Development Application

Lot 1001, Murdoch Drive, Murdoch, WA

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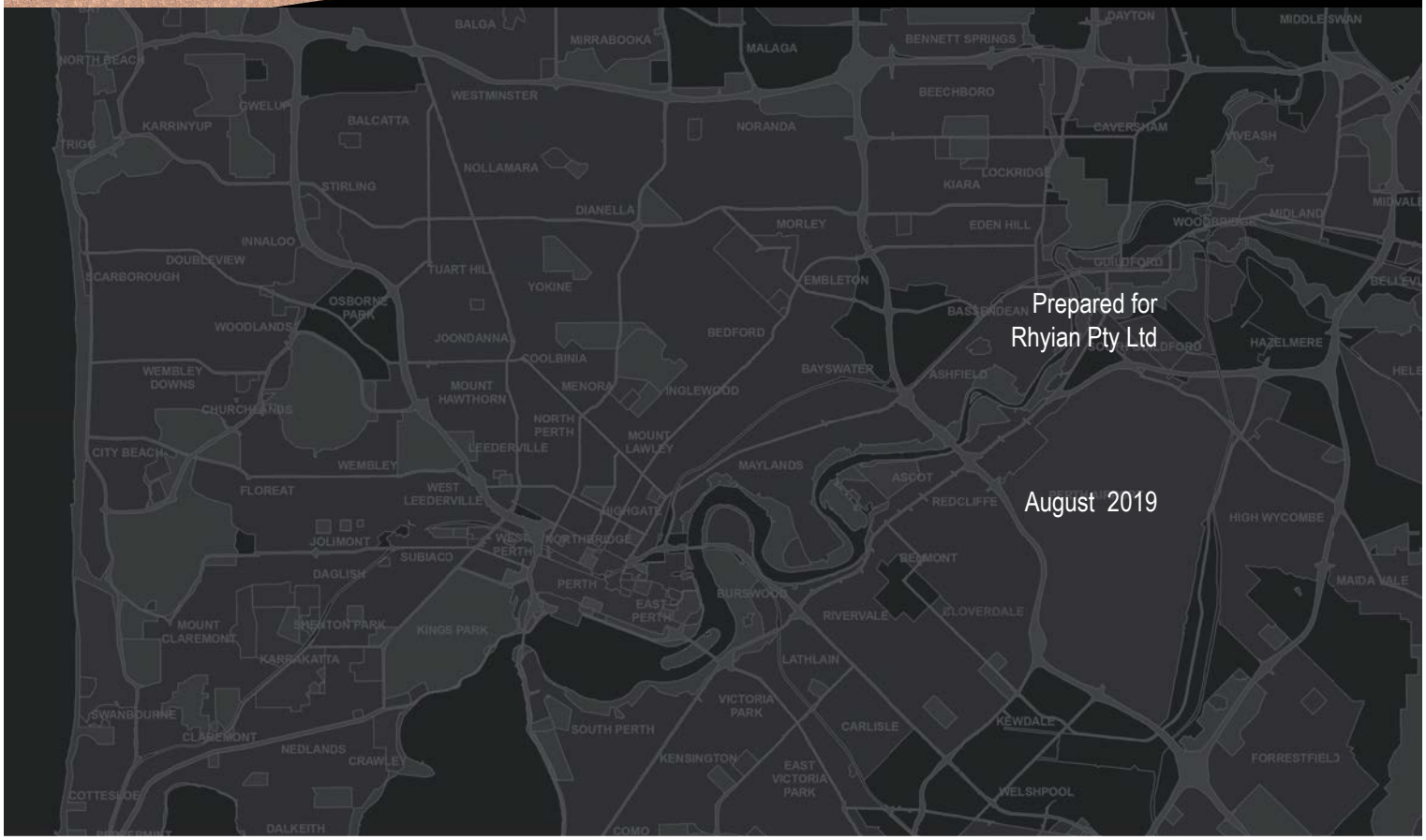

Prepared for
Rhyian Pty Ltd

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1 Preliminary

1.1 Introduction

Planning Solutions acts on behalf of Rhyian Pty Ltd, the proponent of the proposed service commercial development on the land known as Lot 1001 Murdoch Drive, Murdoch (**subject site**).

The following report has been prepared in support of an application for development approval for the proposed service commercial development comprising a respite care facility, veterinary clinic, commercial tenancy, three fast food outlets, and service station.

This report will discuss various issues pertinent to the proposal, including:

- Site details.
- Proposed development.
- Town planning considerations.

2 Site Details

2.1 Land Description

The subject site is legally described as "*Lot 1001 on Deposited Plan 408990*", being the whole of the land contained within certificate of title volume 2926 and folio 535.

The subject site has a total area of 14,905m².

A review of the certificate of title indicates that one notification (N621398) affects the use of the subject site; it notes part of the lot is unable to be connected to the wastewater scheme via a gravity feed due to low ground levels.

Refer to **Appendix 1** for a copy of the certificate of title and deposited plan for the subject site.

2.2 Location

2.2.1 Regional Context

The subject site is located in the municipality of the City of Melville (**City**), and is approximately 17km south of the Perth city centre. The subject site is located within the Murdoch Activity Centre which is one of five specialised activity centres in the metropolitan area.

The subject site is within close proximity to the Murdoch Drive Connection project, currently under construction through the Metropolitan Road Improvement Alliance, which will extend Roe Highway to connect to Murdoch Drive immediately north of the subject site. This project will result in Murdoch Drive being diverted away to the west of the subject site, but retaining a southbound link from Murdoch Drive to Farrington Road along the alignment of the existing Murdoch Drive where it adjoins the subject site.

2.2.2 Local Context

Broadly the following significant uses and attractions are located in the area surrounding the subject site:

- Murdoch University
- Murdoch train station
- St John of God Murdoch Hospital
- Fiona Stanley Hospital
- Murdoch fire station
- South Metropolitan TAFE Medical Campus
- Melville State Emergency Service
- Wandoo Rehabilitation Prison

Land uses in closer proximity to the subject site include:

- Electricity substation adjoining the northern boundary of the subject site.
- Premises used by Spotless Linen, and scrubland to the east of the subject site.

- Farrington Road to the south of the subject site.
- A link road (under construction) between the realigned Murdoch Drive (under construction) and Farrington Road to the west of the subject site.

Refer to **Figure 1**, aerial photograph depicting the subject site and surrounds.

The subject site has access to Murdoch Drive and Farrington Road, providing excellent access for vehicles travelling southbound towards Farrington Drive, and vehicles travelling eastbound along Farrington Road.

The subject site has ready access to the regional bicycle network (the principal shared path on Kwinana Freeway) which can be accessed via Farrington Road. Footpaths along the Murdoch Drive and Farrington Road frontage also provide good access options for pedestrians.

There are several bus routes in the area including number 512 (between Spearwood and Murdoch train station) and 514 (between Cockburn Central train station and Murdoch train station) high-frequency bus services. These routes have stops on Murdoch Drive and Farrington Road near the subject site, but will be affected by the Murdoch Connection project with bus stopping locations being moved to north of Bramanti Road.

2.3 Land Use and Topography

The subject site is vacant and is not currently developed with any use.

The site slopes down from east to west, from a high point of 29.00m on the eastern lot boundary to approximately 20.80m in the northwest corner. There is a mound of soil with a height of 29.82m near the northeast corner of the subject site.

Murdoch Drive and Farrington Road where they adjoin the subject site are generally flat with levels between 20.50m and 21.91m.

Refer **Appendix 2** – feature survey.

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DATE	29 July 2019
FILE	01 190729 6167 Aerial Photograph.dwg
REVISION	1/DR/First Draft/29.07.2019

Scale Bar (m) 0 50

AERIAL PHOTOGRAPH

LOT 1001 MURDOCH DRIVE
MURDOCH, WA

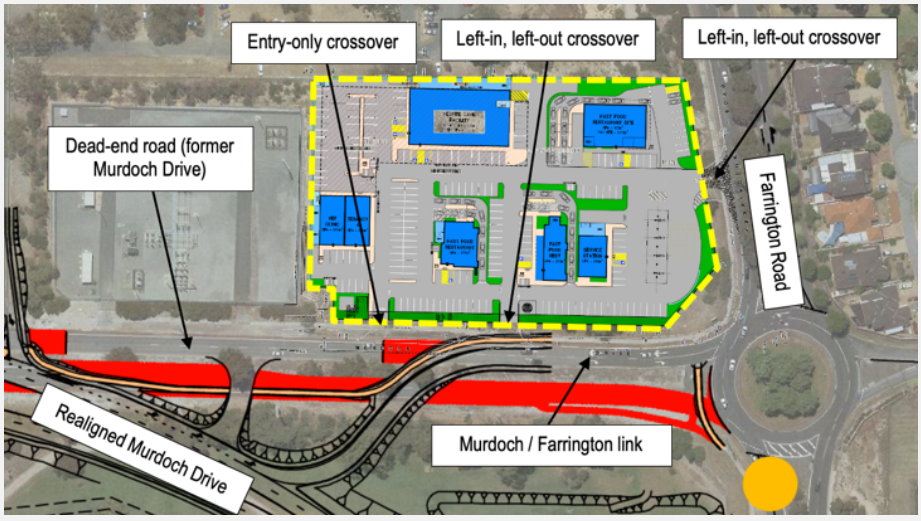
FIGURE 01

3 Proposal

This application seeks development approval for the coordinated development and activation of the existing vacant site to include a two-storey respite care facility, a veterinary clinic, commercial tenancy, service station, three fast food outlets associated car parking signage, landscaping and access. Specifically, the proposal comprises of the following.

Table 1: Development Summary

Development Aspect	Development Particulars
Site works and retaining	The site levels will generally be lowered to match the levels of the adjacent Murdoch Drive and Farrington Road. This will involve removing earth from the eastern portion of the subject site, allowing buildings to have finished floor levels (**FFLs**) of 22.00m and 23.00m. Retaining walls will be constructed along the northern, eastern and southern boundaries of the subject site. Refer **Appendix 3** for a copy of the development plans.
Land uses	The proposed development includes the following land uses: • A 3,620m² gross floor area (**GFA**) respite care facility for the short term care of patients; for instance, patients who have been discharged from hospital but require medical care and recuperation, patients requiring non-emergency medical attention, patients requiring geriatric care. • A 200m² GFA veterinary clinic. • A 200m² GFA commercial tenancy to be used for a range of service commercial uses such as bulky goods showroom, medical centre, fast food outlet/lunch bar, restaurant/cafe, industry - light (for example, bakery), and recreation - private. • Three fast food restaurants with drive through aisles. • Service station retailing fuel and convenience goods.
Hours of operation	All land uses will operate in accordance with industry standard operating hours. This includes 24/7 operating hours.
Buildings and structures	The proposed development includes the following: • A two-storey 10.4m high concrete respite care building in the northeast corner of the subject site comprising of a 900m² ground gross floor area (**GFA**) with a FFL of 23.00m, a veterinary clinic and commercial tenancy building with 400m² GFA with a FFL of 22.00m, and undercroft car parking, and 2,720m² GFA on the first floor with a FFL of 27.00m. The building and will be clad with feature panels and compressed fibre cement cladding with louvre infills behind signage panels. An expressed lightwell on the roof of the building is located near the building entry. • A single-level 7.245m high concrete fast food restaurant building with a two-lane drive through aisle in the southeast corner of the subject site (**FF1**) having a GFA of 425m² and a FFL of 23.00m. The building will be clad in weatherboard and fibre cement sheets. • A single-level 4.2m high concrete service station building in the southwestern corner of the subject site, with a GFA of 240m² and a FFL of 22.00m, with feature aluminium composite panels. To the south of the service station building is a 5.7m high steel canopy covering the eight fuel bowsers. • A single-level 5.2m high concrete fast food restaurant building with a two-lane drive through aisle immediately north of the service station (**FF2**), with a GFA of 270m² and a FFL of 22.00m and with steel façade features. • A single-level 6.0m high fast food restaurant building with a two-lane drive through aisle to the west of the respite care building, with a GFA of 275m² and a FFL of 22.00m (**FF3**).

Development Aspect	Development Particulars
	• Various ancillary structures such as stairwells, bin enclosures, bicycle lockers, and Western Power transformer. Refer **Appendix 3** for a copy of the development plans.
Car parking, motorcycle/scooter parking, bicycle parking and end of trip facilities	The proposed development includes the following: • 207 marked car parking bays, including 8 accessible parking bays. • Drive through aisles capable of accommodating cars • 8 refuelling spaces adjacent to bowsers • 1 ambulance bay, adjacent to the respite care facility • 18 motorcycle bays • Six bicycle lockers • Six bicycle racks Refer **Appendix 3** for a copy of the development plans.
Landscaping	1,477.2m² of landscaping (9.9% of the subject site) is provided along the Murdoch Drive and Farrington Road frontages as well as throughout site. Refer **Appendix 4** for a copy of the landscape concept plan prepared in support of the development application.
Vehicle Access	Vehicles are proposed to access the development area via two crossovers from Murdoch Drive and one from Farrington Road. The crossovers will allow: • Left-in access from the dead-end road that will be created by the realignment of Murdoch Drive as part of the Murdoch Drive Connection project. • Left-in, left-out access from the new link road between Murdoch Drive (southbound) and Farrington Road. • Left-in, left-out access from Farrington Road (eastbound). Refer **Figure 2** for a plan showing the proposed road network overlain with the proposed site plan.  **Figure 2 – Plan of proposed changes to the road network (black and red) overlain with the proposed site plan (yellow hatched border). North is to the left.** The proposed vehicular access arrangements result in a safe and coordinated traffic flow for passenger vehicles, with the access and internal parking area being designed to maximise the efficient circulation of vehicles. The proposed parking aisles are logically aligned in a south-west to north-east orientation, parallel to the street network.

Development Aspect	Development Particulars
	Refer **Appendix 5** for a copy of the transport impact assessment prepared in support of the development application.
Bin Storage	The proposed development contains five bin storage areas as indicated in the waste management plan. Each of the bin storage area are suitable to accommodate for the refuse and recyclables produced by the development. Refer **Appendix 6** for a copy of the waste management plan prepared in support of the development application.
Signage	The proposed development includes the following signage: • Feature signage panels on the western elevation of the respite care building, mounted on the wall above the entries of the veterinary clinic and commercial tenancy and facing west and south, with a louvre infill backing. • Signage panels on the western elevation of the respite care building, mounted on the walls to the left and the right of the entries to the veterinary clinic and commercial tenancy. • Feature signage on the western elevation mounted above the main entry to the respite care building, with a louvre infill backing. • Corner feature signage on the southwestern corner of the respite care building, facing west and south, with a louvre infill backing. • The following signage panels on the FF1 building: o 2.4m x 0.64m wall-mounted illuminated signage panel on the southern elevation. o 1.2m x 1.4m wall-mounted illuminated signage panel on the southern elevation. o 1.2m x 1.2m wall-mounted illuminated signage panel on the southern elevation. o 1.2m x 1.4m wall-mounted illuminated signage panel on the eastern elevation. o 1.2m x 1.4m wall-mounted illuminated signage panel on the northern elevation. o 1.2m x 1.4m wall-mounted illuminated signage panel on the western elevation. o 0.8m x 2.2m wall-mounted illuminated signage panel on the western elevation. o 1.2m x 1.4m wall-mounted illuminated signage panel on the western elevation. • 0.9m high “Puma” branded signage on the northern, western and southern elevations of the fuel bowser canopy facia. • Four graphics on the southern elevation of the service station building. • 1.8m diameter illuminated signage panel on the northern elevation of the FF2 building. • 1.0m x 5.3m “Guzman Y Gomez Mexican Kitchen” branded illuminated signage panel on the northern elevation of the FF2 building. • “Guzman Y Gomez - two faces” graphic on the western wall of the FF2 building. • 1.0m x 5.3m “Guzman Y Gomez Mexican Kitchen” branded illuminated signage panel on the southern elevation of the FF2 building. • 1.8m diameter roof-mounted illuminated signage panel on the eastern side of the FF2 building, with a total height above the ground FFL of 8.0m. • 1.0m x 5.3m “Guzman Y Gomez Mexican Kitchen” branded illuminated signage panel on the eastern elevation of the FF2 building. • Illuminated wall-mounted “KFC” branded sign on the western elevation of the FF3 building. • 8.0m high blade wall on the southeastern side of the FF3 building containing illuminated “KFC – bucket” signage facing west and east. • Illuminated wall-mounted “KFC - bucket” branded sign on the southern elevation of the FF3 building.

Development Aspect	Development Particulars
	• Illuminated wall-mounted "KFC" branded sign on the northern elevation of the FF3 building. • Illuminated wall-mounted "KFC" branded sign on the eastern elevation of the FF3 building. • 10m-high freestanding illuminated monolith sign located in the southwest corner of the subject site adjacent to Farrington Road, to display fuel prices and names of tenancies within the subject site. • 10m-high freestanding illuminated monolith sign located near the western lot boundary adjacent to Murdoch Drive, to display fuel prices and names of tenancies within the subject site. Refer **Appendix 3** for a copy of the development plans depicting the proposed signage.

The development application is accompanied by the following plans and reports:

- Feature survey – refer **Appendix 2**.
- Development plans – refer **Appendix 3**.
- Landscape concept plan – refer **Appendix 4**.
- Transport impact statement – refer **Appendix 5**.
- Waste Management Plan – refer **Appendix 6**.
- Bushfire Management Plan (inclusive of a risk management plan) – refer **Appendix 7**.

4 Town Planning Considerations

4.1 Metropolitan Region Scheme

The subject site is zoned Urban under the provisions of the Metropolitan Region Scheme (**MRS**). The proposed development is consistent with its the 'Urban' zoning designation and warrants approval accordingly.

The subject site also adjoins land reserved for Public Purposes – University to the west and Public Purposes – State Energy Commission to the north under the MRS.

The Western Australian Planning Commission (**WAPC**) has delegated to local governments its functions in respect of determination of applications for development of zoned land subject to where land abuts land reserved under the MRS, the local government is to refer the application to the public authority responsible for the reserved land for comment and recommendation before determining the application. Accordingly, this application will need to be referred to Murdoch University and Western Power for comment and recommendations.

4.2 City of Melville Local Planning Scheme No. 6

The City of Melville Local Planning Scheme No.6 (**LPS6**) is supplemented by the deemed provisions contained in Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015.* If a deemed provision is inconsistent with another provision of LPS6, the deemed provision prevails and the other provision, to the extent of the inconsistency, is of no effect.

4.2.1 Zoning

Following the publication of a scheme amendment in the *Government Gazette* on 10 April 2018, pursuant to LPS6 the subject site is zoned 'Service Commercial'. The objectives of the Service Commercial zone under LPS6 are:

(a) Accommodate commercial activities which, because of the nature of their business, require good vehicular access and/or large sites.

(b) To prohibit residential development.

(c) To provide for a range of commercial and industrial services and associated services as well as facilities for the storage and distribution of goods, which are required to meet the needs of the sub-regional community and which, by reason of their scale, character and requirements, are not generally appropriate to, or cannot conveniently or economically be accommodated within any of the Centre zones.

(d) Provide for a range of wholesale sales, showrooms, trade and services which by reason of their scale character, operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in, the central area, shops and offices or industrial zones.

(e) To ensure the nature, form and scale of development is such as not to prejudice the commercial services provided for within any of the Centre zones, recognising the strategic significance of such centres with reference to their accessibility and co-location efficiencies.

(f) To ensure the design and landscaping of development is conducive to safe and efficient vehicular access, safe and convenient pedestrian access between adjacent premises and a level of visual amenity which is compatible with any adjacent commercial, mixed-use or residential areas.

The proposed development is wholly consistent with the LPS6 objectives for the Service Commercial zone. Specifically, it:

- accommodates land uses which are car-based and which require good vehicular access.
- does not include any residential land uses.
- provides a range of land uses which support and are associated with other service commercial land uses in the immediate locality.
- provides for land uses which, given their car-related nature, may not be appropriate to be located in the core of the Murdoch Specialised Activity Centre.
- provides a convenient design for access by car and foot.
- provides a built form style which is comparable to similar service commercial developments in the metropolitan area.

4.2.2 Land Use and Permissibility

It is considered the uses which are proposed by this development application are best classified under the Zoning Table of LPS6 as:

fast food outlet/lunch bar *means premises, including premises with a facility for drive- through service, used for the preparation, sale and serving of food to customers in a form ready to be eaten -*

(a) without further preparation; and

(b) primarily off the premises.

hospital *means premises used as a hospital as defined in the Hospitals and Health Services Act 1927 section 2(1).*

service station *means premises other than premises used for a transport depot, panel beating, spray painting, major repairs or wrecking, that are used for -*

(a) the retail sale of petroleum products, motor vehicle accessories and goods of an incidental or convenience nature; or

(b) the carrying out of greasing, tyre repairs and minor mechanical repairs to motor vehicles.

veterinary centre *means premises used to diagnose animal diseases or disorders, to surgically or medically treat animals, or for the prevention of animal diseases or disorders.*

The above uses are all '**D**' (discretionary) land uses in the Service Commercial zone under LPS6, meaning the local government can exercise discretion by granting approval. As such, the proposed uses are all capable of approval on the subject site.

In addition, the application intends the commercial tenancy to be approved for a range of land uses including:

bulky goods showroom *means premises -*

(a) used to sell by retail any of the goods and accessories of the following types that are principally used for domestic purposes -

(i) automotive parts and accessories;

(ii) camping, outdoor and recreation goods;

(iii) electric light fittings;

(iv) animal supplies including equestrian and pet goods;

(v) floor and window coverings;

(vi) furniture, bedding, furnishings, fabrics, manchester and homewares;

(vii) household appliances, electrical goods and home entertainment goods;

(viii) party supplies;

(ix) office equipment and supplies;

(x) babies' and children's goods, including play equipment and accessories;

(xi) sporting, cycling, leisure, fitness goods, and accessories;

(xii) swimming pools;

or

(b) used to sell goods and accessories by retail if -

(i) a large area is required for the handling, display or storage of the goods; or

(ii) vehicular access is required to the premises for the purpose of collection of purchased goods.

industry – light *means premises used for an industry where impacts on the amenity of the area in which the premises is located can be mitigated, avoided or managed.*

medical centre *means premises other than a hospital used by 3 or more health practitioners at the same time for the investigation or treatment of human injuries or ailments and for general outpatient care.*

recreation – private *means premises that are -*

(a) used for indoor or outdoor leisure, recreation or sport; and

(b) not usually open to the public without charge.

restaurant/cafe *means premises primarily used for the preparation, sale and serving of food and drinks for consumption on the premises by customers for whom seating is provided, including premises that are licenced under the Liquor Control Act 1988.*

The above uses are all '**D**' (discretionary) land uses in the Service Commercial zone under LPS6, meaning the local government can exercise discretion by granting approval. As such, the proposed uses are all capable of approval in the proposed commercial tenancy.

4.2.3 General Development Standards

Table 7 in clause 32(1) of LPS6 stipulates the additional development requirements for the land within the Service Commercial zone. An assessment against the applicable scheme provisions is provided in **Table 2**.

Table 2: Additional Site and development requirements (Table 7 clause 32(1) of LPS6)

Required	Proposed	Complies
(1) Setbacks		
a) *Front (street) setbacks to all street frontages other than Leach Highway shall be a minimum of 6.0 metres but shall be sufficient to accommodate a landscape strip of at least 3 metres in width immediately inside the front boundary, as well as any vehicular access and parking proposed between the building and the street.* *Note: Front setback areas are often the most suitable for car parking to service mixed business development, and if used for such purposes, should be based on an efficient car parking layout. Reference should be made to AS 2890.1 for alternative car parking layouts and associated manoeuvre specification. For example, in the case of standard width bays and right-angle parking either side of a central manoeuvre aisle, a total dimension of 17 metres would be required. By comparison, a car parking layout based on a single- sided parking aisles requires a dimension of only 11.5 metres, but involves around 35 per cent more land per bay than for a two-sided aisle.*	All buildings are set back 6m from Murdoch Drive and Farrington Road, with the closest building having a setback of 16.925m. This setback is consistent with the setback recommended in the LPS6 notes to this provision and allows two rows of parking with a central parking aisle.	✓
c) *Other boundary setbacks may be reduced to nil, subject to any requirements for access provided that where the boundary adjoins; land in a Residential zone, the setback is to accord with the standards applicable to such adjacent land under the relevant R-Coding.*	The proposed development has a setback of 3.5m to side and rear boundaries. It does not adjoin residential-zoned land.	✓
(2) Building Height		
a) *Building height standard is 13.5 metres overall, provided that where the site adjoins, or is immediately adjacent to land in the Residential zone, building height is to be limited to at least 10.5 metres and further as necessary so as to comply with overshadowing limits applicable to such adjacent land under the relevant R-Coding.*	All buildings are 10.4m or less in height.	✓
(3) Building Bulk		
Building bulk: Plot ratio standard is 1.0	The proposed development has a total gross floor area of approximately 5,230m², or a plot ratio of 0.35.	✓
(4) Open Space		
Minimum of 10 per cent of the development site.	The proposed development includes approximately 10,575m² (70.9%) open space.	✓

Required	Proposed	Complies
(5) Landscaping		
Landscaping is to accord with an overall landscaping plan for the site, which has been approved by the local government. *Note: The landscaping plan may form part of the Local Development Plan or may be separate from that plan, but in either case is subject to approval by the local government.*	Refer **Appendix 4** for a landscape concept plan.	✓

It is noted clause 32(2) of LPS6 states:

> *To the extent that a requirement referred to in subclause (1) is inconsistent with a requirement in the R-Codes, an activity centre plan, a local development plan or a State or local planning policy the requirement referred to in subclause (1) prevails.*

Accordingly, the provisions in **Table 2** above prevail over any inconsistent provision of a structure plan or local planning policy.

4.2.4 Bushfire risk management

Clause 78D(1) of the deemed provisions requires that before commencing development, the developer must prepare a bushfire attack level (**BAL**) assessment (or a BAL contour plan) for the development site.

A bushfire management plan has been prepared for the subject site, which includes a BAL contour plan. Refer **Appendix 7** for a copy of the bushfire management plan.

4.2.5 Matters to be Considered

Clause 67 of the deemed provisions details the matters to be considered in determining a development application. The provisions of the Regulations applicable to the proposal are addressed in **Table 3** below.

Table 3 – Matters to be considered (clause 67 of the deemed provisions)

Matter to be considered	Provided
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	Refer section 4.2 of this report for consideration against LPS6.
(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;	This report demonstrates the proposed development is in general compliance with the local planning framework applicable to the subject site. There is no known amendment to LPS6 or other planning instruments relevant to the proposed development.
(c) Any approved State planning policy;	Refer section 4.3 of this report for consideration against the relevant state planning policies.
(h) any structure plan, activity centre plan or local development plan that relates to the development;	Refer section 4.4 of this report for consideration against the relevant structure plan (to the extent the structure plan is not affected by clause 32(2) of LPS6).

Matter to be considered	Provided
(g) any local planning policy for the Scheme area;	Refer section 4.5 of this report for consideration against the relevant local planning policies (to the extent the local planning policies are not affected by clause 32(2) of LPS6).
(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;	The proposed development is compatible with its setting for the following reasons: • The proposed development has been designed to provide an attractive interface to the Murdoch Drive and Farrington Road streetscapes. • The proposal presents an attractive, high quality-built form which enhances the appearance of the subject site and its impact on adjoining properties and the streetscape. • Overall, the built form is of a scale consistent with commercial developments in the locality. Having regard to the above, the nature of the proposed development is entirely compatible with its surroundings and poses no undue impact on the locality.
(n) the amenity of the locality including the following — *(i) environmental impacts of the development;* *(ii) the character of the locality;* *(iii) social impacts of the development;*	The proposed development responds to the character of the locality, with an overall built form consistent with the urban fabric of the service commercial zone. The proposed development will contribute positively to the social fabric of the locality with additional services and activities offered to the community.
(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;	Appropriate landscaping is proposed throughout the development area, comprising suitable landscaped areas within the car park perimeter and outdoor areas.
(s) the adequacy of — *(i) the proposed means of access to and egress from the site; and* *(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;*	Refer **Appendix 5** for a transport impact assessment prepared in support of the application which demonstrates access arrangements are suitable. The transport impact assessment also demonstrates the development is capable of being accessed by fuel tankers, service and delivery vehicles.
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	Refer **Appendix 5** for a transport impact assessment prepared in support of the application which confirms that taking into account changes to the road network under the Murdoch Drive Connection project, the signalised roundabout on Farrington Road and the two left-in, left-out crossovers will operate satisfactorily.
(u) the availability and adequacy for the development of the following — *(i) public transport services;* *(ii) public utility services;* *(iii) storage, management and collection of waste;* *(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);* *(v) access by older people and people with disability;*	(i) The use of public transport as a means of accessing the proposed development is considered a viable option. (ii) All normal services are available and connected to the subject site (iii) The details of the storage and collection of waste are addressed in this report. (iv) The site is accessible for pedestrians via a footpath along Murdoch Drive and Farrington Road and internal paths linking footpaths to the parking areas. (v) The proposal includes 8 accessible car parking spaces linked to the building entries.

Matter to be considered	Provided
(v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;	The proposed development will enliven an area which is currently devoid of convenience services by providing a range of medical and other service commercial uses that offer a number of services to the wider community. As a result, the proposed development will contribute to the delivery of an enhanced level of growth and activity to the broader community.
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	The proposal allows the provision of stable and secure work for a number of staff. The proposal will provide 24-hour access to convenience and goods, accessible and affordable food options and specialised medical facilities to benefit of local residents.

Having regard to **Table 3** above, it is considered that the proposed development warrants approval having balanced regard to relevant considerations set out in clause 67 of the deemed provisions.

4.3 State planning policies

4.3.1 State Planning Policy 3.7 Planning in Bushfire Prone Areas

State Planning Policy 3.7 Planning in Bushfire Prone Areas applies to sites which are designated a bushfire prone area – this includes the subject site. It requires a bushfire management plan to be prepared.

A bushfire management plan (including a risk management plan) has been prepared for the subject site. It sets out a series of management strategies which should be applied to the development. A condition should be imposed on any development approval requiring compliance with the bushfire management plan.

Refer **Appendix 7** for a copy of the bushfire management plan.

4.3.2 State Planning Policy 4.2 Activity Centres for Perth and Peel

The subject site is located in the Murdoch Specialised Activity Centre and therefore the requirements of *State Planning Policy 4.2 Activity Centres for Perth and Peel* (**SPP4.2**) apply.

Clause 5.1.1(2) of SPP4.2 states:

> *Specialised centres provide opportunities for the development of complementary activities, particularly knowledge-based businesses. A range of land uses that complement the primary function of these centres will be encouraged on a scale that will not detract from other centres in the hierarchy.*

The proposed development complements the Murdoch Specialised Activity Centre's primary function of health / education / research, in that it provides a range of convenience facilities that support the people who work, study, or otherwise visit the Activity Centre. The proposed development is therefore consistent with SPP4.2.

4.3.3 State Planning Policy 7.0 Design of the Built Environment

State Planning Policy 7.0 Design of the Built Environment (**SPP7**) came into operation on 24 May 2019. It seeks to deliver the broad economic, environmental, social and cultural benefits that derive from good design outcomes and supports consistent and robust design review and assessment processes across the state.

SPP7 includes 10 design principles which establish a definition of 'good design' that can inform the design, review and decision-making processes. In respect of the proposed amendments to the approved design, these design principles are addressed in **Table 4** below.

Table 4 – Assessment of SPP7 design principles

Design principle	Response
Context and character *Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.*	The development is located at the roundabout intersection of two distributor roads generally providing for through-traffic movements in the district. It adjoins an electricity substation and vacant scrubland. Further, it is located in a precinct generally set aside for service commercial land uses characterised by large buildings with generous setbacks to the street and interspersed with car parking. In this respect, the proposed development responds to and is consistent with the character of the area.
Landscape quality *Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.*	Suitable landscaping reflecting the functional nature of the land use is proposed.
Built form and scale *Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.*	The proposed development provides a form of development which is in line with that expected in a service commercial precinct.
Functionality and build quality *Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.*	The development has been designed to allow for changes to the built form to happen in the longer term. This is because the building which are proposed can be economically replaced at the end of the functional life of the building.
Sustainability *Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.*	The current area is undersupplied with convenience services. The proposed development will therefore reduce travel distances for people who would other travel larger distances to obtain convenience goods and services which has a benefit in terms of reduction in fuel and improved social outcomes. The proposed development also delivers an economic outcome through the number of jobs generated by the proposed land uses.
Amenity *Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.*	The proposed development includes landscaping to improve the amenity for people on-site. The development will have no impact on the off-site amenity for areas in the immediate locality.
Legibility *Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.*	The proposed development provides a functional layout, allowing people in vehicles to enter and exit the site from a number of different directions. A simple rectilinear layout allows people in vehicles to negotiate the site with ease.
Safety *Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.*	The proposed design introduces a number of land uses, some of which may open after hours. The land uses will drastically improve the passive surveillance of the immediate locality.
Community *Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.*	The proposed land uses can be readily visited and enjoyed by all members of the community.

Design principle	Response
Aesthetics *Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.*	The proposed development presents with a similar form of development to other comparable service commercial developments in the Perth metropolitan area.

4.4 Murdoch Specialised Activity Centre Structure Plan

4.4.1 Introduction

The Murdoch Activity Centre Structure Plan (**MSACSP**) (January 2014) provides the framework for the long-term planning and development of Murdoch as a specialised centre of growth. The MSACSP has a long-term vision for the market driven agglomeration of key health, education and research activities and the continued promotion of Murdoch as a knowledge intensive and competitive urban centre.

The overall structure of the MSACSP is defined by a core, a corridor, and a frame. The subject site is located in the frame. The MSCACP states (section 2.4):

> *The intent of this structural hierarchy is to allow activity to be focused into key areas which maximise their diversity and intensity to create appropriate localisation economies. A simple planning hierarchy will direct and support growth in a sustainable manner within the core, corridor and frame.*
>
> *…*
>
> *The activity centre's frame consisted of the wider Murdoch landscape north and south of the transit corridor, which includes significant natural habitat, land with long-term development potential and suburban and other built-up areas which have lower accessibility to the planned transit zone.*
>
> *…*
>
> *In preparing for the next phases of the planning process for the activity centre, priority should be to establish Murdoch Square and the mixed use precinct as complementary urbanisation nodes.* [underlined emphasis added]

The MSACSP includes commentary on the prioritisation of intensity (section 2.7):

> *Whilst it is desirable that the frame would intensify over time, the structure plan is not contingent upon it. The fragmented ownership patterns and economic cycle may prove to be an inhibitor in the short term but in the medium to long term it is anticipated that residential densities in particular will increase. Specifically, properties and infill sites within the transit corridor catchment will be encouraged to build to appropriate urban scales and densities as part of the incremental process of change in the wider Murdoch frame.* [underlined emphasis added]

The MSACSP area is divided into precinct areas and guidelines, with eight being identified. The following text from the MSACSP helps to establish the context for these precincts (section 2.6):

> *The core area (outlined opposite) comprising Murdoch Square and the mixed use precinct is the focus for new development. However this could not be planned in isolation of the other precincts. The mixed use precinct has a defined boundary as a result of a previous structure planning exercise. Murdoch Square is not identified as a separate precinct at this stage. The boundaries of the area shown are indicative and need to be appropriately defined through the next stage of planning for Murdoch University's eastern precinct.*

> *In each precinct, a local structure plan will be required to be prepared prior to the approval of development or, where agreed, updates to existing campus masterplans or local structure plans. Proposals would also be subject to tests and conditions applicable to sites and buildings within bushfire prone areas.* [underlined emphasis added]

The subject site is located within Precinct 6 - Training and Technology Precinct. The MSACSP provides the following description for the Training and Technology Precinct (section 2.6):

> *The area directly south of Fiona Stanley Hospital will be a services and technology precinct, with a number of important training facilities and larger businesses supporting both hospitals. This precinct should provide opportunities for growth, in particular, to accommodate the commercialisation and manufacturing functions associated with research. This precinct also supports other key government infrastructure, including the Western Power substation and the Wandoo Reintegration Facility, both of which are likely to remain in the short to medium term, but which are non-intensive land uses which would be desirable to relocate out of the central area of Murdoch in the longer term.*
>
> *Challenger Institute of Technology occupies a key site in this precinct on the edge of the urban corridor. As one of the original tenants of the activity centre, it has future plans to expand its campus which will bring much needed student vibrancy and complementary training activities to the centre. Therefore, as part of the further planning of this precinct, the long-term future and urban form of the Challenger campus should be explored to maximise its integration with the core of the activity centre.*

A common theme throughout MSACSP, evident in the above quotes, is the further planning and implementation to be undertaken in a way which focuses on the core in the short term, recognising the development of the frame is a long-term prospect. Section 7 of the MSACSP is prefaced with a disclaimer (repeated on the inside cover of the document) stating:

> *This Structure Plan for the Murdoch Activity Centre is a high-level, aspirational and long-term plan and a range of issues will require further consideration over time including further detailed planning, funding, and legislative changes. New and upgraded infrastructure needed to implement the Structure Plan in the medium to long-term has not been committed to, or funded by, Government.*

In section 7.4 of the MSACSP it is stated:

> *The structure plan will have implications for the provisions of the respective local schemes. This will involve the introduction of structure plan, detailed area plan, local structure plan and development contribution provisions as well as new zonings to facilitate the objectives of the structure plan.*

The MSACSP has not yet been implemented into the statutory planning framework. The various further documents described in section 7.4 of the MSACSP have not been prepared. The LPS6 objectives for the Service Commercial zone, which were applied to the subject site following a scheme amendment gazetted on 10 April 2018, has not implemented the MSACSP. In this respect, compare the LPS6 objectives for the Service Commercial zone with the MSACSP statement for the Training and Technology Precinct:

Table 5 – comparison between the Service Commercial zone of LPS6 and the Technology and Training Precinct of the MSACSP

LPS6 – Service Commercial zone	MSACSP – Technology and Training Precinct
• *Accommodate commercial activities which, because of the nature of their business, require good vehicular access and/or large sites.* • *To provide for a range of commercial and industrial services and associated services as well as facilities for the storage and distribution of goods, which are required to meet the needs of the sub-regional community and which, by reason of their scale, character and requirements, are not generally appropriate to, or cannot conveniently or economically be accommodated within any of the Centre zones.* • *Provide for a range of wholesale sales, showrooms, trade and services which by reason of their scale character, operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in, the central area, shops and offices or industrial zones.* • *To ensure the nature, form and scale of development is such as not to prejudice the commercial services provided for within any of the Centre zones, recognising the strategic significance of such centres with reference to their accessibility and co-location efficiencies.*	*… will be a services and technology precinct, with a number of important training facilities and larger businesses supporting both hospitals. This precinct should provide opportunities for growth, in particular, to accommodate the commercialisation and manufacturing functions associated with research.*

It is considered only minimal weight can be afforded to the MSACSP. The MSACSP instructs the City and government authorities on what needs to be done to address various issues (such as the preparation of scheme amendments and local structure plans), but it is not in fact that document that directs or instructs the development controls on the land. The further instrument and documents that will provide detailed guidance for the development of the subject site have not been developed. In the circumstances, it is necessary to turn to the LPS6 objectives and development standards for the Service Commercial zone to establish what may be developed on the subject site today.

Importantly, however, the proposed development does not detract from the commercial vision for the core and corridor of the MSACSP area, as it does not propose any land uses which would otherwise be appropriate for the core or corridor areas. The land uses which are proposed are those for which there is a market demand for, but which would not be appropriate in the core. In this respect, and given the objective of providing for incremental development and intensification of the MSCASP area, the proposed development is not inconsistent with the MSACSP.

4.4.2 Development requirements

Notwithstanding the low weight which should be afforded to the MSACSP in respect of the subject site, it is nonetheless instructive to consider the built form requirements which apply to the frame of the MSACSP area.

Clause 5.4, Table 5-1: Built Form Guidelines of the MSACSP provides the built form requirements applicable to the development site, located within the Urban Frame as depicted in Figure 5.04 of the MSACSP. It should be noted that the MSACSP notes that the urban frame will remain in its current form until market forces permit regeneration of the built form. As such development should seek to increase infill and density, promoting an intensity of development within the Urban Frame.

An assessment of the proposed service commercial development against the built form guidelines of the MSACSP is provided in **Table 6** below.

Table 6– Murdoch Specialised Activity Centre Structure Plan built form guidelines assessment

Built Form Guidelines (Urban Frame)	Proposed	Complies
Urban Grain (e.g. building pattern)		
Largely semi-formal suburban layouts with built form setback from street.	The subject site has dual frontages from both Murdoch Drive and Farrington Street. As outlined in table 4 above the proposed development is compliant with the street setback requirements. The minimum street setback to Murdoch Drive and Farrington Road is 17.14m and 16.925m respectively. Given the above, the proposed development is appropriately setback from the street and aligns with the intent of the urban grain.	✓
Townscape character (e.g. coherence)		
Low-density neighbourhood character with few infill opportunities of scale.	The proposed development significantly improves upon the existing vacant site and enhances the appearance of the subject site and its impact on adjoining properties and the streetscape. Furthermore, the proposal provides a number of commercial offerings to the surrounding uses.	✓
Building typology and scale (e.g. heights)		
Largely in keeping with 1-3 storey townscape but with up to 6 storeys on key sites.	The proposed development comprises of one to two storey buildings that are consistent with the prevailing typology and scale of buildings within the area.	✓
Block layout principles (e.g. setbacks)		
Site coverage minimum 60% generally up to 6m setbacks. Upper storey setback discouraged.	The proposed development is compliant with the built form guidelines for the frame with the exception of site coverage. In this respect, it can be appreciated the current development is an interim, transitionary development that will be substantially redeveloped in time when economic conditions are right. The proposed form of development is flexible in that it does not prevent the long-term redevelopment and in fact could allow redevelopment over discrete portions of the subject site. In the circumstances, it is considered approval to the development is warranted on the basis it is consistent with LPS6, and is not inconsistent with the long-term aims of the MSACSP.	**Discretion required**
Building façades and frontages (e.g. articulation and activation)		
Vertical articulation preferred. Maximise active frontages along transit frontage. Atriums not suitable. Awnings appropriate on mixed use or transit frontages except where setback applies.	The proposed development orients to and has suitable articulation to the street.	✓

Built Form Guidelines (Urban Frame)	Proposed	Complies
Vehicular access (e.g. servicing and parking)		
From side or frontage streets. Rear service lanes may offer secondary shared access. Permanent car parking off street. Within lots or on street where parking cannot be fully integrated into built form.	The proposed development provides car parking on the subject site, which vehicle access from the frontage streets.	✓

4.5 Local Planning Policies

4.5.1 Local Planning Policy 1.4 – Provision of Public Art in Development Proposals

The City's *Local Planning Policy 1.4 – Provision of Public Art in Development Proposal* non-residential developments with a cost in excess of $1 million to provide public art to a value of 1% of the cost of development. This can be addressed as a condition of development approval.

4.5.2 Local Planning Policy 1.6 – Car Parking and Access

The City's Local Planning Policy No. 1.6 – Car Parking and Access (**LPP1.6**) contains provisions pertaining to acceptable parking for non-residential developments.

An assessment against the parking provisions of LPP1.6 is contained in **the following tables**.

Table 7 – car parking requirements (LPP1.6)

Land use	Data	Parking rate	Car Bays Required
Hospital	20 staff 100 beds	1 bay per 3 beds, plus 0.5 bays per staff member (including health consultants). Ambulance and hospital bus parking bays as required by the City	43
Veterinary clinic	5 staff (3 of which are health consultants)	3 bays per health consultant, plus 0.5 bay per staff member (including health consultants)	17
Commercial tenancy (assume medical centre for parking calculation purposes)	5 staff (3 of which are health consultants)	3 bays per health consultant, plus 0.5 bay per staff member (including health consultants)	17
Take away food outlet (FF1)	15 staff 178m² PFA*	1 bay per 10m² PFA, plus 0.5 bay per staff member	25
Service station	2 staff	0.5 bays per staff member	1
Take away food outlet (FF2)	10 staff 92m² PFA*	1 bay per 10m² PFA, plus 0.5 bay per staff member	14
Take away food outlet (FF3)	15 staff 96m² PFA*	1 bay per 10m² PFA, plus 0.5 bay per staff member	18
TOTAL CAR PARKING BAYS REQUIRED			**135**

Land use	Data	Parking rate	Car Bays Required
TOTAL CAR PARKING BAYS PROVIDED			**207**

* Note: PFA means the following:

The publicly accessible areas in bars, restaurants, fast food premises, places of worship and other places used for dining, entertainment or congregation purposes but excluding the following areas:

(a) Alfresco areas located off-site;

(b) Alfresco areas located on-site which are not covered by solid roofing materials.

(c) Areas occupied by lifts, stairways, ramps, passages, hallways, lobbies and the like; and

(d) Areas set aside for staff only.

Table 8 – motorcycle/scooter parking requirements (LPP1.6)

Land use	Data	Parking rate	Motorcycle / Scooter Bays Required
Hospital	43 car bays required	30-44 *car parking bays require 4 motorcycle/ scooter parking bays.*	4
Veterinary clinic	17 car bays required	*15-29 car parking bays require 2 motorcycle/ scooter parking bays*	2
Commercial tenancy	17 car bays required	*15-29 car parking bays require 2 motorcycle/ scooter parking bays*	2
FF1	25 car bays required	*15-29 car parking bays require 2 motorcycle/ scooter parking bays*	2
Service station	1 car bays required	*0-14 car bays require 0 motorcycle / scooter parking bays*	0
FF2	14 car bays required	*0-14 car bays require 0 motorcycle / scooter parking bays*	0
FF3	18 car bays required	*15-29 car parking bays require 2 motorcycle/ scooter parking bays*	2
TOTAL MOTORCYCLE / SCOOTER BAYS REQUIRED			**12**
TOTAL MOTORCYCLE / SCOOTER BAYS PROVIDED			**18**

Table 9 – bicycle parking and end-of-trip facility requirements (LPP1.6)

Land use	Data	Parking rate	Bicycle Bays Required
Hospital - End of trip facilities	43 car bays required	2 per 10 car parking bays End of trip facilities are required for more than 6 bicycle parking bays as follows: • One locker for each bicycle space • One unisex shower and changing room	8 8 lockers, 1 unisex changeroom
Veterinary clinic	17 car bays required	2 per 10 car parking bays	4
Commercial tenancy	17 car bays required	2 per 10 car parking bays	4
FF1	25 car bays required	2 per 10 car parking bays	4
Service station	n/a	n/a	0

Land use	Data	Parking rate	Bicycle Bays Required
FF2	14 car bays required	2 per 10 car parking bays	4
FF3	18 car bays required	2 per 10 car parking bays	4
TOTAL BICYCLE PARKING BAYS REQUIRED			**28 bays, 8 lockers (hospital) 1 changeroom (hospital)**
TOTAL BICYCLE PARKING BAYS PROVIDED			**6 bicycle lockers 6 bicycle racks**

The proposed development in compliant in respect of the car and motorcycle/scooter parking requirements. Further, given each bike rack is capable of parking multiple bicycles, there is sufficient bicycle parking on the subject site.

End of trip facilities for the hospital can be imposed as a condition of approval.

4.5.3 Local Planning Policy 2.1 Non-Residential Development

The City's *Local Planning Policy 2.1 Non-Residential Development* (**LPP2.1**) applies to all non-residential development within the City. The objectives of LPP2.1 are:

- *To promote high quality architectural form to maintain and enhance the visual character of the City.*
- *To ensure new buildings are designed to be of human scale to facilitate effective movement and interaction between building and street.*
- *To ensure building frontages at the street level assist in the creation of safe built environments through use of internal and external lighting, encouraging visual interest and ensuring passive surveillance.*
- *To ensure that all buildings make a positive contribution to the streetscape, assisting in the maintenance and creation of safe, secure and attractive places.*

In addition to the relevant provisions contained within the LPS6 and other applicable Local Planning Policies, non-residential development will be assessed against, and be required to demonstrate compliance with the provisions of LPP2.6.

An assessment of the proposed development has been provided in **Table 10**.

Table 10: Local Planning Policy 2.1 Non-Residential Development Assessment

Required	Proposed	Complies
Building Design		
1. General		
1.1 Development should: *(a) Be orientated towards the primary street frontage.* *(b) Be designed to minimise the incidence of blank and unarticulated elevations.* *(c) Exhibit high levels of architectural articulation through the use of varied architectural planes, effective fenestration, architectural detailing, external materials, and a varied colour palette.*	The proposed buildings have been designed with the general building design requirements in mind. The buildings incorporate: • A range of independent designs reflecting the standard corporate design of individual tenants, resulting in a rich variety of building types. • Include doors and windows generally oriented to the street. • Use of different cladding, materials and colours to break up facades.	✓

Required	Proposed	Complies
(d) Incorporate a differentiated design approach to the treatment of the ground floor 'vs' upper floor(s), achieved through varied design, use of materials, changes in architectural planes, incorporation of awnings and the like, to enhance pedestrian scale.	• A range of different roof planes, use of windows, and other details to create an interesting built form. • Use of awnings and other materials to break the tops of buildings from the 'ground floor'.	
2. Corner Sites		
2.1 Development on corner sites should be designed to accentuate the corner and face all streets that flank it. This can be achieved via (but not limited to):		
(a) The focussing of the building mass on the corner, using a dominant architectural feature which protrudes above the normal roof line. *(b) The provision of additional detail, colour and textures on the corner portion of the development.* *(c) The inclusion of a dominant entrance feature on the corner.*	The service station building and canopy has been set back from the corner in order to achieve functional design outcomes (circulation space for vehicles and tankers and maintaining a line of sight between the building and the bowsers), and an outlook to the street can only be maintained by positioning the building and bowsers as is proposed. Current market conditions will not support a building on the corner, primarily because such a building would limit visibility for other tenants on the subject site, resulting in an unviable project. It should be noted the service station (and other buildings on the subject site) can in removed in the longer term and redeveloped consistent with the ultimate built form and land use outcomes desired by the MSACSP.	**Discretion required**
(d) Incorporation of public space on the corner.	The proposal includes landscaping on the corner.	✓
(e) Developments on corner sites should be designed to ensure good visibility for both pedestrians and vehicles.	The development provides excellent visibility across the corner.	✓
3. Front Facades and Shopfronts		
3.1 Facades fronting the street and public domain should incorporate window and door openings which provide passive surveillance.	Doors and windows face onto the street.	✓
3.2 The pedestrian scale of the development should be enhanced through the use of windows, door openings, awnings, public art, architectural design and detailing at ground level.	The proposed buildings are designed to reflect human scale of development.	✓
3.3 The removal of, or permanent covering of windows and openings within the shop front or front elevation will not be supported.	Noted.	✓
3.5 Windows at ground floor level should remain visually permeable at all times.	Noted.	✓
3.6 Reflective or heavily tinted glazing at ground floor level will not be supported.	Noted.	✓

Required	Proposed	Complies
3.7 At least 60% of the total length of the ground floor level facades adjacent to a footpath should be transparent.	Buildings are setback from footpaths in the street.	✓
3.8 Where they interface with the public domain, security shutters and gates are to be visually permeable. Solid security shutters and gates will not be supported. Roller doors of transparent design and construction will be acceptable provided they are at least 75% visually permeable	No roller shutters/gates interface with the public domain.	✓
Active Design		
5.1 Retail, food and beverage and other commercial uses which promote interaction and deliver vitality within the streetscape, are encouraged to be located on the ground floor level.	All food and beverage and other commercial uses are located on the ground level.	✓
Landscaping		
6.1 Where landscaping plans are required these should be designed to satisfy the following requirements:		
(a) Where applicable, landscaping should be concentrated within the street setback area to: • *enhance and positively contribute to the streetscape; and* • *soften the appearance of the building; and* • *where relevant, provide a buffer between the development and adjoining residential properties.*	Landscaping is proposed in the street setback area.	✓
(b) In addition to traditional at-grade planting, the City will consider landscaping above ground level in the form of: • *Accessible and inaccessible 'green roofs'* • *Well designed and maintained 'green walls'* • *Permanent planters;* • *Window boxes.*	Noted	**N/A**
(c) Where applicable, the upgrade and ongoing maintenance of landscaping within the street verge adjoining the development site may be acceptable.	The landscape concept plan proposes upgrading of verge landscaping.	✓
(d) Shade trees are to be provided within at-grade car parking areas containing more than six bays. The shade trees are to be provided at a minimum rate of one tree per six bays. The shade trees are to be dispersed evenly throughout the car parking area to	Shade trees are proposed in the carpark areas. Refer to the landscape concept plan.	✓

Required	Proposed	Complies
provide shade and relief of building bulk.		
6.3 Where a development site contains mature trees and vegetation, developers are encouraged to consider their retention as part of any redevelopment proposal.	Given the site levels, it is not possible to retain on-site vegetation.	**Discretion required**
6.4 Detailed landscaping plans should incorporate the use of low maintenance, water wise plants, with a presumption in favour of the use of native West Australian species.	Noted. The landscape concept plan uses native groundcovers.	✓
6.5 There is a presumption in favour of the retention of existing street trees. Approval will not be given for the removal of street trees unless material planning circumstances dictate the removal and where supplementary tree replanting in accordance with Council's Street Tree Policy is the only viable alternative.	There are no street trees in the verge adjacent to the subject site.	✓
Vehicle Access, Loading and Parking		
8.1 Vehicle access should be provided from secondary streets or rights of way where available. Only one access point per street is encouraged.	No secondary access is available. Only one access point per street is proposed (as per the ultimate street network under the Murdoch Drive Connection project).	✓
8.2 Vehicle access to developments on corner lots should be located the maximum possible distance away from the corner on the minor road or right of way.	The proposed crossover arrangement is considered to operate satisfactorily. Refer to the transport impact assessment at **Appendix 5**.	**Discretion required**
8.3 All vehicles utilising on-site car parking bays should be able to enter and exit in a forward gear where practicable.	Yes.	✓
8.4 On-site parking should be located behind the building line or within the building where possible. Parking within the front setback area of a development will be discouraged.	This requirement is inconsistent with the requirement to maintain a setback from the street in the Service Commercial zone setbacks under item (1) of Table 7 of LPS6, and the associated note which encourages front setback areas to be used for car parking. Pursuant to clause 3(5) of the deemed provisions, the local government must have regard to a local planning policy to the extent it is consistent with LPS6. Requirement 8.4 of LPP2.1 is therefore of no effect.	**N/A**
8.5 Areas for the loading and unloading of vehicles should be provided on site where the non-residential portion of the development exceeds 500m² Gross Floor Area. The loading area/s are to be of a size and in a location appropriate to the nature of the development.	Dedicated loading areas are provided for each building. The respite care building is provided with one loading area on the eastern side of the building and one on the northern side (adjacent to the veterinary clinic).	✓

Required	Proposed	Complies
8.6 Where parking is provided within a basement or under croft, a minimum headway clearance of 2.85m should be provided where a loading or accessible bay is provided within that level.	A clearance of approximately 3.55m is provided in the undercroft carpark.	✓
8.7 Structures (walls, fencing, services) and vegetation should not exceed 0.6m in height within 1.5m x 1.5m of where the vehicle access way meets the street boundary.	Yes.	✓
8.8 Prior to the initial occupation of a development, a Noise Management Plan may be required to detail how noise associated with deliveries is to be managed. Where necessary, limitations on delivery hours may be imposed.	Noted.	✓
8.9 The provision of bicycle parking facilities and end of trip facilities are encouraged for all developments.	Noted. Refer to consideration against LPP1.6.	✓
8.10 Disabled parking provided in accordance with the National Construction Code 2012 (as amended).	Accessible parking bays have been provided in accordance with the NCC.	✓
Plant		
9.1 All air conditioners and other similar servicing plant are to be appropriately located and screened from the street and neighbouring properties.	All plant and equipment will be screened from view of the street.	✓
Waste		
10.1 All developments should be provided with a bin storage area of sufficient size to accommodate a minimum of one weeks waste and recycled material.	As indicated in the Waste Management Plan the bin storage areas are sufficient to accommodate one week of waste and recycled material.	✓
10.2 The bin storage area should be screened from view of the street and be located to ensure adverse visual amenity impacts are avoided.	All bin areas are screened.	✓
10.3 Bin storage areas should be located in an easily accessible location for both occupants of the building and for rubbish collection. The design is to include provision for easy cleaning.	Each building is provided with a bin storage area, providing occupants with convenient access to bins. All bin storage areas are in locations which can be accessed by waste collection vehicles.	✓
10.4 Details of the proposed collection point are to be submitted at the time of development approval.	Details of the collection points are outlined in the Waste Management Plan. Refer **Appendix 6**.	✓
10.5 A rubbish collection point should be nominated which is of sufficient size to contain the number of bins required to service the building, whilst not obstructing parking and pedestrian access, traffic flow and sightlines.	Bin storage areas are located so as not to impede vehicle or pedestrians.	✓

Required	Proposed	Complies
10.6 Prior to the initial occupation of a development, a Waste Management Strategy may be required to detail how waste and the noise associated with waste disposal will be minimised.	Refer Waste Management Plan at **Appendix 6**.	✓
Site Works		
11.1 Where developments are proposed across sloping sites, the principle of equal cut and fill across the site will apply.	The development has been designed to be at a similar level to the adjacent streets to avoid the need for retaining along the street frontage. As a result, it has been necessary to cut into the slope. A small slope is retained - the easternmost buildings have a FFL 1.0m higher than the westernmost buildings. It is considered the benefit of having a development having a positive contribution to the streetscape outweighs any benefit achieved by balancing cut and fill on the site.	**Discretion required**

It is considered the proposed development, while requiring discretion in relation to some elements of the LPP2.1, generally complies with the intent of LPP2.1; particularly when considering a service commercial development at the intersection of arterial roads and in an area which in the long-term will be redeveloped for a different purpose once the MSACSP has been implemented. The proposal warrants approval accordingly.

4.5.4 Local Planning Policy 2.2 Outdoor Advertisement and Signage

The objectives of the City's Local Planning Policy 2.2 Outdoor Advertisements and Signage (**Signage Policy**) are.

- *To encourage good quality, well considered advertising signage within the City of Melville.*
- *To maintain and enhance levels of visual amenity through the control of advertisement clutter.*
- *To ensure signage does not present a hazard or obstruction to pedestrians or motorists.*
- *To ensure all commercial signage is designed to be consistent with, and appropriate to, the location and function of the site it serves.*
- *To protect the significant characteristics of buildings, streetscapes and the general amenity of the area.*

The application proposes signage on each building, plus two monolith signs. Details of the proposed signage is set out in section 3 of the report.

Clause 1.1 of the Signage Policy states where more than three signs are proposed on a lot, the City may require the submission of a signage strategy, the details of which are specified in clause 1.3 of the Signage Policy. It is considered the development plans at **Appendix 3** provide sufficient detail to satisfy clause 1.3, and a separate signage strategy is not required.

The general assessment criteria applicable to all signage under the Signage Policy is set out below:

Table 11 – Assessment criteria for all signage

Assessment criteria	Comment	Complies?
2.1 The content of commercial signage shall be limited to: *(a) The name of the business/es trading from the property;* *(b) Trademark or logo of the business/es operating from the property;* *(c) Contact details of the business/es operating from the property;* *(d) Details of the business/es carried out on the property;* *(e) Details of goods sold on the property.*	The proposed signage will comply with this requirement.	✓
2.2 Where located on or adjacent to a thoroughfare, projecting signs and under awning signs shall provide a minimum clearance of 2.75m above ground level.	No projecting signs are proposed.	**N/A**
2.3 Third party advertising is not permitted	Noted.	✓
2.4 Illuminated signage (except safety signs) must be static and not move, flash, rotate or reflect.	Noted.	✓
2.5 Signage must be located such that traffic and pedestrian safety is not compromised.	Signage will not compromise traffic or pedestrian safety.	✓
2.6 Signage shall be sited and displayed to safeguard the architectural integrity of the building to which it is attached.	Signage has been designed to incorporate and complement the building designs.	✓
2.7 Signage proposals that depart from the criteria listed in Clauses 3 – 5, or those that are classed as discretionary under the provisions of Clause 6 of this policy, will be treated on their merit relative to the design principles listed by Clause 8: Variations.	Noted	✓

Section 4 of the Signage Policy relates to signage in zones other than the Residential zone.

The following tables set out the assessment criteria for signage. Where signage is consistent with the assessment criteria, it is exempt from requiring approval (provided there are no more than three signs); where the signage does not meet the assessment criteria or there is no assessment criteria, then the signage is to be assessed against clause 8 of the Signage Policy.

Table 12 – Assessment criteria for signage

Assessment criteria	Comment	Complies?
4.1 Signage on commercial or mixed use properties		
Applications for signage to be installed on commercial or mixed use properties within Zones other than the Residential Zone shall satisfy all of the following: *(a) A maximum of three signs per tenancy or business; and* *(b) Satisfy the development standards set out in Part 4.2 – 4.11 of this Policy.*	The proposed development includes buildings some of which having more than three signs. With respect to the variation criteria contained in clause 8 of the Signage Policy: • The proposed signage is clear, simple and concise. More so, the signage proposed is consistent with the corporate branding of the	**Discretion required**

Assessment criteria	Comment	Complies?
	respective tenants and which is consistently applied across Australia. • The signage will not create an unacceptable level of visual clutter as, in most instances, it is proposed on multiple facades of a building. • The signage is appropriate to the locality and surrounding land uses, in terms of its size, location and design; • The signage will not cause driver distraction or otherwise impact upon traffic safety. • The signage will not result in unacceptable light spill on to adjoining sites. • The signage will not pose a threat to public safety or health. • The signage will not contain obscene or offensive information, or illustration. The signage therefore warrants approval.	
4.3 Monolith Signs		
<u>Standards</u>: *(a) Signs to be a maximum height of 3m when measured from ground level;* *(b) Signage to be no greater than 1.5m in width.* *(c) Limited to one sign per lot frontage and where more than one business tenancy exists within the subject lot, the signage must be designed to accommodate the advertising requirements of all tenancies*	Two monolith signs are proposed, each having a height of 10m and a width of 3m. With respect to the variation criteria contained in clause 8 of the Signage Policy: • The proposed signage is clear, simple and concise. Importantly, the monolith signs will display details of multiple tenancies on the subject site, as well as display fuel prices. • The signage will not create an unacceptable level of visual clutter given each sign has frontage to a different street. • The signage is appropriate to the locality and surrounding land uses, in terms of its size, location and design; • The signage will not cause driver distraction or otherwise impact upon traffic safety. In fact, it is important for fuel prices to be displayed at a large enough size so as not to be quickly noticeable and discernible to passing drivers. • The signage will not result in unacceptable light spill on to adjoining sites. • The signage will not pose a threat to public safety or health. • The signage will not contain obscene or offensive information, or illustration. The monolith signs therefore warrant approval.	**Discretion Required**
<u>Permitted zones</u>: *Centre Zones (C1-4), Mixed Use, Service Commercial and Light Industry Zones*	Service Commercial zone	✓

Assessment criteria	Comment	Complies?
4.8 Awning Fascia Signs		
Standards: *(a) Signage is limited to one sign per side of the awning; and* *(b) Must not protrude beyond the existing dimensions of the awning or verandah fascia.*	The proposed fascia signs on the fuel canopy comply with these requirements.	✓
Permitted zones: *Centre Zones (C1-4), Mixed Use, Service Commercial and Light Industry Zones*	Service Commercial zone	✓
4.9 Wall Signage		
Standards: *(a) No more than two such signs on any one wall directly associated with the tenancy;* *(b) Signage not to be located above ground floor level; and* *(c) The collective sign area must not exceed 2m² in area per wall.*	Wall signage is proposed which do not meet the standards in respect of the number of signs per wall, the location above the ground level, and the collective area per wall. With respect to the variation criteria contained in clause 8 of the Signage Policy: • The proposed signage is clear, simple and concise. More so, the signage proposed is consistent with the corporate branding of the respective tenants and which is consistently applied across Australia. • The signage will not create an unacceptable level of visual clutter as, in most instances, it is proposed on multiple facades of a building. • The signage is appropriate to the locality and surrounding land uses, in terms of its size, location and design; • The signage will not cause driver distraction or otherwise impact upon traffic safety. • The signage will not result in unacceptable light spill on to adjoining sites. • The signage will not pose a threat to public safety or health. • The signage will not contain obscene or offensive information, or illustration. The wall signage therefore warrants approval.	**Discretion Required**
Permitted zones: *Centre Zones (C1-4), Mixed Use, Service Commercial and Light Industry Zones*	Service Commercial zone	✓

Assessment criteria	Comment	Complies?
6.3 Roof Signs		
nil	A roof sign is proposed for the FF2 building. With respect to the criteria contained in clause 8 of the Signage Policy: • The proposed signage is clear, simple and concise. More so, the signage proposed is consistent with the corporate branding of Guzman Y Gomes and which is consistently applied across Australia. • The signage will not create an unacceptable level of visual clutter as. It is noted the roof sign is located on the eastern side of the building, away from the street frontage. • The signage is appropriate to the locality and surrounding land uses, in terms of its size, location and design; • The signage will not cause driver distraction or otherwise impact upon traffic safety. • The signage will not result in unacceptable light spill on to adjoining sites. • The signage will not pose a threat to public safety or health. • The signage will not contain obscene or offensive information, or illustration. The roof sign therefore warrants approval.	**Discretion Required**

Having regard to the above, the signage proposed with the development warrants approval.

5 Conclusion

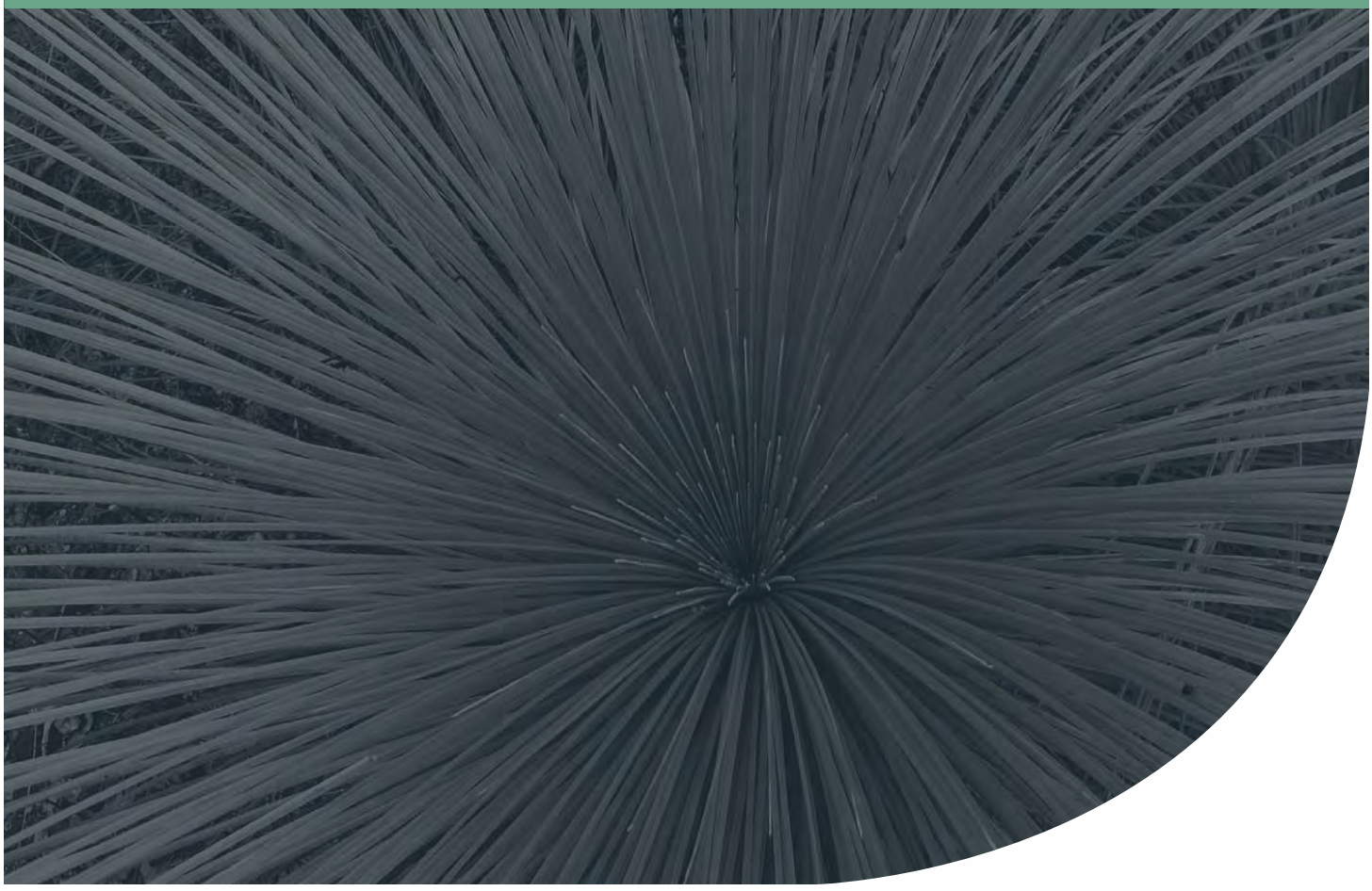
The proposed development is largely consistent with the requirements of the applicable planning framework, and is an appropriate form of development for a Service Commercial zoned site. The development therefore warrants approval accordingly.

Bushfire Management Plan

Lot 1001 Murdoch Drive, Murdoch

Project No: EP19-068(01)

Prepared for Rhyian Pty Ltd
July 2019



Document Control

Doc name:	Bushfire Management Plan Lot 1001 Murdoch Drive, Murdoch				
Doc no.:	**EP19-068(01)---004**				
Version	**Date**	**Author**		**Reviewer**	
1	July 2019	Bianca Bertelli	BRB	Anthony Rowe	AJR
	Issued to client for review.				
A	July 2019	Bianca Bertelli	BRB	Anna Welker	ACW
	Final revision following client review.				

Disclaimer:

This document has been prepared in good faith and is derived from information sources believed to be reliable and accurate at the time of publication. Nevertheless, it is distributed on the terms and understanding that the author is not liable for any error or omission in the information sources available or provided to us, or responsible for the outcomes of any actions taken based on the recommendations contained herein. It is also expected that our recommendations will be implemented in their entirety, and we cannot be held responsible for any consequences arising from partial or incorrect implementation of the recommendations provided.

This document has been prepared primarily to consider the layout of development and/or the appropriate building construction standards applicable to development, where relevant. The measures outlined are considered to be prudent minimum standards only based on the standards prescribed by the relevant authorities. The level of bushfire risk mitigation achieved will depend upon the actions of the landowner or occupiers of the land and is not the responsibility of the author. The relevant local government and fire authority (i.e. Department of Fire and Emergency Services or local bushfire brigade) should be approached for guidance on preparing for and responding to a bushfire.

Notwithstanding the precautions recommended in this document, it should always be remembered that bushfires burn under a wide range of conditions which can be unpredictable. An element of risk, no matter how small, will always remain. The objective of the Australian Standard AS 3959-2018 is to "prescribe particular construction details for buildings to reduce the risk of ignition from a bushfire while the front passes" (Standards Australia 2018). Building to the standards outlined in AS 3959 does not guarantee a building will survive a bushfire or that lives will not be lost.

Executive Summary

Rhyian Pty Ltd (Rhyian), on the behalf of the landowner Electricity Networks Corporation of 363-365 Wellington Street, Perth (the proponent) are preparing a Development Application for the commercial development of Lot 1001 Murdoch Drive, Murdoch (herein referred to as 'the site'). The site is 1.49 hectares (ha) in size and is located within the City of Melville, approximately 15 kilometres (km) south of Perth. The site is bound by State Energy Commission infrastructure to the north, a hospital laundry facility to the east, Farrington Road to the south and Murdoch Drive to the west. The proposed site plan is provided in **Appendix A.**

The site is located within a 'bushfire prone area' under the state-wide Map of Bush Fire Prone Areas prepared by the Office of Bushfire Risk Management (OBRM 2019). The identification of a site within an area declared as bushfire prone necessitates that a further assessment of the determined bushfire risk affecting the site (in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959)) and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and its associated *Guidelines for Planning in Bushfire Prone Areas Version 1.3* (the Guidelines) (WAPC and DFES 2017).

The purpose of this BMP is therefore to assess the bushfire hazards, within and nearby the site, and identify the 'management' strategies required to ensure the development of the land is consistent with the intent of SPP 3.7 "to preserve life and reduce the impact of bushfire on property and infrastructure."

This BMP has followed the requirements of SPP 3.7 to identify bushfire risk and identify the bushfire protection measures that will make the land suitable for its intended purpose. As part of this, a Bushfire Attack Level (BAL) assessment involving the classification and condition of vegetation within 150 m of the site has been undertaken as a measure of the bushfire risk.

The majority of the site is identified as scrub (Class D) vegetation, in addition patches external to the site, to the east surrounding the existing hospital laundry facility and to the south surrounding the radio transmission tower. Patches of grassland (Class G) vegetation has been identified within site, and to the east of the site within the adjacent drainage basin. A patch of forest (Class A) vegetation has been identified to the east of the site within vacant undeveloped land. Woodland (Class B) vegetation has been identified within the southern portion of the site, in addition to scrubland (Class C) vegetation.

In order to resolve the potential for bushfire to affect the site, a post development scenario has been assumed, in which all classified vegetation within the site is either removed or managed in a 'low threat' standard. As detailed in the proposed site plan, all of the vegetation within the site will be cleared to accommodate future commercial development.

The outcomes of this BMP demonstrate that as development progresses, it will be possible for an acceptable solution to be adopted for each of the applicable bushfire protection criteria outlined in the Guidelines. This includes:

- **Location**: There are no specific environmental or topographic assets restricting any works for the purpose of attaining a moderate bushfire hazard level for the land.
- **Siting and Design**: the proposed site layout site can facilitate development sited within the BAL-29 classification or less, based on the proposed site plan layout and assumed low threat management of land within each lot (see AS 3959 s2.2.3.2 (e) and (f) for 'low threat').
- **Vehicular Access**: the proposed site plan layout provides for an interconnected loop road network within the site that will connect to the existing public road network to the south by Farrington Rd and to the west by Murdoch Drive, providing egress to the north, south, east and west.
- **Water**: the development will be provided with a permanent and reticulated water supply to support onsite firefighting requirements.

The management/mitigation measures to be implemented through the proposed development of the site have been outlined as part of this BMP. Following certification, the BAL ratings determined within this BMP (or as part of future stage-based BAL assessments) can be used to support future building approval processes.

Risk Management Plan (RMP)

The proposed development of a 'service station' as a part of the commercial development of the site, meets the SPP 3.7 definition of a 'high-risk' development. Such developments are those which may present a heightened potential to ignite a bushfire, increase its duration and intensity and may expose the community, firefighters and the environment to dangerous, uncontrolled substance. The BAL assessment indicates that the centrally located service station will be subject to a determined BAL rating of 12.5 as a part of a post-development scenario.

A RMP has been provided in **Appendix B** to address the requirements of cl.5.6 and support the proposed development of the service station. A Risk Management Plan is not an operational plan but is an analysis of the suitability of the site to accommodate the proposed development. The Plan has been prepared having regard to AS/NZS ISO 31000:2018 *Risk management – principles and guidelines* and the Office of Bushfire Risk Management's (OBRM) community risk planning guidelines.

Bushfire Emergency Evacuation Plan (BEEP)

The proposed respite care facility as a part of the commercial development of the site, meets the criteria of a 'vulnerable' land use in accordance with the definitions provided in SPP 3.7 and the Guidelines. The building will accommodate groups of elderly residents who have a reduced physical and mental ability to respond in a bushfire event. The BAL assessment indicates that the classified scrub vegetation (Class D) and grassland vegetation (Class G) to the east of the site will result in a portion of the respite care building being subject to a BAL rating of BAL – 29 and BAL—19, however the majority of the building will be subject to a BAL rating of BAL— 12.5 as a part of a post development scenario.

Consistent with a strategic level document this BMP has undertaken the analysis of an emergency evacuation plan, and the ability to safely evacuate from any vulnerable development from the site. Subsequent development applications will be required to provide an operational level emergency management plan when the building arrangement and the number people anticipated to be present

is known. In addition, the preparation and approval of an emergency evacuation plan is also a requirement of the *Aged Care Act 1997* (which guide approval for these types of facilities) with bushfire considerations able to be accommodated as part of this process. Considerations for bushfire emergency evacuation have been addressed in accordance with Section 5.5.2 of the Guidelines.

The strategic assessment completed as part of this BMP indicates that an emergency evacuation plan can be implemented.

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List of Abbreviations

Table A1: Abbreviations – General terms

General terms	
AHD	Australian Height Datum
AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BEEP	Bushfire Emergency Evacuation Plan
BMP	Bushfire Management Plan
BPAD	Bushfire Planning and Design
EEP	Emergency Evacuation Plan
ESL	Emergency Services Levy
FDI	Fire Danger Index
FZ	Flame Zone
RMP	Risk Management Plan

Table A2: Abbreviations – Organisations

Organisations	
DBCA	Department of Biodiversity Conservation and Attractions
DoW	Department of Water (now known as Department of Water and Environment Regulation)
DFES	Department of Fire and Emergency Services
OBRM	Office of Bushfire Risk Management
SES	State Emergency Services
WAPC	Western Australian Planning Commission

Table A3: Abbreviations – Legislation and policies

Legislation	
AC Act	*Aged Care Act 1997*
Guidelines	*Guidelines for Planning in Bushfire Prone Areas version 1.3 (WAPC and DFES 2017)*
SPP 3.7	*State Planning Policy 3.7 Planning in Bushfire Prone Areas* (WAPC 2015)

Table A4: Abbreviations – Planning and building terms

Planning and building terms	
AS 3959	*Australian Standard 3959-2018 Construction of buildings in bushfire prone areas*
BCA	Building Code Australia
LPS	Local Planning Scheme
MRS	Metropolitan Region Scheme
ISO 31000:2009	AS/NZS ISO 31000:2009 *Risk management – principles and guidelines*

1 Introduction

1.1 Background

Rhyian Pty Ltd (Rhyian), on the behalf of the landowner Electricity Networks Corporation of 363-365 Wellington Street, Perth (the proponent) are preparing a Development Application for the commercial development of Lot 1001 Murdoch Drive, Murdoch (herein referred to as 'the site'). The site is 1.49 hectares (ha) in size and is located within the City of Melville, approximately 15 kilometres (km) south of Perth, as shown in **Figure 1**. The site is bound by State Energy Commission infrastructure to the north, a hospital laundry facility to the east, Farrington Road to the south and Murdoch Drive to the west. The proposed site plan is provided in **Appendix A.**

The site is identified as a 'bushfire prone area' under the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2019), as shown in **Plate 1**. The Western Australian *Planning and Development Act 2005* requires for any land identified as bushfire prone that an assessment of the bushfire risk affecting the site is undertaken using the methodology described in *Australian Standard 3959-2018 Construction of buildings in bushfire prone areas* (AS 3959) (Standards Australia 2018). The suitability of the land, for the intended land use, is then to be assessed having regard to the determined risk and its compliance with the intent and objectives of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.3* (the Guidelines) (WAPC and DFES 2017).

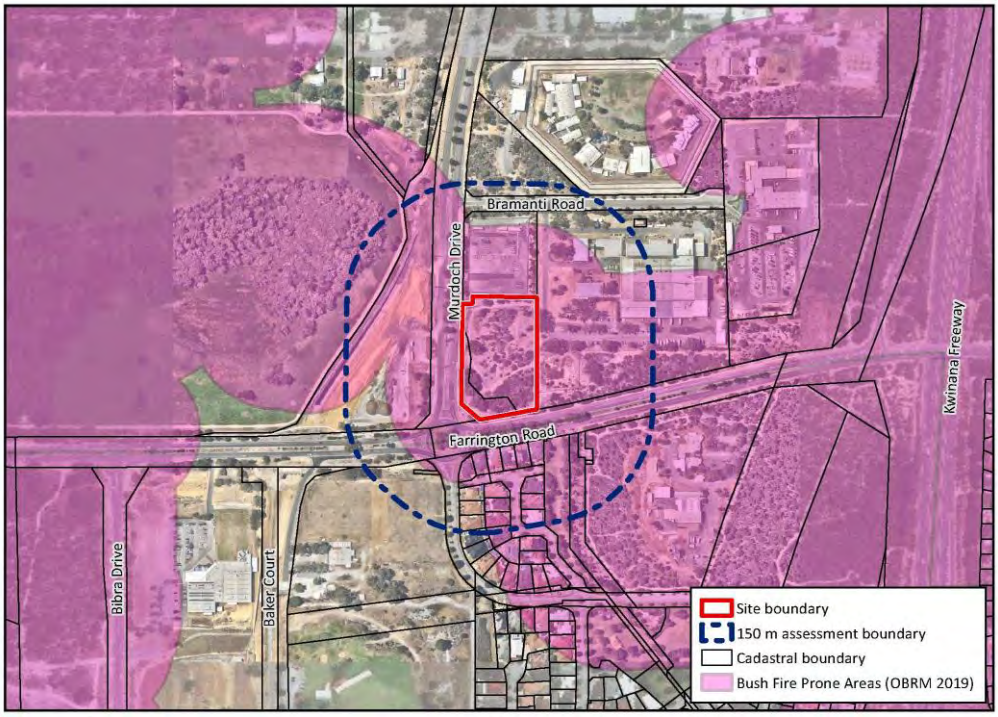


Plate 1: Areas within and surrounding the site identified as 'bushfire prone areas' (as indicated in purple) under the state-wide Map of Bush Fire Prone Areas (OBRM 2019).

1.2 Aim of this report

The purpose of this BMP is to assess bushfire hazards within the site and nearby and ensure that the threat posed by any identified hazards can be appropriately mitigated and managed. It has been prepared to support the proposed development of the site and addresses the requirements of SPP 3.7 (WAPC 2015), the Guidelines (WAPC and DFES 2017) and (AS 3959) (Standards Australia 2009). The document includes:

- An assessment of the existing classified vegetation in the vicinity of the site (within 150 m) and consideration of bushfire hazards that will exist in the post development scenario (**Section 3**).
- Commentary on how the future development can achieve the bushfire protection criteria outlined within the Guidelines (**Section 5**).
- An outline of the roles and responsibilities associated with implementing this BMP (see **Section 6**).

1.3 Statutory policy and framework

The following key legislation, policies and guidelines are relevant to the preparation of a bushfire management plan:

- *Bush Fires Act 1954*
- *Fire and Emergency Services Act 1998*
- *Planning and Development Act 2005* and associated regulations
- *Building Act 2011* and associated regulations
- *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (WAPC 2015)
- *Guidelines for Planning in Bushfire Prone Areas version 1.3* (WAPC and DFES 2017)
- *Australian Standard AS 3959 – 2018 Construction of buildings in bushfire prone areas* (Standards Australia 2018)

1.4 Description of the proposed development

The site 1.48 ha and is located within the suburb of Murdoch, which is an established mixed-use area with residential and institutional land uses. The site is proposed to facilitate a commercial development, according to the proposed site plan provided in **Appendix A**. Development within the site is proposed to include:

- a service station
- three fast food restaurant shops
- a respite care facility
- a vet clinic
- several car parks
- a road that connects with the broader public road network.

The land is currently zoned ‘Urban’ under the Metropolitan region scheme (MRS) and ‘Service Commercial’ under the City of Melville Local Planning Scheme (LPS) No. 6. The proposed development is in alignment with the City of Melville LPS No.6 zoning, which permits commercial and industrial land use activities.

The land-uses associated with the proposed service station and respite care facility meet the definition of 'high-risk' and 'vulnerable' respectively, as provided in SPP 3.7 and the Guidelines. Policy measure 6.6 of SPP 3.7 requires any development applications which may result in the introduction of high-risk land uses in an area likely to be subject to a Bushfire Attack Level (BAL) rating of BAL-12.5 or higher to be supported by a Bushfire Management Plan (BMP) and make provision for emergency evacuation. Policy measure 6.6 has been specifically addressed in this regard and discussed in **Section 5.1.4** within this BMP. Specific operational measures relevant for preparing an emergency evacuation plan for 'vulnerable' land uses have been addressed in accordance with Section 5.5.2 of the Guidelines (WAPC & DFES 2017) and further discussed in **Section 5.1.4** within this BMP.

1.5 Description of land characteristics

The natural topographic contours indicate that the site gently slopes to the east, with an elevation of 21 m Australian Height Datum (AHD) in the western portion of the site, rising to an elevation of a 29 m AHD in the eastern portion. A localized area of depression is located to the east of the site, associated with an existing drainage basin.

The majority of the site is supports remnant vegetation and is currently vacant undeveloped land. Several vehicle tracks transect the center of the site and along the site boundaries.

Land uses surrounding the site include:

- an operating electricity power station within Lot 3001 to the north of the site
- a government hospital laundry facility to the east of the site
- existing residential areas to the south of the site
- an existing Main Roads construction site associated with Murdoch Drive upgrade to the west of the site.

2 Environmental Considerations

In accordance with the *Bushfire Management Plan – BAL Contour* template prepared by the Department of Planning, Lands and Heritage (2018), this BMP has considered whether there are any environmental values within the site or nearby that may require specific consideration through protection, retention or revegetation. To support this, a review of publicly available databases as well as site specific information (where available) has been undertaken, with particular reference to the Shared Location Information Platform (SLIP) databases. A summary of the search results has been provided in **Table 1**.

Based on a review of publicly available aerial photography (Landgate 2019), the majority of the site supported remnant vegetation until 1974, after which clearing for the construction of a drainage basin within the centre of the site occurred. Circa 1995, the basin was filled and revegetated. Several vehicles tracks within the centre and along the perimeter of the site were cleared between 1979 and 1995 which remain until present. A parcel of land adjoining the northern boundary of the site was temporary cleared for the construction of a drainage line to service the electricity generation station, which has since been replanted with vegetation. The remainder of the site supports scattered retained native vegetation.

Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Conservation category wetlands (CCW) and buffer (Geomorphic wetlands, Swan Coastal Plain (DBCA-019))	No	No CCWs are identified within the mapping as occurring within the site. One CCW (UF ID 14645) is located 1 km to the north west of the site.
RAMSAR wetlands (DBCA-010)	No	No RAMSAR wetlands are identified within the mapping as occurring within the site or in close proximity.
Threatened and priority flora (DBCA-036)	No	Based on existing information available for the site, four threatened flora species and eight priority flora species were identified as having potential to occur within the site. No threatened or priority flora species were recorded as occurring within the site during the *Reconnaissance Flora and Vegetation Assessment* conducted Emerge Associates (2019b)

Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases) (continued)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Threatened and priority fauna (DBCA-037)	No	Based on existing information available for the site, six species of conservation significance are considered to have potential to occur, in addition to threatened (endangered) Carnaby's cockatoo and (vulnerable) Forest red-tailed black cockatoo. The *Level 1 Fauna and Targeted Black Cockatoo Assessment* (Emerge Associates 2019a) conducted over the site, concluded the likelihood that the site would provide important habitat for these species is low, due to the relatively poor condition and limited extent of habitat within the site.The site most likely provides potential habitat values for opportunistic and mobile fauna species only.
Threatened ecological communities (DBCA-038)	Potentially	Based on the *Reconnaissance Flora and Vegetation Assessment* conducted by Emerge Associates (2019b), the remnant native vegetation within the site is likely to represent 'Banksia dominated woodlands of the Swan Coastal Plain IBRA region' PEC.
Bush Forever areas (DOP-071)	No	Not applicable.
Clearing regulations – Environmentally Sensitive Areas (ESA) (DWER-046)	No	No ESAs are present over the site or in close proximity to the site. One ESA is located to the north west of the site and is associated with the CCW (UFI 14645).
Swan Bioplan Regionally Significant Natural Areas 2010 (DWER-070)	No	Not applicable.

2.1 Native vegetation – modification and clearing

As development occurs within the site in accordance with the proposed site plan provided in **Appendix A**, all of the existing vegetation will be cleared to accommodate commercial development.

All vegetation outside the site is assumed to remain in its existing condition. No areas of native vegetation outside the site are proposed to be modified or cleared by the proponent as part of the proposed development.

2.2 Revegetation and landscape plans

No active revegetation is anticipated with this proposal. The service station site (see **Appendix A**) will be a constructed surface with maintained lawn/mulched garden areas at its perimeter. A drainage area is to be provided in accordance to the plan provided in **Appendix A**, and together with the remainder of the site, it is expected to be maintained in an excluded or low bush fire fuel (low threat) state; as described s.2.2.3.2 of AS 3959-2009.

Any garden areas created as part of the proposed development will be designed to achieve low threat vegetation in accordance with Section 2.2.3.2 of AS 3959. Ongoing management is likely to include:

- Irrigation of grass and garden beds (where required).
- Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.)
- Application of ground/surface covers such as mulch or non-flammable materials as required.
- Regular mowing/slashing of grass to less than 100 millimetres (mm) in height.

The environmentally sensitive area associated with the conservation category wetland to the north west of the site is classified as Forest (Class A) vegetation, and will continue to be managed by Murdoch University. This vegetation is assumed to remain in its existing condition.

3 Bushfire Assessment Results

Bushfire risk for the site has been appropriately considered both in context to the site and potential impact upon the site.

Appendix Two of the Guidelines provides a description for undertaking contextual hazard level assessment using the vegetation classifications from AS 3959. The purpose is to identify at the strategic level the Bushfire Hazard Level (BHL) and the likely impact and intensity of a bushfire attack.

AS 3959 has been used to determine the impact on the site. Its objective is to reduce the risk of ignition and loss of a building to bushfire. It provides a consistent method for determining a radiant heat level (radiant heat flux) as a primary consideration of bushfire attack. It measures the Bushfire Attack Level as the radiant heat level (kWm^2) over a distance of 100 m.

AS 3959 also prescribes deemed to satisfy construction responses that can resist the determined radiant heat level at a given distance from the fire. It is based on six Bushfire Attack Level (BAL) ratings: BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

The proposed development comprises a total of five Class 6 buildings (service station, vet clinic and food services) and one Class 9C building (respite care facility). Higher construction requirements apply to the Class 9C respite care facility building in accordance with the Building Code of Australia (BCA) where fire resistance properties, including building structural integrity during a fire, are required to be addressed.

3.1 Bushfire attack level (BAL) assessment

In accordance with Appendix Five of the Guidelines, a method 1 BAL assessment has been undertaken to support the proposed development of the site and determine the BAL ratings likely to be applicable to future habitable buildings. This has been based on the vegetation classifications and the effective slope under the vegetation, with the result presented on the BAL contour plan.

Not all vegetation is a classified bushfire risk. Vegetation and ground surfaces that are exempt from classification as a potential hazard are identified as low threat under Section 2.2.3.2 of AS 3959. Low threat vegetation includes the following:

a) Vegetation of any type that is more than 100 m from the site.
b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified.
c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified.
d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified.
e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and

fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and wind breaks.

3.1.1 Assessment inputs

Classifying bushfire hazards takes into account the vegetation structure within the site and surrounding area for a minimum of 100 m, in accordance with AS 3959. The assignment of the vegetation classifications is based on consideration of the fuel layers of different vegetation types. This can be broken-down into five segments as illustrated in **Plate 2** below.

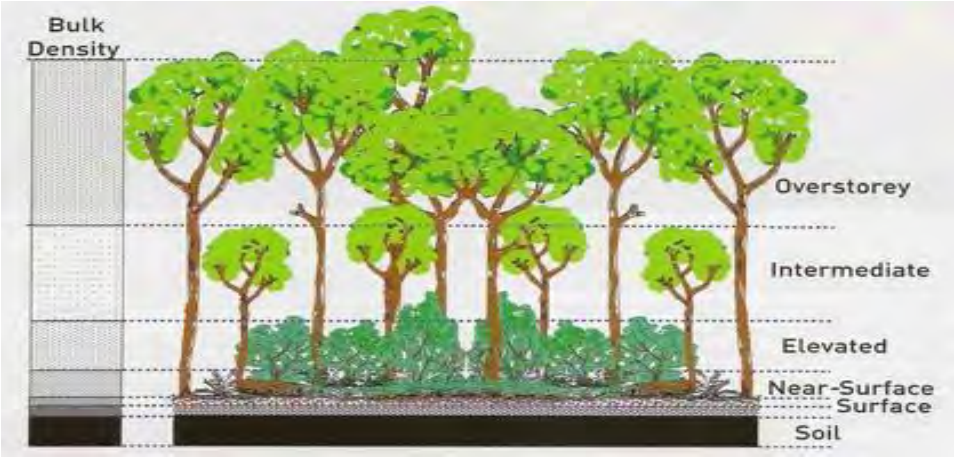


Plate 2: The five fuel layers in a forest environment that could be associated with fire behaviour (Gould et al. 2007)

An assessment of existing vegetation within the site and surrounding 150 m as well as effective slope was undertaken on 24 June 2019 in accordance with AS 3959 and the Guidelines.

Table 2 below outlines:

- The existing AS 3959 vegetation classifications (and associated photo locations), which also are shown in **Figure 2**.
- The existing bushfire hazard level ratings, which are shown in **Figure 3**.
- The post-development AS 3959 vegetation classifications, which are shown in **Figure 4.**
- The effective slope for each area of classified vegetation present in the post-development scenario, which is shown in **Figure 5.**

Table 2: Vegetation classification, effective slope and future management

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
1-2	**AS 3959 classification (Figure 2):** Forest (Class A) **Bushfire hazard rating (Figure 3):** Extreme Forest vegetation was identified within the vacant land to the east of the site adjacent to the hospital laundry facility. This vegetation is characterised *Eucalyptus marginata* (Jarrah) over predominately native understory species. In addition, forest vegetation was identified to the north-west of the site within the conservation category wetland. Areas of forest vegetation are characterised by surface, near-surface, elevated, intermediate and overstorey fuel layers.	 *Photo location 1: forest vegetation located within the vacant land to the east of the site*  *Photo location 2: forest vegetation located within the vacant land to the east of the site*  *Photo location 3: forest vegetation located within the conservation category wetland to the north-west of the site*  *Photo location 4: forest vegetation located within the conservation category wetland to the north-west of the site*	1-2	**AS 3959 classification (Figure 4):** Forest (Class A) **Effective slope (Figure 5):** Flat/upslope Forest vegetation to the east of the site adjacent to the hospital laundry facility will remain as future development progresses. Therefore, this vegetation will pose a permanent bushfire risk to the site. Forest vegetation located to the north-west of the site will also remain in the future as the conservation category wetland continues to be managed/ protected by Murdoch University, and will therefore remain a bushfire risk to the site.

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
3	**AS 3959 classification (Figure 2):** Woodland (Class B) **Bushfire hazard rating (Figure 3):** Extreme Woodland vegetation has been identified within the south west portion of the site bordering the corner of Farrington Road and Murdoch Drive. The woodland vegetation within the site is characterised by *Eucalyptus spp.* growing to a height of 10 – 20 m with predominantly grassy understory and occasional scattered native shrubs. Woodland vegetation is characterised by surface, near-surface and overstorey fuel layers.	 *Photo location 5: woodland vegetation within the southern portion of the site*  *Photo location 6: woodland vegetation within the south western portion of the site*	11	**AS 3959 classification (Figure 4):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The woodland vegetation within the site will be removed and paved over as a part of the proposed development to form public roads and future lots and has been identified as non-vegetated (exclusion clause 2.2.3.2(e)).

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
4	**AS 3959 classification (Figure 2):** Shrubland (Class C) **Bushfire hazard rating (Figure 3):** Moderate Shrubland vegetation has been identified within the central portion of the site. The vegetation is characterised by a monoculture of non-native shrub species; *Chamaelaucium uncinatum* (Geraldton Wax). Shrubland vegetation is predominantly < 1 m in height, with scattered areas of vegetation up to 2 m in height.	 *Photo location 7: shrubland vegetation within the central portion of the site*  *Photo location 8: shrubland vegetation within the central portion of the site*	11	**AS 3959 classification (Figure 4):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The shrubland vegetation within the site will be removed during the proposed development to form public roads and future lots and has been identified as non-vegetated (exclusion clause 2.2.3.2(e)).

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
5	**AS 3959 classification (Figure 2):** Scrub (Class D) **Bushfire hazard rating (Figure 3):** Extreme Scrub vegetation has been identified within the central portion of the site and within the south-western corner of the site. Scrub vegetation is characterised by areas of *Banksia* woodland, dominated by *Banksia spp*. overstorey species with a predominately native understory.	 *Photo location 9: scrub vegetation within the central portion of the site*  *Photo location 10: scrub vegetation within the central portion of the site*  *Photo location 11: scrub vegetation within the south-western corner of the site*  *Photo location 12: scrub vegetation within the south-western corner of the site*	11	**AS 3959 classification (Figure 4):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The scrub vegetation within the site will be removed during the proposed development to form public roads and future lots and has been identified as non-vegetated (exclusion clause 2.2.3.2(e)).

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
6-7	**AS 3959 classification (Figure 2):** Scrub (Class D) **Bushfire hazard rating (Figure 3):** Extreme Scrub vegetation was also identified to the south of the site, within vacant land surrounding the radio transmission tower. In addition, scrub vegetation has been identified within the vacant land to the east of the site, abutting the hospital laundry facility. The scrub vegetation identified outside the site and within the site is of a similar composition. It is characterised by surface, near-surface, elevated, intermediate and low overstorey fuel layers. The majority of the vegetation is between 3 – 4 m in height, with some larger *Banksia* reaching ~ 6 m in height.	 *Photo location 13: scrub vegetation surrounding the radio transmission tower to the south*  *Photo location 14: scrub vegetation surrounding the radio transmission tower to the south*  *Photo location 15: scrub vegetation abutting the hospital laundry facility to the east of the site*  *Photo location 16: scrub vegetation abutting the hospital laundry facility to the east of the site*	6-7	**AS 3959 classification (Figure 4):** Shrub (Class D) **Effective slope (Figure 5):** Flat/upslope The scrub vegetation located to the east and south of the site within undeveloped vacant land will remain as future development progresses. Therefore, this vegetation will pose a permanent bushfire risk to the site.

Table 2: Vegetation classification, effective slope and future management (continued)

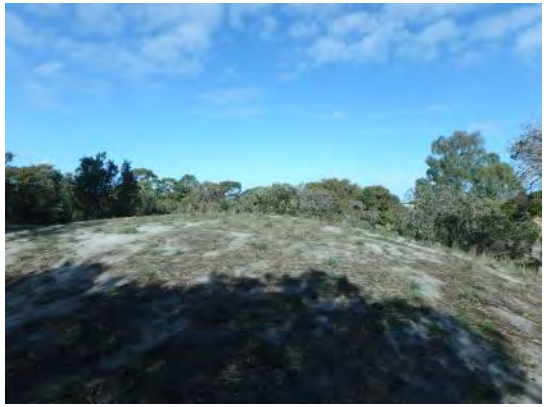
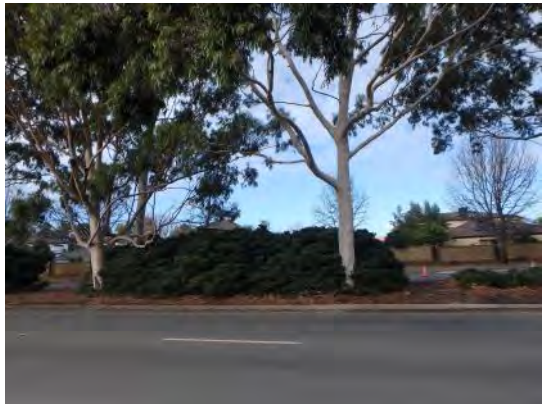
Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
8-9	**AS 3959 classification (Figure 2):** Grassland (Class G) **Bushfire hazard rating (Figure 3):** Moderate Grassland vegetation has been identified within the central portion of the site. Unmanaged grassland vegetation has also been identified within the adjacent drainage basin to the east of the site. This area of grassland is characterised by unmanaged weed species growing to a height of ~ 1 m, with scattered trees providing overstorey canopy. In accordance with AS 3959, this vegetation has been classified based on the understorey, due to the low overall canopy cover.	 *Photo location 17: grassland vegetation located within the central portion of the site*  *Photo location 18: grassland vegetation located within the central portion of the site*  *Photo location 19: grassland vegetation located to the east of the site within the drainage basin*  *Photo location 20: grassland vegetation located to the east of the site within the drainage basin*	9	**AS 3959 classification (Figure 4):** Grassland (Class G) **Effective slope (Figure 5):** Flat/upslope Grassland vegetation within the ajacent drainage basin to the east of the site will remain as future development progresses. Therefore, this vegetation will pose a permanent bushfire risk to the site
			11	**AS 3959 classification (Figure 4):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The grassland vegetation within the site will be removed during the proposed development to form public roads and future lots and has been identified as non-vegetated (exclusion clause 2.2.3.2(e)).

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
11	**AS 3959 classification (Figure 2):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Bushfire hazard rating (Figure 3):** Low. As required under the Guidelines, any areas within 100 m of moderate or extreme hazards have been shown as moderate, to reflect the potential increased risk. Non-vegetated areas such as existing roads, driveways, existing dwellings and areas of mineral earth within and surrounding the site have been excluded in accordance with Clause 2.2.3.2(e) of AS 3959.	 *Photo location 21: non-vegetated sealed Farrington Road located to the south of the site*  *Photo location 22: non-vegetated construction site to the west of the site associated with Murdoch Drive upgrade*  *Photo location 23: non-vegetated State Electricity Commission infrastructure to the north of the site*  *Photo location 24: non-vegetated radio transmission tower infrastructure to the south east of the site*	11	**AS 3959 classification (Figure 4):** Non-vegetated (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The existing maintenance regimes for all existing non-vegetated areas surrounding the site are assumed to continue in the long-term based on current land uses and management arrangements, in accordance with AS 3959 and the City of Melville's *Local Law relating to Firebreaks*. In addition, areas within the site that have been identified as non-vegetated will remain non-vegetated when converted to public roads and/or residential land uses as part of the proposed development of the site.

Table 2: Vegetation classification, effective slope and future management (continued)

Existing conditions (see Figure 2 and Figure 3)			Post development (see Figure 4 and Figure 5)	
Plot no.	**AS 3959 classification and bushfire hazard rating**	**Site photo/s (location points shown in Figure 2)**	**Plot no.**	**AS 3959 classification, effective slope and assumptions**
12	**AS 3959 classification (Figure 2):** Low threat (exclusion clause 2.2.3.2(f)) **Bushfire hazard rating (Figure 3):** Low. As required under the Guidelines, any areas within 100 m of moderate or extreme hazards have been shown as moderate, to reflect the potential increased risk. Low threat vegetation has been identified within the site, associated with cleared vehicle tracks which are regularly maintained. In addition to this, low threat vegetation has been identified to the north within the drainage line abutting the State Electricity Commission infrastructure, to the east within vegetated carpark beds, to the south within residential parkland and to the west within the Murdoch Drive road reserve. This vegetation is maintained in accordance with the City of Melville's *Local Law relating to Firebreaks*.	 *Photo location 25: managed vegetation within the vehicle tracks transecting the centre and following the perimeter of the site*  *Photo location 26: managed vegetation within the road reserve of Murdoch Drive to the west of the site*  *Photo location 27: managed vegetation within the residential parkland area to the south of the site*  *Photo location 28: managed vegetation surrounding the hospital laundry facility to the north east of the site*	12	**AS 3959 classification (Figure 4):** Low threat (exclusion clause 2.2.3.2(e)) **Effective slope (Figure 5):** Not applicable The existing maintenance regimes for all existing non-vegetated areas surrounding the site are assumed to continue in the long-term based on current land uses and management arrangements, in accordance with AS 3959 and the City of Melville *Local Law relating to Firebreaks*.

3.1.1.1 Post development assumptions

The BAL assessment, to determine the predicted BAL ratings applicable to the site, has assumed the following:

- Designated FDI: 80
- Flame temperature: 1090 K
- Vegetation classification: Forest (Class A), woodland (Class B), shrubland (Class C), scrub (Class D) and grassland (Class G) vegetation identified within the post-development scenario, see **Figure 4.**
- Effective slope beneath classified vegetation: Flat/upslope (see **Figure 5**)
- Setback distances: as per Table 2.4.3 in AS 3959 with the relevant distances used to inform the BAL contour plan provided in **Figure 6** and summarised in **Table 3**.

In addition to the above, the following key assumptions have informed this assessment:

- All classified vegetation within the site will be removed to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. This may include:
  - Clearing of vegetation.
  - Modification and ongoing management of vegetation considered a temporary bushfire hazard (i.e. located in the balance lots) to achieve a low threat standard. These areas will be managed by the proponent until development is progressed
  - Design and implementation of future garden areas to achieve a low threat standard. Ongoing maintenance is likely to include:
    - Irrigation of grass and garden beds (where required),
    - Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.),
    - Low pruning of trees (branches below 2 m in height removed where appropriate),
    - Application of ground/surface covers such as mulch or non-flammable materials as required; and
    - Regular mowing/slashing of grass to less than 100 mm in height.
- Areas of low threat vegetation outside the site will continue to be managed and/or considered to achieve low threat in accordance with Section 2.2.3.2 of AS 3959 based on the existing maintenance regimes, and/or as per the City of Melville's *Local Law relating to Firebreaks*.
- Classified vegetation that has been identified outside of the proponents site will remain in its current state (unless stated otherwise), and will therefore remain a bushfire hazard to development within the site.

3.1.2 Assessment inputs

The BAL assessment completed for the site indicates that a BAL rating of BAL-29 or less can be achieved for all future residential buildings based on the indicated spatial layout for the future development (**Appendix A**).

Table 3 provides a summary of the setback distances necessary from the identified classified vegetation to achieve the indicated BAL ratings, with the BAL Contour Plan (**Figure 6**) being a visual

representation of these distances. The setback distances are based on the post-development classified vegetation **Figure 4**), effective slope (**Figure 5**) and are taken from Table 2.4.3 of AS 3959.

Table 3: Setback distances based on vegetation classification and effective slope and Table 2.4.3 of AS 3959, as determined by the method 1 BAL assessment

Post development plot number (see Figure 4)	Vegetation classification (see Figure 4)	Effective slope (see Figure 5)	Distance to vegetation	BAL rating (see Figure 6)
Plot 1-2	Forest (Class A)	Flat/upslope	< 16 m	BAL-FZ
			16 - < 21 m	BAL-40
			21 - < 31 m	BAL-29
			31 - < 42 m	BAL-19
			42 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 6-7	Scrub (Class D)	Flat/upslope	< 10 m	BAL-FZ
			10 - < 13 m	BAL-40
			13 - < 19 m	BAL-29
			19 - < 27 m	BAL-19
			27 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 9-10	Grassland (Class G)	Flat/upslope	< 6 m	BAL-FZ
			6 - < 8 m	BAL-40
			8 - < 12 m	BAL-29
			12 - < 17 m	BAL-19
			17 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW

4 Identification of Bushfire Hazard Issues

From a bushfire hazard management perspective, the key issues that are likely to require management and/or consideration as part of future development within the site include:

- Provision of appropriate separation distance from bushfire hazards to the east of the site to ensure a BAL rating of BAL-29 or less can be achieved at future habitable buildings (built form).
- Ensuring that the site is managed to achieve low threat standards, in accordance with AS 3959 and the requirements of the City of Melville.
- Ensure appropriate separation from classified vegetation to the east of the site, is maintained whilst development progresses.

These issues are considered further in **Section 5.**

5 Assessment against the Bushfire Compliance Criteria

This BMP provides an outline of the mitigation strategies that will ensure that as subdivision and the associated development progresses within the site, an acceptable solution can be adopted for each of the bushfire protection criteria detailed within Appendix Four of the Guidelines (WAPC and DFES 2017). The bushfire protection criteria identified in the Guidelines and addressed as part of this BMP are:

- Element 1: Location of the development
- Element 2: Siting and design of the development
- Element 3: Vehicular access
- Element 4: Water supply.

As part of future development, it is likely that an 'acceptable solution' will be able to address the intent of all four bushfire protection criteria as part of future subdivision of the site. A summary of how this can be achieved and an associated compliance statement for each has been provided in **Table 4.**

Table 4: Summary of bushfire protection criteria and compliance statement

Bushfire protection criteria	Intent	Method of compliance		Proposed bushfire management strategies	Compliance statement
		Acceptable solution	Performance principle		
Element 1: Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.	A1.1 Development location		Based on the bushfire hazard level assessment (**Figure 3**), the site is located in an area of extreme and-moderate bushfire hazard level. As development within the site is progressed, classified vegetation will be removed and development will be located within an area subject to a bushfire hazard level of low or moderate. The service station is located centrally and has a determined BAL rating of 12.5. In addition to this, the infrastructure will be built on a constructed surface and storage tanks will be located below ground. Further consideration of the location of the service station and its ability to comply with and meet the intent of Element 1: Location, discussed in **Appendix B**. The respite care facility is located along the eastern boundary of the site and is classified as BAL – 12.5 with a small portion classified as BAL – 19 and BAL – 29. The facility will be considered a Class 9c building, and while the requirements of *Australian Standard 3959-2018 Construction of buildings in bushfire prone areas (AS 3959)* are not directly applicable to this building class, these types of buildings are subject to higher construction standards in accordance with the Building Code of Australia (BCA). Despite a portion of the building located within BAL – 29, the building will be able to provide sufficient integrity for evacuation. Further consideration of the location of the aged care facility and its ability to comply with and meet the intent of Element 1: Location, discussed in **Appendix C.** The acceptable solution can be satisfied.	Based on the location of buildings and potentially hazardous assets, gas tanks (Key structures), within a constructed surface, equivalent to an APZ, future development would be able to comply with and meet the intent of Element 1: Location.
		Yes.	N/A		
Element 2: Siting and design	To ensure the siting and design of development minimises the level of bushfire impact.	A2.1 Asset Protection Zone		One of the most important bushfire protection measures influencing the safety of people and property is to create an Asset Protection Zone (APZ) around buildings. The APZ is a low fuel area immediately surrounding a building, and can include non-flammable features such as irrigated landscapes, gardens, driveways, public roads and managed public open space. The respite care facility is located along the eastern boundary of the site is classified as BAL – 12.5 with a small portion classified as BAL – 29 and BAL – 19, based on the BAL assessment and the BAL contour plan (see **Figure 6**). The building is appropriately sited so that it will not be exposed to a BAL rating exceeding BAL-29, ensuring that the future habitable building won't be subject to a BAL rating of BAL-FZ or BAL-40.	Based on the outlined management measures, future development would be able to comply with and meet the intent of Element 2: Siting and design.

Table 4: Summary of bushfire protection criteria and compliance statement

Bushfire protection criteria	Intent	Method of compliance		Proposed bushfire management strategies	Compliance statement
Continued from above	Continued from above	Yes	N/A	The service station is located within the centre of the site and has a determined BAL rating of 12.5 based on the BAL assessment and the BAL contour plan (see **Figure 6**). The proposed service station layout provides appropriate separation from the long-term bushfire risks through the provision of roads and managed gardens. The truck bowser canopy over the diesel fuel bowsers, is a non-combustible construction, and any non-combustible material fundamental the structure, i.e. plastic downpipes, shall be shielded from radiant heat. Overall, the acceptable solution can be satisfied.	

Table 4: Summary of bushfire protection criteria and compliance statement (continued)

Bushfire protection criteria	Intent	Method of compliance		Proposed bushfire management strategies	Compliance statement
		Acceptable solution	Performance principle		
Element 3: Vehicular access	To ensure vehicular access serving a subdivision/ development is available and safe during a bushfire event.	A3.1 Two access routes		The commercial precinct is next to an existing four way intersection that provides egress to the north, south, east and west that connects to Farrington Road (to the south of the site) and Murdoch Drive (to the west of the site) as shown in **Appendix A**. The proposed site plan provides for an interconnected public road network within the site which allows suitable egress/access options that would enable safe and effective emergency evacuation.	Based on the outlined management measures, future development would be able to comply with and meet the intent of Element 3: Vehicular access.
		Yes.	N/A		
		A3.2 Public road		The proposed internal road way within the site as well as the existing public roads along the perimeter of the site, can and will comply with the minimum standards outlined in Appendix Four of the Guidelines (WAPC and DFES 2017).	
		Yes	N/A		
		A3.3 Cul-de-sac (including dead-end-road)		Not applicable. No cul-de-sacs are proposed as part of the development of the site . (WAPC and DFES 2017) (WAPC and DFES 2017) (WAPC and DFES 2017) (WAPC and DFES 2017) (WAPC and DFES 2017)	
		N/A	N/A		
		A3.4 Battle-axe		Not applicable. No battle-axe lots are proposed as part of the development of the site.	
		N/A	N/A		
		A3.5 Private driveway longer than 50 m		Not applicable. No private driveways longer than 50 m are proposed as a part of the proposed development.	
		Yes	*N/A*		
		A3.6 Emergency access way		Not applicable. Given the proposed site plan provides for egress to at least two different destinations and the no cul-de-sacs are proposed, emergency access ways are not required as part of the proposed development of the site.	
		N/A	N/A		
		A3.7 Fire service access routes (perimeter roads)		Not applicable. Future development within the site will be provided with appropriate vehicular access, as outlined above, and therefore fire service access routes are not required.	
		N/A	N/A		
		A3.8 Firebreak width		Once development is progressed in accordance with the proposed site plan, the site will be maintained in an excluded low threat bushfire fuel state. This will be in alignment with the City of Melville's *Local Law relating to Firebreaks*	
		Yes.	N/A		

Table 4: Summary of bushfire protection criteria and compliance statement (continued)

Bushfire protection criteria	Intent	Method of compliance		Proposed bushfire management strategies	Compliance statement
		Acceptable solution	Performance principle		
Element 4: Water	To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	A4.1 Reticulated areas		Development is located within an Emergency Services Levy (ESL) Category 1 area, which indicates that bushfire events are responded to by a network of career Fire and Rescue Service stations and the State Emergency Service. Fire response services require ready access to an adequate water supply during bushfire emergencies. The site will connect with a reticulated water supply and will include fire hydrants installed by the developer to meet the specifications of Water Corporation (Design Standard DS 63) (or similar standard, as agreed with the relevant water authority) and DFES. Fire hydrants on land zoned for industrial and commercial purposes are generally required to be sited at or within 100 m of the development. Two existing hydrants are located to the south of the site within Farrington road reserve and within the existing residential area.	Based on the outlined management measures, future development would be able to comply with and meet the intent of Element 4: Water.
		Yes.	N/A		
		A4.2 Non-reticulated areas		Not applicable.	
		N/A	N/A		
		A4.3 Individual lots within non-reticulated areas (only for use if creating 1 additional lot and cannot be applied cumulatively)		Not applicable.	
		N/A	N/A		

5.1 Additional management strategies

5.1.1 Future approval considerations

The BAL assessment within this document is considered to be a conservative assessment of potential bushfire risk posed to the future commercial development within the site based on the assumptions outlined in **Section 3**.

5.1.2 Landscape management

5.1.2.1 Within the site

No areas of public open space are proposed to be developed within the site. However, areas of managed garden along the perimeter of the site areas proposed as a part of the commercial development plan. These areas will be managed to a low threat standard in accordance with the City of Melville's *Local Law relating to Firebreaks* and in accordance with Section 2.2.3.2 of AS 3959. Management of these areas may include:

- Regular mowing/slashing of grass to less than 100 mm in height.
- Irrigation of grass and garden beds (where required).
- Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.) (where required).
- Low pruning of trees (where required).
- Application of ground/surface covers such as mulch or non-flammable materials as required.

5.1.2.2 Surrounding the site

Within existing private residential landholdings

Where indicated as low threat in **Figure 2**, it is assumed that the landholdings surrounding the site will be managed by the applicable landowners in accordance with the City of Melville's *Local Law relating to Firebreaks* in perpetuity and/or in accordance with existing maintenance regimes.

Within existing commercial landholdings

It is assumed the vegetation within all existing commercial and industrial land surrounding the site will remain in its existing condition for the foreseeable future with no formal management. Firebreaks will continue to be implemented in accordance with the City of Melville's *Local Law relating to Firebreaks*.

Existing road reserves

The maintenance of existing public road reserves is assumed to continue to achieve low threat in accordance with Section 2.2.3.2 of AS 3959, in line with the existing maintenance regimes and/or City of Melville requirements. Management of these areas may include:

- Regular mowing/slashing of grass to less than 100 mm in height.
- Irrigation of grass and garden beds (where required).

- Regular removal of weeds and built up dead material (such as fallen branches, leaf litter etc.) (where required).
- Low pruning of trees (where required).
- Application of ground/surface covers such as mulch or non-flammable materials as required.

5.1.3 City of Melville Local Law relating to Firebreaks

The City of Melville has issued a *Local Law relating to Firebreaks* act to provide a framework for bushfire management within the City. The City is able to enforce this order in accordance with Section 33 of the *Bush Fires Act 1954* and landowners will need to ensure compliance with this notice as published. This is likely to include (but is not limited to):

- Particular standards for firebreaks, including location of the firebreak and horizontal and vertical clearances.
- Maintenance of appropriate asset protection zones around buildings and fixed assets within a landholding.
- Maintenance of smaller lots so they are free of flammable materials.

The City of Melville's *Local Law relating to Firebreaks* should be referred to for further detail.

5.1.4 Vulnerable or high-risk land uses

The proposed development of a service station within the site falls within a classification of 'high-risk' as defined by SPP 3.7 and the Guidelines. Such developments are those which present a heightened potential to ignite a bushfire, increase its duration and intensity and may expose the community, firefighters and the environment to dangerous, uncontrolled substance.

The service station is recognised as a 'high risk' land use due to the potential to initiate a bush fire. Policy measure 6.6 of SPP 3.7 outlines a requirement for the preparation of an emergency evacuation plan and/or a risk management plan for any flammable on-site hazards to support a development application for any high-risk land use.

A Risk Management Plan has been prepared having regard to the methodology of Australian Standard ISO 31000 -2009 Risk management – Principles and guidelines and the OBRM Guidelines. These measures ensure that engineered solutions are in place to minimise the ignition and propagation of fire and ensure responsive facilities for fire suppression are in place. The Risk Management Plan is provided in **Appendix B.**

It is concluded that in consideration of both impact upon community assets and a concern to present no elevated complication to bushfire response actions, the station function in the context of the locality, is not without risk, but is within an acceptable range.

The proposed development of a respite care facility within the site will be considered a vulnerable land use given it will be subject to a BAL rating higher than BAL-12.5, in accordance with policy measure 6.6 of State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015) (SPP 3.7). The respite care facility falls under this category because its occupants, due to varying degrees of incapacity associated with the ageing process, are likely to have a reduced physical and mental ability to respond to a bushfire threat.

Where vulnerable land uses are proposed to be developed in an area exposed to a BAL rating greater than BAL-12.5, development applications for these types of land uses are recommended to be supported by a bushfire management plan and an emergency evacuation plan. In accordance with Section 5.5.2 of Guidelines, the specific considerations for an emergency evacuation plan have been deliberated to understand whether the requirements can be addressed operationally without affecting the location or operation of the facility. The Bushfire Emergency Evacuation Plan Considerations are provided in **Appendix C**.

5.1.5 Public education and preparedness

Community bushfire safety is a shared responsibility between individuals, the community, government and fire agencies. DFES has an extensive Community Bushfire Education Program including a range of publications, a website and Bushfire Ready Groups. The DFES publication '*Prepare. Act. Survive.'* (DFES 2014) provides excellent advice on preparing for and surviving the bushfire season. Other downloadable brochures are available from http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/pages/publications.aspx

The City of Melville provides bushfire safety advice to residents available from their website https://www.melvillecity.com.au/our-community/safety-and-emergency-management. Professional, qualified consultants also offer bushfire safety advice and relevant services to residents and businesses in high risk areas in addition to that provided in this BMP.

In the case of a bushfire in the area, advice would be provided to residents by DFES, Department of Biodiversity Conservation and Attractions (DBCA) and/or the City of Melville on any specific recommendations with regard to responding to the bushfire, including evacuation if required. However, it is highly recommended that future residents make themselves aware of their responsibilities with regard to preparing for and responding to a potential bushfire that may impact them, their family and property, regardless of the BAL rating their properties are subject to.

6 Responsibilities for Implementation and Management of Bushfire Measures

Table 5 outlines the future responsibilities of the proponent, future users of the site, and the City of Melville associated with implementing this BMP with reference to ongoing bushfire risk mitigation measures for existing land uses (through compliance with the City of Melville's *Local Law relating to Firebreaks*) or future mitigation measures to be accommodated as part of the subdivision process. These responsibilities will need to be considered as part of the subsequent development and implementation process.

Table 5: Responsibilities for the implementation of this BMP

Management action	Timing
Developer/landowner	
Undertake development of the site in accordance with the proposed site plan	As part of development
Any temporary storage of hazardous materials, including tyres, oil and other products should be in accordance with the requirements for storage of dangerous goods and not be exposed to contact with burning embers. Individual vessels should be closed and materials stored under cover.	As part of development
Storm water is to be retained on site and addressed through a network of treatment and conveyance swales and a series of flood storage areas. Any fuel spills and the proceeds from firefighting are to be retained on site and the basins rehabilitated, to protect the community and the environment from exposure to hazardous substances.	As part of development
Ensure the site is maintained to a low threat standard (in accordance with Section 2.2.3.2 of AS 3959) as part of construction and ongoing operation	As part of development and ongoing
Maintain all infiltration and landscaped buffer areas within the site to a low threat standard in accordance with Clause 2.2.3.2(f) of AS 3959. This should include (as a minimum): • Regular weeding and removal of dead plants and fine fuel loads (i.e. combustible dead • Material less than 6 mm in thickness), to achieve two tonnes per hectare or less. • Regular mowing of grass/turf, where installed. • Irrigation of garden beds where required.	As part of development and ongoing
Maintain onsite fire response equipment (as per the requirements of AS 1940 and other applicable standards), to ensure safe and efficient use as required in the event of a site fire or bushfire.	As part of development and ongoing
Undertake regular staff training in the use of all fire response equipment including bushfire fighting and in the implementation of bushfire evacuation procedures	Ongoing
Throughout the bushfire season flammable materials and objects should not be stored or placed against the building where bushfire embers may cause ignition and direct flame contact against the building. On Extreme and Catastrophic fire days inspection should be undertaken to remove the accumulation of any material against walls and ensure any potentially flammable materials are not exposed, bin lids should be closed.	Ongoing
Following completion of detailed design and construction of the facility, the Emergency Response Guide prepared in accordance with the Dangerous Goods Safety Act 2004 (and associated regulations) and in consultation with the local fire station, should include bushfire and its associated site management and evacuation procedures. The Emergency Response Guide should be regularly revised and updated as required.	As part of development and ongoing

Table 5: Responsibilities for the implementation of this BMP (continued)

Management action	Timing
City of Melville	
Monitoring vegetation fuel loads in adjacent private landholdings for compliance with the requirements of the City of Melville's *Local Law relating to Firebreaks* and Section 33 1(b) of the *Bush Fires Act 1954* and liaising with relevant stakeholders to maintain fuel loads at minimal/appropriate levels.	Ongoing, as required
Providing fire prevention and preparedness advice to landowners upon request, including the *Homeowners Bush Fire Survival Manual: Prepare, Act, Survive* (or similar suitable documentation) and the *City of Melville's Local Law relating to Firebreaks.*	Ongoing, as required
Maintaining public road reserves under their management to appropriate standards, where required/applicable.	Ongoing, as required
Water Corporation	
The Water Corporation is responsible for the ongoing maintenance and repair of water hydrants.	Ongoing, as required.
Ensure appropriate fire hydrants are sited at or within 200 m of commercial development	As part of building design and construction

7 Applicant Declaration

7.1 Accreditation

This BMP has been prepared by Emerge Associates who have been providing bushfire risk management advice for more than six years, undertaking detailed bushfire assessments (and associated approvals) to support the land use development industry.

Anthony Rowe is a Fire Protection Association of Australia (FPAA) Level 3 Bushfire Planning and Design (BPAD) accredited practitioner (BPAD no. 36690) with over nine years' experience and is supported by a number of team members who have undertaken BPAD Level 1 and Level 2 training and are in the processing of gaining formal accreditation.

7.2 Declaration

I declare that the information provided is true and correct to the best of my knowledge.

Signature:

Name: Anthony Rowe

Company: Emerge Associates

Date: 25 July 2019

BPAD Accreditation: Level 3 BPAD no. 36690

8 References

8.1 General references

Department of Fire and Emergency Services (DFES) 2014, *Prepare. Act. Survive.*, Perth. August 2014.

Emerge Associates 2019a, *Level 1 Fauna and Targeted Black Cockatoo Assessment - Lot 1001 Murdoch Drive Murdoch*, EP19-068(05)--007 MS, Version A.

Emerge Associates 2019b, *Reconnaissance Flora and Vegetation Assessment - Lot 1001 Murdoch Drive Murdoch*, EP19-068(04)--002 SKP Version A.

Standards Australia 2009, *AS 3959-2009 Construction of buildings in bushfire-prone areas*, Sydney.

Standards Australia 2018, *AS 3959-2018 Construction of buildings in bushfire-prone areas*, Sydney.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Perth.

Western Australian Planning Commission and Department of Fire and Emergency Services (WAPC and DFES) 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3*, Western Australia. December 2017.

8.2 Online references

Landgate 2019, *Map Viewer*, viewed May 2019, https://www0.landgate.wa.gov.au/maps-and-imagery/interactive-maps/map-viewer

Office of Bushfire Risk Management (OBRM) 2018, Map of Bush Fire Prone Areas, viewed June 2019, https://maps.slip.wa.gov.au/landgate/bushfireprone/

Figures

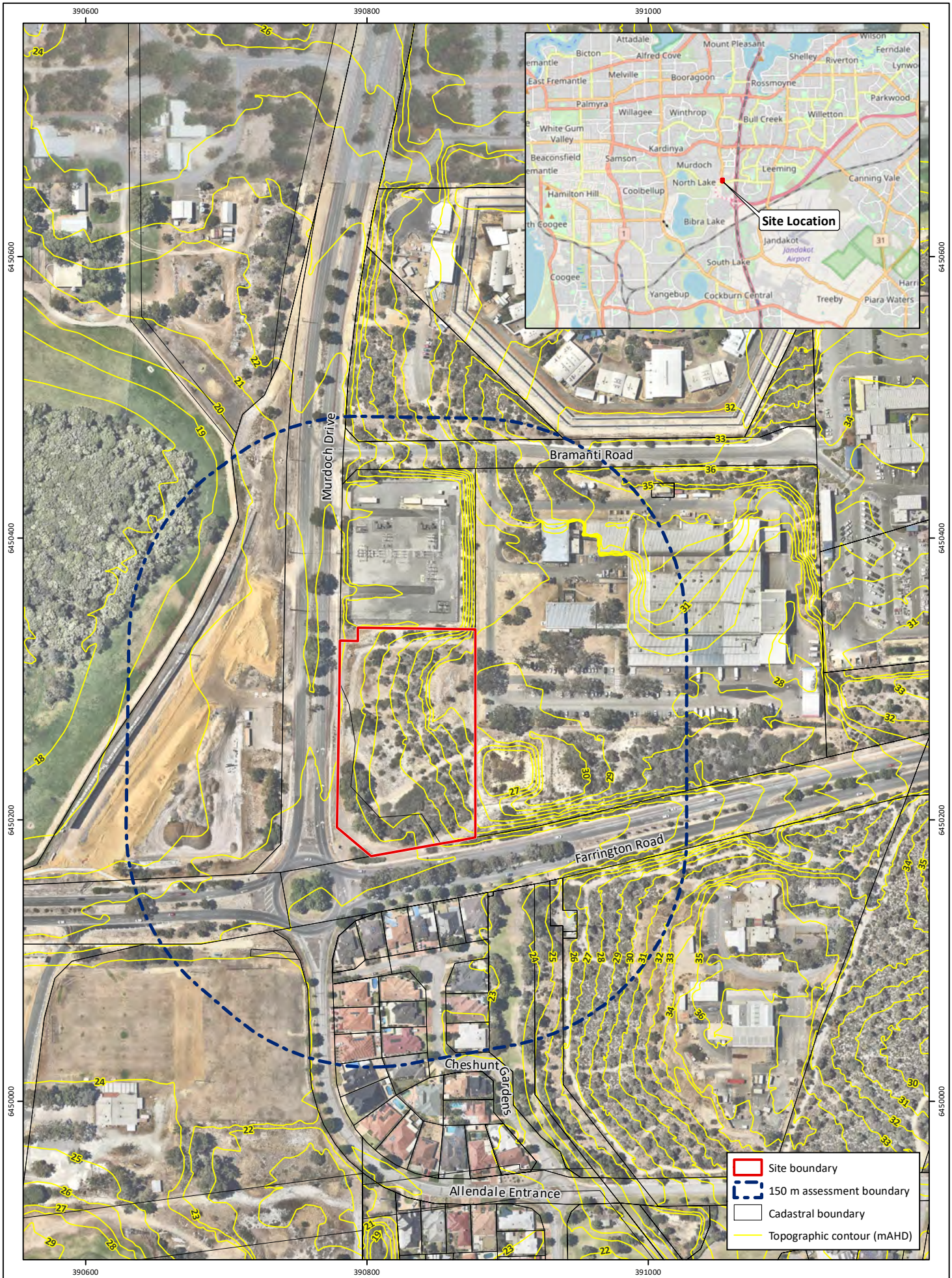


Figure 1: **Site Plan and Topographic Contours**

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number: EP19-068(01)--F15

Drawn:	KNM
Date:	24/07/2019
Checked:	BRB
Approved:	ACW
Date:	25/07/2019

N

0 50 100
Metres

Scale: 1:3,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

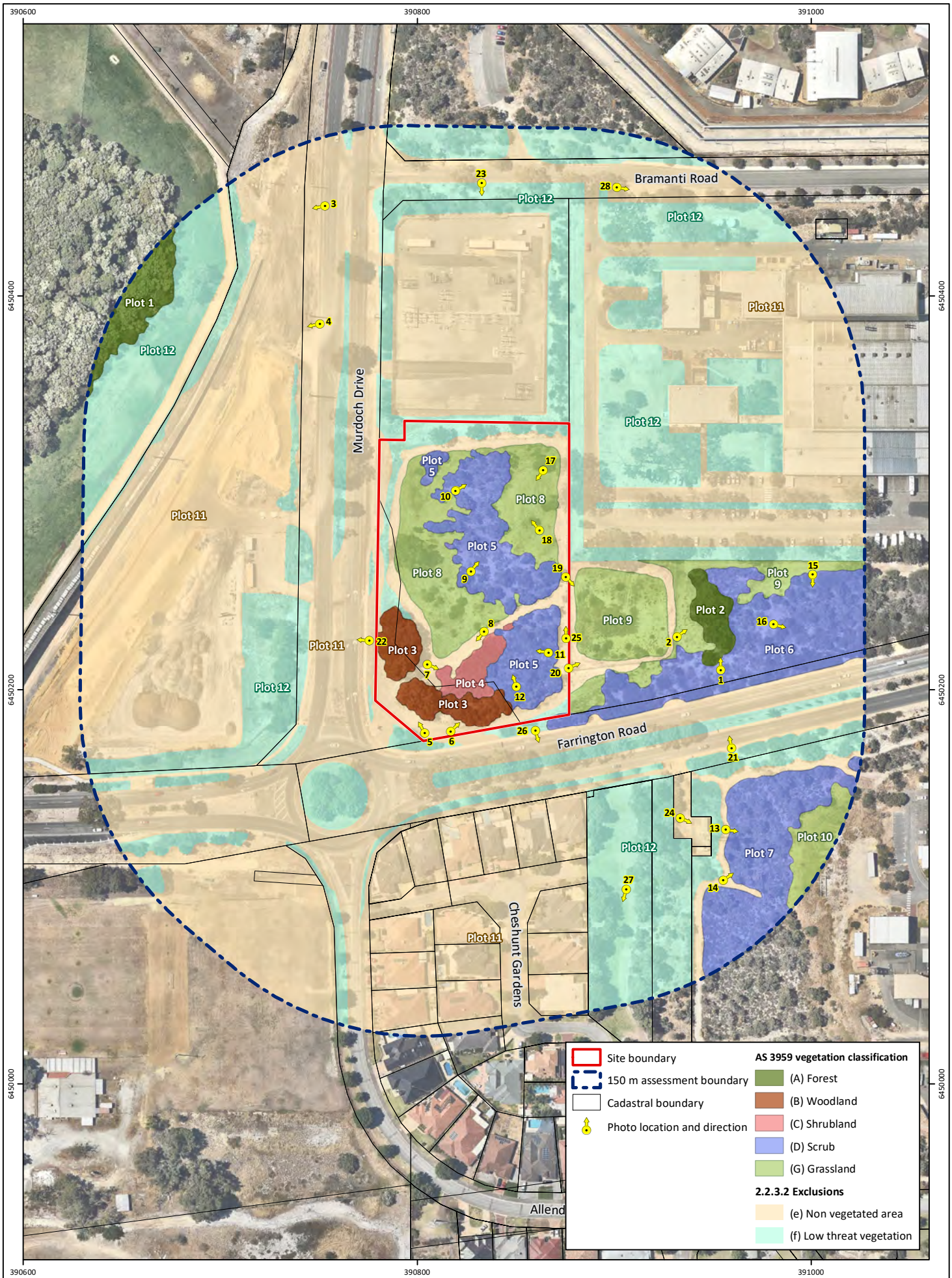


Figure 2: **Existing Site Conditions – AS 3959 Vegetation Classifications**

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number: EP19-068(01)--F16

Drawn:	KNM
Date:	24/07/2019
Checked:	BRB
Approved:	ACW
Date:	25/07/2019

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Metres

Scale: 1:2,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

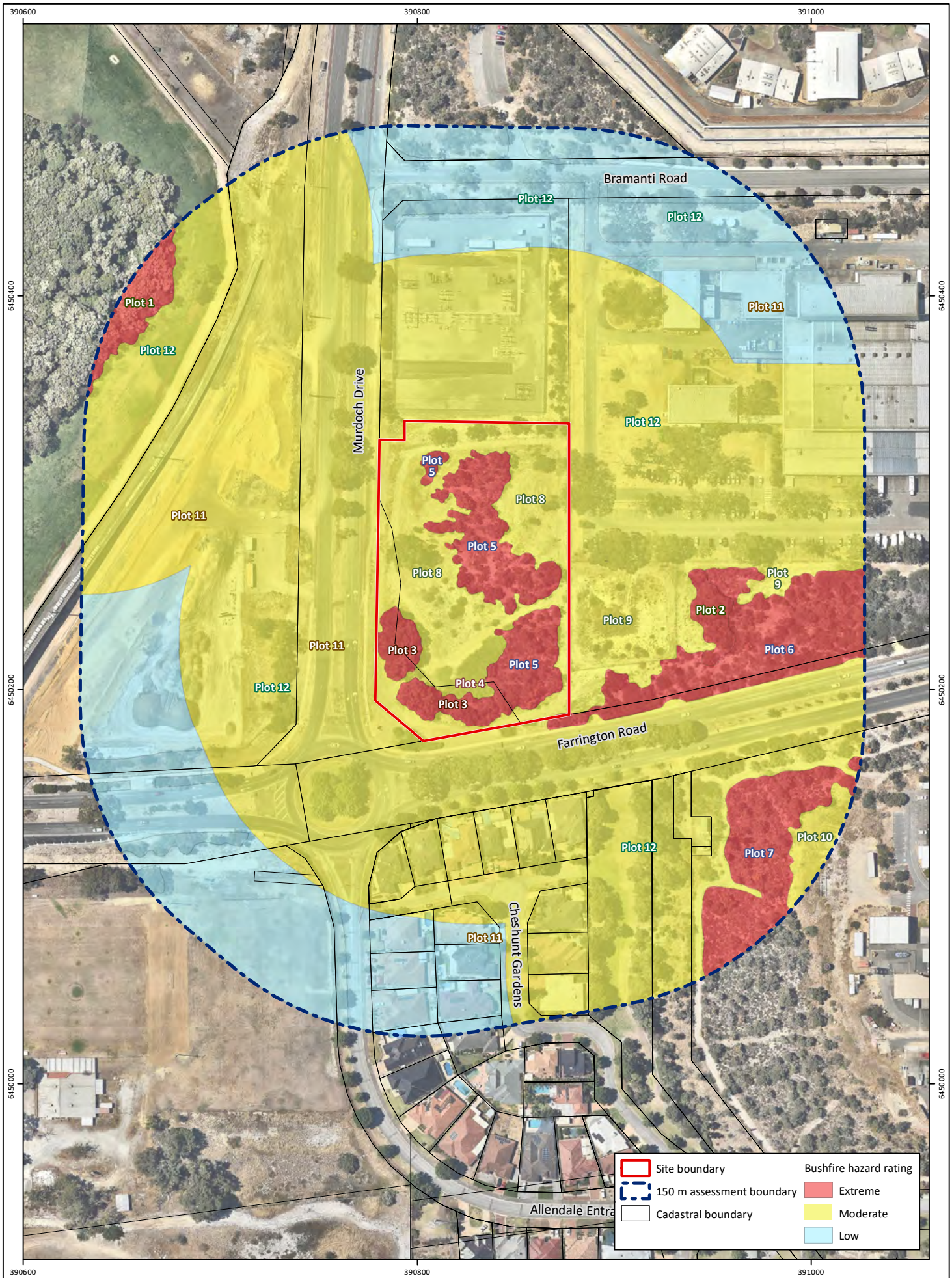

Figure 3: **Existing Site Conditions – Bushfire Hazard Level**

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number: EP19-068(01)--F17

Drawn:	KNM
Date:	24/07/2019
Checked:	BRB
Approved:	ACW
Date:	25/07/2019

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Scale: 1:2,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

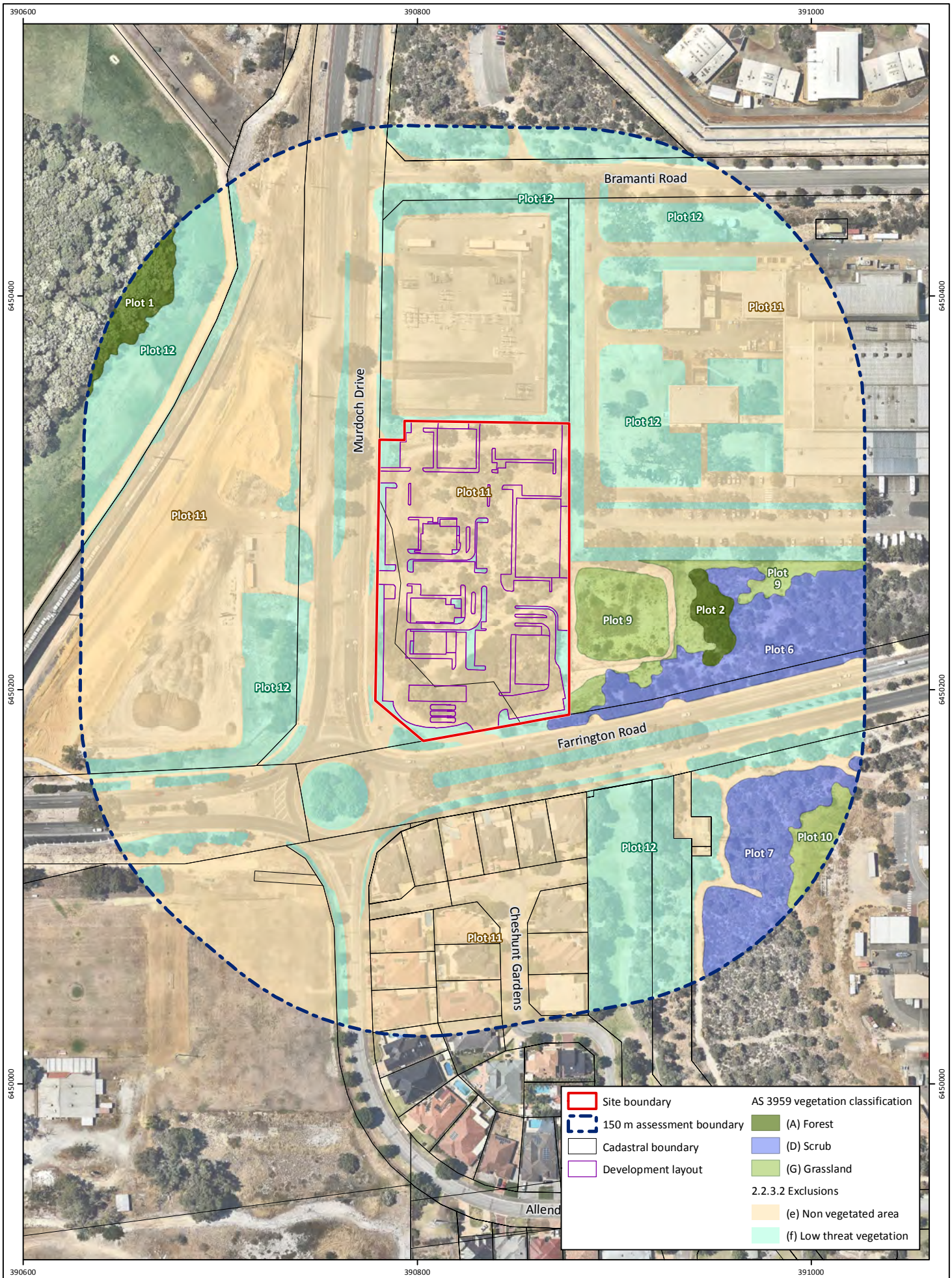

Figure 4: **Post Development Conditions – AS 3959 Vegetation Classifications**

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number: EP19-068(01)--F18a

Drawn:	KNM
Date:	29/07/2019
Checked:	BRB
Approved:	AJR
Date:	29/07/2019

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Metres

Scale: 1:2,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

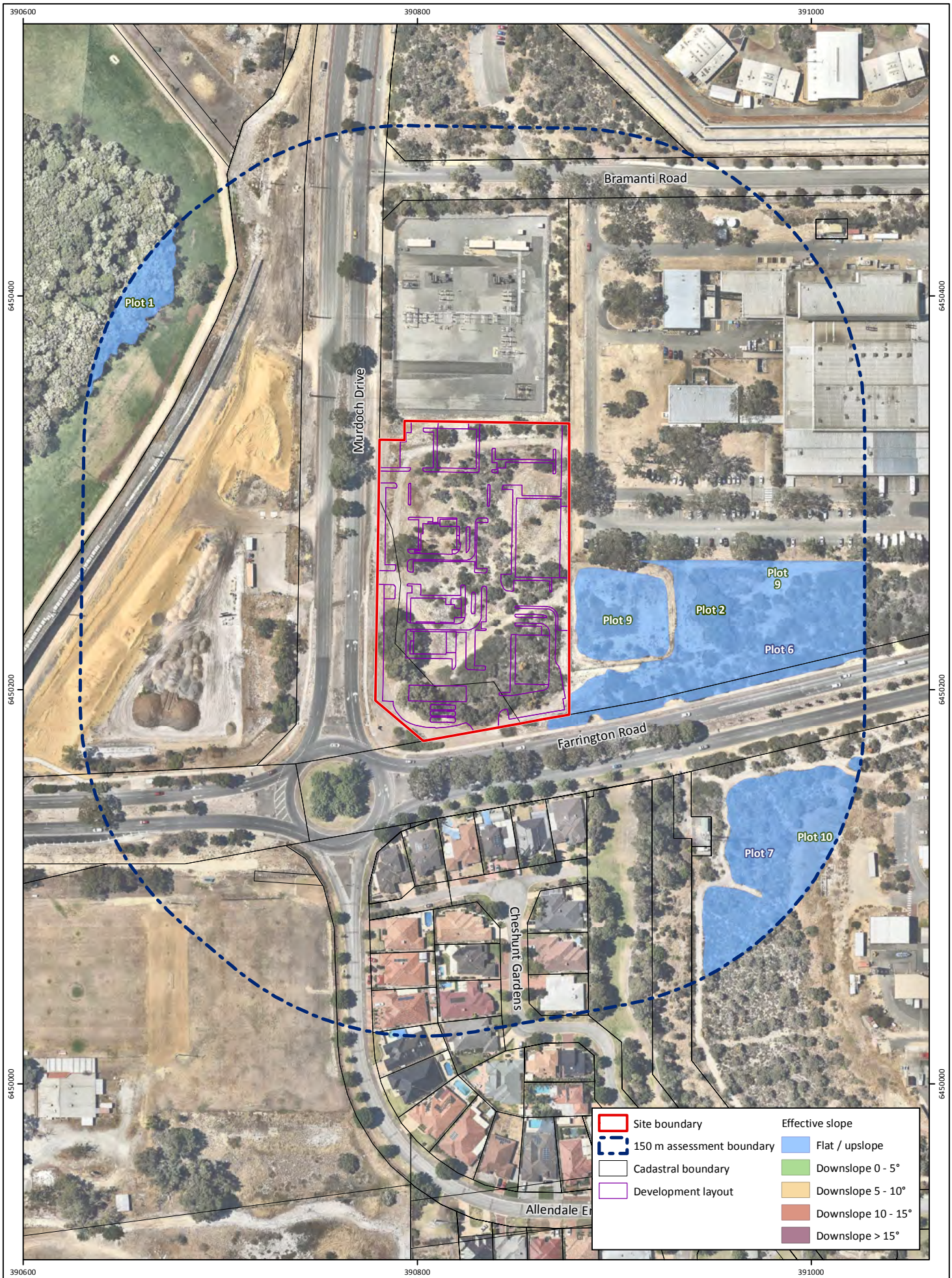

Figure 5: **Post Development Conditions – Effective Slope**

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number: EP19-068(01)--F19a

Drawn:	KNM
Date:	29/07/2019
Checked:	BRB
Approved:	AJR
Date:	29/07/2019

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Metres

Scale: 1:2,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

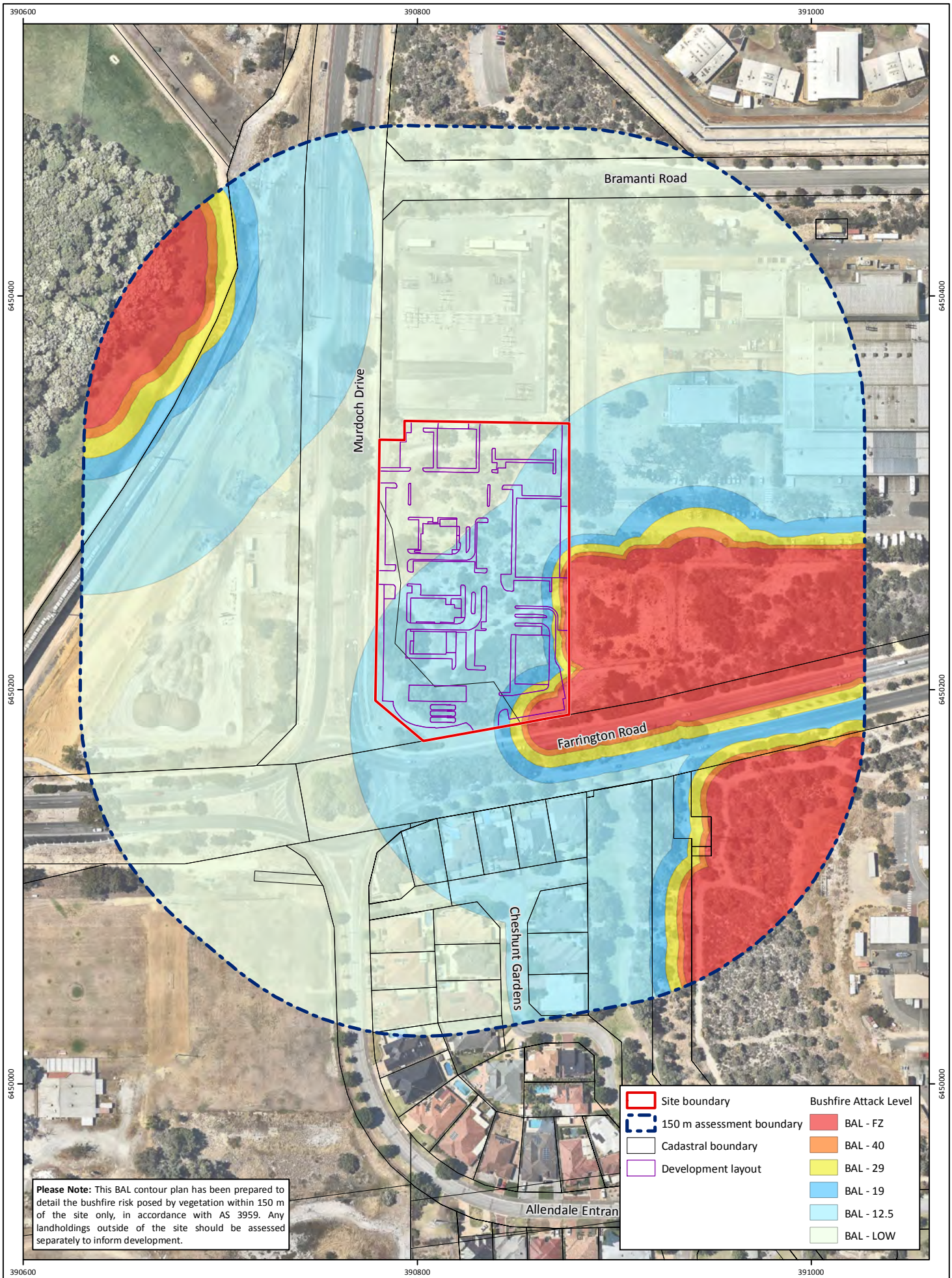


Figure 6: Bushfire Attack Level Contour Plan

Project: Bushfire Management Plan
Lot 1001 Murdoch Drive Development Application Support

Client: Rhyian Pty Ltd

Plan Number:
EP19-068(01)--F20a

Drawn:	KNM
Date:	29/07/2019
Checked:	BRB
Approved:	AJR
Date:	29/07/2019

N

0 20 40 60
Metres

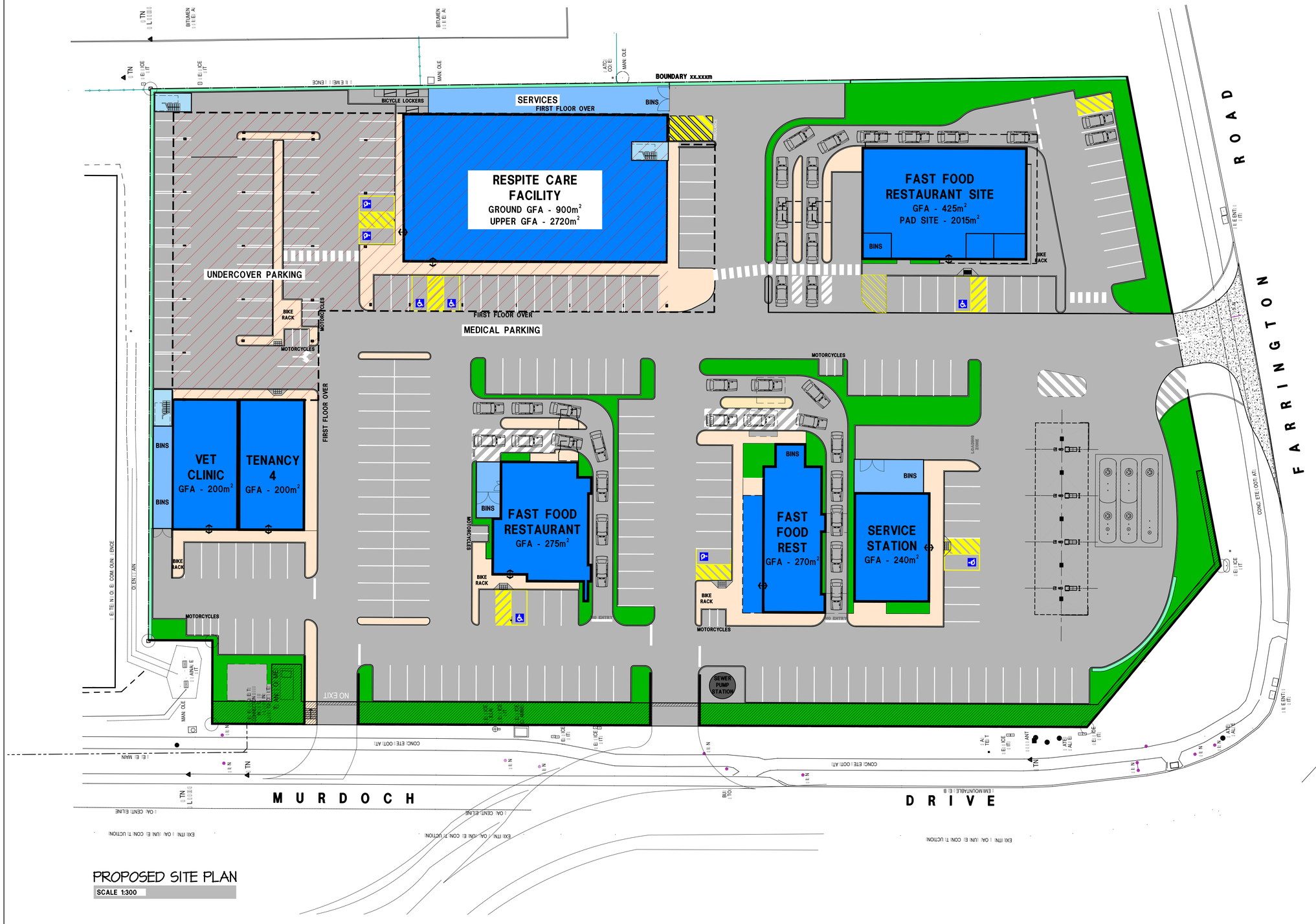
Scale: 1:2,500@A4

GDA 1994 MGA Zone 50

emerge ASSOCIATES

Appendix A

Proposed Site Plan



PROPOSED SITE PLAN

SCALE 1:300

LEGEND

- NEW LEASABLE BUILDING AREA.
- NEW COMMON / SERVICES BUILDING AREA.
- NEW BITMEN PAVING.
- NEW PAVING
- NEW SELECTED NATIVE 'WATERWISE' LANDSCAPING - REFER TO LANDSCAPING PLAN
- SHADE TREE - REFER TO LANDSCAPING PLAN
- EXISTING SITE SURVEYED LEVELS - REFER TO SITE CONTOUR AND FEATURE SURVEY DRAWING 5641-1 FOR DETAILS.
- RL 49.85 PROPOSED DESIGN LEVELS - REFER TO CIVIL ENGINEERS DRAWING HES/75-50 (A) FOR DETAILS.

ONSITE PARKING

PARKING

MARKED BAYS	206
DRIVE THRU STACK	35
FUEL PUMPS	8
TOTAL (INCLUDES 8 DISABLED BAYS)	269
MOTORCYCLE BAYS	12
BICYCLE STORAGE	6
BICYCLE RACKS	16

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

166 STIRLING HIGHWAY
NEDLANDS WA 6009

PO BOX 199
NEDLANDS WA 6909

PHONE - 9386 6699
FAX - 9386 6700
admin@hindley.com.au

DEVELOPMENT APPLICATION

HINDLEY & ASSOCIATES P/L AS TRUSTEE FOR HINDLEY TRUST ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
PRE	22.01.19	PRELIMINARY ISSUE	CPH	CPH
-				
-				
-				
-				
-				

A1 SHEET

PROPOSED COMMERCIAL DEVELOPMENT LOT 1001 & 3001, CNR MURDOCH DRIVE AND FARRINGTON ROAD, MURDOCH FABRIC PROPERTY

Date	22.01.19
Design	RCP
Drawn	RCP
Checked	SDS
Scale	1:200
Job No.	0679
Dwg	DA02
Rev	PRE[2]

Appendix B

Risk Management Plan

Appendix B: Risk Management Plan

1 Introduction

This Risk Management Plan (RMP) has been prepared for a service station (proposal), at lot 1001 Murdoch Road, Murdoch. The site is located within the suburb of Murdoch, characterised as an established mixed-use area with residential and institutional services.

The purpose of the RMP is to determine the suitability of the site to accommodate the proposed development.

The proposal is a component of the overall commercial development of the site (refer to **Attachment 1** which includes:

- a service station
- three fast food restaurant shops
- a respite care facility
- a vet clinic
- several car parks
- a road that connects with the broader public road network.

The service station is identified as a 240m^2 convenience Store, with a bowser canopy to the east and underground fuel tanks and breather vents located near the boundary with Farrington Road. No onsite mechanical repairs are proposed nor is an above ground gas tank proposed, however a barbeque gas bottle exchange locker is proposed.

The site is identified as within a 'bushfire prone area' under the state-wide *Map of Bush Fire Prone Areas* prepared by the Office of Bushfire Risk Management (OBRM 2019). All development within an area identified as bushfire prone is subject to consideration under the *Planning and Development Act 2005,* and in turn State Planning Policy 3.7 – *Planning in Bushfire Prone Areas* (SPP 3.7) and its Guidelines. Pursuant to cl. 6.6. in SPP 3.7 and its definitions, a service station is classed as a 'high-risk' land use and one that requires justification through an RMP.

This document presents an assessment of the proposed service station, as a high-risk development, and has followed the requirements of SPP 3.7 and the Guidelines for Planning in Bushfire Prone Areas (WAPC, V1.3 December 2017). This includes assessment against each of the Bushfire Protection Criteria. As part of this assessment, and as an additional consideration applying to a high-risk land use, regard has also been given to AS/NZS ISO 31000:2009 *Risk management – principles and guidelines* and the Office of Bushfire Risk Management's (OBRM) community risk planning guidelines.

A method 1 Bushfire Attack Level (BAL) assessment has been undertaken as part of the BMP to determine the maximum heat flux to which proposed industrial lots within the site will be exposed in the assumed post development scenario. A BAL contour plan has been prepared based on the outcomes of the BAL assessment and is shown in **Plate 1** below.

The land adjoins scrub and grassland to the west, and grassland and scrub also across Farrington Road to the north west. Other than the perimeter landscaping with Murdoch Drive and Farrington Road the site is a paved excluded surface that drains to a series of sumps.

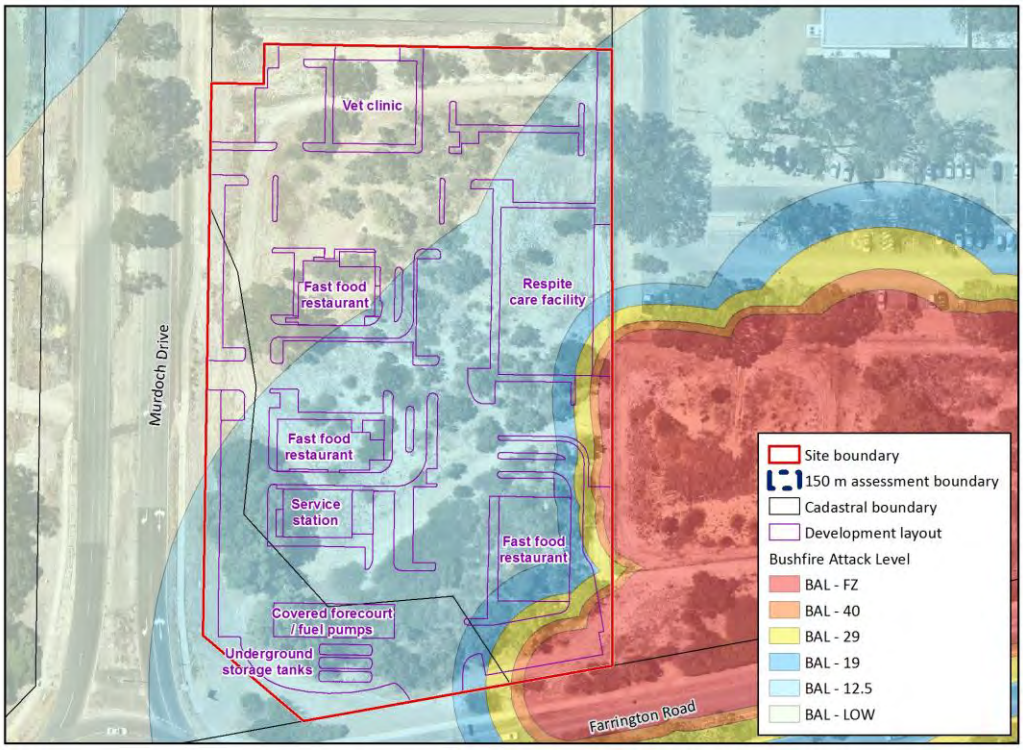


Plate 1: BAL contour plan

2 Risk Management Plan

2.1.1 Risk Assessment Method

The requirements of SPP 3.7 is to examine risk from the perspective of contributing to the development of a bushfire and its broader consequence as well as any particular difficulties a bushfire may pose to firefighting at the site and the potential exposure of the community and the environment to hazardous materials as a result of a fire at the site.

To provide context to the broader consequence this assessment has applied the methodology of the OBRM Guidelines risk assessment guidelines to examine the potential risk to community assets considered part of the function and values of the community. These assets are categorised as Human settlement (protecting social function), Economic assets (protecting the economic function of the community), Environmental (protecting areas of ecological significance) and Cultural (protecting Aboriginal and European heritage).

In order to determine the immediate risk, both ignition at the site and the consequence of a bushfire acting upon the site, a risk assessment undertaken based AS/NZS ISO 31000- 2018. The key features are a methodical and orderly approach to identifying risk through:

1. Establishing Context;
2. Risk identification;
3. Risk Analysis /Risk Evaluation; and
4. Risk Treatment.

The objective is to identify various causes and provide a countering effect (control) to each cause, to arrive at an acceptable residual risk. The approach also emphasises communication and consultation at each step and advocates continuous improvement. The analysis undertaken for this BMP is at a point in time, and should be periodically reviewed for effectiveness and adaption to changing circumstances.

2.1.2 Establishing the context

The risk context to be examined for a ‘high-risk’ development is to examine its associated activities and its potential to ignite a bushfire, and attending community consequences, and from the opposite perspective, the consequence of a bushfire acting upon the proposed activity, and its particular features that may prolong the duration of fighting a fire at the site or present additional hazards to fire fighters, and the community which may include toxic fumes or contaminated runoff from the firefighting activities.

This investigation therefore examines the potential to initiate a bush fire and the controls required, and the potential impact upon the activity and the controls required.

2.1.2.1 Site context

The land is currently zoned 'Urban' under the Metropolitan region scheme (MRS) and 'Service Commercial' under the City of Melville (CoM) Local Planning Scheme (LPS) No. 6. The proposed development is in alignment with the CoM LPS No.6 zoning, which permits a range of land uses including commercial and industrial activities.

Land uses surrounding the site include:

- an operating electricity power station within the adjacent Lot 3001 to the north of the site;
- a government hospital laundry facility to the east of the site;
- existing residential areas to the south of the site; and
- an existing Main Roads construction site associated with Murdoch Drive upgrade to the west of the site and undeveloped land Zoned R40.

In relative terms the site adjoins broken grassland and scrub and it is compartmentalised. Whilst under the right conditions a fire can carry through broken vegetation, a fire emanating from the site because of the compartmentalised nature vegetation is restricted from becoming expansive. This applies equally for a fire reaching the site. The context is therefore a localised one.

2.1.3 Risk identification

2.1.3.1 Potential for a fire at the site to escape

A fuel spill, vaporisation and contact with an ignition source, i.e. hot exhaust, a poorly maintained vehicle, cigarette, coincidence with an electrical failure or undertaking of building maintenance/works involving welding/grinding.

A fuel spill could arise from:

- Malfunctions:
- Pump malfunction
- Tanker fuel transfers
- Storage tank failure
- Vapour entrapment
- Car breakdown – spill of fuel
- Client filling mishaps, over fill, spilling between containers.

The potential for any of the above to occur are no greater at this site than any other service station, the key issue is whether a fire from such an event is likely to ignite adjoining land to spread fire through unmanaged vegetation.

2.1.3.2 Impact of Bushfire on the site

Potential for Bushfire impact, primarily from ember:

- Poorly maintained bowsers
- Storage tanks
- Breather pipe vapours

- Merchandise on display
- Temporary storage of tyres and oils other wastes prior to transfer from the site.
- Coincidental timing of a fuel spill.

2.1.4 Risk Analysis/Evaluation

2.1.4.1 Bushfire affecting the site

Likelihood

The service station is located within a localised area of grassland and scrub vegetation. Over time the adjoining land (west R40) will be developed for residential purposes. Leaving only isolated pockets, the closest being the draining reserve to the east.

Bushfires are mostly the result of human intervention and the development of the locality will increase the amount of activity within the area, although a fire in the commercial development would be more likely an urban/structural fire.

Consequence

Should a fire arrive at the site the building materials and structures are fire resistant and the ground surface is paved. Storage tanks are all located below ground protected from radiant heat and mechanically protected from the bowsers. The convenience store building is located within areas BAL 12.5. Ignition of the site is unlikely if it is maintained, i.e. fuel spills are cleared quickly and plant and equipment is well maintained. There should be no waiting flammable surfaces.

The consequence of an ember shower is therefore only likely to be superficial damage. Grassland is not a high emitter of embers and the scrub in the locality is relatively sparse and not expected to contribute to a high level of ember emission.

Any disruption to operation would only be for a short period, i.e. 24 hours. The consequence is classed as Minor. The overall bushfire risk to the site is shown in **Table 1**.

Table 1: Overall bushfire risk to the site

Consequence / Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
Possible	✓ 5A (Low)	4A (Medium)	3B (High)	2B (Very High)
Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

2.1.4.2 Potential to cause external ignition

Likelihood

The frequency of interactions at the site mean the likelihood of a fuel spill to some degree is almost certain, and the risk of ignition possible. This is however reduced by long established practices at service stations, and notwithstanding fuel spill to some degree is frequent, there are few fires. Various practices are applied ranging from spill kits, to dispersal of spill and centralised control and shut off. The local brigade is close by (650 m) to respond to any larger spills and to apply retardant foam if necessary.

The history of service stations suggests that whilst spill occurs fire is a rare occurrence and fire extending within the site to possibly affect external land even rarer. With regard to this service station proposal the facilities are set well within the boundary, should a spill occur it is separated by an extensive non combustible surface from any classified vegetation.

The site is designed to contain surface storm water on site and direct it to swales and flood basins. Significant fuel spills and any suppression liquids applied will follow the drainage lines, with the potential to be isolated, and need not to expose the community or the environment to hazardous materials.

The likelihood of a fire escaping the site is considered low (Possible) because the low fuel state of the site surface would restrict the spread of fire, and the storage of the most hazardous materials is underground.

Consequence

Utilising the description of likelihood and consequences for community assets; from the Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines, there are no high value assets within the locality that are contiguously linked by bushfire fuels to the site. The hospital laundry facility is the most significant economic asset nearby, but it is separated by a 30 m carpark. The consequence on community assets is therefore low, as shown in **Table 2**.

Table 2: OBRM community risk matrix

Risk Rating / Asset Category	Low	Medium	High	Very High	Extreme
Human Settlement	✓				
Economic	✓				
Environmental	✓				
Cultural	✓				

The overall risk, considering likelihood and consequence is classed as low, as shown in **Table 3**.

Table 3: External ignition risk generated from the site

Consequence / Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	3D (High)	2C (Very High)	1C (Extreme)	1A (Extreme)
Likely	4C (Medium)	3A (High)	2A (Very High)	1B (Extreme)
Possible	✓ 5A (Low)	4A (Medium)	3B (High)	2B (Very High)
Unlikely	5C (Low)	5B (Low)	4B (Medium)	3C (High)

2.1.5 Risk Treatment

2.1.5.1 Bushfire affecting the site (Ember attack)

Identified risk treatments include:

- Building ignition – construction standards commensurate with a determined BAL rating. The bowser canopy to be constructed of non-combustible materials, including any vents. Plastic signage, pipework etc should be avoided at the southern end.
- Merchandise on display – site management practices should avoid location of potentially flammable materials against buildings and be removed from external display on extreme or catastrophic FDR days.
- All buildings should be checked seasonally to remove accumulated materials that might prove a flammable source and to close any external gaps greater than 2mm.
- Onsite firefighting facilities should be tested for operation.
- Staff should be trained to respond to a bushfire event. To shut all valves and power to the pumps and ensure the site is prepared in advance of the fire's arrival.
- An Emergency Management Plan AS3745-2010 Panning for Emergency in Facilities, should incorporate procedures for bushfire including
  - An outline of key emergency features relevant for a bushfire event;
  - Define the functions, roles and responsibilities of staff in a bushfire emergency, including evacuation and firefighting; and
  - Establish ongoing education and training as part of the overall strategy.

2.1.5.2 Potential to cause external ignition

Identified risk treatments include:

- Bowsers – regulated solution including isolation and cut off from fuel supply, emergency control from office. Generally constructed of non flammable materials. Exposed plastic advertising display should be avoided.

- Storage tanks – regulated stored underground.
- Breather pipes – regulated and located, furthest from bushfire.
- Tanker fuelling – procedures HAZMAT, firefighting facility and training.
- Vapour entrapment – Building designed with open structures i.e. bowser canopy, regulated ventilation for the storage of flammable materials.
- Client filling mishap – staff training, staff vigilance, HAZMAT small spills training
- Mechanical services – no on-site mechanical services are proposed.
- Site works – the undertaking of external works that may create sparks such as welding and grinding or using extreme heat should be avoided on Extreme and Catastrophic Fire rated days.
- An Emergency Management Plan AS3745-2010 Panning for Emergency in Facilities

2.1.6 Residual Risks

The context does consider onsite risks associated with the fuels proposed to be stored, and the likelihood of ignition / fire from activities and sources within the site, which is relevant for understanding how the facility could be managed to minimise the potential for flammable materials to ignite or exacerbate a bushfire.

By implementing the range of control measures outlined, the risk of bushfire impacting on the site or vice versa can be reduced. However, in many instances the management of the hazard, to either avoid or minimise the associated risk, will be addressed by satisfaction of other legislation including:

- Environmental Protection Act 1986 (and associated regulations).
- Dangerous goods site licence pursuant to the *Dangerous Goods Safety Act 2004(WA).*
- Australian Standard 1940-2017 The storage and handling of flammable and combustible liquids (AS 1940-2017).
- Australian Standard 1596-2014 - The storage and handling of LP Gas (AS 1596-2014). (no LPG tank is proposed).

These measures ensure that engineered solutions are in place to minimise the ignition and propagation of fire and ensure responsive facilities for fire suppression are in place. In short, the consideration to minimise fire occurring or likely to spread, is more stringently controlled than for most other land uses, to the degree the service station has a **low residual risk**.

These measures will also ensure that during a bushfire the service station component should not present any elevated challenges compared to other land use types.

2.1.6.1 Acceptable Risk

It is concluded that having regard to the methodology of Australian Standard ISO 31000 -2009 Risk management – Principles and guidelines and the OBRM Guidelines in consideration of both impact upon community assets and a concern to present no elevated complication to bushfire response actions, that the service station function in the context of the locality, is not without risk, but is within an acceptable range.

3 Assessment

Potential for ignition

It is acknowledged that detailed design for the proposed construction and operation of the facility is still being progressed. Many of the details that are controlled by other legislation are assumed to be satisfied; the facility cannot operate until the other approvals are obtained. In particular the satisfactions associated with both the *Environmental Protection Act 1986* and the *Dangerous Goods Safety Act 2004,* the latter in particular addressing fuel storage and site fire management.

The controls around fuel sales in terms of fuel management and fire safety are strict and refined when compared to the other types of land use listed as 'high-risk', to the extent that a fire extending beyond a service station is comparably rare. This is because the fire response planning and facilities are well regulated and engrained within the design of service stations.

This also means that difficulties normally experienced in fighting a bushfire are not amplified, due to the regulatory controls that apply to a service station. Regardless of the effect of a bushfire encroaching on the site, or a fire starting at the site, the planning of safety for fire fighters and the community is fundamental. This is reflected in this proposal. The storage tanks are located underground and away from the perimeter, mechanical shut downs and cut offs are provided between the bowser and the fuel storage that restrict the fuel available to a fire.

The potential for ignition as a result of a bushfire, or the likelihood the service station would be the source for igniting a bushfire is, due to the regulated controls, a low residual risk.

Prolonged duration, increase the intensity

The site will be developed in an excluded or low threat state (unable to sustain a fire). Building elements such as the bowser canopies are typically steel framed and metal clad and non-combustible. The bowsers retain little fuel and are physically closed to the storage tanks that are located underground. The service station building (convenience store) is located in an area BAL-12.5, a level readily achieved by contemporary construction techniques, notwithstanding AS3959:2018 does not directly apply to a class 6 building, they can be applied by a planning decision (cl.78E, Schedule 2 Planning and Development (Local Planning Schemes) 2015 Regulation.

Other than materials introduced to the site, that may be on external display or brought by vehicles attending the site, the site itself displays little (accessible) fuel source if maintained, such that it would prolong the duration or intensity of a fire at the site.

Exposure of the community and fire fighters to dangerous and uncontrolled substances

All storage tanks, fuel and gas, are located underground, and would not require attendance in a fire. There is space on site to undertake fire suppression operations, to access individual building elements and to conduct operations from a non-flammable surface.

The surrounding land is level. A fire at the service station is unlikely to contribute to a bushfire, and there are no significant surrounding community assets. The consequence of a fire resulting from the site is determined to be low.

The quantity of accessible fuels on site relative to its area is expected to be small and would be unlikely to give rise to fumes of a dangerous concentration, other than from materials introduced to the service station. Temporary storage of wastes, oils and other products should be managed not to risk ignition from exposure to burning embers.

All surface water including spill and the proceeds of firefighting will drain centrally and can be detained on site. The pollutants can then be isolated. This is a matter of detailed design but the residual risk to the community and the environment can be facilitated in the design and therefore the risk is determined to be low.

4 Responsibilities for Implementation and Management of Bushfire Measures

Table 4 outlines the future responsibilities of the developer and the City of Melville regarding the implementation of the bushfire management plan.

Note 1: The site has been determined to have a comparably low Bushfire Attack Level, predominantly BAL 12.5. Ember attack and secondary fire is considered a risk and is reflected in the developer/landowner responsibilities.

Note 2: Many of the operational requirements for a service station in terms of emergency response, on site fire facilities and training will require augmentation to include preparations to defend the site from bushfire attack, the response to be taken in a fire event, including supervision of the public, evacuation, and methods for recovery.

Table 4 Responsibilities for the implementation of the BMP

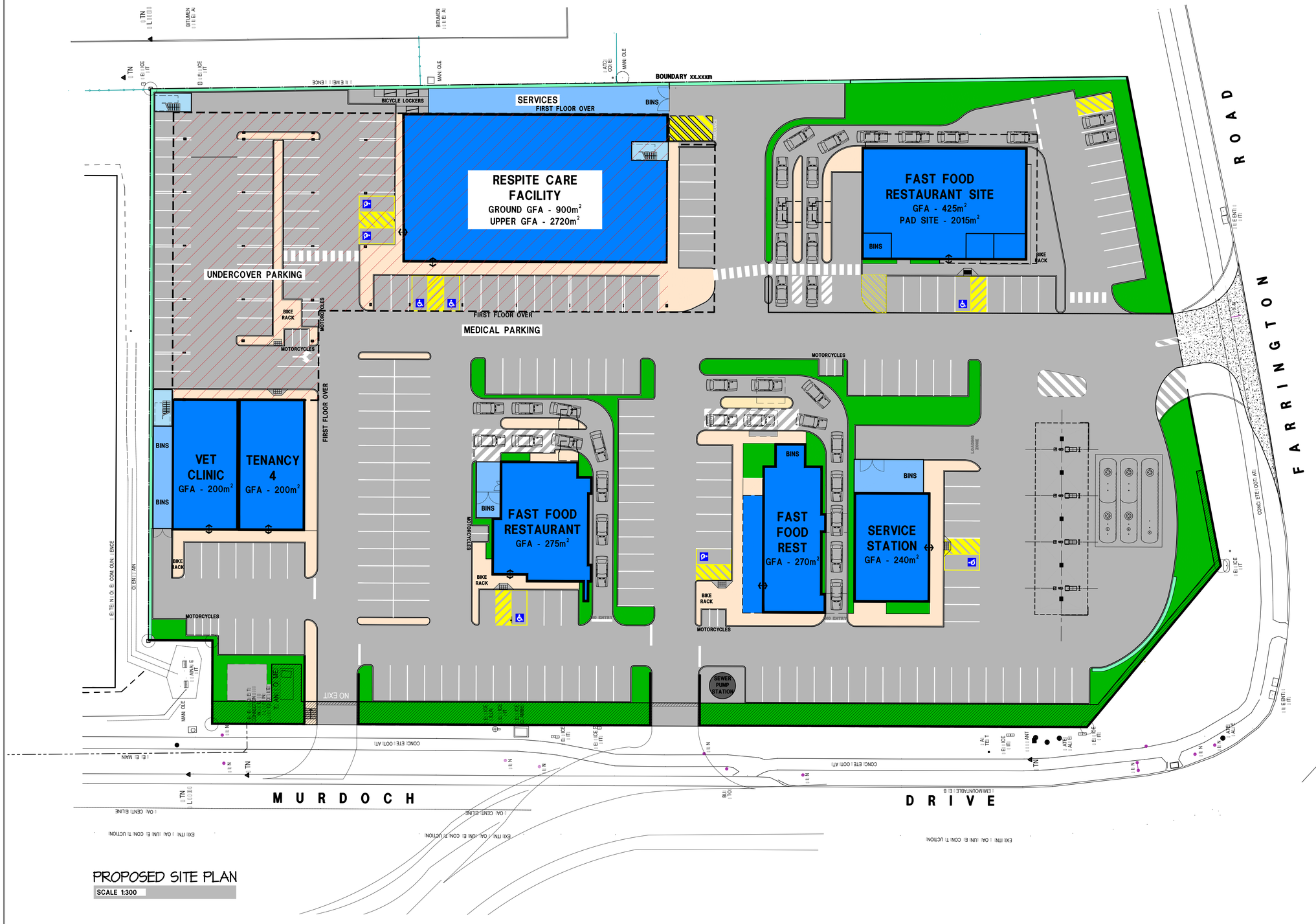
Management action	Timing
Developer/landowner	
Undertake development of the site in accordance with the proposed site plan	As part of development
Any temporary storage of hazardous materials, including tyres, oil and other products should be in accordance with the requirements for storage of dangerous goods and not be exposed to contact with burning embers. Individual vessels should be closed and materials stored under cover.	As part of development
Storm water is to be retained on site and addressed through a network of treatment and conveyance swales and a series of flood storage areas. Any fuel spills and the proceeds from firefighting are to be retained on site and the basins rehabilitated, to protect the community and the environment from exposure to hazardous substances.	As part of development
Ensure the site is maintained to a low threat standard (in accordance with Section 2.2.3.2 of AS 3959) as part of construction and ongoing operation	As part of development and ongoing
Maintain all infiltration and landscaped buffer areas within the site to a low threat standard in accordance with Clause 2.2.3.2(f) of AS 3959. This should include (as a minimum): • Regular weeding and removal of dead plants and fine fuel loads (i.e. combustible dead • Material less than 6 mm in thickness), to achieve two tonnes per hectare or less. • Regular mowing of grass/turf, where installed. • Irrigation of garden beds where required.	As part of development and ongoing
Maintain onsite fire response equipment (as per the requirements of AS 1940 and other applicable standards), to ensure safe and efficient use as required in the event of a site fire or bushfire.	As part of development and ongoing
Undertake regular staff training in the use of all fire response equipment including bushfire fighting and in the implementation of bushfire evacuation procedures	Ongoing

Table 4 Responsibilities for the implementation of the BMP (continued)

Management action	Timing
Developer/landowner	
Throughout the bushfire season flammable materials and objects should not be stored or placed against the building where bushfire embers may cause ignition and direct flame contact against the building. On Extreme and Catastrophic fire days inspection should be undertaken to remove the accumulation of any material against walls and ensure any potentially flammable materials are not exposed, bin lids should be closed.	Ongoing
Following completion of detailed design and construction of the facility, the Emergency Response Guide prepared in accordance with the Dangerous Goods Safety Act 2004 (and associated regulations) and in consultation with the local fire station, should include bushfire and its associated site management and evacuation procedures. The Emergency Response Guide should be regularly revised and updated as required.	As part of development and ongoing

Attachment 1

Site Plan



PROPOSED SITE PLAN

SCALE 1:300

LEGEND

- NEW LEASABLE BUILDING AREA.
- NEW COMMON / SERVICES BUILDING AREA.
- NEW BITMEN PAVING.
- NEW PAVING
- NEW SELECTED NATIVE 'WATERWISE' LANDSCAPING - REFER TO LANDSCAPING PLAN
- SHADE TREE - REFER TO LANDSCAPING PLAN
- EXISTING SITE SURVEYED LEVELS - REFER TO SITE CONTOUR AND FEATURE SURVEY DRAWING 5641-1 FOR DETAILS.
- RL 49.85 PROPOSED DESIGN LEVELS - REFER TO CIVIL ENGINEERS DRAWING HES/75-50 (A) FOR DETAILS.

ONSITE PARKING

PARKING

MARKED BAYS	206
DRIVE THRU STACK	35
FUEL PUMPS	8
TOTAL (INCLUDES 8 DISABLED BAYS)	269
MOTORCYCLE BAYS	12
BICYCLE STORAGE	6
BICYCLE RACKS	16

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

166 STIRLING HIGHWAY
NEDLANDS WA 6009

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DEVELOPMENT APPLICATION

HINDLEY & ASSOCIATES P/L AS TRUSTEE FOR HINDLEY TRUST ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
PRE	22.01.19	PRELIMINARY ISSUE	CPH	CPH
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A1 SHEET

PROPOSED COMMERCIAL DEVELOPMENT LOT 1001 & 3001, CNR MURDOCH DRIVE AND FARRINGTON ROAD, MURDOCH FABRIC PROPERTY

Date	22.01.19
Design	RCP
Drawn	RCP
Checked	SDS
Scale	1:200
Job No.	0679
Dwg	DA02
Rev	PRE[2]

Appendix C

Bushfire Emergency Evacuation Plan

Appendix C: 5.5.2 Bushfire Emergency Evacuation Plan

The proposed respite care facility, located within the eastern portion of the site is considered to be a 'vulnerable' land use in accordance with the definitions provided in SPP 3.7 and the Guidelines. The facility will accommodate groups of elderly residents, who have a reduced physical and mental ability to respond in a bushfire event. The BAL assessment indicates that the classified scrub vegetation (Class D) and grassland vegetation (Class G) to the east of the site will result in a portion of the respite care building being subject to a BAL rating of BAL-29 and BAL-19, however the majority of the building will be subject to a BAL rating of BAL- 12.5. As the classified vegetation adjacent to the hospital laundry facility and abutting Farrington road reserve will remain as future development progresses, the vegetation will pose a permanent bushfire risk to the site.

At this stage in the process, there is limited detail available on the occupancy arrangements for the respite care facility and or specific operational measures relevant for preparing an emergency evacuation plan (such as number and age breakdown of occupants, number of staff, management structures and operational hours), apart from understanding the proposed location of the respite care facility that is to be facilitated through this approval (which is more in line with the detail available through the subdivision stage of the planning process).

Given this Bushfire Management Plan (BMP) has been prepared to support development approval, in order to ensure that emergency evacuation can be appropriately addressed and that there are no issues that would fundamentally change the approval and/or not able to be addressed through a condition of approval, in accordance with Section 5.5.2 of the *Guidelines for Planning in Bushfire Prone Areas* (WAPC & DFES 2017) (the Guidelines), this Bushfire Management Plan (BMP) has considered whether appropriate emergency evacuation/management can be supported.

Below in **Table 1**, the specific considerations for an emergency evacuation plan (as detailed within Section 5.5.2 of Guidelines) have been deliberated to understand whether the requirements can be addressed operationally without affecting the location or operation of the facility.

Based on the outcomes of this assessment, an emergency evacuation plan could be conditioned as part of the development approval without fundamentally affecting the ability for respite care facility to meet the requirements of SPP 3.7. Planning for emergency evacuation and safety is also recommended as a part of the *Aged Care Act 1997* (AC Act), with bushfire considerations able to be accommodated as part of this plan. The *Quality of Care Principles 2014* and the supporting documents; *Aged Care Quality Standards* and *Risk Management for Emergency Events in Aged Care* also set out standards for emergency preparation within respite care facilities.

Table 1: Considerations of Emergency Evacuation Plan requirements based on Section 5.5.2 of the Guidelines and whether items can be addressed satisfactorily through operational arrangements without fundamentally changing approval

Item no.	Consideration for an Emergency Evacuation Plan based on Section 5.5.2 of the Guidelines	Can consideration be addressed operationally without affecting approval of facility or location?
1	The number of people at the facility	To be confirmed. This is an operational detail that will not affect emergency evacuation. Under the *Aged Care Act 1997* (AC Act) and the *Age Care Quality Standards* aged care providers are required to maintain an adequate number of appropriately skilled staff to ensure that the care of the needs of patients are met. This means that during an emergency, aged care providers are required to continue to maintain quality care and services. Under the *Age Care Quality Standards* and the *Risk Management for Emergency Events in Aged Care* supporting document, key activities for residential aged care providers preparing for emergency bushfire events may include (but are not limited to): • Consider the range of hazards that are most likely to affect the facility. • Determine appropriate staffing levels to meet higher care recipients needs in the case of evacuations. • Develop an emergency and evacuation plan that includes realistic arrangements for transportation and alternative accommodation relevant to different scenarios and includes provision for care recipient identification and care-plan documents. • Undertake regular rehearsals of the emergency and evacuation procedures. • Contact local emergency services to seek advice and ensure the service is aware of the facility's size, location and particular needs of the residents. Provide facility and key personnel contact details to the emergency service. • Ensure key personnel have access to local emergency service/s contact details and operating telephones .at all times for communication with family members and emergency services. These measures will need to be addressed in order for the aged care provider to operate the facility and is enforceable through the above regulation.
2	Whether occupants are permanent or transient	The facility is likely to be hosted, with occupants likely to be a mixture of day and short-stay visitors, and permanent staff at the facility at all times.
3	Whether there is a caretaker onsite	No 'caretaker' will be present. However permanent staff responsible for the day-to-day operation of the facility will be present at all times and trained in emergency and evacuation procedures. Although the *Age Care Quality Standards* and AC Act do not prescribe a minimum staffing standard for respite care facility, appropriate staffing will be provided depending on the levels of the occupants need, the location and layout of a facility, and the model of care being provided. Under the AC Act, at least one responsible person is required to be continuously on call and in reasonable proximity to render emergency assistance within the respite care facility. In addition to this, aged care providers are required to maintain an adequate number of appropriately skilled staff to ensure that the care of the needs of patients are met, and all permanent staff will be to be trained in emergency and evacuation procedures.

Table 1: Considerations of Emergency Evacuation Plan requirements based on Section 5.5.2 of the Guidelines and whether items can be addressed satisfactorily through operational arrangements without fundamentally changing approval (continued)

Item no.	Consideration for an Emergency Evacuation Plan based on Section 5.5.2 of the Guidelines	Can consideration be addressed operationally without affecting approval of facility or location?
4	Whether there are people with a disability, medically dependent, young children or the elderly	Elderly people will be present within the respite care facility. It is possible that some of the elderly people, due to varying degrees of incapacity associated with the ageing process will have a disability or be medically dependent. The number of elderly people present (including those medically dependent or with a disability) will vary week-to-week and year-to-year but would not change emergency evacuation considerations given these factors are required to be addressed in accordance with the AC Act*, Age Care Quality Standards* and the *Risk Management for Emergency Events in Aged Care* guidelines.
5	Identification of a safe alternative location if there was a need for evacuation/ relocation	If evacuation or relocation is required, the specific location for evacuation would be determined in consultation with emergency services. In these circumstances that it is safe to evacuate, there are a number of community facilities within 2km of the aged-care facility, including: • Fiona Stanley Hospital • Melville State Emergency Service • Fire and Rescue Service Stations, Murdoch Fire Station • Murdoch Police Station • South Metropolitan TAFE, Murdoch Campus • Murdoch University • Lakeside Recreation Centre • Melville Spanish Club • Murdoch Main Library
6	A proposed method of movement of occupants to safe location(s)	This is an operational detail that will not affect emergency evacuation. Occupants can be moved via staff or centre vehicles, or where possible through family members.
7	Details of suitable access/egress routes for the expected type/volume of traffic, including alternatives when suitable roads are inaccessible, insufficient or inappropriate	The location of the respite care facility and overall design of the proposed development provides for suitable egress/access that would enable emergency evacuation as well as access to the area by emergency personnel. The primary entry/exit of the building is: • Shown within the development layout provided in **Appendix A**. • Located from the identified bushfire hazard to the east, with direct access to the adjoining carpark area. The commercial precinct in which the respite facility is located, is next to an existing four way intersection that provides egress to the north, south, east and west as shown in **Appendix A**. This includes two major roads, Farrington Road (to the south of the site) and Murdoch Drive (to the west of the site). The respite facility will have access to the public road network through an interconnected internal road network within the site.

Table 1: Considerations of Emergency Evacuation Plan requirements based on Section 5.5.2 of the Guidelines and whether items can be addressed satisfactorily through operational arrangements without fundamentally changing approval (continued)

Item no.	Consideration for an Emergency Evacuation Plan based on Section 5.5.2 of the Guidelines	Can consideration be addressed operationally without affecting approval of facility or location?
8	Transport options for those without access to private vehicles	This is an operational detail that will not affect emergency evacuation. Occupants can be moved via staff or centre vehicles, or where possible through family members. The facility is next to an existing four way intersection that provides egress to the north, south, east and west as shown in **Appendix A**. The respite facility will have access to the public road network through an interconnected internal road network.
9	Options to shelter in place as a last resort	While specific bushfire modelling has not been completed to determine the BAL rating applicable to the building, the aged-care facility will be considered a Class 9c building, and while the requirements of *Australian Standard 3959-2018 Construction of buildings in bushfire prone areas (AS 3959)* are not applicable to this building class, these types of buildings are subject to higher construction standards in accordance with the Building Code of Australia (BCA) where fire resistance properties, including building structural integrity during a fire, are required to be addressed. Thus, these buildings are typically able to provide appropriate shelter and/or methods for evacuation. It is also relevant to note that the 'requirement to 'shelter in place' during a passing bushfire event is likely to be extremely low for this facility as the design of the development allows suitable egress/access options that would enable safe and effective emergency evacuation.
10	Roles and responsibilities of facility personnel and emergency services	This is an operational detail that will not affect emergency evacuation. Aged-care providers are required to operate in accordance with the AC Act and the *Age Care Quality Standards*, as well as have regard for the *Risk Management for Emergency Events in Aged Care* supporting document. Under these regulation, standards and guidelines, aged-care providers are required to (but are not limited to): • Maintain an adequate number of appropriately skilled staff to ensure that the needs of patients are met. • Determine appropriate staffing levels to meet higher care recipients needs in the case of evacuations. • Consider emergency and evacuation preparation that includes realistic arrangements for transportation and alternative accommodation relevant to different scenarios and includes provision for care recipient identification and care-plan documents. • Undertake regular rehearsals of the emergency and evacuation procedures, including documentation of these rehearsals. • During any period of high risk ensure key personnel monitor emergency broadcasts and the media for localised warnings and advice.

Table 1: Considerations of Emergency Evacuation Plan requirements based on Section 5.5.2 of the Guidelines and whether items can be addressed satisfactorily through operational arrangements without fundamentally changing approval (continued)

Item no.	Consideration for an Emergency Evacuation Plan based on Section 5.5.2 of the Guidelines	Can consideration be addressed operationally without affecting approval of facility or location?
11	Effective warning methods appropriate for the occupants (including consideration of at-risk persons and the demographics of the occupants)	This is an operational detail that will not fundamentally change approval of the aged-care facility or affect emergency evacuation. As outlined above, aged-care providers are required to operate in accordance with the AC Act and the *Age Care Quality Standards* which includes clear requirement for communication methods and protocols. Under the AC Act, aged-care facilities are required to have at least one responsible person continuously on call and in reasonable proximity to render emergency assistance for occupants within the respite care facility. In addition to this, staff will be to be trained in emergency and evacuation procedures. Warning and/or evacuation measures can be communicated appropriately to families as well as the elderly occupants (where appropriate).
12	Closure of the facility and early relocation of occupants appropriate to the fire danger rating (FDR) and bushfire warnings	This is an operational detail that will not fundamentally change approval of the aged-care facility or emergency evacuation. As outlined previously, aged-care providers are required to operate in accordance with the AC Act and the *Age Care Quality Standards* which recommends planning for emergency evacuation and safety within respite care facilities. Closure of a facility and/or early relocation of occupants can be easily accommodated as part of the standard procedures including communication protocols. As part of this, respite care providers should consider emergency risk management that addresses ongoing need of vulnerable care recipients in the event the facility becomes isolated (water, food, power, communication, medical supplies etc.). This plan will be appropriately discussed with staff, care recipients and their families. For bushfire, the following warning methods can be incorporated into the emergency and evacuation procedures: • Provision and location of appropriate fire-fighting equipment • Checking forecast fire danger ratings (FDR) on a daily basis during the bushfire season. Depending upon the FDR, instigate monitoring of the surrounding area based on the requirements listed in **Table 2** below. • Monitoring emergency warning levels, as issued by the Department of Fire and Emergency Services (DFES). Procedures can then respond to the warning levels as required, including evacuation if recommended.

Table 1: Considerations of Emergency Evacuation Plan requirements based on Section 5.5.2 of the Guidelines and whether items can be addressed satisfactorily through operational arrangements without fundamentally changing approval (continued)

<table>
<tr><th>Item no.</th><th>Consideration for an Emergency Evacuation Plan based on Section 5.5.2 of the Guidelines</th><th>Can consideration be addressed operationally without affecting approval of facility or location?</th></tr>
<tr><td>Continued from above.</td><td>Continued from above.</td><td>
Table 2 Fire danger rating monitoring guidelines
<table>
<tr><th>Fire Danger Rating</th><th>Predicted fire behaviour</th><th>Monitoring requirements</th></tr>
<tr><td>Catastrophic Extreme and Severe</td><td>Uncontrollable fire, the worst conditions possible, very hot and windy, significant ember attack ahead of the fire, life threatening radiant heat and fast-moving fire</td><td>• Monitor ABC radio and DFES website every 15 minutes all day.
• Staff advised in the morning of fire conditions and requested to stay alert for smoke in local area</td></tr>
<tr><td>Very High & High</td><td>Hot, dry and possibly windy conditions, fire may be hard to control</td><td>• No specific monitoring required, but staff alert for any signs of smoke</td></tr>
<tr><td>Low-Moderate</td><td>Fire likely to be controlled, but possibly unpredictable if windy</td><td>• No specific monitoring required, but staff alert for any signs of smoke</td></tr>
</table>
</td></tr>
<tr><td>13</td><td>Any local government bushfire requirements (for example, harvest and vehicle movement bans).</td><td>Not applicable. The respite care facility is a part of a commercial development (surrounded by mixed use residential and institutional sectors) which will be covered by carparks, roads and well-maintained garden beds. No harvest or vehicle movements bans (or similar) will be applicable or relevant for the respite care facility.</td></tr>
</table>

Proposed Commercial Development

Lot 1001 Murdoch Drive and Farrington Road, Murdoch

Transport Impact Assessment

PREPARED FOR:
Fabric Property

August 2019

Document history and status

Author	Revision	Approved by	Date	Revision type
R White	r01	B Bordbar	25/07/2019	
R White	r01a	B Bordbar	26/07/2019	Minor revision
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R White	r01c	B Bordbar	1/08/2019	Minor revision

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Author: Robin White

Project manager: Behnam Bordbar

Client: Fabric Property

Project: Lot 1001 Cnr Murdoch Dr & Farrington St, Murdoch

Document revision: r01c

Project number: t19.116

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APPENDICES

REPORT FIGURES

REPORT TABLES

1.0 Introduction

This Transport Impact Assessment has been prepared by Transcore in relation to a proposed commercial development at Lot 1001 Murdoch Drive and Farrington Road, Murdoch, in the City of Melville.

The site is located at the northeast corner of the intersection of Murdoch Drive and Farrington Road, as shown in Figure 1. That figure depicts the zones and reservations of the Metropolitan Region Scheme (MRS).

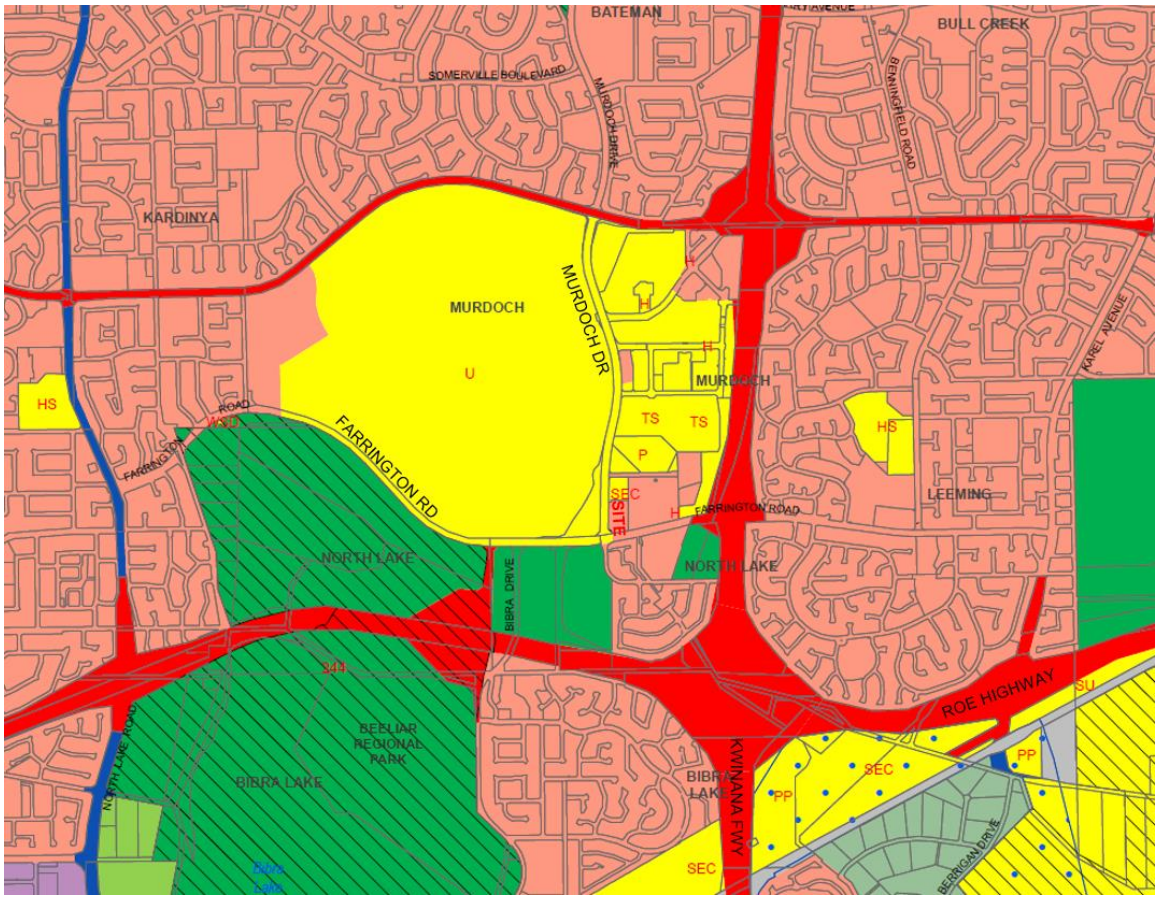


Figure 1: Site location

Key issues that will be addressed in this report include access arrangements, intersection capacity and parking requirements.

2.0 Development Proposal

The proposed development consists of a two-storey respite care facility (100-bed private small hospital) (3620m^2 GFA), a veterinary clinic (200m^2 GFA), one showroom tenancy (200m^2 GFA), three fast food outlets with drive through facilities (425 m^2, 275 m^2 and 270m^2 GFA) and a service station with convenience store (240m^2 GFA and 8 vehicle fuelling positions).

The overall layout of the proposed development is shown on the proposed site plan at Appendix A.

Access to the proposed development is proposed to be provided by three driveway crossovers, as follows:

- A left in / left out driveway crossover on Farrington Road;
- A left in / left out driveway crossover on Murdoch Drive; and
- A left in only driveway crossover on Murdoch Drive at the northern end of the site.

The northern driveway crossover will essentially only provide an alternative exit route from a planned cul-de-sacced section of Murdoch Drive north of the site (serving the adjacent Western Power site) to allow access from that cul-de-sac into the proposed development for vehicles that enter the cul-de-sacced section from Murdoch Drive by mistake. (For further details of the planned road network changes on Murdoch Drive refer to section 3.7 of this report.)

The proposed site plan shows provision of 207 marked parking spaces (including 8 disabled bays) and 18 motorcycle bays, plus 35 cars in the drive through lanes at the fast food outlets and 8 vehicle spaces at the fuel pumps at the service station.

The proposed site plan includes bicycle racks at five locations and six bicycle lockers.

Loading areas and bin stores are included at various locations serving each of the proposed land uses for deliveries and waste collection to be accommodated on site.

Fuel delivery vehicle access for the proposed service station will be accommodated via the proposed driveway crossover on Farrington Road. Appendix B shows the turn path of a 19m semi-trailer fuel tanker at this driveway crossover and through the service station site and illustrates the trafficable aprons included at this proposed driveway crossover to accommodate that turn path.

3.0 Existing Situation

3.1 Existing Land Use

As shown in Figure 2, the site is currently undeveloped.

Figure 2: Existing situation (May 2019)

Existing land uses in the immediate vicinity of the site include a Western Power substation immediately to the north, the Spotless Linen commercial site to the northeast, other undeveloped sites along the northern side of Farrington Road east of the site, an OSH training centre on the south side of Farrington Road to the southeast, residential development on the south side of Farrington Road and along Allendale Entrance to the south, Spanish Club playing fields on the south side of Farrington Road to the southwest, and the Murdoch University site on the western side of Murdoch Drive.

The Murdoch Drive Connection project, which is currently under construction as shown in Figure 2, is discussed in section 3.7 of this report.

3.2 Existing Road Network

Murdoch Drive is classified as a District Distributor A in the Main Roads WA functional road hierarchy. It is generally constructed as a dual carriageway road (two lanes each way with central median) operating under a posted speed limit of

70km/h. However, the section adjacent to the subject site is currently reduced to one lane each way during construction of the Murdoch Drive Connection project.

Farrington Road is also classified as a District Distributor A in the Main Roads WA functional road hierarchy. It is constructed as a dual carriageway road (two lanes each way with central median) operating under a posted speed limit of 70km/h in the vicinity of the subject site. Farrington Road is the boundary road between the City of Melville and City of Cockburn, with responsibility for the road shared by the two municipalities (northern carriageway City of Melville and southern carriageway City of Cockburn).

The Murdoch Drive / Farrington Road / Allendale Entrance intersection is constructed as a two-lane roundabout, as shown in Figure 2.

3.3 Existing Traffic Flows

Existing weekday traffic volumes in 2017/18 from the Main Roads WA website on the surrounding roads are as follows:

- Murdoch Dr north of Farrington Rd: 13,350vpd (4.5% heavy vehicles)
- Farrington Rd east of Murdoch Dr: 32,776vpd (7.3% heavy vehicles)
- Farrington Rd west of Murdoch Dr: 33,538vpd (8.4% heavy vehicles)

The Main Roads WA website also provides the results of a 24-hour traffic survey on 8 March 2017 at the Murdoch Drive / Farrington Road / Allendale Entrance roundabout. Daily, AM peak hour and PM peak hour traffic flows from that traffic survey are shown at Appendix C.

3.4 Road Safety

Summary crash history information has been obtained from the Main Roads WA website for the Murdoch Drive / Farrington Road / Allendale Entrance roundabout for the 5-year period 2014-2018 and are summarised in Table 1.

Table 1. Crashes at Murdoch Dr / Farrington Rd / Allendale Ent intersection

Intersection				Total Crashes	Casualty
Murdoch Dr / Farrington Rd / Allendale Ent				58	4 injury
Rear End	**Side Swipe**	**Right Angle**	**Right Thru**	**Non Collision**	**Pedestrian**
37	7	9	4	1	0

This intersection ranked 304th in the State in terms of crash frequency and 288th in terms of severity in the 2013-2017 five-year period (ranking not available for 2014-2018).

3.5 Public Transport

Transperth bus routes 512 (Murdoch Station – Spearwood) and 514 (Murdoch Station – Cockburn Central Station) pass the subject site on Murdoch Drive, as shown in Figure 3. Routes 512 and 514 each provide hourly services on all days, increasing to three or four per hour during weekday morning and afternoon peak periods. Southbound services have a bus stop on the western side of Murdoch Drive north of the subject site and northbound services have a bus stop on Farrington Road west of the Murdoch Drive roundabout.

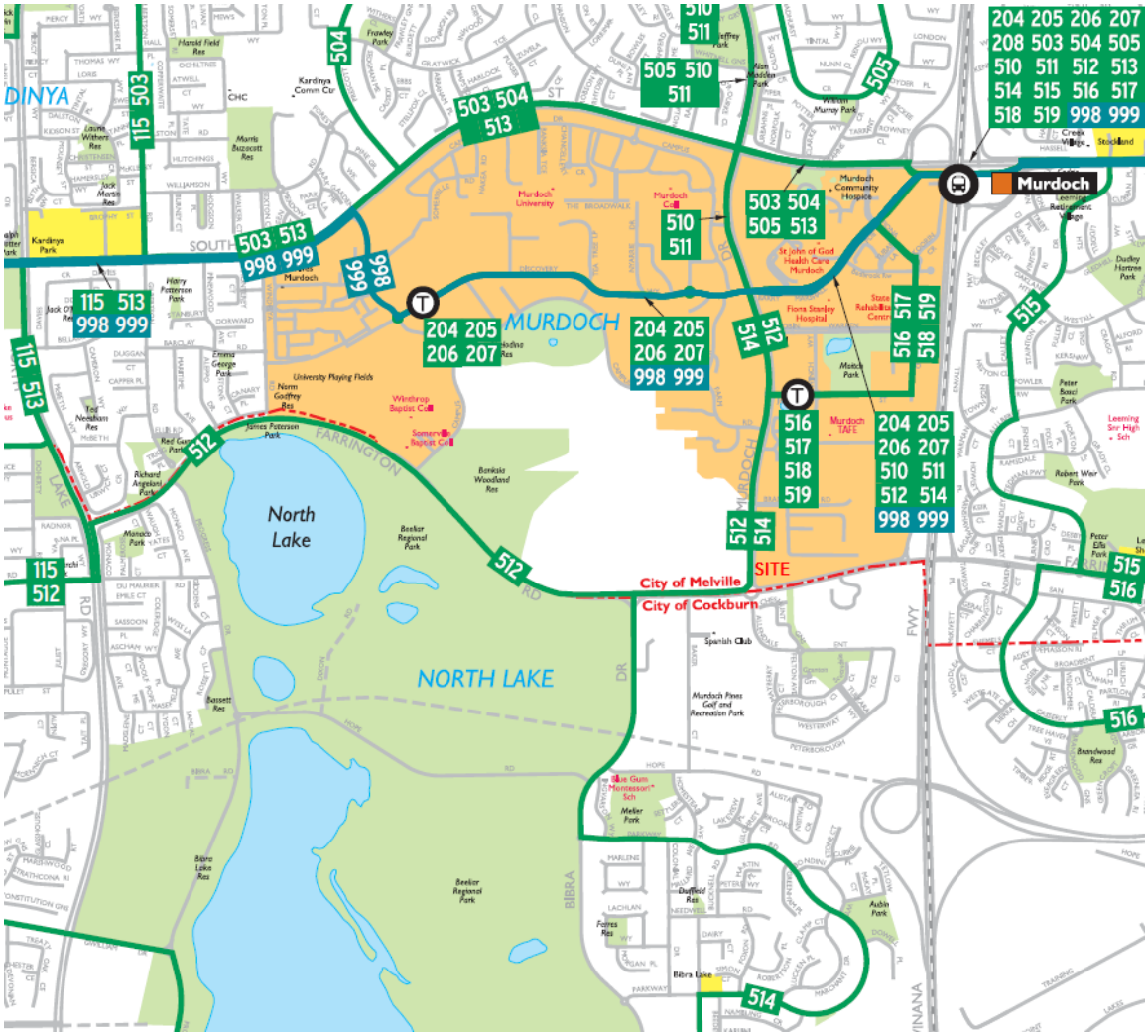


Figure 3: Existing public transport

3.6 Pedestrian and Cyclist Facilities

There are existing paths on Murdoch Drive and Farrington Road adjacent to the subject site, and crossing points on all four arms of the Murdoch Drive / Farrington Road / Allendale Entrance roundabout.

The Perth Bike Maps (see Figure 4) published by the Department of Transport indicate that Murdoch Drive and Farrington Road are both continuous signed routes in the Perth Bicycle Network as well, with connection to the wider network of shared paths throughout the surrounding area including the Principle Shared Path along the western side of the Kwinana Freeway alignment.

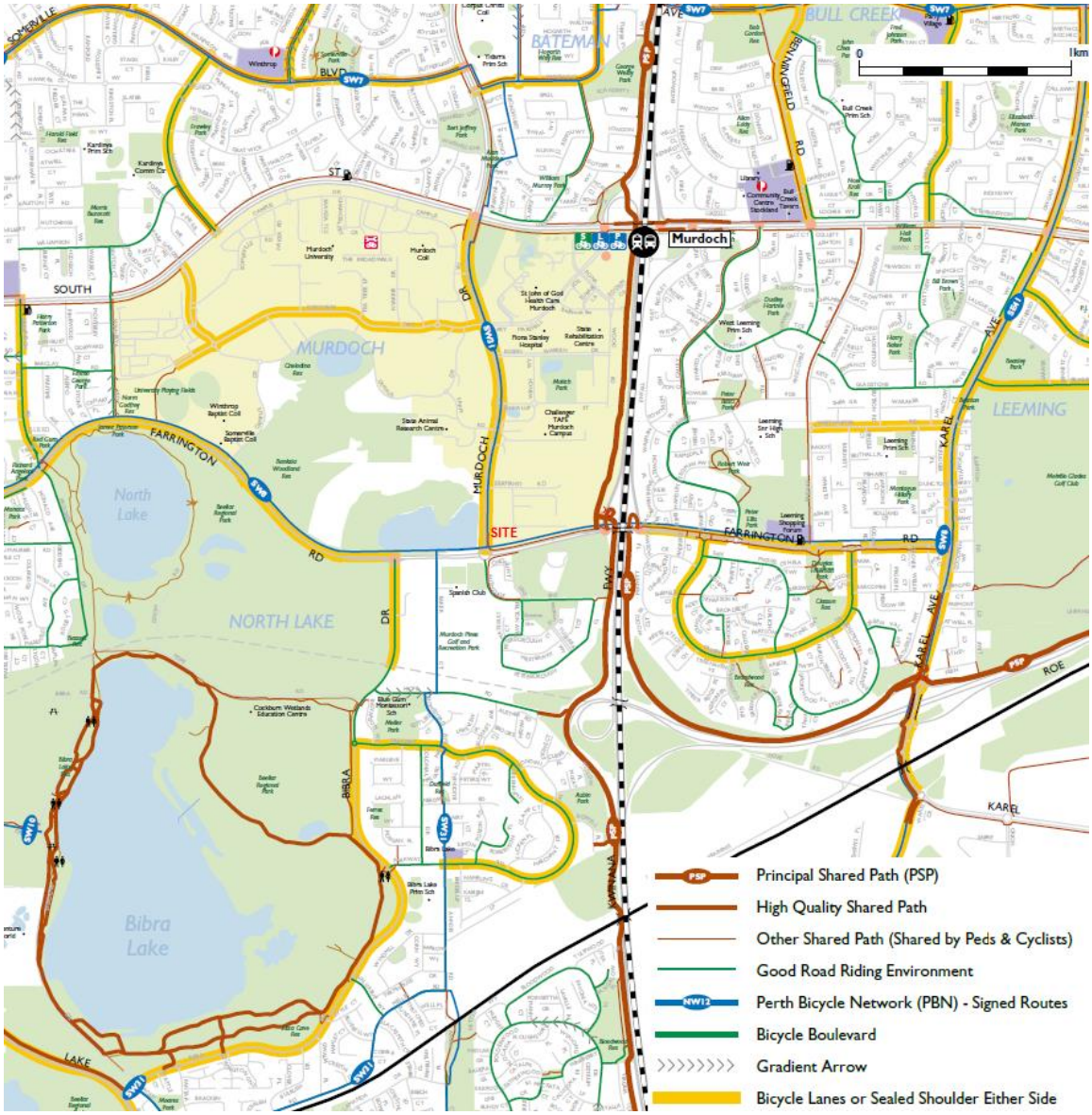


Figure 4: Perth Bike Map

3.7 Changes to Surrounding Road Network

The current Murdoch Drive Connection project will extend Murdoch Drive south from Farrington Road to connect to the Roe Highway / Kwinana Freeway interchange, as shown in Figure 5. It is intended to improve regional access and journey times to Fiona Stanley Hospital for visitors, patients and emergency vehicles, and allow Murdoch Activity Centre (MAC) to meet its economic potential as a major employment and research centre.

Figure 5: Murdoch Drive Connection Concept Plan

The Main Roads WA website advises that the Murdoch Drive Connection will relieve peak time congestion on Murdoch Drive, South Street and Kwinana Freeway, and provide shorter, more predictable journey times for those who live and work in the Murdoch Precinct. Connectivity for pedestrians and cyclists will be improved between the end of Roe Highway and Farrington Road / Murdoch Drive. Site work is anticipated to be completed by late 2019.

Further detail of the future road configuration in the vicinity of the subject site is shown on Figure 6. Murdoch Drive is being realigned westwards to cross Farrington Road on a bridge west of the existing roundabout. There will only be connection between Murdoch Drive and Farrington Road for traffic movements to and from Murdoch Drive north. (It is understood that the final concept plan does not allow traffic movements between Murdoch Drive and Farrington Road for traffic movements to and from Murdoch Drive south, primarily due to unacceptable levels of traffic increases that would have occurred on Farrington Road.)

The detailed concept plan at Figure 6 shows that the existing Murdoch Drive carriageway adjacent to the subject site will be reduced to southbound traffic flow only. The section of existing carriageway immediately to the north will be

downgraded to only provide access to the Western Power substation site immediately north of the subject site. Traffic movements from Farrington Road to Murdoch Drive north will utilise the new road connection from Bibra Drive south of Farrington Road, as shown in Figure 6. That plan also indicates relocation of bus stops in this area.

Figure 6 also indicates the Murdoch Drive / Farrington Road / Allendale Entrance roundabout will become a signalised roundabout in this concept plan. Introduction of traffic signals on the western approach to this roundabout, as indicated on that plan, would provide the gaps in circulating traffic flow required to ensure traffic on the northern Murdoch Drive approach would be able to enter the roundabout

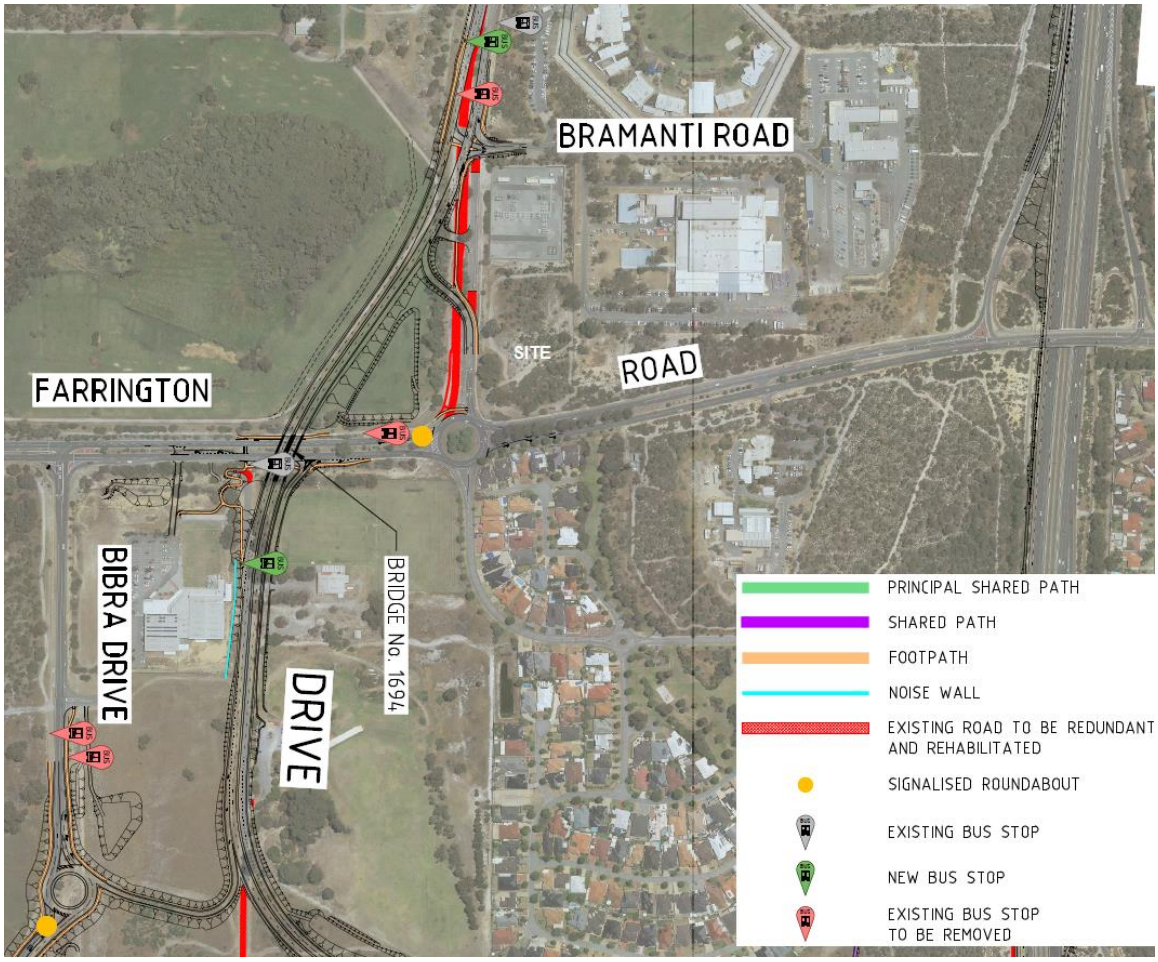


Figure 6: Murdoch Drive Connection Concept Plan Detail

3.8 Integration with Surrounding Area

The proposed development includes medical facilities that are compatible with other medical uses in the Murdoch Activity Centre and commercial uses (service station and fast food outlets) suitable for the site's location adjacent to the busy district distributor roads of Murdoch Drive and Farrington Road.

4.0 Traffic Assessment

4.1 Assessment Period

The land uses of the proposed development will generally have peak traffic generation during weekday morning and afternoon peak periods, similar to peak periods of traffic flows on the surrounding road network. Accordingly, the weekday road network AM and PM peak periods have been used for traffic analysis in this report.

The WAPC Transport Impact Assessment Guidelines recommend analysis to be undertaken for the year of completion of development and ten years post completion. For this report there is assumed to be no significant difference in the road network between the year of completion of development and ten years post completion, so analysis is undertaken for the year 2031 as at least ten years after completion of the proposed development.

4.2 Trip Generation and Distribution

The traffic volume anticipated to be generated by the proposed development has been calculated using appropriate trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) and the NSW *Guide to Traffic Generating Developments – Updated Traffic Surveys* (TDT 2013/04a).

The ITE *Trip Generation Manual* also provides information on the proportion of trips for a number of land uses (including fast food outlets and service stations) that are "pass by" trips, which involves a vehicle already passing the site on the adjacent road network that turns in to visit the site as well. These pass by trips are counted as traffic entering and exiting the site but do not add to existing traffic flows on the surrounding road network.

In addition, there will be a number of multiple purpose trips to the site that involve cross trade between different land uses on the site, such as someone visiting the service station to refuel their vehicle and purchasing food from one of the fast food outlets as well. This has been factored into the traffic calculations by assuming 20% of service station customers visit other uses on the site as well. (This is equivalent to about 5% of total traffic generation of all land uses on the site.)

The traffic generation of the proposed development is summarised in Table 2.

Table 2: Traffic generation

Period	Land Use	Size	Units	Trip rate	per units		Gross vpd (or vph)	-Internal trips %	-Internal trips veh	Net vpd (or vph)	Total % in	Total in	Total out	Pass by %	Pass by in	Pass by out	Non pass by %	Non pass by in	Non pass by out
Weekday	Respite care facility	3620	m^2	7.15	100	m^2	259	0%	0	259	50%	130	130	0%	0	0	100%	130	130
	Vet clinic	200	m^2	23.14	100	m^2	46	0%	0	46	50%	23	23	0%	0	0	100%	23	23
	Showroom	200	m^2	17	100	m^2	34	0%	0	34	50%	17	17	0%	0	0	100%	17	17
	Fast food	970	m^2	506.94	100	m^2	4917	0%	0	4917	50%	2459	2459	49%	1205	1205	51%	1254	1254
	Service station	8	*	205.36	1	*	1642	20%	-328	1314	50%	657	657	56%	368	368	44%	289	289
	Total						**6898**			**6570**		**3285**	**3285**		**1573**	**1573**		**1712**	**1712**
AM peak	Respite care facility	3620	m^2	0.59	100	m^2	21	0%	0	21	78%	16	5	0%	0	0	100%	16	5
	Vet clinic	200	m^2	3.92	100	m^2	8	0%	0	8	67%	5	3	0%	0	0	100%	5	3
	Showroom	200	m^2	0.675	100	m^2	1	0%	0	1	75%	1	0	0%	0	0	100%	1	0
	Fast food	970	m^2	43.26	100	m^2	420	0%	0	420	50%	210	210	49%	103	103	51%	107	107
	Service station	8	*	12.47	1	*	100	20%	-20	80	50%	40	40	62%	25	25	38%	15	15
	Total						**550**			**530**		**272**	**258**		**128**	**128**		**144**	**130**
PM peak	Respite care facility	3620	m^2	0.635	100	m^2	22	0%	0	22	41%	9	13	0%	0	0	100%	9	13
	Vet clinic	200	m^2	3.80	100	m^2	8	0%	0	8	40%	3	5	0%	0	0	100%	3	5
	Showroom	200	m^2	2.70	100	m^2	6	0%	0	6	50%	3	3	0%	0	0	100%	3	3
	Fast food	970	m^2	35.17	100	m^2	342	0%	0	342	50%	171	171	50%	86	86	50%	85	85
	Service station	8	*	13.99	1	*	112	20%	-22	90	50%	45	45	56%	25	25	44%	20	20
	Total						**490**			**468**		**231**	**237**		**111**	**111**		**120**	**126**

* service station has 8 fuel positions

Separate trip distribution calculations have been undertaken for pass by and non pass by trips. Pass by trips are assumed to be drawn from the passing traffic in proportion to the volume of each passing traffic movement and therefore varies according to direction of traffic flows in each time period.

The anticipated trip distribution for non pass by trips is as follows:

- 35% to/ from Murdoch Drive north;
- 30% to/from Farrington Road west;
- 30% to/from Farrington Road east; and
- 5% to/from Allendale Entrance (south).

The traffic movements generated by the proposed development have been manually assigned on the adjacent road network and the resulting traffic movements generated by this development during weekday AM and PM peak hours are shown in Figure 7. The negative values shown on some through traffic movements are the result of pass by trips that turn in to and out from the development instead of continuing straight past the site.

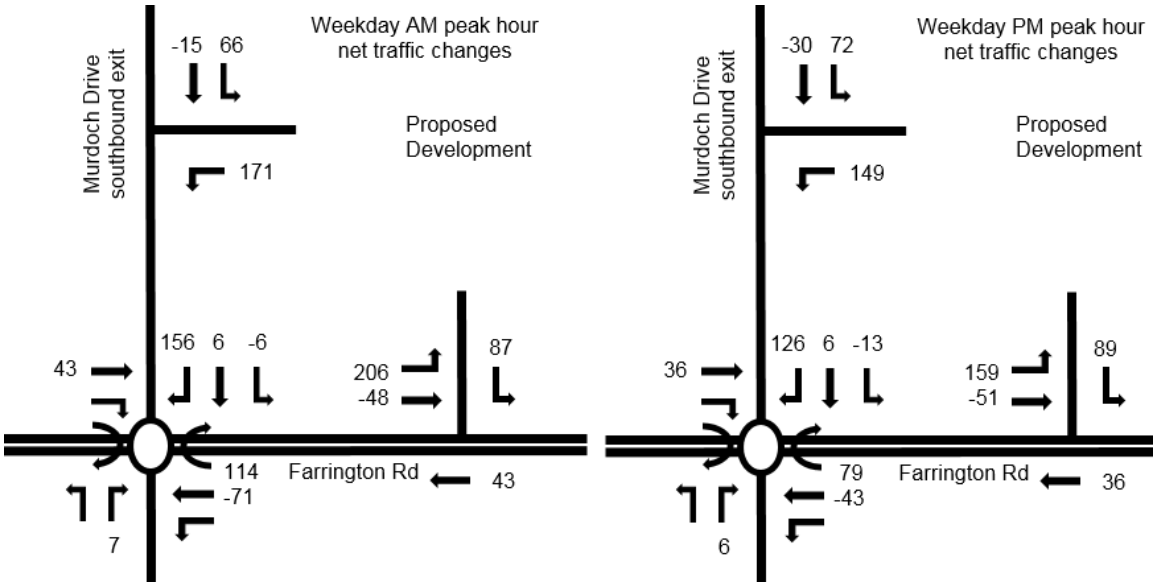


Figure 7: Weekday peak periods traffic generated by the proposed development

4.3 Future Traffic Flows

Existing traffic flows at the Murdoch Drive / Farrington Road / Allendale Entrance roundabout are documented in section 3.3 and Appendix C.

Future (2031) daily traffic flows projected by Main Roads WA for the Murdoch Drive Connection project have been obtained from City of Cockburn Council minutes from 12 April 2018, as shown in Figure 8.

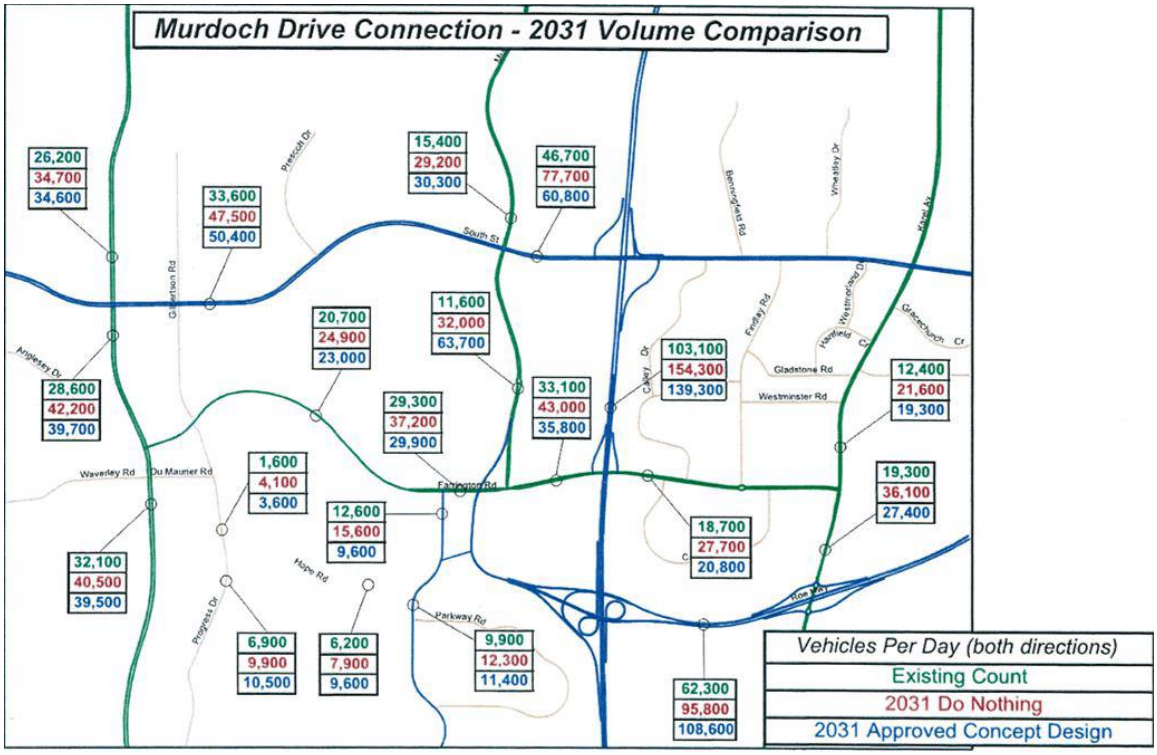


Figure 8: 2031 base traffic with Murdoch Drive Connection

Future (2031) AM and PM peak hour traffic flows at the Murdoch Drive / Farrington Road / Allendale Entrance roundabout have been estimated by factoring up the 2017 traffic counts to represent the projected modest increase on Farrington Road east (to 35,800vpd in 2031) and manually redistributing the turn volumes to reflect the changed traffic routes resulting from the Murdoch Drive Connection project (eg. the current right turn from Farrington Road east approach to Murdoch Drive north exit will instead continue westward through the roundabout to access the Murdoch Drive Connection via the new link road from Bibra Drive). The resultant 2031 AM and PM base traffic flows are shown in Figure 9.

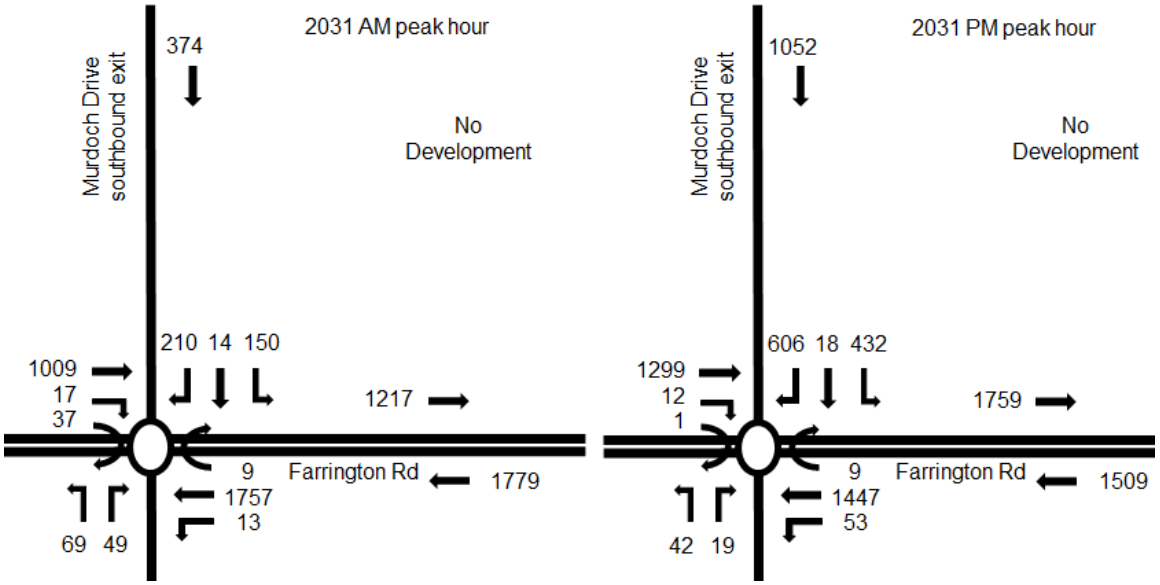


Figure 9: 2031 peak periods base traffic with Murdoch Drive Connection

Total future traffic flows at the Murdoch Drive / Farrington Road / Allendale Entrance roundabout and the proposed site access left in / left out (LILO) driveways during the 2031 weekday AM and PM peak periods following completion of the proposed development are shown in Figure 10.

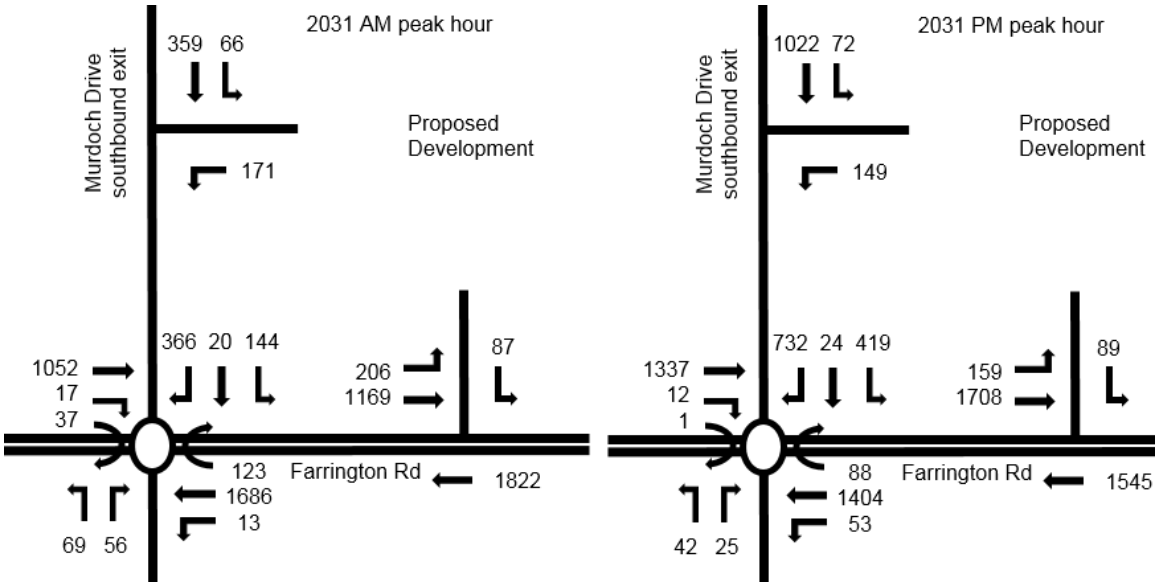


Figure 10: 2031 peak periods traffic flows with the proposed development

4.4 Analysis of Intersections and Development Accesses

The existing Murdoch Dr / Farrington Rd / Allendale Ent roundabout is being modified to a signalised roundabout as part of the Murdoch Drive Connection project, as discussed in section 3.7 above (refer to discussion related to Figure 6 in that section). The operation of that signalised roundabout has been analysed for the 2031 traffic flows shown in Figure 9, which are without the proposed development.

The operation of the following intersections has been analysed for the 2031 traffic flows shown in Figure 10, which includes the proposed development.

- Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout;
- Farrington Road LILO driveway; and
- Murdoch Drive LILO driveway.

These intersections have been analysed as a network of intersections using Network analysis in the SIDRA computer software package. SIDRA is an intersection modelling tool commonly used by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These characteristics are defined as follows:

- Degree of Saturation is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for infrequent traffic flow up to one for saturated flow or capacity.

- Level of Service is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- Average Delay is the average of all travel time delays for vehicles through the intersection.
- 95% Queue is the queue length below which 95% of all observed queue lengths fall.

The results of the SIDRA analysis are summarised in Appendix D.

Figures D1a and D1b present the SIDRA results for the signalised roundabout in 2031 without the proposed development. The SIDRA analysis indicates that this signalised roundabout would operate at degree of saturation 0.752 and 0.758 in the 2031 AM and PM peak periods. The overall level of service (LOS) would be LOS A in the AM peak and B in the PM peak, with all movements at LOS A, B or C, which is considered a good level of service on all movements.

Figures D2a and D2b present the SIDRA results for the signalised roundabout in 2031 with the additional traffic movements associated with the proposed development. The SIDRA analysis indicates that this signalised roundabout would operate at degree of saturation 0.880 and 0.817 in the 2031 AM and PM peak periods. The overall level of service (LOS) would be LOS B in both the AM and PM peaks, with all movements at LOS A, B or C, which is considered a good level of service on all movements.

Figures D2c and D2d present the SIDRA results for the proposed Farrington Road driveway intersection in 2031. The SIDRA analysis indicates that this driveway intersection would operate at degree of saturation 0.323 and 0.472 in the 2031 AM and PM peak periods. All movements would operate at LOS A or B, which is considered a very good level of service on all movements.

Figures D2e and D2f present the SIDRA results for the proposed Murdoch Drive driveway intersection in 2031. The SIDRA analysis indicates that this driveway intersection would operate at degree of saturation 0.124 and 0.352 in the 2031 AM and PM peak periods. All movements would operate at LOS A, which is the best possible level of service on all movements.

Both driveways are proposed to be provided with short left turn deceleration lanes in the road verge for vehicles slowing to enter the site. Murdoch Drive and Farrington Road both currently have posted speed limits of 70km/h but at both driveway locations it is anticipated that the actual traffic speed will be significantly lower due to the road geometry on approach to those driveway locations. On Farrington Road traffic exiting from the roundabout would not be travelling faster than 50km/h because the roundabout is actually designed to slow traffic flow through the roundabout. Similarly, on Murdoch Drive the left turn radius into the Murdoch Drive southbound exit lane and the right hand bend on that Murdoch Drive southbound exit lane close to the proposed Murdoch Drive driveway would also reduce traffic speeds accordingly. The desirable left turn lane deceleration

length at a design speed of 50km/h is only 40m (or even less if vehicles do not have to come to a stop at the end of the left turn lane, which they do not need to do in this case). Accordingly it is recommended that a left turn deceleration lane length of 40m (including taper) should be considered satisfactory and desirable for both of those proposed driveways.

4.5 Impact on Surrounding Roads and Neighbouring Areas

Comparison of the traffic flow changes generated by the proposed development (in Figure 7) and the 2031 base traffic without development (Figure 8) indicates the proposed development would result in the following percentage increases on 2031 base traffic flows during AM and PM peak periods:

- +13.6% (AM) and +4.0% (PM) on Murdoch Dr southbound exit north of the site access;
- +4.1% (AM) and +3.5% (PM) on Farrington Rd west of the roundabout; and
- +2.7% (AM) and +2.3% (PM) on Farrington Rd east of the site.

It can be seen that the only significant percentage increase is on the Murdoch Drive southbound exit lane adjacent to the site during the AM peak period when base traffic flows are relatively low and there is plenty of spare capacity to accommodate that traffic increase.

It is therefore considered that the proposed development will not result in a significant traffic impact on the surrounding roads and neighbouring areas.

4.6 Traffic Noise and Vibration

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB(A) increase in road noise. The proposed development traffic will be very much less than half of the future total traffic on adjacent roads so it will not represent a sufficient proportion of total traffic volumes to account for a perceptible increase in noise on the surrounding roads.

4.7 Road Safety

No particular road safety issues have been identified for the proposed development itself.

As noted in section 3.4, the Murdoch Drive / Farrington Road / Allendale Entrance roundabout ranked 304th in the State in terms of crash frequency and 288th in terms of severity during the five year period 2013-2017. The planned signalisation of this roundabout as part of the Murdoch Drive Connection project will make traffic movements from the Murdoch Drive approach, in particular, easier and will reduce the potential for risk-taking by some drivers at this roundabout. It is therefore anticipated this would result in reduced crash rates at this roundabout in future.

5.0 Parking

The proposed site plan shows provision of 207 marked parking spaces (including 8 disabled bays) plus 35 cars in the drive through lanes at the fast food outlets and 8 vehicle spaces at the fuel pumps at the service station.

The planning consultant for this project has provided preliminary advice of car parking requirements under City of Melville Local Planning Policy 1.6 (Car Parking and Access). It is understood that parking requirements would be approximately as follows (PFA = public floor area):

- Service station: 0.5 bays/staff member = 0.5x2 = 1 bay
- Fast food / restaurants (3): 1 bay per 10m^2 PFA + 0.5 bays/staff member = (112+122+97)/10 + (15+15+15)x0.5 = 57 bays
- Veterinary clinic: 3 bays per consultant + 0.5 bays/staff member (including health consultants) = 3.5 x 3 = 17 bays
- Respite care facility (private small hospital) = 1 bays per 3 beds + 0.5 bays/staff member (including health consultants) = 100/3 + 20x0.5 = 43 bays
- Showroom: 1 bay per 40m^2 NLA = 200/40 = 5 bays
- Total parking required: 123 bays

Therefore the proposed provision of 207 marked parking spaces will more than satisfy the anticipated parking requirement.

6.0 Public Transport

The existing bus services in this area have been noted in Section 3.5 of this report and will provide a satisfactory level of public transport accessibility to the site, particularly during weekday peak periods.

Main Roads WA has made provision for appropriate relocation of existing bus stops where required as part of the Murdoch Drive Connection project, which will maintain availability of bus stops less than 5-minutes' walk from the subject site. The closest bus stops will be on Murdoch Drive north of Bramanti Road, approximately 250-300m north of the subject site.

7.0 Pedestrians and Cyclists

Pedestrian access connections will be provided from the existing paths on Murdoch Drive and Farrington Road adjacent to the subject site.

The proposed site plan includes bicycle racks at five locations and six bicycle lockers.

It is anticipated that final numbers of bicycle parking facilities for visitors and staff and end-of-trip facilities for staff in accordance with the City of Melville Local Planning Policy 1.6 (Car Parking and Access) requirements would be confirmed as a condition of approval and will be provided on site.

8.0 Conclusions

This Transport Impact Assessment has been prepared by Transcore in relation to a proposed commercial development at Lot 1001 Murdoch Drive and Farrington Road, Murdoch, in the City of Melville.

The site is located at the northeast corner of the intersection of Murdoch Drive and Farrington Road.

Vehicular access to the site will primarily be via two left in / left out driveway crossovers on Farrington Road and Murdoch Drive, with another left in only driveway crossover at the northern end of the site that will essentially only provide an alternative exit route from a planned cul-de-sacced section of Murdoch Drive north of the site.

The peak periods of traffic flows generated by the site are anticipated to coincide with weekday AM and PM peak periods of the adjacent road network traffic flows. It is anticipated that traffic flows of up to 530vph (272 in / 258 out) will occur during the AM peak hour and 468vph (231 in / 237 out) during the PM peak hour, although almost half of those traffic movements would be vehicles already passing the site that would turn in to utilise the facilities offered by the proposed development.

Traffic analysis of the proposed development in this report has taken into consideration changes in the adjacent road network and future traffic flows associated with the Murdoch Drive Connection project, which is currently under construction. This includes changes to the Murdoch Drive / Farrington Road / Allendale Entrance roundabout which will become a signalised roundabout and will no longer have a northbound exit onto Murdoch Drive.

Intersection analysis has been undertaken for weekday AM and PM peak periods for the year 2031. The traffic analysis confirms that this signalised roundabout and the two left in / left out driveways for this site will all operate satisfactorily under the projected future traffic flows with the proposed development.

The proposed parking provision of 207 marked parking spaces shown on the proposed site plan is considered more than sufficient to satisfy the parking requirements of City of Melville Local Planning Policy 1.6 (Car Parking and Access).

The existing bus services in this area will provide a satisfactory level of public transport accessibility to the site, particularly during weekday peak periods, and Main Roads WA has made provision for appropriate relocation of existing bus stops where required as part of the Murdoch Drive Connection project, which will maintain availability of bus stops within convenient walking distance, approximately 250-300m north of the subject site.

Pedestrian access connections will be provided from the existing paths on Murdoch Drive and Farrington Road adjacent to the subject site.

The proposed site plan includes bicycle racks at five locations and six bicycle lockers. It is anticipated that final numbers of bicycle parking facilities for visitors and staff and end-of-trip facilities for staff in accordance with the City of Melville Local Planning Policy 1.6 (Car Parking and Access) requirements would be confirmed as a condition of approval and will be provided on site.

In conclusion, the findings of this Transport Impact Assessment are supportive of the proposed development.

Appendix A

PROPOSED SITE PLAN

LEGEND

- NEW LEASABLE BUILDING AREA.
- NEW COMMON / SERVICES BUILDING AREA.
- NEW HARDSTAND PAVING.
- NEW BLACK CONCRETE PAVING
- NEW HEAVY DUTY CONCRETE FOR TRUCK TURNING - SELECTED FINISH.
- NEW CONCRETE FOOTPATH TO MATCH EXISTING.
- NEW PAVING
- NEW SELECTED NATIVE 'WATERWISE' LANDSCAPING.
- EXTENT OF NEW BOUNDARY RETAINING WALL - REFER TO CIVIL ENGINEER'S DRAWINGS.
- SELECTED SHADE TREE.

GENERAL NOTES

SITE AREA-	14,105m²
LANDSCAPING AREA-	1,411.2m² - 9.8% OF SITE AREA

CARPARKING

MARKED BAYS	207
DRIVE THROUGH STACK	39
REFUELING BAYS	8
MOTORCYCLE BAYS	18

NOTE
REFER TO TRAFFIC IMPACT ASSESSMENT FOR EACH INDIVIDUAL USES PARKING REQUIREMENTS

HINDLEY & ASSOCIATES P/L AS TRUSTEE FOR HINDLEY TRUST ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
A	30.07.19	DEVELOPMENT APPLICATION ISSUE	RCP	SDS
B	01.08.19	DEVELOPMENT APPLICATION ISSUE	RCP	SDS

A1 SHEET

PROPOSED SITE PLAN
SCALE 1:300

N

PROPOSED COMMERCIAL DEVELOPMENT
LOT 1001 & 3001, CNR MURDOCH DRIVE AND FARRINGTON ROAD, MURDOCH
FABRIC PROPERTY

Date - 22.01.19
Design - RCP
Drawn - RCP
Checked - SDS
Scale - 1:200
Job No. - 0679
Dwg - DA02
Rev - B

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

166 STIRLING HIGHWAY
NEDLANDS WA 6009

PO BOX 199
NEDLANDS WA 6909

PHONE - 9386 6699
FAX - 9386 6700
admin@hindley.com.au

DEVELOPMENT APPLICATION

Appendix B

TURN PATH ANALYSIS

Lot 1001 Cnr Murdoch Dr & Farrington Rd

Main Roads WA: 19.0m Semi-Trailer

Truck Circulation

LEGEND

Vehicle Body

Wheel Path

500mm Clearance

t19.116.sk01a

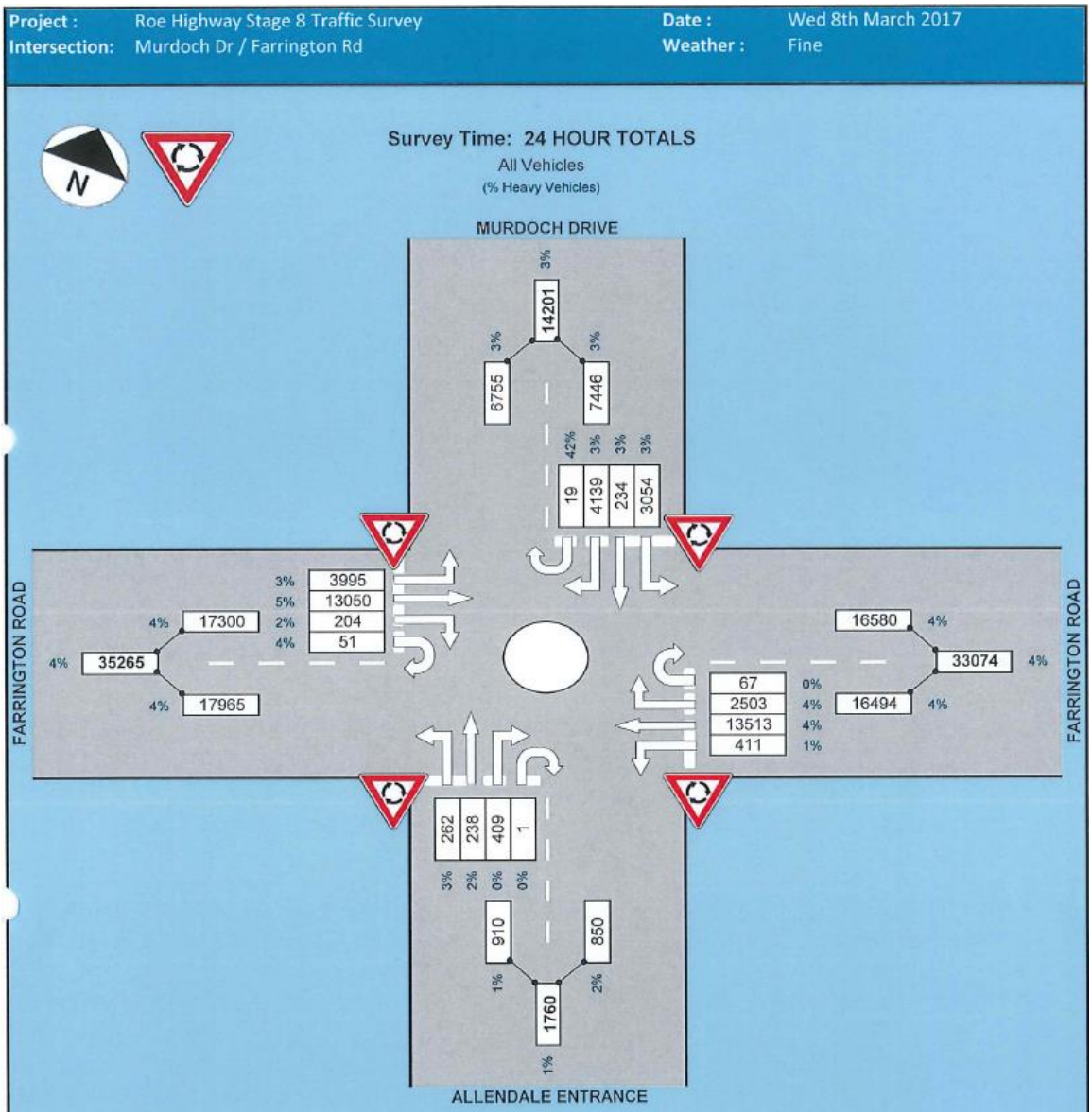
25/07/2019

Scale: 1:500 @ A3

transcore

Appendix C

EXISTING TRAFFIC FLOWS


Project : Roe Highway Stage 8 Traffic Survey
Intersection: Murdoch Dr / Farrington Rd
Date : Wed 8th March 2017
Weather : Fine
Survey Time: 24 HOUR TOTALS
All Vehicles
(% Heavy Vehicles)
MURDOCH DRIVE
ALLENDALE ENTRANCE
FARRINGTON ROAD
FARRINGTON ROAD
N
3% 14201
3% 6755
3% 7446
42% 19
3% 4139
3% 234
3% 3054
3% 3995
5% 13050
2% 204
4% 51
4% 17300
4% 35265
4% 17965
16580 4%
33074 4%
16494 4%
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13513 4%
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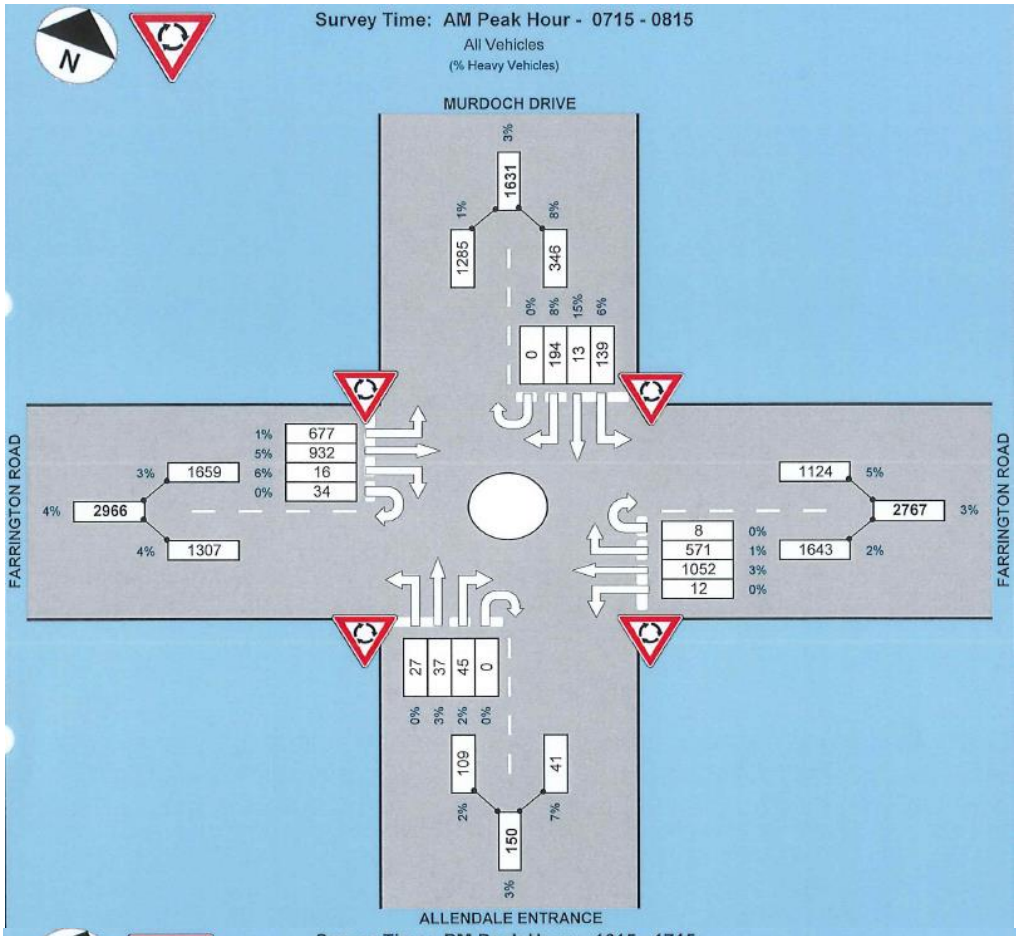
262 3%
238 2%
409 0%
1 0%
910 1%
850 2%
1760 1%


Survey Time: AM Peak Hour - 0715 - 0815
All Vehicles
(% Heavy Vehicles)
MURDOCH DRIVE
FARRINGTON ROAD
FARRINGTON ROAD
ALLENDALE ENTRANCE
1631
1285
346
0
194
13
139
677
932
16
34
1659
2966
1307
1124
2767
1643
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571
1052
12
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37
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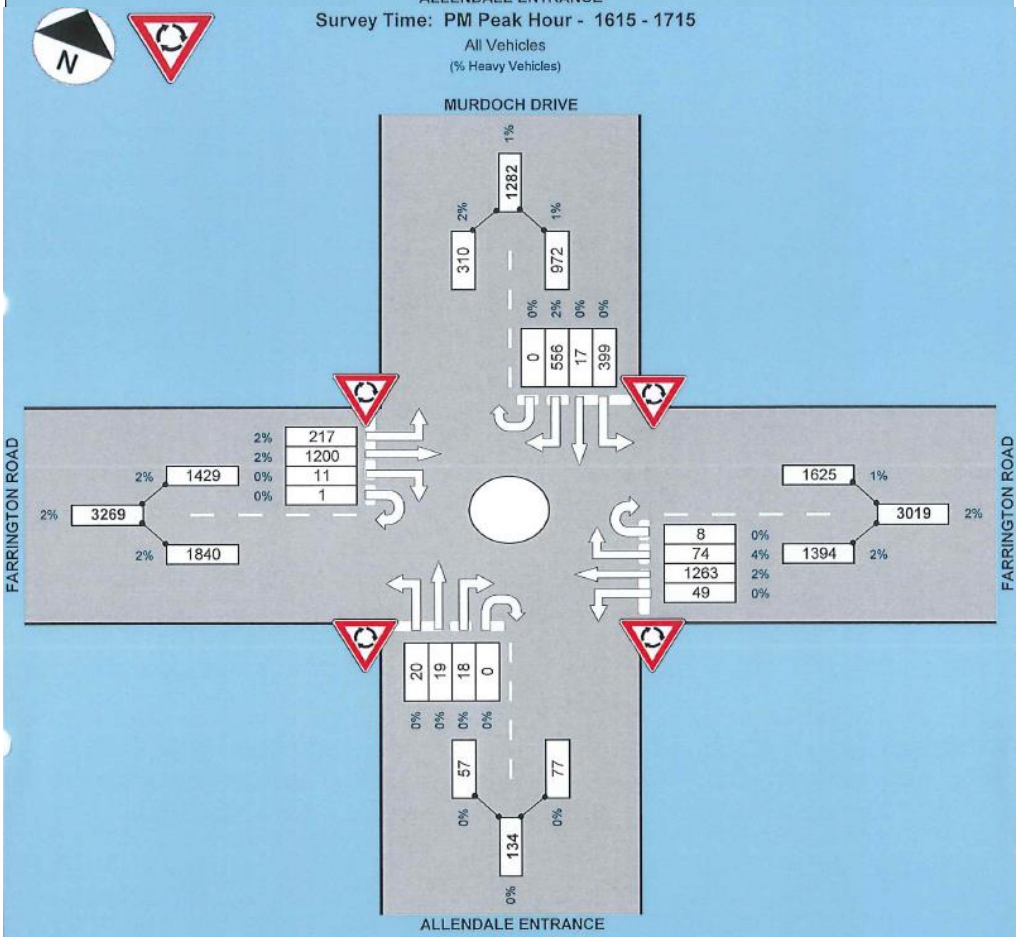
0
109
41
150


Survey Time: PM Peak Hour - 1615 - 1715
All Vehicles
(% Heavy Vehicles)
MURDOCH DRIVE
FARRINGTON ROAD
FARRINGTON ROAD
ALLENDALE ENTRANCE
1282
310
972
0
556
17
399
217
1200
11
1
1429
3269
1840
1625
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74
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49
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19
18
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57
77
134

Appendix D

SIDRA INTERSECTION ANALYSIS

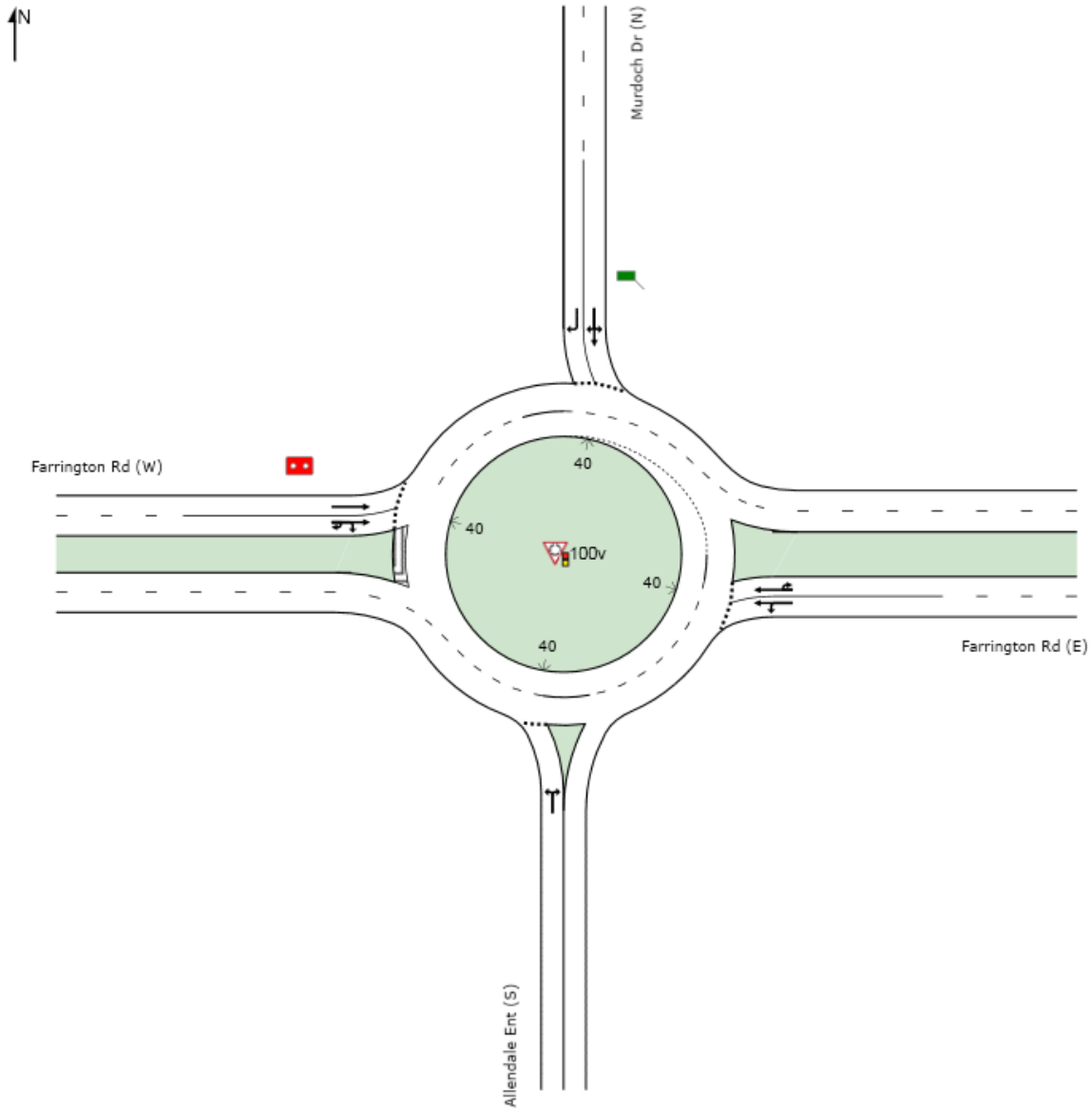


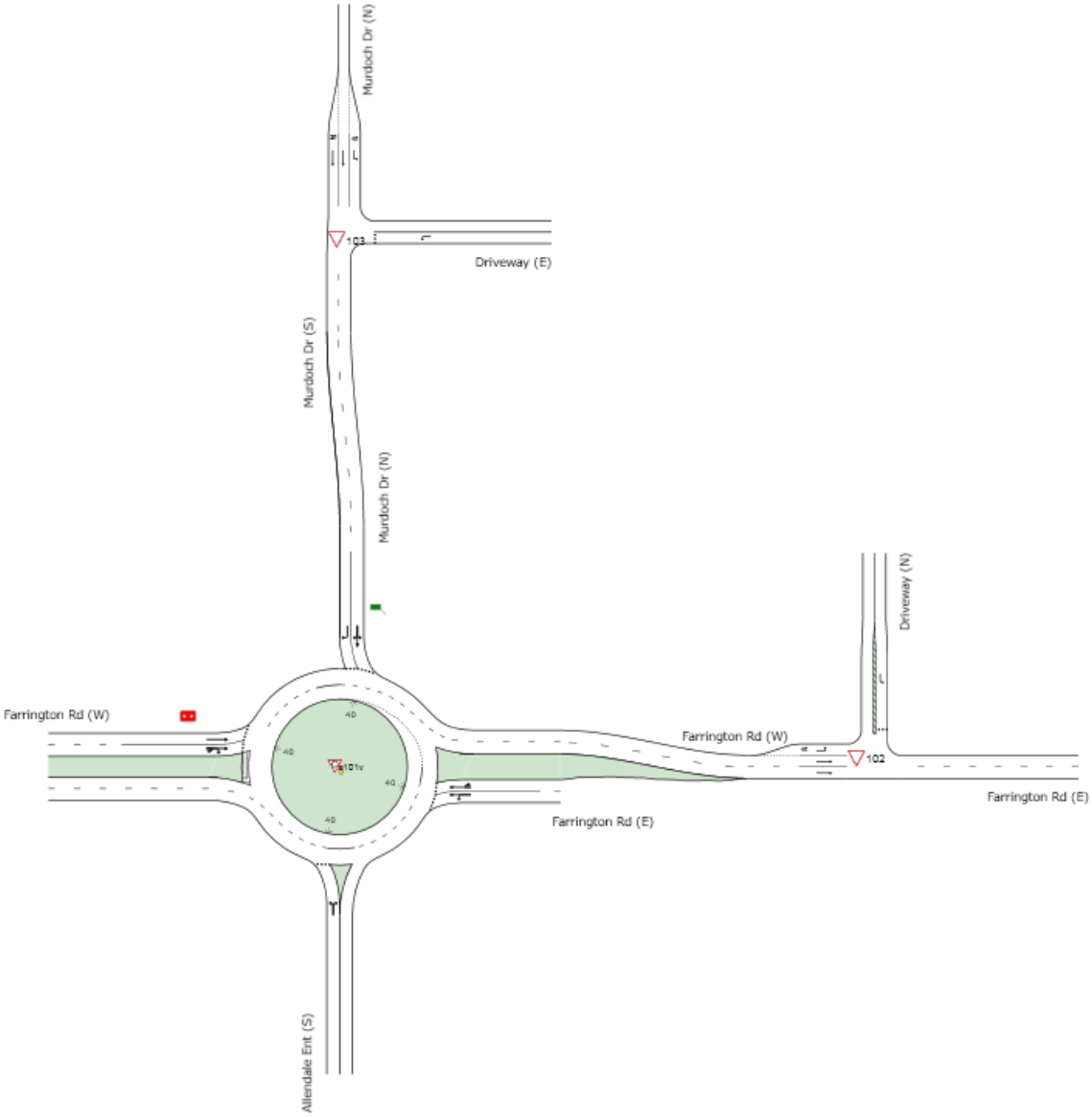
Figure D1: Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout layout modelled in SIDRA intersection analysis

Table D1a: SIDRA results – Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout – 2031 AM peak without proposed development

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Allendale Ent (S)												
1	L2	69	2.0	0.266	7.4	LOS A	1.2	9.0	0.82	0.90	0.83	47.9
3	R2	49	2.0	0.266	13.0	LOS B	1.2	9.0	0.82	0.90	0.83	51.9
Approach		118	2.0	0.266	9.7	LOS A	1.2	9.0	0.82	0.90	0.83	49.6
East: Farrington Rd (E)												
4	L2	13	2.0	0.752	5.4	LOS A	5.7	45.6	0.68	0.48	0.69	52.8
5	T1	1757	9.0	0.752	5.4	LOS A	5.7	45.6	0.69	0.48	0.70	58.7
6u	U	9	2.0	0.752	15.0	LOS B	5.2	42.2	0.70	0.49	0.71	63.1
Approach		1779	8.9	0.752	5.5	LOS A	5.7	45.6	0.69	0.48	0.70	58.7
North: Murdoch Dr (N)												
7	L2	150	4.8	0.213	6.2	LOS A	1.2	9.5	0.66	0.69	0.66	54.1
8	T1	14	2.0	0.213	6.2	LOS A	1.2	9.5	0.66	0.69	0.66	48.8
9	R2	210	4.8	0.213	12.8	LOS B	1.2	9.5	0.64	0.77	0.64	50.9
Approach		374	4.7	0.213	9.9	LOS A	1.2	9.5	0.64	0.73	0.64	52.1
West: Farrington Rd (W)												
11	T1	1009	9.0	0.724	13.3	LOS B	15.4	124.1	0.89	0.81	1.06	54.3
12	R2	17	2.0	0.724	20.6	LOS C	12.9	103.6	0.89	0.85	1.08	50.3
12u	U	37	2.0	0.724	23.5	LOS C	12.9	103.6	0.89	0.85	1.08	56.0
Approach		1063	8.6	0.724	13.8	LOS B	15.4	124.1	0.89	0.81	1.06	54.3
All Vehicles		3334	8.1	0.752	8.8	LOS A	15.4	124.1	0.75	0.63	0.81	56.3

Table D1b: SIDRA results – Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout – 2031 PM peak without proposed development

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Allendale Ent (S)												
1	L2	42	2.0	0.139	7.0	LOS A	0.6	4.8	0.80	0.88	0.80	48.7
3	R2	19	2.0	0.139	12.7	LOS B	0.6	4.8	0.80	0.88	0.80	52.7
Approach		61	2.0	0.139	8.8	LOS A	0.6	4.8	0.80	0.88	0.80	50.0
East: Farrington Rd (E)												
4	L2	53	2.0	0.733	7.5	LOS A	7.7	62.2	0.83	0.73	0.97	51.9
5	T1	1447	9.0	0.733	8.0	LOS A	7.7	62.2	0.84	0.77	0.99	57.7
6u	U	9	2.0	0.733	17.7	LOS B	7.3	59.1	0.84	0.80	1.01	62.0
Approach		1509	8.7	0.733	8.0	LOS A	7.7	62.2	0.84	0.76	0.99	57.5
North: Murdoch Dr (N)												
7	L2	432	4.8	0.630	12.0	LOS B	7.2	55.6	0.93	0.96	1.20	49.0
8	T1	18	2.0	0.630	12.0	LOS B	7.2	55.6	0.93	0.96	1.20	43.2
9	R2	606	4.8	0.630	18.5	LOS B	7.2	55.6	0.90	1.00	1.16	46.6
Approach		1056	4.8	0.630	15.7	LOS B	7.2	55.6	0.91	0.98	1.18	47.6
West: Farrington Rd (W)												
11	T1	1299	9.0	0.758	13.7	LOS B	21.0	169.6	0.86	0.74	1.03	54.2
12	R2	12	2.0	0.758	21.2	LOS C	17.7	142.7	0.86	0.77	1.05	50.5
12u	U	1	2.0	0.758	24.0	LOS C	17.7	142.7	0.86	0.77	1.05	56.3
Approach		1312	8.9	0.758	13.8	LOS B	21.0	169.6	0.86	0.74	1.03	54.2
All Vehicles		3938	7.6	0.758	12.0	LOS B	21.0	169.6	0.87	0.81	1.05	53.9



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101v	NA	Murdoch-Farrington sig rbt 2031PM with dev
102	NA	Farrington driveway 2031 PM with dev
103	NA	Murdoch driveway 2031 PM with dev

Figure D2: Murdoch Dr / Farrington Rd network layout modelled in SIDRA Network analysis

Table D2a: SIDRA results – Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout – 2031 AM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Allendale Ent (S)														
1	L2	69	2.0	69	2.0	0.372	9.2	LOS A	1.6	12.0	0.89	0.97	0.99	46.3
3	R2	56	2.0	56	2.0	0.372	14.8	LOS B	1.6	12.0	0.89	0.97	0.99	34.3
Approach		125	2.0	125	2.0	0.372	11.7	LOS B	1.6	12.0	0.89	0.97	0.99	42.2
East: Farrington Rd (E)														
4	L2	13	2.0	13	2.0	0.880	9.9	LOS A	14.2	114.4	0.97	1.05	1.42	39.9
5	T1	1686	9.0	1686	9.0	0.880	10.9	LOS B	14.2	114.4	0.97	1.08	1.45	48.2
6u	U	123	2.0	123	2.0	0.880	20.2	LOS C	13.2	105.1	0.98	1.12	1.49	22.0
Approach		1822	8.5	1822	8.5	0.880	11.5	LOS B	14.2	114.4	0.97	1.08	1.45	47.3
North: Murdoch Dr (N)														
7	L2	144	4.8	144	4.8	0.356	6.5	LOS A	2.5	19.5	0.82	0.81	0.82	29.4
8	T1	20	2.0	20	2.0	0.356	6.8	LOS A	2.5	19.5	0.82	0.81	0.82	45.5
9	R2	366	4.8	366	4.8	0.356	13.1	LOS B	2.5	19.5	0.79	0.86	0.79	50.6
Approach		530	4.7	530	4.7	0.356	11.1	LOS B	2.5	19.5	0.80	0.84	0.80	47.5
West: Farrington Rd (W)														
11	T1	1052	9.0	1052	9.0	0.754	14.8	LOS B	18.1	146.0	0.93	0.81	1.13	42.5
12	R2	17	2.0	17	2.0	0.754	22.4	LOS C	15.0	120.0	0.93	0.85	1.16	48.7
12u	U	37	2.0	37	2.0	0.754	25.2	LOS C	15.0	120.0	0.93	0.85	1.16	54.3
Approach		1106	8.7	1106	8.7	0.754	15.3	LOS B	18.1	146.0	0.93	0.81	1.13	43.2
All Vehicles		3583	7.7	3583	7.7	0.880	12.6	LOS B	18.1	146.0	0.93	0.96	1.24	45.7

Table D2b: SIDRA results – Murdoch Dr / Farrington Rd / Allendale Ent signalised roundabout – 2031 PM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Allendale Ent (S)														
1	L2	42	2.0	42	2.0	0.165	7.9	LOS A	0.8	6.1	0.84	0.91	0.84	47.6
3	R2	25	2.0	25	2.0	0.165	13.6	LOS B	0.8	6.1	0.84	0.91	0.84	35.8
Approach		67	2.0	67	2.0	0.165	10.0	LOS B	0.8	6.1	0.84	0.91	0.84	44.4
East: Farrington Rd (E)														
4	L2	53	2.0	53	2.0	0.786	8.1	LOS A	10.7	85.9	0.94	0.93	1.21	41.9
5	T1	1404	9.0	1404	9.0	0.786	9.4	LOS A	10.7	85.9	0.95	0.96	1.24	50.4
6u	U	88	2.0	88	2.0	0.786	18.9	LOS B	10.4	83.1	0.96	1.00	1.28	23.6
Approach		1545	8.4	1545	8.4	0.786	9.9	LOS A	10.7	85.9	0.95	0.96	1.24	49.3
North: Murdoch Dr (N)														
7	L2	419	4.8	419	4.8	0.817	27.5	LOS C	18.8	145.5	1.00	1.25	1.94	12.5
8	T1	24	2.0	24	2.0	0.817	27.8	LOS C	18.8	145.5	1.00	1.25	1.94	28.3
9	R2	732	4.8	732	4.8	0.817	33.1	LOS C	18.8	145.5	1.00	1.26	1.90	33.6
Approach		1175	4.7	1175	4.7	0.817	31.0	LOS C	18.8	145.5	1.00	1.26	1.91	28.2
West: Farrington Rd (W)														
11	T1	1337	9.0	1337	9.0	0.805	18.2	LOS B	29.0	234.4	0.93	0.74	1.14	39.4
12	R2	12	2.0	12	2.0	0.805	25.9	LOS C	24.3	195.8	0.93	0.77	1.17	46.4
12u	U	1	2.0	1	2.0	0.805	28.8	LOS C	24.3	195.8	0.93	0.77	1.17	51.8
Approach		1350	8.9	1350	8.9	0.805	18.2	LOS B	29.0	234.4	0.93	0.74	1.14	39.5
All Vehicles		4137	7.4	4137	7.4	0.817	18.6	LOS B	29.0	234.4	0.95	0.97	1.39	38.7

Table D2c: SIDRA results – Farrington Rd driveway intersection – 2031 AM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
North: Driveway (N)														
7	L2	87	2.0	87	2.0	0.101	8.3	LOS A	0.4	2.9	0.54	0.75	0.54	47.0
Approach		87	2.0	87	2.0	0.101	8.3	LOS A	0.4	2.9	0.54	0.75	0.54	47.0
West: Farrington Rd (W)														
10	L2	206	2.0	206	2.0	0.112	3.9	LOS A	0.0	0.0	0.00	0.55	0.00	36.0
11	T1	1169	9.0	1169	9.0	0.323	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1375	8.0	1375	8.0	0.323	0.6	NA	0.0	0.0	0.00	0.08	0.00	58.0
All Vehicles		1462	7.6	1462	7.6	0.323	1.1	NA	0.4	2.9	0.03	0.12	0.03	57.0

Table D2d: SIDRA results – Farrington Rd driveway intersection – 2031 PM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
North: Driveway (N)														
7	L2	89	2.0	89	2.0	0.159	11.2	LOS B	0.6	4.3	0.69	0.87	0.69	44.3
Approach		89	2.0	89	2.0	0.159	11.2	LOS B	0.6	4.3	0.69	0.87	0.69	44.3
West: Farrington Rd (W)														
10	L2	159	2.0	159	2.0	0.087	3.9	LOS A	0.0	0.0	0.00	0.55	0.00	36.0
11	T1	1708	9.0	1708	9.0	0.472	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		1867	8.4	1867	8.4	0.472	0.3	NA	0.0	0.0	0.00	0.05	0.00	58.8
All Vehicles		1956	8.1	1956	8.1	0.472	0.8	NA	0.6	4.3	0.03	0.08	0.03	57.8

Table D2e: SIDRA results – Murdoch Dr driveway intersection – 2031 AM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Driveway (E)														
7	L2	171	2.0	171	2.0	0.124	4.6	LOS A	0.5	4.0	0.29	0.55	0.29	26.9
Approach		171	2.0	171	2.0	0.124	4.6	LOS A	0.5	4.0	0.29	0.55	0.29	26.9
North: Murdoch Dr (N)														
10	L2	66	2.0	66	2.0	0.036	5.1	LOS A	0.0	0.0	0.00	0.57	0.00	32.2
11	T1	359	4.8	359	4.8	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		425	4.4	425	4.4	0.097	0.8	NA	0.0	0.0	0.00	0.09	0.00	50.1
All Vehicles		596	3.7	596	3.7	0.124	1.9	NA	0.5	4.0	0.08	0.22	0.08	42.4

Table D2f: SIDRA results – Murdoch Dr driveway intersection – 2031 PM peak with proposed development

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows Total	HV	Arrival Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Driveway (E)														
7	L2	149	2.0	149	2.0	0.205	6.0	LOS A	0.6	4.5	0.50	0.72	0.50	23.7
Approach		149	2.0	149	2.0	0.205	6.0	LOS A	0.6	4.5	0.50	0.72	0.50	23.7
North: Murdoch Dr (N)														
10	L2	72	2.0	72	2.0	0.039	5.1	LOS A	0.0	0.0	0.00	0.57	0.00	32.2
11	T1	1022	4.8	1022	4.8	0.352	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1094	4.6	1094	4.6	0.352	0.3	NA	0.0	0.0	0.00	0.04	0.00	55.0
All Vehicles		1243	4.3	1243	4.3	0.352	1.0	NA	0.6	4.5	0.06	0.12	0.06	49.4

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Waste Management Plan

Lot 1001, Cnr Murdoch Drive & Farrington Road, Murdoch

Prepared for Rhyian Pty Ltd

July 2019

Project Number: TW19068

DOCUMENT CONTROL

Version	Description	Date	Author	Reviewer
0a	Internal Review	24/07/19	RH	JW
1a	Released to Client	24/07/19	RH	Client
1b	Released to Client	29/07/19	RH	Client

Approval for Release

Name	Position	File Reference
Ronan Cullen	Director and Waste Management Section Leader	TW19068 - Waste Management Plan.1b
Signature		

Executive Summary

Rhyian Pty Ltd is seeking development approval for the proposed commercial development located at Lot 1001, Cnr Murdoch Drive and Farrington Road, Murdoch (the Proposal).

To satisfy the conditions of the Development Approval (DA) the City of Melville (the City) requires a Waste Management Plan (WMP) to be submitted that will identify how waste is to be stored and collected from the Proposal. Rhyian Pty Ltd has engaged Talis Consultants (Talis) to prepare this WMP to satisfy the City's requirements.

A summary of the bin size, numbers, collection frequency and collection method is provided in the below table.

Proposed Waste Collection Summary

Waste Type	Generation (L/week)	Bin Size (L)	Number of Bins	Collection Frequency	Collection
Bin Storage Area 1					
Refuse	2,380	1,100	3	Once each week	Private Contractor
Recycling	1,190	1,100	2	Once each week	Private Contractor
Bin Storage Area 2					
Refuse	1,512	1,100	2	Once each week	Private Contractor
Recycling	756	1,100	1	Once each week	Private Contractor
Bin Storage Area 3					
Refuse	1,540	1,100	2	Once each week	Private Contractor
Recycling	770	1,100	1	Once each week	Private Contractor
Bin Storage Area 4					
Refuse	280	660	1	Once each week	Private Contractor
Recycling	280	660	1	Once each week	Private Contractor
Bin Storage Area 5					
Refuse	2,534	1,100	3	Once each week	Private Contractor
Recycling	2,534	1,100	3	Once each week	Private Contractor

The private contractors waste collection vehicle will enter the Proposal's carpark in forward gear and service bins directly the Bin Storage Areas, utilising the dedicated loading zones/bays. Once servicing is complete the private contractors waste collection vehicle will exit the Proposal in forward gear.

A building manager will oversee the relevant aspects of waste management at the Proposal

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Tables

Figures

1 Introduction

Rhyian Pty Ltd is seeking development approval for the proposed commercial development located at Lot 1001, Cnr Murdoch Drive and Farrington Road, Murdoch (the Proposal).

To satisfy the conditions of the development application the City of Melville (the City) requires the submission of a Waste Management Plan (WMP) that will identify how waste is to be stored and collected from the Proposal. Rhyian Pty Ltd has engaged Talis Consultants (Talis) to prepare this WMP to satisfy the City's requirements.

The Proposal is bordered by a Western Power Compound to the north, vacant land to the east, Farrington Road to the south and Murdoch Drive to the west, as shown in Figure 1.

1.1 Objectives and Scope

The objective of this WMP is to outline the equipment and procedures that will be adopted to manage all waste (refuse and recyclables) at the Proposal. Specifically, the WMP demonstrates that the Proposal is designed to:

- Adequately cater for the anticipated quantities of waste to be generated;
- Provide suitable Bin Storage Area including appropriate bins; and
- Allow for efficient collection of bins by appropriate waste collection vehicles.

To achieve the objective, the scope of the WMP comprises:

- Section 2: Waste Generation;
- Section 3: Waste Storage;
- Section 4: Waste Collection;
- Section 5: Waste Management; and
- Section 6: Conclusion.

2 Waste Generation

The following sections show the waste generation rates used and the estimated waste volumes to be generated at the Proposal.

2.1 Proposed Tenancies

The anticipated quantities of refuse and recyclables were based on the floor area (m^2) of the commercial tenancies at the Proposal. The Proposal consists of the following:

- Service Station – 240m^2;
- Fast Food Restaurant Site – 425m^2;
- Fast Food Restaurant – 270m^2;
- Fast Food Restaurant – 275m^2;
- Vet Clinic – 200m^2;
- Tenancy 4 – 200m^2; and
- Respite Care Facility – 3620m^2.

2.2 Waste Generation Rates

Waste generation rates used for this WMP were based upon the City's *Waste and Recyclables Collection for Multiple Developments, Mixed Use Developments and Non-Residential Developments Policy Lpp1.3* (2016).

As medical waste is highly dependent on the nature and scale of medical practices undertaken, there are currently no medical/clinical waste generation rates available within published waste management guidelines. Facilities such as a Respite Care Facility typically manage medical waste (i.e. sharps, infectious waste, pathological waste, pharmaceuticals, chemical waste and non-regulated medical waste) in-situ, therefore storage space is not required within the bin storage area. Therefore, medical waste has not been included within this waste generation assessment.

2.3 Waste Generation Volumes

Waste generation is estimated by volume in litres (L) as this is generally the influencing factor when considering bin size, numbers and storage space required.

2.3.1 Waste Generation

Waste generation volumes in litres per week (L/week) adopted for this waste assessment are shown Table 2-1. It is estimated that the commercial tenancies at the Proposal will generate 9,588L of refuse and 6,202L of recyclables each week.

Table 2-1: Estimated Waste Generation

Commercial Tenancies	Floor Area (m^2)	Waste Generation Rate (L/week)	Waste Generation (L/Week)
Refuse			
Service Station	240	80	1,344
Fast Food Restaurant Site	425	80	2,380
Fast Food Restaurant	270	80	1,512
Fast Food Restaurant	275	80	1,540
Vet Clinic	200	10	140
Tenancy 4	200	10	140
Respite Care Facility	3620	10	2,532
		Total	**9,588**
Recyclables			
Service Station	240	40	672
Fast Food Restaurant Site	425	40	1,190
Fast Food Restaurant	270	40	756
Fast Food Restaurant	275	40	770
Vet Clinic	200	10	140
Tenancy 4	200	10	140
Respite Care Facility	3620	10	2,534
		Total	**6,202**

The Service Station has its own back of house and manage waste through its own internal processes governed by their national waste collections contract, and therefore has not been included as part of this report.

3 Waste Storage

To ensure that waste is managed appropriately at the Proposal, it is important to allow for sufficient space to accommodate the required quantity of bins within the Bin Storage Area. The procedures and bins to be used in at the Proposal is described in the following sections.

3.1 Internal Bins

To promote positive recycling behaviour and maximise diversion from landfill, the Proposal will have a minimum of two bins within each commercial tenancy to facilitate the separate disposal of refuse and recycling. Waste from these internal bins will be transferred by the tenants, staff or cleaners to the respective Bin Storage Area and be deposited into the appropriate bin.

3.2 Bin Sizes

Table 3-1 gives the typical dimensions of standard bins sizes that may be utilised at the Proposal. It should be noted that these bin dimensions are approximate and can vary slightly between suppliers.

Table 3-1: Typical Bin Dimensions

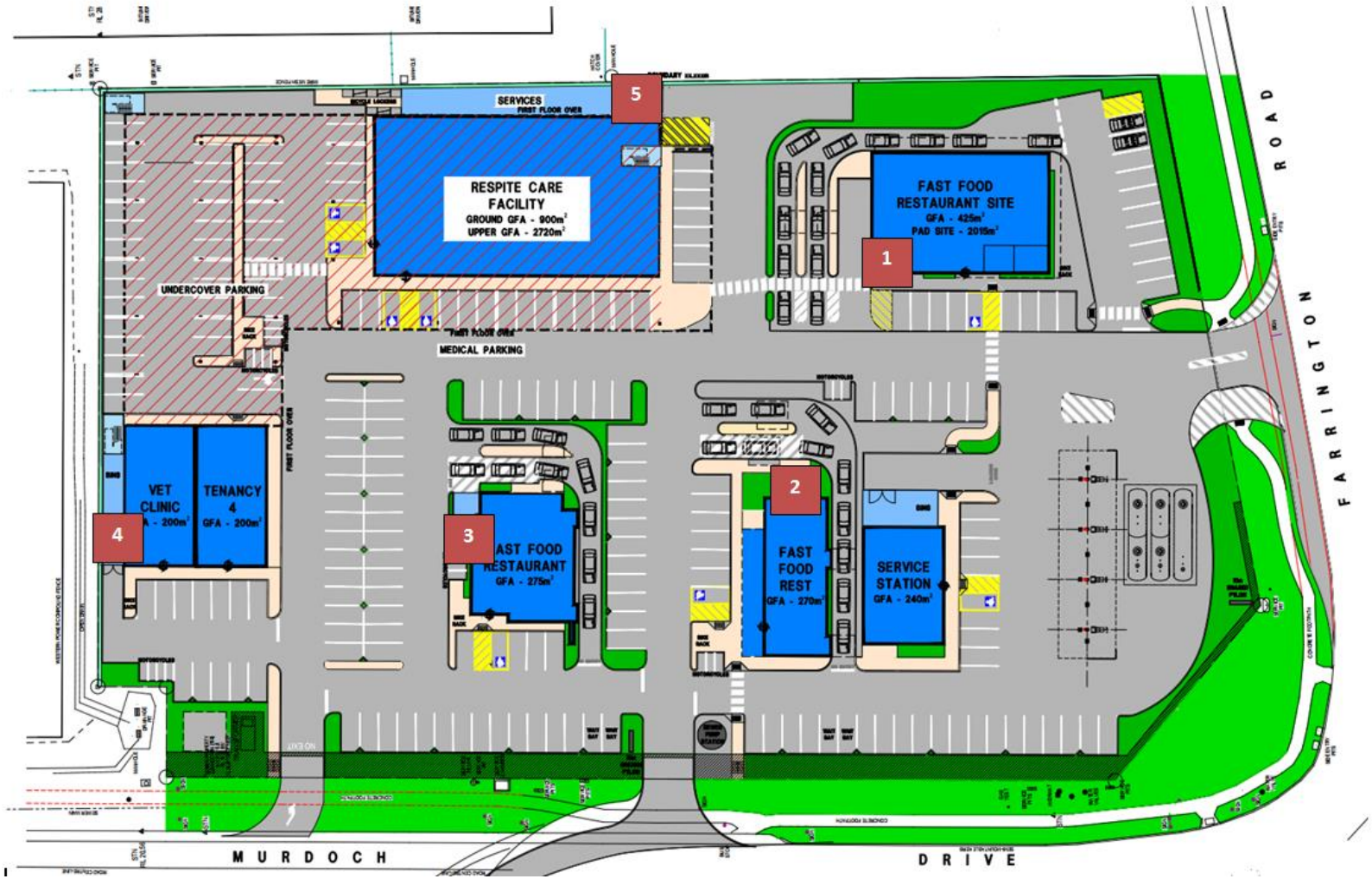
Dimensions	Bin Sizes			
	240L	360L	660L	1,000L
Depth (mm)	730	848	780	1070
Width (mm)	585	680	1260	1240
Height (mm)	1060	1100	1200	1300
Area (mm^2)	427	577	983	1327

Reference: SULO Bin Specification Data Sheets

3.3 Bin Storage Areas

The Proposal contains five Bin Storage Areas, as shown marked in red in Diagram 3-1. The following sections illustrate the bin requirements for each Bin Storage Area

Diagram 3-1: Bin Storage Area Locations



3.3.1 Bin Storage Area 1

Bin Storage Area 1 will accommodate the following tenancy:

- Fast Food Restaurant Site – 425m^2.

To ensure sufficient area is available for storage of the bins, the amount of bins required for Bin Storage Area 1 was modelled utilising the bin sizes in Table 3-1 and assuming collection of refuse and recyclables once each week from the Proposal.

Based on the results shown in Table 3-2, Bin Storage Area 1 has been sized to accommodate:

- Three 1,100L refuse bins; and
- Two 1,100L recyclable bins.

Table 3-2: Bin Requirements for Bin Storage Area 1

Waste Stream	Waste Generation (L/week)	Number of Bins Required			
		240L	360L	660L	1,100L
Refuse	2,380	10	7	4	3
Recycling	1,190	5	4	2	2

The configuration of these bins within Bin Storage Area 1 is shown in Figure 2. It is worth noting that the number of bins and corresponding placement of bins shown in Figure 2 represents the maximum requirements assuming one collection each week of refuse and recyclables. Increased collection frequencies would reduce the required number of bins.

3.3.2 Bin Storage Area 2

Bin Storage Area 2 will accommodate the following tenancy:

- Fast Food Restaurant – 270m^2.

To ensure sufficient area is available for storage of the bins, the amount of bins required for Bin Storage Area 2 was modelled utilising the bin sizes in Table 3-1 and assuming collection of refuse and recyclables once each week from the Proposal.

Based on the results shown in Table 3-3, Bin Storage Area 2 has been sized to accommodate:

- Two 1,100L refuse bins; and
- One 1,100L recyclable bin.

Table 3-3: Bin Requirements for Bin Storage Area 2

Waste Stream	Waste Generation (L/week)	Number of Bins Required			
		240L	360L	660L	1,100L
Refuse	1,512	7	5	3	2
Recycling	756	4	3	2	1

The configuration of these bins within Bin Storage Area 2 is shown in Figure 3. It is worth noting that the number of bins and corresponding placement of bins shown in Figure 3 represents the maximum requirements assuming one collection each week of refuse and recyclables. Increased collection frequencies would reduce the required number of bins.

3.3.3 Bin Storage Area 3

Bin Storage Area 3 will accommodate the following tenancy:

- Fast Food Restaurant – 275m^2.

To ensure sufficient area is available for storage of the bins, the amount of bins required for Bin Storage Area 3 was modelled utilising the bin sizes in Table 3-1 and assuming collection of refuse and recyclables once each week from the Proposal.

Based on the results shown in Table 3-4, Bin Storage Area 3 has been sized to accommodate:

- Two 1,100L refuse bins; and
- One 1,100L recyclable bin.

Table 3-4: Bin Requirements for Bin Storage Area 3

Waste Stream	Waste Generation (L/week)	Number of Bins Required			
		240L	360L	660L	1,100L
Refuse	1,540	7	5	3	2
Recycling	770	4	3	2	1

The configuration of these bins within Bin Storage Area 3 is shown in Figure 4. It is worth noting that the number of bins and corresponding placement of bins shown in Figure 4 represents the maximum requirements assuming one collection each week of refuse and recyclables. Increased collection frequencies would reduce the required number of bins.

3.3.4 Bin Storage Area 4

Bin Storage Area 4 will accommodate the following tenancies:

- Vet Clinic – 200m^2;
- Tenancy 4 – 200m^2.

To ensure sufficient area is available for storage of the bins, the amount of bins required for Bin Storage Area 4 was modelled utilising the bin sizes in Table 3-1 and assuming collection of refuse and recyclables once each week from the Proposal.

Based on the results shown in Table 3-5, Bin Storage Area 4 has been sized to accommodate:

- One 660L refuse bin; and
- One 660L recyclable bin.

Table 3-5: Bin Requirements for Bin Storage Area 4

Waste Stream	Waste Generation (L/week)	Number of Bins Required			
		240L	360L	660L	1,100L
Refuse	280	1	1	1	1
Recycling	280	1	1	1	1

The configuration of these bins within Bin Storage Area 4 is shown in Figure 5. It is worth noting that the number of bins and corresponding placement of bins shown in Figure 5 represents the maximum requirements

assuming one collection each week of refuse and recyclables. Increased collection frequencies would reduce the required number of bins.

3.3.5 Bin Storage Area 5

Bin Storage Area 5 will accommodate the following tenancy:

- Respite Care Facility – 3620m^2.

To ensure sufficient area is available for storage of the bins, the amount of bins required for Bin Storage Area 5 was modelled utilising the bin sizes in Table 3-1 and assuming collection of refuse and recyclables once each week from the Proposal.

Based on the results shown in Table 3-6, Bin Storage Area 5 has been sized to accommodate:

- Three 1,100L refuse bins; and
- Three 1,100L recyclable bins.

Table 3-6: Bin Requirements for Bin Storage Area 5

Waste Stream	Waste Generation (L/week)	Number of Bins Required			
		240L	360L	660L	1,100L
Refuse	2,534	11	8	4	3
Recycling	2,534	11	8	4	3

The configuration of these bins within Bin Storage Area 5 is shown in Figure 6. It is worth noting that the number of bins and corresponding placement of bins shown in Figure 6 represents the maximum requirements assuming one collection each week of refuse and recyclables. Increased collection frequencies would reduce the required number of bins.

3.3.6 Bin Storage Area Design

The design of the Bin Storage Area will take into consideration:

- Tap connected to an adequate supply of water for washing bins and the Bin Storage Area. The tap is to be located in a position so that it will not be susceptible to being damaged by the bins being removed for collection;
- Constructed of brick, concrete, corrugated compressed fibre cement sheet or other material of suitable thickness;
- Access point for collection is to be of suitable size for the size of the bins used and the collection method proposed;
- Containing a smooth and impervious floor of not less than 75 millimetres in thickness;
- Conveniently located for disposal of waste and recyclables by tenants, staff and cleaners;
- Not readily accessible by the public;
- Where located within a building, the bin storage area is to be ventilated in accordance with Australian Standard 1668.2: The Use of Ventilation and Air Conditioning in Buildings (as amended).
- No double stacking of rows of bins; and
- Located behind the building setback line.

Bin numbers and storage space within the Bin Storage Area will be monitored by the building manager during the operation of the Proposal to ensure that the number of bins and collection frequency is sufficient.

4 Waste Collection

A private contractor will service the Proposal by collecting waste from the tenancies' respective Bin Storage Areas, as shown in Diagram 3-1.

The private contractor's rear lift waste collection vehicle will enter the Proposal's carpark in forward gear and service bins directly from the Bin Storage Areas, utilising the dedicated loading zones/bays. Private contractor's staff will transfer bins to and from the collection vehicle from the bin storage areas during servicing. Once servicing is complete the private contractor's waste collection vehicle will exit the Proposal in forward gear.

The private contractor will be provided with key/PIN code access to the Bin Storage Areas and any security access gates to facilitate servicing, if required.

Servicing of bins onsite will reduce the noise generated in the area during collection. In addition, it will remove the need for bins on the street, maintaining the amenity of the area and removing the requirement for a lay down area to temporarily store bins on the verge before the collection vehicle arrives.

The ability of waste collection vehicles to safely and effectively service the Proposal has been assessed by TRANSCORE and included within their Traffic Impact Assessment.

4.1 Bulk Waste and Speciality Wastes

Any bulk waste or speciality waste materials will be removed from the Proposal as it is generated and will be the responsibility of the individual tenancies. Bulk/specialty wastes may include items such as:

- Refurbishment wastes from fitouts;
- Batteries;
- E-wastes;
- White goods/appliances;
- Cleaning chemicals; and
- Commercial light globes.

Removal of bulk and speciality wastes will be monitored by building management, who will assist with the removal of bulk waste, as required.

4.2 Controlled Medical Waste

The volume of medical waste generated at the Proposal will be dependent on the nature and scale of the medical practises undertaken. Appropriate containers will be placed in all medical suites within the Respite Care Facility where particular categories of medical waste may be generated. Instructions on identification and separation of medical wastes will be posted at each waste collection point to remind staff of procedures. Suitably qualified medical waste service providers will be engaged to determine storage and collection requirements.

5 Waste Management

A building manager will be engaged to complete the following tasks:

- Monitoring and maintenance of bins and the Bin Storage Areas;
- Cleaning of bins and Bin Storage Areas, when required;
- Ensure all tenants at the Proposal are made aware of this WMP and their responsibilities thereunder;
- Monitor tenant behaviour and identify requirements for further education and/or signage;
- Monitor bulk and speciality waste accumulation and assist tenants with its removal, as required;
- Regularly engage with tenants to develop opportunities to reduce waste volumes and increase resource recovery; and
- Regularly engage with the private contractors to ensure efficient and effective waste service is maintained.

6 Conclusion

As demonstrated within this WMP, the Proposal provides a sufficiently large Bin Storage Areas for refuse and recyclables based on the anticipated waste generation rates and a suitable configuration of bins. This indicates that satisfactorily designed Bin Storage Areas have been provided and collection of refuse and recycling bins can be completed from the Proposal.

The private contractors waste collection vehicle will enter the Proposal's carpark in forward gear and service bins directly the Bin Storage Areas, utilising dedicated loading zones/bays. Once servicing is complete the private contractors waste collection vehicle will exit the Proposal in forward gear.

A building manager will oversee the relevant aspects of waste management at the Proposal.

Figures

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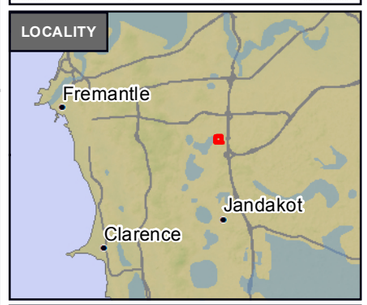
LEGEND

- Site Boundary
- Cadastre

LOCALITY



0 3 6 9 12 15 km

LOCALITY
Lot 1001
Cnr Murdoch Drive and
Farrington Road
Murdoch WA 6150

Fabric Property

N
0 10 20 30 40 50 metres
Coordinate System: GDA 1994 MGA Zone 50
Projection: Transverse Mercator, Datum: GDA 1994
Scale @ A3: 1:1,250

Prepared:	F Walker	Date:	24/07/2019
Checked:	J Wroe	Project No:	TW19068
Reviewed:	R Hayton	Revision:	A

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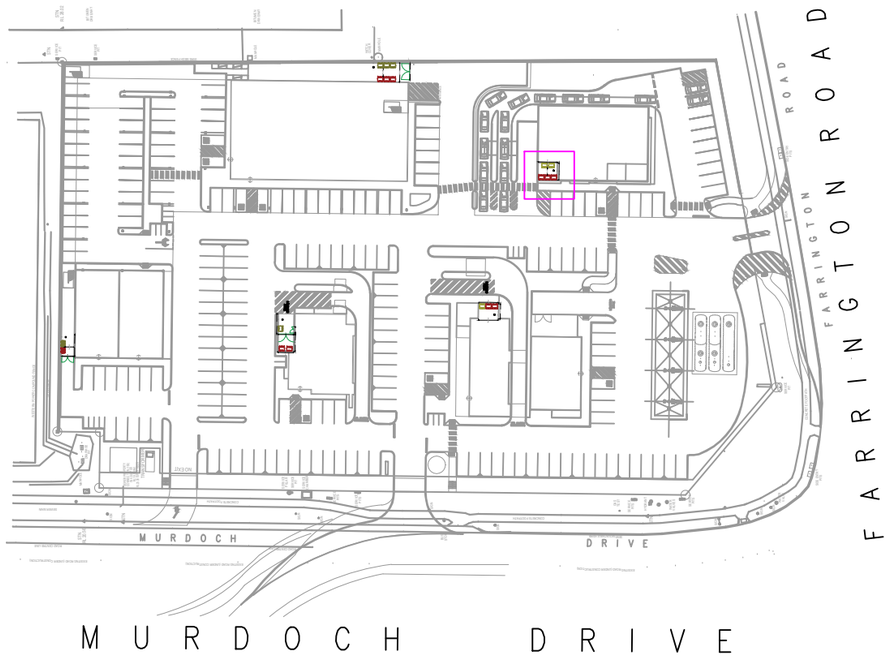
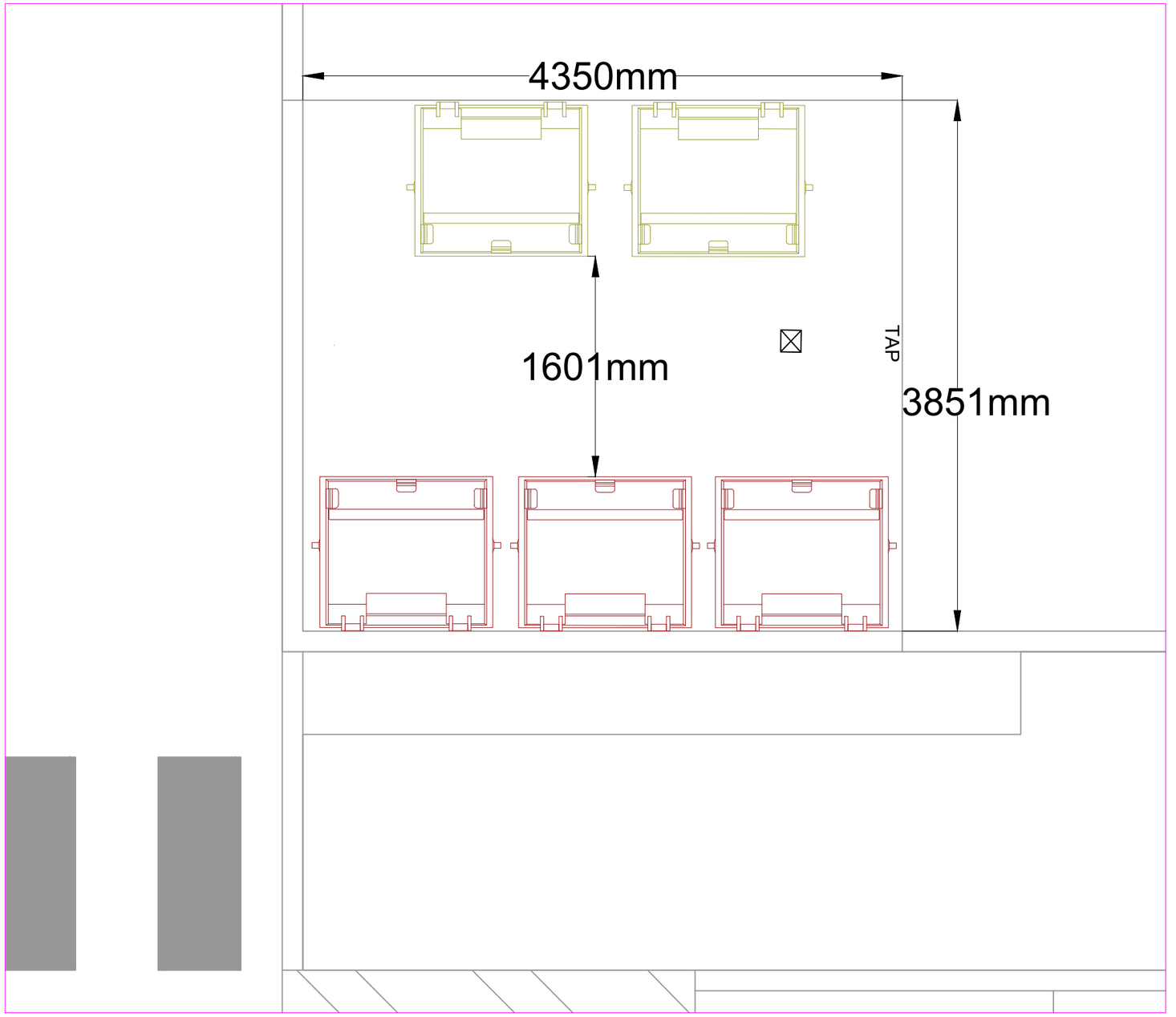
Figure 01

Data source: Roads - Main Roads WA, 2018. Imagery - Landgate, 2019.

Document Path: \\server\talis\SECTIONS\Waste\PROJECTS\TW2019\TW19068 - Lot 1001 Murdoch Drive, Murdoch WMP\GIS\Maps\TW19068_01_Locality_RevA.mxd

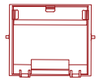
BIN STORAGE AREA 1



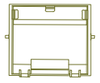


Legend:

Bin Storage Area



3 x 1100L refuse (1070mm x 1240mm)



2 x 1100L recycling (1070mm x 1240mm)

N

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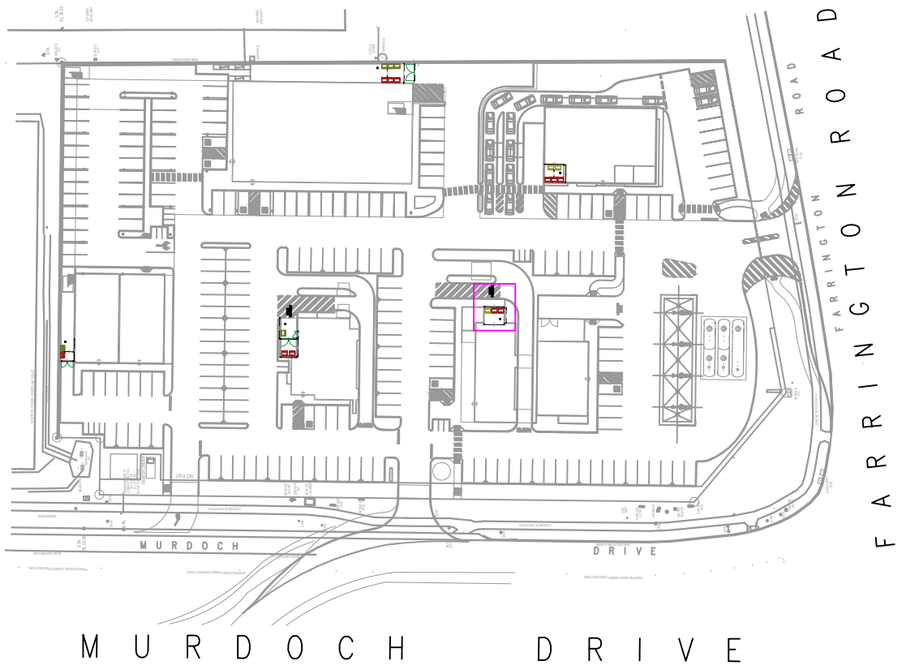
B	29/07/19	RH JW	SECOND ISSUE	JW
A	23/07/19	RH JW	FIRST ISSUE	JW

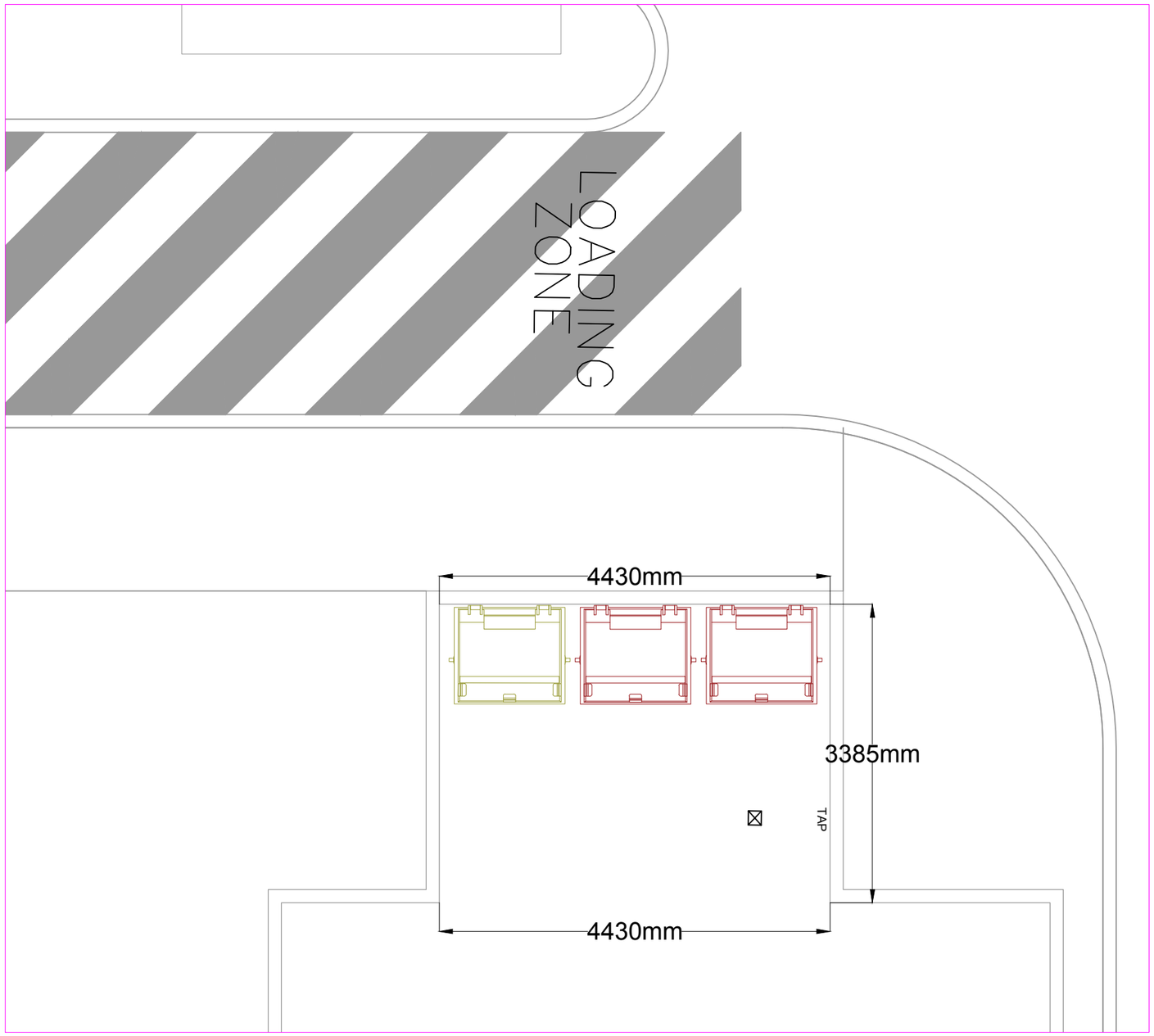
Project: Lot 1001 & 3001, Cnr Murdoch Drive & Farrington Road, Murdoch

Title: Bin Storage Area 1

Drawn by:	RH	Job No:	TW19068
Checked by:	JW	File No:	TW19068DWG001
Approved by:	JW	Fig. No:	002
Scale:	NTS	Rev:	B
Date:	29/07/19		

BIN STORAGE AREA 2





Legend:

Bin Storage Area

2 x 1100L refuse (1070mm x 1240mm)

1 x 1100L recycling (1070mm x 1240mm)

N

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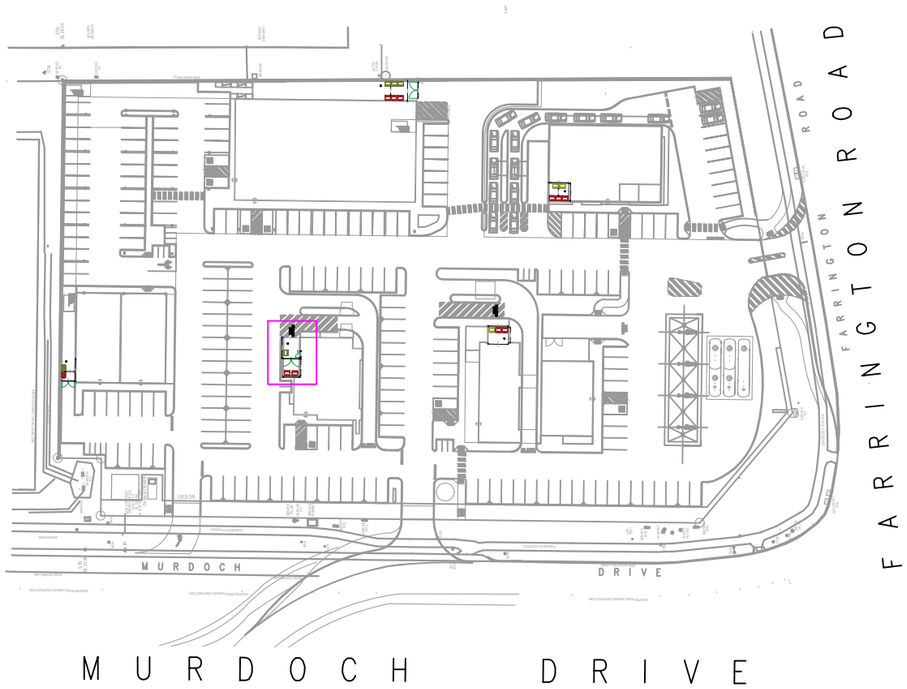
A	23/07/19	RH / JW	FIRST ISSUE	JW

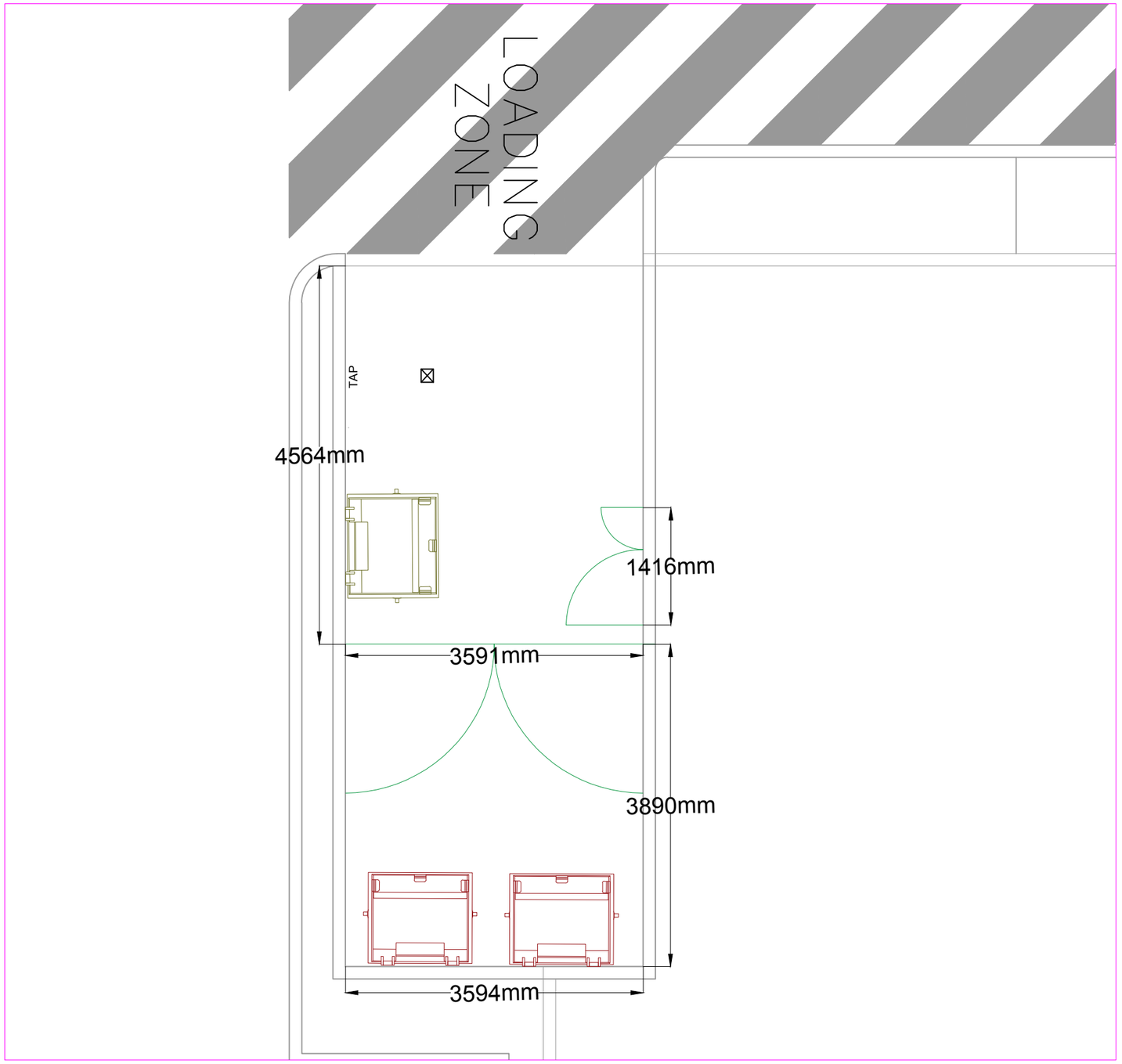
Project: Lot 1001 & 3001, Cnr Murdoch Drive & Farrington Road, Murdoch

Title: Bin Storage Area 2

Drawn by:	RH	Job No:	TW19068
Checked by:	JW	File No:	TW19068DWG002
Approved by:	JW	Fig. No:	003
Scale:	NTS	Rev:	B
Date:	29/07/19		

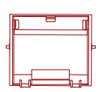
BIN STORAGE AREA 3



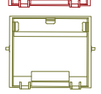


Legend:

Bin Storage Area



2 x 1100L refuse (1070mm x 1240mm)



1 x 1100L recycling (1070mm x 1240mm)

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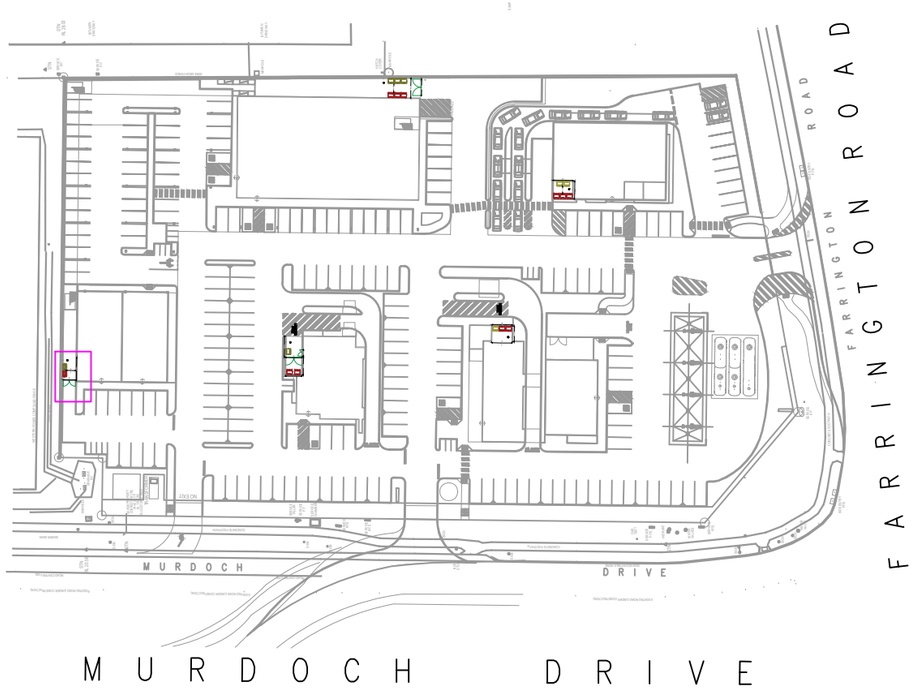
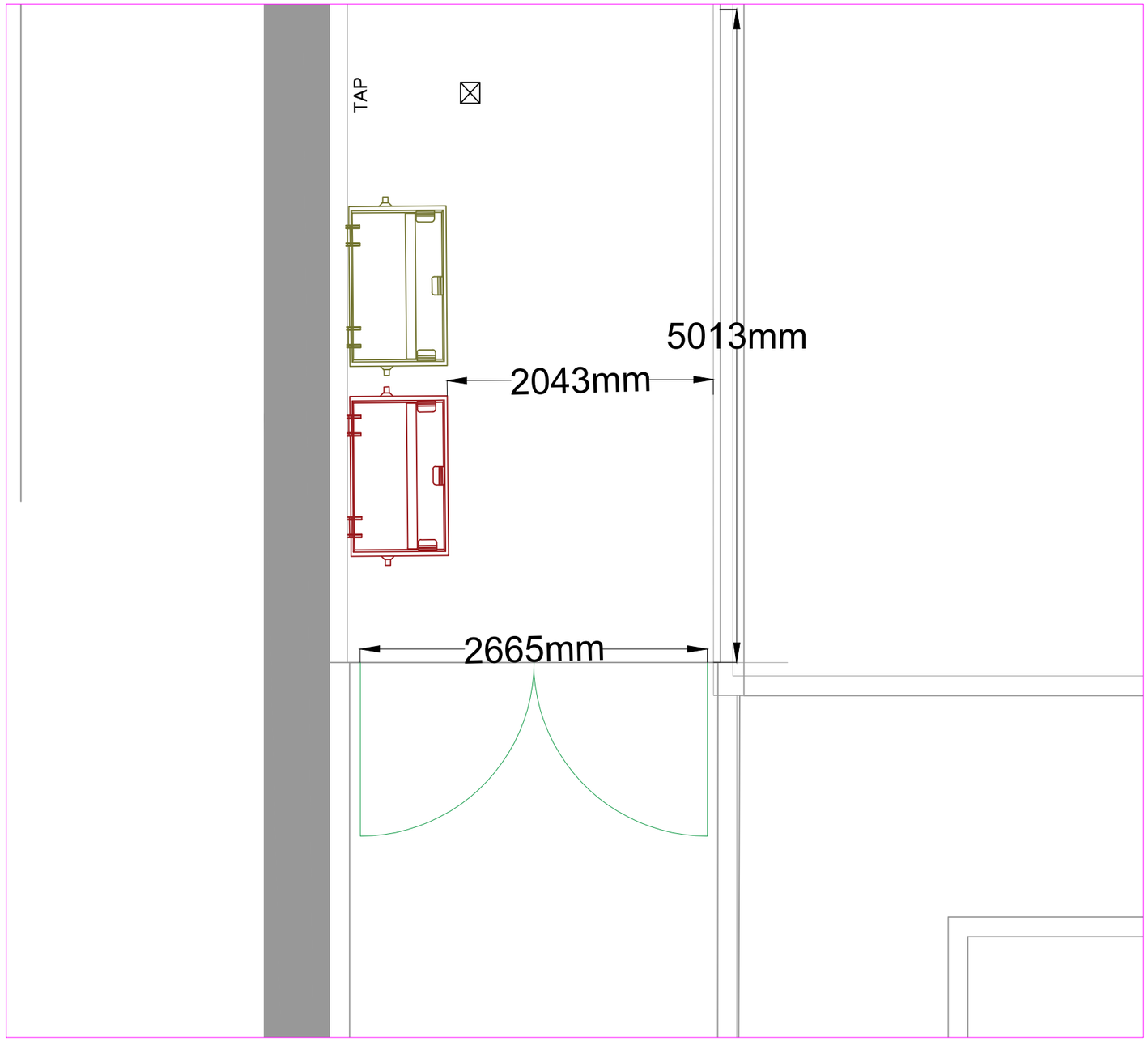
Project: Lot 1001 & 3001, Cnr Murdoch Drive & Farrington Road, Murdoch

Title: Bin Storage Area 3

Drawn by:	RH	Job No:	TW19068
Checked by:	JW	File No:	TW19068DWG003
Approved by:	JW	Fig. No:	004
Scale:	NTS	Rev:	B
Date:	29/07/19		

BIN STORAGE AREA 4





Legend:

Bin Storage Area

1 x 660L refuse (780mm x 1260mm)

1 x 660L recycling (780mm x 1260mm)

N

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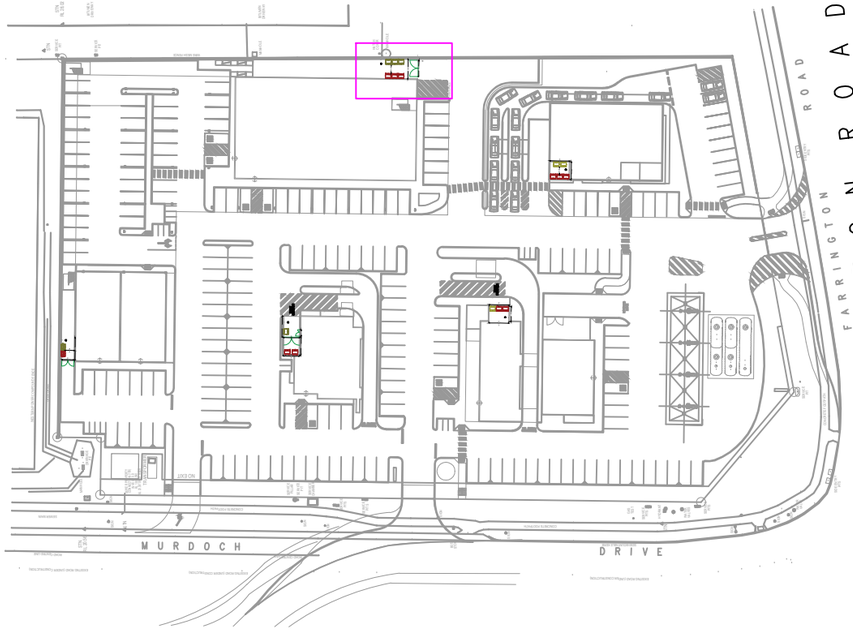
Project: Lot 1001 & 3001, Cnr Murdoch Drive & Farrington Road, Murdoch

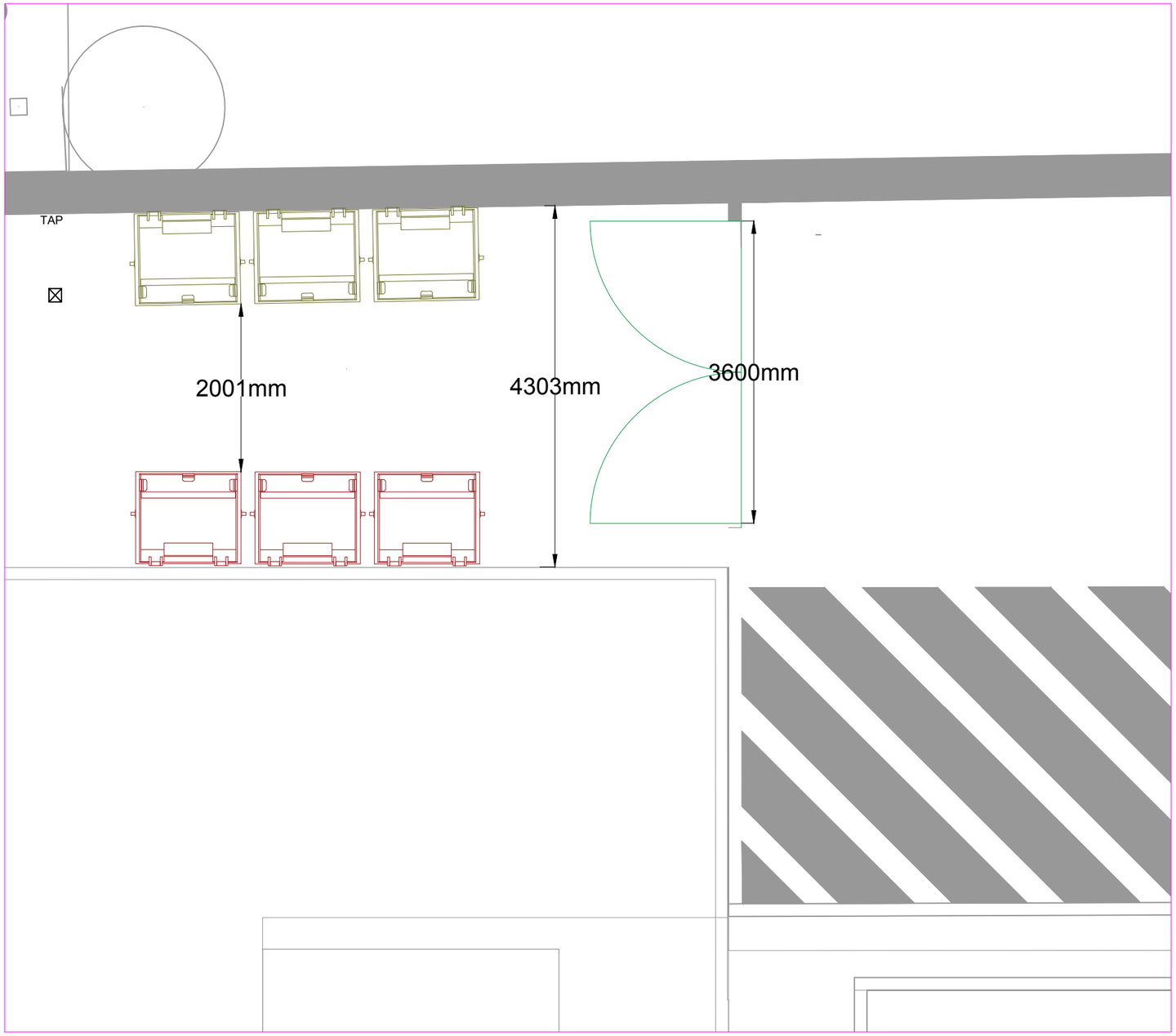
Title: Bin Storage Area 4

Drawn by:	RH	Job No:	TW19068
Checked by:	JW	File No:	TW19068DWG004
Approved by:	JW	Fig. No: 005	Rev: B
Scale:	NTS		
Date:	29/07/19		

BIN STORAGE AREA 5



MURDOCH DRIVE



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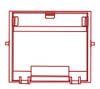
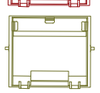
Bin Storage Area



3 x 1100L refuse (1070mm x 1240mm)



3 x 1100L recycling (1070mm x 1240mm)

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Project: Lot 1001 & 3001, Cnr Murdoch Drive & Farrington Road, Murdoch

Title: Bin Storage Area 5

Drawn by:	RH	Job No:	TW19068
Checked by:	JW	File No:	TW19068DWG005
Approved by:	JW	Fig. No: 006	Rev: B
Scale:	NTS		
Date:	29/07/19		

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