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HEAVY VEHICLE ROUTE ASSESSMENT

PROPOSED BENDIGO BATTERY ENERGY STORAGE SYSTEM

20 HATTAM STREET, GOLDEN SQUARE

11 JUNE 2026

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20 HATTAM STREET, GOLDEN SQUARE

CLIENT: Pacific Blue Australia Developments

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VERSION	DATE	ISSUE	PREPARED BY	REVIEWED BY
29003 Draft Route Ass	27 May 2026	Draft	Philip Roper	Terry Alexandrou
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1 INTRODUCTION

O'Brien Traffic has been engaged by Pacific Blue Australia Developments to undertake a Heavy Vehicle Route Assessment for the transport of a power transformer to a proposed Battery Energy Storage System (BESS) facility at 20 Hattam Street in Golden Square.

This report assesses the transport route/requirements for a 220 kV power transformer to the Bendigo BESS project site (from the nearest overmass vehicle route, i.e. the Calder Highway/High Street). The aim of the route assessment is to determine whether the vehicle will be able to travel to the site, and to identify any sections of the route which may require temporary works to make room for the passage of the vehicle.

The Bendigo Terminal Station, located directly adjacent to the project site, is equipped with two 220 kV transformers with comparable transport characteristics and logistical requirements. The successful delivery of similar transformers to this area in the past demonstrates that transport of the required transformer for the project is likely to be feasible. Detailed survey and engagement with respective regulatory stakeholders to inform a traffic management plan should be undertaken prior to construction.

2 TRANSPORT TASK

The construction of the BESS facility must include the delivery and installation of a power transformer. Such transformers are relatively compact, but extremely heavy; the transformer to be transported in this task weighs 146 tonnes. Consequently, they must be transported on vehicles capable of spreading load across numerous wheels.

While the transformer itself is only approximately 8 m long, the vehicle proposed for the transport of the transformer to the subject site will require a platform trailer approximately 30 m long, 4.2 m wide and 5.35 m high, using 16 rows of axles (8 tyres per row). The total weight of the trailer will be 223 tonnes, equating to 13.94 t per row of axles. With the added weight of the three prime movers, the gross combination mass of the vehicle will be 296.5 tonnes. All units are independently steered, including the individual axles of the platform trailer itself. When negotiating turns, the trailer's steering mechanism is controlled manually.

An indicative drawing of the vehicle is shown in Figure 1. The drawing shows one prime mover at the front of the vehicle, but in practice it is expected that two prime movers will haul the trailer from the front, and a third will push from the rear. The overall length of the combination will be approximately 70 m.

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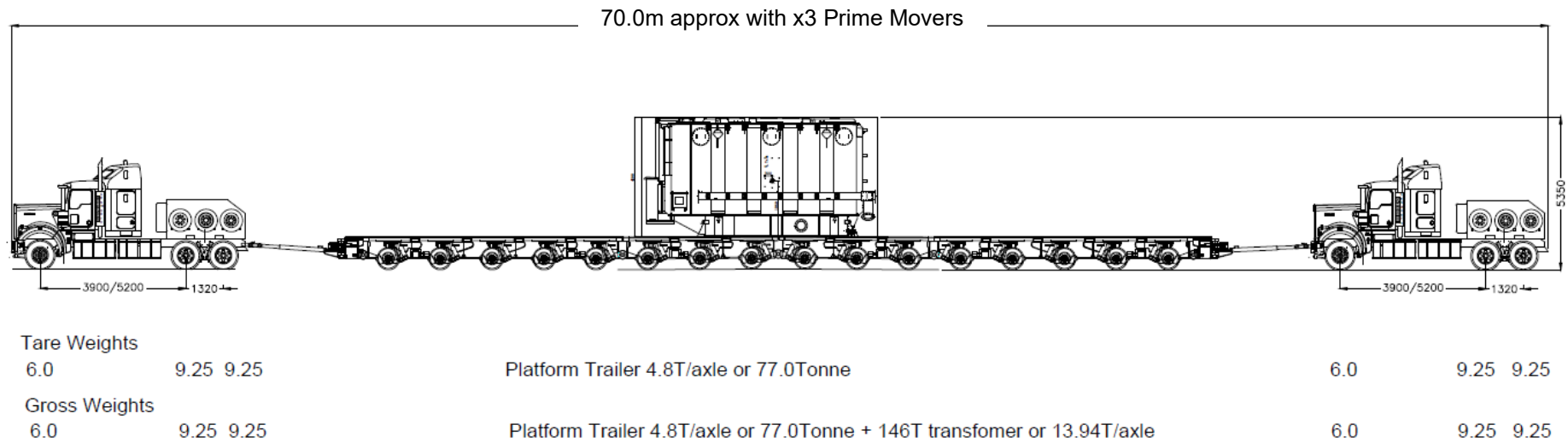


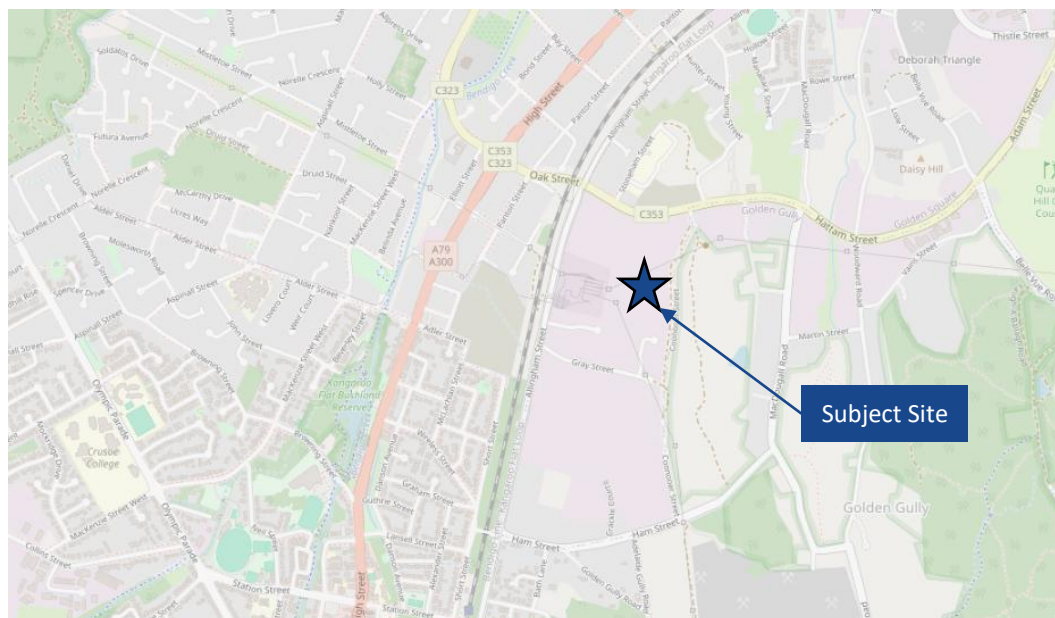
FIGURE 1: TRANSFORMER TRANSPORT VEHICLE

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3 PROPOSED ROUTE

3.1 SITE LOCATION

The subject site is located at the southern end of a future 8-lot industrial subdivision at 20 Hattam Street in Golden Square. The location of the subject site and surrounding road network is shown in **Figure 2**.



SOURCE: [HTTPS://ONLINE.MELWAY.COM.AU/MELWAY/](https://online.melway.com.au/melway/)

FIGURE 2: LOCATION OF SUBJECT SITE

A recent aerial photograph of the subject site and surrounds is shown in **Figure 3**.

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FIGURE 3: AERIAL PHOTO OF SUBJECT SITE

3.2 ROAD NETWORK AND ROUTE

The proposed route for the transport of the transformer is shown as a red dashed line in **Figure 4**. It will be necessary for the transport vehicle to turn right from High Street (A79 / Calder Highway) onto Oak Street, which later becomes Hattam Street, and turn right from Hattam Street into the newly constructed cul-de-sac to reach the BESS site.

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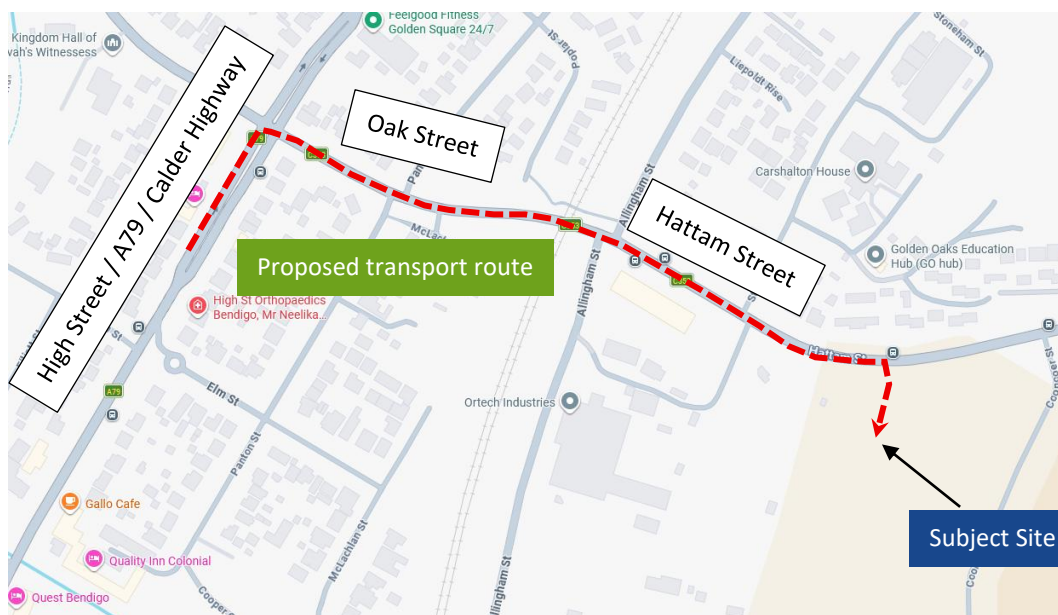


FIGURE 4: PROPOSED TRANSPORT ROUTE TO SUBJECT SITE

High Street / Calder Highway / A75 is a Transport Zone 2 road under the management of the Department of Transport and Planning. It runs north-south in the vicinity of Oak Street (which becomes Hattam Street at the railway line). The south leg of the intersection is divided by a painted median to provide two northbound through lanes, a left-turn lane and a right-turn lane adjacent to two southbound departure lanes. The view from the south approach is shown in Figure 5.

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FIGURE 5: HIGH STREET / OAK STREET INTERSECTION – VIEW FROM SOUTH APPROACH

Oak Street / Hattam Street is a Transport Zone 2 road under the management of the Department of Transport and Planning. In the vicinity of the site, it runs in an east-west orientation and has a carriageway width of approximately 11 metres. Views of Hattam Street are shown in Figure 6 and Figure 7.



FIGURE 6: HATTAM STREET FACING EAST



FIGURE 7: HATTAM STREET FACING WEST

The industrial estate is to include a cul-de-sac starting at Hattam Street and ending with a court bowl at the southern end, adjacent to the northern boundary of the subject site. The cul-de-sac will have a road reserve width of 25 m with a carriageway width of 12.5 m, and footpaths of 1.5 m width along both sides and around the court bowl.

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4 ROUTE ASSESSMENT

The proposed route between High Street and the subject site involves the following waypoints:

- right turn from High Street onto Oak Street
- travelling straight on Oak Street
- traversing the railway level crossing east of Panton Street
- travelling straight on Hattam Street
- right turn from Hattam Street onto the new cul-de-sac
- straight travel from the court bowl into the site.

Each of these locations is shown in the map in **Figure 8**, and is addressed in the following sections.

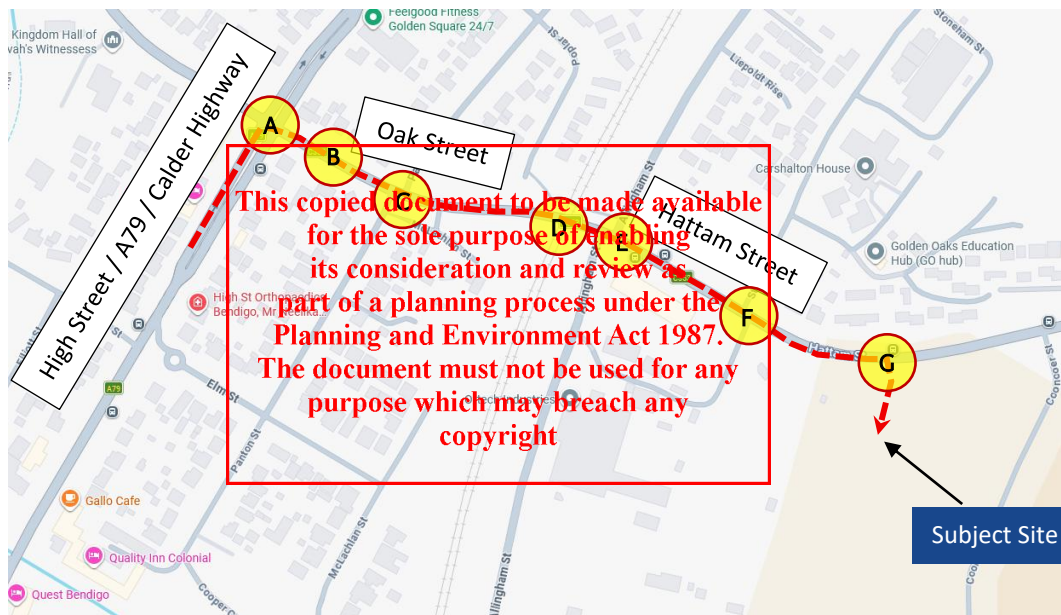


FIGURE 8: PROPOSED TRANSPORT ROUTE TO SUBJECT SITE

4.1 RIGHT TURN FROM HIGH STREET TO OAK STREET

The intersection of High Street and Oak Street is signalised. Movement of the vehicle through this intersection is likely to require deactivation of the signals and manual control under short term temporary traffic management conditions.

Power lines span the southern High Street approach to the intersection. The vertical clearance to these will require measurement to ensure compliance with energy regulator requirements. The traffic signal mast arm on the median island of the southern approach may require the vehicle to remain in the two left lanes while the payload passes through (see **A** in **Figure 8**). The height of the vehicle's payload is expected to be 5.35 m above ground level.



FIGURE 9: HIGH STREET / OAK STREET INTERSECTION – SOUTH APPROACH

A simulation has been used to produce a swept path diagram of the vehicle negotiating the intersection. The simulation showed that there is sufficient pavement space for the vehicle to complete the turn. The manoeuvre will require most of the available pavement width on the south approach and will encroach onto the opposing right-turn lane on the eastern leg of the intersection (see Figure 10). The full swept path diagram is shown in Appendix A.

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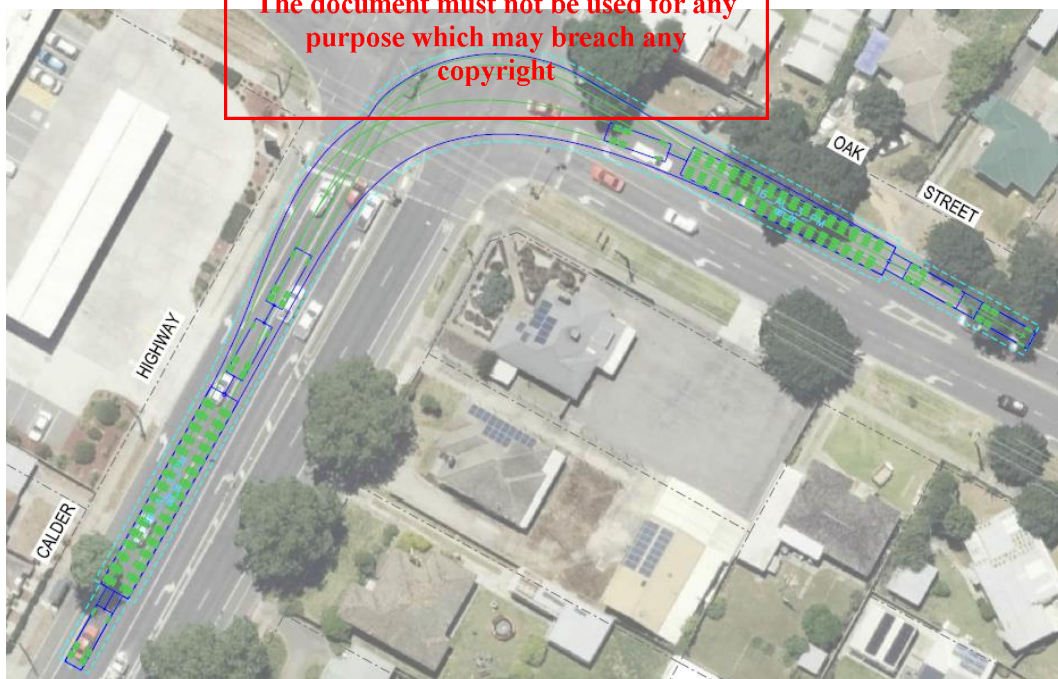


FIGURE 10: SWEEP PATH FOR RIGHT TURN FROM HIGH STREET TO OAK STREET

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4.2 OAK STREET

Immediately after the High Street intersection (B in Figure 8), roadside trees overhang Oak Street and restrict overhead clearance. The positions of these trees are visible in the aerial image in **Figure 10**, and the reduced overhead clearance is shown in **Figure 11**. Some trimming or temporary restraint of foliage may be required as the vehicle passes through this section of Oak Street.

Alternatively, the vehicle may need to travel along the centre of the carriageway straddling opposing travel lanes which will require temporary traffic management arrangements to provide safe management of traffic movements for the vehicle and other road users.

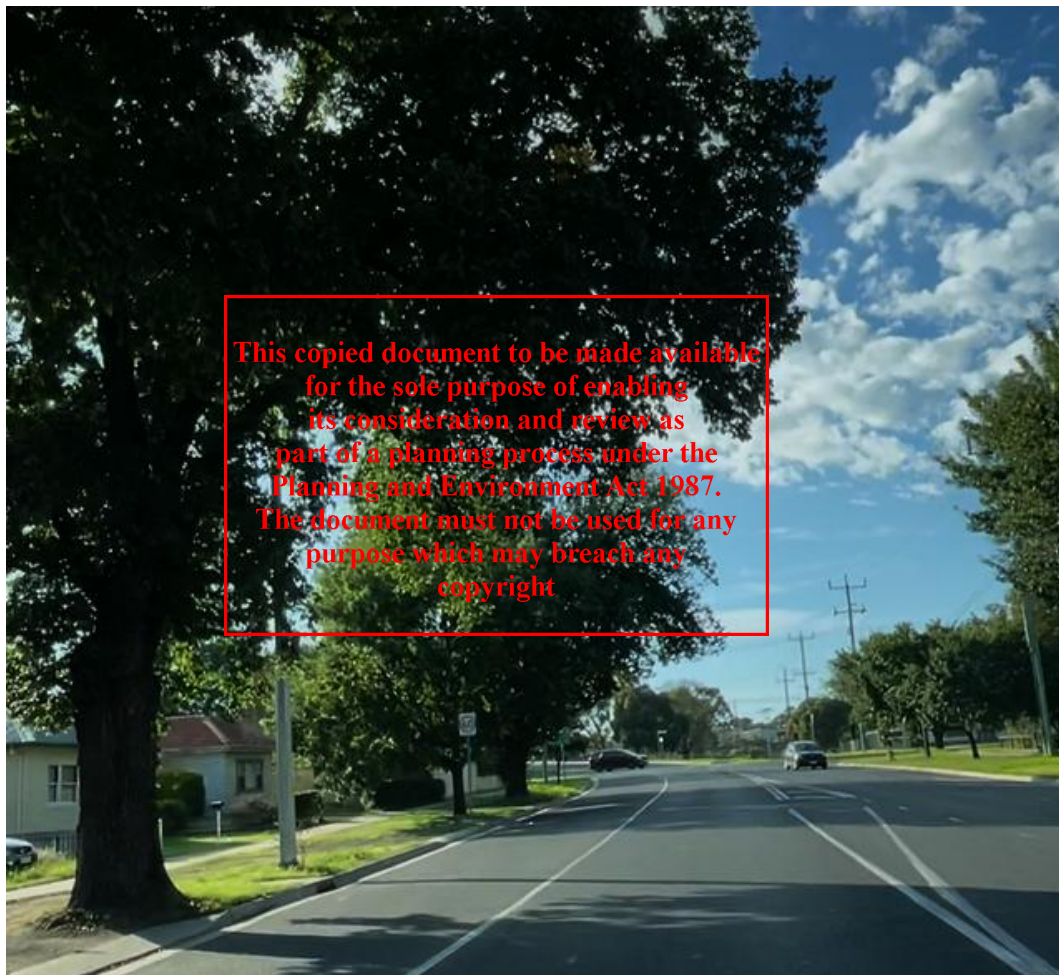


FIGURE 11: OAK STREET OVERHANGING TREES

At the intersections with Panton Street (C in Figure 8), and again approximately 40 m prior to the railway level crossing (D), power lines span the road. The overhead clearance to these lines will require measurement to ensure compliance with energy regulator requirements. The height of the vehicle's payload is expected to be 5.35 m above ground level.

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4.3 RAILWAY LEVEL CROSSING

The railway level crossing east of Panton Street (**D** in Figure 8) does not reduce the road width, but limits overhead clearance beneath the signal mast arms, which extend from each side of the road on opposite sides of the railway line. Passage through the level crossing will require permission from VicTrack. The permit process will need to consider vertical clearance between the signal mast arms and the transformer's expected overall height of 5.35 m. It may be necessary for the vehicle to travel diagonally across the level crossing, beginning at the right-hand side of the road, so that the transformer follows a diagonal path to avoid the mast arms. Temporary traffic management will be required to facilitate this use of the full width of the road.

4.4 HATTAM STREET

Approximately 40 m east of the railway level crossing, at the intersections with Allingham Street (**E** in Figure 8), two sets of power lines span the road. Two other sets of power lines span the road, at the Stoneham Street intersection and approximately 80 m east of Stoneham Street (**F**).

The overhead clearance to these lines will require measurement to ensure compliance with energy regulator requirements. The height of the vehicle's payload is expected to be 5.35 m above ground level.

4.5 RIGHT TURN FROM HATTAM STREET TO CUL-DE-SAC

The vehicle will need to turn right from Hattam Street into the new cul-de-sac to be constructed as part of the development (**G** in Figure 8). A swept path diagram has been produced for this manoeuvre and showed that there is sufficient space for the vehicle to complete the turn. The manoeuvre will require some of the trailer's wheels to run over the mountable apron in the throat of the intersection, as shown in the red circled area in **Figure 12**. The full swept path diagram is shown in **Appendix A**. Temporary traffic management will be required at this location to allow the vehicle to use the entire width of Hattam Street for several minutes.

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FIGURE 12: RIGHT TURN FROM HATTAM STREET

4.6 UNLOADED TRAILER TRANSPORT

Following delivery of the transformer to the site the length of the trailer will be reduced from 16 to 8 axles to transport the empty trailer from the site.

The vehicle swept path assessments in **Appendix A** demonstrate the vehicle will be able to adequately turn left from the new cul-de-sac of the industrial estate into Hattam Street and from Oak Street into High Street (Calder Highway). However, to safely manoeuvre the vehicle short term temporary traffic management arrangements will be required to:

- momentarily hold any traffic along Hattam Street while the vehicle exits the cul-de-sac as it will need to turn across the new right turn lane for eastbound traffic turning into the cul-de-sac
- momentarily hold traffic at the intersection of High and Oak Streets as the vehicle will need to turn left from the right (north) side of Oak Street in the vicinity of the signalised intersection of High and Oak Streets (i.e. to use the opposing traffic lanes on Oak Street in the vicinity of the intersection).

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5 CONCLUSION

This route assessment has shown that:

- The proposed movement of the oversize, overmass vehicle between High Street and the subject site can be achieved within the available road space
- Consideration is required of overhead clearance to the signal mast arms at the High Street / Oak Street intersection
- Travel through the railway level crossing will require permission from VicTrack, including consideration of the overhead clearance to the level crossing signal mast arms
- Consideration is required of overhead clearance to power lines spanning the road at several locations
- Temporary traffic management will be required at several locations to facilitate the vehicle's use of the full width of the roads during manoeuvres.

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SWEPT PATH DIAGRAMS

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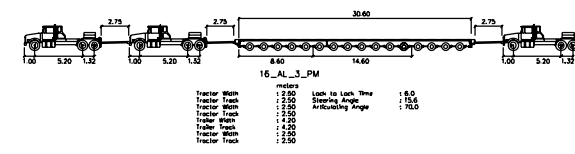
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- → → CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
- - - VEHICLE CLEARANCE LINE
(1m FROM VEHICLE BODY)

NOT FOR CONSTRUCTION



VEHICLE DETAILS TO BE CONFIRMED ASSUMPTIONS
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CHECKED: B.VANDERWERF
APPROVED: T.ALEXANDROU
DATE: 27/04/2026

DRAWING NUMBER: 29003-SWP-03
SHEET: 1 OF 2
SCALE: 0 5 10
1:500 @ A3



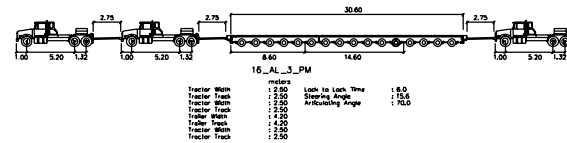
20 HATTAM STREET, GOLDEN SQUARE
CALDER HWY / OAK ST
16 AXLE PLATFORM TRAILER
WITH 3 PRIME MOVERS
SWEEP PATH DIAGRAM



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- → → CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
- - - VEHICLE CLEARANCE LINE
(1m FROM VEHICLE BODY)

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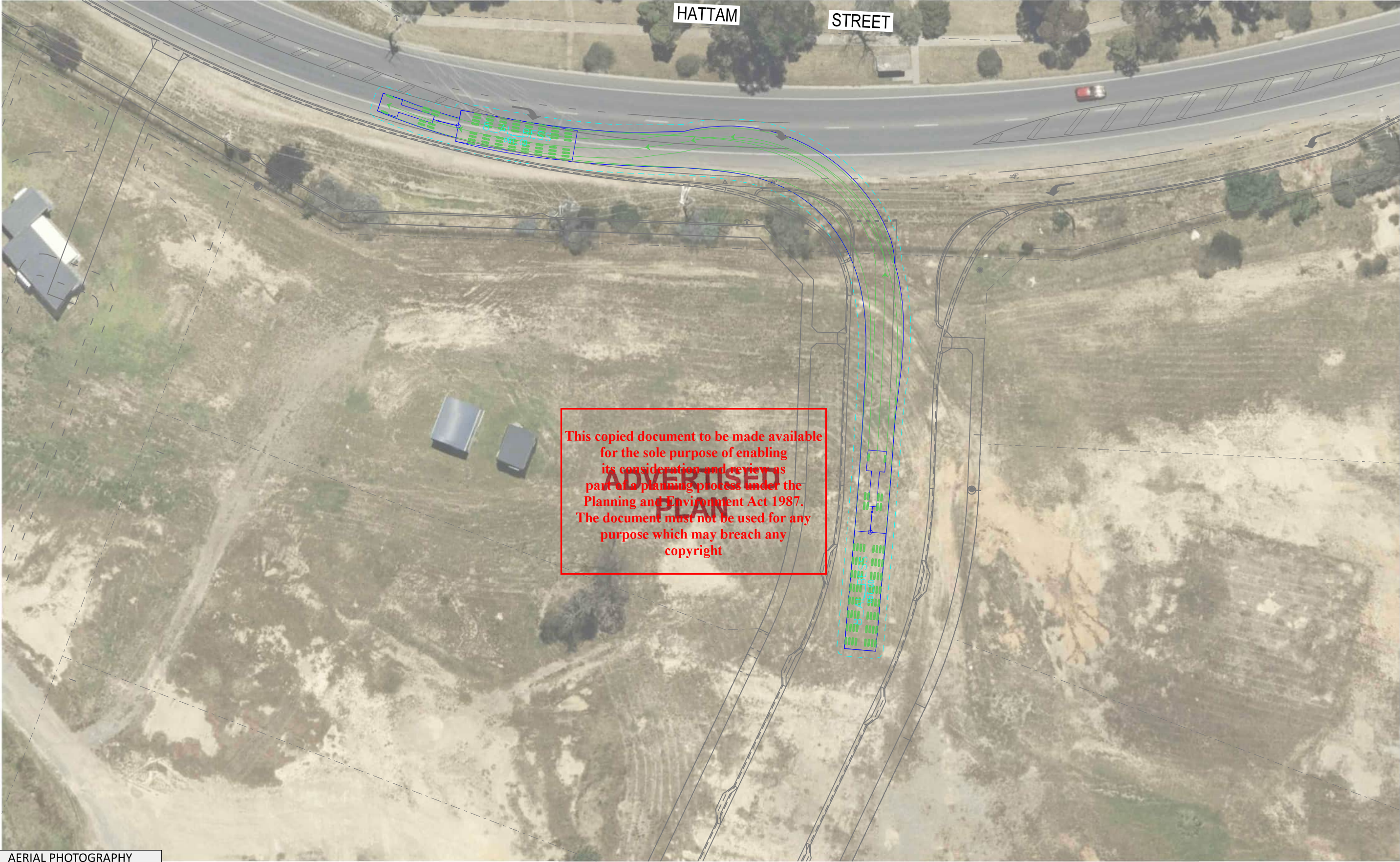
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SHEET: 2 OF 2
SCALE: 0 5 10
1:500 @ A3



20 HATTAM STREET, GOLDEN SQUARE

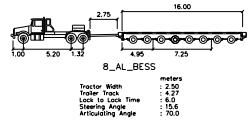
HATTAM ST / SITE ACCESS
16 AXLE PLATFORM TRAILER
WITH 3 PRIME MOVERS
SWEEP PATH DIAGRAM



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- → → CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
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SCALE: 0 5 10
1:500 @ A3



20 HATTAM STREET, GOLDEN SQUARE
HATTAM ST / SITE ACCESS
8 AXLE PLATFORM TRAILER
WITH 1 PRIME MOVER
EGRESS SWEEP PATH DIAGRAM

