Traffic Engineering

Proposed Residential Subdivision

At 54 George Alexander Way, Coomera

On behalf of Coomera GA Pty Ltd

About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	J. Smith	R. Jones	DA Report (Rev A)	8/11/2022
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4.				
5.				

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Contents

Table Index

Figure Index

1 Introduction

1.1 Background

TTM Consulting Pty Ltd (TTM) has been engaged by Coomera GA Pty Ltd, to prepare a traffic impact assessment for a proposed residential subdivision at 54 George Alexander Way, Coomera. The site is located within the jurisdiction of the City of Gold Coast Council.

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for development demand
- Parking layout to provide efficient and safe internal manoeuvring
- Identification of likely traffic volumes and traffic distribution from the future development
- Identification of likely traffic impact of development on the public road network
- Access configuration to provide efficient and safe manoeuvring between the site and the public road network
- Internal road layout to provide efficient and safe internal manoeuvring for service vehicles
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation
- Access to suitable level of public transport
- Internal road hierarchy to cater for lot access, vehicle design speeds and road user amenity requirements

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- City of Gold Coast Council's City Plan, specifically:
  - 9.4.13 – Transport Code
  - 9.4.5 – Driveways and Vehicular Crossings Code
- Australian Standard 2890
- Austroads Guidelines

1.3 Site Location

The subject site has a real property description of Lot 96 on RP187418.and is zoned as Medium density and High density residential according to the City Plan. The immediate surrounding area is also zoned for the same land uses. The site is currently bounded to the north by a construction site for a residential subdivision, to the south by a greenfield site, to the west by George Alexander Way, and to the east by residential housing.

The subject site is currently an occupied by a single low-density residential dwelling, but is otherwise and undeveloped greenfield site. The site location is shown in Figure 1.1 and an aerial of the site is shown in Figure 1.2.

Figure 1.1: Site location

Figure 1.2: Site aerial view

1.4 Development Profile

This proposal consists of a residential estate whose land uses are summarised in Table 1.

Table 1: Development Dwelling Summary

Use	Qty
Residential Lot	24
Other Lots	2

The focus of this traffic report concerns the 24 residential lots. Undeveloped or designated bio-retention areas are not reviewed.

The development includes a 16.5m wide new private internal road reserve, including multiple connections to adjacent approved-under-construction and future roads. The site layout is shown in Figure 1.3 and attached (Appendix A).

Figure 1.3: Proposed Site Layout (Source: Saunders Havill Group Rev. E)

1.5 Access

It is proposed that the site is accessed via two public road extensions from the northern adjacent Lot. The proposed extensions are described as follows:

- Pioneer Street extension located along the northern boundary of the subject site. The characteristics of this connection include:
  - 16.5m wide road reserve at property boundary
  - Connecting to northern Lot
  - Two-way
- Mercy Street extension located along the eastern side of the northern boundary of the subject site. The characteristics of this connection include:
  - 16.5m wide road reserve at property boundary
  - Connecting to northern Lot
  - Two-way

2 Existing Transport Infrastructure

2.1 The Road Network

All roads in the immediate vicinity of the site are administered by the City of Gold Coast (Council). The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 2. Some local streets are yet to finish construction.

Table 2: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification	Road Authority
Pioneer Street	50kph	2 (undivided)	Local Road, Under Construction	Council
Mercy Street	50kph	2 (undivided)	Local Road, Under Construction	Council
Talpa Street	50kph	2 (undivided)	Local Road	Council
Seashell Avenue	50kph	2 (undivided)	Local Road	Council
Seagreen Drive	50kph	2 (undivided)	Local Road	Council
Finnegan Way	60kph	2 (undivided)	Distributor Road	Council
George Alexander Way	60kph	2 (undivided)	Local Road	Council
Foxwell Road	70kph	4 (divided)	Arterial Road	Council

Talpa Street has a 7.5m wide carriageway where it is to connect to Pioneer and Mercy Street, which are to have similar carriageways.

2.2 Road Planning

TTM have reviewed the upcoming planned works of the future road network in the vicinity of the subject site through Schedule 3.2-3 of Council's City Plan, and the Queensland Transport and Roads Investment Program.

TMR has identified an upgrade to the 'Park 'n' Ride" area of the Coomera heavy rail station 500m south of the site along Foxwell Road. Work is scheduled to be completed by December 2022, and involves an expansion to the existing parking area. The upgrade does not directly impact the site.

Council has specified 2 intersection upgrades within the general vicinity of the site:

- The Foxwell Road / George Alexander Way intersection with works scheduled to begin in 2021. This intersection upgrade is unlikely to impact the site as no road connections are proposed along George Alexander Way.
- The Foxwell Road / Finnegan Way intersection with works are scheduled to begin in 2026. As detailed information regarding this intersection upgrade is unavailable from TMR at the time of this report's publication, future planning will have to account for the upgraded intersection design.

3 Internal Road Arrangements

3.1 Internal Roads

The development proposes two 16.5m width road reserve extensions from the northern Lot, internal to the site, as well as a new connecting internal road. The design of the roads is generally consistent with Council's standard drawings for a residential access street, standard drawing 02-001. Further detail is provided in Section 5.

3.2 Active Transport

3.2.1 Public Transport

The site is connected by bus to the greater Gold Coast. A pair of bus stops are located 370m walking distance east of the site along Finnegan Way. Both bus stops provide numerous services via Route 722, which provides consistent hourly services (6:40am-6:40pm) from Coomera heavy rail station through Coomera Rivers and Pimpama to the Ormeau heavy rail station.

Connections to the greater Gold Coast are available via public transport. Walkable access to public transport from the site is provided by direct routes and is to be traversable by paved pedestrian pathways. These routes are direct and have no barriers inhibiting use, though access to the southbound bus stop requires crossing Finnegan Way without the aid of a pedestrian crossing.

3.2.2 Pedestrian Access

The surrounding pedestrian network of the nearby local access streets do not include pedestrian pathways within the road reserve.

3.2.3 Cyclist Requirements

As shown by Figure 3.1, Gold Coast City's Cycling Guide shows that the nearest on-street bikeways are along Finnegan Way to the south and along Foxwell Road. Onsite cycling connections to this network will be provided via the shared use of the internal road through the site.

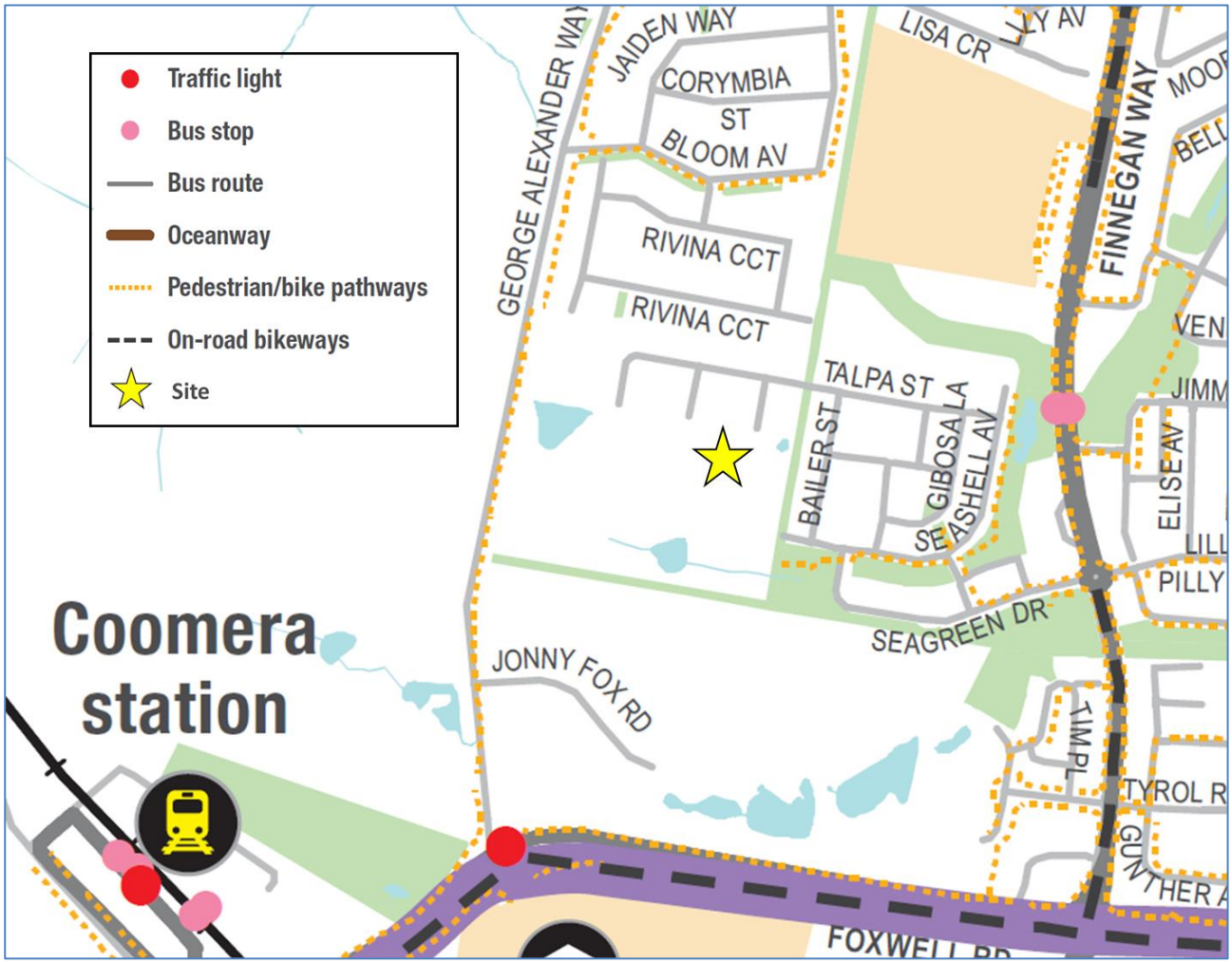


Figure 3.1: Local Cycling Networks

4 Car Parking Arrangements

4.1 Council Parking Supply Requirement

Council's parking requirements specify 2 car parking spaces are required per dwelling house or dual occupancy with 2 or more bedrooms. The exact design of each allotment has not yet been determined, though the car parking spaces should be designed in accordance with AS2890.1.

5 Internal Road Arrangements

It is proposed that the site is accessed via two new road extensions from Pioneer Street and Mercy Street. These extensions will become possible when Pioneer Street and Mercy Street are constructed. The proposed extensions are described as follows:

- Pioneer Street road extension:
  - 16.5m wide road reserve at northern property boundary
  - 16.5m wide road reserve at southern property boundary
  - Connecting to northern Lot
  - Future Connection opportunity to southern Lot and Seashell Avenue
  - Two-way
- Mercy Street road extension:
  - 16.5m wide road reserve at northern property boundary
  - 16.5m wide road reserve at intersection with Pioneer Street
  - Connecting to northern Lot
  - Two-way

The location of the proposed roads is shown in both Figure 1.3 and the attached development plans (Appendix A).

5.1 Proposed Access Arrangements and Their Adequacy

5.1.1 Pioneer Street Road Extension

Design

The proposed road extension from Pioneer Street would create a 16.5m wide road reserve as per Standard Drawing 02-001 of the Gold Coast City Plan's Standard Drawings for an urban residential access street. The 7.5m carriageway width can accommodate a limited range of service vehicles typical of the development's nature.

Sight Distance

The proposed road connection is horiontally aligned with the approved under-construction street, providing unobstructed sight distance for vehicles from the southern boundary to the intersection of Pioneer Street and Talpa Street.

5.1.2 Mercy Street Road Extension

Design

The proposed access arrangement from Mercy Street would create a 16.5m wide road reserve as per Standard Drawing 02-001 of the Gold Coast City Plan's Standard Drawings for an urban residential access

street. The 7.5m carriageway width can accommodate a limited range of service vehicles typical of the development's nature.

The design of the road curves to the west to create a perpendicular intersection with the Pioneer Street extension.

Sight Distance

The proposed road extension is horiontally prependicular with the proposed extension to Pioneer Street, providing unobstructed sight distance for vehicles from the give way line to the intersection of Pioneer Street and Talpa Street. Sight distiance to the south is likewise unobstructed due to the 4.5m verge.

6 Service Vehicle Arrangements

Ultimately, a 10.2m City of Gold Coast Council Front-Loader Refuse Collection Vehicle (RCV) is able to access all refuse collection points, negotiate all intersections and enter and exit the subdivision roads in a forward direction. The proposed road layout allows the manoeuvring of these service vehicles and servicing of the lots throughout the road through the subdivision.

TTM have prepared a swept path assessment (Appendix B) demonstrating that a Council RCV can navigate the site and service all lots' refuse collection requirements via wheelie bins for each Lot (see swept paths prepared by TTM in Appendix B).

It is noted that until a future road extension of Pioneer Street is constructed, providing access to 44 George Alexander Way or a similar turnaround opportunity, that Lots 5-8 will be required to temporarily store their wheelie bins for collection at the frontage of Lots 4 and 13.

As provision for a 10.2m RCV is made, provision is implied for all smaller classes of service vehicle for the development, including a Medium Rigid Vehicle (MRV).

7 Road Network Performance

The existing site is an unoccupied greenfield and the proposed development is to include 25 residential lots allowing for various residential buildings as per Table 3.

7.1 Proposed Development Traffic Generation

The RTA 'Guide to Traffic Generation Developments' (2002) recommends using specific generation rates, for planning purposes, for different development types. Application of these rates to the proposed development, results in the estimate of development site traffic generation, as shown in Table 3.

A trip generation of 0.85 (maximum) peak hour trips per dwelling house has been used, which is based on the RTA's trip generation for regional low density residential dwellings.

Based on a standard dwelling house's peak hour trip generation rates, a rate of 1.7 trips per dual occupancy dwelling has been used.

Table 3: Proposed Development Daily Trip Generation Rates

Land Use	RTA Peak Hour Trip Rate	Extent	Peak Hour Trip Generation
Dwelling House	0.85 trips per dwelling house	18 townhouses	15.3
Dual Occupancy Houses	1.7 trips per dwelling house	6 townhouses	10.2
		Total	26

Table 3 indicates the proposed development would generate a total of 26 peak hour vehicle trips. This is considered a negligible impact on the local road network, and as such, does not require further analysis or mitigative measures.

8 Summary and Conclusions

8.1 Development Summary

The proposal seeks an approval for a 25-lot residential subdivision.

The site is to be accessed via two road extensions from Pioneer Street and Mercy Street.

8.2 Internal Road Arrangements

The development proposes a two road extensions that meet Council requirements for road elements for residential access streets within the subdivision. The proposed active transport elements are generally suitable for the development.

8.3 Car Parking Arrangements

The car parking provision is to be accordance with the Council's requirements, according to Council's City Plan.

8.4 Impact on Surrounding Road Network

Assessment of the proposed development indicates that the development's impact on the future road network is minimal.

8.5 Service Vehicle Arrangements

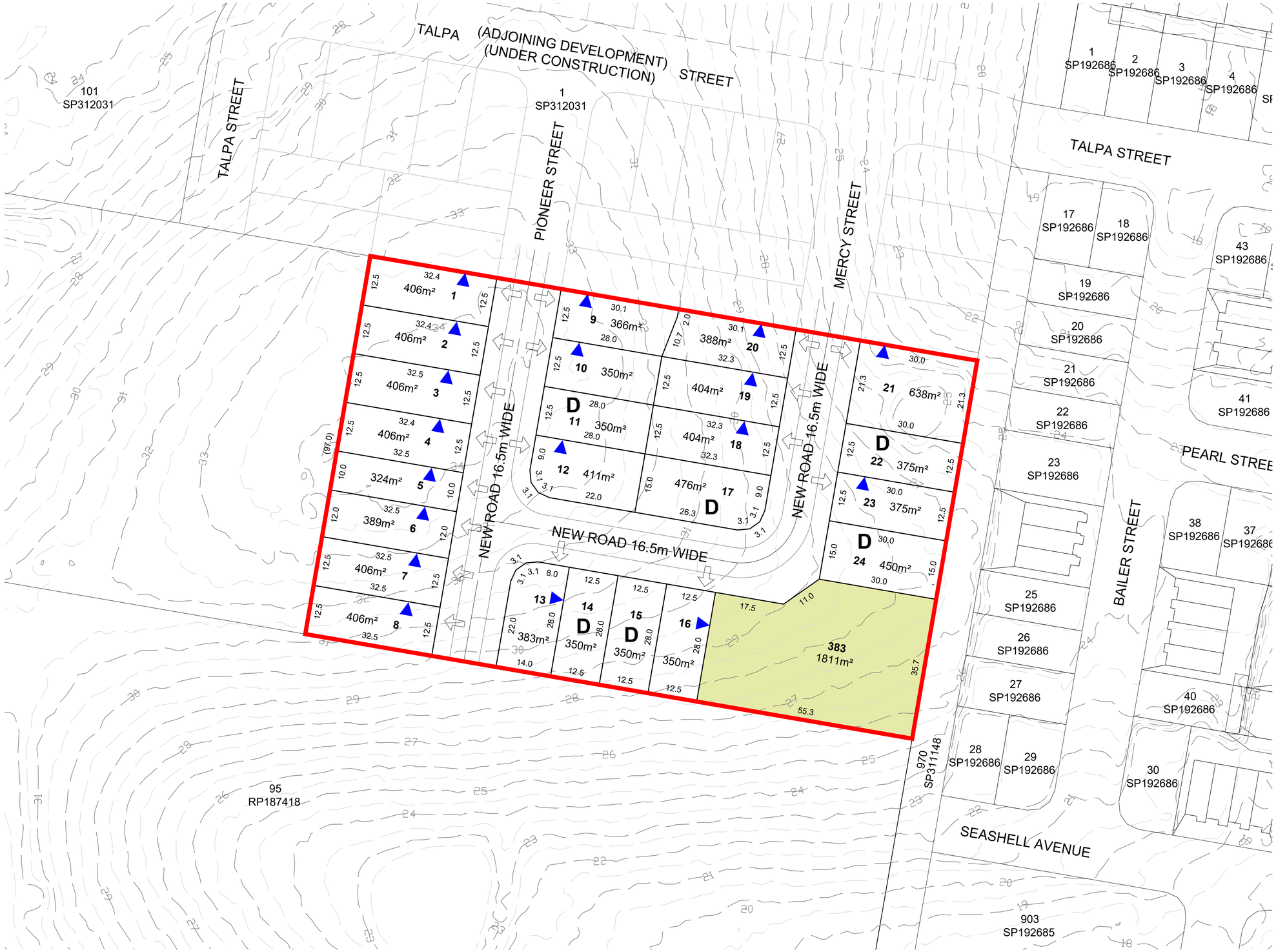
Servicing for this development will be facilitated from the proposed new road network. A 10.2m long front lift RCV can manoeuvre throughout the new road network. Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

8.6 Conclusion

Based on the assessment contained within this report, TTM see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A Proposed Site Plan

PLAN OF DEVELOPMENT



NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a provisional layout to accompany a development application. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

SUBJECT BOUNDARIES FROM LOT CALCULATIONS BY SAUNDERS HAVILL GROUP DATED 12/01/2023

LEGEND

- Site Boundary
- Major Contour (1.0m interval)
- Minor Contour (0.5m interval)
- D — Dual Occupancy Lots
- ▼ Optional Built to Boundary Wall
- Indicative Driveway Location

GENERAL NOTES:

1) Lots with an area <400m² to comply with City Plan v9 Small Lot Housing (infill) code and relevant zone code except as varied in Table 1.
2) Lots with an area between 400m² to 499m² to comply with Queensland Development Code MP1.1 except as varied in Table 1.
3) Lots with an area >450m² and over to comply with Queensland Development Cope MP1.2 except as varied in Table 1.
4) Building Height does not exceed 2 storeys and maximum of 9m.
5) Optional Built to Boundary Wall Location
   - Built to boundary walls are permitted on specified boundaries only.
   - Built to boundary walls are to have a maximum length of 3.5m. No windows or openings are to be built along the built to boundary wall.

Table 1:

Minimum Requirements	Ground Floor	First Floor
Front Setback - Primary Frontage	3m to OMP	4.5m to OMP
Front Setback - Garage	6m	N/A
	1m behind front wall or balcony	
Side & Rear (where not built to boundary)	1m to OMP	1.5m to OMP
Secondary Frontage (Corner Lot)	2m OMP	
Site Cover	60% maximum	

RP DESCRIPTION: LOT 96 on RP187417

SCALE @A1 1:500 @A3 1:1000 - LENGTHS ARE IN METRES

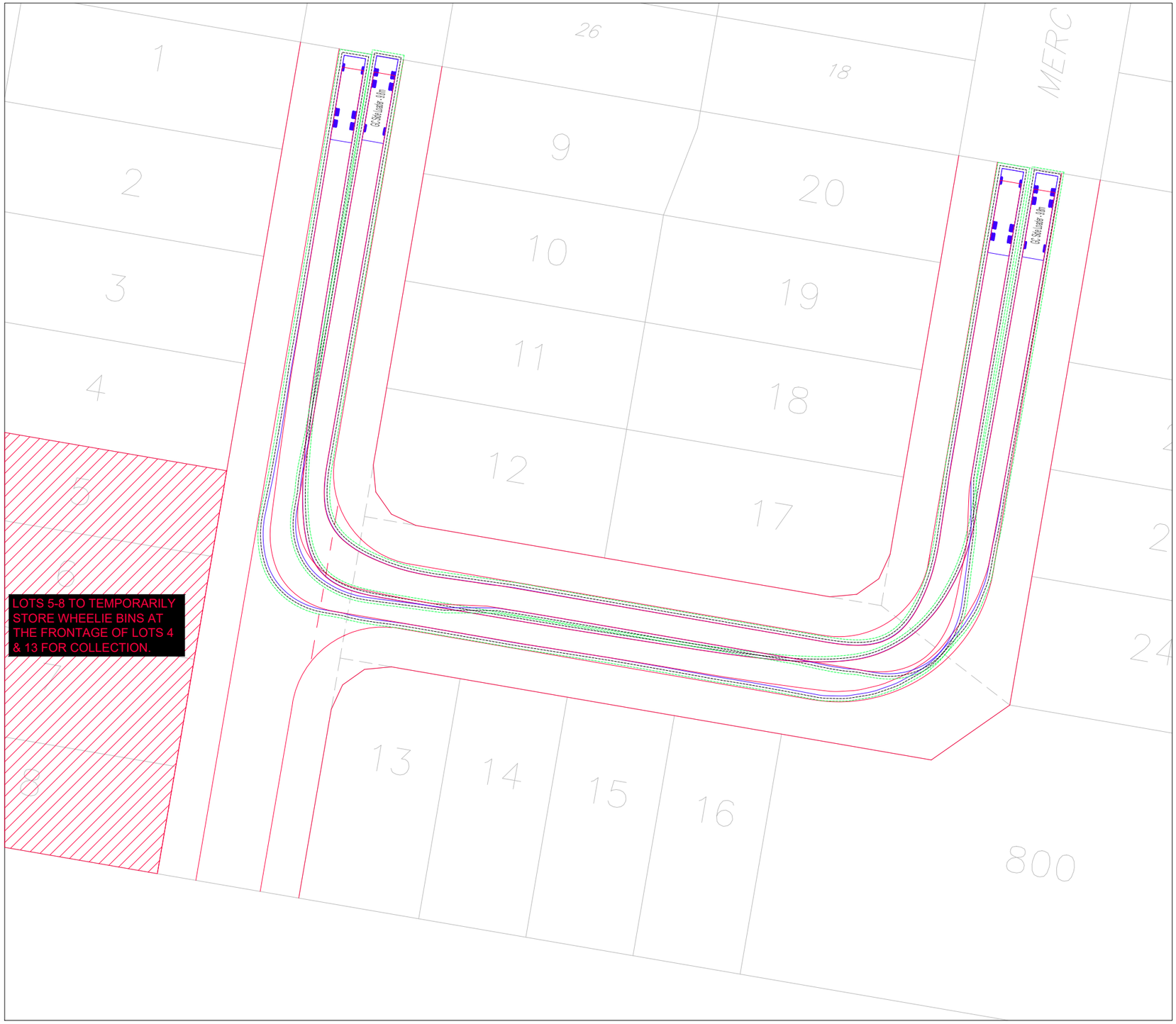
5 0 5 10 15 20 25 30 35 40 45 50 55 60

saunders havill group

COOMERA GA PTY LTD ATF THE COOMERA GA UNIT

54 GEORGE ALEXANDER WAY, COOMERA • 01/02/2023 • 11241 P 03 Rev B - POD 01

Appendix B Service Vehicle Swept Paths



PLEASE NOTE: ROAD RESERVE DETAILINGS AND MEASUREMENTS ARE INDICATIVE ONLY, AND SUBJECT TO FINAL DESIGN.

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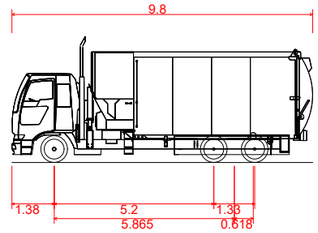
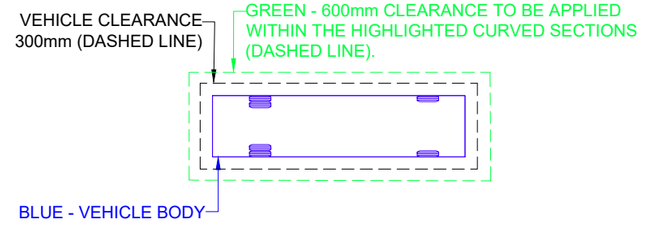
APPROVED 3 Feb 2023	



GC Side Loader - 9.8m

Overall Length	9.800m
Overall Width	2.500m
Overall Body Height	4.100m
Min Body Ground Clearance	0.250m
Track Width	2.472m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	11.500m
Design Speed Forward	10.0km/h



REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
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A	08-11-22	ORIGINAL ISSUE	JS	RJ	RJ

SCALE 0 5 10 15 20 25m
SCALE 1:500 AT ORIGINAL SIZE

NORTH

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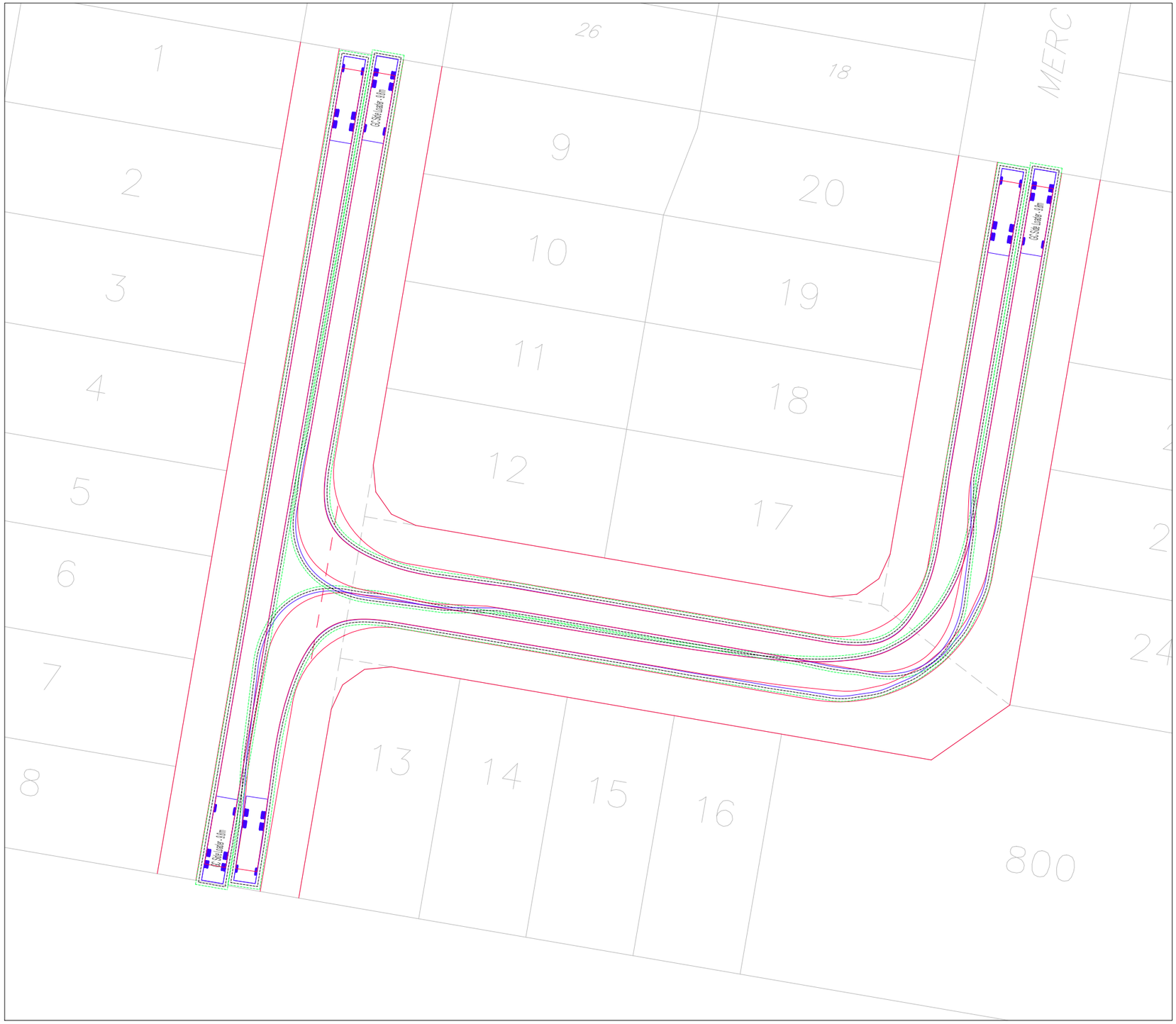
PROJECT
54 GEORGE ALEXANDER WAY, COOMERA

DRAWING TITLE
REFUSE COLLECTION SWEPT PATH ANALYSIS
STATIC COLLECTION PLAN

PROJECT NUMBER	22GCT0014
ORIGINAL SIZE	A3
DRAWING NUMBER	22GCT0014-01
REVISION	B
DATE	3 Feb 2023
SHEET	1 OF 1



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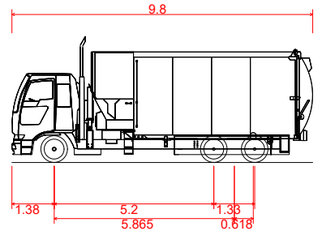

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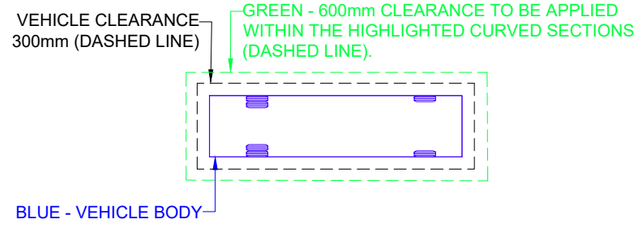

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PROJECT
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CONNECTED COLLECTION PLAN

PROJECT NUMBER	22GCT0014
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DRAWING NUMBER	22GCT0014-02
REVISION	B
DATE	3 Feb 2023
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