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Traffic Engineering Assessment

Proposed Solar Energy & Battery Facility
Hazelwood North Solar Farm

Prepared for
Manthos Investments Pty Ltd

July 2023

G31664R-01E

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1. Introduction

Traffix Group has been engaged by Manthos Investments Pty Ltd to undertake a Traffic Engineering Assessment for the proposed Hazelwood North Solar Farm at Firmins Lane, Hazelwood North.

This report provides a detailed traffic engineering assessment of the traffic, access and parking issues associated with the proposed development.

In the course of undertaking this assessment, we inspected the subject site and its surrounds, reviewed development plans and background material, and assessed the traffic engineering aspects of the proposal.

Our assessment is as follows.

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2. Existing Conditions

2.1. Subject Site

The subject land for the proposed Hazelwood North Solar Farm is located to the northwest of the Firmins Lane / Hazelwood Road intersection in Hazelwood North. The site has frontages to Firmins Lane (to the south), Davey Jones Lane (to the west) and Princes Highway (to the northwest).

The development site area is approximately 1,079 hectares.

Existing vehicle access to the site is provided via two (2) road connections as follows:

- A single-width gravel accessway connection at the western dead-end of Walshs Road, and
- A single-width gravel accessway connection with Firmins Lane, located approximately midway along the site's southern boundary.

A locality plan and aerial photograph are provided at Figure 1 and Figure 2, respectively.

Photos of the existing access points with Walshs Road and Firmins Lane are shown at Figure 3 and Figure 4, respectively.

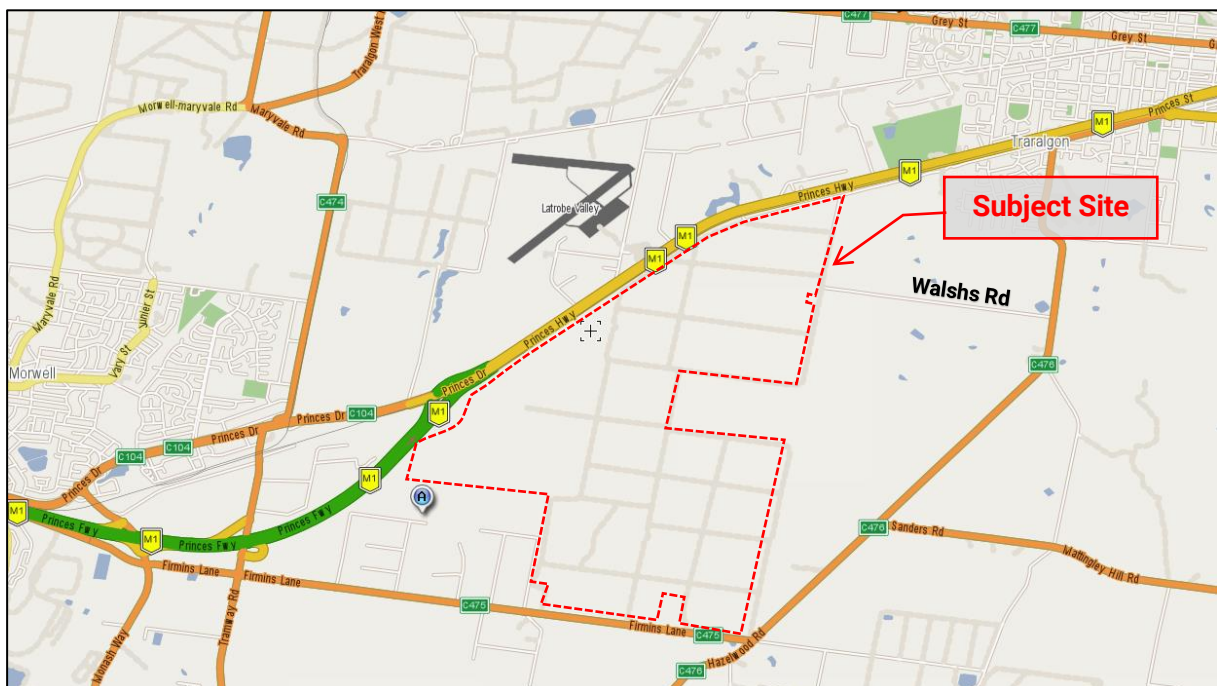


Figure 1: Locality Map

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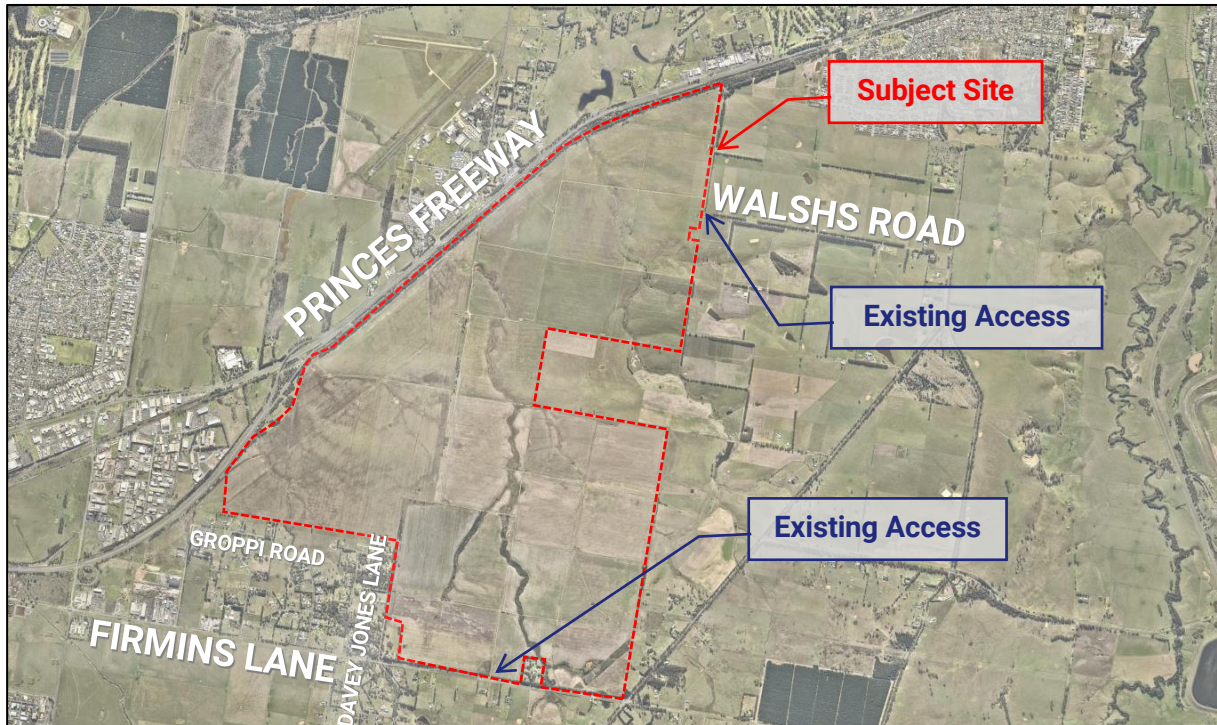


Figure 2: Aerial Photograph

Source: Nearmap



Figure 3: Existing Walshs Road Access - view West



Figure 4: Existing Firmins Lane Access – view North

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2.2. Planning Scheme Zones & Surrounding Uses

The subject site is zoned as 'Farming Zone – Schedule 1' under the Latrobe Planning Scheme. A planning zone map is provided at Figure 5.

Land uses in the immediate vicinity of the site is generally also farming, or industrial to the southwest of the site. Furthermore, 'Rural Living Zone – Schedule 1' applies to land just southeast of the site.

Several planning overlays apply to the site including the most relevant being a Public Acquisition Overlay (PAO) along the northern portion of the site as discussed in the following section.

The Morwell Town Centre is located approximately 7km to the west of the site's existing Firmins Lane access. The Traralgon Town Centre is location approximately 9km to the northeast of site's existing Firmins Lane access.

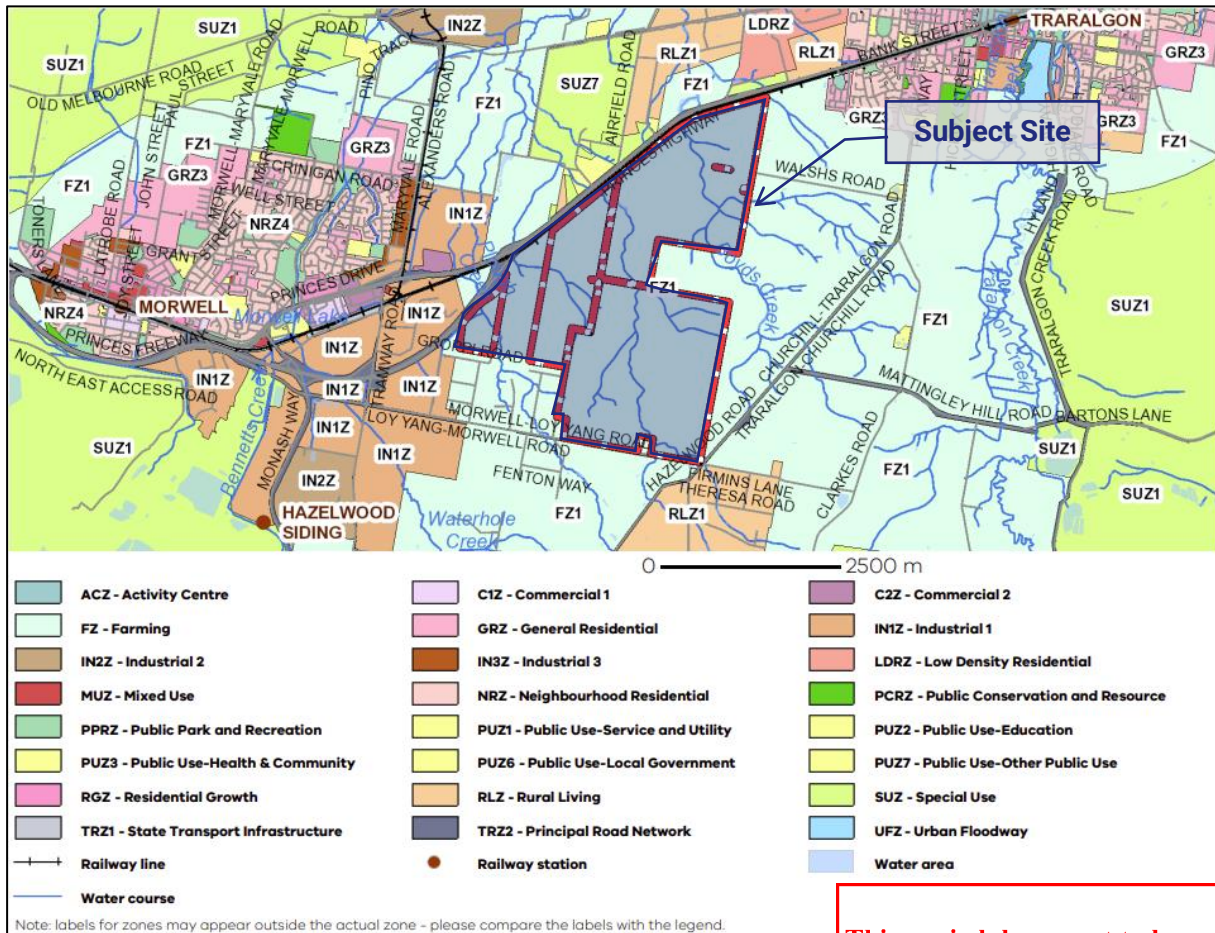


Figure 5: Planning Zone Map – Latrobe

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2.3. Traralgon Bypass

A Public Acquisition Overlay (PAO) applies generally along the northwest boundary as shown at Figure 6. This land is intended to be used for the future Traralgon Bypass.

Based on the information on the Regional Roads Victoria (RRV) website, a planning and community engagement process occurred between 2017-2018, including community information sessions, social media advertising and interactive maps. However, we understand that planning has not progressed further since given that construction of the proposed bypass is dependent on the future rehabilitation options for the Loy Yang Mine (located to the east of the site).

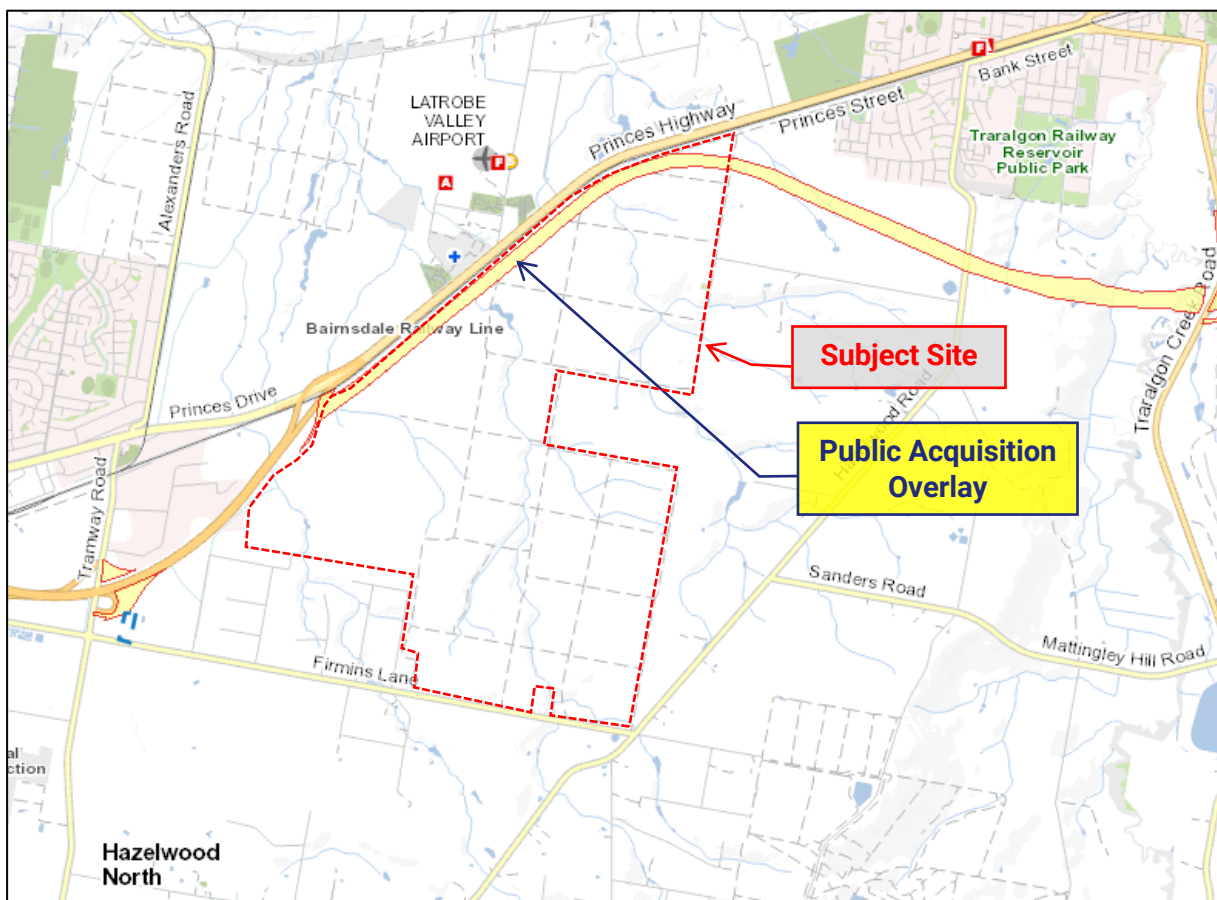


Figure 6: Public Acquisition Overlay for future Traralgon Bypass

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2.4. Road Network

Firmins Lane is an arterial road under the management of the Department of Transport and is zoned 'Transport Zone 2 – Principal Road Network (TRZ2)' under the Planning Scheme. It is aligned in an east-west direction along the southern boundary of the site.

In the vicinity of the site, Firmins Lane is provided with a sealed carriageway width of approximately 7 metres with gravel shoulders on both sides. Along the site's frontage, Firmins Lane provides for a single traffic lane in both directions

Firmins Lanes forms a four-leg roundabout with Hazelwood Road located near the southeast corner of the site.

A signed speed limit of 100 km/h applies to Firmins Lane adjacent to the site. The speed limit reduces to 80 km/h to the west of the site near Buckleys Road.

Walshs Road is classified as a 'Limited Access' road under Council's Road Register. Walshs Road is aligned in an east-west direction between Hazelwood Road (to the east) and the site access (to the west) where it terminates.

In the vicinity of the site, Walshs Road is provided with a carriageway width of approximately 3.7 metres and generally provides for two-way traffic.

The default rural speed limit of 100km/h applies to Walshs Road.

Hazelwood Road is an arterial road under the management of the Department of Transport and is zoned 'Transport Zone 2 – Principal Road Network (TRZ2)' under the Planning Scheme. It is aligned in a general northeast-southwest direction.

Hazelwood Road has a carriageway width of approximately 7 metres which provides for a single traffic lane in both directions.

Hazelwood Road provides access to Walshs Road.

A signed speed limit of 100km/h applies to Hazelwood Road in the vicinity of Walshs Road.

Buckleys Road is generally classified as a 'Unsealed Access' road under Council's Road Register, however it is actually a sealed for most of its length. Buckleys Road is aligned in a north-south direction between Groppi Road (to the north) and Firmins Lane (to the south).

Buckleys Road is generally provided with a sealed carriageway that accommodates simultaneous two-way traffic.

Groppi Road is classified as a 'Sealed Access <=60 km/hr' road under Council's Road Register, however it is actually unsealed for most of its length. Groppi Road aligned in an east-west between Buckleys Road and extends east forming a 'dead end' near the site's southern boundary.

Groppi Road is generally has a carriageway that provides for accommodates simultaneous two-way traffic, except at its far eastern end.

Davey Jones Lane is classified as a 'Unsealed Access' under Council's Road Register. Davey Jones Lane is aligned in a general north-south direction between Romuald Road (to the north) and Firmins Lane (to the south).

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In the vicinity of the site, Davey Jones Lane has a gravel carriageway of approximate 3.7 metres width which provides for a single combined lane for two-way traffic.

Figure 7 to Figure 16 provide views of the surrounding road network.



Figure 7: Firmins Lane – View East



Figure 8: Firmins Lane – View West



Figure 9: Walshs Road - View East



Figure 10: Walshs Road - View West



Figure 11: Hazelwood Road - View North



Figure 12: Hazelwood Road - View South

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Figure 13: Buckleys Road – View North



Figure 14: Buckleys Road – View South



Figure 15: Groppi Road – View East



Figure 16: Groppi Road – View West

2.5. Existing Traffic Volumes

Traffix Group engaged Trans Traffic Survey to undertake tube count traffic surveys for a 7-day period from Thursday 2nd June 2022 to Thursday 9th June 2022. Table 1 summaries the locations, peak hours, 85th percentile speeds and percentage of commercial vehicles at the four (4) tube count locations.

The average weekday morning and afternoon peak hour volumes are presented at Figure 17.

The daily (7-day average) traffic volumes are presented at Figure 18.

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Table 1: Tube Count Locations & Peak Hours

Location	AM Peak	PM Peak	85 th Percentile Speeds	Commercial Vehicles (%)
Buckleys Road , approximately 20 metres north of Firmins Lane	11am-12pm	3pm-4pm	36 km/h	13%
Firmins Lane , approximately 30 metres west of the Firmins Lane site access	6am-7am	3pm-4pm	103 km/h	14%
Hazelwood Road , approximately 55 metres north of Walshs Road	8am-9am	4pm-5pm	100 km/h	6%
Walshs Road , approximately 90 metres west of Hazelwood Road	8am-9am	3pm-4pm	33 km/h	5%

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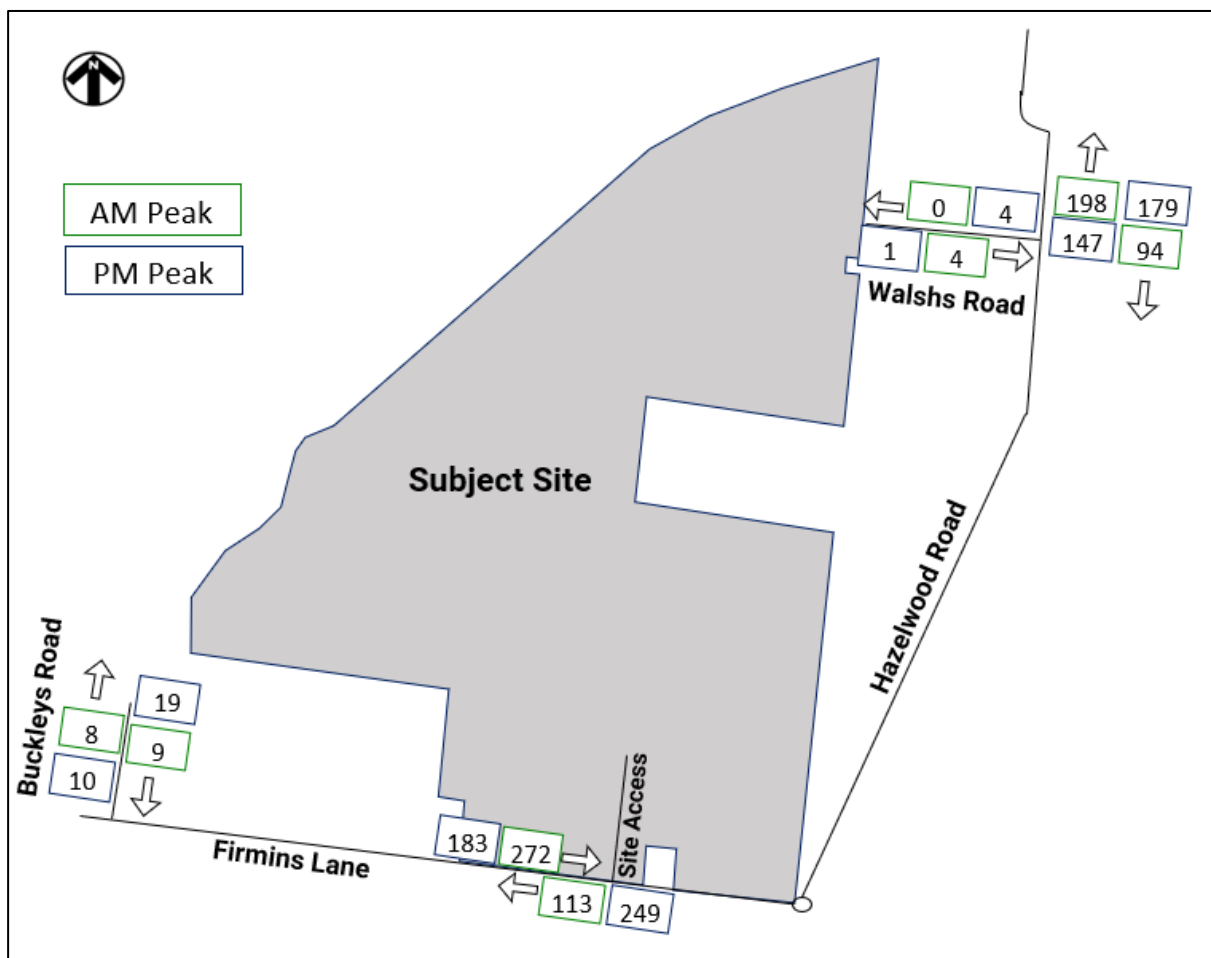


Figure 17: Tube Count Survey Results - Weekday AM and PM Peak Hour Average Volumes

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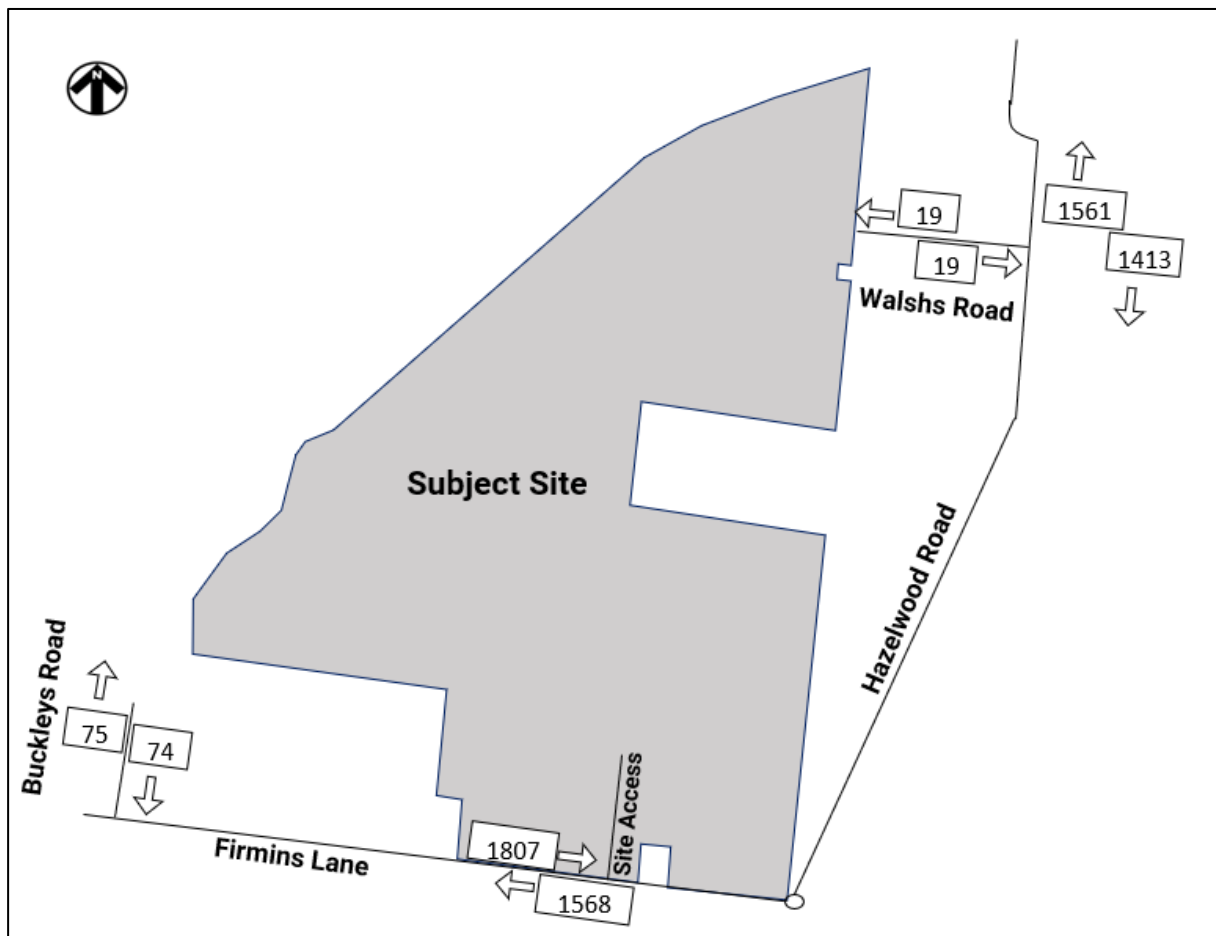


Figure 18: Tube Count Survey Results – Average Daily Traffic Volumes

In summary, the surrounding road network has the following average daily two-way volumes:

- Buckleys Road - approximately 149 vehicles
- Firmins Lane - approximately 3,375 vehicles
- Hazelwood Road - approximately 2,974 vehicles
- Walshs Road - approximately 38 vehicles

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3. Proposal

3.1. General

The application proposes the development of a renewable energy facility (solar farm and battery storage) at the site. The facility is to comprise solar panel blocks, a solar collection inverter station, battery storage and associated services/facilities. This includes a small construction compound area located within the southern portion of the site.

Primary vehicle access for the site is proposed via the existing vehicle connection with Firmins Lane, located approximately midway along the site's frontage. This access point will be utilised during both the construction phase and the post-construction (ongoing operation) phase.

Secondary vehicle access will be provided via the existing access connection with Walshs Road. This access will provide for limited staff service vehicle access during the ongoing operation phase.

Emergency vehicles can access the site via the Firmins Lane or Walshs Road access connections. Furthermore, a vehicle access gate is to be provided in the southwest part of the site for emergency vehicle access only via Groppi Road. Any upgrade of Groppi Road is not necessary given it would be very rarely used for emergency access only.

Car parking is to be provided on-site to accommodate the peak employee demand plus occasional visitor parking demands generated by the solar farm and energy facility during the operation phase.

A network of internal roadways will accommodate vehicle movements around the site including boundary roads and key internal roads. Furthermore, gaps between each block of solar panels are to be provided for vehicle access for servicing/maintenance purposes.

A masterplan of the proposed use, prepared by Urban Fold, is attached at Appendix A.

3.2. Day to Day Operations

We have been advised that the ongoing operations and maintenance of the solar farm will have up to 11 direct FTE staff, who will typically utilise standard dual-cab Utes (i.e., Toyota Hilux or similar). In addition, there will be a small number of staff associated with the Agrisolar component which is expected to remain as consistent with existing agriculture operations on the site.

We further understand that truck access during day-to-day operations of the solar farm will be minimal, and likely only associated with intermittent maintenance requirements.

3.3. Construction Phase

Construction of the solar energy facility is expected to take approximately 18 months. We have been advised that there will be an estimated 500 direct FTE staff during the construction phase. Of these, we have been advised that there will be a maximum of approximately 200 on-site staff per day.

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The proposed construction works are proposed to be undertaken between 7:00am-6:00pm Monday to Saturday, in line with EPA Guidelines.

During the construction stage at peak production, we have been advised that approximately 100 trucks per day will be generated. The majority of trucks will be B-Doubles transporting the solar panels via the Princes Freeway to/from the west.

4. Car Parking Considerations

4.1. Statutory Requirements – Clause 52.06

The proposed use falls within the land-use category of 'renewable energy facility' under Clause 73.03 of the Planning Scheme

The car parking requirements for the proposed development are outlined under Clause 52.06 of the Planning Scheme.

Clause 52.06-5A states the following:

Where a use of land is not specified in Table 1 or where a car parking requirement is not specified for the use in another provision of the planning scheme or in a schedule to the Parking Overlay, before a new use commences or the floor area or site area of an existing use is increased, car parking spaces must be provided to the satisfaction of the responsible authority.

A 'renewable energy facility' is not a specified land-use under Table 1 of Clause 52.06 and therefore car parking must be provided to the satisfaction of the Responsible Authority.

The car parking demands for the site are likely to be limited to staff, with only a minor level of visitor demand associated with contractors.

We have been advised that up to 11 employees may be on-site at any one time for the ongoing operation of the renewable energy facility. Accordingly, car parking should be provided at a rate of least one car space per employee on the site at the peak time (i.e., 11 employee car spaces).

We recommend that 13 car spaces are provided on-site to accommodate the peak employee demand (11 spaces) plus occasional visitor parking demands generated by the solar farm during the operation phase.

In addition, a small number of car spaces should be provided for the Agrisolar component, noting associated car parking demands are expected to be low as consistent with existing agricultural operations.

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5. Traffic Considerations

5.1. Day to Day Operations

Traffic generation during general operating hours will primarily be associated with staff arrivals and departures. If we conservatively assume that the maximum of 11 staff arrive in the AM peak hour and depart in the PM peak hour, there would be no more than 11 vehicle movements generated in any one hour, and no more than 22 vehicle movements per day.

Very limited external maintenance vehicles or deliveries are to be generated by the facility during ongoing operation. The very infrequent truck visits expected each month to pick-up repairs and replace spare solar panels will have negligible impact.

We anticipate traffic generation associated with day-to-day operations to generally be generated to/from the west along Firmins Lane, however a small number of staff vehicles may arrive along from Firmins Lane to the east if they reside in Traralgon.

As demonstrated by the existing traffic volume data shown at Section 2.5, between Hazelwood Road (to the east) and Davey Jones Lane (to west), Firmins Lane carries in the order of 3,375 vehicles per day, including approximately 385 vehicles and 432 vehicles during the AM and PM peak hours, respectively.

When considering the additional traffic predicted to be generated by the proposal, a post-development daily volume of in the order of 3,395 vehicles per day anticipated, equivalent to an increase of less than 1% of the existing average daily volumes.

Accordingly, there will be no material traffic impact to the surrounding road network during ongoing operations. However, access upgrade works at the Firmins Lane site access should be provided at the commencement of the construction stage as assessed at Section 5.3.

We also note that traffic generation for the Agrisolar component is expected to remain low as per existing agriculture operations on the site.

5.2. Construction Phase

5.2.1. Construction Staff

During the construction phase, we have been advised that a maximum of approximately 200 on-site staff per day.

If we conservatively assume each staff member travels in a separate vehicle, up to approximately 400 staff vehicle movements (inclusive of 200 arrivals and 200 departures) per day would be generated.

We have been advised that the proposed construction hours are to be between 7am-5pm Monday to Saturday. We expect construction staff arrival and departures to be spread throughout the morning and afternoon peak periods and therefore won't entirely coincide with the road network commuter peak hours.

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5.2.2. Heavy Vehicles

The anticipated daily volumes of truck deliveries to the site during the construction phase is to be generally comprise of B-Double trucks, totalling approximately 100 trucks per day. Accordingly, a total of approximately 200 trucks movements (inclusive of 100 arrivals and 100 departures) per day are anticipated.

Delivery vehicle arrivals and departures are expected to be generally spread throughout the whole day.

5.2.3. Total Construction Stage Traffic

Traffic during the construction stage will be temporary only for a period of approximately 18 months, with significantly lower traffic volumes anticipated during the ongoing operation of the facility as discussed previously.

In total, during the construction stage there will be a maximum of approximately 600 vehicle movements per day generated (i.e., 300 entry movements and 300 exit movements). This will result in a total average daily traffic volume on Firmins Lane in the order of 3,975 vehicles per day

We are satisfied that the existing configuration of Firmins Lane has sufficient spare capacity to accommodate this level of temporary traffic to be generated during the construction period, noting that upgrade works at the Firmins Lane site access is assessed later at Section 5.3.

5.2.4. Travel Routes

We have been advised that construction stage trucks will primarily be generated to/from the west via Princes Freeway. Arrival and departure trucks will travel between the site and Princes Freeway to/from the west via Firmins Lane.

There are two potential truck access route options to/from the freeway as follows:

- Route 1 – enter/exit the freeway via Tramway Road
- Route 2 – enter/exit the freeway via Monash Way

The proposed access route options between the site and Princes Freeway are illustrated at Figure 19.

Both truck route options are part of Victoria's gazetted B- Double network. Furthermore, all intersections along both routes are suitable to accommodate all necessary movements by large trucks.

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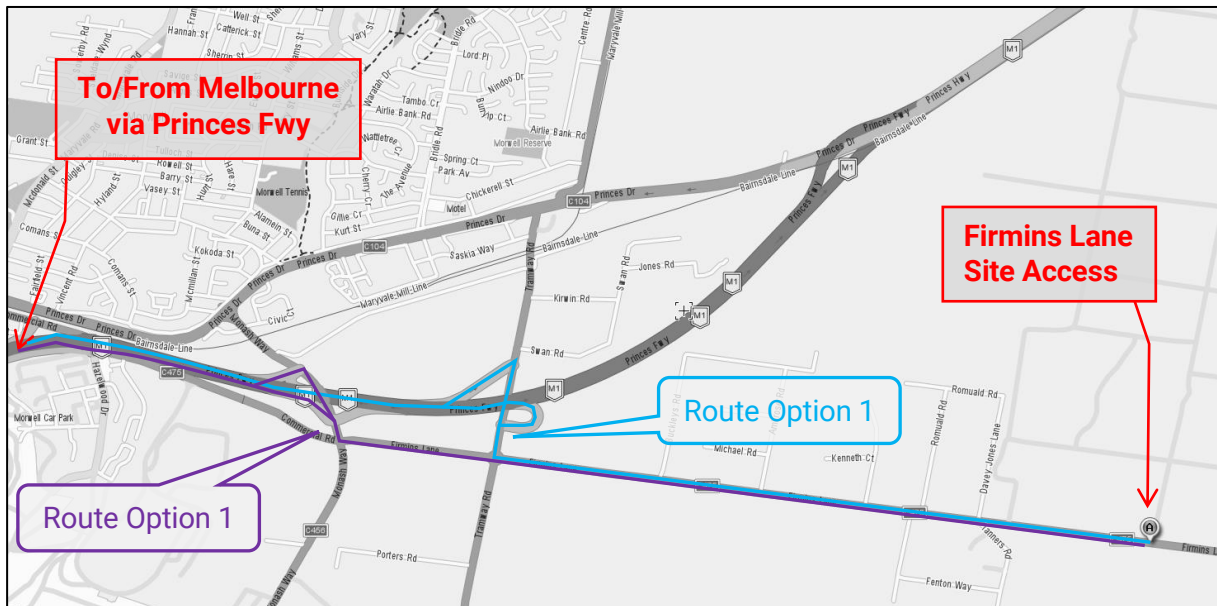


Figure 19: Proposed Construction Access Route

Source: <http://www.street-directory.com.au/>

5.3. Traffic Generation

The application proposes a maximum of 200 on-site construction staff per day during peak construction periods from 7am-5pm, Monday-Friday and up to 100 truck deliveries per day.

Based on the location of the site and for a conservative assessment, we have assumed all construction staff will drive to work in separate vehicles.

However, not all staff will arrive/depart at the same time or within the same hour.

Accordingly, for the purposes of our assessment we have assumed that 50% of construction staff will arrive/depart in the same hour which equates up to 100 vehicle movements.

In relation to traffic generation associated with the truck deliveries, we have assumed an average of 10 truck deliveries per hour during operation hours (7am-5pm), equating to 10 inbound movements and 10 outbounds movements per hour.

5.4. Traffic Distribution & Volumes

Based on our experience, and by having regard to existing (surveyed) traffic volumes along Firmins Lane, the following traffic distribution assumptions have been made:

- Construction staff traffic will be split as split 70% to/from the west and 30% to/from the east (majority of these staff area expected to travel via Hazelwood Road to/from Traralgon) and
- All truck deliveries will be generated to/from the west (from Melbourne).

Based on these assumptions, Figure 20 has been prepared to illustrate the projected traffic volumes for the proposed site access at Firmins Lane during peak hours.

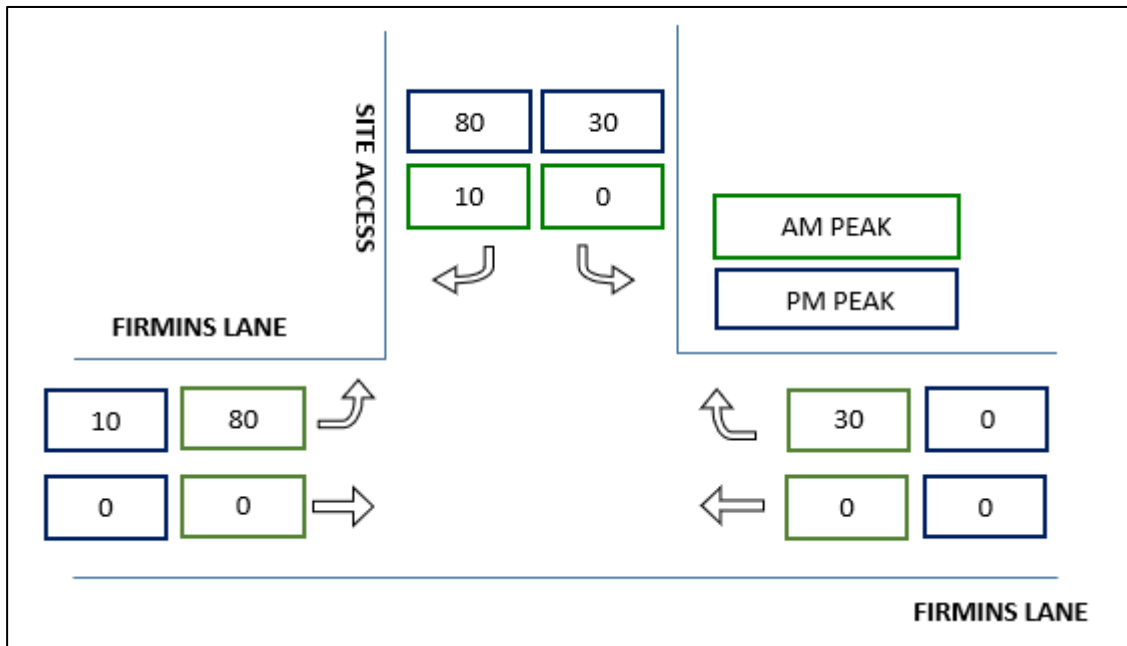


Figure 20: Projected Site Generated Peak Hour Turning Movements during Peak Construction Period

5.5. Firmins Lane Access Considerations

We have undertaken an assessment of the warrants for turning treatments for the Firmins Lane primary access, based on the *Austrroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings* (Austrroads 2019). It is noted that this document technically applies to intersections rather than driveways and therefore provides a conservative assessment for private vehicle access connection such as proposed in this case.

Figure 2.25 at Section 2.3.6 of this document provides guidance on the preferred minimum turning treatments for major roads at unsignalised intersection. A signed speed limit of 100km/h currently applies to Firmins Lane adjacent to the site and accordingly Figure 2.25(a) of the *Austrroads Guide* is applicable which is relevant for rural roads with a speed greater or equal to 100km/h.

The warrant for a left-turn treatment is a function of the one-way through movement along the major road ($Q_M = Q_{T2}$) and the left turn movement (Q_L). The warrant for a right-turn treatment is a function of the through movements in both directions plus the left turn movement ($Q_M = Q_{T1} + Q_{T2} + Q_L$) and the right-turn movement (Q_R).

The warrants for turning treatments during the critical AM peak hour (i.e., when turning movements from Firmins Lane into the site are generated) are shown at Figure 21.

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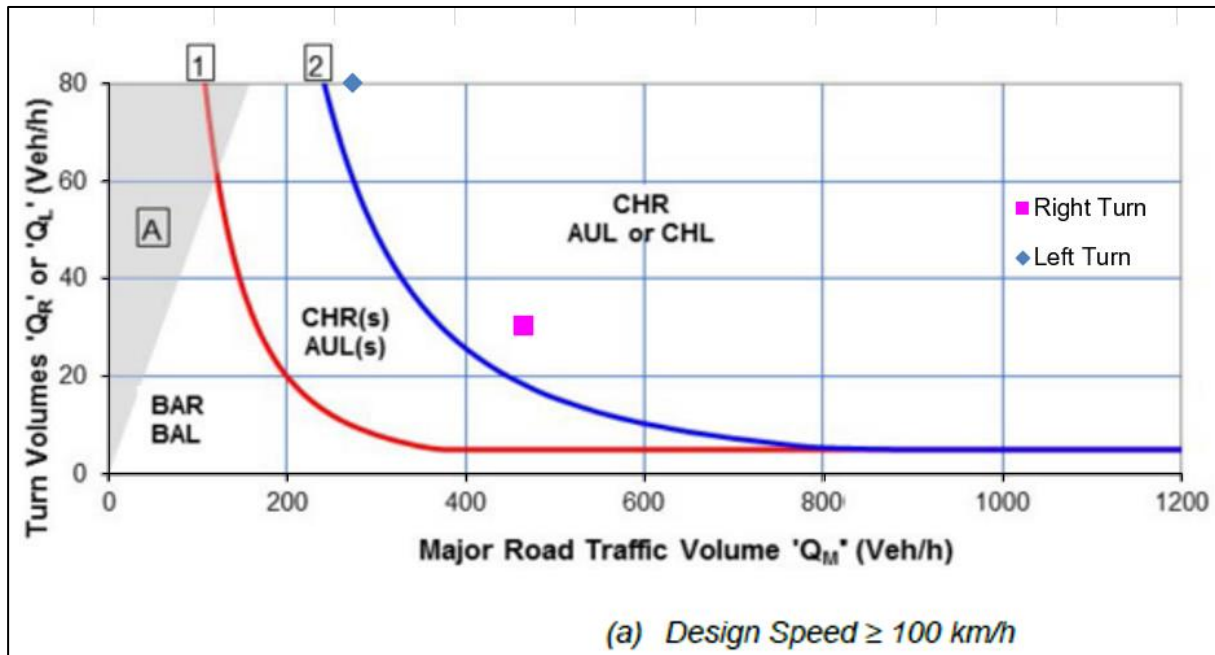


Figure 21: AM Peak Hour Volume - Warrants for Turn Treatments

Based on the Austroads Guide Figure 2.25(a), the proposed Firmins Lane site access meets the following warrants for the construction stage:

- Auxiliary left-turn (AUL) treatment or channelised left-turn (CHL) treatment, and
- Channelised right-turn (CHR) treatment

Consistent with nearby intersection treatments along Firmins Lane including at Davey Jones Lane/Tanners Road and Waratah Drive, we recommend a AUL and CHR treatment is provided at the site's primary access to Firmins Lane.

Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections sets out a deceleration distance required for cars on a level grade is 150-155 metres (inclusive of a taper length of 33 metres) for a 100 km/h design speed. This also is generally consistent with the turning lane lengths for nearby intersections along Firmins Lane.

Figure 22 and Figure 23 show concept diagrams from the Austroads Guides for AUL and CHR turn treatments, respectively.

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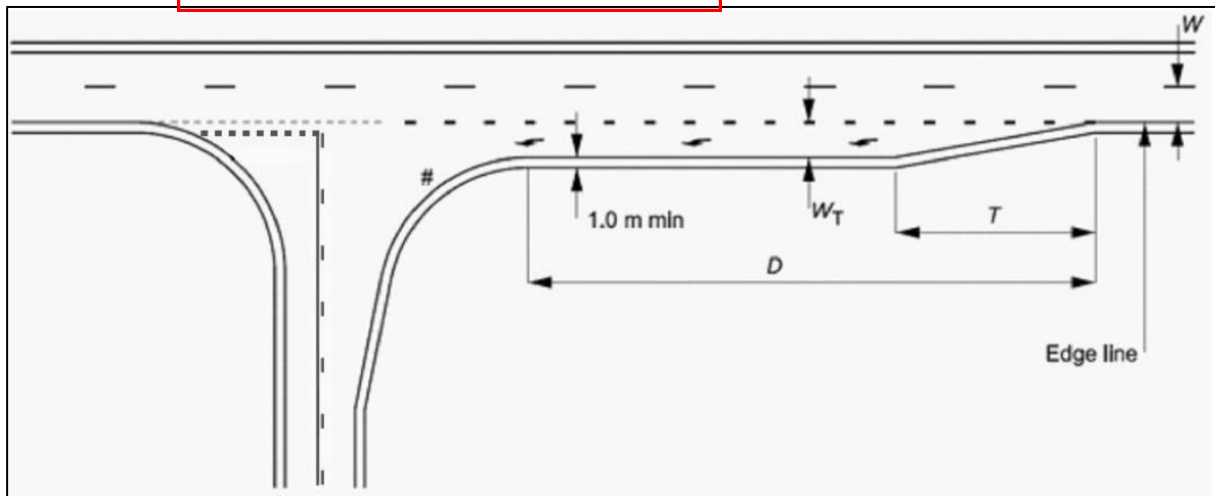


Figure 22: Auxiliary Left-turn Treatment (AUL) on a Rural Road



Figure 23: Rural Channelised (CH) Intersection Turn Treatment – Right Turn

5.6. Internal Road Layout

The main access road that connects with Firmins Lane should be provided with a minimum 6 metres wide carriageway. This will satisfactorily accommodate all service vehicles and also simultaneous two-way movements along straight sections of roads.

A network of internal service roadways will accommodate vehicle movements around the site including boundary roads and key internal roads. These service roadways should be provided with a minimum carriageway width of 4 metres, and passing areas at suitable intervals (50-100 metres) where necessary. Furthermore, Solar panel blocks are typically separated by 10 metres to allow service vehicle access for maintenance requirements.

We are satisfied that the proposed internal road network will adequately accommodate relevant service and emergency vehicles.

The concept plan attached at Appendix A includes the proposed internal road network.

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6. Loading Considerations

Clause 65.01 of the Planning Scheme states that the responsible authority must consider a number of matters as appropriate including:

- *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.*

Loading activities for the proposed solar energy facility associated with equipment/parts transportation during maintenance are anticipated to occur relatively infrequently and will be entirely managed on-site within the internal accessways.

Loading activities for the Agrisolar component are to remain as per existing agriculture operations on the site.

We are satisfied that loading and unloading for the proposal can be appropriately accommodated within the site via the network of internal service roads.

7. Bicycle Considerations

Clause 52.34 of the Latrobe Planning Scheme specifies the bicycle parking requirements for new developments.

There is no requirement to provide bicycle parking for a 'renewable energy facility'. Given the nature of the proposed use and the rural location, we do not expect there to be any demand for bicycle parking.

8. Other Considerations

8.1. Clause 53.13 – Renewable Energy Facility

Clause 53.13 of the Planning Scheme sets out application requirements for a renewable energy facility (other than wind energy facility).

This clause outlines that when considering an application for a renewable energy facility is, the responsible authority must consider the following, as appropriate:

- *The impact of a proposal on the local road network.*
- *Solar Energy Facilities Design and Development Guideline (Department of Environment, Land, Water and Planning, October 2022).*

As noted in preceding sections of this report, we are comfortable traffic and vehicle access for the proposal can be appropriately accommodated by the surrounding road network, provided that the Firmans Lane site access is upgraded prior to the construction stage as outlined previously. The *Solar Energy Facilities Design and Development Guideline* is considered in the following section.

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8.2. Solar Energy Facilities Design and Development Guideline

The *Solar Energy Facilities Design and Development Guideline* (October 2022) provides an overview of statutory planning required for solar energy facilities in Victoria.

In relation to traffic impacts, the guideline requires the following:

A traffic impact assessment (TIA) must be prepared as part of a planning permit application. A TIA should:

- *Identify access routes and all roads that will be used to transport construction materials.*
- *Identify access routes, types of vehicles and traffic generation when the facility operates.*
- *Specify the timing, type of vehicle, daily volume and scheduled delivery times of construction materials.*
- *Provide timelines for the whole construction stage.*
- *Identify intersection upgrades and any road works required to accommodate access to the site, and specify if these are temporary arrangements.*

We are satisfied this report sufficiently addresses the traffic impact assessment requirements associated with the construction stage of the project for the purposes of town planning approval. Further details regarding the construction period including timelines and scheduling would be provided in the future as part of a Construction Management Plan. This could be appropriately introduced as a condition of Permit. Similarly, a traffic management plan (TMP) outlining temporary measures on Firmans Lane and at the Hazelwood Road/Walshs Road intersection if necessary, could be a condition of a planning permit.

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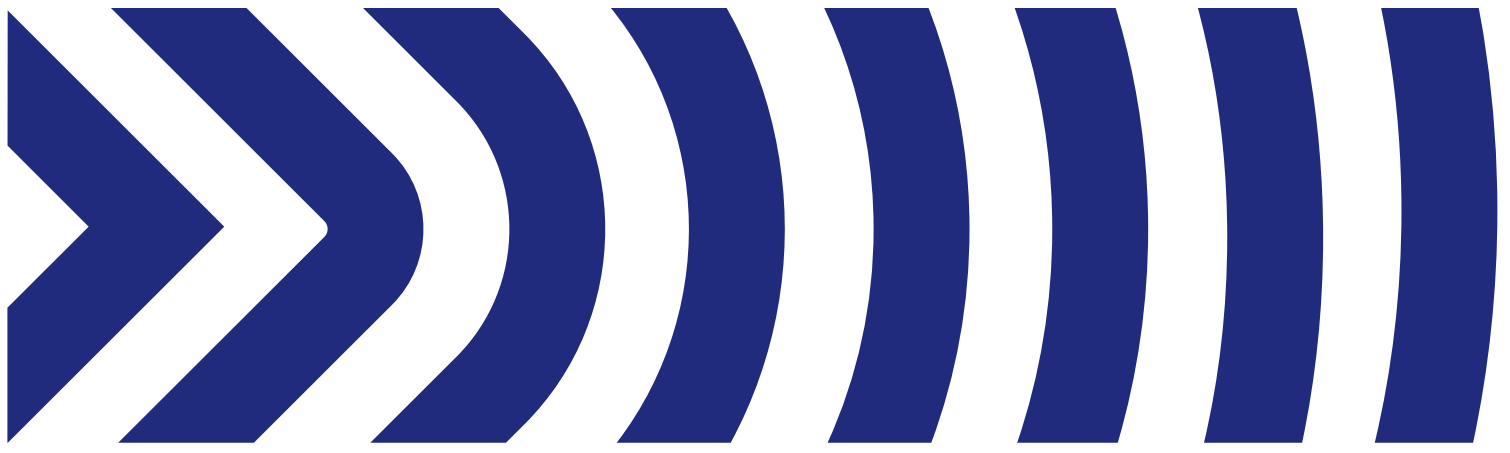
9. Conclusions

Having undertaken a detailed traffic engineering assessment of the proposed Hazelwood North Solar Farm, we are of the opinion that:

- a. A total of 13 car spaces should be provided on-site to accommodate the predicted peak staff parking demands and occasional visitors during the operation period of the solar farm. In addition, a small number of car spaces should be provided for the Agrisolar component, noting associated car parking demands are expected to be low as consistent with existing agricultural operations.
- b. The proposed primary vehicle access connection with Firmins Lane should be upgraded at the commencement of the construction stage to include auxiliary left-turn (AUL) and channelised right-turn treatments (CHR).
- c. The existing vehicle access to Walshs Road is to be suitably retained as a secondary access for limited staff and service vehicle access during the ongoing operation period.
- d. Emergency vehicles will access the site via the Firmins Lane or Walshs Road access connections. Furthermore, a vehicle access gate is to be provided in the southwest part of the site for emergency vehicle access only via Groppi Road.
- e. Loading activities can be appropriately accommodated within the site via the network of internal service roads.
- f. There is no statutory requirement or anticipated demand to provide bicycle parking.
- g. The traffic impact assessment requirements of the Solar Energy Facilities Design and Development Guideline associated with the construction stage of the project have been sufficiently addressed for the purposes of town planning approval with further details to be provided in the future as part of condition(s) of permit.
- h. There are no traffic engineering reasons why a planning permit for the proposed Hazelwood North Solar Farm, should be refused, subject to appropriate conditions.

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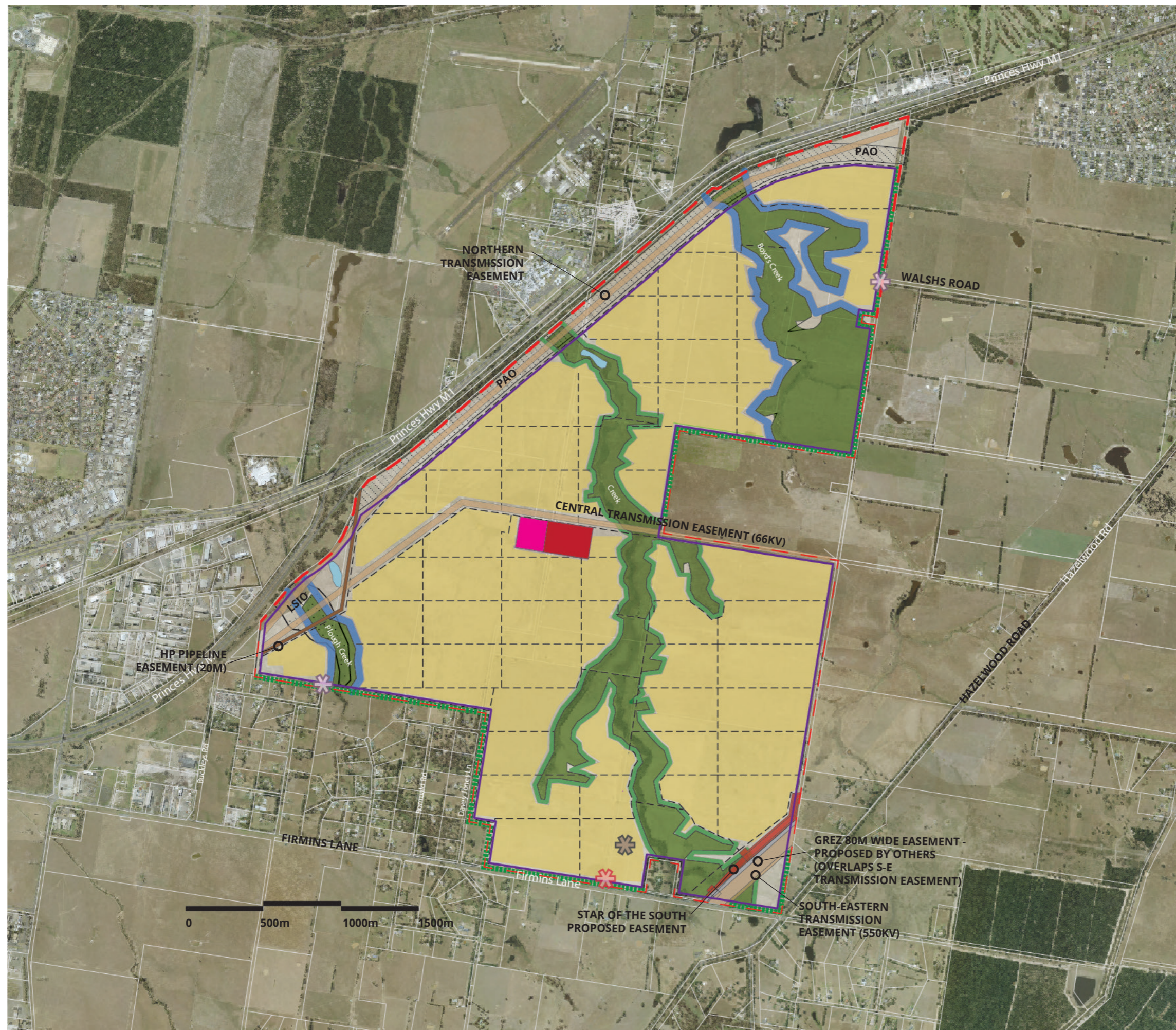


Appendix A

Concept Site Layout Plan

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LEGEND

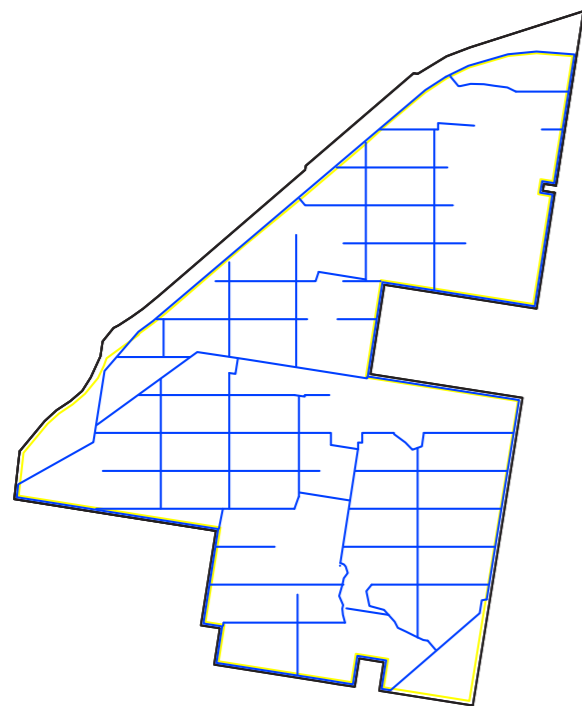
- PROPERTY BOUNDARY
- 30M PERIMETER BUFFER (DOUBLES AS FIREBREAK & INCLUDES PERIMETER ROAD)
- SOLAR FARM
- SUBSTATION
- BATTERY STORAGE
- VEHICULAR ACCESS NETWORK
- LAND SUBJECT TO INUNDATION (LSIO) OVERLAY
- EXTENT OF CREEK TO APPROX. TOP OF SLOPE
- 30M CREEK BUFFER FROM APPROX. TOP OF SLOPE
- 50M CREEK BUFFER FROM APPROX. TOP OF SLOPE
- PUBLIC ACQUISITION OVERLAY (PAO) - ROAD
- ✱ PRIMARY ACCESS POINT
- ✱ EMERGENCY ACCESS POINT
- WATER STORAGE (REQUIRES COORDINATION WITH FIREBREAK)
- PROPOSED PERIMETER PLANTING
- ✱ TEMPORARY CONSTRUCTION COMPOUND (+/- 2HA)

*All areas are indicative and subject to change.

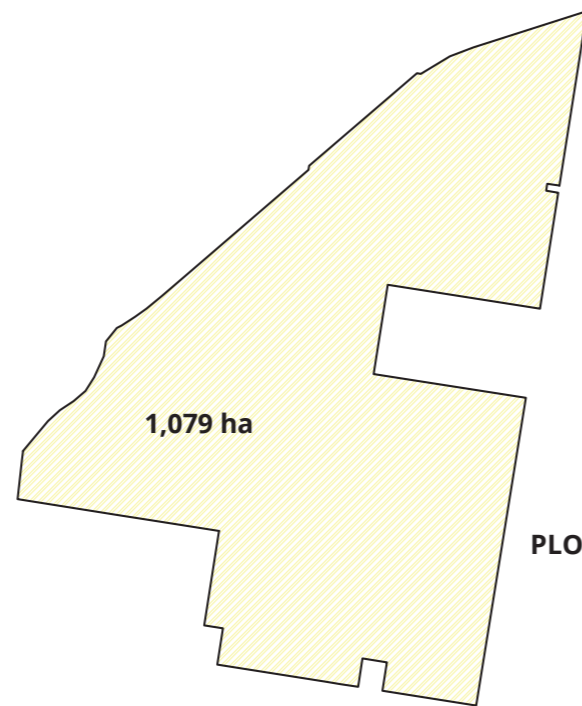
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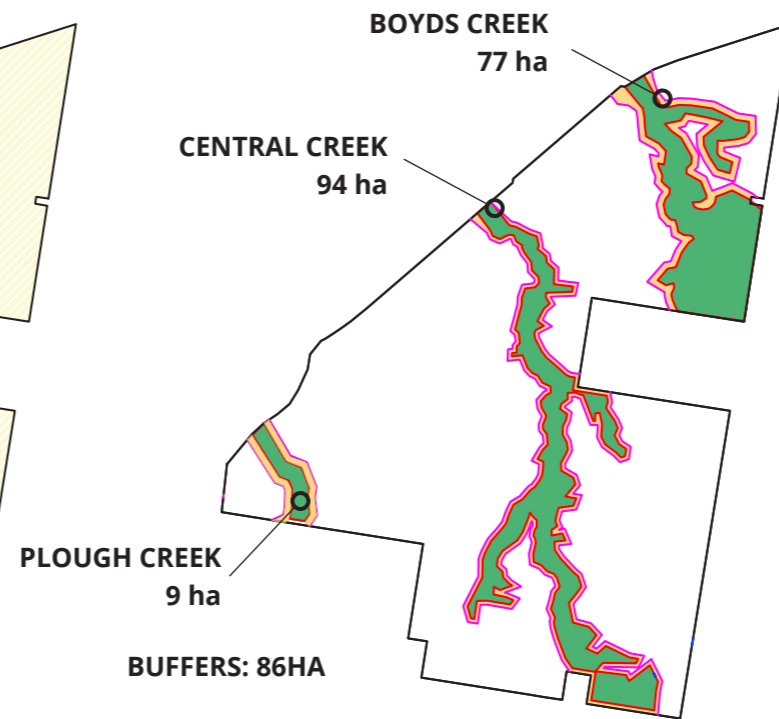
DEVELOPABLE AREAS



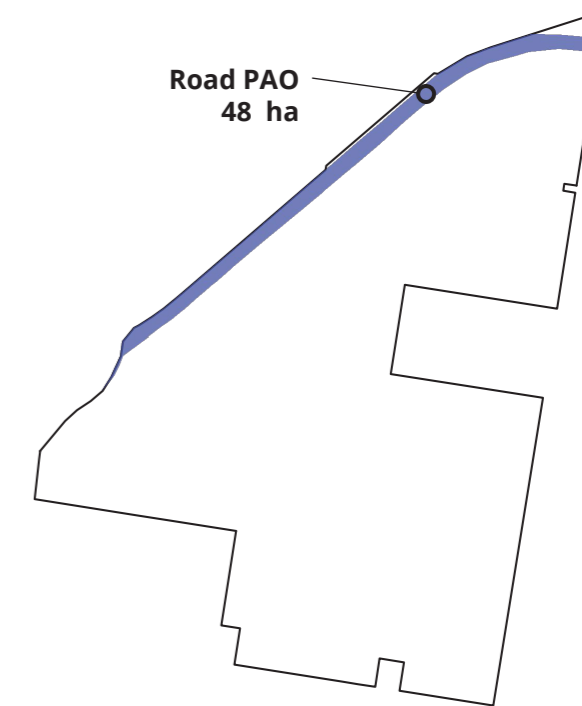
ACCESS TRACKS PLAN



TOTAL SITE AREA



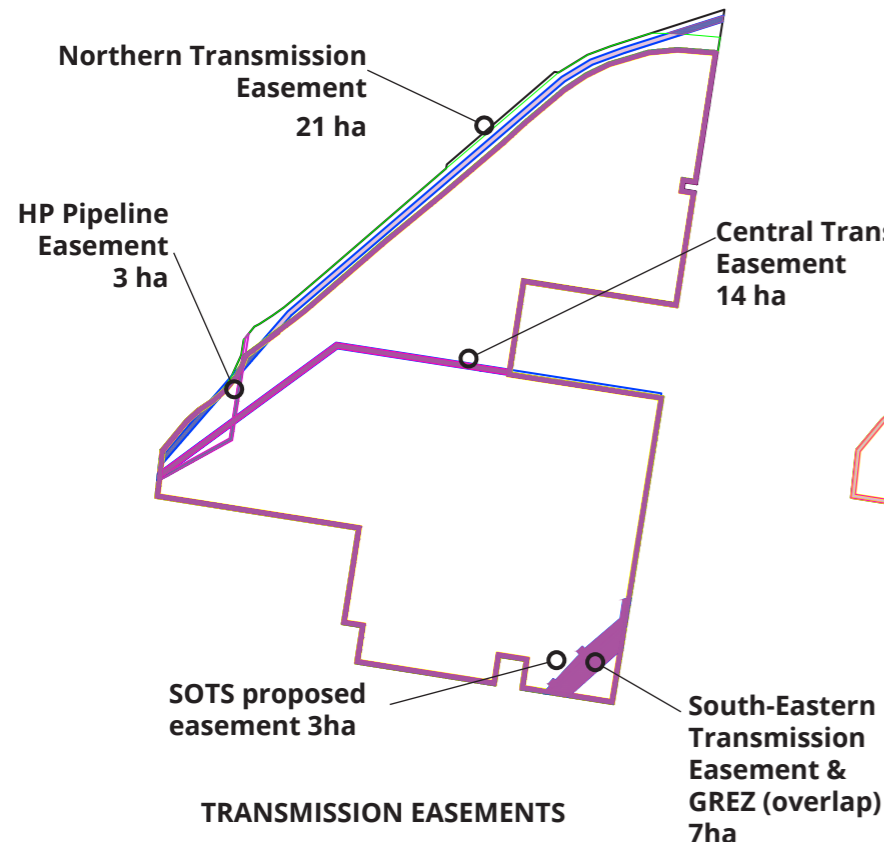
CREEK CORRIDORS



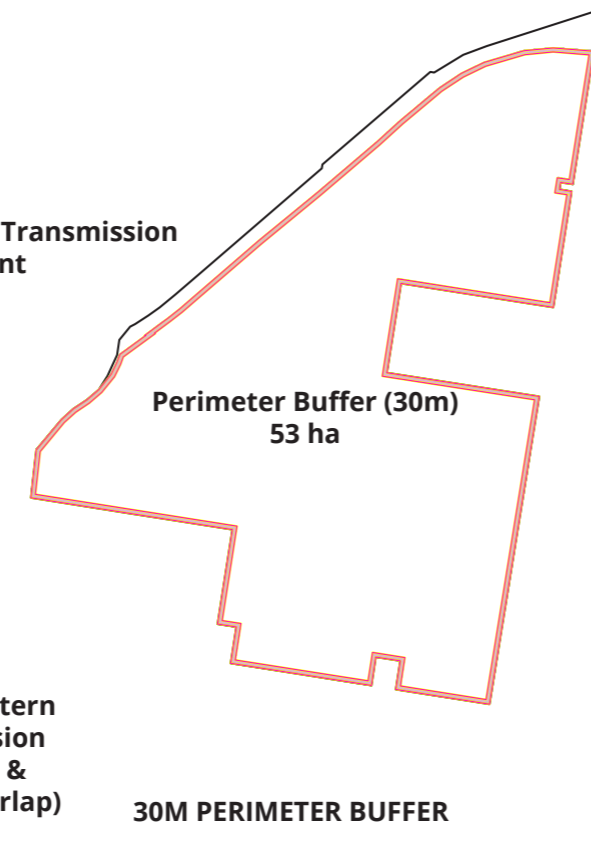
PUBLIC ACQUISITION OVERLAY

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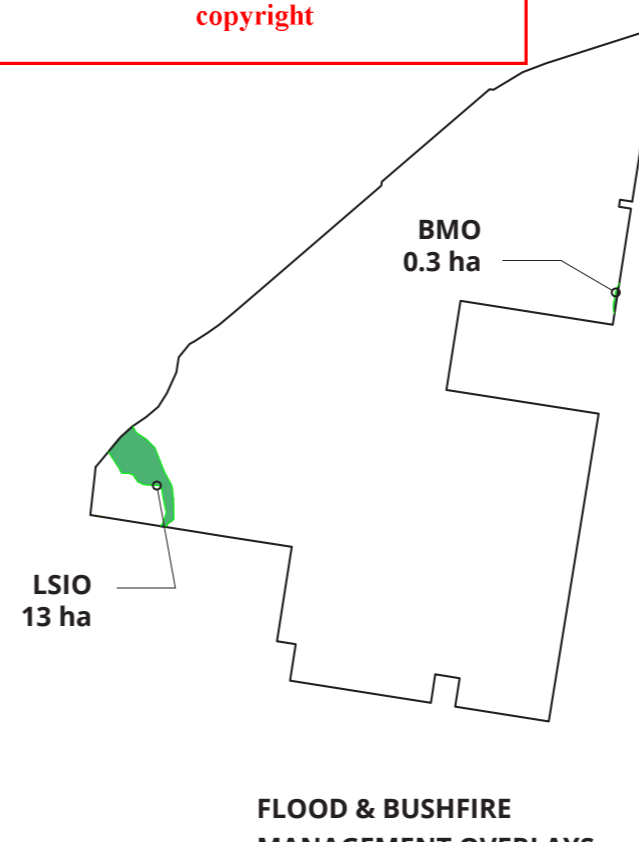
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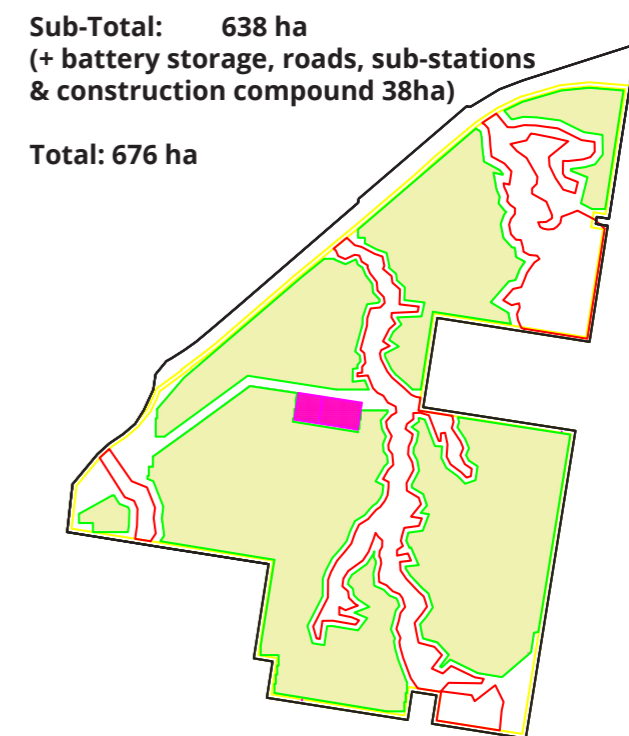
TRANSMISSION EASEMENTS



30M PERIMETER BUFFER



FLOOD & BUSHFIRE MANAGEMENT OVERLAYS



TOTAL DEVELOPABLE AREA (FOR SOLAR PANELS)

Sub-Total: 638 ha
 (+ battery storage, roads, sub-stations & construction compound 38ha)
 Total: 676 ha

*All areas are indicative and subject to change.



Gross Site Area						10,788,892	sqm
						1,079	ha
						Cumulative Area (accounts for overlaps)	
Encumbered Land						Actual Area	
PAO (DDO3)			48	ha		48	ha
GREZ Proposed Easement (550KV)			7	ha		7	ha
Central Transmission Easement (66KV)			14	ha		11	ha
Northern Transmission Easement			21	ha		4	ha
South-Eastern Easement (550KV)			covered in GREZ	ha		0	ha
HP Pipeline (DDO1)			3	ha		2	ha
SOTS			3	ha		3	ha
Overlays (not encumbered)							
BMO (not included in tally given that it sits within the 30m interface buffer)			0.3	ha			ha
LSIO (not included in tally given that solar panels not precluded in LSIO)			13	ha			ha
Sub-Total			96	ha	Total	75	ha
Buffers						Actual Area	
Interface Buffer			53	ha		53	ha
Sub-Total					Total	53	ha
Creek Corridors/Overlays						Cumulative Area (accounts for overlaps)	
Boyd's Creek Reserve			77	ha		19	ha
Central Creek Reserve			94	ha		(overlap)	
Plough Creek			9	ha			
Creek Buffers (new)			86	ha			
Sub-Total			266		Total	247	ha
						Gross Site Area minus total encumbered land total	
						704 ha	
						Total Developable Land	
						704 ha	

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Areas for Solar Panels							
Sub-Total Areas for Solar Panels (based on solar panel design layout)						Total	638 ha
Other Components							
	Battery Storage Utility Installation					6	ha
	New Terminal Substation	12000 each	48,000	sqm		4	ha
	Site Access Roads	7m wide	158,424	sqm		16	ha
	Site Access Tracks	4m wide	96,834	sqm		10	ha
	Construction Compound		30,000	sqm		3	ha
	Operations and Maintenance Areas		tbd	sqm			
	Site Sheds and Amenity Buildings		tbd	sqm			
						Sub-Total Other Components	38 ha
						Total Developed Area	676 ha
						Percentage of Developable Land	96%
						Percentage of Overall Site	63%

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