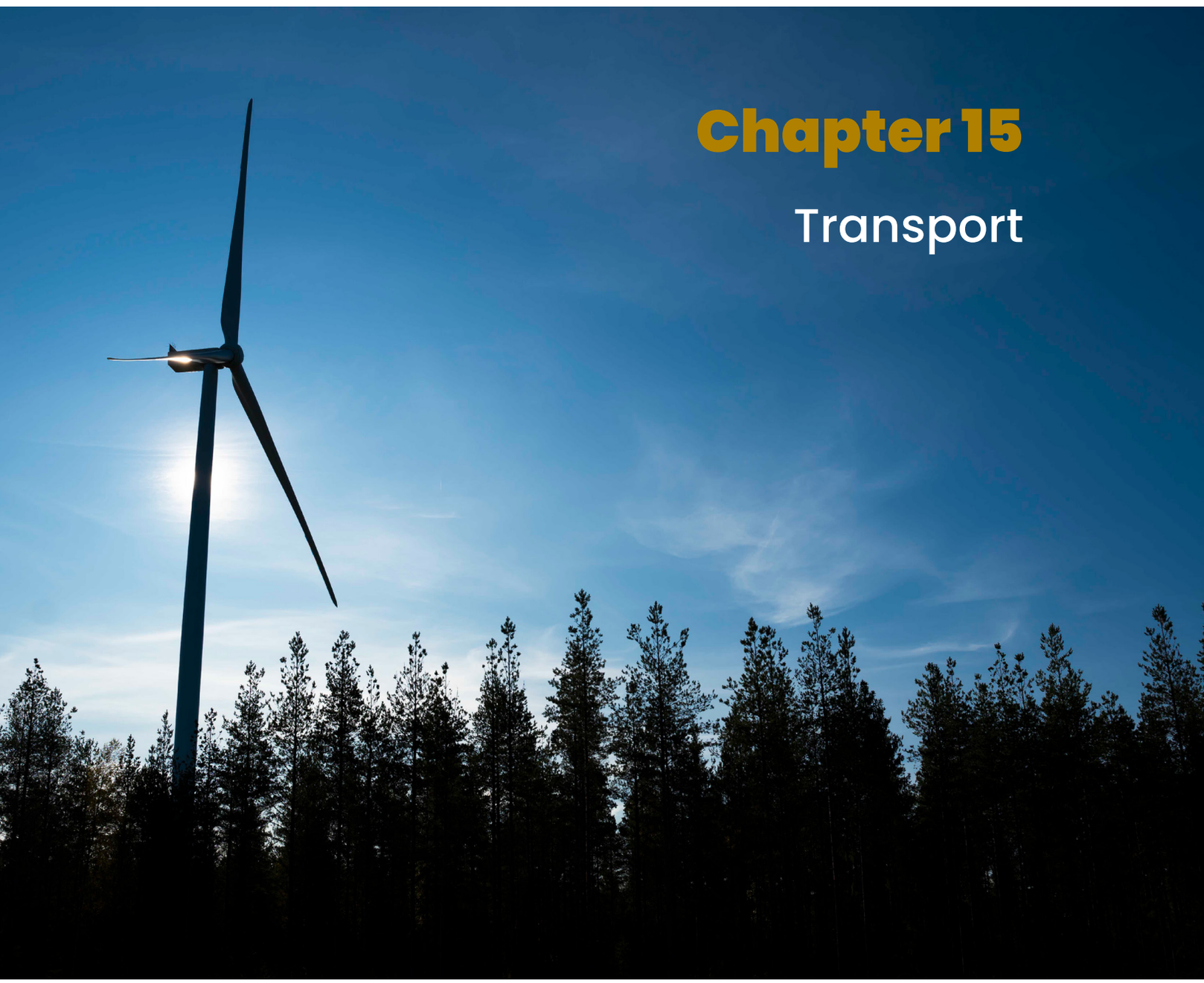


Chapter 15

Transport

Acknowledgement of Country

Neoen Australia acknowledges the traditional custodians of the land in which we live, and pays its respects to their elders, past and present. The Gunditjmara are the original custodians of the Country on which the Project is located and we acknowledge them as the original custodians. We are committed to Aboriginal engagement and reconciliation and aim to bring Aboriginal and Torres Strait Islander people, local communities and the councils along for the journey to strengthen relationships and enhance local community outcomes.

Disclaimer

15 Transport

This chapter describes the potential impacts on traffic and transport associated with construction, operation and decommissioning of the Project, as well as the mitigation measures proposed to avoid, minimise, and manage potential adverse impacts.

This chapter summarises the outcomes of the **Transport Impact Assessment (TIA)** (**Appendix P)**.

15.1 Overview

The TIA investigated potential impacts associated with transporting Project materials along public and private roads during construction and maintenance, including traffic disruption of other road users, landowners, public transport and emergency management authorities. It also identified road intersections that would likely require upgrades or removal of obstructions to facilitate the transport of oversize overmass (OSOM) / over-dimensional (OD) materials such as wind turbine towers and blades.

All of the wind farm OD/OSOM site access points are located off Portland-Nelson Road, which is estimated to have a peak two-way traffic volume of 120 vehicles. This was estimated to increase by up to 174 vehicles depending upon the location relative to each site access road. The section of Portland-Nelson Road near Cowlands Lower Road would result in the largest increase as it would be used by vehicles transporting material from the quarry to other parts of the wind farm site. Roads to be used for construction of the transmission line, which are accessed from Portland-Nelson Road or Henty Highway, were estimated to see an increase of 17 vehicles.

Portland-Nelson Road and Henty Highway have a capacity of approximately 1,800 vehicles per hour two-way. The predicted increase in traffic accessing the adjoining access tracks from these major roads would therefore be minimal in comparison to the available capacity, and traffic-related impacts would be negligible. No mitigations have therefore been proposed (e.g. dedicated turning lanes or bays).

A route assessment was also undertaken to determine possible conflicts and constraints for OD/OSOM vehicles accessing the Project Area, including likely extents of native vegetation removal and impacts on road infrastructure, utilities and private property. Temporary pavement widening would be provided at nine site access points and three intersections along the transport route to safely accommodate the movement of OD/OSOM vehicles. Some obstructions would also need to be removed at some intersections (temporarily or permanently), such as vegetation and fences. Potential native vegetation impacts from the Project, including those associated with OD/OSOM vehicle movements, have conservatively been assessed in the **Flora and Fauna Existing Conditions and Impact Assessment (Appendix C)**, as summarised in **Chapter 7 *Biodiversity.***

There would be occasions where intersections would need to be shut down to allow for safe passage and manoeuvrability of OD/OSOM vehicles. During these times, appropriate warning signage, along with temporary reductions in speed limits, would be in place for all affected intersection approaches. The temporary reductions in speed limits would only be implemented while the OD/OSOM movements are taking place and would not be visible to traffic at any other time.

Conflicts between construction vehicles and local/school bus services are expected to be minimal given the low frequency of bus services and the lack of bus stops present within proximity of the wind farm site entrances. Local/school bus routes and timings will be verified by the construction contractor in the Traffic Management Plans (TMPs) to ensure no conflicts occur with OD/OSOM vehicle movements.

Two TMPs will be prepared for construction of the Project (one each for the wind farm and transmission line) to minimise disruption to the road network from the movement of OD/OSOM vehicles. This would involve obtaining the relevant permits and approvals prior to commencing construction, such as roadworks, oversize vehicle and rail track crossing permits, and include measures for minimising the number and duration of road closures. Temporary or partial closure of roads and traffic lanes will be managed through the TMPs to maintain connectivity for local access, pedestrians and cyclists, in accordance with relevant road design standards and in consultation with landowners and any other relevant third parties. Road closures would occur in off-peak periods when traffic levels are low, particularly for OD/OSOM vehicle deliveries.

It is anticipated that up to 750 m of Boiler Swamp Road would be closed at one time during construction of the transmission line. Members of the public would be diverted along Wrights Swamp Road, T and W Road, Fish Hole Road and Cut Out Dam Road as appropriate. However, emergency vehicle access will be maintained at all times along Boiler Swamp Road during transmission line construction. Emergency vehicle access protocols will be developed and agreed with relevant stakeholders, with unrestricted access always maintained, especially given the importance of Cobboboonee National Park and Cobboboonee Forest Park (the Parks) for bushfire management activities.

The requirement for road upgrades to accommodate construction vehicles will be determined during development of the TMPs, and in consultation with road asset owners. Prior to construction, road condition (dilapidation) surveys will be undertaken to ensure public and private roads are in a suitable condition to accommodate construction vehicles. These surveys will also provide a baseline of pavement conditions to determine any future impacts that may require upgrades or remediation of road assets.

The Victorian Department of Energy, Environment and Climate Action (DEECA) and Parks Victoria would also be consulted specifically in relation to the transmission line TMP, to ensure that emergency vehicle access and activities can continue without disruption during transmission line construction.

15.2 EES evaluation objective

The specific environmental matters to be investigated and documented in this EES are set out in the *Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement* (Scoping Requirements). The Scoping Requirements provide evaluation objectives that describe the desired outcomes to be achieved for each of the matters being addressed in this EES.

The following draft evaluation objective is relevant for the TIA:

> ***Community amenity, safety, roads, and transport*** *– To avoid and minimise adverse effects for community amenity and safety, with regard to construction noise, vibration, dust, traffic and transport, operational turbine noise and fire risk management.*

This chapter and the **TIA (Appendix P)** address the Project's specific traffic and transport matters in response to the Scoping Requirements.

15.3 Assessment methodology

The following approach was undertaken for the TIA:

- Established the study area and characterised the existing transport network and traffic conditions across the study area.
- Desktop review of relevant baseline reports, publicly available information, and databases including:
  - VicRoads OSOM network information.
  - Road safety data sourced from the Victorian Department of Transport and Planning (DTP) CrashStats.
  - Bus route information from Public Transport Victoria and DTP.
  - Designated heavy vehicle routes and restrictions from VicRoads.
  - Available traffic data from DTP and local councils.
- Consultation with relevant stakeholders including DTP – Regional Roads Victoria (RRV), Glenelg Shire Council (GSC), Rex J Andrews (OD) transportation company), Green Triangle Forest Products (GTFP) and Port of Portland.
- Site inspections on 30 July 2020 to assess roads at key intersections and site access points within the Project Area.
- Conducted a traffic generation and distribution analysis based on the anticipated plant, equipment, vehicle and workforce numbers for each Project phase.
- Conducted a route survey assessment to identify potential road widening requirements.
- Identification and assessment of potential impacts on the transport network and traffic conditions from construction and operation of the Project.
- Development of mitigation measures to avoid, minimise and manage potential impacts.
- Assessment of the residual impacts on the transport network and traffic conditions with the implementation of mitigation measures.

The TIA was undertaken based on Project information available at the time of the assessment. The Project layout, turbine design, type of delivery vehicles and construction methods are subject to change as the Project progresses. Where possible, conservative estimates have therefore been adopted throughout the TIA to allow for any future minor changes to the Project. Two TMPs will be prepared prior to Project construction for managing potential traffic and transport impacts associated with the wind farm and transmission line. The TMPs will be developed with consideration of the TIA but will reflect the final Project design and construction methodologies. Refer to **Section 15.8** for more information on the TMPs and mitigation and management for transport-related impacts.

15.4 Existing conditions

15.4.1 Study area

The study area for the TIA includes the Project Area and the potential transportation route of OD/OSOM vehicles from the Port of Portland.

The transport routes considered in this TIA are subject to change. For example, if the Port of Geelong is subsequently selected as the preferred port for component delivery, a formal assessment will be undertaken as part of the TMPs process to assess potential traffic impacts associated with the route to site. The transport contractor engaged by Neoen Australia Pty Ltd (the Proponent) would undertake its own logistical reviews for the transport of OD/OSOM materials to site. These assessments would be incorporated into the TMPs.

15.4.2 Local road network

The local road network associated with the Project Area includes a combination of local and State Government-owned public road assets and other private road assets.

15.4.2.1 Wind farm

Site entrances

The Proponent has identified 10 existing site entrances to the wind farm site which intersect with Portland-Nelson Road:

1. Nelson No. 1 Road
1. Dewars Road
2. Unnamed Road (opposite Dewars Road)
3. Lightbody's Road
4. Nine Mile Road
5. Cowlands Lower Road
6. Windmill Road
7. Wilson Lower Road
8. Sandy Hill Road
9. Unnamed road (opposite Sandy Hill Road).

These site entrances (except for the unnamed road opposite Sandy Hill Road) provide access to an existing network of internal access roads in the commercial forestry site (see **Figure 15.1**). All site entrances, except for Cowlands Lower Road, would facilitate delivery of wind turbine components. Cowlands Lower Road would be used for accessing the main construction compound and quarry. **Table 15.1** provides further information about each of these roads.

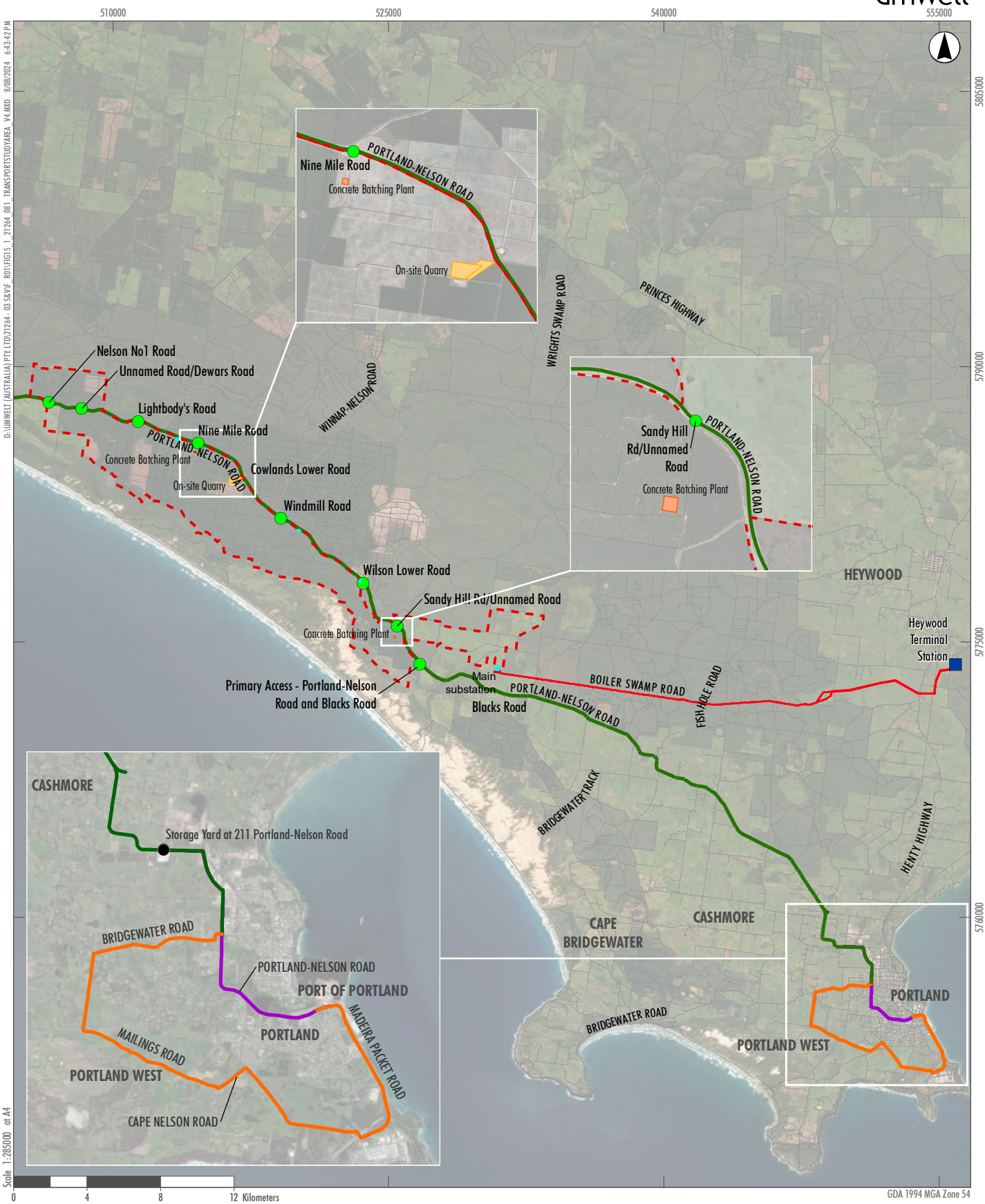
The unnamed road opposite Sandy Hill Road is currently a farm track that would be upgraded during Project construction to allow for transportation of OD/OSOM materials. The wind farm site entrance at this location does not currently exist and would be constructed for the purposes of the Project.

During the operational stage of the Project, the main operations and maintenance facility would be located via Windmill Road with sufficient onsite car parking provided for operations and maintenance staff. Access requirements for Project decommissioning are expected to be consistent with the construction stage of the Project.

Transport routes

Delivery of large Project components (e.g. turbine blades) from overseas is expected to be via the Port of Portland, given its proximity to the Project and capacity to receive wind turbine components. Non-OD/OSOM equipment would be shipped to the Port of Geelong and transported to site via the existing heavy vehicle transport network, as the Port of Portland is not designed for shipping containers. Shipping containers would be delivered by standard heavy vehicles (e.g. B-doubles). As noted in **Section 1.4.1 of the TIA at** Appendix P of the EES, the Port of Geelong is under consideration as an alternate port for the delivery of WTG components which do not require OD/OSOM movements. An assessment of this alternate route has been completed in Appendix D of Appendix P (TIA) of the EES, and these results are summarised in **Section 15.5.**

The Rex J Andrews storage yard at 211 Portland-Nelson Road would be used for the temporary storage of Project materials from the Port of Portland (see **Figure 15.1**). Project components more than 5.4 m in height would be transported from the Port of Portland to the storage yard via the following public roads: Madeira Packet Road, Cape Nelson Road, Malings Road, Bridgewater Road, Henty Highway, and Portland-Nelson Road. All other components would be transported directly to Portland-Nelson Road via Madeira Packet Road and Henty Highway. All components would be transported from the storage yard to site via the same route along Portland-Nelson Road.



Legend

- Project Area
- Concrete Batching Plant
- On-site Quarry
- Vehicles with Loaded Height < 4.4m
- Vehicles with Loaded Height > 4.4m
- All Vehicles
- Site Access Points
- Heywood Terminal Station
- Main Wind Farm Substation

FIGURE 15.1

Transport Impact Assessment Study Area

Image Source: ESRI Basemap (2021) Data source: DELWP (2021); Geoscience Australia (2021); Aecom (2020)

Table 15.1: Road network associated with the wind farm site

Road name	Speed limit (km/hr)	Classification	Manager	Approx. road width (m)	Road surface	Total no. of lanes	Project usage
Nelson No.1 Road	60	Local	Private (GTFP)	5	Unsealed	One	OD/OSOM material transport into plantation
Dewars Road	60	Local	Private (GTFP)	7	Unsealed	Two	
Unnamed road opposite Dewars Road	60	Local	Private (GTFP)	5	Unsealed	One	OD/OSOM material transport into plantation and farmland
Lightbody's Road	60	Local	GSC	5	Unsealed	One	OD/OSOM material transport into plantation
Nine Mile Road	60	Local	GSC	5	Unsealed	One	
Windmill Road	60	Local	GSC	5	Unsealed	One	
Cowlands Lower Road	60	Local	GSC	7	Unsealed	Two	Light vehicle access to quarry
Wilson Lower Road	60	Local	GSC	5	Unsealed	One	OD/OSOM material transport into plantation
Sandy Hill Road	60	Local	GSC	7	Unsealed	Two	
Roads along transport route							
Portland-Nelson Road	100	Highway	DTP	7	Sealed	Two	OD/OSOM material transport and light vehicle access to wind farm site
Henty Highway	100	Highway	DTP	7	Sealed	Two	
Bridgewater Road	80	Arterial	DTP	7	Sealed	Two	OD/OSOM material transport to wind farm site
Malings Road	80	Collector	GSC	7	Sealed	Two	
Cape Nelson Road	80	Collector	GSC	7	Sealed	Two	
Madeira Packet Road	80	Arterial	DTP	7	Sealed	Two	

15.4.2.2 Transmission line and main substation

The following roads would be used to provide access for construction of the transmission line:

- Blacks Road
- Boiler Swamp Road
- Cut Out Dam Road
- Jennings Road
- Sandy Hill Road
- Coffeys Lane
- Meaghers Road
- Rifle Range Road
- Jarrets Road
- Mt Kincaid Road.

Each of these roads are accessed by Portland-Nelson Road or Henty Highway. The primary construction access point for the underground transmission line and main substation would be from Portland-Nelson Road and Blacks Road, at the western end of the transmission line. Side roads such as Wrights Swamp Road, T and W Road, and Fish Hole Road could also be used by light vehicles.

To access the eastern end of the transmission line, construction traffic would utilise Jennings Road, accessed from the wider road network via Henty Highway and Coffeys Lane. Access to the Heywood Terminal Station would be from the Henty Highway, via Meaghers Road and Rifle Range Road.

No roads associated with construction of the transmission line or Heywood Terminal Station upgrade works require OD or OSOM deliveries. Materials or equipment needed for construction of the underground transmission line can be transported using standard heavy vehicles (e.g. B-Double trucks).

Table 15.2 provides further information about each of these roads.

15.4.2.3 Existing sustainable modes of transport

Given the rural setting of the Project Area, there is no dedicated pedestrian or bicycle infrastructure located via or near the road network. However, Portland-Nelson Road is known to be used by recreational and sport training cyclists.

There are several formal and informal walking trails in the area, including the Great South West Walk (GSWW), which is a 250 km walking track that passes through Lower Glenelg National Park, Cobboboonee National Park, Discovery Bay Coastal Park, Mount Richmond National Park and Cape Nelson State Park (see **Figure 15.2**). The walk was designed as a long-distance walking track, with options for short and day walks. It can be accessed from roads in and near the towns of Portland and Nelson.

There are four public bus routes operating on weekdays within the study area:

- Route 1 Portland North and Route 2 Portland South operate within the Portland town centre. The buses operate approximately every hour.
- Hamilton–Portland via Heywood operates along New Street, Henty Highway and Princes Highway. Services to Hamilton or Portland are once daily.
- Mount Gambier–Melbourne via Warrnambool/Geelong is operated by V/Line and takes the same route within the study area as the Hamilton–Portland route described above. There are two daily services in both directions from Portland.

Several schools are in the vicinity of the Project Area, including Portland North Primary School (accessed from Portland- Nelson Road), Bolwarra Primary School (Henty Highway), Narrawong District Primary School (Princes Highway) and various schools within Portland. School bus routes share public bus routes, noting they do not use Portland-Nelson Road along the wind farm site boundary where site access points are located. School buses would typically travel on these roads between 7.30–8.45 am and 3.30–4.45 pm. Public bus and school routes will be confirmed in the TMP prior to construction commencing on the Project. Timetabling will be rechecked prior to commencement of each school term as school bus roots are subject to change.

Table 15.2: Transmission line corridor road network conditions

Road name	Speed limit (km/hr)	Classification	Manager	Approx. road width (m)	Road surface	Total no. of lanes
Portland-Nelson Road	100	Highway	DTP	7	Sealed	Two
Boundary / Blacks Road	60	Local	GSC	7	Unsealed	Two
Boiler Swamp Road	60	Local	GSC	5	Unsealed	One
Cut Out Dam Road	60	Local	GSC	5	Unsealed	One
Jennings Road	60	Local	GSC	7	Unsealed	Two
Coffeys Lane	60	Local	GSC	5	Sealed	One
Henty Highway	100	Highway	DTP	7	Sealed	Two
Meaghers Road	60	Local	GSC	5	Sealed	One
Rifle Range Road	60	Local	GSC	5	Unsealed	One
Sandy Hill Road	60	Local	GSC	7	Unsealed	Two
Mt Kincaid Road	60	Local	DTP	5	Unsealed	One
Jarrets Road	60	Local	GSC	5	Seales	One

15.4.3 Traffic conditions

15.4.3.1 Annual average daily traffic

Annual Average Daily Traffic (AADT) volumes for Portland-Nelson Road and Henty Highway were obtained from DTP and Open Data datasets and are outlined in **Table 15.3**. The traffic data were recorded on Portland-Nelson Road between Wade Street and Heath Road (just outside of Portland) and on the Henty Highway between Darts Road and Port Road in 2020. Based on the estimations for peak hour traffic volumes currently operating on these two roads, there is predicted to be significant spare operational capacity for increases in traffic on these roads.

Table 15.3: Portland-Nelson Road and Henty Highway AADT volumes

Road name	Two-way AADT volumes (2020)	Estimated two-way peak hour volumes* (% heavy vehicles)	Current spare road capacity (1,800 vehicles per hour two-way)
Portland-Nelson Road	1,200	120 (51 %)	87 %
Henty Highway	4,000	400 (21 %)	78 %

*Assumed to be equal to 10 % of two-way AADT volumes, rounded up to next whole vehicle.

No traffic volume data for local government road assets were available from GSC. However, it was observed during site investigations that there were limited to no vehicles using the GSC roads, which is expected given the rural setting of the Project Area.

15.4.3.2 Seasonal variations and local traffic demands

Portland-Nelson Road is used extensively by forestry trucks which transport logs and woodchips to the Port of Portland. The Port of Portland exports approximately four million tonnes of wood products per year, of which almost 50% is transported via Portland-Nelson Road. GTFP has advised that its main forestry activities usually occur between April and September, which would see around 150 trucks per week on Portland-Nelson Road during the peak period.

Further investigation into the seasonal peaks of business and tourism traffic will be undertaken as part of the TMPs to ensure that peak base traffic operations are considered. However, peak seasonal traffic volumes are unlikely to affect the operational capacities of the key roads near the Project Area entrances.

15.4.3.3 Crash history review

A crash history analysis was undertaken for the length of Portland-Nelson Road, from the storage yard at 211 Portland-Nelson Road to the western end of the wind farm site, using available data from DTP CrashStats between 2013 to 2020. The assessment had the following findings. There was a total of 16 crashes in the area, of which six were fatal and ten serious (see **Figure 15.3**).

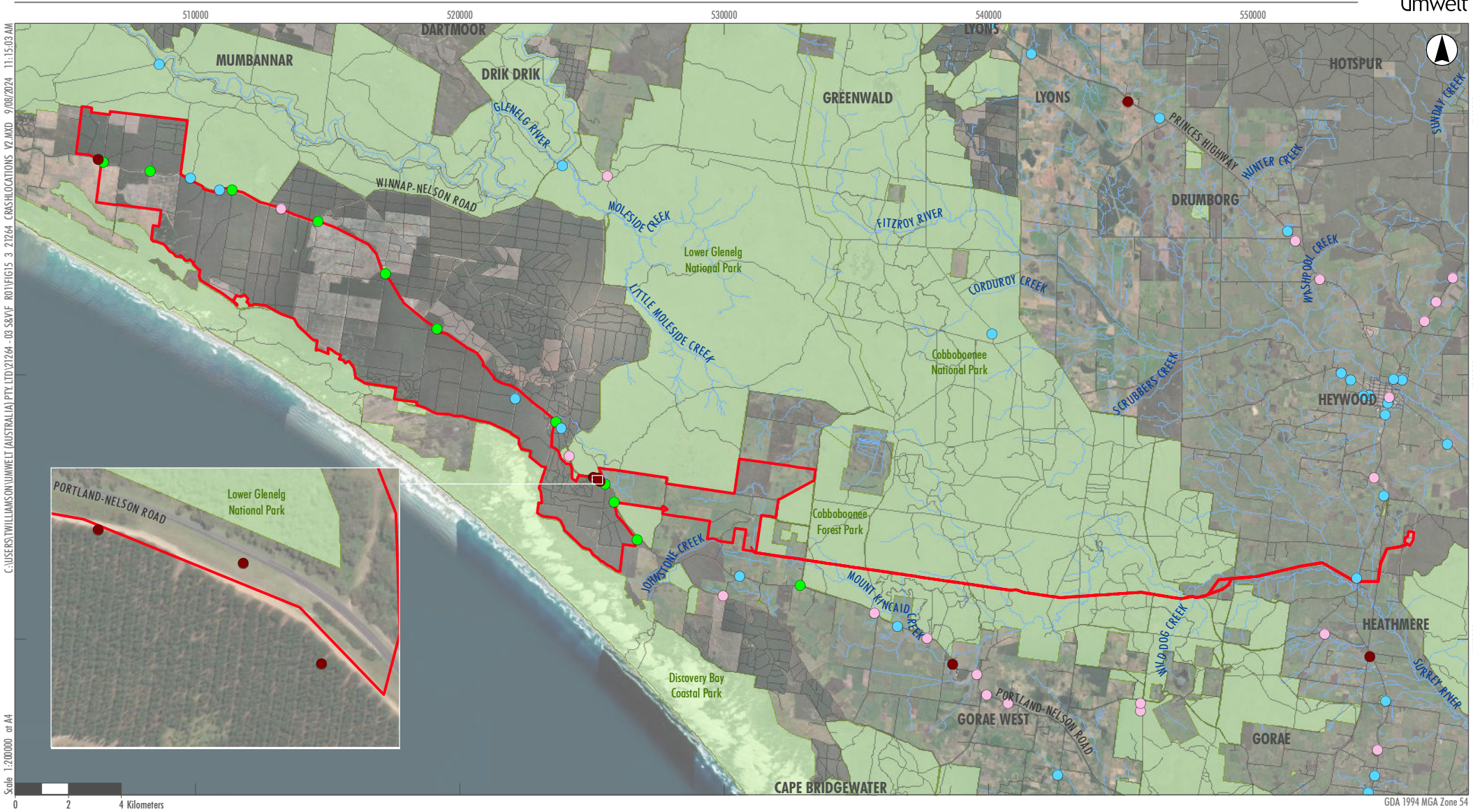
Legend

- Project Area
- Rex J Andrews Storage Yard
- Great South West Walk
- Bus Routes
- Route 1 Portland North
- Route 1 Portland South
- Local Glenelg Bus Routes
- Mount Gambier - Melbourne/Geelong Bus Route
- Schools
- Roads
- Watercourses

FIGURE 15.2

Sustainable Modes of Transport near the Project Area

Image Source: ESRI Basemap (2021) Data source: Geoscience Australia; DELWP (2021)



Legend

- Project Area
- Site Access Points
- Parks and Reserves
- Roads
- Watercourses

Accident Severity

- Fatal
- Serious injury
- Other injury

FIGURE 15.3

Crash Locations 2013-2020

Image Source: ESRI Basemap (2021) Data source: Geoscience Australia; DELWP (2021)

15.5 Construction impacts

15.5.1 Construction traffic generation

This section provides an overview of the traffic volumes that may be generated from construction activities associated with the Project.

Traffic volumes were conservatively estimated for the construction phase of the Project to represent the maximum traffic volumes likely to be generated by the Project at any given point in time during construction. These estimates are considered conservative as some works are unlikely to occur simultaneously.

Table 15.4 shows the estimated traffic volumes associated with delivery of turbine and crane parts and any other externally sourced materials, based on a 24-month construction program.

Table 15.4: Estimate of external traffic volumes generated during wind farm construction

Vehicle type	One-way trips	Origin	Assumed load
OD trailer	2,129	Port of Portland	Wind turbine generator parts
Truck and dog trailer	4,180	Portland-Nelson Road	Cement, concrete, aggregate and sand
Rigid truck	354	Portland-Nelson Road	Fuel delivery
Other heavy vehicles	2,381	Portland-Nelson Road	Support vehicles required for turbine erection and parts delivery
Light vehicle	44,000	Portland-Nelson Road	Workforce
Total OD vehicle trips	**2,129**		
Total heavy vehicle trips	**6,915**		
Total light vehicle trips	**44,000**		

Internal (or inter-site) traffic would also be generated during construction due to vehicles transporting materials from the on-site quarry and concrete batching plants, which are located in the wind farm site (see **Figure 15.1**). **Table 15.5** shows the estimated traffic volumes associated with internal vehicles travelling to and from the turbine locations via Portland-Nelson Road.

At this stage, the Project's onsite quarry is the only source identified for extracted material. In the case where this supply is insufficient, other quarries capable of supplying the Project would be considered at the TMP stage. Regardless, all trips would travel via Portland-Nelson Road and access the Project Area via one of ten site access points and are unlikely to change the assessment findings.

Table 15.5: Estimate of internal traffic volumes generated during wind farm construction

Vehicle type	One-way trips	Origin	Purpose
Concrete agitator	10,500	Batching plants	Turbine foundations, substation foundations
Truck and dog trailer	6,875	On-site quarry	Aggregate / gravel delivery for access road upgrades
Rigid trucks	1,870	On-site bores	Water cartage
Total heavy vehicle trips	**19,245**		

Traffic volumes estimated to be generated from construction of the transmission line are as follows:

- Approximately 30 workers are expected during peak construction of the underground transmission line (30 light vehicles assuming worst-case scenario of no car sharing), with an average of three trucks per day.
- Travel volumes generated during Project commissioning are expected to be similar to or smaller than the construction phase.

15.5.2 Site access and intersection upgrades

A route assessment of the OD/OSOM transport route and wind farm site access points (see **Section 15.4.2.1**) was undertaken based on a 90 m-long turbine blade (see Appendix C of the **TIA** (**Appendix P**)). The purpose of this assessment was to determine areas along the route and site access points that may require upgrades or alterations to accommodate OD/OSOM vehicles. A conservative swept path analysis was undertaken for the largest possible OD/OSOM vehicle requiring access to the wind farm site at key locations along the delivery route and at each of the wind farm site entrances. **Figure 15.4** depicts pinch points and intersection upgrade requirements.

Nine of the ten wind farm site access points would be used for the delivery of Project components and would be used by OSOM delivery vehicles. All nine access points would need to be widened (e.g. with laying of temporary pavement and temporary removal of fences and other infrastructure at some locations) to accommodate OSOM vehicles. None of the site access points for the underground transmission line require upgrades.

Upgrade requirements for each access points are outlined in **Table 15.6.** All site entrances, except for Cowlands Lower Road, would facilitate delivery of wind turbine components. Cowlands Lower Road would be used for accessing the main construction compound and onsite quarry.

Table 15.6: Wind farm site access point upgrade requirements

Site Access ID	Intersection	Upgrade requirements
SE1	Portland-Nelson Road – Sandy Hill Road	• Temporary pavement to be constructed along OSOM wheel-path.
SE2	Portland-Nelson Road – New site entrance (opposite Sandy Hill Road)	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path. • Remove and reinstate property boundary fence and gate (if required).
SE3	Portland-Nelson Road – Wilson Lower Road	• Temporary pavement to be constructed along OSOM wheel-path.
SE4	Portland-Nelson Road – Windmill Road	• Temporary pavement to be constructed along OSOM wheel-path.
SE5	Portland-Nelson Road – Cowlands Lower Road	• N/A – not used for OSOM access.
SE6	Portland-Nelson Road – Nine Mile Road	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path.
SE7	Portland-Nelson Road – Lightbody Road	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path. • Extend pipe culvert to suit new intersection (remove and replace if necessary).
SE8	Portland-Nelson Road – New site entrance (adjoining Dewars Road)	• Temporary pavement to be constructed along OSOM wheel-path. • Remove and reinstate wooden street marker post.
SE9	Portland-Nelson Road – Unnamed Road	• Temporary pavement to be constructed along OSOM wheel-path.
SE10	Portland-Nelson Road – New site entrance (adjoining Nelson No. 1 Road)	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path.

Three narrow points along the OD/OSOM route have been identified which would need to be widened to allow for transport of wind turbine blades (see **Table 15.7**). These pinch points would require vegetation/infrastructure removal from within the blade swept path and/or temporary road pavement. Sections of road, including within the wind farm site, may also need to be upgraded (e.g. widened or improved road pavements).

Table 15.7: Intersection upgrade requirements

Pinch Point ID	Intersection	Upgrade requirements for OSOM vehicles
PP1	Portland-Nelson Road – Henty Highway-Portland-Nelson Road	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path. • Road signs to be made removeable. • Remove and reinstate property boundary fence (if required).
PP2	Portland-Nelson Road and Cashmore Road	• Remove vegetation within blade swept path. • Temporary pavement to be constructed along OSOM wheel-path, including diversion of swale drain. • Power poles to be protected. • Street light poles to be protected (or removed if required). • Traffic island to be made driveable. • Road signs to be made removeable.
PN3	211 Portland-Nelson Road	• Remove vegetation within blade swept path. • Remove and reinstate property boundary fence (if required). • Temporary pavement to be constructed along OSOM wheel-path.

As no stormwater management solutions are currently being implemented to divert runoff near the site entrances, Project works associated with intersection upgrades may require the implementation of stormwater drainage management systems such as of swale drains and pipe culverts. This would be confirmed during site access concept and functional design stages. See mitigation measure MM-SW08 in **Chapter 9 *Surface water, groundwater and groundwater dependent ecosystems***.

Native vegetation removal requirements identified in **Table 15.6** and **Table 15.7** have been considered in the **Flora and Fauna Existing Conditions and Impact Assessment (Appendix C)** and are discussed in **Chapter 7 *Biodiversity***.

Operational controls outlined in the TMPs will also be implemented at these intersections such as temporary speed restrictions, OD/OSOM delivery time restrictions and Project signage (see mitigation measure MM-TP02).

In addition to providing access and turning movements for OD/OSOM vehicles, safe intersection sight distances (SISDs) were considered at each site access points. SISD is the minimum sight distance that must be provided on a major road at any intersection to ensure sufficient distance for a driver of a vehicle to observe an approaching vehicle on a minor road, and to decelerate to a stop to prevent a collision.

Five of the 10 wind farm site access points are non-conforming in terms of SISD, as shown in **Table 15.8**. Given the increase of heavy vehicles during Project construction and the crash history and intersection visibility deficiencies at some of the site access locations, it is considered appropriate that reduced speed limits at all or key site entrances be implemented. To allow for safe use of these access points and to meet SISD standards, speed limits near entrances on Portland-Nelson Road will be reduced to 70 km/hr where deemed necessary (see mitigation measure MM-TP02). Additional vegetation removal would also be considered where required to improve SISD, if reduced speed limits are insufficient.

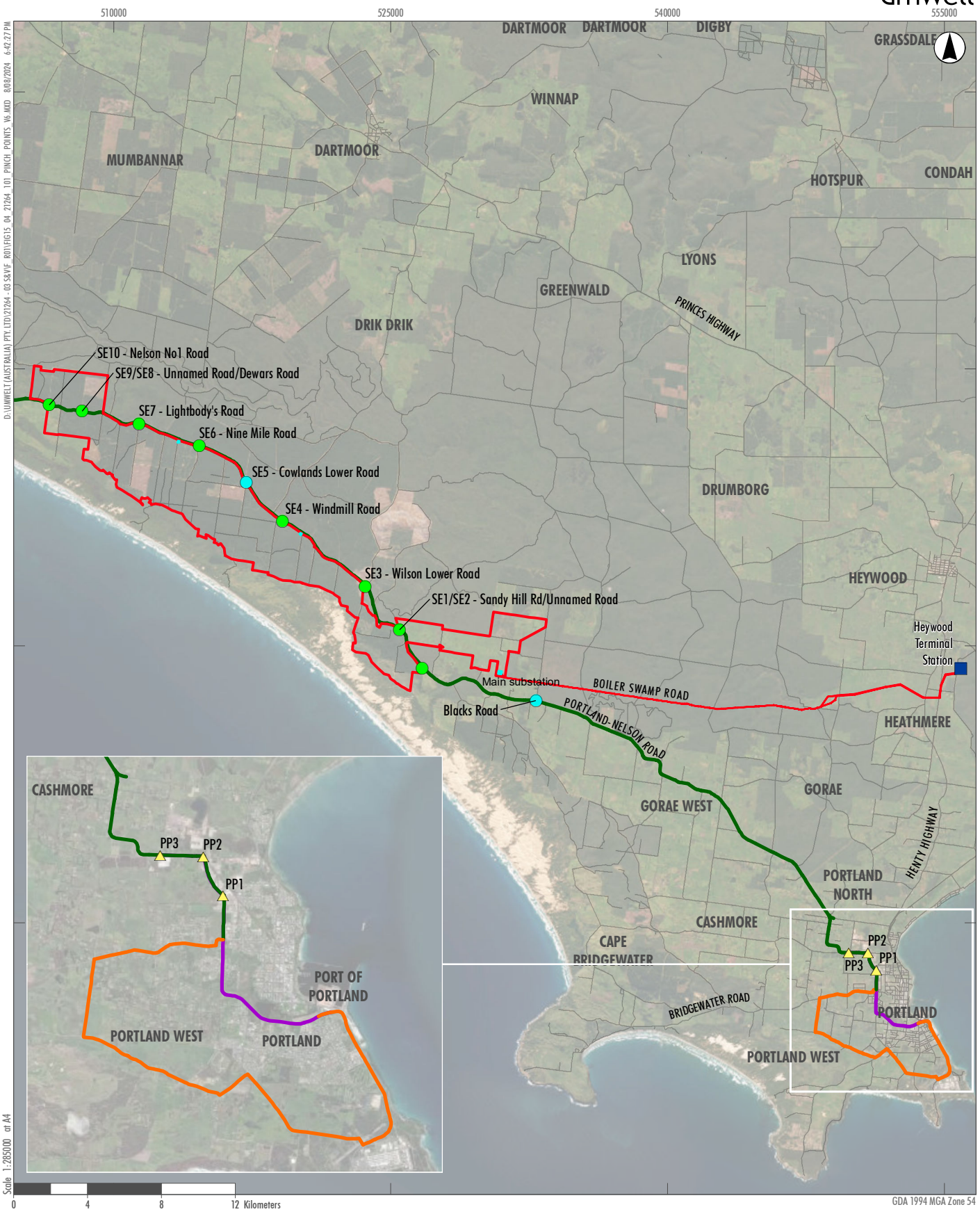
15.5.2.1 Alternative route for WTG component delivery

Appendix D of the TIA at Appendix P of the EES includes an assessment of an alternative route for WTG component delivery using Port of Geelong. The route is described in Appendix D of the TIA at Appendix P of the EES and would comprise:

- Corio Quay Road (C115)
- Princes Highway and Geelong Ring Road (A10/M1/A1)
- Henty Highway (A200)
- Westlakes Road
- Portland-Nelson Road (C192).

The assessment found if Port of Geelong is selected as the preferred delivery route for WTG components, the number of containers to be delivered is expected to be around 45 per month. Assuming a typical B-double can accommodate two of these 24 tonne containers, the frequency of operational traffic movements is expected to be approximately 23 monthly two-way movements, or conservatively a single daily two-way movement. Given the existing capacity of the nominated route, it is not expected that this small increase in vehicle volume would noticeably impact network operations.

The final delivery route is to be verified as part of the TMP (MM-T03), which is expected to be undertaken prior to the Project commencement. The assessment would consider potential impacts to, but not limited to, road surface, bridge and culvert structures.



Legend

- Project Area
- Vehicles with Loaded Height < 4.4m
- Vehicles with Loaded Height > 4.4m
- All Vehicles
- Upgrades Required
- Upgrades Not Required
- Pinch Points
- Heywood Terminal Station
- Main Wind Farm Substation

FIGURE 15.4

Pinch Points and Intersection Upgrade Requirements

Image Source: ESRI Basemap (2021) Data source: DELWP (2021); Geoscience Australia (2021); Aecom (2020)

Table 15.8: Sight distance checks at wind farm site entrances

ID	Site entrance from Portland-Nelson Road	SISD achieved?	Notes/potential mitigation
SE1	Portland-Nelson Road – Sandy Hill Road	No	SISD can be achieved if a temporary speed reduction to 70 km/hr is implemented along Portland-Nelson Road.
SE2	Portland-Nelson Road – New site entrance (opposite Sandy Hill Road)	No	SISD can be achieved if a temporary speed reduction to 70 km/hr is implemented along Portland-Nelson Road.
SE3	Portland-Nelson Road – Wilson Lower Road	No	SISD can be achieved if a temporary speed reduction to 70 km/hr is implemented along Portland-Nelson Road Tree removal south of the intersection would increase the SISD, potentially removing the requirement for a reduced speed limit.
SE4	Portland-Nelson Road – Windmill Road	Yes	
SE5	Portland-Nelson Road – Cowlands Lower Road	Yes	
SE6	Portland-Nelson Road – Nine Mile Road	Yes	
SE7	Portland-Nelson Road – Lightbody Road	No	SISD can be achieved on the eastern side of the intersection if a temporary speed reduction to 70 km/hr is implemented. Additional vegetation removal may improve SISD to the western side of intersection.
SE8	Portland-Nelson Road – New site entrance (adjoining Dewars Road)	Yes	
SE9	Portland-Nelson Road – Unnamed Road	Yes	
SE10	Portland-Nelson Road – New site entrance (adjoining Nelson No. 1 Road)	No	SISD can be achieved if a temporary speed reduction to 70 km/hr is implemented along Portland-Nelson Road.

A site access strategy will be developed and finalised in consultation with relevant stakeholders. The number of site access points used for general construction of the wind farm will be investigated further to utilise internal access tracks and limit movements between the site and Portland-Nelson Road. Access points for transmission line construction will also require further consideration and design (see mitigation measure MM-TP05). Once the access strategy has been finalised, access points will be subjected to a road safety audit (see mitigation measure MM-TP03).

15.5.3 Traffic generation at site entrances

Table 15.9 outlines the estimated worst-case traffic impacts from construction of the Project.

As shown in **Table 15.9**, the peak two-way traffic volumes on Portland-Nelson Road are expected to increase by 174 vehicles depending upon the location relative to each wind farm site access road. Cowlands Lower Road would result in the largest increase as it would be used by vehicles transporting material from the quarry to other parts of the wind farm site. Roads to be used for construction of the transmission line are expected to see an increase of 17 vehicles.

Portland-Nelson Road and Henty Highway have a capacity of approximately 1,200 and 4,000 vehicles, respectively, per hour two-way (600 and 2,000 vehicles one-way, respectively) (see **Table 15.3**). The predicted increase in traffic accessing the adjoining access tracks from these major roads would therefore be minimal in comparison to the available capacity, and traffic-related impacts would not be significant. No mitigations have therefore been proposed (e.g. dedicated turning lanes or bays). An in-depth analysis of other quarry sites will be considered during preparation of the TMPs.

The need for site entrance upgrades due to allow for OD/OSOM vehicles to enter and exit the site is discussed in **Section 15.5.6.**

Table 15.9: Predicted worst-case construction traffic impacts during the morning peak hour

ID	Access point	Major access road	Existing peak two-way traffic volume[1] (major road)	Predicted peak two-way traffic volume with Project development[2] (major road)	Estimated increase in intersection use[3]	
					Left turns	Right turns
Wind farm site						
SE1	Sandy Hill Road	Portland-Nelson Road	120	233	10	3
SE2	New site entrance (opposite Sandy Hill Road)		120	262	12	33
SE3	Wilson Lower Road		120	250	27	0
SE4	Windmill Road		120	250	27	0
SE5	Cowlands Lower Road		120	294	106	64
SE6	Nine Mile Road		120	191	13	0
SE7	Lightbody's Road		120	208	10	0
SE8	Dewars Road		120	208	0	30
SE9	Unnamed Road (opposite Dewars Road)		120	208	13	0
SE10	Nelson No. 1 Road		120	208	0	30
Transmission line						
-	Blacks Road	Portland-Nelson Road	120	153	0	33
-	Mt Kincaid Road	-	0	33	33	0
-	Boiler Swamp Road	-	0	33	0	33
-	Cut Out Dam Road	-	0	33	0	33
	Coffeys Lane[5]	Henty Highway	400	433	33[4]	33[4]
-	Jarretts Road[5]	Henty Highway	400	433	0	33
-	Meaghers Road	Henty Highway	400	433	0	33
-	Rifle Range Road	Meaghers Road	0	33	33	0

[1] Assumed to be equal to 10 % of the two-way AADT. Two-way AADT volumes can be found in **Table 15.3**.
[2] Includes existing traffic volumes, heavy vehicle and light vehicles
[3] Increase in intersection use only considers turning movements made from the main road (Portland-Nelson Road) into the site access road. It is assumed that the opposite movement from the access track to the main road is made at an off-peak time or concentrated to a single afternoon peak period when the working day finishes.
[4] Assumes full peak volume increase uses either access point.
[5] Estimates for traffic volumes increases have been estimated conservatively, assuming the entire peak increase may use either access option.

15.5.4 Over-dimensional and oversize overmass vehicles

During construction there is potential for OD/OSOM vehicle movements to impact on the wider road network and its users. There will be occasions where intersections would need to be shut down to allow for safe passage and manoeuvrability of OD/OSOM vehicles. During these times, appropriate warning signage, along with temporary reductions in speed limits, would be in place for all affected intersection approaches (see mitigation measure MM-TP02). The temporary reductions in speed limits would only be implemented while the OD/OSOM movements are taking place and would not be visible to traffic at any other time. OD/OSOM vehicles would travel under convoy at speeds typically around 20 km/hr. To reduce road closures on two-way road sections, vehicles can traverse road shoulders or be stopped in designated zones to allow for safe passage of the OD/OSOM vehicle before proceeding on their respective journey.

TMPs will be prepared for construction of the Project to minimise disruption to the road network from the movement of OD/OSOM vehicles. This would involve obtaining the relevant permits and approvals prior to commencing construction, such as roadworks, oversize vehicle and rail track crossing permits, and include measures for minimising the number and duration of road closures (see mitigation measure MM-TP02). Temporary or partial closure of roads and traffic lanes will be managed through the TMPs to maintain connectivity for local access, pedestrians and cyclists, in accordance with relevant road design standards and in consultation with landowners and any other relevant third parties. Road closures would occur in off-peak periods when traffic levels are low, particularly for OD/OSOM vehicle deliveries.

Prior to construction, OD/OSOM transport route assessments will be undertaken by the nominated transport contractor to determine the final route for OD/OSOM vehicles transporting Project components from the nominated port to the Project Area (see mitigation measure MM-TP04). Following verification of the final route, potential impacts along the route will be managed in consultation with relevant stakeholders to allow for the safe delivery of materials to the Project Area, including DTP, GSC, Rex J Andrews, GTFP, Port of Portland, Parks Victoria and DEECA in relation to the underground transmission line.

15.5.5 Plantation operations

The site access strategy for the wind farm will be coordinated with GTFP to ensure that potential impacts from Project construction traffic on the plantation operations will be managed in a safe manner. The main harvest activities within the plantation occur between April and September each year, with some operations occurring over summer. GTFP has advised that peak volumes of 150 trucks per week occurred during this period in its 2021-22 logging season. A one-way system is usually adopted by plantation vehicles on the plantation access tracks, with speed limits of 60 km/hr.

Maintenance requirements and protocols will be coordinated and agreed to prior to construction, including inspection of access tracks to identify and rectify any issues that require fixing (see mitigation measures MM-TP01 and MM-TP02).

15.5.6 Road upgrades

The requirement for road upgrades to accommodate construction vehicles will be determined during development of the TMPs. Prior to construction, road condition (dilapidation) surveys will be undertaken to ensure public and private roads are in a suitable condition to accommodate construction vehicles, particularly OD/OSOM vehicles transporting wind turbine components. These surveys will also provide a baseline of pavement conditions to determine any future impacts that may require upgrades or remediation of road assets.

Consultation with road asset owners (including DTP, GSC, GTFP and DEECA) will be undertaken to determine the extent and form of dilapidation surveys, a road maintenance methodology including procedures and intervention criteria, and a post construction review. If upgrades or 'make-good' provisions are required with respect to the use of roads within the pine plantation (or elsewhere) this will be completed at the same time as the TMPs are prepared (see mitigation measures MM-TP02 and MM-TP01).

Detailed design of the Project, including any road upgrades, will consider road crash history and further traffic management measures to reduce the risk of vehicle collision due to the increase in large construction vehicles on the road network.

15.5.7 Pedestrian and bicycle routes

Potential impacts on cyclists that may use Portland-Nelson Road will be managed through implementation of the TMPs, with measures such as reduced speed limits and general construction signage warning of the movement of heavy vehicles on Portland-Nelson Road (see mitigation measure MM-TP02). Ongoing stakeholder consultation will also be undertaken to ensure the local community is notified of changed traffic conditions (see mitigation measure MM-TP01).

Access to recreational infrastructure in the Parks would be temporarily disrupted by closures of Boiler Swamp Road to allow for construction of the underground transmission line. This would require the closure of 750 m sections of Boiler Swamp Road at one time. Traffic diversions would be implemented to divert members of the public along alternative

routes through the Parks, such as Wrights Swamp Road, T and W Road, Fish Hole Road and Cut Out Dam Road (see **Figure 15.5**).

Road closures and detours will be detailed in the transmission line TMP (see mitigation measure MM-TP02) and communicated to local landholders, the local community and relevant government agencies (e.g. DEECA and Parks Victoria) as per the Communications Plan (see mitigation measure MM-TP01). **Refer to the Draft Consent Application under the *National Parks Act 1975* (Vic) (NP Act) (Appendix Z)** for more information on impacts and mitigation measures associated with the underground transmission line.

Construction of the underground transmission line along Boiler Swamp Road may impact on walkers on the GSWW where it crosses Boiler Swamp Road at one location. However, the machinery would only obstruct the GSWW crossing for a short amount of time (around 20 minutes) and people attempting to cross Boiler Swamp Road when the construction machinery is nearby will be encouraged to wait until the machinery has passed. A temporary marquee and seating area will be provided on both sides of the road to allow for this. Alternatively, traffic management personnel can guide hikers around the construction zone to continue on their way. Signage to notify GSWW users of a possible delay will be placed 1 km along the trail before the Boiler Swamp Road crossing, and the Visitors Centre will be kept informed of the dates and times of disruption (see mitigation measure MM-TP01).

15.5.8 Public / school bus routes

No bus routes are known to travel directly along Portland-Nelson Road for the length of the wind farm site, however there are bus services which travel along the OD/OSOM transport routes, notably along the following roads:

- Portland-Nelson Road (between Henty Highway and Stanleys Road in Mount Richmond)
- Henty Highway
- Madeira Packet Road.

These roads would be used by construction vehicles travelling to and from the Project Area. However, any conflicts between construction vehicles and bus services are expected to be minimal given the low frequency of bus services and that there are no bus stops present within proximity of the wind farm site entrances. Local bus routes and timings will be verified by the construction contractor in the TMPs to ensure no conflicts occur with any construction or OD/OSOM vehicle movements associated with the wind farm (see mitigation measure MM-TP02).

School bus routes will be confirmed by the construction contractor prior to construction commencing, with timetabling to be re-checked prior to the recommencement of each school term as school bus routes are subject to change. This will ensure that OD/OSOM vehicle movements can be scheduled around school bus times (see mitigation measure MM-TP02). The need to restrict heavy vehicle movements during school bus times will be assessed during preparation of the TMPs, noting that existing heavy vehicle volumes on the local road network are high (see **Section 15.4.3**).

15.5.9 Dust and debris on roads

Construction vehicles, including plant and spoil trucks, traveling to and from the Project Area have the potential to deposit construction debris on public roads, leading to dust generation and perceived loss of amenity as well as public health and safety issues. To mitigate potential dust and debris impacts on roads, vehicles will be kept to defined haul roads and vehicle movements will be minimised on exposed surfaces. Vehicle speed limits will be enforced on unsealed roads, particularly in proximity to the quarry site, and soil deposit on public roads will be minimised through the use of rumble grids and wheel washing where required (see mitigation measure MM-TP02 and other relevant mitigation in **Chapter 13 *Air quality***).

15.5.10 Emergency vehicle access

The Project would ensure that emergency vehicle access is maintained in the Parks during construction of the underground transmission line. The construction corridor along Boiler Swamp Road would allow for two-way vehicles access to be maintained. The corridor would be 6.5 metres wide, of which 3 to 3.2 metres would be designated for construction access bypass. This bypass would provide emergency vehicles access.

Emergency vehicle access protocols will be developed and agreed between relevant stakeholders with unrestricted access to be maintained at all times. These will be documented in the TMP (see mitigation measure MM-TP02).

During the summer on extreme hot days, GTFP has advised that it may close the plantation to all operations due to fire risk. This would include any wind farm construction related activities. Based on past operations this has occurred on average six days per summer. Emergency access and evacuation plans will be developed in consultation with key stakeholders for all worksites as part of the Project (see mitigation measures MM-BF01 and MM-BF05 in **Chapter 18 *Safety, hazard, and risk).***

15.6 Operation impacts

15.6.1 Operation traffic generation

It is estimated that 14 permanent staff would commute to and from the site every day for routine maintenance activities for the wind farm. Service vans would likely travel around the wind farm site on a daily basis to attend to any Project requirements. Minor traffic generation of approximately one truck per week may also be required for the delivery of items to aid in maintenance activities (such as deliveries or waste removal). An average of two light vehicles and a single heavy vehicle would visit the transmission line per day.

15.6.2 Traffic impacts

During operation of the Project, up to 14 staff vehicles per day would commute to and from site each day. These would be expected to arrive during the morning peak period between 8 am and 9 am and would depart when works are complete. An average of two light vehicles and a single heavy vehicle would visit the transmission line and substation each day; however, during peak operational times this could increase to a maximum of 14 staff onsite at any one time for the transmission line.

Given the low operational traffic generation, there would be no adverse impacts on local traffic conditions and operations given the existing capacity of Portland-Nelson Road. Emergency vehicle access protocols will be developed and agreed between relevant stakeholders, with unrestricted access maintained at all times (see mitigation measure MM-TP02).

15.6.3 Emergency vehicle access

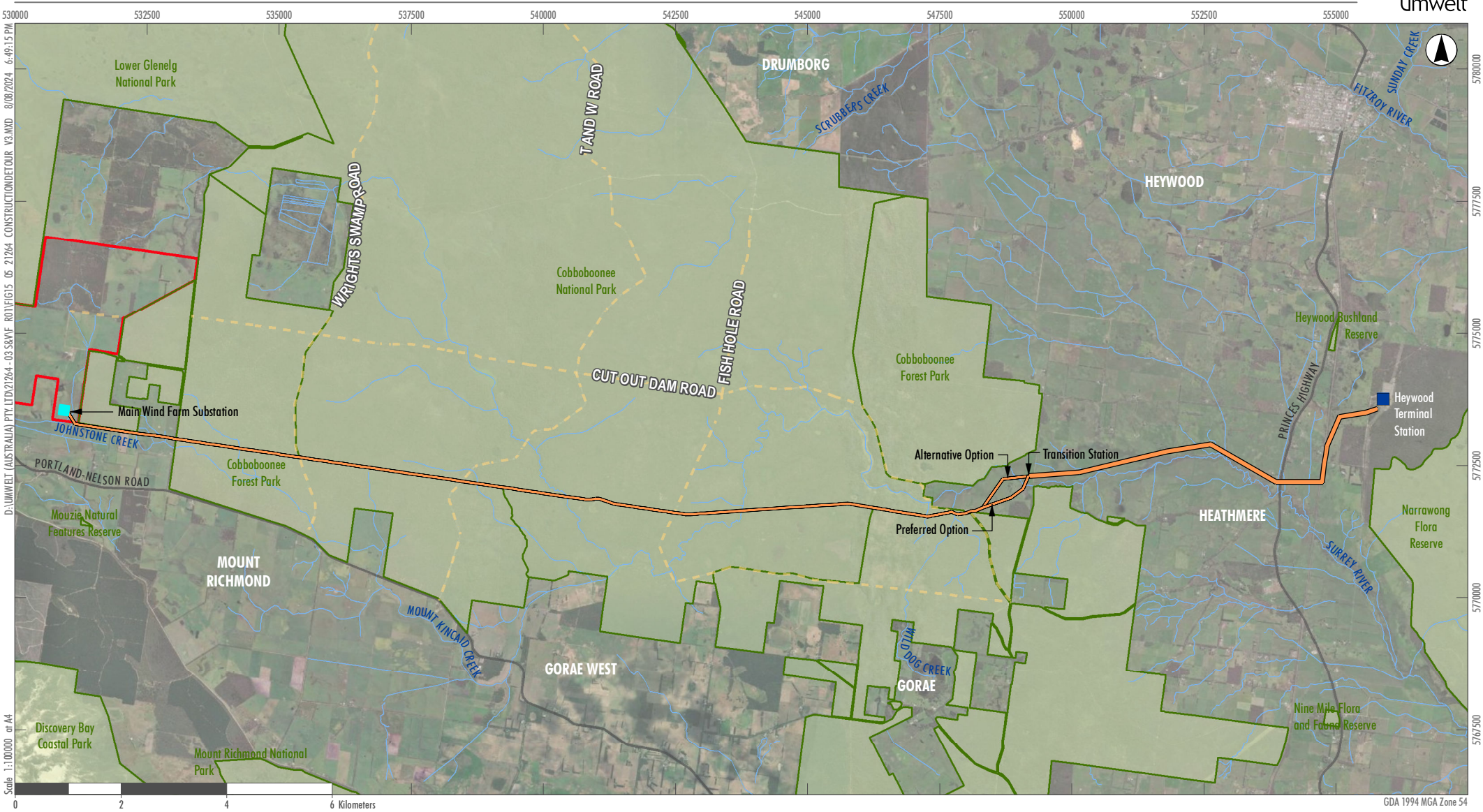
During operation of the Project there is potential for additional traffic to impact on the ability of emergency vehicles to access the Project Area and surrounds. However, given the low operational traffic generation expected to occur from the Project, there would be no significant impact on emergency vehicle access to the site. Emergency vehicle access protocols will be developed and agreed between relevant stakeholders, with unrestricted access maintained at all times (see mitigation measure MM-TP02).

In relation to the underground transmission line, underground assets including cables and joints are expected to be maintenance free throughout their respective design life. However, regular monitoring would be undertaken remotely. If a fault was detected, the underground assets would be accessed for repair or further testing. Emergency vehicle access along Boiler Swamp Road would be maintained at all times. Public access would be maintained where possible, however works required to the assets located towards the middle of the road formation may require that the section of road be closed to the public and detours put in place (see **Figure 15.5**). Mitigation measures will be implemented in accordance with the transmission line TMP (see mitigation measure MM-TP02), including the demarcation of no-go zones and reinstatement of the road following completion of the repair works. Refer to the **Draft Consent Application under Section 27 of the NP Act** (**Appendix Z**) for more information on impacts and mitigation measures associated with the underground transmission line.

15.7 Decommissioning impacts

Impacts on traffic associated with the decommissioning phase of the Project would be the same as those anticipated for the construction phase of the Project and are discussed in **Section 15.5**.

Given decommissioning activities would occur at the end of the Project's lifecycle (approximately 30 years from commissioning), an updated TIA would be required to consider any increases in background traffic due to both nominal traffic growth and potential land use changes over time.



Legend

- Wind Farm Site
- Parks and Reserves
- Roads to be used for detours
- Underground Transmission Line
- Roads
- Watercourses

FIGURE 15.5

Roads to be used for detours during construction of the underground transmission line

Image Source: ESRI Basemap (2021)Data source: DELWP (2021), Geoscience Australia (2021), Aurecon (2021)

15.8 Mitigation measures

Table 15.10 outlines the mitigation measures developed to avoid, minimise, and manage impacts on traffic and transport from construction, operation, and decommissioning of the Project.

Table 15.10: Transport mitigation measures

MM ID	Mitigation measure	Relevant work area	Project phase
MM-TP01	**Communications Plan** A Communications Plan will be developed and will contain consultation requirements relating to potential traffic and transport impacts for the lifetime of the Project. The plan will consider the findings from the Transport Impact Assessment (**Appendix P**) and subsequently the Traffic Management Plans (TMPs) (see mitigation measure MM-TP02). The plan will ensure construction, operations and decommissioning related information is shared with the local community, including updates on road closures, collaborating with other road users to negotiate road access and potential impacts, and ensuring the impact of construction on access to other infrastructure in communicated to affected stakeholders. This will include providing the Project schedule, anticipated traffic implications and the volume of construction activities. Aims of the plan include: • To proactively communicate the impact of activities that may lead to traffic disruption. • To provide a mechanism for collaborating with other road users to manage cumulative impacts on the region. Stakeholder consultation, including but not limited to the Victorian Department of Transport and Planning Glenelg Shire Council, Green Triangle Forest Products, Parks Victoria, the Victorian Department of Energy, Environment and Climate Action, the Port of Portland (and any other ports to be used) and other freight industries where appropriate, will be undertaken to develop the plan. Key notifications and agreements may include: • Pre-construction stage: ○ TMP agreement ○ Dilapidation surveys. • Construction, operation and decommissioning or re-power stages: ○ TMP measures and controls ○ Construction traffic monitoring ○ Road network monitoring, remediation protocols and maintenance requirements • Prior to operation: ○ Construction close-out meeting ○ Infrastructure hand-back criteria.	All areas	All phases
MM-TP02	**Traffic Management Plans** Prior to the commencement of construction (excluding preparatory works), two Traffic Management Plans (TMPs) will be developed (one each for the wind farm and transmission line) and implemented to minimise disruption (to the extent practicable) to affected local landowners, traffic, car parking, on-road public transport, pedestrian and bicycle movements and existing public facilities during construction and maintenance activities. The TMPs will be developed in consultation with the relevant road management authorities and be informed and supported by an appropriate level of transport analysis. The TMPs will be developed against any relevant planning conditions and in association with key stakeholders for endorsement. Evidence of this endorsement will be documented within the TMPs.	All areas	All phases

	Each TMP will include:
	• A review of relevant policy, regulatory and protocol requirements which have informed the TMP.
	• A review of existing conditions at the time of TMP development to verify conditions identified in the **Transport Impact Assessment (TIA) (Appendix P)**. Those provided as part of the TIA can be used as a baseline.
	• Approved Project scope, including finalised details on construction extents, staging, vehicle types, final material sources (e.g. quarry and concrete), and peak construction impacts (at this stage of the Project, unknowns are usually verified via multi-disciplinary assessments and when construction/transport contractors are onboarded).
	• Consideration of cumulative impacts of other major projects operating concurrently in the local area.
	• Verification of the site access strategy, including site access points (see mitigation measure MM-TP05).
	• Verification of the port(s) to be used for delivery of major wind turbine and transmission line components.
	• Final OD/OSOM route assessments completed by the nominated transport contractor (see mitigation measure MM-TP04).
	• Mitigation measures to be implemented, including site access point requirements (e.g. swept paths and Austroads intersection type requirements according to traffic demands) and any requirements for OD/OSOM delivery along transport routes. This would also identify road section upgrades required and the nature of the upgrade works.
	• Reinstatement commitments, including for table drains and verges that may be affected during construction and operational maintenance activities.
	• Design drawings for the above, which will be sent for review and agreement with the relevant road authorities during detailed design.
	• Road condition and maintenance requirements, such as:
	  ○ Dilapidation surveys to provide an existing survey of public roads that may be used for access and designated for construction vehicle routes.
	  ○ Consultation with road asset owners to agree on the extent and requirements of dilapidation surveys, road maintenance criteria, treatments and response timeframes, and post construction survey and asset hand-back agreements.
	  ○ Depending on stakeholder requirements, other considerations may include specific traffic monitoring (maximum daily truck volumes) and bond payments for remedial works.
	• Access requirements by vehicle type, including any regulator or stakeholder permits.
	• Road closure requirements for the management of any temporary or partial closure of roads and traffic lanes to maintain connectivity for local access, pedestrians and cyclists, in accordance with relevant road design standards and in consultation with landholders and any other relevant third parties. Traffic counts may be conducted to investigate suitable times for road and lane closures. Road closures will occur in off-peak periods when demands are low where possible (notably for OD/OSOM vehicle deliveries). The number and duration of road closures will be minimised.
	• Suitable measures to ensure emergency service access (notably for bushfire management) is not restricted due to Project construction or operation activities, especially regarding any road closures on the public road network and within Cobboboonee National Park and Forest Park. These measures will be agreed upon in consultation with emergency services and relevant road authorities including the Victorian Department of Energy, Environment and Climate Action.		

MM ID	Mitigation measure	Relevant work area	Project phase

	• Construction staging and car parking requirements to ensure no car parking occurs outside of the Project Area and affects local land use or accessibility. If required, car share or shuttle bus provisions will be considered to reduce the need for single vehicle worker occupancy
	• Signage requirements with reference to Australian Standard series AS 1742. Notably for this Project this would include notification of:
	  ○ Movement of trucks from site access points to/from major road connections.
	  ○ No-truck access signage to ensure vehicles do not access restricted areas and to aid with wayfinding (notably to the Lower Glenelg National Park to the south of the wind farm site).
	• Speed limit reductions to be implemented during Project construction. A temporary reduced speed limit in the vicinity of site access points to 70 km/hr is recommended which will allow safe intersection sight distance non-conforming site access points to be safer to utilise. This will be investigated further as part of the TMP in consultation with relevant stakeholders
	• Confirmation of working hours during construction. These will need to be agreed with key stakeholders with a remit for the construction contractor to verify local and school bus routes/timings to ensure no conflicts occur.
	• Other environmental measures to be implemented, such as for dust/sedimentation and noise and vibration.
	• Monitoring, inspection and auditing requirements, including:
	  ○ Addendum TMP triggers.
	  ○ Monitoring and inspection protocols to ensure the integrity of the TMP given it should be viewed as a live document for the duration of the Project. Reviews are typically undertaken on a monthly basis with relevant stakeholders informed of any significant changes.
	  ○ Auditing can include compliance and road safety audits.
	Control measures provided in the TMPs will cover the following aspects:
	• Roles and responsibilities, including Project management, co-ordination, public consultation, advertising and complaint procedures.
	• Road authority notification requirements.
	• Training and site induction requirements.
	• Contractor liaison protocol.
	• Roadside native vegetation requirements, including identification protocols and approvals (if required).		

MM-TP03	**Road safety audits** Road safety audits (RSAs) will be undertaken at various stages of Project development in accordance with Austroads Guide to Road Safety Part 6: Road Safety Audit, such as: • Existing condition audit • Preliminary/functional design stage audit • Concept design stage • Detailed design stage. RSAs will be completed by accredited Victorian Department of Transport and Planning RSA auditor and be independent of the Project, particularly the design team.	All areas	Construction and Decommissioning

MM ID	Mitigation measure	Relevant work area	Project phase
MM-TP04	**OD/OSOM transport route assessments** Formal OD/OSOM transport route assessments will be completed by the transport contractor engaged by Neoen. Impacts of the final routes can then be verified (e.g. removal/clearance of obstructions such as powerlines, structures (bridges and culverts), railway infrastructure and vegetation), and relevant stakeholders will be engaged to facilitate the safe delivery of materials to the construction sites. Prior to mobilising any over size and over mass vehicles from the Port of Portland to the project site, temporary infrastructure works must be designed in consultation with, and completed to the satisfaction of the Victorian Department of Transport and Planning (Regional Roads Victoria).	All areas	Construction
MM-TP05	**Access strategy and design** A site access strategy will be developed and finalised following detailed design, in consultation with all stakeholders, particularly affected landowners. The strategy will consider traffic access and movement requirements and restrictions to local facilitates and amenities (such as tourism locations). The number of site access points to be used for construction of the wind farm may be investigated further to utilise internal access tracks and limit movements between the site and Portland-Nelson Road. Speed limits along Portland-Nelson Road and the Henty Highway in proximity to the Project site entrances will be reviewed during detailed design to verify the need to reduce speed limits to ensure that safe intersection sight distances can be achieved and the site can be accessed safely by construction vehicles. Site access gates would be designed and constructed in accordance with VicRoads Guideline Drawing GD4010 'Typical Access to Rural Properties' unless otherwise agreed by the relevant road authority. Once detailed design has been completed, the designs will be subject to Road Safety Audits as described in mitigation measure MM-TP03. It is expected that stormwater drainage management systems including swale drains and pipe culverts may be required as part of any proposed intersection upgrade works, as there is currently no infrastructure in place to divert runoff near the site entrances. This will be reviewed as part of the detailed design process. See also mitigation measure MM-SW08.	All areas	Construction

15.9 Conclusion

Managing traffic disruptions for residents, businesses, and travellers during the construction of the project.

Worst-case traffic impacts from construction of the Project were estimated to determine potential impacts on the local road network. Peak traffic generation during construction is likely to occur during the pouring of foundations at each wind turbine site over the course of a single day. The predicted increase in traffic accessing the Project's access tracks from Portland Nelson Road and Henty Highway would be minimal in comparison to the available capacity on these major roads, and traffic-related impacts would not be significant.

During construction there is potential for OD/OSOM vehicle movements to impact on the wider road network and its users. On occasion intersections would need to be shut down to allow for safe passage and manoeuvrability of OD/OSOM vehicles. During these times, appropriate warning signage, along with temporary reductions in speed limits, would be in place for all affected intersection approaches. TMPs will be prepared for construction of the Project to minimise disruption to the road network from the movement of OD/OSOM vehicles.

Access to Cobboboonee National Park and Forest Park would be disrupted by the closure of Boiler Swamp Road to allow for construction of the underground transmission line, however minor traffic diversions would be implemented to divert members of the public along alternative routes through the Parks, such as Wrights Swamp Road, T and W Road, Fish Hole Road and Cut Out Dam Road.

Construction of the underground transmission line along Boiler Swamp Road may also impact on walkers on the GSWW where it crosses Boiler Swamp Road at one location. However, construction machinery would only obstruct the GSWW crossing for a short amount of time (around 20 minutes) and people attempting to cross Boiler Swamp Road when the construction machinery is nearby will be encouraged to wait until the machinery has passed. A temporary marquee and seating area will be provided on both sides of the road to allow for this.

Conflicts between construction vehicles and local/school bus services are expected to be minimal given the low frequency of bus services and the lack of bus stops present within proximity of the wind farm site entrances. Local/school bus routes and timings will be verified by the construction contractor in the TMPs to ensure no conflicts occur with OD/OSOM vehicle movements.

Ongoing stakeholder consultation will also be undertaken to ensure the local community is notified of changed traffic conditions. With these mitigation and management measures in place, the Project is considered unlikely to result in significant adverse traffic disruption.

Potential damage to local and regional road surfaces along transport routes and increased risk to road safety on transport routes.

Four pinch points along the preferred delivery route from the Port of Portland, as well as 9 of the 10 wind farm site access points along Portland-Nelson Road require upgrades to accommodate delivery of wind turbine components. Temporary pavement widening is proposed to be provided at almost all intersections to safely accommodate the movement of OD/OSOM vehicles. Some obstructions would also need to be removed at some intersections (temporarily or permanently), such as vegetation and fences. Operational controls outlined in the TMPs will also be implemented at these intersections such as temporary speed restrictions, OD/OSOM delivery time restrictions and Project signage.

Five of the 10 access points into the wind farm site are non-conforming in terms of SISD. To allow for safe use of these access points and to meet SISD standards, speed limits near entrances on Portland-Nelson Road will be reduced to 70 km/hr where deemed necessary. Additional vegetation removal will also be considered where required to improve SISD.

Road upgrade requirements to accommodate construction vehicles will be determined during development of the TMPs. Prior to construction, road condition (dilapidation) surveys will be undertaken to ensure public and private roads are in a suitable condition to accommodate construction vehicles, particularly OD/OSOM vehicles transporting wind turbine components. These surveys will also provide a baseline of pavement conditions to determine any future impacts that may require upgrades or remediation of road assets.

The Project would ensure that emergency vehicle access is maintained in the Parks during construction of the underground transmission line. The construction corridor along Boiler Swamp Road would be 6.5 metres wide, of which 3.0 to 3.2 metres will be designated for construction access bypass. This bypass would provide emergency vehicles access as well. Emergency vehicle access protocols will be developed and agreed between relevant stakeholders with unrestricted access to be maintained at all times.

A range of mitigation and management measures will be implemented to ensure the road network operates safely with the addition of Project related traffic, and that residual impacts would not be significant. In particular, two TMPs will be prepared prior to Project construction (one for the wind farm and one for the transmission line) and implemented during all phases of the Project to minimise disruption to affected landowners, with consideration of traffic levels, car parking, on-road public transport, pedestrian and bicycle movements, and existing public facilities. The TMPs will be developed in consultation with the relevant road management authorities and be informed and supported by an appropriate level of transport analysis. With the implementation of mitigation measures, residual traffic impacts from the Project are not considered to be significant.

A site access strategy will also be prepared prior to construction to finalise the site access points to be used by OD/OSOM vehicles, heavy vehicles and light vehicles during construction. Management measures such as speed limits at the site access points and obstruction removal can then be verified, to ensure safe access of Project vehicles to/from site and the safety of local road users. This strategy will be coupled with a formal OD/OSOM transport route assessment which will confirm the transport routes along which Project materials would be transported to site, and the impacts (e.g. vegetation clearance) that need to be managed.

It is therefore considered that the Project satisfies the relevant transport evaluation objective specified in the Scoping Requirements, to avoid and minimise adverse effects on traffic and transport.

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