



## Traffic Impact Assessment

3 Robert Street, Whitemark

Prepared for  
**Flinders Council**

Client representative  
**Brian Barnewall**

Date  
**5 June 2019**

Rev00



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**Prepared by —** Matthew Moore

**Date —** 5 June 2019

**Reviewed by —** Rebekah Ramm

**Date —** 5 June 2019

**Authorised by —** Ross Mannering

**Date —** 5 June 2019

### Revision History

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00	Traffic Impact Assessment	M Moore	R Ramm	R Mannering	05/06/2019

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# 1. Introduction

A Development Application (DA) has been lodged for the property at 3 Robert Street in Whitemark, located on Flinders Island in Tasmania. The property was previously a service station but has been unused for approximately 10 years. The owner has submitted the DA to reopen the service station.

Flinders Council has asked **pitt&sherry** to provide a Traffic Impact Assessment (TIA) for the development to assist with the DA assessment, with a focus on the safety of vehicles during ingress to and egress from the site.

This report has been prepared in accordance with the Department of State Growth's *Framework for Undertaking Traffic Impact Assessments* and details the findings of the TIA undertaken for the proposed development.

## 2. Existing Conditions

### 2.1 Site Location

3 Robert Street in Whitemark, located on Flinders Island in Tasmania. Whitemark would be categorised as a "rural centre" for the island, with shops, cafes, a hotel and service station. The existing service station in Whitemark is located approximately 120m south of the proposed development on Patrick Street. The existing service station will be closed around the end of June 2019 and there are no other service stations located in Whitemark, with the nearest service station located approximately 25km south-east of Whitemark in Lady Barron.



Figure 1: Proposed Development Location (Aerial Source: <https://maps.au.nearmap.com>)

## 2.2 Surrounding Road Network

The access to and from the site to the surrounding road network is shown in Figure 2.

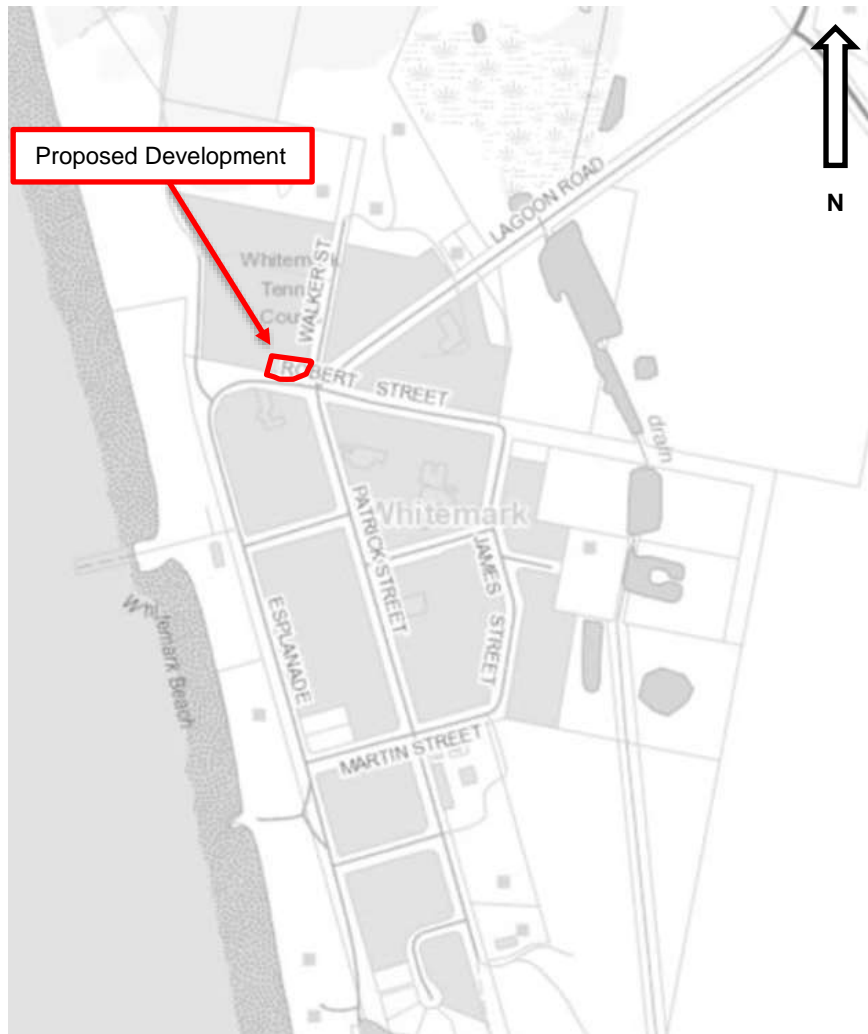


Figure 2: Access to/from the site is from Lagoon Road (Basemap Source: <https://maps.thelist.gov.au>)



### 2.2.1 Lagoon Road

Lagoon Road (shown in Figure 3 and Figure 4) is a Council owned local road, travelling in the north-east south-west direction that connects the town of Whitemark with the rest of Flinders Island. It is the only ingress/egress for the town centre which contains shops, cafes, galleries, Council chambers etc. Lagoon Road is sign posted with an 80km/h speed limit, however this reduces north of the site to 50km/h on entry to the town centre. In the vicinity of the site, Lagoon Road is a sealed two-way road, approximately 14m wide, with parking lanes on both sides. At the intersection with the site, Lagoon Road continues through as the priority road and becomes Patrick Street. The north-eastern end of Lagoon Road terminates at the intersection with Lady Barron Road/Palana Road.



Figure 3: Lagoon Road, facing north-east



Figure 4: Lagoon Road, facing south-west - Intersection

### 2.2.2 Patrick Street

Patrick Street, (Shown in Figure 5 and Figure 6) is a Council owned local road, travelling in a north south direction containing small shops and businesses at the northern end and residential lots at the southern end. In the vicinity of the site, Patrick Street is a two-way road, approximately 14m wide, with parking lanes on both sides. The street is sign posted with 50km/h urban speed limit and terminates in a cul-de-sac approximately 650m south of the site.



Figure 5: Patrick Street, facing south



Figure 6: Patrick Street, facing north - Intersection

### 2.2.3 Robert Street

Robert Street (shown in Figure 7) is a Council owned local road, travelling east west with some shops and businesses located in the vicinity of the site. Robert Street extends both east and west of the intersection with Lagoon Road/Patrick Street/Walker Street, with the site having frontage to the western portion of Robert Street. Adjacent to the site, Robert Street is a two-way road, separated with a median island at the intersection. The northern lane is 7.4m in width and the southern lane is 5.7m in width, with the width at the intersection of 20m between kerbs. Robert Street is signposted with the 50km/h urban speed limit.



Figure 7: Robert Street, western side of intersection, facing east



#### 2.2.4 Walker Street

Walker Street, (shown in Figure 8) is a local road travelling in a north-south direction, terminating in a cul-de-sac approximately 150m north of the site. It is mostly residential in nature, with some businesses located close to the intersection. The development site has frontage to Walker Street, and the width between kerbs is 8.2m. At the intersection, the road is separated with a median island and has a width of 20m between face of kerbs. Walker Street it is sign posted with the 50km/h urban speed limit.



Figure 8: Walker Street, facing south towards the intersection

### 2.2.5 Intersection of Lagoon Road, Patrick Street, Robert Street & Walker Street

The intersection is a 5-leg give-way intersection, with Lagoon Road and Patrick Street having priority. Robert Street, east and west of the intersection, as well as Walker Street are bounded by "Give Way" priority signs and line marking. The intersection layout is shown in Figure 9. The development site is located on the north-western corner of the intersection and has frontage to two roads, Robert Street and Walker Street.



Figure 9: Current intersection layout (Aerial Source: <https://au.maps.nearmap.com>)

## 2.3 Traffic Volumes

A traffic survey was undertaken at the intersection of Lagoon Road, Robert Street, Walker Street and Patrick Street at the time of the site visit. The traffic counts were undertaken from 12:00pm to 12:30pm, on a Thursday. The site conditions were clear and sunny.

*Table 1: Traffic Survey at intersection of Lagoon Road, Robert Street, Walker Street and Patrick Street*

	Northbound	Southbound	Eastbound	Westbound	Total
<b>Lagoon Road</b>			20	19	39
<b>Patrick Street</b>	12	16			28
<b>Walker Street</b>	2	1			3
<b>Robert Street (west)</b>			9	5	14
<b>Robert Street (east)</b>			1	4	5

By extrapolating the data collected, the two-way hourly traffic volumes at the intersection can be estimated follows:

- Lagoon Road 78 vehicles per hour
- Patrick Street 56 vehicles per hour
- Walker Street 6 vehicles per hour
- Robert Street (west) 28 vehicles per hour
- Robert Street (east) 10 vehicles per hour.

## 2.4 Crash History

The Department of State Growth has provided recorded crash history data for the town of Whitemark from the period of May 2014 to May 2019. During the reporting period, no crashes were recorded at the intersection at the proposed development site, six crashes occurred in the vicinity of the site. A map showing crashes on Lagoon Road and Patrick Street is shown in Figure 10.

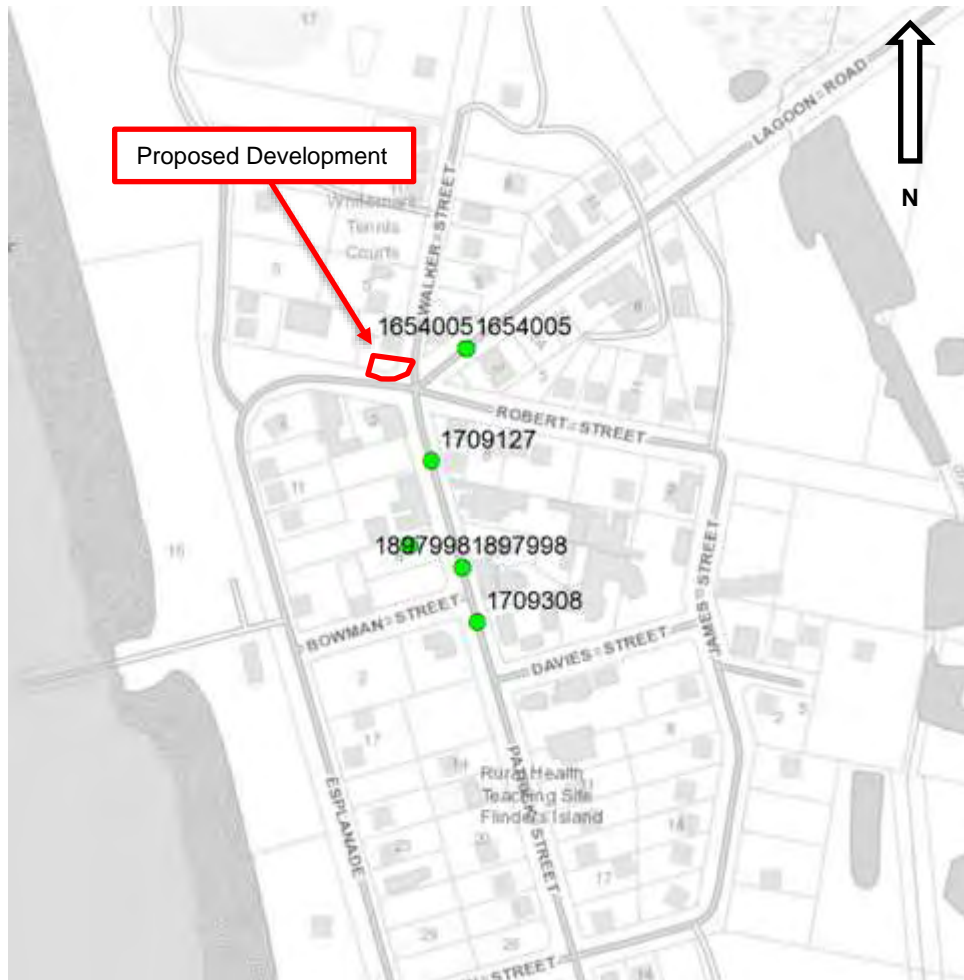


Figure 10: Crash data for the town of Whitemark – crashes represented as green dots

Of the 6 crashes recorded, 5 occurred due to vehicles either parking or performing U-turns in the town centre. One crash was an off-curve crash north of the intersection of Lagoon Road and Patrick Street. Five of the crashes were minor property damage only, with one crash causing minor injuries. The crashes are not related and do not resemble any pattern. It is not expected that the development will have an impact on these.



## 3. Development Proposal

### 3.1 Overview

It is proposed to re-open a service station at 3 Robert Street, Whitemark. The site was previously used as a service station but has been closed for approximately 10 years. The site has been used as vehicle storage yard in the interim. The fuel storage tanks and petrol pumps are still located on the site.

The majority of vehicles visiting the site are light vehicles. A 9.2m long rigid petrol tanker delivers petrol to the site.

The proposal is located within the "Commercial Zone" as outlined in the Flinders Planning Scheme, Part 5. The Flinders Planning Scheme Part 3 specifies that the development must consider: "9. The sight distances available to and from the proposed point(s) of access, together with an estimate of the speed of passing traffic."

### 3.2 Site Operation

No data has been supplied by the developer, however it is expected that the site will operate as a petrol station only, open for approximately 8 hours per day, providing petrol and diesel for the community. It is not proposed that the site will operate as a shop or as a place to service vehicles. The site is expected to be used by mainly the local community with the occasional tourist vehicle. The main types of vehicles expected on the site are 4-wheel drives, utility vehicles and sedans. Longer vehicles such as a car with trailer, campervan or boat are also expected, however to a lesser degree.

### 3.3 Vehicle Access

It is understood that vehicles will access and exit the site using the existing driveways on Robert Street and Walker Street. The site has frontages to both roads, and existing driveways have been formed for the full length of the frontages, as presented below:

- Robert Street            13 metres
- Walker Street            10 metres.

## 4. Transport Assessment

### 4.1 Vehicle Access Suitability

AS2890.1-2004 specifies that driveways are prohibited to be formed within 6 metres of the tangent point of a kerb, as shown in Figure 11.

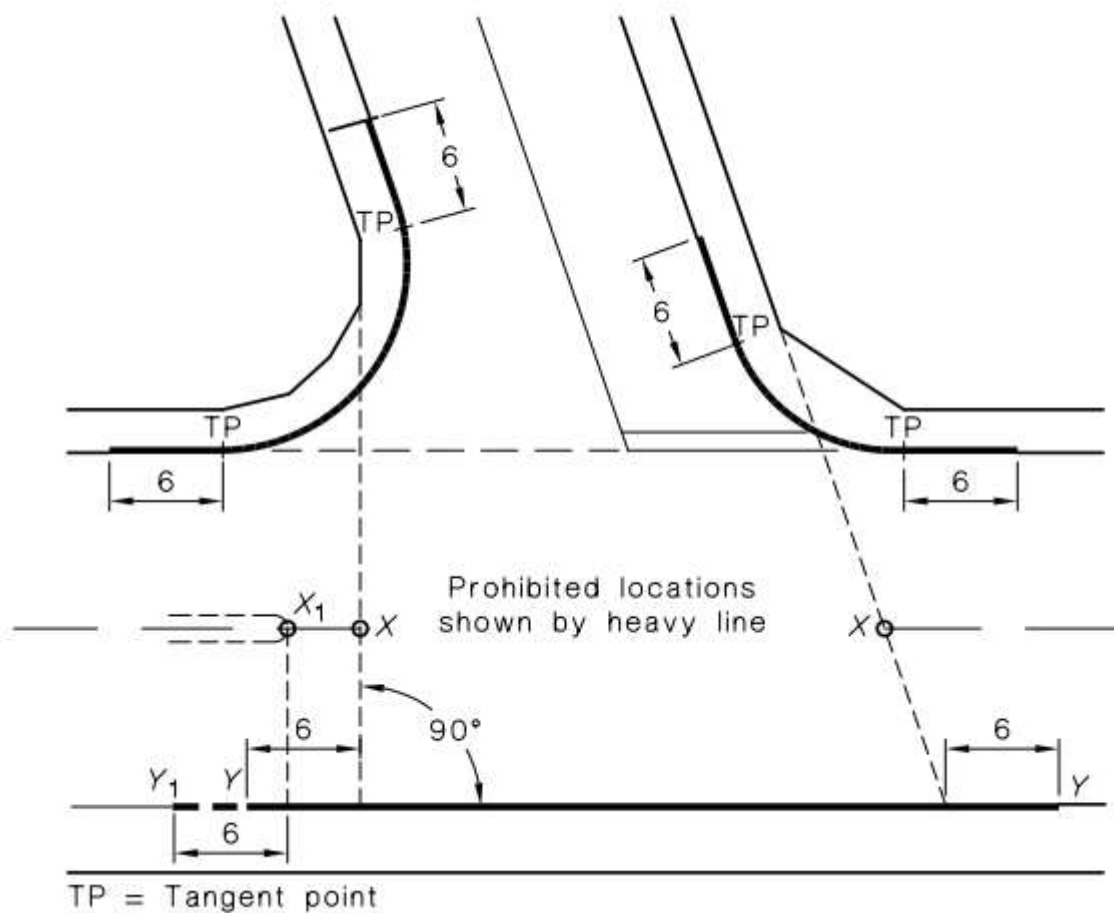


Figure 11: Prohibited Locations of Access Driveways, shown in bold, AS2890.1-2004 Figure 3.1

The driveways on Robert Street and Walker Street do not meet the requirements as set out in the Australian Standards in their current form. The figure below shows the prohibited zones overlaid on the current site.

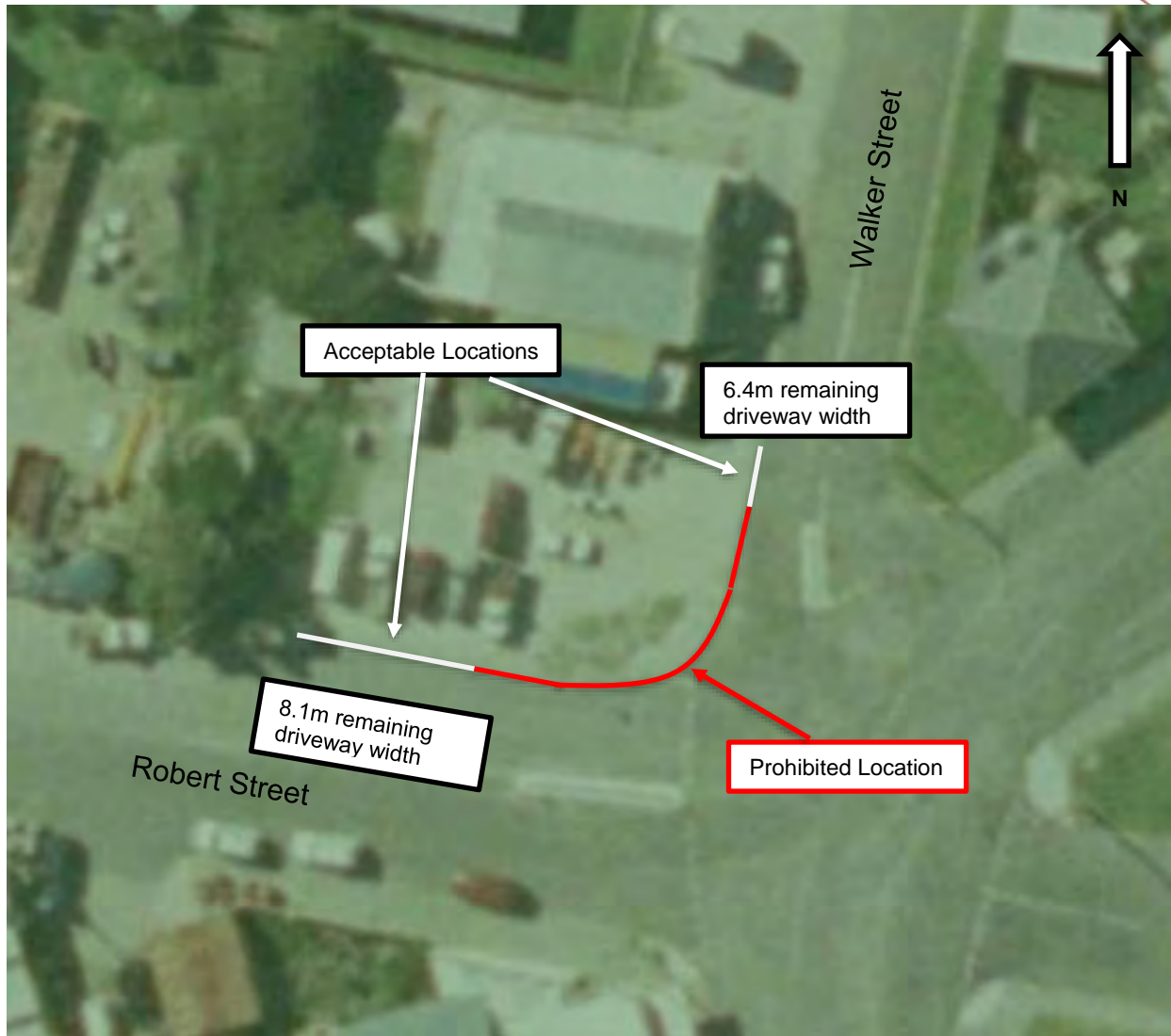


Figure 12: Prohibited location of access driveways overlaid onto aerial photo of development site (Aerial source: <https://maps.thelist.tas.gov.au>)

AS2890.2-2018 specifies that the minimum width for a two-way driveway on a minor road, catering for Heavy Rigid Vehicles is 12.5m at the property boundary. The widths are suitable for one-way flows of heavy rigid vehicles only.

For light vehicles, a 6 metre driveway width is suitable for a combined entry/ exit, both the Walker Street and Robert Street driveways are larger than this.

## 4.2 Vehicle Circulation and Location of Fuel Browsers

Swept paths were undertaken to confirm whether the 9.2m petrol tanker and light vehicles can ingress and egress the site in a forward direction.

### 4.2.1 Fuel Browsers in Existing Location

Swept paths were undertaken with the fuel browsers remaining in the existing location as shown in Plan P01 in Appendix B. The results of the swept paths can be summarised as follows:

- A 9.2m petrol tanker can enter the site from Robert Street and exit to Walker Street
- Light vehicles would need to enter at one driveway and exit at the other as they will have difficulty entering and exiting at the same driveway
- Light vehicles can enter and exit from Robert Street and Walker Street and reach the north side of the browsers
- Light vehicles can enter via a left turn at the Walker Street entry to access the south side of the browsers, however the distance from the tangent point to the edge of the driveway is 4.9m which is less than the Australian Standard specifies, there is sufficient space for light vehicles to exit to Robert Street
- Light vehicles have difficulty manoeuvring from the south side of the browsers to exit at Walker Street due to limited space, there is sufficient space for light vehicles to enter at Robert Street.

### 4.2.2 Alternative Fuel Bowser Location

An alternative location from the fuel browsers is shown in Plan P02 in Appendix B. This location allows for easier vehicle manoeuvring within the site. Swept paths were completed for this alternative location, also shown in Plan P02, and can be summarised as follows:

- A 9.2m petrol tanker can enter the site from Robert Street and exit to Walker Street
- Light vehicles would need to enter at one driveway and exit at the other as they will have difficulty entering and exiting at the same driveway
- Light vehicles can enter and exit from Robert Street and Walker Street and reach the north and south side of the browsers
- An 8.8m service vehicle can enter from Robert Street, access the south side of the browsers and exit to Walker Street.



### 4.3 Sight Distances

Sight distance measurements were taken at the time of the site visit at the intersection of Lagoon Road, Patrick Street, Robert Street and Walker Street, as well as at the access to the development. The measurements were taken from a point 3m back from the intersecting roads.

Table 2: Sight Distances from Property Driveways

Vehicle Facing	Sight Distance Looking Right	Sight Distance Looking Left
Robert Street	>150m (west) – to bend	17m to intersection – have sight distance beyond to Robert Street (east), Patrick Street and Lagoon Road
Walker Street	8.5m to intersection – have sight distance beyond to Patrick Street, Robert Street (east) and Lagoon Road	>150m (north) – to end of street

AS2890.1-2004 Section 3.2.4 states that for a desirable 5 second gap for a vehicle entering onto a 50km/h road, the minimum required sight distance is 69 metres. This requirement has been met and exceeded for the site – however it should be noted that the trees and vegetation on the western boundary of the site should be removed/trimmed in order to maintain the sight distance for motorists exiting onto Robert Street.

It was observed that during the site visit, vehicles were seen to be driving at a speed much lower than the 50km/h posted speed limit.

### 4.4 Traffic Generation

Flinders Council has provided petrol sales data from the existing service station on Patrick Street, 120m south of the proposed development. It would be fair to assume that the traffic generation expected from the site would be similar as the current service station which is due to close.

The data provided to **pitt&sherry** was total litre sales per year for the five calendar years between July 2013 and June 2018 inclusive. According to the CanStar Blue website, the top 5 selling cars in Australia in the month of April 2019 and their corresponding average fuel tank capacity is:

- Toyota Hilux 80L
- Ford Ranger 75L
- Toyota Corolla 50L
- Mazda 3 51L
- Toyota Landcruiser 87L

The average fuel tank capacity of the top 5 vehicles sold in Australia is 68.6L. If we assume that there are 360 days of the calendar year where the service station will operate, and an 8-hour work day during which sales occur, the traffic generation would be expected to be similar to that shown in Table 3.

Table 3: Existing Service Station Patronage

Calendar Year	Total Litres Sold	Vehicles per year	Vehicles per day	Vehicles per hour
July 2013 – June 2014	563,500L	8214.3	22.8	2.9
July 2014 – June 2015	573,250L	8356.4	23.2	2.9
July 2015 – June 2016	596,820L	8700.0	24.2	3.0
July 2016 – June 2017	647,170L	9434.0	26.2	3.3
July 2017 – June 2018	733,988L	10699.5	29.7	3.7

The growth rate in petrol sales from July 2013 to June 2018 is calculated to be 6.8% annually. Compounding for this annual growth rate, the expected number of vehicles visiting the site per day in June 2019 would be 32 (64 vehicle movements). This would result in a traffic generation of 4 vehicles per hour (8 vehicle movements) to the current site.

## 4.5 Traffic Impact

The expected traffic generated by the development (8 vehicle movements per hour) is low. As Lagoon Road is the only access road into and out of Whitemark, the volume of traffic on this road is not expected to increase or decrease due to the development. As there are two access points to the development, we can assume that traffic will enter from one point, circulate through the site and exit at the opposite point. The traffic impact on Walker Street and Robert Street (west) is shown in Table 4 below.

Table 4: Traffic Impact on Walker Street and Robert Street

Road	Existing Traffic Volumes	Traffic Generated by Development	Future Traffic Volumes
Walker Street	6 vph	+4vph	10vph (+67%)
Robert Street (west)	28 vph	+4vph	32vph (+14%)

An increase in traffic of 4 vehicles per hour is not expected to negatively affect the safety or operation of these streets.

## 5. Summary

A proposed service station at 3 Robert Street in Whitemark, Flinders Island has been assessed in accordance with the Department of State Growth's Framework for Undertaking Traffic Impact Assessments. The analysis and discussions presented in this report can be summarised as follows:

- The additional traffic generated by the site is not expected to have a significant impact on the safety and operation of the surrounding road network
- Sight distances are considered adequate at the site accesses
- The locations of the driveways do not meet the Australian Standards in their current form, these can be narrowed to improve sight distances and reduce the crash risk

There are some limitations for vehicle circulation within the site with the fuel bowsers in their current location, by slightly moving the bowsers vehicle circulation around the site can be improved.

# Site Layout Plan

## Appendix A



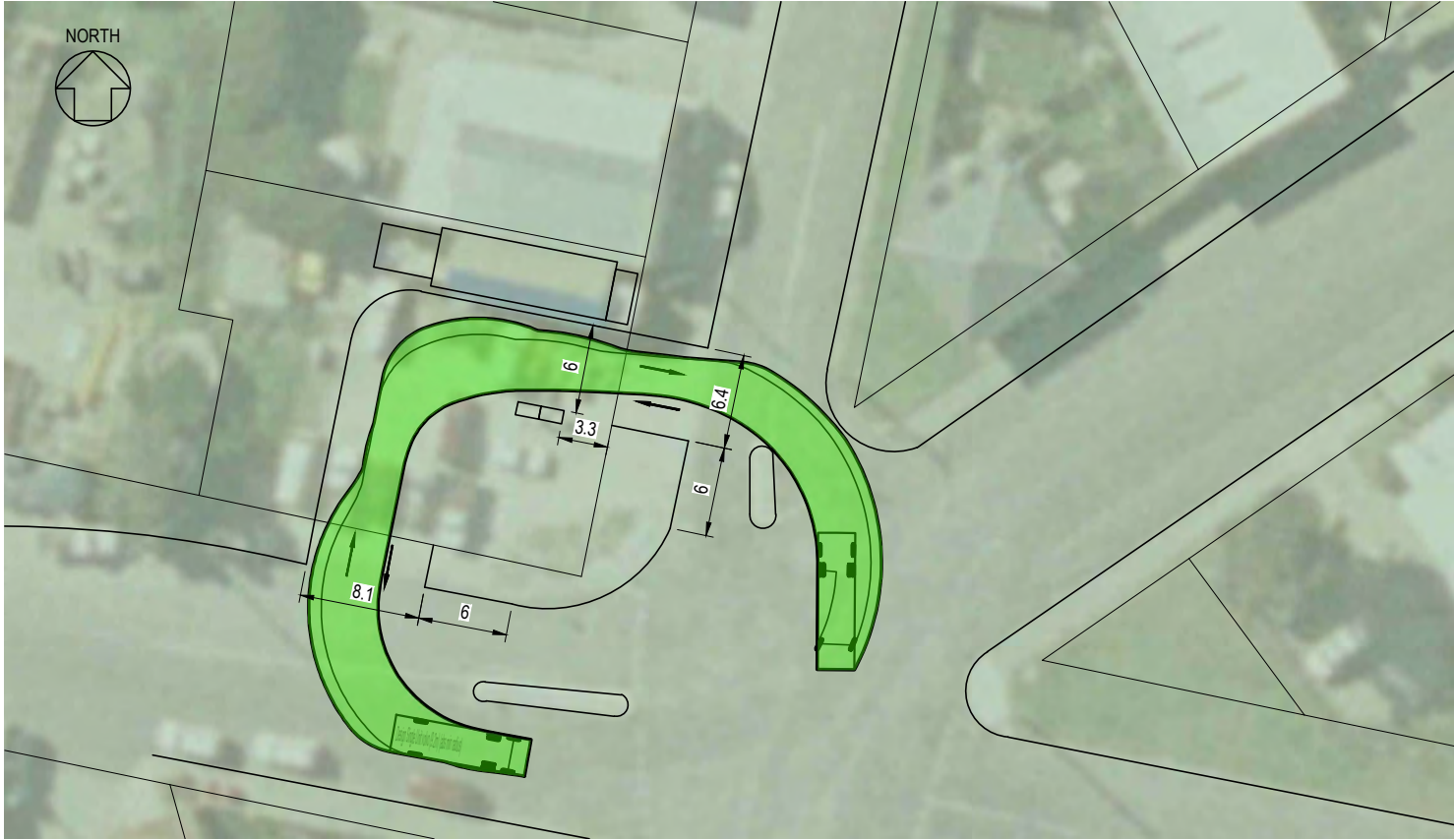
### INTENDED WORKS

- REPAIR OR REPLACE FUEL BOWSERS.
- GENERAL SITE CLEANUP REMOVE RUBBISH, CARS, ETC

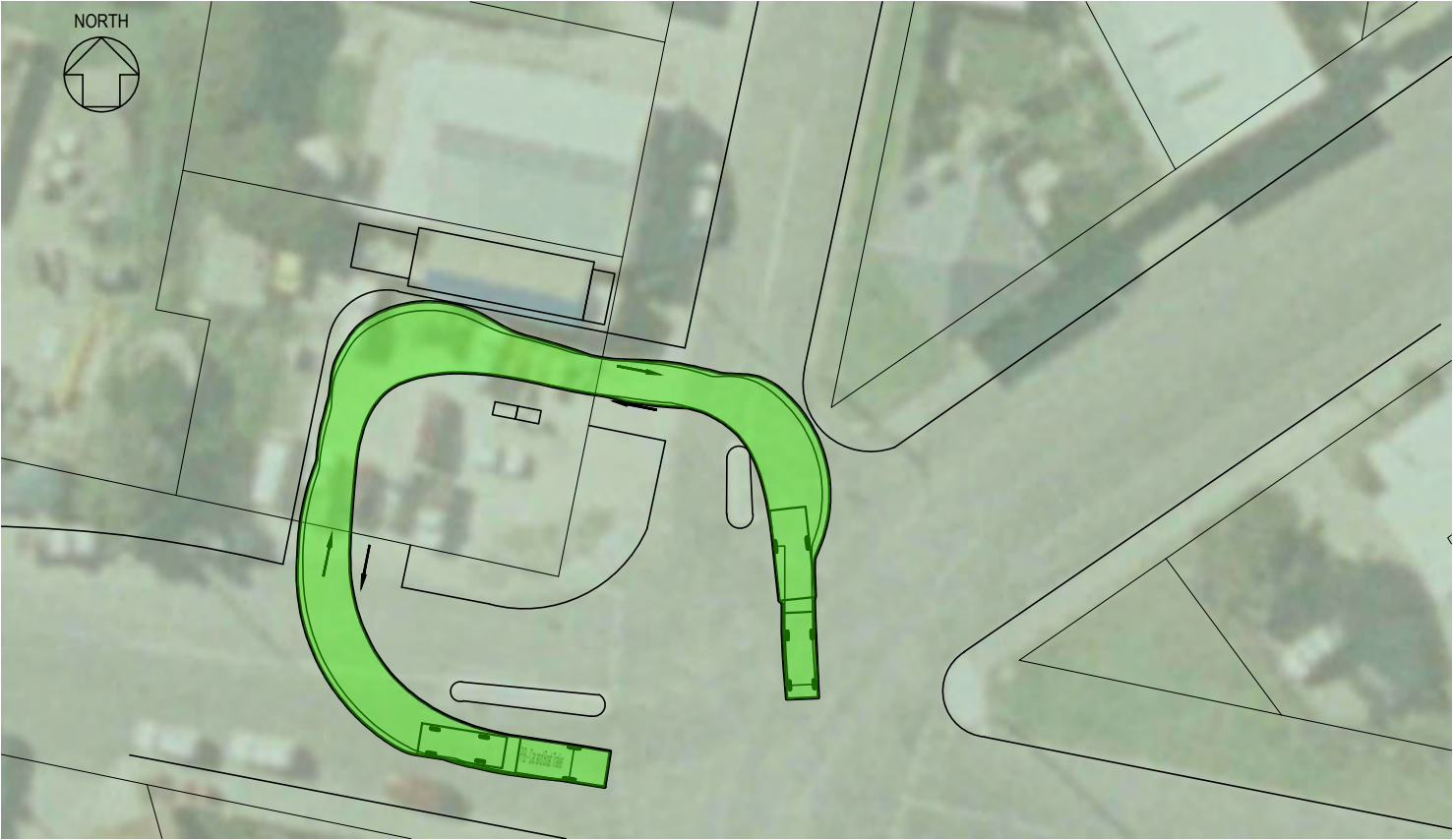


# Swept Path Assessment

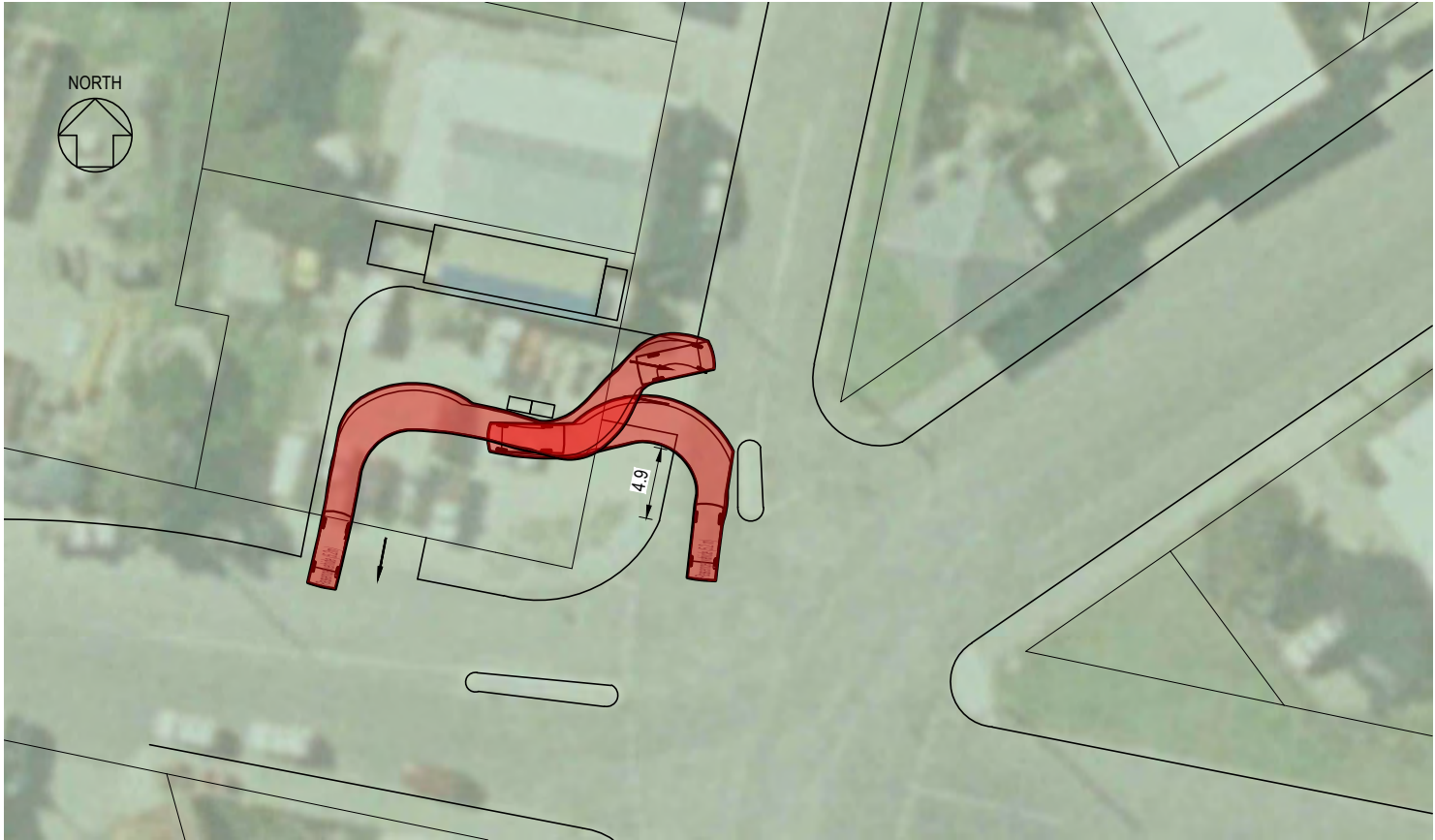
Appendix B



VOLVO FM 300 9.2m



CAR AND BOAT TRAILER 12.8m



PASSENGER VEHICLE 5.2m

REFERENCE FILES ATTACHED: LN19136-X1110; LN19136-X1125

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HOBART OFFICE  
199 Macquarie Street  
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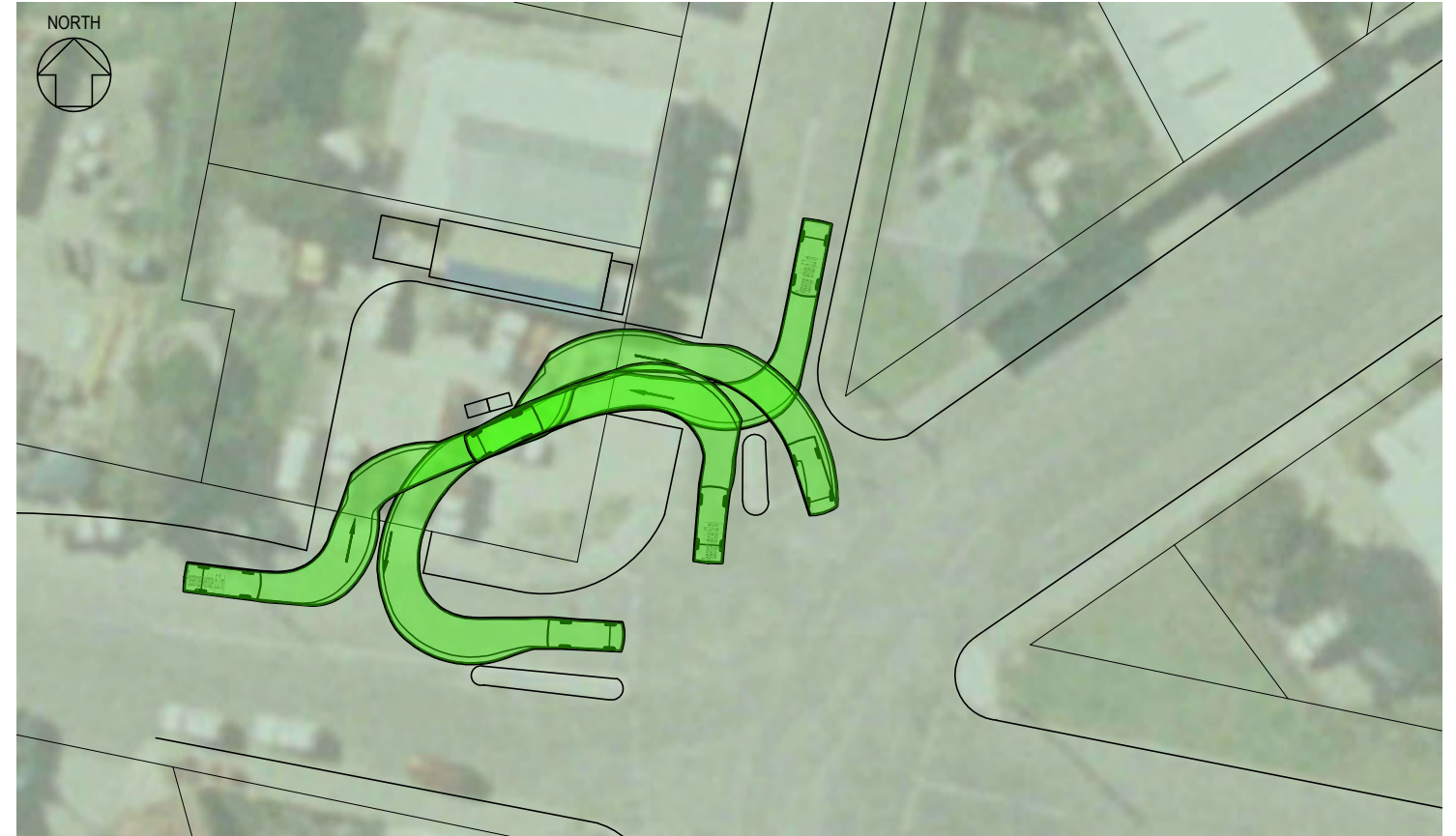
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3 Robert Street, Whitemark

## Contact

Matthew Moore  
03 6323 1912  
[mmoore@pittsh.com.au](mailto:mmoore@pittsh.com.au)

**Pitt & Sherry  
(Operations) Pty Ltd**  
ABN 67 140 184 309

Phone 1300 748 874  
[info@pittsh.com.au](mailto:info@pittsh.com.au)  
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