of heavy vehicle movements will approach the site from the south (i.e. turn right purpose which may breach any interest of the eastern compound); the exception to this being OD deliveries which will approach from both the north & south as well as staff movements (with those from Warracknabeal approaching from the north).

It is conservatively assumed that 50% of these movements will occur during the peak period, equating to approximately 20 vehicles going into Finlaysons Road or Bells Road.

Consideration of these volumes against the warrants reveals that the following turn treatments are triggered:

- Basic left-turn treatment (BAL)
- Basic right-turn treatment (BAR)

It is noted that these are the minimum treatments required for any new intersection (under the above guide).

We note that Henty Highway has been constructed with a 1-2 metre sealed / gravel shoulder which can be used to aid passing of turning vehicles.

Given the construction period is relatively short (18-24 months) and ample sight distances are available along and Henty Highway it is considered appropriate to utilise these shoulders for passing where required in place of more formal BAL and BAR treatments during this time; this can be supplemented by suitable traffic management solutions (such as 'trucks crossing' or 'works ahead') as deemed appropriate by VicRoads.

We note however that the above is subject to both Council and VicRoads approval.

Note: As outlined above, we expect VicRoads will at the very least required a portion of Bells and Finlaysons Road leading up to Henty to be upgraded (to minimise gravel transfer). The provision of a temporary BAR and BAL for each of these roads could be provided as part of this upgrade process.

7.2 Sight Distance Assessment

7.2.1 Sight Distance requirements

AustRoads Guide to Road Design - Part 4A: Unsignalised Intersections sets out the sight distance requirements for unsignalised intersections. The Austroads Guide provides SISD values for commuter and heavy vehicles at varying design speeds. Based on the values provided within the standard, each new site access point should have a minimum SISD of approximately 262 metres (for an operating 85thpercentile speed of 100km/h).

7.2.2 Assessed Site Access Sight Distance

IMPACT[®] has undertaken a desktop assessment of the sight distance available from future access locations to specific turbine sites throughout the subject land. In regards to the available sight distances we note the following:

- Land in the area is generally flat, with little vertical geometry impacting on available sight lines; j
- All new site access points are located on straight sections of road, where horizontal geometry does not impact on available sight distances; and
- Landscaping / vegetation in the area is generally limited, or where proximate to a site access point is set back a sufficient distance such that sight lines are not impacted.

Based on the foregoing, we expect that sight distances available from each new site access point exceed the minimum required by the AustRoads standards.

Notwithstanding the above, we recommend that prior to construction, sight lines at each proposed site access point be tested and confirmed on-site (and vegetation trimmed where required).





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Subject to the appointment of a supplier / construction contractor, multiple aspects (as discussed above) may be subject to review. In addition, construction / work programs for the project will not be fully resolved until closer to the project commencement.

As such, subject to the confirmation of the above details, there is potential for changes to the existing road conditions and other assumptions as considered within this report.

Based on the foregoing, and our experience with similar projects, we expect that a detailed Traffic Management Plan (TMP) will need to be prepared prior to the commencement of the construction of the project to confirm any mitigation measures and management works required at that time.

The TMP would be implemented as a condition of any Development Consent issued for the Wind Farm and would be developed in consultation with Council, VicRoads, BayWa.RE and any other relevant stakeholders to provide a more accurate indication of traffic impacts and generally identify responsibilities for road maintenance and upgrades throughout the construction period.

In general, the TMP should include:

- Confirmation of the Wind Farm construction timeframe and work stages.
- Confirmation of expected traffic volumes generated by the wind farm for all stages or work.
- Identification / confirmation of the proposed haulage routes (for all HV and OD/OSOM movements).
- A mechanism to review identified haulage route road conditions prior to the commencement of works.
- Mechanisms / agreements (if deemed necessary) to maintain haulage route roads and road infrastructure, including local public roads used by site traffic during construction works and to reinstate roads to at least pre-construction conditions.
- Qualify any requirement for specific work stage construction traffic management plans.
- Qualify and identify any relevant mechanisms for OD vehicle permits and traffic management requirements.

Please note that this is not an exhaustive list, and that the final TMP requirements will be as per those outlined in the Development Consent.



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APPENDIX A Wimmera Plains Energy Facility - Proposed Haulage Routes





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Traffic Impact Assessment



APPENDIX B Haulage Route Spatial Analysis

81m Turbine Blade Truck Swept Paths























BLADE TRANSPORT TRUCK-81m LONG BLADE 1m CLEARANCE FROM BLADE

GLENELG

VEHICLE & VEHICLE CENTRELINE

TRUCK ACCESS CAPABILITY TO BE CONFIRMED ON-SITE



BLADE

BLADE CLEARANCE

BLADE ENVELOPE

REAR TIRES ENVELOPE - FRONT TIRES ENVELOPE

<u>LEGEND</u>

GENERAL NOTES: 1.ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE. 2.LOCAL ROADS - GLENELG HIGHWAY (SPEED ZONE 100KM/H). - COLERAINE-EDENHOPE ROAD (SPEED ZONE 100KM/H) 3.BASE INFORMATION FROM GOOGLE EARTH AERIAL PHOTOGRAPHY DATED 26.01.2019





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SCALE 1:1000 @ A3

Client WPEF Pty Ltd

Project WIMMERA PLAINS ENERGY FACILITY HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM

Title SWEPT PATH ANALYSIS - 81m TURBINE BLADE GLENELG HWY ONTO COLERAINE-EDENHOPE RD, COLERAINE

ROAD

COLERAINE-EDENHOPE



Drawn / Approved JT / WD

IMP180332 - DG-05-05

Drawing Number

Revision В



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REET, MELBOURNE VIC 30

Title NWEPT PATH ANALYSIS - 81m TURBINE BLADE COLERAINE-EDENHOPE RD ONTO NHILL-HARROW RD, HARROW

Status			
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Drawing Number

Revision В

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Client WPEF Pty Ltd		Status PRELIMINARY	
Project WIMMERA PLAINS ENERGY FACILITY HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM	Date 2020-04-03 Drawn / Approved JT / WD	Revision Description ISSUED FOR INFORMATION	
	Drawing Number		Revision
NHILL-HARROW RD ONTO WESTERN HWY, NHILL	IMP1803	32 - DG-05-07	В

PRELIMINARY

Revision Description

Revision В

BLADE TRANSPORT TRUCK 81m LONG BLADE 1m CLEARANCE FROM BLADE

LEGEND

TRUCK ACCESS CAPABILITY TO BE CONFIRMED ON-SITE

VEHICLE & VEHICLE CENTRELINE

BLADE

BLADE CLEARANCE

BLADE ENVELOPE

- - - FRONT TIRES ENVELOPE

REAR TIRES ENVELOPE

GENERAL NOTES: 1.ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE. 2.LOCAL ROADS - WESTERN HIGHWAY - BORUNG HIGHWAY 3.BASE INFORMATION FROM GOOGLE EARTH AERIAL PHOTOGRAPHY DATED 26.01.2019

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Client WPEF Pty Ltd

Project

WIMMERA PLAINS ENERGY FA HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM

Title SWEPT PATH ANALYSIS - 81m TURBINE BLADE WESTERN HWY ONTO BORUNG HWY, DIMBOOLA

BORUNG

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TY HWY, KEWELL	IMP1803	32 - DG-02-03	С

DIMBOOLA-MINYIP

ROAD

HENTY

SIGNS TO BE REMOVED

SIGNS TO BE REMOVED

LEGEND

VEHICLE & VEHICLE CENTRELINE BLADE BLADE CLEARANCE

BLADE ENVELOPE

REAR TIRES ENVELOPE

- - - - FRONT TIRES ENVELOPE

TRUCK ACCESS CAPABILITY TO BE CONFIRMED ON-SITE

VESTAS - 81m BLADE meters First Unit Width Trailer Width First Unit Track Trailer Track Load Lock to Lock Time : 6.0 Steering Angle : 40.0 Articulating Angle : 90.0 2.55 2.74 2.55 2.74 81.00

GENERAL NOTES: 1.ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE. 2.LOCAL ROADS - DIMBOOLA-MINYIP ROAD

- HENTY HIGHWAY 3.BASE INFORMATION FROM GOOGLE EARTH AERIAL PHOTOGRAPHY DATED 26.01.2019

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HIGHWAY

SIGNS TO BE REMOVED

Client WPEF Pty Ltd

Project WIMMERA PLAINS ENERGY FACILITY HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM

Title SWEPT PATH ANALYSIS - 81m TURBINE BLADE DIMBOOLA-MINYIP RD ONTO HENTY HWY, KEWELL SECOND MANOEUVRE

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BLADE TRANSPORT TRUCK 81m LONG BLADE 1m CLEARANCE FROM BLADE

<u>LEGEND</u>

BLADE ENVELOPE

REAR TIRES ENVELOPE

- - FRONT TIRES ENVELOPE

TRUCK ACCESS CAPABILITY TO BE CONFIRMED ON-SITE

WESTERN

GENERAL NOTES: 1.ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE. 2.LOCAL ROADS - WESTERN HIGHWAY

- WAIL-DOOEN ROAD 3.BASE INFORMATION FROM GOOGLE EARTH AERIAL PHOTOGRAPHY DATED 26.01.2019

EN STREET, MELBOURNE VIC 30

HIGHWAY

WAIL-DOOEN

Client WPEF Pty Ltd

Project WIMMERA PLAINS ENERGY FACILITY HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM

Title SWEPT PATH ANALYSIS - 81m TURBINE BLADE WESTERN HWY ONTO WAIL-DOOEN RD, WAIL

Date 2020-04-03 Drawn / Approved JT / WD

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WAIL-KALKEE

TRUCK ACCESS CAPABILITY TO BE CONFIRMED ON-SITE

BLADE

BLADE CLEARANCE

REAR TIRES ENVELOPE

BLADE ENVELOPE

- - - - FRONT TIRES ENVELOPE

VEHICLE & VEHICLE CENTRELINE

<u>LEGEND</u>

GENERAL NOTES: 1.ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE. 2.LOCAL ROADS - WAIL-KALKEE ROAD

- BLUE RIBBON ROAD 3.INFORMATION FROM GOOGLE EARTH AERIAL PHOTOGRAPHY DATED 26.01.2019

Impact 31 QUEEN STREET, MELBOURNE VIC 300 ate@Impactaustralla.com.au Impactaustralla.com.au

ROAD

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BLADE TRANSPORT TRUCK 81m LONG BLADE 1m CLEARANCE FROM BLADE

REMOVE SIGNAGE -

Client WPEF Pty Ltd

BLUE RIBBON

Project WIMMERA PLAINS ENERGY FA HENTY HIGHWAY, JUNG RURAL CITY OF HORSHAM

Title SWEPT PATH ANALYSIS - 81r WAIL-KALKEE RD ONTO BLU

REMOVE SIGNAGE

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n TURBINE BLADE E RIBBON RD. KALKEE	IMP1803	32 - DG-03-02	В

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Title

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IMP180332 - DG-04-07

SWEPT PATH ANALYSIS - 81m TURBINE BLADE HENTY HWY ONTO SHEARWOODS ROAD

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APPENDIX C Wimmera Plains Construction Traffic Movements

Detailed Delivery Assumptions and Movements

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) s	l lie		One-way	Two-way	Comments
		Ine					
Operation	Purpose	tor	tot	Delivery Vehicle			
General							
General Construction	Dust Suppression	15	na	Truck Tanker	1,248	2,496	Assumes 2 vehicle per day (to local roads as required only)
	Fuel delivery	15	na	Truck Tanker	104	208	Assumes 1 per week
	Skip delivery	3	na	SM Flat Bed	156	312	1-27week
	Portaloo Deliveries	12	na	L Low Loader	260	520	2-37week
Wind Farm Construction						0	Number of turbines = 15
Site Set-Up	Miscelaneous Establishment Deliveries	5	na	L Low Loader	20	40	Nominal number of deliveries requried for two compounds
	Earthworks equipment delivery	30	na	HLow Loader	10	20	Nominal assumption based on previous projects
Road & Hard standings	Road base aggregate	30	96,000	Truck and Dog	3,200	6,400	80% total aggregate sourced locally from Finlaysons Road
	Subgrade improvement material / fill	30	24,000	Truck and Dog	800	1,600	20% improvement material sourced regionally
Foundation	Heavy equipment delivery	30	na	HLow Loader	5	10	Excavator, project concrete pump et al
Construction	Miscworks	5	na	SM Flat Bed	10	20	Concrete ouring materials, minor equipment etc
	Aggregate delivery to batching plant	30	103,248	Truck and Dog	3,442	6,883	80% agg and sand by mass - (sourced Finlaysons Road)
	Cement delivery to batching plant	16	18,068	Cement Delivery	108	216	14% cement delivery by mass
	Water delivery to batching plant	15	7,744	Truck Tanker	0	0	6% water by mass sourced on-site
	Reinforcing steel delivery	60	2,496	HT Flat bed	35	70	48 tonnes steel per footing
Turbine Components	Tool container delivery	15	na	L Low Loader	4	8	Various equipment for turbine install crew HV
	WTG container delivery	25	na	Flat bed	54	0	1 delivery per turbine assumed
	Tower container delivery	25	na	Flatbed	54	0	1 delivery per turbine assumed
	Top section delivery	50	na	Low loader - Towers	54	108	5 Section tower assumed
	Middle Top Section	50	na	Low loader - Towers	54	108	5 Section tower assumed
	Middle Middle Section	50	na	Low loader - Towers	54	108	5 Section tower assumed
	Middle Bottom Section	50	na	Low loader - Towers	54	108	5 Section tower assumed
	Bottom Section Delivery	50	na	Low loader - Towers	54	104	5 Section tower assumed
	Blades delivery - single blade transport	10	na	Low loader - Blade	162	324	3 blade turbine - assume non reticulated blades OD
	Nacelle	80	na	Low loader - Nacelle	54	108	1 delivery per turbine OD
	Drive Train	80	na	Low loader - Drive Train	54	108	Drive Train delivered separately from nacelle
	Hubs + Spinner	15	na	L Low Loader	54	108	1 delivery per turbine OD
	Power module	24	na	HLow Loader	54	108	1 delivery per turbine OD
	Escort Vehicles				1,296	2,592	2 small vehicles per OD delivery assumed
Cable Installation	Cable delivery	15	na	L Low Loader	54	108	1 delivery per turbine assumed
	Excavator delivery	30	na	HLow loader	8	16	Cable install support equipment
	Cable laying equipment	15	na	L Low loader	2	4	Specialised trenching equipment
	Cable Bedding Sand	30	888	Truck and Dog	108	216	2 deliveries per turbine assumed (to be confirmed)
Misc Small Vehicles	Workers (Light Vehicle Traffic)			Vans, cars	6,240	12,480	Assumes 10 light vehicle movements for staff each day
	Workers (Bussed In)			Bus Vehicles	1,248	2,496	Assumes two busses from each centre per day
	Total estimated OD Traffic				648	1,296	Total traffic generation will be x 2
	Total estimated HV Traffic				10,930	21,859	Total traffic generation will be x 2
	Total estimated LV traffic				7,536	15,072	
	Total estimated traffic for project (one way delivery)				19.066	38,227	Total traffic generation will be x 2

Traffic Impact Assessment

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