

## MEADOW CREEK SOLAR FARM 1033 OXLEY-MEADOW CREEK ROAD, MEADOW CREEK

## TRAFFIC IMPACT ASSESSMENT REPORT

SALT

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#### MEADOW CREEK SOLAR FARM 1033 OXLEY-MEADOW CREEK ROAD, MEADOW CREEK

Client: Meadow Creek Solar Farm Pty Ltd Report Reference: 22052T File Path: Y:\2022\22052T - Meadow Creek Solar Farm\08 Reports\22052TREP02F01.docx

Thursday, June 06, 2024

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### **1** INTRODUCTION

SALT has been engaged by Meadow Creek Solar Farm Pty Ltd to undertake a traffic impact assessment of the proposed solar farm located at 1033 Oxley-Meadow Creek Road, Meadow Creek.

In the process of preparing this report, the following tasks have been undertaken:

- The subject site and surrounding road network have been inspected on 27 April 2022 and 30 May 2024;
- Traffic volume data has been sourced from the Department of Transport and Planning's open data system;
- Traffic tube count surveys have been commissioned and analysed on key roads surrounding the site and on the haulage routes;
- Wangaratta Rural City Council has been liaised with to determine the most appropriate haulage route for heavy vehicles;
- Relevant traffic and haulage vehicle information has been sourced from the project team;
- Swept path analysis has been undertaken for key design vehicles;
- Temporary intersection upgrade plans have been prepared for key intersections on the haulage route; and
- Site access plans have been prepared for the access points on Oxley-Meadow Creek Road and Whorouly-Bobinawarrah Road.

### 2 EXISTING CONDITIONS

### 2.1 LOCATION AND LAND USE

The subject site is located on the north-eastern side of Oxley-Meadow Creek Road, with frontages also to Docker-Carboor Road on its northern boundary and Allans Lane on its eastern boundary.

There is also a proposed transmission line which will be accessed from a separate site on Whorouly-Bobinawarrah Road.

The location of the site with respect to the surrounding street network is provided in Figure 1. Figure 2 provides an aerial view of the site.



Figure 1 Subject site location (image source: Google Maps)





Figure 2 Aerial view of site (image source: Google Maps)

The site has an area of 566.1 hectares and is occupied by farmland.

The land surrounding the site is primarily also farmland. Hurdle Creek West State School is located at the northwestern corner of the site, at the intersection between Oxley-Meadow Creek Road and Docker-Carboor Road. The Bobinawarrah Fire Station and Hall are located at the north-eastern corner of the site, at the intersection between Docker-Carboor Road and Allans Lane.

### 2.2 ZONING AND POLICY

The site is located within the Rural City of Wangaratta. It is situated within a Farming Zone (FZ).

Clause 19.01 (Energy) of the Planning Scheme relates to development of energy supply infrastructure and renewable energy. This refers to the policy document *Solar Energy Facilities Design and Development Guideline* (*Department of Environment, Land, Water and Planning, October 2022*). The guideline includes the following relevant traffic-related requirements:

### Traffic Impacts

Traffic generated by solar energy facilities can affect the operation of and cause damage to the road network, particularly during the construction stage. During this stage, congestion on the road network due to large volumes of construction vehicles can cause delays and damage to roads.

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.

Depending on the outcome of the TIA, the responsible authority and/or relevant roads corporation may require a traffic management plan as a planning permit condition.



### 2.3 ROAD NETWORK

### 2.3.1 SNOW ROAD

Snow Road is a Secondary State Arterial Road under the jurisdiction of Regional Roads Victoria. It has an eastwest orientation. The sealed carriageway has a width of approximately 8.0m and is in good condition.

The speed limit varies between 100km/h, 80km/h and 60km/h.

Snow Road is a part of Victoria's gazetted B-Double Network and is hence suitable to accommodate heavy vehicle movements.

Views of Snow Road are provided in Figure 3 and Figure 4.





Figure 4 Snow Road facing east

Figure 3 Snow Road facing west

### 2.3.2 WANGARATTA-WHITFIELD ROAD

Wangaratta–Whitfield Road is a Secondary State Arterial Road under the jurisdiction of Regional Roads Victoria. It has a northwest to southeast orientation. The sealed carriageway has a width of approximately 8.0m and is in good condition.

There is no posted speed limit, hence the default rural speed limit of 100km/h applies.

Wangaratta-Whitfield Road is a part of Victoria's gazetted B-Double Network and is hence suitable to accommodate heavy vehicle movements.

Views of Wangaratta-Whitfield Road are provided in Figure 5 and Figure 6.



Figure 5 Wangaratta–Whitfield Road facing north



Figure 6 Wangaratta–Whitfield Road facing south



### 2.3.3 OXLEY-MEADOW CREEK ROAD

Oxley-Meadow Creek Road is classified as an access road under the Wangaratta Council Road Register. In the vicinity of the site, it has a north-west to south-east orientation. At the northern end of the road, it has a sealed carriageway with a width of approximately 6.4m. The carriageway transitions to gravel approximately 450m south of Reillys Lane. In the gravel section, the carriageway width is typically around 5.5m wide.

There is no posted speed limit, hence the default rural speed limit of 100km/h applies.

Oxley-Meadow Creek Road is a part of Victoria's gazetted B-Double Network and is hence suitable to accommodate heavy vehicle movements.

The condition of the road surface is reasonably good, with no significant potholes or rutting observed during our site visit.

Views of Oxley-Meadow Creek Road are provided in Figure 7 and Figure 8.





There is a bridge to the south of Whorouly-Bobinawarrah Road which has a width of approximately 4.8m

### 2.3.4 DOCKER-CARBOOR ROAD

Docker-Carboor Road is classified as an access road under the Wangaratta Council Road Register. In the vicinity of the site, it has an east to west orientation. The road has an unsealed gravel carriageway with a width of approximately 6.0m.

The condition of the road surface is reasonably good, with no significant potholes or rutting observed during our site visit.

There is no posted speed limit, hence the default rural speed limit of 100km/h applies.

Docker-Carboor Road is not a part of Victoria's gazetted B-Double Network.

There are five bridges along Docker-Carboor Road between Wangaratta-Whitfield Road and Oxley-Meadow Creek Road, which cross the King River and a small swamp. The bridges are all located within a span of approximately 900m. They have the following widths (moving from east to west):

- 4.0m;
- 5.5m:
- 5.5m;
- 5.8m: and
- 5.9m.

Council has indicated that these bridges are rated to support high loads, and regularly support loads in excess of 80 tonnes.

Views of the bridges along Docker-Carboor Road are provided in Figure 9 to Figure 12.







Figure 9 Docker-Carboor Road Bridge 1



Figure 11 Docker–Carboor Road Bridge 4

### 2.3.5 WHOROULY-BOBINAWARRAH ROAD



Figure 10 Docker–Carboor Road Bridges 2 and 3



Figure 12 Docker-Carboor Road Bridge 5

Whorouly–Bobinawarrah Road is classified as an access road under the Wangaratta Council Road Register. In the vicinity of the site, it has an east to west orientation. The road has an unsealed gravel carriageway with a width of between 4.5 and 5.5m.

Docker-Carboor Road is not a part of Victoria's gazetted B-Double Network.

There is no posted speed limit, hence the default rural speed limit of 100km/h applies.

Views of Whorouly-Bobinawarrah Road are provided in Figure 13 and Figure 14.



Figure 13 Whorouly–Bobinawarrah Road facing west



Figure 14 Whorouly–Bobinawarrah Road facing east



### 2.4 EXISTING TRAFFIC VOLUMES

Traffic volume data has been sourced for roads that will be used by trucks delivering materials to the site (refer haulage routes discussion in Section 4), as well as other roads in the vicinity of the site. This data is presented as follows.

### 2.4.1 TUBE COUNT SURVEYS (2022)

Traffic tube count surveys were commissioned by SALT at four locations surrounding the site for 7 days from Tuesday May 17<sup>th</sup> until Monday May 23<sup>rd</sup>, 2022. The key results are presented in Table 1 to Table 4.

Table 1 Docker Carboor Road (West of Oxley–Meadow Creek Road) tube count summary

Measure	Volume/percentage/speed
Average weekday daily volume (two-way)	85 vpd
Average weekday heavy vehicle percentage	13.11%
Average weekday AM peak hour volume (two-way)	7 vph (7am-8am)
Average weekday AM peak hour volume (by direction)	4 (eastbound) 3 (westbound)
Average weekday PM peak hour volume (two-way)	8 vph (2pm-3pm)
Average weekday PM peak hour volume (by direction)	5 (eastbound) 3 (westbound)
85 <sup>th</sup> percentile speed	85.1 km/h

#### Table 2 Docker Carboor Road (East of Oxley-Meadow Creek Road) tube count summary

Measure	Volume/percentage/speed
Average weekday daily volume (two-way)	76 vpd
Average weekday heavy vehicle percentage	11.61%
Average weekday AM peak hour volume (two-way)	6 vph (7am-8am)
Average weekday AM peak hour volume (by direction)	4 (eastbound) 2 (westbound)
Average weekday PM peak hour volume (two-way)	7 vph (1pm–2pm)
Average weekday PM peak hour volume (by direction)	3 (eastbound) 4 (westbound)
85 <sup>th</sup> percentile speed	87.1 km/h

Table 3 Oxley-Meadow Creek Road (South of Docker-Carboor Road) tube count summary

Measure	Volume/percentage/speed		
Average weekday daily volume (two-way)	38 vpd		
Average weekday heavy vehicle percentage	16.84%		
Average weekday AM peak hour volume (two-way)	4 vph (8am-9am)		
Average weekday AM peak hour volume (by direction)	2 (northbound) 2 (southbound)		
Average weekday PM peak hour volume (two-way)	4 vph (2pm-3pm)		
Average weekday PM peak hour volume (by direction)	2 (northbound) 2 (southbound)		
85 <sup>th</sup> percentile speed	88.2 km/h		



#### Table 4 Allans Lane (South of Docker–Carboor Road) tube count summary

Measure	Volume/percentage/speed
Average weekday daily volume (two-way)	30 vpd
Average weekday heavy vehicle percentage	26.35%
Average weekday AM peak hour volume (two-way)	2 vph (8am-9am)
Average weekday AM peak hour volume (by direction)	2 (northbound) 2 (southbound)
Average weekday PM peak hour volume (two-way)	3 vph (5pm–6pm)
Average weekday PM peak hour volume (by direction)	2 (northbound) 1 (southbound)
85th percentile speed	77.2 km/h

Each of the above roads is under the care and management of the Wangaratta Rural City Council. The data indicates that the daily traffic volumes are all extremely low, with less than 100 vehicle movements per day (two-way) on each road.

Notably, the heavy vehicle percentages are relatively high at 11.61% - 26.34% compared to the more usual 5% or less on most typical roads. This suggests farming related heavy vehicle movements.

### 2.4.2 TUBE COUNT SURVEYS (2024)

Two additional tube count surveys were conducted for 7 days from Friday May 23<sup>rd</sup> until Thursday May 30<sup>th</sup>, 2024. The key results are presented in Table 5 and Table 6.

Table 5	Oxley-Meadow	<b>Creek Road</b>	(South of	Gehrigs	Lane) t	ube count	summary
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Measure	Volume/percentage/speed	
Average weekday daily volume (two-way)	153 vpd	
Average weekday heavy vehicle percentage	16.1%	
Average weekday AM peak hour volume (two-way)	13 vph (10am-11am)	
Average weekday, AM peak bour volume (by direction)	7 (northbound)	
Average weekaag Aw peak hour volume (by direction)	6 (southbound)	
Average weekday PM peak hour volume (two-way)	15 vph (2pm-3pm)	
Average weekday PM peak hour volume (by direction)	7 (northbound)	
Average weekdag Fivi peak hour volume (by direction)	8 (southbound)	
85th percentile speed	96.2 km/h	

#### Table 6 Whorouly-Bobinawarrah Road (East of Oxley-Meadow Creek Road) tube count summary

Measure	Volume/percentage/speed	
Average weekday daily volume (two-way)	22 vpd	
Average weekday heavy vehicle percentage	28.8%	
Average weekday AM peak hour volume (two-way)	3 vph (11am-12pm)	
Average weekday, AM peak bour volume (by direction)	2 (eastbound)	
	1 (westbound)	
Average weekday PM peak hour volume (two-way)	3 vph (2pm–3pm)	
Average weekday DM peak heur velume (by direction)	2 (eastbound)	
Average weekuag PM peak hour volume (by unection)	1 (westbound)	
85th percentile speed	91.1 km/h	



Each of the above roads is under the care and management of the Wangaratta Rural City Council. The data indicates that the daily traffic volumes are all extremely low, with less than 100 vehicle movements per day (two-way) on each road.

Notably, the heavy vehicle percentages are relatively high at 16.1% – 28.8% compared to the more usual 5% or less on most typical roads. This suggests farming related heavy vehicle movements.

### 2.4.3 DEPARTMENT OF TRANSPORT AND PLANNING DATA

Traffic volume data has also been sourced from the Department of Transport and Planning's Open Data Hub. The data is summarised in Table 7.

#### Table 7 DTP traffic volume data

Location	Volume
Wangaratta-Whitfield Road	<b>1850 vpd (two-way)</b> 929 vpd (northbound) 921 vpd (southbound)
Snow Road (West of Wangaratta-Whitfield Road)	<b>1392 vpd (two-way)</b> 699 vpd (eastbound) 693 vpd (westbound)
Snow Road (East of Wangaratta-Whitfield Road)	<b>3600 vpd (two-way)</b> 1800 vpd (eastbound) 1800 vpd (westbound)

Each of the above roads is under the care and management of Regional Roads Victoria (RRV) and as such their major function is to move traffic. The traffic volumes are indicative of this.



### 3 **PROPOSAL**

The project incorporates a solar farm, battery energy storage system (BESS), substation and terminal station, including a transmission line that passes through a separate property before connecting to the Dederang-Glenrowan transmission line. The site will have a Solar PV capacity of 332MWp and a BESS capacity of 1000mWh.

There are two primary site access points. The first is on Oxley–Meadow Creek Road south of the intersection with Docker–Carboor Road, which provides access to the main farm area. The second is on Whorouly–Bobinawarrah Road to the east of Oxley–Meadow Creek Road which provides access to the terminal substation and transmission line.

The largest vehicle required for material delivery will be a 26m low-loader truck, which will be used to deliver the transformers.



The proposed solar farm layout is shown in Figure 15.

Figure 15 Proposal



### **4 HAULAGE ROUTES**

SALT has been advised that materials will be transported from Melbourne to the site. Therefore, delivery vehicles will utilise the Hume Freeway to travel between Melbourne and Meadow Creek as this represents the shortest travel time and most direct route.

There are two primary site access locations where materials will be delivered to, which are discussed as follows. The routes below have been decided on through consultation with Council officers.

### 4.1 OXLEY-MEADOW CREEK ROAD ACCESS

The site access for the main solar farm will be on Oxley-Meadow Creek Road, approximately 800m south-east of the intersection with Docker-Carboor Road.

Figure 16 shows the proposed haulage route between the Hume Freeway and this access point. Approaching trucks will use Oxley–Meadow Creek Road, while departing trucks will use Docker–Carboor Road and Wangaratta–Whitfield Road. This is to minimise large trucks from needing to pass on narrower unsealed roads, and the only location this will happen on this route is the 800m section between Docker–Carboor Road and the site access, which can support vehicle passing.





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There are six bridges along this haulage route. One is on Oxley–Meadow Creek Road directly south of Whorouly– Bobinawarrah Road, and the remaining five are along Docker–Carboor Road. As discussed in Section 2.3, Council has been liaised with in relation to these bridges. Advice from Council is that they regularly support loads in excess of 80 tonnes and hence will be suitable to accommodate the required haulage vehicles and loads. The bridges have



varying widths between 4.0m and 5.9m, and as such several are not suitable for simultaneous passing movements. Accordingly, the "loop" arrangement of the haulage route will minimise vehicles from needing to pass at the bridges.

A concept plan for this access point is provided in Appendix 1 – refer drawings "SALT-22052-SK-002" and "SALT-22052-SK-003". As this will be the primary access point, the access has been designed to allow two 19m semitrailers to simultaneously pass at the entrance. This also allows the low loader truck to access as a 'checking' vehicle.

### 4.2 WHOROULY-BOBINAWARRAH ROAD ACCESS

The site access for the transmission line will be on Whorouly-Bobinawarrah Road, approximately 1.5km east of the intersection with Oxley-Meadow Creek Road.

Figure 17 shows the proposed haulage route between the Hume Freeway and this access point. Trucks will approach and depart via Whorouly–Bobinawarrah Road and Oxley–Meadow Creek Road. This is to avoid the need to turn right from Whorouly–Bobinawarrah Road into Oxley–Meadow Creek Road, and to avoid the need to turn right from Oxley–Meadow Creek Road into Docker–Carboor Road. Both of these are acute angles and would require significant mitigating treatments to be viable.

Oxley Flats USI4 Approach Route C(52/3) Departure Route C521 6 Snow Road Pioneer Bri C521 Milawa\_\_\_\_Snow.Rd Markwood Oxley Recreation Wangaratta-Whitfield Road Whorouly-Bobinawarrah Road C521 Docker Docker-Carboor Road Bobinawarra Greta C521 Meadow Creek Recreation

It is noted that the truck volumes to this access point will be significantly less than the main access point.

#### Figure 17 Whorouly–Bobinawarrah Road Haulage Route

A concept plan for this access point is provided in Appendix 1 – refer drawing "SALT-22052-SK-001". The access has been designed to allow 19m semi-trailers and low loader truck access, both as 'checking' vehicles given the low volume of traffic and hence low likelihood of any conflict.



### 4.3 ROUTE ASSESSMENT

Key intersections/locations along this haulage route are assessed as follows.

### 4.3.1 SNOW ROAD & OXLEY-MEADOW CREEK ROAD

Vehicles will be required to turn right into and left out of Oxley-Meadow Creek Road at this location. Austroads Guide to Traffic Management Part 6 (Intersections, Interchanges and Crossings) sets out warrants for the provision of vehicle turn lanes – refer Figure 18. Based on the existing traffic volumes on Snow Road (refer Section 2.4.3), it can be seen that the warrant for a channelised right turn lane is not triggered.



#### Figure 18 Snow Road turn lane warrants

Swept path analysis (refer Appendix 2, drawings "SALT-22052-SK-010" and "SALT-22052-SK-011") indicates that low loader vehicles can satisfactorily turn in and out of this intersection. 19m semi-trailers can also pass simultaneously at the intersection. No mitigating treatments are required.

### 4.3.2 OXLEY-MEADOW CREEK ROAD & WHOROULY-BOBINAWARRAH ROAD

Swept path analysis (refer Appendix 2, drawing "SALT-22052-SK-012") indicates that low loader vehicles can satisfactorily turn left into and right out of Whorouly-Bobinawarrah Road. No mitigating treatments are required.

### 4.3.3 OXLEY-MEADOW CREEK ROAD & DOCKER-CARBOOR ROAD

It is proposed to paint give way lines at the intersection, with Docker-Carboor Road given priority. The southern leg will be widened to 7.0m to allow vehicles to pass at this location, as there will be two-way site-related traffic to the south of Docker-Carboor Road. These measures will improve safety.

A concept plan for this intersection is provided in Appendix 1 – refer drawing "SALT-22052-SK-004". Swept path analysis is provided in Appendix 2 – refer drawings "SALT-22052-SK-005", and "SALT-22052-SK-006".

#### 4.3.4 DOCKER-CARBOOR ROAD & WANGARATTA-WHITFIELD ROAD

Given the increase in traffic utilising this intersection, it is proposed to widen the northern side of the road to allow a 12.5m HRV (unrelated to the site) to turn left into Docker-Carboor Road while a 19m semi-trailer is stationary. This is as per AustRoads requirements for an Arterial / Local road intersection.

A concept plan for this intersection is provided in Appendix 1 – refer drawings "SALT-22052-SK-007". Swept path analysis is provided in Appendix 2 – refer drawings "SALT-22052-SK-008", and "SALT-22052-SK-009".



### 5 TRAFFIC IMPACTS

### 5.1 TRAFFIC GENERATION

The following information has been provided by the client in relation to traffic generation.

### 5.1.1 CONSTRUCTION HOURS

Construction working hours are as follows:

- Mondays Fridays: 7:00 am to 6:00 pm;
- Saturdays: 8:00 am to 1:00 pm on Saturdays; and
- Sundays and public holidays: no work.

### 5.1.2 CONSTRUCTION TRAFFIC GENERATION

#### Workforce

During the solar farm's peak construction, up to 350 workers might be present.

Approximately 50 workers will be needed for the transmission line's construction.

It is expected that 80% of these workers will commute via minibus shuttles, which can carry 14 passengers each. The remaining will drive personal vehicles.

This equates to a peak of 280 workers arriving by 20 shuttle buses. The remaining 70 will travel in private vehicles. In total, there will be up to 90 inbound worker vehicles/shuttle buses in the morning and 90 outbound in the evening.

Peak commuting times are anticipated between 5:30am-6:30am and 6:00pm-7:00pm.

#### Heavy vehicles

Construction activities are predicted to generate movement of heavy vehicles, as outlined below:

- Initial site setup and mobilisation will involve semi-trailer and low loader trucks.
- The delivery of materials for road and hardstand construction will require truck, dog, and low loader trucks.
- General equipment will be brought in using low loader and semi-trailer trucks.
- The transportation of substation apparatus will involve B-Doubles and OSOM trucks.
- AC Cable installation tasks will utilize semi-trailer and low loader trucks.
- For overhead line fitting, semi-trailer, low loader trucks, and Restricted Access Vehicles (RAV) will be engaged.
- Transmission line pipes will be conveyed using semi-trailer trucks.
- B-Double trucks will handle the transportation of spoil and concrete.
- The construction of the switchyard will see a mix of concrete agitators, low loaders, semi-trailers, RAVs, and other trucks.

During the height of construction activities, there may be as many as 100 heavy vehicle movements. Movements will largely take place outside the peak traffic hours, occurring predominantly during the day.

Based on the above, at the absolute peak there will be up to 100 heavy vehicle movements per day (various sized trucks). Over an 11-hour work day this equates to an average of 9 trucks per hour (two-way), approximately 4 - 5 trucks inbound and 4 - 5 trucks outbound.

### 5.2 TRAFFIC DISTRIBUTION

The traffic generated by the site will be distributed as per the haulage routes identified in Section 4.

It is proposed that workers be instructed to use the same haulage routes as the trucks for their routes to and from the site, to reduce conflicting traffic movements on the surrounding roads.



### 5.3 TRAFFIC IMPACT

The amount of construction traffic is low in traffic engineering terms and will have minimal impact on the operation of the surrounding road network. Up to 100 truck movements per day (average of 9 per hour) are expected during peak construction activities.

In relation to workforce vehicle movements, a peak of up to 90 vehicles will approach the site between 5:30am-6:30am and 90 vehicles will depart the site between 6:00pm-7:00pm. This equates to an average of one vehicle every 40 seconds during the peak hour. It is noted that the peak hours associated with workers differ to the typical on-road peak hours. Hence, the traffic will have minimal impact on the operation of the surrounding road network.

Given the existing volumes on the surrounding access roads are very low (22 – 152 vpd), the additional traffic generated by the works will be comfortably absorbed.

As there will be a significant number of heavy vehicle movements across the construction period, regular condition inspections should be undertaken on the roads making up the haulage routes, which should be repaired as necessary. The use of a DustMag (or similar) treatment may also be considered to reduce dust impacts on properties abutting Oxley-Meadow Creek Road and Docker-Carboor Road.

### 6 CONCLUSION

From a traffic perspective, we find that the site is suitable for development as a solar farm. The following conclusions are made:

- Vehicles will approach the site from the north via Oxley-Meadow Creek Road;
- Vehicles will depart the site to the west via Docker-Carboor Road, except for during the construction of the transmission line, where vehicles will depart to the north via Oxley-Meadow Creek Road;
- Site access plans have been prepared for the two main access points, using a 26m low-loader as the largest design vehicle;
- Intersection upgrades are proposed at the following locations to improve vehicular access:
  - Oxley-Meadow Creek Road and Docker-Carboor Road to provide give way linemarking and road widening on the southern leg;
  - Wangaratta-Whitfield Road and Docker-Carboor Road to allow a 12.5m HRV design vehicle to enter Docker-Carboor Road while a 19m semi-trailer is waiting;
- No warrant for a turn lane treatment on Snow Road is triggered;
- Swept path analysis confirms that the required trucks can traverse all intersections along the haulage routes; and
- A maximum of 100 truck movements and 180 worker vehicle movements per day are expected during peak construction periods, which the surrounding road network will be able to accommodate.



## APPENDIX 1 INTERSECTION UPGRADE PLANS











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CS / JW	04.06.2024	A3
DRAWING NUMBER		REVISION
SALT-22052-SK-004		1



# APPENDIX 2 SWEPT PATH DIAGRAMS





DRAWN / CHECKED	DATE	SIZE
CS / JW	04.06.2024	A3
DRAWING NUMBER		REVISION
SALT-22052-SK-005		1



1	DRAWN / CHECKED	DATE	SIZE
	CS / JW	04.06.2024	A3
	DRAWING NUMBER		REVISION
	SALT-220	52-SK-006	1





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			REVISION 1
	SALT-220		



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CS / JW	04.06.2024	A3
DRAWING NUMBER		REVISION
SALT-220	1	



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DRAWING NUMBER		REVISION
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